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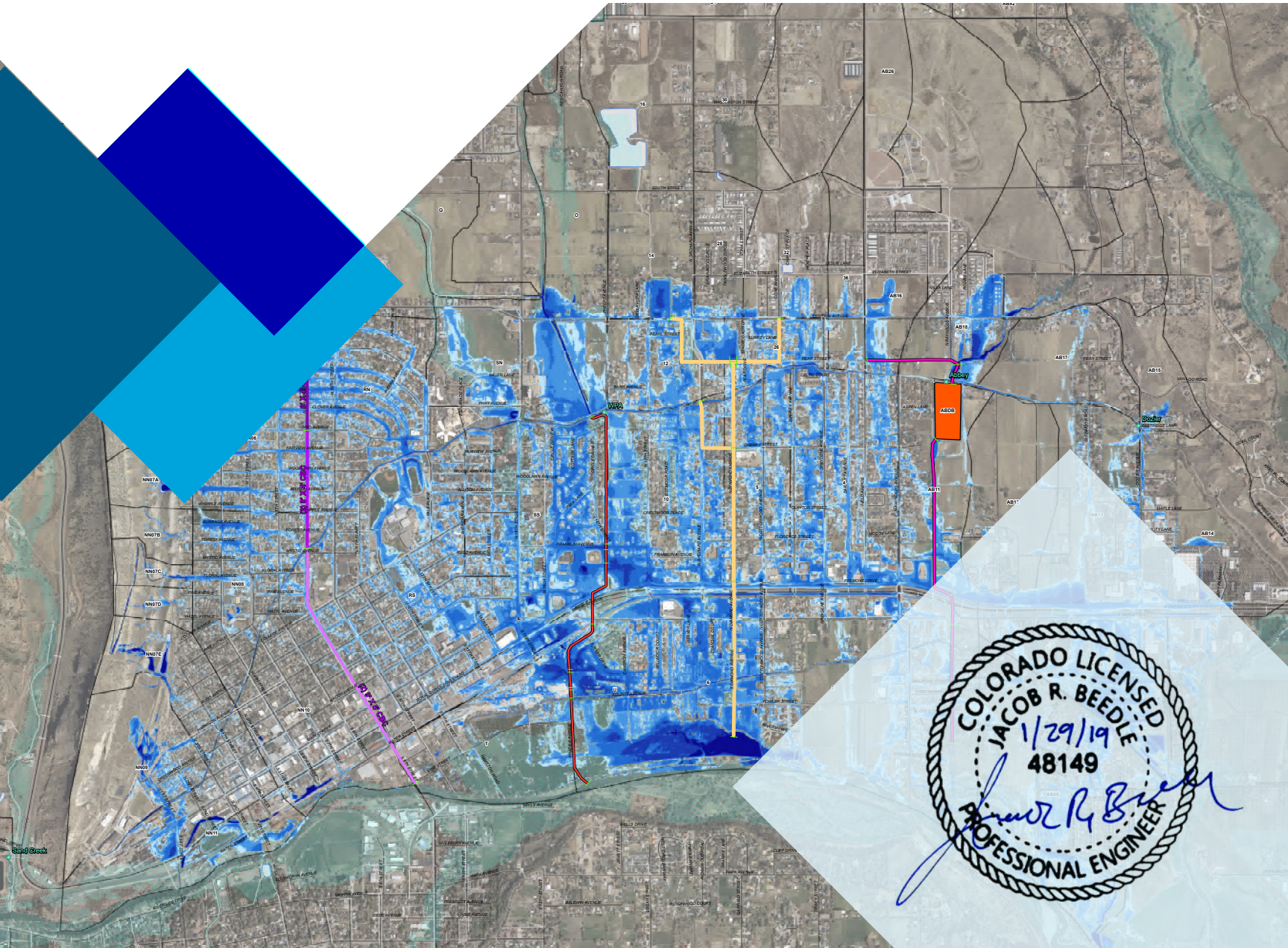
ATKINS
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CAPACITY AND FLOODING ANALYSIS FOR THE CAÑON CITY HYDRAULIC AND IRRIGATION DITCH

Summary Report

City of Cañon City

January 2019



Notice

This document and its contents have been prepared and are intended solely as information for the City of Cañon City in relation to the Capacity and Flooding Analysis for the Cañon City Hydraulic and Irrigating Ditch.

Atkins North America, Inc., assumes no responsibility to any other party in respect of, arising from, or in connection with this document and/or its contents.

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Client Signoff

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Executive Summary

The City of Cañon City (City) tasked Atkins North America, Inc. (Atkins) to conduct a study of the contributing watersheds for a 5.5-mile segment of the Hydraulic and Irrigating Ditch (Ditch) that runs west to east through the City. The results of this study then will provide recommendations to the City for future hydraulic improvements to mitigate flooding and improve drainage conveyance within the City. This report summarizes the approach and results of the preliminary analysis completed on the City Ditch. The study area for the Ditch traverses Cañon City, Colorado, and within unincorporated Fremont County. The Ditch limits start at the head works of the Ditch to the west of Tunnel Drive at the Arkansas River and end at the terminus located south of Sunrise Mesa Drive before diverting into Grandview Ditch. **Figure 1-1** shows the general location of the study area.

The City and Atkins agreed to the following approach for the study:

Document and Data Review: Five existing drainage basins cross the Ditch and continue to the Arkansas River. These basins require review to confirm flow patterns and peak discharges.

Hydrologic Modeling: Atkins will create a comprehensive hydrologic model incorporating the results of the five basins to develop peak flows for the existing and ultimate conditions within the project limits. Land use delineations derived from the City's zoning information will define the ultimate conditions.

Hydraulic Modeling: Atkins will use one-dimensional and two-dimensional hydraulic modeling to determine conveyance patterns of the peak flows upstream and downstream of the Ditch for both the existing and ultimate conditions.

Master Plan Design: Atkins identifies five drainage projects based on the ultimate conditions conveyance patterns. Identification of the projects includes master plan-level design of facilities and associated cost.

This report documents the data collection and summarizes the results of the modelling.

Atkins suggested Master-Level projects based upon the modelling and analysis of the Ditch, after review of the projects with the City, the following five projects were selected for conceptual design and cost analysis:

North 9th Street Storm Drain – Storm drain system that consists of a main trunkline that runs west to east along Oak Avenue toward North 9th Street. At the intersection of North 9th Street and Oak Avenue, the storm drain turns and runs south along North 9th Street. The storm drain continues south along North 9th St, eventually passing underneath the Ditch and releasing the conveyed flow to the Arkansas River.

Conceptual Project Total Cost: $27,979,533.58

WPA Channel Improvements – Channel improvements begin on the south side of the Ditch and extend south along the existing channel toward U.S. 50. The channel improvements are sized to accommodate an additional 200 cfs from the WPA overflow weir located along the Ditch. Channel improvements include culvert replacements along the current WPA alignment, eventually conveying flows to the Arkansas River.

Conceptual Project Total Cost: $16,186,236.67

Orchard Avenue Storm Drain – The selected Orchard Ave storm drain consists of three separate branches of storm drain that combine into a single trunkline that runs south along Diamond Avenue, eventually conveying flows to the Arkansas River.

Conceptual Project Total Cost: $26,469,842.70

Pear Street Channel, Abbey Lower Channel, and Rhodes Avenue Channel Improvements – The selected Pear Street, Abbey Lower Channel, and Rhodes Avenue Channel Improvements are three separate branches of channels that are required to convey flow into and out of the Abbey Detention Basin to the Arkansas River.

Conceptual Project Total Cost: $2,664,064.47

Abbey Detention Basin Improvements - The selected Abbey Detention Basin Improvements associated with this project are necessary to provide adequate capacity for the current inflows that impact the Abbey Detention Basin. As outlined in Section 5.5, the Abbey Detention Basin needs to improve the capacity requirements to convey the current conditions. Note that, under direction from the City, Atkins sized the Abbey Detention Basin to accommodate up to 50 cfs in additional flows from the Ditch.

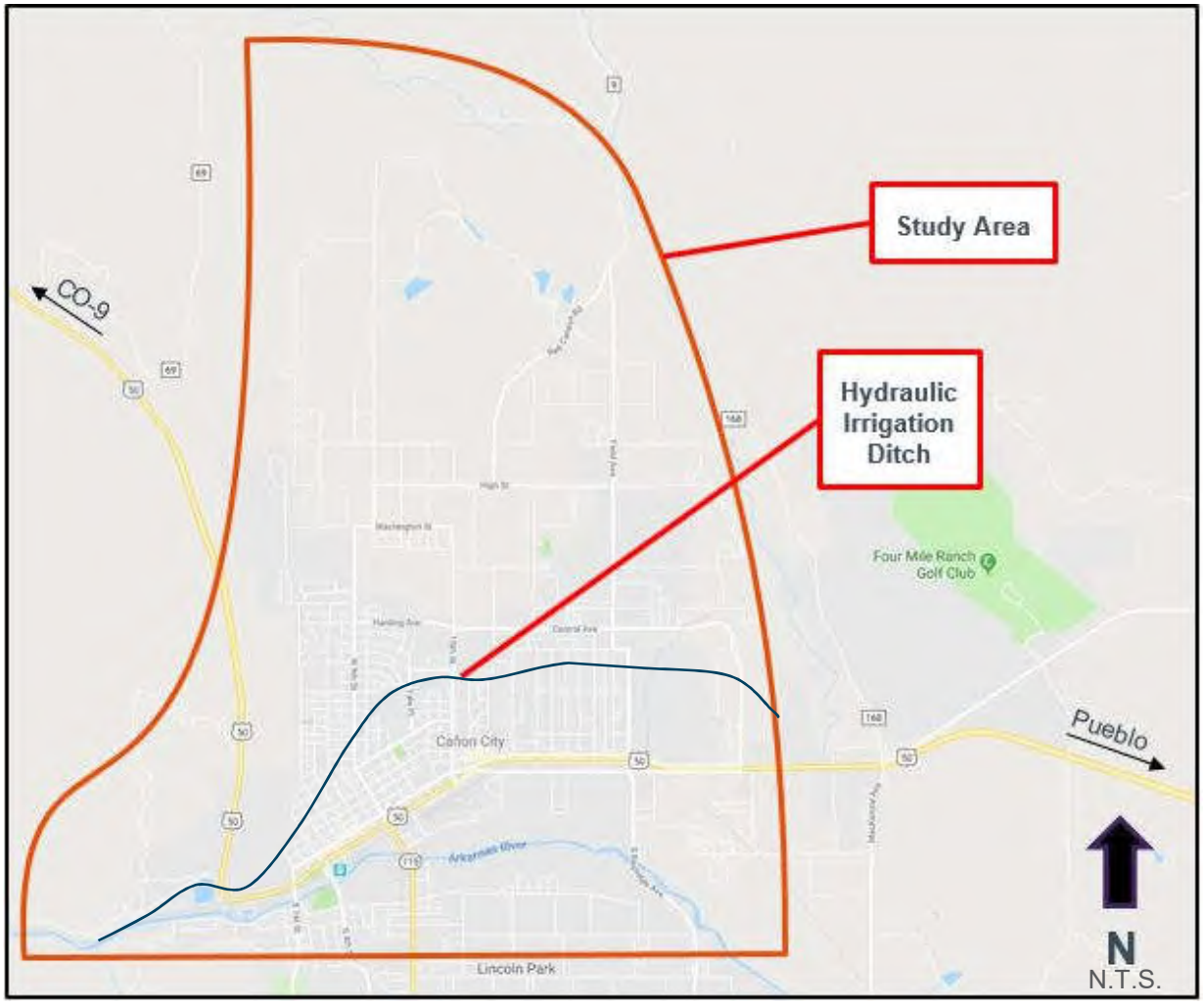
Conceptual Project Total Cost: $5,831,784.00

1. Introduction

The City of Cañon City (City) tasked Atkins North America, Inc. (Atkins) to conduct a study of the contributing watersheds for a 5.5-mile segment of the Hydraulic and Irrigating Ditch (Ditch) that runs west to east through the City. The results of this study then will provide recommendations to the City for future hydraulic improvements to mitigate flooding and improve drainage conveyance within the City. This report summarizes the approach and results of the preliminary analysis completed on the City Ditch.

The study area for the Ditch traverses Cañon City, Colorado, and within unincorporated Fremont County. The Ditch limits start at the head works of the Ditch to the west of Tunnel Drive at the Arkansas River and end at the terminus located south of Sunrise Mesa Drive before diverting into Grandview Ditch. **Figure 1-1** shows the general location of the study area.

Figure 1-1. Study Area



1.1. Study Approach

To provide the City with the current existing conditions analysis and master plan-level design, the City and Atkins agreed to the following approach:

Document and Data Review: Five existing drainage basins cross the Ditch and continue to the Arkansas River. These basins require review to confirm flow patterns and peak discharges.

Hydrologic Modeling: Atkins will create a comprehensive hydrologic model incorporating the results of the five basins to develop peak flows for the existing and ultimate conditions within the project limits. Land use delineations derived from the City's zoning information will define the ultimate conditions.

Hydraulic Modeling: Atkins will use one-dimensional and two-dimensional hydraulic modeling to determine conveyance patterns of the peak flows upstream and downstream of the Ditch for both the existing and ultimate conditions.

Master Plan Design: Atkins will identify three to four drainage projects based on the ultimate conditions conveyance patterns. Identification of the projects includes master plan-level design of facilities and associated cost.

This report documents the data collection and summarizes the results of the modelling and master plan-level design improvements.

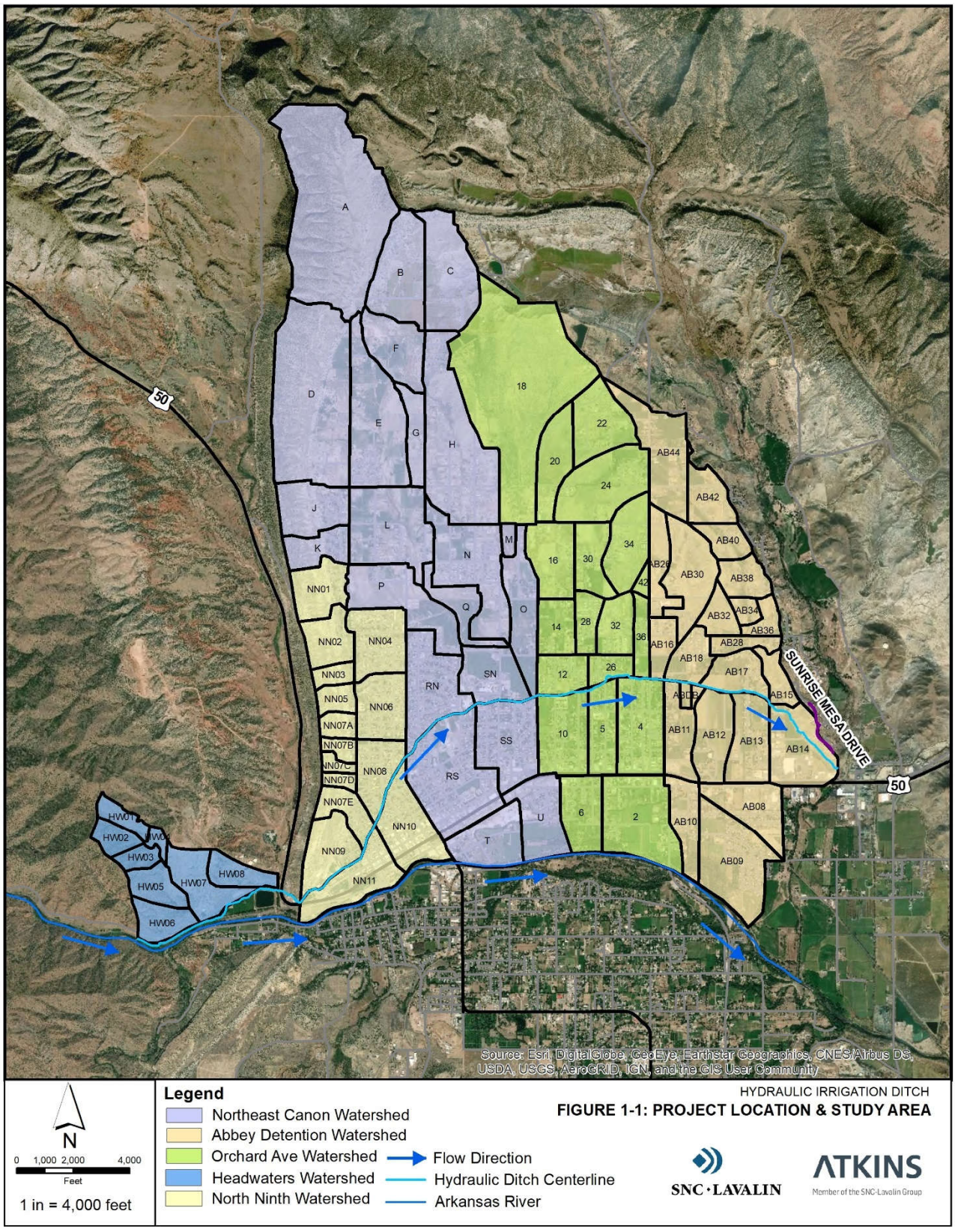
2. Document and Data Review

Atkins identified five watersheds as contributors to this study area, including the following:

1. Headwaters Watershed
2. Northeast Cañon Watershed
3. Abbey Detention Watershed
4. Orchard Avenue Watershed
5. North Ninth Street Watershed

The review of the watersheds and Ditch conveyance defined the extents of the study area. Water is diverted from the Arkansas River upstream of the confluence of Grape Creek with the Arkansas River and carried through the City—including through the interior of the State Penitentiary—to a location south of Sunrise Mesa Drive, where the remainder of the irrigating flow travels under U.S. Highway 50 (US 50) to Grandview Ditch. The length of the Ditch study area is 5.5 miles. The project area is bounded to the west by the extent of the Headwaters Watershed and stretches to the western edge of the Fourmile Creek Watershed, which is not included in this study. **Figure 2-1** shows the overall project area and location. **Figure B1,** found in **Appendix B,** shows the watershed areas and the Ditch in greater detail.

Figure 2-1. Project Location



2.1. Existing Reports

The following studies were referenced as part of the analysis. Relevant portions are available in **Appendix A**. The full versions of the referenced studies are found in **Appendix F: Data CD**.

Abbey Detention Basin—Updated Hydrology and Additional Capacity Analysis Memo. Atkins, July 2017.

Abbey Drainage Basin Planning Study. ADP Inc., December 1998.

The Northeast Cañon City Detention Basins Design Project. Atkins, December 2017.

Northeast Cañon Drainage Basin Planning Study for Cañon City, Colorado. Graef Anhalt Schloemer and Associates, November 1993.

Report on Storm Drainage Facilities for the City of Cañon City, Colorado. M&I Inc., October 1974.

Orchard Avenue Drainage Basin Planning Study. Graef Anhalt Schloemer and Associates, November 1994.

Hogback Detention Master Plan. Graef Anhalt Schloemer and Associates, February 1995.

Existing reports were used to reference hydrologic parameters as well as the master-level designs provided within them. Master-level designs are discussed in Section 5 of this report. Hydrologic parameters from the previous studies are detailed in Section 2.2. Additionally, results from previous hydrologic studies and a previous hydraulic study are discussed in Sections 2.3 and 2.4, respectively.

2.2. Previous Hydrologic Studies Parameters

The previous studies referenced for this analysis of the Ditch used varying approaches to hydrologic evaluation. The following sections briefly describe the parameters used for each of the previous studies.

2.2.1. Subbasin Delineation

From the *Abbey Detention Basin—Updated Hydrology and Additional Capacity Analysis* Memo (Atkins, 2017), it is noted that subbasins were modified using 2016 LiDAR data for Fremont County. Specifically, subbasins AB30, AB42, and AB44 were subject to the most change from the previous analysis conducted by PBS&J in 2009, resulting in an additional 70.8 acres of contributing drainage area. Subbasin A26 was added to delineate between the flow draining to the Abbey Detention Pond and flow draining to the Ditch. It is important to note that, within the 2017 study, it was determined that subbasins AB26 and AB16 most likely convey flow to the Ditch. However, in the HEC-HMS analysis of the watershed, the subbasins contribute their flow along Pear Street and into the Abbey Detention Basin via the combination point CABBEYIN. The memo in its entirety is found on the Data CD, within the *Study Supporting Information* folder, navigate to the *Appendix A* folder and reference *A.1. Abbey Detention Basin – Updated Hydrology and Additional Capacity Analysis Memo.pdf*.

Portions of the North Ninth Street Watershed were included in the *Hogback Detention Master Plan* (Graef Anhalt Schloemer and Associates, 1995) found in **Appendix A**. The subbasins referenced from the 1995 study were delineated based on topography information and aerial imagery. The full report is located within the Data CD in the same location referenced above.

The Northeast Cañon Watershed was analyzed most recently by Atkins in July 2017. The watershed was studied to propose and design two detention basins within the watershed. The study referenced the subbasins from the *Northeast Cañon Drainage Basin Planning Study for Cañon City, Colorado* (Graef Anhalt Schloemer and Associates, 1993), except where there was more current and detailed topographic data. The study mainly used the Arc Hydro extension within ESRI's ArcGIS platform to create the hydrologic subbasins based on the 10-meter digital elevation model that was obtained from the U.S. Geological Survey (USGS). Relevant portions from both reports are found in **Appendix A.**

The Orchard Avenue Watershed was previously delineated within the *Orchard Avenue Drainage Basin Planning Study* (Graef Anhalt Schloemer and Associates, 1994). The subbasins within the report were chosen "with respect to the natural topography, roadway crossings, and development considerations."

The Headwaters Watershed was not previously studied in any reports available at the time of this analysis.

2.2.2. Rainfall

The meteorological models for the Abbey Detention Watershed and the Northeast Cañon Watershed consisted of a 24-hour Soil Conservation Service (SCS) Type II storm distribution to simulate rainfall over the watersheds. National Oceanic and Atmospheric Administration (NOAA) Atlas 2 and NOAA Atlas 14 rainfall depths were used for these studies.

The North Ninth Street Watershed was analyzed using the TR-20 method developed by the SCS. Meteorological modeling consisted of a 24-hour SCS Type II storm distribution to simulate rainfall across the watershed. The study referenced NOAA Atlas 2 for rainfall depths.

The Orchard Avenue Watershed also used the TR-20 method developed by the SCS, along with rainfall depths taken from NOAA Atlas 2. Precipitation for the 100-year (1-percent Annual Chance (AC)), 50-year (2-percent AC), and 25-year (4-percent AC) 24-hour storms were 3.4 inches, 3.05 inches, and 2.75 inches, respectively.

2.2.3. Hydrologic Soil Group

The previous studies consistently used Hydrologic Soil Group C and D. **Appendix A** provides the soils overview map from the previous analyses.

2.2.4. Land Use

The Northeast Cañon Watershed data were based on development plans and future land use information provided by Cañon City and the Fremont County Planning Department. For areas that were not yet developed, a land use category representing the existing condition of the site was used. Most of these areas were assigned to the agricultural forestry or two-acre lot size categories. The land use categories were classified according to the Natural Resources Conservation Service (NRCS) TR-55 *Urban Hydrology for Small Watersheds Manual* to set base curve numbers and hydrologic soil groups for each land use category. Land use information from the previous study is included in **Appendix A**.

Land use data for the Orchard Avenue Watershed in its existing condition were determined by examining current development plans supplemented with field reconnaissance. At the time of the study, development was occurring mostly in the southern and western portions of the watershed, while the northern and eastern portions of the watershed remained in their natural states. Proposed land use was not developed with a timeframe in mind, so the assumption was that undeveloped areas would be fully developed using projected densities for the area.

In the *Hogback Detention Master Plan* (1995), the methodology for calculating land use information for the North Ninth Street Watershed was not provided in the narrative. Based on input files and curve number documentation, it can be assumed that the study used a combination of field reconnaissance and development plans to compile an existing and developed land use condition.

The Abbey Detention Watershed land use information from the 1998 study was updated in the 2017 report to correspond with the updated subbasins in the existing condition. Previous study figures are provided in **Appendix A**. For the future condition, updated zoning information was obtained from the City and from Fremont County to assign base curve numbers to the future land use categories for each hydrologic soil type. Runoff curve numbers and categories from the previous analysis (based on the NRCS TR-55 *Urban Hydrology for Small Watersheds Manual*) are shown in **Table 2-1**, below.

Table 2-1. Land Use Categories and Corresponding Base Curve Numbers Used in 2017 Abbey Detention Watershed Study

Land Use Category	Hydrologic Soil Group			
	A	B	C	D
Agricultural	39	61	74	80
Wood-Grass Combination (Fair Condition)	43	65	76	82
Open Estates: Greater than 1-Acre Lots	51	68	79	84

Land Use Category	Hydrologic Soil Group			
	A	B	C	D
Low-Density Residential: Less than 6 Units per Acre	61	75	83	87
Medium- to High-Density Residential: More than 6 Units per Acre	81	88	91	93
Commercial	89	92	94	95
Paved Streets	98	98	98	98

2.2.5. Curve Numbers

Rainfall losses for all the previous studies were calculated using the NRCS curve number method. Weighted curve numbers were calculated consistently for the subbasins within each watershed, based on the available soils and land use data for the time each study was written.

2.2.6. Lag Time and Time of Concentration

Previous studies for the Abbey Detention Watershed and the Northeast Cañon Watershed used the SCS Unit Hydrograph method to calculate the lag time for each individual subbasin. The TR-55 procedure was used to determine the travel time and time of concentration.

The Orchard Avenue Watershed and North Ninth Street Watershed were analyzed using the TR-20 procedure for the calculation of time of concentration (Tc). The Tc was determined by first calculating an initial overland flow time from the subbasin boundary to the naturally occurring swales and channels. Then a travel time was calculated in these natural swales to the bottom of the subbasins and added to the initial overland flow time to determine the overall time of concentration for existing conditions. For ultimate developed conditions, the channel travel times were adjusted to reflect improved conditions and, therefore, a shorter time of concentration.

2.2.7. Channel Routing

The Abbey Detention Watershed and the Northeast Cañon Watershed incorporated a channel routing method. Muskingum-Cunge routing parameters were used to approximate the effects of channel routing throughout the subbasins. The routing parameters from the previous studies are shown in **Appendix A**.

2.2.8. Stage-Storage-Discharge Curve

This section describes the stage-storage-curves for the project area detention basins. Project area detention basins include existing detention basins located within the Abbey Watershed and the Orchard Avenue Watershed; as well as, proposed detention basins (9th Street and 15th Street) within the Northeast Cañon Watershed. The project area detention basins are geographically shown on **Figure 2-2**.

The Abbey Detention Watershed was analyzed previously using a combination of a 2009 PBS&J Study and the 2017 study referred to in **Section 2.1**. The 2017 study verified the stage-storage-discharge curve using the 2016 LiDAR data. The total 100-year storage volume was determined using the Conic Approximation Method (the two areas being added along with the square root of their product and multiplied by a third of the distance between the areas to determine the volume). The storage capacity of the detention basin was found to be 53.1 ac-ft. Differences in the volume calculation from the previous analysis can be attributed to possible sedimentation and vegetation growth in the Abbey detention basin over time.

The stage-discharge relationship in the detention basin remained unchanged from the previous analysis. Discharge from the existing 36-inch reinforced concrete pipe (RCP) outlet was calculated based on the orifice equation and was verified using the FHWA inlet nomograph shown in **Appendix A**. **Table 2-2** compares the difference in the stage-storage-discharge curves between the 2009 and 2017 analyses. The 2009 PBS&J stage-storage-discharge curve was used in the final HEC-HMS models to produce more consistent results.

Table 2-2. Comparisons Between the 2009 and 2017 Stage-Storage-Discharge Curve for the Abbey Detention Basin

Stage (ft)	Elevation (ft)	2009 PBS&J Storage (ac-ft)	2017 Atkins Storage (ac-ft)	Storage Difference (ac-ft)	Discharge (cfs)	Notes
0	5,334	0	0.00	0.00	0	Outlet Invert (36" RCP)
2	5,336	1.94	0.01	1.93	26	
4	5,338	6.34	1.61	4.73	58	
6	5,340	13.28	7.09	6.19	78	
8	5,342	22.80	15.30	7.50	94	
10	5,344	34.92	26.30	8.62	107	
12	5,346	48.68	39.21	9.47	119	
14	5,348	63.09	53.09	10.00	130	Spillway Crest Elevation
16	5,350	78.18	67.72	10.46	1,171	
17	5,351	85.98	75.33	10.65	2,039	Embankment Elevation

The Northeast Cañon Watershed was analyzed previously in the 2017 study referred to in **Section 2.1**. The 2017 study used developed design plans for the two proposed detention basins located within the watershed (9th Street and 15th Street) and the stage-storage-discharge curves from those plans were incorporated into the hydrologic model to derive peak stage elevations and peak storage volume values. The stage-discharge relationship in the proposed detention basins was established using the orifice equation through the appropriately sized RCP outlets. The Conic Method was used in the HEC-HMS program to compute reservoir volume at each stage. Based on site limitations and grading, 73.3 ac-ft was developed as the storage volume capacity in the 9th Street detention basin and 186.7 ac-ft was developed as the storage volume capacity in the 15th Street detention basin for the proposed condition hydrologic analysis. The stage-storage-discharge tables for the proposed detention basins are shown in **Table 2-3** and **Table 2-4**, with the associated report shown in **Appendix A**.

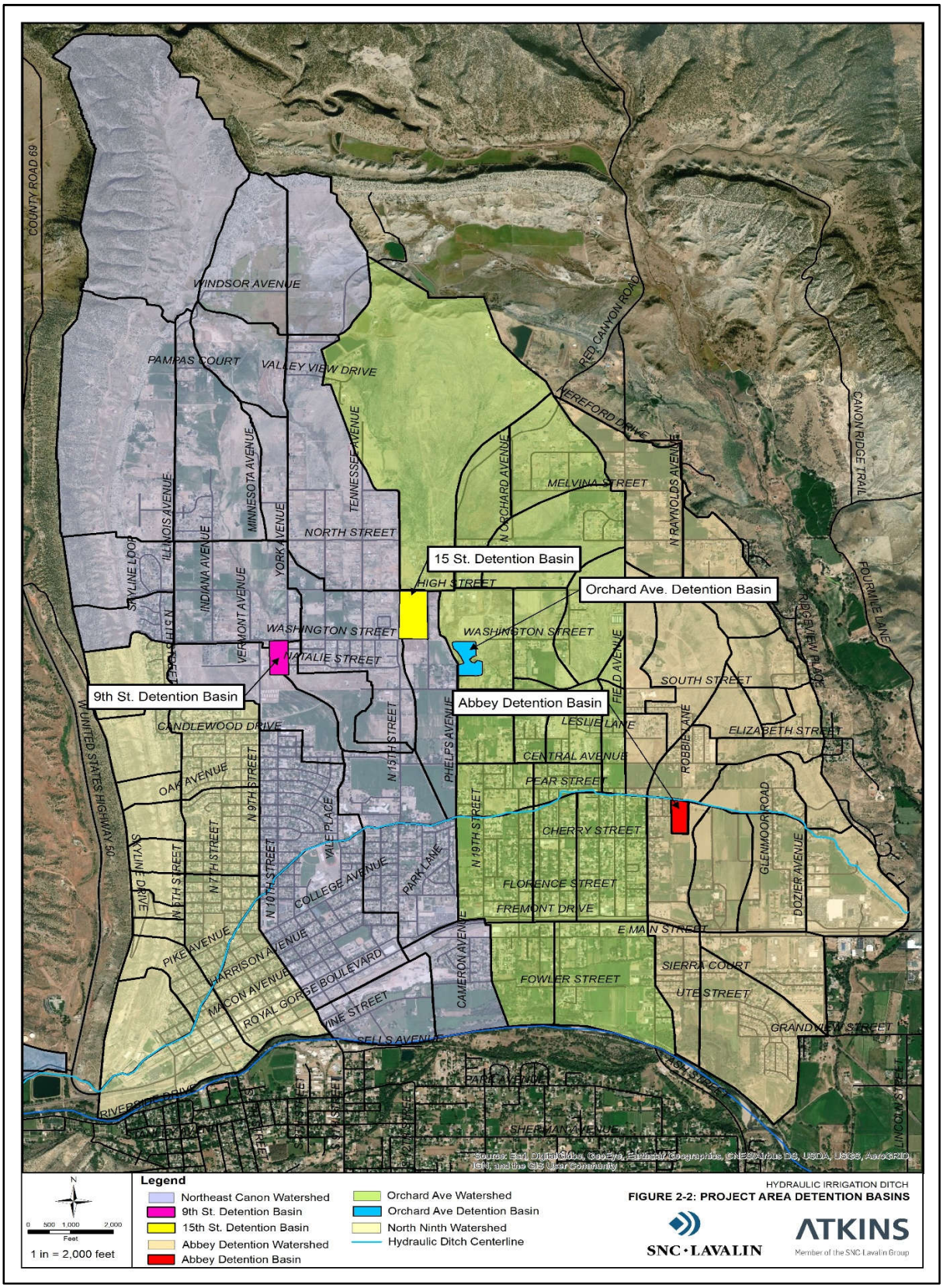
Table 2-3. Stage-Storage-Discharge Curve for the 9th Street Detention Basin

Stage (ft)	Area (acres)	Discharge (cfs)	Computed Volume (ac-ft)	Notes
5,423	0.0	0	0.0	Outlet Invert (60” RCP)
5,424	0.2	72	0.1	
5,425	1.0	102	0.6	
5,426	2.0	125	2.1	
5,427	3.1	145	4.6	
5,428	3.4	162	7.9	
5,429	3.6	190	11.4	
5,430	3.7	210	15.0	
5,431	3.9	250	18.8	
5,432	4.0	290	22.8	
5,433	4.2	300	26.9	
5,434	4.3	320	31.1	
5,435	4.5	340	35.5	
5,436	4.6	360	40.0	
5,437	4.8	380	44.7	
5,438	4.9	400	49.6	
5,439	5.1	420	54.5	
5,440	5.2	450	59.7	
5,441	5.4	480	65.0	
5,442	5.5	510	70.5	
5,442.6	5.6	520	73.3	Spillway Crest Elevation
5,443	5.7	640	75.0	
5,444	5.9	1,127	79.5	
5,445	6.0	2,007	84.1	Top of Dam Embankment

Table 2-4. Stage-Area-Storage-Discharge Curve for the 15th Street Detention Basin

Stage (ft)	Area (acres)	Discharge (cfs)	Computed Volume (ac-ft)	Notes
5,418	0.0	0	0.0	Outlet Invert (30” RCP)
5,419	0.3	8	0.1	
5,420	1.8	16	1.1	
5,421	3.4	28	3.7	
5,422	5.3	36	8.0	
5,423	7.2	44	14.3	
5,424	8.5	50	22.1	
5,425	8.7	55	30.7	
5,426	8.9	60	39.5	
5,427	9.1	65	48.4	
5,428	9.2	70	57.6	
5,429	9.4	73	66.9	
5,430	9.6	77	76.4	
5,431	9.8	80	86.1	
5,432	10.0	85	96.0	
5,433	10.2	90	106.1	
5,434	10.4	90	116.4	
5,435	10.6	90	126.8	
5,436	10.8	90	137.5	
5,437	11.0	90	148.4	
5,438	11.2	90	159.4	
5,439	11.4	90	170.7	
5,440	11.6	90	182.1	
5,440.4	11.6	90	186.7	Spillway Crest Elevation
5,441	11.8	448	193.7	
5,442	12.0	1,648	199.5	
5,443	12.2	3,316	205.3	
5,444	12.4	5,347	211.1	Top of Dam Embankment

Figure 2-2. Project Area Detention Basins



2.3. Previous Hydrologic Results

Previous analysis results are provided in full in **Appendix A** for the study area watersheds.

2.4. Previous Hydraulics Result

A preliminary analysis of the Ditch was completed within the *Abbey Detention Basin—Updated Hydrology and Additional Capacity Analysis Memo* (2017). This study analyzed the Abbey detention basin to determine if the as-built basin would have enough capacity to receive additional flows based on the NOAA Atlas 14 rainfall. It was determined that the basin does not have capacity to receive the additional flows from Atlas 14 rainfalls. At the City's direction, Atkins was requested to perform a conceptual analysis for numerous scenarios. The additional analysis was conducted to determine a range of potential inflows from the Ditch into the Abbey detention basin in existing conditions (existing land use, NOAA Atlas 2, previous subbasins). It was determined that, based on the results from this analysis, the Abbey detention basin has the capacity to accept a maximum of 50 cubic feet per second (cfs) from the Ditch before overtopping. Additional analyses were run using 100 cfs and 150 cfs inflows for a specified time interval to determine possible allowances to the detention basin. Results from the 2017 Abbey detention basin study HEC-HMS models are provided in **Appendix A**. Maximum flow in the Ditch was calculated using Flowmaster and the FHWA inlet nomograph for concrete box culverts. The Ditch uses 12-foot x 4-foot concrete box culverts (CBCs) to convey flow under roadways. A trapezoidal ditch cross-section was approximated to have a 5-foot bottom width with 2:1 side slopes. These approximate dimensions were assumed at the time of the previous analysis and have been replaced with dimensions from the survey of the Ditch in the current analysis. The Abbey study was able to determine that the Hydraulic Ditch Company currently has a decreed flow of 77 cfs based on emails from the City. The total decreed rate was originally 96 cfs, but 19 cfs was transferred to the City's Low Head Dam. Documentation of these flows is provided in **Appendix A**.

The 2017 Abbey study calculated that maximum flow in the Ditch ranged from 180 cfs to 563 cfs based on a variety of assumptions (slope, depth, Manning's roughness, side slopes, and bottom width) and solving for Normal Depth within Bentley Flowmaster. **Table 2-5** provides the range of flow values calculated at various depths.

Table 2-5. Maximum Flow in the Hydraulic Ditch Calculated for 2017 Abbey Study

Headwater (ft)	Hydraulic Ditch Flow Rate (cfs)		
	Inlet Nomograph (12' x 4' CBC)	Flowmaster (12' x 4' CBC)	Flowmaster Trapezoidal Ditch (5' BW, 2:1 SS)
3	180	358	305
3.5	216	446	422
4	264	394	563

At the City of Cañon City's request, an analysis was completed to determine the flows that potentially enter the Ditch. Based on the updated routing, runoff from subbasins AB26 and AB16 combine at CAB16 and may contribute to the flow in the Ditch. shows the results of the analysis.

Table 2-6. 2017 Abbey Study—Calculated Additional Volume at CAB16

Condition	Peak Inflow (cfs)	Total Volume (ac-ft)
Existing Land Use NOAA Atlas 2 Updated Subbasins	182	17.7
Existing Land Use NOAA Atlas 14 Updated Subbasins	234	22.9
Proposed Land Use NOAA Atlas 14 Updated Subbasins	274	27.0

3. Hydrologic Modeling

The watersheds featured in the study area were analyzed for this study and altered for various watershed parameters to conform with current conditions and standards. Watersheds within the area needed updates to subbasin delineations, rainfall, soils, land use, and lag time parameters.

3.1. Revised Parameters

3.1.1. Subbasin Delineation

The Abbey Detention Watershed subbasins were modified using a combination of the 2016 LiDAR information and the previous reports. Subbasin delineations were referenced from two separate sources. For the portion of the watershed located north (upstream) of the Abbey detention basin, the 2017 memo was used for subbasin delineations. For the portion of the watershed located south (downstream) of the Abbey detention basin, the 1998 study was referenced for subbasin delineations. Subbasins from the 1998 study were taken from the Alternate 1 figure on page 34. The figure was georeferenced into ArcGIS using the major cross-streets in the area and subbasins were digitized within ArcMap. After the southern subbasins were digitized, delineations were refined using the topographic information and aerial imagery to correspond with the delineations taken from the *Abbey Detention Basin—Updated Hydrology and Additional Capacity Analysis Memo* (Atkins, 2017).

The North Ninth Street Watershed subbasins were delineated based on the 2016 LiDAR information and the previous studies (*The Northeast Cañon City Detention Basins Design Project (2017)* and the *Hogback Detention Master Plan (1995)*). The topography of the North Ninth Street Watershed can be classified as very steep with exposed rock and little vegetation. The LiDAR information was converted to two-foot contours and used to delineate the hydrologic areas located to the east of the Hogback study's project limits.

The Orchard Avenue Watershed subbasins were updated for this analysis from the 1998 study to correspond with the most current subbasin delineations for the adjacent watersheds (*The Northeast Cañon City Detention Basins Design Project (2017)* and the *Abbey Detention Basin—Updated Hydrology and Additional Capacity Analysis Memo (2017)*). The subbasins also were modified in areas based on the topographic information.

The Headwaters Watershed was delineated into subbasins for this analysis using the 2016 LiDAR information. The Headwaters Watershed topography is similar to the North Ninth Street Watershed subbasins. The topography can be described as very steep with large grade changes with exposed rock and very little vegetation. Slopes vary across the watershed, from nearly vertical sections in the northern part of the watershed to more gentle grades located in the southern portion of the watershed where the subbasins drain into the Arkansas River.

The Northeast Cañon Watershed was altered slightly from the previous analysis to maintain consistency in the approach to hydrologic modeling for the current analysis. From the previous study, Subbasins R and S were not delineated to the Ditch. To better understand the flows that are impacting the Ditch, the current analysis split Subbasins R and S at the Ditch. Subbasins RN and SN delineate the upstream side

of the Ditch, with Subbasins RS and SS conveying flow downstream of the Ditch toward the Arkansas River.

The study area's subbasins are shown in **Figure B1** in **Appendix B**. Study area subbasins are also included within **Appendix F** under the GIS Data section and located within the "Hydrology" folder.

3.1.2. Rainfall

The meteorological model for the current analysis consists of a 24-hour SCS Type II storm distribution to simulate rainfall over the study area watersheds. The 2-year (50 percent AC), 5-year (20 percent AC), 10-year (10 percent AC) and 100-year (1 percent AC) storm rainfall depths were taken from NOAA Atlas 14 and the corresponding arithmetic mean was calculated for each subbasin to obtain depths for each storm event. The rainfall distribution across the watersheds is shown in **Figure B3,** with the supplemental NOAA Atlas 14 data provided in **Appendix B**. NOAA Atlas 14 rainfall information was included in **Appendix F** within the GIS Data section under the "Rainfall" folder. This information represents the weighted average calculation of the point precipitations for each subbasin within the study area.

3.1.3. Land Use

Land use for the study area watersheds was determined from one of two sources. The first source of data for the watersheds was existing and future land use information available to Atkins from the recent studies completed in the area. The existing and future land use from *The Northeast Cañon City Detention Basins Design Project (2017)* and the *Abbey Detention Basin—Updated Hydrology and Additional Capacity Analysis Memo (2017)* were used as a base from which to build the rest of the existing and future land use.

Where there was no previous land use information available, the existing and future land use data for the watersheds was developed by using information given to Atkins by Mike Pielow (GIS Specialist for Cañon City) in October 2016. Atkins received the following layers for the study area:

- CC_zoning—City of Cañon City Zoning
- FREMONT_PARCELS—Parcel layer for Fremont County
- FremontCo_Zoning—Zoning for Fremont County

Appendix B provides the email correspondence between Mike Pielow, Adam Lancaster, and Mike Warnick (Atkins). Land use information from the previous analyses was updated to correspond with any modified subbasin delineations. Figures of the existing and future land use for the study area are provided in **Appendix B**. It is important to note that the parcel data were used as the basis for the development of the existing land use layer. After it was created, the existing land use layer was checked against the most current aerial (2016) of the study area to confirm the validity of the land use. Where discrepancies were found, alterations were made to the existing land use layer to ensure accuracy.

The updated zoning information obtained from the City of Cañon City and Fremont County was used to assign base curve numbers to the future land use categories for each hydrologic soil type. Runoff curve numbers and categories developed in the *Abbey Detention Basin—Updated Hydrology and Additional Capacity Analysis Memo (2017)* (based on the NRCS TR-55 *Urban Hydrology for Small Watersheds Manual*) were used as the basis for this analysis.

After review of the existing land use areas and aerial imagery, it was noted that the category "Streets" was not accurately represented as impervious. The land use information showed areas defined as "Streets" expanding outside of the paved roadway and stretching to the ROW limits. As a result, the previous analysis curve number and category for "Streets" was changed to "Street Corridors" with a more accurate representation of 65 percent impervious and 35 percent represented by the "Open Estates: Greater than 1-Acre Lots" category. A weighted curve number was calculated for the category and the summary of curve numbers with the corresponding land use category is shown in **Table 3-1**, below. Final Landuse layers for both the existing and future condition are included within **Appendix F** within the GIS Data section under the "Landuse" folder.

Table 3-1. Land Use Categories and Corresponding Base Curve Numbers

Land Use Category	Hydrologic Soil Group			
	A	B	C	D
Agricultural	39	61	74	80
Wood-Grass Combination (Fair Condition)	43	65	76	82
Open Estates: Greater than 1-Acre Lots	51	68	79	84
Low-Density Residential: Less than 6 Units per Acre	61	75	83	87
Med- to High-Density Res: More than 6 Units per Acre	81	88	91	93
Commercial	89	92	94	95
Street Corridors	82	88	91	93

3.1.4. Curve Numbers

Curve numbers for each watershed were calculated in ArcGIS by processing the subbasin, land use, and soils data to create unique polygon combinations within each subbasin. The soils data remained unchanged from the previous analyses. Composite curve numbers were found for each watershed's subbasins using area-weighted averages based on the information contained in **Table 3-1**, above. Composite curve numbers were found for both the existing and future land use and are provided in **Table 3-2** through **Table 3-6**. A soils overview figure was created to correspond to the updated subbasin delineations and is provided in **Appendix B**.

Table 3-2. Curve Number Summary for the Abbey Detention Watershed

Subbasin	Drainage Area (ac)	Drainage Area (mi^2)	Composite CN (Existing Land Use)	Composite CN (Future Land Use)
AB08	97.37	0.15	88.17	92.48
AB09	176.83	0.28	87.39	86.66
AB10	70.56	0.11	83.33	88.58
AB11	79.61	0.12	84.60	91.37
AB12	92.32	0.14	83.46	89.88
AB13	99.15	0.15	83.91	89.82
AB14	129.35	0.20	86.36	89.49
AB15	38.04	0.06	76.05	83.68
AB16	41.27	0.06	86.51*	91.53*
AB17	64.74	0.10	83.72	87.50
AB18	55.05	0.09	86.20*	90.93*
AB26	60.34	0.09	80.68*	89.30*
AB28	31.34	0.05	79.17*	85.14*
AB30	123.48	0.19	82.20*	91.42*
AB32	39.88	0.06	81.69*	90.07*
AB34	19.24	0.03	82.43*	84.07*
AB36	28.29	0.04	72.41*	73.69*
AB38	52.32	0.08	78.54*	82.87*
AB40	42.36	0.07	79.97*	87.31*
AB42	65.23	0.10	72.98*	76.74*
AB44	141.06	0.22	78.98*	81.69*

**Curve Numbers referenced from Abbey Detention Basin—Updated Hydrology and Additional Capacity Analysis Memo (2017)*

Table 3-3. Curve Number Summary for the Orchard Avenue Watershed

Subbasin	Drainage Area (ac)	Drainage Area (mi^2)	Composite CN (Existing Land Use)	Composite CN (Future Land Use)
2	173.55	0.27	86.41	87.65
4	130.53	0.20	88.84	91.80
5	76.67	0.12	88.51	92.45
6	88.04	0.14	86.96	88.48
10	118.02	0.18	88.42	90.77
12	56.37	0.09	87.76	89.52
14	60.57	0.09	85.44	87.97
16	96.00	0.15	82.64	89.19
18	535.12	0.84	81.59	79.71
20	88.63	0.14	83.19	81.47
22	107.01	0.17	84.20	85.92
24	150.96	0.24	83.20	88.00
26	33.45	0.05	88.64	90.12
28	42.06	0.07	88.65	90.43
30	68.34	0.11	80.97	83.36
32	59.26	0.09	87.26	92.01
34	97.13	0.15	83.90	89.67
36	36.90	0.06	85.74	91.21
42	10.67	0.02	80.21	91.17

Table 3-4. Curve Number Summary for the Headwaters Watershed

Subbasin	Drainage Area (ac)	Drainage Area (mi^2)	Composite CN (Existing Land Use)	Composite CN (Future Land Use)
HW01	29.95	0.05	80.81	82.00
HW02	33.98	0.05	80.38	82.00
HW03	24.81	0.04	81.61	82.00
HW04	13.02	0.02	82.00	82.00
HW05	51.68	0.08	81.99	81.97
HW06	54.35	0.08	82.01	82.07
HW07	88.61	0.14	77.89	86.28
HW08	47.02	0.07	85.50	89.62

Table 3-5. Curve Number Summary for the North Ninth Street Watershed

Subbasin	Drainage Area (ac)	Drainage Area (mi^2)	Composite CN (Existing Land Use)	Composite CN (Future Land Use)
NN01	78.68	0.12	80.24	80.19
NN02	68.32	0.11	82.65	85.03
NN03	24.57	0.04	82.85	87.26
NN04	103.98	0.16	85.64	86.69
NN05	31.02	0.05	83.54	87.84
NN06	92.88	0.15	88.32	89.02
NN07A	26.87	0.04	83.65	86.99

Subbasin	Drainage Area (ac)	Drainage Area (mi^2)	Composite CN (Existing Land Use)	Composite CN (Future Land Use)
NN07B	20.24	0.03	83.77	87.49
NN07C	14.72	0.02	85.46	88.86
NN07D	15.02	0.02	84.55	88.90
NN07E	51.65	0.08	86.08	90.00
NN08	77.76	0.12	89.79	90.93
NN09	90.90	0.14	86.93	94.62
NN10	117.45	0.18	91.33	93.04
NN11	110.41	0.17	91.43	92.74

Table 3-6. Curve Number Summary for the Northeast Cañon Watershed

Subbasin	Drainage Area (ac)	Drainage Area (mi^2)	Composite CN (Existing Land Use)	Composite CN (Future Land Use)
A	502.42	0.79	73.97*	74.03*
B	144.53	0.23	78.07*	79.00*
C	158.39	0.25	81.19*	82.48*
D	385.54	0.60	77.93*	78.65*
E	208.63	0.33	77.29*	80.04*
F	99.58	0.16	75.52*	76.17*
G	52.92	0.08	84.66*	84.20*
H	277.86	0.43	85.18*	85.15*
J	98.78	0.15	79.47*	80.79*
K	59.52	0.09	80.90*	82.09*
L	183.33	0.29	78.44*	80.00*
M	13.05	0.02	80.88*	80.88*
N	183.20	0.29	84.28*	84.91*
O	109.88	0.17	84.69*	87.07*
P	146.10	0.23	80.64*	84.52*
Q	59.50	0.09	82.22*	83.83*
RN	140.93	0.22	87.75	88.10
RS	225.23	0.35	89.43	89.60
SN	93.35	0.15	88.06	93.10
SS	139.27	0.22	89.78	89.70
T	101.19	0.16	79.55*	80.31*
U	105.64	0.17	79.57*	81.64*

**Curve Numbers referenced from The Northeast Cañon City Detention Basins Design Project (2017).*

3.1.5. Lag Time and Time of Concentration

The SCS unit hydrograph method was used to calculate the lag time for each individual subbasin. The TR-55 procedure was used to determine the travel time and time of concentrations for each of the study area watershed subbasins. The final lag time then was approximated by applying the following equation:

$$TL\ (hr) = 0.6 * Tc$$

Where:

TL = lag time (hr)
Tc = time of concentration (hr)

The lag times computed for each watershed are shown in **Table 3-7** through **Table 3-11**.

Table 3-7. Lag Time Summary for the Headwaters Watershed

Subbasin	Time of Concentration (hr)	SCS Lag Time (hr)	SCS Lag Time (min)
HW01	0.19	0.12	6.91
HW02	0.15	0.09	5.37
HW03	0.20	0.12	7.18
HW04	0.20	0.12	7.25
HW05	0.19	0.11	6.81
HW06	0.20	0.12	7.06
HW07	0.43	0.26	15.45
HW08	0.35	0.21	12.73

Table 3-8. Lag Time Summary for the North Ninth Street Watershed

Subbasin	Time of Concentration (hr)	SCS Lag Time (hr)	SCS Lag Time (min)
NN01	0.27	0.16	8.56
NN02	0.32	0.19	10.07
NN03	0.21	0.13	7.67
NN04	0.63	0.38	22.76
NN05	0.20	0.12	7.36
NN06	0.73	0.44	22.36
NN07A	0.18	0.11	6.36
NN07B	0.53	0.32	8.16
NN07C	0.25	0.15	6.30
NN07D	1.58	0.95	10.46
NN07E	0.85	0.51	19.78
NN08	0.53	0.32	16.74
NN09	0.25	0.15	8.43
NN10	1.58	0.95	44.79
NN11	0.85	0.51	30.73

Table 3-9. Lag Time Summary for the Orchard Avenue Watershed

Subbasin	Time of Concentration (hr)	SCS Lag Time (hr)	SCS Lag Time (min)
2	0.73	0.44	26.37
4	0.58	0.35	20.87
5	0.95	0.57	27.01
6	1.11	0.66	17.36
10	1.09	0.65	15.27
12	0.64	0.39	24.47
14	0.23	0.14	16.94
16	0.63	0.38	19.28
18	0.53	0.32	38.72

Subbasin	Time of Concentration (hr)	SCS Lag Time (hr)	SCS Lag Time (min)
20	0.49	0.29	17.48
22	0.68	0.41	23.29
24	0.46	0.28	22.91
26	0.76	0.46	32.79
28	0.53	0.32	22.62
30	0.64	0.39	19.10
32	0.91	0.55	26.95
34	0.43	0.26	16.56
36	0.74	0.44	33.58
42	0.48	0.29	19.52

Table 3-10. Lag Time Summary for the Abbey Detention Watershed

Subbasin	Time of Concentration (hr)	SCS Lag Time (hr)	SCS Lag Time (min)
AB08	0.76	0.46	27.43
AB09	0.91	0.55	32.87
AB10	0.80	0.48	28.76
AB11	0.43	0.26	15.59
AB12	0.79	0.48	28.50
AB13	0.75	0.45	27.13
AB14	0.29	0.17	10.36
AB15	0.26	0.15	9.24
AB16	0.53	0.32	18.93
AB17	0.68	0.41	24.44
AB18	0.47	0.28	17.08
AB26	0.37	0.22	13.17
AB28	0.53	0.32	19.02
AB30	0.36	0.22	13.04
AB32	0.50	0.30	18.01
AB34	0.30	0.18	10.72
AB36	0.36	0.22	12.94
AB38	0.31	0.19	11.29
AB40	0.48	0.29	17.23
AB42	0.56	0.34	20.18
AB44	0.59	0.36	21.34

Table 3-11. Lag Time Summary for the Northeast Cañon Watershed

Subbasin	Time of Concentration (hr)	SCS Lag Time (hr)	SCS Lag Time (min)
A	1.62	0.97	58.40
B	0.70	0.42	25.78
C	0.77	0.46	29.02
D	1.02	0.61	37.67
E	1.31	0.79	51.30
F	0.89	0.53	32.60
G	1.06	0.64	37.50
H	1.50	0.90	53.79
J	0.41	0.25	15.39
K	0.25	0.15	9.52
L	1.34	0.80	50.49
M	0.46	0.27	16.43
N	1.26	0.76	46.49
O	1.54	0.92	60.30
P	1.25	0.75	51.25
Q	1.30	0.78	49.26
RN	1.39	0.83	49.92
RS	1.34	0.80	48.14
SN	0.76	0.45	27.20
SS	1.88	1.13	67.69
T	1.45	0.87	53.34
U	2.38	1.43	91.39

3.1.6. Stage-Storage-Discharge Curve

The *Orchard Avenue Drainage Basin Planning Study (1994)* was referenced to produce a stage-storage-discharge curve for the Orchard Avenue Detention Basin. The stage-storage-discharge curve was developed using invert elevation information from the *Orchard Avenue Drainage Basin Planning Study (1994)* and the corresponding Federal Emergency Management Agency (FEMA) Letter of Map Revision (LOMR) completed in 1998. Using this information and the LiDAR topographic information, it was determined that the storage capacity of the detention basin is 33.6 ac-ft. Differences in the volume calculation from the previous analysis may be attributed to possible sedimentation and vegetation growth in the Orchard Avenue detention basin over time.

Table 3-12. Stage-Area-Storage-Discharge Curve for the Orchard Avenue Detention Basin

Stage (ft)	Area (acres)	Discharge (cfs)	Computed Volume (ac-ft)	Notes
5,395	0.0	0.00	0.00	Outlet Invert (42" RCP)
5,396	0.0	4.35	0.00	
5,397	0.1	19.58	0.03	
5,398	0.1	36.99	0.13	
5,399	0.6	58.75	0.47	
5,400	3.0	76.16	2.11	
5,401	3.7	91.39	5.44	
5,402	4.2	104.45	9.35	
5,403	4.8	113.15	13.83	
5,404	5.9	124.03	19.19	
5,405	7.3	132.74	25.76	
5,406	8.1	141.44	33.44	Spillway Crest Elevation
5,407	8.8	241.54	41.89	
5,408	9.4	456.96	50.96	
5,409	9.4	925.27	60.33	
5,410	9.4	1724.30	69.69	Top of Dam Embankment

3.2. Hydrologic Results

Results from the updated analysis for each of the five watersheds are summarized in **Table 3-13** through **Table 3-18**. The results of the hydrologic analysis are shown in **Appendix B**. The HEC-HMS Models used to calculate the following results are included within **Appendix F** under the Hydrologic and Hydraulic Models section within the "Hydrologic Models" folder.

Table 3-13. Updated Analysis Results for the Headwaters Watershed

Hydro. Element	2-Year Storm		5-Year Storm		10-Year Storm		100-Year Storm	
	Existing Condition Q (cfs)	Future Condition Q (cfs)	Existing Condition Q (cfs)	Future Condition Q (cfs)	Existing Condition Q (cfs)	Future Condition Q (cfs)	Existing Condition Q (cfs)	Future Condition Q (cfs)
HW01	15.8	17.8	27.1	29.5	39.0	41.9	100.7	104.7
HW02	18.3	21.4	31.5	35.5	45.7	50.4	120.0	126.6
HW03	17.9	18.6	30.2	31.1	43.3	44.3	109.6	111.0
HW04	7.3	7.3	12.2	12.2	17.4	17.4	43.8	43.8

Hydro. Element	2-Year Storm		5-Year Storm		10-Year Storm		100-Year Storm	
	Existing Condition Q (cfs)	Future Condition Q (cfs)	Existing Condition Q (cfs)	Future Condition Q (cfs)	Existing Condition Q (cfs)	Future Condition Q (cfs)	Existing Condition Q (cfs)	Future Condition Q (cfs)
HW05	29.3	29.3	48.7	48.7	69.8	69.7	175.2	175.0
HW06	29.4	29.6	48.8	49.0	69.8	70.1	175.3	175.6
HW07	21.9	54.2	43.1	83.6	67.2	114.3	196.2	260.7
HW08	26.7	37.6	42.1	54.8	57.7	71.8	135.0	151.2
CPHW1	33.9	38.9	58.2	64.4	83.9	91.4	217.8	228.1
CPHW2	51.7	57.4	88.4	95.5	127.0	135.2	326.7	338.1
CPHW3	59.0	64.6	100.6	107.7	144.5	152.6	370.5	381.9
CPHW4	101.7	137.3	178.8	222.9	262.4	313.7	692.7	764.0

Table 3-14. Updated Analysis Results for the North Ninth Street Watershed

Hydro. Element	2-Year Storm		5-Year Storm		10-Year Storm		100-Year Storm	
	Existing Condition Q (cfs)	Future Condition Q (cfs)	Existing Condition Q (cfs)	Future Condition Q (cfs)	Existing Condition Q (cfs)	Future Condition Q (cfs)	Existing Condition Q (cfs)	Future Condition Q (cfs)
NN01	33.1	32.9	59.2	58.9	87.4	87.1	233.3	232.9
NN02	35.0	43.9	58.8	69.8	84.1	96.6	210.0	226.4
NN03	13.7	20.3	22.8	30.8	32.5	41.5	80.5	91.9
NN04	43.1	47.5	68.8	74.1	95.5	101.5	225.1	232.6
NN05	19.2	27.9	31.4	41.7	44.2	55.7	107.4	121.7
NN06	50.1	53.2	75.7	79.3	101.6	105.4	223.3	227.8
NN07A	17.4	23.2	28.3	35.4	39.8	47.7	96.7	106.8
NN07B	12.4	17.2	20.2	26.0	28.4	34.9	69.0	77.1
NN07C	11.2	14.8	17.6	21.8	24.2	28.8	56.1	61.5
NN07D	8.8	12.8	14.2	18.9	19.8	25.0	47.2	53.5
NN07E	24.3	34.1	38.4	49.8	52.9	65.5	123.4	138.1
NN08	55.5	60.7	81.4	87.2	107.1	113.4	226.3	232.9
NN09	72.7	127.7	111.0	171.4	150.1	213.5	336.4	400.6
NN10	48.7	55.6	69.9	77.5	90.9	98.9	187.1	195.1
NN11	60.9	67.4	87.0	94.0	112.7	120.1	230.7	238.0
CPNN01A	81.6	96.6	140.3	158.5	203.0	224.1	522.5	549.0
CPNN01B	108.7	126.7	184.9	206.6	265.5	290.1	673.1	705.0
CPNN02A	36.5	51.0	59.6	77.0	83.7	103.4	203.6	227.6
CPNN02B	67.0	81.8	106.2	124.0	146.7	166.6	343.2	367.3
CPNN03A	31.8	44.0	51.1	65.5	71.1	87.1	169.2	188.6
CPNN03B	79.0	94.5	120.0	138.2	161.8	181.7	360.3	383.9
CPNN_2D	68.0	76.8	118.0	128.7	171.2	183.4	443.3	459.3

Table 3-15. Updated Analysis Results for the Northeast Cañon Watershed Without 9th Street and 15th Street Detention Basin Improvements

Hydro. Element	2-Year Storm		5-Year Storm		10-Year Storm		100-Year Storm	
	Existing Condition Q (cfs)	Future Condition Q (cfs)	Existing Condition Q (cfs)	Future Condition Q (cfs)	Existing Condition Q (cfs)	Future Condition Q (cfs)	Existing Condition Q (cfs)	Future Condition Q (cfs)
A	29.7	30.0	66.6	67.0	111.7	112.3	387.7	388.8
B	25.6	28.9	50.8	55.5	79.1	84.7	233.0	241.5
F	10.1	11.2	22.5	24.1	36.9	39.0	121.5	125.0
CP1	43.7	45.3	95.1	97.8	158.0	161.7	548.2	556.1
H	61.1	60.9	98.8	98.6	137.8	137.5	331.8	331.5
C	38.1	43.9	67.1	74.5	98.9	107.6	263.3	275.5
G	14.4	13.8	23.6	22.8	33.4	32.5	81.0	79.8
CP2	150.3	158.8	270.4	281.5	408.3	420.9	1181.7	1200.2
M	4.0	4.0	7.2	7.2	10.8	10.8	29.1	29.1
CP3	151.4	159.9	272.4	283.6	411.0	423.7	1189.1	1207.8
15TH DB	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
R15THDB	151.3	159.8	272.3	283.4	410.9	423.6	1188.7	1207.4
D	51.3	56.4	102.0	109.3	159.5	168.4	475.0	488.8
E	19.7	28.0	40.3	52.2	63.6	78.2	195.9	218.7
CP4	69.3	82.7	138.8	157.9	217.7	241.1	655.5	691.6
L	19.6	23.9	38.6	44.7	60.2	67.6	179.2	190.6
J	29.2	34.1	54.1	60.5	81.7	89.4	227.2	238.3
K	26.4	30.0	46.3	50.8	67.8	73.0	177.9	185.1
CP5	102.9	122.3	202.0	229.5	314.3	347.9	931.0	982.4
9TH DB	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
R9TH DB	102.8	122.2	201.9	229.3	314.1	347.7	930.5	981.7
Q	9.8	11.7	17.3	19.8	25.3	28.1	66.8	70.8
CP6A	112.5	133.7	219.2	249.1	339.3	375.8	997.0	1052.3
N	39.3	41.9	65.9	69.2	93.7	97.5	231.7	236.7
CP6B	301.6	334.0	556.1	600.5	842.3	895.6	2416.1	2495.4
O	20.0	25.2	32.9	39.3	46.8	54.1	115.1	124.5
CP7	321.2	358.7	588.1	638.8	887.6	948.1	2525.1	2613.7
SN	41.9	62.9	63.9	87.4	86.0	111.0	191.8	218.5
SS	36.9	36.6	54.8	54.3	72.5	72.0	156.0	155.3
P	20.0	30.7	36.4	50.3	55.3	71.6	152.3	175.1
CP8	398.9	455.8	712.2	787.2	1060.3	1148.4	2937.0	3061.4
RN	40.3	41.4	61.7	63.0	83.8	85.3	188.3	190.2
RS	75.3	76.6	112.1	113.5	148.7	150.3	322.4	324.1
CP8a	505.9	566.6	878.0	957.3	1284.7	1377.5	3441.7	3570.6

Hydro. Element	2-Year Storm		5-Year Storm		10-Year Storm		100-Year Storm	
	Existing Condition Q (cfs)	Future Condition Q (cfs)	Existing Condition Q (cfs)	Future Condition Q (cfs)	Existing Condition Q (cfs)	Future Condition Q (cfs)	Existing Condition Q (cfs)	Future Condition Q (cfs)
U	7.6	9.8	14.5	17.6	22.4	26.1	65.3	70.9
CP9	511.0	573.4	887.9	969.3	1299.9	1395.4	3484.9	3618.6
T	10.9	12.0	20.8	22.4	32.5	34.4	94.4	97.3

Table 3-16. Updated Analysis Results for the Northeast Cañon Watershed With 9th Street and 15th Street Detention Basin Improvements

Hydro. Element	2-Year Storm		5-Year Storm		10-Year Storm		100-Year Storm	
	Existing Condition Q (cfs)	Future Condition Q (cfs)	Existing Condition Q (cfs)	Future Condition Q (cfs)	Existing Condition Q (cfs)	Future Condition Q (cfs)	Existing Condition Q (cfs)	Future Condition Q (cfs)
A	29.7	30.0	66.6	67.0	111.7	112.3	387.7	388.8
B	25.6	29.0	50.8	55.5	79.1	84.7	233.0	241.5
F	10.1	11.2	22.5	24.1	36.9	39.0	121.5	125.0
CP1	43.7	45.3	95.1	97.8	158.0	161.7	548.2	556.1
H	61.1	60.9	98.8	98.6	137.8	137.5	331.8	331.5
C	38.1	43.9	67.1	74.5	98.9	107.6	263.3	275.5
G	14.4	13.8	23.6	22.8	33.4	32.5	81.0	79.8
CP2	150.3	158.8	270.4	281.5	408.3	420.9	1181.7	1200.2
M	4.0	4.0	7.2	7.2	10.8	10.8	29.1	29.1
CP3	151.4	159.9	272.4	283.6	411.0	423.7	1189.1	1207.8
15TH DB	42.0	42.8	53.1	53.6	63.1	63.8	90.0	90.0
R15THDB	42.0	42.8	53.1	53.6	63.1	63.8	90.0	90.0
D	51.3	56.4	102.0	109.3	159.5	168.4	475.0	488.8
E	19.7	28.0	40.3	52.2	63.6	78.2	195.9	218.7
CP4	69.3	82.7	138.8	157.9	217.7	241.1	655.5	691.6
L	19.6	23.9	38.6	44.7	60.2	67.6	179.2	190.6
J	29.2	34.1	54.1	60.5	81.7	89.4	227.2	238.3
K	26.4	30.0	46.3	50.8	67.8	73.0	177.9	185.1
CP5	102.9	122.3	202.0	229.5	314.3	347.9	931.0	982.4
9TH DB	97.7	108.1	143.6	152.2	186.9	199.4	407.3	424.4
R9TH DB	97.6	108.1	143.6	152.2	186.9	199.4	407.3	424.4
Q	9.8	11.7	17.3	19.8	25.3	28.1	66.8	70.8
CP6A	106.4	117.8	155.8	165.6	201.9	215.9	440.6	457.7
N	39.3	41.9	65.9	69.2	93.7	97.5	231.7	236.7
CP6B	170.8	185.2	249.4	263.8	318.5	338.0	691.6	712.3
O	20.0	25.2	32.9	39.3	46.8	54.1	115.1	124.5

Hydro. Element	2-Year Storm		5-Year Storm		10-Year Storm		100-Year Storm	
	Existing Condition Q (cfs)	Future Condition Q (cfs)	Existing Condition Q (cfs)	Future Condition Q (cfs)	Existing Condition Q (cfs)	Future Condition Q (cfs)	Existing Condition Q (cfs)	Future Condition Q (cfs)
CP7	190.5	210.2	282.1	302.7	364.5	390.9	806.1	836.3
SN	41.8	61.4	63.6	85.8	85.7	109.3	191.4	216.9
SS	36.8	32.1	54.6	49.1	72.3	66.3	155.7	148.6
P	20.0	30.7	36.4	50.3	55.3	71.6	152.3	175.2
CP8	264.1	298.5	400.5	436.5	527.9	569.0	1193.0	1247.5
RN	40.1	40.1	61.5	61.5	83.7	83.7	188.2	188.2
RS	75.4	90.6	112.3	129.5	148.9	167.3	322.6	342.6
CP8a	364.1	416.9	563.0	617.5	748.8	808.4	1681.4	1756.4
U	7.6	9.8	14.5	17.6	22.4	26.1	65.3	70.9
CP9	369.8	424.0	573.1	629.4	764.3	826.4	1728.5	1808.1
T	10.9	12.0	20.8	22.4	32.5	34.4	94.4	97.3

Table 3-17. Updated Analysis Results for the Orchard Avenue Watershed

Hydro. Element	2-Year Storm		5-Year Storm		10-Year Storm		100-Year Storm	
	Existing Condition Q (cfs)	Future Condition Q (cfs)	Existing Condition Q (cfs)	Future Condition Q (cfs)	Existing Condition Q (cfs)	Future Condition Q (cfs)	Existing Condition Q (cfs)	Future Condition Q (cfs)
2	65.7	107.0	104.6	152.2	144.9	196.8	341.4	400.1
4	70.5	75.9	106.3	112.5	142.5	149.2	312.4	320.0
5	34.9	41.0	53.1	60.1	71.5	79.1	158.4	167.1
6	47.6	33.4	74.3	57.0	101.8	81.9	233.5	208.1
10	75.2	86.5	113.8	126.9	152.9	167.0	335.8	351.3
12	26.8	27.4	41.3	42.0	56.0	56.8	126.0	126.9
14	27.1	38.9	43.6	57.6	60.8	76.3	144.7	163.0
16	32.0	73.7	55.5	104.6	80.5	134.9	207.6	272.6
18	103.0	188.5	182.7	288.2	269.4	390.2	718.0	876.7
20	35.0	57.5	59.3	86.4	84.9	115.6	214.0	251.8
22	39.2	80.2	64.8	112.2	91.7	143.6	225.5	285.0
24	48.7	97.8	83.0	141.3	119.5	184.5	303.8	382.4
26	12.9	12.1	19.5	18.7	26.3	25.3	58.0	56.9
28	23.4	18.2	35.3	29.1	47.3	40.4	103.8	95.5
30	19.2	20.5	35.2	36.9	52.6	54.6	143.2	146.0
32	23.6	10.2	36.8	19.8	50.4	30.6	115.2	88.3
34	39.1	63.8	65.4	94.9	93.0	126.1	231.2	271.4
36	11.6	18.8	18.7	27.2	26.1	35.5	62.5	73.4
42	3.0	9.0	5.7	12.9	8.7	16.8	24.4	34.6

Hydro. Element	2-Year Storm		5-Year Storm		10-Year Storm		100-Year Storm	
	Existing Condition Q (cfs)	Future Condition Q (cfs)	Existing Condition Q (cfs)	Future Condition Q (cfs)	Existing Condition Q (cfs)	Future Condition Q (cfs)	Existing Condition Q (cfs)	Future Condition Q (cfs)
CPO1	133.6	180.6	207.1	261.5	282.6	341.8	643.7	710.8
CPO2	13.8	25.6	22.9	36.9	32.6	48.2	80.8	99.7
CPO3	59.5	70.6	97.1	109.4	136.3	149.5	330.3	343.2
CPO4	202.6	244.0	321.1	358.9	436.4	474.3	1069.7	1573.0
CPO5	42.4	38.4	70.1	65.5	99.3	94.3	245.2	239.5
CPO6	53.3	48.6	86.4	80.9	121.0	115.1	292.8	286.1
CPO7	281.8	355.1	460.2	523.2	632.6	693.8	1432.7	1712.0
CPO8	322.6	387.8	528.9	579.2	731.2	774.3	1661.1	1758.8
CPO9	72.2	135.0	120.7	194.4	172.1	253.4	428.6	525.1
CPO10	192.1	393.0	343.7	587.2	508.7	783.4	1360.6	1706.5
CPO11	99.7	128.3	123.9	152.6	142.0	288.3	889.5	1325.2
CPO12	105.3	136.2	145.5	177.6	186.9	296.7	920.3	1370.0
Orchard _Det	96.4	124.5	119.5	147.9	136.6	281.1	870.1	1296.5

Table 3-18. Updated Analysis Results for the Abbey Detention Watershed

Hydro. Element	2-Year Storm		5-Year Storm		10-Year Storm		100-Year Storm	
	Existing Condition Q (cfs)	Future Condition Q (cfs)	Existing Condition Q (cfs)	Future Condition Q (cfs)	Existing Condition Q (cfs)	Future Condition Q (cfs)	Existing Condition Q (cfs)	Future Condition Q (cfs)
AB08	39.0	56.3	60.0	79.6	81.5	102.5	184.2	206.9
AB09	59.9	55.9	93.8	88.9	128.9	123.4	298.8	291.9
AB10	17.0	28.8	29.4	43.9	42.6	59.3	110.8	132.7
AB11	31.2	57.5	51.6	82.3	73.0	106.8	179.0	218.4
AB12	22.4	41.6	38.5	61.8	55.6	82.1	144.0	176.9
AB13	25.8	45.9	44.1	68.1	63.6	90.5	162.2	195.1
AB14	76.1	99.4	119.5	146.7	164.4	194.1	381.3	415.2
AB15	6.9	18.6	15.7	30.9	25.9	43.8	82.1	107.7
AB16	17.0	26.4	26.9	37.9	37.3	49.3	87.4	101.1
AB17	18.4	26.8	31.3	41.4	45.0	56.5	114.5	129.9
AB18	26.6	40.3	42.4	58.3	58.8	76.1	138.2	157.8
AB26	17.2	40.9	31.5	60.8	47.6	80.8	131.6	173.9
AB28	6.2	12.4	12.2	20.1	19.0	28.4	55.9	69.7
AB30	35.4	83.7	62.1	120.2	90.7	156.3	241.2	321.2
AB32	10.7	24.5	19.2	36.0	28.6	47.5	77.2	100.8
AB34	7.8	9.2	13.5	15.3	19.6	21.7	50.5	53.3

Hydro. Element	2-Year Storm		5-Year Storm		10-Year Storm		100-Year Storm	
	Existing Condition Q (cfs)	Future Condition Q (cfs)	Existing Condition Q (cfs)	Future Condition Q (cfs)	Existing Condition Q (cfs)	Future Condition Q (cfs)	Existing Condition Q (cfs)	Future Condition Q (cfs)
AB36	1.8	2.4	5.6	6.6	10.4	11.7	40.8	43.4
AB38	12.5	21.7	25.5	37.2	39.9	53.7	117.0	136.6
AB40	10.6	23.7	20.4	36.7	31.2	49.9	88.4	113.2
AB42	4.4	8.8	12.1	19.4	22.5	31.8	85.3	100.8
AB44	26.7	38.0	53.0	67.8	82.5	100.0	239.6	265.1
ABBEYDET	51.1	73.6	72.2	90.1	87.4	101.9	201.4	523.5
CABBEY IN	126.1	257.4	241.4	407.8	375.6	563.9	1113.1	1372.9
CAB02	29.2	56.0	51.3	85.7	76.9	114.8	177.1	368.5
CAB08	55.4	80.3	78.7	109.0	96.3	144.3	243.2	547.2
CAB12	66.1	114.3	113.6	171.4	164.2	229.0	419.6	499.8
CAB13	44.2	72.7	75.4	109.5	108.6	146.9	275.6	322.9
CAB14	83.0	118.0	135.2	177.5	190.3	237.9	463.4	522.9
CAB16	34.0	67.0	58.2	98.0	84.5	128.6	216.4	268.6
CAB18	98.4	201.7	192.6	326.2	305.3	457.6	924.6	1136.4
CAB28	53.2	94.8	111.6	171.6	181.8	257.4	588.8	700.5
CAB32	50.1	86.8	104.0	156.8	168.3	235.1	543.6	646.5
CAB34	43.9	71.3	90.3	129.4	145.0	192.8	454.1	529.2
CAB36	44.7	72.5	92.5	131.8	148.7	196.9	475.7	552.3
CAB38	42.3	69.6	87.7	125.3	139.0	186.9	434.1	510.6
CAB4MILE	118.9	188.4	201.4	287.4	290.6	388.4	742.7	868.8
CAB40	38.1	61.6	78.3	112.4	126.1	166.6	383.8	448.4
CAB42	30.7	46.3	64.5	85.6	103.0	127.9	319.7	361.5

3.2.1. 9th Street Detention Basin

Based on the HEC-HMS model for the ultimate condition, the 100-year peak stage in the 9th Street detention basin is 5,439.10 feet, which results in 3.50 feet of freeboard below the spillway crest elevation of 5,442.60 feet. The 100-year peak storage in the detention basin is 55.3 acre-feet. The 9th Street detention basin has adequate capacity to detain the 100-year flow in the existing and ultimate condition without spillway operation. A summary of the 9th Street detention basin performance from the previous study and the updated analysis is shown in **Table 3-19**.

Table 3-19. 9th Street Detention Basin 100-Year Storm Results

Design Item	Prev. Analysis (2017) Value	2018 Design Value
Drainage Area	1.46 square miles	1.46 square miles
100-year Peak Inflow	1,172.7 cfs	982.4 cfs
100-year Peak Outflow	497.9 cfs	424.4 cfs
100-year Peak Stage	5,441.60 feet	5,439.10 feet
100-year Peak Storage	68.3 ac-ft	55.3 ac-ft
Outlet Type	60-inch RCP	60-inch RCP
Outlet Invert Elevation	5,423.00 feet	5,423.00 feet
Spillway Crest Elevation	5,442.60 feet	5,442.60 feet
Jurisdictional Dam Height	19.60 feet	19.60 feet
Storage Capacity (at spillway crest)	73.3 ac-ft	73.3 ac-ft
Freeboard	1.0 feet	3.5 feet

3.2.2. 15th Street Detention Basin

Based on the HEC-HMS model for the ultimate condition, the 100-year peak stage in the 15th Street detention basin is 5,437.80 feet, which results in 2.6 feet of freeboard below the spillway crest elevation of 5,440.40 feet. The 100-year peak storage in the detention basin is 157.3 acre-feet. The 15th Street detention basin has adequate capacity to detain the 100-year flow in the existing and ultimate condition without spillway operation. A summary of the 15th Street detention basin performance is shown in **Table 3-20**.

Table 3-20. 15th Street Detention Basin 100-Year Storm Results

Design Item	Prev. Analysis (2017) Value	2018 Design Value
Drainage Area	1.95 square miles	1.95 square miles
100-year Peak Inflow	1,281.1 cfs	1207.8 cfs
100-year Peak Outflow	90 cfs	90 cfs
100-year Peak Stage	5,439.40 feet	5,437.80 feet
100-year Peak Storage	175.1 ac-ft	157.3 ac-ft
Outlet Type	30-inch RCP	30-inch RCP
Outlet Invert Elevation	5,418.00 feet	5,418.00 feet
Spillway Crest Elevation	5,440.40 feet	5,440.40 feet
Jurisdictional Dam Height	22.4 feet	22.4 feet
Storage Capacity (at spillway crest)	186.7 ac-ft	186.7 ac-ft
Freeboard	1.0 feet	2.6 feet

3.2.3. Orchard Avenue Detention Basin

Based on the HEC-HMS model for the ultimate condition, the 100-year peak stage in the Orchard Avenue detention basin is 5,409.5 feet, which results in overtopping of the spillway crest elevation of 5,406.00 feet. The 100-year peak storage in the detention basin is 64.7 acre-feet. The Orchard Avenue detention basin does not have adequate capacity to detain the 100-year flow in the existing and ultimate condition without spillway operation. A summary of the Orchard Avenue detention basin performance is shown in **Table 3-21**.

Table 3-21. Orchard Avenue Detention Basin 100-Year Storm Results

Design Item	Design Value
Drainage Area	1.54 square miles
100-year Peak Inflow	1,706.5 cfs
100-year Peak Outflow	1,296.5 cfs
100-year Peak Stage	5,409.5 feet
100-year Peak Storage	64.7 ac-ft
Outlet Type	42-inch RCP
Outlet Invert Elevation	5,395.00 feet
Spillway Crest Elevation	5,406.00 feet
Jurisdictional Dam Height	11.0 feet
Storage Capacity (at spillway crest)	33.4 ac-ft
Freeboard	0.0 feet

3.2.4. Abbey Detention Basin

Based on the HEC-HMS model for the ultimate condition, the 100-year peak stage in the Abbey detention basin is 5,348.80 feet, which results in 0.8 foot of flow over the spillway crest elevation of 5,348.00 feet. The 100-year peak storage in the detention basin is 68.8 acre-feet. The Abbey detention basin does not have adequate capacity to detain the 100-year flow in the existing and ultimate condition without spillway operation. A summary of the Abbey detention basin performance is shown in **Table 3-22**.

Table 3-22. Abbey Detention Basin 100-Year Storm Results

Design Item	Design Value
Drainage Area	1.08 square miles
100-year Peak Inflow	1,382.70 cfs
100-year Peak Outflow	515.0 cfs
100-year Peak Stage	5,348.7 feet
100-year Peak Storage	68.7 ac-ft
Outlet Type	36-inch RCP
Outlet Invert Elevation	5,334.00 feet
Spillway Crest Elevation	5,348.00 feet
Jurisdictional Dam Height	17.0 feet
Storage Capacity (at spillway crest)	53.09 ac-ft
Freeboard	0.0 feet

4. Hydraulic Modeling

The purpose of the updated Ditch analysis is to calculate the capacity of the Ditch. This will be determined by using a combination of one-dimensional (1D) and two-dimensional (2D) analyses developed using HEC-RAS version 5. This modeling tool was used because of its ability to develop both a 1D model and 2D model. The modeling approach used three sections:

- **First Section:** 2D analysis generally associated with the upstream side of the Ditch that analyzes where and how stormwater drains to the Ditch.
- **Second Section:** 1D analysis uses the survey developed by David Evans and Associates (DEA) to determine how the decreed flow moves within the Ditch. The survey was produced to obtain the topographic information along the Ditch, including top of banks, bottom of the Ditch (below water), and other structures or physical restrictions, transitions, and impediments that could have affected the hydraulic capacity of the Ditch. Detailed survey information for all the structures crossing the Ditch was obtained and documented using sketches and CAD information.
- **Third Section:** 2D model generally associated with the downstream side of the Ditch that analyzes Ditch overtopping flows and shows conveyance patterns to the Arkansas River.

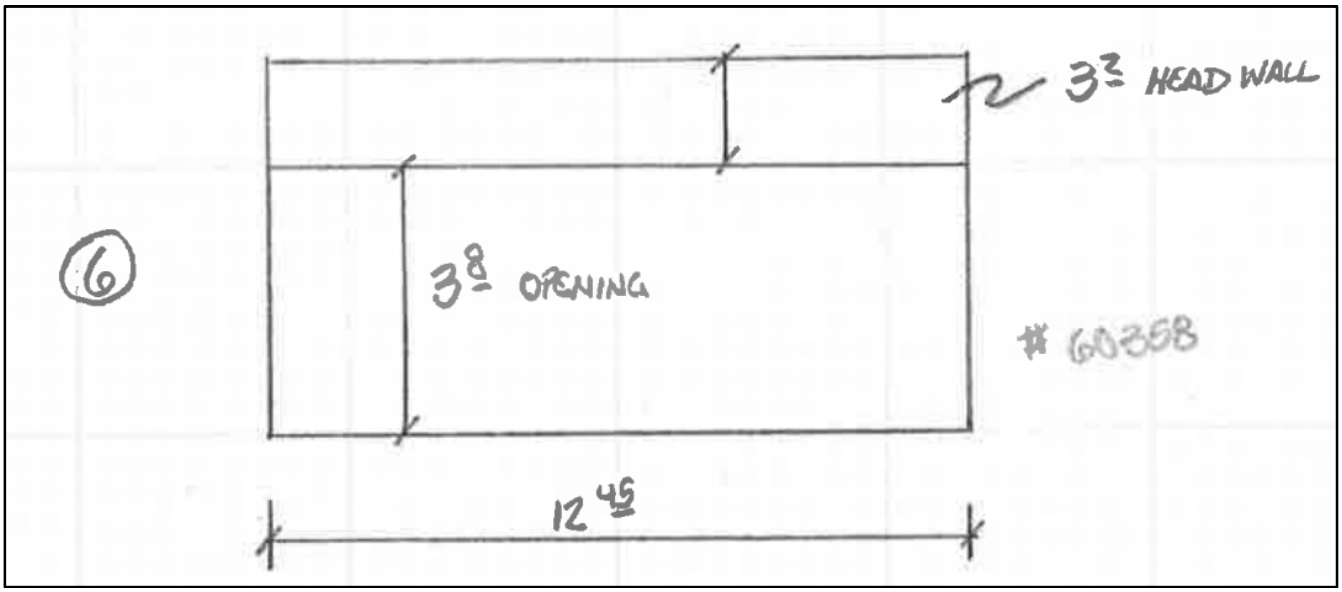
The 1D and 2D HEC-RAS Models created for this study are included within **Appendix F** under the Hydrologic and Hydraulic Models section within the “Hydraulic Models” folder.

4.1. 1D HEC-RAS Modeling

The limits of the 1D model are defined as starting at the head works of the Ditch to the west of Tunnel Drive at the Arkansas River, and ending at the terminus located south of Sunrise Mesa Drive before diverting into Grandview Ditch. Development of the 1D model began with combining the LiDAR and survey topographic information within GIS to obtain a single terrain raster dataset. Hydraulic cross sections, the stream centerline of the Ditch, and bank lines were all developed within ArcGIS using HEC-GeoRAS tools. Cross sections were drawn along the centerline using HEC_GeoRAS and placed upstream and downstream of structure crossings. Cross sections also generally were placed before curves or approximately every 200 feet along the channel centerline. Using the GeoRAS import within HEC-RAS, the geometric information was imported into the 1D model.

After the base model geometry was developed, survey information from DEA was used to create the structural crossings that cross the Ditch. Information taken from the survey consisted of the size of the crossing opening, the height of the headwall, the width of the channel and the number of piers (or barrels for culverts) associated with each opening. An example of the survey information used to create the structural crossings is provided in **Figure 4-1**.

Figure 4-1. Example Survey Information Used for 1D Model Development



When the structures were placed into the 1D model, the decreed flow of 77 cfs was used to create the base flow of the model. Upon review of the initial results, it was determined that more flows would be necessary to accurately model the Ditch's capacity. A rating curve of flows was developed for the model to run through in steady-state analysis to accurately account for the capacity of the Ditch. Flows were entered into the model in multiples of five, ranging from 40 cfs to 500 cfs.

The results of the 1D modeling were analyzed with the goal of determining, generally, the approximate capacity of the Ditch throughout the study area. The results showed that the Ditch has varying capacity throughout. Results from the 1D model analysis are shown in detail in **Appendix C.** It should be noted that a sensitivity analysis was performed and the 1-D model was run in both steady state and mixed flow regimes. Water surface elevations were compared between the two sets of results with less than an approximate 5% difference observed.

With this sensitivity analysis completed, Atkins reviewed the HEC-RAS cross section results from the steady state model and determined approximate maximum capacities based on the water surface levels shown for each of the flows ranging from 40 cfs to 500 cfs. Using the 1D HEC-RAS cross-section IDs, the Ditch was split into 20 sections of similar capacity. The section IDs, the corresponding ranges of HEC-RAS cross sections, and the approximate observed Ditch capacity (in cfs) for each section are summarized in **Table 4-1**. **Figure C-1,** provided with the report due to size constraints, also details the results shown in **Table 4-1** with the corresponding HEC-RAS cross section shown with the capacity results.

Table 4-1. 1D HEC-RAS Cross Sectional Approximate Capacity Summary

Section ID	1D HEC-RAS Cross Section Range	Approximate Observed Capacity (cfs)
Section 1	31140 to 28666	270
Section 2	28666 to 27708	125
Section 3	27708 to 27113	100
Section 4	27113 to 27028	80
Section 5	27028 to 21620	100

Section ID	1D HEC-RAS Cross Section Range	Approximate Observed Capacity (cfs)
Section 6	21620 to 19644	105
Section 7	19644 to 16739	100
Section 8	16739 to 13601	120
Section 9	13601 to 12336	130
Section 10	12336 to 9395	110
Section 11	9395 to 9271	90
Section 12	9271 to 8451	115
Section 13	8451 to 7460	90
Section 14	7460 to 6839	80
Section 15	6839 to 6595	80
Section 16	6595 to 5582	105
Section 17	5582 to 3631	80
Section 18	3631 to 1851	115
Section 19	1851 to 1177	100
Section 20	1177 to 32	145

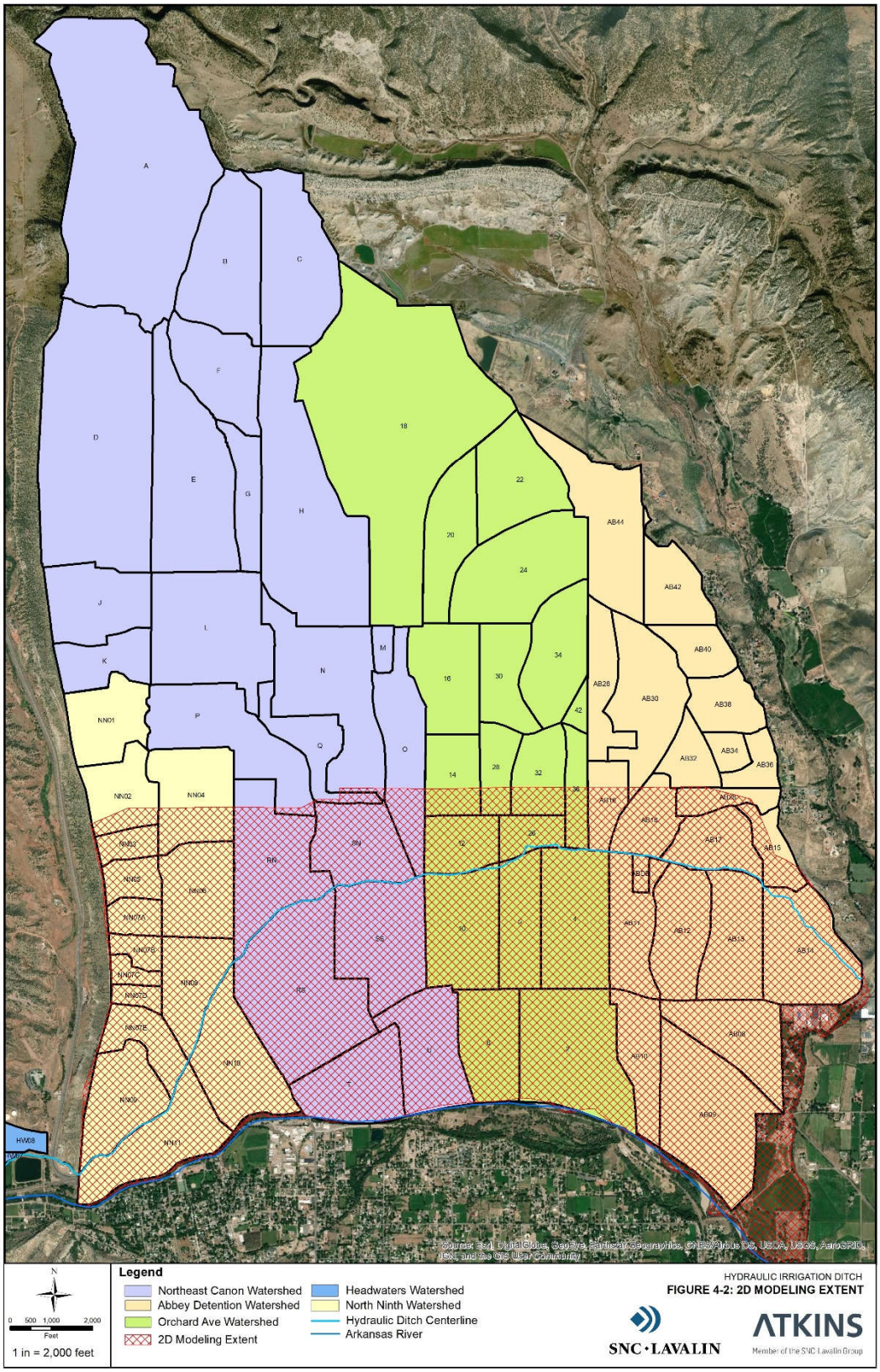
Note that, at cross section 3718 within Section 17, the decreed flow of 77 cfs is shown to break out of the Ditch. The survey data for the Ditch and the 1D HEC-RAS results show that—at this cross section—the maximum capacity of the Ditch is approximately 45 cfs.

Upon comparison with the 2017 Abbey Study, the results from the 1D model analysis show that the theoretical sizing and capacity analysis overestimated the conveyance capabilities of the Ditch. The survey-informed 1D model shows that the Ditch has a maximum capacity of approximately 270 cfs and a minimum capacity of 45 cfs. In contrast, the 2017 Abbey Study suggested that the Ditch could have as much as 563 cfs in capacity. Adjusting the maximum capacity to account for the Decreed Flow, the Ditch can receive a maximum additional inflow of 193 cfs. However, in reference to **Table 4-1**, it was calculated that the Ditch has an average approximate capacity of 112 cfs with a median value of 102.5 cfs. Using these values, it is determined that the Ditch, on average, could potentially accept a maximum of 35 cfs of stormwater inflows from the upstream watersheds before overtopping the Ditch channel.

4.2. 2D HEC-RAS Modeling

The 2D model covered an area of approximately 6 square miles and included the results obtained from the hydrologic modeling of four contributing watersheds (Northeast, North Ninth, Abbey, and Orchard Avenue). **Figure 4-2** shows the 2D modeling extent in relation to the Ditch and the contributing water sheds.

Figure 4-2. 2D Modeling Extent and Watershed Area



The 2D modeling conducted for this project used inflow hydrographs from two different sources to generate a flow-on-mesh model that maps the inundation and flooding extents of the 100-year storm event in the existing and future conditions. The first source for inflow hydrographs was the 100-year storm event results from the HEC-HMS models. The second source for inflow hydrographs came from point discharges that convey flow from conduits or channels directly into the Ditch. **Section 4.2.1** and **Section 4.2.2**, below, detail the data for each source of inflow hydrograph.

The 2D model was set up with a 20 x 20 grid size and ran using a computational interval of five seconds. A surface raster was created for the 2D extent by combining numerous terrain models to create a synthetic terrain that models the 2D extent with the Ditch carrying the decreed flow of 77 cfs. To create this surface raster, Atkins used ArcGIS to merge the LiDAR information and the survey information for the Ditch acquired from DEA. After a combined surface was created, the water surface elevation from the 1D model for the decreed flow of 77 cfs was pulled from HEC-RAS and translated into a surface raster within ArcGIS. This water surface raster and the combined surface terrain then were merged to create a single synthetic surface that incorporates the following:

- The Ditch modeled with the decreed flow
- The detailed survey information of the Ditch
- The bounding LiDAR data

Mapping Output and Hydrograph Output Intervals each were set to a time step of 15 minutes. The simulation was set up to run for a two-day storm, for modeling purposes, and the simulation was set to run 01JAN2000 at 00:00 to 03JAN2000 at 00:00. To calculate the inflow hydrographs used for the 2D analysis, the time-series output results from HEC-HMS were converted from the 1-minute outputs to a 6-minute hydrograph that is entered into the boundary condition for each combination point or subbasin. Calculations were performed using the Unsteady Flow Analysis within HEC-RAS.

4.2.1. 2D Inflow Hydrographs—HEC-HMS Models

Hydrographs taken from the HEC-HMS models were used to model the upstream flow affecting the Ditch from the North Ninth, Northeast Cañon, Orchard, and Abbey watersheds. Note that no hydrographs south (downstream) of the Ditch were included in the 2D modeling as the purpose of the analysis is to identify the flooding impacts at the Ditch. The 2D model, however, does show the downstream flooding and drainage patterns of the southern portion of the 2D extent as the flow is conveyed toward the Arkansas River. The hydrologic elements and the corresponding inflow hydrograph IDs used in the 2D model are shown in **Table 4-2,** below, and are summarized graphically in **Figure C-4.**

Table 4-2. 2D Inflow Hydrograph Summary

2D Inflow Hydrograph ID	Hydro. Element	Watershed	Contributing Subbasins
1	Subbasin NN09	North Ninth	NN09
2	Subbasin NN07E	North Ninth	NN07E
3	Subbasin NN07D	North Ninth	NN07D
4	Subbasin NN07C	North Ninth	NN07C
5	Subbasin NN07B	North Ninth	NN07B
6	Subbasin NN08	North Ninth	NN08
7	Subbasin NN07A	North Ninth	NN07A
8	Subbasin NN05	North Ninth	NN05
9	Subbasin NN06	North Ninth	NN06
10	Subbasin NN03	North Ninth	NN03
11	CPNN_2D	North Ninth	NN01, NN02

2D Inflow Hydrograph ID	Hydro. Element	Watershed	Contributing Subbasins
12	Subbasin NN04	North Ninth	NN04
13	Subbasin RN	Northeast Cañon	RN
14	RP	Northeast Cañon	P, SN
15	CP7	Northeast Cañon	A, B, C, D, E, F, G, H, J, K, L, M, N, O, Q
16A	CPO12	Orchard	12, 14, 16, 18, 20, 22, 24
16B	CPO6	Orchard	26, 28, 30
16C	CPO3	Orchard	32, 34
17	CPO2	Orchard	2, 4
18	CAB16	Abbey	AB16, AB26
19	CAB18	Abbey	AB18, AB28, AB30, AB32, AB34, AB36, AB38, AB40, AB42, AB44

4.2.2. 2D Inflow Hydrographs—Point Discharges

For the project, the City provided Atkins with a shapefile that included all the storm facility outlets within the study area. Atkins took these outlet points and identified the outlets that were specifically discharging into the Ditch channel. After the outlets within the Ditch channel were identified, they were classified into similar size categories. The categories the outlets were classified into were: 0-17 inches, 18 inches, 24 inches, 30 inches, 32 inches, and 48 inches x 64 inches. After the outlets were identified and classified, the City and Atkins coordinated to determine the direct point discharges that would be included within the 2D modeling. A total of 15 point discharges to the Ditch were identified. The outlets then were analyzed within Bentley Flowmaster to determine the full-flow capacity of each facility (see Flowmaster output in **Appendix C**). Note that each outlet was analyzed with an assumed slope of 2%. The assumed slope was discussed with the City and determined to be appropriate for conservative estimation purposes. The point discharges are summarized in **Table 4-3** and are shown graphically in **Figure C5**.

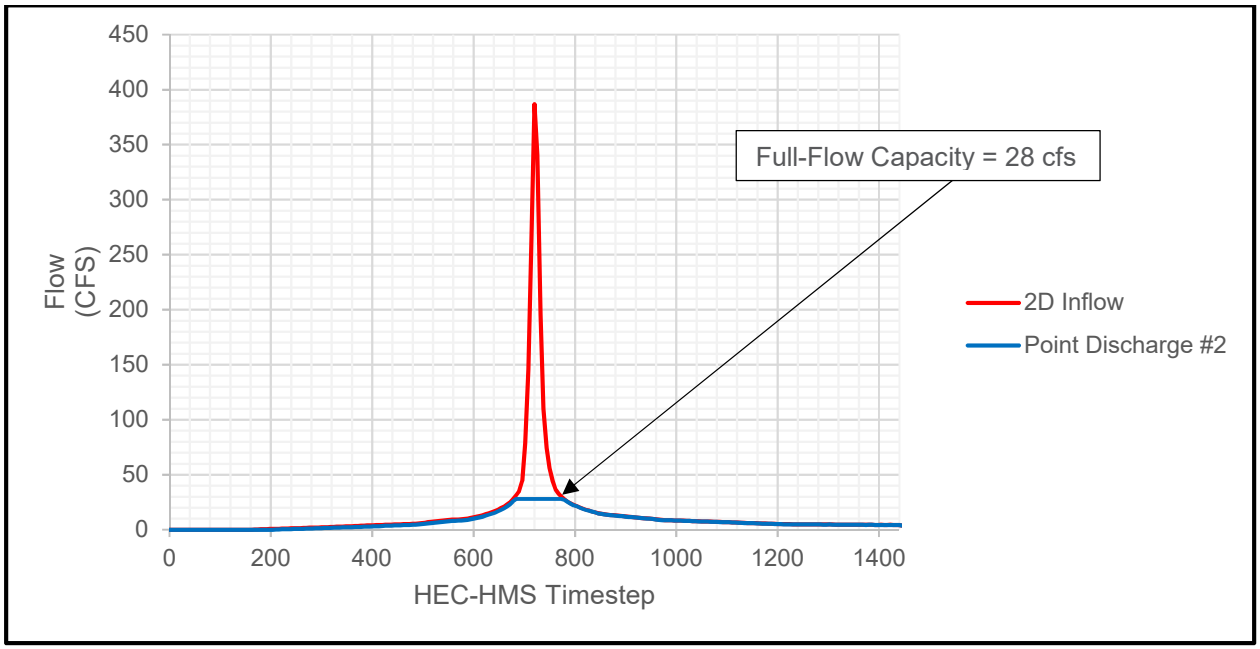
Table 4-3. Point Discharge Summary

Point Discharge ID	Cañon City Outlet ID	Outlet Size	Full-Flow Capacity (cfs)	2D Inflow Hydrograph ID
1*	NCSB-10	120" (BW) Concrete Pan	16	N/A
2	N9SB-128	24" Clay Pipe	28	1
3	N9SB-51	20" Steel Pipe	20	1
4	N9SB-103	12" CMP	6	7
5	N9SB-60	12" HDPE	5	8
6	N9SB-97	12" CMP	6	8
7	NCB-08	12" (BW) x 24" (TW) x 12" (Depth) Concrete Parab.	13	9
8**	NCB-10	24" (BW) x 96" (TW) x 8" (Depth) Concrete V-Ditch	21	12
9**	NCB-11	70" (BW) x 84" (TW) x 24" (Depth) Riprap Rundown	164	13

Point Discharge ID	Cañon City Outlet ID	Outlet Size	Full-Flow Capacity (cfs)	2D Inflow Hydrograph ID
10***	OAB-03	48" x 64" HERCP	295	16A
11	OAB-04	18" HDPE	15	16B
12	OAB-06	12" CMP	6	16C
13	OAB-08	18" Plastic	7	18
14	AB-22	18" CMP	14	20
15	AB-20	18" CMP	14	20

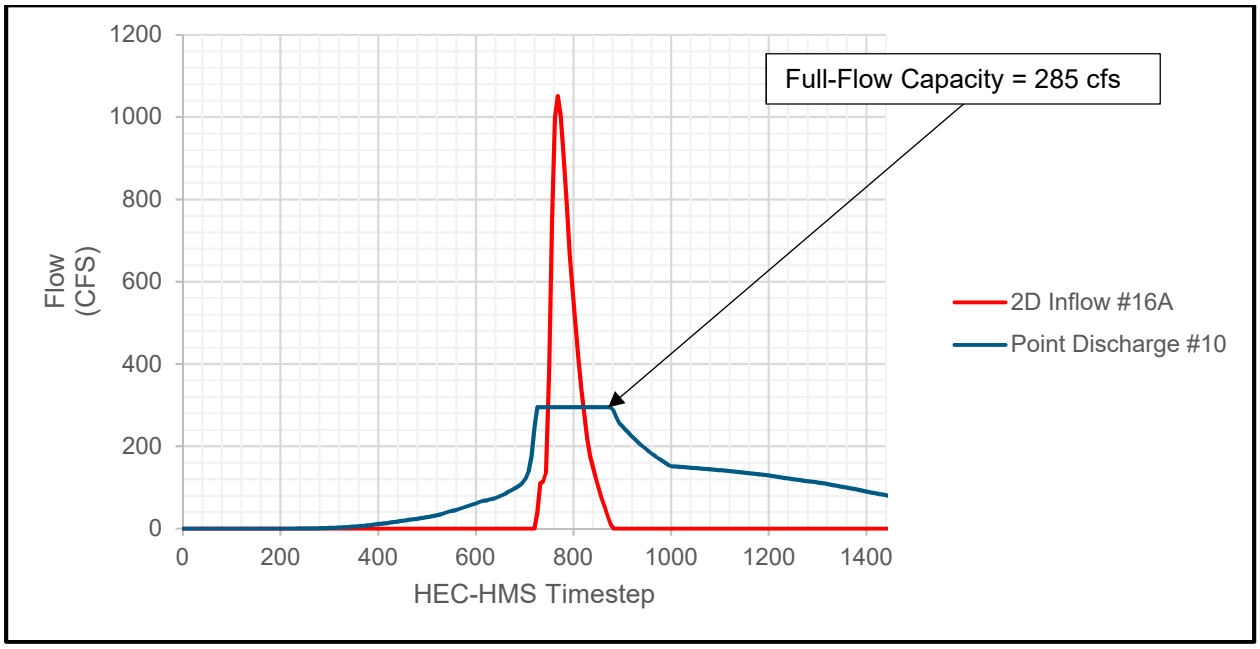
After the point discharges were discussed and agreed upon with the City, further analysis of the points was conducted to determine the procedure for incorporating the discharges into the 2D modeling. It was determined that the discharge points would be analyzed by using the corresponding inflow hydrograph and capping the flow at the full-flow capacity as this is the way the facility will act in the storm event. A sample hydrograph from Point Discharge #2 is shown in **Figure 4-3**.

Figure 4-3. Inflow Hydrograph for Point Discharge #2 vs. Inflow Hydrograph for 2D Inflow #1 (Subbasin NN09)



Also note that Point Discharge #10 was identified as the largest of the point discharges contributing to the Ditch channel. To account for the large inflow from the 48-inch x 64-inch horizontal elliptical reinforced concrete pipe (HERCP), Inflow Hydrograph #16A was manipulated to ensure that the volume from OAB-03 is not accounted for twice within the 2D model. Hydrograph #16A was reduced by the 295 cfs of full-flow capacity being conveyed from outlet OAB-03. Point Discharge #10 and 2D Inflow #16A are shown graphically within **Figure 4-4**.

Figure 4-4. Inflow Hydrograph for Point Discharge #10 vs. Inflow Hydrograph for 2D Inflow #16A (CPO12)



After further evaluation of the 2D model and the results obtained prior to the implementation of the point discharges into the modeling, it was determined that Point Discharges #8 and #9 already were being accounted for within the surface flow of the model. Therefore, they are noted as discharges directly contributing flow to the Ditch but are not included within the 2D modeling with a specified inflow hydrograph.

Note that Point Discharge #1 is not included in the 2D modeling as it is located outside the 2D modeling extent.

4.2.3. Existing Condition

The existing condition model used the 100-year storm event to inform the model of the flow in the study area. A summary of the inflow hydrograph peak flows for the existing condition 2D model is shown below in **Table 4-4,** as well as graphically in **Appendix C** in **Figure C2**.

Table 4-4. Existing Condition—2D Inflow Hydrograph Peak Flow Summary

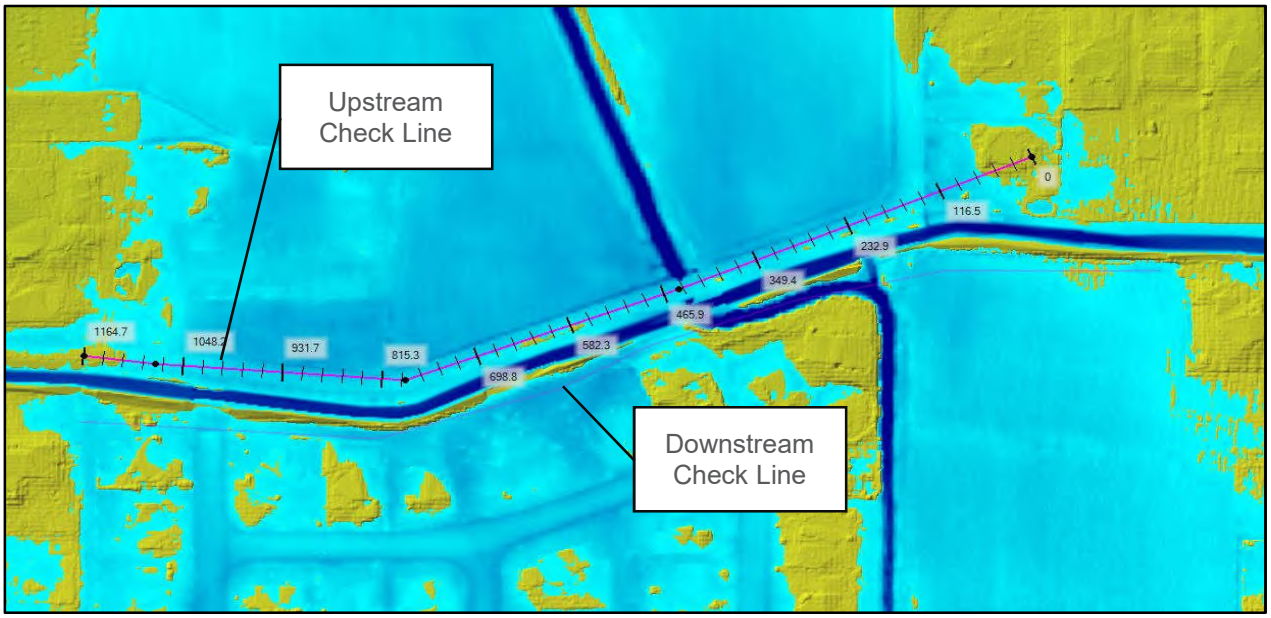
2D Inflow Hydrograph ID	Hydro. Element	Watershed	100-Year Peak Flow (cfs)
1	Subbasin NN09	North Ninth	336.40
2	Subbasin NN07E	North Ninth	123.40
3	Subbasin NN07D	North Ninth	47.20
4	Subbasin NN07C	North Ninth	56.10
5	Subbasin NN07B	North Ninth	69.00
6	Subbasin NN08	North Ninth	226.30
7	Subbasin NN07A	North Ninth	96.70
8	Subbasin NN05	North Ninth	107.40
9	Subbasin NN06	North Ninth	223.30

2D Inflow Hydrograph ID	Hydro. Element	Watershed	100-Year Peak Flow (cfs)
10	Subbasin NN03	North Ninth	80.50
11	CPNN_2D	North Ninth	443.30
12	Subbasin NN04	North Ninth	225.10
13	Subbasin RN	Northeast Cañon	188.30
14	RP	Northeast Cañon	297.20
15	CP7	Northeast Cañon	2525.10
16A	CPO12	Orchard	919.30
16B	CPO6	Orchard	292.80
16C	CPO3	Orchard	330.30
17	CPO2	Orchard	80.80
18	CAB16	Abbey	216.40
19	CAB18	Abbey	924.60
20	AB17	Abbey	114.50
21	AB15	Abbey	82.10

The model was run and a flow-on-grid graphic was developed from the depth generated from the 2D model. The maximum depth for the existing condition model is shown in **Figure C2** in **Appendix C**. The 2D analysis shows that the depth of flow across all watersheds varies from 0 to 12 feet in depth.

To analyze the Hydraulic Ditch in the 2D model, check lines were created within the RAS Mapper feature within HEC-RAS. The check lines were placed along the water surface at the upstream and downstream ends of the Ditch. The check lines were used to determine the volume of flow present at the upstream side of the Ditch and the volume of flow present at the downstream side of the Ditch. An example of these 2D check lines is provided below in **Figure 4-5**.

Figure 4-5. 2D Modeling Check Line Example



The results from the check line analysis are shown in **Table 4-5.**

Table 4-5. Existing Condition 2D Analysis Hydraulic Irrigation Ditch Flow Summary

2D Check Line	Approximate Flow (cfs)	Approximate Volume Accumulation (acre-ft)
AB15	54.65	5.95
AB15_DS	56.27	4.12
AB17	72.86	9.90
AB17_DS	87.57	21.34
CAB16	132.07	12.66
CAB16_DS	174.53	30.95
CAB18	875.00	113.97
CAB18_DS	852.23	111.60
CP7	2431.72	476.49
CP7_DS	2381.77	524.85
CPO12	404.58	42.20
CPO12_DS	670.26	200.97
CPO2	74.94	6.69
CPO2_DS	191.84	24.84
CPO3	484.84	69.31
CPO3_DS	286.41	28.55
CPO6	204.80	29.18
CPO6_DS	291.72	83.74
NN06	240.13	46.82
NN06_DS_1	61.10	14.48
NN06_DS_2	61.30	13.51
NN07D	46.45	6.60
NN07D_DS	24.75	6.48
NN07E	54.38	5.97
NN07E_DS	66.99	7.67
NN08	264.86	30.00
NN08_DS_1	156.29	16.82
NN08_DS_2	104.47	22.03
NN08_DS_3	31.60	8.94
NN09	214.93	20.56
NN09_DS	236.09	42.39
RN	691.75	76.44
RN_DS_1	45.09	10.97
RN_DS_2	331.00	37.70
RN_DS_3	231.64	16.88
RP	285.70	48.60

2D Check Line	Approximate Flow (cfs)	Approximate Volume Accumulation (acre-ft)
RP_DS_1	199.45	43.77
RP_DS_2	143.80	26.39

4.2.4. Future Condition

The existing condition model used the 100-year storm event to inform the model of the flow in the study area. A summary of the inflow hydrograph peak flows for the existing condition 2D model is shown below in **Table 4-6,** as well as graphically in **Appendix C** in **Figure C3**.

Table 4-6. Future Condition—2D Inflow Hydrograph Peak Flow Summary

2D Inflow Hydrograph ID	Hydro. Element	Watershed	100-Year Peak Flow (cfs)
1	Subbasin NN09	North Ninth	400.60
2	Subbasin NN07E	North Ninth	138.10
3	Subbasin NN07D	North Ninth	53.50
4	Subbasin NN07C	North Ninth	61.50
5	Subbasin NN07B	North Ninth	77.10
6	Subbasin NN08	North Ninth	232.90
7	Subbasin NN07A	North Ninth	106.80
8	Subbasin NN05	North Ninth	121.70
9	Subbasin NN06	North Ninth	227.80
10	Subbasin NN03	North Ninth	91.90
11	CPNN_2D	North Ninth	459.30
12	Subbasin NN04	North Ninth	232.60
13	Subbasin RN	Northeast Cañon	190.20
14	RP	Northeast Cañon	340.70
15	CP7	Northeast Cañon	2613.70
16A	CPO12	Orchard	1370.00
16B	CPO6	Orchard	286.10
16C	CPO3	Orchard	343.20
17	CPO2	Orchard	99.70
18	CAB16	Abbey	268.60
19	CAB18	Abbey	1136.40
20	AB17	Abbey	129.90
21	AB15	Abbey	107.70

The model was run and a flow-on-grid graphic was developed from the depth generated in the 2D model. The maximum depth for the future condition model is shown in **Figure C3**. The 2D analysis shows that the depth of flow across all watersheds varies from 0 to 12 feet in depth.

To analyze the Hydraulic Ditch in the 2D model, check lines were created within the RAS Mapper feature within HEC-RAS. The check lines were placed along the water surface at the upstream and downstream

ends of the Ditch. The check lines were used to determine the volume of flow present at the upstream side of the Ditch and the volume of flow present at the downstream side of the Ditch.

The results from the check line analysis are shown in **Table 4-7**.

Table 4-7. Future Condition 2D Analysis Hydraulic Irrigation Ditch Flow Summary

2D Check Line	Approximate Flow (cfs)	Approximate Volume Accumulation (acre-ft)
AB15	79.62	7.99
AB15_DS	62.58	4.58
AB17	80.54	11.17
AB17_DS	102.67	22.98
CAB16	156.93	16.14
CAB16_DS	167.24	33.22
CAB18	1066.28	137.75
CAB18_DS	968.78	133.95
CP7	2525.93	491.94
CP7_DS	2487.33	561.37
CPO12	640.14	62.47
CPO12_DS	875.12	237.02
CPO2	94.15	8.87
CPO2_DS	237.99	27.65
CPO3	496.58	72.09
CPO3_DS	292.62	29.97
CPO6	369.09	42.66
CPO6_DS	469.21	98.68
NN06	275.53	49.40
NN06_DS_1	67.66	14.95
NN06_DS_2	83.36	14.54
NN07D	48.42	7.24
NN07D_DS	50.42	7.09
NN07E	60.04	7.29
NN07E_DS	73.41	9.04
NN08	312.08	32.53
NN08_DS_1	163.62	17.97
NN08_DS_2	131.83	23.37
NN08_DS_3	37.32	9.56
NN09	334.16	28.97
NN09_DS	283.45	56.37
RN	736.09	79.81
RN_DS_1	55.68	11.53
RN_DS_2	351.62	39.10

2D Check Line	Approximate Flow (cfs)	Approximate Volume Accumulation (acre-ft)
RN_DS_3	254.53	17.70
RP	332.44	56.32
RP_DS_1	235.95	49.14
RP_DS_2	153.84	29.11

5. Master Plan-Level Design Suggestions

After completing the 2D modeling analysis, Atkins conducted a review of the previous studies to identify proposed master plan-level designs included within the studies. The following studies were reviewed for potential master level projects:

- *Abbey Drainage Basin Planning Study.* ADP Inc., December 1998.
- *The Northeast Cañon City Detention Basins Design Project.* Atkins, December 2017.
- *Northeast Cañon Drainage Basin Planning Study for Cañon City, Colorado.* Graef Anhalt Schloemer and Associates, November 1993.
- *Report on Storm Drainage Facilities for the City of Cañon City, Colorado.* M&I Inc., October 1974.
- *Orchard Avenue Drainage Basin Planning Study.* Graef Anhalt Schloemer and Associates, November 1994.
- *Hogback Detention Master Plan.* Graef Anhalt Schloemer and Associates, February 1995.

The proposed facilities included in the studies were digitized and are shown in **Figure D1**, located in **Appendix D**. Also included within **Figure D1** are the existing storm facilities from Cañon City.

Using the master plan-level designs proposed within the previous studies, along with the results from the 2D model analysis and the existing storm drain infrastructure information, Atkins is putting forward seven conceptual master plan-level projects that would improve the flooding and inundation that currently affects the Ditch. The purpose of the master plan facilities is to identify future projects; it should not be considered as a final design level or ready for construction. Master plan-level projects conceptually proposed for this analysis are shown on **Figure D2** and are discussed in further detail in the sections below.

5.1. Master Level Project #1—North 9th Street Improvements

Within the *Report on Storm Drainage Facilities for the City of Cañon City, Colorado* stormwater facilities were proposed across the City. After review of the 2D results, Atkins noticed significant flooding and inundation affecting the Ditch from the North Ninth Watershed. Specifically, flows from NN02 and NN04 are contributing to flooding that is observed along Oak avenue and flowing easterly toward North 9th Street. It is also noted that there is flooding that occurs along North 7th Street, specifically, in the area of Mystic Avenue. From the 1974 study, storm drain facilities were proposed along both North 7th Street and North 9th Street that would affectively cut off the flow from the North Ninth watershed before it affects the Ditch. It is conceptually proposed that the storm drain along North 9th Street be implemented with a lateral branch added to run along Mystic Avenue from North 7th Street. Benefits of this alternative include reduced flooding impact in and around the Ditch and providing relief to the reported Ditch overflow location at 725 Hazel Avenue.

5.2. Master Level Project #2—9th Street Detention Basin and Channel Improvements

From the *The Northeast Cañon City Detention Basins Design Project* completed in December 2017, the proposed 9th Street detention basin and channel improvements are located within the Northeast Cañon watershed. The proposed detention basin is located at the southeast corner of North 9th Street and Washington Street. The proposed channel improvements convey flow south-easterly from the conceptual detention basin toward the WPA channel. The conceptual channel improvements are shown to intersect the WPA channel in the area of the Harding Avenue and North 15th Street. It is shown in the current analysis and within the 2017 report that the 9th Street detention basin will reduce flow downstream by approximately 60 percent. Other benefits include increasing the capacity of the detention basin to 110 acre-ft, improving the channel and replacing culverts to pass all upstream flow toward the east basin, and reducing flooding inundation observed in the 2D modeling results around St. Thomas More Hospital.

5.3. Master Level Project #3—15th Street Detention Basin and Channel Improvements

From the *The Northeast Cañon City Detention Basins Design Project* completed in December 2017, the proposed 15th Street detention basin and channel improvements are located within the Northeast Cañon watershed. The proposed detention basin is located at the northeast corner of North 15th Street and Washington Street. The proposed channel improvements convey flow south from the conceptual detention basin within the existing WPA channel. The conceptual channel improvements will increase capacity and replace culverts along the current WPA channel to handle the increased flows generated from the NOAA Atlas 14 rainfall information. It is shown in the current analysis and within the 2017 report that the 15th Street detention basin will reduce flow downstream by approximately 60 percent. WPA channel improvements also provide the opportunity to allow for increased inflow allowance, specifically from the WPA Overflow Weir.

5.4. Master Level Project #4—Orchard Avenue Storm Facilities Improvements

Within the *Orchard Avenue Drainage Basin Planning Study* from November 1994, the study proposes a total of five alternative storm facilities that would help deter flooding impacts within the Orchard Avenue watershed. Of the five alternatives reviewed within the study, Alternative #4 is conceptually proposed by Atkins as the preferred alternative. The proposed conceptual facility will convey the large inflows located along Central Avenue within the Orchard Avenue watershed south and outlet to the Arkansas River. Benefits of the Orchard Avenue improvements include replacing the current outfall that discharges directly to the Ditch via outlet OAB-03 (Point Discharge #10). The improvements will also reduce the risk of Ditch overtopping in the area which is reported in the existing condition.

5.5. Master Level Project #5—CAB16 Storm Facilities

From the 2D results generated with this study, it is observed that the CAB16 combination point within the Abbey watershed contributes flooding and inundation to the Ditch—specifically, along Field Avenue. It is conceptually proposed that a detention basin and storm facility system be placed at the northeast portion of the intersection of Field Avenue and Pear Street to mitigate these flows. The storm drain would then convey flow south toward Cherry Street and then turn and run east along Cherry Street until it can tie into the Lower Abbey Drainageway.

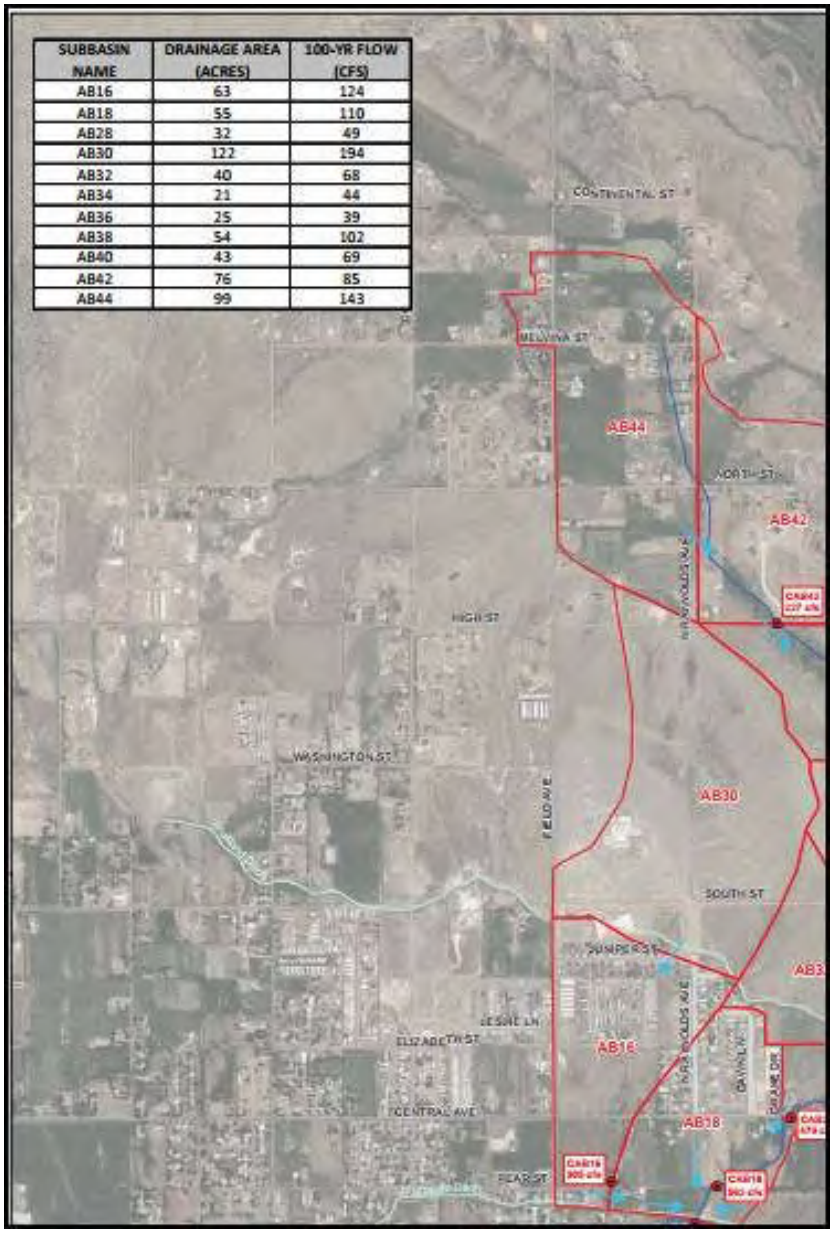
This approach was suggested as a Master-Level Project alternative due to the results reached in the *Abbey Detention Basin—Updated Hydrology and Additional Capacity Analysis Memo (2017)* developed by Atkins. In this memo, specifically, within the Conclusion (Section 6, pg. 11) the memo states:

1. "*Based on the results from the updated analysis, the Abbey Detention Basin does not have the capacity to receive additional inflow. Updates to the rainfall data alone results in spillway*

overtopping, therefore any further contributions to increase the runoff to the detention basin would yield the same result. The updated LiDAR topography also shows that the capacity of the basin may currently be less than originally designed. If flows were to be added to the Abbey Detention Basins, the potential for adverse impacts could be significant."

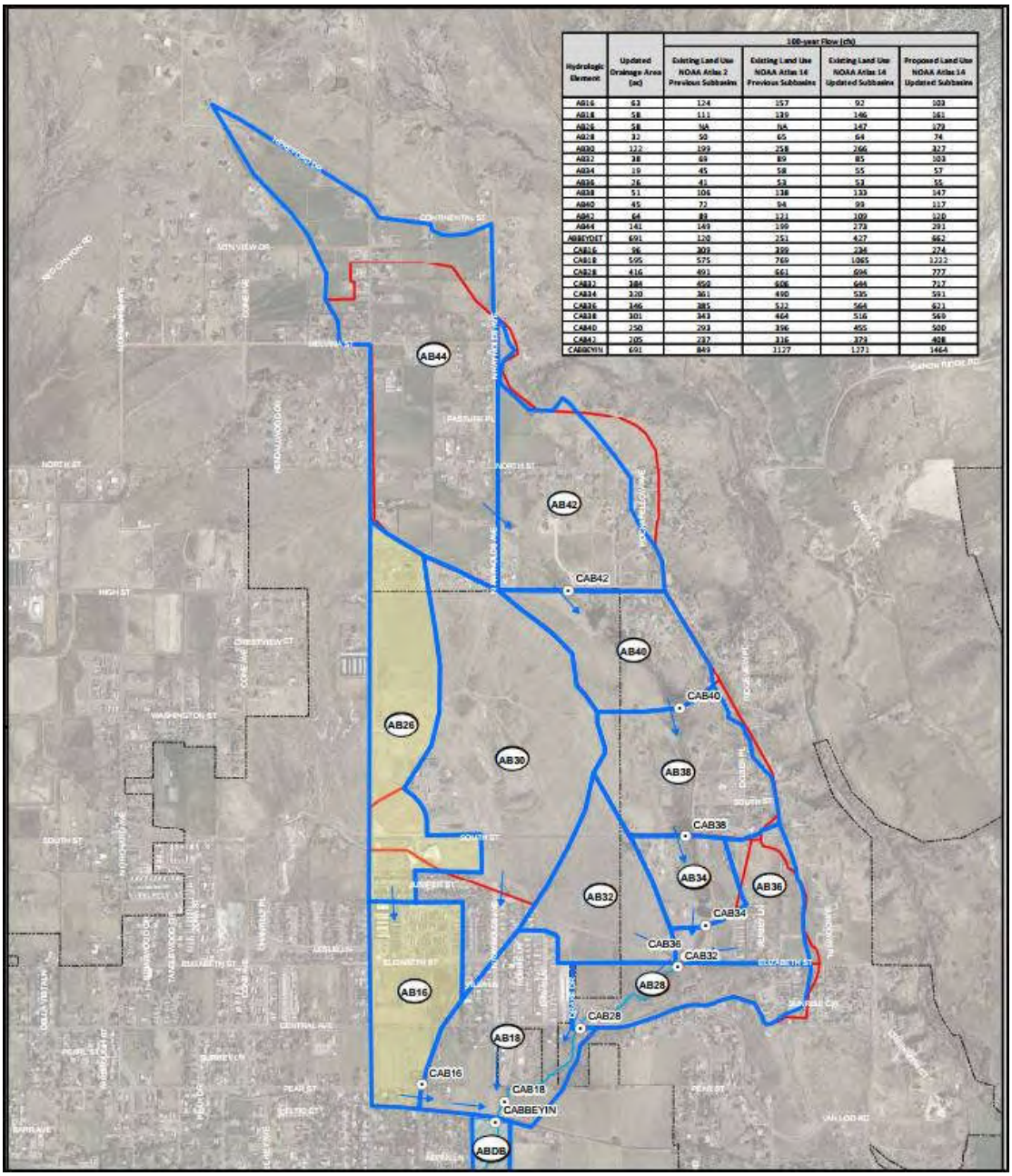
For further detail on this area, Atkins referenced the *Abbey Detention Basin Dam Draft Hazard Classification Report* (Atkins, 2009). This report used ArcHydro to determine subbasin delineations for the northern Abbey watershed. Figure 2-3 from the report shows the subbasin delineations for this area. This hydrologic analysis was conducted using NOAA Atlas 2 rainfalls and shows subbasins AB30 and AB16 contributing to the Abbey Detention Basin via the combination point CAB16. It should be noted that the area east of Field Avenue and an area northeast of Field Avenue and High Street is not included in the subbasin delineations. See **Figure 5-1** below, for a screenshot of the area from the 2009 study.

Figure 5-1. Abbey Detention Basin Watershed Subbasins from 2009 Atkins Study



In the 2017 study, the missing area was determined to flow southerly along Field Avenue and into AB16. This area was delineated as subbasin AB26. It was also suggested in the 2017 study that the combined flows from AB26 and AB16 entered the Hydraulic Ditch and were not being conveyed into the Abbey Detention Basin. However, in the HEC-HMS model, the flows contributing to CAB16 were modeled to enter the Abbey Detention Basin. The updated delineations are shown in Figure 2-4 of the 2017 study and are shown in screenshot form below in **Figure 5-2**.

Figure 5-2. Abbey Detention Basin Watershed Subbasins from 2017 Atkins Study



Hydrologic Element	Updated Drainage Area (ac)	100-year Flow (cfs)			
		Existing Land Use NOAA Atlas 2 Previous Subbasins	Existing Land Use NOAA Atlas 14 Previous Subbasins	Existing Land Use NOAA Atlas 14 Updated Subbasins	Proposed Land Use NOAA Atlas 14 Updated Subbasins
AB16	63	124	157	92	103
AB18	58	111	139	146	161
AB26	58	NA	NA	147	179
AB28	32	50	65	64	74
AB30	122	199	258	266	327
AB32	38	69	89	85	103
AB34	19	45	58	55	57
AB36	26	41	53	53	55
AB38	51	106	138	133	147
AB40	45	72	94	99	117
AB42	64	89	121	109	120
AB44	141	149	199	278	291
ABBEYDET	691	120	251	427	662
CAB16	96	309	399	234	274
CAB18	595	575	769	1065	1222
CAB28	416	491	661	694	727
CAB32	384	450	606	644	717
CAB34	320	361	490	535	591
CAB36	346	285	522	564	621
CAB38	301	343	464	516	569
CAB40	250	293	396	455	500
CAB42	205	237	316	373	408
CABBEYIN	691	849	1127	1271	1464

The updated analysis showed that with the Atlas 14 rainfalls, the Abbey Detention Basin does not have capacity to handle the contributing flows from CAB16 and CAB18. It was determined that even without the updated subbasin delineations, using the delineations from 2009, and the NOAA Atlas 14 rainfall – the Abbey Detention Basin as-built does not have the capacity for the contributing inflows.

With this in mind, it is the intent of the proposed alternative to relieve the Abbey Detention Basin as well as the Hydraulic Ditch from the CAB16 inflows. Because, as shown in the capacity analysis from 2017, the Hydraulic Ditch is most likely receiving these flows.

5.6. Master Level Project #6—Abbey Detention Basin and Channel Improvements

As detailed in Master Level Project #5, the Abbey Detention Basin does not have adequate capacity to handle the NOAA Atlas 14 rainfalls. Therefore, it is proposed in Master Level Project #6 that the detention basin be increased to accommodate the 100-year storm event with no spillway overtopping and improve the Lower Abbey Drainageway to accommodate the increase in flows. Benefits of this approach include the ability to size the detention and the Lower Abbey Drainageway to accommodate additional inflows from the Abbey Overflow Weir which provides relief to the Ditch in its current capacity and that this approach utilizes existing storm drain facility layouts.

5.7. Master Level Project #7—Dozier Avenue and Glenmoore Road Storm Drain Improvements

This conceptual proposed storm drain system relieves inundation and flooding caused by the point discharges at Glenmoore Road as well as the potential inflows that could be added to the area by the spill gate at Dozier Avenue. Benefits of this system include the mitigation of surface flows along Glenmoore Road and Dozier Avenue, the flow will be conveyed along existing drainage patterns to 4 Mile Creek, and also presents the potential for an additional branch to relieve flooding along US 50.

6. Selected Master Level Projects

After the master-level projects suggested in Section 5 were developed, Atkins traveled to the City to meet with members of the Stormwater Task Force and representatives from the Hydraulic Irrigation Ditch and the Fruitland Ditch. The meeting occurred on October 23, 2018. Meeting minutes from this meeting are included in **Appendix E.** From the meeting, Atkins and the representatives present discussed the suggested master level design projects included in Section 5. It was determined that a total of 5 projects would be selected to be developed at a conceptual level. Each conceptual level project includes a preliminary cost analysis to complete the conceptual design. For conservative design purposes, the hydrologic models created within HEC-HMS were used to provide design flows for the conceptual systems. It should be noted that the 100-year storm event with Future Condition land use was used to generate the design flows for the selected master-level projects. Also, the conceptual level designs did not consider street-level capacities and sizes for the master-level facilities are designed to capture all surface flow that is being conveyed to the system. Bentley Flowmaster was used to calculate and design the conceptual storm drain sizes for each selected master plan. For channels, a constant value of 1’ of freeboard was added to each of the normal depth calculations to provide a design depth for each channel. Full results for the conceptual hydraulic designs are provided in **Appendix E.** It should be noted that when compared to the sizes of storm drains shown within the previous master plan studies, the sizes necessary for the current analysis are much larger. It is noted that the selected master level projects are developed to a conceptual level only and should not be considered ready for construction or any advancement beyond the preliminary conceptual level. The selected projects are outlined below.

6.1. Master Level Project #1—North 9th Street Storm Drain

The selected North 9th Street Storm Drain runs west to east along Oak Avenue toward North 9th Street. At the intersection of North 9th Street and Oak Avenue, the storm drain turns and runs south underneath North 9th Street. The storm drain continues south along North 9th Street, eventually passing underneath the Hydraulic Ditch and releasing the conveyed flow to the Arkansas River.

6.2. Master Level Project #2—WPA Channel Improvements

The selected WPA Channel Improvements were chosen to help relieve flooding south of the Ditch. No improvements north of the Ditch were considered for this project, this includes the removal of the 9th Street and 15th Street proposed detention basins. Due to this direction, the channel improvements begin at the south side of the Ditch and extend south along the existing channel toward US 50. Also, per the City's request, the channel was sized to accept a maximum of 200 cfs from the WPA overflow weir located along the Ditch. The channel enters a culvert to pass under Franklin Avenue and then continues south until it enters a replacement for the existing storm drain (existing Cañon City infrastructure IDs: PIPE000110, 000112, 000113, 000114, and 0001407), which conveys flow under the shopping center and US 50. The channel then turns slightly to the southwest and runs south along Frazier Avenue. Along Frazier Avenue, two culverts will be replaced with the channel ultimately entering the storm drain replacement for the existing infrastructure storm drain ID: PIPE000470. The storm drain then terminates with an outlet to the Arkansas River.

6.3. Master Level Project #3—Orchard Avenue Storm Drain

The selected Orchard Avenue storm drain consists of three separate branches of storm drain that combine into a single trunkline that runs south along Diamond Avenue toward the Arkansas River. The west branch conveys the flow from the Orchard detention basin channel and conveys the flow to Diamond Ave. This branch of the storm drain is necessary as the storm drain that currently exists, PIPE000467, drains directly to the Ditch. In addition to draining directly to the Ditch, the storm drain is also vastly undersized for the amount of flow that is shown to be draining to the area in the 100-year future condition storm event. However, in response to a comment received from the City, the existing 48-inch x 64-inch HERCP will be removed from the Ditch and will instead be routed underneath the Ditch and conveyed to a tie in to the main trunkline at the intersection of Cherry Street and Diamond Avenue. The east branch of the system begins at the low point along Central avenue, at Cone Avenue, and runs south along Cone until Pear Street where the CBC then runs east to the beginning of the trunkline at the intersection of Pear Street and Diamond Ave. The trunkline section of the storm drain runs south underneath Diamond Avenue and conveys flow to the outlet at the Arkansas River.

6.4. Master Level Project #4—Pear Street Channel, Abbey Lower Channel, and Rhodes Avenue Channel Improvements

The selected Pear Street, Abbey Lower Channel, and Rhodes Avenue Channel Improvements are three separate branches of channels that are required to convey flow into and out of the Abbey Detention Basin to the Arkansas River. The Pear Street channel improvements begin at the intersection of Pear Street and Field Avenue and run east along Pear Street while capturing flow from upstream. The channel then ties into the existing Abbey Upper Channel and proposes improvements to the existing alignment of the channel that passes over the Ditch. The Abbey Lower Channel Improvements begin at the downstream outlet of the Abbey Detention Basin and convey the outflow from the pond south along the existing alignment of the channel. A proposed replacement of the existing culvert at US 50 will convey the channel flow underneath the highway and the railroad out letting to the existing Rhodes Avenue Channel. The Rhodes Avenue Channel conveys flow south along Rhodes Avenue and outlets to the Arkansas River in the area of Ute Street.

6.5. Master Level Project #5—Abbey Detention Basin Improvements

The selected Abbey Detention Basin Improvements associated with this project are necessary to provide adequate capacity for the current inflows that impact the Abbey Detention Basin. As outlined in **Section 5.5**, the Abbey Detention Basin needs to improve the capacity requirements to convey the current conditions. Note that, under direction from the City, Atkins was instructed to size the Abbey Detention Basin to accept inflows from the Ditch. After several iterations, it was determined that a maximum of 50

cfs can be accepted at a constant rate. To accommodate the increased inflows from the Ditch and the upstream hydrology, it is proposed that the detention basin be raised a total of 5 ft. This results in an adjustment of the spill way elevation increasing from 5,348 ft to 5,353 ft and the top of embankment increasing from 5,351 ft to 5,356 ft. By increasing the height of the embankment and the spillway within the existing footprint of the Abbey Detention Basin, the improvements eliminate overtopping and provide freeboard to the spill way in the 100-year storm event. An updated stage-storage-discharge curve and summary are provided in **Table 6-1 and Table 6-2**, respectively, to show the results from the proposed improvements to the detention basin. If the City decides to move forward with the Abbey Detention Basin Improvements, it is recommended that Dam Safety is involved in the planning process.

Table 6-1. Proposed Improvements to Abbey Detention Basin 100-Year Storm Results

Stage (ft)	Elevation (ft)	2009 PBS&J Storage (ac-ft)	2017 Atkins Storage (ac-ft)	2018 Proposed Basin Improvements (ac-ft)	Discharge (cfs)	Notes
0	5,334	0	0.00	0.00	0	Outlet Invert (36" RCP)
2	5,336	1.94	0.01	1.94	26	
4	5,338	6.34	1.61	6.34	58	
6	5,340	13.28	7.09	13.28	78	
8	5,342	22.80	15.30	22.80	94	
10	5,344	34.92	26.30	34.92	107	
12	5,346	48.68	39.21	48.68	119	
14	5,348	63.09	53.09	63.09	130	
16	5,350	78.18	67.72	78.18	140	
17	5,351	85.98	75.33	85.98	150	
18	5,352	-	-	93.78	160	
19	5,353	-	-	101.58	170	Spillway Crest Elevation
20	5,354	-	-	109.38	180	
21	5,355	-	-	117.18	190	
22	5,356	-	-	124.98	200	Embankment Elevation

Table 6-2. Proposed Improvements to Abbey Detention Basin 100-Year Storm Results

Design Item	Design Value
Drainage Area	1.08 square miles
100-year Peak Inflow	1,432.70 cfs
100-year Peak Outflow	166.5 cfs
100-year Peak Stage	5,352.60 feet
100-year Peak Storage	98.8 ac-ft
Outlet Type	36-inch RCP
Outlet Invert Elevation	5,334.00 feet
Spillway Crest Elevation	5,353.00 feet
Jurisdictional Dam Height	22.0 feet
Storage Capacity (at spillway crest)	102 ac-ft
Freeboard	0.4 feet

6.6. Master-Level Projects Component and Cost Analysis Summary

The selected master-level projects were analyzed using a combination the UD-MP COST Version 2.2 (UD-MP) software available from UDFCD, as well as the most current CDOT pay items. The UD-MP was used to get an accurate account of the storm drain work necessary for the selected master level projects. For channel improvements associated with the projects, the most current pay information from CDOT was utilized to determine costs associated with concrete lined channels and excavation required for earthen channels. **Table 6-3** provides an overview of each storm drain component within the selected master plans while the layout of the master level projects is shown in **Appendix E** on **Figure E-1.**

Table 6-3. Master Level Project Component Summary

Selected Master Level Project ID	Reach	HEC-HMS Node For Design Flow	Design Flow (cfs)	Conceptual Conveyance Structure	Conceptual Upstream Invert	Conceptual Downstream Invert	Length (ft)	Slope (ft/ft)
1	North Ninth Leg 1	CPNN01B	705.0	8' x 5' CBC	5413.72	5376.13	2127.00	0.01767
1	North Ninth Leg 2	CPNN01B+ CPNN02B	1072.3	(2) 8' x 4' CBC	5376.13	5350.41	1920.00	0.01340
1	North Ninth Leg 3	CPNN01B+ CPNN02B+ CPNN03B	1456.2	(2) 9' x 5' CBC	5350.41	5313.16	4502.46	0.00827
2	NE WPA 1	*CP7	2813.7	Concrete Trap. (D=6', 3:1 SS, BW=10')	5350.86	5322.00	2217.12	0.01302
2	NE WPA 2 (CULV000171)	*CP8	3261.4	14' x 10' CBC	5322.00	5321.00	75.00	0.01333
2	NE WPA 3	*CP8	3261.4	Concrete Trap. (D=8', 2:1 SS, BW=10')	5321.00	5319.66	226.20	0.00592
2	NE WPA 4 (PIPE001407)	*CP8	3261.4	16' x 10' CBC	5319.66	5311.78	1108.35	0.00711
2	NE WPA 5	*CP8a	3770.6	Concrete Trap. (D=8', 2:1 SS, BW=10')	5311.78	5304.85	914.69	0.00758
2	NE WPA 6 (CULV000133)	*CP8a	3770.6	16' x 10' CBC	5304.85	5304.12	72.69	0.01004
2	NE WPA 7	*CP8a	3770.6	Concrete Trap. (D=8', 2:1 SS, BW=10')	5304.12	5303.00	156.31	0.00717
2	NE WPA 8	*CP8a	3770.6	14' x 10' CBC	5303.00	5302.65	24.00	0.01458
2	NE WPA 9	*CP8a	3770.6	Concrete Trap. (D=8', 2:1 SS, BW=10')	5302.65	5301.00	123.94	0.01331
2	NE WPA 10 (PIPE000470)	*CP9	3818.3	18' x 10' CBC	5301.75	5291.25	1338.52	0.00728
3	Orchard West Leg 1	CPO12	1370.0	14' x 6' CBC	5363.00	5349.00	1553.20	0.00901
3	Orchard East Leg 1	CPO6 + CPO3	629.3	10' x 5' CBC	5359.00	5349.00	1370.21	0.00730
3	Orchard Existing Leg	Full Flow Capacity of HERCP	214.5	43" x 68" HERCP	5350.00	5337.00	1228.97	0.01058
3	Orchard Trunk 1	CPO4	1573.0	12' x 8' CBC	5349.00	5337.00	1337.79	0.00897
3	Orchard Trunk 2	CPO4	1573.0	12' x 8' CBC	5337.00	5313.78	2109.88	0.01101
3	Orchard Trunk 3	CPO7	1712.0	12' x 8' CBC	5313.78	5288.33	2271.12	0.01121
4	Abbey Upper Channel 1	CAB16	268.6	Concrete Trap. (D=4', 3:1 SS, BW=3')	5353.50	5350.30	1453.17	0.00220
4	Abbey Upper Channel 2	CABBEYIN	1372.9	Concrete Trap. (D=5', 3:1 SS, BW=18')	5350.30	5343.71	345.22	0.01909
4	Abbey Lower Channel	**CAB08	315.2	Earthen Trap. (D=4', 3:1 SS, BW=8')	5333.47	5306.96	2527.68	0.01049
4	CULV000213 Replacement	**CAB08	315.2	8' x 4' CBC	5306.96	5304.89	192.31	0.01076
4	Rhodes Ave Channel	**CAB08	315.2	Earthen Trap. (D=4', 3:1 SS, BW=6')	5304.89	5272.83	2433.37	0.01318

*Northeast Canon Improvements are sized to receive an additional 200 cfs from the Ditch in storm events via the WPA Spillway. Design flows are calculated using the HEC-HMS Model results +200 cfs for the received Ditch flows.

**Abbey System Improvements are sized to receive a constant flowrate of 50 cfs from the Ditch via the Abbey Detention Basin Spillway. HEC-HMS Modeling used for CAB08 design flow is the Abbey_MASTER model, instead of the Abbey_2018 model that was used to determine inflows for the 2D modeling.

The cost analysis for each of the selected master level plans are shown in **Table 6-4 through Table 6-8.** Note that, for any storm drain component, a manhole was calculated to be placed every 300 ft of storm drain pipe.

Table 6-4. Master Level Project #1 Cost Analysis Summary

Selected Master Level Project ID	Reach	Conceptual Conveyance Structure	Length (ft)	Unit	Quantity	Unit Cost	Total Cost
1	North Ninth Leg 1	8' x 5' CBC	2127.00	LF	-	$957.76	$2,037,155.52
1	North Ninth Leg 2	(2) 8' x 4' CBC	1920.00	LF	-	$1,806.56	$3,468,595.20
1	North Ninth Leg 3	(2) 9' x 5' CBC	4502.46	LF	-	$2,109.71	$9,498,884.89
1	North Ninth Storm Drain	Type B Manhole	-	EA	30	$17,400.00	$522,000.00
1	North Ninth Storm Drain	Headwalls and Toewalls	-	EA	1	$2,025.45	$2,025.45
1	North Ninth Storm Drain	Wingwalls	-	EA	1	$15,524.52	$15,524.52
				Subtotal for Capital Improvement Costs			$15,544,185.58
1	Mobilization	-	-	-	5%	-	$777,209.00
1	Stormwater Management & Erosion Control	-	-	-	5%	-	$777,209.00
1	Utility Coordination & Relocation	-	-	-	15%	-	$2,331,628.00
1	Engineering	-	-	-	15%	-	$2,331,628.00
1	Legal & Administrative	-	-	-	5%	-	$777,209.00
1	Contract Admin. & Construction Management	-	-	-	10%	-	$1,554,419.00
1	Contingency	-	-	-	25%	-	$3,886,046.00
					Total Project Cost		$27,979,533.58

Table 6-5. Master Level Project #2 Cost Analysis Summary

Selected Master Level Project ID	Reach	Conceptual Conveyance Structure	Length (ft)	Quantity	Unit	Unit Cost	Total Cost
2	NE WPA 1	Concrete Trap. (D=6', 3:1 SS, BW=10')	2217.12	-	LF	$381.76	$846,410.09
2	NE WPA 2 (CULV000171)	14' x 10' CBC	75.00	-	LF	$2,091.13	$156,834.75
2	NE WPA 3	Concrete Trap. (D=8', 2:1 SS, BW=10')	226.20	-	LF	$396.71	$89,735.07
2	NE WPA 4 (PIPE001407)	16' x 10' CBC	1108.35	-	LF	$2,603.87	$2,885,999.31
2	NE WPA 5	Concrete Trap. (D=8', 2:1 SS, BW=10')	914.69	-	LF	$374.73	$342,759.77
2	NE WPA 6 (CULV000133)	16' x 10' CBC	72.69	-	LF	$2,603.87	$189,275.31
2	NE WPA 7	Concrete Trap. (D=8', 2:1 SS, BW=10')	156.31	-	LF	$374.73	$58,573.70
2	NE WPA 8	14' x 10' CBC	24.00	-	LF	$2,091.13	$50,187.12
2	NE WPA 9	Concrete Trap. (D=8', 2:1 SS, BW=10')	123.94	-	LF	$374.73	$46,443.76
2	NE WPA 10 (PIPE000470)	18' x 10' CBC	1338.52	-	LF	$2,979.06	$3,987,531.39
2	Northeast Storm Drain	Type B Manhole	-	9.00	EA	$17,400.00	$156,600.00
2	Northeast Storm Drain	Headwalls and Toewalls	-	10.00	EA	$919.19	$9,191.90
2	Northeast Storm Drain	Wingwalls	-	10.00	EA	$17,281.15	$172,811.50
						Subtotal for Capital Improvement Costs	$8,992,353.67
2	Mobilization	-	-	-	5%	-	$449,618.00
2	Stormwater Management & Erosion Control	-	-	-	5%	-	$449,618.00
2	Utility Coordination & Relocation	-	-	-	15%	-	$1,348,853.00
2	Engineering	-	-	-	15%	-	$1,348,853.00
2	Legal & Administrative	-	-	-	5%	-	$449,618.00

Selected Master Level Project ID	Reach	Conceptual Conveyance Structure	Length (ft)	Quantity	Unit	Unit Cost	Total Cost
2	Contract Admin. & Construction Management	-	-	-	10%	-	$899,235.00
2	Contingency	-	-	-	25%	-	$2,248,088.00
					Total Project Cost		$16,186,236.67

Table 6-6. Master Level Project #3 Cost Analysis Summary

Selected Master Level Project ID	Reach	Conceptual Conveyance Structure	Length (ft)	Quantity	Unit	Unit Cost	Total Cost
3	Orchard West Leg 1	14' x 6' CBC	1553.20	-	LF	$1,802.36	$2,799,425.55
3	Orchard East Leg 1	10' x 5' CBC	1370.21	-	LF	$1,152.38	$1,579,002.60
3	Orchard Existing Leg	43" x 68" HERCP	1228.97	-	LF	$313.00	$384,667.61
3	Orchard Trunk 1	12' x 8' CBC	1337.79	-	LF	$1,624.68	$2,173,480.66
3	Orchard Trunk 2	12' x 8' CBC	2109.88	-	LF	$1,624.68	$3,427,879.84
3	Orchard Trunk 3	12' x 8' CBC	2271.12	-	LF	$1,624.68	$3,689,843.24
3	Orchard Storm Drain	Type B Manhole	-	36	EA	$17,400.00	$626,400.00
3	Orchard Storm Drain	Headwalls and Toewalls	-	1	EA	$1,421.70	$1,421.70
3	Orchard Storm Drain	Wingwalls	-	1	EA	$23,348.50	$23,348.50
					Subtotal for Capital Improvement Costs		$14,705,469.70
3	Mobilization	-	-	-	5%	-	$735,273.00
3	Stormwater Management & Erosion Control	-	-	-	5%	-	$735,273.00
3	Utility Coordination & Relocation	-	-	-	15%	-	$2,205,820.00
3	Engineering	-	-	-	15%	-	$2,205,820.00

Selected Master Level Project ID	Reach	Conceptual Conveyance Structure	Length (ft)	Quantity	Unit	Unit Cost	Total Cost
3	Legal & Administrative	-	-	-	5%	-	$735,273.00
3	Contract Admin. & Construction Management	-	-	-	10%	-	$1,470,547.00
3	Contingency	-	-	-	25%	-	$3,676,367.00
						Total Project Cost	$26,469,842.70

Table 6-7. Master Level Project #4 Cost Analysis Summary

Selected Master Level Project ID	Reach	Conceptual Conveyance Structure	Length (ft)	Quantity	Unit	Unit Cost	Total Cost
4	Abbey Upper Channel 1	Concrete Trap. (D=4', 3:1 SS, BW=3')	1453.17	-	LF	$374.73	$544,543.20
4	Abbey Upper Channel 2	Concrete Trap. (D=5', 3:1 SS, BW=18')	345.22	-	LF	$396.75	$136,966.87
4	Abbey Lower Channel	Earthen Trap. (D=4', 3:1 SS, BW=8')	2527.68	-	LF	$149.07	$376,811.18
4	CULV000213 Replacement	8' x 4' CBC	192.31	-	LF	$903.28	$173,709.78
4	Rhodes Ave Channel	Earthen Trap. (D=4', 3:1 SS, BW=6')	2433.37	-	LF	$93.33	$227,114.31
4	Abbey Storm Drain	Headwalls and Toewalls	-	2	EA	$964.50	$1,929.00
4	Abbey Storm Drain	Wingwalls	-	2	EA	$9,480.57	$18,961.14
						Subtotal for Capital Improvement Costs	$1,480,035.47
4	Mobilization	-	-	-	5%	-	$74,002.00
4	Stormwater Management & Erosion Control	-	-	-	5%	-	$74,002.00
4	Utility Coordination & Relocation	-	-	-	15%	-	$222,005.00

Selected Master Level Project ID	Reach	Conceptual Conveyance Structure	Length (ft)	Quantity	Unit	Unit Cost	Total Cost
4	Engineering	-	-	-	15%	-	$222,005.00
4	Legal & Administrative	-	-	-	5%	-	$74,002.00
4	Contract Admin. & Construction Management	-	-	-	10%	-	$148,004.00
4	Contingency	-	-	-	25%	-	$370,009.00
						Total Project Cost	$2,664,064.47

Table 6-8. Master Level Project #5 Cost Analysis Summary*

Selected Master Level Project ID	Reach	Conceptual Conveyance Structure	Length (ft)	Quantity	Unit	Unit Cost	Total Cost
5	Abbey Detention Basin Improvements	Increase of Storage Capacity from 53.09 AC-FT to 102 AC-FT	-	49.00	AC-FT	$66,120.00	$3,239,880.00
						Subtotal for Capital Improvement Costs	$3,239,880.00
5	Mobilization	-	-	-	5%	-	$161,994.00
5	Stormwater Management & Erosion Control	-	-	-	5%	-	$161,994.00
5	Utility Coordination & Relocation	-	-	-	15%	-	$485,982.00
5	Engineering	-	-	-	15%	-	$485,982.00
5	Legal & Administrative	-	-	-	5%	-	$161,994.00
5	Contract Admin. & Construction Management	-	-	-	10%	-	$323,988.00
5	Contingency	-	-	-	25%	-	$809,970.00
						Total Project Cost	$5,831,784.00

*It should be noted that additional costs are anticipated with the construction of the Abbey Detention Basin Improvements such as: spillway adjustments and construction, energy dissipater placement and

installation, and embankment adjustments. These elements would need a detention basin design to be added to the cost estimate. The conceptual cost estimate presented is based solely on the information given within the UD_Cost analysis. It is also noted that coordination with the Colorado Dam Safety Program will need to take place with the development of the Abbey Detention Basin Improvements, the cost estimate does not reflect any of the coordination or work that may come from the Colorado Dam Safety Program's involvement.

The cost estimates outlined in the preceding tables do not take into account CDOT criteria and coordination, UPRR criteria and coordination, environmental permitting or 404 permitting exploration, and R.O.W. acquisition and coordination. The estimates presented are shown to give the client a general conceptual cost estimate based on the selected master-level projects. For further detail on how the costs of each selected project were calculated, refer to **Appendix E** for cost analysis documentation.

7. Limitations of Study and Analysis

For the current scope of work, there are given limitations to the modeling efforts that were used to achieve the objectives of this study. The original scope of work did not include the modeling of existing stormwater infrastructure; only discharges from existing infrastructure were input directly into the Ditch for the hydraulic analyses. For future modeling efforts, it may be beneficial to incorporate existing Infrastructure hydraulic grade line modeling to better inform the 2D surface model. Additionally, it may also be beneficial to vary the 1-D flow rate within the Ditch from a low-flow condition to a high-flow condition in order to also better inform the 2-D model across a range of storm-events. The current scope only provided for the evaluation of the Decreed Flowrate of 77 cfs within the Ditch. Furthermore, it is recommended that combined 1-D channel and 2-D surface, unsteady-state modeling be performed for future H&H analyses if possible. This would allow for a more interconnected and mass-balanced modeling approach across the expansive project area plus the opportunity to vary the flow rates within the Ditch in a dynamic and interconnected fashion with the 2-D surface model.

It is also noted that the that the selected master level projects are developed to a conceptual level only and should not be considered ready for construction or any advancement beyond the preliminary conceptual level. Factors that were not considered in the development of the selected Master-Level Projects cost estimates were: CDOT criteria and coordination, UPRR criteria and coordination, environmental permitting and 404 permitting exploration, and R.O.W. acquisition or coordination.

8. Conclusions

The purpose of this analysis was to update the hydrology of the five watersheds in the Cañon City area and determine the capacity of the Hydraulic Irrigation Ditch based on 1D and 2D HEC-RAS models informed by accurate survey information about the Ditch. Updates to the previous hydrologic analysis included an updated land use analysis to determine new curve numbers for the study area watersheds based upon information from the City. This also included updating previous analysis studies from the NOAA Atlas 2 rainfalls to the current NOAA Atlas 14 rainfall information.

A 1D HEC-RAS model was developed based upon the survey information obtained from DEA. Analyzing the Ditch in the 1D model using the decreed flow of 77 cfs shows that the Ditch has varying capacity along the study area. As a result, varying flows were entered into the 1D model to further define the approximate capacity of the Ditch.

Utilizing the results from the updated hydrologic analysis, a comprehensive 2D model was completed for an area of approximately 6 sq miles. The 2D model shows that stormwater within the watersheds drains to the Hydraulic Irrigation Ditch along multiple flow paths. The 2D model displays numerous inundation and flooding areas along the Ditch.

Additionally, where the 2D model showed a large amount of depth accumulation or the presence of existing overflow weirs and spill gates along the Ditch, the stormwater information from the City was consulted to determine potential master plan facilities for future project development. A total of seven areas were analyzed for a master plan level of design. After conferring with the Stormwater Task Force, Atkins selected five master-level projects to design to a conceptual level and calculate a preliminary cost analysis for construction.

9. References

1. ADP Incorporated. 1998. *Abbey Drainage Basin Planning Study.* Cañon City, CO: ADP.

2. Atkins North America, Inc. (Atkins). 2017. *Abbey Detention Basin—Updated Hydrology and Additional Capacity Analysis Memo.* Denver, CO: Atkins.

3. Atkins. 2017.*The Northeast Cañon City Detention Basins Design Project.* Denver, CO: Atkins.

4. City of Cañon City. 2008. *Standard Construction Specifications*. City of Cañon City,CO: Cañon City Engineering Department.

5. Graef Anhalt Schloemer and Associates (Graef). 1994.*Orchard Avenue Drainage Basin Planning Study.* Milwaukee, WI: Graef.

6. Graef. 1995. *Hogback Detention Master Plan.* Milwaukee, WI: Graef.

7. National Oceanic and Atmospheric Administration (NOAA). 2013. *Atlas 14 Volume 8, Version 2—Point Precipitation Frequency Estimates.* Washington, DC: NOAA.

8. Natural Resources Conservation Service (NRCS). 2012. Online Web Soil Survey. Soil Survey of Fremont County, Colorado. Washington, DC: NRCS.

9. Urban Drainage and Flood Control District (UDFCD). 1969, Updated January 2016. *Urban Storm Drainage Criteria Manual: Volume 1, 2, and 3*. Denver, CO: UDFCD.

Appendix A. Previous Analysis Documents

A.1. Abbey Detention Basin—Updated Hydrology and Additional Capacity Analysis Memo (2017)

A.2. Abbey Drainage Basin Planning Study. (1998)

A.3. The Northeast Cañon City Detention Basins Design Project (2017)

A.4. Northeast Cañon Drainage Basin Planning Study (1993)

A.5. Report on Storm Drainage Facilities (1974)

A.6. Orchard Avenue Drainage Basin Planning Study (1994)

A.7. Hogback Detention Master Plan (1995)

Memo

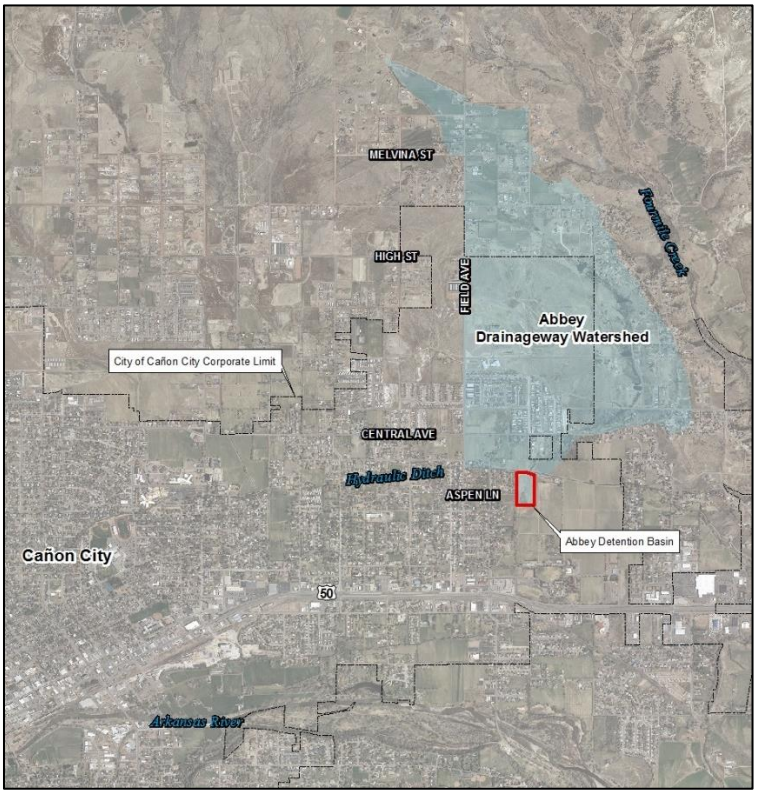
To:	Adam Lancaster, PE		
From:	Lee Rosen, PE, CFM	**Email:**	lee.rosen@atkinsglobal.com
Phone:	(303) 221-7275	**Date:**	July 20, 2017
Ref:		**cc:**	Jacob Beedle, PE, CFM Kevin Houck, PE, CFM
Subject:	Abbey Detention Basin - Updated Hydrology and Additional Capacity Analysis Memo		

1. Introduction

The purpose of the updated hydrologic analysis is to determine whether the Abbey Detention Basin has enough capacity to receive additional flow from the Hydraulic Ditch, an irrigation ditch that has flooding and erosion problems downstream to the east of the detention basin. The Hydraulic Ditch Company hopes to mitigate some of these issues by discharging additional flow into the existing Abbey Detention Basin. This memo discusses the results based on updates made to the previous hydrologic analysis done by PBS&J in 2009. The analysis was completed per the updates specified by the City of Cañon City.

The study area is located in northeast Cañon City, Colorado and within unincorporated Fremont County. It is bordered by Field Avenue to the west, Fourmile Creek to the east, and Highway 50 to the south. Figure 1 shows the project location.

Figure 1. Project Location



Memo

2. Previous Abbey Detention Basin Analysis

2.1. Existing Reports

The following studies were referenced as part of the analysis. Relevant portions are available in Appendix A.

1. **Abbey Detention Basin Dam Draft Hazard Classification Report.** PBS&J, May 2009.
2. **Abbey Detention Basin 'As-Builts.'** City of Cañon City, Feb. 2005.
3. **Abbey Drainage Basin Planning Study.** ADP Incorporated, Dec. 1998.
4. **Orchard Avenue Drainage Basin Planning Study.** Graef Anhalt Schloemer and Associates, Nov. 1994.

The 2009 PBS&J study (hereafter referred to as the "previous analysis") contains the most recent and up-to-date information and is summarized in the following section.

2.2. Previous Analysis Parameters

The 2009 PBS&J study was conducted for the Abbey Detention Basin in the existing condition for the 100-year design storm event. The following sections briefly describe the parameters used in the analysis.

Subbasin Delineation

The Abbey Drainageway Watershed was delineated based on boundaries from the 1994 and 1998 reports. Final watershed and subbasin boundaries were modified based on the reports, aerial imagery, and site visits.

Rainfall

The meteorological model for the Abbey Drainageway consisted of a 24-hour SCS Type II storm distribution to simulate rainfall over the watershed. The 100-year mean rainfall depth was taken from NOAA Atlas 2 and was 3.5 inches.

Soils

Soils data was obtained from the NRCS Geospatial Data Gateway and divided into four hydrologic soils groups:

A	High infiltration rate, low runoff potential
B	Moderate infiltration rate, moderately low runoff potential
C	Low infiltration rate, moderately high runoff potential
D	Very low infiltration rate, high runoff potential

Soils in the Abbey Drainageway Watershed primarily consist of soil types C and D. The soils overview map from the previous analysis is provided in Appendix A.

Land Use

The land use data was based on the existing conditions of the area. The NRCS TR-55 Urban Hydrology for Small Watersheds manual was used to determine base curve numbers to each of the land use categories for each hydrologic soil type. The existing conditions land use map from the previous analysis is provided in Appendix A.

Curve Numbers

Rainfall losses were calculated using the NRCS curve number method. Weighted curve numbers were calculated for each subbasin based on the soils and land use data.

Lag Time

The SCS Unit Hydrograph method was used to calculate the lag time for each individual subbasin. The TR-55 procedure was used to determine the travel time and time of concentration.

Channel Routing

Muskingum-Cunge routing parameters were used to approximate the effects of channel routing throughout the subbasins.

Stage-Storage-Discharge Curve

No stage-storage curve was provided in the original design plans, so the stage-storage curve was determined using scaled measurements from the 2005 "As-Built" plans provided by the City of Cañon City. Based on these measurements, the storage capacity of the Abbey Detention Basin was found to be 63.1 ac-ft. The stage-discharge relationship was established using the orifice equation through the 36" RCP outlet. Table 1 shows the stage-storage curve from 2009 PBS&J study.

Table 1. Abbey Detention Basin Previous Stage-Storage-Discharge Curve

Stage (ft)	Elevation (ft)	Storage (ac-ft)	Discharge (cfs)	Notes
0	5334	0	0	Outlet Invert (36" RCP)
2	5336	1.94	26	
4	5338	6.34	58	
6	5340	13.28	78	
8	5342	22.8	94	
10	5344	34.92	107	
12	5346	48.68	119	
14	5348	63.09	130	Spillway Crest Elevation
16	5350	78.18	1171	
17	5351	85.98	2039	Embankment Elevation

2.3. Previous Analysis Results

A HEC-HMS model was run for the 100-year event, which resulted in a peak flow rate of 833 cfs into Abbey Detention Basin and 119 cfs out of the Abbey Detention Basin. The spillway crest elevation of the detention basin is 5,348 feet. Based on the results, the 100-year stage in the detention basin is 5,346 feet, resulting in 2 feet of freeboard and a peak storage volume of 48.8 ac-ft. Since the total capacity of the Abbey Detention basin was calculated to be 63.09 ac-ft, it was determined that the Abbey Detention Basin has the capacity to detain the 100-year flow without spillway operation. A summary of the results from the previous analysis is provided in Table 2.

Table 2. Previous Analysis Results

Peak Q_{in} (cfs)	Peak Storage (ac-ft)	Peak Elevation (ft)	Peak Q_{out} (cfs)
833	48.7	5346	119

3. Updated Abbey Detention Basin Analysis

The updated analysis was conducted based on the 2009 PBS&J study. Modifications to the previous analysis include adjusting the subbasin boundaries, updating the rainfall data from NOAA Atlas 2 to NOAA Atlas 14, and updating curve numbers using land use data for existing and future conditions. The following sections describe the updates.

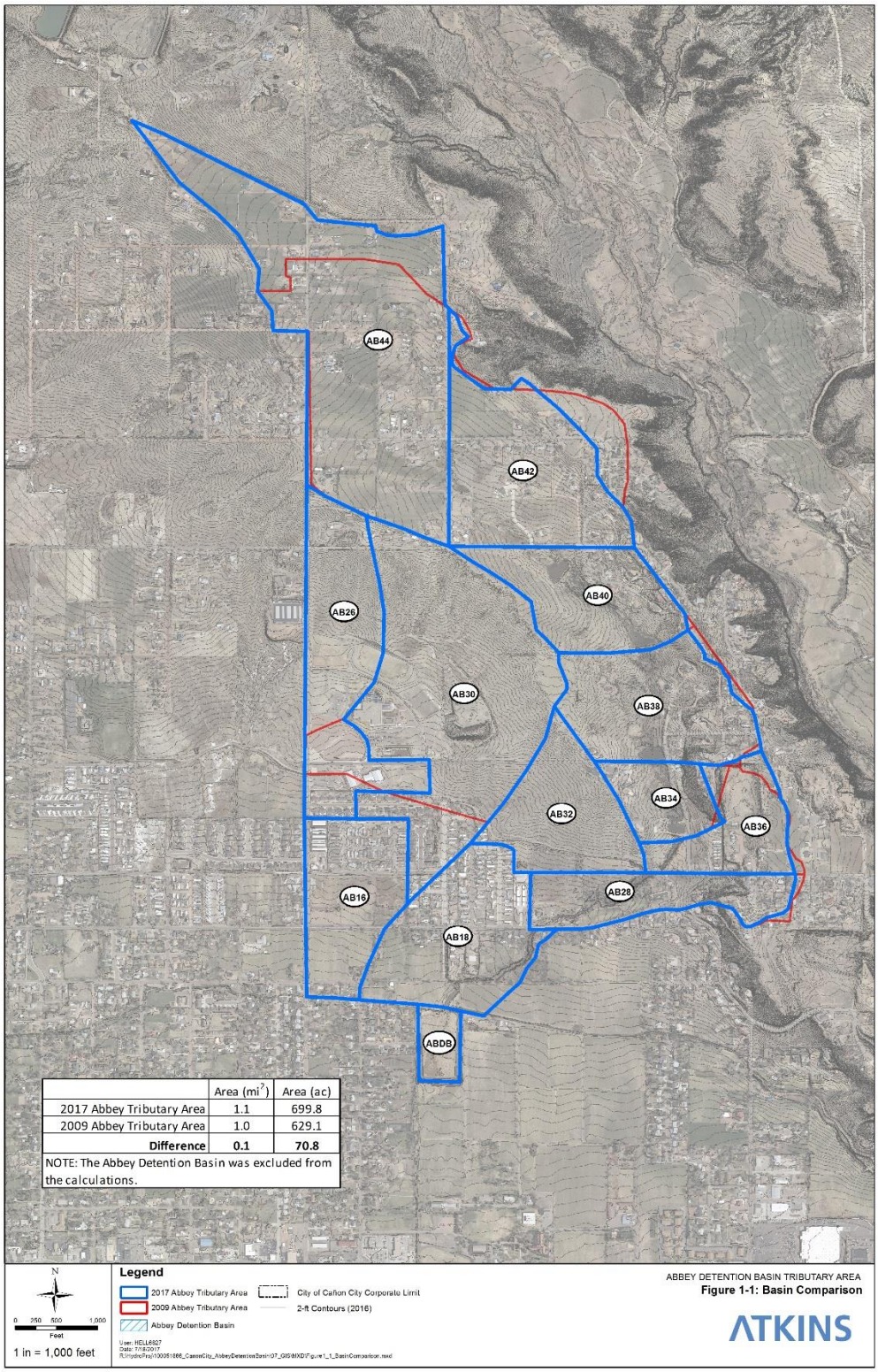
3.1. Updated Analysis Parameters

Subbasin Delineation

The Abbey Drainageway subbasins were modified using 2016 LiDAR data for Fremont County. Subbasins AB30, AB42, and AB44 were subject to the most change, resulting in an additional 70.8 acres of contributing drainage area. Subbasin A26 was added to delineate between the flow draining to the Abbey Detention Pond and flow draining to the Hydraulic Ditch. Figure 2 shows the subbasin comparison between the previous and updated analyses. A larger map is provided in Appendix B.

Memo

Figure 2. Updated Subbasin Delineation



Rainfall

Rainfall data was updated to NOAA Atlas 14 for the 100-year 24-hour event and distributed over each subbasin. The weighted average rainfall depth for the watershed was calculated to be 4.2 inches. Table 3 below provides a comparison between the previous and updated meteorological data. NOAA Atlas 14 data is provided in Appendix B.

Table 3. Rainfall Data Comparison

	NOAA Atlas 2	NOAA Atlas 14
Mean Rainfall Depth (in)	3.5	4.2

Land Use

The existing land use data from the previous analysis was updated to correspond with the modified subbasin delineations. Figures are provided in Appendix B. Updated zoning information was obtained from the City of Cañon City and Fremont County and was used to assign base curve numbers to the future land use categories for each hydrologic soil type. Runoff curve numbers and categories from the previous analysis (based on the NRCS TR-55 Urban Hydrology for Small Watersheds manual) used in this analysis are shown in Table 4. Updated land use figures are provided in Appendix B.

Table 4. Land Use Categories and Corresponding Base Curve Numbers

Land Use Category	Hydrologic Soil Group			
	A	B	C	D
Agricultural	39	61	74	80
Wood-Grass Combination (Fair Condition)	43	65	76	82
Open Estates: Greater Than 1-acre Lots	51	68	79	84
Low Density Residential: Less Than 6 Units per Acre	61	75	83	87
Med to High Density Res: More than 6 DU per Acre	81	88	91	93
Commercial	89	92	94	95
Paved Streets	98	98	98	98

Curve Numbers

Curve numbers for each subbasin were calculated in ArcGIS by processing the subbasin, land use, and soils data to create unique polygon combinations within each subbasin. The soils data and existing land use data remained unchanged from the previous analysis. Composite curve numbers were found for each subbasin based on the areas of the subdivided polygons and their associated curve numbers, which were obtained from Table 4 above. Composite curve numbers were found for both the existing and future land use and are provided in Table 5. An updated soils overview figure was created to correspond to the updated subbasin delineation and is provided in Appendix B.

Table 5. Updated Curve Number Summary

Subbasin	Drainage Area (ac)	Drainage Area (mi^2)	Composite CN (Existing Land Use)	Composite CN (Future Land Use)
AB16	41.27	0.06	86.51	91.53
AB18	55.05	0.09	86.20	90.93
AB26	60.34	0.09	80.68	89.30
AB28	31.34	0.05	79.17	85.14
AB30	123.48	0.19	82.20	91.42
AB32	39.88	0.06	81.69	90.07
AB34	19.24	0.03	82.43	84.07
AB36	28.29	0.04	72.41	73.69
AB38	52.32	0.08	78.54	82.87
AB40	42.36	0.07	79.97	87.31
AB42	65.23	0.10	72.98	76.74
AB44	141.06	0.22	78.98	81.69

Stage-Storage-Discharge Curve

The stage-storage curve was verified using the 2016 LiDAR data. The total 100-year storage volume was determined using the Conic Approximation Method (the two areas being added along with the square root of their product and multiplied by a third of distance between the areas to determine the volume). The storage capacity of the detention basin was found to be 53.1 ac-ft. Differences in the volume calculation from the previous analysis can be attributed to possible sedimentation and vegetation growth in the Abbey Detention Basin over time.

The stage-discharge relationship in the detention basin remained unchanged from the previous analysis. Discharge from the existing 36" RCP outlet was calculated based on the orifice equation and was verified using the FHWA inlet nomograph provided in Appendix A. Table 6 compares the difference in the stage-storage-discharge curves between the previous and updated analyses. The 2009 PBS&J stage-storage-discharge curve was used in the updated HEC-HMS models to produce more consistent results.

Table 6. Comparisons Between the 2009 and 2017 Stage-Storage-Discharge Curve

Stage (ft)	Elevation (ft)	2009 PBS&J Storage (ac-ft)	2017 ATKINS Storage (ac-ft)	Storage Difference (ac-ft)	Discharge (cfs)	Notes
0	5334	0	0.00	0.00	0	Outlet Invert (36" RCP)
2	5336	1.94	0.01	1.93	26	
4	5338	6.34	1.61	4.73	58	
6	5340	13.28	7.09	6.19	78	
8	5342	22.8	15.30	7.50	94	
10	5344	34.92	26.30	8.62	107	
12	5346	48.68	39.21	9.47	119	
14	5348	63.09	53.09	10.00	130	Spillway Crest Elevation
16	5350	78.18	67.72	10.46	1171	
17	5351	85.98	75.33	10.65	2039	Embankment Elevation

4. Additional Detention Basin Capacity Analysis

The capacity of the Abbey Detention Basin was analyzed considering four conditions: (1) the existing condition land use with NOAA Atlas 2 rainfall and existing subbasins, (2) the existing condition land use with NOAA Atlas 14 rainfall and existing subbasins, (3) the existing condition land use with NOAA Atlas 14 rainfall and updated subbasins, and (4) the proposed condition land use with NOAA Atlas 14 rainfall and updated subbasins. The results of each condition are discussed in the following sections.

4.1. Existing Land Use Condition with NOAA Atlas 2 Rainfall and Previous Subbasin Delineation

In the previous model, storage capacity below the spillway crest elevation was determined to be 63.1 ac-ft. The existing HEC-HMS model was run and produced results that differed slightly from the previous analysis, as shown below in Table 7. Based on the updated outflow hydrograph, the maximum storage is 49.4 ac-ft, resulting in 13.7 ac-ft of available storage capacity in the Abbey Detention Basin.

Table 7. Comparisons Between the 2009 and 2017 HEC-HMS Model Runs

HEC-HMS Model Run	Peak Q_{in} (cfs)	Peak Storage (ac-ft)	Peak Elevation (ft)	Peak Q_{out} (cfs)
2009 PBS&J	833.0	48.7	5346.0	119.0
2017 ATKINS	848.6	49.4	5346.1	119.6

4.2. Existing Land Use Condition with NOAA Atlas 14 Rainfall and Previous Subbasin Delineation

The HEC-HMS model was run with the following parameter change:

- Updated rainfall data to NOAA Atlas 14

The model resulted in an increased inflow and overtopping of the spillway by 0.2 feet. Hydrograph results yielded a peak inflow of 1127 cfs, peak outflow of 251 cfs, and a peak storage of 64.8 ac-ft, which exceeds the available capacity of the Abbey Detention Basin.

4.3. Existing Land Use Condition with NOAA Atlas 14 Rainfall and Updated Subbasin Delineation

The HEC-HMS model was run with the following parameter changes:

- Updated rainfall data to NOAA Atlas 14
- Updated subbasin areas and existing curve numbers

The model resulted in an increased inflow and overtopping of the spillway by 0.6 feet. Hydrograph results yielded a peak inflow of 1271 cfs, peak outflow of 427 cfs, and a peak storage of 67.4 ac-ft, which exceeds the available capacity of the Abbey Detention Basin.

4.4. Proposed Land Use Condition with NOAA Atlas 14 Rainfall and Updated Subbasin Delineation

The HEC-HMS model was run with the following parameter changes:

- Updated rainfall data to NOAA Atlas 14
- Updated subbasin areas and proposed curve numbers

The model resulted in an increased inflow and overtopping of the spillway by 1.0 feet. Hydrograph results yielded a peak inflow of 1464 cfs, peak outflow of 662 cfs, and a peak storage of 70.8 ac-ft, which exceeds the available capacity of the Abbey Detention Basin.

4.5. Updated Analysis Results

Results from the additional capacity analysis for each of the four conditions are summarized in Table 8. As mentioned in the 2009 PBS&J study, the existing storage capacity of the Abbey Detention Basin is 63.1 ac-ft, therefore any peak storage exceeding this value concludes that the detention basin does not have adequate capacity to contain the 100-year storm event. The required storage volumes needed to detain the maximum flows were also calculated and can be used to provide recommendations as to how to modify the existing Abbey Detention Basin to accommodate the increased flows.

Table 8. Additional Capacity Analysis Results

Condition	Peak Q_{in} (cfs)	Peak Storage (ac-ft)	Peak Elevation (ft)	Spillway Overtopping (ft)	Peak Q_{out} (cfs)	Time Max Volume	Capacity (Y/N)	Required Storage (ac-ft)
Existing Land Use NOAA Atlas 2 Previous Subbasins	848.6	49.4	5346.1	0	119.6	13:30	Y	NA
Existing Land Use NOAA Atlas 14 Previous Subbasins	1127.2	64.8	5348.2	0.2	250.5	13:10	N	68.6
Existing Land Use NOAA Atlas 14 Updated Subbasins	1271.0	67.4	5348.6	0.6	426.9	12:55	N	78.3
Proposed Land Use NOAA Atlas 14 Updated Subbasins	1463.7	70.8	5349.0	1.0	662	12:45	N	91.2

Table 9 provides a detailed comparison of the 100-year flows for each of the four conditions. A hydrology overview map displaying the combination points is provided in Appendix B.

Table 9. 100-year HEC-HMS Results

Hydrologic Element	Updated Drainage Area (ac)	100-year Flow (cfs)			
		Existing Land Use NOAA Atlas 2 Previous Subbasins	Existing Land Use NOAA Atlas 14 Previous Subbasins	Existing Land Use NOAA Atlas 14 Updated Subbasins	Proposed Land Use NOAA Atlas 14 Updated Subbasins
AB16	63	124	157	92	103
AB18	58	111	139	146	161
AB26	58	*NA*	*NA*	147	179
AB28	32	50	65	64	74
AB30	122	199	258	266	327
AB32	38	69	89	85	103
AB34	19	45	58	55	57
AB36	26	41	53	53	55
AB38	51	106	138	133	147
AB40	45	72	94	99	117
AB42	64	89	121	109	120
AB44	141	149	199	273	291
ABBEYDET	691	120	251	427	662
CAB16	96	309	399	234	274
CAB18	595	575	769	1065	1222
CAB28	416	491	661	694	777
CAB32	384	450	606	644	717
CAB34	320	361	490	535	591
CAB36	346	385	522	564	621
CAB38	301	343	464	516	569
CAB40	250	293	396	455	500
CAB42	205	237	316	379	408
CABBEYIN	691	849	1127	1271	1464

5. Hydraulic Ditch Analysis

The Abbey Detention Basin does not have the capacity for additional flow based on NOAA Atlas 14. However, per the City's direction, a conceptual analysis was performed to evaluate several scenarios.

An additional analysis was conducted to determine a range of potential inflows from the Hydraulic Ditch into the Abbey Detention Basin in existing conditions (existing land use, NOAA Atlas 2, previous subbasins). It was determined that based on the results from the previous analysis, the Abbey Detention Basin has the capacity to accept a maximum of 50 cfs from the Hydraulic Ditch before overtopping. Additional analyses were run using 100 cfs and 150 cfs inflows for a specified time interval to determine possible allowances to the detention basin. Results from the HEC-HMS models are provided in Appendix B.

Memo

Maximum flow in the Hydraulic Ditch was calculated using Flowmaster and the FHWA inlet nomograph for concrete box culverts. The Hydraulic Ditch utilizes 12' x 4' CBC's to convey flow under roadways. A trapezoidal ditch cross-section was approximated to have a 5-foot bottom width with 2:1 side slopes. These approximate dimensions should be further verified with information from the Hydraulic Ditch Company or with survey. The Hydraulic Ditch Company currently has a decreed flow of 77 cfs. The total decreed rate was originally 96 cfs but 19 cfs was transferred to the City's Low Head Dam.

The calculated maximum flow in the Hydraulic Ditch ranges from 180 cfs to 563 cfs based on a variety of assumptions (slope, depth, Manning's roughness, side slopes, and bottom width). Table 10 provides the range of flow values calculated at various depths. The inlet nomograph and Flowmaster reports are provided in Appendix B.

Table 10. Maximum Flow in the Hydraulic Ditch

Headwater (ft)	Hydraulic Ditch Flow Rate (cfs)		
	Inlet Nomograph 12'x4' CBC	Flowmaster 12'x4' CBC	Flowmaster Trapezoidal Ditch (5' BW, 2:1 SS)
3	180	358	305
3.5	216	446	422
4	264	394	563

At the City of Cañon City's request, an analysis was completed to determine the flows that are potentially entering the Hydraulic Ditch. Based on the updated routing, runoff from subbasins AB26 and AB16 combine at CAB16 and may contribute to the flow in the Hydraulic Ditch. Table 11 shows the results of the analysis.

Table 11. Additional Volume at CAB16

Condition	Peak Inflow (cfs)	Total Volume (ac-ft)
Existing Land Use NOAA Atlas 2 Updated Subbasins	182	17.7
Existing Land Use NOAA Atlas 14 Updated Subbasins	234	22.9
Proposed Land Use NOAA Atlas 14 Updated Subbasins	274	27.0

6. Conclusion

The purpose of this analysis was to determine whether the Abbey Detention Basin has the capacity to receive additional flow from the existing Hydraulic Ditch. Updates to the previous hydrologic analysis included modifications to the subbasin delineations, updating the meteorological data from NOAA Atlas 2 to NOAA Atlas 14, and updating the curve numbers to reflect existing and future land use conditions.

Based on the results from the updated analysis, the Abbey Detention Basin does not have the capacity to receive additional inflow. Updates to the rainfall data alone results in spillway overtopping, therefore any further contributions to increase the runoff to the detention basin would yield the same result. The updated LiDAR topography also shows that the capacity of the basin may currently be less than originally designed.

Memo

If flows were to be added to the Abbey Detention Basins, the potential for adverse impacts could be significant. It is recommended that no further action be taken until an in-depth analysis of the Hydraulic Ditch is complete.

AB44

AB42

AB40

AB26

AB30

AB38

AB34

AB32

AB36

AB16

AB28

AB18

ABDB

	Area (mi^2)	Area (ac)
2017 Abbey Tributary Area	1.1	699.8
2009 Abbey Tributary Area	1.0	629.1
Difference	**0.1**	**70.8**

NOTE: The Abbey Detention Basin was excluded from the calculations.

N

0 250 500 1,000

Feet

1 in = 1,000 feet

Legend

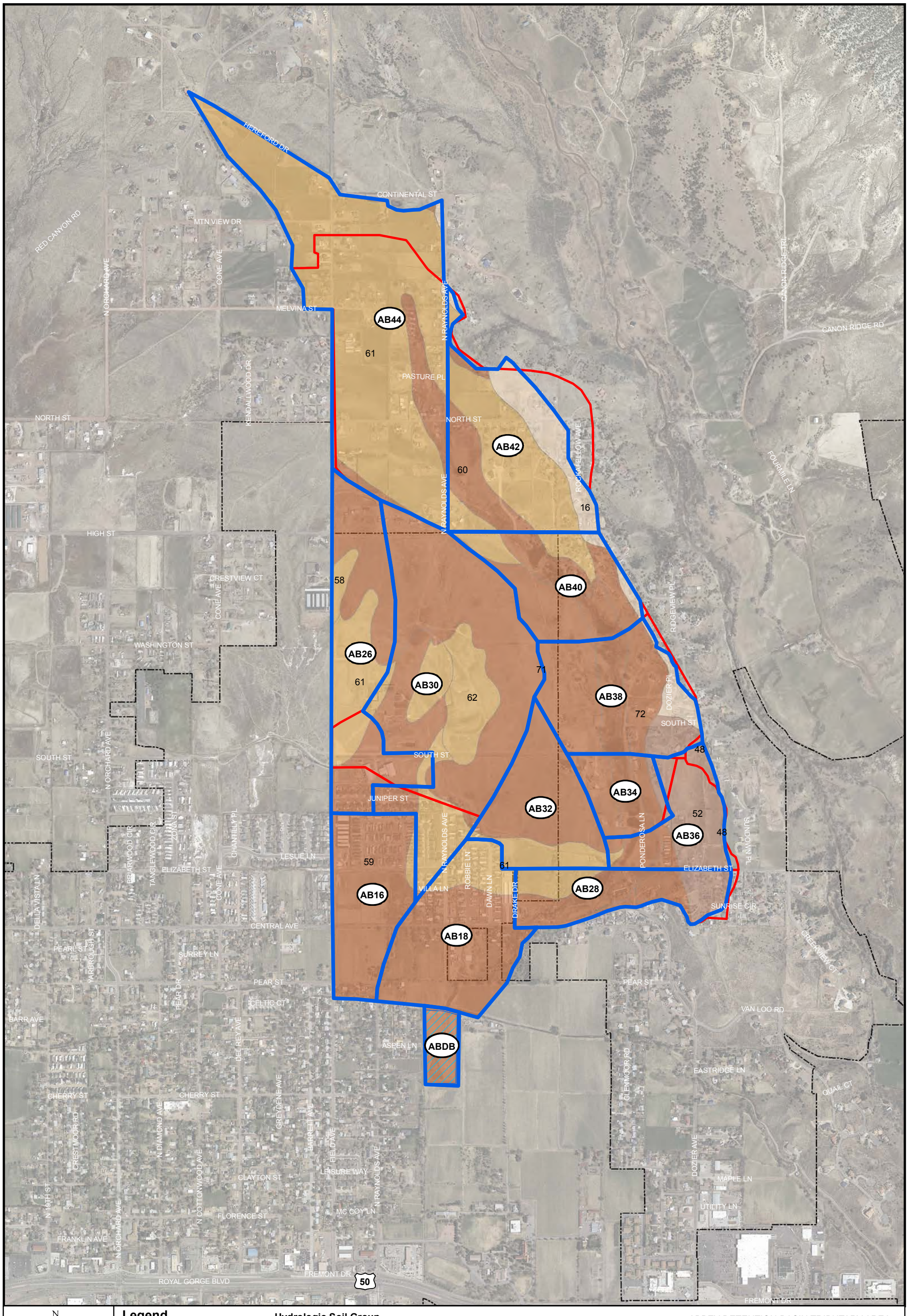
- 2017 Abbey Tributary Area
- 2009 Abbey Tributary Area
- Abbey Detention Basin
- City of Cañon City Corporate Limit
- 2-ft Contours (2016)

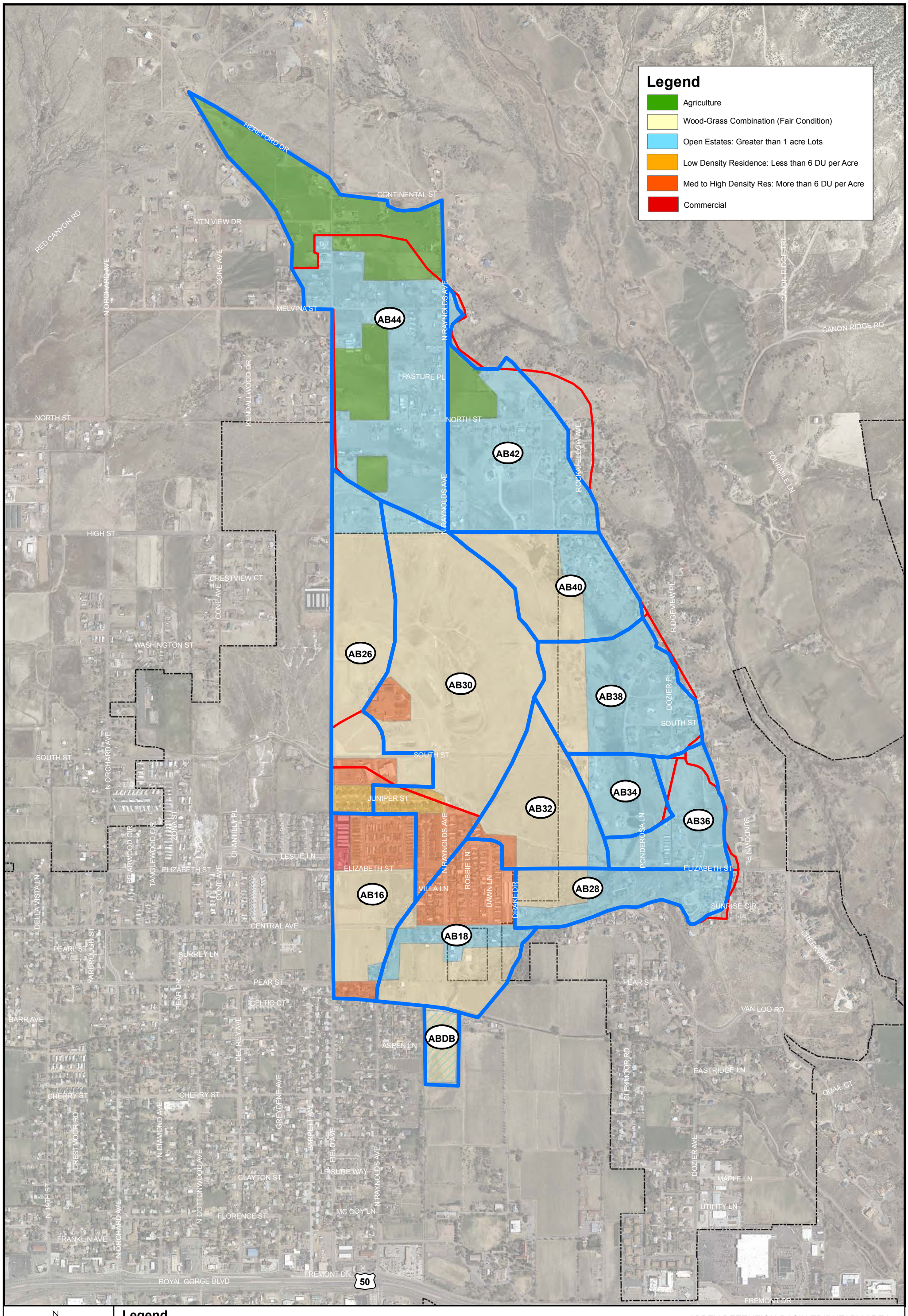
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Date: 7/18/2017
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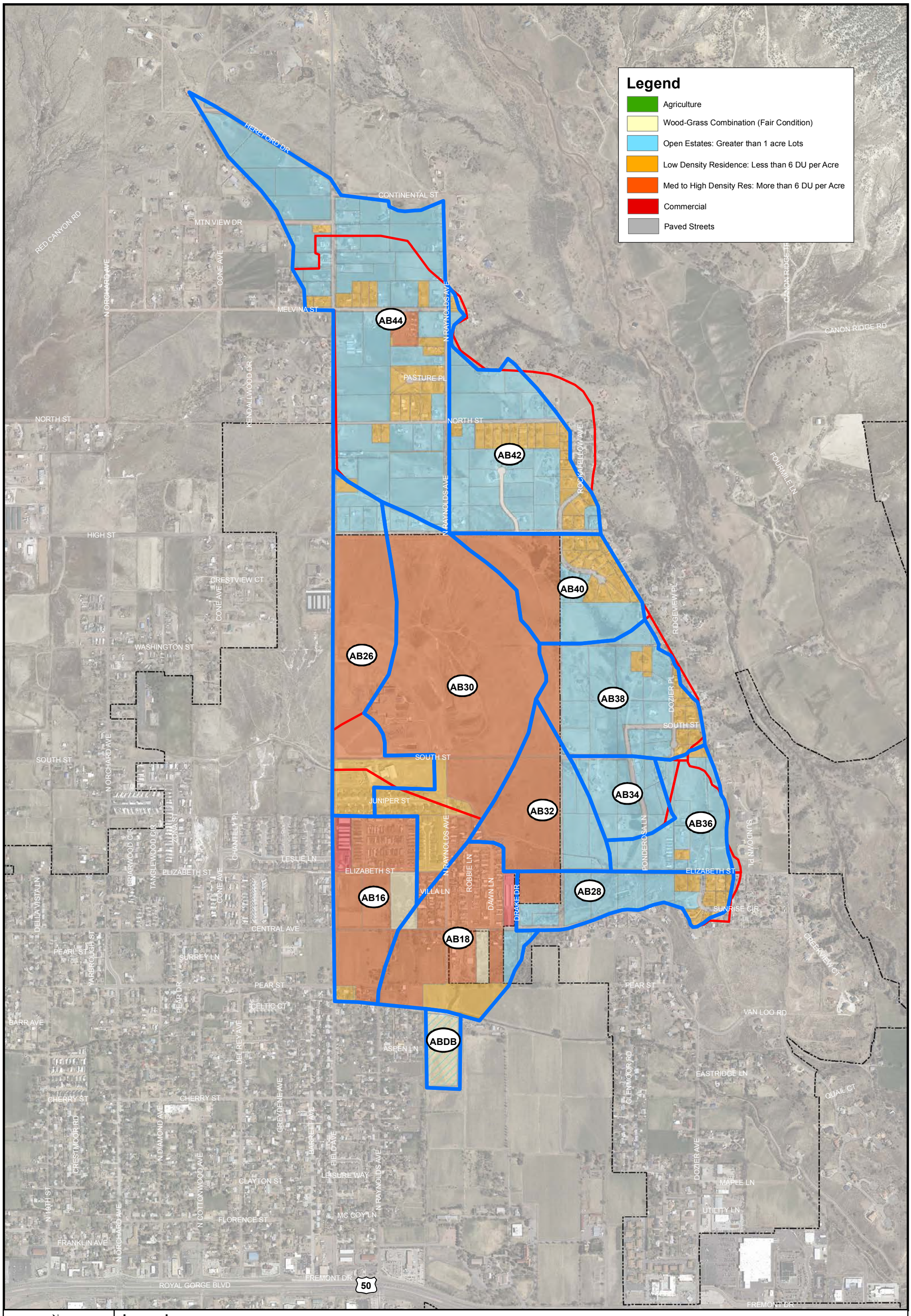
ABBEY DETENTION BASIN TRIBUTARY AREA

Figure 1-1: Basin Comparison

ATKINS


HEREFORD DR
CONTINENTAL ST
RED CANYON RD
MTN VIEW DR
N ORCHARD AVE
CONE AVE
MELVINA ST
AB44
61
N RAYNOLDS AVE
CANON RIDGE TRL
CANON RIDGE RD
PASTURE PL
KENDALLWOOD DR
NORTH ST
AB42
60
ROCKAFELLOW AVE
16
FOURMILE LN
HIGH ST
CRESTVIEW CT
58
AB40
RIDGEVIEW PL
AB26
61
AB30
62
71
AB38
72
DOZIER PL
WASHINGTON ST
SOUTH ST
48
JUNIPER ST
AB34
AB32
52
48
AB36
PONDEROSA LN
SUNDOWN PL
CHANFILLY PL
LESLIE LN
59
61
ELIZABETH ST
AB16
VILLA LN
ROBBIE LN
DAWN LN
DRAKE DR
AB28
SUNRISE CIR
BRIARWOOD CIR
TANGLEWOOD CIR
ZONA ST
DELLA VISTA LN
CENTRAL AVE
AB18
PEARL ST
SURREY LN
YARBROUGH ST
PEAR ST
CREEKVIEW CT
CELTIC CT
BARR AVE
VAN LOO RD
ASPEN LN
ABDB
DEL REY AVE
GREYDENE AVE
BARRETT AVE
FIELD AVE
GLENMOOR RD
EASTRIDGE LN
QUAIL CT
CHERRY ST
CRESTMOOR RD
N DIAMOND AVE
N COTTONWOOD AVE
CLAYTON ST
LEISURE WAY
DOZIER AVE
MAPLE LN
N 16TH ST
FLORENCE ST
MC COY LN
UTILITY LN
FRANKLIN AVE
ROYAL GORGE BLVD
FREMONT DR
50
N
0 250 500 1,000
Feet
1 in = 1,000 feet
Legend
2017 Abbey Tributary Area
2009 Abbey Tributary Area
Abbey Detention Basin
Hydrologic Soil Group
A - Low Runoff Potential
B - Moderately Low Runoff Potential
C - Moderately High Runoff Potential
D - High Runoff Potential
City of Cañon City Corporate Limit
User: HELL6827
Date: 7/18/2017
R:\HydroProj\100051866_CanonCity_AbbeyDetentionBasin\07_GIS\MXD\Figure2_1_SoilsOverview_Updated.mxd
ABBEY DETENTION BASIN TRIBUTARY AREA
FIGURE 2-1: UPDATED SOILS OVERVIEW
ATKINS


Legend
Agriculture
Wood-Grass Combination (Fair Condition)
Open Estates: Greater than 1 acre Lots
Low Density Residence: Less than 6 DU per Acre
Med to High Density Res: More than 6 DU per Acre
Commercial
AB44
AB42
AB40
AB38
AB36
AB34
AB32
AB30
AB28
AB26
AB18
AB16
ABDB
HEREFORD DR
CONTINENTAL ST
MTN VIEW DR
RED CANYON RD
N ORCHARD AVE
CONE AVE
MELVINA ST
N RAYNOLDS AVE
CANON RIDGE TRL
CANON RIDGE RD
PASTURE PL
KENDALLWOOD DR
NORTH ST
ROCKAFELLOW AVE
FOURMILE LN
HIGH ST
CRESTVIEW CT
RIDGEVIEW PL
WASHINGTON ST
DOZIER PL
SOUTH ST
JUNIPER ST
CHANFILLY PL
LESLIE LN
ELIZABETH ST
BRIARWOOD CIR
TANGLEWOOD CIR
ZONA ST
PONDEROSA LN
SUNDOWN PL
ROBBIE LN
DAWN LN
VILLA LN
DRAKE DR
SUNRISE CIR
DELLA VISTA LN
YARBROUGH ST
CENTRAL AVE
PEARL ST
SURREY LN
PEAR ST
PEAR DR
CELTIC CT
CREEKVIEW CT
BARR AVE
DEL REY AVE
ASPEN LN
VAN LOO RD
EASTRIDGE LN
QUAIL CT
GLENMOOR RD
GREYDENE AVE
BARRETT AVE
FIELD AVE
CHERRY ST
CRESTMOOR RD
N DIAMOND AVE
N COTTONWOOD AVE
LEISURE WAY
CLAYTON ST
MAPLE LN
UTILITY LN
N 19TH ST
FLORENCE ST
MC COY LN
FRANKLIN AVE
ROYAL GORGE BLVD
FREMONT DR
50
N
0 250 500 1,000
Feet
1 in = 1,000 feet
Legend
2017 Abbey Tributary Area
2009 Abbey Tributary Area
Abbey Detention Basin
City of Cañon City Corporate Limit
User: HELL6827
Date: 7/18/2017
R:\HydroProj\100051866_CanonCity_AbbeyDetentionBasin\07_GIS\MXD\Figure2_2_LandUseOverview_Existing_upd.mxd
ABBEY DETENTION BASIN TRIBUTARY AREA
FIGURE 2-2: LAND USE OVERVIEW (EXISTING CONDITION)
ATKINS



N

0 250 500 1,000

Feet

1 in = 1,000 feet

Legend

- 2017 Abbey Tributary Area
- 2009 Abbey Tributary Area
- Abbey Detention Basin
- City of Cañon City Corporate Limit

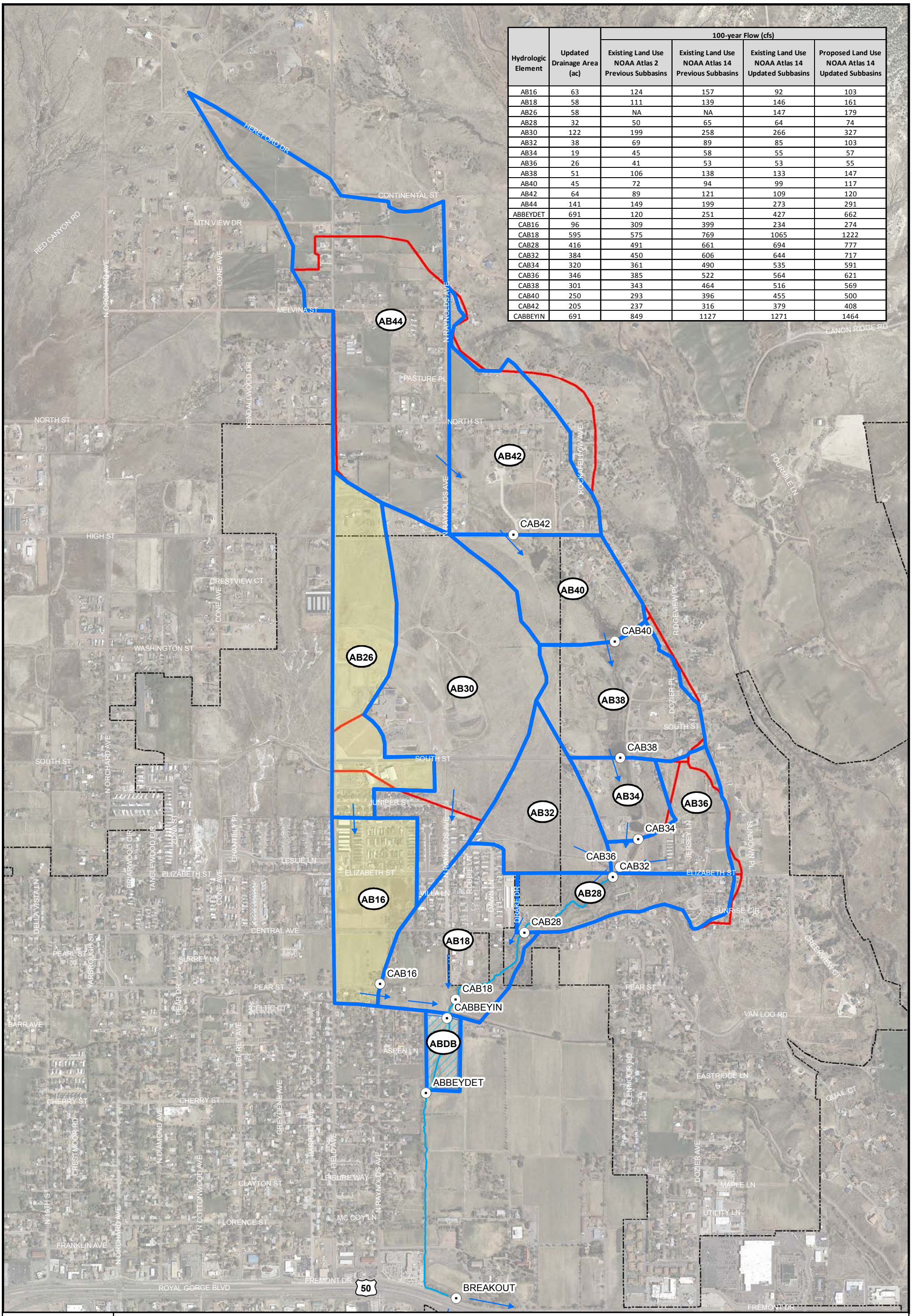
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ABBEY DETENTION BASIN TRIBUTARY AREA

FIGURE 2-3: LAND USE OVERVIEW (PROPOSED CONDITION)

ATKINS

Hydrologic Element	Updated Drainage Area (ac)	100-year Flow (cfs)			
		Existing Land Use NOAA Atlas 2 Previous Subbasins	Existing Land Use NOAA Atlas 14 Previous Subbasins	Existing Land Use NOAA Atlas 14 Updated Subbasins	Proposed Land Use NOAA Atlas 14 Updated Subbasins
AB16	63	124	157	92	103
AB18	58	111	139	146	161
AB26	58	NA	NA	147	179
AB28	32	50	65	64	74
AB30	122	199	258	266	327
AB32	38	69	89	85	103
AB34	19	45	58	55	57
AB36	26	41	53	53	55
AB38	51	106	138	133	147
AB40	45	72	94	99	117
AB42	64	89	121	109	120
AB44	141	149	199	273	291
ABBEYDET	691	120	251	427	662
CAB16	96	309	399	234	274
CAB18	595	575	769	1065	1222
CAB28	416	491	661	694	777
CAB32	384	450	606	644	717
CAB34	320	361	490	535	591
CAB36	346	385	522	564	621
CAB38	301	343	464	516	569
CAB40	250	293	396	455	500
CAB42	205	237	316	379	408
CABBEYIN	691	849	1127	1271	1464



N

0 250 500 1,000

Feet

1 in = 1,000 feet

Legend

- 2017 Abbey Tributary Area
- 2009 Abbey Tributary Area
- Abbey Detention Basin
- City of Cañon City Corporate Limit
- Subbasins Contributing to Hydraulic Ditch

User: HELL6827
Date: 7/20/2017
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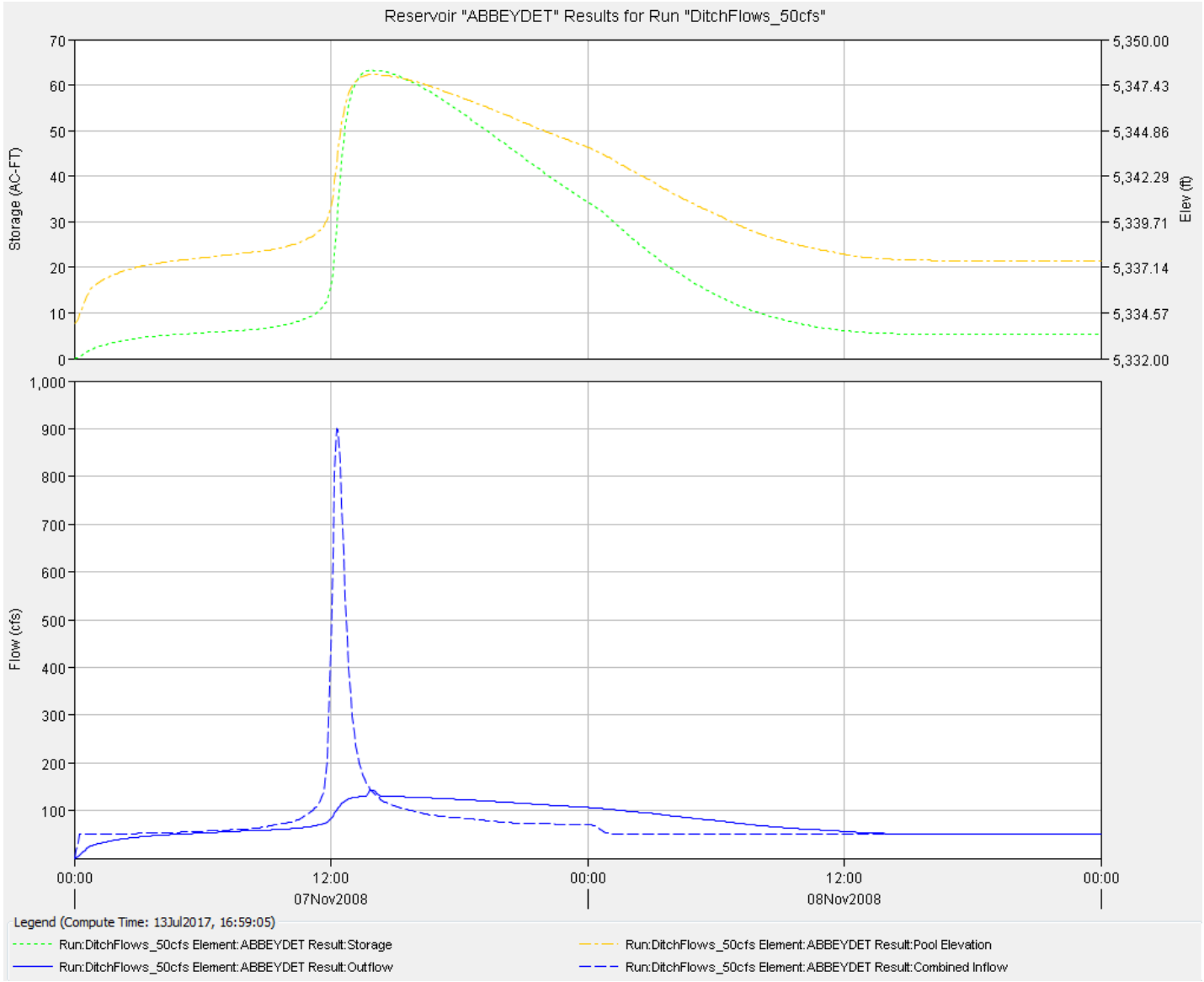
ABBEY DETENTION BASIN TRIBUTARY AREA

FIGURE 2-4: UPDATED HYDROLOGY OVERVIEW

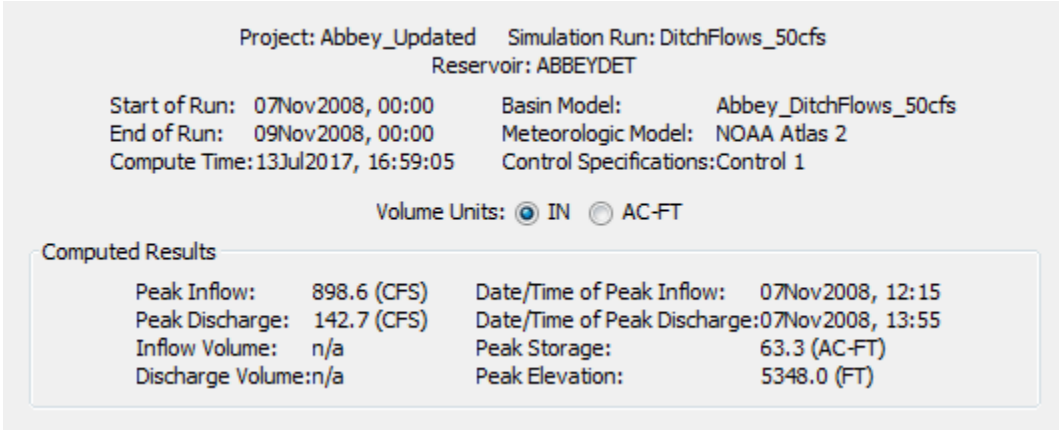
ATKINS

B.2. HEC-HMS Hydraulic Ditch Inflow Analysis Results

Hydraulic Ditch Inflow Analysis: 50 cfs (1 of 2)



Hydraulic Ditch Inflow Analysis: 50 cfs (2 of 2)



Project: Abbey_Updated Simulation Run: DitchFlows_50cfs
Reservoir: ABBEYDET

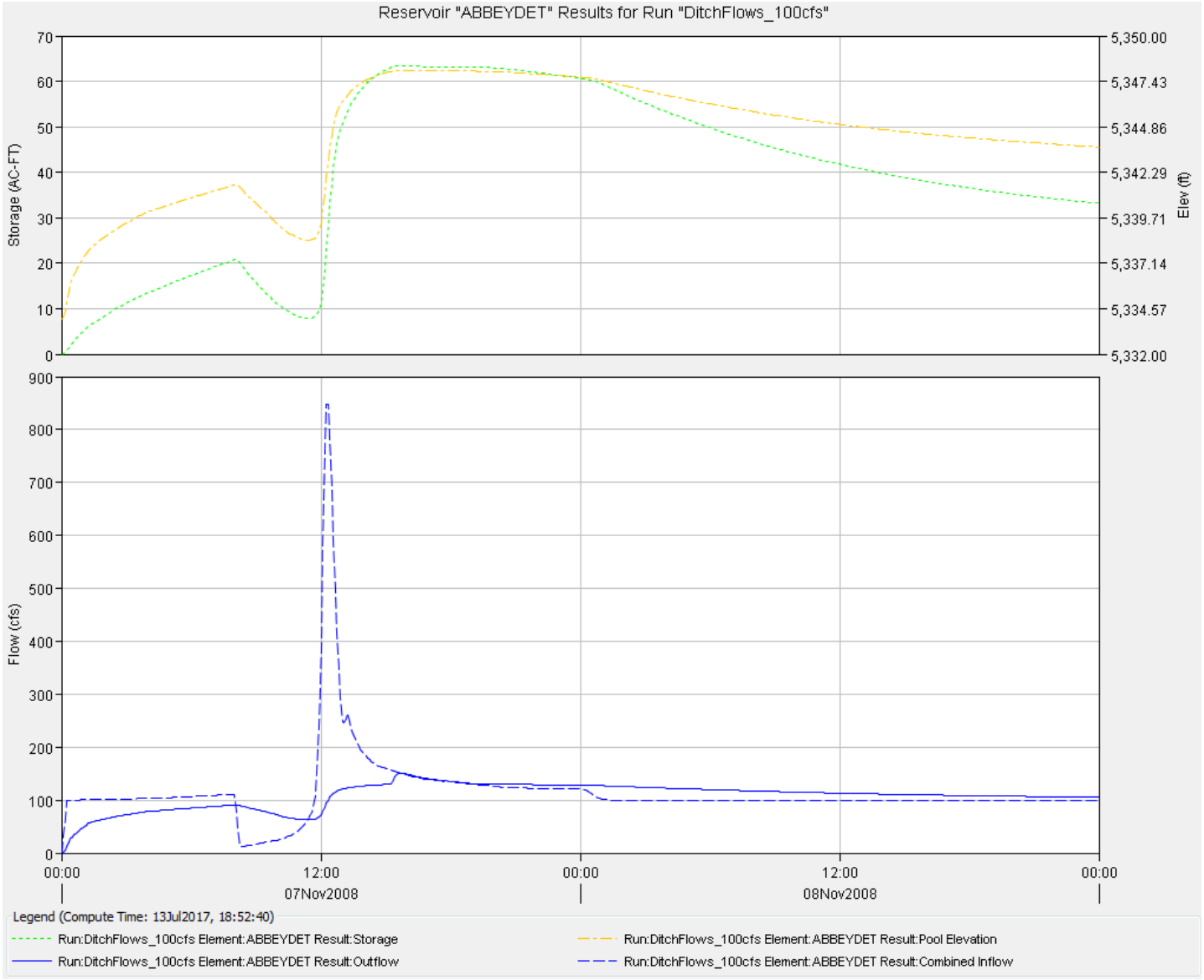
Start of Run:	07Nov2008, 00:00	Basin Model:	Abbey_DitchFlows_50cfs
End of Run:	09Nov2008, 00:00	Meteorologic Model:	NOAA Atlas 2
Compute Time:	13Jul2017, 16:59:05	Control Specifications:	Control 1

Volume Units: (•) IN ( ) AC-FT

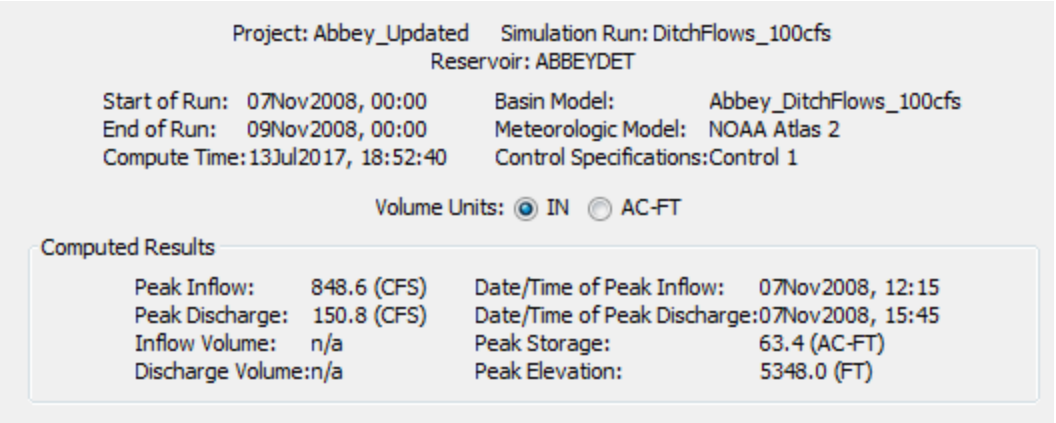
Computed Results

Peak Inflow:	898.6 (CFS)	Date/Time of Peak Inflow:	07Nov2008, 12:15
Peak Discharge:	142.7 (CFS)	Date/Time of Peak Discharge:	07Nov2008, 13:55
Inflow Volume:	n/a	Peak Storage:	63.3 (AC-FT)
Discharge Volume:	n/a	Peak Elevation:	5348.0 (FT)

Hydraulic Ditch Inflow Analysis: 100 cfs (1 of 2)



Hydraulic Ditch Inflow Analysis: 100 cfs (2 of 2)



Project: Abbey_Updated Simulation Run: DitchFlows_100cfs
Reservoir: ABBEYDET

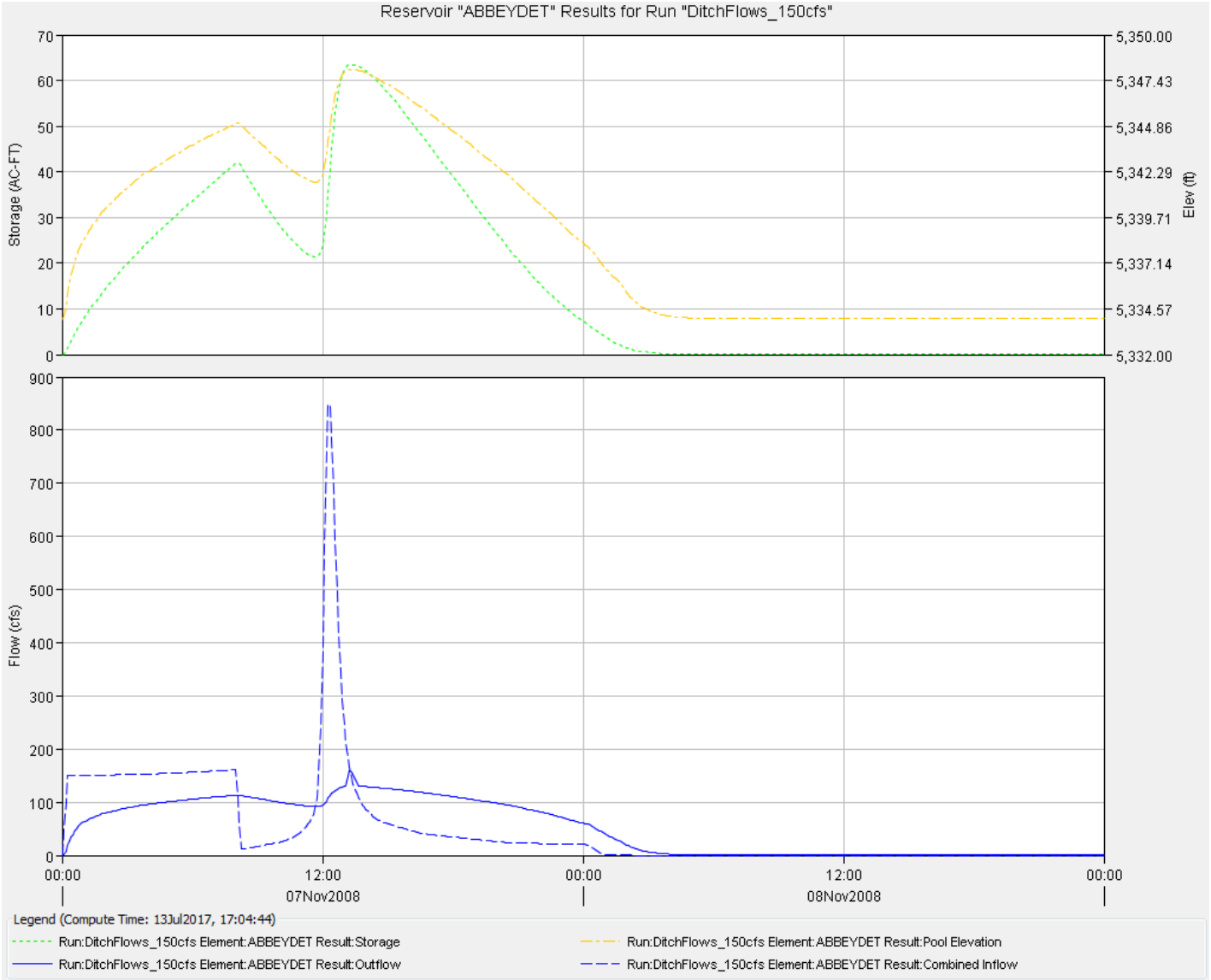
Start of Run:	07Nov2008, 00:00	Basin Model:	Abbey_DitchFlows_100cfs
End of Run:	09Nov2008, 00:00	Meteorologic Model:	NOAA Atlas 2
Compute Time:	13Jul2017, 18:52:40	Control Specifications:	Control 1

Volume Units: (•) IN ( ) AC-FT

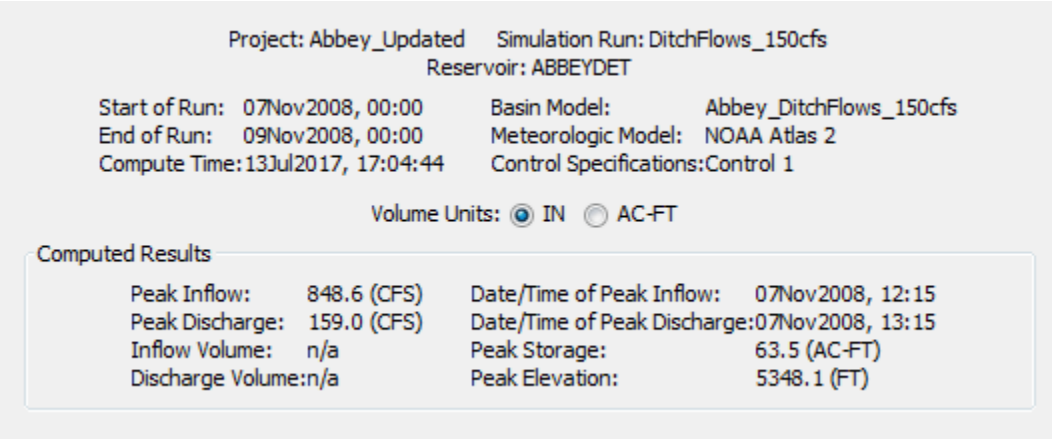
Computed Results

Peak Inflow:	848.6 (CFS)	Date/Time of Peak Inflow:	07Nov2008, 12:15
Peak Discharge:	150.8 (CFS)	Date/Time of Peak Discharge:	07Nov2008, 15:45
Inflow Volume:	n/a	Peak Storage:	63.4 (AC-FT)
Discharge Volume:	n/a	Peak Elevation:	5348.0 (FT)

Hydraulic Ditch Inflow Analysis: 150 cfs (1 of 2)



Hydraulic Ditch Inflow Analysis: 150 cfs (2 of 2)



Project: Abbey_Updated Simulation Run: DitchFlows_150cfs
Reservoir: ABBEYDET

Start of Run:	07Nov2008, 00:00	Basin Model:	Abbey_DitchFlows_150cfs
End of Run:	09Nov2008, 00:00	Meteorologic Model:	NOAA Atlas 2
Compute Time:	13Jul2017, 17:04:44	Control Specifications:	Control 1

Volume Units: (•) IN ( ) AC-FT

Computed Results

Peak Inflow:	848.6 (CFS)	Date/Time of Peak Inflow:	07Nov2008, 12:15
Peak Discharge:	159.0 (CFS)	Date/Time of Peak Discharge:	07Nov2008, 13:15
Inflow Volume:	n/a	Peak Storage:	63.5 (AC-FT)
Discharge Volume:	n/a	Peak Elevation:	5348.1 (FT)

B.3. Flowmaster Results

Box Pipe (Hydraulic Ditch.fm8) Report

Label	Solve For	Friction Method	Roughness Coefficient	Channel Slope (ft/ft)	Normal Depth (ft)	Height (ft)
12'x4' CBC HW 3'	Discharge	Manning Formula	0.013	0.00300	3.00	4.00
12'x4' CBC HW 3.5'	Discharge	Manning Formula	0.013	0.00300	3.50	4.00
12'x4' CBC HW 4'	Discharge	Manning Formula	0.013	0.00300	4.00	4.00

Bottom Width (ft)	Discharge (ft^3/s)	Flow Area (ft^2)	Wetted Perimeter (ft)	Hydraulic Radius (ft)	Top Width (ft)	Critical Depth (ft)
12.00	357.77	36.00	18.00	2.00	12.00	3.02
12.00	446.20	42.00	19.00	2.21	12.00	3.50
12.00	393.77	48.00	32.00	1.50	12.00	3.22

Percent Full (%)	Critical Slope (ft/ft)	Velocity (ft/s)	Velocity Head (ft)	Specific Energy (ft)	Discharge Full (ft^3/s)	Slope Full (ft/ft)
75.0	0.00293	9.94	1.53	4.53	393.77	0.00363
87.5	0.00299	10.62	1.75	5.25	393.77	0.00234
100.0	0.00296	8.20	1.05	5.05	393.77	0.00300

Flow Type	Notes	Messages
Supercritical		
Supercritical		
Subcritical		

Trapezoidal Channel (Hydraulic Ditch.fm8) Report

Label	Solve For	Friction Method	Roughness Coefficient	Channel Slope (ft/ft)	Normal Depth (ft)	Left Side Slope (ft/ft (H:V))
Trapezoidal Channel HW 3'	Discharge	Manning Formula	0.013	0.00300	3.00	2.00
Trapezoidal Channel HW 3.5'	Discharge	Manning Formula	0.013	0.00300	3.50	2.00
Trapezoidal Channel HW 4'	Discharge	Manning Formula	0.013	0.00300	4.00	2.00

Right Side Slope (ft/ft (H:V))	Bottom Width (ft)	Discharge (ft^3/s)	Flow Area (ft^2)	Wetted Perimeter (ft)	Hydraulic Radius (ft)	Top Width (ft)
2.00	5.00	304.79	33.00	18.42	1.79	17.00
2.00	5.00	422.07	42.00	20.65	2.03	19.00
2.00	5.00	562.61	52.00	22.89	2.27	21.00

Critical Depth (ft)	Critical Slope (ft/ft)	Velocity (ft/s)	Velocity Head (ft)	Specific Energy (ft)	Froude Number	Flow Type
3.25	0.00215	9.24	1.33	4.33	1.17	Supercritical
3.82	0.00207	10.05	1.57	5.07	1.19	Supercritical
4.39	0.00199	10.82	1.82	5.82	1.21	Supercritical

Notes	Messages

B.5. Decreed Flow Rate Email

Heller, Alexandra R

From: Adam T. Lancaster <atlancaster@canoncity.org>
Sent: Tuesday, July 18, 2017 11:11 AM
To: Rosen, Lee
Cc: Beedle, Jacob; Heller, Alexandra R
Subject: RE: Abbey DB - Hydraulic Ditch Decreed Rate

Talked with our Water Superintendent.

Original decree was 96 CFS then 19 CFS was transferred to City low head dam so Ditch company uses 77 CFS.

Adam Lancaster, P.E.
City Engineer
Engineering Department
City of Cañon City
P.O. Box 1460
128 Main Street
Cañon City, CO 81215-1460
719-269-9011
719-269-9017 (FAX)

From: Rosen, Lee [mailto:Lee.Rosen@atkinsglobal.com]
Sent: Tuesday, July 18, 2017 8:32 AM
To: Adam T. Lancaster
Cc: Beedle, Jacob; Heller, Alexandra R
Subject: FW: Abbey DB - Hydraulic Ditch Decreed Rate

Hi Adam,

The information that we found for the "Hydraulic Ditch" shows a decreed flow of 99.5 cfs (see attached and link below). I know you were recalling off the top of your head something around 70 cfs. Let us know if you have a more appropriate number we should use.

Thanks,

Lee D. Rosen, P.E., CFM
Senior Engineer II, Water Resources

ATKINS

7604 Technology Way, Suite 400, Denver, CO 80237 | Direct: 720.475.7105 | Mobile: 612.760.2127
Email: lee.rosen@atkinsglobal.com | Web: www.atkinsglobal.com/northamerica www.atkinsglobal.com

From: Heller, Alexandra R
Sent: Tuesday, July 18, 2017 8:21 AM
To: Rosen, Lee <Lee.Rosen@atkinsglobal.com>
Subject: Abbey DB - Hydraulic Ditch Decreed Rate

Lee,

Attached is a printout of the page for Adam's review.
Here is a link to the website as well:
http://www.colorado-water.com/fremont-county/ditches/canon-city-hydraulic/1200505

Alex Heller, EIT
Engineer I, Water Resources

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7604 Technology Way, Suite 400, Denver, CO 80237 | Tel: +1 (303) 221 7275 Ext. 4987007 | Direct: +1 (720) 475 7007 | Cell: +1 (719) 207 1965
Email: alexandra.heller@atkinsglobal.com | Web: www.atkinsglobal.com | Careers: www.atkinsglobal.com/careers

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ABBEY DRAINAGE BASIN PLANNING STUDY

FOR

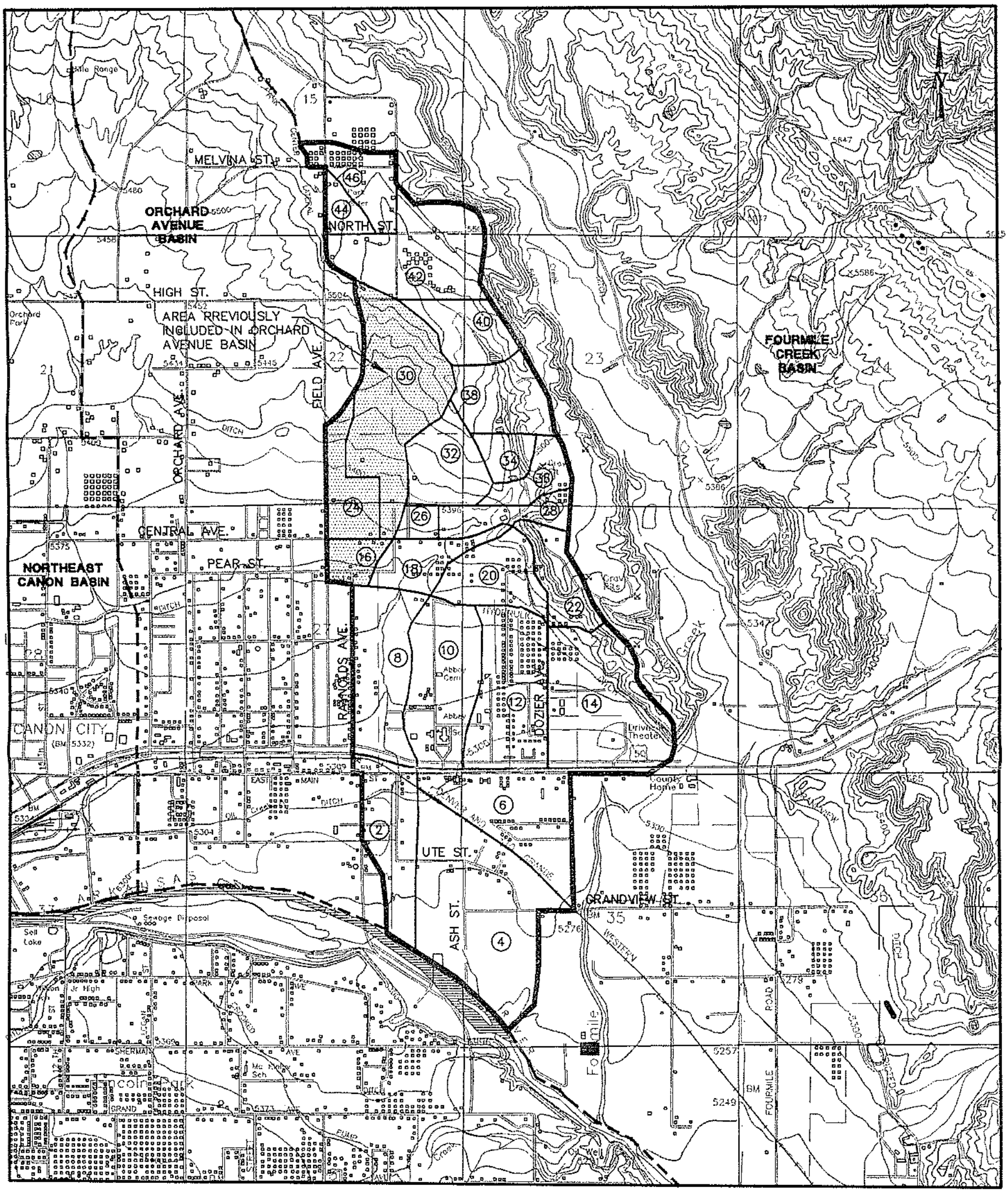
CANON CITY, COLORADO

PREPARED BY:

ASSOCIATED DESIGN PROFESSIONALS, INC.
1861 AUSTIN BLUFFS PARKWAY, SUITE 101
COLORADO SPRINGS, CO 80918

December 16, 1998
Job No. 960908

ADP
Associated Design Professionals, Inc.



ABBEY DRAINAGE BASIN

BASIN PLANNING STUDY

CITY OF CANON CITY, COLORADO

BASIN MAP

FIGURE 1

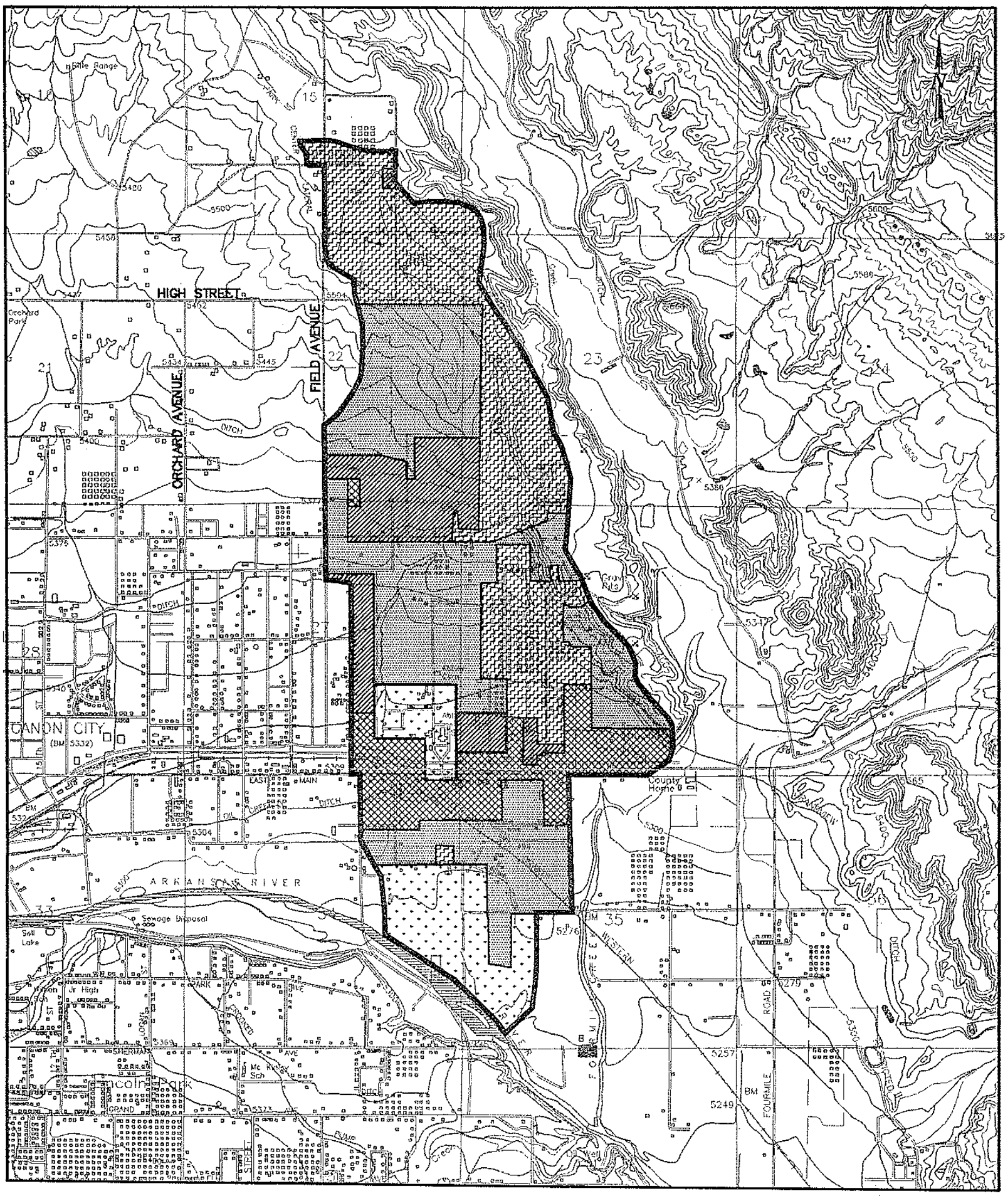
NO.	DATE	REVISION	BY

PREPARED BY:

ADP
Associated Design Professionals, Inc.

1961 Aurora Pkwy Suite 101
Aurora, CO 80012
(720) 842-0516
FAX (720) 842-0541

DATE: 6/10/98	DESIGNED BY JJW
JOB NO. 960908	PROJECT ENGINEER MAB
CAD FILE NO. ABBYBASN.DWG	PROJECT MANAGER MAB
DRAWN BY JJW	HORZ. 2000' VERT.



OPEN ESTATES > 1 AC LOTS

LOW DENSITY RESIDENCE < 6 DU/AC

MULTI FAMILY

AGRICULTURE

PARK

COMMERCIAL

FIGURE 2

ABBEY DRAINAGE BASIN

BASIN PLANNING STUDY

CITY OF CANON CITY, COLORADO

LAND USE MAP

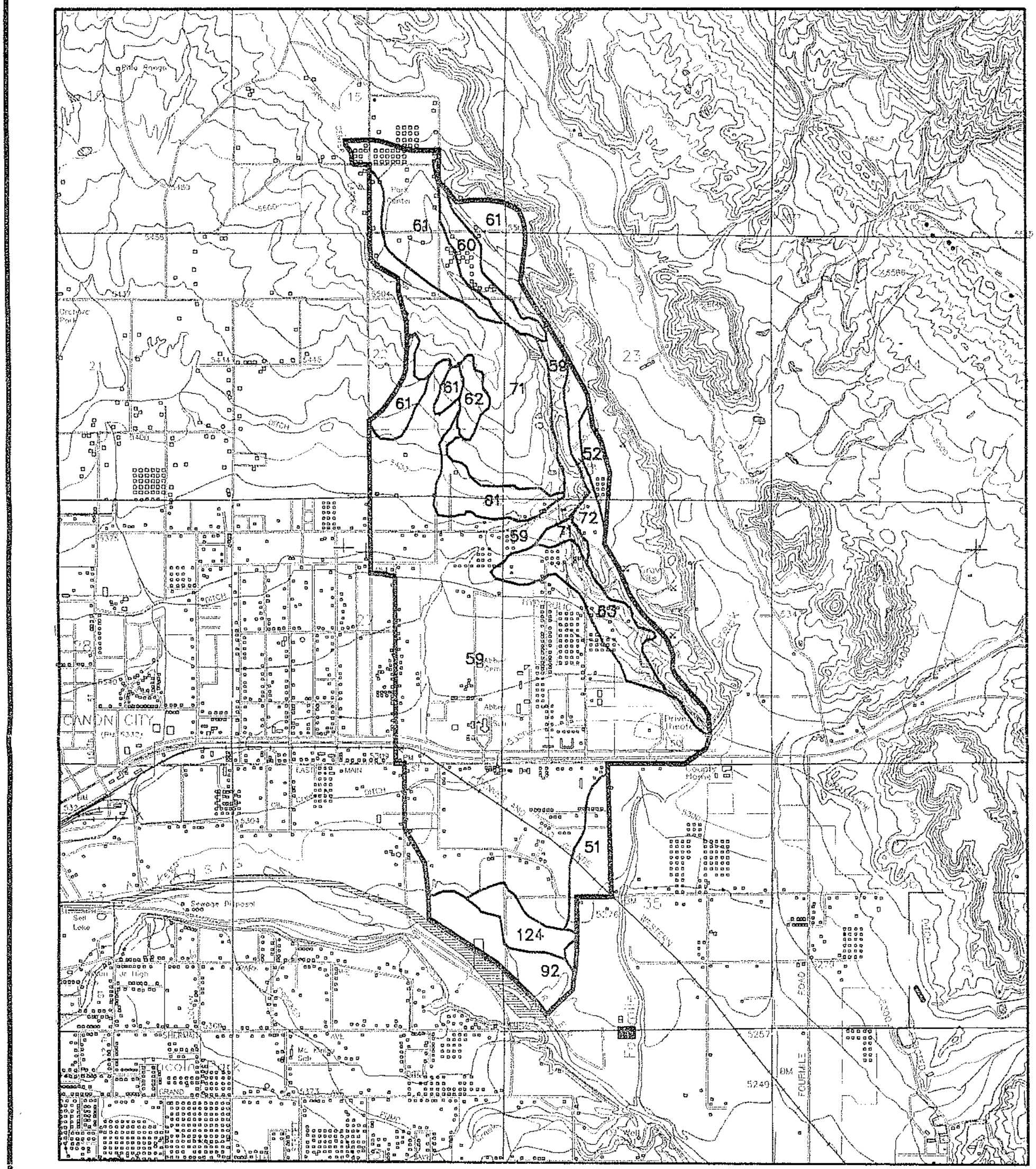
NO.	DATE	REVISION	BY
1	11/16/98	REVISE LAND USE NEAR ABBEY	JJW

1861 Ansells Blvd Parkway Suite 101 Colorado Springs, CO 80918 (719) 260-0455 FAX (719) 260-0541

ADP Associated Design Professionals, Inc.

PREPARED BY:

DATE: 6/10/98	DESIGNED BY JJW
JOB NO. 960908	PROJECT ENGINEER MAB
CAD FILE NO. ABBYLAND.DWG	PROJECT MANAGER MAB
DRAWN BY JJW	HORZ. 2000'
	VERT.



SOIL NUMBER	HYDROLOGIC GROUP
51	C
52	A/B
59	D
60	D
61	C
62	C
63	D
71	D
72	D
92	D
124	C

FIGURE 8

ABBEY DRAINAGE BASIN

BASIN PLANNING STUDY

CITY OF CANON CITY, COLORADO

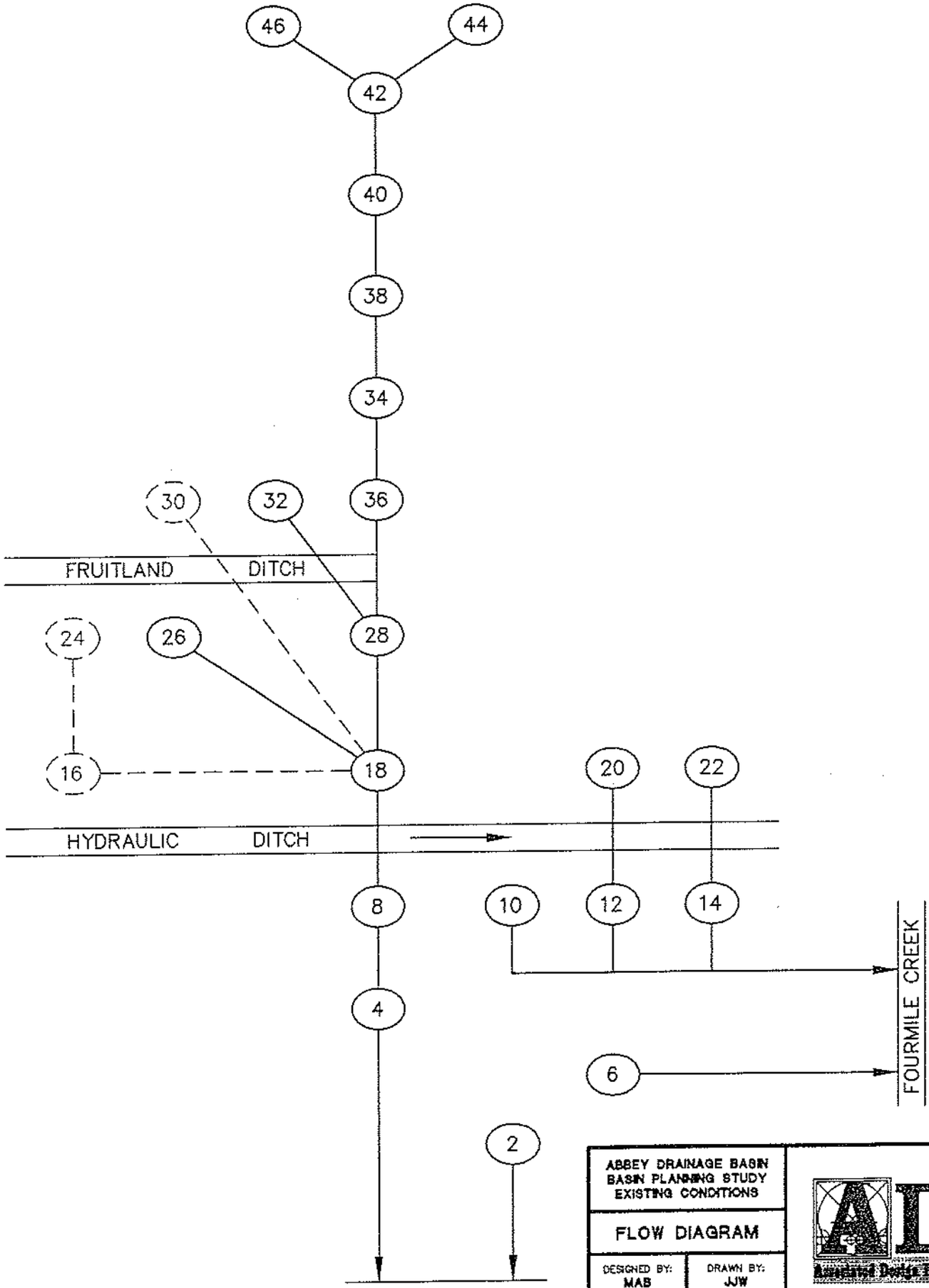
SOILS MAP

NO.	DATE	REVISION	BY

1941 Austin Bluffs Parkway, Suite 101, Colorado Springs, CO 80918, Tel: (719) 268-0941

PREPARED BY: ADP Associated Design Professionals, Inc.

DATE: 6/10/98
JOB NO. 960908
CAD FILE NO. ABBYSOIL.DWG
DRAWN BY JJW
DESIGNED BY JJW
PROJECT ENGINEER MAB
PROJECT MANAGER MAB
HORZ. 2000'
VERT.

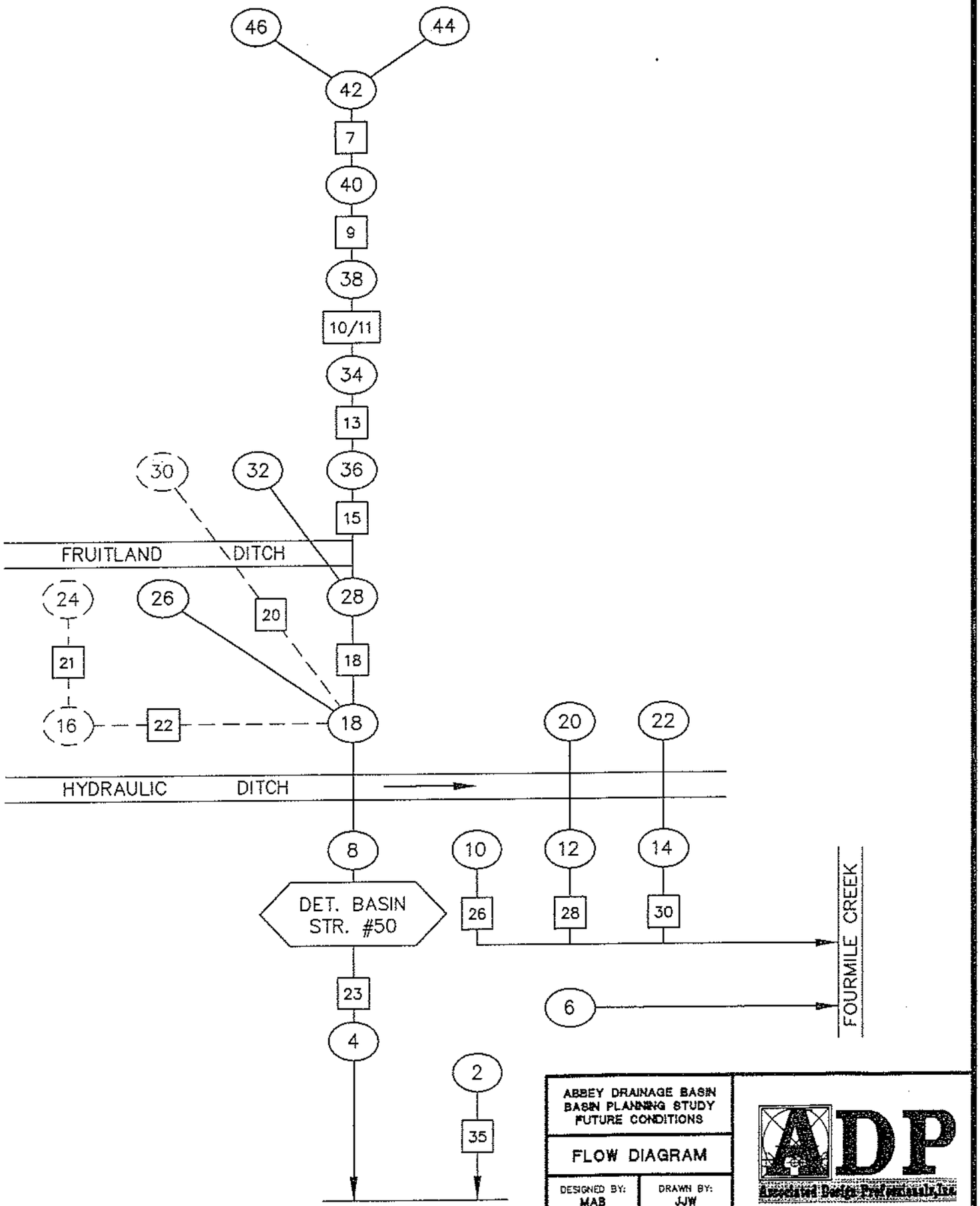


ABBEY DRAINAGE BASIN
BASIN PLANNING STUDY
EXISTING CONDITIONS

FLOW DIAGRAM

DESIGNED BY: MAB	DRAWN BY: JJW
CHECKED BY: MAB	DATE: 6/10/98
FILE NO: FLOW_DIA	JOB NO: 960908

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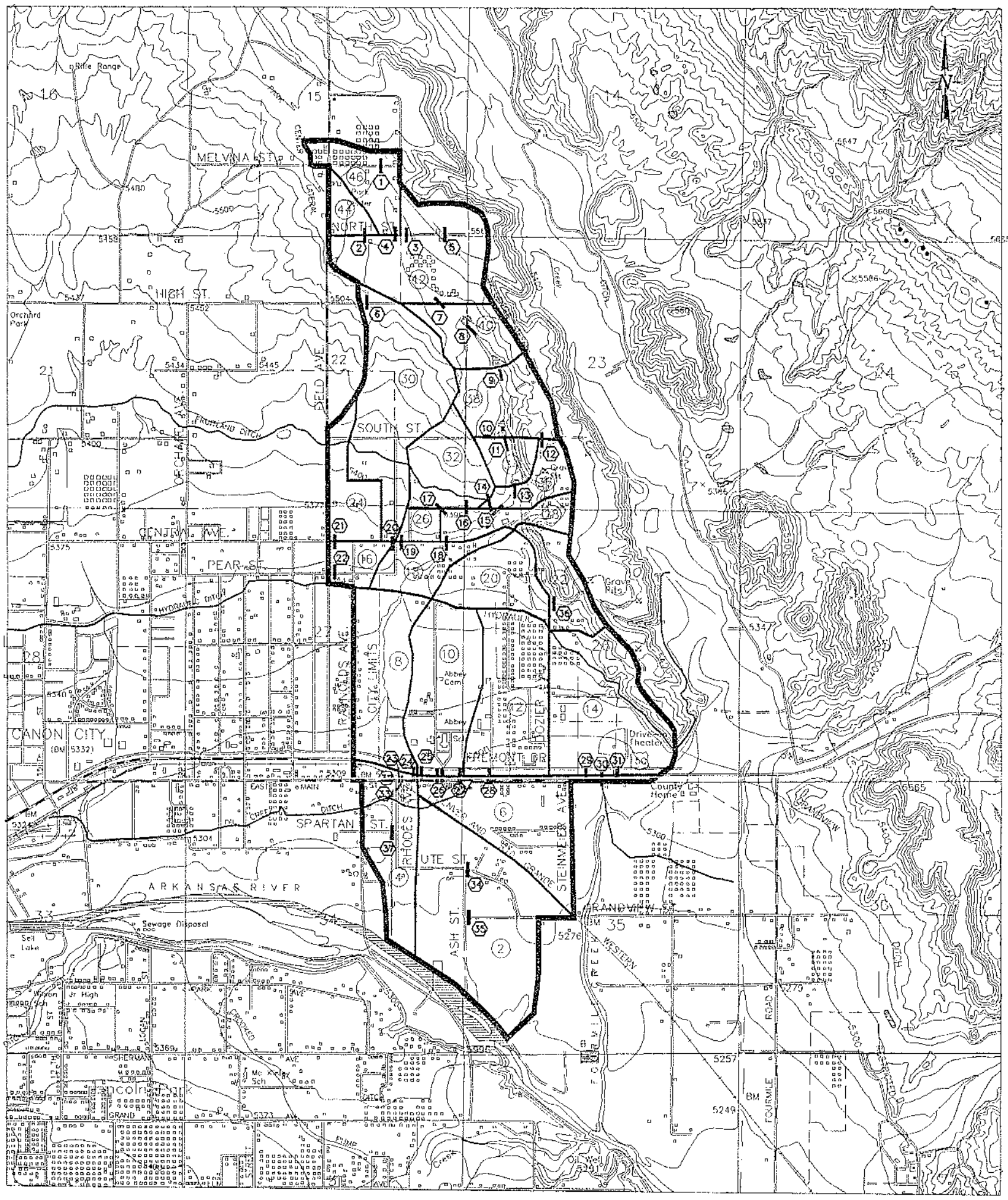
ABBEY DRAINAGE BASIN
BASIN PLANNING STUDY
FUTURE CONDITIONS

FLOW DIAGRAM

DESIGNED BY:	DRAWN BY:
MAB	JJW
CHECKED BY:	DATE:
MAB	6/10/98
FILE NO:	JOB NO:
P_FLOW_D	960906

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APPENDIX B
Alternate Conceptual Plans



STRUCTURE NUMBER	STRUCTURE SIZE
1	21" X 15" CMP
2	18" CMP
3	18" CMP
4	30" CMP
5	30" CMP
6	18" CMP
7	15" CMP
8	15" STEEL PIPE
9	24" CMP
10	24" CMP
11	24" CMP

STRUCTURE NUMBER	STRUCTURE SIZE
12	24" CMP
13	24" CMP
14	24" CMP
15	72" CMP
16	18" CMP
17	18" ADS
18	72" CMP
19	30" CMP
20	18" CMP
21	29" X 18" CMP
22	18" CMP
23	48" CMP
24	24" CMP

STRUCTURE NUMBER	STRUCTURE SIZE
25	24" CMP
26	2-30" CMP
27	24" CMP
28	24" CMP
29	24" CMP
30	48" CMP
31	24" CMP
32	2-36" CMP
33	42" X 29" CMP
34	18" CMP
35	28" X 20" CMP
36	18" CMP
37	48" CMP
38	" "

ABBEY DRAINAGE BASIN

BASIN PLANNING STUDY

THE CITY OF CANON CITY, COLORADO

EXISTING STRUCTURES

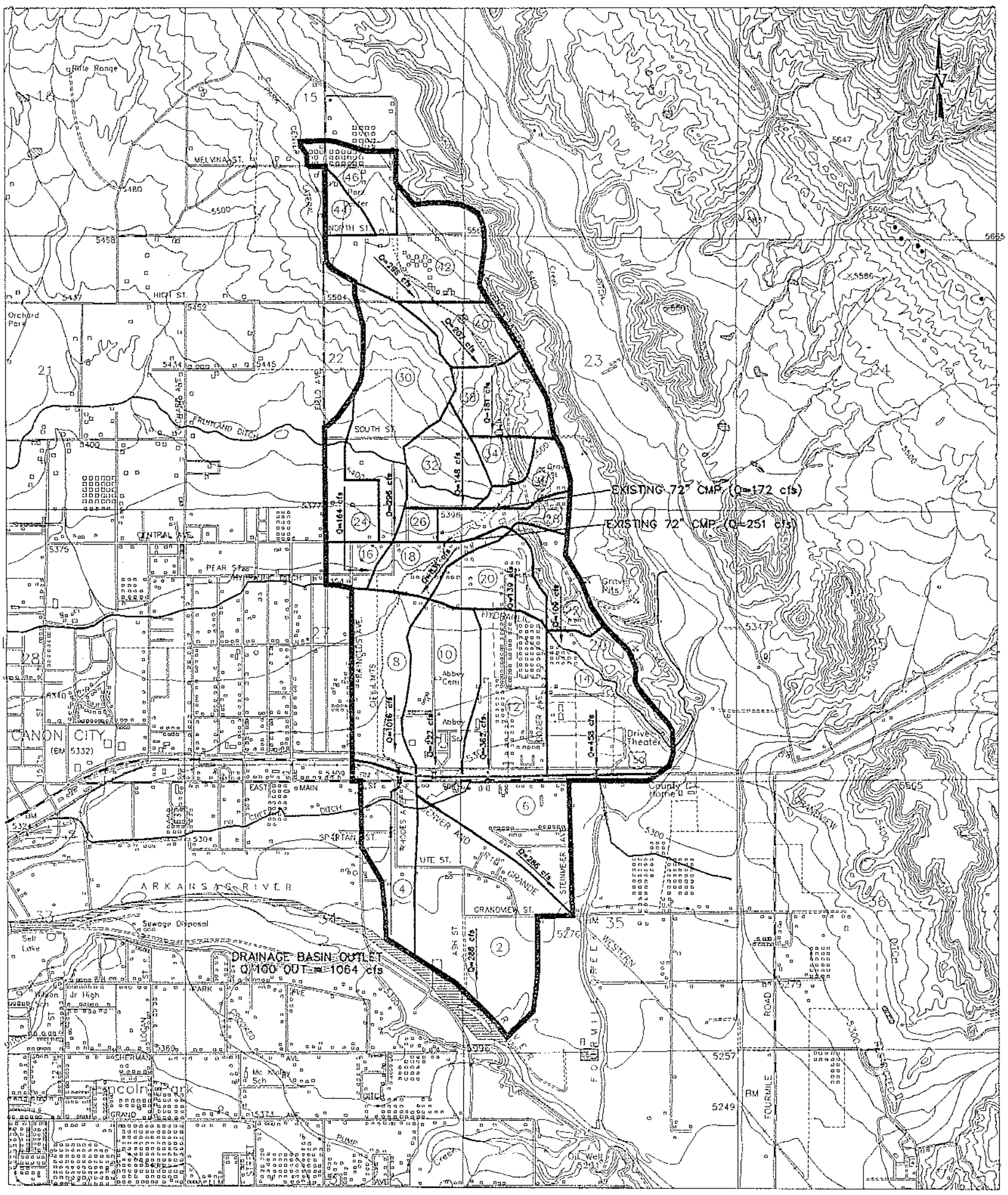
NO.	DATE	REVISION	BY

1961 Aurora Blvd. Parkway
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(719) 596-0822
Fax (719) 596-0534

ADP Associated Design Professionals, Inc.

PREPARED BY:

DATE: 6/10/98	DESIGNED BY: JJW
JOB NO. 9909008	PROJECT ENGINEER: MAB
CAD FILE NO. ABBY_BKG.DWG	PROJECT MANAGER: MAB
DRAWN BY: JJW	SCALE: HORZ. 1000' VERT.



NO IMPROVEMENTS
BASIN AS IS

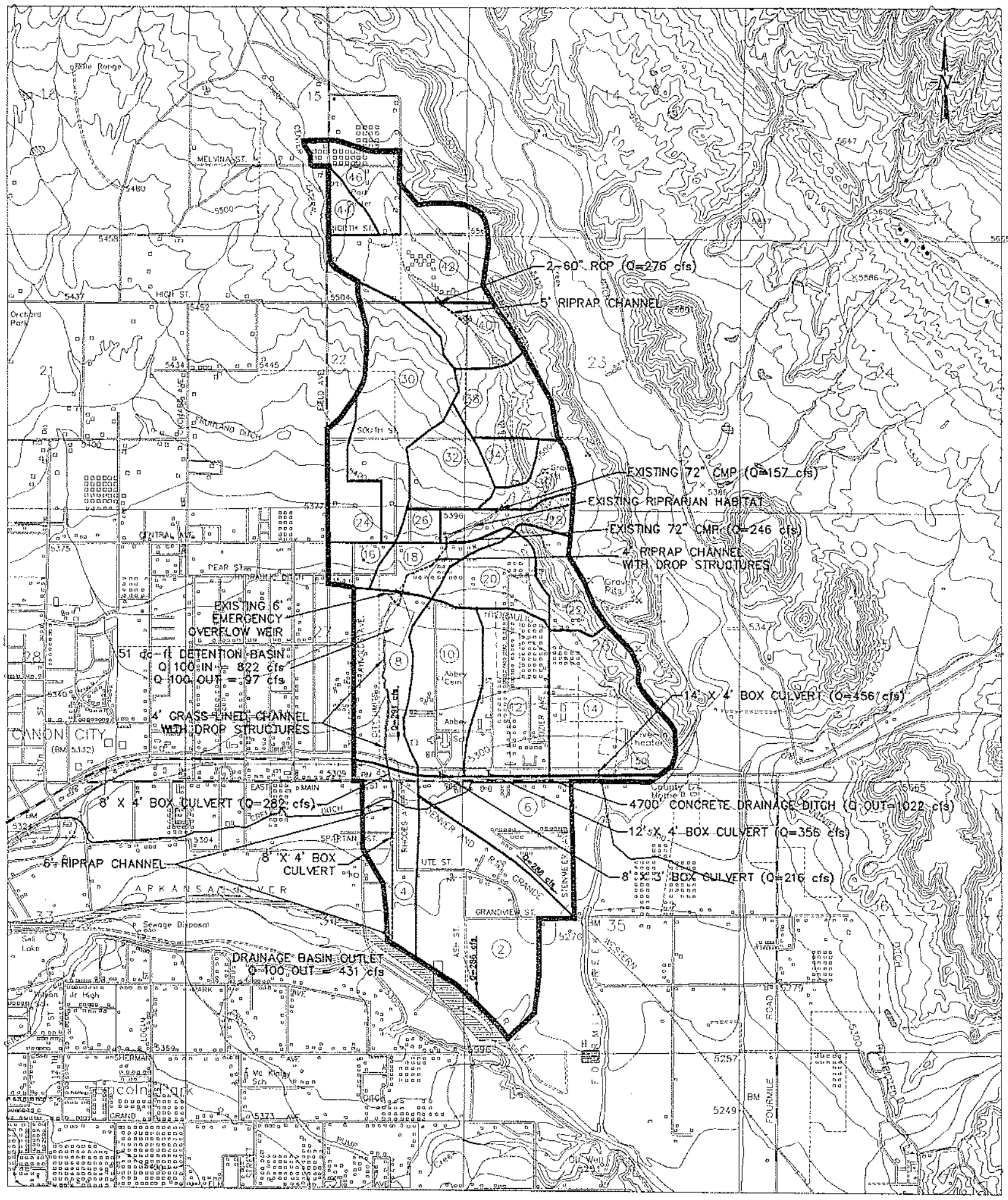
SHEET 2 of 4

ABBEY DRAINAGE BASIN
BASIN PLANNING STUDY
THE CITY OF CANON CITY, COLORADO
ALTERNATE 1

NO.	DATE	REVISION	BY

PREPARED BY:
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FAX (719) 260-0511

DATE: 6/10/98
DESIGNED BY: JJW
JOB NO. 980908
PROJECT ENGINEER: MAB
CAD FILE NO. AB_ALT_1.DWG
PROJECT MANAGER: MAB
DRAWN BY: JJW
SCALE: HORZ. N.T.S. VERT.



INSTALLATION OF DETENTION BASIN WITH NO UPSTREAM POND IMPROVEMENTS

SHEET 3 of 4

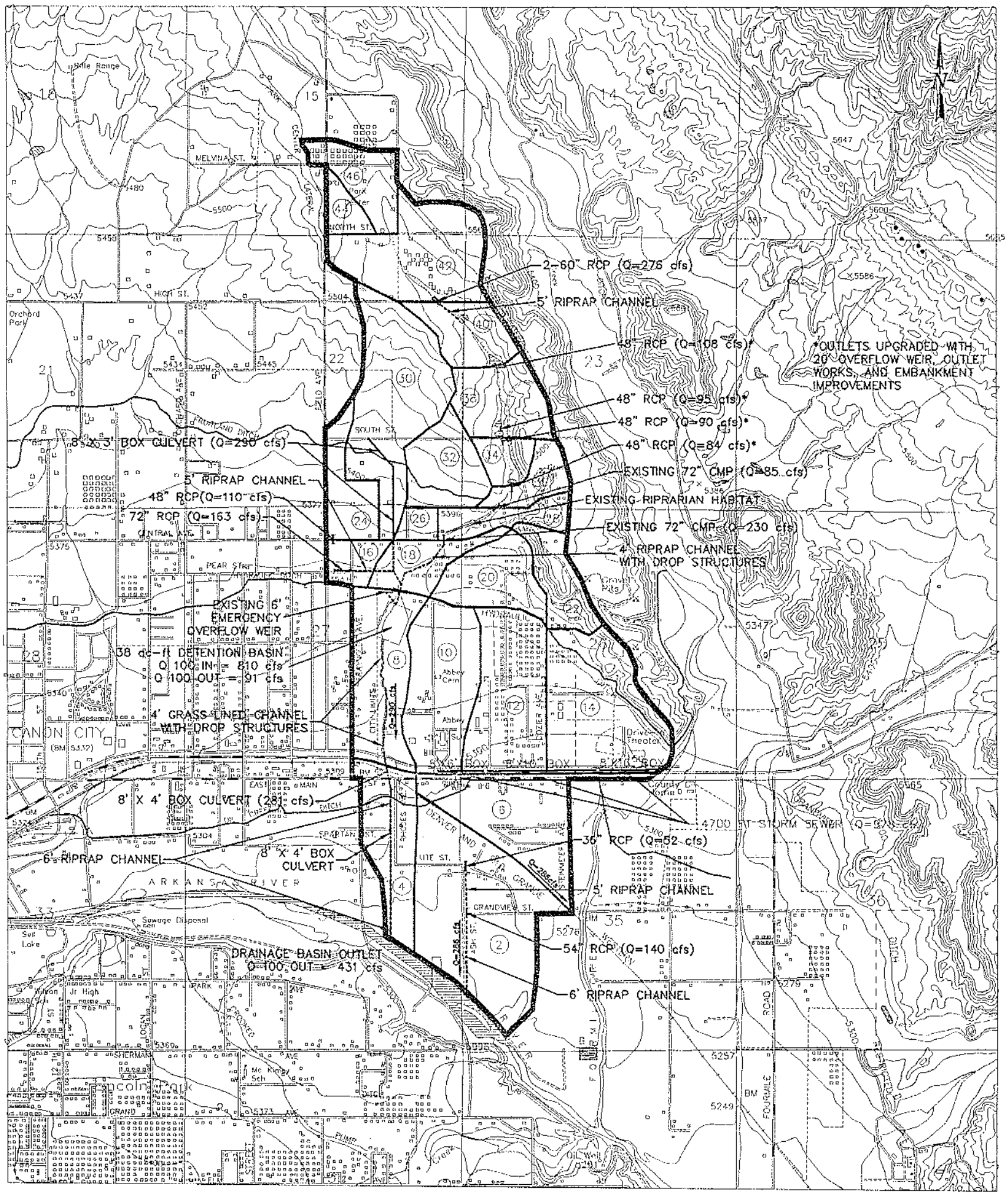
ABBEY DRAINAGE BASIN
BASIN PLANNING STUDY
THE CITY OF CANON CITY, COLORADO
ALTERNATE 2

NO.	DATE	REVISION	BY

1561 Jamboree Blvd., Factory Shops 101, Colorado Springs, CO 80918
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PREPARED BY:

DATE: 6/10/08
DESIGNED BY: JJW
JOB NO.: 960008
PROJECT ENGINEER: MAB
CAD FILE NO.: AB_ALT_2.DWG
PROJECT MANAGER: MAB
DRAWN BY: JJW
SCALE: HORZ. N.T.S. VERT.



INSTALLATION OF DETENTION BASIN WITH UPSTREAM POND IMPROVEMENTS

SHEET 4 of 5

ABBEY DRAINAGE BASIN
BASIN PLANNING STUDY
THE CITY OF CANON CITY, COLORADO
ALTERNATE 3

NO.	DATE	REVISION	BY

1501 Main Street, Suite 101
Golden, CO 80401
(303) 384-8501
FAX (303) 384-8502

ADP Associated Design Professionals, Inc.

PREPARED BY:

DATE: 6/10/98	DESIGNED BY: JJW
JOB NO. 960008	PROJECT ENGINEER: MAB
CAD FILE NO. AB_ALT_3.DWG	PROJECT MANAGER: MAB
DRAWN BY: JJW	SCALE: HORZ. N.T.S. VERT.

ATKINS

The Northeast Cañon City Detention Basins Design Project

Final Summary Report

December 28, 2017

1.0 Introduction

The intent of the Northeast Cañon City Detention Basins Design Project was to design two stormwater detention basins (9th Street Detention Basin and 15th Street Detention Basin) and update the two existing Federal Emergency Management Agency (FEMA) floodplains downstream of the proposed detention basins with reduced flows. The goal was to remove enough structures from the floodplain to be able to apply for a FEMA Hazard Mitigation Grant which would fund the construction of the two basins. Figure 1-1 shows the overall watershed, color coordinated regional subbasins, the existing FEMA floodplains and a blow up of the proposed detention basins.

Figure 1-1 Northeast Cañon Watershed and Proposed Detention Basins

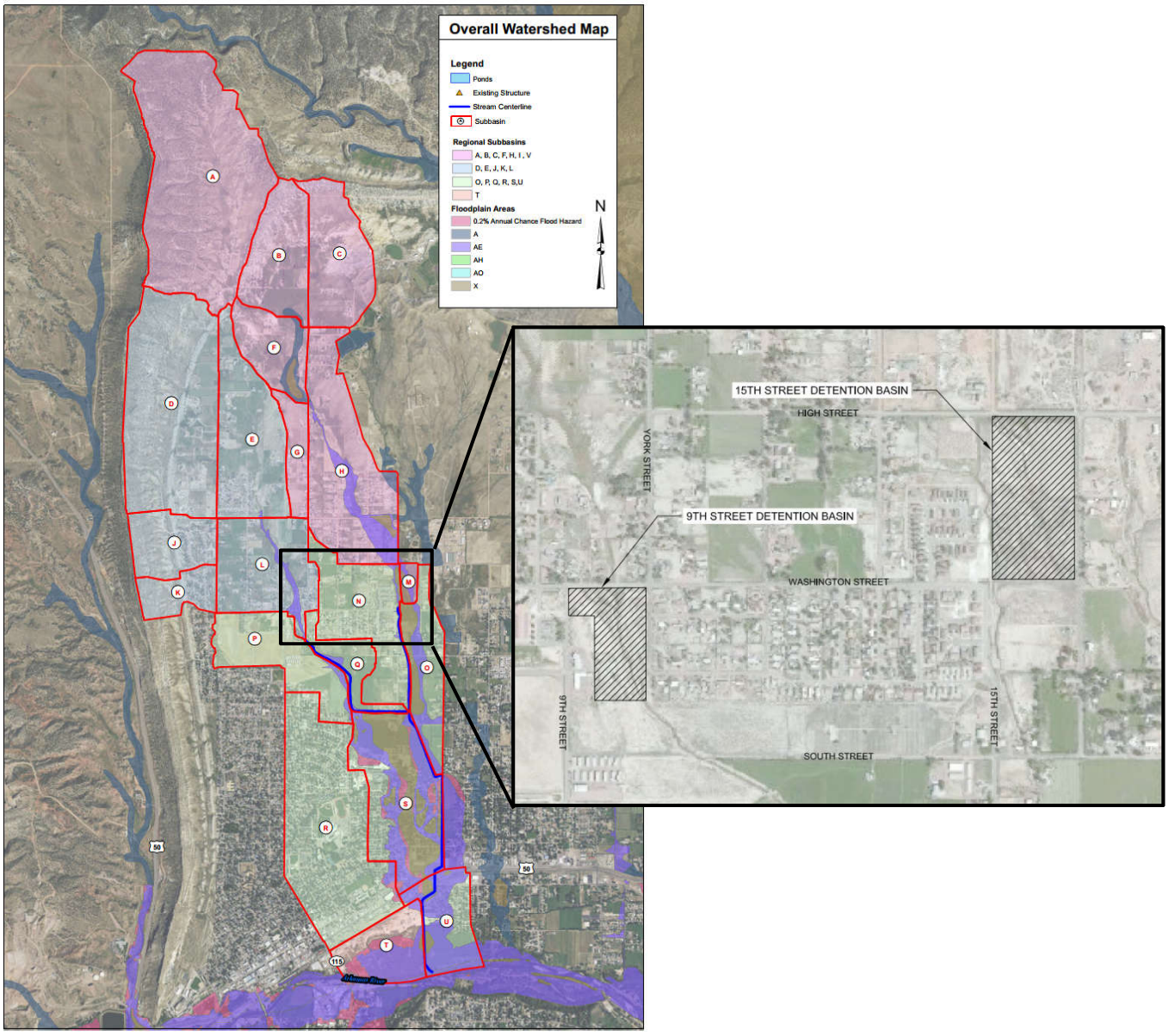


Figure 2-1 9th Street Detention Basin Alternative Approach

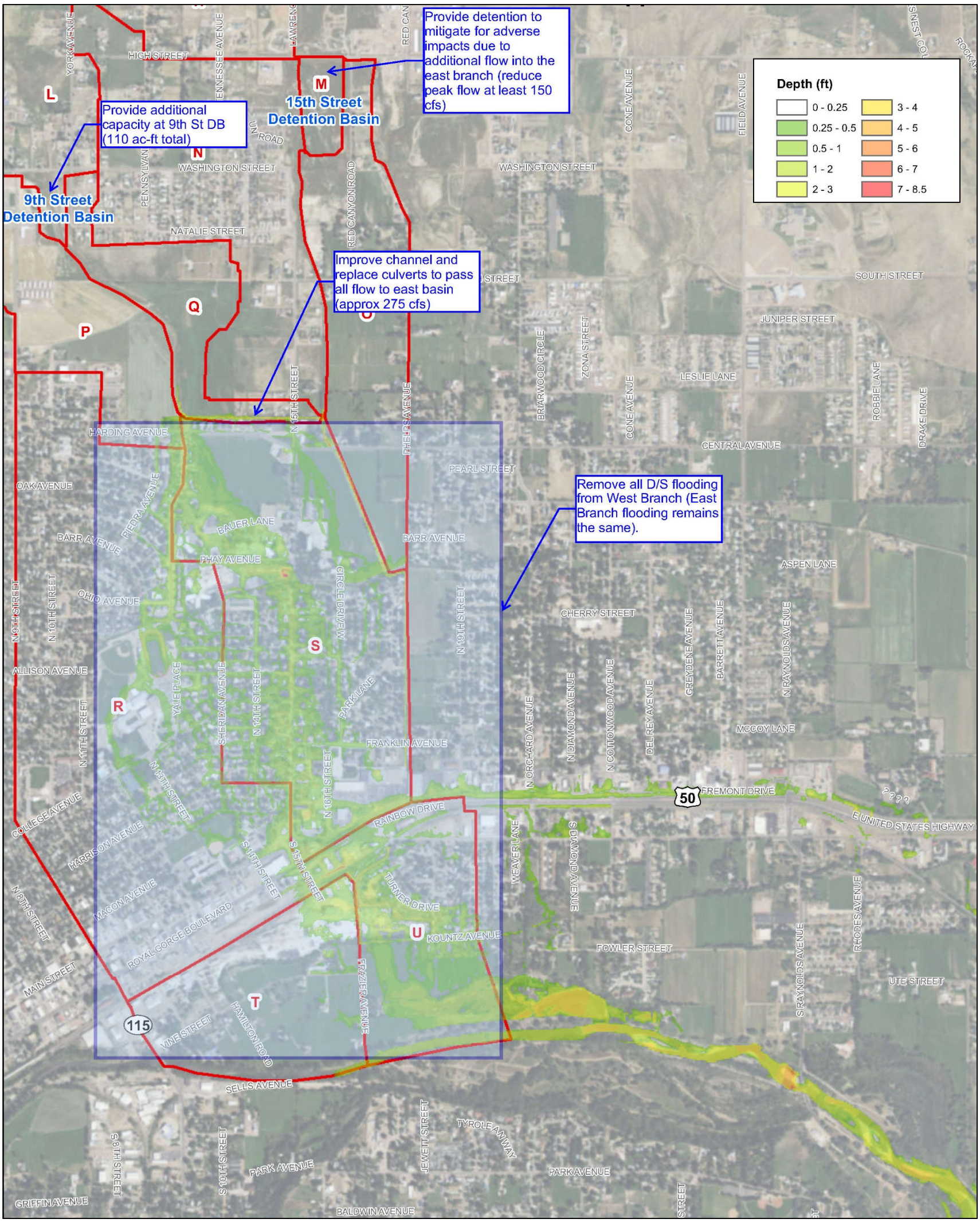


Figure 3-1 5th Street Detention Basin Alternative Approach

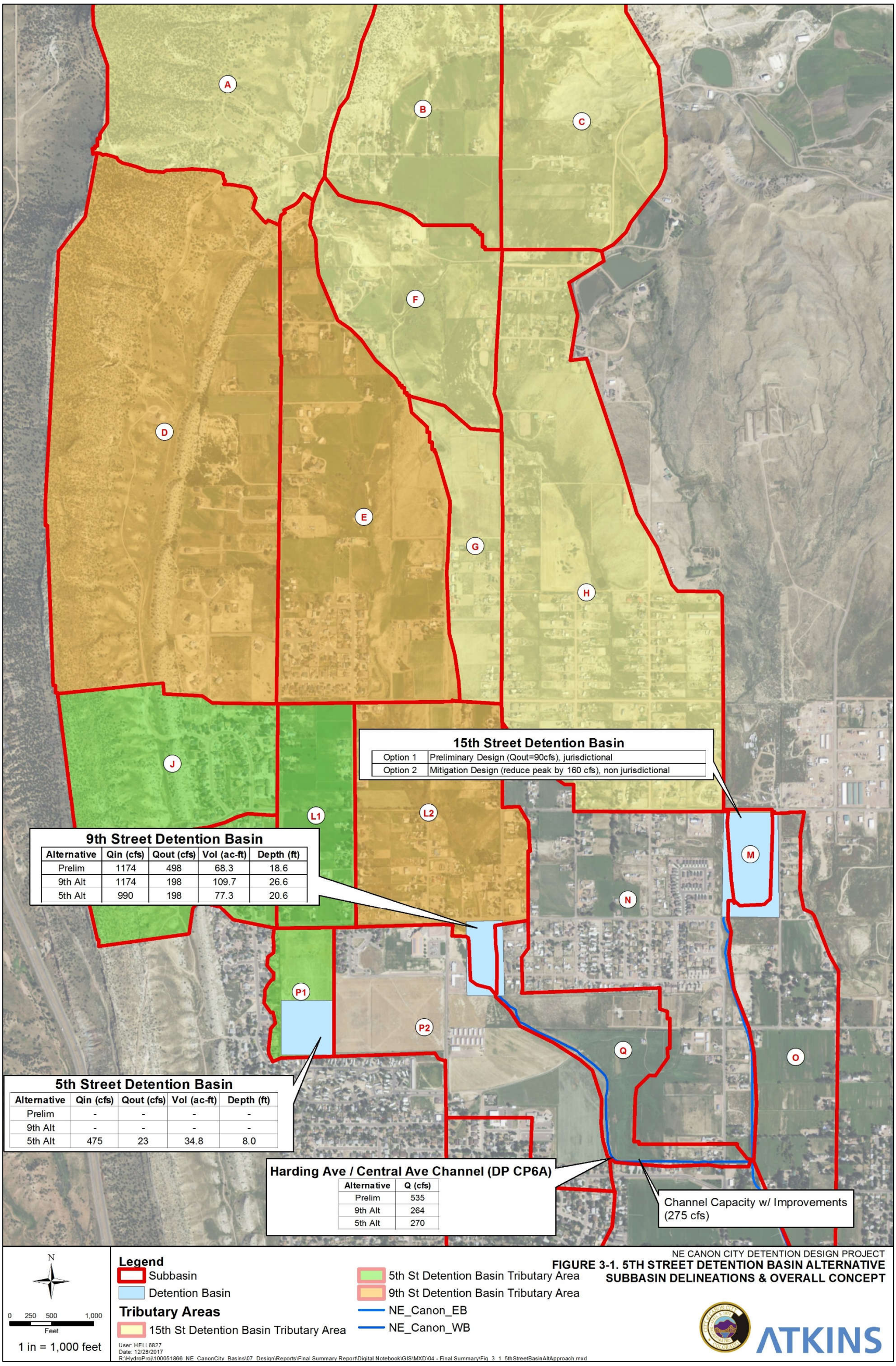


Table 4-1 Hazard Classification Summary

Location	Dam Size	Dam Height (ft)	Storage Capacity (ac-ft)	Hazard Classification	Method
9th Street	Minor	19.6	73.3	Significant	100-YR
15th Street	Small	22.4	186.7	Significant	0.45 PMP

The hazard classifications were not updated for the 9th Street and 5th Street Detention Basin Alternatives reports. Any changes to the detention basin geometry will require updated dam breach models, unless the proposed basin is a non-jurisdictional dam, in which case it would not typically require an analysis and report.

5.0 Hydrology

Atkins performed an updated hydrologic analysis for the Northeast Cañon Watershed. As part of the analysis, Atkins reviewed previous hydrologic studies in the project vicinity, including preliminary design reports, updated technical memorandums and FEMA floodplain studies. These studies were reviewed and hydrologic data and information from these studies was incorporated into this hydrologic analysis as appropriate.

During the preliminary design phase, hydrologic modeling was performed for multiple methodologies including SCS, Green-Ampt, and PMP for both Existing and Ultimate Land Use conditions, and for existing and proposed infrastructure. This was due to the design parameters and different requirements of the various regulatory agencies. Hydrologic models were developed for both the 100-year and PMP design storm events. A summary of the different models and their uses are described below.

- Floodplain Modeleing – NOAA Atlas 14, SCS Type II, Existing Land Use
- Design of Stage/Storage/Discharge - NOAA Atlas 14, SCS Type II, Future Land Use
- 9th Street Spillway & Hazard Classification – NOAA Atlas 14, Green Ampt, Future Land Use
- 15th Street Spillway & Hazard Classification – 0.45 PMP

The preliminary design report discusses the detailed information that was used to develop the hydrologic models. The subjects detailed include subbasin delineations, computer modeling, rainfall and storm distribution, soils, land use, hydrologic losses (SCS Method and Green Ampt Losses), transform methods (SCS and Dimensionless Unit Hydrographs), channel routing and stage-stage-storage discharge curves. The peak flows within the basins were checked against USGS and the results of the hydrologic model are within the range of values calculated by the regression equations.

As part of the subsequent two alternatives, the 9th Street and 5th Street Detention Basin Alternatives, only the SCS method hydrologic models were updated to develop the conceptual proposed improvements. Updates to the models included splitting subwatersheds and updating routing parameters to obtain peak flows at specific locations. The models were also updated to run the 10, 50, and 500 year events and the stage-storage-discharge curves were modified to reflect the updated proposed basin designs.

HEC-HMS was used to model hydrologic processes within the project watershed. The HEC-HMS models incorporated user-specified meteorological models, precipitation losses, transform methods, and reach routing for a given watershed. Models were established to different scenarios using various parameters for the design of each detention basin. Each model scenario and how it is applied to the project is summarized in Table 5-1. All models are included in the digital notebook that is included as part of this Final Summary Report.

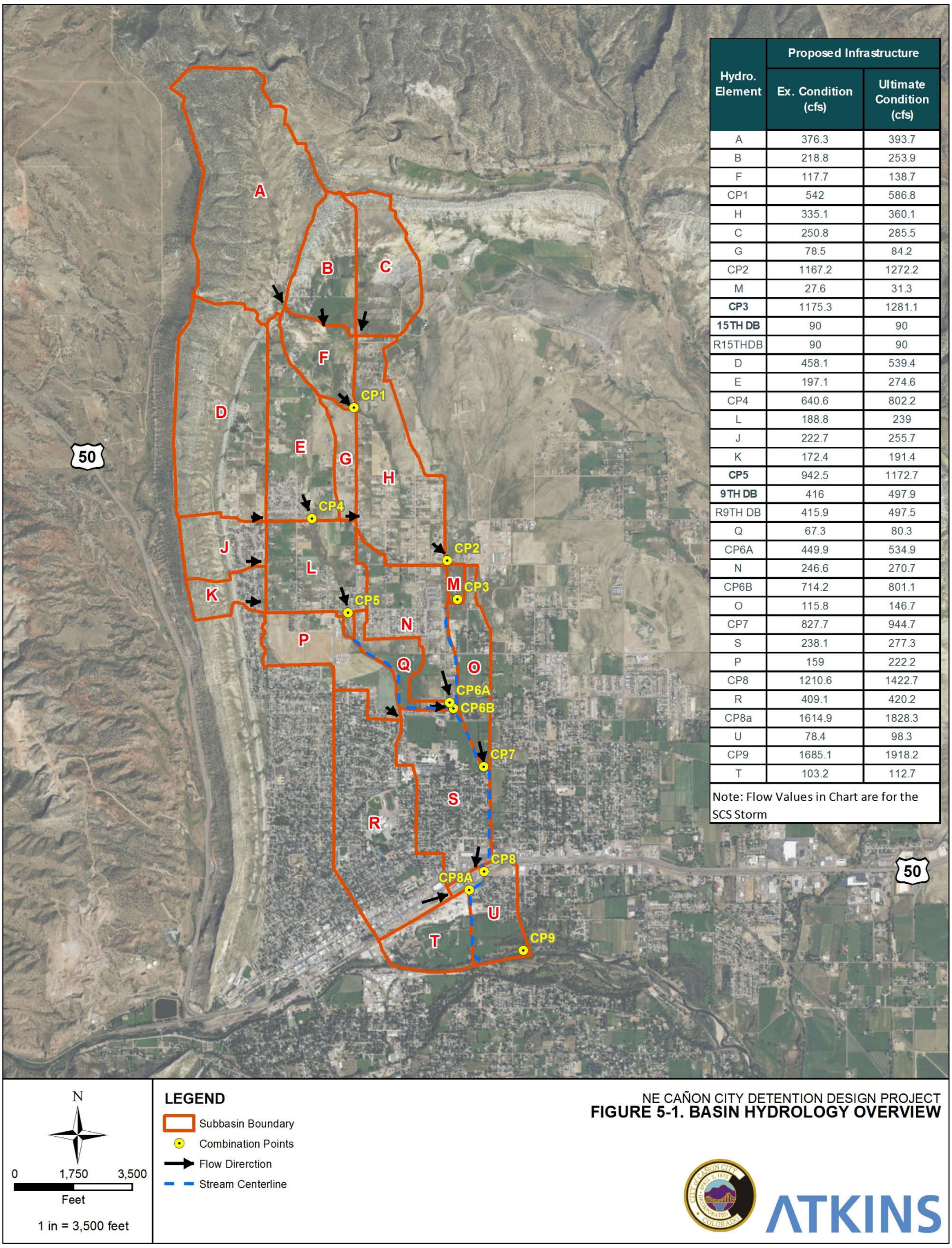
Table 5-1 HEC-HMS Model Scenarios

Project Stage	Scenario Name	Description	Design Purpose
Preliminary Design	G-A_Existing	Existing land use, Green-Ampt losses, proposed infrastructure	Flow comparison
Preliminary Design	G-A_Existing_15th DB Breach	Existing land use, Green-Ampt losses, proposed infrastructure	Breach Hydrograph from 15th Street Detention Basin
Preliminary Design	G-A_Existing_9th DB Breach	Existing land use, Green-Ampt losses, proposed infrastructure	Breach Hydrograph from 9th Street Detention Basin
Preliminary Design	G-A_Existing_Ex	Existing land use, Green-Ampt losses, existing infrastructure	Flow comparison
Preliminary Design	G-A_PMP	Existing land use, Green-Ampt losses, proposed infrastructure	PMP Event, entering 15th Street Detention Basin
Preliminary Design	G-A_Ultimate	Ultimate land use, Green-Ampt losses, proposed infrastructure	Design 9th Street Detention Basin Emergency Spillway
Preliminary Design	G-A_Ultimate_Ex	Ultimate land use, Green-Ampt losses, existing infrastructure	Flow comparison
Preliminary Design	SCS_Existing	Existing land use, SCS losses, proposed infrastructure	FEMA floodplain analysis
Preliminary Design	SCS_Existing_Ex	Existing land use, SCS losses, existing infrastructure	Flow comparison
Preliminary Design	SCS_Ultimate	Ultimate land use, SCS losses, proposed infrastructure	Detention basin sizing, inlet facilities, outlet facilities
Preliminary Design	SCS_Ultimate_Ex	Ultimate land use, SCS losses, existing infrastructure	Flow comparison
9th Street Alt	SCS_Existing_Ex_9th Alt	Existing land use, SCS losses, existing infrastructure	Flow comparison
9th Street Alt	SCS_Ultimate_Ex_9th Alt	Ultimate land use, SCS losses, existing infrastructure	Flow comparison
9th Street Alt	SCS_Existing_9th Alt	Existing land use, SCS losses, proposed infrastructure	Flow comparison
9th Street Alt	SCS_Ultimate_9th Alt	Ultimate land use, SCS losses, proposed infrastructure	Detention basin sizing, inlet facilities, outlet facilities
5th Street Alt	SCS_Existing_5thAlt	Existing land use, SCS losses, proposed infrastructure	Flow comparison
5th Street Alt	SCS_Ultimate_5th Alt	Ultimate land use, SCS losses, proposed infrastructure	Detention basin sizing, inlet facilities, outlet facilities

5.1. HEC-HMS Model Results at Key Locations

The HEC-HMS results are documented in each of the reports and analyses prepared by Atkins. The delineated watersheds, routing and results for the 100-year peak flow (Existing and Ultimate Land Use with Proposed Infrastructure using the SCS method) are provided in Figure 5-1 (next page).

Figure 5-1 Subbasins, Routing and Preliminary Design Peak Flow Results

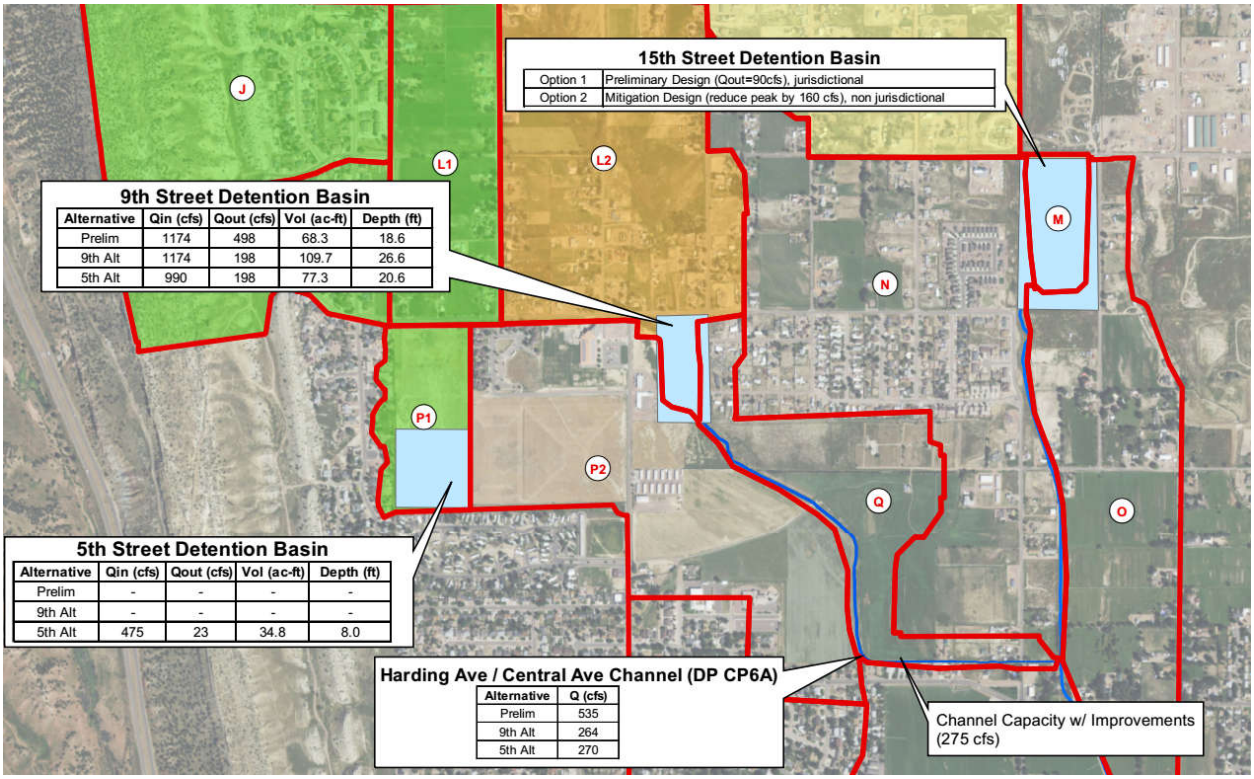


Hydro. Element	Proposed Infrastructure	
	Ex. Condition (cfs)	Ultimate Condition (cfs)
A	376.3	393.7
B	218.8	253.9
F	117.7	138.7
CP1	542	586.8
H	335.1	360.1
C	250.8	285.5
G	78.5	84.2
CP2	1167.2	1272.2
M	27.6	31.3
CP3	1175.3	1281.1
15TH DB	90	90
R15THDB	90	90
D	458.1	539.4
E	197.1	274.6
CP4	640.6	802.2
L	188.8	239
J	222.7	255.7
K	172.4	191.4
CP5	942.5	1172.7
9TH DB	416	497.9
R9TH DB	415.9	497.5
Q	67.3	80.3
CP6A	449.9	534.9
N	246.6	270.7
CP6B	714.2	801.1
O	115.8	146.7
CP7	827.7	944.7
S	238.1	277.3
P	159	222.2
CP8	1210.6	1422.7
R	409.1	420.2
CP8a	1614.9	1828.3
U	78.4	98.3
CP9	1685.1	1918.2
T	103.2	112.7

Note: Flow Values in Chart are for the SCS Storm

Comparisons of the 100-year peak flow (Ultimate Land Use with Proposed Infrastructure using the SCS method) for the Preliminary Design, 9th Street Alternative and 5th Street Alternative are provided below in Figure 5-2.

Figure 5-2 Prelim Design, 9th Street Alt, and 5th Street Hydrology Results Comparisons



Refer to the original reports for more detailed explanations and the digital notebook for all the models utilized as part of the analysis.

6.0 Site Design

The proposed detention basins were located on undeveloped lots owned by Cañon City and a proposed lot that was in consideration to be acquired by Cañon City. The goal was to maximize the amount of storage, minimize the downstream flows, avoid upstream and downstream adverse impacts, and to meet all the hydraulic, structural, geotechnical, and civil design criteria.

Preliminary design plans were developed and are included in Appendix D. The following sections further describe the detention basin design, upstream conveyance design, geotechnical findings, environmental report summaries, proposed cost estimates, and value engineering considerations.

6.1. Detention Basin Design

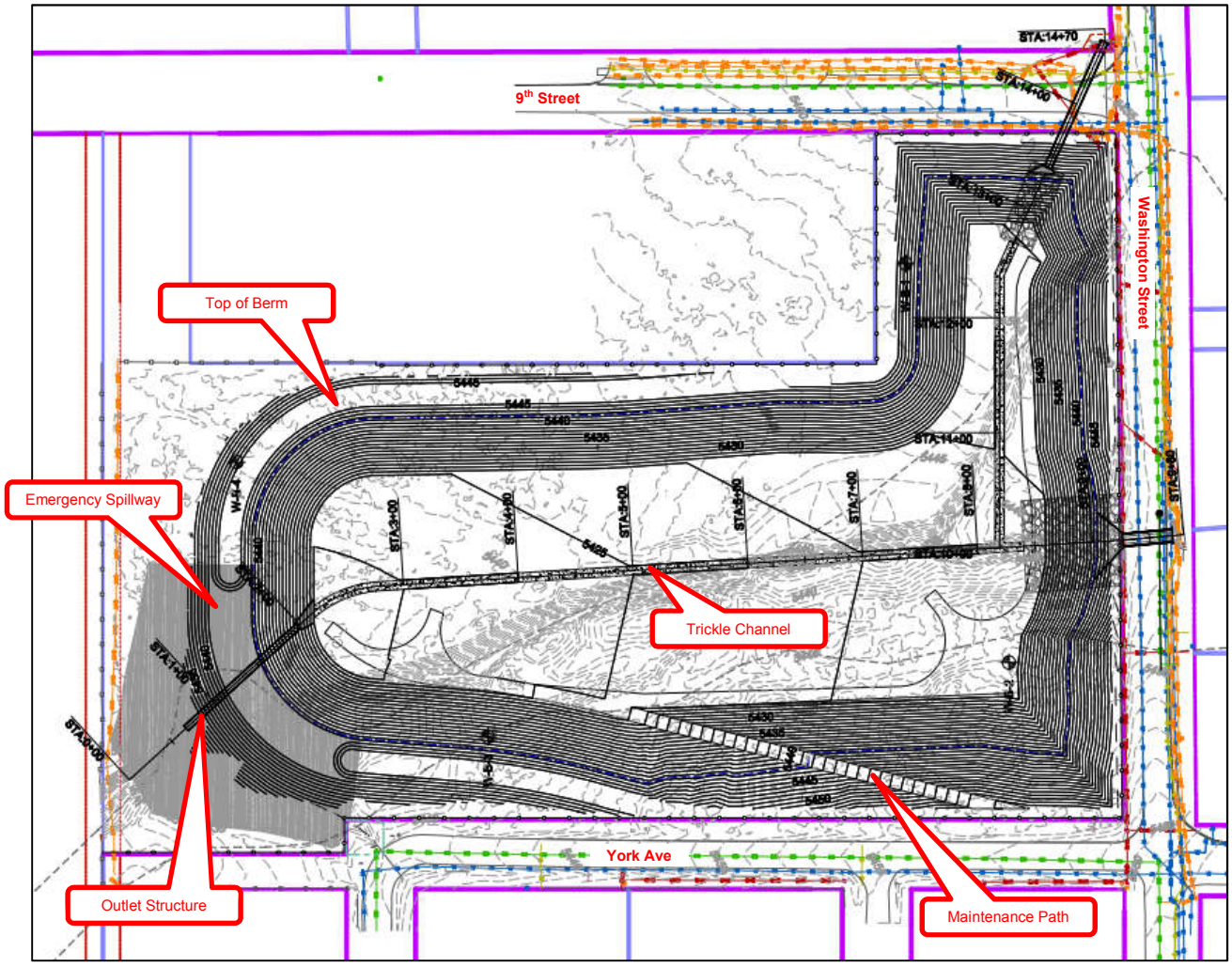
Below is a bulleted list of design elements that were implemented as part of the preliminary design for the detention basins:

- All grading was offset 10-feet from ROW.
- The basin bottom was set at the existing invert of the downstream channel and the spillway crest elevation set at the lowest invert of the channels and/or pipes discharging into the basin.
- The embankment slopes were set a maximum of 3:1.

- The basin bottom was sloped at 0.5% to a trickle channel.
- The trickle channel was a flat-bottom concrete channel with curbs, sized based on 2% of the 100-year flow per Urban Drainage and Flood Control District (UDFCD) criteria and was set at a minimum of 6 feet wide to provide accessibility for maintenance equipment.
- The embankment (top of berm) was set 1-foot above the water surface elevation when the emergency spillway is conveying the IDF.
- The top of berm width was set at 15 feet, which is greater than the jurisdictional height of the dam in feet divided by 5 plus 10 feet.
- The outlet structures were designed to control the release rates and minimize the downstream peak flows during the 100-year event without structural or hydraulic failure.
- The 100-year water surface elevation was set 1-foot below the overflow spillway crest to provide sufficient freeboard and capacity for potential sediment deposition.
- Vehicle access to the bottom of the basin (which can also serve as a haul road) was provided with a 12-foot wide maintenance path with a 10% maximum longitudinal slope and a 2% cross slope.
- Trash racks were recommended for final design to reduce safety concerns.

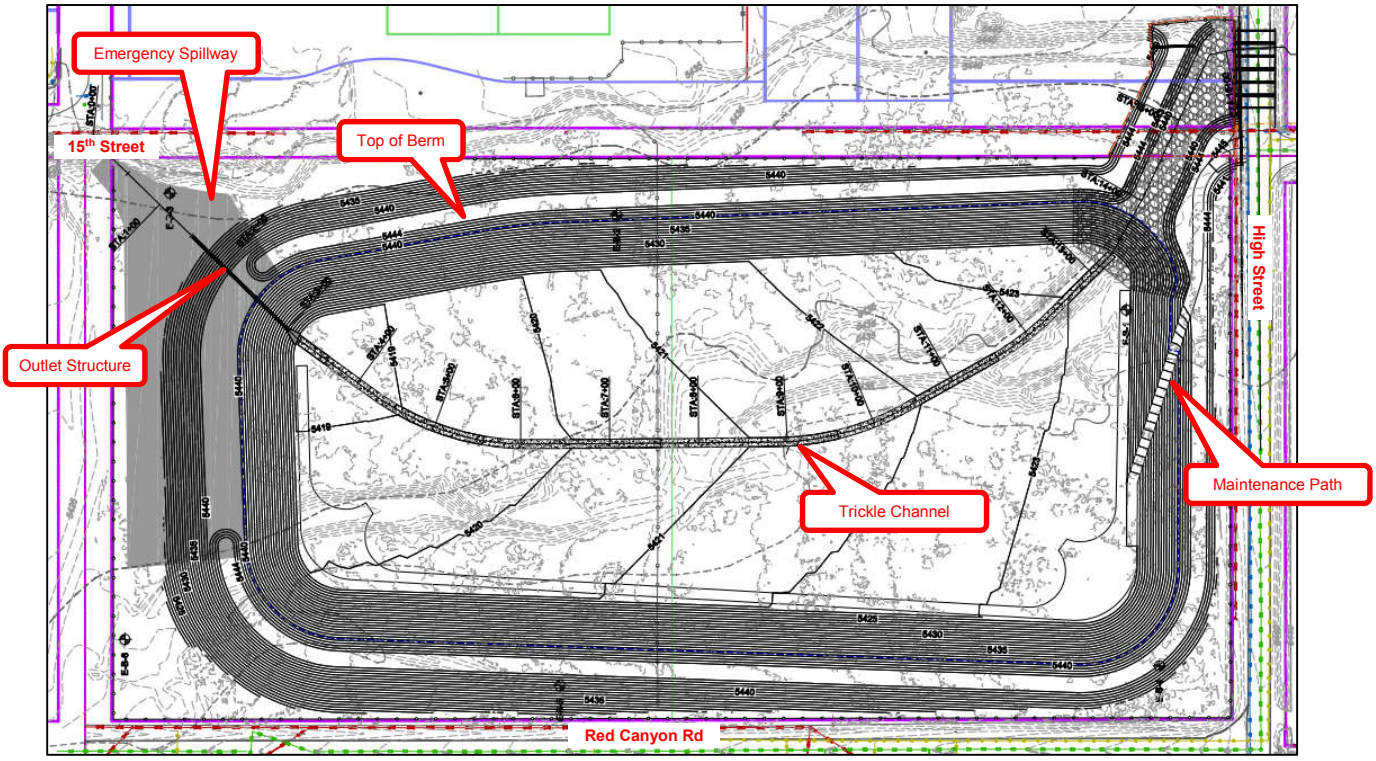
The preliminary grading for the 9th Street Detention Basin is shown below in Figure 6-1. This includes all the design elements discussed above.

Figure 6-1 9th Street Detention Preliminary Grading



The preliminary grading for the 15th Street Detention Basin is shown below in Figure 6-2. This includes all the design elements discussed above.

Figure 6-2 15th Street Detention Preliminary Grading



The subsequent analyses (9th Street and 5th Street Alternatives) did not include updated site design. The analyses utilized the existing grading and evaluated different potential changes such as the discharge curve or calculated changes to potential volume. Only conceptual grading analysis was performed for the 5th Street Detention Basin and for the 15th Street Detention Basin Adverse Impacts to develop rating curves. The Conic Approximation Method (the two areas being added along with the square root of their product and multiplied by a third of distance between the areas to determine the volume) was used to determine the volumes of the proposed ponds.

The drainage areas, peak flows, storage, outlet type for the different detention basins and alternative analyses are summarized below in Table 6-1**Error! Reference source not found.**.

Table 6-1 Detention Basin Summary

Design Item	Preliminary Design		9th Street Alternative		5th Street Alternative		
	9th St	15th St	9th St	15th St	9th St	15th St	5th St
Drainage Area (sq mi)	1.46	1.95	1.46	1.95	1.12	1.95	0.34
100-yr Peak Inflow (cfs)	1,173	1,281	1,173	1,281	990	1,281	475
100-yr Peak Outflow (cfs)	498	90	198	<1,100	198	<1,100	23
100-yr Peak Storage (ac-ft)	68.3	175.1	109.7	TBD	77.3	TBD	38.4
Outlet Type (RCP)	60”	30”	42”	TBD	60”	TBD	18”
Dam Height (ft)	19.6	22.4	28.4	<10.0	20.5	<10.0	8.0
Jurisdictional	Yes	Yes	Yes	No	Yes	No	No

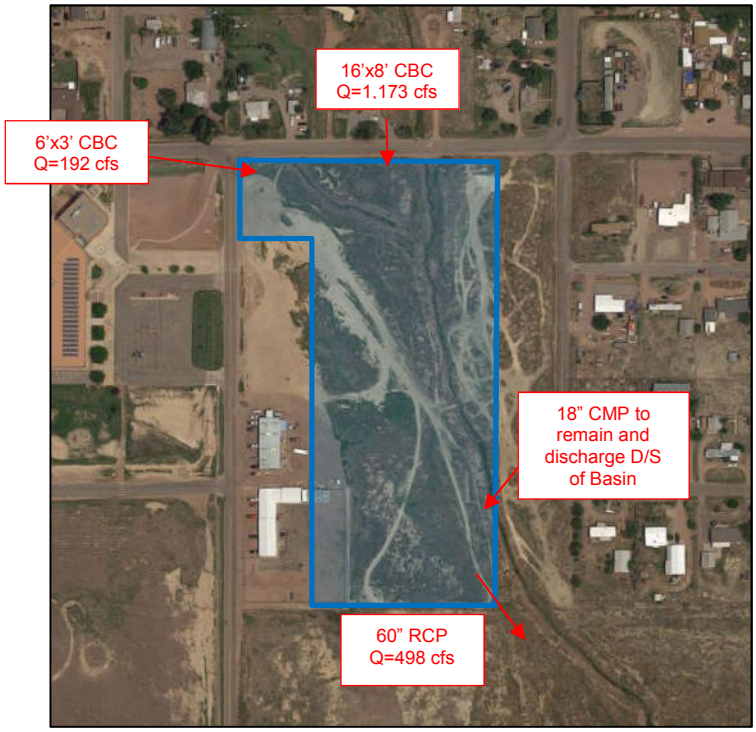
TBD = To Be Determined with subsequent phase of the project if alternative considered viable.

6.2. Conveyance to Basins

Infrastructure upstream of the detention basins was designed to convey the 100-yr storm event into the basin without any adverse flooding impacts to the upstream areas. Energy dissipation to limit erosion using drop structures and stilling basins was planned to be designed in accordance to UDFCD DCM in the subsequent phase. The design of the conveyance into each detention basin is described below.

1. **9th Street Detention Basin.** Flow was designed enter the basin in two main locations, one located in the northwest corner and one in the center of the basin to the north. The existing 36" CMP in the northwest corner that conveys flows under 9th Street was replaced with a 6'x3' CBC which was selected due to a limited amount of headwater ponding at the inlet. The existing 72" CMP with headwalls that conveys flow under Washington Street was replaced with a 16'x8' CBC. The depths and locations of the existing utilities at the pipe locations needed to be confirmed. The existing 18" CMP at the corner of Natalie Street and York was slated to remain and be incorporated into the stilling basin grading. It was not designed to outlet into the detention basin because the upstream inlet is located near homes and is several feet below the proposed 100-year water surface elevation, creating a potential to flood if a flap gate was to fail or be obstructed by debris. A schematic of the 9th Street Detention Basin conveyance is provided below in Figure 6-3.

Figure 6-3 9th Street Detention Basin Conveyance



2. **15th Street Detention Basin.** Flow was designed to enter the basin from the northwest side with multiple culverts due to the lack of available head between the channel inverts and the crown of the road. The culverts consisted of 6-12'x'3' CBCs which discharged into an inflow channel that conveyed flow into the basin. Minor flows from the inflow channel were routed downstream to maintain the existing wetlands within the existing channel with an 18" CMP. The existing irrigation ditch (existence to be confirmed) was extended to the east in an 18" CMP. A schematic of the 15th Street Detention Basin conveyance is provided in Figure 6-4 (next page).

Figure 6-4 15th Street Detention Basin Conveyance



3. **5th Street Detention Basin.** Flow was designed to enter the basin from the north with culverts conveying flows under Washington Street and within a channel to the proposed detention basins. Outflows from the basin would be conveyed in the existing ditch that runs east and then conveyed in a 36" RCP under 9th Street and to the West Branch. A schematic of the 5th Street Detention Basin conveyance is provided below in Figure 6-5.

Figure 6-5 5th Street Detention Basin Conveyance



The options presented are only some of the potential methods that could convey flows to these basins and pipe/culvert sizes that can be utilized. The different options were to be discussed at subsequent design meetings and submittal stages, but should now be reconsidered in the future.

6.3. Geotechnical

A geotechnical report titled "Preliminary Geotechnical Study Draft Northeast Cañon City Detention Basins 9th Street Basin and 15th Street Basin Cañon City, Colorado" was developed by Kleinfelder and was included in Appendix G of the Preliminary Design Report. The report discusses the field exploration and laboratory testing, surface/geology/subsurface/groundwater site conditions, preliminary recommendations, and additional services.

An excerpt below from the preliminary recommendations is included below:

> The results of our preliminary study indicate that the subsurface conditions are poor for development of embankment structures for basins at both locations. Development of the basins as proposed will likely be feasible only with special design considerations. The most significant geotechnical issues at the site are:
>
> - Shallow groundwater
> - Low strength embankment subgrade
> - Clay on-site borrow and clay at depth may have excessively high moisture content
> - Pierre Shale claystone has very poor characteristics for use as fill material
> - Variable depths to bedrock
> - Non-engineered fill

The poor conditions were to be considered and addressed as the project design was advanced. These issues should be accounted for and further analyzed on all future design. See the Preliminary Design Report included Appendix A.

6.4. Environmental

There were three environmental reports written for the Northeast Cañon City Detention Basins Design Project which are summarized below and included in Appendix H of the Preliminary Design Report.

1. **"Biological Resources and Waters of the U.S. Evaluation" by Atkins.** This report describes the results of a survey performed on November 1, 2016, to evaluate the project for the presence of biological resources and Waters of the U.S. within the project area encompassing both the 15th Street Detention Basin and the 9th Street Detention Basin parcels (project area parcels). Species-specific surveys were not completed during the visit, but cursory observations of vegetation, wildlife, and habitat were documented. The project area was evaluated further for the potential presence of federal-listed species and their habitats, as well as raptor nests.

2. **"Class III Cultural Resources Investigations" by Atkins.** This project is subject to review under Section 106 of the National Historic Preservation Act of 1966, as amended in 2014 (Title 54 of United States Code Section 306108 [54 USC § 306108]), and its implementing regulations under the Procedures of the Advisory Council on Historic Preservation as amended in 2004 (Title 36 Code of Federal Regulations Part 800 [36 CFR 800]) in anticipation of a U.S. Army Corps of Engineers (USACE) Section 404 Nationwide Permit (NWP). The permit will include completion of a FEMA Categorical Exclusion. Project Archaeologist Laura I. Acuña performed the Class III intensive pedestrian survey on November 1, 2016, with Jason Bright serving as Principal Investigator. The work consisted of 8 field hours for one person. All work performed followed the *Secretary of Interior's (SOI) Standards and Guidelines for Archaeological Documentation*, and guidelines set forth by the Register of Professional Archaeologists and the Colorado's Office of Archaeology and Historic Preservation *Colorado Cultural Resource Survey Manual*.

3. **"Phase 1, Task 1: Environmental Evaluation Northeast Cañon City Detention Basins" by Kleinfelder.** This report includes an environmental evaluation to identify environmental impacts that may exist on the sites (e.g., groundwater polluted with heavy metals, petroleum, or other substances; agricultural related risks; etc.) and would need to be addressed/mitigated for construction dewatering. This was done by performing a records review based on the ASTM E1527 guidance for reasonably available information within the specified search radius and reviewing other recommended state and federal websites and map viewers.

Refer to the Preliminary Design Report – January 2017 in Appendix A of this report for the original reports.

6.5. Cost Estimates

An Engineer's Estimate was prepared for the preliminary design using the quantities from the design plans. Unit costs utilized a variety of different sources consisting of:

- Pipe Manufacturers
- CDOT Cost Data Book
- UDFCD Real Cost
- Input from Geotechnical Engineers, Construction Managers working in the area and Cañon City

A conceptual engineer's estimate was prepared for the 5th Street Detention Basin alternative using approximate quantities and the unit costs from the preliminary design.

The total cost for the proposed basins ranged from $11.2 to $13.0 million dollars. The breakdown for each design iteration are shown below in Table 6-2.

Table 6-2 Summary of Proposed Costs

Design Iteration	9th Street	15th Street	5th Street	Channel	Total Cost
Preliminary Design	$4.68 million	$6.52 million	-	-	$11.2 million
9th Street Alternative	Assumed additional costs for 9th Street Basin & Channel would be offset by smaller 15th Street Basin				$11.2 million
5th Street Alternative	$4.68 million	$3.49 million	$4.49 million	$326k	$13.0 million

The proposed cost for the basins were significantly higher than when master planned in prior years. Many of the unit costs such as earthwork, riprap, structure concrete and seeding ranged from 2 to 6 times more expensive. The additional earthwork and larger upstream infrastructure to convey the flows to the proposed detention basins also increased the costs of the proposed project.

6.6. Value Engineering

While the grant application was still being considered, an independent value engineering was performed to try to develop options to decrease the costs of the proposed project. The goal was to reduce the cost of the 9th Street and 15th Street Detention Basins from the $11.2 million preliminary design engineers estimate to approximately $8 million. The goal of $8.0 million is based on the scenario of Cañon City funding approximately $4.0 million and receiving a FEMA grant of about $4.0 million. It was assumed that that the facility at the 5th Street Detention Basin site would not be included because there was no feasible way to achieve the $8 million using all three sites.

The independent value engineering developed the following potential considerations:

1. **Phased Excavation.** The most expensive line item of each detention basin is excavation and removal of excess soil from the impoundment area. Cañon City could consider designating the two sites as dedicated borrow sites for their other public works projects. The goal would be to excavate the impoundment area using other funding, thereby reducing the flood control cost and improving the BCA ratio. The excess soil from the impoundment areas could be used for Cañon City projects and other

publicly funded projects. Cañon City could explore an agreement with CDOT to use these sites as borrow sources or private developers if mineral rights are not an issue. The environmental permitting would need to be completed in advance and interim grading plans must be developed. The largest issue with this proposed solution is that the timing is uncertain.

2. **Refine the Preliminary Emergency Spillway Designs.** The emergency spillway structures are the second most expensive component the proposed detention basins. The current design utilizing 24-inch riprap with a 4-foot thickness may not be the most efficient and may be more expensive than other options. Based on a rough calculation of a concrete-lined ogee-crested spillway with a Type III Energy Dissipation Basin could cut the preliminary engineering estimate for grouted riprap by 60%. Further spillway cost reductions could also be achieved by further exploring the usage of roller-compacted concrete (RCC) or articulated concrete block as a lining material for the spillways. A further benefit of a stepped RCC spillway is reduction of the energy dissipation basin size and cost due to hydraulic losses caused by the steps as water flows down the spillway chute.
3. **Purchase Additional Land Near the 9th Street Basin.** The 9th Street Detention Basin has insufficient capacity to limit the flows in the downstream channel to prevent a breakout of flow to the southwest through the developed portions of Cañon City. Purchasing the adjacent 1.2-acre parcel of land and increasing the side slopes of the basin from 3H:1V to 2H:1V would be the most cost-effective solutions.
4. **Explore the Concept of Eliminating Spillways.** A potential way to minimize spillway costs could be achieved by excavating a below grade detention basin. The concept would be to design a non-jurisdictional "dam" for which the cost of a spillway is traded for additional excavation. This concept has been utilized in Nevada with regulatory approval for basins where there is a short section of embankment across an existing wash, where the embankment was a 20-25 ft broad crest with a mild downstream slope of 8H:1V to 10H:1V, and a grade control structure (a 5 ft trench back-filled with lean concrete or RCC).
5. **Refine the Design of the Inflow Structures.** The current design utilizes grouted boulders and riprap. A concrete chute or a concrete baffled apron may be less expensive, and certainly easier to maintain over the long-term. Use RCC if this material is selected to line the emergency spillways.

Unfortunately, the funding gap (as mentioned in Section 1.0) was still too large for the value engineer recommendations to affect the outcome of the project. Some of the ideas such as phased excavation, refinement of the emergency spillways and refinement of the inflow structures would be helpful to have implemented as part of the project. Eliminating spillways would likely be difficult to implement due to shallow bedrock and groundwater. Purchasing additional land near 9th Street Basin was explored during the 9th Street Alternative Analysis, but was not determined feasible at the time of the project.

7.0 Floodplain

The floodplains through the Northeast Cañon Drainage area were analyzed and updated as part of the design project. The floodplain analysis consisted of multiple HEC-RAS hydraulic models covering the various flow rate scenarios and FLO-2D models to evaluate the breakout locations. The floodplain analysis is summarized below, with additional details in the submitted reports, memos, and digital files.

7.1. Effective FEMA Floodplain

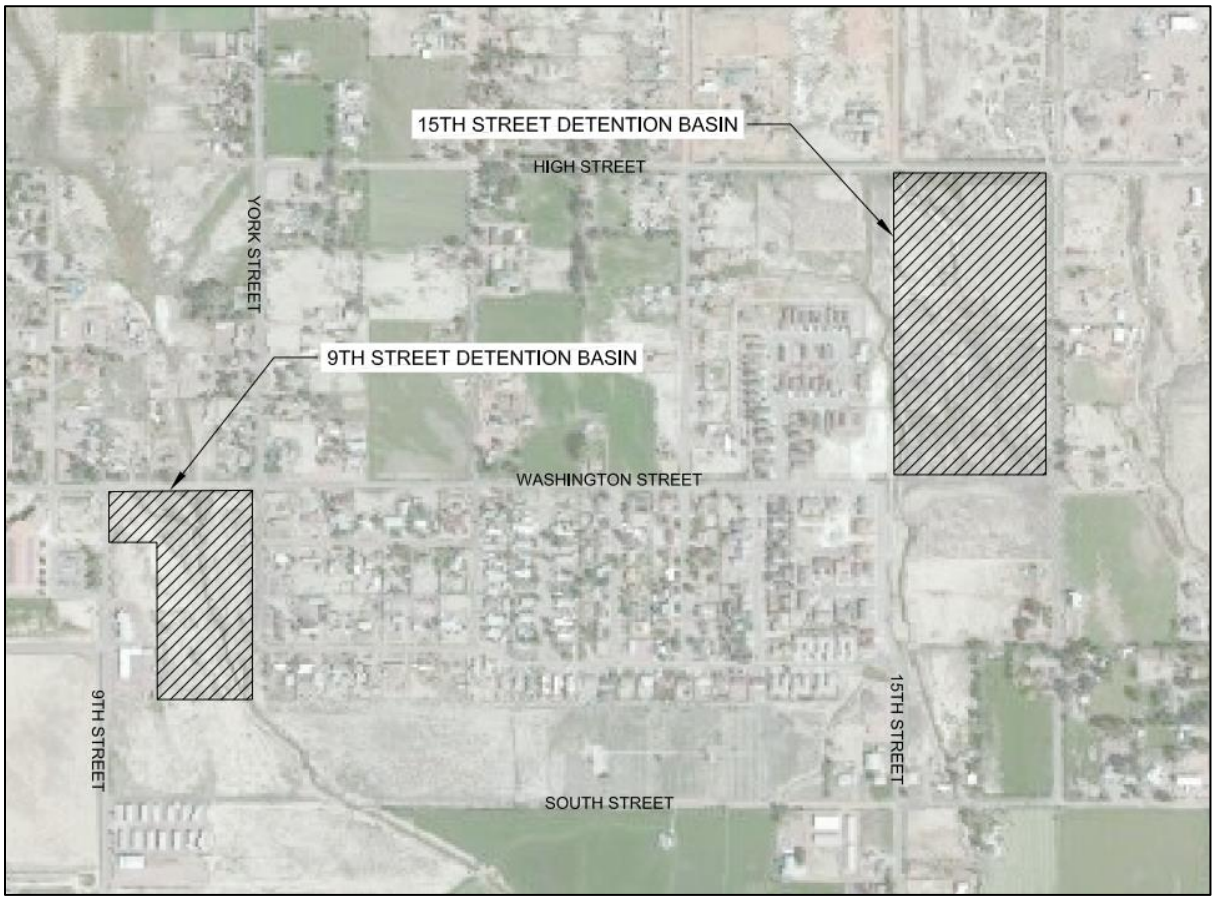
The Northeast Cañon Drainage Area West Branch (West Branch) and Northeast Cañon Drainage Area East Branch (East Branch) were the two floodplains analyzed as part of this study. There is a detailed study along the East Branch from Central Avenue in Cañon City upstream to a point approximately 0.81 miles upstream of Tennessee Avenue. There is a detailed study of the West Branch from approximately 0.18 miles downstream of Fruitland Ditch, upstream of Washington Avenue in Cañon City. The Flood Insurance Rate Map (FIRM) for the area includes panels 08043C0626E and 08043C0628F, effective as of September 19, 2007, and January 6, 2012, respectively. The Fremont County Flood Insurance Study (FIS) Number 08043CV000C was last revised on July 3, 2012. The FIS includes hydrology only for the 1%-annual-chance flood and the basis of the hydrology is the Floodplain Information Report NE Cañon Drainage Area, Cañon

The detention basins are located on two separate parcels of land owned and managed by Cañon City as described below and shown in Figure 1-2.

- **9th Street Detention Basin (9.6 acres)** – South of Washington Street, East of 9th Street, West of York Avenue, and North of South Street. (NE ¼ of the SE ¼ of the NE ¼ of the SE ¼ of Section 20 in Township 18 South, Range 70 West of the Sixth Principal Meridian).
- **15th Street Detention Basin (18.4 acres)** – South of High Street, East of 15th Street, West of Red Canyon Road, north of Washington Street (NE ¼ of the SW ¼ of the SW ¼ of the NE ¼ of Section 21 in Township 18 South, Range 70 West of the Sixth Principal Meridian).

Photos of each site are included in Appendix A.

Figure 1-2 Detention Basin Locations



This report describes all of the components of the preliminary engineering analysis which included:

- Topographical Mapping/Right of Way (ROW) Verification/Utility Coordination
- Records Review and Information Research
- Permitting Requirements / Environmental Review
- Hydrologic and Hydraulic Analyses
- Geotechnical Analysis
- 30% Preliminary Design Plans
- Hazard Mitigation Grant (to be completed during next phase)

2.0 Existing Information

2.1. Existing Reports

As part of the analysis, Atkins reviewed multiple hydrologic and hydraulic studies in the Northeast Cañon Drainage vicinity. Information from these studies was incorporated into the design and analysis when appropriate. Below is a summary of the existing studies that were reviewed and excerpts of each report are included in Appendix B.

***Floodplain Information Report NE Cañon Drainage Area, Cañon City, Colorado* – Great Divide Engineering & Surveying – 1981**

Since no streamflow records existed for the Northeast Cañon Basin at the time, peak discharges for the 1%-annual-chance (100-year) flood were developed using the synthetic rainfall-runoff evaluation procedures described in the Soil Conservation Service Handbook "Procedures for Determining Peak Flows in Colorado," dated March, 1977. Synthetic runoff hydrographs were developed from the Soil Conservation Service Triangular Hydrograph Equation using incremental hydrographs.

All runoff computations were based on existing land use and cover conditions within the basin as of March, 1980. These computations include basin characteristics such as size, shape, length, slope, and time of concentration that are listed separately in a corresponding Technical Addendum to the report. Rainfall data was obtained from NOAA Atlas 2, Precipitation-Frequency Atlas of the Western United States, Volume III-Colorado, 1973.

Hydraulic analysis was completed using the U.S. Army Corps of Engineers (USACE) HEC-2 computer program. Water surface elevations were computed from the cross section of the channel, channel roughness coefficients, and bridge hydraulic and structural characteristics. Channel roughness coefficients were assigned based on field inspection and ranged from 0.035 to 0.065.

***Northeast Cañon Drainage Basin Planning Study for Cañon City, CO* - Graef Anhalt Schloemer and Associates - November 1993**

The hydrologic model used to determine peak flows and volumes throughout the Northeast Cañon Drainage Basin was the TR-20 computer program for Project Formulation Hydrology developed by the Soil Conservation Service. Time of concentration (Tc) was used in the TR-20 calculations.

Rainfall amounts for the Northeast Cañon Basin were determined from NOAA Atlas 2, Precipitation-Frequency Atlas of the Western United States, Volume III-Colorado, 1973. Precipitation for the 100-year, 50-year, and 25-year 24-hour storms were 3.4", 3.05", and 2.75", respectively.

Existing land use was determined by examining then-current development plans supplemented with field visits. At the time of the study, most of the development was occurring in the western and southern portion of the basin. The eastern and northern areas were to remain in their natural state. Proposed land use was determined through discussions with Fremont County Planning Department and Cañon City officials. Undeveloped areas were assumed to be fully developed using projected densities. There was no time frame associated with the ultimate projected land use.

Soils information was derived from the "Soil Survey of Fremont County Area, Colorado" completed by the USDA Soil Conservation Service at the time. The Northeast Cañon Basin was found to contain eleven soils classifications, consisting of a mix of Type B, C and D soils.

Curve numbers (CNs) were determined using soils and land use information described above.

Regional Detention Pond Site Assessment for Amendment to the Northeast Cañon Drainage Basin Planning Study - MVE, Inc. - June 2009

In preparation for the proposed Amendment to the City's current 1993 Northeast Cañon Drainage Basin Planning Study, M.V.E., Inc. conducted a preliminary estimate of the stormwater detention potential of three proposed possible stormwater detention facility sites, using both jurisdictional and non-jurisdictional dams for each site. The following criteria were used:

- The pond side slopes and embankment slopes were set to catch the existing ground surface a few feet within the estimated parcel boundaries.
- Pond side slopes and inside and outside embankment slopes were set to a maximum and typical slope of 3:1.
- Room was provided for a 12 foot wide access road around each facility.
- A flowline through the pond bottom was set to a grade of at least 0.5%.
- The pond bottom slopes were set to a grade of 0.5% perpendicular to the flowline.
- The lowest point of the pond bottom flowline was set to one foot above the downstream toe of the embankment at the pond outlet.
- The emergency spillway crest was set to an elevation 10 feet above the downstream toe of the embankment at the pond outlet.
- The top of the embankment was set to at least 3 feet above the emergency spillway crest elevation.
- The pond outlet was set to release flows at a rate that would result in the pond filling completely but not over-topping the emergency spillway in a 100-year storm event.

The analysis found that the East Site and Northwest Site together provide the best combination of detention potential among the three proposed possible detention facility sites. A subsequent email from July 28th, 2009 titled "Northeast Cañon Detention Ponds" summarized the following results:

Table 2-1 MVE Preliminary Design Report Summary

Pond Location (Type)	Max Height (ft)	Volume (ac-ft)	Outflow (cfs)
NW Pond (non-JD)	10	42	140
NW Pond	15	80	10
East Pond (non-JD)	10	55	480
East Pond	20	200	10

Flood Insurance Study, Fremont County, Colorado and Incorporated Areas - July 2012.

The hydrologic and hydraulic analyses for the City of Cañon City were performed by Camp Dresser & McKee Inc. for FEMA, under Contract No. H-6867 which was completed in May 1981. The hydrologic and hydraulic analyses for Unincorporated Fremont County were performed by USACE, Albuquerque District in 1978, Great Divide Engineering & Surveying in October 1981, and Camp Dresser & McKee, Inc., in June 1982 when preparing Flood Plain Information Reports for the area.

There are no stream flow records for the Northeast Cañon Drainage Basin. Peak discharges for the 1%-annual-chance frequency flood were therefore developed using the synthetic rainfall-runoff evaluation procedures. Synthetic runoff hydrographs were developed from the SCS Triangular Hydrograph Equation using incremental hydrographs. All runoff computations were based on existing land use and cover conditions in the watershed as of march 1980. Precipitation data were taken from National Oceanic and Atmospheric Administration (NOAA) Atlas #2, Precipitation Frequency Atlas of the Western United States, Volume III, Colorado.

Cross sections for Northeast Cañon Drainage Area were obtained from aerial topographic mapping flown in April 1979, coupled with appropriate field verification. All bridges and culverts were measured in the field to obtain elevation data and structural geometry. Analyses of the hydraulic characteristics of the Northeast Cañon Drainage Area study reach in the unincorporated areas of Fremont County were carried out by Great Divide Engineering & Surveying. Water-surface elevations were computed using the USACE HEC-2 Water-Surface Profiles Program. Flood elevations shown in this FIS report and on the FIRM were converted to NAVD88 using a datum conversion of 3.37 for the East Branch and 3.36 for the West Branch.

The Flood Insurance Rate Map (FIRM) panels 08043C0626E and 08043C0628F, effective as of September 19, 2007, and January 6, 2012, respectively were included in Appendix B.

Table 4-1 HEC-HMS Model Scenarios

Scenario Name	Description	Design Purpose
G-A_Existing	Existing land use, Green-Ampt losses, proposed infrastructure	Flow comparison
G-A_Existing_15TH DB Breach	Existing land use, Green-Ampt losses, proposed infrastructure	Breach Hydrograph from 15th Street Detention Basin
G-A_Existing_9TH DB Breach	Existing land use, Green-Ampt losses, proposed infrastructure	Breach Hydrograph from 9th Street Detention Basin
G-A_Existing_Ex	Existing land use, Green-Ampt losses, existing infrastructure	Flow comparison
G-A_PMP	Existing land use, Green-Ampt losses, proposed infrastructure	PMP Event, entering 15th Street Detention Basin, see Section 0
G-A_Ultimate	Ultimate land use, Green-Ampt losses, proposed infrastructure	Design 9th Street Detention Basin Emergency Spillway
G-A_Ultimate_Ex	Ultimate land use, Green-Ampt losses, existing infrastructure	Flow comparison
SCS_Existing	Existing land use, SCS losses, proposed infrastructure	FEMA floodplain analysis
SCS_Existing_Ex	Existing land use, SCS losses, existing infrastructure	Flow comparison
SCS_Ultimate	Ultimate land use, SCS losses, proposed infrastructure	Detention basin sizing, inlet facilities, outlet facilities
SCS_Ultimate_Ex	Ultimate land use, SCS losses, existing infrastructure	Flow comparison

4.1.3. Rainfall and Storm Distribution

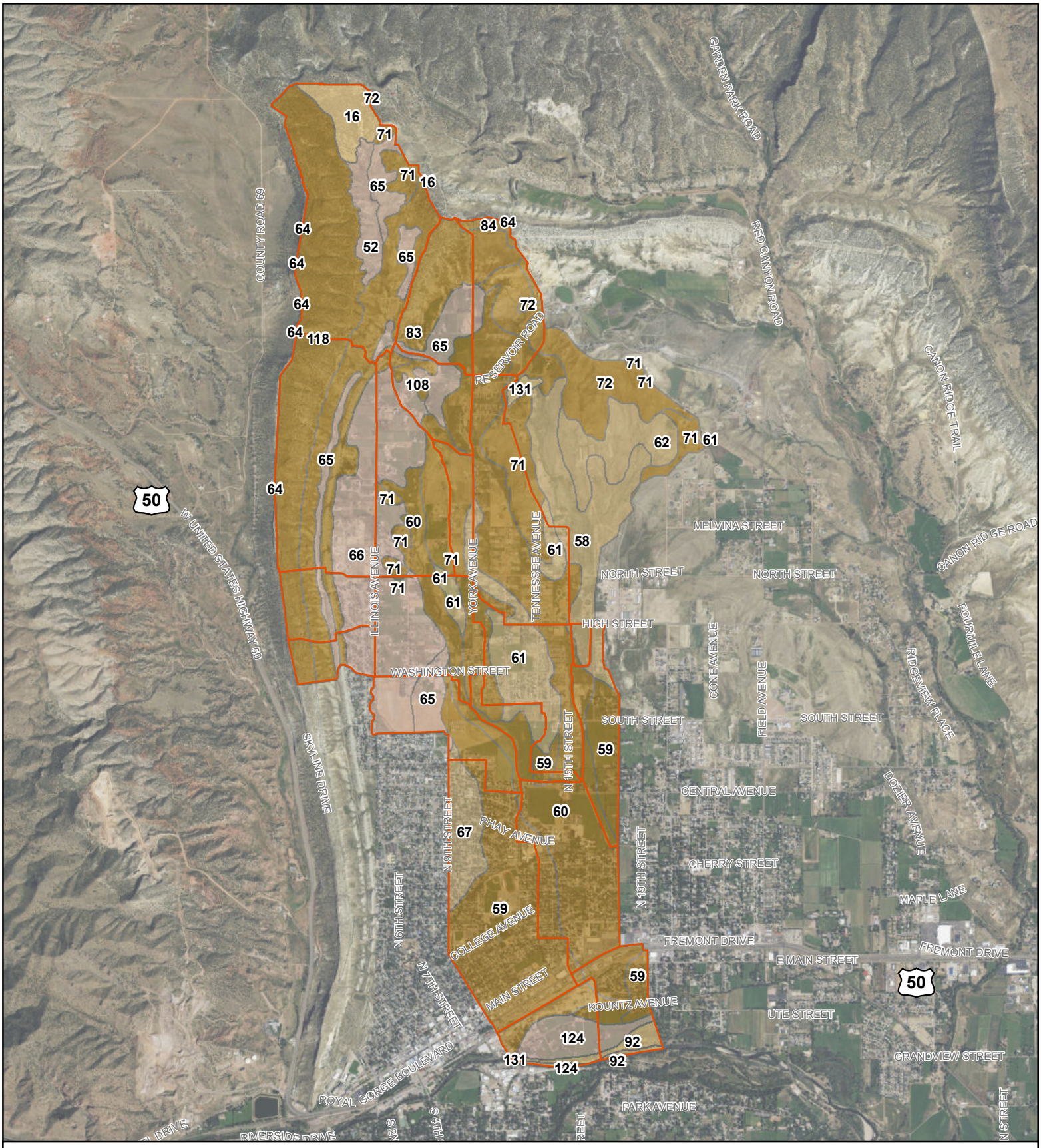
The primary meteorological model for the 9th Street and 15th Street Detention Basins utilized a 24-hour SCS Type II synthetic rainfall distribution to simulate rainfall over the watershed. In order to determine average rainfall depths for each subbasin, the NOAA Atlas 14 GIS raster for the state of Colorado was obtained for the 100-year 24-hour storm event. Next, the subbasin boundaries were overlaid on top of the rainfall grid and the mean rainfall depth for each subbasin was calculated, which ranged from 4.21 to 4.51 inches.

4.1.4. Soils

Soils data for the watershed was obtained from the National Resource Conservation Service (NRCS) Geospatial Data Gateway. Soils data was used to develop a GIS soils layer for the study area. The limits of each soil type are delineated in the GIS layer and assigned a soil map unit number and associated to a hydrologic soil group. The soils data is shown on Figure 4-1.

NRCS methodology divides soils into four hydrologic soil groups:

- A High infiltration rate, low runoff potential
- B Moderate infiltration rate, moderately low runoff potential
- C Low infiltration rate, moderately high runoff potential
- D Very low infiltration rate, high runoff potential



N

NORTHEAST CAÑON CITY
DETENTION BASINS
DESIGN PROJECT

0 1,750 3,500
Feet

1 in = 3,500 feet

FIGURE 4-1
SOILS DATA

LEGEND

Hydrologic Soil Group

- A - High infiltration rate, low runoff potential
- B - Moderate infiltration rate, moderately low runoff potential
- C - Low infiltration rate, moderately high runoff potential
- D - Very low infiltration rate, high runoff potential
- 71 Soil Map Unit Symbol
- Subbasin Boundary

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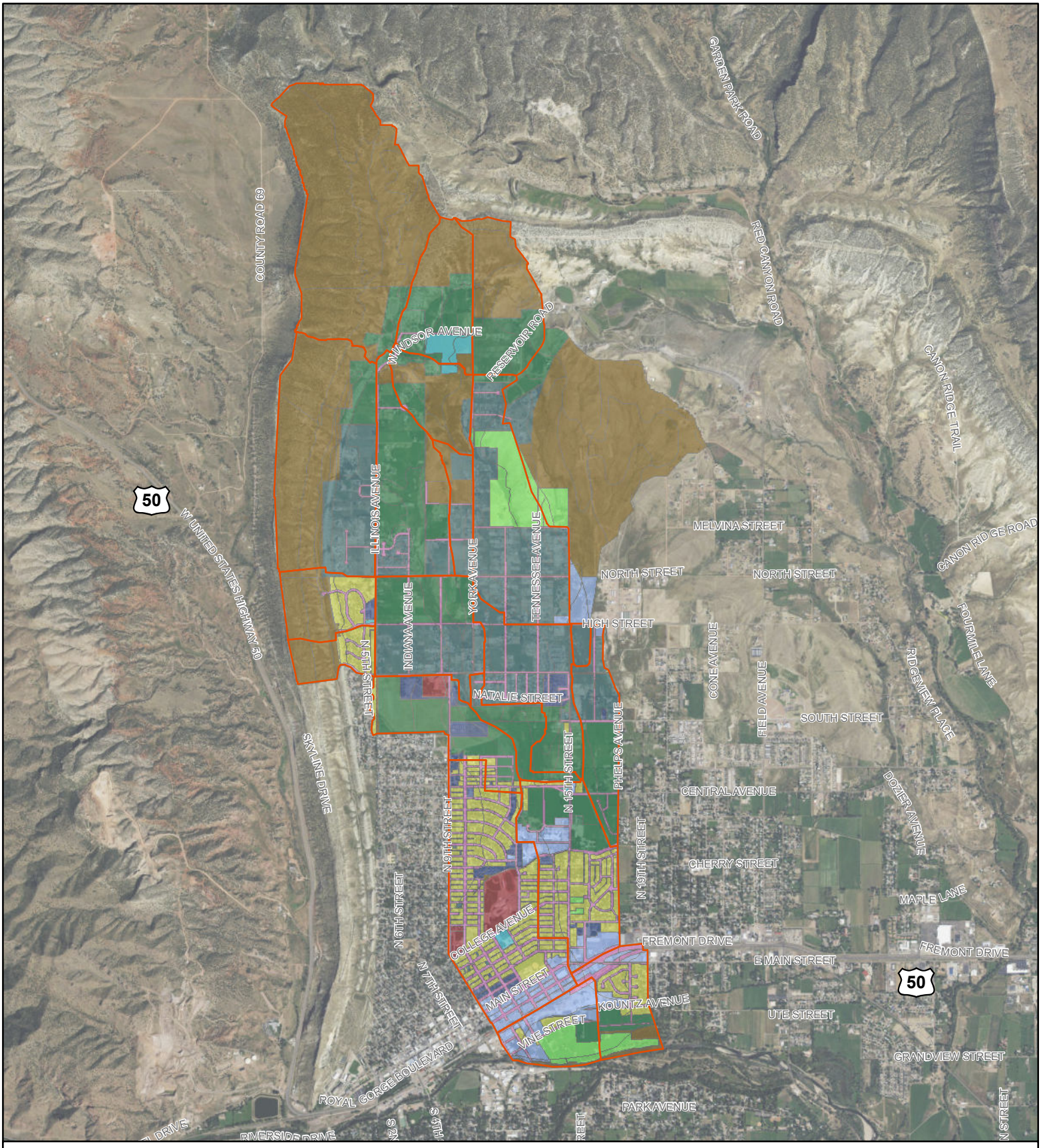
4.1.5. Land Use

The land use data in the study area was based on development plans and future land use information provided by Cañon City and Fremont County Planning Department. For areas that were not yet developed a land use category representing the existing condition of the site was used. Most of these areas were assigned to the agricultural forestry or 2 acre lot size categories. The land use categories were classified according to the NRCS TR-55 Urban Hydrology for Small Watersheds manual to set base curve numbers for each land use category and hydrologic soil type.

Land Use Categories and the ultimate land use plan were coordinated with the City of Cañon City. Correspondence regarding land use has been included in Appendix D. The land cover types and corresponding base curve number values used in this analysis are shown in Table 4-2. Land use data in the existing condition and ultimate condition for the project is shown in Figure 4-2 and Figure 4-3, respectively.

Table 4-2 Land Use Categories and Corresponding Base Curve Numbers

Land Use Category	Hydrologic Soil Group			
	A	B	C	D
Residential District - 1/2 acre lot size	54	70	80	85
Residential District – 1/4 acre lot size	61	75	83	87
Residential District – 1/8 acre lot size	77	85	90	92
Agricultural Forestry	43	65	76	82
Agricultural Rural – 2 acre lot size	46	65	77	82
Agricultural Living – 2 acre residential	46	65	77	82
Commercial and Business	89	92	94	95
Parks	49	69	79	84
Roads	98	98	98	98
Schools	69	80	86.5	89.5



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NORTHEAST CAÑON CITY
DETENTION BASINS
DESIGN PROJECT

0 1,750 3,500
Feet

1 in = 3,500 feet

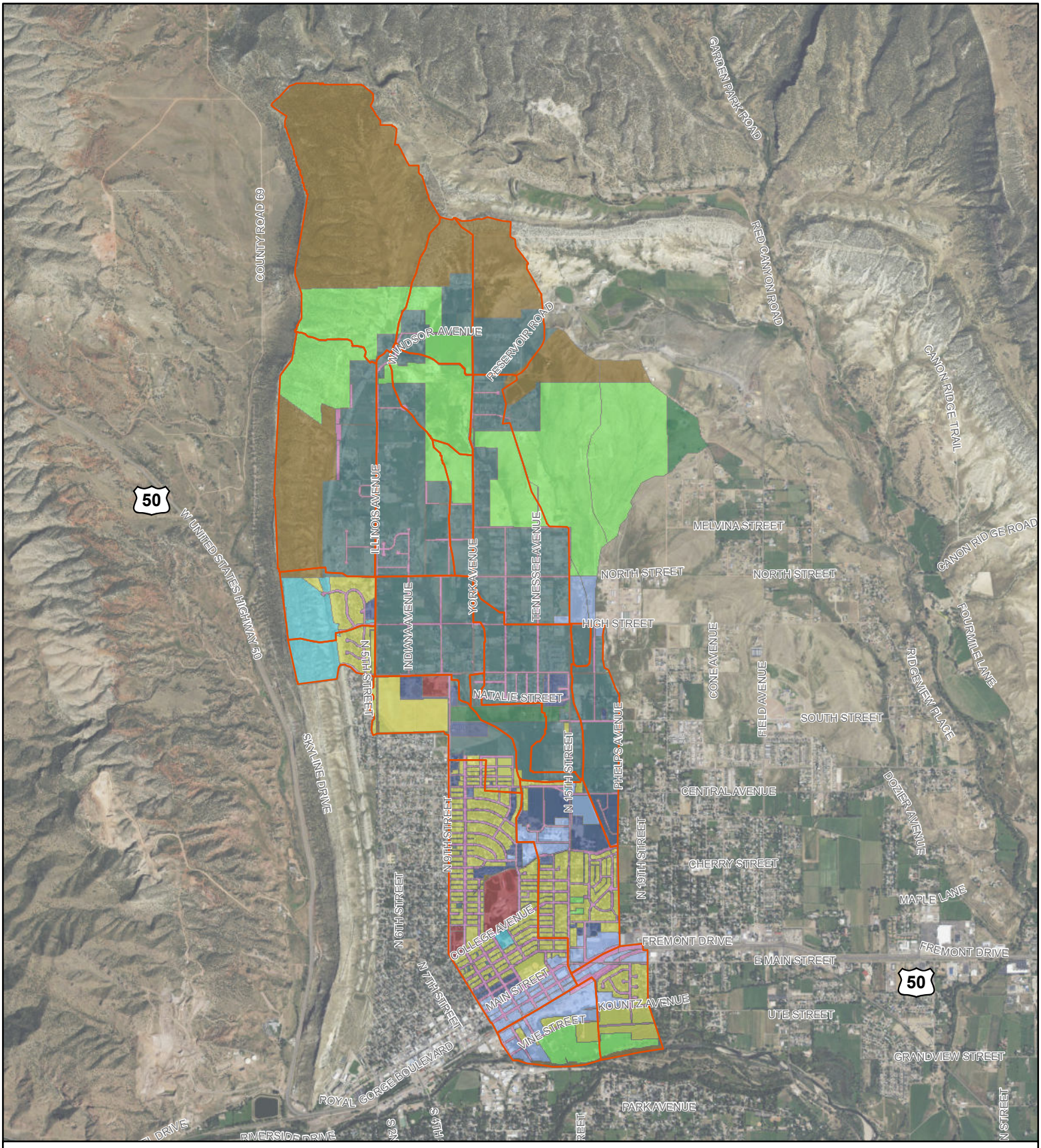
FIGURE 4-2
LAND USE -
EXISTING CONDITION

LEGEND

- Residential District - 1/2 acre lot size
- Residential District - 1/4 acre lot size
- Residential District - 1/8 acre lot size
- Agricultural Forestry
- Agricultural Rural - 2 acre residential
- Agricultural Living - 2 acre residential
- Commercial and Business
- Parks
- Schools
- Road
- Subbasin Boundary

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NORTHEAST CAÑON CITY
DETENTION BASINS
DESIGN PROJECT

0 1,750 3,500
Feet

1 in = 3,500 feet

FIGURE 4-3
LAND USE -
ULTIMATE CONDITION

LEGEND

- Subbasin Boundary

LUcode

- Residential District - 1/2 acre lot size
- Residential District - 1/4 acre lot size
- Residential District - 1/8 acre lot size
- Agricultural Forestry
- Agricultural Rural - 2 acre residential
- Agricultural Living - 2 acre residential
- Commercial and Business
- Parks
- Schools
- Road

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4.1.6. Hydrologic Losses

Hydrologic losses were calculated using the NRCS curve number method (also known as the SCS Method) and the Green-Ampt method to establish two different sets of hydrologic losses. As a requirement set by CoDWR, Green-Ampt losses are used for the emergency spillway design to more accurately develop flows for events that may occur close together in which the soils are already saturated. The SCS method was used to design the detention basin inflow facilities, low-level outlet, stage-storage curve, and check the floodplain parameters. The Green-Ampt method was used to design the spillways and establish the probable maximum flood per CoDWR criteria. Additional information for each method and the parameters used is included in this section.

4.1.6.1. SCS Method - Curve Numbers

Rainfall losses due to soil infiltration, depression storage, and other factors were calculated using the National Resource Conservation Service curve number method, which is a function of soil type, land cover, and antecedent moisture condition. The average antecedent moisture condition (AMC II) was used for computing losses.

The curve number information was compiled using GIS polygon processing of subbasin delineations, soil map unit delineations, and land use layers. To calculate a curve number for a given subbasin, each subbasin was subdivided into polygons of unique land use and soil type combinations, and a weighted curve number was calculated based on the curve numbers from Table 4-2 and the hydrologic soil group of each soil map unit. A weighted curve number was then calculated for the entire subbasin based on the areas of the subdivided polygons and their associated curve numbers. The drainage area and calculated curve numbers for each subbasin are shown in Table 4-3.

Table 4-3 Curve Number Summary

Subbasin	Drainage Area (Acres)	Composite Curve Number – Existing Condition	Composite Curve Number – Ultimate Condition
A	502.4	73.97	74.03
B	144.5	78.07	79.00
C	158.4	81.19	82.48
D	385.5	77.93	78.65
E	208.6	77.29	80.04
F	99.6	75.52	76.17
G	52.9	84.66	84.20
H	277.9	85.18	85.15
J	98.8	79.47	80.79
K	59.5	80.90	82.09
L	183.3	78.44	80.00
M	13.0	80.88	80.88
N	183.2	84.28	84.91
O	109.9	84.69	87.07
P	146.1	80.64	84.52
Q	59.5	82.22	83.83
R	366.4	91.44	91.44
S	232.6	89.47	91.84
T	101.2	79.55	80.31
U	105.6	79.57	81.64

4.1.6.2. Green-Ampt Losses

The Green-Ampt parameters were established based on the soils within each subbasin, impervious percentage of subbasins, vegetation cover, and slope. The losses were established based on the *Hydrologic Basin Response Parameter Estimation Guidelines* from the Colorado Dam Safety Branch.

The impervious percentage and the vegetation cover was calculated based on GIS information downloaded from the National Land Cover Database 2011 from the Multi-Resolution Land Characteristics Consortium. The Green-Ampt Loss spreadsheet has been included in the Appendix.

4.1.7. Transform Methods

After accounting for any losses due to infiltration, the remaining volume of rainfall received over a watershed is considered excess precipitation. This excess rainfall is then transformed into direct runoff. The transform roughly defines the amount of time it takes rainfall to "transform" into peak runoff flows.

The SCS Unit Hydrograph and the Dimensionless Unit Hydrograph methods were utilized to transform excess precipitation resulting from each storm event.

4.1.7.1. SCS Unit Hydrograph

The SCS Unit Hydrograph method requires the calculation of a lag time (TL) for each individual subbasin. The lag time is defined as the time difference between the center of mass of rainfall excess and the peak of the unit hydrograph, and can be approximated from the time of concentration (Tc). For this analysis, the SCS equation for calculating time of concentration.

The SCS time of concentration equation is displayed below.

$TC = L^{0.8}*(1000/CN-9)^{0.7}/1900*Y^{0.5}$

Where:

TC – time of concentration (hr)

L – Hydraulic length of subbasin (feet)

CN – SCS curve number

Y – Subbasin slope (%)

The final lag time was then approximated by applying the equation below:

$TL\ (hr) = 0.6*TC$

Where:

TL – lag time (hr)

TC – time of concentration (hr)

The lag times computed for each subbasin are shown in Table 4-4.

Table 4-4 Lag Time Summary

Subbasin	Time of Concentration (hr)	SCS Lag Time (hr)	SCS Lag Time (min)
A	1.62	0.97	58.40
B	0.72	0.43	25.78
C	0.81	0.48	29.02
D	1.05	0.63	37.67
E	1.42	0.85	51.30
F	0.91	0.54	32.60
G	1.04	0.63	37.50
H	1.49	0.90	53.79
J	0.43	0.26	15.39
K	0.26	0.16	9.52
L	1.40	0.84	50.49
M	0.46	0.27	16.43
N	1.29	0.77	46.49
O	1.67	1.00	60.30
P	1.42	0.85	51.25
Q	1.37	0.82	49.26
R	2.16	1.30	77.88
S	2.28	1.37	82.02
T	1.48	0.89	53.34
U	2.54	1.52	91.39

4.1.7.2. Dimensionless Unit Hydrograph

The dimensionless unit hydrograph set up by the CoDWR follows the U.S. Bureau of Reclamation (USBR) hydrology manual unit hydrograph estimation procedure. The analysis uses the drainage area, basin slope, length of watercourse, distance to centroid, and Manning's n value to calculate lag time, unit duration and the time step. The project is within the Great Plains area, which was used as the base unit hydrograph. A rating curve representing the hydrograph for each subbasin is developed and input into the HEC-HMS model. Additional calculations and data can be found in Appendix D.

A Kn value of 0.065 was utilized to develop the unit hydrographs for each basin. A sensitivity analysis using lower values of Kn for developed and urban areas was compared with the peak flows obtained using USGS regression equations and SCS methods. The 100-year flow rates utilizing lower values of Kn were significantly higher and it was determined that the design flows with the original Kn values would be conservative for the tributary area at 0.65.

4.1.8. Channel Routing

Muskingum-Cunge routing parameters were utilized to approximate the effects of channel routing along the main reaches of the watershed. The routing parameters used in the hydrologic analysis are shown in Table 4-5.

Table 4-5 Muskingum-Cunge Routing Parameter Summary

Reach ID	Reach Length (ft)	Slope (ft/ft)	Manning's n	Assumed Channel Shape	Assumed Channel Bottom Width (ft)	Assumed Channel Side Slope (xH:1V)
R15TH DB	3045	0.016	0.03	TRAP	5	4
R9TH DB	4199	0.013	0.03	TRAP	5	3
RA	4510	0.023	0.045	TRAP	0	4
RB	2122	0.025	0.03	TRAP	0	4
RC	7269	0.022	0.03	TRAP	0	3
RCP1	5357	0.02	0.03	TRAP	5	3
RCP4	2956	0.017	0.03	TRAP	5	3
RCP6B	2050	0.01	0.03	TRAP	5	3
RCP7	2674	0.009	0.03	TRAP	5	3
RCP8	100	0.01	0.015	TRAP	40	0
RCP8a	4445	0.01	0.015	TRAP	40	0
RD	1319	0.029	0.03	TRAP	5	4
RG	2905	0.019	0.03	TRAP	0	4
RJ	3422	0.022	0.03	TRAP	5	3
RK	2436	0.027	0.03	TRAP	5	3
RP	4831	0.012	0.03	TRAP	5	3
RR	470	0.015	0.016	TRAP	8	0

4.1.9. Stage-Area-Storage-Discharge Curve

Design plans for the 9th Street and 15th Street Detention Basins have been developed and a stage-storage-discharge curve from the plans was incorporated into the hydrologic model in order to derive peak stage elevation and peak storage volume values.

The stage-discharge relationship in the detention basins was established using the orifice equation through the appropriately sized RCP outlets. The conic method was used in the HEC-HMS program to compute reservoir volume at each stage. Based on site limitations and grading, 73.3 ac-ft was developed as the storage volume capacity in the 9th Street Detention Basin and 186.7 ac-ft was developed as the storage volume capacity in the 15th Street Detention Basin for this hydrologic analysis. The stage-storage-discharge tables for the detention basins are shown in Table 4-6 and Table 4-7.

Table 4-6 9th Street Detention Basin Stage-Area-Storage-Discharge Table

Stage (ft)	Area (acres)	Discharge (cfs)	Computed Volume (ac-ft)	Notes
5423	0.0	0	0.0	Outlet Invert (60” RCP)
5424	0.2	72	0.1	
5425	1.0	102	0.6	
5426	2.0	125	2.1	
5427	3.1	145	4.6	
5428	3.4	162	7.9	
5429	3.6	190	11.4	
5430	3.7	210	15.0	
5431	3.9	250	18.8	
5432	4.0	290	22.8	
5433	4.2	300	26.9	
5434	4.3	320	31.1	
5435	4.5	340	35.5	
5436	4.6	360	40.0	
5437	4.8	380	44.7	
5438	4.9	400	49.6	
5439	5.1	420	54.5	
5440	5.2	450	59.7	
5441	5.4	480	65.0	
5442	5.5	510	70.5	
5442.6	5.6	520	73.3	Spillway Crest Elevation
5443	5.7	640	75.0	
5444	5.9	1127	79.5	
5445	6.0	2007	84.1	Top of Dam Embankment

Table 4-7 15th Street Detention Basin Stage-Area-Storage-Discharge Table

Stage (ft)	Area (acres)	Discharge (cfs)	Computed Volume (ac-ft)	Notes
5418	0.0	0	0.0	Outlet Invert (30" RCP)
5419	0.3	8	0.1	
5420	1.8	16	1.1	
5421	3.4	28	3.7	
5422	5.3	36	8.0	
5423	7.2	44	14.3	
5424	8.5	50	22.1	
5425	8.7	55	30.7	
5426	8.9	60	39.5	
5427	9.1	65	48.4	
5428	9.2	70	57.6	
5429	9.4	73	66.9	
5430	9.6	77	76.4	
5431	9.8	80	86.1	
5432	10.0	85	96.0	
5433	10.2	90	106.1	
5434	10.4	90	116.4	
5435	10.6	90	126.8	
5436	10.8	90	137.5	
5437	11.0	90	148.4	
5438	11.2	90	159.4	
5439	11.4	90	170.7	
5440	11.6	90	182.1	
5440.4	11.6	90	186.7	Spillway Crest Elevation
5441	11.8	448	193.7	
5442	12.0	1648	199.5	
5443	12.2	3316	205.3	
5444	12.4	5347	211.1	Top of Dam Embankment

4.2. HEC-HMS Model Results

The HEC-HMS model for the project watershed calculated the following scenarios: 100-year storm events with and without the proposed detention basins using existing and ultimate land use conditions. Storm runoff generated upstream of the 9th Street Detention Basin within the 1.46 square-mile drainage basin resulted in a peak design flow rate of 1,173 cfs into the detention basin and 498 cfs out of the detention basin. The emergency spillway for the 9th Street Detention Basin was sized for the 100-year ultimate condition storm using Green-Ampt parameters, 1,480.8 cfs. Storm runoff generated upstream of the 15th Street Detention Basin within the 1.95 square-mile drainage basin resulted in a peak design flow rate of 1,281 cfs into the detention basin and 90 cfs out of the detention basin. The emergency spillway for the 15th Street Detention Basin was sized for the PMP event, which is discussed in the section below. A detailed summary of the flows from the HEC-HMS models is shown in Table 4-8 and on Figure 4-6 at the end of this section.

Table 4-8 100-Year HEC-HMS Results

Hydro. Element	Area (Acres)	Existing Infrastructure				Proposed Infrastructure			
		Ex. Condition (cfs)		Ultimate Condition (cfs)		Ex. Condition (cfs)		Ultimate Condition (cfs)	
		SCS	Green-Ampt	SCS	Green-Ampt	SCS	Green-Ampt	SCS	Green-Ampt
A	502	376.3	668.2	393.7	678.9	376.3	668.2	393.7	678.9
B	145	218.8	248	253.9	258.4	218.8	248	253.9	258.4
F	100	117.7	174	138.7	180	117.7	174	138.7	180
CP1	747	542	999.4	586.8	1026.2	542	999.4	586.8	1026.6
H	278	335.1	453.2	360.1	465.8	335.1	453.2	360.1	465.8
C	158	250.8	280.7	285.5	287	250.8	280.7	285.5	287
G	53	78.5	90.9	84.2	94.6	78.5	90.9	84.2	94.6
CP2	1236	1167.2	1793.9	1272.2	1840.3	1167.2	1793.9	1272.2	1837.7
M	13	27.6	25.9	31.3	26.5	27.6	25.9	31.3	26.5
CP3	1249	1175.3	1809.4	1281.1	1856.5	1175.3	1809.4	1281.1	1853.9
15TH DB	1249	-	-	-	-	90	90	90	90
R15THDB	1249	1172.7	1798.9	1277.1	1838.2	90	90	90	90
D	386	458.1	544.2	539.4	594.4	458.1	544.2	539.4	594.4
E	209	197.1	315.7	274.6	342.4	197.1	315.7	274.6	342.4
CP4	594	640.6	856.9	802.2	933.4	640.6	856.9	802.2	933.4
L	183	188.8	283.7	239	303.3	188.8	283.7	239	303.3
J	99	222.7	186.8	255.7	197.3	222.7	186.8	255.7	197.3
K	60	172.4	126.7	191.4	130.8	172.4	126.7	191.4	130.8
CP5	936	942.5	1374.1	1172.7	1485.3	942.5	1374.1	1172.7	1480.8
9TH DB	936	-	-	-	-	416	439.3	497.9	487.1
R9TH DB	936	938.2	1361.5	1167.2	1474.2	415.9	439	497.5	486.6
Q	59	67.3	91	80.3	95.8	67.3	91	80.3	95.8
CP6A	995	1005.2	1449.7	1247.5	1567.3	449.9	467.7	534.9	517.8
N	183	246.6	302.5	270.7	308.2	246.6	302.5	270.7	308.2
CP6B	2427	2414.1	3484.7	2795.4	3628.6	714.2	747.8	801.1	783.5
O	110	115.8	157.1	146.7	171.3	115.8	157.1	146.7	171.3
CP7	2537	2525.5	3621.9	2922.2	3777.1	827.7	894.4	944.7	945
S	233	238.1	308.6	277.3	331.7	238.1	308.6	277.3	331.7
P	146	159	221.2	222.2	243.7	159	221.2	222.2	243.7
CP8	2916	2870.8	4106.4	3386.4	4290.3	1210.6	1409.1	1422.7	1505.8
R	366	409.1	529.4	420.2	535.8	409.1	529.4	420.2	535.8
CP8a	3282	3236.2	4621.8	3741.1	4821.7	1614.9	1937.8	1828.3	2040.8
U	106	78.4	149.4	98.3	158.7	78.4	149.4	98.3	158.7
CP9	3388	3291.7	4748.8	3821.2	4959.2	1685.1	2066.6	1918.2	2181.9
T	101	103.2	160.1	112.7	160.7	103.2	160.1	112.7	160.7

4.2.1. 9th Street Detention Basin

Based on the HEC-HMS model for the ultimate condition, the 100-year peak stage in the detention basin is 5,441.60 feet, which results in 1.00 feet of freeboard below the spillway crest elevation of 5,442.60 feet. The 100-year peak storage in the detention basin is 68.3 acre-feet, and the surface area of the reservoir at the peak stage elevation is approximately 5.6 acres. The 9th Street Detention Basin has adequate capacity to detain the 100-year flow in the existing and ultimate condition without spillway operation. A summary of the 9th Street Detention Basin performance is shown in Table 4-9.

Table 4-9 9th Street Detention Basin 100-Year Storm Results

Design Item	Design Value
Drainage Area	1.46 square miles
100-year Peak Inflow	1,172.7 cfs
100-year Peak Outflow	497.9 cfs
100-year Peak Stage	5441.60 feet
100-year Peak Storage	68.3 ac-ft
Outlet Type	60“ RCP
Outlet Invert Elevation	5423.00 feet
Spillway Crest Elevation	5442.60 feet
Jurisdictional Dam Height	19.60 feet
Storage Capacity (at spillway crest)	73.3 ac-ft
Freeboard	1.0 feet

4.2.2. 15th Street Detention Basin

Based on the HEC-HMS model for the ultimate condition, the 100-year peak stage in the detention basin is 5,439.40 feet, which results in 1 feet of freeboard below the spillway crest elevation of 5,440.40 feet. The 100-year peak storage in the detention basin is 175.1 acre-feet, and the surface area of the reservoir at the peak stage elevation is approximately 11.5 acres. The 15th Street Detention Basin has adequate capacity to detain the 100-year flow in the existing and ultimate condition without spillway operation. A summary of the 15th Street Detention Basin performance is shown in Table 4-10.

Table 4-10 15th Street Detention Basin 100-Year Storm Results

Design Item	Design Value
Drainage Area	1.95 square miles
100-year Peak Inflow	1,281.1 cfs
100-year Peak Outflow	90 cfs
100-year Peak Stage	5439.40 feet
100-year Peak Storage	175.1 ac-ft
Outlet Type	30“ RCP
Outlet Invert Elevation	5418.00 feet
Spillway Crest Elevation	5440.40 feet
Jurisdictional Dam Height	22.4 feet
Storage Capacity (at spillway crest)	186.7 ac-ft
Freeboard	1.0 feet

4.3. USGS Regression Equations

The HEC-HMS peak flows into the 9th Street Detention Basin and 15th Street Detention Basin were checked against the USGS regression equations. The location of each detention basin inflow node was entered into the USGS StreamStats website. StreamStats is an online GIS application that provides statistics for various streams by solving regression equations. The tributary area is measured for each input site and input into the resulting equations to estimate the flows at the input location. The results of the analysis are shown in Table 4-11. The regression equations utilize a smaller precipitation value and are based on the 6-hour storm values instead of the 24-hour design storm. In addition to those differences the USGS tributary area is calculated based on topographic data that shows additional tributary area from the east entering the 15th Street Detention Basin. Based on the comparison, the results of the hydrologic model are within the range of values calculated by the regression equations.

Table 4-11 USGS Regression Equation Results

Location (Node)	HEC-HMS Trib. Area	HEC-HMS Flow Rate (cfs)	USGS Flow (cfs)	-88%[1] (cfs)	+88%[1] (cfs)
9th Street Detention Basin Inflow (CP5)	1.46	1,173	969	116	1822
15th Street Detention Basin Inflow (CP3)	1.95	1,281	900	108	1692

[1]Standard Error of Prediction for Foothills Region from SIR 2016-5009 is +/- 88%, which is a much better value than the previous USGS publication for rural regression equations.

Using the revised subbasin delineations and contributing drainage areas, a comparison was made to the peak 100-yr flow values that would be computed using the most recent USGS publication, SIR 2016-5099, for Colorado. It can be seen that the inflow peak discharges to the proposed basins are well within the error bounds for the Foothill Region (88%). Although the HEC-HMS peak flows computed using existing land use and SCS methodology are higher than the median values computed from the USGS report, the flow values are deemed reasonable and no further adjustments or calibrations of input parameters were made.

4.4. Probable Maximum Precipitation Analysis

4.4.1. Methodology

Failure of the detention basin embankment poses a large risk to downstream properties should overtopping occur during a large flood event. The 9th Street Detention Basin is proposed to be classified as a "minor" dam, with a hazard classification of "Significant", therefore according to Table 5.2, the emergency spillway has been sized for the 100-year peak flow at the detention basin using the ultimate land use and Green-Ampt losses. The PMP and resulting peak flow was calculated in order to design the emergency spillway and structure for the protection of the 15th Street Detention Basin. The 15th Street Detention Basin is proposed to be classified as "small" with a hazard classification of "Significant". According to Table 5.2 of the CoDWR *Rules and Regulations for Dam Safety and Dam Construction*, the spillway of a "small" dam shall be capable of passing 0.45*PMP.

The PMP was developed in accordance with procedures established in *Hydrometeorological Report No. 55A, "Probable Maximum Precipitation Estimates-United States Between the Continental Divide and the 103rd Meridian"* (HMR55A). The estimated PMP was then input into a HEC-HMS model for the detention basin watershed to determine the peak flow into the basin. Calculations for the analysis are included in Appendix D.

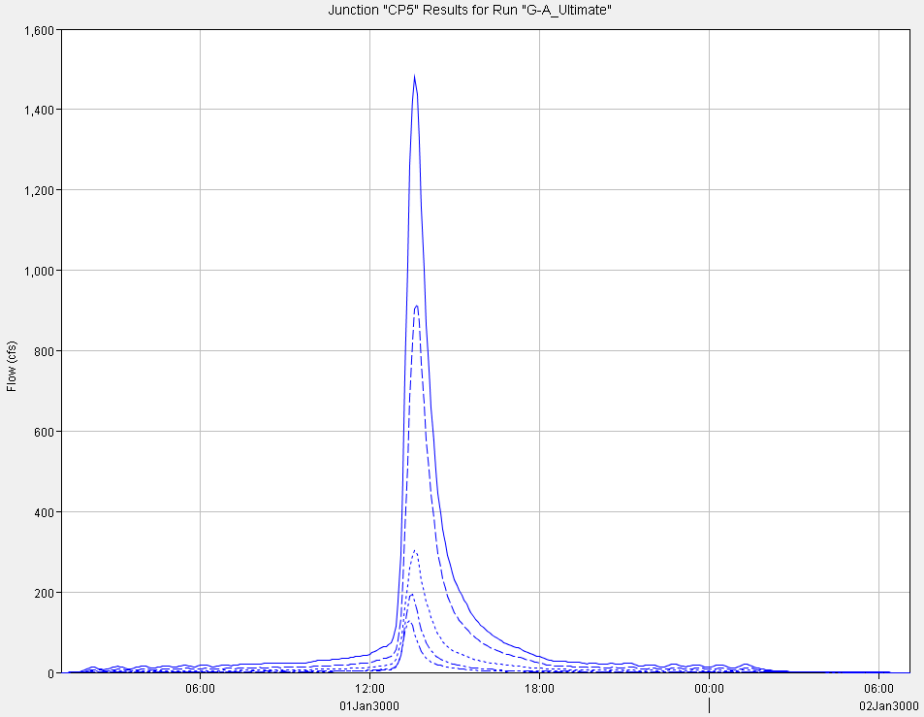
4.4.2. Probable Maximum Precipitation

The procedures from HMR55A were utilized to estimate the PMP for the local storm. A check of the general storm was done with the result being that the local storm is the most severe. The rainfall pattern from the local storm was analyzed using the average depth method.

4.4.3. Hydrologic Summary

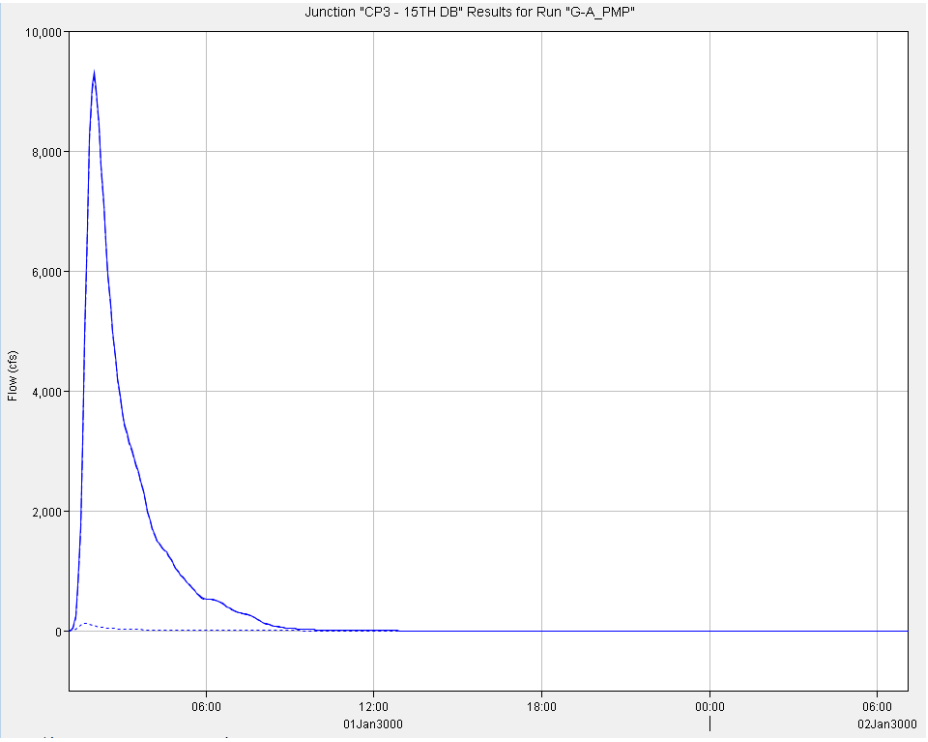
The Inflow Design Flood for the 9th Street Detention Basin tributary area of 1.46 square miles of 1,480.8 cfs was used for the design of the emergency spillway and embankment protection. The peak flow hydrograph for the 9th Street Detention Basin IDF is shown on Figure 4-4.

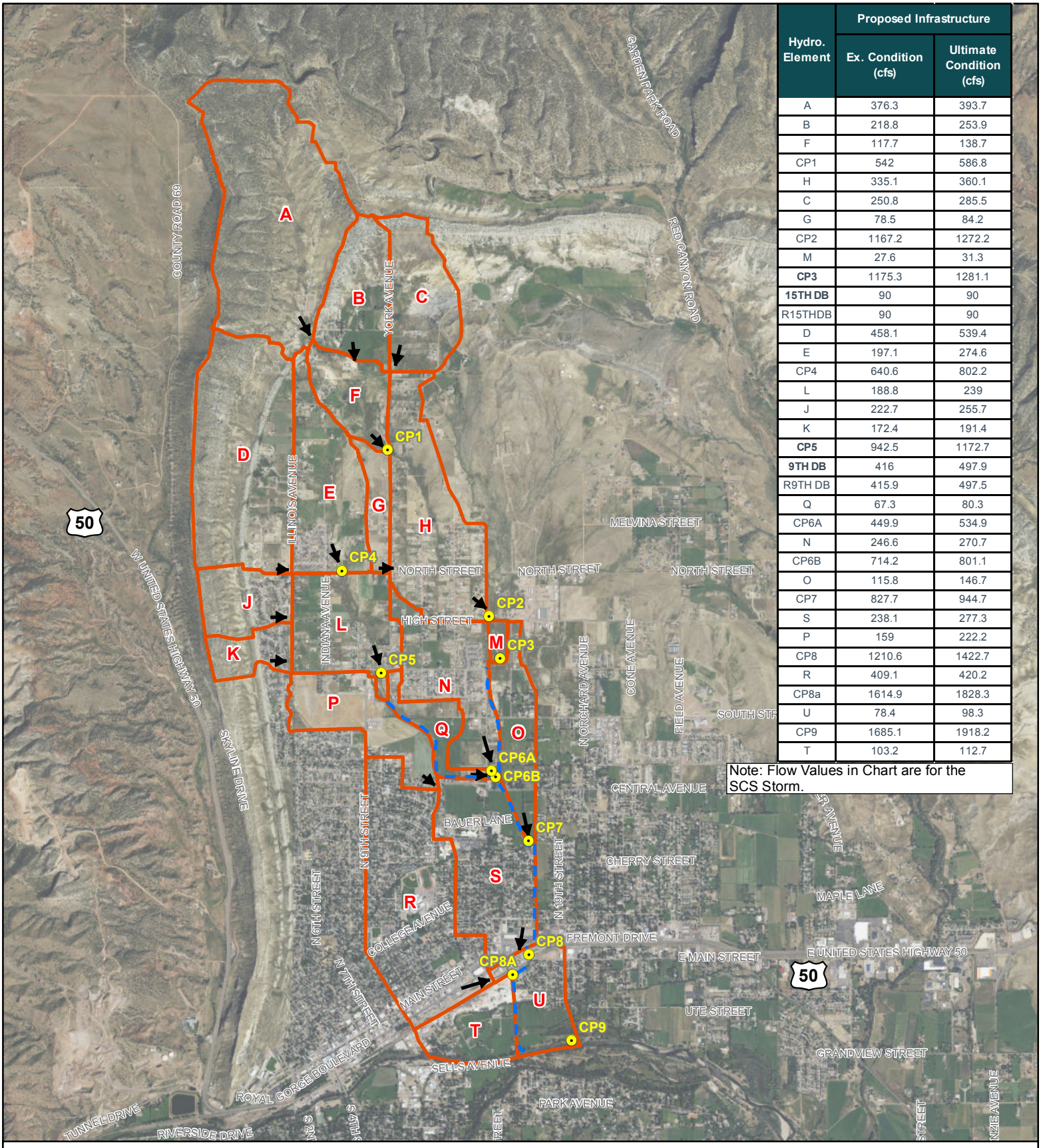
Figure 4-4 Inflow Design Flood Hydrograph – 9th Street Detention Basin



The PMP for the 15th Street Detention Basin tributary area, 1.95 square miles, is 14.59 inches. The peak flow calculated entering the detention basin is 9,322 cfs. A 0.45*PMP design flow of 4,195 cfs was used for the design of the emergency spillway and embankment protection for the 15th Street Detention Basin. The peak flow hydrograph for the 15th Street Detention Basin PMP is shown on Figure 4-5.

Figure 4-5 Inflow Design Flood Hydrograph – 15th Street Detention Basin





Hydro. Element	Proposed Infrastructure	
	Ex. Condition (cfs)	Ultimate Condition (cfs)
A	376.3	393.7
B	218.8	253.9
F	117.7	138.7
CP1	542	586.8
H	335.1	360.1
C	250.8	285.5
G	78.5	84.2
CP2	1167.2	1272.2
M	27.6	31.3
CP3	1175.3	1281.1
15TH DB	90	90
R15THDB	90	90
D	458.1	539.4
E	197.1	274.6
CP4	640.6	802.2
L	188.8	239
J	222.7	255.7
K	172.4	191.4
CP5	942.5	1172.7
9TH DB	416	497.9
R9TH DB	415.9	497.5
Q	67.3	80.3
CP6A	449.9	534.9
N	246.6	270.7
CP6B	714.2	801.1
O	115.8	146.7
CP7	827.7	944.7
S	238.1	277.3
P	159	222.2
CP8	1210.6	1422.7
R	409.1	420.2
CP8a	1614.9	1828.3
U	78.4	98.3
CP9	1685.1	1918.2
T	103.2	112.7

Note: Flow Values in Chart are for the SCS Storm.

N

0 1,750 3,500
Feet

1 in = 3,500 feet

NORTHEAST CAÑON CITY
DETENTION BASINS
DESIGN PROJECT

FIGURE 4-6
BASIN HYDROLOGY OVERVIEW

LEGEND

- Subbasin Boundary
- Combination Points
- Flow Direrction
- Stream Centerline

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ATKINS

5.0 Site Design

5.1. General Layout and Grading

The location of the proposed sites is based on previous masterplans and undeveloped lots that are owned by the City of Cañon City. They are the largest open areas that collect the greatest amount of runoff and make a significant impact on reducing downstream flows. The goal was to maximize the amount of storage, minimize the downstream flows, not provide any negative upstream impacts, and to meet all of the hydraulic, structural, geotechnical, and civil design criteria.

A 10 foot offset from properties and ROW was provided around the entire site for constructability and accessibility. The detention basin bottom was set at the existing invert of the downstream channel and the spillway crest elevation was set at the invert of the channels and/or pipes upstream of the basin. The embankment slopes were set a maximum of 3:1. The basin bottom was sloped at 0.5% to a trickle channel. The trickle channel is a flat-bottom concrete channel with curbs, sized based on 2% of the 100-yr flow per Urban Drainage and Flood Control District (UDFCD) Criteria and was set at a minimum of 6 feet wide to provide maintenance equipment accessibility. The concrete trickle channel was selected over a natural channel to maximize the pond volume and provide easier maintenance.

5.2. Embankments

The embankment is designed to avoid catastrophic failure during the IDF, assuming a completely full basin. For ease of maintenance, the side slopes of the embankment are 3:1. The embankment's side slopes will have full vegetated coverage, but will not contain any trees or shrubs. The elevation of the top of the embankment (top of berm) is set 1 foot above the water surface elevation when the emergency spillway is conveying the IDF. The top of berm width was set at 15 feet, which is greater than the jurisdictional height of the dam in feet divided by 5 plus 10 feet.

Material compaction requirements shall meet the minimum requirements per the CoDWR *Rules and Regulations for Dam Safety and Dam Construction* Section 5.9.4.3.2.

- Minimum compacted density for embankment materials shall be 95 percent of maximum dry Density for ASTM D698 (standard proctor) or 90 percent for ASTM D1557 (modified proctor), as found in the 2006 "Annual Book of ASTM Standards", Section 04.08. Impervious zones with clay fines shall be controlled using standard proctor criteria to maintain the plastic nature of the material.
- The minimum density for cohesionless materials shall be 65 to 75 percent relative density as determined by ASTM D4253 and D4254 as found in the 2006 "Annual Book of ASTM Standards," Section 04.08.

The site specific compaction requirements will be as addressed in the next phase of design and additional analysis will be added to the Geotechnical Report provided in Appendix G. The design height of the embankment will be increased, if necessary, to account for settlement.

5.3. Storage Volume

The total 100-year storage volume determined using the Conic Approximation Method (the two areas being added along with the square root of their product and multiplied by a third of distance between the areas to determine the volume). The stage-storage characteristics of the basins are included in the Table 5-1 and Table 5-2 below.

Table 5-1 9th Street Stage-Storage

Contour	Area (AC)	Volume Cum (ac-ft)
5442.75	5.7	74.7
5442	5.5	70.5
5441	5.4	65.0
5440	5.2	59.7
5439	5.1	54.5
5438	4.9	49.6
5437	4.8	44.7
5436	4.6	40.0
5435	4.5	35.5
5434	4.3	31.1
5433	4.2	26.9
5432	4.0	22.8
5431	3.9	18.8
5430	3.7	15.0
5429	3.6	11.4
5428	3.4	7.9
5427	3.1	4.6
5426	2.0	2.1
5425	1.0	0.6
5424	0.2	0.1
5423	0.0	0.0

Table 5-2 15th Street Stage-Storage

Contour	Area (AC)	Volume Cum (ac-ft)
5440.5	11.7	187.9
5440	11.6	182.1
5439	11.4	170.7
5438	11.2	159.4
5437	11.0	148.4
5436	10.8	137.5
5435	10.6	126.8
5434	10.4	116.4
5433	10.2	106.1
5432	10.0	96.0
5431	9.8	86.1
5430	9.6	76.4
5429	9.4	66.9
5428	9.2	57.6
5427	9.1	48.4
5426	8.9	39.5
5425	8.7	30.7
5424	8.5	22.1
5423	7.2	14.3
5422	5.3	8.0
5421	3.4	3.7
5420	1.8	1.1
5419	0.3	0.1
5418	0.0	0.0

5.4. Emergency Spillways

The emergency spillway is the appurtenant structure that conducts overflows from the detention basin to pass the Inflow Design Flood (IDF). The IDF requirements for determining the spillway capacity at each basin were determined using Table 5.2 of the CoDWR *Rules and Regulations for Dam Safety and Dam Construction*. A summary table indicating the location, dam size, hazard classification, methodology per CoDWR Table 5.2 and the design flow is included below.

Table 5-3 Emergency Spillway Approach

Location	Dam Size	Hazard Classification	Method	Design Flow (cfs)
9th Street	Minor	Significant	100-YR	1,485
15th Street	Small	Significant	0.45 PMP	4,195

The design includes an embankment overtopping spillway because there were no other potential locations to route the flows. This decision was discussed and agreed upon at a pre-design meeting with the CoDWR on 12/16/2016.

The capacity of the spillways were calculated using the broad crested weir flow equation $Q=CLH^{1.5}$. A broad-crested weir coefficient of 2.6 was used to be conservative. A summary table (Table 5-4) of the defined flow and weir coefficient parameters and approximate calculated lengths and heights are included below.

Table 5-4 Emergency Spillway Sizing Parameters and Calculated Dimensions

Parameter	9th Street	15th Street
Q (cfs)	1,485	4,195
C	2.6	2.6
L (ft)	182	296
H (ft)	2.15	3.10

The rating curve for the 9th Street Detention Basin emergency spillway is shown in the following table.

Table 5-5 9th Street Detention Basin Emergency Spillway Rating Curve

H (ft)	Elevation (ft)	Flow (cfs)
0.5	5443.1	167
1.0	5443.6	473
1.5	5444.1	869
2.0	5444.6	1338
2.5	5445.1	1870
3.0	5445.6	2459
3.15	5445.75	2646

The rating curve for the 15th Street Detention Basin emergency spillway is shown in the following table.

Table 5-6 15th Street Detention Basin Emergency Spillway Rating Curve

H (ft)	Elevation (ft)	Flow (cfs)
0.5	5,440.90	272
1.0	5,441.40	770
1.5	5,441.90	1,414
2.0	5,442.40	2,177
2.5	5,442.90	3,042
3.0	5,443.40	3,999
3.5	5,443.90	5,039
4.1	5,444.50	6,389

The top of the detention basin berm is 1 foot above the calculated emergency spillway water surface elevation for the required inflow to provide the required freeboard per UDFCD and CoDWR criteria.

The spillway will be constructed using an appropriate overtopping design which may include a Roller Compacted Concrete (RCC) spillway, spillway with a stilling basin, USBR energy dissipation structure, grouted riprap, or a proprietary design material (such as articulated blocks). Energy will be dissipated prior to returning the flow to the downstream channel and floodplain. All riprap shall be placed on a layer of granular filter bedding to prevent loss of supporting subgrade material during flow events.

5.5. Outlet Structure

The outlet structures were designed to control the release rates and minimize the downstream peak flows during the 100-year event without structural or hydraulic failure. The 100-year water surface elevation was set one foot below the overflow spillway crest to provide sufficient freeboard and capacity for potential sediment deposition. The outlet structure type, size and outflow for each event are summarized in Table 5-7 below. A detailed rating curve is included in Table 4-6 and Table 4-7 in the Hydrology Section of the report.

Table 5-7 Outlet Sizing Parameters

Parameter	9th Street	15th Street
Type	60" RCP	30" RCP
$Q_{100\ in}$ (cfs)	1,172	1,281
$Q_{100\ out}$ (cfs)	498	90

The reinforced concrete pipe will be connected with gaskets and held together with a concrete cradle. Headwalls and wingwalls will be provided at the each end of the pipe. The detailed stage-discharge relationships was created using HDS-5 inlet nomographs for reinforced concrete pipes and is provided in Appendix D.

It is recommended that trash racks will be designed and installed to reduce safety concerns and will be designed such that they do not interfere with the hydraulic capacity of the outlet using Figure OS-1 in Chapter 4 of Volume 3 of the UDFCD Drainage Criteria Manual (DCM) for the minimum open area based on the outlet size.

5.6. Conveyance to Basins

Infrastructure upstream of the detention basins was designed to convey the 100-yr storm event into the basin without any adverse flooding impacts to the upstream areas. The detention basins were designed with the 100-year water surface to be at the invert of the upstream infrastructure and to be as large as possible. As a result, there are steep drops into the basins that will require energy dissipation. Energy dissipation to limit erosion using drop structures and stilling basins should be designed in accordance to UDFCD DCM. The design of the conveyance into each detention basin is described below.

9th Street Detention Basin. Flow will enter the basin in two main locations, one located in the northwest corner and one in the center of the basin to the north. The 36" CMP currently in the northwest corner that conveys flows under 9th Street be replaced with a 6'x3' CBC which was selected due to a limited amount of headwater ponding at the inlet. The existing 72" CMP with headwalls that conveys flow under Washington Street will be replaced with a 16'x8' CBC. The depths and locations of the existing utilities at the pipe locations need to be confirmed. An existing 18" CMP at the corner of Natalie Street and York will remain and it will be incorporated into the stilling basin grading. It does not outlet into the detention basin because the upstream inlet is located near homes and is several feet below the proposed 100-year water surface elevation, creating a potential to flood if a flap gate was to fail or be obstructed by debris. Design calculations for the proposed CBC's are included in Appendix E.

10.0 Conclusion

This report describes all of the components of the preliminary engineering analysis completed as part of the Northeast Cañon City Detention Basins Project. Two stormwater detention basins (15th Street Detention Basin and 9th Street Detention Basin) were designed and two existing Federal Emergency Management Agency (FEMA) floodplains downstream of the proposed detention basins with reduced flows are being updated.

Flood Hazard Classification Reports were developed for each detention basin, which will be submitted to the CoDWR for review. Based on the breach analysis and results presented in the reports, both detention basins were recommended to be classified as a "Significant Hazard Dams".

Hydrology was also completed for the Northeast Cañon Watershed and required multiple different methodologies such as SCS, Green Ampt, and PMP, for both Existing and Future Land Use, and for existing and proposed infrastructure. A summary of the different models and their uses are described below.

- FEMA CLOMR/LOMR – NOAA Atlas 14, SCS Type II, Existing Land Use
- Design of Stage/Storage/Discharge - NOAA Atlas 14, SCS Type II, Future Land Use
- 9th Street Spillway & Hazard Classification – NOAA Atlas 14, Green Ampt, Future Land Use
- 15th Street Spillway & Hazard Classification – 0.45 PMP

Hydrology reports for the 9th Street Detention Basin and the 15th Street Detention Basin are included and ready for submittal to the CoDWR.

The detention basin grading, emergency spillway design, outlet design and conveyance to the basins were all incorporated in the preliminary design. In addition to the description in the report, 30% preliminary plans were developed and are being submitted in conjunction with this report. Overall, the proposed detention basins reduce the 100-year peak flows by 58% in the 9th Street Basin (Q_{in} = 1,172 cfs / Q_{out} = 498 cfs) and 93% in the 15th Street Basin (Q_{in} = 1,281 cfs / Q_{out} = 90 cfs).

The resulting floodplains due to the updated hydrologic analysis and topographic data show flood hazard risk outside of what is currently depicted on FEMA's flood maps. It is important to note that properties not currently paying flood insurance could have real flood risk due to outdated data. The addition of the two proposed detention basins do have a measured effect on the flood extents and water surface elevation. There are still areas of flood hazard risk even with these basins, although additional refinement or design aspects as mentioned in Section 6.4 could further reduce the modeled flood extents.

This analysis is preliminary and there are still several items that need to be considered and discussed as the design is refined. Below is a list of some of the items for discussion which were more thoroughly discussed in the report.

- Geotechnical – Shallow Groundwater / Bedrock / Non-engineered Fill
- Permitting – Groundwater / Individual 404 Permits / Water Rights
- ROW – Acquiring temporary and/or permanent easements
- Hydrological – Larger flows as a result of Atlas 14
- Site Design –Conveyance to Basins / Drop Structures / Emergency Spillway Stilling Basins
- Floodplain – Areas not contained within channel
- Grant Application – Benefit Cost Analysis (BCA)
- Utilities – potential conflicts and more detailed information

NORTHEAST CANON

DRAINAGE BASIN PLANNING STUDY

FOR

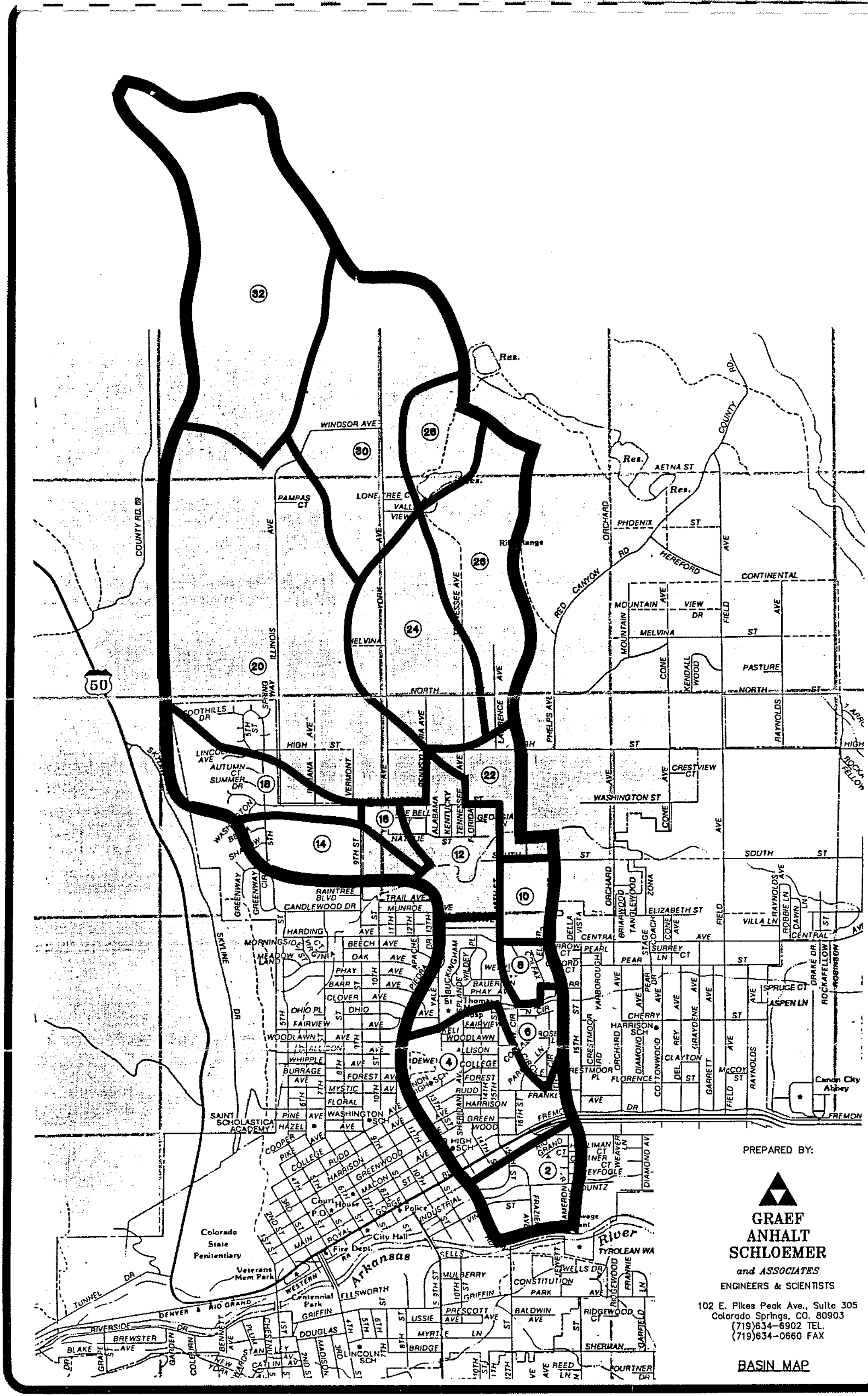
CANON CITY, COLORADO

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102 EAST PIKES PEAK AVENUE
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November, 1993
Job No. 931221

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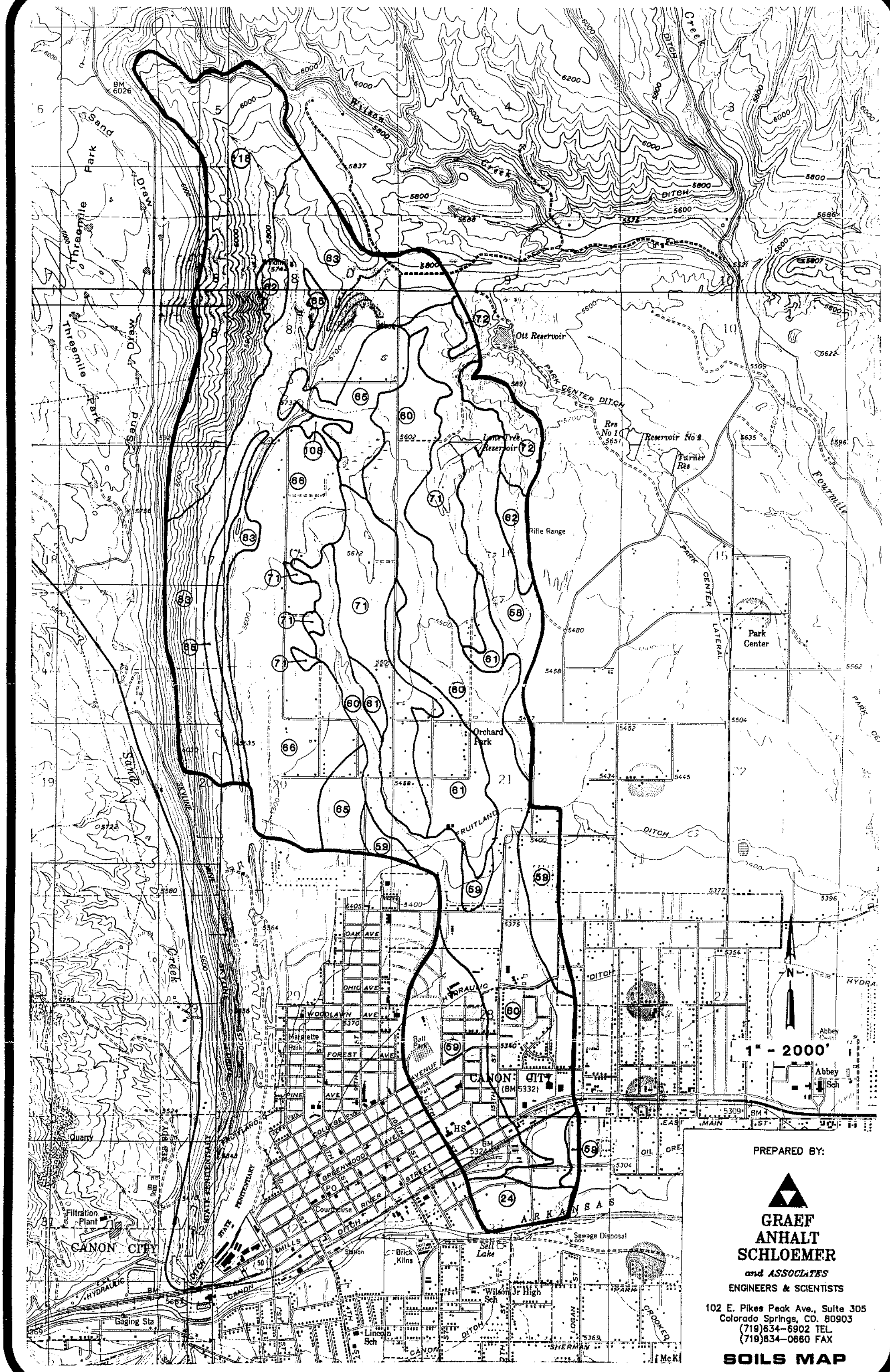
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BASIN MAP

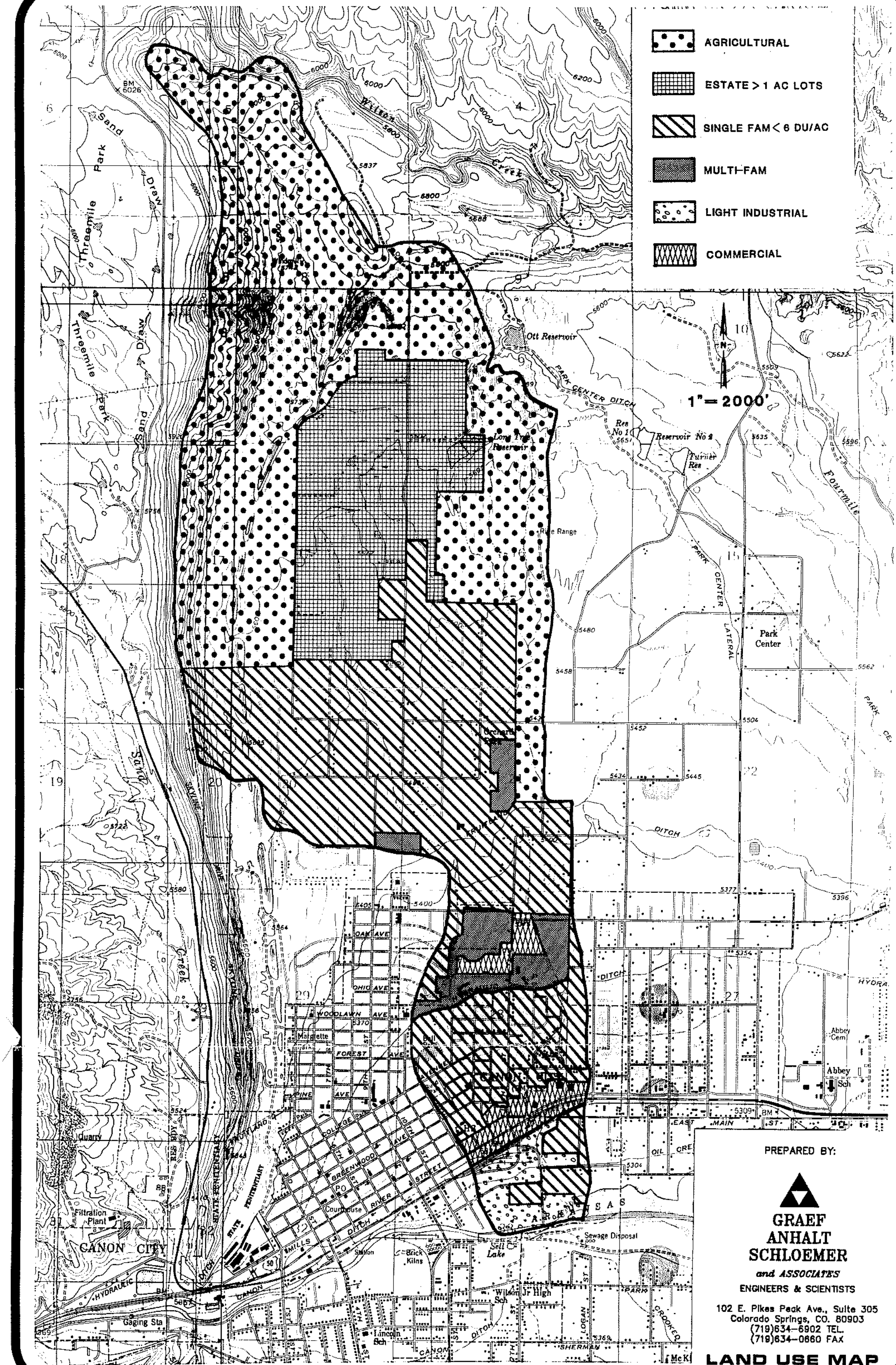


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SOILS MAP



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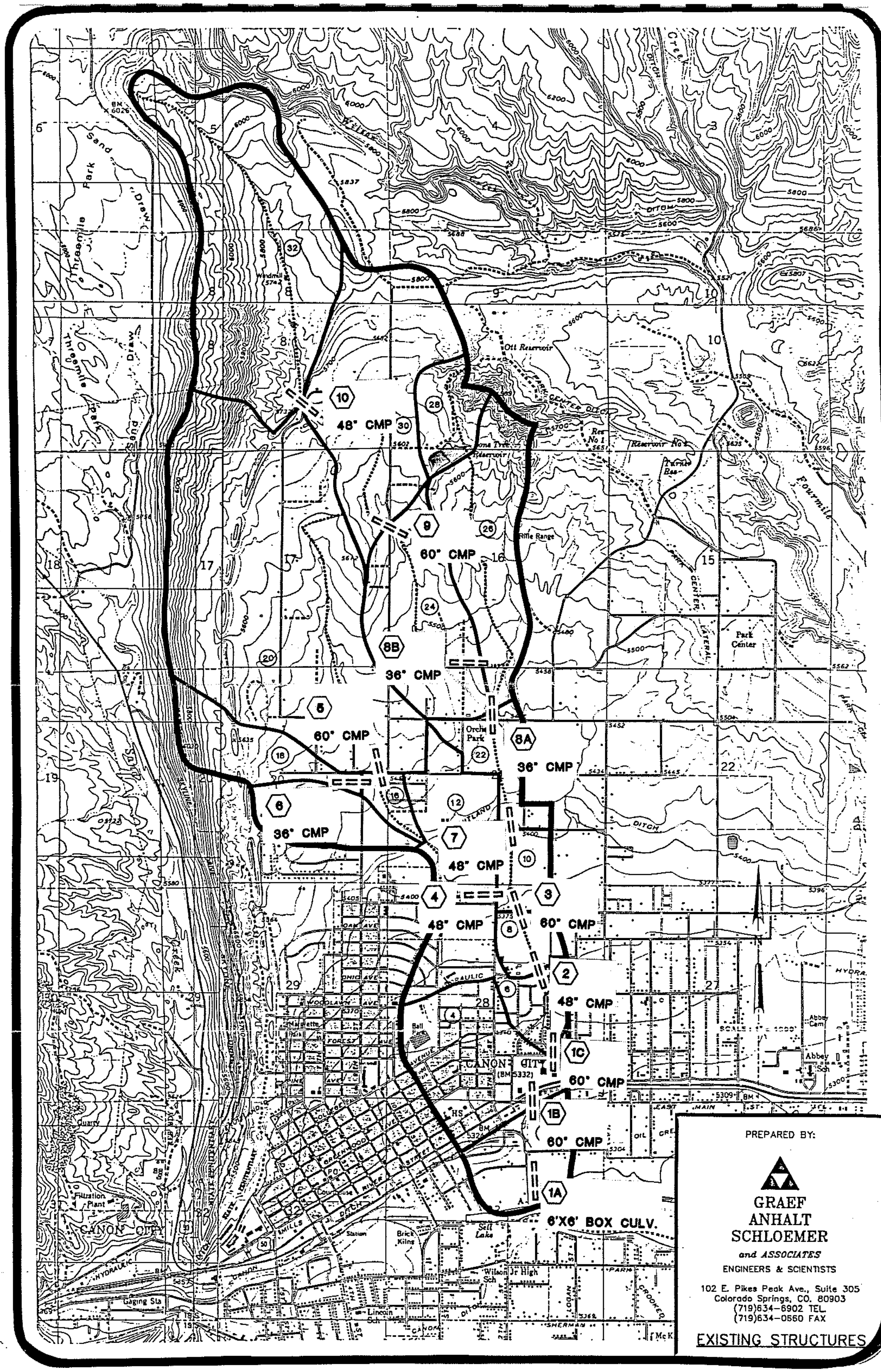
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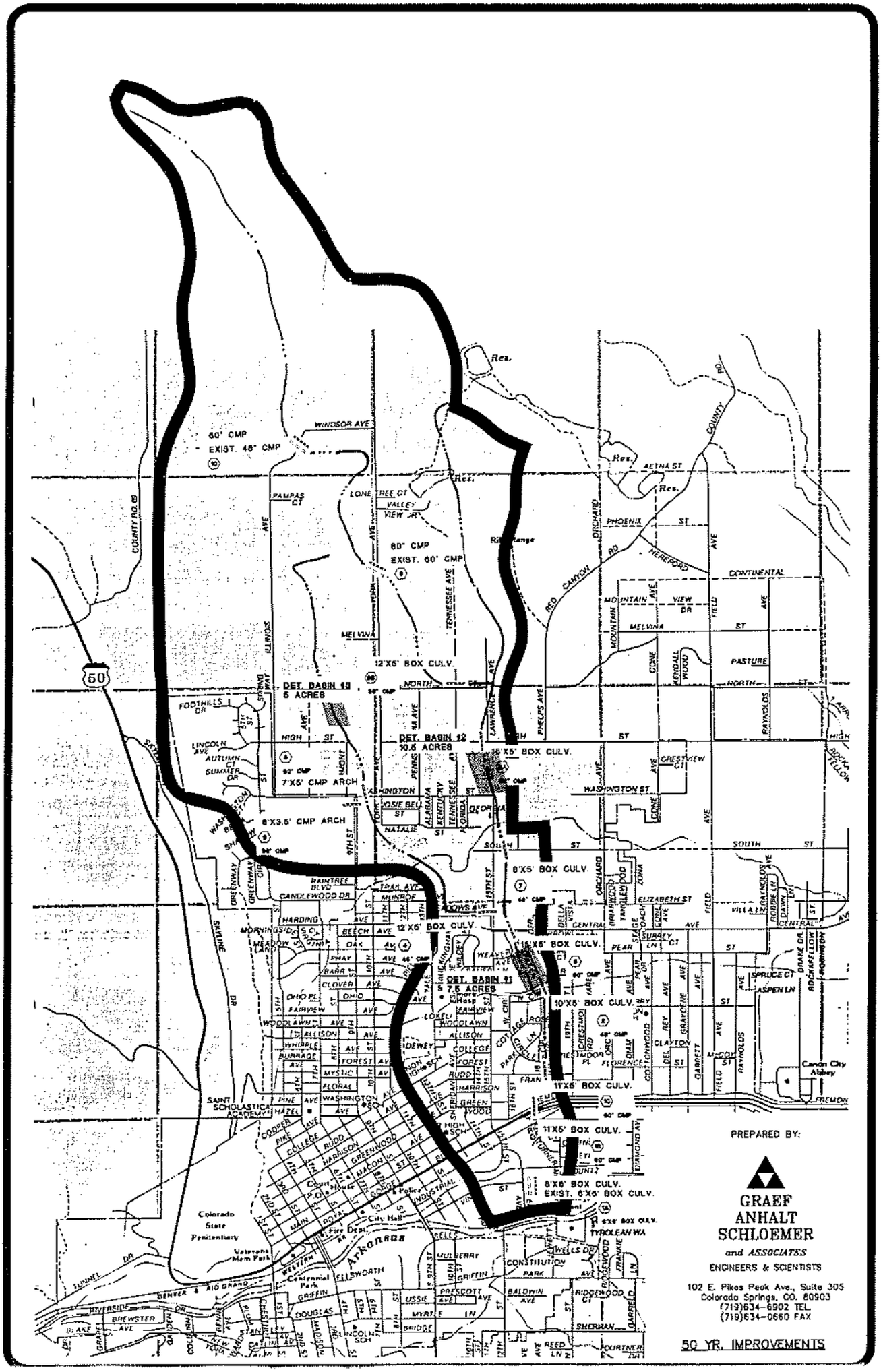
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LAND USE MAP


10
48" CMP
9
60" CMP
8B
36" CMP
5
60" CMP
8A
36" CMP
6
36" CMP
7
48" CMP
4
48" CMP
3
60" CMP
2
48" CMP
1C
60" CMP
1B
60" CMP
1A
6'X6' BOX CULV.
Ott Reservoir
Rifle Range
Park Center
Orchard Park
CANON CITY
Sand Draw
Threemile Park
Skyline Drive
Hydraulic
Fourmile
Abbey Cem
Abbey Sch
Filtration Plant
Gaging Sta
Lincoln Sch
Wilson Jr High
Brick Kilns
Salt Lake
Quarry
Windmill
Ball Park
Courthouse
Station
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EXISTING STRUCTURES

NORTHEAST CANON BASIN
SUMMARY OF DISCHARGES

AREA DESIG	SUBBASIN FLOW 100 YR FLOW	50 YR FLOW	25 YR FLOW	ACCUMULATED FLOW 100 YR FLOW	50 YR FLOW	25 YR FLOW	FLOW THROUGH EXIST CULVERTS 100 YR FLOW	50 YR FLOW	25 YR FLOW	DETAINED FLOWS 100 YR FLOW	50 YR FLOW	25 YR FLOW
2	385	332	288	3387	2629	2121				1334	1120	950
4	493	419	358	3228	2536	2043	3228	2536	2043	1229	955	777
6	367	314	270	2850	2243	1768	2792	2196	1754	1015	814	625
8	134	115	99	2606	2058	1613	2538	2014	1572	966	773	595
10	134	113	95	2518	2058	1549	2485	1967	1537	1127	949	749
12	258	213	177	1340	1064	780	1384	1090	775	808	676	526
14	121	97	76							121	97	76
16	79	67	56	1089	892	604				581	388	299
18	217	175	141							217	175	141
20	763	593	459							379	304	246
22	190	156	128	1062	883	729	1093	894	727	524	397	332
24	470	391	327	977	804	656	1098	803	671	1098	854	696
26	340	272	217	340	272	217				340	272	217
28	157	129	105				5	4	3	5	4	3
30	435	342	268	893	675	464	893	675	464	893	675	464
32	670	536	425				670	536	422	670	536	422



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50 YR. IMPROVEMENTS

26 AC FT BASIN
$Q_{100\ IN}$ = 763 cfs
$Q_{100\ OUT}$ = 379 cfs

55 AC FT BASIN
$Q_{100\ IN}$ = 1118 cfs
$Q_{100\ OUT}$ = 524 cfs

36 AC FT BASIN
$Q_{100\ IN}$ = 1195 cfs
$Q_{100\ OUT}$ = 966 cfs

$Q_{100\ IN}$ = 1014 cfs

$Q_{100\ IN}$ = 1334 cfs

SCALE: 1" = 1000'

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ALTERNATE NO. 1

26 AC FT BASIN
$Q_{100\ IN}$ = 1340 cfs
$Q_{100\ OUT}$ = 1003 cfs

18 AC FT BASIN
$Q_{100\ IN}$ = 1062 cfs
$Q_{100\ OUT}$ = 747 cfs

18 AC FT BASIN
$Q_{100\ IN}$ = 1835 cfs
$Q_{100\ OUT}$ = 1776 cfs

$Q_{100\ IN}$ = 1950 cfs

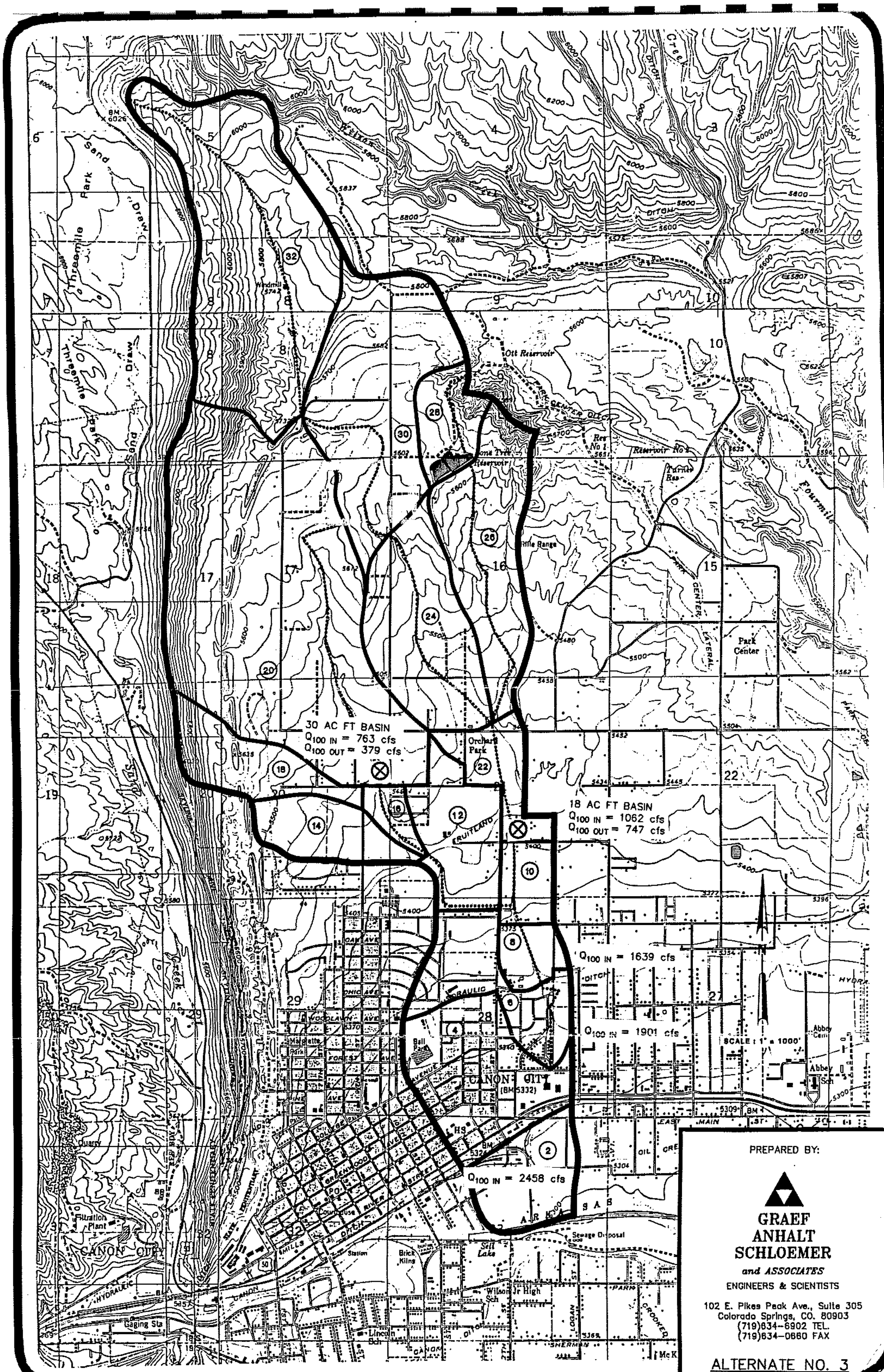
$Q_{100\ IN}$ = 2273 cfs

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ALTERNATE NO. 2


30 AC FT BASIN
Q100 IN = 763 cfs
Q100 OUT = 379 cfs
18 AC FT BASIN
Q100 IN = 1062 cfs
Q100 OUT = 747 cfs
Q100 IN = 1639 cfs
Q100 IN = 1901 cfs
Q100 IN = 2458 cfs
SCALE : 1" = 1000'
Ott Reservoir
Reservoir No 2
Rifle Range
Park Center
Orchard Park
CANON CITY
Fourmile Creek
Threemile Park
Sand Draw
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ALTERNATE NO. 3

30 AC FT BASIN
$Q_{100\ IN}$ = 763 cfs
$Q_{100\ OUT}$ = 379 cfs

13 AC FT BASIN
$Q_{100\ IN}$ = 1062 cfs
$Q_{100\ OUT}$ = 1011 cfs

18 AC FT BASIN
$Q_{100\ IN}$ = 1935 cfs
$Q_{100\ OUT}$ = 1853 cfs

$Q_{100\ IN}$ = 2086 cfs

$Q_{100\ IN}$ = 2499 cfs

SCALE : 1" = 1000'

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ALTERNATE NO. 4

13 AC FT BASIN
$Q_{100\ IN}$ = 989 cfs
$Q_{100\ OUT}$ = 903 cfs

20 AC FT BASIN
$Q_{100\ IN}$ = 2304 cfs
$Q_{100\ OUT}$ = 2192 cfs

$Q_{100\ IN}$ = 2452 cfs

$Q_{100\ IN}$ = 2908 cfs

SCALE : 1" = 1000'

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ALTERNATE NO. 5

NORTHEAST CANON

DRAINAGE BASIN PLANNING STUDY

TECHNICAL ADDENDUM

FOR

CANON CITY, COLORADO

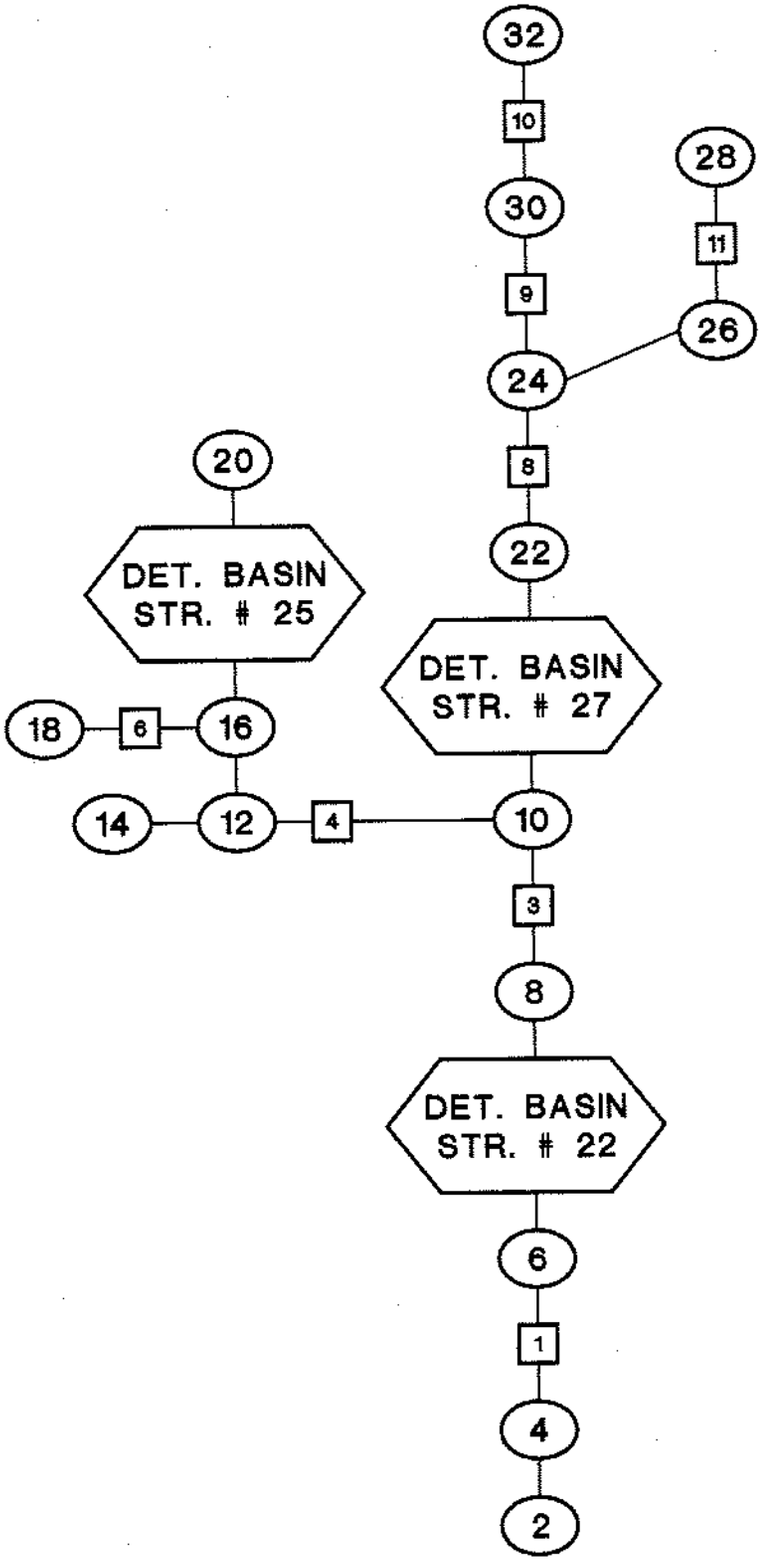
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November, 1993
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CONSULTING ENGINEERS



TR-20 FLOW DIAGRAM
DEVELOPED CONDITIONS

PREPARED BY:

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BASIN MAP

WAYNE CLARK

REPORT ON

STORM DRAINAGE FACILITIES

FOR THE CITY OF

CANON CITY, COLORADO

OCTOBER 1974

M&I, INC
CONSULTING ENGINEERS
FORT COLLINS COLORADO

INTRODUCTION

A. Purpose - The purpose of this report is to present the findings of an engineering study to the City of Canon City. This investigation looked at the existing storm sewer system, a new master plan of storm sewers and flow-ways to provide adequate facilities for storm water runoff within the Canon City area and the drainage basins draining through the city. Also included is the estimated cost of required facilities.

B. Scope - This report includes studies and findings as follows:

1. Development of design data for use in determining the quantity and rate of runoff and the design criteria for sizing storm water facilities. This design data included rainfall - depth - duration - frequency - maps, time - intensity - frequency curves, runoff coefficients, and runoff hydrographs.

2. Development of a master plan showing location and size of storm water sewer facilities for the initial design storm within the City limits.

3. Development of a master plan for handling of the major runoff from the major basins tributary to the City.

4. Development of storm drainage criteria to be used as design criteria for future development and storm water runoff.

5. Estimate of cost for all major storm water drainage facilities.

6. Development of a priority and construction schedule.

SUMMARY OF FINDINGS AND RECOMMENDATIONS

A. Findings

1. Once the hydrology was completed, it was determined the existing storm sewer system could no longer satisfy the drainage requirements.

2. It was determined that the Fruitland, Hydraulic and Oil Creek irrigation ditches, which are presently being used as flow-ways for storm water runoff, could not handle this additional water above the quantity of normal irrigation water now being transported by the ditch.

3. A majority of ditches and culverts now installed in the East Canon area are being used and sized to transport irrigation water and do not provide adequate storm water runoff capabilities.

4. The open channel or gulch between the Hydraulic Ditch and the Arkansas River running east of and parallel to E. Circle Drive is quite inadequate to handle the major storm runoff.

5. A major flood retarding system must be considered to protect the City from the major storm runoff from the drainage basins north of the City.

6. The adoption of storm drainage criteria is necessary to prevent future compounding of the existing drainage problems from future development and land use.

7. There are methods available for the City to finance any adopted storm drainage program. All have advantages and disadvantages. A method will have to be selected by the City after adoption of the storm drainage program and determination of the revenue requirements. Any method for financing storm drainage facilities should, if possible, meet the tests of administrative simplicity, revenue adequacy, economic efficiency and equity.

B. Recommendations - The recommendations resulting from this study are summarized below:

1. It is recommended that a long range construction program be adopted to implement a storm sewer system to facilitate the 5 year initial storm as outlined on Figure 1.

2. Street improvements in the future should comply with the recommended cross section as shown on Figure C-7 to assure adequate street carrying capacity.

3. In the design and sizing a storm sewer system, all systems should collect and transport all runoff to the Arkansas River and allow no water to enter into any of the irrigation ditches crossing the City.

4. There are three possible alternatives to be considered in the East Canon area. 1) Abandon all irrigation laterals and improve existing ditches and culverts to handle only storm runoff. 2) Increase the size of culverts and ditches to handle both the irrigation water and storm water runoff. 3) Implement a dual system for transporting storm water runoff and irrigation water separately. Alternate 1 would be the most economical and present fewer problems when street pavement, curbs and gutters and a storm sewer system are constructed. Alternate 2 would not be economically feasible as street pavement, curbs and gutters and a storm sewer system were implemented. This alternative would be the least efficient and cause the most maintenance problems. Alternate 3 would allow storm water runoff to be transported to the storm sewer system and provide for the irrigation laterals. This alternate would also be the most expensive. See Figure 3 for alternate cross section.

5. After reviewing and verifying the findings in the report prepared for the Canon City Watershed by the Soil Conservation District in February, 1968, it is our recommendations that such a program be adopted to provide adequate protection from the major drainage runoff from the basins north of the City. This program included the construction of a flood retarding structure and channel improvements on the gulch running south from the Fruitland Ditch to the Arkansas River as shown on Figure No. 4.

6. It is recommended that the 5 year storm be adopted as the initial storm design criteria for designing and constructing the future

subsurface storm sewer system within the service area. It is also recommended that the 100 year storm be adopted as the criteria for designing and constructing major storm facilities.

7. The cost estimates for the recommended program are as follows:

Phase I	-	$ 3,344,790.00
Phase II	-	2,400,000.00
Phase III	-	1,741,465.00
Phase IV	-	1,527,212.00
TOTAL COST		$ 9,013,467.00

The above cost estimates are based upon present day prices and include an allowance for contingencies and engineering. Land, right-of-way, and easement costs are not included as well as legal fees and court costs.

New storm sewer system and drainage facilities shall be paid for by the developer.

8. To implement the recommendations made in this report, the City should take the following actions in the near future.

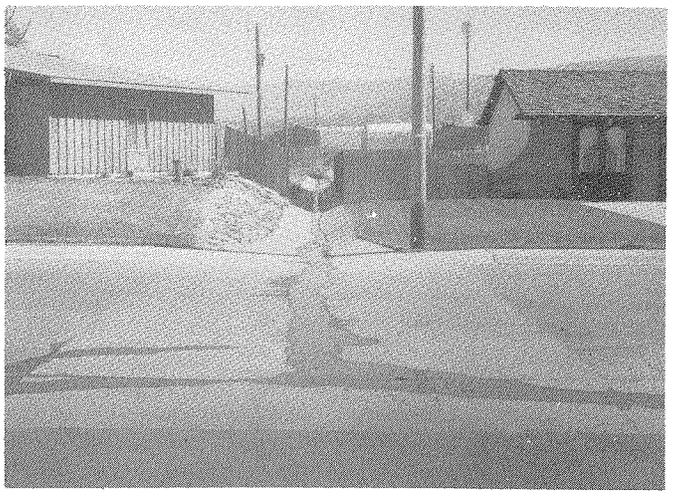
   a. Purchase, or obtain an option to purchase the lands necessary for the recommended facilities.

   b. Start final design on the first phases of the recommendations set forth in this report.

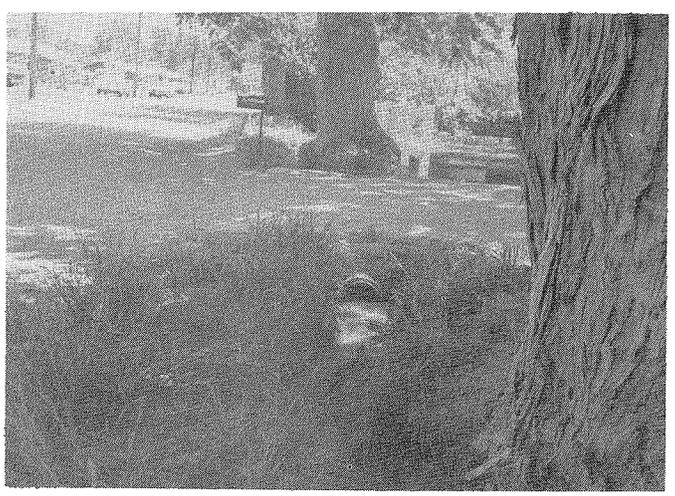
   c. Immediately implement the drainage criteria on new development to prevent additional drainage to be added to the existing drainage problems.

AREA DESCRIPTION

The service area of the report encompasses Canon City, East Canon, and the undeveloped contiguous areas from Skyline Drive on the west to the eastern

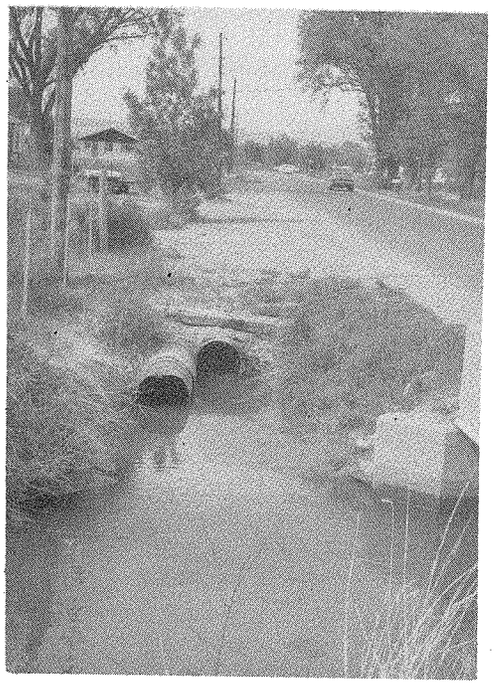


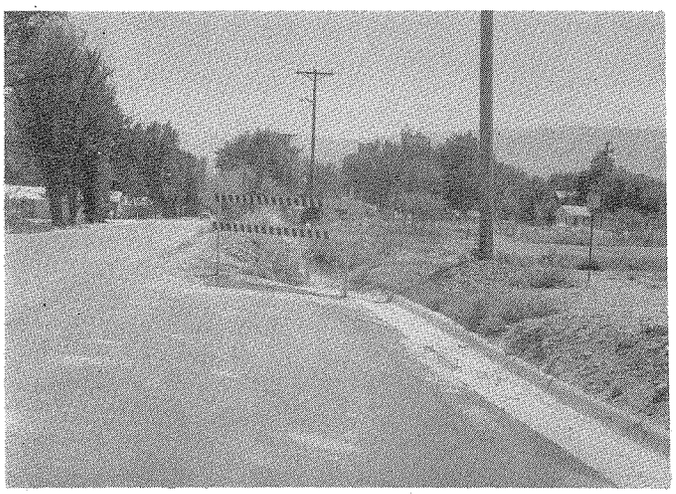
The existing outlet draining directly into the Hydraulic Ditch at Ohio Avenue and Barr Avenue.



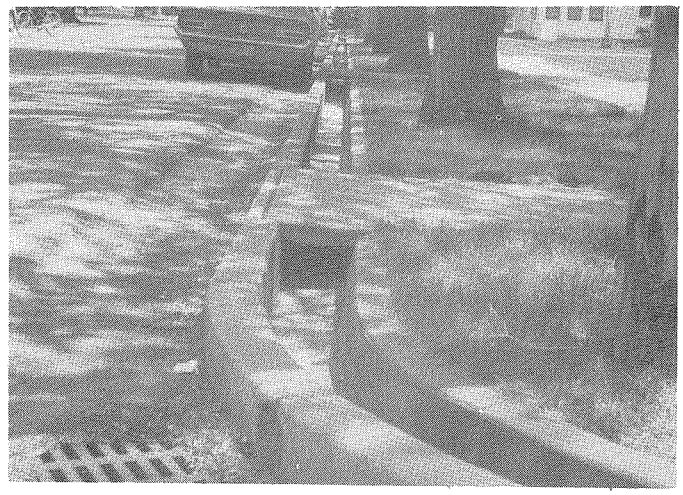
Example of the conditions of road side ditches used for transporting irrigation and restricting storm runoff carrying capacity.

The existing outlet draining directly into the Hydraulic Ditch along Orchard Avenue.

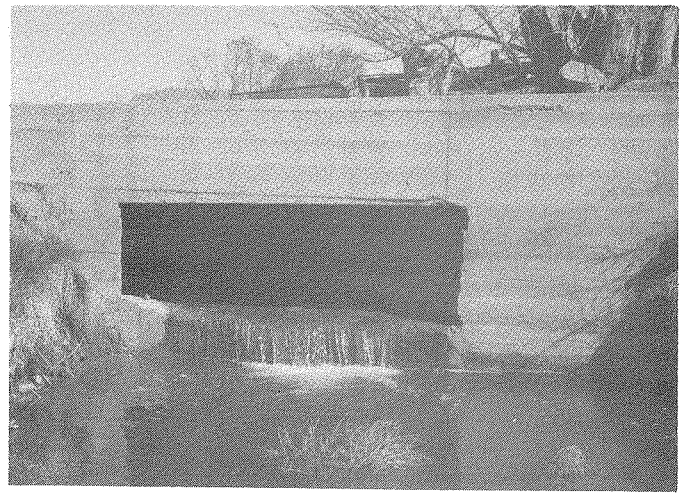




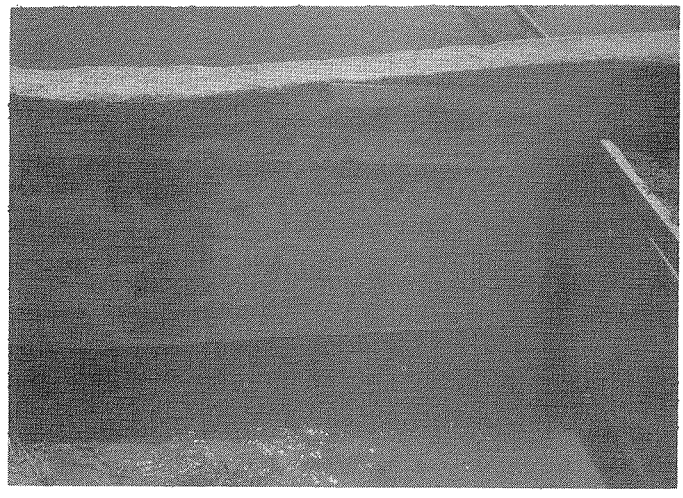
The existing outlet draining directly into the Fruitland Ditch at 9th Street and Candlewood Road.



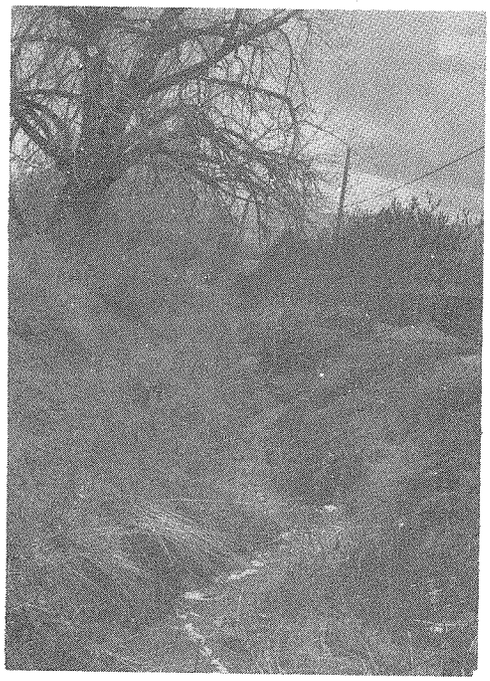
Example of a dual storm and irrigation collection and transport system. Taken in Florence, Colorado.



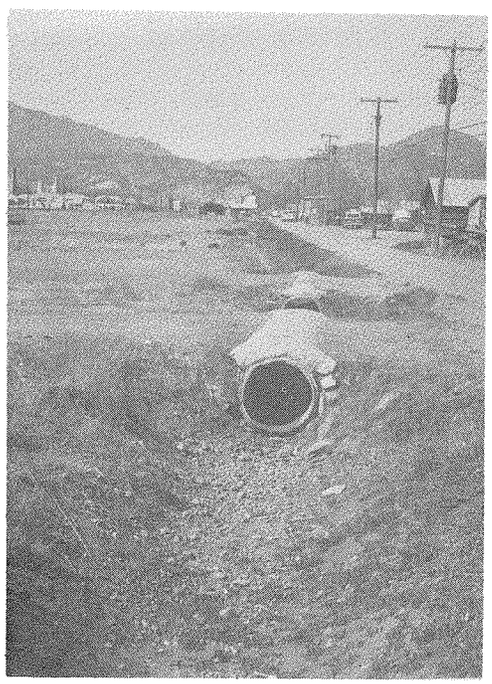
The concrete box culvert outlet at Frazier and the Arkansas River. Existing outlet near the C1-F floodway extension.



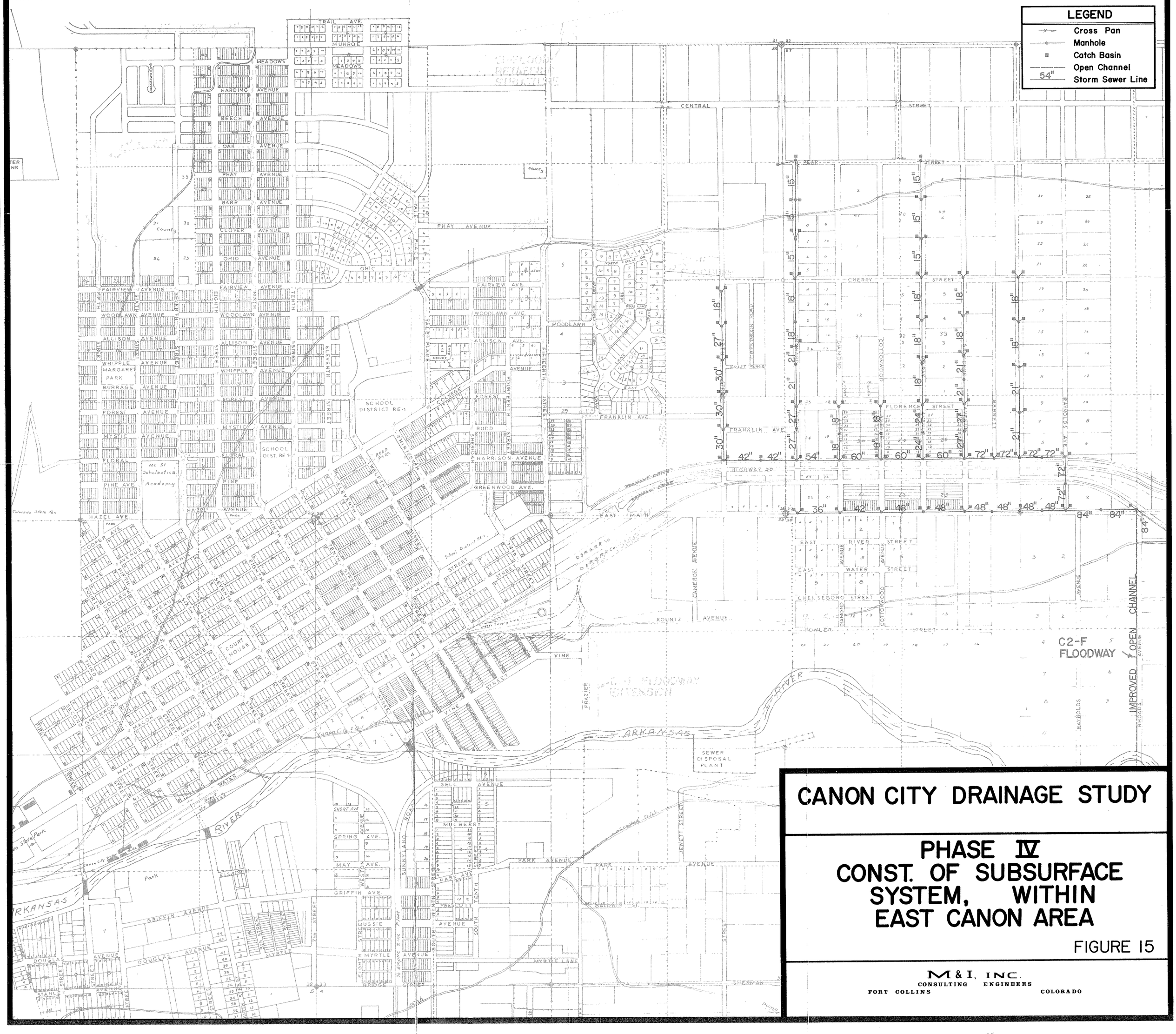
The restricted crossing of the major drainage C1-F floodway beneath the Hydraulic Ditch.



Existing C1-F floodway south of the Hydraulic Ditch.



Existing C3-F floodway south of Water Street.

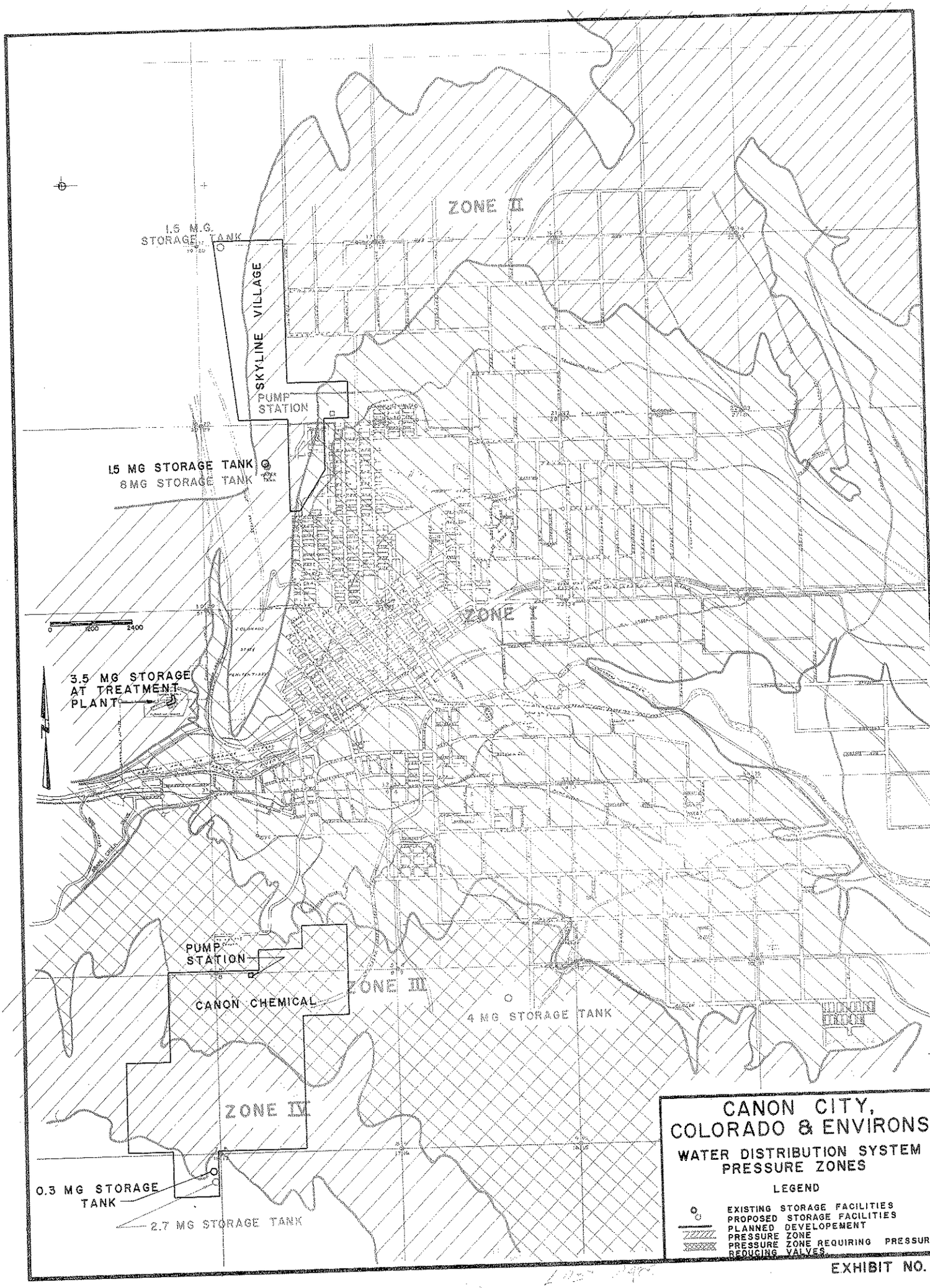


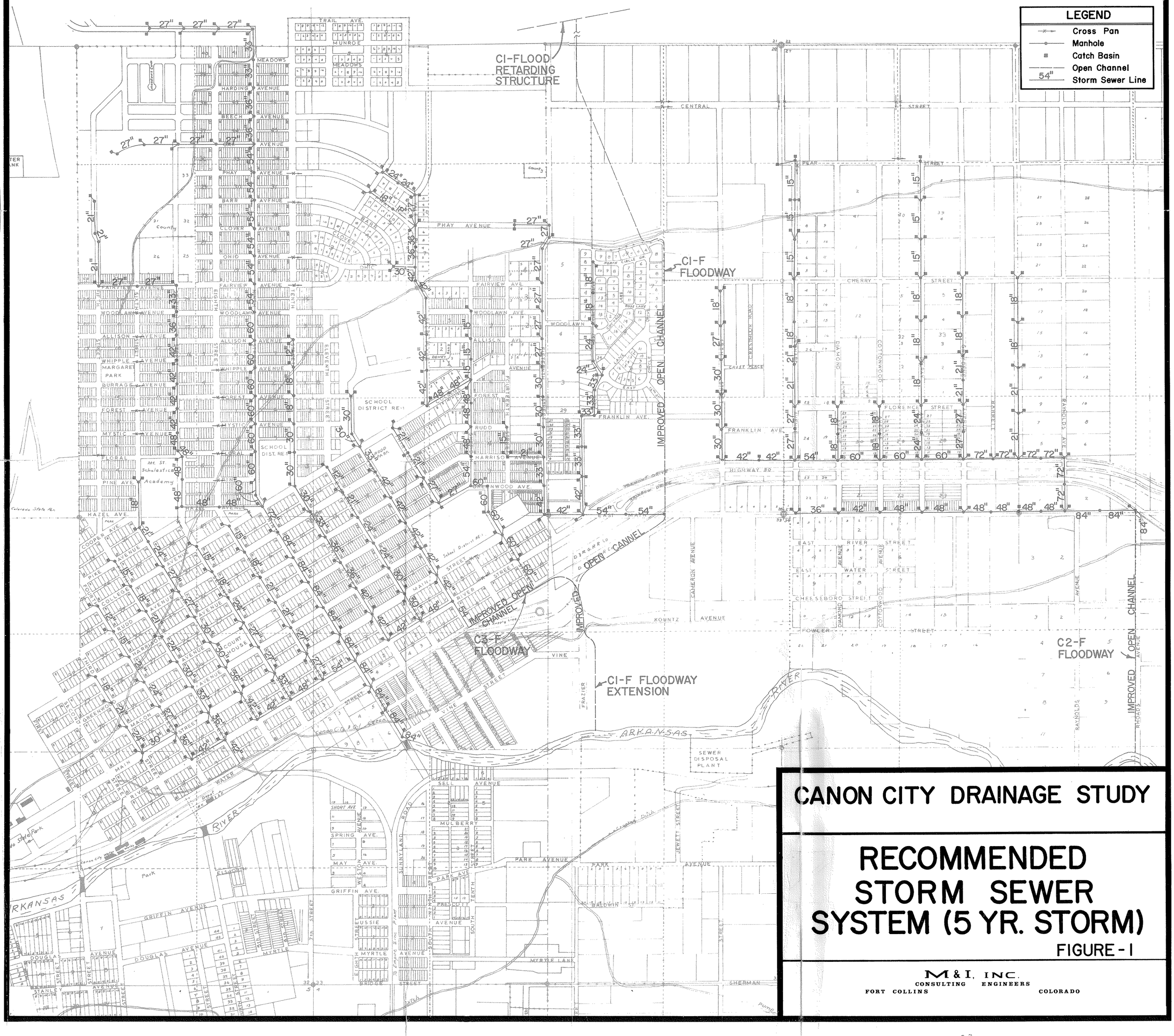
CANON CITY DRAINAGE STUDY

PHASE IV
CONST. OF SUBSURFACE SYSTEM, WITHIN EAST CANON AREA

FIGURE 15

M&I, INC.
CONSULTING ENGINEERS
FORT COLLINS COLORADO


ZONE II
1.5 M.G. STORAGE TANK
SKYLINE VILLAGE
PUMP STATION
1.5 MG STORAGE TANK
8MG STORAGE TANK
ZONE I
0
1200
2400
3.5 MG STORAGE AT TREATMENT PLANT
PUMP STATION
CANON CHEMICAL
ZONE III
4 MG STORAGE TANK
ZONE IV
0.3 MG STORAGE TANK
2.7 MG STORAGE TANK
CANON CITY, COLORADO & ENVIRONS
WATER DISTRIBUTION SYSTEM PRESSURE ZONES
LEGEND
EXISTING STORAGE FACILITIES
PROPOSED STORAGE FACILITIES
PLANNED DEVELOPEMENT
PRESSURE ZONE
PRESSURE ZONE REQUIRING PRESSURE REDUCING VALVES
EXHIBIT NO. 1

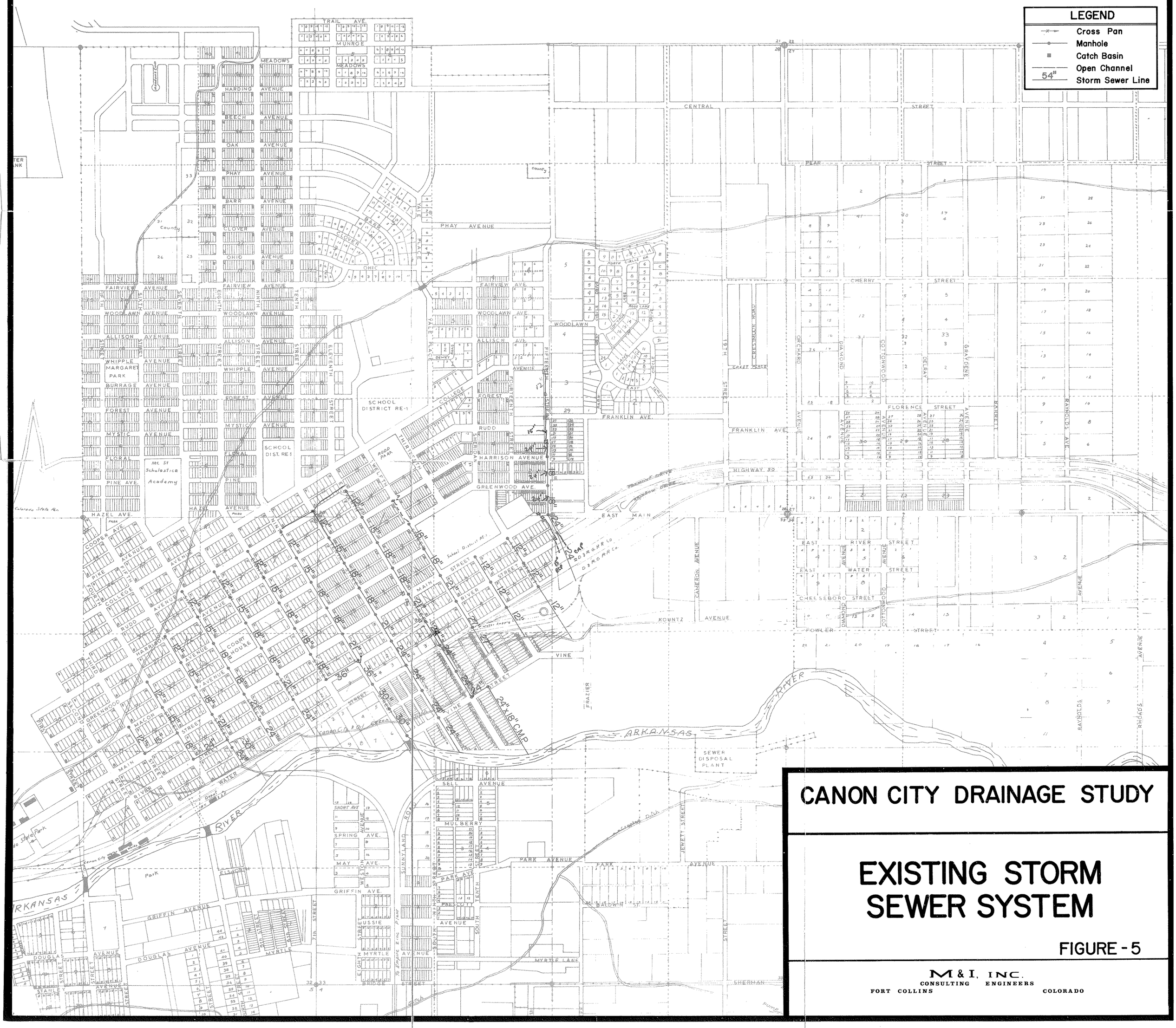


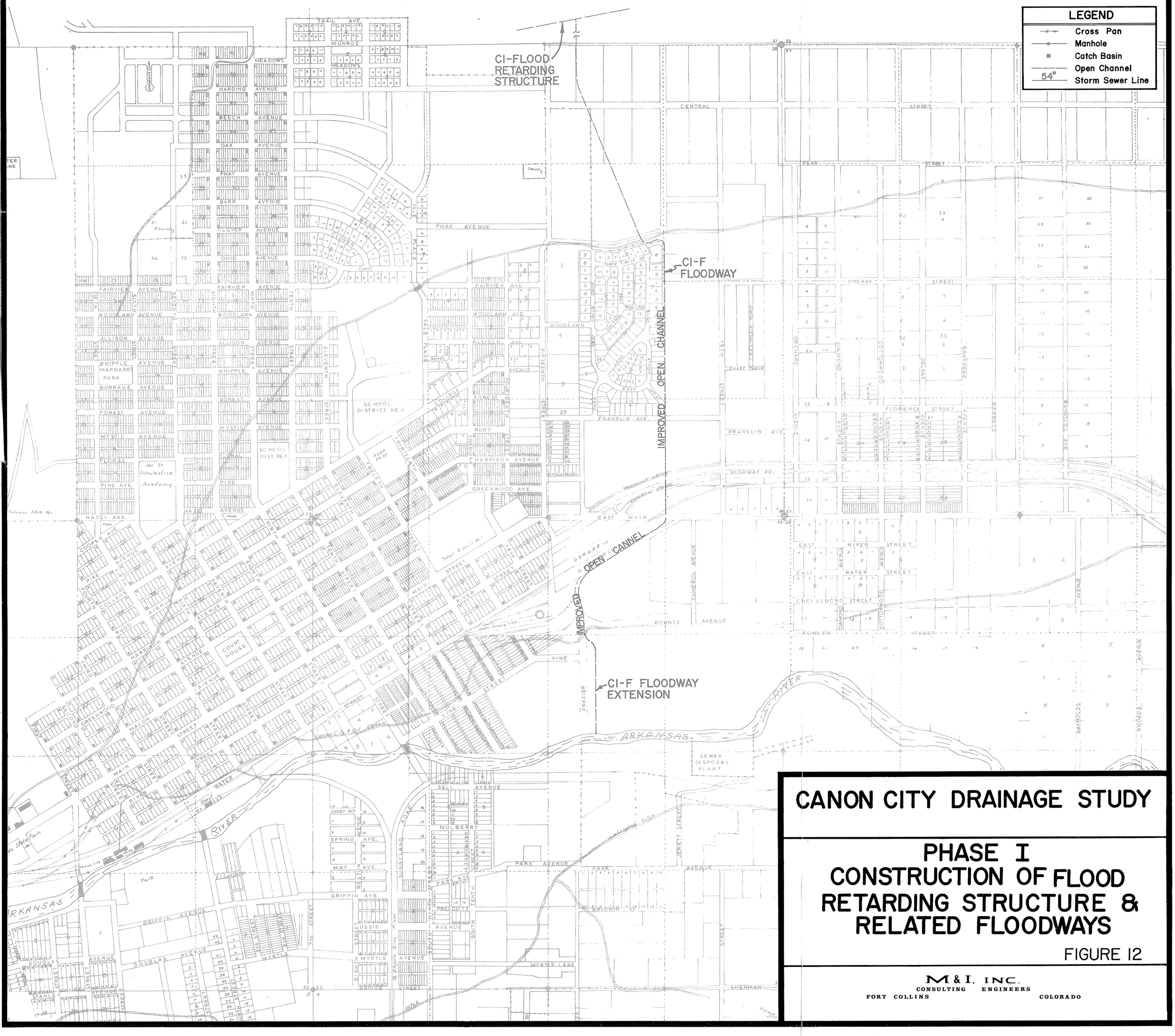
CANON CITY DRAINAGE STUDY

RECOMMENDED STORM SEWER SYSTEM (5 YR. STORM)

FIGURE - 1

M&I, INC.
CONSULTING ENGINEERS
FORT COLLINS COLORADO


LEGEND
Cross Pan
Manhole
Catch Basin
Open Channel
54" Storm Sewer Line
CANON CITY DRAINAGE STUDY
EXISTING STORM SEWER SYSTEM
FIGURE - 5
M&I, INC.
CONSULTING ENGINEERS
FORT COLLINS COLORADO
ARKANSAS RIVER
SCHOOL DISTRICT RE-1
Mt. St Scholastica Academy
COURT HOUSE
SEWER DISPOSAL PLANT
MARGARET PARK
RUDD PARK
Canon City Water Supply
Canon City & Oil Creek
Colorado State Pen
Depot
Park
Empire Zinc Plant
Arkansas Valley Ditch
24" x 18" CMP
D&RGRR Co.
MEADOWS
HARDING AVENUE
BEECH AVENUE
OAK AVENUE
PHAY AVENUE
BARR AVENUE
CLOVER AVENUE
OHIO AVENUE
FAIRVIEW AVENUE
WOODLAWN AVENUE
ALLISON AVENUE
WHIPPLE AVENUE
BURRAGE AVENUE
FOREST AVENUE
MYSTIC AVENUE
FLORAL AVENUE
PINE AVENUE
HAZEL AVE.
COOPER AVE.
GREENWOOD AVE.
HARRISON AVENUE
RUDD STREET
COLLEGE AVENUE
MAIN STREET
RIVER STREET
WATER STREET
VINE STREET
FRANKLIN AVE.
EAST MAIN
HIGHWAY 50
CENTRAL STREET
PEAR STREET
CHERRY STREET
FLORENCE AVENUE
EAST RIVER STREET
EAST WATER STREET
CHEESEBORO STREET
FOWLER STREET
KOUNTZ AVENUE
CAMERON AVENUE
FRAZIER
SELL AVENUE
MULBERRY
SPRING AVE.
MAY AVE.
GRIFFIN AVENUE
DOUGLAS AVENUE
STANLEY AVENUE
MYRTLE AVENUE
PARK AVENUE
BALDWIN ST.
SHERMAN
MYRTLE LANE
PRESCOTT AVENUE
SOUTH TENTH STREET
SUNNYLAND ROAD
JEWETT STREET
ELSWORTH
GRIFFIN AVENUE
SHORT AVE
WESTON AVENUE
EUSSIE STREET
BRIDGE STREET
RAYNOLDS AVENUE
RHOADS AVENUE
ORCHARD AVENUE
DIAMOND AVENUE
COTTONWOOD AVENUE
DELRAY AVENUE
GRAY DENE AVENUE
BARRETT AVENUE
RAINBOW DRIVE
PARADISE DRIVE
NORTH CIRCLE DR.
EAST CIRCLE DR.
ROSE LANE
DEWEY PLACE
YALE PLACE
TRAIL AVE.
MUNROE
FIFTEENTH STREET
FOURTEENTH STREET
THIRTEENTH STREET
TWELFTH STREET
ELEVENTH STREET
NINTH STREET
EIGHTH STREET
SEVENTH STREET
SIXTH STREET
FIFTH STREET
FOURTH STREET
THIRD STREET
SECOND STREET
FIRST STREET
19TH STREET
EAST MAIN STREET
EAST WATER STREET
EAST RIVER STREET
EAST CIRCLE DR.
NORTH CIRCLE DR.
ROSE LANE
DEWEY PLACE
YALE PLACE
PHAY AVENUE
FRANKLIN AVE.
HAZEL AVE.
GREENWOOD AVE.
VINE STREET
MULBERRY
GRIFFIN AVENUE
DOUGLAS AVENUE
STANLEY AVENUE
MYRTLE AVENUE
PARK AVENUE
BALDWIN ST.
SHERMAN
MYRTLE LANE
PRESCOTT AVENUE
SOUTH TENTH STREET
SUNNYLAND ROAD
JEWETT STREET
ELSWORTH
GRIFFIN AVENUE
SHORT AVE
WESTON AVENUE
EUSSIE STREET
BRIDGE STREET
RAYNOLDS AVENUE
RHOADS AVENUE
ORCHARD AVENUE
DIAMOND AVENUE
COTTONWOOD AVENUE
DELRAY AVENUE
GRAY DENE AVENUE
BARRETT AVENUE
RAINBOW DRIVE
PARADISE DRIVE
NORTH CIRCLE DR.
EAST

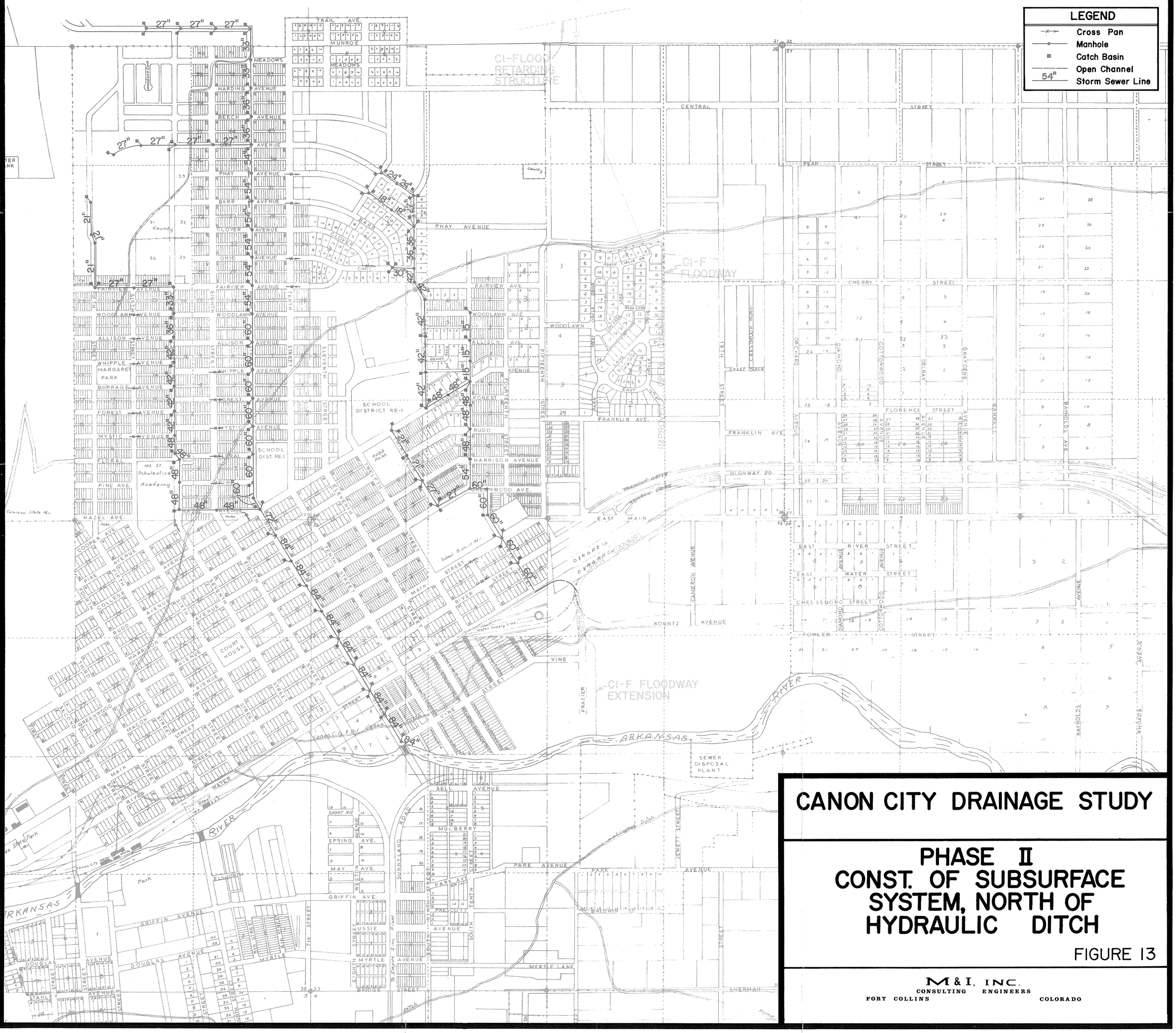


CANON CITY DRAINAGE STUDY

PHASE I
CONSTRUCTION OF FLOOD RETARDING STRUCTURE & RELATED FLOODWAYS

FIGURE 12

M&I, INC.
CONSULTING ENGINEERS
FORT COLLINS COLORADO

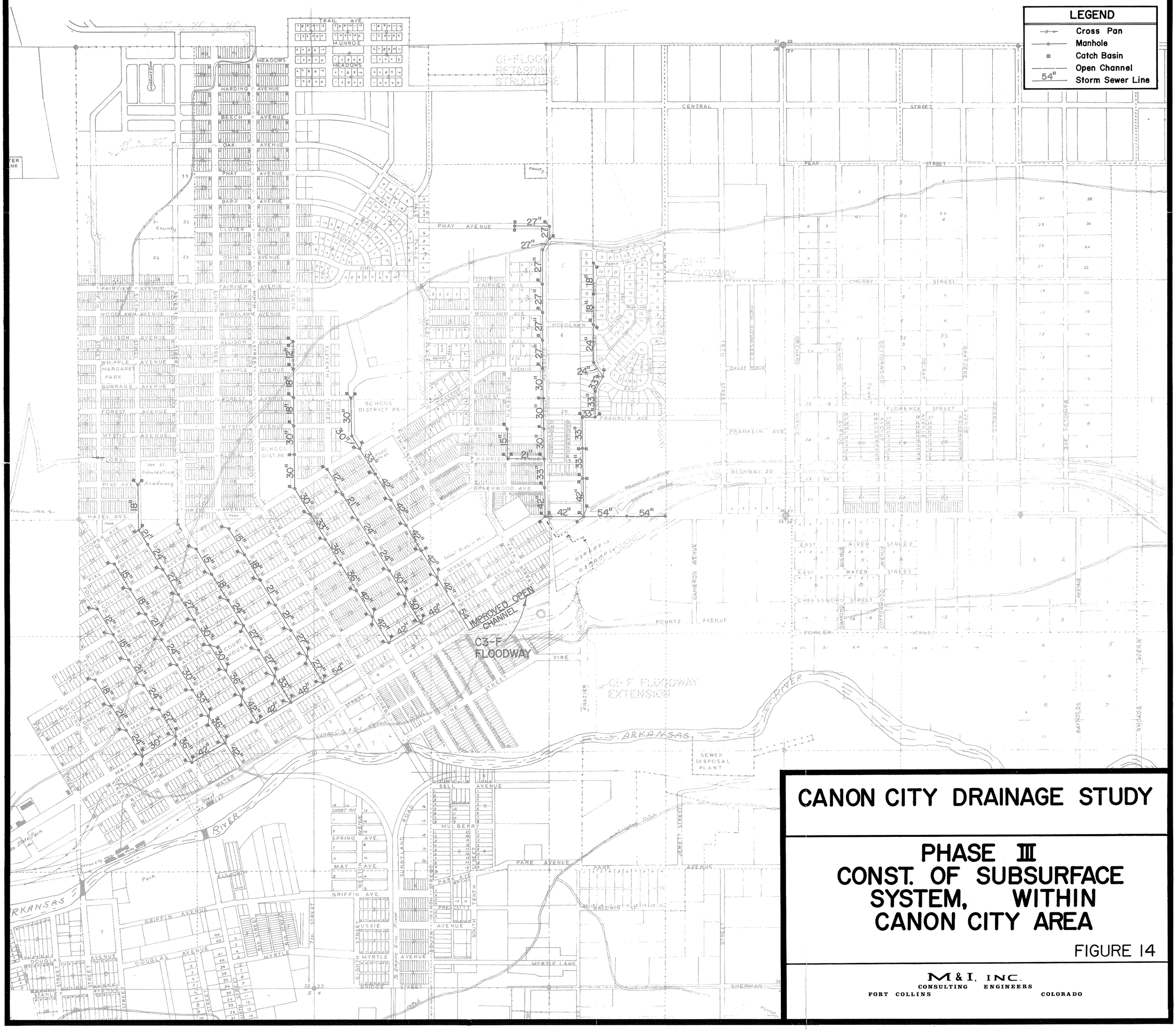


CANON CITY DRAINAGE STUDY

PHASE II
CONST. OF SUBSURFACE SYSTEM, NORTH OF HYDRAULIC DITCH

FIGURE 13

M&I, INC.
CONSULTING ENGINEERS
FORT COLLINS COLORADO



CANON CITY DRAINAGE STUDY

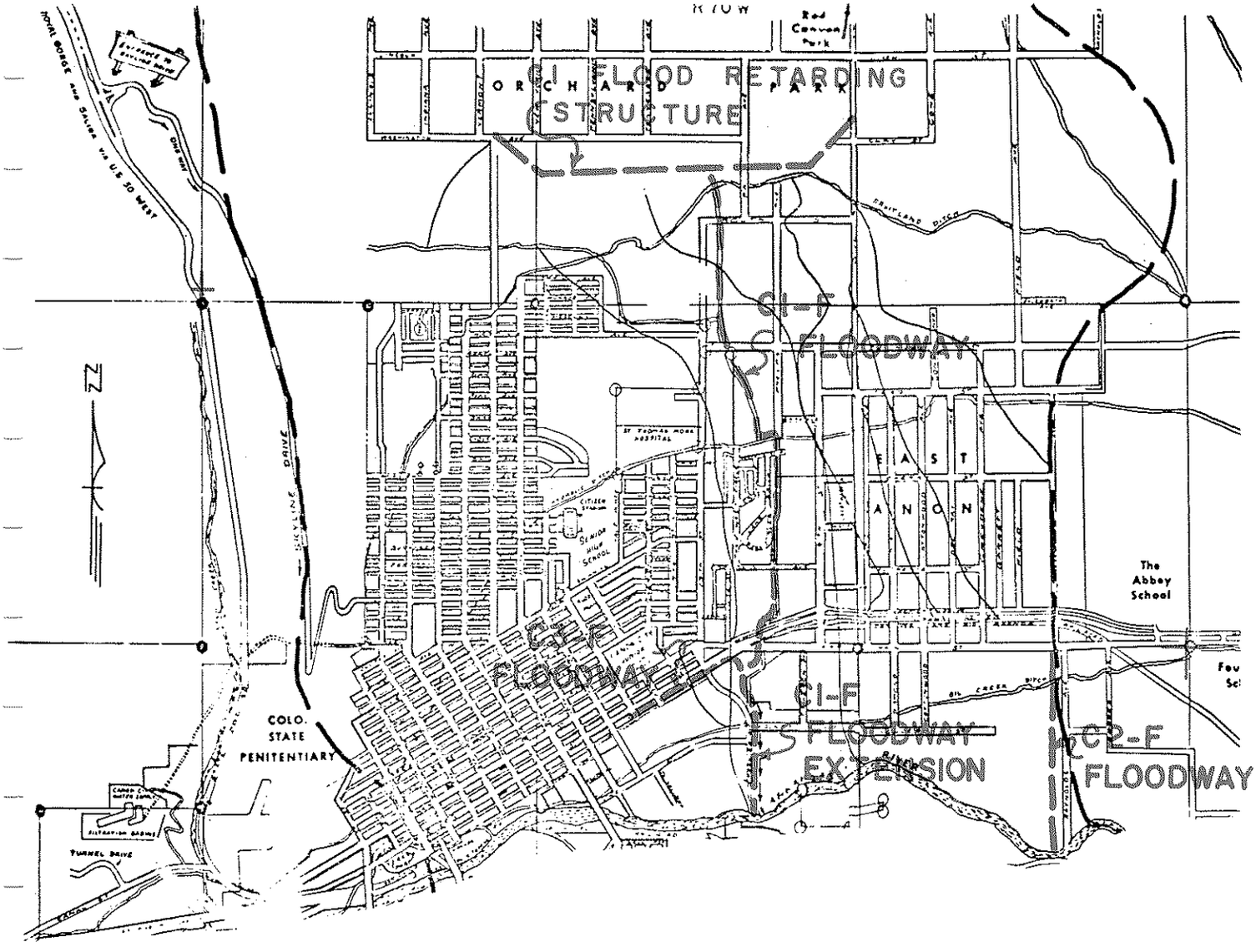
PHASE III
CONST. OF SUBSURFACE SYSTEM, WITHIN CANON CITY AREA

FIGURE 14

M&I, INC.
CONSULTING ENGINEERS
FORT COLLINS COLORADO

FLOODWAY MAP

C1-F, C2-F & C3-F



CANON WATERSHED

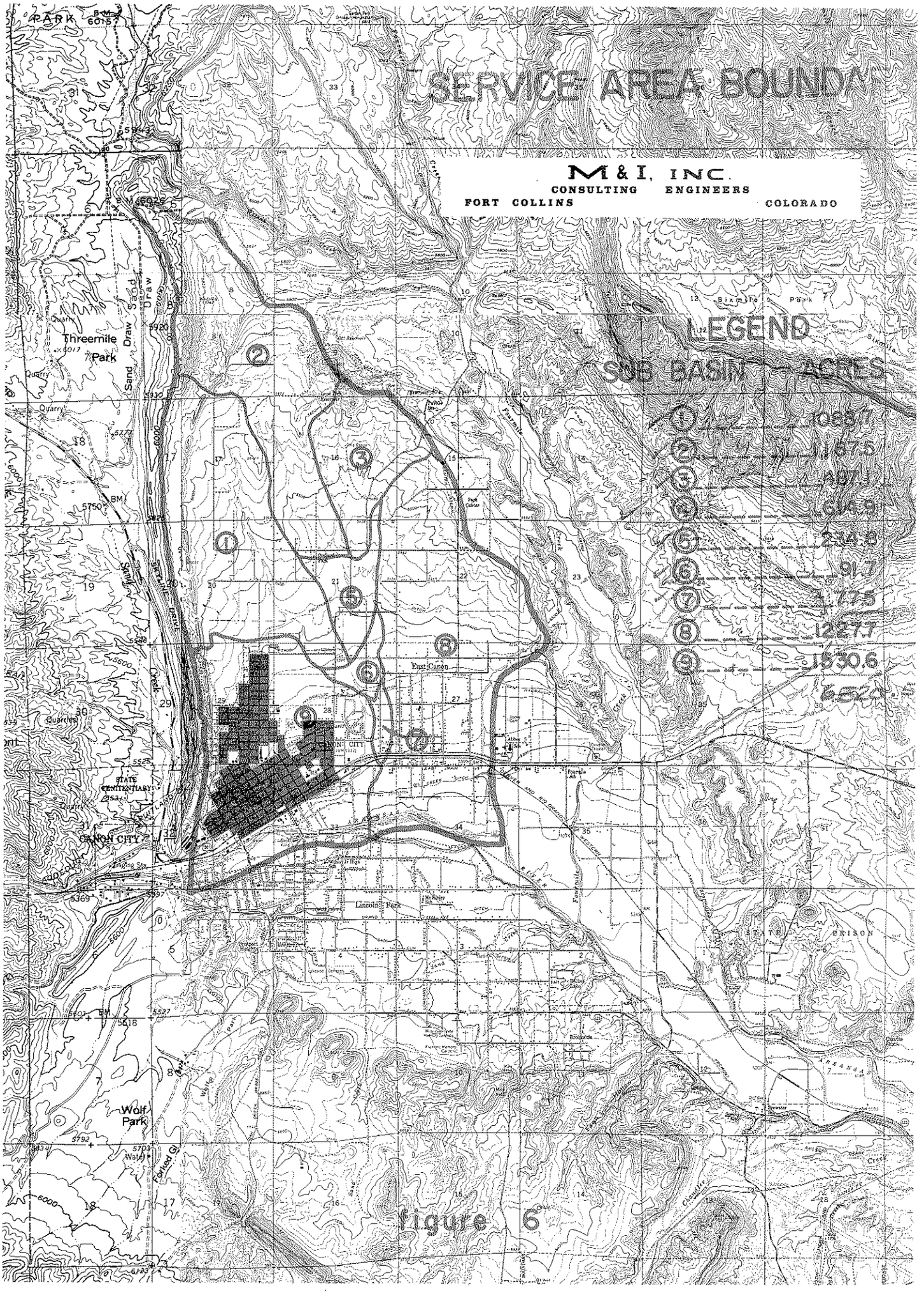
FREMONT COUNTY, COLORADO

0 1/4 1/2 3/4 1

SCALE IN MILES

M & I, INC.
CONSULTING ENGINEERS
FORT COLLINS COLORADO

figure 4


SERVICE AREA BOUNDARY
M&I, INC.
CONSULTING ENGINEERS
FORT COLLINS COLORADO
LEGEND
SUB BASIN ACRES
1 1083.1
2 1675
3 497.1
4 640.9
5 234.8
6 91.7
7 775
8 1277
9 1530.6
CANON CITY
STATE PENITENTIARY
Lincoln Park
Wolf Park
Threemile Park
Sand Draw
East Canon
Fourmile Creek
Figure 6

ORCHARD AVENUE

DRAINAGE BASIN PLANNING STUDY

FOR

CANON CITY, COLORADO

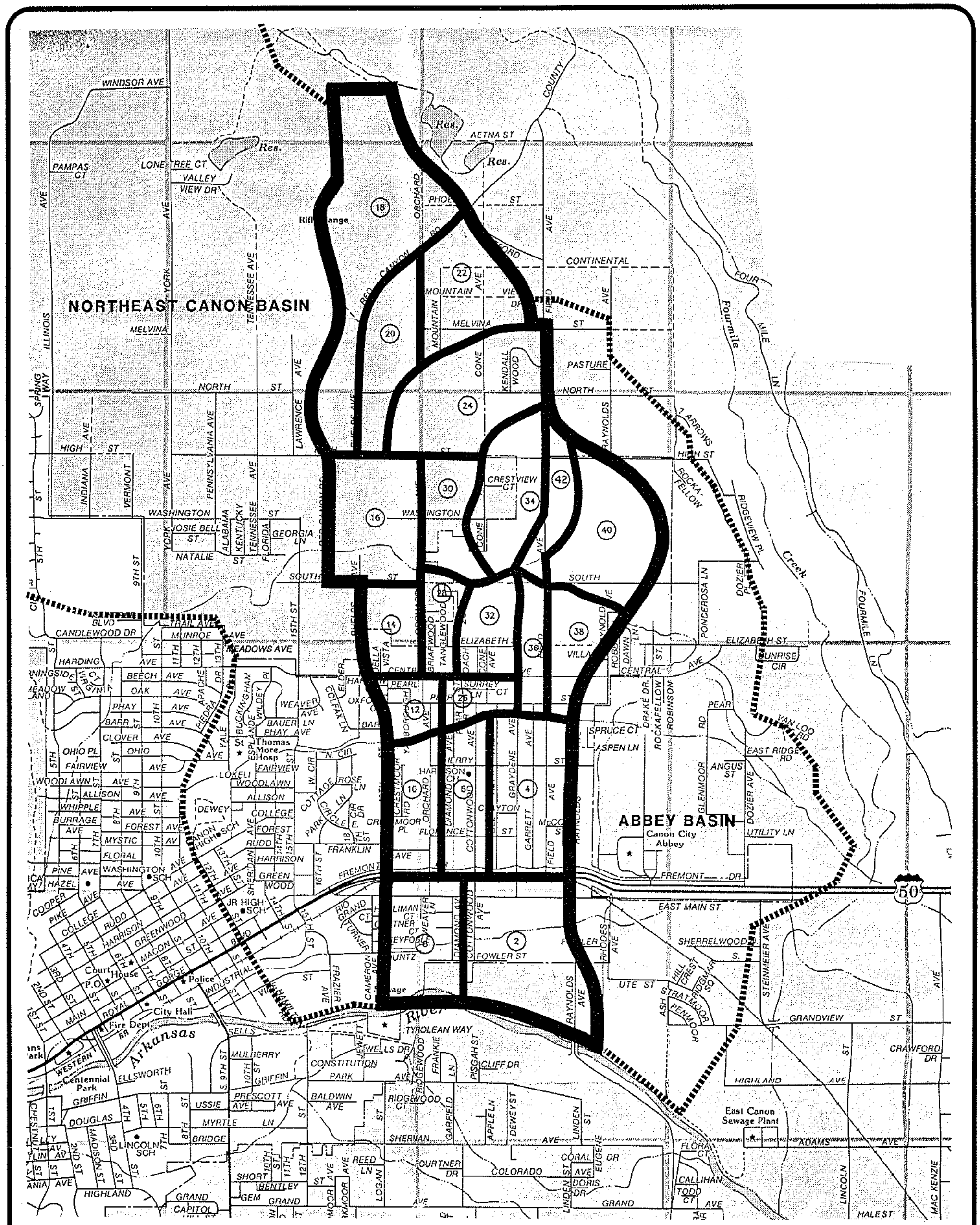
PREPARED BY:

GRAEF, ANHALT, SCHLOEMER
& ASSOCIATES INC.
102 EAST PIKES PEAK AVENUE
SUITE 305
COLORADO SPRINGS, CO 80903

November, 1994
Job No. 94121001.drn

GRAEF
ANHALT
SCHLOEMER
and ASSOCIATES

ENGINEERS & SCIENTISTS



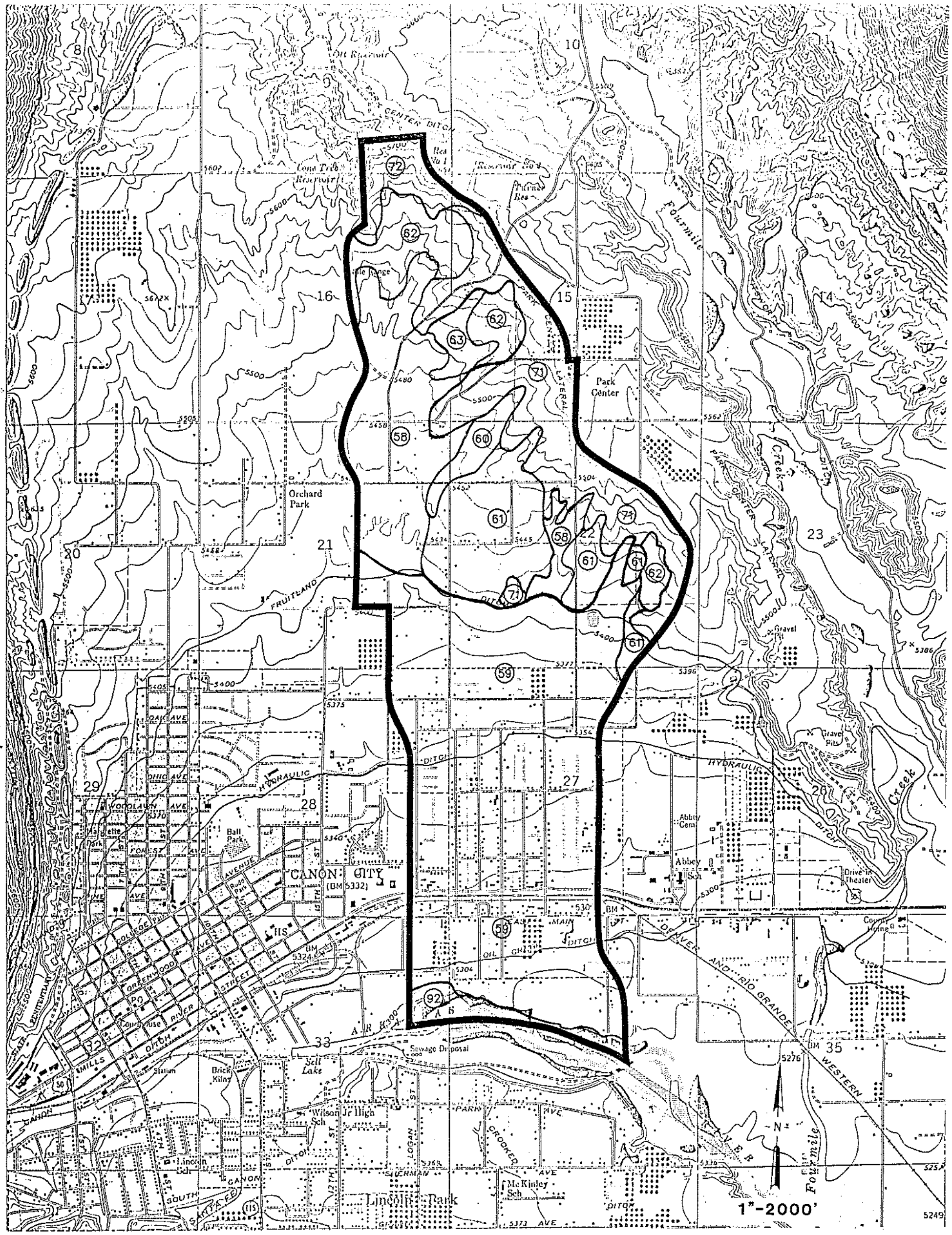
ORCHARD AVE. DRAINAGE BASIN PLANNING STUDY	
BASIN MAP	
DESIGNED BY: **MAB**	DRAWN BY: **JJW**
CHECKED BY: **JRW**	DATE: **12/2/94**
FILE NO: **941210**	

PREPARED BY:

GRAEF ANHALT SCHLOEMER *and ASSOCIATES*

ENGINEERS & SCIENTISTS

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Colorado Springs, CO. 80903
(719)634-6902 TEL.
(719)634-0660 FAX



SOIL NO.	HYDROLOGIC GROUP
58	C
59	D
60	D
61	C
62	C
63	D
71	D
72	D
92	D

ORCHARD AVE. DRAINAGE BASIN PLANNING STUDY

SOILS MAP

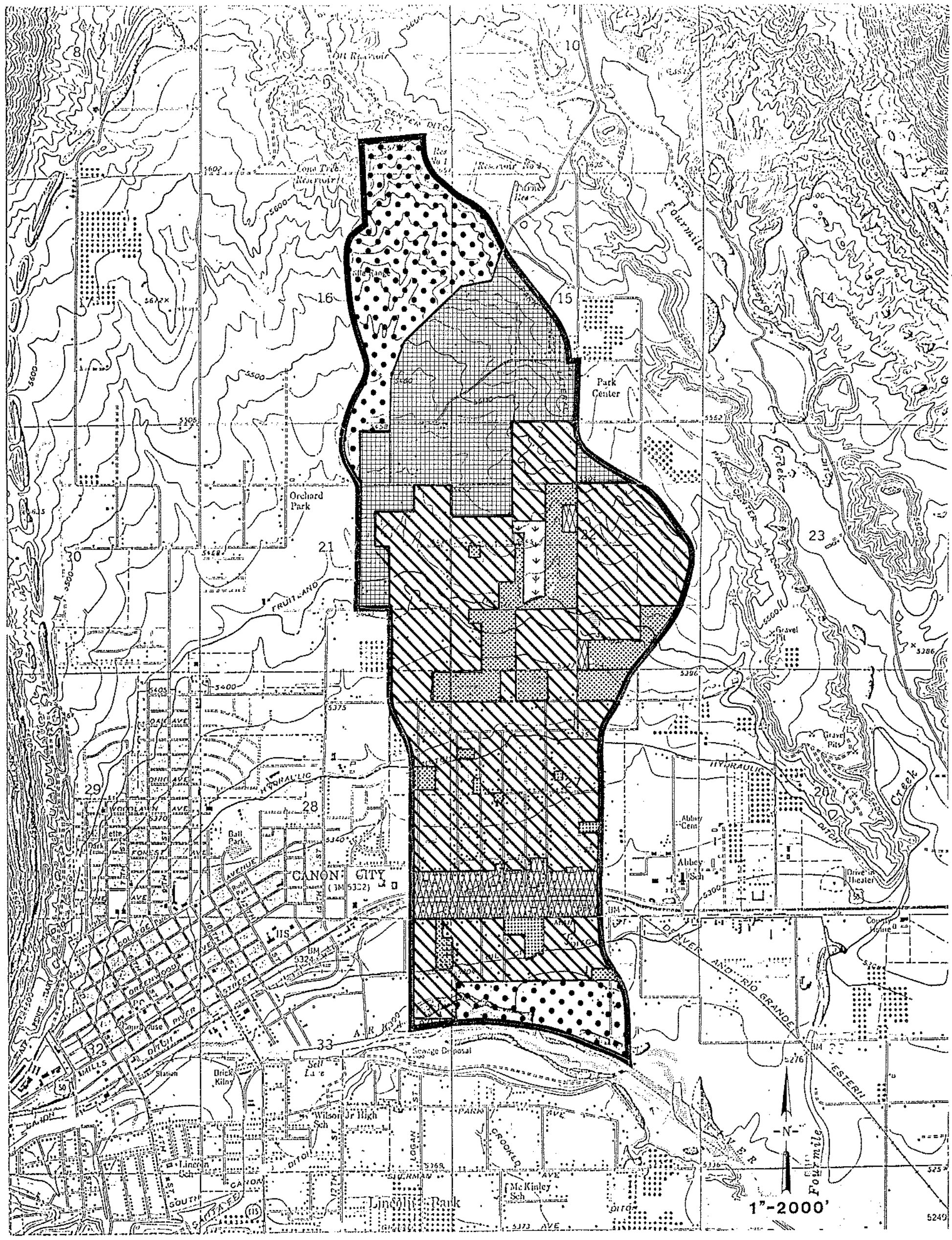
DESIGNED BY:	DRAWN BY:
MAB	JJW
CHECKED BY:	DATE:
JRW	7/20/94
FILE NO:	
941210	

PREPARED BY:

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LEGEND

- AGRICULTURAL
- ESTATE > 1 AC LOTS
- SINGLE FAM < 6 DU/AC
- MULTI-FAM
- LIGHT INDUSTRIAL
- COMMERCIAL
- PARK

ORCHARD AVE. DRAINAGE BASIN PLANNING STUDY

LAND USE MAP

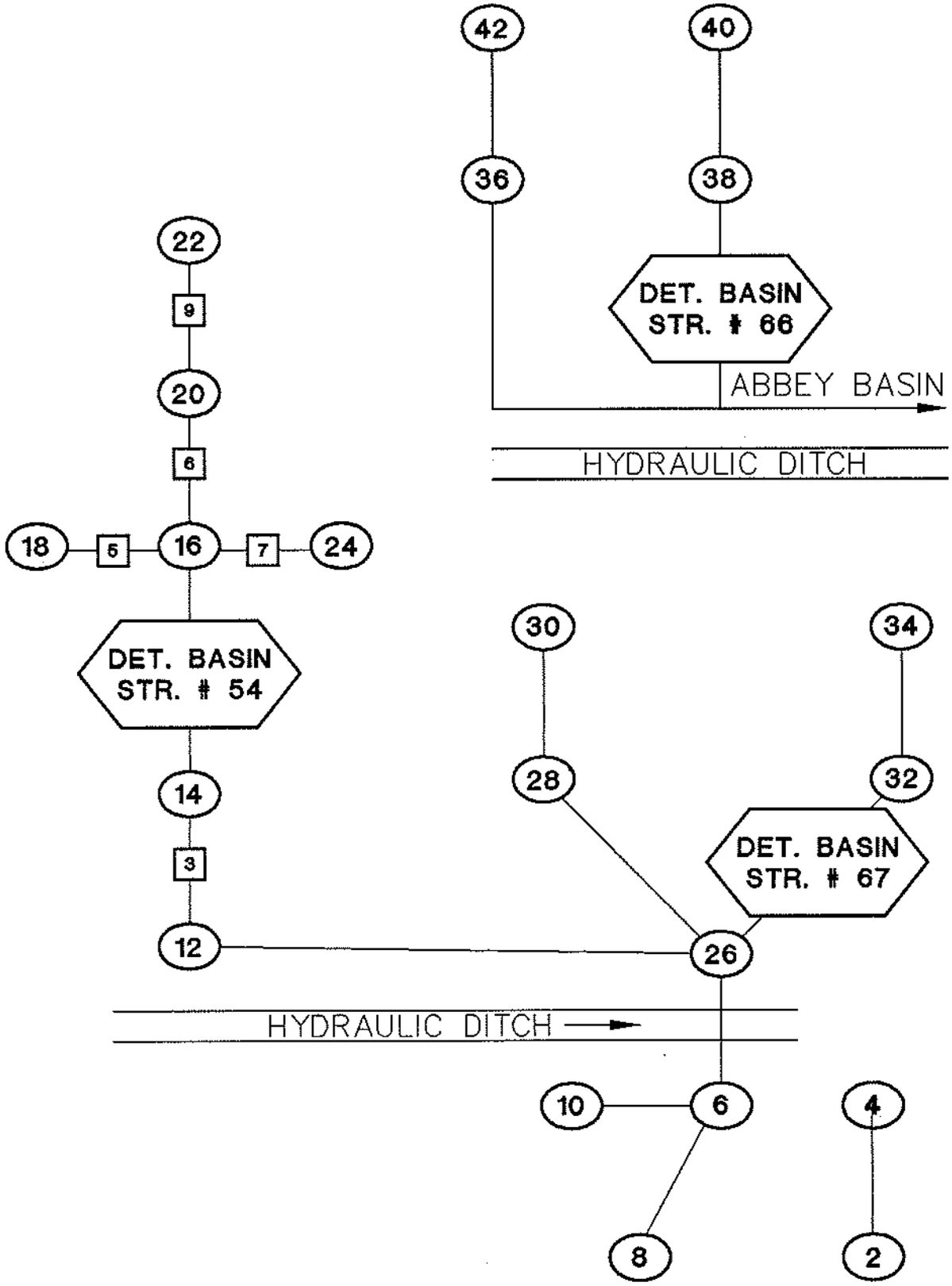
DESIGNED BY:	DRAWN BY:
MAB	JJW
CHECKED BY:	DATE:
JRW	7/20/94
FILE NO:	
941210	

PREPARED BY:

GRAEF ANHALT SCHLOEMER *and ASSOCIATES*

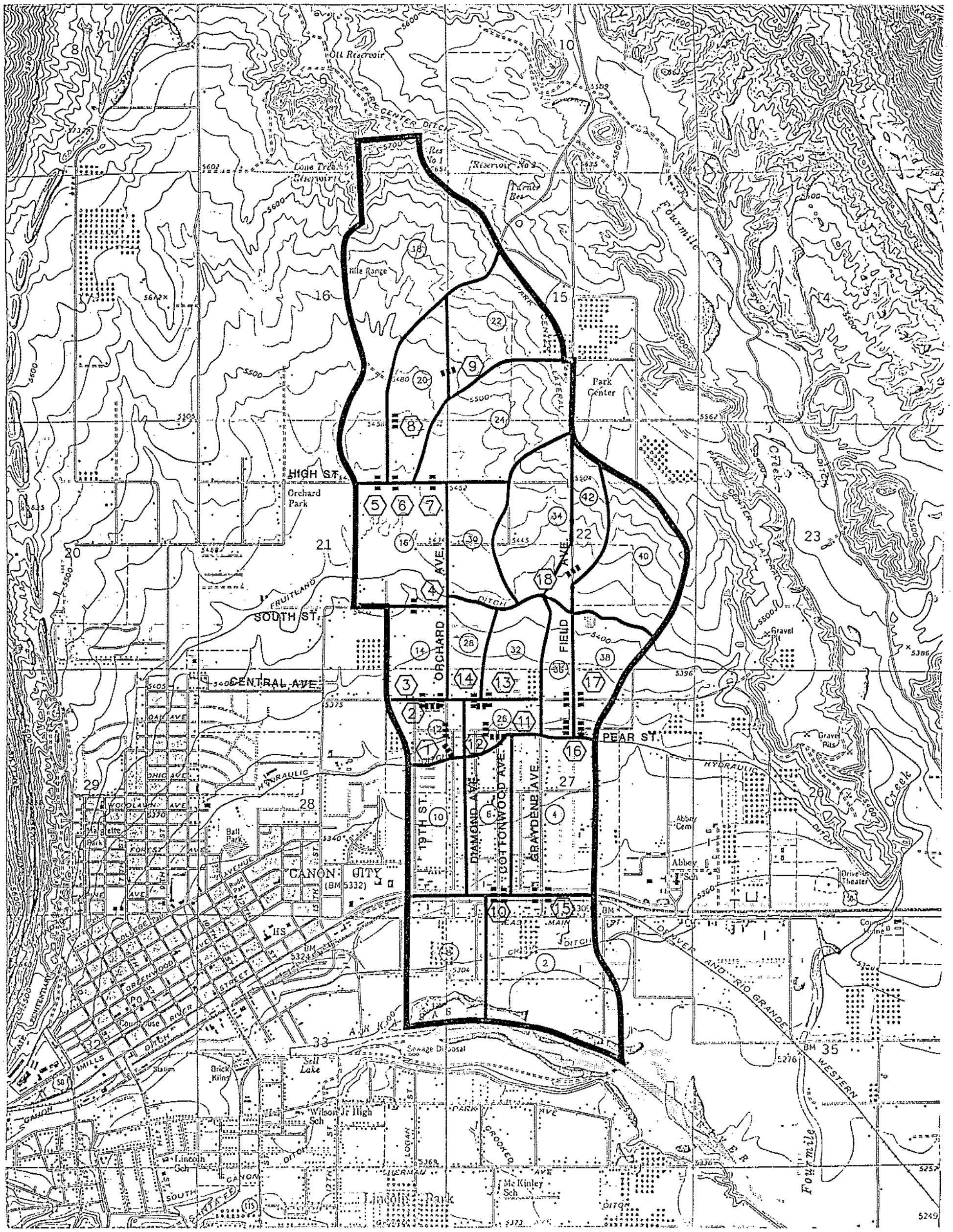
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Colorado Springs, CO. 80903
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(719)634-0560 FAX



ORCHARD AVE.
DRAINAGE BASIN
TR-20 FLOW DIAGRAM
FUTURE CONDITIONS

FLOW2.DWG



STRUC NO.	STRUCTURE SIZE	STRUC NO.	STRUCTURE SIZE	STRUC NO.	STRUCTURE SIZE
1	43"X27" CMP	7	29"X18" CMP	14	12" CMP
2	2-30"CMP	8	43"X27" CMP	15	2-12"CMP
3A	48" CMP	9	18" CMP	16A	18" CMP
3B	29"X18" CMP				
3C	36"X22" CMP	10	2-12"CMP	16B	18" CMP
4	60" CMP	11	15" CMP	17A	29"X18" CMP
5	50"X31" CMP	12	18" CMP	17B	29"X18" CMP
6	30" CMP	13	18" CMP	18	22"X13" CMP

ORCHARD AVE. DRAINAGE BASIN PLANNING STUDY

EXISTING STRUCTURES

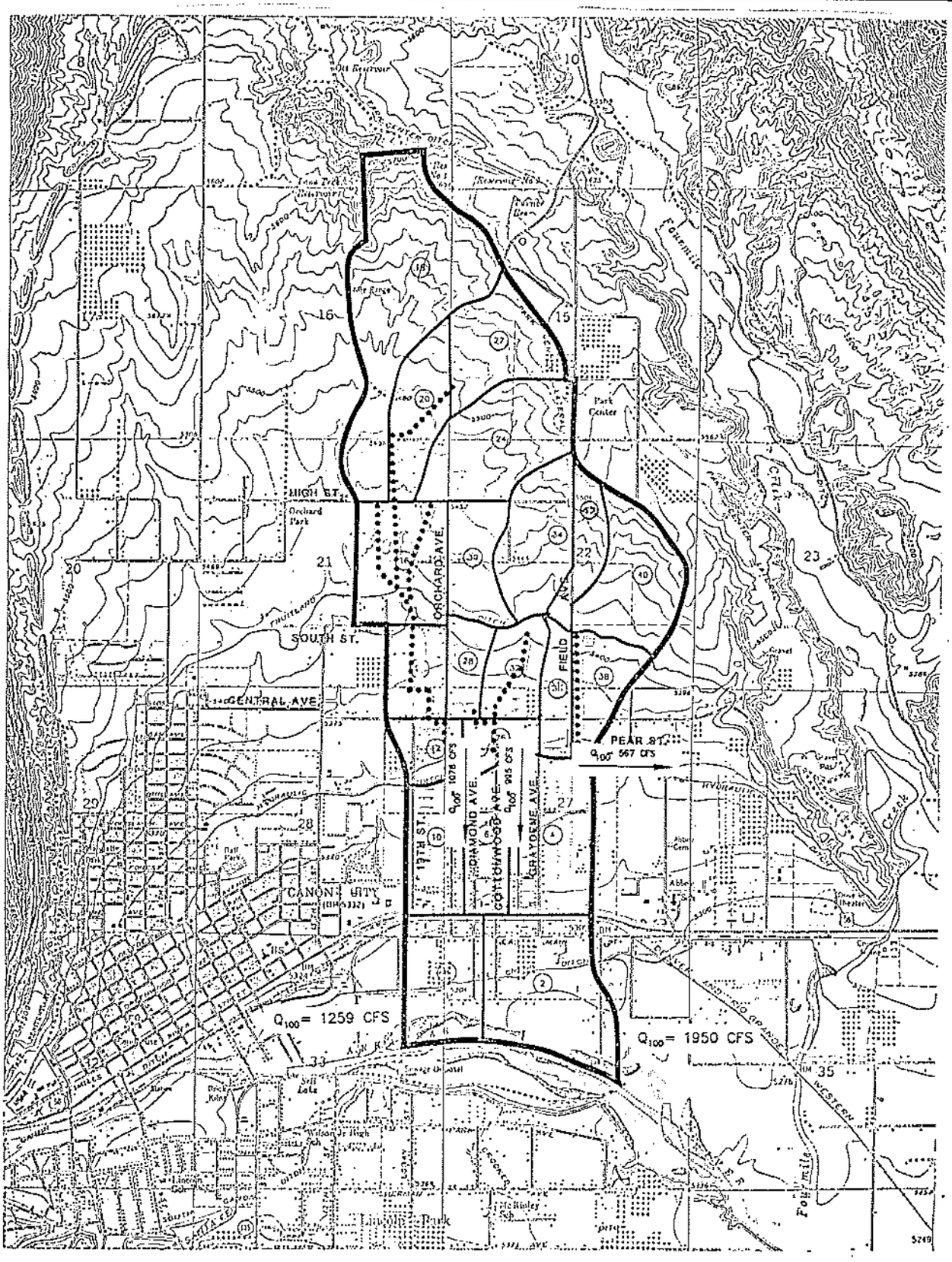
DESIGNED BY:	DRAWN BY:
MAB	JJW
CHECKED BY: JRW	DATE: 12/2/94
FILE NO: 941210	

PREPARED BY:

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Colorado Springs, CO. 80903
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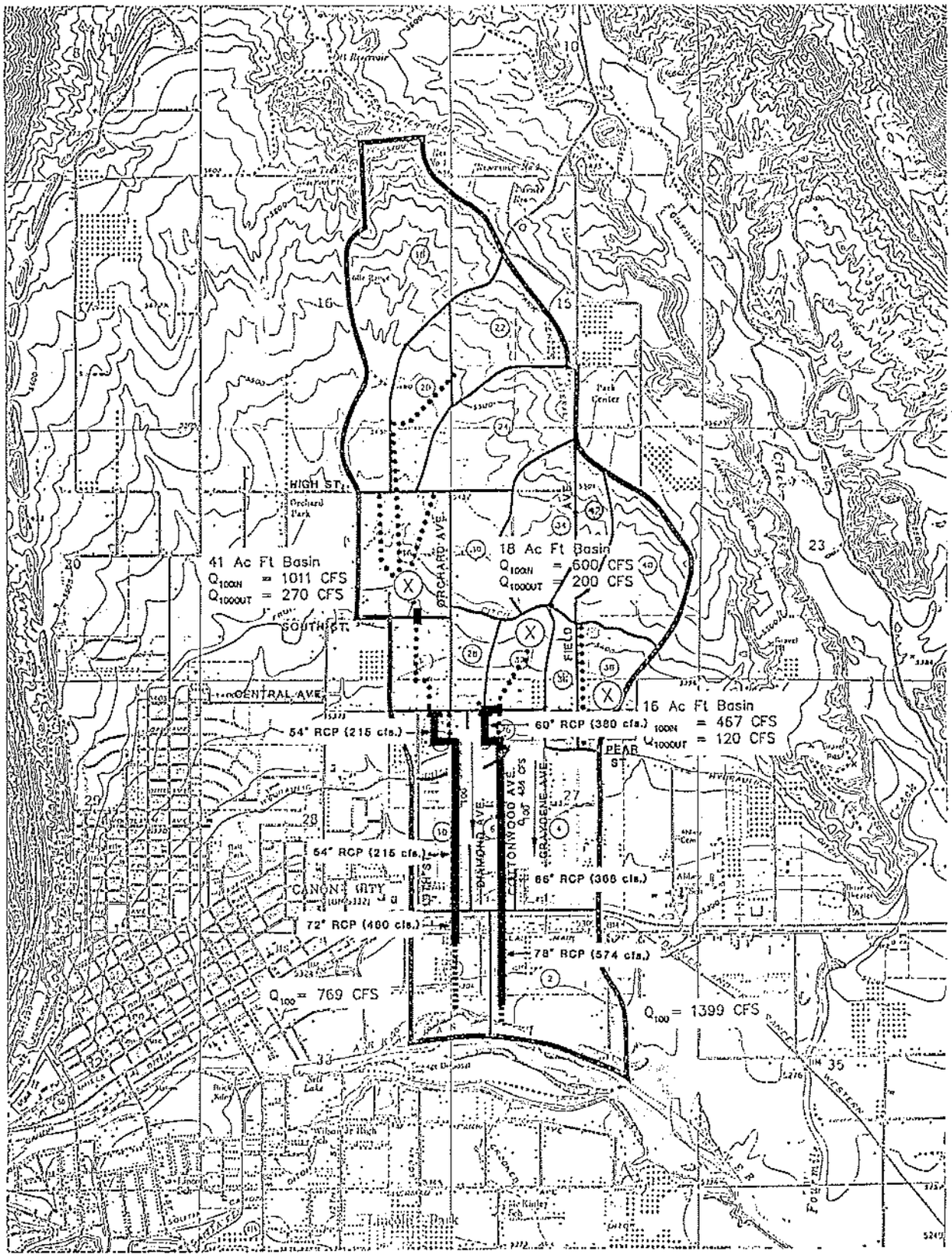


EXISTING CONDITIONS

ORCHARD AVE. DRAINAGE BASIN PLANNING STUDY	
ALTERNATE 1	
DESIGNED BY: MAB	DRAWN BY: JJW
CHECKED BY: JRW	DATE: 12/2/94
FILE NO: 941210	

PREPARED BY:

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ORCHARD AVE. DRAINAGE BASIN PLANNING STUDY	
ALTERNATE 2	
DESIGNED BY: MAB	DRAWN BY: JJW
CHECKED BY: JRW	DATE: 12/2/94
FILE NO: 941210	

PREPARED BY:

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ANHALT
SCHLOEMER
and ASSOCIATES
ENGINEERS & SCIENTISTS

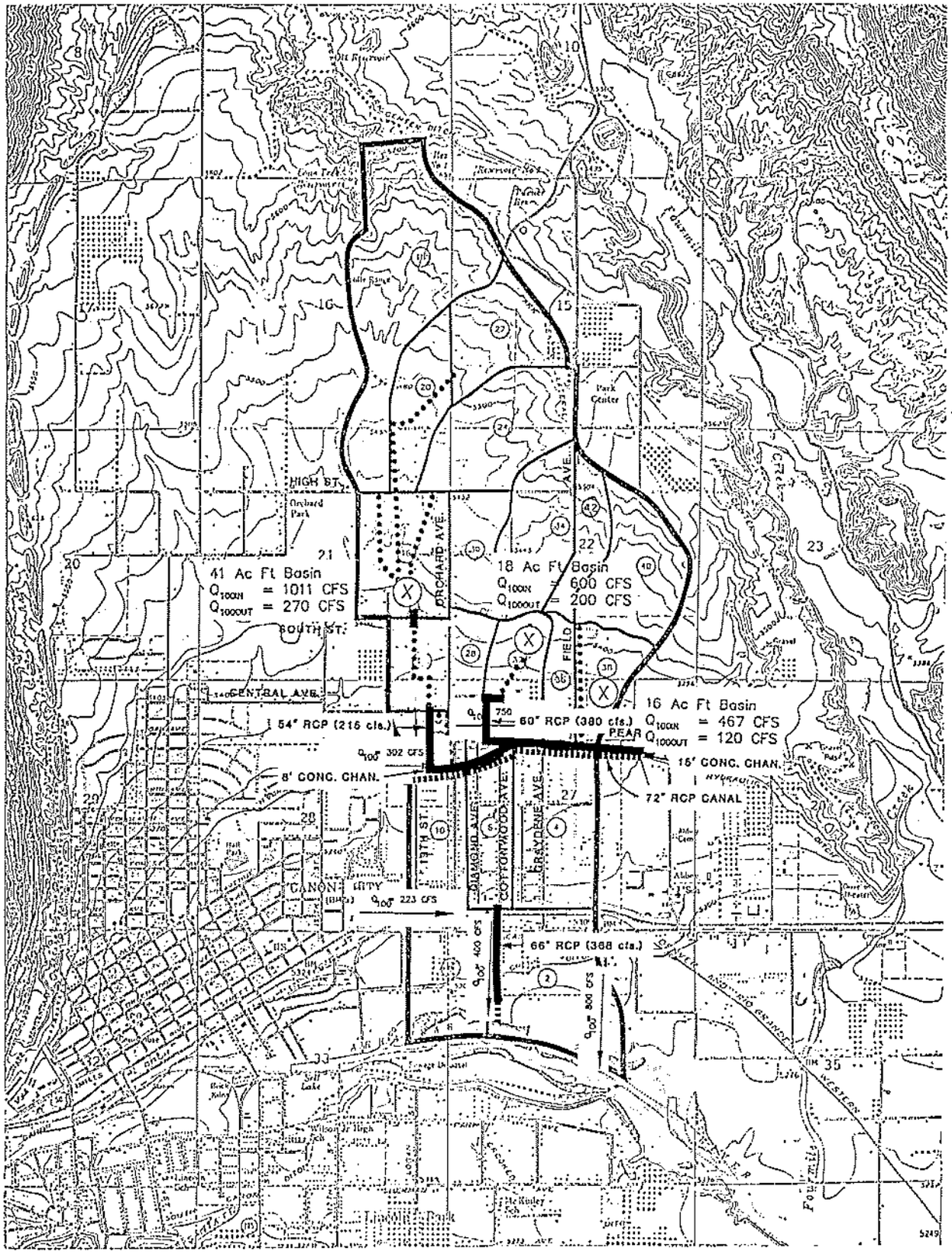
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Colorado Springs, CO. 80903
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ORCHARD AVENUE DRAINAGE STUDY

Alternative 2

Location	Improvement Description	Estimated Probable Construction Cost
Orchard Ave. Trunk		
Arkansas River to SH 50	6 Ft. Riprap Channel. 72" RCP Storm Sewer	$351,000
SH 50 to Hydraulic Ditch	54" RCP Storm Sewer	$440,000
Hydraulic Ditch to Central Ave.	54" RCP Storm Sewer	$169,000
Central Ave to South St.	Reconstruct Channel. Add Riprap at Bends	$96,000
South St. to High St.	8'x5' Box Culvert 6Ft. Wide Channel 41 Ac. Ft. Det Basin	$380,000
Cottonwood Ave Trunk		
Arkansas River to SH 50	8 Ft. Riprap Channel 78" RCP Storm Sewer	$650,000
SH 50 to Hydraulic Ditch	66" RCP Storm Sewer	$582,000
Hydraulic Ditch to Central Ave.	60" RCP Storm Sewer	$150,000
Central Ave North	54" RCP Storm Sewer 4 Ft. Wide Channel 18 Ac. Ft. Det Basin	$228,000
Field Ave Trunk		
Hydraulic Ditch North	16 Ac. Ft. Det Basin	$175,000
	TOTAL	**$3,221,000**

GRAEF ANHALT SCHLOEMER and Associates
CONSULTING ENGINEERS



ORCHARD AVE. DRAINAGE BASIN PLANNING STUDY	
ALTERNATE 3	
DESIGNED BY: MAB	DRAWN BY: JJW
CHECKED BY: JRW	DATE: 12/2/94
FILE NO: 941210	

PREPARED BY:

GRAEF
ANHALT
SCHLOEMER
and ASSOCIATES
ENGINEERS & SCIENTISTS

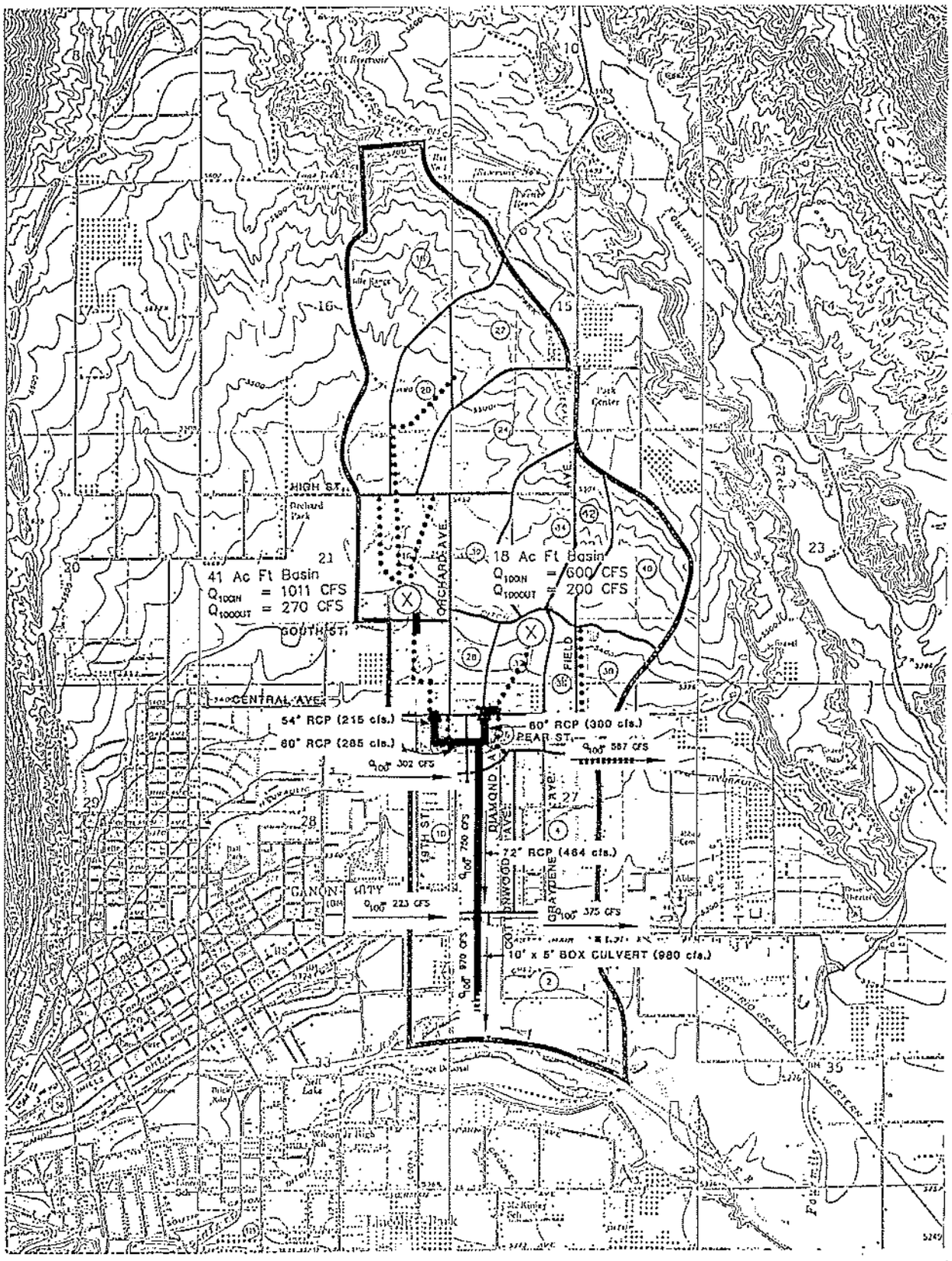
102 E. Pikes Peak Ave.,Suite 305
Colorado Springs, CO. 80903
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(719)634-0860 FAX

ORCHARD AVENUE DRAINAGE STUDY

Alternative 3

Location	Improvement Description	Estimated Probable Construction Cost
Arkansas River Outfall		
Arkansas River to SH 50	8 Ft. Riprap Channel 66" RCP Storm Sewer	$445,000
Hydraulic Ditch		
19th St. to Cottonwood Ave.	72" RCP Canal Enclosure 8 Ft. Conc Channel 3-8'x5' Box Culvert	$856,000
Cottonwood Ave to Abbey Channel	72" RCP Canal Enclosure 15 Ft. Conc Channel 6-15'x6' Box Culvert	$2,196,000
Orchard Ave. Trunk		
Hydraulic Ditch to Central Ave.	54" RCP Storm Sewer	$169,000
Central Ave to South St.	Reconstruct 5 Ft. Channel Add Riprap at Bends	$96,000
South St. to High St.	8'x5' Box Culvert 6 Ft. Wide Channel 41 Ac Ft. Det Basin	$380,000
Cottonwood Ave. Trunk		
Hydraulic Ditch to Central Ave.	60" RCP Storm Sewer	$150,000
Central Ave. North	54" RCP Storm Sewer 4 Ft. Wide Channel 18 Ac. Ft. Det Basin	$228,000
Field Ave. Trunk		
Hydraulic Ditch North	16 Ac. Ft. Det Basin	$175,000
	TOTAL	**$4,695,000**

GRAEF ANHALT SCHLOEMER and Associates
CONSULTING ENGINEERS



ORCHARD AVE. DRAINAGE BASIN PLANNING STUDY	
ALTERNATE 4	
DESIGNED BY: MAB	DRAWN BY: JJW
CHECKED BY: JRW	DATE: 12/2/94
FILE NO: 941210	

PREPARED BY:

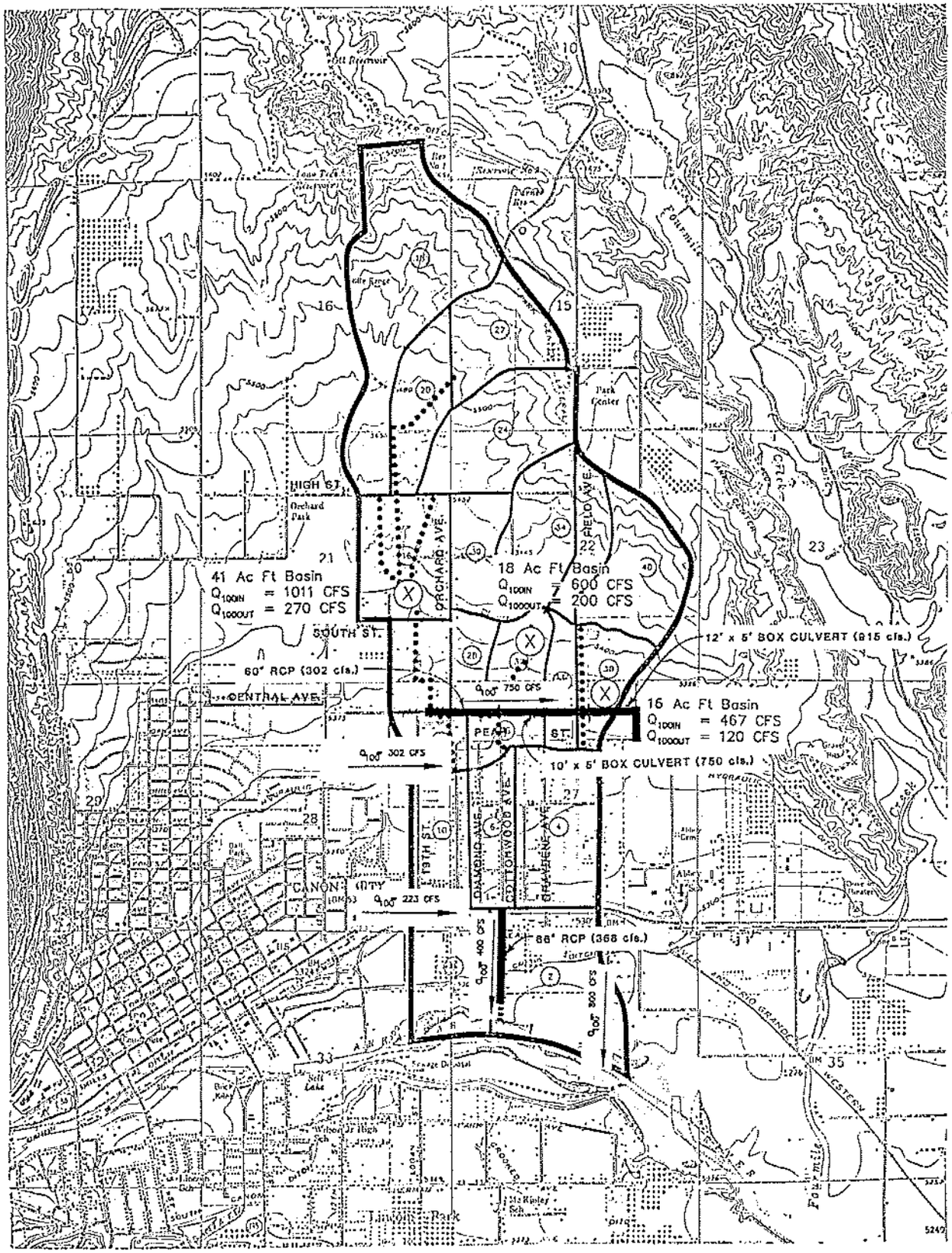
GRAEF
ANHALT
SCHLOEMER
and ASSOCIATES
ENGINEERS & SCIENTISTS
102 E. Pikes Peak Ave.,Suite 305
Colorado Springs, CO. 80903
(719)634-6902 TEL.
(719)634-0860 FAX

ORCHARD AVENUE DRAINAGE STUDY

Alternative 4

Location	Improvement Description	Estimated Probable Construction Cost
Diamond Ave. Trunk		
Arkansas River to SH 50	12 Ft. Riprap Channel 10'x5' Box Culvert	$1,096,000
SH 50 to Hydraulic Ditch	72" RCP Storm Sewer	$736,000
Hydraulic Ditch to Central Ave.	60" RCP Storm Sewer	$150,000
Central Ave. North	54" RCP Storm Sewer 4 Ft. Wide Channel 18 Ac. Ft. Det Basin	$228,000
Orchard Ave. Trunk		
Diamond Ave to Orchard Ave. at Pear St.	60" RCP Storm Sewer	$75,000
Pear St to Central Ave.	54" RCP Storm Sewer	$112,000
Central Ave. South St.	Reconstruct 5' Channel Add Riprap at Bends	$96,000
South St. to High St	8'x5' Box Culvert 6 Ft. Wide Channel 41 Ac. Ft. Det Basin	$380,000
Field Ave. Trunk		
Hydraulic Ditch North	12 Ft. Wide Channel	$45,000
	TOTAL	**$2,918,000**

GRAEF ANHALT SCHLOEMER and Associates
CONSULTING ENGINEERS



ORCHARD AVE. DRAINAGE BASIN PLANNING STUDY	
ALTERNATE 5	
DESIGNED BY: MAB	DRAWN BY: JJW
CHECKED BY: JRW	DATE: 12/2/94
FILE NO: 941210	

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ANHALT
SCHLOEMER
and ASSOCIATES
ENGINEERS & SCIENTISTS

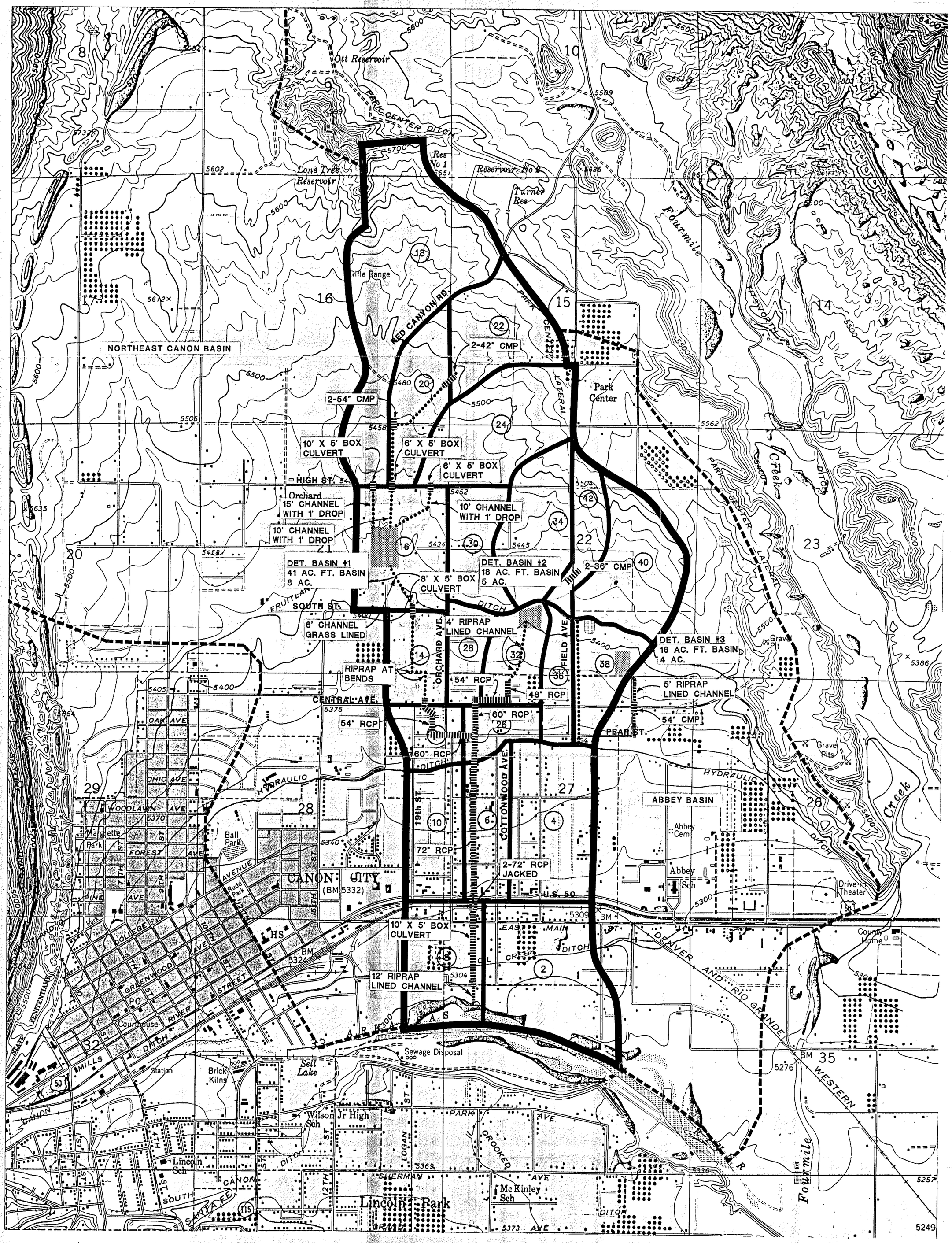
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ORCHARD AVENUE DRAINAGE STUDY

Alternative 5

Location	Improvement Description	Estimated Probable Construction Cost
Arkansas River Outfall		
Arkansas River to SH 50	8 Ft. Riprap Channel 66" RCP Storm Sewer	$445,000
Central Ave. Trunk		
Orchard Channel to Stage Coach Road	60" RCP Storm Sewer	$235,000
Stage Coach Road to Field Drive	10' x 5' Box Culvert 18 Ac. Ft. Det. Basin	$1,100,000
Field Drive to Abbey Channel	12' x 5' Box Culvert	$850,000
Orchard Ave. Trunk		
Central Ave to South Street	Reconstruct 5 Ft. Channel Add Riprap at Bends	$96,000
South Street to High Street	8' x 5' Box Culvert 6 Ft. Wide Channel 41 Ac. Ft. Det. Basin	$380,000
Field Ave. Trunk		
Hydraulic Ditch North	16 Ac. Ft. Det Basin	$175,000
	TOTAL	**$3,281,000**

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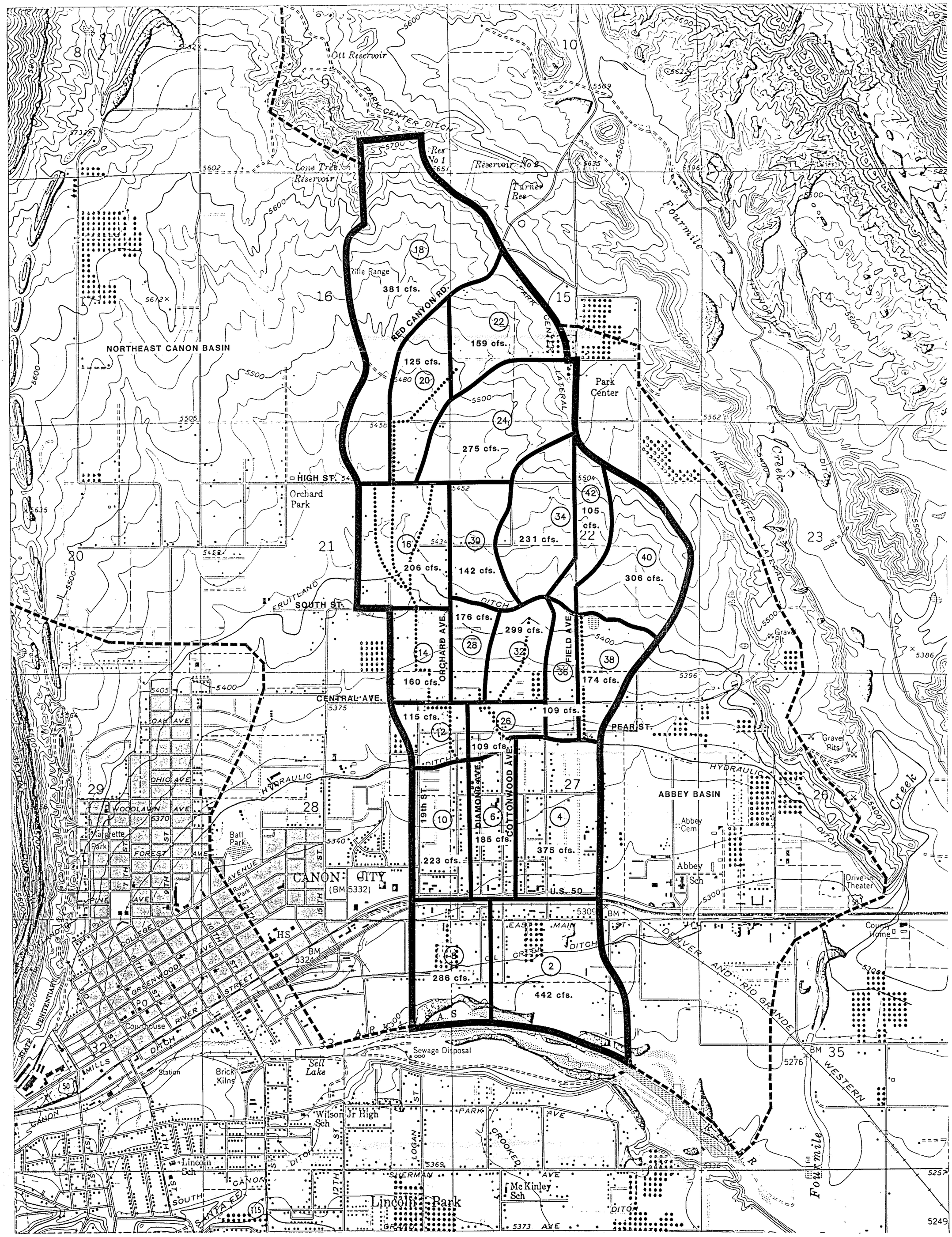
ORCHARD AVE. DRAINAGE BASIN PLANNING STUDY	
BASIN IMPROVEMENTS MAP	
DESIGNED BY: MAB	**DRAWN BY:** JJW
CHECKED BY: JRW	**DATE:** 12/2/94
FILE NO: 941210	

PREPARED BY:

GRAEF ANHALT SCHLOEMER *and ASSOCIATES*

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ORCHARD AVE. DRAINAGE BASIN PLANNING STUDY	
BASIN DISCHARGE MAP	
DESIGNED BY: MAB	**DRAWN BY:** JJW
CHECKED BY: JRW	**DATE:** 12/2/94
FILE NO: 941210	

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ORCHARD AVENUE

DRAINAGE BASIN PLANNING STUDY

TECHNICAL ADDENDUM

FOR

CANON CITY, COLORADO

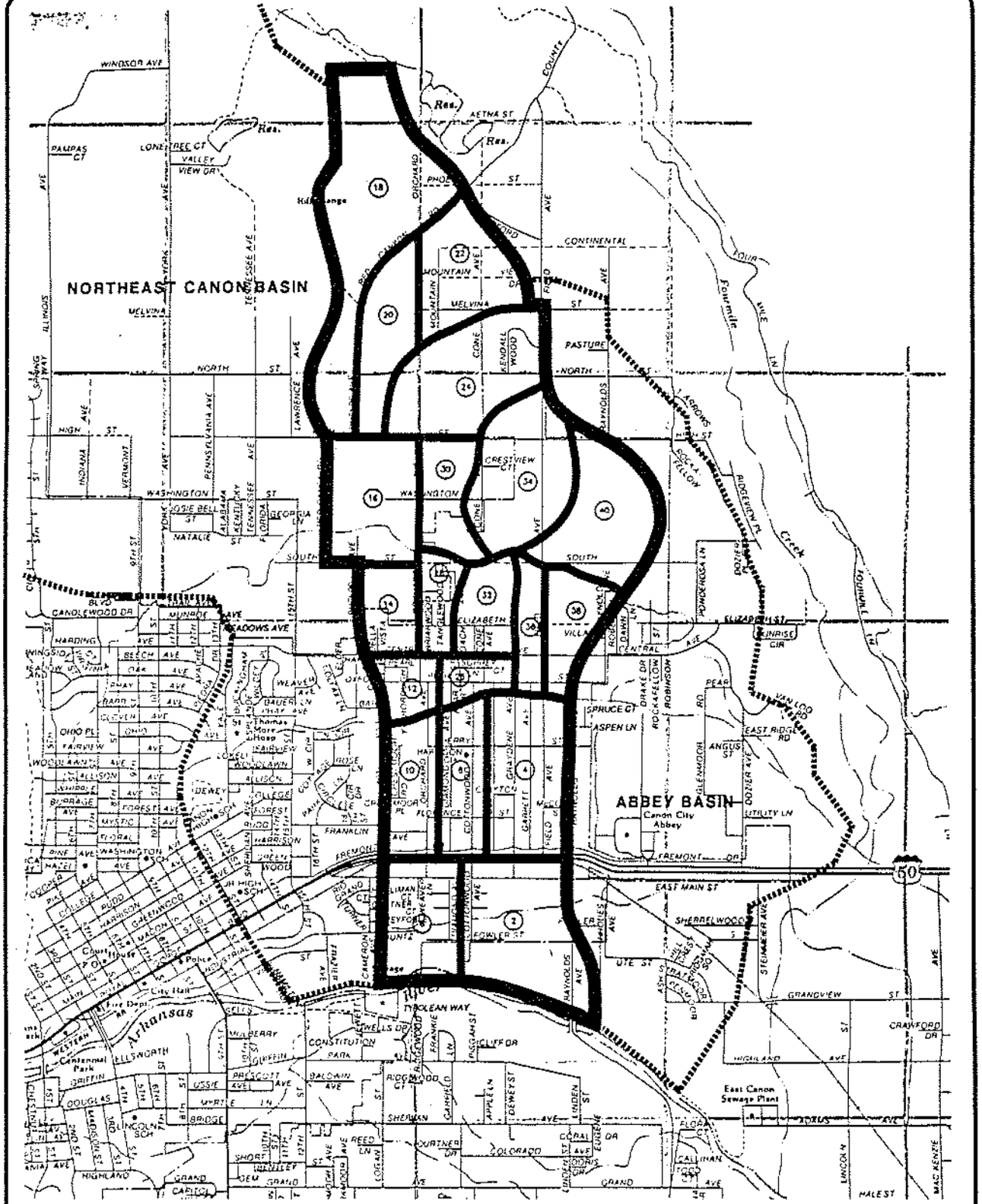
PREPARED BY:

GRAEF ANHALT SCHLOEMER
AND ASSOCIATION, INC.
102 EAST PIKES PEAK AVENUE
SUITE 305
COLORADO SPRINGS, CO 80903

November, 1994
Job No. 941210

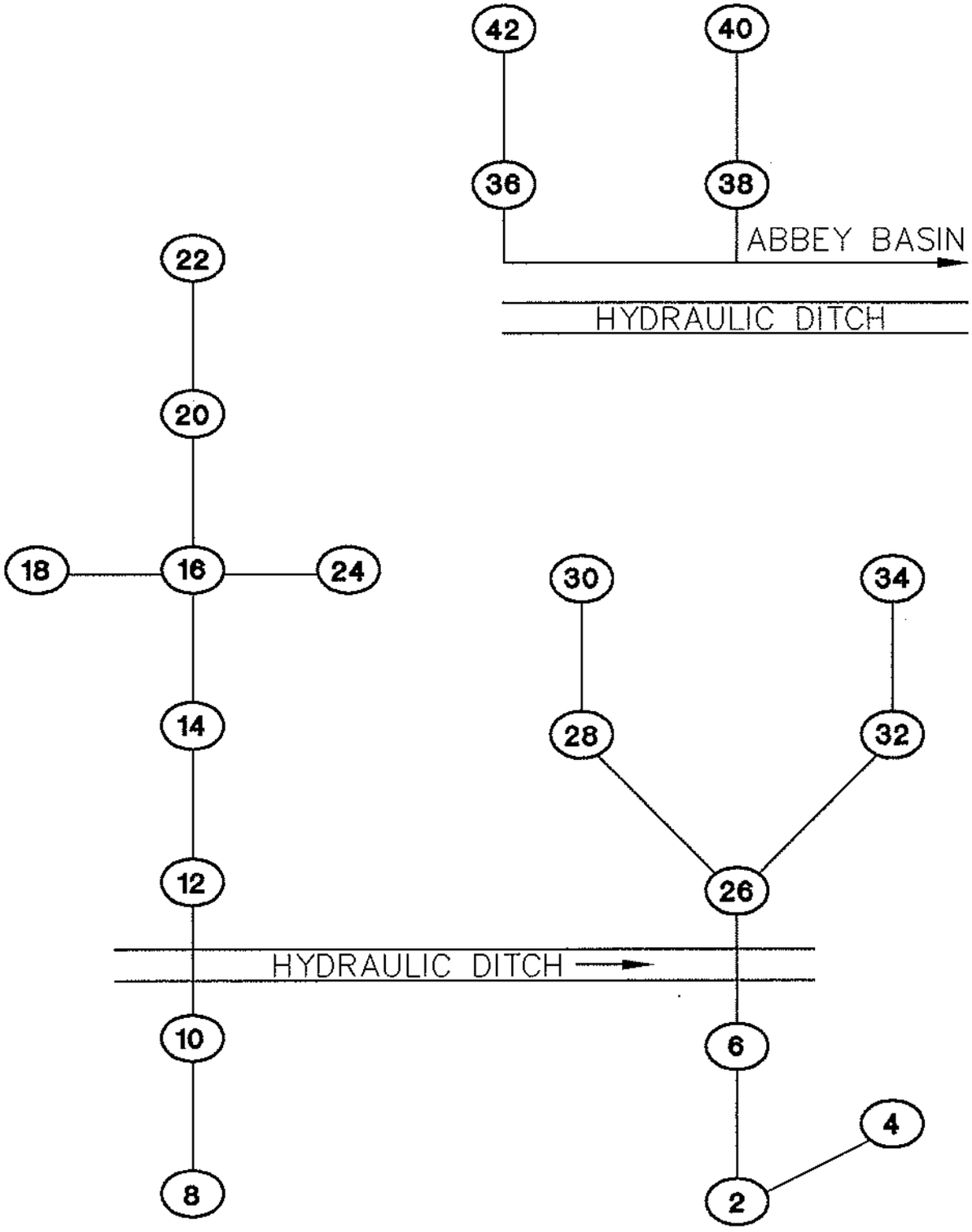
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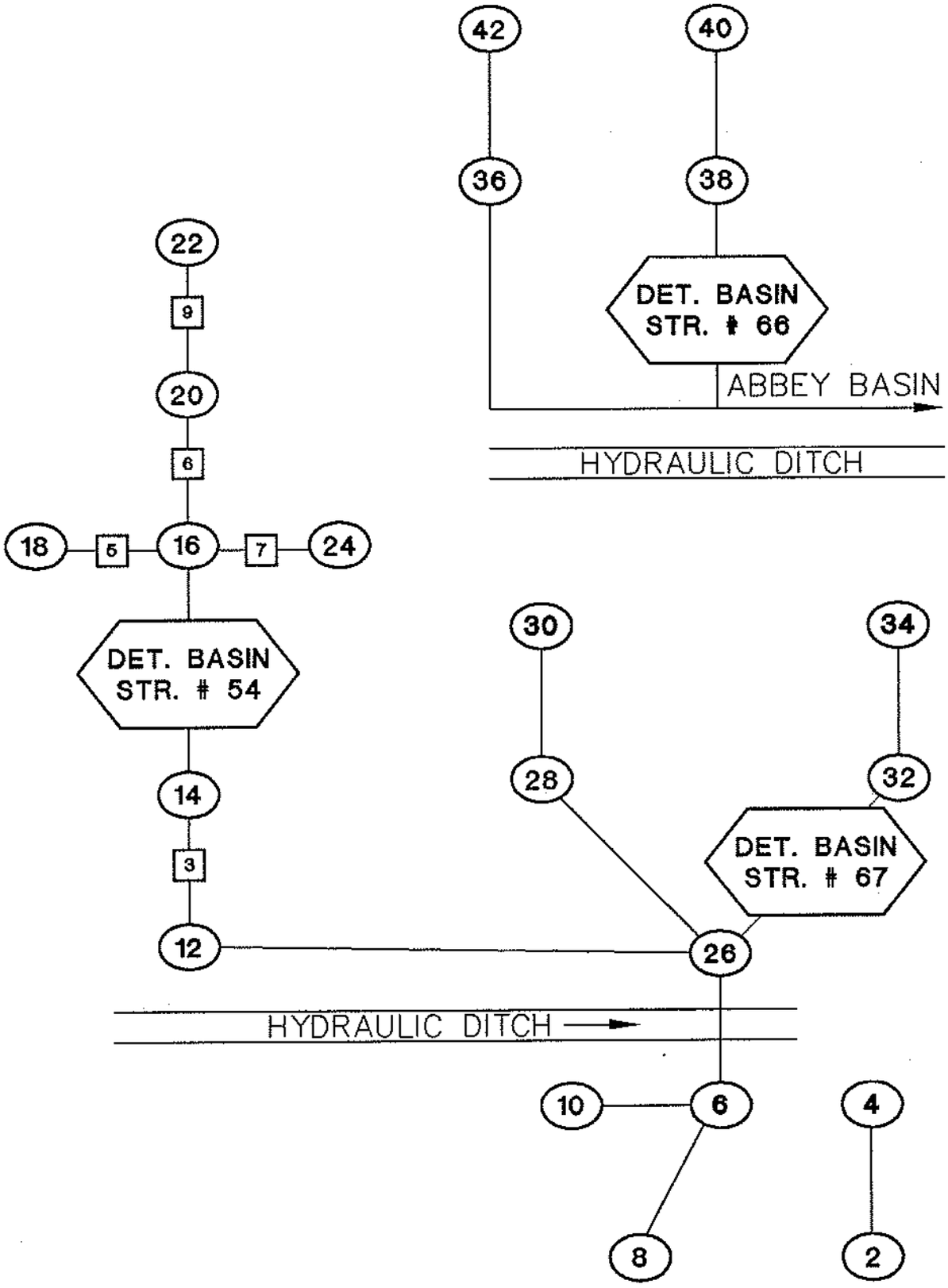
ORCHARD AVE. DRAINAGE BASIN PLANNING STUDY	
BASIN MAP	
DESIGNED BY: MAB	DRAWN BY: JJW
CHECKED BY: JRW	DATE: 7/20/94
FILE NO: 941210	

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ORCHARD AVE.
DRAINAGE BASIN
TR-20 FLOW DIAGRAM
EXISTING CONDITIONS

FLOW.DWG



ORCHARD AVE.
DRAINAGE BASIN
TR-20 FLOW DIAGRAM
FUTURE CONDITIONS

FLOW2.DWG

HOGBACK DETENTION

MASTER PLAN

FOR

CANON CITY, COLORADO

PREPARED BY:
GRAEF, ANHALT, SCHLOEMER
& ASSOCIATES INC.
102 E. PIKES PEAK AVENUE
SUITE 305
COLORADO SPRINGS, CO 80903

February 1995
Job No. 94121502

GRAEF
ANHALT
SCHLOEMER
and ASSOCIATES
ENGINEERS & SCIENTISTS

HOGBACK DETENTION MASTER PLAN
TIME OF CONCENTRATION AND CN CALCULATIONS
EXISTING CONDITIONS

HOGBACK AREA DESIG.	C10 (10 yr)	Initial Tci L(ft)	Initial Tci Slope (%)	ti (min)	Travel Time L(ft)	Travel Time Slope (%)	V (fps)	Tt (min)	TC (min)	TC (hr)	EXIST CN	BASIN AREA (ACRE)	BASIN AREA (SM)	EXIST. 100-YR FLOW(CFS)
1	0.60	570	1.33	20.32	3300	1.33	7.50	18.30	18.30	0.305	84	34.5	0.0539	66
2	0.60	570	52.63	6.04	630	8.89	4.50	2.33	8.37	0.139	84	14.7	0.0230	42
3	0.60	500	58.80	5.45	860	9.30	4.60	3.12	8.57	0.143	84	21.3	0.0333	60
4	0.60	400	66.00	5.00	900	11.11	5.20	2.88	7.88	0.131	84	21.0	0.0328	60
5	0.60	500	66.00	5.25	600	11.67	5.20	1.92	7.17	0.119	84	17.3	0.0270	49
6	0.60	100	24.00	5.00	80	17.50	6.40	0.21	5.21	0.087	84	0.4	0.0006	2.6
7	0.60	50	24.00	5.00	500	13.00	5.50	1.52	6.52	0.109	84	2.7	0.0042	8
8	0.60	250	74.00	5.00	1130	6.02	3.70	5.09	10.09	0.168	84	14.8	0.0231	48
9	0.60	50	20.00	2.46	1000	26.50	7.50	2.22	4.68	0.078	84	7.7	0.0120	22

EXISTING FLOW CONDITIONS

As was previously stated most of the existing Hogback drainage basins have unrestricted outlets. These outlets vary from roadside ditches to overland swales with no defined connection to a drainage system. This type of ill defined outlet combined with the debris flow caused by the fast flowing stormwater over nearly barren ground have caused some flooding and constant maintenance problems for the City.

Even in basins where flows outlet directly into roadside ditches the velocities generated by the steep terrain and bare ground have caused ditch erosion and costly road repairs. Another problem with these unrestricted outlets is that currently no drainage easement exists across private property to permit the City to make necessary repairs or perform routine maintenance.

PROPOSED DETENTION IMPROVEMENTS

In order to alleviate some of the downstream drainage problems it was determined that the placement of several detention basins along the Hogback's could reduce flows thereby reducing the subsequent velocities which contribute to erosion. A total of seven (7) small detention basins are proposed. These range in size from 0.4 Ac. Ft. to 2.0 Ac. Ft. Of the two (2) remaining drainage basins, Drainage Basin No. 6 is only 0.4 Ac. and does not produce a large enough runoff to cause a problem and Drainage Basin No. 7 is proposed to flow into Drainage Basin No. 8.

The detention basin designs were determined using existing topographic features with desiltation basins and simple outlet designs. The height of the embankment was determined by the depth of ponding water plus three (3) Ft. of freeboard. A riprap lined emergency spillway was placed at an elevation matching the top of ponding water depth and extending to the top of the embankment. The detention basins were sized to restrict flows by approximately 50%. A chart is included to detail each detention basin requirement.

HOGBACK DETENTION MASTER PLAN
DETENTION BASIN SIZES & FLOWS

HOGBACK AREA DESIG.	DETENTION BASIN SIZE(AC.FT.)	PONDING DEPTH (FT)	PIPE SIZE (IN)	DITCH OUTLET LENGTH (FT)	UNDETAINED/DETAINED FLOW 100YR(cfs)	50YR(cfs)	25YR(cfs)	HOGBACK AREA DESIG.
1	2.0	5.2	24	600	66/35	56/25	48/22	1
2	0.7	3.8	24	1100	42/22	35/20	30/17	2
3	1.0	5.2	24	650	60/35	50/26	42/22	3
4	1.0	5.2	24	-----	60/35	50/26	42/22	4
5	0.8	4.5	24	250	49/25	41/22	35/19	5
6	-----	-----	-----	-----	2.6/2.6	2.4/2.4	2.2/2.2	6
7	-----	-----	30	-----	8/8	6/6	5/5	7
8	0.8	4.5	24	600	48/25	41/22	34/19	8
9	0.4	3.3	18	250	22/12	18/10	15/9	9

HIGHWAY

DETENTION BASIN #3
VOL. = 0.4 AC. FT
DEPTH OF WATER = 3.3'

DETENTION BASIN #4
VOL. = 0.8 AC. FT
DEPTH OF WATER = 4.5'

DETENTION BASIN #5
VOL. = 0.6 AC. FT
DEPTH OF WATER = 4.5'

60 LF - 24" CMP

60 LF - 30" CMP

60 LF - 24" CMP

60 LF - 24" CMP

DRIVE

COLLEGE AVE

COOPER

HAZEL

PINE

PIKE

3rd ST.

5th ST.

5th

FLORAL AVE.

MYSTIC AVE.

FOREST AVE.

MATCHLINE SHEET 2

SCALE
0 100
FEET

100' 50' 0 100' 200'
SCALE 1" = 100'

PREPARED BY:

GRAEF
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and ASSOCIATES
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SHEET 2

MATCHLINE SHEET 2

48
56
66

DETENTION BASIN #1
VOL. = 2.0 AC. FT
DEPTH OF WATER = 5.2'

1
34.5

60 LF - 18" CMP

22
25
35

GREENWAY CIRCLE

GREENWAY DRIVE

5th ST.

ST.

LEGEND

- XX / XX — BASIN DESIGNATION / BASIN AREA, ACRES
- XX — 25 YEAR ACCUMULATED STORM, CFS
- XX — 50 YEAR ACCUMULATED STORM, CFS
- XX — 100 YEAR ACCUMULATED STORM, CFS
- XX — 25 YEAR DETAINED FLOW, CFS
- XX — 50 YEAR DETAINED FLOW, CFS
- XX — 100 YEAR DETAINED FLOW, CFS
- PROPOSED DETENTION BASIN
- BASIN BOUNDARY
- PROPOSED CULVERT
- PROPOSED DITCH

100' 50' 0 100' 200'

SCALE 1" = 100'

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MATCHLINE SHEET 3

MATCHLINE SHEET 1

DETENTION BASIN #4
VOL. = 1.0 AC. FT
DEPTH OF WATER = 5.2

DETENTION BASIN #3
VOL. = 1.0 AC. FT
DEPTH OF WATER = 5.2

DETENTION BASIN #2
VOL. = 0.7 AC. FT
DEPTH OF WATER = 3.8

60 LF - 24" CMP

60 LF - 24" CMP

60 LF - 21" CMP

42
50
60

22
26
35

30
35
42

17
20
22

4
21.0

3
21.3

2
14.7

SKYLINE DRIVE

5th

WHIPPLE AVE.

ALLISON AVE.

WOODLAND AVE.

FAIRVIEW AVE.

PHAY AVE.

OAK AVE.

MEADOW LAND

100' 50' 0 100' 200'

SCALE 1" = 100'

PREPARED BY:

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and ASSOCIATES
ENGINEERS & SCIENTISTS

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SHEET 2

Appendix B. Updated Hydrology Analysis

B.1. Updated Hydrologic Figures

B.2. Curve Number and Lag Time Calculations

B.3. HEC-HMS Analysis

B.4. Land Use Coordination Email

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NN02
NN03
NN04
NN05
NN06
NN07A
NN07B
NN07C
NN07D
NN07E
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NN10
NN11
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HW01
HW02
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42
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5
4
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AB44
AB42
AB40
AB26
AB30
AB38
AB32
AB34
AB36
AB16
AB28
AB18
AB17
AB15
ABD3
AB11
AB12
AB13
AB14
AB10
AB08
AB09

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

N

0 750 1,500 3,000

Feet

1 in = 3,000 feet

Legend

- Northeast Canon Watershed
- Abbey Detention Watershed
- Orchard Ave Watershed
- Headwaters Watershed
- North Ninth Watershed
- Hydraulic Ditch Centerline
- Arkansas River

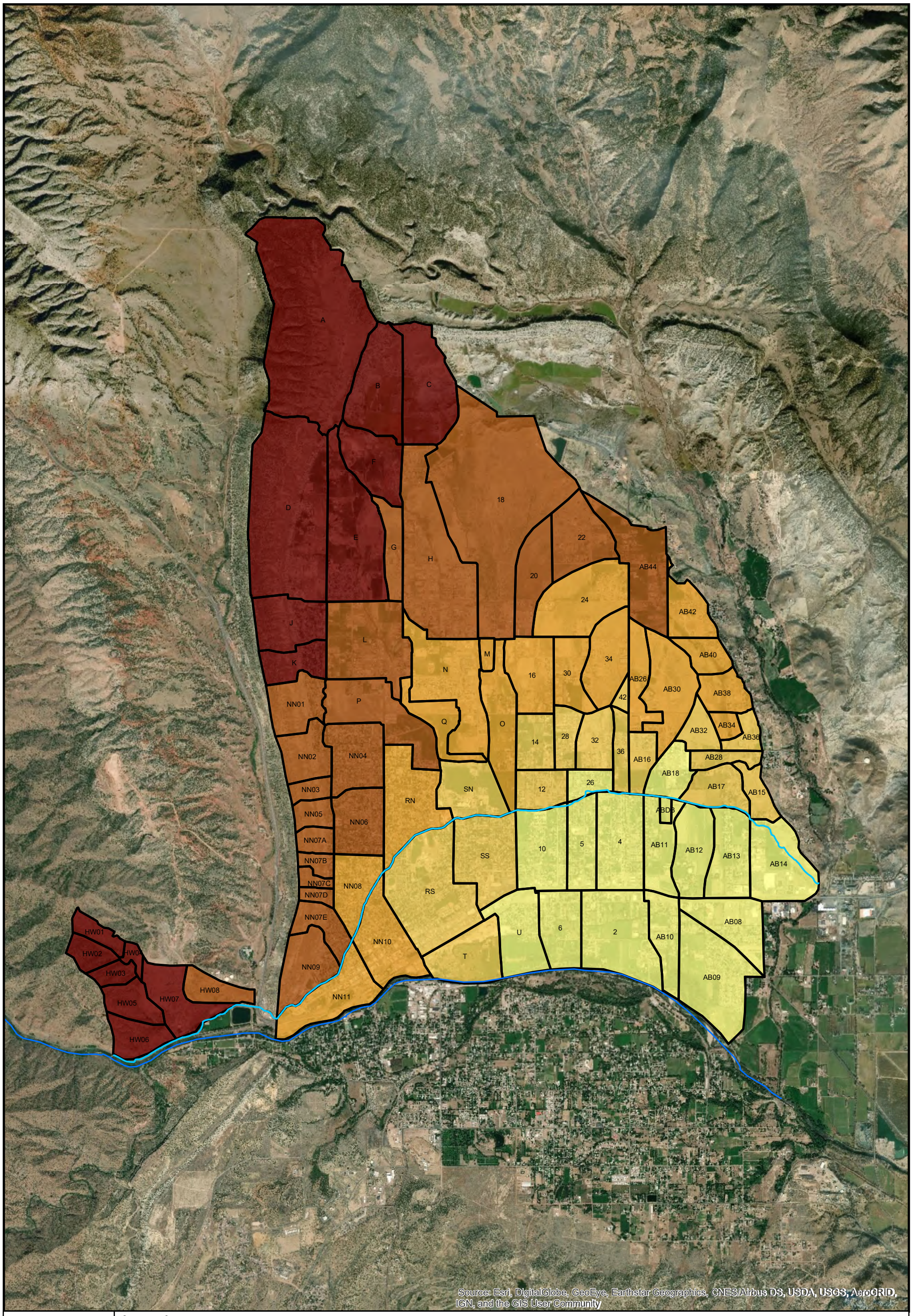
HYDRAULIC IRRIGATION DITCH

FIGURE B-1: WATERSHED AND SUBBASIN SUMMARY

SNC·LAVALIN

ATKINS

Member of the SNC-Lavalin Group



N

0 750 1,500 3,000

Feet

1 in = 3,000 feet

Legend

Hydraulic Ditch Centerline

Arkansas River

Rainfall (in.)

4.20 - 4.22

4.22 - 4.25

4.25 - 4.29

4.29 - 4.39

4.39 - 4.51

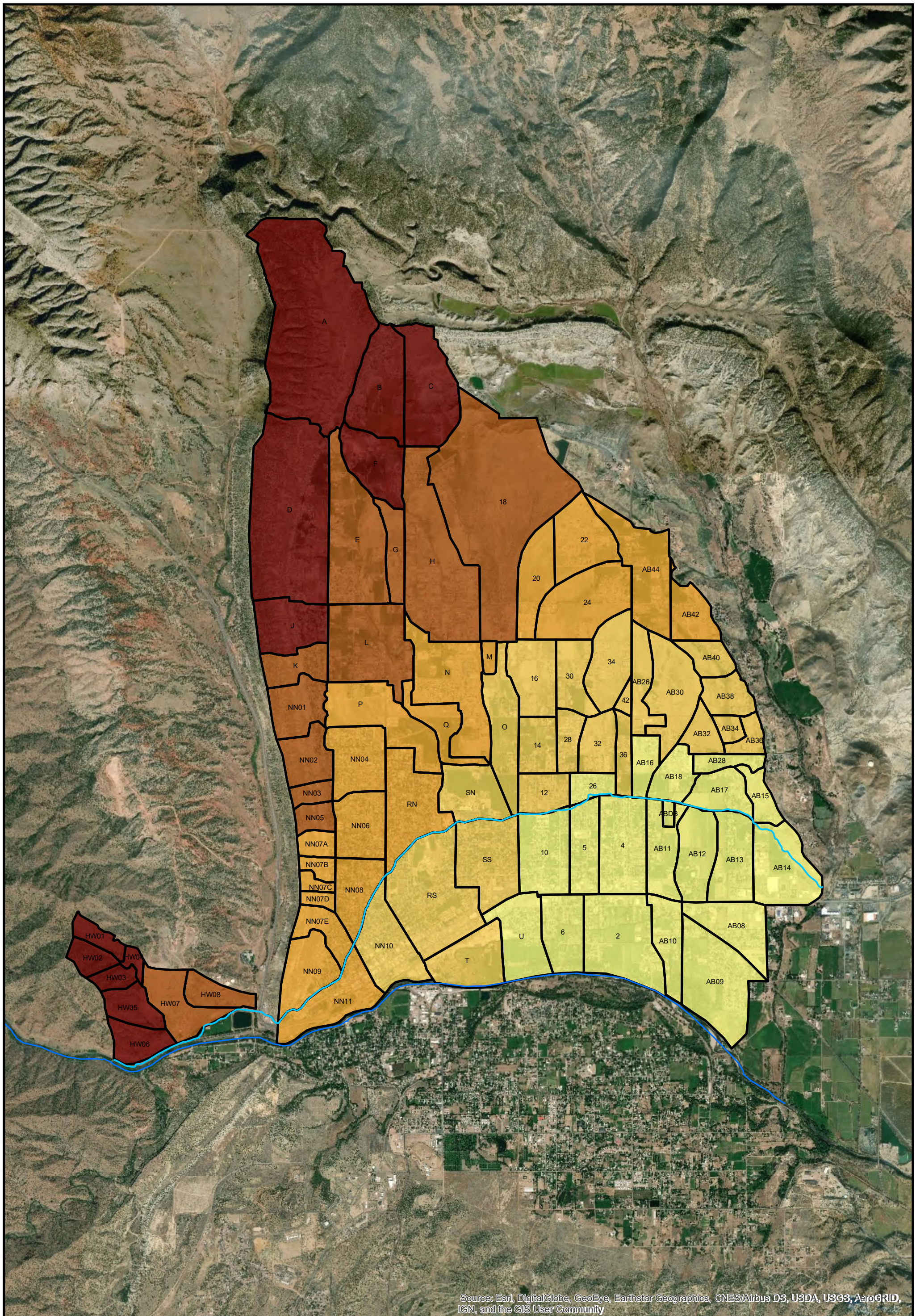
HYDRAULIC IRRIGATION DITCH

FIGURE B-1A: NOAA ATLAS 14 RAINFALL (100 YEAR STORM)

SNC·LAVALIN

ATKINS

Member of the SNC-Lavalin Group



N

0 750 1,500 3,000

Feet

1 in = 3,000 feet

Legend

Hydraulic Ditch Centerline

Arkansas River

Rainfall (in.)

2.39 - 2.41

2.41 - 2.44

2.44 - 2.48

2.48 - 2.53

2.53 - 2.58

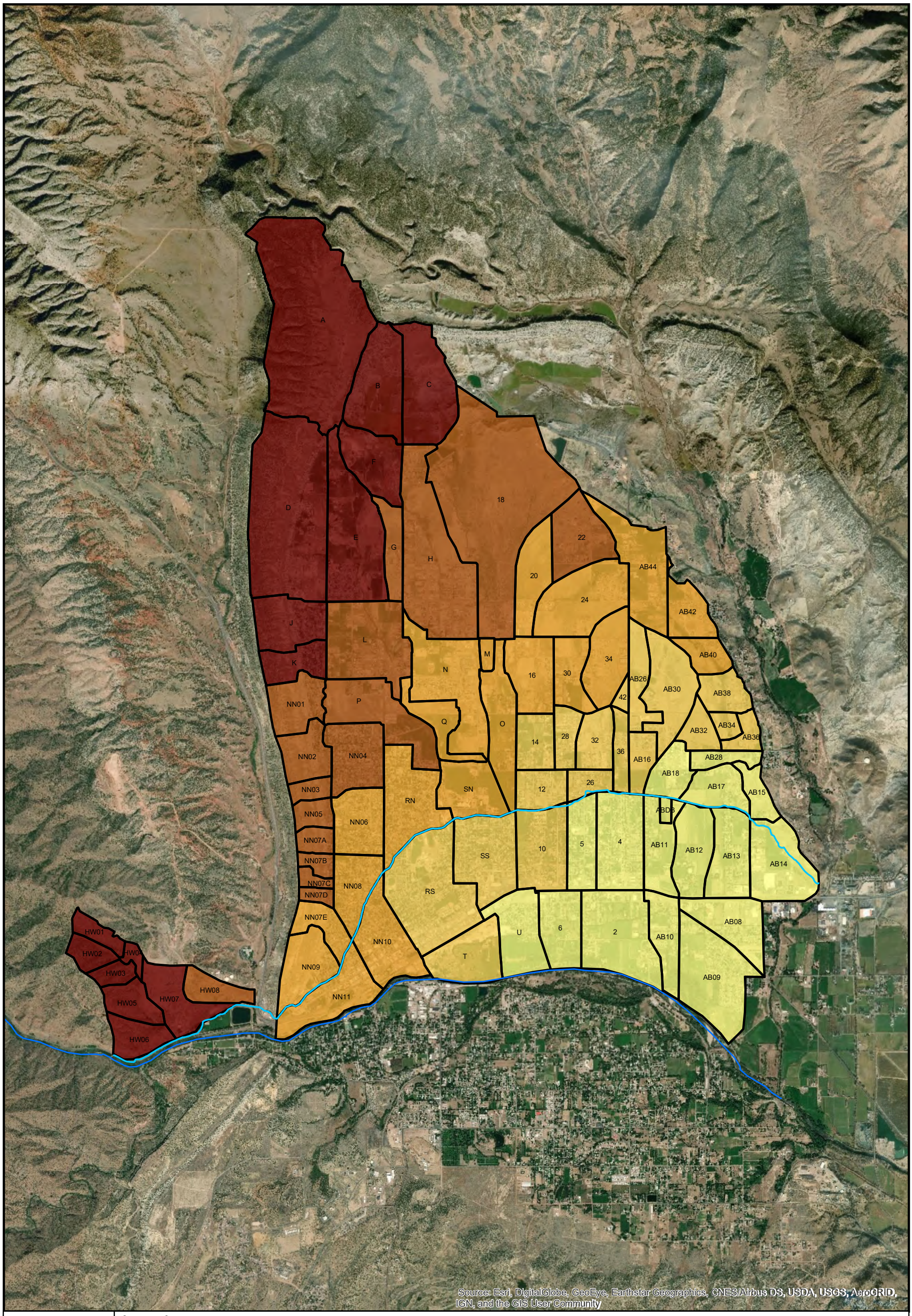
HYDRAULIC IRRIGATION DITCH

FIGURE B-1B: NOAA ATLAS 14 RAINFALL (10 YEAR STORM)

SNC·LAVALIN

ATKINS

Member of the SNC-Lavalin Group



N

0 750 1,500 3,000

Feet

1 in = 3,000 feet

Legend

- Hydraulic Ditch Centerline
- Arkansas River

Rainfall (in.)

- 1.98 - 2.00
- 2.00 - 2.03
- 2.03 - 2.06
- 2.06 - 2.10
- 2.10 - 2.16

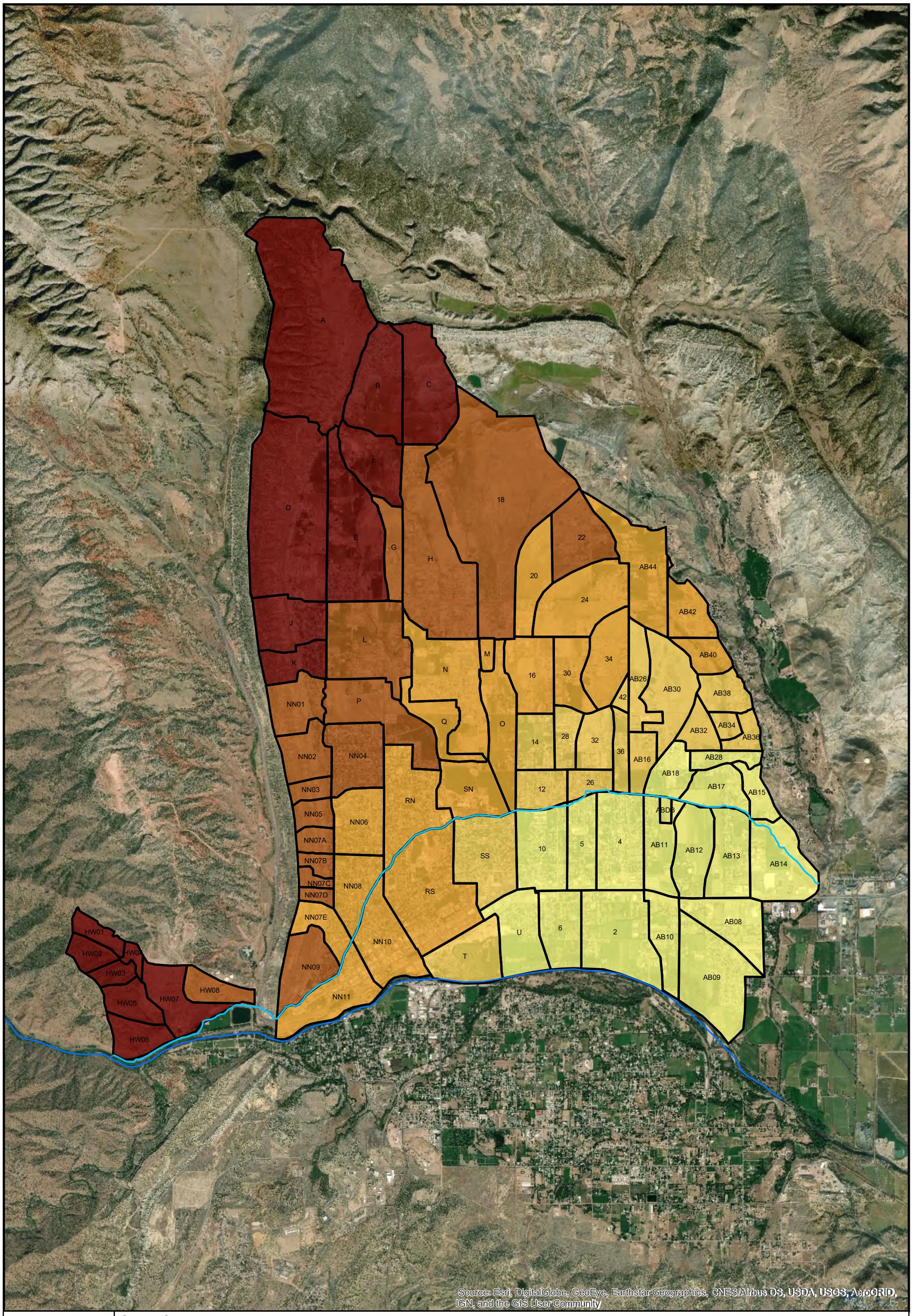
HYDRAULIC IRRIGATION DITCH

FIGURE B-1C: NOAA ATLAS 14 RAINFALL (5 YEAR STORM)

SNC·LAVALIN

ATKINS

Member of the SNC-Lavalin Group



N

0 750 1,500 3,000

Feet

1 in = 3,000 feet

Legend

- Hydraulic Ditch Centerline
- Arkansas River

Rainfall (in.)

- 1.57 - 1.59
- 1.59 - 1.61
- 1.61 - 1.63
- 1.63 - 1.67
- 1.67 - 1.72

HYDRAULIC IRRIGATION DITCH

FIGURE B-1D: NOAA ATLAS 14 RAINFALL (2 YEAR STORM)

SNC·LAVALIN

ATKINS

Member of the SNC-Lavalin Group

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NN09
NN11
U
6
2
T
HW01
HW02
HW04
HW03
HW05
HW07
HW08
HW06

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

N

0 750 1,500 3,000

Feet

1 in = 3,000 feet

Legend

- Agriculture
- Commercial
- Street Corridor
- Medium to High Density Res
- Open Estates: Greater than 1 acre Lots
- Low Density Residence: Less than 6 DU per Acre
- Wood-Grass Combination (Fair Condition)

HYDRAULIC IRRIGATION DITCH

FIGURE B-2: EXISTING LANDUSE

SNC·LAVALIN

ATKINS

Member of the SNC-Lavalin Group

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AB26
AB30
AB38
AB32
AB34
AB36
AB16
AB28
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AB17
AB15
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AB08
AB09
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HW02
HW03
HW04
HW05
HW06
HW07
HW08

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

N

0 750 1,500 3,000

Feet

1 in = 3,000 feet

Legend

- Agriculture
- Commercial
- Street Corridor
- Subbasin Boundary
- Medium to High Density Res
- Open Estates: Greater than 1 acre Lots
- Low Density Residence: Less than 6 DU per Acre
- Wood-Grass Combination (Fair Condition)

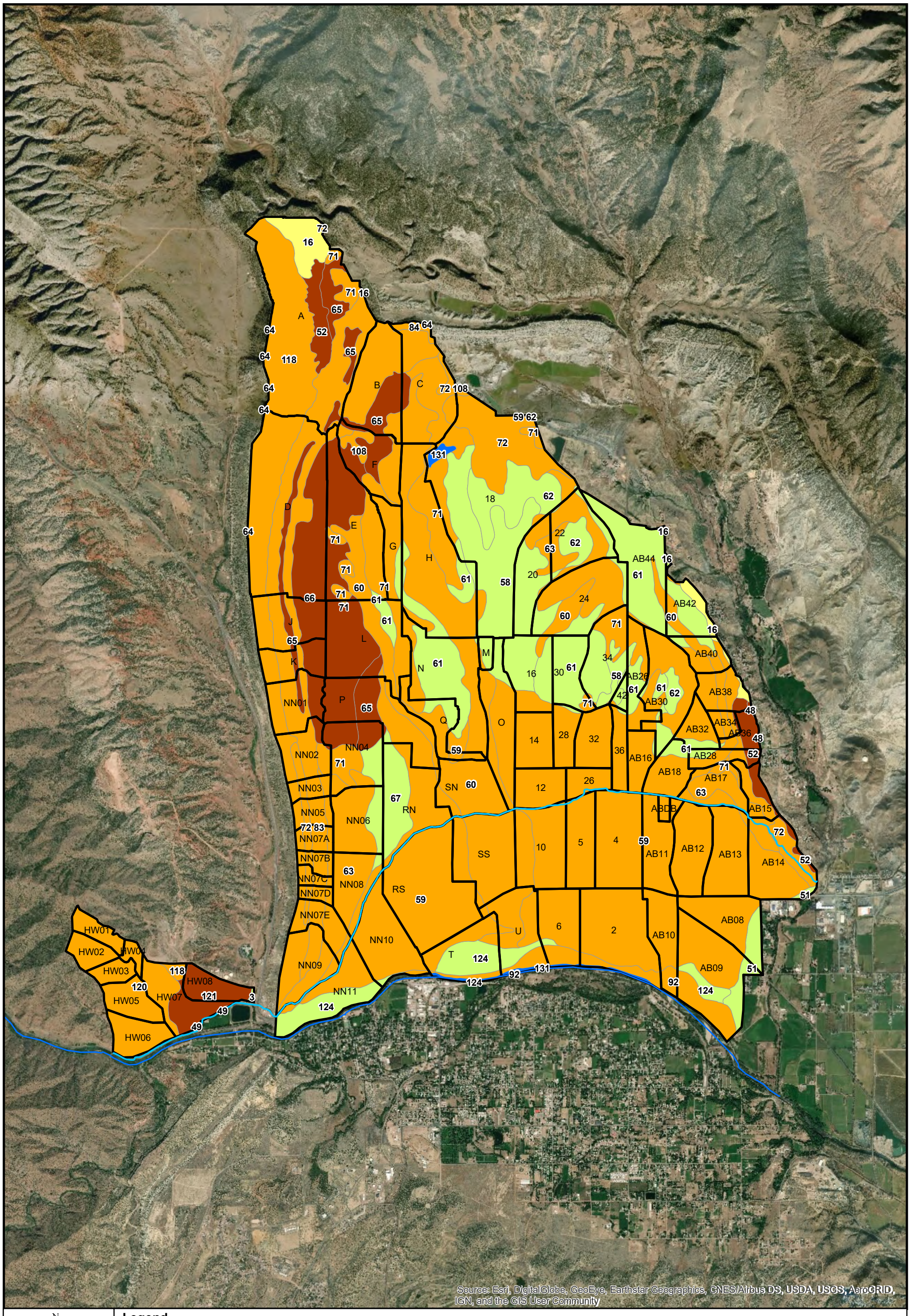
HYDRAULIC IRRIGATION DITCH

FIGURE B-3: FUTURE LANDUSE

SNC·LAVALIN

ATKINS

Member of the SNC-Lavalin Group



N

0 750 1,500 3,000

Feet

1 in = 3,000 feet

Legend

Subbasin Boundary

Hydrologic Soil Group

A
B
C
D
Water

HYDRAULIC IRRIGATION DITCH

FIGURE B-4: SOILS SUMMARY

SNC·LAVALIN

ATKINS

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ABBEY DRAINAGE BASIN - CURVE NUMBER CALCULATION

BASIN	Land Use Category	SOIL MAP UNIT #	Hydrologic Soil Group	SUBREGION CN	SUBREGION AREA (ACRES)	SUBBASIN AREA (ACRES)	PERCENT OF SUBBASIN	CUMULATIVE PERCENT	AREAL WEIGHTED CN	CUMULATIVE CN	COMPOSITE CN
AB08	Open Estates: Greater than 1 acre Lots	51	C	79	0.35	97.37	0.36%	0.36%	0.3	0.3	
AB08	Open Estates: Greater than 1 acre Lots	51	C	79	3.62	97.37	3.72%	4.08%	2.9	3.2	
AB08	Open Estates: Greater than 1 acre Lots	51	C	79	0.34	97.37	0.35%	4.43%	0.3	3.5	
AB08	Open Estates: Greater than 1 acre Lots	51	C	79	0.15	97.37	0.16%	4.59%	0.1	3.6	
AB08	Open Estates: Greater than 1 acre Lots	51	C	79	2.01	97.37	2.06%	6.65%	1.6	5.3	
AB08	Open Estates: Greater than 1 acre Lots	51	C	79	0.52	97.37	0.54%	7.19%	0.4	5.7	
AB08	Open Estates: Greater than 1 acre Lots	51	C	79	0.70	97.37	0.72%	7.91%	0.6	6.2	
AB08	Open Estates: Greater than 1 acre Lots	59	D	84	6.21	97.37	6.37%	14.28%	5.4	11.6	
AB08	Open Estates: Greater than 1 acre Lots	59	D	84	4.10	97.37	4.21%	18.49%	3.5	15.1	
AB08	Open Estates: Greater than 1 acre Lots	59	D	84	0.66	97.37	0.68%	19.17%	0.6	15.7	
AB08	Open Estates: Greater than 1 acre Lots	59	D	84	0.73	97.37	0.75%	19.92%	0.6	16.3	
AB08	Open Estates: Greater than 1 acre Lots	59	D	84	0.14	97.37	0.15%	20.07%	0.1	16.5	
AB08	Open Estates: Greater than 1 acre Lots	59	D	84	0.38	97.37	0.40%	20.46%	0.3	16.8	
AB08	Open Estates: Greater than 1 acre Lots	59	D	84	0.20	97.37	0.21%	20.67%	0.2	17.0	
AB08	Open Estates: Greater than 1 acre Lots	59	D	84	0.35	97.37	0.36%	21.03%	0.3	17.3	
AB08	Low Density Residence: Less than 6 DU per Acre	51	C	83	0.75	97.37	0.77%	21.80%	0.6	17.9	
AB08	Low Density Residence: Less than 6 DU per Acre	51	C	83	0.92	97.37	0.95%	22.74%	0.8	18.7	
AB08	Low Density Residence: Less than 6 DU per Acre	51	C	83	0.04	97.37	0.04%	22.78%	0.0	18.7	
AB08	Low Density Residence: Less than 6 DU per Acre	51	C	83	4.82	97.37	4.95%	27.73%	4.1	22.8	
AB08	Low Density Residence: Less than 6 DU per Acre	51	C	83	0.10	97.37	0.10%	27.83%	0.1	22.9	
AB08	Low Density Residence: Less than 6 DU per Acre	51	C	83	0.19	97.37	0.19%	28.03%	0.2	23.1	
AB08	Low Density Residence: Less than 6 DU per Acre	51	C	83	0.33	97.37	0.34%	28.36%	0.3	23.4	
AB08	Low Density Residence: Less than 6 DU per Acre	51	C	83	0.20	97.37	0.20%	28.57%	0.2	23.5	
AB08	Low Density Residence: Less than 6 DU per Acre	51	C	83	0.15	97.37	0.15%	28.72%	0.1	23.7	
AB08	Low Density Residence: Less than 6 DU per Acre	51	C	83	0.17	97.37	0.17%	28.90%	0.1	23.8	
AB08	Low Density Residence: Less than 6 DU per Acre	51	C	83	0.06	97.37	0.06%	28.96%	0.1	23.9	
AB08	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.61	97.37	0.63%	29.59%	0.5	24.4	
AB08	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.24	97.37	0.25%	29.84%	0.2	24.6	
AB08	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.45	97.37	0.47%	30.31%	0.4	25.0	
AB08	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.67	97.37	0.68%	30.99%	0.6	25.6	
AB08	Low Density Residence: Less than 6 DU per Acre	59	D	87	1.38	97.37	1.42%	32.41%	1.2	26.9	
AB08	Low Density Residence: Less than 6 DU per Acre	59	D	87	10.00	97.37	10.27%	42.68%	8.9	35.8	
AB08	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.09	97.37	0.09%	42.78%	0.1	35.9	
AB08	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.22	97.37	0.23%	43.00%	0.2	36.1	
AB08	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.03	97.37	0.03%	43.03%	0.0	36.1	
AB08	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.22	97.37	0.22%	43.25%	0.2	36.3	
AB08	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.08	97.37	0.08%	43.33%	0.1	36.4	
AB08	Commercial	51	C	94	0.06	97.37	0.07%	43.40%	0.1	36.4	
AB08	Commercial	51	C	94	1.06	97.37	1.09%	44.49%	1.0	37.4	
AB08	Commercial	59	D	95	1.37	97.37	1.41%	45.90%	1.3	38.8	
AB08	Commercial	59	D	95	0.41	97.37	0.42%	46.32%	0.4	39.2	
AB08	Commercial	59	D	95	0.51	97.37	0.52%	46.84%	0.5	39.7	
AB08	Commercial	59	D	95	2.05	97.37	2.11%	48.95%	2.0	41.7	
AB08	Commercial	59	D	95	11.50	97.37	11.81%	60.76%	11.2	52.9	
AB08	Commercial	59	D	95	0.90	97.37	0.93%	61.69%	0.9	53.8	
AB08	Commercial	59	D	95	3.56	97.37	3.65%	65.34%	3.5	57.3	
AB08	Commercial	59	D	95	0.41	97.37	0.42%	65.76%	0.4	57.7	
AB08	Commercial	59	D	95	0.71	97.37	0.73%	66.49%	0.7	58.3	
AB08	Commercial	59	D	95	4.51	97.37	4.63%	71.12%	4.4	62.7	
AB08	Commercial	59	D	95	0.97	97.37	0.99%	72.12%	0.9	63.7	
AB08	Commercial	59	D	95	0.72	97.37	0.74%	72.86%	0.7	64.4	
AB08	Commercial	59	D	95	3.78	97.37	3.88%	76.74%	3.7	68.1	

ABBEY DRAINAGE BASIN - CURVE NUMBER CALCULATION

BASIN	Land Use Category	SOIL MAP UNIT #	Hydrologic Soil Group	SUBREGION CN	SUBREGION AREA (ACRES)	SUBBASIN AREA (ACRES)	PERCENT OF SUBBASIN	CUMULATIVE PERCENT	AREAL WEIGHTED CN	CUMULATIVE CN	COMPOSITE CN
AB08	Medium to High Density Res	59	D	93	1.03	97.37	1.06%	77.80%	1.0	69.1	
AB08	Street	51	C	91.35	6.43	97.37	6.60%	84.40%	6.0	75.1	
AB08	Street	59	D	93.1	4.99	97.37	5.13%	89.52%	4.8	79.9	
AB08	Street	59	D	93.1	2.50	97.37	2.57%	92.09%	2.4	82.3	
AB08	Street	59	D	93.1	1.32	97.37	1.36%	93.45%	1.3	83.5	
AB08	Street	59	D	93.1	6.34	97.37	6.51%	99.95%	6.1	89.6	
AB08	Street	59	D	93.1	0.04	97.37	0.04%	99.99%	0.0	89.6	
AB08	Street	59	D	93.1	0.01	97.37	0.01%	100.00%	0.0	89.6	**89.6**
AB09	Low Density Residence: Less than 6 DU per Acre	51	C	83	0.18	176.83	0.10%	0.10%	0.1	0.1	
AB09	Low Density Residence: Less than 6 DU per Acre	51	C	83	0.53	176.83	0.30%	0.40%	0.2	0.3	
AB09	Low Density Residence: Less than 6 DU per Acre	51	C	83	5.20	176.83	2.94%	3.34%	2.4	2.8	
AB09	Low Density Residence: Less than 6 DU per Acre	124	C	83	0.54	176.83	0.31%	3.65%	0.3	3.0	
AB09	Low Density Residence: Less than 6 DU per Acre	51	C	83	0.39	176.83	0.22%	3.87%	0.2	3.2	
AB09	Low Density Residence: Less than 6 DU per Acre	51	C	83	3.33	176.83	1.88%	5.75%	1.6	4.8	
AB09	Low Density Residence: Less than 6 DU per Acre	124	C	83	0.73	176.83	0.42%	6.17%	0.3	5.1	
AB09	Low Density Residence: Less than 6 DU per Acre	51	C	83	2.97	176.83	1.68%	7.85%	1.4	6.5	
AB09	Low Density Residence: Less than 6 DU per Acre	124	C	83	1.89	176.83	1.07%	8.92%	0.9	7.4	
AB09	Low Density Residence: Less than 6 DU per Acre	51	C	83	0.30	176.83	0.17%	9.08%	0.1	7.5	
AB09	Low Density Residence: Less than 6 DU per Acre	51	C	83	0.72	176.83	0.41%	9.49%	0.3	7.9	
AB09	Low Density Residence: Less than 6 DU per Acre	124	C	83	0.56	176.83	0.32%	9.81%	0.3	8.1	
AB09	Low Density Residence: Less than 6 DU per Acre	124	C	83	0.22	176.83	0.12%	9.93%	0.1	8.2	
AB09	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.65	176.83	0.37%	10.30%	0.3	8.6	
AB09	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.82	176.83	0.46%	10.76%	0.4	9.0	
AB09	Low Density Residence: Less than 6 DU per Acre	59	D	87	4.34	176.83	2.45%	13.21%	2.1	11.1	
AB09	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.91	176.83	0.51%	13.73%	0.4	11.5	
AB09	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.63	176.83	0.35%	14.08%	0.3	11.9	
AB09	Low Density Residence: Less than 6 DU per Acre	59	D	87	2.45	176.83	1.39%	15.47%	1.2	13.1	
AB09	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.33	176.83	0.19%	15.66%	0.2	13.2	
AB09	Low Density Residence: Less than 6 DU per Acre	59	D	87	3.86	176.83	2.18%	17.84%	1.9	15.1	
AB09	Low Density Residence: Less than 6 DU per Acre	92	D	87	6.45	176.83	3.65%	21.49%	3.2	18.3	
AB09	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.79	176.83	0.44%	21.93%	0.4	18.7	
AB09	Low Density Residence: Less than 6 DU per Acre	59	D	87	22.73	176.83	12.86%	34.79%	11.2	29.9	
AB09	Low Density Residence: Less than 6 DU per Acre	59	D	87	1.06	176.83	0.60%	35.39%	0.5	30.4	
AB09	Low Density Residence: Less than 6 DU per Acre	59	D	87	6.43	176.83	3.64%	39.02%	3.2	33.6	
AB09	Low Density Residence: Less than 6 DU per Acre	92	D	87	0.13	176.83	0.07%	39.09%	0.1	33.6	
AB09	Low Density Residence: Less than 6 DU per Acre	59	D	87	2.05	176.83	1.16%	40.26%	1.0	34.6	
AB09	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.30	176.83	0.17%	40.42%	0.1	34.8	
AB09	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.73	176.83	0.41%	40.84%	0.4	35.1	
AB09	Low Density Residence: Less than 6 DU per Acre	92	D	87	8.81	176.83	4.98%	45.81%	4.3	39.5	
AB09	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.05	176.83	0.03%	45.84%	0.0	39.5	
AB09	Low Density Residence: Less than 6 DU per Acre	92	D	87	3.75	176.83	2.12%	47.96%	1.8	41.3	
AB09	Low Density Residence: Less than 6 DU per Acre	59	D	87	1.17	176.83	0.66%	48.63%	0.6	41.9	
AB09	Low Density Residence: Less than 6 DU per Acre	131	water	87	0.02	176.83	0.01%	48.64%	0.0	41.9	
AB09	Agriculture	124	C	74	4.99	176.83	2.82%	51.46%	2.1	44.0	
AB09	Agriculture	124	C	74	0.23	176.83	0.13%	51.59%	0.1	44.1	
AB09	Agriculture	124	C	74	0.02	176.83	0.01%	51.60%	0.0	44.1	
AB09	Agriculture	124	C	74	1.33	176.83	0.75%	52.35%	0.6	44.7	
AB09	Agriculture	124	C	74	2.00	176.83	1.13%	53.48%	0.8	45.5	
AB09	Agriculture	124	C	74	0.02	176.83	0.01%	53.49%	0.0	45.5	
AB09	Agriculture	124	C	74	5.97	176.83	3.38%	56.87%	2.5	48.0	
AB09	Agriculture	51	C	74	6.28	176.83	3.55%	60.42%	2.6	50.6	
AB09	Agriculture	59	D	80	8.68	176.83	4.91%	65.33%	3.9	54.6	

ABBEY DRAINAGE BASIN - CURVE NUMBER CALCULATION

BASIN	Land Use Category	SOIL MAP UNIT #	Hydrologic Soil Group	SUBREGION CN	SUBREGION AREA (ACRES)	SUBBASIN AREA (ACRES)	PERCENT OF SUBBASIN	CUMULATIVE PERCENT	AREAL WEIGHTED CN	CUMULATIVE CN	COMPOSITE CN
AB09	Agriculture	92	D	80	1.51	176.83	0.85%	66.18%	0.7	55.2	
AB09	Agriculture	59	D	80	7.89	176.83	4.46%	70.64%	3.6	58.8	
AB09	Agriculture	92	D	80	2.57	176.83	1.45%	72.09%	1.2	60.0	
AB09	Agriculture	59	D	80	0.01	176.83	0.00%	72.10%	0.0	60.0	
AB09	Agriculture	59	D	80	0.63	176.83	0.36%	72.45%	0.3	60.3	
AB09	Agriculture	92	D	80	0.26	176.83	0.15%	72.60%	0.1	60.4	
AB09	Agriculture	59	D	80	2.36	176.83	1.34%	73.94%	1.1	61.4	
AB09	Agriculture	92	D	80	9.42	176.83	5.33%	79.26%	4.3	65.7	
AB09	Agriculture	59	D	80	1.01	176.83	0.57%	79.84%	0.5	66.2	
AB09	Agriculture	92	D	80	0.73	176.83	0.41%	80.25%	0.3	66.5	
AB09	Agriculture	59	D	80	2.02	176.83	1.14%	81.39%	0.9	67.4	
AB09	Agriculture	92	D	80	10.26	176.83	5.80%	87.19%	4.6	72.1	
AB09	Agriculture	131	water	80	0.03	176.83	0.02%	87.21%	0.0	72.1	
AB09	Commercial	59	D	95	0.01	176.83	0.00%	87.21%	0.0	72.1	
AB09	Street	51	C	91.35	1.93	176.83	1.09%	88.31%	1.0	73.1	
AB09	Street	51	C	91.35	2.38	176.83	1.35%	89.65%	1.2	74.3	
AB09	Street	124	C	91.35	1.08	176.83	0.61%	90.27%	0.6	74.9	
AB09	Street	59	D	93.1	3.93	176.83	2.22%	92.49%	2.1	76.9	
AB09	Street	59	D	93.1	9.59	176.83	5.43%	97.91%	5.1	82.0	
AB09	Street	92	D	93.1	0.19	176.83	0.11%	98.02%	0.1	82.1	
AB09	Street	59	D	93.1	2.44	176.83	1.38%	99.40%	1.3	83.4	
AB09	Street	59	D	93.1	0.04	176.83	0.02%	99.43%	0.0	83.4	
AB09	Street	59	D	93.1	0.01	176.83	0.00%	99.43%	0.0	83.4	**83.4**
AB10	Open Estates: Greater than 1 acre Lots	59	D	84	0.38	70.56	0.54%	0.54%	0.5	0.5	
AB10	Open Estates: Greater than 1 acre Lots	59	D	84	0.75	70.56	1.06%	1.59%	0.9	1.3	
AB10	Open Estates: Greater than 1 acre Lots	92	D	84	0.00	70.56	0.01%	1.60%	0.0	1.3	
AB10	Low Density Residence: Less than 6 DU per Acre	59	D	87	1.61	70.56	2.28%	3.88%	2.0	3.3	
AB10	Low Density Residence: Less than 6 DU per Acre	59	D	87	2.58	70.56	3.66%	7.54%	3.2	6.5	
AB10	Low Density Residence: Less than 6 DU per Acre	59	D	87	2.08	70.56	2.94%	10.48%	2.6	9.1	
AB10	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.27	70.56	0.38%	10.86%	0.3	9.4	
AB10	Low Density Residence: Less than 6 DU per Acre	59	D	87	2.26	70.56	3.21%	14.07%	2.8	12.2	
AB10	Low Density Residence: Less than 6 DU per Acre	92	D	87	0.84	70.56	1.19%	15.26%	1.0	13.2	
AB10	Low Density Residence: Less than 6 DU per Acre	59	D	87	2.58	70.56	3.65%	18.91%	3.2	16.4	
AB10	Low Density Residence: Less than 6 DU per Acre	59	D	87	1.93	70.56	2.73%	21.64%	2.4	18.8	
AB10	Low Density Residence: Less than 6 DU per Acre	59	D	87	7.39	70.56	10.47%	32.11%	9.1	27.9	
AB10	Low Density Residence: Less than 6 DU per Acre	59	D	87	1.04	70.56	1.47%	33.58%	1.3	29.2	
AB10	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.39	70.56	0.55%	34.14%	0.5	29.6	
AB10	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.15	70.56	0.21%	34.35%	0.2	29.8	
AB10	Low Density Residence: Less than 6 DU per Acre	59	D	87	1.22	70.56	1.73%	36.08%	1.5	31.3	
AB10	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.49	70.56	0.70%	36.77%	0.6	31.9	
AB10	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.49	70.56	0.70%	37.47%	0.6	32.6	
AB10	Low Density Residence: Less than 6 DU per Acre	59	D	87	2.17	70.56	3.08%	40.55%	2.7	35.2	
AB10	Low Density Residence: Less than 6 DU per Acre	59	D	87	1.78	70.56	2.52%	43.07%	2.2	37.4	
AB10	Low Density Residence: Less than 6 DU per Acre	59	D	87	1.66	70.56	2.35%	45.42%	2.0	39.5	
AB10	Low Density Residence: Less than 6 DU per Acre	92	D	87	5.08	70.56	7.20%	52.62%	6.3	45.7	
AB10	Low Density Residence: Less than 6 DU per Acre	92	D	87	1.20	70.56	1.70%	54.32%	1.5	47.2	
AB10	Low Density Residence: Less than 6 DU per Acre	92	D	87	0.33	70.56	0.47%	54.79%	0.4	47.6	
AB10	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.81	70.56	1.15%	55.95%	1.0	48.6	
AB10	Low Density Residence: Less than 6 DU per Acre	92	D	87	0.00	70.56	0.00%	55.95%	0.0	48.6	
AB10	Low Density Residence: Less than 6 DU per Acre	92	D	87	0.00	70.56	0.00%	55.95%	0.0	48.6	
AB10	Low Density Residence: Less than 6 DU per Acre	92	D	87	0.00	70.56	0.00%	55.95%	0.0	48.6	
AB10	Agriculture	124	C	74	0.08	70.56	0.11%	56.06%	0.1	48.7	

ABBEY DRAINAGE BASIN - CURVE NUMBER CALCULATION

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AB10	Agriculture	59	D	80	3.63	70.56	5.14%	61.20%	4.1	52.8	
AB10	Agriculture	59	D	80	1.49	70.56	2.12%	63.32%	1.7	54.5	
AB10	Agriculture	92	D	80	3.85	70.56	5.46%	68.78%	4.4	58.9	
AB10	Agriculture	59	D	80	0.26	70.56	0.36%	69.14%	0.3	59.2	
AB10	Agriculture	59	D	80	0.85	70.56	1.21%	70.35%	1.0	60.1	
AB10	Agriculture	92	D	80	0.13	70.56	0.18%	70.53%	0.1	60.3	
AB10	Agriculture	59	D	80	3.73	70.56	5.29%	75.82%	4.2	64.5	
AB10	Agriculture	92	D	80	0.24	70.56	0.34%	76.15%	0.3	64.8	
AB10	Agriculture	92	D	80	0.00	70.56	0.00%	76.15%	0.0	64.8	
AB10	Commercial	59	D	95	0.56	70.56	0.80%	76.95%	0.8	65.5	
AB10	Commercial	59	D	95	0.88	70.56	1.25%	78.20%	1.2	66.7	
AB10	Commercial	59	D	95	0.96	70.56	1.35%	79.55%	1.3	68.0	
AB10	Commercial	59	D	95	1.01	70.56	1.43%	80.98%	1.4	69.4	
AB10	Commercial	59	D	95	0.21	70.56	0.30%	81.28%	0.3	69.7	
AB10	Street	59	D	93.1	0.04	70.56	0.05%	81.33%	0.0	69.7	
AB10	Street	59	D	93.1	1.77	70.56	2.50%	83.84%	2.3	72.0	
AB10	Street	59	D	93.1	3.11	70.56	4.41%	88.24%	4.1	76.1	
AB10	Street	59	D	93.1	8.29	70.56	11.75%	100.00%	10.9	87.1	**87.1**
AB11	Open Estates: Greater than 1 acre Lots	59	D	84	2.04	79.61	2.56%	2.56%	2.1	2.1	
AB11	Open Estates: Greater than 1 acre Lots	59	D	84	0.09	79.61	0.12%	2.67%	0.1	2.2	
AB11	Open Estates: Greater than 1 acre Lots	59	D	84	0.99	79.61	1.24%	3.91%	1.0	3.3	
AB11	Open Estates: Greater than 1 acre Lots	59	D	84	2.77	79.61	3.48%	7.39%	2.9	6.2	
AB11	Open Estates: Greater than 1 acre Lots	59	D	84	9.08	79.61	11.41%	18.79%	9.6	15.8	
AB11	Open Estates: Greater than 1 acre Lots	59	D	84	25.03	79.61	31.44%	50.24%	26.4	42.2	
AB11	Open Estates: Greater than 1 acre Lots	59	D	84	0.00	79.61	0.00%	50.24%	0.0	42.2	
AB11	Low Density Residence: Less than 6 DU per Acre	59	D	87	9.85	79.61	12.38%	62.62%	10.8	53.0	
AB11	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.30	79.61	0.38%	63.00%	0.3	53.3	
AB11	Low Density Residence: Less than 6 DU per Acre	59	D	87	2.34	79.61	2.94%	65.94%	2.6	55.9	
AB11	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.82	79.61	1.03%	66.96%	0.9	56.8	
AB11	Low Density Residence: Less than 6 DU per Acre	59	D	87	5.43	79.61	6.82%	73.78%	5.9	62.7	
AB11	Low Density Residence: Less than 6 DU per Acre	59	D	87	5.31	79.61	6.67%	80.45%	5.8	68.5	
AB11	Low Density Residence: Less than 6 DU per Acre	59	D	87	1.91	79.61	2.39%	82.84%	2.1	70.6	
AB11	Commercial	59	D	95	4.33	79.61	5.44%	88.28%	5.2	75.7	
AB11	Street	59	D	93.1	3.22	79.61	4.04%	92.32%	3.8	79.5	
AB11	Street	59	D	93.1	6.12	79.61	7.68%	100.00%	7.2	86.6	**86.6**
AB12	Open Estates: Greater than 1 acre Lots	59	D	84	0.08	92.32	0.09%	0.09%	0.1	0.1	
AB12	Open Estates: Greater than 1 acre Lots	59	D	84	90.07	92.32	97.57%	97.66%	82.0	82.0	
AB12	Open Estates: Greater than 1 acre Lots	59	D	84	0.00	92.32	0.00%	97.66%	0.0	82.0	
AB12	Street	59	D	93.1	2.16	92.32	2.34%	100.00%	2.2	84.2	**84.2**
AB13	Open Estates: Greater than 1 acre Lots	59	D	84	36.11	99.15	36.42%	36.42%	30.6	30.6	
AB13	Open Estates: Greater than 1 acre Lots	59	D	84	0.07	99.15	0.07%	36.49%	0.1	30.7	
AB13	Low Density Residence: Less than 6 DU per Acre	59	D	87	2.66	99.15	2.68%	39.17%	2.3	33.0	
AB13	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.35	99.15	0.35%	39.52%	0.3	33.3	
AB13	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.02	99.15	0.02%	39.54%	0.0	33.3	
AB13	Low Density Residence: Less than 6 DU per Acre	59	D	87	3.77	99.15	3.80%	43.35%	3.3	36.6	
AB13	Low Density Residence: Less than 6 DU per Acre	59	D	87	4.24	99.15	4.28%	47.62%	3.7	40.3	
AB13	Low Density Residence: Less than 6 DU per Acre	59	D	87	4.46	99.15	4.50%	52.12%	3.9	44.2	
AB13	Low Density Residence: Less than 6 DU per Acre	59	D	87	3.52	99.15	3.55%	55.67%	3.1	47.3	
AB13	Low Density Residence: Less than 6 DU per Acre	59	D	87	2.23	99.15	2.25%	57.92%	2.0	49.3	
AB13	Low Density Residence: Less than 6 DU per Acre	59	D	87	3.22	99.15	3.25%	61.17%	2.8	52.1	
AB13	Low Density Residence: Less than 6 DU per Acre	59	D	87	4.77	99.15	4.81%	65.98%	4.2	56.3	
AB13	Agriculture	59	D	80	4.15	99.15	4.19%	70.16%	3.3	59.7	

ABBEY DRAINAGE BASIN - CURVE NUMBER CALCULATION

BASIN	Land Use Category	SOIL MAP UNIT #	Hydrologic Soil Group	SUBREGION CN	SUBREGION AREA (ACRES)	SUBBASIN AREA (ACRES)	PERCENT OF SUBBASIN	CUMULATIVE PERCENT	AREAL WEIGHTED CN	CUMULATIVE CN	COMPOSITE CN
AB13	Agriculture	63	D	80	2.20	99.15	2.22%	72.38%	1.8	61.4	
AB13	Agriculture	59	D	80	2.77	99.15	2.79%	75.18%	2.2	63.7	
AB13	Agriculture	63	D	80	0.13	99.15	0.13%	75.31%	0.1	63.8	
AB13	Agriculture	59	D	80	3.63	99.15	3.66%	78.97%	2.9	66.7	
AB13	Commercial	59	D	95	1.00	99.15	1.01%	79.98%	1.0	67.7	
AB13	Commercial	59	D	95	0.52	99.15	0.53%	80.50%	0.5	68.2	
AB13	Commercial	59	D	95	4.26	99.15	4.30%	84.80%	4.1	72.2	
AB13	Medium to High Density Res	59	D	93	7.50	99.15	7.57%	92.37%	7.0	79.3	
AB13	Street	59	D	93.1	0.62	99.15	0.62%	92.99%	0.6	79.9	
AB13	Street	63	D	93.1	0.01	99.15	0.01%	93.00%	0.0	79.9	
AB13	Street	59	D	93.1	6.85	99.15	6.91%	99.91%	6.4	86.3	
AB13	Street	63	D	93.1	0.01	99.15	0.01%	99.92%	0.0	86.3	
AB13	Street	59	D	93.1	0.08	99.15	0.08%	100.00%	0.1	86.4	**86.4**
AB14	Open Estates: Greater than 1 acre Lots	52	B	68	0.03	129.35	0.03%	0.03%	0.0	0.0	
AB14	Open Estates: Greater than 1 acre Lots	52	B	68	0.02	129.35	0.01%	0.04%	0.0	0.0	
AB14	Low Density Residence: Less than 6 DU per Acre	52	B	75	0.77	129.35	0.59%	0.63%	0.4	0.5	
AB14	Open Estates: Greater than 1 acre Lots	52	B	68	0.34	129.35	0.27%	0.90%	0.2	0.7	
AB14	Open Estates: Greater than 1 acre Lots	52	B	68	0.09	129.35	0.07%	0.97%	0.0	0.7	
AB14	Open Estates: Greater than 1 acre Lots	52	B	68	0.26	129.35	0.20%	1.17%	0.1	0.8	
AB14	Open Estates: Greater than 1 acre Lots	52	B	68	1.16	129.35	0.90%	2.07%	0.6	1.4	
AB14	Open Estates: Greater than 1 acre Lots	52	B	68	0.50	129.35	0.39%	2.45%	0.3	1.7	
AB14	Open Estates: Greater than 1 acre Lots	52	B	68	0.00	129.35	0.00%	2.45%	0.0	1.7	
AB14	Open Estates: Greater than 1 acre Lots	51	C	79	0.06	129.35	0.05%	2.50%	0.0	1.7	
AB14	Open Estates: Greater than 1 acre Lots	51	C	79	0.06	129.35	0.05%	2.55%	0.0	1.8	
AB14	Open Estates: Greater than 1 acre Lots	59	D	84	0.34	129.35	0.26%	2.81%	0.2	2.0	
AB14	Open Estates: Greater than 1 acre Lots	63	D	84	0.23	129.35	0.18%	2.99%	0.2	2.2	
AB14	Open Estates: Greater than 1 acre Lots	59	D	84	0.49	129.35	0.38%	3.37%	0.3	2.5	
AB14	Open Estates: Greater than 1 acre Lots	59	D	84	2.78	129.35	2.15%	5.52%	1.8	4.3	
AB14	Open Estates: Greater than 1 acre Lots	72	D	84	6.35	129.35	4.91%	10.43%	4.1	8.4	
AB14	Open Estates: Greater than 1 acre Lots	72	D	84	0.26	129.35	0.20%	10.63%	0.2	8.6	
AB14	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.18	129.35	0.14%	10.77%	0.1	8.7	
AB14	Low Density Residence: Less than 6 DU per Acre	72	D	87	0.87	129.35	0.67%	11.44%	0.6	9.3	
AB14	Open Estates: Greater than 1 acre Lots	72	D	84	0.82	129.35	0.64%	12.07%	0.5	9.8	
AB14	Open Estates: Greater than 1 acre Lots	72	D	84	0.30	129.35	0.23%	12.31%	0.2	10.0	
AB14	Open Estates: Greater than 1 acre Lots	72	D	84	3.15	129.35	2.43%	14.74%	2.0	12.1	
AB14	Open Estates: Greater than 1 acre Lots	59	D	84	1.25	129.35	0.97%	15.71%	0.8	12.9	
AB14	Low Density Residence: Less than 6 DU per Acre	52	B	75	0.77	129.35	0.60%	16.31%	0.4	13.3	
AB14	Low Density Residence: Less than 6 DU per Acre	52	B	75	0.04	129.35	0.03%	16.34%	0.0	13.3	
AB14	Low Density Residence: Less than 6 DU per Acre	52	B	75	0.23	129.35	0.18%	16.52%	0.1	13.5	
AB14	Low Density Residence: Less than 6 DU per Acre	52	B	75	0.54	129.35	0.42%	16.93%	0.3	13.8	
AB14	Low Density Residence: Less than 6 DU per Acre	52	B	75	0.17	129.35	0.13%	17.06%	0.1	13.9	
AB14	Low Density Residence: Less than 6 DU per Acre	52	B	75	0.01	129.35	0.01%	17.07%	0.0	13.9	
AB14	Low Density Residence: Less than 6 DU per Acre	52	B	75	0.74	129.35	0.57%	17.64%	0.4	14.3	
AB14	Low Density Residence: Less than 6 DU per Acre	52	B	75	0.60	129.35	0.46%	18.11%	0.3	14.7	
AB14	Low Density Residence: Less than 6 DU per Acre	72	D	87	0.74	129.35	0.57%	18.68%	0.5	15.2	
AB14	Low Density Residence: Less than 6 DU per Acre	59	D	87	1.03	129.35	0.80%	19.48%	0.7	15.9	
AB14	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.59	129.35	0.45%	19.93%	0.4	16.2	
AB14	Low Density Residence: Less than 6 DU per Acre	72	D	87	0.12	129.35	0.09%	20.02%	0.1	16.3	
AB14	Low Density Residence: Less than 6 DU per Acre	63	D	87	3.07	129.35	2.37%	22.39%	2.1	18.4	
AB14	Low Density Residence: Less than 6 DU per Acre	72	D	87	0.76	129.35	0.59%	22.98%	0.5	18.9	
AB14	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.69	129.35	0.54%	23.52%	0.5	19.4	
AB14	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.97	129.35	0.75%	24.27%	0.7	20.0	

ABBEY DRAINAGE BASIN - CURVE NUMBER CALCULATION

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AB14	Low Density Residence: Less than 6 DU per Acre	63	D	87	1.48	129.35	1.14%	25.41%	1.0	21.0	
AB14	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.05	129.35	0.04%	25.45%	0.0	21.0	
AB14	Low Density Residence: Less than 6 DU per Acre	72	D	87	0.40	129.35	0.31%	25.75%	0.3	21.3	
AB14	Low Density Residence: Less than 6 DU per Acre	72	D	87	0.78	129.35	0.60%	26.35%	0.5	21.8	
AB14	Low Density Residence: Less than 6 DU per Acre	72	D	87	0.39	129.35	0.30%	26.65%	0.3	22.1	
AB14	Low Density Residence: Less than 6 DU per Acre	72	D	87	0.40	129.35	0.31%	26.96%	0.3	22.4	
AB14	Low Density Residence: Less than 6 DU per Acre	72	D	87	1.35	129.35	1.04%	28.01%	0.9	23.3	
AB14	Agriculture	52	B	61	0.72	129.35	0.55%	28.56%	0.3	23.6	
AB14	Agriculture	52	B	61	0.00	129.35	0.00%	28.56%	0.0	23.6	
AB14	Agriculture	59	D	80	0.42	129.35	0.33%	28.89%	0.3	23.9	
AB14	Agriculture	63	D	80	4.62	129.35	3.57%	32.46%	2.9	26.7	
AB14	Agriculture	59	D	80	10.58	129.35	8.18%	40.64%	6.5	33.3	
AB14	Agriculture	72	D	80	13.96	129.35	10.80%	51.43%	8.6	41.9	
AB14	Agriculture	63	D	80	5.98	129.35	4.62%	56.06%	3.7	45.6	
AB14	Agriculture	59	D	80	0.04	129.35	0.03%	56.09%	0.0	45.6	
AB14	Commercial	51	C	94	0.13	129.35	0.10%	56.19%	0.1	45.7	
AB14	Commercial	51	C	94	1.40	129.35	1.08%	57.27%	1.0	46.7	
AB14	Commercial	59	D	95	0.71	129.35	0.55%	57.82%	0.5	47.3	
AB14	Commercial	59	D	95	2.07	129.35	1.60%	59.42%	1.5	48.8	
AB14	Commercial	59	D	95	0.47	129.35	0.37%	59.78%	0.3	49.1	
AB14	Commercial	59	D	95	2.02	129.35	1.56%	61.35%	1.5	50.6	
AB14	Commercial	59	D	95	0.81	129.35	0.63%	61.97%	0.6	51.2	
AB14	Commercial	59	D	95	1.01	129.35	0.78%	62.75%	0.7	52.0	
AB14	Commercial	63	D	95	0.01	129.35	0.01%	62.76%	0.0	52.0	
AB14	Commercial	59	D	95	0.43	129.35	0.33%	63.09%	0.3	52.3	
AB14	Commercial	59	D	95	0.91	129.35	0.70%	63.79%	0.7	52.9	
AB14	Commercial	59	D	95	16.64	129.35	12.87%	76.66%	12.2	65.2	
AB14	Commercial	59	D	95	1.41	129.35	1.09%	77.75%	1.0	66.2	
AB14	Commercial	59	D	95	5.15	129.35	3.98%	81.73%	3.8	70.0	
AB14	Commercial	59	D	95	1.46	129.35	1.13%	82.86%	1.1	71.1	
AB14	Commercial	59	D	95	2.94	129.35	2.27%	85.13%	2.2	73.2	
AB14	Commercial	59	D	95	1.29	129.35	1.00%	86.13%	0.9	74.2	
AB14	Commercial	59	D	95	0.20	129.35	0.15%	86.28%	0.1	74.3	
AB14	Commercial	72	D	95	0.02	129.35	0.01%	86.30%	0.0	74.3	
AB14	Street	51	C	91.35	2.40	129.35	1.86%	88.16%	1.7	76.0	
AB14	Street	51	C	91.35	0.11	129.35	0.09%	88.25%	0.1	76.1	
AB14	Street	63	D	93.1	0.26	129.35	0.20%	88.44%	0.2	76.3	
AB14	Street	59	D	93.1	14.18	129.35	10.96%	99.41%	10.2	86.5	
AB14	Street	72	D	93.1	0.34	129.35	0.26%	99.67%	0.2	86.7	
AB14	Street	63	D	93.1	0.41	129.35	0.32%	99.99%	0.3	87.0	
AB14	Street	59	D	93.1	0.02	129.35	0.01%	100.00%	0.0	87.0	**87.0**
AB15	Open Estates: Greater than 1 acre Lots	52	B	68	1.01	38.04	2.66%	2.66%	1.8	1.8	
AB15	Open Estates: Greater than 1 acre Lots	52	B	68	0.03	38.04	0.07%	2.74%	0.0	1.9	
AB15	Open Estates: Greater than 1 acre Lots	52	B	68	2.38	38.04	6.26%	9.00%	4.3	6.1	
AB15	Open Estates: Greater than 1 acre Lots	52	B	68	0.17	38.04	0.44%	9.44%	0.3	6.4	
AB15	Open Estates: Greater than 1 acre Lots	52	B	68	3.70	38.04	9.72%	19.16%	6.6	13.0	
AB15	Open Estates: Greater than 1 acre Lots	52	B	68	0.37	38.04	0.98%	20.14%	0.7	13.7	
AB15	Open Estates: Greater than 1 acre Lots	72	D	84	0.64	38.04	1.68%	21.82%	1.4	15.1	
AB15	Open Estates: Greater than 1 acre Lots	72	D	84	1.31	38.04	3.44%	25.26%	2.9	18.0	
AB15	Open Estates: Greater than 1 acre Lots	72	D	84	1.78	38.04	4.68%	29.93%	3.9	21.9	
AB15	Open Estates: Greater than 1 acre Lots	63	D	84	1.67	38.04	4.40%	34.34%	3.7	25.6	
AB15	Open Estates: Greater than 1 acre Lots	72	D	84	0.32	38.04	0.85%	35.19%	0.7	26.3	

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AB15	Open Estates: Greater than 1 acre Lots	72	D	84	2.14	38.04	5.63%	40.81%	4.7	31.1	
AB15	Open Estates: Greater than 1 acre Lots	72	D	84	0.15	38.04	0.39%	41.20%	0.3	31.4	
AB15	Low Density Residence: Less than 6 DU per Acre	52	B	75	0.45	38.04	1.19%	42.40%	0.9	32.3	
AB15	Low Density Residence: Less than 6 DU per Acre	52	B	75	0.03	38.04	0.09%	42.48%	0.1	32.3	
AB15	Low Density Residence: Less than 6 DU per Acre	52	B	75	0.68	38.04	1.78%	44.26%	1.3	33.7	
AB15	Low Density Residence: Less than 6 DU per Acre	52	B	75	2.01	38.04	5.28%	49.54%	4.0	37.6	
AB15	Low Density Residence: Less than 6 DU per Acre	52	B	75	1.38	38.04	3.64%	53.18%	2.7	40.4	
AB15	Low Density Residence: Less than 6 DU per Acre	52	B	75	0.63	38.04	1.65%	54.83%	1.2	41.6	
AB15	Low Density Residence: Less than 6 DU per Acre	52	B	75	0.35	38.04	0.93%	55.76%	0.7	42.3	
AB15	Low Density Residence: Less than 6 DU per Acre	72	D	87	1.07	38.04	2.82%	58.58%	2.4	44.8	
AB15	Low Density Residence: Less than 6 DU per Acre	72	D	87	0.56	38.04	1.49%	60.06%	1.3	46.1	
AB15	Low Density Residence: Less than 6 DU per Acre	72	D	87	1.53	38.04	4.01%	64.08%	3.5	49.5	
AB15	Low Density Residence: Less than 6 DU per Acre	72	D	87	2.45	38.04	6.44%	70.51%	5.6	55.1	
AB15	Low Density Residence: Less than 6 DU per Acre	71	D	87	0.00	38.04	0.01%	70.52%	0.0	55.1	
AB15	Low Density Residence: Less than 6 DU per Acre	72	D	87	1.27	38.04	3.34%	73.86%	2.9	58.0	
AB15	Low Density Residence: Less than 6 DU per Acre	72	D	87	0.44	38.04	1.16%	75.02%	1.0	59.1	
AB15	Low Density Residence: Less than 6 DU per Acre	72	D	87	0.05	38.04	0.12%	75.14%	0.1	59.2	
AB15	Low Density Residence: Less than 6 DU per Acre	72	D	87	2.17	38.04	5.71%	80.85%	5.0	64.1	
AB15	Low Density Residence: Less than 6 DU per Acre	63	D	87	2.18	38.04	5.74%	86.59%	5.0	69.1	
AB15	Low Density Residence: Less than 6 DU per Acre	72	D	87	0.33	38.04	0.87%	87.46%	0.8	69.9	
AB15	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.55	38.04	1.46%	88.92%	1.3	71.2	
AB15	Low Density Residence: Less than 6 DU per Acre	72	D	87	0.47	38.04	1.24%	90.16%	1.1	72.2	
AB15	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.11	38.04	0.29%	90.45%	0.3	72.5	
AB15	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.00	38.04	0.01%	90.45%	0.0	72.5	
AB15	Low Density Residence: Less than 6 DU per Acre	72	D	87	1.11	38.04	2.92%	93.37%	2.5	75.0	
AB15	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.24	38.04	0.62%	94.00%	0.5	75.6	
AB15	Low Density Residence: Less than 6 DU per Acre	72	D	87	0.00	38.04	0.00%	94.00%	0.0	75.6	
AB15	Agriculture	63	D	80	0.01	38.04	0.03%	94.03%	0.0	75.6	
AB15	Street	52	B	87.5	0.04	38.04	0.09%	94.12%	0.1	75.7	
AB15	Street	72	D	93.1	0.98	38.04	2.59%	96.71%	2.4	78.1	
AB15	Street	71	D	93.1	0.02	38.04	0.06%	96.76%	0.1	78.1	
AB15	Street	63	D	93.1	1.23	38.04	3.23%	100.00%	3.0	81.2	
AB15	Street	72	D	93.1	0.00	38.04	0.00%	100.00%	0.0	81.2	
AB15	Street	71	D	93.1	0.00	38.04	0.00%	100.00%	0.0	81.2	**81.2**
AB17	Open Estates: Greater than 1 acre Lots	59	D	84	11.65	64.74	18.00%	18.00%	15.1	15.1	
AB17	Open Estates: Greater than 1 acre Lots	63	D	84	10.30	64.74	15.90%	33.90%	13.4	28.5	
AB17	Open Estates: Greater than 1 acre Lots	59	D	84	0.15	64.74	0.23%	34.13%	0.2	28.7	
AB17	Open Estates: Greater than 1 acre Lots	63	D	84	0.54	64.74	0.84%	34.96%	0.7	29.4	
AB17	Open Estates: Greater than 1 acre Lots	59	D	84	0.17	64.74	0.27%	35.23%	0.2	29.6	
AB17	Open Estates: Greater than 1 acre Lots	63	D	84	0.97	64.74	1.50%	36.73%	1.3	30.9	
AB17	Low Density Residence: Less than 6 DU per Acre	72	D	87	0.05	64.74	0.07%	36.80%	0.1	30.9	
AB17	Low Density Residence: Less than 6 DU per Acre	72	D	87	0.02	64.74	0.03%	36.83%	0.0	30.9	
AB17	Low Density Residence: Less than 6 DU per Acre	72	D	87	0.56	64.74	0.87%	37.70%	0.8	31.7	
AB17	Low Density Residence: Less than 6 DU per Acre	71	D	87	0.56	64.74	0.86%	38.56%	0.7	32.4	
AB17	Low Density Residence: Less than 6 DU per Acre	63	D	87	3.98	64.74	6.14%	44.70%	5.3	37.8	
AB17	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.10	64.74	0.16%	44.86%	0.1	37.9	
AB17	Low Density Residence: Less than 6 DU per Acre	71	D	87	0.02	64.74	0.04%	44.90%	0.0	38.0	
AB17	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.02	64.74	0.04%	44.93%	0.0	38.0	
AB17	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.04	64.74	0.07%	45.00%	0.1	38.0	
AB17	Low Density Residence: Less than 6 DU per Acre	71	D	87	0.47	64.74	0.72%	45.72%	0.6	38.7	
AB17	Low Density Residence: Less than 6 DU per Acre	72	D	87	0.35	64.74	0.53%	46.25%	0.5	39.1	
AB17	Low Density Residence: Less than 6 DU per Acre	71	D	87	3.31	64.74	5.10%	51.36%	4.4	43.6	

ABBEY DRAINAGE BASIN - CURVE NUMBER CALCULATION

BASIN	Land Use Category	SOIL MAP UNIT #	Hydrologic Soil Group	SUBREGION CN	SUBREGION AREA (ACRES)	SUBBASIN AREA (ACRES)	PERCENT OF SUBBASIN	CUMULATIVE PERCENT	AREAL WEIGHTED CN	CUMULATIVE CN	COMPOSITE CN
AB17	Low Density Residence: Less than 6 DU per Acre	63	D	87	2.03	64.74	3.13%	54.48%	2.7	46.3	
AB17	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.36	64.74	0.56%	55.04%	0.5	46.8	
AB17	Low Density Residence: Less than 6 DU per Acre	59	D	87	2.50	64.74	3.86%	58.90%	3.4	50.1	
AB17	Low Density Residence: Less than 6 DU per Acre	72	D	87	0.05	64.74	0.08%	58.98%	0.1	50.2	
AB17	Low Density Residence: Less than 6 DU per Acre	63	D	87	1.45	64.74	2.24%	61.23%	2.0	52.2	
AB17	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.84	64.74	1.30%	62.53%	1.1	53.3	
AB17	Low Density Residence: Less than 6 DU per Acre	63	D	87	1.97	64.74	3.05%	65.58%	2.7	55.9	
AB17	Low Density Residence: Less than 6 DU per Acre	59	D	87	1.30	64.74	2.00%	67.58%	1.7	57.7	
AB17	Low Density Residence: Less than 6 DU per Acre	63	D	87	5.15	64.74	7.95%	75.53%	6.9	64.6	
AB17	Low Density Residence: Less than 6 DU per Acre	59	D	87	1.96	64.74	3.02%	78.55%	2.6	67.2	
AB17	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.88	64.74	1.36%	79.91%	1.2	68.4	
AB17	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.12	64.74	0.19%	80.10%	0.2	68.6	
AB17	Low Density Residence: Less than 6 DU per Acre	72	D	87	0.00	64.74	0.00%	80.10%	0.0	68.6	
AB17	Agriculture	59	D	80	0.20	64.74	0.30%	80.41%	0.2	68.8	
AB17	Agriculture	71	D	80	1.48	64.74	2.28%	82.69%	1.8	70.7	
AB17	Agriculture	63	D	80	6.14	64.74	9.49%	92.18%	7.6	78.2	
AB17	Agriculture	63	D	80	0.63	64.74	0.97%	93.15%	0.8	79.0	
AB17	Commercial	59	D	95	0.47	64.74	0.73%	93.87%	0.7	79.7	
AB17	Commercial	71	D	95	0.44	64.74	0.68%	94.56%	0.7	80.4	
AB17	Commercial	63	D	95	0.18	64.74	0.28%	94.84%	0.3	80.6	
AB17	Street	59	D	93.1	0.87	64.74	1.35%	96.19%	1.3	81.9	
AB17	Street	72	D	93.1	0.96	64.74	1.49%	97.68%	1.4	83.3	
AB17	Street	71	D	93.1	0.49	64.74	0.76%	98.44%	0.7	84.0	
AB17	Street	63	D	93.1	0.97	64.74	1.50%	99.94%	1.4	85.4	
AB17	Street	59	D	93.1	0.03	64.74	0.05%	100.00%	0.0	85.4	
AB17	Street	59	D	93.1	0.00	64.74	0.00%	100.00%	0.0	85.4	
AB17	Street	63	D	93.1	0.00	64.74	0.00%	100.00%	0.0	85.4	
AB17	Street	72	D	93.1	0.00	64.74	0.00%	100.00%	0.0	85.4	
AB17	Street	71	D	93.1	0.00	64.74	0.00%	100.00%	0.0	85.4	
AB17	Street	59	D	93.1	0.00	64.74	0.00%	100.00%	0.0	85.4	
AB17	Street	59	D	93.1	0.00	64.74	0.00%	100.00%	0.0	85.4	**85.4**

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BASIN	Land Use Category	SOIL MAP UNIT #	Hydrologic Soil Group	SUBREGION CN	SUBREGION AREA (ACRES)	SUBBASIN AREA (ACRES)	PERCENT OF SUBBASIN	CUMULATIVE PERCENT	AREAL WEIGHTED CN	CUMULATIVE CN	COMPOSITE CN
AB08	Low Density Residence: Less than 6 DU per Acre	51	C	83	0.04	97.37	0.04%	0.04%	0.0	0.0	
AB08	Low Density Residence: Less than 6 DU per Acre	51	C	83	0.10	97.37	0.10%	0.14%	0.1	0.1	
AB08	Low Density Residence: Less than 6 DU per Acre	51	C	83	0.13	97.37	0.14%	0.27%	0.1	0.2	
AB08	Low Density Residence: Less than 6 DU per Acre	51	C	83	0.07	97.37	0.07%	0.34%	0.1	0.3	
AB08	Low Density Residence: Less than 6 DU per Acre	51	C	83	0.03	97.37	0.03%	0.38%	0.0	0.3	
AB08	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.40	97.37	0.41%	0.78%	0.4	0.7	
AB08	Low Density Residence: Less than 6 DU per Acre	51	C	83	0.07	97.37	0.07%	0.86%	0.1	0.7	
AB08	Low Density Residence: Less than 6 DU per Acre	59	D	87	1.45	97.37	1.49%	2.34%	1.3	2.0	
AB08	Low Density Residence: Less than 6 DU per Acre	51	C	83	0.38	97.37	0.39%	2.73%	0.3	2.3	
AB08	Low Density Residence: Less than 6 DU per Acre	51	C	83	0.78	97.37	0.81%	3.54%	0.7	3.0	
AB08	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.44	97.37	0.45%	3.99%	0.4	3.4	
AB08	Low Density Residence: Less than 6 DU per Acre	51	C	83	0.38	97.37	0.39%	4.38%	0.3	3.7	
AB08	Low Density Residence: Less than 6 DU per Acre	51	C	83	0.79	97.37	0.81%	5.19%	0.7	4.4	
AB08	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.39	97.37	0.40%	5.59%	0.3	4.7	
AB08	Low Density Residence: Less than 6 DU per Acre	51	C	83	0.01	97.37	0.01%	5.60%	0.0	4.8	
AB08	Low Density Residence: Less than 6 DU per Acre	59	D	87	1.01	97.37	1.04%	6.64%	0.9	5.7	
AB08	Low Density Residence: Less than 6 DU per Acre	51	C	83	1.36	97.37	1.39%	8.03%	1.2	6.8	
AB08	Low Density Residence: Less than 6 DU per Acre	59	D	87	2.41	97.37	2.47%	10.50%	2.2	9.0	
AB08	Low Density Residence: Less than 6 DU per Acre	51	C	83	0.00	97.37	0.00%	10.50%	0.0	9.0	
AB08	Low Density Residence: Less than 6 DU per Acre	51	C	83	1.35	97.37	1.38%	11.89%	1.1	10.1	
AB08	Low Density Residence: Less than 6 DU per Acre	59	D	87	3.43	97.37	3.52%	15.41%	3.1	13.2	
AB08	Low Density Residence: Less than 6 DU per Acre	51	C	83	1.55	97.37	1.59%	16.99%	1.3	14.5	
AB08	Low Density Residence: Less than 6 DU per Acre	59	D	87	5.57	97.37	5.72%	22.71%	5.0	19.5	
AB08	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.01	97.37	0.01%	22.72%	0.0	19.5	
AB08	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.01	97.37	0.01%	22.73%	0.0	19.5	
AB08	Medium to High Density Res	51	C	91	0.17	97.37	0.17%	22.90%	0.2	19.6	
AB08	Medium to High Density Res	51	C	91	0.31	97.37	0.32%	23.22%	0.3	19.9	
AB08	Medium to High Density Res	59	D	93	0.01	97.37	0.01%	23.23%	0.0	19.9	
AB08	Medium to High Density Res	51	C	91	0.27	97.37	0.28%	23.51%	0.3	20.2	
AB08	Medium to High Density Res	51	C	91	0.04	97.37	0.04%	23.55%	0.0	20.2	
AB08	Medium to High Density Res	51	C	91	0.06	97.37	0.06%	23.61%	0.1	20.3	
AB08	Medium to High Density Res	51	C	91	0.07	97.37	0.07%	23.68%	0.1	20.4	
AB08	Medium to High Density Res	51	C	91	0.08	97.37	0.08%	23.76%	0.1	20.4	
AB08	Medium to High Density Res	51	C	91	0.18	97.37	0.18%	23.94%	0.2	20.6	
AB08	Medium to High Density Res	51	C	91	0.02	97.37	0.02%	23.96%	0.0	20.6	
AB08	Medium to High Density Res	51	C	91	0.07	97.37	0.08%	24.04%	0.1	20.7	
AB08	Medium to High Density Res	51	C	91	0.08	97.37	0.08%	24.12%	0.1	20.7	
AB08	Medium to High Density Res	51	C	91	0.06	97.37	0.06%	24.18%	0.1	20.8	
AB08	Medium to High Density Res	51	C	91	0.08	97.37	0.08%	24.25%	0.1	20.9	
AB08	Medium to High Density Res	51	C	91	0.13	97.37	0.13%	24.39%	0.1	21.0	
AB08	Medium to High Density Res	51	C	91	0.31	97.37	0.32%	24.71%	0.3	21.3	
AB08	Medium to High Density Res	51	C	91	0.14	97.37	0.14%	24.85%	0.1	21.4	
AB08	Medium to High Density Res	51	C	91	0.13	97.37	0.13%	24.98%	0.1	21.5	
AB08	Medium to High Density Res	51	C	91	0.13	97.37	0.13%	25.11%	0.1	21.7	
AB08	Medium to High Density Res	51	C	91	0.13	97.37	0.13%	25.24%	0.1	21.8	
AB08	Medium to High Density Res	51	C	91	0.13	97.37	0.13%	25.38%	0.1	21.9	
AB08	Medium to High Density Res	51	C	91	0.08	97.37	0.08%	25.46%	0.1	22.0	
AB08	Medium to High Density Res	51	C	91	0.15	97.37	0.15%	25.61%	0.1	22.1	
AB08	Medium to High Density Res	51	C	91	0.05	97.37	0.05%	25.66%	0.0	22.2	
AB08	Medium to High Density Res	51	C	91	0.06	97.37	0.06%	25.72%	0.1	22.2	
AB08	Medium to High Density Res	51	C	91	0.05	97.37	0.05%	25.78%	0.0	22.3	
AB08	Medium to High Density Res	51	C	91	0.03	97.37	0.03%	25.81%	0.0	22.3	

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AB08	Medium to High Density Res	59	D	93	0.03	97.37	0.03%	25.83%	0.0	22.3	
AB08	Medium to High Density Res	51	C	91	0.08	97.37	0.09%	25.92%	0.1	22.4	
AB08	Medium to High Density Res	59	D	93	0.06	97.37	0.06%	25.98%	0.1	22.4	
AB08	Medium to High Density Res	51	C	91	1.25	97.37	1.28%	27.27%	1.2	23.6	
AB08	Medium to High Density Res	59	D	93	0.06	97.37	0.06%	27.33%	0.1	23.7	
AB08	Medium to High Density Res	51	C	91	0.08	97.37	0.08%	27.41%	0.1	23.7	
AB08	Medium to High Density Res	59	D	93	0.08	97.37	0.08%	27.49%	0.1	23.8	
AB08	Medium to High Density Res	59	D	93	0.08	97.37	0.08%	27.57%	0.1	23.9	
AB08	Medium to High Density Res	51	C	91	0.26	97.37	0.27%	27.84%	0.2	24.1	
AB08	Medium to High Density Res	51	C	91	0.26	97.37	0.26%	28.10%	0.2	24.4	
AB08	Medium to High Density Res	59	D	93	0.18	97.37	0.18%	28.29%	0.2	24.6	
AB08	Medium to High Density Res	51	C	91	0.15	97.37	0.15%	28.44%	0.1	24.7	
AB08	Medium to High Density Res	51	C	91	0.42	97.37	0.43%	28.87%	0.4	25.1	
AB08	Medium to High Density Res	59	D	93	0.15	97.37	0.16%	29.03%	0.1	25.2	
AB08	Medium to High Density Res	51	C	91	0.58	97.37	0.60%	29.63%	0.5	25.8	
AB08	Medium to High Density Res	59	D	93	0.20	97.37	0.21%	29.84%	0.2	26.0	
AB08	Medium to High Density Res	59	D	93	0.30	97.37	0.31%	30.14%	0.3	26.3	
AB08	Medium to High Density Res	51	C	91	0.70	97.37	0.72%	30.87%	0.7	26.9	
AB08	Medium to High Density Res	59	D	93	0.69	97.37	0.71%	31.58%	0.7	27.6	
AB08	Medium to High Density Res	59	D	93	5.22	97.37	5.36%	36.94%	5.0	32.6	
AB08	Medium to High Density Res	59	D	93	1.05	97.37	1.08%	38.02%	1.0	33.6	
AB08	Medium to High Density Res	59	D	93	18.30	97.37	18.80%	56.82%	17.5	51.0	
AB08	Medium to High Density Res	59	D	93	4.10	97.37	4.21%	61.02%	3.9	55.0	
AB08	Medium to High Density Res	59	D	93	3.56	97.37	3.65%	64.67%	3.4	58.4	
AB08	Medium to High Density Res	59	D	93	1.51	97.37	1.55%	66.22%	1.4	59.8	
AB08	Medium to High Density Res	51	C	91	0.08	97.37	0.08%	66.30%	0.1	59.9	
AB08	Medium to High Density Res	59	D	93	0.20	97.37	0.20%	66.50%	0.2	60.1	
AB08	Medium to High Density Res	59	D	93	5.16	97.37	5.30%	71.81%	4.9	65.0	
AB08	Medium to High Density Res	51	C	91	0.16	97.37	0.16%	71.97%	0.1	65.1	
AB08	Medium to High Density Res	51	C	91	3.40	97.37	3.49%	75.46%	3.2	68.3	
AB08	Medium to High Density Res	59	D	93	5.01	97.37	5.15%	80.61%	4.8	73.1	
AB08	Medium to High Density Res	59	D	93	0.15	97.37	0.16%	80.77%	0.1	73.3	
AB08	Medium to High Density Res	59	D	93	0.15	97.37	0.16%	80.93%	0.1	73.4	
AB08	Medium to High Density Res	59	D	93	0.07	97.37	0.07%	81.00%	0.1	73.5	
AB08	Medium to High Density Res	59	D	93	0.07	97.37	0.07%	81.07%	0.1	73.5	
AB08	Medium to High Density Res	51	C	91	0.06	97.37	0.07%	81.14%	0.1	73.6	
AB08	Medium to High Density Res	51	C	91	0.06	97.37	0.07%	81.20%	0.1	73.6	
AB08	Medium to High Density Res	59	D	93	1.12	97.37	1.15%	82.35%	1.1	74.7	
AB08	Medium to High Density Res	59	D	93	1.12	97.37	1.15%	83.50%	1.1	75.8	
AB08	Medium to High Density Res	59	D	93	0.08	97.37	0.09%	83.59%	0.1	75.9	
AB08	Medium to High Density Res	59	D	93	0.08	97.37	0.09%	83.68%	0.1	75.9	
AB08	Medium to High Density Res	59	D	93	0.05	97.37	0.05%	83.73%	0.0	76.0	
AB08	Medium to High Density Res	59	D	93	0.05	97.37	0.05%	83.77%	0.0	76.0	
AB08	Street	59	D	93.1	7.49	97.37	7.69%	91.47%	7.2	83.2	
AB08	Street	51	C	91.35	5.46	97.37	5.61%	97.07%	5.1	88.3	
AB08	Street	59	D	93.1	3.72	97.37	3.82%	100.89%	3.6	91.9	
AB08	Wood-Grass Combination (Fair Condition)	59	D	82	0.64	97.37	0.65%	101.55%	0.5	92.4	
AB08	Wood-Grass Combination (Fair Condition)	59	D	82	0.04	97.37	0.04%	101.59%	0.0	92.4	
AB08	Wood-Grass Combination (Fair Condition)	59	D	82	0.04	97.37	0.04%	101.63%	0.0	92.5	**92**
AB09	Low Density Residence: Less than 6 DU per Acre	51	C	83	0.20	176.83	0.11%	0.11%	0.1	0.1	
AB09	Low Density Residence: Less than 6 DU per Acre	51	C	83	0.22	176.83	0.12%	0.24%	0.1	0.2	
AB09	Low Density Residence: Less than 6 DU per Acre	124	C	83	0.01	176.83	0.01%	0.24%	0.0	0.2	

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AB09	Low Density Residence: Less than 6 DU per Acre	51	C	83	0.23	176.83	0.13%	0.37%	0.1	0.3	
AB09	Low Density Residence: Less than 6 DU per Acre	51	C	83	0.45	176.83	0.26%	0.63%	0.2	0.5	
AB09	Low Density Residence: Less than 6 DU per Acre	124	C	83	0.17	176.83	0.10%	0.73%	0.1	0.6	
AB09	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.02	176.83	0.01%	0.74%	0.0	0.6	
AB09	Low Density Residence: Less than 6 DU per Acre	92	D	87	3.75	176.83	2.12%	2.86%	1.8	2.5	
AB09	Low Density Residence: Less than 6 DU per Acre	131	water	87	0.02	176.83	0.01%	2.87%	0.0	2.5	
AB09	Low Density Residence: Less than 6 DU per Acre	51	C	83	0.46	176.83	0.26%	3.13%	0.2	2.7	
AB09	Low Density Residence: Less than 6 DU per Acre	51	C	83	0.05	176.83	0.03%	3.16%	0.0	2.7	
AB09	Low Density Residence: Less than 6 DU per Acre	124	C	83	0.16	176.83	0.09%	3.25%	0.1	2.8	
AB09	Low Density Residence: Less than 6 DU per Acre	51	C	83	0.22	176.83	0.13%	3.37%	0.1	2.9	
AB09	Low Density Residence: Less than 6 DU per Acre	51	C	83	0.32	176.83	0.18%	3.56%	0.2	3.0	
AB09	Low Density Residence: Less than 6 DU per Acre	51	C	83	0.20	176.83	0.11%	3.67%	0.1	3.1	
AB09	Low Density Residence: Less than 6 DU per Acre	92	D	87	1.01	176.83	0.57%	4.24%	0.5	3.6	
AB09	Low Density Residence: Less than 6 DU per Acre	51	C	83	0.19	176.83	0.11%	4.35%	0.1	3.7	
AB09	Low Density Residence: Less than 6 DU per Acre	51	C	83	0.34	176.83	0.19%	4.54%	0.2	3.9	
AB09	Low Density Residence: Less than 6 DU per Acre	51	C	83	4.91	176.83	2.78%	7.31%	2.3	6.2	
AB09	Low Density Residence: Less than 6 DU per Acre	92	D	87	10.26	176.83	5.80%	13.11%	5.0	11.2	
AB09	Low Density Residence: Less than 6 DU per Acre	131	water	87	0.03	176.83	0.02%	13.13%	0.0	11.2	
AB09	Low Density Residence: Less than 6 DU per Acre	92	D	87	0.15	176.83	0.09%	13.22%	0.1	11.3	
AB09	Low Density Residence: Less than 6 DU per Acre	51	C	83	0.22	176.83	0.13%	13.34%	0.1	11.4	
AB09	Low Density Residence: Less than 6 DU per Acre	51	C	83	0.19	176.83	0.11%	13.45%	0.1	11.5	
AB09	Low Density Residence: Less than 6 DU per Acre	92	D	87	0.00	176.83	0.00%	13.45%	0.0	11.5	
AB09	Low Density Residence: Less than 6 DU per Acre	51	C	83	0.24	176.83	0.13%	13.59%	0.1	11.6	
AB09	Low Density Residence: Less than 6 DU per Acre	51	C	83	0.08	176.83	0.05%	13.63%	0.0	11.7	
AB09	Low Density Residence: Less than 6 DU per Acre	92	D	87	0.03	176.83	0.02%	13.65%	0.0	11.7	
AB09	Low Density Residence: Less than 6 DU per Acre	124	C	83	0.09	176.83	0.05%	13.70%	0.0	11.7	
AB09	Low Density Residence: Less than 6 DU per Acre	92	D	87	0.09	176.83	0.05%	13.75%	0.0	11.8	
AB09	Low Density Residence: Less than 6 DU per Acre	124	C	83	0.10	176.83	0.06%	13.81%	0.0	11.8	
AB09	Low Density Residence: Less than 6 DU per Acre	51	C	83	0.53	176.83	0.30%	14.11%	0.2	12.1	
AB09	Low Density Residence: Less than 6 DU per Acre	51	C	83	0.23	176.83	0.13%	14.24%	0.1	12.2	
AB09	Low Density Residence: Less than 6 DU per Acre	124	C	83	0.20	176.83	0.11%	14.35%	0.1	12.3	
AB09	Low Density Residence: Less than 6 DU per Acre	51	C	83	0.23	176.83	0.13%	14.48%	0.1	12.4	
AB09	Low Density Residence: Less than 6 DU per Acre	124	C	83	0.20	176.83	0.11%	14.59%	0.1	12.5	
AB09	Low Density Residence: Less than 6 DU per Acre	51	C	83	0.03	176.83	0.02%	14.61%	0.0	12.5	
AB09	Low Density Residence: Less than 6 DU per Acre	124	C	83	0.16	176.83	0.09%	14.70%	0.1	12.5	
AB09	Low Density Residence: Less than 6 DU per Acre	124	C	83	0.20	176.83	0.11%	14.81%	0.1	12.6	
AB09	Low Density Residence: Less than 6 DU per Acre	51	C	83	0.22	176.83	0.13%	14.94%	0.1	12.7	
AB09	Low Density Residence: Less than 6 DU per Acre	51	C	83	0.52	176.83	0.29%	15.23%	0.2	13.0	
AB09	Low Density Residence: Less than 6 DU per Acre	124	C	83	0.23	176.83	0.13%	15.36%	0.1	13.1	
AB09	Low Density Residence: Less than 6 DU per Acre	124	C	83	0.39	176.83	0.22%	15.58%	0.2	13.3	
AB09	Low Density Residence: Less than 6 DU per Acre	51	C	83	0.11	176.83	0.06%	15.64%	0.1	13.3	
AB09	Low Density Residence: Less than 6 DU per Acre	51	C	83	0.66	176.83	0.38%	16.02%	0.3	13.6	
AB09	Low Density Residence: Less than 6 DU per Acre	124	C	83	0.31	176.83	0.17%	16.19%	0.1	13.8	
AB09	Low Density Residence: Less than 6 DU per Acre	124	C	83	0.20	176.83	0.11%	16.30%	0.1	13.9	
AB09	Low Density Residence: Less than 6 DU per Acre	51	C	83	0.33	176.83	0.18%	16.49%	0.2	14.0	
AB09	Low Density Residence: Less than 6 DU per Acre	124	C	83	0.39	176.83	0.22%	16.71%	0.2	14.2	
AB09	Low Density Residence: Less than 6 DU per Acre	51	C	83	0.16	176.83	0.09%	16.80%	0.1	14.3	
AB09	Low Density Residence: Less than 6 DU per Acre	124	C	83	0.07	176.83	0.04%	16.84%	0.0	14.3	
AB09	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.00	176.83	0.00%	16.84%	0.0	14.3	
AB09	Low Density Residence: Less than 6 DU per Acre	51	C	83	1.22	176.83	0.69%	17.53%	0.6	14.9	
AB09	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.73	176.83	0.41%	17.94%	0.4	15.3	
AB09	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.89	176.83	0.51%	18.44%	0.4	15.7	

ABBEY DRAINAGE BASIN - CURVE NUMBER CALCULATION

BASIN	Land Use Category	SOIL MAP UNIT #	Hydrologic Soil Group	SUBREGION CN	SUBREGION AREA (ACRES)	SUBBASIN AREA (ACRES)	PERCENT OF SUBBASIN	CUMULATIVE PERCENT	AREAL WEIGHTED CN	CUMULATIVE CN	COMPOSITE CN
AB09	Low Density Residence: Less than 6 DU per Acre	124	C	83	0.15	176.83	0.08%	18.53%	0.1	15.8	
AB09	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.05	176.83	0.03%	18.56%	0.0	15.8	
AB09	Low Density Residence: Less than 6 DU per Acre	51	C	83	0.32	176.83	0.18%	18.74%	0.2	15.9	
AB09	Low Density Residence: Less than 6 DU per Acre	51	C	83	0.15	176.83	0.08%	18.82%	0.1	16.0	
AB09	Low Density Residence: Less than 6 DU per Acre	124	C	83	0.15	176.83	0.08%	18.91%	0.1	16.1	
AB09	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.05	176.83	0.03%	18.93%	0.0	16.1	
AB09	Low Density Residence: Less than 6 DU per Acre	51	C	83	0.09	176.83	0.05%	18.99%	0.0	16.1	
AB09	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.14	176.83	0.08%	19.06%	0.1	16.2	
AB09	Low Density Residence: Less than 6 DU per Acre	51	C	83	0.13	176.83	0.08%	19.14%	0.1	16.3	
AB09	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.48	176.83	0.27%	19.41%	0.2	16.5	
AB09	Low Density Residence: Less than 6 DU per Acre	51	C	83	0.43	176.83	0.24%	19.66%	0.2	16.7	
AB09	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.23	176.83	0.13%	19.79%	0.1	16.8	
AB09	Low Density Residence: Less than 6 DU per Acre	124	C	83	0.22	176.83	0.12%	19.91%	0.1	16.9	
AB09	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.70	176.83	0.40%	20.30%	0.3	17.3	
AB09	Low Density Residence: Less than 6 DU per Acre	92	D	87	6.45	176.83	3.65%	23.95%	3.2	20.4	
AB09	Low Density Residence: Less than 6 DU per Acre	51	C	83	0.42	176.83	0.24%	24.19%	0.2	20.6	
AB09	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.00	176.83	0.00%	24.19%	0.0	20.6	
AB09	Low Density Residence: Less than 6 DU per Acre	92	D	87	9.42	176.83	5.33%	29.52%	4.6	25.3	
AB09	Low Density Residence: Less than 6 DU per Acre	124	C	83	2.00	176.83	1.13%	30.64%	0.9	26.2	
AB09	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.23	176.83	0.13%	30.77%	0.1	26.3	
AB09	Low Density Residence: Less than 6 DU per Acre	51	C	83	0.11	176.83	0.06%	30.84%	0.1	26.4	
AB09	Low Density Residence: Less than 6 DU per Acre	59	D	87	1.07	176.83	0.61%	31.44%	0.5	26.9	
AB09	Low Density Residence: Less than 6 DU per Acre	51	C	83	0.10	176.83	0.06%	31.50%	0.0	27.0	
AB09	Low Density Residence: Less than 6 DU per Acre	51	C	83	0.31	176.83	0.18%	31.68%	0.1	27.1	
AB09	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.42	176.83	0.24%	31.92%	0.2	27.3	
AB09	Low Density Residence: Less than 6 DU per Acre	51	C	83	0.09	176.83	0.05%	31.96%	0.0	27.3	
AB09	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.12	176.83	0.07%	32.03%	0.1	27.4	
AB09	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.58	176.83	0.33%	32.36%	0.3	27.7	
AB09	Low Density Residence: Less than 6 DU per Acre	51	C	83	0.31	176.83	0.17%	32.54%	0.1	27.8	
AB09	Low Density Residence: Less than 6 DU per Acre	92	D	87	0.73	176.83	0.41%	32.95%	0.4	28.2	
AB09	Low Density Residence: Less than 6 DU per Acre	124	C	83	5.97	176.83	3.38%	36.33%	2.8	31.0	
AB09	Low Density Residence: Less than 6 DU per Acre	59	D	87	2.73	176.83	1.54%	37.87%	1.3	32.3	
AB09	Low Density Residence: Less than 6 DU per Acre	124	C	83	0.02	176.83	0.01%	37.88%	0.0	32.4	
AB09	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.39	176.83	0.22%	38.10%	0.2	32.5	
AB09	Low Density Residence: Less than 6 DU per Acre	51	C	83	1.07	176.83	0.60%	38.70%	0.5	33.0	
AB09	Low Density Residence: Less than 6 DU per Acre	92	D	87	8.81	176.83	4.98%	43.68%	4.3	37.4	
AB09	Low Density Residence: Less than 6 DU per Acre	124	C	83	0.56	176.83	0.32%	44.00%	0.3	37.6	
AB09	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.05	176.83	0.03%	44.03%	0.0	37.7	
AB09	Low Density Residence: Less than 6 DU per Acre	51	C	83	0.10	176.83	0.06%	44.08%	0.0	37.7	
AB09	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.61	176.83	0.35%	44.43%	0.3	38.0	
AB09	Low Density Residence: Less than 6 DU per Acre	92	D	87	3.11	176.83	1.76%	46.19%	1.5	39.5	
AB09	Low Density Residence: Less than 6 DU per Acre	124	C	83	1.76	176.83	1.00%	47.18%	0.8	40.4	
AB09	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.06	176.83	0.04%	47.22%	0.0	40.4	
AB09	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.16	176.83	0.09%	47.31%	0.1	40.5	
AB09	Low Density Residence: Less than 6 DU per Acre	51	C	83	0.09	176.83	0.05%	47.36%	0.0	40.5	
AB09	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.11	176.83	0.06%	47.42%	0.1	40.6	
AB09	Low Density Residence: Less than 6 DU per Acre	59	D	87	1.09	176.83	0.62%	48.04%	0.5	41.1	
AB09	Low Density Residence: Less than 6 DU per Acre	51	C	83	0.87	176.83	0.49%	48.53%	0.4	41.5	
AB09	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.55	176.83	0.31%	48.84%	0.3	41.8	
AB09	Low Density Residence: Less than 6 DU per Acre	51	C	83	0.06	176.83	0.04%	48.88%	0.0	41.8	
AB09	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.44	176.83	0.25%	49.12%	0.2	42.0	
AB09	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.55	176.83	0.31%	49.43%	0.3	42.3	

ABBEY DRAINAGE BASIN - CURVE NUMBER CALCULATION

BASIN	Land Use Category	SOIL MAP UNIT #	Hydrologic Soil Group	SUBREGION CN	SUBREGION AREA (ACRES)	SUBBASIN AREA (ACRES)	PERCENT OF SUBBASIN	CUMULATIVE PERCENT	AREAL WEIGHTED CN	CUMULATIVE CN	COMPOSITE CN
AB09	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.28	176.83	0.16%	49.59%	0.1	42.4	
AB09	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.19	176.83	0.10%	49.70%	0.1	42.5	
AB09	Low Density Residence: Less than 6 DU per Acre	59	D	87	1.36	176.83	0.77%	50.47%	0.7	43.2	
AB09	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.41	176.83	0.23%	50.70%	0.2	43.4	
AB09	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.53	176.83	0.30%	51.00%	0.3	43.7	
AB09	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.27	176.83	0.15%	51.15%	0.1	43.8	
AB09	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.24	176.83	0.14%	51.29%	0.1	43.9	
AB09	Low Density Residence: Less than 6 DU per Acre	51	C	83	1.40	176.83	0.79%	52.08%	0.7	44.6	
AB09	Low Density Residence: Less than 6 DU per Acre	51	C	83	0.03	176.83	0.02%	52.09%	0.0	44.6	
AB09	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.20	176.83	0.11%	52.21%	0.1	44.7	
AB09	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.44	176.83	0.25%	52.45%	0.2	44.9	
AB09	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.22	176.83	0.12%	52.58%	0.1	45.0	
AB09	Low Density Residence: Less than 6 DU per Acre	51	C	83	0.23	176.83	0.13%	52.71%	0.1	45.1	
AB09	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.19	176.83	0.11%	52.81%	0.1	45.2	
AB09	Low Density Residence: Less than 6 DU per Acre	92	D	87	0.83	176.83	0.47%	53.28%	0.4	45.6	
AB09	Low Density Residence: Less than 6 DU per Acre	124	C	83	0.23	176.83	0.13%	53.41%	0.1	45.7	
AB09	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.01	176.83	0.00%	53.42%	0.0	45.7	
AB09	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.40	176.83	0.22%	53.64%	0.2	45.9	
AB09	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.41	176.83	0.23%	53.87%	0.2	46.1	
AB09	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.44	176.83	0.25%	54.12%	0.2	46.3	
AB09	Low Density Residence: Less than 6 DU per Acre	51	C	83	0.17	176.83	0.09%	54.22%	0.1	46.4	
AB09	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.49	176.83	0.28%	54.49%	0.2	46.7	
AB09	Low Density Residence: Less than 6 DU per Acre	51	C	83	0.00	176.83	0.00%	54.49%	0.0	46.7	
AB09	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.27	176.83	0.15%	54.65%	0.1	46.8	
AB09	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.20	176.83	0.11%	54.76%	0.1	46.9	
AB09	Low Density Residence: Less than 6 DU per Acre	51	C	83	0.26	176.83	0.15%	54.90%	0.1	47.0	
AB09	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.70	176.83	0.39%	55.30%	0.3	47.4	
AB09	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.64	176.83	0.36%	55.66%	0.3	47.7	
AB09	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.40	176.83	0.23%	55.89%	0.2	47.9	
AB09	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.19	176.83	0.11%	55.99%	0.1	48.0	
AB09	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.89	176.83	0.51%	56.50%	0.4	48.4	
AB09	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.40	176.83	0.22%	56.72%	0.2	48.6	
AB09	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.20	176.83	0.11%	56.84%	0.1	48.7	
AB09	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.20	176.83	0.11%	56.95%	0.1	48.8	
AB09	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.18	176.83	0.10%	57.06%	0.1	48.9	
AB09	Low Density Residence: Less than 6 DU per Acre	51	C	83	0.40	176.83	0.22%	57.28%	0.2	49.1	
AB09	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.58	176.83	0.33%	57.61%	0.3	49.4	
AB09	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.41	176.83	0.23%	57.84%	0.2	49.6	
AB09	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.21	176.83	0.12%	57.96%	0.1	49.7	
AB09	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.39	176.83	0.22%	58.18%	0.2	49.8	
AB09	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.28	176.83	0.16%	58.34%	0.1	50.0	
AB09	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.66	176.83	0.38%	58.71%	0.3	50.3	
AB09	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.19	176.83	0.11%	58.82%	0.1	50.4	
AB09	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.30	176.83	0.17%	58.99%	0.1	50.6	
AB09	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.20	176.83	0.11%	59.10%	0.1	50.7	
AB09	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.50	176.83	0.29%	59.39%	0.2	50.9	
AB09	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.62	176.83	0.35%	59.74%	0.3	51.2	
AB09	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.23	176.83	0.13%	59.87%	0.1	51.3	
AB09	Low Density Residence: Less than 6 DU per Acre	92	D	87	0.25	176.83	0.14%	60.01%	0.1	51.4	
AB09	Low Density Residence: Less than 6 DU per Acre	124	C	83	1.33	176.83	0.75%	60.76%	0.6	52.1	
AB09	Low Density Residence: Less than 6 DU per Acre	59	D	87	3.31	176.83	1.87%	62.64%	1.6	53.7	
AB09	Low Density Residence: Less than 6 DU per Acre	124	C	83	0.02	176.83	0.01%	62.65%	0.0	53.7	

ABBEY DRAINAGE BASIN - CURVE NUMBER CALCULATION

BASIN	Land Use Category	SOIL MAP UNIT #	Hydrologic Soil Group	SUBREGION CN	SUBREGION AREA (ACRES)	SUBBASIN AREA (ACRES)	PERCENT OF SUBBASIN	CUMULATIVE PERCENT	AREAL WEIGHTED CN	CUMULATIVE CN	COMPOSITE CN
AB09	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.63	176.83	0.36%	63.00%	0.3	54.0	
AB09	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.33	176.83	0.19%	63.19%	0.2	54.2	
AB09	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.85	176.83	0.48%	63.67%	0.4	54.6	
AB09	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.40	176.83	0.23%	63.89%	0.2	54.8	
AB09	Low Density Residence: Less than 6 DU per Acre	92	D	87	0.15	176.83	0.08%	63.98%	0.1	54.9	
AB09	Low Density Residence: Less than 6 DU per Acre	124	C	83	3.23	176.83	1.83%	65.80%	1.5	56.4	
AB09	Low Density Residence: Less than 6 DU per Acre	59	D	87	7.82	176.83	4.42%	70.23%	3.8	60.2	
AB09	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.64	176.83	0.36%	70.59%	0.3	60.5	
AB09	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.91	176.83	0.52%	71.10%	0.4	61.0	
AB09	Low Density Residence: Less than 6 DU per Acre	59	D	87	1.23	176.83	0.70%	71.80%	0.6	61.6	
AB09	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.41	176.83	0.23%	72.03%	0.2	61.8	
AB09	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.64	176.83	0.36%	72.39%	0.3	62.1	
AB09	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.40	176.83	0.22%	72.62%	0.2	62.3	
AB09	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.85	176.83	0.48%	73.10%	0.4	62.7	
AB09	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.38	176.83	0.21%	73.31%	0.2	62.9	
AB09	Low Density Residence: Less than 6 DU per Acre	59	D	87	1.76	176.83	1.00%	74.31%	0.9	63.8	
AB09	Low Density Residence: Less than 6 DU per Acre	59	D	87	3.05	176.83	1.73%	76.04%	1.5	65.3	
AB09	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.52	176.83	0.29%	76.33%	0.3	65.5	
AB09	Low Density Residence: Less than 6 DU per Acre	59	D	87	2.94	176.83	1.66%	77.99%	1.4	67.0	
AB09	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.96	176.83	0.54%	78.53%	0.5	67.5	
AB09	Low Density Residence: Less than 6 DU per Acre	59	D	87	3.67	176.83	2.07%	80.61%	1.8	69.3	
AB09	Low Density Residence: Less than 6 DU per Acre	59	D	87	1.88	176.83	1.06%	81.67%	0.9	70.2	
AB09	Low Density Residence: Less than 6 DU per Acre	59	D	87	2.74	176.83	1.55%	83.22%	1.3	71.5	
AB09	Low Density Residence: Less than 6 DU per Acre	51	C	83	0.95	176.83	0.54%	83.75%	0.4	72.0	
AB09	Low Density Residence: Less than 6 DU per Acre	59	D	87	6.85	176.83	3.87%	87.62%	3.4	75.3	
AB09	Low Density Residence: Less than 6 DU per Acre	59	D	87	3.02	176.83	1.71%	89.33%	1.5	76.8	
AB09	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.65	176.83	0.37%	89.70%	0.3	77.2	
AB09	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.01	176.83	0.00%	89.71%	0.0	77.2	
AB09	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.01	176.83	0.00%	89.71%	0.0	77.2	
AB09	Street	51	C	91.35	3.37	176.83	1.91%	91.62%	1.7	78.9	
AB09	Street	92	D	93.1	0.04	176.83	0.02%	91.64%	0.0	78.9	
AB09	Street	124	C	91.35	1.08	176.83	0.61%	92.25%	0.6	79.5	
AB09	Street	59	D	93.1	12.77	176.83	7.22%	99.47%	6.7	86.2	
AB09	Wood-Grass Combination (Fair Condition)	59	D	82	0.90	176.83	0.51%	99.98%	0.4	86.6	
AB09	Wood-Grass Combination (Fair Condition)	59	D	82	0.04	176.83	0.02%	100.00%	0.0	86.6	
AB09	Wood-Grass Combination (Fair Condition)	59	D	82	0.04	176.83	0.02%	100.03%	0.0	86.7	**87**
AB10	Low Density Residence: Less than 6 DU per Acre	92	D	87	0.00	70.56	0.01%	0.01%	0.0	0.0	
AB10	Low Density Residence: Less than 6 DU per Acre	92	D	87	4.56	70.56	6.46%	6.47%	5.6	5.6	
AB10	Low Density Residence: Less than 6 DU per Acre	92	D	87	0.24	70.56	0.34%	6.80%	0.3	5.9	
AB10	Low Density Residence: Less than 6 DU per Acre	92	D	87	0.51	70.56	0.73%	7.53%	0.6	6.6	
AB10	Low Density Residence: Less than 6 DU per Acre	92	D	87	0.96	70.56	1.36%	8.90%	1.2	7.7	
AB10	Low Density Residence: Less than 6 DU per Acre	92	D	87	1.75	70.56	2.48%	11.38%	2.2	9.9	
AB10	Low Density Residence: Less than 6 DU per Acre	92	D	87	0.08	70.56	0.11%	11.49%	0.1	10.0	
AB10	Low Density Residence: Less than 6 DU per Acre	92	D	87	0.76	70.56	1.08%	12.57%	0.9	10.9	
AB10	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.73	70.56	1.03%	13.60%	0.9	11.8	
AB10	Low Density Residence: Less than 6 DU per Acre	92	D	87	2.10	70.56	2.98%	16.58%	2.6	14.4	
AB10	Low Density Residence: Less than 6 DU per Acre	124	C	83	0.08	70.56	0.11%	16.69%	0.1	14.5	
AB10	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.26	70.56	0.36%	17.05%	0.3	14.8	
AB10	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.32	70.56	0.45%	17.50%	0.4	15.2	
AB10	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.06	70.56	0.09%	17.59%	0.1	15.3	
AB10	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.39	70.56	0.55%	18.15%	0.5	15.8	
AB10	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.73	70.56	1.03%	19.17%	0.9	16.7	

ABBEY DRAINAGE BASIN - CURVE NUMBER CALCULATION

BASIN	Land Use Category	SOIL MAP UNIT #	Hydrologic Soil Group	SUBREGION CN	SUBREGION AREA (ACRES)	SUBBASIN AREA (ACRES)	PERCENT OF SUBBASIN	CUMULATIVE PERCENT	AREAL WEIGHTED CN	CUMULATIVE CN	COMPOSITE CN
AB10	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.85	70.56	1.21%	20.38%	1.1	17.7	
AB10	Low Density Residence: Less than 6 DU per Acre	92	D	87	0.13	70.56	0.18%	20.57%	0.2	17.9	
AB10	Low Density Residence: Less than 6 DU per Acre	59	D	87	3.73	70.56	5.29%	25.85%	4.6	22.5	
AB10	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.54	70.56	0.76%	26.62%	0.7	23.2	
AB10	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.57	70.56	0.81%	27.43%	0.7	23.9	
AB10	Low Density Residence: Less than 6 DU per Acre	59	D	87	1.73	70.56	2.45%	29.88%	2.1	26.0	
AB10	Low Density Residence: Less than 6 DU per Acre	59	D	87	1.46	70.56	2.06%	31.95%	1.8	27.8	
AB10	Low Density Residence: Less than 6 DU per Acre	59	D	87	1.53	70.56	2.16%	34.11%	1.9	29.7	
AB10	Low Density Residence: Less than 6 DU per Acre	59	D	87	1.02	70.56	1.44%	35.56%	1.3	30.9	
AB10	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.48	70.56	0.68%	36.24%	0.6	31.5	
AB10	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.12	70.56	0.17%	36.40%	0.1	31.7	
AB10	Low Density Residence: Less than 6 DU per Acre	59	D	87	1.74	70.56	2.46%	38.87%	2.1	33.8	
AB10	Low Density Residence: Less than 6 DU per Acre	59	D	87	1.49	70.56	2.12%	40.98%	1.8	35.6	
AB10	Low Density Residence: Less than 6 DU per Acre	59	D	87	1.27	70.56	1.80%	42.78%	1.6	37.2	
AB10	Low Density Residence: Less than 6 DU per Acre	59	D	87	3.19	70.56	4.52%	47.30%	3.9	41.1	
AB10	Low Density Residence: Less than 6 DU per Acre	59	D	87	2.26	70.56	3.20%	50.51%	2.8	43.9	
AB10	Low Density Residence: Less than 6 DU per Acre	59	D	87	13.94	70.56	19.76%	70.27%	17.2	61.1	
AB10	Medium to High Density Res	59	D	93	0.62	70.56	0.88%	71.15%	0.8	62.0	
AB10	Medium to High Density Res	59	D	93	0.61	70.56	0.87%	72.02%	0.8	62.8	
AB10	Medium to High Density Res	59	D	93	0.28	70.56	0.40%	72.42%	0.4	63.1	
AB10	Medium to High Density Res	59	D	93	3.58	70.56	5.08%	77.50%	4.7	67.9	
AB10	Medium to High Density Res	59	D	93	6.41	70.56	9.09%	86.59%	8.5	76.3	
AB10	Medium to High Density Res	59	D	93	0.00	70.56	0.00%	86.59%	0.0	76.3	
AB10	Street	59	D	93.1	3.11	70.56	4.41%	90.99%	4.1	80.4	
AB10	Street	92	D	93.1	0.58	70.56	0.83%	91.82%	0.8	81.2	
AB10	Street	59	D	93.1	4.42	70.56	6.26%	98.08%	5.8	87.0	
AB10	Wood-Grass Combination (Fair Condition)	59	D	82	0.48	70.56	0.69%	98.77%	0.6	87.6	
AB10	Wood-Grass Combination (Fair Condition)	59	D	82	0.14	70.56	0.19%	98.96%	0.2	87.7	
AB10	Wood-Grass Combination (Fair Condition)	59	D	82	0.08	70.56	0.12%	99.08%	0.1	87.8	
AB10	Wood-Grass Combination (Fair Condition)	59	D	82	0.65	70.56	0.92%	100.00%	0.8	88.6	
AB10	Wood-Grass Combination (Fair Condition)	59	D	82	0.00	70.56	0.00%	100.00%	0.0	88.6	**89**
AB11	Agriculture	59	D	80	2.01	79.61	2.52%	2.52%	2.0	2.0	
AB11	Agriculture	59	D	80	0.00	79.61	0.00%	2.52%	0.0	2.0	
AB11	Low Density Residence: Less than 6 DU per Acre	59	D	87	17.45	79.61	21.92%	24.44%	19.1	21.1	
AB11	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.00	79.61	0.00%	24.45%	0.0	21.1	
AB11	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.00	79.61	0.00%	24.45%	0.0	21.1	
AB11	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.00	79.61	0.00%	24.45%	0.0	21.1	
AB11	Medium to High Density Res	59	D	93	7.10	79.61	8.91%	33.36%	8.3	29.4	
AB11	Medium to High Density Res	59	D	93	16.69	79.61	20.96%	54.33%	19.5	48.9	
AB11	Medium to High Density Res	59	D	93	27.19	79.61	34.16%	88.49%	31.8	80.7	
AB11	Medium to High Density Res	59	D	93	0.00	79.61	0.00%	88.49%	0.0	80.7	
AB11	Medium to High Density Res	59	D	93	0.00	79.61	0.00%	88.49%	0.0	80.7	
AB11	Street	59	D	93.1	9.16	79.61	11.51%	100.01%	10.7	91.4	**91**
AB12	Low Density Residence: Less than 6 DU per Acre	59	D	87	47.98	92.32	51.98%	51.98%	45.2	45.2	
AB12	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.00	92.32	0.00%	51.98%	0.0	45.2	
AB12	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.00	92.32	0.00%	51.98%	0.0	45.2	
AB12	Medium to High Density Res	59	D	93	42.17	92.32	45.68%	97.66%	42.5	87.7	
AB12	Street	59	D	93.1	2.16	92.32	2.34%	100.00%	2.2	89.9	**90**
AB13	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.53	99.15	0.53%	0.53%	0.5	0.5	
AB13	Low Density Residence: Less than 6 DU per Acre	59	D	87	3.19	99.15	3.21%	3.75%	2.8	3.3	
AB13	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.43	99.15	0.43%	4.18%	0.4	3.6	
AB13	Low Density Residence: Less than 6 DU per Acre	59	D	87	1.39	99.15	1.40%	5.58%	1.2	4.9	

ABBEY DRAINAGE BASIN - CURVE NUMBER CALCULATION

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AB13	Low Density Residence: Less than 6 DU per Acre	59	D	87	1.05	99.15	1.06%	6.64%	0.9	5.8	
AB13	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.73	99.15	0.74%	7.37%	0.6	6.4	
AB13	Low Density Residence: Less than 6 DU per Acre	59	D	87	3.05	99.15	3.07%	10.45%	2.7	9.1	
AB13	Low Density Residence: Less than 6 DU per Acre	59	D	87	1.05	99.15	1.06%	11.51%	0.9	10.0	
AB13	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.69	99.15	0.69%	12.20%	0.6	10.6	
AB13	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.35	99.15	0.35%	12.55%	0.3	10.9	
AB13	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.95	99.15	0.95%	13.51%	0.8	11.8	
AB13	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.35	99.15	0.36%	13.86%	0.3	12.1	
AB13	Low Density Residence: Less than 6 DU per Acre	59	D	87	2.41	99.15	2.43%	16.29%	2.1	14.2	
AB13	Low Density Residence: Less than 6 DU per Acre	59	D	87	2.00	99.15	2.01%	18.30%	1.8	15.9	
AB13	Low Density Residence: Less than 6 DU per Acre	59	D	87	8.47	99.15	8.54%	26.84%	7.4	23.4	
AB13	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.35	99.15	0.35%	27.19%	0.3	23.7	
AB13	Low Density Residence: Less than 6 DU per Acre	59	D	87	5.32	99.15	5.37%	32.56%	4.7	28.3	
AB13	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.13	99.15	0.13%	32.69%	0.1	28.4	
AB13	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.32	99.15	0.33%	33.02%	0.3	28.7	
AB13	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.97	99.15	0.98%	34.00%	0.9	29.6	
AB13	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.64	99.15	0.65%	34.65%	0.6	30.1	
AB13	Low Density Residence: Less than 6 DU per Acre	59	D	87	5.54	99.15	5.59%	40.24%	4.9	35.0	
AB13	Low Density Residence: Less than 6 DU per Acre	63	D	87	2.22	99.15	2.24%	42.48%	2.0	37.0	
AB13	Low Density Residence: Less than 6 DU per Acre	59	D	87	10.58	99.15	10.67%	53.15%	9.3	46.2	
AB13	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.00	99.15	0.00%	53.15%	0.0	46.2	
AB13	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.00	99.15	0.00%	53.15%	0.0	46.2	
AB13	Medium to High Density Res	59	D	93	0.52	99.15	0.53%	53.68%	0.5	46.7	
AB13	Medium to High Density Res	59	D	93	5.26	99.15	5.30%	58.98%	4.9	51.7	
AB13	Medium to High Density Res	59	D	93	7.50	99.15	7.57%	66.55%	7.0	58.7	
AB13	Medium to High Density Res	59	D	93	25.53	99.15	25.75%	92.30%	24.0	82.7	
AB13	Street	59	D	93.1	7.62	99.15	7.68%	99.98%	7.2	89.8	
AB13	Street	63	D	93.1	0.02	99.15	0.02%	100.00%	0.0	89.8	
AB13	Street	59	D	93.1	0.00	99.15	0.00%	100.00%	0.0	89.8	
AB13	Street	63	D	93.1	0.00	99.15	0.00%	100.00%	0.0	89.8	**90**
AB14	Agriculture	52	B	61	0.00	129.35	0.00%	0.00%	0.0	0.0	
AB14	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.01	129.35	0.01%	0.01%	0.0	0.0	
AB14	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.01	129.35	0.01%	0.02%	0.0	0.0	
AB14	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.01	129.35	0.01%	0.03%	0.0	0.0	
AB14	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.01	129.35	0.01%	0.04%	0.0	0.0	
AB14	Low Density Residence: Less than 6 DU per Acre	59	D	87	1.61	129.35	1.24%	1.28%	1.1	1.1	
AB14	Low Density Residence: Less than 6 DU per Acre	63	D	87	1.03	129.35	0.79%	2.07%	0.7	1.8	
AB14	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.44	129.35	0.34%	2.41%	0.3	2.1	
AB14	Low Density Residence: Less than 6 DU per Acre	63	D	87	1.04	129.35	0.80%	3.21%	0.7	2.8	
AB14	Low Density Residence: Less than 6 DU per Acre	52	B	75	0.72	129.35	0.55%	3.77%	0.4	3.2	
AB14	Low Density Residence: Less than 6 DU per Acre	59	D	87	11.00	129.35	8.51%	12.28%	7.4	10.6	
AB14	Low Density Residence: Less than 6 DU per Acre	72	D	87	13.96	129.35	10.80%	23.07%	9.4	20.0	
AB14	Low Density Residence: Less than 6 DU per Acre	63	D	87	10.61	129.35	8.20%	31.27%	7.1	27.1	
AB14	Low Density Residence: Less than 6 DU per Acre	63	D	87	3.06	129.35	2.36%	33.64%	2.1	29.2	
AB14	Low Density Residence: Less than 6 DU per Acre	72	D	87	0.76	129.35	0.59%	34.22%	0.5	29.7	
AB14	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.69	129.35	0.54%	34.76%	0.5	30.2	
AB14	Low Density Residence: Less than 6 DU per Acre	52	B	75	0.52	129.35	0.40%	35.16%	0.3	30.5	
AB14	Low Density Residence: Less than 6 DU per Acre	72	D	87	0.31	129.35	0.24%	35.40%	0.2	30.7	
AB14	Low Density Residence: Less than 6 DU per Acre	52	B	75	0.26	129.35	0.20%	35.59%	0.1	30.8	
AB14	Low Density Residence: Less than 6 DU per Acre	72	D	87	0.43	129.35	0.33%	35.93%	0.3	31.1	
AB14	Low Density Residence: Less than 6 DU per Acre	52	B	75	0.04	129.35	0.03%	35.96%	0.0	31.1	
AB14	Low Density Residence: Less than 6 DU per Acre	72	D	87	0.12	129.35	0.09%	36.05%	0.1	31.2	

ABBEY DRAINAGE BASIN - CURVE NUMBER CALCULATION

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AB14	Low Density Residence: Less than 6 DU per Acre	52	B	75	5.44	129.35	4.21%	40.26%	3.2	34.4	
AB14	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.18	129.35	0.14%	40.40%	0.1	34.5	
AB14	Low Density Residence: Less than 6 DU per Acre	72	D	87	8.45	129.35	6.53%	46.93%	5.7	40.2	
AB14	Medium to High Density Res	59	D	93	2.78	129.35	2.15%	49.08%	2.0	42.2	
AB14	Medium to High Density Res	59	D	93	1.99	129.35	1.54%	50.62%	1.4	43.6	
AB14	Medium to High Density Res	59	D	93	1.43	129.35	1.10%	51.72%	1.0	44.6	
AB14	Medium to High Density Res	59	D	93	2.16	129.35	1.67%	53.39%	1.6	46.2	
AB14	Medium to High Density Res	63	D	93	0.24	129.35	0.18%	53.58%	0.2	46.4	
AB14	Medium to High Density Res	59	D	93	27.10	129.35	20.95%	74.53%	19.5	65.8	
AB14	Medium to High Density Res	51	C	91	1.64	129.35	1.27%	75.80%	1.2	67.0	
AB14	Medium to High Density Res	52	B	88	0.02	129.35	0.01%	75.81%	0.0	67.0	
AB14	Medium to High Density Res	59	D	93	6.94	129.35	5.36%	81.17%	5.0	72.0	
AB14	Medium to High Density Res	72	D	93	6.63	129.35	5.13%	86.30%	4.8	76.8	
AB14	Street	51	C	91.35	2.40	129.35	1.86%	88.16%	1.7	78.5	
AB14	Street	59	D	93.1	14.18	129.35	10.96%	99.12%	10.2	88.7	
AB14	Street	72	D	93.1	0.34	129.35	0.26%	99.38%	0.2	88.9	
AB14	Street	63	D	93.1	0.67	129.35	0.52%	99.90%	0.5	89.4	
AB14	Street	51	C	91.35	0.11	129.35	0.09%	99.99%	0.1	89.5	
AB14	Street	59	D	93.1	0.02	129.35	0.01%	100.00%	0.0	89.5	**89**
AB15	Low Density Residence: Less than 6 DU per Acre	52	B	75	2.27	38.04	5.96%	5.96%	4.5	4.5	
AB15	Low Density Residence: Less than 6 DU per Acre	72	D	87	3.27	38.04	8.60%	14.55%	7.5	11.9	
AB15	Low Density Residence: Less than 6 DU per Acre	63	D	87	2.00	38.04	5.26%	19.81%	4.6	16.5	
AB15	Low Density Residence: Less than 6 DU per Acre	72	D	87	0.07	38.04	0.19%	20.01%	0.2	16.7	
AB15	Low Density Residence: Less than 6 DU per Acre	71	D	87	0.00	38.04	0.00%	20.01%	0.0	16.7	
AB15	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.21	38.04	0.54%	20.55%	0.5	17.2	
AB15	Low Density Residence: Less than 6 DU per Acre	72	D	87	0.47	38.04	1.24%	21.79%	1.1	18.2	
AB15	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.10	38.04	0.26%	22.05%	0.2	18.5	
AB15	Low Density Residence: Less than 6 DU per Acre	72	D	87	0.55	38.04	1.45%	23.50%	1.3	19.7	
AB15	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.53	38.04	1.40%	24.90%	1.2	20.9	
AB15	Low Density Residence: Less than 6 DU per Acre	52	B	75	0.03	38.04	0.09%	24.99%	0.1	21.0	
AB15	Low Density Residence: Less than 6 DU per Acre	52	B	75	0.37	38.04	0.98%	25.96%	0.7	21.7	
AB15	Low Density Residence: Less than 6 DU per Acre	72	D	87	0.29	38.04	0.75%	26.72%	0.7	22.4	
AB15	Low Density Residence: Less than 6 DU per Acre	52	B	75	1.41	38.04	3.71%	30.43%	2.8	25.2	
AB15	Low Density Residence: Less than 6 DU per Acre	72	D	87	2.22	38.04	5.84%	36.27%	5.1	30.3	
AB15	Low Density Residence: Less than 6 DU per Acre	63	D	87	1.69	38.04	4.46%	40.72%	3.9	34.1	
AB15	Low Density Residence: Less than 6 DU per Acre	72	D	87	0.95	38.04	2.49%	43.22%	2.2	36.3	
AB15	Low Density Residence: Less than 6 DU per Acre	52	B	75	3.86	38.04	10.16%	53.38%	7.6	43.9	
AB15	Low Density Residence: Less than 6 DU per Acre	72	D	87	2.14	38.04	5.63%	59.00%	4.9	48.8	
AB15	Low Density Residence: Less than 6 DU per Acre	72	D	87	1.09	38.04	2.86%	61.86%	2.5	51.3	
AB15	Low Density Residence: Less than 6 DU per Acre	52	B	75	1.01	38.04	2.66%	64.53%	2.0	53.3	
AB15	Low Density Residence: Less than 6 DU per Acre	72	D	87	1.31	38.04	3.44%	67.97%	3.0	56.3	
AB15	Low Density Residence: Less than 6 DU per Acre	72	D	87	1.07	38.04	2.82%	70.78%	2.4	58.8	
AB15	Low Density Residence: Less than 6 DU per Acre	72	D	87	0.31	38.04	0.83%	71.61%	0.7	59.5	
AB15	Low Density Residence: Less than 6 DU per Acre	72	D	87	0.33	38.04	0.86%	72.47%	0.7	60.2	
AB15	Low Density Residence: Less than 6 DU per Acre	72	D	87	0.05	38.04	0.14%	72.60%	0.1	60.3	
AB15	Low Density Residence: Less than 6 DU per Acre	52	B	75	2.38	38.04	6.26%	78.86%	4.7	65.0	
AB15	Low Density Residence: Less than 6 DU per Acre	72	D	87	0.03	38.04	0.09%	78.95%	0.1	65.1	
AB15	Low Density Residence: Less than 6 DU per Acre	52	B	75	1.11	38.04	2.91%	81.86%	2.2	67.3	
AB15	Low Density Residence: Less than 6 DU per Acre	72	D	87	0.79	38.04	2.08%	83.93%	1.8	69.1	
AB15	Low Density Residence: Less than 6 DU per Acre	52	B	75	0.02	38.04	0.06%	84.00%	0.0	69.1	
AB15	Low Density Residence: Less than 6 DU per Acre	72	D	87	0.47	38.04	1.24%	85.23%	1.1	70.2	
AB15	Low Density Residence: Less than 6 DU per Acre	72	D	87	0.30	38.04	0.78%	86.02%	0.7	70.9	

ABBEY DRAINAGE BASIN - CURVE NUMBER CALCULATION

BASIN	Land Use Category	SOIL MAP UNIT #	Hydrologic Soil Group	SUBREGION CN	SUBREGION AREA (ACRES)	SUBBASIN AREA (ACRES)	PERCENT OF SUBBASIN	CUMULATIVE PERCENT	AREAL WEIGHTED CN	CUMULATIVE CN	COMPOSITE CN
AB15	Low Density Residence: Less than 6 DU per Acre	72	D	87	0.39	38.04	1.01%	87.03%	0.9	71.8	
AB15	Low Density Residence: Less than 6 DU per Acre	71	D	87	0.00	38.04	0.00%	87.03%	0.0	71.8	
AB15	Low Density Residence: Less than 6 DU per Acre	72	D	87	0.43	38.04	1.14%	88.17%	1.0	72.8	
AB15	Low Density Residence: Less than 6 DU per Acre	72	D	87	0.00	38.04	0.01%	88.17%	0.0	72.8	
AB15	Low Density Residence: Less than 6 DU per Acre	72	D	87	0.00	38.04	0.01%	88.18%	0.0	72.8	
AB15	Low Density Residence: Less than 6 DU per Acre	72	D	87	0.00	38.04	0.00%	88.18%	0.0	72.8	
AB15	Low Density Residence: Less than 6 DU per Acre	72	D	87	0.00	38.04	0.00%	88.18%	0.0	72.8	
AB15	Street	52	B	87.5	0.76	38.04	2.00%	90.19%	1.8	74.5	
AB15	Street	72	D	93.1	2.24	38.04	5.90%	96.08%	5.5	80.0	
AB15	Street	71	D	93.1	0.02	38.04	0.06%	96.14%	0.1	80.1	
AB15	Street	63	D	93.1	1.47	38.04	3.86%	100.01%	3.6	83.7	
AB15	Street	72	D	93.1	0.00	38.04	0.00%	100.01%	0.0	83.7	
AB15	Street	71	D	93.1	0.00	38.04	0.00%	100.01%	0.0	83.7	**84**
AB17	Low Density Residence: Less than 6 DU per Acre	72	D	87	0.14	64.74	0.22%	0.22%	0.2	0.2	
AB17	Low Density Residence: Less than 6 DU per Acre	71	D	87	0.38	64.74	0.58%	0.80%	0.5	0.7	
AB17	Low Density Residence: Less than 6 DU per Acre	71	D	87	0.02	64.74	0.04%	0.83%	0.0	0.7	
AB17	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.97	64.74	1.50%	2.33%	1.3	2.0	
AB17	Low Density Residence: Less than 6 DU per Acre	59	D	87	4.01	64.74	6.19%	8.52%	5.4	7.4	
AB17	Low Density Residence: Less than 6 DU per Acre	63	D	87	5.33	64.74	8.23%	16.75%	7.2	14.6	
AB17	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.40	64.74	0.61%	17.37%	0.5	15.1	
AB17	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.00	64.74	0.00%	17.37%	0.0	15.1	
AB17	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.33	64.74	0.51%	17.88%	0.4	15.6	
AB17	Low Density Residence: Less than 6 DU per Acre	72	D	87	0.05	64.74	0.08%	17.96%	0.1	15.6	
AB17	Low Density Residence: Less than 6 DU per Acre	63	D	87	2.92	64.74	4.51%	22.48%	3.9	19.6	
AB17	Low Density Residence: Less than 6 DU per Acre	72	D	87	0.02	64.74	0.03%	22.50%	0.0	19.6	
AB17	Low Density Residence: Less than 6 DU per Acre	72	D	87	0.14	64.74	0.21%	22.72%	0.2	19.8	
AB17	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.43	64.74	0.66%	23.38%	0.6	20.3	
AB17	Low Density Residence: Less than 6 DU per Acre	72	D	87	0.19	64.74	0.29%	23.67%	0.2	20.6	
AB17	Low Density Residence: Less than 6 DU per Acre	71	D	87	0.01	64.74	0.02%	23.69%	0.0	20.6	
AB17	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.85	64.74	1.31%	25.00%	1.1	21.8	
AB17	Low Density Residence: Less than 6 DU per Acre	63	D	87	2.11	64.74	3.26%	28.26%	2.8	24.6	
AB17	Low Density Residence: Less than 6 DU per Acre	72	D	87	0.05	64.74	0.07%	28.33%	0.1	24.6	
AB17	Low Density Residence: Less than 6 DU per Acre	72	D	87	0.12	64.74	0.19%	28.52%	0.2	24.8	
AB17	Low Density Residence: Less than 6 DU per Acre	71	D	87	0.17	64.74	0.27%	28.79%	0.2	25.0	
AB17	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.36	64.74	0.56%	29.35%	0.5	25.5	
AB17	Low Density Residence: Less than 6 DU per Acre	72	D	87	0.12	64.74	0.18%	29.53%	0.2	25.7	
AB17	Low Density Residence: Less than 6 DU per Acre	71	D	87	0.37	64.74	0.57%	30.10%	0.5	26.2	
AB17	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.23	64.74	0.35%	30.45%	0.3	26.5	
AB17	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.36	64.74	0.56%	31.01%	0.5	27.0	
AB17	Low Density Residence: Less than 6 DU per Acre	63	D	87	3.05	64.74	4.71%	35.72%	4.1	31.1	
AB17	Low Density Residence: Less than 6 DU per Acre	72	D	87	0.14	64.74	0.22%	35.94%	0.2	31.3	
AB17	Low Density Residence: Less than 6 DU per Acre	71	D	87	0.42	64.74	0.65%	36.58%	0.6	31.8	
AB17	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.04	64.74	0.06%	36.64%	0.0	31.9	
AB17	Low Density Residence: Less than 6 DU per Acre	59	D	87	1.96	64.74	3.02%	39.66%	2.6	34.5	
AB17	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.88	64.74	1.36%	41.03%	1.2	35.7	
AB17	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.87	64.74	1.35%	42.38%	1.2	36.9	
AB17	Low Density Residence: Less than 6 DU per Acre	71	D	87	3.49	64.74	5.38%	47.76%	4.7	41.6	
AB17	Low Density Residence: Less than 6 DU per Acre	63	D	87	5.26	64.74	8.13%	55.89%	7.1	48.6	
AB17	Low Density Residence: Less than 6 DU per Acre	72	D	87	0.06	64.74	0.10%	55.99%	0.1	48.7	
AB17	Low Density Residence: Less than 6 DU per Acre	71	D	87	0.85	64.74	1.31%	57.30%	1.1	49.9	
AB17	Low Density Residence: Less than 6 DU per Acre	71	D	87	0.56	64.74	0.87%	58.17%	0.8	50.6	
AB17	Low Density Residence: Less than 6 DU per Acre	59	D	87	11.49	64.74	17.74%	75.92%	15.4	66.0	

ABBEY DRAINAGE BASIN - CURVE NUMBER CALCULATION

BASIN	Land Use Category	SOIL MAP UNIT #	Hydrologic Soil Group	SUBREGION CN	SUBREGION AREA (ACRES)	SUBBASIN AREA (ACRES)	PERCENT OF SUBBASIN	CUMULATIVE PERCENT	AREAL WEIGHTED CN	CUMULATIVE CN	COMPOSITE CN
AB17	Low Density Residence: Less than 6 DU per Acre	63	D	87	10.30	64.74	15.90%	91.82%	13.8	79.9	
AB17	Low Density Residence: Less than 6 DU per Acre	72	D	87	0.00	64.74	0.00%	91.82%	0.0	79.9	
AB17	Low Density Residence: Less than 6 DU per Acre	72	D	87	0.00	64.74	0.00%	91.82%	0.0	79.9	
AB17	Street	59	D	93.1	1.23	64.74	1.90%	93.72%	1.8	81.7	
AB17	Street	72	D	93.1	0.96	64.74	1.49%	95.21%	1.4	83.0	
AB17	Street	71	D	93.1	0.49	64.74	0.76%	95.97%	0.7	83.7	
AB17	Street	63	D	93.1	2.61	64.74	4.03%	100.00%	3.8	87.5	
AB17	Street	72	D	93.1	0.00	64.74	0.00%	100.00%	0.0	87.5	
AB17	Street	71	D	93.1	0.00	64.74	0.00%	100.00%	0.0	87.5	
AB17	Street	59	D	93.1	0.00	64.74	0.00%	100.00%	0.0	87.5	**87**

HEADWATERS DRAINAGE BASIN - CURVE NUMBER CALCULATION

BASIN	Land Use Category	SOIL MAP UNIT #	Hydrologic Soil Group	SUBREGION CN	SUBREGION AREA (ACRES)	SUBBASIN AREA (ACRES)	PERCENT OF SUBBASIN	CUMULATIVE PERCENT	AREAL WEIGHTED CN	CUMULATIVE CN	COMPOSITE CN
HW01	Wood-Grass Combination (Fair Condition)	120	D	82	12.11	29.95	40.43%	40.43%	33.2	33.2	
HW01	Agriculture	120	D	80	17.84	29.95	59.57%	100.00%	47.7	80.8	**80.8**
HW02	Wood-Grass Combination (Fair Condition)	120	D	82	6.50	33.98	19.14%	19.14%	15.7	15.7	
HW02	Agriculture	120	D	80	27.47	33.98	80.86%	100.00%	64.7	80.4	**80.4**
HW03	Wood-Grass Combination (Fair Condition)	120	D	82	20.00	24.81	80.61%	80.61%	66.1	66.1	
HW03	Agriculture	120	D	80	4.81	24.81	19.39%	100.00%	15.5	81.6	**81.6**
HW04	Wood-Grass Combination (Fair Condition)	120	D	82	13.02	13.02	100.00%	100.00%	82.0	82.0	**82.0**
HW05	Wood-Grass Combination (Fair Condition)	120	D	82	14.82	51.68	28.68%	28.68%	23.5	23.5	
HW05	Wood-Grass Combination (Fair Condition)	120	D	82	35.94	51.68	69.53%	98.22%	57.0	80.5	
HW05	Wood-Grass Combination (Fair Condition)	120	D	82	0.76	51.68	1.47%	99.69%	1.2	81.7	
HW05	Agriculture	120	D	80	0.16	51.68	0.31%	100.00%	0.2	82.0	**82.0**
HW06	Wood-Grass Combination (Fair Condition)	120	D	82	45.06	54.35	82.91%	82.91%	68.0	68.0	
HW06	Wood-Grass Combination (Fair Condition)	120	D	82	5.98	54.35	11.01%	93.91%	9.0	77.0	
HW06	Wood-Grass Combination (Fair Condition)	120	D	82	0.22	54.35	0.40%	94.31%	0.3	77.3	
HW06	Commercial	120	D	95	0.04	54.35	0.07%	94.39%	0.1	77.4	
HW06	Wood-Grass Combination (Fair Condition)	124	C	76	0.02	54.35	0.04%	94.42%	0.0	77.4	
HW06	Wood-Grass Combination (Fair Condition)	120	D	82	2.82	54.35	5.19%	99.61%	4.3	81.7	
HW06	Wood-Grass Combination (Fair Condition)	120	D	82	0.21	54.35	0.39%	100.00%	0.3	82.0	**82.0**
HW07	Wood-Grass Combination (Fair Condition)	121	B	65	5.08	88.61	5.73%	5.73%	3.7	3.7	
HW07	Wood-Grass Combination (Fair Condition)	121	B	65	0.34	88.61	0.39%	6.12%	0.3	4.0	
HW07	Wood-Grass Combination (Fair Condition)	121	B	65	0.17	88.61	0.19%	6.31%	0.1	4.1	
HW07	Wood-Grass Combination (Fair Condition)	121	B	65	0.37	88.61	0.42%	6.73%	0.3	4.4	
HW07	Wood-Grass Combination (Fair Condition)	49	B	65	0.00	88.61	0.00%	6.73%	0.0	4.4	
HW07	Wood-Grass Combination (Fair Condition)	121	B	65	21.31	88.61	24.05%	30.78%	15.6	20.0	
HW07	Wood-Grass Combination (Fair Condition)	124	C	76	0.00	88.61	0.00%	30.78%	0.0	20.0	
HW07	Wood-Grass Combination (Fair Condition)	124	C	76	0.01	88.61	0.01%	30.79%	0.0	20.0	
HW07	Wood-Grass Combination (Fair Condition)	118	D	82	7.77	88.61	8.77%	39.56%	7.2	27.2	
HW07	Wood-Grass Combination (Fair Condition)	120	D	82	25.45	88.61	28.72%	68.28%	23.6	50.8	
HW07	Wood-Grass Combination (Fair Condition)	118	D	82	0.00	88.61	0.00%	68.28%	0.0	50.8	
HW07	Wood-Grass Combination (Fair Condition)	120	D	82	8.88	88.61	10.03%	78.31%	8.2	59.0	
HW07	Wood-Grass Combination (Fair Condition)	120	D	82	1.88	88.61	2.12%	80.43%	1.7	60.7	
HW07	Wood-Grass Combination (Fair Condition)	120	D	82	0.01	88.61	0.01%	80.44%	0.0	60.7	
HW07	Wood-Grass Combination (Fair Condition)	118	D	82	0.03	88.61	0.03%	80.47%	0.0	60.8	
HW07	Wood-Grass Combination (Fair Condition)	120	D	82	0.99	88.61	1.12%	81.59%	0.9	61.7	
HW07	Low Density Residence: Less than 6 DU per Acre	121	B	75	0.17	88.61	0.19%	81.78%	0.1	61.8	
HW07	Low Density Residence: Less than 6 DU per Acre	49	B	75	0.16	88.61	0.18%	81.96%	0.1	62.0	
HW07	Low Density Residence: Less than 6 DU per Acre	121	B	75	1.35	88.61	1.53%	83.49%	1.1	63.1	
HW07	Low Density Residence: Less than 6 DU per Acre	49	B	75	0.47	88.61	0.53%	84.01%	0.4	63.5	
HW07	Low Density Residence: Less than 6 DU per Acre	124	C	83	0.07	88.61	0.08%	84.10%	0.1	63.6	
HW07	Agriculture	121	B	61	0.15	88.61	0.17%	84.26%	0.1	63.7	
HW07	Agriculture	49	B	61	0.28	88.61	0.31%	84.57%	0.2	63.8	
HW07	Agriculture	121	B	61	0.15	88.61	0.17%	84.75%	0.1	64.0	
HW07	Agriculture	49	B	61	0.04	88.61	0.05%	84.80%	0.0	64.0	
HW07	Agriculture	124	C	74	0.00	88.61	0.00%	84.80%	0.0	64.0	
HW07	Commercial	121	B	92	1.36	88.61	1.54%	86.33%	1.4	65.4	
HW07	Commercial	121	B	92	2.83	88.61	3.20%	89.53%	2.9	68.3	
HW07	Commercial	121	B	92	4.93	88.61	5.56%	95.09%	5.1	73.5	
HW07	Commercial	120	D	95	1.19	88.61	1.34%	96.43%	1.3	74.7	
HW07	Commercial	120	D	95	0.00	88.61	0.00%	96.43%	0.0	74.7	
HW07	Street	121	B	87.5	2.49	88.61	2.81%	99.24%	2.5	77.2	
HW07	Street	49	B	87.5	0.01	88.61	0.01%	99.25%	0.0	77.2	
HW07	Street	124	C	91.35	0.14	88.61	0.16%	99.41%	0.1	77.3	

HEADWATERS DRAINAGE BASIN - CURVE NUMBER CALCULATION

BASIN	Land Use Category	SOIL MAP UNIT #	Hydrologic Soil Group	SUBREGION CN	SUBREGION AREA (ACRES)	SUBBASIN AREA (ACRES)	PERCENT OF SUBBASIN	CUMULATIVE PERCENT	AREAL WEIGHTED CN	CUMULATIVE CN	COMPOSITE CN
HW07	Street	120	D	93.1	0.52	88.61	0.59%	100.00%	0.6	77.9	**77.9**
HW08	Wood-Grass Combination (Fair Condition)	121	B	65	3.65	47.02	7.76%	7.76%	5.0	5.0	
HW08	Wood-Grass Combination (Fair Condition)	121	B	65	0.92	47.02	1.96%	9.72%	1.3	6.3	
HW08	Wood-Grass Combination (Fair Condition)	121	B	65	6.43	47.02	13.67%	23.39%	8.9	15.2	
HW08	Wood-Grass Combination (Fair Condition)	124	C	76	0.02	47.02	0.04%	23.43%	0.0	15.2	
HW08	Wood-Grass Combination (Fair Condition)	3	C	76	0.27	47.02	0.58%	24.01%	0.4	15.7	
HW08	Wood-Grass Combination (Fair Condition)	118	D	82	0.40	47.02	0.85%	24.86%	0.7	16.4	
HW08	Commercial	121	B	92	32.72	47.02	69.58%	94.44%	64.0	80.4	
HW08	Commercial	121	B	92	0.88	47.02	1.88%	96.32%	1.7	82.1	
HW08	Commercial	3	C	94	1.01	47.02	2.15%	98.47%	2.0	84.1	
HW08	Street	121	B	87.5	0.42	47.02	0.89%	99.36%	0.8	84.9	
HW08	Street	3	C	91.35	0.16	47.02	0.34%	99.69%	0.3	85.2	
HW08	Street	3	C	91.35	0.14	47.02	0.31%	100.00%	0.3	85.5	**85.5**

HEADWATERS DRAINAGE BASIN - CURVE NUMBER CALCULATION

BASIN	Land Use Category	SOIL MAP UNIT #	Hydrologic Soil Group	SUBREGION CN	SUBREGION AREA (ACRES)	SUBBASIN AREA (ACRES)	PERCENT OF SUBBASIN	CUMULATIVE PERCENT	AREAL WEIGHTED CN	CUMULATIVE CN	COMPOSITE CN
HW01	Wood-Grass Combination (Fair Condition)	120	D	82	17.81	29.95	59.48%	59.48%	48.8	48.8	
HW01	Wood-Grass Combination (Fair Condition)	120	D	82	12.11	29.95	40.43%	99.91%	33.2	81.9	
HW01	Wood-Grass Combination (Fair Condition)	120	D	82	0.03	29.95	0.09%	100.00%	0.1	82.0	**82.0**
HW02	Wood-Grass Combination (Fair Condition)	120	D	82	27.47	33.98	80.86%	80.86%	66.3	66.3	
HW02	Wood-Grass Combination (Fair Condition)	120	D	82	6.50	33.98	19.14%	100.00%	15.7	82.0	**82.0**
HW03	Wood-Grass Combination (Fair Condition)	120	D	82	1.36	24.81	5.48%	5.48%	4.5	4.5	
HW03	Wood-Grass Combination (Fair Condition)	120	D	82	0.37	24.81	1.48%	6.96%	1.2	5.7	
HW03	Wood-Grass Combination (Fair Condition)	120	D	82	4.44	24.81	17.91%	24.88%	14.7	20.4	
HW03	Wood-Grass Combination (Fair Condition)	120	D	82	18.64	24.81	75.12%	100.00%	61.6	82.0	**82.0**
HW04	Wood-Grass Combination (Fair Condition)	120	D	82	13.02	13.02	100.00%	100.00%	82.0	82.0	**82.0**
HW05	Agriculture	120	D	80	0.76	51.68	1.47%	1.47%	1.2	1.2	
HW05	Wood-Grass Combination (Fair Condition)	120	D	82	2.10	51.68	4.07%	5.54%	3.3	4.5	
HW05	Wood-Grass Combination (Fair Condition)	120	D	82	32.53	51.68	62.94%	68.48%	51.6	56.1	
HW05	Wood-Grass Combination (Fair Condition)	120	D	82	14.82	51.68	28.68%	97.16%	23.5	79.6	
HW05	Wood-Grass Combination (Fair Condition)	120	D	82	0.16	51.68	0.31%	97.47%	0.3	79.9	
HW05	Wood-Grass Combination (Fair Condition)	120	D	82	1.31	51.68	2.53%	100.00%	2.1	82.0	**82.0**
HW06	Street	120	D	93.1	1.47	54.35	2.70%	2.70%	2.5	2.5	
HW06	Agriculture	120	D	80	6.44	54.35	11.84%	14.54%	9.5	12.0	
HW06	Commercial	120	D	95	0.04	54.35	0.07%	14.61%	0.1	12.1	
HW06	Wood-Grass Combination (Fair Condition)	124	C	76	0.02	54.35	0.04%	14.65%	0.0	12.1	
HW06	Wood-Grass Combination (Fair Condition)	120	D	82	0.43	54.35	0.79%	15.44%	0.6	12.7	
HW06	Wood-Grass Combination (Fair Condition)	120	D	82	0.83	54.35	1.52%	16.96%	1.2	14.0	
HW06	Wood-Grass Combination (Fair Condition)	120	D	82	0.07	54.35	0.13%	17.09%	0.1	14.1	
HW06	Wood-Grass Combination (Fair Condition)	120	D	82	7.83	54.35	14.40%	31.49%	11.8	25.9	
HW06	Wood-Grass Combination (Fair Condition)	120	D	82	34.93	54.35	64.27%	95.76%	52.7	78.6	
HW06	Wood-Grass Combination (Fair Condition)	120	D	82	2.30	54.35	4.24%	100.00%	3.5	82.1	**82.1**
HW07	Street	121	B	87.5	0.00	88.61	0.00%	0.00%	0.0	0.0	
HW07	Street	118	D	93.1	0.00	88.61	0.00%	0.00%	0.0	0.0	
HW07	Street	120	D	93.1	0.00	88.61	0.00%	0.01%	0.0	0.0	
HW07	Agriculture	121	B	61	0.34	88.61	0.39%	0.39%	0.2	0.2	
HW07	Agriculture	124	C	74	0.00	88.61	0.00%	0.39%	0.0	0.2	
HW07	Agriculture	124	C	74	0.00	88.61	0.00%	0.39%	0.0	0.2	
HW07	Agriculture	120	D	80	2.18	88.61	2.46%	2.85%	2.0	2.2	
HW07	Agriculture	120	D	80	0.00	88.61	0.00%	2.85%	0.0	2.2	
HW07	Commercial	121	B	92	0.07	88.61	0.08%	2.93%	0.1	2.3	
HW07	Commercial	121	B	92	27.09	88.61	30.57%	33.50%	28.1	30.4	
HW07	Commercial	121	B	92	0.00	88.61	0.00%	33.50%	0.0	30.4	
HW07	Commercial	121	B	92	0.00	88.61	0.00%	33.50%	0.0	30.4	
HW07	Commercial	124	C	94	0.10	88.61	0.12%	33.62%	0.1	30.5	
HW07	Commercial	124	C	94	0.00	88.61	0.00%	33.62%	0.0	30.5	
HW07	Commercial	124	C	94	0.00	88.61	0.00%	33.62%	0.0	30.5	
HW07	Commercial	118	D	95	3.78	88.61	4.26%	37.89%	4.0	34.6	
HW07	Commercial	120	D	95	5.26	88.61	5.94%	43.82%	5.6	40.2	
HW07	Commercial	120	D	95	0.08	88.61	0.09%	43.91%	0.1	40.3	
HW07	Commercial	118	D	95	0.03	88.61	0.03%	43.94%	0.0	40.3	
HW07	Commercial	120	D	95	2.29	88.61	2.58%	46.52%	2.5	42.8	
HW07	Commercial	118	D	95	0.00	88.61	0.00%	46.52%	0.0	42.8	
HW07	Commercial	120	D	95	0.00	88.61	0.00%	46.52%	0.0	42.8	
HW07	Commercial	120	D	95	0.00	88.61	0.00%	46.52%	0.0	42.8	
HW07	Medium to High Density Res	121	B	88	8.13	88.61	9.17%	55.70%	8.1	50.8	
HW07	Medium to High Density Res	49	B	88	0.95	88.61	1.07%	56.77%	0.9	51.8	
HW07	Medium to High Density Res	124	C	91	0.10	88.61	0.11%	56.88%	0.1	51.9	

HEADWATERS DRAINAGE BASIN - CURVE NUMBER CALCULATION

BASIN	Land Use Category	SOIL MAP UNIT #	Hydrologic Soil Group	SUBREGION CN	SUBREGION AREA (ACRES)	SUBBASIN AREA (ACRES)	PERCENT OF SUBBASIN	CUMULATIVE PERCENT	AREAL WEIGHTED CN	CUMULATIVE CN	COMPOSITE CN
HW07	Medium to High Density Res	120	D	93	0.04	88.61	0.05%	56.92%	0.0	51.9	
HW07	Wood-Grass Combination (Fair Condition)	121	B	65	4.96	88.61	5.60%	62.52%	3.6	55.6	
HW07	Wood-Grass Combination (Fair Condition)	121	B	65	0.12	88.61	0.14%	62.66%	0.1	55.7	
HW07	Wood-Grass Combination (Fair Condition)	124	C	76	0.02	88.61	0.02%	62.68%	0.0	55.7	
HW07	Wood-Grass Combination (Fair Condition)	120	D	82	0.00	88.61	0.00%	62.68%	0.0	55.7	
HW07	Wood-Grass Combination (Fair Condition)	118	D	82	0.00	88.61	0.00%	62.68%	0.0	55.7	
HW07	Wood-Grass Combination (Fair Condition)	120	D	82	20.19	88.61	22.79%	85.46%	18.7	74.4	
HW07	Wood-Grass Combination (Fair Condition)	118	D	82	0.00	88.61	0.00%	85.46%	0.0	74.4	
HW07	Wood-Grass Combination (Fair Condition)	120	D	82	8.88	88.61	10.03%	95.49%	8.2	82.6	
HW07	Wood-Grass Combination (Fair Condition)	118	D	82	4.00	88.61	4.51%	100.00%	3.7	86.3	**86.3**
HW08	Commercial	121	B	92	39.42	47.02	83.83%	83.83%	77.1	77.1	
HW08	Commercial	121	B	92	0.00	47.02	0.00%	83.84%	0.0	77.1	
HW08	Medium to High Density Res	121	B	88	1.05	47.02	2.24%	86.08%	2.0	79.1	
HW08	Medium to High Density Res	121	B	88	0.89	47.02	1.90%	87.98%	1.7	80.8	
HW08	Medium to High Density Res	124	C	91	0.02	47.02	0.04%	88.02%	0.0	80.8	
HW08	Medium to High Density Res	3	C	91	0.44	47.02	0.94%	88.97%	0.9	81.7	
HW08	Medium to High Density Res	3	C	91	1.14	47.02	2.43%	91.40%	2.2	83.9	
HW08	Wood-Grass Combination (Fair Condition)	121	B	65	3.65	47.02	7.75%	99.15%	5.0	88.9	
HW08	Wood-Grass Combination (Fair Condition)	118	D	82	0.40	47.02	0.85%	100.00%	0.7	89.6	**89.6**

NORTHEAST CANON WATERSHED - CURVE NUMBER CALCULATION

BASIN	Land Use Category	SOIL MAP UNIT #	Hydrologic Soil Group	SUBREGION CN	SUBREGION AREA (ACRES)	SUBBASIN AREA (ACRES)	PERCENT OF SUBBASIN	CUMULATIVE PERCENT	AREAL WEIGHTED CN	CUMULATIVE CN	COMPOSITE CN
RN	Open Estates: Greater than 1 acre Lots	67	C	79	0.39	140.94	0.28%	0.28%	0.2	0.2	
RN	Open Estates: Greater than 1 acre Lots	67	C	79	0.83	140.94	0.59%	0.86%	0.5	0.7	
RN	Open Estates: Greater than 1 acre Lots	59	D	84	0.26	140.94	0.19%	1.05%	0.2	0.8	
RN	Open Estates: Greater than 1 acre Lots	59	D	84	0.49	140.94	0.35%	1.40%	0.3	1.1	
RN	Open Estates: Greater than 1 acre Lots	67	C	79	0.16	140.94	0.11%	1.51%	0.1	1.2	
RN	Open Estates: Greater than 1 acre Lots	67	C	79	0.14	140.94	0.10%	1.61%	0.1	1.3	
RN	Open Estates: Greater than 1 acre Lots	67	C	79	0.00	140.94	0.00%	1.61%	0.0	1.3	
RN	Open Estates: Greater than 1 acre Lots	67	C	79	0.00	140.94	0.00%	1.61%	0.0	1.3	
RN	Low Density Residence: Less than 6 DU per Acre	67	C	83	0.79	140.94	0.56%	2.17%	0.5	1.8	
RN	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.13	140.94	0.09%	2.26%	0.1	1.8	
RN	Low Density Residence: Less than 6 DU per Acre	67	C	83	1.22	140.94	0.87%	3.13%	0.7	2.6	
RN	Low Density Residence: Less than 6 DU per Acre	67	C	83	0.22	140.94	0.15%	3.28%	0.1	2.7	
RN	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.13	140.94	0.10%	3.38%	0.1	2.8	
RN	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.23	140.94	0.17%	3.54%	0.1	2.9	
RN	Low Density Residence: Less than 6 DU per Acre	67	C	83	0.10	140.94	0.07%	3.61%	0.1	3.0	
RN	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.25	140.94	0.18%	3.79%	0.2	3.1	
RN	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.24	140.94	0.17%	3.96%	0.1	3.3	
RN	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.35	140.94	0.25%	4.21%	0.2	3.5	
RN	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.25	140.94	0.18%	4.39%	0.2	3.7	
RN	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.34	140.94	0.24%	4.63%	0.2	3.9	
RN	Low Density Residence: Less than 6 DU per Acre	60	D	87	0.87	140.94	0.62%	5.25%	0.5	4.4	
RN	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.40	140.94	0.29%	5.54%	0.2	4.6	
RN	Low Density Residence: Less than 6 DU per Acre	60	D	87	0.08	140.94	0.06%	5.59%	0.1	4.7	
RN	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.09	140.94	0.06%	5.65%	0.1	4.8	
RN	Low Density Residence: Less than 6 DU per Acre	60	D	87	0.04	140.94	0.03%	5.69%	0.0	4.8	
RN	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.33	140.94	0.24%	5.92%	0.2	5.0	
RN	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.42	140.94	0.30%	6.22%	0.3	5.2	
RN	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.03	140.94	0.02%	6.24%	0.0	5.3	
RN	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.75	140.94	0.53%	6.78%	0.5	5.7	
RN	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.68	140.94	0.48%	7.26%	0.4	6.1	
RN	Low Density Residence: Less than 6 DU per Acre	67	C	83	1.85	140.94	1.32%	8.58%	1.1	7.2	
RN	Low Density Residence: Less than 6 DU per Acre	59	D	87	2.64	140.94	1.88%	10.45%	1.6	8.9	
RN	Low Density Residence: Less than 6 DU per Acre	67	C	83	0.16	140.94	0.12%	10.57%	0.1	9.0	
RN	Low Density Residence: Less than 6 DU per Acre	59	D	87	4.04	140.94	2.87%	13.44%	2.5	11.5	
RN	Low Density Residence: Less than 6 DU per Acre	59	D	87	1.84	140.94	1.31%	14.74%	1.1	12.6	
RN	Low Density Residence: Less than 6 DU per Acre	67	C	83	1.12	140.94	0.79%	15.54%	0.7	13.3	
RN	Low Density Residence: Less than 6 DU per Acre	59	D	87	2.66	140.94	1.89%	17.42%	1.6	14.9	
RN	Low Density Residence: Less than 6 DU per Acre	60	D	87	0.03	140.94	0.02%	17.44%	0.0	14.9	
RN	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.13	140.94	0.09%	17.53%	0.1	15.0	
RN	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.19	140.94	0.14%	17.67%	0.1	15.1	
RN	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.11	140.94	0.08%	17.75%	0.1	15.2	
RN	Low Density Residence: Less than 6 DU per Acre	60	D	87	0.02	140.94	0.02%	17.76%	0.0	15.2	
RN	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.05	140.94	0.04%	17.80%	0.0	15.2	
RN	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.80	140.94	0.57%	18.37%	0.5	15.7	
RN	Low Density Residence: Less than 6 DU per Acre	67	C	83	1.65	140.94	1.17%	19.54%	1.0	16.7	
RN	Low Density Residence: Less than 6 DU per Acre	59	D	87	1.13	140.94	0.80%	20.34%	0.7	17.4	
RN	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.17	140.94	0.12%	20.46%	0.1	17.5	
RN	Low Density Residence: Less than 6 DU per Acre	59	D	87	1.97	140.94	1.40%	21.85%	1.2	18.7	
RN	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.55	140.94	0.39%	22.25%	0.3	19.1	
RN	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.00	140.94	0.00%	22.25%	0.0	19.1	
RN	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.96	140.94	0.68%	22.93%	0.6	19.6	
RN	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.08	140.94	0.06%	22.98%	0.1	19.7	

NORTHEAST CANON WATERSHED - CURVE NUMBER CALCULATION

BASIN	Land Use Category	SOIL MAP UNIT #	Hydrologic Soil Group	SUBREGION CN	SUBREGION AREA (ACRES)	SUBBASIN AREA (ACRES)	PERCENT OF SUBBASIN	CUMULATIVE PERCENT	AREAL WEIGHTED CN	CUMULATIVE CN	COMPOSITE CN
RN	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.01	140.94	0.01%	22.99%	0.0	19.7	
RN	Low Density Residence: Less than 6 DU per Acre	59	D	87	1.78	140.94	1.26%	24.25%	1.1	20.8	
RN	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.15	140.94	0.11%	24.36%	0.1	20.9	
RN	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.71	140.94	0.51%	24.87%	0.4	21.3	
RN	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.86	140.94	0.61%	25.48%	0.5	21.9	
RN	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.25	140.94	0.18%	25.65%	0.2	22.0	
RN	Low Density Residence: Less than 6 DU per Acre	67	C	83	1.26	140.94	0.89%	26.54%	0.7	22.8	
RN	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.04	140.94	0.03%	26.57%	0.0	22.8	
RN	Low Density Residence: Less than 6 DU per Acre	67	C	83	1.27	140.94	0.90%	27.47%	0.7	23.5	
RN	Low Density Residence: Less than 6 DU per Acre	59	D	87	3.79	140.94	2.69%	30.16%	2.3	25.9	
RN	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.44	140.94	0.31%	30.48%	0.3	26.1	
RN	Low Density Residence: Less than 6 DU per Acre	67	C	83	0.19	140.94	0.14%	30.61%	0.1	26.3	
RN	Low Density Residence: Less than 6 DU per Acre	59	D	87	1.16	140.94	0.82%	31.44%	0.7	27.0	
RN	Low Density Residence: Less than 6 DU per Acre	67	C	83	1.76	140.94	1.25%	32.69%	1.0	28.0	
RN	Low Density Residence: Less than 6 DU per Acre	59	D	87	1.45	140.94	1.03%	33.71%	0.9	28.9	
RN	Low Density Residence: Less than 6 DU per Acre	67	C	83	0.11	140.94	0.08%	33.79%	0.1	29.0	
RN	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.15	140.94	0.11%	33.90%	0.1	29.1	
RN	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.16	140.94	0.11%	34.01%	0.1	29.2	
RN	Low Density Residence: Less than 6 DU per Acre	67	C	83	0.73	140.94	0.51%	34.53%	0.4	29.6	
RN	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.16	140.94	0.11%	34.64%	0.1	29.7	
RN	Low Density Residence: Less than 6 DU per Acre	67	C	83	0.01	140.94	0.01%	34.65%	0.0	29.7	
RN	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.13	140.94	0.09%	34.74%	0.1	29.8	
RN	Low Density Residence: Less than 6 DU per Acre	67	C	83	0.17	140.94	0.12%	34.86%	0.1	29.9	
RN	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.00	140.94	0.00%	34.86%	0.0	29.9	
RN	Low Density Residence: Less than 6 DU per Acre	67	C	83	0.02	140.94	0.01%	34.87%	0.0	29.9	
RN	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.15	140.94	0.11%	34.98%	0.1	30.0	
RN	Low Density Residence: Less than 6 DU per Acre	67	C	83	0.06	140.94	0.05%	35.03%	0.0	30.0	
RN	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.03	140.94	0.02%	35.05%	0.0	30.0	
RN	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.06	140.94	0.04%	35.09%	0.0	30.1	
RN	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.05	140.94	0.04%	35.13%	0.0	30.1	
RN	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.16	140.94	0.11%	35.24%	0.1	30.2	
RN	Low Density Residence: Less than 6 DU per Acre	67	C	83	0.12	140.94	0.09%	35.33%	0.1	30.3	
RN	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.10	140.94	0.07%	35.40%	0.1	30.3	
RN	Low Density Residence: Less than 6 DU per Acre	67	C	83	0.20	140.94	0.14%	35.54%	0.1	30.4	
RN	Low Density Residence: Less than 6 DU per Acre	59	D	87	1.23	140.94	0.87%	36.41%	0.8	31.2	
RN	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.01	140.94	0.01%	36.42%	0.0	31.2	
RN	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.33	140.94	0.24%	36.65%	0.2	31.4	
RN	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.23	140.94	0.16%	36.82%	0.1	31.6	
RN	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.20	140.94	0.14%	36.96%	0.1	31.7	
RN	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.46	140.94	0.33%	37.28%	0.3	32.0	
RN	Low Density Residence: Less than 6 DU per Acre	67	C	83	0.11	140.94	0.08%	37.36%	0.1	32.0	
RN	Low Density Residence: Less than 6 DU per Acre	67	C	83	0.17	140.94	0.12%	37.48%	0.1	32.1	
RN	Low Density Residence: Less than 6 DU per Acre	67	C	83	0.24	140.94	0.17%	37.66%	0.1	32.3	
RN	Low Density Residence: Less than 6 DU per Acre	67	C	83	0.26	140.94	0.18%	37.84%	0.2	32.4	
RN	Low Density Residence: Less than 6 DU per Acre	67	C	83	0.63	140.94	0.45%	38.29%	0.4	32.8	
RN	Low Density Residence: Less than 6 DU per Acre	67	C	83	0.43	140.94	0.30%	38.59%	0.3	33.0	
RN	Low Density Residence: Less than 6 DU per Acre	67	C	83	0.25	140.94	0.17%	38.76%	0.1	33.2	
RN	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.25	140.94	0.18%	38.94%	0.2	33.3	
RN	Low Density Residence: Less than 6 DU per Acre	67	C	83	0.14	140.94	0.10%	39.04%	0.1	33.4	
RN	Low Density Residence: Less than 6 DU per Acre	67	C	83	0.04	140.94	0.03%	39.07%	0.0	33.5	
RN	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.44	140.94	0.31%	39.38%	0.3	33.7	
RN	Low Density Residence: Less than 6 DU per Acre	67	C	83	0.21	140.94	0.15%	39.53%	0.1	33.9	

NORTHEAST CANON WATERSHED - CURVE NUMBER CALCULATION

BASIN	Land Use Category	SOIL MAP UNIT #	Hydrologic Soil Group	SUBREGION CN	SUBREGION AREA (ACRES)	SUBBASIN AREA (ACRES)	PERCENT OF SUBBASIN	CUMULATIVE PERCENT	AREAL WEIGHTED CN	CUMULATIVE CN	COMPOSITE CN
RN	Low Density Residence: Less than 6 DU per Acre	67	C	83	0.29	140.94	0.20%	39.74%	0.2	34.0	
RN	Low Density Residence: Less than 6 DU per Acre	67	C	83	0.28	140.94	0.20%	39.93%	0.2	34.2	
RN	Low Density Residence: Less than 6 DU per Acre	67	C	83	0.14	140.94	0.10%	40.03%	0.1	34.3	
RN	Low Density Residence: Less than 6 DU per Acre	67	C	83	0.49	140.94	0.35%	40.38%	0.3	34.6	
RN	Low Density Residence: Less than 6 DU per Acre	67	C	83	0.43	140.94	0.30%	40.68%	0.3	34.8	
RN	Low Density Residence: Less than 6 DU per Acre	67	C	83	0.49	140.94	0.35%	41.03%	0.3	35.1	
RN	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.00	140.94	0.00%	41.03%	0.0	35.1	
RN	Low Density Residence: Less than 6 DU per Acre	67	C	83	0.29	140.94	0.20%	41.23%	0.2	35.3	
RN	Low Density Residence: Less than 6 DU per Acre	67	C	83	0.21	140.94	0.15%	41.39%	0.1	35.4	
RN	Low Density Residence: Less than 6 DU per Acre	67	C	83	1.00	140.94	0.71%	42.09%	0.6	36.0	
RN	Low Density Residence: Less than 6 DU per Acre	67	C	83	0.78	140.94	0.56%	42.65%	0.5	36.4	
RN	Low Density Residence: Less than 6 DU per Acre	67	C	83	0.96	140.94	0.68%	43.33%	0.6	37.0	
RN	Low Density Residence: Less than 6 DU per Acre	67	C	83	0.21	140.94	0.15%	43.48%	0.1	37.1	
RN	Low Density Residence: Less than 6 DU per Acre	67	C	83	0.72	140.94	0.51%	43.99%	0.4	37.6	
RN	Low Density Residence: Less than 6 DU per Acre	67	C	83	1.00	140.94	0.71%	44.70%	0.6	38.1	
RN	Low Density Residence: Less than 6 DU per Acre	67	C	83	0.57	140.94	0.41%	45.11%	0.3	38.5	
RN	Low Density Residence: Less than 6 DU per Acre	67	C	83	1.14	140.94	0.81%	45.92%	0.7	39.1	
RN	Low Density Residence: Less than 6 DU per Acre	67	C	83	1.00	140.94	0.71%	46.62%	0.6	39.7	
RN	Low Density Residence: Less than 6 DU per Acre	67	C	83	1.00	140.94	0.71%	47.33%	0.6	40.3	
RN	Low Density Residence: Less than 6 DU per Acre	67	C	83	0.43	140.94	0.30%	47.63%	0.3	40.6	
RN	Low Density Residence: Less than 6 DU per Acre	67	C	83	1.00	140.94	0.71%	48.34%	0.6	41.2	
RN	Low Density Residence: Less than 6 DU per Acre	67	C	83	0.15	140.94	0.10%	48.44%	0.1	41.2	
RN	Low Density Residence: Less than 6 DU per Acre	67	C	83	1.00	140.94	0.71%	49.15%	0.6	41.8	
RN	Low Density Residence: Less than 6 DU per Acre	67	C	83	0.54	140.94	0.38%	49.53%	0.3	42.2	
RN	Low Density Residence: Less than 6 DU per Acre	67	C	83	1.00	140.94	0.71%	50.24%	0.6	42.7	
RN	Low Density Residence: Less than 6 DU per Acre	67	C	83	0.53	140.94	0.38%	50.62%	0.3	43.1	
RN	Low Density Residence: Less than 6 DU per Acre	67	C	83	0.52	140.94	0.37%	50.99%	0.3	43.4	
RN	Low Density Residence: Less than 6 DU per Acre	67	C	83	0.28	140.94	0.20%	51.19%	0.2	43.5	
RN	Low Density Residence: Less than 6 DU per Acre	67	C	83	0.48	140.94	0.34%	51.53%	0.3	43.8	
RN	Low Density Residence: Less than 6 DU per Acre	67	C	83	1.00	140.94	0.71%	52.24%	0.6	44.4	
RN	Low Density Residence: Less than 6 DU per Acre	67	C	83	0.43	140.94	0.30%	52.54%	0.3	44.6	
RN	Low Density Residence: Less than 6 DU per Acre	67	C	83	1.08	140.94	0.77%	53.31%	0.6	45.3	
RN	Low Density Residence: Less than 6 DU per Acre	67	C	83	0.78	140.94	0.55%	53.86%	0.5	45.7	
RN	Low Density Residence: Less than 6 DU per Acre	67	C	83	0.48	140.94	0.34%	54.20%	0.3	46.0	
RN	Low Density Residence: Less than 6 DU per Acre	67	C	83	0.35	140.94	0.25%	54.45%	0.2	46.2	
RN	Low Density Residence: Less than 6 DU per Acre	67	C	83	0.28	140.94	0.20%	54.65%	0.2	46.4	
RN	Low Density Residence: Less than 6 DU per Acre	67	C	83	0.85	140.94	0.60%	55.25%	0.5	46.9	
RN	Low Density Residence: Less than 6 DU per Acre	67	C	83	0.52	140.94	0.37%	55.62%	0.3	47.2	
RN	Low Density Residence: Less than 6 DU per Acre	67	C	83	0.53	140.94	0.38%	56.00%	0.3	47.5	
RN	Low Density Residence: Less than 6 DU per Acre	67	C	83	0.14	140.94	0.10%	56.10%	0.1	47.6	
RN	Low Density Residence: Less than 6 DU per Acre	67	C	83	0.15	140.94	0.10%	56.20%	0.1	47.7	
RN	Low Density Residence: Less than 6 DU per Acre	67	C	83	0.84	140.94	0.60%	56.80%	0.5	48.2	
RN	Low Density Residence: Less than 6 DU per Acre	67	C	83	0.07	140.94	0.05%	56.85%	0.0	48.2	
RN	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.69	140.94	0.49%	57.34%	0.4	48.7	
RN	Low Density Residence: Less than 6 DU per Acre	67	C	83	0.41	140.94	0.29%	57.63%	0.2	48.9	
RN	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.47	140.94	0.33%	57.96%	0.3	49.2	
RN	Low Density Residence: Less than 6 DU per Acre	67	C	83	0.14	140.94	0.10%	58.06%	0.1	49.3	
RN	Low Density Residence: Less than 6 DU per Acre	67	C	83	0.03	140.94	0.02%	58.08%	0.0	49.3	
RN	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.26	140.94	0.19%	58.27%	0.2	49.4	
RN	Low Density Residence: Less than 6 DU per Acre	67	C	83	0.55	140.94	0.39%	58.66%	0.3	49.8	
RN	Low Density Residence: Less than 6 DU per Acre	67	C	83	0.22	140.94	0.16%	58.82%	0.1	49.9	
RN	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.02	140.94	0.01%	58.84%	0.0	49.9	

NORTHEAST CANON WATERSHED - CURVE NUMBER CALCULATION

BASIN	Land Use Category	SOIL MAP UNIT #	Hydrologic Soil Group	SUBREGION CN	SUBREGION AREA (ACRES)	SUBBASIN AREA (ACRES)	PERCENT OF SUBBASIN	CUMULATIVE PERCENT	AREAL WEIGHTED CN	CUMULATIVE CN	COMPOSITE CN
RN	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.15	140.94	0.10%	58.94%	0.1	50.0	
RN	Low Density Residence: Less than 6 DU per Acre	67	C	83	0.01	140.94	0.01%	58.95%	0.0	50.0	
RN	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.49	140.94	0.35%	59.30%	0.3	50.3	
RN	Low Density Residence: Less than 6 DU per Acre	67	C	83	0.47	140.94	0.33%	59.63%	0.3	50.6	
RN	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.05	140.94	0.04%	59.67%	0.0	50.6	
RN	Low Density Residence: Less than 6 DU per Acre	67	C	83	0.83	140.94	0.59%	60.26%	0.5	51.1	
RN	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.16	140.94	0.11%	60.37%	0.1	51.2	
RN	Low Density Residence: Less than 6 DU per Acre	67	C	83	0.29	140.94	0.20%	60.57%	0.2	51.4	
RN	Low Density Residence: Less than 6 DU per Acre	67	C	83	0.21	140.94	0.15%	60.72%	0.1	51.5	
RN	Low Density Residence: Less than 6 DU per Acre	67	C	83	0.49	140.94	0.35%	61.07%	0.3	51.8	
RN	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.06	140.94	0.04%	61.12%	0.0	51.8	
RN	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.39	140.94	0.28%	61.40%	0.2	52.1	
RN	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.01	140.94	0.01%	61.40%	0.0	52.1	
RN	Low Density Residence: Less than 6 DU per Acre	67	C	83	0.00	140.94	0.00%	61.40%	0.0	52.1	
RN	Low Density Residence: Less than 6 DU per Acre	67	C	83	0.00	140.94	0.00%	61.40%	0.0	52.1	
RN	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.00	140.94	0.00%	61.40%	0.0	52.1	
RN	Low Density Residence: Less than 6 DU per Acre	67	C	83	0.00	140.94	0.00%	61.40%	0.0	52.1	
RN	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.00	140.94	0.00%	61.40%	0.0	52.1	
RN	Agriculture	59	D	80	0.19	140.94	0.14%	61.54%	0.1	52.2	
RN	Commercial	59	D	95	1.09	140.94	0.77%	62.31%	0.7	52.9	
RN	Commercial	59	D	95	0.40	140.94	0.28%	62.60%	0.3	53.2	
RN	Commercial	59	D	95	4.72	140.94	3.35%	65.94%	3.2	56.4	
RN	Commercial	59	D	95	0.32	140.94	0.23%	66.17%	0.2	56.6	
RN	Commercial	59	D	95	0.70	140.94	0.50%	66.67%	0.5	57.1	
RN	Commercial	59	D	95	0.00	140.94	0.00%	66.67%	0.0	57.1	
RN	Medium to High Density Res	59	D	93	0.30	140.94	0.22%	66.89%	0.2	57.3	
RN	Medium to High Density Res	59	D	93	0.29	140.94	0.21%	67.10%	0.2	57.5	
RN	Medium to High Density Res	59	D	93	0.25	140.94	0.18%	67.27%	0.2	57.6	
RN	Medium to High Density Res	59	D	93	0.52	140.94	0.37%	67.64%	0.3	58.0	
RN	Medium to High Density Res	59	D	93	0.28	140.94	0.20%	67.84%	0.2	58.2	
RN	Medium to High Density Res	59	D	93	0.33	140.94	0.23%	68.07%	0.2	58.4	
RN	Medium to High Density Res	59	D	93	0.45	140.94	0.32%	68.39%	0.3	58.7	
RN	Medium to High Density Res	59	D	93	0.20	140.94	0.15%	68.54%	0.1	58.8	
RN	Medium to High Density Res	59	D	93	0.70	140.94	0.49%	69.03%	0.5	59.3	
RN	Medium to High Density Res	67	C	91	1.10	140.94	0.78%	69.81%	0.7	60.0	
RN	Medium to High Density Res	67	C	91	0.06	140.94	0.04%	69.86%	0.0	60.0	
RN	Medium to High Density Res	67	C	91	0.87	140.94	0.62%	70.48%	0.6	60.6	
RN	Medium to High Density Res	67	C	91	1.11	140.94	0.79%	71.26%	0.7	61.3	
RN	Street	59	D	93.1	0.24	140.94	0.17%	71.44%	0.2	61.5	
RN	Street	60	D	93.1	0.31	140.94	0.22%	71.65%	0.2	61.7	
RN	Street	67	C	91.35	2.74	140.94	1.95%	73.60%	1.8	63.4	
RN	Street	59	D	93.1	12.73	140.94	9.03%	82.63%	8.4	71.8	
RN	Street	67	C	91.35	0.07	140.94	0.05%	82.68%	0.0	71.9	
RN	Street	59	D	93.1	1.19	140.94	0.84%	83.52%	0.8	72.7	
RN	Street	67	C	91.35	0.30	140.94	0.21%	83.73%	0.2	72.9	
RN	Street	67	C	91.35	19.81	140.94	14.05%	97.79%	12.8	85.7	
RN	Street	59	D	93.1	1.30	140.94	0.93%	98.71%	0.9	86.6	
RN	Street	59	D	93.1	0.36	140.94	0.26%	98.97%	0.2	86.8	
RN	Street	67	C	91.35	0.10	140.94	0.07%	99.04%	0.1	86.9	
RN	Street	59	D	93.1	1.14	140.94	0.81%	99.85%	0.8	87.6	
RN	Street	67	C	91.35	0.19	140.94	0.14%	99.99%	0.1	87.7	
RN	Street	59	D	93.1	0.00	140.94	0.00%	99.99%	0.0	87.7	

NORTHEAST CANON WATERSHED - CURVE NUMBER CALCULATION

BASIN	Land Use Category	SOIL MAP UNIT #	Hydrologic Soil Group	SUBREGION CN	SUBREGION AREA (ACRES)	SUBBASIN AREA (ACRES)	PERCENT OF SUBBASIN	CUMULATIVE PERCENT	AREAL WEIGHTED CN	CUMULATIVE CN	COMPOSITE CN
RN	Street	59	D	93.1	0.00	140.94	0.00%	99.99%	0.0	87.7	
RN	Street	59	D	93.1	0.00	140.94	0.00%	99.99%	0.0	87.7	
RN	Street	59	D	93.1	0.00	140.94	0.00%	99.99%	0.0	87.7	
RN	Street	59	D	93.1	0.00	140.94	0.00%	99.99%	0.0	87.7	
RN	Street	59	D	93.1	0.00	140.94	0.00%	99.99%	0.0	87.7	
RN	Street	59	D	93.1	0.00	140.94	0.00%	99.99%	0.0	87.7	
RN	Street	59	D	93.1	0.00	140.94	0.00%	99.99%	0.0	87.8	
RN	Street	59	D	93.1	0.00	140.94	0.00%	99.99%	0.0	87.8	
RN	Street	67	C	91.35	0.00	140.94	0.00%	99.99%	0.0	87.8	
RN	Street	59	D	93.1	0.00	140.94	0.00%	99.99%	0.0	87.8	
RN	Street	67	C	91.35	0.00	140.94	0.00%	99.99%	0.0	87.8	
RN	Street	67	C	91.35	0.00	140.94	0.00%	99.99%	0.0	87.8	
RN	Street	59	D	93.1	0.00	140.94	0.00%	99.99%	0.0	87.8	
RN	Street	59	D	93.1	0.00	140.94	0.00%	99.99%	0.0	87.8	**87.8**
RS	Open Estates: Greater than 1 acre Lots	59	D	84	3.83	225.23	1.70%	1.70%	1.4	1.4	
RS	Open Estates: Greater than 1 acre Lots	59	D	84	29.83	225.23	13.25%	14.94%	11.1	12.6	
RS	Open Estates: Greater than 1 acre Lots	59	D	84	1.48	225.23	0.66%	15.60%	0.6	13.1	
RS	Open Estates: Greater than 1 acre Lots	59	D	84	0.54	225.23	0.24%	15.84%	0.2	13.3	
RS	Open Estates: Greater than 1 acre Lots	59	D	84	0.04	225.23	0.02%	15.86%	0.0	13.3	
RS	Open Estates: Greater than 1 acre Lots	59	D	84	3.51	225.23	1.56%	17.42%	1.3	14.6	
RS	Open Estates: Greater than 1 acre Lots	59	D	84	11.09	225.23	4.92%	22.34%	4.1	18.8	
RS	Open Estates: Greater than 1 acre Lots	59	D	84	0.23	225.23	0.10%	22.44%	0.1	18.9	
RS	Open Estates: Greater than 1 acre Lots	59	D	84	0.97	225.23	0.43%	22.87%	0.4	19.2	
RS	Open Estates: Greater than 1 acre Lots	59	D	84	0.48	225.23	0.21%	23.09%	0.2	19.4	
RS	Open Estates: Greater than 1 acre Lots	59	D	84	0.12	225.23	0.05%	23.14%	0.0	19.4	
RS	Open Estates: Greater than 1 acre Lots	59	D	84	0.12	225.23	0.05%	23.19%	0.0	19.5	
RS	Open Estates: Greater than 1 acre Lots	59	D	84	0.32	225.23	0.14%	23.34%	0.1	19.6	
RS	Open Estates: Greater than 1 acre Lots	59	D	84	1.16	225.23	0.52%	23.85%	0.4	20.0	
RS	Open Estates: Greater than 1 acre Lots	59	D	84	0.09	225.23	0.04%	23.89%	0.0	20.1	
RS	Open Estates: Greater than 1 acre Lots	59	D	84	0.64	225.23	0.28%	24.18%	0.2	20.3	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.61	225.23	0.27%	24.45%	0.2	20.5	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.15	225.23	0.07%	24.51%	0.1	20.6	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.40	225.23	0.18%	24.69%	0.2	20.8	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.33	225.23	0.15%	24.84%	0.1	20.9	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	1.18	225.23	0.53%	25.36%	0.5	21.3	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	1.18	225.23	0.53%	25.89%	0.5	21.8	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	1.25	225.23	0.56%	26.44%	0.5	22.3	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	1.55	225.23	0.69%	27.13%	0.6	22.9	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.68	225.23	0.30%	27.44%	0.3	23.1	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.52	225.23	0.23%	27.66%	0.2	23.3	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	1.72	225.23	0.76%	28.43%	0.7	24.0	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	1.14	225.23	0.51%	28.94%	0.4	24.4	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.33	225.23	0.15%	29.08%	0.1	24.6	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	1.02	225.23	0.45%	29.53%	0.4	25.0	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.64	225.23	0.29%	29.82%	0.2	25.2	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.76	225.23	0.34%	30.16%	0.3	25.5	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.27	225.23	0.12%	30.28%	0.1	25.6	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.27	225.23	0.12%	30.40%	0.1	25.7	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.00	225.23	0.00%	30.40%	0.0	25.7	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.03	225.23	0.01%	30.41%	0.0	25.7	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.34	225.23	0.15%	30.56%	0.1	25.9	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.27	225.23	0.12%	30.68%	0.1	26.0	

NORTHEAST CANON WATERSHED - CURVE NUMBER CALCULATION

BASIN	Land Use Category	SOIL MAP UNIT #	Hydrologic Soil Group	SUBREGION CN	SUBREGION AREA (ACRES)	SUBBASIN AREA (ACRES)	PERCENT OF SUBBASIN	CUMULATIVE PERCENT	AREAL WEIGHTED CN	CUMULATIVE CN	COMPOSITE CN
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.27	225.23	0.12%	30.80%	0.1	26.1	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.33	225.23	0.14%	30.95%	0.1	26.2	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.32	225.23	0.14%	31.09%	0.1	26.3	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.28	225.23	0.12%	31.21%	0.1	26.4	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.12	225.23	0.05%	31.27%	0.0	26.5	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.60	225.23	0.27%	31.53%	0.2	26.7	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.32	225.23	0.14%	31.68%	0.1	26.8	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.37	225.23	0.16%	31.84%	0.1	27.0	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.53	225.23	0.23%	32.08%	0.2	27.2	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.87	225.23	0.39%	32.46%	0.3	27.5	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.23	225.23	0.10%	32.56%	0.1	27.6	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.72	225.23	0.32%	32.88%	0.3	27.9	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	1.02	225.23	0.45%	33.34%	0.4	28.3	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.06	225.23	0.02%	33.36%	0.0	28.3	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.60	225.23	0.27%	33.63%	0.2	28.5	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.21	225.23	0.09%	33.72%	0.1	28.6	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.21	225.23	0.09%	33.81%	0.1	28.7	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.77	225.23	0.34%	34.16%	0.3	29.0	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.97	225.23	0.43%	34.59%	0.4	29.4	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.14	225.23	0.06%	34.65%	0.1	29.4	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	1.00	225.23	0.44%	35.09%	0.4	29.8	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.97	225.23	0.43%	35.52%	0.4	30.2	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.57	225.23	0.25%	35.78%	0.2	30.4	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	1.36	225.23	0.60%	36.38%	0.5	30.9	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.84	225.23	0.37%	36.75%	0.3	31.3	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.41	225.23	0.18%	36.94%	0.2	31.4	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.35	225.23	0.16%	37.09%	0.1	31.5	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	1.02	225.23	0.45%	37.55%	0.4	31.9	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.22	225.23	0.10%	37.64%	0.1	32.0	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.43	225.23	0.19%	37.83%	0.2	32.2	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.12	225.23	0.06%	37.89%	0.0	32.2	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	1.42	225.23	0.63%	38.52%	0.5	32.8	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	1.46	225.23	0.65%	39.17%	0.6	33.3	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.20	225.23	0.09%	39.26%	0.1	33.4	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.19	225.23	0.09%	39.34%	0.1	33.5	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.32	225.23	0.14%	39.48%	0.1	33.6	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.20	225.23	0.09%	39.57%	0.1	33.7	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	1.38	225.23	0.61%	40.18%	0.5	34.2	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.23	225.23	0.10%	40.28%	0.1	34.3	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.43	225.23	0.19%	40.48%	0.2	34.5	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.18	225.23	0.08%	40.56%	0.1	34.6	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.96	225.23	0.43%	40.99%	0.4	34.9	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.98	225.23	0.44%	41.42%	0.4	35.3	
RS	Low Density Residence: Less than 6 DU per Acre	60	D	87	0.05	225.23	0.02%	41.45%	0.0	35.3	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.92	225.23	0.41%	41.85%	0.4	35.7	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.99	225.23	0.44%	42.29%	0.4	36.1	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.31	225.23	0.14%	42.43%	0.1	36.2	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.14	225.23	0.06%	42.49%	0.1	36.2	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.10	225.23	0.05%	42.53%	0.0	36.3	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.23	225.23	0.10%	42.64%	0.1	36.4	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.02	225.23	0.01%	42.65%	0.0	36.4	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.18	225.23	0.08%	42.73%	0.1	36.4	

NORTHEAST CANON WATERSHED - CURVE NUMBER CALCULATION

BASIN	Land Use Category	SOIL MAP UNIT #	Hydrologic Soil Group	SUBREGION CN	SUBREGION AREA (ACRES)	SUBBASIN AREA (ACRES)	PERCENT OF SUBBASIN	CUMULATIVE PERCENT	AREAL WEIGHTED CN	CUMULATIVE CN	COMPOSITE CN
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.37	225.23	0.17%	42.89%	0.1	36.6	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.53	225.23	0.23%	43.13%	0.2	36.8	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.59	225.23	0.26%	43.39%	0.2	37.0	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.18	225.23	0.08%	43.47%	0.1	37.1	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.19	225.23	0.08%	43.55%	0.1	37.2	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.15	225.23	0.07%	43.62%	0.1	37.2	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.62	225.23	0.28%	43.89%	0.2	37.5	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.90	225.23	0.40%	44.29%	0.3	37.8	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.31	225.23	0.14%	44.43%	0.1	37.9	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.56	225.23	0.25%	44.68%	0.2	38.1	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.24	225.23	0.11%	44.79%	0.1	38.2	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.12	225.23	0.05%	44.84%	0.0	38.3	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.85	225.23	0.38%	45.22%	0.3	38.6	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.24	225.23	0.11%	45.33%	0.1	38.7	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.73	225.23	0.32%	45.65%	0.3	39.0	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.12	225.23	0.05%	45.71%	0.0	39.0	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.58	225.23	0.26%	45.96%	0.2	39.3	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.22	225.23	0.10%	46.06%	0.1	39.3	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.61	225.23	0.27%	46.33%	0.2	39.6	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.25	225.23	0.11%	46.44%	0.1	39.7	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.24	225.23	0.11%	46.54%	0.1	39.8	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.18	225.23	0.08%	46.63%	0.1	39.8	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.76	225.23	0.34%	46.96%	0.3	40.1	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.22	225.23	0.10%	47.06%	0.1	40.2	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.54	225.23	0.24%	47.30%	0.2	40.4	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.21	225.23	0.09%	47.40%	0.1	40.5	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.14	225.23	0.06%	47.46%	0.1	40.6	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.25	225.23	0.11%	47.57%	0.1	40.7	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.12	225.23	0.05%	47.62%	0.0	40.7	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.24	225.23	0.11%	47.73%	0.1	40.8	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.34	225.23	0.15%	47.88%	0.1	40.9	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.29	225.23	0.13%	48.01%	0.1	41.0	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.95	225.23	0.42%	48.43%	0.4	41.4	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.95	225.23	0.42%	48.85%	0.4	41.8	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.14	225.23	0.06%	48.91%	0.1	41.8	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.75	225.23	0.33%	49.24%	0.3	42.1	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.78	225.23	0.35%	49.59%	0.3	42.4	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.42	225.23	0.19%	49.78%	0.2	42.6	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.50	225.23	0.22%	50.00%	0.2	42.8	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.11	225.23	0.05%	50.05%	0.0	42.8	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.32	225.23	0.14%	50.19%	0.1	42.9	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.98	225.23	0.44%	50.63%	0.4	43.3	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.09	225.23	0.04%	50.67%	0.0	43.4	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.09	225.23	0.04%	50.71%	0.0	43.4	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.78	225.23	0.35%	51.06%	0.3	43.7	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.11	225.23	0.05%	51.11%	0.0	43.7	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.97	225.23	0.43%	51.54%	0.4	44.1	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.10	225.23	0.05%	51.59%	0.0	44.2	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.14	225.23	0.06%	51.65%	0.1	44.2	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.42	225.23	0.18%	51.83%	0.2	44.4	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.21	225.23	0.09%	51.92%	0.1	44.4	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.35	225.23	0.15%	52.08%	0.1	44.6	

NORTHEAST CANON WATERSHED - CURVE NUMBER CALCULATION

BASIN	Land Use Category	SOIL MAP UNIT #	Hydrologic Soil Group	SUBREGION CN	SUBREGION AREA (ACRES)	SUBBASIN AREA (ACRES)	PERCENT OF SUBBASIN	CUMULATIVE PERCENT	AREAL WEIGHTED CN	CUMULATIVE CN	COMPOSITE CN
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.11	225.23	0.05%	52.13%	0.0	44.6	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.14	225.23	0.06%	52.19%	0.1	44.7	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.14	225.23	0.06%	52.25%	0.1	44.7	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.69	225.23	0.31%	52.56%	0.3	45.0	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.44	225.23	0.20%	52.75%	0.2	45.2	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.12	225.23	0.05%	52.81%	0.0	45.2	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.12	225.23	0.05%	52.86%	0.0	45.3	
RS	Commercial	59	D	95	1.91	225.23	0.85%	53.71%	0.8	46.1	
RS	Commercial	59	D	95	0.27	225.23	0.12%	53.83%	0.1	46.2	
RS	Commercial	59	D	95	3.81	225.23	1.69%	55.52%	1.6	47.8	
RS	Commercial	59	D	95	0.72	225.23	0.32%	55.84%	0.3	48.1	
RS	Commercial	59	D	95	0.21	225.23	0.09%	55.94%	0.1	48.2	
RS	Commercial	59	D	95	1.66	225.23	0.74%	56.67%	0.7	48.9	
RS	Commercial	59	D	95	5.17	225.23	2.29%	58.97%	2.2	51.1	
RS	Commercial	59	D	95	0.08	225.23	0.04%	59.00%	0.0	51.1	
RS	Commercial	59	D	95	0.27	225.23	0.12%	59.12%	0.1	51.2	
RS	Commercial	59	D	95	0.48	225.23	0.21%	59.33%	0.2	51.4	
RS	Commercial	59	D	95	0.21	225.23	0.09%	59.43%	0.1	51.5	
RS	Commercial	59	D	95	0.12	225.23	0.05%	59.48%	0.1	51.6	
RS	Commercial	59	D	95	0.12	225.23	0.05%	59.53%	0.1	51.6	
RS	Commercial	59	D	95	0.12	225.23	0.05%	59.59%	0.1	51.7	
RS	Commercial	59	D	95	0.38	225.23	0.17%	59.76%	0.2	51.8	
RS	Commercial	59	D	95	0.58	225.23	0.26%	60.02%	0.2	52.1	
RS	Commercial	59	D	95	0.27	225.23	0.12%	60.14%	0.1	52.2	
RS	Commercial	59	D	95	0.39	225.23	0.17%	60.31%	0.2	52.3	
RS	Commercial	59	D	95	0.12	225.23	0.05%	60.36%	0.1	52.4	
RS	Commercial	59	D	95	0.12	225.23	0.05%	60.41%	0.1	52.4	
RS	Commercial	59	D	95	0.12	225.23	0.05%	60.47%	0.1	52.5	
RS	Commercial	59	D	95	0.73	225.23	0.32%	60.79%	0.3	52.8	
RS	Commercial	59	D	95	0.99	225.23	0.44%	61.23%	0.4	53.2	
RS	Commercial	59	D	95	0.72	225.23	0.32%	61.55%	0.3	53.5	
RS	Commercial	59	D	95	0.12	225.23	0.05%	61.60%	0.1	53.6	
RS	Commercial	59	D	95	0.24	225.23	0.11%	61.71%	0.1	53.7	
RS	Commercial	59	D	95	0.12	225.23	0.05%	61.76%	0.1	53.7	
RS	Commercial	59	D	95	0.12	225.23	0.05%	61.81%	0.1	53.8	
RS	Commercial	59	D	95	0.36	225.23	0.16%	61.98%	0.2	53.9	
RS	Commercial	59	D	95	0.24	225.23	0.11%	62.08%	0.1	54.0	
RS	Commercial	59	D	95	0.24	225.23	0.11%	62.19%	0.1	54.1	
RS	Commercial	59	D	95	0.12	225.23	0.05%	62.24%	0.0	54.2	
RS	Commercial	59	D	95	0.36	225.23	0.16%	62.40%	0.2	54.3	
RS	Commercial	59	D	95	0.36	225.23	0.16%	62.56%	0.2	54.5	
RS	Commercial	59	D	95	0.23	225.23	0.10%	62.66%	0.1	54.6	
RS	Commercial	59	D	95	0.12	225.23	0.05%	62.71%	0.1	54.6	
RS	Commercial	59	D	95	0.82	225.23	0.36%	63.08%	0.3	55.0	
RS	Commercial	59	D	95	0.24	225.23	0.11%	63.19%	0.1	55.1	
RS	Commercial	59	D	95	0.12	225.23	0.05%	63.24%	0.1	55.1	
RS	Commercial	59	D	95	2.01	225.23	0.89%	64.13%	0.8	56.0	
RS	Commercial	59	D	95	0.12	225.23	0.05%	64.18%	0.1	56.0	
RS	Commercial	59	D	95	0.24	225.23	0.11%	64.29%	0.1	56.1	
RS	Commercial	59	D	95	0.13	225.23	0.06%	64.35%	0.1	56.2	
RS	Commercial	59	D	95	0.14	225.23	0.06%	64.41%	0.1	56.2	
RS	Commercial	59	D	95	0.31	225.23	0.14%	64.55%	0.1	56.4	

NORTHEAST CANON WATERSHED - CURVE NUMBER CALCULATION

BASIN	Land Use Category	SOIL MAP UNIT #	Hydrologic Soil Group	SUBREGION CN	SUBREGION AREA (ACRES)	SUBBASIN AREA (ACRES)	PERCENT OF SUBBASIN	CUMULATIVE PERCENT	AREAL WEIGHTED CN	CUMULATIVE CN	COMPOSITE CN
RS	Commercial	59	D	95	0.14	225.23	0.06%	64.61%	0.1	56.4	
RS	Commercial	59	D	95	0.14	225.23	0.06%	64.67%	0.1	56.5	
RS	Commercial	59	D	95	0.55	225.23	0.25%	64.92%	0.2	56.7	
RS	Commercial	59	D	95	0.05	225.23	0.02%	64.94%	0.0	56.7	
RS	Commercial	59	D	95	0.07	225.23	0.03%	64.97%	0.0	56.8	
RS	Commercial	59	D	95	0.97	225.23	0.43%	65.40%	0.4	57.2	
RS	Commercial	59	D	95	0.41	225.23	0.18%	65.58%	0.2	57.3	
RS	Commercial	59	D	95	1.03	225.23	0.46%	66.04%	0.4	57.8	
RS	Commercial	59	D	95	0.12	225.23	0.05%	66.10%	0.1	57.8	
RS	Commercial	59	D	95	0.12	225.23	0.05%	66.15%	0.1	57.9	
RS	Commercial	59	D	95	0.48	225.23	0.21%	66.36%	0.2	58.1	
RS	Commercial	59	D	95	0.24	225.23	0.11%	66.47%	0.1	58.2	
RS	Commercial	59	D	95	0.24	225.23	0.11%	66.58%	0.1	58.3	
RS	Commercial	59	D	95	0.52	225.23	0.23%	66.81%	0.2	58.5	
RS	Commercial	59	D	95	0.37	225.23	0.17%	66.98%	0.2	58.7	
RS	Commercial	59	D	95	0.19	225.23	0.08%	67.06%	0.1	58.8	
RS	Commercial	59	D	95	0.44	225.23	0.19%	67.25%	0.2	58.9	
RS	Commercial	59	D	95	0.13	225.23	0.06%	67.31%	0.1	59.0	
RS	Commercial	59	D	95	0.39	225.23	0.18%	67.49%	0.2	59.2	
RS	Commercial	59	D	95	0.52	225.23	0.23%	67.72%	0.2	59.4	
RS	Medium to High Density Res	59	D	93	0.14	225.23	0.06%	67.78%	0.1	59.4	
RS	Medium to High Density Res	59	D	93	0.24	225.23	0.11%	67.89%	0.1	59.5	
RS	Medium to High Density Res	59	D	93	0.13	225.23	0.06%	67.95%	0.1	59.6	
RS	Medium to High Density Res	59	D	93	0.13	225.23	0.06%	68.01%	0.1	59.6	
RS	Medium to High Density Res	59	D	93	0.00	225.23	0.00%	68.01%	0.0	59.6	
RS	Medium to High Density Res	59	D	93	0.18	225.23	0.08%	68.09%	0.1	59.7	
RS	Medium to High Density Res	59	D	93	0.21	225.23	0.09%	68.18%	0.1	59.8	
RS	Medium to High Density Res	59	D	93	0.35	225.23	0.15%	68.34%	0.1	60.0	
RS	Medium to High Density Res	59	D	93	0.17	225.23	0.07%	68.41%	0.1	60.0	
RS	Street	59	D	93.1	0.21	225.23	0.09%	68.51%	0.1	60.1	
RS	Street	59	D	93.1	0.37	225.23	0.17%	68.67%	0.2	60.3	
RS	Street	59	D	93.1	1.07	225.23	0.48%	69.15%	0.4	60.7	
RS	Street	60	D	93.1	0.15	225.23	0.07%	69.21%	0.1	60.8	
RS	Street	59	D	93.1	29.36	225.23	13.04%	82.25%	12.1	72.9	
RS	Street	59	D	93.1	1.32	225.23	0.59%	82.84%	0.5	73.5	
RS	Street	59	D	93.1	7.90	225.23	3.51%	86.35%	3.3	76.7	
RS	Street	59	D	93.1	0.00	225.23	0.00%	86.35%	0.0	76.7	
RS	Street	59	D	93.1	11.74	225.23	5.21%	91.56%	4.9	81.6	
RS	Street	59	D	93.1	0.00	225.23	0.00%	91.56%	0.0	81.6	
RS	Street	59	D	93.1	19.00	225.23	8.43%	100.00%	7.9	89.4	
RS	Street	59	D	93.1	0.00	225.23	0.00%	100.00%	0.0	89.4	**89.4**
SN	Open Estates: Greater than 1 acre Lots	60	D	84	0.93	93.37	1.00%	1.00%	0.8	0.8	
SN	Open Estates: Greater than 1 acre Lots	60	D	84	0.45	93.37	0.49%	1.49%	0.4	1.2	
SN	Open Estates: Greater than 1 acre Lots	60	D	84	0.62	93.37	0.67%	2.15%	0.6	1.8	
SN	Open Estates: Greater than 1 acre Lots	60	D	84	0.43	93.37	0.46%	2.62%	0.4	2.2	
SN	Open Estates: Greater than 1 acre Lots	60	D	84	0.39	93.37	0.42%	3.03%	0.4	2.5	
SN	Open Estates: Greater than 1 acre Lots	60	D	84	0.38	93.37	0.41%	3.44%	0.3	2.9	
SN	Open Estates: Greater than 1 acre Lots	59	D	84	0.52	93.37	0.56%	4.00%	0.5	3.4	
SN	Low Density Residence: Less than 6 DU per Acre	60	D	87	0.10	93.37	0.11%	4.11%	0.1	3.5	
SN	Low Density Residence: Less than 6 DU per Acre	60	D	87	0.03	93.37	0.03%	4.14%	0.0	3.5	
SN	Low Density Residence: Less than 6 DU per Acre	60	D	87	1.32	93.37	1.42%	5.56%	1.2	4.7	
SN	Low Density Residence: Less than 6 DU per Acre	60	D	87	2.98	93.37	3.20%	8.76%	2.8	7.5	

NORTHEAST CANON WATERSHED - CURVE NUMBER CALCULATION

BASIN	Land Use Category	SOIL MAP UNIT #	Hydrologic Soil Group	SUBREGION CN	SUBREGION AREA (ACRES)	SUBBASIN AREA (ACRES)	PERCENT OF SUBBASIN	CUMULATIVE PERCENT	AREAL WEIGHTED CN	CUMULATIVE CN	COMPOSITE CN
SN	Low Density Residence: Less than 6 DU per Acre	60	D	87	0.00	93.37	0.00%	8.76%	0.0	7.5	
SN	Low Density Residence: Less than 6 DU per Acre	60	D	87	0.95	93.37	1.02%	9.78%	0.9	8.4	
SN	Low Density Residence: Less than 6 DU per Acre	60	D	87	0.72	93.37	0.77%	10.55%	0.7	9.1	
SN	Low Density Residence: Less than 6 DU per Acre	60	D	87	0.36	93.37	0.38%	10.94%	0.3	9.4	
SN	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.18	93.37	0.19%	11.12%	0.2	9.6	
SN	Low Density Residence: Less than 6 DU per Acre	60	D	87	0.01	93.37	0.01%	11.13%	0.0	9.6	
SN	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.24	93.37	0.25%	11.39%	0.2	9.8	
SN	Low Density Residence: Less than 6 DU per Acre	60	D	87	1.03	93.37	1.11%	12.49%	1.0	10.7	
SN	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.04	93.37	0.04%	12.53%	0.0	10.8	
SN	Low Density Residence: Less than 6 DU per Acre	60	D	87	0.00	93.37	0.00%	12.53%	0.0	10.8	
SN	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.23	93.37	0.25%	12.78%	0.2	11.0	
SN	Low Density Residence: Less than 6 DU per Acre	60	D	87	0.61	93.37	0.65%	13.43%	0.6	11.6	
SN	Low Density Residence: Less than 6 DU per Acre	60	D	87	1.07	93.37	1.15%	14.58%	1.0	12.6	
SN	Low Density Residence: Less than 6 DU per Acre	60	D	87	0.76	93.37	0.82%	15.39%	0.7	13.3	
SN	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.12	93.37	0.12%	15.52%	0.1	13.4	
SN	Low Density Residence: Less than 6 DU per Acre	60	D	87	0.38	93.37	0.41%	15.93%	0.4	13.7	
SN	Low Density Residence: Less than 6 DU per Acre	60	D	87	0.04	93.37	0.05%	15.97%	0.0	13.8	
SN	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.32	93.37	0.35%	16.32%	0.3	14.1	
SN	Agriculture	60	D	80	0.07	93.37	0.08%	16.40%	0.1	14.1	
SN	Agriculture	60	D	80	9.98	93.37	10.69%	27.09%	8.5	22.7	
SN	Agriculture	60	D	80	0.66	93.37	0.71%	27.80%	0.6	23.3	
SN	Agriculture	60	D	80	9.98	93.37	10.69%	38.49%	8.6	31.8	
SN	Agriculture	60	D	80	0.05	93.37	0.05%	38.54%	0.0	31.9	
SN	Agriculture	60	D	80	1.22	93.37	1.31%	39.85%	1.0	32.9	
SN	Agriculture	60	D	80	7.37	93.37	7.89%	47.74%	6.3	39.2	
SN	Agriculture	60	D	80	1.36	93.37	1.45%	49.19%	1.2	40.4	
SN	Agriculture	60	D	80	0.00	93.37	0.00%	49.19%	0.0	40.4	
SN	Commercial	60	D	95	0.46	93.37	0.50%	49.69%	0.5	40.8	
SN	Commercial	59	D	95	0.87	93.37	0.93%	50.62%	0.9	41.7	
SN	Commercial	60	D	95	3.09	93.37	3.31%	53.93%	3.1	44.9	
SN	Commercial	59	D	95	2.31	93.37	2.47%	56.40%	2.3	47.2	
SN	Commercial	60	D	95	0.68	93.37	0.73%	57.13%	0.7	47.9	
SN	Commercial	60	D	95	0.32	93.37	0.34%	57.47%	0.3	48.2	
SN	Commercial	60	D	95	0.34	93.37	0.36%	57.83%	0.3	48.6	
SN	Commercial	60	D	95	1.75	93.37	1.87%	59.70%	1.8	50.4	
SN	Commercial	59	D	95	0.21	93.37	0.22%	59.93%	0.2	50.6	
SN	Commercial	60	D	95	0.29	93.37	0.32%	60.24%	0.3	50.9	
SN	Commercial	59	D	95	1.00	93.37	1.07%	61.31%	1.0	51.9	
SN	Commercial	60	D	95	0.41	93.37	0.44%	61.75%	0.4	52.3	
SN	Commercial	59	D	95	0.41	93.37	0.44%	62.19%	0.4	52.7	
SN	Commercial	59	D	95	0.31	93.37	0.34%	62.53%	0.3	53.0	
SN	Commercial	60	D	95	1.57	93.37	1.68%	64.21%	1.6	54.6	
SN	Commercial	59	D	95	0.01	93.37	0.01%	64.22%	0.0	54.6	
SN	Commercial	60	D	95	0.43	93.37	0.46%	64.68%	0.4	55.1	
SN	Commercial	60	D	95	1.00	93.37	1.08%	65.75%	1.0	56.1	
SN	Commercial	60	D	95	2.65	93.37	2.84%	68.59%	2.7	58.8	
SN	Commercial	59	D	95	0.24	93.37	0.26%	68.85%	0.2	59.1	
SN	Commercial	59	D	95	1.34	93.37	1.44%	70.29%	1.4	60.4	
SN	Commercial	60	D	95	0.00	93.37	0.00%	70.29%	0.0	60.4	
SN	Medium to High Density Res	60	D	93	11.43	93.37	12.24%	82.53%	11.4	71.8	
SN	Medium to High Density Res	60	D	93	2.93	93.37	3.14%	85.67%	2.9	74.7	
SN	Medium to High Density Res	59	D	93	0.49	93.37	0.53%	86.19%	0.5	75.2	

NORTHEAST CANON WATERSHED - CURVE NUMBER CALCULATION

BASIN	Land Use Category	SOIL MAP UNIT #	Hydrologic Soil Group	SUBREGION CN	SUBREGION AREA (ACRES)	SUBBASIN AREA (ACRES)	PERCENT OF SUBBASIN	CUMULATIVE PERCENT	AREAL WEIGHTED CN	CUMULATIVE CN	COMPOSITE CN
SN	Medium to High Density Res	59	D	93	0.16	93.37	0.17%	86.37%	0.2	75.4	
SN	Street	59	D	93.1	0.04	93.37	0.05%	86.41%	0.0	75.4	
SN	Street	60	D	93.1	0.00	93.37	0.00%	86.41%	0.0	75.4	
SN	Street	60	D	93.1	10.43	93.37	11.17%	97.58%	10.4	85.8	
SN	Street	59	D	93.1	0.05	93.37	0.05%	97.64%	0.0	85.9	
SN	Street	59	D	93.1	2.20	93.37	2.36%	99.99%	2.2	88.1	
SN	Street	60	D	93.1	0.00	93.37	0.00%	99.99%	0.0	88.1	
SN	Street	59	D	93.1	0.00	93.37	0.00%	99.99%	0.0	88.1	
SN	Street	60	D	93.1	0.00	93.37	0.00%	99.99%	0.0	88.1	**88.1**
SS	Open Estates: Greater than 1 acre Lots	60	D	84	0.33	139.27	0.24%	0.24%	0.2	0.2	
SS	Open Estates: Greater than 1 acre Lots	60	D	84	0.23	139.27	0.17%	0.40%	0.1	0.3	
SS	Low Density Residence: Less than 6 DU per Acre	60	D	87	1.16	139.27	0.83%	1.24%	0.7	1.1	
SS	Low Density Residence: Less than 6 DU per Acre	60	D	87	0.85	139.27	0.61%	1.85%	0.5	1.6	
SS	Low Density Residence: Less than 6 DU per Acre	60	D	87	0.38	139.27	0.27%	2.12%	0.2	1.8	
SS	Low Density Residence: Less than 6 DU per Acre	60	D	87	0.68	139.27	0.49%	2.61%	0.4	2.3	
SS	Low Density Residence: Less than 6 DU per Acre	60	D	87	0.55	139.27	0.40%	3.01%	0.3	2.6	
SS	Low Density Residence: Less than 6 DU per Acre	60	D	87	0.58	139.27	0.41%	3.42%	0.4	3.0	
SS	Low Density Residence: Less than 6 DU per Acre	60	D	87	0.73	139.27	0.53%	3.95%	0.5	3.4	
SS	Low Density Residence: Less than 6 DU per Acre	60	D	87	0.18	139.27	0.13%	4.08%	0.1	3.5	
SS	Low Density Residence: Less than 6 DU per Acre	60	D	87	0.95	139.27	0.68%	4.76%	0.6	4.1	
SS	Low Density Residence: Less than 6 DU per Acre	60	D	87	2.60	139.27	1.86%	6.62%	1.6	5.7	
SS	Low Density Residence: Less than 6 DU per Acre	60	D	87	1.67	139.27	1.20%	7.82%	1.0	6.8	
SS	Low Density Residence: Less than 6 DU per Acre	60	D	87	0.47	139.27	0.34%	8.16%	0.3	7.1	
SS	Low Density Residence: Less than 6 DU per Acre	60	D	87	0.85	139.27	0.61%	8.77%	0.5	7.6	
SS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.88	139.27	0.63%	9.40%	0.5	8.2	
SS	Low Density Residence: Less than 6 DU per Acre	60	D	87	0.13	139.27	0.09%	9.49%	0.1	8.2	
SS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.01	139.27	0.00%	9.50%	0.0	8.3	
SS	Low Density Residence: Less than 6 DU per Acre	60	D	87	0.10	139.27	0.08%	9.57%	0.1	8.3	
SS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.04	139.27	0.03%	9.60%	0.0	8.3	
SS	Low Density Residence: Less than 6 DU per Acre	60	D	87	0.14	139.27	0.10%	9.70%	0.1	8.4	
SS	Low Density Residence: Less than 6 DU per Acre	60	D	87	0.24	139.27	0.17%	9.87%	0.1	8.6	
SS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.17	139.27	0.12%	9.99%	0.1	8.7	
SS	Low Density Residence: Less than 6 DU per Acre	60	D	87	0.14	139.27	0.10%	10.09%	0.1	8.8	
SS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.69	139.27	0.50%	10.59%	0.4	9.2	
SS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.90	139.27	0.65%	11.24%	0.6	9.8	
SS	Low Density Residence: Less than 6 DU per Acre	60	D	87	1.31	139.27	0.94%	12.18%	0.8	10.6	
SS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.19	139.27	0.14%	12.31%	0.1	10.7	
SS	Low Density Residence: Less than 6 DU per Acre	60	D	87	1.03	139.27	0.74%	13.05%	0.6	11.3	
SS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.57	139.27	0.41%	13.46%	0.4	11.7	
SS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.22	139.27	0.16%	13.62%	0.1	11.8	
SS	Low Density Residence: Less than 6 DU per Acre	60	D	87	1.57	139.27	1.12%	14.74%	1.0	12.8	
SS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.34	139.27	0.24%	14.99%	0.2	13.0	
SS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.46	139.27	0.33%	15.31%	0.3	13.3	
SS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.92	139.27	0.66%	15.97%	0.6	13.9	
SS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.23	139.27	0.17%	16.14%	0.1	14.0	
SS	Low Density Residence: Less than 6 DU per Acre	60	D	87	0.32	139.27	0.23%	16.37%	0.2	14.2	
SS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.97	139.27	0.70%	17.07%	0.6	14.8	
SS	Low Density Residence: Less than 6 DU per Acre	59	D	87	1.02	139.27	0.74%	17.80%	0.6	15.5	
SS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.22	139.27	0.16%	17.96%	0.1	15.6	
SS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.98	139.27	0.70%	18.66%	0.6	16.2	
SS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.76	139.27	0.54%	19.21%	0.5	16.7	
SS	Low Density Residence: Less than 6 DU per Acre	60	D	87	2.13	139.27	1.53%	20.74%	1.3	18.0	

NORTHEAST CANON WATERSHED - CURVE NUMBER CALCULATION

BASIN	Land Use Category	SOIL MAP UNIT #	Hydrologic Soil Group	SUBREGION CN	SUBREGION AREA (ACRES)	SUBBASIN AREA (ACRES)	PERCENT OF SUBBASIN	CUMULATIVE PERCENT	AREAL WEIGHTED CN	CUMULATIVE CN	COMPOSITE CN
SS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.96	139.27	0.69%	21.43%	0.6	18.6	
SS	Low Density Residence: Less than 6 DU per Acre	60	D	87	0.32	139.27	0.23%	21.66%	0.2	18.8	
SS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.62	139.27	0.45%	22.11%	0.4	19.2	
SS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.77	139.27	0.56%	22.66%	0.5	19.7	
SS	Low Density Residence: Less than 6 DU per Acre	59	D	87	1.02	139.27	0.73%	23.39%	0.6	20.3	
SS	Low Density Residence: Less than 6 DU per Acre	59	D	87	1.08	139.27	0.78%	24.17%	0.7	21.0	
SS	Low Density Residence: Less than 6 DU per Acre	60	D	87	1.81	139.27	1.30%	25.47%	1.1	22.1	
SS	Low Density Residence: Less than 6 DU per Acre	59	D	87	1.31	139.27	0.94%	26.41%	0.8	23.0	
SS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.95	139.27	0.68%	27.10%	0.6	23.6	
SS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.21	139.27	0.15%	27.24%	0.1	23.7	
SS	Low Density Residence: Less than 6 DU per Acre	60	D	87	1.24	139.27	0.89%	28.14%	0.8	24.5	
SS	Low Density Residence: Less than 6 DU per Acre	60	D	87	0.35	139.27	0.25%	28.39%	0.2	24.7	
SS	Low Density Residence: Less than 6 DU per Acre	60	D	87	0.13	139.27	0.09%	28.48%	0.1	24.8	
SS	Low Density Residence: Less than 6 DU per Acre	60	D	87	0.17	139.27	0.12%	28.61%	0.1	24.9	
SS	Low Density Residence: Less than 6 DU per Acre	60	D	87	0.27	139.27	0.19%	28.80%	0.2	25.0	
SS	Low Density Residence: Less than 6 DU per Acre	60	D	87	0.58	139.27	0.41%	29.21%	0.4	25.4	
SS	Low Density Residence: Less than 6 DU per Acre	60	D	87	0.37	139.27	0.27%	29.48%	0.2	25.6	
SS	Low Density Residence: Less than 6 DU per Acre	60	D	87	3.72	139.27	2.67%	32.15%	2.3	28.0	
SS	Low Density Residence: Less than 6 DU per Acre	60	D	87	0.20	139.27	0.15%	32.30%	0.1	28.1	
SS	Low Density Residence: Less than 6 DU per Acre	60	D	87	0.54	139.27	0.39%	32.69%	0.3	28.4	
SS	Low Density Residence: Less than 6 DU per Acre	60	D	87	0.59	139.27	0.42%	33.11%	0.4	28.8	
SS	Low Density Residence: Less than 6 DU per Acre	60	D	87	0.64	139.27	0.46%	33.57%	0.4	29.2	
SS	Low Density Residence: Less than 6 DU per Acre	60	D	87	1.73	139.27	1.24%	34.82%	1.1	30.3	
SS	Low Density Residence: Less than 6 DU per Acre	60	D	87	1.89	139.27	1.35%	36.17%	1.2	31.5	
SS	Low Density Residence: Less than 6 DU per Acre	60	D	87	0.43	139.27	0.31%	36.48%	0.3	31.7	
SS	Low Density Residence: Less than 6 DU per Acre	60	D	87	1.16	139.27	0.83%	37.31%	0.7	32.4	
SS	Low Density Residence: Less than 6 DU per Acre	60	D	87	1.38	139.27	0.99%	38.30%	0.9	33.3	
SS	Low Density Residence: Less than 6 DU per Acre	60	D	87	0.72	139.27	0.52%	38.82%	0.4	33.8	
SS	Low Density Residence: Less than 6 DU per Acre	60	D	87	0.75	139.27	0.54%	39.36%	0.5	34.2	
SS	Low Density Residence: Less than 6 DU per Acre	60	D	87	1.54	139.27	1.11%	40.46%	1.0	35.2	
SS	Low Density Residence: Less than 6 DU per Acre	60	D	87	1.30	139.27	0.93%	41.40%	0.8	36.0	
SS	Low Density Residence: Less than 6 DU per Acre	60	D	87	1.59	139.27	1.14%	42.54%	1.0	37.0	
SS	Low Density Residence: Less than 6 DU per Acre	60	D	87	7.49	139.27	5.38%	47.92%	4.7	41.7	
SS	Low Density Residence: Less than 6 DU per Acre	60	D	87	0.37	139.27	0.26%	48.18%	0.2	41.9	
SS	Low Density Residence: Less than 6 DU per Acre	60	D	87	3.29	139.27	2.36%	50.54%	2.1	44.0	
SS	Low Density Residence: Less than 6 DU per Acre	60	D	87	1.35	139.27	0.97%	51.51%	0.8	44.8	
SS	Low Density Residence: Less than 6 DU per Acre	60	D	87	0.15	139.27	0.11%	51.62%	0.1	44.9	
SS	Low Density Residence: Less than 6 DU per Acre	60	D	87	1.64	139.27	1.18%	52.80%	1.0	45.9	
SS	Low Density Residence: Less than 6 DU per Acre	60	D	87	0.36	139.27	0.26%	53.06%	0.2	46.1	
SS	Low Density Residence: Less than 6 DU per Acre	60	D	87	0.40	139.27	0.29%	53.35%	0.2	46.4	
SS	Low Density Residence: Less than 6 DU per Acre	60	D	87	1.03	139.27	0.74%	54.09%	0.6	47.0	
SS	Low Density Residence: Less than 6 DU per Acre	60	D	87	0.60	139.27	0.43%	54.52%	0.4	47.4	
SS	Low Density Residence: Less than 6 DU per Acre	60	D	87	0.20	139.27	0.14%	54.66%	0.1	47.5	
SS	Low Density Residence: Less than 6 DU per Acre	60	D	87	0.19	139.27	0.14%	54.80%	0.1	47.7	
SS	Low Density Residence: Less than 6 DU per Acre	60	D	87	0.43	139.27	0.31%	55.11%	0.3	47.9	
SS	Low Density Residence: Less than 6 DU per Acre	60	D	87	0.23	139.27	0.16%	55.27%	0.1	48.1	
SS	Low Density Residence: Less than 6 DU per Acre	60	D	87	0.48	139.27	0.35%	55.62%	0.3	48.4	
SS	Low Density Residence: Less than 6 DU per Acre	60	D	87	2.26	139.27	1.62%	57.24%	1.4	49.8	
SS	Low Density Residence: Less than 6 DU per Acre	60	D	87	0.80	139.27	0.58%	57.81%	0.5	50.3	
SS	Agriculture	60	D	80	0.06	139.27	0.04%	57.85%	0.0	50.3	
SS	Agriculture	60	D	80	0.06	139.27	0.04%	57.90%	0.0	50.4	
SS	Agriculture	60	D	80	0.16	139.27	0.12%	58.02%	0.1	50.4	

NORTHEAST CANON WATERSHED - CURVE NUMBER CALCULATION

BASIN	Land Use Category	SOIL MAP UNIT #	Hydrologic Soil Group	SUBREGION CN	SUBREGION AREA (ACRES)	SUBBASIN AREA (ACRES)	PERCENT OF SUBBASIN	CUMULATIVE PERCENT	AREAL WEIGHTED CN	CUMULATIVE CN	COMPOSITE CN
SS	Agriculture	60	D	80	0.17	139.27	0.12%	58.14%	0.1	50.5	
SS	Commercial	60	D	95	0.28	139.27	0.20%	58.34%	0.2	50.7	
SS	Commercial	60	D	95	0.31	139.27	0.23%	58.56%	0.2	50.9	
SS	Commercial	60	D	95	0.65	139.27	0.46%	59.02%	0.4	51.4	
SS	Commercial	60	D	95	1.75	139.27	1.25%	60.28%	1.2	52.6	
SS	Commercial	59	D	95	0.79	139.27	0.56%	60.84%	0.5	53.1	
SS	Commercial	60	D	95	2.76	139.27	1.98%	62.83%	1.9	55.0	
SS	Commercial	60	D	95	9.32	139.27	6.69%	69.52%	6.4	61.4	
SS	Commercial	60	D	95	0.26	139.27	0.18%	69.70%	0.2	61.5	
SS	Commercial	60	D	95	3.83	139.27	2.75%	72.46%	2.6	64.1	
SS	Commercial	60	D	95	0.07	139.27	0.05%	72.51%	0.0	64.2	
SS	Commercial	59	D	95	0.20	139.27	0.14%	72.65%	0.1	64.3	
SS	Commercial	59	D	95	0.68	139.27	0.49%	73.14%	0.5	64.8	
SS	Medium to High Density Res	60	D	93	0.07	139.27	0.05%	73.18%	0.0	64.8	
SS	Medium to High Density Res	59	D	93	1.73	139.27	1.24%	74.43%	1.2	66.0	
SS	Medium to High Density Res	60	D	93	0.40	139.27	0.29%	74.72%	0.3	66.3	
SS	Medium to High Density Res	60	D	93	0.32	139.27	0.23%	74.94%	0.2	66.5	
SS	Street	60	D	93.1	0.00	139.27	0.00%	74.95%	0.0	66.5	
SS	Street	60	D	93.1	4.40	139.27	3.16%	78.10%	2.9	69.4	
SS	Street	59	D	93.1	0.60	139.27	0.43%	78.54%	0.4	69.8	
SS	Street	60	D	93.1	4.60	139.27	3.30%	81.84%	3.1	72.9	
SS	Street	59	D	93.1	9.29	139.27	6.67%	88.51%	6.2	79.1	
SS	Street	60	D	93.1	0.12	139.27	0.09%	88.60%	0.1	79.2	
SS	Street	60	D	93.1	0.08	139.27	0.06%	88.66%	0.1	79.2	
SS	Street	60	D	93.1	7.87	139.27	5.65%	94.31%	5.3	84.5	
SS	Street	60	D	93.1	6.56	139.27	4.71%	99.03%	4.4	88.9	
SS	Street	59	D	93.1	0.17	139.27	0.12%	99.15%	0.1	89.0	
SS	Street	60	D	93.1	0.55	139.27	0.40%	99.54%	0.4	89.4	
SS	Street	59	D	93.1	0.60	139.27	0.43%	99.97%	0.4	89.8	
SS	Street	60	D	93.1	0.00	139.27	0.00%	99.97%	0.0	89.8	**89.8**

NORTHEAST CANON WATERSHED - CURVE NUMBER CALCULATION

BASIN	Land Use Category	SOIL MAP UNIT #	Hydrologic Soil Group	SUBREGION CN	SUBREGION AREA (ACRES)	SUBBASIN AREA (ACRES)	PERCENT OF SUBBASIN	CUMULATIVE PERCENT	AREAL WEIGHTED CN	CUMULATIVE CN	COMPOSITE CN
RN	Commercial	59	D	95	4.71	140.93	3.34%	3.34%	3.2	3.2	
RN	Commercial	59	D	95	0.70	140.93	0.50%	3.84%	0.5	3.6	
RN	Low Density Residence: Less than 6 DU per Acre	67	C	83	0.94	140.93	0.67%	4.51%	0.6	4.2	
RN	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.13	140.93	0.09%	4.60%	0.1	4.3	
RN	Low Density Residence: Less than 6 DU per Acre	67	C	83	2.50	140.93	1.78%	6.37%	1.5	5.8	
RN	Low Density Residence: Less than 6 DU per Acre	59	D	87	4.02	140.93	2.85%	9.23%	2.5	8.2	
RN	Low Density Residence: Less than 6 DU per Acre	67	C	83	1.56	140.93	1.11%	10.34%	0.9	9.2	
RN	Low Density Residence: Less than 6 DU per Acre	59	D	87	3.98	140.93	2.82%	13.16%	2.5	11.6	
RN	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.23	140.93	0.16%	13.32%	0.1	11.8	
RN	Low Density Residence: Less than 6 DU per Acre	60	D	87	0.99	140.93	0.71%	14.03%	0.6	12.4	
RN	Low Density Residence: Less than 6 DU per Acre	59	D	87	1.30	140.93	0.92%	14.95%	0.8	13.2	
RN	Low Density Residence: Less than 6 DU per Acre	59	D	87	1.84	140.93	1.31%	16.26%	1.1	14.3	
RN	Low Density Residence: Less than 6 DU per Acre	59	D	87	2.97	140.93	2.11%	18.36%	1.8	16.1	
RN	Low Density Residence: Less than 6 DU per Acre	67	C	83	1.11	140.93	0.79%	19.15%	0.7	16.8	
RN	Low Density Residence: Less than 6 DU per Acre	59	D	87	2.66	140.93	1.89%	21.04%	1.6	18.4	
RN	Low Density Residence: Less than 6 DU per Acre	67	C	83	2.98	140.93	2.12%	23.16%	1.8	20.2	
RN	Low Density Residence: Less than 6 DU per Acre	59	D	87	3.18	140.93	2.26%	25.41%	2.0	22.2	
RN	Low Density Residence: Less than 6 DU per Acre	59	D	87	2.64	140.93	1.87%	27.29%	1.6	23.8	
RN	Low Density Residence: Less than 6 DU per Acre	67	C	83	2.72	140.93	1.93%	29.22%	1.6	25.4	
RN	Low Density Residence: Less than 6 DU per Acre	59	D	87	1.98	140.93	1.40%	30.62%	1.2	26.6	
RN	Low Density Residence: Less than 6 DU per Acre	67	C	83	2.26	140.93	1.60%	32.22%	1.3	27.9	
RN	Low Density Residence: Less than 6 DU per Acre	59	D	87	4.58	140.93	3.25%	35.47%	2.8	30.8	
RN	Low Density Residence: Less than 6 DU per Acre	67	C	83	2.36	140.93	1.67%	37.14%	1.4	32.2	
RN	Low Density Residence: Less than 6 DU per Acre	67	C	83	0.19	140.93	0.13%	37.28%	0.1	32.3	
RN	Low Density Residence: Less than 6 DU per Acre	59	D	87	1.41	140.93	1.00%	38.28%	0.9	33.1	
RN	Low Density Residence: Less than 6 DU per Acre	67	C	83	2.82	140.93	2.00%	40.28%	1.7	34.8	
RN	Low Density Residence: Less than 6 DU per Acre	59	D	87	1.44	140.93	1.02%	41.30%	0.9	35.7	
RN	Low Density Residence: Less than 6 DU per Acre	67	C	83	0.72	140.93	0.51%	41.81%	0.4	36.1	
RN	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.99	140.93	0.70%	42.51%	0.6	36.7	
RN	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.23	140.93	0.16%	42.67%	0.1	36.9	
RN	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.01	140.93	0.01%	42.68%	0.0	36.9	
RN	Low Density Residence: Less than 6 DU per Acre	67	C	83	0.01	140.93	0.01%	42.69%	0.0	36.9	
RN	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.48	140.93	0.34%	43.03%	0.3	37.2	
RN	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.14	140.93	0.10%	43.13%	0.1	37.3	
RN	Low Density Residence: Less than 6 DU per Acre	67	C	83	0.99	140.93	0.70%	43.83%	0.6	37.8	
RN	Low Density Residence: Less than 6 DU per Acre	67	C	83	0.48	140.93	0.34%	44.17%	0.3	38.1	
RN	Low Density Residence: Less than 6 DU per Acre	67	C	83	0.71	140.93	0.50%	44.67%	0.4	38.5	
RN	Low Density Residence: Less than 6 DU per Acre	67	C	83	1.98	140.93	1.40%	46.08%	1.2	39.7	
RN	Low Density Residence: Less than 6 DU per Acre	67	C	83	0.99	140.93	0.70%	46.78%	0.6	40.3	
RN	Low Density Residence: Less than 6 DU per Acre	67	C	83	1.94	140.93	1.37%	48.15%	1.1	41.4	
RN	Low Density Residence: Less than 6 DU per Acre	67	C	83	1.98	140.93	1.40%	49.55%	1.2	42.6	
RN	Low Density Residence: Less than 6 DU per Acre	67	C	83	0.99	140.93	0.70%	50.26%	0.6	43.2	
RN	Low Density Residence: Less than 6 DU per Acre	67	C	83	0.99	140.93	0.70%	50.96%	0.6	43.8	
RN	Low Density Residence: Less than 6 DU per Acre	67	C	83	0.99	140.93	0.70%	51.66%	0.6	44.3	
RN	Low Density Residence: Less than 6 DU per Acre	67	C	83	0.99	140.93	0.70%	52.36%	0.6	44.9	
RN	Low Density Residence: Less than 6 DU per Acre	67	C	83	0.86	140.93	0.61%	52.97%	0.5	45.4	
RN	Low Density Residence: Less than 6 DU per Acre	67	C	83	0.70	140.93	0.50%	53.46%	0.4	45.8	
RN	Low Density Residence: Less than 6 DU per Acre	67	C	83	0.16	140.93	0.11%	53.57%	0.1	45.9	
RN	Low Density Residence: Less than 6 DU per Acre	67	C	83	1.92	140.93	1.36%	54.94%	1.1	47.1	
RN	Low Density Residence: Less than 6 DU per Acre	67	C	83	1.04	140.93	0.74%	55.68%	0.6	47.7	
RN	Low Density Residence: Less than 6 DU per Acre	67	C	83	1.96	140.93	1.39%	57.07%	1.2	48.8	
RN	Low Density Residence: Less than 6 DU per Acre	67	C	83	0.07	140.93	0.05%	57.12%	0.0	48.9	

NORTHEAST CANON WATERSHED - CURVE NUMBER CALCULATION

BASIN	Land Use Category	SOIL MAP UNIT #	Hydrologic Soil Group	SUBREGION CN	SUBREGION AREA (ACRES)	SUBBASIN AREA (ACRES)	PERCENT OF SUBBASIN	CUMULATIVE PERCENT	AREAL WEIGHTED CN	CUMULATIVE CN	COMPOSITE CN
RN	Low Density Residence: Less than 6 DU per Acre	59	D	87	1.16	140.93	0.83%	57.94%	0.7	49.6	
RN	Low Density Residence: Less than 6 DU per Acre	67	C	83	0.37	140.93	0.26%	58.20%	0.2	49.8	
RN	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.05	140.93	0.03%	58.24%	0.0	49.8	
RN	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.00	140.93	0.00%	58.24%	0.0	49.8	
RN	Low Density Residence: Less than 6 DU per Acre	67	C	83	1.80	140.93	1.28%	59.52%	1.1	50.9	
RN	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.16	140.93	0.11%	59.63%	0.1	51.0	
RN	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.06	140.93	0.04%	59.68%	0.0	51.0	
RN	Low Density Residence: Less than 6 DU per Acre	60	D	87	0.00	140.93	0.00%	59.68%	0.0	51.0	
RN	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.00	140.93	0.00%	59.68%	0.0	51.0	
RN	Medium to High Density Res	67	C	91	1.22	140.93	0.86%	60.54%	0.8	51.8	
RN	Medium to High Density Res	60	D	93	0.05	140.93	0.04%	60.58%	0.0	51.9	
RN	Medium to High Density Res	59	D	93	2.28	140.93	1.62%	62.19%	1.5	53.4	
RN	Medium to High Density Res	59	D	93	1.19	140.93	0.85%	63.04%	0.8	54.1	
RN	Medium to High Density Res	59	D	93	1.85	140.93	1.31%	64.35%	1.2	55.4	
RN	Medium to High Density Res	67	C	91	1.48	140.93	1.05%	65.40%	1.0	56.3	
RN	Medium to High Density Res	59	D	93	2.62	140.93	1.86%	67.27%	1.7	58.1	
RN	Medium to High Density Res	67	C	91	1.10	140.93	0.78%	68.05%	0.7	58.8	
RN	Medium to High Density Res	67	C	91	1.31	140.93	0.93%	68.98%	0.8	59.6	
RN	Open Estates: Greater than 1 acre Lots	67	C	79	0.13	140.93	0.09%	69.07%	0.1	59.7	
RN	Open Estates: Greater than 1 acre Lots	67	C	79	0.13	140.93	0.09%	69.16%	0.1	59.8	
RN	Open Estates: Greater than 1 acre Lots	67	C	79	0.04	140.93	0.03%	69.19%	0.0	59.8	
RN	Open Estates: Greater than 1 acre Lots	59	D	84	0.42	140.93	0.30%	69.49%	0.2	60.0	
RN	Street	60	D	93.1	0.31	140.93	0.22%	69.70%	0.2	60.2	
RN	Street	67	C	91.35	23.61	140.93	16.75%	86.45%	15.3	75.5	
RN	Street	59	D	93.1	17.50	140.93	12.42%	98.87%	11.6	87.1	
RN	Street	59	D	93.1	0.01	140.93	0.01%	98.88%	0.0	87.1	
RN	Street	59	D	93.1	0.23	140.93	0.16%	99.04%	0.1	87.2	
RN	Street	59	D	93.1	0.00	140.93	0.00%	99.04%	0.0	87.2	
RN	Street	60	D	93.1	0.00	140.93	0.00%	99.04%	0.0	87.2	
RN	Street	67	C	91.35	0.02	140.93	0.01%	99.05%	0.0	87.3	
RN	Street	59	D	93.1	0.06	140.93	0.04%	99.09%	0.0	87.3	
RN	Street	67	C	91.35	0.03	140.93	0.02%	99.11%	0.0	87.3	
RN	Street	59	D	93.1	0.08	140.93	0.05%	99.17%	0.1	87.4	
RN	Street	59	D	93.1	0.06	140.93	0.04%	99.21%	0.0	87.4	
RN	Street	59	D	93.1	0.30	140.93	0.21%	99.42%	0.2	87.6	
RN	Street	67	C	91.35	0.01	140.93	0.00%	99.42%	0.0	87.6	
RN	Street	59	D	93.1	0.01	140.93	0.01%	99.43%	0.0	87.6	
RN	Street	67	C	91.35	0.19	140.93	0.14%	99.57%	0.1	87.7	
RN	Street	59	D	93.1	0.00	140.93	0.00%	99.57%	0.0	87.7	
RN	Street	67	C	91.35	0.08	140.93	0.06%	99.63%	0.1	87.8	
RN	Street	59	D	93.1	0.02	140.93	0.02%	99.64%	0.0	87.8	
RN	Street	59	D	93.1	0.00	140.93	0.00%	99.64%	0.0	87.8	
RN	Street	59	D	93.1	0.00	140.93	0.00%	99.64%	0.0	87.8	
RN	Street	59	D	93.1	0.00	140.93	0.00%	99.64%	0.0	87.8	
RN	Street	67	C	91.35	0.00	140.93	0.00%	99.65%	0.0	87.8	
RN	Street	67	C	91.35	0.00	140.93	0.00%	99.65%	0.0	87.8	
RN	Street	59	D	93.1	0.01	140.93	0.00%	99.65%	0.0	87.8	
RN	Street	59	D	93.1	0.01	140.93	0.00%	99.65%	0.0	87.8	
RN	Street	60	D	93.1	0.00	140.93	0.00%	99.65%	0.0	87.8	
RN	Street	59	D	93.1	0.00	140.93	0.00%	99.65%	0.0	87.8	
RN	Wood-Grass Combination (Fair Condition)	59	D	82	0.49	140.93	0.35%	100.00%	0.3	88.1	**88.1**
RS	Commercial	59	D	95	0.13	225.23	0.06%	0.06%	0.1	0.1	

NORTHEAST CANON WATERSHED - CURVE NUMBER CALCULATION

BASIN	Land Use Category	SOIL MAP UNIT #	Hydrologic Soil Group	SUBREGION CN	SUBREGION AREA (ACRES)	SUBBASIN AREA (ACRES)	PERCENT OF SUBBASIN	CUMULATIVE PERCENT	AREAL WEIGHTED CN	CUMULATIVE CN	COMPOSITE CN
RS	Commercial	59	D	95	2.64	225.23	1.17%	1.23%	1.1	1.2	
RS	Commercial	59	D	95	5.87	225.23	2.61%	3.84%	2.5	3.6	
RS	Commercial	59	D	95	0.96	225.23	0.43%	4.27%	0.4	4.1	
RS	Commercial	59	D	95	0.96	225.23	0.43%	4.69%	0.4	4.5	
RS	Commercial	59	D	95	4.38	225.23	1.94%	6.64%	1.8	6.3	
RS	Commercial	59	D	95	0.96	225.23	0.43%	7.06%	0.4	6.7	
RS	Commercial	59	D	95	1.93	225.23	0.86%	7.92%	0.8	7.5	
RS	Commercial	59	D	95	0.96	225.23	0.43%	8.34%	0.4	7.9	
RS	Commercial	59	D	95	0.95	225.23	0.42%	8.77%	0.4	8.3	
RS	Commercial	59	D	95	0.94	225.23	0.42%	9.19%	0.4	8.7	
RS	Commercial	59	D	95	0.95	225.23	0.42%	9.61%	0.4	9.1	
RS	Commercial	59	D	95	0.94	225.23	0.42%	10.03%	0.4	9.5	
RS	Commercial	59	D	95	0.93	225.23	0.41%	10.44%	0.4	9.9	
RS	Commercial	59	D	95	2.00	225.23	0.89%	11.33%	0.8	10.8	
RS	Commercial	59	D	95	0.96	225.23	0.43%	11.76%	0.4	11.2	
RS	Commercial	59	D	95	0.96	225.23	0.43%	12.18%	0.4	11.6	
RS	Commercial	59	D	95	0.96	225.23	0.43%	12.61%	0.4	12.0	
RS	Commercial	59	D	95	0.96	225.23	0.43%	13.04%	0.4	12.4	
RS	Commercial	59	D	95	1.02	225.23	0.46%	13.49%	0.4	12.8	
RS	Commercial	59	D	95	0.96	225.23	0.43%	13.92%	0.4	13.2	
RS	Commercial	59	D	95	1.03	225.23	0.46%	14.37%	0.4	13.7	
RS	Commercial	59	D	95	0.00	225.23	0.00%	14.37%	0.0	13.7	
RS	Commercial	59	D	95	0.00	225.23	0.00%	14.37%	0.0	13.7	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	4.18	225.23	1.86%	16.23%	1.6	15.3	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.85	225.23	0.38%	16.61%	0.3	15.6	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	1.42	225.23	0.63%	17.24%	0.5	16.1	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.97	225.23	0.43%	17.67%	0.4	16.5	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	1.17	225.23	0.52%	18.18%	0.5	17.0	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	2.34	225.23	1.04%	19.22%	0.9	17.9	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	1.71	225.23	0.76%	19.98%	0.7	18.5	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.51	225.23	0.23%	20.21%	0.2	18.7	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.67	225.23	0.30%	20.51%	0.3	19.0	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	3.25	225.23	1.44%	21.95%	1.3	20.2	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.00	225.23	0.00%	21.95%	0.0	20.2	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	2.87	225.23	1.28%	23.23%	1.1	21.4	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.98	225.23	0.44%	23.66%	0.4	21.7	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	1.01	225.23	0.45%	24.11%	0.4	22.1	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.03	225.23	0.01%	24.12%	0.0	22.1	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.27	225.23	0.12%	24.24%	0.1	22.2	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.27	225.23	0.12%	24.36%	0.1	22.3	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.27	225.23	0.12%	24.48%	0.1	22.4	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.34	225.23	0.15%	24.63%	0.1	22.6	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.72	225.23	0.32%	24.95%	0.3	22.9	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.85	225.23	0.38%	25.33%	0.3	23.2	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.84	225.23	0.38%	25.70%	0.3	23.5	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.27	225.23	0.12%	25.82%	0.1	23.6	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.27	225.23	0.12%	25.94%	0.1	23.7	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.81	225.23	0.36%	26.30%	0.3	24.0	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	3.80	225.23	1.69%	27.99%	1.5	25.5	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.95	225.23	0.42%	28.41%	0.4	25.9	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.50	225.23	0.22%	28.63%	0.2	26.1	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.36	225.23	0.16%	28.79%	0.1	26.2	

NORTHEAST CANON WATERSHED - CURVE NUMBER CALCULATION

BASIN	Land Use Category	SOIL MAP UNIT #	Hydrologic Soil Group	SUBREGION CN	SUBREGION AREA (ACRES)	SUBBASIN AREA (ACRES)	PERCENT OF SUBBASIN	CUMULATIVE PERCENT	AREAL WEIGHTED CN	CUMULATIVE CN	COMPOSITE CN
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	1.01	225.23	0.45%	29.24%	0.4	26.6	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.81	225.23	0.36%	29.60%	0.3	26.9	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	1.00	225.23	0.44%	30.05%	0.4	27.3	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.99	225.23	0.44%	30.49%	0.4	27.7	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.98	225.23	0.44%	30.92%	0.4	28.1	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.96	225.23	0.43%	31.35%	0.4	28.4	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.96	225.23	0.43%	31.78%	0.4	28.8	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.96	225.23	0.43%	32.20%	0.4	29.2	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	2.47	225.23	1.09%	33.30%	1.0	30.1	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	2.10	225.23	0.93%	34.23%	0.8	30.9	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	1.65	225.23	0.73%	34.96%	0.6	31.6	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	1.37	225.23	0.61%	35.57%	0.5	32.1	
RS	Low Density Residence: Less than 6 DU per Acre	60	D	87	0.05	225.23	0.02%	35.59%	0.0	32.1	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	3.82	225.23	1.69%	37.29%	1.5	33.6	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.86	225.23	0.38%	37.67%	0.3	33.9	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.10	225.23	0.05%	37.72%	0.0	34.0	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.89	225.23	0.40%	38.11%	0.3	34.3	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.96	225.23	0.43%	38.54%	0.4	34.7	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.96	225.23	0.43%	38.97%	0.4	35.1	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.97	225.23	0.43%	39.40%	0.4	35.4	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.24	225.23	0.11%	39.51%	0.1	35.5	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.12	225.23	0.05%	39.56%	0.0	35.6	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.23	225.23	0.10%	39.66%	0.1	35.7	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.99	225.23	0.44%	40.10%	0.4	36.0	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.98	225.23	0.44%	40.54%	0.4	36.4	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	11.06	225.23	4.91%	45.45%	4.3	40.7	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.33	225.23	0.15%	45.60%	0.1	40.8	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.43	225.23	0.19%	45.79%	0.2	41.0	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.94	225.23	0.42%	46.21%	0.4	41.3	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.98	225.23	0.43%	46.64%	0.4	41.7	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.96	225.23	0.43%	47.07%	0.4	42.1	
RS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.00	225.23	0.00%	47.07%	0.0	42.1	
RS	Medium to High Density Res	59	D	93	0.18	225.23	0.08%	47.15%	0.1	42.2	
RS	Medium to High Density Res	59	D	93	0.94	225.23	0.42%	47.56%	0.4	42.6	
RS	Medium to High Density Res	59	D	93	0.97	225.23	0.43%	47.99%	0.4	43.0	
RS	Medium to High Density Res	59	D	93	0.93	225.23	0.41%	48.40%	0.4	43.3	
RS	Medium to High Density Res	59	D	93	0.96	225.23	0.43%	48.83%	0.4	43.7	
RS	Medium to High Density Res	59	D	93	0.96	225.23	0.43%	49.26%	0.4	44.1	
RS	Medium to High Density Res	59	D	93	0.96	225.23	0.43%	49.68%	0.4	44.5	
RS	Open Estates: Greater than 1 acre Lots	59	D	84	3.81	225.23	1.69%	51.38%	1.4	46.0	
RS	Open Estates: Greater than 1 acre Lots	59	D	84	32.38	225.23	14.38%	65.76%	12.1	58.0	
RS	Open Estates: Greater than 1 acre Lots	59	D	84	0.12	225.23	0.06%	65.81%	0.0	58.1	
RS	Open Estates: Greater than 1 acre Lots	59	D	84	0.26	225.23	0.12%	65.93%	0.1	58.2	
RS	Open Estates: Greater than 1 acre Lots	59	D	84	0.00	225.23	0.00%	65.93%	0.0	58.2	
RS	Open Estates: Greater than 1 acre Lots	59	D	84	5.16	225.23	2.29%	68.22%	1.9	60.1	
RS	Open Estates: Greater than 1 acre Lots	59	D	84	0.95	225.23	0.42%	68.64%	0.4	60.5	
RS	Open Estates: Greater than 1 acre Lots	59	D	84	0.12	225.23	0.05%	68.69%	0.0	60.5	
RS	Open Estates: Greater than 1 acre Lots	59	D	84	0.25	225.23	0.11%	68.80%	0.1	60.6	
RS	Street	60	D	93.1	0.15	225.23	0.07%	68.87%	0.1	60.7	
RS	Street	59	D	93.1	68.08	225.23	30.23%	99.10%	28.1	88.8	
RS	Street	59	D	93.1	0.12	225.23	0.05%	99.15%	0.0	88.8	
RS	Street	59	D	93.1	0.00	225.23	0.00%	99.15%	0.0	88.8	

NORTHEAST CANON WATERSHED - CURVE NUMBER CALCULATION

BASIN	Land Use Category	SOIL MAP UNIT #	Hydrologic Soil Group	SUBREGION CN	SUBREGION AREA (ACRES)	SUBBASIN AREA (ACRES)	PERCENT OF SUBBASIN	CUMULATIVE PERCENT	AREAL WEIGHTED CN	CUMULATIVE CN	COMPOSITE CN
RS	Street	59	D	93.1	0.04	225.23	0.02%	99.17%	0.0	88.9	
RS	Street	59	D	93.1	0.07	225.23	0.03%	99.20%	0.0	88.9	
RS	Street	59	D	93.1	0.28	225.23	0.13%	99.32%	0.1	89.0	
RS	Street	59	D	93.1	0.04	225.23	0.02%	99.34%	0.0	89.0	
RS	Street	59	D	93.1	0.15	225.23	0.07%	99.41%	0.1	89.1	
RS	Street	59	D	93.1	0.04	225.23	0.02%	99.43%	0.0	89.1	
RS	Street	59	D	93.1	0.11	225.23	0.05%	99.47%	0.0	89.1	
RS	Street	59	D	93.1	0.02	225.23	0.01%	99.48%	0.0	89.2	
RS	Street	59	D	93.1	0.06	225.23	0.03%	99.51%	0.0	89.2	
RS	Street	59	D	93.1	0.03	225.23	0.01%	99.52%	0.0	89.2	
RS	Street	59	D	93.1	0.44	225.23	0.20%	99.72%	0.2	89.4	
RS	Street	59	D	93.1	0.22	225.23	0.10%	99.81%	0.1	89.5	
RS	Street	59	D	93.1	0.11	225.23	0.05%	99.86%	0.0	89.5	
RS	Street	59	D	93.1	0.22	225.23	0.10%	99.96%	0.1	89.6	
RS	Street	59	D	93.1	0.08	225.23	0.03%	100.00%	0.0	89.6	
RS	Street	59	D	93.1	0.01	225.23	0.00%	100.00%	0.0	89.6	
RS	Street	59	D	93.1	0.00	225.23	0.00%	100.00%	0.0	89.6	
RS	Street	59	D	93.1	0.00	225.23	0.00%	100.00%	0.0	89.6	
RS	Street	59	D	93.1	0.00	225.23	0.00%	100.00%	0.0	89.6	
RS	Street	59	D	93.1	0.00	225.23	0.00%	100.00%	0.0	89.6	**89.6**
SN	Commercial	60	D	95	1.88	93.35	2.02%	2.02%	1.9	1.9	
SN	Commercial	60	D	95	3.07	93.35	3.29%	5.31%	3.1	5.0	
SN	Commercial	59	D	95	2.30	93.35	2.47%	7.78%	2.3	7.4	
SN	Commercial	60	D	95	0.66	93.35	0.70%	8.48%	0.7	8.1	
SN	Commercial	60	D	95	9.97	93.35	10.68%	19.16%	10.1	18.2	
SN	Commercial	60	D	95	6.73	93.35	7.20%	26.36%	6.8	25.0	
SN	Commercial	59	D	95	4.68	93.35	5.01%	31.37%	4.8	29.8	
SN	Low Density Residence: Less than 6 DU per Acre	60	D	87	0.10	93.35	0.11%	31.48%	0.1	29.9	
SN	Low Density Residence: Less than 6 DU per Acre	60	D	87	1.32	93.35	1.42%	32.90%	1.2	31.1	
SN	Low Density Residence: Less than 6 DU per Acre	60	D	87	2.61	93.35	2.79%	35.69%	2.4	33.6	
SN	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.68	93.35	0.73%	36.42%	0.6	34.2	
SN	Low Density Residence: Less than 6 DU per Acre	60	D	87	2.06	93.35	2.21%	38.63%	1.9	36.1	
SN	Medium to High Density Res	60	D	93	16.82	93.35	18.02%	56.65%	16.8	52.9	
SN	Medium to High Density Res	60	D	93	12.62	93.35	13.52%	70.17%	12.6	65.4	
SN	Medium to High Density Res	60	D	93	11.14	93.35	11.94%	82.10%	11.1	76.5	
SN	Medium to High Density Res	59	D	93	1.36	93.35	1.46%	83.56%	1.4	77.9	
SN	Medium to High Density Res	60	D	93	0.00	93.35	0.00%	83.57%	0.0	77.9	
SN	Medium to High Density Res	60	D	93	0.00	93.35	0.00%	83.57%	0.0	77.9	
SN	Open Estates: Greater than 1 acre Lots	60	D	84	0.07	93.35	0.08%	83.65%	0.1	78.0	
SN	Open Estates: Greater than 1 acre Lots	60	D	84	0.71	93.35	0.76%	84.41%	0.6	78.6	
SN	Open Estates: Greater than 1 acre Lots	60	D	84	0.42	93.35	0.45%	84.86%	0.4	79.0	
SN	Open Estates: Greater than 1 acre Lots	60	D	84	0.00	93.35	0.00%	84.86%	0.0	79.0	
SN	Open Estates: Greater than 1 acre Lots	60	D	84	0.00	93.35	0.00%	84.86%	0.0	79.0	
SN	Street	60	D	93.1	11.51	93.35	12.33%	97.19%	11.5	90.5	
SN	Street	59	D	93.1	0.04	93.35	0.05%	97.24%	0.0	90.5	
SN	Street	59	D	93.1	2.02	93.35	2.16%	99.40%	2.0	92.5	
SN	Street	60	D	93.1	0.04	93.35	0.04%	99.44%	0.0	92.6	
SN	Street	60	D	93.1	0.24	93.35	0.25%	99.69%	0.2	92.8	
SN	Street	59	D	93.1	0.18	93.35	0.19%	99.89%	0.2	93.0	
SN	Street	60	D	93.1	0.08	93.35	0.09%	99.97%	0.1	93.1	
SN	Street	59	D	93.1	0.00	93.35	0.00%	99.98%	0.0	93.1	
SN	Street	59	D	93.1	0.02	93.35	0.02%	100.00%	0.0	93.1	

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SN	Street	60	D	93.1	0.00	93.35	0.00%	100.00%	0.0	93.1	
SN	Street	59	D	93.1	0.00	93.35	0.00%	100.00%	0.0	93.1	
SN	Street	60	D	93.1	0.00	93.35	0.00%	100.00%	0.0	93.1	
SN	Street	59	D	93.1	0.00	93.35	0.00%	100.00%	0.0	93.1	
SN	Street	60	D	93.1	0.00	93.35	0.00%	100.00%	0.0	93.1	
SN	Street	60	D	93.1	0.00	93.35	0.00%	100.00%	0.0	93.1	
SN	Street	60	D	93.1	0.00	93.35	0.00%	100.00%	0.0	93.1	**93.1**
SS	Agriculture	60	D	80	0.00	139.27	0.00%	0.00%	0.0	0.0	
SS	Commercial	60	D	95	10.52	139.27	7.56%	7.56%	7.2	7.2	
SS	Commercial	60	D	95	1.26	139.27	0.90%	8.46%	0.9	8.0	
SS	Commercial	60	D	95	2.38	139.27	1.71%	10.17%	1.6	9.7	
SS	Commercial	59	D	95	0.79	139.27	0.56%	10.74%	0.5	10.2	
SS	Commercial	60	D	95	0.07	139.27	0.05%	10.79%	0.0	10.2	
SS	Commercial	59	D	95	0.86	139.27	0.61%	11.40%	0.6	10.8	
SS	Low Density Residence: Less than 6 DU per Acre	60	D	87	0.00	139.27	0.00%	11.40%	0.0	10.8	
SS	Low Density Residence: Less than 6 DU per Acre	60	D	87	5.30	139.27	3.81%	15.21%	3.3	14.1	
SS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.40	139.27	0.29%	15.50%	0.3	14.4	
SS	Low Density Residence: Less than 6 DU per Acre	60	D	87	2.82	139.27	2.03%	17.52%	1.8	16.2	
SS	Low Density Residence: Less than 6 DU per Acre	60	D	87	7.36	139.27	5.29%	22.81%	4.6	20.8	
SS	Low Density Residence: Less than 6 DU per Acre	60	D	87	2.10	139.27	1.51%	24.32%	1.3	22.1	
SS	Low Density Residence: Less than 6 DU per Acre	60	D	87	2.12	139.27	1.52%	25.84%	1.3	23.4	
SS	Low Density Residence: Less than 6 DU per Acre	60	D	87	0.18	139.27	0.13%	25.97%	0.1	23.5	
SS	Low Density Residence: Less than 6 DU per Acre	60	D	87	1.95	139.27	1.40%	27.37%	1.2	24.7	
SS	Low Density Residence: Less than 6 DU per Acre	60	D	87	1.45	139.27	1.04%	28.41%	0.9	25.6	
SS	Low Density Residence: Less than 6 DU per Acre	60	D	87	1.30	139.27	0.93%	29.34%	0.8	26.4	
SS	Low Density Residence: Less than 6 DU per Acre	60	D	87	0.67	139.27	0.48%	29.82%	0.4	26.9	
SS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.88	139.27	0.63%	30.46%	0.5	27.4	
SS	Low Density Residence: Less than 6 DU per Acre	59	D	87	1.80	139.27	1.29%	31.75%	1.1	28.5	
SS	Low Density Residence: Less than 6 DU per Acre	59	D	87	5.50	139.27	3.95%	35.70%	3.4	32.0	
SS	Low Density Residence: Less than 6 DU per Acre	60	D	87	1.56	139.27	1.12%	36.82%	1.0	32.9	
SS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.33	139.27	0.24%	37.06%	0.2	33.2	
SS	Low Density Residence: Less than 6 DU per Acre	60	D	87	1.34	139.27	0.96%	38.02%	0.8	34.0	
SS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.57	139.27	0.41%	38.43%	0.4	34.3	
SS	Low Density Residence: Less than 6 DU per Acre	60	D	87	3.93	139.27	2.82%	41.25%	2.5	36.8	
SS	Low Density Residence: Less than 6 DU per Acre	59	D	87	2.27	139.27	1.63%	42.89%	1.4	38.2	
SS	Low Density Residence: Less than 6 DU per Acre	60	D	87	0.32	139.27	0.23%	43.11%	0.2	38.4	
SS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.62	139.27	0.44%	43.56%	0.4	38.8	
SS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.94	139.27	0.68%	44.23%	0.6	39.4	
SS	Low Density Residence: Less than 6 DU per Acre	59	D	87	1.07	139.27	0.77%	45.01%	0.7	40.1	
SS	Low Density Residence: Less than 6 DU per Acre	59	D	87	1.01	139.27	0.73%	45.73%	0.6	40.7	
SS	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.97	139.27	0.70%	46.43%	0.6	41.3	
SS	Low Density Residence: Less than 6 DU per Acre	60	D	87	4.59	139.27	3.30%	49.73%	2.9	44.2	
SS	Low Density Residence: Less than 6 DU per Acre	60	D	87	3.02	139.27	2.17%	51.90%	1.9	46.1	
SS	Low Density Residence: Less than 6 DU per Acre	60	D	87	3.76	139.27	2.70%	54.60%	2.4	48.4	
SS	Low Density Residence: Less than 6 DU per Acre	60	D	87	1.54	139.27	1.10%	55.70%	1.0	49.4	
SS	Low Density Residence: Less than 6 DU per Acre	60	D	87	1.29	139.27	0.93%	56.63%	0.8	50.2	
SS	Low Density Residence: Less than 6 DU per Acre	60	D	87	5.11	139.27	3.67%	60.30%	3.2	53.4	
SS	Low Density Residence: Less than 6 DU per Acre	60	D	87	3.31	139.27	2.38%	62.68%	2.1	55.4	
SS	Low Density Residence: Less than 6 DU per Acre	60	D	87	3.26	139.27	2.34%	65.02%	2.0	57.5	
SS	Low Density Residence: Less than 6 DU per Acre	60	D	87	1.36	139.27	0.98%	66.00%	0.9	58.3	
SS	Low Density Residence: Less than 6 DU per Acre	60	D	87	0.15	139.27	0.10%	66.10%	0.1	58.4	
SS	Low Density Residence: Less than 6 DU per Acre	60	D	87	0.59	139.27	0.43%	66.53%	0.4	58.8	

NORTHEAST CANON WATERSHED - CURVE NUMBER CALCULATION

BASIN	Land Use Category	SOIL MAP UNIT #	Hydrologic Soil Group	SUBREGION CN	SUBREGION AREA (ACRES)	SUBBASIN AREA (ACRES)	PERCENT OF SUBBASIN	CUMULATIVE PERCENT	AREAL WEIGHTED CN	CUMULATIVE CN	COMPOSITE CN
SS	Low Density Residence: Less than 6 DU per Acre	60	D	87	2.08	139.27	1.50%	68.02%	1.3	60.1	
SS	Medium to High Density Res	60	D	93	0.00	139.27	0.00%	68.02%	0.0	60.1	
SS	Medium to High Density Res	60	D	93	0.07	139.27	0.05%	68.07%	0.0	60.1	
SS	Medium to High Density Res	59	D	93	1.73	139.27	1.24%	69.32%	1.2	61.3	
SS	Medium to High Density Res	60	D	93	0.40	139.27	0.29%	69.60%	0.3	61.6	
SS	Medium to High Density Res	60	D	93	3.15	139.27	2.26%	71.87%	2.1	63.7	
SS	Medium to High Density Res	60	D	93	0.80	139.27	0.58%	72.44%	0.5	64.2	
SS	Open Estates: Greater than 1 acre Lots	60	D	84	0.16	139.27	0.12%	72.56%	0.1	64.3	
SS	Open Estates: Greater than 1 acre Lots	60	D	84	2.70	139.27	1.94%	74.50%	1.6	65.9	
SS	Street	60	D	93.1	23.80	139.27	17.09%	91.59%	15.9	81.8	
SS	Street	59	D	93.1	10.16	139.27	7.29%	98.88%	6.8	88.6	
SS	Street	60	D	93.1	0.03	139.27	0.02%	98.90%	0.0	88.6	
SS	Street	60	D	93.1	0.04	139.27	0.03%	98.93%	0.0	88.7	
SS	Street	59	D	93.1	0.31	139.27	0.22%	99.15%	0.2	88.9	
SS	Street	60	D	93.1	0.00	139.27	0.00%	99.15%	0.0	88.9	
SS	Street	59	D	93.1	0.00	139.27	0.00%	99.15%	0.0	88.9	
SS	Street	60	D	93.1	0.02	139.27	0.02%	99.17%	0.0	88.9	
SS	Street	59	D	93.1	0.09	139.27	0.06%	99.23%	0.1	89.0	
SS	Street	60	D	93.1	0.01	139.27	0.01%	99.24%	0.0	89.0	
SS	Street	59	D	93.1	0.05	139.27	0.04%	99.27%	0.0	89.0	
SS	Street	60	D	93.1	0.00	139.27	0.00%	99.28%	0.0	89.0	
SS	Street	60	D	93.1	0.27	139.27	0.19%	99.47%	0.2	89.2	
SS	Street	60	D	93.1	0.07	139.27	0.05%	99.52%	0.0	89.2	
SS	Street	60	D	93.1	0.08	139.27	0.06%	99.58%	0.1	89.3	
SS	Street	60	D	93.1	0.07	139.27	0.05%	99.63%	0.0	89.3	
SS	Street	59	D	93.1	0.00	139.27	0.00%	99.64%	0.0	89.3	
SS	Street	60	D	93.1	0.27	139.27	0.20%	99.83%	0.2	89.5	
SS	Street	59	D	93.1	0.23	139.27	0.17%	100.00%	0.2	89.7	
SS	Street	59	D	93.1	0.00	139.27	0.00%	100.00%	0.0	89.7	
SS	Street	60	D	93.1	0.00	139.27	0.00%	100.00%	0.0	89.7	**89.7**

NORTH NINTH DRAINAGE BASIN - CURVE NUMBER CALCULATION

BASIN	Land Use Category	SOIL MAP UNIT #	Hydrologic Soil Group	SUBREGION CN	SUBREGION AREA (ACRES)	SUBBASIN AREA (ACRES)	PERCENT OF SUBBASIN	CUMULATIVE PERCENT	AREAL WEIGHTED CN	CUMULATIVE CN	COMPOSITE CN
NN01	Open Estates: Greater than 1 acre Lots	66	B	68	0.23	78.68	0.29%	0.29%	0.2	0.2	
NN01	Open Estates: Greater than 1 acre Lots	83	D	84	0.26	78.68	0.34%	0.62%	0.3	0.5	
NN01	Open Estates: Greater than 1 acre Lots	66	B	68	0.04	78.68	0.06%	0.68%	0.0	0.5	
NN01	Low Density Residence: Less than 6 DU per Acre	66	B	75	1.22	78.68	1.55%	2.23%	1.2	1.7	
NN01	Low Density Residence: Less than 6 DU per Acre	66	B	75	0.45	78.68	0.57%	2.80%	0.4	2.1	
NN01	Low Density Residence: Less than 6 DU per Acre	83	D	87	0.14	78.68	0.17%	2.98%	0.1	2.3	
NN01	Low Density Residence: Less than 6 DU per Acre	66	B	75	0.05	78.68	0.06%	3.03%	0.0	2.3	
NN01	Low Density Residence: Less than 6 DU per Acre	83	D	87	0.99	78.68	1.26%	4.29%	1.1	3.4	
NN01	Low Density Residence: Less than 6 DU per Acre	66	B	75	0.48	78.68	0.61%	4.90%	0.5	3.9	
NN01	Low Density Residence: Less than 6 DU per Acre	65	B	75	0.10	78.68	0.13%	5.03%	0.1	4.0	
NN01	Low Density Residence: Less than 6 DU per Acre	66	B	75	3.55	78.68	4.51%	9.54%	3.4	7.3	
NN01	Low Density Residence: Less than 6 DU per Acre	83	D	87	0.65	78.68	0.83%	10.37%	0.7	8.1	
NN01	Low Density Residence: Less than 6 DU per Acre	66	B	75	0.05	78.68	0.06%	10.43%	0.0	8.1	
NN01	Low Density Residence: Less than 6 DU per Acre	65	B	75	0.04	78.68	0.05%	10.48%	0.0	8.1	
NN01	Low Density Residence: Less than 6 DU per Acre	83	D	87	1.35	78.68	1.71%	12.19%	1.5	9.6	
NN01	Low Density Residence: Less than 6 DU per Acre	66	B	75	0.49	78.68	0.62%	12.81%	0.5	10.1	
NN01	Low Density Residence: Less than 6 DU per Acre	66	B	75	1.28	78.68	1.63%	14.44%	1.2	11.3	
NN01	Low Density Residence: Less than 6 DU per Acre	66	B	75	0.24	78.68	0.31%	14.75%	0.2	11.5	
NN01	Low Density Residence: Less than 6 DU per Acre	66	B	75	0.91	78.68	1.15%	15.91%	0.9	12.4	
NN01	Low Density Residence: Less than 6 DU per Acre	66	B	75	1.41	78.68	1.79%	17.70%	1.3	13.8	
NN01	Low Density Residence: Less than 6 DU per Acre	83	D	87	1.64	78.68	2.08%	19.78%	1.8	15.6	
NN01	Low Density Residence: Less than 6 DU per Acre	66	B	75	0.01	78.68	0.01%	19.78%	0.0	15.6	
NN01	Low Density Residence: Less than 6 DU per Acre	65	B	75	0.01	78.68	0.01%	19.80%	0.0	15.6	
NN01	Low Density Residence: Less than 6 DU per Acre	83	D	87	0.01	78.68	0.01%	19.81%	0.0	15.6	
NN01	Low Density Residence: Less than 6 DU per Acre	66	B	75	3.40	78.68	4.32%	24.13%	3.2	18.8	
NN01	Low Density Residence: Less than 6 DU per Acre	83	D	87	1.50	78.68	1.90%	26.03%	1.7	20.5	
NN01	Low Density Residence: Less than 6 DU per Acre	66	B	75	0.70	78.68	0.88%	26.92%	0.7	21.1	
NN01	Low Density Residence: Less than 6 DU per Acre	65	B	75	0.09	78.68	0.11%	27.03%	0.1	21.2	
NN01	Low Density Residence: Less than 6 DU per Acre	66	B	75	0.06	78.68	0.07%	27.11%	0.1	21.3	
NN01	Wood-Grass Combination (Fair Condition)	118	D	82	1.67	78.68	2.13%	29.23%	1.7	23.0	
NN01	Wood-Grass Combination (Fair Condition)	118	D	82	5.62	78.68	7.15%	36.38%	5.9	28.9	
NN01	Wood-Grass Combination (Fair Condition)	83	D	82	7.26	78.68	9.23%	45.61%	7.6	36.5	
NN01	Wood-Grass Combination (Fair Condition)	65	B	65	2.51	78.68	3.19%	48.80%	2.1	38.5	
NN01	Wood-Grass Combination (Fair Condition)	118	D	82	13.22	78.68	16.81%	65.61%	13.8	52.3	
NN01	Wood-Grass Combination (Fair Condition)	83	D	82	17.51	78.68	22.26%	87.87%	18.3	70.6	
NN01	Wood-Grass Combination (Fair Condition)	83	D	82	2.40	78.68	3.05%	90.92%	2.5	73.1	
NN01	Wood-Grass Combination (Fair Condition)	66	B	65	0.22	78.68	0.28%	91.20%	0.2	73.3	
NN01	Wood-Grass Combination (Fair Condition)	65	B	65	2.57	78.68	3.26%	94.46%	2.1	75.4	
NN01	Street	83	D	93.1	0.18	78.68	0.23%	94.69%	0.2	75.6	
NN01	Street	66	B	87.5	4.18	78.68	5.31%	100.00%	4.6	80.2	**80.2**
NN02	Open Estates: Greater than 1 acre Lots	83	D	84	0.23	68.32	0.33%	0.33%	0.3	0.3	
NN02	Low Density Residence: Less than 6 DU per Acre	83	D	87	0.40	68.32	0.58%	0.91%	0.5	0.8	
NN02	Low Density Residence: Less than 6 DU per Acre	66	B	75	0.12	68.32	0.18%	1.09%	0.1	0.9	
NN02	Low Density Residence: Less than 6 DU per Acre	66	B	75	0.07	68.32	0.10%	1.19%	0.1	1.0	
NN02	Low Density Residence: Less than 6 DU per Acre	83	D	87	0.69	68.32	1.01%	2.19%	0.9	1.9	
NN02	Low Density Residence: Less than 6 DU per Acre	66	B	75	0.00	68.32	0.00%	2.20%	0.0	1.9	
NN02	Low Density Residence: Less than 6 DU per Acre	83	D	87	0.67	68.32	0.98%	3.17%	0.8	2.7	
NN02	Low Density Residence: Less than 6 DU per Acre	83	D	87	1.65	68.32	2.41%	5.58%	2.1	4.8	
NN02	Low Density Residence: Less than 6 DU per Acre	71	D	87	1.27	68.32	1.86%	7.44%	1.6	6.4	
NN02	Low Density Residence: Less than 6 DU per Acre	66	B	75	0.14	68.32	0.20%	7.65%	0.2	6.6	
NN02	Low Density Residence: Less than 6 DU per Acre	66	B	75	0.05	68.32	0.07%	7.72%	0.0	6.6	
NN02	Low Density Residence: Less than 6 DU per Acre	83	D	87	0.35	68.32	0.51%	8.23%	0.4	7.1	

NORTH NINTH DRAINAGE BASIN - CURVE NUMBER CALCULATION

BASIN	Land Use Category	SOIL MAP UNIT #	Hydrologic Soil Group	SUBREGION CN	SUBREGION AREA (ACRES)	SUBBASIN AREA (ACRES)	PERCENT OF SUBBASIN	CUMULATIVE PERCENT	AREAL WEIGHTED CN	CUMULATIVE CN	COMPOSITE CN
NN02	Low Density Residence: Less than 6 DU per Acre	71	D	87	0.18	68.32	0.26%	8.49%	0.2	7.3	
NN02	Low Density Residence: Less than 6 DU per Acre	66	B	75	4.85	68.32	7.10%	15.59%	5.3	12.6	
NN02	Low Density Residence: Less than 6 DU per Acre	71	D	87	0.07	68.32	0.11%	15.70%	0.1	12.7	
NN02	Low Density Residence: Less than 6 DU per Acre	66	B	75	0.19	68.32	0.27%	15.97%	0.2	12.9	
NN02	Low Density Residence: Less than 6 DU per Acre	71	D	87	0.73	68.32	1.06%	17.03%	0.9	13.9	
NN02	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.00	68.32	0.00%	17.03%	0.0	13.9	
NN02	Low Density Residence: Less than 6 DU per Acre	71	D	87	1.05	68.32	1.54%	18.57%	1.3	15.2	
NN02	Low Density Residence: Less than 6 DU per Acre	71	D	87	0.37	68.32	0.54%	19.11%	0.5	15.7	
NN02	Wood-Grass Combination (Fair Condition)	118	D	82	0.11	68.32	0.16%	19.26%	0.1	15.8	
NN02	Wood-Grass Combination (Fair Condition)	118	D	82	7.53	68.32	11.02%	30.28%	9.0	24.8	
NN02	Wood-Grass Combination (Fair Condition)	83	D	82	8.08	68.32	11.82%	42.11%	9.7	34.5	
NN02	Wood-Grass Combination (Fair Condition)	72	D	82	1.78	68.32	2.61%	44.72%	2.1	36.7	
NN02	Wood-Grass Combination (Fair Condition)	118	D	82	0.11	68.32	0.16%	44.87%	0.1	36.8	
NN02	Wood-Grass Combination (Fair Condition)	83	D	82	10.33	68.32	15.11%	59.99%	12.4	49.2	
NN02	Wood-Grass Combination (Fair Condition)	72	D	82	5.95	68.32	8.71%	68.69%	7.1	56.3	
NN02	Wood-Grass Combination (Fair Condition)	63	D	82	0.74	68.32	1.09%	69.78%	0.9	57.2	
NN02	Wood-Grass Combination (Fair Condition)	118	D	82	5.61	68.32	8.21%	77.99%	6.7	63.9	
NN02	Wood-Grass Combination (Fair Condition)	83	D	82	1.48	68.32	2.17%	80.17%	1.8	65.7	
NN02	Wood-Grass Combination (Fair Condition)	72	D	82	0.37	68.32	0.54%	80.71%	0.4	66.2	
NN02	Wood-Grass Combination (Fair Condition)	71	D	82	5.87	68.32	8.59%	89.29%	7.0	73.2	
NN02	Wood-Grass Combination (Fair Condition)	118	D	82	0.01	68.32	0.01%	89.30%	0.0	73.2	
NN02	Wood-Grass Combination (Fair Condition)	118	D	82	2.54	68.32	3.72%	93.02%	3.0	76.3	
NN02	Street	118	D	93.1	0.95	68.32	1.39%	94.41%	1.3	77.6	
NN02	Street	71	D	93.1	0.79	68.32	1.15%	95.56%	1.1	78.6	
NN02	Street	83	D	93.1	0.91	68.32	1.33%	96.89%	1.2	79.9	
NN02	Street	71	D	93.1	0.31	68.32	0.45%	97.33%	0.4	80.3	
NN02	Street	66	B	87.5	1.42	68.32	2.08%	99.41%	1.8	82.1	
NN02	Street	118	D	93.1	0.40	68.32	0.59%	100.00%	0.5	82.7	**82.7**
NN03	Low Density Residence: Less than 6 DU per Acre	63	D	87	1.10	24.57	4.46%	4.46%	3.9	3.9	
NN03	Low Density Residence: Less than 6 DU per Acre	71	D	87	0.00	24.57	0.01%	4.47%	0.0	3.9	
NN03	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.75	24.57	3.06%	7.53%	2.7	6.5	
NN03	Wood-Grass Combination (Fair Condition)	118	D	82	0.05	24.57	0.18%	7.71%	0.2	6.7	
NN03	Wood-Grass Combination (Fair Condition)	83	D	82	5.80	24.57	23.61%	31.32%	19.4	26.1	
NN03	Wood-Grass Combination (Fair Condition)	72	D	82	2.74	24.57	11.17%	42.49%	9.2	35.2	
NN03	Wood-Grass Combination (Fair Condition)	63	D	82	3.05	24.57	12.43%	54.93%	10.2	45.4	
NN03	Wood-Grass Combination (Fair Condition)	118	D	82	5.44	24.57	22.14%	77.07%	18.2	63.6	
NN03	Wood-Grass Combination (Fair Condition)	83	D	82	3.35	24.57	13.65%	90.72%	11.2	74.8	
NN03	Wood-Grass Combination (Fair Condition)	72	D	82	1.23	24.57	5.00%	95.72%	4.1	78.9	
NN03	Wood-Grass Combination (Fair Condition)	71	D	82	0.00	24.57	0.00%	95.73%	0.0	78.9	
NN03	Wood-Grass Combination (Fair Condition)	118	D	82	0.00	24.57	0.00%	95.73%	0.0	78.9	
NN03	Street	118	D	93.1	0.52	24.57	2.10%	97.84%	2.0	80.8	
NN03	Street	63	D	93.1	0.53	24.57	2.15%	99.99%	2.0	82.8	
NN03	Street	71	D	93.1	0.00	24.57	0.01%	100.00%	0.0	82.8	**82.8**
NN04	Open Estates: Greater than 1 acre Lots	65	B	68	0.05	103.98	0.05%	0.05%	0.0	0.0	
NN04	Open Estates: Greater than 1 acre Lots	67	C	79	0.25	103.98	0.24%	0.29%	0.2	0.2	
NN04	Open Estates: Greater than 1 acre Lots	65	B	68	0.94	103.98	0.91%	1.19%	0.6	0.8	
NN04	Open Estates: Greater than 1 acre Lots	66	B	68	0.65	103.98	0.63%	1.82%	0.4	1.3	
NN04	Open Estates: Greater than 1 acre Lots	65	B	68	0.99	103.98	0.96%	2.78%	0.7	1.9	
NN04	Open Estates: Greater than 1 acre Lots	65	B	68	2.97	103.98	2.86%	5.63%	1.9	3.9	
NN04	Open Estates: Greater than 1 acre Lots	67	C	79	0.11	103.98	0.10%	5.74%	0.1	3.9	
NN04	Open Estates: Greater than 1 acre Lots	67	C	79	0.02	103.98	0.02%	5.76%	0.0	4.0	
NN04	Open Estates: Greater than 1 acre Lots	63	D	84	0.10	103.98	0.09%	5.85%	0.1	4.0	

NORTH NINTH DRAINAGE BASIN - CURVE NUMBER CALCULATION

BASIN	Land Use Category	SOIL MAP UNIT #	Hydrologic Soil Group	SUBREGION CN	SUBREGION AREA (ACRES)	SUBBASIN AREA (ACRES)	PERCENT OF SUBBASIN	CUMULATIVE PERCENT	AREAL WEIGHTED CN	CUMULATIVE CN	COMPOSITE CN
NN04	Open Estates: Greater than 1 acre Lots	63	D	84	0.17	103.98	0.17%	6.01%	0.1	4.2	
NN04	Open Estates: Greater than 1 acre Lots	67	C	79	0.19	103.98	0.19%	6.20%	0.1	4.3	
NN04	Open Estates: Greater than 1 acre Lots	71	D	84	0.18	103.98	0.18%	6.38%	0.1	4.5	
NN04	Open Estates: Greater than 1 acre Lots	67	C	79	0.24	103.98	0.23%	6.61%	0.2	4.6	
NN04	Open Estates: Greater than 1 acre Lots	67	C	79	0.11	103.98	0.11%	6.72%	0.1	4.7	
NN04	Low Density Residence: Less than 6 DU per Acre	66	B	75	0.45	103.98	0.43%	7.15%	0.3	5.1	
NN04	Low Density Residence: Less than 6 DU per Acre	66	B	75	0.19	103.98	0.18%	7.33%	0.1	5.2	
NN04	Low Density Residence: Less than 6 DU per Acre	66	B	75	0.02	103.98	0.02%	7.35%	0.0	5.2	
NN04	Low Density Residence: Less than 6 DU per Acre	65	B	75	1.36	103.98	1.31%	8.66%	1.0	6.2	
NN04	Low Density Residence: Less than 6 DU per Acre	66	B	75	0.08	103.98	0.08%	8.74%	0.1	6.3	
NN04	Low Density Residence: Less than 6 DU per Acre	66	B	75	1.81	103.98	1.74%	10.49%	1.3	7.6	
NN04	Low Density Residence: Less than 6 DU per Acre	71	D	87	0.00	103.98	0.00%	10.49%	0.0	7.6	
NN04	Low Density Residence: Less than 6 DU per Acre	66	B	75	0.65	103.98	0.62%	11.11%	0.5	8.0	
NN04	Low Density Residence: Less than 6 DU per Acre	71	D	87	0.06	103.98	0.06%	11.17%	0.0	8.1	
NN04	Low Density Residence: Less than 6 DU per Acre	66	B	75	1.20	103.98	1.15%	12.32%	0.9	8.9	
NN04	Low Density Residence: Less than 6 DU per Acre	65	B	75	0.23	103.98	0.22%	12.54%	0.2	9.1	
NN04	Low Density Residence: Less than 6 DU per Acre	71	D	87	2.22	103.98	2.14%	14.67%	1.9	11.0	
NN04	Low Density Residence: Less than 6 DU per Acre	66	B	75	0.32	103.98	0.31%	14.98%	0.2	11.2	
NN04	Low Density Residence: Less than 6 DU per Acre	65	B	75	0.89	103.98	0.86%	15.84%	0.6	11.8	
NN04	Low Density Residence: Less than 6 DU per Acre	67	C	83	1.21	103.98	1.17%	17.01%	1.0	12.8	
NN04	Low Density Residence: Less than 6 DU per Acre	71	D	87	0.03	103.98	0.03%	17.04%	0.0	12.8	
NN04	Low Density Residence: Less than 6 DU per Acre	66	B	75	0.17	103.98	0.16%	17.20%	0.1	13.0	
NN04	Low Density Residence: Less than 6 DU per Acre	65	B	75	0.78	103.98	0.75%	17.96%	0.6	13.5	
NN04	Low Density Residence: Less than 6 DU per Acre	67	C	83	0.22	103.98	0.21%	18.17%	0.2	13.7	
NN04	Low Density Residence: Less than 6 DU per Acre	67	C	83	1.02	103.98	0.98%	19.14%	0.8	14.5	
NN04	Low Density Residence: Less than 6 DU per Acre	67	C	83	1.00	103.98	0.96%	20.10%	0.8	15.3	
NN04	Low Density Residence: Less than 6 DU per Acre	65	B	75	0.03	103.98	0.03%	20.13%	0.0	15.3	
NN04	Low Density Residence: Less than 6 DU per Acre	67	C	83	2.73	103.98	2.63%	22.76%	2.2	17.5	
NN04	Low Density Residence: Less than 6 DU per Acre	71	D	87	0.29	103.98	0.27%	23.04%	0.2	17.8	
NN04	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.26	103.98	0.25%	23.29%	0.2	18.0	
NN04	Low Density Residence: Less than 6 DU per Acre	63	D	87	1.78	103.98	1.71%	25.00%	1.5	19.5	
NN04	Low Density Residence: Less than 6 DU per Acre	71	D	87	0.23	103.98	0.22%	25.22%	0.2	19.6	
NN04	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.08	103.98	0.08%	25.30%	0.1	19.7	
NN04	Low Density Residence: Less than 6 DU per Acre	71	D	87	0.29	103.98	0.28%	25.58%	0.2	20.0	
NN04	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.44	103.98	0.42%	26.00%	0.4	20.3	
NN04	Low Density Residence: Less than 6 DU per Acre	67	C	83	1.00	103.98	0.96%	26.96%	0.8	21.1	
NN04	Low Density Residence: Less than 6 DU per Acre	71	D	87	0.74	103.98	0.71%	27.67%	0.6	21.7	
NN04	Low Density Residence: Less than 6 DU per Acre	67	C	83	1.00	103.98	0.96%	28.63%	0.8	22.5	
NN04	Low Density Residence: Less than 6 DU per Acre	67	C	83	0.53	103.98	0.51%	29.14%	0.4	23.0	
NN04	Low Density Residence: Less than 6 DU per Acre	67	C	83	0.14	103.98	0.14%	29.27%	0.1	23.1	
NN04	Low Density Residence: Less than 6 DU per Acre	67	C	83	0.28	103.98	0.27%	29.55%	0.2	23.3	
NN04	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.32	103.98	0.30%	29.85%	0.3	23.6	
NN04	Low Density Residence: Less than 6 DU per Acre	67	C	83	0.31	103.98	0.30%	30.15%	0.2	23.8	
NN04	Low Density Residence: Less than 6 DU per Acre	71	D	87	0.42	103.98	0.41%	30.55%	0.4	24.2	
NN04	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.12	103.98	0.12%	30.67%	0.1	24.3	
NN04	Low Density Residence: Less than 6 DU per Acre	71	D	87	0.66	103.98	0.63%	31.30%	0.5	24.8	
NN04	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.41	103.98	0.40%	31.70%	0.3	25.2	
NN04	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.13	103.98	0.12%	31.82%	0.1	25.3	
NN04	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.43	103.98	0.41%	32.24%	0.4	25.6	
NN04	Low Density Residence: Less than 6 DU per Acre	71	D	87	0.01	103.98	0.01%	32.24%	0.0	25.6	
NN04	Low Density Residence: Less than 6 DU per Acre	63	D	87	1.17	103.98	1.12%	33.36%	1.0	26.6	
NN04	Low Density Residence: Less than 6 DU per Acre	71	D	87	3.68	103.98	3.54%	36.91%	3.1	29.7	

NORTH NINTH DRAINAGE BASIN - CURVE NUMBER CALCULATION

BASIN	Land Use Category	SOIL MAP UNIT #	Hydrologic Soil Group	SUBREGION CN	SUBREGION AREA (ACRES)	SUBBASIN AREA (ACRES)	PERCENT OF SUBBASIN	CUMULATIVE PERCENT	AREAL WEIGHTED CN	CUMULATIVE CN	COMPOSITE CN
NN04	Low Density Residence: Less than 6 DU per Acre	63	D	87	1.04	103.98	1.00%	37.91%	0.9	30.6	
NN04	Low Density Residence: Less than 6 DU per Acre	71	D	87	3.37	103.98	3.24%	41.15%	2.8	33.4	
NN04	Low Density Residence: Less than 6 DU per Acre	71	D	87	1.07	103.98	1.03%	42.18%	0.9	34.3	
NN04	Low Density Residence: Less than 6 DU per Acre	67	C	83	0.48	103.98	0.46%	42.64%	0.4	34.7	
NN04	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.43	103.98	0.41%	43.05%	0.4	35.0	
NN04	Low Density Residence: Less than 6 DU per Acre	71	D	87	0.09	103.98	0.08%	43.14%	0.1	35.1	
NN04	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.43	103.98	0.42%	43.55%	0.4	35.5	
NN04	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.29	103.98	0.28%	43.83%	0.2	35.7	
NN04	Low Density Residence: Less than 6 DU per Acre	67	C	83	0.71	103.98	0.68%	44.51%	0.6	36.3	
NN04	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.55	103.98	0.53%	45.04%	0.5	36.7	
NN04	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.06	103.98	0.05%	45.09%	0.0	36.8	
NN04	Low Density Residence: Less than 6 DU per Acre	67	C	83	0.93	103.98	0.89%	45.99%	0.7	37.5	
NN04	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.12	103.98	0.11%	46.10%	0.1	37.6	
NN04	Low Density Residence: Less than 6 DU per Acre	67	C	83	0.43	103.98	0.41%	46.51%	0.3	37.9	
NN04	Low Density Residence: Less than 6 DU per Acre	67	C	83	1.00	103.98	0.96%	47.47%	0.8	38.7	
NN04	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.02	103.98	0.02%	47.49%	0.0	38.8	
NN04	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.12	103.98	0.11%	47.60%	0.1	38.9	
NN04	Low Density Residence: Less than 6 DU per Acre	71	D	87	0.04	103.98	0.03%	47.64%	0.0	38.9	
NN04	Low Density Residence: Less than 6 DU per Acre	71	D	87	1.15	103.98	1.11%	48.74%	1.0	39.9	
NN04	Low Density Residence: Less than 6 DU per Acre	65	B	75	0.00	103.98	0.00%	48.75%	0.0	39.9	
NN04	Low Density Residence: Less than 6 DU per Acre	71	D	87	4.21	103.98	4.05%	52.80%	3.5	43.4	
NN04	Low Density Residence: Less than 6 DU per Acre	71	D	87	1.96	103.98	1.89%	54.68%	1.6	45.0	
NN04	Low Density Residence: Less than 6 DU per Acre	67	C	83	0.24	103.98	0.23%	54.91%	0.2	45.2	
NN04	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.36	103.98	0.35%	55.26%	0.3	45.5	
NN04	Low Density Residence: Less than 6 DU per Acre	63	D	87	1.47	103.98	1.42%	56.68%	1.2	46.7	
NN04	Commercial	67	C	94	0.28	103.98	0.27%	56.95%	0.2	47.0	
NN04	Commercial	65	B	92	0.23	103.98	0.22%	57.17%	0.2	47.2	
NN04	Commercial	67	C	94	0.03	103.98	0.03%	57.20%	0.0	47.2	
NN04	Commercial	65	B	92	0.62	103.98	0.59%	57.79%	0.5	47.8	
NN04	Medium to High Density Res	65	B	88	6.95	103.98	6.69%	64.47%	5.9	53.7	
NN04	Medium to High Density Res	66	B	88	16.43	103.98	15.80%	80.27%	13.9	67.6	
NN04	Medium to High Density Res	63	D	93	0.19	103.98	0.19%	80.46%	0.2	67.7	
NN04	Medium to High Density Res	63	D	93	0.01	103.98	0.00%	80.46%	0.0	67.7	
NN04	Medium to High Density Res	71	D	93	0.18	103.98	0.18%	80.64%	0.2	67.9	
NN04	Street	67	C	91.35	0.24	103.98	0.24%	80.87%	0.2	68.1	
NN04	Street	63	D	93.1	4.23	103.98	4.07%	84.95%	3.8	71.9	
NN04	Street	65	B	87.5	0.05	103.98	0.05%	85.00%	0.0	72.0	
NN04	Street	67	C	91.35	5.37	103.98	5.16%	90.16%	4.7	76.7	
NN04	Street	71	D	93.1	5.70	103.98	5.48%	95.64%	5.1	81.8	
NN04	Street	65	B	87.5	1.89	103.98	1.82%	97.46%	1.6	83.4	
NN04	Street	67	C	91.35	0.69	103.98	0.66%	98.12%	0.6	84.0	
NN04	Street	71	D	93.1	0.62	103.98	0.59%	98.71%	0.6	84.5	
NN04	Street	66	B	87.5	1.34	103.98	1.29%	100.00%	1.1	85.6	**85.6**
NN05	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.80	31.02	2.56%	2.56%	2.2	2.2	
NN05	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.43	31.02	1.39%	3.96%	1.2	3.4	
NN05	Low Density Residence: Less than 6 DU per Acre	83	D	87	0.14	31.02	0.45%	4.41%	0.4	3.8	
NN05	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.01	31.02	0.02%	4.43%	0.0	3.9	
NN05	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.01	31.02	0.02%	4.45%	0.0	3.9	
NN05	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.03	31.02	0.10%	4.55%	0.1	4.0	
NN05	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.38	31.02	1.24%	5.79%	1.1	5.0	
NN05	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.39	31.02	1.27%	7.05%	1.1	6.1	
NN05	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.01	31.02	0.02%	7.07%	0.0	6.2	

NORTH NINTH DRAINAGE BASIN - CURVE NUMBER CALCULATION

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NN05	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.02	31.02	0.05%	7.13%	0.0	6.2	
NN05	Medium to High Density Res	63	D	93	1.67	31.02	5.38%	12.51%	5.0	11.2	
NN05	Medium to High Density Res	83	D	93	0.00	31.02	0.00%	12.51%	0.0	11.2	
NN05	Wood-Grass Combination (Fair Condition)	63	D	82	1.26	31.02	4.06%	16.57%	3.3	14.5	
NN05	Wood-Grass Combination (Fair Condition)	118	D	82	6.36	31.02	20.51%	37.07%	16.8	31.3	
NN05	Wood-Grass Combination (Fair Condition)	83	D	82	12.55	31.02	40.47%	77.55%	33.2	64.5	
NN05	Wood-Grass Combination (Fair Condition)	72	D	82	4.88	31.02	15.72%	93.27%	12.9	77.4	
NN05	Wood-Grass Combination (Fair Condition)	118	D	82	0.40	31.02	1.27%	94.54%	1.0	78.5	
NN05	Wood-Grass Combination (Fair Condition)	83	D	82	0.05	31.02	0.15%	94.69%	0.1	78.6	
NN05	Street	118	D	93.1	0.80	31.02	2.59%	97.28%	2.4	81.0	
NN05	Street	63	D	93.1	0.84	31.02	2.72%	100.00%	2.5	83.5	**83.5**
NN06	Open Estates: Greater than 1 acre Lots	67	C	79	0.14	92.88	0.15%	0.15%	0.1	0.1	
NN06	Open Estates: Greater than 1 acre Lots	63	D	84	0.12	92.88	0.13%	0.27%	0.1	0.2	
NN06	Open Estates: Greater than 1 acre Lots	63	D	84	0.01	92.88	0.01%	0.29%	0.0	0.2	
NN06	Open Estates: Greater than 1 acre Lots	63	D	84	0.01	92.88	0.02%	0.30%	0.0	0.2	
NN06	Open Estates: Greater than 1 acre Lots	63	D	84	0.23	92.88	0.25%	0.55%	0.2	0.5	
NN06	Low Density Residence: Less than 6 DU per Acre	67	C	83	0.29	92.88	0.31%	0.87%	0.3	0.7	
NN06	Low Density Residence: Less than 6 DU per Acre	67	C	83	0.15	92.88	0.16%	1.02%	0.1	0.8	
NN06	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.00	92.88	0.00%	1.03%	0.0	0.9	
NN06	Low Density Residence: Less than 6 DU per Acre	71	D	87	0.03	92.88	0.03%	1.06%	0.0	0.9	
NN06	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.03	92.88	0.03%	1.09%	0.0	0.9	
NN06	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.28	92.88	0.30%	1.39%	0.3	1.2	
NN06	Low Density Residence: Less than 6 DU per Acre	67	C	83	0.29	92.88	0.31%	1.70%	0.3	1.4	
NN06	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.06	92.88	0.06%	1.76%	0.1	1.5	
NN06	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.06	92.88	0.06%	1.82%	0.1	1.5	
NN06	Low Density Residence: Less than 6 DU per Acre	67	C	83	0.29	92.88	0.31%	2.13%	0.3	1.8	
NN06	Low Density Residence: Less than 6 DU per Acre	67	C	83	0.96	92.88	1.04%	3.17%	0.9	2.6	
NN06	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.06	92.88	0.06%	3.23%	0.1	2.7	
NN06	Low Density Residence: Less than 6 DU per Acre	67	C	83	0.49	92.88	0.53%	3.76%	0.4	3.1	
NN06	Low Density Residence: Less than 6 DU per Acre	67	C	83	0.49	92.88	0.53%	4.29%	0.4	3.6	
NN06	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.28	92.88	0.31%	4.59%	0.3	3.8	
NN06	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.14	92.88	0.15%	4.74%	0.1	4.0	
NN06	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.54	92.88	0.58%	5.32%	0.5	4.5	
NN06	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.54	92.88	0.58%	5.90%	0.5	5.0	
NN06	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.12	92.88	0.12%	6.03%	0.1	5.1	
NN06	Low Density Residence: Less than 6 DU per Acre	67	C	83	0.88	92.88	0.95%	6.97%	0.8	5.9	
NN06	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.24	92.88	0.26%	7.23%	0.2	6.1	
NN06	Low Density Residence: Less than 6 DU per Acre	67	C	83	0.76	92.88	0.82%	8.05%	0.7	6.8	
NN06	Low Density Residence: Less than 6 DU per Acre	67	C	83	1.00	92.88	1.07%	9.12%	0.9	7.7	
NN06	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.17	92.88	0.19%	9.31%	0.2	7.8	
NN06	Low Density Residence: Less than 6 DU per Acre	67	C	83	0.38	92.88	0.41%	9.72%	0.3	8.2	
NN06	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.30	92.88	0.33%	10.04%	0.3	8.5	
NN06	Low Density Residence: Less than 6 DU per Acre	67	C	83	0.25	92.88	0.27%	10.31%	0.2	8.7	
NN06	Low Density Residence: Less than 6 DU per Acre	67	C	83	1.00	92.88	1.07%	11.38%	0.9	9.6	
NN06	Low Density Residence: Less than 6 DU per Acre	67	C	83	1.00	92.88	1.07%	12.46%	0.9	10.5	
NN06	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.44	92.88	0.47%	12.93%	0.4	10.9	
NN06	Low Density Residence: Less than 6 DU per Acre	67	C	83	0.11	92.88	0.11%	13.04%	0.1	11.0	
NN06	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.54	92.88	0.58%	13.62%	0.5	11.5	
NN06	Low Density Residence: Less than 6 DU per Acre	67	C	83	0.00	92.88	0.00%	13.62%	0.0	11.5	
NN06	Low Density Residence: Less than 6 DU per Acre	67	C	83	1.00	92.88	1.07%	14.70%	0.9	12.4	
NN06	Low Density Residence: Less than 6 DU per Acre	67	C	83	0.36	92.88	0.39%	15.08%	0.3	12.7	
NN06	Low Density Residence: Less than 6 DU per Acre	63	D	87	1.47	92.88	1.59%	16.67%	1.4	14.1	

NORTH NINTH DRAINAGE BASIN - CURVE NUMBER CALCULATION

BASIN	Land Use Category	SOIL MAP UNIT #	Hydrologic Soil Group	SUBREGION CN	SUBREGION AREA (ACRES)	SUBBASIN AREA (ACRES)	PERCENT OF SUBBASIN	CUMULATIVE PERCENT	AREAL WEIGHTED CN	CUMULATIVE CN	COMPOSITE CN
NN06	Low Density Residence: Less than 6 DU per Acre	63	D	87	1.46	92.88	1.57%	18.24%	1.4	15.4	
NN06	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.66	92.88	0.71%	18.95%	0.6	16.0	
NN06	Low Density Residence: Less than 6 DU per Acre	71	D	87	0.15	92.88	0.16%	19.11%	0.1	16.2	
NN06	Low Density Residence: Less than 6 DU per Acre	67	C	83	0.18	92.88	0.19%	19.30%	0.2	16.3	
NN06	Low Density Residence: Less than 6 DU per Acre	63	D	87	3.17	92.88	3.42%	22.72%	3.0	19.3	
NN06	Low Density Residence: Less than 6 DU per Acre	63	D	87	1.29	92.88	1.39%	24.11%	1.2	20.5	
NN06	Low Density Residence: Less than 6 DU per Acre	63	D	87	1.41	92.88	1.51%	25.62%	1.3	21.8	
NN06	Low Density Residence: Less than 6 DU per Acre	63	D	87	1.72	92.88	1.86%	27.47%	1.6	23.5	
NN06	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.37	92.88	0.40%	27.88%	0.4	23.8	
NN06	Low Density Residence: Less than 6 DU per Acre	67	C	83	0.00	92.88	0.00%	27.88%	0.0	23.8	
NN06	Low Density Residence: Less than 6 DU per Acre	67	C	83	0.64	92.88	0.69%	28.57%	0.6	24.4	
NN06	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.25	92.88	0.27%	28.84%	0.2	24.6	
NN06	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.56	92.88	0.60%	29.44%	0.5	25.1	
NN06	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.33	92.88	0.36%	29.80%	0.3	25.4	
NN06	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.95	92.88	1.03%	30.82%	0.9	26.3	
NN06	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.84	92.88	0.90%	31.73%	0.8	27.1	
NN06	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.16	92.88	0.17%	31.89%	0.1	27.3	
NN06	Low Density Residence: Less than 6 DU per Acre	67	C	83	0.31	92.88	0.34%	32.23%	0.3	27.6	
NN06	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.59	92.88	0.63%	32.87%	0.6	28.1	
NN06	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.84	92.88	0.91%	33.77%	0.8	28.9	
NN06	Low Density Residence: Less than 6 DU per Acre	63	D	87	1.03	92.88	1.11%	34.88%	1.0	29.9	
NN06	Low Density Residence: Less than 6 DU per Acre	63	D	87	2.20	92.88	2.37%	37.25%	2.1	31.9	
NN06	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.21	92.88	0.23%	37.48%	0.2	32.1	
NN06	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.22	92.88	0.24%	37.72%	0.2	32.3	
NN06	Low Density Residence: Less than 6 DU per Acre	63	D	87	3.02	92.88	3.25%	40.97%	2.8	35.2	
NN06	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.49	92.88	0.53%	41.50%	0.5	35.6	
NN06	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.22	92.88	0.23%	41.73%	0.2	35.8	
NN06	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.41	92.88	0.44%	42.18%	0.4	36.2	
NN06	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.41	92.88	0.44%	42.61%	0.4	36.6	
NN06	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.29	92.88	0.31%	42.92%	0.3	36.9	
NN06	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.14	92.88	0.15%	43.07%	0.1	37.0	
NN06	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.21	92.88	0.23%	43.30%	0.2	37.2	
NN06	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.42	92.88	0.45%	43.75%	0.4	37.6	
NN06	Low Density Residence: Less than 6 DU per Acre	67	C	83	0.70	92.88	0.76%	44.51%	0.6	38.2	
NN06	Low Density Residence: Less than 6 DU per Acre	67	C	83	0.13	92.88	0.14%	44.65%	0.1	38.3	
NN06	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.02	92.88	0.02%	44.67%	0.0	38.3	
NN06	Low Density Residence: Less than 6 DU per Acre	67	C	83	0.14	92.88	0.15%	44.82%	0.1	38.5	
NN06	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.14	92.88	0.15%	44.97%	0.1	38.6	
NN06	Low Density Residence: Less than 6 DU per Acre	67	C	83	0.35	92.88	0.38%	45.35%	0.3	38.9	
NN06	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.24	92.88	0.26%	45.61%	0.2	39.1	
NN06	Low Density Residence: Less than 6 DU per Acre	67	C	83	0.11	92.88	0.12%	45.73%	0.1	39.2	
NN06	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.00	92.88	0.00%	45.73%	0.0	39.2	
NN06	Low Density Residence: Less than 6 DU per Acre	67	C	83	0.18	92.88	0.19%	45.92%	0.2	39.4	
NN06	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.23	92.88	0.25%	46.17%	0.2	39.6	
NN06	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.10	92.88	0.11%	46.28%	0.1	39.7	
NN06	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.39	92.88	0.41%	46.69%	0.4	40.1	
NN06	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.41	92.88	0.44%	47.13%	0.4	40.4	
NN06	Low Density Residence: Less than 6 DU per Acre	67	C	83	0.59	92.88	0.63%	47.76%	0.5	41.0	
NN06	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.31	92.88	0.34%	48.10%	0.3	41.3	
NN06	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.29	92.88	0.31%	48.41%	0.3	41.5	
NN06	Low Density Residence: Less than 6 DU per Acre	67	C	83	0.39	92.88	0.42%	48.83%	0.3	41.9	
NN06	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.15	92.88	0.16%	48.99%	0.1	42.0	

NORTH NINTH DRAINAGE BASIN - CURVE NUMBER CALCULATION

BASIN	Land Use Category	SOIL MAP UNIT #	Hydrologic Soil Group	SUBREGION CN	SUBREGION AREA (ACRES)	SUBBASIN AREA (ACRES)	PERCENT OF SUBBASIN	CUMULATIVE PERCENT	AREAL WEIGHTED CN	CUMULATIVE CN	COMPOSITE CN
NN06	Low Density Residence: Less than 6 DU per Acre	67	C	83	0.20	92.88	0.22%	49.21%	0.2	42.2	
NN06	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.14	92.88	0.15%	49.36%	0.1	42.3	
NN06	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.58	92.88	0.62%	49.98%	0.5	42.9	
NN06	Low Density Residence: Less than 6 DU per Acre	67	C	83	0.28	92.88	0.30%	50.29%	0.3	43.1	
NN06	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.66	92.88	0.71%	50.99%	0.6	43.7	
NN06	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.20	92.88	0.22%	51.21%	0.2	43.9	
NN06	Low Density Residence: Less than 6 DU per Acre	67	C	83	0.50	92.88	0.54%	51.75%	0.4	44.4	
NN06	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.25	92.88	0.27%	52.02%	0.2	44.6	
NN06	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.47	92.88	0.50%	52.52%	0.4	45.0	
NN06	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.88	92.88	0.94%	53.46%	0.8	45.9	
NN06	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.53	92.88	0.57%	54.03%	0.5	46.4	
NN06	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.89	92.88	0.96%	54.99%	0.8	47.2	
NN06	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.88	92.88	0.94%	55.93%	0.8	48.0	
NN06	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.54	92.88	0.58%	56.51%	0.5	48.5	
NN06	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.89	92.88	0.96%	57.47%	0.8	49.4	
NN06	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.88	92.88	0.94%	58.41%	0.8	50.2	
NN06	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.87	92.88	0.93%	59.35%	0.8	51.0	
NN06	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.88	92.88	0.95%	60.29%	0.8	51.8	
NN06	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.53	92.88	0.57%	60.86%	0.5	52.3	
NN06	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.88	92.88	0.94%	61.81%	0.8	53.1	
NN06	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.87	92.88	0.94%	62.75%	0.8	53.9	
NN06	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.54	92.88	0.58%	63.32%	0.5	54.4	
NN06	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.11	92.88	0.12%	63.45%	0.1	54.6	
NN06	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.78	92.88	0.83%	64.28%	0.7	55.3	
NN06	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.36	92.88	0.39%	64.67%	0.3	55.6	
NN06	Agriculture	63	D	80	0.20	92.88	0.22%	64.88%	0.2	55.8	
NN06	Medium to High Density Res	63	D	93	3.91	92.88	4.21%	69.09%	3.9	59.7	
NN06	Medium to High Density Res	63	D	93	0.28	92.88	0.30%	69.40%	0.3	60.0	
NN06	Street	63	D	93.1	20.20	92.88	21.75%	91.15%	20.2	80.2	
NN06	Street	67	C	91.35	8.22	92.88	8.85%	100.00%	8.1	88.3	
NN06	Street	63	D	93.1	0.00	92.88	0.00%	100.00%	0.0	88.3	**88.3**
NN07A	Open Estates: Greater than 1 acre Lots	63	D	84	0.01	26.87	0.03%	0.03%	0.0	0.0	
NN07A	Open Estates: Greater than 1 acre Lots	83	D	84	0.00	26.87	0.01%	0.04%	0.0	0.0	
NN07A	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.00	26.87	0.01%	0.05%	0.0	0.0	
NN07A	Low Density Residence: Less than 6 DU per Acre	83	D	87	0.01	26.87	0.03%	0.08%	0.0	0.1	
NN07A	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.00	26.87	0.02%	0.10%	0.0	0.1	
NN07A	Low Density Residence: Less than 6 DU per Acre	83	D	87	0.19	26.87	0.72%	0.82%	0.6	0.7	
NN07A	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.43	26.87	1.60%	2.42%	1.4	2.1	
NN07A	Low Density Residence: Less than 6 DU per Acre	83	D	87	0.02	26.87	0.09%	2.51%	0.1	2.2	
NN07A	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.43	26.87	1.61%	4.12%	1.4	3.6	
NN07A	Low Density Residence: Less than 6 DU per Acre	83	D	87	0.02	26.87	0.09%	4.21%	0.1	3.7	
NN07A	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.40	26.87	1.51%	5.72%	1.3	5.0	
NN07A	Low Density Residence: Less than 6 DU per Acre	83	D	87	0.05	26.87	0.18%	5.90%	0.2	5.1	
NN07A	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.38	26.87	1.42%	7.32%	1.2	6.4	
NN07A	Low Density Residence: Less than 6 DU per Acre	83	D	87	0.07	26.87	0.28%	7.59%	0.2	6.6	
NN07A	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.02	26.87	0.08%	7.67%	0.1	6.7	
NN07A	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.39	26.87	1.46%	9.13%	1.3	7.9	
NN07A	Low Density Residence: Less than 6 DU per Acre	83	D	87	0.06	26.87	0.23%	9.36%	0.2	8.1	
NN07A	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.41	26.87	1.52%	10.88%	1.3	9.5	
NN07A	Low Density Residence: Less than 6 DU per Acre	83	D	87	0.05	26.87	0.18%	11.06%	0.2	9.6	
NN07A	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.03	26.87	0.11%	11.16%	0.1	9.7	
NN07A	Wood-Grass Combination (Fair Condition)	118	D	82	0.01	26.87	0.05%	11.22%	0.0	9.8	

NORTH NINTH DRAINAGE BASIN - CURVE NUMBER CALCULATION

BASIN	Land Use Category	SOIL MAP UNIT #	Hydrologic Soil Group	SUBREGION CN	SUBREGION AREA (ACRES)	SUBBASIN AREA (ACRES)	PERCENT OF SUBBASIN	CUMULATIVE PERCENT	AREAL WEIGHTED CN	CUMULATIVE CN	COMPOSITE CN
NN07A	Wood-Grass Combination (Fair Condition)	83	D	82	0.21	26.87	0.79%	12.01%	0.6	10.4	
NN07A	Wood-Grass Combination (Fair Condition)	72	D	82	0.22	26.87	0.81%	12.82%	0.7	11.1	
NN07A	Wood-Grass Combination (Fair Condition)	118	D	82	4.46	26.87	16.59%	29.41%	13.6	24.7	
NN07A	Wood-Grass Combination (Fair Condition)	83	D	82	10.91	26.87	40.61%	70.02%	33.3	58.0	
NN07A	Wood-Grass Combination (Fair Condition)	72	D	82	5.40	26.87	20.09%	90.11%	16.5	74.4	
NN07A	Street	118	D	93.1	0.69	26.87	2.58%	92.69%	2.4	76.8	
NN07A	Street	63	D	93.1	1.83	26.87	6.80%	99.49%	6.3	83.2	
NN07A	Street	83	D	93.1	0.13	26.87	0.50%	99.99%	0.5	83.6	
NN07A	Street	63	D	93.1	0.00	26.87	0.01%	100.00%	0.0	83.7	**83.7**
NN07B	Open Estates: Greater than 1 acre Lots	63	D	84	0.09	20.24	0.45%	0.45%	0.4	0.4	
NN07B	Open Estates: Greater than 1 acre Lots	83	D	84	0.01	20.24	0.06%	0.50%	0.0	0.4	
NN07B	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.22	20.24	1.10%	1.60%	1.0	1.4	
NN07B	Low Density Residence: Less than 6 DU per Acre	83	D	87	0.06	20.24	0.29%	1.89%	0.3	1.6	
NN07B	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.52	20.24	2.56%	4.45%	2.2	3.9	
NN07B	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.14	20.24	0.71%	5.16%	0.6	4.5	
NN07B	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.15	20.24	0.72%	5.88%	0.6	5.1	
NN07B	Low Density Residence: Less than 6 DU per Acre	63	D	87	1.05	20.24	5.17%	11.05%	4.5	9.6	
NN07B	Low Density Residence: Less than 6 DU per Acre	83	D	87	0.16	20.24	0.80%	11.85%	0.7	10.3	
NN07B	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.86	20.24	4.27%	16.12%	3.7	14.0	
NN07B	Low Density Residence: Less than 6 DU per Acre	83	D	87	0.34	20.24	1.68%	17.80%	1.5	15.5	
NN07B	Wood-Grass Combination (Fair Condition)	63	D	82	0.04	20.24	0.18%	17.97%	0.1	15.6	
NN07B	Wood-Grass Combination (Fair Condition)	118	D	82	2.92	20.24	14.40%	32.38%	11.8	27.4	
NN07B	Wood-Grass Combination (Fair Condition)	83	D	82	9.01	20.24	44.50%	76.88%	36.5	63.9	
NN07B	Wood-Grass Combination (Fair Condition)	72	D	82	3.05	20.24	15.04%	91.92%	12.3	76.2	
NN07B	Street	72	D	93.1	0.02	20.24	0.08%	92.00%	0.1	76.3	
NN07B	Street	118	D	93.1	0.52	20.24	2.58%	94.58%	2.4	78.7	
NN07B	Street	63	D	93.1	0.38	20.24	1.85%	96.44%	1.7	80.5	
NN07B	Street	63	D	93.1	0.62	20.24	3.07%	99.51%	2.9	83.3	
NN07B	Street	83	D	93.1	0.10	20.24	0.49%	100.00%	0.5	83.8	**83.8**
NN07C	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.17	14.72	1.16%	1.16%	1.0	1.0	
NN07C	Low Density Residence: Less than 6 DU per Acre	83	D	87	0.05	14.72	0.33%	1.49%	0.3	1.3	
NN07C	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.21	14.72	1.45%	2.93%	1.3	2.6	
NN07C	Low Density Residence: Less than 6 DU per Acre	83	D	87	0.04	14.72	0.30%	3.23%	0.3	2.8	
NN07C	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.23	14.72	1.59%	4.82%	1.4	4.2	
NN07C	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.04	14.72	0.30%	5.12%	0.3	4.5	
NN07C	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.45	14.72	3.08%	8.20%	2.7	7.1	
NN07C	Wood-Grass Combination (Fair Condition)	83	D	82	0.80	14.72	5.42%	13.61%	4.4	11.6	
NN07C	Wood-Grass Combination (Fair Condition)	72	D	82	1.26	14.72	8.53%	22.14%	7.0	18.6	
NN07C	Wood-Grass Combination (Fair Condition)	118	D	82	0.17	14.72	1.18%	23.32%	1.0	19.5	
NN07C	Wood-Grass Combination (Fair Condition)	118	D	82	3.45	14.72	23.40%	46.73%	19.2	38.7	
NN07C	Wood-Grass Combination (Fair Condition)	83	D	82	2.38	14.72	16.19%	62.92%	13.3	52.0	
NN07C	Wood-Grass Combination (Fair Condition)	72	D	82	1.24	14.72	8.42%	71.33%	6.9	58.9	
NN07C	Wood-Grass Combination (Fair Condition)	63	D	82	0.03	14.72	0.19%	71.52%	0.2	59.1	
NN07C	Wood-Grass Combination (Fair Condition)	83	D	82	0.14	14.72	0.97%	72.49%	0.8	59.9	
NN07C	Street	63	D	93.1	0.00	14.72	0.00%	72.50%	0.0	59.9	
NN07C	Street	118	D	93.1	0.00	14.72	0.00%	72.50%	0.0	59.9	
NN07C	Street	83	D	93.1	0.85	14.72	5.76%	78.26%	5.4	65.2	
NN07C	Street	72	D	93.1	1.59	14.72	10.82%	89.08%	10.1	75.3	
NN07C	Street	118	D	93.1	0.94	14.72	6.41%	95.49%	6.0	81.3	
NN07C	Street	63	D	93.1	0.65	14.72	4.41%	99.90%	4.1	85.4	
NN07C	Street	83	D	93.1	0.01	14.72	0.10%	100.00%	0.1	85.5	**85.5**
NN07D	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.60	15.02	4.00%	4.00%	3.5	3.5	

NORTH NINTH DRAINAGE BASIN - CURVE NUMBER CALCULATION

BASIN	Land Use Category	SOIL MAP UNIT #	Hydrologic Soil Group	SUBREGION CN	SUBREGION AREA (ACRES)	SUBBASIN AREA (ACRES)	PERCENT OF SUBBASIN	CUMULATIVE PERCENT	AREAL WEIGHTED CN	CUMULATIVE CN	COMPOSITE CN
NN07D	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.62	15.02	4.13%	8.13%	3.6	7.1	
NN07D	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.41	15.02	2.70%	10.83%	2.4	9.4	
NN07D	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.67	15.02	4.49%	15.32%	3.9	13.3	
NN07D	Wood-Grass Combination (Fair Condition)	118	D	82	0.04	15.02	0.24%	15.56%	0.2	13.5	
NN07D	Wood-Grass Combination (Fair Condition)	83	D	82	2.32	15.02	15.46%	31.02%	12.7	26.2	
NN07D	Wood-Grass Combination (Fair Condition)	72	D	82	0.95	15.02	6.32%	37.34%	5.2	31.4	
NN07D	Wood-Grass Combination (Fair Condition)	118	D	82	0.04	15.02	0.28%	37.63%	0.2	31.6	
NN07D	Wood-Grass Combination (Fair Condition)	118	D	82	0.93	15.02	6.22%	43.85%	5.1	36.7	
NN07D	Wood-Grass Combination (Fair Condition)	118	D	82	0.00	15.02	0.01%	43.86%	0.0	36.7	
NN07D	Wood-Grass Combination (Fair Condition)	118	D	82	0.44	15.02	2.90%	46.76%	2.4	39.1	
NN07D	Wood-Grass Combination (Fair Condition)	63	D	82	0.32	15.02	2.12%	48.88%	1.7	40.8	
NN07D	Wood-Grass Combination (Fair Condition)	118	D	82	0.21	15.02	1.40%	50.28%	1.1	42.0	
NN07D	Wood-Grass Combination (Fair Condition)	83	D	82	2.12	15.02	14.09%	64.37%	11.6	53.5	
NN07D	Wood-Grass Combination (Fair Condition)	72	D	82	0.51	15.02	3.42%	67.78%	2.8	56.3	
NN07D	Wood-Grass Combination (Fair Condition)	118	D	82	0.14	15.02	0.92%	68.71%	0.8	57.1	
NN07D	Wood-Grass Combination (Fair Condition)	63	D	82	0.11	15.02	0.74%	69.45%	0.6	57.7	
NN07D	Wood-Grass Combination (Fair Condition)	118	D	82	0.13	15.02	0.87%	70.32%	0.7	58.4	
NN07D	Wood-Grass Combination (Fair Condition)	83	D	82	1.59	15.02	10.55%	80.87%	8.7	67.1	
NN07D	Wood-Grass Combination (Fair Condition)	72	D	82	0.27	15.02	1.78%	82.65%	1.5	68.5	
NN07D	Wood-Grass Combination (Fair Condition)	63	D	82	0.04	15.02	0.28%	82.93%	0.2	68.8	
NN07D	Wood-Grass Combination (Fair Condition)	83	D	82	0.15	15.02	0.98%	83.91%	0.8	69.6	
NN07D	Street	118	D	93.1	0.61	15.02	4.04%	87.95%	3.8	73.3	
NN07D	Street	72	D	93.1	0.11	15.02	0.71%	88.66%	0.7	74.0	
NN07D	Street	118	D	93.1	0.61	15.02	4.04%	92.69%	3.8	77.7	
NN07D	Street	63	D	93.1	0.96	15.02	6.37%	99.07%	5.9	83.7	
NN07D	Street	63	D	93.1	0.14	15.02	0.90%	99.97%	0.8	84.5	
NN07D	Street	63	D	93.1	0.00	15.02	0.02%	99.99%	0.0	84.5	
NN07D	Street	63	D	93.1	0.00	15.02	0.01%	100.00%	0.0	84.6	**84.6**
NN07E	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.24	51.65	0.47%	0.47%	0.4	0.4	
NN07E	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.17	51.65	0.32%	0.79%	0.3	0.7	
NN07E	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.71	51.65	1.38%	2.17%	1.2	1.9	
NN07E	Low Density Residence: Less than 6 DU per Acre	83	D	87	0.07	51.65	0.14%	2.31%	0.1	2.0	
NN07E	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.60	51.65	1.16%	3.47%	1.0	3.0	
NN07E	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.12	51.65	0.23%	3.70%	0.2	3.2	
NN07E	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.24	51.65	0.47%	4.18%	0.4	3.6	
NN07E	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.61	51.65	1.18%	5.35%	1.0	4.7	
NN07E	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.36	51.65	0.70%	6.06%	0.6	5.3	
NN07E	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.48	51.65	0.93%	6.99%	0.8	6.1	
NN07E	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.24	51.65	0.46%	7.45%	0.4	6.5	
NN07E	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.81	51.65	1.58%	9.03%	1.4	7.9	
NN07E	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.24	51.65	0.47%	9.50%	0.4	8.3	
NN07E	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.97	51.65	1.87%	11.37%	1.6	9.9	
NN07E	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.07	51.65	0.13%	11.50%	0.1	10.0	
NN07E	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.60	51.65	1.17%	12.67%	1.0	11.0	
NN07E	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.00	51.65	0.00%	12.67%	0.0	11.0	
NN07E	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.41	51.65	0.79%	13.46%	0.7	11.7	
NN07E	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.95	51.65	1.85%	15.30%	1.6	13.3	
NN07E	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.86	51.65	1.66%	16.96%	1.4	14.8	
NN07E	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.12	51.65	0.24%	17.20%	0.2	15.0	
NN07E	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.12	51.65	0.24%	17.44%	0.2	15.2	
NN07E	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.00	51.65	0.00%	17.44%	0.0	15.2	
NN07E	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.49	51.65	0.95%	18.38%	0.8	16.0	

NORTH NINTH DRAINAGE BASIN - CURVE NUMBER CALCULATION

BASIN	Land Use Category	SOIL MAP UNIT #	Hydrologic Soil Group	SUBREGION CN	SUBREGION AREA (ACRES)	SUBBASIN AREA (ACRES)	PERCENT OF SUBBASIN	CUMULATIVE PERCENT	AREAL WEIGHTED CN	CUMULATIVE CN	COMPOSITE CN
NN07E	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.25	51.65	0.48%	18.86%	0.4	16.4	
NN07E	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.09	51.65	0.17%	19.03%	0.1	16.6	
NN07E	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.02	51.65	0.04%	19.07%	0.0	16.6	
NN07E	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.10	51.65	0.19%	19.26%	0.2	16.8	
NN07E	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.07	51.65	0.13%	19.39%	0.1	16.9	
NN07E	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.64	51.65	1.24%	20.62%	1.1	17.9	
NN07E	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.21	51.65	0.41%	21.03%	0.4	18.3	
NN07E	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.99	51.65	1.93%	22.96%	1.7	20.0	
NN07E	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.24	51.65	0.47%	23.43%	0.4	20.4	
NN07E	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.13	51.65	0.25%	23.68%	0.2	20.6	
NN07E	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.97	51.65	1.88%	25.56%	1.6	22.2	
NN07E	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.05	51.65	0.10%	25.66%	0.1	22.3	
NN07E	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.17	51.65	0.32%	25.98%	0.3	22.6	
NN07E	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.72	51.65	1.39%	27.37%	1.2	23.8	
NN07E	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.16	51.65	0.31%	27.68%	0.3	24.1	
NN07E	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.09	51.65	0.17%	27.85%	0.1	24.2	
NN07E	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.06	51.65	0.11%	27.96%	0.1	24.3	
NN07E	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.06	51.65	0.12%	28.08%	0.1	24.4	
NN07E	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.07	51.65	0.13%	28.21%	0.1	24.5	
NN07E	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.09	51.65	0.18%	28.39%	0.2	24.7	
NN07E	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.52	51.65	1.01%	29.41%	0.9	25.6	
NN07E	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.19	51.65	0.38%	29.78%	0.3	25.9	
NN07E	Medium to High Density Res	63	D	93	0.24	51.65	0.46%	30.24%	0.4	26.3	
NN07E	Medium to High Density Res	59	D	93	0.02	51.65	0.04%	30.28%	0.0	26.4	
NN07E	Wood-Grass Combination (Fair Condition)	118	D	82	0.02	51.65	0.03%	30.31%	0.0	26.4	
NN07E	Wood-Grass Combination (Fair Condition)	118	D	82	0.16	51.65	0.30%	30.61%	0.2	26.6	
NN07E	Wood-Grass Combination (Fair Condition)	118	D	82	0.11	51.65	0.22%	30.83%	0.2	26.8	
NN07E	Wood-Grass Combination (Fair Condition)	83	D	82	0.23	51.65	0.45%	31.28%	0.4	27.2	
NN07E	Wood-Grass Combination (Fair Condition)	72	D	82	0.17	51.65	0.33%	31.61%	0.3	27.5	
NN07E	Wood-Grass Combination (Fair Condition)	118	D	82	0.25	51.65	0.49%	32.10%	0.4	27.9	
NN07E	Wood-Grass Combination (Fair Condition)	63	D	82	1.79	51.65	3.46%	35.55%	2.8	30.7	
NN07E	Wood-Grass Combination (Fair Condition)	118	D	82	8.50	51.65	16.45%	52.01%	13.5	44.2	
NN07E	Wood-Grass Combination (Fair Condition)	83	D	82	10.21	51.65	19.77%	71.78%	16.2	60.4	
NN07E	Wood-Grass Combination (Fair Condition)	72	D	82	2.76	51.65	5.34%	77.11%	4.4	64.8	
NN07E	Street	118	D	93.1	0.11	51.65	0.21%	77.32%	0.2	65.0	
NN07E	Street	118	D	93.1	0.11	51.65	0.20%	77.53%	0.2	65.2	
NN07E	Street	63	D	93.1	0.01	51.65	0.01%	77.54%	0.0	65.2	
NN07E	Street	118	D	93.1	1.71	51.65	3.30%	80.84%	3.1	68.2	
NN07E	Street	63	D	93.1	8.26	51.65	16.00%	96.84%	14.9	83.1	
NN07E	Street	59	D	93.1	1.63	51.65	3.16%	100.00%	2.9	86.1	
NN07E	Street	63	D	93.1	0.00	51.65	0.00%	100.00%	0.0	86.1	**86.1**
NN08	Open Estates: Greater than 1 acre Lots	63	D	84	1.67	77.76	2.15%	2.15%	1.8	1.8	
NN08	Open Estates: Greater than 1 acre Lots	63	D	84	0.13	77.76	0.17%	2.32%	0.1	1.9	
NN08	Open Estates: Greater than 1 acre Lots	63	D	84	0.50	77.76	0.64%	2.96%	0.5	2.5	
NN08	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.29	77.76	0.38%	3.34%	0.3	2.8	
NN08	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.23	77.76	0.30%	3.63%	0.3	3.1	
NN08	Low Density Residence: Less than 6 DU per Acre	67	C	83	0.14	77.76	0.18%	3.81%	0.1	3.2	
NN08	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.45	77.76	0.58%	4.39%	0.5	3.7	
NN08	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.51	77.76	0.65%	5.04%	0.6	4.3	
NN08	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.47	77.76	0.61%	5.65%	0.5	4.8	
NN08	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.29	77.76	0.37%	6.02%	0.3	5.1	
NN08	Low Density Residence: Less than 6 DU per Acre	67	C	83	0.43	77.76	0.55%	6.57%	0.5	5.6	

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NN08	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.40	77.76	0.52%	7.08%	0.4	6.0	
NN08	Low Density Residence: Less than 6 DU per Acre	67	C	83	0.45	77.76	0.58%	7.66%	0.5	6.5	
NN08	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.60	77.76	0.78%	8.43%	0.7	7.2	
NN08	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.88	77.76	1.13%	9.56%	1.0	8.2	
NN08	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.55	77.76	0.71%	10.27%	0.6	8.8	
NN08	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.52	77.76	0.67%	10.94%	0.6	9.4	
NN08	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.12	77.76	0.16%	11.10%	0.1	9.5	
NN08	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.27	77.76	0.34%	11.44%	0.3	9.8	
NN08	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.29	77.76	0.38%	11.82%	0.3	10.1	
NN08	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.88	77.76	1.13%	12.95%	1.0	11.1	
NN08	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.45	77.76	0.58%	13.53%	0.5	11.6	
NN08	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.64	77.76	0.83%	14.35%	0.7	12.3	
NN08	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.88	77.76	1.13%	15.48%	1.0	13.3	
NN08	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.19	77.76	0.24%	15.72%	0.2	13.5	
NN08	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.02	77.76	0.03%	15.75%	0.0	13.6	
NN08	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.15	77.76	0.19%	15.94%	0.2	13.7	
NN08	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.69	77.76	0.89%	16.82%	0.8	14.5	
NN08	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.54	77.76	0.70%	17.52%	0.6	15.1	
NN08	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.52	77.76	0.67%	18.19%	0.6	15.7	
NN08	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.29	77.76	0.38%	18.57%	0.3	16.0	
NN08	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.41	77.76	0.53%	19.10%	0.5	16.5	
NN08	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.17	77.76	0.22%	19.32%	0.2	16.7	
NN08	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.88	77.76	1.13%	20.46%	1.0	17.7	
NN08	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.86	77.76	1.11%	21.57%	1.0	18.6	
NN08	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.88	77.76	1.13%	22.70%	1.0	19.6	
NN08	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.61	77.76	0.79%	23.49%	0.7	20.3	
NN08	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.11	77.76	0.15%	23.64%	0.1	20.4	
NN08	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.34	77.76	0.44%	24.07%	0.4	20.8	
NN08	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.59	77.76	0.75%	24.83%	0.7	21.5	
NN08	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.88	77.76	1.13%	25.96%	1.0	22.4	
NN08	Low Density Residence: Less than 6 DU per Acre	63	D	87	1.19	77.76	1.52%	27.49%	1.3	23.8	
NN08	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.24	77.76	0.31%	27.79%	0.3	24.0	
NN08	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.88	77.76	1.13%	28.93%	1.0	25.0	
NN08	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.45	77.76	0.57%	29.50%	0.5	25.5	
NN08	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.00	77.76	0.00%	29.50%	0.0	25.5	
NN08	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.88	77.76	1.13%	30.63%	1.0	26.5	
NN08	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.39	77.76	0.50%	31.13%	0.4	26.9	
NN08	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.53	77.76	0.68%	31.81%	0.6	27.5	
NN08	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.05	77.76	0.06%	31.87%	0.1	27.6	
NN08	Low Density Residence: Less than 6 DU per Acre	67	C	83	0.21	77.76	0.27%	32.14%	0.2	27.8	
NN08	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.69	77.76	0.88%	33.02%	0.8	28.6	
NN08	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.48	77.76	0.62%	33.65%	0.5	29.1	
NN08	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.16	77.76	0.20%	33.85%	0.2	29.3	
NN08	Low Density Residence: Less than 6 DU per Acre	67	C	83	0.62	77.76	0.80%	34.65%	0.7	30.0	
NN08	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.16	77.76	0.20%	34.85%	0.2	30.1	
NN08	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.24	77.76	0.31%	35.16%	0.3	30.4	
NN08	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.15	77.76	0.20%	35.36%	0.2	30.6	
NN08	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.07	77.76	0.09%	35.45%	0.1	30.7	
NN08	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.16	77.76	0.21%	35.66%	0.2	30.8	
NN08	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.44	77.76	0.57%	36.23%	0.5	31.3	
NN08	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.25	77.76	0.32%	36.55%	0.3	31.6	
NN08	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.02	77.76	0.03%	36.58%	0.0	31.6	

NORTH NINTH DRAINAGE BASIN - CURVE NUMBER CALCULATION

BASIN	Land Use Category	SOIL MAP UNIT #	Hydrologic Soil Group	SUBREGION CN	SUBREGION AREA (ACRES)	SUBBASIN AREA (ACRES)	PERCENT OF SUBBASIN	CUMULATIVE PERCENT	AREAL WEIGHTED CN	CUMULATIVE CN	COMPOSITE CN
NN08	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.44	77.76	0.57%	37.15%	0.5	32.1	
NN08	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.08	77.76	0.10%	37.25%	0.1	32.2	
NN08	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.01	77.76	0.01%	37.26%	0.0	32.2	
NN08	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.53	77.76	0.68%	37.94%	0.6	32.8	
NN08	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.53	77.76	0.68%	38.62%	0.6	33.4	
NN08	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.16	77.76	0.21%	38.83%	0.2	33.6	
NN08	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.29	77.76	0.37%	39.20%	0.3	33.9	
NN08	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.03	77.76	0.03%	39.24%	0.0	34.0	
NN08	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.22	77.76	0.28%	39.52%	0.2	34.2	
NN08	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.35	77.76	0.45%	39.96%	0.4	34.6	
NN08	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.35	77.76	0.46%	40.42%	0.4	35.0	
NN08	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.36	77.76	0.46%	40.88%	0.4	35.4	
NN08	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.35	77.76	0.45%	41.33%	0.4	35.8	
NN08	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.04	77.76	0.05%	41.38%	0.0	35.8	
NN08	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.39	77.76	0.50%	41.88%	0.4	36.2	
NN08	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.24	77.76	0.31%	42.19%	0.3	36.5	
NN08	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.26	77.76	0.33%	42.52%	0.3	36.8	
NN08	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.05	77.76	0.06%	42.58%	0.1	36.9	
NN08	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.07	77.76	0.09%	42.68%	0.1	36.9	
NN08	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.08	77.76	0.11%	42.78%	0.1	37.0	
NN08	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.08	77.76	0.10%	42.88%	0.1	37.1	
NN08	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.41	77.76	0.53%	43.42%	0.5	37.6	
NN08	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.24	77.76	0.31%	43.72%	0.3	37.9	
NN08	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.25	77.76	0.32%	44.04%	0.3	38.1	
NN08	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.00	77.76	0.00%	44.04%	0.0	38.1	
NN08	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.04	77.76	0.05%	44.10%	0.0	38.2	
NN08	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.88	77.76	1.14%	45.23%	1.0	39.2	
NN08	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.96	77.76	1.24%	46.47%	1.1	40.2	
NN08	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.98	77.76	1.26%	47.73%	1.1	41.3	
NN08	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.24	77.76	0.31%	48.05%	0.3	41.6	
NN08	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.28	77.76	0.37%	48.41%	0.3	41.9	
NN08	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.86	77.76	1.10%	49.52%	1.0	42.9	
NN08	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.19	77.76	0.24%	49.76%	0.2	43.1	
NN08	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.06	77.76	0.07%	49.83%	0.1	43.2	
NN08	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.49	77.76	0.63%	50.46%	0.5	43.7	
NN08	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.10	77.76	0.12%	50.58%	0.1	43.8	
NN08	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.12	77.76	0.16%	50.74%	0.1	44.0	
NN08	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.13	77.76	0.17%	50.91%	0.2	44.1	
NN08	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.13	77.76	0.17%	51.08%	0.1	44.3	
NN08	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.70	77.76	0.90%	51.99%	0.8	45.0	
NN08	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.53	77.76	0.69%	52.67%	0.6	45.6	
NN08	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.44	77.76	0.56%	53.23%	0.5	46.1	
NN08	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.04	77.76	0.05%	53.28%	0.0	46.2	
NN08	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.24	77.76	0.31%	53.60%	0.3	46.4	
NN08	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.28	77.76	0.35%	53.95%	0.3	46.8	
NN08	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.00	77.76	0.00%	53.95%	0.0	46.8	
NN08	Commercial	67	C	94	0.28	77.76	0.36%	54.31%	0.3	47.1	
NN08	Commercial	63	D	95	7.45	77.76	9.58%	63.89%	9.1	56.2	
NN08	Commercial	59	D	95	0.00	77.76	0.00%	63.89%	0.0	56.2	
NN08	Medium to High Density Res	63	D	93	0.17	77.76	0.22%	64.11%	0.2	56.4	
NN08	Street	63	D	93.1	4.43	77.76	5.69%	69.81%	5.3	61.7	
NN08	Street	67	C	91.35	0.72	77.76	0.93%	70.74%	0.8	62.5	

NORTH NINTH DRAINAGE BASIN - CURVE NUMBER CALCULATION

BASIN	Land Use Category	SOIL MAP UNIT #	Hydrologic Soil Group	SUBREGION CN	SUBREGION AREA (ACRES)	SUBBASIN AREA (ACRES)	PERCENT OF SUBBASIN	CUMULATIVE PERCENT	AREAL WEIGHTED CN	CUMULATIVE CN	COMPOSITE CN
NN08	Street	59	D	93.1	0.01	77.76	0.02%	70.75%	0.0	62.6	
NN08	Street	63	D	93.1	12.08	77.76	15.54%	86.29%	14.5	77.0	
NN08	Street	67	C	91.35	0.09	77.76	0.12%	86.41%	0.1	77.1	
NN08	Street	59	D	93.1	2.74	77.76	3.53%	89.93%	3.3	80.4	
NN08	Street	63	D	93.1	4.92	77.76	6.33%	96.26%	5.9	86.3	
NN08	Street	59	D	93.1	2.90	77.76	3.73%	99.99%	3.5	89.8	
NN08	Street	59	D	93.1	0.00	77.76	0.00%	99.99%	0.0	89.8	
NN08	Street	63	D	93.1	0.00	77.76	0.00%	100.00%	0.0	89.8	
NN08	Street	63	D	93.1	0.00	77.76	0.00%	100.00%	0.0	89.8	**89.8**
NN09	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.49	90.90	0.54%	0.54%	0.5	0.5	
NN09	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.01	90.90	0.01%	0.55%	0.0	0.5	
NN09	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.11	90.90	0.12%	0.67%	0.1	0.6	
NN09	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.26	90.90	0.28%	0.95%	0.2	0.8	
NN09	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.17	90.90	0.19%	1.14%	0.2	1.0	
NN09	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.20	90.90	0.22%	1.36%	0.2	1.2	
NN09	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.46	90.90	0.51%	1.87%	0.4	1.6	
NN09	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.01	90.90	0.01%	1.88%	0.0	1.6	
NN09	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.55	90.90	0.60%	2.48%	0.5	2.2	
NN09	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.08	90.90	0.09%	2.57%	0.1	2.2	
NN09	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.28	90.90	0.31%	2.88%	0.3	2.5	
NN09	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.12	90.90	0.13%	3.01%	0.1	2.6	
NN09	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.13	90.90	0.14%	3.15%	0.1	2.7	
NN09	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.49	90.90	0.54%	3.69%	0.5	3.2	
NN09	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.12	90.90	0.13%	3.82%	0.1	3.3	
NN09	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.12	90.90	0.13%	3.96%	0.1	3.4	
NN09	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.13	90.90	0.14%	4.10%	0.1	3.6	
NN09	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.43	90.90	0.47%	4.57%	0.4	4.0	
NN09	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.12	90.90	0.13%	4.70%	0.1	4.1	
NN09	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.05	90.90	0.06%	4.76%	0.0	4.1	
NN09	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.08	90.90	0.09%	4.85%	0.1	4.2	
NN09	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.07	90.90	0.07%	4.92%	0.1	4.3	
NN09	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.08	90.90	0.09%	5.01%	0.1	4.4	
NN09	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.19	90.90	0.21%	5.22%	0.2	4.5	
NN09	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.82	90.90	0.91%	6.12%	0.8	5.3	
NN09	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.75	90.90	0.83%	6.95%	0.7	6.0	
NN09	Low Density Residence: Less than 6 DU per Acre	83	D	87	0.00	90.90	0.00%	6.95%	0.0	6.0	
NN09	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.62	90.90	0.68%	7.63%	0.6	6.6	
NN09	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.15	90.90	0.17%	7.80%	0.1	6.8	
NN09	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.09	90.90	0.10%	7.90%	0.1	6.9	
NN09	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.43	90.90	0.47%	8.38%	0.4	7.3	
NN09	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.06	90.90	0.07%	8.44%	0.1	7.3	
NN09	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.37	90.90	0.40%	8.85%	0.4	7.7	
NN09	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.50	90.90	0.56%	9.40%	0.5	8.2	
NN09	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.08	90.90	0.09%	9.49%	0.1	8.3	
NN09	Commercial	63	D	95	0.03	90.90	0.03%	9.53%	0.0	8.3	
NN09	Commercial	59	D	95	0.05	90.90	0.06%	9.58%	0.1	8.3	
NN09	Commercial	63	D	95	14.09	90.90	15.50%	25.08%	14.7	23.1	
NN09	Commercial	118	D	95	10.13	90.90	11.15%	36.23%	10.6	33.7	
NN09	Commercial	83	D	95	0.20	90.90	0.22%	36.45%	0.2	33.9	
NN09	Commercial	124	C	94	0.08	90.90	0.08%	36.54%	0.1	33.9	
NN09	Commercial	59	D	95	0.17	90.90	0.19%	36.73%	0.2	34.1	
NN09	Medium to High Density Res	59	D	93	0.12	90.90	0.14%	36.86%	0.1	34.3	

NORTH NINTH DRAINAGE BASIN - CURVE NUMBER CALCULATION

BASIN	Land Use Category	SOIL MAP UNIT #	Hydrologic Soil Group	SUBREGION CN	SUBREGION AREA (ACRES)	SUBBASIN AREA (ACRES)	PERCENT OF SUBBASIN	CUMULATIVE PERCENT	AREAL WEIGHTED CN	CUMULATIVE CN	COMPOSITE CN
NN09	Medium to High Density Res	59	D	93	0.23	90.90	0.25%	37.12%	0.2	34.5	
NN09	Medium to High Density Res	63	D	93	0.14	90.90	0.15%	37.27%	0.1	34.6	
NN09	Wood-Grass Combination (Fair Condition)	63	D	82	3.72	90.90	4.10%	41.37%	3.4	38.0	
NN09	Wood-Grass Combination (Fair Condition)	118	D	82	27.99	90.90	30.80%	72.16%	25.3	63.2	
NN09	Wood-Grass Combination (Fair Condition)	83	D	82	18.30	90.90	20.13%	92.30%	16.5	79.8	
NN09	Street	63	D	93.1	4.12	90.90	4.54%	96.83%	4.2	84.0	
NN09	Street	83	D	93.1	0.12	90.90	0.13%	96.96%	0.1	84.1	
NN09	Street	59	D	93.1	2.72	90.90	2.99%	99.96%	2.8	86.9	
NN09	Street	59	D	93.1	0.04	90.90	0.04%	100.00%	0.0	86.9	
NN09	Street	63	D	93.1	0.00	90.90	0.00%	100.00%	0.0	86.9	**86.9**
NN10	Open Estates: Greater than 1 acre Lots	59	D	84	0.46	117.45	0.39%	0.39%	0.3	0.3	
NN10	Open Estates: Greater than 1 acre Lots	59	D	84	0.24	117.45	0.21%	0.60%	0.2	0.5	
NN10	Open Estates: Greater than 1 acre Lots	59	D	84	0.13	117.45	0.11%	0.71%	0.1	0.6	
NN10	Open Estates: Greater than 1 acre Lots	124	C	79	0.67	117.45	0.57%	1.28%	0.5	1.1	
NN10	Open Estates: Greater than 1 acre Lots	59	D	84	1.96	117.45	1.67%	2.95%	1.4	2.5	
NN10	Open Estates: Greater than 1 acre Lots	59	D	84	0.18	117.45	0.15%	3.11%	0.1	2.6	
NN10	Open Estates: Greater than 1 acre Lots	59	D	84	0.21	117.45	0.18%	3.29%	0.2	2.7	
NN10	Open Estates: Greater than 1 acre Lots	59	D	84	0.24	117.45	0.21%	3.50%	0.2	2.9	
NN10	Open Estates: Greater than 1 acre Lots	59	D	84	0.14	117.45	0.12%	3.61%	0.1	3.0	
NN10	Open Estates: Greater than 1 acre Lots	59	D	84	0.12	117.45	0.10%	3.71%	0.1	3.1	
NN10	Open Estates: Greater than 1 acre Lots	59	D	84	0.12	117.45	0.10%	3.82%	0.1	3.2	
NN10	Open Estates: Greater than 1 acre Lots	59	D	84	0.24	117.45	0.21%	4.02%	0.2	3.4	
NN10	Open Estates: Greater than 1 acre Lots	59	D	84	0.47	117.45	0.40%	4.42%	0.3	3.7	
NN10	Open Estates: Greater than 1 acre Lots	59	D	84	0.42	117.45	0.36%	4.78%	0.3	4.0	
NN10	Open Estates: Greater than 1 acre Lots	59	D	84	0.12	117.45	0.10%	4.89%	0.1	4.1	
NN10	Open Estates: Greater than 1 acre Lots	59	D	84	0.12	117.45	0.10%	4.99%	0.1	4.2	
NN10	Open Estates: Greater than 1 acre Lots	59	D	84	0.03	117.45	0.02%	5.01%	0.0	4.2	
NN10	Open Estates: Greater than 1 acre Lots	59	D	84	0.12	117.45	0.10%	5.12%	0.1	4.3	
NN10	Open Estates: Greater than 1 acre Lots	124	C	79	0.78	117.45	0.66%	5.78%	0.5	4.8	
NN10	Open Estates: Greater than 1 acre Lots	59	D	84	0.18	117.45	0.15%	5.93%	0.1	4.9	
NN10	Open Estates: Greater than 1 acre Lots	59	D	84	1.05	117.45	0.89%	6.83%	0.8	5.7	
NN10	Open Estates: Greater than 1 acre Lots	92	D	84	0.25	117.45	0.21%	7.04%	0.2	5.9	
NN10	Open Estates: Greater than 1 acre Lots	124	C	79	0.02	117.45	0.02%	7.06%	0.0	5.9	
NN10	Open Estates: Greater than 1 acre Lots	59	D	84	0.59	117.45	0.51%	7.56%	0.4	6.3	
NN10	Open Estates: Greater than 1 acre Lots	59	D	84	0.32	117.45	0.28%	7.84%	0.2	6.5	
NN10	Open Estates: Greater than 1 acre Lots	59	D	84	0.38	117.45	0.32%	8.16%	0.3	6.8	
NN10	Open Estates: Greater than 1 acre Lots	59	D	84	0.12	117.45	0.10%	8.27%	0.1	6.9	
NN10	Open Estates: Greater than 1 acre Lots	59	D	84	0.10	117.45	0.09%	8.35%	0.1	7.0	
NN10	Open Estates: Greater than 1 acre Lots	92	D	84	0.03	117.45	0.02%	8.38%	0.0	7.0	
NN10	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.21	117.45	0.18%	8.56%	0.2	7.1	
NN10	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.59	117.45	0.50%	9.06%	0.4	7.6	
NN10	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.13	117.45	0.11%	9.17%	0.1	7.7	
NN10	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.33	117.45	0.28%	9.46%	0.2	7.9	
NN10	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.40	117.45	0.34%	9.80%	0.3	8.2	
NN10	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.04	117.45	0.04%	9.84%	0.0	8.2	
NN10	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.13	117.45	0.11%	9.95%	0.1	8.3	
NN10	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.22	117.45	0.19%	10.14%	0.2	8.5	
NN10	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.76	117.45	0.65%	10.79%	0.6	9.1	
NN10	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.22	117.45	0.19%	10.98%	0.2	9.2	
NN10	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.41	117.45	0.35%	11.33%	0.3	9.5	
NN10	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.12	117.45	0.10%	11.43%	0.1	9.6	
NN10	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.36	117.45	0.31%	11.74%	0.3	9.9	

NORTH NINTH DRAINAGE BASIN - CURVE NUMBER CALCULATION

BASIN	Land Use Category	SOIL MAP UNIT #	Hydrologic Soil Group	SUBREGION CN	SUBREGION AREA (ACRES)	SUBBASIN AREA (ACRES)	PERCENT OF SUBBASIN	CUMULATIVE PERCENT	AREAL WEIGHTED CN	CUMULATIVE CN	COMPOSITE CN
NN10	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.85	117.45	0.72%	12.46%	0.6	10.5	
NN10	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.25	117.45	0.21%	12.67%	0.2	10.7	
NN10	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.05	117.45	0.05%	12.72%	0.0	10.8	
NN10	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.33	117.45	0.28%	13.00%	0.2	11.0	
NN10	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.17	117.45	0.15%	13.14%	0.1	11.1	
NN10	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.36	117.45	0.30%	13.45%	0.3	11.4	
NN10	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.84	117.45	0.72%	14.16%	0.6	12.0	
NN10	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.31	117.45	0.27%	14.43%	0.2	12.2	
NN10	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.01	117.45	0.01%	14.44%	0.0	12.2	
NN10	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.12	117.45	0.10%	14.54%	0.1	12.3	
NN10	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.12	117.45	0.10%	14.65%	0.1	12.4	
NN10	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.11	117.45	0.09%	14.74%	0.1	12.5	
NN10	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.34	117.45	0.29%	15.03%	0.3	12.8	
NN10	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.25	117.45	0.21%	15.24%	0.2	12.9	
NN10	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.36	117.45	0.30%	15.54%	0.3	13.2	
NN10	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.71	117.45	0.60%	16.15%	0.5	13.7	
NN10	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.69	117.45	0.59%	16.73%	0.5	14.2	
NN10	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.96	117.45	0.82%	17.55%	0.7	15.0	
NN10	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.58	117.45	0.50%	18.05%	0.4	15.4	
NN10	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.13	117.45	0.11%	18.16%	0.1	15.5	
NN10	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.94	117.45	0.80%	18.95%	0.7	16.2	
NN10	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.13	117.45	0.11%	19.06%	0.1	16.3	
NN10	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.11	117.45	0.09%	19.15%	0.1	16.3	
NN10	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.12	117.45	0.10%	19.26%	0.1	16.4	
NN10	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.33	117.45	0.28%	19.54%	0.2	16.7	
NN10	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.12	117.45	0.10%	19.64%	0.1	16.8	
NN10	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.54	117.45	0.46%	20.10%	0.4	17.2	
NN10	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.12	117.45	0.10%	20.21%	0.1	17.3	
NN10	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.12	117.45	0.10%	20.31%	0.1	17.4	
NN10	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.24	117.45	0.21%	20.52%	0.2	17.5	
NN10	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.30	117.45	0.26%	20.77%	0.2	17.8	
NN10	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.95	117.45	0.81%	21.58%	0.7	18.5	
NN10	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.98	117.45	0.83%	22.41%	0.7	19.2	
NN10	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.49	117.45	0.41%	22.83%	0.4	19.5	
NN10	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.24	117.45	0.21%	23.03%	0.2	19.7	
NN10	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.25	117.45	0.21%	23.24%	0.2	19.9	
NN10	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.23	117.45	0.20%	23.44%	0.2	20.1	
NN10	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.85	117.45	0.72%	24.16%	0.6	20.7	
NN10	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.13	117.45	0.11%	24.27%	0.1	20.8	
NN10	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.12	117.45	0.10%	24.38%	0.1	20.9	
NN10	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.11	117.45	0.09%	24.47%	0.1	21.0	
NN10	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.06	117.45	0.05%	24.52%	0.0	21.0	
NN10	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.48	117.45	0.41%	24.93%	0.4	21.4	
NN10	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.48	117.45	0.41%	25.34%	0.4	21.7	
NN10	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.59	117.45	0.51%	25.84%	0.4	22.2	
NN10	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.51	117.45	0.44%	26.28%	0.4	22.6	
NN10	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.37	117.45	0.31%	26.60%	0.3	22.8	
NN10	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.63	117.45	0.53%	27.13%	0.5	23.3	
NN10	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.10	117.45	0.08%	27.21%	0.1	23.4	
NN10	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.03	117.45	0.03%	27.24%	0.0	23.4	
NN10	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.01	117.45	0.01%	27.24%	0.0	23.4	
NN10	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.27	117.45	0.23%	27.47%	0.2	23.6	

NORTH NINTH DRAINAGE BASIN - CURVE NUMBER CALCULATION

BASIN	Land Use Category	SOIL MAP UNIT #	Hydrologic Soil Group	SUBREGION CN	SUBREGION AREA (ACRES)	SUBBASIN AREA (ACRES)	PERCENT OF SUBBASIN	CUMULATIVE PERCENT	AREAL WEIGHTED CN	CUMULATIVE CN	COMPOSITE CN
NN10	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.36	117.45	0.31%	27.78%	0.3	23.9	
NN10	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.12	117.45	0.10%	27.89%	0.1	23.9	
NN10	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.61	117.45	0.52%	28.40%	0.4	24.4	
NN10	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.24	117.45	0.21%	28.61%	0.2	24.6	
NN10	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.09	117.45	0.08%	28.69%	0.1	24.6	
NN10	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.46	117.45	0.39%	29.08%	0.3	25.0	
NN10	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.61	117.45	0.52%	29.59%	0.4	25.4	
NN10	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.15	117.45	0.13%	29.72%	0.1	25.5	
NN10	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.24	117.45	0.21%	29.93%	0.2	25.7	
NN10	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.12	117.45	0.10%	30.03%	0.1	25.8	
NN10	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.12	117.45	0.10%	30.14%	0.1	25.9	
NN10	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.12	117.45	0.10%	30.24%	0.1	26.0	
NN10	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.11	117.45	0.10%	30.34%	0.1	26.1	
NN10	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.24	117.45	0.21%	30.54%	0.2	26.3	
NN10	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.12	117.45	0.10%	30.65%	0.1	26.3	
NN10	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.12	117.45	0.10%	30.75%	0.1	26.4	
NN10	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.04	117.45	0.03%	30.78%	0.0	26.5	
NN10	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.12	117.45	0.10%	30.88%	0.1	26.6	
NN10	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.08	117.45	0.07%	30.95%	0.1	26.6	
NN10	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.18	117.45	0.15%	31.10%	0.1	26.7	
NN10	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.12	117.45	0.10%	31.20%	0.1	26.8	
NN10	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.12	117.45	0.10%	31.31%	0.1	26.9	
NN10	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.12	117.45	0.10%	31.41%	0.1	27.0	
NN10	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.06	117.45	0.05%	31.46%	0.0	27.1	
NN10	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.18	117.45	0.15%	31.62%	0.1	27.2	
NN10	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.12	117.45	0.10%	31.72%	0.1	27.3	
NN10	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.21	117.45	0.18%	31.90%	0.2	27.4	
NN10	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.12	117.45	0.11%	32.01%	0.1	27.5	
NN10	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.08	117.45	0.07%	32.07%	0.1	27.6	
NN10	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.00	117.45	0.00%	32.07%	0.0	27.6	
NN10	Commercial	59	D	95	0.12	117.45	0.10%	32.18%	0.1	27.7	
NN10	Commercial	59	D	95	0.24	117.45	0.21%	32.38%	0.2	27.9	
NN10	Commercial	59	D	95	0.24	117.45	0.21%	32.59%	0.2	28.1	
NN10	Commercial	59	D	95	0.24	117.45	0.21%	32.80%	0.2	28.3	
NN10	Commercial	59	D	95	0.24	117.45	0.21%	33.01%	0.2	28.5	
NN10	Commercial	59	D	95	0.24	117.45	0.21%	33.21%	0.2	28.7	
NN10	Commercial	59	D	95	0.12	117.45	0.10%	33.32%	0.1	28.8	
NN10	Commercial	59	D	95	0.12	117.45	0.10%	33.42%	0.1	28.9	
NN10	Commercial	59	D	95	0.10	117.45	0.09%	33.50%	0.1	28.9	
NN10	Commercial	59	D	95	0.61	117.45	0.52%	34.03%	0.5	29.4	
NN10	Commercial	59	D	95	0.57	117.45	0.49%	34.52%	0.5	29.9	
NN10	Commercial	59	D	95	0.24	117.45	0.20%	34.72%	0.2	30.1	
NN10	Commercial	59	D	95	0.25	117.45	0.21%	34.93%	0.2	30.3	
NN10	Commercial	59	D	95	0.23	117.45	0.20%	35.13%	0.2	30.5	
NN10	Commercial	59	D	95	0.48	117.45	0.41%	35.54%	0.4	30.9	
NN10	Commercial	59	D	95	0.12	117.45	0.10%	35.64%	0.1	31.0	
NN10	Commercial	59	D	95	0.12	117.45	0.10%	35.75%	0.1	31.1	
NN10	Commercial	59	D	95	0.09	117.45	0.08%	35.83%	0.1	31.2	
NN10	Commercial	59	D	95	0.12	117.45	0.10%	35.93%	0.1	31.3	
NN10	Commercial	59	D	95	0.01	117.45	0.01%	35.94%	0.0	31.3	
NN10	Commercial	59	D	95	0.12	117.45	0.10%	36.04%	0.1	31.4	
NN10	Commercial	59	D	95	0.49	117.45	0.41%	36.46%	0.4	31.8	

NORTH NINTH DRAINAGE BASIN - CURVE NUMBER CALCULATION

BASIN	Land Use Category	SOIL MAP UNIT #	Hydrologic Soil Group	SUBREGION CN	SUBREGION AREA (ACRES)	SUBBASIN AREA (ACRES)	PERCENT OF SUBBASIN	CUMULATIVE PERCENT	AREAL WEIGHTED CN	CUMULATIVE CN	COMPOSITE CN
NN10	Commercial	59	D	95	0.37	117.45	0.32%	36.77%	0.3	32.1	
NN10	Commercial	59	D	95	0.36	117.45	0.31%	37.08%	0.3	32.3	
NN10	Commercial	59	D	95	0.05	117.45	0.05%	37.13%	0.0	32.4	
NN10	Commercial	59	D	95	0.48	117.45	0.41%	37.54%	0.4	32.8	
NN10	Commercial	59	D	95	0.48	117.45	0.41%	37.95%	0.4	33.2	
NN10	Commercial	59	D	95	0.18	117.45	0.15%	38.11%	0.1	33.3	
NN10	Commercial	59	D	95	0.06	117.45	0.05%	38.16%	0.0	33.4	
NN10	Commercial	59	D	95	0.73	117.45	0.62%	38.78%	0.6	34.0	
NN10	Commercial	59	D	95	0.36	117.45	0.31%	39.09%	0.3	34.3	
NN10	Commercial	59	D	95	0.25	117.45	0.21%	39.30%	0.2	34.5	
NN10	Commercial	59	D	95	0.12	117.45	0.10%	39.41%	0.1	34.6	
NN10	Commercial	59	D	95	0.21	117.45	0.18%	39.59%	0.2	34.7	
NN10	Commercial	59	D	95	0.12	117.45	0.10%	39.69%	0.1	34.8	
NN10	Commercial	59	D	95	0.12	117.45	0.10%	39.79%	0.1	34.9	
NN10	Commercial	59	D	95	0.12	117.45	0.11%	39.90%	0.1	35.0	
NN10	Commercial	59	D	95	0.39	117.45	0.33%	40.23%	0.3	35.3	
NN10	Commercial	59	D	95	0.09	117.45	0.07%	40.30%	0.1	35.4	
NN10	Commercial	59	D	95	0.99	117.45	0.84%	41.15%	0.8	36.2	
NN10	Commercial	59	D	95	0.24	117.45	0.21%	41.35%	0.2	36.4	
NN10	Commercial	59	D	95	0.24	117.45	0.21%	41.56%	0.2	36.6	
NN10	Commercial	59	D	95	0.12	117.45	0.10%	41.66%	0.1	36.7	
NN10	Commercial	59	D	95	0.12	117.45	0.10%	41.76%	0.1	36.8	
NN10	Commercial	59	D	95	0.12	117.45	0.10%	41.87%	0.1	36.9	
NN10	Commercial	59	D	95	0.12	117.45	0.10%	41.97%	0.1	37.0	
NN10	Commercial	59	D	95	0.12	117.45	0.10%	42.07%	0.1	37.1	
NN10	Commercial	59	D	95	0.12	117.45	0.10%	42.18%	0.1	37.2	
NN10	Commercial	59	D	95	0.12	117.45	0.10%	42.28%	0.1	37.3	
NN10	Commercial	59	D	95	0.18	117.45	0.15%	42.44%	0.1	37.4	
NN10	Commercial	59	D	95	0.36	117.45	0.31%	42.75%	0.3	37.7	
NN10	Commercial	59	D	95	0.18	117.45	0.15%	42.90%	0.1	37.9	
NN10	Commercial	59	D	95	0.12	117.45	0.10%	43.00%	0.1	38.0	
NN10	Commercial	59	D	95	0.38	117.45	0.32%	43.33%	0.3	38.3	
NN10	Commercial	59	D	95	0.48	117.45	0.41%	43.74%	0.4	38.7	
NN10	Commercial	59	D	95	0.12	117.45	0.10%	43.84%	0.1	38.8	
NN10	Commercial	59	D	95	0.12	117.45	0.10%	43.95%	0.1	38.9	
NN10	Commercial	59	D	95	0.24	117.45	0.21%	44.15%	0.2	39.1	
NN10	Commercial	59	D	95	0.36	117.45	0.31%	44.46%	0.3	39.4	
NN10	Commercial	59	D	95	0.73	117.45	0.62%	45.08%	0.6	39.9	
NN10	Commercial	59	D	95	0.73	117.45	0.62%	45.70%	0.6	40.5	
NN10	Commercial	59	D	95	0.24	117.45	0.21%	45.91%	0.2	40.7	
NN10	Commercial	59	D	95	0.12	117.45	0.10%	46.01%	0.1	40.8	
NN10	Commercial	59	D	95	0.06	117.45	0.05%	46.06%	0.0	40.9	
NN10	Commercial	59	D	95	0.12	117.45	0.10%	46.16%	0.1	41.0	
NN10	Commercial	59	D	95	0.12	117.45	0.10%	46.27%	0.1	41.1	
NN10	Commercial	59	D	95	0.12	117.45	0.10%	46.37%	0.1	41.2	
NN10	Commercial	59	D	95	0.24	117.45	0.21%	46.58%	0.2	41.4	
NN10	Commercial	59	D	95	0.12	117.45	0.10%	46.68%	0.1	41.5	
NN10	Commercial	59	D	95	2.07	117.45	1.76%	48.44%	1.7	43.1	
NN10	Commercial	124	C	94	1.08	117.45	0.92%	49.36%	0.9	44.0	
NN10	Commercial	59	D	95	0.26	117.45	0.22%	49.59%	0.2	44.2	
NN10	Commercial	124	C	94	0.02	117.45	0.02%	49.60%	0.0	44.2	
NN10	Commercial	59	D	95	0.48	117.45	0.41%	50.01%	0.4	44.6	

NORTH NINTH DRAINAGE BASIN - CURVE NUMBER CALCULATION

BASIN	Land Use Category	SOIL MAP UNIT #	Hydrologic Soil Group	SUBREGION CN	SUBREGION AREA (ACRES)	SUBBASIN AREA (ACRES)	PERCENT OF SUBBASIN	CUMULATIVE PERCENT	AREAL WEIGHTED CN	CUMULATIVE CN	COMPOSITE CN
NN10	Commercial	59	D	95	0.24	117.45	0.21%	50.22%	0.2	44.8	
NN10	Commercial	59	D	95	0.34	117.45	0.29%	50.51%	0.3	45.1	
NN10	Commercial	59	D	95	0.12	117.45	0.11%	50.62%	0.1	45.2	
NN10	Commercial	59	D	95	0.13	117.45	0.11%	50.73%	0.1	45.3	
NN10	Commercial	59	D	95	0.12	117.45	0.10%	50.83%	0.1	45.4	
NN10	Commercial	59	D	95	0.22	117.45	0.19%	51.02%	0.2	45.6	
NN10	Commercial	59	D	95	1.30	117.45	1.10%	52.12%	1.0	46.6	
NN10	Commercial	59	D	95	1.03	117.45	0.88%	53.00%	0.8	47.5	
NN10	Commercial	92	D	95	0.00	117.45	0.00%	53.00%	0.0	47.5	
NN10	Commercial	124	C	94	0.07	117.45	0.06%	53.06%	0.1	47.5	
NN10	Commercial	59	D	95	0.02	117.45	0.02%	53.08%	0.0	47.5	
NN10	Commercial	92	D	95	1.40	117.45	1.19%	54.27%	1.1	48.7	
NN10	Commercial	59	D	95	1.52	117.45	1.29%	55.56%	1.2	49.9	
NN10	Commercial	59	D	95	0.66	117.45	0.56%	56.12%	0.5	50.4	
NN10	Commercial	59	D	95	0.35	117.45	0.30%	56.42%	0.3	50.7	
NN10	Commercial	92	D	95	0.72	117.45	0.61%	57.04%	0.6	51.3	
NN10	Commercial	59	D	95	1.63	117.45	1.39%	58.42%	1.3	52.6	
NN10	Commercial	92	D	95	0.33	117.45	0.28%	58.71%	0.3	52.9	
NN10	Commercial	59	D	95	0.28	117.45	0.24%	58.94%	0.2	53.1	
NN10	Commercial	92	D	95	0.16	117.45	0.14%	59.08%	0.1	53.2	
NN10	Medium to High Density Res	59	D	93	0.32	117.45	0.27%	59.36%	0.3	53.5	
NN10	Medium to High Density Res	59	D	93	0.49	117.45	0.42%	59.78%	0.4	53.9	
NN10	Medium to High Density Res	59	D	93	0.12	117.45	0.11%	59.88%	0.1	54.0	
NN10	Medium to High Density Res	59	D	93	0.14	117.45	0.12%	60.00%	0.1	54.1	
NN10	Medium to High Density Res	59	D	93	0.12	117.45	0.10%	60.11%	0.1	54.2	
NN10	Medium to High Density Res	59	D	93	0.12	117.45	0.10%	60.21%	0.1	54.3	
NN10	Medium to High Density Res	59	D	93	0.13	117.45	0.11%	60.32%	0.1	54.4	
NN10	Medium to High Density Res	59	D	93	0.24	117.45	0.21%	60.53%	0.2	54.6	
NN10	Medium to High Density Res	59	D	93	0.36	117.45	0.31%	60.84%	0.3	54.9	
NN10	Medium to High Density Res	59	D	93	0.04	117.45	0.03%	60.87%	0.0	54.9	
NN10	Medium to High Density Res	59	D	93	0.01	117.45	0.01%	60.88%	0.0	54.9	
NN10	Medium to High Density Res	59	D	93	0.07	117.45	0.06%	60.94%	0.1	55.0	
NN10	Medium to High Density Res	59	D	93	0.24	117.45	0.21%	61.15%	0.2	55.2	
NN10	Medium to High Density Res	59	D	93	0.14	117.45	0.12%	61.27%	0.1	55.3	
NN10	Medium to High Density Res	59	D	93	0.24	117.45	0.20%	61.47%	0.2	55.5	
NN10	Medium to High Density Res	59	D	93	0.13	117.45	0.11%	61.58%	0.1	55.6	
NN10	Medium to High Density Res	59	D	93	0.12	117.45	0.10%	61.68%	0.1	55.7	
NN10	Wood-Grass Combination (Fair Condition)	59	D	82	0.03	117.45	0.02%	61.70%	0.0	55.7	
NN10	Street	59	D	93.1	0.27	117.45	0.23%	61.93%	0.2	55.9	
NN10	Street	59	D	93.1	18.65	117.45	15.88%	77.81%	14.8	70.7	
NN10	Street	59	D	93.1	0.11	117.45	0.09%	77.90%	0.1	70.8	
NN10	Street	59	D	93.1	0.12	117.45	0.10%	78.00%	0.1	70.8	
NN10	Street	59	D	93.1	0.10	117.45	0.09%	78.09%	0.1	70.9	
NN10	Street	59	D	93.1	19.76	117.45	16.82%	94.91%	15.7	86.6	
NN10	Street	131	water	93.1	0.01	117.45	0.01%	94.92%	0.0	86.6	
NN10	Street	124	C	91.35	0.02	117.45	0.01%	94.94%	0.0	86.6	
NN10	Street	59	D	93.1	0.02	117.45	0.02%	94.95%	0.0	86.6	
NN10	Street	59	D	93.1	0.21	117.45	0.18%	95.13%	0.2	86.8	
NN10	Street	59	D	93.1	0.05	117.45	0.04%	95.17%	0.0	86.8	
NN10	Street	92	D	93.1	0.07	117.45	0.06%	95.23%	0.1	86.9	
NN10	Street	59	D	93.1	5.60	117.45	4.77%	100.00%	4.4	91.3	
NN10	Street	59	D	93.1	0.00	117.45	0.00%	100.00%	0.0	91.3	**91.3**

NORTH NINTH DRAINAGE BASIN - CURVE NUMBER CALCULATION

BASIN	Land Use Category	SOIL MAP UNIT #	Hydrologic Soil Group	SUBREGION CN	SUBREGION AREA (ACRES)	SUBBASIN AREA (ACRES)	PERCENT OF SUBBASIN	CUMULATIVE PERCENT	AREAL WEIGHTED CN	CUMULATIVE CN	COMPOSITE CN
NN11	Open Estates: Greater than 1 acre Lots	59	D	84	0.24	110.41	0.22%	0.22%	0.2	0.2	
NN11	Open Estates: Greater than 1 acre Lots	59	D	84	0.15	110.41	0.13%	0.35%	0.1	0.3	
NN11	Open Estates: Greater than 1 acre Lots	59	D	84	0.09	110.41	0.09%	0.44%	0.1	0.4	
NN11	Open Estates: Greater than 1 acre Lots	59	D	84	0.30	110.41	0.27%	0.70%	0.2	0.6	
NN11	Open Estates: Greater than 1 acre Lots	124	C	79	1.53	110.41	1.39%	2.09%	1.1	1.7	
NN11	Open Estates: Greater than 1 acre Lots	124	C	79	2.31	110.41	2.09%	4.18%	1.7	3.3	
NN11	Open Estates: Greater than 1 acre Lots	124	C	79	0.39	110.41	0.35%	4.53%	0.3	3.6	
NN11	Open Estates: Greater than 1 acre Lots	59	D	84	0.00	110.41	0.00%	4.54%	0.0	3.6	
NN11	Open Estates: Greater than 1 acre Lots	131	water	84	0.19	110.41	0.17%	4.71%	0.1	3.8	
NN11	Open Estates: Greater than 1 acre Lots	124	C	79	2.44	110.41	2.21%	6.92%	1.7	5.5	
NN11	Open Estates: Greater than 1 acre Lots	124	C	79	0.18	110.41	0.16%	7.08%	0.1	5.6	
NN11	Open Estates: Greater than 1 acre Lots	124	C	79	5.20	110.41	4.71%	11.78%	3.7	9.4	
NN11	Open Estates: Greater than 1 acre Lots	59	D	84	0.19	110.41	0.17%	11.95%	0.1	9.5	
NN11	Open Estates: Greater than 1 acre Lots	124	C	79	0.19	110.41	0.17%	12.13%	0.1	9.6	
NN11	Open Estates: Greater than 1 acre Lots	59	D	84	0.04	110.41	0.03%	12.16%	0.0	9.7	
NN11	Open Estates: Greater than 1 acre Lots	124	C	79	0.00	110.41	0.00%	12.16%	0.0	9.7	
NN11	Open Estates: Greater than 1 acre Lots	59	D	84	0.14	110.41	0.12%	12.29%	0.1	9.8	
NN11	Open Estates: Greater than 1 acre Lots	59	D	84	0.18	110.41	0.17%	12.45%	0.1	9.9	
NN11	Open Estates: Greater than 1 acre Lots	59	D	84	0.24	110.41	0.22%	12.67%	0.2	10.1	
NN11	Open Estates: Greater than 1 acre Lots	124	C	79	0.00	110.41	0.00%	12.67%	0.0	10.1	
NN11	Open Estates: Greater than 1 acre Lots	124	C	79	0.00	110.41	0.00%	12.67%	0.0	10.1	
NN11	Open Estates: Greater than 1 acre Lots	124	C	79	0.00	110.41	0.00%	12.67%	0.0	10.1	
NN11	Open Estates: Greater than 1 acre Lots	124	C	79	0.00	110.41	0.00%	12.67%	0.0	10.1	
NN11	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.17	110.41	0.16%	12.83%	0.1	10.2	
NN11	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.37	110.41	0.33%	13.16%	0.3	10.5	
NN11	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.12	110.41	0.11%	13.27%	0.1	10.6	
NN11	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.01	110.41	0.01%	13.28%	0.0	10.6	
NN11	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.18	110.41	0.16%	13.45%	0.1	10.8	
NN11	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.52	110.41	0.47%	13.92%	0.4	11.2	
NN11	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.30	110.41	0.27%	14.19%	0.2	11.4	
NN11	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.06	110.41	0.06%	14.25%	0.0	11.5	
NN11	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.13	110.41	0.12%	14.37%	0.1	11.6	
NN11	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.08	110.41	0.07%	14.44%	0.1	11.6	
NN11	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.12	110.41	0.11%	14.55%	0.1	11.7	
NN11	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.08	110.41	0.08%	14.62%	0.1	11.8	
NN11	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.26	110.41	0.23%	14.86%	0.2	12.0	
NN11	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.06	110.41	0.06%	14.91%	0.0	12.0	
NN11	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.36	110.41	0.33%	15.24%	0.3	12.3	
NN11	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.61	110.41	0.55%	15.79%	0.5	12.8	
NN11	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.02	110.41	0.02%	15.81%	0.0	12.8	
NN11	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.18	110.41	0.16%	15.97%	0.1	13.0	
NN11	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.19	110.41	0.17%	16.14%	0.1	13.1	
NN11	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.42	110.41	0.38%	16.52%	0.3	13.4	
NN11	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.11	110.41	0.10%	16.62%	0.1	13.5	
NN11	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.12	110.41	0.11%	16.73%	0.1	13.6	
NN11	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.06	110.41	0.05%	16.78%	0.0	13.7	
NN11	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.18	110.41	0.16%	16.94%	0.1	13.8	
NN11	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.12	110.41	0.11%	17.05%	0.1	13.9	
NN11	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.12	110.41	0.11%	17.16%	0.1	14.0	
NN11	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.12	110.41	0.11%	17.27%	0.1	14.1	
NN11	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.08	110.41	0.07%	17.34%	0.1	14.2	
NN11	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.13	110.41	0.12%	17.46%	0.1	14.3	

NORTH NINTH DRAINAGE BASIN - CURVE NUMBER CALCULATION

BASIN	Land Use Category	SOIL MAP UNIT #	Hydrologic Soil Group	SUBREGION CN	SUBREGION AREA (ACRES)	SUBBASIN AREA (ACRES)	PERCENT OF SUBBASIN	CUMULATIVE PERCENT	AREAL WEIGHTED CN	CUMULATIVE CN	COMPOSITE CN
NN11	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.12	110.41	0.11%	17.57%	0.1	14.3	
NN11	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.10	110.41	0.09%	17.66%	0.1	14.4	
NN11	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.21	110.41	0.19%	17.85%	0.2	14.6	
NN11	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.24	110.41	0.22%	18.07%	0.2	14.8	
NN11	Commercial	59	D	95	0.35	110.41	0.32%	18.39%	0.3	15.1	
NN11	Commercial	59	D	95	0.50	110.41	0.45%	18.84%	0.4	15.5	
NN11	Commercial	59	D	95	0.07	110.41	0.06%	18.90%	0.1	15.6	
NN11	Commercial	59	D	95	0.14	110.41	0.12%	19.03%	0.1	15.7	
NN11	Commercial	59	D	95	0.14	110.41	0.12%	19.15%	0.1	15.8	
NN11	Commercial	59	D	95	0.09	110.41	0.08%	19.24%	0.1	15.9	
NN11	Commercial	59	D	95	0.12	110.41	0.11%	19.35%	0.1	16.0	
NN11	Commercial	59	D	95	0.06	110.41	0.06%	19.40%	0.1	16.1	
NN11	Commercial	59	D	95	0.12	110.41	0.11%	19.52%	0.1	16.2	
NN11	Commercial	59	D	95	0.12	110.41	0.11%	19.62%	0.1	16.3	
NN11	Commercial	59	D	95	0.12	110.41	0.11%	19.73%	0.1	16.4	
NN11	Commercial	59	D	95	0.12	110.41	0.11%	19.84%	0.1	16.5	
NN11	Commercial	59	D	95	0.06	110.41	0.05%	19.89%	0.0	16.5	
NN11	Commercial	59	D	95	0.30	110.41	0.27%	20.16%	0.3	16.8	
NN11	Commercial	59	D	95	0.23	110.41	0.21%	20.37%	0.2	17.0	
NN11	Commercial	59	D	95	0.25	110.41	0.22%	20.59%	0.2	17.2	
NN11	Commercial	59	D	95	0.12	110.41	0.11%	20.70%	0.1	17.3	
NN11	Commercial	59	D	95	0.12	110.41	0.11%	20.81%	0.1	17.4	
NN11	Commercial	59	D	95	0.06	110.41	0.06%	20.87%	0.1	17.4	
NN11	Commercial	59	D	95	0.12	110.41	0.11%	20.98%	0.1	17.6	
NN11	Commercial	59	D	95	0.48	110.41	0.44%	21.42%	0.4	18.0	
NN11	Commercial	59	D	95	0.12	110.41	0.11%	21.53%	0.1	18.1	
NN11	Commercial	59	D	95	0.18	110.41	0.16%	21.69%	0.2	18.2	
NN11	Commercial	59	D	95	0.28	110.41	0.26%	21.95%	0.2	18.5	
NN11	Commercial	59	D	95	0.37	110.41	0.34%	22.28%	0.3	18.8	
NN11	Commercial	59	D	95	0.12	110.41	0.11%	22.39%	0.1	18.9	
NN11	Commercial	59	D	95	0.34	110.41	0.31%	22.69%	0.3	19.2	
NN11	Commercial	59	D	95	0.30	110.41	0.27%	22.97%	0.3	19.4	
NN11	Commercial	124	C	94	0.39	110.41	0.36%	23.32%	0.3	19.8	
NN11	Commercial	131	water	95	0.34	110.41	0.30%	23.63%	0.3	20.1	
NN11	Commercial	124	C	94	14.39	110.41	13.03%	36.66%	12.2	32.3	
NN11	Commercial	63	D	95	3.78	110.41	3.43%	40.08%	3.3	35.6	
NN11	Commercial	124	C	94	9.67	110.41	8.75%	48.84%	8.2	43.8	
NN11	Commercial	59	D	95	6.11	110.41	5.54%	54.37%	5.3	49.1	
NN11	Commercial	63	D	95	0.07	110.41	0.06%	54.44%	0.1	49.1	
NN11	Commercial	124	C	94	0.04	110.41	0.03%	54.47%	0.0	49.1	
NN11	Commercial	59	D	95	0.00	110.41	0.00%	54.47%	0.0	49.1	
NN11	Commercial	124	C	94	0.15	110.41	0.14%	54.61%	0.1	49.3	
NN11	Commercial	59	D	95	0.30	110.41	0.27%	54.89%	0.3	49.5	
NN11	Commercial	59	D	95	0.12	110.41	0.11%	54.99%	0.1	49.6	
NN11	Commercial	124	C	94	1.09	110.41	0.99%	55.98%	0.9	50.6	
NN11	Commercial	124	C	94	0.15	110.41	0.14%	56.12%	0.1	50.7	
NN11	Commercial	59	D	95	1.00	110.41	0.91%	57.03%	0.9	51.6	
NN11	Commercial	59	D	95	0.28	110.41	0.25%	57.28%	0.2	51.8	
NN11	Commercial	124	C	94	0.41	110.41	0.37%	57.65%	0.3	52.1	
NN11	Commercial	124	C	94	0.30	110.41	0.27%	57.91%	0.3	52.4	
NN11	Commercial	124	C	94	1.02	110.41	0.92%	58.84%	0.9	53.3	
NN11	Commercial	131	water	95	0.04	110.41	0.04%	58.88%	0.0	53.3	

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BASIN	Land Use Category	SOIL MAP UNIT #	Hydrologic Soil Group	SUBREGION CN	SUBREGION AREA (ACRES)	SUBBASIN AREA (ACRES)	PERCENT OF SUBBASIN	CUMULATIVE PERCENT	AREAL WEIGHTED CN	CUMULATIVE CN	COMPOSITE CN
NN11	Commercial	124	C	94	2.21	110.41	2.00%	60.88%	1.9	55.2	
NN11	Commercial	124	C	94	0.42	110.41	0.38%	61.26%	0.4	55.5	
NN11	Commercial	59	D	95	0.68	110.41	0.62%	61.88%	0.6	56.1	
NN11	Commercial	59	D	95	0.05	110.41	0.05%	61.92%	0.0	56.2	
NN11	Commercial	59	D	95	0.24	110.41	0.21%	62.14%	0.2	56.4	
NN11	Commercial	59	D	95	0.12	110.41	0.11%	62.25%	0.1	56.5	
NN11	Commercial	124	C	94	0.03	110.41	0.03%	62.27%	0.0	56.5	
NN11	Commercial	59	D	95	0.56	110.41	0.51%	62.78%	0.5	57.0	
NN11	Commercial	59	D	95	0.11	110.41	0.10%	62.88%	0.1	57.1	
NN11	Commercial	59	D	95	0.18	110.41	0.16%	63.05%	0.2	57.2	
NN11	Commercial	124	C	94	0.35	110.41	0.31%	63.36%	0.3	57.5	
NN11	Commercial	59	D	95	0.07	110.41	0.06%	63.42%	0.1	57.6	
NN11	Commercial	124	C	94	0.32	110.41	0.29%	63.71%	0.3	57.9	
NN11	Commercial	59	D	95	0.77	110.41	0.70%	64.41%	0.7	58.5	
NN11	Commercial	124	C	94	0.06	110.41	0.05%	64.46%	0.0	58.6	
NN11	Commercial	59	D	95	0.23	110.41	0.21%	64.66%	0.2	58.8	
NN11	Commercial	124	C	94	0.66	110.41	0.60%	65.26%	0.6	59.3	
NN11	Commercial	59	D	95	1.09	110.41	0.99%	66.25%	0.9	60.3	
NN11	Commercial	124	C	94	0.63	110.41	0.57%	66.82%	0.5	60.8	
NN11	Commercial	131	water	95	0.00	110.41	0.00%	66.82%	0.0	60.8	
NN11	Commercial	124	C	94	0.50	110.41	0.45%	67.27%	0.4	61.2	
NN11	Commercial	124	C	94	0.00	110.41	0.00%	67.27%	0.0	61.2	
NN11	Medium to High Density Res	59	D	93	0.15	110.41	0.14%	67.41%	0.1	61.4	
NN11	Medium to High Density Res	59	D	93	0.32	110.41	0.29%	67.70%	0.3	61.6	
NN11	Medium to High Density Res	59	D	93	0.25	110.41	0.23%	67.93%	0.2	61.8	
NN11	Medium to High Density Res	59	D	93	0.17	110.41	0.15%	68.08%	0.1	62.0	
NN11	Medium to High Density Res	59	D	93	0.16	110.41	0.15%	68.22%	0.1	62.1	
NN11	Medium to High Density Res	59	D	93	0.18	110.41	0.16%	68.39%	0.2	62.3	
NN11	Medium to High Density Res	59	D	93	0.16	110.41	0.15%	68.53%	0.1	62.4	
NN11	Medium to High Density Res	59	D	93	0.36	110.41	0.33%	68.86%	0.3	62.7	
NN11	Medium to High Density Res	59	D	93	0.48	110.41	0.43%	69.30%	0.4	63.1	
NN11	Medium to High Density Res	59	D	93	0.48	110.41	0.44%	69.74%	0.4	63.5	
NN11	Medium to High Density Res	59	D	93	0.24	110.41	0.22%	69.96%	0.2	63.7	
NN11	Street	59	D	93.1	0.59	110.41	0.54%	70.49%	0.5	64.2	
NN11	Street	63	D	93.1	0.17	110.41	0.15%	70.64%	0.1	64.4	
NN11	Street	124	C	91.35	8.29	110.41	7.51%	78.15%	6.9	71.2	
NN11	Street	59	D	93.1	9.61	110.41	8.70%	86.85%	8.1	79.3	
NN11	Street	124	C	91.35	0.11	110.41	0.10%	86.95%	0.1	79.4	
NN11	Street	59	D	93.1	0.15	110.41	0.14%	87.09%	0.1	79.5	
NN11	Street	124	C	91.35	0.47	110.41	0.43%	87.51%	0.4	79.9	
NN11	Street	59	D	93.1	0.06	110.41	0.05%	87.57%	0.1	80.0	
NN11	Street	131	water	93.1	0.01	110.41	0.01%	87.57%	0.0	80.0	
NN11	Street	124	C	91.35	0.05	110.41	0.04%	87.62%	0.0	80.0	
NN11	Street	131	water	93.1	0.00	110.41	0.00%	87.62%	0.0	80.0	
NN11	Street	124	C	91.35	8.16	110.41	7.39%	95.01%	6.8	86.8	
NN11	Street	59	D	93.1	5.51	110.41	4.99%	100.00%	4.6	91.4	
NN11	Street	124	C	91.35	0.00	110.41	0.00%	100.00%	0.0	91.4	
NN11	Street	124	C	91.35	0.00	110.41	0.00%	100.00%	0.0	91.4	**91.4**

NORTH NINTH DRAINAGE BASIN - CURVE NUMBER CALCULATION

BASIN	Land Use Category	SOIL MAP UNIT #	Hydrologic Soil Group	SUBREGION CN	SUBREGION AREA (ACRES)	SUBBASIN AREA (ACRES)	PERCENT OF SUBBASIN	CUMULATIVE PERCENT	AREAL WEIGHTED CN	CUMULATIVE CN	COMPOSITE CN
NN01	Agriculture	118	D	80	11.18	78.68	14.21%	14.21%	11.4	11.4	
NN01	Agriculture	83	D	80	26.83	78.68	34.10%	48.31%	27.3	38.7	
NN01	Agriculture	66	B	61	0.22	78.68	0.28%	48.59%	0.2	38.8	
NN01	Agriculture	65	B	61	5.07	78.68	6.45%	55.04%	3.9	42.8	
NN01	Low Density Residence: Less than 6 DU per Acre	118	D	87	7.63	78.68	9.70%	64.74%	8.4	51.2	
NN01	Low Density Residence: Less than 6 DU per Acre	83	D	87	0.26	78.68	0.33%	65.08%	0.3	51.5	
NN01	Low Density Residence: Less than 6 DU per Acre	118	D	87	1.67	78.68	2.13%	67.21%	1.8	53.3	
NN01	Low Density Residence: Less than 6 DU per Acre	83	D	87	6.53	78.68	8.30%	75.50%	7.2	60.6	
NN01	Low Density Residence: Less than 6 DU per Acre	66	B	75	11.11	78.68	14.12%	89.62%	10.6	71.1	
NN01	Low Density Residence: Less than 6 DU per Acre	65	B	75	0.24	78.68	0.30%	89.92%	0.2	71.4	
NN01	Low Density Residence: Less than 6 DU per Acre	66	B	75	0.03	78.68	0.04%	89.96%	0.0	71.4	
NN01	Medium to High Density Res	66	B	88	3.35	78.68	4.26%	94.22%	3.7	75.1	
NN01	Open Estates: Greater than 1 acre Lots	118	D	84	0.03	78.68	0.04%	94.26%	0.0	75.2	
NN01	Open Estates: Greater than 1 acre Lots	83	D	84	0.09	78.68	0.11%	94.37%	0.1	75.3	
NN01	Open Estates: Greater than 1 acre Lots	65	B	68	0.00	78.68	0.00%	94.37%	0.0	75.3	
NN01	Street	83	D	93.1	0.18	78.68	0.23%	94.60%	0.2	75.5	
NN01	Street	66	B	87.5	4.23	78.68	5.38%	99.97%	4.7	80.2	**80.2**
NN02	Agriculture	118	D	80	3.12	68.32	4.57%	4.57%	3.7	3.7	
NN02	Agriculture	83	D	80	8.08	68.32	11.82%	16.39%	9.5	13.1	
NN02	Agriculture	72	D	80	1.78	68.32	2.61%	19.00%	2.1	15.2	
NN02	Low Density Residence: Less than 6 DU per Acre	118	D	87	2.52	68.32	3.70%	22.70%	3.2	18.4	
NN02	Low Density Residence: Less than 6 DU per Acre	118	D	87	0.00	68.32	0.00%	22.70%	0.0	18.4	
NN02	Low Density Residence: Less than 6 DU per Acre	118	D	87	0.10	68.32	0.15%	22.85%	0.1	18.5	
NN02	Low Density Residence: Less than 6 DU per Acre	83	D	87	8.92	68.32	13.05%	35.90%	11.4	29.9	
NN02	Low Density Residence: Less than 6 DU per Acre	72	D	87	5.36	68.32	7.84%	43.74%	6.8	36.7	
NN02	Low Density Residence: Less than 6 DU per Acre	118	D	87	0.01	68.32	0.01%	43.75%	0.0	36.7	
NN02	Low Density Residence: Less than 6 DU per Acre	83	D	87	1.41	68.32	2.06%	45.81%	1.8	38.5	
NN02	Low Density Residence: Less than 6 DU per Acre	72	D	87	0.59	68.32	0.86%	46.68%	0.8	39.3	
NN02	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.10	68.32	0.14%	46.82%	0.1	39.4	
NN02	Low Density Residence: Less than 6 DU per Acre	118	D	87	5.35	68.32	7.82%	54.64%	6.8	46.2	
NN02	Low Density Residence: Less than 6 DU per Acre	83	D	87	1.31	68.32	1.92%	56.56%	1.7	47.9	
NN02	Low Density Residence: Less than 6 DU per Acre	72	D	87	0.37	68.32	0.54%	57.10%	0.5	48.3	
NN02	Low Density Residence: Less than 6 DU per Acre	71	D	87	4.68	68.32	6.85%	63.95%	6.0	54.3	
NN02	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.64	68.32	0.94%	64.89%	0.8	55.1	
NN02	Low Density Residence: Less than 6 DU per Acre	118	D	87	0.26	68.32	0.39%	65.28%	0.3	55.5	
NN02	Low Density Residence: Less than 6 DU per Acre	83	D	87	0.18	68.32	0.26%	65.54%	0.2	55.7	
NN02	Low Density Residence: Less than 6 DU per Acre	71	D	87	1.19	68.32	1.73%	67.27%	1.5	57.2	
NN02	Low Density Residence: Less than 6 DU per Acre	118	D	87	4.51	68.32	6.61%	73.88%	5.7	62.9	
NN02	Low Density Residence: Less than 6 DU per Acre	71	D	87	0.24	68.32	0.35%	74.23%	0.3	63.3	
NN02	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.00	68.32	0.00%	74.23%	0.0	63.3	
NN02	Low Density Residence: Less than 6 DU per Acre	71	D	87	0.80	68.32	1.17%	75.41%	1.0	64.3	
NN02	Low Density Residence: Less than 6 DU per Acre	83	D	87	3.97	68.32	5.81%	81.22%	5.1	69.3	
NN02	Low Density Residence: Less than 6 DU per Acre	71	D	87	2.63	68.32	3.84%	85.07%	3.3	72.7	
NN02	Low Density Residence: Less than 6 DU per Acre	66	B	75	5.39	68.32	7.89%	92.96%	5.9	78.6	
NN02	Street	118	D	93.1	1.22	68.32	1.78%	94.74%	1.7	80.3	
NN02	Street	83	D	93.1	0.91	68.32	1.33%	96.07%	1.2	81.5	
NN02	Street	71	D	93.1	1.09	68.32	1.60%	97.67%	1.5	83.0	
NN02	Street	66	B	87.5	1.44	68.32	2.10%	99.77%	1.8	84.8	
NN02	Street	118	D	93.1	0.15	68.32	0.23%	100.00%	0.2	85.0	
NN02	Street	118	D	93.1	0.00	68.32	0.00%	100.00%	0.0	85.0	**85.0**
NN03	Low Density Residence: Less than 6 DU per Acre	118	D	87	0.00	24.57	0.00%	0.00%	0.0	0.0	
NN03	Low Density Residence: Less than 6 DU per Acre	118	D	87	0.05	24.57	0.18%	0.19%	0.2	0.2	

NORTH NINTH DRAINAGE BASIN - CURVE NUMBER CALCULATION

BASIN	Land Use Category	SOIL MAP UNIT #	Hydrologic Soil Group	SUBREGION CN	SUBREGION AREA (ACRES)	SUBBASIN AREA (ACRES)	PERCENT OF SUBBASIN	CUMULATIVE PERCENT	AREAL WEIGHTED CN	CUMULATIVE CN	COMPOSITE CN
NN03	Low Density Residence: Less than 6 DU per Acre	83	D	87	5.80	24.57	23.61%	23.80%	20.5	20.7	
NN03	Low Density Residence: Less than 6 DU per Acre	72	D	87	2.74	24.57	11.17%	34.97%	9.7	30.4	
NN03	Low Density Residence: Less than 6 DU per Acre	63	D	87	3.05	24.57	12.43%	47.40%	10.8	41.2	
NN03	Low Density Residence: Less than 6 DU per Acre	118	D	87	5.44	24.57	22.14%	69.55%	19.3	60.5	
NN03	Low Density Residence: Less than 6 DU per Acre	83	D	87	3.35	24.57	13.65%	83.20%	11.9	72.4	
NN03	Low Density Residence: Less than 6 DU per Acre	72	D	87	1.23	24.57	5.00%	88.20%	4.4	76.7	
NN03	Low Density Residence: Less than 6 DU per Acre	71	D	87	0.00	24.57	0.00%	88.20%	0.0	76.7	
NN03	Low Density Residence: Less than 6 DU per Acre	63	D	87	1.85	24.57	7.52%	95.73%	6.5	83.3	
NN03	Low Density Residence: Less than 6 DU per Acre	71	D	87	0.00	24.57	0.01%	95.73%	0.0	83.3	
NN03	Street	63	D	93.1	0.53	24.57	2.15%	97.89%	2.0	85.3	
NN03	Street	118	D	93.1	0.17	24.57	0.69%	98.58%	0.6	85.9	
NN03	Street	71	D	93.1	0.00	24.57	0.01%	98.59%	0.0	85.9	
NN03	Street	118	D	93.1	0.35	24.57	1.41%	100.00%	1.3	87.3	**87.3**
NN04	Agriculture	67	C	74	0.36	103.98	0.35%	0.35%	0.3	0.3	
NN04	Low Density Residence: Less than 6 DU per Acre	63	D	87	10.48	103.98	10.08%	10.43%	8.8	9.0	
NN04	Low Density Residence: Less than 6 DU per Acre	67	C	83	8.30	103.98	7.98%	18.41%	6.6	15.7	
NN04	Low Density Residence: Less than 6 DU per Acre	71	D	87	9.70	103.98	9.33%	27.74%	8.1	23.8	
NN04	Low Density Residence: Less than 6 DU per Acre	65	B	75	3.46	103.98	3.33%	31.07%	2.5	26.3	
NN04	Low Density Residence: Less than 6 DU per Acre	67	C	83	4.05	103.98	3.89%	34.96%	3.2	29.5	
NN04	Low Density Residence: Less than 6 DU per Acre	71	D	87	11.18	103.98	10.75%	45.71%	9.4	38.8	
NN04	Low Density Residence: Less than 6 DU per Acre	66	B	75	5.54	103.98	5.33%	51.04%	4.0	42.8	
NN04	Medium to High Density Res	65	B	88	4.86	103.98	4.68%	55.72%	4.1	47.0	
NN04	Medium to High Density Res	67	C	91	0.55	103.98	0.53%	56.25%	0.5	47.4	
NN04	Medium to High Density Res	67	C	91	1.05	103.98	1.01%	57.27%	0.9	48.4	
NN04	Medium to High Density Res	65	B	88	0.78	103.98	0.75%	58.02%	0.7	49.0	
NN04	Medium to High Density Res	67	C	91	0.22	103.98	0.21%	58.23%	0.2	49.2	
NN04	Medium to High Density Res	65	B	88	6.95	103.98	6.69%	64.91%	5.9	55.1	
NN04	Medium to High Density Res	66	B	88	16.43	103.98	15.80%	80.71%	13.9	69.0	
NN04	Street	63	D	93.1	4.23	103.98	4.07%	84.79%	3.8	72.8	
NN04	Street	65	B	87.5	1.95	103.98	1.87%	86.66%	1.6	74.4	
NN04	Street	67	C	91.35	6.22	103.98	5.98%	92.64%	5.5	79.9	
NN04	Street	71	D	93.1	6.32	103.98	6.07%	98.71%	5.7	85.6	
NN04	Street	66	B	87.5	1.34	103.98	1.29%	100.00%	1.1	86.7	**86.7**
NN05	Low Density Residence: Less than 6 DU per Acre	118	D	87	0.40	31.02	1.27%	1.27%	1.1	1.1	
NN05	Low Density Residence: Less than 6 DU per Acre	83	D	87	0.05	31.02	0.15%	1.42%	0.1	1.2	
NN05	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.16	31.02	0.53%	1.95%	0.5	1.7	
NN05	Low Density Residence: Less than 6 DU per Acre	118	D	87	3.68	31.02	11.88%	13.83%	10.3	12.0	
NN05	Low Density Residence: Less than 6 DU per Acre	83	D	87	3.14	31.02	10.12%	23.95%	8.8	20.8	
NN05	Low Density Residence: Less than 6 DU per Acre	72	D	87	2.30	31.02	7.43%	31.38%	6.5	27.3	
NN05	Low Density Residence: Less than 6 DU per Acre	63	D	87	1.09	31.02	3.53%	34.91%	3.1	30.4	
NN05	Low Density Residence: Less than 6 DU per Acre	118	D	87	2.68	31.02	8.63%	43.53%	7.5	37.9	
NN05	Low Density Residence: Less than 6 DU per Acre	83	D	87	9.42	31.02	30.35%	73.89%	26.4	64.3	
NN05	Low Density Residence: Less than 6 DU per Acre	72	D	87	2.57	31.02	8.29%	82.18%	7.2	71.5	
NN05	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.09	31.02	0.30%	82.48%	0.3	71.8	
NN05	Low Density Residence: Less than 6 DU per Acre	63	D	87	1.10	31.02	3.53%	86.01%	3.1	74.8	
NN05	Medium to High Density Res	63	D	93	2.55	31.02	8.23%	94.24%	7.7	82.5	
NN05	Medium to High Density Res	83	D	93	0.14	31.02	0.45%	94.69%	0.4	82.9	
NN05	Street	63	D	93.1	0.84	31.02	2.72%	97.41%	2.5	85.4	
NN05	Street	118	D	93.1	0.34	31.02	1.08%	98.49%	1.0	86.4	
NN05	Street	118	D	93.1	0.36	31.02	1.16%	99.65%	1.1	87.5	
NN05	Street	118	D	93.1	0.11	31.02	0.35%	100.00%	0.3	87.8	**87.8**
NN06	Agriculture	63	D	80	0.23	92.88	0.25%	0.25%	0.2	0.2	

NORTH NINTH DRAINAGE BASIN - CURVE NUMBER CALCULATION

BASIN	Land Use Category	SOIL MAP UNIT #	Hydrologic Soil Group	SUBREGION CN	SUBREGION AREA (ACRES)	SUBBASIN AREA (ACRES)	PERCENT OF SUBBASIN	CUMULATIVE PERCENT	AREAL WEIGHTED CN	CUMULATIVE CN	COMPOSITE CN
NN06	Low Density Residence: Less than 6 DU per Acre	63	D	87	34.06	92.88	36.68%	36.92%	31.9	32.1	
NN06	Low Density Residence: Less than 6 DU per Acre	67	C	83	10.00	92.88	10.77%	47.69%	8.9	41.0	
NN06	Low Density Residence: Less than 6 DU per Acre	71	D	87	0.18	92.88	0.19%	47.88%	0.2	41.2	
NN06	Low Density Residence: Less than 6 DU per Acre	63	D	87	5.37	92.88	5.78%	53.67%	5.0	46.2	
NN06	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.00	92.88	0.00%	53.67%	0.0	46.2	
NN06	Medium to High Density Res	63	D	93	0.00	92.88	0.00%	53.67%	0.0	46.2	
NN06	Medium to High Density Res	67	C	91	0.18	92.88	0.19%	53.86%	0.2	46.4	
NN06	Medium to High Density Res	63	D	93	0.96	92.88	1.03%	54.89%	1.0	47.4	
NN06	Medium to High Density Res	67	C	91	3.25	92.88	3.50%	58.39%	3.2	50.6	
NN06	Medium to High Density Res	63	D	93	1.00	92.88	1.07%	59.46%	1.0	51.6	
NN06	Medium to High Density Res	67	C	91	0.98	92.88	1.06%	60.52%	1.0	52.5	
NN06	Medium to High Density Res	63	D	93	3.27	92.88	3.52%	64.05%	3.3	55.8	
NN06	Medium to High Density Res	63	D	93	4.03	92.88	4.34%	68.39%	4.0	59.8	
NN06	Medium to High Density Res	63	D	93	0.28	92.88	0.30%	68.69%	0.3	60.1	
NN06	Medium to High Density Res	63	D	93	0.21	92.88	0.23%	68.92%	0.2	60.3	
NN06	Open Estates: Greater than 1 acre Lots	63	D	84	0.11	92.88	0.11%	69.04%	0.1	60.4	
NN06	Open Estates: Greater than 1 acre Lots	63	D	84	0.11	92.88	0.12%	69.16%	0.1	60.5	
NN06	Open Estates: Greater than 1 acre Lots	63	D	84	0.03	92.88	0.03%	69.19%	0.0	60.6	
NN06	Open Estates: Greater than 1 acre Lots	67	C	79	0.10	92.88	0.11%	69.30%	0.1	60.6	
NN06	Open Estates: Greater than 1 acre Lots	63	D	84	0.11	92.88	0.12%	69.42%	0.1	60.7	
NN06	Open Estates: Greater than 1 acre Lots	63	D	84	0.11	92.88	0.12%	69.54%	0.1	60.9	
NN06	Open Estates: Greater than 1 acre Lots	63	D	84	0.35	92.88	0.37%	69.92%	0.3	61.2	
NN06	Open Estates: Greater than 1 acre Lots	63	D	84	0.00	92.88	0.00%	69.92%	0.0	61.2	
NN06	Street	63	D	93.1	19.72	92.88	21.23%	91.15%	19.8	80.9	
NN06	Street	67	C	91.35	8.22	92.88	8.85%	100.00%	8.1	89.0	
NN06	Street	63	D	93.1	0.00	92.88	0.00%	100.00%	0.0	89.0	
NN06	Street	63	D	93.1	0.00	92.88	0.00%	100.00%	0.0	89.0	**89.0**
NN07A	Low Density Residence: Less than 6 DU per Acre	118	D	87	3.06	26.87	11.40%	11.40%	9.9	9.9	
NN07A	Low Density Residence: Less than 6 DU per Acre	83	D	87	7.51	26.87	27.96%	39.36%	24.3	34.2	
NN07A	Low Density Residence: Less than 6 DU per Acre	72	D	87	3.93	26.87	14.63%	53.99%	12.7	47.0	
NN07A	Low Density Residence: Less than 6 DU per Acre	118	D	87	1.40	26.87	5.19%	59.19%	4.5	51.5	
NN07A	Low Density Residence: Less than 6 DU per Acre	83	D	87	3.40	26.87	12.65%	71.83%	11.0	62.5	
NN07A	Low Density Residence: Less than 6 DU per Acre	72	D	87	1.47	26.87	5.46%	77.29%	4.7	67.2	
NN07A	Low Density Residence: Less than 6 DU per Acre	118	D	87	0.01	26.87	0.05%	77.35%	0.0	67.3	
NN07A	Low Density Residence: Less than 6 DU per Acre	83	D	87	0.21	26.87	0.79%	78.14%	0.7	68.0	
NN07A	Low Density Residence: Less than 6 DU per Acre	72	D	87	0.22	26.87	0.81%	78.94%	0.7	68.7	
NN07A	Low Density Residence: Less than 6 DU per Acre	63	D	87	1.65	26.87	6.14%	85.08%	5.3	74.0	
NN07A	Low Density Residence: Less than 6 DU per Acre	83	D	87	0.17	26.87	0.63%	85.71%	0.6	74.6	
NN07A	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.82	26.87	3.06%	88.77%	2.7	77.2	
NN07A	Low Density Residence: Less than 6 DU per Acre	83	D	87	0.11	26.87	0.41%	89.18%	0.4	77.6	
NN07A	Medium to High Density Res	63	D	93	0.01	26.87	0.02%	89.21%	0.0	77.6	
NN07A	Medium to High Density Res	83	D	93	0.01	26.87	0.03%	89.24%	0.0	77.6	
NN07A	Medium to High Density Res	63	D	93	0.03	26.87	0.11%	89.34%	0.1	77.7	
NN07A	Open Estates: Greater than 1 acre Lots	63	D	84	0.01	26.87	0.03%	89.37%	0.0	77.8	
NN07A	Open Estates: Greater than 1 acre Lots	83	D	84	0.00	26.87	0.01%	89.39%	0.0	77.8	
NN07A	Street	63	D	93.1	1.83	26.87	6.80%	96.19%	6.3	84.1	
NN07A	Street	118	D	93.1	0.69	26.87	2.58%	98.77%	2.4	86.5	
NN07A	Street	83	D	93.1	0.13	26.87	0.50%	99.26%	0.5	87.0	
NN07A	Street	83	D	93.1	0.00	26.87	0.01%	99.27%	0.0	87.0	
NN07A	Street	63	D	93.1	0.00	26.87	0.01%	99.28%	0.0	87.0	**87.0**
NN07B	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.04	20.24	0.18%	0.18%	0.2	0.2	
NN07B	Low Density Residence: Less than 6 DU per Acre	118	D	87	2.92	20.24	14.40%	14.58%	12.5	12.7	

NORTH NINTH DRAINAGE BASIN - CURVE NUMBER CALCULATION

BASIN	Land Use Category	SOIL MAP UNIT #	Hydrologic Soil Group	SUBREGION CN	SUBREGION AREA (ACRES)	SUBBASIN AREA (ACRES)	PERCENT OF SUBBASIN	CUMULATIVE PERCENT	AREAL WEIGHTED CN	CUMULATIVE CN	COMPOSITE CN
NN07B	Low Density Residence: Less than 6 DU per Acre	83	D	87	9.01	20.24	44.50%	59.08%	38.7	51.4	
NN07B	Low Density Residence: Less than 6 DU per Acre	72	D	87	3.05	20.24	15.04%	74.12%	13.1	64.5	
NN07B	Low Density Residence: Less than 6 DU per Acre	63	D	87	2.79	20.24	13.81%	87.93%	12.0	76.5	
NN07B	Low Density Residence: Less than 6 DU per Acre	83	D	87	0.41	20.24	2.01%	89.94%	1.8	78.2	
NN07B	Low Density Residence: Less than 6 DU per Acre	83	D	87	0.00	20.24	0.00%	89.95%	0.0	78.3	
NN07B	Low Density Residence: Less than 6 DU per Acre	83	D	87	0.00	20.24	0.00%	89.95%	0.0	78.3	
NN07B	Low Density Residence: Less than 6 DU per Acre	83	D	87	0.00	20.24	0.00%	89.95%	0.0	78.3	
NN07B	Medium to High Density Res	63	D	93	0.15	20.24	0.72%	90.67%	0.7	78.9	
NN07B	Open Estates: Greater than 1 acre Lots	63	D	84	0.09	20.24	0.45%	91.11%	0.4	79.3	
NN07B	Open Estates: Greater than 1 acre Lots	83	D	84	0.01	20.24	0.06%	91.17%	0.0	79.3	
NN07B	Street	63	D	93.1	1.00	20.24	4.92%	96.09%	4.6	83.9	
NN07B	Street	118	D	93.1	0.52	20.24	2.58%	98.68%	2.4	86.3	
NN07B	Street	83	D	93.1	0.10	20.24	0.49%	99.17%	0.5	86.8	
NN07B	Street	72	D	93.1	0.02	20.24	0.08%	99.25%	0.1	86.9	
NN07B	Wood-Grass Combination (Fair Condition)	83	D	82	0.11	20.24	0.53%	99.78%	0.4	87.3	
NN07B	Wood-Grass Combination (Fair Condition)	83	D	82	0.04	20.24	0.19%	99.98%	0.2	87.5	
NN07B	Wood-Grass Combination (Fair Condition)	83	D	82	0.00	20.24	0.02%	100.00%	0.0	87.5	
NN07B	Wood-Grass Combination (Fair Condition)	83	D	82	0.00	20.24	0.00%	100.00%	0.0	87.5	
NN07B	Wood-Grass Combination (Fair Condition)	83	D	82	0.00	20.24	0.00%	100.01%	0.0	87.5	
NN07B	Wood-Grass Combination (Fair Condition)	83	D	82	0.00	20.24	0.00%	100.01%	0.0	87.5	**87.5**
NN07C	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.03	14.72	0.19%	0.19%	0.2	0.2	
NN07C	Low Density Residence: Less than 6 DU per Acre	83	D	87	0.14	14.72	0.97%	1.16%	0.8	1.0	
NN07C	Low Density Residence: Less than 6 DU per Acre	83	D	87	0.80	14.72	5.42%	6.58%	4.7	5.7	
NN07C	Low Density Residence: Less than 6 DU per Acre	72	D	87	1.26	14.72	8.53%	15.11%	7.4	13.1	
NN07C	Low Density Residence: Less than 6 DU per Acre	118	D	87	3.62	14.72	24.59%	39.69%	21.4	34.5	
NN07C	Low Density Residence: Less than 6 DU per Acre	83	D	87	2.38	14.72	16.19%	55.88%	14.1	48.6	
NN07C	Low Density Residence: Less than 6 DU per Acre	72	D	87	1.24	14.72	8.42%	64.30%	7.3	55.9	
NN07C	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.53	14.72	3.59%	67.88%	3.1	59.1	
NN07C	Low Density Residence: Less than 6 DU per Acre	83	D	87	0.09	14.72	0.63%	68.51%	0.5	59.6	
NN07C	Medium to High Density Res	63	D	93	0.50	14.72	3.38%	71.89%	3.1	62.7	
NN07C	Open Estates: Greater than 1 acre Lots	63	D	84	0.09	14.72	0.60%	72.49%	0.5	63.3	
NN07C	Street	63	D	93.1	0.65	14.72	4.41%	76.91%	4.1	67.4	
NN07C	Street	118	D	93.1	0.94	14.72	6.41%	83.32%	6.0	73.3	
NN07C	Street	83	D	93.1	0.86	14.72	5.86%	89.18%	5.5	78.8	
NN07C	Street	72	D	93.1	1.59	14.72	10.82%	100.00%	10.1	88.9	**88.9**
NN07D	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.15	15.02	1.03%	1.03%	0.9	0.9	
NN07D	Low Density Residence: Less than 6 DU per Acre	118	D	87	0.27	15.02	1.80%	2.82%	1.6	2.5	
NN07D	Low Density Residence: Less than 6 DU per Acre	83	D	87	1.73	15.02	11.53%	14.35%	10.0	12.5	
NN07D	Low Density Residence: Less than 6 DU per Acre	72	D	87	0.27	15.02	1.78%	16.13%	1.5	14.0	
NN07D	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.17	15.02	1.10%	17.23%	1.0	15.0	
NN07D	Low Density Residence: Less than 6 DU per Acre	118	D	87	0.65	15.02	4.31%	21.54%	3.7	18.7	
NN07D	Low Density Residence: Less than 6 DU per Acre	83	D	87	1.99	15.02	13.25%	34.78%	11.5	30.3	
NN07D	Low Density Residence: Less than 6 DU per Acre	72	D	87	0.51	15.02	3.42%	38.20%	3.0	33.2	
NN07D	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.15	15.02	1.02%	39.22%	0.9	34.1	
NN07D	Low Density Residence: Less than 6 DU per Acre	83	D	87	0.13	15.02	0.84%	40.06%	0.7	34.9	
NN07D	Low Density Residence: Less than 6 DU per Acre	118	D	87	0.04	15.02	0.24%	40.30%	0.2	35.1	
NN07D	Low Density Residence: Less than 6 DU per Acre	83	D	87	2.32	15.02	15.46%	55.76%	13.5	48.5	
NN07D	Low Density Residence: Less than 6 DU per Acre	72	D	87	0.95	15.02	6.32%	62.08%	5.5	54.0	
NN07D	Low Density Residence: Less than 6 DU per Acre	118	D	87	0.98	15.02	6.51%	68.59%	5.7	59.7	
NN07D	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.00	15.02	0.00%	68.59%	0.0	59.7	
NN07D	Medium to High Density Res	63	D	93	2.30	15.02	15.32%	83.91%	14.3	73.9	
NN07D	Medium to High Density Res	63	D	93	0.00	15.02	0.00%	83.91%	0.0	73.9	

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NN07D	Street	63	D	93.1	1.09	15.02	7.28%	91.19%	6.8	80.7	
NN07D	Street	118	D	93.1	1.21	15.02	8.07%	99.26%	7.5	88.2	
NN07D	Street	72	D	93.1	0.11	15.02	0.71%	99.97%	0.7	88.9	
NN07D	Street	63	D	93.1	0.00	15.02	0.03%	100.00%	0.0	88.9	**88.9**
NN07E	Commercial	59	D	95	0.00	51.65	0.00%	0.00%	0.0	0.0	
NN07E	Low Density Residence: Less than 6 DU per Acre	63	D	87	1.61	51.65	3.12%	3.12%	2.7	2.7	
NN07E	Low Density Residence: Less than 6 DU per Acre	118	D	87	9.01	51.65	17.44%	20.56%	15.2	17.9	
NN07E	Low Density Residence: Less than 6 DU per Acre	83	D	87	10.44	51.65	20.22%	40.78%	17.6	35.5	
NN07E	Low Density Residence: Less than 6 DU per Acre	72	D	87	2.92	51.65	5.66%	46.44%	4.9	40.4	
NN07E	Low Density Residence: Less than 6 DU per Acre	118	D	87	0.00	51.65	0.01%	46.45%	0.0	40.4	
NN07E	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.00	51.65	0.00%	46.45%	0.0	40.4	
NN07E	Medium to High Density Res	63	D	93	8.71	51.65	16.87%	63.32%	15.7	56.1	
NN07E	Medium to High Density Res	83	D	93	0.07	51.65	0.14%	63.46%	0.1	56.2	
NN07E	Medium to High Density Res	63	D	93	2.74	51.65	5.31%	68.78%	4.9	61.2	
NN07E	Medium to High Density Res	59	D	93	0.79	51.65	1.54%	70.31%	1.4	62.6	
NN07E	Medium to High Density Res	63	D	93	0.31	51.65	0.60%	70.92%	0.6	63.2	
NN07E	Medium to High Density Res	59	D	93	1.71	51.65	3.32%	74.24%	3.1	66.3	
NN07E	Medium to High Density Res	63	D	93	0.24	51.65	0.46%	74.70%	0.4	66.7	
NN07E	Medium to High Density Res	63	D	93	0.00	51.65	0.00%	74.70%	0.0	66.7	
NN07E	Medium to High Density Res	59	D	93	0.00	51.65	0.00%	74.70%	0.0	66.7	
NN07E	Open Estates: Greater than 1 acre Lots	63	D	84	0.12	51.65	0.23%	74.93%	0.2	66.9	
NN07E	Open Estates: Greater than 1 acre Lots	59	D	84	0.11	51.65	0.21%	75.14%	0.2	67.1	
NN07E	Open Estates: Greater than 1 acre Lots	59	D	84	0.08	51.65	0.16%	75.30%	0.1	67.2	
NN07E	Open Estates: Greater than 1 acre Lots	63	D	84	0.12	51.65	0.24%	75.53%	0.2	67.4	
NN07E	Open Estates: Greater than 1 acre Lots	63	D	84	0.08	51.65	0.16%	75.69%	0.1	67.5	
NN07E	Open Estates: Greater than 1 acre Lots	63	D	84	0.12	51.65	0.23%	75.91%	0.2	67.7	
NN07E	Open Estates: Greater than 1 acre Lots	63	D	84	0.08	51.65	0.16%	76.07%	0.1	67.8	
NN07E	Open Estates: Greater than 1 acre Lots	63	D	84	0.13	51.65	0.24%	76.32%	0.2	68.0	
NN07E	Open Estates: Greater than 1 acre Lots	63	D	84	0.12	51.65	0.23%	76.55%	0.2	68.2	
NN07E	Open Estates: Greater than 1 acre Lots	63	D	84	0.12	51.65	0.24%	76.78%	0.2	68.4	
NN07E	Open Estates: Greater than 1 acre Lots	63	D	84	0.00	51.65	0.00%	76.79%	0.0	68.4	
NN07E	Open Estates: Greater than 1 acre Lots	59	D	84	0.13	51.65	0.26%	77.04%	0.2	68.7	
NN07E	Open Estates: Greater than 1 acre Lots	59	D	84	0.00	51.65	0.00%	77.04%	0.0	68.7	
NN07E	Street	63	D	93.1	8.26	51.65	16.00%	93.04%	14.9	83.5	
NN07E	Street	118	D	93.1	1.92	51.65	3.72%	96.76%	3.5	87.0	
NN07E	Street	59	D	93.1	1.63	51.65	3.16%	99.92%	2.9	89.9	
NN07E	Street	118	D	93.1	0.02	51.65	0.05%	99.96%	0.0	90.0	
NN07E	Street	63	D	93.1	0.00	51.65	0.00%	99.97%	0.0	90.0	
NN07E	Street	118	D	93.1	0.00	51.65	0.01%	99.98%	0.0	90.0	**90.0**
NN08	Agriculture	63	D	80	1.67	77.76	2.15%	2.15%	1.7	1.7	
NN08	Agriculture	63	D	80	0.50	77.76	0.64%	2.78%	0.5	2.2	
NN08	Low Density Residence: Less than 6 DU per Acre	63	D	87	17.56	77.76	22.58%	25.37%	19.6	21.9	
NN08	Low Density Residence: Less than 6 DU per Acre	59	D	87	3.18	77.76	4.08%	29.45%	3.6	25.4	
NN08	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.00	77.76	0.00%	29.45%	0.0	25.4	
NN08	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.00	77.76	0.00%	29.45%	0.0	25.4	
NN08	Medium to High Density Res	67	C	91	0.28	77.76	0.36%	29.81%	0.3	25.8	
NN08	Medium to High Density Res	59	D	93	0.16	77.76	0.21%	30.02%	0.2	26.0	
NN08	Medium to High Density Res	63	D	93	11.40	77.76	14.66%	44.68%	13.6	39.6	
NN08	Medium to High Density Res	67	C	91	1.55	77.76	1.99%	46.67%	1.8	41.4	
NN08	Medium to High Density Res	59	D	93	4.98	77.76	6.40%	53.07%	5.9	47.3	
NN08	Medium to High Density Res	67	C	91	0.30	77.76	0.38%	53.45%	0.3	47.7	
NN08	Medium to High Density Res	63	D	93	7.45	77.76	9.58%	63.03%	8.9	56.6	

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NN08	Medium to High Density Res	59	D	93	0.00	77.76	0.00%	63.03%	0.0	56.6	
NN08	Medium to High Density Res	59	D	93	0.04	77.76	0.05%	63.07%	0.0	56.6	
NN08	Medium to High Density Res	63	D	93	0.25	77.76	0.32%	63.40%	0.3	56.9	
NN08	Medium to High Density Res	59	D	93	0.00	77.76	0.00%	63.40%	0.0	56.9	
NN08	Open Estates: Greater than 1 acre Lots	63	D	84	0.12	77.76	0.16%	63.55%	0.1	57.1	
NN08	Open Estates: Greater than 1 acre Lots	63	D	84	0.12	77.76	0.16%	63.71%	0.1	57.2	
NN08	Open Estates: Greater than 1 acre Lots	63	D	84	0.12	77.76	0.15%	63.86%	0.1	57.3	
NN08	Open Estates: Greater than 1 acre Lots	63	D	84	0.05	77.76	0.07%	63.93%	0.1	57.4	
NN08	Open Estates: Greater than 1 acre Lots	59	D	84	0.07	77.76	0.09%	64.01%	0.1	57.5	
NN08	Open Estates: Greater than 1 acre Lots	63	D	84	0.10	77.76	0.13%	64.15%	0.1	57.6	
NN08	Open Estates: Greater than 1 acre Lots	59	D	84	0.02	77.76	0.02%	64.17%	0.0	57.6	
NN08	Street	63	D	93.1	21.43	77.76	27.56%	91.73%	25.7	83.3	
NN08	Street	67	C	91.35	0.81	77.76	1.04%	92.77%	1.0	84.2	
NN08	Street	59	D	93.1	5.61	77.76	7.22%	99.99%	6.7	90.9	
NN08	Street	59	D	93.1	0.00	77.76	0.00%	100.00%	0.0	90.9	
NN08	Street	63	D	93.1	0.00	77.76	0.01%	100.00%	0.0	90.9	**90.9**
NN09	Commercial	63	D	95	17.92	90.90	19.71%	19.71%	18.7	18.7	
NN09	Commercial	118	D	95	38.13	90.90	41.94%	61.65%	39.8	58.6	
NN09	Commercial	83	D	95	18.50	90.90	20.36%	82.01%	19.3	77.9	
NN09	Commercial	124	C	94	0.08	90.90	0.08%	82.09%	0.1	78.0	
NN09	Commercial	59	D	95	0.25	90.90	0.28%	82.37%	0.3	78.3	
NN09	Commercial	59	D	95	0.88	90.90	0.97%	83.34%	0.9	79.2	
NN09	Medium to High Density Res	63	D	93	1.63	90.90	1.79%	85.13%	1.7	80.8	
NN09	Medium to High Density Res	83	D	93	0.00	90.90	0.00%	85.13%	0.0	80.8	
NN09	Medium to High Density Res	63	D	93	3.93	90.90	4.32%	89.45%	4.0	84.9	
NN09	Medium to High Density Res	59	D	93	2.11	90.90	2.32%	91.77%	2.2	87.0	
NN09	Medium to High Density Res	63	D	93	0.00	90.90	0.00%	91.77%	0.0	87.0	
NN09	Medium to High Density Res	59	D	93	0.00	90.90	0.00%	91.78%	0.0	87.0	
NN09	Medium to High Density Res	59	D	93	0.00	90.90	0.00%	91.78%	0.0	87.0	
NN09	Open Estates: Greater than 1 acre Lots	63	D	84	0.35	90.90	0.38%	92.16%	0.3	87.3	
NN09	Open Estates: Greater than 1 acre Lots	59	D	84	0.01	90.90	0.01%	92.17%	0.0	87.3	
NN09	Open Estates: Greater than 1 acre Lots	59	D	84	0.11	90.90	0.12%	92.29%	0.1	87.4	
NN09	Open Estates: Greater than 1 acre Lots	59	D	84	0.10	90.90	0.12%	92.40%	0.1	87.5	
NN09	Open Estates: Greater than 1 acre Lots	63	D	84	0.00	90.90	0.00%	92.40%	0.0	87.5	
NN09	Open Estates: Greater than 1 acre Lots	59	D	84	0.00	90.90	0.00%	92.41%	0.0	87.5	
NN09	Open Estates: Greater than 1 acre Lots	59	D	84	0.00	90.90	0.00%	92.41%	0.0	87.5	
NN09	Street	63	D	93.1	4.05	90.90	4.46%	96.87%	4.2	91.7	
NN09	Street	83	D	93.1	0.12	90.90	0.13%	97.00%	0.1	91.8	
NN09	Street	59	D	93.1	2.73	90.90	3.00%	100.00%	2.8	94.6	
NN09	Street	63	D	93.1	0.00	90.90	0.00%	100.00%	0.0	94.6	**94.6**
NN10	Agriculture	59	D	80	0.46	117.45	0.39%	0.39%	0.3	0.3	
NN10	Agriculture	59	D	80	1.05	117.45	0.89%	1.29%	0.7	1.0	
NN10	Commercial	59	D	95	0.12	117.45	0.10%	1.39%	0.1	1.1	
NN10	Commercial	59	D	95	20.22	117.45	17.22%	18.61%	16.4	17.5	
NN10	Commercial	59	D	95	0.97	117.45	0.83%	19.43%	0.8	18.3	
NN10	Commercial	59	D	95	0.24	117.45	0.20%	19.64%	0.2	18.5	
NN10	Commercial	92	D	95	2.94	117.45	2.50%	22.14%	2.4	20.8	
NN10	Commercial	124	C	94	1.17	117.45	0.99%	23.13%	0.9	21.8	
NN10	Commercial	59	D	95	6.27	117.45	5.34%	28.47%	5.1	26.8	
NN10	Commercial	59	D	95	0.02	117.45	0.02%	28.49%	0.0	26.9	
NN10	Commercial	59	D	95	0.12	117.45	0.11%	28.59%	0.1	27.0	
NN10	Commercial	59	D	95	0.15	117.45	0.13%	28.72%	0.1	27.1	

NORTH NINTH DRAINAGE BASIN - CURVE NUMBER CALCULATION

BASIN	Land Use Category	SOIL MAP UNIT #	Hydrologic Soil Group	SUBREGION CN	SUBREGION AREA (ACRES)	SUBBASIN AREA (ACRES)	PERCENT OF SUBBASIN	CUMULATIVE PERCENT	AREAL WEIGHTED CN	CUMULATIVE CN	COMPOSITE CN
NN10	Commercial	124	C	94	0.00	117.45	0.00%	28.72%	0.0	27.1	
NN10	Commercial	59	D	95	0.00	117.45	0.00%	28.72%	0.0	27.1	
NN10	Commercial	59	D	95	0.00	117.45	0.00%	28.72%	0.0	27.1	
NN10	Commercial	124	C	94	0.00	117.45	0.00%	28.72%	0.0	27.1	
NN10	Low Density Residence: Less than 6 DU per Acre	59	D	87	4.43	117.45	3.77%	32.49%	3.3	30.4	
NN10	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.00	117.45	0.00%	32.49%	0.0	30.4	
NN10	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.00	117.45	0.00%	32.49%	0.0	30.4	
NN10	Medium to High Density Res	124	C	91	0.02	117.45	0.02%	32.51%	0.0	30.4	
NN10	Medium to High Density Res	59	D	93	10.34	117.45	8.81%	41.32%	8.2	38.6	
NN10	Medium to High Density Res	59	D	93	0.02	117.45	0.02%	41.34%	0.0	38.6	
NN10	Medium to High Density Res	59	D	93	0.04	117.45	0.04%	41.37%	0.0	38.6	
NN10	Medium to High Density Res	59	D	93	12.64	117.45	10.76%	52.14%	10.0	48.6	
NN10	Medium to High Density Res	59	D	93	0.48	117.45	0.41%	52.55%	0.4	49.0	
NN10	Medium to High Density Res	59	D	93	7.28	117.45	6.20%	58.75%	5.8	54.8	
NN10	Medium to High Density Res	124	C	91	0.78	117.45	0.67%	59.41%	0.6	55.4	
NN10	Medium to High Density Res	124	C	91	0.00	117.45	0.00%	59.41%	0.0	55.4	
NN10	Medium to High Density Res	59	D	93	0.00	117.45	0.00%	59.42%	0.0	55.4	
NN10	Medium to High Density Res	59	D	93	0.00	117.45	0.00%	59.42%	0.0	55.4	
NN10	Medium to High Density Res	59	D	93	0.00	117.45	0.00%	59.42%	0.0	55.4	
NN10	Medium to High Density Res	59	D	93	0.00	117.45	0.00%	59.42%	0.0	55.4	
NN10	Medium to High Density Res	124	C	91	0.00	117.45	0.00%	59.42%	0.0	55.4	
NN10	Medium to High Density Res	59	D	93	0.00	117.45	0.00%	59.42%	0.0	55.4	
NN10	Medium to High Density Res	59	D	93	0.00	117.45	0.00%	59.42%	0.0	55.4	
NN10	Medium to High Density Res	59	D	93	0.00	117.45	0.00%	59.42%	0.0	55.4	
NN10	Open Estates: Greater than 1 acre Lots	59	D	84	0.25	117.45	0.21%	59.63%	0.2	55.6	
NN10	Open Estates: Greater than 1 acre Lots	59	D	84	0.15	117.45	0.13%	59.76%	0.1	55.7	
NN10	Open Estates: Greater than 1 acre Lots	59	D	84	0.11	117.45	0.09%	59.85%	0.1	55.8	
NN10	Open Estates: Greater than 1 acre Lots	59	D	84	0.34	117.45	0.29%	60.14%	0.2	56.0	
NN10	Open Estates: Greater than 1 acre Lots	59	D	84	0.12	117.45	0.11%	60.25%	0.1	56.1	
NN10	Open Estates: Greater than 1 acre Lots	59	D	84	0.12	117.45	0.11%	60.35%	0.1	56.2	
NN10	Open Estates: Greater than 1 acre Lots	59	D	84	0.12	117.45	0.10%	60.45%	0.1	56.3	
NN10	Open Estates: Greater than 1 acre Lots	59	D	84	0.12	117.45	0.10%	60.55%	0.1	56.3	
NN10	Open Estates: Greater than 1 acre Lots	59	D	84	0.11	117.45	0.10%	60.65%	0.1	56.4	
NN10	Open Estates: Greater than 1 acre Lots	59	D	84	0.24	117.45	0.20%	60.85%	0.2	56.6	
NN10	Open Estates: Greater than 1 acre Lots	59	D	84	0.00	117.45	0.00%	60.86%	0.0	56.6	
NN10	Open Estates: Greater than 1 acre Lots	59	D	84	0.00	117.45	0.00%	60.86%	0.0	56.6	
NN10	Open Estates: Greater than 1 acre Lots	59	D	84	0.00	117.45	0.00%	60.86%	0.0	56.6	
NN10	Open Estates: Greater than 1 acre Lots	59	D	84	0.00	117.45	0.00%	60.86%	0.0	56.6	
NN10	Open Estates: Greater than 1 acre Lots	59	D	84	0.00	117.45	0.00%	60.86%	0.0	56.6	
NN10	Street	124	C	91.35	0.67	117.45	0.57%	61.43%	0.5	57.1	
NN10	Street	59	D	93.1	45.25	117.45	38.52%	99.96%	35.9	93.0	
NN10	Street	92	D	93.1	0.03	117.45	0.02%	99.98%	0.0	93.0	
NN10	Street	131	water	93.1	0.01	117.45	0.01%	99.99%	0.0	93.0	
NN10	Street	124	C	91.35	0.02	117.45	0.02%	100.01%	0.0	93.0	
NN10	Street	59	D	93.1	0.00	117.45	0.00%	100.01%	0.0	93.0	
NN10	Street	59	D	93.1	0.00	117.45	0.00%	100.01%	0.0	93.0	**93.0**
NN11	Agriculture	124	C	74	4.24	110.41	3.84%	3.84%	2.8	2.8	
NN11	Agriculture	59	D	80	0.00	110.41	0.00%	3.85%	0.0	2.8	
NN11	Agriculture	124	C	74	0.01	110.41	0.01%	3.85%	0.0	2.9	
NN11	Commercial	63	D	95	4.02	110.41	3.64%	7.50%	3.5	6.3	
NN11	Commercial	131	water	95	0.01	110.41	0.01%	7.50%	0.0	6.3	
NN11	Commercial	124	C	94	10.52	110.41	9.53%	17.03%	9.0	15.3	

NORTH NINTH DRAINAGE BASIN - CURVE NUMBER CALCULATION

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NN11	Commercial	59	D	95	6.12	110.41	5.54%	22.58%	5.3	20.5	
NN11	Commercial	59	D	95	0.42	110.41	0.38%	22.96%	0.4	20.9	
NN11	Commercial	124	C	94	0.83	110.41	0.75%	23.71%	0.7	21.6	
NN11	Commercial	59	D	95	11.28	110.41	10.21%	33.92%	9.7	31.3	
NN11	Commercial	124	C	94	0.20	110.41	0.18%	34.10%	0.2	31.5	
NN11	Commercial	59	D	95	2.06	110.41	1.86%	35.97%	1.8	33.3	
NN11	Commercial	131	water	95	0.38	110.41	0.35%	36.31%	0.3	33.6	
NN11	Commercial	124	C	94	26.54	110.41	24.04%	60.35%	22.6	56.2	
NN11	Commercial	59	D	95	0.26	110.41	0.23%	60.58%	0.2	56.4	
NN11	Commercial	59	D	95	0.13	110.41	0.12%	60.70%	0.1	56.5	
NN11	Commercial	59	D	95	0.09	110.41	0.08%	60.78%	0.1	56.6	
NN02	Low Density Residence: Less than 6 DU per Acre	83	D	87	1.41	68.32	2.06%	45.81%	1.8	38.5	
NN02	Low Density Residence: Less than 6 DU per Acre	72	D	87	0.59	68.32	0.86%	46.68%	0.8	39.3	
NN02	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.10	68.32	0.14%	46.82%	0.1	39.4	
NN02	Low Density Residence: Less than 6 DU per Acre	118	D	87	5.35	68.32	7.82%	54.64%	6.8	46.2	
NN02	Low Density Residence: Less than 6 DU per Acre	83	D	87	1.31	68.32	1.92%	56.56%	1.7	47.9	
NN02	Low Density Residence: Less than 6 DU per Acre	72	D	87	0.37	68.32	0.54%	57.10%	0.5	48.3	
NN02	Low Density Residence: Less than 6 DU per Acre	71	D	87	4.68	68.32	6.85%	63.95%	6.0	54.3	
NN02	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.64	68.32	0.94%	64.89%	0.8	55.1	
NN02	Low Density Residence: Less than 6 DU per Acre	118	D	87	0.26	68.32	0.39%	65.28%	0.3	55.5	
NN02	Low Density Residence: Less than 6 DU per Acre	83	D	87	0.18	68.32	0.26%	65.54%	0.2	55.7	
NN02	Low Density Residence: Less than 6 DU per Acre	71	D	87	1.19	68.32	1.73%	67.27%	1.5	57.2	
NN02	Low Density Residence: Less than 6 DU per Acre	118	D	87	4.51	68.32	6.61%	73.88%	5.7	62.9	
NN02	Low Density Residence: Less than 6 DU per Acre	71	D	87	0.24	68.32	0.35%	74.23%	0.3	63.3	
NN02	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.00	68.32	0.00%	74.23%	0.0	63.3	
NN02	Low Density Residence: Less than 6 DU per Acre	71	D	87	0.80	68.32	1.17%	75.41%	1.0	64.3	
NN02	Low Density Residence: Less than 6 DU per Acre	83	D	87	3.97	68.32	5.81%	81.22%	5.1	69.3	
NN02	Low Density Residence: Less than 6 DU per Acre	71	D	87	2.63	68.32	3.84%	85.07%	3.3	72.7	
NN02	Low Density Residence: Less than 6 DU per Acre	66	B	75	5.39	68.32	7.89%	92.96%	5.9	78.6	
NN02	Street	118	D	93.1	1.22	68.32	1.78%	94.74%	1.7	80.3	
NN02	Street	83	D	93.1	0.91	68.32	1.33%	96.07%	1.2	81.5	
NN02	Street	71	D	93.1	1.09	68.32	1.60%	97.67%	1.5	83.0	
NN02	Street	66	B	87.5	1.44	68.32	2.10%	99.77%	1.8	84.8	
NN02	Street	118	D	93.1	0.15	68.32	0.23%	100.00%	0.2	85.0	
NN02	Street	118	D	93.1	0.00	68.32	0.00%	100.00%	0.0	85.0	**85.0**
NN03	Low Density Residence: Less than 6 DU per Acre	118	D	87	0.00	24.57	0.00%	0.00%	0.0	0.0	
NN03	Low Density Residence: Less than 6 DU per Acre	118	D	87	0.05	24.57	0.18%	0.19%	0.2	0.2	

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BASIN	Land Use Category	SOIL MAP UNIT #	Hydrologic Soil Group	SUBREGION CN	SUBREGION AREA (ACRES)	SUBBASIN AREA (ACRES)	PERCENT OF SUBBASIN	CUMULATIVE PERCENT	AREAL WEIGHTED CN	CUMULATIVE CN	COMPOSITE CN
10	Open Estates: Greater than 1 acre Lots	59	D	84	0.46	118.02	0.39%	0.39%	0.3	0.3	
10	Open Estates: Greater than 1 acre Lots	59	D	84	0.26	118.02	0.22%	0.61%	0.2	0.5	
10	Open Estates: Greater than 1 acre Lots	60	D	84	0.05	118.02	0.04%	0.65%	0.0	0.5	
10	Open Estates: Greater than 1 acre Lots	59	D	84	0.22	118.02	0.19%	0.84%	0.2	0.7	
10	Open Estates: Greater than 1 acre Lots	59	D	84	0.22	118.02	0.19%	1.03%	0.2	0.9	
10	Open Estates: Greater than 1 acre Lots	60	D	84	0.69	118.02	0.59%	1.62%	0.5	1.4	
10	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.23	118.02	0.20%	1.81%	0.2	1.5	
10	Low Density Residence: Less than 6 DU per Acre	59	D	87	3.10	118.02	2.63%	4.44%	2.3	3.8	
10	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.63	118.02	0.53%	4.98%	0.5	4.3	
10	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.42	118.02	0.35%	5.33%	0.3	4.6	
10	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.25	118.02	0.21%	5.54%	0.2	4.8	
10	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.49	118.02	0.42%	5.96%	0.4	5.1	
10	Low Density Residence: Less than 6 DU per Acre	59	D	87	1.00	118.02	0.85%	6.80%	0.7	5.9	
10	Low Density Residence: Less than 6 DU per Acre	59	D	87	2.11	118.02	1.79%	8.60%	1.6	7.4	
10	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.95	118.02	0.81%	9.40%	0.7	8.1	
10	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.79	118.02	0.67%	10.07%	0.6	8.7	
10	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.24	118.02	0.21%	10.28%	0.2	8.9	
10	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.21	118.02	0.17%	10.45%	0.2	9.0	
10	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.42	118.02	0.35%	10.81%	0.3	9.4	
10	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.60	118.02	0.51%	11.31%	0.4	9.8	
10	Low Density Residence: Less than 6 DU per Acre	59	D	87	3.23	118.02	2.74%	14.05%	2.4	12.2	
10	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.66	118.02	0.56%	14.61%	0.5	12.7	
10	Low Density Residence: Less than 6 DU per Acre	59	D	87	5.08	118.02	4.31%	18.92%	3.7	16.4	
10	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.00	118.02	0.00%	18.93%	0.0	16.4	
10	Low Density Residence: Less than 6 DU per Acre	60	D	87	1.83	118.02	1.55%	20.47%	1.3	17.8	
10	Low Density Residence: Less than 6 DU per Acre	59	D	87	1.93	118.02	1.63%	22.11%	1.4	19.2	
10	Low Density Residence: Less than 6 DU per Acre	60	D	87	0.92	118.02	0.78%	22.88%	0.7	19.9	
10	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.05	118.02	0.05%	22.93%	0.0	19.9	
10	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.03	118.02	0.02%	22.95%	0.0	19.9	
10	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.35	118.02	0.30%	23.25%	0.3	20.2	
10	Low Density Residence: Less than 6 DU per Acre	59	D	87	1.91	118.02	1.62%	24.87%	1.4	21.6	
10	Low Density Residence: Less than 6 DU per Acre	60	D	87	0.98	118.02	0.83%	25.70%	0.7	22.3	
10	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.71	118.02	0.60%	26.29%	0.5	22.8	
10	Low Density Residence: Less than 6 DU per Acre	59	D	87	7.61	118.02	6.45%	32.74%	5.6	28.4	
10	Low Density Residence: Less than 6 DU per Acre	60	D	87	1.64	118.02	1.39%	34.13%	1.2	29.6	
10	Low Density Residence: Less than 6 DU per Acre	60	D	87	0.21	118.02	0.17%	34.31%	0.2	29.8	
10	Low Density Residence: Less than 6 DU per Acre	59	D	87	1.66	118.02	1.40%	35.71%	1.2	31.0	
10	Low Density Residence: Less than 6 DU per Acre	59	D	87	3.67	118.02	3.11%	38.82%	2.7	33.7	
10	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.32	118.02	0.27%	39.09%	0.2	34.0	
10	Low Density Residence: Less than 6 DU per Acre	60	D	87	0.07	118.02	0.06%	39.15%	0.1	34.0	
10	Low Density Residence: Less than 6 DU per Acre	59	D	87	3.25	118.02	2.76%	41.91%	2.4	36.4	
10	Low Density Residence: Less than 6 DU per Acre	60	D	87	0.49	118.02	0.42%	42.32%	0.4	36.8	
10	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.81	118.02	0.69%	43.01%	0.6	37.4	
10	Low Density Residence: Less than 6 DU per Acre	60	D	87	0.12	118.02	0.10%	43.11%	0.1	37.5	
10	Low Density Residence: Less than 6 DU per Acre	59	D	87	3.16	118.02	2.67%	45.78%	2.3	39.8	
10	Low Density Residence: Less than 6 DU per Acre	60	D	87	4.44	118.02	3.76%	49.55%	3.3	43.1	
10	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.89	118.02	0.76%	50.30%	0.7	43.7	
10	Low Density Residence: Less than 6 DU per Acre	60	D	87	2.71	118.02	2.30%	52.60%	2.0	45.7	
10	Low Density Residence: Less than 6 DU per Acre	60	D	87	0.35	118.02	0.30%	52.90%	0.3	46.0	
10	Low Density Residence: Less than 6 DU per Acre	60	D	87	2.30	118.02	1.95%	54.85%	1.7	47.7	
10	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.71	118.02	0.60%	55.45%	0.5	48.2	
10	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.76	118.02	0.64%	56.09%	0.6	48.8	

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10	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.00	118.02	0.00%	56.09%	0.0	48.8	
10	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.00	118.02	0.00%	56.09%	0.0	48.8	
10	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.00	118.02	0.00%	56.09%	0.0	48.8	
10	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.00	118.02	0.00%	56.10%	0.0	48.8	
10	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.00	118.02	0.00%	56.10%	0.0	48.8	
10	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.00	118.02	0.00%	56.10%	0.0	48.8	
10	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.00	118.02	0.00%	56.10%	0.0	48.8	
10	Agriculture	60	D	80	2.12	118.02	1.80%	57.90%	1.4	50.2	
10	Agriculture	59	D	80	0.03	118.02	0.03%	57.92%	0.0	50.2	
10	Agriculture	60	D	80	0.94	118.02	0.80%	58.72%	0.6	50.9	
10	Agriculture	60	D	80	4.81	118.02	4.08%	62.80%	3.3	54.1	
10	Agriculture	60	D	80	2.21	118.02	1.87%	64.67%	1.5	55.6	
10	Agriculture	60	D	80	1.88	118.02	1.60%	66.27%	1.3	56.9	
10	Agriculture	60	D	80	0.79	118.02	0.67%	66.94%	0.5	57.4	
10	Commercial	59	D	95	1.17	118.02	1.00%	67.93%	0.9	58.4	
10	Commercial	59	D	95	1.34	118.02	1.14%	69.07%	1.1	59.5	
10	Commercial	59	D	95	0.22	118.02	0.19%	69.26%	0.2	59.6	
10	Commercial	59	D	95	0.13	118.02	0.11%	69.37%	0.1	59.7	
10	Commercial	60	D	95	0.05	118.02	0.05%	69.42%	0.0	59.8	
10	Commercial	59	D	95	0.48	118.02	0.41%	69.83%	0.4	60.2	
10	Commercial	60	D	95	0.73	118.02	0.62%	70.44%	0.6	60.8	
10	Commercial	60	D	95	2.58	118.02	2.19%	72.63%	2.1	62.8	
10	Commercial	59	D	95	0.41	118.02	0.34%	72.97%	0.3	63.2	
10	Commercial	60	D	95	0.69	118.02	0.59%	73.56%	0.6	63.7	
10	Commercial	59	D	95	0.58	118.02	0.50%	74.05%	0.5	64.2	
10	Commercial	59	D	95	0.75	118.02	0.63%	74.69%	0.6	64.8	
10	Commercial	60	D	95	0.03	118.02	0.02%	74.71%	0.0	64.8	
10	Commercial	59	D	95	1.61	118.02	1.36%	76.07%	1.3	66.1	
10	Commercial	59	D	95	1.90	118.02	1.61%	77.68%	1.5	67.6	
10	Commercial	59	D	95	0.45	118.02	0.38%	78.07%	0.4	68.0	
10	Commercial	59	D	95	0.00	118.02	0.00%	78.07%	0.0	68.0	
10	Medium to High Density Res	59	D	93	0.39	118.02	0.33%	78.40%	0.3	68.3	
10	Medium to High Density Res	59	D	93	0.41	118.02	0.35%	78.75%	0.3	68.6	
10	Medium to High Density Res	59	D	93	0.29	118.02	0.25%	78.99%	0.2	68.9	
10	Medium to High Density Res	59	D	93	0.24	118.02	0.20%	79.19%	0.2	69.0	
10	Medium to High Density Res	59	D	93	5.82	118.02	4.93%	84.12%	4.6	73.6	
10	Medium to High Density Res	59	D	93	0.00	118.02	0.00%	84.12%	0.0	73.6	
10	Medium to High Density Res	59	D	93	0.00	118.02	0.00%	84.12%	0.0	73.6	
10	Medium to High Density Res	59	D	93	0.00	118.02	0.00%	84.12%	0.0	73.6	
10	Medium to High Density Res	59	D	93	0.00	118.02	0.00%	84.12%	0.0	73.6	
10	Street	59	D	93.1	6.93	118.02	5.88%	90.00%	5.5	79.1	
10	Street	60	D	93.1	0.35	118.02	0.29%	90.29%	0.3	79.4	
10	Street	59	D	93.1	1.52	118.02	1.29%	91.58%	1.2	80.6	
10	Street	60	D	93.1	4.08	118.02	3.45%	95.03%	3.2	83.8	
10	Street	59	D	93.1	5.86	118.02	4.97%	100.00%	4.6	88.4	
10	Street	59	D	93.1	0.00	118.02	0.00%	100.00%	0.0	88.4	**88.4**
12	Open Estates: Greater than 1 acre Lots	59	D	84	0.47	56.37	0.84%	0.84%	0.7	0.7	
12	Open Estates: Greater than 1 acre Lots	59	D	84	0.51	56.37	0.90%	1.74%	0.8	1.5	
12	Open Estates: Greater than 1 acre Lots	59	D	84	0.42	56.37	0.74%	2.48%	0.6	2.1	
12	Open Estates: Greater than 1 acre Lots	59	D	84	0.02	56.37	0.03%	2.51%	0.0	2.1	
12	Low Density Residence: Less than 6 DU per Acre	59	D	87	5.55	56.37	9.86%	12.37%	8.6	10.7	
12	Low Density Residence: Less than 6 DU per Acre	59	D	87	1.31	56.37	2.32%	14.68%	2.0	12.7	

ORCHARD DRAINAGE BASIN - CURVE NUMBER CALCULATION

BASIN	Land Use Category	SOIL MAP UNIT #	Hydrologic Soil Group	SUBREGION CN	SUBREGION AREA (ACRES)	SUBBASIN AREA (ACRES)	PERCENT OF SUBBASIN	CUMULATIVE PERCENT	AREAL WEIGHTED CN	CUMULATIVE CN	COMPOSITE CN
12	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.47	56.37	0.84%	15.53%	0.7	13.4	
12	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.59	56.37	1.05%	16.58%	0.9	14.3	
12	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.15	56.37	0.27%	16.85%	0.2	14.6	
12	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.40	56.37	0.72%	17.57%	0.6	15.2	
12	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.53	56.37	0.93%	18.50%	0.8	16.0	
12	Low Density Residence: Less than 6 DU per Acre	59	D	87	1.03	56.37	1.82%	20.32%	1.6	17.6	
12	Low Density Residence: Less than 6 DU per Acre	59	D	87	2.15	56.37	3.82%	24.14%	3.3	20.9	
12	Low Density Residence: Less than 6 DU per Acre	59	D	87	1.97	56.37	3.50%	27.64%	3.0	24.0	
12	Low Density Residence: Less than 6 DU per Acre	59	D	87	2.05	56.37	3.64%	31.29%	3.2	27.1	
12	Low Density Residence: Less than 6 DU per Acre	59	D	87	6.58	56.37	11.67%	42.96%	10.2	37.3	
12	Low Density Residence: Less than 6 DU per Acre	59	D	87	2.77	56.37	4.91%	47.86%	4.3	41.6	
12	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.22	56.37	0.40%	48.26%	0.3	41.9	
12	Low Density Residence: Less than 6 DU per Acre	59	D	87	5.69	56.37	10.10%	58.36%	8.8	50.7	
12	Low Density Residence: Less than 6 DU per Acre	59	D	87	5.45	56.37	9.68%	68.03%	8.4	59.1	
12	Low Density Residence: Less than 6 DU per Acre	59	D	87	1.90	56.37	3.36%	71.40%	2.9	62.0	
12	Agriculture	59	D	80	3.92	56.37	6.96%	78.36%	5.6	67.6	
12	Medium to High Density Res	59	D	93	0.62	56.37	1.10%	79.46%	1.0	68.6	
12	Medium to High Density Res	59	D	93	0.19	56.37	0.34%	79.80%	0.3	68.9	
12	Street	59	D	93.1	2.91	56.37	5.16%	84.96%	4.8	73.8	
12	Street	60	D	93.1	0.01	56.37	0.01%	84.97%	0.0	73.8	
12	Street	59	D	93.1	8.47	56.37	15.03%	100.00%	14.0	87.8	**87.8**
14	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.78	60.57	1.29%	1.29%	1.1	1.1	
14	Low Density Residence: Less than 6 DU per Acre	59	D	87	2.55	60.57	4.22%	5.50%	3.7	4.8	
14	Low Density Residence: Less than 6 DU per Acre	59	D	87	5.37	60.57	8.87%	14.37%	7.7	12.5	
14	Low Density Residence: Less than 6 DU per Acre	59	D	87	4.84	60.57	7.99%	22.36%	6.9	19.5	
14	Low Density Residence: Less than 6 DU per Acre	59	D	87	5.95	60.57	9.83%	32.19%	8.5	28.0	
14	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.41	60.57	0.67%	32.86%	0.6	28.6	
14	Low Density Residence: Less than 6 DU per Acre	59	D	87	1.22	60.57	2.01%	34.87%	1.8	30.3	
14	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.57	60.57	0.95%	35.82%	0.8	31.2	
14	Low Density Residence: Less than 6 DU per Acre	59	D	87	15.12	60.57	24.97%	60.78%	21.7	52.9	
14	Agriculture	59	D	80	14.51	60.57	23.95%	84.74%	19.2	72.0	
14	Agriculture	59	D	80	3.75	60.57	6.18%	90.92%	4.9	77.0	
14	Street	59	D	93.1	2.73	60.57	4.51%	95.43%	4.2	81.2	
14	Street	59	D	93.1	0.37	60.57	0.61%	96.04%	0.6	81.8	
14	Street	59	D	93.1	2.40	60.57	3.96%	100.00%	3.7	85.4	**85.4**
16	Open Estates: Greater than 1 acre Lots	58	C	79	0.12	96.00	0.13%	0.13%	0.1	0.1	
16	Open Estates: Greater than 1 acre Lots	61	C	79	0.02	96.00	0.02%	0.15%	0.0	0.1	
16	Open Estates: Greater than 1 acre Lots	58	C	79	0.01	96.00	0.01%	0.16%	0.0	0.1	
16	Open Estates: Greater than 1 acre Lots	58	C	79	0.41	96.00	0.42%	0.58%	0.3	0.5	
16	Open Estates: Greater than 1 acre Lots	58	C	79	2.92	96.00	3.04%	3.62%	2.4	2.9	
16	Open Estates: Greater than 1 acre Lots	58	C	79	2.74	96.00	2.85%	6.48%	2.3	5.1	
16	Open Estates: Greater than 1 acre Lots	58	C	79	7.96	96.00	8.29%	14.77%	6.6	11.7	
16	Open Estates: Greater than 1 acre Lots	58	C	79	12.44	96.00	12.96%	27.73%	10.2	21.9	
16	Open Estates: Greater than 1 acre Lots	61	C	79	4.98	96.00	5.19%	32.92%	4.1	26.0	
16	Open Estates: Greater than 1 acre Lots	58	C	79	1.03	96.00	1.07%	33.99%	0.8	26.9	
16	Open Estates: Greater than 1 acre Lots	61	C	79	2.28	96.00	2.37%	36.36%	1.9	28.7	
16	Open Estates: Greater than 1 acre Lots	61	C	79	0.82	96.00	0.85%	37.21%	0.7	29.4	
16	Open Estates: Greater than 1 acre Lots	58	C	79	9.35	96.00	9.74%	46.95%	7.7	37.1	
16	Open Estates: Greater than 1 acre Lots	61	C	79	0.26	96.00	0.27%	47.23%	0.2	37.3	
16	Open Estates: Greater than 1 acre Lots	58	C	79	0.04	96.00	0.04%	47.27%	0.0	37.3	
16	Open Estates: Greater than 1 acre Lots	61	C	79	0.01	96.00	0.01%	47.28%	0.0	37.4	
16	Open Estates: Greater than 1 acre Lots	58	C	79	0.00	96.00	0.00%	47.29%	0.0	37.4	

ORCHARD DRAINAGE BASIN - CURVE NUMBER CALCULATION

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16	Open Estates: Greater than 1 acre Lots	58	C	79	0.00	96.00	0.00%	47.29%	0.0	37.4	
16	Open Estates: Greater than 1 acre Lots	58	C	79	0.01	96.00	0.01%	47.30%	0.0	37.4	
16	Open Estates: Greater than 1 acre Lots	58	C	79	0.00	96.00	0.00%	47.30%	0.0	37.4	
16	Open Estates: Greater than 1 acre Lots	58	C	79	0.00	96.00	0.00%	47.30%	0.0	37.4	
16	Open Estates: Greater than 1 acre Lots	61	C	79	0.00	96.00	0.00%	47.30%	0.0	37.4	
16	Open Estates: Greater than 1 acre Lots	58	C	79	0.00	96.00	0.00%	47.30%	0.0	37.4	
16	Open Estates: Greater than 1 acre Lots	60	D	84	0.22	96.00	0.23%	47.53%	0.2	37.6	
16	Open Estates: Greater than 1 acre Lots	60	D	84	3.91	96.00	4.08%	51.61%	3.4	41.0	
16	Open Estates: Greater than 1 acre Lots	59	D	84	3.70	96.00	3.86%	55.46%	3.2	44.2	
16	Open Estates: Greater than 1 acre Lots	59	D	84	2.29	96.00	2.39%	57.85%	2.0	46.2	
16	Open Estates: Greater than 1 acre Lots	59	D	84	3.17	96.00	3.30%	61.16%	2.8	49.0	
16	Open Estates: Greater than 1 acre Lots	59	D	84	2.51	96.00	2.62%	63.78%	2.2	51.2	
16	Open Estates: Greater than 1 acre Lots	59	D	84	1.49	96.00	1.55%	65.33%	1.3	52.5	
16	Open Estates: Greater than 1 acre Lots	59	D	84	0.12	96.00	0.12%	65.45%	0.1	52.6	
16	Open Estates: Greater than 1 acre Lots	60	D	84	0.00	96.00	0.00%	65.45%	0.0	52.6	
16	Open Estates: Greater than 1 acre Lots	60	D	84	0.00	96.00	0.00%	65.45%	0.0	52.6	
16	Open Estates: Greater than 1 acre Lots	59	D	84	0.00	96.00	0.00%	65.45%	0.0	52.6	
16	Open Estates: Greater than 1 acre Lots	59	D	84	0.00	96.00	0.00%	65.45%	0.0	52.6	
16	Open Estates: Greater than 1 acre Lots	59	D	84	0.00	96.00	0.00%	65.45%	0.0	52.6	
16	Open Estates: Greater than 1 acre Lots	59	D	84	0.00	96.00	0.00%	65.45%	0.0	52.6	
16	Low Density Residence: Less than 6 DU per Acre	58	C	83	0.08	96.00	0.08%	65.53%	0.1	52.7	
16	Low Density Residence: Less than 6 DU per Acre	58	C	83	0.07	96.00	0.08%	65.61%	0.1	52.7	
16	Low Density Residence: Less than 6 DU per Acre	58	C	83	0.01	96.00	0.01%	65.62%	0.0	52.8	
16	Low Density Residence: Less than 6 DU per Acre	58	C	83	0.65	96.00	0.68%	66.30%	0.6	53.3	
16	Low Density Residence: Less than 6 DU per Acre	58	C	83	3.76	96.00	3.92%	70.22%	3.2	56.6	
16	Low Density Residence: Less than 6 DU per Acre	61	C	83	0.68	96.00	0.71%	70.93%	0.6	57.2	
16	Low Density Residence: Less than 6 DU per Acre	58	C	83	0.02	96.00	0.03%	70.95%	0.0	57.2	
16	Low Density Residence: Less than 6 DU per Acre	61	C	83	4.37	96.00	4.56%	75.51%	3.8	61.0	
16	Low Density Residence: Less than 6 DU per Acre	61	C	83	0.02	96.00	0.02%	75.53%	0.0	61.0	
16	Low Density Residence: Less than 6 DU per Acre	61	C	83	0.06	96.00	0.06%	75.59%	0.0	61.0	
16	Low Density Residence: Less than 6 DU per Acre	61	C	83	0.61	96.00	0.64%	76.23%	0.5	61.6	
16	Low Density Residence: Less than 6 DU per Acre	61	C	83	0.81	96.00	0.84%	77.07%	0.7	62.3	
16	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.03	96.00	0.03%	77.10%	0.0	62.3	
16	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.24	96.00	0.25%	77.35%	0.2	62.5	
16	Low Density Residence: Less than 6 DU per Acre	59	D	87	2.16	96.00	2.25%	79.60%	2.0	64.5	
16	Low Density Residence: Less than 6 DU per Acre	59	D	87	1.17	96.00	1.22%	80.82%	1.1	65.5	
16	Agriculture	61	C	74	2.01	96.00	2.10%	82.92%	1.6	67.1	
16	Agriculture	58	C	74	0.51	96.00	0.53%	83.45%	0.4	67.5	
16	Agriculture	59	D	80	0.19	96.00	0.20%	83.65%	0.2	67.6	
16	Agriculture	59	D	80	0.07	96.00	0.07%	83.72%	0.1	67.7	
16	Commercial	58	C	94	0.17	96.00	0.18%	83.90%	0.2	67.9	
16	Commercial	58	C	94	1.14	96.00	1.19%	85.09%	1.1	69.0	
16	Commercial	58	C	94	1.07	96.00	1.12%	86.21%	1.1	70.0	
16	Commercial	58	C	94	0.26	96.00	0.27%	86.48%	0.3	70.3	
16	Medium to High Density Res	58	C	91	0.71	96.00	0.74%	87.22%	0.7	71.0	
16	Medium to High Density Res	61	C	91	8.02	96.00	8.35%	95.58%	7.6	78.6	
16	Medium to High Density Res	58	C	91	0.00	96.00	0.00%	95.58%	0.0	78.6	
16	Medium to High Density Res	60	D	93	0.10	96.00	0.10%	95.68%	0.1	78.6	
16	Medium to High Density Res	60	D	93	0.00	96.00	0.00%	95.68%	0.0	78.6	
16	Street	61	C	91.35	0.66	96.00	0.69%	96.37%	0.6	79.3	
16	Street	58	C	91.35	1.38	96.00	1.44%	97.81%	1.3	80.6	
16	Street	61	C	91.35	0.66	96.00	0.69%	98.50%	0.6	81.2	

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16	Street	58	C	91.35	0.00	96.00	0.00%	98.50%	0.0	81.2	
16	Street	58	C	91.35	0.00	96.00	0.00%	98.51%	0.0	81.2	
16	Street	58	C	91.35	0.00	96.00	0.00%	98.51%	0.0	81.2	
16	Street	58	C	91.35	0.01	96.00	0.01%	98.52%	0.0	81.2	
16	Street	58	C	91.35	0.00	96.00	0.00%	98.52%	0.0	81.2	
16	Street	61	C	91.35	0.00	96.00	0.00%	98.52%	0.0	81.2	
16	Street	58	C	91.35	0.00	96.00	0.00%	98.52%	0.0	81.2	
16	Street	59	D	93.1	0.99	96.00	1.03%	99.55%	1.0	82.2	
16	Street	60	D	93.1	0.45	96.00	0.47%	100.02%	0.4	82.6	
16	Street	60	D	93.1	0.00	96.00	0.00%	100.02%	0.0	82.6	**82.6**
18	Open Estates: Greater than 1 acre Lots	62	C	79	2.19	535.12	0.41%	0.41%	0.3	0.3	
18	Open Estates: Greater than 1 acre Lots	58	C	79	94.36	535.12	17.63%	18.04%	13.9	14.3	
18	Open Estates: Greater than 1 acre Lots	62	C	79	88.10	535.12	16.46%	34.51%	13.0	27.3	
18	Open Estates: Greater than 1 acre Lots	58	C	79	3.81	535.12	0.71%	35.22%	0.6	27.8	
18	Open Estates: Greater than 1 acre Lots	58	C	79	0.00	535.12	0.00%	35.22%	0.0	27.8	
18	Open Estates: Greater than 1 acre Lots	58	C	79	0.00	535.12	0.00%	35.22%	0.0	27.8	
18	Open Estates: Greater than 1 acre Lots	58	C	79	1.24	535.12	0.23%	35.45%	0.2	28.0	
18	Open Estates: Greater than 1 acre Lots	62	C	79	0.00	535.12	0.00%	35.45%	0.0	28.0	
18	Open Estates: Greater than 1 acre Lots	62	C	79	0.00	535.12	0.00%	35.45%	0.0	28.0	
18	Open Estates: Greater than 1 acre Lots	62	C	79	0.00	535.12	0.00%	35.45%	0.0	28.0	
18	Open Estates: Greater than 1 acre Lots	71	D	84	2.37	535.12	0.44%	35.89%	0.4	28.4	
18	Open Estates: Greater than 1 acre Lots	71	D	84	0.04	535.12	0.01%	35.90%	0.0	28.4	
18	Open Estates: Greater than 1 acre Lots	72	D	84	57.27	535.12	10.70%	46.60%	9.0	37.4	
18	Open Estates: Greater than 1 acre Lots	60	D	84	2.40	535.12	0.45%	47.05%	0.4	37.8	
18	Open Estates: Greater than 1 acre Lots	71	D	84	3.03	535.12	0.57%	47.62%	0.5	38.2	
18	Open Estates: Greater than 1 acre Lots	72	D	84	0.00	535.12	0.00%	47.62%	0.0	38.2	
18	Open Estates: Greater than 1 acre Lots	71	D	84	0.00	535.12	0.00%	47.62%	0.0	38.2	
18	Low Density Residence: Less than 6 DU per Acre	62	C	83	2.64	535.12	0.49%	48.11%	0.4	38.6	
18	Low Density Residence: Less than 6 DU per Acre	62	C	83	1.94	535.12	0.36%	48.47%	0.3	38.9	
18	Low Density Residence: Less than 6 DU per Acre	61	C	83	0.36	535.12	0.07%	48.54%	0.1	39.0	
18	Low Density Residence: Less than 6 DU per Acre	58	C	83	33.28	535.12	6.22%	54.76%	5.2	44.2	
18	Low Density Residence: Less than 6 DU per Acre	62	C	83	8.36	535.12	1.56%	56.32%	1.3	45.5	
18	Low Density Residence: Less than 6 DU per Acre	58	C	83	4.06	535.12	0.76%	57.08%	0.6	46.1	
18	Low Density Residence: Less than 6 DU per Acre	58	C	83	0.00	535.12	0.00%	57.08%	0.0	46.1	
18	Low Density Residence: Less than 6 DU per Acre	58	C	83	26.89	535.12	5.02%	62.10%	4.2	50.3	
18	Low Density Residence: Less than 6 DU per Acre	62	C	83	0.50	535.12	0.09%	62.20%	0.1	50.3	
18	Low Density Residence: Less than 6 DU per Acre	61	C	83	3.39	535.12	0.63%	62.83%	0.5	50.9	
18	Low Density Residence: Less than 6 DU per Acre	58	C	83	9.06	535.12	1.69%	64.52%	1.4	52.3	
18	Low Density Residence: Less than 6 DU per Acre	58	C	83	2.32	535.12	0.43%	64.96%	0.4	52.6	
18	Low Density Residence: Less than 6 DU per Acre	58	C	83	15.15	535.12	2.83%	67.79%	2.4	55.0	
18	Low Density Residence: Less than 6 DU per Acre	58	C	83	2.24	535.12	0.42%	68.21%	0.3	55.3	
18	Low Density Residence: Less than 6 DU per Acre	62	C	83	0.39	535.12	0.07%	68.28%	0.1	55.4	
18	Low Density Residence: Less than 6 DU per Acre	61	C	83	0.04	535.12	0.01%	68.29%	0.0	55.4	
18	Low Density Residence: Less than 6 DU per Acre	58	C	83	0.39	535.12	0.07%	68.36%	0.1	55.4	
18	Low Density Residence: Less than 6 DU per Acre	62	C	83	0.03	535.12	0.00%	68.36%	0.0	55.4	
18	Low Density Residence: Less than 6 DU per Acre	62	C	83	0.00	535.12	0.00%	68.36%	0.0	55.4	
18	Low Density Residence: Less than 6 DU per Acre	62	C	83	0.00	535.12	0.00%	68.36%	0.0	55.4	
18	Low Density Residence: Less than 6 DU per Acre	72	D	87	7.61	535.12	1.42%	69.79%	1.2	56.7	
18	Low Density Residence: Less than 6 DU per Acre	71	D	87	1.18	535.12	0.22%	70.00%	0.2	56.9	
18	Low Density Residence: Less than 6 DU per Acre	71	D	87	0.96	535.12	0.18%	70.18%	0.2	57.0	
18	Low Density Residence: Less than 6 DU per Acre	72	D	87	3.28	535.12	0.61%	70.80%	0.5	57.6	
18	Low Density Residence: Less than 6 DU per Acre	71	D	87	7.13	535.12	1.33%	72.13%	1.2	58.7	

ORCHARD DRAINAGE BASIN - CURVE NUMBER CALCULATION

BASIN	Land Use Category	SOIL MAP UNIT #	Hydrologic Soil Group	SUBREGION CN	SUBREGION AREA (ACRES)	SUBBASIN AREA (ACRES)	PERCENT OF SUBBASIN	CUMULATIVE PERCENT	AREAL WEIGHTED CN	CUMULATIVE CN	COMPOSITE CN
18	Low Density Residence: Less than 6 DU per Acre	72	D	87	0.09	535.12	0.02%	72.15%	0.0	58.7	
18	Low Density Residence: Less than 6 DU per Acre	71	D	87	0.00	535.12	0.00%	72.15%	0.0	58.7	
18	Low Density Residence: Less than 6 DU per Acre	72	D	87	3.66	535.12	0.68%	72.83%	0.6	59.3	
18	Low Density Residence: Less than 6 DU per Acre	60	D	87	0.01	535.12	0.00%	72.83%	0.0	59.3	
18	Low Density Residence: Less than 6 DU per Acre	71	D	87	25.01	535.12	4.67%	77.51%	4.1	63.4	
18	Low Density Residence: Less than 6 DU per Acre	71	D	87	0.40	535.12	0.07%	77.58%	0.1	63.5	
18	Low Density Residence: Less than 6 DU per Acre	71	D	87	1.47	535.12	0.27%	77.85%	0.2	63.7	
18	Low Density Residence: Less than 6 DU per Acre	71	D	87	1.64	535.12	0.31%	78.16%	0.3	64.0	
18	Low Density Residence: Less than 6 DU per Acre	60	D	87	4.31	535.12	0.81%	78.97%	0.7	64.7	
18	Low Density Residence: Less than 6 DU per Acre	71	D	87	0.34	535.12	0.06%	79.03%	0.1	64.7	
18	Low Density Residence: Less than 6 DU per Acre	60	D	87	0.10	535.12	0.02%	79.05%	0.0	64.7	
18	Low Density Residence: Less than 6 DU per Acre	71	D	87	0.01	535.12	0.00%	79.05%	0.0	64.7	
18	Low Density Residence: Less than 6 DU per Acre	72	D	87	0.00	535.12	0.00%	79.05%	0.0	64.7	
18	Low Density Residence: Less than 6 DU per Acre	71	D	87	0.00	535.12	0.00%	79.05%	0.0	64.7	
18	Low Density Residence: Less than 6 DU per Acre	131	water	87	0.27	535.12	0.05%	79.10%	0.0	64.8	
18	Agriculture	58	C	74	0.94	535.12	0.18%	79.28%	0.1	64.9	
18	Agriculture	58	C	74	0.14	535.12	0.03%	79.30%	0.0	64.9	
18	Agriculture	62	C	74	0.32	535.12	0.06%	79.36%	0.0	65.0	
18	Agriculture	72	D	80	12.39	535.12	2.31%	81.68%	1.9	66.8	
18	Agriculture	71	D	80	15.16	535.12	2.83%	84.51%	2.3	69.1	
18	Agriculture	72	D	80	0.00	535.12	0.00%	84.51%	0.0	69.1	
18	Agriculture	108	D	80	0.05	535.12	0.01%	84.52%	0.0	69.1	
18	Agriculture	71	D	80	1.24	535.12	0.23%	84.75%	0.2	69.3	
18	Agriculture	71	D	80	2.18	535.12	0.41%	85.16%	0.3	69.6	
18	Agriculture	72	D	80	3.65	535.12	0.68%	85.84%	0.5	70.2	
18	Agriculture	72	D	80	55.29	535.12	10.33%	96.18%	8.3	78.4	
18	Agriculture	59	D	80	0.28	535.12	0.05%	96.23%	0.0	78.5	
18	Agriculture	71	D	80	6.80	535.12	1.27%	97.50%	1.0	79.5	
18	Agriculture	72	D	80	1.02	535.12	0.19%	97.69%	0.2	79.6	
18	Agriculture	71	D	80	0.20	535.12	0.04%	97.73%	0.0	79.7	
18	Agriculture	72	D	80	0.01	535.12	0.00%	97.73%	0.0	79.7	
18	Agriculture	131	water	80	1.75	535.12	0.33%	98.06%	0.3	79.9	
18	Agriculture	131	water	80	6.48	535.12	1.21%	99.27%	1.0	80.9	
18	Commercial	58	C	94	2.29	535.12	0.43%	99.70%	0.4	81.3	
18	Street	58	C	91.35	1.22	535.12	0.23%	99.92%	0.2	81.5	
18	Street	58	C	91.35	0.20	535.12	0.04%	99.96%	0.0	81.5	
18	Street	60	D	93.1	0.21	535.12	0.04%	100.00%	0.0	81.6	**81.6**
2	Open Estates: Greater than 1 acre Lots	59	D	84	0.16	173.55	0.09%	0.09%	0.1	0.1	
2	Open Estates: Greater than 1 acre Lots	92	D	84	0.29	173.55	0.17%	0.26%	0.1	0.2	
2	Open Estates: Greater than 1 acre Lots	92	D	84	0.13	173.55	0.07%	0.33%	0.1	0.3	
2	Open Estates: Greater than 1 acre Lots	92	D	84	0.40	173.55	0.23%	0.57%	0.2	0.5	
2	Open Estates: Greater than 1 acre Lots	92	D	84	0.36	173.55	0.21%	0.77%	0.2	0.6	
2	Open Estates: Greater than 1 acre Lots	92	D	84	0.31	173.55	0.18%	0.95%	0.2	0.8	
2	Open Estates: Greater than 1 acre Lots	92	D	84	0.00	173.55	0.00%	0.95%	0.0	0.8	
2	Open Estates: Greater than 1 acre Lots	92	D	84	0.00	173.55	0.00%	0.95%	0.0	0.8	
2	Open Estates: Greater than 1 acre Lots	131	water	84	0.06	173.55	0.03%	0.98%	0.0	0.8	
2	Open Estates: Greater than 1 acre Lots	131	water	84	0.29	173.55	0.16%	1.15%	0.1	1.0	
2	Open Estates: Greater than 1 acre Lots	131	water	84	0.11	173.55	0.06%	1.21%	0.1	1.0	
2	Open Estates: Greater than 1 acre Lots	131	water	84	0.71	173.55	0.41%	1.62%	0.3	1.4	
2	Open Estates: Greater than 1 acre Lots	131	water	84	0.00	173.55	0.00%	1.62%	0.0	1.4	
2	Open Estates: Greater than 1 acre Lots	131	water	84	0.18	173.55	0.11%	1.73%	0.1	1.5	
2	Open Estates: Greater than 1 acre Lots	131	water	84	0.29	173.55	0.17%	1.90%	0.1	1.6	

ORCHARD DRAINAGE BASIN - CURVE NUMBER CALCULATION

BASIN	Land Use Category	SOIL MAP UNIT #	Hydrologic Soil Group	SUBREGION CN	SUBREGION AREA (ACRES)	SUBBASIN AREA (ACRES)	PERCENT OF SUBBASIN	CUMULATIVE PERCENT	AREAL WEIGHTED CN	CUMULATIVE CN	COMPOSITE CN
2	Open Estates: Greater than 1 acre Lots	131	water	84	0.94	173.55	0.54%	2.44%	0.5	2.0	
2	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.29	173.55	0.17%	2.60%	0.1	2.2	
2	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.74	173.55	0.42%	3.03%	0.4	2.6	
2	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.14	173.55	0.08%	3.11%	0.1	2.6	
2	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.16	173.55	0.09%	3.20%	0.1	2.7	
2	Low Density Residence: Less than 6 DU per Acre	59	D	87	4.12	173.55	2.37%	5.57%	2.1	4.8	
2	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.88	173.55	0.51%	6.08%	0.4	5.2	
2	Low Density Residence: Less than 6 DU per Acre	92	D	87	1.46	173.55	0.84%	6.92%	0.7	5.9	
2	Low Density Residence: Less than 6 DU per Acre	59	D	87	5.33	173.55	3.07%	9.99%	2.7	8.6	
2	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.20	173.55	0.11%	10.11%	0.1	8.7	
2	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.97	173.55	0.56%	10.66%	0.5	9.2	
2	Low Density Residence: Less than 6 DU per Acre	92	D	87	3.78	173.55	2.18%	12.84%	1.9	11.1	
2	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.97	173.55	0.56%	13.40%	0.5	11.6	
2	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.37	173.55	0.21%	13.61%	0.2	11.8	
2	Low Density Residence: Less than 6 DU per Acre	59	D	87	1.53	173.55	0.88%	14.50%	0.8	12.5	
2	Low Density Residence: Less than 6 DU per Acre	59	D	87	2.02	173.55	1.16%	15.66%	1.0	13.6	
2	Low Density Residence: Less than 6 DU per Acre	59	D	87	2.67	173.55	1.54%	17.20%	1.3	14.9	
2	Low Density Residence: Less than 6 DU per Acre	59	D	87	7.54	173.55	4.34%	21.55%	3.8	18.7	
2	Low Density Residence: Less than 6 DU per Acre	59	D	87	2.48	173.55	1.43%	22.98%	1.2	19.9	
2	Low Density Residence: Less than 6 DU per Acre	59	D	87	2.65	173.55	1.52%	24.50%	1.3	21.2	
2	Low Density Residence: Less than 6 DU per Acre	92	D	87	5.20	173.55	3.00%	27.50%	2.6	23.8	
2	Low Density Residence: Less than 6 DU per Acre	59	D	87	7.46	173.55	4.30%	31.80%	3.7	27.6	
2	Low Density Residence: Less than 6 DU per Acre	92	D	87	0.48	173.55	0.28%	32.07%	0.2	27.8	
2	Low Density Residence: Less than 6 DU per Acre	92	D	87	2.86	173.55	1.65%	33.72%	1.4	29.3	
2	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.00	173.55	0.00%	33.72%	0.0	29.3	
2	Low Density Residence: Less than 6 DU per Acre	92	D	87	0.00	173.55	0.00%	33.72%	0.0	29.3	
2	Low Density Residence: Less than 6 DU per Acre	131	water	87	0.20	173.55	0.12%	33.84%	0.1	29.4	
2	Low Density Residence: Less than 6 DU per Acre	131	water	87	0.35	173.55	0.20%	34.04%	0.2	29.5	
2	Agriculture	59	D	80	1.06	173.55	0.61%	34.66%	0.5	30.0	
2	Agriculture	59	D	80	3.63	173.55	2.09%	36.75%	1.7	31.7	
2	Agriculture	92	D	80	0.02	173.55	0.01%	36.76%	0.0	31.7	
2	Agriculture	59	D	80	4.90	173.55	2.82%	39.58%	2.3	34.0	
2	Agriculture	59	D	80	4.90	173.55	2.82%	42.40%	2.3	36.2	
2	Agriculture	59	D	80	2.70	173.55	1.55%	43.96%	1.2	37.5	
2	Agriculture	92	D	80	1.45	173.55	0.84%	44.79%	0.7	38.1	
2	Agriculture	59	D	80	7.78	173.55	4.48%	49.27%	3.6	41.7	
2	Agriculture	59	D	80	14.21	173.55	8.19%	57.46%	6.5	48.3	
2	Agriculture	59	D	80	4.56	173.55	2.63%	60.09%	2.1	50.4	
2	Agriculture	59	D	80	0.64	173.55	0.37%	60.46%	0.3	50.7	
2	Agriculture	92	D	80	0.28	173.55	0.16%	60.62%	0.1	50.8	
2	Agriculture	59	D	80	9.43	173.55	5.43%	66.05%	4.3	55.2	
2	Agriculture	92	D	80	2.41	173.55	1.39%	67.44%	1.1	56.3	
2	Agriculture	59	D	80	4.03	173.55	2.32%	69.77%	1.9	58.1	
2	Agriculture	59	D	80	0.00	173.55	0.00%	69.77%	0.0	58.1	
2	Agriculture	131	water	80	0.63	173.55	0.36%	70.13%	0.3	58.4	
2	Agriculture	131	water	80	0.01	173.55	0.00%	70.14%	0.0	58.4	
2	Agriculture	131	water	80	0.31	173.55	0.18%	70.31%	0.1	58.6	
2	Commercial	59	D	95	0.50	173.55	0.29%	70.60%	0.3	58.8	
2	Commercial	59	D	95	0.42	173.55	0.24%	70.85%	0.2	59.1	
2	Commercial	59	D	95	0.83	173.55	0.48%	71.33%	0.5	59.5	
2	Commercial	59	D	95	0.71	173.55	0.41%	71.74%	0.4	59.9	

ORCHARD DRAINAGE BASIN - CURVE NUMBER CALCULATION

BASIN	Land Use Category	SOIL MAP UNIT #	Hydrologic Soil Group	SUBREGION CN	SUBREGION AREA (ACRES)	SUBBASIN AREA (ACRES)	PERCENT OF SUBBASIN	CUMULATIVE PERCENT	AREAL WEIGHTED CN	CUMULATIVE CN	COMPOSITE CN
2	Commercial	59	D	95	0.44	173.55	0.25%	71.99%	0.2	60.2	
2	Commercial	59	D	95	0.30	173.55	0.17%	72.17%	0.2	60.3	
2	Commercial	59	D	95	0.73	173.55	0.42%	72.59%	0.4	60.7	
2	Commercial	59	D	95	0.39	173.55	0.22%	72.81%	0.2	60.9	
2	Commercial	59	D	95	0.37	173.55	0.21%	73.03%	0.2	61.1	
2	Commercial	59	D	95	0.21	173.55	0.12%	73.15%	0.1	61.3	
2	Commercial	59	D	95	0.12	173.55	0.07%	73.21%	0.1	61.3	
2	Commercial	59	D	95	2.78	173.55	1.60%	74.81%	1.5	62.8	
2	Commercial	59	D	95	0.27	173.55	0.15%	74.97%	0.1	63.0	
2	Commercial	59	D	95	1.08	173.55	0.62%	75.59%	0.6	63.6	
2	Commercial	59	D	95	4.91	173.55	2.83%	78.42%	2.7	66.3	
2	Commercial	59	D	95	5.12	173.55	2.95%	81.37%	2.8	69.1	
2	Commercial	59	D	95	1.06	173.55	0.61%	81.98%	0.6	69.6	
2	Commercial	59	D	95	0.00	173.55	0.00%	81.98%	0.0	69.6	
2	Medium to High Density Res	59	D	93	0.66	173.55	0.38%	82.36%	0.4	70.0	
2	Medium to High Density Res	59	D	93	2.47	173.55	1.42%	83.78%	1.3	71.3	
2	Medium to High Density Res	59	D	93	0.53	173.55	0.30%	84.09%	0.3	71.6	
2	Medium to High Density Res	59	D	93	2.11	173.55	1.22%	85.30%	1.1	72.7	
2	Medium to High Density Res	59	D	93	4.75	173.55	2.74%	88.04%	2.5	75.3	
2	Medium to High Density Res	59	D	93	1.09	173.55	0.63%	88.67%	0.6	75.9	
2	Street	59	D	93.1	6.71	173.55	3.87%	92.54%	3.6	79.5	
2	Street	59	D	93.1	1.04	173.55	0.60%	93.13%	0.6	80.0	
2	Street	59	D	93.1	6.34	173.55	3.65%	96.79%	3.4	83.4	
2	Street	92	D	93.1	0.27	173.55	0.15%	96.94%	0.1	83.6	
2	Street	59	D	93.1	4.71	173.55	2.71%	99.66%	2.5	86.1	
2	Street	92	D	93.1	0.37	173.55	0.21%	99.87%	0.2	86.3	
2	Street	59	D	93.1	0.00	173.55	0.00%	99.87%	0.0	86.3	
2	Street	59	D	93.1	0.00	173.55	0.00%	99.87%	0.0	86.3	
2	Street	131	water	93.1	0.23	173.55	0.13%	100.00%	0.1	86.4	**86.4**
20	Open Estates: Greater than 1 acre Lots	58	C	79	39.77	88.63	44.88%	44.88%	35.5	35.5	
20	Open Estates: Greater than 1 acre Lots	62	C	79	0.03	88.63	0.04%	44.91%	0.0	35.5	
20	Open Estates: Greater than 1 acre Lots	58	C	79	1.35	88.63	1.52%	46.44%	1.2	36.7	
20	Open Estates: Greater than 1 acre Lots	58	C	79	0.06	88.63	0.07%	46.50%	0.1	36.7	
20	Open Estates: Greater than 1 acre Lots	58	C	79	0.18	88.63	0.20%	46.71%	0.2	36.9	
20	Open Estates: Greater than 1 acre Lots	71	D	84	13.74	88.63	15.50%	62.21%	13.0	49.9	
20	Open Estates: Greater than 1 acre Lots	63	D	84	10.89	88.63	12.29%	74.50%	10.3	60.2	
20	Low Density Residence: Less than 6 DU per Acre	58	C	83	0.48	88.63	0.54%	75.04%	0.4	60.7	
20	Low Density Residence: Less than 6 DU per Acre	58	C	83	1.45	88.63	1.64%	76.67%	1.4	62.0	
20	Low Density Residence: Less than 6 DU per Acre	58	C	83	0.05	88.63	0.06%	76.73%	0.0	62.1	
20	Low Density Residence: Less than 6 DU per Acre	58	C	83	0.34	88.63	0.38%	77.11%	0.3	62.4	
20	Low Density Residence: Less than 6 DU per Acre	58	C	83	2.36	88.63	2.66%	79.78%	2.2	64.6	
20	Low Density Residence: Less than 6 DU per Acre	58	C	83	1.21	88.63	1.36%	81.14%	1.1	65.8	
20	Low Density Residence: Less than 6 DU per Acre	58	C	83	1.17	88.63	1.32%	82.46%	1.1	66.9	
20	Low Density Residence: Less than 6 DU per Acre	58	C	83	0.01	88.63	0.01%	82.47%	0.0	66.9	
20	Commercial	58	C	94	0.07	88.63	0.08%	82.55%	0.1	66.9	
20	Commercial	58	C	94	5.79	88.63	6.53%	89.08%	6.1	73.1	
20	Commercial	58	C	94	1.44	88.63	1.63%	90.71%	1.5	74.6	
20	Commercial	58	C	94	2.41	88.63	2.72%	93.43%	2.6	77.2	
20	Street	58	C	91.35	1.79	88.63	2.02%	95.45%	1.8	79.0	
20	Street	58	C	91.35	2.64	88.63	2.98%	98.43%	2.7	81.7	
20	Street	71	D	93.1	1.39	88.63	1.57%	100.00%	1.5	83.2	**83.2**
22	Open Estates: Greater than 1 acre Lots	62	C	79	1.69	107.01	1.58%	1.58%	1.2	1.2	

ORCHARD DRAINAGE BASIN - CURVE NUMBER CALCULATION

BASIN	Land Use Category	SOIL MAP UNIT #	Hydrologic Soil Group	SUBREGION CN	SUBREGION AREA (ACRES)	SUBBASIN AREA (ACRES)	PERCENT OF SUBBASIN	CUMULATIVE PERCENT	AREAL WEIGHTED CN	CUMULATIVE CN	COMPOSITE CN
22	Open Estates: Greater than 1 acre Lots	62	C	79	0.23	107.01	0.21%	1.79%	0.2	1.4	
22	Open Estates: Greater than 1 acre Lots	58	C	79	1.09	107.01	1.02%	2.80%	0.8	2.2	
22	Open Estates: Greater than 1 acre Lots	62	C	79	1.72	107.01	1.60%	4.41%	1.3	3.5	
22	Open Estates: Greater than 1 acre Lots	58	C	79	0.18	107.01	0.17%	4.58%	0.1	3.6	
22	Open Estates: Greater than 1 acre Lots	62	C	79	0.13	107.01	0.12%	4.70%	0.1	3.7	
22	Open Estates: Greater than 1 acre Lots	62	C	79	0.00	107.01	0.00%	4.70%	0.0	3.7	
22	Open Estates: Greater than 1 acre Lots	62	C	79	0.00	107.01	0.00%	4.70%	0.0	3.7	
22	Open Estates: Greater than 1 acre Lots	62	C	79	0.00	107.01	0.00%	4.70%	0.0	3.7	
22	Open Estates: Greater than 1 acre Lots	71	D	84	0.01	107.01	0.01%	4.71%	0.0	3.7	
22	Open Estates: Greater than 1 acre Lots	71	D	84	1.96	107.01	1.84%	6.55%	1.5	5.3	
22	Open Estates: Greater than 1 acre Lots	63	D	84	1.36	107.01	1.27%	7.82%	1.1	6.3	
22	Open Estates: Greater than 1 acre Lots	71	D	84	4.23	107.01	3.95%	11.77%	3.3	9.7	
22	Open Estates: Greater than 1 acre Lots	63	D	84	3.74	107.01	3.50%	15.27%	2.9	12.6	
22	Open Estates: Greater than 1 acre Lots	71	D	84	1.37	107.01	1.28%	16.55%	1.1	13.7	
22	Open Estates: Greater than 1 acre Lots	63	D	84	2.21	107.01	2.07%	18.62%	1.7	15.4	
22	Open Estates: Greater than 1 acre Lots	71	D	84	0.00	107.01	0.00%	18.62%	0.0	15.4	
22	Open Estates: Greater than 1 acre Lots	63	D	84	0.00	107.01	0.00%	18.62%	0.0	15.4	
22	Open Estates: Greater than 1 acre Lots	71	D	84	0.00	107.01	0.00%	18.62%	0.0	15.4	
22	Low Density Residence: Less than 6 DU per Acre	62	C	83	2.23	107.01	2.09%	20.70%	1.7	17.1	
22	Low Density Residence: Less than 6 DU per Acre	62	C	83	0.58	107.01	0.54%	21.24%	0.4	17.6	
22	Low Density Residence: Less than 6 DU per Acre	61	C	83	0.15	107.01	0.14%	21.38%	0.1	17.7	
22	Low Density Residence: Less than 6 DU per Acre	61	C	83	1.07	107.01	1.00%	22.38%	0.8	18.5	
22	Low Density Residence: Less than 6 DU per Acre	61	C	83	0.00	107.01	0.00%	22.39%	0.0	18.5	
22	Low Density Residence: Less than 6 DU per Acre	61	C	83	2.57	107.01	2.40%	24.79%	2.0	20.5	
22	Low Density Residence: Less than 6 DU per Acre	62	C	83	20.77	107.01	19.41%	44.19%	16.1	36.6	
22	Low Density Residence: Less than 6 DU per Acre	61	C	83	0.13	107.01	0.12%	44.32%	0.1	36.7	
22	Low Density Residence: Less than 6 DU per Acre	62	C	83	2.30	107.01	2.14%	46.46%	1.8	38.5	
22	Low Density Residence: Less than 6 DU per Acre	62	C	83	0.75	107.01	0.70%	47.16%	0.6	39.1	
22	Low Density Residence: Less than 6 DU per Acre	61	C	83	2.82	107.01	2.64%	49.80%	2.2	41.3	
22	Low Density Residence: Less than 6 DU per Acre	61	C	83	2.18	107.01	2.03%	51.83%	1.7	43.0	
22	Low Density Residence: Less than 6 DU per Acre	61	C	83	1.63	107.01	1.52%	53.35%	1.3	44.2	
22	Low Density Residence: Less than 6 DU per Acre	62	C	83	0.03	107.01	0.02%	53.38%	0.0	44.3	
22	Low Density Residence: Less than 6 DU per Acre	62	C	83	0.00	107.01	0.00%	53.38%	0.0	44.3	
22	Low Density Residence: Less than 6 DU per Acre	61	C	83	0.00	107.01	0.00%	53.38%	0.0	44.3	
22	Low Density Residence: Less than 6 DU per Acre	61	C	83	0.00	107.01	0.00%	53.38%	0.0	44.3	
22	Low Density Residence: Less than 6 DU per Acre	61	C	83	0.00	107.01	0.00%	53.38%	0.0	44.3	
22	Low Density Residence: Less than 6 DU per Acre	61	C	83	0.00	107.01	0.00%	53.38%	0.0	44.3	
22	Low Density Residence: Less than 6 DU per Acre	62	C	83	0.00	107.01	0.00%	53.38%	0.0	44.3	
22	Low Density Residence: Less than 6 DU per Acre	62	C	83	0.00	107.01	0.00%	53.38%	0.0	44.3	
22	Low Density Residence: Less than 6 DU per Acre	62	C	83	0.00	107.01	0.00%	53.38%	0.0	44.3	
22	Low Density Residence: Less than 6 DU per Acre	62	C	83	0.00	107.01	0.00%	53.38%	0.0	44.3	
22	Low Density Residence: Less than 6 DU per Acre	71	D	87	0.91	107.01	0.85%	54.23%	0.7	45.0	
22	Low Density Residence: Less than 6 DU per Acre	71	D	87	1.55	107.01	1.45%	55.68%	1.3	46.3	
22	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.10	107.01	0.10%	55.77%	0.1	46.3	
22	Low Density Residence: Less than 6 DU per Acre	71	D	87	9.51	107.01	8.88%	64.65%	7.7	54.1	
22	Low Density Residence: Less than 6 DU per Acre	71	D	87	0.53	107.01	0.50%	65.15%	0.4	54.5	
22	Low Density Residence: Less than 6 DU per Acre	71	D	87	3.29	107.01	3.08%	68.23%	2.7	57.2	
22	Low Density Residence: Less than 6 DU per Acre	71	D	87	1.19	107.01	1.11%	69.34%	1.0	58.1	
22	Low Density Residence: Less than 6 DU per Acre	71	D	87	3.56	107.01	3.33%	72.67%	2.9	61.0	
22	Low Density Residence: Less than 6 DU per Acre	63	D	87	9.70	107.01	9.06%	81.73%	7.9	68.9	
22	Low Density Residence: Less than 6 DU per Acre	71	D	87	0.39	107.01	0.37%	82.10%	0.3	69.2	
22	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.17	107.01	0.16%	82.26%	0.1	69.4	

ORCHARD DRAINAGE BASIN - CURVE NUMBER CALCULATION

BASIN	Land Use Category	SOIL MAP UNIT #	Hydrologic Soil Group	SUBREGION CN	SUBREGION AREA (ACRES)	SUBBASIN AREA (ACRES)	PERCENT OF SUBBASIN	CUMULATIVE PERCENT	AREAL WEIGHTED CN	CUMULATIVE CN	COMPOSITE CN
22	Low Density Residence: Less than 6 DU per Acre	71	D	87	4.46	107.01	4.16%	86.42%	3.6	73.0	
22	Low Density Residence: Less than 6 DU per Acre	71	D	87	0.26	107.01	0.24%	86.66%	0.2	73.2	
22	Low Density Residence: Less than 6 DU per Acre	71	D	87	1.98	107.01	1.85%	88.51%	1.6	74.8	
22	Low Density Residence: Less than 6 DU per Acre	71	D	87	0.01	107.01	0.01%	88.52%	0.0	74.8	
22	Low Density Residence: Less than 6 DU per Acre	71	D	87	0.00	107.01	0.00%	88.52%	0.0	74.8	
22	Low Density Residence: Less than 6 DU per Acre	71	D	87	0.00	107.01	0.00%	88.52%	0.0	74.8	
22	Low Density Residence: Less than 6 DU per Acre	71	D	87	0.00	107.01	0.00%	88.53%	0.0	74.8	
22	Low Density Residence: Less than 6 DU per Acre	71	D	87	0.00	107.01	0.00%	88.53%	0.0	74.8	
22	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.00	107.01	0.00%	88.53%	0.0	74.8	
22	Low Density Residence: Less than 6 DU per Acre	71	D	87	0.00	107.01	0.00%	88.53%	0.0	74.8	
22	Agriculture	61	C	74	0.73	107.01	0.68%	89.21%	0.5	75.3	
22	Agriculture	61	C	74	0.13	107.01	0.12%	89.33%	0.1	75.4	
22	Agriculture	62	C	74	1.00	107.01	0.94%	90.26%	0.7	76.1	
22	Agriculture	61	C	74	0.23	107.01	0.22%	90.48%	0.2	76.3	
22	Agriculture	61	C	74	0.10	107.01	0.09%	90.57%	0.1	76.3	
22	Agriculture	62	C	74	0.00	107.01	0.00%	90.57%	0.0	76.3	
22	Agriculture	71	D	80	7.57	107.01	7.08%	97.64%	5.7	82.0	
22	Agriculture	71	D	80	0.03	107.01	0.02%	97.67%	0.0	82.0	
22	Agriculture	71	D	80	0.00	107.01	0.00%	97.67%	0.0	82.0	
22	Street	61	C	91.35	0.17	107.01	0.16%	97.83%	0.1	82.2	
22	Street	61	C	91.35	0.00	107.01	0.00%	97.83%	0.0	82.2	
22	Street	61	C	91.35	0.00	107.01	0.00%	97.83%	0.0	82.2	
22	Street	61	C	91.35	0.00	107.01	0.00%	97.83%	0.0	82.2	
22	Street	61	C	91.35	0.00	107.01	0.00%	97.83%	0.0	82.2	
22	Street	71	D	93.1	2.23	107.01	2.08%	99.91%	1.9	84.1	
22	Street	71	D	93.1	0.10	107.01	0.09%	100.00%	0.1	84.2	
22	Street	71	D	93.1	0.00	107.01	0.00%	100.00%	0.0	84.2	
22	Street	71	D	93.1	0.00	107.01	0.00%	100.01%	0.0	84.2	
22	Street	71	D	93.1	0.00	107.01	0.00%	100.01%	0.0	84.2	
22	Street	71	D	93.1	0.00	107.01	0.00%	100.01%	0.0	84.2	**84.2**
24	Open Estates: Greater than 1 acre Lots	58	C	79	0.00	150.96	0.00%	0.00%	0.0	0.0	
24	Open Estates: Greater than 1 acre Lots	58	C	79	10.67	150.96	7.07%	7.07%	5.6	5.6	
24	Open Estates: Greater than 1 acre Lots	61	C	79	0.00	150.96	0.00%	7.07%	0.0	5.6	
24	Open Estates: Greater than 1 acre Lots	58	C	79	0.13	150.96	0.09%	7.16%	0.1	5.7	
24	Open Estates: Greater than 1 acre Lots	61	C	79	4.73	150.96	3.14%	10.29%	2.5	8.1	
24	Open Estates: Greater than 1 acre Lots	61	C	79	0.39	150.96	0.26%	10.55%	0.2	8.3	
24	Open Estates: Greater than 1 acre Lots	58	C	79	2.31	150.96	1.53%	12.08%	1.2	9.5	
24	Open Estates: Greater than 1 acre Lots	61	C	79	1.45	150.96	0.96%	13.04%	0.8	10.3	
24	Open Estates: Greater than 1 acre Lots	58	C	79	1.15	150.96	0.76%	13.80%	0.6	10.9	
24	Open Estates: Greater than 1 acre Lots	58	C	79	0.34	150.96	0.22%	14.02%	0.2	11.1	
24	Open Estates: Greater than 1 acre Lots	61	C	79	0.01	150.96	0.01%	14.03%	0.0	11.1	
24	Open Estates: Greater than 1 acre Lots	71	D	84	0.74	150.96	0.49%	14.52%	0.4	11.5	
24	Open Estates: Greater than 1 acre Lots	71	D	84	24.83	150.96	16.45%	30.97%	13.8	25.3	
24	Open Estates: Greater than 1 acre Lots	60	D	84	5.80	150.96	3.84%	34.81%	3.2	28.5	
24	Open Estates: Greater than 1 acre Lots	71	D	84	4.40	150.96	2.91%	37.72%	2.4	31.0	
24	Open Estates: Greater than 1 acre Lots	71	D	84	0.31	150.96	0.20%	37.93%	0.2	31.2	
24	Open Estates: Greater than 1 acre Lots	60	D	84	1.98	150.96	1.31%	39.24%	1.1	32.3	
24	Open Estates: Greater than 1 acre Lots	71	D	84	9.49	150.96	6.29%	45.52%	5.3	37.5	
24	Open Estates: Greater than 1 acre Lots	71	D	84	5.74	150.96	3.80%	49.33%	3.2	40.7	
24	Open Estates: Greater than 1 acre Lots	60	D	84	16.31	150.96	10.80%	60.13%	9.1	49.8	
24	Open Estates: Greater than 1 acre Lots	71	D	84	0.11	150.96	0.07%	60.20%	0.1	49.9	
24	Open Estates: Greater than 1 acre Lots	60	D	84	0.25	150.96	0.16%	60.36%	0.1	50.0	

ORCHARD DRAINAGE BASIN - CURVE NUMBER CALCULATION

BASIN	Land Use Category	SOIL MAP UNIT #	Hydrologic Soil Group	SUBREGION CN	SUBREGION AREA (ACRES)	SUBBASIN AREA (ACRES)	PERCENT OF SUBBASIN	CUMULATIVE PERCENT	AREAL WEIGHTED CN	CUMULATIVE CN	COMPOSITE CN
24	Open Estates: Greater than 1 acre Lots	71	D	84	0.02	150.96	0.01%	60.37%	0.0	50.0	
24	Open Estates: Greater than 1 acre Lots	71	D	84	0.00	150.96	0.00%	60.37%	0.0	50.0	
24	Open Estates: Greater than 1 acre Lots	60	D	84	0.00	150.96	0.00%	60.37%	0.0	50.0	
24	Open Estates: Greater than 1 acre Lots	71	D	84	0.00	150.96	0.00%	60.37%	0.0	50.0	
24	Open Estates: Greater than 1 acre Lots	60	D	84	0.00	150.96	0.00%	60.37%	0.0	50.0	
24	Open Estates: Greater than 1 acre Lots	71	D	84	0.00	150.96	0.00%	60.37%	0.0	50.0	
24	Low Density Residence: Less than 6 DU per Acre	61	C	83	2.55	150.96	1.69%	62.06%	1.4	51.4	
24	Low Density Residence: Less than 6 DU per Acre	61	C	83	1.65	150.96	1.09%	63.16%	0.9	52.3	
24	Low Density Residence: Less than 6 DU per Acre	61	C	83	0.86	150.96	0.57%	63.73%	0.5	52.8	
24	Low Density Residence: Less than 6 DU per Acre	61	C	83	0.73	150.96	0.48%	64.21%	0.4	53.2	
24	Low Density Residence: Less than 6 DU per Acre	61	C	83	1.43	150.96	0.95%	65.16%	0.8	54.0	
24	Low Density Residence: Less than 6 DU per Acre	58	C	83	0.44	150.96	0.29%	65.45%	0.2	54.2	
24	Low Density Residence: Less than 6 DU per Acre	58	C	83	0.29	150.96	0.20%	65.64%	0.2	54.4	
24	Low Density Residence: Less than 6 DU per Acre	58	C	83	0.00	150.96	0.00%	65.65%	0.0	54.4	
24	Low Density Residence: Less than 6 DU per Acre	61	C	83	3.20	150.96	2.12%	67.76%	1.8	56.1	
24	Low Density Residence: Less than 6 DU per Acre	71	D	87	1.74	150.96	1.16%	68.92%	1.0	57.2	
24	Low Density Residence: Less than 6 DU per Acre	71	D	87	2.65	150.96	1.76%	70.68%	1.5	58.7	
24	Low Density Residence: Less than 6 DU per Acre	71	D	87	0.97	150.96	0.64%	71.32%	0.6	59.2	
24	Low Density Residence: Less than 6 DU per Acre	71	D	87	1.54	150.96	1.02%	72.34%	0.9	60.1	
24	Low Density Residence: Less than 6 DU per Acre	60	D	87	0.25	150.96	0.17%	72.51%	0.1	60.3	
24	Low Density Residence: Less than 6 DU per Acre	71	D	87	0.65	150.96	0.43%	72.94%	0.4	60.6	
24	Low Density Residence: Less than 6 DU per Acre	71	D	87	0.96	150.96	0.63%	73.57%	0.6	61.2	
24	Low Density Residence: Less than 6 DU per Acre	71	D	87	4.57	150.96	3.03%	76.60%	2.6	63.8	
24	Low Density Residence: Less than 6 DU per Acre	60	D	87	0.59	150.96	0.39%	76.99%	0.3	64.2	
24	Low Density Residence: Less than 6 DU per Acre	71	D	87	1.39	150.96	0.92%	77.91%	0.8	65.0	
24	Low Density Residence: Less than 6 DU per Acre	71	D	87	8.95	150.96	5.93%	83.84%	5.2	70.1	
24	Low Density Residence: Less than 6 DU per Acre	71	D	87	4.46	150.96	2.95%	86.80%	2.6	72.7	
24	Low Density Residence: Less than 6 DU per Acre	71	D	87	0.29	150.96	0.19%	86.99%	0.2	72.9	
24	Low Density Residence: Less than 6 DU per Acre	71	D	87	1.05	150.96	0.69%	87.68%	0.6	73.5	
24	Low Density Residence: Less than 6 DU per Acre	71	D	87	0.70	150.96	0.47%	88.15%	0.4	73.9	
24	Low Density Residence: Less than 6 DU per Acre	71	D	87	0.40	150.96	0.26%	88.41%	0.2	74.1	
24	Low Density Residence: Less than 6 DU per Acre	71	D	87	1.29	150.96	0.85%	89.27%	0.7	74.9	
24	Low Density Residence: Less than 6 DU per Acre	71	D	87	0.00	150.96	0.00%	89.27%	0.0	74.9	
24	Low Density Residence: Less than 6 DU per Acre	71	D	87	0.00	150.96	0.00%	89.27%	0.0	74.9	
24	Low Density Residence: Less than 6 DU per Acre	71	D	87	0.02	150.96	0.01%	89.28%	0.0	74.9	
24	Low Density Residence: Less than 6 DU per Acre	71	D	87	0.00	150.96	0.00%	89.28%	0.0	74.9	
24	Low Density Residence: Less than 6 DU per Acre	60	D	87	0.00	150.96	0.00%	89.28%	0.0	74.9	
24	Low Density Residence: Less than 6 DU per Acre	71	D	87	0.00	150.96	0.00%	89.28%	0.0	74.9	
24	Low Density Residence: Less than 6 DU per Acre	60	D	87	0.00	150.96	0.00%	89.28%	0.0	74.9	
24	Agriculture	61	C	74	7.28	150.96	4.82%	94.10%	3.6	78.4	
24	Agriculture	71	D	80	0.50	150.96	0.33%	94.43%	0.3	78.7	
24	Agriculture	71	D	80	5.09	150.96	3.37%	97.80%	2.7	81.4	
24	Agriculture	60	D	80	2.87	150.96	1.90%	99.71%	1.5	82.9	
24	Agriculture	71	D	80	0.00	150.96	0.00%	99.71%	0.0	82.9	
24	Commercial	58	C	94	0.02	150.96	0.01%	99.72%	0.0	82.9	
24	Commercial	58	C	94	0.33	150.96	0.22%	99.94%	0.2	83.1	
24	Street	61	C	91.35	0.11	150.96	0.07%	100.01%	0.1	83.2	**83.2**
26	Open Estates: Greater than 1 acre Lots	59	D	84	0.45	33.45	1.35%	1.35%	1.1	1.1	
26	Low Density Residence: Less than 6 DU per Acre	59	D	87	1.50	33.45	4.48%	5.83%	3.9	5.0	
26	Low Density Residence: Less than 6 DU per Acre	59	D	87	4.16	33.45	12.42%	18.25%	10.8	15.8	
26	Low Density Residence: Less than 6 DU per Acre	59	D	87	8.33	33.45	24.90%	43.15%	21.7	37.5	
26	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.41	33.45	1.24%	44.38%	1.1	38.6	

ORCHARD DRAINAGE BASIN - CURVE NUMBER CALCULATION

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26	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.24	33.45	0.71%	45.10%	0.6	39.2	
26	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.26	33.45	0.79%	45.88%	0.7	39.9	
26	Low Density Residence: Less than 6 DU per Acre	59	D	87	3.46	33.45	10.36%	56.24%	9.0	48.9	
26	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.89	33.45	2.66%	58.89%	2.3	51.2	
26	Low Density Residence: Less than 6 DU per Acre	59	D	87	1.91	33.45	5.72%	64.62%	5.0	56.2	
26	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.38	33.45	1.14%	65.75%	1.0	57.2	
26	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.49	33.45	1.47%	67.22%	1.3	58.4	
26	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.39	33.45	1.16%	68.38%	1.0	59.4	
26	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.32	33.45	0.94%	69.32%	0.8	60.3	
26	Agriculture	59	D	80	0.48	33.45	1.43%	70.74%	1.1	61.4	
26	Medium to High Density Res	59	D	93	0.43	33.45	1.30%	72.04%	1.2	62.6	
26	Medium to High Density Res	59	D	93	0.54	33.45	1.63%	73.67%	1.5	64.1	
26	Street	59	D	93.1	8.81	33.45	26.33%	100.00%	24.5	88.6	**88.6**
28	Open Estates: Greater than 1 acre Lots	61	C	79	1.29	42.06	3.06%	3.06%	2.4	2.4	
28	Open Estates: Greater than 1 acre Lots	61	C	79	0.00	42.06	0.01%	3.06%	0.0	2.4	
28	Open Estates: Greater than 1 acre Lots	61	C	79	0.08	42.06	0.19%	3.25%	0.2	2.6	
28	Open Estates: Greater than 1 acre Lots	59	D	84	0.08	42.06	0.19%	3.44%	0.2	2.7	
28	Open Estates: Greater than 1 acre Lots	59	D	84	0.15	42.06	0.37%	3.81%	0.3	3.0	
28	Open Estates: Greater than 1 acre Lots	59	D	84	0.00	42.06	0.01%	3.82%	0.0	3.0	
28	Low Density Residence: Less than 6 DU per Acre	61	C	83	0.32	42.06	0.75%	4.57%	0.6	3.7	
28	Low Density Residence: Less than 6 DU per Acre	61	C	83	0.17	42.06	0.39%	4.97%	0.3	4.0	
28	Low Density Residence: Less than 6 DU per Acre	61	C	83	0.01	42.06	0.02%	4.99%	0.0	4.0	
28	Low Density Residence: Less than 6 DU per Acre	61	C	83	0.03	42.06	0.07%	5.06%	0.1	4.1	
28	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.12	42.06	0.30%	5.36%	0.3	4.3	
28	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.13	42.06	0.30%	5.66%	0.3	4.6	
28	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.12	42.06	0.30%	5.96%	0.3	4.9	
28	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.12	42.06	0.28%	6.24%	0.2	5.1	
28	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.35	42.06	0.82%	7.06%	0.7	5.8	
28	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.24	42.06	0.56%	7.62%	0.5	6.3	
28	Low Density Residence: Less than 6 DU per Acre	59	D	87	1.80	42.06	4.29%	11.91%	3.7	10.0	
28	Low Density Residence: Less than 6 DU per Acre	59	D	87	2.21	42.06	5.26%	17.17%	4.6	14.6	
28	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.26	42.06	0.61%	17.78%	0.5	15.1	
28	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.13	42.06	0.32%	18.10%	0.3	15.4	
28	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.30	42.06	0.70%	18.80%	0.6	16.0	
28	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.40	42.06	0.96%	19.76%	0.8	16.9	
28	Low Density Residence: Less than 6 DU per Acre	59	D	87	8.09	42.06	19.22%	38.99%	16.7	33.6	
28	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.14	42.06	0.32%	39.31%	0.3	33.9	
28	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.56	42.06	1.33%	40.64%	1.2	35.0	
28	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.12	42.06	0.28%	40.92%	0.2	35.3	
28	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.12	42.06	0.28%	41.20%	0.2	35.5	
28	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.26	42.06	0.61%	41.80%	0.5	36.0	
28	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.48	42.06	1.14%	42.94%	1.0	37.0	
28	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.24	42.06	0.56%	43.51%	0.5	37.5	
28	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.22	42.06	0.52%	44.03%	0.5	38.0	
28	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.13	42.06	0.30%	44.33%	0.3	38.2	
28	Low Density Residence: Less than 6 DU per Acre	59	D	87	2.81	42.06	6.69%	51.02%	5.8	44.1	
28	Low Density Residence: Less than 6 DU per Acre	59	D	87	2.79	42.06	6.63%	57.65%	5.8	49.8	
28	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.43	42.06	1.02%	58.67%	0.9	50.7	
28	Low Density Residence: Less than 6 DU per Acre	59	D	87	1.40	42.06	3.34%	62.01%	2.9	53.6	
28	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.66	42.06	1.56%	63.57%	1.4	55.0	
28	Low Density Residence: Less than 6 DU per Acre	59	D	87	1.55	42.06	3.68%	67.25%	3.2	58.2	
28	Commercial	59	D	95	0.37	42.06	0.88%	68.13%	0.8	59.0	

ORCHARD DRAINAGE BASIN - CURVE NUMBER CALCULATION

BASIN	Land Use Category	SOIL MAP UNIT #	Hydrologic Soil Group	SUBREGION CN	SUBREGION AREA (ACRES)	SUBBASIN AREA (ACRES)	PERCENT OF SUBBASIN	CUMULATIVE PERCENT	AREAL WEIGHTED CN	CUMULATIVE CN	COMPOSITE CN
28	Medium to High Density Res	59	D	93	4.19	42.06	9.96%	78.09%	9.3	68.3	
28	Medium to High Density Res	59	D	93	0.77	42.06	1.83%	79.92%	1.7	70.0	
28	Medium to High Density Res	59	D	93	2.10	42.06	5.00%	84.92%	4.6	74.6	
28	Street	61	C	91.35	0.46	42.06	1.10%	86.02%	1.0	75.6	
28	Street	59	D	93.1	5.13	42.06	12.19%	98.21%	11.3	87.0	
28	Street	59	D	93.1	0.75	42.06	1.79%	100.00%	1.7	88.7	**88.7**
30	Open Estates: Greater than 1 acre Lots	61	C	79	0.00	68.34	0.00%	0.00%	0.0	0.0	
30	Open Estates: Greater than 1 acre Lots	61	C	79	0.18	68.34	0.26%	0.26%	0.2	0.2	
30	Open Estates: Greater than 1 acre Lots	61	C	79	13.13	68.34	19.21%	19.47%	15.2	15.4	
30	Open Estates: Greater than 1 acre Lots	61	C	79	0.77	68.34	1.13%	20.61%	0.9	16.3	
30	Open Estates: Greater than 1 acre Lots	58	C	79	0.09	68.34	0.13%	20.74%	0.1	16.4	
30	Open Estates: Greater than 1 acre Lots	61	C	79	0.00	68.34	0.00%	20.74%	0.0	16.4	
30	Open Estates: Greater than 1 acre Lots	61	C	79	0.03	68.34	0.04%	20.78%	0.0	16.4	
30	Open Estates: Greater than 1 acre Lots	61	C	79	0.00	68.34	0.00%	20.78%	0.0	16.4	
30	Open Estates: Greater than 1 acre Lots	71	D	84	0.17	68.34	0.25%	21.04%	0.2	16.6	
30	Open Estates: Greater than 1 acre Lots	59	D	84	0.12	68.34	0.18%	21.22%	0.2	16.8	
30	Open Estates: Greater than 1 acre Lots	71	D	84	4.53	68.34	6.63%	27.85%	5.6	22.4	
30	Open Estates: Greater than 1 acre Lots	59	D	84	0.08	68.34	0.12%	27.97%	0.1	22.5	
30	Open Estates: Greater than 1 acre Lots	71	D	84	0.05	68.34	0.07%	28.04%	0.1	22.5	
30	Low Density Residence: Less than 6 DU per Acre	61	C	83	0.99	68.34	1.45%	29.49%	1.2	23.7	
30	Low Density Residence: Less than 6 DU per Acre	61	C	83	0.10	68.34	0.15%	29.64%	0.1	23.8	
30	Low Density Residence: Less than 6 DU per Acre	61	C	83	2.85	68.34	4.17%	33.81%	3.5	27.3	
30	Low Density Residence: Less than 6 DU per Acre	61	C	83	2.82	68.34	4.13%	37.94%	3.4	30.7	
30	Low Density Residence: Less than 6 DU per Acre	61	C	83	1.12	68.34	1.63%	39.57%	1.4	32.1	
30	Low Density Residence: Less than 6 DU per Acre	61	C	83	0.64	68.34	0.93%	40.51%	0.8	32.9	
30	Low Density Residence: Less than 6 DU per Acre	61	C	83	2.90	68.34	4.24%	44.75%	3.5	36.4	
30	Low Density Residence: Less than 6 DU per Acre	61	C	83	0.97	68.34	1.42%	46.17%	1.2	37.6	
30	Low Density Residence: Less than 6 DU per Acre	61	C	83	0.35	68.34	0.51%	46.68%	0.4	38.0	
30	Low Density Residence: Less than 6 DU per Acre	61	C	83	0.00	68.34	0.00%	46.68%	0.0	38.0	
30	Low Density Residence: Less than 6 DU per Acre	61	C	83	2.69	68.34	3.93%	50.61%	3.3	41.2	
30	Low Density Residence: Less than 6 DU per Acre	61	C	83	3.84	68.34	5.62%	56.23%	4.7	45.9	
30	Low Density Residence: Less than 6 DU per Acre	61	C	83	0.00	68.34	0.00%	56.23%	0.0	45.9	
30	Low Density Residence: Less than 6 DU per Acre	71	D	87	0.00	68.34	0.00%	56.24%	0.0	45.9	
30	Agriculture	61	C	74	13.92	68.34	20.36%	76.60%	15.1	61.0	
30	Agriculture	61	C	74	1.12	68.34	1.64%	78.24%	1.2	62.2	
30	Agriculture	61	C	74	0.64	68.34	0.93%	79.17%	0.7	62.9	
30	Agriculture	61	C	74	0.85	68.34	1.24%	80.41%	0.9	63.8	
30	Agriculture	61	C	74	2.32	68.34	3.40%	83.81%	2.5	66.3	
30	Agriculture	61	C	74	0.45	68.34	0.65%	84.46%	0.5	66.8	
30	Medium to High Density Res	61	C	91	1.87	68.34	2.73%	87.19%	2.5	69.3	
30	Medium to High Density Res	61	C	91	2.47	68.34	3.62%	90.81%	3.3	72.6	
30	Medium to High Density Res	61	C	91	1.82	68.34	2.66%	93.47%	2.4	75.0	
30	Street	61	C	91.35	4.27	68.34	6.25%	99.72%	5.7	80.7	
30	Street	61	C	91.35	0.15	68.34	0.22%	99.94%	0.2	80.9	
30	Street	59	D	93.1	0.01	68.34	0.02%	99.95%	0.0	80.9	
30	Street	71	D	93.1	0.03	68.34	0.05%	100.00%	0.0	81.0	**81.0**
32	Open Estates: Greater than 1 acre Lots	58	C	79	0.14	59.26	0.23%	0.23%	0.2	0.2	
32	Open Estates: Greater than 1 acre Lots	58	C	79	0.02	59.26	0.04%	0.27%	0.0	0.2	
32	Open Estates: Greater than 1 acre Lots	61	C	79	0.01	59.26	0.01%	0.28%	0.0	0.2	
32	Open Estates: Greater than 1 acre Lots	59	D	84	1.74	59.26	2.94%	3.22%	2.5	2.7	
32	Open Estates: Greater than 1 acre Lots	59	D	84	4.52	59.26	7.62%	10.84%	6.4	9.1	
32	Open Estates: Greater than 1 acre Lots	59	D	84	9.31	59.26	15.70%	26.55%	13.2	22.3	

ORCHARD DRAINAGE BASIN - CURVE NUMBER CALCULATION

BASIN	Land Use Category	SOIL MAP UNIT #	Hydrologic Soil Group	SUBREGION CN	SUBREGION AREA (ACRES)	SUBBASIN AREA (ACRES)	PERCENT OF SUBBASIN	CUMULATIVE PERCENT	AREAL WEIGHTED CN	CUMULATIVE CN	COMPOSITE CN
32	Open Estates: Greater than 1 acre Lots	59	D	84	1.44	59.26	2.43%	28.98%	2.0	24.3	
32	Open Estates: Greater than 1 acre Lots	59	D	84	2.47	59.26	4.17%	33.15%	3.5	27.8	
32	Open Estates: Greater than 1 acre Lots	71	D	84	0.01	59.26	0.02%	33.17%	0.0	27.8	
32	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.15	59.26	0.25%	33.42%	0.2	28.1	
32	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.00	59.26	0.01%	33.42%	0.0	28.1	
32	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.02	59.26	0.04%	33.46%	0.0	28.1	
32	Low Density Residence: Less than 6 DU per Acre	59	D	87	4.37	59.26	7.38%	40.84%	6.4	34.5	
32	Low Density Residence: Less than 6 DU per Acre	59	D	87	3.26	59.26	5.50%	46.34%	4.8	39.3	
32	Low Density Residence: Less than 6 DU per Acre	59	D	87	3.46	59.26	5.84%	52.18%	5.1	44.4	
32	Low Density Residence: Less than 6 DU per Acre	59	D	87	5.95	59.26	10.03%	62.22%	8.7	53.1	
32	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.14	59.26	0.23%	62.45%	0.2	53.3	
32	Low Density Residence: Less than 6 DU per Acre	59	D	87	1.16	59.26	1.96%	64.41%	1.7	55.0	
32	Low Density Residence: Less than 6 DU per Acre	59	D	87	1.26	59.26	2.13%	66.54%	1.9	56.9	
32	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.27	59.26	0.46%	66.99%	0.4	57.3	
32	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.28	59.26	0.47%	67.47%	0.4	57.7	
32	Low Density Residence: Less than 6 DU per Acre	59	D	87	3.16	59.26	5.34%	72.80%	4.6	62.3	
32	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.18	59.26	0.31%	73.11%	0.3	62.6	
32	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.00	59.26	0.00%	73.11%	0.0	62.6	
32	Agriculture	59	D	80	1.64	59.26	2.78%	75.88%	2.2	64.8	
32	Medium to High Density Res	59	D	93	3.06	59.26	5.16%	81.05%	4.8	69.6	
32	Medium to High Density Res	59	D	93	4.19	59.26	7.07%	88.12%	6.6	76.2	
32	Street	58	C	91.35	0.00	59.26	0.00%	88.12%	0.0	76.2	
32	Street	59	D	93.1	4.20	59.26	7.09%	95.20%	6.6	82.8	
32	Street	59	D	93.1	2.84	59.26	4.80%	100.00%	4.5	87.3	
32	Street	59	D	93.1	0.00	59.26	0.00%	100.00%	0.0	87.3	**87.3**
34	Open Estates: Greater than 1 acre Lots	61	C	79	2.00	97.13	2.06%	2.06%	1.6	1.6	
34	Open Estates: Greater than 1 acre Lots	61	C	79	0.10	97.13	0.10%	2.16%	0.1	1.7	
34	Open Estates: Greater than 1 acre Lots	58	C	79	2.63	97.13	2.71%	4.88%	2.1	3.9	
34	Open Estates: Greater than 1 acre Lots	61	C	79	12.14	97.13	12.50%	17.37%	9.9	13.7	
34	Open Estates: Greater than 1 acre Lots	58	C	79	8.29	97.13	8.53%	25.90%	6.7	20.5	
34	Open Estates: Greater than 1 acre Lots	61	C	79	1.17	97.13	1.20%	27.10%	0.9	21.4	
34	Open Estates: Greater than 1 acre Lots	61	C	79	1.43	97.13	1.48%	28.58%	1.2	22.6	
34	Open Estates: Greater than 1 acre Lots	58	C	79	0.42	97.13	0.43%	29.01%	0.3	22.9	
34	Open Estates: Greater than 1 acre Lots	61	C	79	0.00	97.13	0.00%	29.01%	0.0	22.9	
34	Open Estates: Greater than 1 acre Lots	61	C	79	0.00	97.13	0.00%	29.01%	0.0	22.9	
34	Open Estates: Greater than 1 acre Lots	58	C	79	0.00	97.13	0.00%	29.02%	0.0	22.9	
34	Open Estates: Greater than 1 acre Lots	61	C	79	0.00	97.13	0.00%	29.02%	0.0	22.9	
34	Open Estates: Greater than 1 acre Lots	61	C	79	0.00	97.13	0.00%	29.02%	0.0	22.9	
34	Open Estates: Greater than 1 acre Lots	71	D	84	18.57	97.13	19.12%	48.13%	16.1	39.0	
34	Open Estates: Greater than 1 acre Lots	71	D	84	2.26	97.13	2.33%	50.46%	2.0	40.9	
34	Open Estates: Greater than 1 acre Lots	71	D	84	1.92	97.13	1.98%	52.44%	1.7	42.6	
34	Open Estates: Greater than 1 acre Lots	59	D	84	0.27	97.13	0.28%	52.72%	0.2	42.8	
34	Open Estates: Greater than 1 acre Lots	71	D	84	1.00	97.13	1.03%	53.75%	0.9	43.7	
34	Low Density Residence: Less than 6 DU per Acre	61	C	83	1.08	97.13	1.11%	54.86%	0.9	44.6	
34	Low Density Residence: Less than 6 DU per Acre	58	C	83	0.01	97.13	0.01%	54.88%	0.0	44.6	
34	Low Density Residence: Less than 6 DU per Acre	61	C	83	0.56	97.13	0.58%	55.46%	0.5	45.1	
34	Low Density Residence: Less than 6 DU per Acre	58	C	83	0.07	97.13	0.08%	55.53%	0.1	45.2	
34	Low Density Residence: Less than 6 DU per Acre	61	C	83	0.26	97.13	0.26%	55.80%	0.2	45.4	
34	Low Density Residence: Less than 6 DU per Acre	61	C	83	0.02	97.13	0.02%	55.82%	0.0	45.4	
34	Low Density Residence: Less than 6 DU per Acre	61	C	83	0.23	97.13	0.24%	56.06%	0.2	45.6	
34	Low Density Residence: Less than 6 DU per Acre	61	C	83	2.33	97.13	2.40%	58.46%	2.0	47.6	
34	Low Density Residence: Less than 6 DU per Acre	61	C	83	0.83	97.13	0.86%	59.31%	0.7	48.3	

ORCHARD DRAINAGE BASIN - CURVE NUMBER CALCULATION

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34	Low Density Residence: Less than 6 DU per Acre	61	C	83	8.40	97.13	8.65%	67.97%	7.2	55.5	
34	Low Density Residence: Less than 6 DU per Acre	61	C	83	0.68	97.13	0.70%	68.66%	0.6	56.1	
34	Low Density Residence: Less than 6 DU per Acre	61	C	83	1.03	97.13	1.06%	69.72%	0.9	57.0	
34	Low Density Residence: Less than 6 DU per Acre	61	C	83	5.85	97.13	6.03%	75.75%	5.0	62.0	
34	Low Density Residence: Less than 6 DU per Acre	58	C	83	0.41	97.13	0.42%	76.18%	0.4	62.3	
34	Low Density Residence: Less than 6 DU per Acre	58	C	83	0.83	97.13	0.85%	77.03%	0.7	63.0	
34	Low Density Residence: Less than 6 DU per Acre	61	C	83	1.85	97.13	1.91%	78.93%	1.6	64.6	
34	Low Density Residence: Less than 6 DU per Acre	61	C	83	0.00	97.13	0.00%	78.93%	0.0	64.6	
34	Low Density Residence: Less than 6 DU per Acre	61	C	83	0.00	97.13	0.00%	78.93%	0.0	64.6	
34	Low Density Residence: Less than 6 DU per Acre	61	C	83	0.00	97.13	0.00%	78.94%	0.0	64.6	
34	Low Density Residence: Less than 6 DU per Acre	61	C	83	0.00	97.13	0.00%	78.94%	0.0	64.6	
34	Low Density Residence: Less than 6 DU per Acre	71	D	87	1.05	97.13	1.08%	80.02%	0.9	65.5	
34	Low Density Residence: Less than 6 DU per Acre	71	D	87	0.08	97.13	0.08%	80.09%	0.1	65.6	
34	Low Density Residence: Less than 6 DU per Acre	71	D	87	0.01	97.13	0.01%	80.10%	0.0	65.6	
34	Low Density Residence: Less than 6 DU per Acre	71	D	87	0.61	97.13	0.63%	80.73%	0.5	66.2	
34	Low Density Residence: Less than 6 DU per Acre	71	D	87	3.49	97.13	3.59%	84.32%	3.1	69.3	
34	Agriculture	61	C	74	0.03	97.13	0.03%	84.36%	0.0	69.3	
34	Commercial	61	C	94	0.11	97.13	0.11%	84.47%	0.1	69.4	
34	Commercial	58	C	94	7.77	97.13	8.00%	92.47%	7.5	76.9	
34	Commercial	61	C	94	0.26	97.13	0.27%	92.74%	0.3	77.2	
34	Commercial	61	C	94	0.00	97.13	0.00%	92.74%	0.0	77.2	
34	Commercial	58	C	94	0.00	97.13	0.00%	92.74%	0.0	77.2	
34	Commercial	61	C	94	0.00	97.13	0.00%	92.74%	0.0	77.2	
34	Commercial	71	D	95	0.94	97.13	0.97%	93.71%	0.9	78.1	
34	Street	61	C	91.35	3.61	97.13	3.71%	97.42%	3.4	81.5	
34	Street	58	C	91.35	0.38	97.13	0.40%	97.82%	0.4	81.9	
34	Street	61	C	91.35	0.05	97.13	0.05%	97.87%	0.0	81.9	
34	Street	61	C	91.35	0.08	97.13	0.09%	97.96%	0.1	82.0	
34	Street	71	D	93.1	1.99	97.13	2.05%	100.01%	1.9	83.9	**83.9**
36	Open Estates: Greater than 1 acre Lots	61	C	79	0.41	36.90	1.10%	1.10%	0.9	0.9	
36	Open Estates: Greater than 1 acre Lots	61	C	79	0.32	36.90	0.85%	1.96%	0.7	1.5	
36	Open Estates: Greater than 1 acre Lots	59	D	84	1.09	36.90	2.96%	4.92%	2.5	4.0	
36	Open Estates: Greater than 1 acre Lots	59	D	84	1.50	36.90	4.08%	9.00%	3.4	7.5	
36	Open Estates: Greater than 1 acre Lots	59	D	84	0.33	36.90	0.88%	9.88%	0.7	8.2	
36	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.30	36.90	0.82%	10.69%	0.7	8.9	
36	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.15	36.90	0.40%	11.10%	0.4	9.3	
36	Low Density Residence: Less than 6 DU per Acre	59	D	87	1.68	36.90	4.55%	15.64%	4.0	13.2	
36	Low Density Residence: Less than 6 DU per Acre	59	D	87	3.13	36.90	8.49%	24.13%	7.4	20.6	
36	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.77	36.90	2.09%	26.23%	1.8	22.4	
36	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.36	36.90	0.98%	27.20%	0.8	23.3	
36	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.36	36.90	0.98%	28.18%	0.9	24.1	
36	Low Density Residence: Less than 6 DU per Acre	59	D	87	1.90	36.90	5.15%	33.33%	4.5	28.6	
36	Low Density Residence: Less than 6 DU per Acre	59	D	87	3.36	36.90	9.10%	42.43%	7.9	36.5	
36	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.33	36.90	0.89%	43.32%	0.8	37.3	
36	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.57	36.90	1.53%	44.85%	1.3	38.6	
36	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.96	36.90	2.60%	47.45%	2.3	40.9	
36	Agriculture	61	C	74	0.25	36.90	0.67%	48.12%	0.5	41.4	
36	Agriculture	59	D	80	7.01	36.90	19.00%	67.12%	15.2	56.6	
36	Agriculture	59	D	80	4.08	36.90	11.06%	78.18%	8.9	65.4	
36	Medium to High Density Res	59	D	93	2.51	36.90	6.81%	84.99%	6.3	71.8	
36	Street	61	C	91.35	0.04	36.90	0.11%	85.10%	0.1	71.9	
36	Street	59	D	93.1	2.64	36.90	7.15%	92.25%	6.7	78.5	

ORCHARD DRAINAGE BASIN - CURVE NUMBER CALCULATION

BASIN	Land Use Category	SOIL MAP UNIT #	Hydrologic Soil Group	SUBREGION CN	SUBREGION AREA (ACRES)	SUBBASIN AREA (ACRES)	PERCENT OF SUBBASIN	CUMULATIVE PERCENT	AREAL WEIGHTED CN	CUMULATIVE CN	COMPOSITE CN
36	Street	59	D	93.1	0.02	36.90	0.07%	92.32%	0.1	78.6	
36	Street	59	D	93.1	2.83	36.90	7.68%	100.00%	7.2	85.7	**85.7**
4	Open Estates: Greater than 1 acre Lots	59	D	84	0.57	130.53	0.44%	0.44%	0.4	0.4	
4	Open Estates: Greater than 1 acre Lots	59	D	84	0.27	130.53	0.21%	0.65%	0.2	0.5	
4	Open Estates: Greater than 1 acre Lots	59	D	84	0.17	130.53	0.13%	0.78%	0.1	0.7	
4	Open Estates: Greater than 1 acre Lots	59	D	84	0.17	130.53	0.13%	0.92%	0.1	0.8	
4	Open Estates: Greater than 1 acre Lots	59	D	84	0.25	130.53	0.19%	1.11%	0.2	0.9	
4	Low Density Residence: Less than 6 DU per Acre	59	D	87	7.00	130.53	5.36%	6.47%	4.7	5.6	
4	Low Density Residence: Less than 6 DU per Acre	59	D	87	4.74	130.53	3.63%	10.10%	3.2	8.8	
4	Low Density Residence: Less than 6 DU per Acre	59	D	87	2.95	130.53	2.26%	12.35%	2.0	10.7	
4	Low Density Residence: Less than 6 DU per Acre	59	D	87	2.45	130.53	1.88%	14.23%	1.6	12.3	
4	Low Density Residence: Less than 6 DU per Acre	59	D	87	9.20	130.53	7.05%	21.28%	6.1	18.5	
4	Low Density Residence: Less than 6 DU per Acre	59	D	87	1.99	130.53	1.53%	22.81%	1.3	19.8	
4	Low Density Residence: Less than 6 DU per Acre	59	D	87	1.30	130.53	1.00%	23.81%	0.9	20.7	
4	Low Density Residence: Less than 6 DU per Acre	59	D	87	2.15	130.53	1.65%	25.45%	1.4	22.1	
4	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.47	130.53	0.36%	25.82%	0.3	22.4	
4	Low Density Residence: Less than 6 DU per Acre	59	D	87	1.47	130.53	1.12%	26.94%	1.0	23.4	
4	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.26	130.53	0.20%	27.14%	0.2	23.6	
4	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.26	130.53	0.20%	27.34%	0.2	23.8	
4	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.90	130.53	0.69%	28.03%	0.6	24.4	
4	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.62	130.53	0.48%	28.50%	0.4	24.8	
4	Low Density Residence: Less than 6 DU per Acre	59	D	87	1.70	130.53	1.31%	29.81%	1.1	25.9	
4	Low Density Residence: Less than 6 DU per Acre	59	D	87	3.77	130.53	2.89%	32.70%	2.5	28.4	
4	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.89	130.53	0.68%	33.38%	0.6	29.0	
4	Low Density Residence: Less than 6 DU per Acre	59	D	87	9.17	130.53	7.02%	40.40%	6.1	35.1	
4	Low Density Residence: Less than 6 DU per Acre	59	D	87	2.50	130.53	1.91%	42.32%	1.7	36.8	
4	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.44	130.53	0.34%	42.66%	0.3	37.1	
4	Low Density Residence: Less than 6 DU per Acre	59	D	87	2.71	130.53	2.08%	44.73%	1.8	38.9	
4	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.31	130.53	0.24%	44.97%	0.2	39.1	
4	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.67	130.53	0.51%	45.48%	0.4	39.5	
4	Low Density Residence: Less than 6 DU per Acre	59	D	87	4.44	130.53	3.40%	48.89%	3.0	42.5	
4	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.85	130.53	0.65%	49.54%	0.6	43.1	
4	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.64	130.53	0.49%	50.03%	0.4	43.5	
4	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.98	130.53	0.75%	50.78%	0.7	44.1	
4	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.06	130.53	0.05%	50.82%	0.0	44.2	
4	Low Density Residence: Less than 6 DU per Acre	59	D	87	1.30	130.53	1.00%	51.82%	0.9	45.1	
4	Low Density Residence: Less than 6 DU per Acre	59	D	87	1.14	130.53	0.87%	52.69%	0.8	45.8	
4	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.30	130.53	0.23%	52.92%	0.2	46.0	
4	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.39	130.53	0.30%	53.22%	0.3	46.3	
4	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.31	130.53	0.24%	53.46%	0.2	46.5	
4	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.46	130.53	0.35%	53.81%	0.3	46.8	
4	Low Density Residence: Less than 6 DU per Acre	59	D	87	1.10	130.53	0.84%	54.65%	0.7	47.5	
4	Low Density Residence: Less than 6 DU per Acre	59	D	87	4.17	130.53	3.19%	57.84%	2.8	50.3	
4	Low Density Residence: Less than 6 DU per Acre	59	D	87	1.20	130.53	0.92%	58.76%	0.8	51.1	
4	Low Density Residence: Less than 6 DU per Acre	59	D	87	1.12	130.53	0.86%	59.61%	0.7	51.8	
4	Low Density Residence: Less than 6 DU per Acre	59	D	87	2.17	130.53	1.66%	61.28%	1.4	53.3	
4	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.36	130.53	0.28%	61.56%	0.2	53.5	
4	Low Density Residence: Less than 6 DU per Acre	59	D	87	1.80	130.53	1.38%	62.93%	1.2	54.7	
4	Low Density Residence: Less than 6 DU per Acre	59	D	87	1.74	130.53	1.33%	64.27%	1.2	55.9	
4	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.75	130.53	0.57%	64.84%	0.5	56.4	
4	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.95	130.53	0.72%	65.56%	0.6	57.0	
4	Agriculture	59	D	80	1.87	130.53	1.43%	66.99%	1.1	58.2	

ORCHARD DRAINAGE BASIN - CURVE NUMBER CALCULATION

BASIN	Land Use Category	SOIL MAP UNIT #	Hydrologic Soil Group	SUBREGION CN	SUBREGION AREA (ACRES)	SUBBASIN AREA (ACRES)	PERCENT OF SUBBASIN	CUMULATIVE PERCENT	AREAL WEIGHTED CN	CUMULATIVE CN	COMPOSITE CN
4	Agriculture	59	D	80	1.96	130.53	1.51%	68.50%	1.2	59.4	
4	Agriculture	59	D	80	0.15	130.53	0.12%	68.61%	0.1	59.4	
4	Commercial	59	D	95	2.40	130.53	1.84%	70.45%	1.7	61.2	
4	Commercial	59	D	95	0.22	130.53	0.17%	70.62%	0.2	61.4	
4	Commercial	59	D	95	0.88	130.53	0.68%	71.30%	0.6	62.0	
4	Commercial	59	D	95	0.74	130.53	0.56%	71.86%	0.5	62.5	
4	Commercial	59	D	95	0.24	130.53	0.18%	72.05%	0.2	62.7	
4	Commercial	59	D	95	0.58	130.53	0.45%	72.49%	0.4	63.1	
4	Commercial	59	D	95	0.74	130.53	0.57%	73.06%	0.5	63.7	
4	Commercial	59	D	95	0.72	130.53	0.56%	73.62%	0.5	64.2	
4	Commercial	59	D	95	0.86	130.53	0.66%	74.27%	0.6	64.8	
4	Commercial	59	D	95	0.12	130.53	0.09%	74.36%	0.1	64.9	
4	Commercial	59	D	95	0.52	130.53	0.40%	74.76%	0.4	65.3	
4	Commercial	59	D	95	2.32	130.53	1.78%	76.54%	1.7	67.0	
4	Commercial	59	D	95	1.54	130.53	1.18%	77.72%	1.1	68.1	
4	Medium to High Density Res	59	D	93	0.34	130.53	0.26%	77.98%	0.2	68.3	
4	Medium to High Density Res	59	D	93	0.41	130.53	0.32%	78.29%	0.3	68.6	
4	Medium to High Density Res	59	D	93	0.08	130.53	0.06%	78.35%	0.1	68.7	
4	Medium to High Density Res	59	D	93	0.20	130.53	0.16%	78.51%	0.1	68.8	
4	Medium to High Density Res	59	D	93	0.20	130.53	0.16%	78.67%	0.1	69.0	
4	Medium to High Density Res	59	D	93	0.39	130.53	0.30%	78.96%	0.3	69.3	
4	Street	59	D	93.1	1.20	130.53	0.92%	79.88%	0.9	70.1	
4	Street	59	D	93.1	22.05	130.53	16.90%	96.78%	15.7	85.8	
4	Street	59	D	93.1	4.21	130.53	3.22%	100.00%	3.0	88.8	**88.8**
42	Open Estates: Greater than 1 acre Lots	58	C	79	3.79	10.67	35.54%	35.54%	28.1	28.1	
42	Open Estates: Greater than 1 acre Lots	61	C	79	5.36	10.67	50.27%	85.81%	39.7	67.8	
42	Open Estates: Greater than 1 acre Lots	61	C	79	0.01	10.67	0.12%	85.93%	0.1	67.9	
42	Open Estates: Greater than 1 acre Lots	61	C	79	0.00	10.67	0.01%	85.94%	0.0	67.9	
42	Open Estates: Greater than 1 acre Lots	59	D	84	0.79	10.67	7.37%	93.31%	6.2	74.1	
42	Commercial	61	C	94	0.02	10.67	0.22%	93.52%	0.2	74.3	
42	Commercial	61	C	94	0.00	10.67	0.01%	93.53%	0.0	74.3	
42	Street	61	C	91.35	0.69	10.67	6.48%	100.01%	5.9	80.2	**80.2**
5	Open Estates: Greater than 1 acre Lots	59	D	84	2.14	76.67	2.79%	2.79%	2.3	2.3	
5	Open Estates: Greater than 1 acre Lots	59	D	84	2.66	76.67	3.47%	6.26%	2.9	5.3	
5	Open Estates: Greater than 1 acre Lots	59	D	84	0.24	76.67	0.31%	6.57%	0.3	5.5	
5	Low Density Residence: Less than 6 DU per Acre	59	D	87	3.15	76.67	4.11%	10.68%	3.6	9.1	
5	Low Density Residence: Less than 6 DU per Acre	59	D	87	4.24	76.67	5.53%	16.21%	4.8	13.9	
5	Low Density Residence: Less than 6 DU per Acre	59	D	87	1.37	76.67	1.78%	17.99%	1.6	15.5	
5	Low Density Residence: Less than 6 DU per Acre	59	D	87	5.92	76.67	7.73%	25.71%	6.7	22.2	
5	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.73	76.67	0.95%	26.66%	0.8	23.0	
5	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.37	76.67	0.48%	27.14%	0.4	23.4	
5	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.60	76.67	0.78%	27.92%	0.7	24.1	
5	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.24	76.67	0.31%	28.23%	0.3	24.4	
5	Low Density Residence: Less than 6 DU per Acre	59	D	87	1.22	76.67	1.59%	29.83%	1.4	25.8	
5	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.41	76.67	0.53%	30.36%	0.5	26.2	
5	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.96	76.67	1.25%	31.61%	1.1	27.3	
5	Low Density Residence: Less than 6 DU per Acre	59	D	87	9.68	76.67	12.62%	44.23%	11.0	38.3	
5	Low Density Residence: Less than 6 DU per Acre	59	D	87	4.71	76.67	6.14%	50.37%	5.3	43.6	
5	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.26	76.67	0.33%	50.71%	0.3	43.9	
5	Low Density Residence: Less than 6 DU per Acre	59	D	87	2.17	76.67	2.82%	53.53%	2.5	46.4	
5	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.12	76.67	0.15%	53.69%	0.1	46.5	
5	Low Density Residence: Less than 6 DU per Acre	59	D	87	2.71	76.67	3.54%	57.23%	3.1	49.6	

ORCHARD DRAINAGE BASIN - CURVE NUMBER CALCULATION

BASIN	Land Use Category	SOIL MAP UNIT #	Hydrologic Soil Group	SUBREGION CN	SUBREGION AREA (ACRES)	SUBBASIN AREA (ACRES)	PERCENT OF SUBBASIN	CUMULATIVE PERCENT	AREAL WEIGHTED CN	CUMULATIVE CN	COMPOSITE CN
5	Low Density Residence: Less than 6 DU per Acre	59	D	87	2.27	76.67	2.97%	60.19%	2.6	52.2	
5	Low Density Residence: Less than 6 DU per Acre	59	D	87	1.36	76.67	1.77%	61.96%	1.5	53.7	
5	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.27	76.67	0.35%	62.31%	0.3	54.0	
5	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.35	76.67	0.45%	62.76%	0.4	54.4	
5	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.38	76.67	0.50%	63.26%	0.4	54.8	
5	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.46	76.67	0.60%	63.86%	0.5	55.4	
5	Low Density Residence: Less than 6 DU per Acre	59	D	87	1.76	76.67	2.29%	66.15%	2.0	57.4	
5	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.75	76.67	0.98%	67.13%	0.9	58.2	
5	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.34	76.67	0.44%	67.57%	0.4	58.6	
5	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.00	76.67	0.00%	67.57%	0.0	58.6	
5	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.00	76.67	0.00%	67.57%	0.0	58.6	
5	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.00	76.67	0.00%	67.57%	0.0	58.6	
5	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.00	76.67	0.00%	67.57%	0.0	58.6	
5	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.00	76.67	0.00%	67.57%	0.0	58.6	
5	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.00	76.67	0.01%	67.58%	0.0	58.6	
5	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.00	76.67	0.00%	67.58%	0.0	58.6	
5	Agriculture	59	D	80	0.51	76.67	0.66%	68.24%	0.5	59.1	
5	Agriculture	59	D	80	1.83	76.67	2.39%	70.63%	1.9	61.0	
5	Commercial	59	D	95	0.14	76.67	0.18%	70.81%	0.2	61.2	
5	Commercial	59	D	95	0.36	76.67	0.48%	71.29%	0.5	61.7	
5	Commercial	59	D	95	1.33	76.67	1.73%	73.02%	1.6	63.3	
5	Commercial	59	D	95	0.40	76.67	0.52%	73.54%	0.5	63.8	
5	Commercial	59	D	95	0.66	76.67	0.87%	74.40%	0.8	64.6	
5	Commercial	59	D	95	0.71	76.67	0.93%	75.33%	0.9	65.5	
5	Commercial	59	D	95	1.54	76.67	2.01%	77.34%	1.9	67.4	
5	Commercial	59	D	95	0.21	76.67	0.27%	77.61%	0.3	67.7	
5	Commercial	59	D	95	0.00	76.67	0.00%	77.61%	0.0	67.7	
5	Medium to High Density Res	59	D	93	0.43	76.67	0.56%	78.17%	0.5	68.2	
5	Medium to High Density Res	59	D	93	0.42	76.67	0.55%	78.72%	0.5	68.7	
5	Medium to High Density Res	59	D	93	0.37	76.67	0.48%	79.20%	0.4	69.1	
5	Medium to High Density Res	59	D	93	0.33	76.67	0.43%	79.63%	0.4	69.5	
5	Medium to High Density Res	59	D	93	0.42	76.67	0.55%	80.18%	0.5	70.1	
5	Medium to High Density Res	59	D	93	0.28	76.67	0.36%	80.54%	0.3	70.4	
5	Medium to High Density Res	59	D	93	0.00	76.67	0.00%	80.54%	0.0	70.4	
5	Medium to High Density Res	59	D	93	0.00	76.67	0.00%	80.54%	0.0	70.4	
5	Medium to High Density Res	59	D	93	0.00	76.67	0.00%	80.54%	0.0	70.4	
5	Medium to High Density Res	59	D	93	0.00	76.67	0.00%	80.54%	0.0	70.4	
5	Street	59	D	93.1	14.92	76.67	19.45%	100.00%	18.1	88.5	
5	Street	59	D	93.1	0.00	76.67	0.00%	100.00%	0.0	88.5	**88.5**
6	Open Estates: Greater than 1 acre Lots	59	D	84	0.06	88.04	0.07%	0.07%	0.1	0.1	
6	Open Estates: Greater than 1 acre Lots	59	D	84	0.20	88.04	0.23%	0.30%	0.2	0.3	
6	Open Estates: Greater than 1 acre Lots	59	D	84	2.52	88.04	2.86%	3.17%	2.4	2.7	
6	Open Estates: Greater than 1 acre Lots	92	D	84	0.00	88.04	0.00%	3.17%	0.0	2.7	
6	Open Estates: Greater than 1 acre Lots	59	D	84	0.81	88.04	0.92%	4.09%	0.8	3.4	
6	Open Estates: Greater than 1 acre Lots	59	D	84	2.16	88.04	2.45%	6.54%	2.1	5.5	
6	Open Estates: Greater than 1 acre Lots	131	water	84	0.69	88.04	0.78%	7.32%	0.7	6.2	
6	Low Density Residence: Less than 6 DU per Acre	124	C	83	0.15	88.04	0.17%	7.49%	0.1	6.3	
6	Low Density Residence: Less than 6 DU per Acre	124	C	83	1.54	88.04	1.74%	9.23%	1.4	7.7	
6	Low Density Residence: Less than 6 DU per Acre	124	C	83	0.14	88.04	0.16%	9.39%	0.1	7.9	
6	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.91	88.04	1.03%	10.42%	0.9	8.8	
6	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.14	88.04	0.16%	10.58%	0.1	8.9	
6	Low Density Residence: Less than 6 DU per Acre	59	D	87	3.02	88.04	3.43%	14.01%	3.0	11.9	

ORCHARD DRAINAGE BASIN - CURVE NUMBER CALCULATION

BASIN	Land Use Category	SOIL MAP UNIT #	Hydrologic Soil Group	SUBREGION CN	SUBREGION AREA (ACRES)	SUBBASIN AREA (ACRES)	PERCENT OF SUBBASIN	CUMULATIVE PERCENT	AREAL WEIGHTED CN	CUMULATIVE CN	COMPOSITE CN
6	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.35	88.04	0.39%	14.40%	0.3	12.2	
6	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.55	88.04	0.62%	15.02%	0.5	12.8	
6	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.32	88.04	0.37%	15.39%	0.3	13.1	
6	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.26	88.04	0.30%	15.69%	0.3	13.3	
6	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.37	88.04	0.42%	16.11%	0.4	13.7	
6	Low Density Residence: Less than 6 DU per Acre	59	D	87	3.26	88.04	3.71%	19.82%	3.2	16.9	
6	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.89	88.04	1.02%	20.84%	0.9	17.8	
6	Low Density Residence: Less than 6 DU per Acre	92	D	87	1.66	88.04	1.89%	22.72%	1.6	19.5	
6	Low Density Residence: Less than 6 DU per Acre	59	D	87	9.90	88.04	11.25%	33.97%	9.8	29.3	
6	Low Density Residence: Less than 6 DU per Acre	59	D	87	2.22	88.04	2.52%	36.49%	2.2	31.4	
6	Low Density Residence: Less than 6 DU per Acre	92	D	87	8.28	88.04	9.40%	45.89%	8.2	39.6	
6	Low Density Residence: Less than 6 DU per Acre	59	D	87	12.21	88.04	13.87%	59.76%	12.1	51.7	
6	Low Density Residence: Less than 6 DU per Acre	59	D	87	1.48	88.04	1.69%	61.45%	1.5	53.2	
6	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.73	88.04	0.83%	62.28%	0.7	53.9	
6	Low Density Residence: Less than 6 DU per Acre	59	D	87	2.11	88.04	2.40%	64.68%	2.1	56.0	
6	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.00	88.04	0.00%	64.68%	0.0	56.0	
6	Low Density Residence: Less than 6 DU per Acre	131	water	87	0.57	88.04	0.65%	65.33%	0.6	56.5	
6	Agriculture	124	C	74	0.63	88.04	0.71%	66.04%	0.5	57.1	
6	Agriculture	92	D	80	0.38	88.04	0.43%	66.47%	0.3	57.4	
6	Agriculture	59	D	80	1.15	88.04	1.31%	67.78%	1.0	58.5	
6	Agriculture	92	D	80	6.37	88.04	7.24%	75.02%	5.8	64.2	
6	Agriculture	59	D	80	3.95	88.04	4.49%	79.51%	3.6	67.8	
6	Agriculture	92	D	80	0.09	88.04	0.11%	79.62%	0.1	67.9	
6	Agriculture	59	D	80	0.00	88.04	0.00%	79.62%	0.0	67.9	
6	Agriculture	131	water	80	0.27	88.04	0.31%	79.93%	0.2	68.2	
6	Commercial	59	D	95	0.23	88.04	0.27%	80.19%	0.3	68.4	
6	Commercial	59	D	95	0.11	88.04	0.12%	80.31%	0.1	68.5	
6	Commercial	59	D	95	0.08	88.04	0.09%	80.41%	0.1	68.6	
6	Commercial	59	D	95	0.45	88.04	0.51%	80.91%	0.5	69.1	
6	Commercial	59	D	95	0.24	88.04	0.27%	81.19%	0.3	69.4	
6	Commercial	59	D	95	0.58	88.04	0.66%	81.84%	0.6	70.0	
6	Commercial	59	D	95	0.03	88.04	0.04%	81.88%	0.0	70.0	
6	Commercial	59	D	95	0.36	88.04	0.41%	82.29%	0.4	70.4	
6	Commercial	59	D	95	2.56	88.04	2.90%	85.19%	2.8	73.2	
6	Commercial	59	D	95	0.00	88.04	0.00%	85.19%	0.0	73.2	
6	Street	59	D	93.1	3.37	88.04	3.83%	89.03%	3.6	76.7	
6	Street	59	D	93.1	1.45	88.04	1.65%	90.67%	1.5	78.3	
6	Street	92	D	93.1	0.14	88.04	0.15%	90.83%	0.1	78.4	
6	Street	59	D	93.1	2.08	88.04	2.36%	93.19%	2.2	80.6	
6	Street	59	D	93.1	3.71	88.04	4.22%	97.40%	3.9	84.5	
6	Street	59	D	93.1	1.94	88.04	2.20%	99.61%	2.1	86.6	
6	Street	59	D	93.1	0.00	88.04	0.00%	99.61%	0.0	86.6	
6	Street	59	D	93.1	0.00	88.04	0.00%	99.61%	0.0	86.6	
6	Street	131	water	93.1	0.35	88.04	0.39%	100.00%	0.4	87.0	**87.0**

ORCHARD DRAINAGE BASIN - CURVE NUMBER CALCULATION

BASIN	Land Use Category	SOIL MAP UNIT #	Hydrologic Soil Group	SUBREGION CN	SUBREGION AREA (ACRES)	SUBBASIN AREA (ACRES)	PERCENT OF SUBBASIN	CUMULATIVE PERCENT	AREAL WEIGHTED CN	CUMULATIVE CN	COMPOSITE CN
2	Street	59	D	93.1	6.93	173.55	3.99%	3.99%	3.7	3.7	
2	Street	92	D	93.1	0.44	173.55	0.26%	4.25%	0.2	4.0	
2	Street	131	water	93.1	0.16	173.55	0.09%	4.34%	0.1	4.0	
2	Street	59	D	93.1	2.11	173.55	1.21%	5.55%	1.1	5.2	
2	Low Density Residence: Less than 6 DU per Acre	92	D	87	0.00	173.55	0.00%	5.55%	0.0	5.2	
2	Low Density Residence: Less than 6 DU per Acre	92	D	87	0.07	173.55	0.04%	5.59%	0.0	5.2	
2	Low Density Residence: Less than 6 DU per Acre	92	D	87	0.12	173.55	0.07%	5.66%	0.1	5.3	
2	Low Density Residence: Less than 6 DU per Acre	92	D	87	0.05	173.55	0.03%	5.69%	0.0	5.3	
2	Low Density Residence: Less than 6 DU per Acre	131	water	87	0.00	173.55	0.00%	5.69%	0.0	5.3	
2	Low Density Residence: Less than 6 DU per Acre	92	D	87	0.32	173.55	0.18%	5.87%	0.2	5.4	
2	Low Density Residence: Less than 6 DU per Acre	92	D	87	0.17	173.55	0.10%	5.97%	0.1	5.5	
2	Low Density Residence: Less than 6 DU per Acre	92	D	87	0.17	173.55	0.10%	6.07%	0.1	5.6	
2	Low Density Residence: Less than 6 DU per Acre	131	water	87	0.19	173.55	0.11%	6.18%	0.1	5.7	
2	Low Density Residence: Less than 6 DU per Acre	92	D	87	3.57	173.55	2.05%	8.23%	1.8	7.5	
2	Low Density Residence: Less than 6 DU per Acre	131	water	87	1.28	173.55	0.74%	8.97%	0.6	8.1	
2	Low Density Residence: Less than 6 DU per Acre	92	D	87	0.22	173.55	0.13%	9.10%	0.1	8.3	
2	Low Density Residence: Less than 6 DU per Acre	92	D	87	0.19	173.55	0.11%	9.21%	0.1	8.4	
2	Low Density Residence: Less than 6 DU per Acre	131	water	87	0.19	173.55	0.11%	9.32%	0.1	8.4	
2	Low Density Residence: Less than 6 DU per Acre	92	D	87	0.07	173.55	0.04%	9.36%	0.0	8.5	
2	Low Density Residence: Less than 6 DU per Acre	131	water	87	0.35	173.55	0.20%	9.56%	0.2	8.7	
2	Low Density Residence: Less than 6 DU per Acre	92	D	87	1.07	173.55	0.61%	10.18%	0.5	9.2	
2	Low Density Residence: Less than 6 DU per Acre	131	water	87	0.22	173.55	0.13%	10.31%	0.1	9.3	
2	Low Density Residence: Less than 6 DU per Acre	59	D	87	4.91	173.55	2.83%	13.14%	2.5	11.8	
2	Low Density Residence: Less than 6 DU per Acre	92	D	87	2.87	173.55	1.65%	14.79%	1.4	13.2	
2	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.97	173.55	0.56%	15.35%	0.5	13.7	
2	Low Density Residence: Less than 6 DU per Acre	131	water	87	0.00	173.55	0.00%	15.35%	0.0	13.7	
2	Low Density Residence: Less than 6 DU per Acre	131	water	87	0.48	173.55	0.28%	15.63%	0.2	13.9	
2	Low Density Residence: Less than 6 DU per Acre	92	D	87	0.04	173.55	0.03%	15.65%	0.0	14.0	
2	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.01	173.55	0.01%	15.66%	0.0	14.0	
2	Low Density Residence: Less than 6 DU per Acre	92	D	87	0.06	173.55	0.03%	15.69%	0.0	14.0	
2	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.02	173.55	0.01%	15.70%	0.0	14.0	
2	Low Density Residence: Less than 6 DU per Acre	92	D	87	0.13	173.55	0.07%	15.78%	0.1	14.1	
2	Low Density Residence: Less than 6 DU per Acre	131	water	87	0.12	173.55	0.07%	15.85%	0.1	14.1	
2	Low Density Residence: Less than 6 DU per Acre	92	D	87	1.30	173.55	0.75%	16.60%	0.6	14.8	
2	Low Density Residence: Less than 6 DU per Acre	131	water	87	0.22	173.55	0.13%	16.72%	0.1	14.9	
2	Low Density Residence: Less than 6 DU per Acre	59	D	87	1.85	173.55	1.07%	17.79%	0.9	15.8	
2	Low Density Residence: Less than 6 DU per Acre	131	water	87	0.06	173.55	0.03%	17.82%	0.0	15.8	
2	Low Density Residence: Less than 6 DU per Acre	92	D	87	0.29	173.55	0.17%	17.99%	0.1	16.0	
2	Low Density Residence: Less than 6 DU per Acre	131	water	87	0.29	173.55	0.16%	18.16%	0.1	16.1	
2	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.01	173.55	0.01%	18.16%	0.0	16.1	
2	Low Density Residence: Less than 6 DU per Acre	59	D	87	1.19	173.55	0.68%	18.85%	0.6	16.7	
2	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.01	173.55	0.00%	18.85%	0.0	16.7	
2	Low Density Residence: Less than 6 DU per Acre	92	D	87	0.02	173.55	0.01%	18.86%	0.0	16.7	
2	Low Density Residence: Less than 6 DU per Acre	59	D	87	3.91	173.55	2.26%	21.12%	2.0	18.7	
2	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.89	173.55	0.51%	21.63%	0.4	19.2	
2	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.02	173.55	0.01%	21.64%	0.0	19.2	
2	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.29	173.55	0.16%	21.80%	0.1	19.3	
2	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.98	173.55	0.57%	22.37%	0.5	19.8	
2	Low Density Residence: Less than 6 DU per Acre	59	D	87	1.06	173.55	0.61%	22.98%	0.5	20.3	
2	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.27	173.55	0.15%	23.14%	0.1	20.5	
2	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.92	173.55	0.53%	23.67%	0.5	20.9	
2	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.48	173.55	0.28%	23.94%	0.2	21.2	

ORCHARD DRAINAGE BASIN - CURVE NUMBER CALCULATION

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2	Low Density Residence: Less than 6 DU per Acre	92	D	87	0.28	173.55	0.16%	24.11%	0.1	21.3	
2	Low Density Residence: Less than 6 DU per Acre	131	water	87	0.01	173.55	0.00%	24.11%	0.0	21.3	
2	Low Density Residence: Less than 6 DU per Acre	59	D	87	10.39	173.55	5.99%	30.10%	5.2	26.5	
2	Low Density Residence: Less than 6 DU per Acre	92	D	87	3.44	173.55	1.98%	32.09%	1.7	28.3	
2	Low Density Residence: Less than 6 DU per Acre	131	water	87	0.38	173.55	0.22%	32.30%	0.2	28.4	
2	Low Density Residence: Less than 6 DU per Acre	59	D	87	11.79	173.55	6.79%	39.10%	5.9	34.4	
2	Low Density Residence: Less than 6 DU per Acre	59	D	87	3.63	173.55	2.09%	41.19%	1.8	36.2	
2	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.20	173.55	0.11%	41.30%	0.1	36.3	
2	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.13	173.55	0.08%	41.38%	0.1	36.3	
2	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.00	173.55	0.00%	41.38%	0.0	36.3	
2	Medium to High Density Res	59	D	93	14.05	173.55	8.09%	49.47%	7.5	43.9	
2	Medium to High Density Res	59	D	93	2.84	173.55	1.64%	51.11%	1.5	45.4	
2	Medium to High Density Res	59	D	93	0.52	173.55	0.30%	51.41%	0.3	45.7	
2	Agriculture	59	D	80	0.28	173.55	0.16%	51.57%	0.1	45.8	
2	Agriculture	92	D	80	5.20	173.55	3.00%	54.57%	2.4	48.2	
2	Agriculture	131	water	80	0.35	173.55	0.20%	54.77%	0.2	48.4	
2	Agriculture	59	D	80	7.95	173.55	4.58%	59.35%	3.7	52.0	
2	Medium to High Density Res	59	D	93	2.31	173.55	1.33%	60.68%	1.2	53.3	
2	Low Density Residence: Less than 6 DU per Acre	59	D	87	63.27	173.55	36.46%	97.14%	31.7	85.0	
2	Medium to High Density Res	59	D	93	4.94	173.55	2.85%	99.99%	2.6	87.6	
2	Street	59	D	93.1	0.00	173.55	0.00%	99.99%	0.0	87.6	
2	Low Density Residence: Less than 6 DU per Acre	92	D	87	0.00	173.55	0.00%	99.99%	0.0	87.6	
2	Agriculture	92	D	80	0.00	173.55	0.00%	99.99%	0.0	87.6	
2	Low Density Residence: Less than 6 DU per Acre	131	water	87	0.00	173.55	0.00%	99.99%	0.0	87.6	
2	Agriculture	131	water	80	0.00	173.55	0.00%	99.99%	0.0	87.6	
2	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.00	173.55	0.00%	99.99%	0.0	87.6	
2	Agriculture	59	D	80	0.00	173.55	0.00%	99.99%	0.0	87.6	
2	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.00	173.55	0.00%	99.99%	0.0	87.6	
2	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.00	173.55	0.00%	99.99%	0.0	87.6	
2	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.00	173.55	0.00%	99.99%	0.0	87.6	
2	Agriculture	59	D	80	0.00	173.55	0.00%	99.99%	0.0	87.6	
2	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.02	173.55	0.01%	100.00%	0.0	87.6	
2	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.02	173.55	0.01%	100.01%	0.0	87.6	
2	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.00	173.55	0.00%	100.01%	0.0	87.6	
2	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.00	173.55	0.00%	100.01%	0.0	87.6	
2	Medium to High Density Res	59	D	93	0.00	173.55	0.00%	100.01%	0.0	87.6	
2	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.00	173.55	0.00%	100.01%	0.0	87.6	
2	Medium to High Density Res	59	D	93	0.00	173.55	0.00%	100.01%	0.0	87.6	
2	Medium to High Density Res	59	D	93	0.00	173.55	0.00%	100.01%	0.0	87.6	
2	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.00	173.55	0.00%	100.01%	0.0	87.6	
2	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.00	173.55	0.00%	100.01%	0.0	87.6	**87.6**
4	Street	59	D	93.1	27.06	130.53	20.73%	20.73%	19.3	19.3	
4	Medium to High Density Res	59	D	93	13.93	130.53	10.68%	31.41%	9.9	29.2	
4	Agriculture	59	D	80	0.17	130.53	0.13%	31.54%	0.1	29.3	
4	Medium to High Density Res	59	D	93	0.78	130.53	0.60%	32.14%	0.6	29.9	
4	Agriculture	59	D	80	0.64	130.53	0.49%	32.63%	0.4	30.3	
4	Medium to High Density Res	59	D	93	0.47	130.53	0.36%	32.99%	0.3	30.6	
4	Medium to High Density Res	59	D	93	0.69	130.53	0.53%	33.52%	0.5	31.1	
4	Low Density Residence: Less than 6 DU per Acre	59	D	87	22.97	130.53	17.60%	51.12%	15.3	46.4	
4	Medium to High Density Res	59	D	93	39.35	130.53	30.15%	81.27%	28.0	74.5	
4	Medium to High Density Res	59	D	93	17.35	130.53	13.30%	94.56%	12.4	86.8	
4	Medium to High Density Res	59	D	93	0.34	130.53	0.26%	94.82%	0.2	87.1	

ORCHARD DRAINAGE BASIN - CURVE NUMBER CALCULATION

BASIN	Land Use Category	SOIL MAP UNIT #	Hydrologic Soil Group	SUBREGION CN	SUBREGION AREA (ACRES)	SUBBASIN AREA (ACRES)	PERCENT OF SUBBASIN	CUMULATIVE PERCENT	AREAL WEIGHTED CN	CUMULATIVE CN	COMPOSITE CN
4	Medium to High Density Res	59	D	93	3.21	130.53	2.46%	97.28%	2.3	89.4	
4	Low Density Residence: Less than 6 DU per Acre	59	D	87	1.54	130.53	1.18%	98.46%	1.0	90.4	
4	Medium to High Density Res	59	D	93	0.22	130.53	0.17%	98.63%	0.2	90.5	
4	Medium to High Density Res	59	D	93	0.26	130.53	0.20%	98.83%	0.2	90.7	
4	Agriculture	59	D	80	0.03	130.53	0.02%	98.85%	0.0	90.7	
4	Medium to High Density Res	59	D	93	0.96	130.53	0.74%	99.59%	0.7	91.4	
4	Medium to High Density Res	59	D	93	0.38	130.53	0.29%	99.88%	0.3	91.7	
4	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.16	130.53	0.12%	100.00%	0.1	91.8	
4	Medium to High Density Res	59	D	93	0.00	130.53	0.00%	100.00%	0.0	91.8	**91.8**
5	Street	59	D	93.1	14.54	76.67	18.96%	18.96%	17.6	17.6	
5	Medium to High Density Res	59	D	93	7.33	76.67	9.56%	28.52%	8.9	26.5	
5	Agriculture	59	D	80	2.14	76.67	2.79%	31.31%	2.2	28.8	
5	Medium to High Density Res	59	D	93	49.62	76.67	64.71%	96.02%	60.2	89.0	
5	Medium to High Density Res	59	D	93	0.79	76.67	1.03%	97.05%	1.0	89.9	
5	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.69	76.67	0.90%	97.95%	0.8	90.7	
5	Medium to High Density Res	59	D	93	0.33	76.67	0.43%	98.38%	0.4	91.1	
5	Agriculture	59	D	80	0.97	76.67	1.27%	99.65%	1.0	92.1	
5	Medium to High Density Res	59	D	93	0.25	76.67	0.33%	99.98%	0.3	92.4	
5	Street	59	D	93.1	0.00	76.67	0.00%	99.99%	0.0	92.4	
5	Medium to High Density Res	59	D	93	0.00	76.67	0.00%	99.99%	0.0	92.4	
5	Medium to High Density Res	59	D	93	0.00	76.67	0.00%	99.99%	0.0	92.4	
5	Medium to High Density Res	59	D	93	0.01	76.67	0.01%	100.00%	0.0	92.4	
5	Medium to High Density Res	59	D	93	0.01	76.67	0.01%	100.01%	0.0	92.4	
5	Medium to High Density Res	59	D	93	0.00	76.67	0.00%	100.01%	0.0	92.5	
5	Medium to High Density Res	59	D	93	0.00	76.67	0.00%	100.01%	0.0	92.5	
5	Medium to High Density Res	59	D	93	0.00	76.67	0.00%	100.01%	0.0	92.5	**92.5**
6	Street	59	D	93.1	3.95	88.04	4.49%	4.49%	4.2	4.2	
6	Street	92	D	93.1	0.14	88.04	0.15%	4.64%	0.1	4.3	
6	Street	131	water	93.1	0.35	88.04	0.39%	5.04%	0.4	4.7	
6	Street	59	D	93.1	0.01	88.04	0.01%	5.05%	0.0	4.7	
6	Low Density Residence: Less than 6 DU per Acre	131	water	87	0.05	88.04	0.06%	5.11%	0.0	4.8	
6	Low Density Residence: Less than 6 DU per Acre	92	D	87	0.00	88.04	0.00%	5.11%	0.0	4.8	
6	Low Density Residence: Less than 6 DU per Acre	131	water	87	0.64	88.04	0.73%	5.84%	0.6	5.4	
6	Low Density Residence: Less than 6 DU per Acre	92	D	87	4.04	88.04	4.59%	10.42%	4.0	9.4	
6	Low Density Residence: Less than 6 DU per Acre	131	water	87	0.57	88.04	0.65%	11.07%	0.6	9.9	
6	Low Density Residence: Less than 6 DU per Acre	92	D	87	7.62	88.04	8.65%	19.72%	7.5	17.5	
6	Low Density Residence: Less than 6 DU per Acre	131	water	87	0.27	88.04	0.31%	20.03%	0.3	17.7	
6	Low Density Residence: Less than 6 DU per Acre	59	D	87	5.99	88.04	6.81%	26.84%	5.9	23.7	
6	Low Density Residence: Less than 6 DU per Acre	124	C	83	0.14	88.04	0.16%	27.00%	0.1	23.8	
6	Medium to High Density Res	59	D	93	10.19	88.04	11.58%	38.58%	10.8	34.6	
6	Open Estates: Greater than 1 acre Lots	59	D	84	0.15	88.04	0.17%	38.74%	0.1	34.7	
6	Agriculture	59	D	80	0.72	88.04	0.82%	39.56%	0.7	35.4	
6	Medium to High Density Res	59	D	93	8.25	88.04	9.37%	48.93%	8.7	44.1	
6	Agriculture	92	D	80	0.81	88.04	0.92%	49.85%	0.7	44.8	
6	Medium to High Density Res	59	D	93	2.16	88.04	2.45%	52.30%	2.3	47.1	
6	Low Density Residence: Less than 6 DU per Acre	92	D	87	4.32	88.04	4.91%	57.21%	4.3	51.4	
6	Low Density Residence: Less than 6 DU per Acre	59	D	87	35.36	88.04	40.16%	97.37%	34.9	86.3	
6	Low Density Residence: Less than 6 DU per Acre	124	C	83	2.31	88.04	2.62%	100.00%	2.2	88.5	
6	Street	59	D	93.1	0.00	88.04	0.00%	100.00%	0.0	88.5	
6	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.00	88.04	0.00%	100.00%	0.0	88.5	
6	Agriculture	59	D	80	0.00	88.04	0.00%	100.00%	0.0	88.5	

ORCHARD DRAINAGE BASIN - CURVE NUMBER CALCULATION

BASIN	Land Use Category	SOIL MAP UNIT #	Hydrologic Soil Group	SUBREGION CN	SUBREGION AREA (ACRES)	SUBBASIN AREA (ACRES)	PERCENT OF SUBBASIN	CUMULATIVE PERCENT	AREAL WEIGHTED CN	CUMULATIVE CN	COMPOSITE CN
6	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.00	88.04	0.00%	100.00%	0.0	88.5	
6	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.00	88.04	0.00%	100.00%	0.0	88.5	
6	Medium to High Density Res	59	D	93	0.00	88.04	0.00%	100.00%	0.0	88.5	
6	Medium to High Density Res	59	D	93	0.00	88.04	0.00%	100.00%	0.0	88.5	
6	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.00	88.04	0.00%	100.00%	0.0	88.5	
6	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.00	88.04	0.00%	100.00%	0.0	88.5	**88.5**
10	Street	60	D	93.1	4.42	118.02	3.75%	3.75%	3.5	3.5	
10	Street	59	D	93.1	14.15	118.02	11.99%	15.73%	11.2	14.6	
10	Medium to High Density Res	60	D	93	4.03	118.02	3.41%	19.15%	3.2	17.8	
10	Medium to High Density Res	59	D	93	8.34	118.02	7.07%	26.21%	6.6	24.4	
10	Medium to High Density Res	59	D	93	5.82	118.02	4.93%	31.14%	4.6	29.0	
10	Medium to High Density Res	60	D	93	0.69	118.02	0.59%	31.73%	0.5	29.5	
10	Medium to High Density Res	59	D	93	0.42	118.02	0.35%	32.08%	0.3	29.9	
10	Medium to High Density Res	60	D	93	1.03	118.02	0.87%	32.95%	0.8	30.7	
10	Medium to High Density Res	59	D	93	36.11	118.02	30.59%	63.54%	28.5	59.1	
10	Medium to High Density Res	59	D	93	0.80	118.02	0.68%	64.23%	0.6	59.7	
10	Low Density Residence: Less than 6 DU per Acre	60	D	87	25.72	118.02	21.80%	86.02%	19.0	78.7	
10	Low Density Residence: Less than 6 DU per Acre	59	D	87	14.03	118.02	11.89%	97.91%	10.3	89.0	
10	Medium to High Density Res	59	D	93	0.29	118.02	0.25%	98.15%	0.2	89.3	
10	Agriculture	60	D	80	2.16	118.02	1.83%	99.99%	1.5	90.7	
10	Agriculture	59	D	80	0.00	118.02	0.00%	99.99%	0.0	90.7	
10	Street	59	D	93.1	0.00	118.02	0.00%	99.99%	0.0	90.7	
10	Medium to High Density Res	59	D	93	0.00	118.02	0.00%	99.99%	0.0	90.7	
10	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.00	118.02	0.00%	99.99%	0.0	90.7	
10	Medium to High Density Res	59	D	93	0.00	118.02	0.00%	99.99%	0.0	90.7	
10	Medium to High Density Res	59	D	93	0.01	118.02	0.01%	100.00%	0.0	90.8	
10	Medium to High Density Res	59	D	93	0.01	118.02	0.01%	100.01%	0.0	90.8	
10	Medium to High Density Res	59	D	93	0.00	118.02	0.00%	100.01%	0.0	90.8	
10	Medium to High Density Res	59	D	93	0.00	118.02	0.00%	100.01%	0.0	90.8	
10	Medium to High Density Res	59	D	93	0.00	118.02	0.00%	100.01%	0.0	90.8	
10	Medium to High Density Res	59	D	93	0.00	118.02	0.00%	100.01%	0.0	90.8	**90.8**
12	Street	60	D	93.1	0.01	56.37	0.01%	0.01%	0.0	0.0	
12	Street	59	D	93.1	11.23	56.37	19.93%	19.94%	18.6	18.6	
12	Street	59	D	93.1	0.00	56.37	0.00%	19.94%	0.0	18.6	
12	Medium to High Density Res	59	D	93	11.52	56.37	20.44%	40.39%	19.0	37.6	
12	Medium to High Density Res	59	D	93	0.19	56.37	0.34%	40.73%	0.3	37.9	
12	Medium to High Density Res	59	D	93	0.75	56.37	1.32%	42.05%	1.2	39.1	
12	Medium to High Density Res	59	D	93	0.24	56.37	0.43%	42.48%	0.4	39.5	
12	Low Density Residence: Less than 6 DU per Acre	59	D	87	30.80	56.37	54.65%	97.12%	47.5	87.1	
12	Medium to High Density Res	59	D	93	0.62	56.37	1.10%	98.22%	1.0	88.1	
12	Agriculture	59	D	80	1.00	56.37	1.77%	99.99%	1.4	89.5	
12	Medium to High Density Res	59	D	93	0.00	56.37	0.00%	99.99%	0.0	89.5	
12	Medium to High Density Res	59	D	93	0.00	56.37	0.00%	100.00%	0.0	89.5	
12	Medium to High Density Res	59	D	93	0.00	56.37	0.01%	100.00%	0.0	89.5	
12	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.00	56.37	0.01%	100.01%	0.0	89.5	
12	Medium to High Density Res	59	D	93	0.00	56.37	0.00%	100.01%	0.0	89.5	
12	Medium to High Density Res	59	D	93	0.00	56.37	0.00%	100.01%	0.0	89.5	**89.5**
14	Street	59	D	93.1	5.50	60.57	9.08%	9.08%	8.5	8.5	
14	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.82	60.57	1.36%	10.44%	1.2	9.6	
14	Low Density Residence: Less than 6 DU per Acre	59	D	87	1.02	60.57	1.68%	12.12%	1.5	11.1	
14	Low Density Residence: Less than 6 DU per Acre	59	D	87	5.24	60.57	8.65%	20.76%	7.5	18.6	

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BASIN	Land Use Category	SOIL MAP UNIT #	Hydrologic Soil Group	SUBREGION CN	SUBREGION AREA (ACRES)	SUBBASIN AREA (ACRES)	PERCENT OF SUBBASIN	CUMULATIVE PERCENT	AREAL WEIGHTED CN	CUMULATIVE CN	COMPOSITE CN
14	Low Density Residence: Less than 6 DU per Acre	59	D	87	9.65	60.57	15.93%	36.69%	13.9	32.5	
14	Low Density Residence: Less than 6 DU per Acre	59	D	87	8.92	60.57	14.73%	51.42%	12.8	45.3	
14	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.53	60.57	0.88%	52.30%	0.8	46.1	
14	Low Density Residence: Less than 6 DU per Acre	59	D	87	7.16	60.57	11.82%	64.12%	10.3	56.3	
14	Low Density Residence: Less than 6 DU per Acre	59	D	87	17.49	60.57	28.87%	92.99%	25.1	81.5	
14	Medium to High Density Res	59	D	93	4.25	60.57	7.01%	100.00%	6.5	88.0	**88.0**
16	Street	58	C	91.35	6.58	96.00	6.86%	6.86%	6.3	6.3	
16	Street	61	C	91.35	2.48	96.00	2.58%	9.44%	2.4	8.6	
16	Street	59	D	93.1	1.11	96.00	1.16%	10.60%	1.1	9.7	
16	Street	60	D	93.1	0.45	96.00	0.47%	11.07%	0.4	10.1	
16	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.49	96.00	0.51%	11.58%	0.4	10.6	
16	Low Density Residence: Less than 6 DU per Acre	61	C	83	0.61	96.00	0.64%	12.22%	0.5	11.1	
16	Low Density Residence: Less than 6 DU per Acre	58	C	83	1.41	96.00	1.47%	13.69%	1.2	12.3	
16	Low Density Residence: Less than 6 DU per Acre	61	C	83	0.02	96.00	0.02%	13.71%	0.0	12.4	
16	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.24	96.00	0.25%	13.96%	0.2	12.6	
16	Low Density Residence: Less than 6 DU per Acre	59	D	87	4.34	96.00	4.52%	18.48%	3.9	16.5	
16	Low Density Residence: Less than 6 DU per Acre	61	C	83	0.00	96.00	0.00%	18.48%	0.0	16.5	
16	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.08	96.00	0.08%	18.57%	0.1	16.6	
16	Low Density Residence: Less than 6 DU per Acre	61	C	83	0.06	96.00	0.06%	18.62%	0.0	16.6	
16	Low Density Residence: Less than 6 DU per Acre	59	D	87	1.66	96.00	1.73%	20.36%	1.5	18.1	
16	Low Density Residence: Less than 6 DU per Acre	61	C	83	2.83	96.00	2.95%	23.31%	2.4	20.6	
16	Low Density Residence: Less than 6 DU per Acre	59	D	87	8.70	96.00	9.06%	32.37%	7.9	28.5	
16	Low Density Residence: Less than 6 DU per Acre	58	C	83	0.19	96.00	0.20%	32.56%	0.2	28.6	
16	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.07	96.00	0.07%	32.64%	0.1	28.7	
16	Low Density Residence: Less than 6 DU per Acre	58	C	83	0.02	96.00	0.03%	32.66%	0.0	28.7	
16	Low Density Residence: Less than 6 DU per Acre	61	C	83	4.37	96.00	4.56%	37.22%	3.8	32.5	
16	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.03	96.00	0.03%	37.25%	0.0	32.5	
16	Medium to High Density Res	58	C	91	1.66	96.00	1.73%	38.98%	1.6	34.1	
16	Medium to High Density Res	59	D	93	0.64	96.00	0.66%	39.65%	0.6	34.7	
16	Low Density Residence: Less than 6 DU per Acre	61	C	83	0.81	96.00	0.84%	40.49%	0.7	35.4	
16	Low Density Residence: Less than 6 DU per Acre	61	C	83	2.96	96.00	3.08%	43.57%	2.6	38.0	
16	Low Density Residence: Less than 6 DU per Acre	58	C	83	0.32	96.00	0.34%	43.91%	0.3	38.3	
16	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.00	96.00	0.00%	43.91%	0.0	38.3	
16	Medium to High Density Res	58	C	91	7.23	96.00	7.53%	51.44%	6.9	45.1	
16	Medium to High Density Res	59	D	93	0.77	96.00	0.80%	52.24%	0.7	45.9	
16	Medium to High Density Res	58	C	91	2.10	96.00	2.18%	54.43%	2.0	47.8	
16	Low Density Residence: Less than 6 DU per Acre	58	C	83	0.29	96.00	0.30%	54.73%	0.3	48.1	
16	Medium to High Density Res	58	C	91	4.17	96.00	4.35%	59.07%	4.0	52.0	
16	Medium to High Density Res	58	C	91	4.68	96.00	4.88%	63.95%	4.4	56.5	
16	Commercial	58	C	94	0.01	96.00	0.01%	63.96%	0.0	56.5	
16	Commercial	58	C	94	0.17	96.00	0.18%	64.14%	0.2	56.7	
16	Medium to High Density Res	58	C	91	0.71	96.00	0.74%	64.89%	0.7	57.3	
16	Medium to High Density Res	61	C	91	8.02	96.00	8.35%	73.24%	7.6	64.9	
16	Medium to High Density Res	60	D	93	0.10	96.00	0.10%	73.34%	0.1	65.0	
16	Low Density Residence: Less than 6 DU per Acre	58	C	83	0.65	96.00	0.68%	74.02%	0.6	65.6	
16	Medium to High Density Res	58	C	91	2.32	96.00	2.42%	76.44%	2.2	67.8	
16	Low Density Residence: Less than 6 DU per Acre	58	C	83	0.31	96.00	0.32%	76.75%	0.3	68.1	
16	Low Density Residence: Less than 6 DU per Acre	58	C	83	0.07	96.00	0.08%	76.83%	0.1	68.1	
16	Commercial	58	C	94	2.45	96.00	2.55%	79.38%	2.4	70.5	
16	Low Density Residence: Less than 6 DU per Acre	58	C	83	3.56	96.00	3.70%	83.08%	3.1	73.6	
16	Commercial	58	C	94	0.41	96.00	0.42%	83.51%	0.4	74.0	
16	Low Density Residence: Less than 6 DU per Acre	58	C	83	0.97	96.00	1.01%	84.52%	0.8	74.8	

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16	Commercial	58	C	94	1.07	96.00	1.12%	85.64%	1.1	75.9	
16	Commercial	58	C	94	3.09	96.00	3.22%	88.86%	3.0	78.9	
16	Commercial	58	C	94	1.14	96.00	1.19%	90.05%	1.1	80.0	
16	Medium to High Density Res	58	C	91	0.91	96.00	0.95%	91.00%	0.9	80.9	
16	Medium to High Density Res	61	C	91	4.10	96.00	4.27%	95.27%	3.9	84.8	
16	Medium to High Density Res	60	D	93	3.91	96.00	4.08%	99.35%	3.8	88.6	
16	Commercial	58	C	94	0.26	96.00	0.27%	99.62%	0.3	88.8	
16	Commercial	58	C	94	0.12	96.00	0.13%	99.74%	0.1	88.9	
16	Commercial	61	C	94	0.02	96.00	0.02%	99.77%	0.0	89.0	
16	Commercial	60	D	95	0.22	96.00	0.23%	100.00%	0.2	89.2	**89.2**
18	Street	72	D	93.1	0.32	535.12	0.06%	0.06%	0.1	0.1	
18	Street	58	C	91.35	5.28	535.12	0.99%	1.05%	0.9	1.0	
18	Street	60	D	93.1	0.30	535.12	0.06%	1.10%	0.1	1.0	
18	Street	71	D	93.1	1.98	535.12	0.37%	1.48%	0.3	1.4	
18	Street	62	C	91.35	1.29	535.12	0.24%	1.72%	0.2	1.6	
18	Street	61	C	91.35	0.04	535.12	0.01%	1.72%	0.0	1.6	
2	Low Density Residence: Less than 6 DU per Acre	92	D	87	0.04	173.55	0.03%	15.65%	0.0	14.0	
2	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.01	173.55	0.01%	15.66%	0.0	14.0	
2	Low Density Residence: Less than 6 DU per Acre	92	D	87	0.06	173.55	0.03%	15.69%	0.0	14.0	
2	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.02	173.55	0.01%	15.70%	0.0	14.0	
2	Low Density Residence: Less than 6 DU per Acre	92	D	87	0.13	173.55	0.07%	15.78%	0.1	14.1	
2	Low Density Residence: Less than 6 DU per Acre	131	water	87	0.12	173.55	0.07%	15.85%	0.1	14.1	
2	Low Density Residence: Less than 6 DU per Acre	92	D	87	1.30	173.55	0.75%	16.60%	0.6	14.8	
2	Low Density Residence: Less than 6 DU per Acre	131	water	87	0.22	173.55	0.13%	16.72%	0.1	14.9	
2	Low Density Residence: Less than 6 DU per Acre	59	D	87	1.85	173.55	1.07%	17.79%	0.9	15.8	
2	Low Density Residence: Less than 6 DU per Acre	131	water	87	0.06	173.55	0.03%	17.82%	0.0	15.8	
2	Low Density Residence: Less than 6 DU per Acre	92	D	87	0.29	173.55	0.17%	17.99%	0.1	16.0	
2	Low Density Residence: Less than 6 DU per Acre	131	water	87	0.29	173.55	0.16%	18.16%	0.1	16.1	
2	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.01	173.55	0.01%	18.16%	0.0	16.1	
2	Low Density Residence: Less than 6 DU per Acre	59	D	87	1.19	173.55	0.68%	18.85%	0.6	16.7	
2	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.01	173.55	0.00%	18.85%	0.0	16.7	
2	Low Density Residence: Less than 6 DU per Acre	92	D	87	0.02	173.55	0.01%	18.86%	0.0	16.7	
2	Low Density Residence: Less than 6 DU per Acre	59	D	87	3.91	173.55	2.26%	21.12%	2.0	18.7	
2	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.89	173.55	0.51%	21.63%	0.4	19.2	
2	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.02	173.55	0.01%	21.64%	0.0	19.2	
2	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.29	173.55	0.16%	21.80%	0.1	19.3	
2	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.98	173.55	0.57%	22.37%	0.5	19.8	
2	Low Density Residence: Less than 6 DU per Acre	59	D	87	1.06	173.55	0.61%	22.98%	0.5	20.3	
2	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.27	173.55	0.15%	23.14%	0.1	20.5	
2	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.92	173.55	0.53%	23.67%	0.5	20.9	
2	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.48	173.55	0.28%	23.94%	0.2	21.2	
2	Low Density Residence: Less than 6 DU per Acre	92	D	87	0.28	173.55	0.16%	24.11%	0.1	21.3	
2	Low Density Residence: Less than 6 DU per Acre	131	water	87	0.01	173.55	0.00%	24.11%	0.0	21.3	
2	Low Density Residence: Less than 6 DU per Acre	59	D	87	10.39	173.55	5.99%	30.10%	5.2	26.5	
2	Low Density Residence: Less than 6 DU per Acre	92	D	87	3.44	173.55	1.98%	32.09%	1.7	28.3	
2	Low Density Residence: Less than 6 DU per Acre	131	water	87	0.38	173.55	0.22%	32.30%	0.2	28.4	
2	Low Density Residence: Less than 6 DU per Acre	59	D	87	11.79	173.55	6.79%	39.10%	5.9	34.4	
2	Low Density Residence: Less than 6 DU per Acre	59	D	87	3.63	173.55	2.09%	41.19%	1.8	36.2	
2	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.20	173.55	0.11%	41.30%	0.1	36.3	
2	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.13	173.55	0.08%	41.38%	0.1	36.3	
2	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.00	173.55	0.00%	41.38%	0.0	36.3	
2	Medium to High Density Res	59	D	93	14.05	173.55	8.09%	49.47%	7.5	43.9	

ORCHARD DRAINAGE BASIN - CURVE NUMBER CALCULATION

BASIN	Land Use Category	SOIL MAP UNIT #	Hydrologic Soil Group	SUBREGION CN	SUBREGION AREA (ACRES)	SUBBASIN AREA (ACRES)	PERCENT OF SUBBASIN	CUMULATIVE PERCENT	AREAL WEIGHTED CN	CUMULATIVE CN	COMPOSITE CN
18	Low Density Residence: Less than 6 DU per Acre	61	C	83	0.06	535.12	0.01%	20.27%	0.0	17.6	
18	Low Density Residence: Less than 6 DU per Acre	58	C	83	2.62	535.12	0.49%	20.75%	0.4	18.0	
18	Low Density Residence: Less than 6 DU per Acre	71	D	87	0.78	535.12	0.14%	20.90%	0.1	18.1	
18	Low Density Residence: Less than 6 DU per Acre	58	C	83	1.44	535.12	0.27%	21.17%	0.2	18.3	
18	Low Density Residence: Less than 6 DU per Acre	71	D	87	0.28	535.12	0.05%	21.22%	0.0	18.4	
18	Low Density Residence: Less than 6 DU per Acre	72	D	87	1.98	535.12	0.37%	21.59%	0.3	18.7	
18	Low Density Residence: Less than 6 DU per Acre	62	C	83	0.18	535.12	0.03%	21.62%	0.0	18.7	
18	Low Density Residence: Less than 6 DU per Acre	71	D	87	2.15	535.12	0.40%	22.03%	0.3	19.1	
18	Low Density Residence: Less than 6 DU per Acre	72	D	87	8.63	535.12	1.61%	23.64%	1.4	20.5	
18	Low Density Residence: Less than 6 DU per Acre	71	D	87	1.18	535.12	0.22%	23.86%	0.2	20.7	
18	Low Density Residence: Less than 6 DU per Acre	71	D	87	4.86	535.12	0.91%	24.77%	0.8	21.5	
18	Low Density Residence: Less than 6 DU per Acre	72	D	87	1.32	535.12	0.25%	25.01%	0.2	21.7	
18	Low Density Residence: Less than 6 DU per Acre	71	D	87	2.07	535.12	0.39%	25.40%	0.3	22.0	
18	Low Density Residence: Less than 6 DU per Acre	60	D	87	0.01	535.12	0.00%	25.40%	0.0	22.0	
18	Low Density Residence: Less than 6 DU per Acre	71	D	87	0.09	535.12	0.02%	25.42%	0.0	22.0	
18	Low Density Residence: Less than 6 DU per Acre	72	D	87	0.01	535.12	0.00%	25.42%	0.0	22.0	
18	Agriculture	72	D	80	60.60	535.12	11.32%	36.74%	9.1	31.1	
18	Agriculture	131	water	80	0.06	535.12	0.01%	36.76%	0.0	31.1	
18	Agriculture	58	C	74	122.00	535.12	22.80%	59.55%	16.9	48.0	
18	Agriculture	60	D	80	2.40	535.12	0.45%	60.00%	0.4	48.3	
18	Agriculture	71	D	80	5.06	535.12	0.94%	60.95%	0.8	49.1	
18	Agriculture	62	C	74	95.55	535.12	17.86%	78.80%	13.2	62.3	
18	Agriculture	71	D	80	2.91	535.12	0.54%	79.35%	0.4	62.7	
18	Low Density Residence: Less than 6 DU per Acre	131	water	87	0.21	535.12	0.04%	79.39%	0.0	62.8	
18	Low Density Residence: Less than 6 DU per Acre	58	C	83	2.76	535.12	0.51%	79.90%	0.4	63.2	
18	Low Density Residence: Less than 6 DU per Acre	71	D	87	0.63	535.12	0.12%	80.02%	0.1	63.3	
18	Wood-Grass Combination (Fair Condition)	131	water	82	6.32	535.12	1.18%	81.20%	1.0	64.3	
18	Wood-Grass Combination (Fair Condition)	58	C	76	0.14	535.12	0.03%	81.23%	0.0	64.3	
18	Wood-Grass Combination (Fair Condition)	71	D	82	1.97	535.12	0.37%	81.59%	0.3	64.6	
18	Wood-Grass Combination (Fair Condition)	131	water	82	0.16	535.12	0.03%	81.62%	0.0	64.6	
18	Wood-Grass Combination (Fair Condition)	71	D	82	0.22	535.12	0.04%	81.67%	0.0	64.7	
18	Low Density Residence: Less than 6 DU per Acre	71	D	87	0.20	535.12	0.04%	81.70%	0.0	64.7	
18	Wood-Grass Combination (Fair Condition)	72	D	82	55.29	535.12	10.33%	92.03%	8.5	73.2	
18	Wood-Grass Combination (Fair Condition)	62	C	76	0.32	535.12	0.06%	92.09%	0.0	73.2	
18	Wood-Grass Combination (Fair Condition)	59	D	82	0.28	535.12	0.05%	92.15%	0.0	73.3	
18	Wood-Grass Combination (Fair Condition)	71	D	82	6.80	535.12	1.27%	93.42%	1.0	74.3	
18	Wood-Grass Combination (Fair Condition)	72	D	82	12.39	535.12	2.31%	95.73%	1.9	76.2	
18	Wood-Grass Combination (Fair Condition)	131	water	82	1.75	535.12	0.33%	96.06%	0.3	76.5	
18	Wood-Grass Combination (Fair Condition)	58	C	76	0.94	535.12	0.18%	96.24%	0.1	76.6	
18	Wood-Grass Combination (Fair Condition)	71	D	82	15.16	535.12	2.83%	99.07%	2.3	78.9	
18	Open Estates: Greater than 1 acre Lots	72	D	84	3.65	535.12	0.68%	99.75%	0.6	79.5	
18	Open Estates: Greater than 1 acre Lots	72	D	84	0.00	535.12	0.00%	99.75%	0.0	79.5	
18	Open Estates: Greater than 1 acre Lots	108	D	84	0.05	535.12	0.01%	99.76%	0.0	79.5	
18	Open Estates: Greater than 1 acre Lots	71	D	84	1.24	535.12	0.23%	99.99%	0.2	79.7	
18	Street	62	C	91.35	0.00	535.12	0.00%	99.99%	0.0	79.7	
18	Low Density Residence: Less than 6 DU per Acre	62	C	83	0.01	535.12	0.00%	99.99%	0.0	79.7	
18	Low Density Residence: Less than 6 DU per Acre	62	C	83	0.01	535.12	0.00%	100.00%	0.0	79.7	
18	Low Density Residence: Less than 6 DU per Acre	71	D	87	0.01	535.12	0.00%	100.00%	0.0	79.7	
18	Low Density Residence: Less than 6 DU per Acre	71	D	87	0.01	535.12	0.00%	100.00%	0.0	79.7	
18	Low Density Residence: Less than 6 DU per Acre	62	C	83	0.02	535.12	0.00%	100.00%	0.0	79.7	
18	Low Density Residence: Less than 6 DU per Acre	62	C	83	0.02	535.12	0.00%	100.01%	0.0	79.7	
18	Agriculture	62	C	74	0.00	535.12	0.00%	100.01%	0.0	79.7	

ORCHARD DRAINAGE BASIN - CURVE NUMBER CALCULATION

BASIN	Land Use Category	SOIL MAP UNIT #	Hydrologic Soil Group	SUBREGION CN	SUBREGION AREA (ACRES)	SUBBASIN AREA (ACRES)	PERCENT OF SUBBASIN	CUMULATIVE PERCENT	AREAL WEIGHTED CN	CUMULATIVE CN	COMPOSITE CN
18	Agriculture	62	C	74	0.00	535.12	0.00%	100.01%	0.0	79.7	**79.7**
20	Street	58	C	91.35	4.61	88.63	5.20%	5.20%	4.8	4.8	
20	Street	71	D	93.1	1.39	88.63	1.57%	6.77%	1.5	6.2	
20	Commercial	58	C	94	0.20	88.63	0.23%	7.00%	0.2	6.4	
20	Low Density Residence: Less than 6 DU per Acre	58	C	83	0.34	88.63	0.38%	7.38%	0.3	6.7	
20	Commercial	58	C	94	0.06	88.63	0.07%	7.45%	0.1	6.8	
20	Commercial	58	C	94	1.24	88.63	1.40%	8.85%	1.3	8.1	
20	Commercial	58	C	94	2.41	88.63	2.72%	11.57%	2.6	10.7	
20	Commercial	58	C	94	2.80	88.63	3.16%	14.73%	3.0	13.7	
20	Commercial	58	C	94	1.13	88.63	1.27%	16.00%	1.2	14.8	
20	Commercial	58	C	94	0.07	88.63	0.08%	16.08%	0.1	14.9	
20	Commercial	58	C	94	4.66	88.63	5.26%	21.34%	4.9	19.9	
20	Commercial	58	C	94	0.06	88.63	0.07%	21.41%	0.1	19.9	
20	Low Density Residence: Less than 6 DU per Acre	58	C	83	1.17	88.63	1.32%	22.73%	1.1	21.0	
20	Low Density Residence: Less than 6 DU per Acre	58	C	83	4.05	88.63	4.57%	27.29%	3.8	24.8	
20	Wood-Grass Combination (Fair Condition)	58	C	76	36.03	88.63	40.65%	67.95%	30.9	55.7	
20	Wood-Grass Combination (Fair Condition)	71	D	82	5.80	88.63	6.54%	74.49%	5.4	61.1	
20	Wood-Grass Combination (Fair Condition)	63	D	82	10.89	88.63	12.29%	86.78%	10.1	71.2	
20	Agriculture	58	C	74	3.74	88.63	4.22%	91.00%	3.1	74.3	
20	Agriculture	62	C	74	0.03	88.63	0.04%	91.04%	0.0	74.3	
20	Agriculture	71	D	80	7.94	88.63	8.96%	100.00%	7.2	81.5	
20	Street	58	C	91.35	0.00	88.63	0.00%	100.00%	0.0	81.5	
20	Low Density Residence: Less than 6 DU per Acre	58	C	83	0.00	88.63	0.00%	100.00%	0.0	81.5	**81.5**
22	Street	58	C	91.35	0.15	107.01	0.14%	0.14%	0.1	0.1	
22	Street	62	C	91.35	3.64	107.01	3.40%	3.55%	3.1	3.2	
22	Street	62	C	91.35	0.05	107.01	0.05%	3.60%	0.0	3.3	
22	Street	71	D	93.1	4.23	107.01	3.95%	7.55%	3.7	7.0	
22	Street	61	C	91.35	0.55	107.01	0.52%	8.07%	0.5	7.4	
22	Street	63	D	93.1	2.07	107.01	1.93%	10.00%	1.8	9.2	
22	Low Density Residence: Less than 6 DU per Acre	62	C	83	0.27	107.01	0.25%	10.25%	0.2	9.4	
22	Low Density Residence: Less than 6 DU per Acre	71	D	87	0.73	107.01	0.68%	10.93%	0.6	10.0	
22	Low Density Residence: Less than 6 DU per Acre	62	C	83	1.21	107.01	1.13%	12.06%	0.9	11.0	
22	Low Density Residence: Less than 6 DU per Acre	71	D	87	0.64	107.01	0.60%	12.66%	0.5	11.5	
22	Low Density Residence: Less than 6 DU per Acre	62	C	83	4.20	107.01	3.93%	16.58%	3.3	14.8	
22	Low Density Residence: Less than 6 DU per Acre	71	D	87	3.01	107.01	2.81%	19.39%	2.4	17.2	
22	Low Density Residence: Less than 6 DU per Acre	61	C	83	2.56	107.01	2.39%	21.78%	2.0	19.2	
22	Low Density Residence: Less than 6 DU per Acre	62	C	83	0.05	107.01	0.04%	21.83%	0.0	19.2	
22	Low Density Residence: Less than 6 DU per Acre	71	D	87	4.26	107.01	3.98%	25.80%	3.5	22.7	
22	Low Density Residence: Less than 6 DU per Acre	61	C	83	0.78	107.01	0.72%	26.53%	0.6	23.3	
22	Low Density Residence: Less than 6 DU per Acre	58	C	83	0.93	107.01	0.87%	27.40%	0.7	24.0	
22	Low Density Residence: Less than 6 DU per Acre	62	C	83	1.25	107.01	1.16%	28.56%	1.0	25.0	
22	Low Density Residence: Less than 6 DU per Acre	71	D	87	3.86	107.01	3.61%	32.17%	3.1	28.1	
22	Low Density Residence: Less than 6 DU per Acre	63	D	87	2.69	107.01	2.52%	34.69%	2.2	30.3	
22	Low Density Residence: Less than 6 DU per Acre	61	C	83	0.00	107.01	0.00%	34.69%	0.0	30.3	
22	Low Density Residence: Less than 6 DU per Acre	62	C	83	0.04	107.01	0.04%	34.73%	0.0	30.3	
22	Low Density Residence: Less than 6 DU per Acre	71	D	87	1.88	107.01	1.76%	36.49%	1.5	31.9	
22	Low Density Residence: Less than 6 DU per Acre	61	C	83	0.12	107.01	0.11%	36.60%	0.1	32.0	
22	Low Density Residence: Less than 6 DU per Acre	63	D	87	2.02	107.01	1.89%	38.49%	1.6	33.6	
22	Low Density Residence: Less than 6 DU per Acre	62	C	83	1.89	107.01	1.76%	40.25%	1.5	35.1	
22	Low Density Residence: Less than 6 DU per Acre	63	D	87	2.59	107.01	2.42%	42.68%	2.1	37.2	
22	Low Density Residence: Less than 6 DU per Acre	62	C	83	0.91	107.01	0.85%	43.53%	0.7	37.9	
22	Low Density Residence: Less than 6 DU per Acre	71	D	87	0.39	107.01	0.37%	43.90%	0.3	38.2	

ORCHARD DRAINAGE BASIN - CURVE NUMBER CALCULATION

BASIN	Land Use Category	SOIL MAP UNIT #	Hydrologic Soil Group	SUBREGION CN	SUBREGION AREA (ACRES)	SUBBASIN AREA (ACRES)	PERCENT OF SUBBASIN	CUMULATIVE PERCENT	AREAL WEIGHTED CN	CUMULATIVE CN	COMPOSITE CN
22	Low Density Residence: Less than 6 DU per Acre	61	C	83	1.22	107.01	1.14%	45.04%	0.9	39.1	
22	Low Density Residence: Less than 6 DU per Acre	62	C	83	0.72	107.01	0.67%	45.71%	0.6	39.7	
22	Low Density Residence: Less than 6 DU per Acre	63	D	87	1.27	107.01	1.19%	46.90%	1.0	40.7	
22	Low Density Residence: Less than 6 DU per Acre	71	D	87	0.00	107.01	0.00%	46.90%	0.0	40.7	
22	Low Density Residence: Less than 6 DU per Acre	61	C	83	0.83	107.01	0.78%	47.68%	0.6	41.4	
22	Low Density Residence: Less than 6 DU per Acre	62	C	83	4.19	107.01	3.92%	51.59%	3.3	44.6	
22	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.04	107.01	0.04%	51.63%	0.0	44.7	
22	Low Density Residence: Less than 6 DU per Acre	62	C	83	0.43	107.01	0.41%	52.04%	0.3	45.0	
22	Low Density Residence: Less than 6 DU per Acre	71	D	87	5.58	107.01	5.21%	57.25%	4.5	49.5	
22	Low Density Residence: Less than 6 DU per Acre	61	C	83	0.24	107.01	0.22%	57.47%	0.2	49.7	
22	Low Density Residence: Less than 6 DU per Acre	62	C	83	0.93	107.01	0.86%	58.34%	0.7	50.4	
22	Low Density Residence: Less than 6 DU per Acre	63	D	87	1.06	107.01	0.99%	59.33%	0.9	51.3	
22	Low Density Residence: Less than 6 DU per Acre	62	C	83	4.16	107.01	3.89%	63.21%	3.2	54.5	
22	Low Density Residence: Less than 6 DU per Acre	62	C	83	0.84	107.01	0.78%	64.00%	0.7	55.2	
22	Low Density Residence: Less than 6 DU per Acre	61	C	83	0.00	107.01	0.00%	64.00%	0.0	55.2	
22	Low Density Residence: Less than 6 DU per Acre	63	D	87	1.16	107.01	1.08%	65.09%	0.9	56.1	
22	Low Density Residence: Less than 6 DU per Acre	62	C	83	0.48	107.01	0.45%	65.53%	0.4	56.5	
22	Low Density Residence: Less than 6 DU per Acre	71	D	87	0.19	107.01	0.17%	65.71%	0.2	56.6	
22	Low Density Residence: Less than 6 DU per Acre	63	D	87	1.46	107.01	1.37%	67.08%	1.2	57.8	
22	Low Density Residence: Less than 6 DU per Acre	62	C	83	4.59	107.01	4.29%	71.36%	3.6	61.4	
22	Low Density Residence: Less than 6 DU per Acre	71	D	87	1.60	107.01	1.49%	72.85%	1.3	62.7	
22	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.97	107.01	0.91%	73.76%	0.8	63.5	
22	Low Density Residence: Less than 6 DU per Acre	71	D	87	1.98	107.01	1.85%	75.61%	1.6	65.1	
22	Low Density Residence: Less than 6 DU per Acre	61	C	83	1.65	107.01	1.54%	77.16%	1.3	66.4	
22	Low Density Residence: Less than 6 DU per Acre	61	C	83	0.10	107.01	0.09%	77.25%	0.1	66.5	
22	Low Density Residence: Less than 6 DU per Acre	71	D	87	0.10	107.01	0.10%	77.34%	0.1	66.5	
22	Low Density Residence: Less than 6 DU per Acre	61	C	83	0.13	107.01	0.12%	77.47%	0.1	66.6	
22	Wood-Grass Combination (Fair Condition)	58	C	76	0.18	107.01	0.17%	77.64%	0.1	66.8	
22	Wood-Grass Combination (Fair Condition)	71	D	82	0.54	107.01	0.51%	78.14%	0.4	67.2	
22	Wood-Grass Combination (Fair Condition)	63	D	82	1.47	107.01	1.37%	79.51%	1.1	68.3	
22	Low Density Residence: Less than 6 DU per Acre	62	C	83	0.56	107.01	0.52%	80.04%	0.4	68.7	
22	Low Density Residence: Less than 6 DU per Acre	71	D	87	3.81	107.01	3.56%	83.60%	3.1	71.8	
22	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.47	107.01	0.44%	84.04%	0.4	72.2	
22	Low Density Residence: Less than 6 DU per Acre	62	C	83	0.00	107.01	0.00%	84.04%	0.0	72.2	
22	Low Density Residence: Less than 6 DU per Acre	71	D	87	1.02	107.01	0.96%	85.00%	0.8	73.1	
22	Low Density Residence: Less than 6 DU per Acre	62	C	83	0.37	107.01	0.34%	85.34%	0.3	73.3	
22	Low Density Residence: Less than 6 DU per Acre	71	D	87	1.65	107.01	1.54%	86.88%	1.3	74.7	
22	Low Density Residence: Less than 6 DU per Acre	63	D	87	0.00	107.01	0.00%	86.89%	0.0	74.7	
22	Low Density Residence: Less than 6 DU per Acre	62	C	83	0.53	107.01	0.49%	87.38%	0.4	75.1	
22	Low Density Residence: Less than 6 DU per Acre	71	D	87	4.23	107.01	3.95%	91.33%	3.4	78.5	
22	Low Density Residence: Less than 6 DU per Acre	61	C	83	0.10	107.01	0.10%	91.43%	0.1	78.6	
22	Low Density Residence: Less than 6 DU per Acre	71	D	87	4.49	107.01	4.19%	95.62%	3.6	82.3	
22	Low Density Residence: Less than 6 DU per Acre	61	C	83	2.55	107.01	2.38%	98.00%	2.0	84.2	
22	Low Density Residence: Less than 6 DU per Acre	71	D	87	0.54	107.01	0.51%	98.51%	0.4	84.7	
22	Low Density Residence: Less than 6 DU per Acre	61	C	83	1.08	107.01	1.00%	99.51%	0.8	85.5	
22	Agriculture	62	C	74	0.08	107.01	0.07%	99.59%	0.1	85.6	
22	Agriculture	71	D	80	0.41	107.01	0.38%	99.97%	0.3	85.9	
22	Street	62	C	91.35	0.00	107.01	0.00%	99.97%	0.0	85.9	
22	Low Density Residence: Less than 6 DU per Acre	62	C	83	0.01	107.01	0.01%	99.97%	0.0	85.9	
22	Low Density Residence: Less than 6 DU per Acre	62	C	83	0.01	107.01	0.01%	99.98%	0.0	85.9	
22	Low Density Residence: Less than 6 DU per Acre	71	D	87	0.01	107.01	0.01%	99.98%	0.0	85.9	
22	Low Density Residence: Less than 6 DU per Acre	71	D	87	0.01	107.01	0.01%	99.99%	0.0	85.9	

ORCHARD DRAINAGE BASIN - CURVE NUMBER CALCULATION

BASIN	Land Use Category	SOIL MAP UNIT #	Hydrologic Soil Group	SUBREGION CN	SUBREGION AREA (ACRES)	SUBBASIN AREA (ACRES)	PERCENT OF SUBBASIN	CUMULATIVE PERCENT	AREAL WEIGHTED CN	CUMULATIVE CN	COMPOSITE CN
22	Low Density Residence: Less than 6 DU per Acre	62	C	83	0.02	107.01	0.02%	100.01%	0.0	85.9	
22	Low Density Residence: Less than 6 DU per Acre	62	C	83	0.02	107.01	0.02%	100.03%	0.0	85.9	
22	Agriculture	62	C	74	0.00	107.01	0.00%	100.03%	0.0	85.9	
22	Agriculture	62	C	74	0.00	107.01	0.00%	100.03%	0.0	85.9	**85.9**
24	Street	58	C	91.35	1.89	150.96	1.25%	1.25%	1.1	1.1	
24	Street	61	C	91.35	0.85	150.96	0.56%	1.81%	0.5	1.7	
24	Street	71	D	93.1	8.74	150.96	5.79%	7.60%	5.4	7.0	
24	Street	61	C	91.35	1.30	150.96	0.86%	8.46%	0.8	7.8	
24	Street	60	D	93.1	1.96	150.96	1.30%	9.76%	1.2	9.0	
24	Commercial	58	C	94	0.04	150.96	0.03%	9.79%	0.0	9.1	
24	Low Density Residence: Less than 6 DU per Acre	58	C	83	0.45	150.96	0.29%	10.08%	0.2	9.3	
24	Low Density Residence: Less than 6 DU per Acre	71	D	87	3.33	150.96	2.21%	12.29%	1.9	11.2	
24	Commercial	58	C	94	0.30	150.96	0.20%	12.49%	0.2	11.4	
24	Low Density Residence: Less than 6 DU per Acre	71	D	87	0.84	150.96	0.56%	13.04%	0.5	11.9	
24	Low Density Residence: Less than 6 DU per Acre	61	C	83	2.19	150.96	1.45%	14.50%	1.2	13.1	
24	Commercial	58	C	94	0.13	150.96	0.09%	14.58%	0.1	13.2	
24	Commercial	58	C	94	0.02	150.96	0.01%	14.60%	0.0	13.2	
24	Low Density Residence: Less than 6 DU per Acre	58	C	83	0.04	150.96	0.03%	14.62%	0.0	13.2	
24	Low Density Residence: Less than 6 DU per Acre	61	C	83	0.68	150.96	0.45%	15.07%	0.4	13.6	
24	Low Density Residence: Less than 6 DU per Acre	60	D	87	3.42	150.96	2.27%	17.34%	2.0	15.6	
24	Commercial	58	C	94	6.40	150.96	4.24%	21.58%	4.0	19.6	
24	Commercial	61	C	94	0.00	150.96	0.00%	21.58%	0.0	19.6	
24	Commercial	60	D	95	1.98	150.96	1.31%	22.89%	1.2	20.8	
24	Low Density Residence: Less than 6 DU per Acre	61	C	83	1.95	150.96	1.29%	24.19%	1.1	21.9	
24	Low Density Residence: Less than 6 DU per Acre	60	D	87	2.65	150.96	1.75%	25.94%	1.5	23.4	
24	Low Density Residence: Less than 6 DU per Acre	61	C	83	6.33	150.96	4.19%	30.13%	3.5	26.9	
24	Low Density Residence: Less than 6 DU per Acre	60	D	87	0.22	150.96	0.15%	30.28%	0.1	27.0	
24	Commercial	58	C	94	0.00	150.96	0.00%	30.28%	0.0	27.0	
24	Commercial	58	C	94	4.26	150.96	2.82%	33.10%	2.7	29.7	
24	Commercial	71	D	95	0.31	150.96	0.20%	33.31%	0.2	29.9	
24	Low Density Residence: Less than 6 DU per Acre	58	C	83	0.29	150.96	0.20%	33.50%	0.2	30.0	
24	Low Density Residence: Less than 6 DU per Acre	71	D	87	0.40	150.96	0.26%	33.77%	0.2	30.2	
24	Low Density Residence: Less than 6 DU per Acre	58	C	83	1.87	150.96	1.24%	35.00%	1.0	31.3	
24	Low Density Residence: Less than 6 DU per Acre	61	C	83	0.58	150.96	0.38%	35.38%	0.3	31.6	
24	Low Density Residence: Less than 6 DU per Acre	71	D	87	4.20	150.96	2.78%	38.17%	2.4	34.0	
24	Low Density Residence: Less than 6 DU per Acre	60	D	87	11.64	150.96	7.71%	45.88%	6.7	40.7	
24	Low Density Residence: Less than 6 DU per Acre	71	D	87	0.33	150.96	0.22%	46.10%	0.2	40.9	
24	Low Density Residence: Less than 6 DU per Acre	61	C	83	0.47	150.96	0.31%	46.41%	0.3	41.2	
24	Low Density Residence: Less than 6 DU per Acre	71	D	87	0.88	150.96	0.59%	47.00%	0.5	41.7	
24	Low Density Residence: Less than 6 DU per Acre	71	D	87	2.58	150.96	1.71%	48.70%	1.5	43.2	
24	Low Density Residence: Less than 6 DU per Acre	61	C	83	0.65	150.96	0.43%	49.14%	0.4	43.5	
24	Low Density Residence: Less than 6 DU per Acre	71	D	87	1.61	150.96	1.07%	50.20%	0.9	44.5	
24	Low Density Residence: Less than 6 DU per Acre	71	D	87	1.04	150.96	0.69%	50.89%	0.6	45.0	
24	Low Density Residence: Less than 6 DU per Acre	61	C	83	0.48	150.96	0.32%	51.20%	0.3	45.3	
24	Low Density Residence: Less than 6 DU per Acre	71	D	87	0.64	150.96	0.43%	51.63%	0.4	45.7	
24	Low Density Residence: Less than 6 DU per Acre	71	D	87	0.88	150.96	0.58%	52.21%	0.5	46.2	
24	Low Density Residence: Less than 6 DU per Acre	60	D	87	0.02	150.96	0.01%	52.23%	0.0	46.2	
24	Low Density Residence: Less than 6 DU per Acre	71	D	87	0.73	150.96	0.49%	52.71%	0.4	46.6	
24	Low Density Residence: Less than 6 DU per Acre	71	D	87	0.74	150.96	0.49%	53.20%	0.4	47.0	
24	Low Density Residence: Less than 6 DU per Acre	71	D	87	0.73	150.96	0.48%	53.68%	0.4	47.5	
24	Low Density Residence: Less than 6 DU per Acre	71	D	87	0.66	150.96	0.44%	54.12%	0.4	47.8	
24	Low Density Residence: Less than 6 DU per Acre	60	D	87	0.23	150.96	0.15%	54.27%	0.1	48.0	

ORCHARD DRAINAGE BASIN - CURVE NUMBER CALCULATION

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24	Low Density Residence: Less than 6 DU per Acre	71	D	87	0.82	150.96	0.54%	54.81%	0.5	48.5	
24	Low Density Residence: Less than 6 DU per Acre	71	D	87	0.43	150.96	0.28%	55.10%	0.2	48.7	
24	Low Density Residence: Less than 6 DU per Acre	61	C	83	0.43	150.96	0.29%	55.38%	0.2	48.9	
24	Low Density Residence: Less than 6 DU per Acre	71	D	87	0.44	150.96	0.29%	55.67%	0.3	49.2	
24	Low Density Residence: Less than 6 DU per Acre	60	D	87	0.43	150.96	0.28%	55.96%	0.2	49.4	
24	Low Density Residence: Less than 6 DU per Acre	71	D	87	1.53	150.96	1.01%	56.97%	0.9	50.3	
24	Low Density Residence: Less than 6 DU per Acre	71	D	87	1.81	150.96	1.20%	58.17%	1.0	51.4	
24	Low Density Residence: Less than 6 DU per Acre	61	C	83	0.46	150.96	0.31%	58.47%	0.3	51.6	
24	Low Density Residence: Less than 6 DU per Acre	60	D	87	0.16	150.96	0.11%	58.58%	0.1	51.7	
24	Low Density Residence: Less than 6 DU per Acre	71	D	87	2.07	150.96	1.37%	59.96%	1.2	52.9	
24	Low Density Residence: Less than 6 DU per Acre	61	C	83	0.57	150.96	0.38%	60.34%	0.3	53.2	
24	Low Density Residence: Less than 6 DU per Acre	71	D	87	2.49	150.96	1.65%	61.99%	1.4	54.7	
24	Low Density Residence: Less than 6 DU per Acre	71	D	87	29.58	150.96	19.59%	81.58%	17.0	71.7	
24	Low Density Residence: Less than 6 DU per Acre	61	C	83	2.10	150.96	1.39%	82.97%	1.2	72.9	
24	Low Density Residence: Less than 6 DU per Acre	60	D	87	5.33	150.96	3.53%	86.50%	3.1	75.9	
24	Low Density Residence: Less than 6 DU per Acre	71	D	87	0.15	150.96	0.10%	86.60%	0.1	76.0	
24	Low Density Residence: Less than 6 DU per Acre	61	C	83	0.82	150.96	0.54%	87.14%	0.5	76.5	
24	Low Density Residence: Less than 6 DU per Acre	71	D	87	1.00	150.96	0.66%	87.81%	0.6	77.0	
24	Low Density Residence: Less than 6 DU per Acre	61	C	83	0.01	150.96	0.01%	87.82%	0.0	77.0	
24	Low Density Residence: Less than 6 DU per Acre	61	C	83	0.02	150.96	0.02%	87.83%	0.0	77.1	
24	Wood-Grass Combination (Fair Condition)	58	C	76	0.00	150.96	0.00%	87.83%	0.0	77.1	
24	Wood-Grass Combination (Fair Condition)	71	D	82	4.40	150.96	2.91%	90.74%	2.4	79.4	
24	Medium to High Density Res	61	C	91	4.09	150.96	2.71%	93.46%	2.5	81.9	
24	Medium to High Density Res	71	D	93	9.49	150.96	6.29%	99.74%	5.8	87.8	
24	Medium to High Density Res	61	C	91	0.39	150.96	0.26%	100.00%	0.2	88.0	**88.0**
26	Street	59	D	93.1	8.81	33.45	26.33%	26.33%	24.5	24.5	
26	Medium to High Density Res	59	D	93	2.96	33.45	8.84%	35.17%	8.2	32.7	
26	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.62	33.45	1.85%	37.02%	1.6	34.3	
26	Medium to High Density Res	59	D	93	7.93	33.45	23.70%	60.72%	22.0	56.4	
26	Low Density Residence: Less than 6 DU per Acre	59	D	87	10.03	33.45	29.98%	90.70%	26.1	82.5	
26	Medium to High Density Res	59	D	93	0.54	33.45	1.63%	92.33%	1.5	84.0	
26	Agriculture	59	D	80	2.57	33.45	7.67%	100.00%	6.1	90.1	
26	Medium to High Density Res	59	D	93	0.00	33.45	0.00%	100.00%	0.0	90.1	
26	Medium to High Density Res	59	D	93	0.00	33.45	0.00%	100.00%	0.0	90.1	**90.1**
28	Street	61	C	91.35	0.47	42.06	1.13%	1.13%	1.0	1.0	
28	Street	59	D	93.1	5.82	42.06	13.84%	14.97%	12.9	13.9	
28	Low Density Residence: Less than 6 DU per Acre	59	D	87	1.25	42.06	2.96%	17.93%	2.6	16.5	
28	Low Density Residence: Less than 6 DU per Acre	59	D	87	2.26	42.06	5.38%	23.31%	4.7	21.2	
28	Medium to High Density Res	59	D	93	4.19	42.06	9.96%	33.28%	9.3	30.4	
28	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.60	42.06	1.44%	34.71%	1.2	31.7	
28	Low Density Residence: Less than 6 DU per Acre	59	D	87	1.61	42.06	3.82%	38.54%	3.3	35.0	
28	Low Density Residence: Less than 6 DU per Acre	61	C	83	0.19	42.06	0.45%	38.99%	0.4	35.4	
28	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.62	42.06	1.48%	40.47%	1.3	36.7	
28	Low Density Residence: Less than 6 DU per Acre	61	C	83	0.32	42.06	0.75%	41.22%	0.6	37.3	
28	Low Density Residence: Less than 6 DU per Acre	59	D	87	0.24	42.06	0.56%	41.79%	0.5	37.8	
28	Low Density Residence: Less than 6 DU per Acre	59	D	87	6.17	42.06	14.66%	56.45%	12.8	50.6	
28	Medium to High Density Res	61	C	91	0.00	42.06	0.00%	56.45%	0.0	50.6	
28	Medium to High Density Res	59	D	93	0.15	42.06	0.37%	56.82%	0.3	50.9	
28	Medium to High Density Res	59	D	93	0.37	42.06	0.88%	57.70%	0.8	51.7	
28	Medium to High Density Res	61	C	91	0.04	42.06	0.09%	57.79%	0.1	51.8	
28	Medium to High Density Res	59	D	93	3.49	42.06	8.29%	66.08%	7.7	59.5	
28	Medium to High Density Res	59	D	93	12.86	42.06	30.57%	96.65%	28.4	87.9	

ORCHARD DRAINAGE BASIN - CURVE NUMBER CALCULATION

BASIN	Land Use Category	SOIL MAP UNIT #	Hydrologic Soil Group	SUBREGION CN	SUBREGION AREA (ACRES)	SUBBASIN AREA (ACRES)	PERCENT OF SUBBASIN	CUMULATIVE PERCENT	AREAL WEIGHTED CN	CUMULATIVE CN	COMPOSITE CN
28	Agriculture	61	C	74	1.33	42.06	3.16%	99.81%	2.3	90.3	
28	Agriculture	59	D	80	0.08	42.06	0.19%	100.00%	0.2	90.4	**90.4**
30	Street	61	C	91.35	4.91	68.34	7.19%	7.19%	6.6	6.6	
30	Street	59	D	93.1	0.08	68.34	0.12%	7.30%	0.1	6.7	
30	Street	71	D	93.1	0.27	68.34	0.40%	7.70%	0.4	7.0	
30	Street	61	C	91.35	0.01	68.34	0.01%	7.71%	0.0	7.1	
30	Low Density Residence: Less than 6 DU per Acre	61	C	83	1.11	68.34	1.62%	9.33%	1.3	8.4	
30	Low Density Residence: Less than 6 DU per Acre	61	C	83	0.02	68.34	0.03%	9.37%	0.0	8.4	
30	Low Density Residence: Less than 6 DU per Acre	61	C	83	0.88	68.34	1.29%	10.65%	1.1	9.5	
30	Low Density Residence: Less than 6 DU per Acre	61	C	83	0.07	68.34	0.11%	10.76%	0.1	9.6	
30	Medium to High Density Res	61	C	91	0.11	68.34	0.16%	10.92%	0.1	9.7	
30	Low Density Residence: Less than 6 DU per Acre	61	C	83	0.93	68.34	1.36%	12.28%	1.1	10.9	
30	Low Density Residence: Less than 6 DU per Acre	61	C	83	0.36	68.34	0.53%	12.81%	0.4	11.3	
30	Low Density Residence: Less than 6 DU per Acre	61	C	83	0.44	68.34	0.65%	13.46%	0.5	11.8	
30	Low Density Residence: Less than 6 DU per Acre	71	D	87	0.00	68.34	0.00%	13.46%	0.0	11.8	
30	Low Density Residence: Less than 6 DU per Acre	61	C	83	0.19	68.34	0.28%	13.74%	0.2	12.1	
30	Low Density Residence: Less than 6 DU per Acre	61	C	83	1.78	68.34	2.60%	16.34%	2.2	14.2	
30	Low Density Residence: Less than 6 DU per Acre	61	C	83	0.84	68.34	1.23%	17.57%	1.0	15.3	
30	Low Density Residence: Less than 6 DU per Acre	61	C	83	0.00	68.34	0.00%	17.58%	0.0	15.3	
30	Low Density Residence: Less than 6 DU per Acre	61	C	83	2.11	68.34	3.09%	20.66%	2.6	17.8	
30	Medium to High Density Res	61	C	91	1.82	68.34	2.66%	23.33%	2.4	20.2	
30	Low Density Residence: Less than 6 DU per Acre	61	C	83	0.87	68.34	1.27%	24.60%	1.1	21.3	
30	Low Density Residence: Less than 6 DU per Acre	61	C	83	0.12	68.34	0.17%	24.77%	0.1	21.4	
30	Low Density Residence: Less than 6 DU per Acre	61	C	83	1.49	68.34	2.17%	26.95%	1.8	23.2	
30	Low Density Residence: Less than 6 DU per Acre	61	C	83	0.21	68.34	0.31%	27.26%	0.3	23.5	
30	Low Density Residence: Less than 6 DU per Acre	61	C	83	1.12	68.34	1.63%	28.89%	1.4	24.9	
30	Low Density Residence: Less than 6 DU per Acre	61	C	83	5.41	68.34	7.92%	36.81%	6.6	31.4	
30	Medium to High Density Res	61	C	91	2.47	68.34	3.62%	40.43%	3.3	34.7	
30	Low Density Residence: Less than 6 DU per Acre	61	C	83	3.29	68.34	4.82%	45.24%	4.0	38.7	
30	Low Density Residence: Less than 6 DU per Acre	61	C	83	0.99	68.34	1.45%	46.69%	1.2	39.9	
30	Low Density Residence: Less than 6 DU per Acre	61	C	83	0.69	68.34	1.01%	47.70%	0.8	40.8	
30	Low Density Residence: Less than 6 DU per Acre	61	C	83	4.81	68.34	7.03%	54.74%	5.8	46.6	
30	Low Density Residence: Less than 6 DU per Acre	61	C	83	1.23	68.34	1.80%	56.53%	1.5	48.1	
30	Low Density Residence: Less than 6 DU per Acre	61	C	83	4.77	68.34	6.97%	63.51%	5.8	53.9	
30	Low Density Residence: Less than 6 DU per Acre	61	C	83	4.35	68.34	6.36%	69.87%	5.3	59.2	
30	Low Density Residence: Less than 6 DU per Acre	61	C	83	0.15	68.34	0.22%	70.08%	0.2	59.3	
30	Low Density Residence: Less than 6 DU per Acre	61	C	83	0.17	68.34	0.24%	70.33%	0.2	59.5	
30	Low Density Residence: Less than 6 DU per Acre	61	C	83	0.19	68.34	0.28%	70.60%	0.2	59.8	
30	Low Density Residence: Less than 6 DU per Acre	61	C	83	0.21	68.34	0.31%	70.91%	0.3	60.0	
30	Medium to High Density Res	61	C	91	0.32	68.34	0.47%	71.38%	0.4	60.4	
30	Medium to High Density Res	58	C	91	0.09	68.34	0.13%	71.51%	0.1	60.6	
30	Medium to High Density Res	59	D	93	0.14	68.34	0.20%	71.71%	0.2	60.8	
30	Medium to High Density Res	71	D	93	4.34	68.34	6.35%	78.06%	5.9	66.7	
30	Medium to High Density Res	61	C	91	1.00	68.34	1.47%	79.53%	1.3	68.0	
30	Medium to High Density Res	61	C	91	0.79	68.34	1.15%	80.69%	1.1	69.1	
30	Agriculture	61	C	74	13.03	68.34	19.06%	99.75%	14.1	83.2	
30	Agriculture	71	D	80	0.17	68.34	0.25%	100.00%	0.2	83.4	**83.4**
32	Street	61	C	91.35	0.01	59.26	0.01%	0.01%	0.0	0.0	
32	Street	59	D	93.1	9.48	59.26	16.00%	16.01%	14.9	14.9	
32	Street	71	D	93.1	0.01	59.26	0.02%	16.03%	0.0	14.9	
32	Medium to High Density Res	59	D	93	0.28	59.26	0.47%	16.50%	0.4	15.4	
32	Medium to High Density Res	59	D	93	1.65	59.26	2.79%	19.29%	2.6	18.0	

ORCHARD DRAINAGE BASIN - CURVE NUMBER CALCULATION

BASIN	Land Use Category	SOIL MAP UNIT #	Hydrologic Soil Group	SUBREGION CN	SUBREGION AREA (ACRES)	SUBBASIN AREA (ACRES)	PERCENT OF SUBBASIN	CUMULATIVE PERCENT	AREAL WEIGHTED CN	CUMULATIVE CN	COMPOSITE CN
32	Agriculture	59	D	80	1.41	59.26	2.38%	21.67%	1.9	19.9	
32	Medium to High Density Res	58	C	91	0.02	59.26	0.04%	21.71%	0.0	19.9	
32	Medium to High Density Res	59	D	93	4.55	59.26	7.68%	29.39%	7.1	27.0	
32	Medium to High Density Res	59	D	93	1.72	59.26	2.90%	32.29%	2.7	29.7	
32	Medium to High Density Res	59	D	93	7.43	59.26	12.53%	44.82%	11.7	41.4	
32	Medium to High Density Res	59	D	93	1.43	59.26	2.41%	47.23%	2.2	43.6	
32	Medium to High Density Res	59	D	93	0.03	59.26	0.04%	47.27%	0.0	43.7	
32	Medium to High Density Res	59	D	93	1.28	59.26	2.17%	49.44%	2.0	45.7	
32	Medium to High Density Res	58	C	91	0.14	59.26	0.23%	49.67%	0.2	45.9	
32	Medium to High Density Res	59	D	93	1.74	59.26	2.94%	52.61%	2.7	48.6	
32	Medium to High Density Res	59	D	93	0.26	59.26	0.45%	53.06%	0.4	49.0	
32	Medium to High Density Res	59	D	93	10.51	59.26	17.74%	70.80%	16.5	65.5	
32	Medium to High Density Res	59	D	93	1.11	59.26	1.87%	72.67%	1.7	67.3	
32	Low Density Residence: Less than 6 DU per Acre	59	D	87	6.85	59.26	11.55%	84.22%	10.1	77.3	
32	Medium to High Density Res	59	D	93	9.35	59.26	15.78%	100.00%	14.7	92.0	**92.0**
34	Street	61	C	91.35	5.30	97.13	5.45%	5.45%	5.0	5.0	
34	Street	58	C	91.35	1.05	97.13	1.08%	6.53%	1.0	6.0	
34	Street	61	C	91.35	0.24	97.13	0.25%	6.78%	0.2	6.2	
34	Street	71	D	93.1	0.09	97.13	0.10%	6.88%	0.1	6.3	
34	Street	71	D	93.1	1.99	97.13	2.05%	8.92%	1.9	8.2	
34	Street	61	C	91.35	0.08	97.13	0.09%	9.01%	0.1	8.3	
34	Low Density Residence: Less than 6 DU per Acre	61	C	83	1.12	97.13	1.15%	10.16%	1.0	9.2	
34	Low Density Residence: Less than 6 DU per Acre	61	C	83	0.82	97.13	0.84%	11.00%	0.7	9.9	
34	Low Density Residence: Less than 6 DU per Acre	61	C	83	0.07	97.13	0.07%	11.07%	0.1	10.0	
34	Low Density Residence: Less than 6 DU per Acre	61	C	83	0.46	97.13	0.47%	11.54%	0.4	10.4	
34	Low Density Residence: Less than 6 DU per Acre	71	D	87	0.01	97.13	0.01%	11.55%	0.0	10.4	
34	Low Density Residence: Less than 6 DU per Acre	61	C	83	0.65	97.13	0.66%	12.21%	0.6	10.9	
34	Low Density Residence: Less than 6 DU per Acre	61	C	83	0.88	97.13	0.91%	13.12%	0.8	11.7	
34	Low Density Residence: Less than 6 DU per Acre	61	C	83	0.81	97.13	0.84%	13.96%	0.7	12.4	
34	Low Density Residence: Less than 6 DU per Acre	61	C	83	0.15	97.13	0.15%	14.11%	0.1	12.5	
34	Low Density Residence: Less than 6 DU per Acre	61	C	83	4.25	97.13	4.37%	18.48%	3.6	16.1	
34	Low Density Residence: Less than 6 DU per Acre	58	C	83	0.02	97.13	0.02%	18.50%	0.0	16.1	
34	Low Density Residence: Less than 6 DU per Acre	61	C	83	1.49	97.13	1.53%	20.03%	1.3	17.4	
34	Low Density Residence: Less than 6 DU per Acre	61	C	83	2.22	97.13	2.28%	22.32%	1.9	19.3	
34	Low Density Residence: Less than 6 DU per Acre	58	C	83	0.39	97.13	0.41%	22.72%	0.3	19.7	
34	Low Density Residence: Less than 6 DU per Acre	61	C	83	0.87	97.13	0.89%	23.62%	0.7	20.4	
34	Low Density Residence: Less than 6 DU per Acre	61	C	83	0.56	97.13	0.58%	24.20%	0.5	20.9	
34	Low Density Residence: Less than 6 DU per Acre	58	C	83	0.07	97.13	0.08%	24.27%	0.1	20.9	
34	Low Density Residence: Less than 6 DU per Acre	71	D	87	0.08	97.13	0.08%	24.35%	0.1	21.0	
34	Low Density Residence: Less than 6 DU per Acre	61	C	83	1.90	97.13	1.96%	26.31%	1.6	22.6	
34	Low Density Residence: Less than 6 DU per Acre	61	C	83	0.19	97.13	0.19%	26.50%	0.2	22.8	
34	Low Density Residence: Less than 6 DU per Acre	58	C	83	0.01	97.13	0.01%	26.51%	0.0	22.8	
34	Low Density Residence: Less than 6 DU per Acre	71	D	87	0.53	97.13	0.54%	27.05%	0.5	23.3	
34	Low Density Residence: Less than 6 DU per Acre	61	C	83	0.26	97.13	0.26%	27.32%	0.2	23.5	
34	Low Density Residence: Less than 6 DU per Acre	61	C	83	0.08	97.13	0.09%	27.40%	0.1	23.6	
34	Low Density Residence: Less than 6 DU per Acre	61	C	83	2.75	97.13	2.83%	30.23%	2.3	25.9	
34	Low Density Residence: Less than 6 DU per Acre	71	D	87	0.52	97.13	0.54%	30.77%	0.5	26.4	
34	Low Density Residence: Less than 6 DU per Acre	61	C	83	0.18	97.13	0.19%	30.96%	0.2	26.5	
34	Low Density Residence: Less than 6 DU per Acre	71	D	87	0.61	97.13	0.63%	31.59%	0.5	27.1	
34	Low Density Residence: Less than 6 DU per Acre	61	C	83	1.45	97.13	1.49%	33.08%	1.2	28.3	
34	Low Density Residence: Less than 6 DU per Acre	61	C	83	0.74	97.13	0.76%	33.83%	0.6	28.9	
34	Low Density Residence: Less than 6 DU per Acre	61	C	83	0.08	97.13	0.08%	33.92%	0.1	29.0	

ORCHARD DRAINAGE BASIN - CURVE NUMBER CALCULATION

BASIN	Land Use Category	SOIL MAP UNIT #	Hydrologic Soil Group	SUBREGION CN	SUBREGION AREA (ACRES)	SUBBASIN AREA (ACRES)	PERCENT OF SUBBASIN	CUMULATIVE PERCENT	AREAL WEIGHTED CN	CUMULATIVE CN	COMPOSITE CN
34	Low Density Residence: Less than 6 DU per Acre	61	C	83	0.78	97.13	0.81%	34.72%	0.7	29.7	
34	Low Density Residence: Less than 6 DU per Acre	61	C	83	0.02	97.13	0.02%	34.75%	0.0	29.7	
34	Medium to High Density Res	61	C	91	1.43	97.13	1.47%	36.22%	1.3	31.0	
34	Medium to High Density Res	58	C	91	0.42	97.13	0.43%	36.65%	0.4	31.4	
34	Medium to High Density Res	71	D	93	0.90	97.13	0.93%	37.58%	0.9	32.3	
34	Medium to High Density Res	61	C	91	0.11	97.13	0.11%	37.69%	0.1	32.4	
34	Medium to High Density Res	58	C	91	4.50	97.13	4.64%	42.33%	4.2	36.6	
34	Medium to High Density Res	61	C	91	0.26	97.13	0.27%	42.60%	0.2	36.9	
34	Medium to High Density Res	71	D	93	0.79	97.13	0.82%	43.41%	0.8	37.6	
34	Medium to High Density Res	58	C	91	0.83	97.13	0.85%	44.26%	0.8	38.4	
34	Medium to High Density Res	71	D	93	3.49	97.13	3.59%	47.85%	3.3	41.7	
34	Medium to High Density Res	61	C	91	10.05	97.13	10.35%	58.20%	9.4	51.2	
34	Medium to High Density Res	58	C	91	7.62	97.13	7.85%	66.05%	7.1	58.3	
34	Medium to High Density Res	61	C	91	0.98	97.13	1.01%	67.05%	0.9	59.2	
34	Medium to High Density Res	59	D	93	0.27	97.13	0.28%	67.33%	0.3	59.5	
34	Medium to High Density Res	61	C	91	0.98	97.13	1.01%	68.35%	0.9	60.4	
34	Medium to High Density Res	58	C	91	3.27	97.13	3.36%	71.71%	3.1	63.4	
34	Medium to High Density Res	61	C	91	0.01	97.13	0.01%	71.72%	0.0	63.5	
34	Medium to High Density Res	71	D	93	0.15	97.13	0.15%	71.87%	0.1	63.6	
34	Medium to High Density Res	58	C	91	2.63	97.13	2.71%	74.58%	2.5	66.1	
34	Medium to High Density Res	71	D	93	1.92	97.13	1.98%	76.56%	1.8	67.9	
34	Medium to High Density Res	61	C	91	1.84	97.13	1.89%	78.45%	1.7	69.6	
34	Medium to High Density Res	71	D	93	20.83	97.13	21.44%	99.90%	19.9	89.6	
34	Medium to High Density Res	61	C	91	0.10	97.13	0.10%	100.00%	0.1	89.7	**89.7**
36	Street	61	C	91.35	0.36	36.90	0.97%	0.97%	0.9	0.9	
36	Street	59	D	93.1	5.77	36.90	15.64%	16.61%	14.6	15.4	
36	Medium to High Density Res	61	C	91	0.25	36.90	0.67%	17.28%	0.6	16.1	
36	Medium to High Density Res	59	D	93	7.05	36.90	19.12%	36.39%	17.8	33.8	
36	Low Density Residence: Less than 6 DU per Acre	59	D	87	4.08	36.90	11.06%	47.45%	9.6	43.5	
36	Medium to High Density Res	59	D	93	11.56	36.90	31.34%	78.79%	29.1	72.6	
36	Medium to High Density Res	61	C	91	0.41	36.90	1.10%	79.90%	1.0	73.6	
36	Medium to High Density Res	59	D	93	1.09	36.90	2.96%	82.86%	2.8	76.4	
36	Agriculture	59	D	80	0.33	36.90	0.91%	83.77%	0.7	77.1	
36	Low Density Residence: Less than 6 DU per Acre	59	D	87	5.99	36.90	16.23%	100.00%	14.1	91.2	**91.2**
42	Street	61	C	91.35	0.80	10.67	7.47%	7.47%	6.8	6.8	
42	Medium to High Density Res	61	C	91	0.02	10.67	0.22%	7.69%	0.2	7.0	
42	Medium to High Density Res	58	C	91	3.79	10.67	35.54%	43.23%	32.3	39.4	
42	Medium to High Density Res	61	C	91	5.27	10.67	49.40%	92.63%	45.0	84.3	
42	Medium to High Density Res	59	D	93	0.79	10.67	7.37%	100.00%	6.9	91.2	**91.2**

	Sheet Flow				Shallow Concentrated Flow					Channel Flow								
BASIN	Flow Length (ft)	Slope (ft/ft)	Mannings' n*	[1]Travel Time, T1 (hr)	Flow Length (ft)	Slope (ft/ft)	Paved or Unpaved	Average Velocity (ft/s)	[2]Travel Time, T2 (hr)	Flow Length (ft)	Slope (ft/ft)	Mannings' n	Average Channel Width (ft)	Average Velocity* (ft/s)	[3]Travel Time, T3 (hr)	Time of Concentration Tc= T1+T2+T3 (hr)	SCS Lag Time Tlag= 0.6*Tc (hr)	SCS Lag Time Tlag= 0.6*Tc (min)
AB16	100	0.02	0.150	0.23	2000	0.019	Unpaved	2.22	0.25	470	0.002	0.030	0	2.90	0.05	0.53	0.32	**19**
AB18	200	0.03	0.150	0.34	700	0.031	Unpaved	2.86	0.07	1645	0.012	0.045	5	7.09	0.06	0.47	0.28	**17**
AB26	100	0.06	0.150	0.15	2800	0.049	Unpaved	3.58	0.22	0	0.000	0.000	0	0.00	0.00	0.37	0.22	**13**
AB28	264	0.03	0.150	0.41	1173	0.067	Unpaved	4.17	0.08	1317	0.025	0.045	5	10.19	0.04	0.53	0.32	**19**
AB30	118	0.09	0.150	0.15	1648	0.046	Unpaved	3.47	0.13	1799	0.026	0.016	0	6.00	0.08	0.36	0.22	**13**
AB32	184	0.09	0.150	0.21	1346	0.031	Unpaved	2.82	0.13	2015	0.003	0.045	0	3.47	0.16	0.50	0.30	**18**
AB34	130	0.04	0.150	0.22	537	0.074	Unpaved	4.40	0.03	1006	0.014	0.045	0	7.18	0.04	0.30	0.18	**11**
AB36	95	0.02	0.150	0.23	1566	0.063	Unpaved	4.03	0.11	493	0.009	0.045	0	5.65	0.02	0.36	0.22	**13**
AB38	150	0.04	0.150	0.23	585	0.058	Unpaved	3.89	0.04	1406	0.029	0.045	0	10.11	0.04	0.31	0.19	**11**
AB40	300	0.10	0.150	0.29	728	0.008	Unpaved	1.42	0.14	1778	0.031	0.045	0	10.55	0.05	0.48	0.29	**17**
AB42	100	0.01	0.150	0.32	1466	0.026	Unpaved	2.62	0.16	1900	0.011	0.045	0	6.25	0.08	0.56	0.34	**20**
AB44	200	0.04	0.150	0.30	1800	0.019	Unpaved	2.24	0.22	2175	0.024	0.045	0	9.26	0.07	0.59	0.36	**21**
AB15	290	0.27	0.150	0.19	300	0.033	Unpaved	2.95	0.03	1283	0.044	0.030	0	9.63	0.04	0.26	0.15	**9**
AB17	223	0.04	0.150	0.35	1857	0.030	Unpaved	2.80	0.18	1670	0.002	0.045	5	3.15	0.15	0.68	0.41	**24**
AB11	140	0.03	0.150	0.26	1164	0.014	Unpaved	1.89	0.17	2393	0.010	0.000	3	6.27	0.00	0.43	0.26	**16**
AB12	141	0.02	0.150	0.30	3388	0.014	Unpaved	1.90	0.50	0	0.000	0.045	0	0.00	0.00	0.79	0.48	**29**
AB13	256	0.02	0.150	0.54	586	0.020	Unpaved	2.31	0.07	3174	0.011	0.016	0	6.19	0.14	0.75	0.45	**27**
AB14	70	0.11	0.150	0.09	742	0.137	Unpaved	5.98	0.03	2349	0.016	0.045	0	3.91	0.17	0.29	0.17	**10**
AB10	269	0.01	0.150	0.57	327	0.012	Unpaved	1.78	0.05	3659	0.010	0.045	0	5.84	0.17	0.80	0.48	**29**
AB09	279	0.01	0.150	0.60	1066	0.013	Unpaved	1.85	0.16	4123	0.009	0.045	12	7.47	0.15	0.91	0.55	**33**
AB08	53	0.08	0.150	0.08	2200	0.007	Paved	1.73	0.35	2575	0.005	0.045	0	2.18	0.33	0.76	0.46	**27**

P_2= 1.6

Reference: NRCS Technical Release 55 - Urban Hydrology for Small Watersheds, Chapter 3: Time of Concentration and Travel Time; June 1986

*Manning's N value taken from Table 3-1 of TR-55, intitial sheet flow conditions assumed to be catagorized as "Short grass prairie"

1 For sheet flow of less than 300 feet, use Manning's kinematic solution (Overtop and Meadows 1976) to compute T_t:

$$T_t = \frac{0.007(nL)^{0.8}}{(P_2)^{0.5} s^{0.4}} \quad \text{[eq. 3-3]}$$

where:

T_t = travel time (hr),
n = Manning's roughness coefficient (table 3-1)
L = flow length (ft)
P_2 = 2-year, 24-hour rainfall (in)
s = slope of hydraulic grade line (land slope, ft/ft)

2 & 3 Travel time (T_t) is the ratio of flow length to flow velocity:

$$T_t = \frac{L}{3600V} \quad \text{[eq. 3-1]}$$

where:

T_t = travel time (hr)
L = flow length (ft)
V = average velocity (ft/s)
3600 = conversion factor from seconds to hours.

Sheet flow

Sheet flow is flow over plane surfaces. It usually occurs in the headwater of streams. With sheet flow, the friction value (Manning's n) is an effective roughness coefficient that includes the effect of raindrop impact; drag over the plane surface; obstacles such as litter, crop ridges, and rocks; and erosion and transportation of sediment. These n values are for very shallow flow depths of about 0.1 foot or so. Table 3-1 gives Manning's n values for sheet flow for various surface conditions.

Table 3-1 Roughness coefficients (Manning's n) for sheet flow

Surface description	n [1]
Smooth surfaces (concrete, asphalt, gravel, or bare soil)	0.011
Fallow (no residue)	0.05
Cultivated soils:	
Residue cover ≤20%	0.06
Residue cover >20%	0.17
Grass:	
Short grass prairie	0.15
Dense grasses [2]	0.24
Bermudagrass	0.41
Range (natural)	0.13
Woods: [3]	
Light underbrush	0.40
Dense underbrush	0.80

[1] The n values are a composite of information compiled by Engman (1986).
[2] Includes species such as weeping lovegrass, bluegrass, buffalo grass, blue grama grass, and native grass mixtures.
[3] When selecting n, consider cover to a height of about 0.1 ft. This is the only part of the plant cover that will obstruct sheet flow.

Sheet Flow				
Basin	Length	Elev_u/s	Elev_d/s	Slope
AB16	100	5396	5394	0.0200
AB18	200	5406	5400	0.0300
AB26	100	5556	5550	0.0600
AB28	264	5489.2	5480.7	0.0322
AB30	118	5541.7	5531.6	0.0857
AB32	184	5467.2	5450.7	0.0896
AB34	130	5465.9	5461.2	0.0362
AB36	95	5506.5	5504.7	0.0189
AB38	150	5503.6	5497	0.0440
AB40	300	5554.8	5524	0.1027
AB42	100	5578.7	5577.82	0.0088
AB44	200	5630	5622	0.0400
AB15	290	5492	5414	0.2690
AB17	223	5418	5410	0.0359
AB11	140	5354	5350	0.0286
AB12	141	5354	5351	0.0213
AB13	256	5352	5348	0.0156
AB14	70	5450	5442	0.1143
AB10	269	5316	5312	0.0149
AB09	279	5304	5300	0.0143
AB08	53	5312	5308	0.0755

Shallow Concentrated Flow				
Basin	Length	Elev_u/s	Elev_d/s	Slope
AB16	2000	5394	5356	0.0190
AB18	700	5400	5378	0.0314
AB26	2800	5550	5412	0.0493
AB28	1173	5480.7	5402.4	0.0668
AB30	1648	5531.6	5455.5	0.0462
AB32	1346	5450.7	5409.5	0.0306
AB34	537	5461.2	5421.3	0.0743
AB36	1566	5504.7	5406.8	0.0625
AB38	585	5497	5463	0.0581
AB40	728	5524	5518.4	0.0077
AB42	1466	5577.82	5539.2	0.0263
AB44	1800	5622	5587.2	0.0193
AB15	300	5414	5404	0.0333
AB17	1857	5410	5354	0.0302
AB11	1164	5350	5334	0.0137
AB12	3388	5351	5304	0.0139
AB13	586	5348	5336	0.0205
AB14	742	5442	5340	0.1375
AB10	327	5312	5308	0.0122
AB09	1066	5304	5290	0.0131
AB08	2200	5308	5292	0.0073

Channel Flow															
NAME	Length	Elev_u/s	Elev_d/s	Slope	Bank-Full Depth	Width	Left Bank Slope	Right Bank Slope	n	Top Width	Area	P	R	V	Q
AB16	470.00	5356	5355	0.0021	3	0	3	3	0.03	18	27.0	19.0	1.4	2.9	78.3
AB18	1645.00	5378	5358	0.0122	5	5	4	4	0.045	45	125.0	46.2	2.7	7.1	885.7
AB26	0.00	5412	0	0.0000	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0
AB28	1317.26	5402.4	5369.3	0.0251	5	5	4	4	0.045	45	125.0	46.2	2.7	10.2	1273.3
AB30	1799.00	5455.5	5408	0.0264	0.5	0	50	50	0.016	50	12.5	50.0	0.2	6.0	75.1
AB32	2015.12	5409.5	5402.7	0.0034	5	0	4	4	0.045	40	100.0	41.2	2.4	3.5	347.2
AB34	1006.14	5421.3	5406.8	0.0144	5	0	4	4	0.045	40	100.0	41.2	2.4	7.2	717.5
AB36	493.14	5406.8	5402.4	0.0089	5	0	4	4	0.045	40	100.0	41.2	2.4	5.6	564.6
AB38	1406.23	5463	5422.8	0.0286	5	0	4	4	0.045	40	100.0	41.2	2.4	10.1	1010.6
AB40	1777.53	5518.4	5463	0.0312	5	0	4	4	0.045	40	100.0	41.2	2.4	10.6	1055.2
AB42	1900.31	5539.2	5518.4	0.0109	5	0	4	4	0.045	40	100.0	41.2	2.4	6.3	625.3
AB44	2175.44	5587.2	5535	0.0240	5	0	4	4	0.045	40	100.0	41.2	2.4	9.3	925.9
AB15	1283.48	5404	5348	0.0436	2	0	2	2	0.03	8	8.0	8.9	0.9	9.6	77.0
AB17	1670.00	5354	5350	0.0024	5	5	4	4	0.045	45	125.0	46.2	2.7	3.1	393.1
AB11	2392.54	5334	5310	0.0100	5	3	3	3	0.045	33	90.0	34.6	2.6	6.3	564.3
AB12	0.00	0	0	0.0000	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0
AB13	3174.00	5336	5302	0.0107	5	0	4	4	0.045	40	100.0	41.2	2.4	6.2	618.6
AB14	2349.00	5340	5302	0.0162	2	0	2	2	0.045	8	8.0	8.9	0.9	3.9	31.3
AB10	3659.00	5308	5272	0.0098	5	0	3	3	0.045	30	75.0	31.6	2.4	5.8	438.1
AB09	4123.00	5290	5252	0.0092	6	12	3	3	0.045	48	180.0	49.9	3.6	7.5	1344.9
AB08	2575.00	5292	5280	0.0047	2	0	3	3	0.045	12	12.0	12.6	0.9	2.2	26.2

Orchard Ave Watershed - Lag Time Calculation

BASIN	Sheet Flow: Flow Length (ft)	Slope (ft/ft)	Mannings' n*	[1]Travel Time, T1 (hr)	Shallow Concentrated Flow: Flow Length (ft)	Slope (ft/ft)	Paved or Unpaved	Average Velocity (ft/s)	[2]Travel Time, T2 (hr)	Channel Flow: Flow Length (ft)	Slope (ft/ft)	Mannings' n	Average Channel Width (ft)	Average Velocity* (ft/s)	[3]Travel Time, T3 (hr)	Time of Concentration Tc= T1+T2+T3 (hr)	SCS Lag Time Tlag= 0.6*Tc (hr)	SCS Lag Time Tlag= 0.6*Tc (min)
2	200	0.02	0.150	0.40	1740	0.013	Unpaved	1.81	0.27	1429	0.017	0.030	0	6.21	0.06	0.73	0.44	**26.37**
4	100	0.02	0.150	0.23	1875	0.010	Paved	1.99	0.26	1291	0.012	0.045	0	4.11	0.09	0.58	0.35	**20.87**
5	186	0.01	0.150	0.49	1675	0.012	Unpaved	1.76	0.26	2000	0.006	0.000	0	3.71	0.00	0.75	0.45	**27.01**
6	135	0.02	0.150	0.28	1650	0.020	Unpaved	2.28	0.20	0	0.000	0.045	0	0.00	0.00	0.48	0.29	**17.36**
10	87	0.10	0.130	0.10	785	0.033	Unpaved	2.94	0.07	3004	0.001	0.016	0	3.28	0.25	0.42	0.25	**15.27**
12	156	0.02	0.150	0.33	1689	0.007	Unpaved	1.36	0.34	0	0.000	0.045	0	0.00	0.00	0.68	0.41	**24.47**
14	115	0.02	0.150	0.27	734	0.016	Unpaved	2.06	0.10	1913	0.008	0.045	0	5.39	0.10	0.47	0.28	**16.94**
16	127	0.05	0.150	0.20	1180	0.008	Unpaved	1.49	0.22	3082	0.016	0.045	0	7.35	0.12	0.54	0.32	**19.28**
18	300	0.18	0.150	0.23	4905	0.059	Unpaved	3.92	0.35	6167	0.003	0.045	0	3.44	0.50	1.08	0.65	**38.72**
20	92	0.04	0.150	0.16	2988	0.031	Unpaved	2.86	0.29	1273	0.088	0.045	0	9.48	0.04	0.49	0.29	**17.48**
22	264	0.03	0.150	0.45	1201	0.048	Unpaved	3.55	0.09	2053	0.029	0.045	0	5.47	0.10	0.65	0.39	**23.29**
24	210	0.02	0.150	0.39	2076	0.038	Unpaved	3.13	0.18	2052	0.024	0.045	0	9.19	0.06	0.64	0.38	**22.91**
26	152	0.02	0.150	0.32	1909	0.003	Unpaved	0.90	0.59	0	0.000	0.030	0	0.00	0.00	0.91	0.55	**32.79**
28	172	0.02	0.150	0.38	2128	0.021	Unpaved	2.35	0.25	0	0.000	0.045	0	0.00	0.00	0.63	0.38	**22.62**
30	115	0.03	0.150	0.23	2785	0.026	Unpaved	2.59	0.30	0	0.000	0.000	0	0.00	0.00	0.53	0.32	**19.10**
32	162	0.04	0.150	0.27	3104	0.012	Unpaved	1.79	0.48	0	0.000	0.045	0	0.00	0.00	0.75	0.45	**26.95**
34	215	0.08	0.150	0.24	2350	0.043	Unpaved	3.36	0.19	728	0.036	0.016	0	7.92	0.03	0.46	0.28	**16.56**
36	252	0.01	0.150	0.60	3165	0.016	Paved	2.61	0.34	0	0.000	0.045	0	0.00	0.00	0.93	0.56	**33.58**
42	200	0.02	0.150	0.40	1229	0.023	Unpaved	2.44	0.14	0	0.000	0.045	0	0.00	0.00	0.54	0.33	**19.52**

P_2= 1.6

Reference: NRCS Technical Release 55 - Urban Hydrology for Small Watersheds, Chapter 3: Time of Concentration and Travel Time; June 1986

*Manning's N value taken from Table 3-1 of TR-55, intitial sheet flow conditions assumed to be catagorized as "Short grass prairie"

1 For sheet flow of less than 300 feet, use Manning's kinematic solution (Overtop and Meadows 1976) to compute T_t:

$$T_t = \frac{0.007(nL)^{0.8}}{(P_2)^{0.5} s^{0.4}} \quad \text{[eq. 3-3]}$$

where:

T_t = travel time (hr),
n = Manning's roughness coefficient (table 3-1)
L = flow length (ft)
P_2 = 2-year, 24-hour rainfall (in)
s = slope of hydraulic grade line (land slope, ft/ft)

2 & 3 Travel time (T_t) is the ratio of flow length to flow velocity:

$$T_t = \frac{L}{3600V} \quad \text{[eq. 3-1]}$$

where:

T_t = travel time (hr)
L = flow length (ft)
V = average velocity (ft/s)
3600 = conversion factor from seconds to hours.

Sheet flow

Sheet flow is flow over plane surfaces. It usually occurs in the headwater of streams. With sheet flow, the friction value (Manning's n) is an effective roughness coefficient that includes the effect of raindrop impact; drag over the plane surface; obstacles such as litter, crop ridges, and rocks; and erosion and transportation of sediment. These n values are for very shallow flow depths of about 0.1 foot or so. Table 3-1 gives Manning's n values for sheet flow for various surface conditions.

Table 3-1 Roughness coefficients (Manning's n) for sheet flow

Surface description	n [1]
Smooth surfaces (concrete, asphalt, gravel, or bare soil)	0.011
Fallow (no residue)	0.05
Cultivated soils:	
Residue cover ≤20%	0.06
Residue cover >20%	0.17
Grass:	
Short grass prairie	0.15
Dense grasses [2]	0.24
Bermudagrass	0.41
Range (natural)	0.13
Woods:[3]	
Light underbrush	0.40
Dense underbrush	0.80

[1] The n values are a composite of information compiled by Engman (1986).
[2] Includes species such as weeping lovegrass, bluegrass, buffalo grass, blue grama grass, and native grass mixtures.
[3] When selecting n , consider cover to a height of about 0.1 ft. This is the only part of the plant cover that will obstruct sheet flow.

Sheet Flow

Basin	Length	Elev_u/s	Elev_d/s	Slope
2	200	5320	5316	0.0200
4	100	5354	5352	0.0200
5	186	5356	5354	0.0108
6	135	5324	5321	0.0222
10	87	5361	5352	0.1034
12	156	5373	5370	0.0192
14	115	5400	5398	0.0174
16	127	5456	5450	0.0472
18	300	5805	5750	0.1833
20	92	5560	5556	0.0435
22	264	5623	5616	0.0265
24	210	5575	5570	0.0238
26	152	5363	5360	0.0197
28	172	5413	5410	0.0174
30	115	5489	5486	0.0261
32	162	5412	5406	0.0370
34	215	5560	5542	0.0837
36	252	5411	5408	0.0119
42	200	5444	5440	0.0200

Shallow Concentrated Flow

Basin	Length	Elev_u/s	Elev_d/s	Slope
2	1740	5316	5294	0.0126
4	1875	5352	5334	0.0096
5	1675	5354	5334	0.0119
6	1650	5321	5288	0.0200
10	785	5352	5326	0.0331
12	1689	5370	5358	0.0071
14	734	5398	5386	0.0163
16	1180	5450	5440	0.0085
18	4905	5750	5461	0.0589
20	2988	5556	5462	0.0315
22	1201	5616	5558	0.0483
24	2076	5570	5492	0.0376
26	1909	5360	5354	0.0031
28	2128	5409	5364	0.0211
30	2785	5486	5414	0.0259
32	3104	5406	5368	0.0122
34	2350	5542	5440	0.0434
36	3165	5408	5356	0.0164
42	1229	5440	5412	0.0228

Channel Flow

NAME	Length	Elev_u/s	Elev_d/s	Slope	Bank-Full Depth	Width	Left Bank Slope	Right Bank Slope	n	Top Width	Area	P	R	V	Q
2	1429.00	5294	5270	0.0168	2	0	3	3	0.03	12	12.0	12.6	0.9	6.2	74.6
4	1291.00	5334	5318	0.0124	0.5	0	50	50	0.016	50	12.5	50.0	0.2	4.1	51.4
5	2000.00	5334	5322	0.0060	2	0	3	3	0.03	12	12.0	12.6	0.9	3.7	44.6
6	0.00	0	0	0.0000	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0
10	3004.00	5326	5322	0.0013	2	0	3	3	0.016	12	12.0	12.6	0.9	3.3	39.4
12	0.00	0	0	0.0000	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0
14	1913.00	5386	5370	0.0084	5	0	3	3	0.045	30	75.0	31.6	2.4	5.4	403.9
16	3082.00	5440	5392	0.0156	5	0	3	3	0.045	30	75.0	31.6	2.4	7.3	551.2
18	6167.00	5461	5440	0.0034	5	0	3	3	0.045	30	75.0	31.6	2.4	3.4	257.7
20	1273.00	5556	5444	0.0880	2	0	3	3	0.045	12	12.0	12.6	0.9	9.5	113.8
22	2053.00	5558	5498	0.0292	2	0	3	3	0.045	12	12.0	12.6	0.9	5.5	65.6
24	2052.00	5492	5442	0.0244	5	0	3	3	0.045	30	75.0	31.6	2.4	9.2	689.4
26	0.00	0	0	0.0000	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0
28	0.00	0	0	0.0000	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0
30	0.00	0	0	0.0000	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0
32	0.00	0	0	0.0000	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0
34	728.00	5440	5414	0.0357	3	0	3	3	0.045	18	27.0	19.0	1.4	7.9	213.7
36	0.00	0	0	0.0000	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0
42	0.00	0	0	0.0000	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0

Basin	Length	Upstream Elev.	Downstream Elev.	Slope	CN	TC	TL (hr)	TL (min)
A	8938.07	6125	5670	5.090584634	74.03	1.62	0.97	58.40
B	4589.945	5935	5610	7.080694257	79.00	0.70	0.42	25.78
C	4449.81	5805	5610	4.382209484	82.48	0.77	0.46	29.02
D	8067.442	6205	5540	8.24300924	78.65	1.02	0.61	37.67
E	6643.924	5725	5500	3.386552831	80.04	1.31	0.79	51.30
F	3647.47	5685	5555	3.564114107	76.17	0.89	0.53	32.60
G	4206.283	5590	5510	1.901916747	84.20	1.06	0.64	37.50
H	7850.326	5640	5450	2.420281672	85.15	1.50	0.90	53.79
J	3706.01	6005	5525	12.95193623	80.79	0.41	0.25	15.39
K	2744.341	6030	5505	19.13027594	82.09	0.25	0.15	9.52
L	5136.022	5535	5424	2.161205687	80.00	1.34	0.80	50.49
M	1115.516	5437	5420	1.523958667	80.88	0.46	0.27	16.43
N	5454.242	5485	5380	1.925107228	84.91	1.26	0.76	46.49
O	5917.467	5435	5360	1.267434175	87.07	1.54	0.92	60.30
P	5050.708	5480	5390	1.78192837	84.52	1.25	0.75	51.25
Q	4216.223	5430	5375	1.304485233	83.83	1.30	0.78	49.26
RN	4972.99	5416	5358	1.166300264	87.23	1.39	0.83	49.92
RS	4464.771	5358	5325	0.739119585	91.65	1.34	0.80	48.14
SN	2956.12	5390	5358	1.082500117	92.78	0.76	0.45	27.20
SS	5084.084	5358	5327	0.609746046	88.22	1.88	1.13	67.69
T	3449.338	5333	5300	0.956705429	80.31	1.45	0.87	53.34
U	5676.934	5330	5289	0.722220841	81.64	2.38	1.43	91.39

4.1.7.1. SCS Unit Hydrograph

The SCS Unit Hydrograph method requires the calculation of a lag time (TL) for each individual subbasin. The lag time is defined as the time difference between the center of mass of rainfall excess and the peak of the unit hydrograph, and can be approximated from the time of concentration (Tc). For this analysis, the SCS equation for calculating time of concentration.

The SCS time of concentration equation is displayed below.

$TC = L^{0.8}*(1000/CN-9)^{0.7}/1900*Y^{0.5}$

Where:

TC – time of concentration (hr)

L – Hydraulic length of subbasin (feet)

CN – SCS curve number

Y – Subbasin slope (%)

The final lag time was then approximated by applying the equation below:

$TL\ (hr) = 0.6*TC$

Where:

TL – lag time (hr)

TC – time of concentration (hr)

The lag times computed for each subbasin are shown in Table 4-4.

BASIN	Sheet Flow: Flow Length (ft)	Sheet Flow: Slope (ft/ft)	Sheet Flow: Mannings' n*	Sheet Flow: [1]Travel Time, T1 (hr)	Shallow Concentrated Flow: Flow Length (ft)	Shallow Concentrated Flow: Slope (ft/ft)	Shallow Concentrated Flow: Paved or Unpaved	Shallow Concentrated Flow: Average Velocity (ft/s)	Shallow Concentrated Flow: [2]Travel Time, T2 (hr)	Time of Concentration Tc= T1+T2 (hr)	SCS Lag Time Tlag= 0.6*Tc (hr)	SCS Lag Time Tlag= 0.6*Tc (min)
NN01	226	0.51	0.150	0.12	2573	0.144	Unpaved	6.12	0.12	0.24	0.14	**8.56**
NN02	277	0.55	0.150	0.14	2446	0.089	Unpaved	4.82	0.14	0.28	0.17	**10.07**
NN03	300	0.60	0.150	0.14	1458	0.128	Unpaved	5.76	0.07	0.21	0.13	**7.67**
NN04	257	0.05	0.150	0.35	2757	0.028	Unpaved	2.71	0.28	0.63	0.38	**22.76**
NN05	286	0.69	0.150	0.13	1545	0.128	Unpaved	5.78	0.07	0.20	0.12	**7.36**
NN06	273	0.05	0.150	0.35	2565	0.027	Unpaved	2.67	0.27	0.62	0.37	**22.36**
NN07A	292	0.81	0.150	0.12	1221	0.159	Unpaved	6.43	0.05	0.18	0.11	**6.36**
NN07B	274	0.82	0.150	0.12	1068	0.028	Unpaved	2.70	0.11	0.23	0.14	**8.16**
NN07C	284	0.74	0.150	0.13	1112	0.150	Unpaved	6.25	0.05	0.17	0.10	**6.30**
NN07D	267	0.67	0.150	0.12	1012	0.011	Unpaved	1.70	0.17	0.29	0.17	**10.46**
NN07E	288	0.63	0.150	0.14	2143	0.008	Unpaved	1.44	0.41	0.55	0.33	**19.78**
NN08	272	0.07	0.150	0.32	1425	0.028	Unpaved	2.70	0.15	0.47	0.28	**16.74**
NN09	291	0.55	0.150	0.14	2025	0.150	Unpaved	6.25	0.09	0.23	0.14	**8.43**
NN10	237	0.01	0.150	0.65	3624	0.011	Unpaved	1.70	0.59	1.24	0.75	**44.79**
NN11	100	0.04	0.150	0.18	3517	0.008	Unpaved	1.44	0.68	0.85	0.51	**30.73**

P_2= 1.6

Reference: NRCS Technical Release 55 - Urban Hydrology for Small Watersheds, Chapter 3: Time of Concentration and Travel Time; June 1986

*Manning's N value taken from Table 3-1 of TR-55, intitial sheet flow conditions assumed to be catagorized as "Short grass prairie"

Sheet Flow				
Basin	Length	Elev_u/s	Elev_d/s	Slope
NN01	226	5978	5862	0.5133
NN02	277	5838	5686	0.5487
NN03	300	5826	5646	0.6000
NN04	257	5488	5476	0.0467
NN05	286	5824	5628	0.6853
NN06	273	5448	5434	0.0513
NN07A	292	5852	5616	0.8082
NN07B	274	5850	5624	0.8248
NN07C	284	5822	5612	0.7394
NN07D	267	5794	5616	0.6667
NN07E	288	5736	5556	0.6250
NN08	272	5416	5398	0.0662
NN09	291	5828	5668	0.5498
NN10	237	5358	5356	0.0084
NN11	100	5354	5350	0.0400

Shallow Concentrated Flow				
Basin	Length	Elev_u/s	Elev_d/s	Slope
NN01	2573	5862	5492	0.1438
NN02	2446	5686	5468	0.0891
NN03	1458	5646	5460	0.1275
NN04	2757	5476	5398	0.0283
NN05	1545	5628	5430	0.1281
NN06	2565	5434	5364	0.0273
NN07A	1221	5616	5422	0.1589
NN07B	1068	5624	5412	0.1985
NN07C	1112	5612	5406	0.1853
NN07D	1012	5616	5400	0.2134
NN07E	2143	5556	5362	0.0905
NN08	1425	5398	5358	0.0281
NN09	2025	5668	5364	0.1501
NN10	3624	5356	5316	0.0110
NN11	3517	5350	5322	0.0080

1

For sheet flow of less than 300 feet, use Manning's kinematic solution (Overtop and Meadows 1976) to compute T_t:

$$T_t = \frac{0.007(nL)^{0.8}}{(P_2)^{0.5} s^{0.4}} \quad \text{[eq. 3-3]}$$

where:

T_t = travel time (hr),
n = Manning's roughness coefficient (table 3-1)
L = flow length (ft)
P_2 = 2-year, 24-hour rainfall (in)
s = slope of hydraulic grade line (land slope, ft/ft)

2

Travel time (T_t) is the ratio of flow length to flow velocity:

$$T_t = \frac{L}{3600V} \quad \text{[eq. 3-1]}$$

where:

T_t = travel time (hr)
L = flow length (ft)
V = average velocity (ft/s)
3600 = conversion factor from seconds to hours.

Sheet flow

Sheet flow is flow over plane surfaces. It usually occurs in the headwater of streams. With sheet flow, the friction value (Manning's n) is an effective roughness coefficient that includes the effect of raindrop impact; drag over the plane surface; obstacles such as litter, crop ridges, and rocks; and erosion and transportation of sediment. These n values are for very shallow flow depths of about 0.1 foot or so. Table 3-1 gives Manning's n values for sheet flow for various surface conditions.

Table 3-1 Roughness coefficients (Manning's n) for sheet flow

Surface description	n [1/]
Smooth surfaces (concrete, asphalt, gravel, or bare soil)	0.011
Fallow (no residue)	0.05
Cultivated soils:	
Residue cover ≤20%	0.06
Residue cover >20%	0.17
Grass:	
Short grass prairie	0.15
Dense grasses [2/]	0.24
Bermudagrass	0.41
Range (natural)	0.13
Woods:[3/]	
Light underbrush	0.40
Dense underbrush	0.80

[1] The n values are a composite of information compiled by Engman (1986).
[2] Includes species such as weeping lovegrass, bluegrass, buffalo grass, blue grama grass, and native grass mixtures.
[3] When selecting n , consider cover to a height of about 0.1 ft. This is the only part of the plant cover that will obstruct sheet flow.

	Sheet Flow				Shallow Concentrated Flow							
BASIN	Flow Length (ft)	Slope (ft/ft)	Mannings' n*	[1]Travel Time, T1 (hr)	Flow Length (ft)	Slope (ft/ft)	Paved or Unpaved	Average Velocity (ft/s)	[2]Travel Time, T2 (hr)	Time of Concentration Tc= T1+T2 (hr)	SCS Lag Time Tlag= 0.6*Tc (hr)	SCS Lag Time Tlag= 0.6*Tc (min)
HW01	200	0.42	0.150	0.12	2496	0.346	Unpaved	9.49	0.07	0.19	0.12	**6.91**
HW02	200	0.89	0.150	0.09	2060	0.339	Unpaved	9.39	0.06	0.15	0.09	**5.37**
HW03	254	0.49	0.150	0.14	2114	0.325	Unpaved	9.20	0.06	0.20	0.12	**7.18**
HW04	300	0.45	0.150	0.16	1316	0.307	Unpaved	8.94	0.04	0.20	0.12	**7.25**
HW05	250	0.72	0.150	0.11	2600	0.361	Unpaved	9.69	0.07	0.19	0.11	**6.81**
HW06	200	0.28	0.150	0.14	2011	0.381	Unpaved	9.96	0.06	0.20	0.12	**7.06**
HW07	250	0.22	0.150	0.18	4864	0.116	Unpaved	5.48	0.25	0.43	0.26	**15.45**
HW08	225	0.12	0.150	0.22	2655	0.115	Unpaved	5.48	0.13	0.35	0.21	**12.73**

P_2= 1.6

Reference: NRCS Technical Release 55 - Urban Hydrology for Small Watersheds, Chapter 3: Time of Concentration and Travel Time; June 1986

*Manning's N value taken from Table 3-1 of TR-55, intitial sheet flow conditions assumed to be catagorized as "Short grass prairie"

Sheet Flow				
Basin	Length	Elev_u/s	Elev_d/s	Slope
HW01	200	6982	6898	0.4200
HW02	200	6894	6716	0.8900
HW03	254	6662	6538	0.4882
HW04	300	6364	6230	0.4467
HW05	250	6576	6396	0.7200
HW06	200	6206	6150	0.2800
HW07	250	5988	5932	0.2240
HW08	225	5698	5672	0.1156

Shallow Concentrated Flow				
Basin	Length	Elev_u/s	Elev_d/s	Slope
HW01	2496	6898	6034	0.3462
HW02	2060	6716	6018	0.3388
HW03	2114	6538	5850	0.3254
HW04	1316	6230	5826	0.3070
HW05	2600	6396	5458	0.3608
HW06	2011	6150	5384	0.3809
HW07	4864	5932	5370	0.1155
HW08	2655	5672	5366	0.1153

1 For sheet flow of less than 300 feet, use Manning's kinematic solution (Overtop and Meadows 1976) to compute T_t:

$$T_t = \frac{0.007(nL)^{0.8}}{(P_2)^{0.5} s^{0.4}} \quad \text{[eq. 3-3]}$$

where:

T_t = travel time (hr),
n = Manning's roughness coefficient (table 3-1)
L = flow length (ft)
P_2 = 2-year, 24-hour rainfall (in)
s = slope of hydraulic grade line (land slope, ft/ft)

2 Travel time (T_t) is the ratio of flow length to flow velocity:

$$T_t = \frac{L}{3600V} \quad \text{[eq. 3-1]}$$

where:

T_t = travel time (hr)
L = flow length (ft)
V = average velocity (ft/s)
3600 = conversion factor from seconds to hours.

Sheet flow

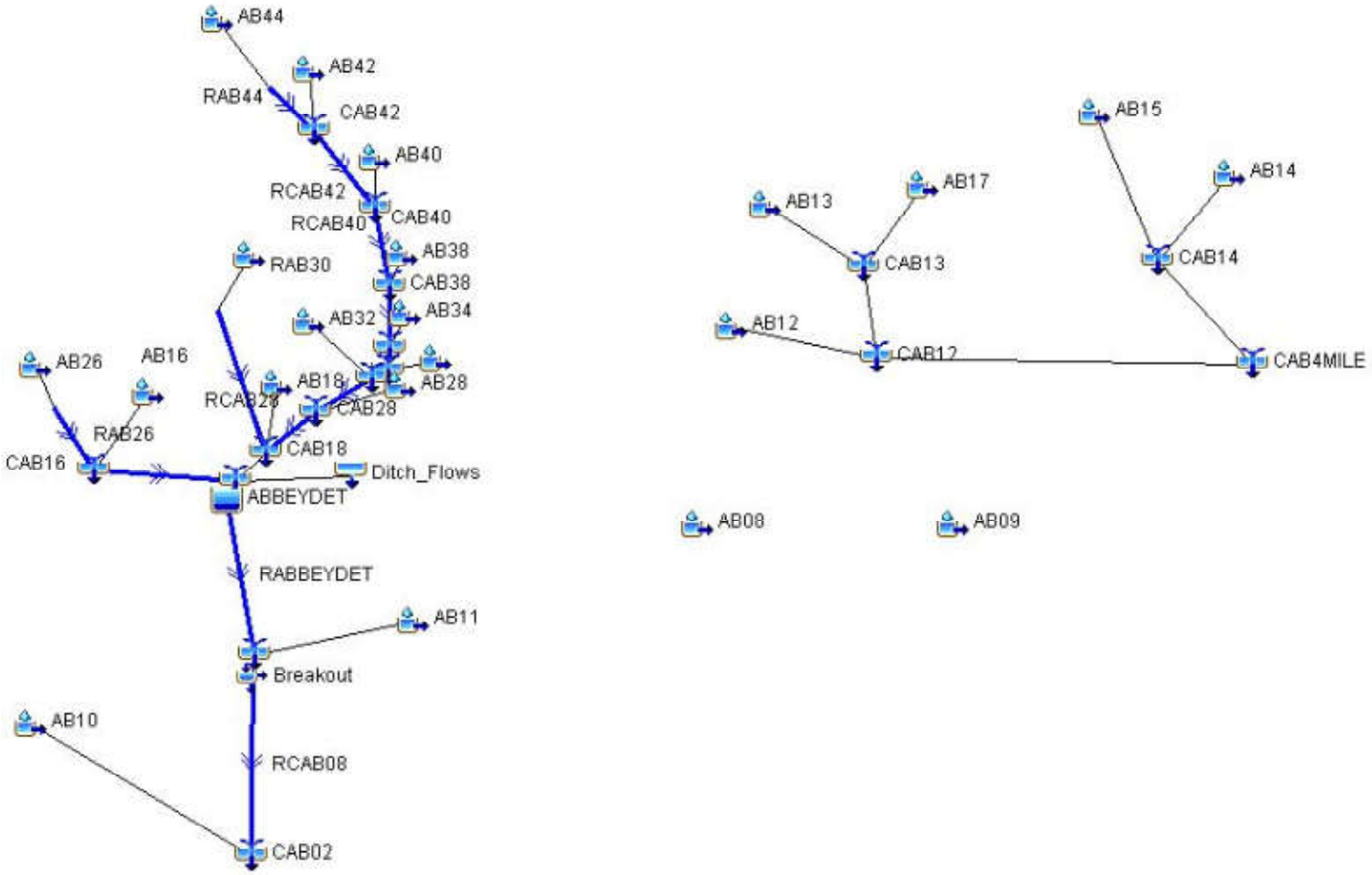
Sheet flow is flow over plane surfaces. It usually occurs in the headwater of streams. With sheet flow, the friction value (Manning's n) is an effective roughness coefficient that includes the effect of raindrop impact; drag over the plane surface; obstacles such as litter, crop ridges, and rocks; and erosion and transportation of sediment. These n values are for very shallow flow depths of about 0.1 foot or so. Table 3-1 gives Manning's n values for sheet flow for various surface conditions.

Table 3-1 Roughness coefficients (Manning's n) for sheet flow

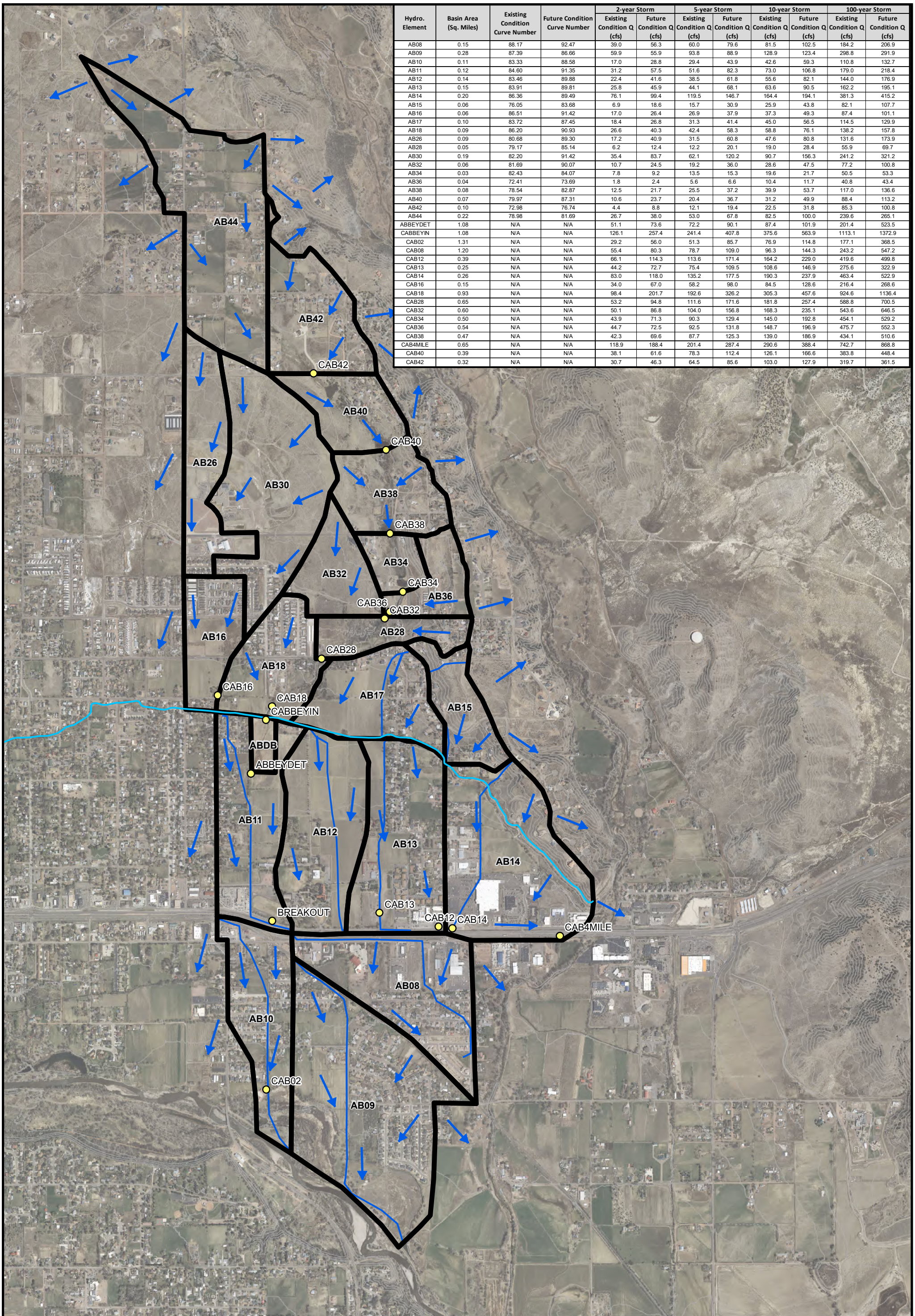
Surface description	n [1/]
Smooth surfaces (concrete, asphalt, gravel, or bare soil)	0.011
Fallow (no residue)	0.05
Cultivated soils:	
Residue cover ≤20%	0.06
Residue cover >20%	0.17
Grass:	
Short grass prairie	0.15
Dense grasses [2/]	0.24
Bermudagrass	0.41
Range (natural)	0.13
Woods: [3/]	
Light underbrush	0.40
Dense underbrush	0.80

[1] The n values are a composite of information compiled by Engman (1986).
[2] Includes species such as weeping lovegrass, bluegrass, buffalo grass, blue grama grass, and native grass mixtures.
[3] When selecting n , consider cover to a height of about 0.1 ft. This is the only part of the plant cover that will obstruct sheet flow.

Abbey Watershed HEC-HMS Model Schematic



Hydro. Element	Basin Area (Sq. Miles)	Existing Condition Curve Number	Future Condition Curve Number	2-year Storm		5-year Storm		10-year Storm		100-year Storm	
				Existing Condition Q (cfs)	Future Condition Q (cfs)	Existing Condition Q (cfs)	Future Condition Q (cfs)	Existing Condition Q (cfs)	Future Condition Q (cfs)	Existing Condition Q (cfs)	Future Condition Q (cfs)
AB08	0.15	88.17	92.47	39.0	56.3	60.0	79.6	81.5	102.5	184.2	206.9
AB09	0.28	87.39	86.66	59.9	55.9	93.8	88.9	128.9	123.4	298.8	291.9
AB10	0.11	83.33	88.58	17.0	28.8	29.4	43.9	42.6	59.3	110.8	132.7
AB11	0.12	84.60	91.35	31.2	57.5	51.6	82.3	73.0	106.8	179.0	218.4
AB12	0.14	83.46	89.88	22.4	41.6	38.5	61.8	55.6	82.1	144.0	176.9
AB13	0.15	83.91	89.81	25.8	45.9	44.1	68.1	63.6	90.5	162.2	195.1
AB14	0.20	86.36	89.49	76.1	99.4	119.5	146.7	164.4	194.1	381.3	415.2
AB15	0.06	76.05	83.68	6.9	18.6	15.7	30.9	25.9	43.8	82.1	107.7
AB16	0.06	86.51	91.42	17.0	26.4	26.9	37.9	37.3	49.3	87.4	101.1
AB17	0.10	83.72	87.45	18.4	26.8	31.3	41.4	45.0	56.5	114.5	129.9
AB18	0.09	86.20	90.93	26.6	40.3	42.4	58.3	58.8	76.1	138.2	157.8
AB26	0.09	80.68	89.30	17.2	40.9	31.5	60.8	47.6	80.8	131.6	173.9
AB28	0.05	79.17	85.14	6.2	12.4	12.2	20.1	19.0	28.4	55.9	69.7
AB30	0.19	82.20	91.42	35.4	83.7	62.1	120.2	90.7	156.3	241.2	321.2
AB32	0.06	81.69	90.07	10.7	24.5	19.2	36.0	28.6	47.5	77.2	100.8
AB34	0.03	82.43	84.07	7.8	9.2	13.5	15.3	19.6	21.7	50.5	53.3
AB36	0.04	72.41	73.69	1.8	2.4	5.6	6.6	10.4	11.7	40.8	43.4
AB38	0.08	78.54	82.87	12.5	21.7	25.5	37.2	39.9	53.7	117.0	136.6
AB40	0.07	79.97	87.31	10.6	23.7	20.4	36.7	31.2	49.9	88.4	113.2
AB42	0.10	72.98	76.74	4.4	8.8	12.1	19.4	22.5	31.8	85.3	100.8
AB44	0.22	78.98	81.69	26.7	38.0	53.0	67.8	82.5	100.0	239.6	265.1
ABBEYDET	1.08	N/A	N/A	51.1	73.6	72.2	90.1	87.4	101.9	201.4	523.5
CABBEYIN	1.08	N/A	N/A	126.1	257.4	241.4	407.8	375.6	563.9	1113.1	1372.9
CAB02	1.31	N/A	N/A	29.2	56.0	51.3	85.7	76.9	114.8	177.1	368.5
CAB08	1.20	N/A	N/A	55.4	80.3	78.7	109.0	96.3	144.3	243.2	547.2
CAB12	0.39	N/A	N/A	66.1	114.3	113.6	171.4	164.2	229.0	419.6	499.8
CAB13	0.25	N/A	N/A	44.2	72.7	75.4	109.5	108.6	146.9	275.6	322.9
CAB14	0.26	N/A	N/A	83.0	118.0	135.2	177.5	190.3	237.9	463.4	522.9
CAB16	0.15	N/A	N/A	34.0	67.0	58.2	98.0	84.5	128.6	216.4	268.6
CAB18	0.93	N/A	N/A	98.4	201.7	192.6	326.2	305.3	457.6	924.6	1136.4
CAB28	0.65	N/A	N/A	53.2	94.8	111.6	171.6	181.8	257.4	588.8	700.5
CAB32	0.60	N/A	N/A	50.1	86.8	104.0	156.8	168.3	235.1	543.6	646.5
CAB34	0.50	N/A	N/A	43.9	71.3	90.3	129.4	145.0	192.8	454.1	529.2
CAB36	0.54	N/A	N/A	44.7	72.5	92.5	131.8	148.7	196.9	475.7	552.3
CAB38	0.47	N/A	N/A	42.3	69.6	87.7	125.3	139.0	186.9	434.1	510.6
CAB4MILE	0.65	N/A	N/A	118.9	188.4	201.4	287.4	290.6	388.4	742.7	868.8
CAB40	0.39	N/A	N/A	38.1	61.6	78.3	112.4	126.1	166.6	383.8	448.4
CAB42	0.32	N/A	N/A	30.7	46.3	64.5	85.6	103.0	127.9	319.7	361.5



N

0 350 700 1,400

Feet

1 in = 1,400 feet

Legend

- Combo Points
- Updated Abbey Subbasins
- Hydraulic Ditch Centerline
- Overland Flow Length
- 20' Contours Developed from LiDAR
- Surface Flow Direction

HYDRAULIC IRRIGATION DITCH

FIGURE B-5: ABBEY DENTENTION WATERSHED SUMMARY

SNC·LAVALIN

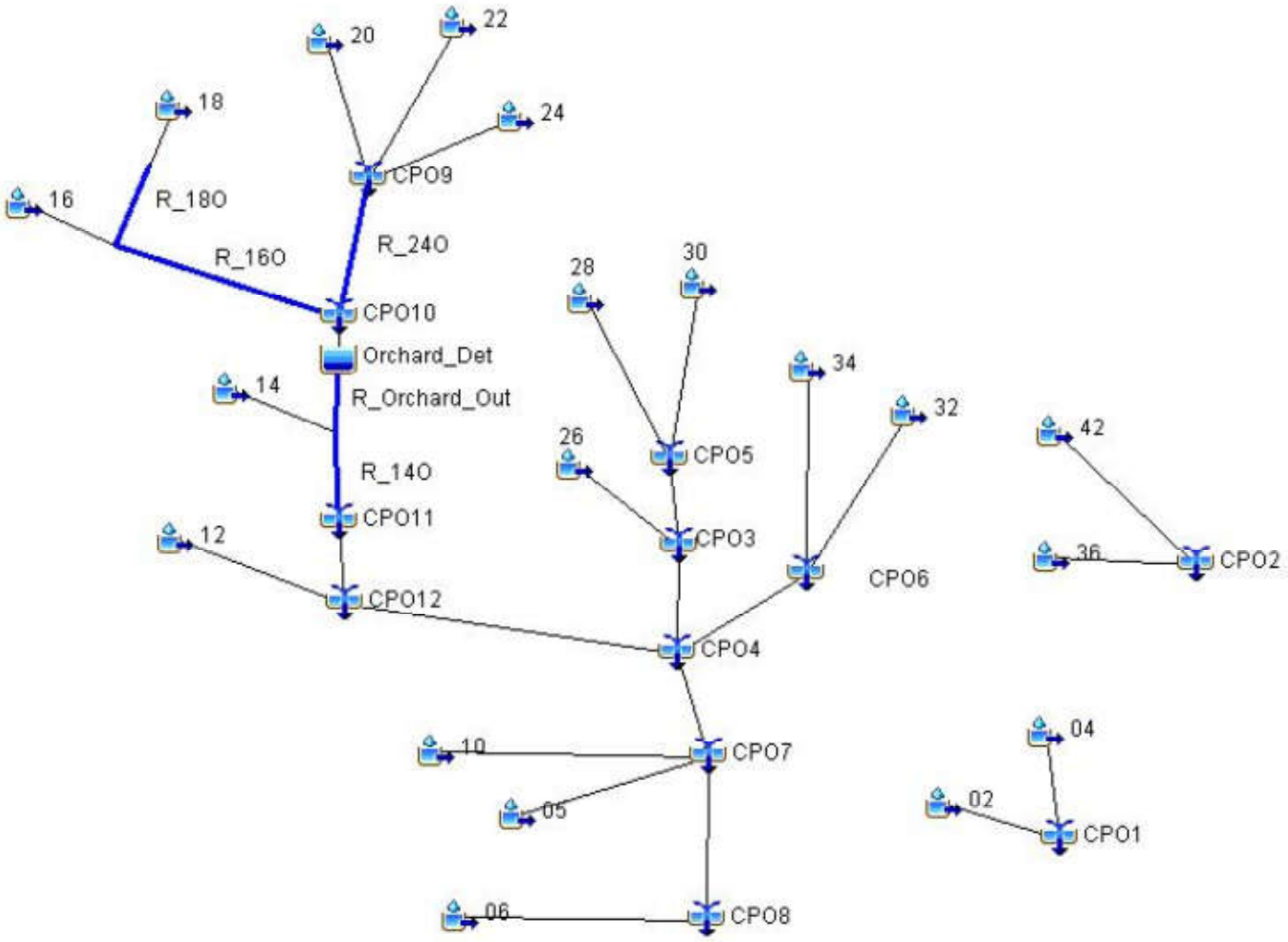
ATKINS

Member of the SNC-Lavalin Group

Abbey Detention HEC-HMS Results

Hydro. Element	Basin Area (Sq. Miles)	Existing Condition Curve Number	Future Condition Curve Number	2-year Storm		5-year Storm		10-year Storm		100-year Storm	
				Existing Condition Q (cfs)	Future Condition Q (cfs)	Existing Condition Q (cfs)	Future Condition Q (cfs)	Existing Condition Q (cfs)	Future Condition Q (cfs)	Existing Condition Q (cfs)	Future Condition Q (cfs)
AB08	0.15	88.17	92.47	39.0	56.3	60.0	79.6	81.5	102.5	184.2	206.9
AB09	0.28	87.39	86.66	59.9	55.9	93.8	88.9	128.9	123.4	298.8	291.9
AB10	0.11	83.33	88.58	17.0	28.8	29.4	43.9	42.6	59.3	110.8	132.7
AB11	0.12	84.60	91.35	31.2	57.5	51.6	82.3	73.0	106.8	179.0	218.4
AB12	0.14	83.46	89.88	22.4	41.6	38.5	61.8	55.6	82.1	144.0	176.9
AB13	0.15	83.91	89.81	25.8	45.9	44.1	68.1	63.6	90.5	162.2	195.1
AB14	0.20	86.36	89.49	76.1	99.4	119.5	146.7	164.4	194.1	381.3	415.2
AB15	0.06	76.05	83.68	6.9	18.6	15.7	30.9	25.9	43.8	82.1	107.7
AB16	0.06	86.51	91.42	17.0	26.4	26.9	37.9	37.3	49.3	87.4	101.1
AB17	0.10	83.72	87.45	18.4	26.8	31.3	41.4	45.0	56.5	114.5	129.9
AB18	0.09	86.20	90.93	26.6	40.3	42.4	58.3	58.8	76.1	138.2	157.8
AB26	0.09	80.68	89.30	17.2	40.9	31.5	60.8	47.6	80.8	131.6	173.9
AB28	0.05	79.17	85.14	6.2	12.4	12.2	20.1	19.0	28.4	55.9	69.7
AB30	0.19	82.20	91.42	35.4	83.7	62.1	120.2	90.7	156.3	241.2	321.2
AB32	0.06	81.69	90.07	10.7	24.5	19.2	36.0	28.6	47.5	77.2	100.8
AB34	0.03	82.43	84.07	7.8	9.2	13.5	15.3	19.6	21.7	50.5	53.3
AB36	0.04	72.41	73.69	1.8	2.4	5.6	6.6	10.4	11.7	40.8	43.4
AB38	0.08	78.54	82.87	12.5	21.7	25.5	37.2	39.9	53.7	117.0	136.6
AB40	0.07	79.97	87.31	10.6	23.7	20.4	36.7	31.2	49.9	88.4	113.2
AB42	0.10	72.98	76.74	4.4	8.8	12.1	19.4	22.5	31.8	85.3	100.8
AB44	0.22	78.98	81.69	26.7	38.0	53.0	67.8	82.5	100.0	239.6	265.1
ABBEYDET	1.08	N/A	N/A	51.1	73.6	72.2	90.1	87.4	101.9	201.4	523.5
CABBEYIN	1.08	N/A	N/A	126.1	257.4	241.4	407.8	375.6	563.9	1113.1	1372.9
CAB02	1.31	N/A	N/A	29.2	56.0	51.3	85.7	76.9	114.8	177.1	368.5
CAB08	1.20	N/A	N/A	55.4	80.3	78.7	109.0	96.3	144.3	243.2	547.2
CAB12	0.39	N/A	N/A	66.1	114.3	113.6	171.4	164.2	229.0	419.6	499.8
CAB13	0.25	N/A	N/A	44.2	72.7	75.4	109.5	108.6	146.9	275.6	322.9
CAB14	0.26	N/A	N/A	83.0	118.0	135.2	177.5	190.3	237.9	463.4	522.9
CAB16	0.15	N/A	N/A	34.0	67.0	58.2	98.0	84.5	128.6	216.4	268.6
CAB18	0.93	N/A	N/A	98.4	201.7	192.6	326.2	305.3	457.6	924.6	1136.4
CAB28	0.65	N/A	N/A	53.2	94.8	111.6	171.6	181.8	257.4	588.8	700.5
CAB32	0.60	N/A	N/A	50.1	86.8	104.0	156.8	168.3	235.1	543.6	646.5
CAB34	0.50	N/A	N/A	43.9	71.3	90.3	129.4	145.0	192.8	454.1	529.2
CAB36	0.54	N/A	N/A	44.7	72.5	92.5	131.8	148.7	196.9	475.7	552.3
CAB38	0.47	N/A	N/A	42.3	69.6	87.7	125.3	139.0	186.9	434.1	510.6
CAB4MILE	0.65	N/A	N/A	118.9	188.4	201.4	287.4	290.6	388.4	742.7	868.8
CAB40	0.39	N/A	N/A	38.1	61.6	78.3	112.4	126.1	166.6	383.8	448.4
CAB42	0.32	N/A	N/A	30.7	46.3	64.5	85.6	103.0	127.9	319.7	361.5

Orchard Ave. Watershed HEC-HMS Model Schematic



Hydro. Element	Basin Area (Sq. Miles)	Existing Condition Curve Number	Future Condition Curve Number	2-year Storm		5-year Storm		10-year Storm		100-year Storm	
				Existing Condition Q (cfs)	Future Condition Q (cfs)	Existing Condition Q (cfs)	Future Condition Q (cfs)	Existing Condition Q (cfs)	Future Condition Q (cfs)	Existing Condition Q (cfs)	Future Condition Q (cfs)
2	0.27	86.41	87.65	65.7	107.0	104.6	152.2	144.9	196.8	341.4	400.1
4	0.20	88.84	91.80	70.5	75.9	106.3	112.5	142.5	149.2	312.4	320.0
5	0.12	88.51	92.45	34.9	41.0	53.1	60.1	71.5	79.1	158.4	167.1
6	0.14	86.96	88.48	47.6	33.4	74.3	57.0	101.8	81.9	233.5	208.1
10	0.18	88.42	90.77	75.2	86.5	113.8	126.9	152.9	167.0	335.8	351.3
12	0.09	87.76	89.52	26.8	27.4	41.3	42.0	56.0	56.8	126.0	126.9
14	0.09	85.44	87.97	27.1	38.9	43.6	57.6	60.8	76.3	144.7	163.0
16	0.15	82.64	89.19	32.0	73.7	55.5	104.6	80.5	134.9	207.6	272.6
18	0.84	81.59	79.71	103.0	188.5	182.7	288.2	269.4	390.2	718.0	876.7
20	0.14	83.19	81.47	35.0	57.5	59.3	86.4	84.9	115.6	214.0	251.8
22	0.17	84.20	85.92	39.2	80.2	64.8	112.2	91.7	143.6	225.5	285.0
24	0.24	83.20	88.00	48.7	97.8	83.0	141.3	119.5	184.5	303.8	382.4
26	0.05	88.64	90.12	12.9	12.1	19.5	18.7	26.3	25.3	58.0	56.9
28	0.07	88.65	90.43	23.4	18.2	35.3	29.1	47.3	40.4	103.8	95.5
30	0.11	80.97	83.36	19.2	20.5	35.2	36.9	52.6	54.6	143.2	146.0
32	0.09	87.26	92.01	23.6	10.2	36.8	19.8	50.4	30.6	115.2	88.3
34	0.15	83.90	89.67	39.1	63.8	65.4	94.9	93.0	126.1	231.2	271.4
36	0.06	85.74	91.21	11.6	18.8	18.7	27.2	26.1	35.5	62.5	73.4
42	0.02	80.21	91.17	3.0	9.0	5.7	12.9	8.7	16.8	24.4	34.6
CPO1	0.47	N/A	N/A	133.6	180.6	207.1	261.5	282.6	341.8	643.7	710.8
CPO2	0.08	N/A	N/A	13.8	25.6	22.9	36.9	32.6	48.2	80.8	99.7
CPO3	0.24	N/A	N/A	59.5	70.6	97.1	109.4	136.3	149.5	330.3	343.2
CPO4	2.19	N/A	N/A	202.6	244.0	321.1	358.9	436.4	474.3	1069.7	1573.0
CPO5	0.18	N/A	N/A	42.4	38.4	70.1	65.5	99.3	94.3	245.2	239.5
CPO6	0.23	N/A	N/A	53.3	48.6	86.4	80.9	121.0	115.1	292.8	286.1
CPO7	2.49	N/A	N/A	281.8	355.1	460.2	523.2	632.6	693.8	1432.7	1712.0
CPO8	2.63	N/A	N/A	322.6	387.8	528.9	579.2	731.2	774.3	1661.1	1758.8
CPO9	0.31	N/A	N/A	72.2	135.0	120.7	194.4	172.1	253.4	428.6	525.1
CPO10	1.54	N/A	N/A	192.1	393.0	343.7	587.2	508.7	783.4	1360.6	1706.5
CPO11	1.63	N/A	N/A	99.7	128.3	123.9	152.6	142.0	288.3	889.5	1325.2
CPO12	1.72	N/A	N/A	105.3	136.2	145.5	177.6	186.9	296.7	920.3	1370.0
Orchard_Det	1.72	N/A	N/A	96.4	124.5	119.5	147.9	136.6	281.1	870.1	1296.5

N

0 375 750 1,500
Feet

1 in = 1,500 feet

Legend

- Combo Points
- Updated Orchard Subbasins
- Hydraulic Ditch Centerline
- Overland Flow Length
- Orchard Avenue Detention Basin
- 20' Contours Developed from LiDAR
- Surface Flow Direction

HYDRAULIC IRRIGATION DITCH

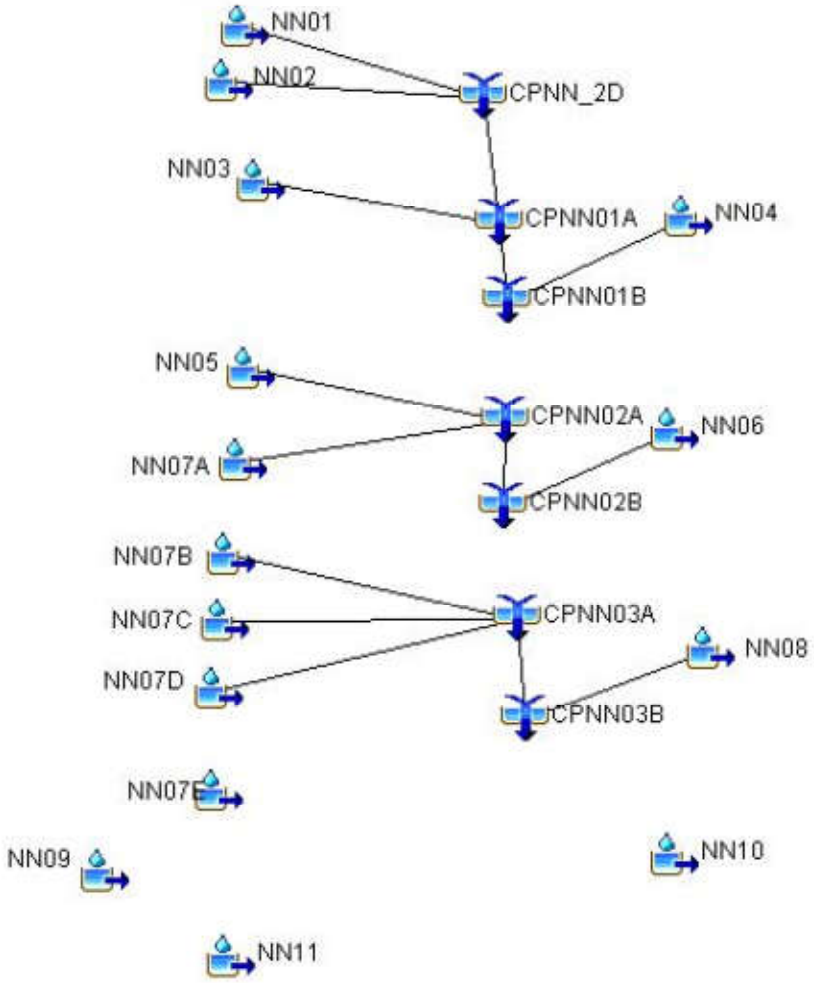
FIGURE B-6: ORCHARD WATERSHED FLOW SUMMARY

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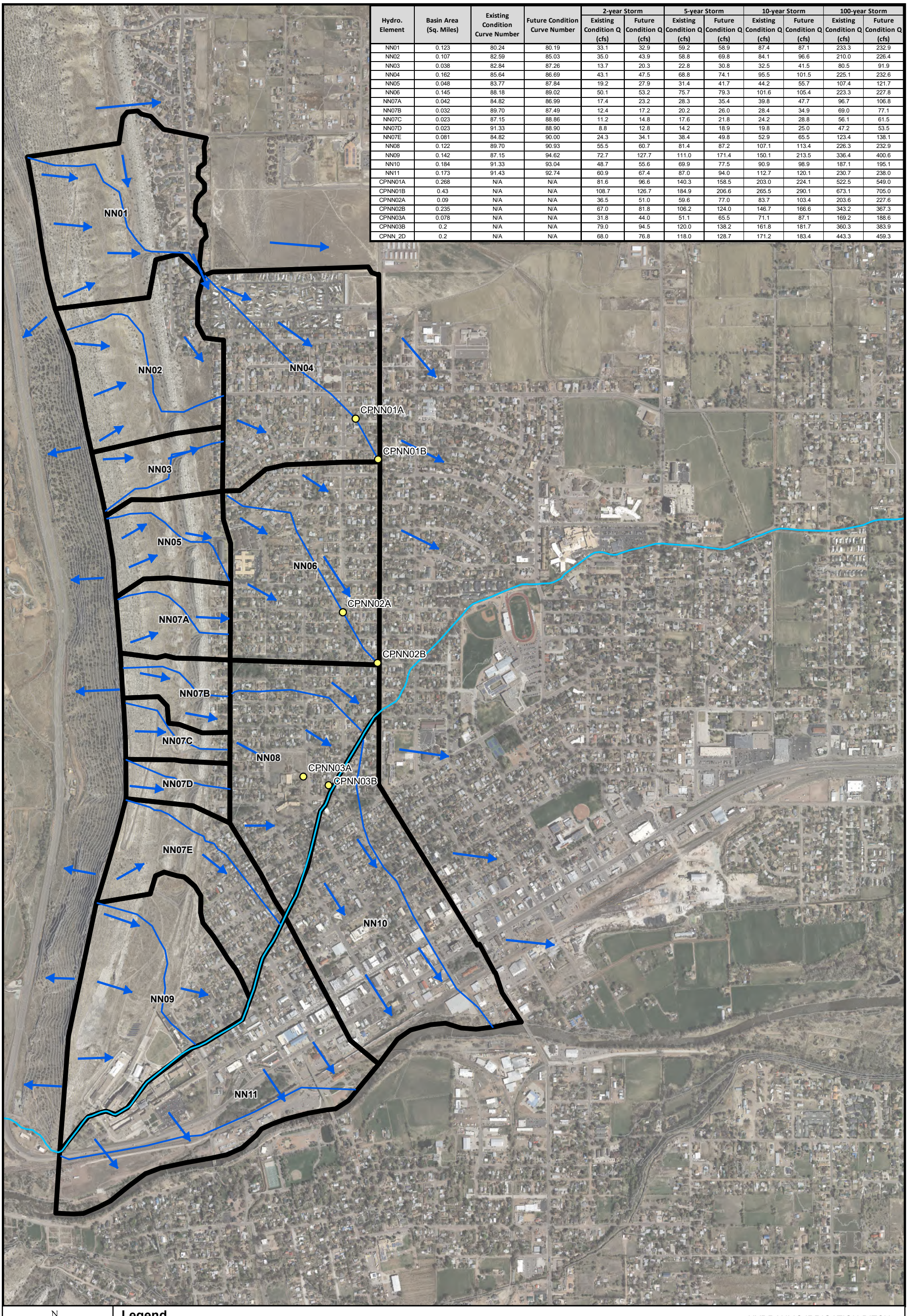
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Hydro. Element	Basin Area (Sq. Miles)	Existing Condition Curve Number	Future Condition Curve Number	2-year Storm		5-year Storm		10-year Storm		100-year Storm	
				Existing Condition Q (cfs)	Future Condition Q (cfs)	Existing Condition Q (cfs)	Future Condition Q (cfs)	Existing Condition Q (cfs)	Future Condition Q (cfs)	Existing Condition Q (cfs)	Future Condition Q (cfs)
2	0.27	86.41	87.65	65.7	107.0	104.6	152.2	144.9	196.8	341.4	400.1
4	0.20	88.84	91.80	70.5	75.9	106.3	112.5	142.5	149.2	312.4	320.0
5	0.12	88.51	92.45	34.9	41.0	53.1	60.1	71.5	79.1	158.4	167.1
6	0.14	86.96	88.48	47.6	33.4	74.3	57.0	101.8	81.9	233.5	208.1
10	0.18	88.42	90.77	75.2	86.5	113.8	126.9	152.9	167.0	335.8	351.3
12	0.09	87.76	89.52	26.8	27.4	41.3	42.0	56.0	56.8	126.0	126.9
14	0.09	85.44	87.97	27.1	38.9	43.6	57.6	60.8	76.3	144.7	163.0
16	0.15	82.64	89.19	32.0	73.7	55.5	104.6	80.5	134.9	207.6	272.6
18	0.84	81.59	79.71	103.0	188.5	182.7	288.2	269.4	390.2	718.0	876.7
20	0.14	83.19	81.47	35.0	57.5	59.3	86.4	84.9	115.6	214.0	251.8
22	0.17	84.20	85.92	39.2	80.2	64.8	112.2	91.7	143.6	225.5	285.0
24	0.24	83.20	88.00	48.7	97.8	83.0	141.3	119.5	184.5	303.8	382.4
26	0.05	88.64	90.12	12.9	12.1	19.5	18.7	26.3	25.3	58.0	56.9
28	0.07	88.65	90.43	23.4	18.2	35.3	29.1	47.3	40.4	103.8	95.5
30	0.11	80.97	83.36	19.2	20.5	35.2	36.9	52.6	54.6	143.2	146.0
32	0.09	87.26	92.01	23.6	10.2	36.8	19.8	50.4	30.6	115.2	88.3
34	0.15	83.90	89.67	39.1	63.8	65.4	94.9	93.0	126.1	231.2	271.4
36	0.06	85.74	91.21	11.6	18.8	18.7	27.2	26.1	35.5	62.5	73.4
42	0.02	80.21	91.17	3.0	9.0	5.7	12.9	8.7	16.8	24.4	34.6
CPO1	0.47	N/A	N/A	133.6	180.6	207.1	261.5	282.6	341.8	643.7	710.8
CPO2	0.08	N/A	N/A	13.8	25.6	22.9	36.9	32.6	48.2	80.8	99.7
CPO3	0.24	N/A	N/A	59.5	70.6	97.1	109.4	136.3	149.5	330.3	343.2
CPO4	2.19	N/A	N/A	202.6	244.0	321.1	358.9	436.4	474.3	1069.7	1573.0
CPO5	0.18	N/A	N/A	42.4	38.4	70.1	65.5	99.3	94.3	245.2	239.5
CPO6	0.23	N/A	N/A	53.3	48.6	86.4	80.9	121.0	115.1	292.8	286.1
CPO7	2.49	N/A	N/A	281.8	355.1	460.2	523.2	632.6	693.8	1432.7	1712.0
CPO8	2.63	N/A	N/A	322.6	387.8	528.9	579.2	731.2	774.3	1661.1	1758.8
CPO9	0.31	N/A	N/A	72.2	135.0	120.7	194.4	172.1	253.4	428.6	525.1
CPO10	1.54	N/A	N/A	192.1	393.0	343.7	587.2	508.7	783.4	1360.6	1706.5
CPO11	1.63	N/A	N/A	99.7	128.3	123.9	152.6	142.0	288.3	889.5	1325.2
CPO12	1.72	N/A	N/A	105.3	136.2	145.5	177.6	186.9	296.7	920.3	1370.0
Orchard_Det	1.72	N/A	N/A	96.4	124.5	119.5	147.9	136.6	281.1	870.1	1296.5

North Ninth Watershed HEC-HMS Model Schematic



Hydro. Element	Basin Area (Sq. Miles)	Existing Condition Curve Number	Future Condition Curve Number	2-year Storm		5-year Storm		10-year Storm		100-year Storm	
				Existing Condition Q (cfs)	Future Condition Q (cfs)	Existing Condition Q (cfs)	Future Condition Q (cfs)	Existing Condition Q (cfs)	Future Condition Q (cfs)	Existing Condition Q (cfs)	Future Condition Q (cfs)
NN01	0.123	80.24	80.19	33.1	32.9	59.2	58.9	87.4	87.1	233.3	232.9
NN02	0.107	82.59	85.03	35.0	43.9	58.8	69.8	84.1	96.6	210.0	226.4
NN03	0.038	82.84	87.26	13.7	20.3	22.8	30.8	32.5	41.5	80.5	91.9
NN04	0.162	85.64	86.69	43.1	47.5	68.8	74.1	95.5	101.5	225.1	232.6
NN05	0.048	83.77	87.84	19.2	27.9	31.4	41.7	44.2	55.7	107.4	121.7
NN06	0.145	88.18	89.02	50.1	53.2	75.7	79.3	101.6	105.4	223.3	227.8
NN07A	0.042	84.82	86.99	17.4	23.2	28.3	35.4	39.8	47.7	96.7	106.8
NN07B	0.032	89.70	87.49	12.4	17.2	20.2	26.0	28.4	34.9	69.0	77.1
NN07C	0.023	87.15	88.86	11.2	14.8	17.6	21.8	24.2	28.8	56.1	61.5
NN07D	0.023	91.33	88.90	8.8	12.8	14.2	18.9	19.8	25.0	47.2	53.5
NN07E	0.081	84.82	90.00	24.3	34.1	38.4	49.8	52.9	65.5	123.4	138.1
NN08	0.122	89.70	90.93	55.5	60.7	81.4	87.2	107.1	113.4	226.3	232.9
NN09	0.142	87.15	94.62	72.7	127.7	111.0	171.4	150.1	213.5	336.4	400.6
NN10	0.184	91.33	93.04	48.7	55.6	69.9	77.5	90.9	98.9	187.1	195.1
NN11	0.173	91.43	92.74	60.9	67.4	87.0	94.0	112.7	120.1	230.7	238.0
CPNN01A	0.268	N/A	N/A	81.6	96.6	140.3	158.5	203.0	224.1	522.5	549.0
CPNN01B	0.43	N/A	N/A	108.7	126.7	184.9	206.6	265.5	290.1	673.1	705.0
CPNN02A	0.09	N/A	N/A	36.5	51.0	59.6	77.0	83.7	103.4	203.6	227.6
CPNN02B	0.235	N/A	N/A	67.0	81.8	106.2	124.0	146.7	166.6	343.2	367.3
CPNN03A	0.078	N/A	N/A	31.8	44.0	51.1	65.5	71.1	87.1	169.2	188.6
CPNN03B	0.2	N/A	N/A	79.0	94.5	120.0	138.2	161.8	181.7	360.3	383.9
CPNN_2D	0.2	N/A	N/A	68.0	76.8	118.0	128.7	171.2	183.4	443.3	459.3



N

0 250 500 1,000

Feet

1 in = 1,000 feet

Legend

- Combo Points
- Updated North Ninth Subbasins
- Hydraulic Ditch Centerline
- Overland Flow Length
- 20' Contours Developed from LiDAR
- Surface Flow Direction

HYDRAULIC IRRIGATION DITCH

FIGURE B-7: NORTH NINTH WATERSHED FLOW SUMMARY

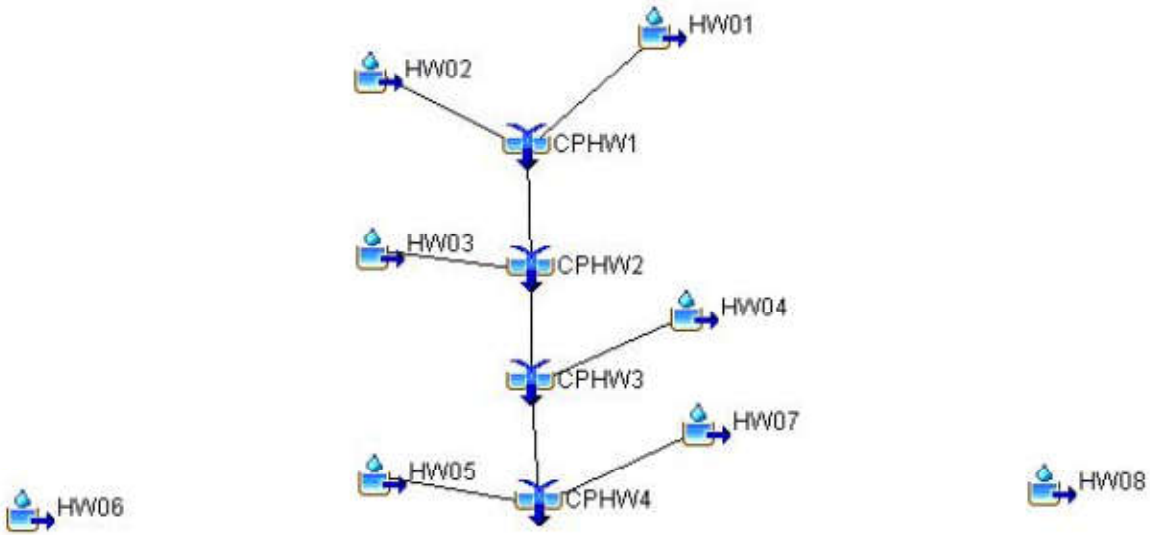
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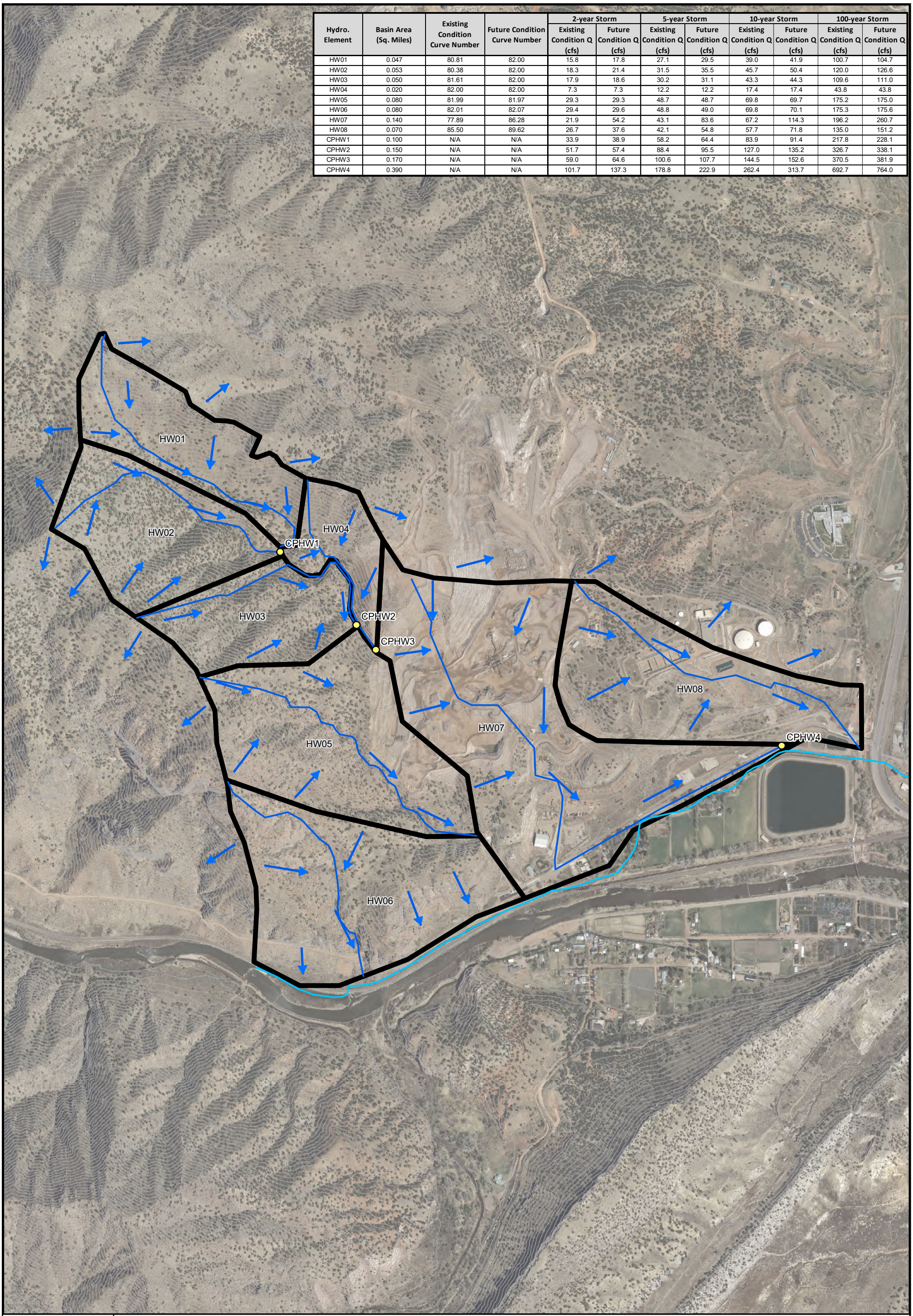
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Hydro. Element	Basin Area (Sq. Miles)	Existing Condition Curve Number	Future Condition Curve Number	2-year Storm		5-year Storm		10-year Storm		100-year Storm	
				Existing Condition Q (cfs)	Future Condition Q (cfs)	Existing Condition Q (cfs)	Future Condition Q (cfs)	Existing Condition Q (cfs)	Future Condition Q (cfs)	Existing Condition Q (cfs)	Future Condition Q (cfs)
NN01	0.123	80.24	80.19	33.1	32.9	59.2	58.9	87.4	87.1	233.3	232.9
NN02	0.107	82.59	85.03	35.0	43.9	58.8	69.8	84.1	96.6	210.0	226.4
NN03	0.038	82.84	87.26	13.7	20.3	22.8	30.8	32.5	41.5	80.5	91.9
NN04	0.162	85.64	86.69	43.1	47.5	68.8	74.1	95.5	101.5	225.1	232.6
NN05	0.048	83.77	87.84	19.2	27.9	31.4	41.7	44.2	55.7	107.4	121.7
NN06	0.145	88.18	89.02	50.1	53.2	75.7	79.3	101.6	105.4	223.3	227.8
NN07A	0.042	84.82	86.99	17.4	23.2	28.3	35.4	39.8	47.7	96.7	106.8
NN07B	0.032	89.70	87.49	12.4	17.2	20.2	26.0	28.4	34.9	69.0	77.1
NN07C	0.023	87.15	88.86	11.2	14.8	17.6	21.8	24.2	28.8	56.1	61.5
NN07D	0.023	91.33	88.90	8.8	12.8	14.2	18.9	19.8	25.0	47.2	53.5
NN07E	0.081	84.82	90.00	24.3	34.1	38.4	49.8	52.9	65.5	123.4	138.1
NN08	0.122	89.70	90.93	55.5	60.7	81.4	87.2	107.1	113.4	226.3	232.9
NN09	0.142	87.15	94.62	72.7	127.7	111.0	171.4	150.1	213.5	336.4	400.6
NN10	0.184	91.33	93.04	48.7	55.6	69.9	77.5	90.9	98.9	187.1	195.1
NN11	0.173	91.43	92.74	60.9	67.4	87.0	94.0	112.7	120.1	230.7	238.0
CPNN01A	0.268	N/A	N/A	81.6	96.6	140.3	158.5	203.0	224.1	522.5	549.0
CPNN01B	0.43	N/A	N/A	108.7	126.7	184.9	206.6	265.5	290.1	673.1	705.0
CPNN02A	0.09	N/A	N/A	36.5	51.0	59.6	77.0	83.7	103.4	203.6	227.6
CPNN02B	0.235	N/A	N/A	67.0	81.8	106.2	124.0	146.7	166.6	343.2	367.3
CPNN03A	0.078	N/A	N/A	31.8	44.0	51.1	65.5	71.1	87.1	169.2	188.6
CPNN03B	0.2	N/A	N/A	79.0	94.5	120.0	138.2	161.8	181.7	360.3	383.9
CPNN_2D	0.2	N/A	N/A	68.0	76.8	118.0	128.7	171.2	183.4	443.3	459.3

Headwaters Watershed HEC-HMS Model Schematic



Hydro. Element	Basin Area (Sq. Miles)	Existing Condition Curve Number	Future Condition Curve Number	2-year Storm		5-year Storm		10-year Storm		100-year Storm	
				Existing Condition Q (cfs)	Future Condition Q (cfs)	Existing Condition Q (cfs)	Future Condition Q (cfs)	Existing Condition Q (cfs)	Future Condition Q (cfs)	Existing Condition Q (cfs)	Future Condition Q (cfs)
HW01	0.047	80.81	82.00	15.8	17.8	27.1	29.5	39.0	41.9	100.7	104.7
HW02	0.053	80.38	82.00	18.3	21.4	31.5	35.5	45.7	50.4	120.0	126.6
HW03	0.050	81.61	82.00	17.9	18.6	30.2	31.1	43.3	44.3	109.6	111.0
HW04	0.020	82.00	82.00	7.3	7.3	12.2	12.2	17.4	17.4	43.8	43.8
HW05	0.080	81.99	81.97	29.3	29.3	48.7	48.7	69.8	69.7	175.2	175.0
HW06	0.080	82.01	82.07	29.4	29.6	48.8	49.0	69.8	70.1	175.3	175.6
HW07	0.140	77.89	86.28	21.9	54.2	43.1	83.6	67.2	114.3	196.2	260.7
HW08	0.070	85.50	89.62	26.7	37.6	42.1	54.8	57.7	71.8	135.0	151.2
CPHW1	0.100	N/A	N/A	33.9	38.9	58.2	64.4	83.9	91.4	217.8	228.1
CPHW2	0.150	N/A	N/A	51.7	57.4	88.4	95.5	127.0	135.2	326.7	338.1
CPHW3	0.170	N/A	N/A	59.0	64.6	100.6	107.7	144.5	152.6	370.5	381.9
CPHW4	0.390	N/A	N/A	101.7	137.3	178.8	222.9	262.4	313.7	692.7	764.0



N

0 175 350 700

Feet

1 in = 700 feet

Legend

- Combo Points
- Updated Headwaters Subbasins
- Hydraulic Ditch Centerline
- Overland Flow Length
- 20' Contours Developed from LiDAR
- Surface Flow Direction

HYDRAULIC IRRIGATION DITCH

FIGURE B-8: HEADWATERS WATERSHED FLOW SUMMARY

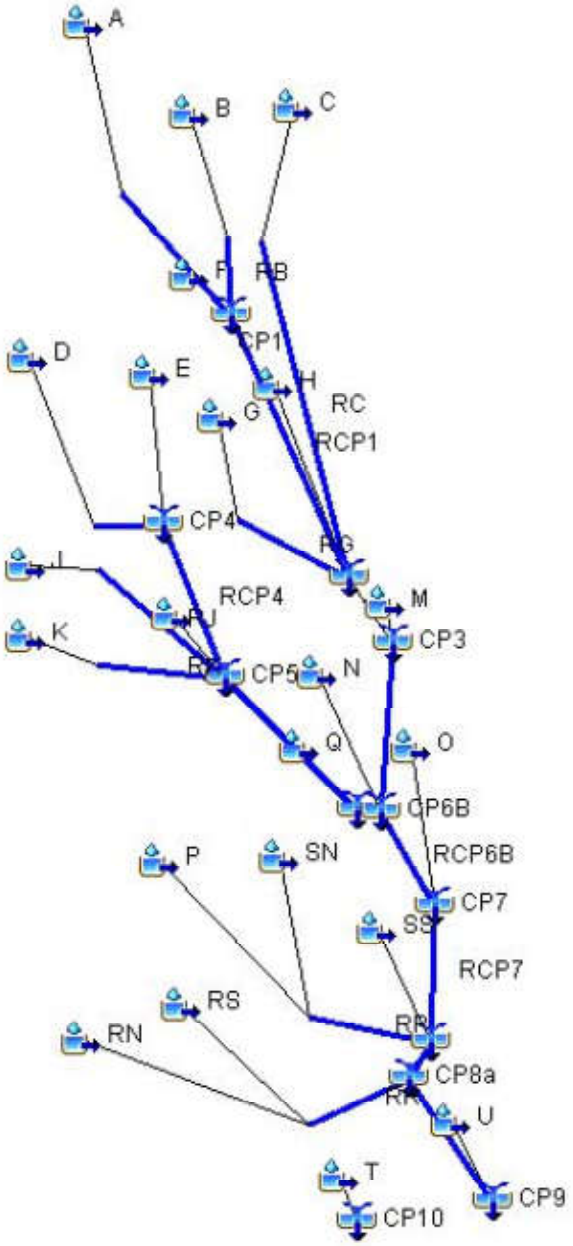
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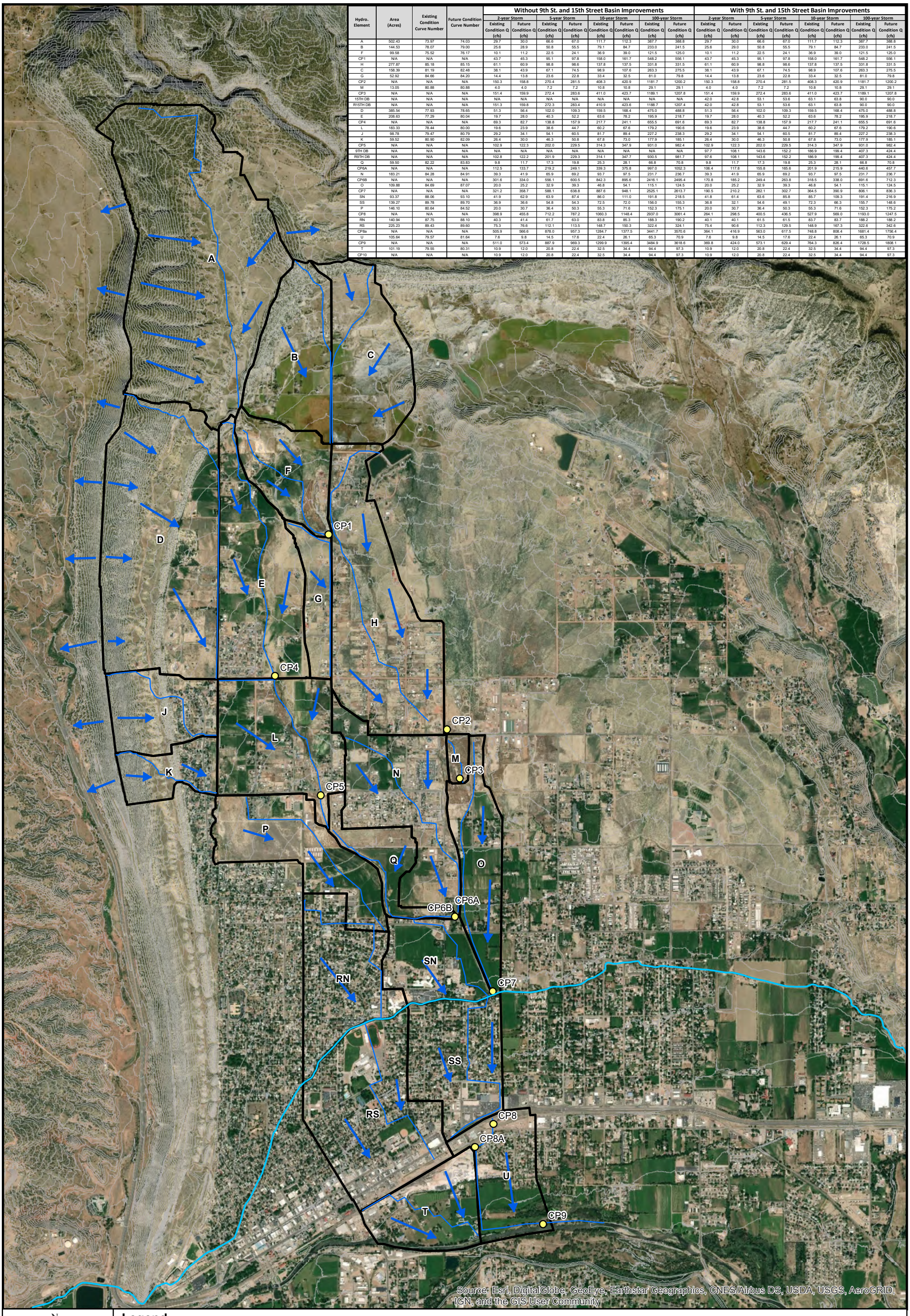
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Hydro. Element	Basin Area (Sq. Miles)	Existing Condition Curve Number	Future Condition Curve Number	2-year Storm		5-year Storm		10-year Storm		100-year Storm	
				Existing Condition Q (cfs)	Future Condition Q (cfs)	Existing Condition Q (cfs)	Future Condition Q (cfs)	Existing Condition Q (cfs)	Future Condition Q (cfs)	Existing Condition Q (cfs)	Future Condition Q (cfs)
HW01	0.047	80.81	82.00	15.8	17.8	27.1	29.5	39.0	41.9	100.7	104.7
HW02	0.053	80.38	82.00	18.3	21.4	31.5	35.5	45.7	50.4	120.0	126.6
HW03	0.050	81.61	82.00	17.9	18.6	30.2	31.1	43.3	44.3	109.6	111.0
HW04	0.020	82.00	82.00	7.3	7.3	12.2	12.2	17.4	17.4	43.8	43.8
HW05	0.080	81.99	81.97	29.3	29.3	48.7	48.7	69.8	69.7	175.2	175.0
HW06	0.080	82.01	82.07	29.4	29.6	48.8	49.0	69.8	70.1	175.3	175.6
HW07	0.140	77.89	86.28	21.9	54.2	43.1	83.6	67.2	114.3	196.2	260.7
HW08	0.070	85.50	89.62	26.7	37.6	42.1	54.8	57.7	71.8	135.0	151.2
CPHW1	0.100	N/A	N/A	33.9	38.9	58.2	64.4	83.9	91.4	217.8	228.1
CPHW2	0.150	N/A	N/A	51.7	57.4	88.4	95.5	127.0	135.2	326.7	338.1
CPHW3	0.170	N/A	N/A	59.0	64.6	100.6	107.7	144.5	152.6	370.5	381.9
CPHW4	0.390	N/A	N/A	101.7	137.3	178.8	222.9	262.4	313.7	692.7	764.0

Northeast Canon Watershed HEC-HMS Model Schematic - No Proposed Detention Basins



Hydro. Element	Area (Acres)	Existing Condition Curve Number	Future Condition Curve Number	Without 9th St. and 15th Street Basin Improvements								With 9th St. and 15th Street Basin Improvements							
				2-year Storm		5-year Storm		10-year Storm		100-year Storm		2-year Storm		5-year Storm		10-year Storm		100-year Storm	
				Existing Condition Q (cfs)	Future Condition Q (cfs)	Existing Condition Q (cfs)	Future Condition Q (cfs)	Existing Condition Q (cfs)	Future Condition Q (cfs)	Existing Condition Q (cfs)	Future Condition Q (cfs)	Existing Condition Q (cfs)	Future Condition Q (cfs)	Existing Condition Q (cfs)	Future Condition Q (cfs)	Existing Condition Q (cfs)	Future Condition Q (cfs)	Existing Condition Q (cfs)	Future Condition Q (cfs)
A	502.43	73.97	74.03	29.7	30.0	66.6	67.0	111.7	112.3	387.7	388.8	29.7	30.0	66.6	67.0	111.7	112.3	387.7	388.8
B	144.53	78.07	79.00	25.6	28.9	50.8	55.5	79.1	84.7	233.0	241.5	25.6	29.0	50.8	55.5	79.1	84.7	233.0	241.5
F	99.58	75.52	76.17	10.1	11.2	22.5	24.1	36.9	39.0	121.5	125.0	10.1	11.2	22.5	24.1	36.9	39.0	121.5	125.0
CP1	N/A	N/A	N/A	43.7	45.3	95.1	97.8	158.0	161.7	548.2	556.1	43.7	45.3	95.1	97.8	158.0	161.7	548.2	556.1
H	277.87	85.18	85.15	61.1	60.9	98.8	98.6	137.8	137.5	331.8	331.5	61.1	60.9	98.8	98.6	137.8	137.5	331.8	331.5
C	158.39	81.19	82.48	38.1	43.9	67.1	74.5	98.9	107.6	263.3	275.5	38.1	43.9	67.1	74.5	98.9	107.6	263.3	275.5
G	52.92	84.66	84.20	14.4	13.8	23.6	22.8	33.4	32.5	81.0	79.8	14.4	13.8	23.6	22.8	33.4	32.5	81.0	79.8
CP2	N/A	N/A	N/A	150.3	158.8	270.4	281.5	408.3	420.9	1181.7	1200.2	150.3	158.8	270.4	281.5	408.3	420.9	1181.7	1200.2
M	13.05	80.88	80.88	4.0	4.0	7.2	7.2	10.8	10.8	29.1	29.1	4.0	4.0	7.2	7.2	10.8	10.8	29.1	29.1
CP3	N/A	N/A	N/A	151.4	159.9	272.4	283.6	411.0	423.7	1189.1	1207.8	151.4	159.9	272.4	283.6	411.0	423.7	1189.1	1207.8
15TH DB	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	42.0	42.8	53.1	53.6	63.1	63.8	90.0	90.0
R15TH DB	N/A	N/A	N/A	151.3	159.8	272.3	283.4	410.9	423.6	1188.7	1207.4	42.0	42.8	53.1	53.6	63.1	63.8	90.0	90.0
D	385.54	77.93	78.65	51.3	56.4	102.0	109.3	159.5	168.4	475.0	488.8	51.3	56.4	102.0	109.3	159.5	168.4	475.0	488.8
E	208.63	77.29	80.04	19.7	28.0	40.3	52.2	63.6	78.2	195.9	218.7	19.7	28.0	40.3	52.2	63.6	78.2	195.9	218.7
CP4	N/A	N/A	N/A	69.3	82.7	138.8	157.9	217.7	241.1	655.5	691.6	69.3	82.7	138.8	157.9	217.7	241.1	655.5	691.6
L	183.33	78.44	80.00	19.6	23.9	38.6	44.7	60.2	67.6	179.2	190.6	19.6	23.9	38.6	44.7	60.2	67.6	179.2	190.6
J	98.78	79.47	80.79	29.2	34.1	54.1	60.5	81.7	89.4	227.2	238.3	29.2	34.1	54.1	60.5	81.7	89.4	227.2	238.3
K	59.52	80.90	82.09	26.4	30.0	46.3	50.8	67.8	73.0	177.9	185.1	26.4	30.0	46.3	50.8	67.8	73.0	177.9	185.1
CP5	N/A	N/A	N/A	102.9	122.3	202.0	229.5	314.3	347.9	931.0	982.4	102.9	122.3	202.0	229.5	314.3	347.9	931.0	982.4
9TH DB	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	97.7	108.1	143.6	152.2	186.9	199.4	407.3	424.4
R9TH DB	N/A	N/A	N/A	102.8	122.2	201.9	229.3	314.1	347.7	930.5	981.7	97.6	108.1	143.6	152.2	186.9	199.4	407.3	424.4
Q	59.50	82.22	83.83	9.8	11.7	17.3	19.8	25.3	28.1	66.8	70.8	9.8	11.7	17.3	19.8	25.3	28.1	66.8	70.8
CP6A	N/A	N/A	N/A	112.5	133.7	219.2	249.1	339.3	375.8	997.0	1052.3	106.4	117.8	155.8	165.6	201.9	215.9	440.6	457.7
N	183.21	84.28	84.91	39.3	41.9	65.9	69.2	93.7	97.5	231.7	236.7	39.3	41.9	65.9	69.2	93.7	97.5	231.7	236.7
CP6B	N/A	N/A	N/A	301.6	334.0	556.1	600.5	842.3	895.6	2416.1	2495.4	170.8	185.2	249.4	263.8	318.5	338.0	691.6	712.3
O	109.88	84.69	87.07	20.0	25.2	32.9	39.3	46.8	54.1	115.1	124.5	20.0	25.2	32.9	39.3	46.8	54.1	115.1	124.5
CP7	N/A	N/A	N/A	321.2	358.7	588.1	638.8	887.6	948.1	2525.1	2613.7	190.5	210.2	282.1	302.7	364.5	390.9	806.1	836.3
SN	93.37	88.06	93.10	41.9	62.9	63.9	87.4	86.0	111.0	191.8	218.5	41.8	61.4	63.6	85.8	85.7	109.3	191.4	216.9
SS	139.27	89.78	89.70	36.9	36.6	54.8	54.3	72.5	72.0	156.0	155.3	36.8	32.1	54.6	49.1	72.3	66.3	155.7	148.6
P	146.10	80.64	84.52	20.0	30.7	36.4	50.3	55.3	71.6	152.3	175.1	20.0	30.7	36.4	50.3	55.3	71.6	152.3	175.2
CP8	N/A	N/A	N/A	398.9	455.8	712.2	787.2	1060.3	1148.4	2937.0	3061.4	284.1	298.5	400.5	436.5	527.9	569.0	1193.0	1247.5
RN	140.94	87.75	88.10	40.3	41.4	61.7	63.0	83.8	85.3	188.3	190.2	40.1	40.1	61.5	61.5	83.7	83.7	188.2	188.2
RS	225.23	89.43	89.60	75.3	76.6	112.1	113.5	148.7	150.3	322.4	324.1	75.4	90.6	112.3	129.5	148.9	167.3	322.6	342.6
CP8a	N/A	N/A	N/A	505.9	566.6	878.0	957.3	1284.7	1377.5	3441.7	3570.6	364.1	416.9	563.0	617.5	748.8	808.4	1681.4	1756.4
U	105.64	79.57	81.64	7.6	9.8	14.5	17.6	22.4	26.1	65.3	70.9	7.6	9.8	14.5	17.6	22.4	26.1	65.3	70.9
CP9	N/A	N/A	N/A	511.0	573.4	887.9	969.3	1299.9	1395.4	3484.9	3618.6	369.8	424.0	573.1	629.4	764.3	826.4	1728.5	1808.1
T	101.19	79.55	80.31	10.9	12.0	20.8	22.4	32.5	34.4	94.4	97.3	10.9	12.0	20.8	22.4	32.5	34.4	94.4	97.3
CP10	N/A	N/A	N/A	10.9	12.0	20.8	22.4	32.5	34.4	94.4	97.3	10.9	12.0	20.8	22.4	32.5	34.4	94.4	97.3



N

0 500 1,000 2,000

Feet

1 in = 2,000 feet

Legend

- Combo Points
- Updated Northeast Subbasins
- Hydraulic Ditch Centerline
- Overland Flow Length
- 20' Contours Developed from LiDAR
- Surface Flow Direction

HYDRAULIC IRRIGATION DITCH

FIGURE B-9: NORTHEAST CANON WATERSHED FLOW SUMMARY

SNC·LAVALIN

ATKINS

Member of the SNC-Lavalin Group

Hydro. Element	Area (Acres)	Existing Condition Curve Number	Future Condition Curve Number	Without 9th St. and 15th Street Basin Improvements								With 9th St. and 15th Street Basin Improvements							
				2-year Storm		5-year Storm		10-year Storm		100-year Storm		2-year Storm		5-year Storm		10-year Storm		100-year Storm	
				Existing Condition Q (cfs)	Future Condition Q (cfs)	Existing Condition Q (cfs)	Future Condition Q (cfs)	Existing Condition Q (cfs)	Future Condition Q (cfs)	Existing Condition Q (cfs)	Future Condition Q (cfs)	Existing Condition Q (cfs)	Future Condition Q (cfs)	Existing Condition Q (cfs)	Future Condition Q (cfs)	Existing Condition Q (cfs)	Future Condition Q (cfs)	Existing Condition Q (cfs)	Future Condition Q (cfs)
A	502.43	73.97	74.03	29.7	30.0	66.6	67.0	111.7	112.3	387.7	388.8	29.7	30.0	66.6	67.0	111.7	112.3	387.7	388.8
B	144.53	78.07	79.00	25.6	28.9	50.8	55.5	79.1	84.7	233.0	241.5	25.6	29.0	50.8	55.5	79.1	84.7	233.0	241.5
F	99.58	75.52	76.17	10.1	11.2	22.5	24.1	36.9	39.0	121.5	125.0	10.1	11.2	22.5	24.1	36.9	39.0	121.5	125.0
CP1	N/A	N/A	N/A	43.7	45.3	95.1	97.8	158.0	161.7	548.2	556.1	43.7	45.3	95.1	97.8	158.0	161.7	548.2	556.1
H	277.87	85.18	85.15	61.1	60.9	98.8	98.6	137.8	137.5	331.8	331.5	61.1	60.9	98.8	98.6	137.8	137.5	331.8	331.5
C	158.39	81.19	82.48	38.1	43.9	67.1	74.5	98.9	107.6	263.3	275.5	38.1	43.9	67.1	74.5	98.9	107.6	263.3	275.5
G	52.92	84.66	84.20	14.4	13.8	23.6	22.8	33.4	32.5	81.0	79.8	14.4	13.8	23.6	22.8	33.4	32.5	81.0	79.8
CP2	N/A	N/A	N/A	150.3	158.8	270.4	281.5	408.3	420.9	1181.7	1200.2	150.3	158.8	270.4	281.5	408.3	420.9	1181.7	1200.2
M	13.05	80.88	80.88	4.0	4.0	7.2	7.2	10.8	10.8	29.1	29.1	4.0	4.0	7.2	7.2	10.8	10.8	29.1	29.1
CP3	N/A	N/A	N/A	151.4	159.9	272.4	283.6	411.0	423.7	1189.1	1207.8	151.4	159.9	272.4	283.6	411.0	423.7	1189.1	1207.8
15TH DB	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	42.0	42.8	53.1	53.6	63.1	63.8	90.0	90.0
R15TH DB	N/A	N/A	N/A	151.3	159.8	272.3	283.4	410.9	423.6	1188.7	1207.4	42.0	42.8	53.1	53.6	63.1	63.8	90.0	90.0
D	385.54	77.93	78.65	51.3	56.4	102.0	109.3	159.5	168.4	475.0	488.8	51.3	56.4	102.0	109.3	159.5	168.4	475.0	488.8
E	208.63	77.29	80.04	19.7	28.0	40.3	52.2	63.6	78.2	195.9	218.7	19.7	28.0	40.3	52.2	63.6	78.2	195.9	218.7
CP4	N/A	N/A	N/A	69.3	82.7	138.8	157.9	217.7	241.1	655.5	691.6	69.3	82.7	138.8	157.9	217.7	241.1	655.5	691.6
L	183.33	78.44	80.00	19.6	23.9	38.6	44.7	60.2	67.6	179.2	190.6	19.6	23.9	38.6	44.7	60.2	67.6	179.2	190.6
J	98.78	79.47	80.79	29.2	34.1	54.1	60.5	81.7	89.4	227.2	238.3	29.2	34.1	54.1	60.5	81.7	89.4	227.2	238.3
K	59.52	80.90	82.09	26.4	30.0	46.3	50.8	67.8	73.0	177.9	185.1	26.4	30.0	46.3	50.8	67.8	73.0	177.9	185.1
CP5	N/A	N/A	N/A	102.9	122.3	202.0	229.5	314.3	347.9	931.0	982.4	102.9	122.3	202.0	229.5	314.3	347.9	931.0	982.4
9TH DB	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	97.7	108.1	143.6	152.2	186.9	199.4	407.3	424.4
R9TH DB	N/A	N/A	N/A	102.8	122.2	201.9	229.3	314.1	347.7	930.5	981.7	97.6	108.1	143.6	152.2	186.9	199.4	407.3	424.4
Q	59.50	82.22	83.83	9.8	11.7	17.3	19.8	25.3	28.1	66.8	70.8	9.8	11.7	17.3	19.8	25.3	28.1	66.8	70.8
CP6A	N/A	N/A	N/A	112.5	133.7	219.2	249.1	339.3	375.8	997.0	1052.3	106.4	117.8	155.8	165.6	201.9	215.9	440.6	457.7
N	183.21	84.28	84.91	39.3	41.9	65.9	69.2	93.7	97.5	231.7	236.7	39.3	41.9	65.9	69.2	93.7	97.5	231.7	236.7
CP6B	N/A	N/A	N/A	301.6	334.0	556.1	600.5	842.3	895.6	2416.1	2495.4	170.8	185.2	249.4	263.8	318.5	338.0	691.6	712.3
O	109.88	84.69	87.07	20.0	25.2	32.9	39.3	46.8	54.1	115.1	124.5	20.0	25.2	32.9	39.3	46.8	54.1	115.1	124.5
CP7	N/A	N/A	N/A	321.2	358.7	588.1	638.8	887.6	948.1	2525.1	2613.7	190.5	210.2	282.1	302.7	364.5	390.9	806.1	836.3
SN	93.37	88.06	93.10	41.9	62.9	63.9	87.4	86.0	111.0	191.8	218.5	41.8	61.4	63.6	85.8	85.7	109.3	191.4	216.9
SS	139.27	89.78	89.70	36.9	36.6	54.8	54.3	72.5	72.0	156.0	155.3	36.8	32.1	54.6	49.1	72.3	66.3	155.7	148.6
P	146.10	80.64	84.52	20.0	30.7	36.4	50.3	55.3	71.6	152.3	175.1	20.0	30.7	36.4	50.3	55.3	71.6	152.3	175.2
CP8	N/A	N/A	N/A	398.9	455.8	712.2	787.2	1060.3	1148.4	2937.0	3061.4	264.1	298.5	400.5	436.5	527.9	569.0	1193.0	1247.5
RN	140.94	87.75	88.10	40.3	41.4	61.7	63.0	83.8	85.3	188.3	190.2	40.1	40.1	61.5	61.5	83.7	83.7	188.2	188.2
RS	225.23	89.43	89.60	75.3	76.6	112.1	113.5	148.7	150.3	322.4	324.1	75.4	90.6	112.3	129.5	148.9	167.3	322.6	342.6
CP8a	N/A	N/A	N/A	505.9	566.6	878.0	957.3	1284.7	1377.5	3441.7	3570.6	364.1	416.9	563.0	617.5	748.8	808.4	1681.4	1756.4
U	105.64	79.57	81.64	7.6	9.8	14.5	17.6	22.4	26.1	65.3	70.9	7.6	9.8	14.5	17.6	22.4	26.1	65.3	70.9
CP9	N/A	N/A	N/A	511.0	573.4	887.9	969.3	1299.9	1395.4	3484.9	3618.6	369.8	424.0	573.1	629.4	764.3	826.4	1728.5	1808.1
T	101.19	79.55	80.31	10.9	12.0	20.8	22.4	32.5	34.4	94.4	97.3	10.9	12.0	20.8	22.4	32.5	34.4	94.4	97.3
CP10	N/A	N/A	N/A	10.9	12.0	20.8	22.4	32.5	34.4	94.4	97.3	10.9	12.0	20.8	22.4	32.5	34.4	94.4	97.3

Tanner, Michael P

From: Khanal, Manogya
Sent: Monday, March 26, 2018 3:53 PM
To: Tanner, Michael P
Subject: FW: Land use/Zoning GIS Shapefiles

Manogya Khanal, P.E., CFM
Engineer II, Integrated Water Resources

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2270 Corporate Circle, Suite 200, Henderson, NV 89074 | Tel: +1 (702) 263 7275 ext 4513041 |Direct: +1 (702) 605 9063
Email: manogya.khanal@atkinsglobal.com | Web: www.atkinsglobal.com/northamerica www.atkinsglobal.com

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From: Warnick, Mike V
Sent: Wednesday, October 12, 2016 4:57 PM
To: Khanal, Manogya <Manogya.Khanal@atkinsglobal.com>
Subject: FW: Land use/Zoning GIS Shapefiles

We received the zoning files and I placed them here:

\\FUSLVA1000\Henderson Data\Water Resources Nevada\PROJECTS\100051866 Canon City DBs\GIS\Data\Zoning

I haven't looked at what they have but we can talk about it tomorrow.

Mike Warnick, PE
Senior Engineer, Water Resources

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2270 Corporate Circle, Suite 200, Henderson, NV 89074 | Tel: +1 (702) 605 9060 | Cell: +1 (702) 807 2638
Email: mike.warnick@atkinsglobal.com | Web: www.atkinsglobal.com/northamerica | Careers: www.atkinsglobal.com/careers

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From: Michael Pielow [mailto:mjpielow@canoncity.org]
Sent: Wednesday, October 12, 2016 3:17 PM
To: Warnick, Mike V <Mike.Warnick@atkinsglobal.com>
Subject: RE: Land use/Zoning GIS Shapefiles

Mike,

I have uploaded the files to the Box.

cc_zoning – City of Cañon City Zoning
FREMONT_PARCELS – This is the parcel layer for Fremont County. It contains the Land Use information. The field called LUSE_TYPE is probably the field you want.
FremontCo_Zoning – Contains the zoning for Fremont County. The field called ZONE_DIST is the field that is used on their online tool.

Mike Pielow
GIS Specialist, Engineering Department
City of Cañon City
P.O. Box 1460
Cañon City, CO 81215-1460
Phone - 719-269-9011 x5308
Fax - 719-269-9017
mjpielow@canoncity.org

From: Warnick, Mike V [mailto:Mike.Warnick@atkinsglobal.com]
Sent: Wednesday, October 12, 2016 3:54 PM
To: Michael Pielow
Subject: RE: Land use/Zoning GIS Shapefiles

Here is the area that we are interested in. Or we have set up a Box folder, https://atkins.box.com/s/tygcfaab4iikg2cth685xe7hahzvsk5n, that can be placed, or if you have dropbox we can do that. Whichever is easier for you.

Mike Warnick, PE
Senior Engineer, Water Resources

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2270 Corporate Circle, Suite 200, Henderson, NV 89074 | Tel: +1 (702) 605 9060 | Cell: +1 (702) 807 2638
Email: mike.warnick@atkinsglobal.com | Web: www.atkinsglobal.com/northamerica | Careers: www.atkinsglobal.com/careers

---

From: Michael Pielow [mailto:mjpielow@canoncity.org]
Sent: Wednesday, October 12, 2016 2:42 PM
To: Warnick, Mike V <Mike.Warnick@atkinsglobal.com>; Adam T. Lancaster <atlancaster@canoncity.org>
Cc: Beedle, Jacob <Jacob.Beedle@atkinsglobal.com>
Subject: RE: Land use/Zoning GIS Shapefiles

Mike,

The city's zoning is no problem. It is not a big file. But the county information is rather large for an email. Is there a specific area that I can clip out? If you need the whole county, I can do dropbox.

Thanks,

Mike Pielow
GIS Specialist, Engineering Department
City of Cañon City
P.O. Box 1460
Cañon City, CO 81215-1460
Phone - 719-269-9011 x5308
Fax - 719-269-9017

mjpielow@canoncity.org

From: Warnick, Mike V [mailto:Mike.Warnick@atkinsglobal.com]
Sent: Wednesday, October 12, 2016 3:34 PM
To: Adam T. Lancaster; Michael Pielow
Cc: Beedle, Jacob
Subject: RE: Land use/Zoning GIS Shapefiles

Adam – Thanks for the quick reply.

Mike – If you could send us the land use or zoning files that you have as requested below I would really appreciate it. Let me know if you have any questions.

Thanks,

Mike Warnick, PE
Senior Engineer, Water Resources

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From: Adam T. Lancaster [mailto:atlancaster@canoncity.org]
Sent: Wednesday, October 12, 2016 1:52 PM
To: Beedle, Jacob <Jacob.Beedle@atkinsglobal.com>
Cc: Warnick, Mike V <Mike.Warnick@atkinsglobal.com>; Michael Pielow <mjpielow@canoncity.org>
Subject: RE: Land use/Zoning GIS Shapefiles

Jacob

We should have shape files for all of that. Reach out to Mike Pielow, our GIS Specialist, copied here.

Thanks

Adam Lancaster, P.E.
City Engineer
Engineering Department
City of Cañon City
P.O. Box 1460
128 Main Street
Cañon City, CO 81215-1460
719-269-9011
719-269-9017 (FAX)

From: Beedle, Jacob [mailto:Jacob.Beedle@atkinsglobal.com]
Sent: Wednesday, October 12, 2016 6:12 AM
To: Adam T. Lancaster
Cc: Warnick, Mike V
Subject: Land use/Zoning GIS Shapefiles

Adam,

Mike and I've gone through the data that we currently have or found for the hydrology if we could get the land use plan, preferably shapefiles, for Canon City and Fremont County we will have the information that we need to move forward. I did find that Fremont County has a very nice online GIS tool, http://www.fremontgis.com/fremontco_zoning/ that we could use if there aren't shapefiles available.

I am aware that there is a PDF of the Canon City Zoning Plan that is located here from 7-28-16: http://www.canoncity.org/Departments/Maps/Zoning%20Map%20Revised%207-28-16.pdf

Let us know if you have any questions.

Thanks,

Jacob R. Beedle, P.E., CFM
Senior Engineer III, Water Resources

ATKINS

7604 Technology Way, Suite 400, Denver, CO 80237 | Tel: +1 (303) 221 7275 Ext. 4987089 | Fax: +1 (303) 221 7276 | Direct: +1 (720) 475 7089 | Mobile:702.375.2618
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Appendix C. Updated Hydraulic Analysis

C.1. David Evans and Associates Survey Information

C.2. 1D HEC-RAS Capacity Analysis and Model

C.3. Existing Condition 2D HEC-RAS Model

C.4. Future Condition 2D HEC-RAS Model

C.5. 2D Inflow Hydrograph Summary

C.6. Point Discharge Summary and Map

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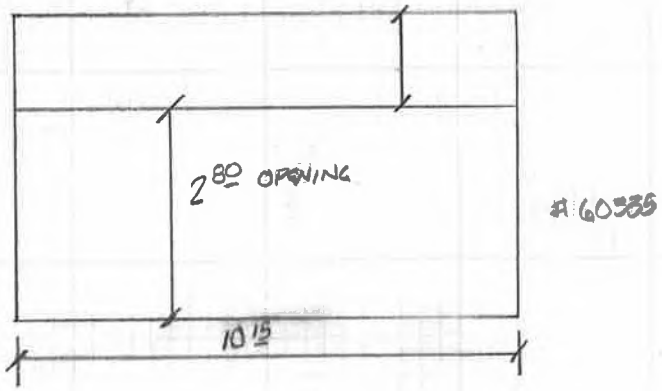
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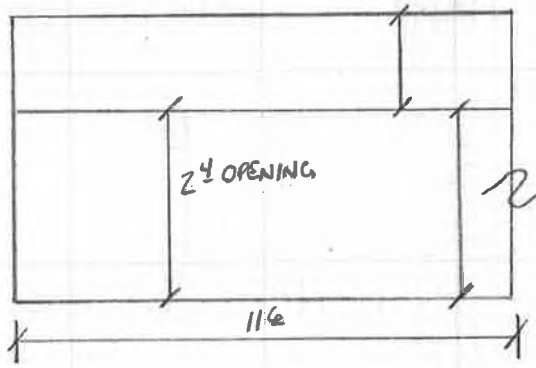
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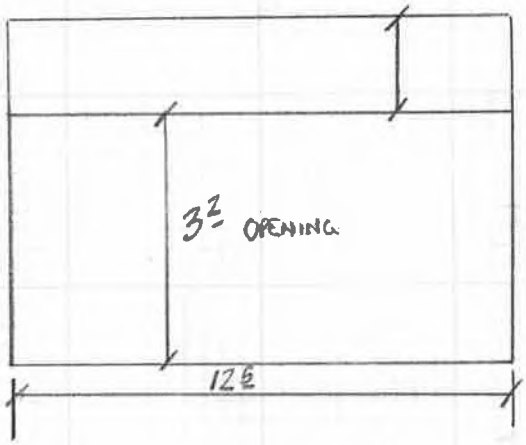
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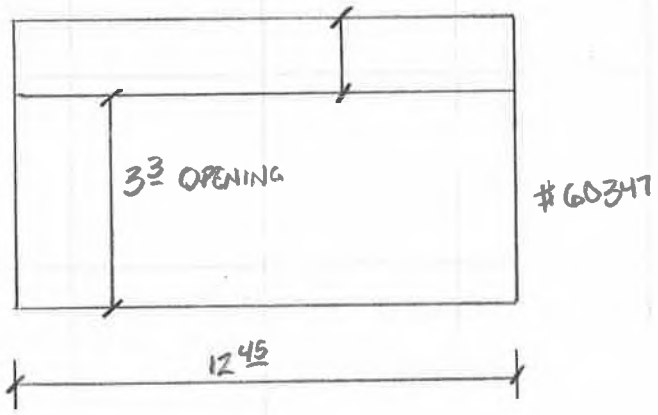
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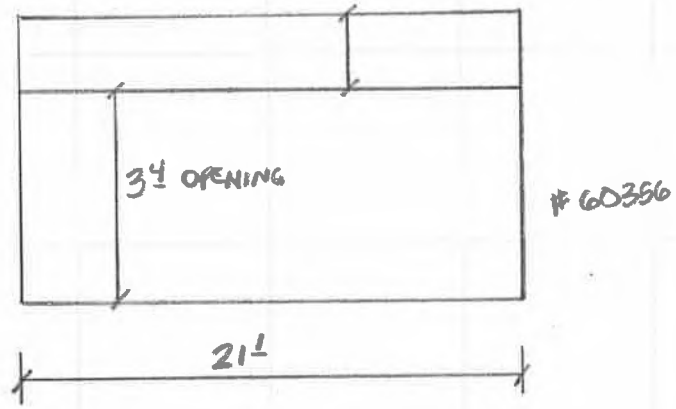
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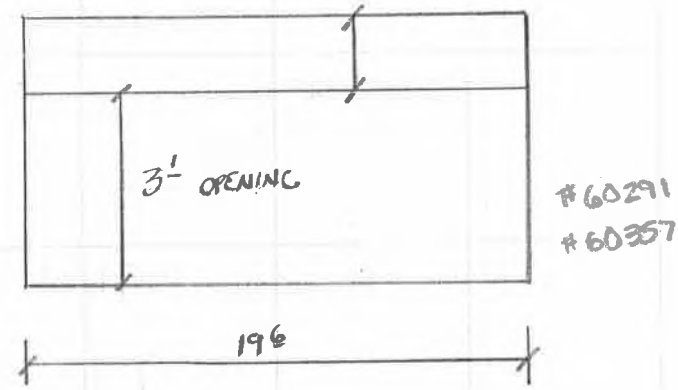
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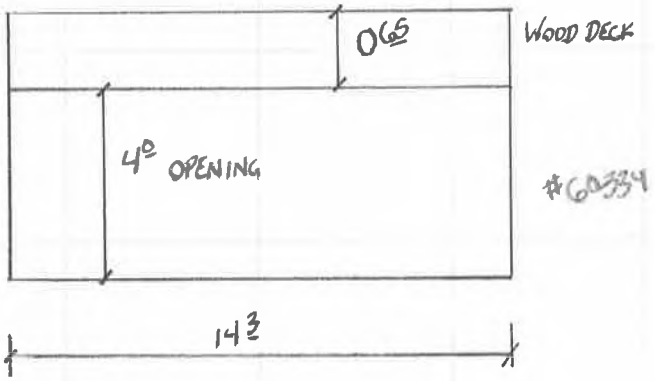
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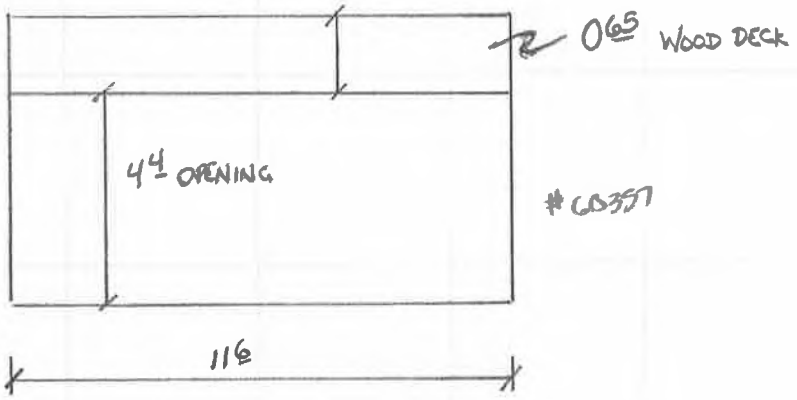
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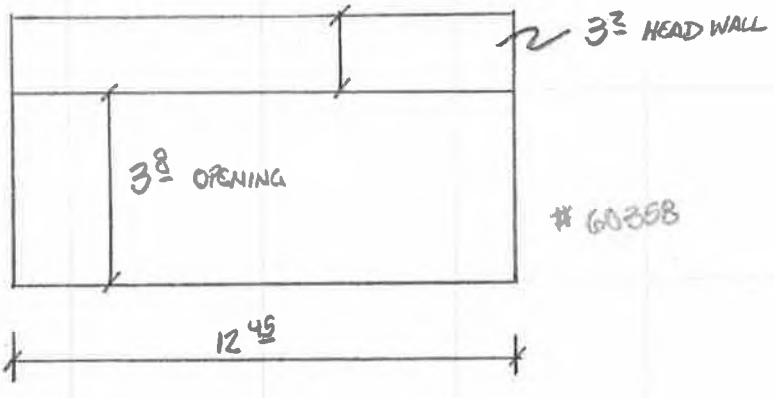
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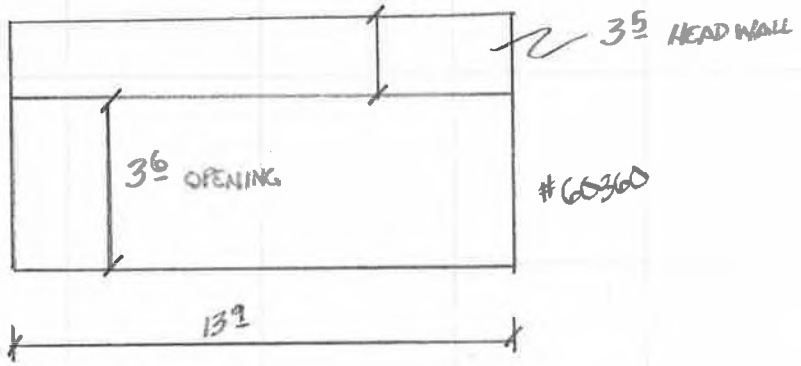
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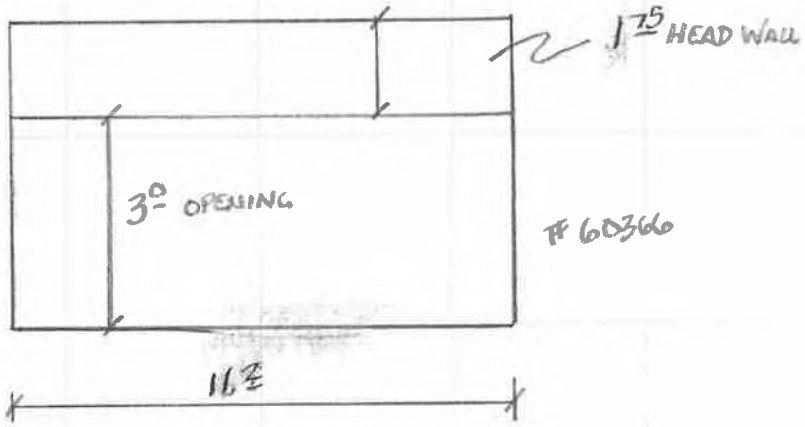
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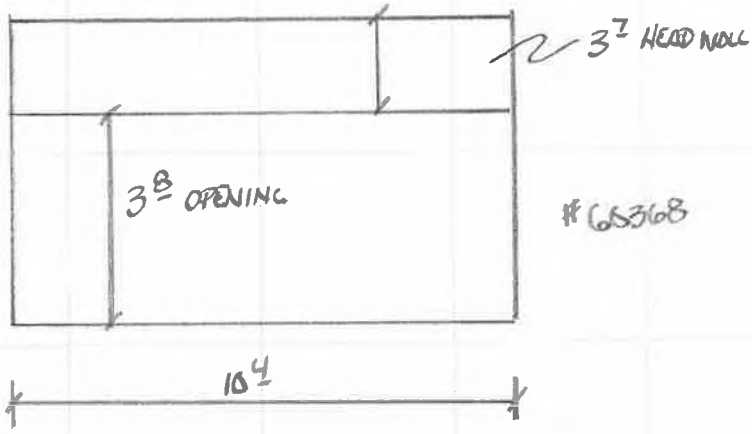
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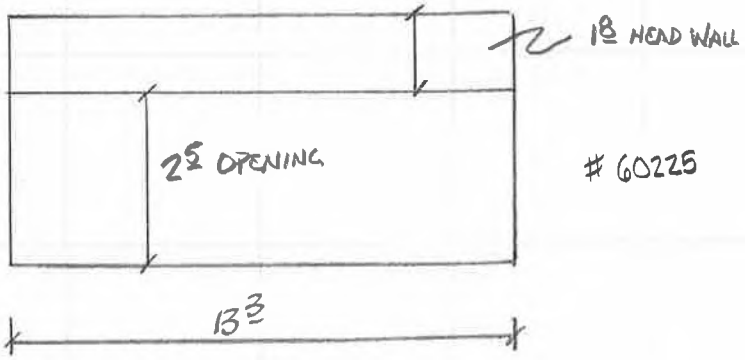
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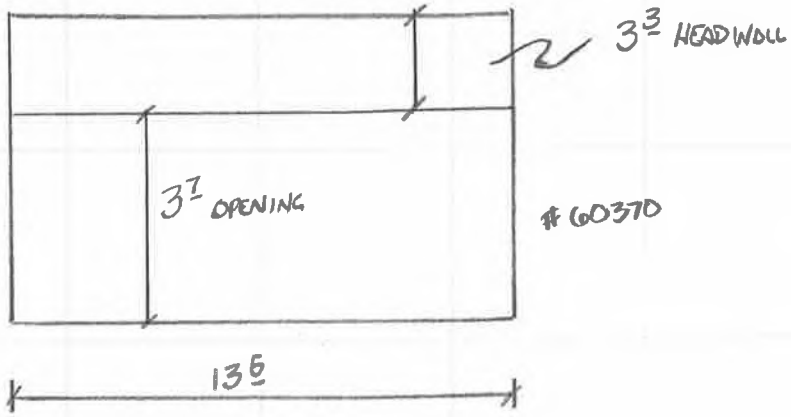
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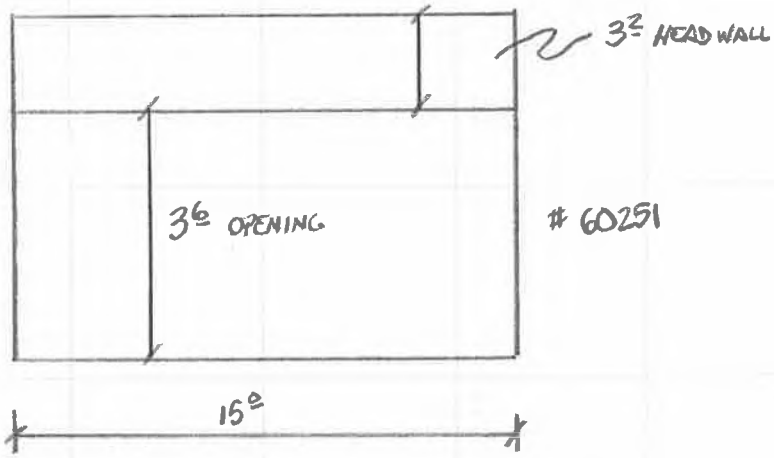
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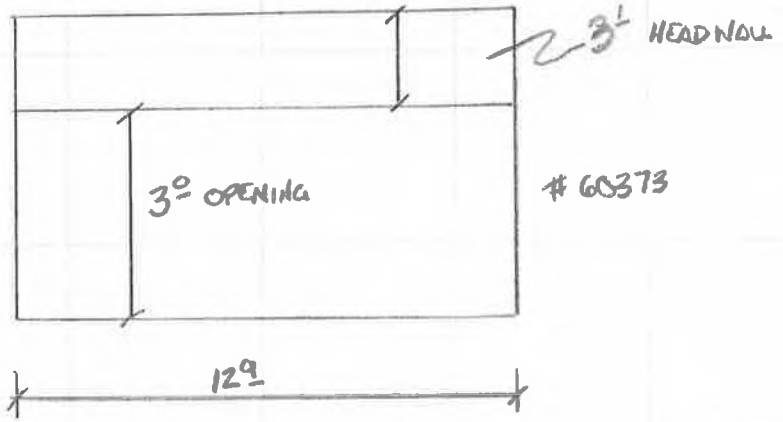
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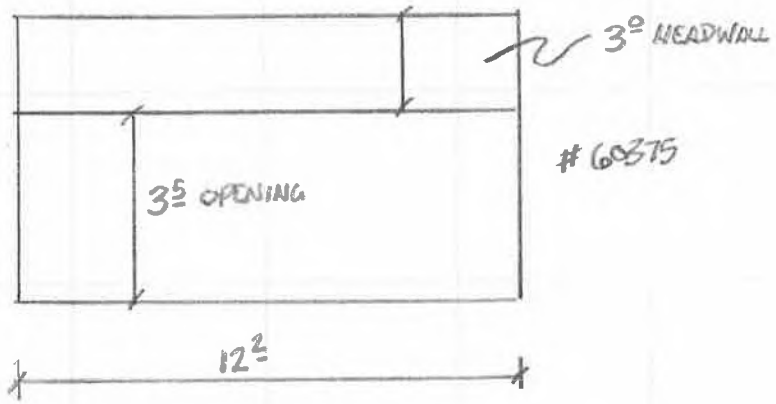
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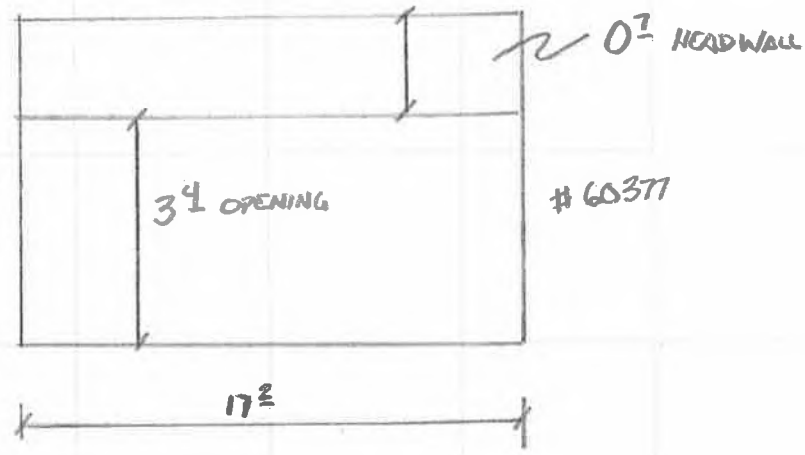
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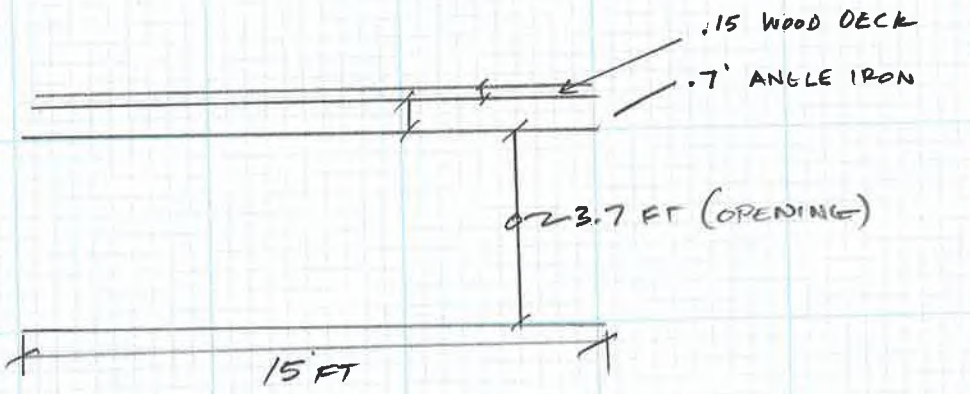
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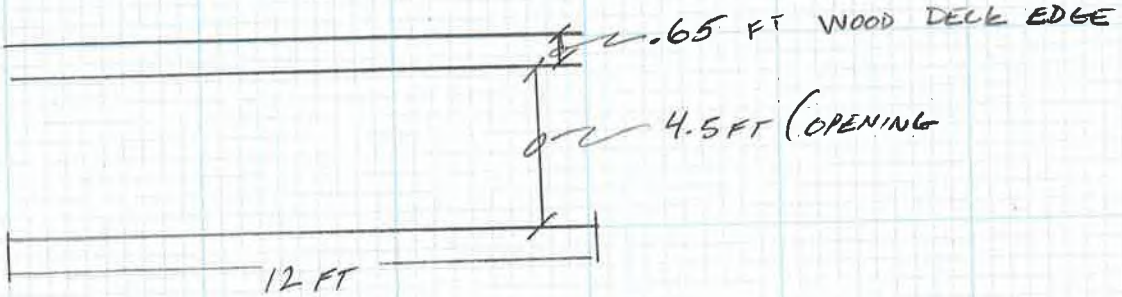
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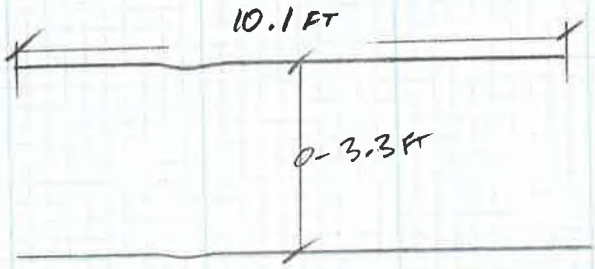


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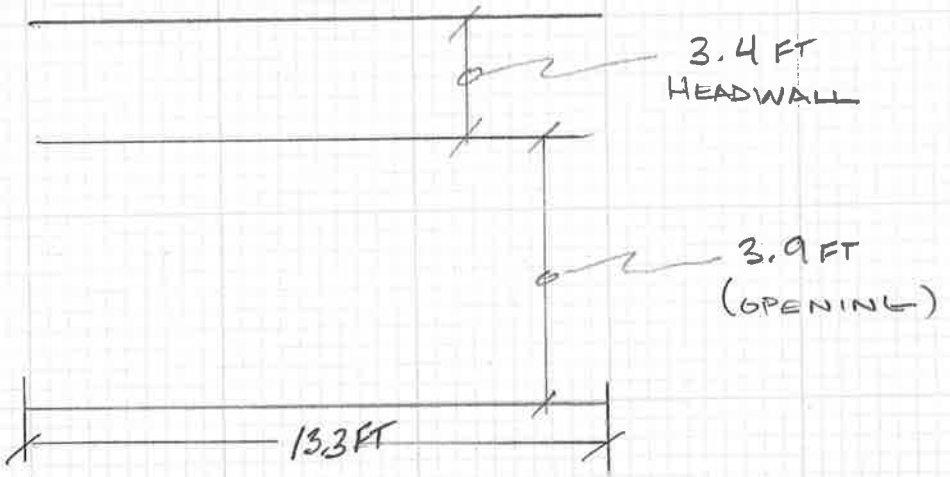


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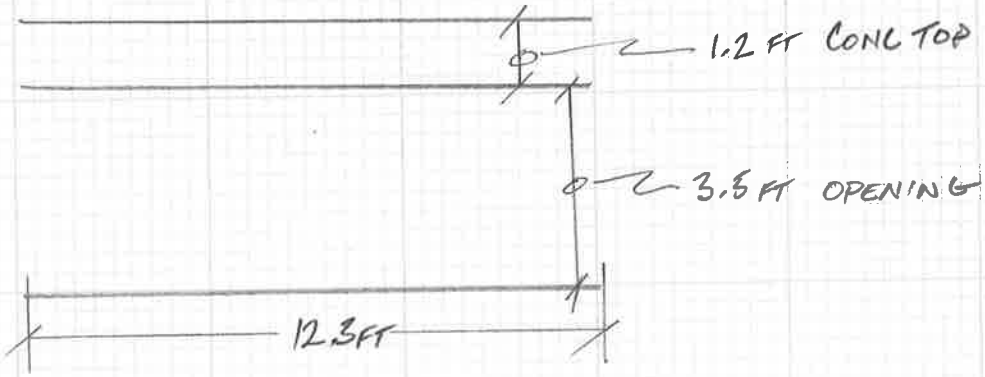
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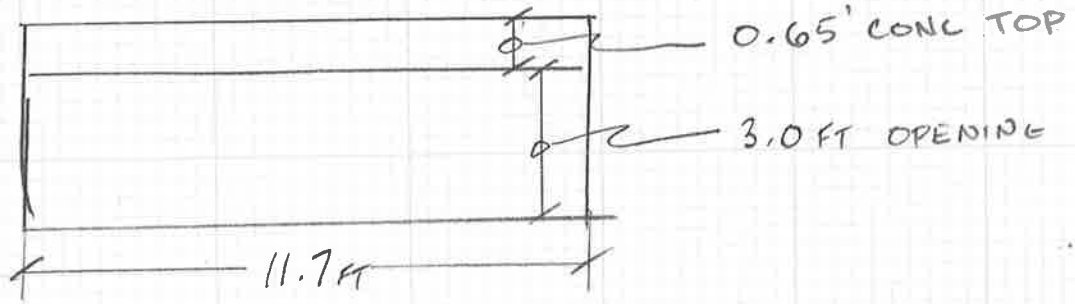
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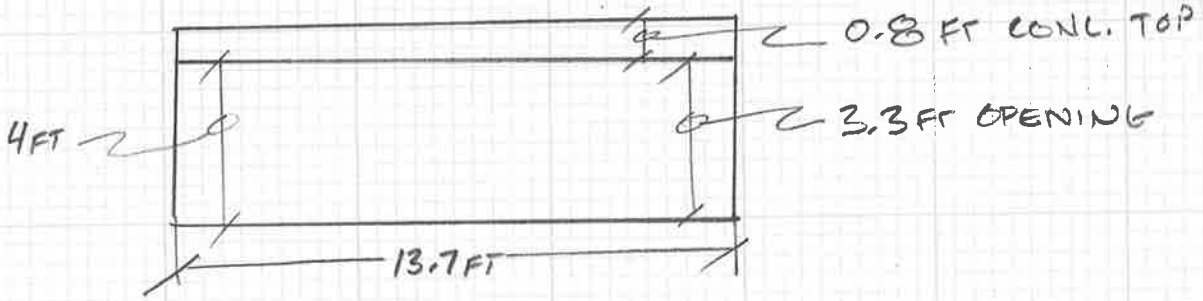
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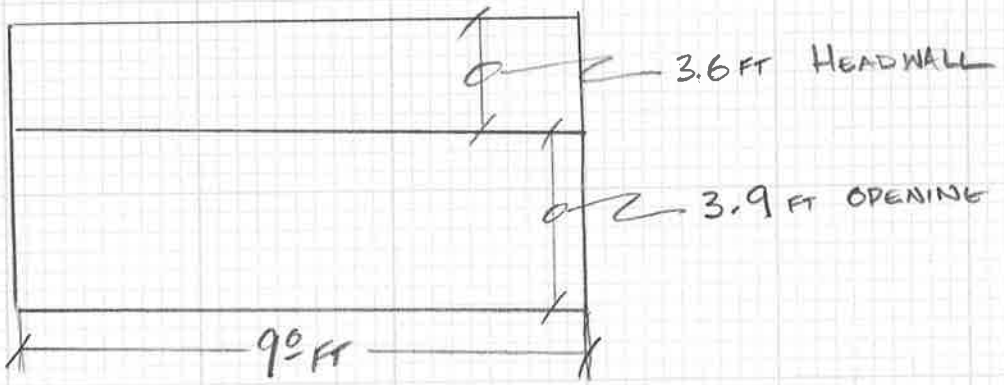
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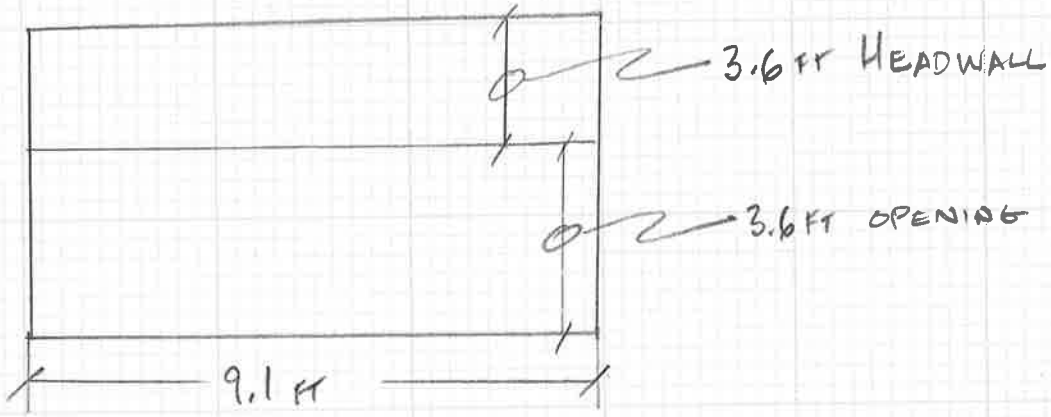
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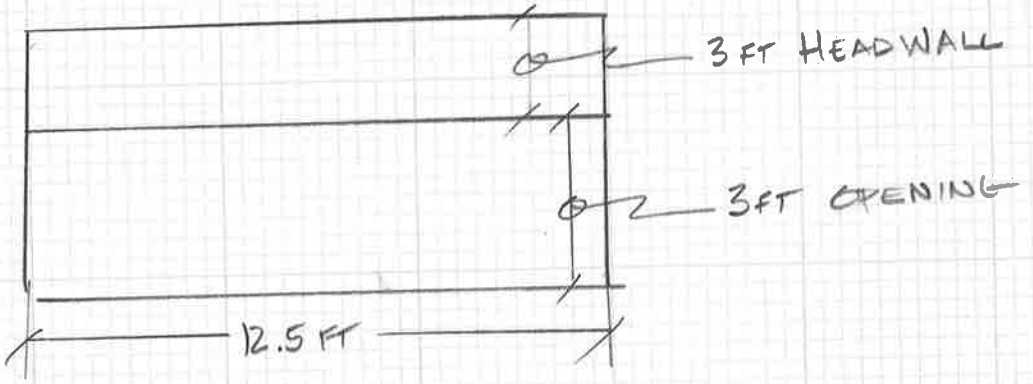
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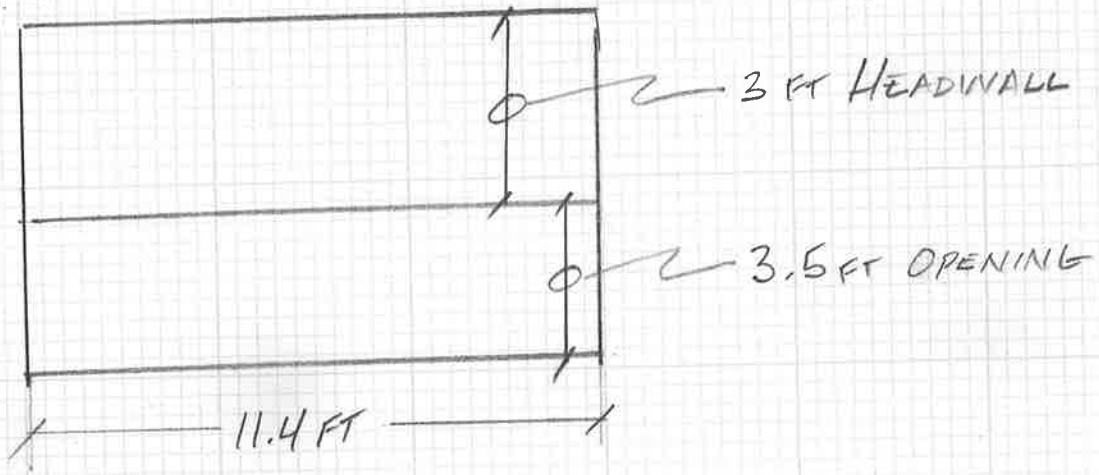
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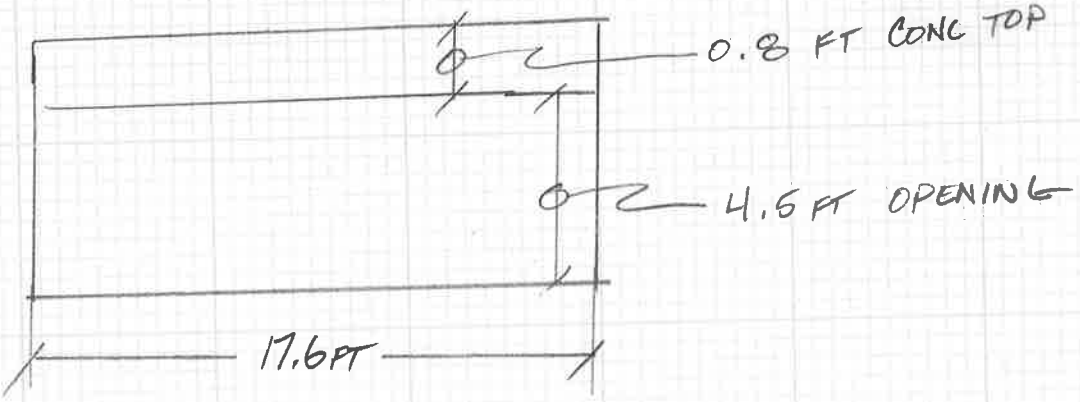
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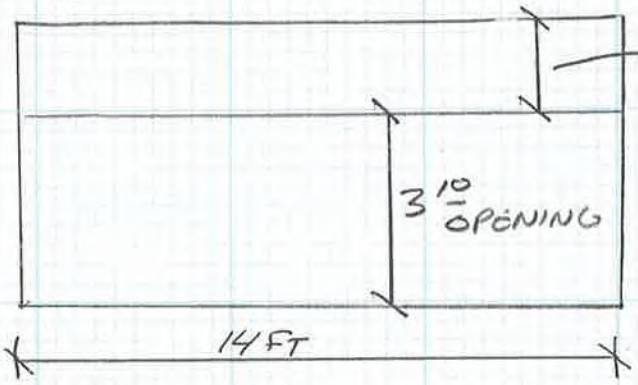
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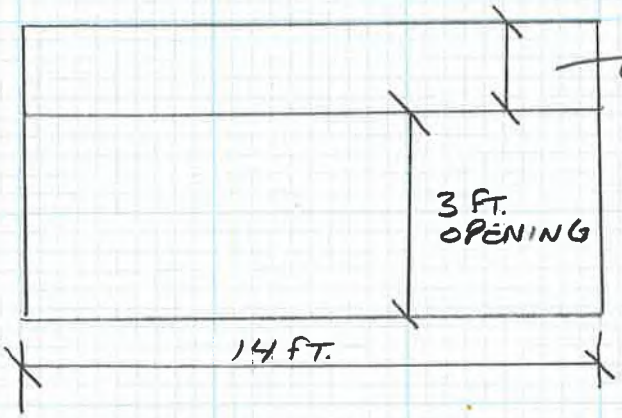
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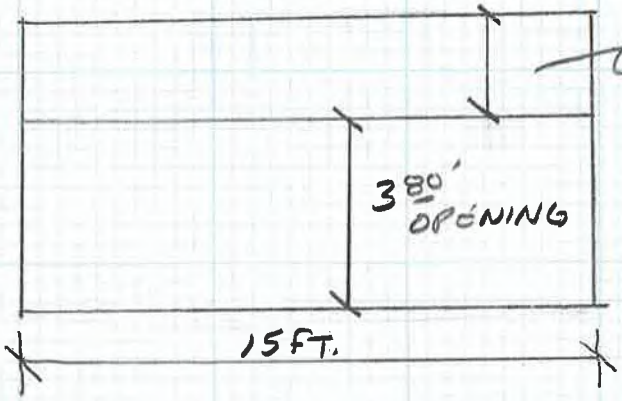
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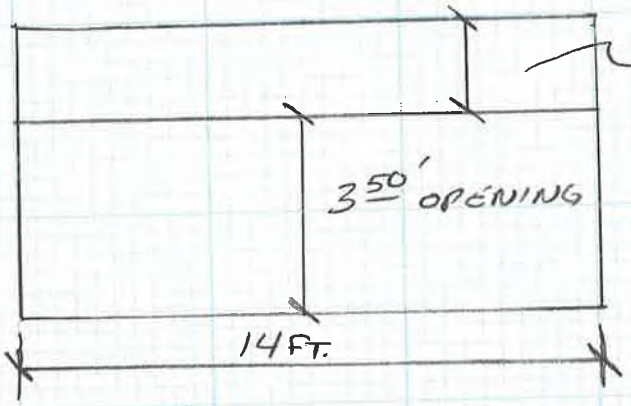
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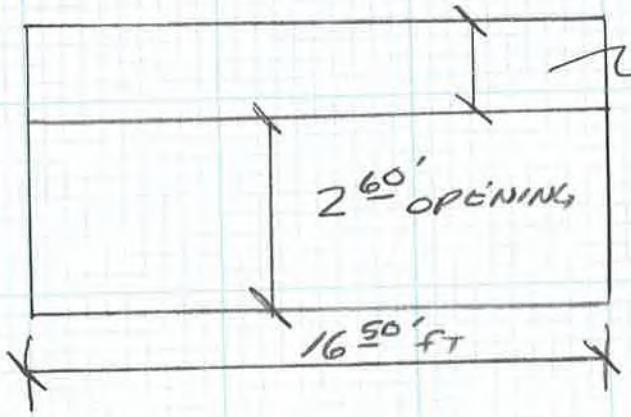
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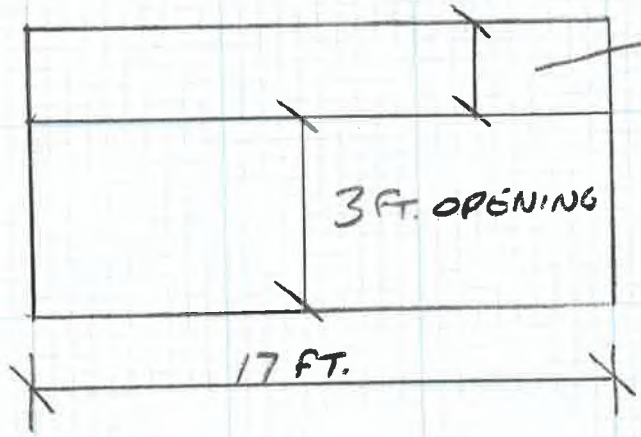
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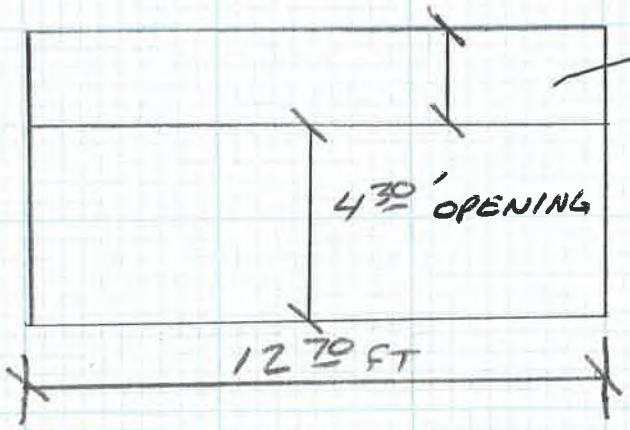
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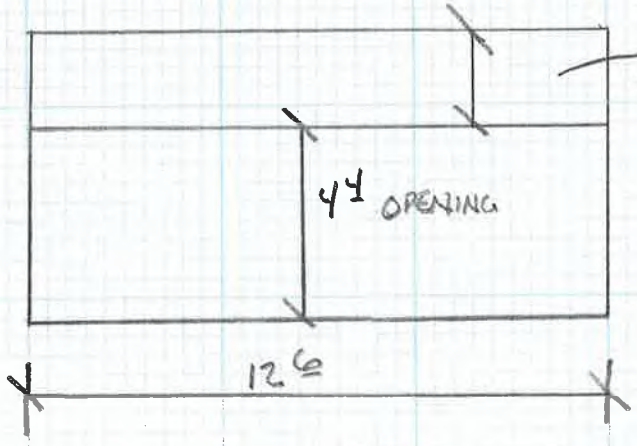
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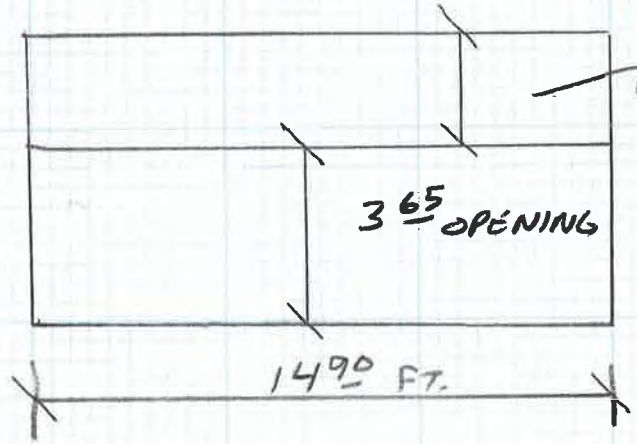


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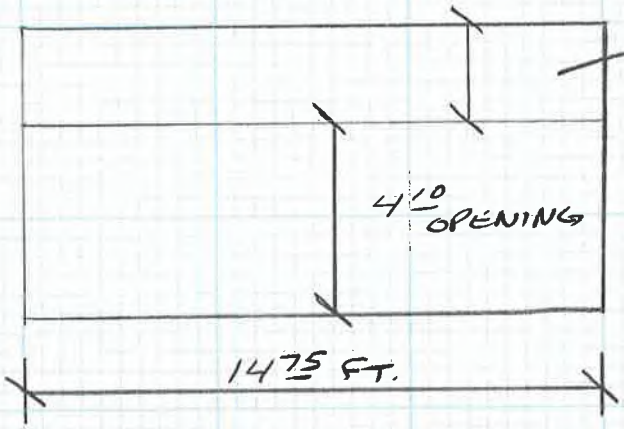
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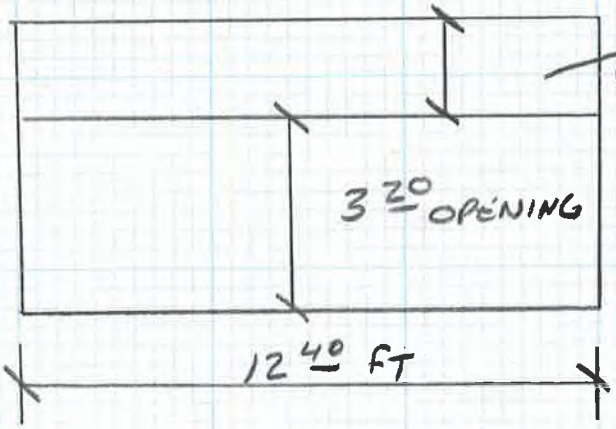
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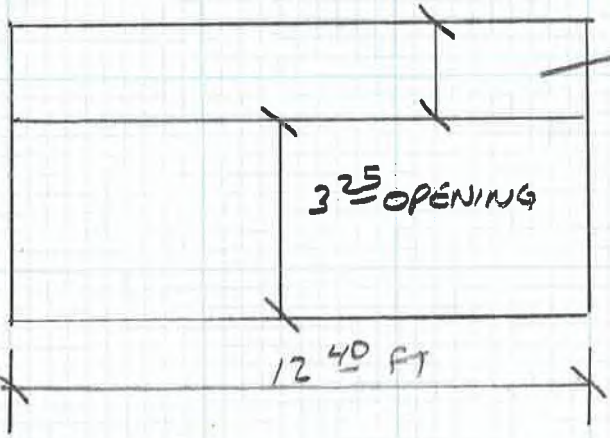
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1 55 HEADWALL

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1 60 HEADWALL

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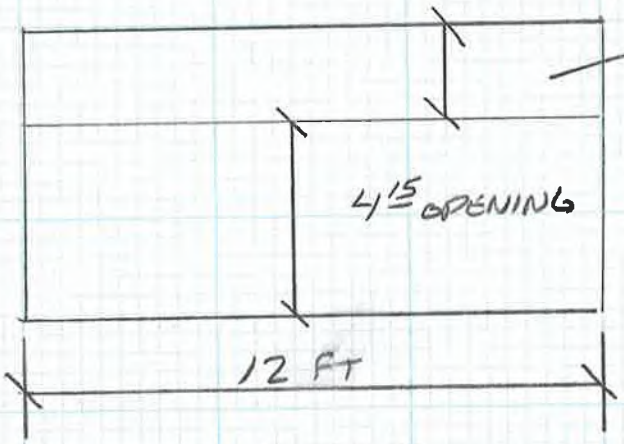
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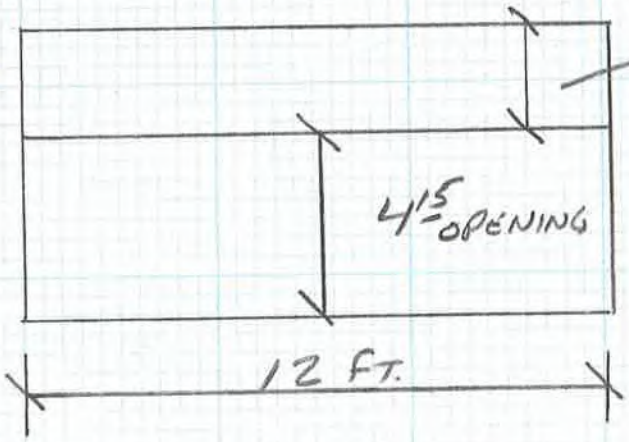
CHECKED BY _____ DATE _____

26



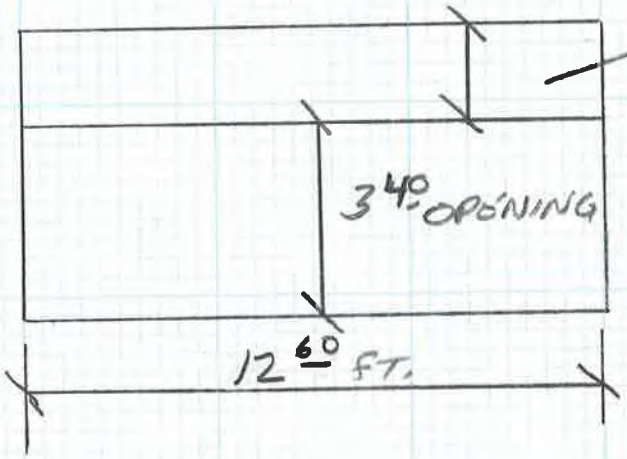
#60847

26A



#60850

27



#60876

DAVID EVANS AND ASSOCIATES INC.

JOB DESCRIPTION _____

CALCULATION FOR _____

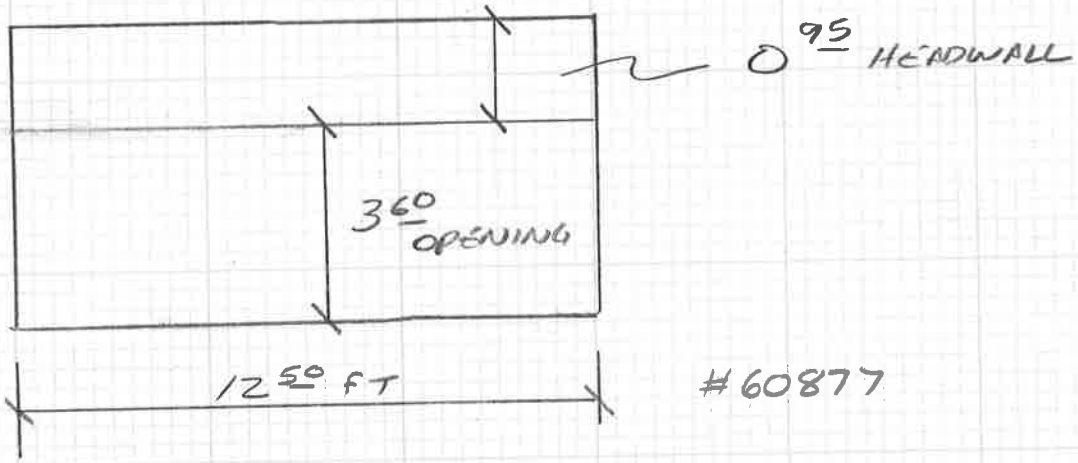
JN. _____

BY _____ DATE _____

SHEET _____ OF _____ SHEETS

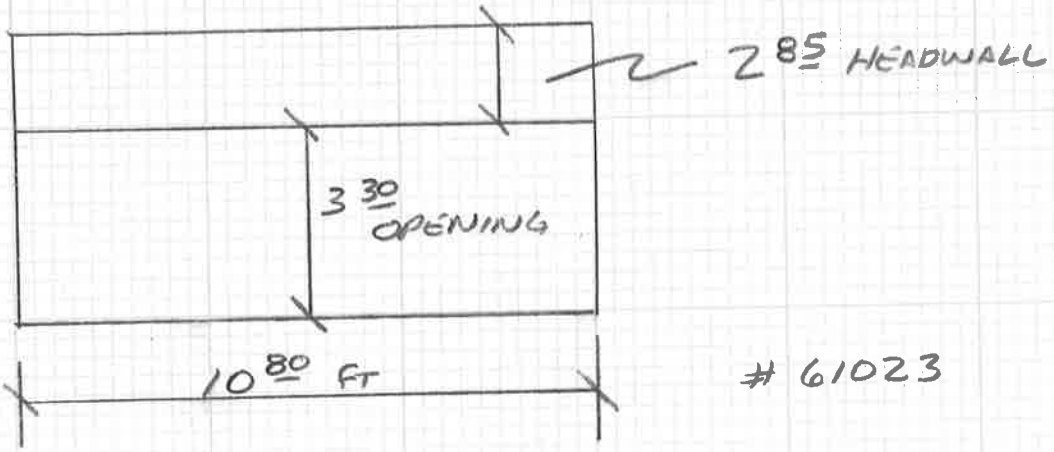
CHECKED BY _____ DATE _____

27A



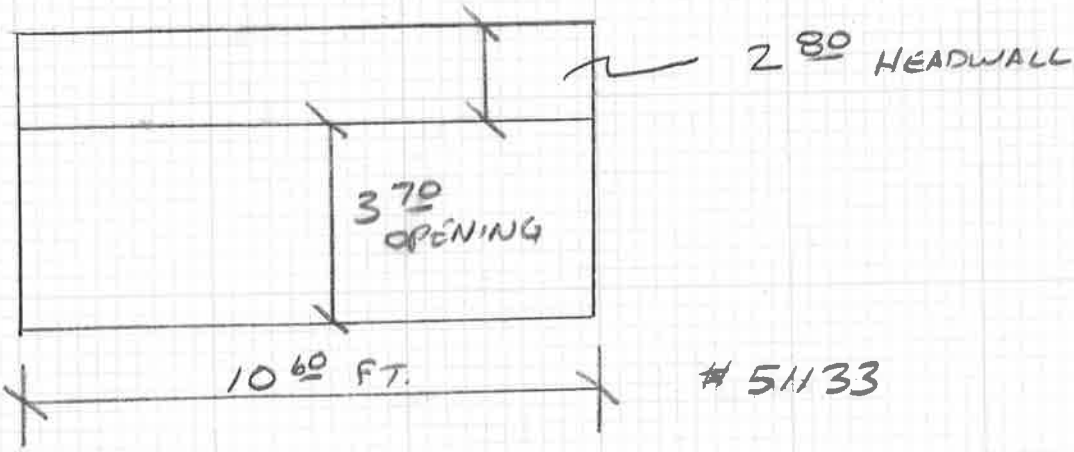
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28



#61023

28A



#51133

DAVID EVANS AND ASSOCIATES INC.

JOB DESCRIPTION _____

CALCULATION FOR _____

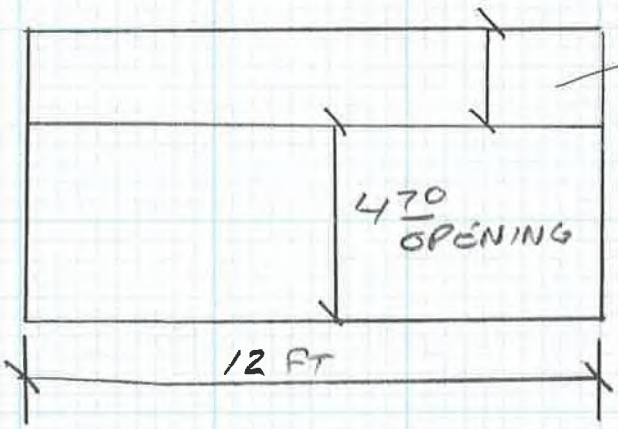
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BY _____ DATE _____

SHEET _____ OF _____ SHEETS

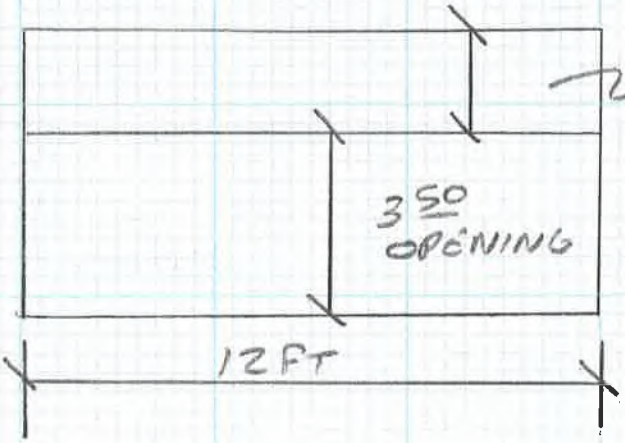
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29



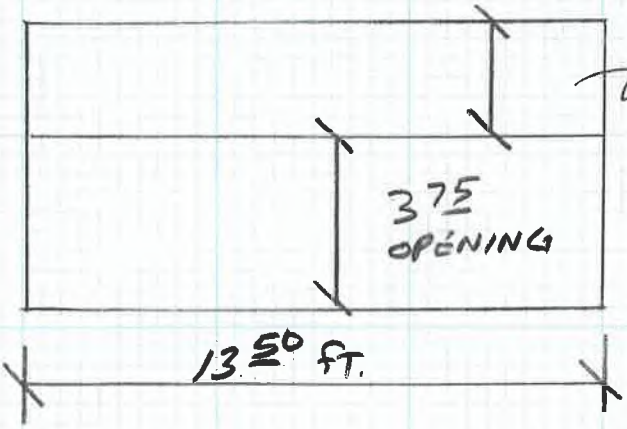
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29A



#5/220

30



#5/266

DAVID EVANS AND ASSOCIATES INC.

JOB DESCRIPTION _____

CALCULATION FOR _____

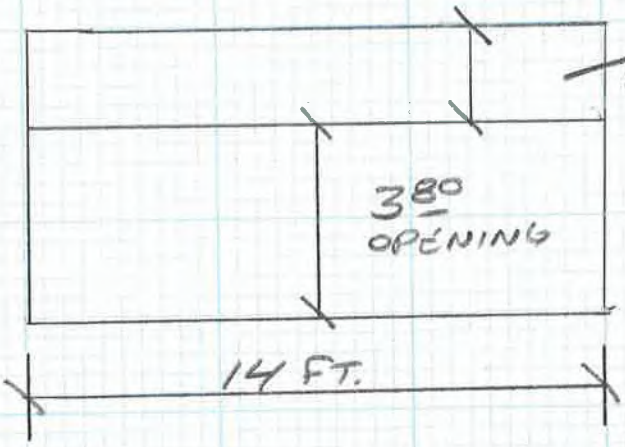
JN. _____

BY _____ DATE _____

SHEET _____ OF _____ SHEETS

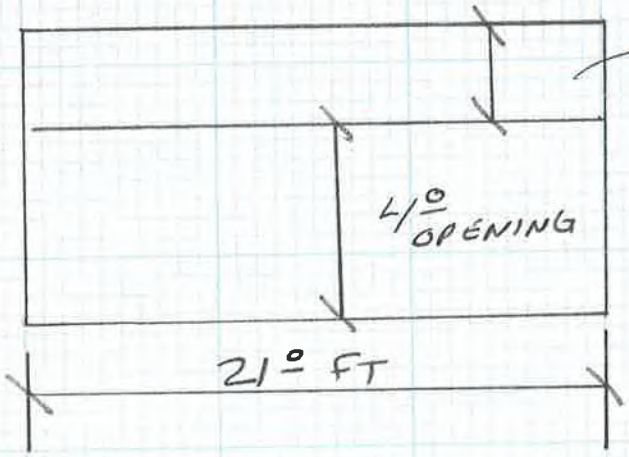
CHECKED BY _____ DATE _____

30A



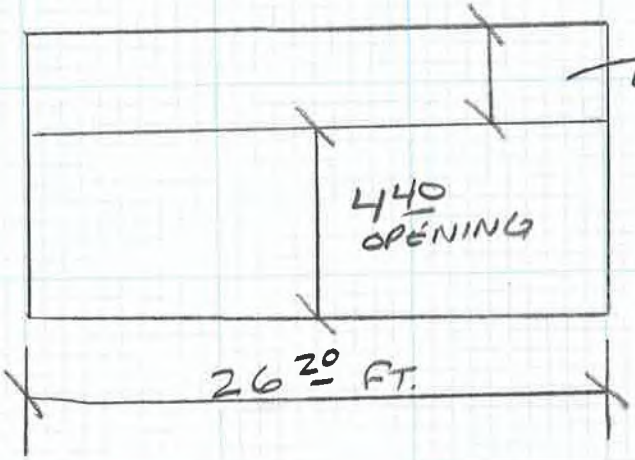
#51274

31



#51325

31A



#51327
UNDERNEATH DECK
MULTIPLE ANGLE
POINTS

DAVID EVANS AND ASSOCIATES INC.

JN. _____

BY _____ DATE _____

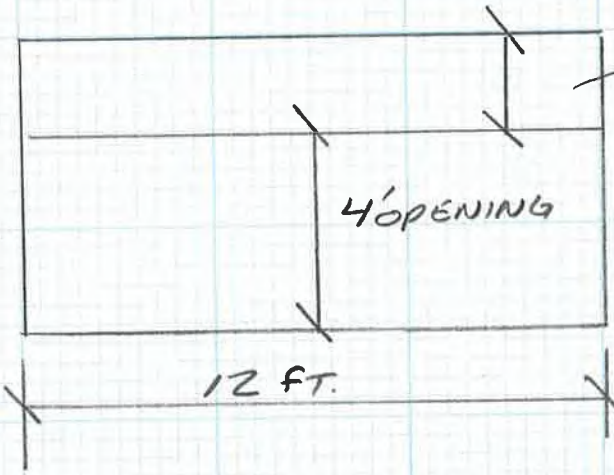
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CHECKED BY _____ DATE _____

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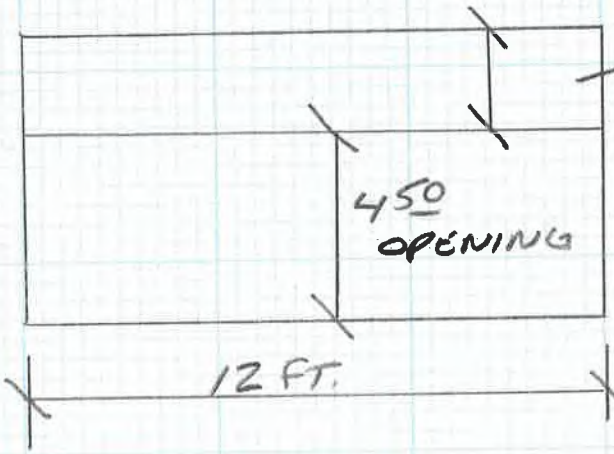
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32



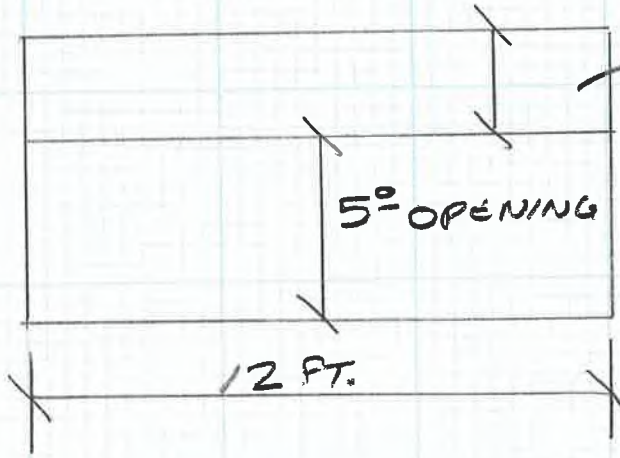
51420

32A



51421

33



51480

DAVID EVANS AND ASSOCIATES INC.

JOB DESCRIPTION _____

CALCULATION FOR _____

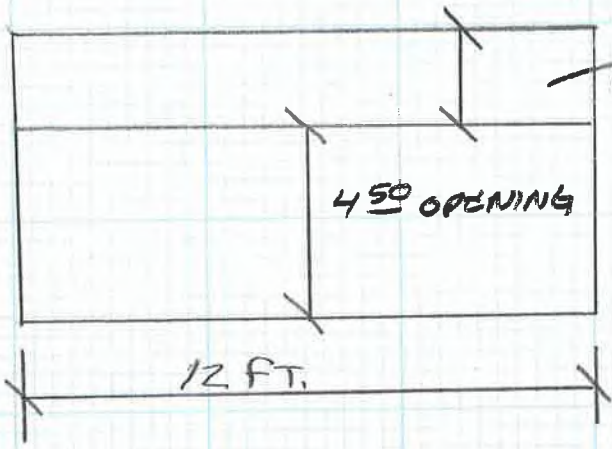
JN. _____

BY _____ DATE _____

SHEET _____ OF _____ SHEETS

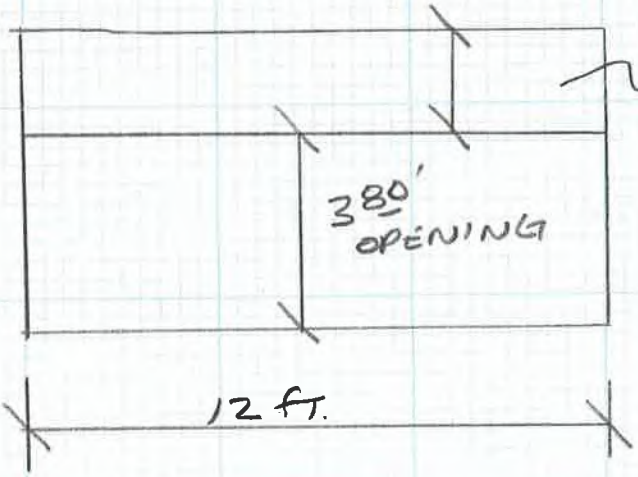
CHECKED BY _____ DATE _____

33A



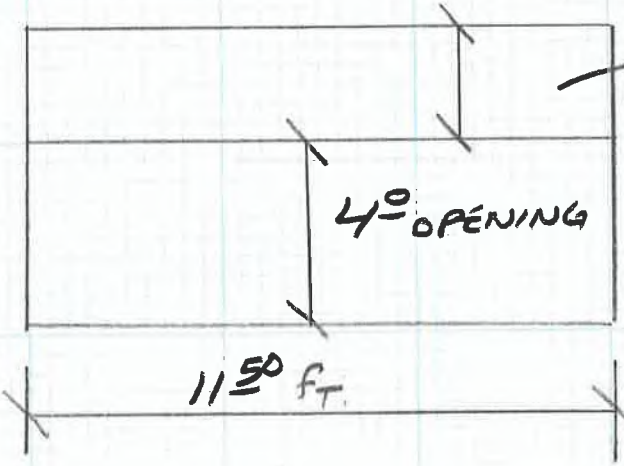
#51481

34



#51521

34A



#51522

DAVID EVANS AND ASSOCIATES INC.

JOB DESCRIPTION _____

CALCULATION FOR _____

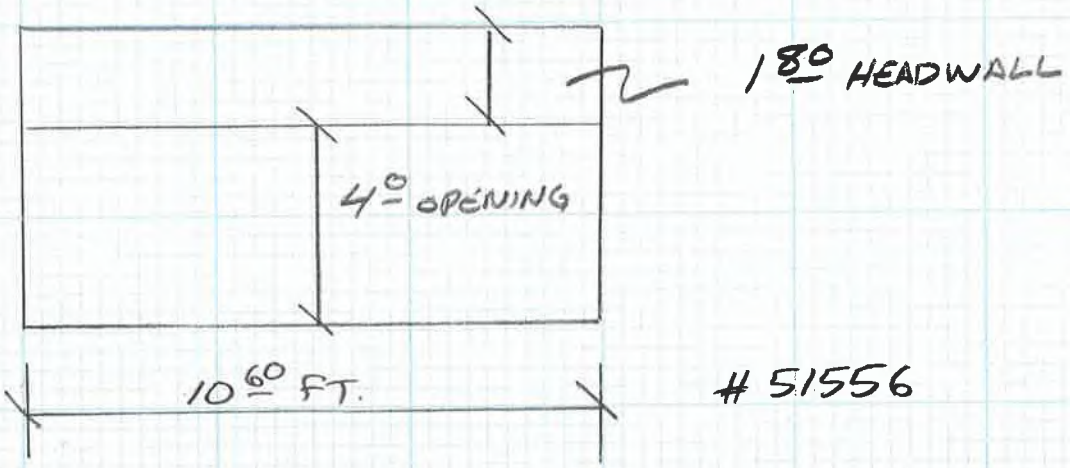
JN. _____

BY _____ DATE _____

SHEET _____ OF _____ SHEETS

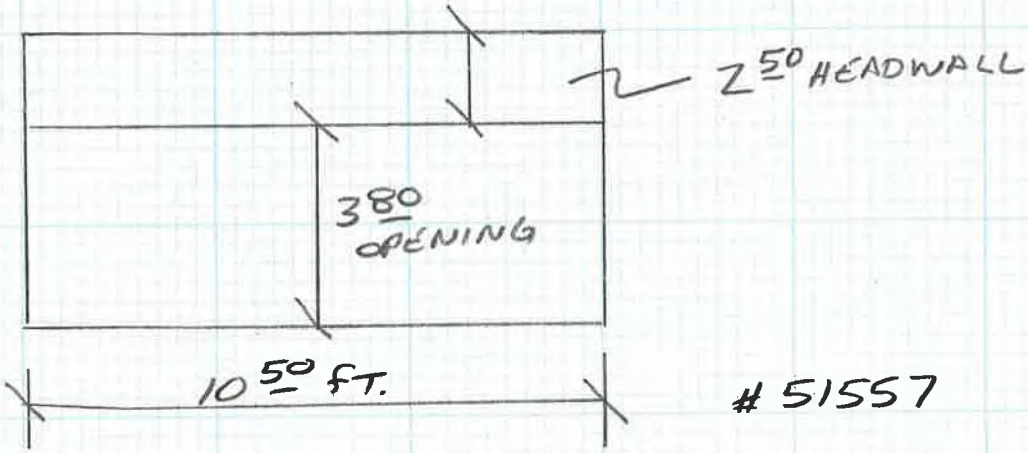
CHECKED BY _____ DATE _____

35



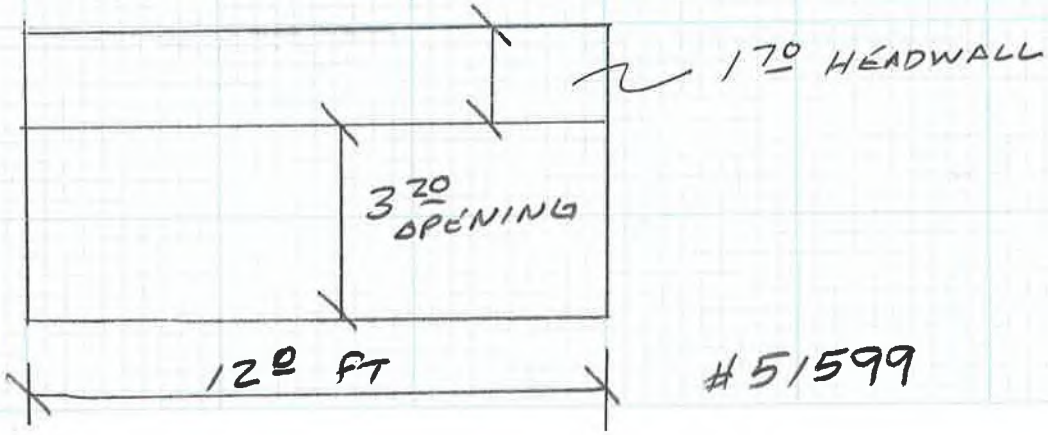
51556

35A



51557

36



51599

DAVID EVANS AND ASSOCIATES INC.

JN. _____

BY _____ DATE _____

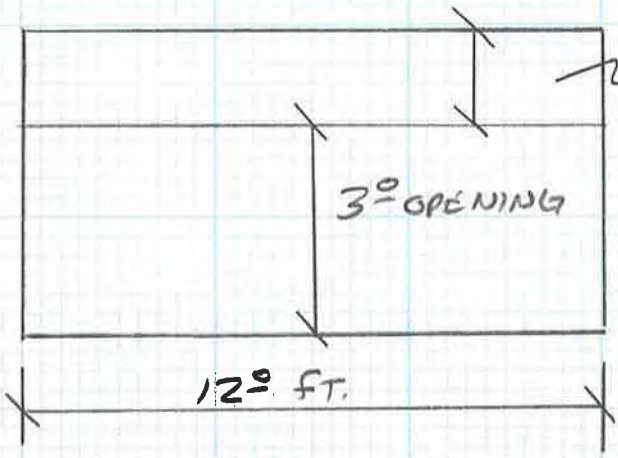
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CHECKED BY _____ DATE _____

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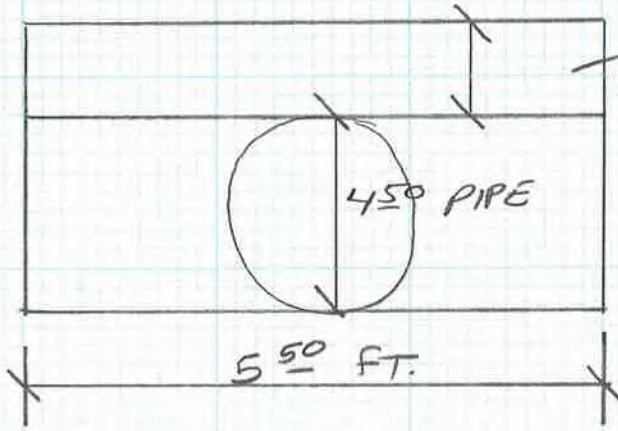
CALCULATION FOR _____

36A



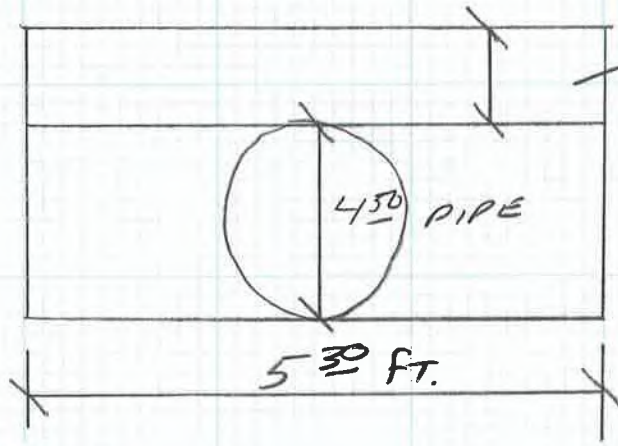
#51600

37



#61496

37A



#51686

DAVID EVANS AND ASSOCIATES INC.

JOB DESCRIPTION _____

CALCULATION FOR _____

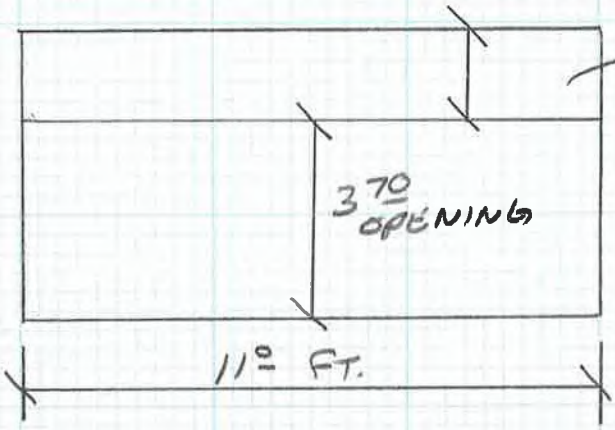
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BY _____ DATE _____

SHEET _____ OF _____ SHEETS

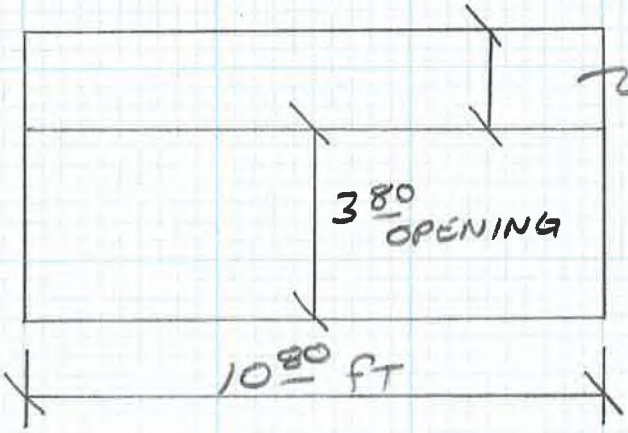
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38



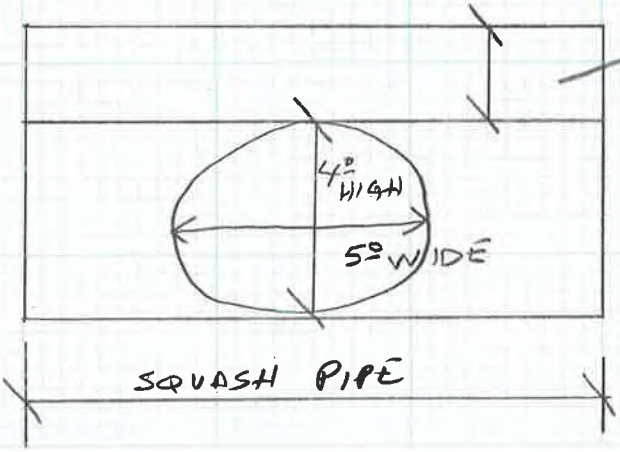
#51889

38A



#51893

39



#51952

DAVID EVANS AND ASSOCIATES INC.

JN. _____

BY _____ DATE _____

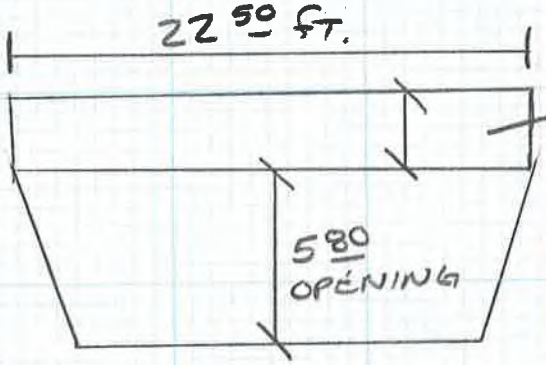
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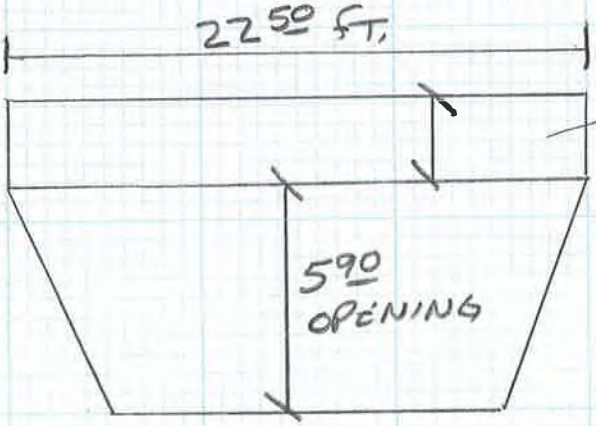
CALCULATION FOR _____

40



52111

40A



52112

DAVID EVANS AND ASSOCIATES INC.

JN. _____

BY _____ DATE _____

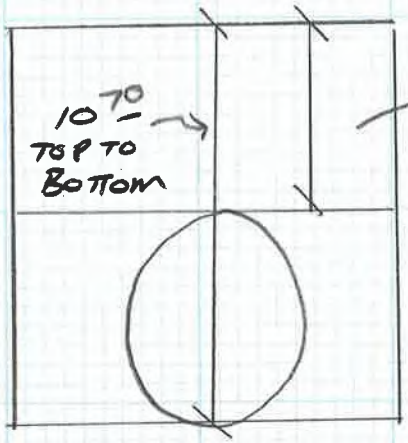
SHEET _____ OF _____ SHEETS

CHECKED BY _____ DATE _____

JOB DESCRIPTION _____

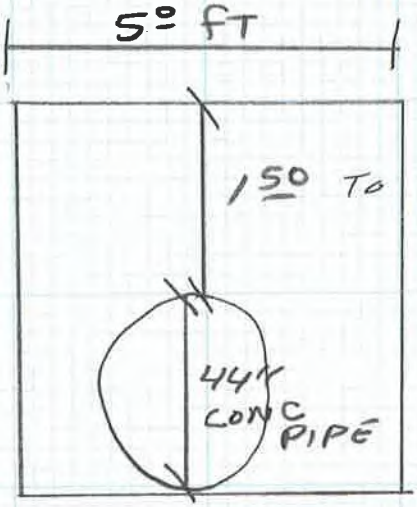
CALCULATION FOR _____

41



52253

41A



52260

DAVID EVANS AND ASSOCIATES INC.

JOB DESCRIPTION _____

CALCULATION FOR _____

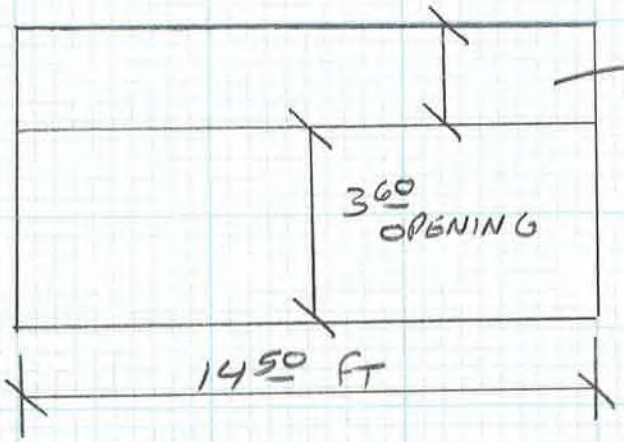
JN. _____

BY _____ DATE _____

SHEET _____ OF _____ SHEETS

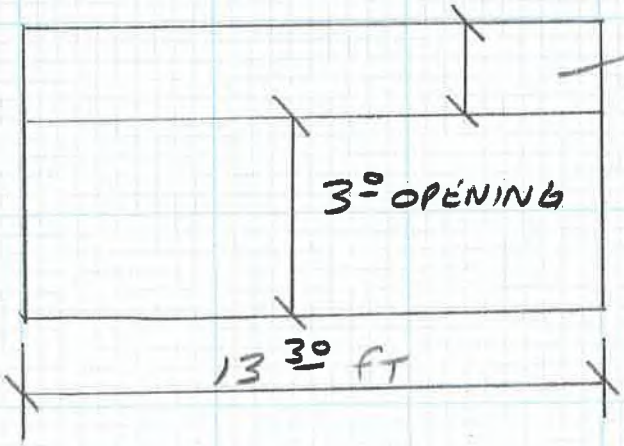
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42



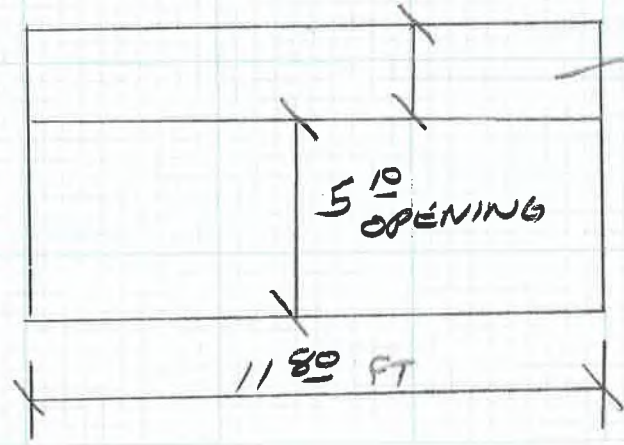
#52523

42A



#52525

43



52497

DAVID EVANS AND ASSOCIATES INC.

JOB DESCRIPTION _____

CALCULATION FOR _____

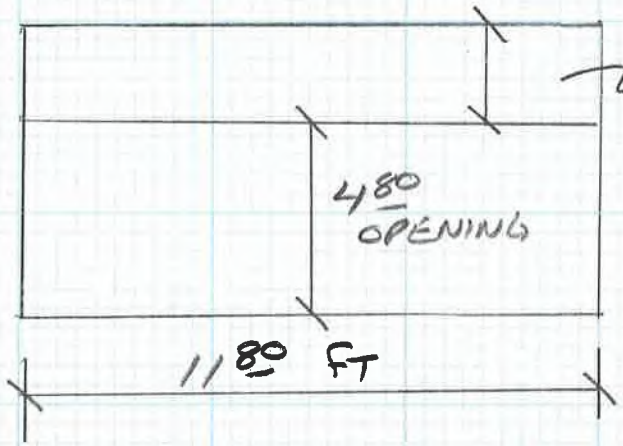
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BY _____ DATE _____

SHEET _____ OF _____ SHEETS

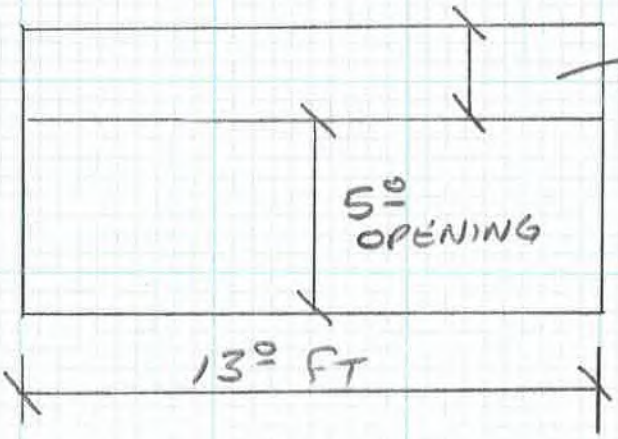
CHECKED BY _____ DATE _____

43A



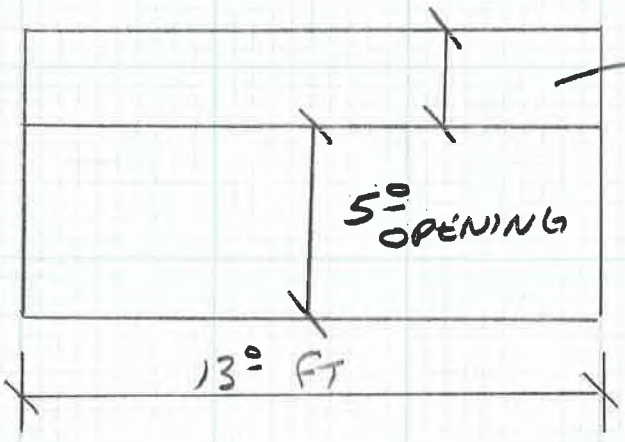
#52500

44



#52365

44A



#52366

DAVID EVANS AND ASSOCIATES INC.

JOB DESCRIPTION _____

CALCULATION FOR _____

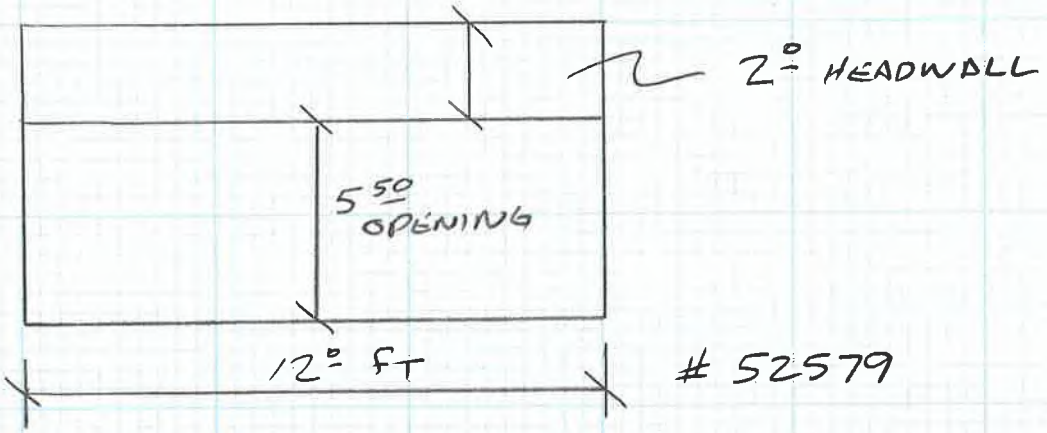
JN. _____

BY _____ DATE _____

SHEET _____ OF _____ SHEETS

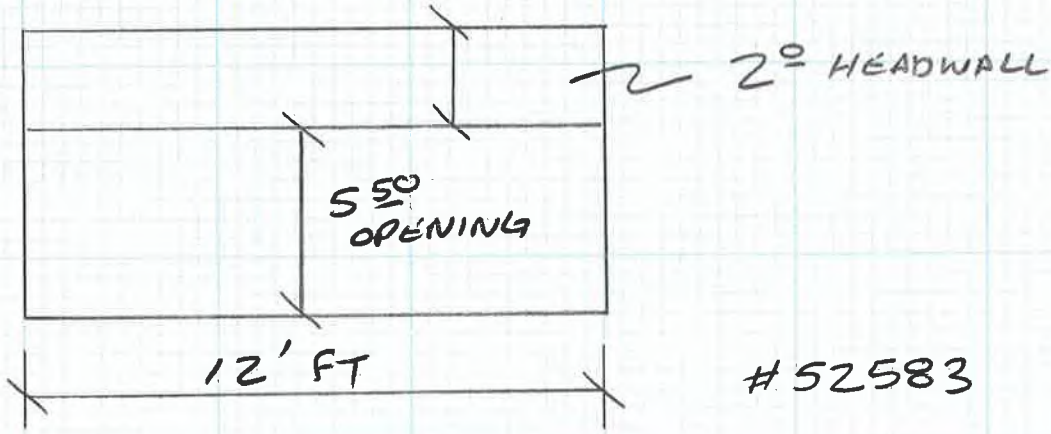
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45



52579

45A



52583

DAVID EVANS AND ASSOCIATES INC.

JN. _____

BY _____ DATE _____

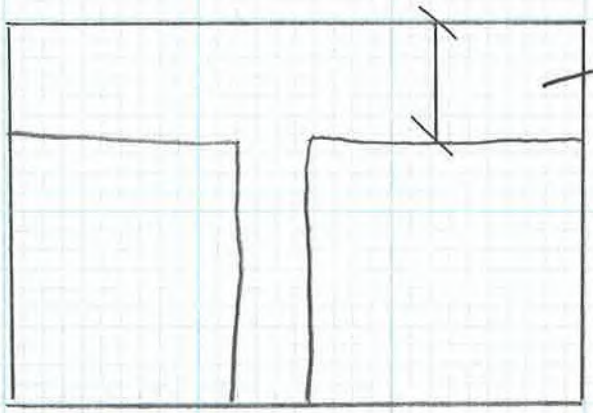
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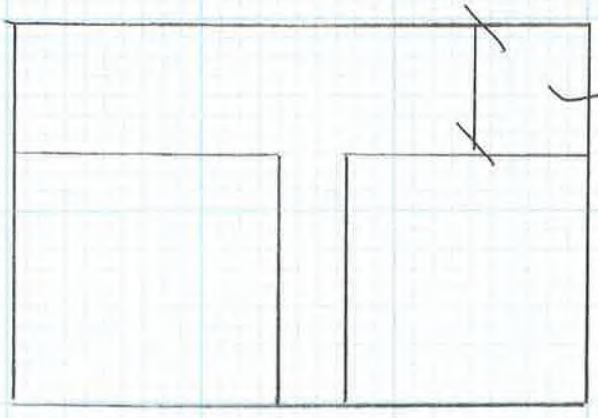
CHECKED BY _____ DATE _____

46



52750

46A



52755

DAVID EVANS AND ASSOCIATES INC.

JOB DESCRIPTION _____

CALCULATION FOR _____

JN. _____

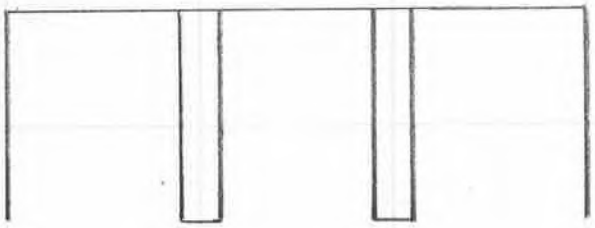
BY _____ DATE _____

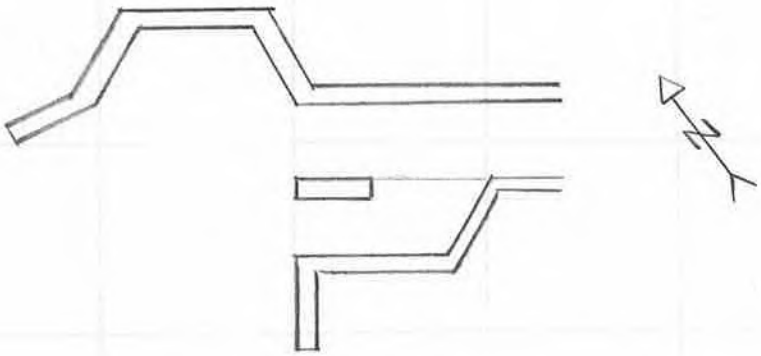
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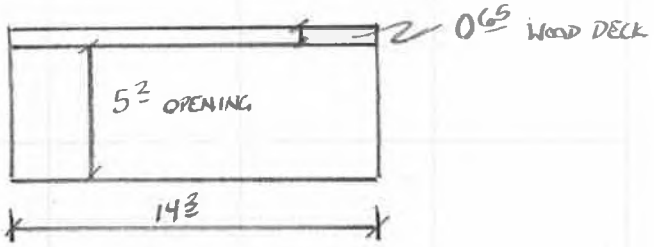
HEAD GATE @ RIVER

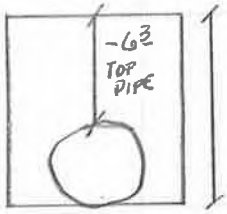
(47)





(48)





46496 (SHOT TOP OF WOOD DECK TO GIVE APPROX. LOCATION)

DAVID EVANS AND ASSOCIATES INC.

JN. _____

BY _____ DATE _____

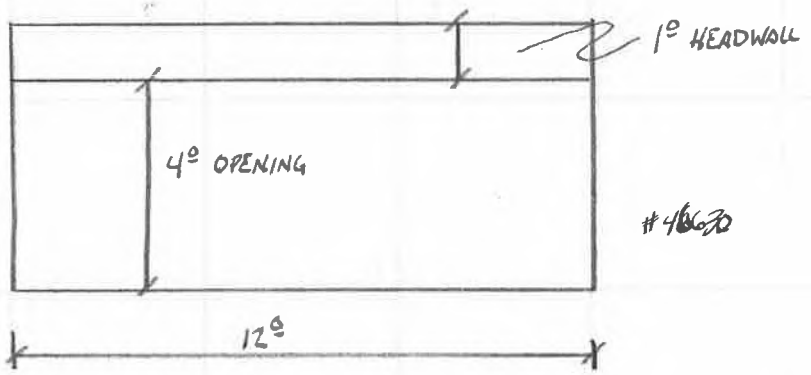
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CHECKED BY _____ DATE _____

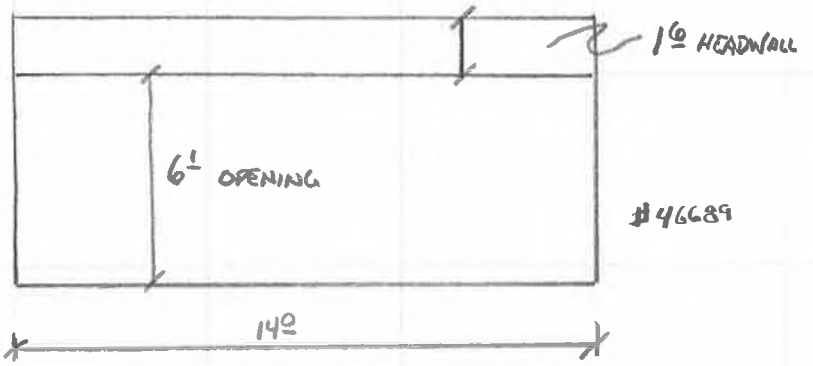
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CALCULATION FOR _____

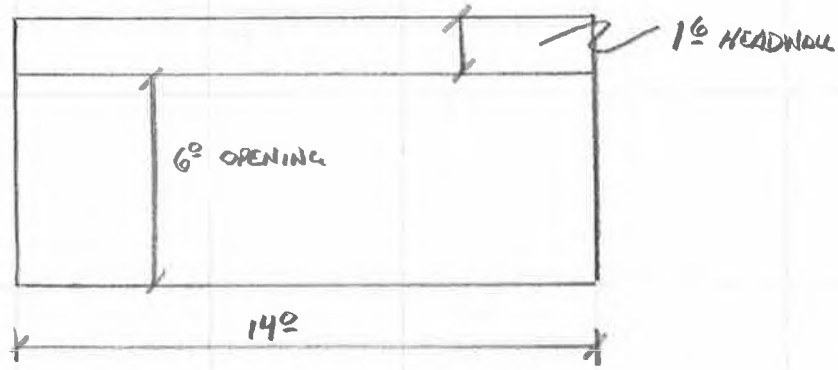
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(49)



(49A)



DAVID EVANS AND ASSOCIATES INC.

JN. _____

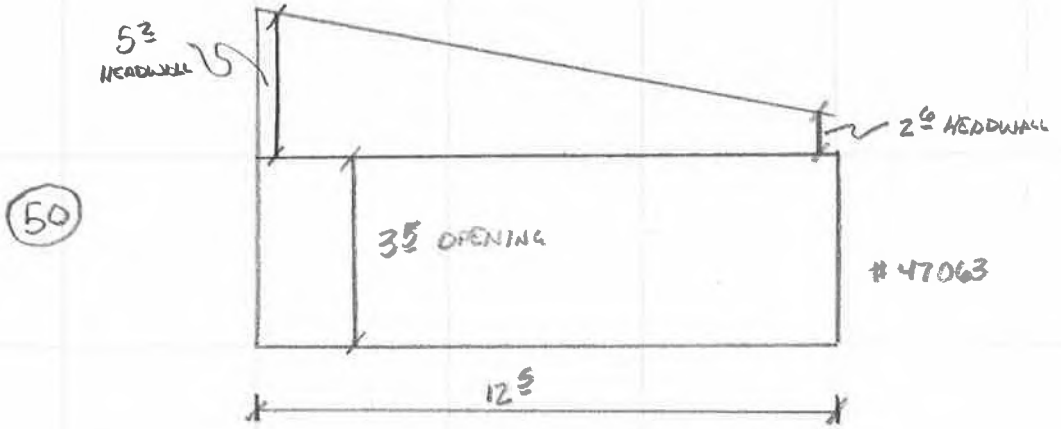
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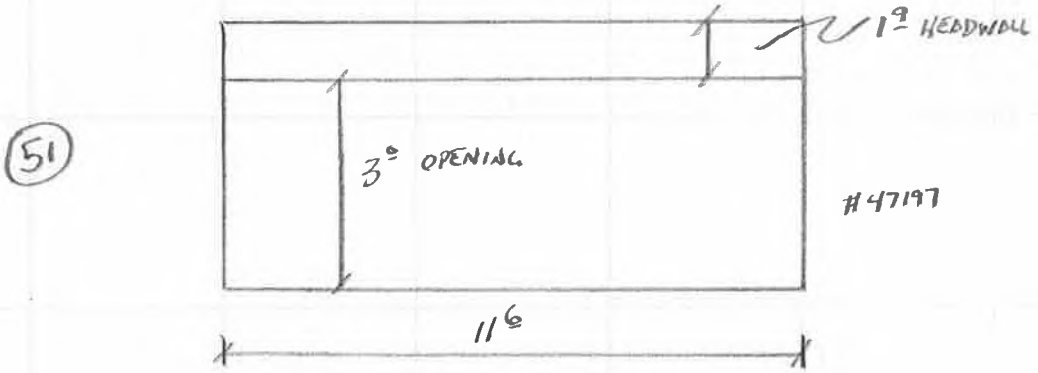
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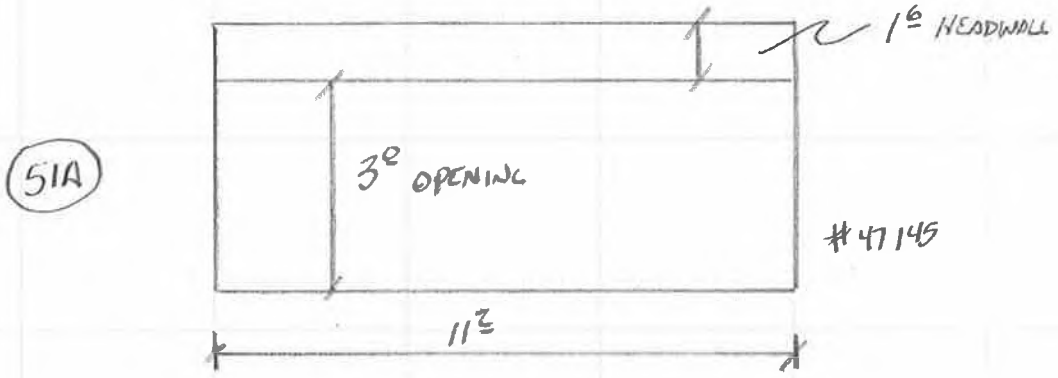
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JOB DESCRIPTION _____

CALCULATION FOR _____







DAVID EVANS AND ASSOCIATES INC.

JOB DESCRIPTION _____

CALCULATION FOR _____

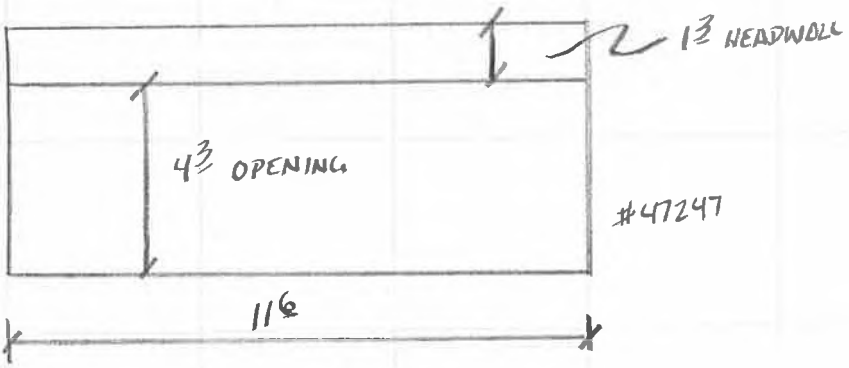
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BY _____ DATE _____

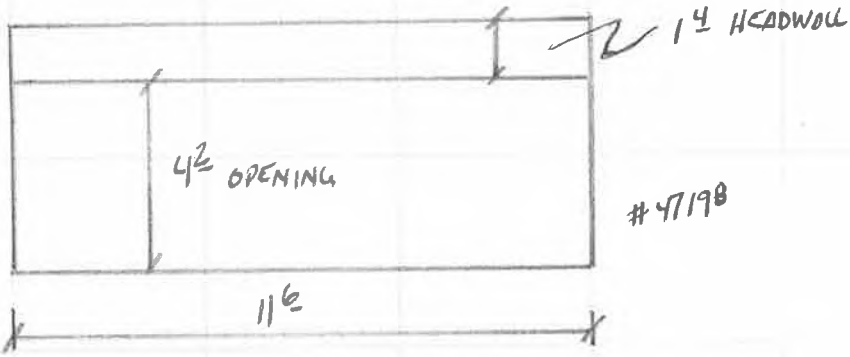
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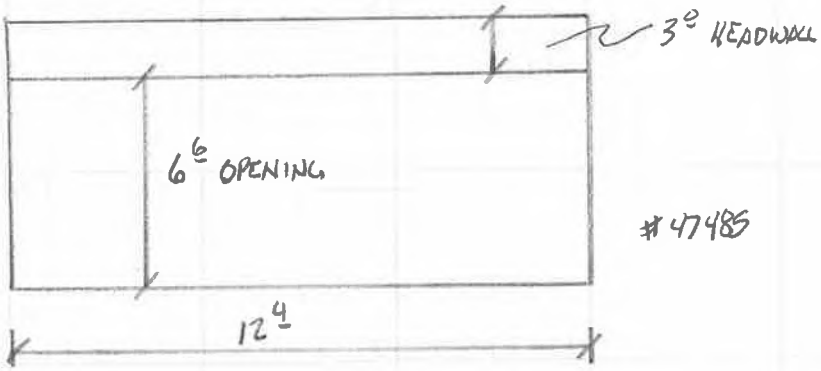
S2



S2A



S3



DAVID EVANS AND ASSOCIATES INC.

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CALCULATION FOR _____

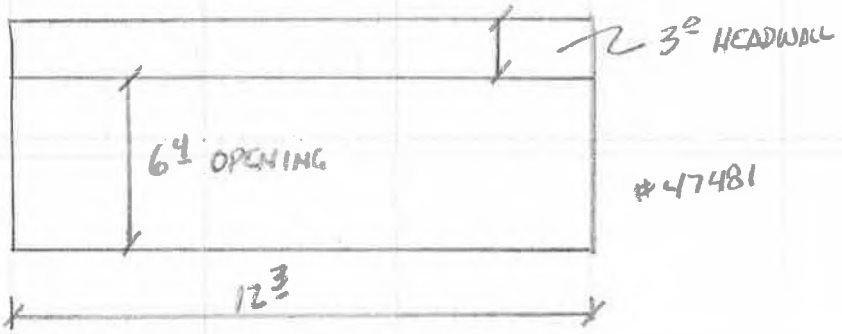
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BY _____ DATE _____

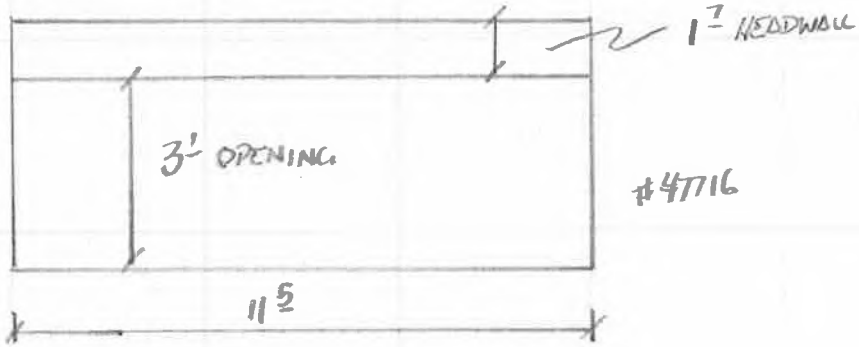
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CHECKED BY _____ DATE _____

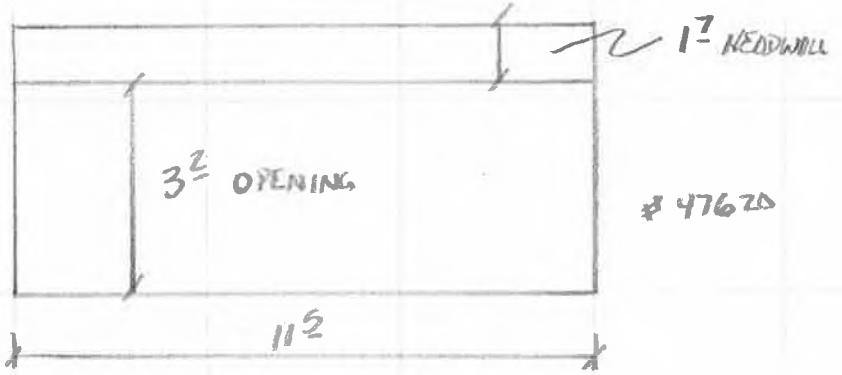
53A



54



54A



DAVID EVANS AND ASSOCIATES INC.

JN. _____

BY _____ DATE _____

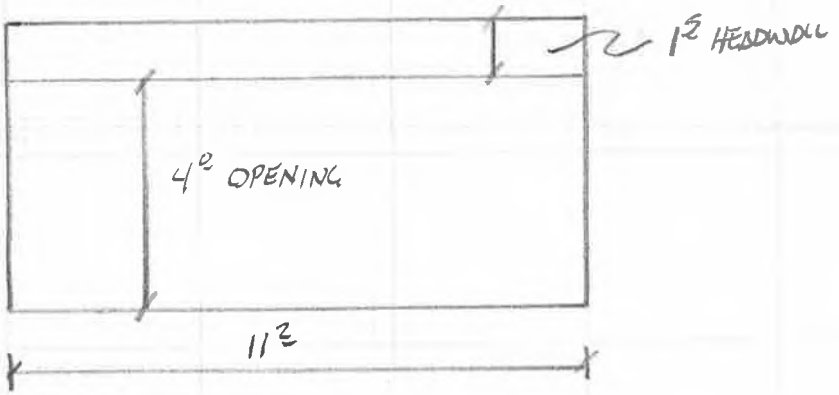
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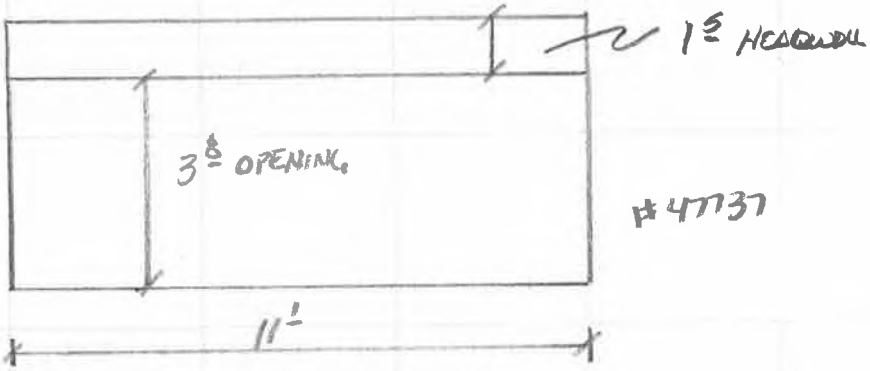
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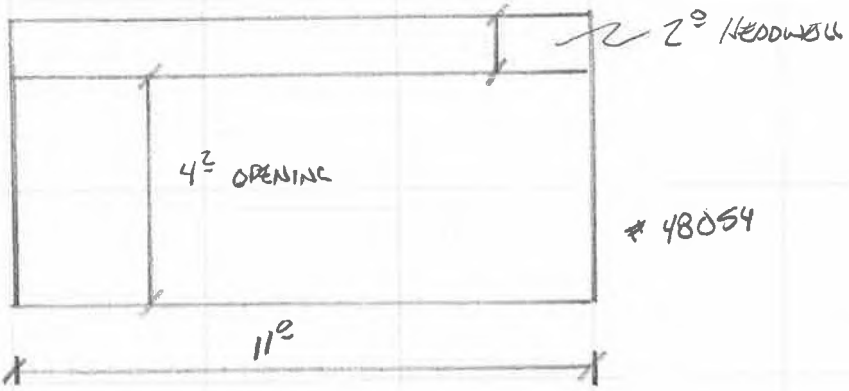


55A



47737

56



48054

DAVID EVANS AND ASSOCIATES INC.

JN. _____

BY _____ DATE _____

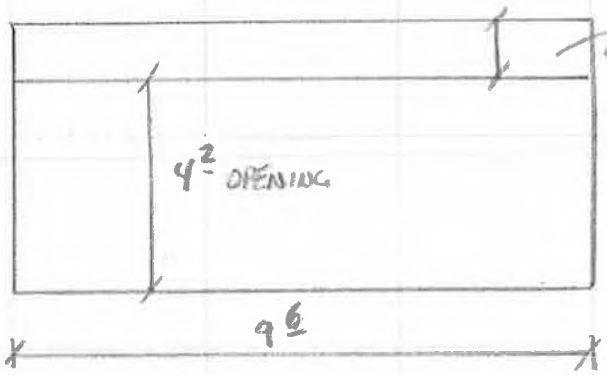
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JOB DESCRIPTION _____

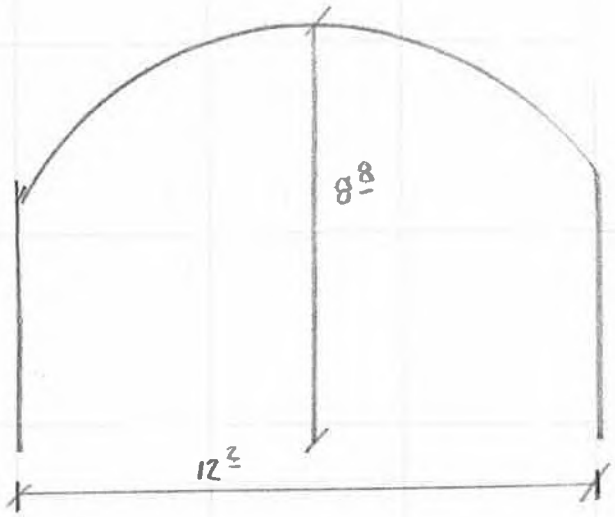
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56A



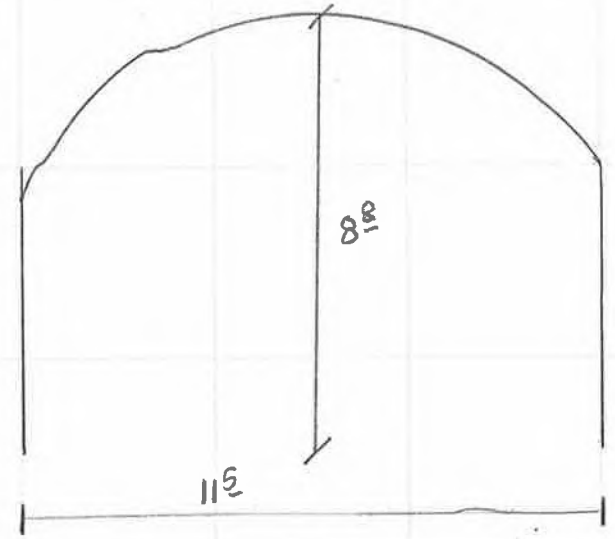
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57



#48191

57A



#48048

DAVID EVANS AND ASSOCIATES INC.

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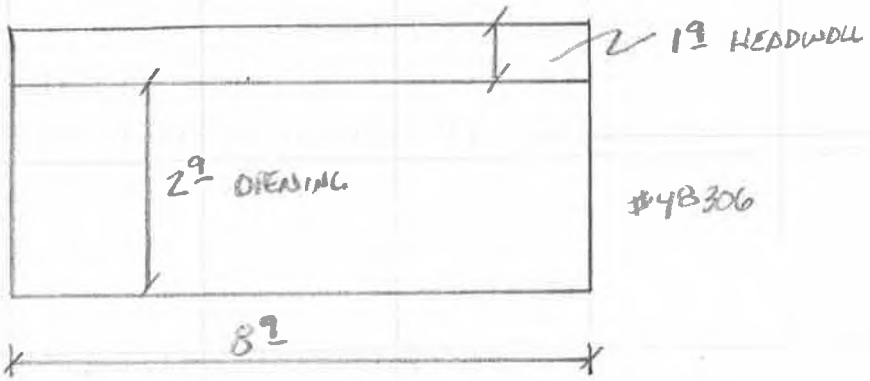
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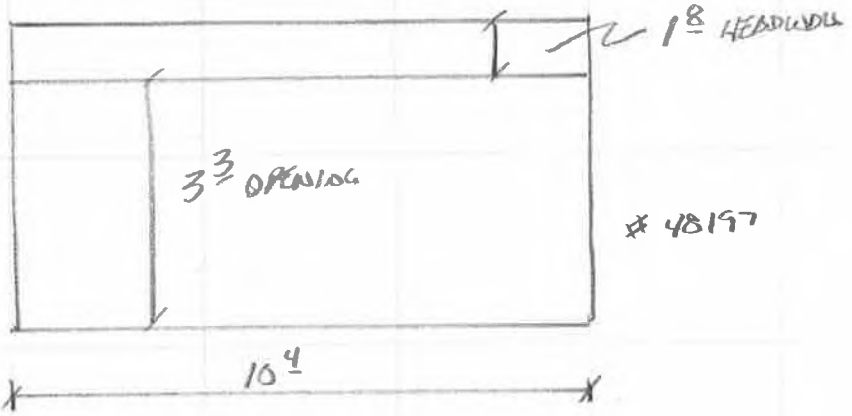
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CHECKED BY _____ DATE _____

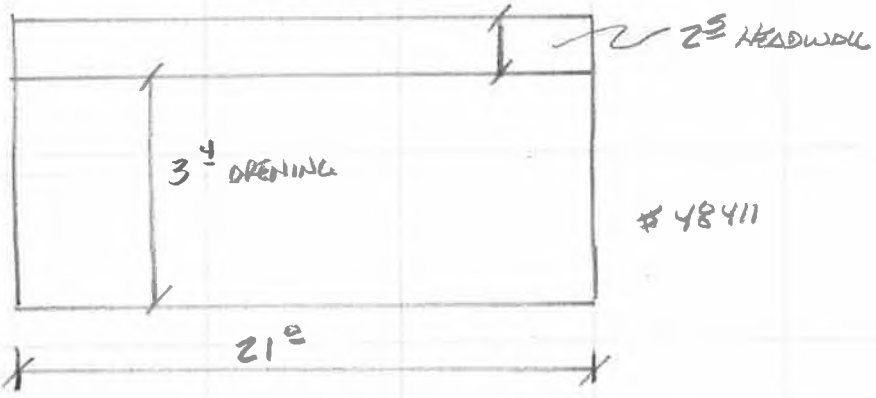
58



58A



59



DAVID EVANS AND ASSOCIATES INC.

JN. _____

BY _____ DATE _____

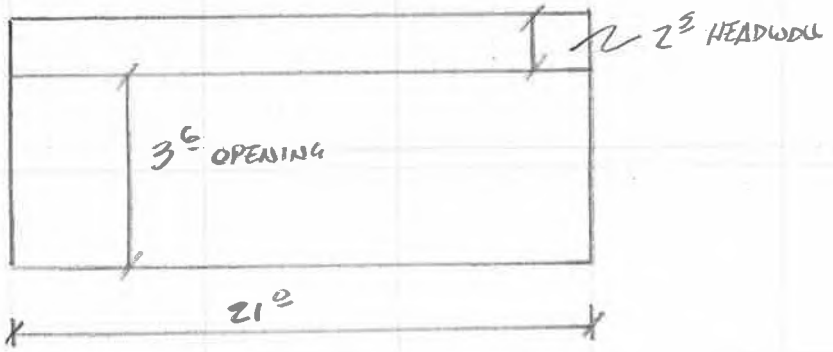
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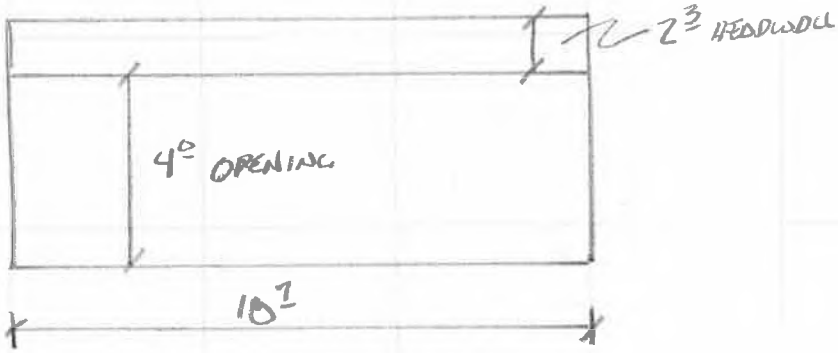
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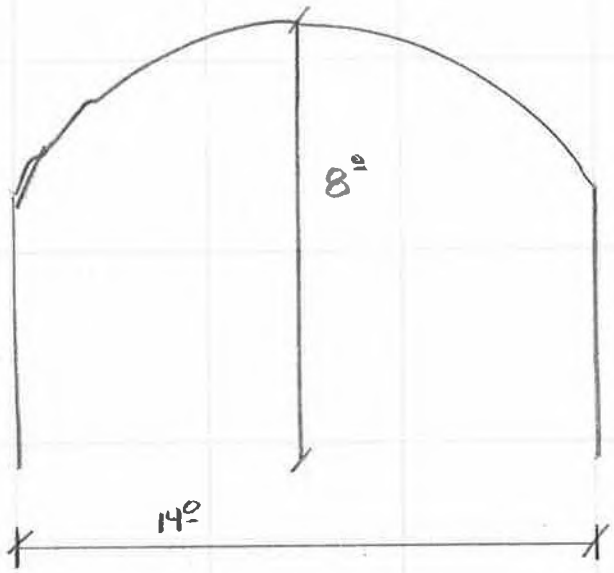
(59A)



(60)



(61)



Hydraulic Irrigation Ditch Sections

- Section 1 - XS 31140 to XS 28666
- Section 2 - XS 28666 to XS 27708
- Section 3 - XS 27708 to XS 27113
- Section 4 - XS 27113 to XS 27028
- Section 5 - XS 27028 to XS 21620
- Section 6 - XS 21620 to XS 19644
- Section 7 - XS 19644 to XS 16739
- Section 8 - XS 16739 to XS 13601
- Section 9 - XS 13601 to XS 12336
- Section 10 - XS 12336 to XS 9395
- Section 11 - XS 9395 to XS 9271
- Section 12 - XS 9271 to XS 8451
- Section 13 - XS 8451 to XS 7460
- Section 14 - XS 7460 to XS 6839
- Section 15 - XS 6839 to XS 6595
- Section 16 - XS 6595 to XS 5582
- Section 17 - XS 5582 to XS 3631
- Section 18 - XS 3631 to XS 1851
- Section 19 - XS 1851 to XS 1177
- Section 20 - XS 1177 to XS 32

Section 7
XS 19644 to XS 16739
Approximate Ditch Capacity = 100 cfs

Section 8
XS 16739 to XS 13601
Approximate Ditch Capacity = 120 cfs

Section 11
XS 9395 to XS 9271
Approximate Ditch Capacity = 90 cfs

Section 15
XS 6839 to XS 6595
Approximate Ditch Capacity = 80 cfs

Section 6
XS 21620 to XS 19644
Approximate Ditch Capacity = 105 cfs

Section 16
XS 6595 to XS 5582
Approximate Ditch Capacity = 105 cfs

Section 5
XS 27028 to XS 21620
Approximate Ditch Capacity = 100 cfs

Section 9
XS 13601 to XS 12336
Approximate Ditch Capacity = 130 cfs

Section 12
XS 9271 to XS 8451
Approximate Ditch Capacity = 115 cfs

Section 17
XS 5582 to XS 3631
Approximate Ditch Capacity = 80 cfs

Section 4
XS 27113 to XS 27028
Approximate Ditch Capacity = 80 cfs

Section 10
XS 12336 to XS 9395
Approximate Ditch Capacity = 110 cfs

Section 13
XS 8451 to XS 7460
Approximate Ditch Capacity = 90 cfs

Decreed Flow Breakout
XS 3718
Decreed Flow = 77 cfs
Approximate Ditch Capacity = 45 cfs

Section 3
XS 27708 to XS 27113
Approximate Ditch Capacity = 100 cfs

Section 14
XS 7460 to XS 6839
Approximate Ditch Capacity = 80 cfs

Section 18
XS 3631 to XS 1851
Approximate Ditch Capacity = 115 cfs

Section 1
XS 31140 to XS 28666
Approximate Ditch Capacity = 270 cfs

Section 19
XS 1851 to XS 1177
Approximate Ditch Capacity = 165 cfs

Section 20
XS 1177 to XS 32
Approximate Ditch Capacity = 145 cfs

Section 2
XS 28666 to XS 27708
Approximate Ditch Capacity = 125 cfs

N

0 400 800
Feet

1 in = 400 feet

Legend

- Subbasin Boundary
- Roads
- Point Discharge Location
- Spill Gates and Overflow Weirs

Hydraulic Ditch Spill Gates and Overflow Weirs

Location	Type
Spanish House	Spill Gate
Sand Creek	Spill Gate
WPA	Overflow Weir
Abbey	Overflow Weir
Dozier	Spill Gate
Hampton Inn	Spill Gate

NOTES:

1. Capacities vary throughout the Ditch. As a result, the Ditch was divided into approximate capacity sections.
2. Cross-sections reference the 1D HEC-RAS model of the Ditch.
3. Ditch capacities were developed using a rating-curve of flow rates within the 1D HEC-RAS model.
4. No watershed flows were taken into account for the 1D HEC-RAS model. Refer to Figures C2 and C3 for 2D modeling results.

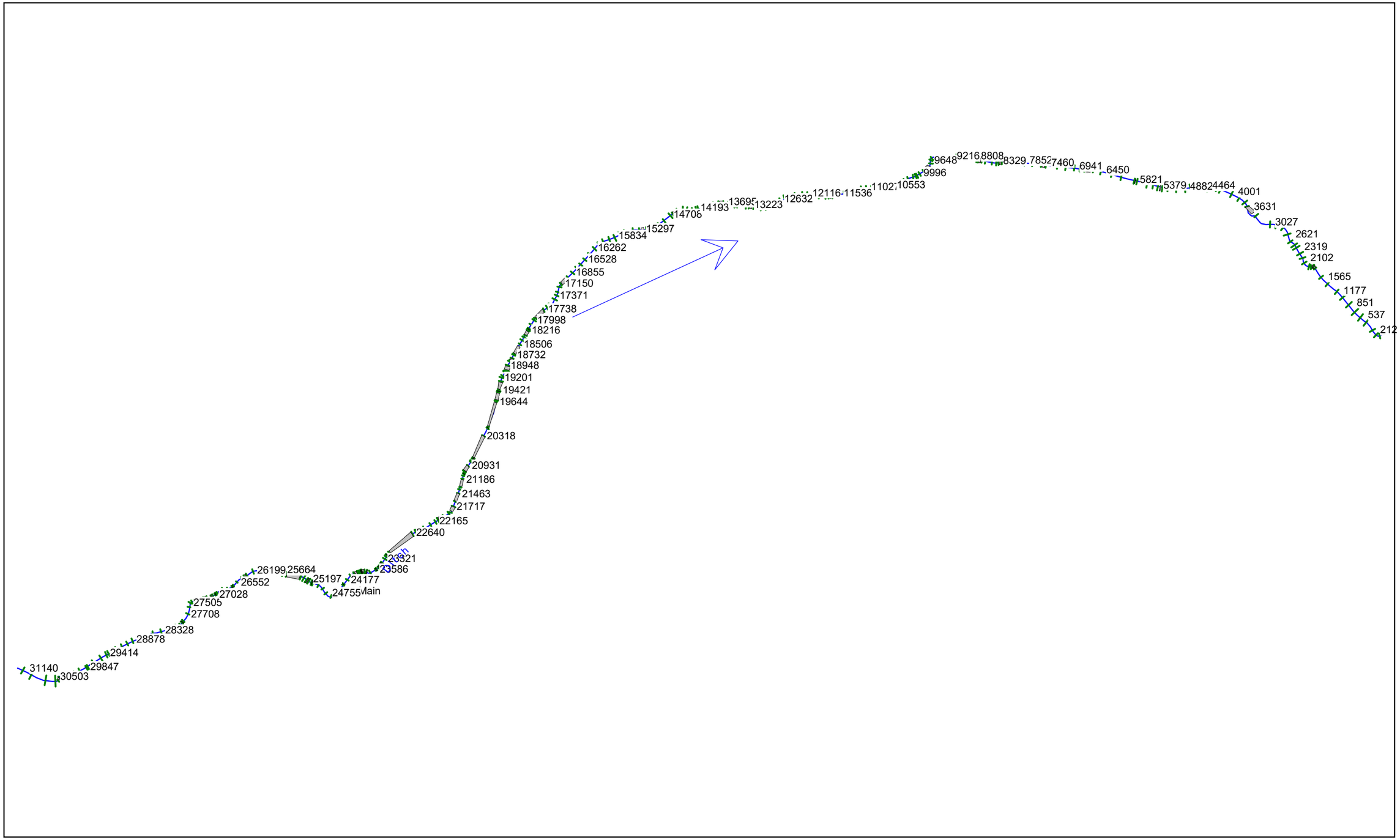
HYDRAULIC IRRIGATION DITCH

FIGURE C1: SUMMARY OF HYDRAULIC IRRIGATION DITCH CAPACITIES FROM 1D HEC-RAS MODELING

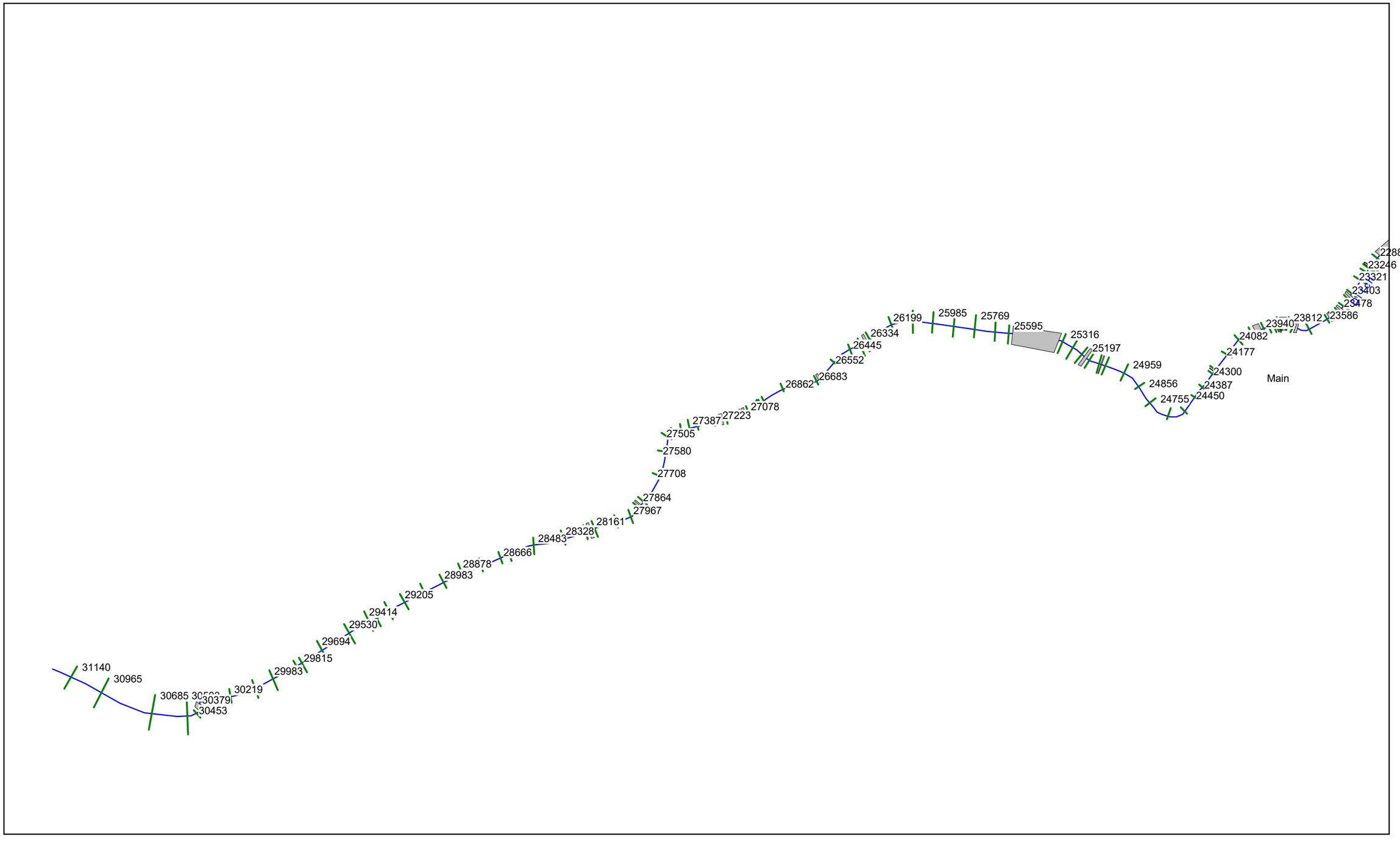
SNC·LAVALIN ATKINS Member of the SNC-Lavalin Group

NOTE: Figure C-1 as shown is not to scale. Figure has been reduced from its original size to fit within Report PDF. Original figure is included in the full size on the Data CD.

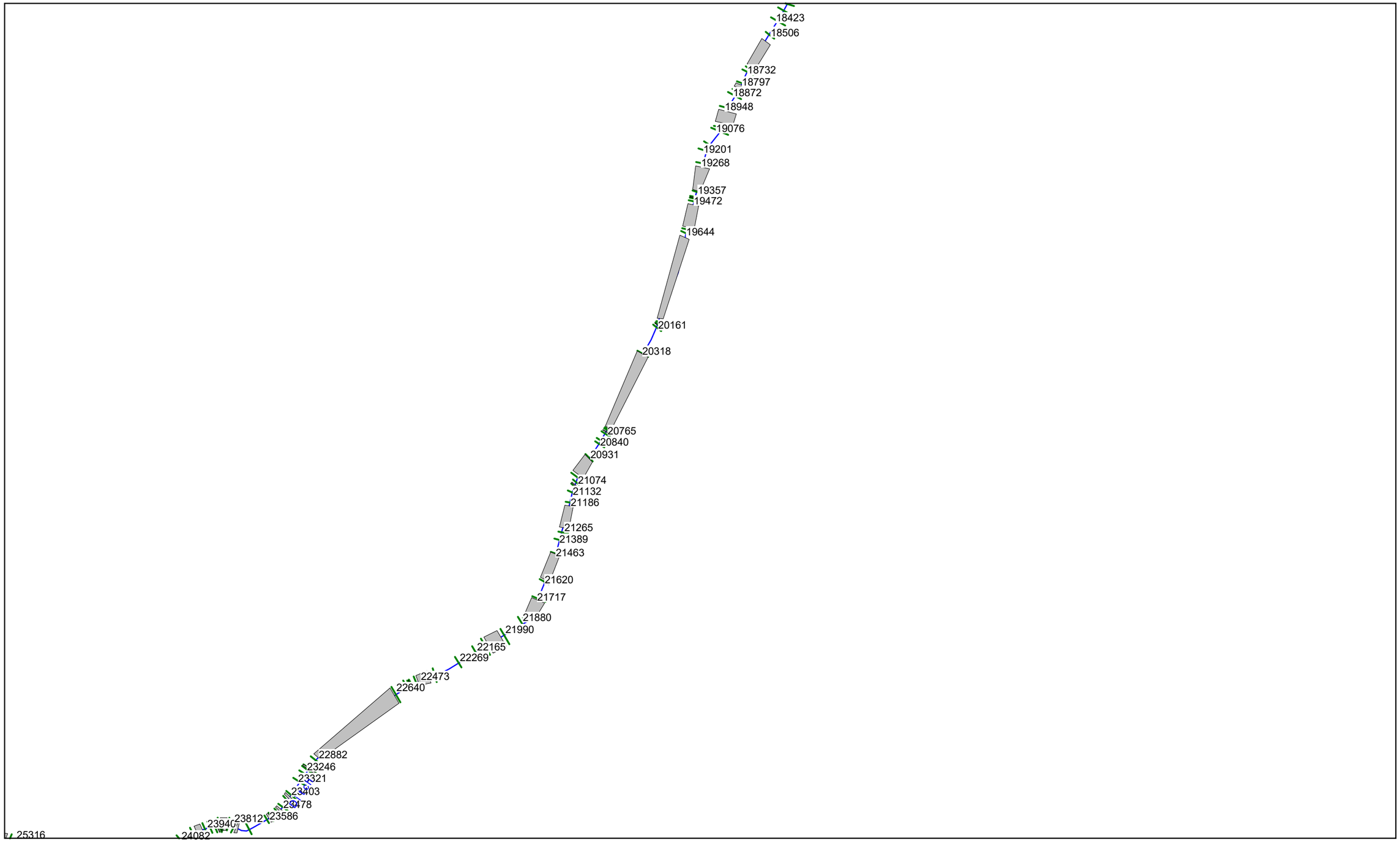
1D HEC-RAS Model Cross Section Schematic



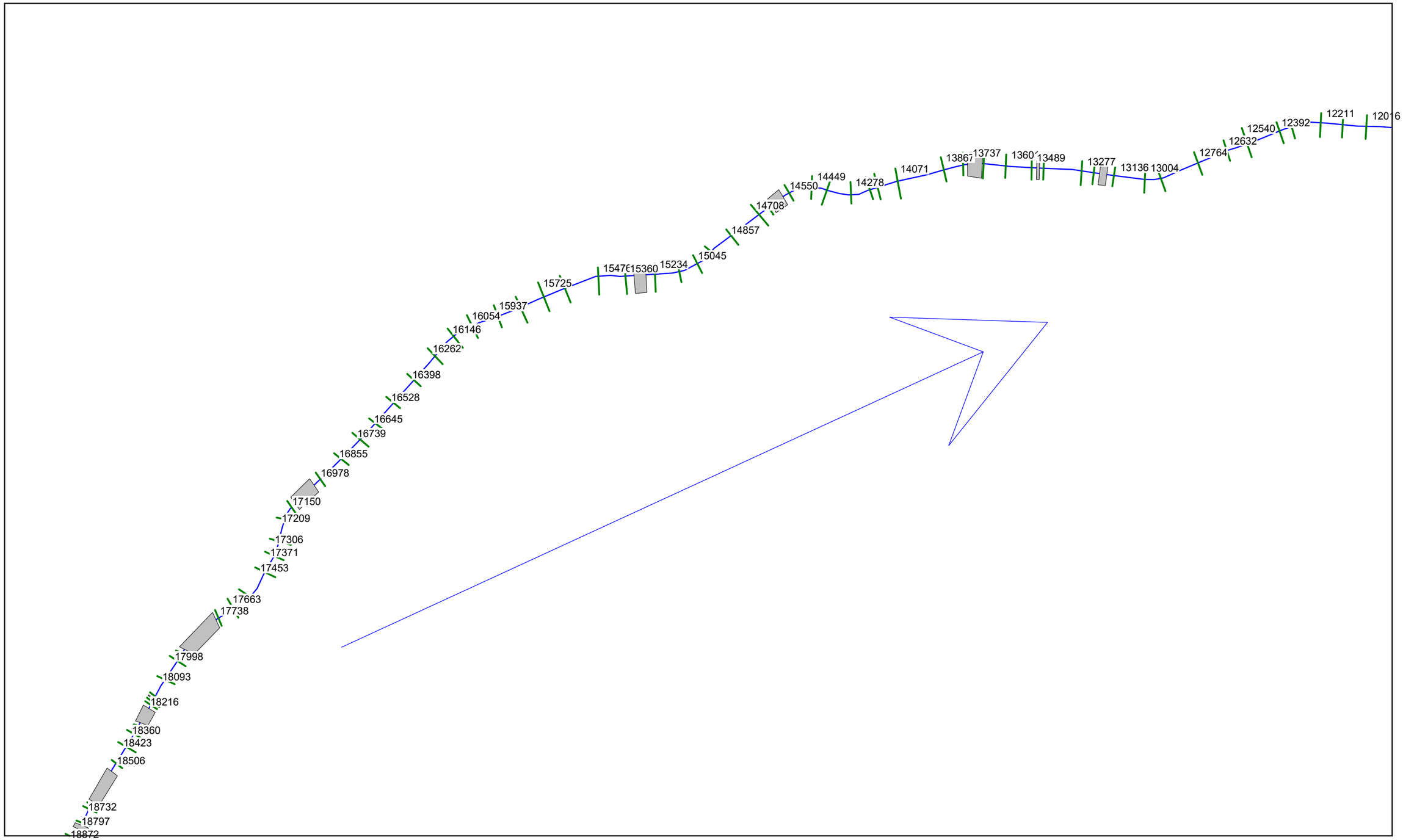
1D HEC-RAS Model Cross Section Schematic:
View 1



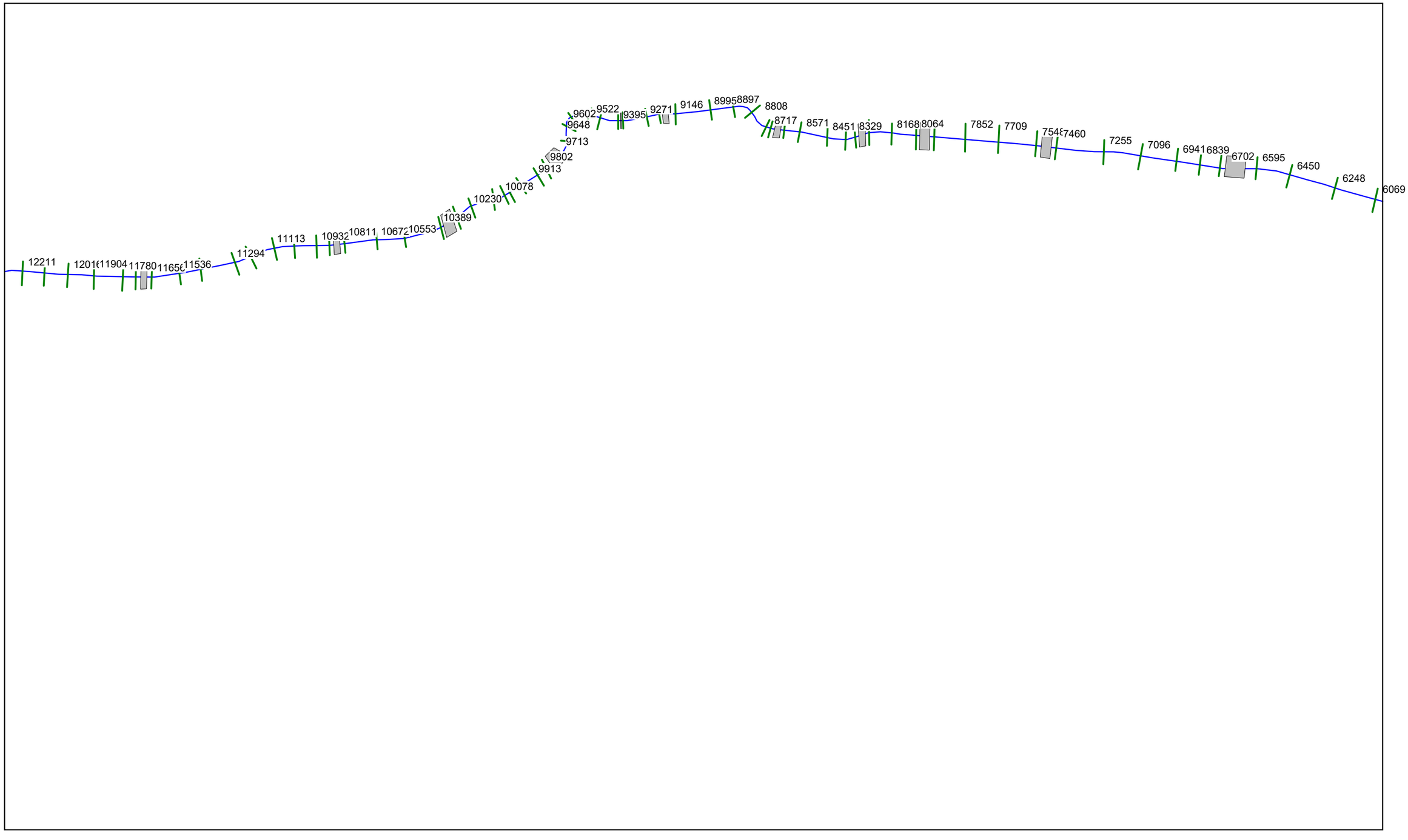
1D HEC-RAS Model Cross Section Schematic:
View 2



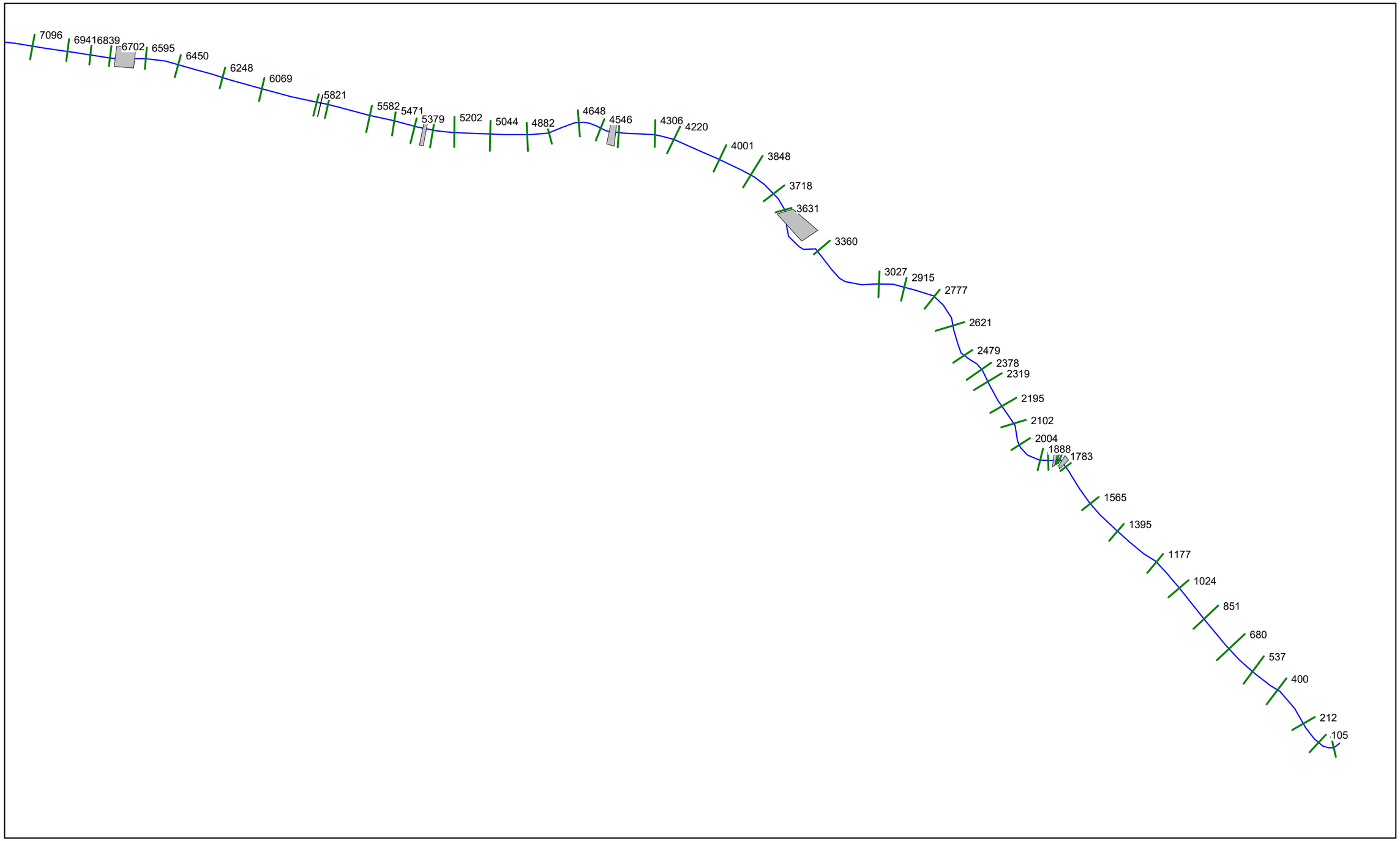
1D HEC-RAS Model Cross Section Schematic: View 3



1D HEC-RAS Model Cross Section Schematic:
View 4

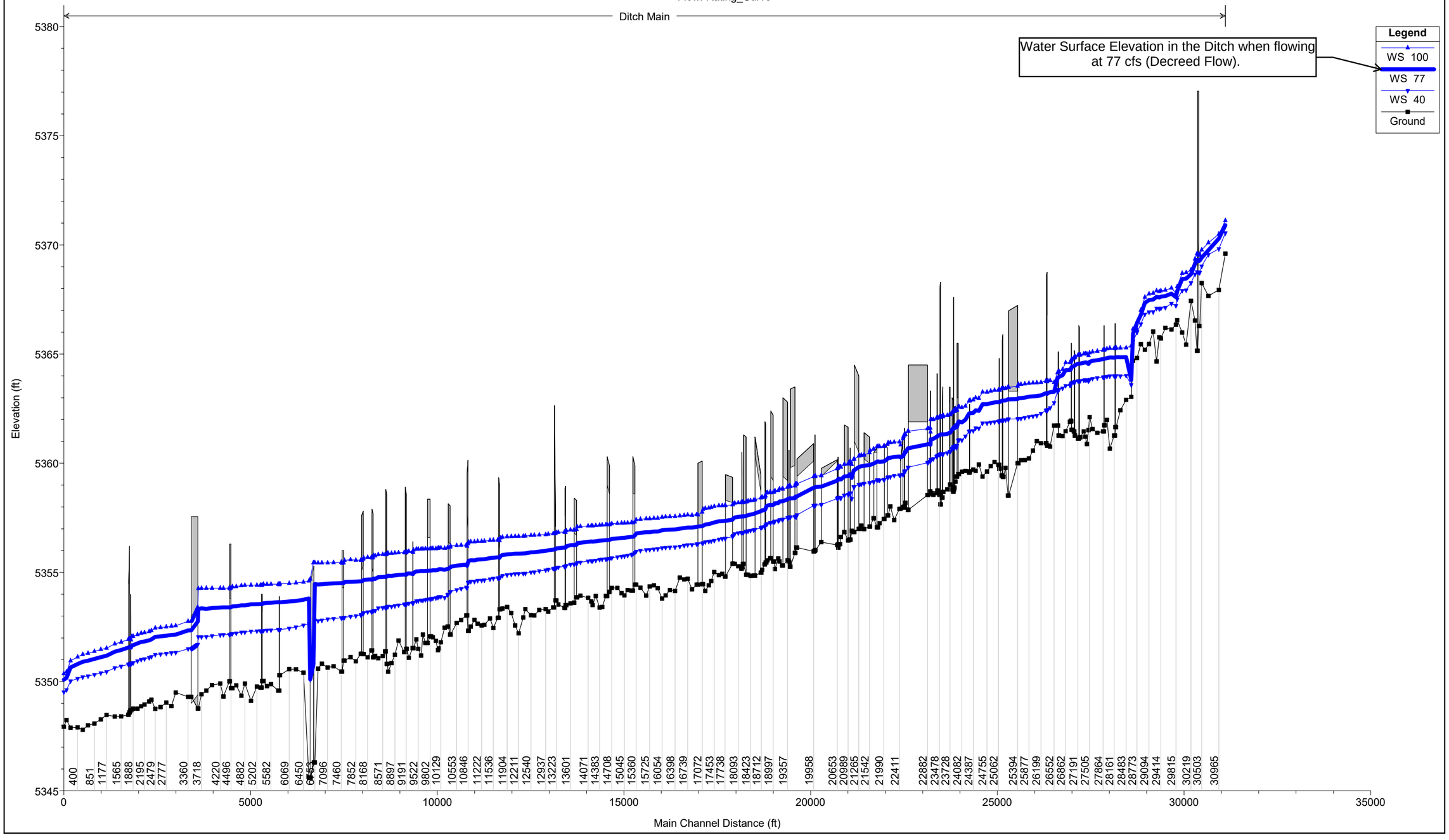


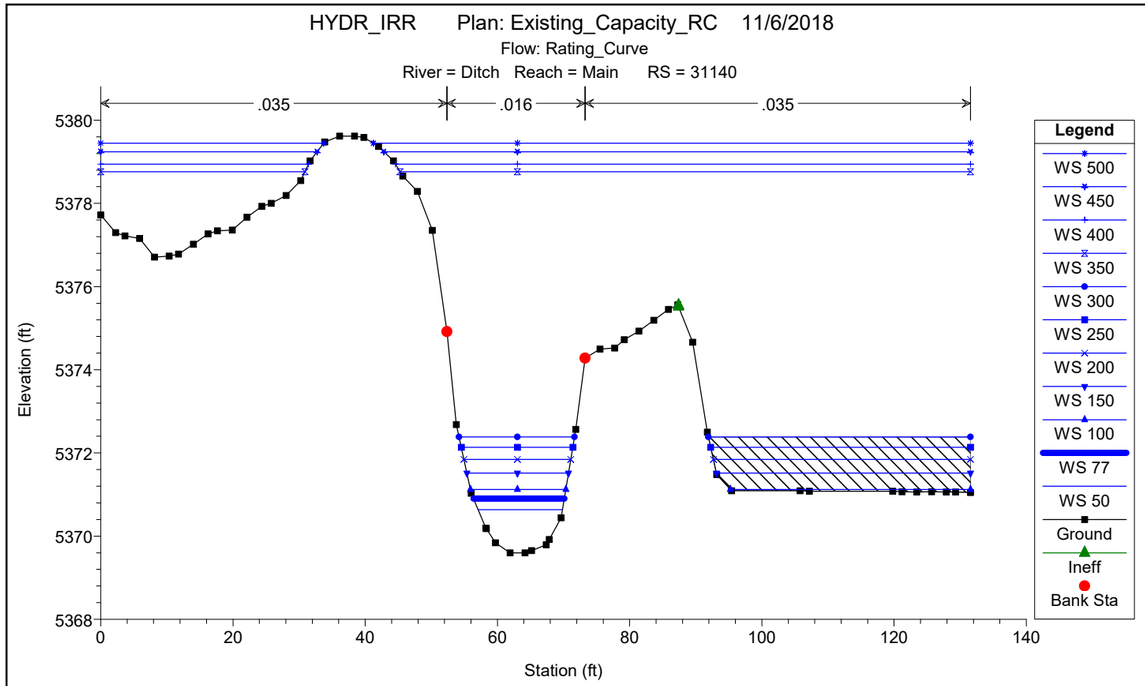
1D HEC-RAS Model Cross Section Schematic:
View 5

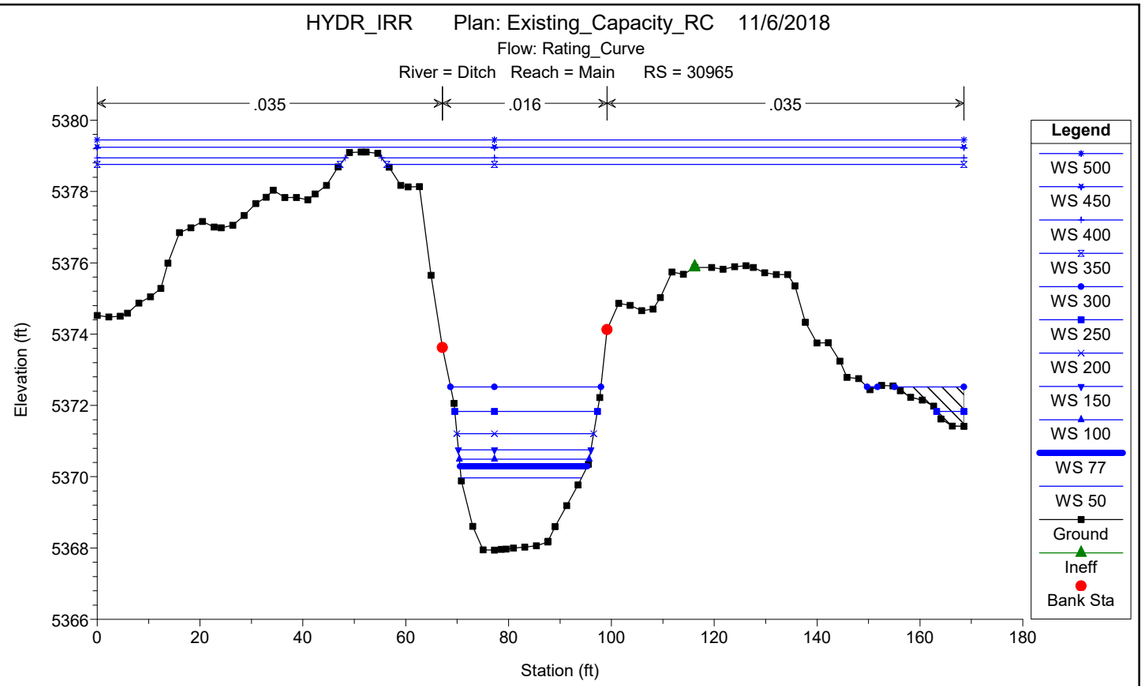


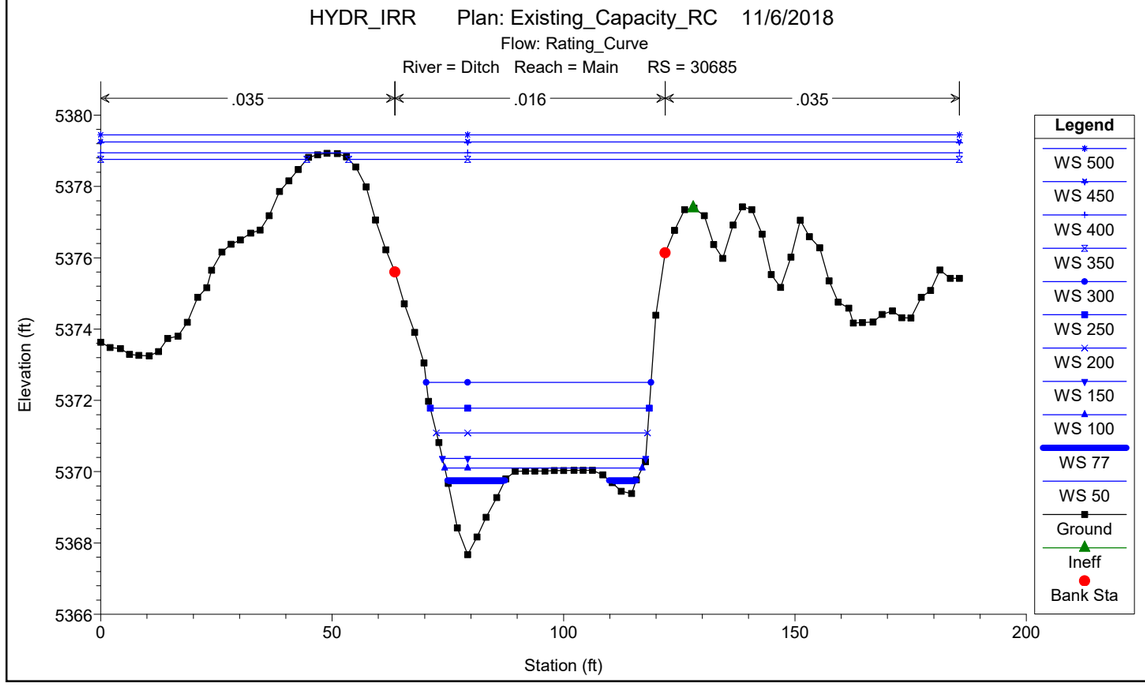
HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018

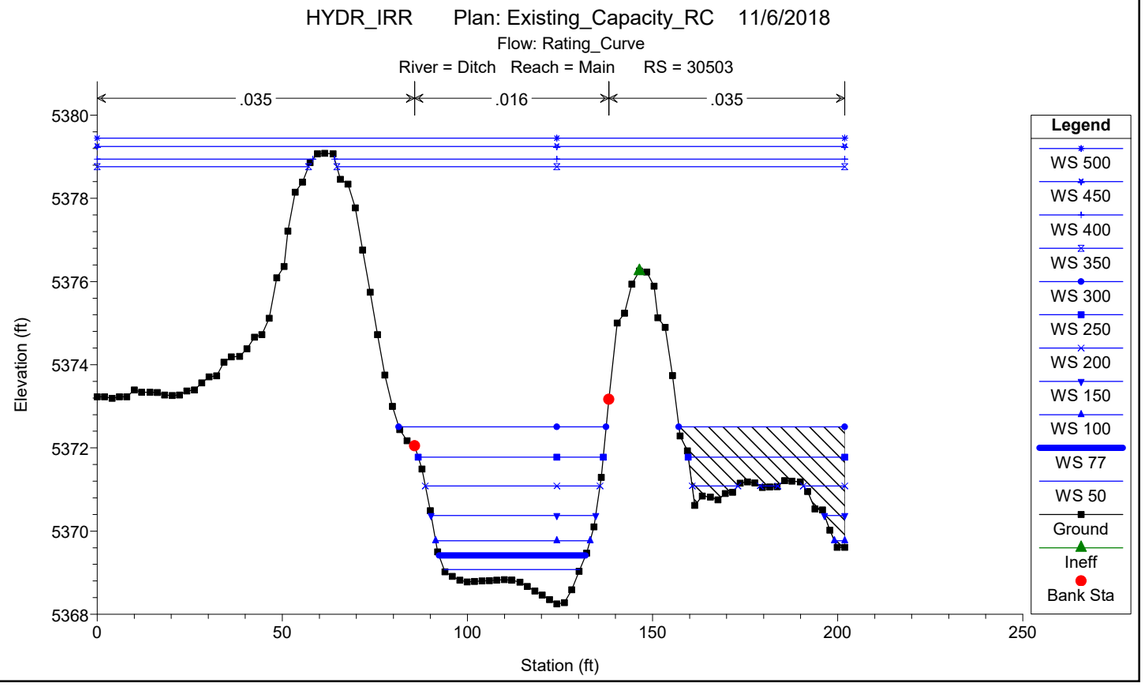
Flow: Rating_Curve

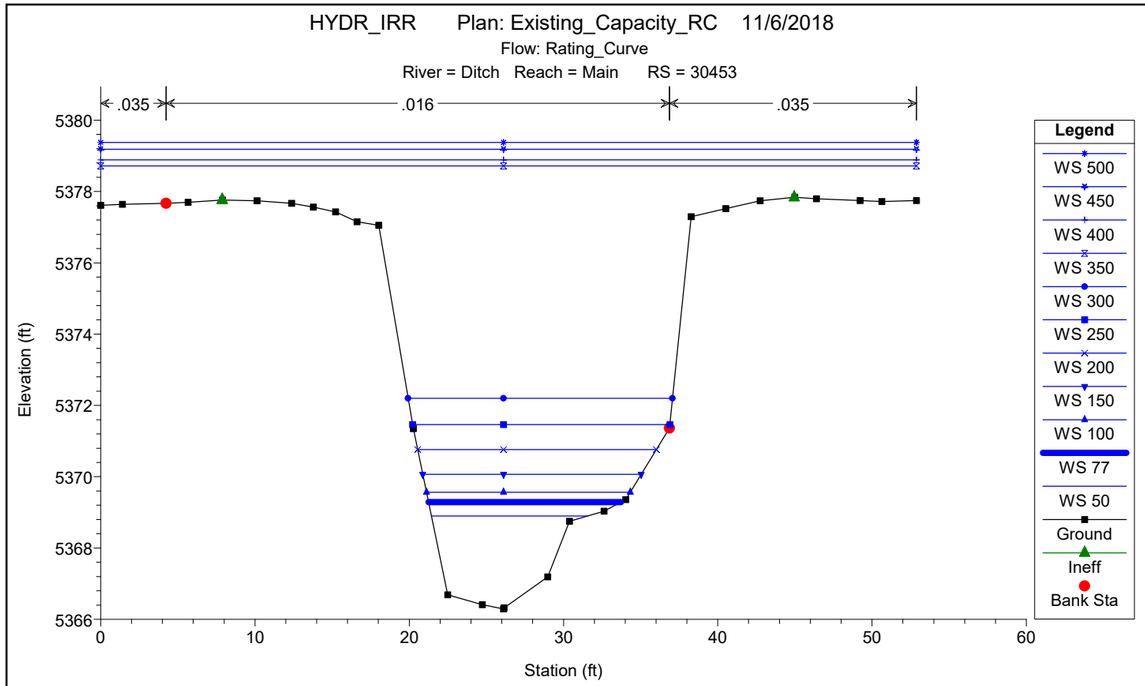


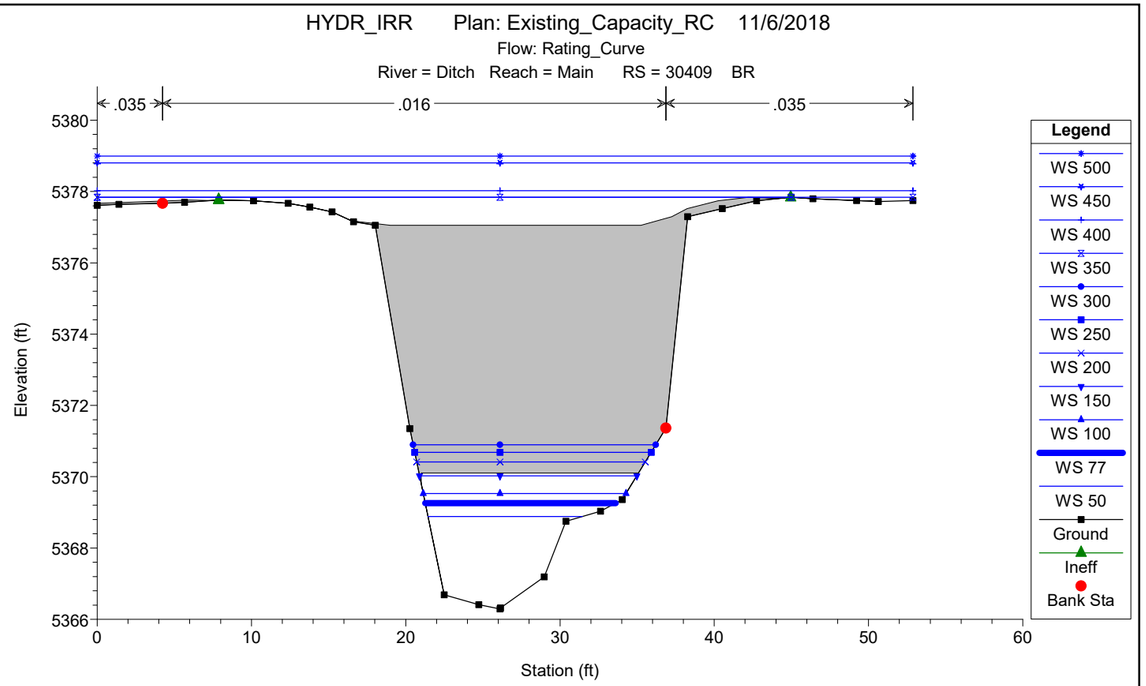

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 31140
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

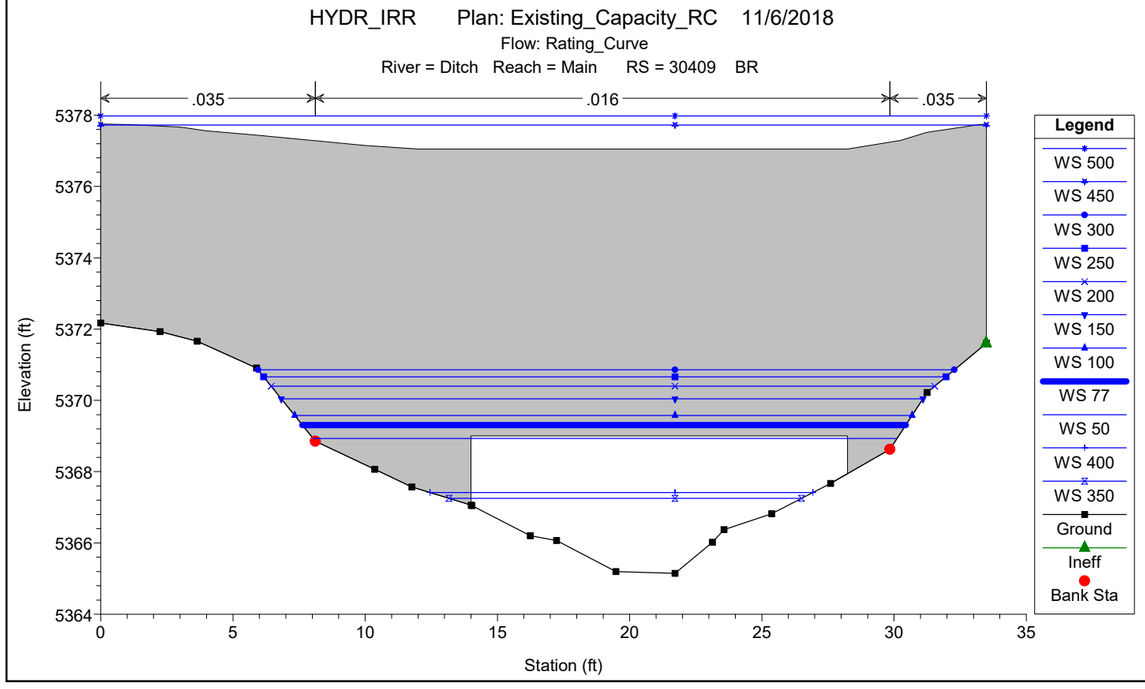

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 30965
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

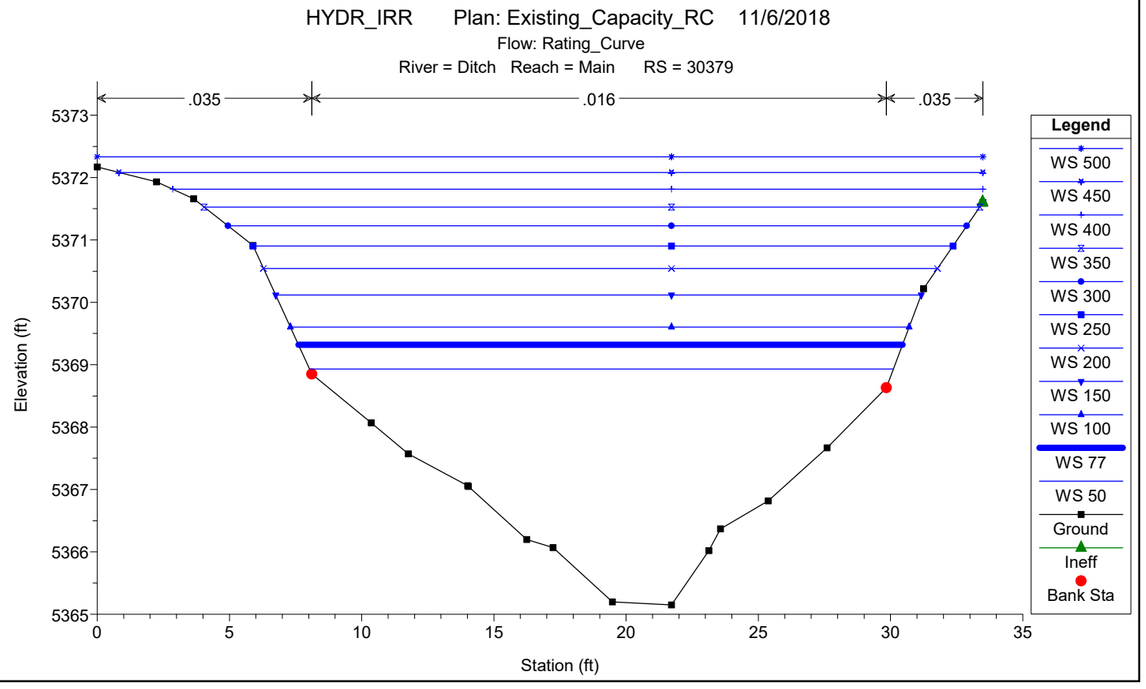

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 30685
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

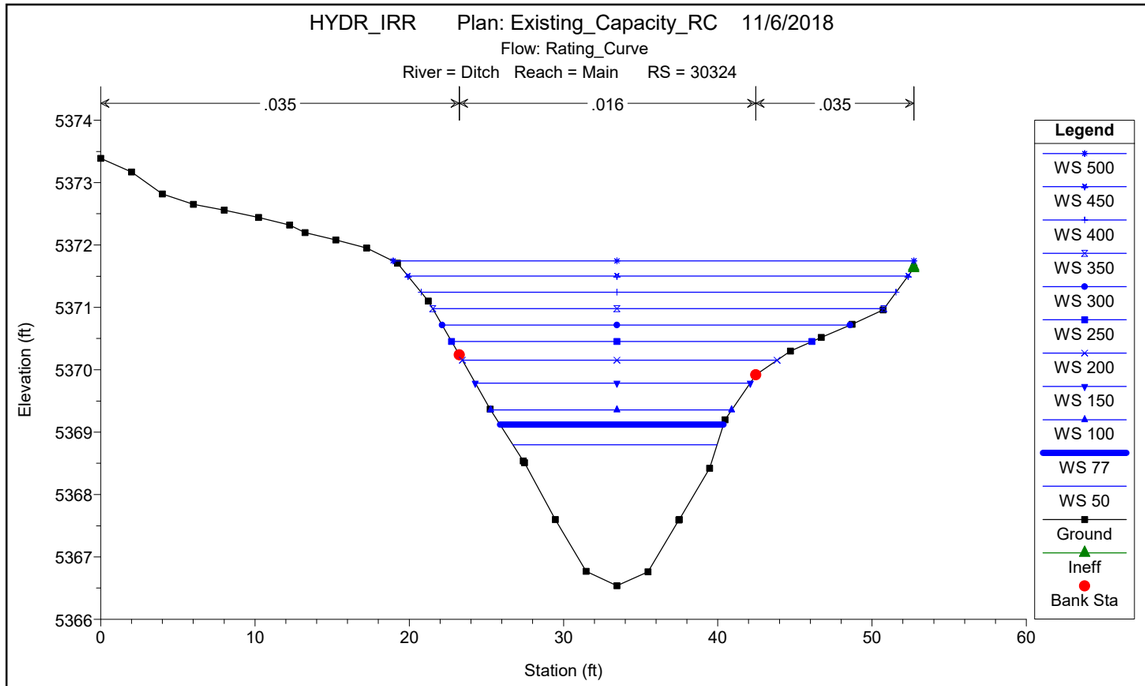

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 30503
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

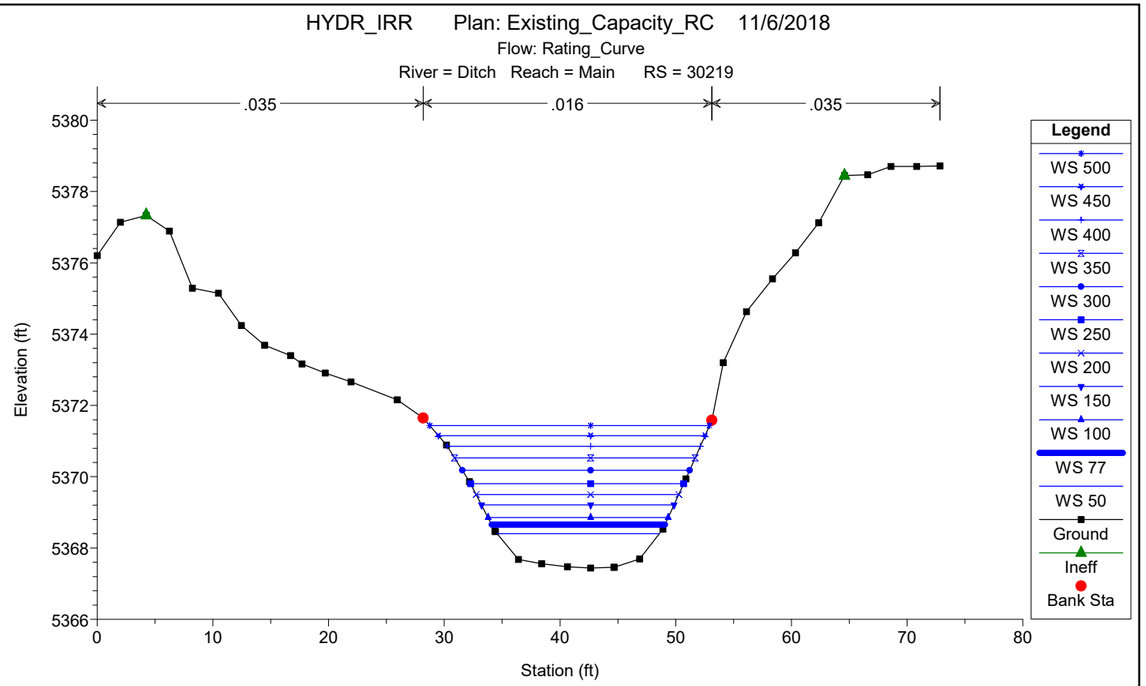

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 30453
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

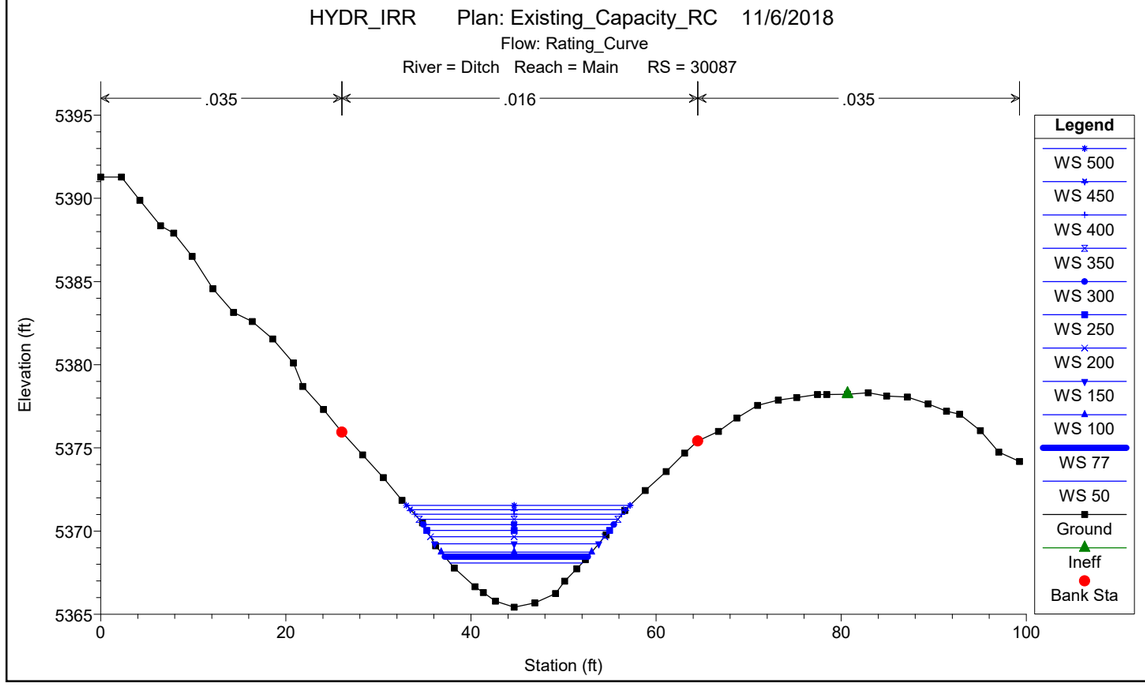

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 30409 BR
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

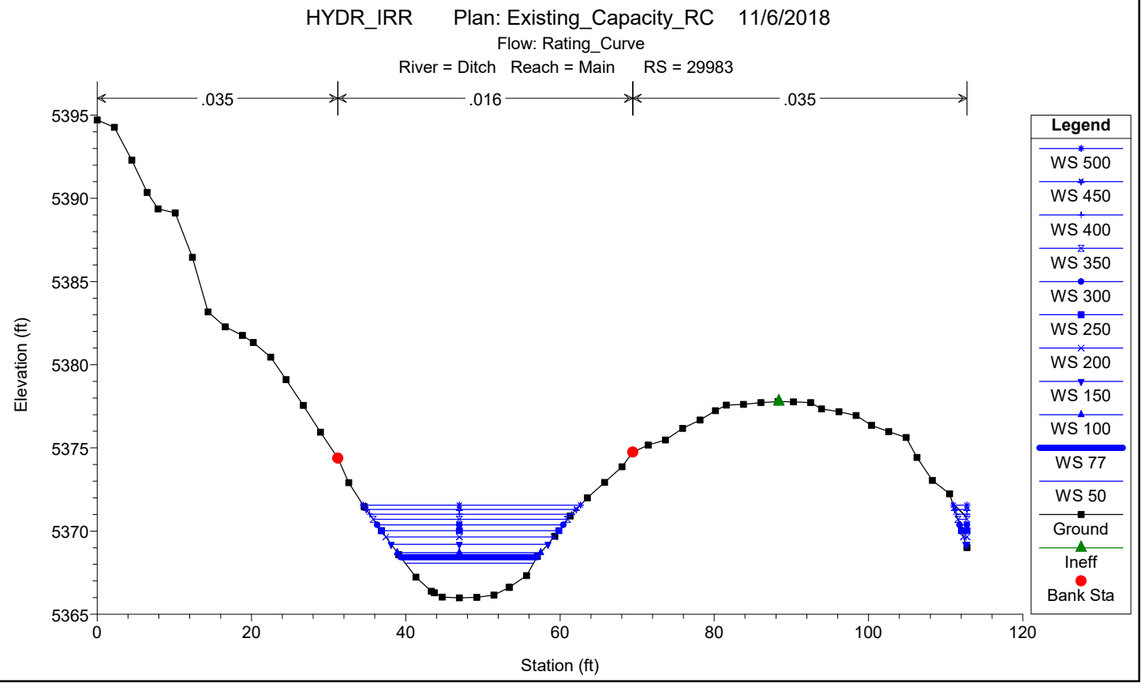

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 30409 BR
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
WS 400
WS 350
Ground
Ineff
Bank Sta


HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 30379
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

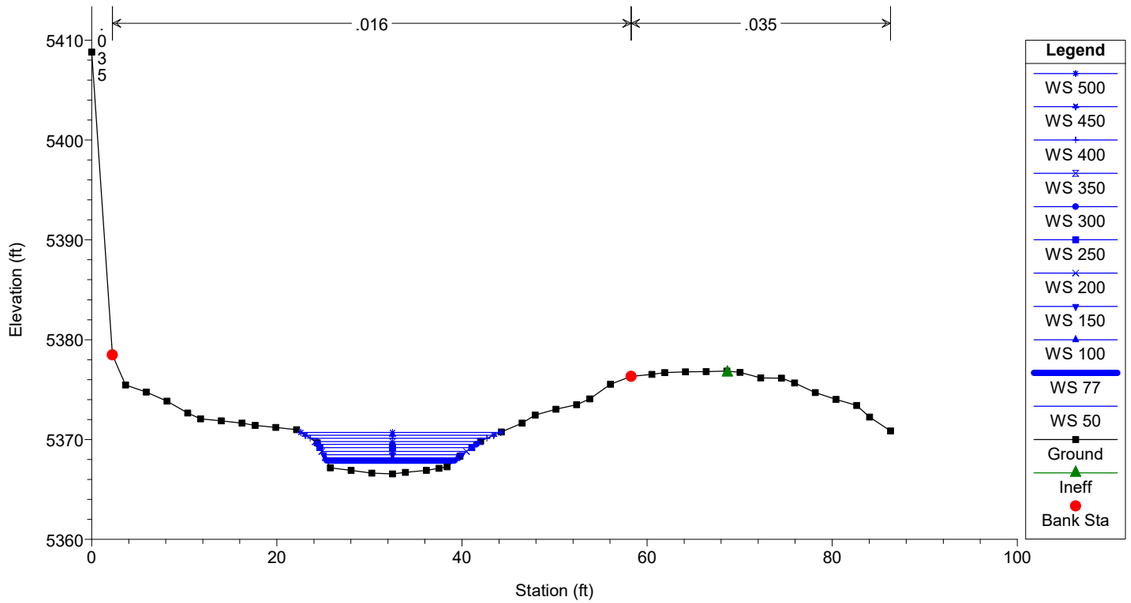

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 30324
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta


HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 30219
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

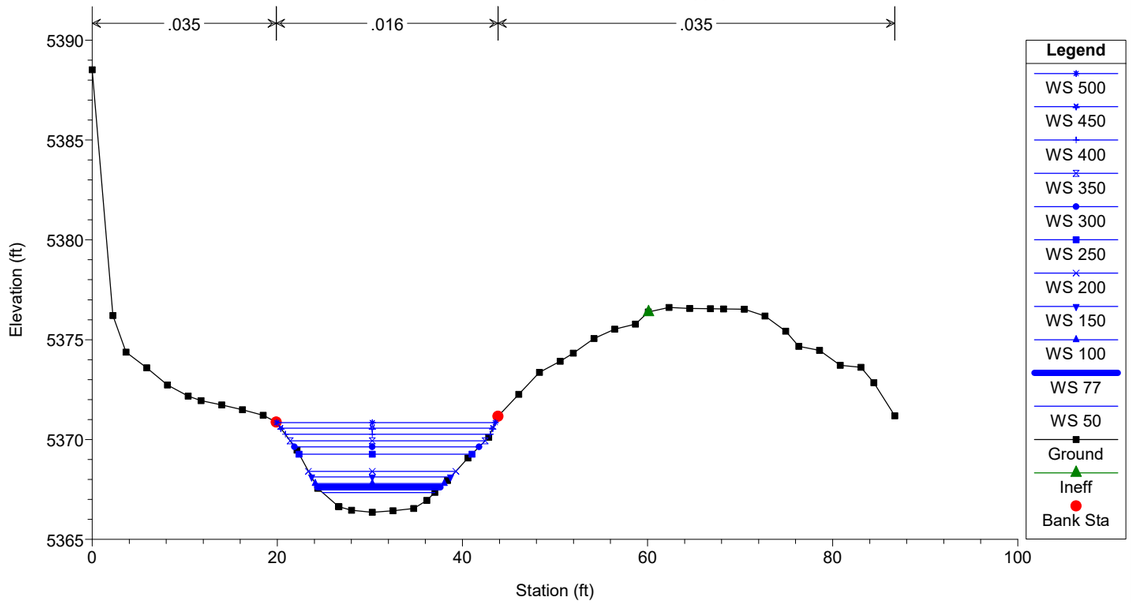

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 30087
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta


HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 29983
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

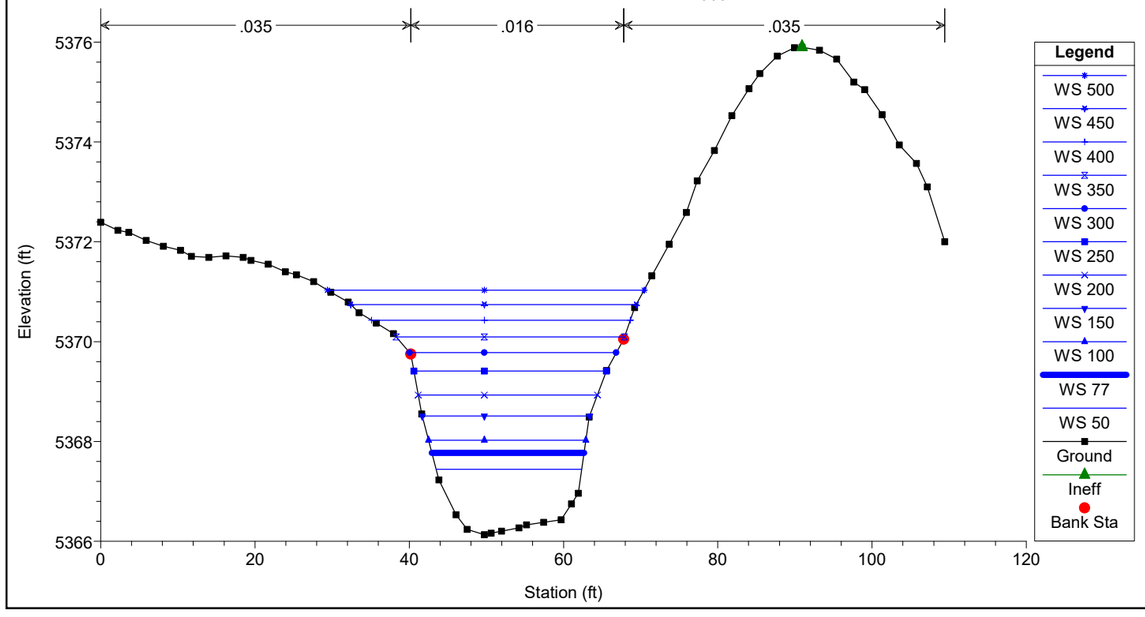
HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 29847



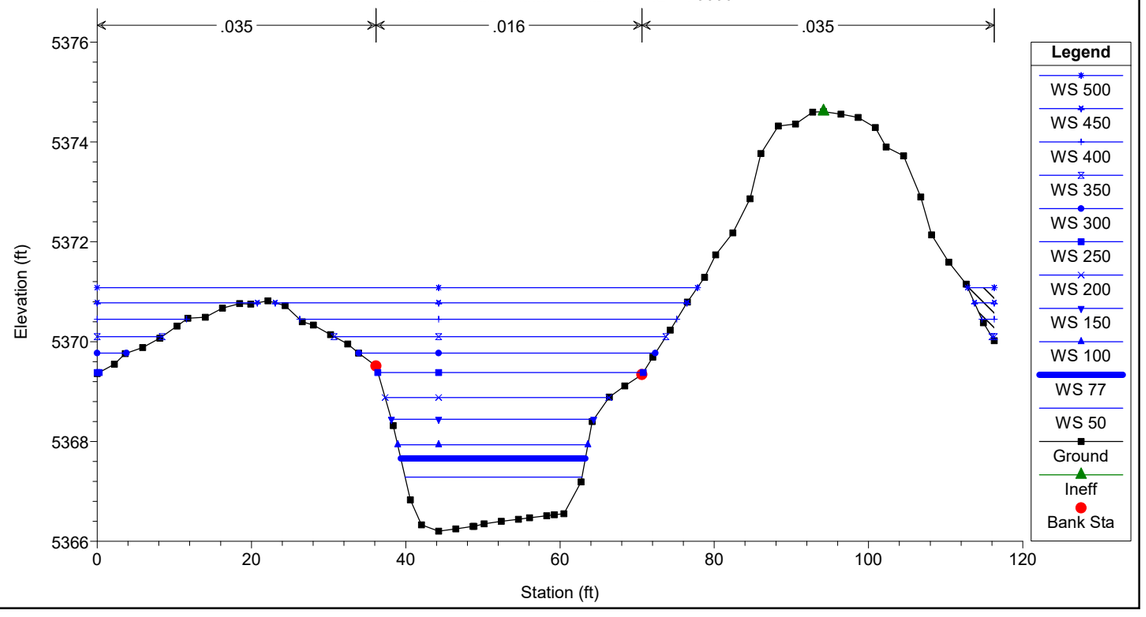
HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 29815

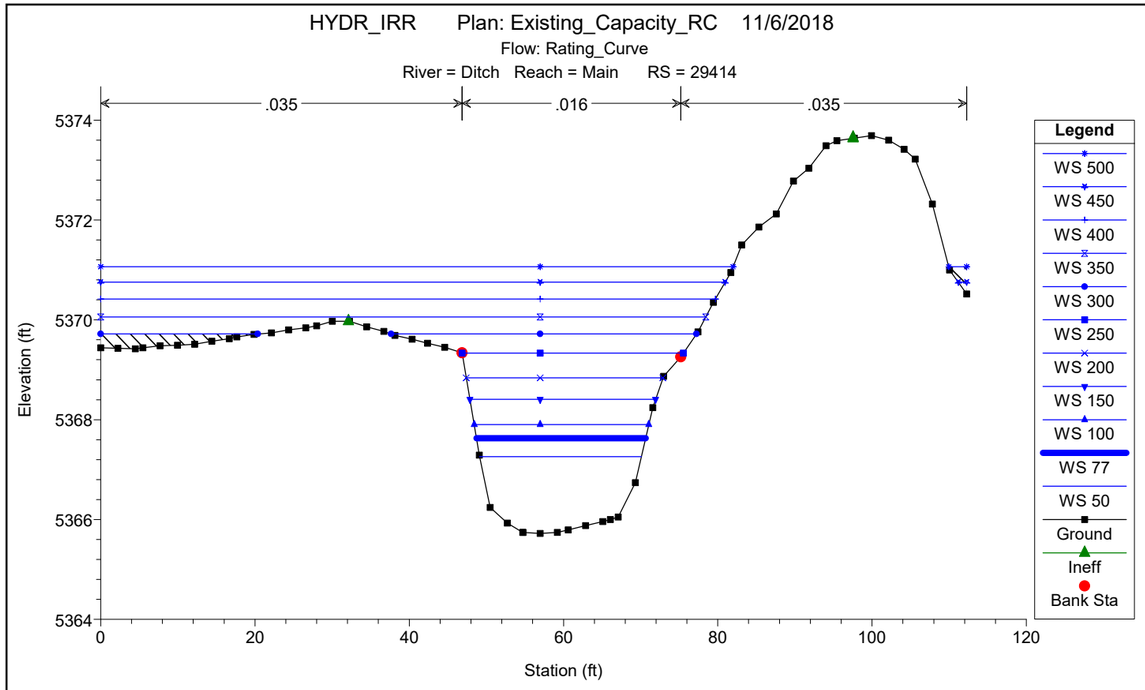


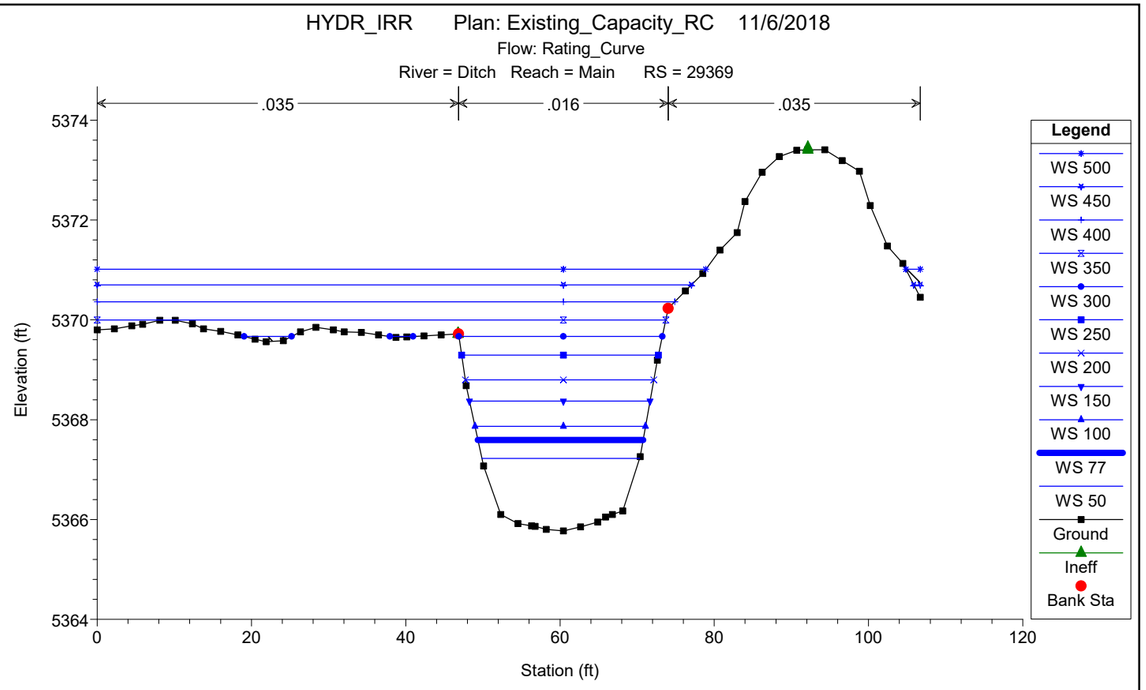
HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 29694

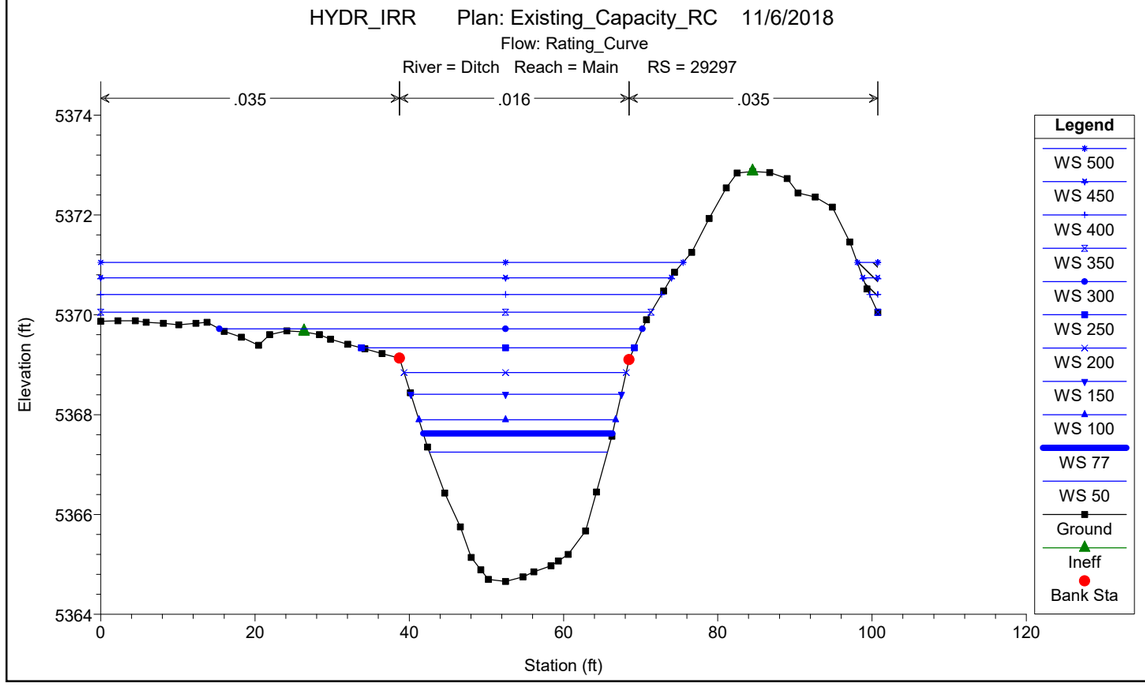


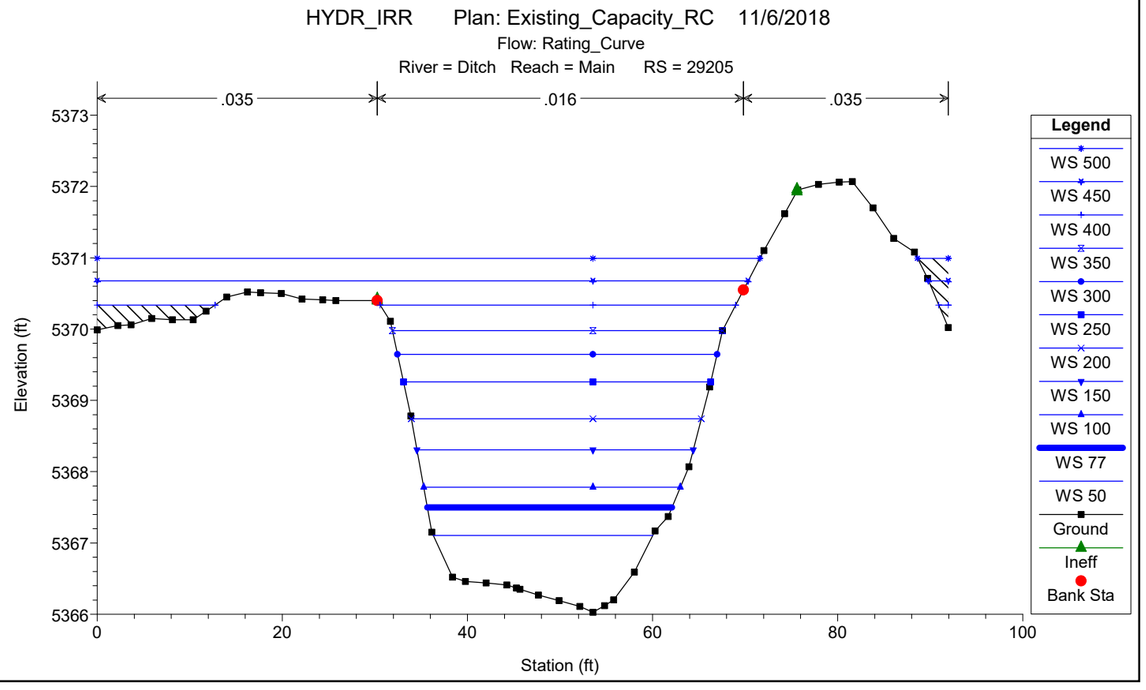
HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 29530

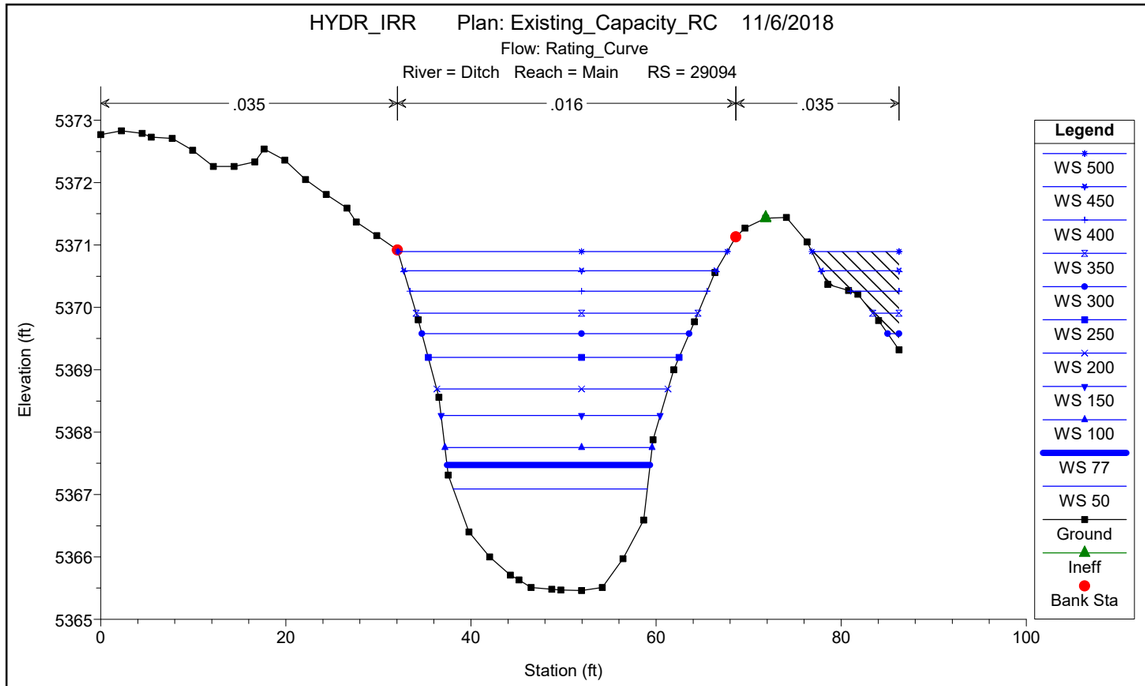


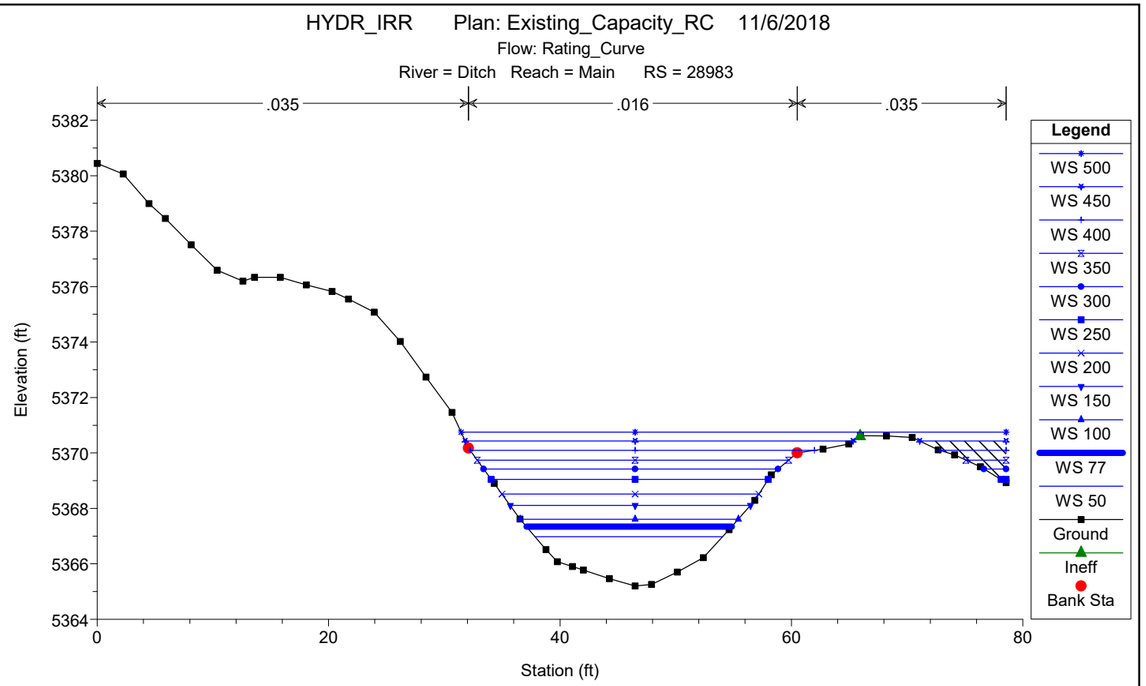

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 29414
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

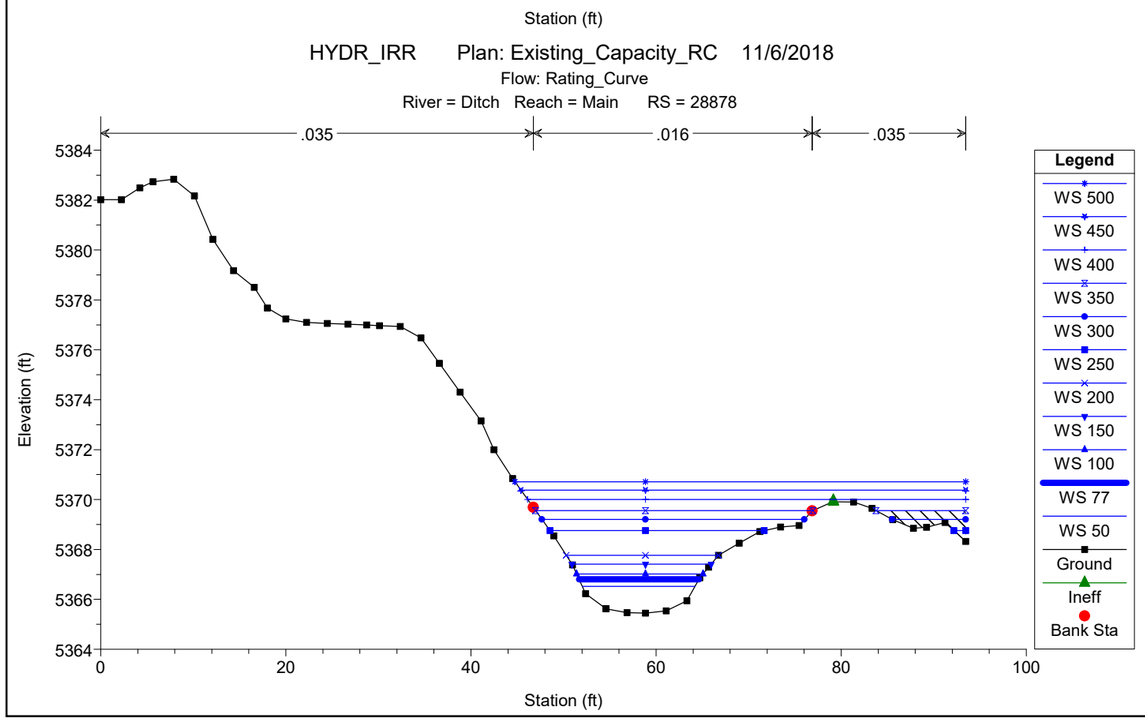

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 29369
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

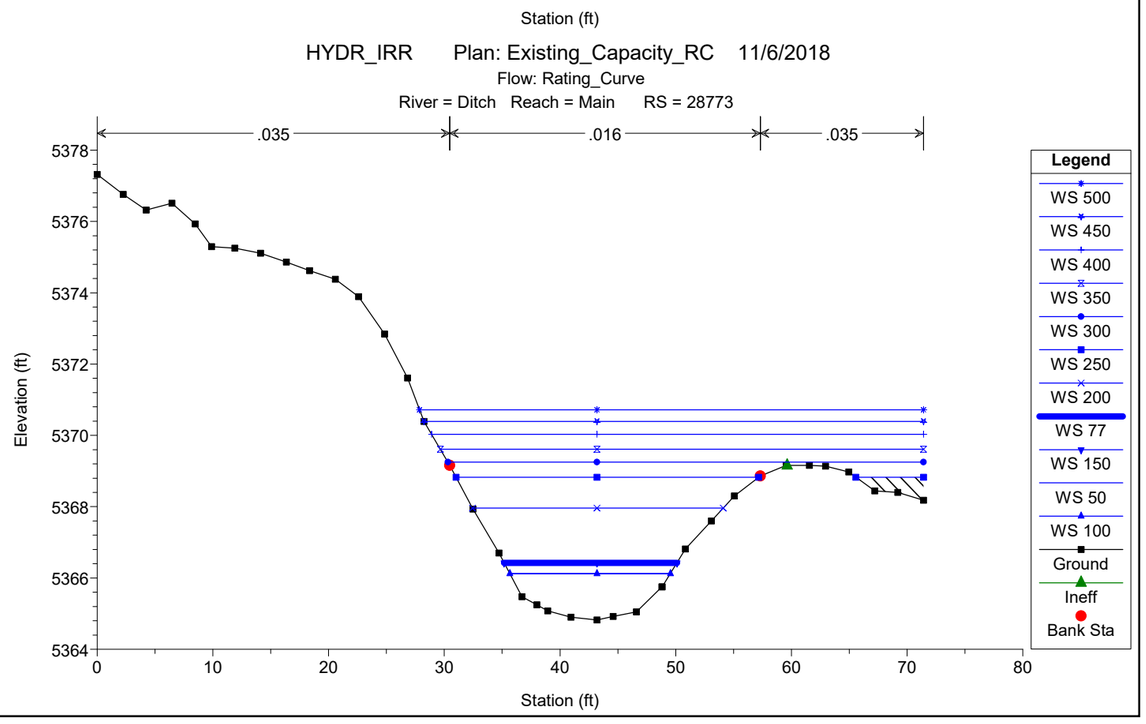

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 29297
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

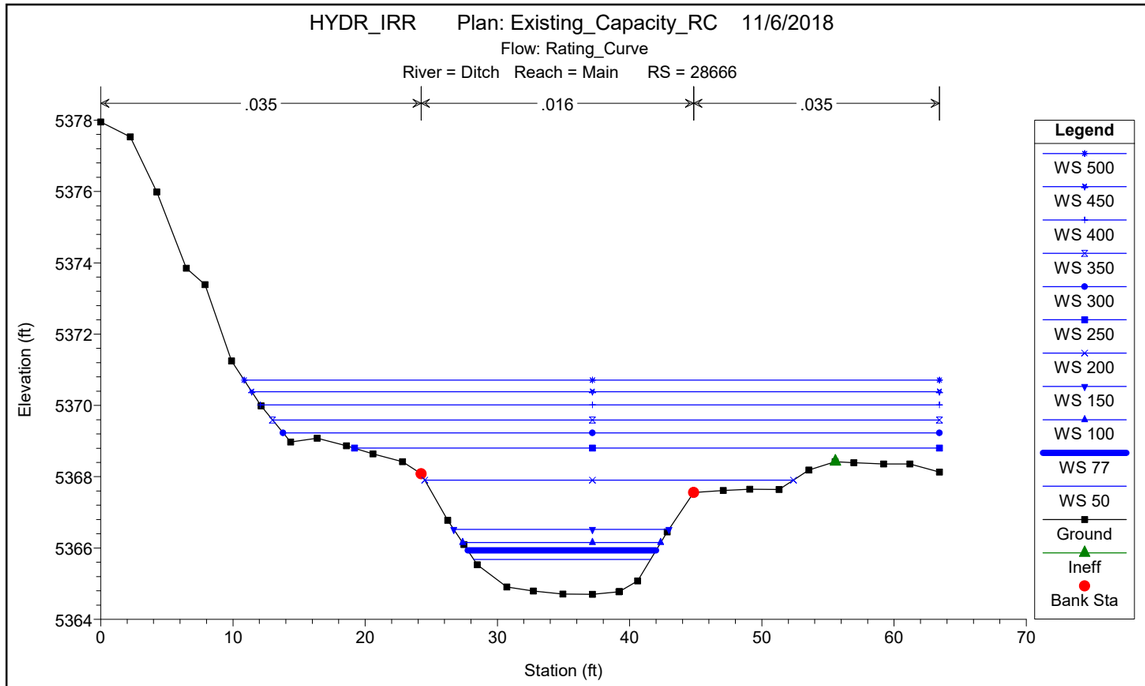

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 29205
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

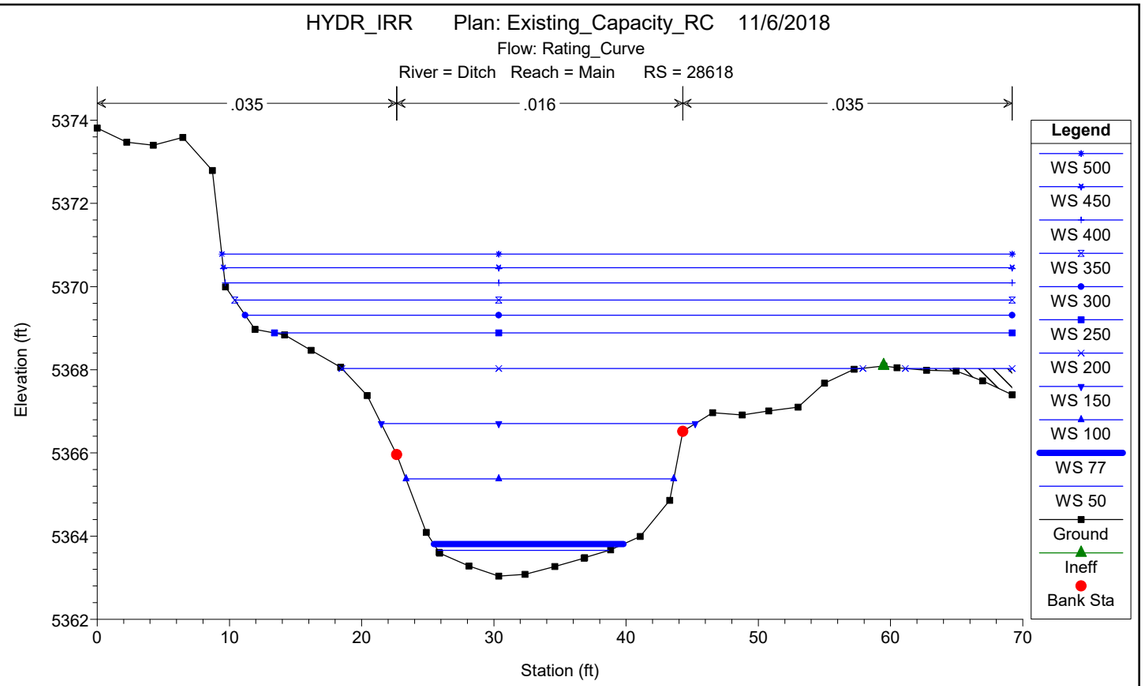

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 29094
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

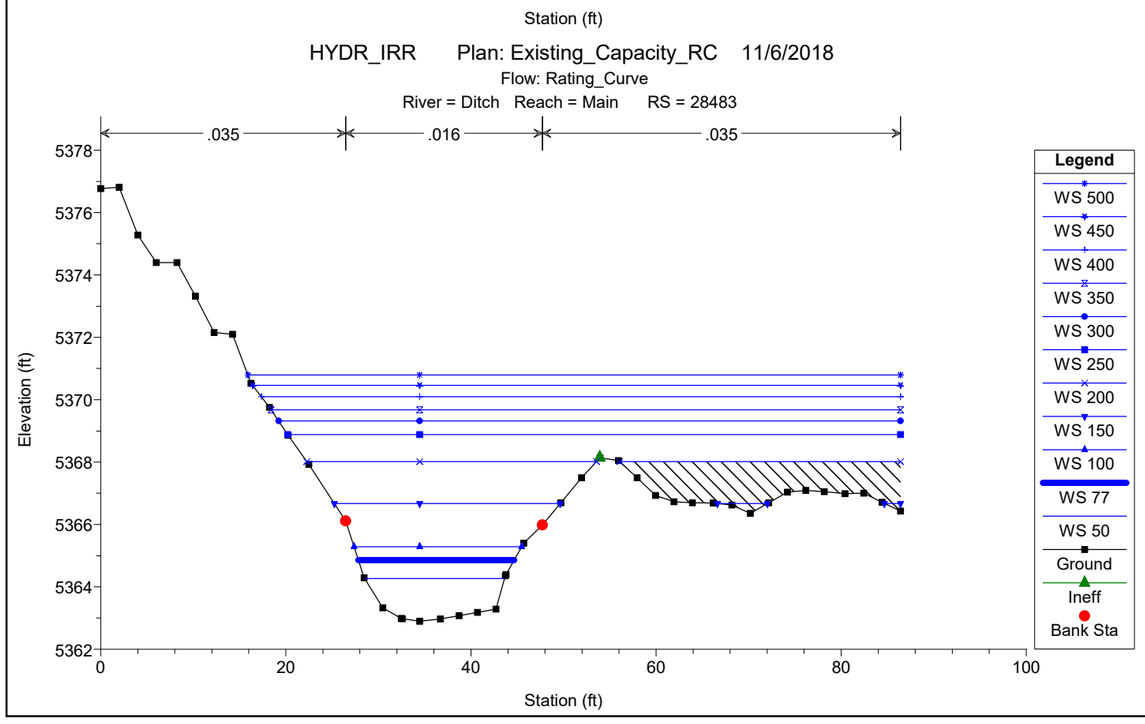

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 28983
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

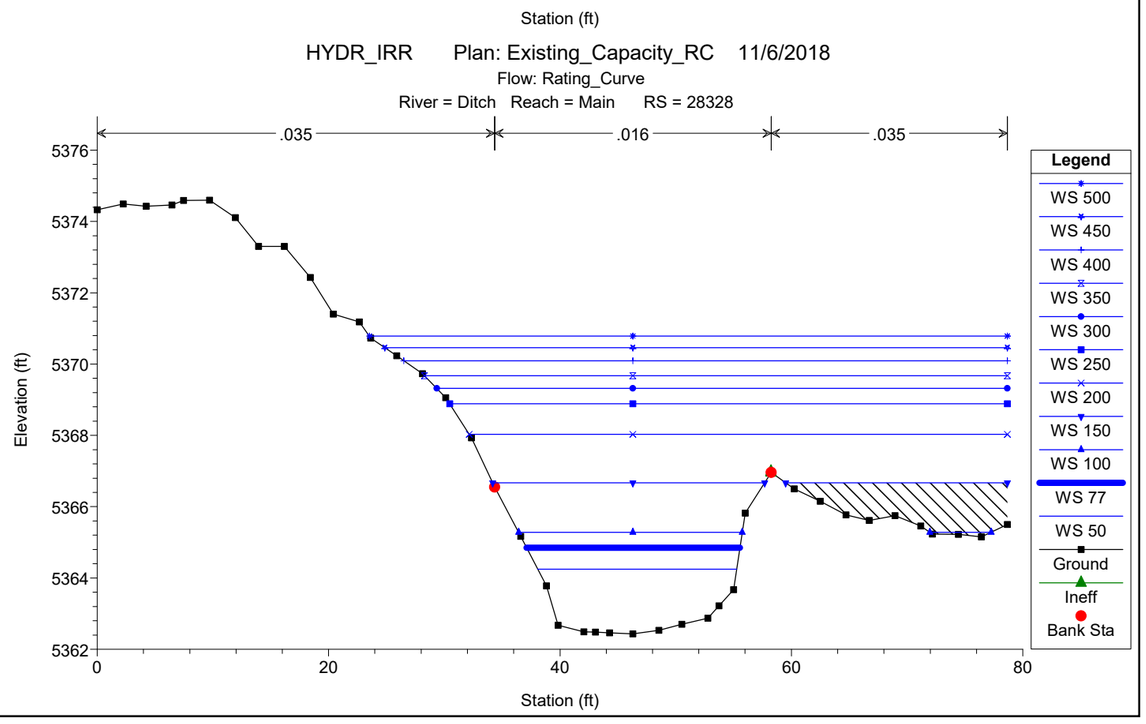

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 28878
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

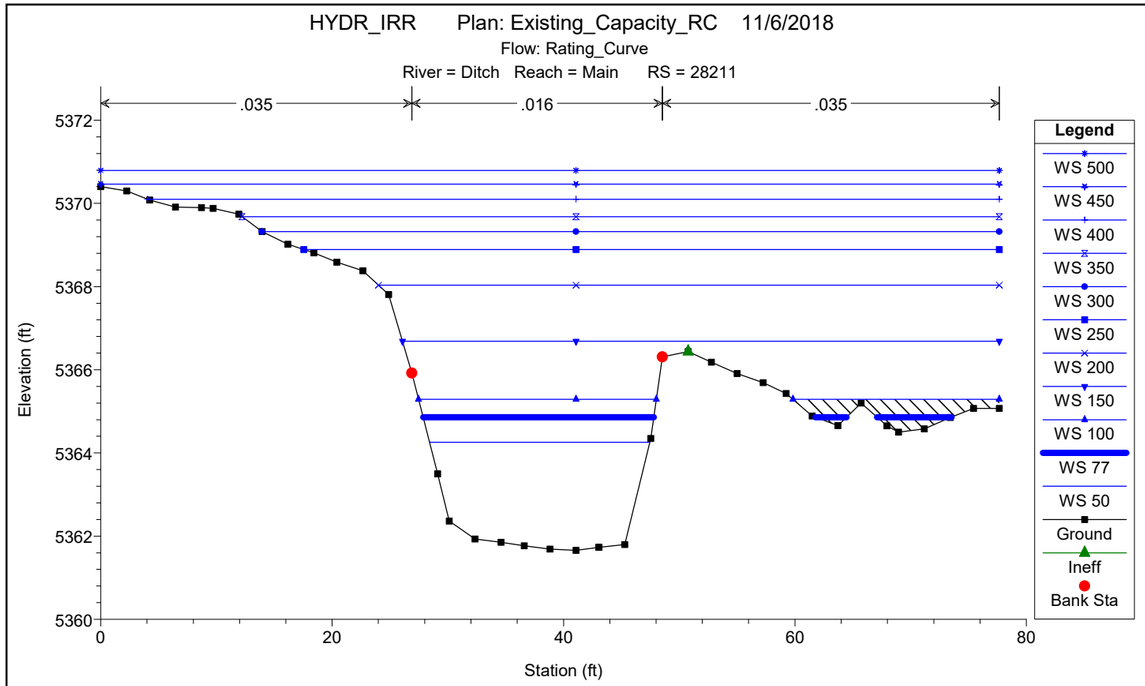

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 28773
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 77
WS 150
WS 50
WS 100
Ground
Ineff
Bank Sta

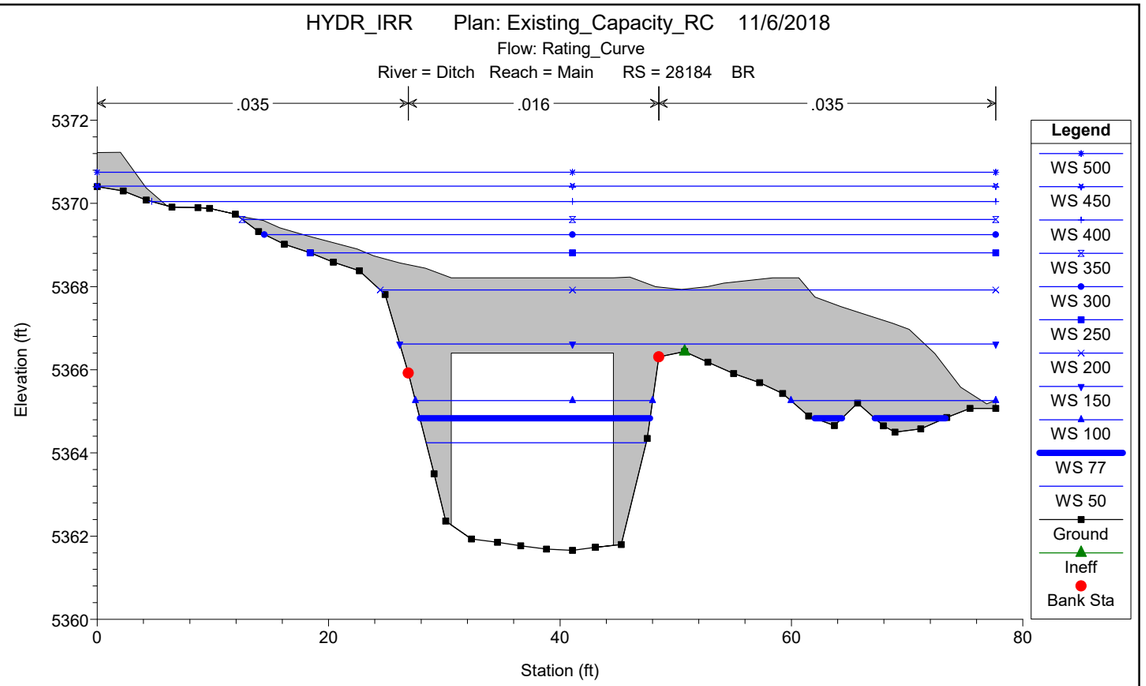

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 28666
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

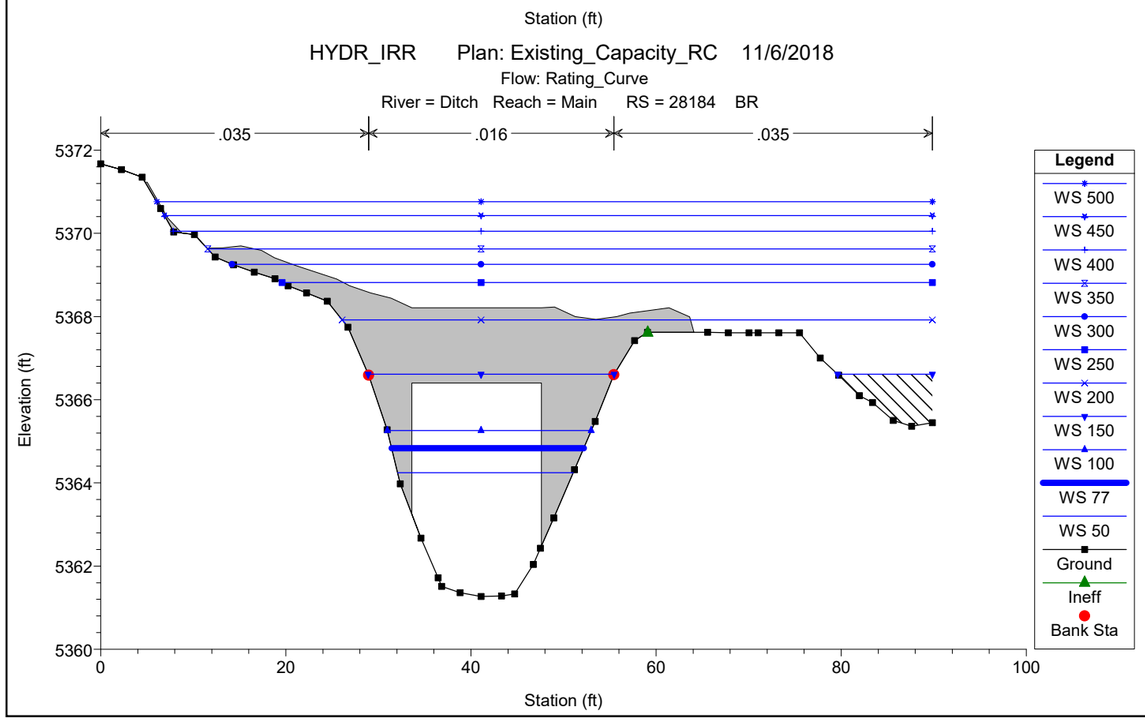

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 28618
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

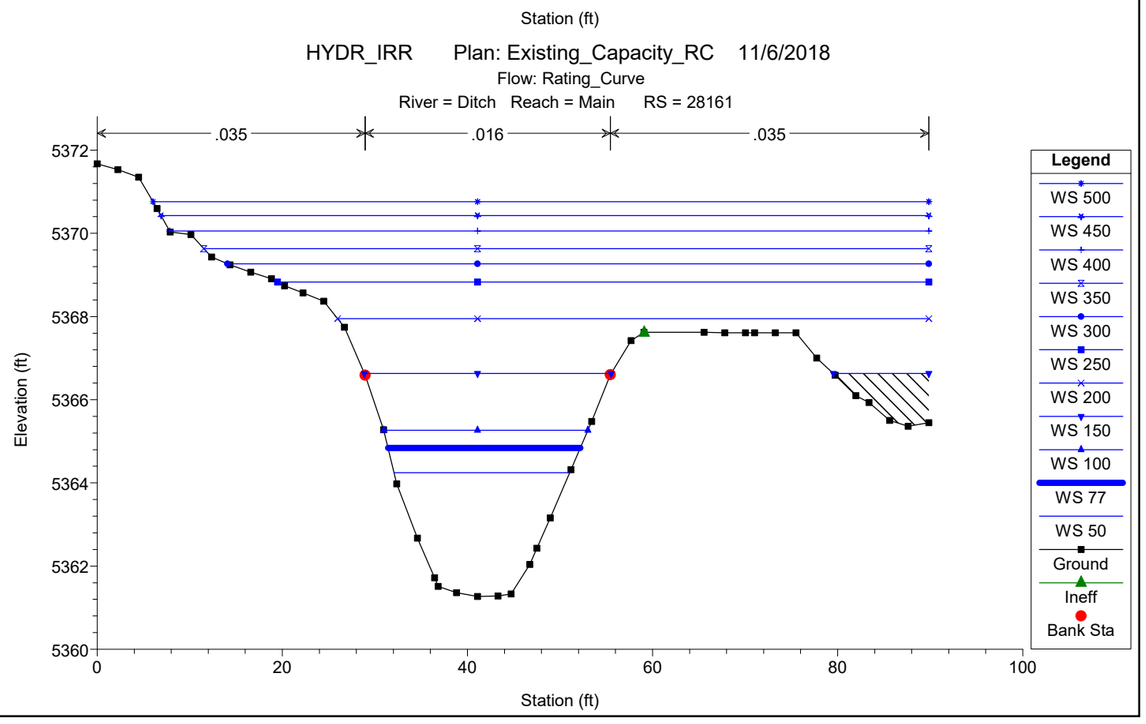

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 28483
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

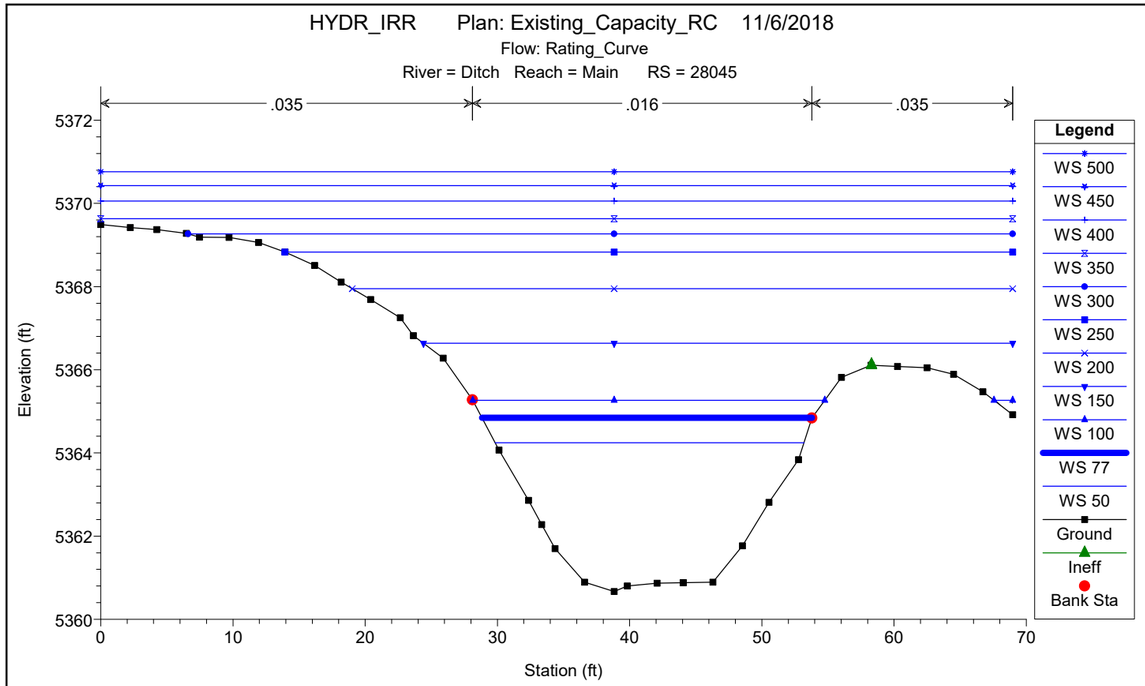

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 28328
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

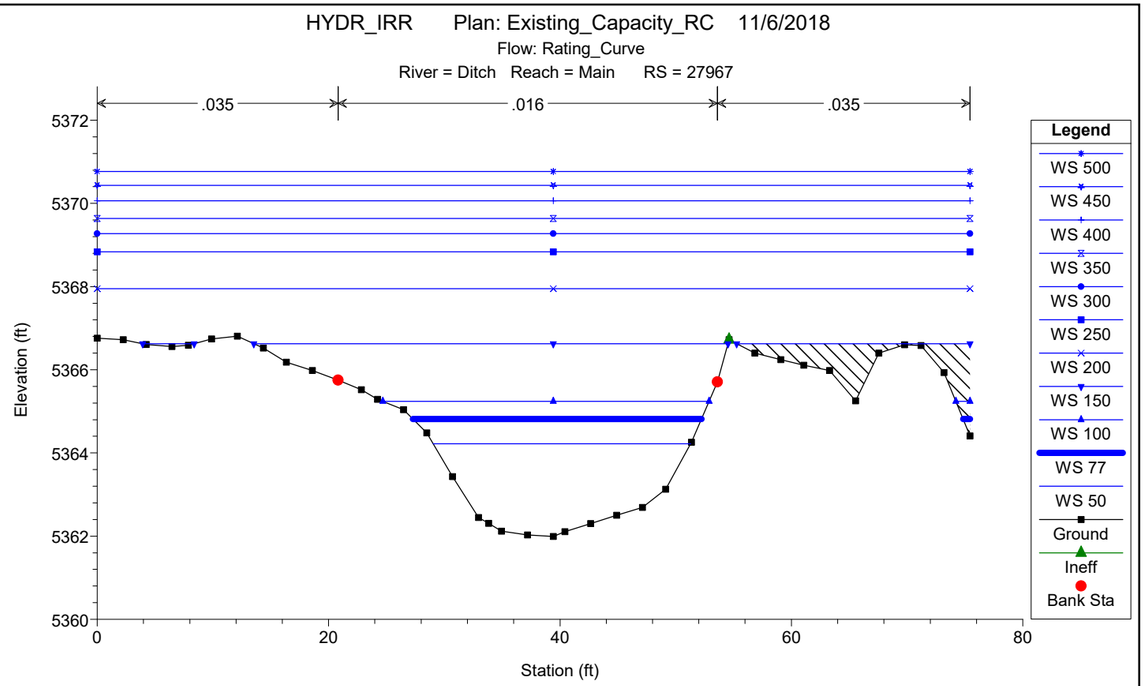

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 28211
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

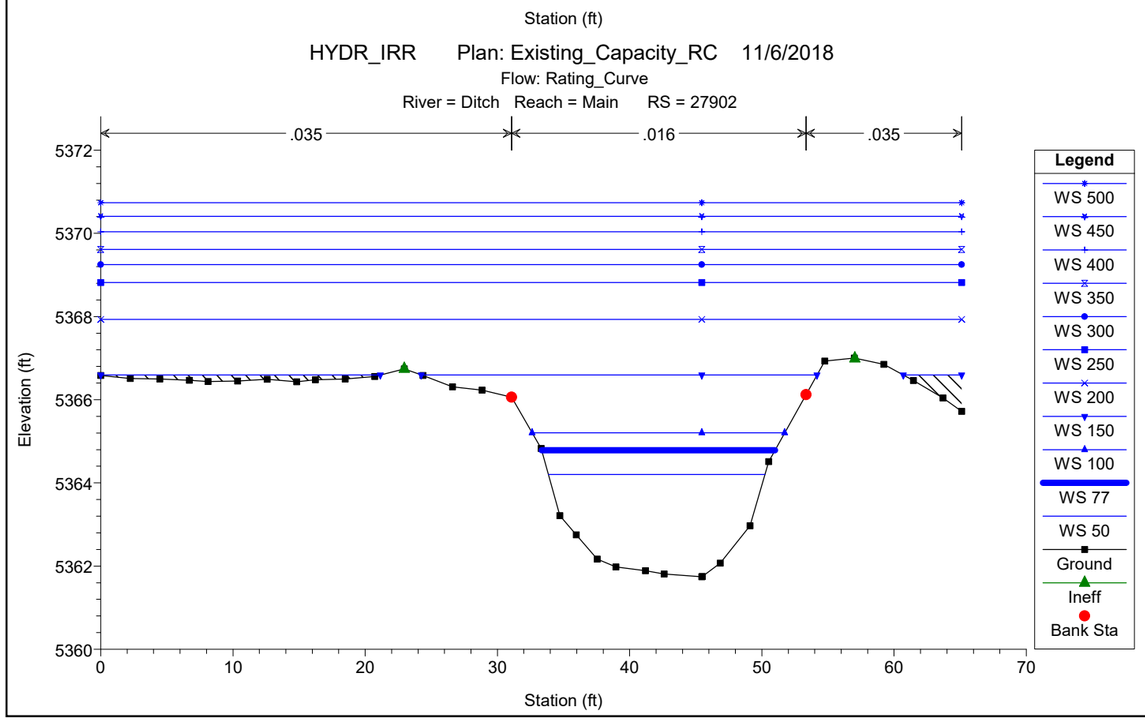

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 28184 BR
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

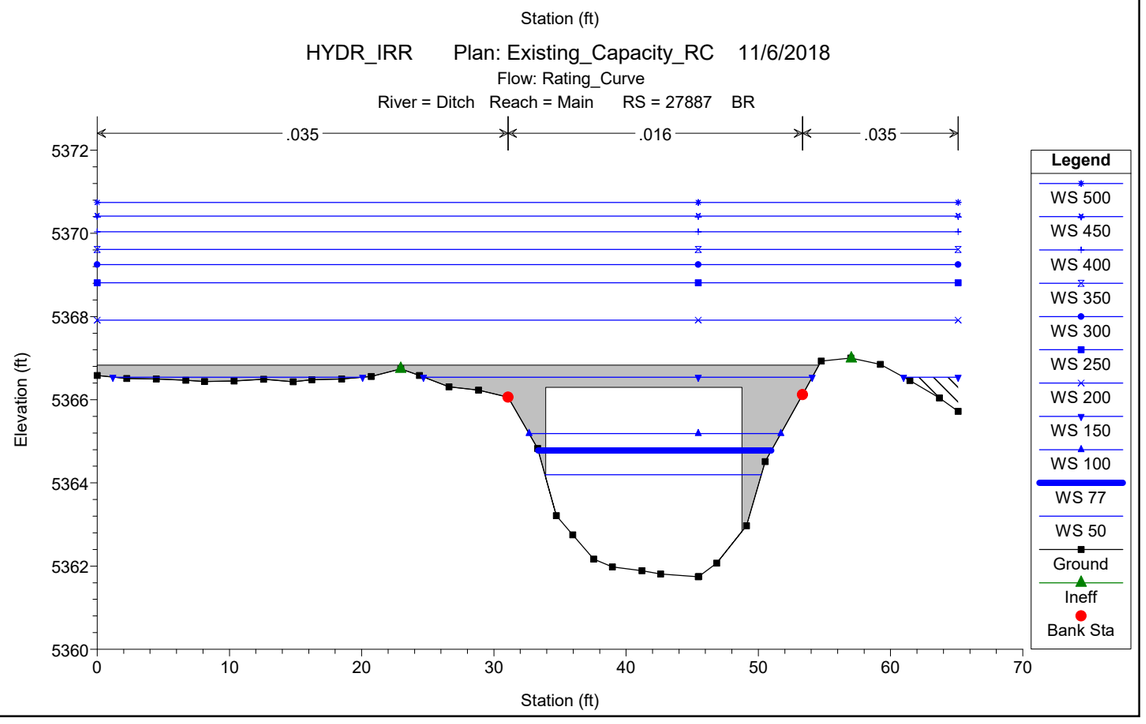

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 28184 BR
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

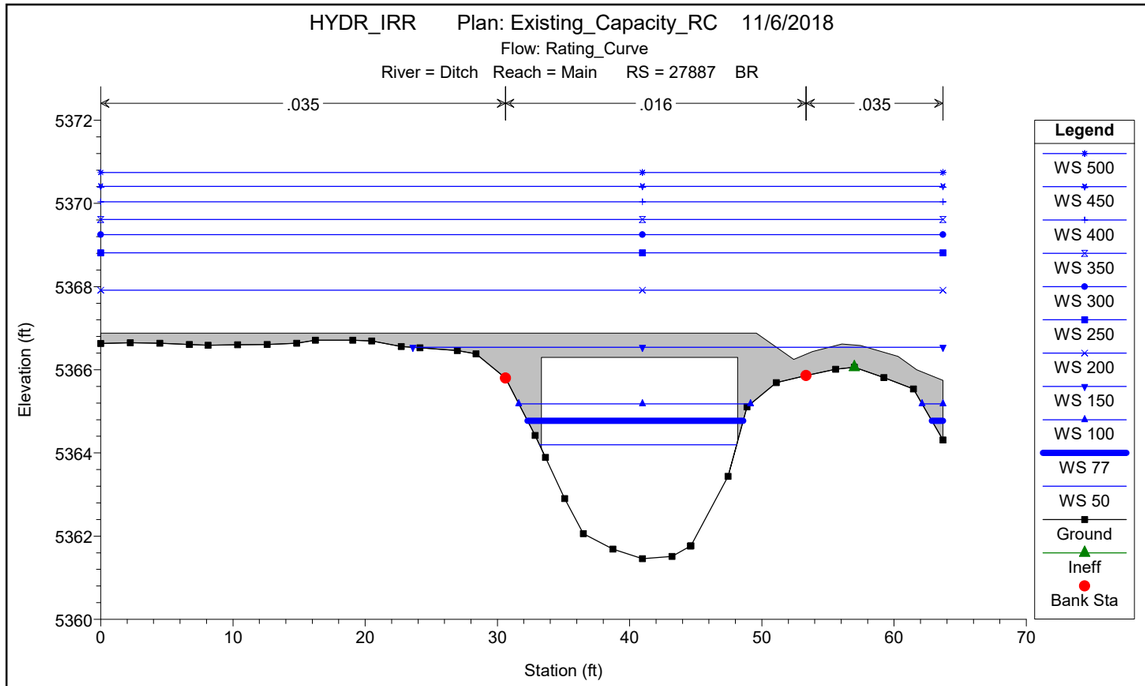

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 28161
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

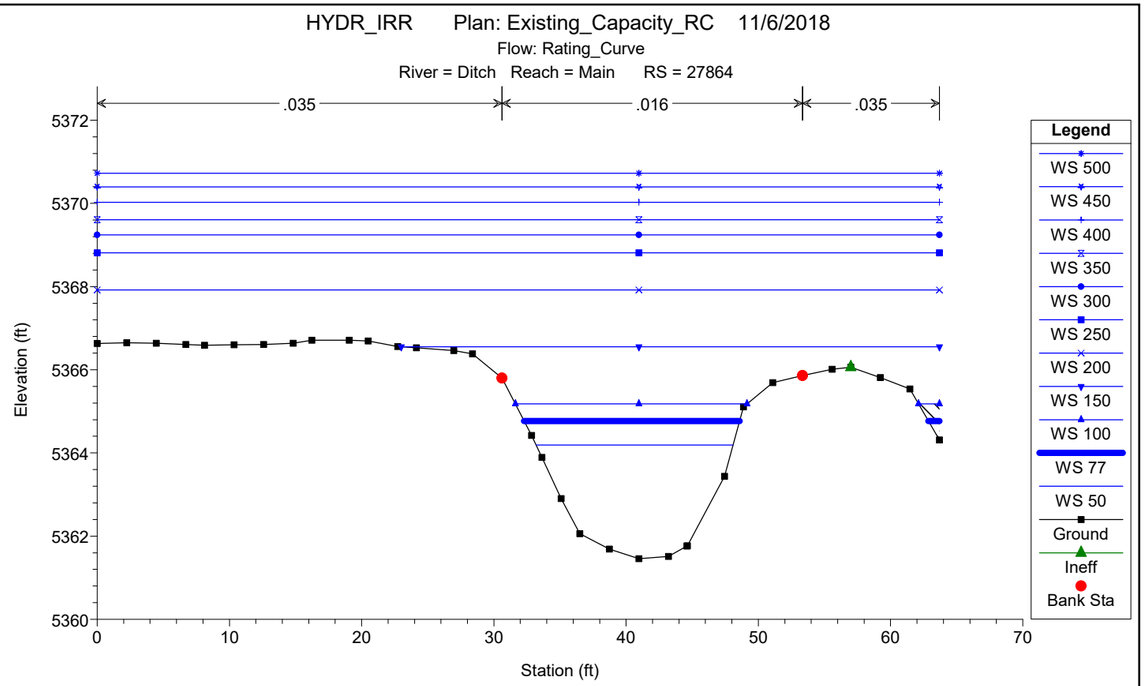

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 28045
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

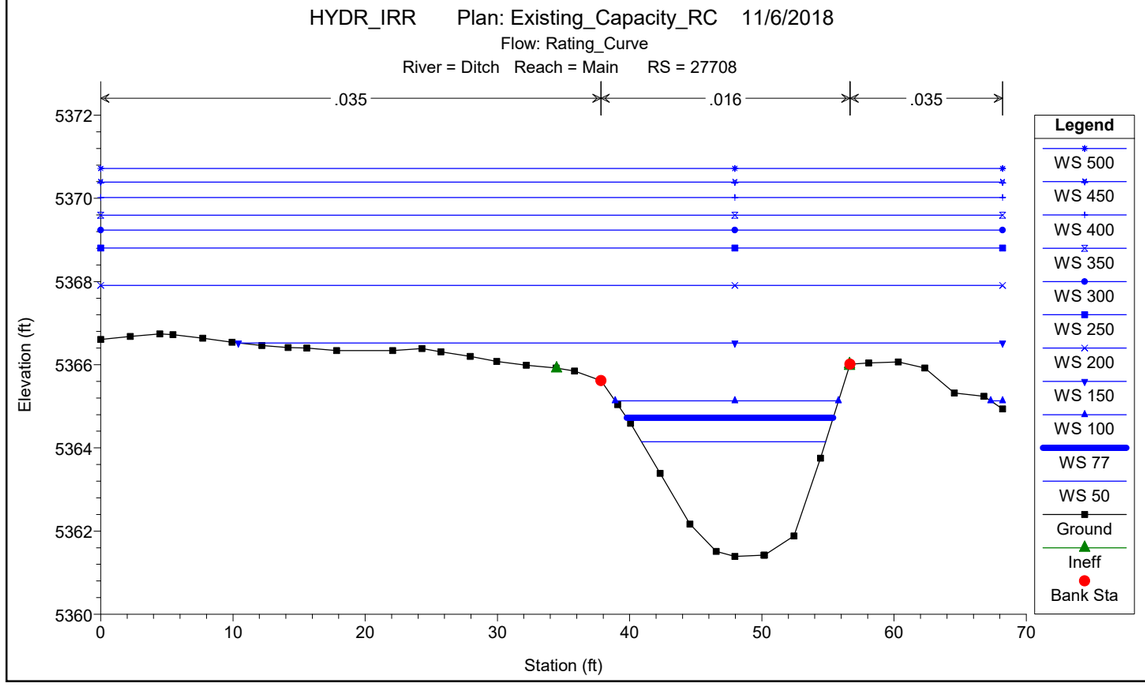

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 27967
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

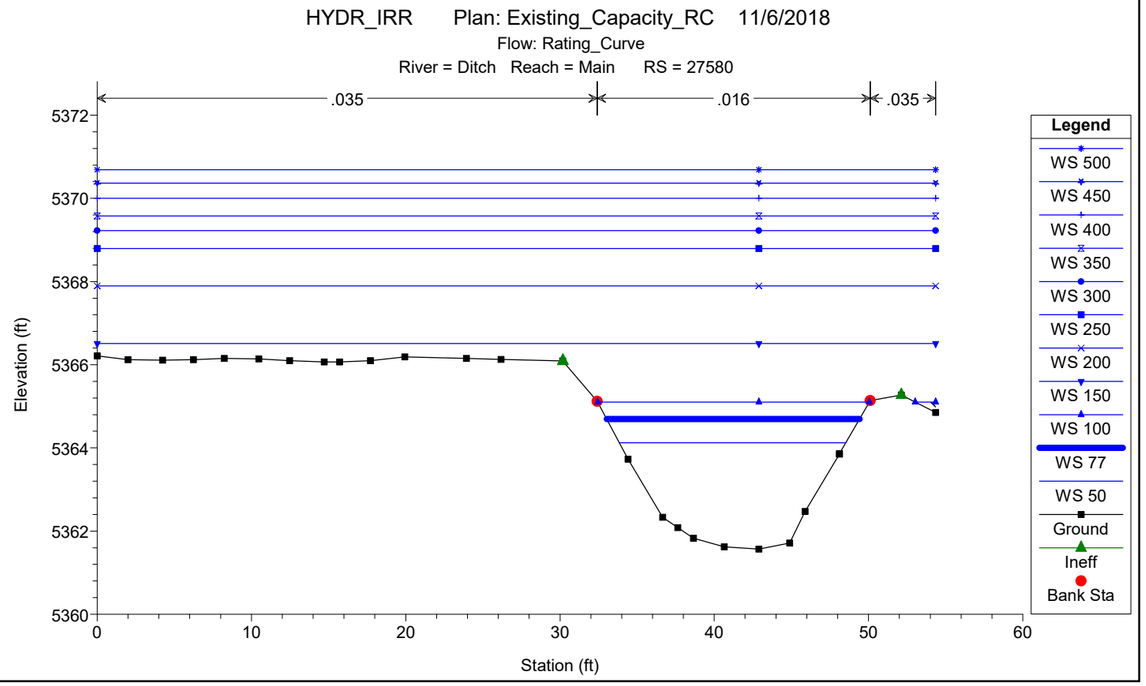

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 27902
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

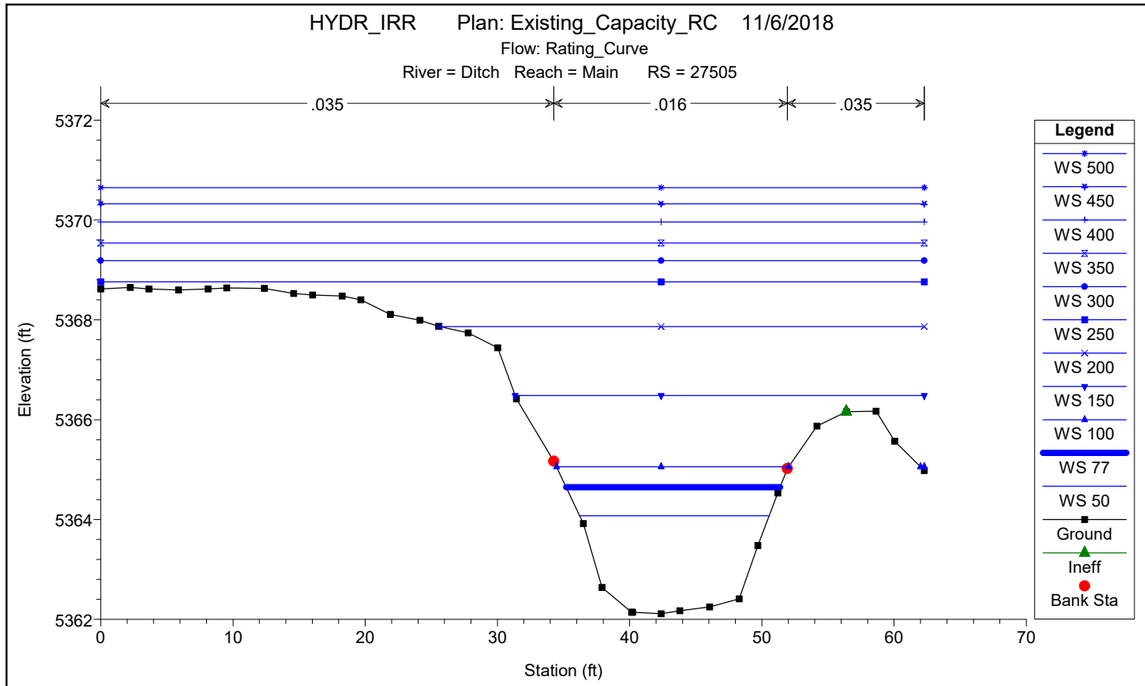

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 27887 BR
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

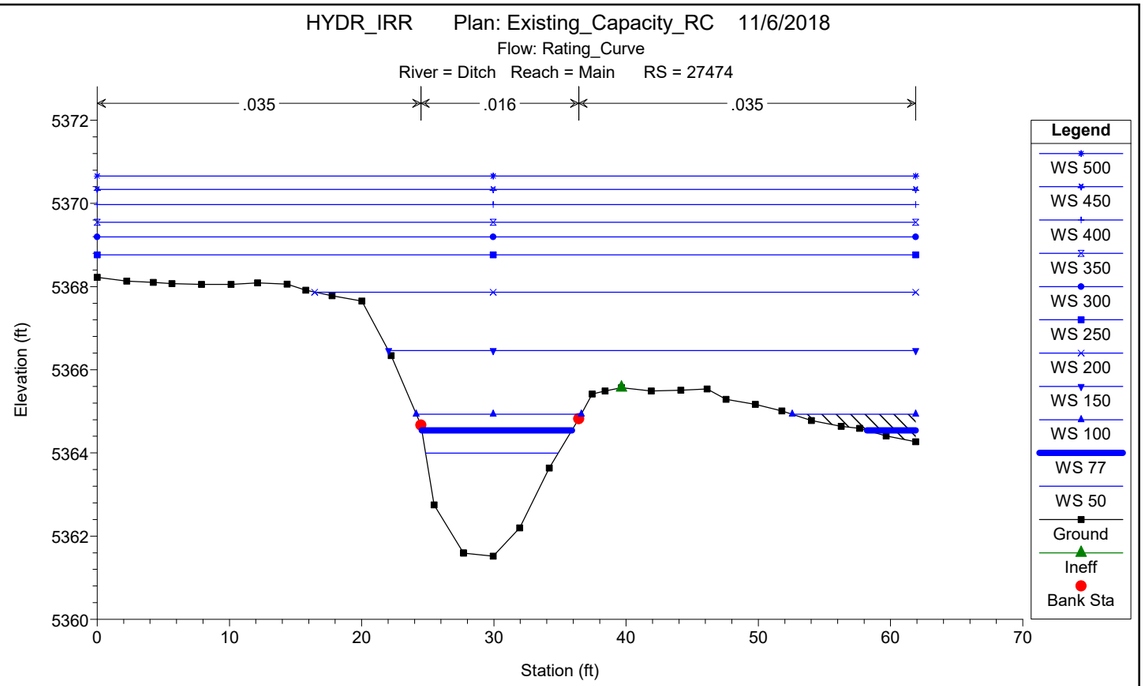

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 27887 BR
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

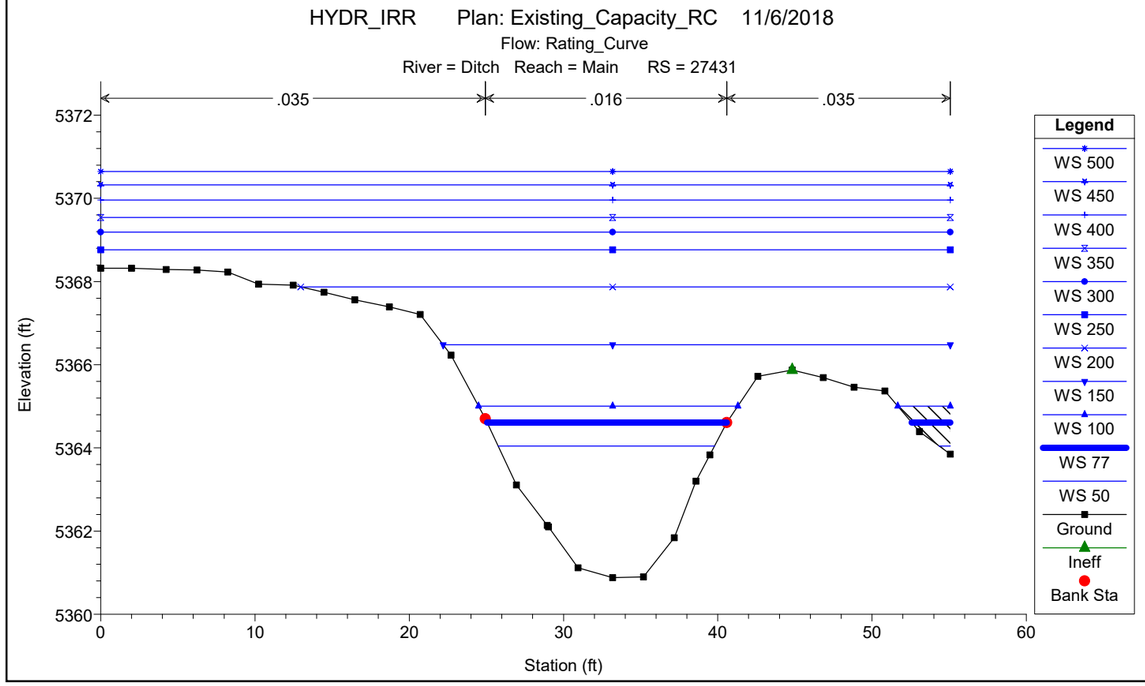

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 27864
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

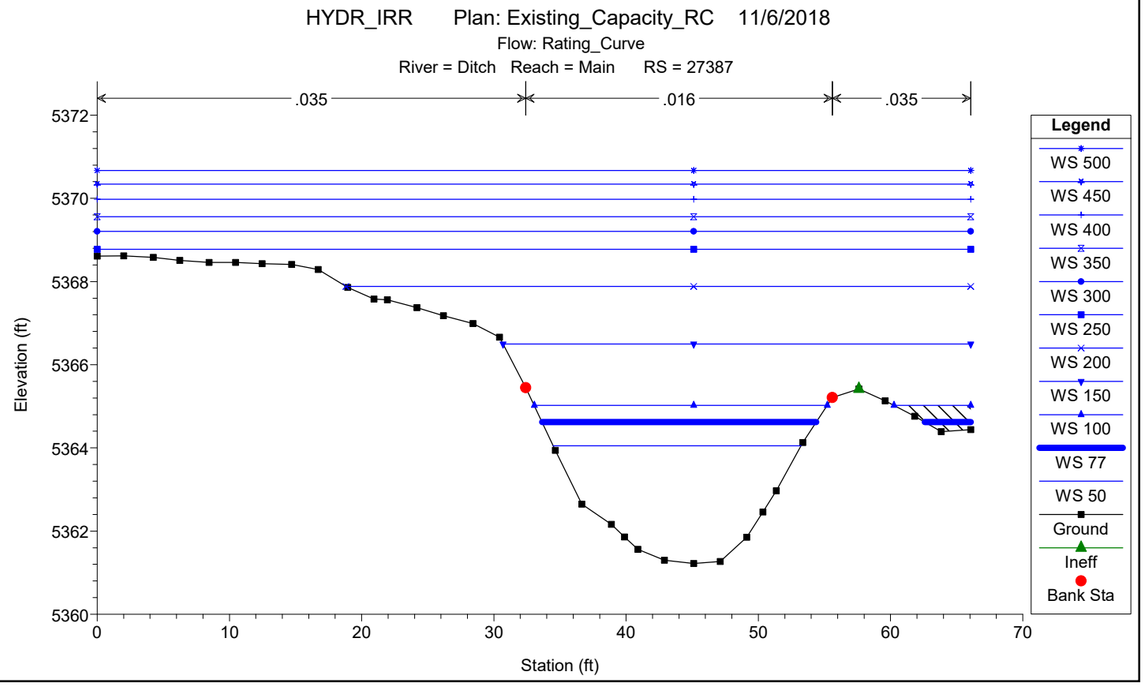

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 27708
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

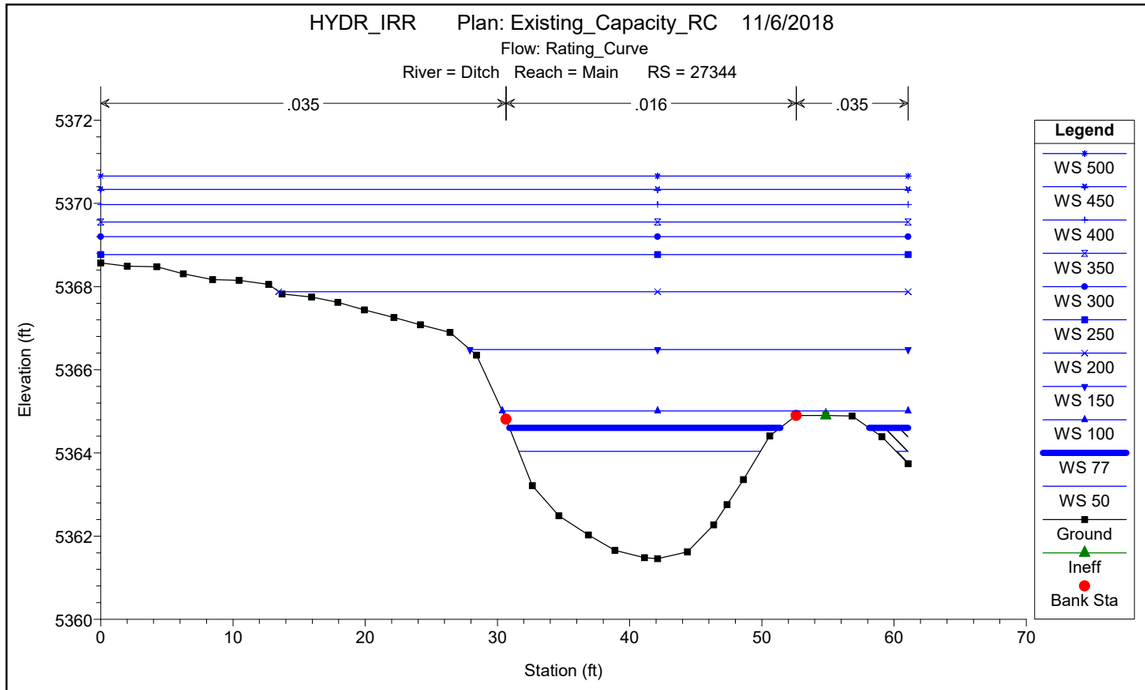

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 27580
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

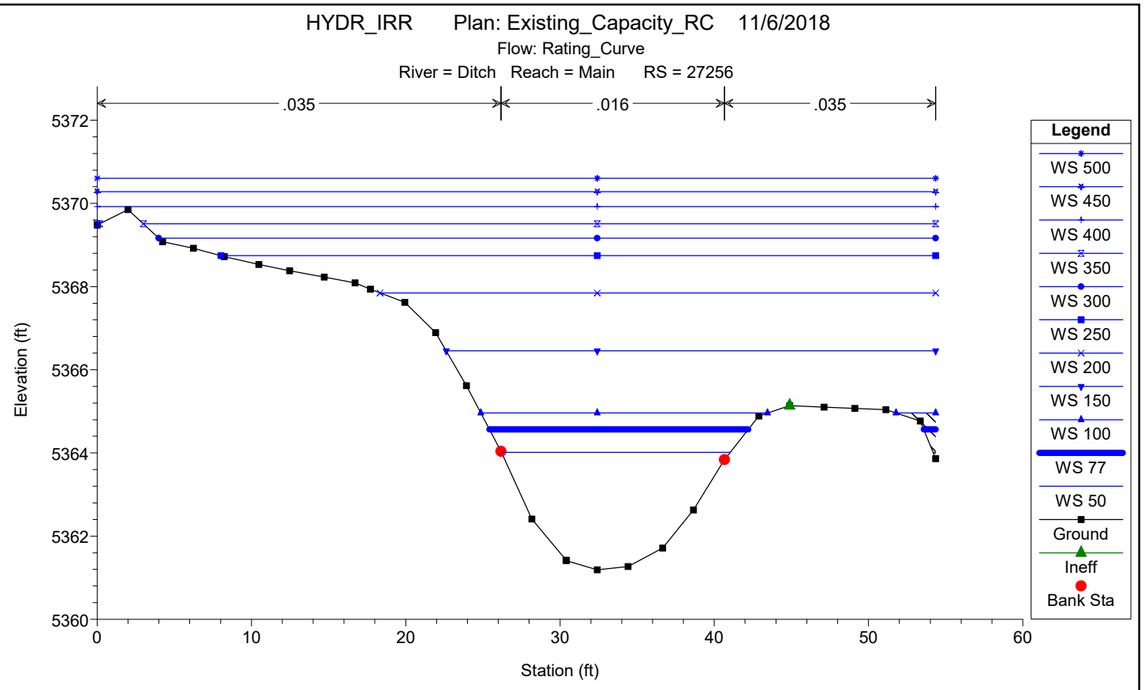

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 27505
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

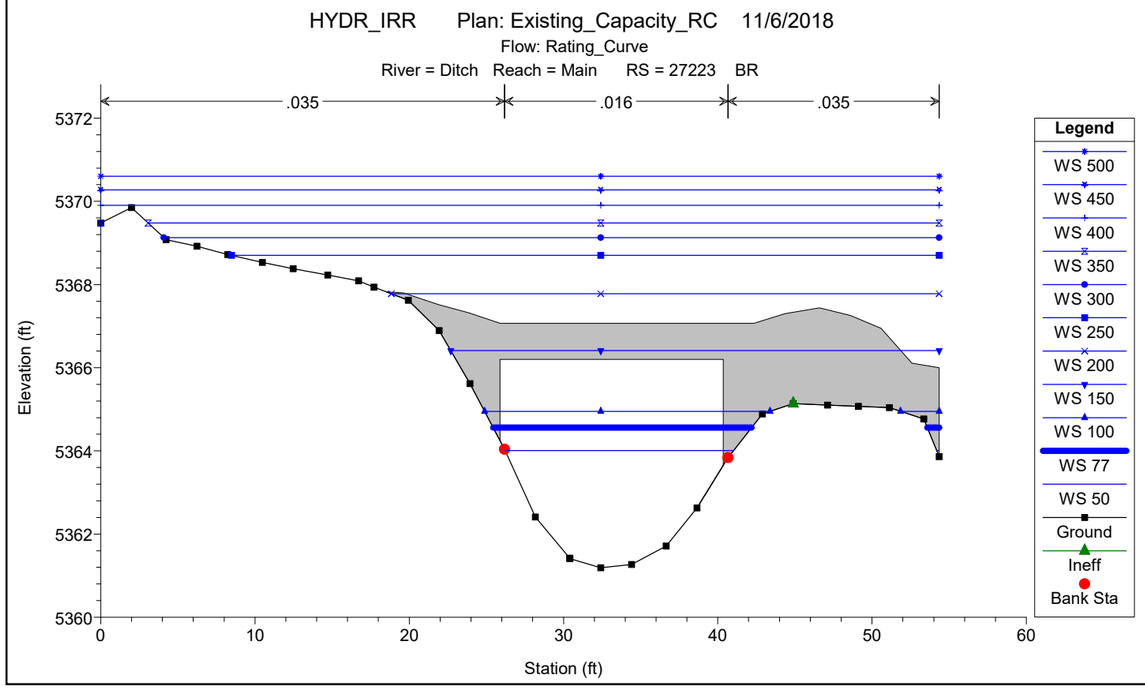

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 27474
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

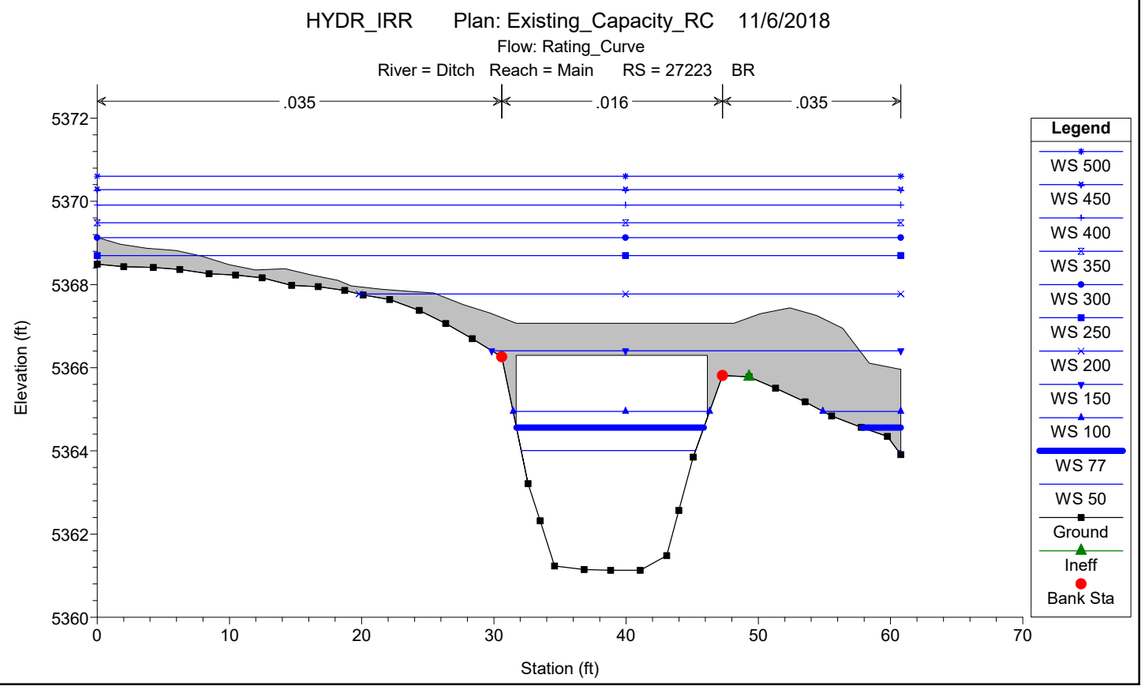

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 27431
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

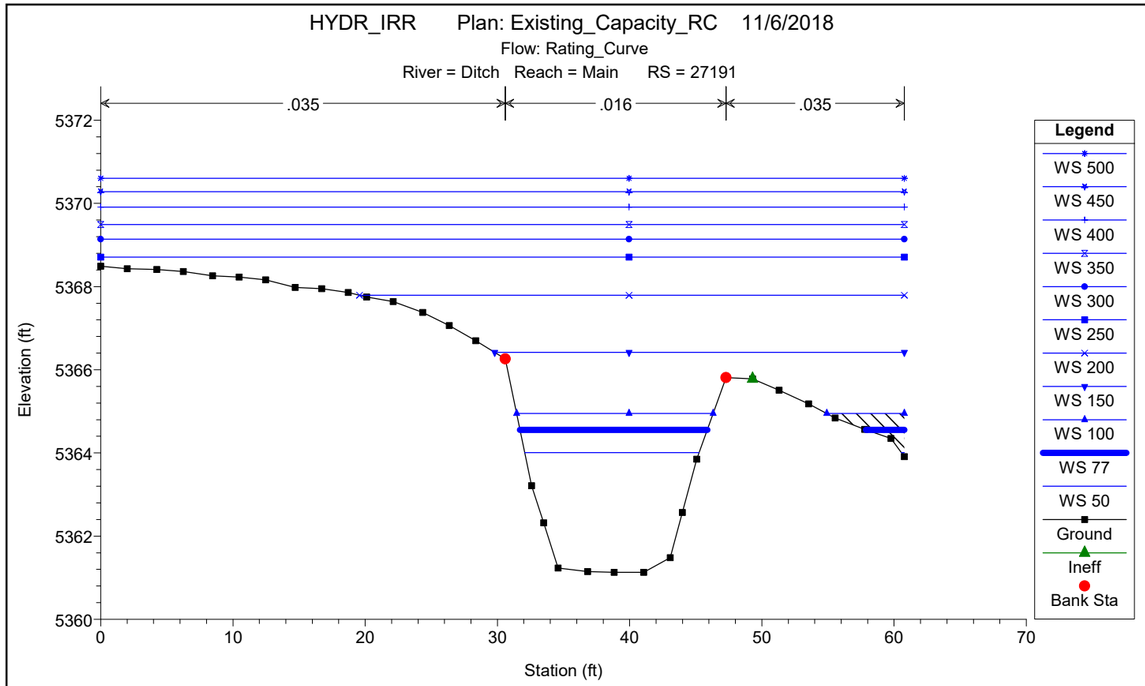

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 27387
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

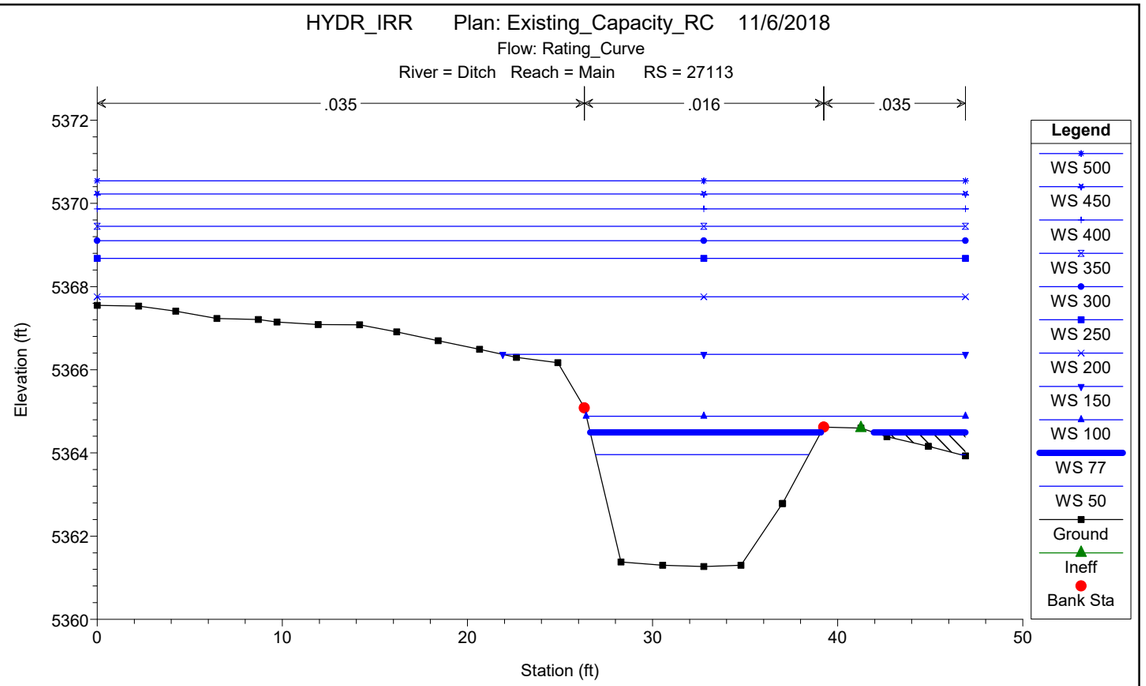

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 27344
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

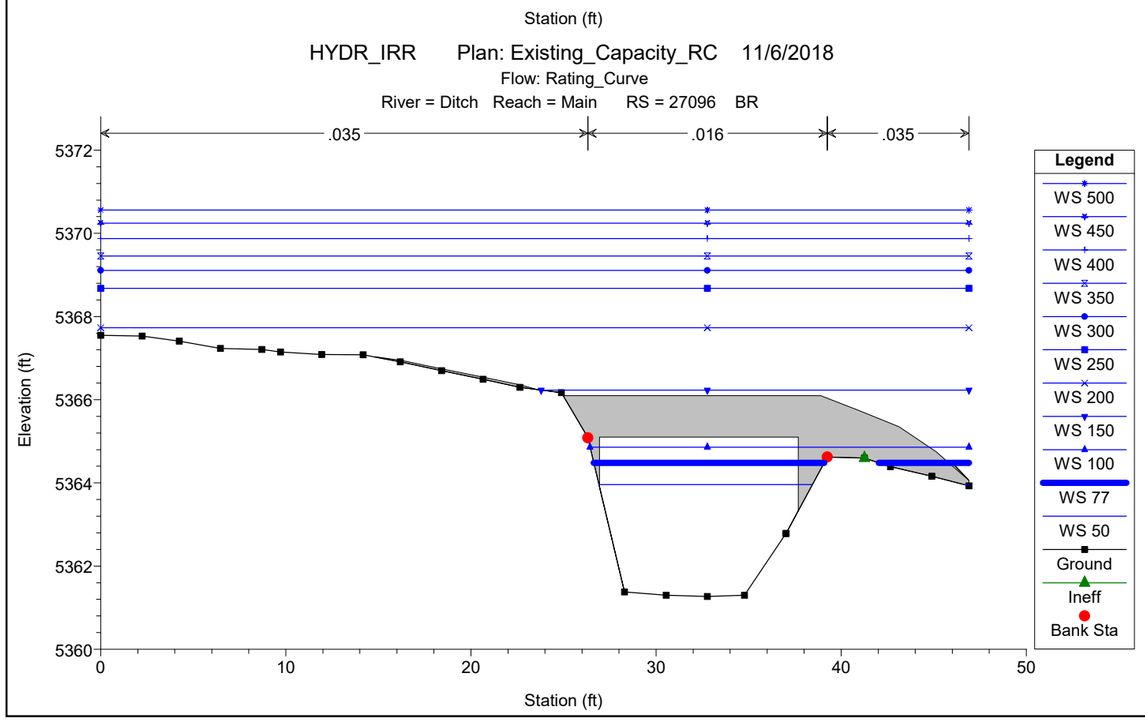

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 27256
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

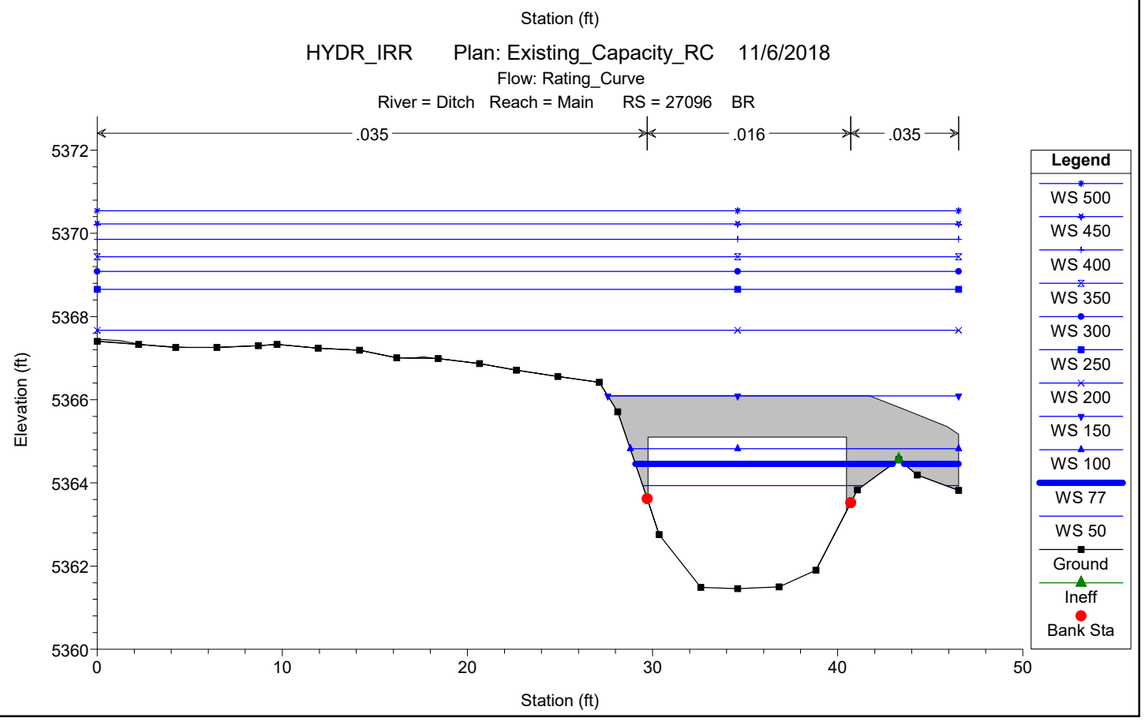

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 27223 BR
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

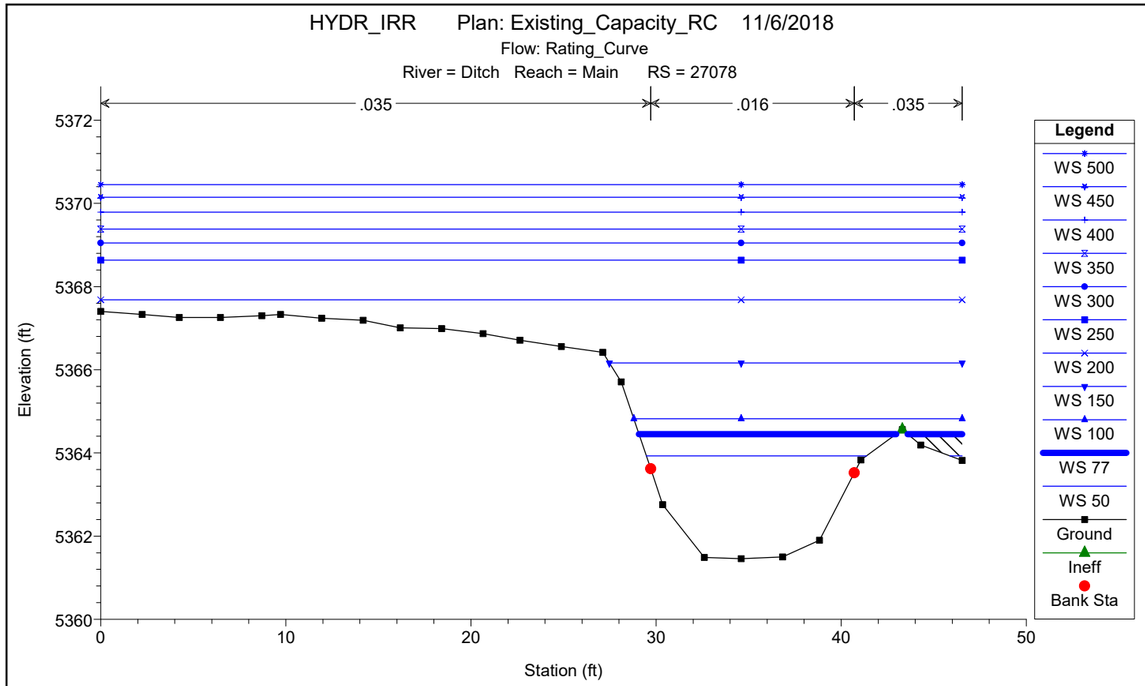

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 27223 BR
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

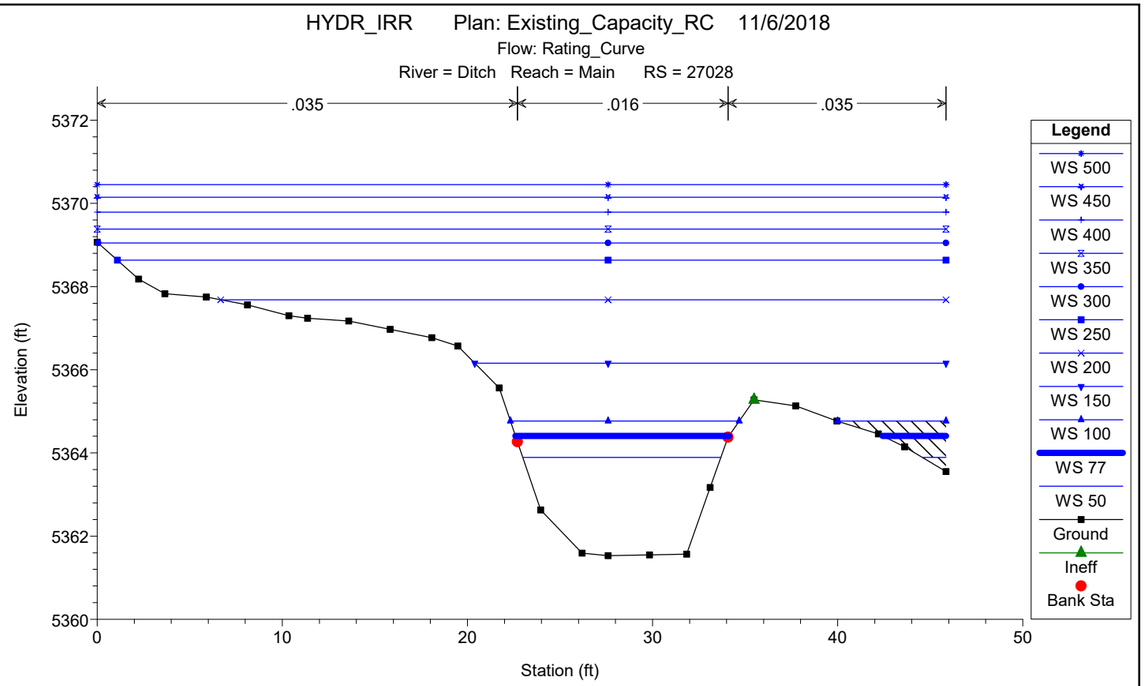

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 27191
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

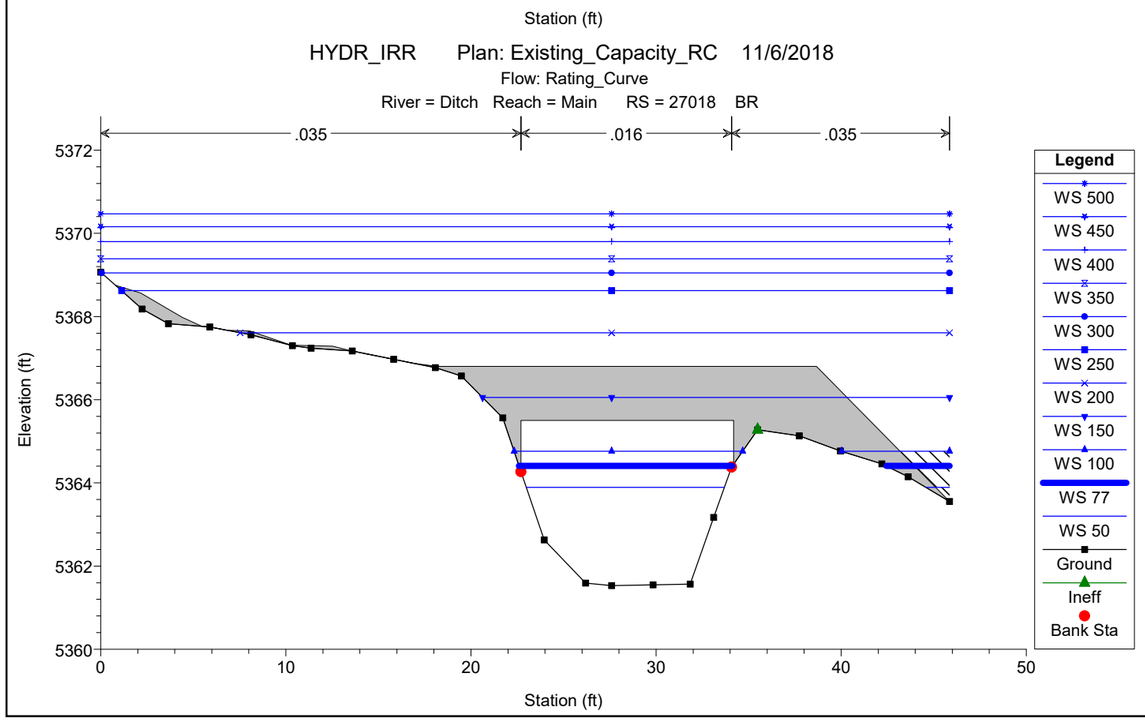

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 27113
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

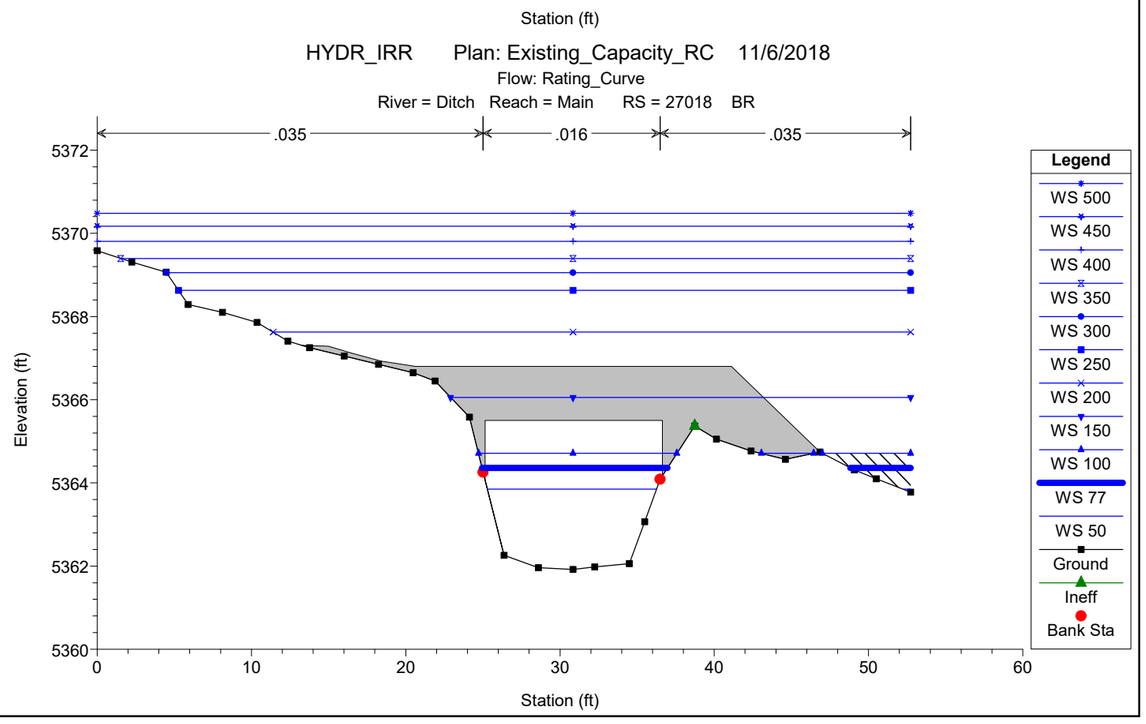

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 27096 BR
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

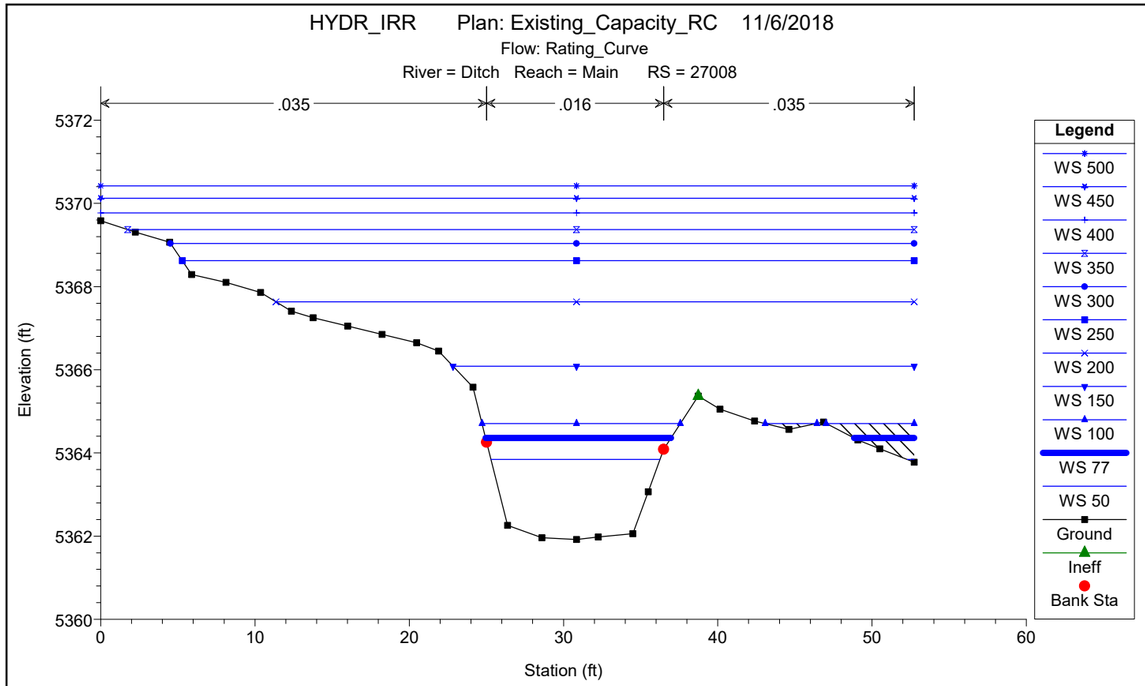

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 27096 BR
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

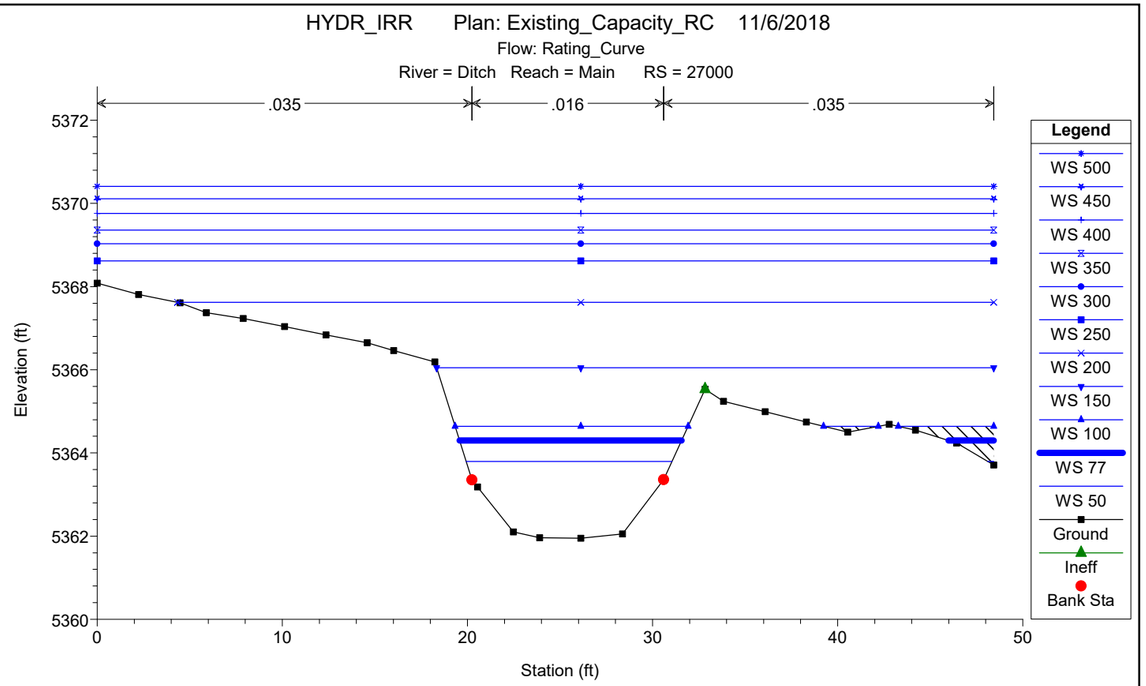

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 27078
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

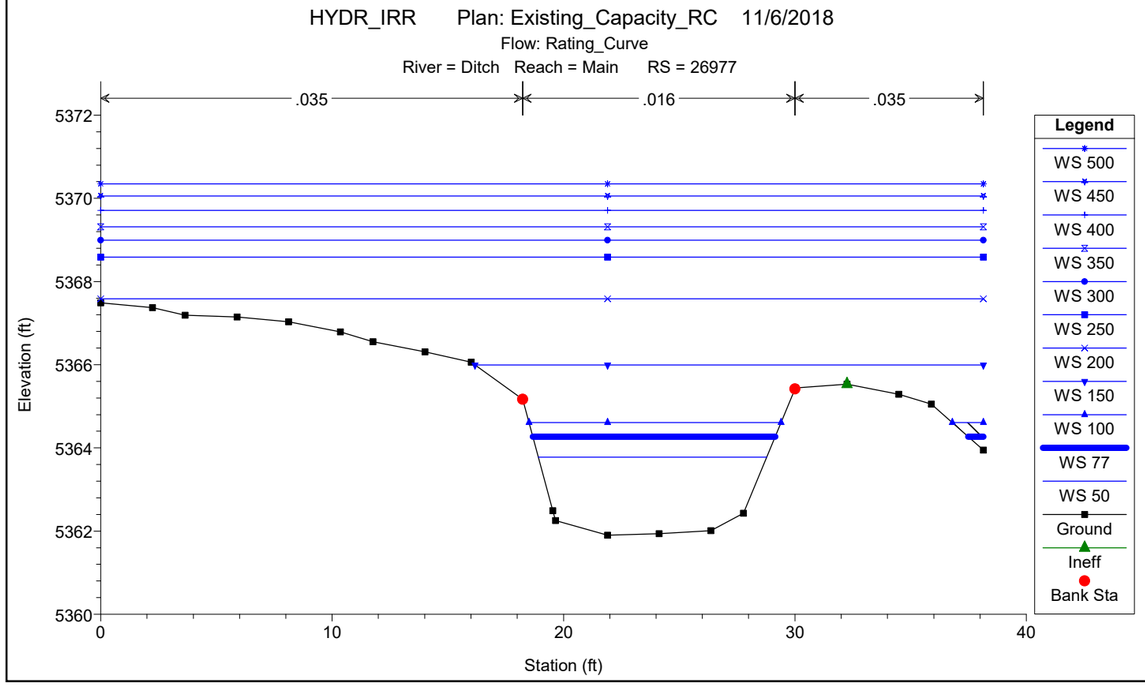

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 27028
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

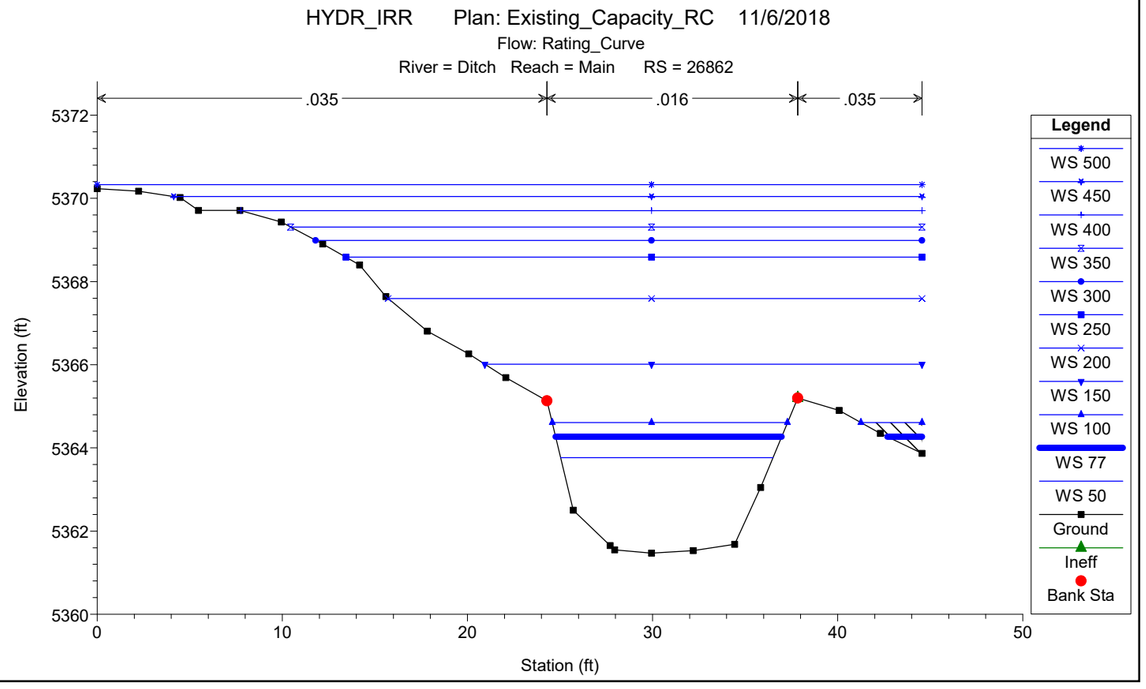

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 27018 BR
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

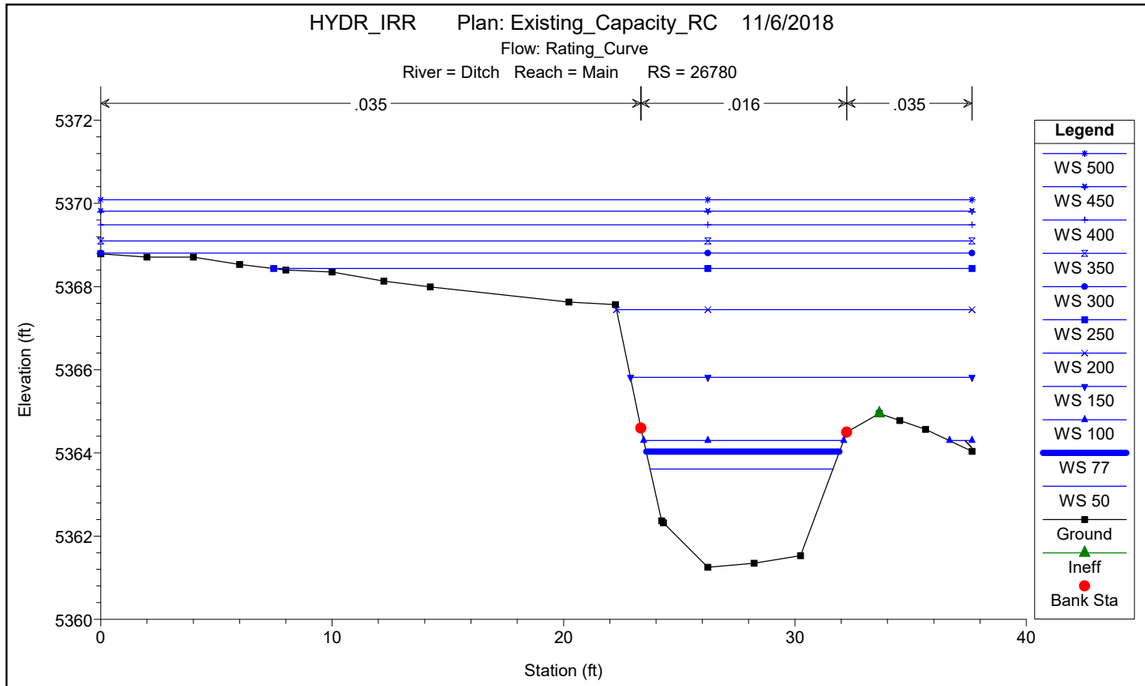

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 27018 BR
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

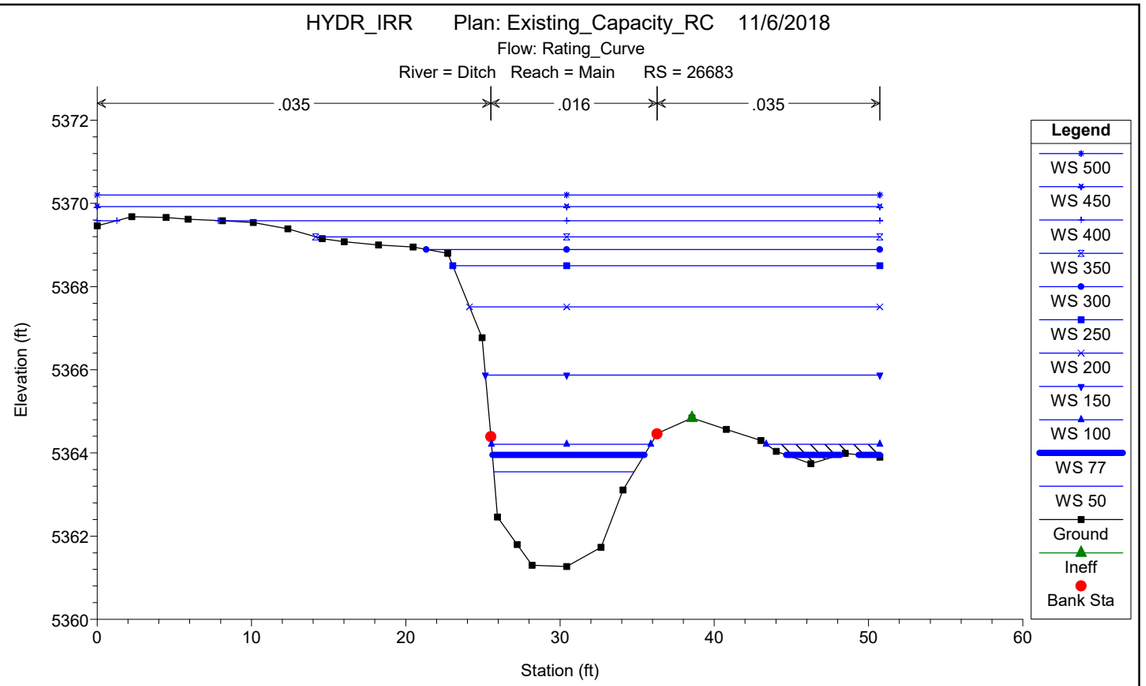

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 27008
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

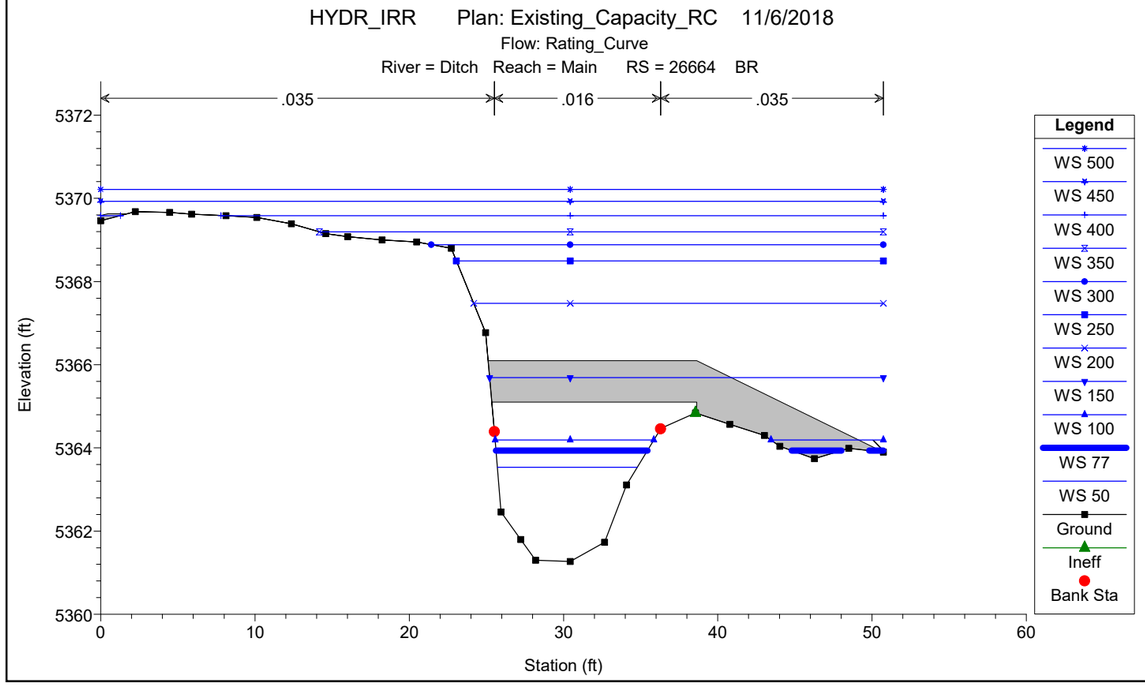

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 27000
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

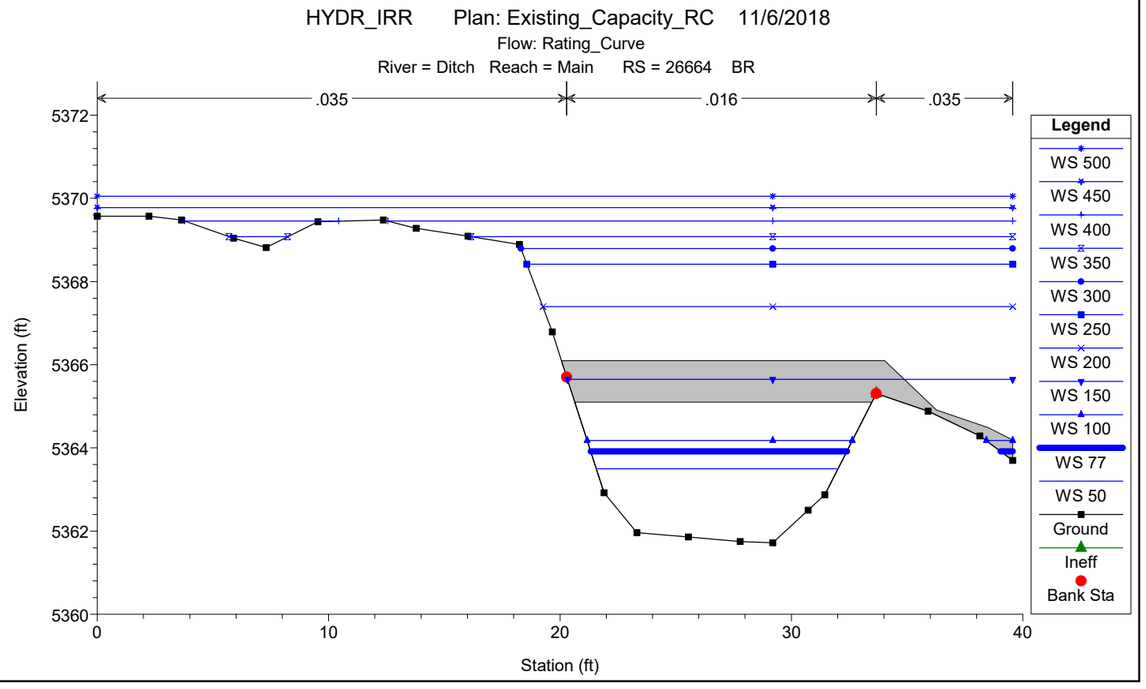

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 26977
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

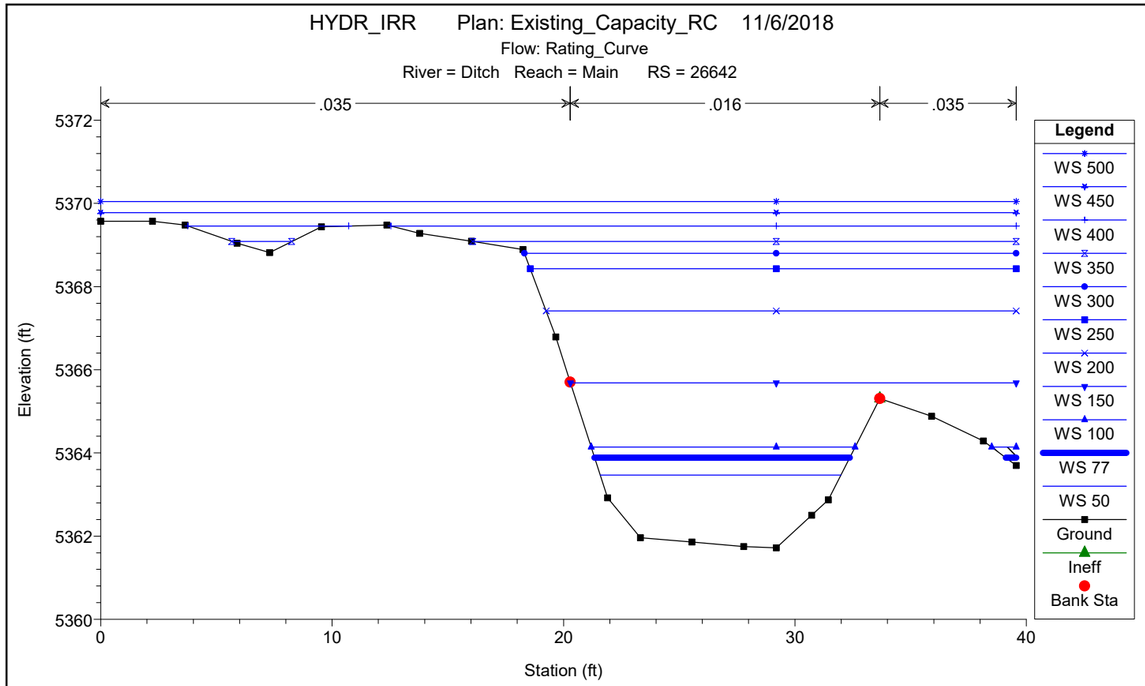

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 26862
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

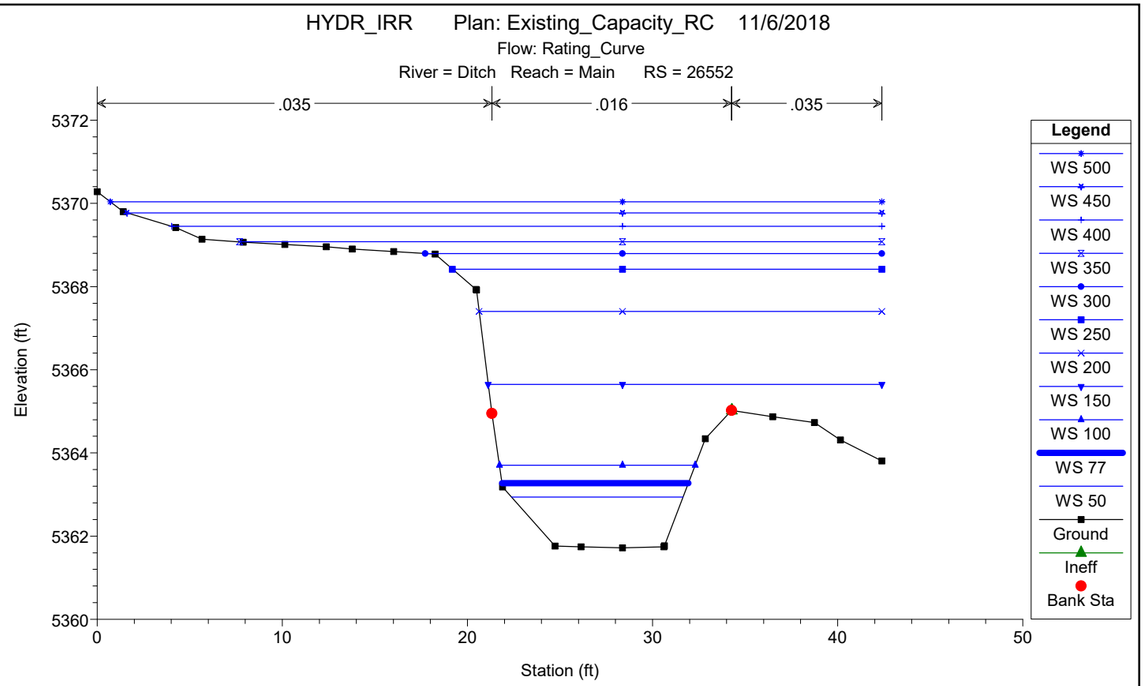

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 26780
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

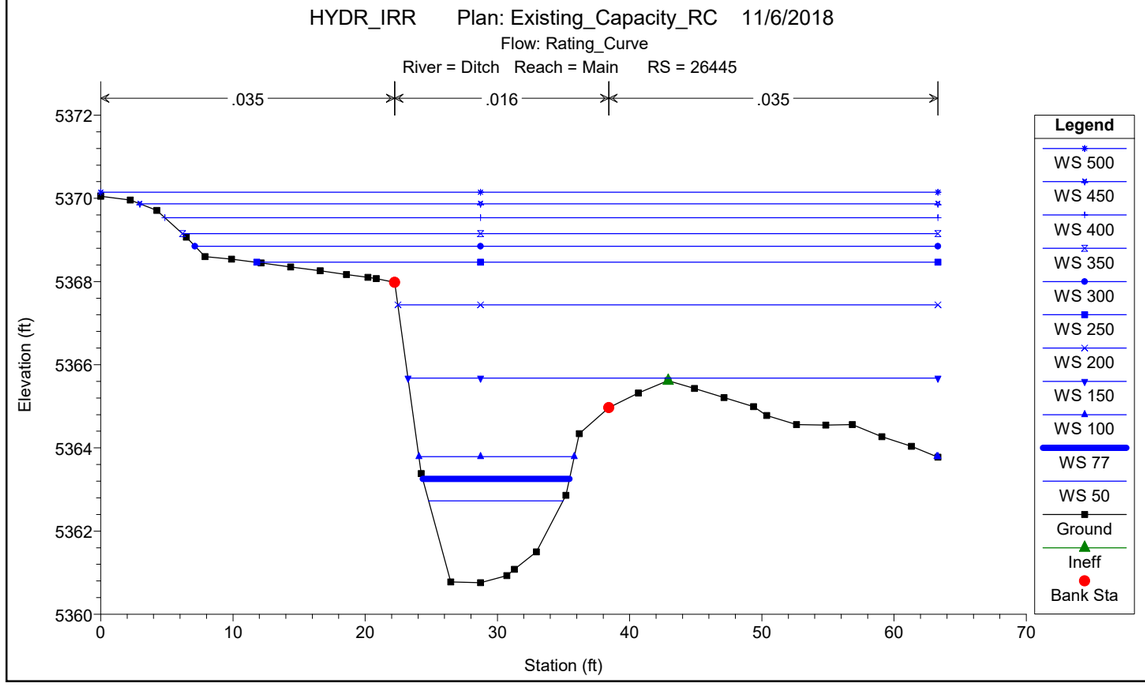

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 26683
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

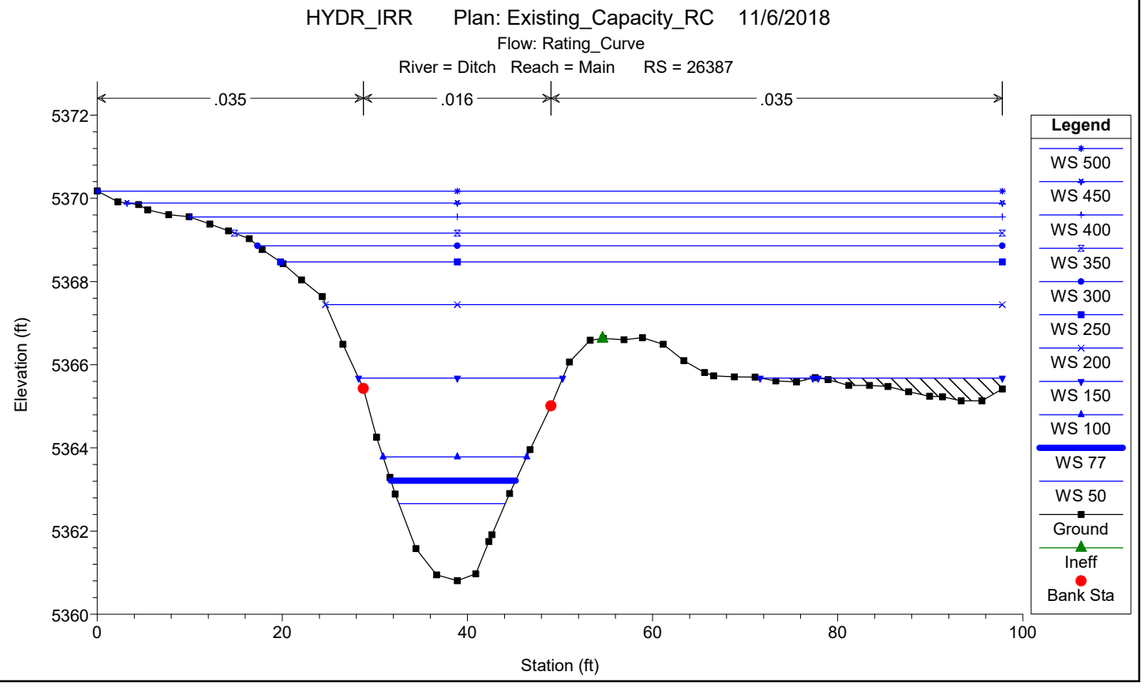

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 26664 BR
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

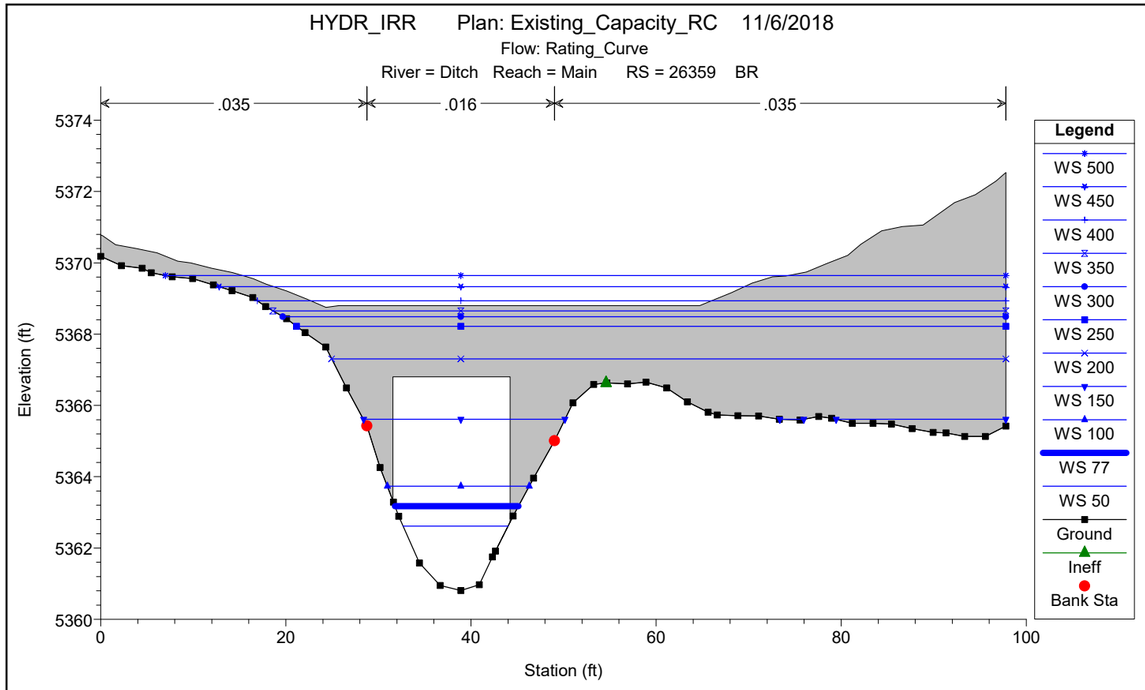

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 26664 BR
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

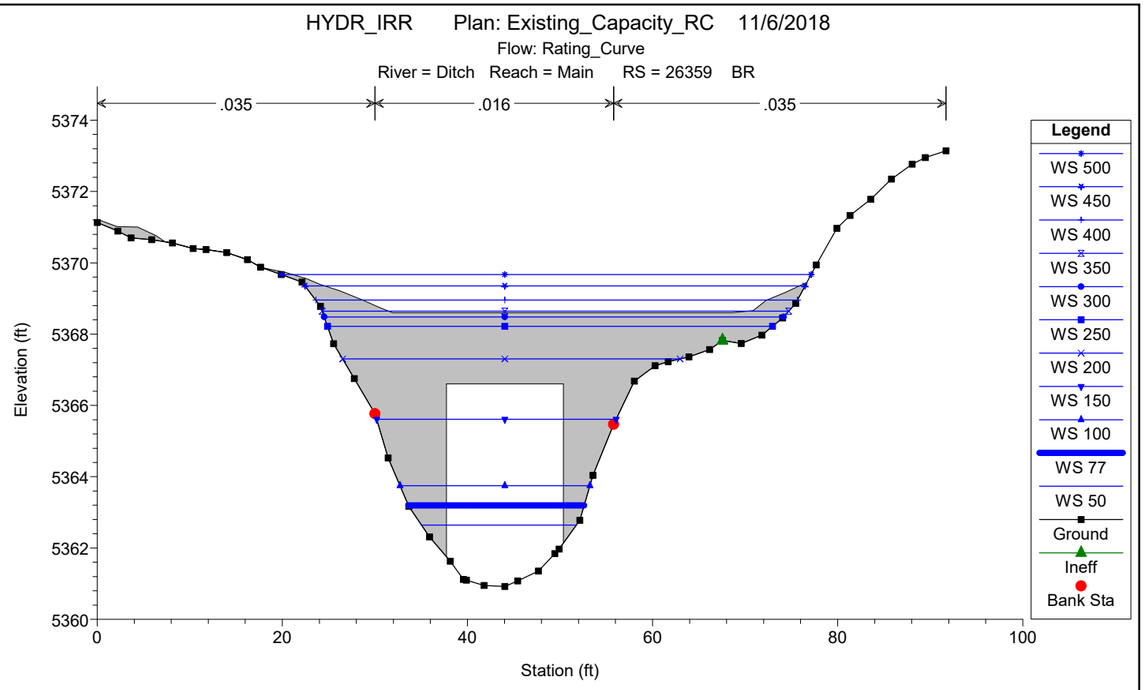

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 26642
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

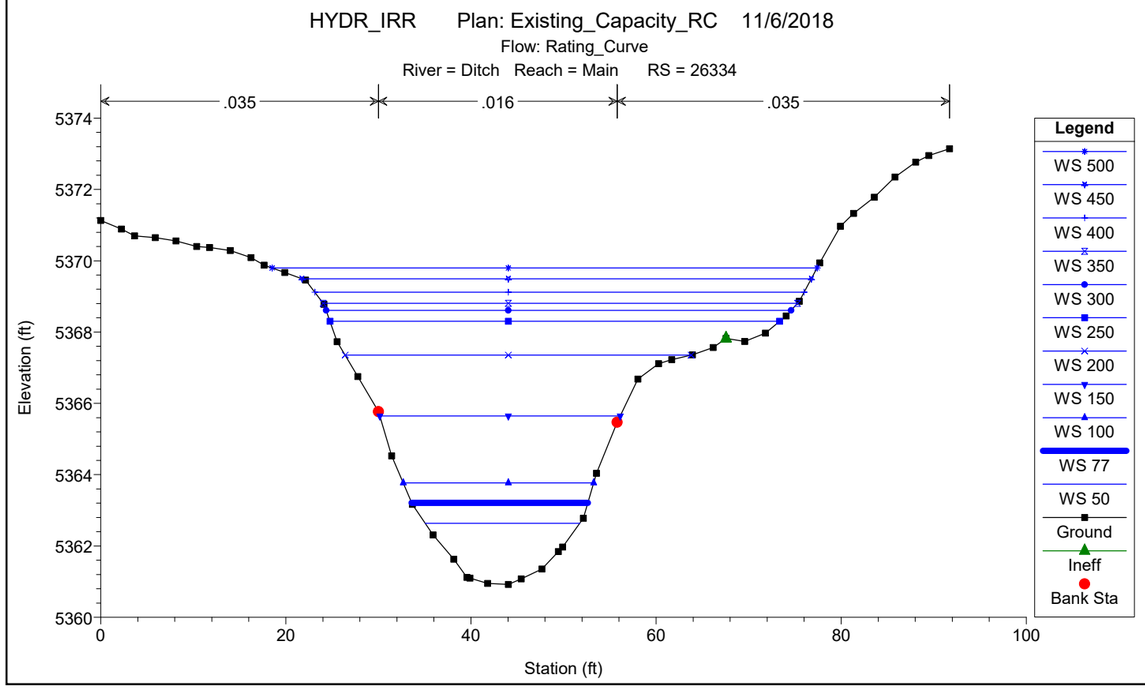

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 26552
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

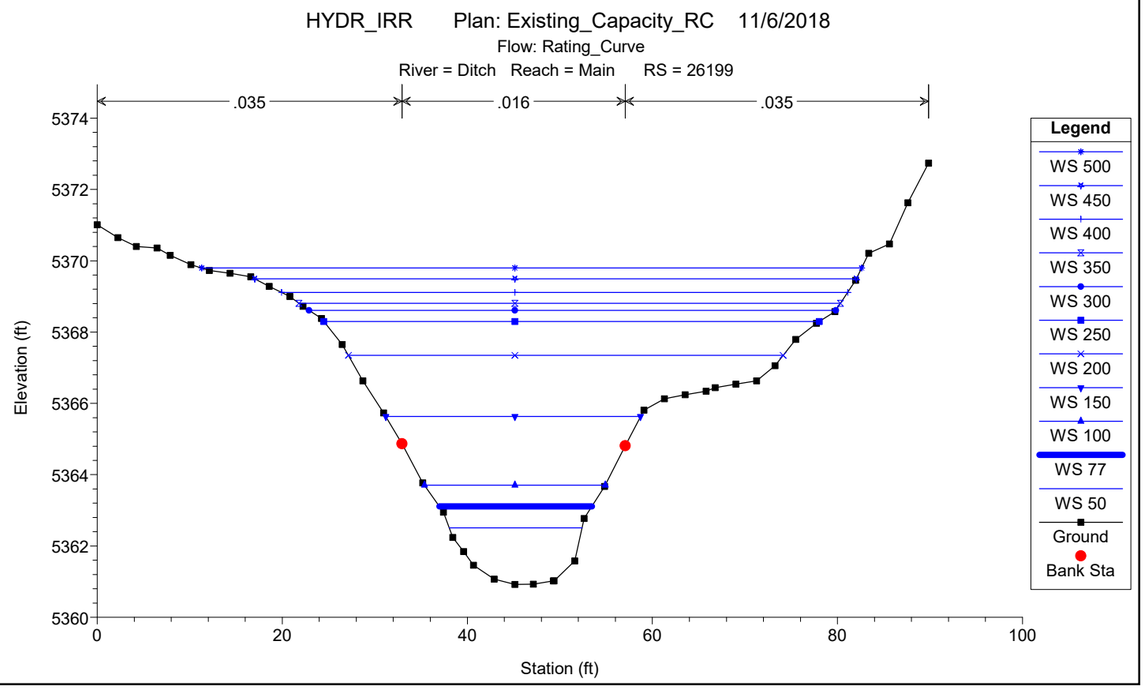

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 26445
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

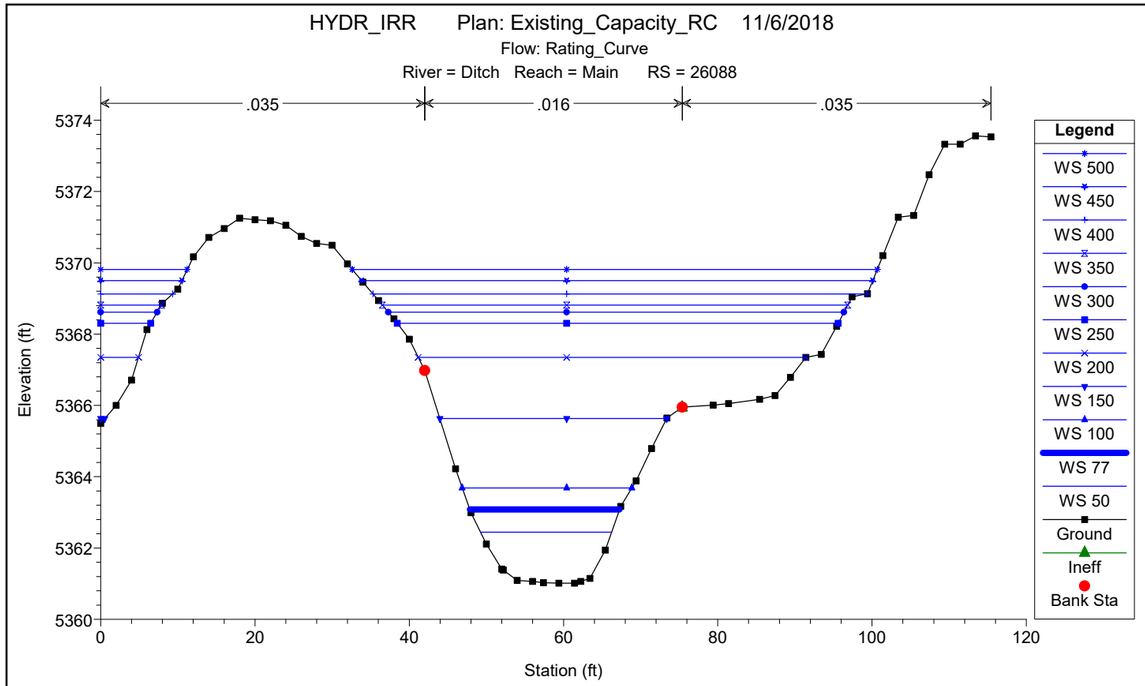

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 26387
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

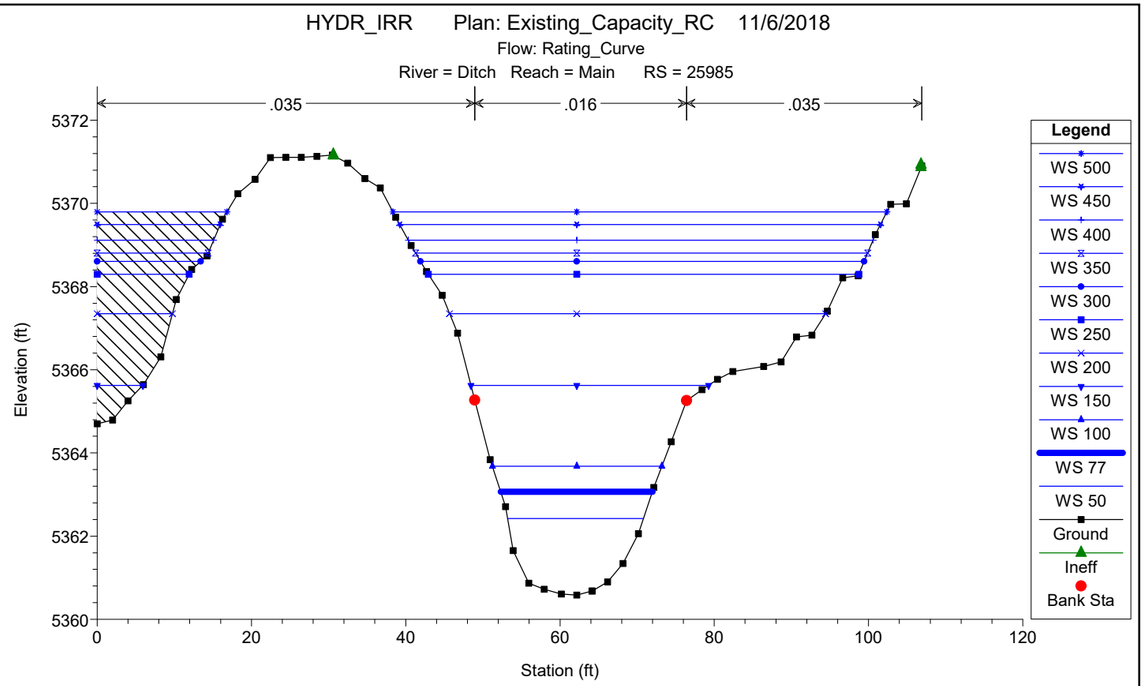

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 26359 BR
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

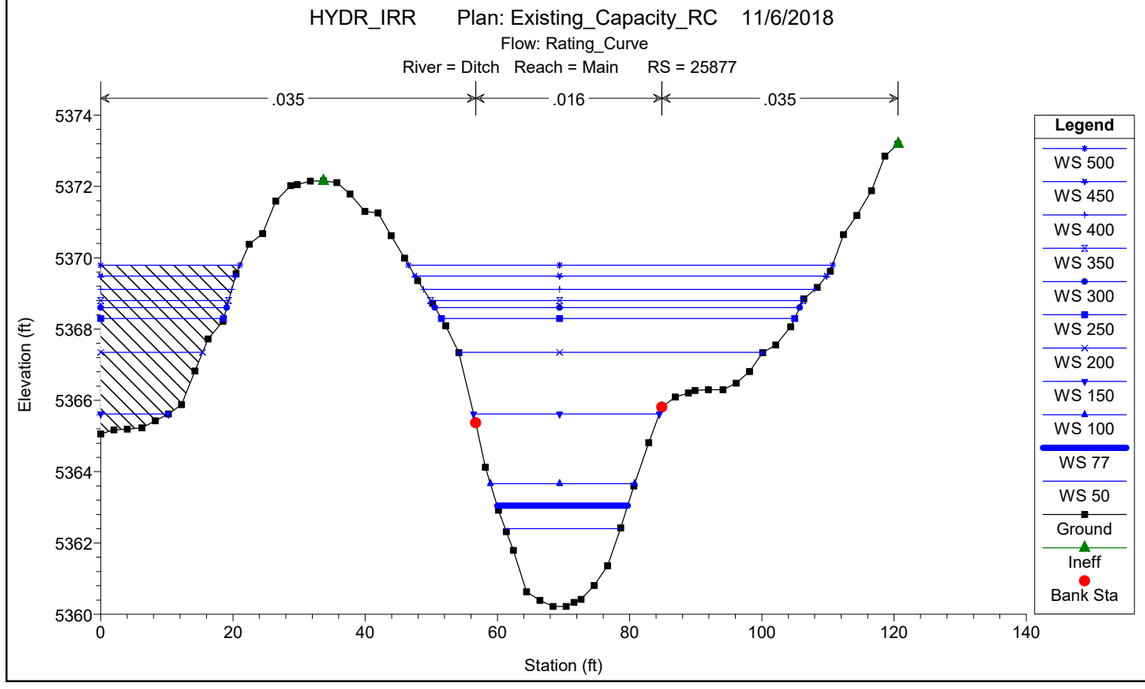

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 26359 BR
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

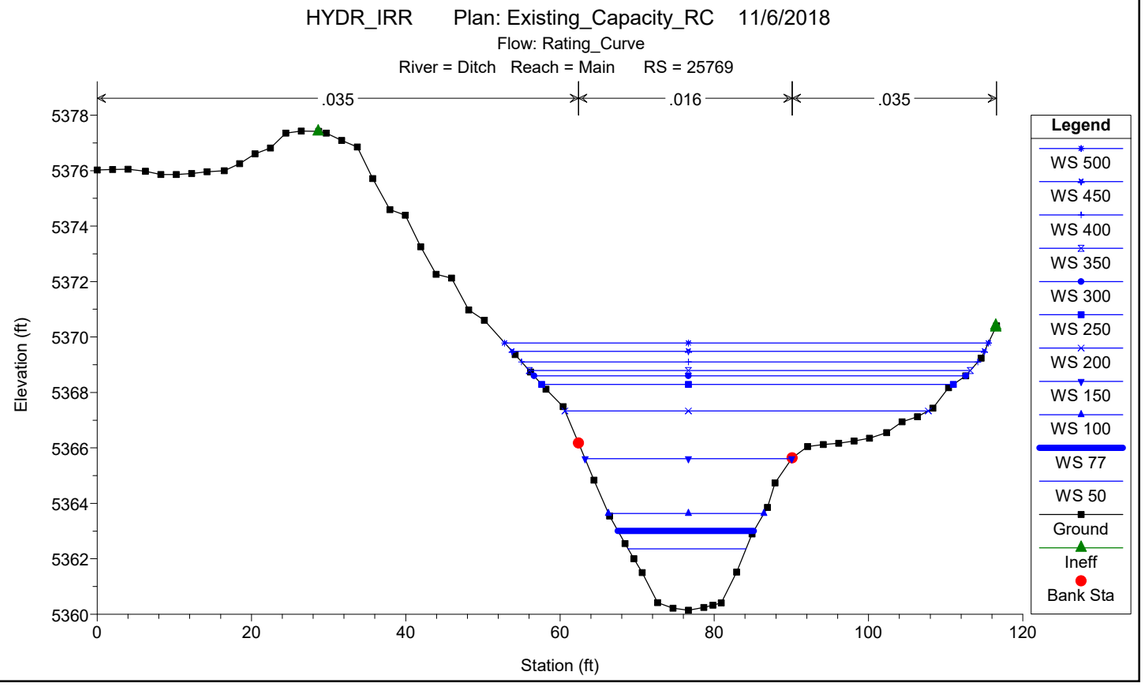

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 26334
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

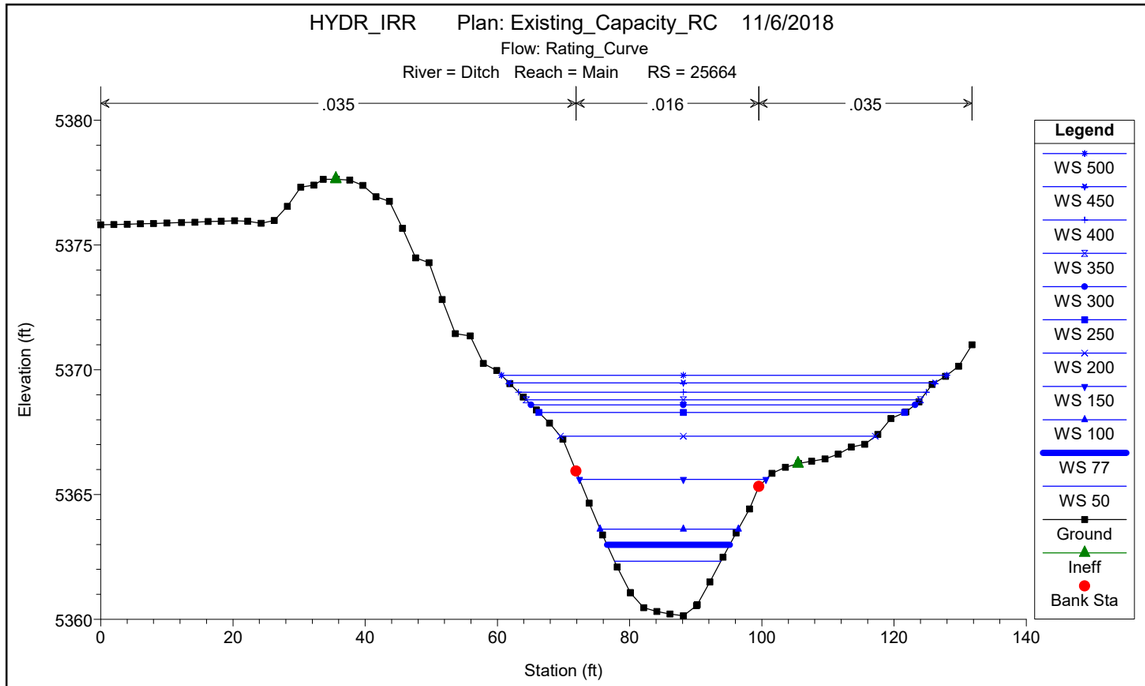

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 26199
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Bank Sta

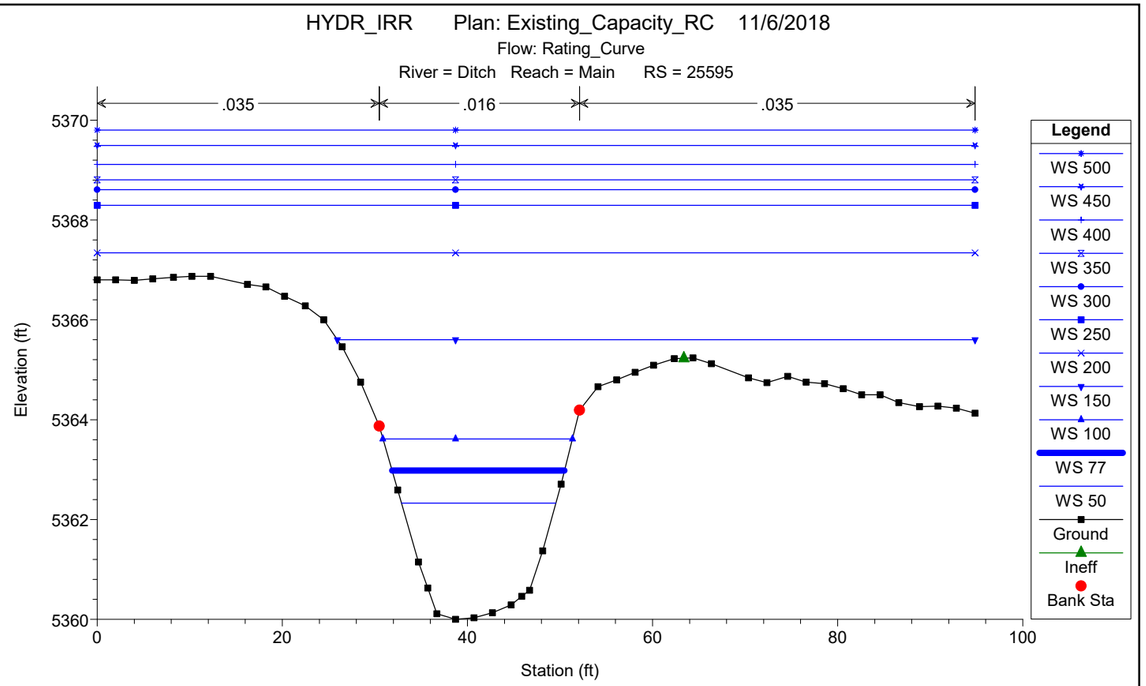

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 26088
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

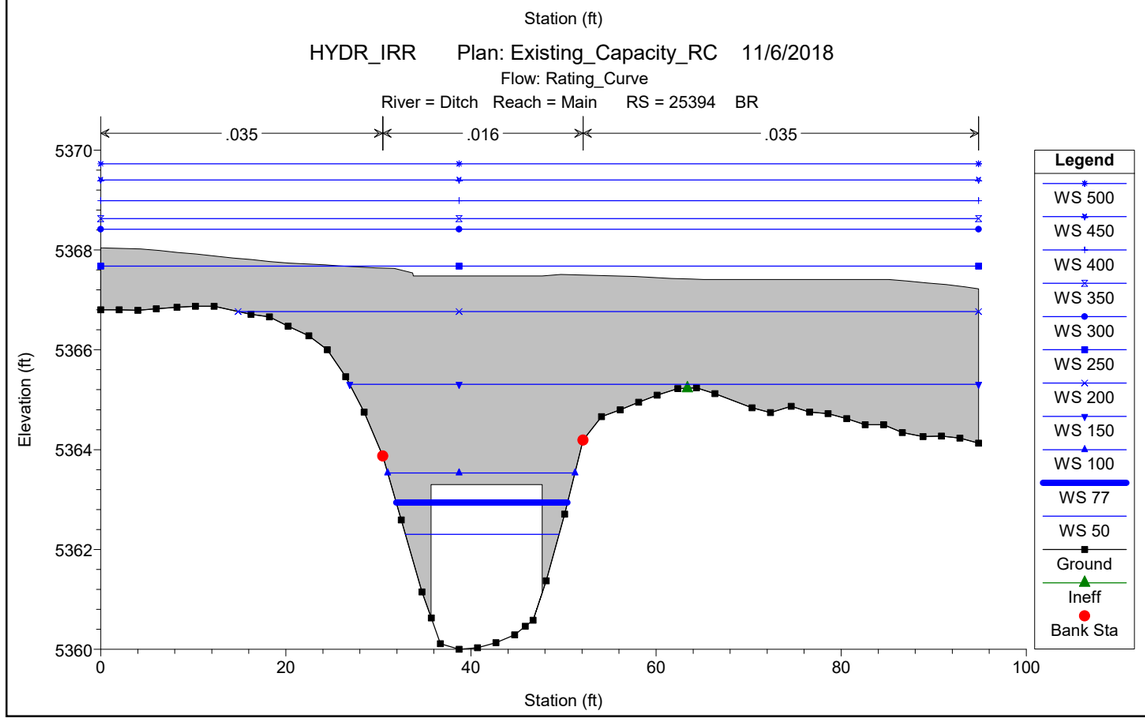

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 25985
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

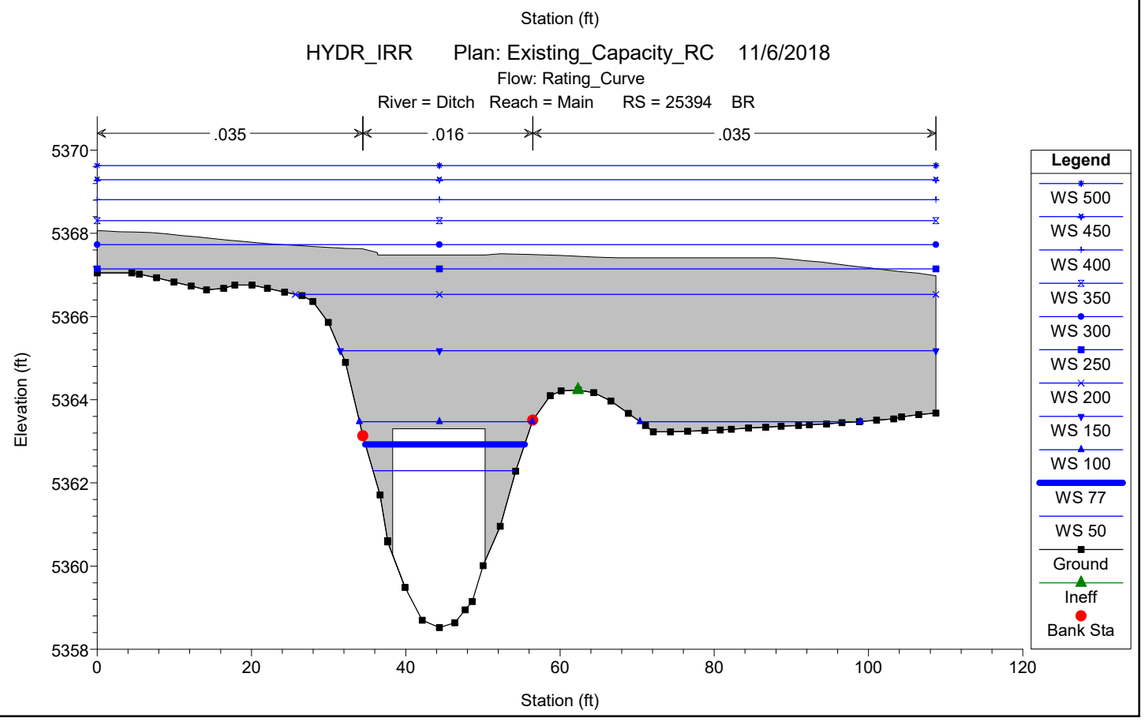

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 25877
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

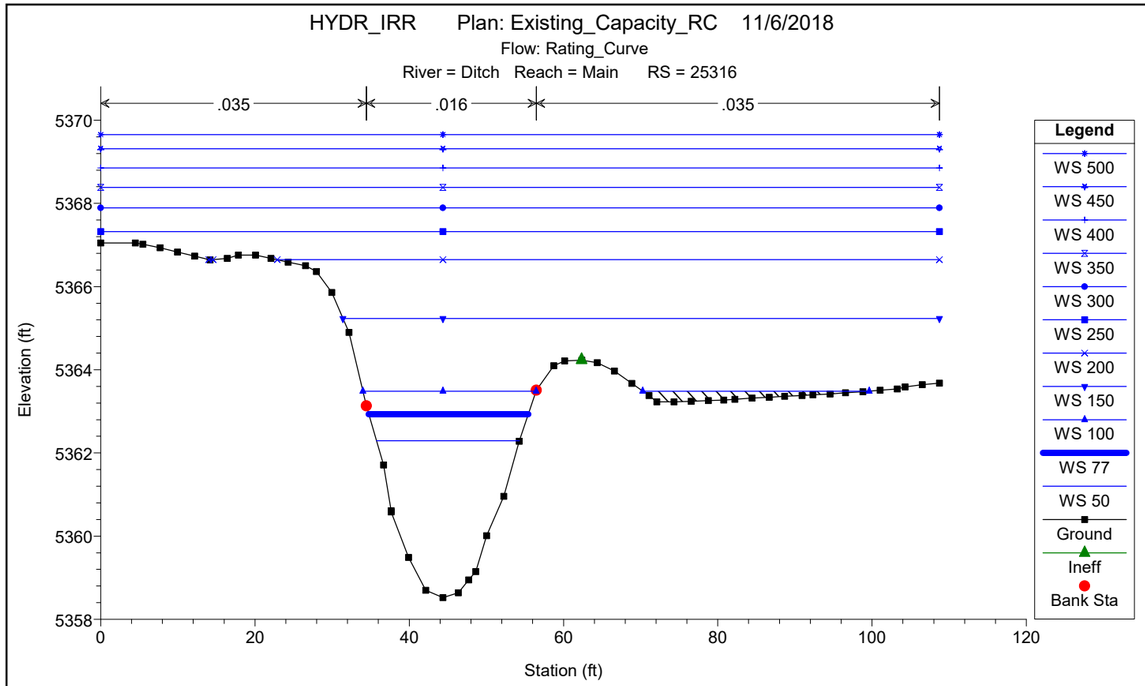

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 25769
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

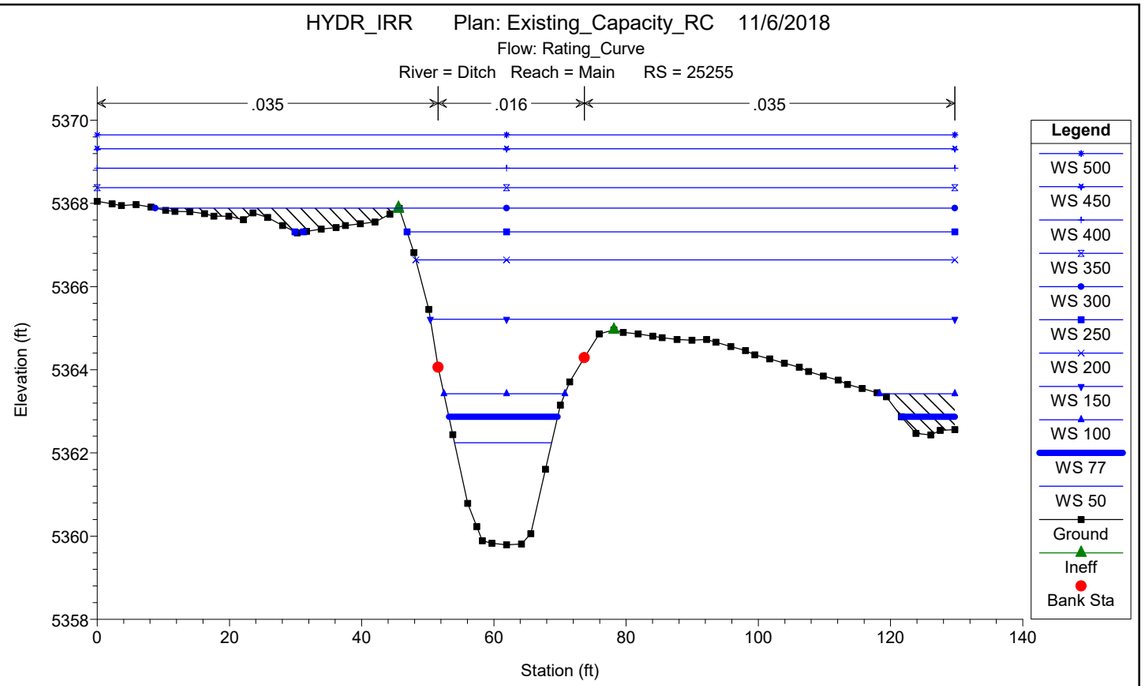

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 25664
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

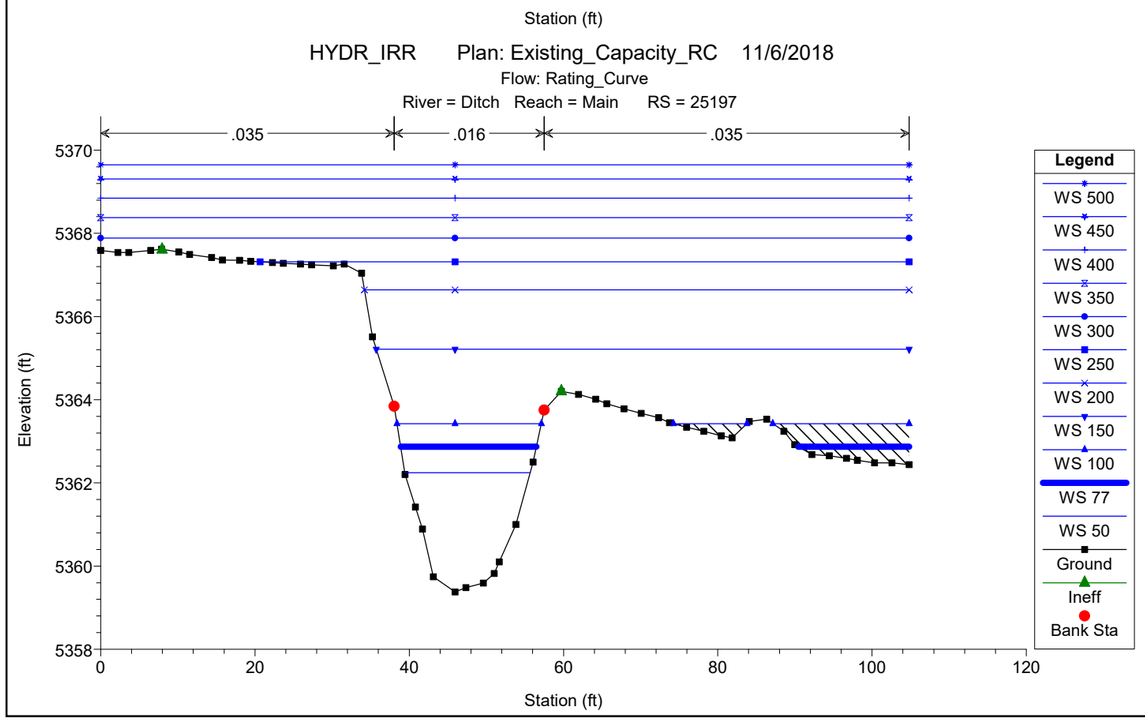

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 25595
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

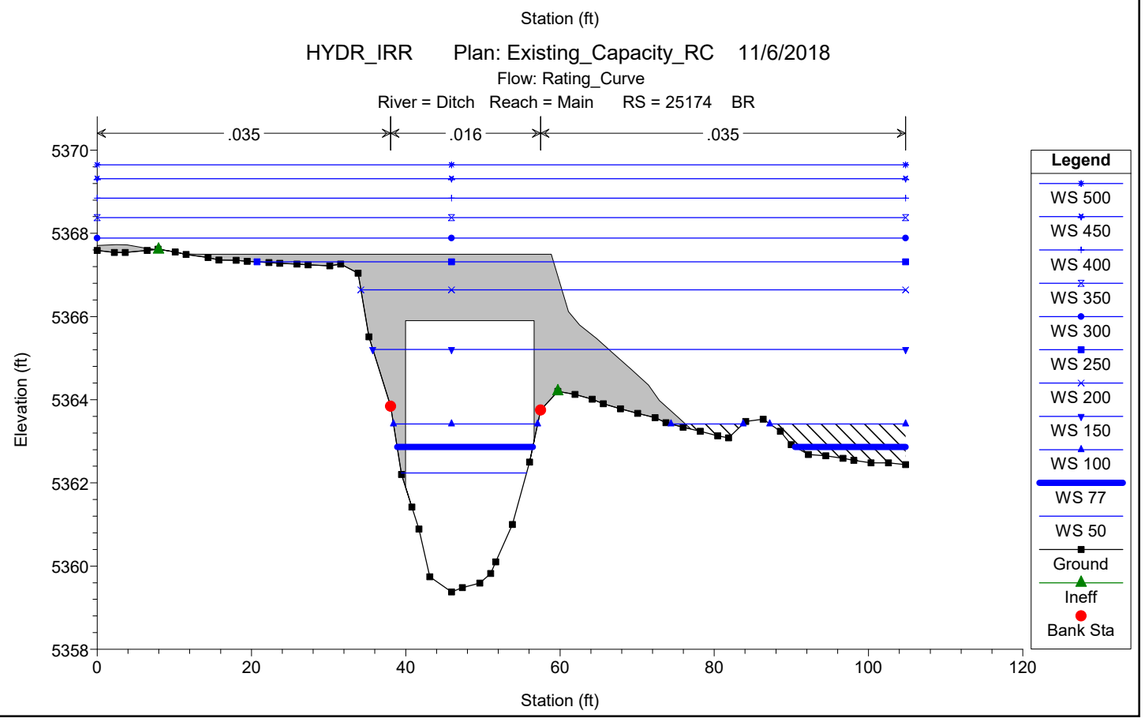

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 25394 BR
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

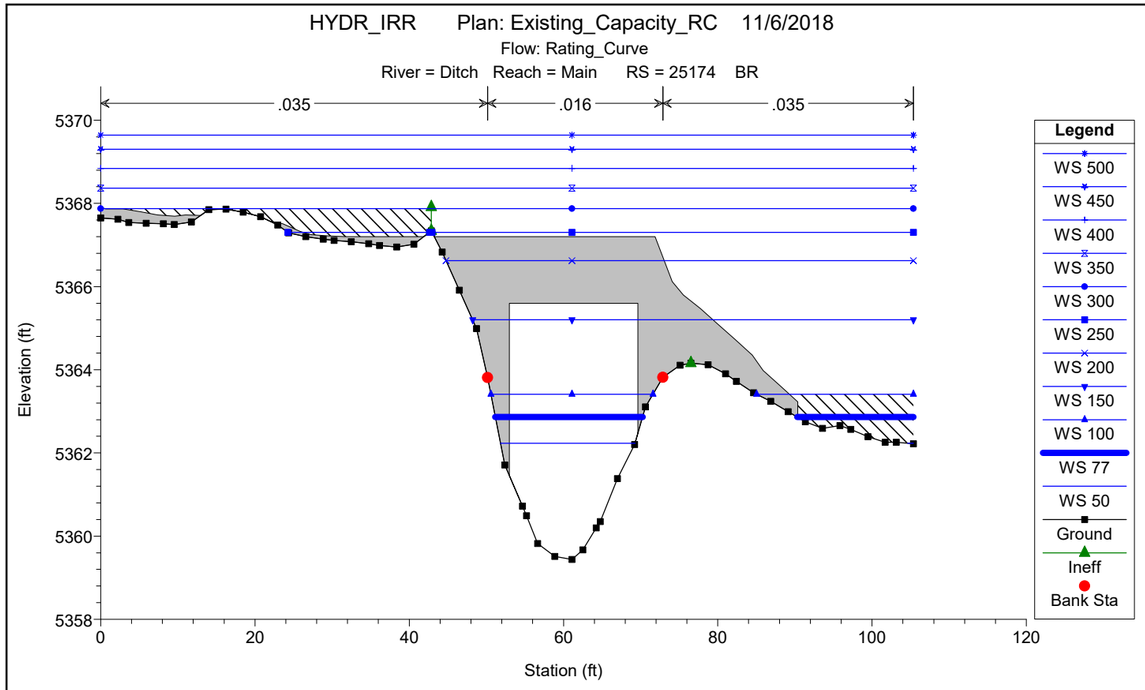

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 25394 BR
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

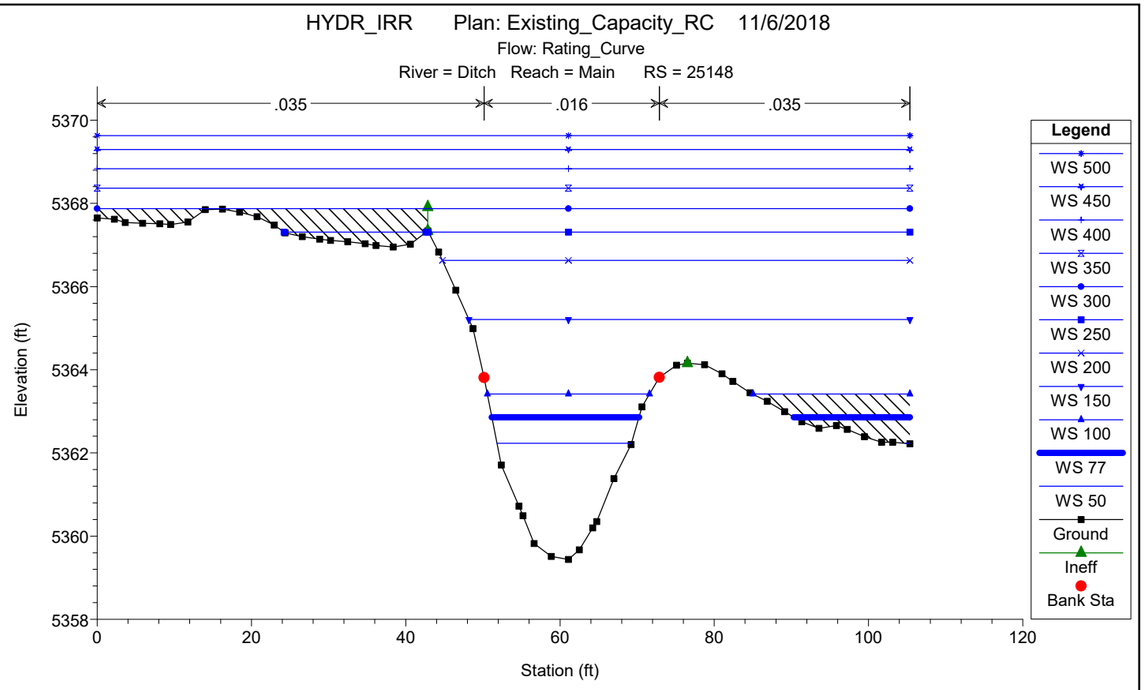

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 25316
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

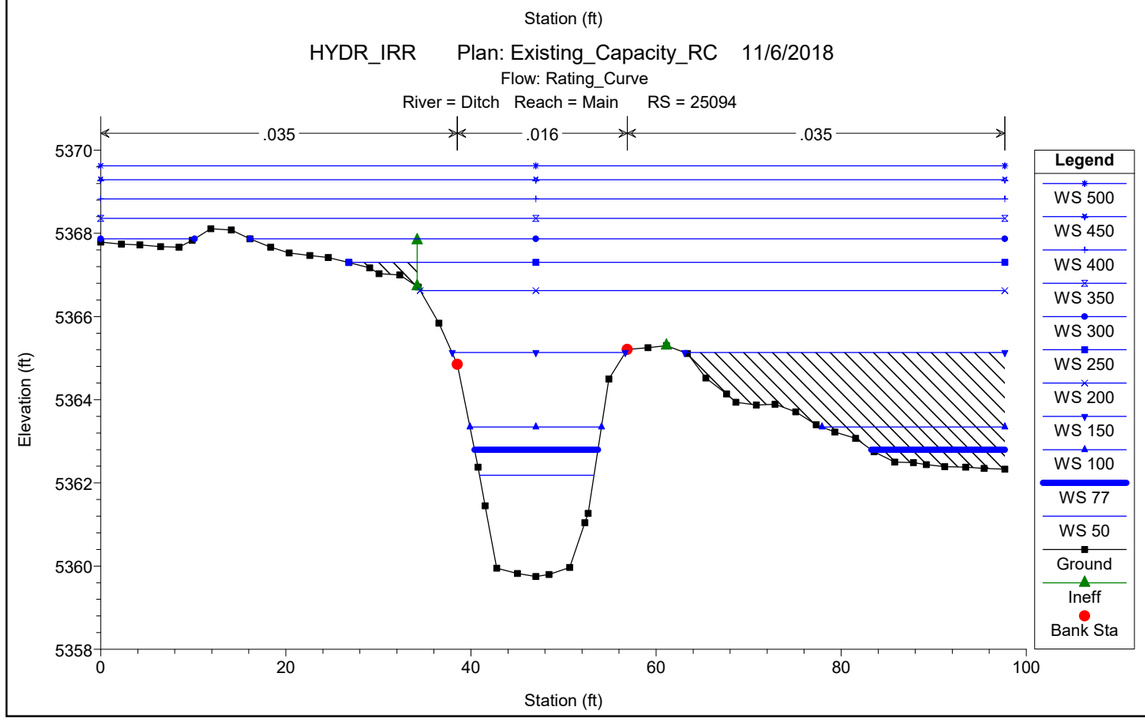

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 25255
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

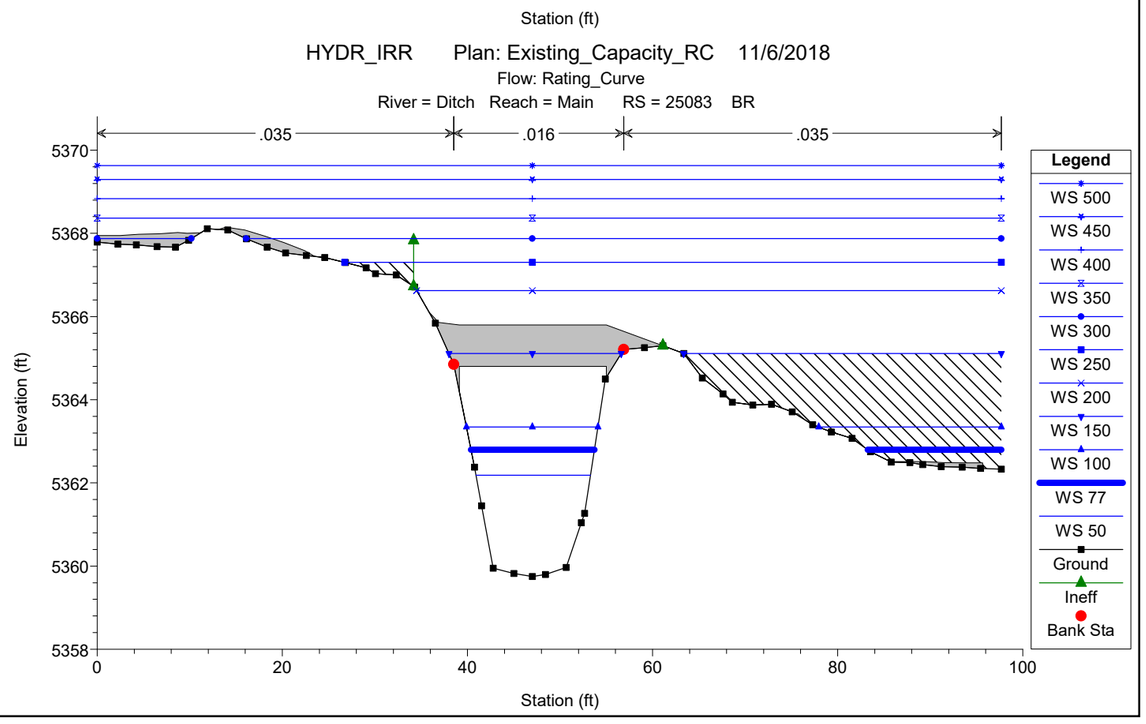

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 25197
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

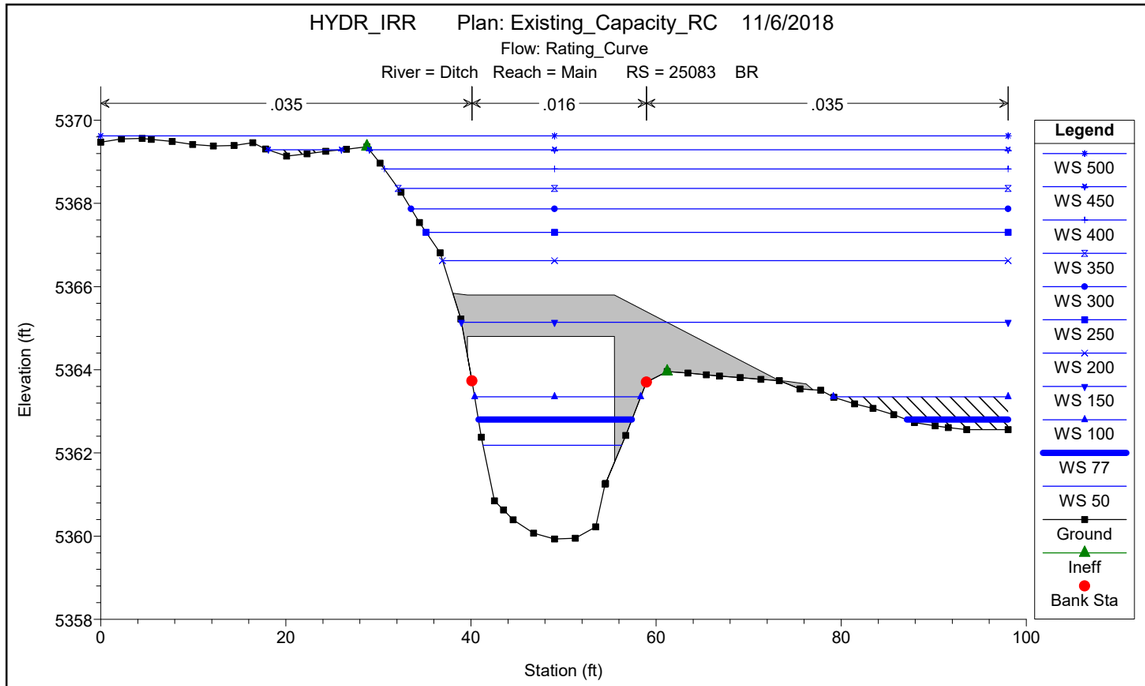

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 25174 BR
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

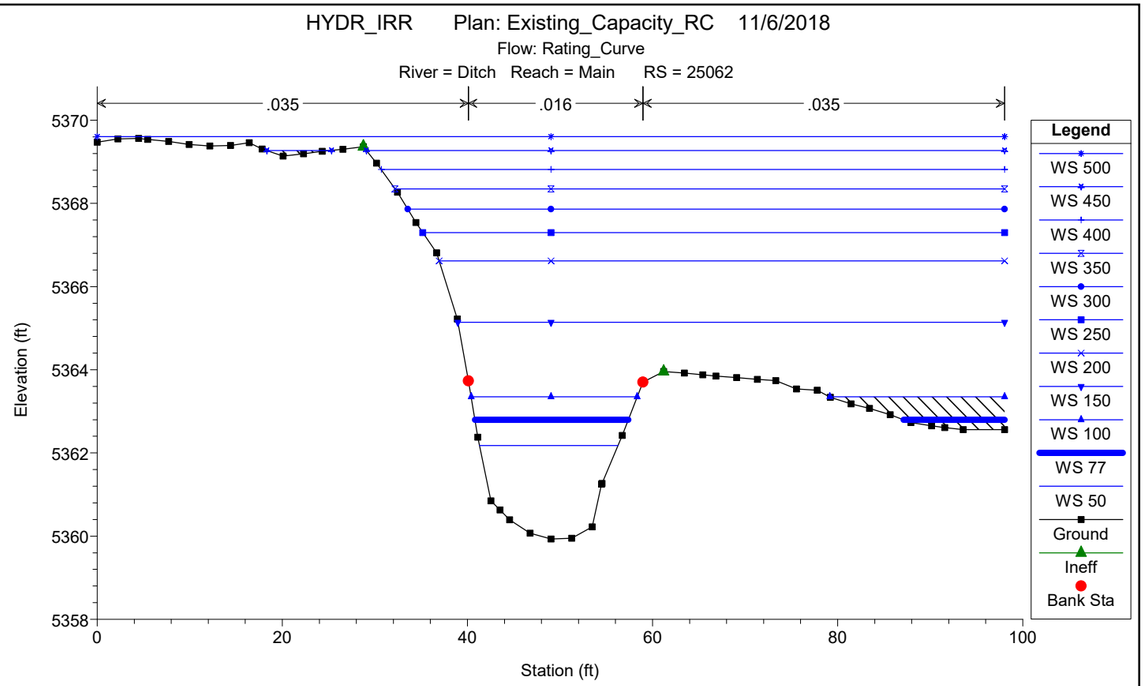

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 25174 BR
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

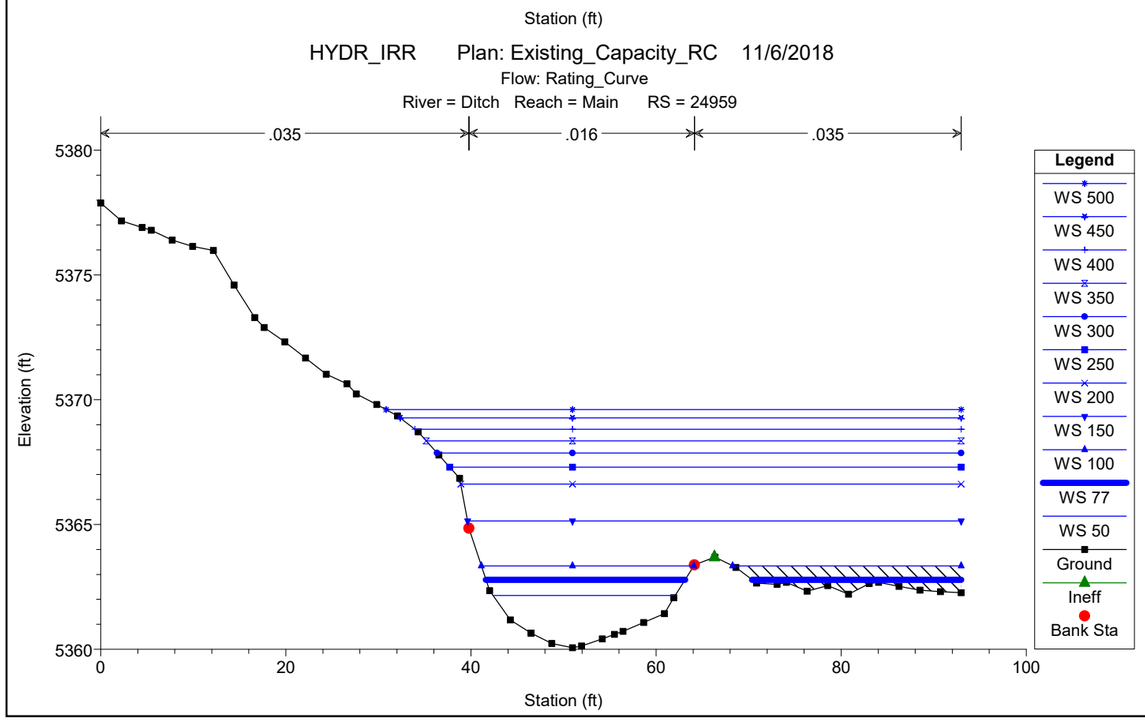

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 25148
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

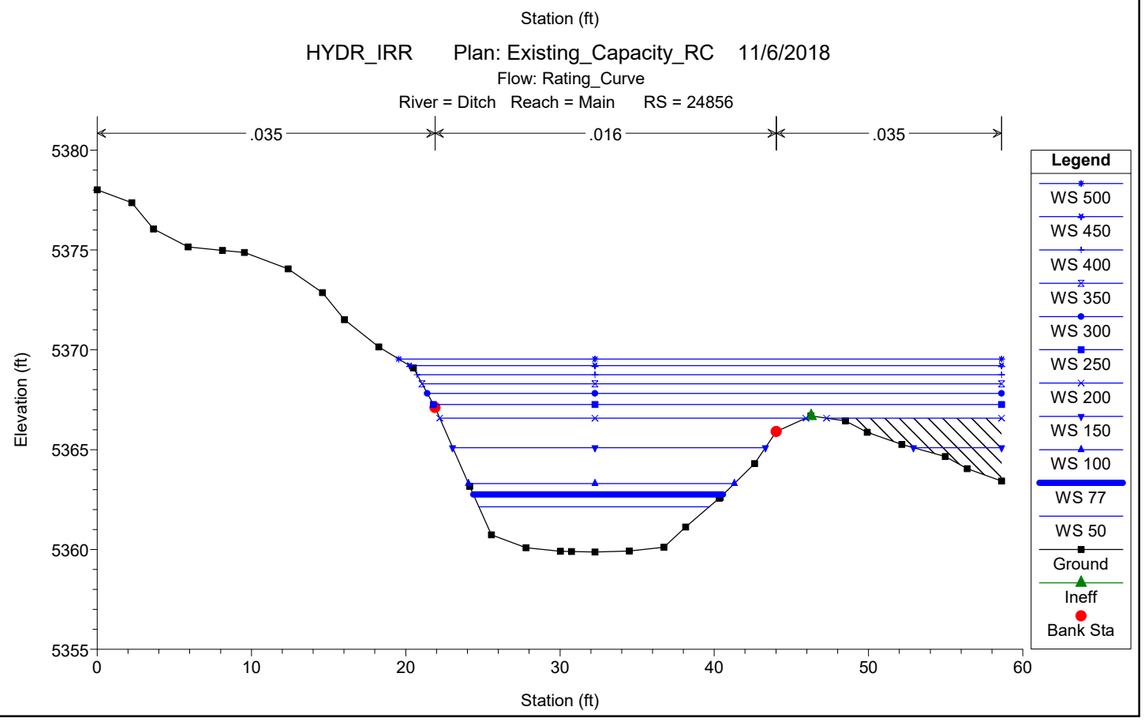

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 25094
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

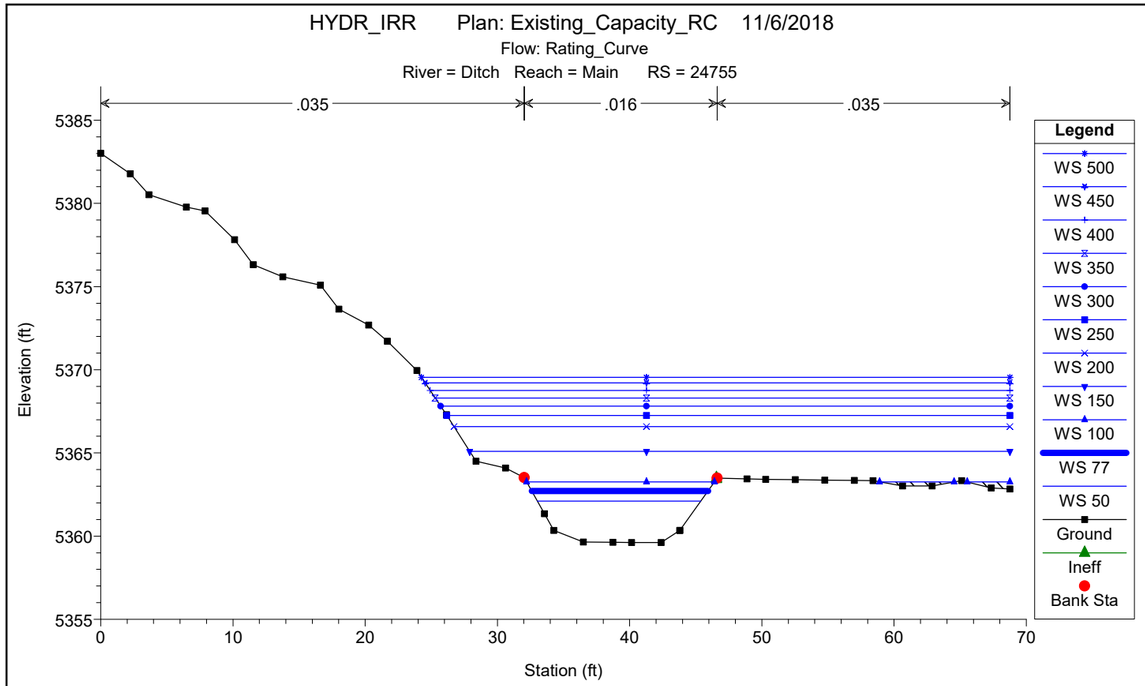

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 25083 BR
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

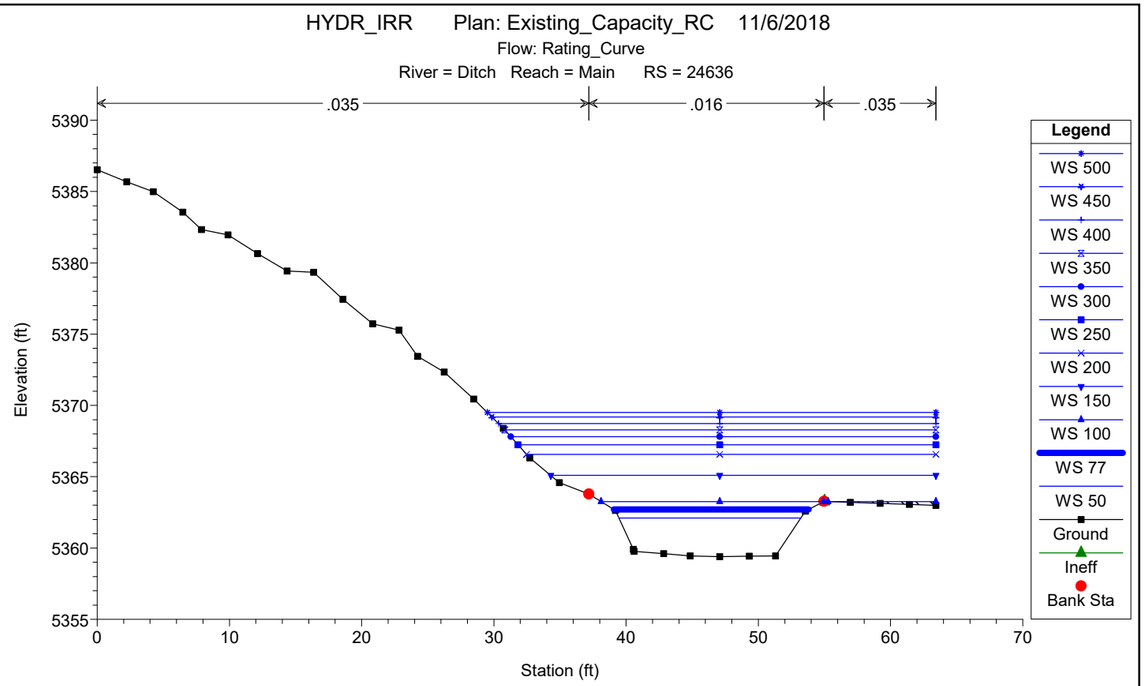

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 25083 BR
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

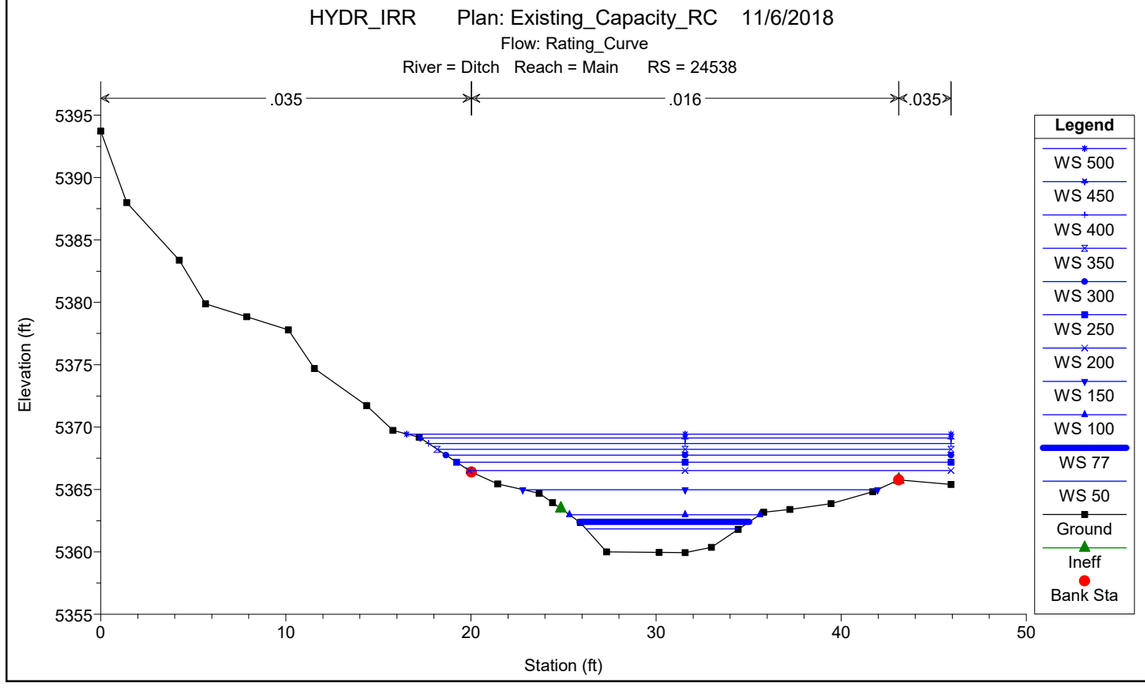

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 25062
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

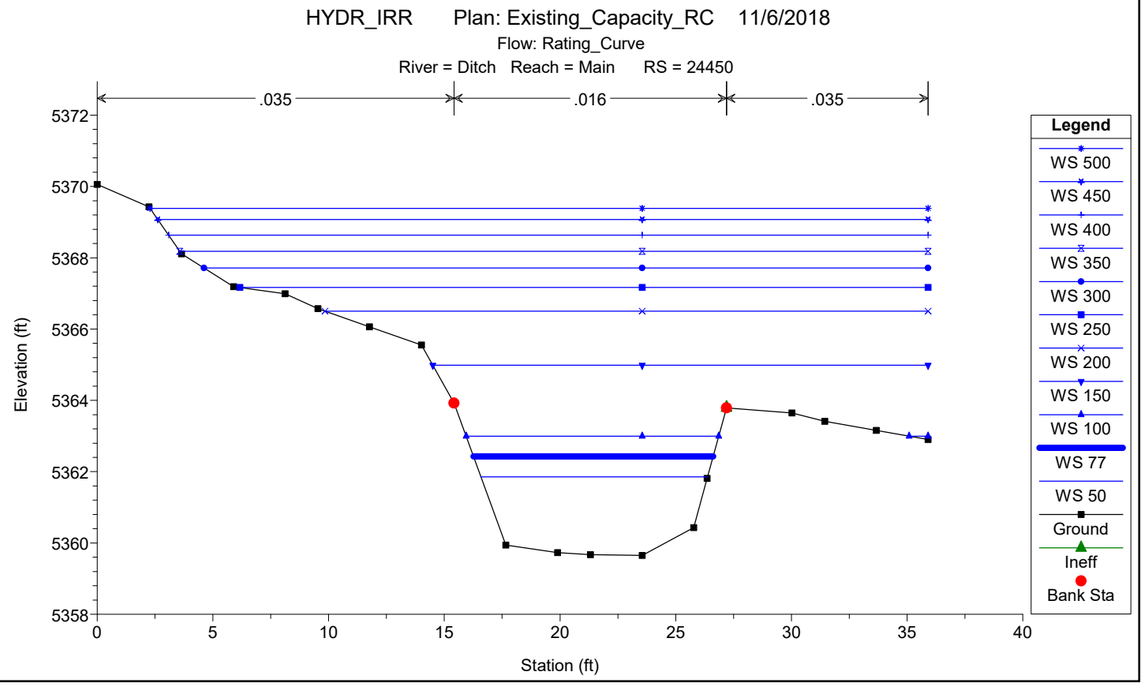

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 24959
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

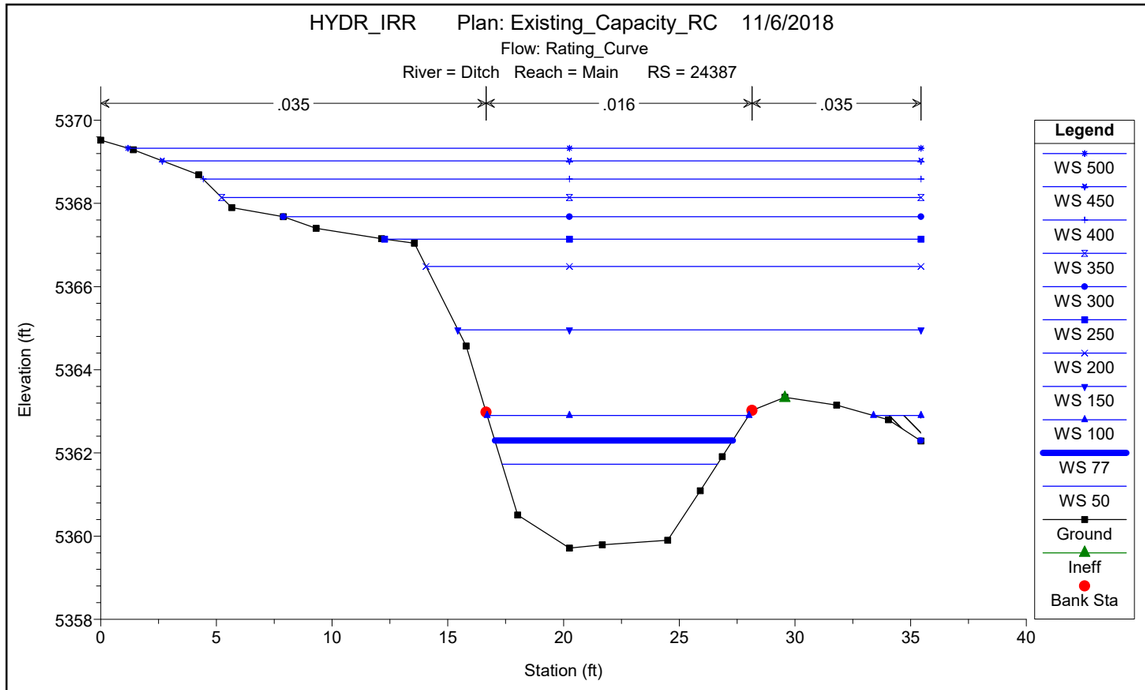

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 24856
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

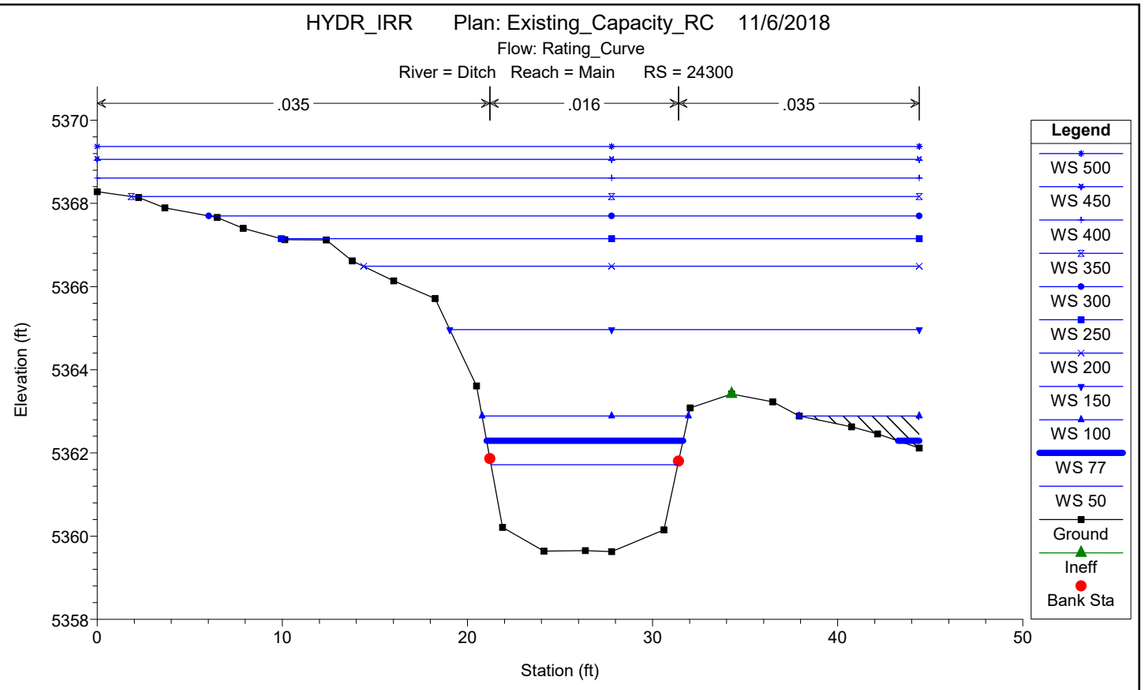

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 24755
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

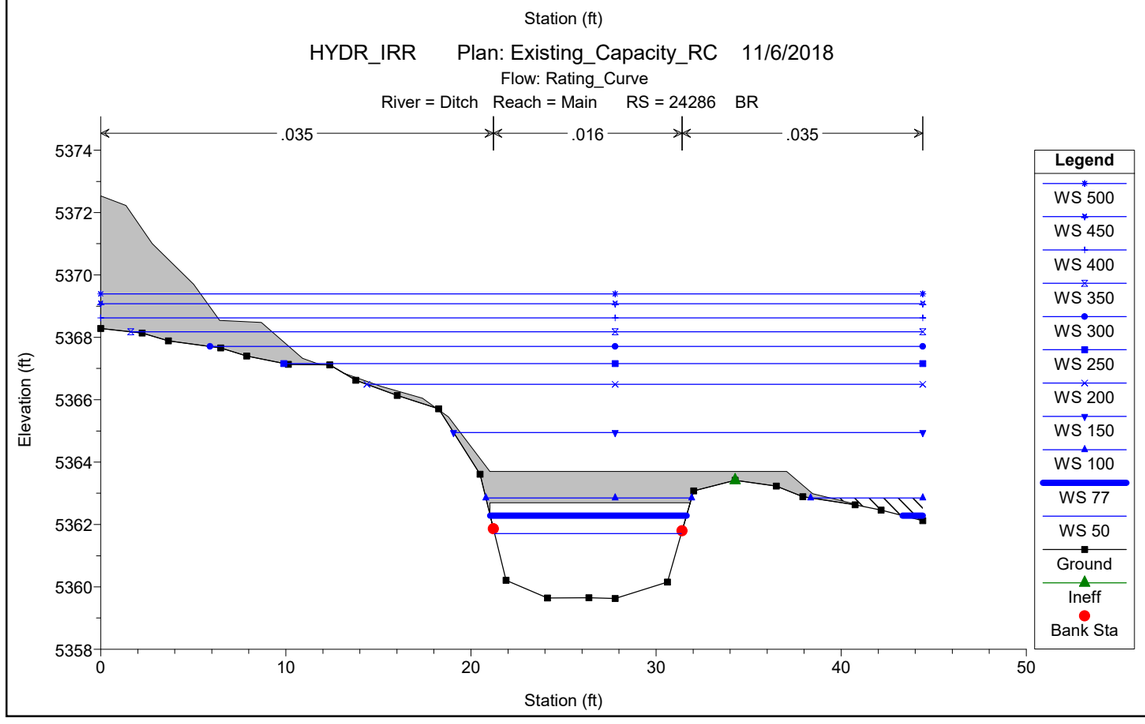

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 24636
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

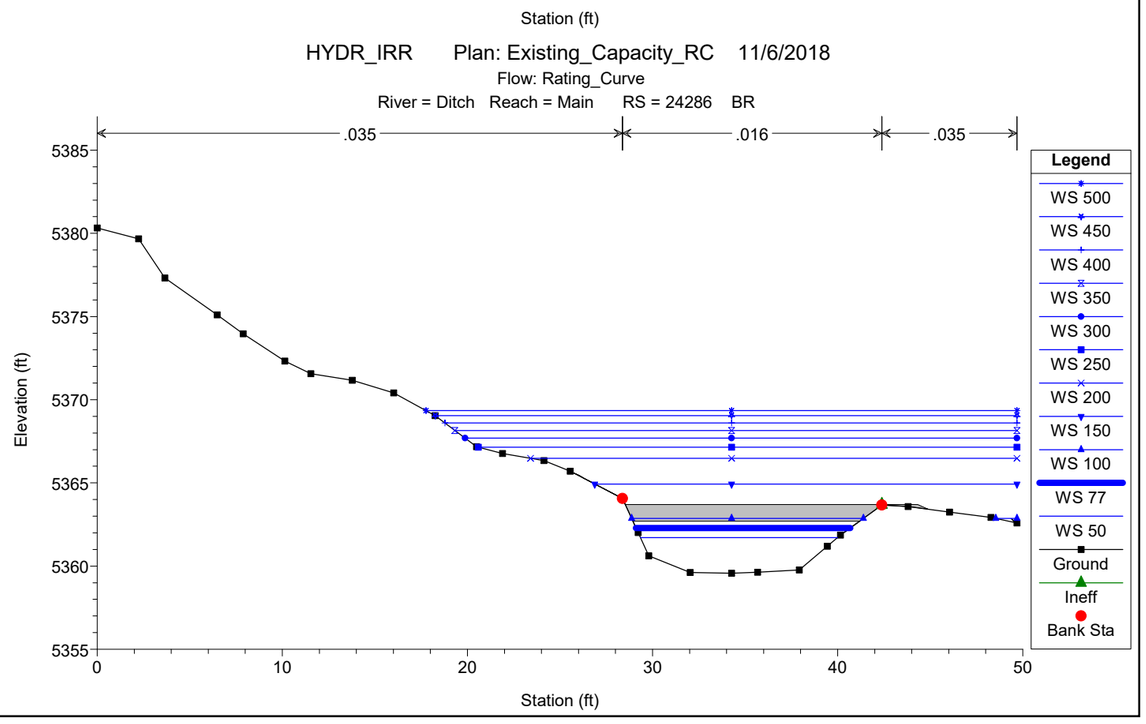

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 24538
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

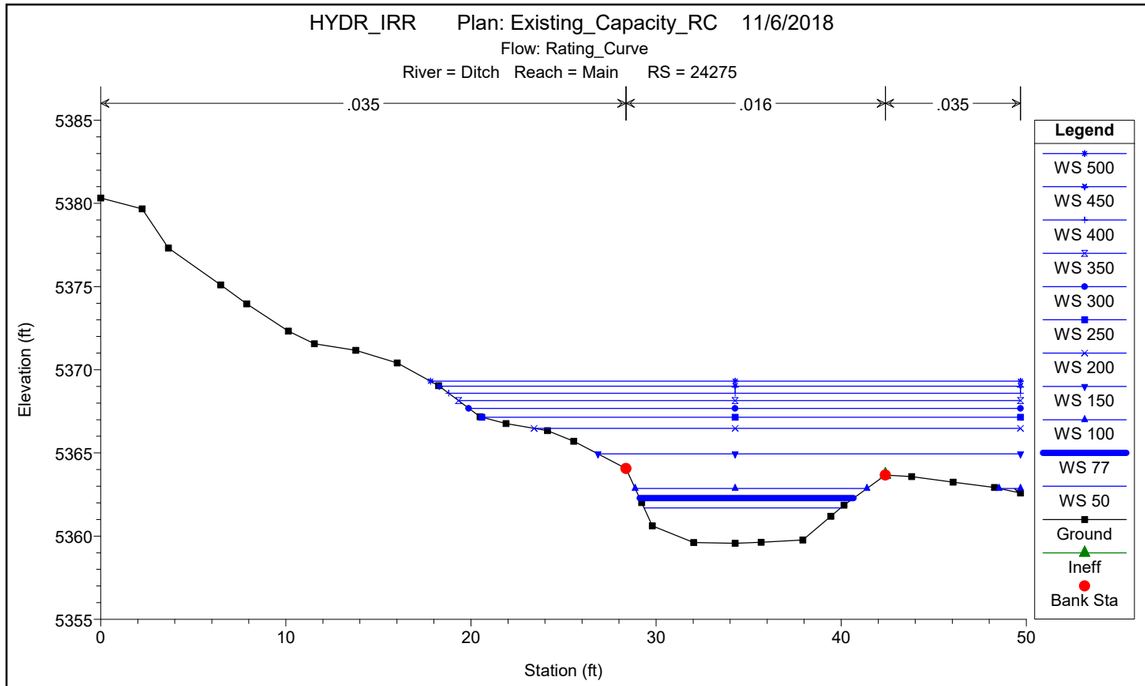

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 24450
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

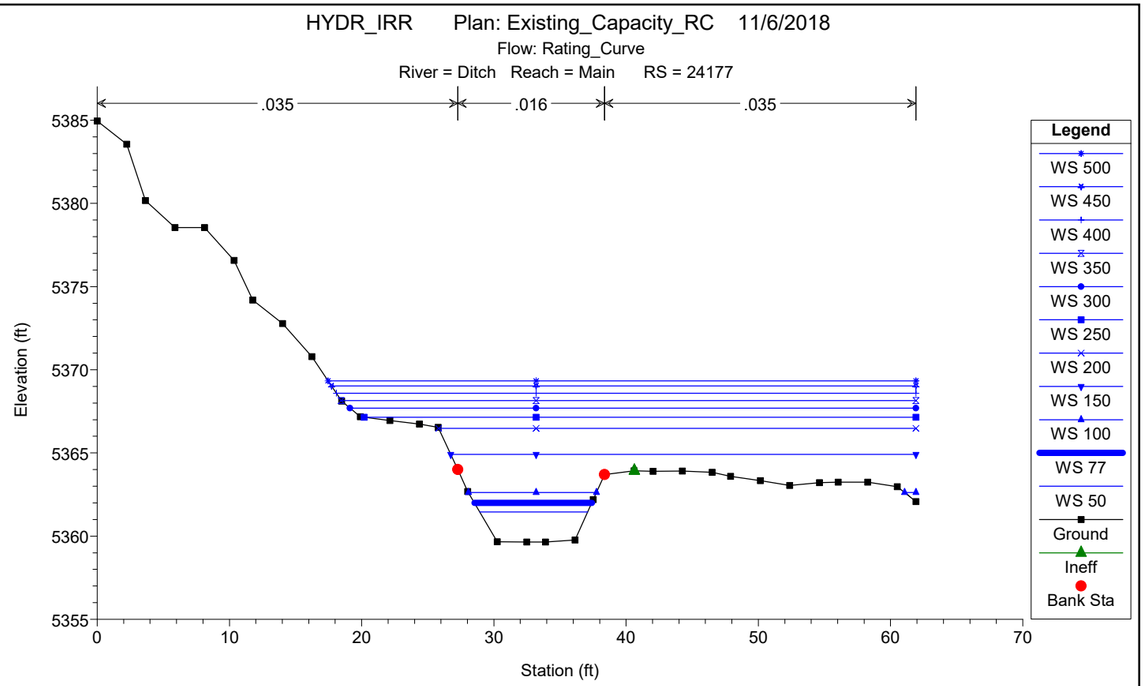

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 24387
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

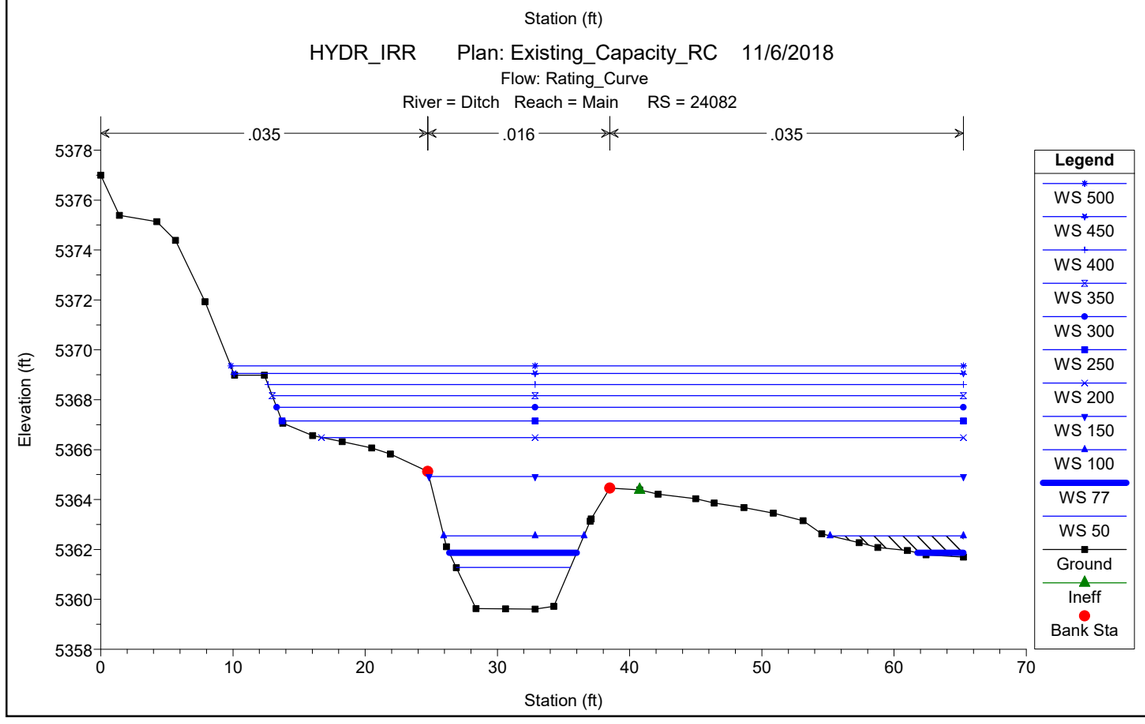

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 24300
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

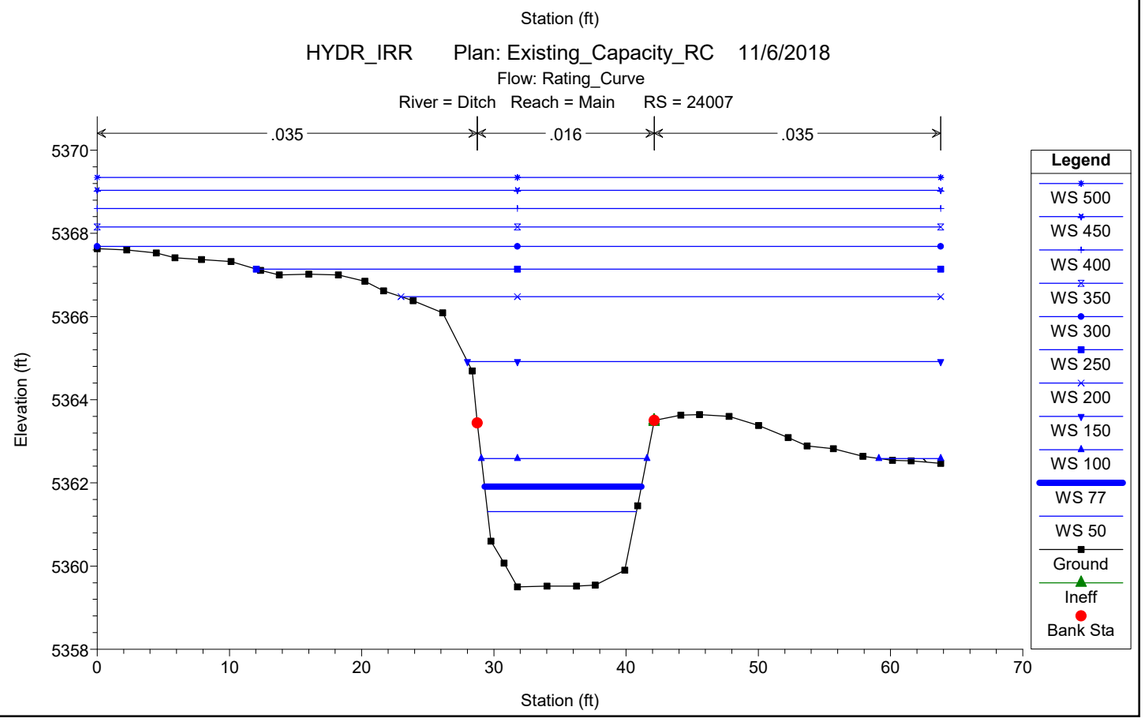

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 24286 BR
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

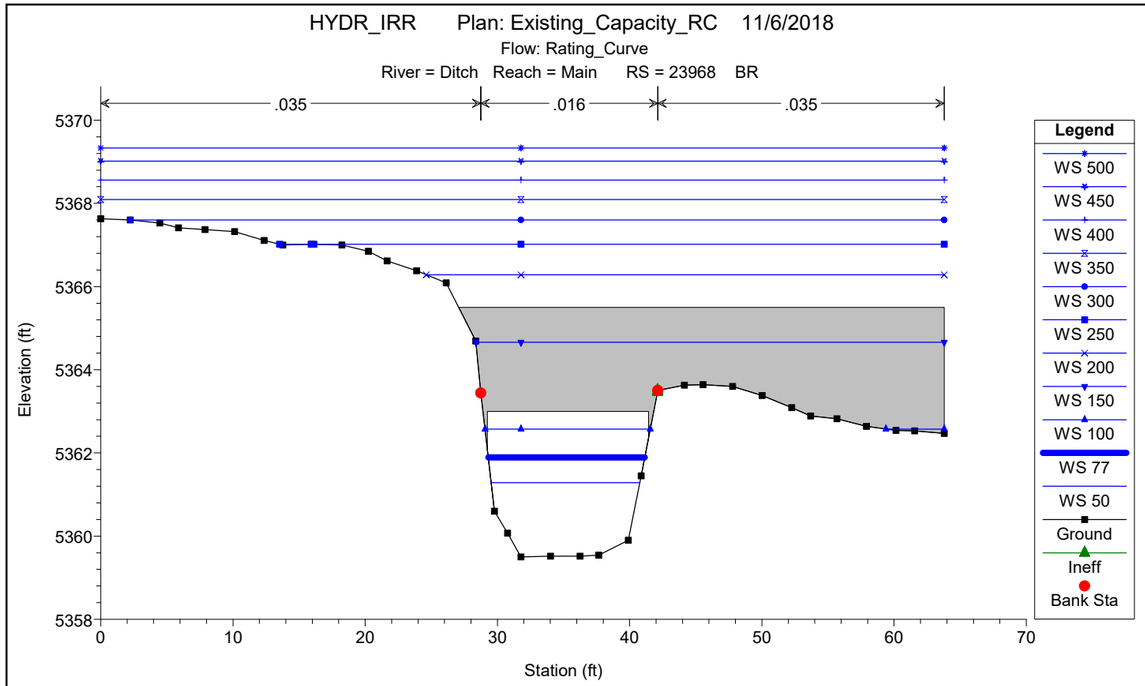

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 24286 BR
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

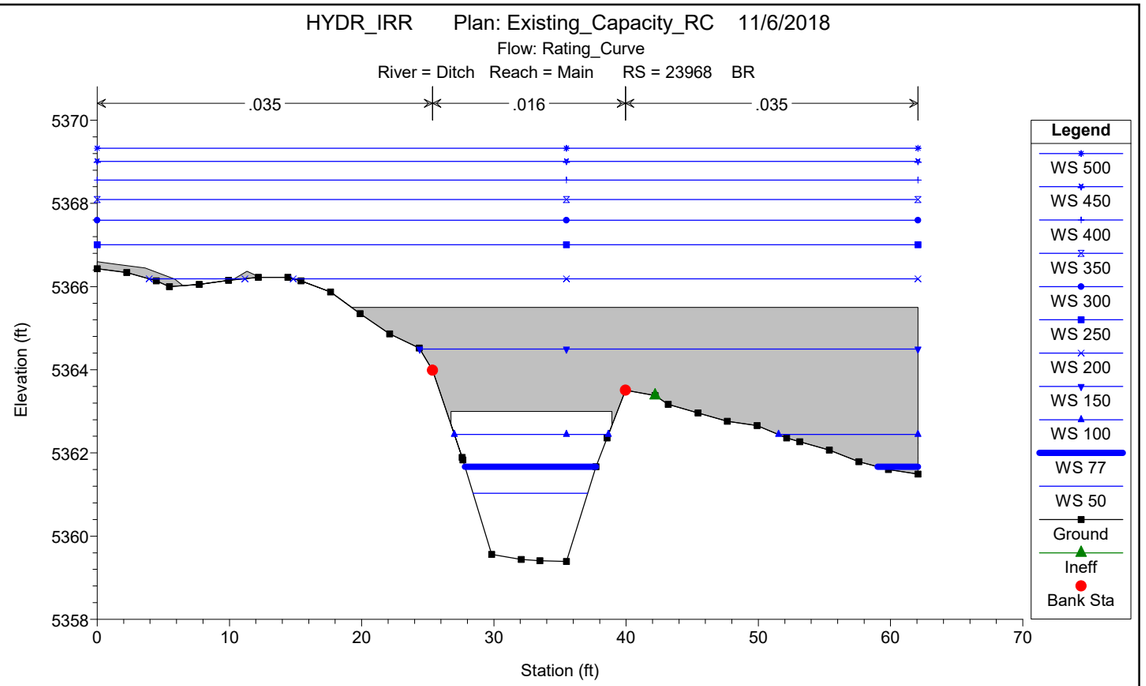

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 24275
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

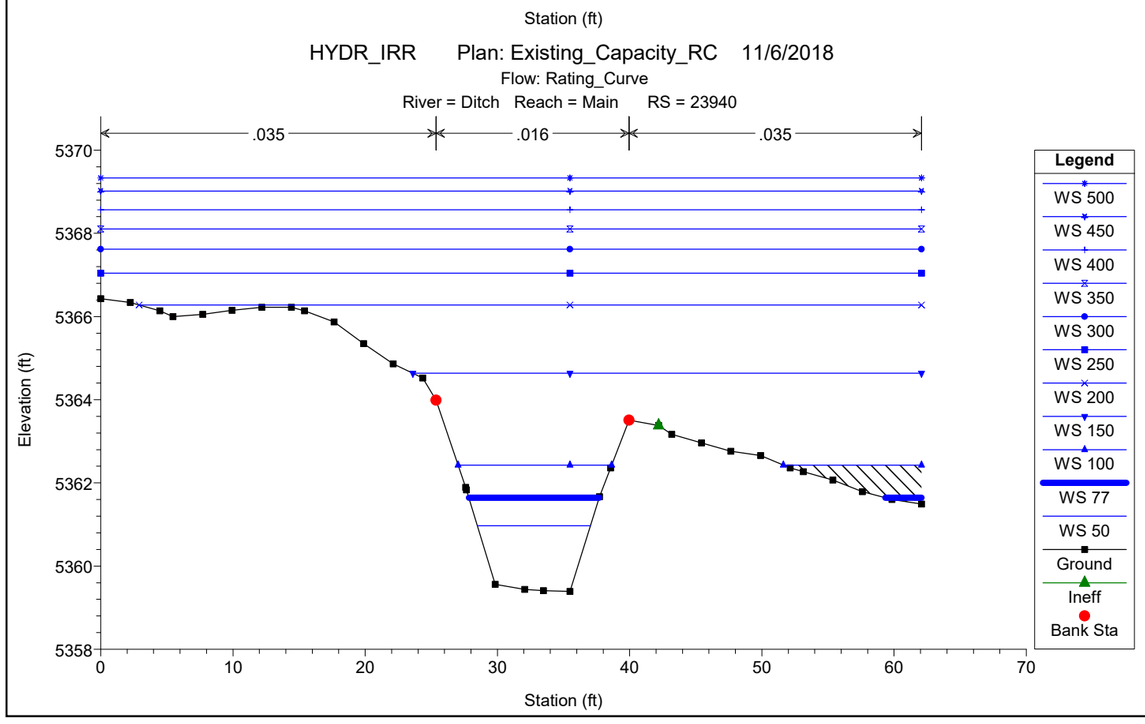

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 24177
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

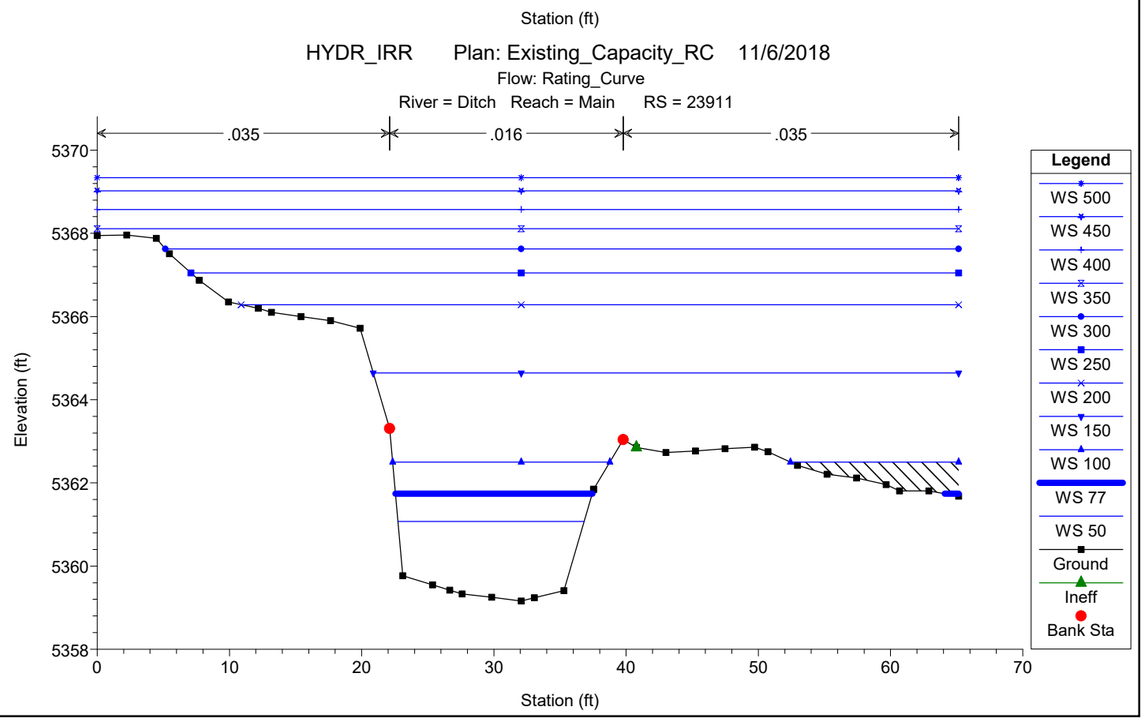

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 24082
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

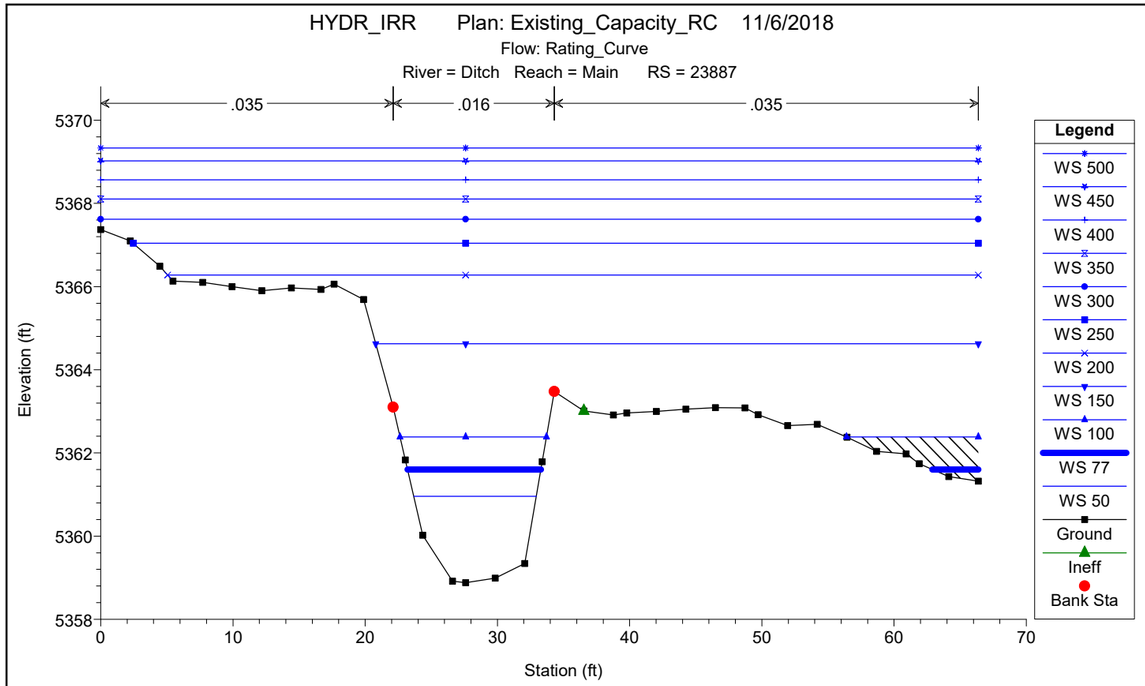

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 24007
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

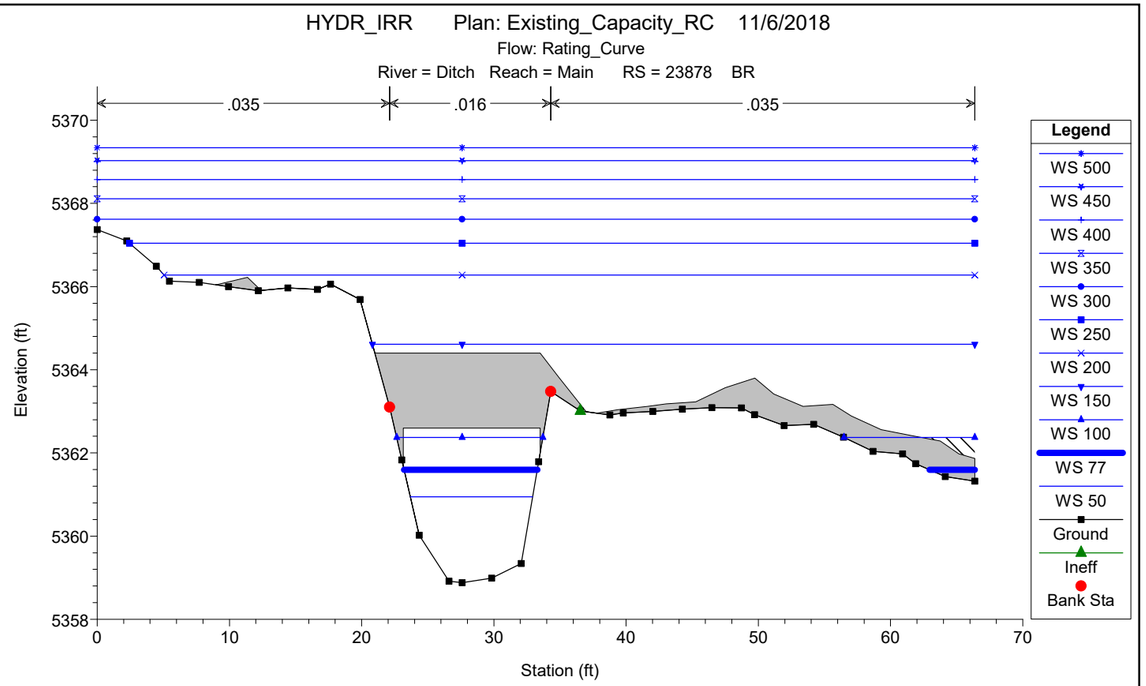

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 23968 BR
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

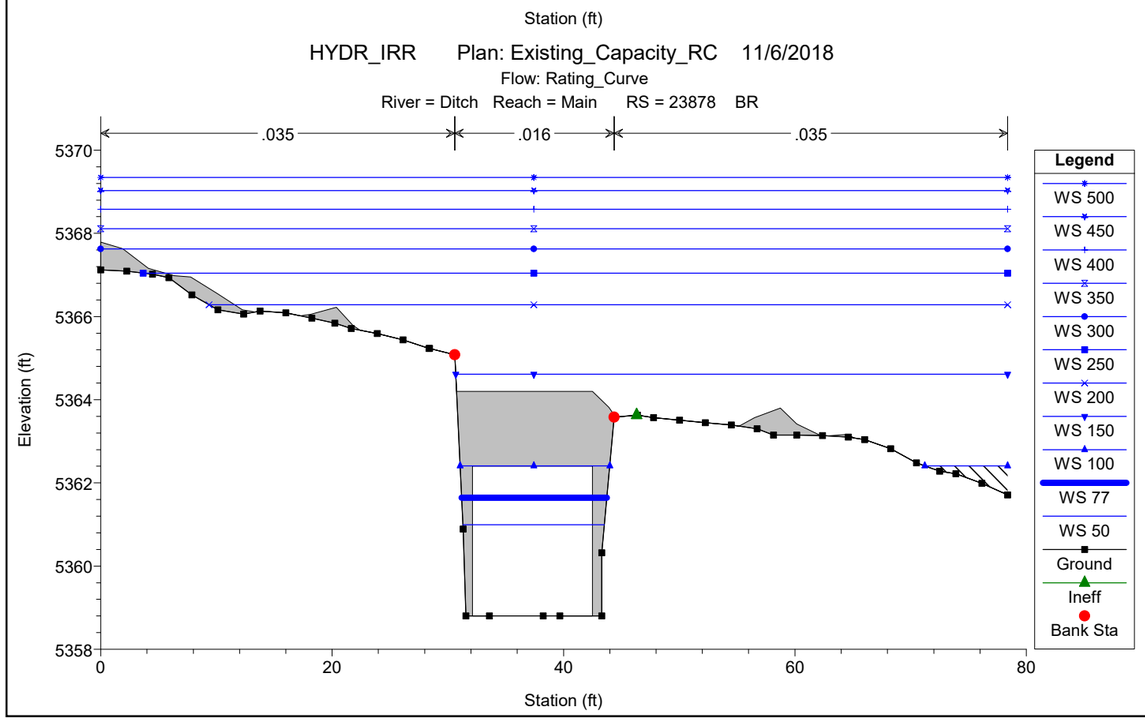

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 23968 BR
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

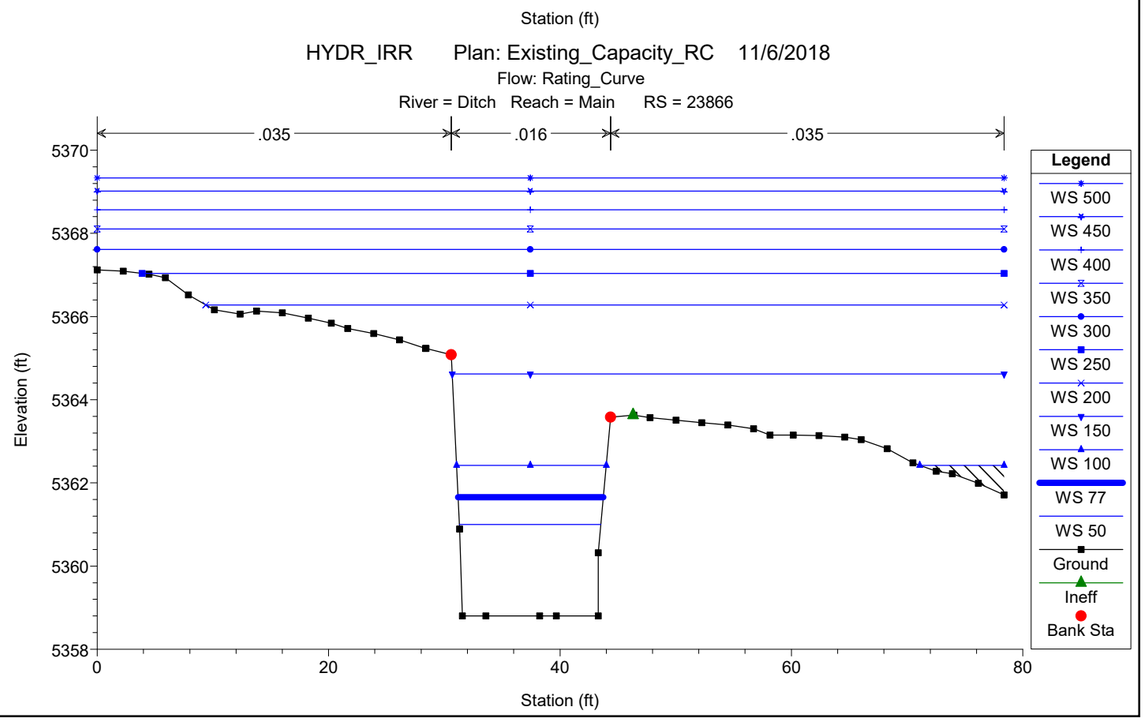

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 23940
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta


HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 23911
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

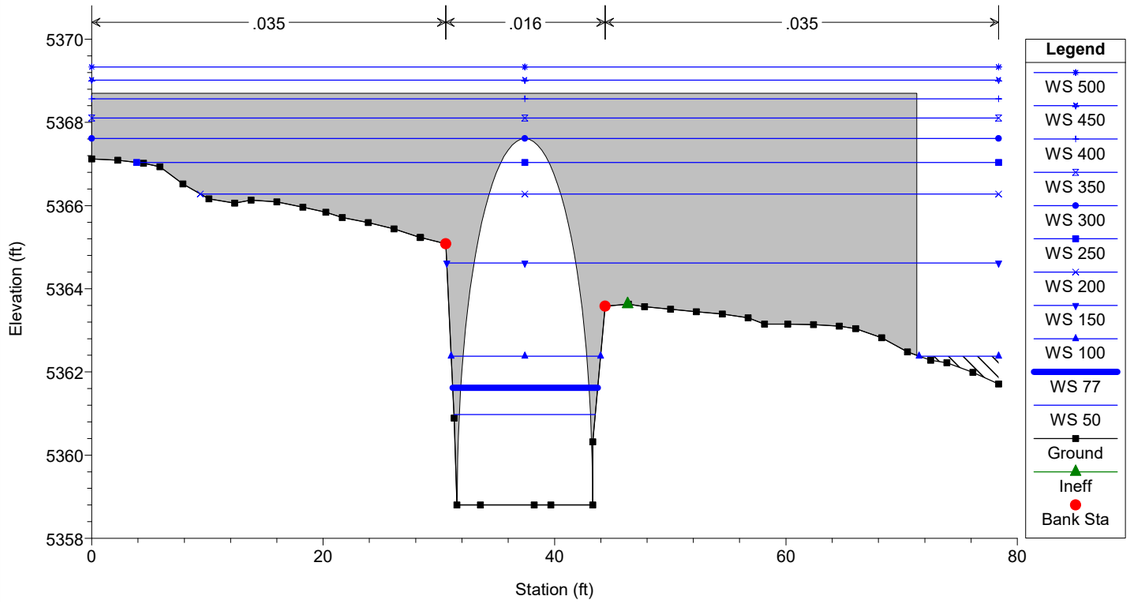

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 23887
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta


HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 23878 BR
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

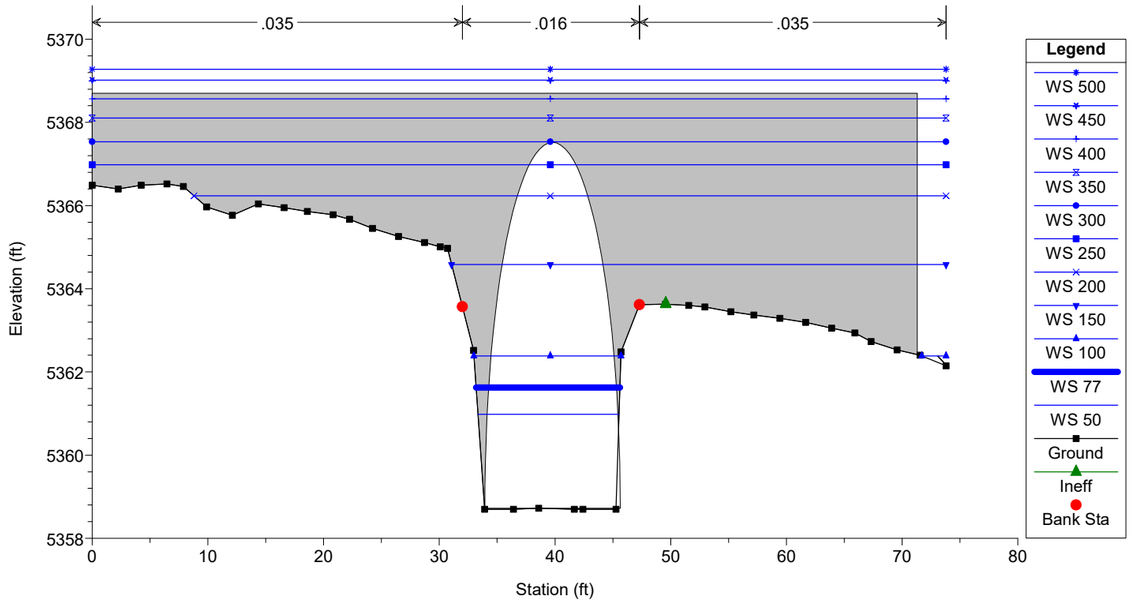

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 23878 BR
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta


HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 23866
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

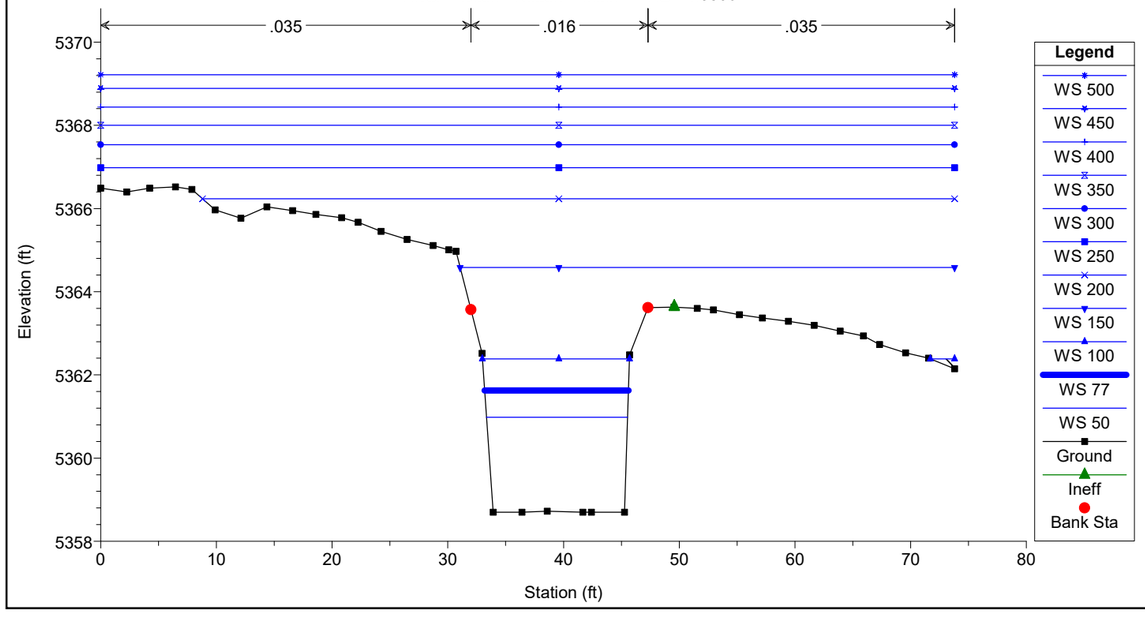
HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 23861 Culv



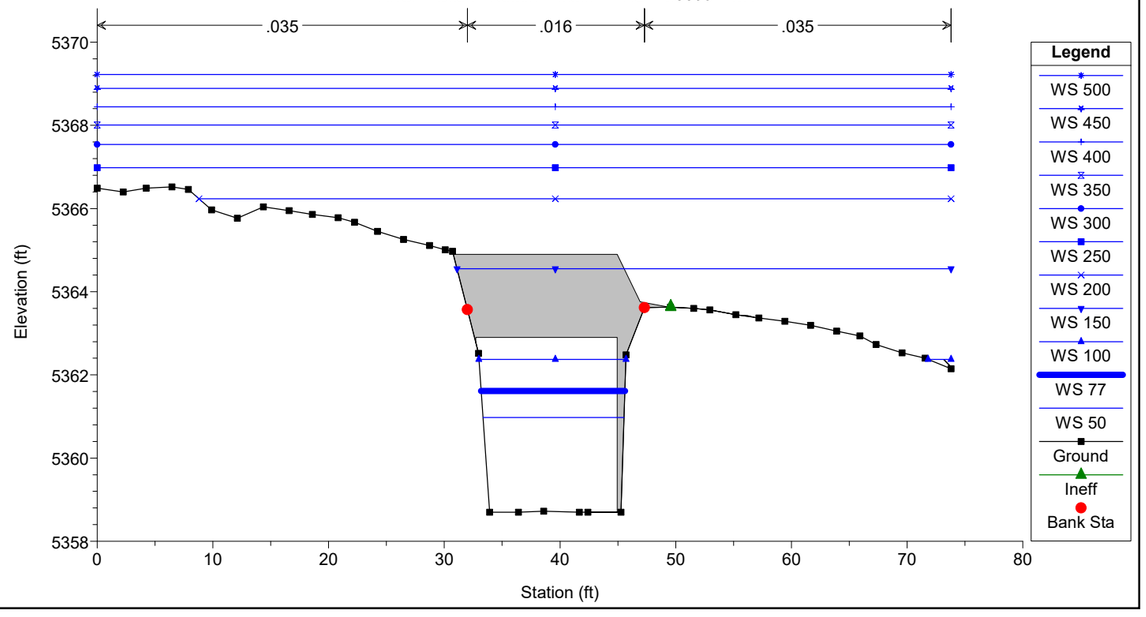
HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 23861 Culv

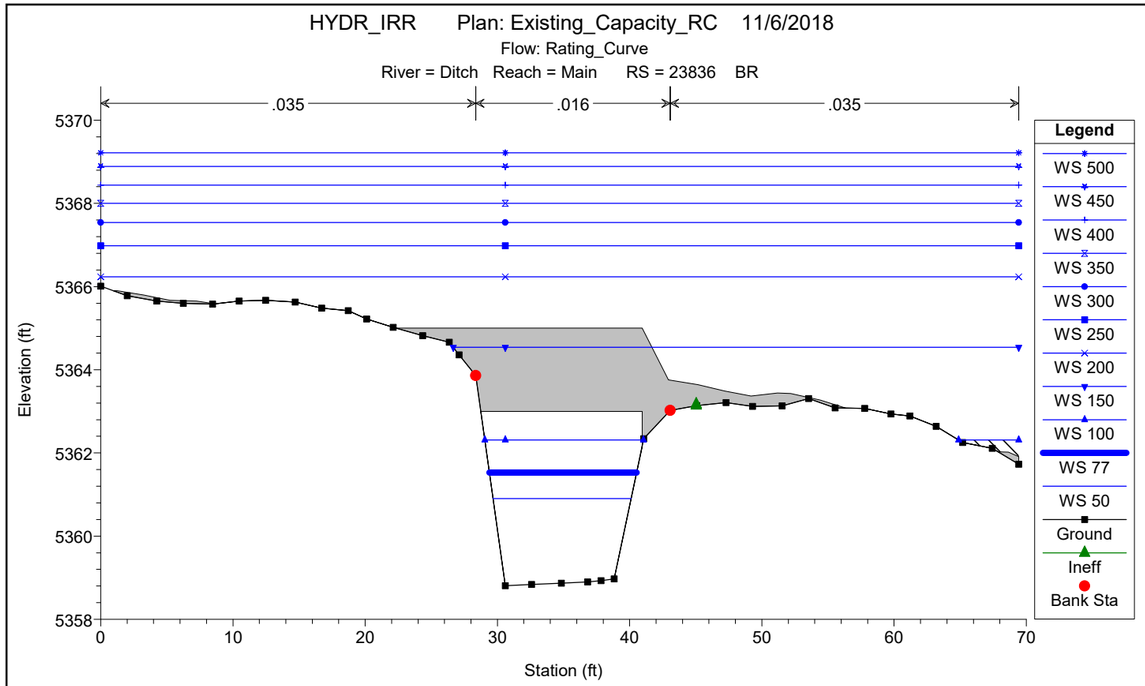


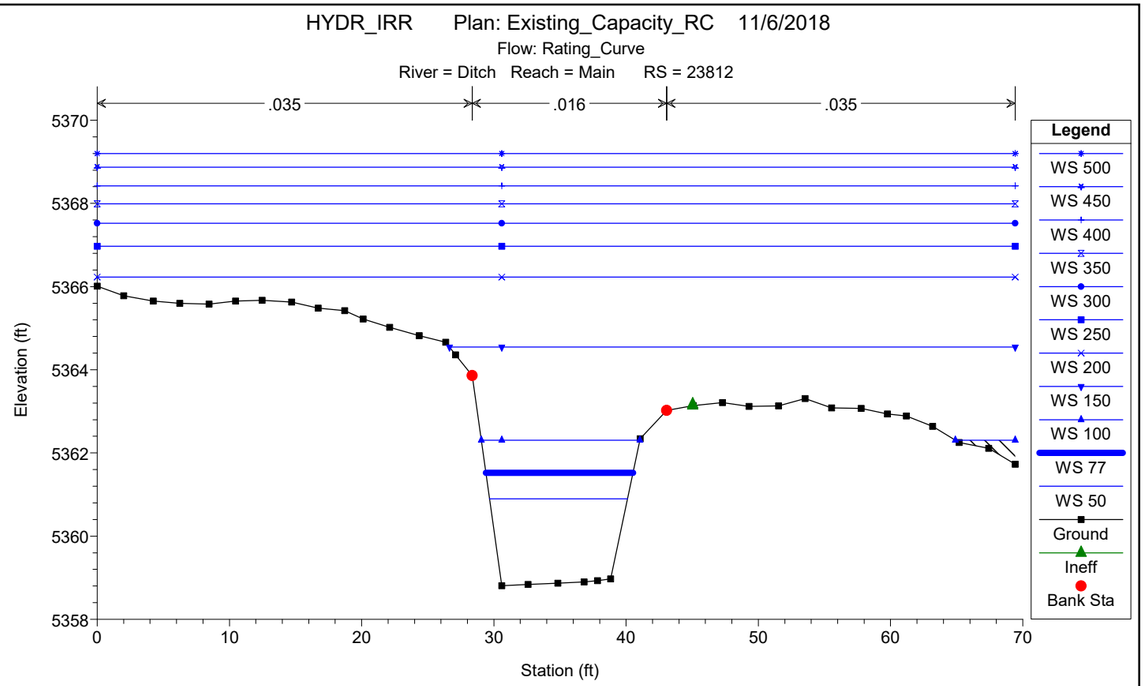
HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 23856

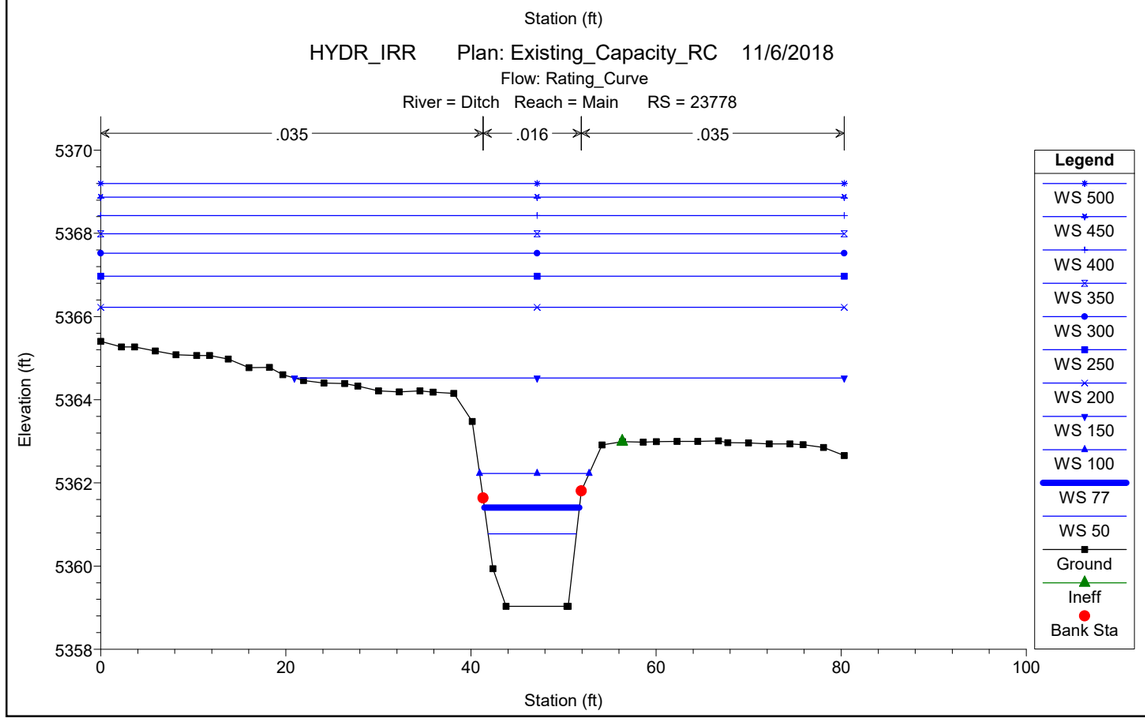


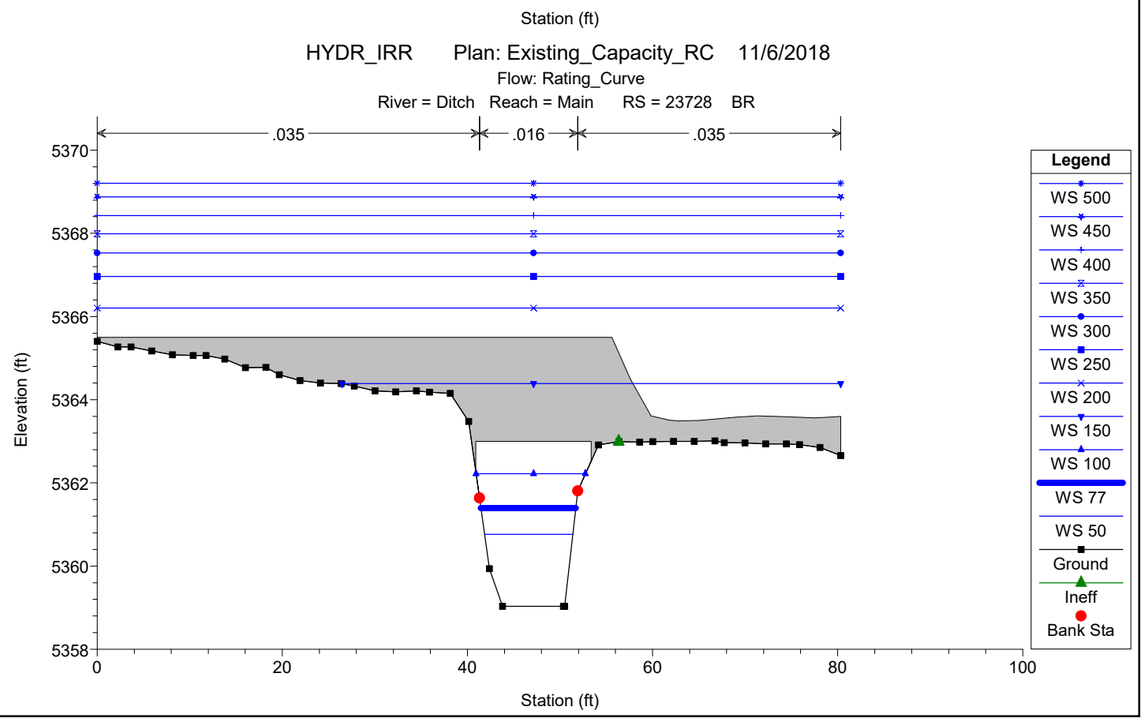
HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 23836 BR

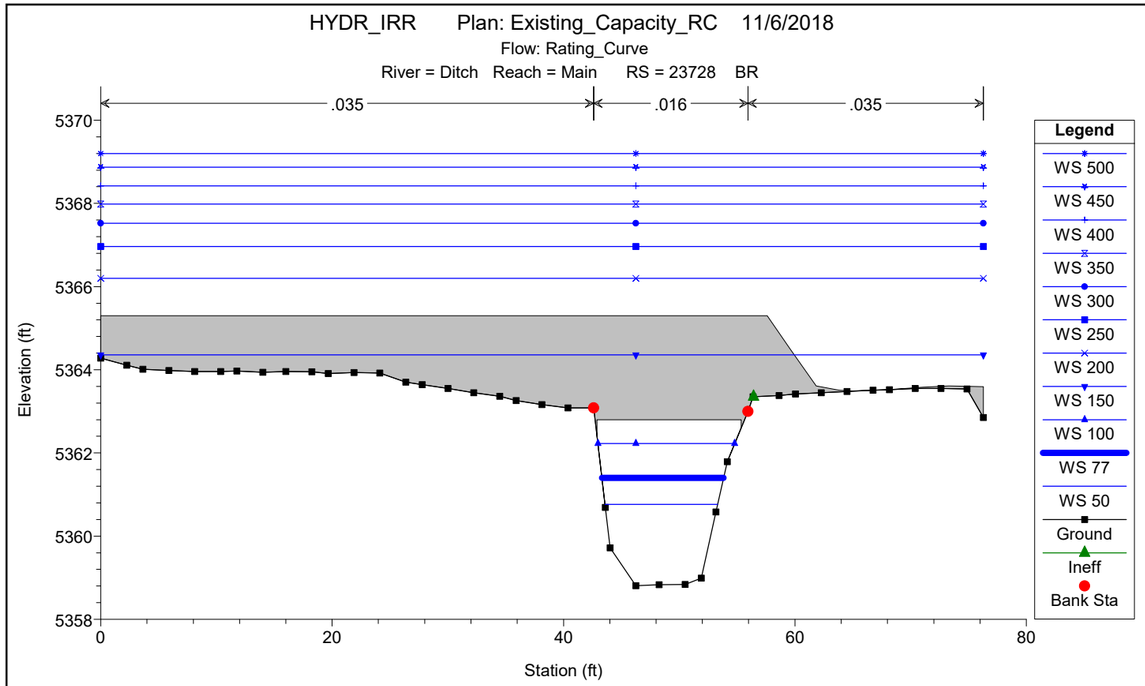


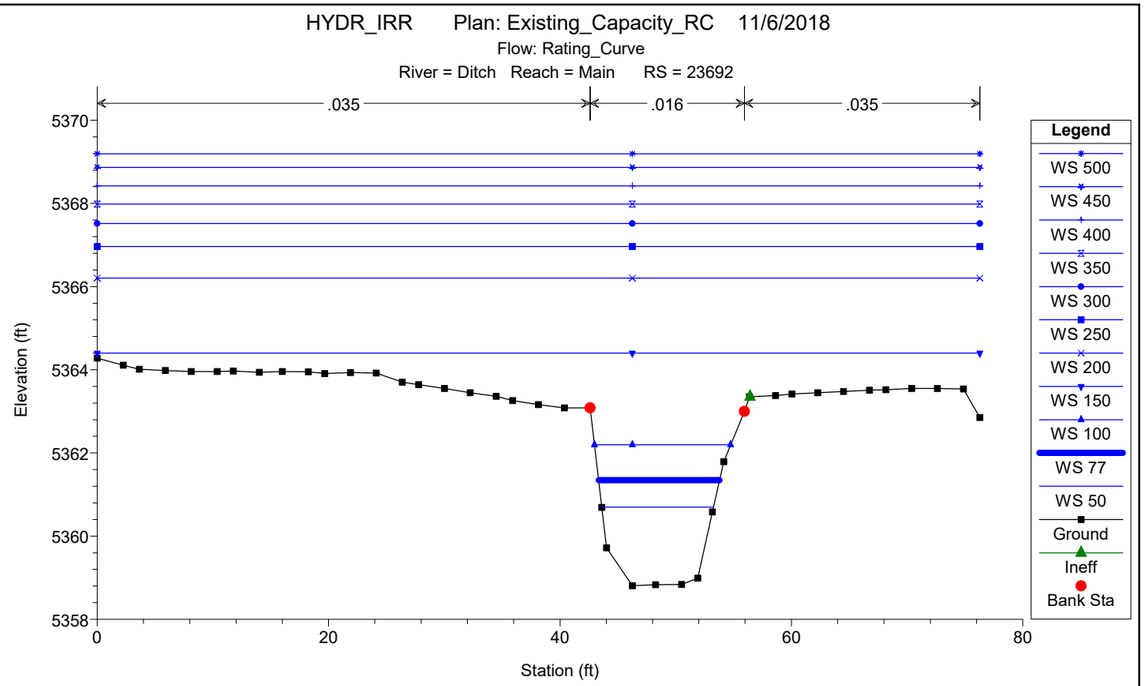

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 23836 BR
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

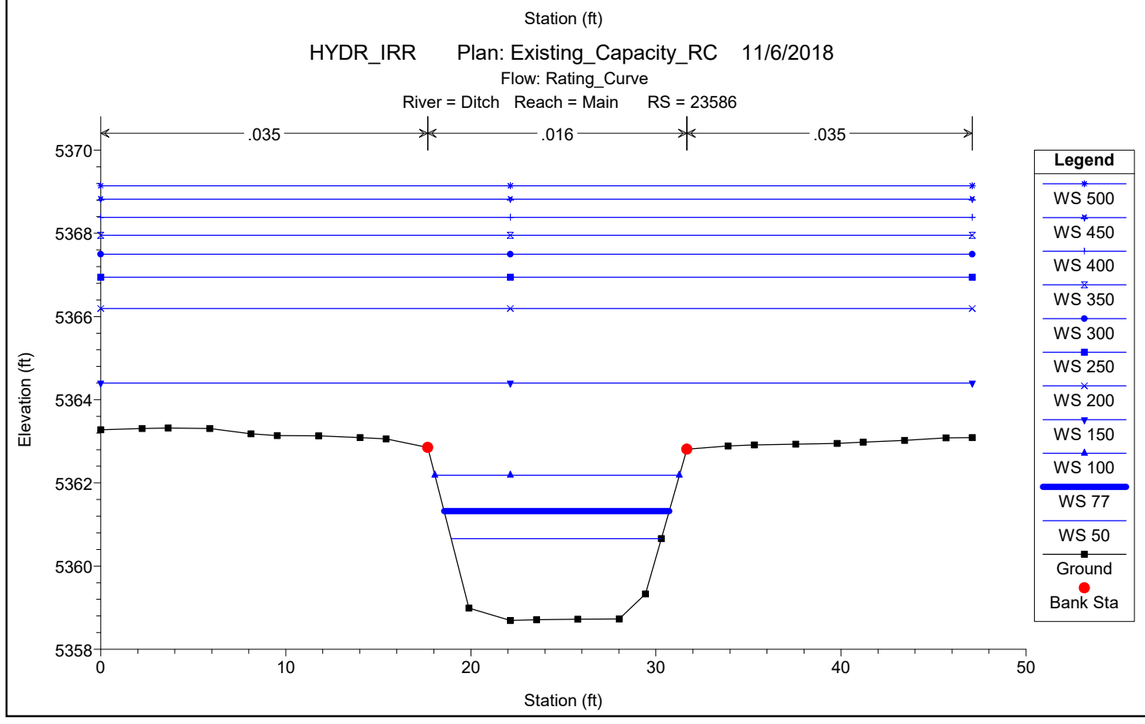

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 23812
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

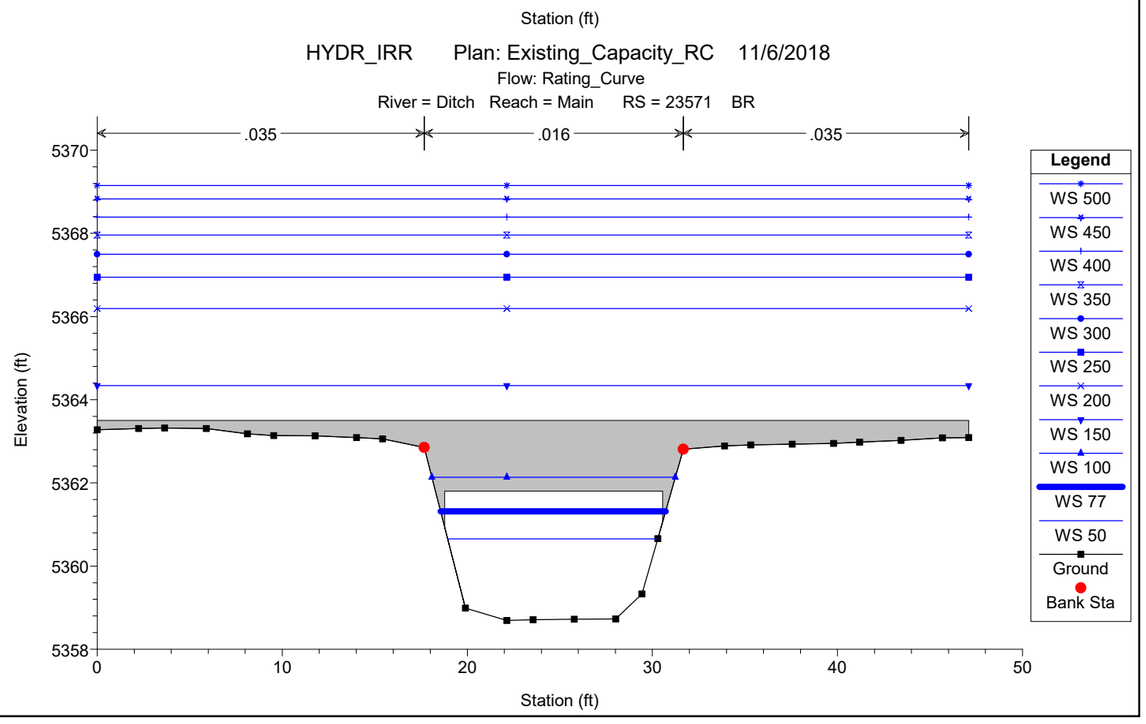

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 23778
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

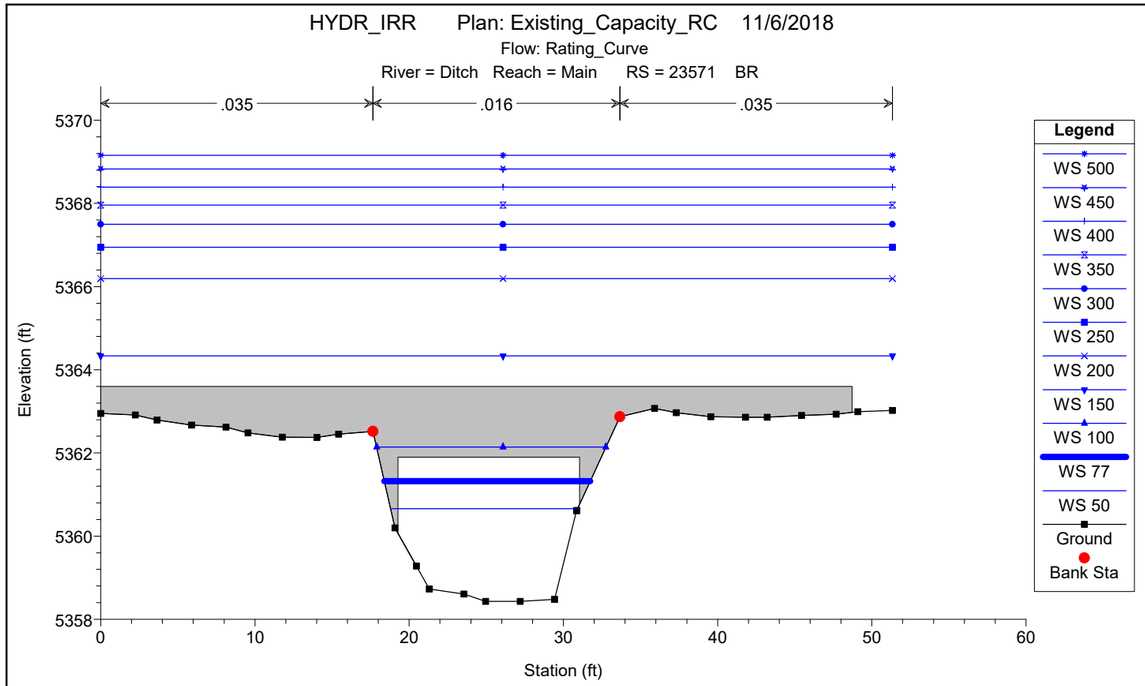

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 23728 BR
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

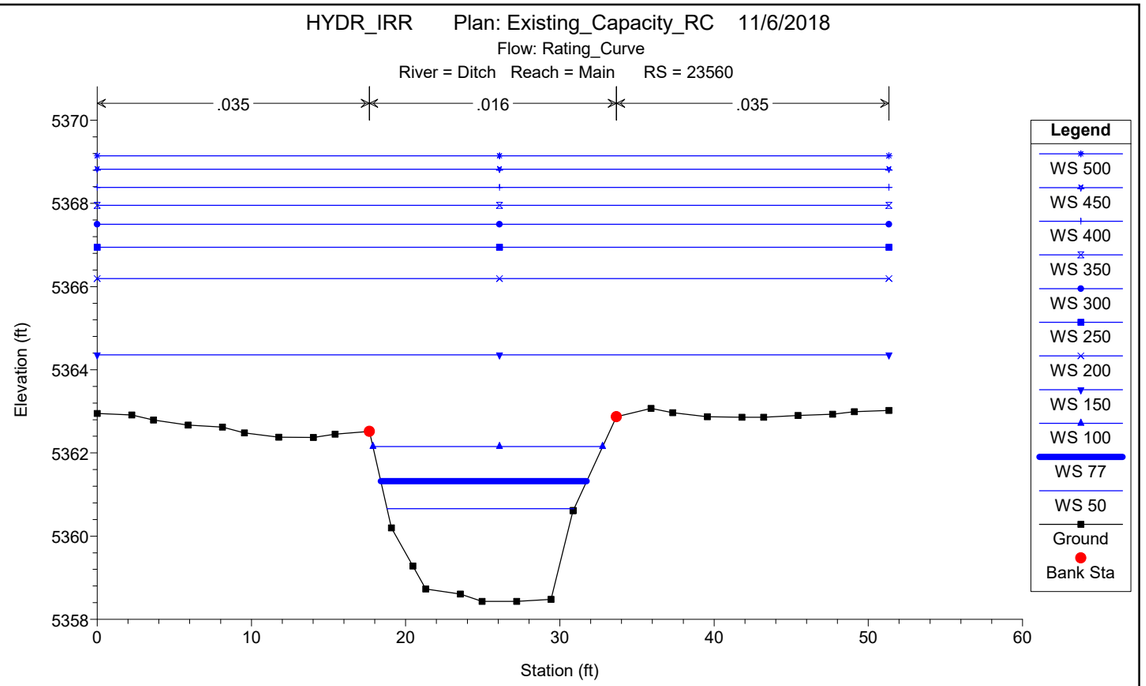

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 23728 BR
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

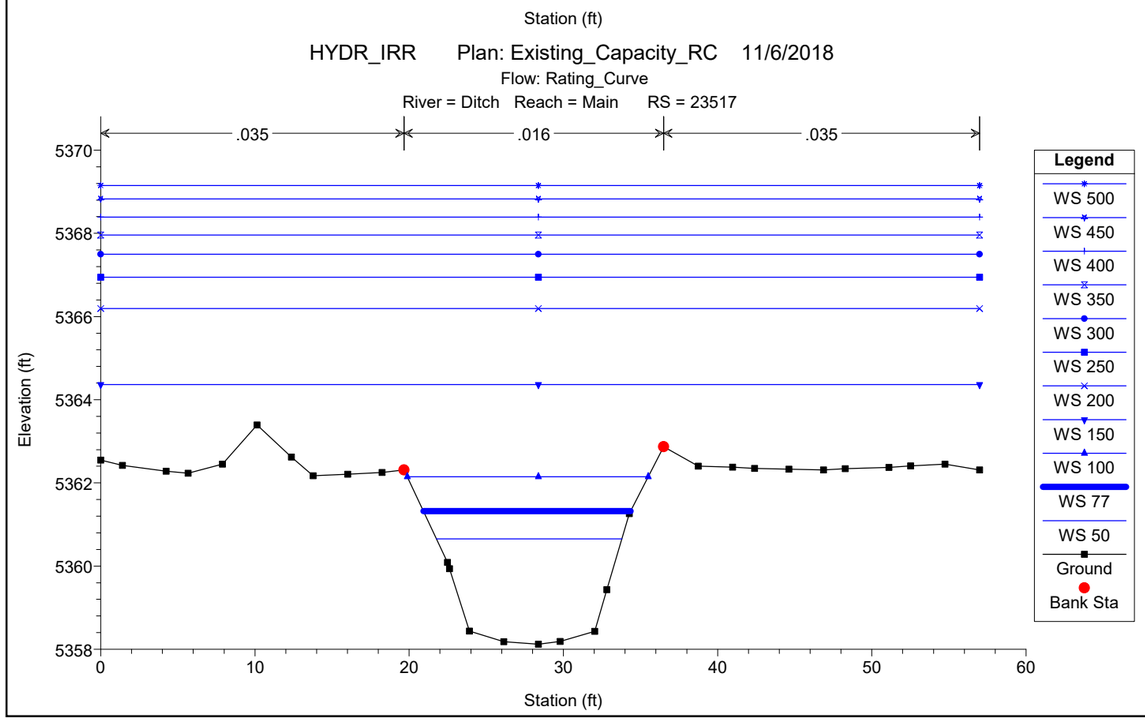

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 23692
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

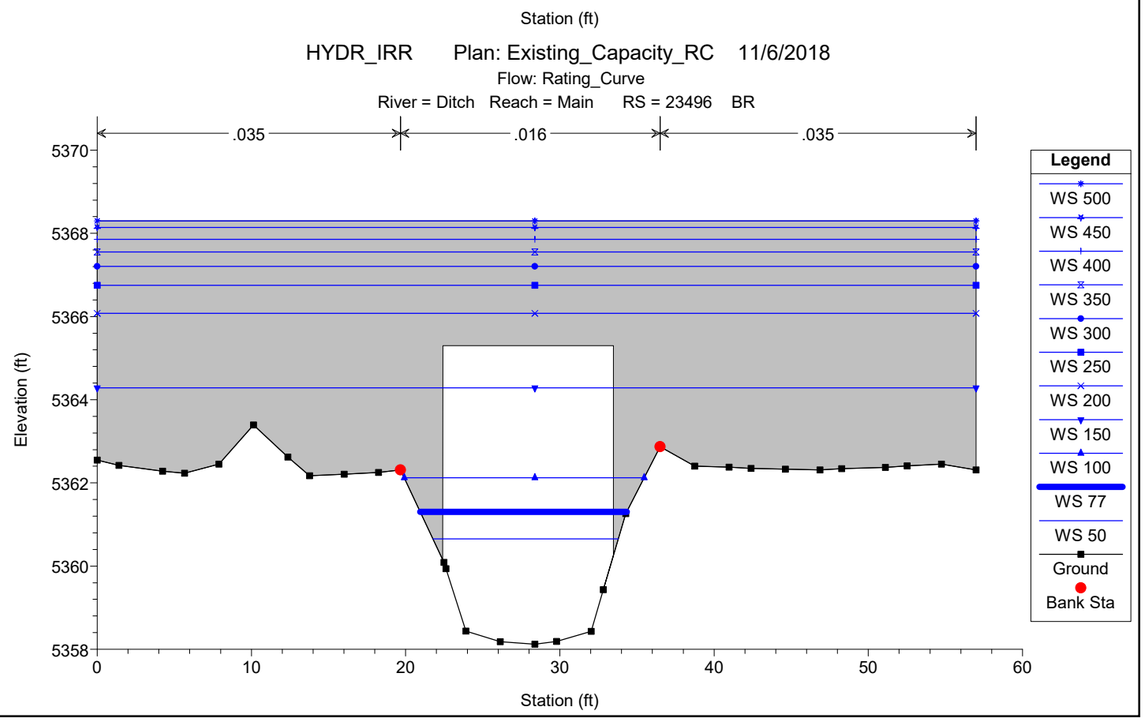

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 23586
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Bank Sta

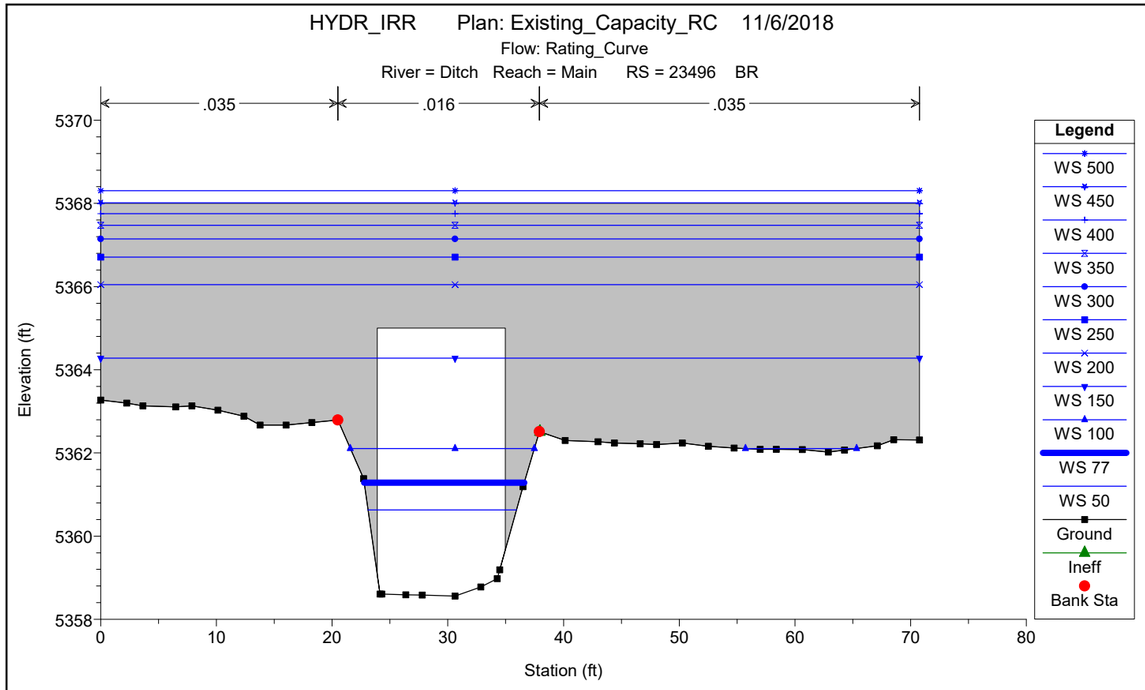

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 23571 BR
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Bank Sta

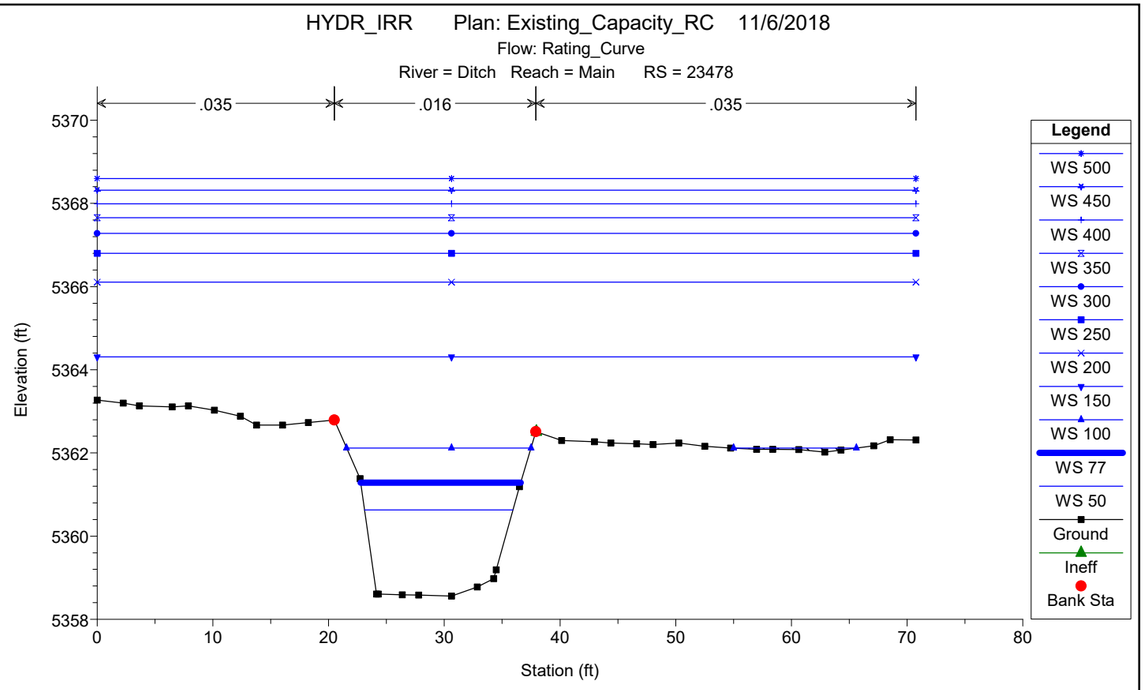

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 23571 BR
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Bank Sta

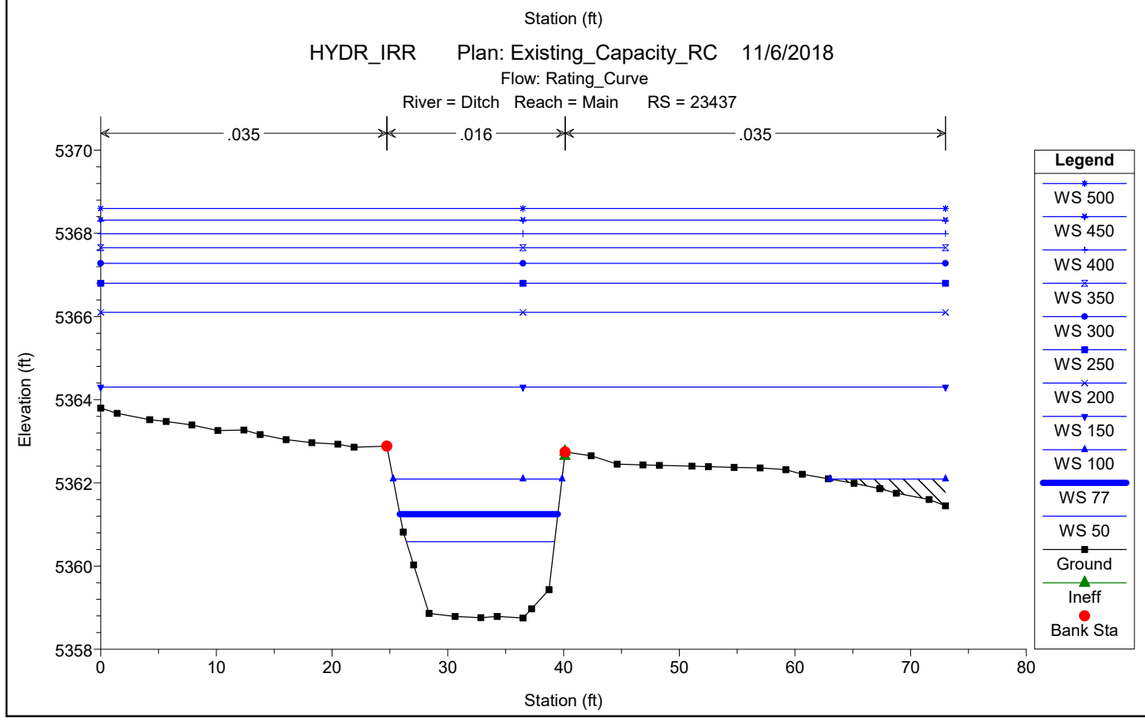

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 23560
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Bank Sta

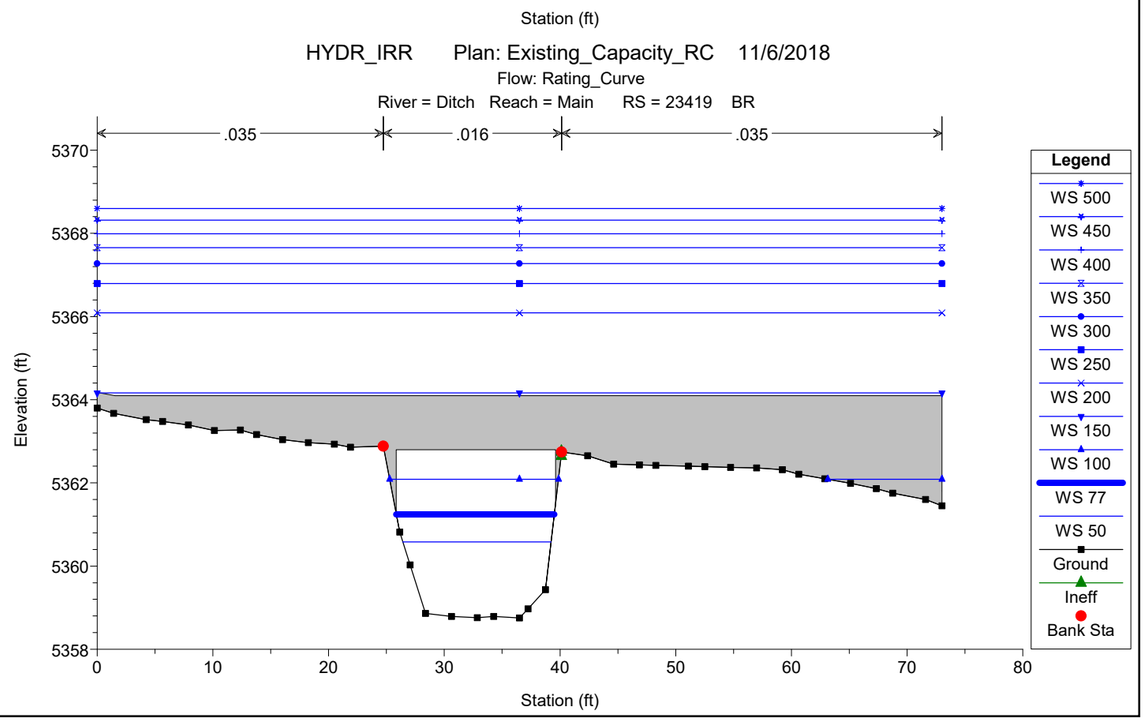

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 23517
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Bank Sta

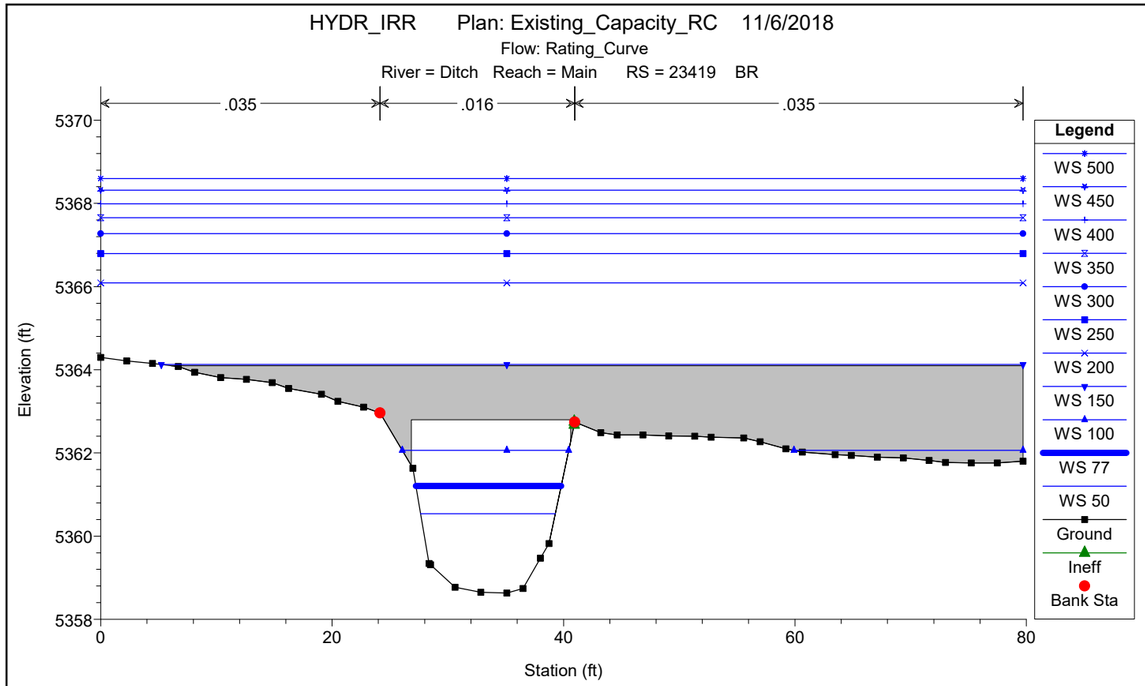

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 23496 BR
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Bank Sta

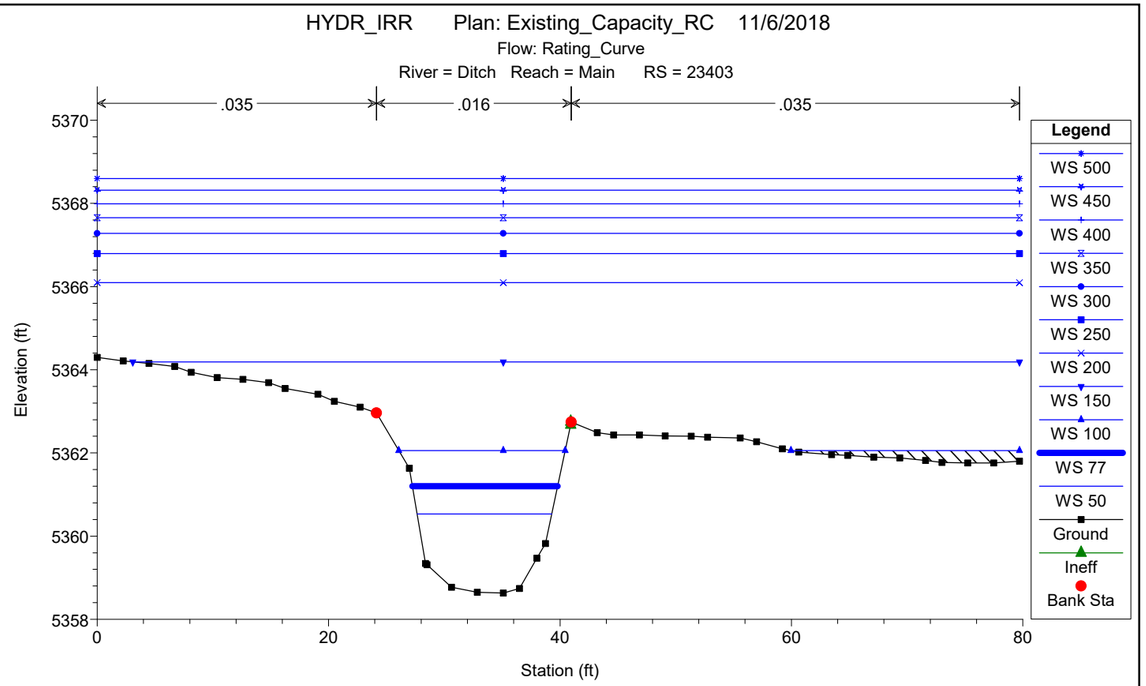

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 23496 BR
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

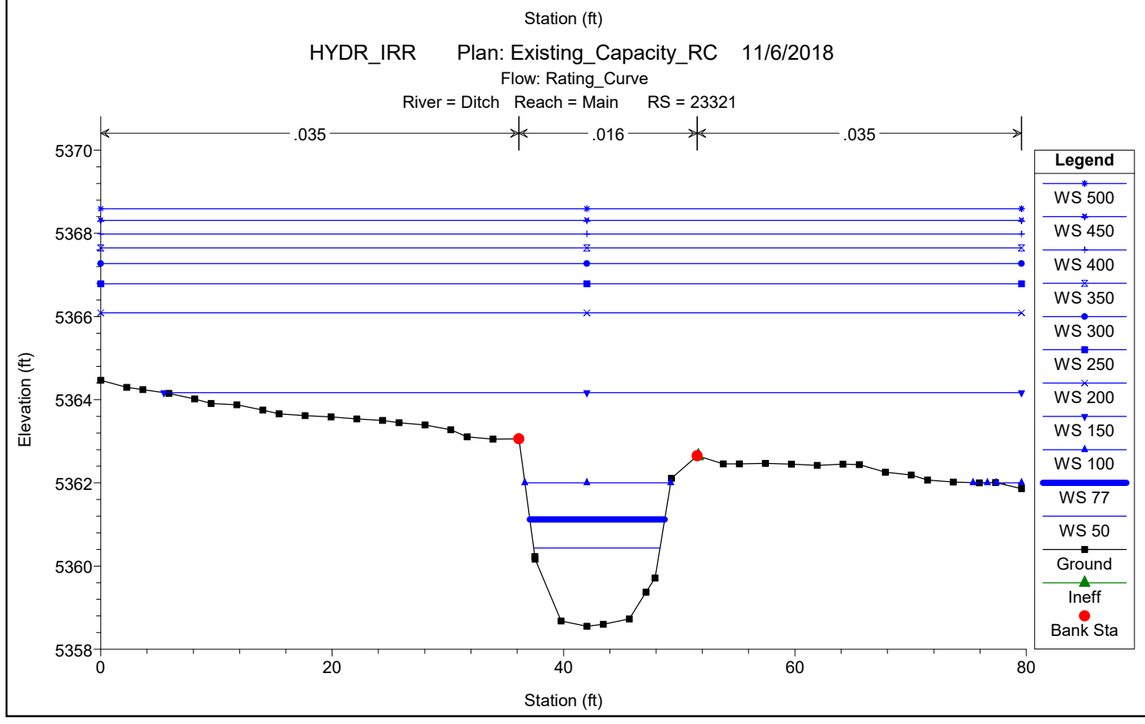

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 23478
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

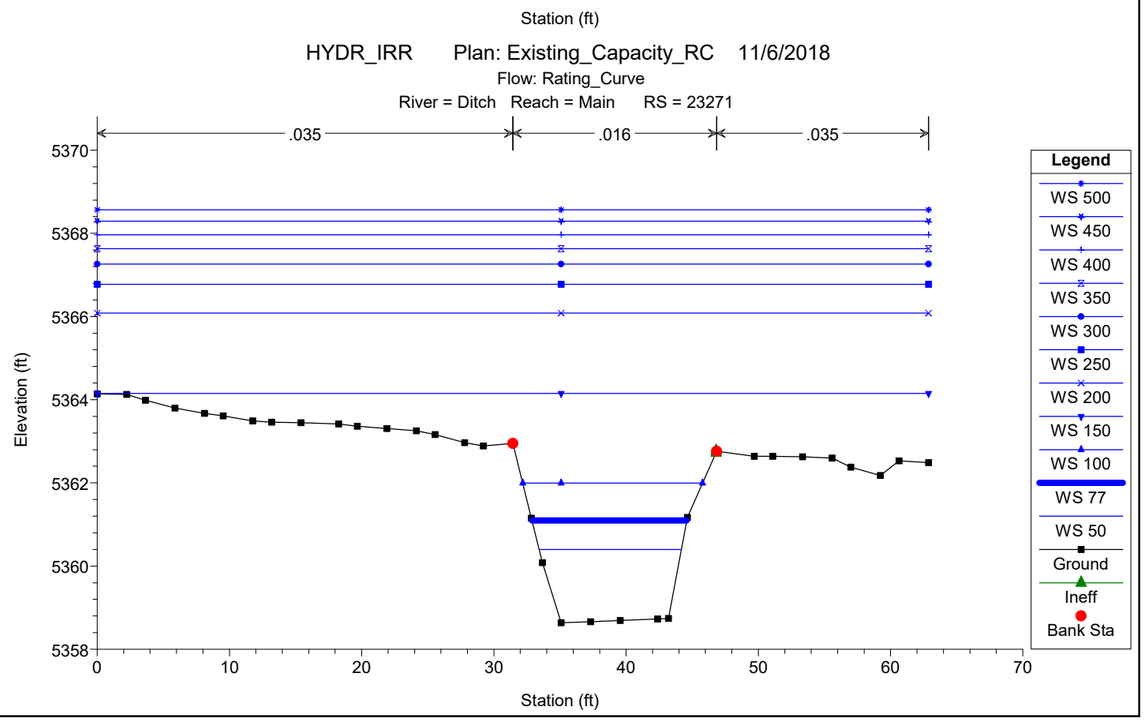

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 23437
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

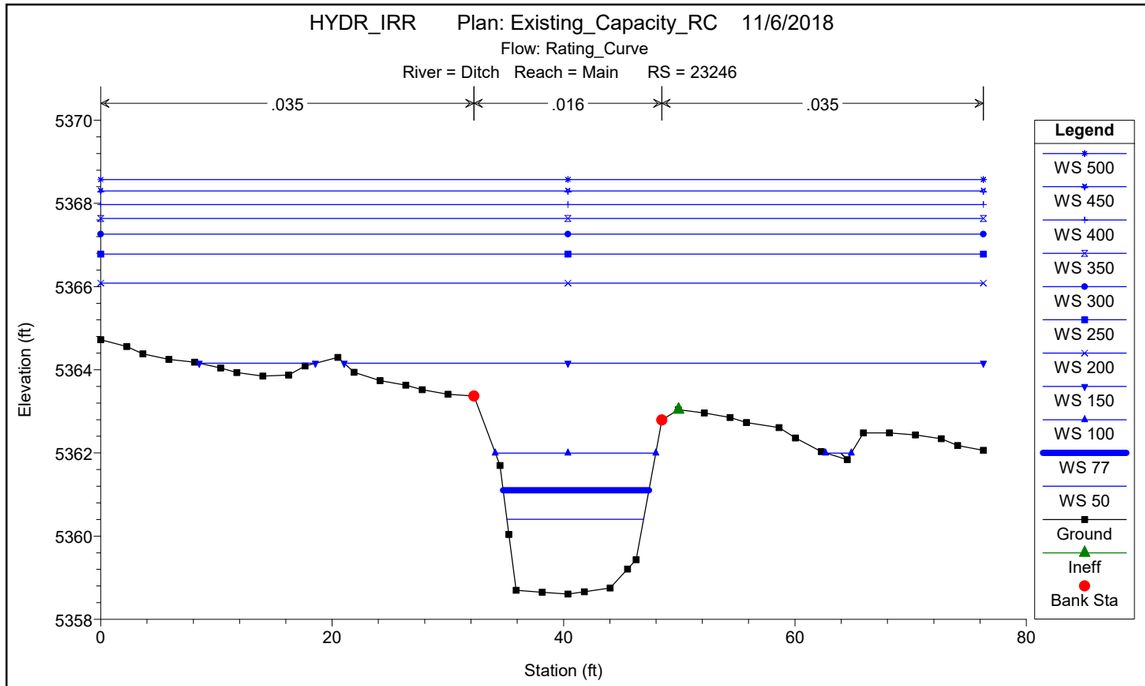

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 23419 BR
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

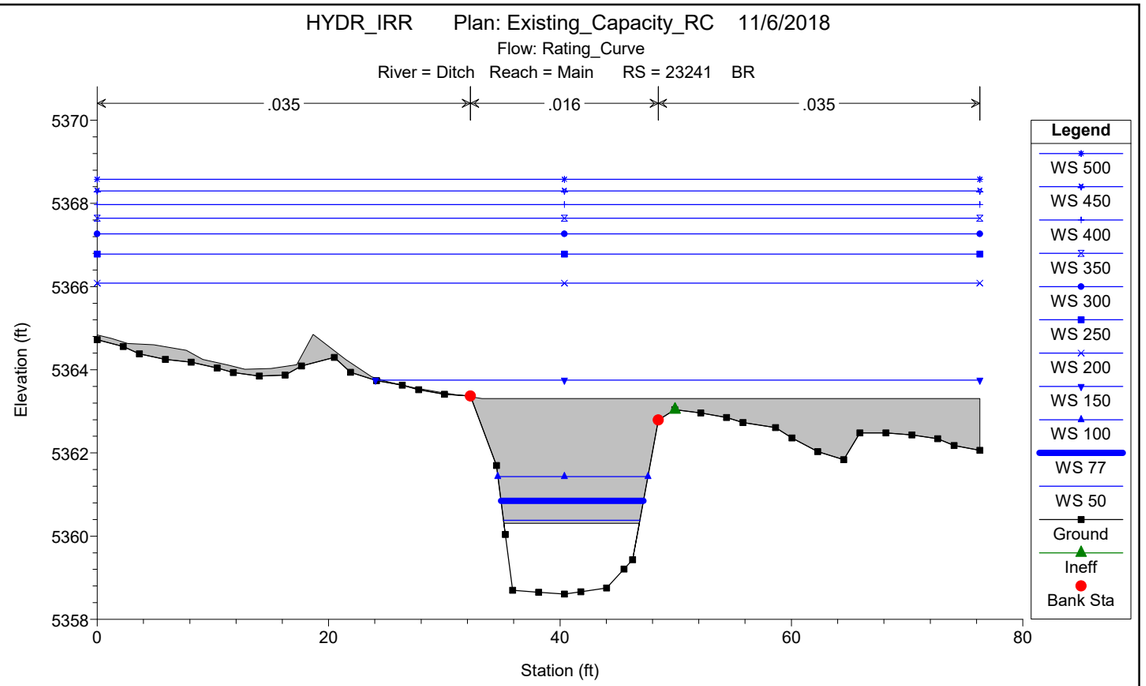

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 23419 BR
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

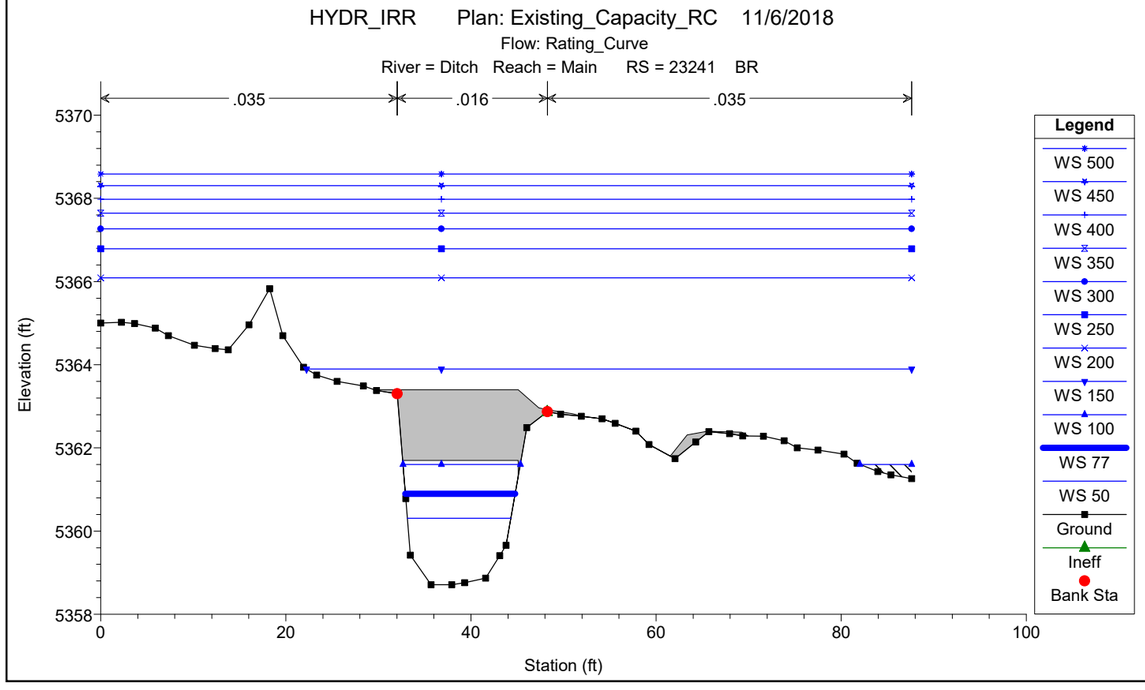

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 23403
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

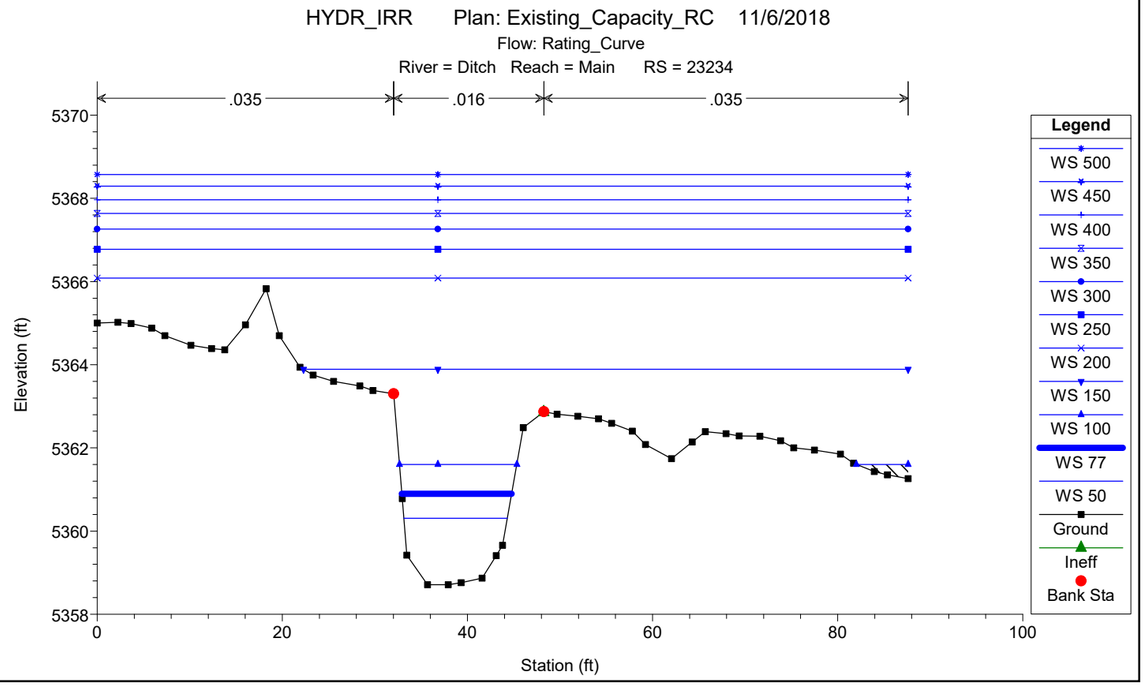

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 23321
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

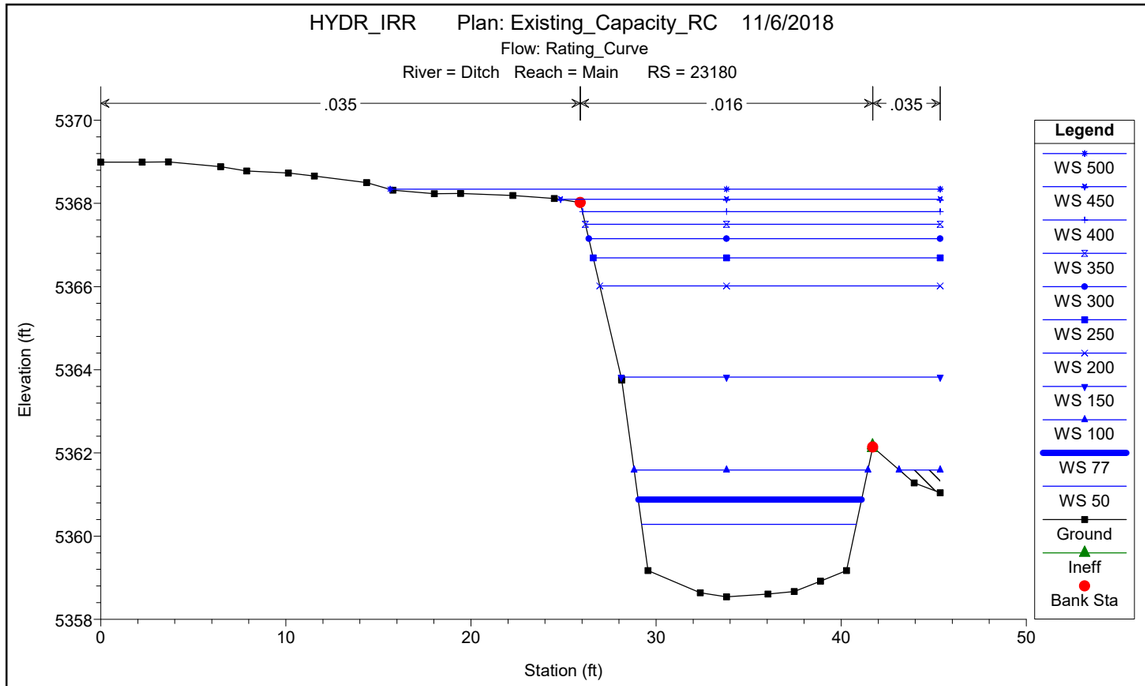

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 23271
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

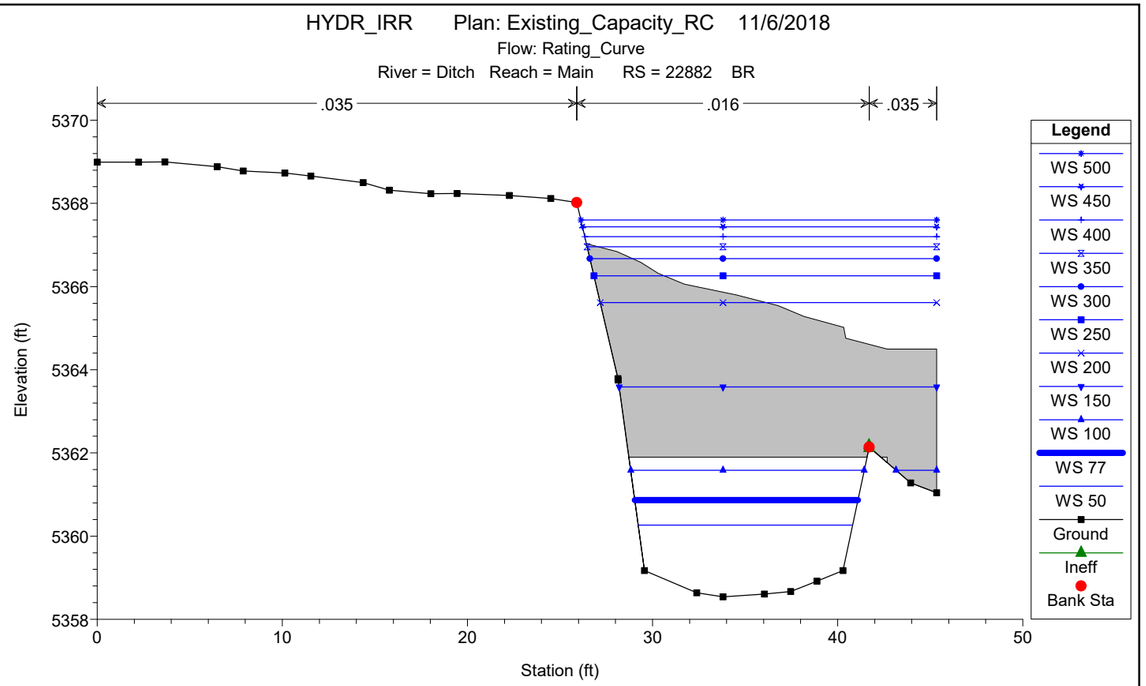

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 23246
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

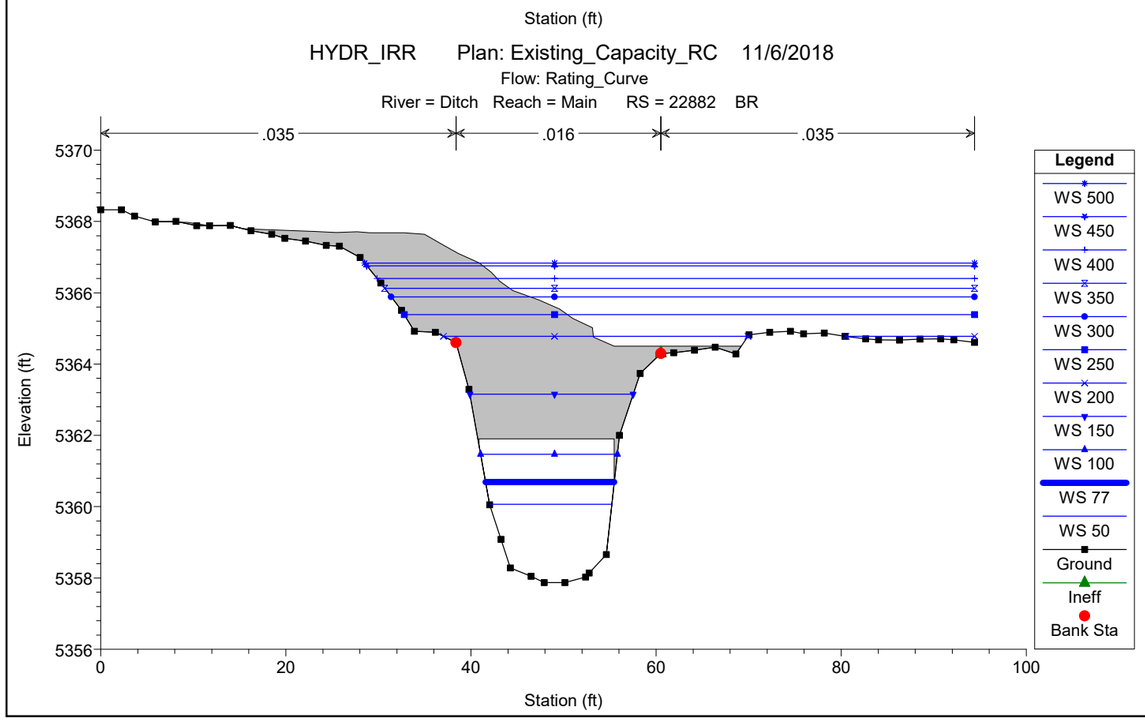

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 23241 BR
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

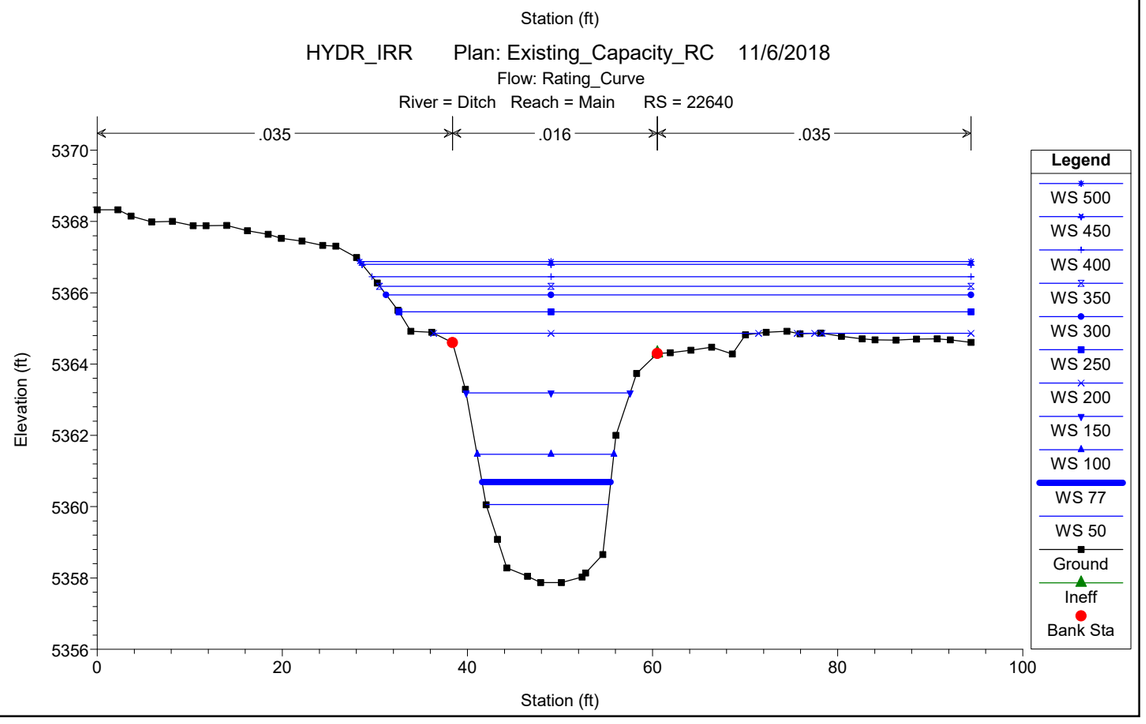

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 23241 BR
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

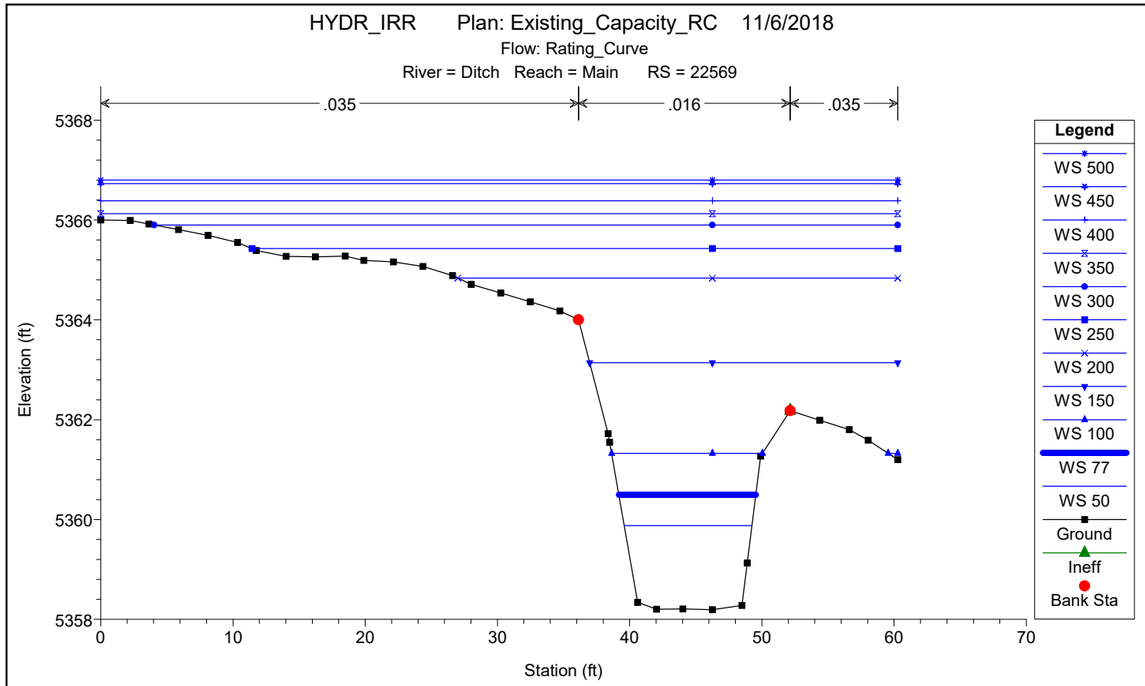

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 23234
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

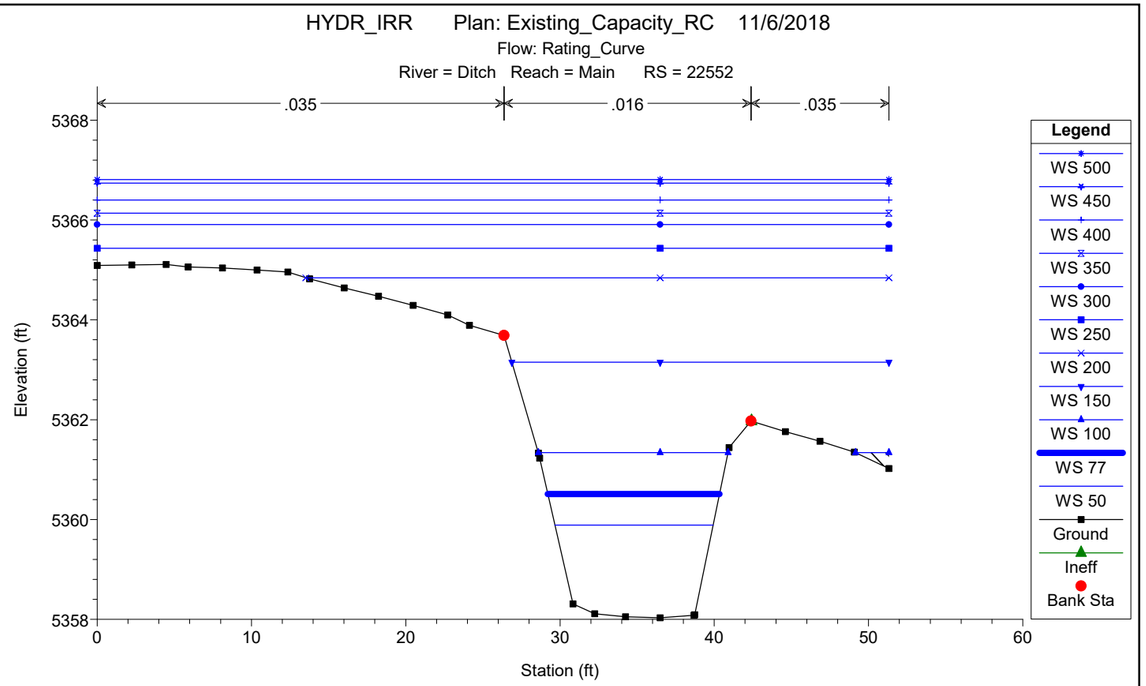

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 23180
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

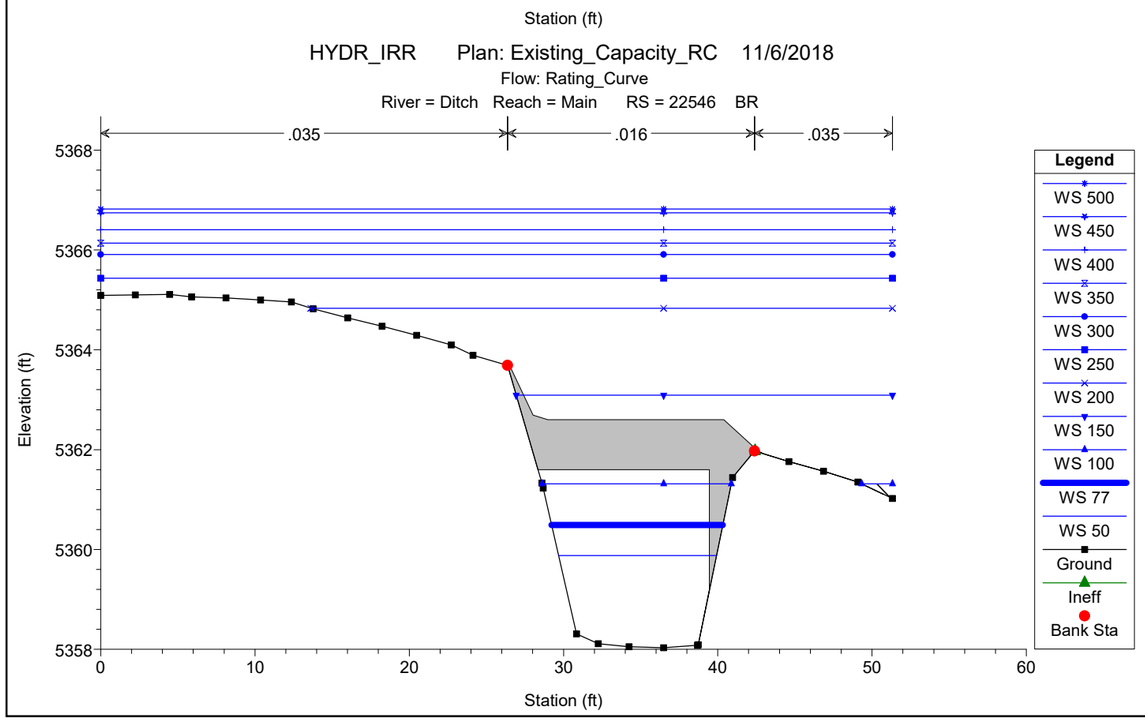

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 22882 BR
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

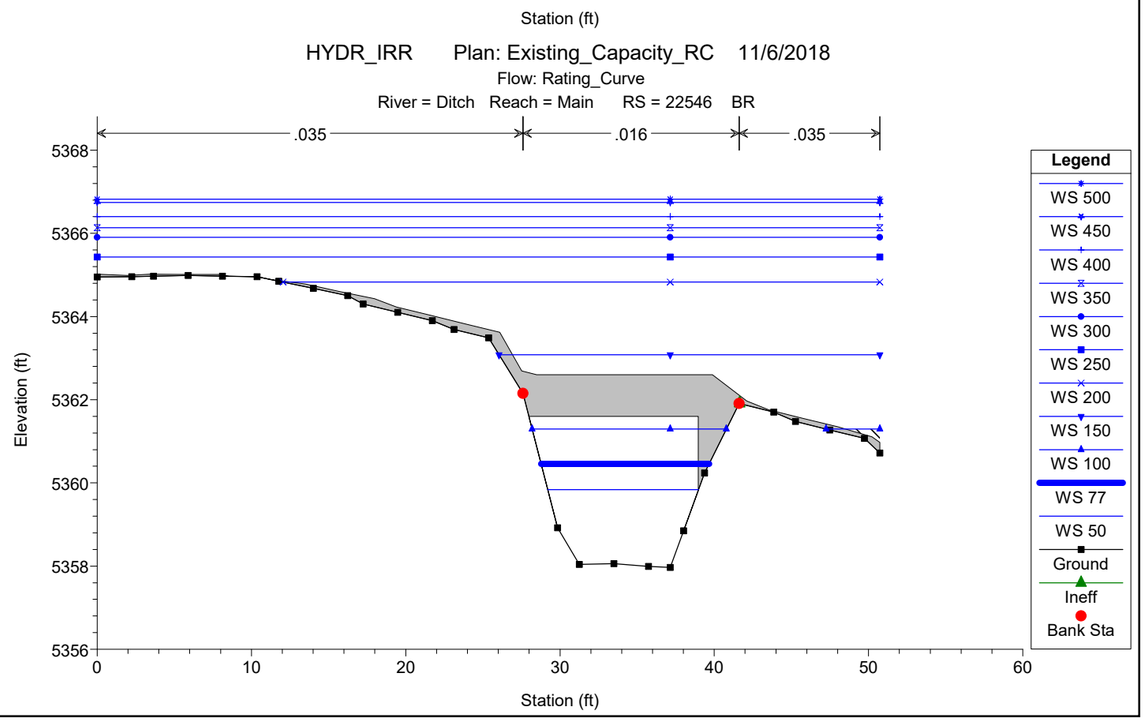

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 22882 BR
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

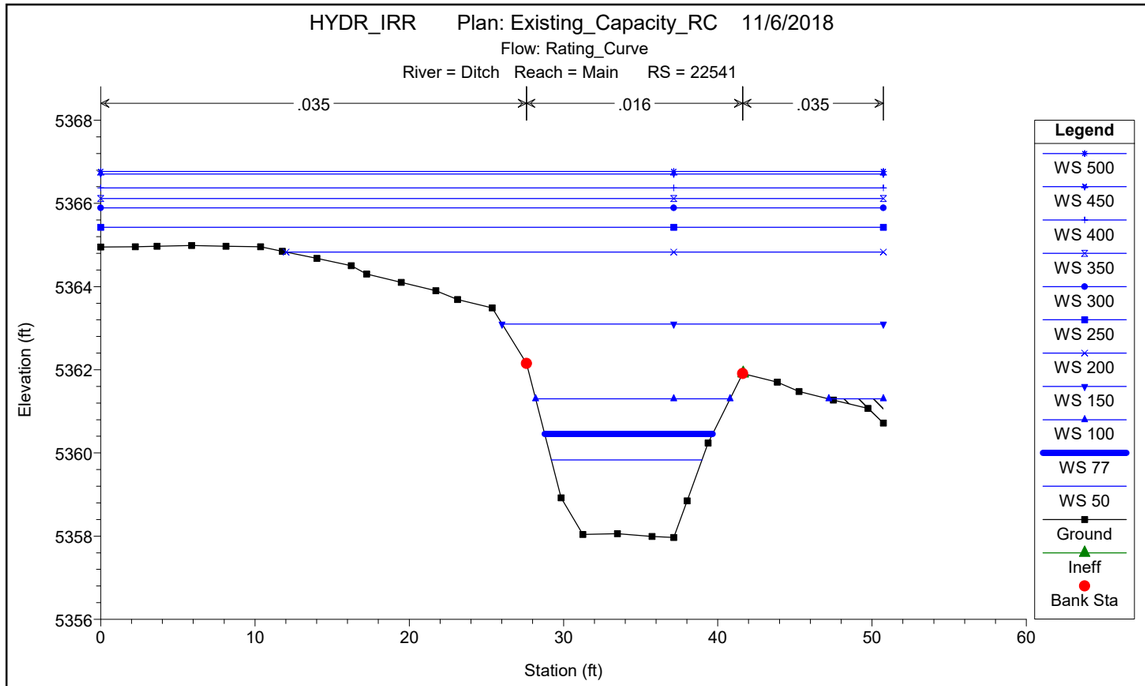

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 22640
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

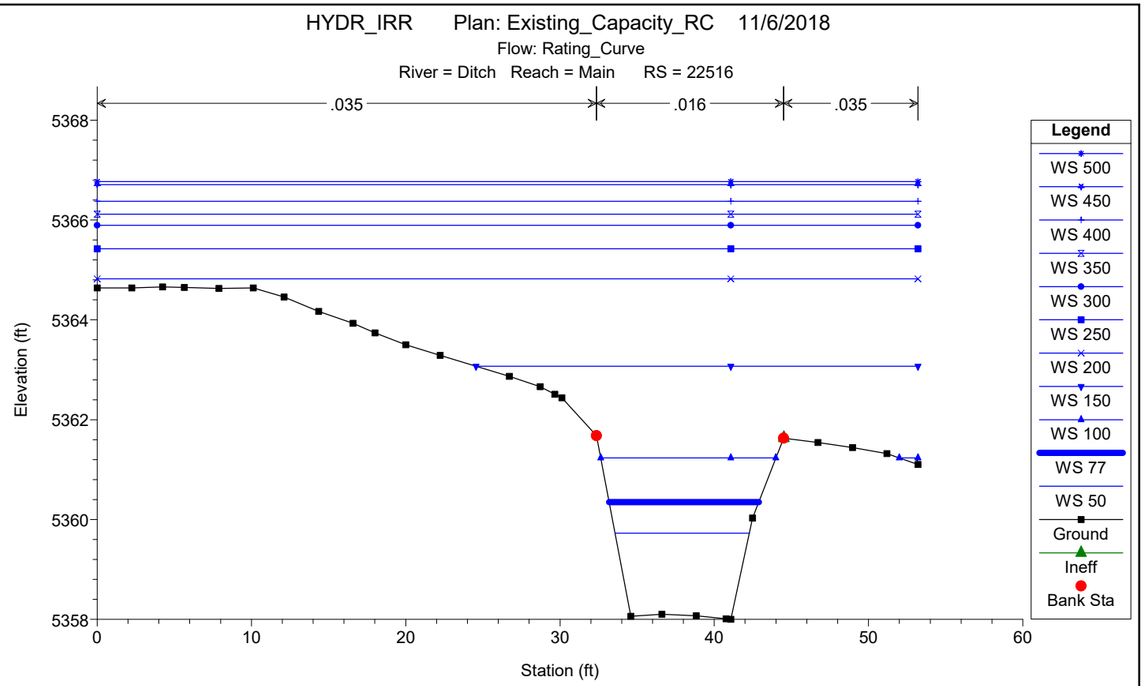

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 22569
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

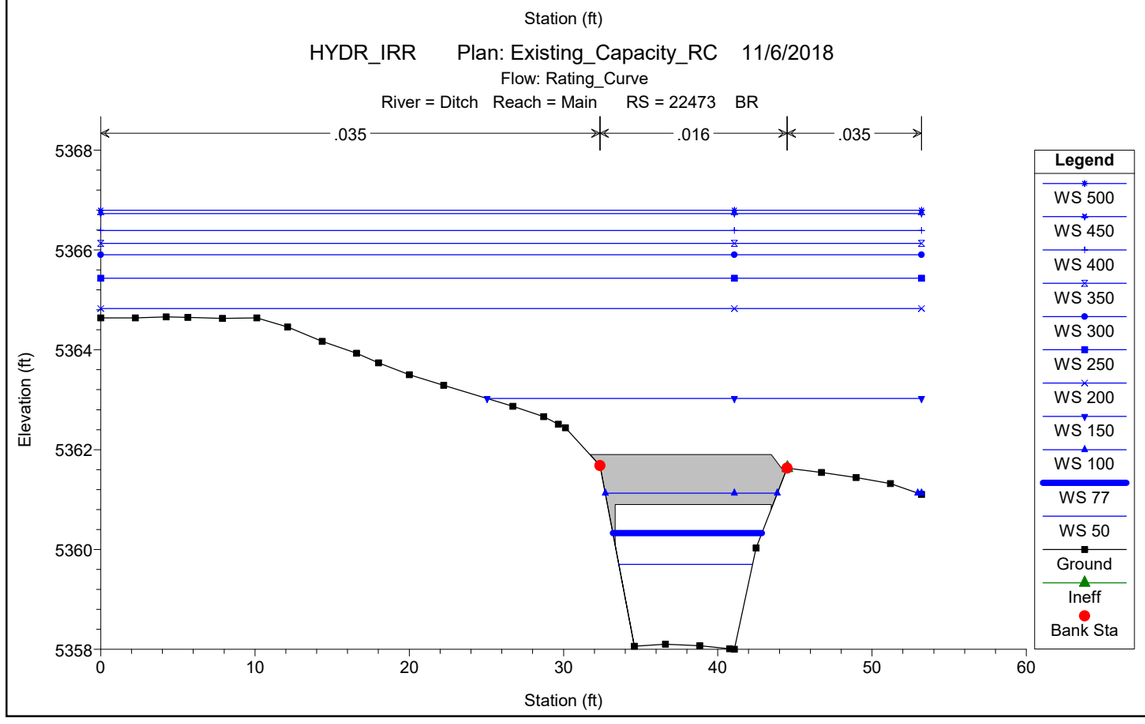

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 22552
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

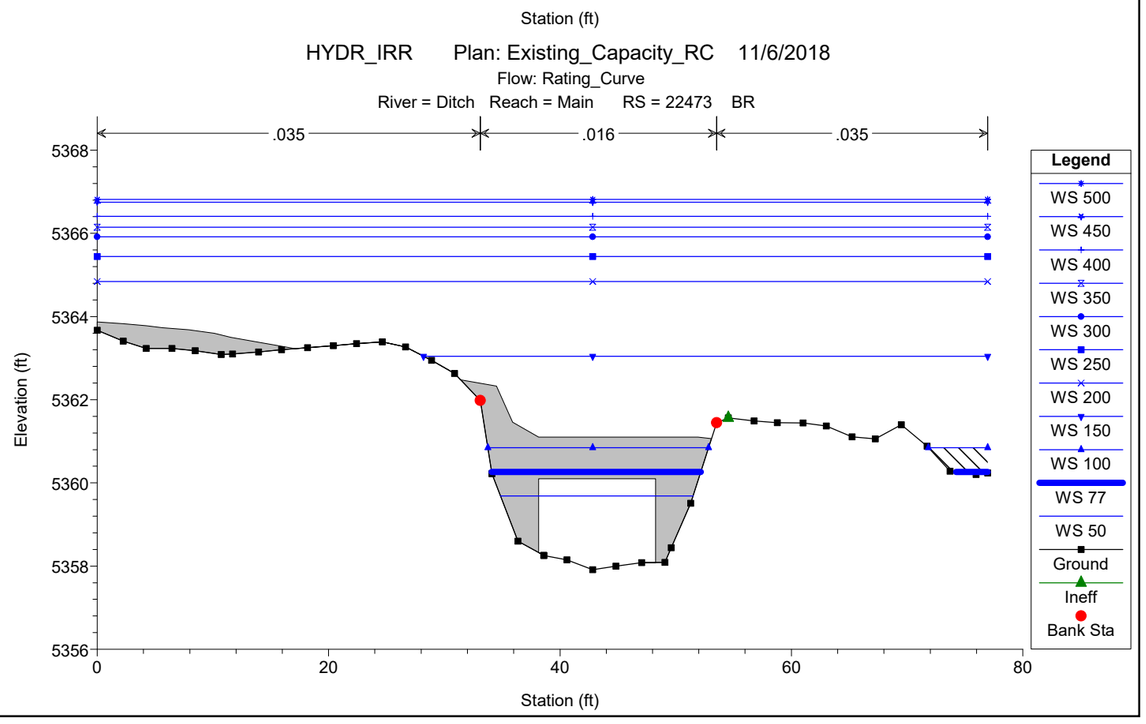

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 22546 BR
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta


HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 22546 BR
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

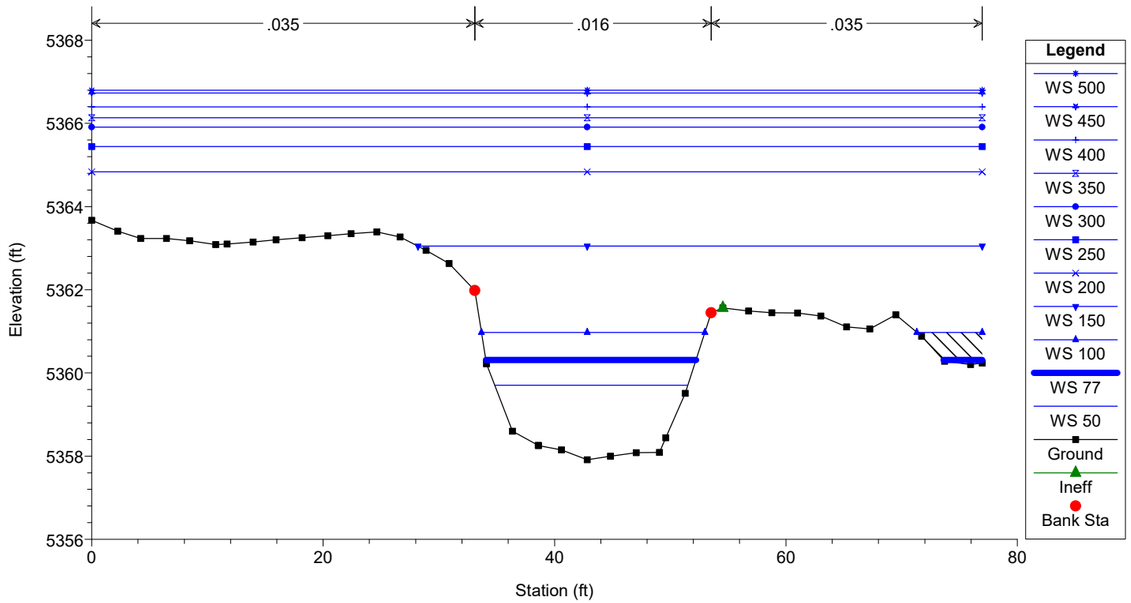

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 22541
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta


HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 22516
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

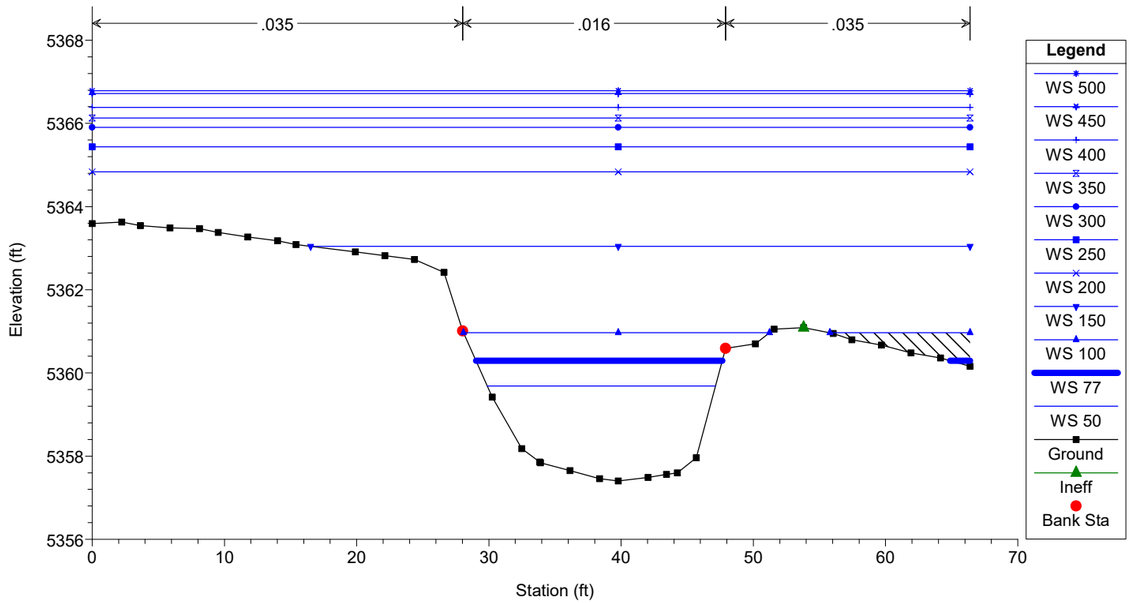

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 22473 BR
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta


HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 22473 BR
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

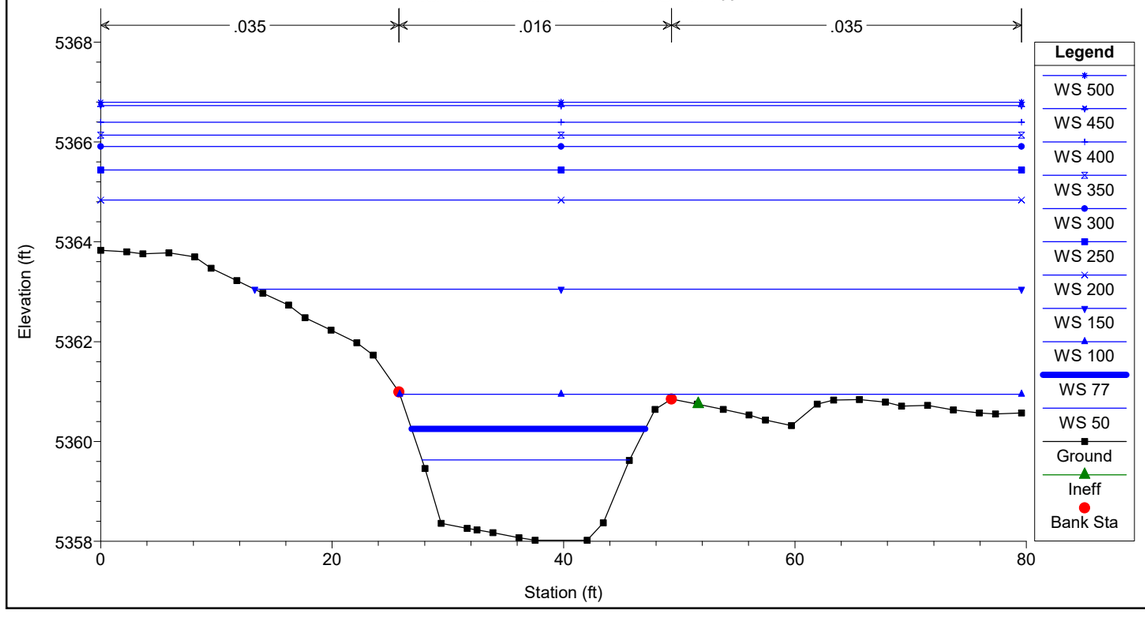
HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 22411



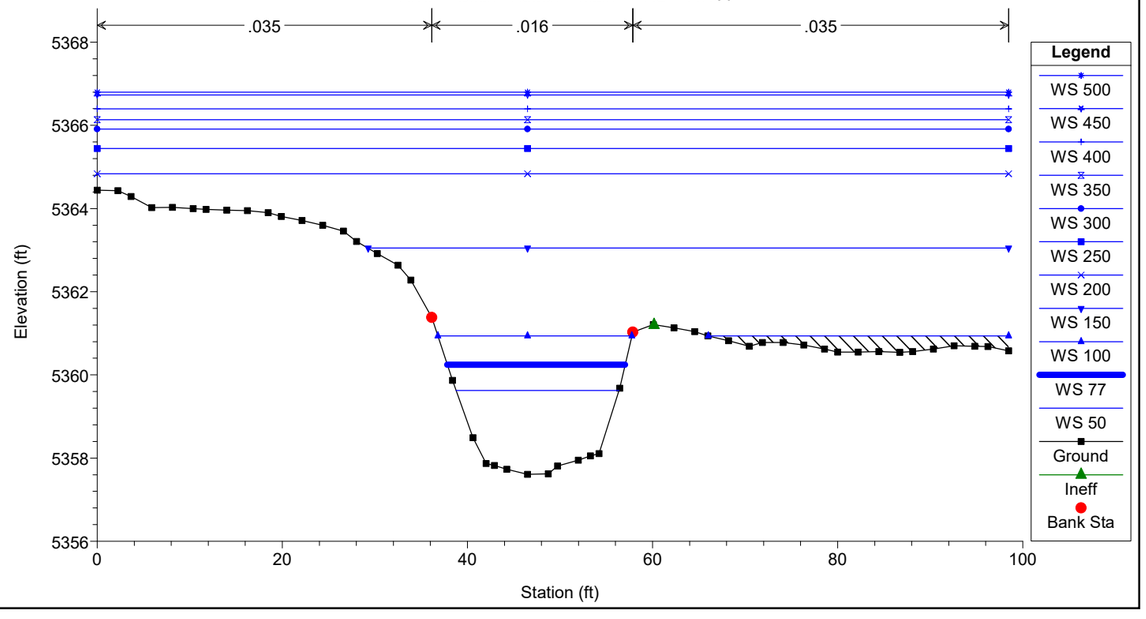
HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 22269

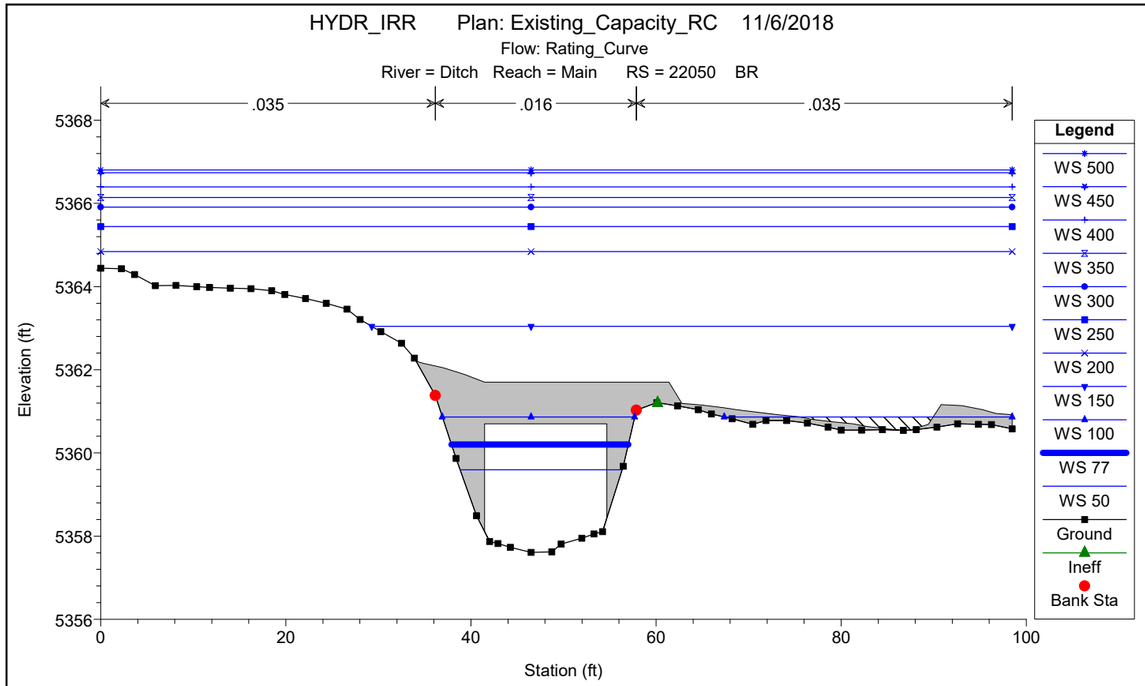


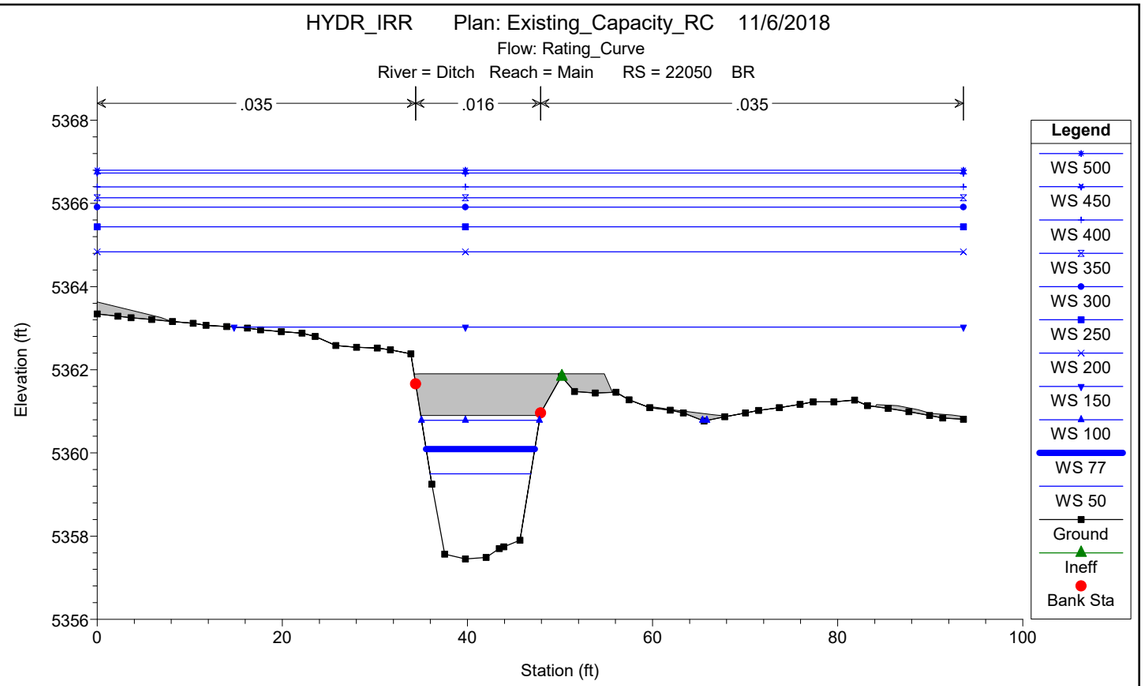
HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 22165

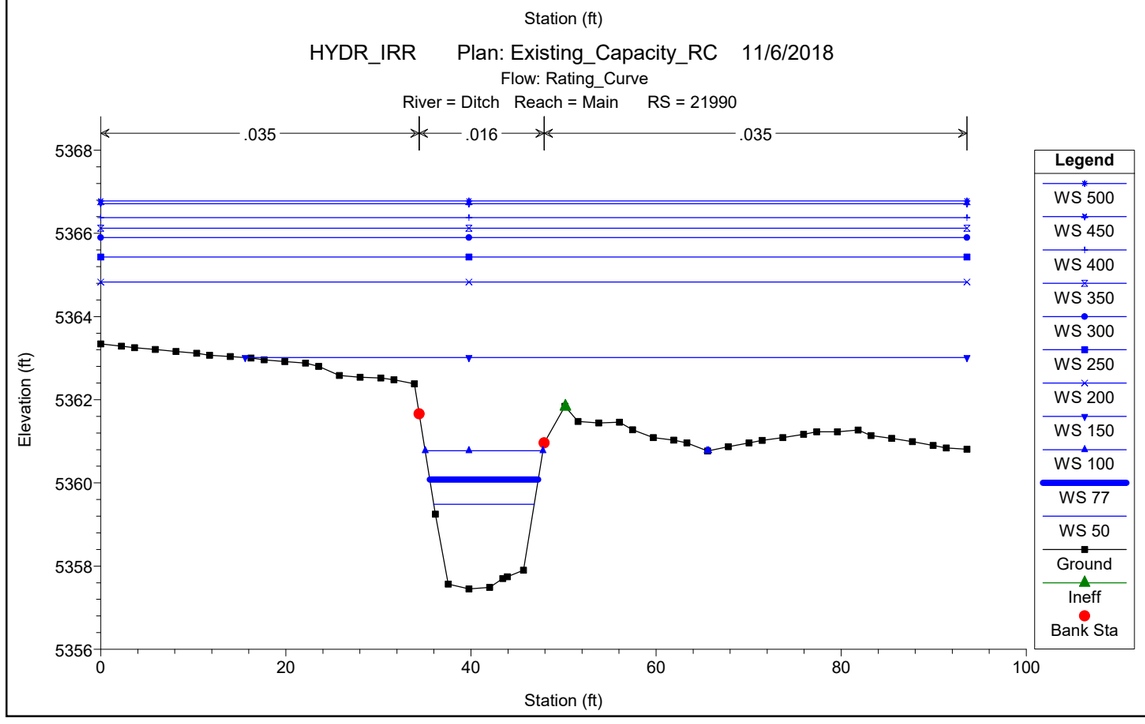


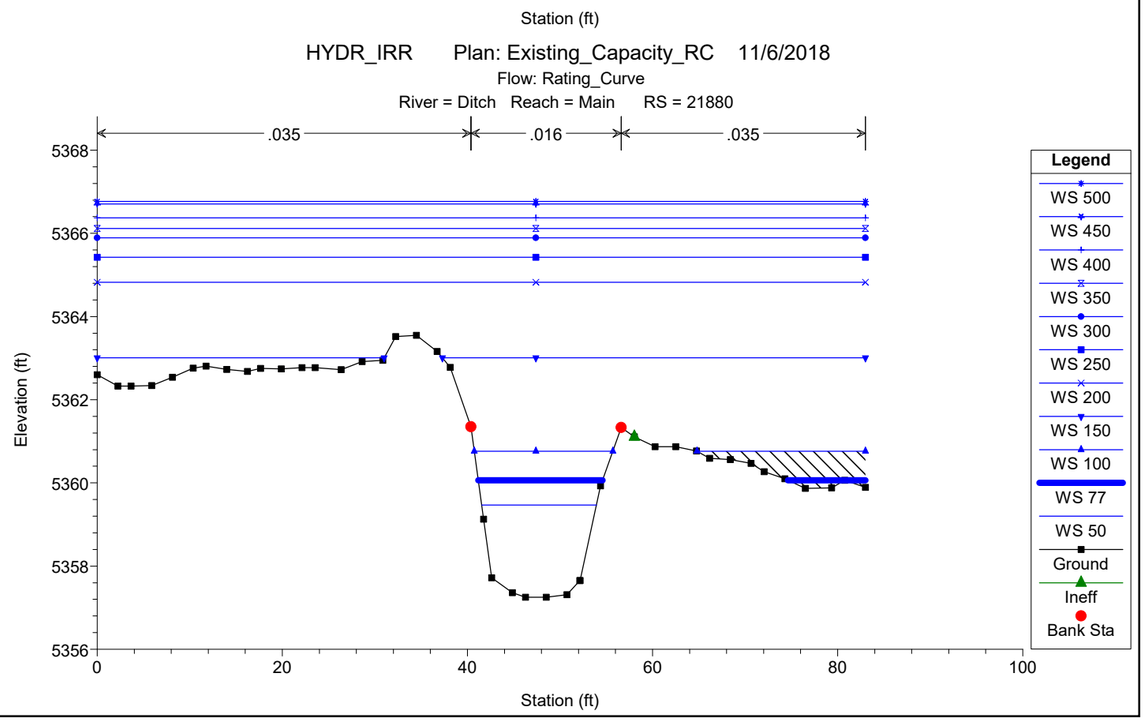
HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 22106

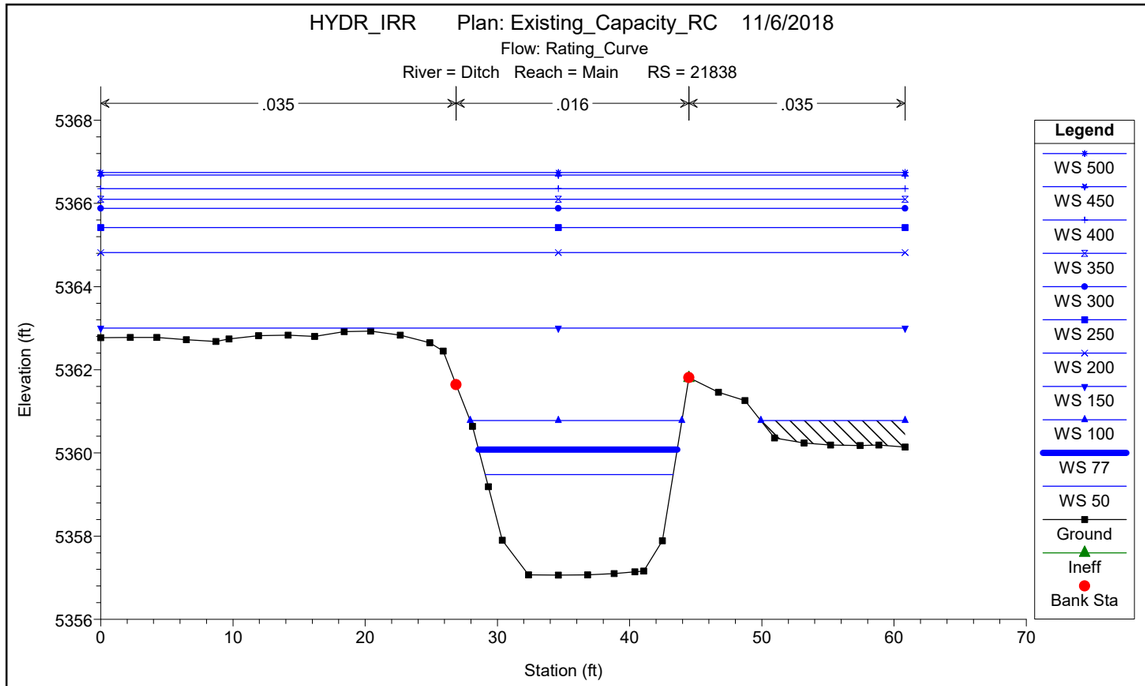


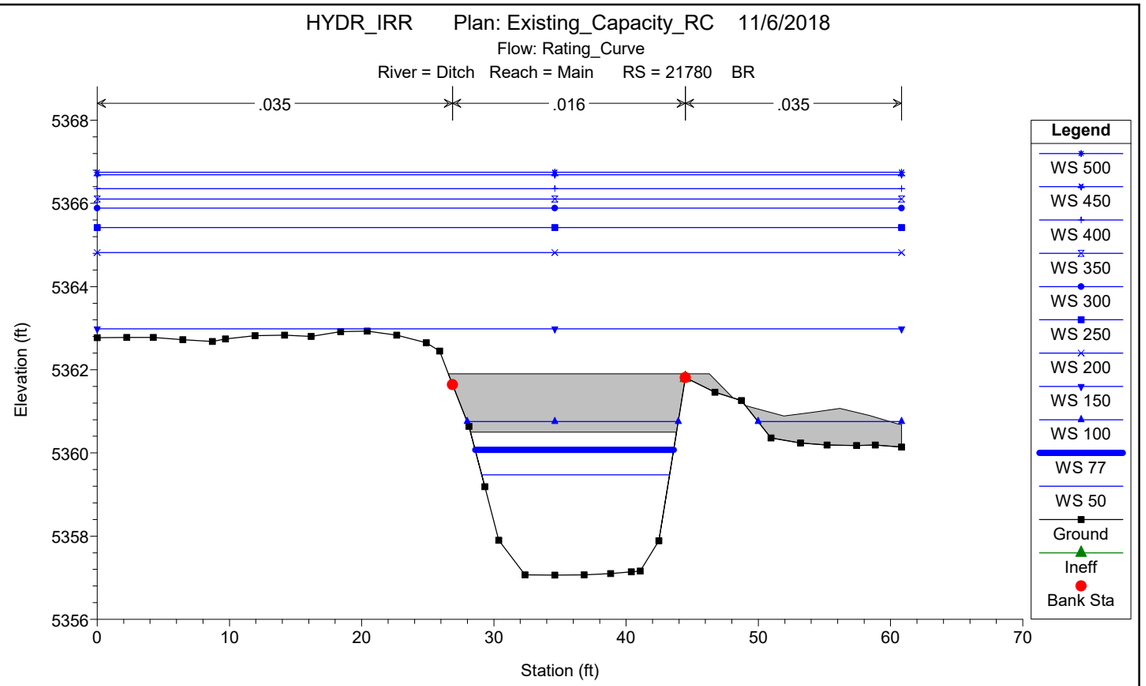

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 22050 BR
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

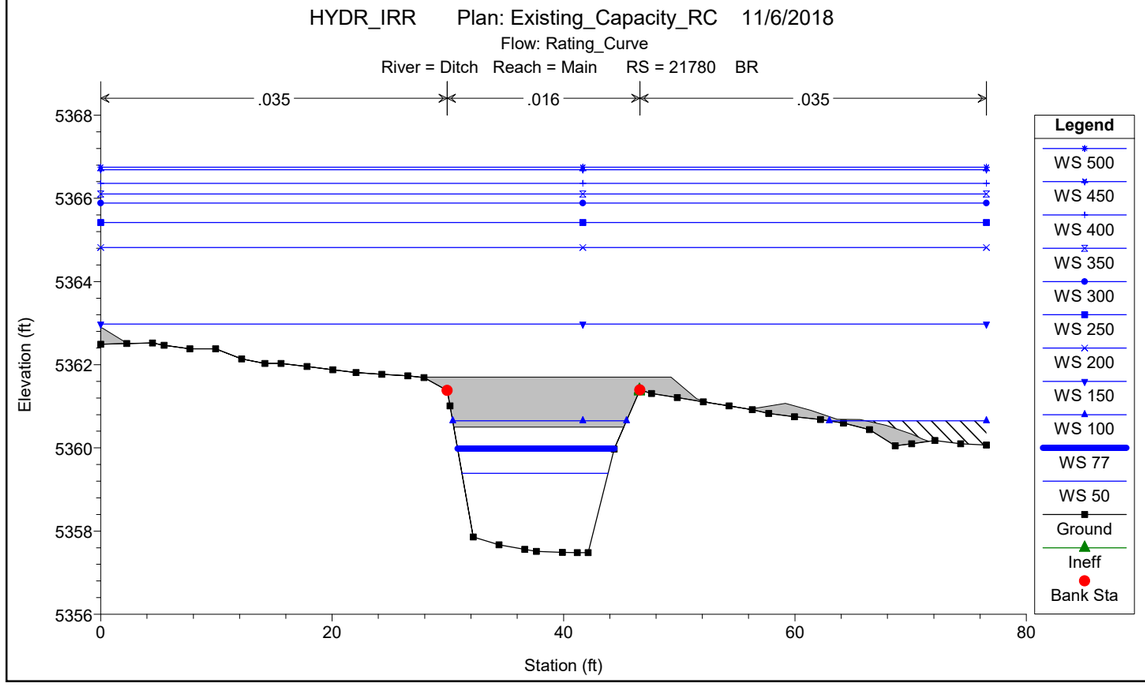

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 22050 BR
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

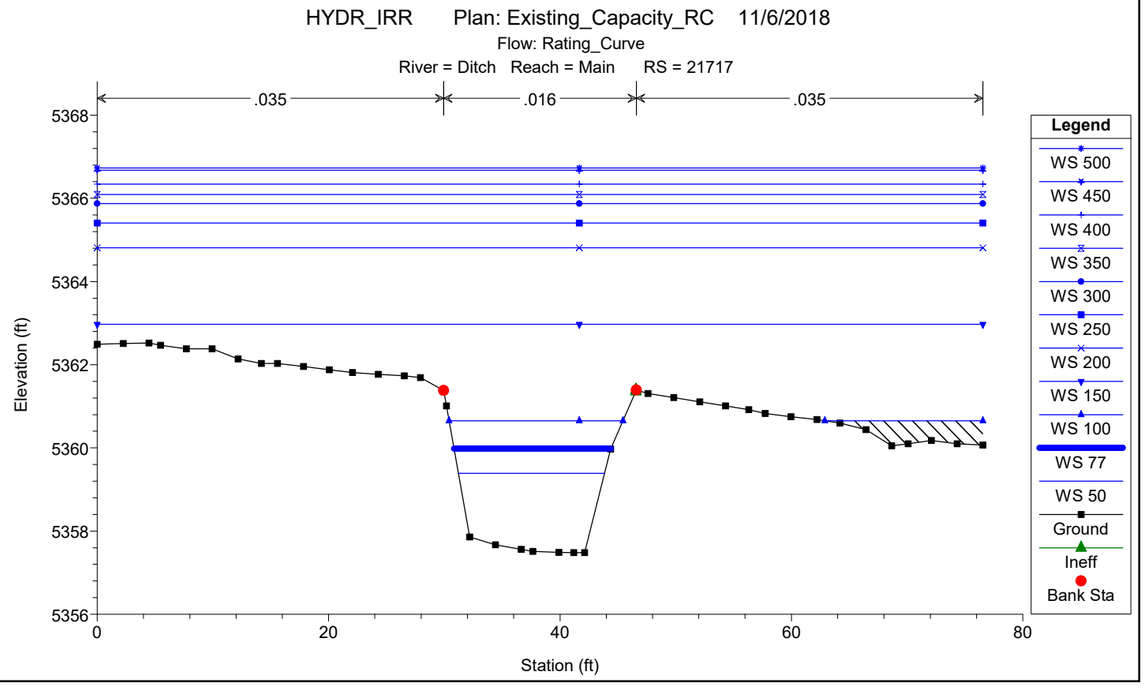

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 21990
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

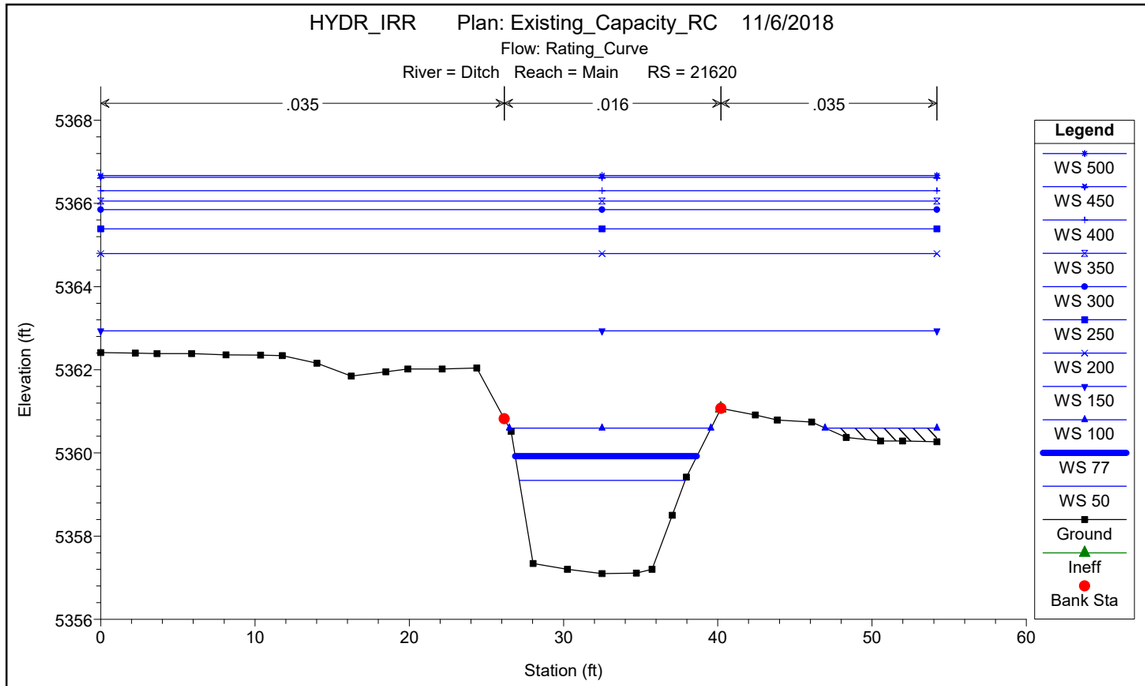

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 21880
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

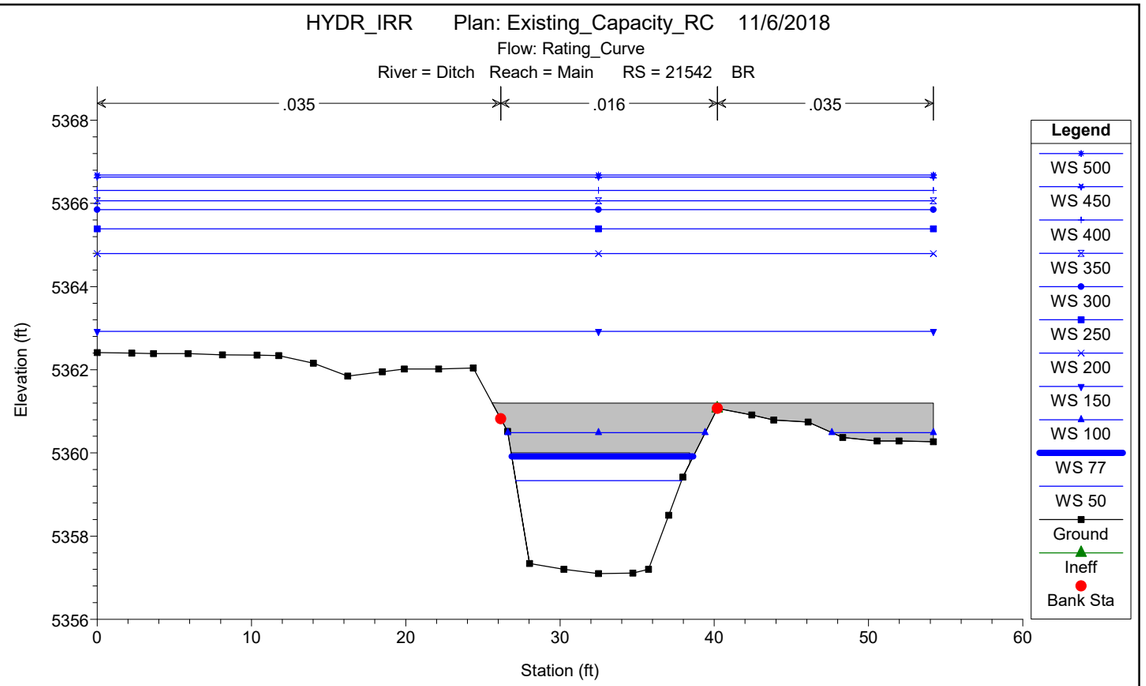

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 21838
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

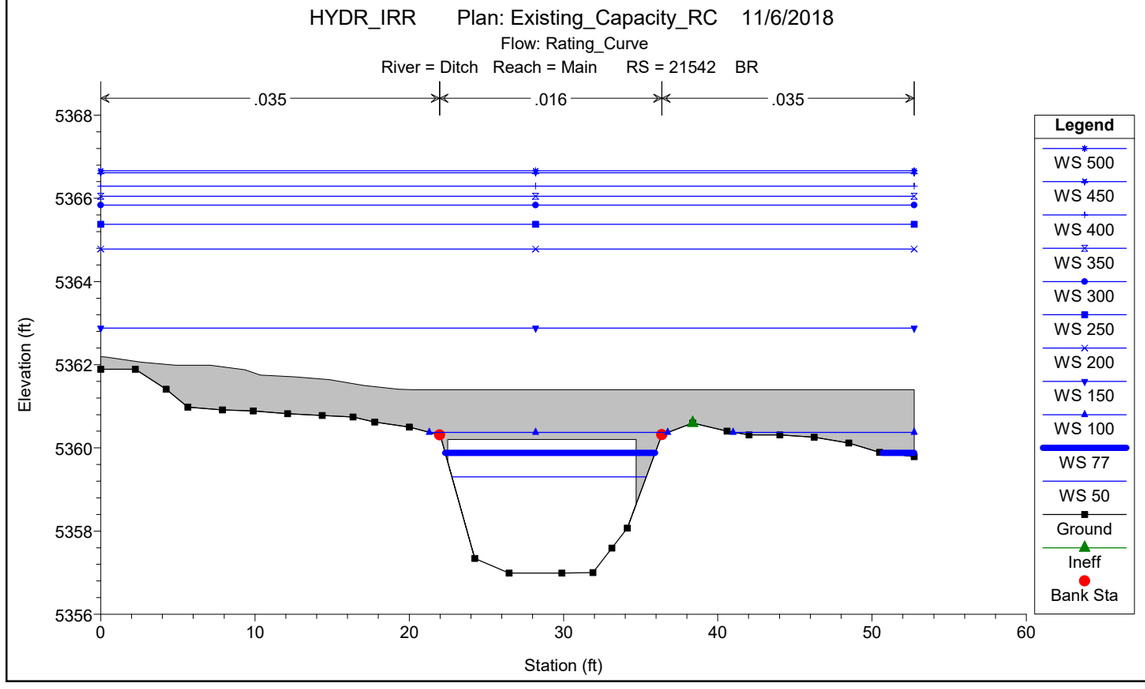

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 21780 BR
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

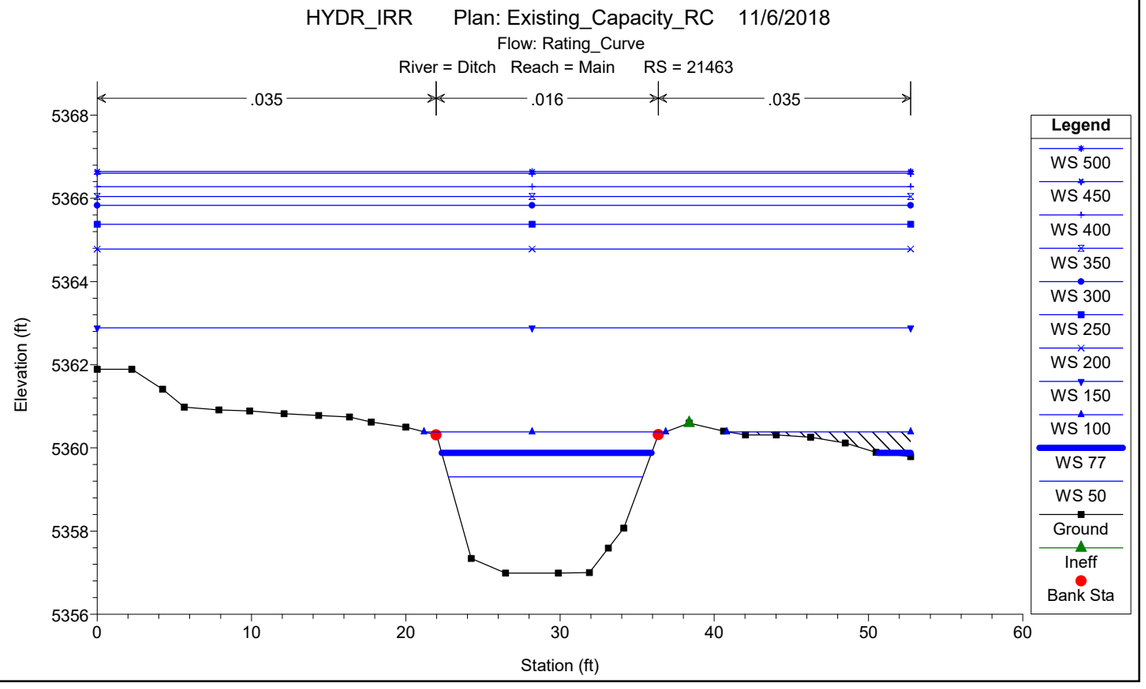

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 21780 BR
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

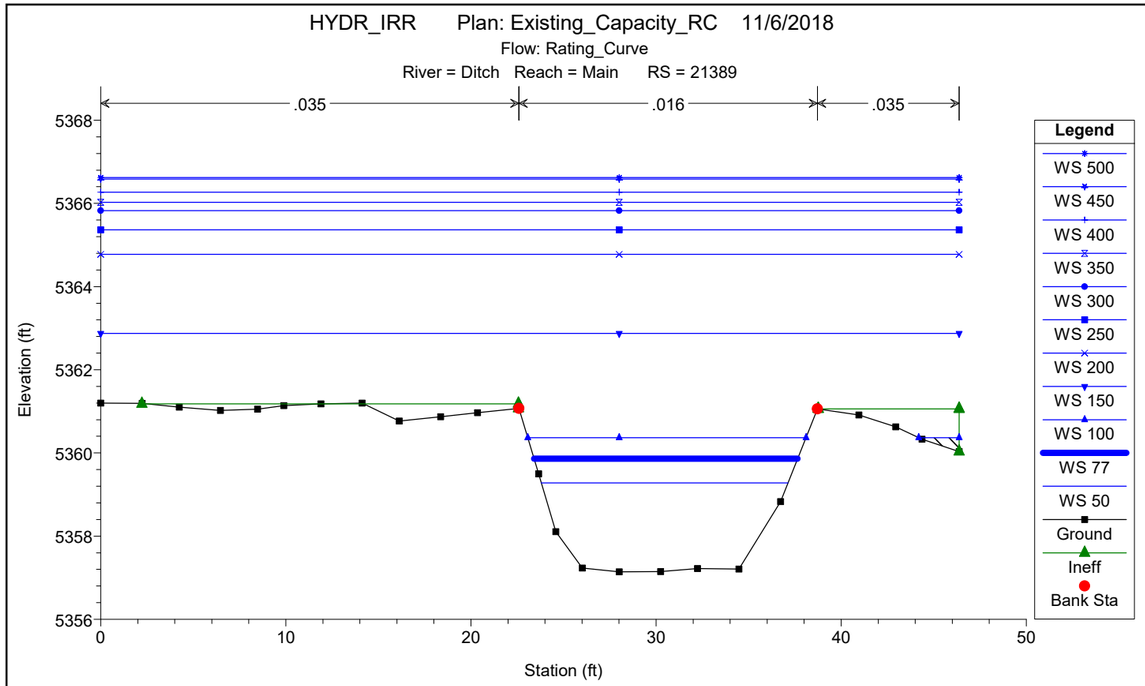

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 21717
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

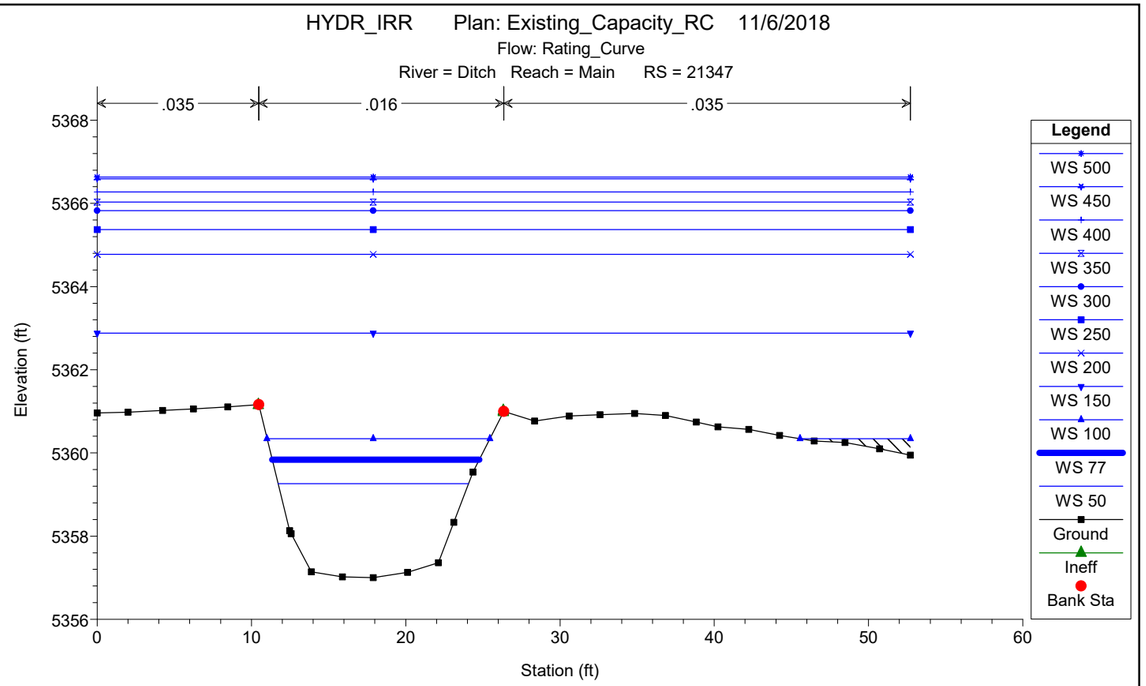

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 21620
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

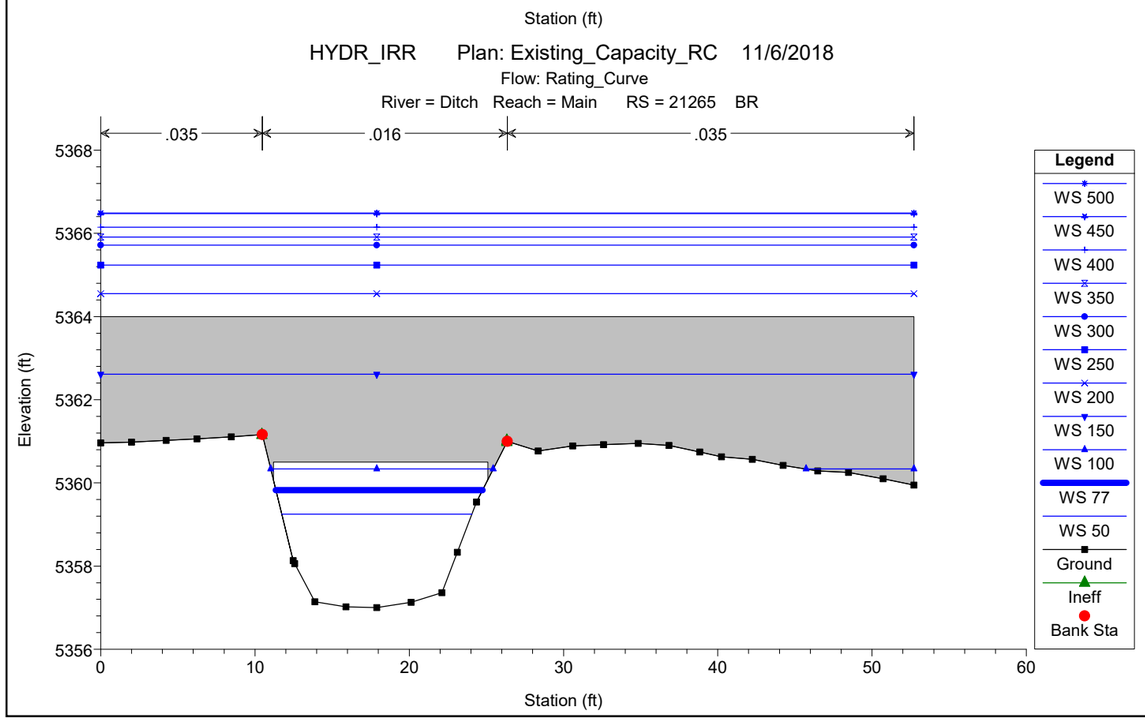

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 21542 BR
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

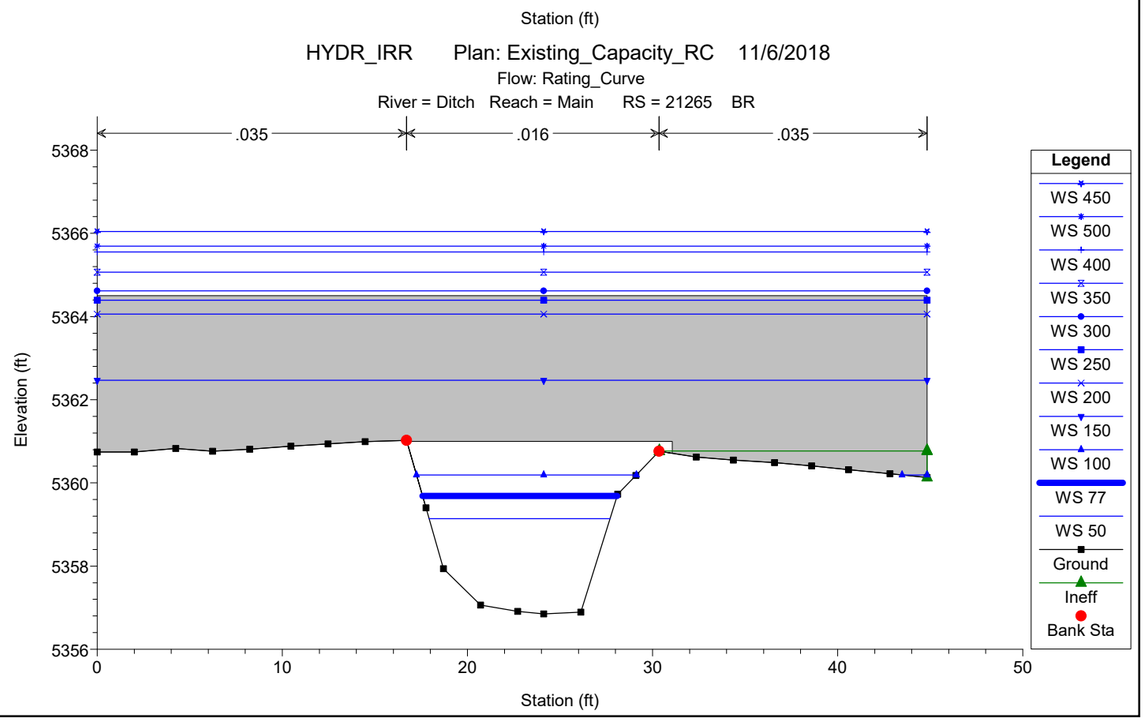

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 21542 BR
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

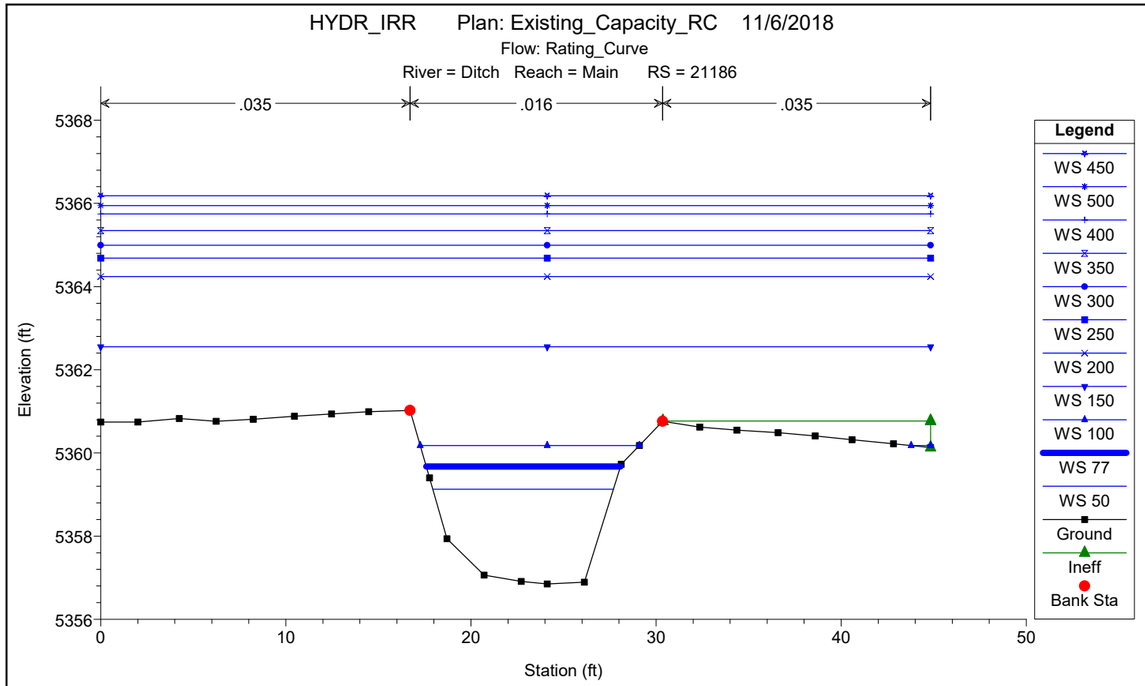

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 21463
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

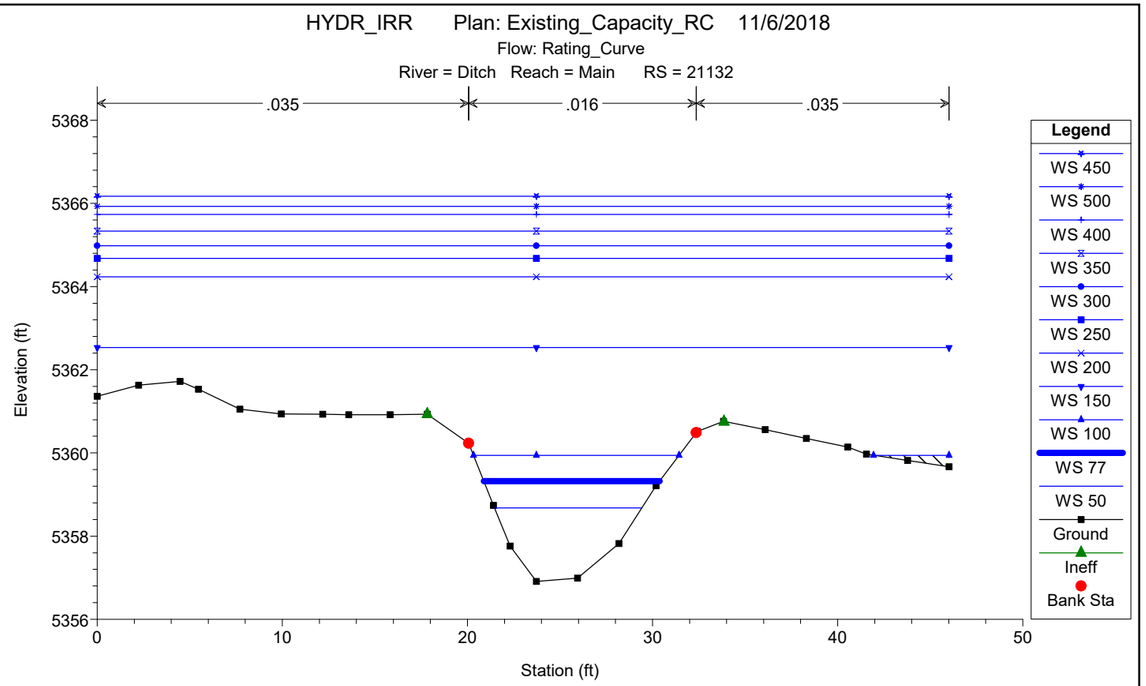

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 21389
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

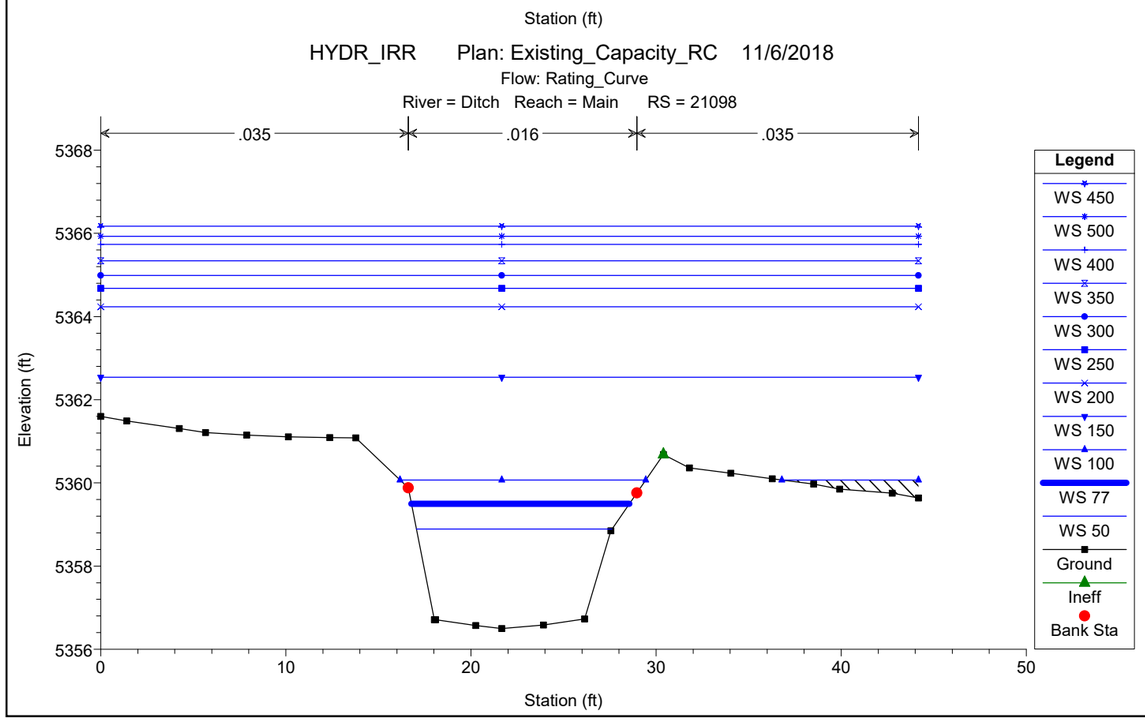

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 21347
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

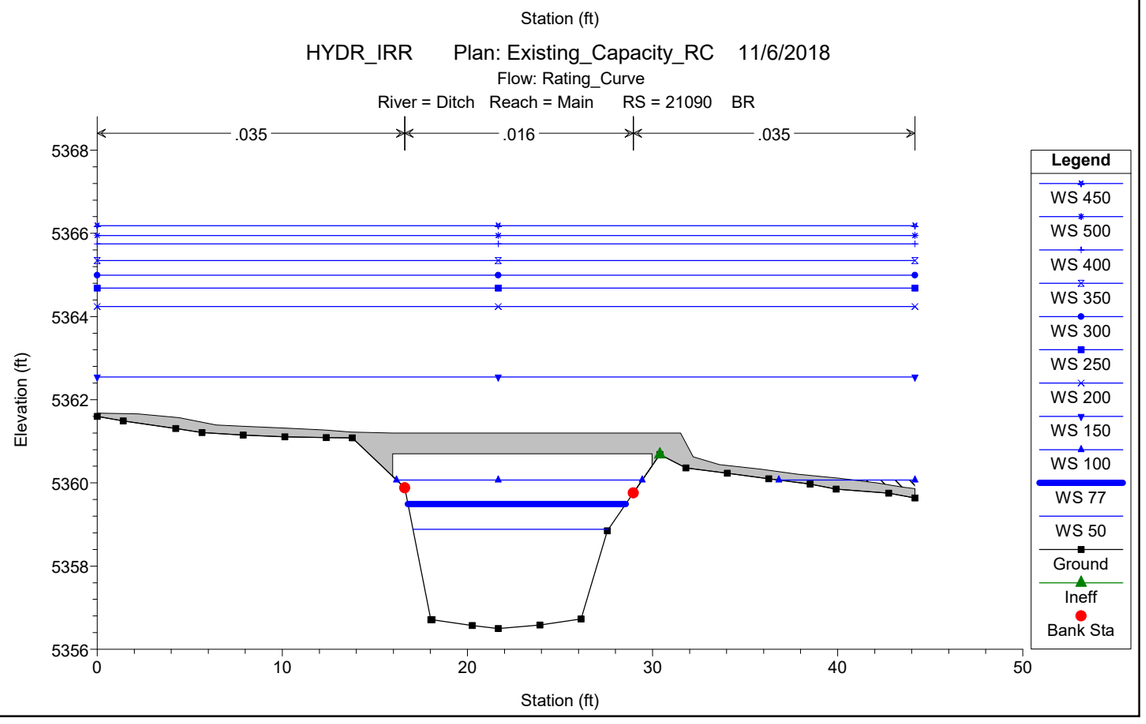

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 21265 BR
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

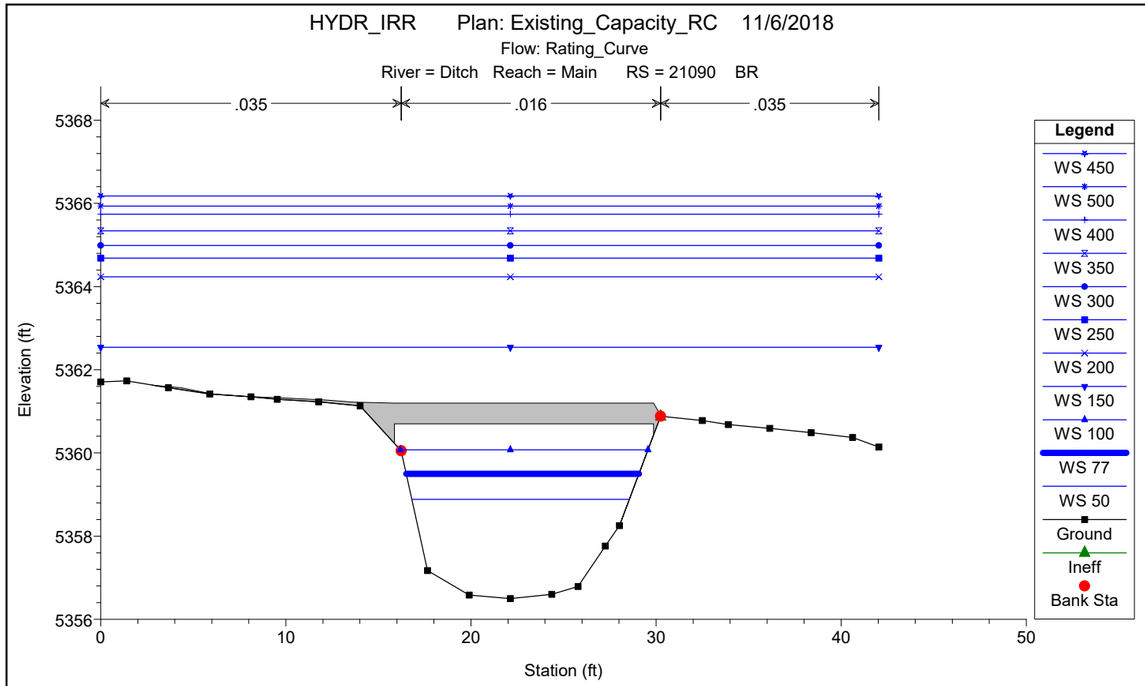

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 21265 BR
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 450
WS 500
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

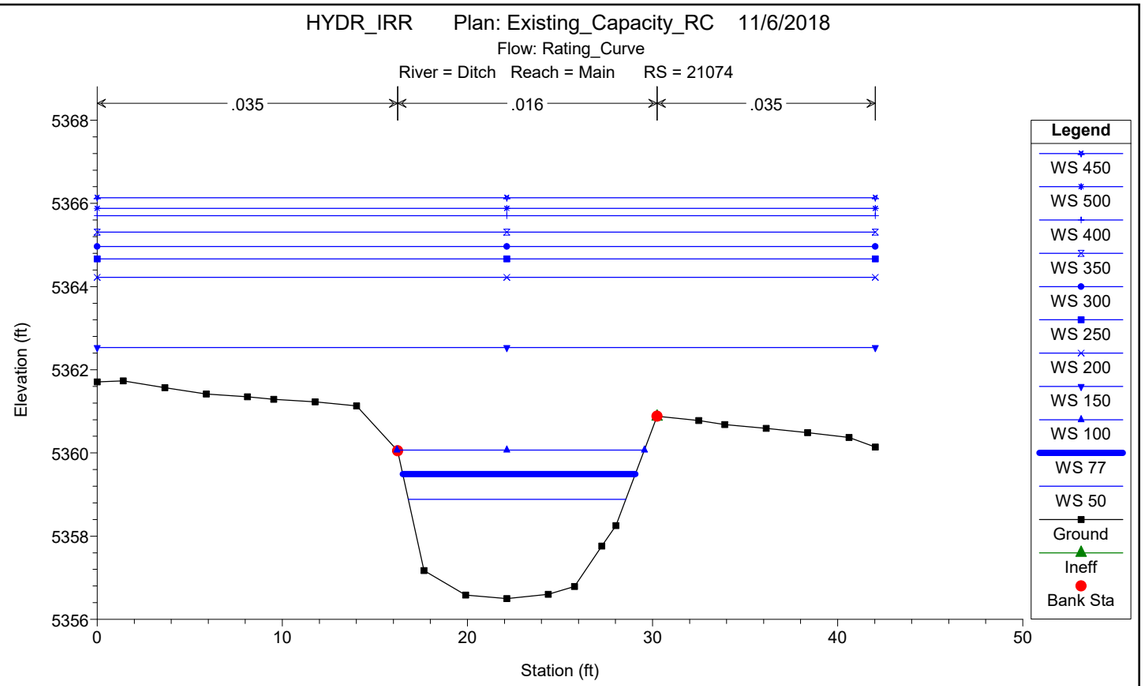

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 21186
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 450
WS 500
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

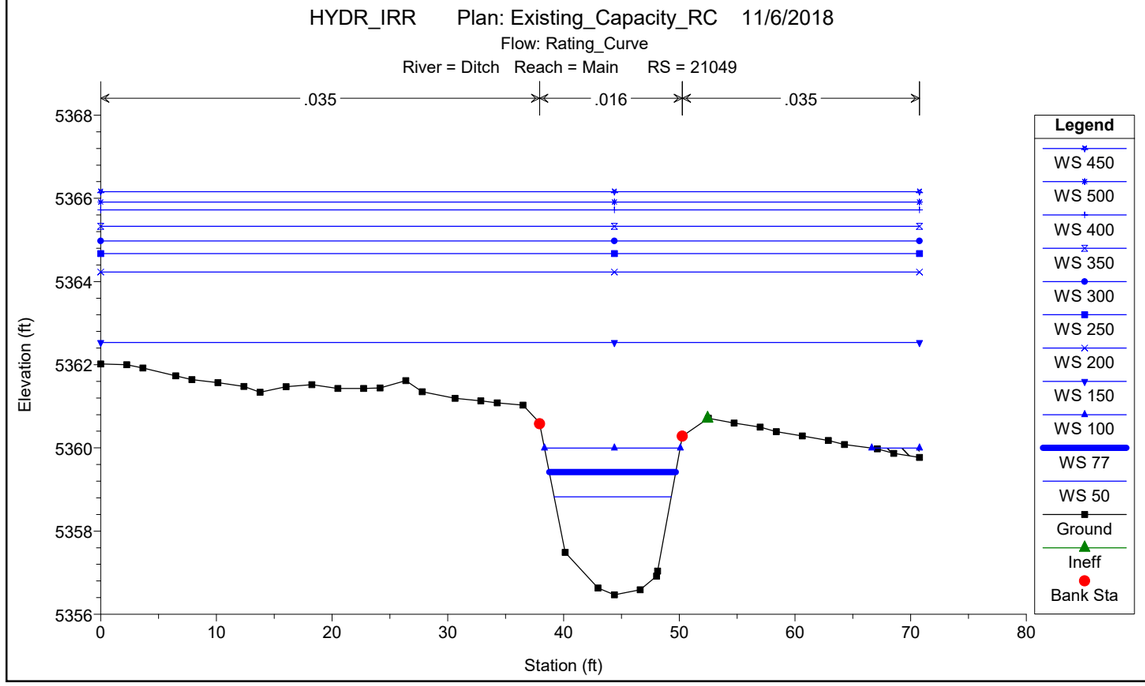

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 21132
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 450
WS 500
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

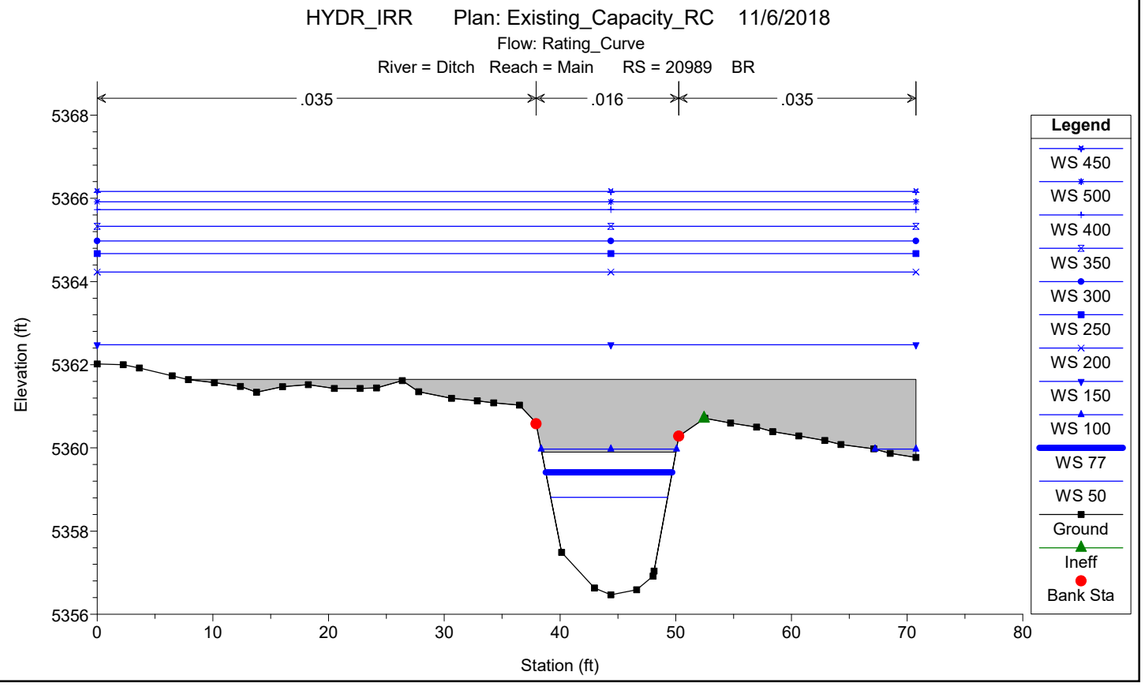

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 21098
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 450
WS 500
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

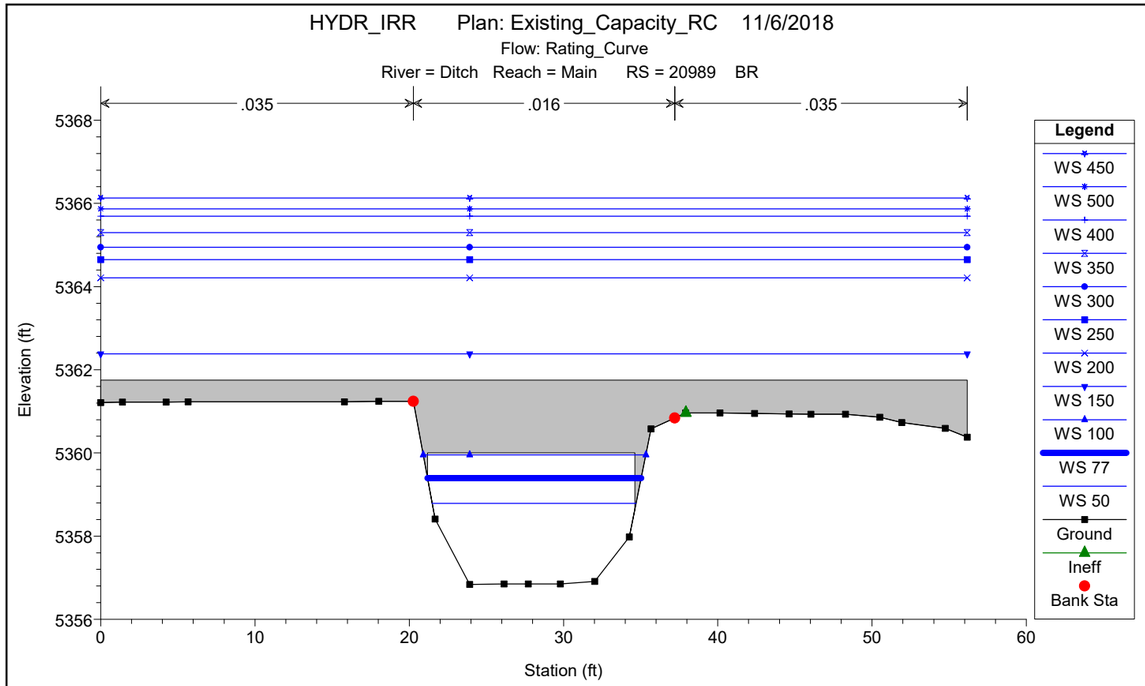

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 21090 BR
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 450
WS 500
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

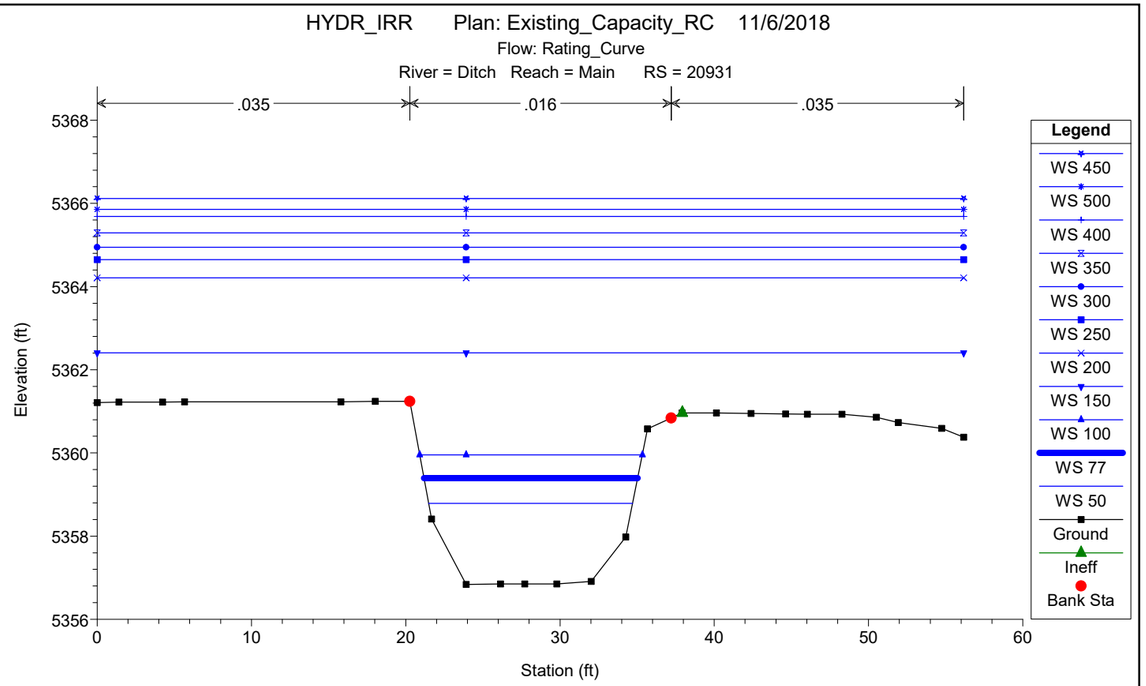

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 21090 BR
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 450
WS 500
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

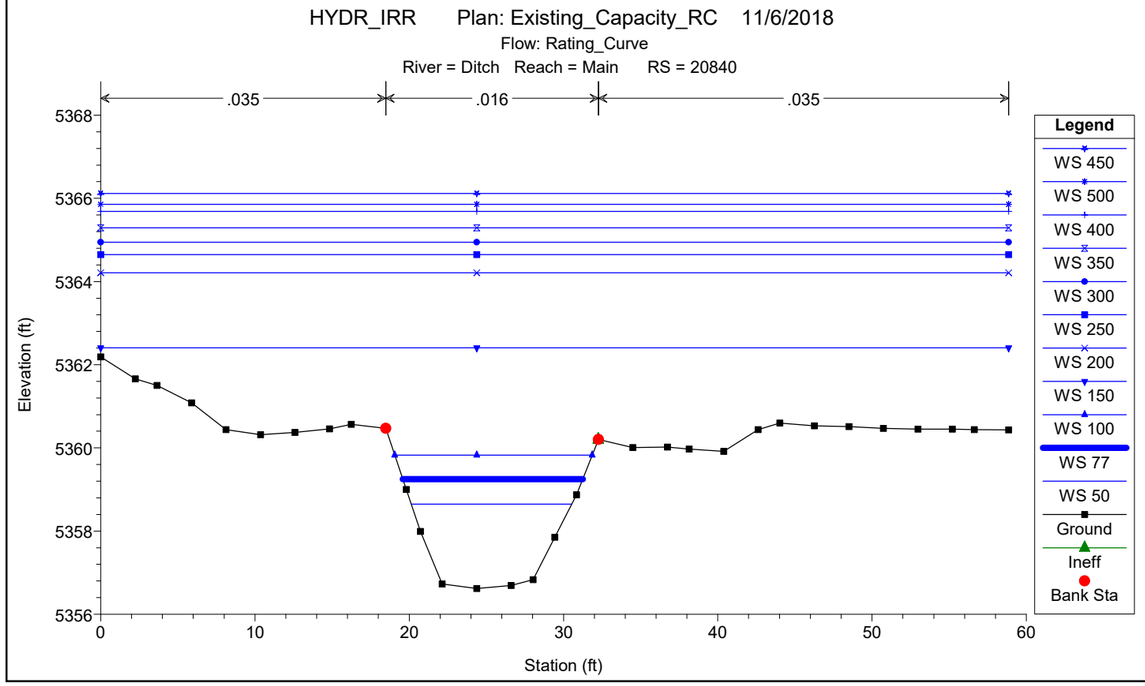

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 21074
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 450
WS 500
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

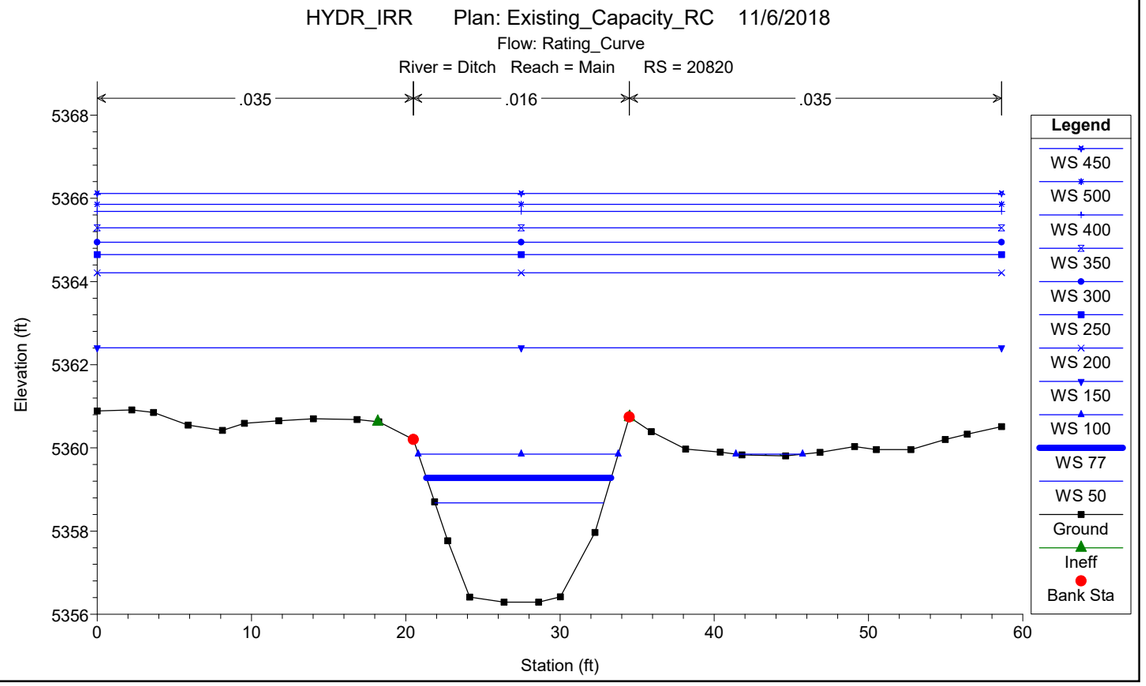

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 21049
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 450
WS 500
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

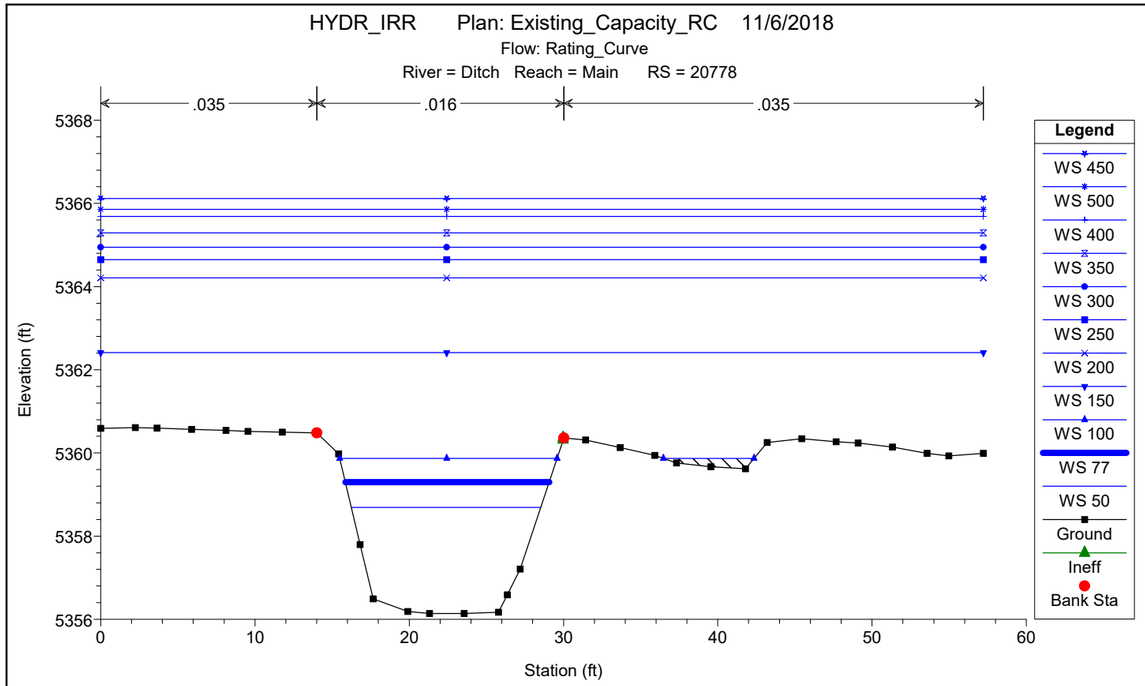

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 20989 BR
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 450
WS 500
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

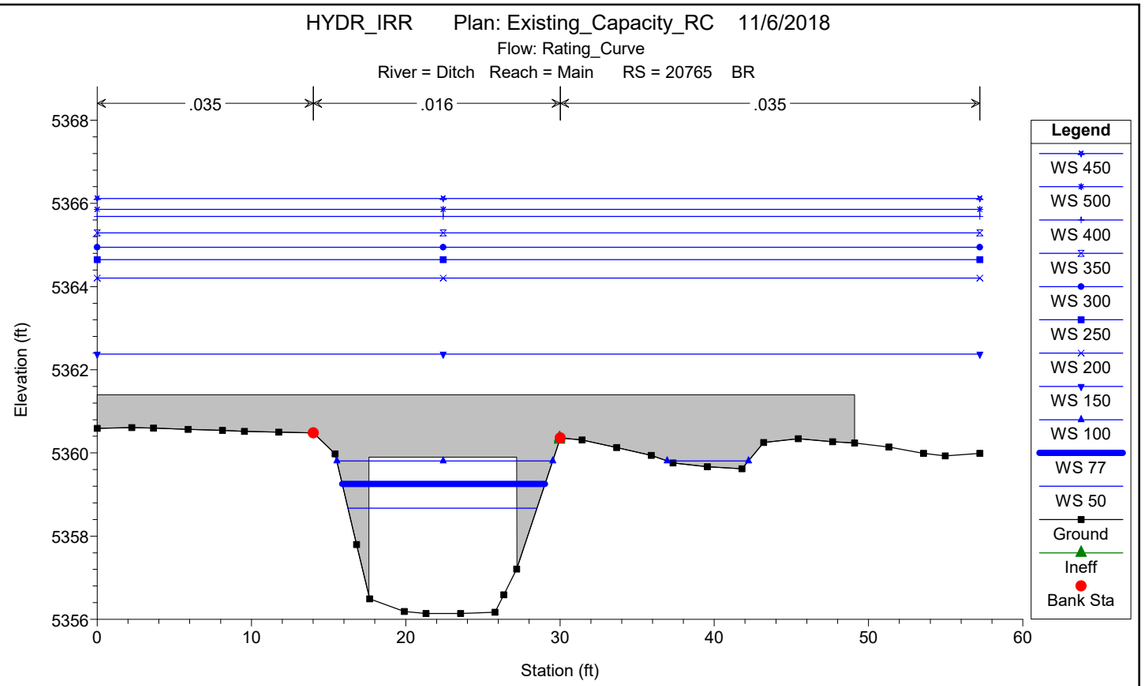

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 20989 BR
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 450
WS 500
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

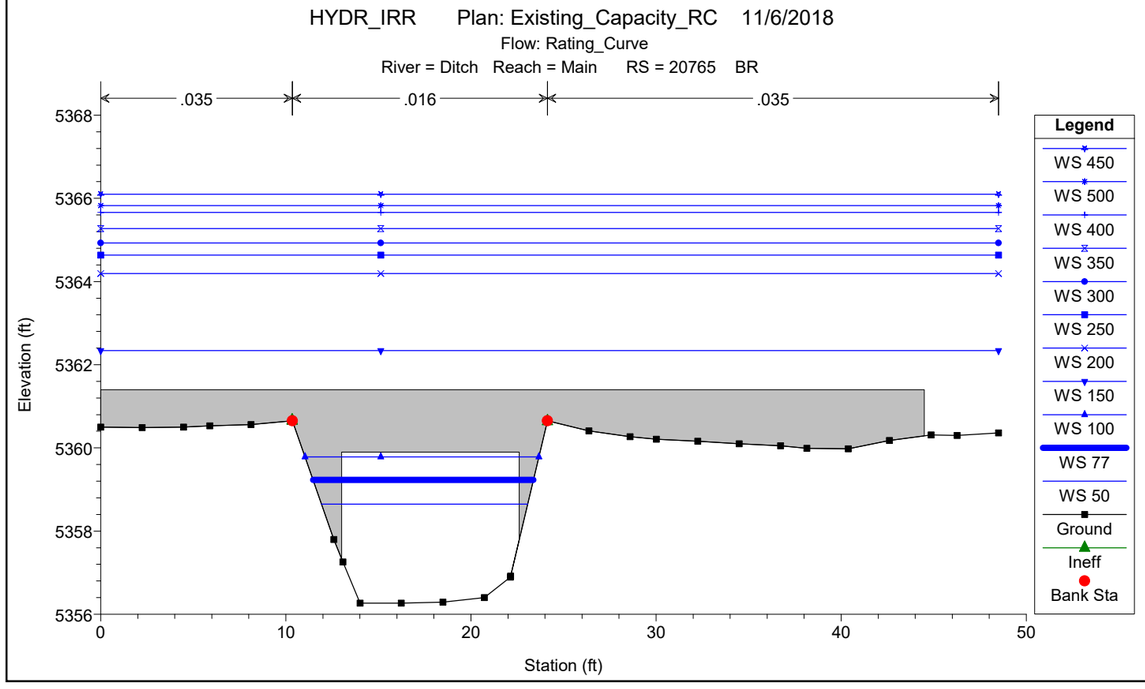

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 20931
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 450
WS 500
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

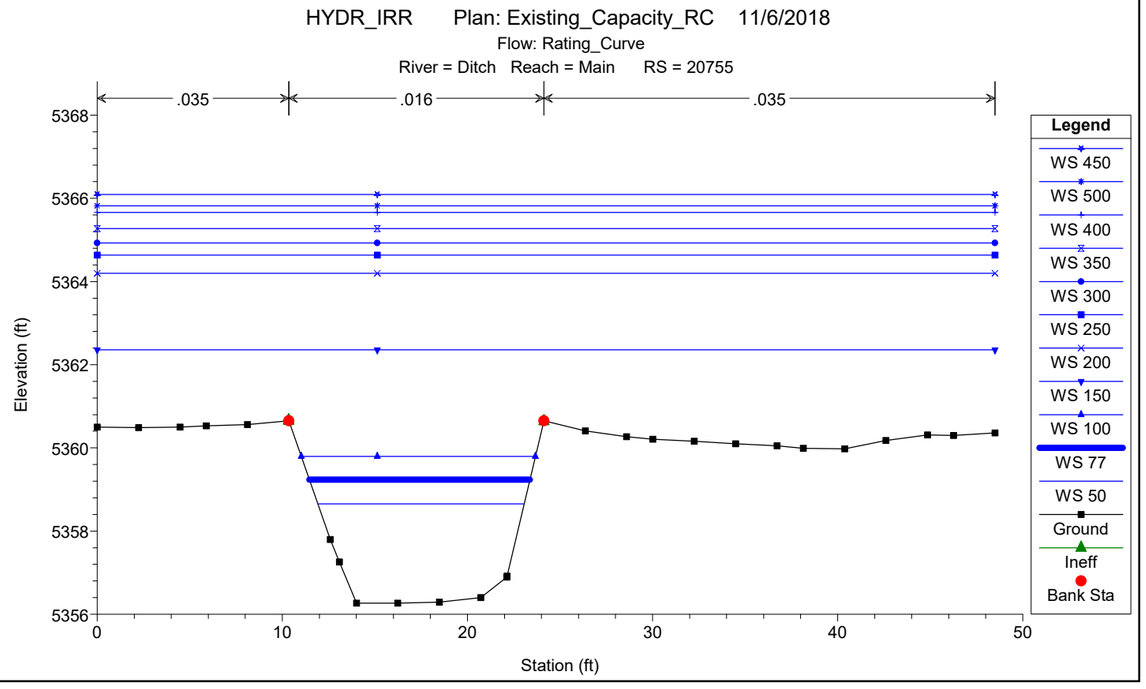

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 20840
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 450
WS 500
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

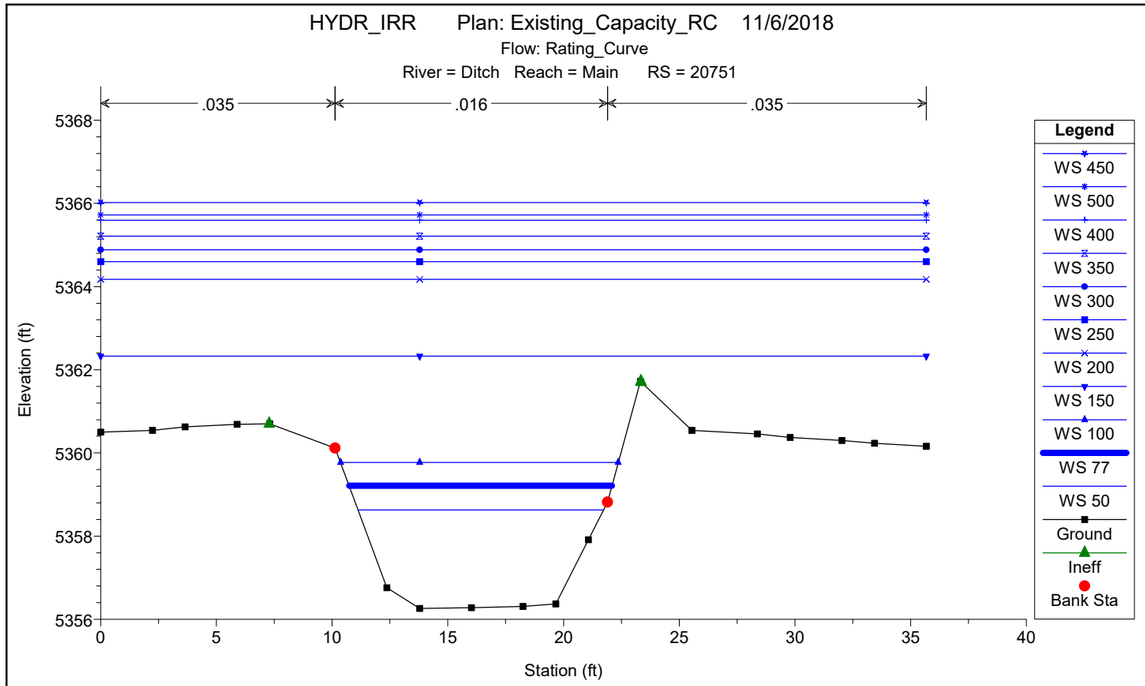

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 20820
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 450
WS 500
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

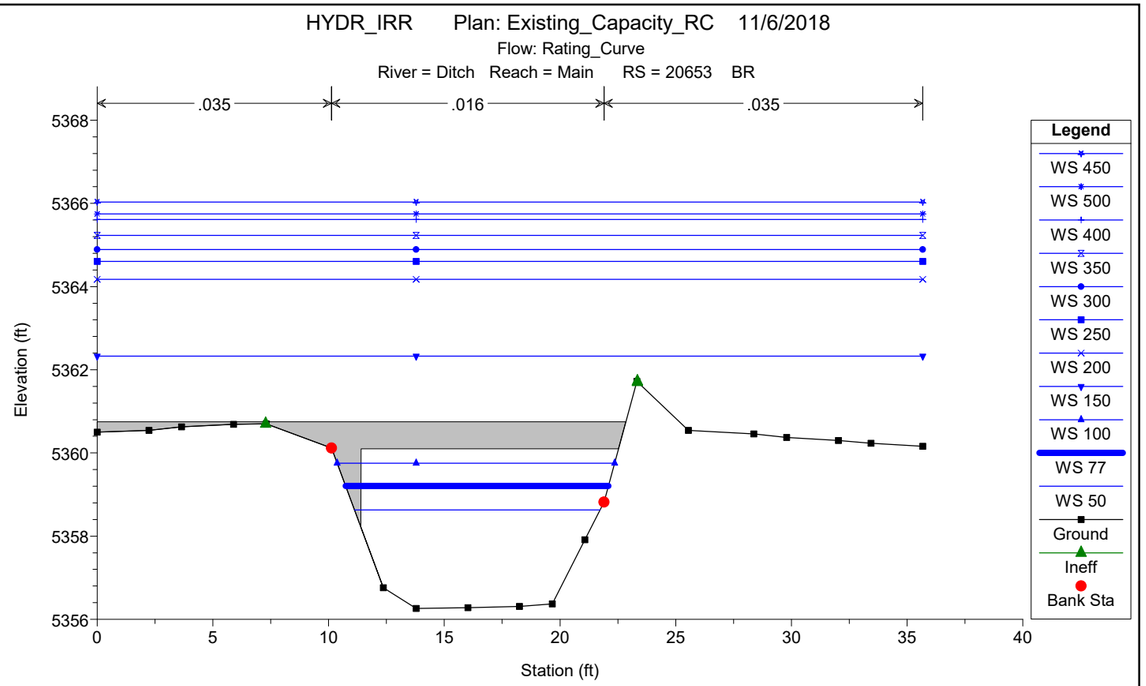

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 20778
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 450
WS 500
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

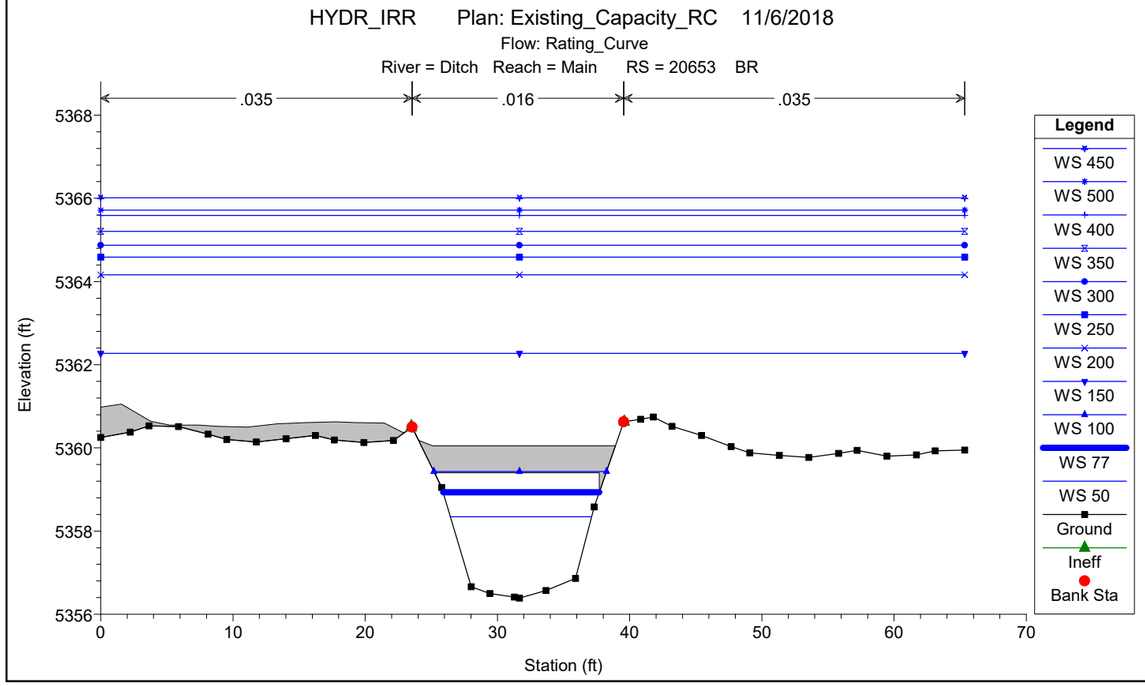

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 20765 BR
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 450
WS 500
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

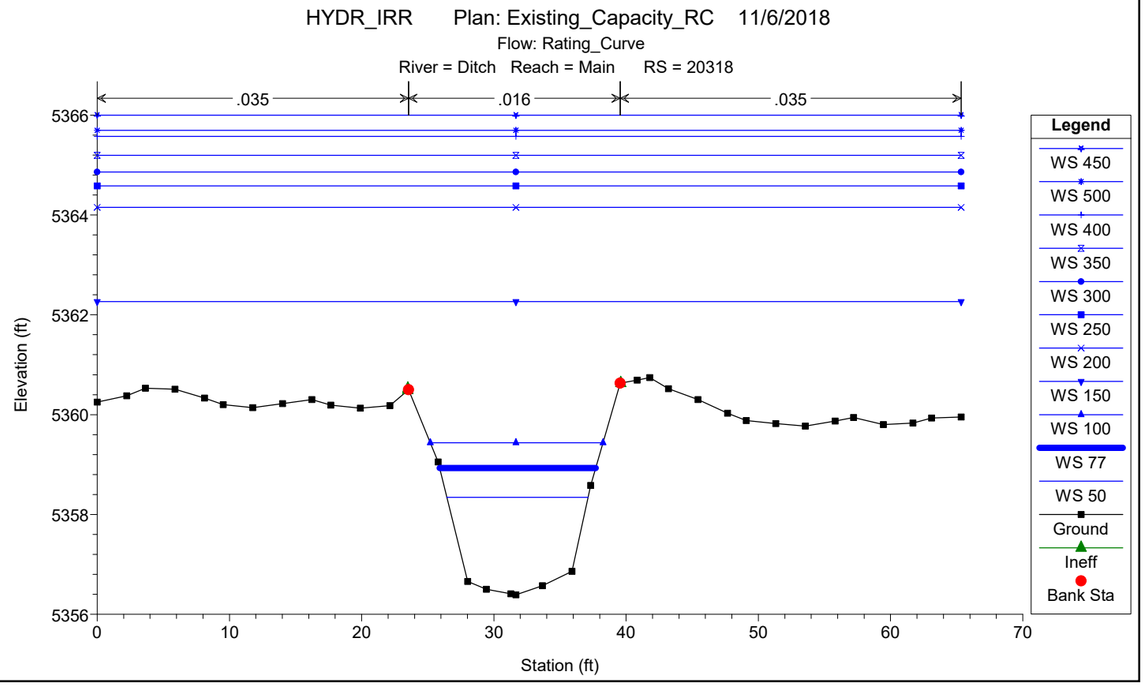

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 20765 BR
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 450
WS 500
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

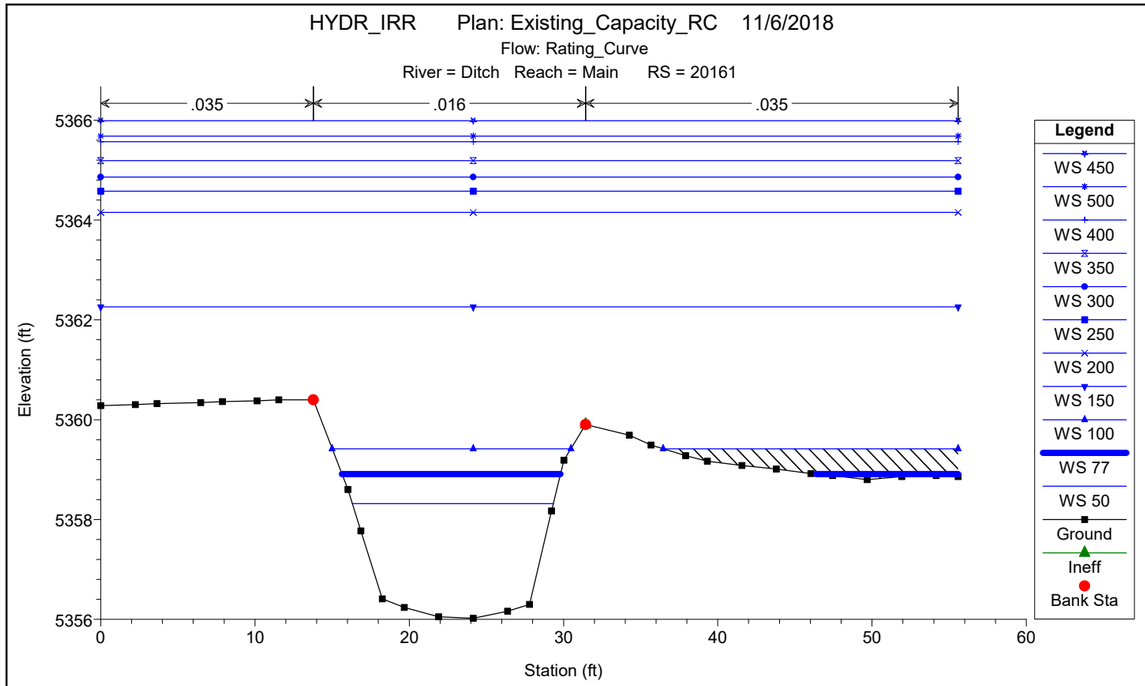

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 20755
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 450
WS 500
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

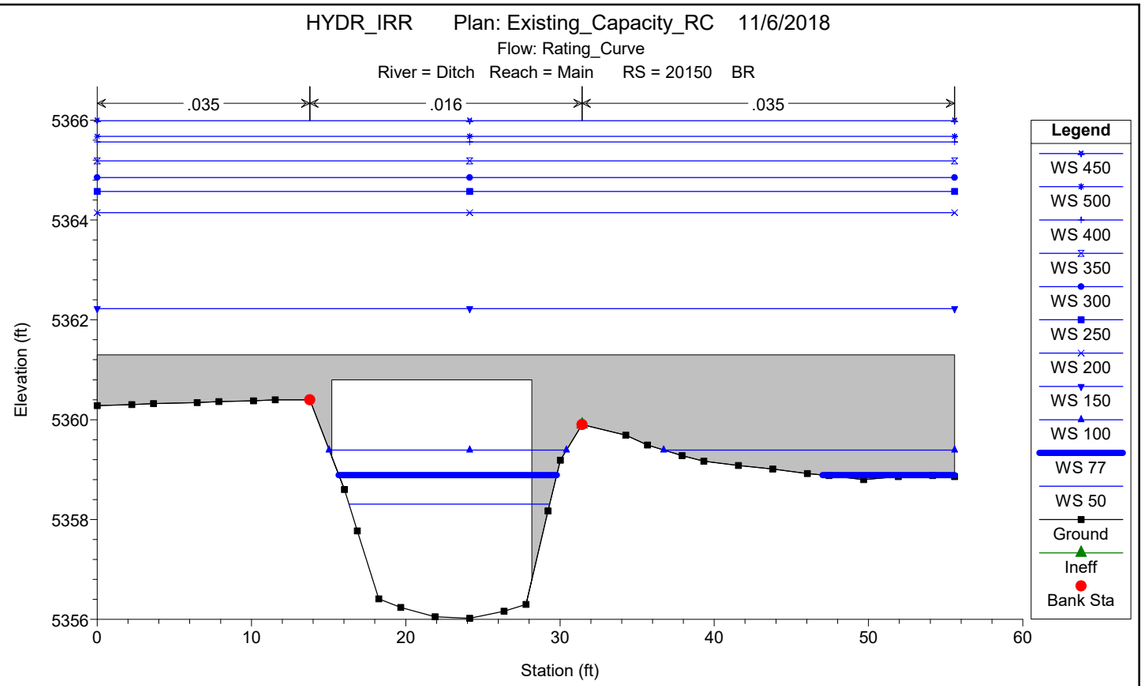

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 20751
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 450
WS 500
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

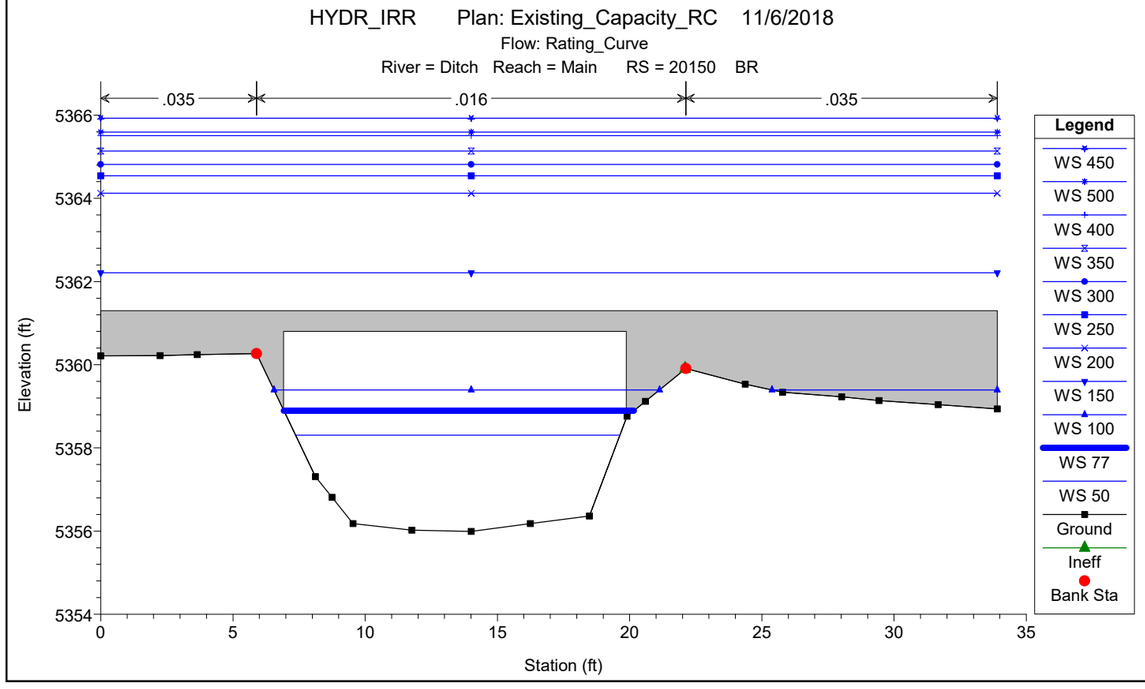

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 20653 BR
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 450
WS 500
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

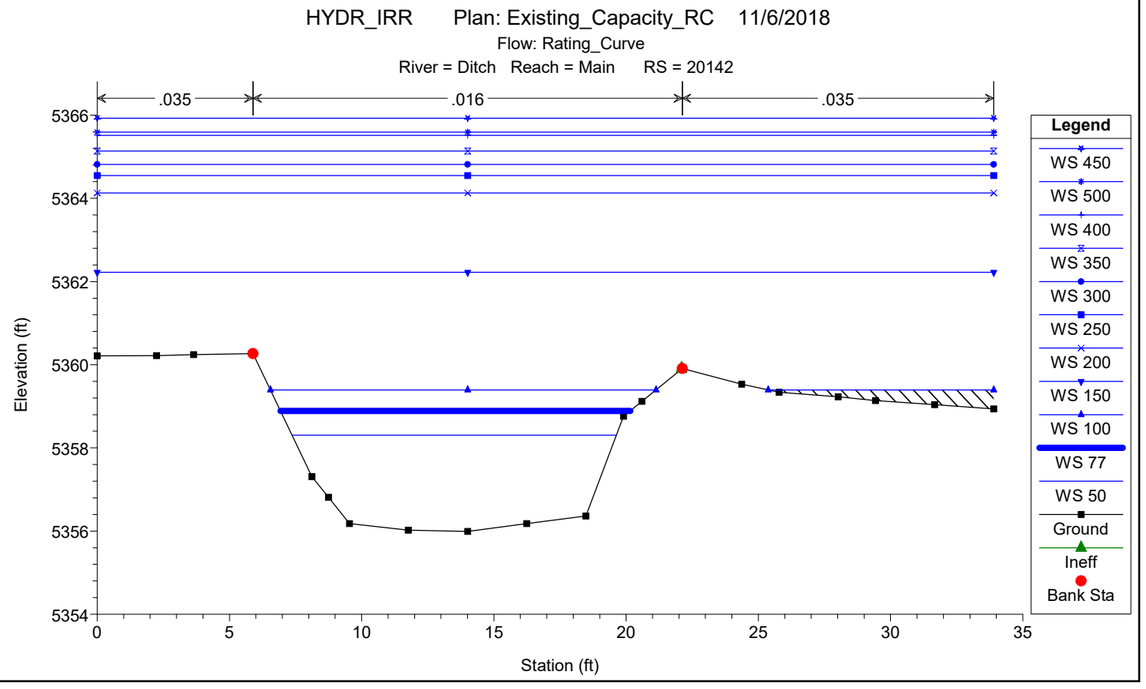

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 20653 BR
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 450
WS 500
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

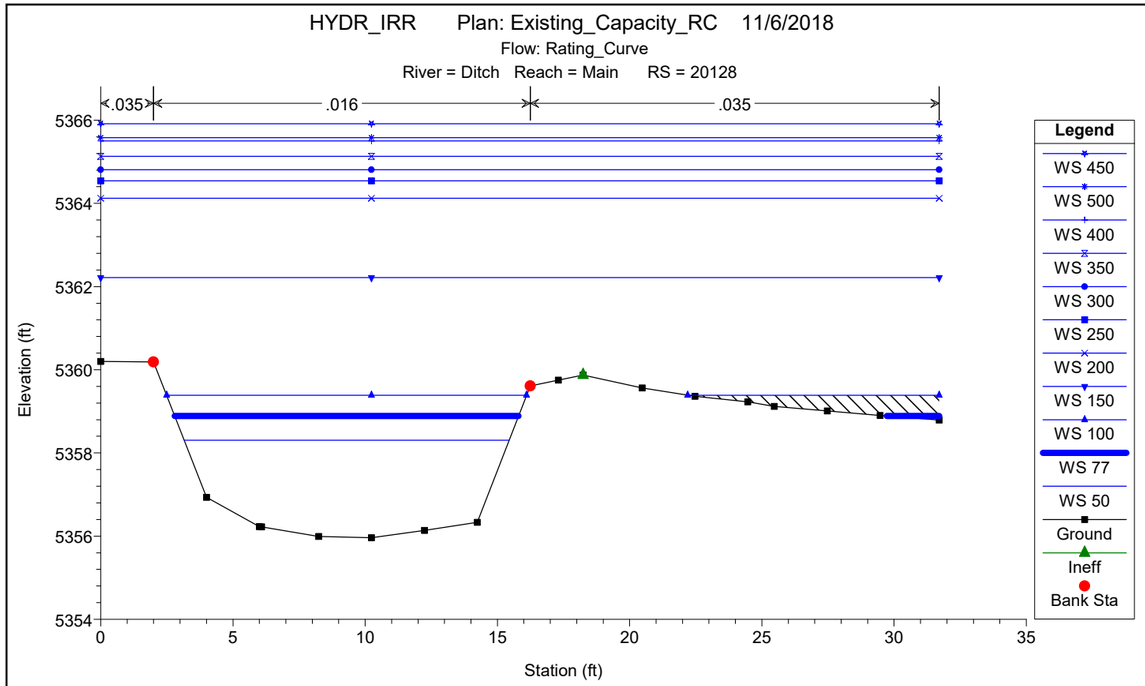

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 20318
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 450
WS 500
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

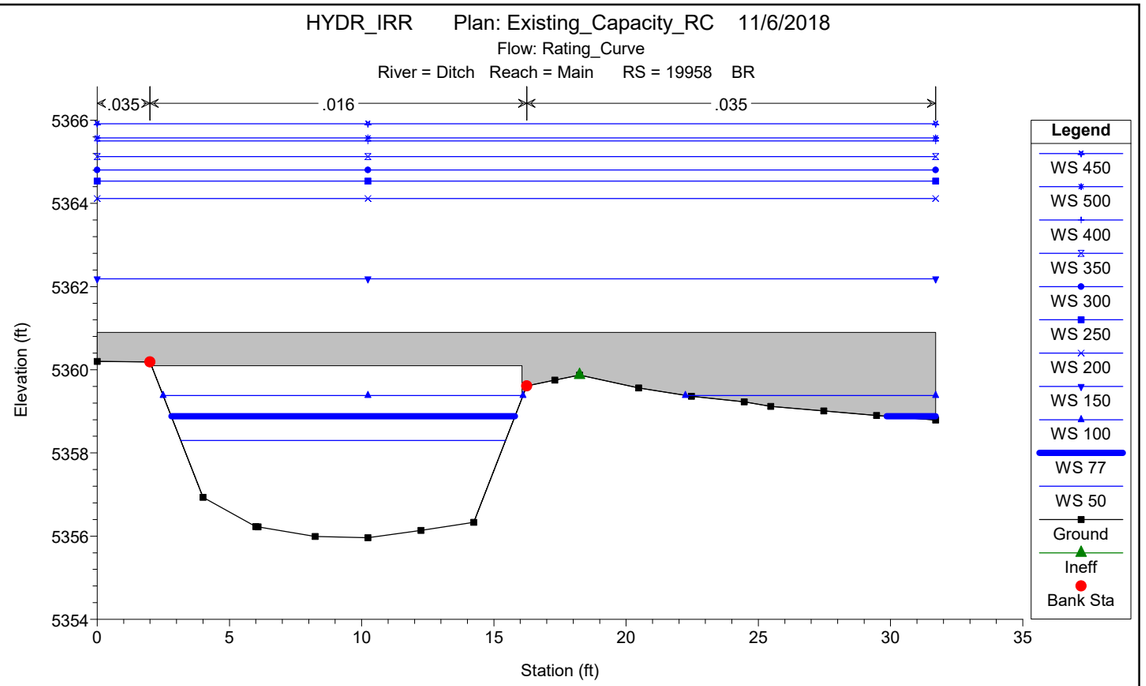

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 20161
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 450
WS 500
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

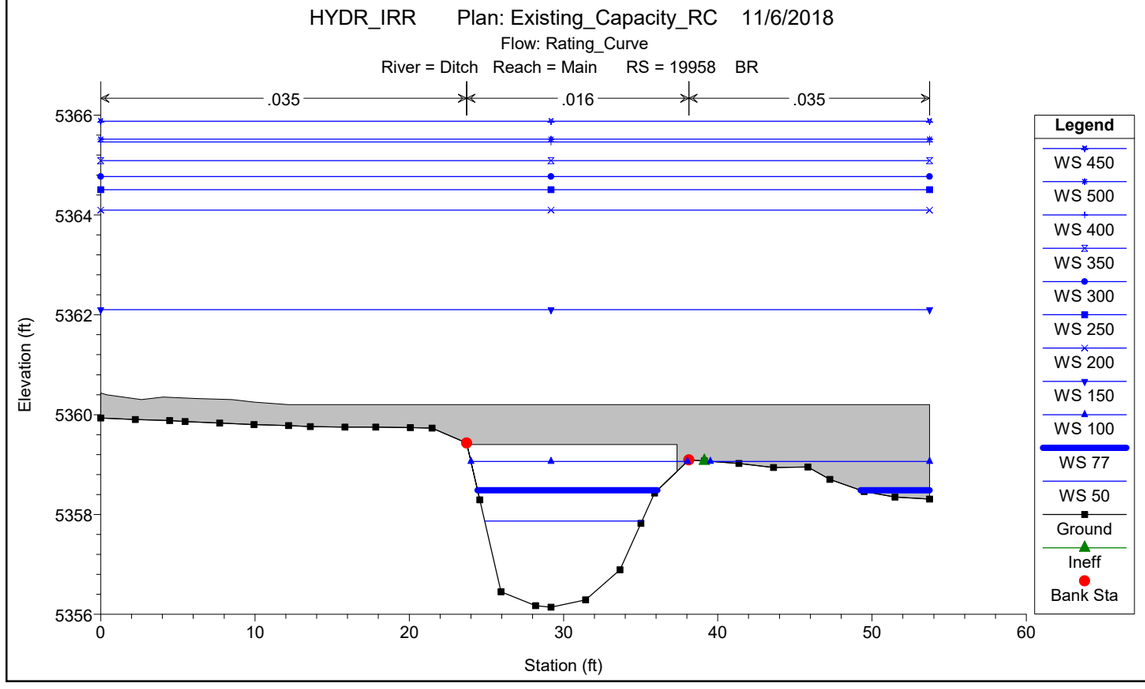

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 20150 BR
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 450
WS 500
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

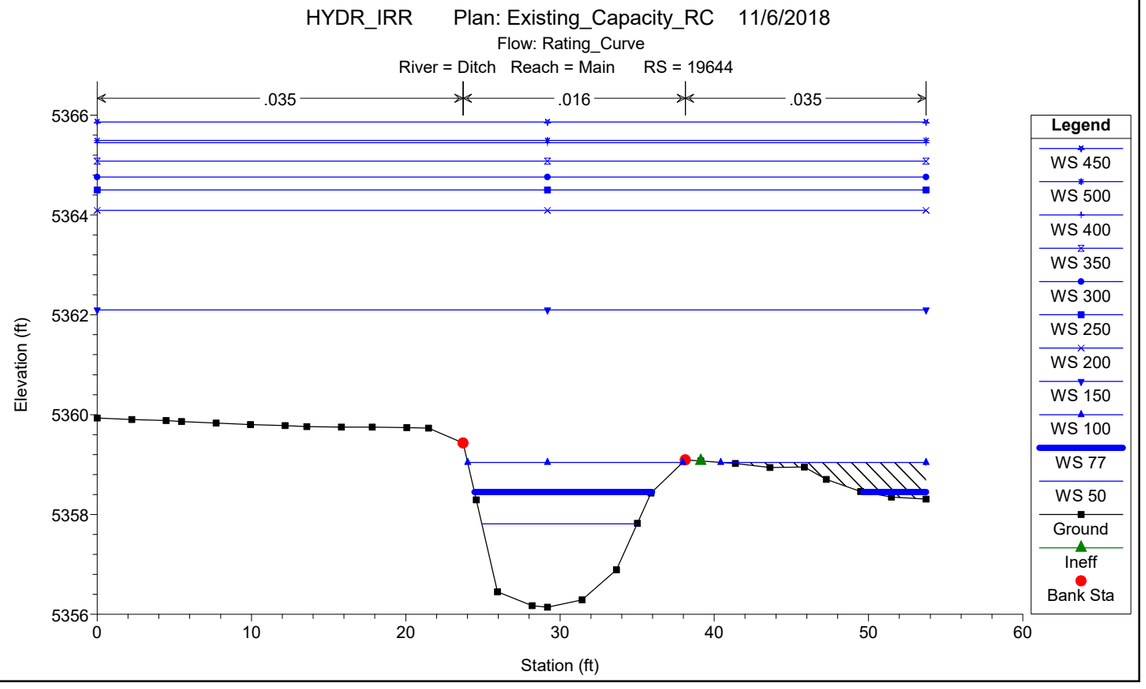

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 20150 BR
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 450
WS 500
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

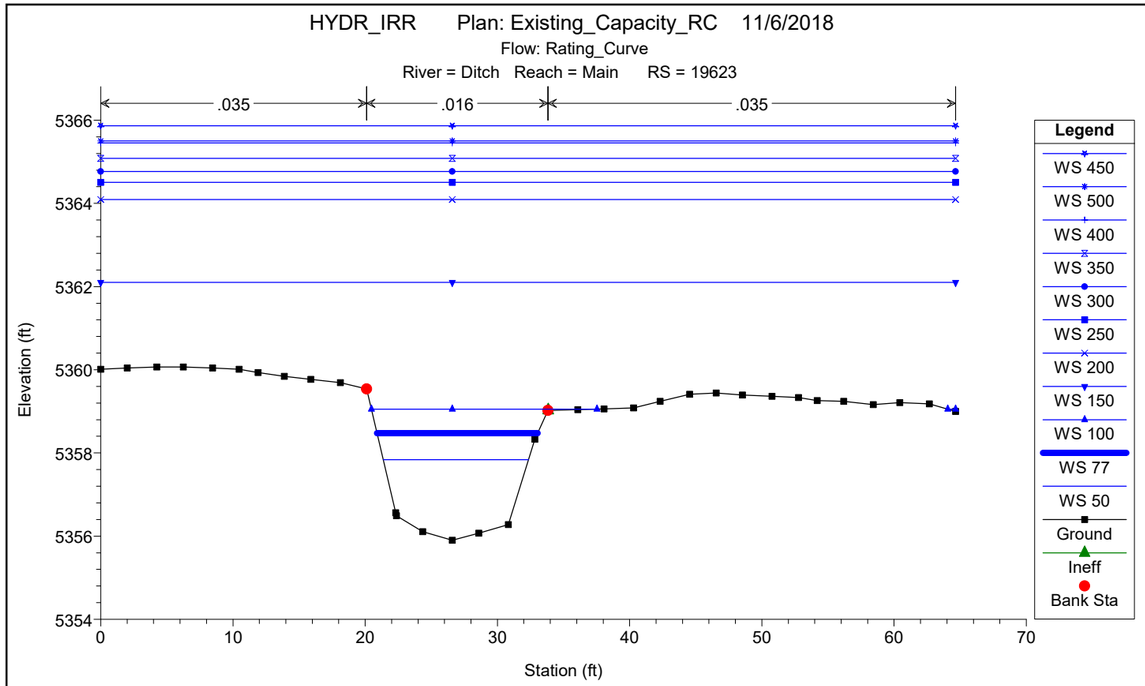

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 20142
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 450
WS 500
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

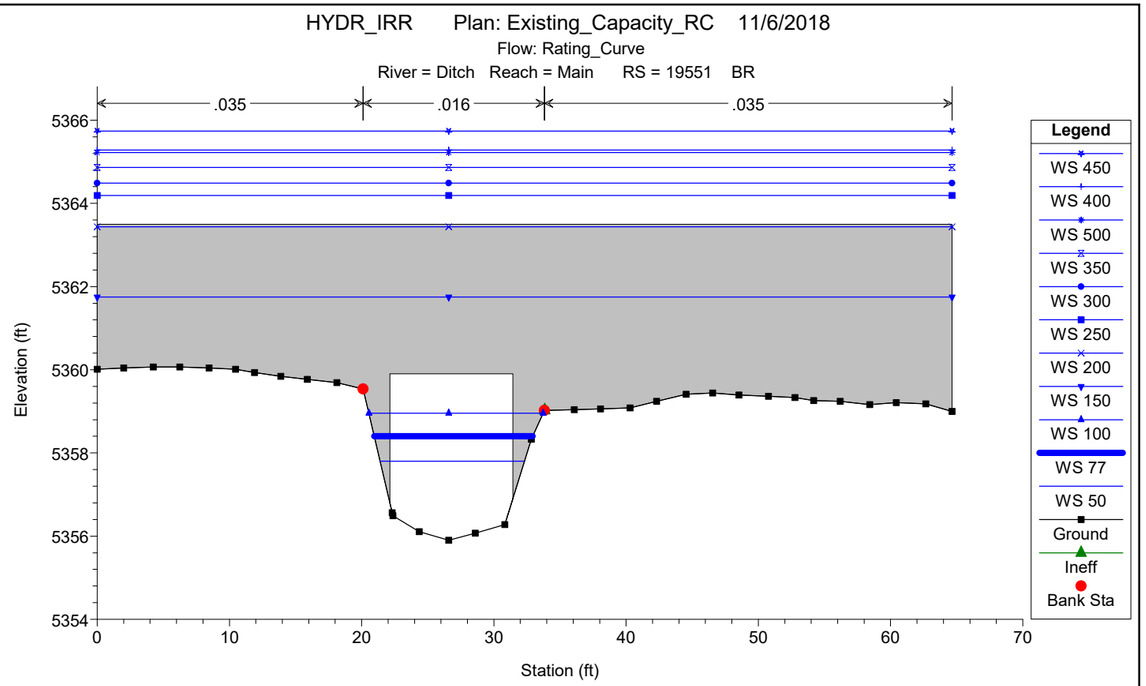

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 20128
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 450
WS 500
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

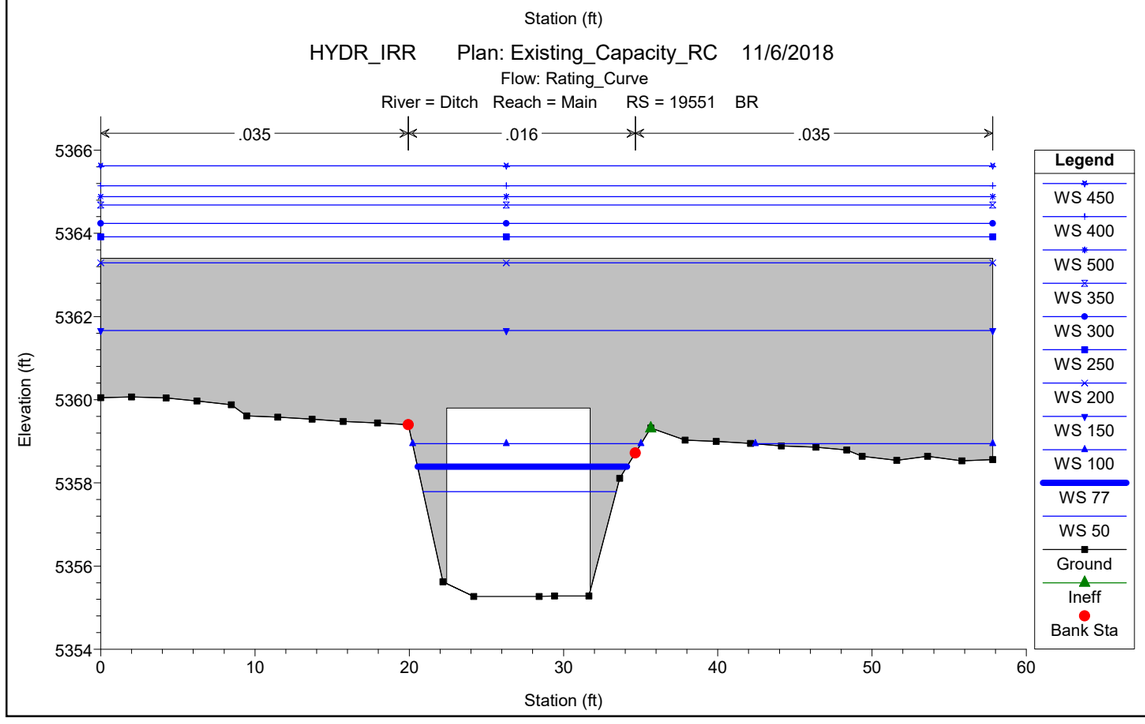

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 19958 BR
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 450
WS 500
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

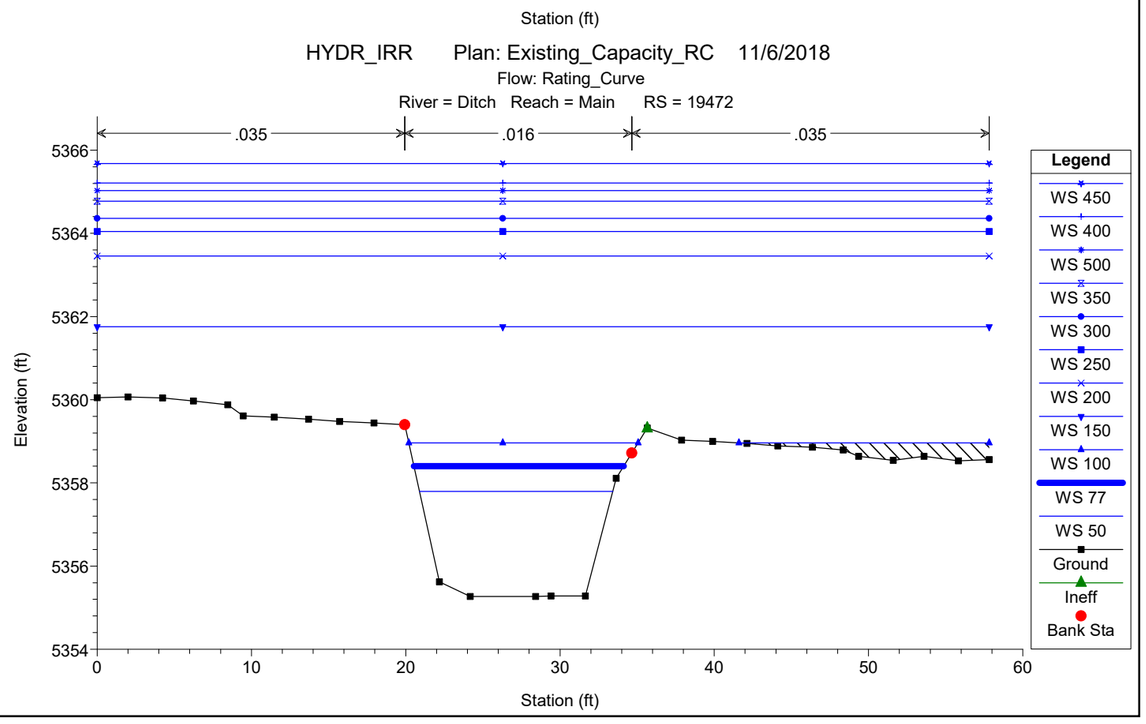

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 19958 BR
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 450
WS 500
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

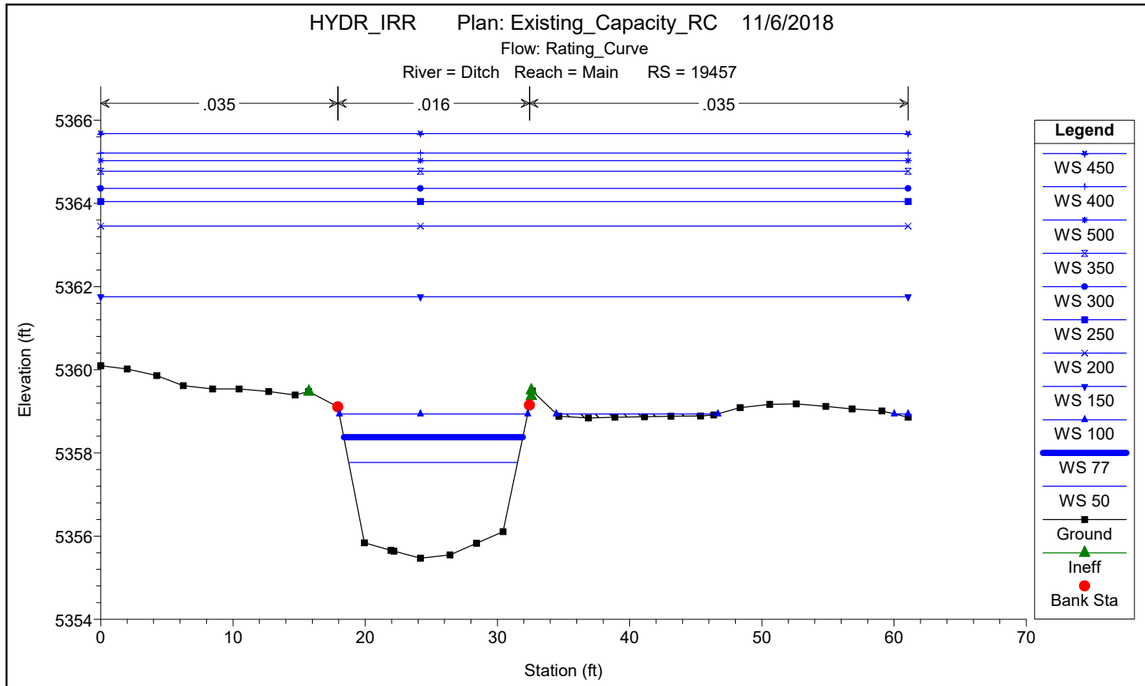

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 19644
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 450
WS 500
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

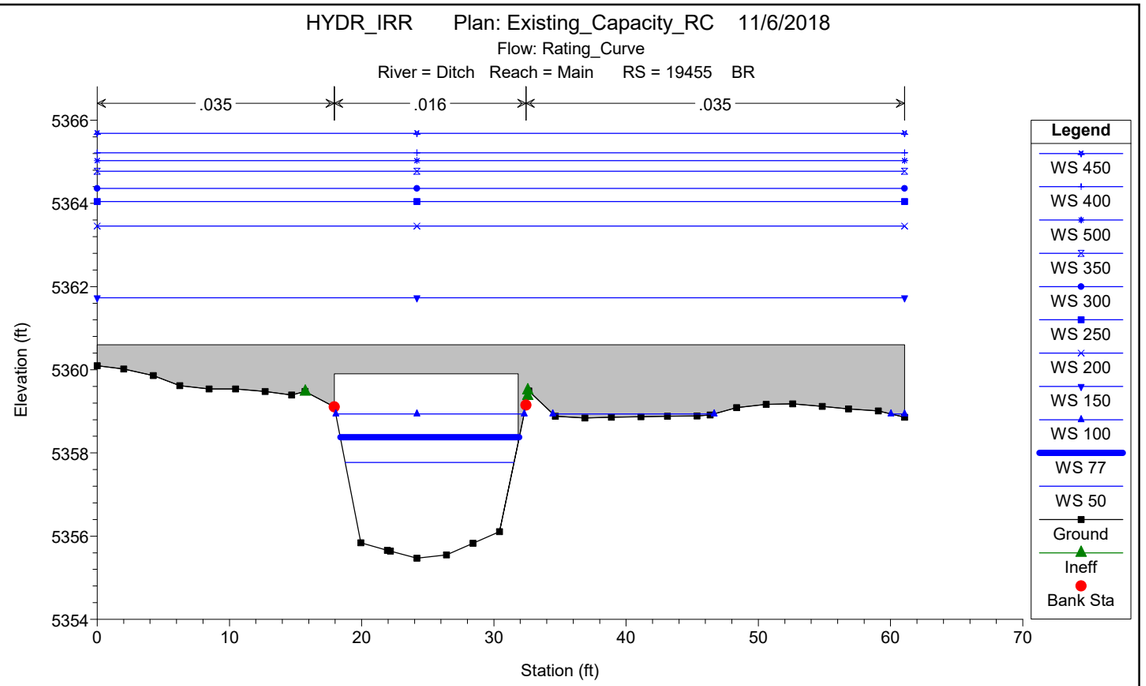

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 19623
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 450
WS 500
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

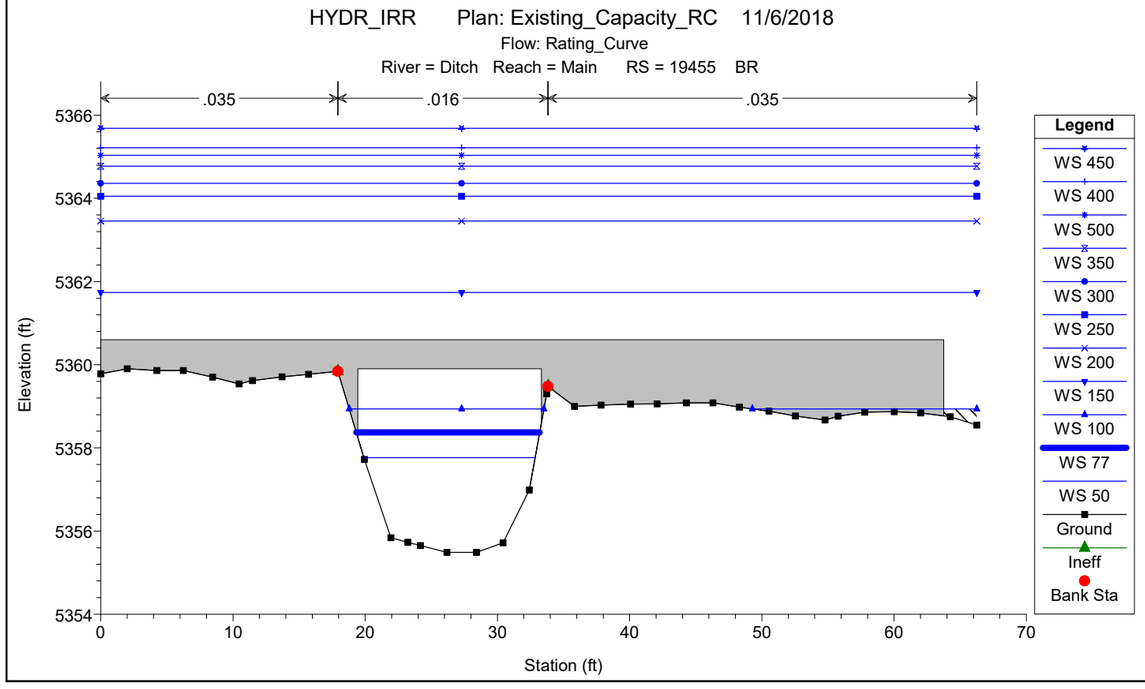

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 19551 BR
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 450
WS 400
WS 500
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

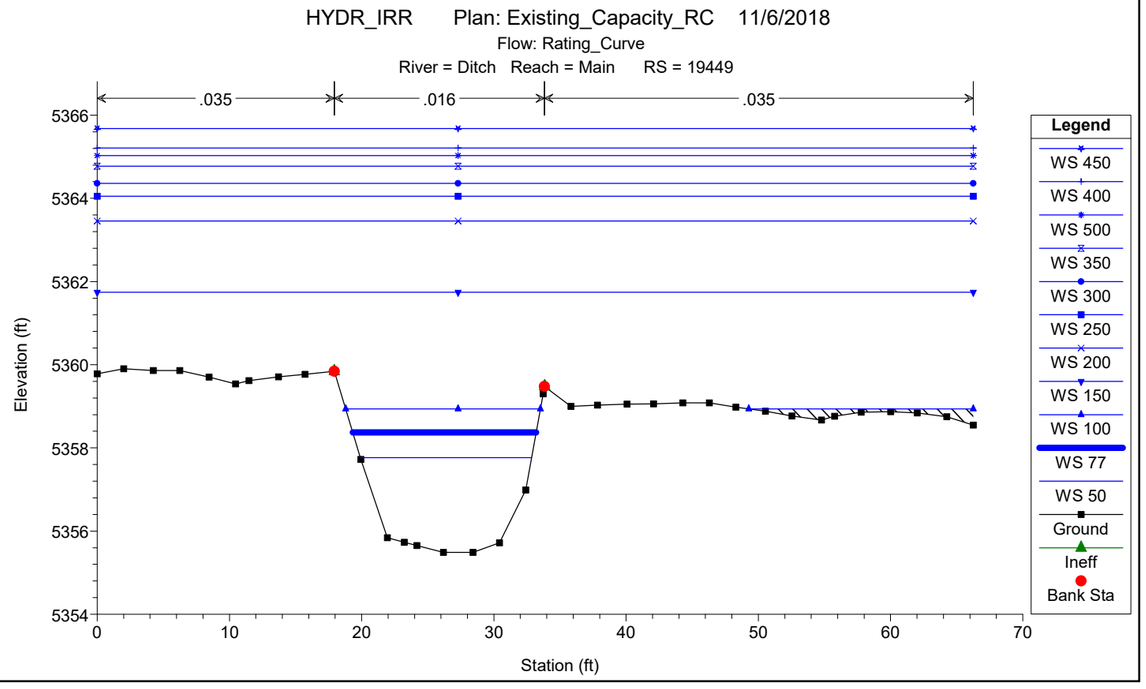

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 19551 BR
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 450
WS 400
WS 500
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

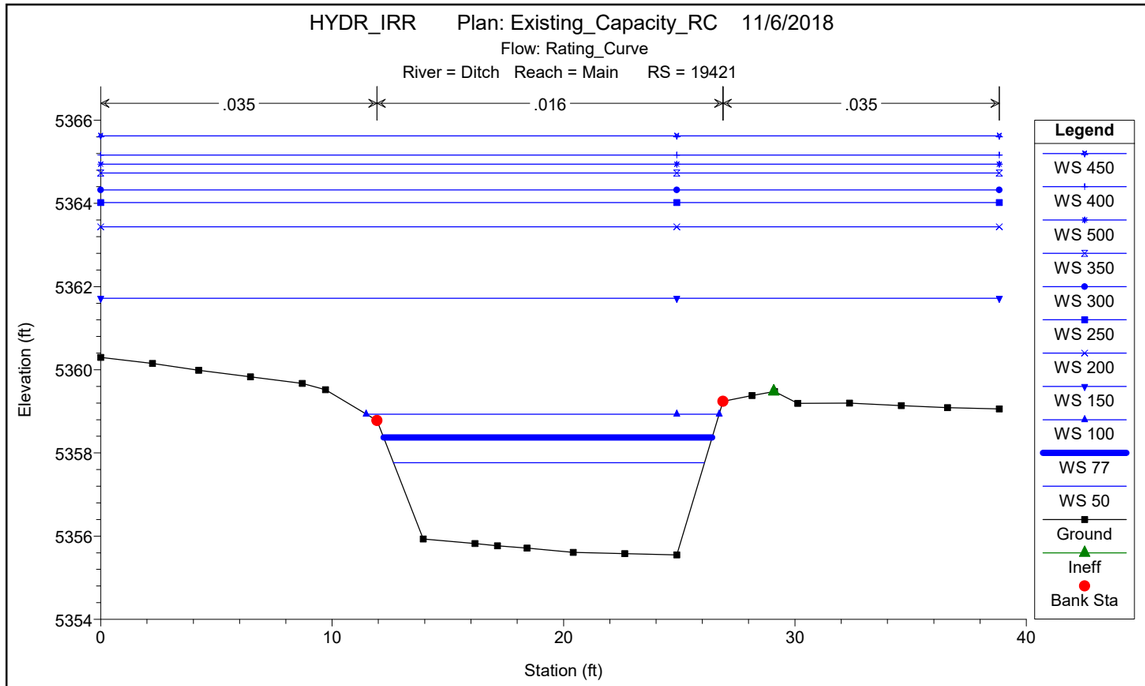

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 19472
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 450
WS 400
WS 500
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

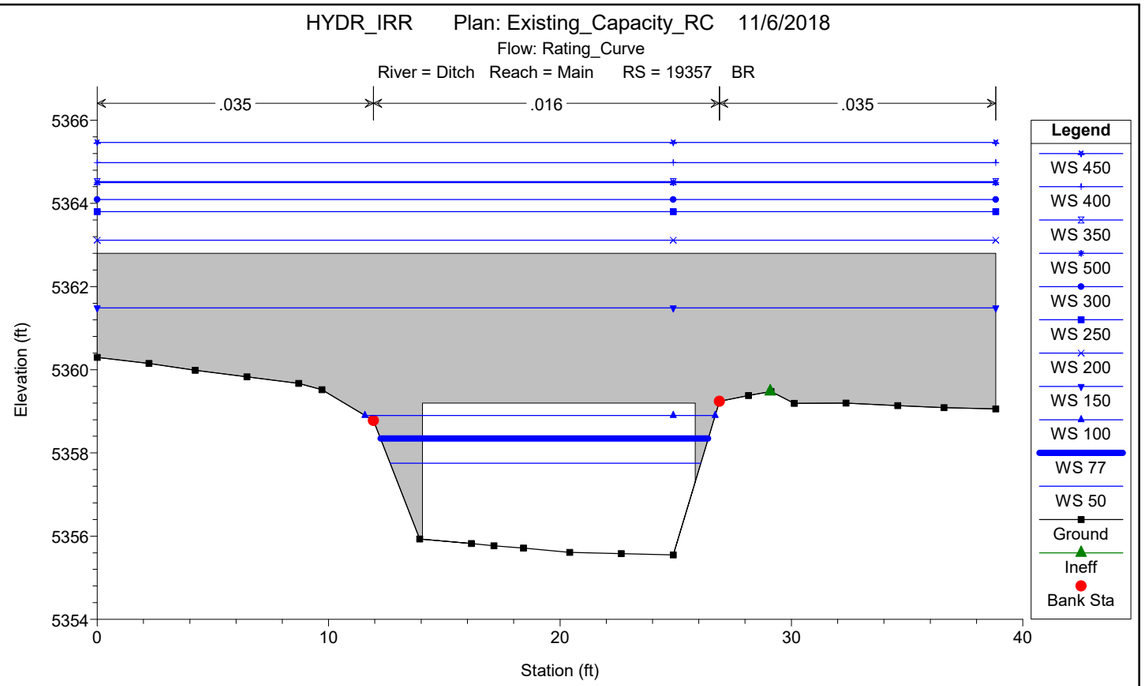

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 19457
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 450
WS 400
WS 500
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

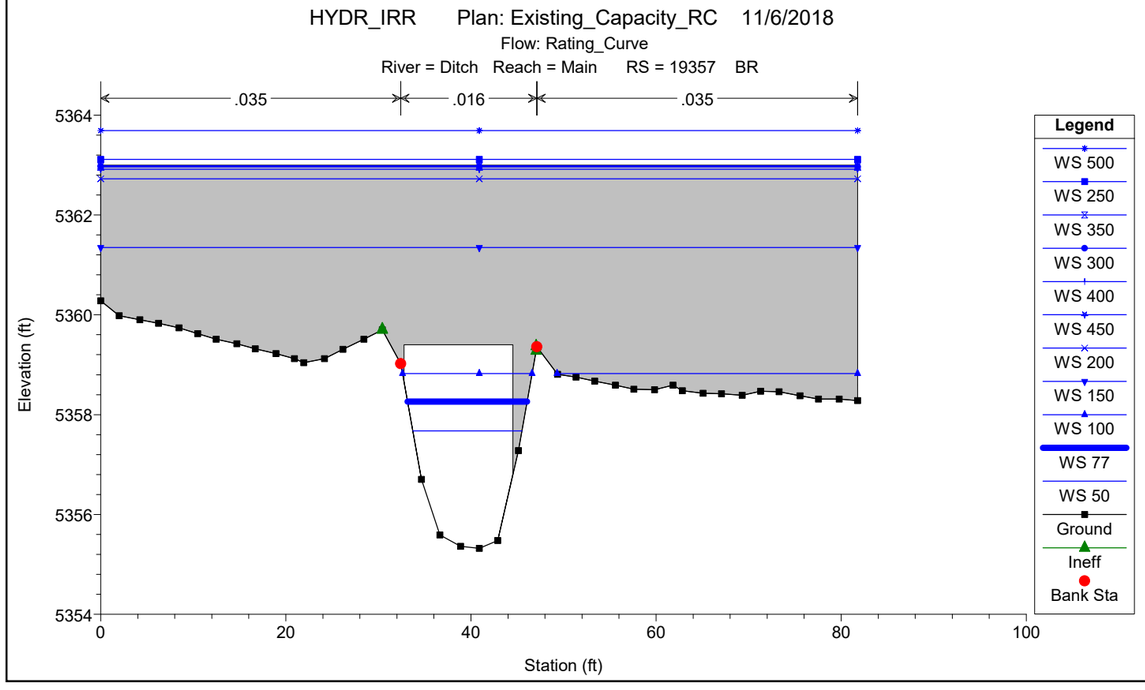

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 19455 BR
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 450
WS 400
WS 500
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

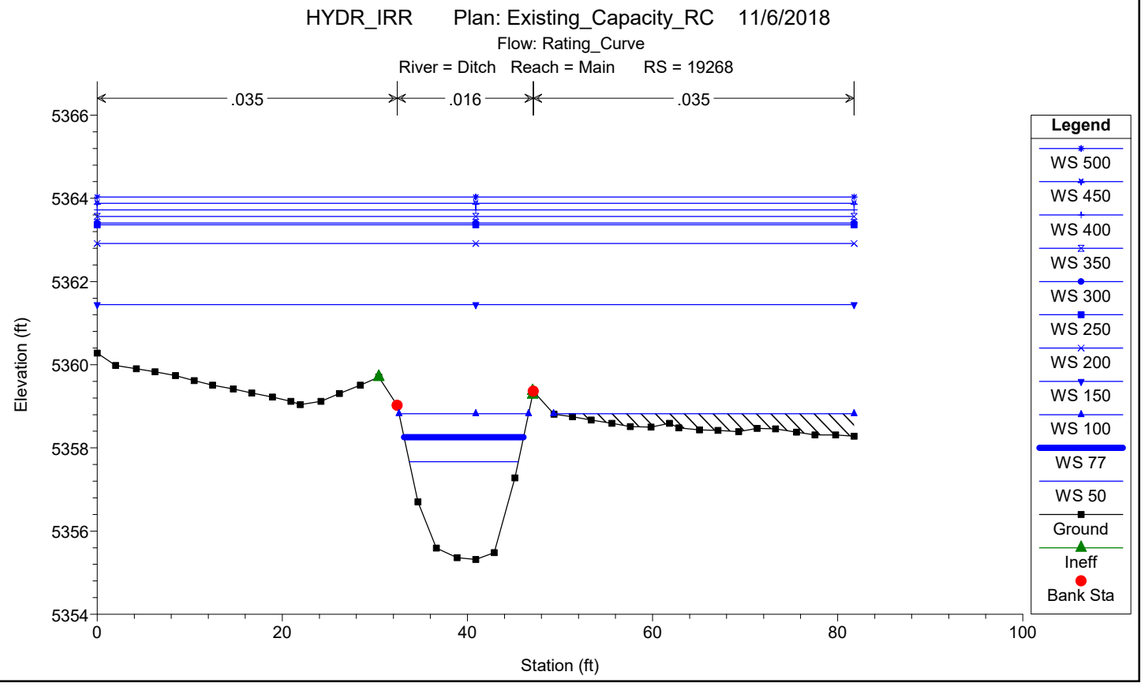

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 19455 BR
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 450
WS 400
WS 500
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta


HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 19449
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 450
WS 400
WS 500
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

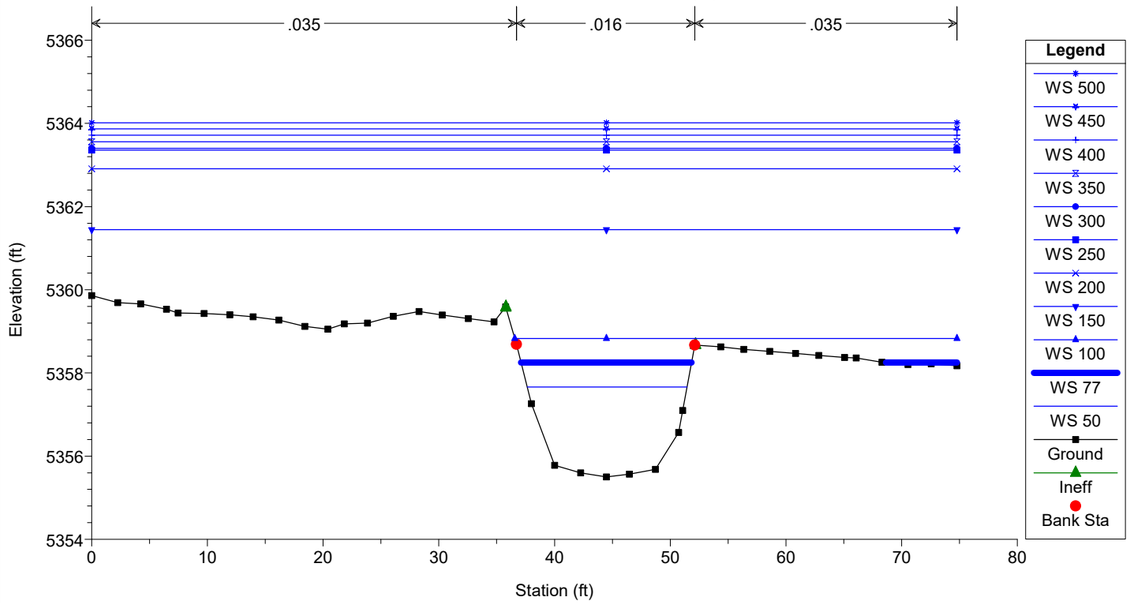

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 19421
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 450
WS 400
WS 500
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta


HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 19357 BR
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 450
WS 400
WS 350
WS 500
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

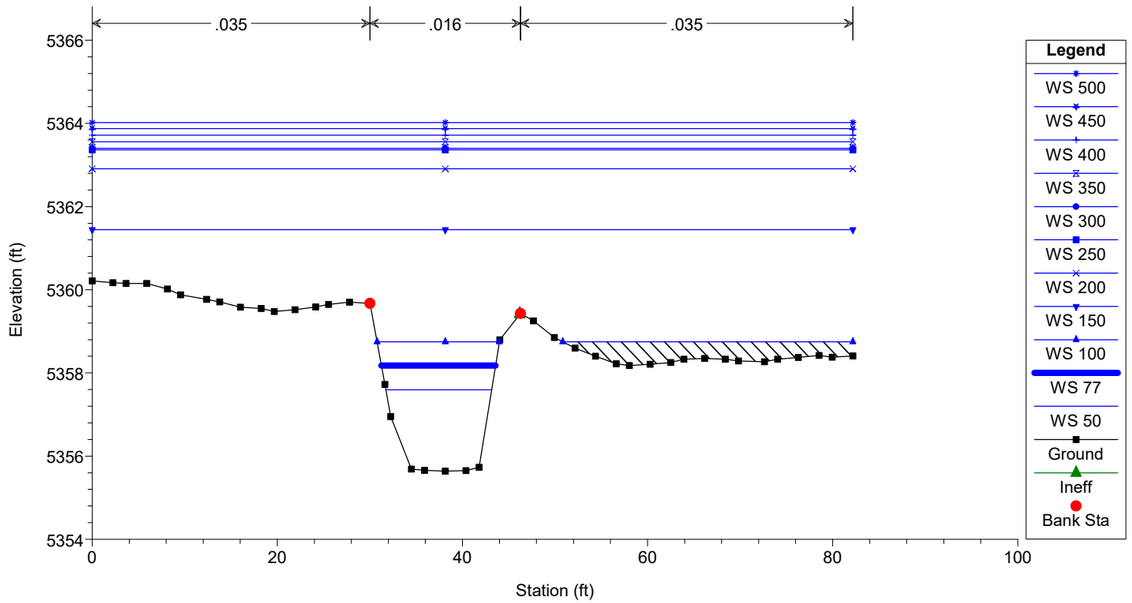

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 19357 BR
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 250
WS 350
WS 300
WS 400
WS 450
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta


HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 19268
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

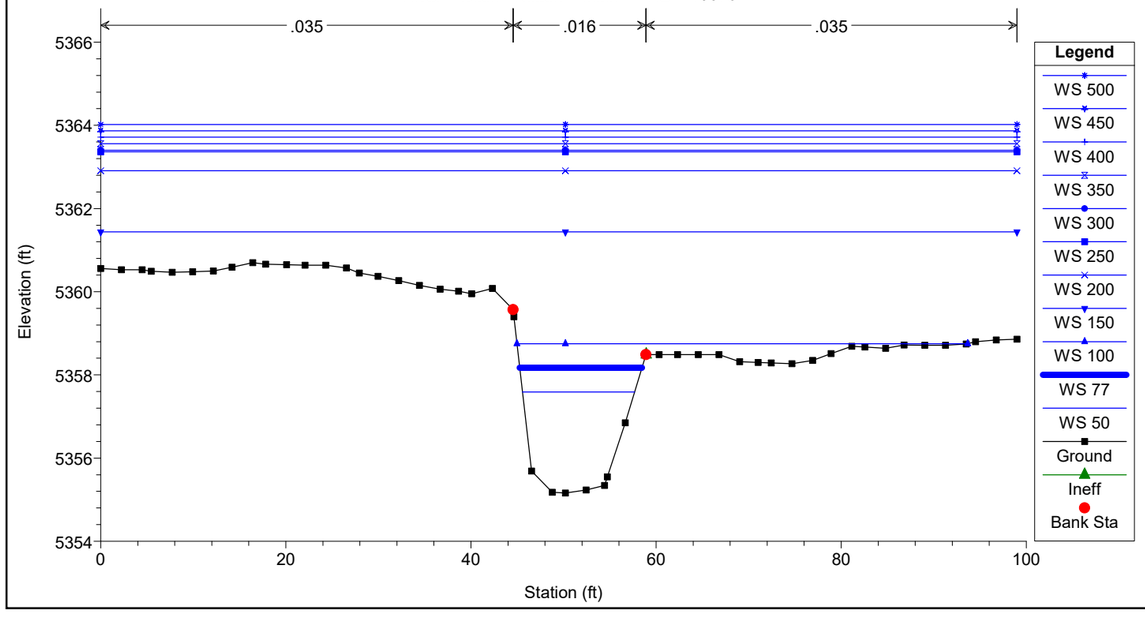
HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 19201



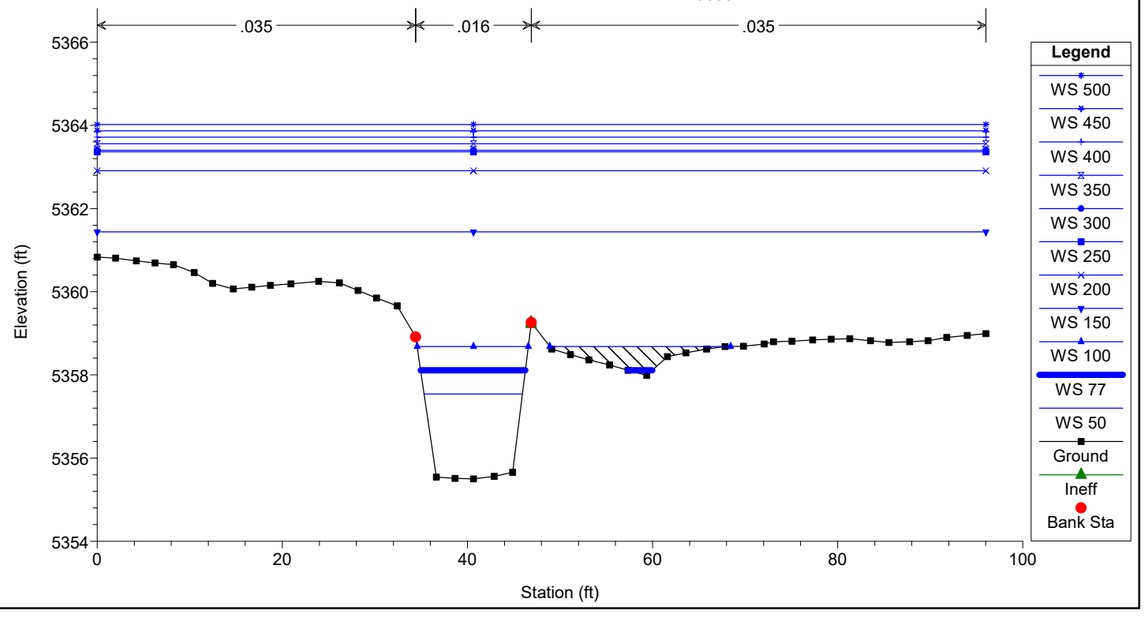
HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 19165



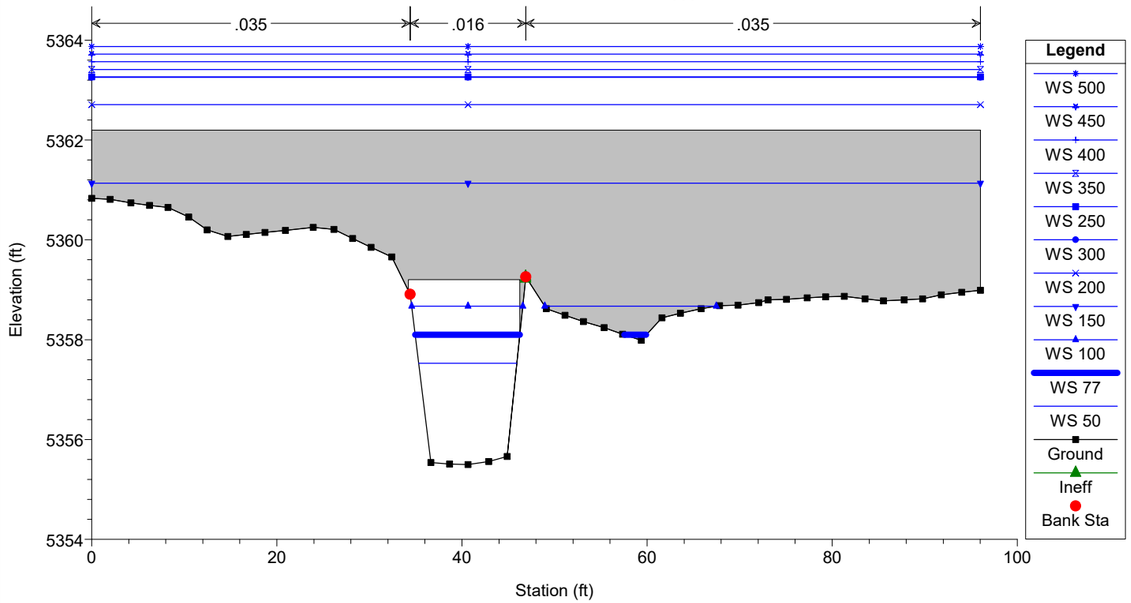
HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 19076



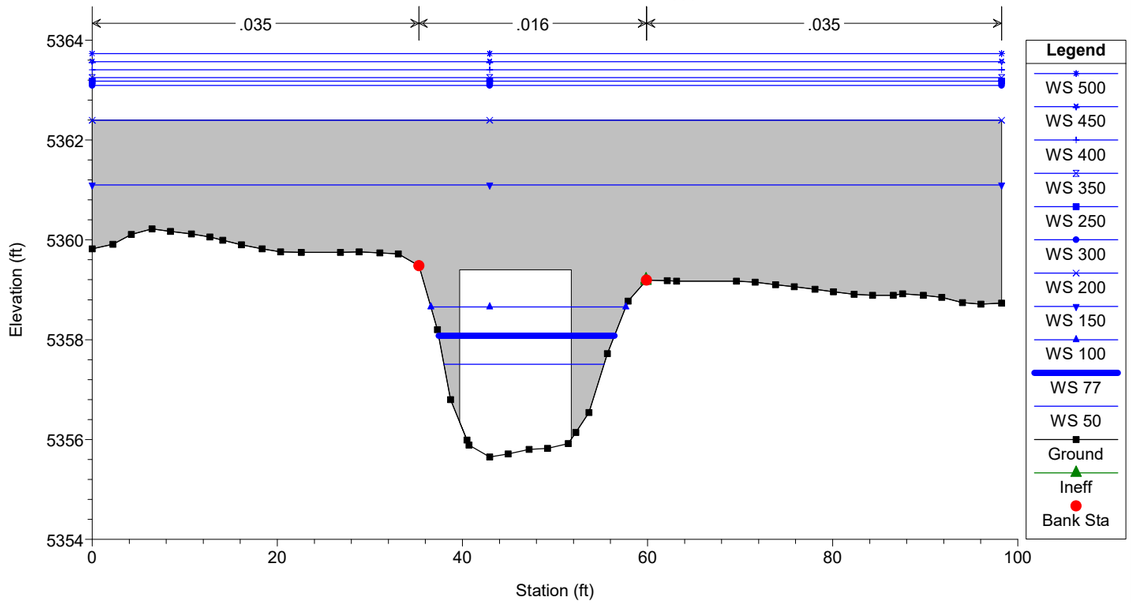
HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 19053



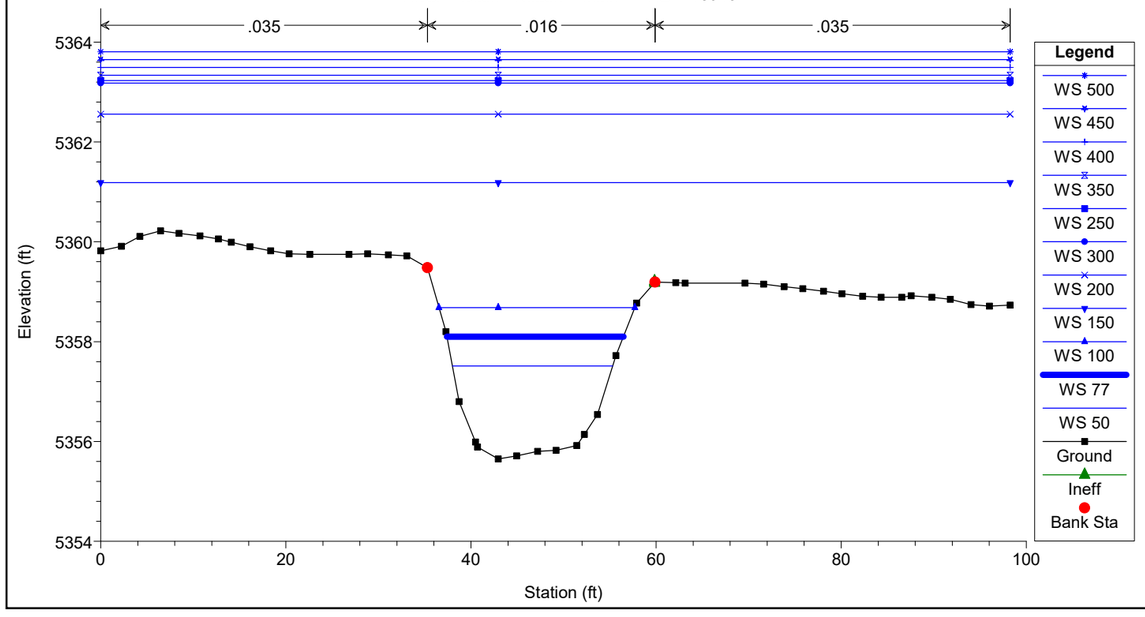
HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 18997 BR



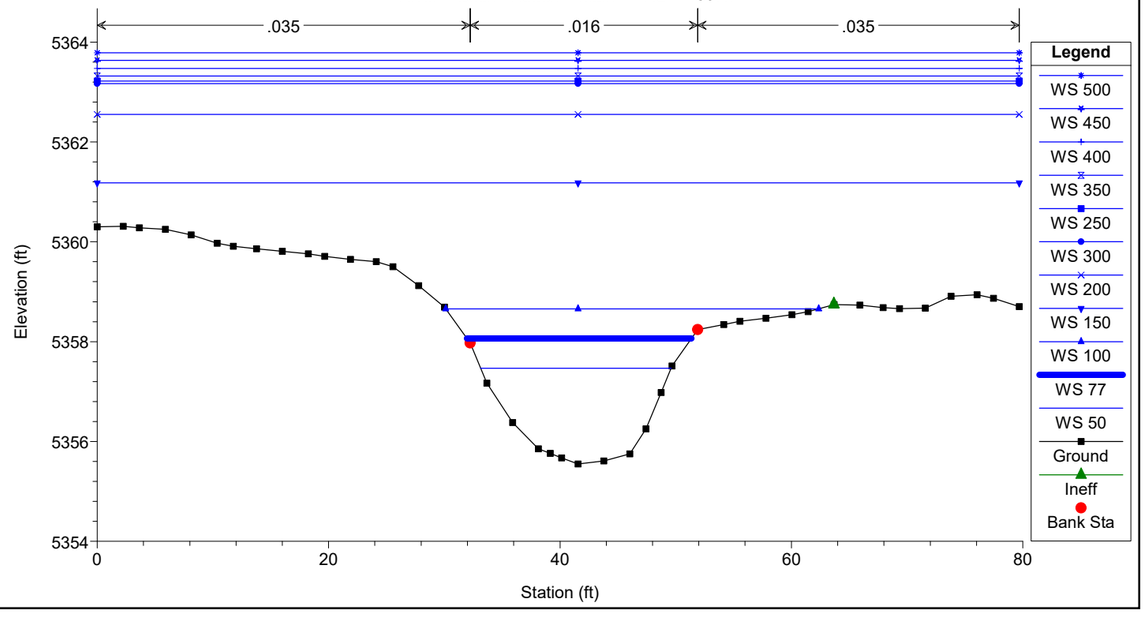
HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 18997 BR

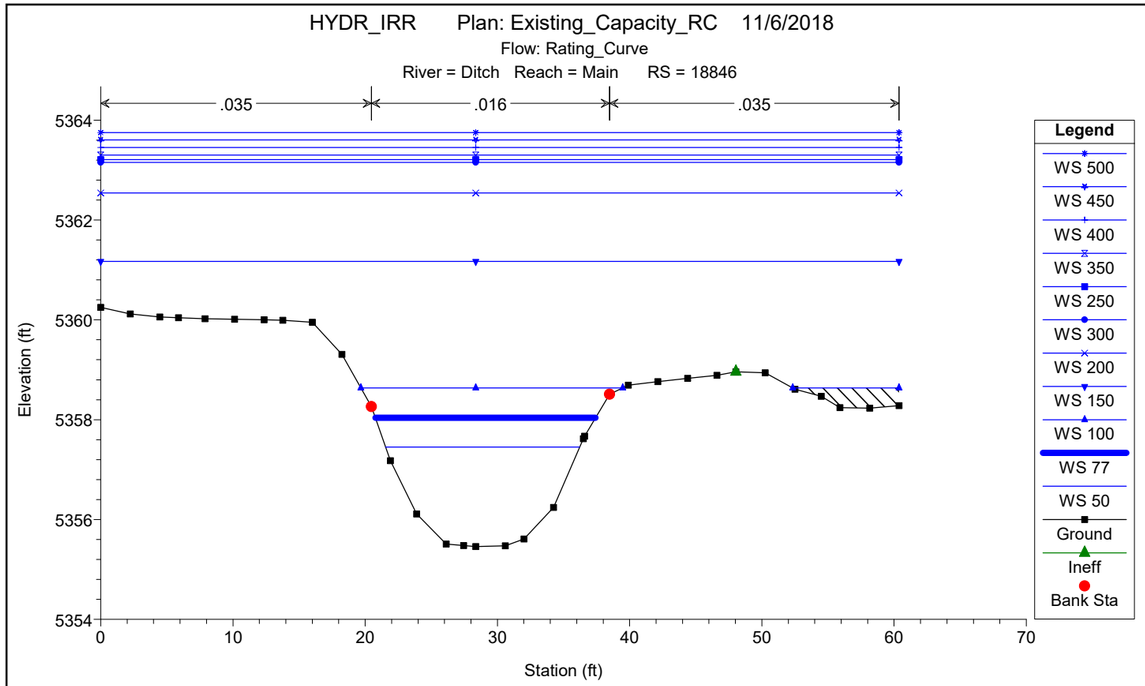


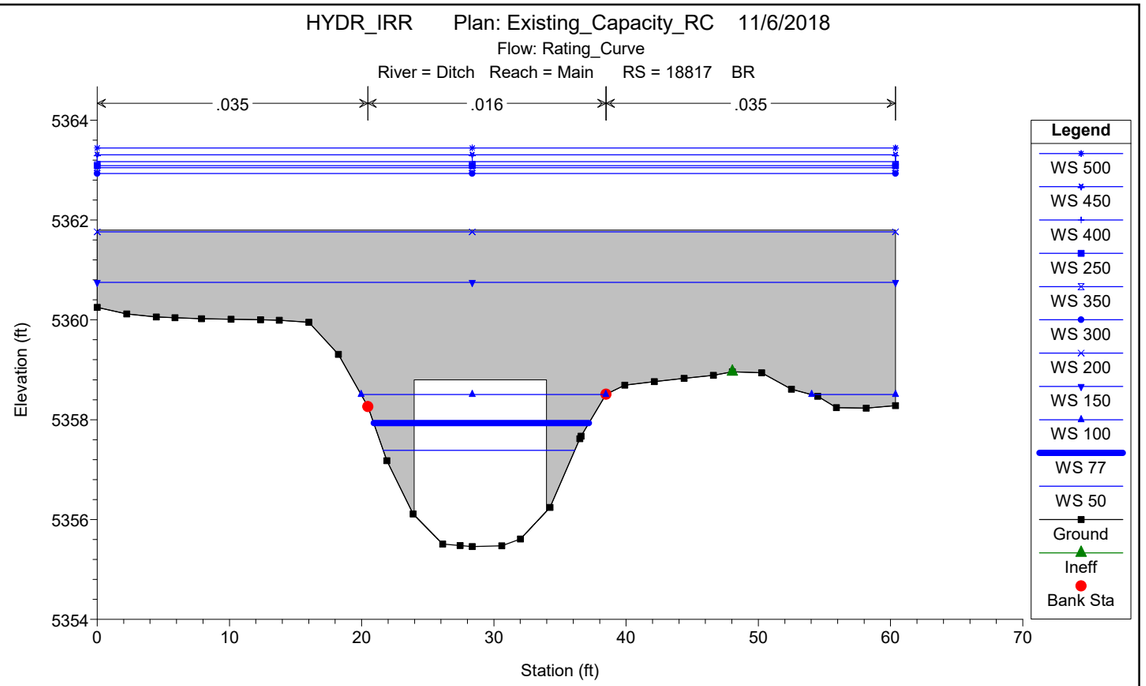
HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 18948

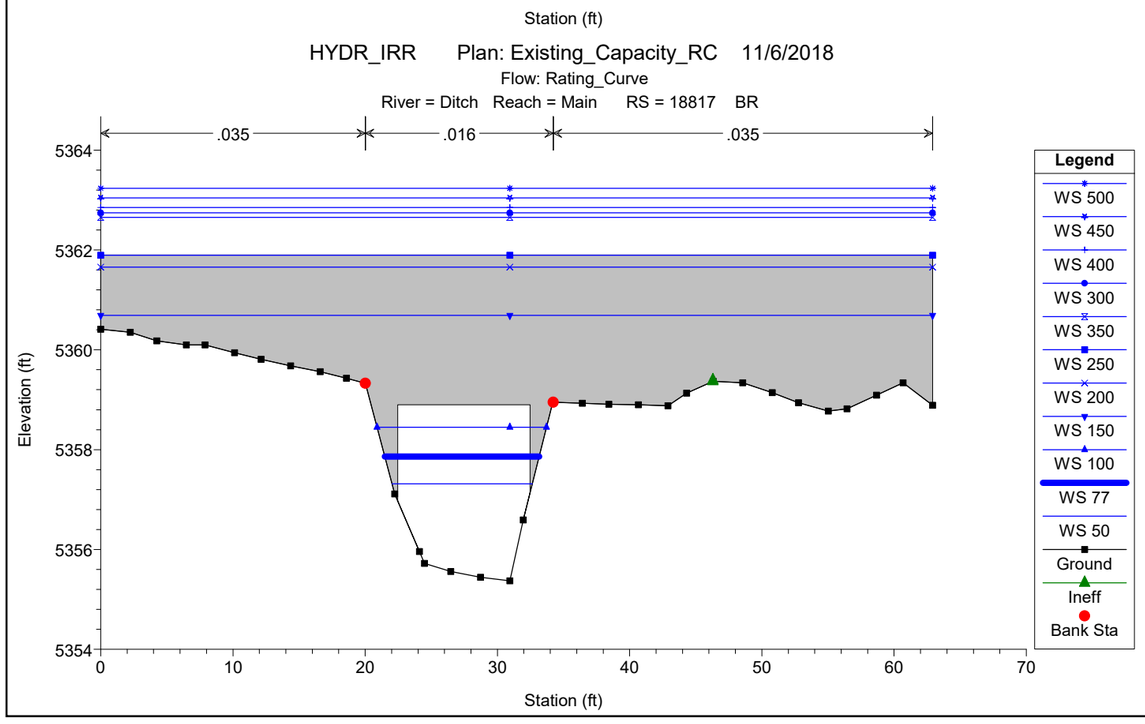


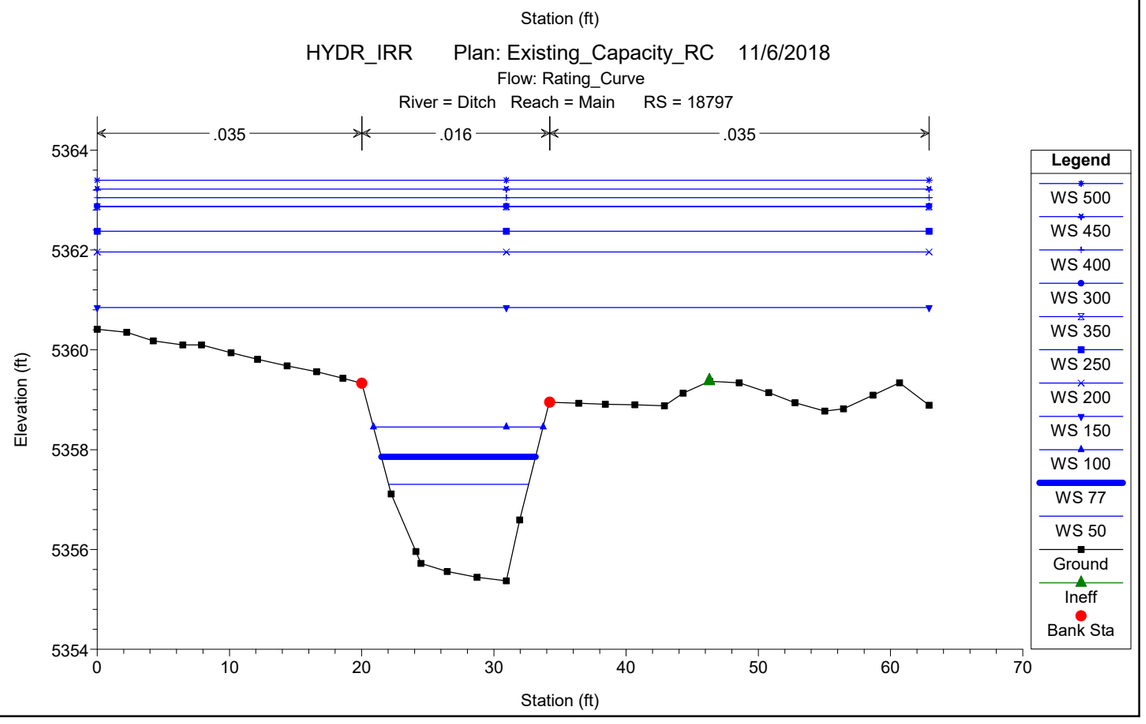
HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 18872

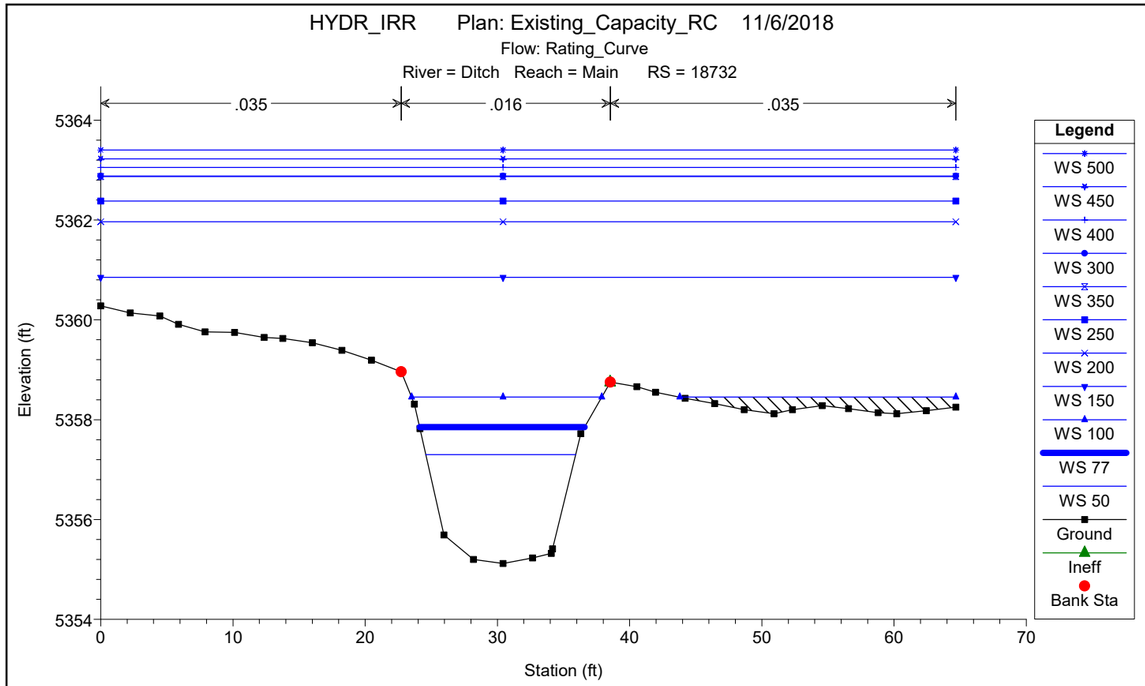


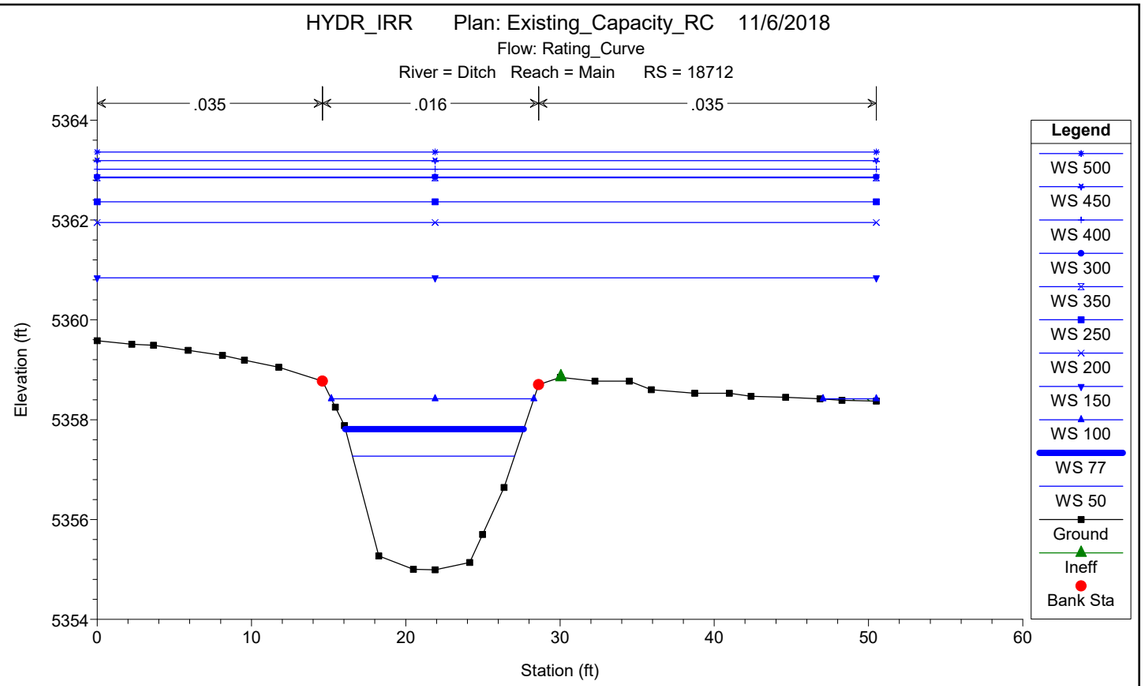

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 18846
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 250
WS 300
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

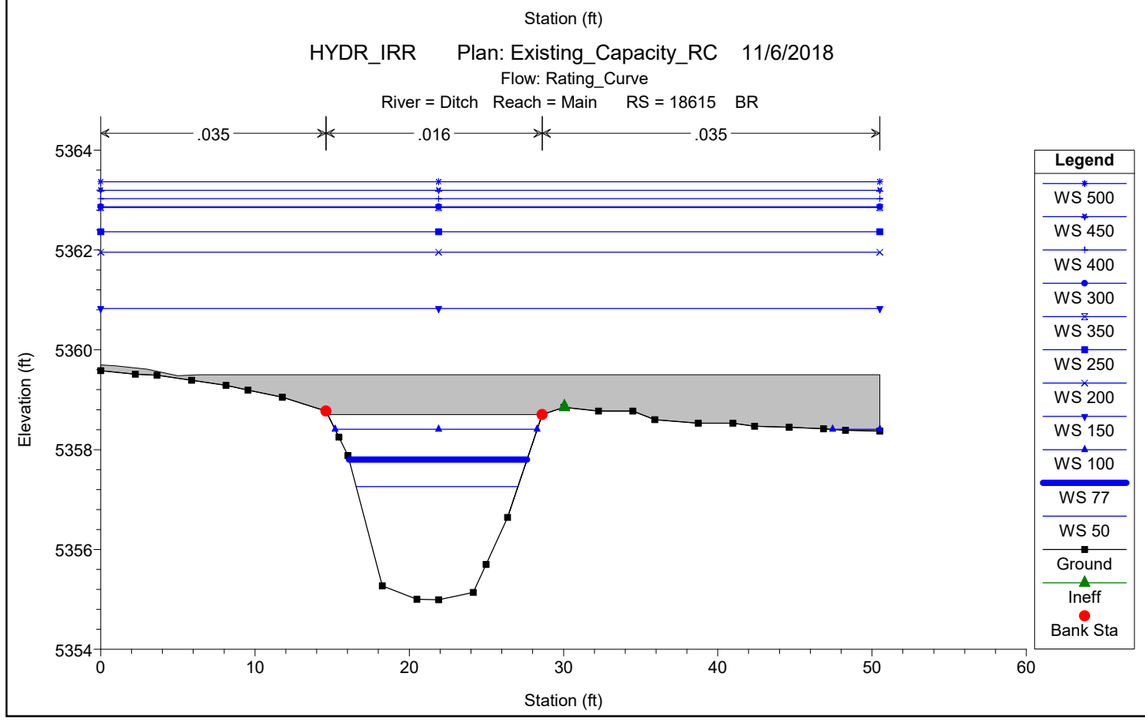

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 18817 BR
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 250
WS 350
WS 300
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

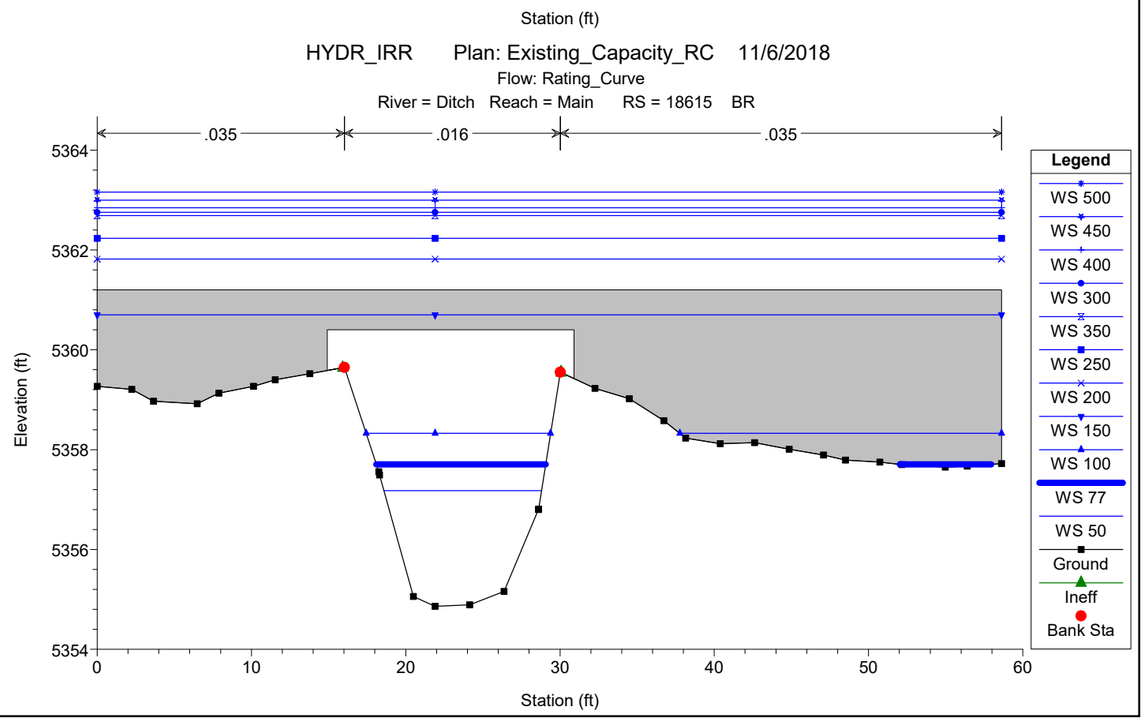

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 18817 BR
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 300
WS 350
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

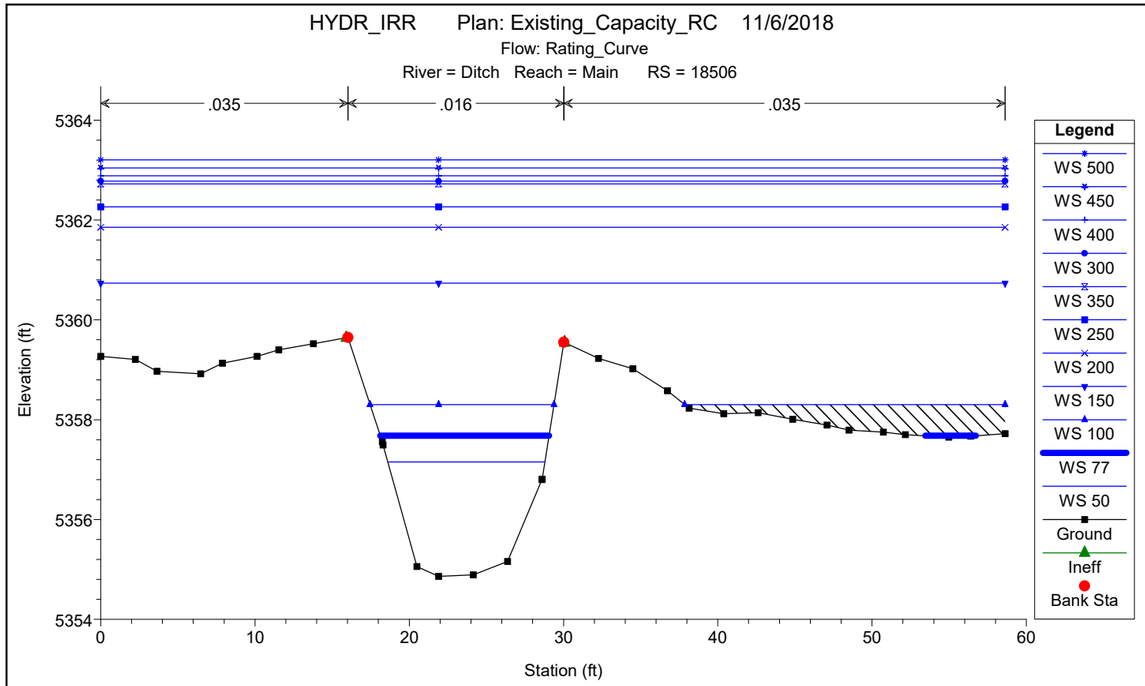

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 18797
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 300
WS 350
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

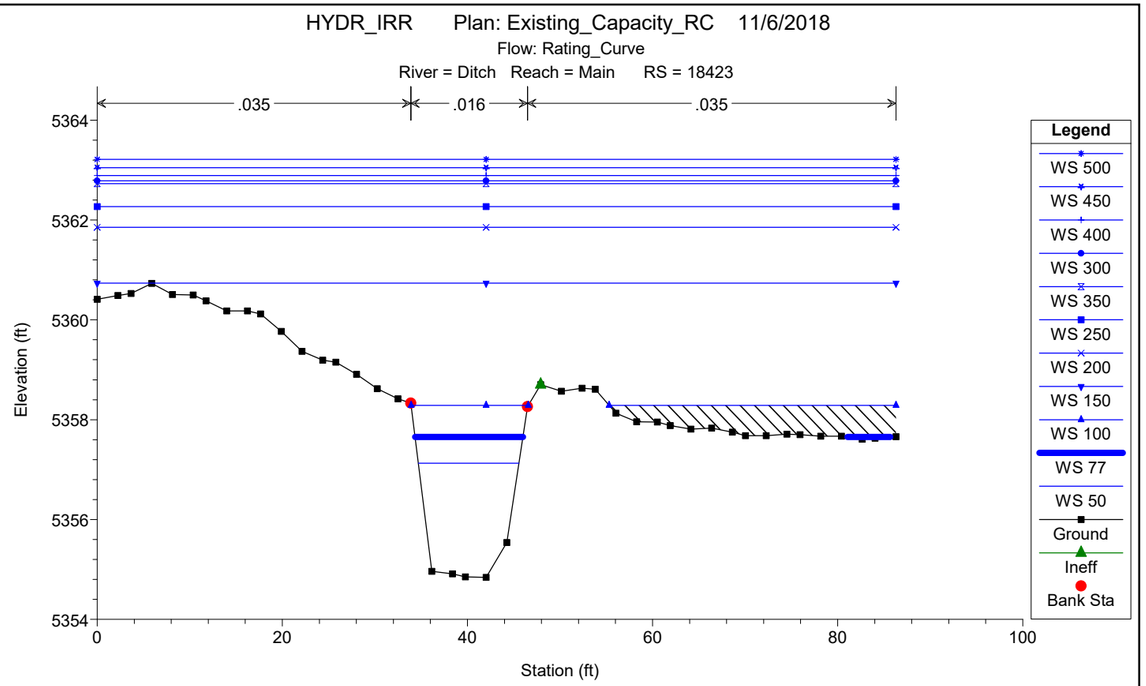

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 18732
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 300
WS 350
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

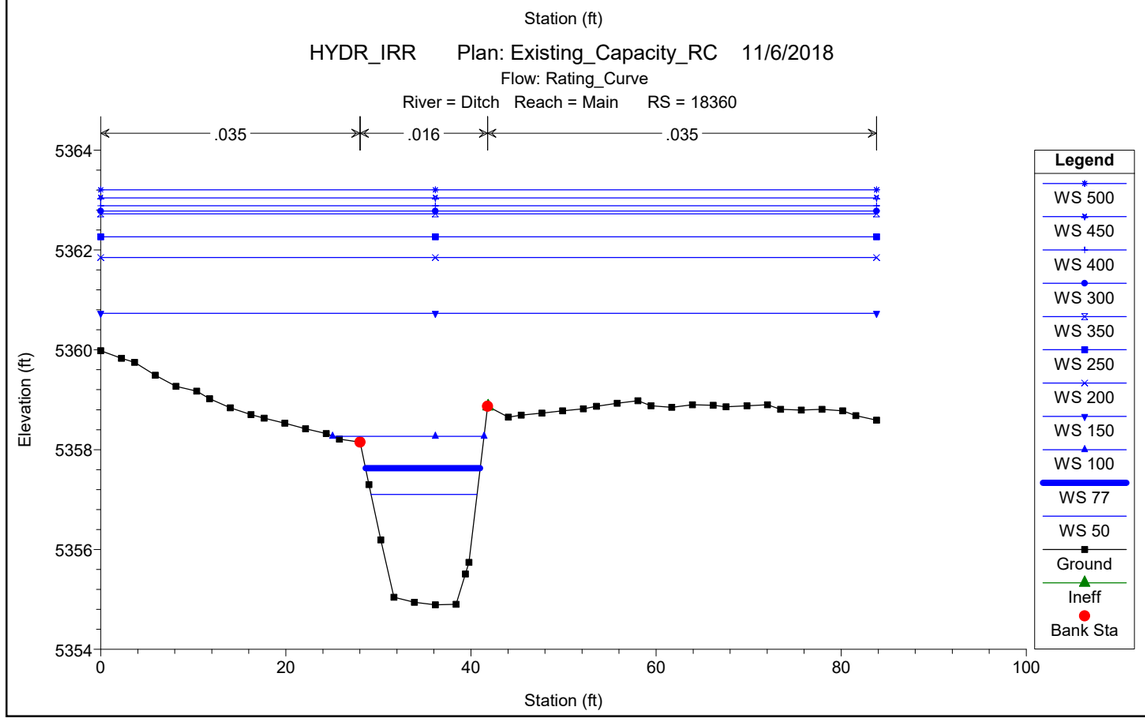

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 18712
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 300
WS 350
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

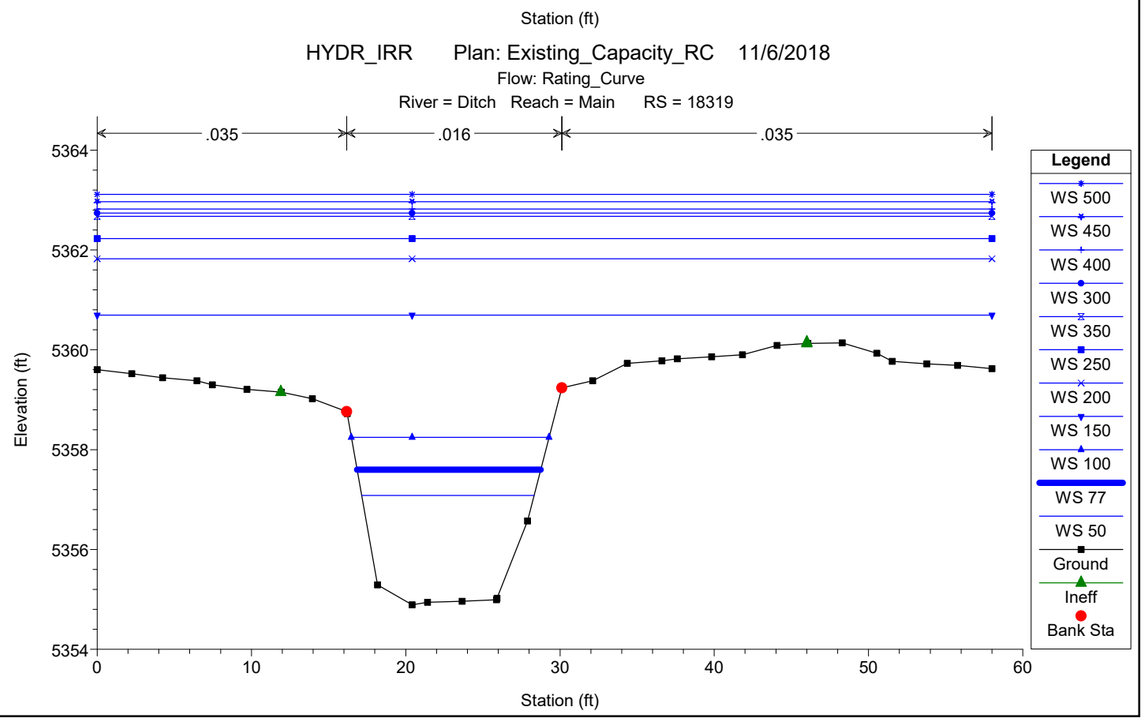

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 18615 BR
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 300
WS 350
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

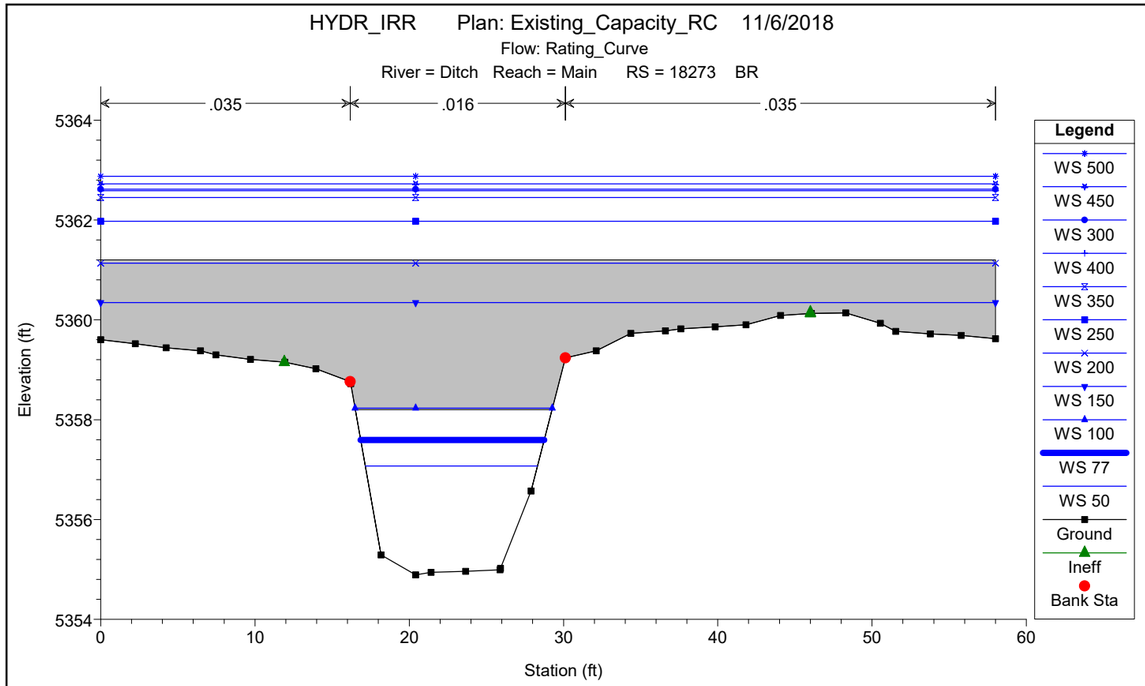

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 18615 BR
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 300
WS 350
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

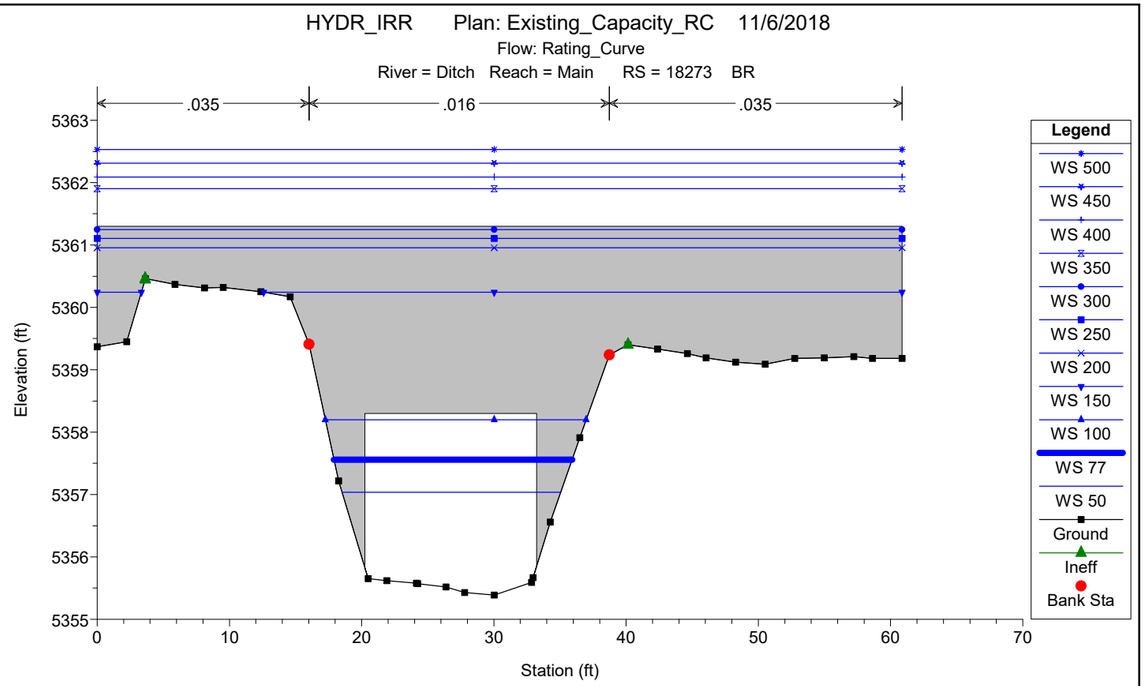

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 18506
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 300
WS 350
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

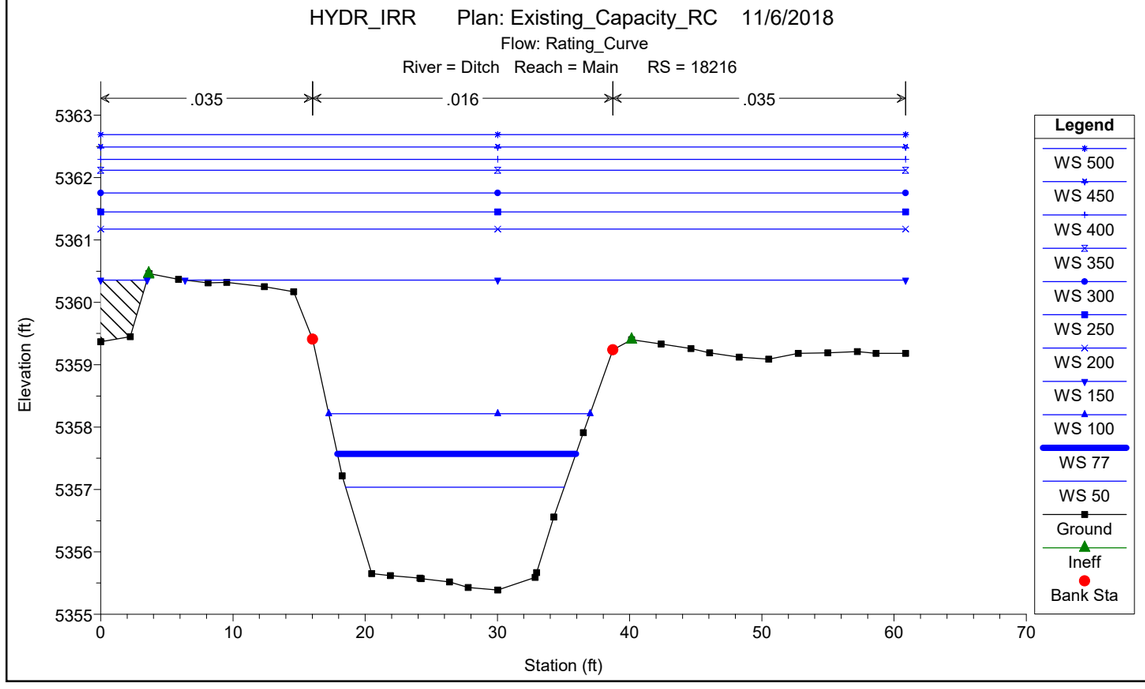

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 18423
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 300
WS 350
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

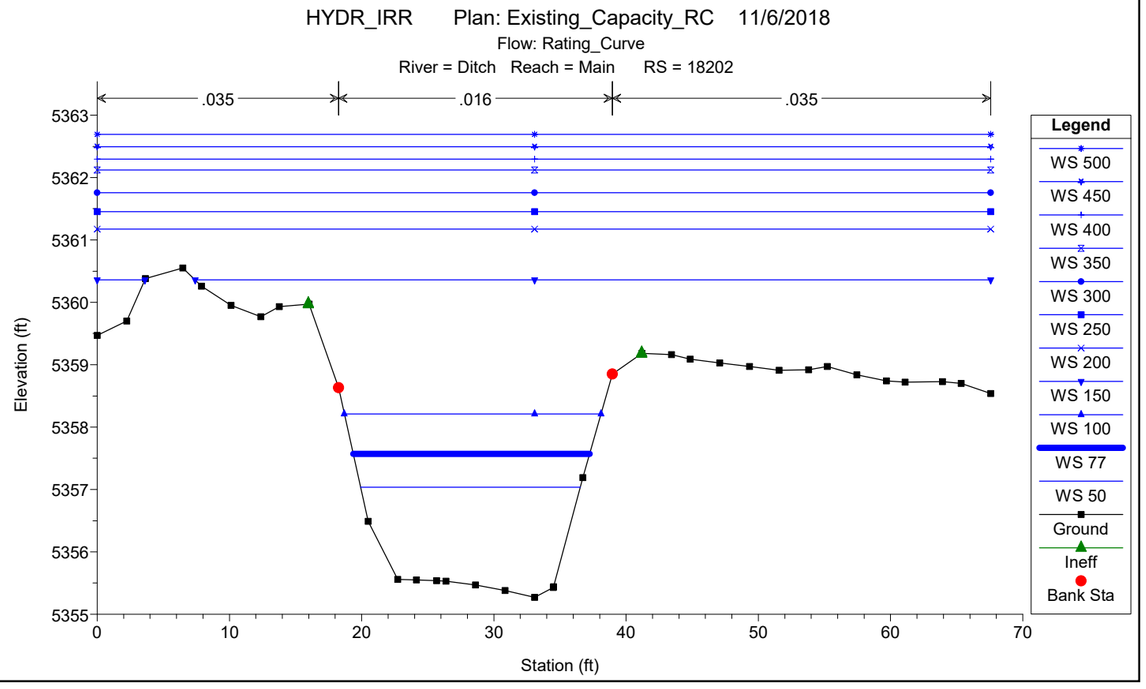

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 18360
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 300
WS 350
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

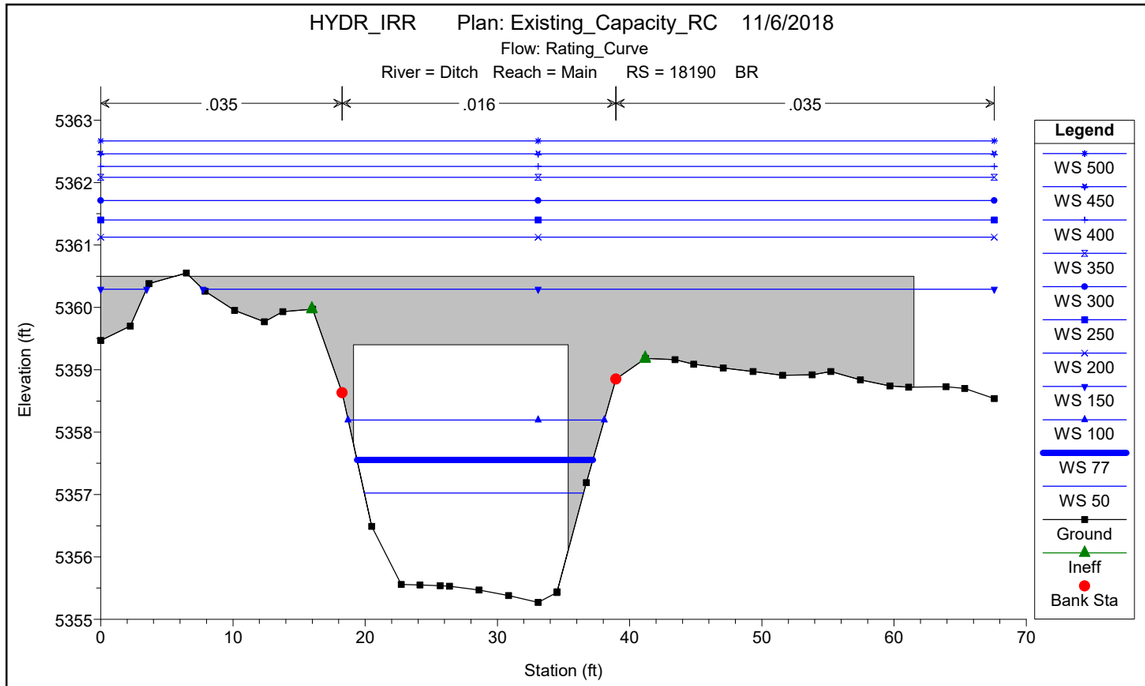

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 18319
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 300
WS 350
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

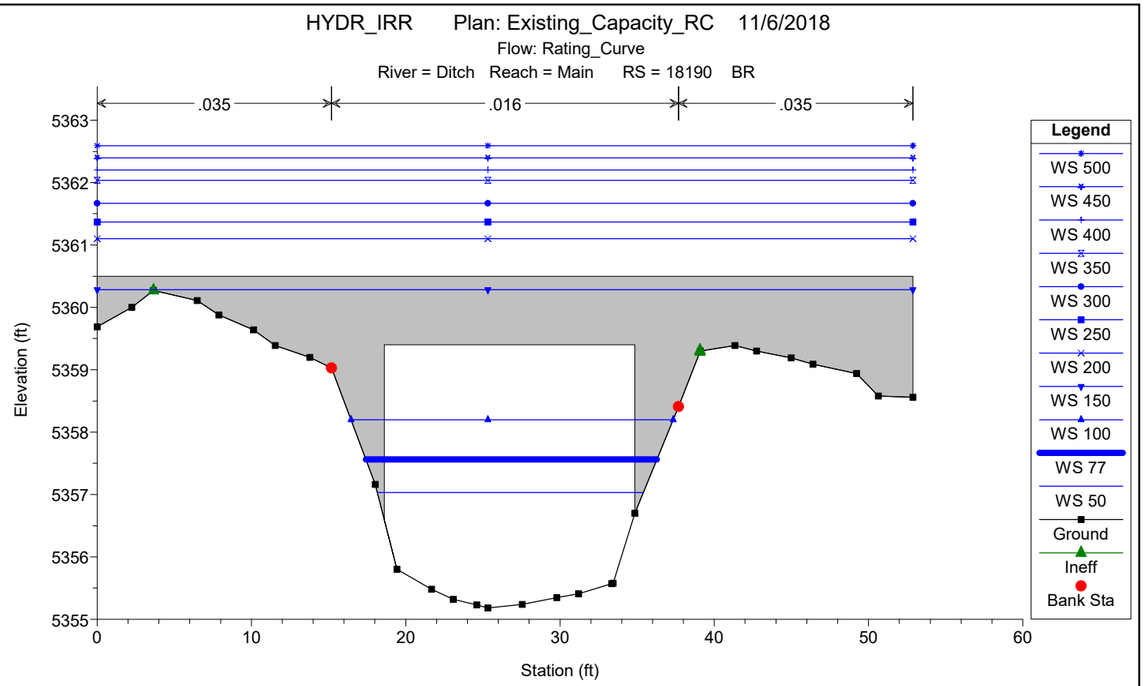

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 18273 BR
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 300
WS 400
WS 350
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

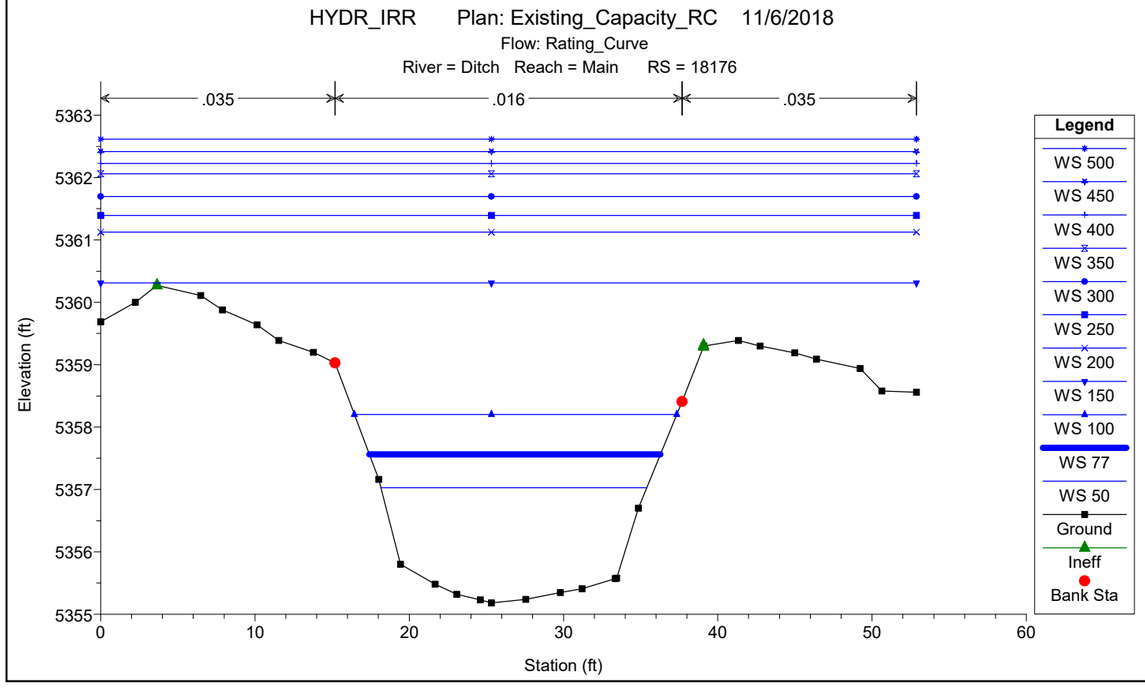

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 18273 BR
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

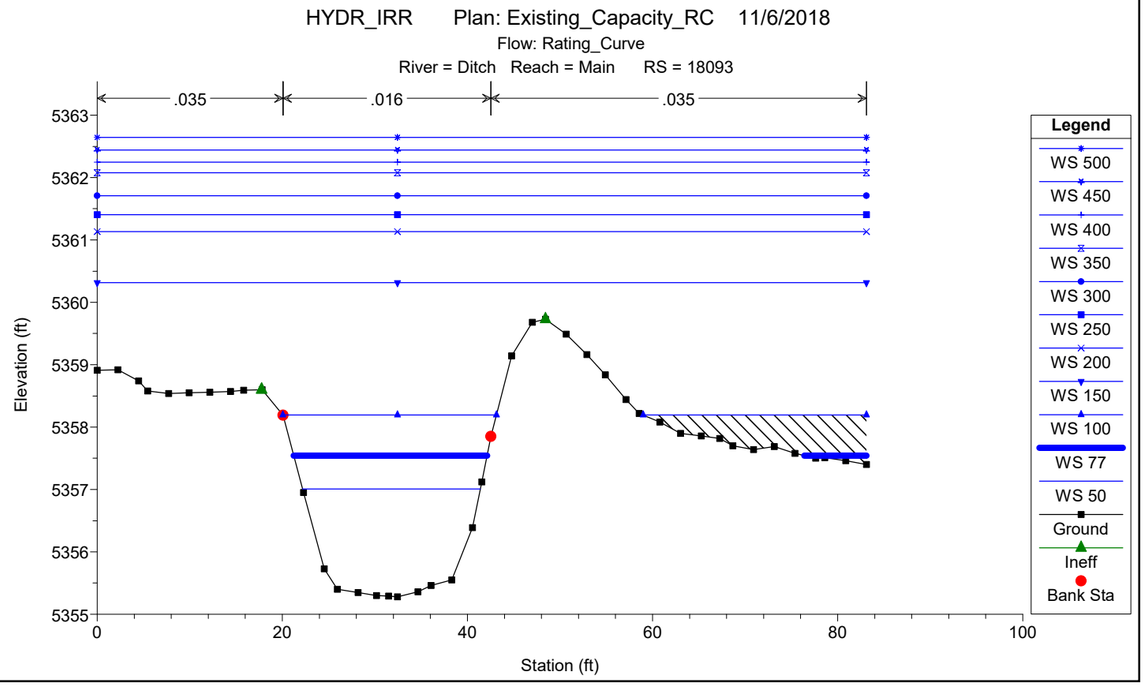

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 18216
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta


HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 18202
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

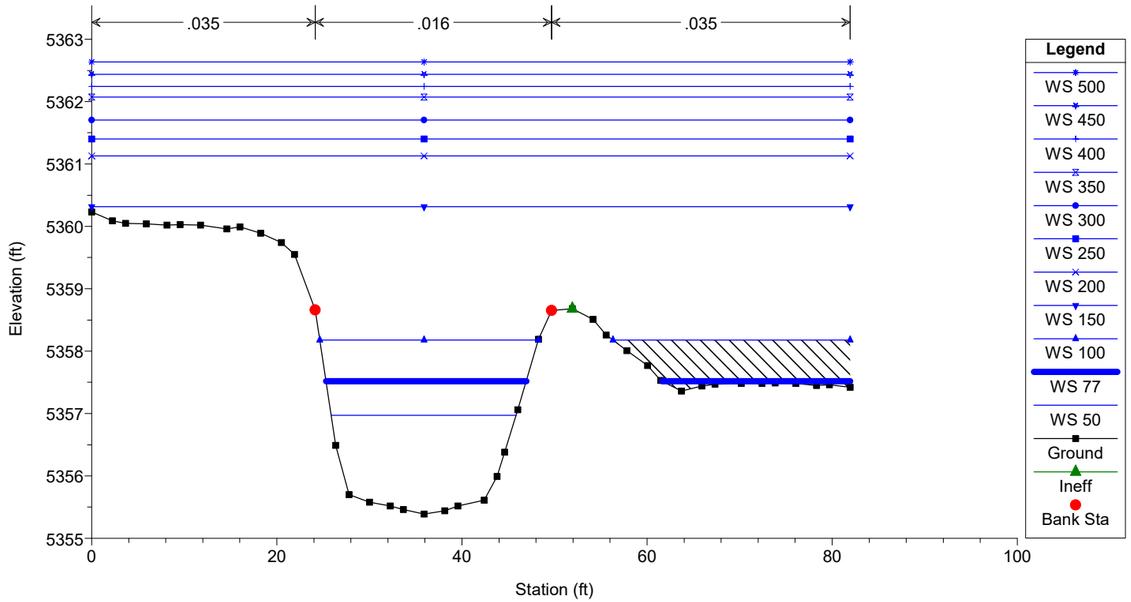

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 18190 BR
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta


HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 18190 BR
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

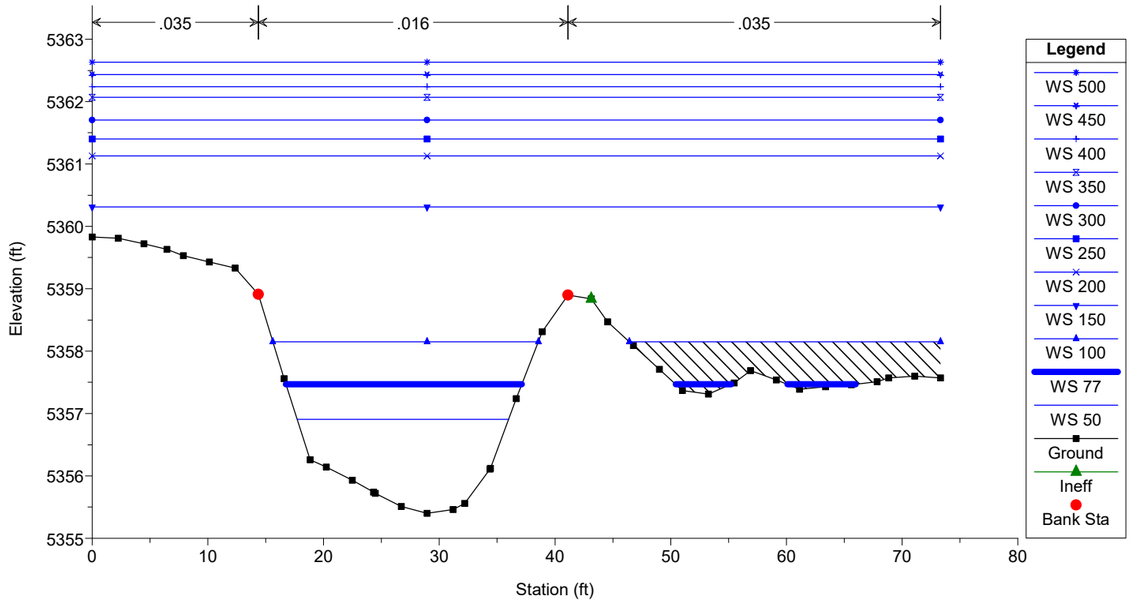

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 18176
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta


HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 18093
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

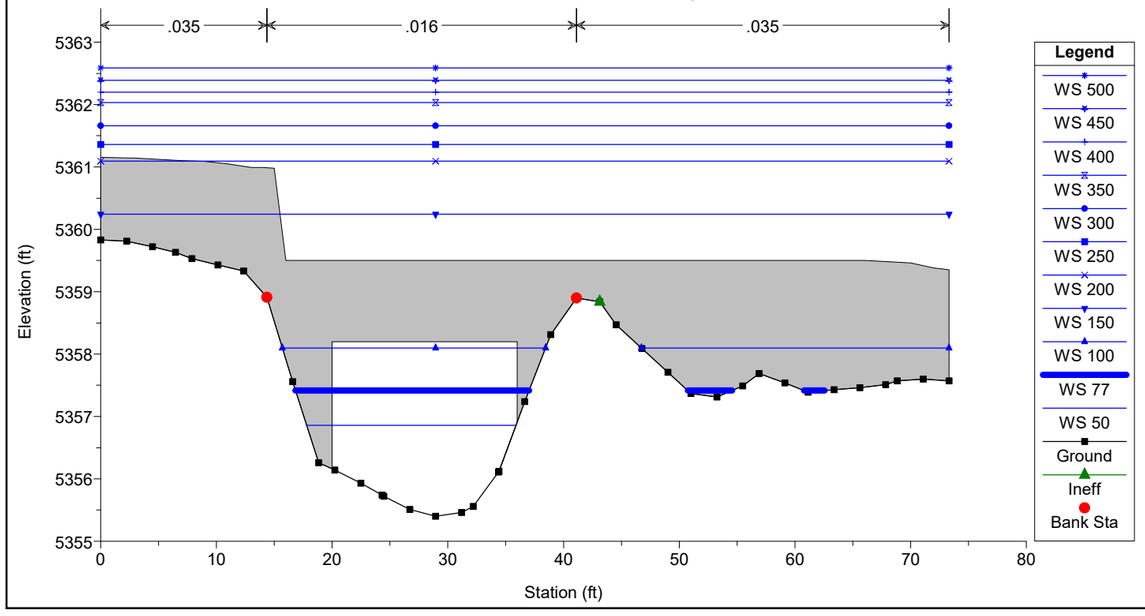
HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 17998



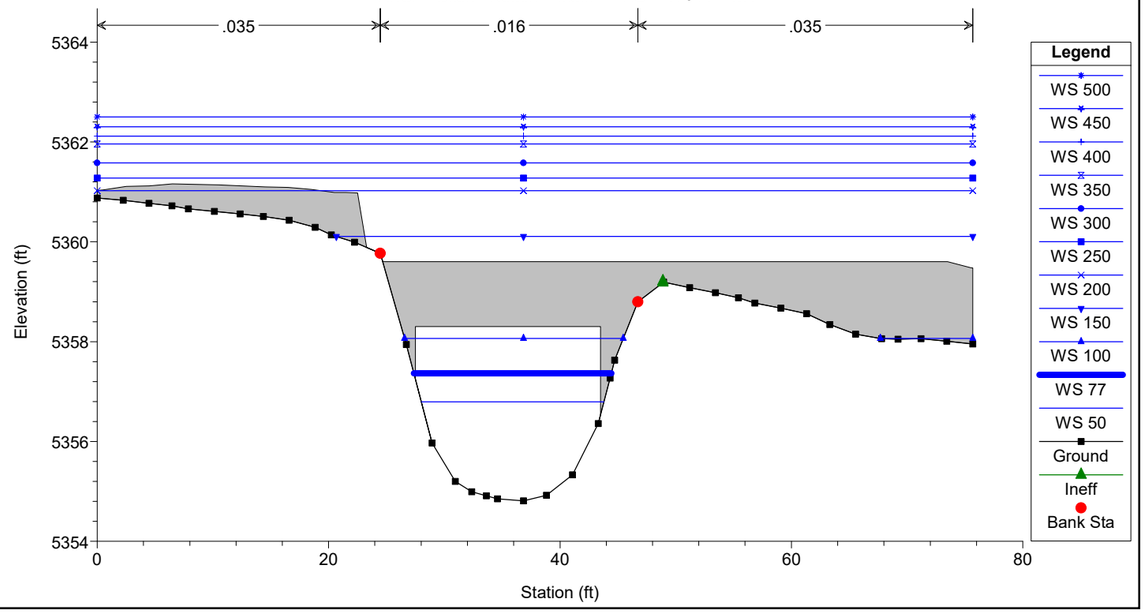
HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 17958

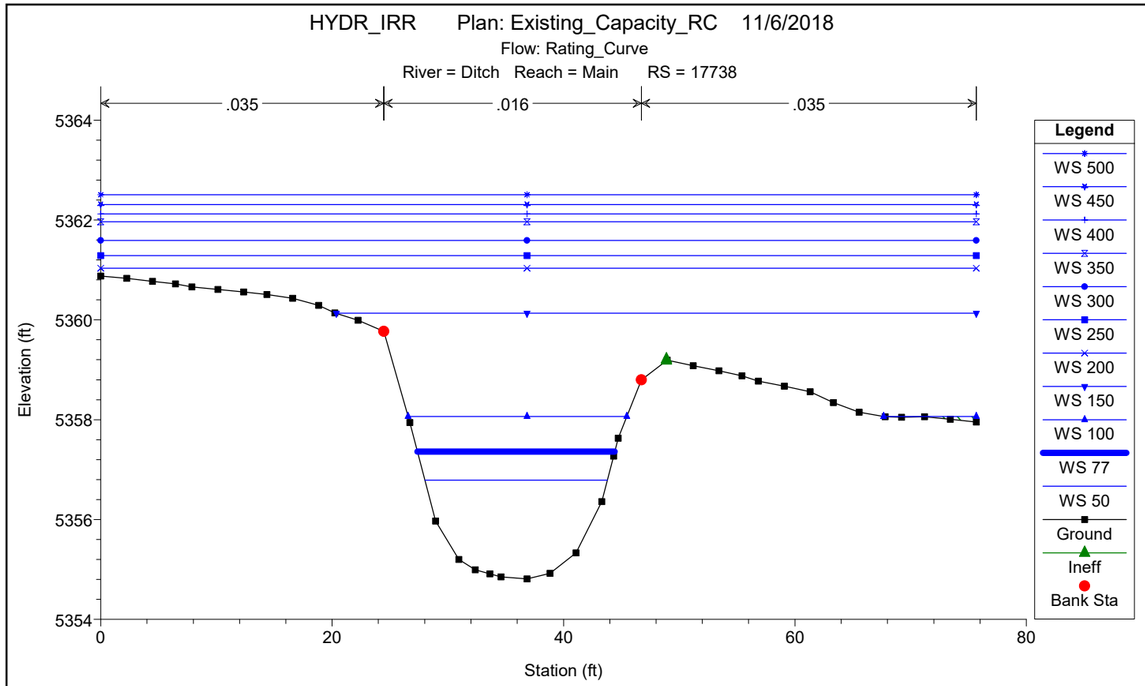


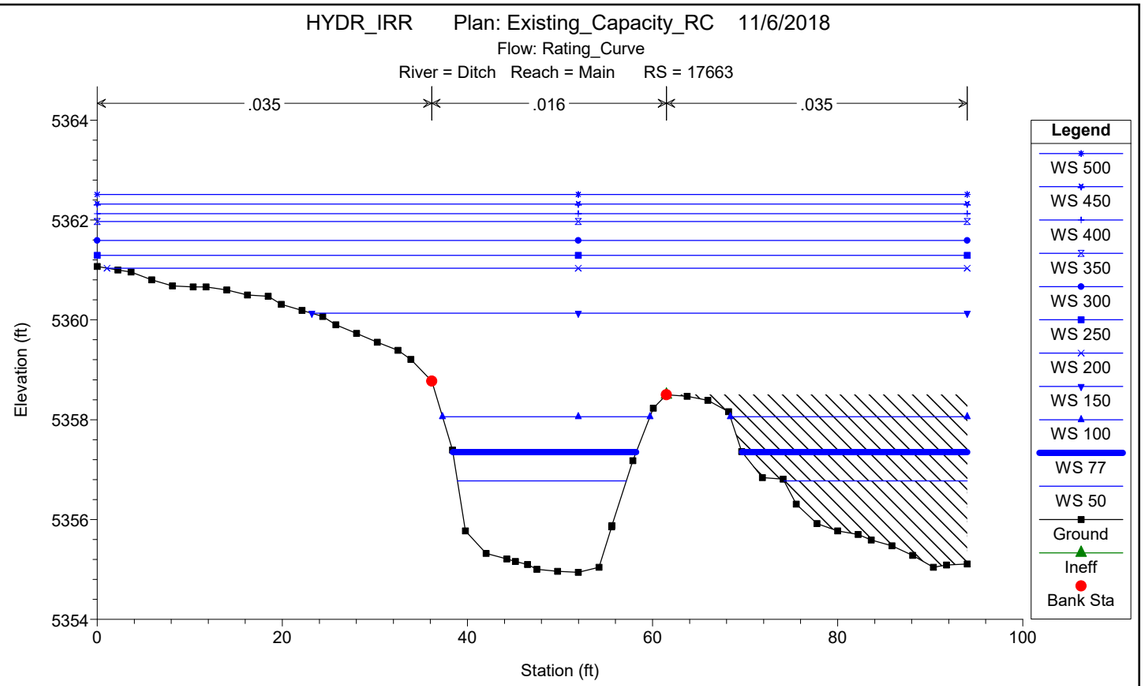
HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 17814 BR

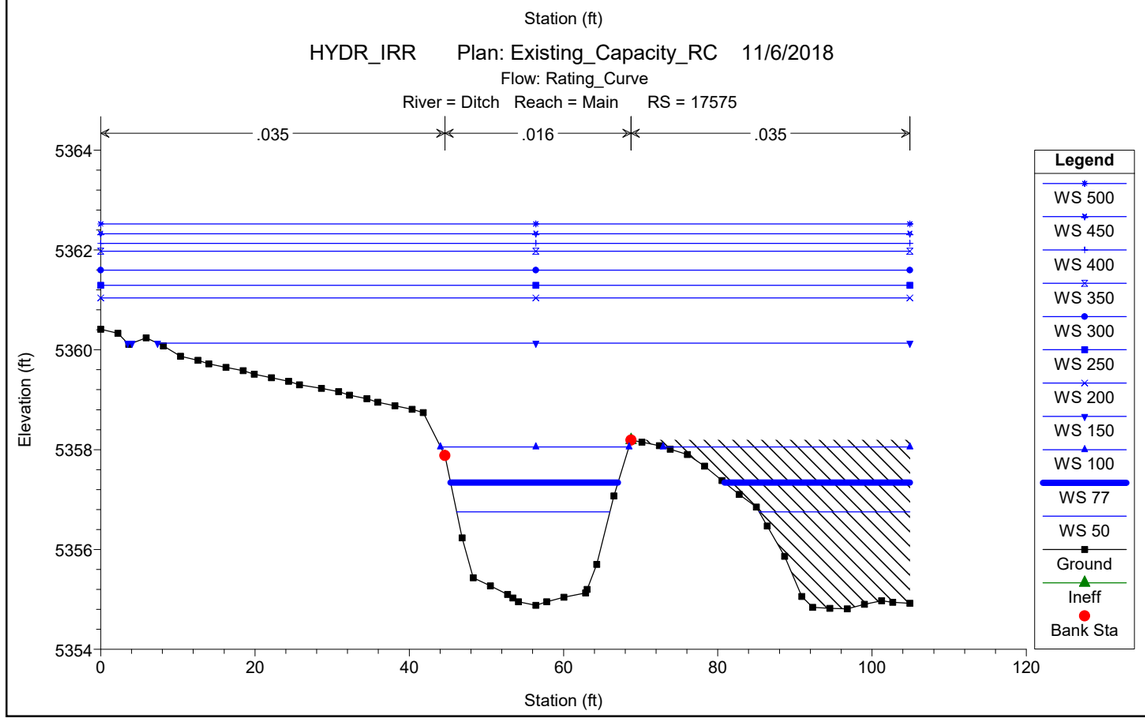


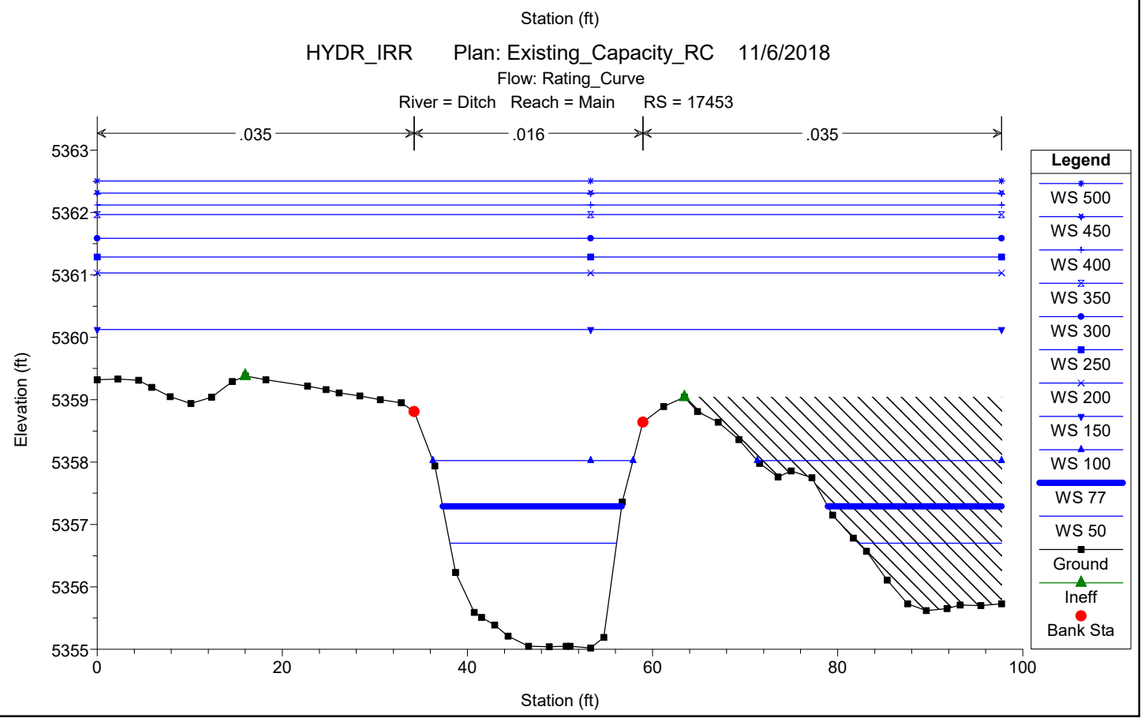
HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 17814 BR

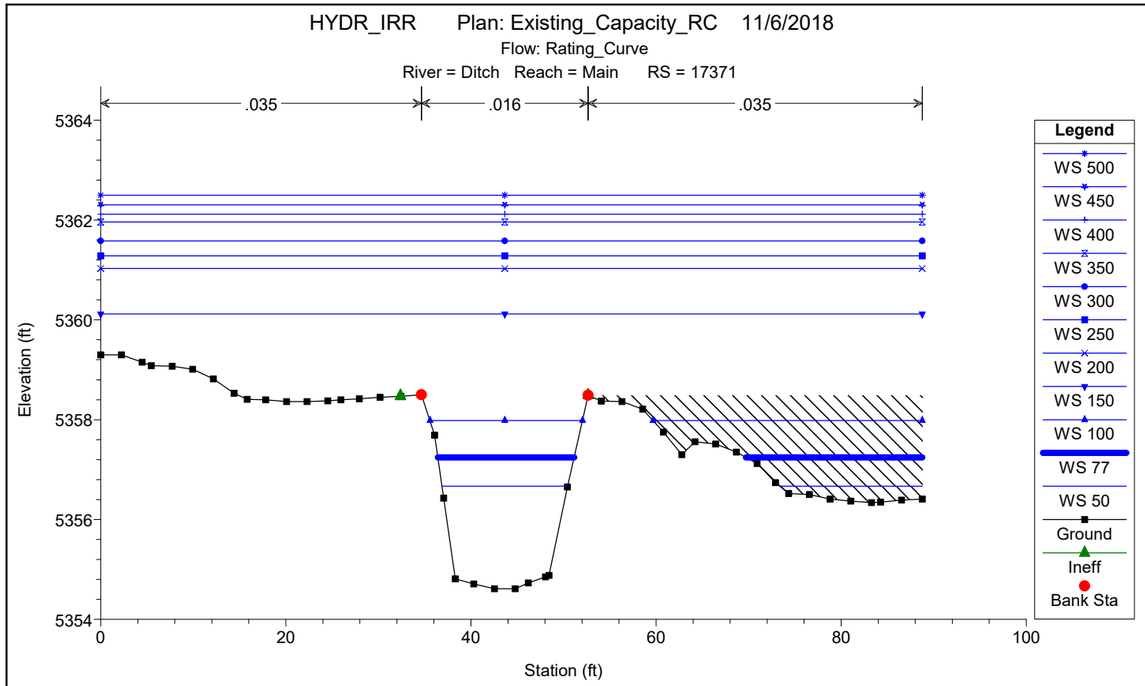


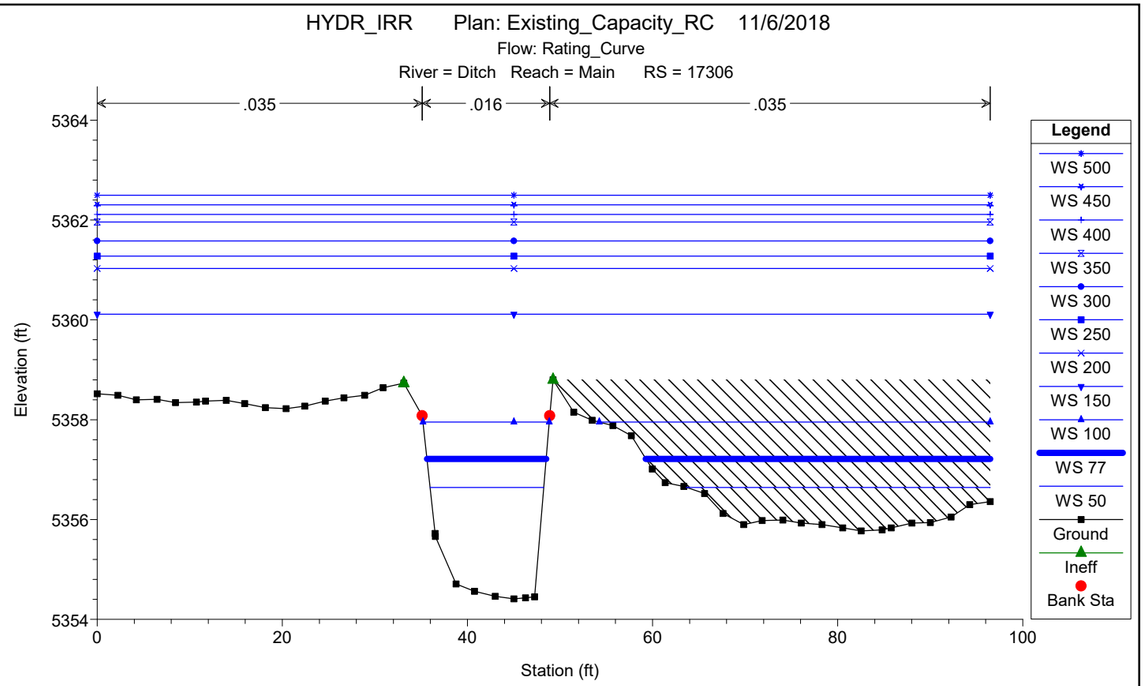

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 17738
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

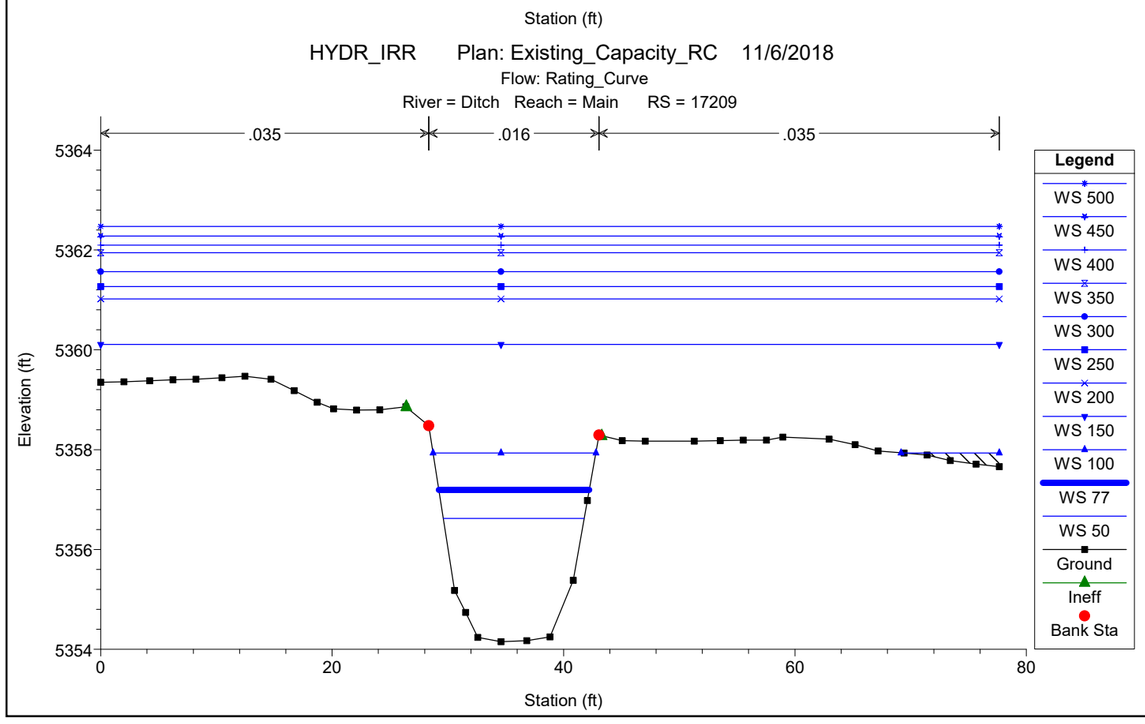

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 17663
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

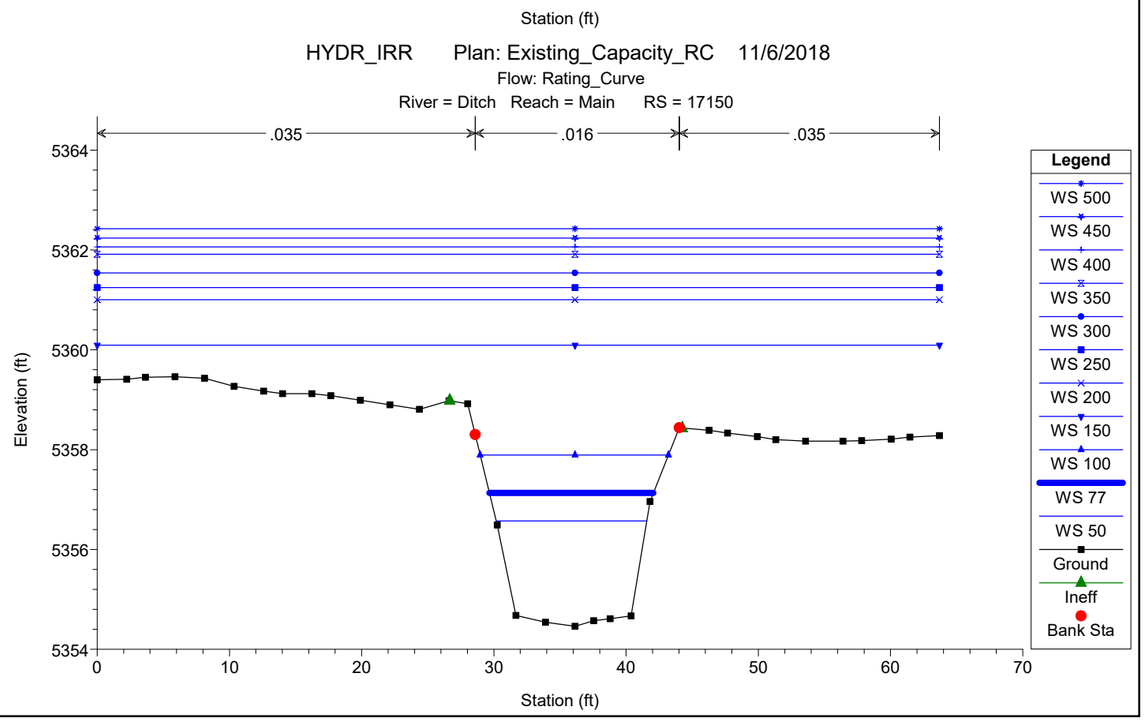

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 17575
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

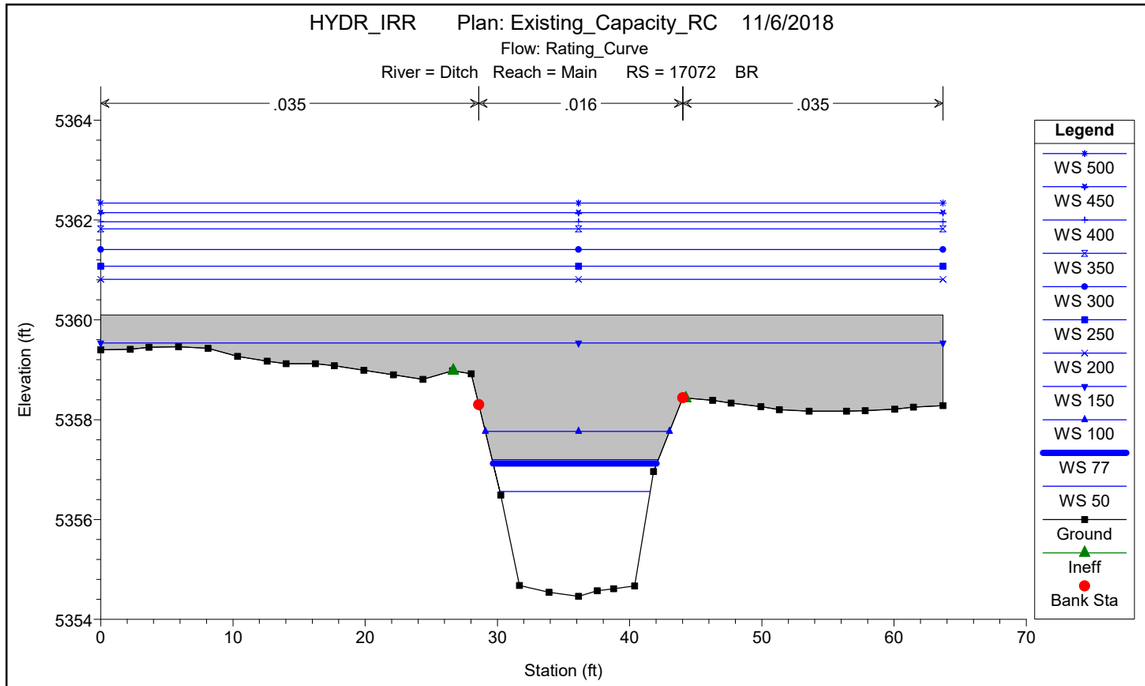

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 17453
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

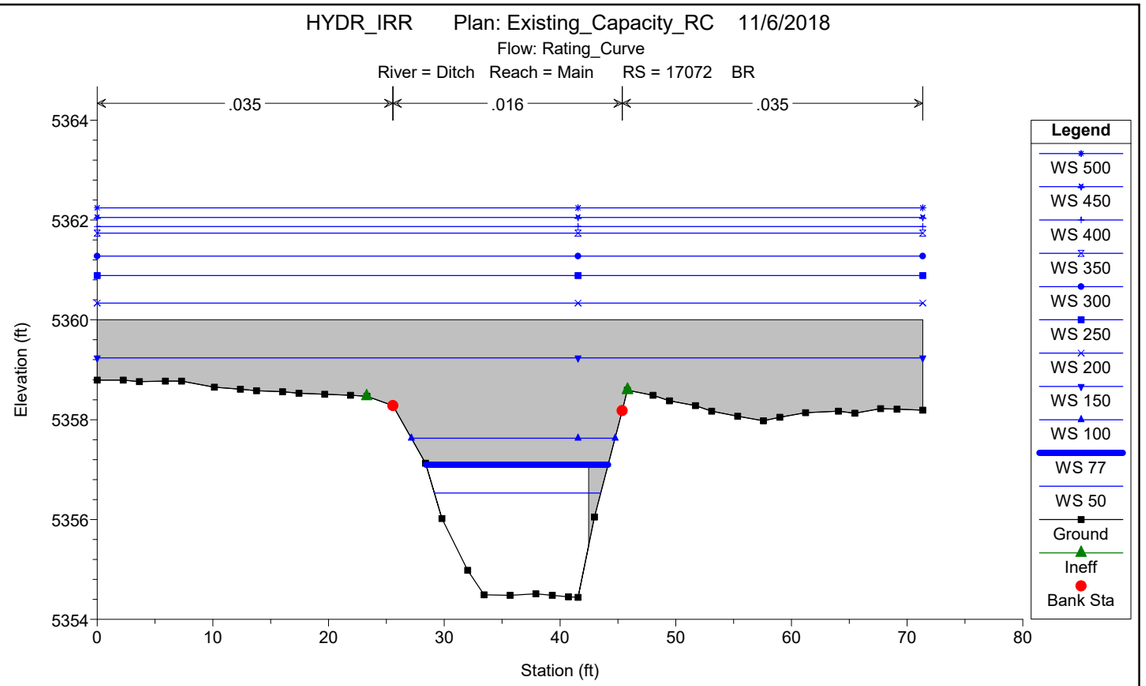

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 17371
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

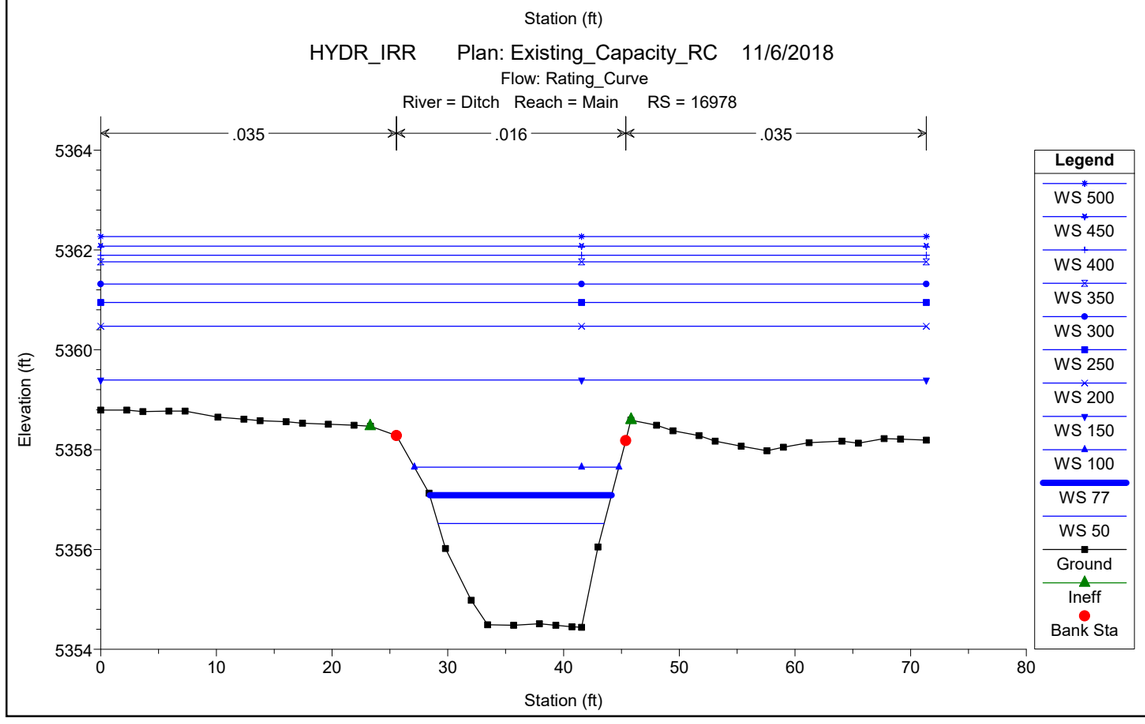

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 17306
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

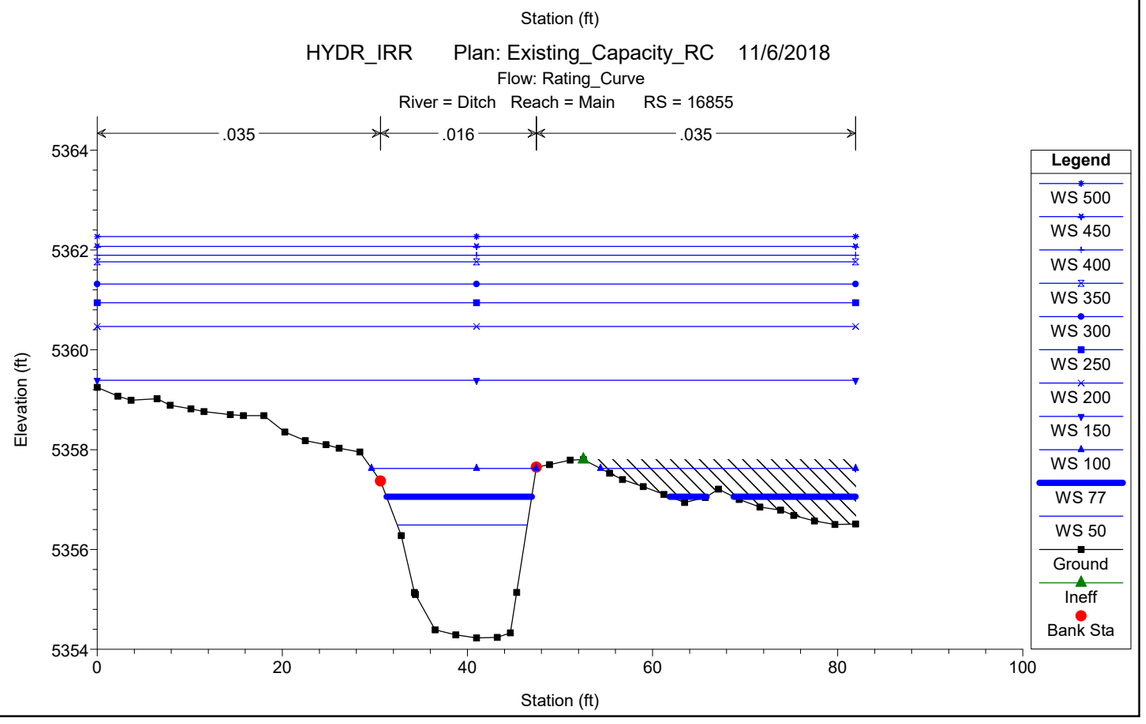

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 17209
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

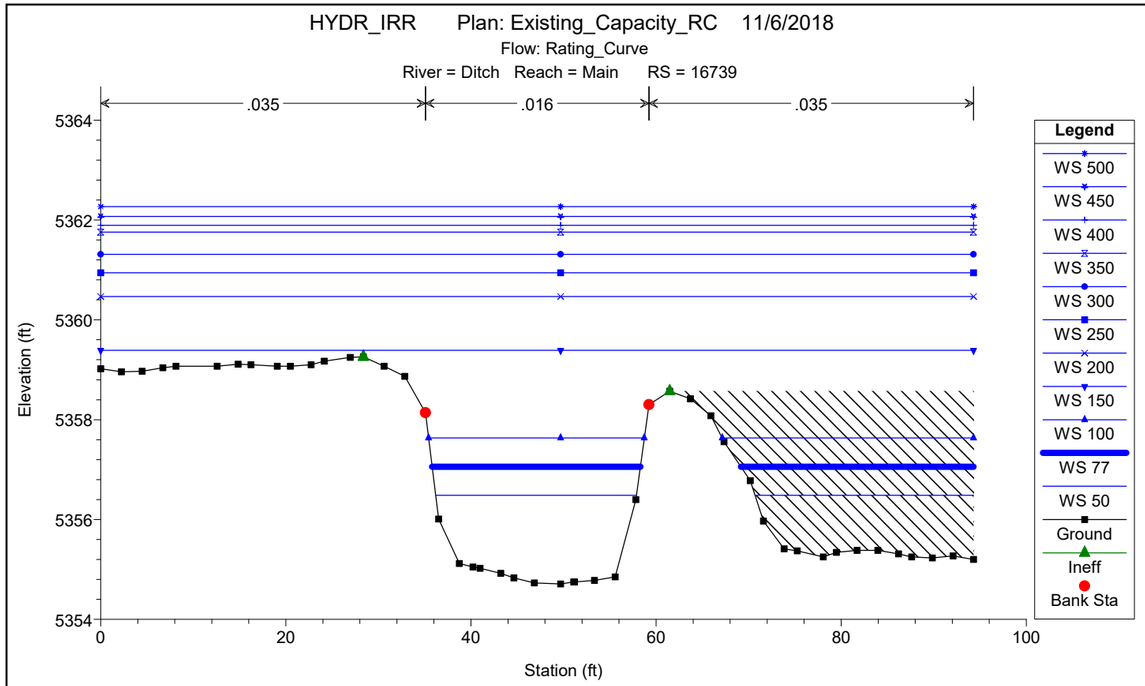

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 17150
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

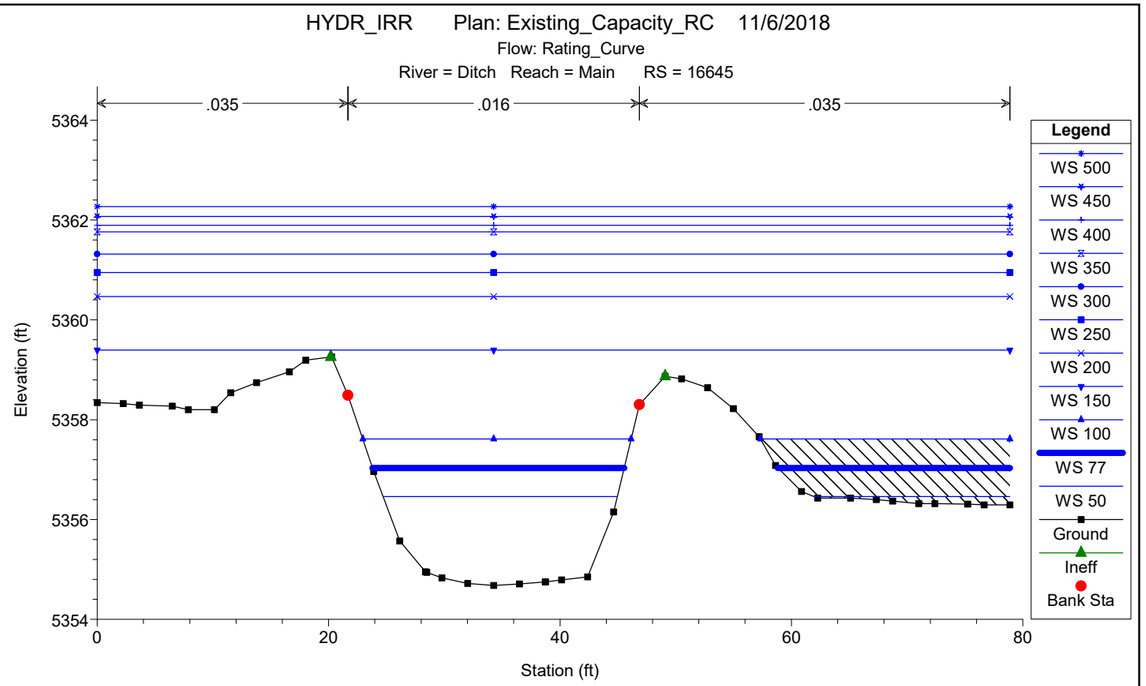

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 17072 BR
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

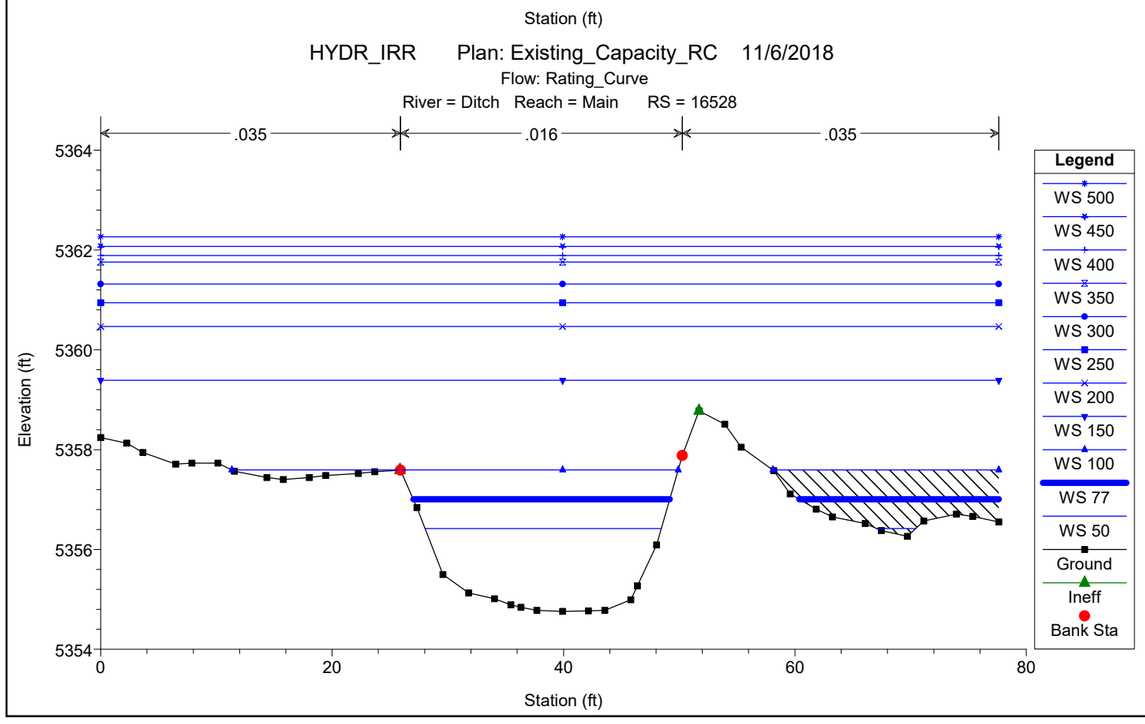

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 17072 BR
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

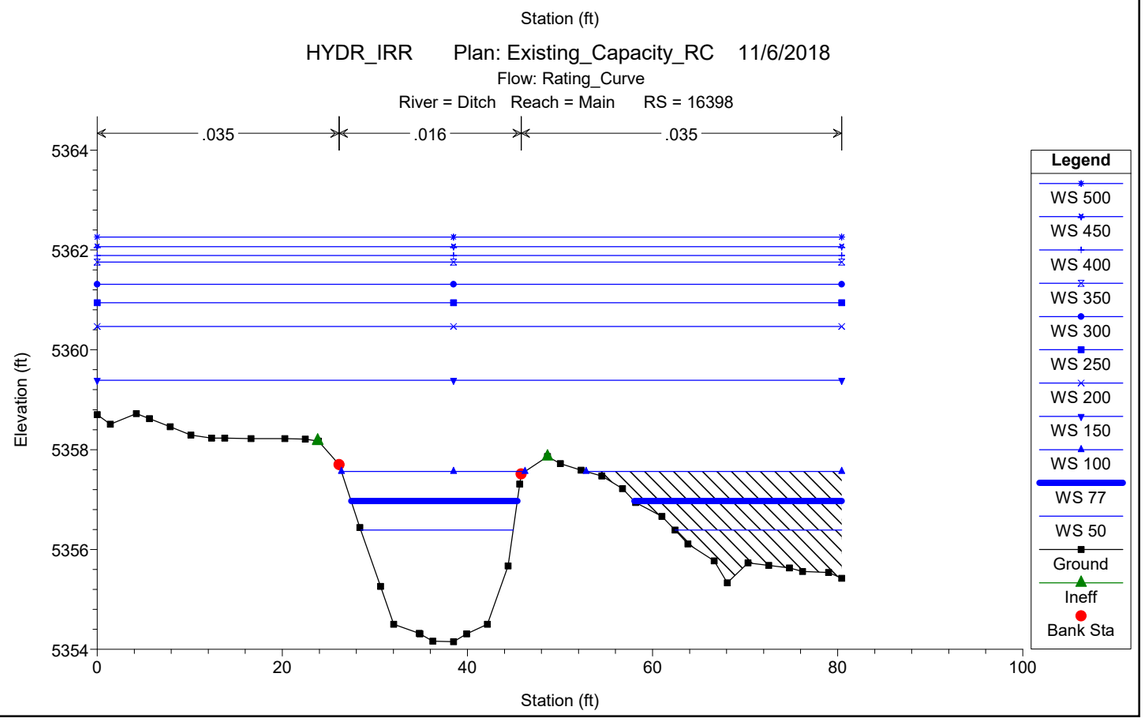

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 16978
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

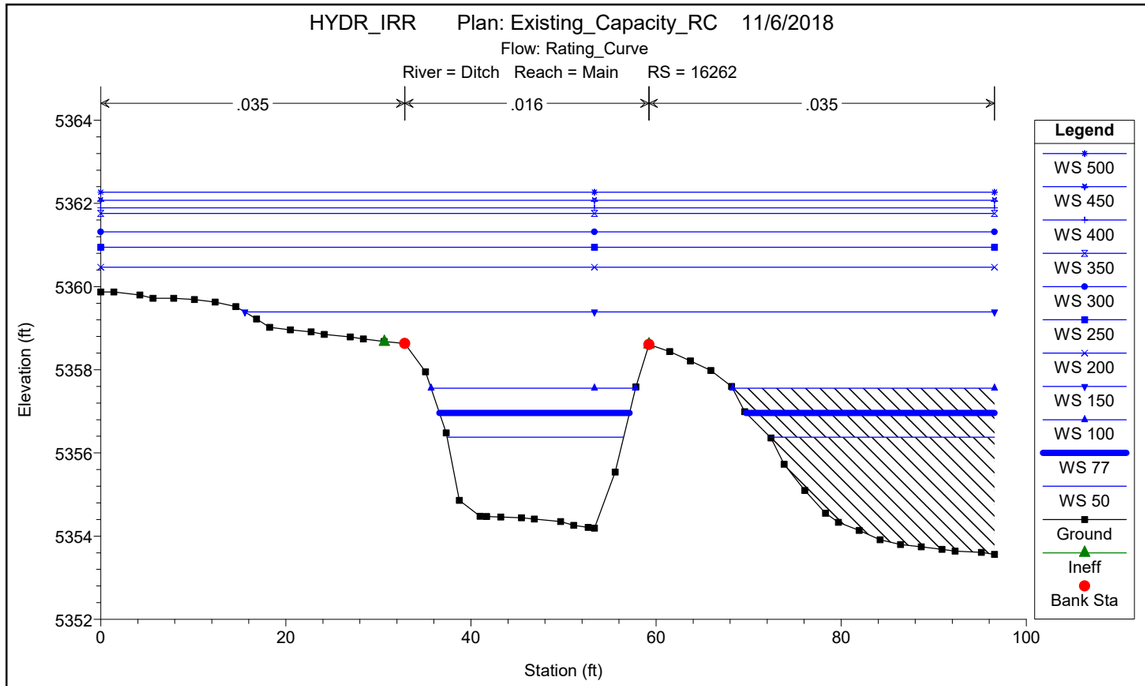

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 16855
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

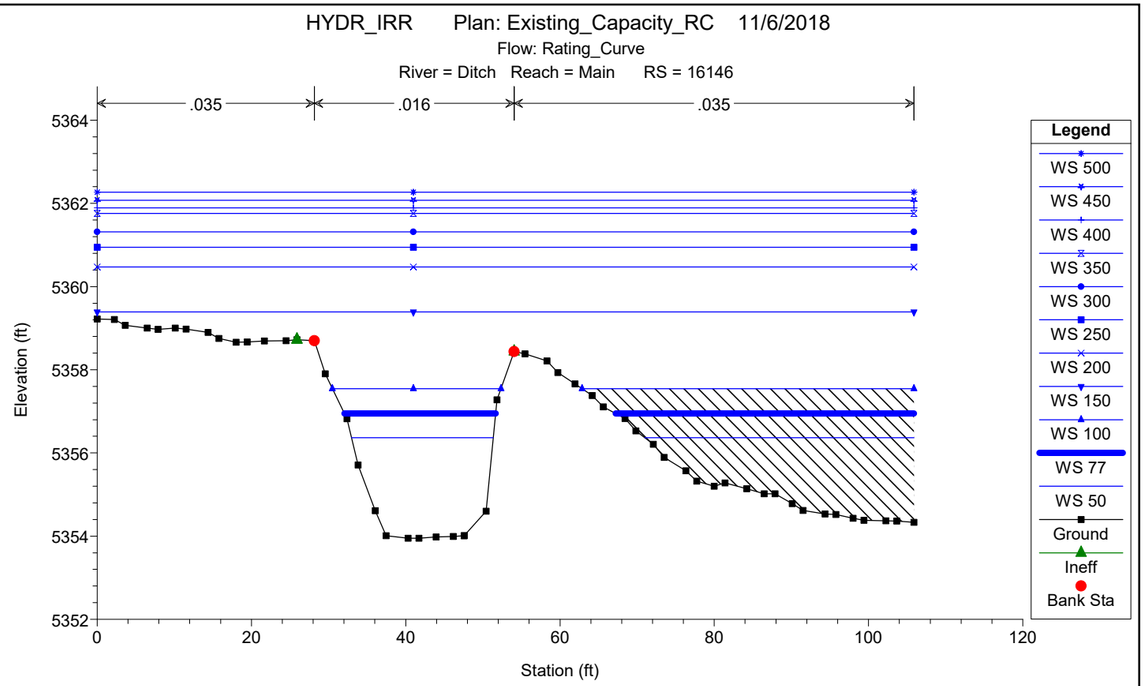

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 16739
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

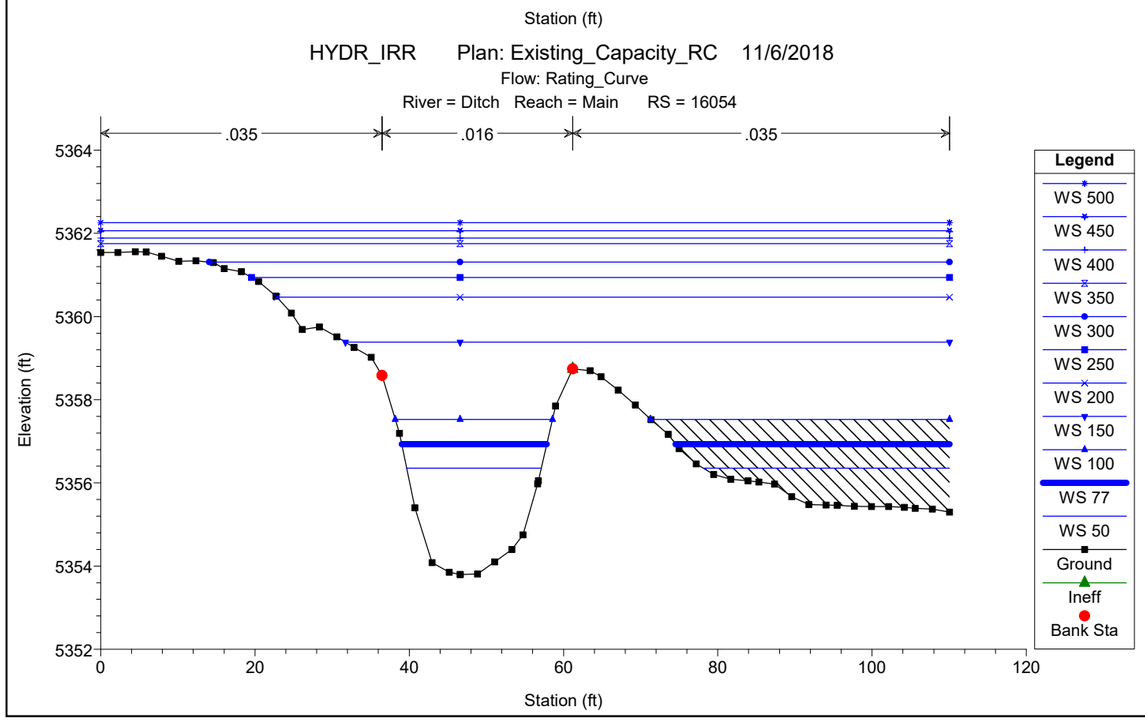

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 16645
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

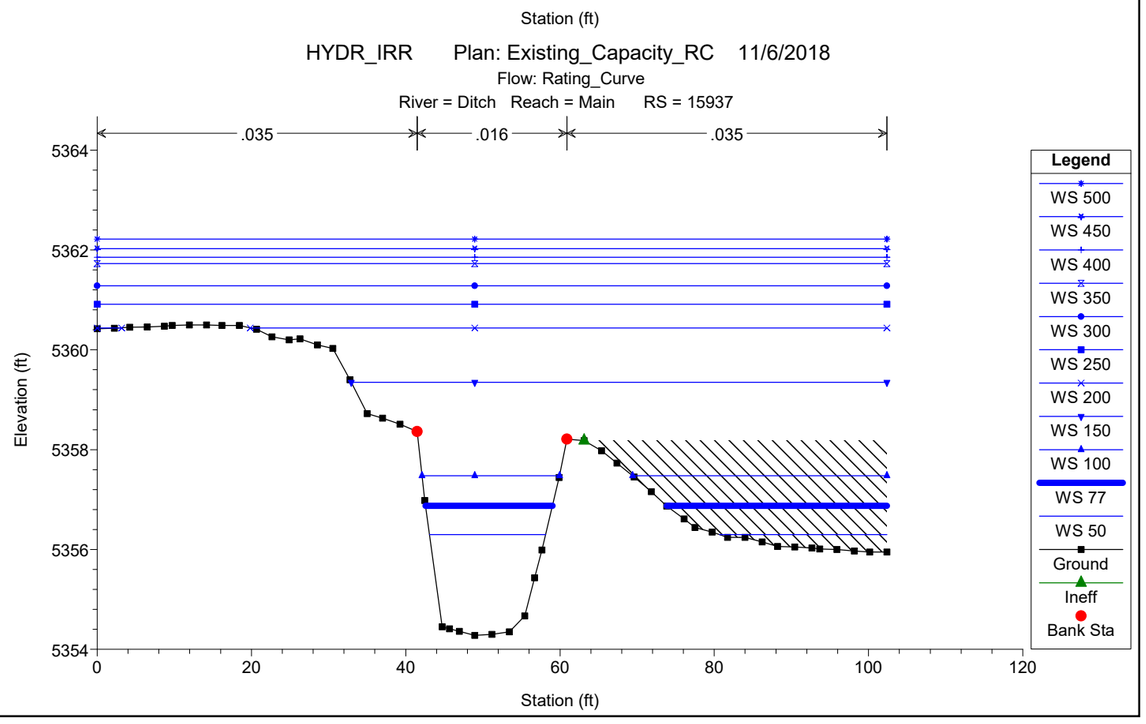

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 16528
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

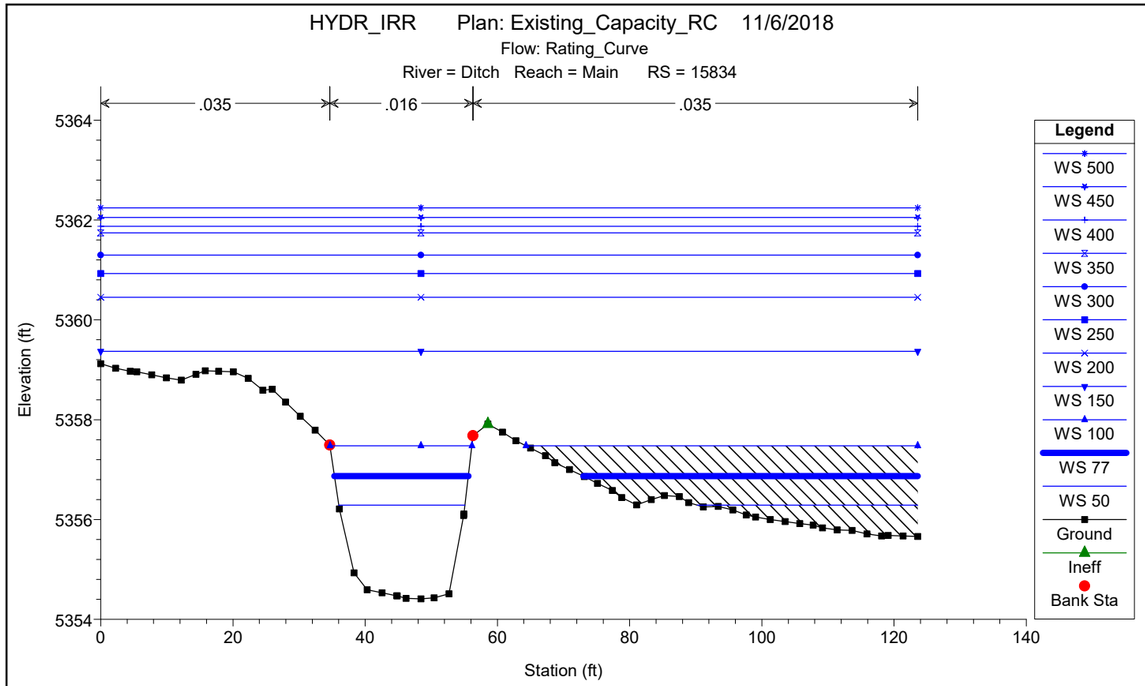

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 16398
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

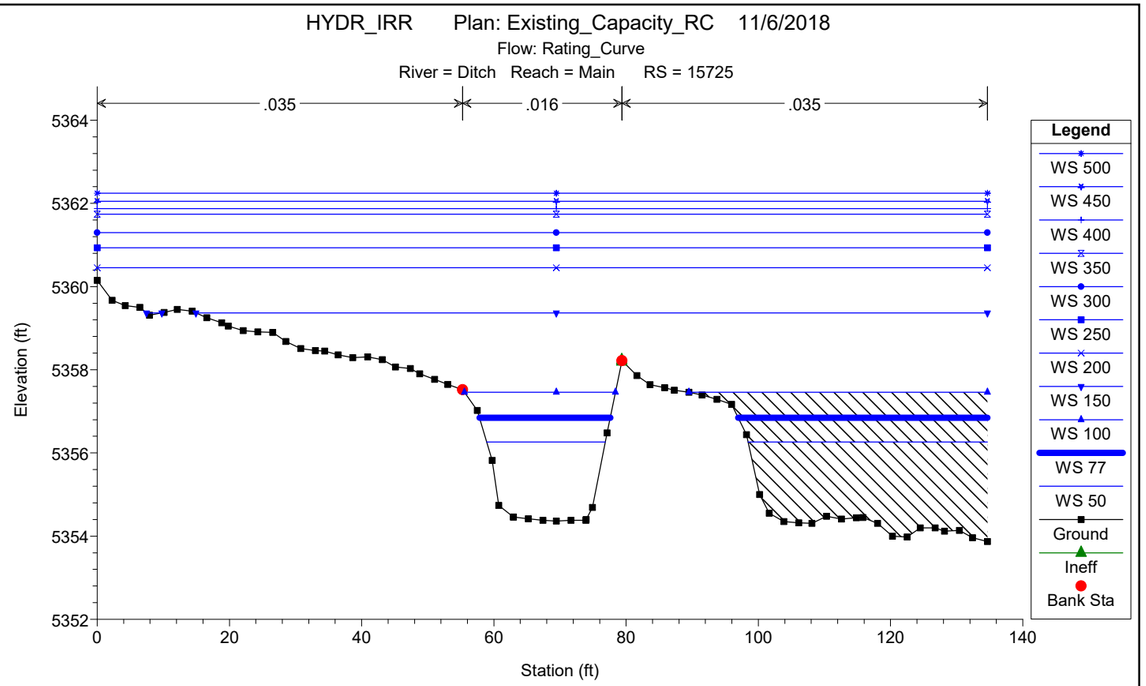

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 16262
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

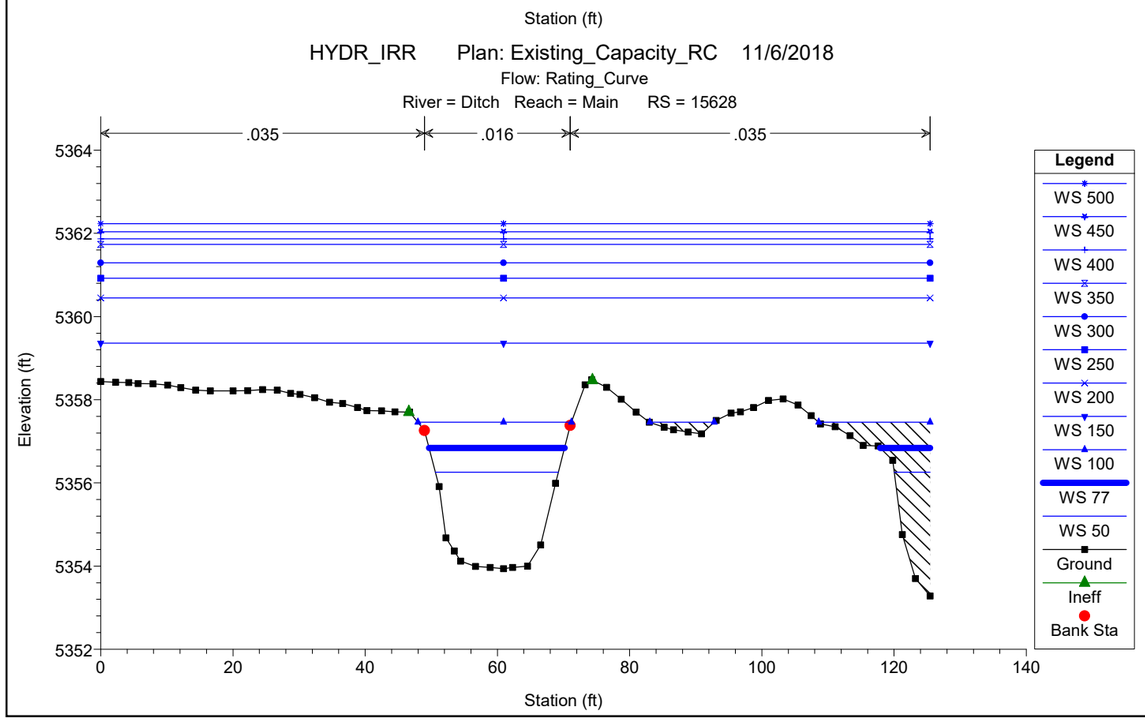

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 16146
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

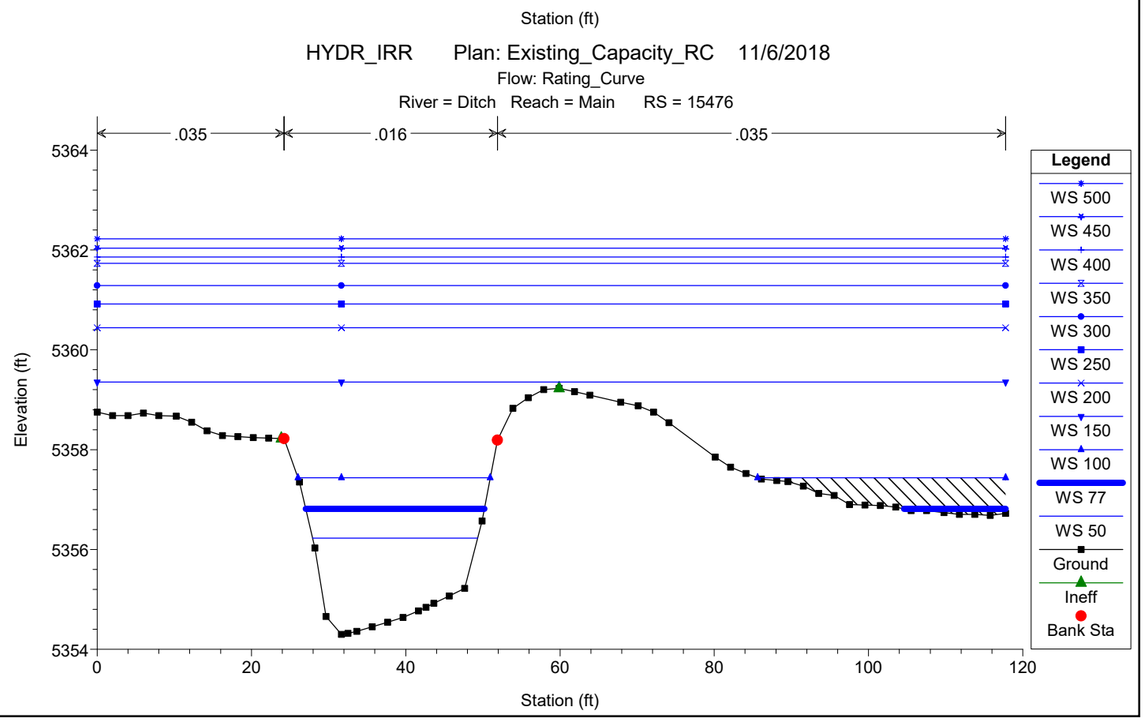

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 16054
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

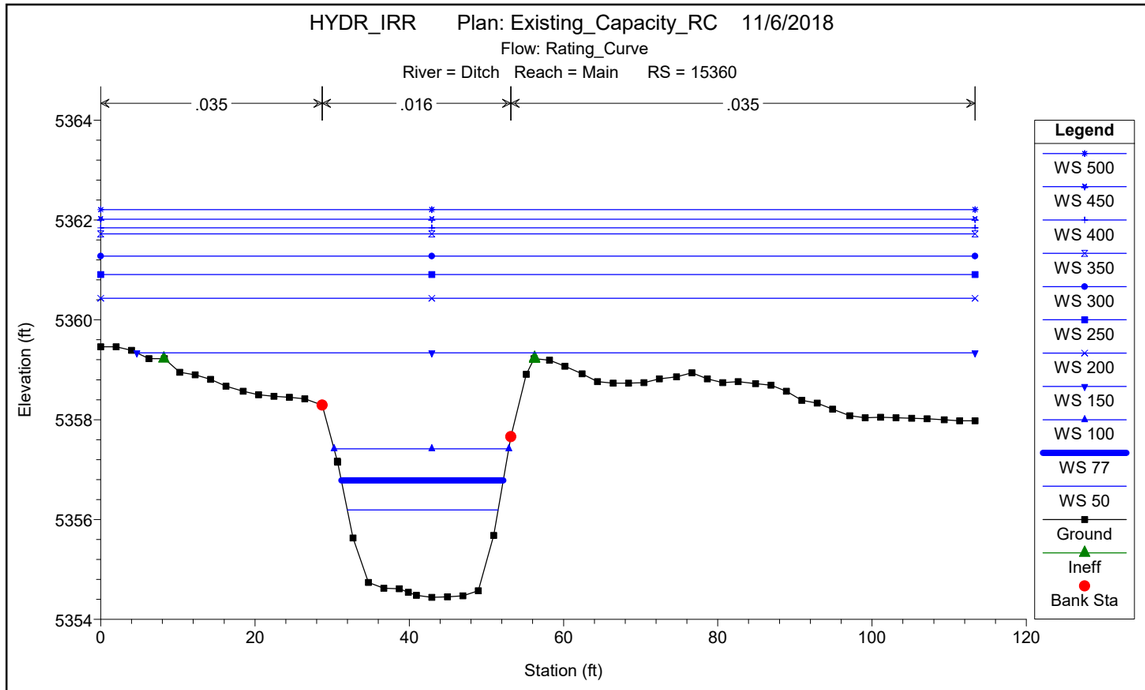

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 15937
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

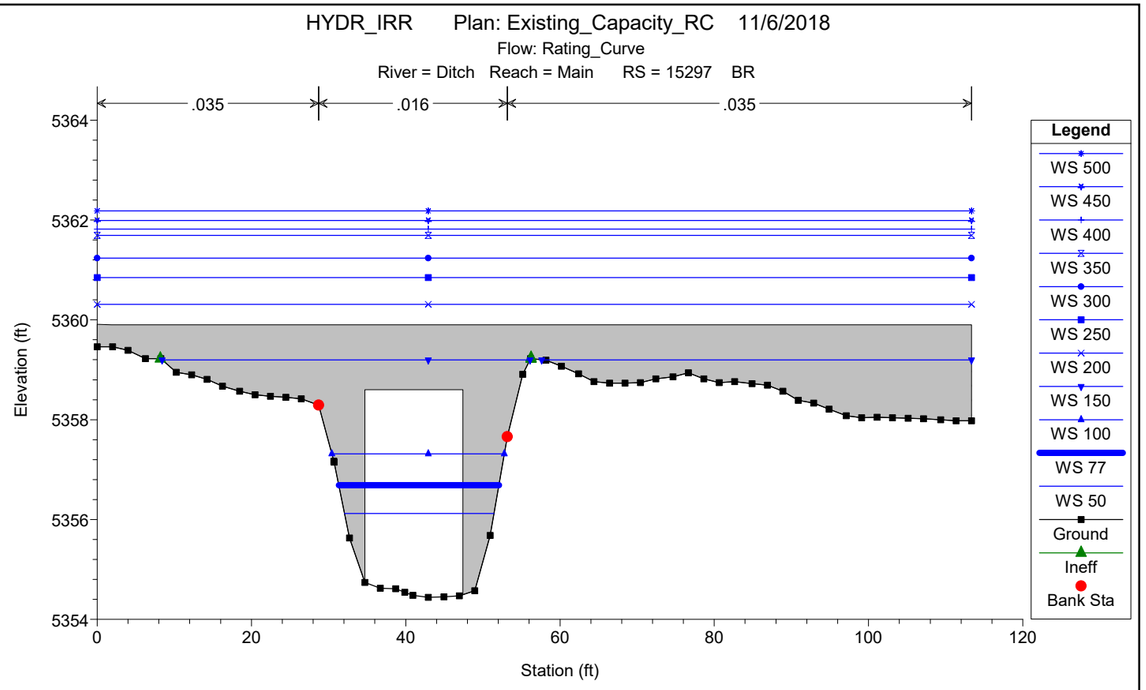

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 15834
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

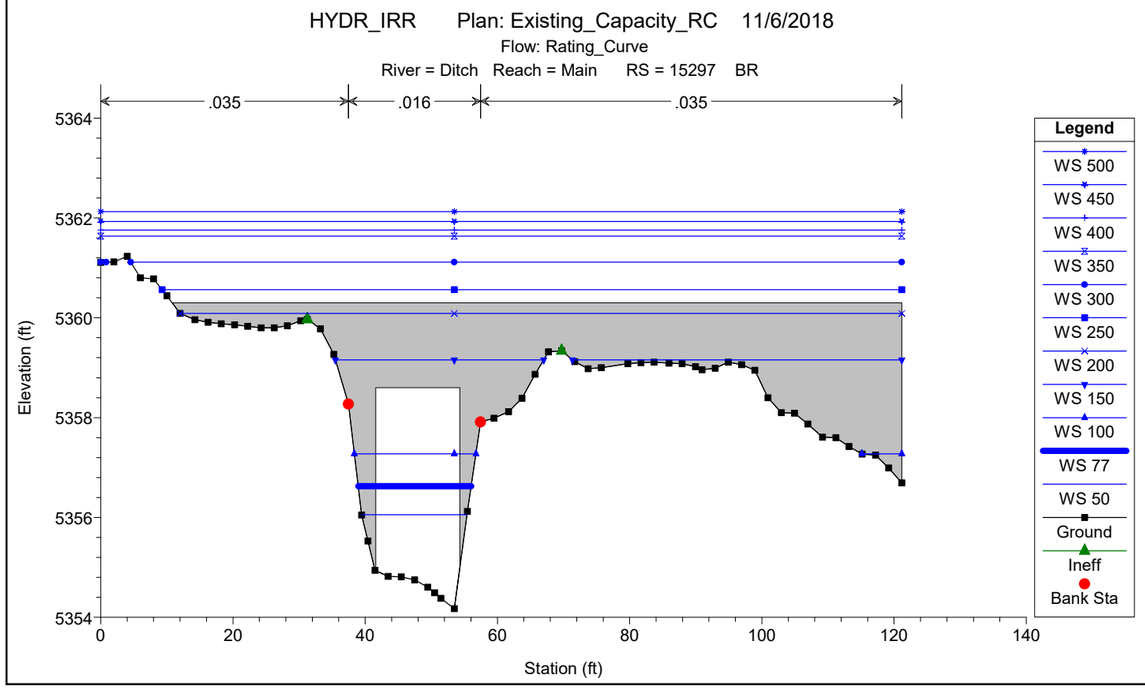

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 15725
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

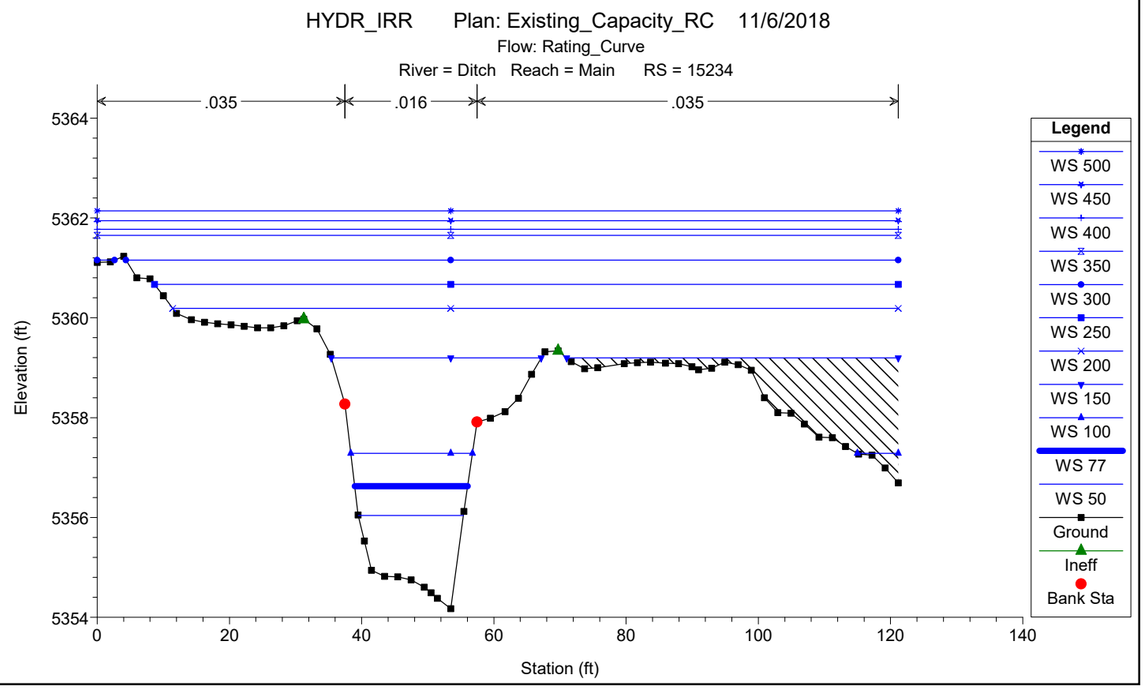

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 15628
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta


HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 15476
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

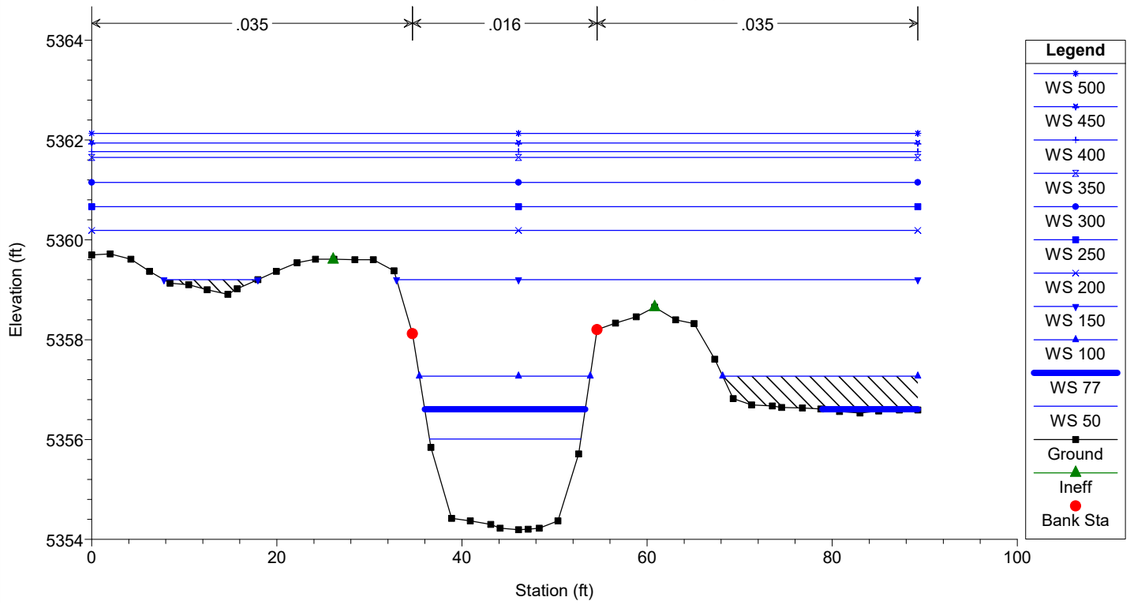

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 15360
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta


HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 15297 BR
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

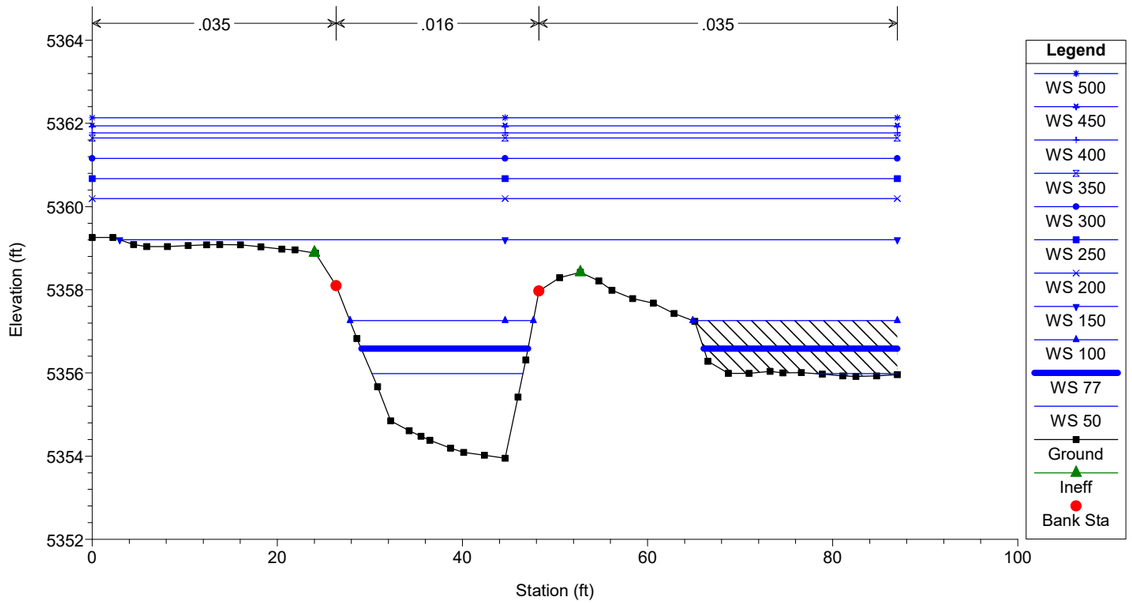

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 15297 BR
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta


HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 15234
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

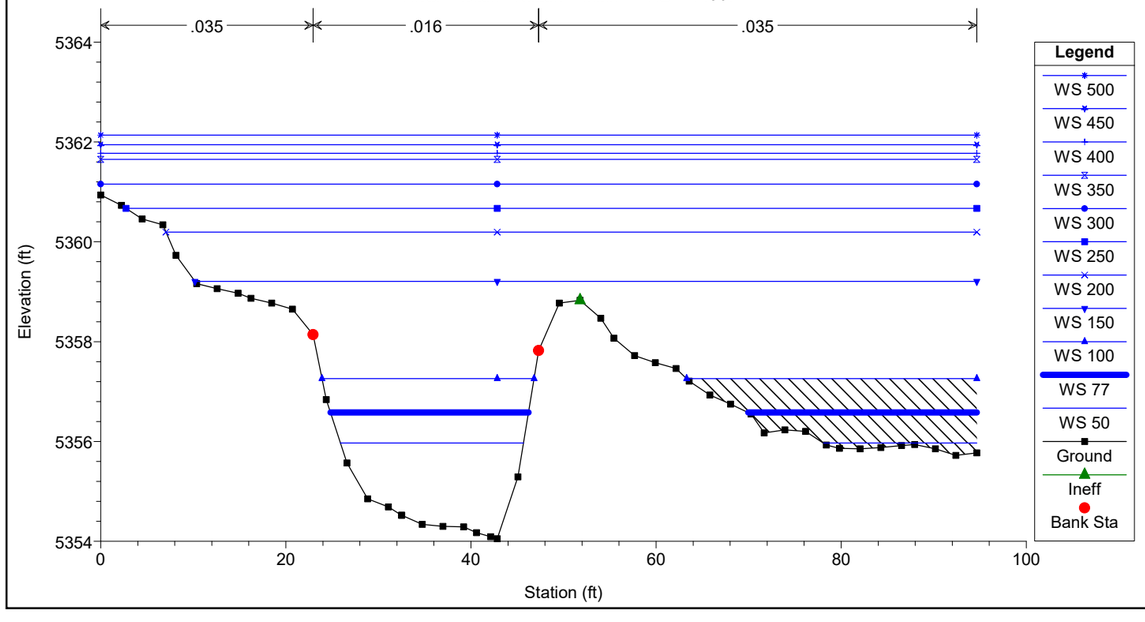
HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 15130



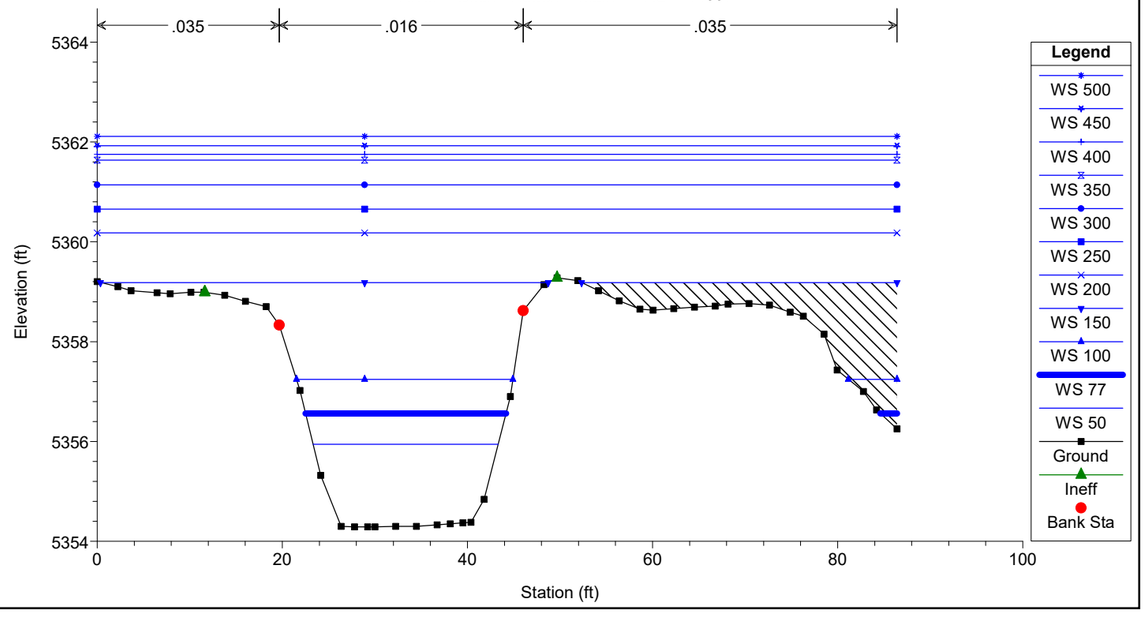
HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 15045

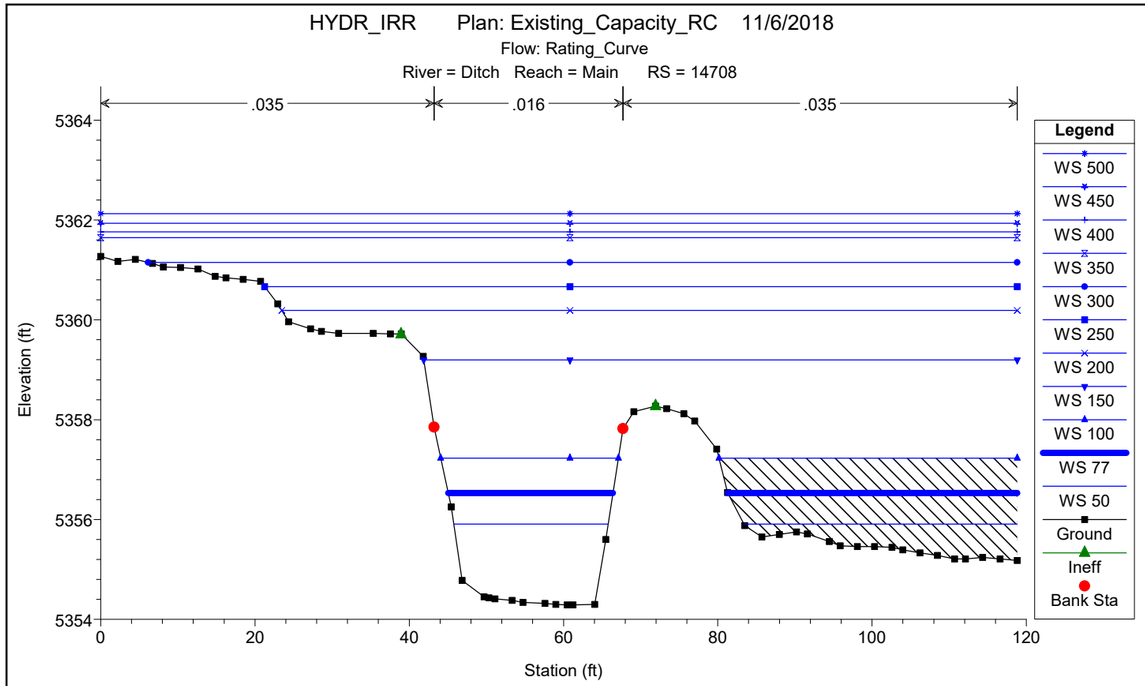


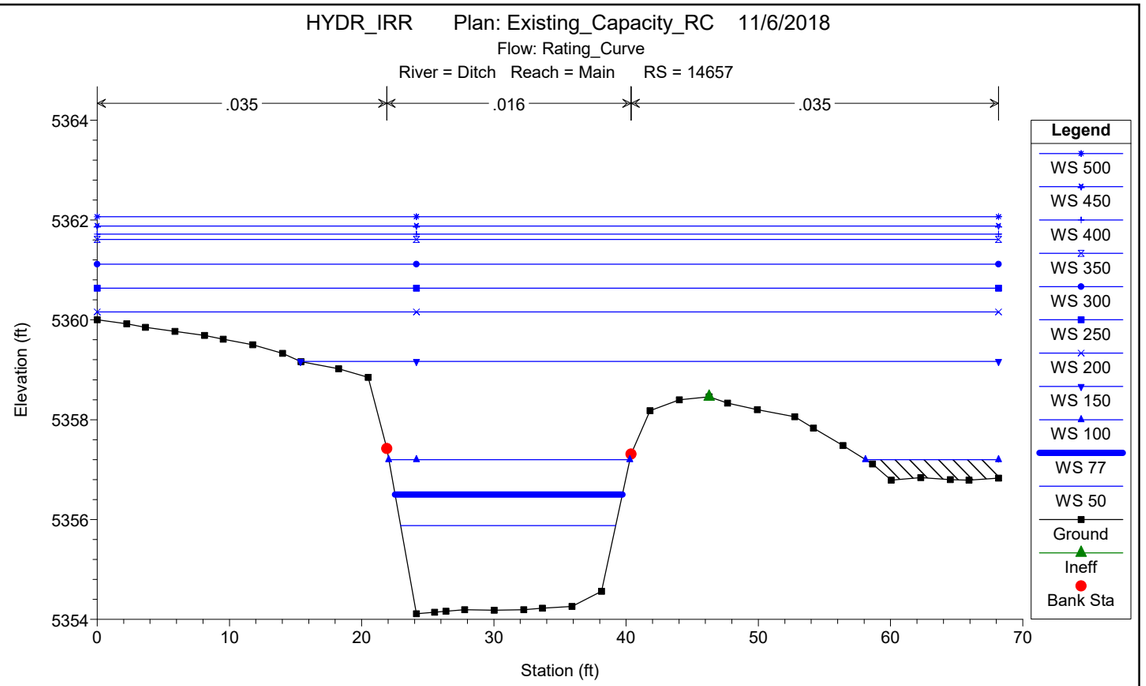
HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 14967

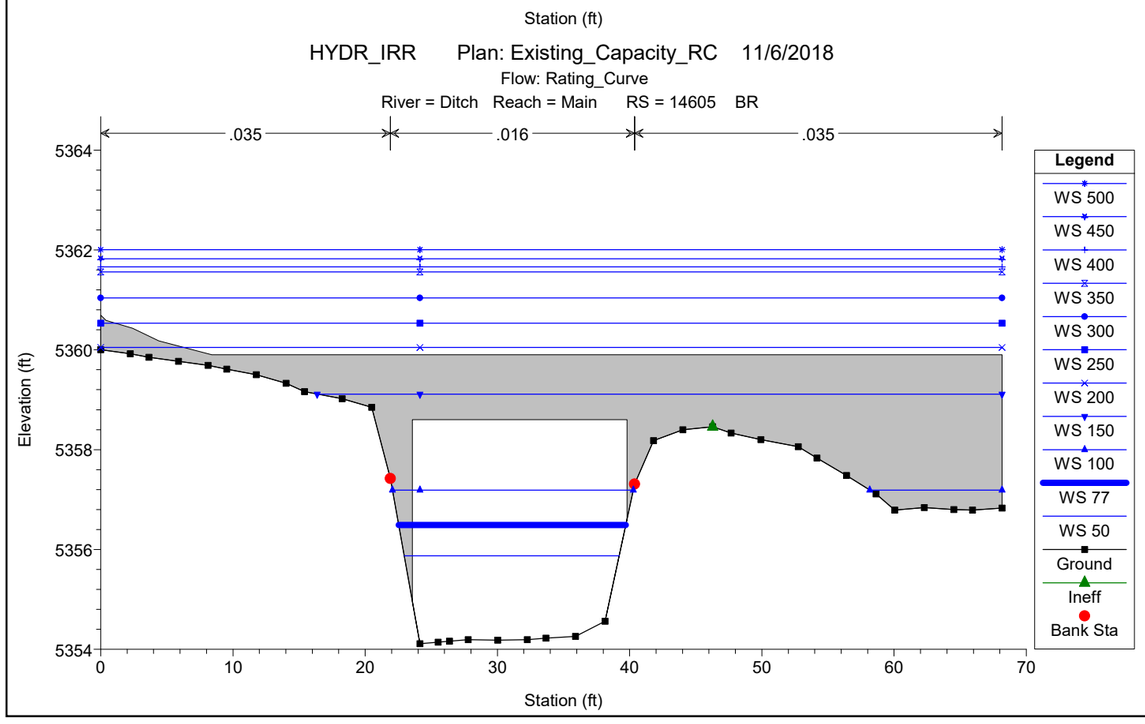


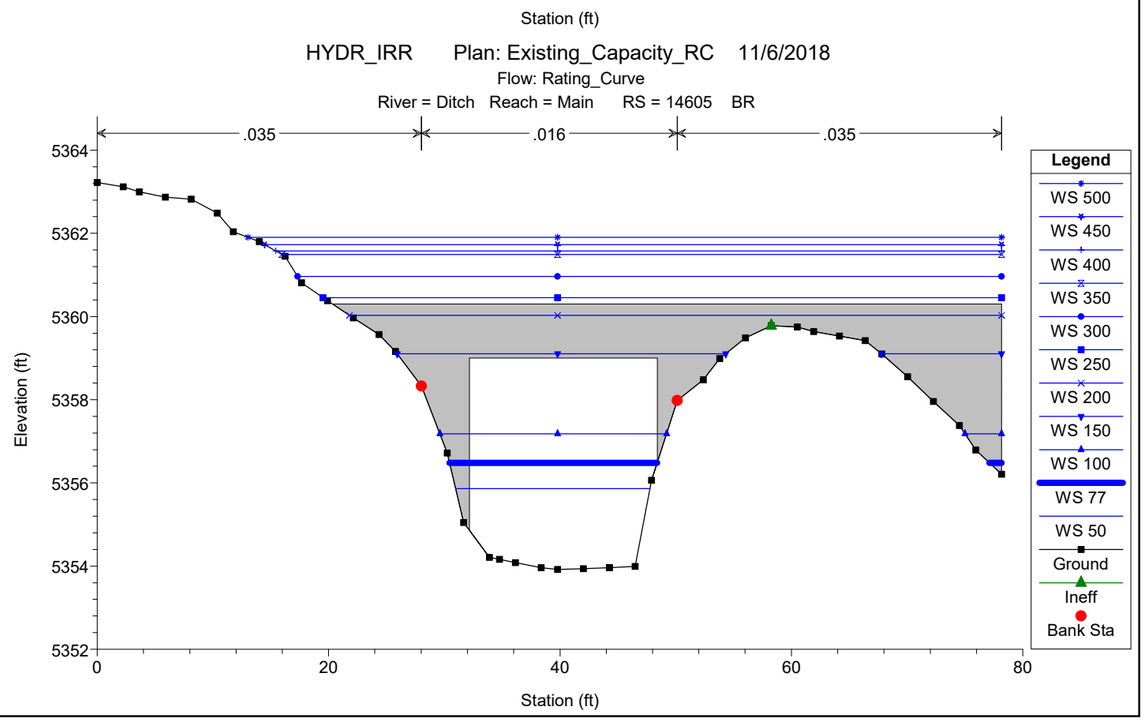
HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 14857

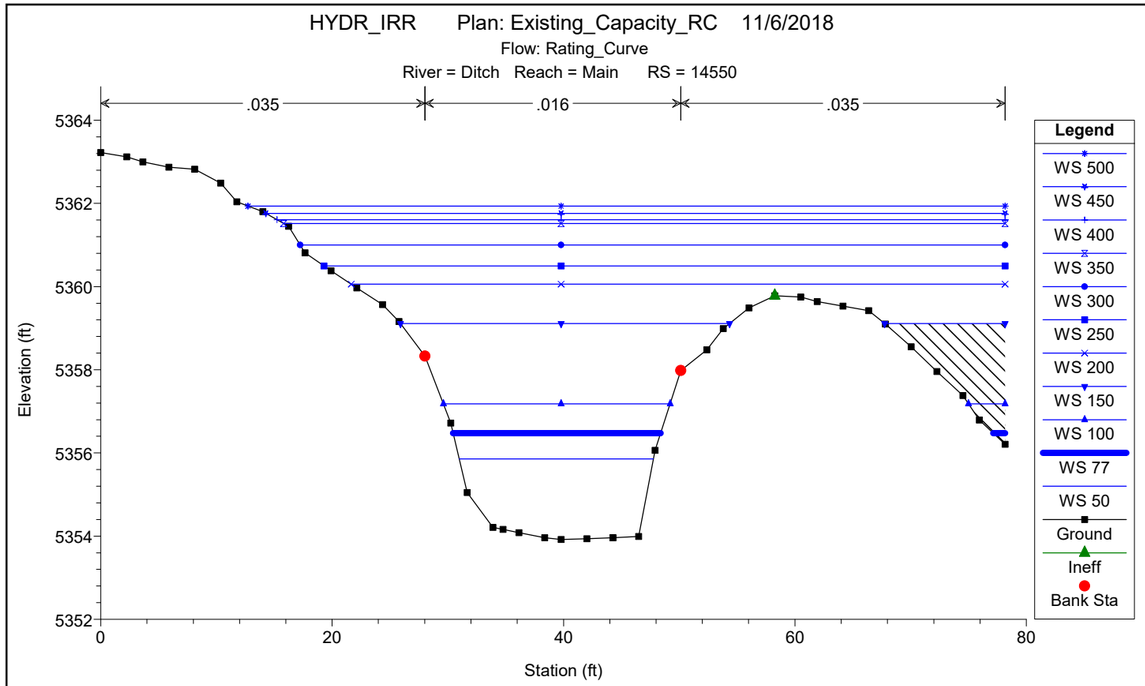


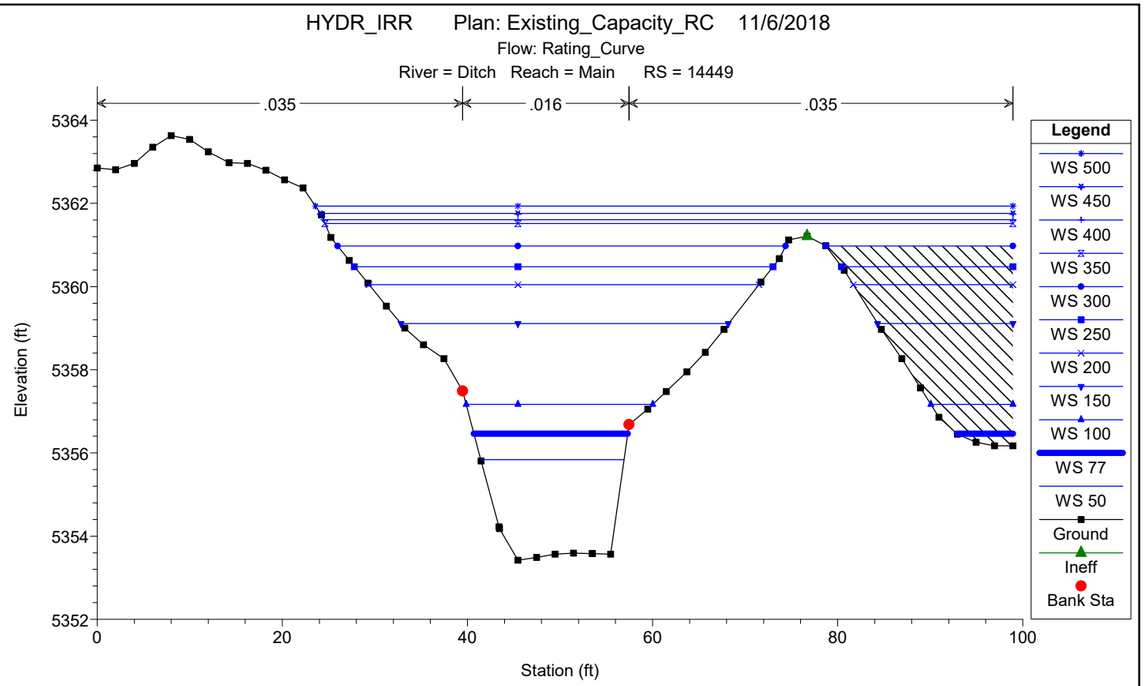

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 14708
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

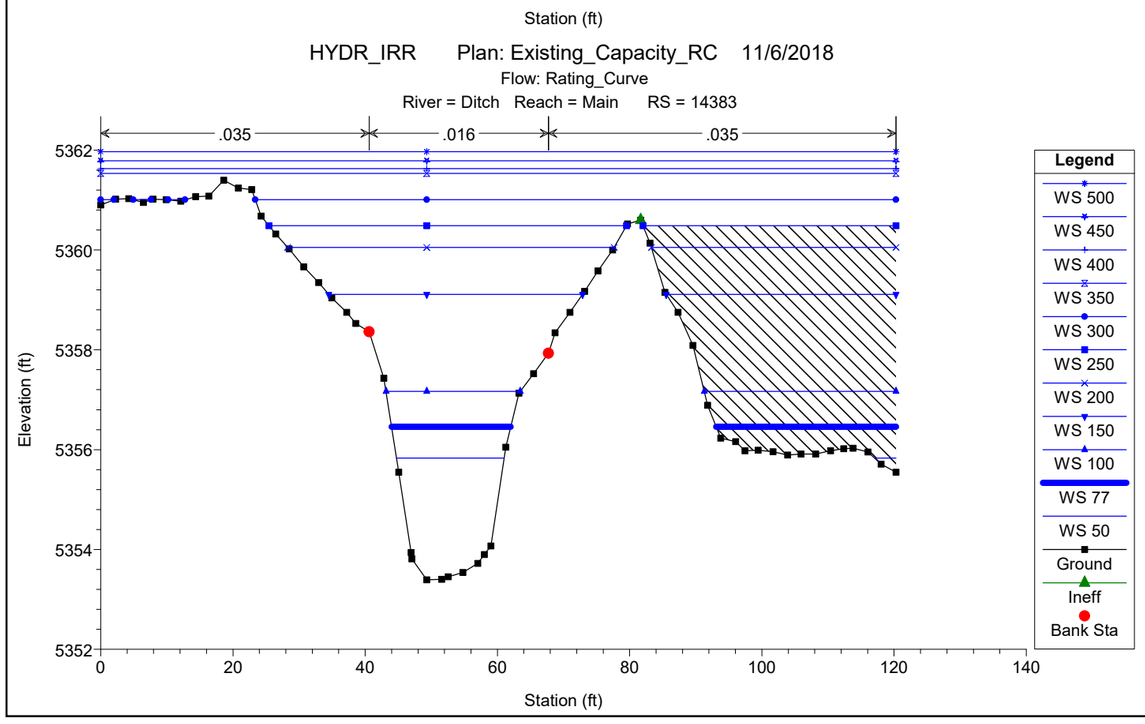

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 14657
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

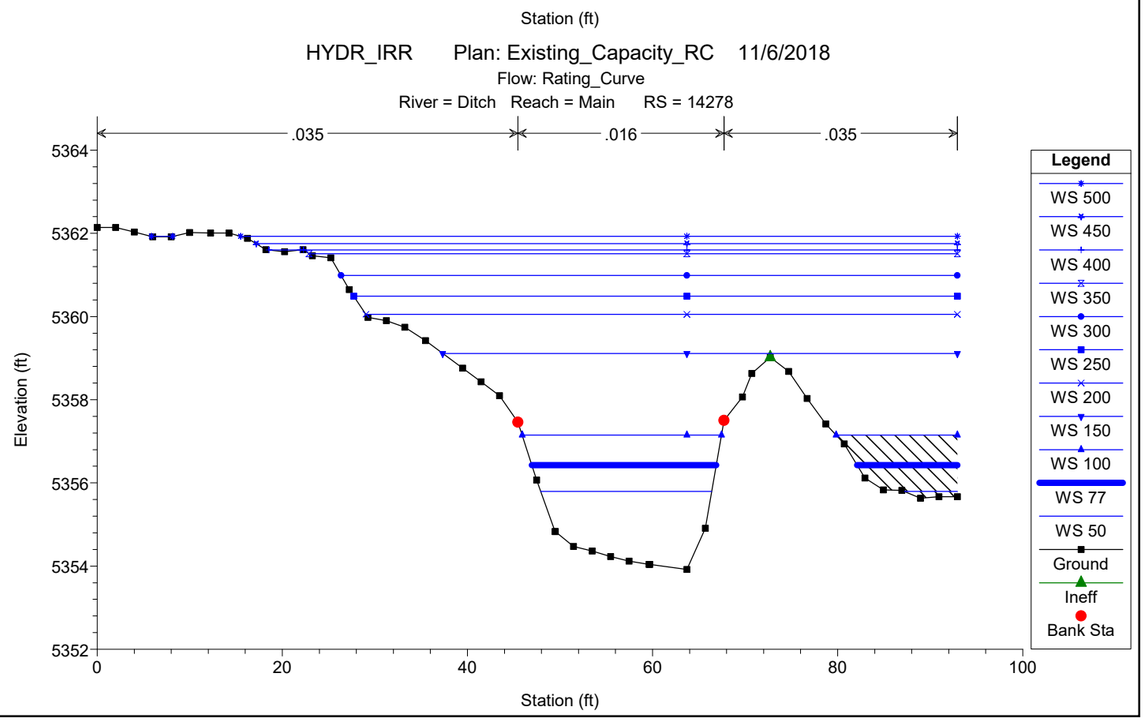

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 14605 BR
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

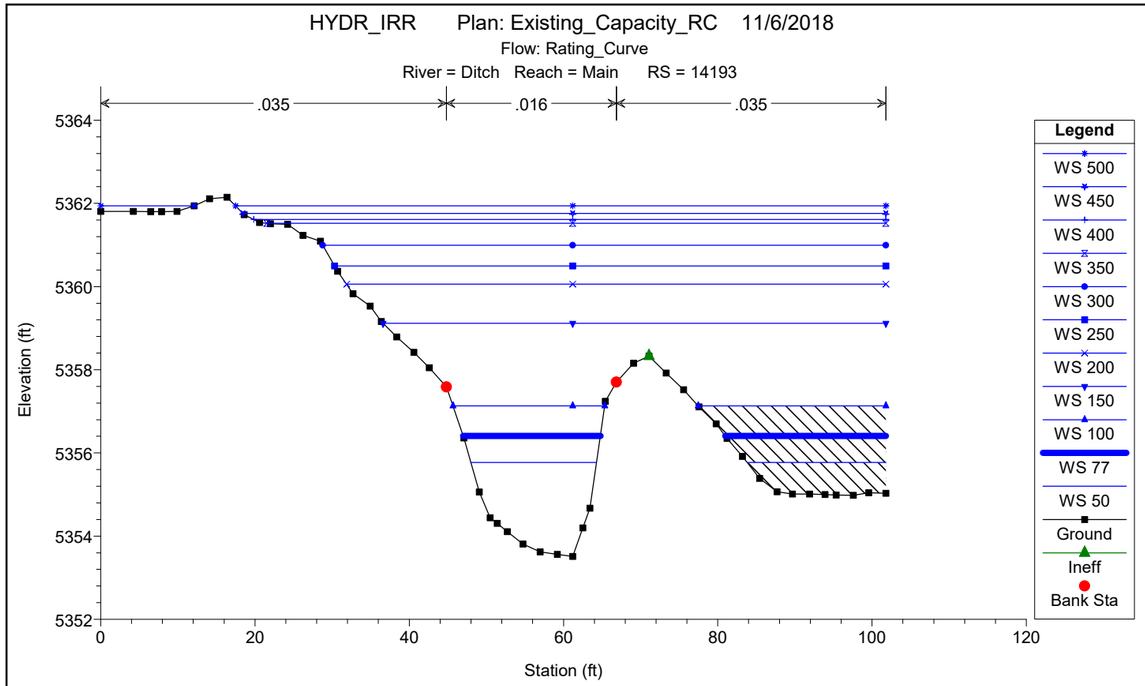

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 14605 BR
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

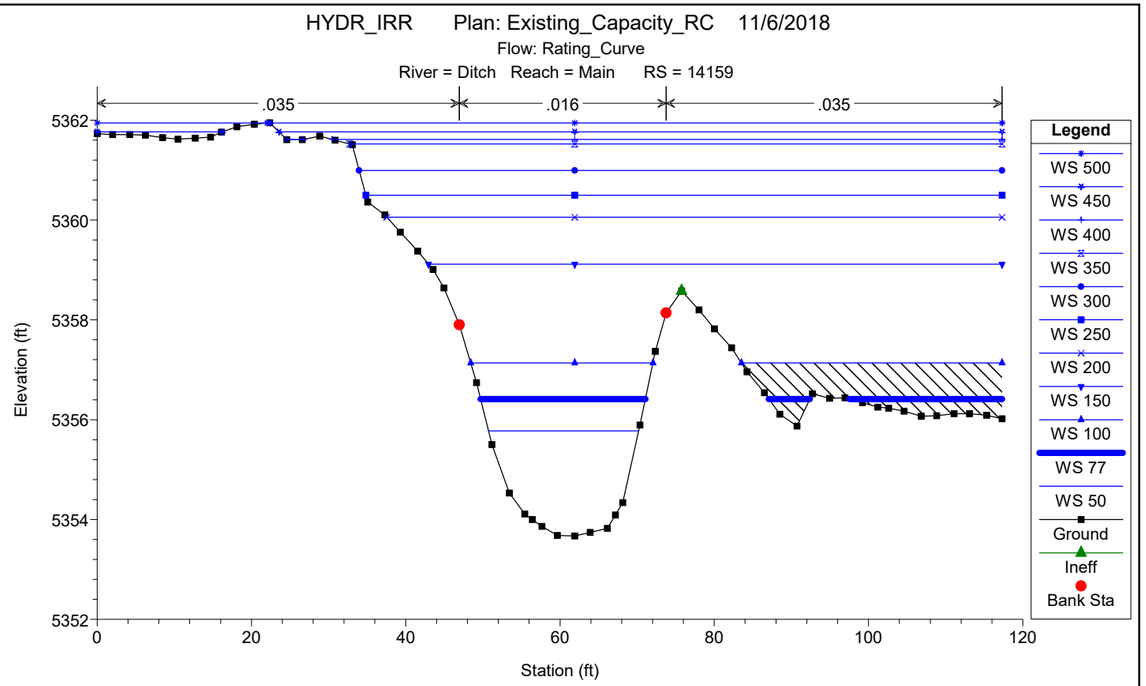

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 14550
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

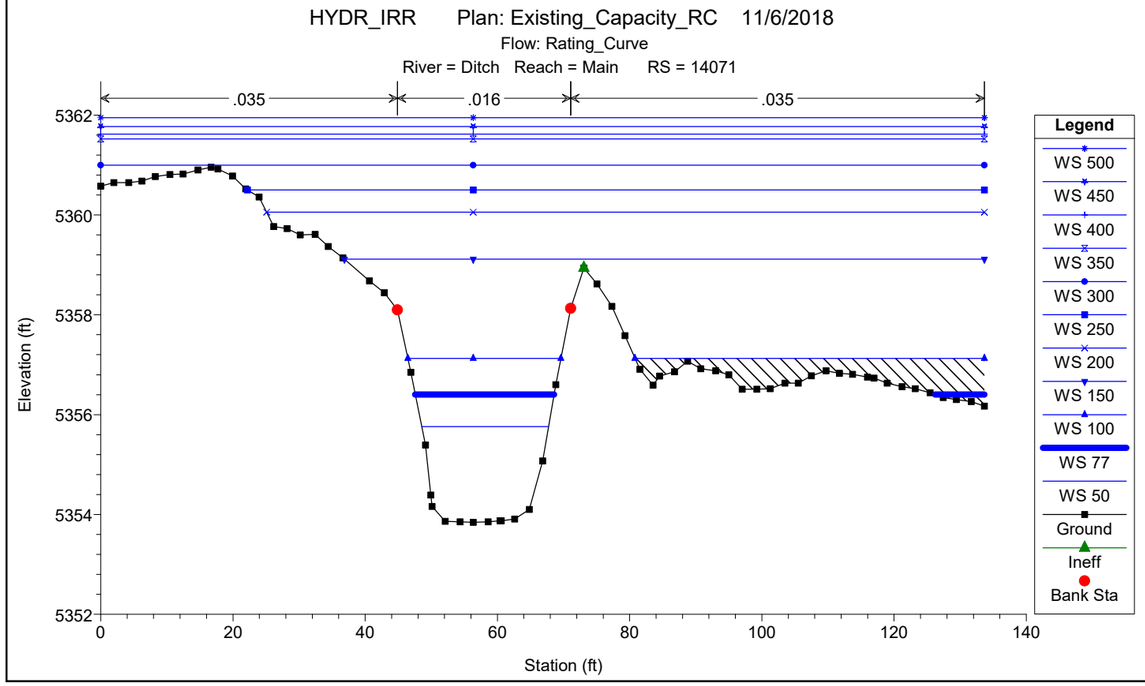

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 14449
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

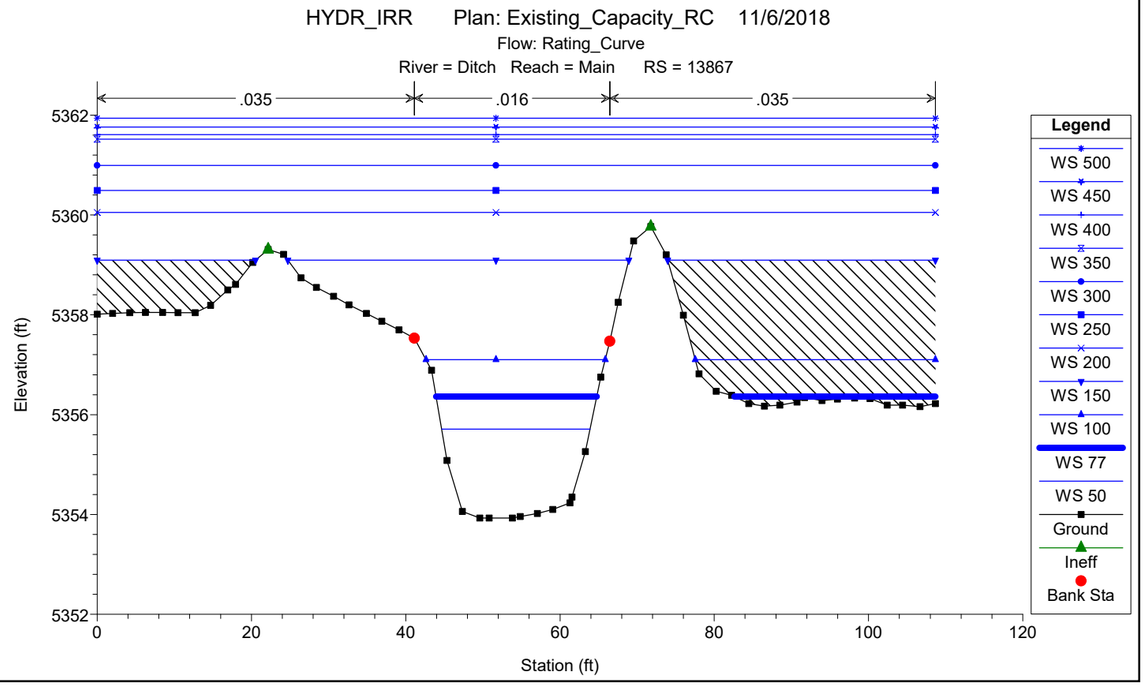

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 14383
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

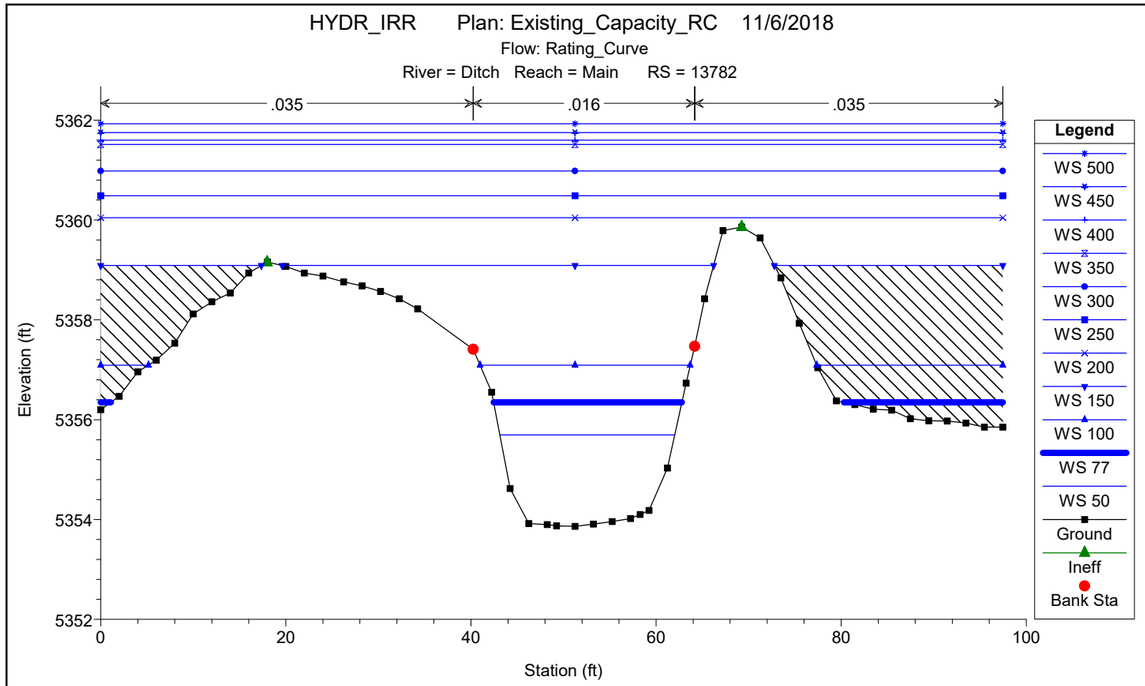

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 14278
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

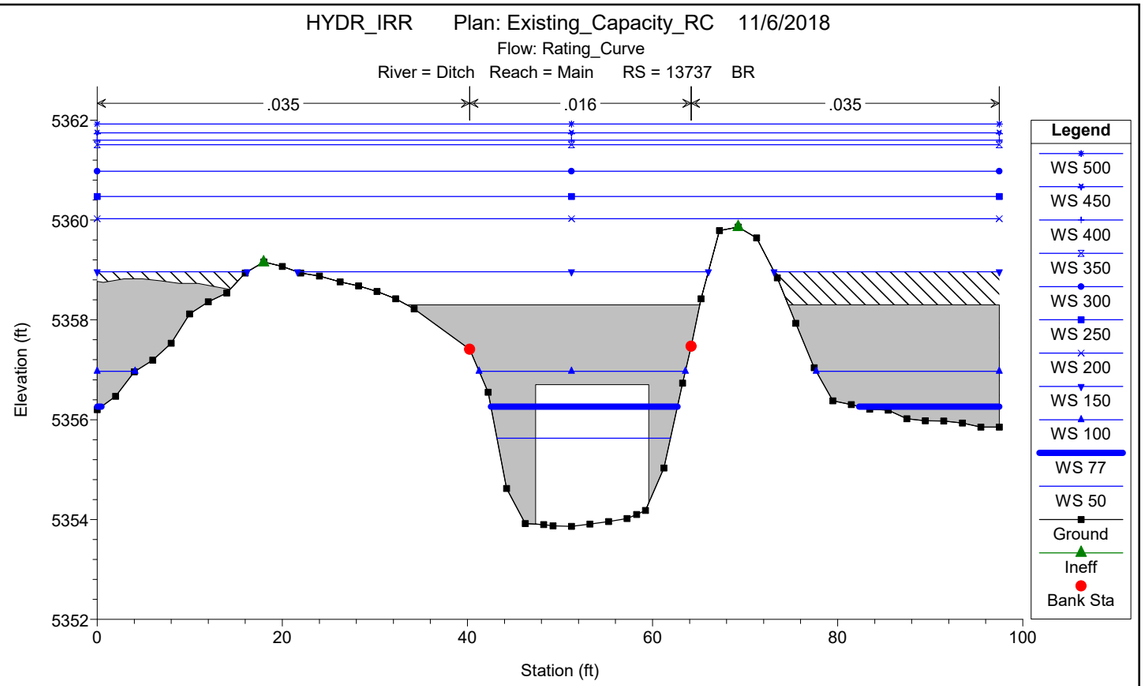

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 14193
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

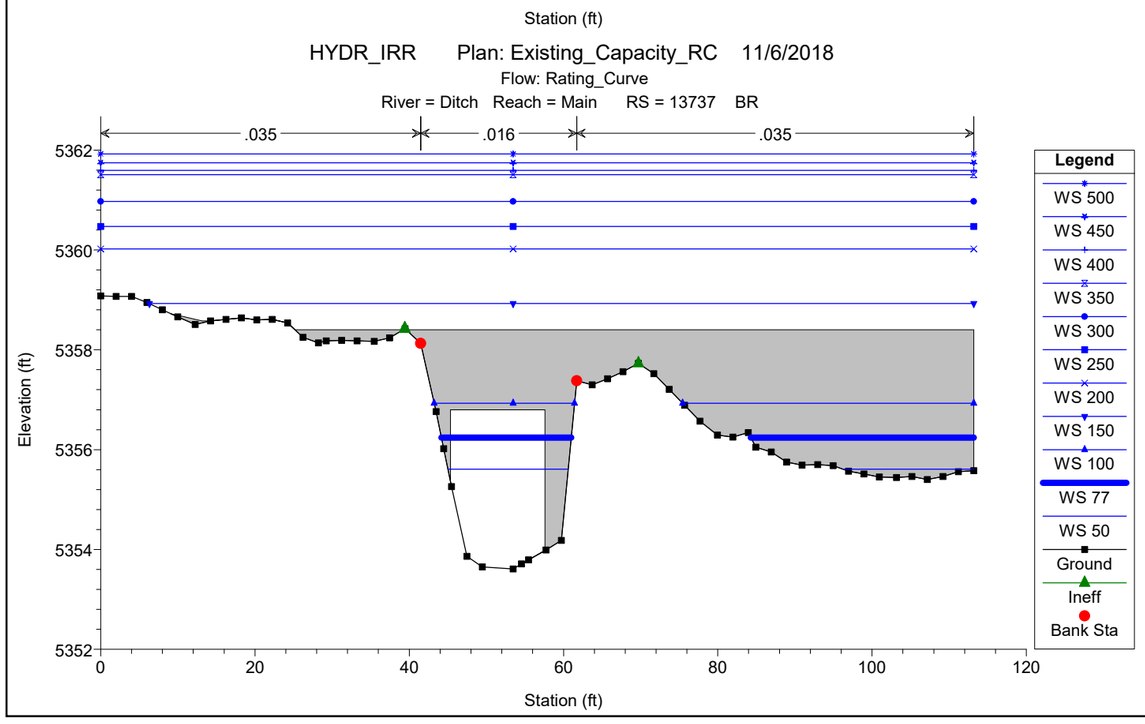

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 14159
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

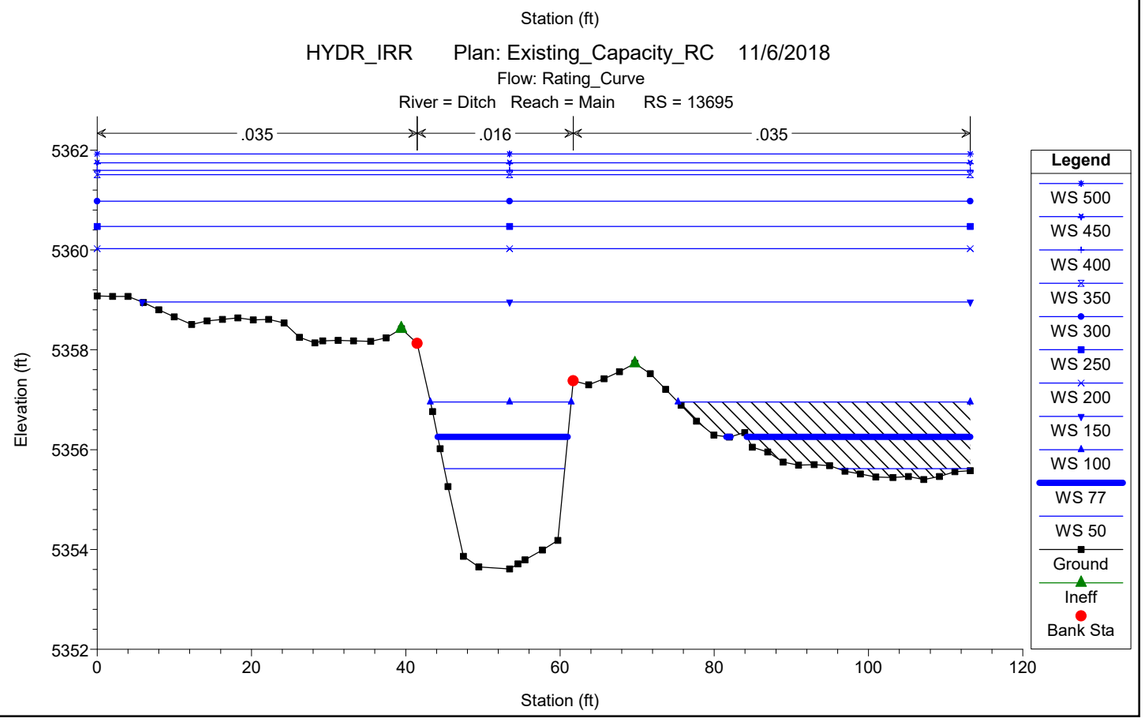

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 14071
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

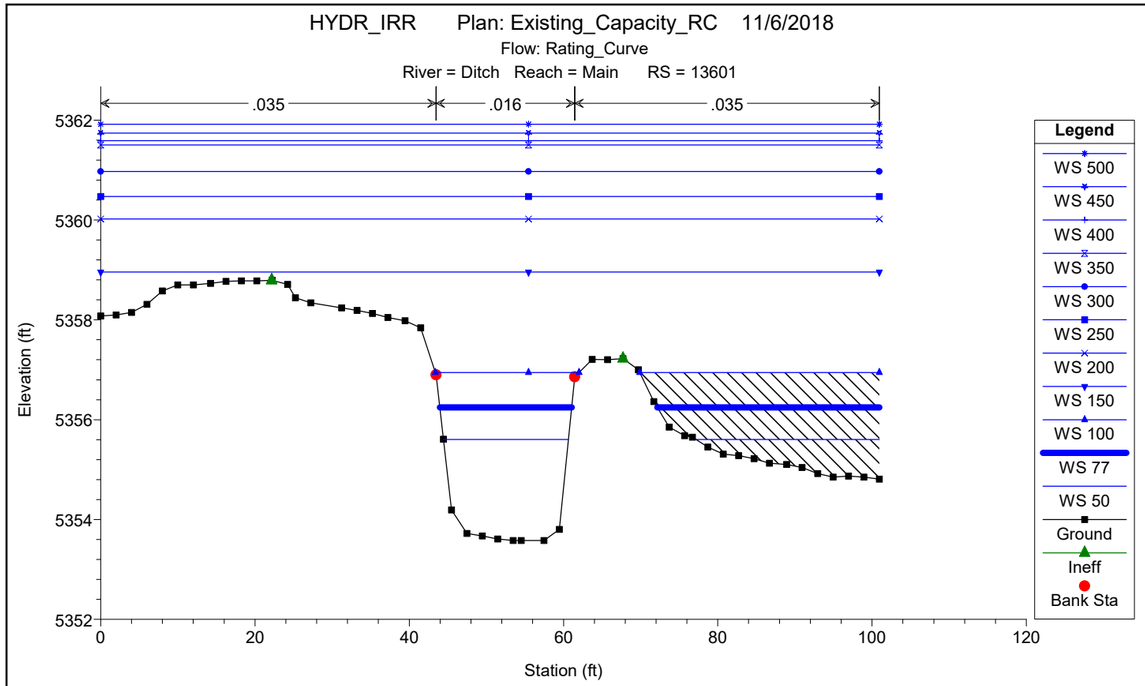

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 13867
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

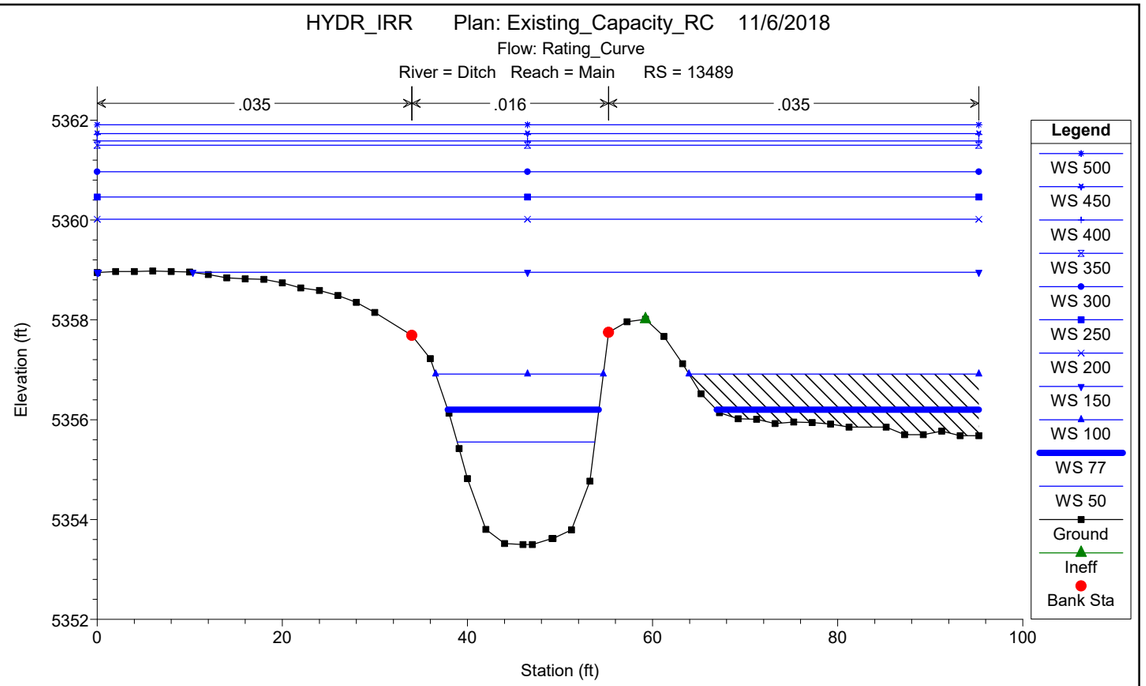

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 13782
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

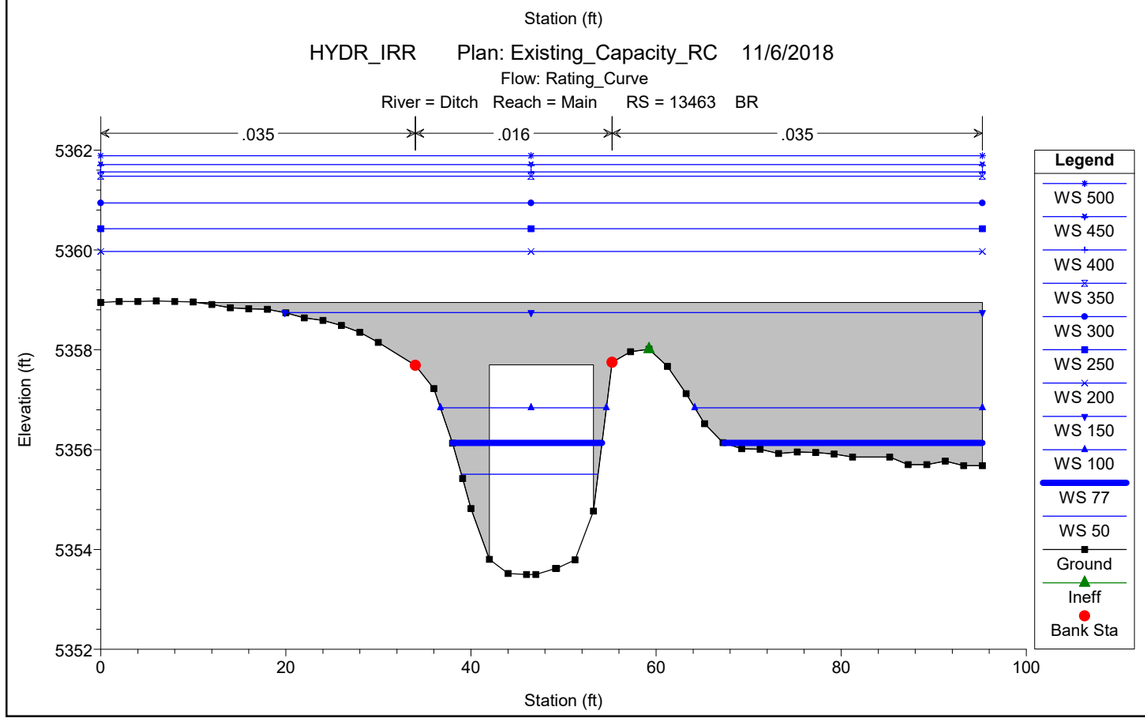

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 13737 BR
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

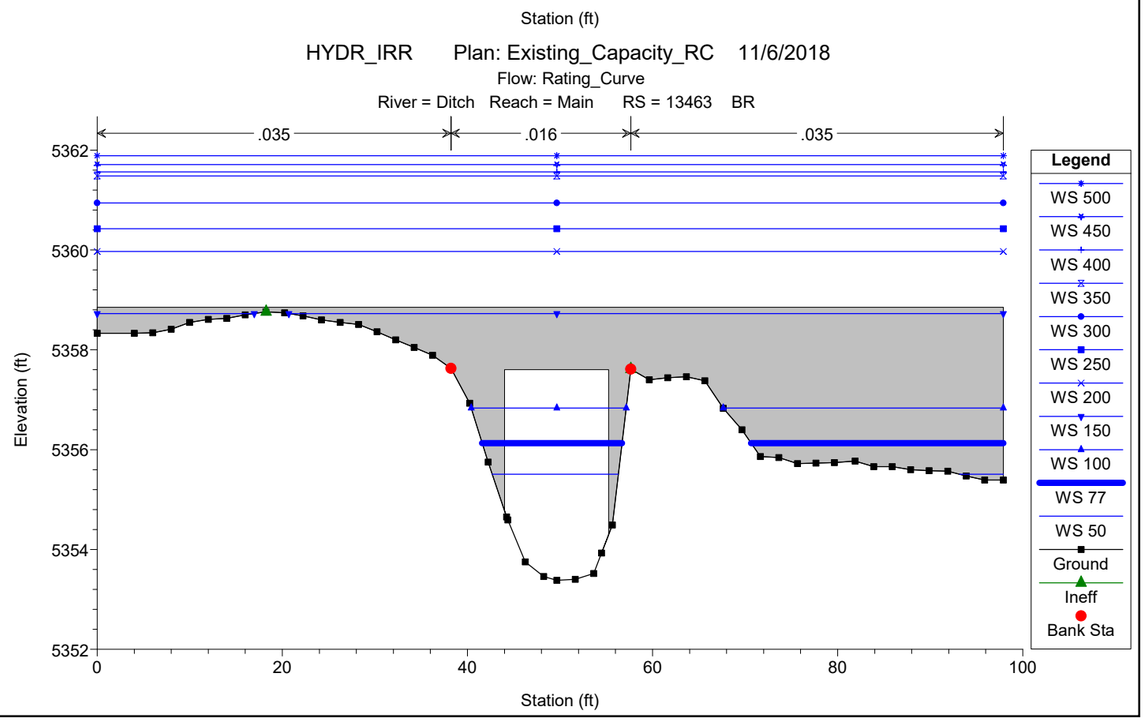

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 13737 BR
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

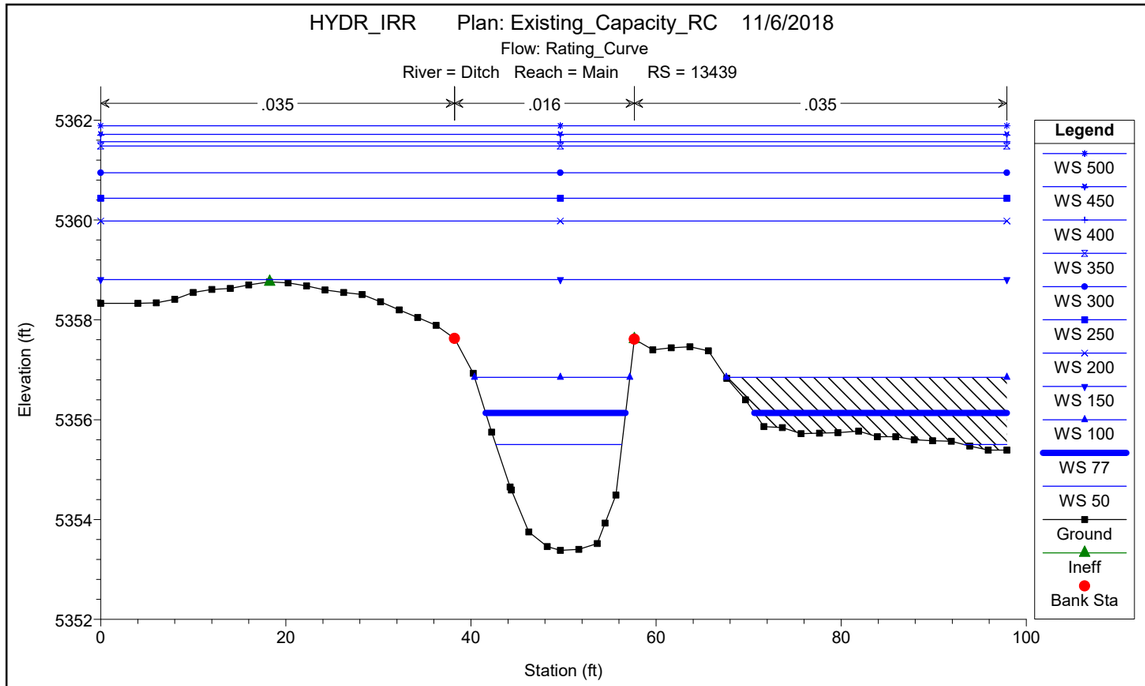

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 13695
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

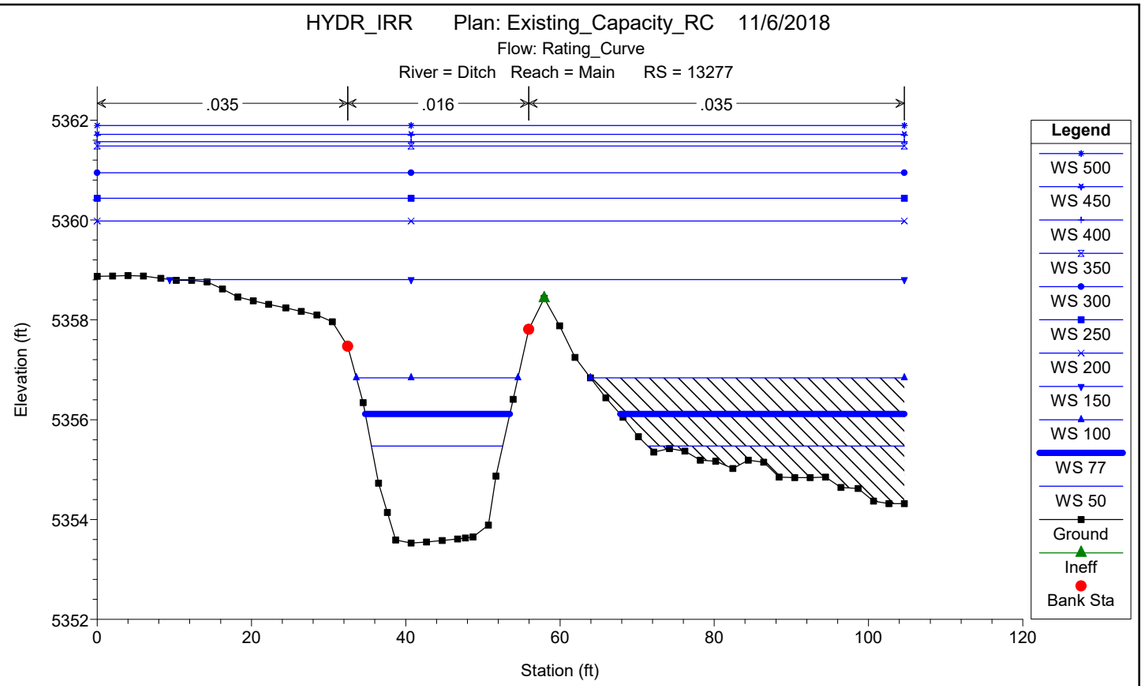

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 13601
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

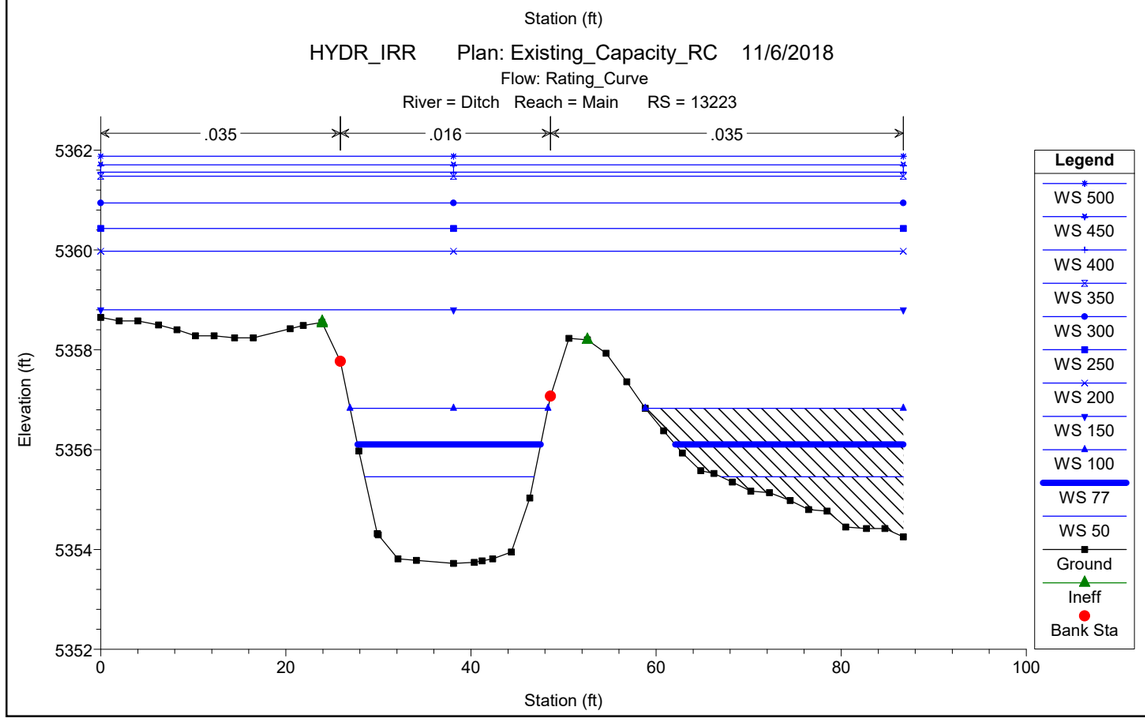

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 13489
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

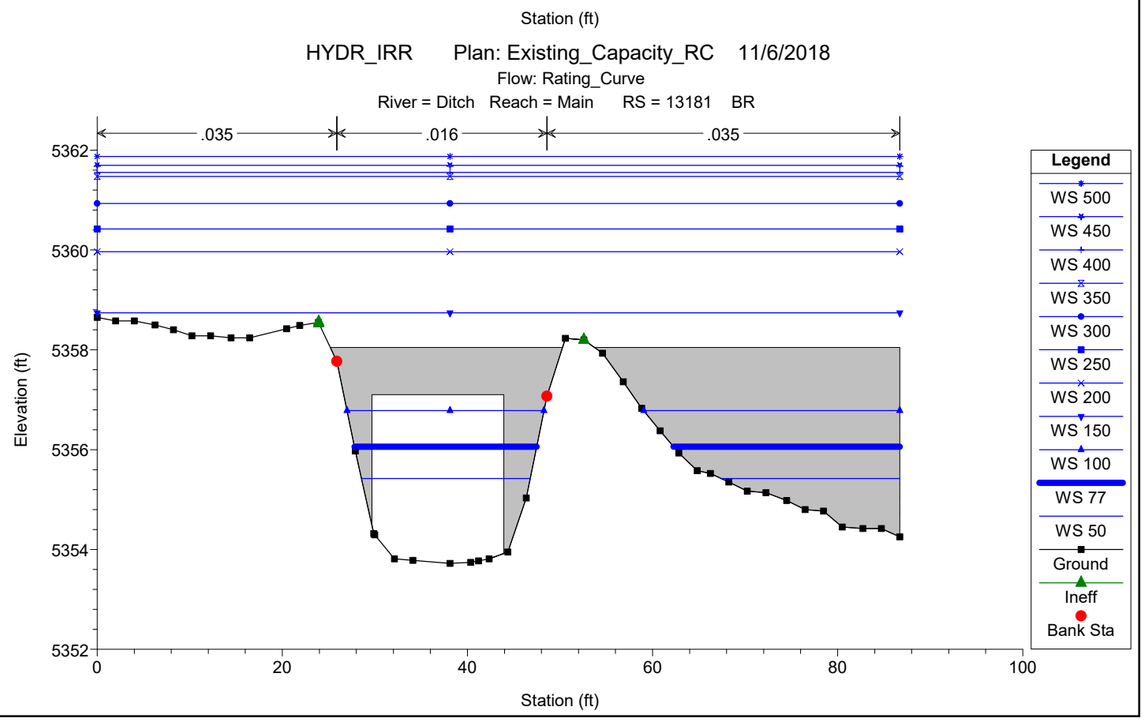

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 13463 BR
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

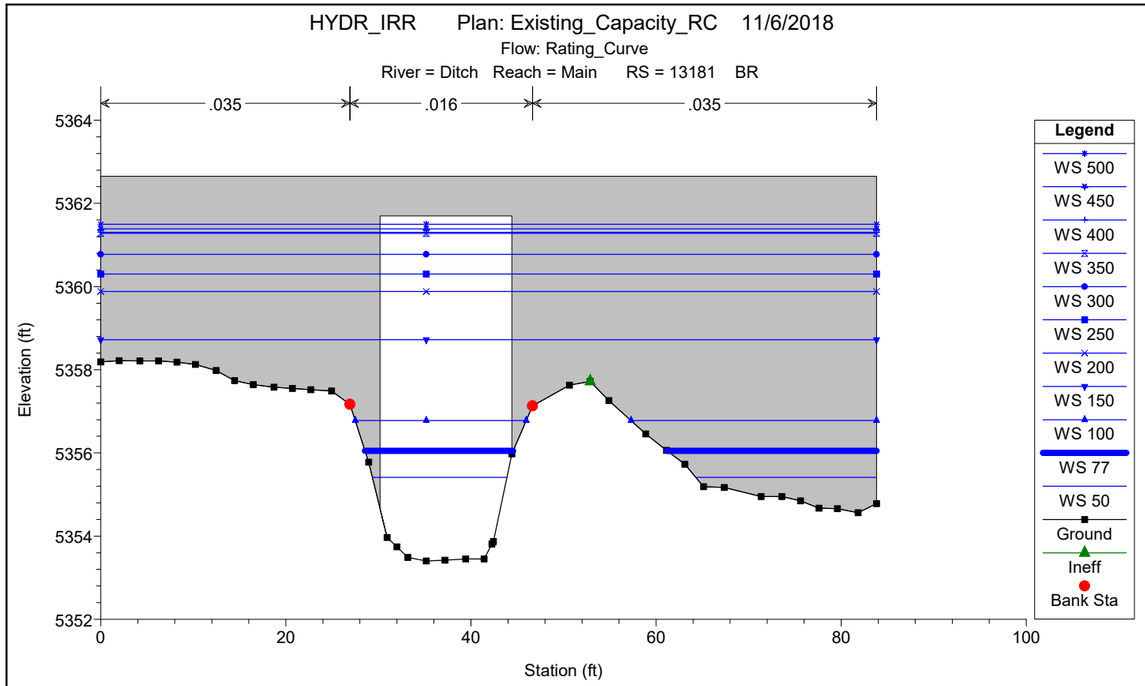

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 13463 BR
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

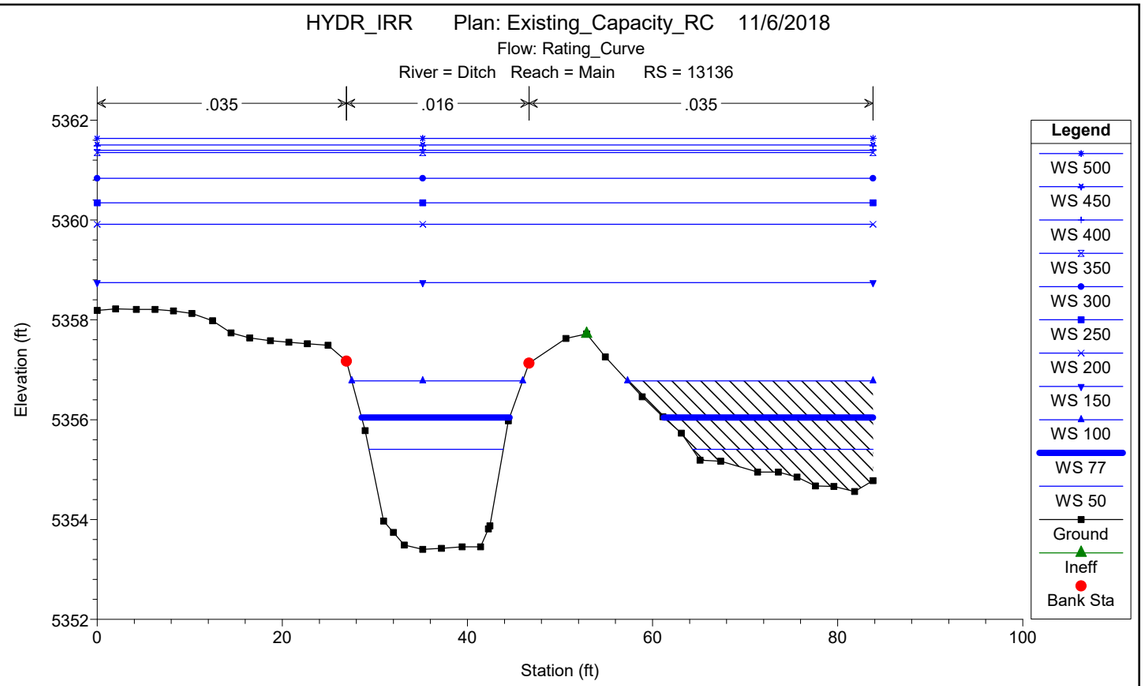

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 13439
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

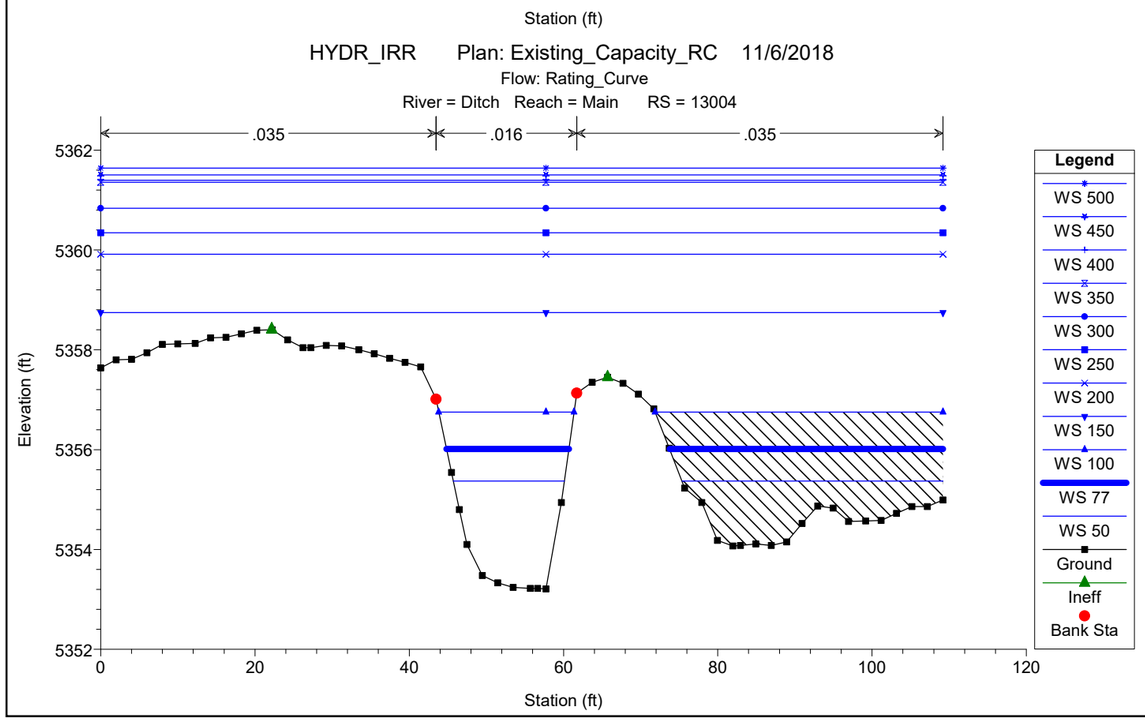

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 13277
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

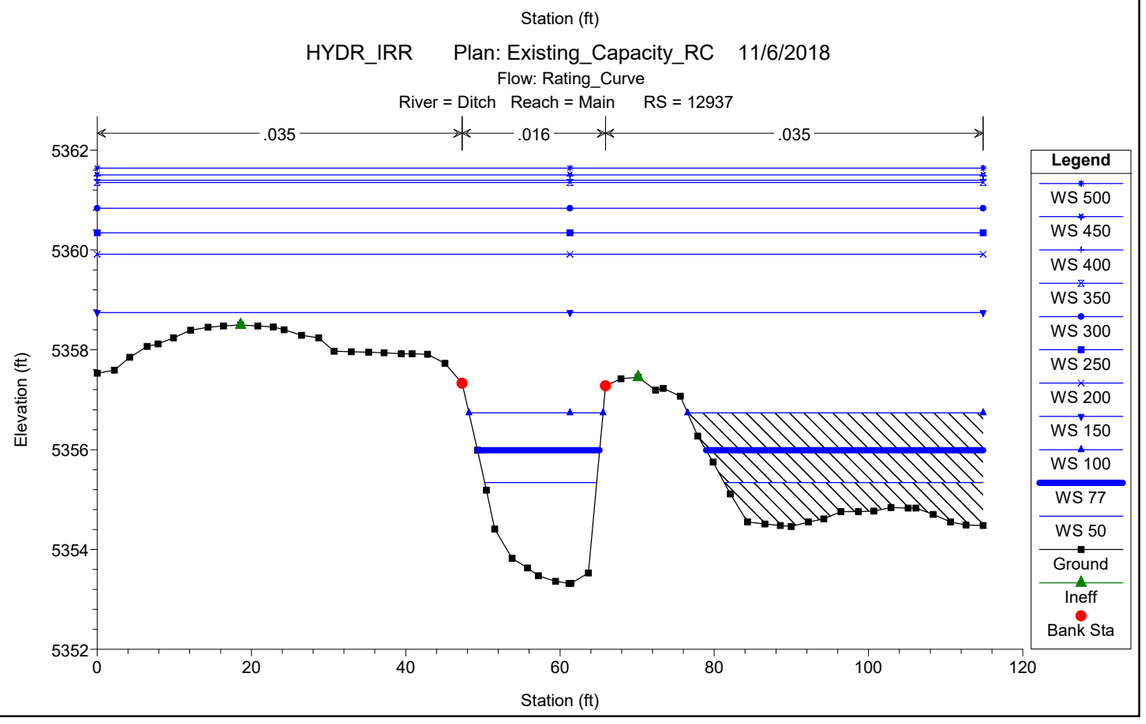

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 13223
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

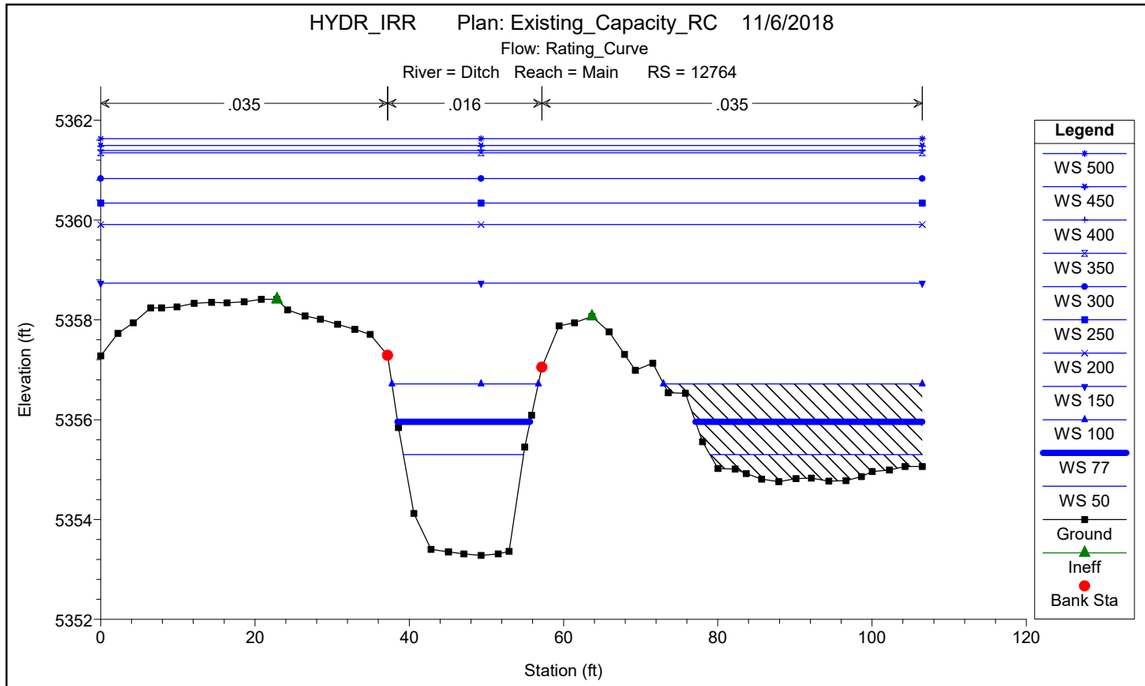

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 13181 BR
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

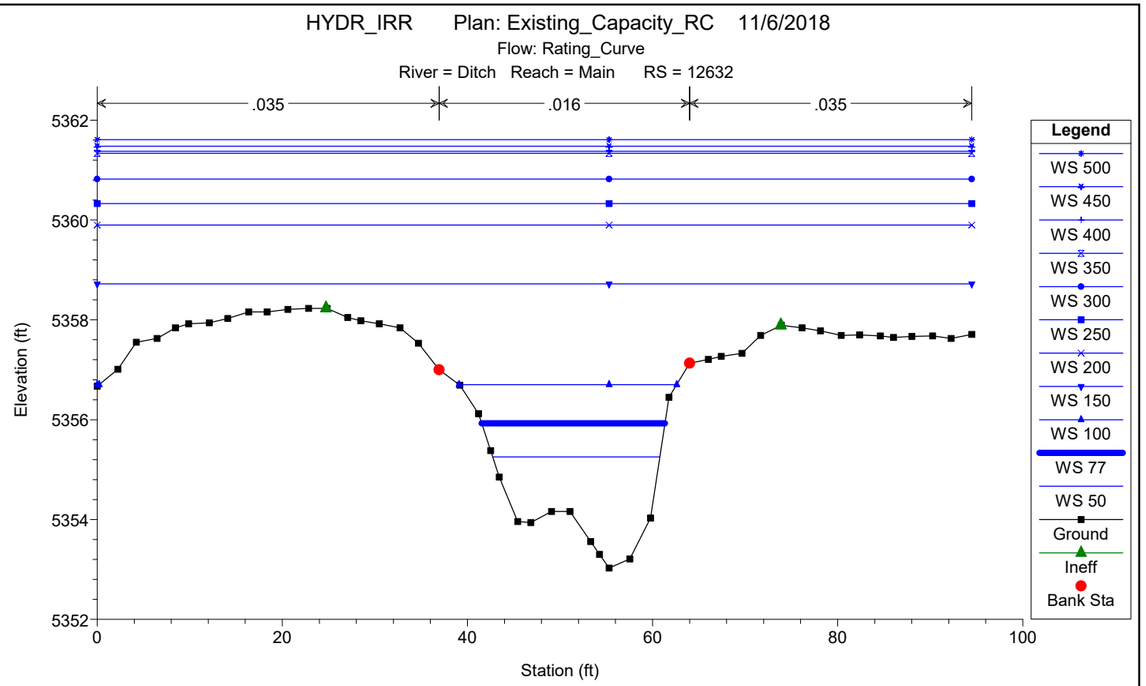

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 13181 BR
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

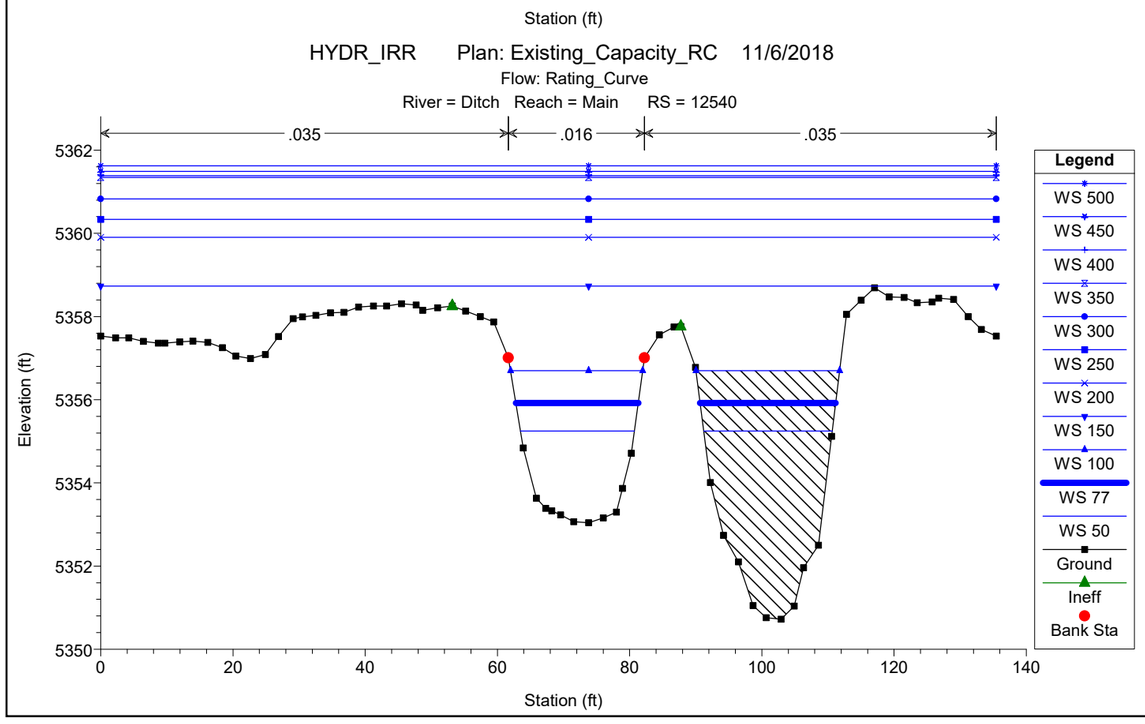

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 13136
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

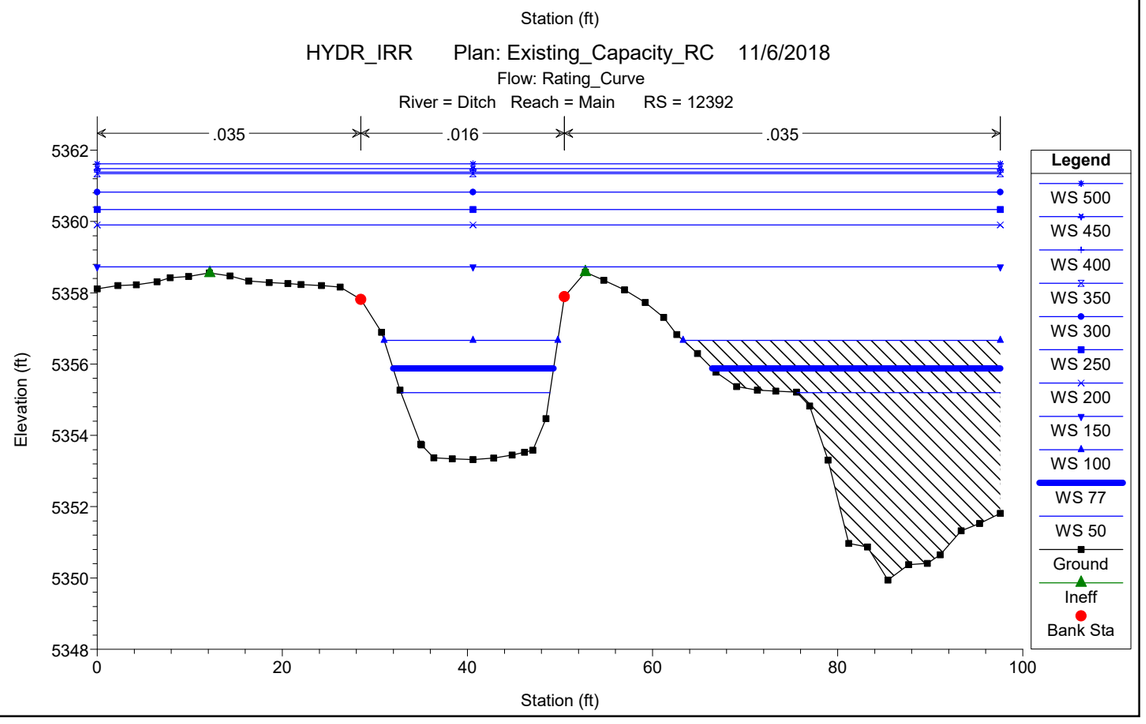

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 13004
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

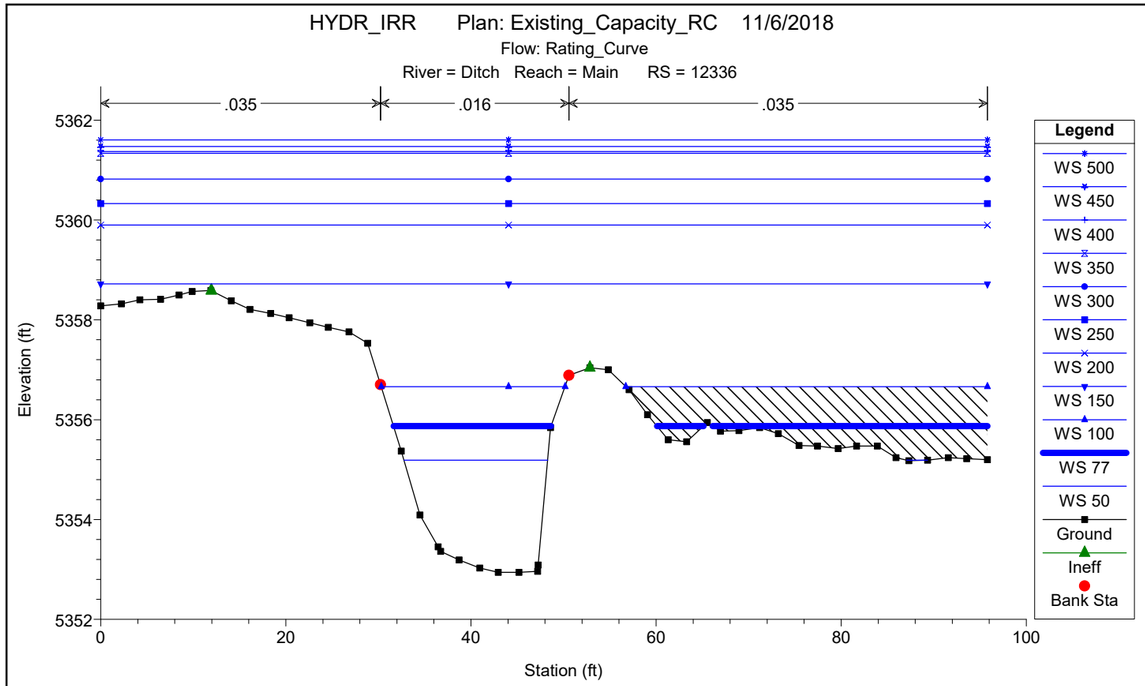

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 12937
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

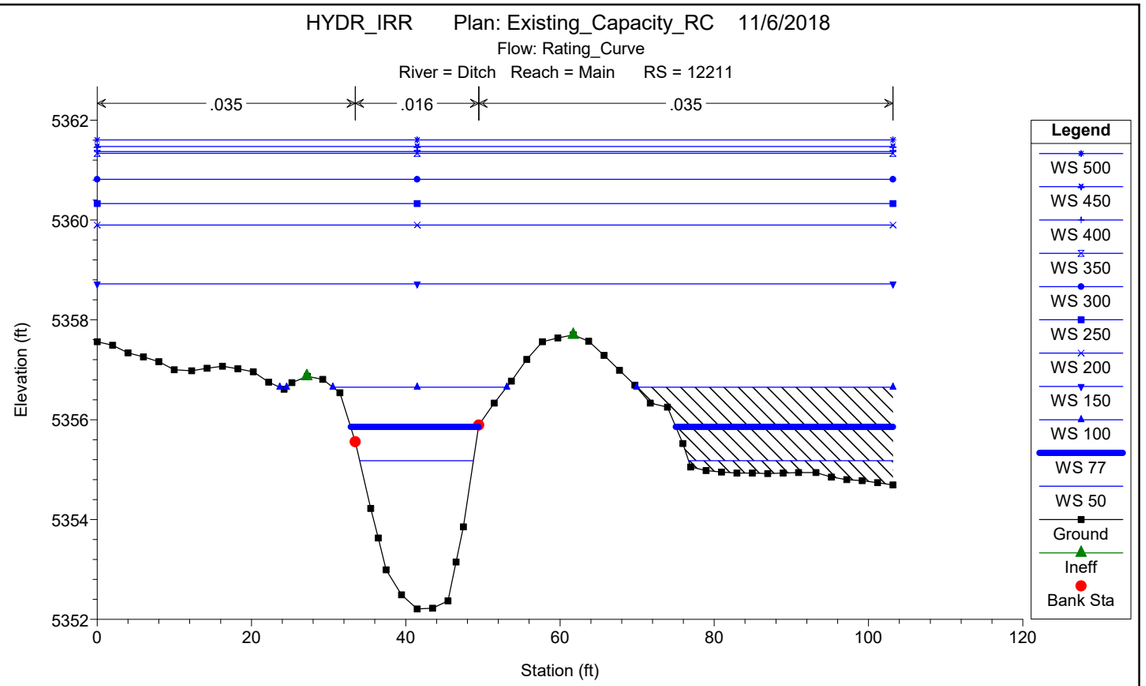

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 12764
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

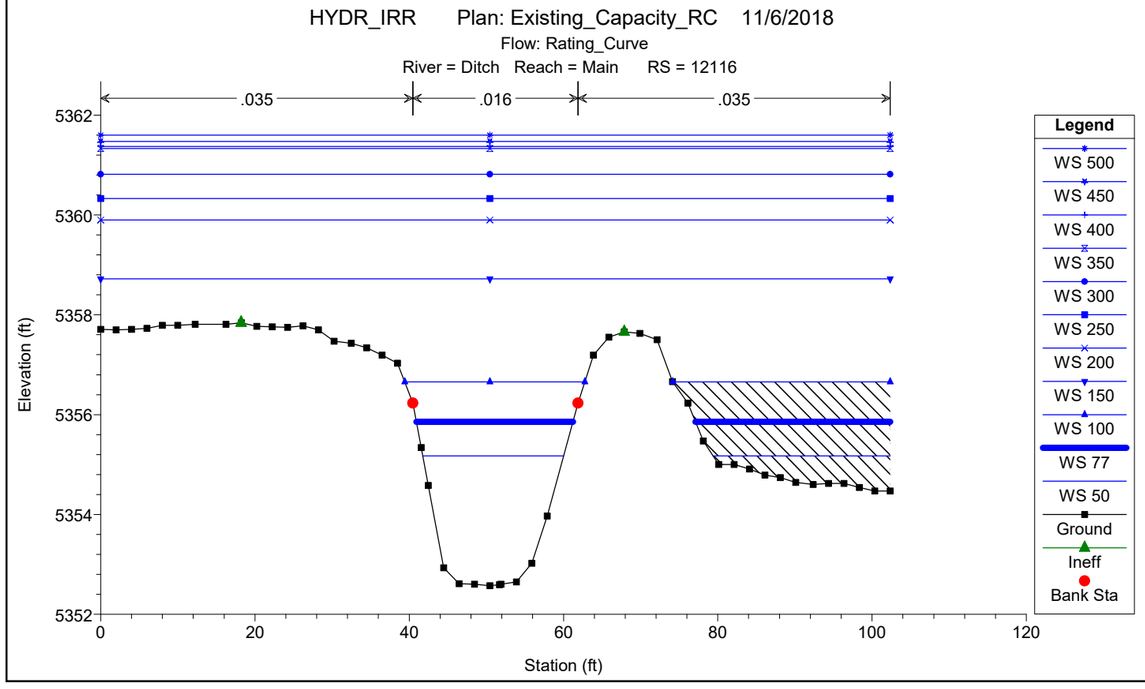

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 12632
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

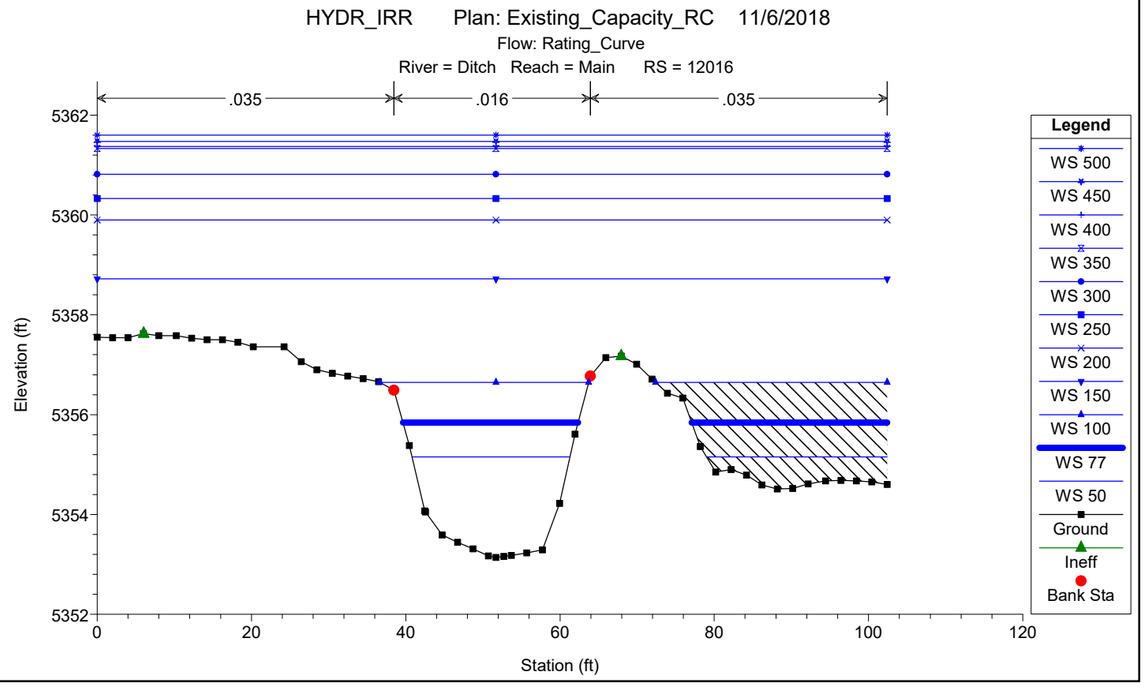

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 12540
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

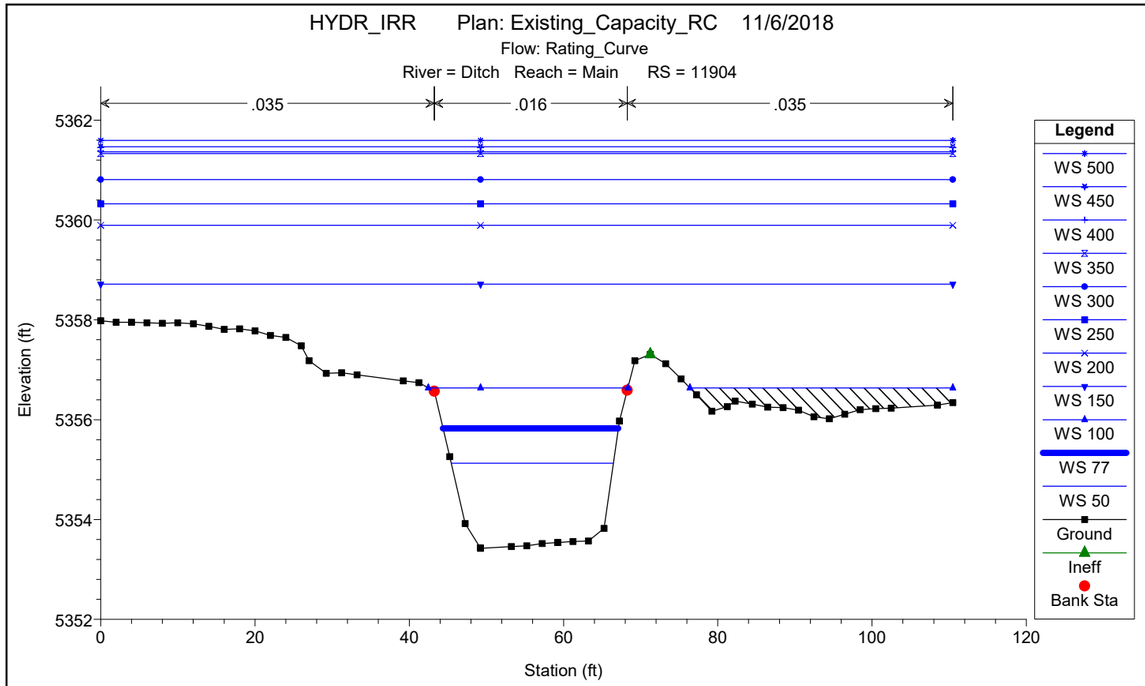

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 12392
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

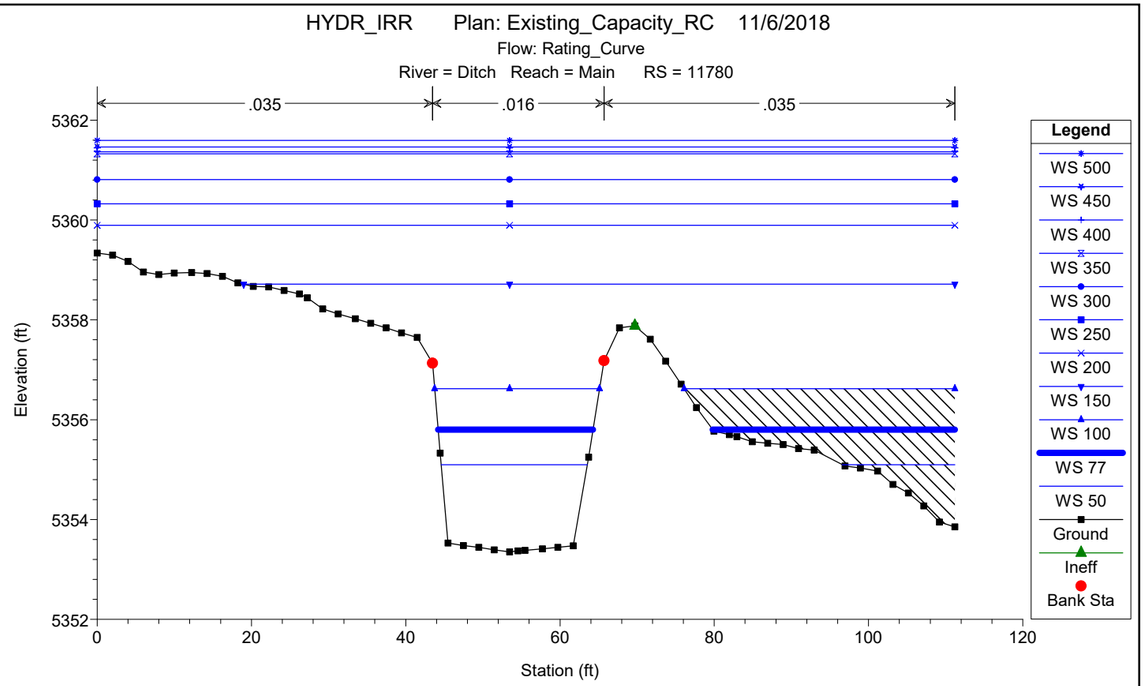

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 12336
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

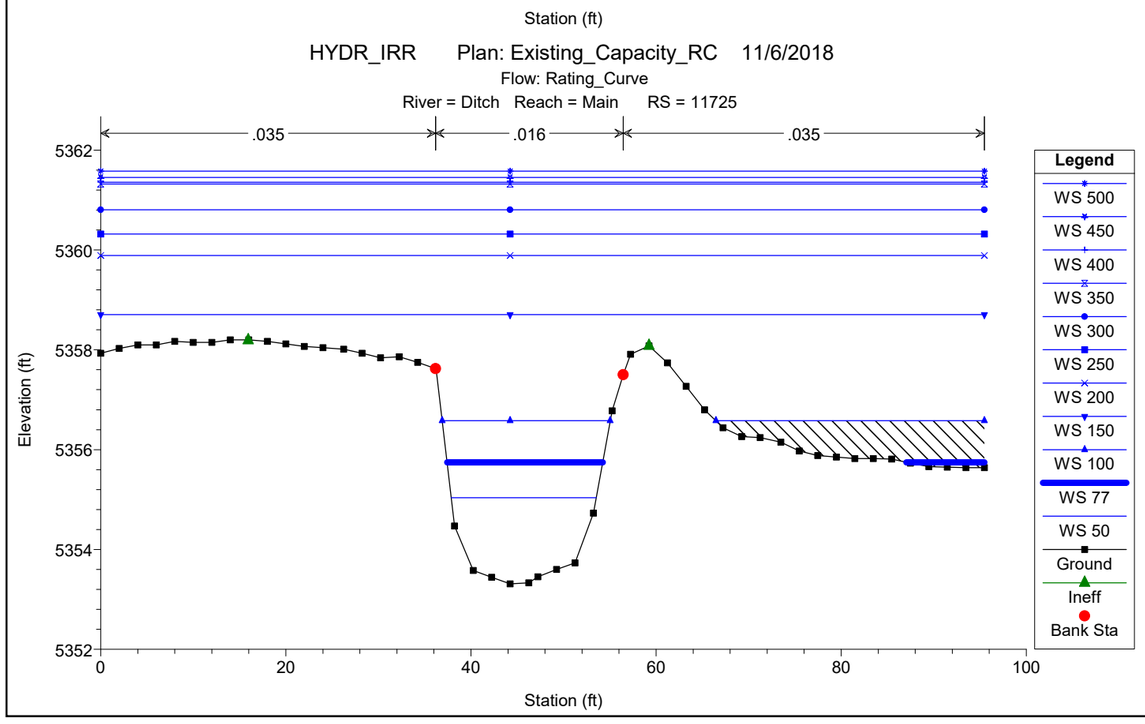

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 12211
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

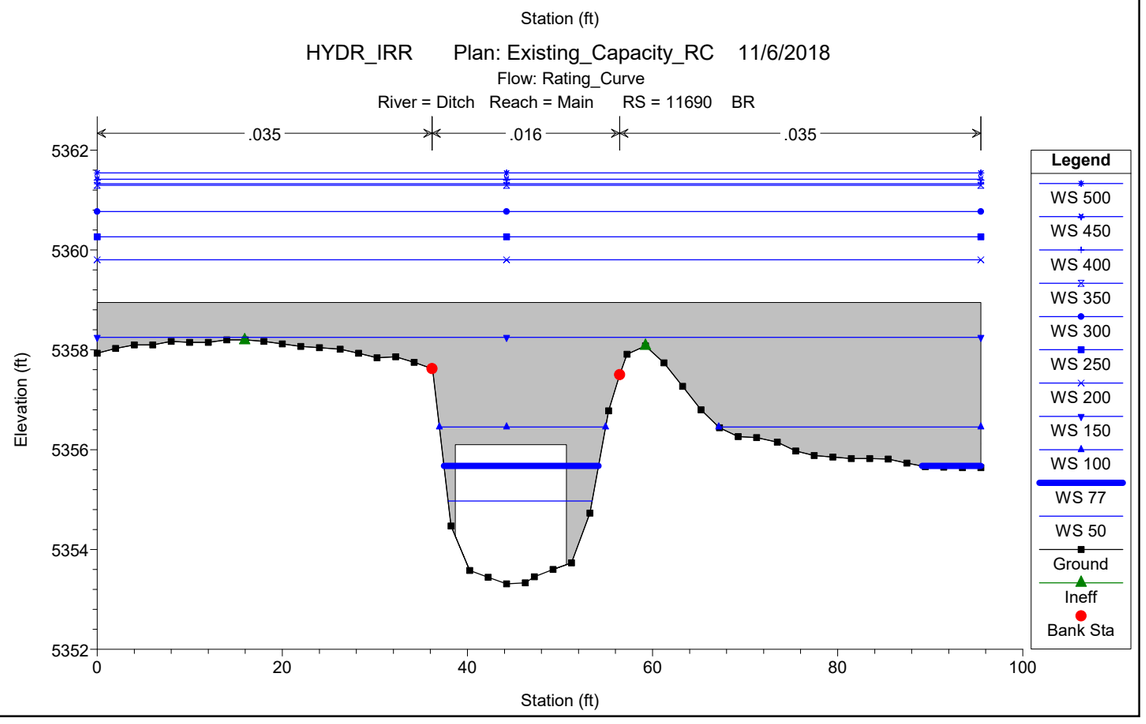

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 12116
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

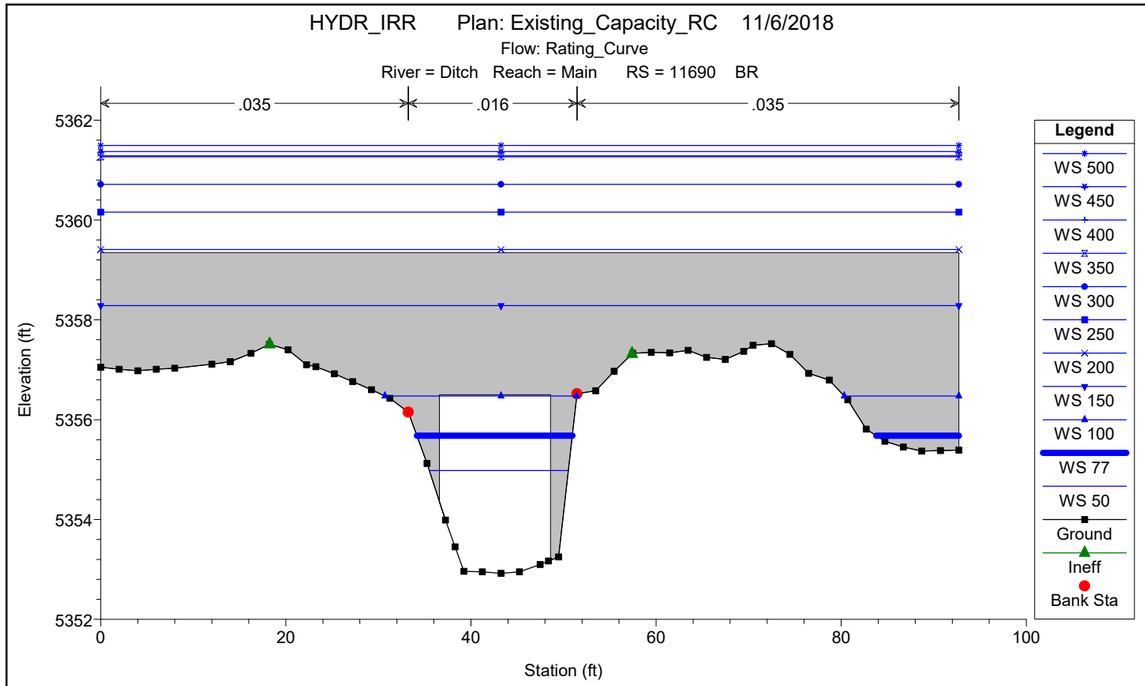

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 12016
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

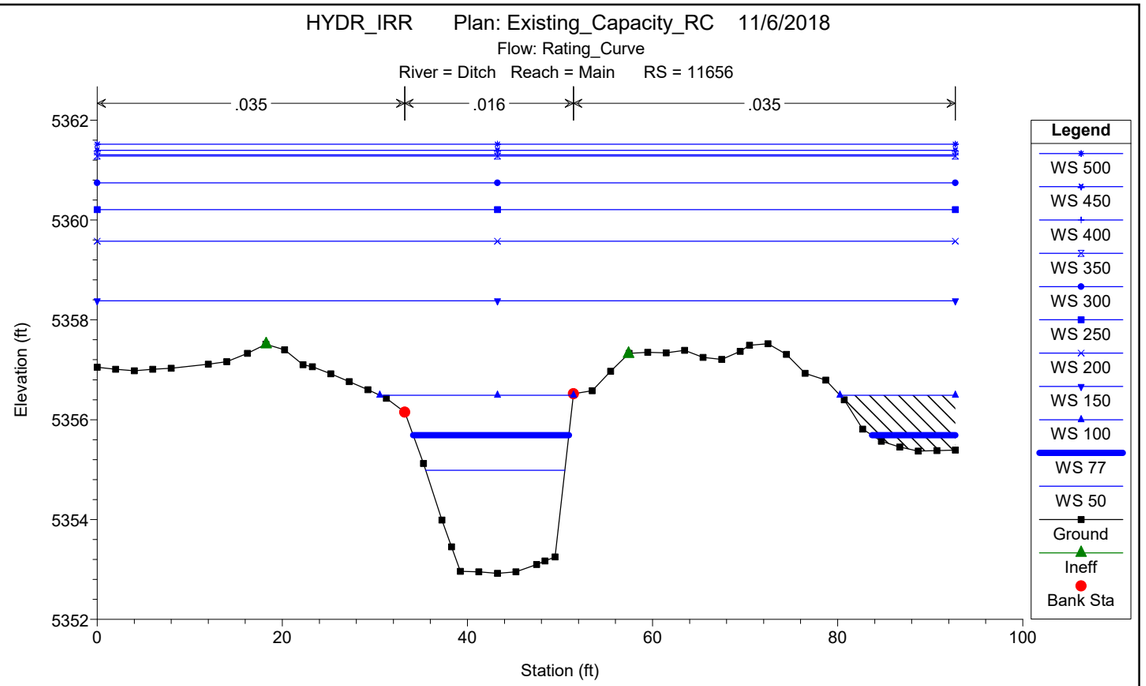

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 11904
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

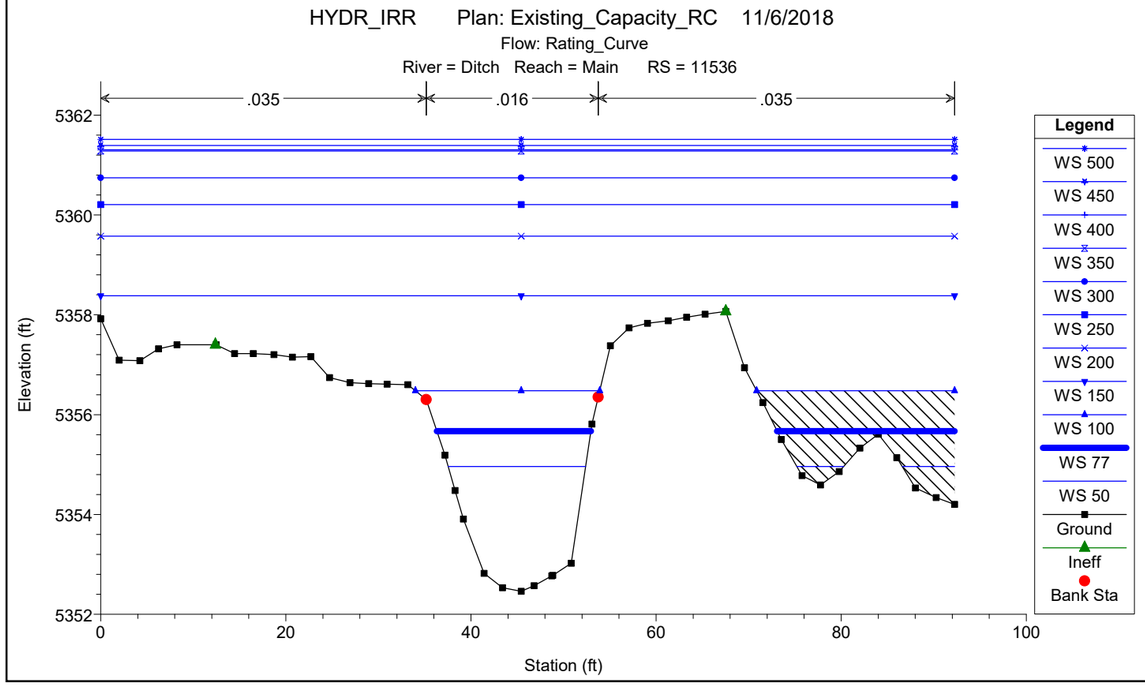

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 11780
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

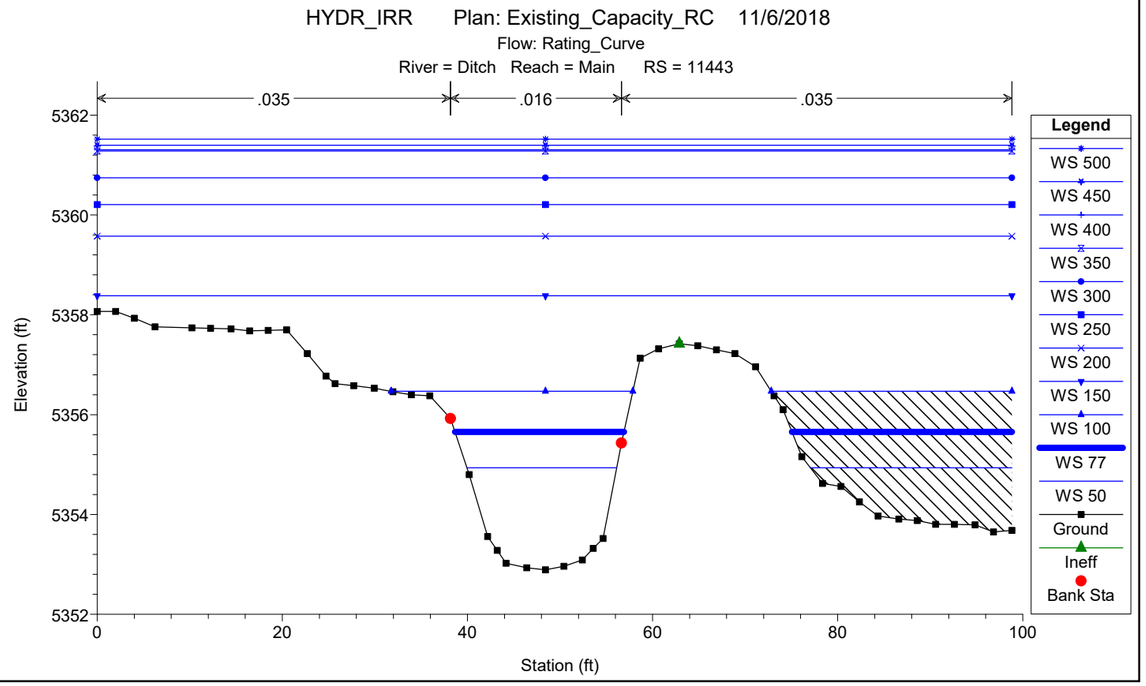

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 11725
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

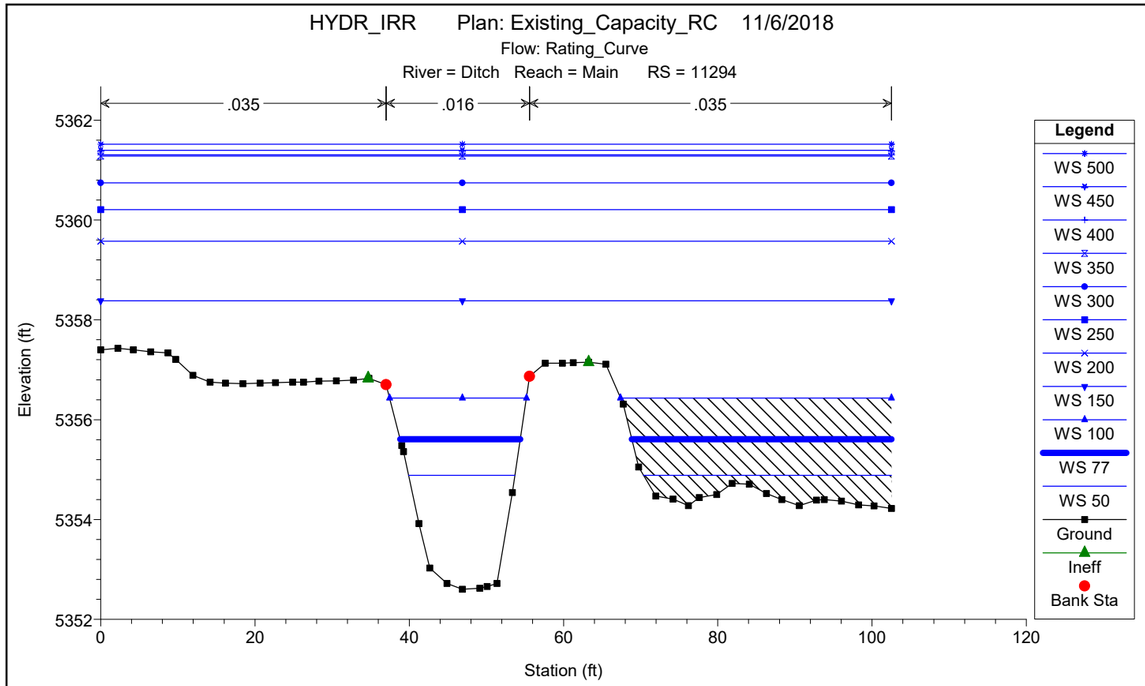

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 11690 BR
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

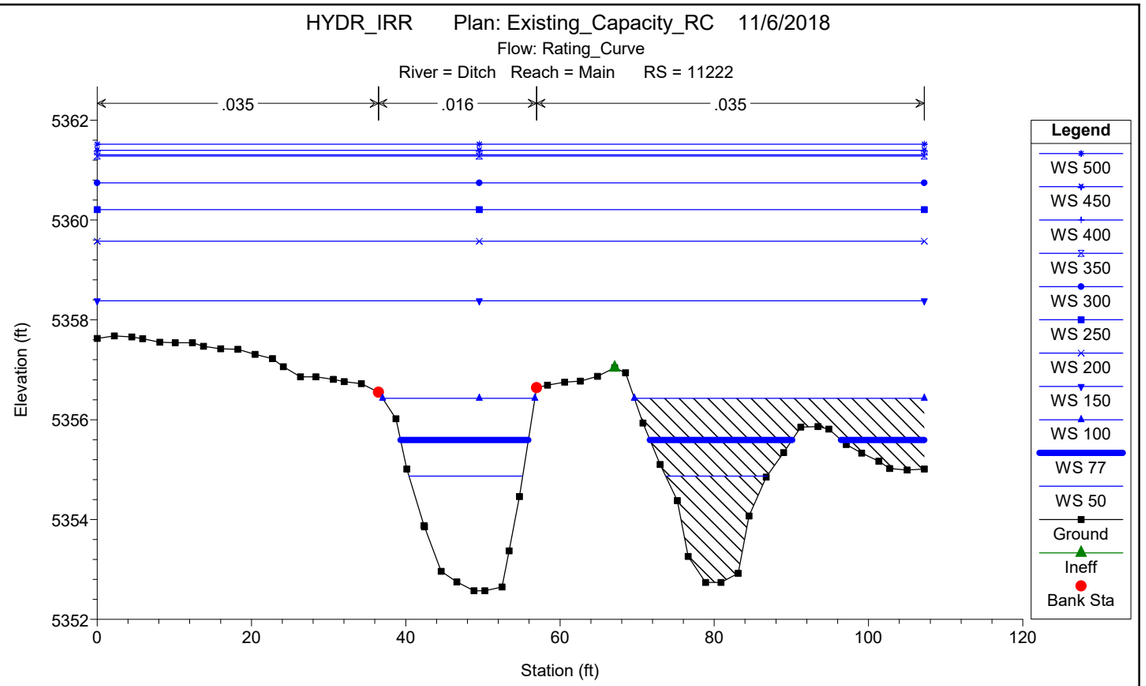

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 11690 BR
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

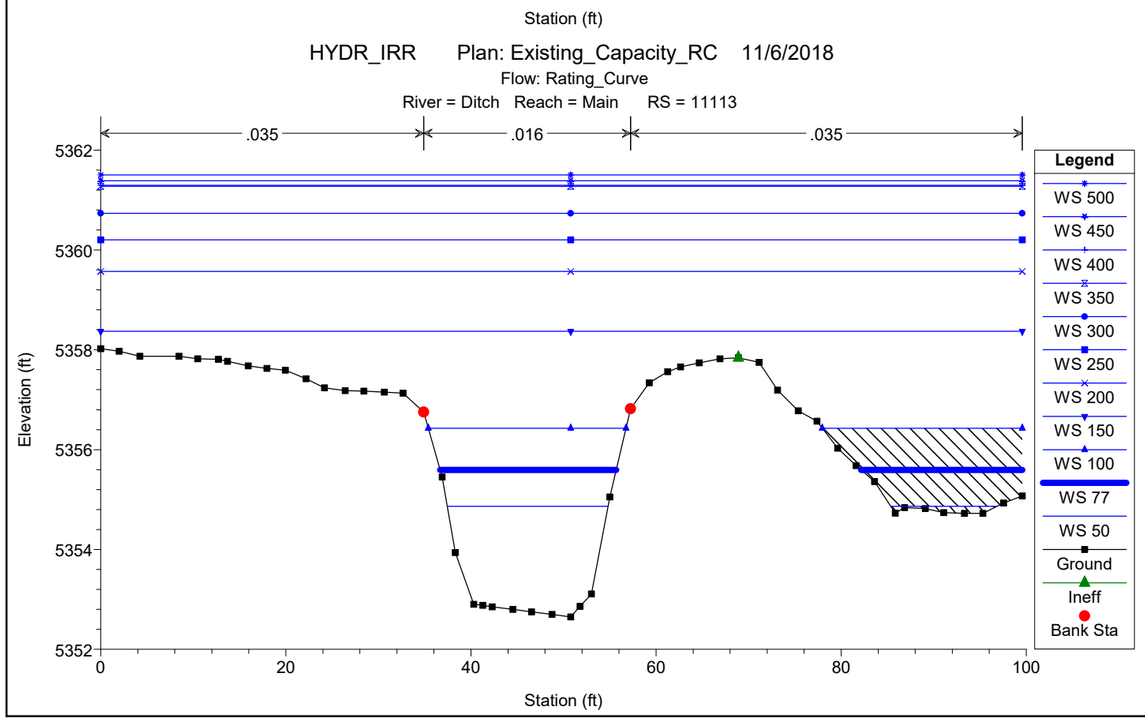

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 11656
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

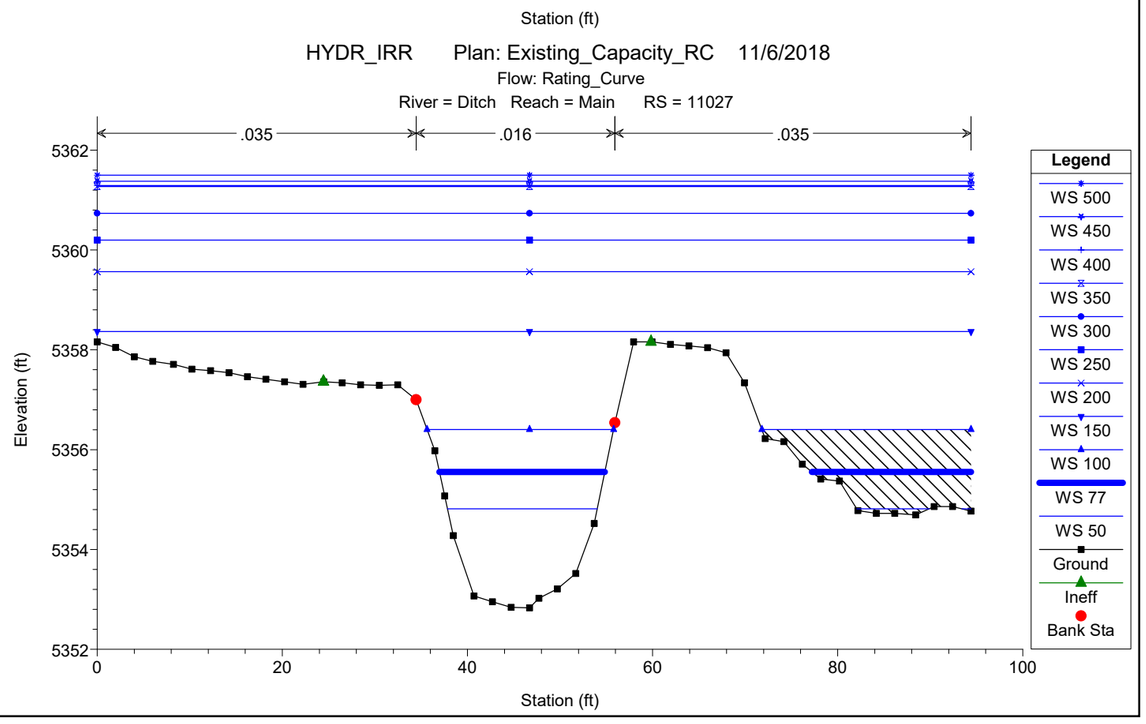

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 11536
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

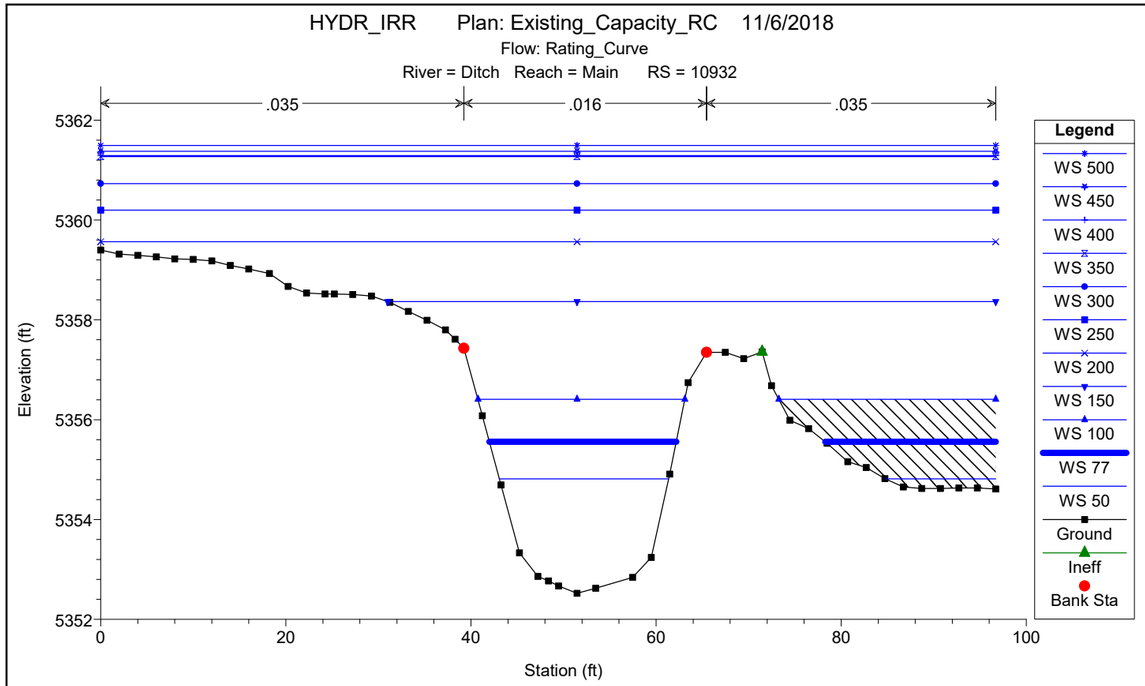

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 11443
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

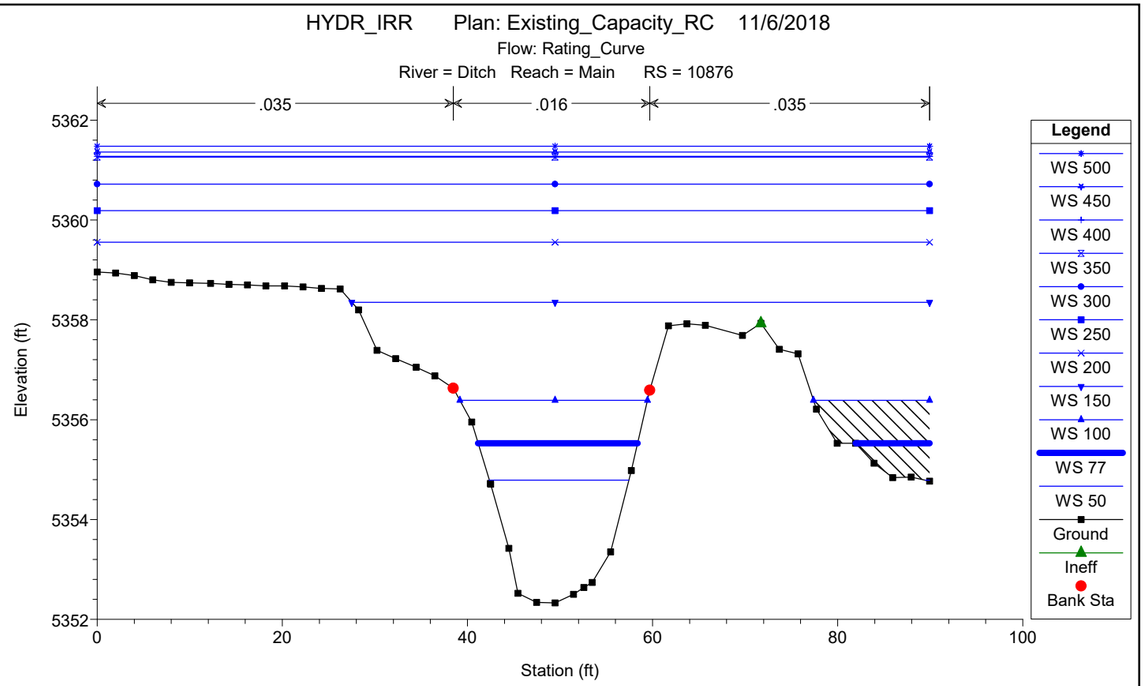

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 11294
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

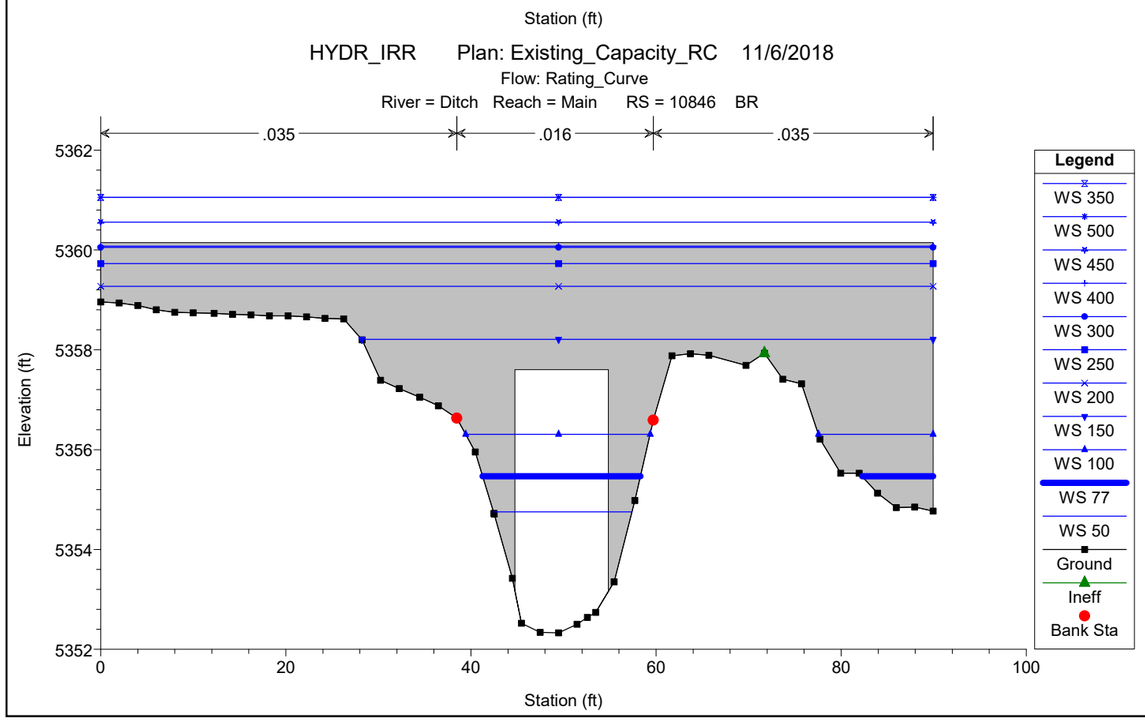

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 11222
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

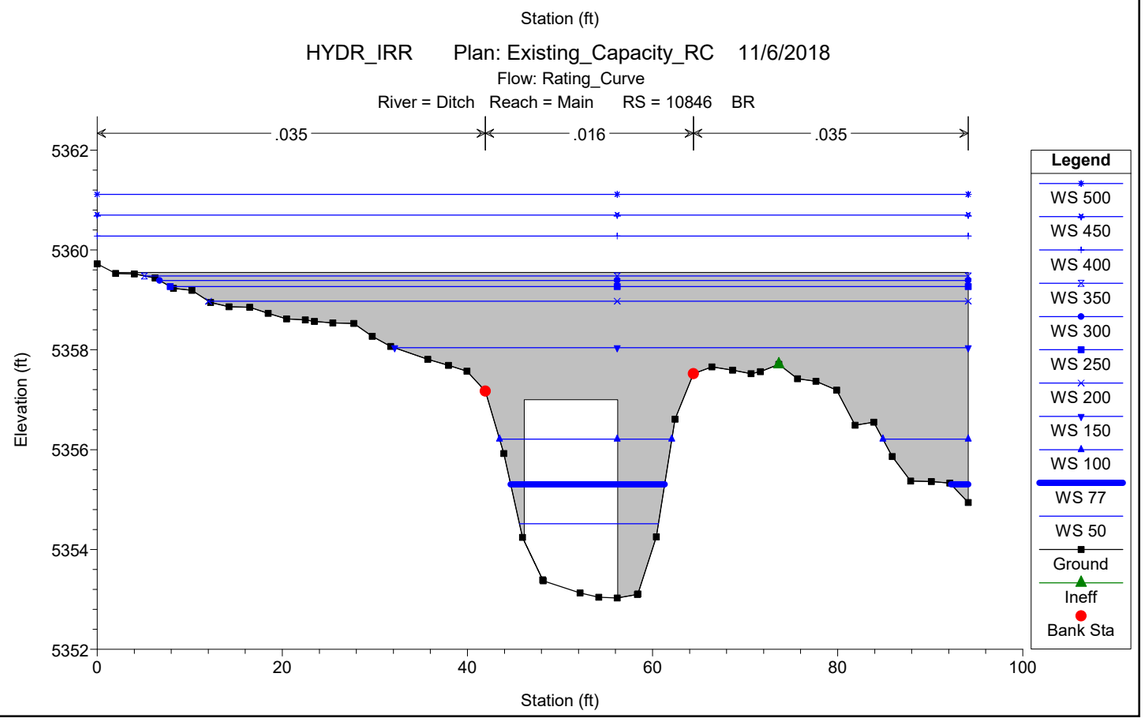

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 11113
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta


HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 11027
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

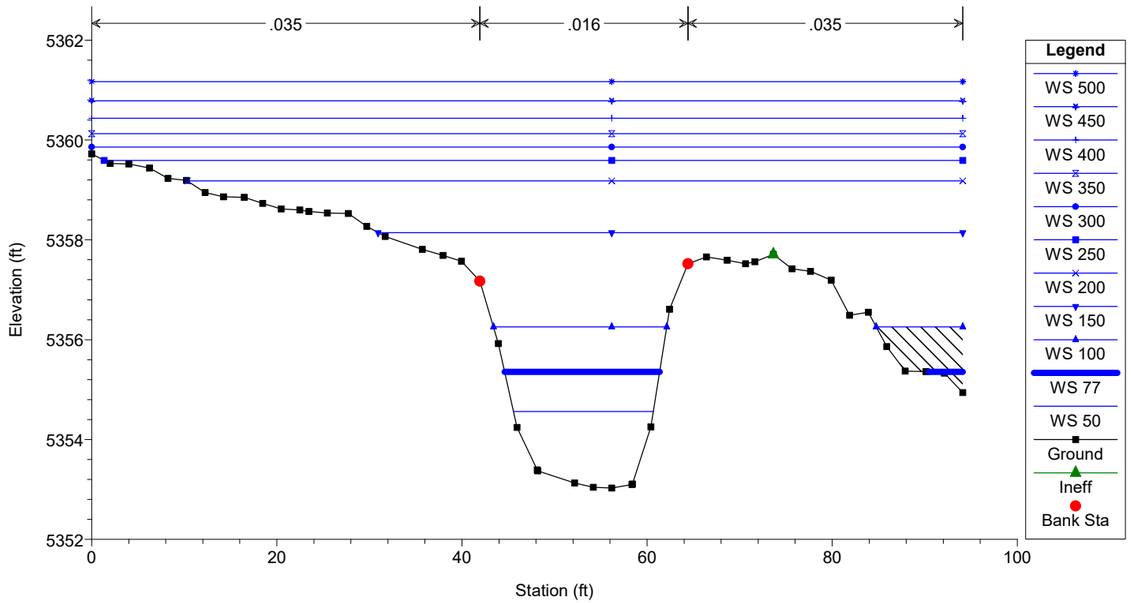

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 10932
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta


HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 10876
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

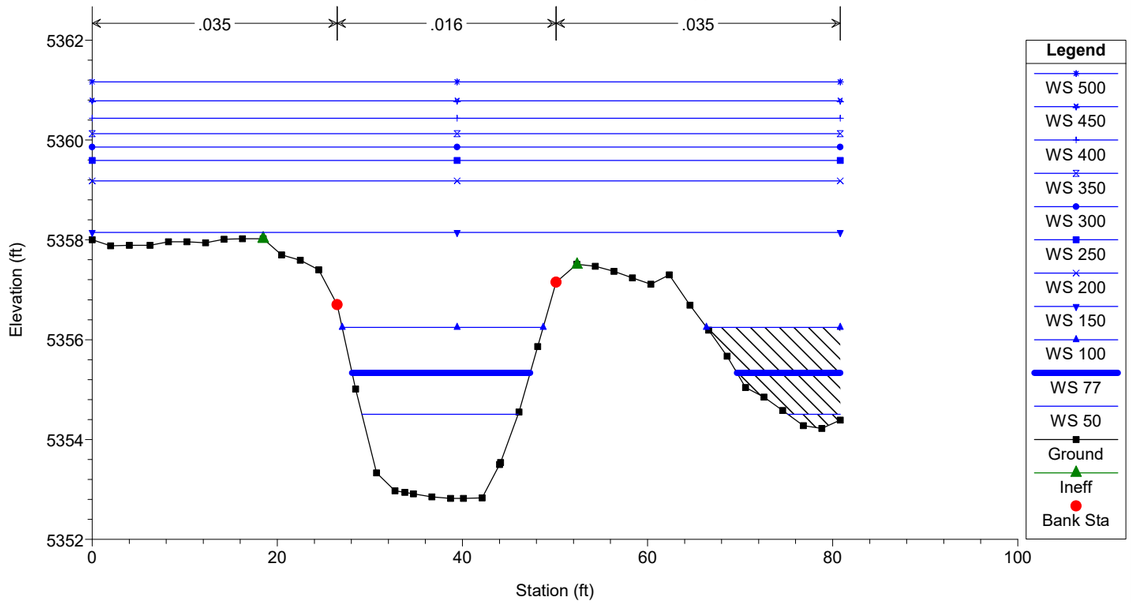

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 10846 BR
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 350
WS 500
WS 450
WS 400
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta


HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 10846 BR
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

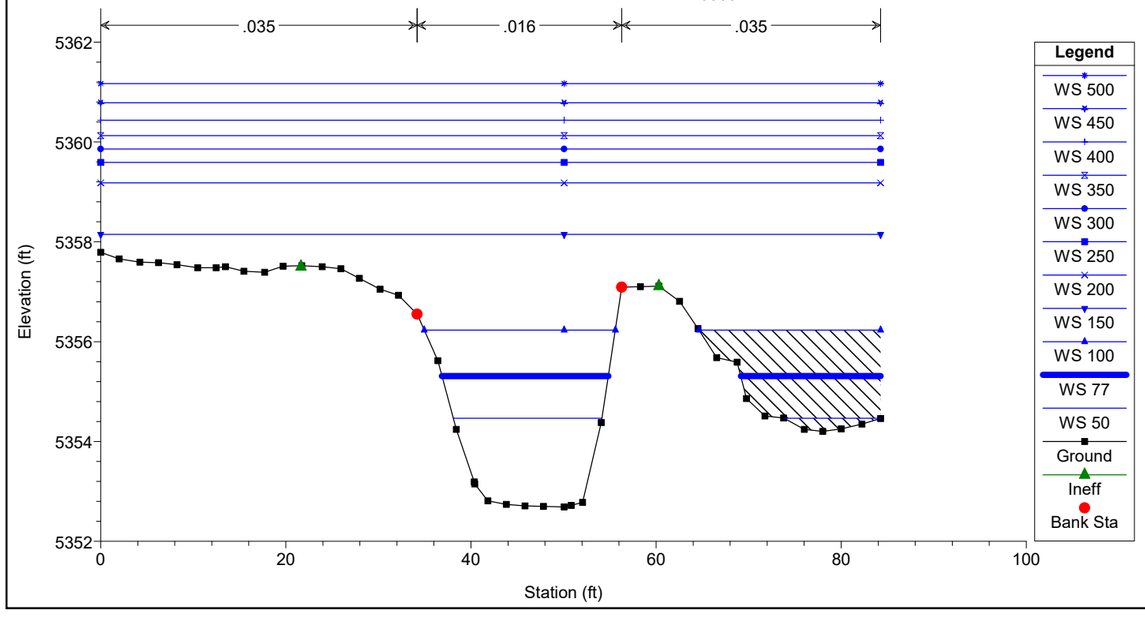
HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 10811



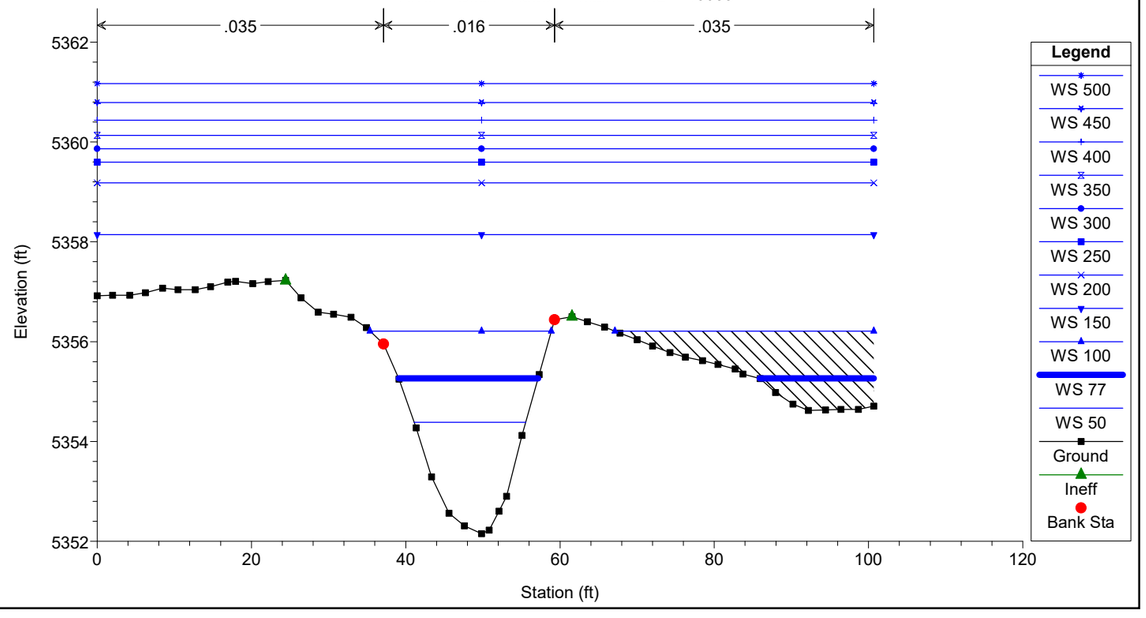
HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 10672

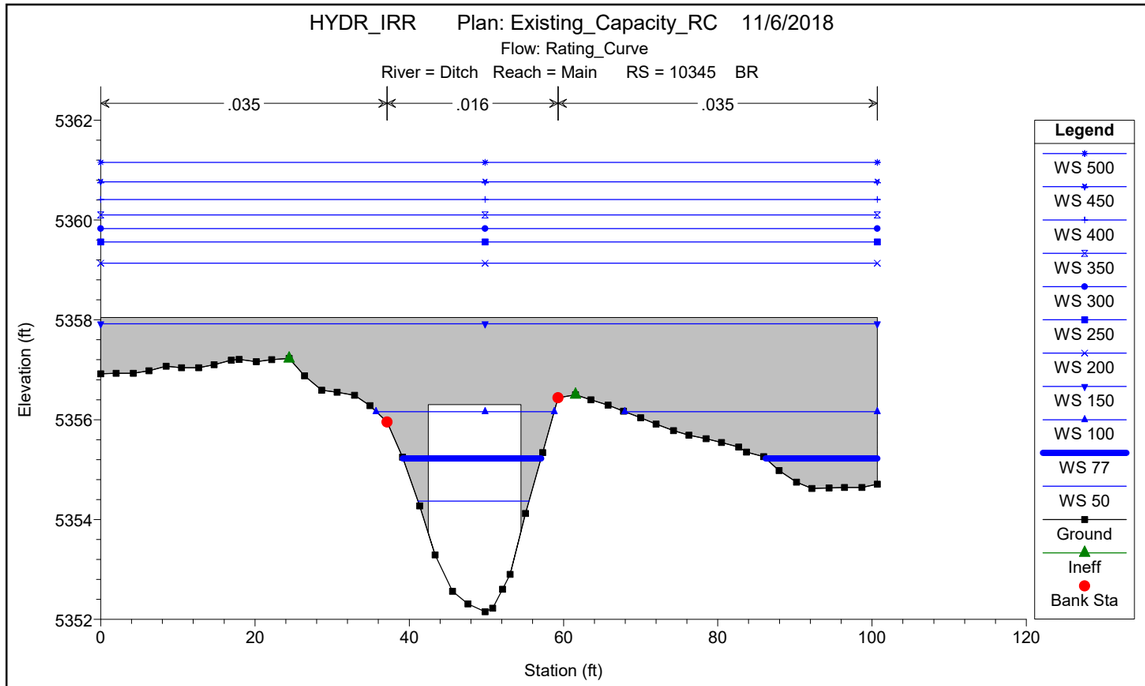


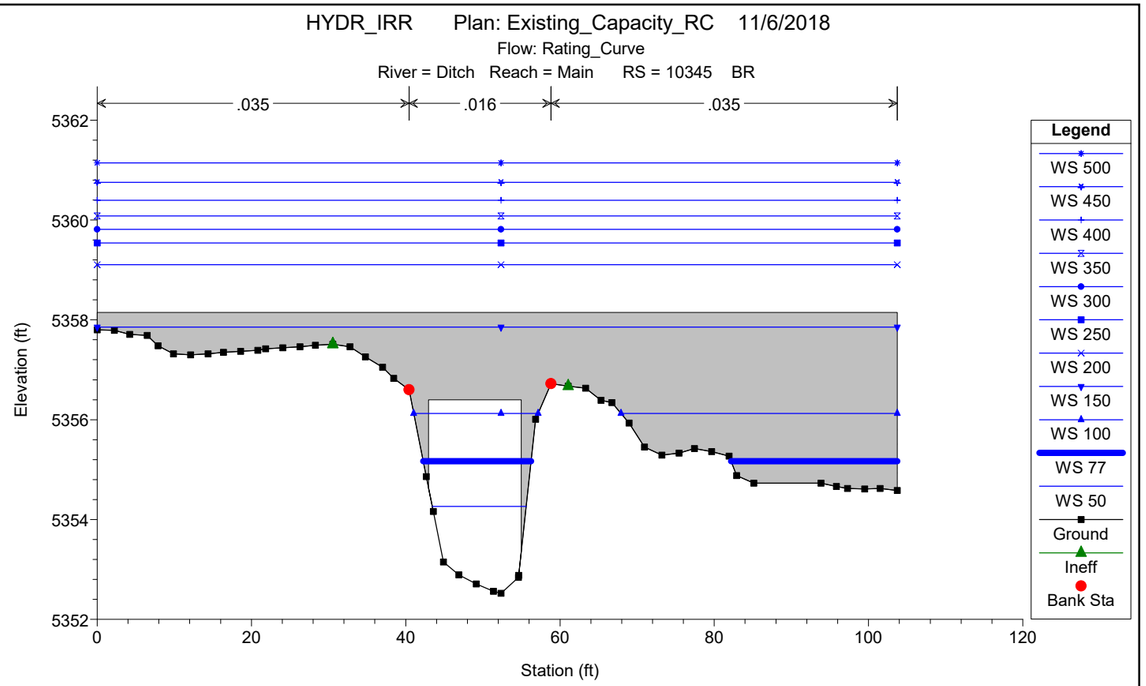
HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 10553

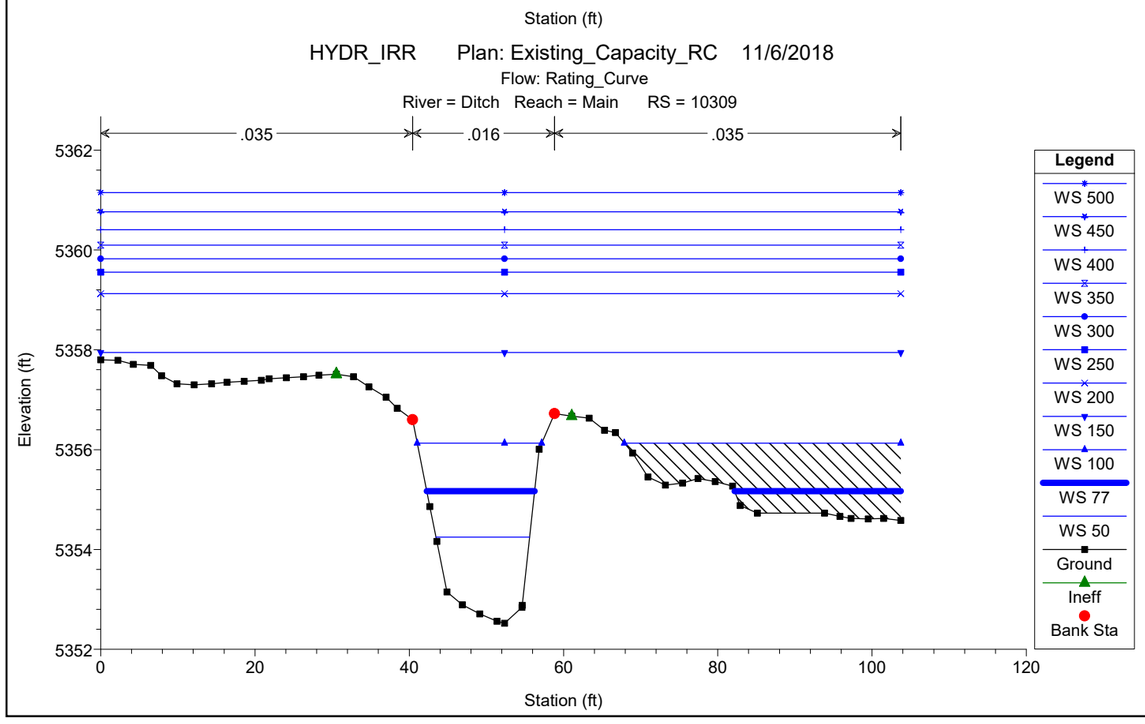


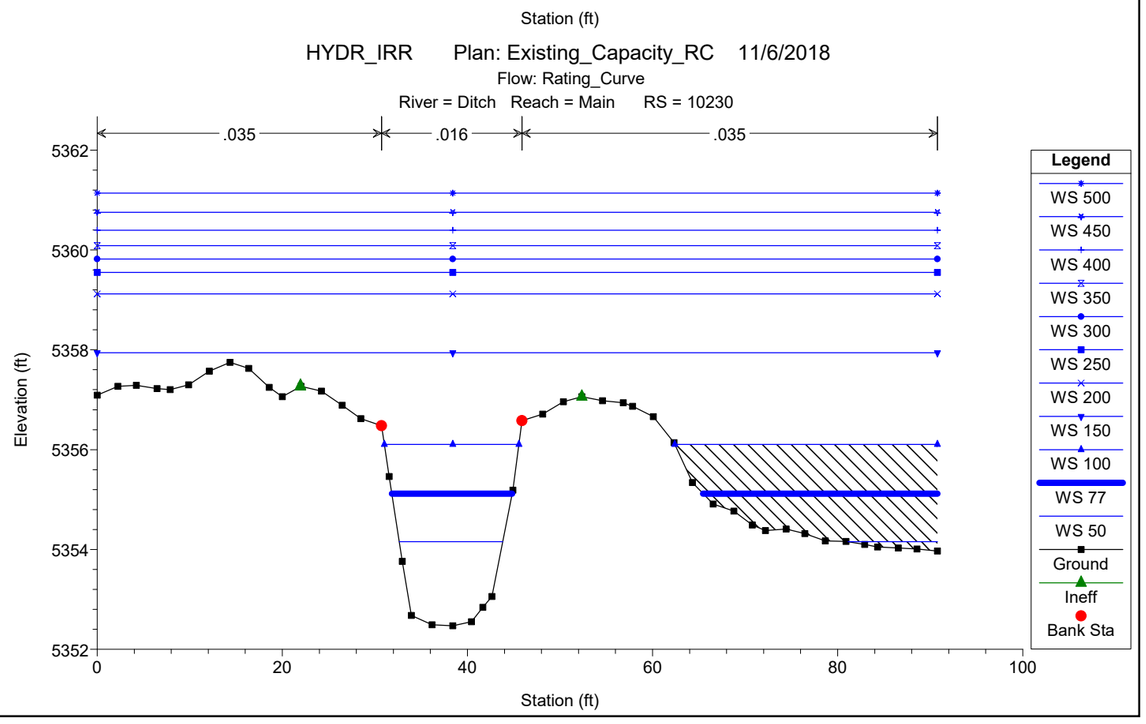
HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 10389

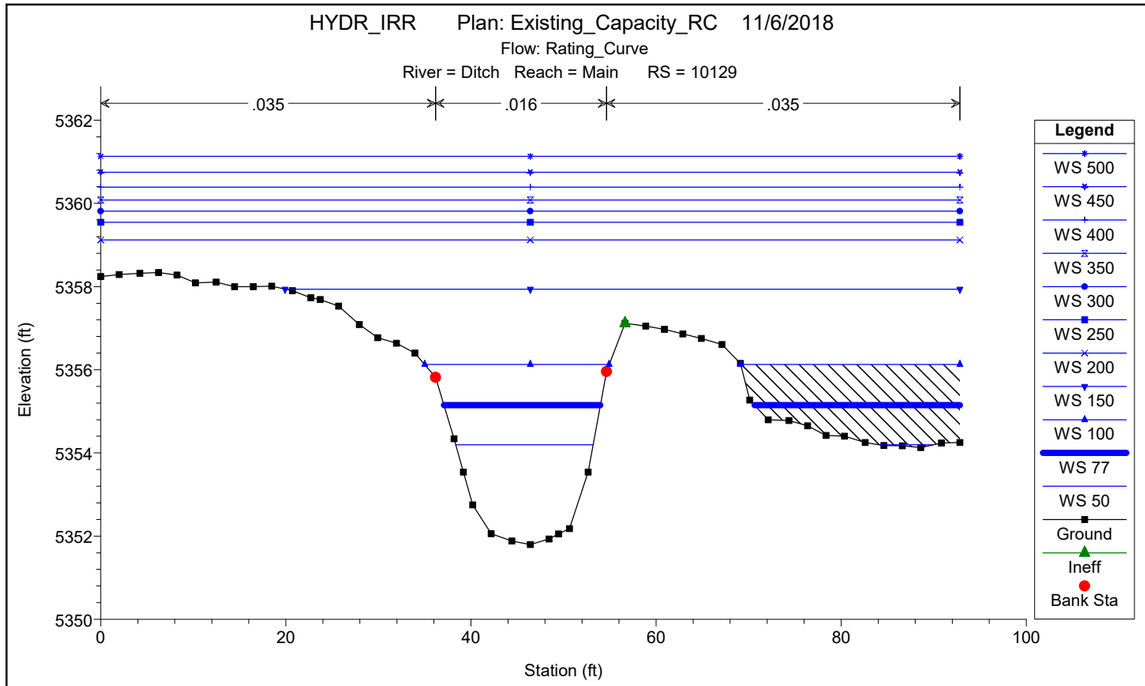


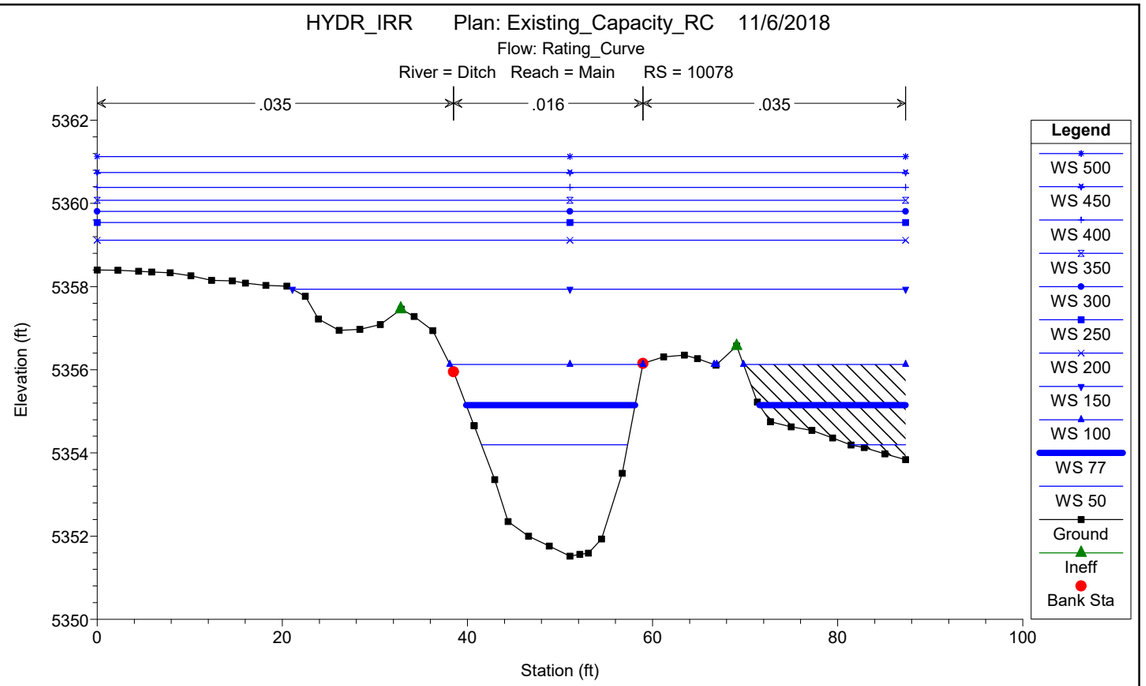

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 10345 BR
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

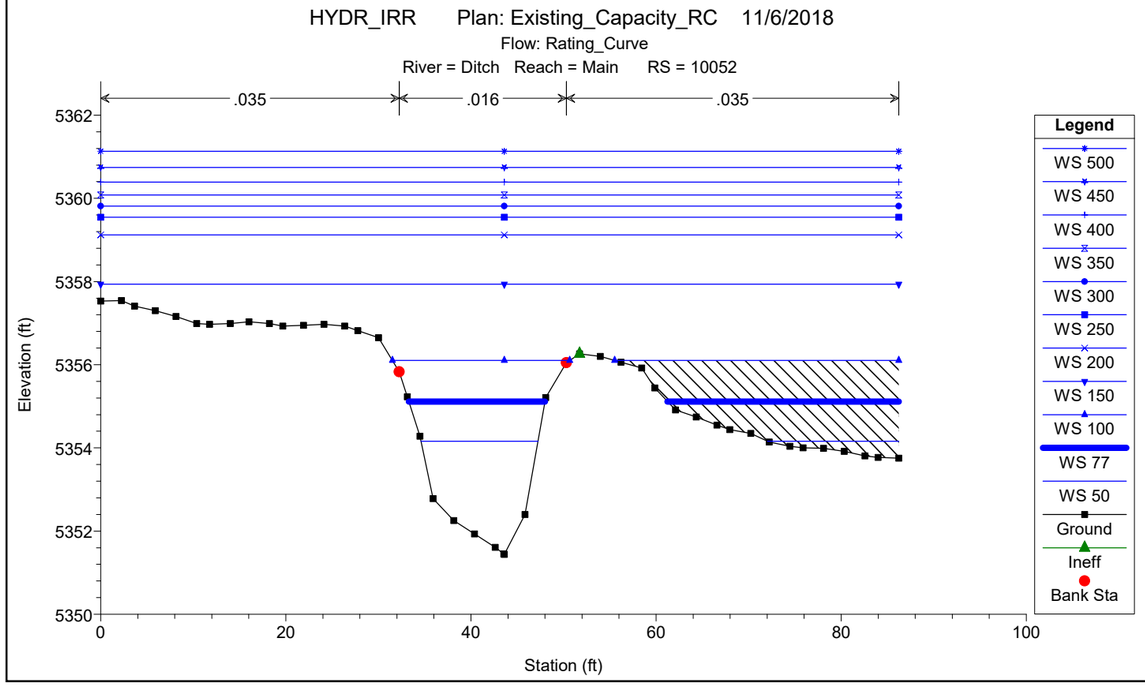

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 10345 BR
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

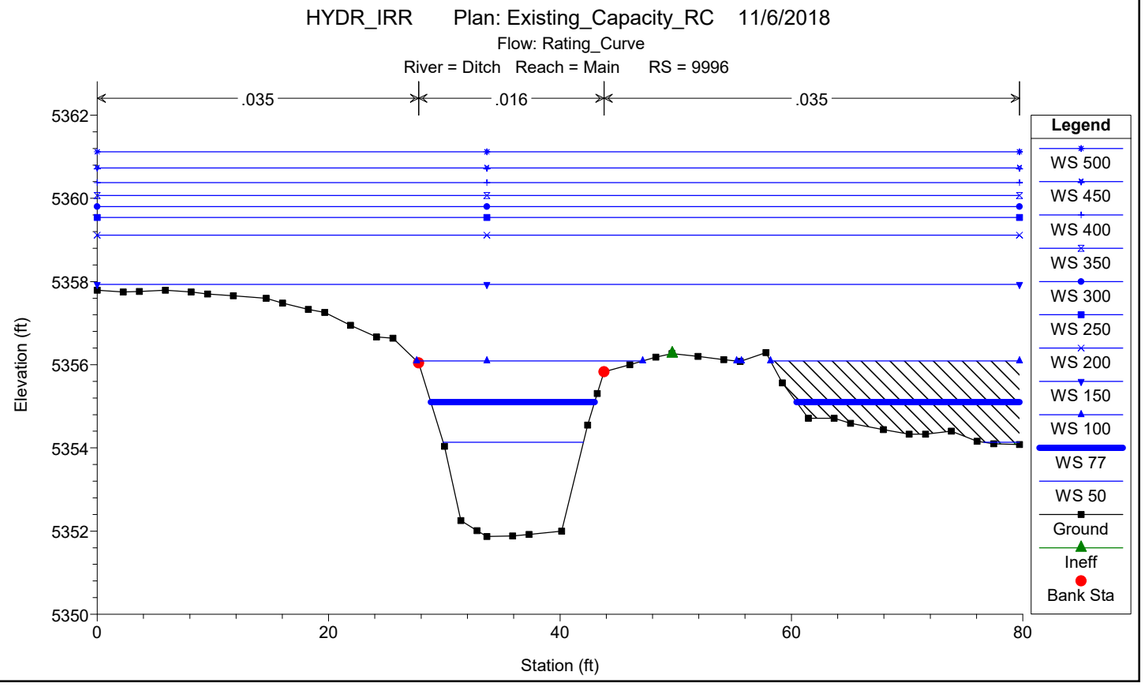

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 10309
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

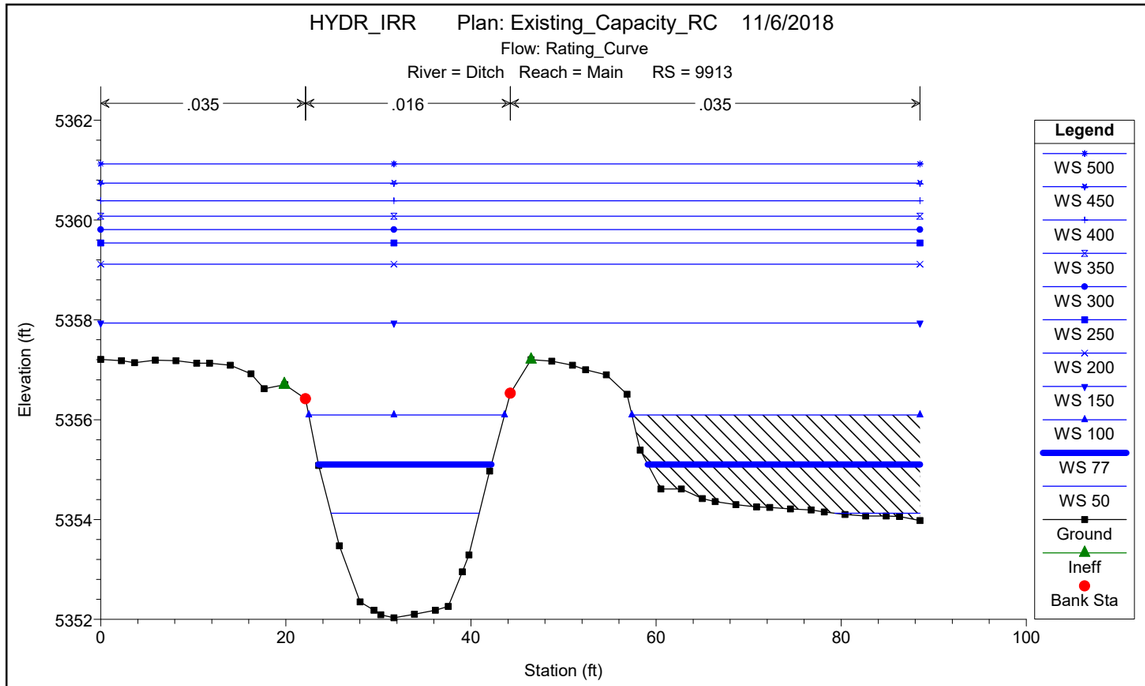

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 10230
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

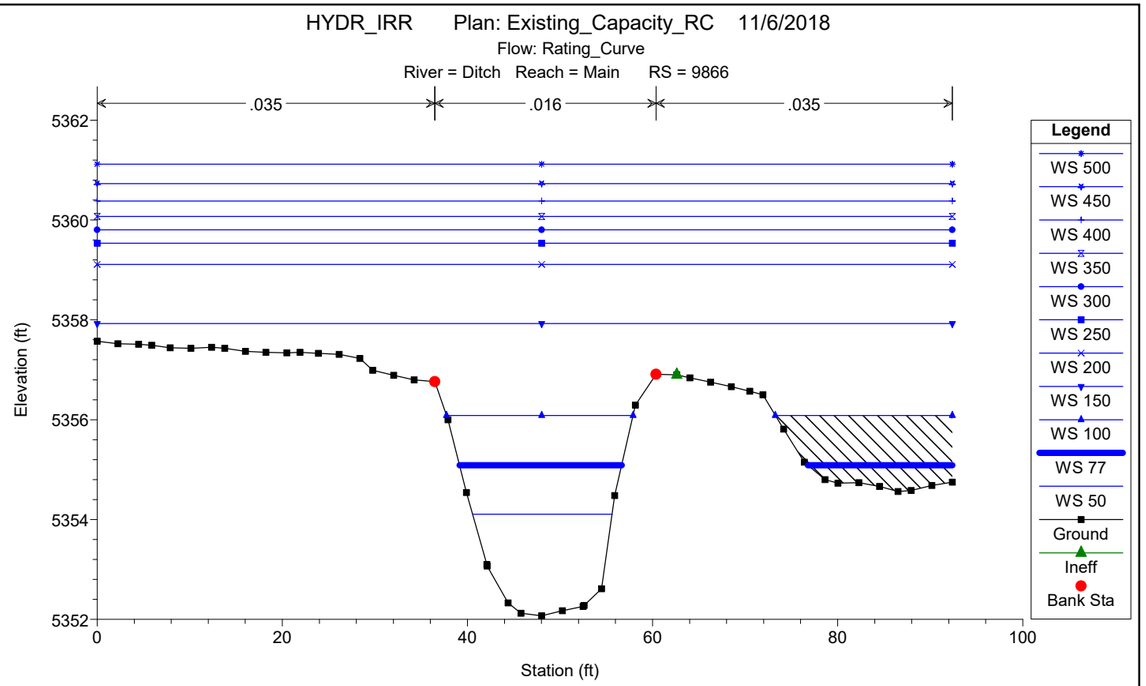

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 10129
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

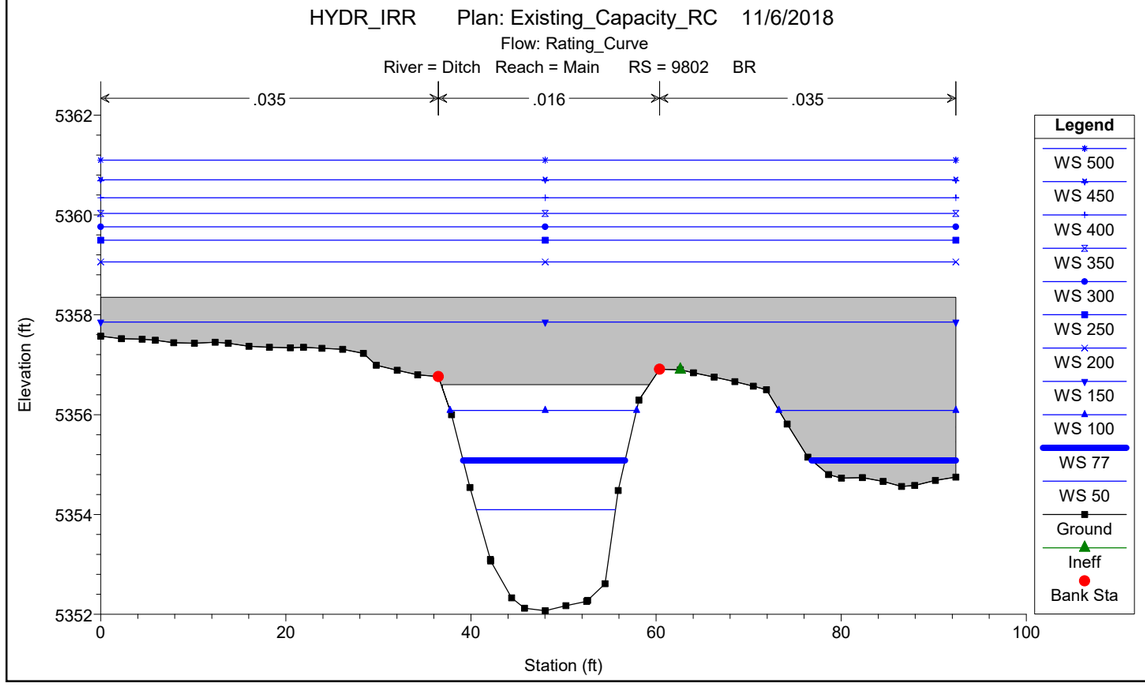

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 10078
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

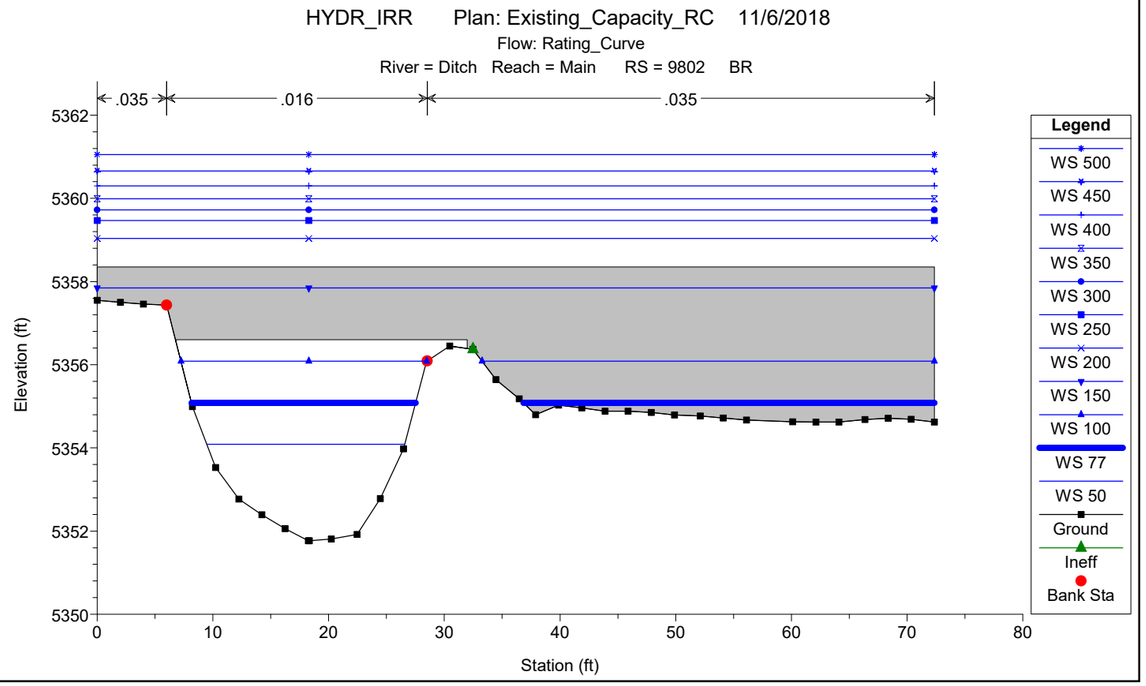

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 10052
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

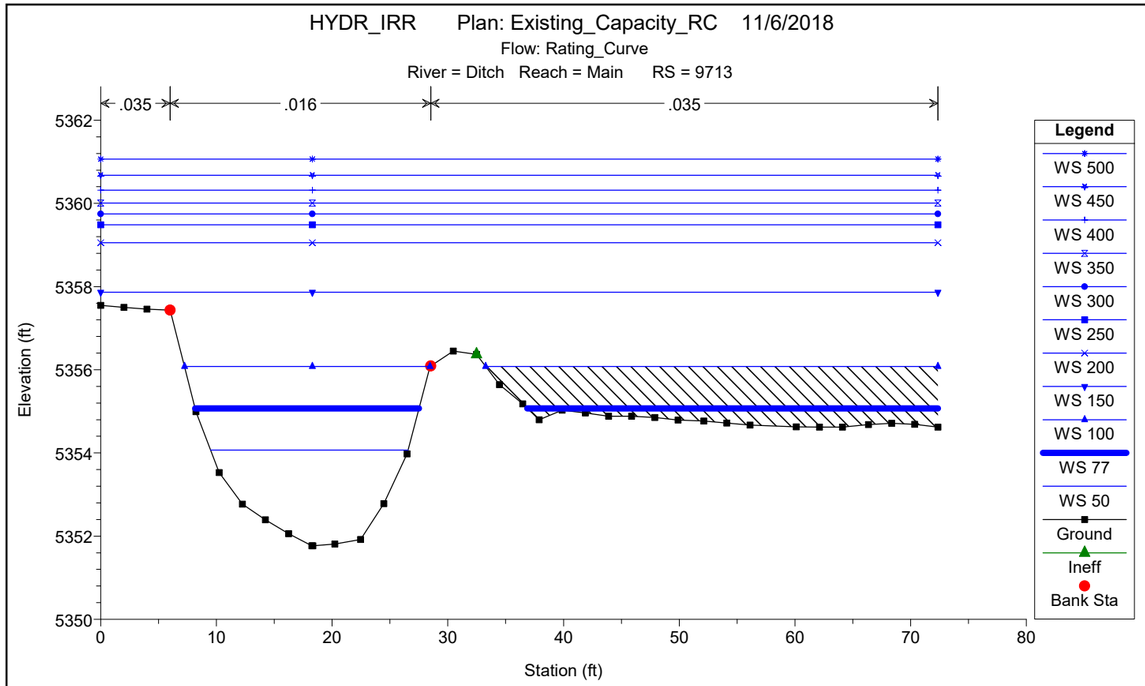

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 9996
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

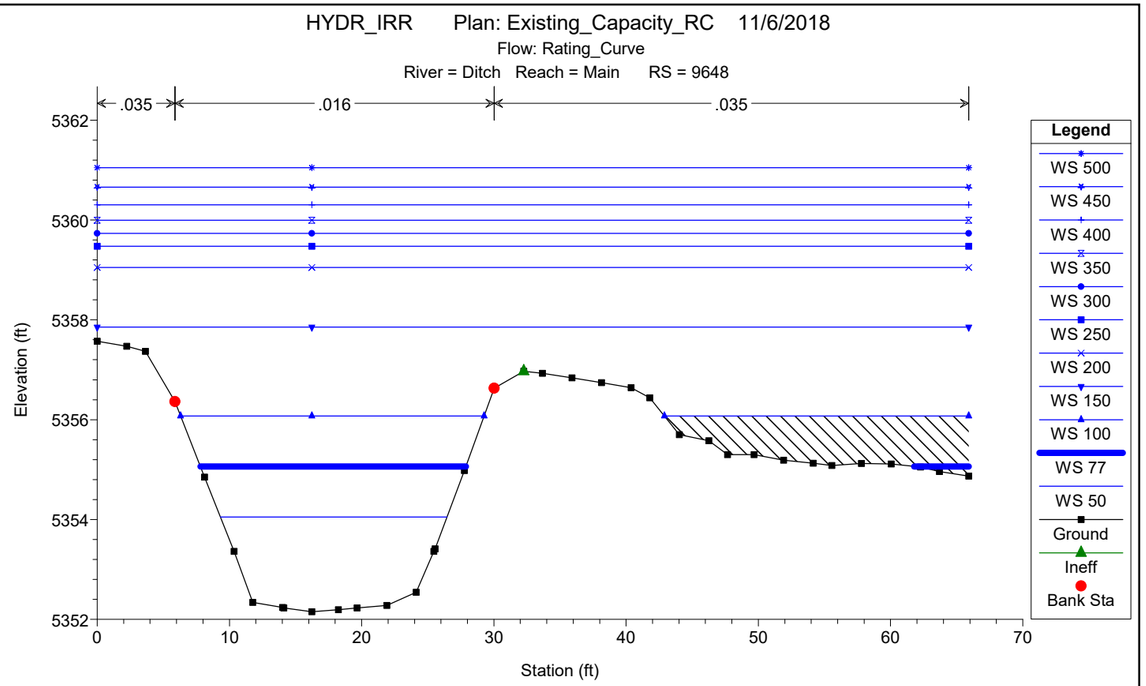

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 9913
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

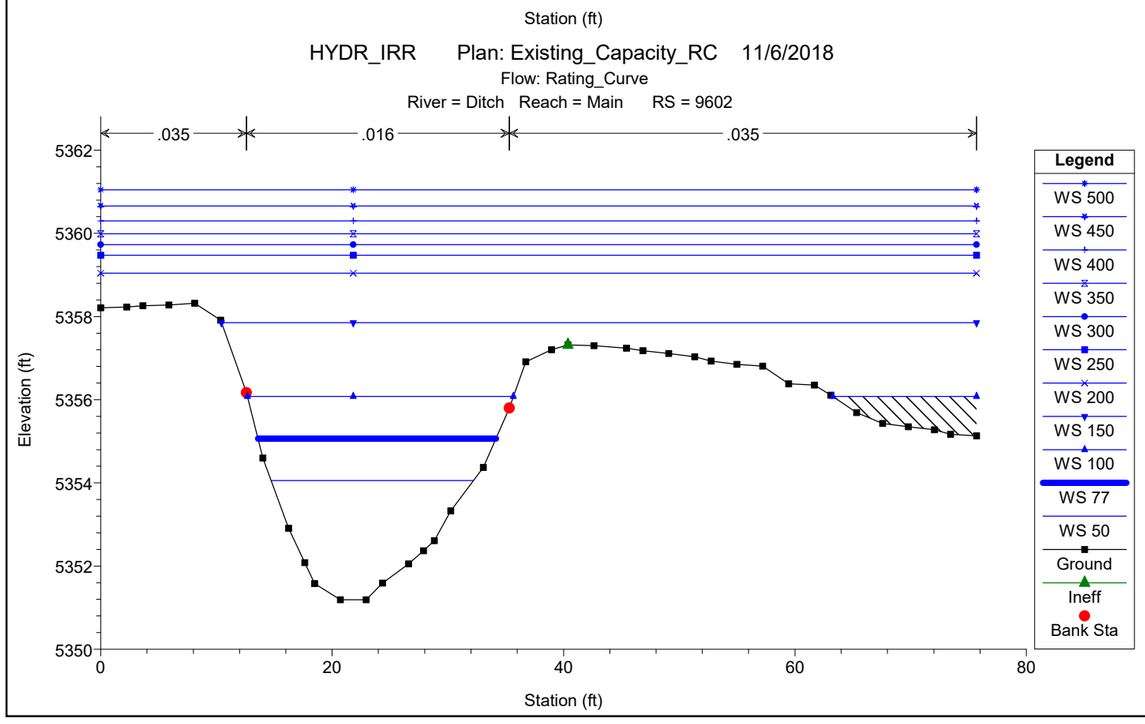

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 9866
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

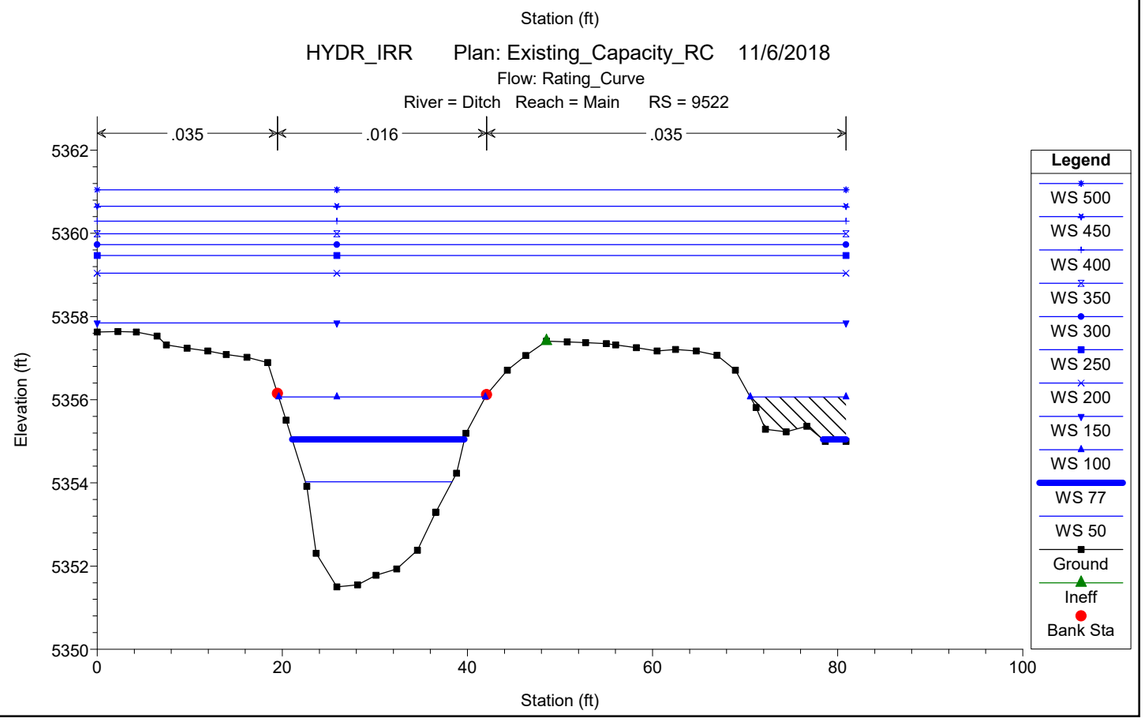

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 9802 BR
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

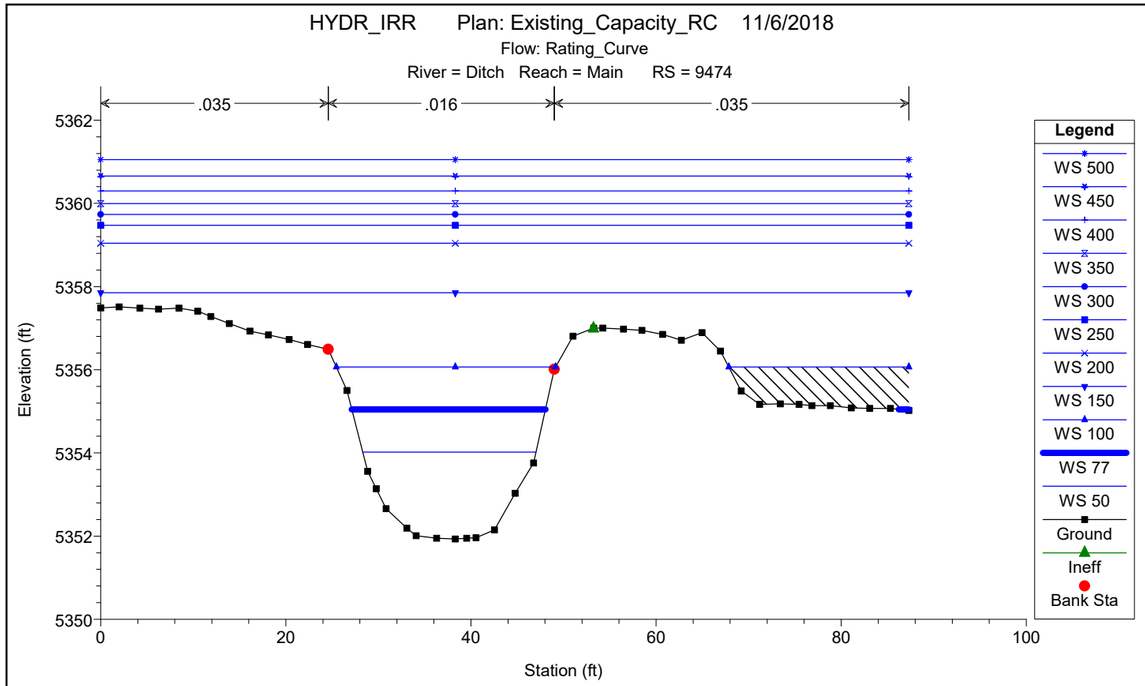

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 9802 BR
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

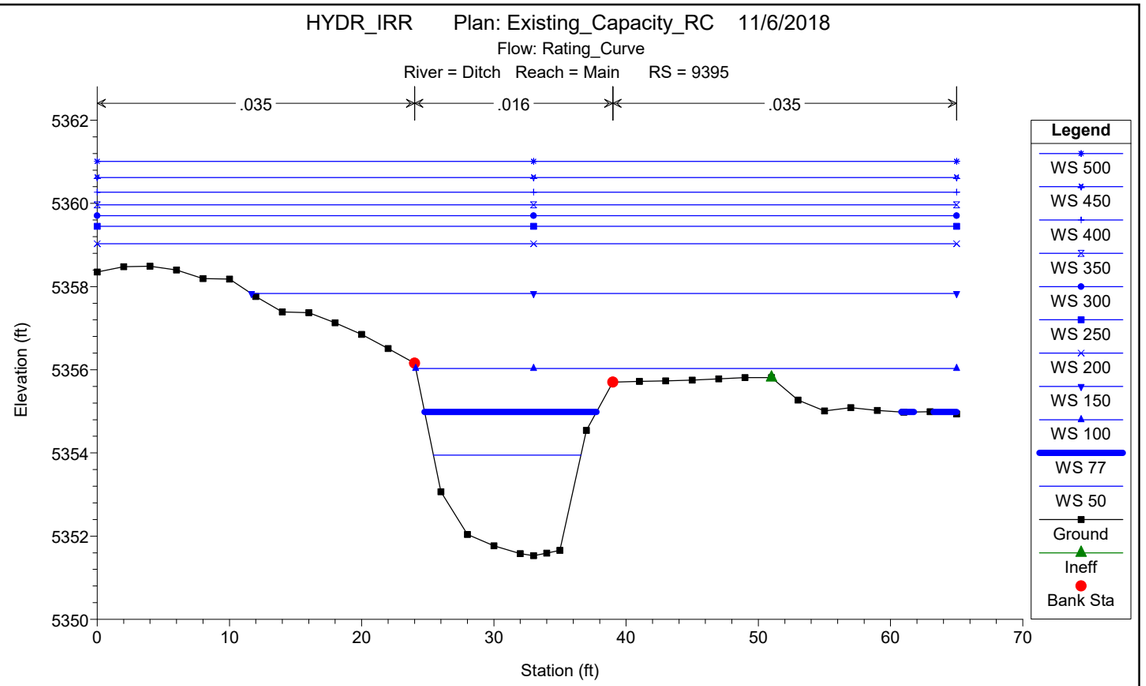

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 9713
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

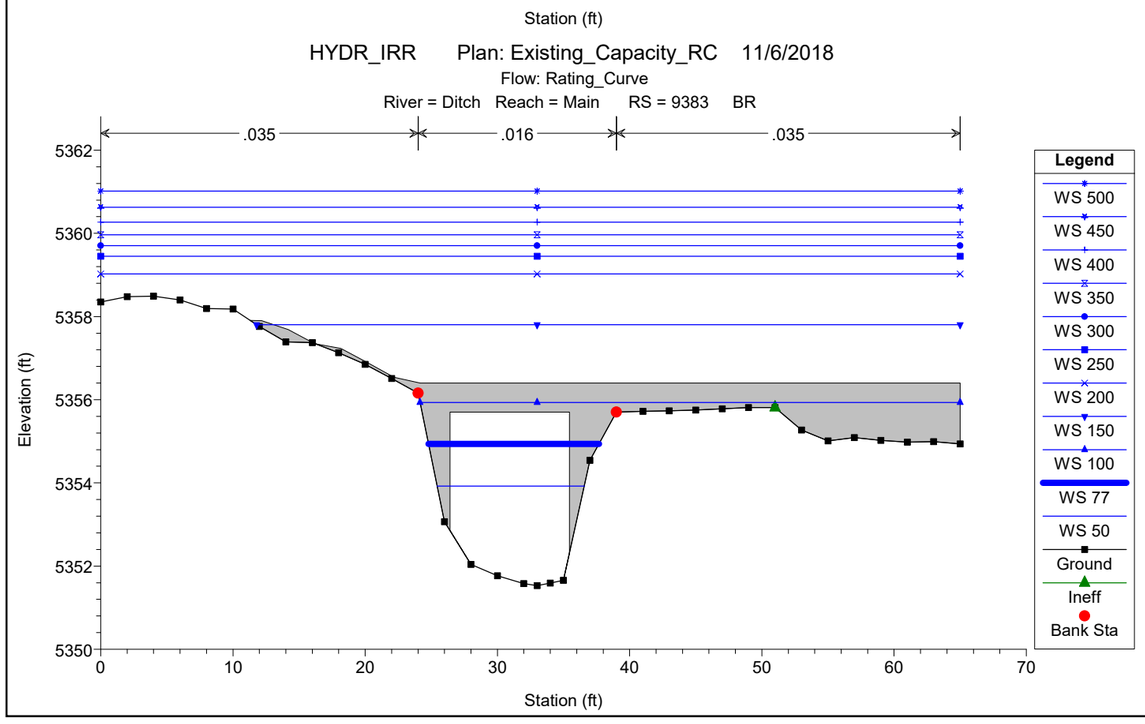

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 9648
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

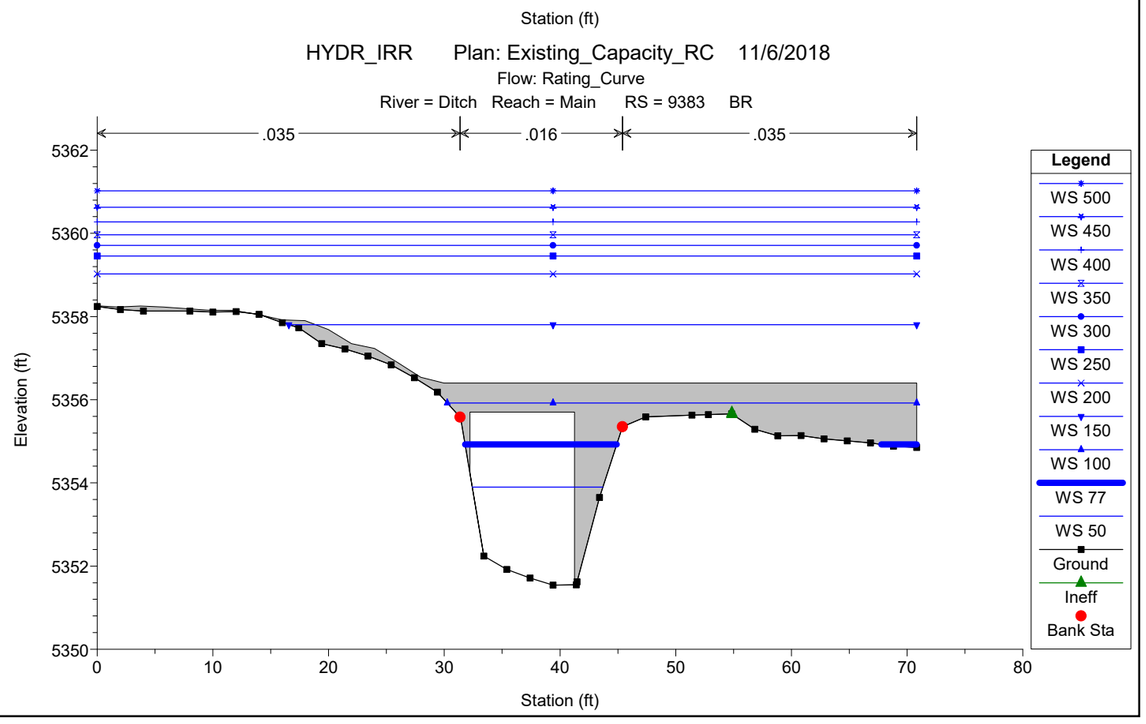

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 9602
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

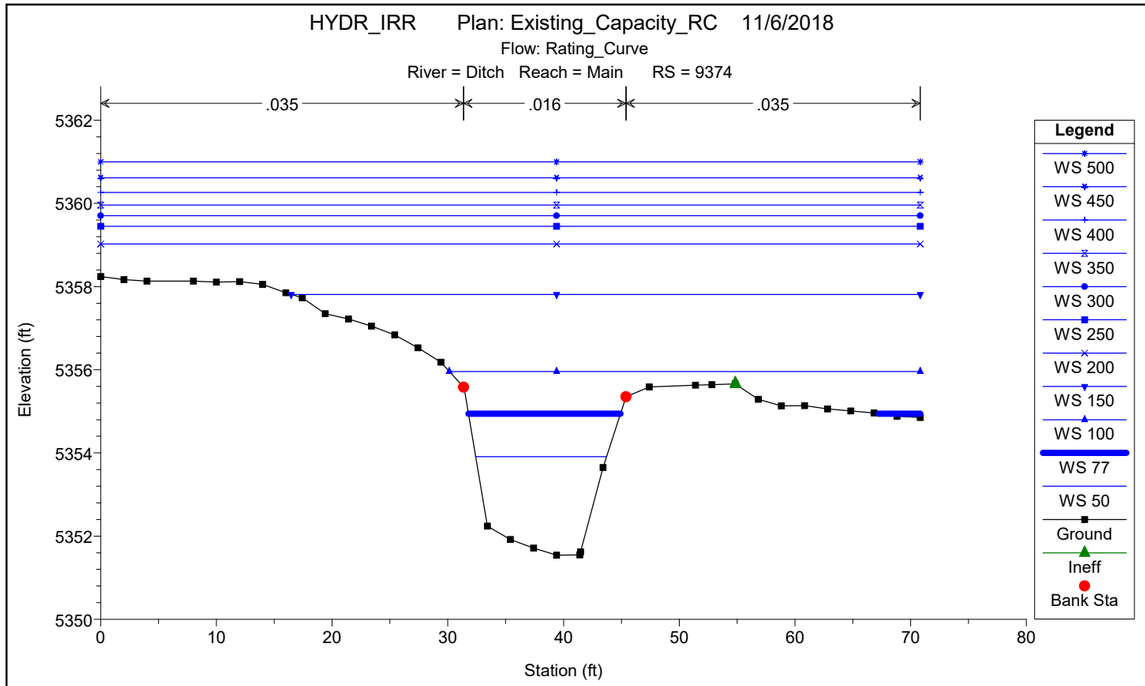

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 9522
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

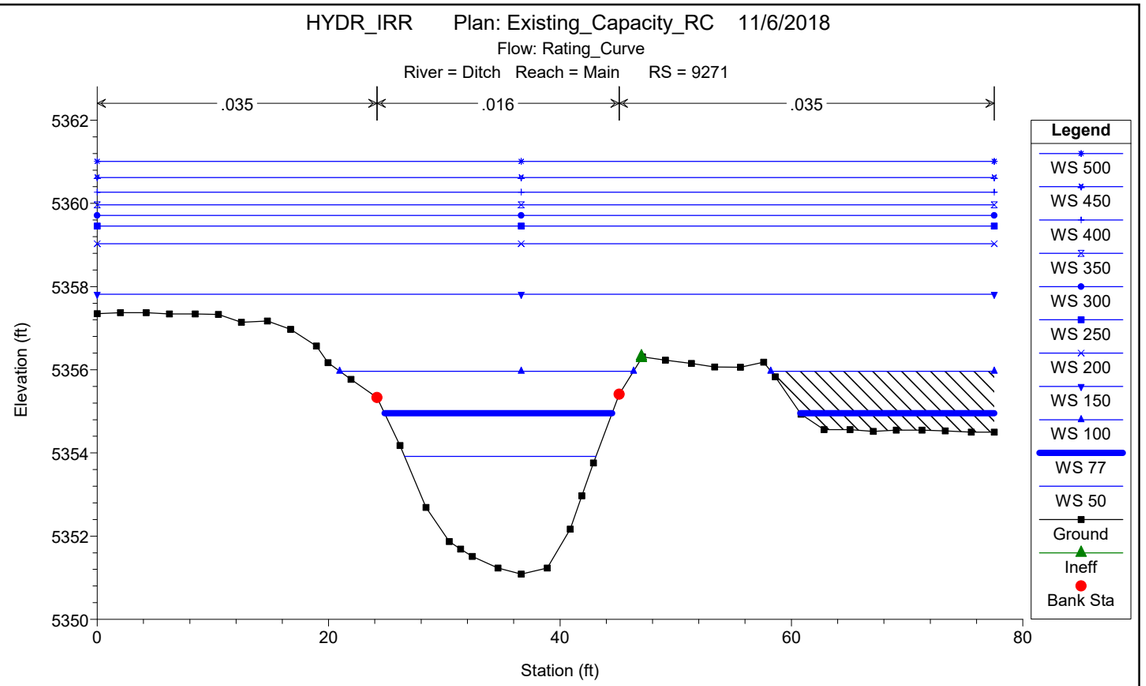

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 9474
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

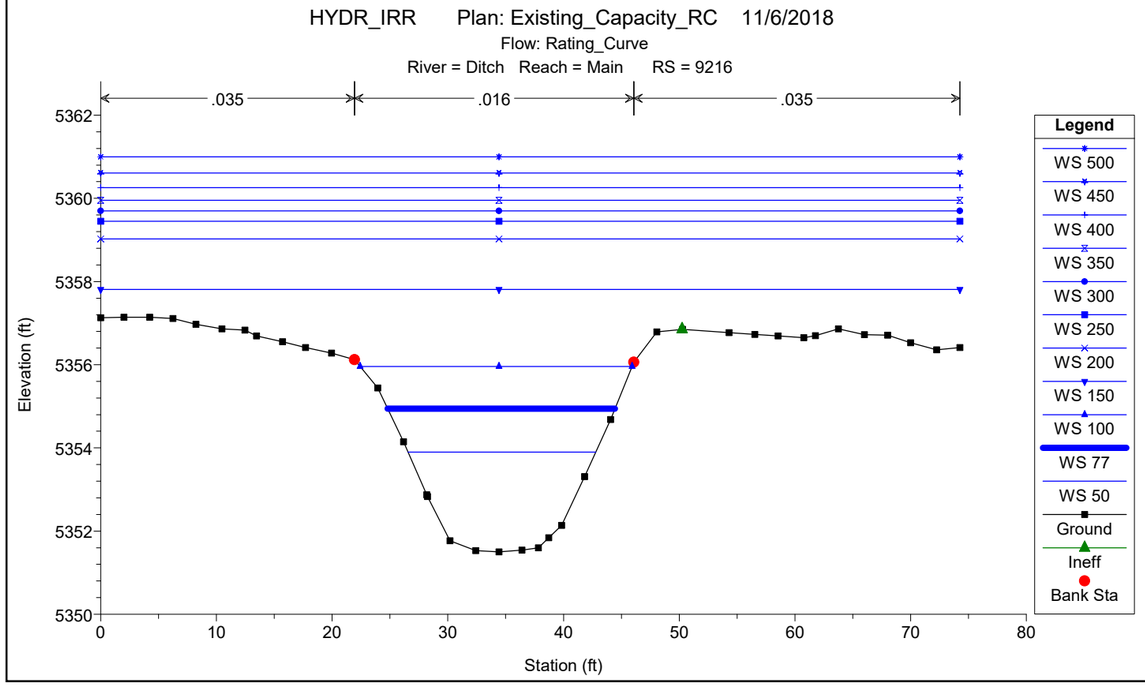

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 9395
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

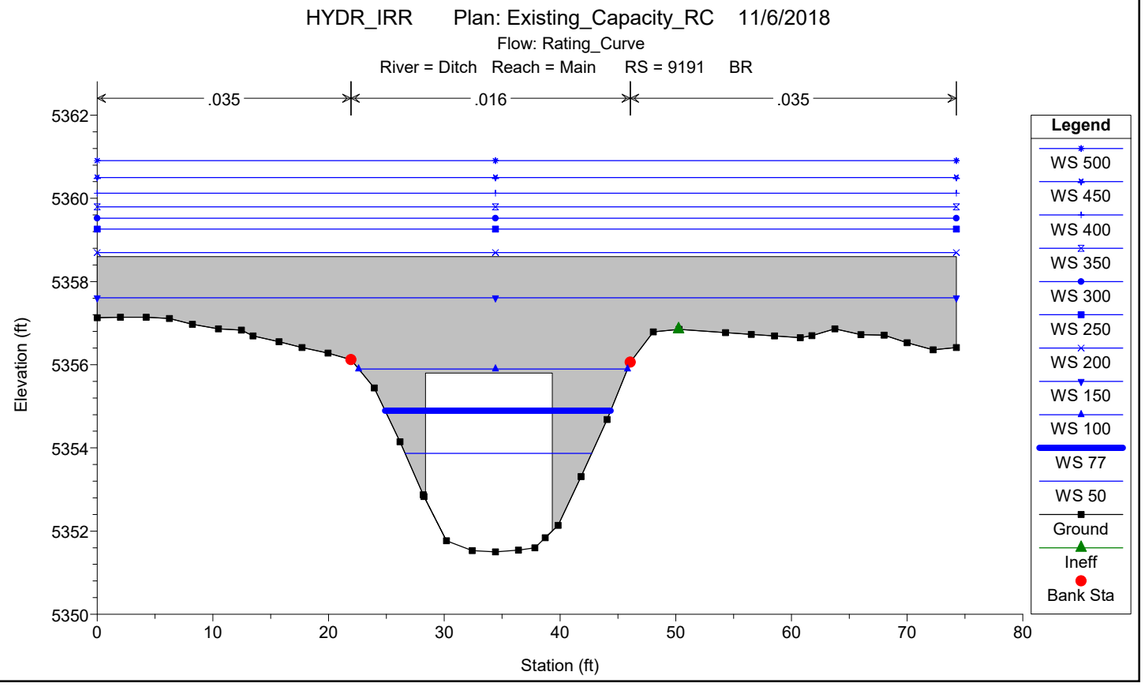

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 9383 BR
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

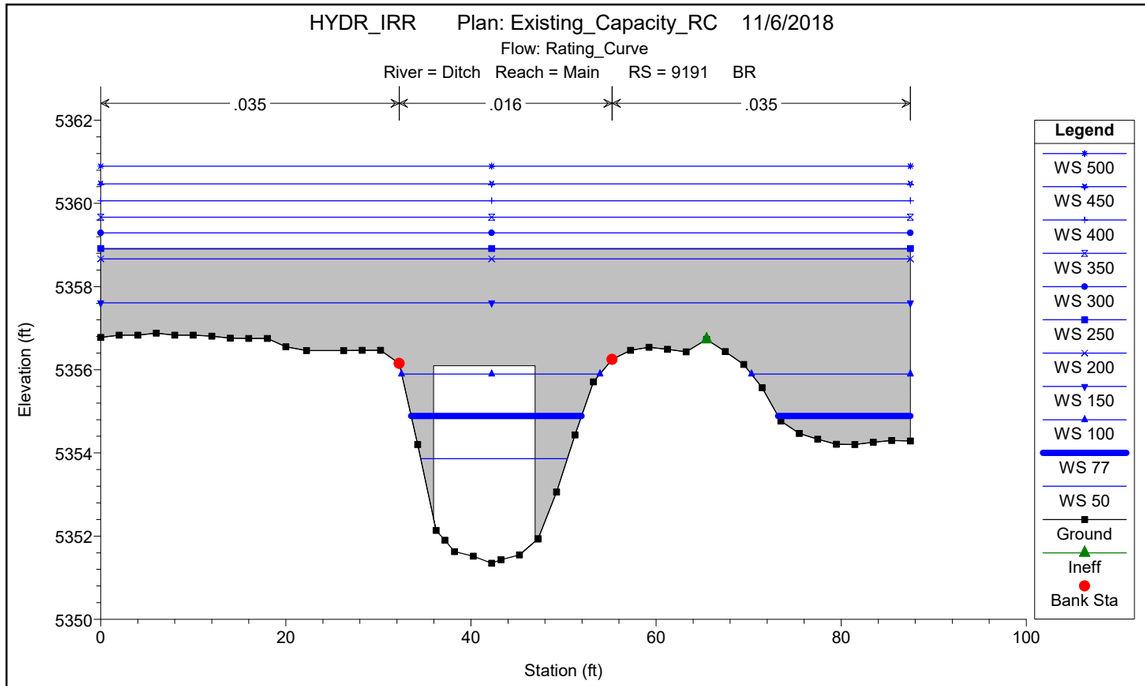

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 9383 BR
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

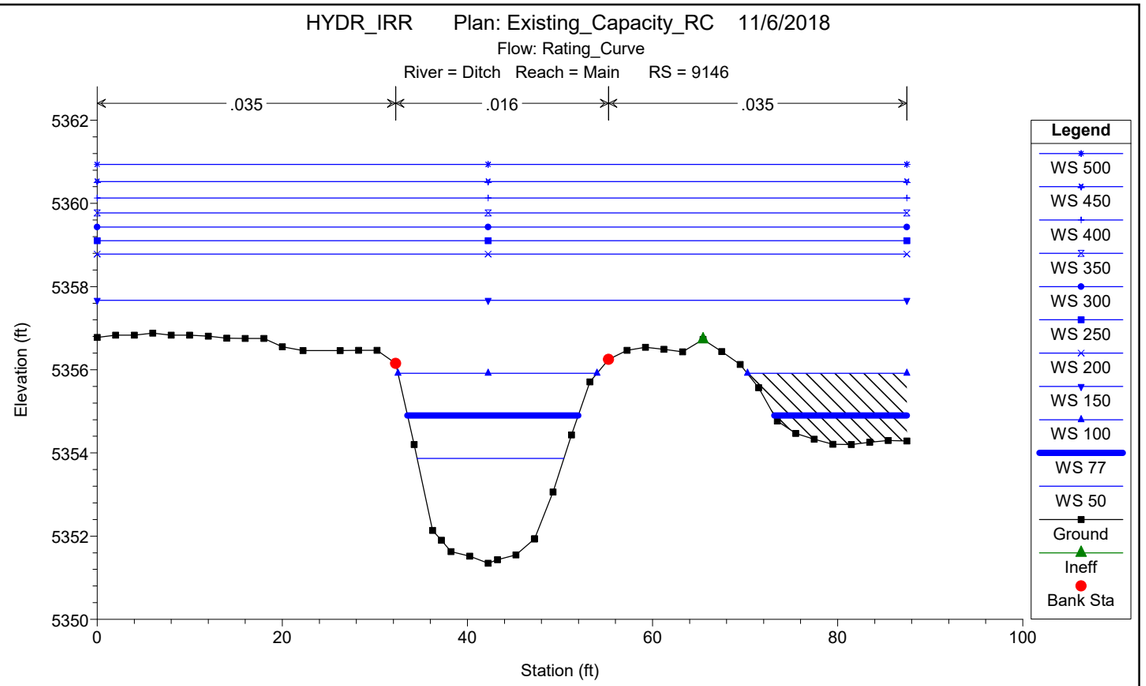

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 9374
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

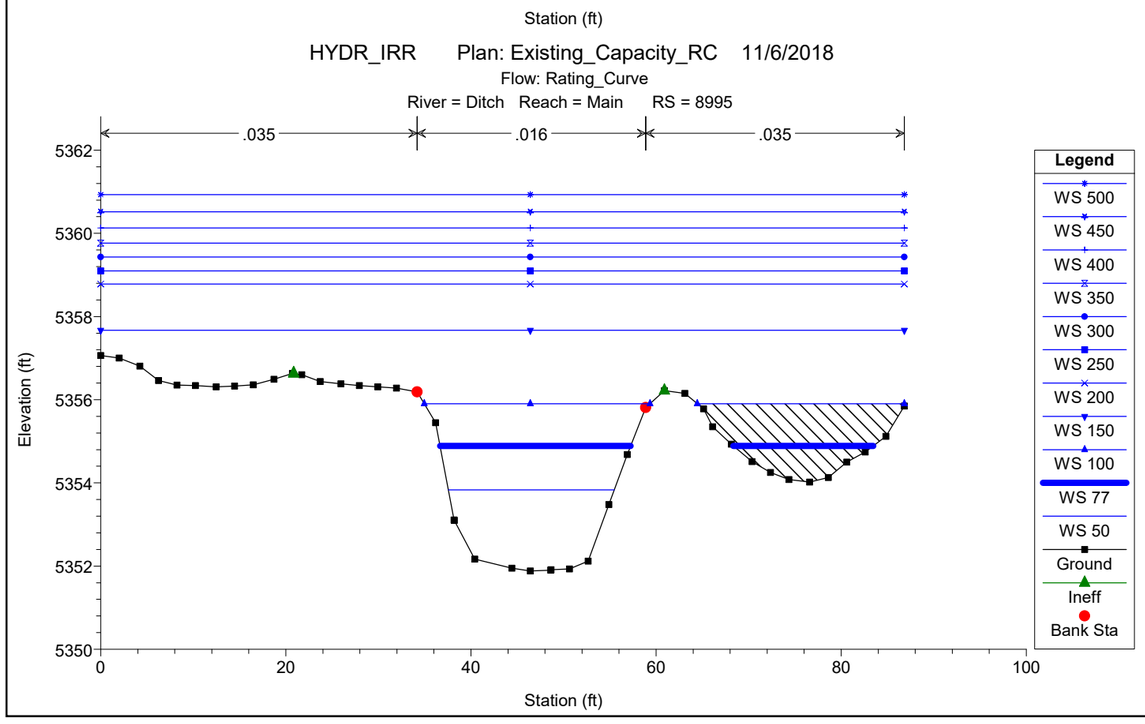

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 9271
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

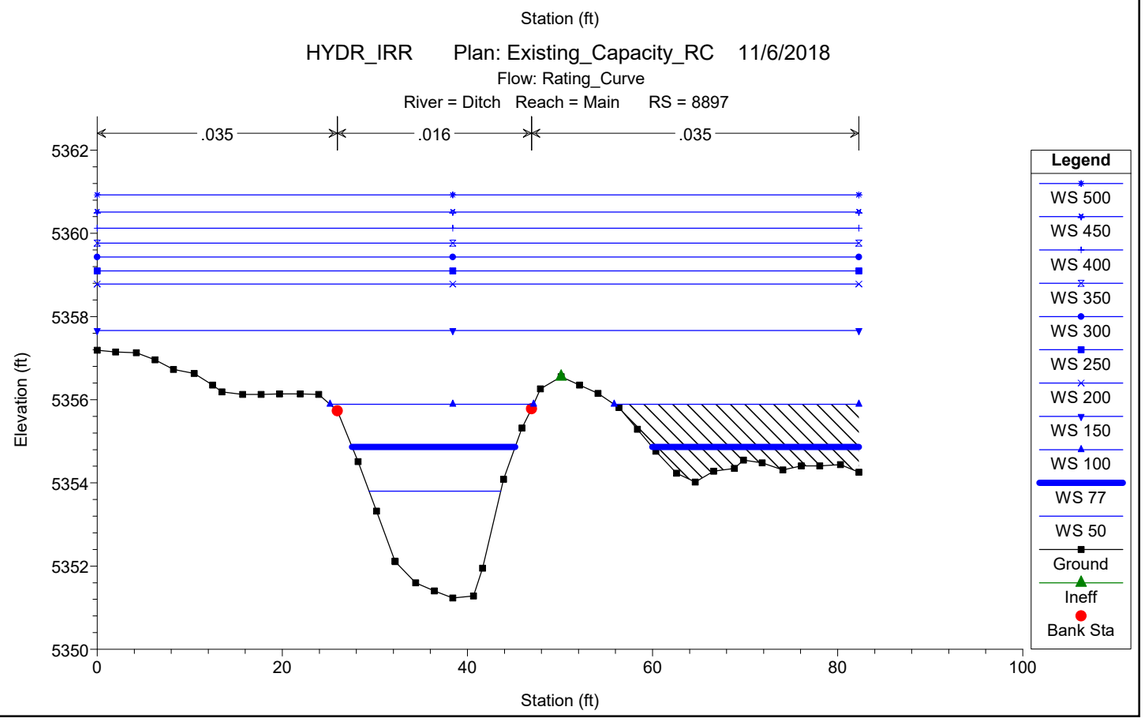

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 9216
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

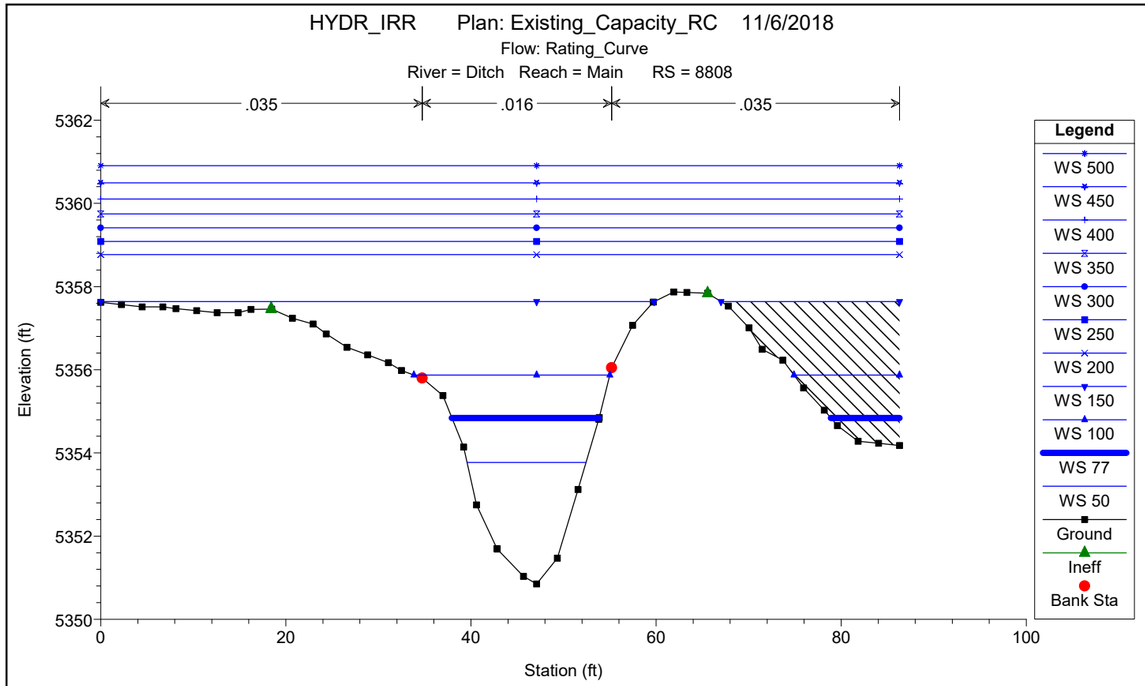

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 9191 BR
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

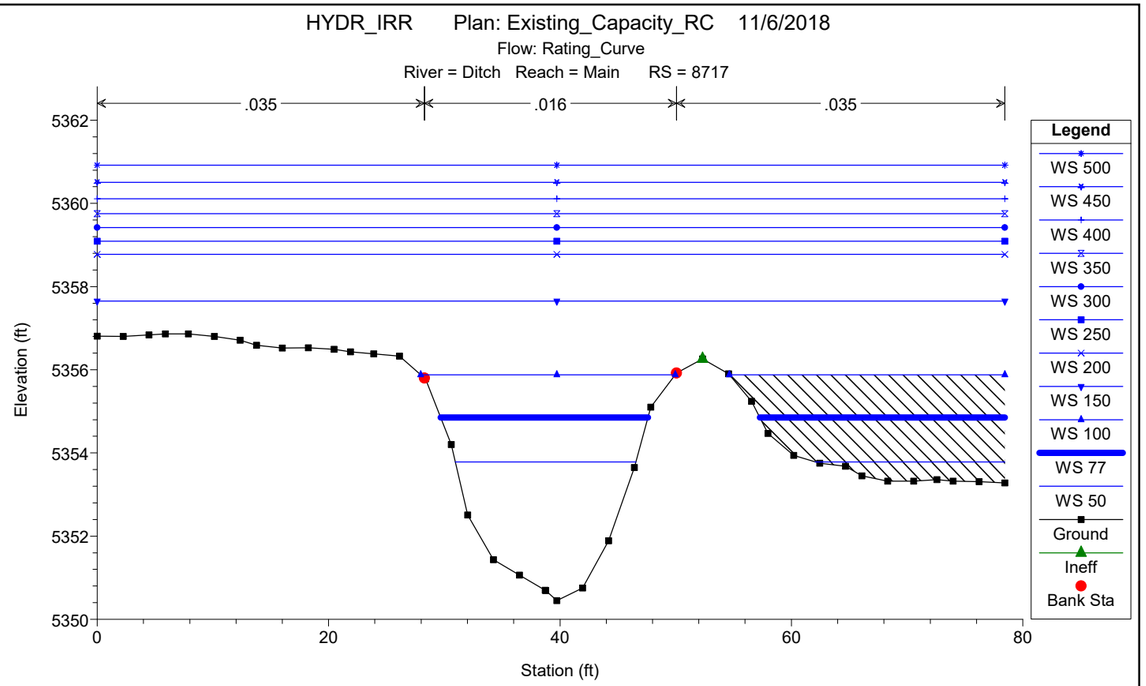

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 9191 BR
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

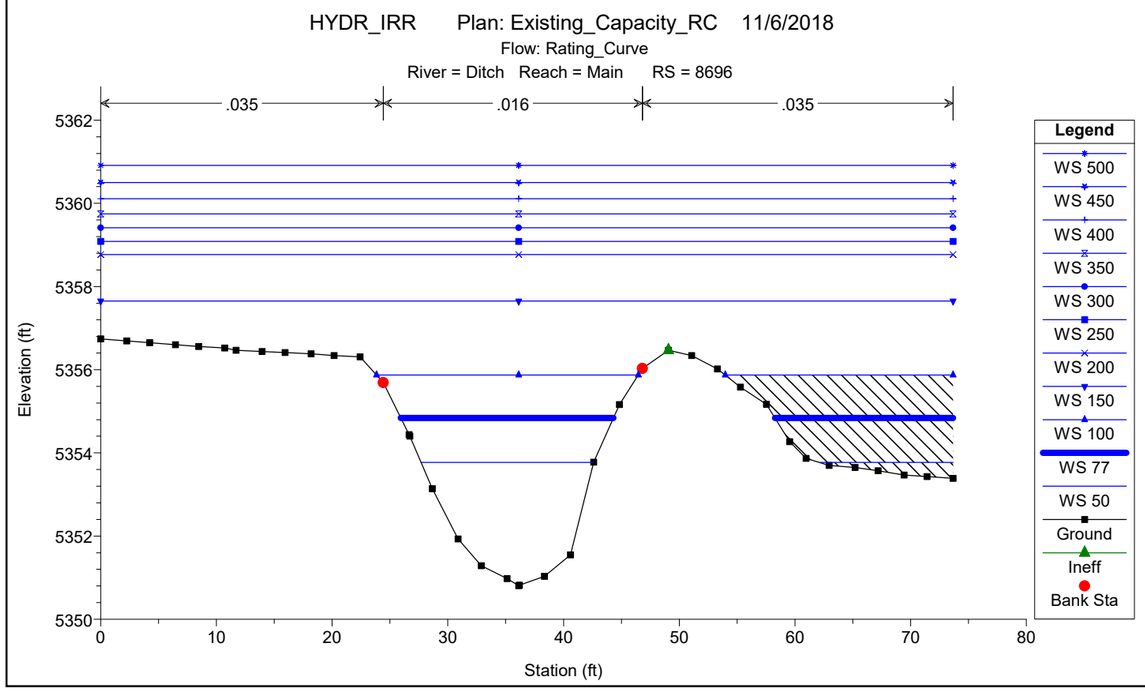

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 9146
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

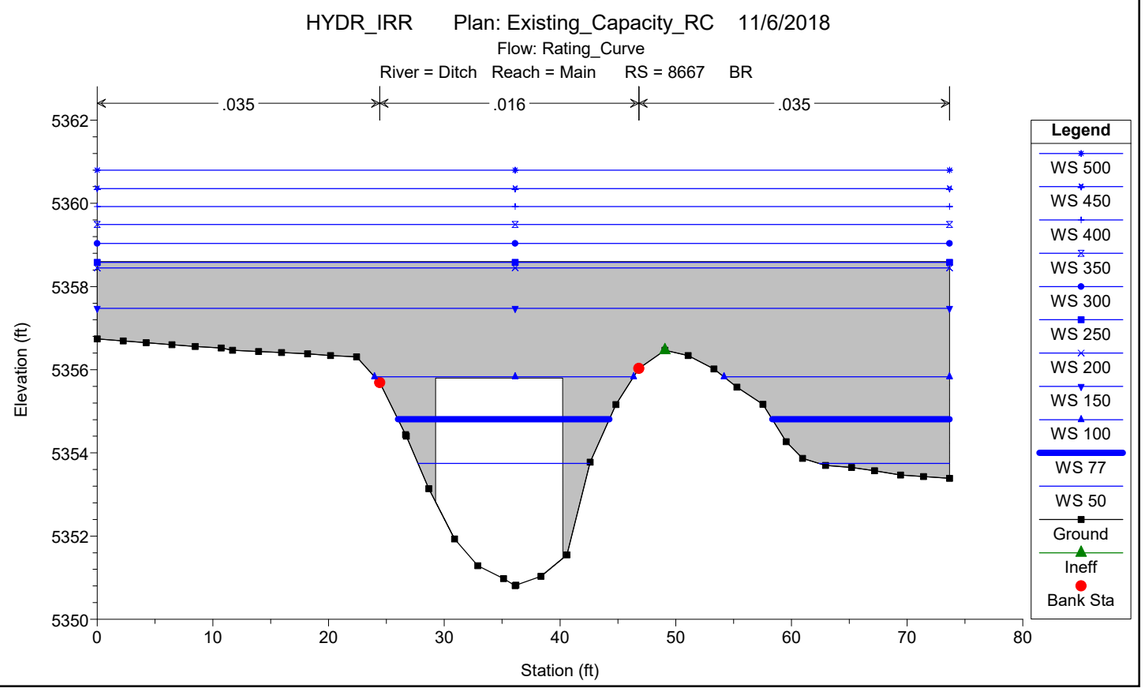

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 8995
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

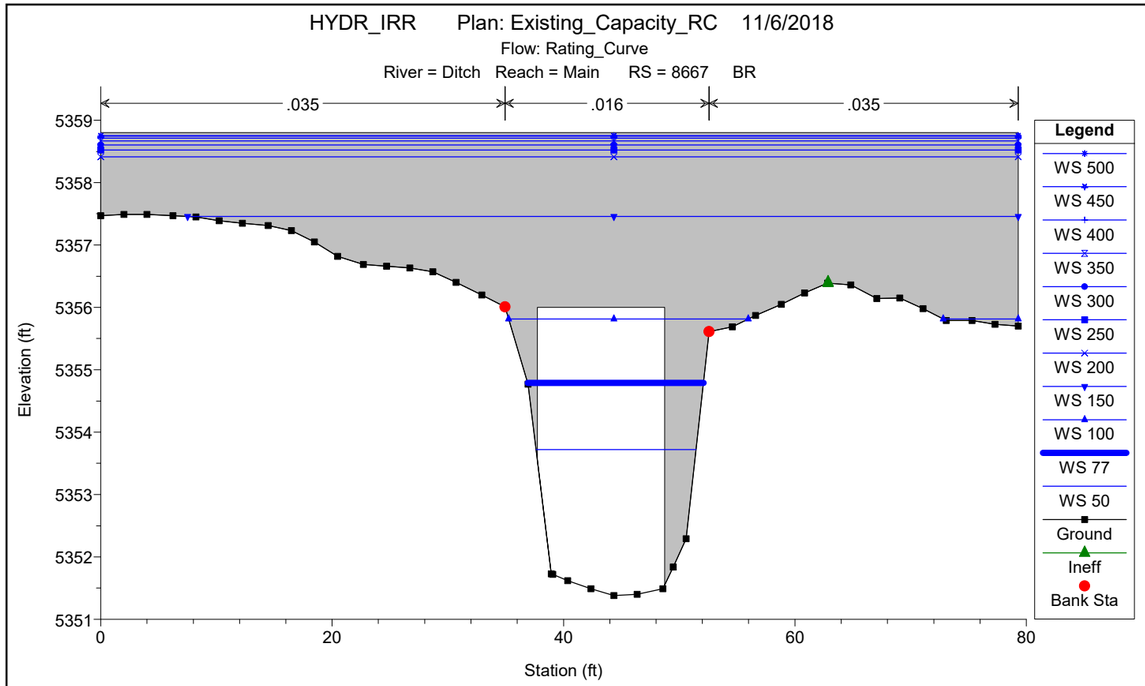

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 8897
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

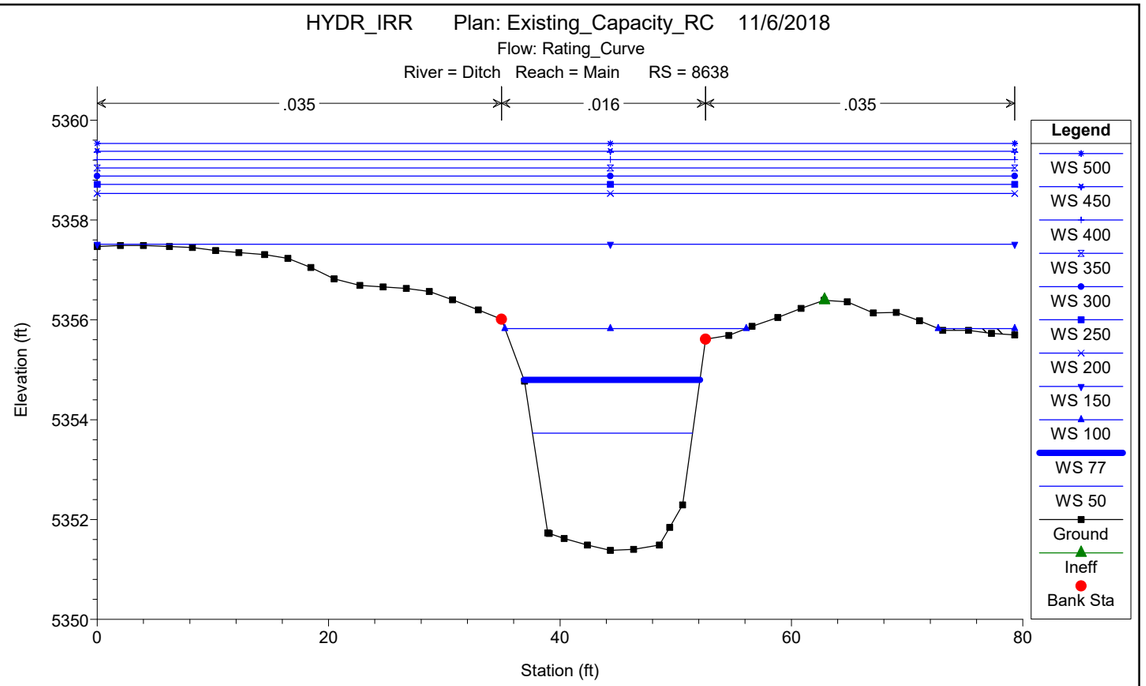

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 8808
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

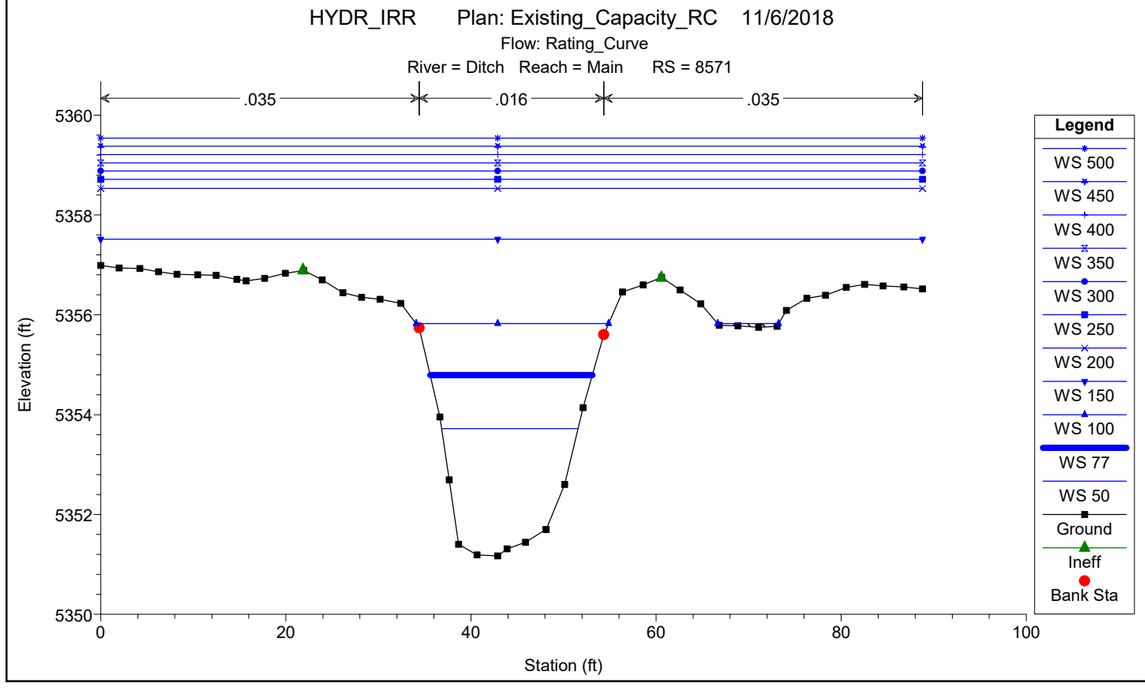

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 8717
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

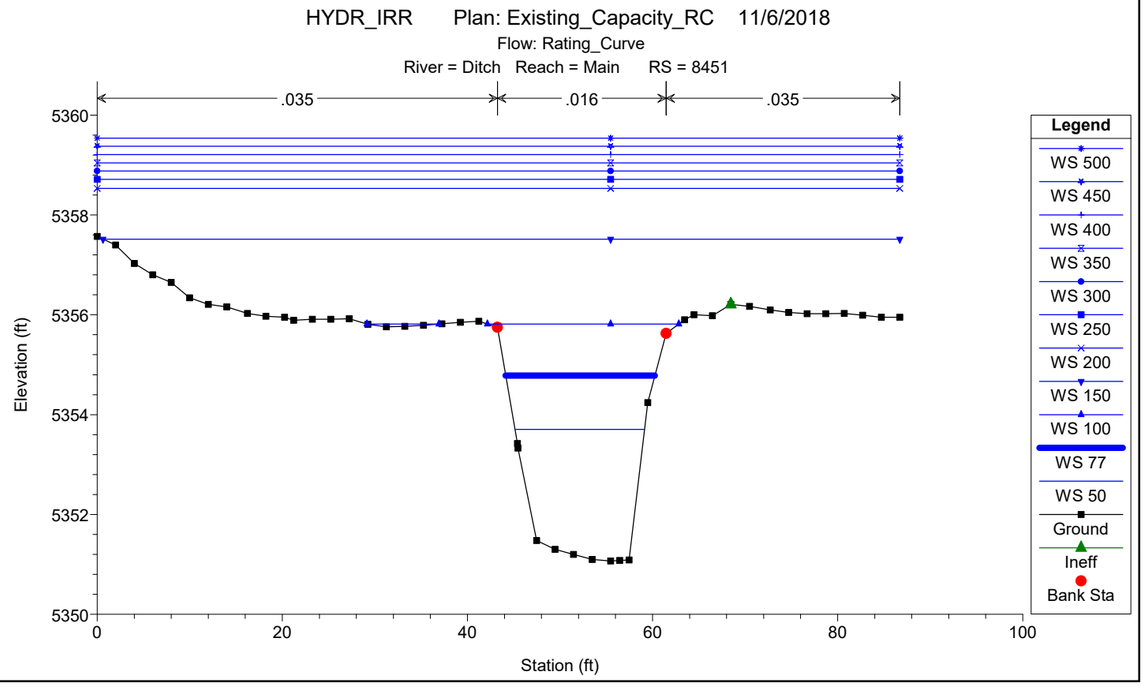

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 8696
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

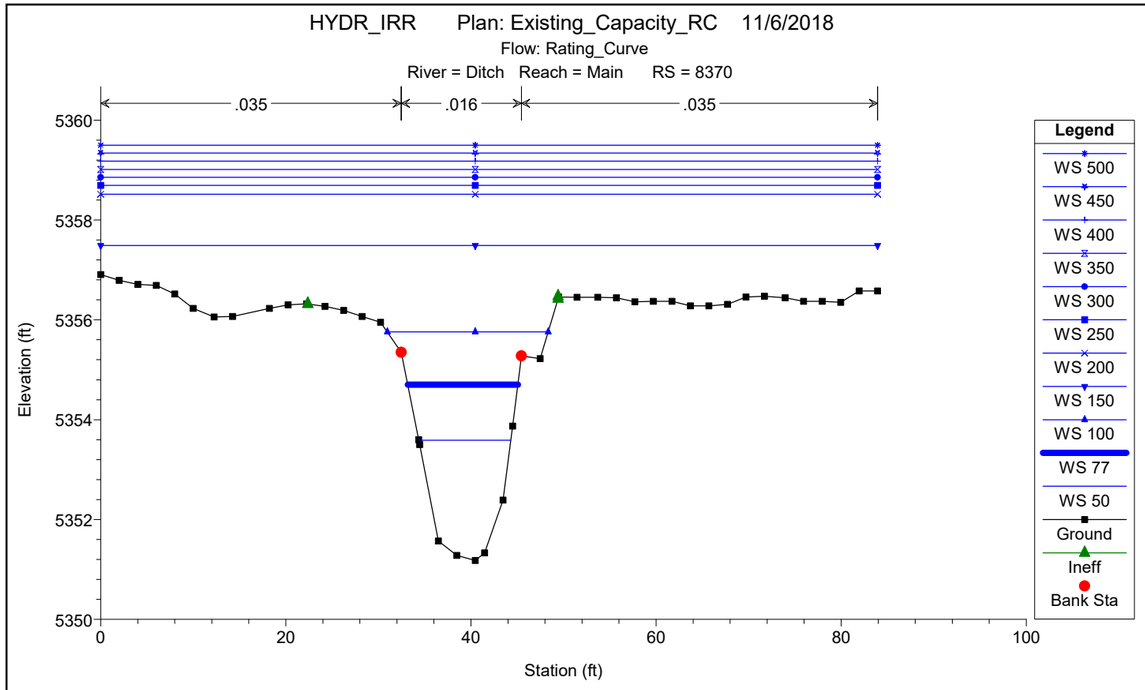

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 8667 BR
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

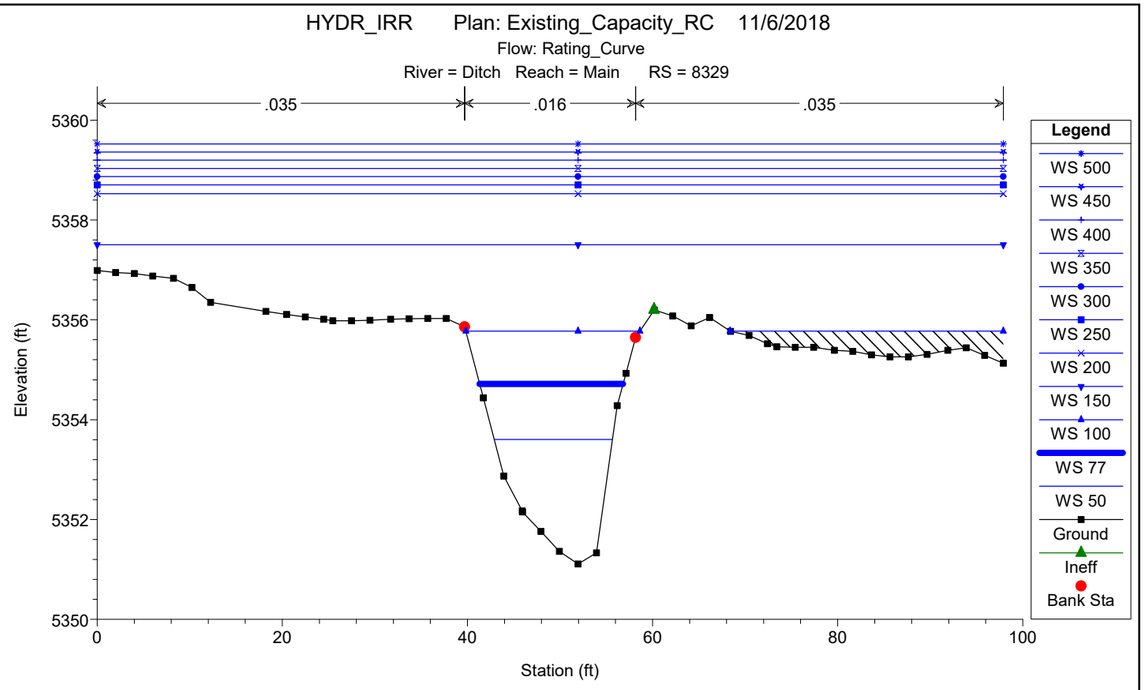

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 8667 BR
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

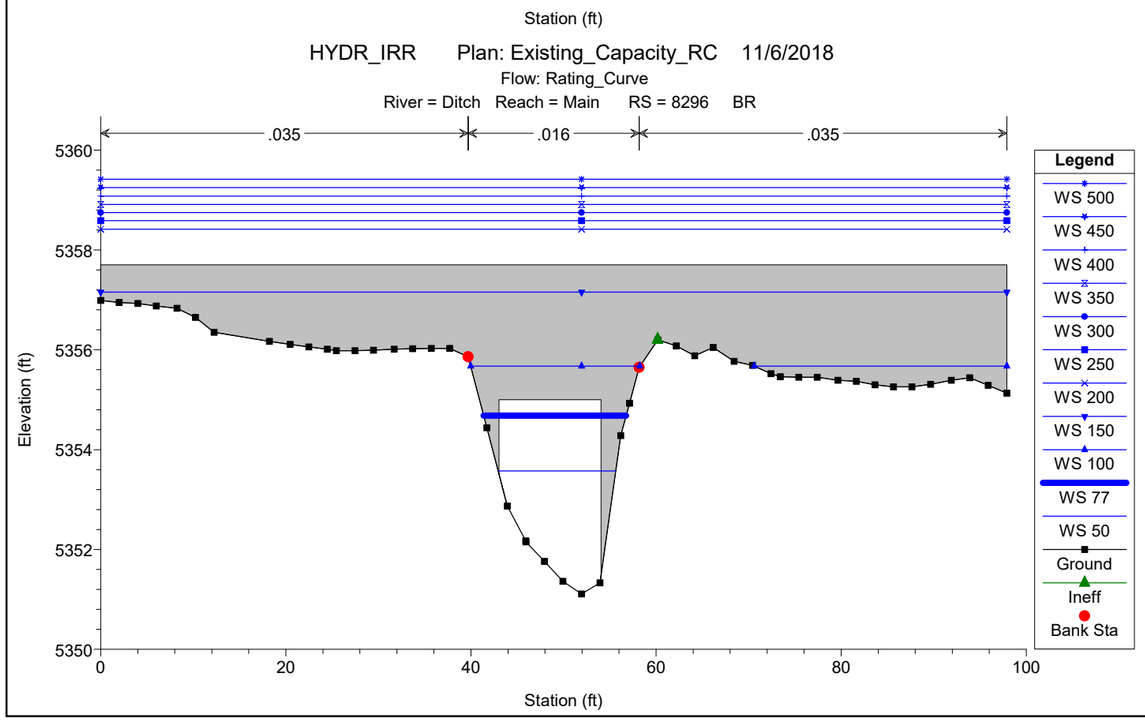

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 8638
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

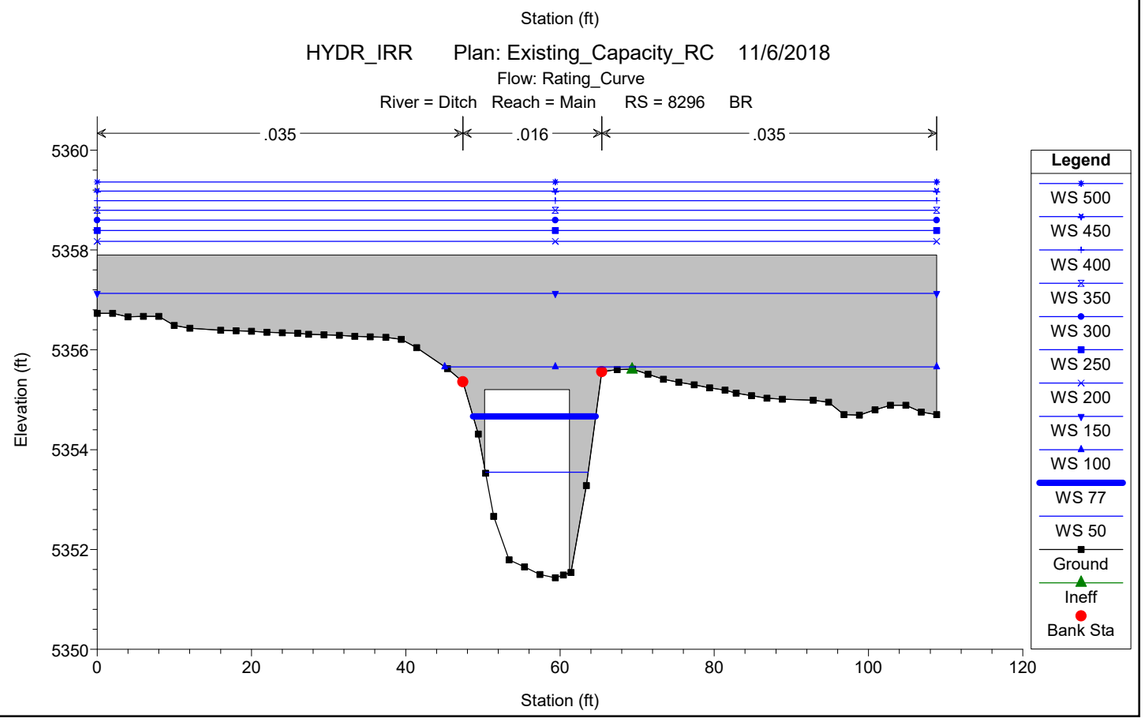

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 8571
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

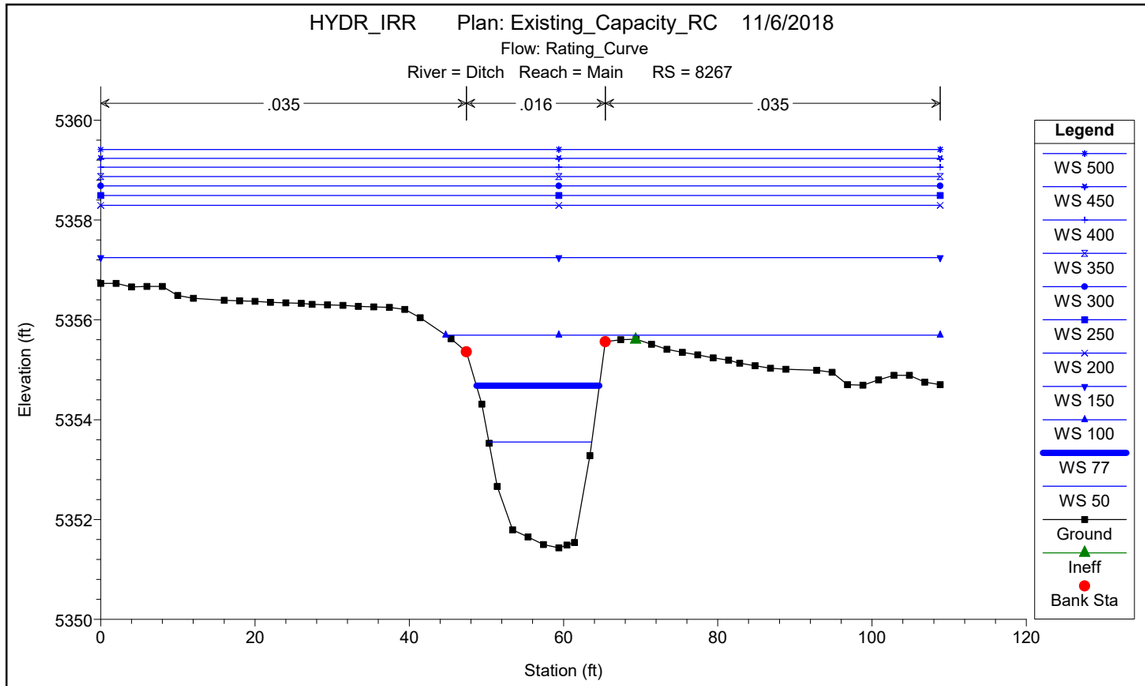

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 8451
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

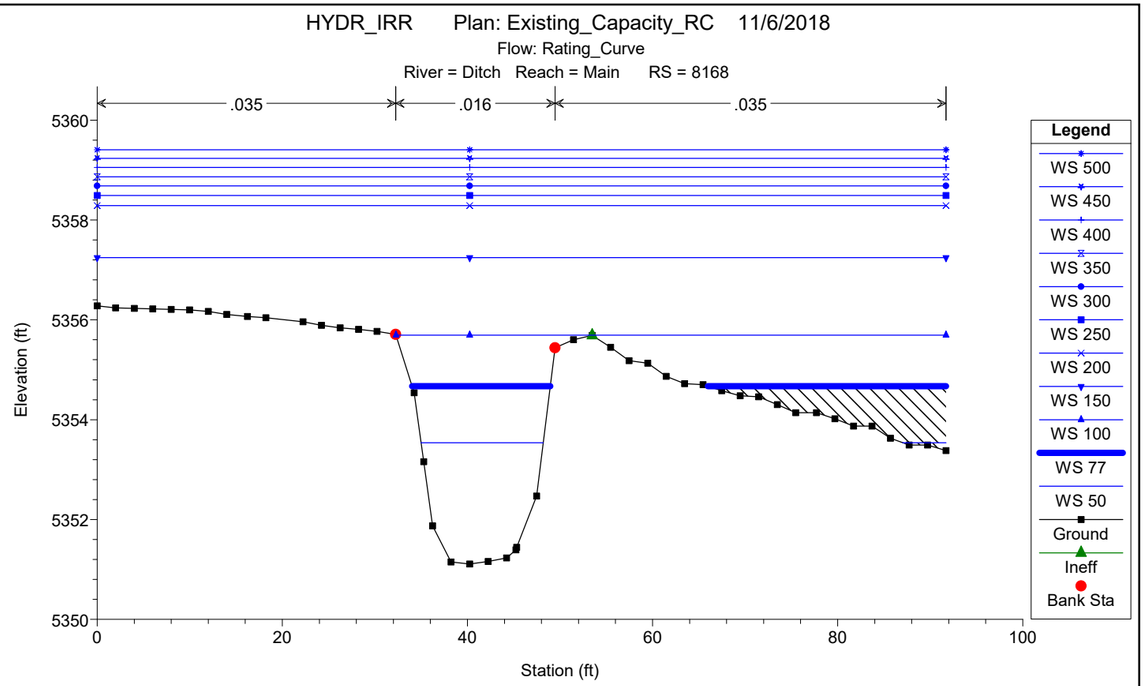

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 8370
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

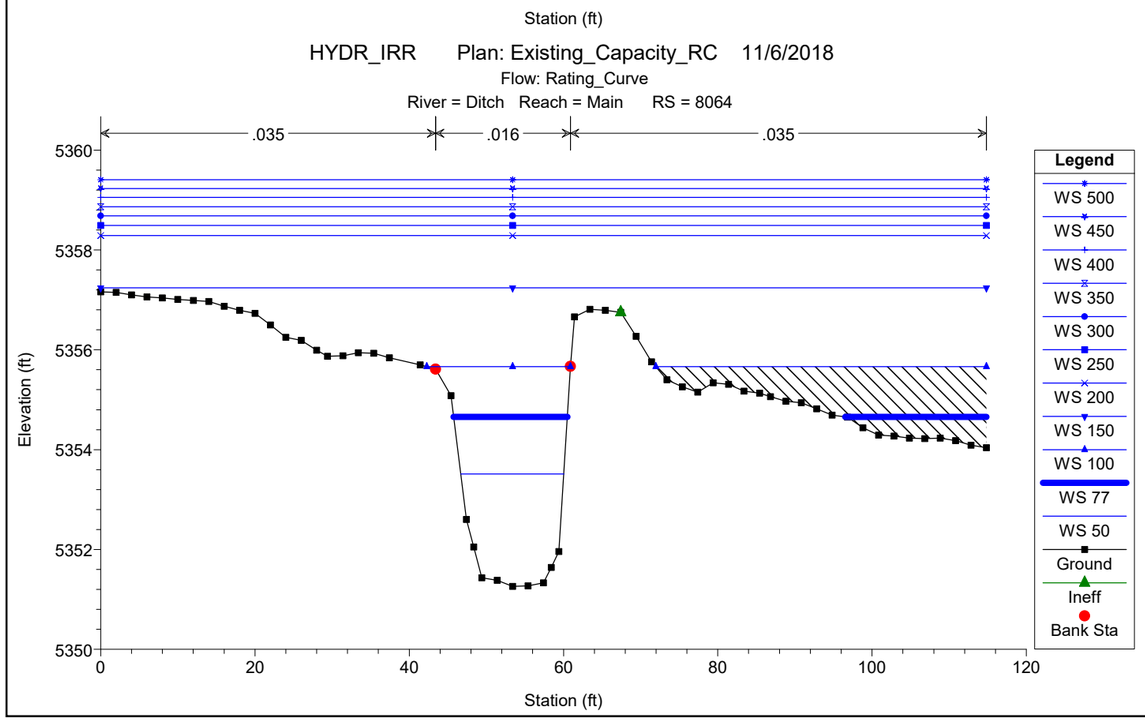

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 8329
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

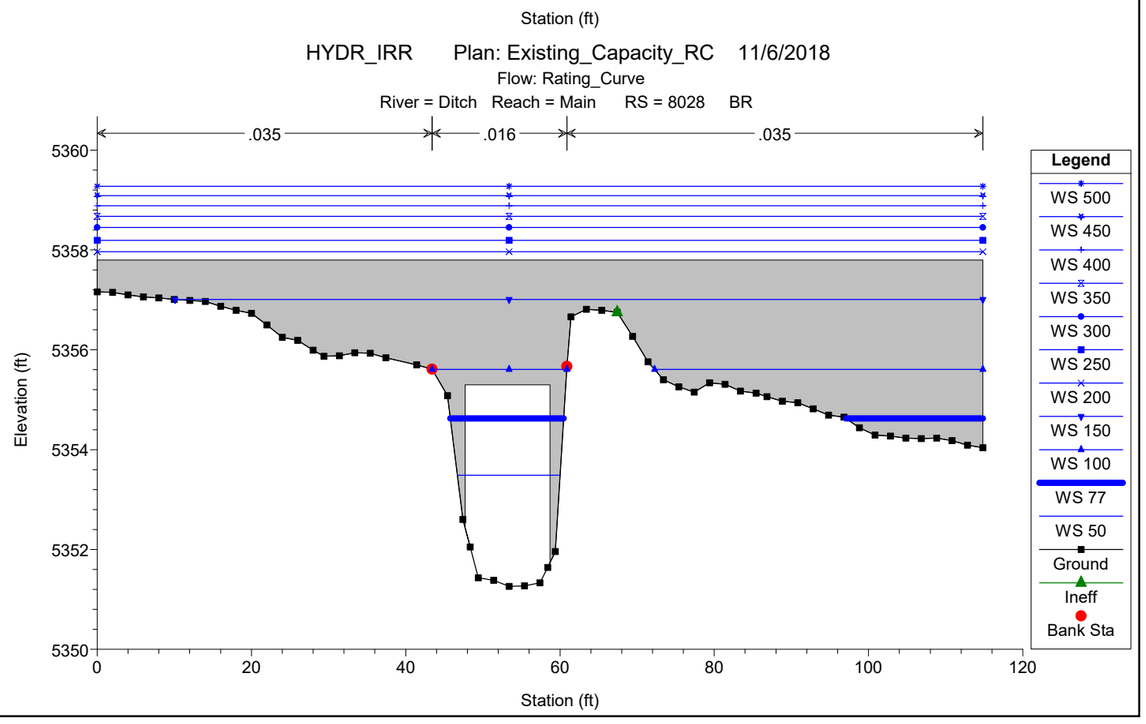

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 8296 BR
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

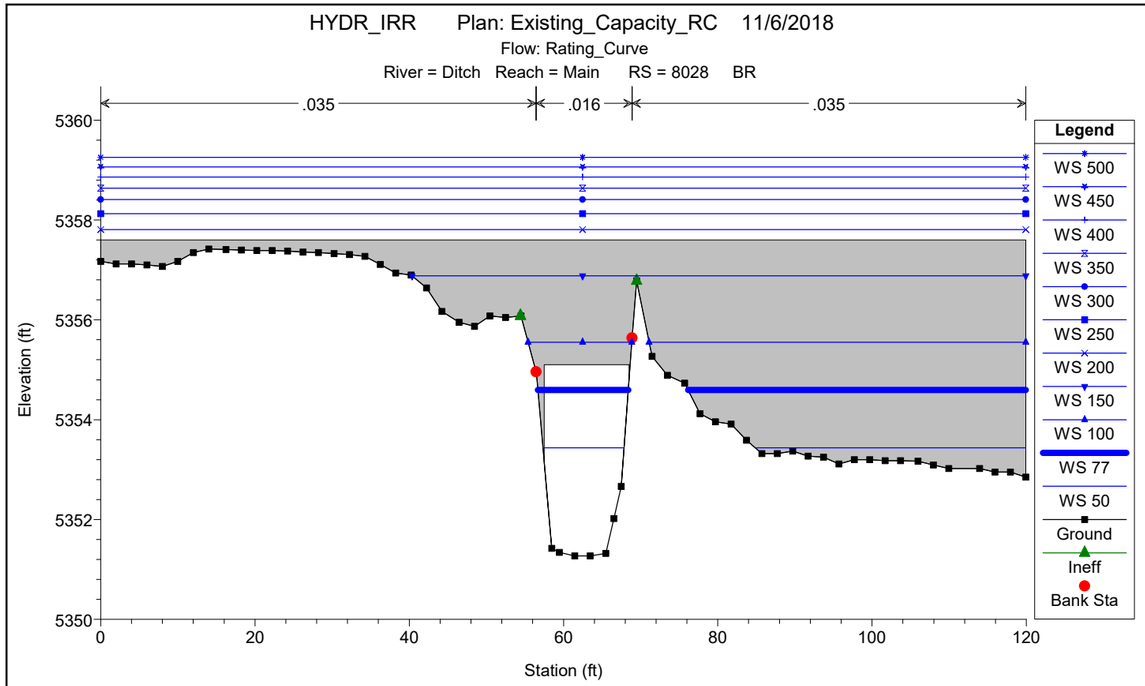

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 8296 BR
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

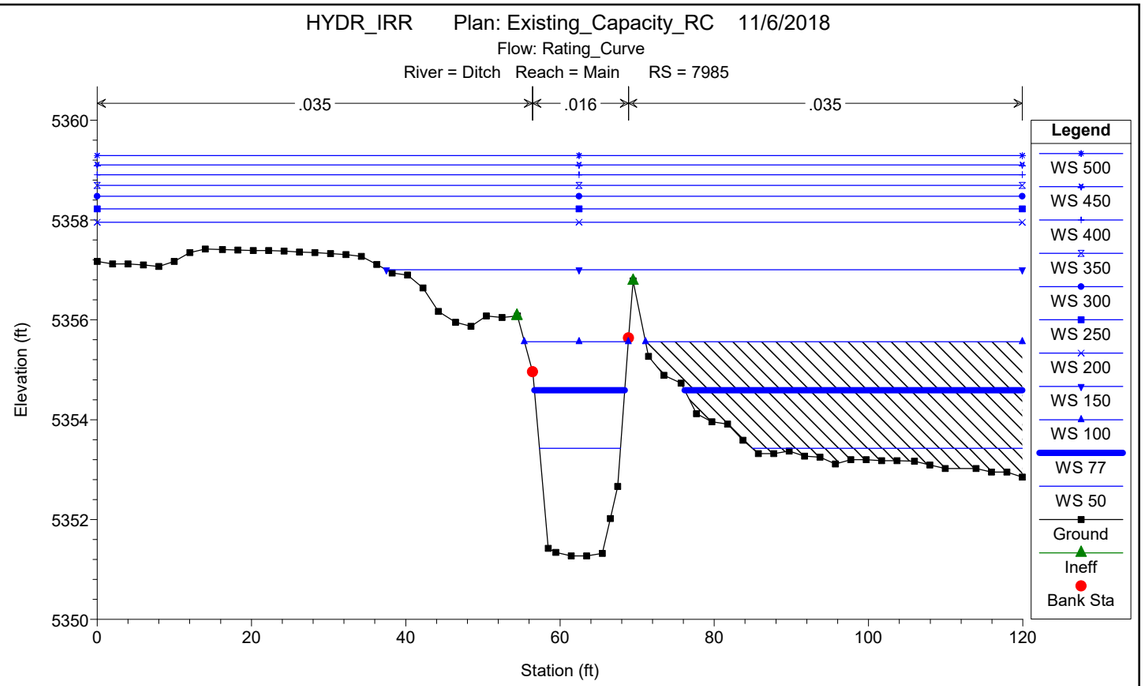

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 8267
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

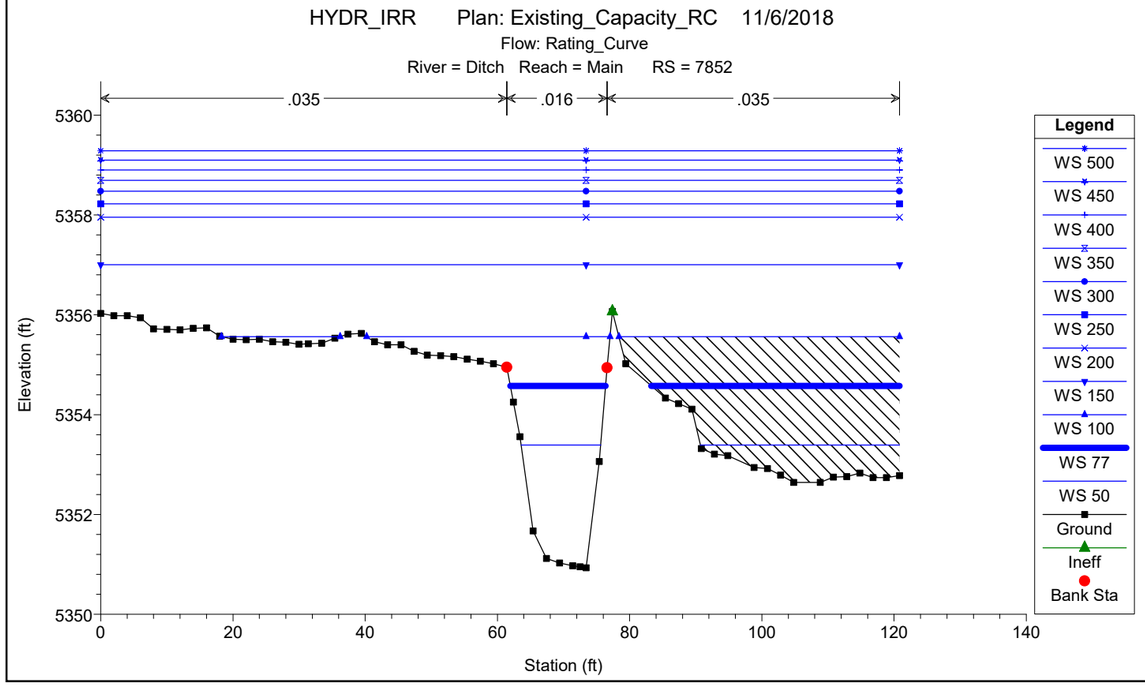

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 8168
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

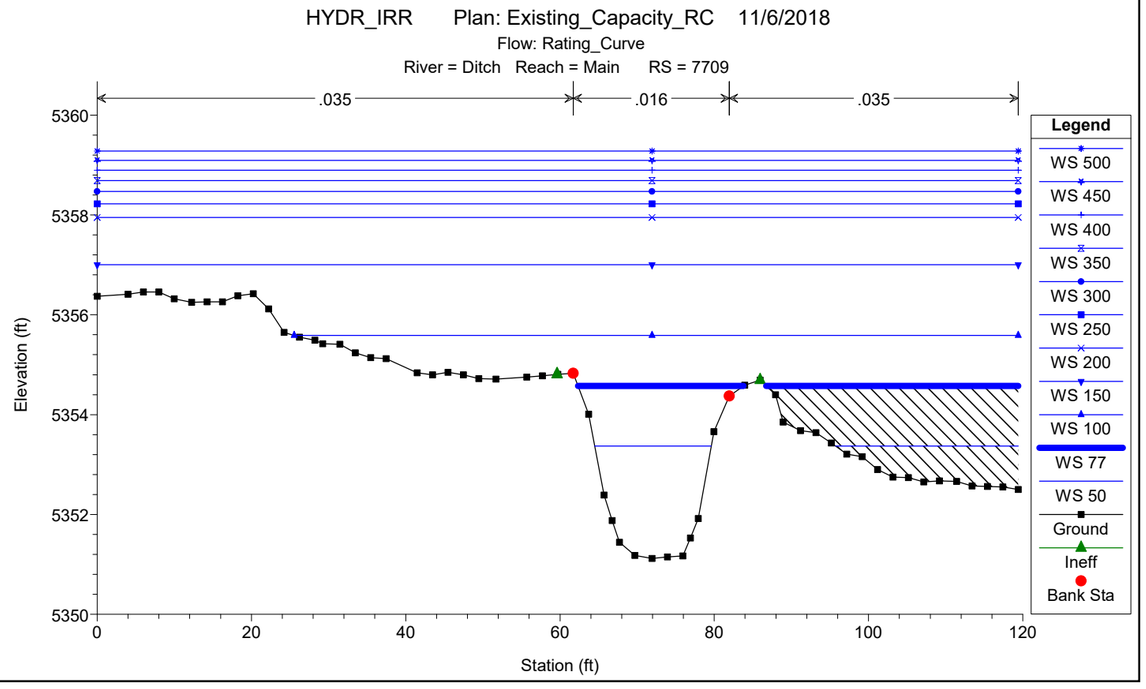

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 8064
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

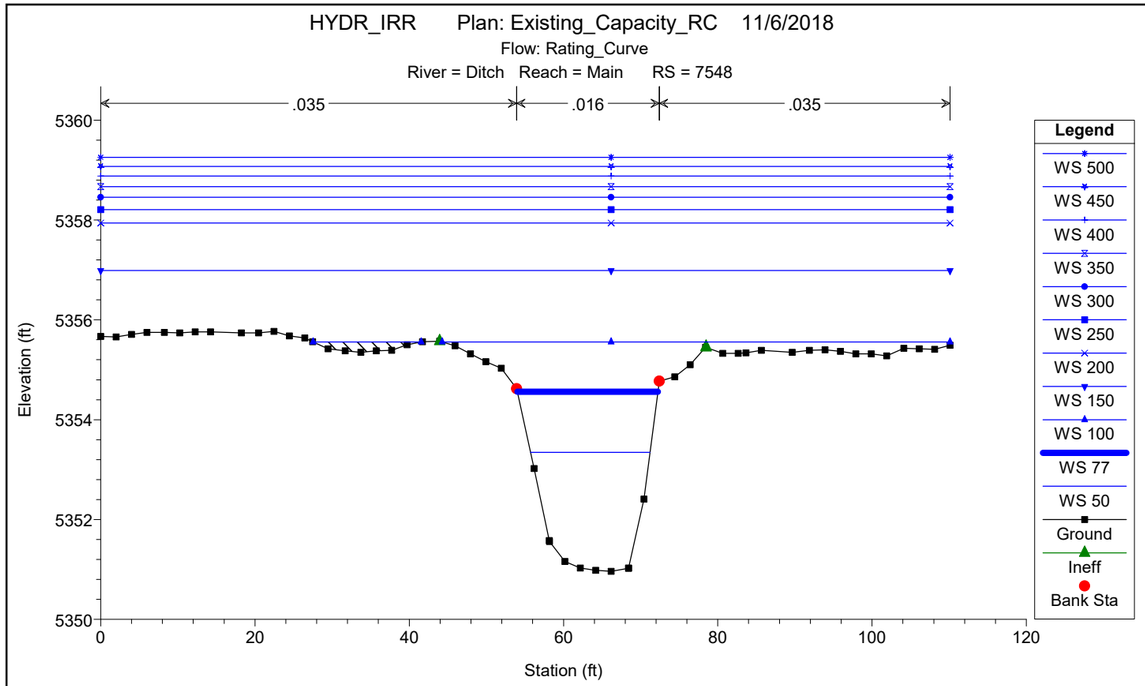

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 8028 BR
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

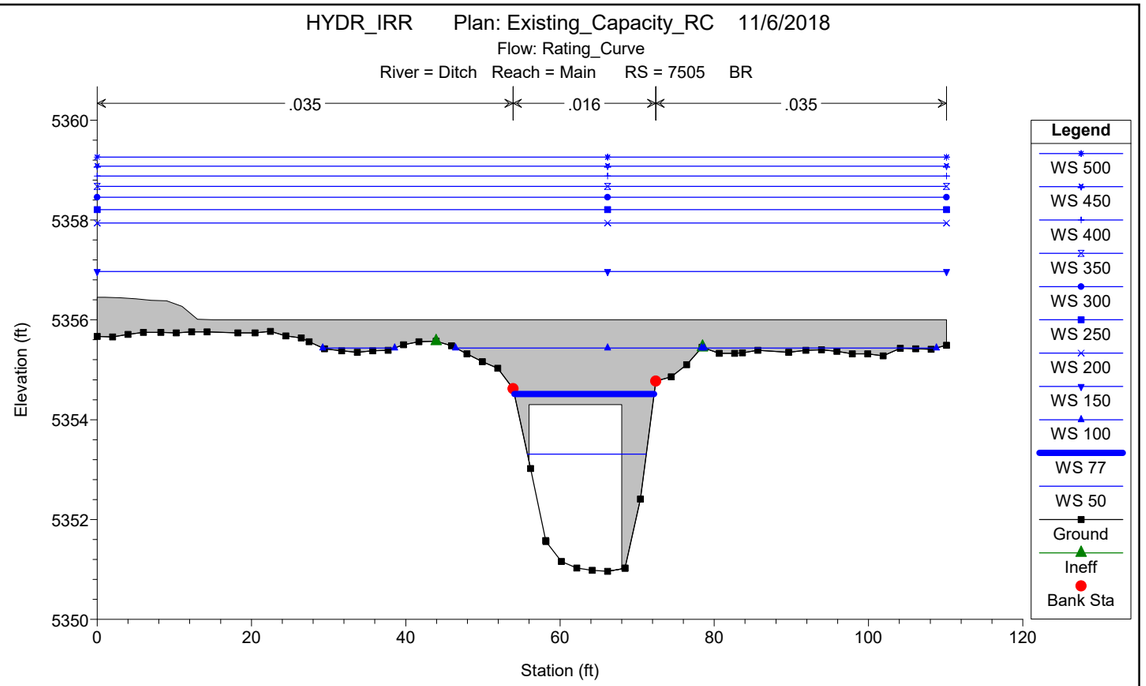

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 8028 BR
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

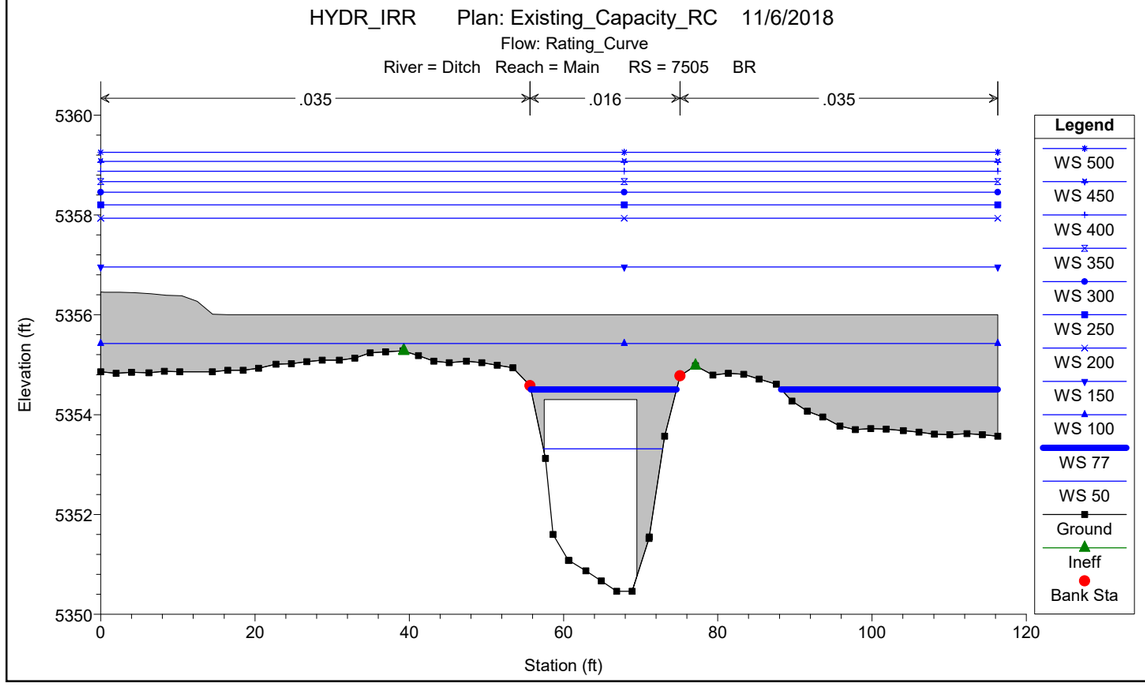

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 7985
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

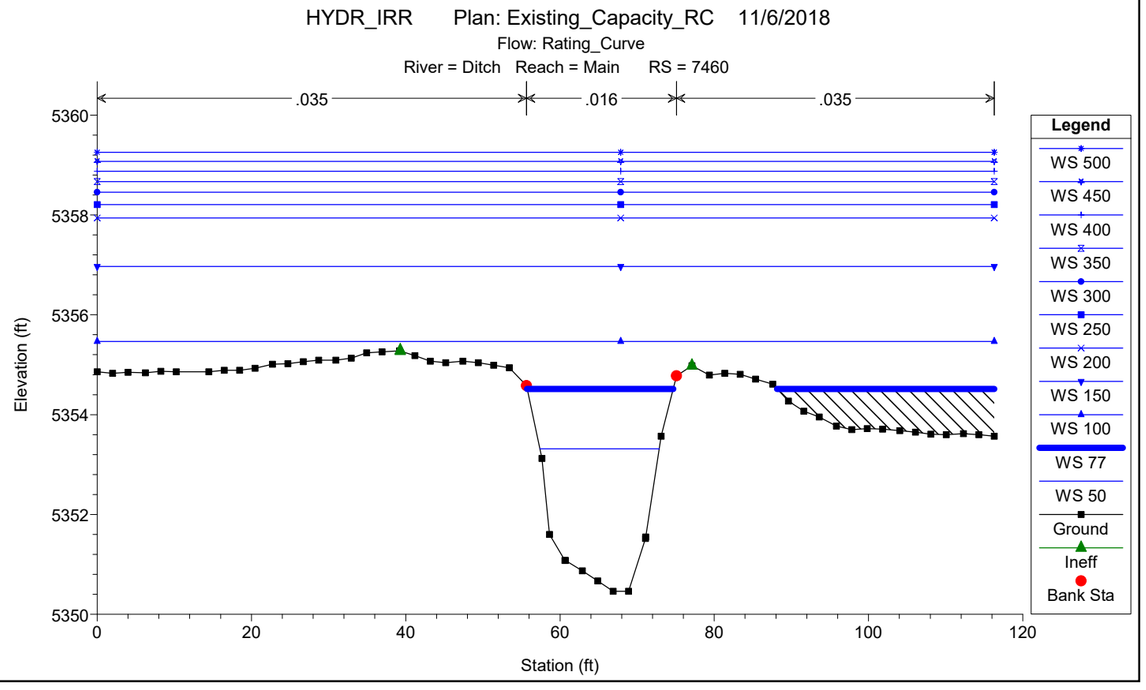

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 7852
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

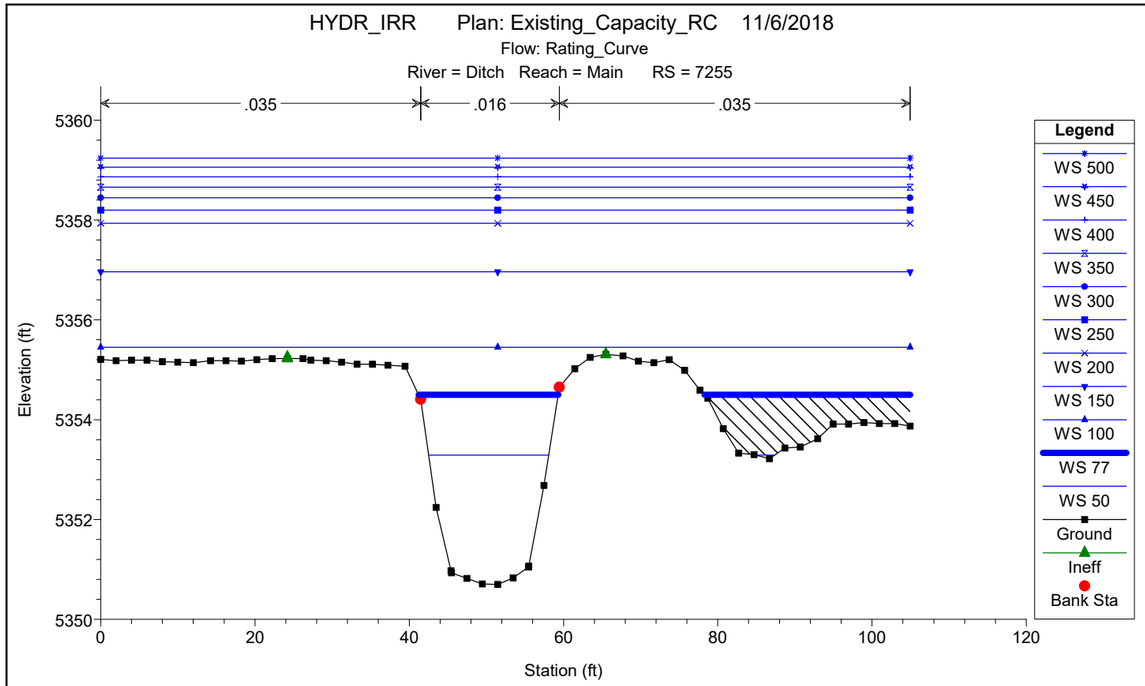

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 7709
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

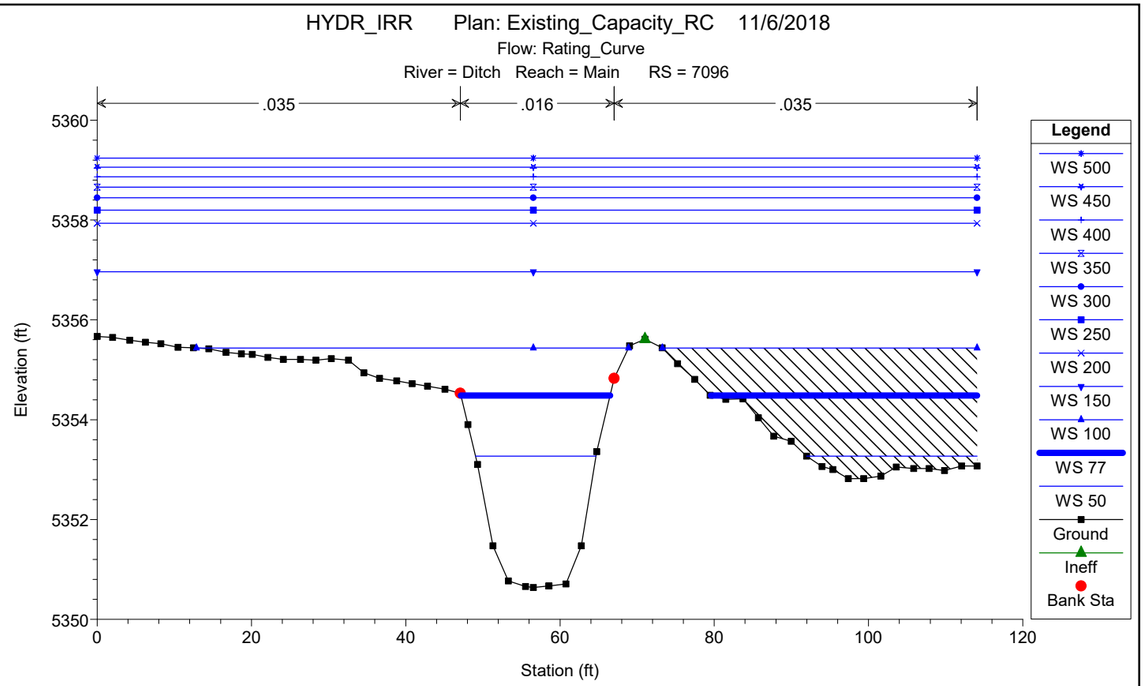

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 7548
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

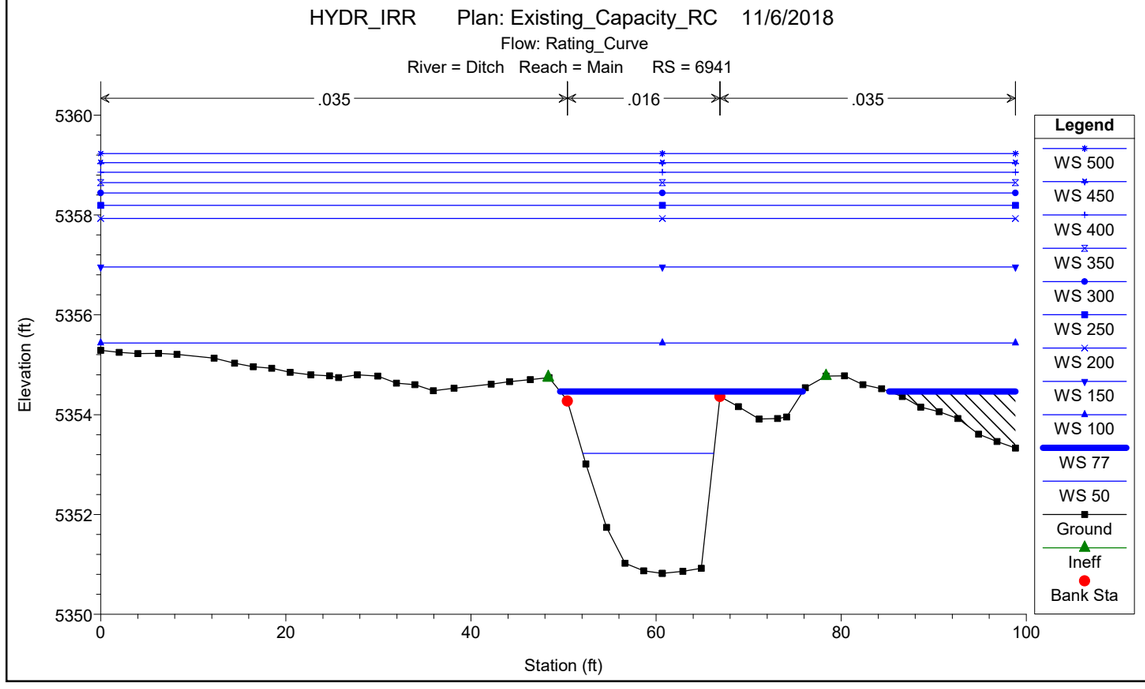

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 7505 BR
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

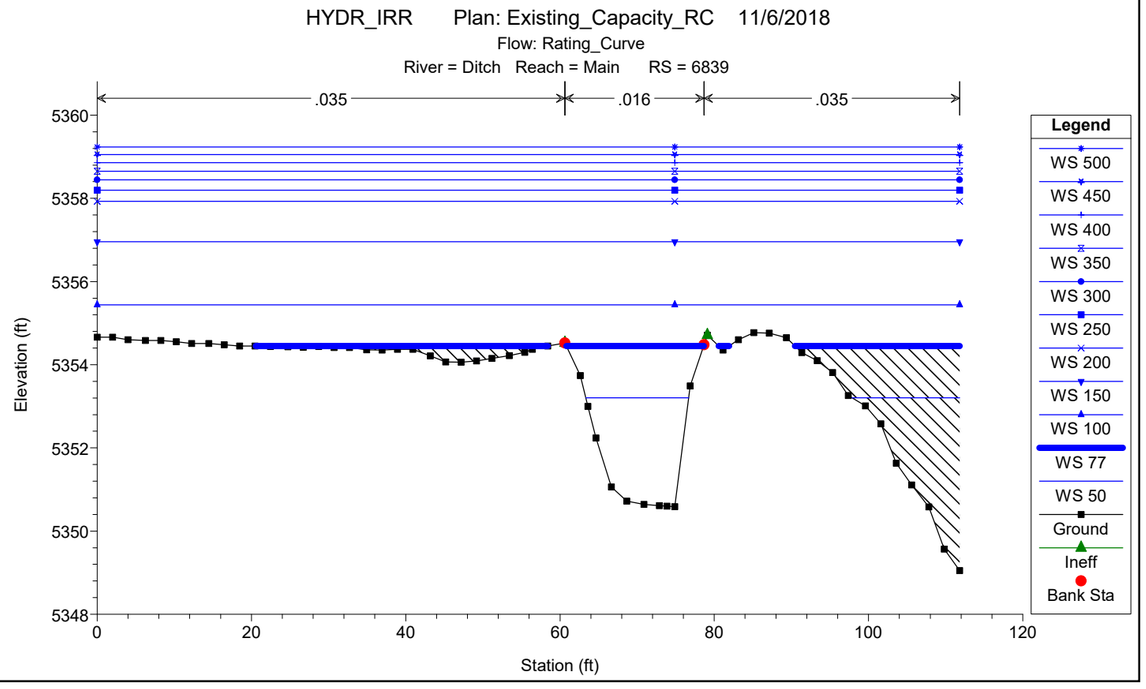

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 7505 BR
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

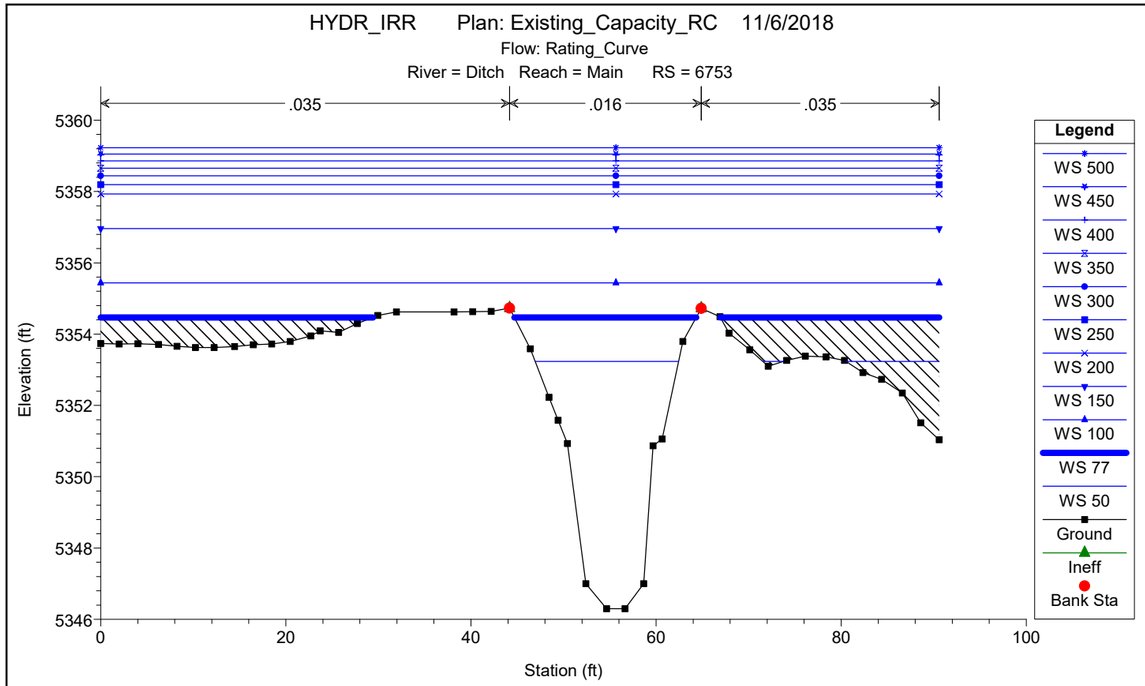

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 7460
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

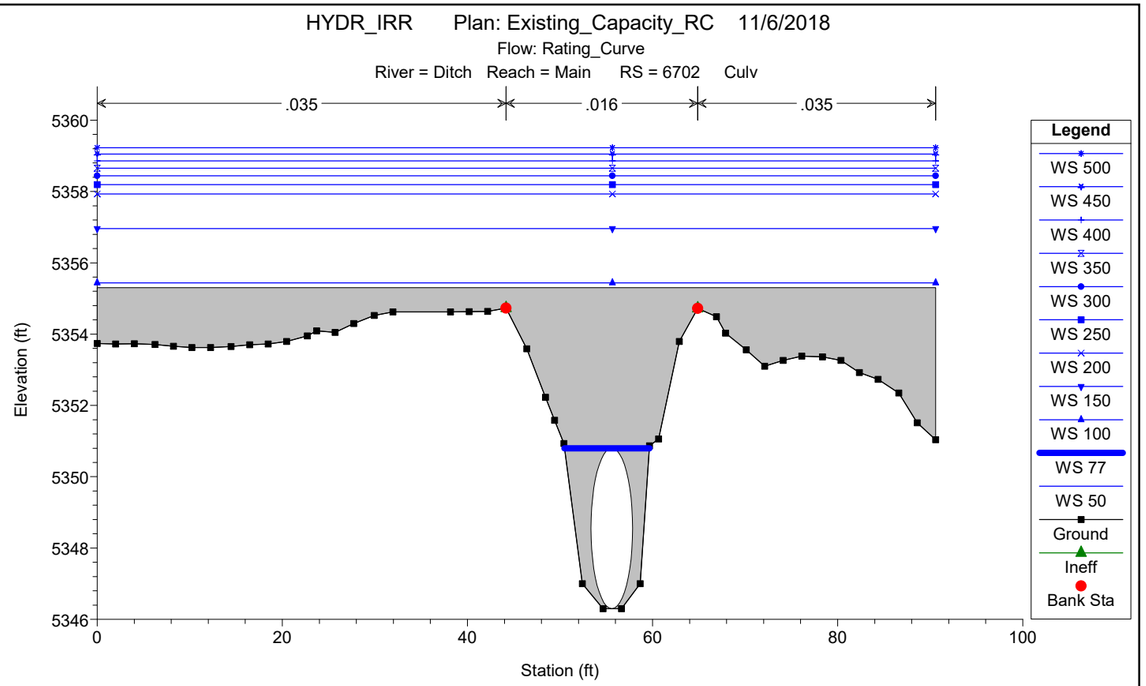

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 7255
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

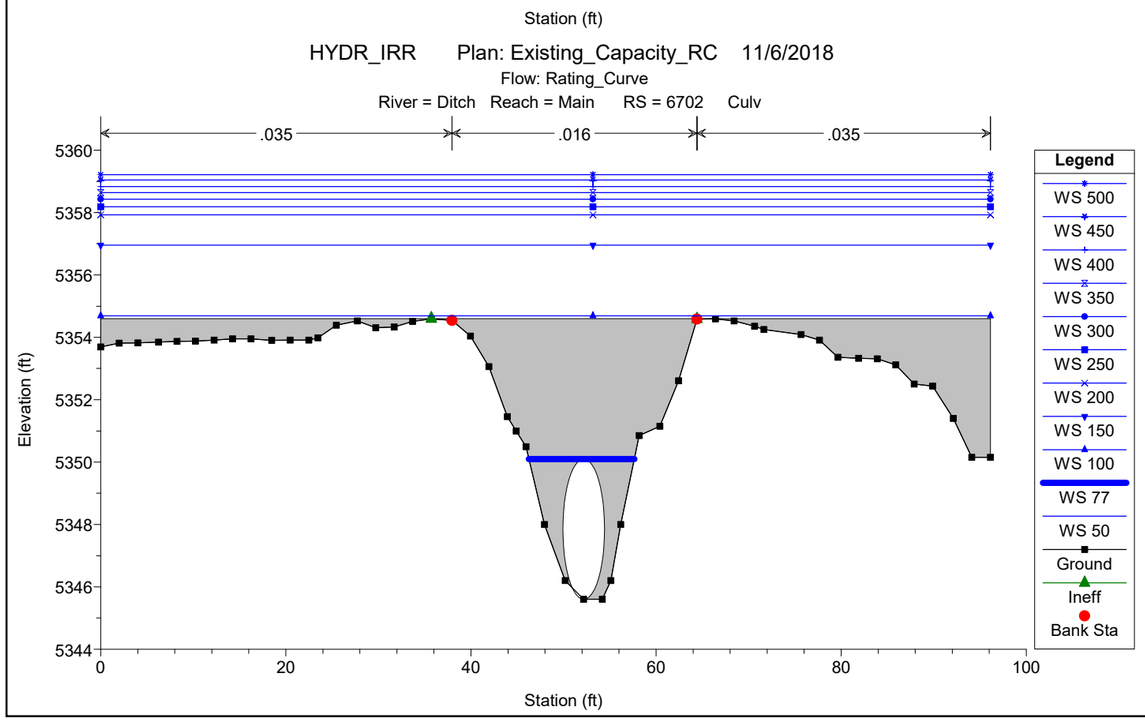

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 7096
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

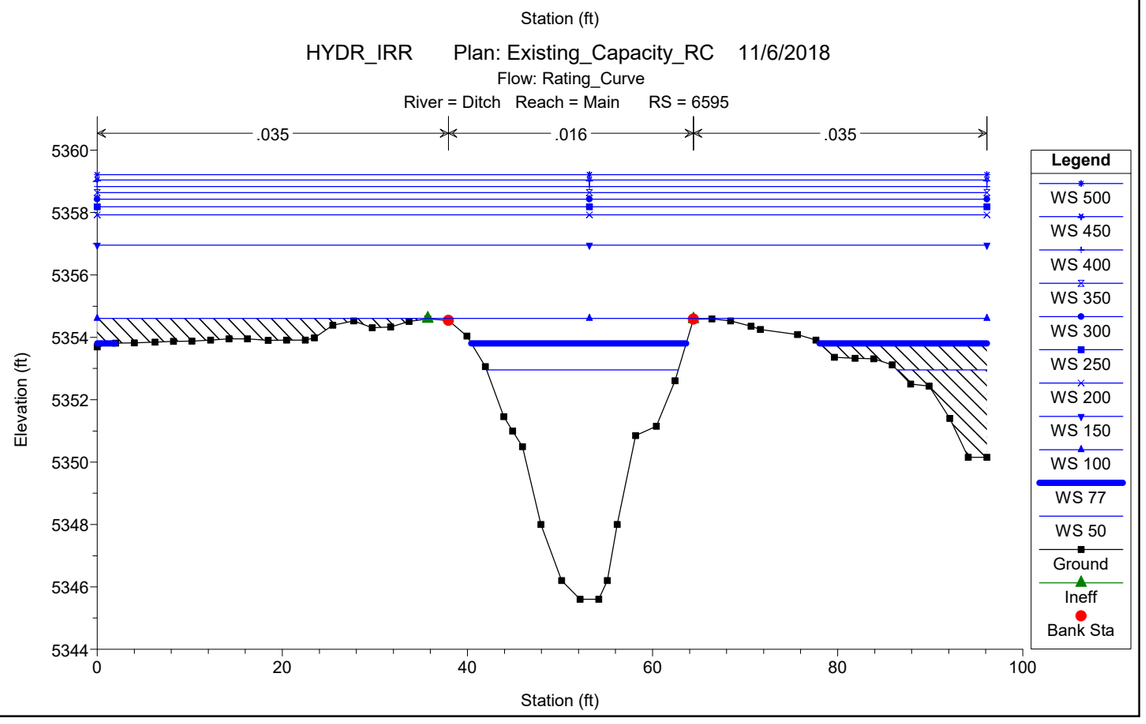

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 6941
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

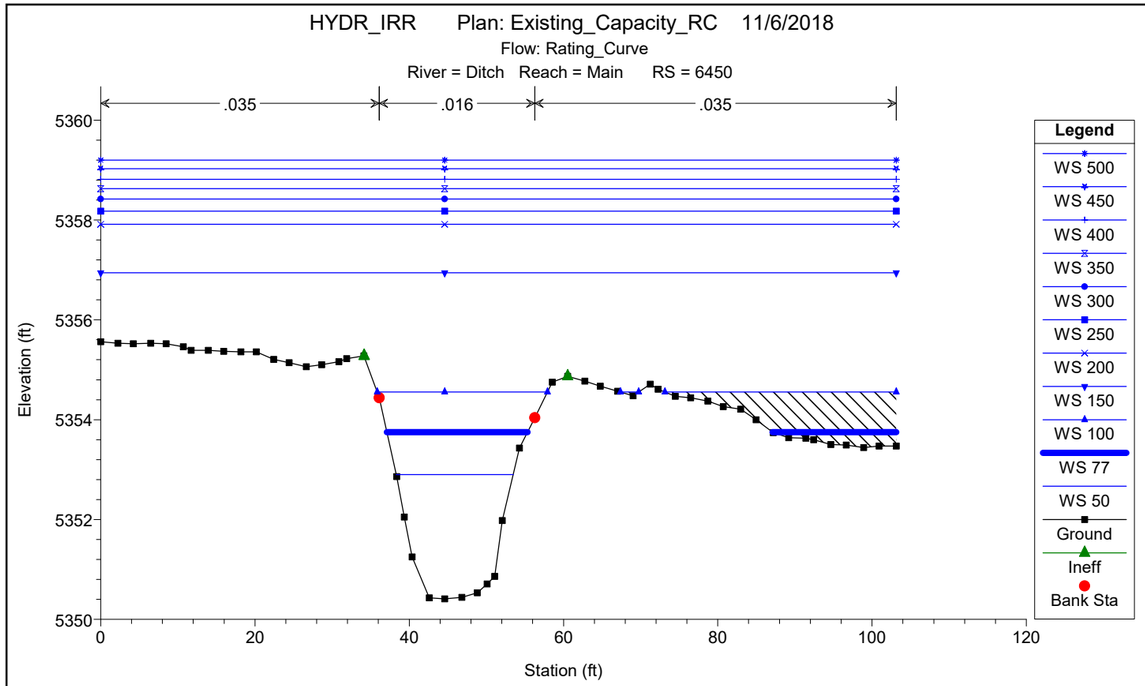

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 6839
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

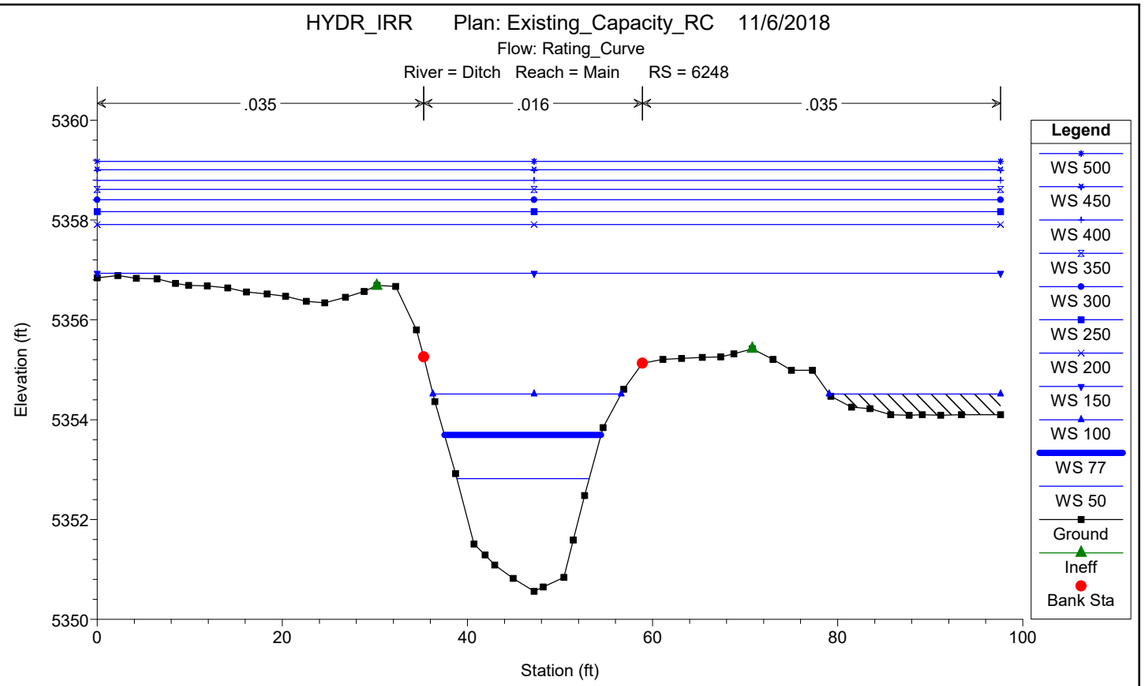

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 6753
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

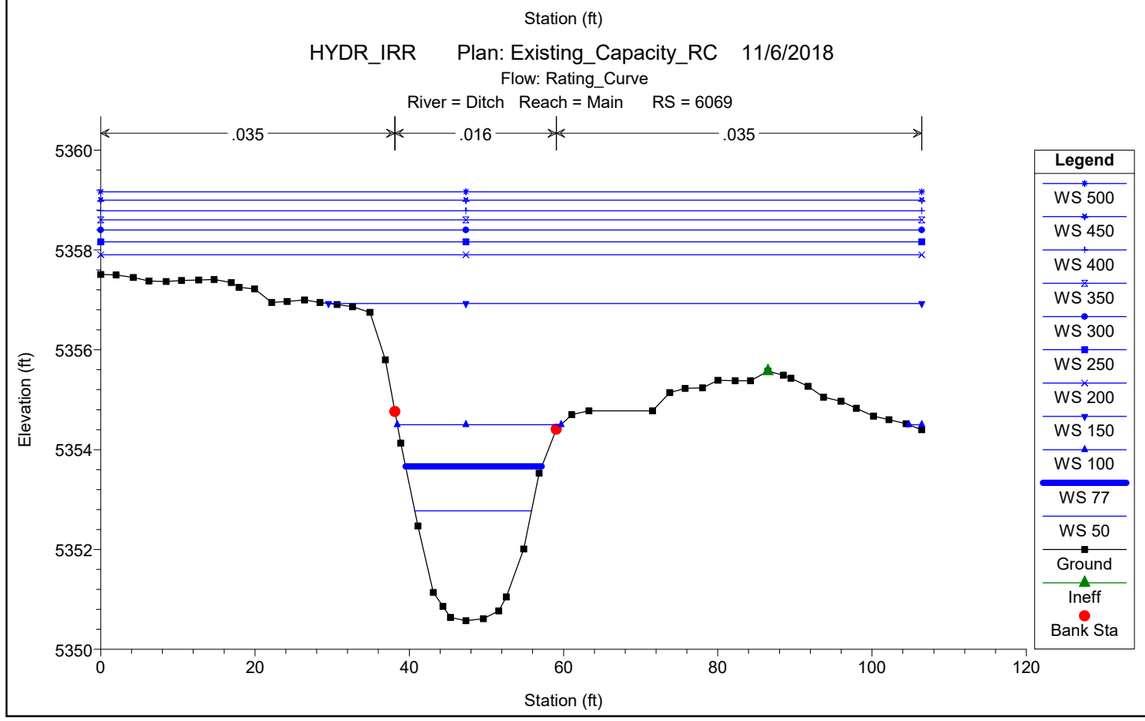

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 6702 Culv
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

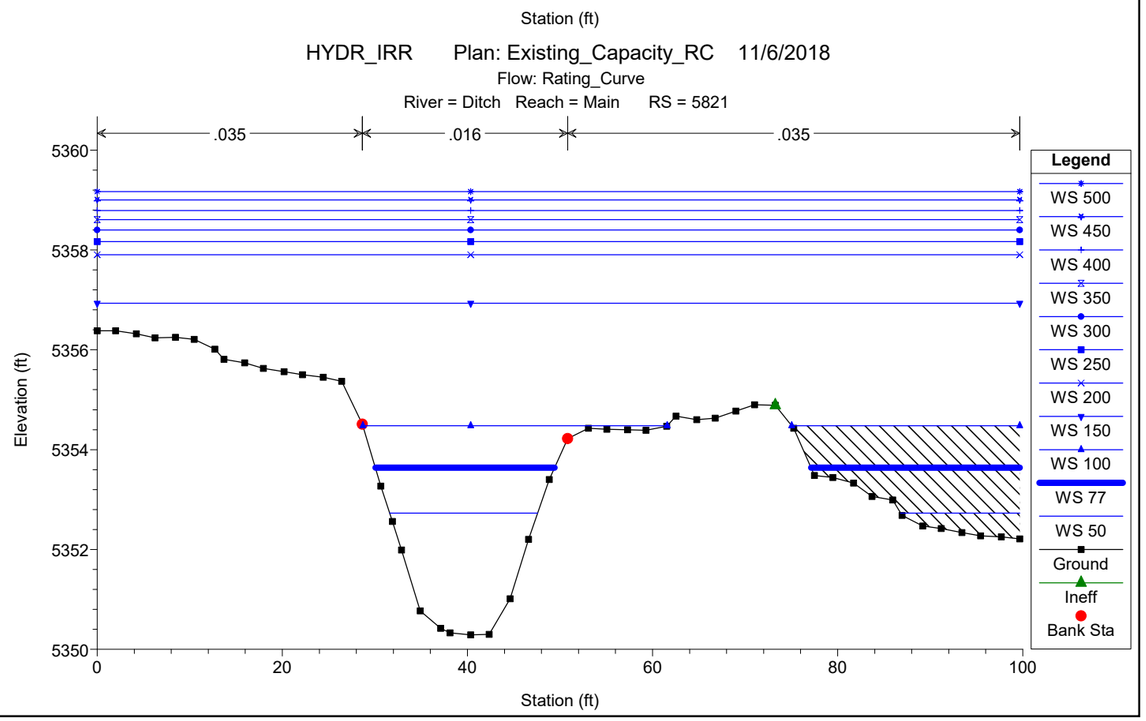

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 6702 Culv
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

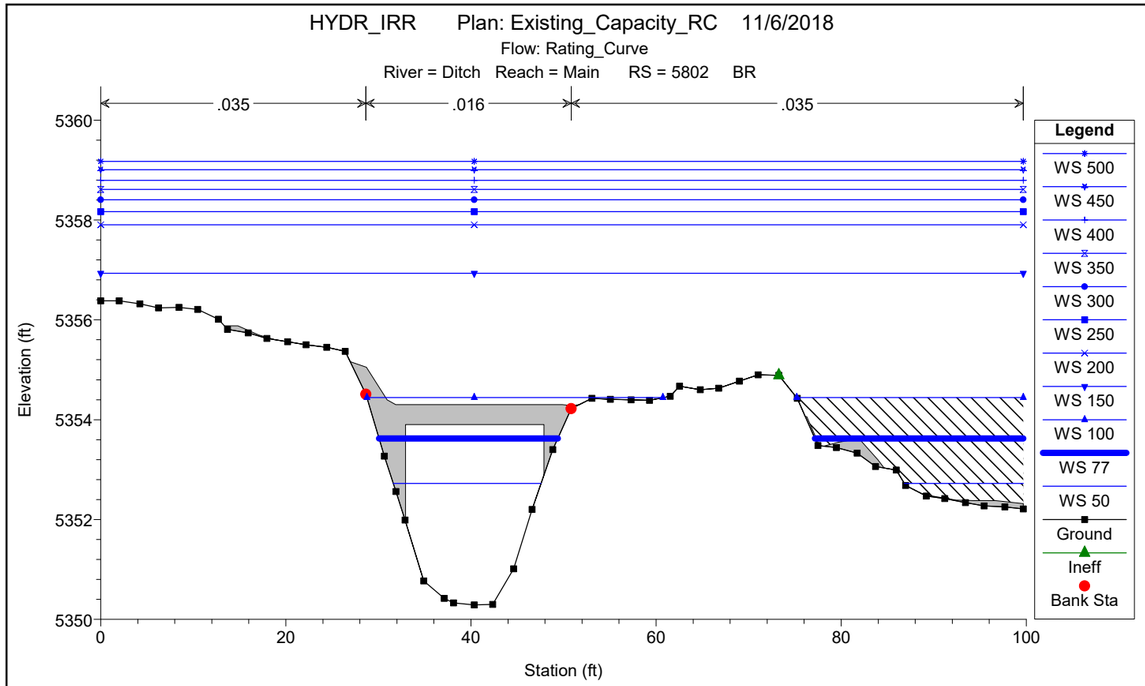

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 6595
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

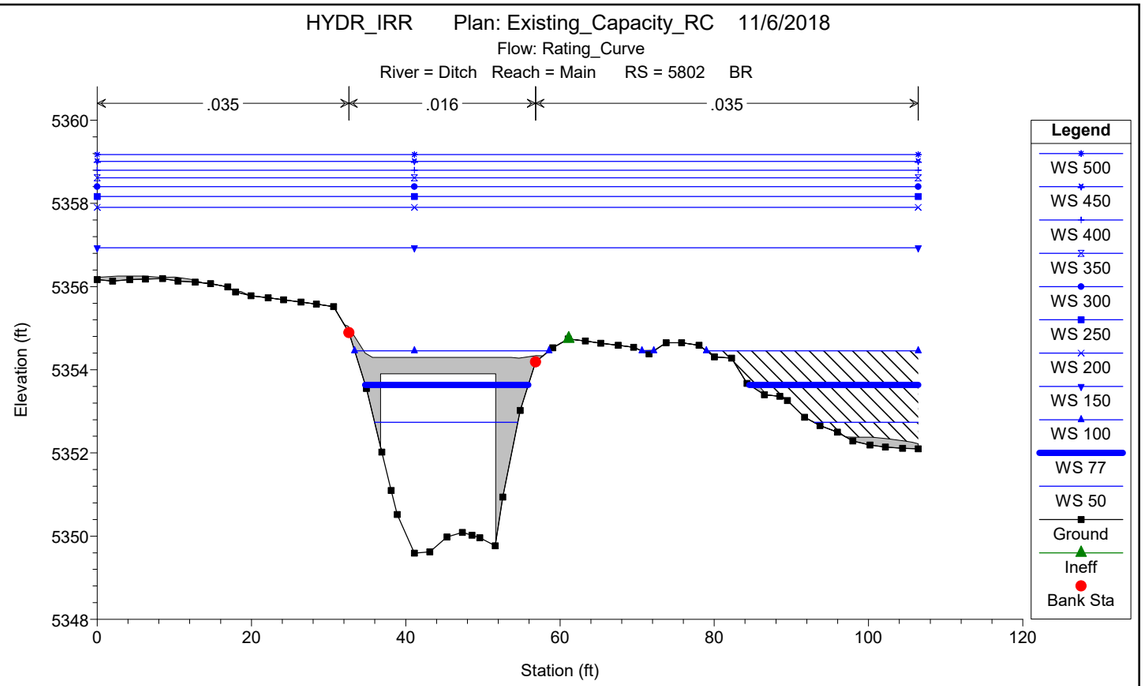

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 6450
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

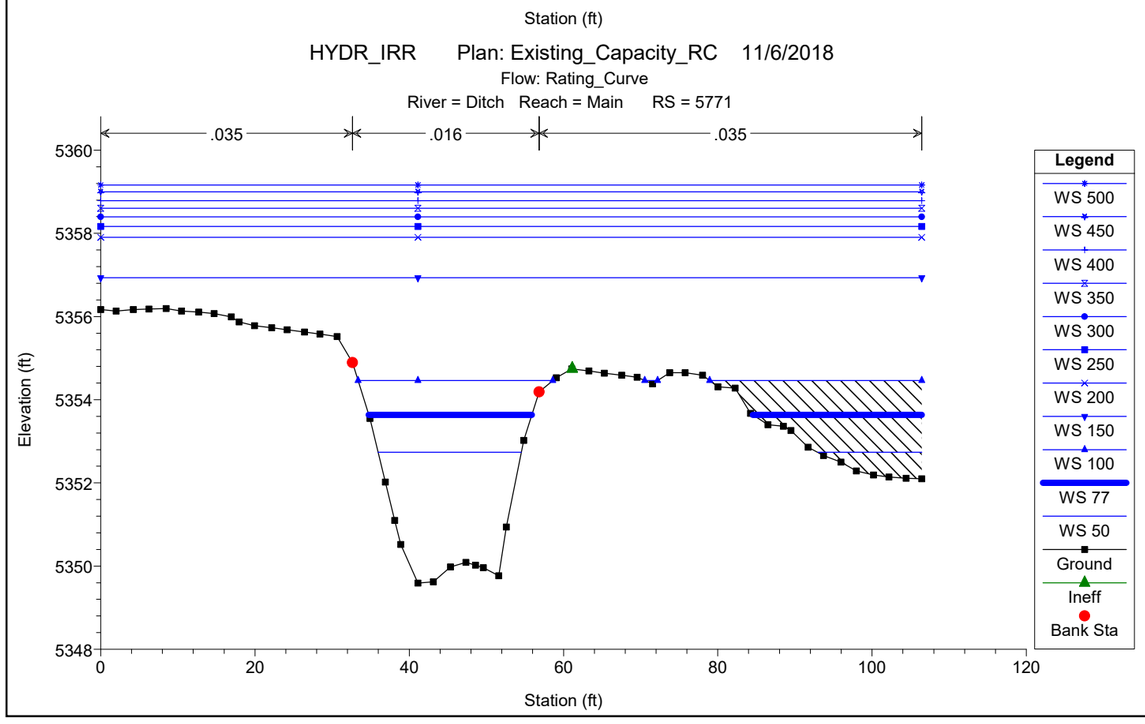

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 6248
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

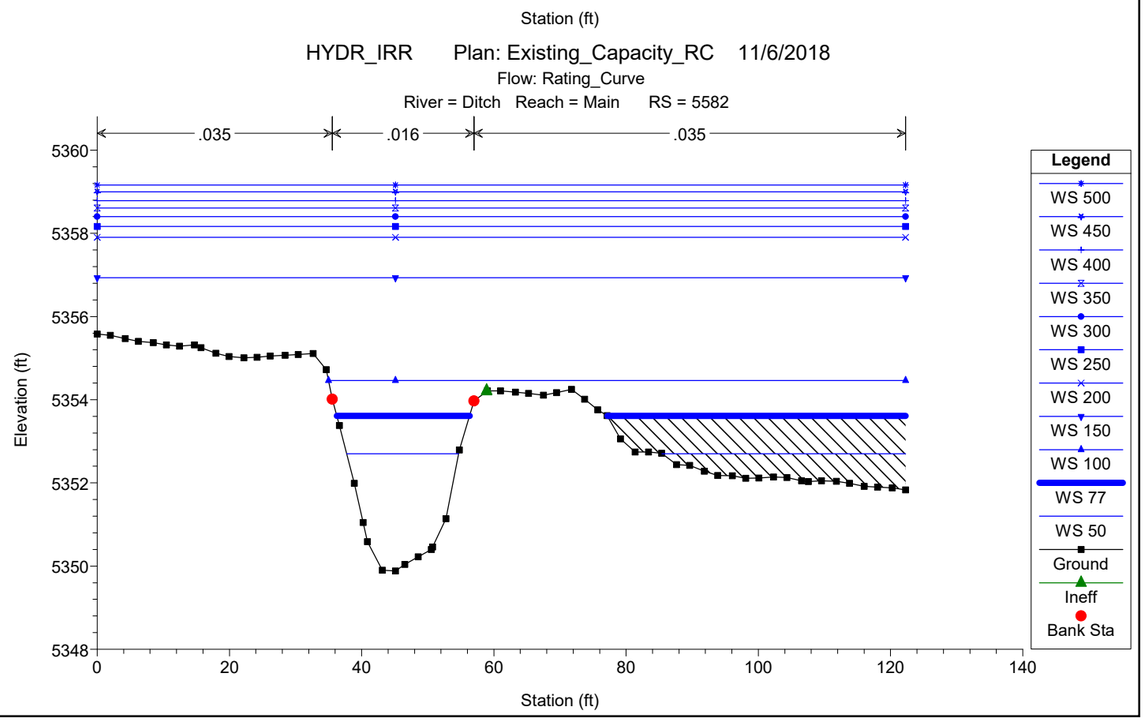

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 6069
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

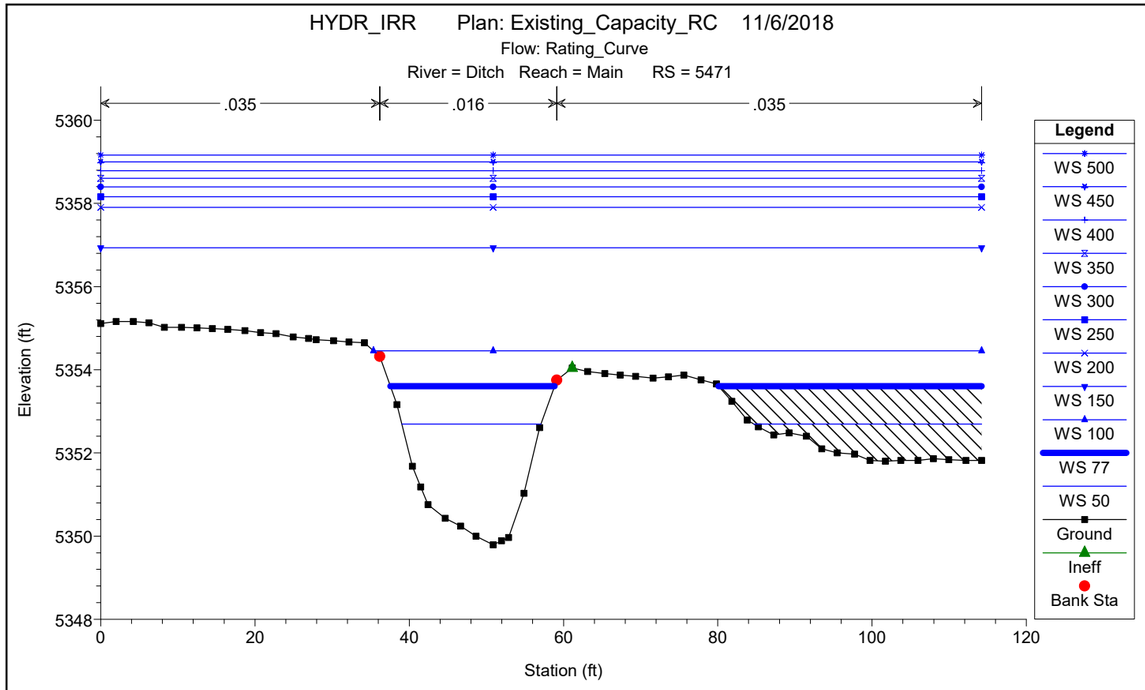

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 5821
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

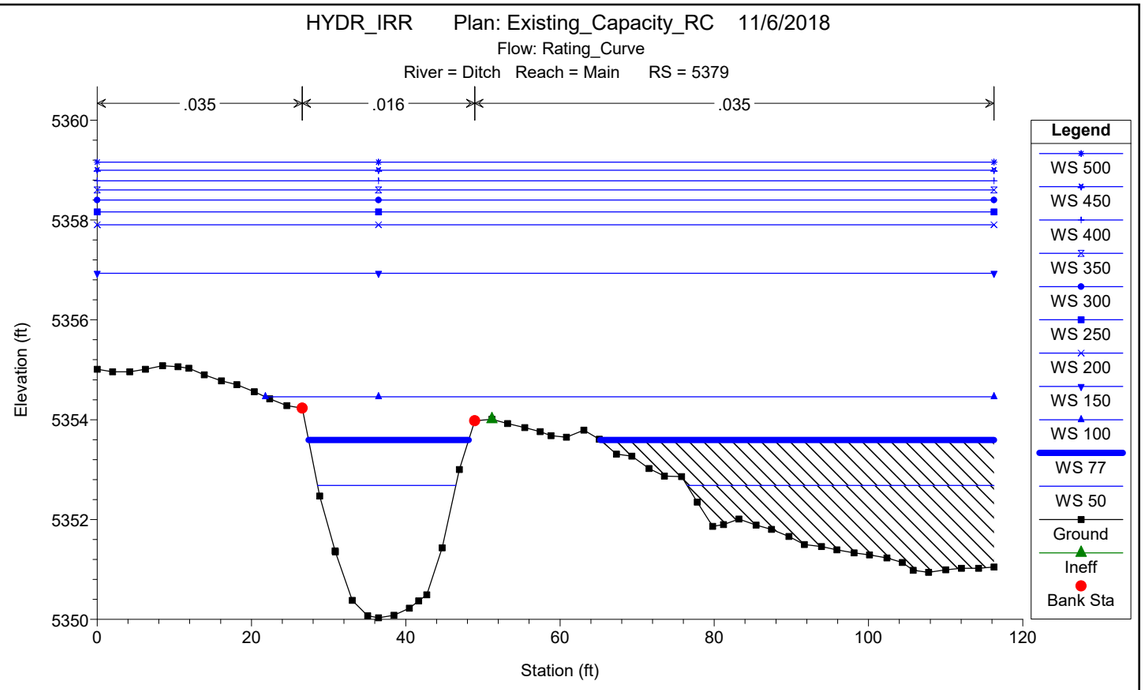

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 5802 BR
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

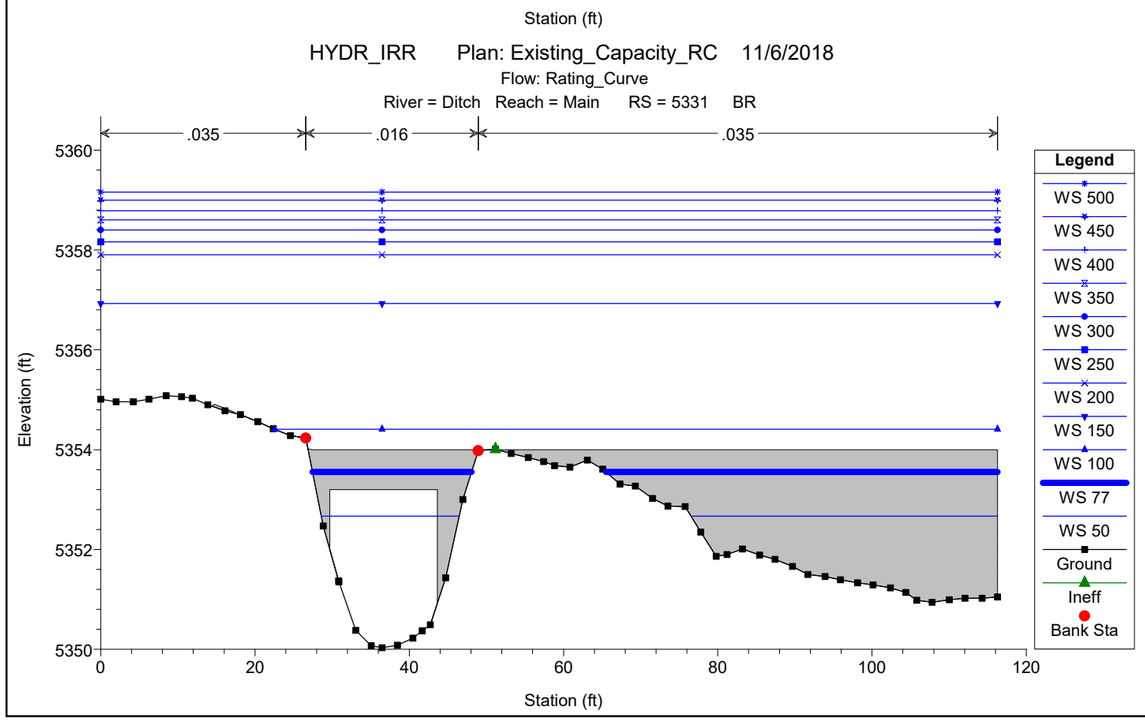

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 5802 BR
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

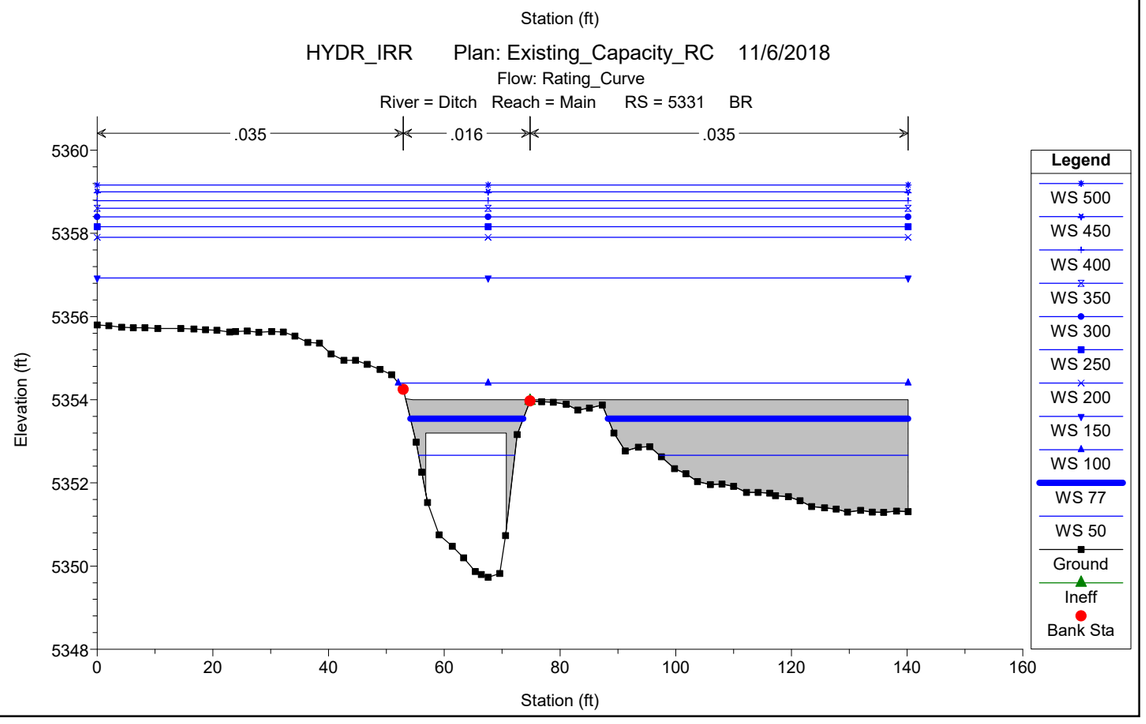

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 5771
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

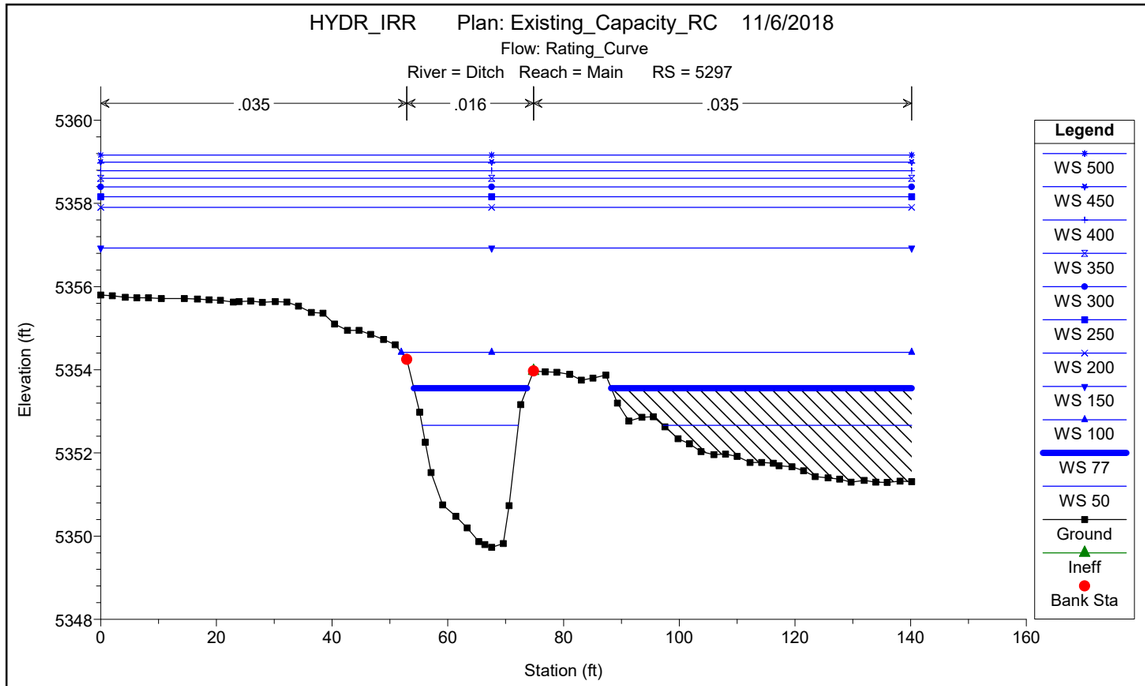

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 5582
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

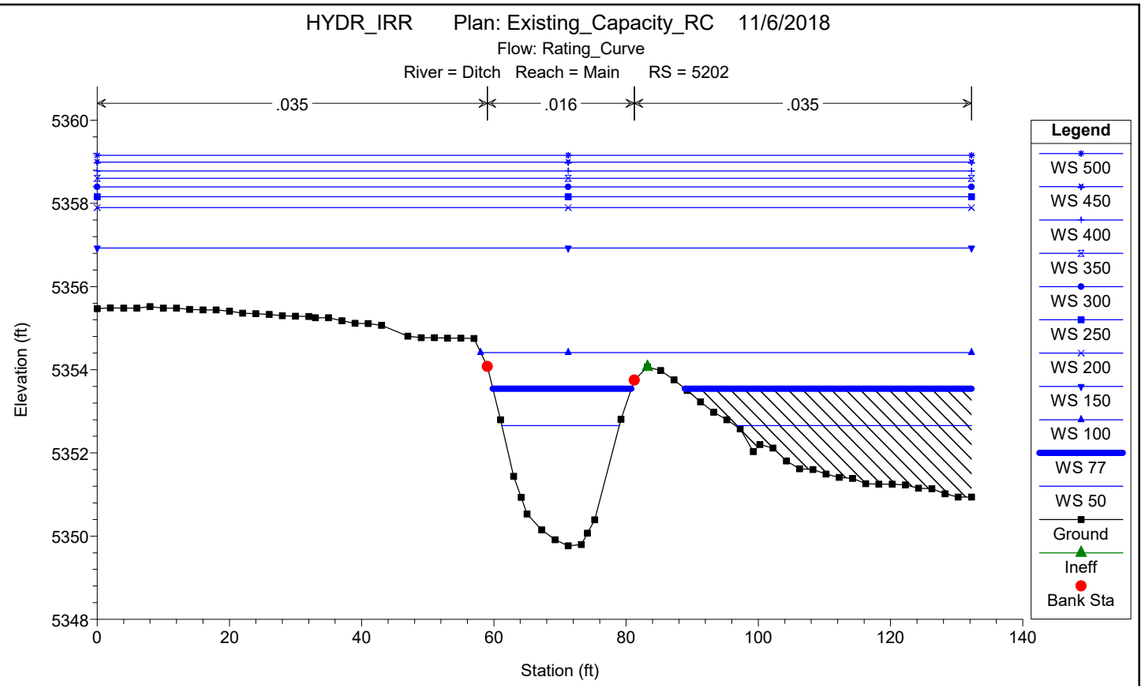

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 5471
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

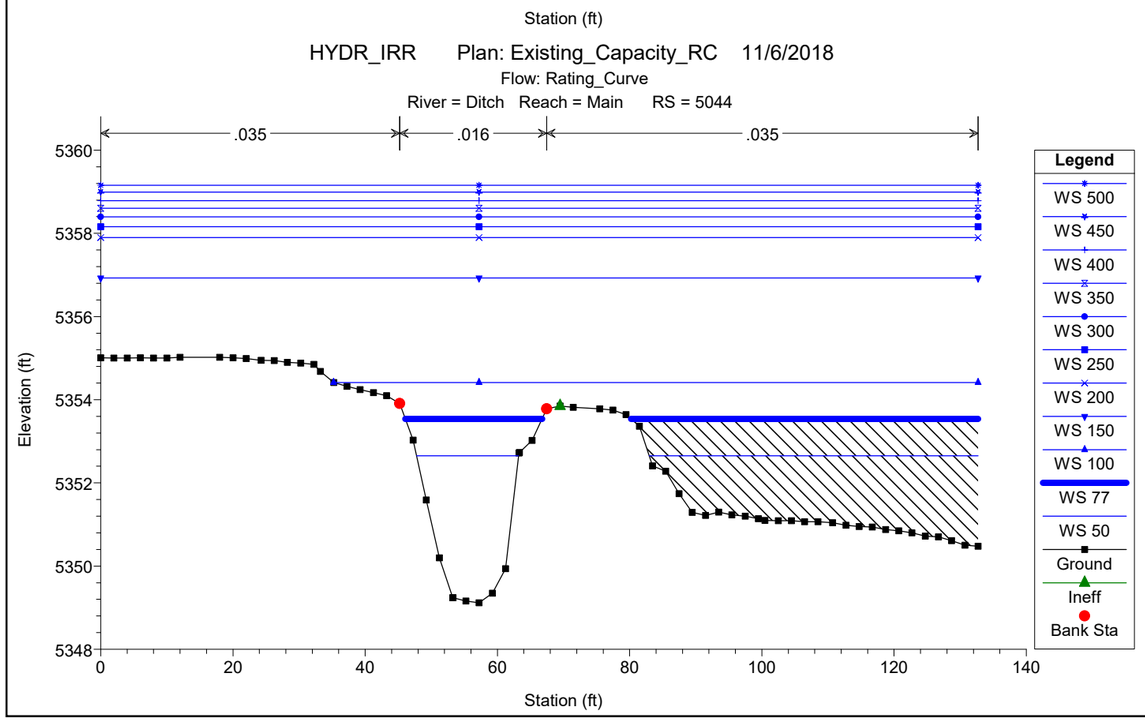

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 5379
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

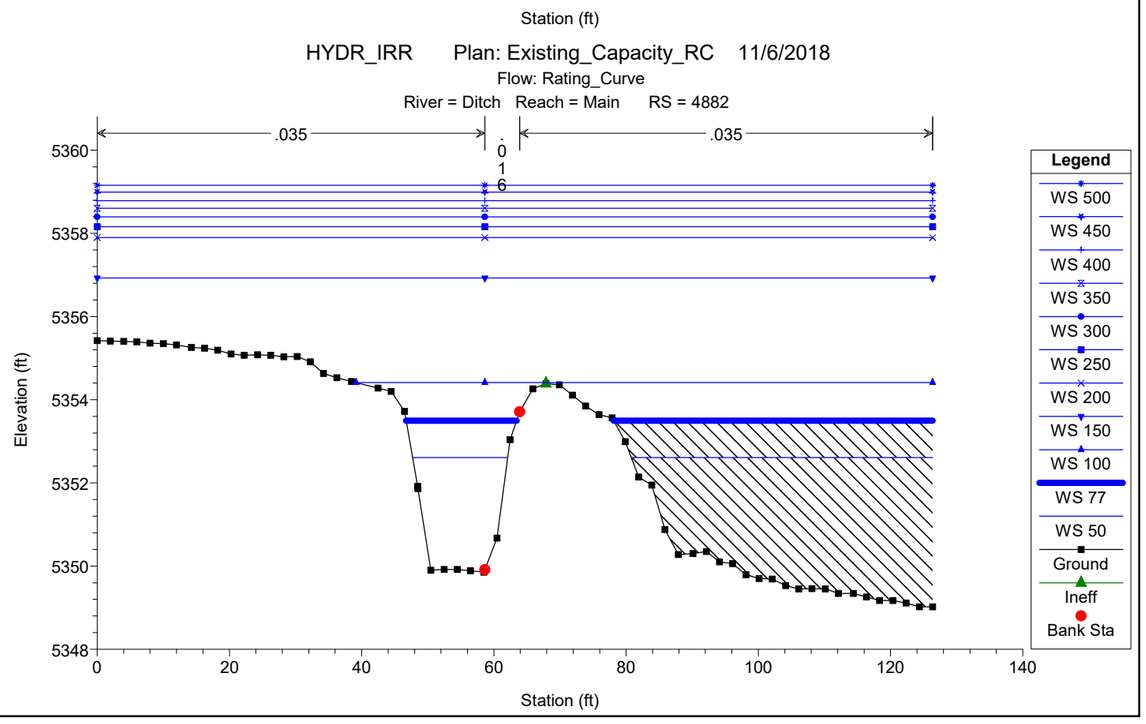

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 5331 BR
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

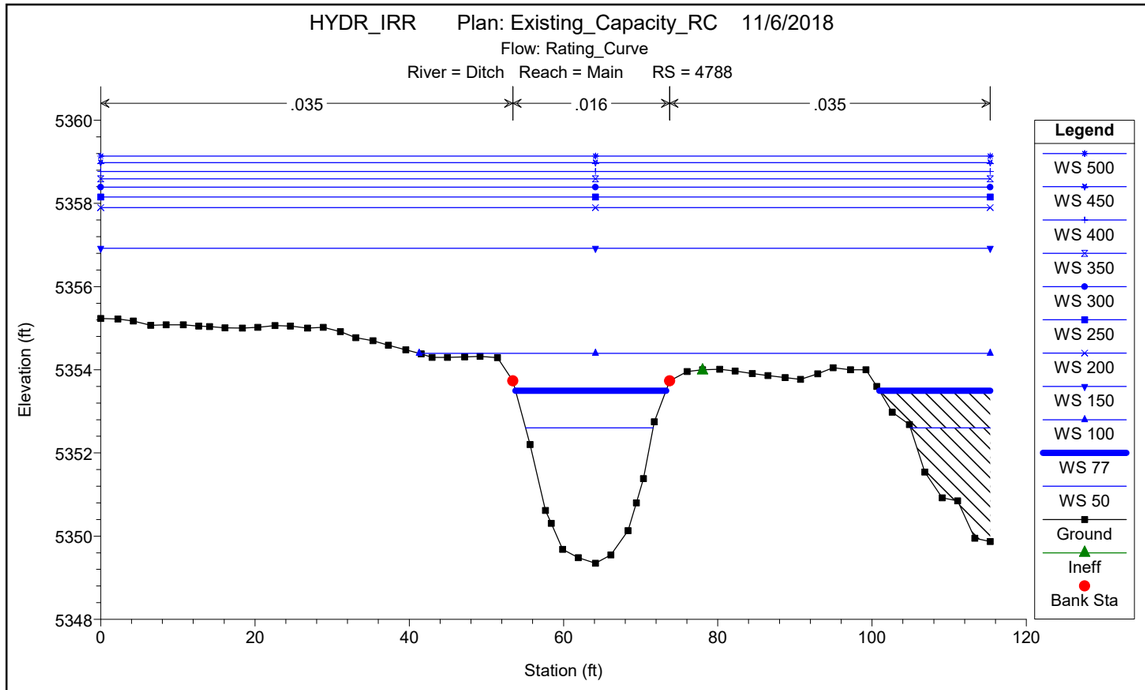

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 5331 BR
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

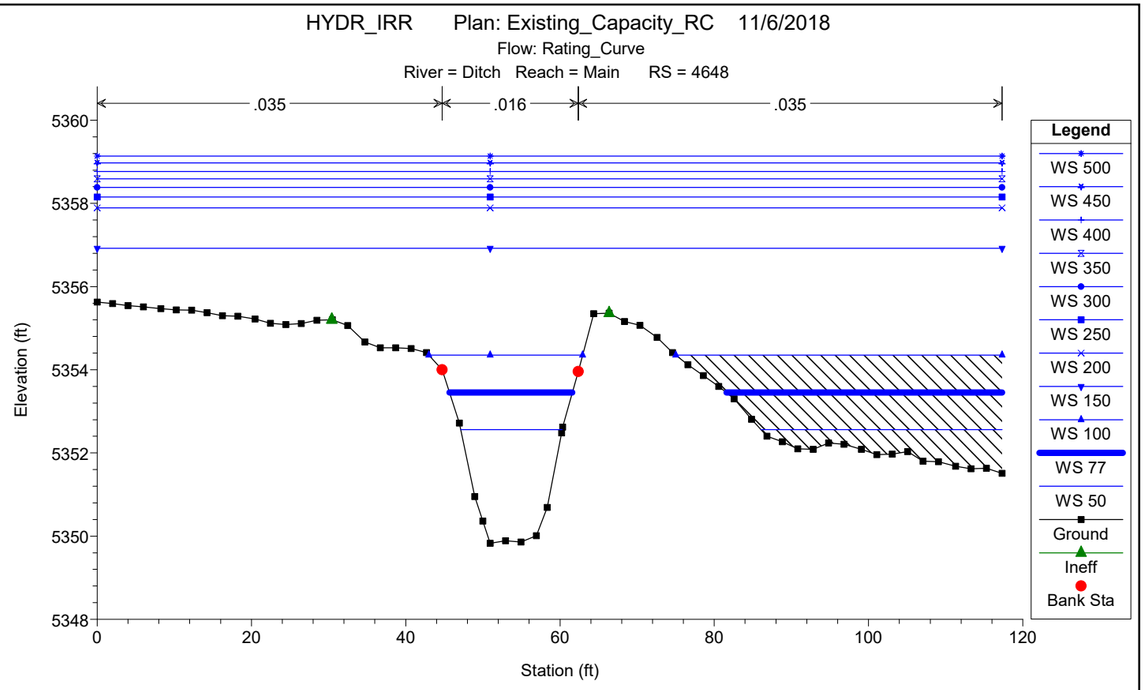

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 5297
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

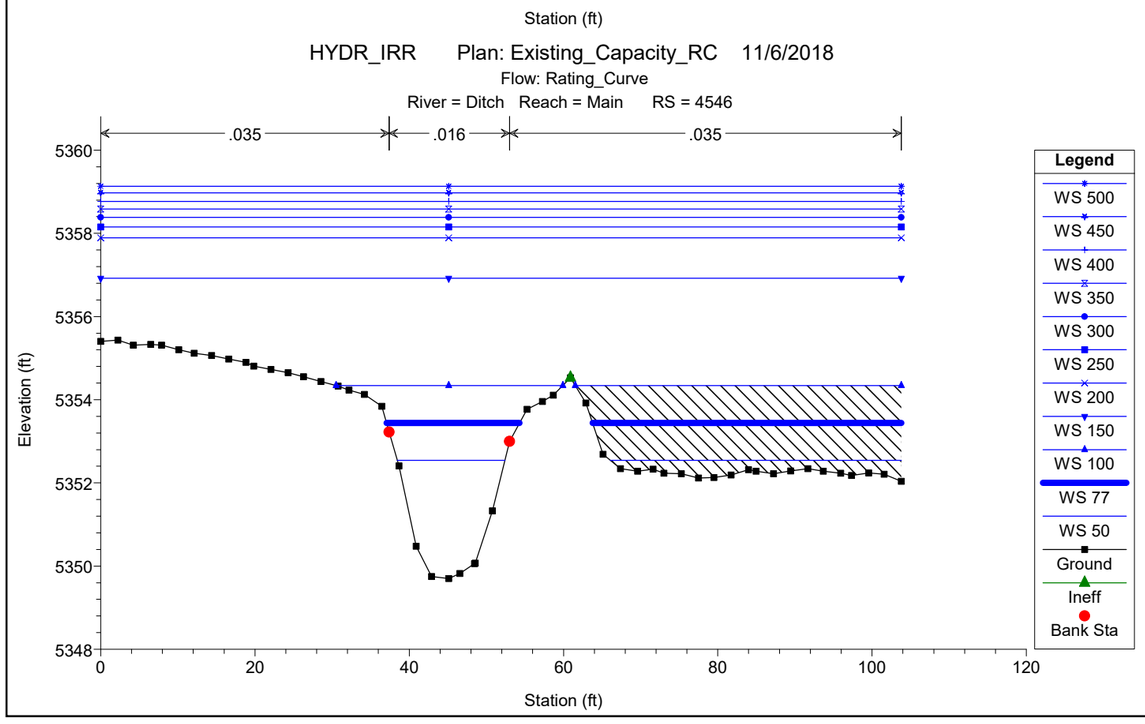

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 5202
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

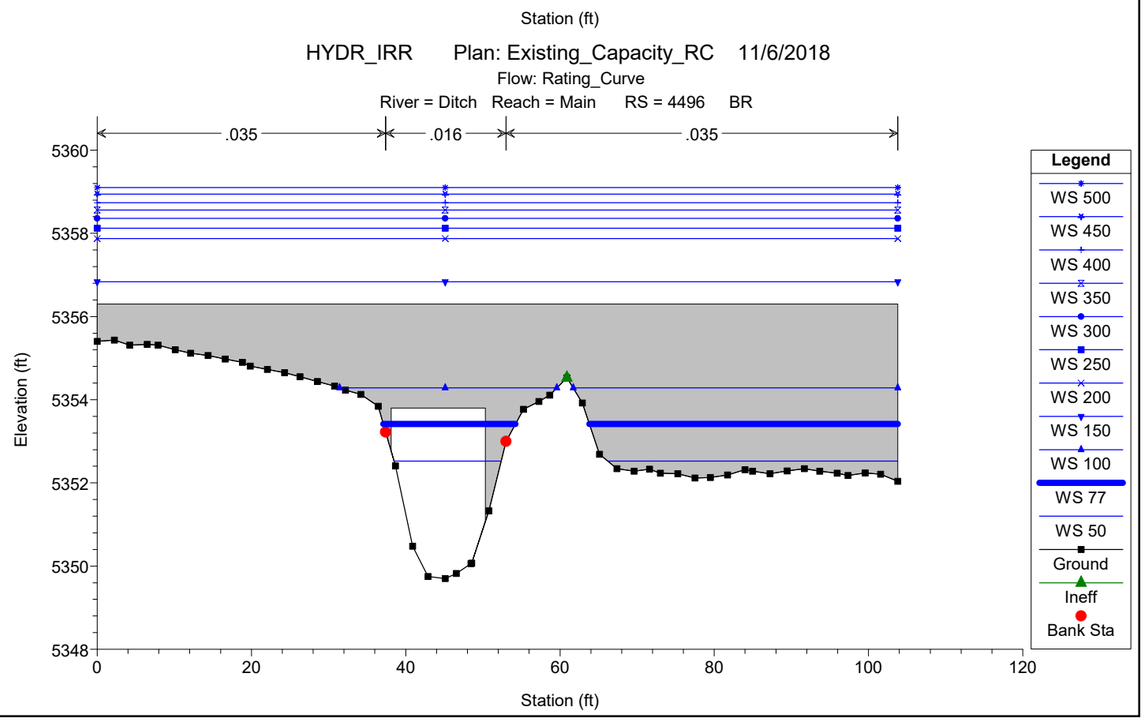

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 5044
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

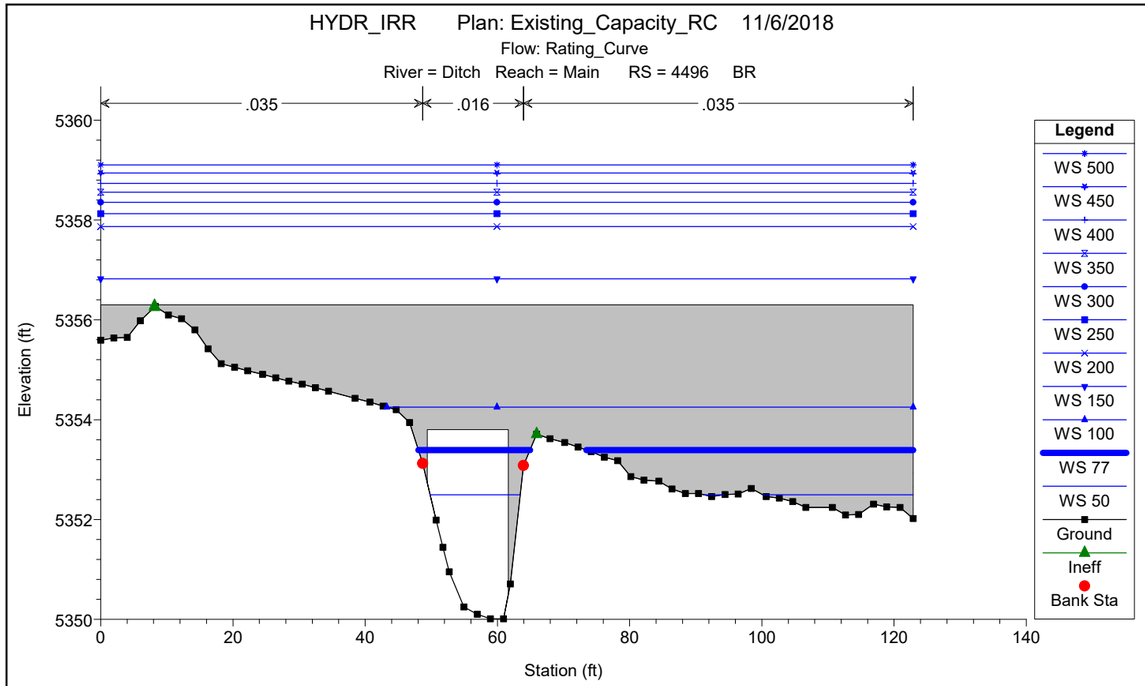

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 4882
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

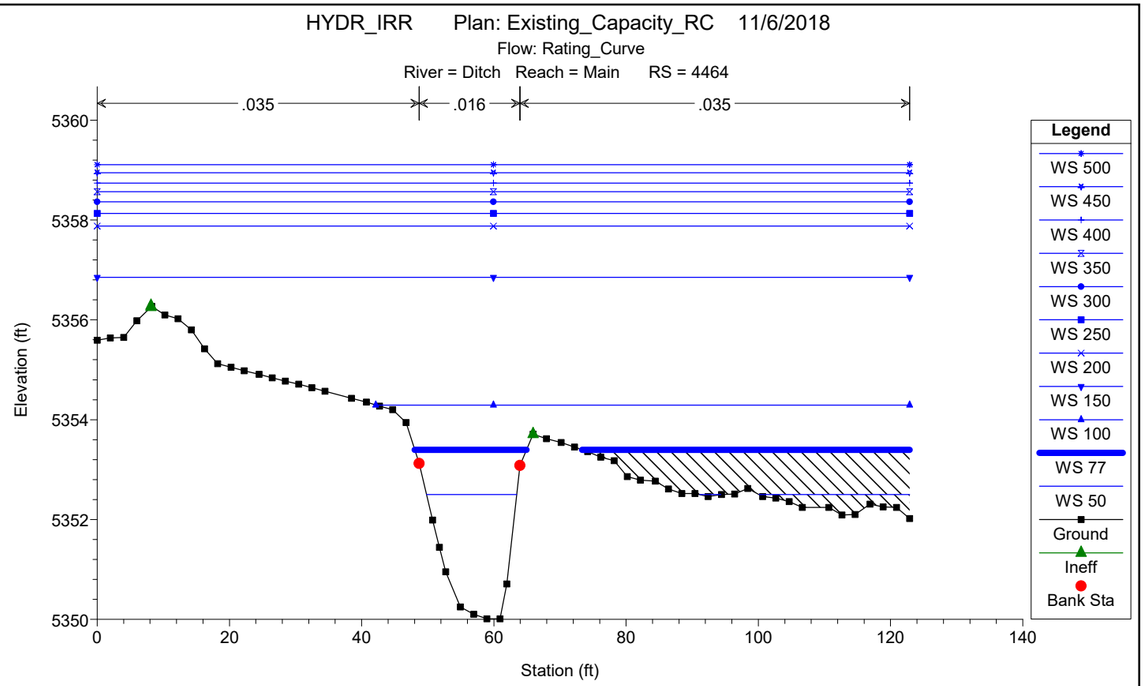

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 4788
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

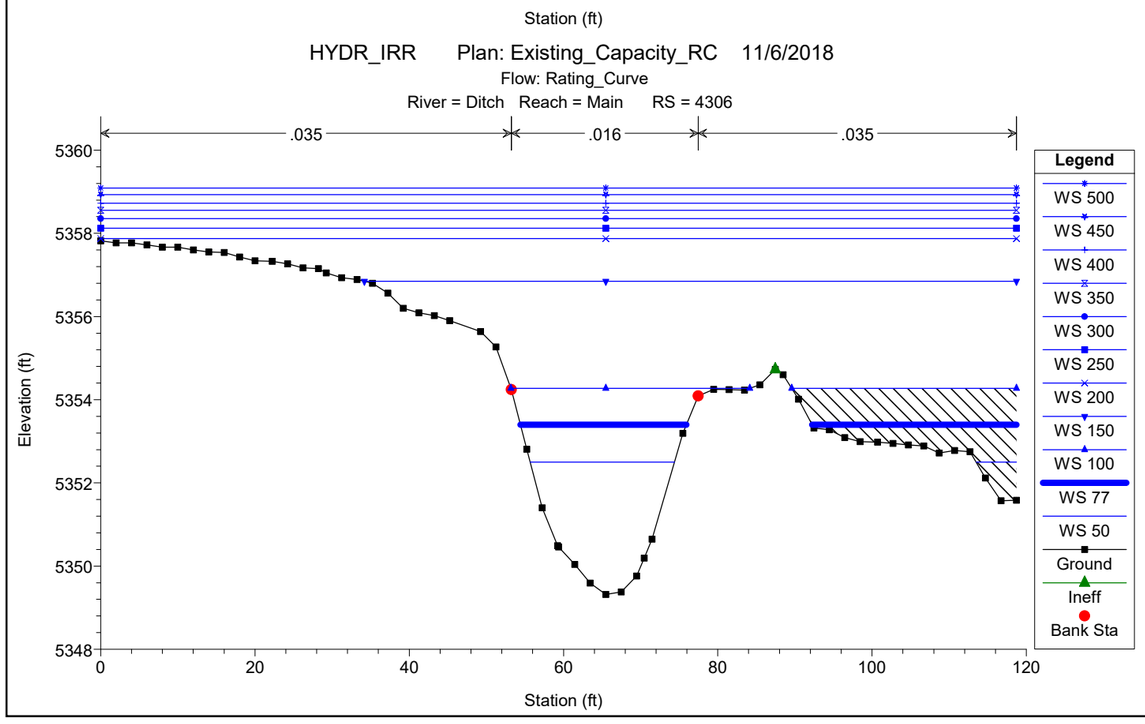

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 4648
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

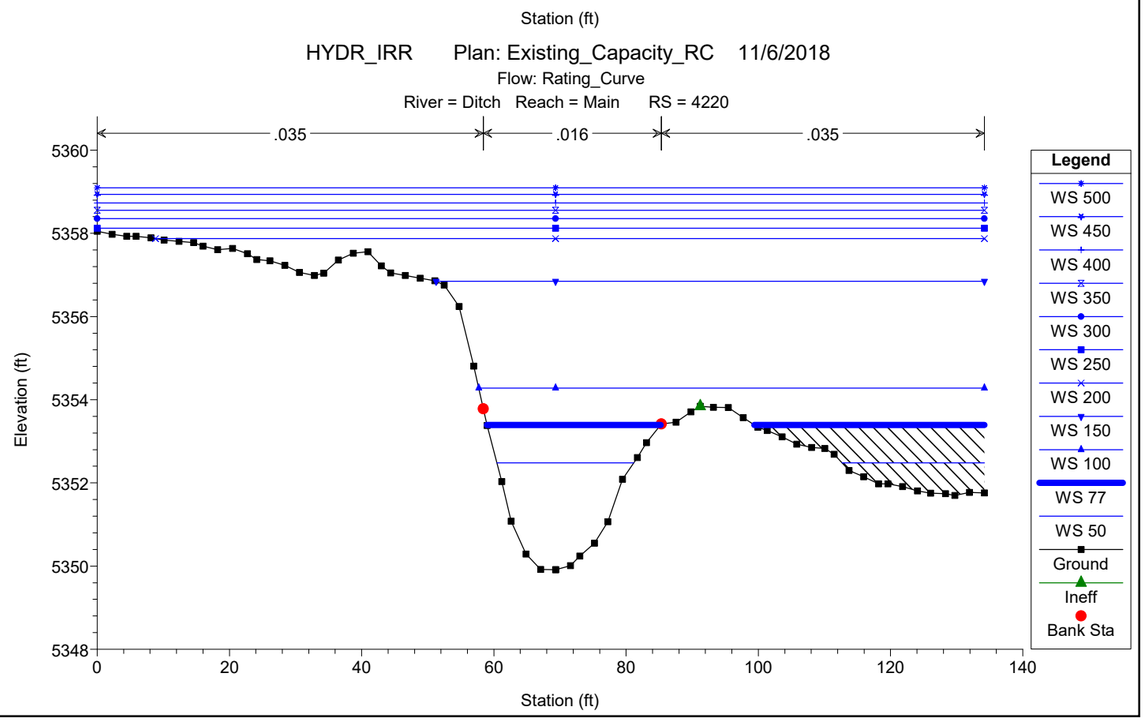

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 4546
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

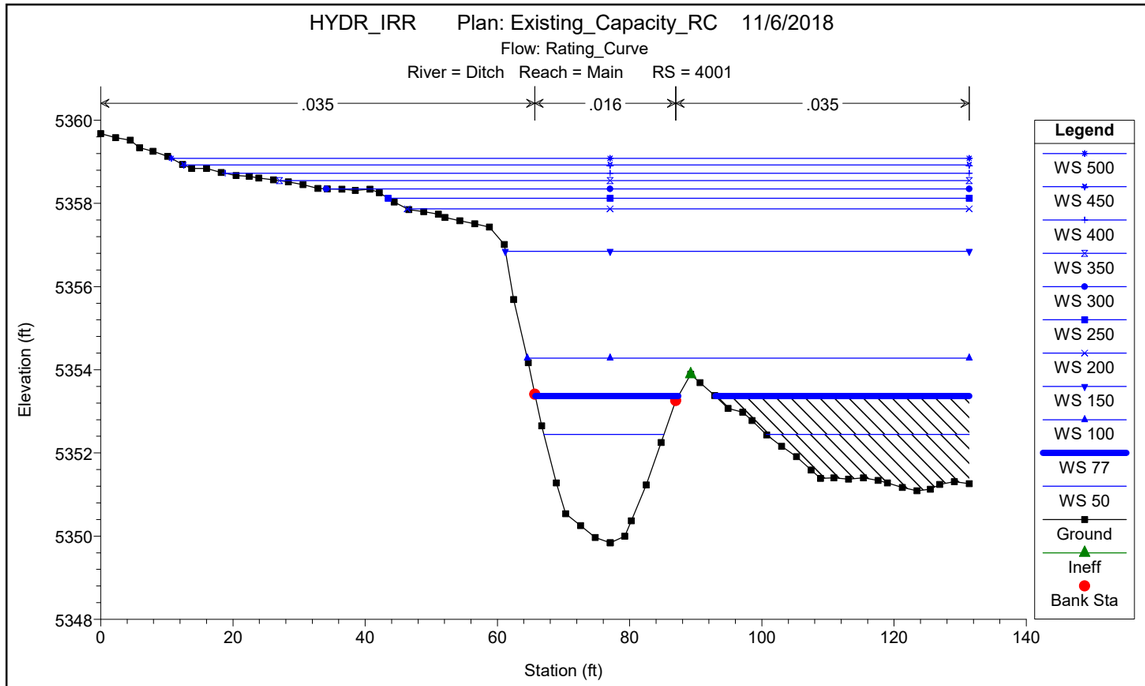

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 4496 BR
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

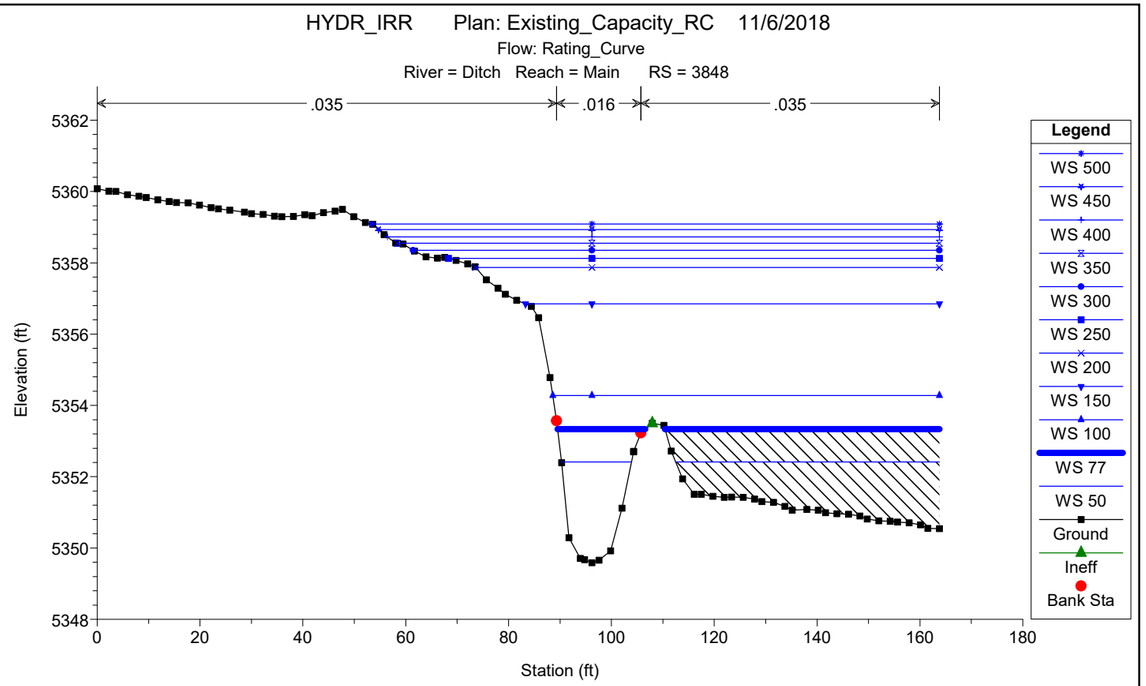

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 4496 BR
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

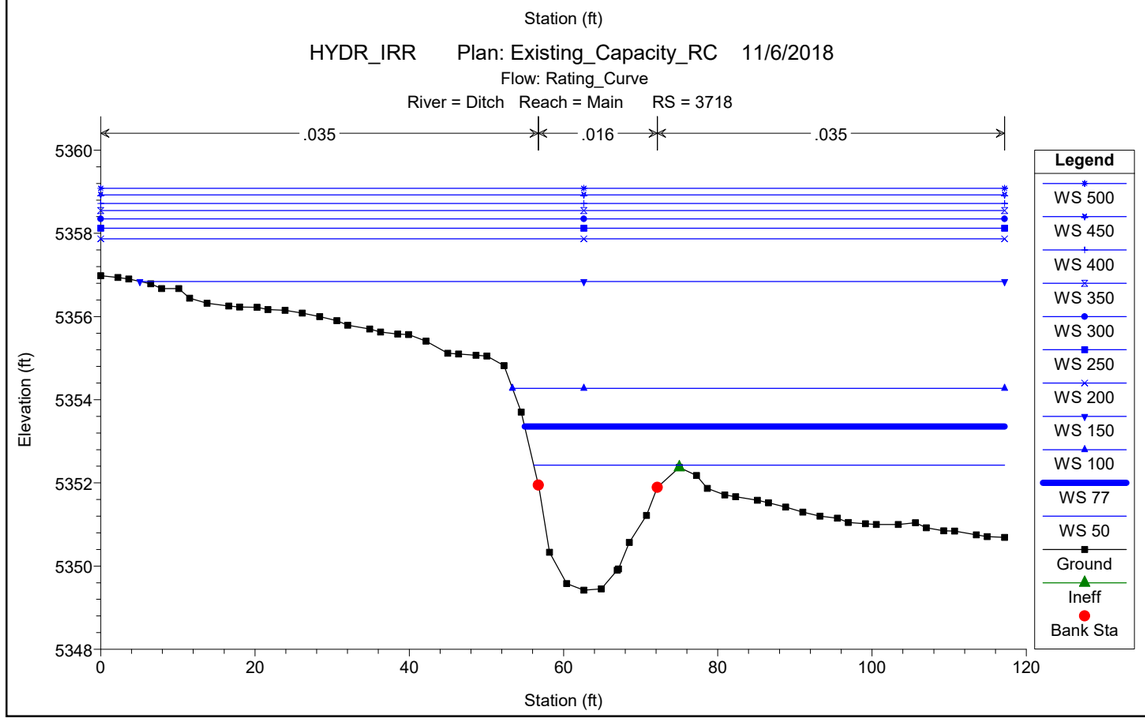

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 4464
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

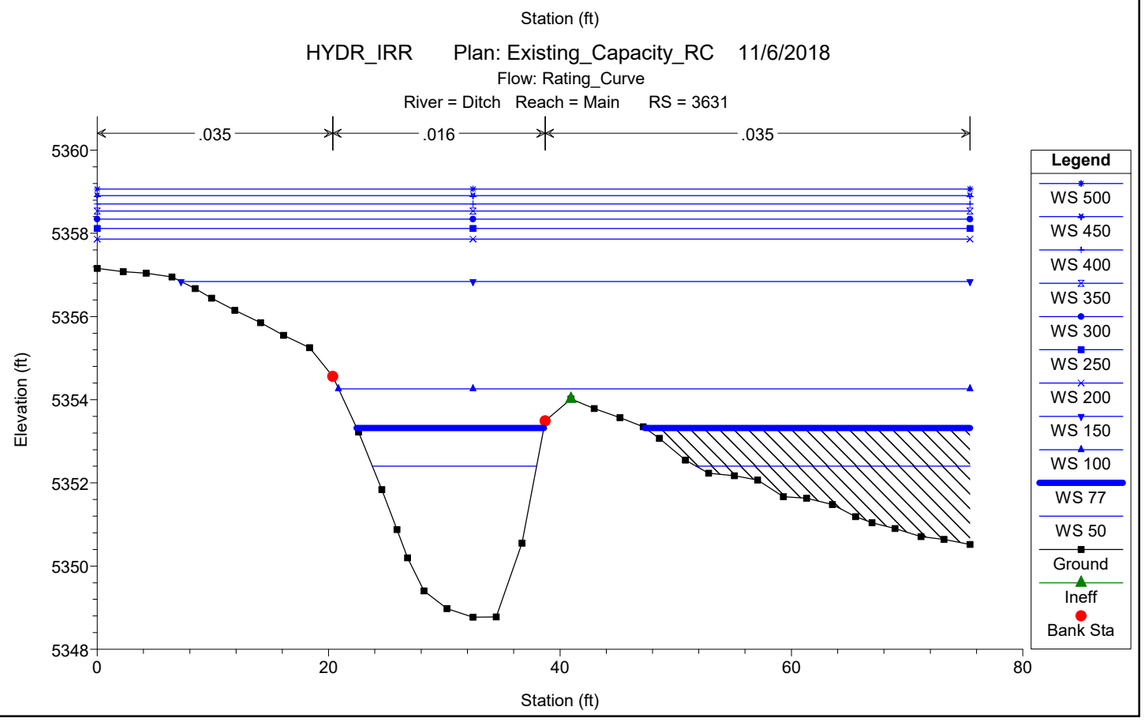

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 4306
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

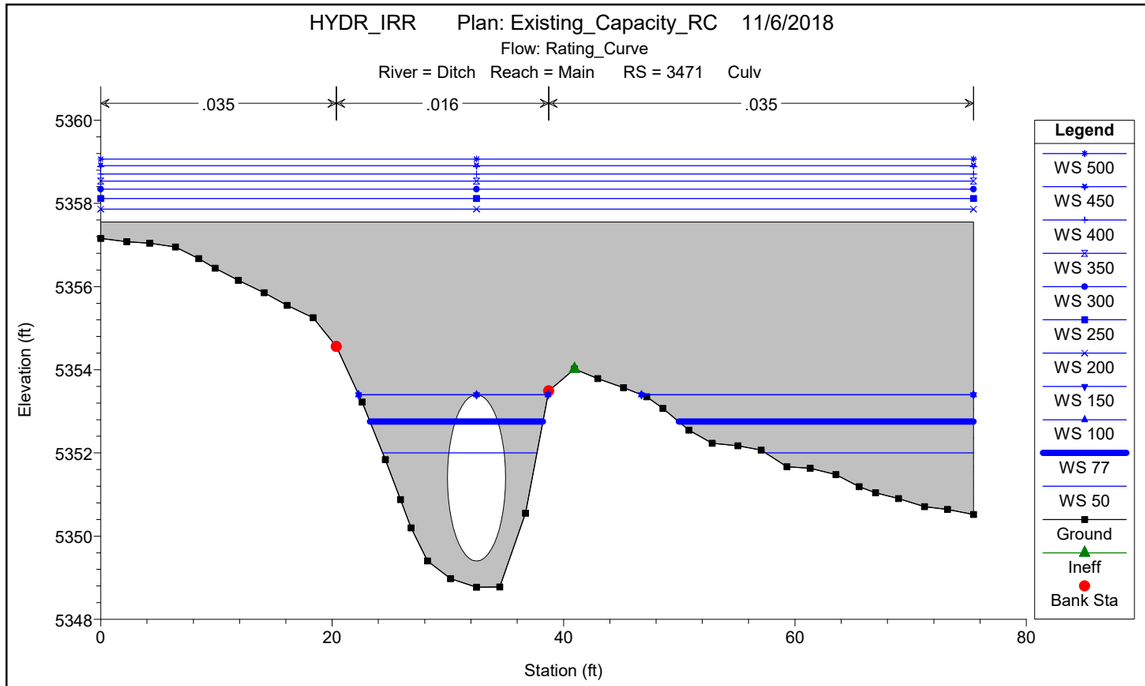

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 4220
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

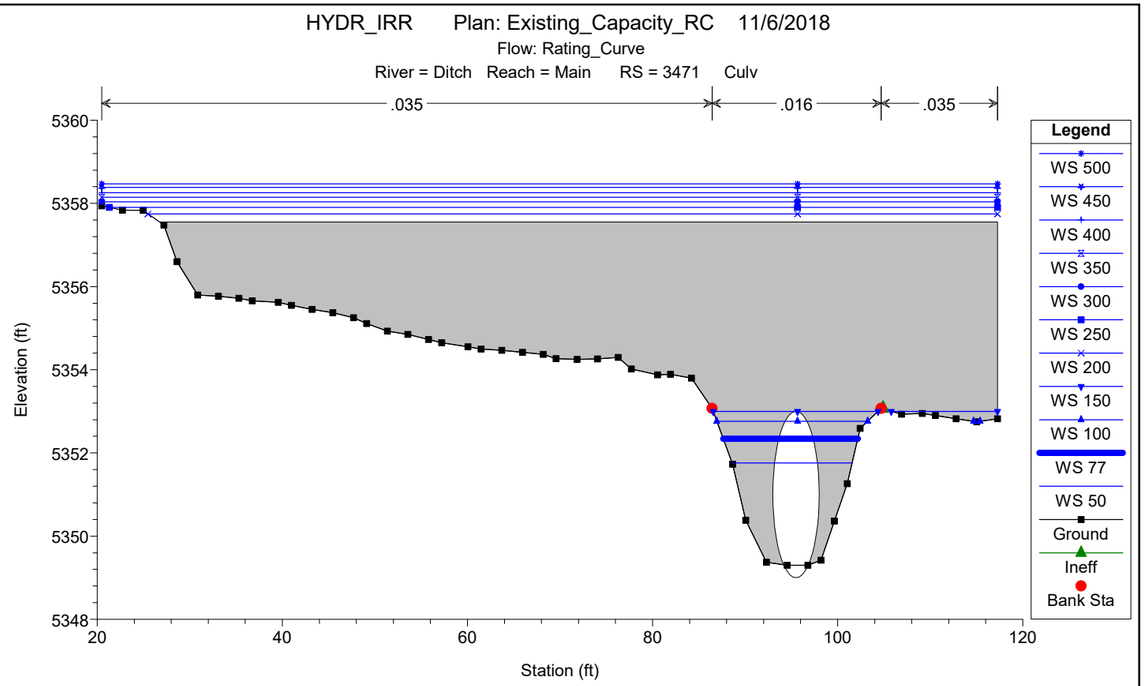

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 4001
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

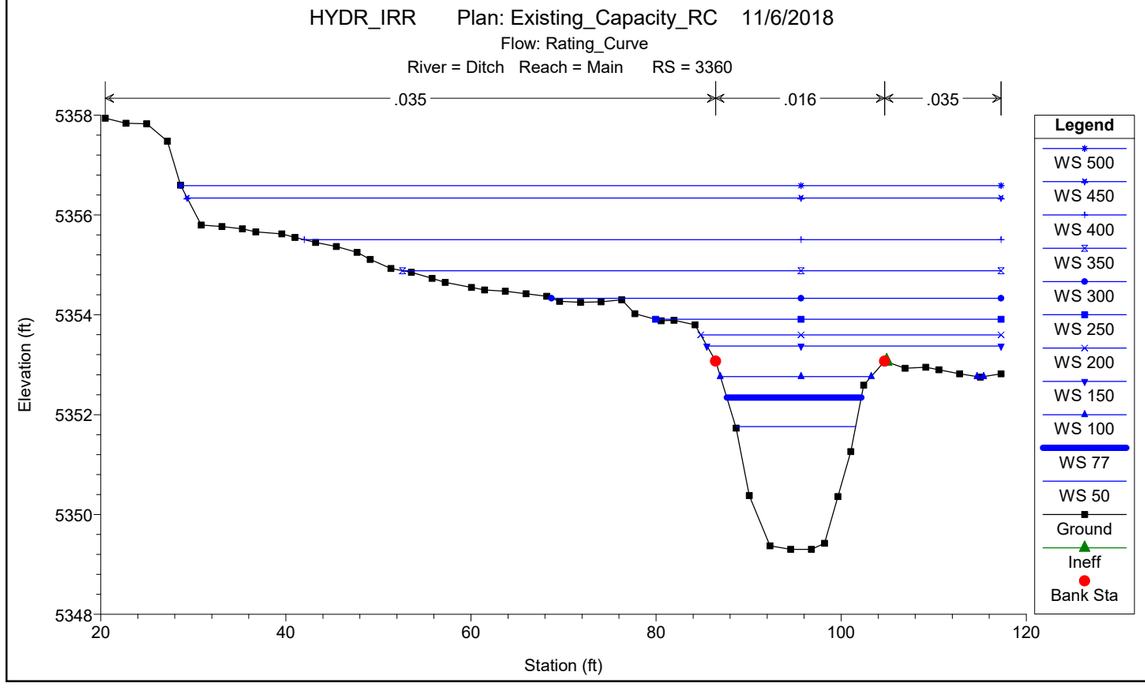

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 3848
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

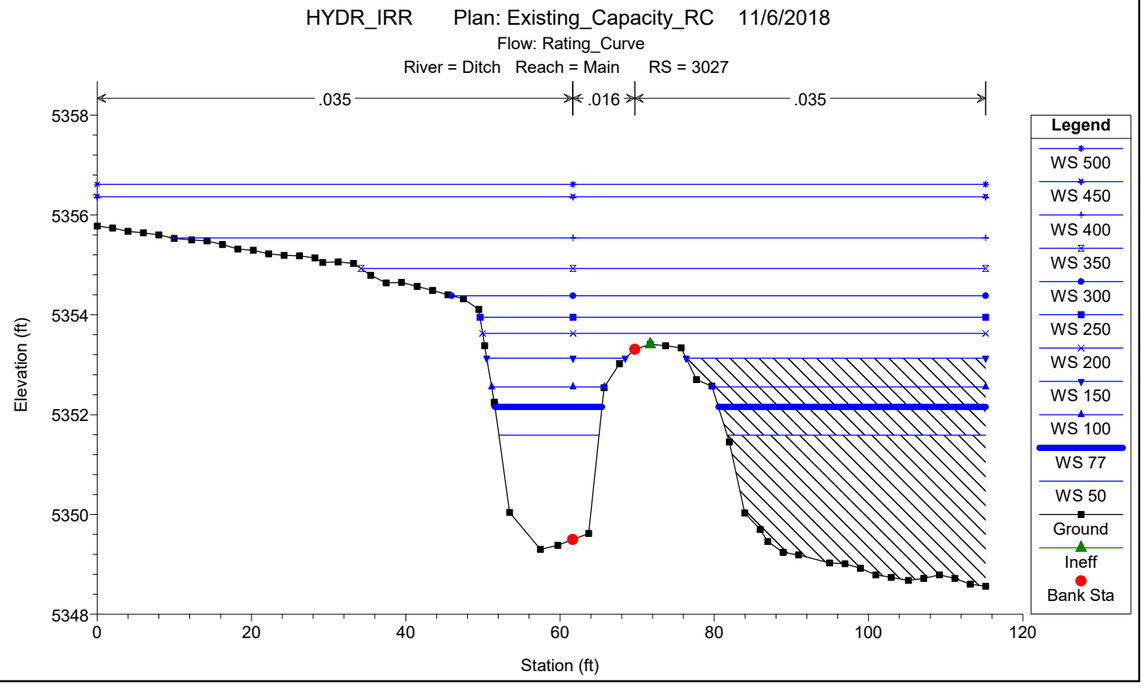

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 3718
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

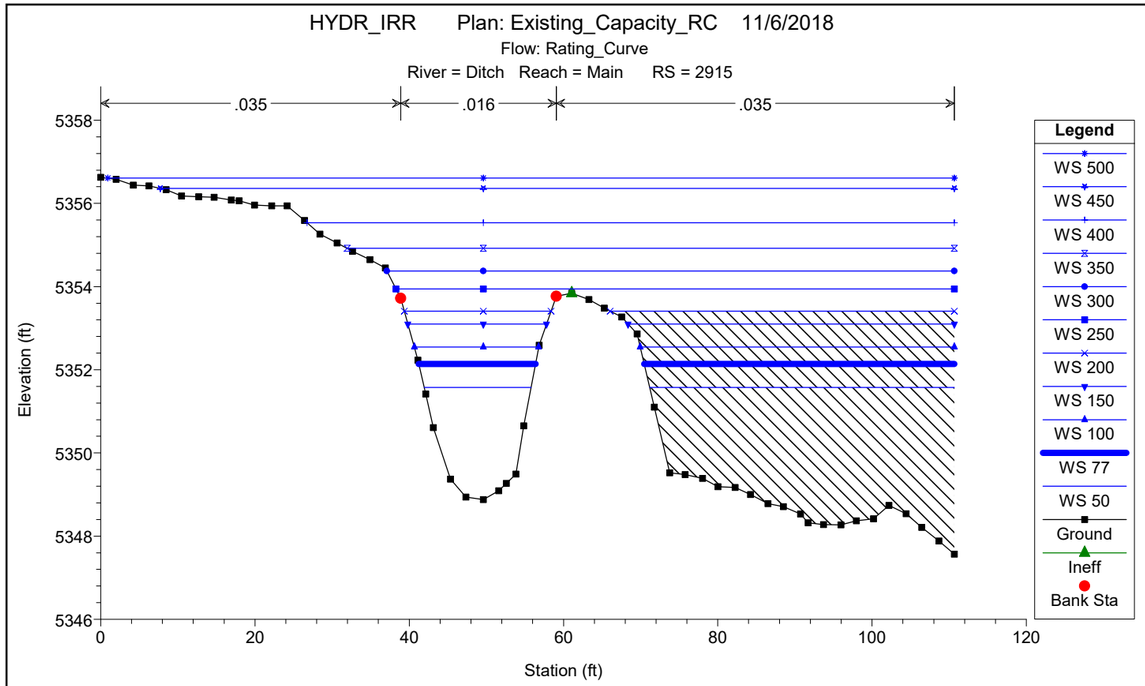

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 3631
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

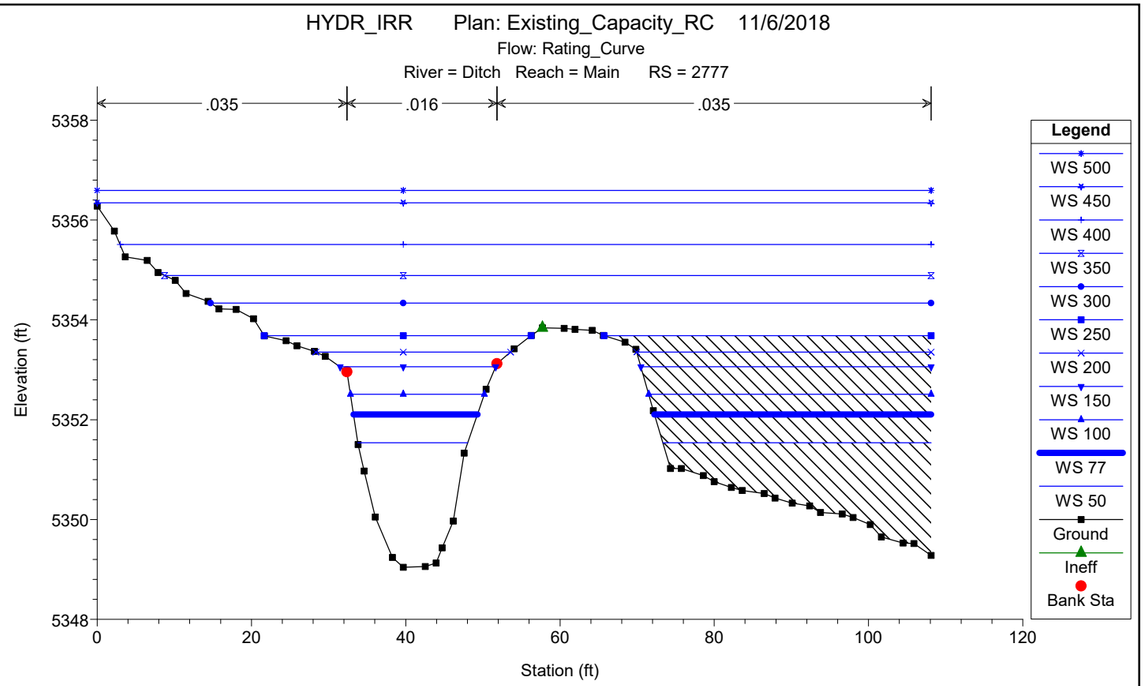

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 3471 Culv
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

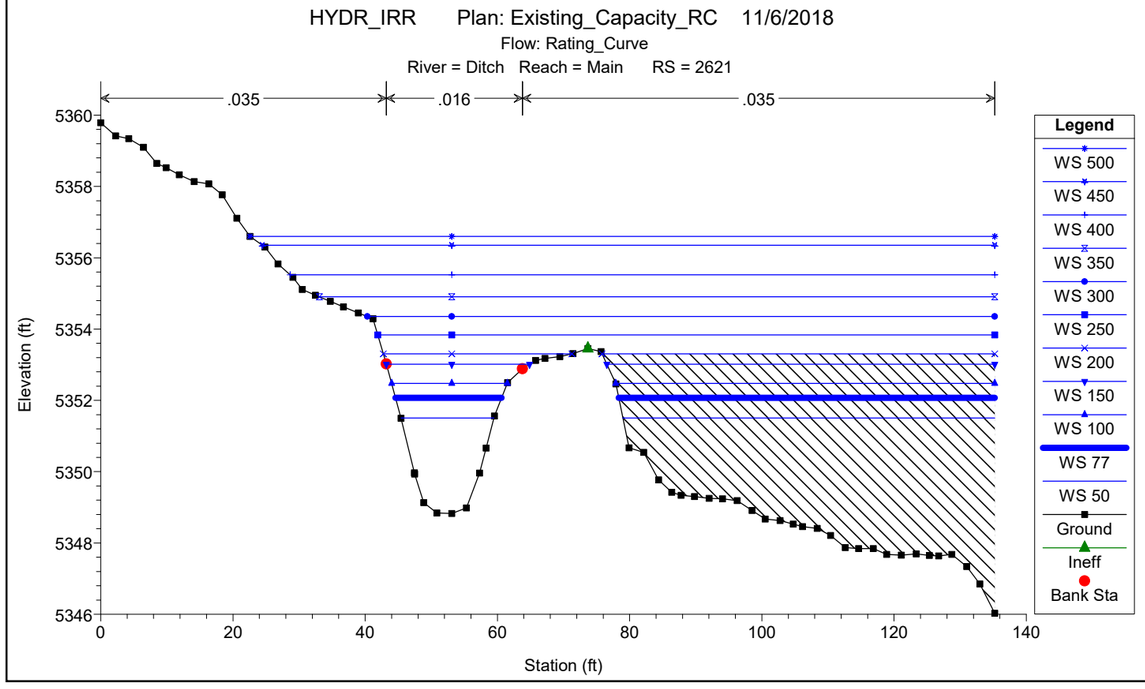

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 3471 Culv
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

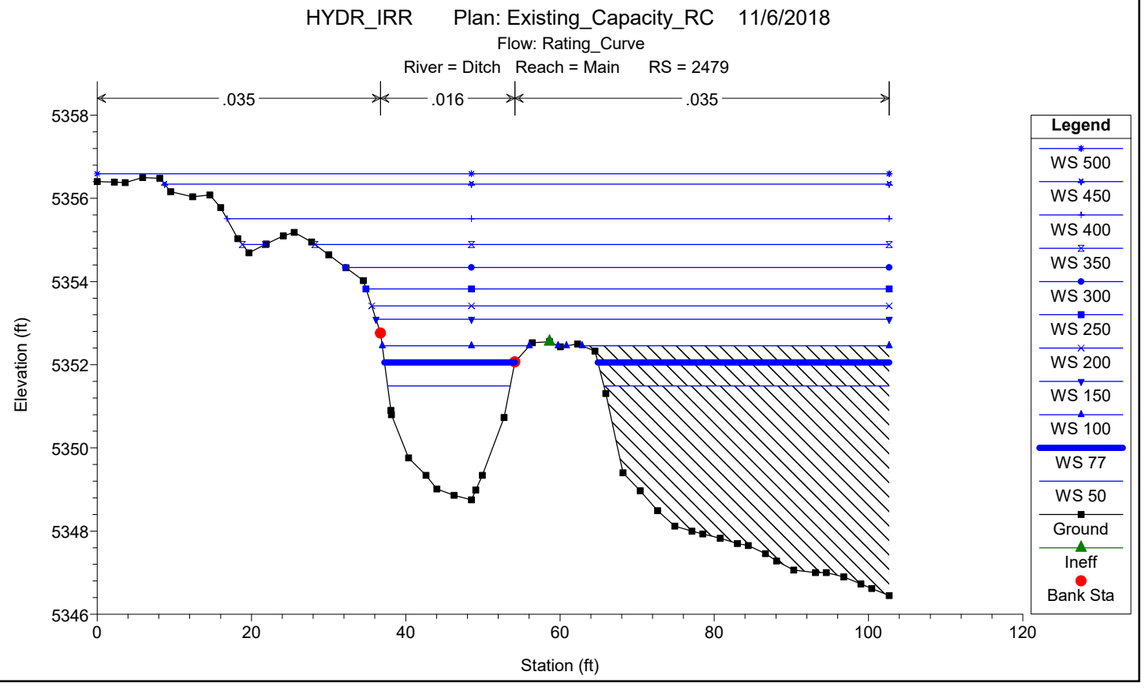

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 3360
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

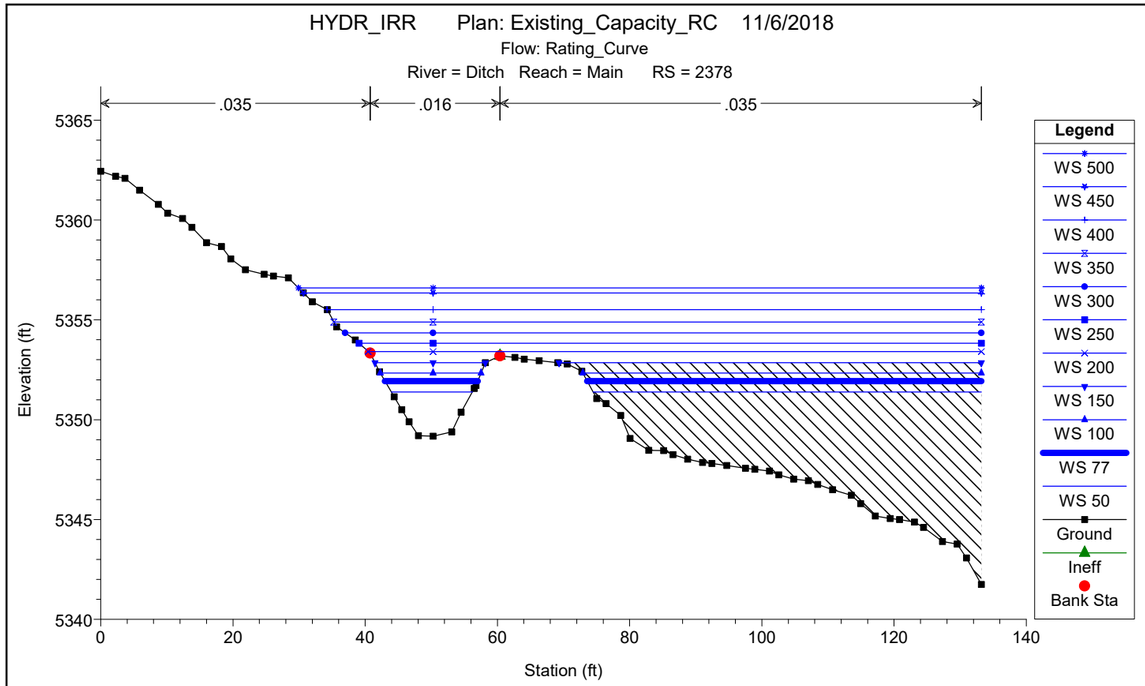

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 3027
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

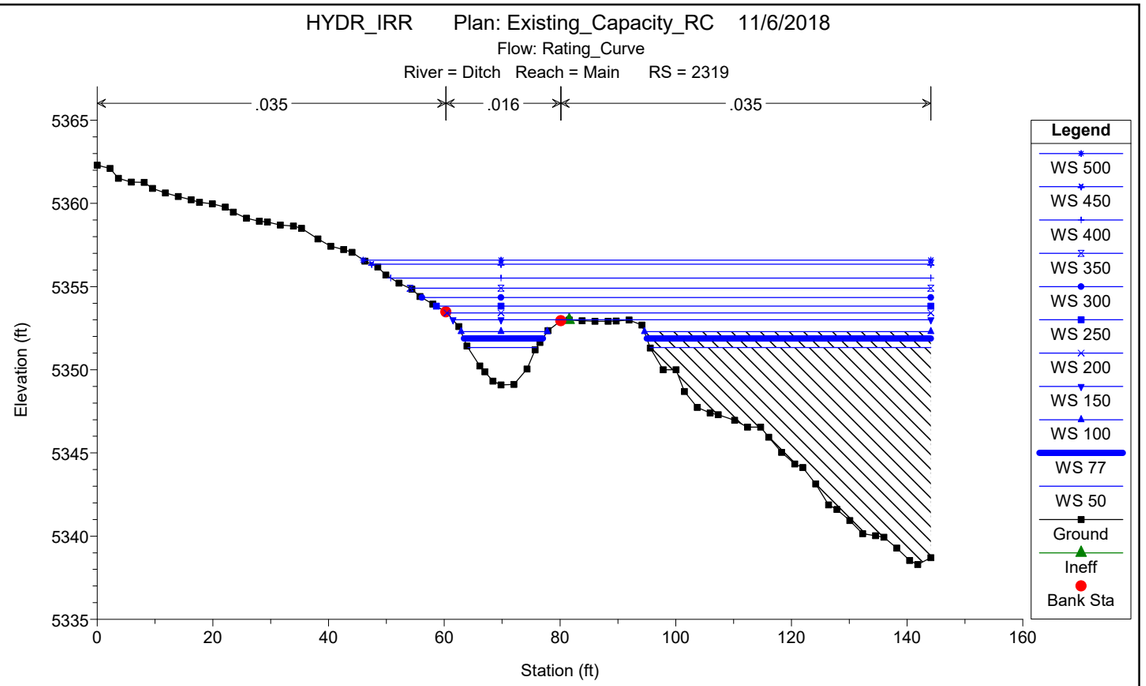

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 2915
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

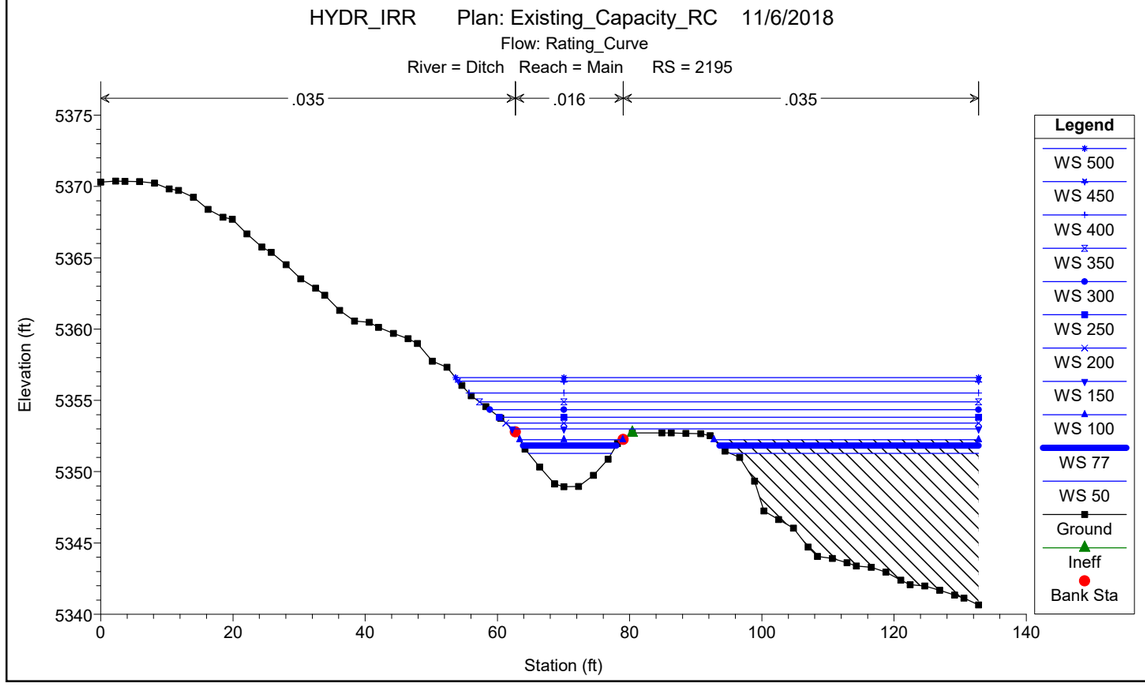

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 2777
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

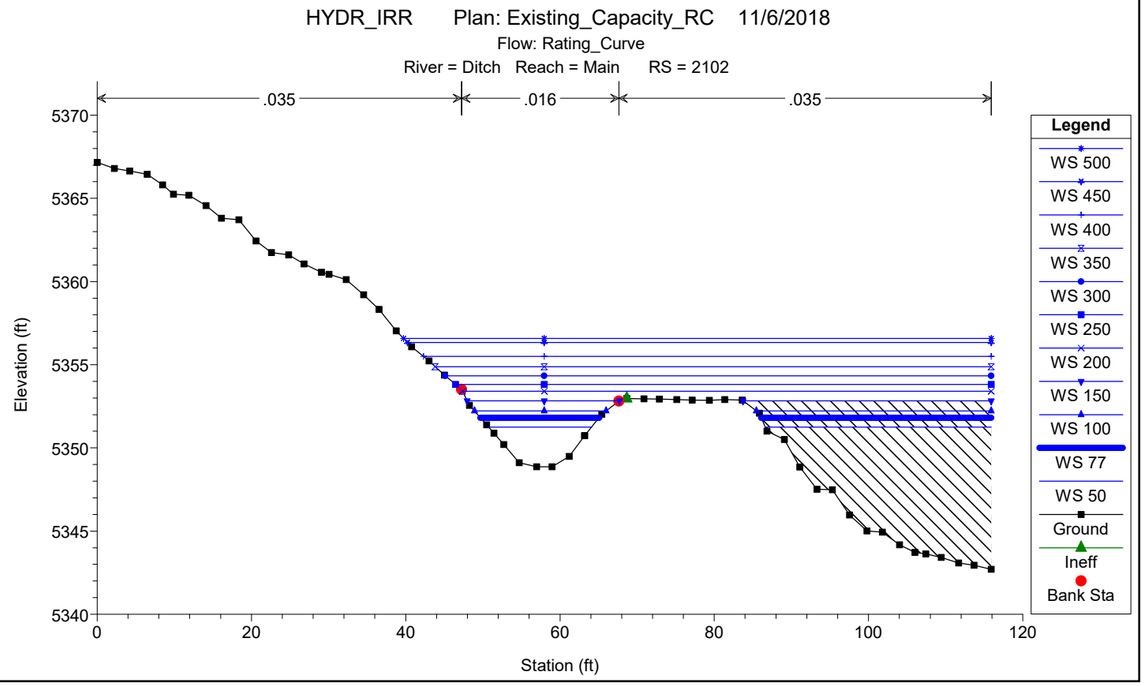

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 2621
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

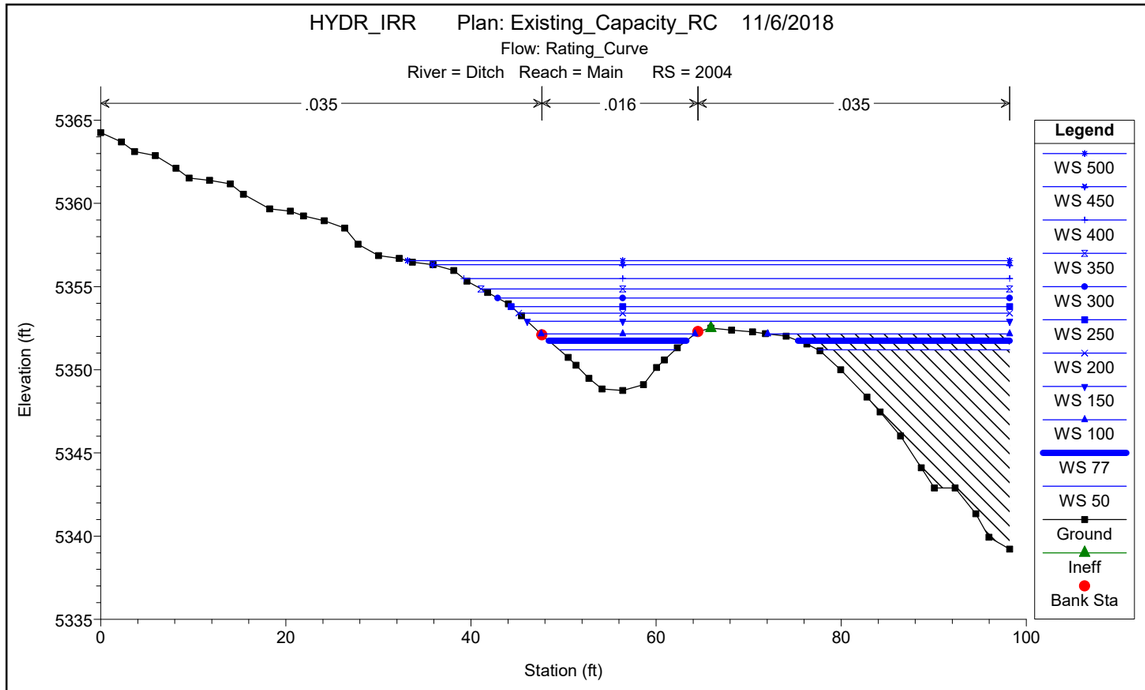

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 2479
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

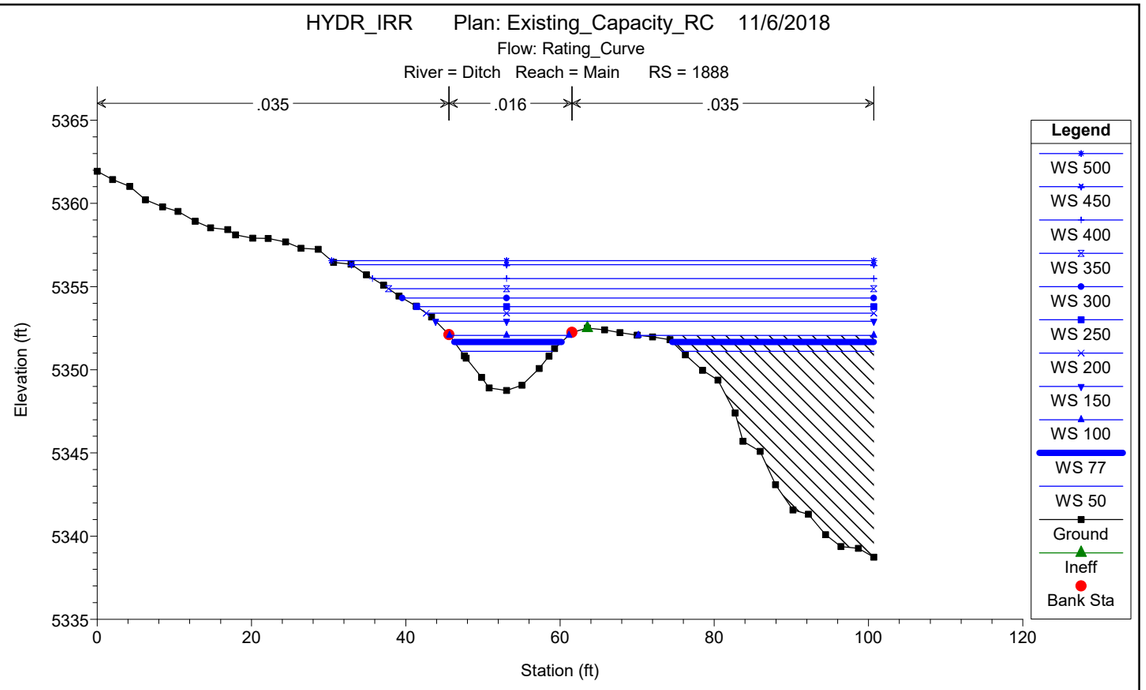

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 2378
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

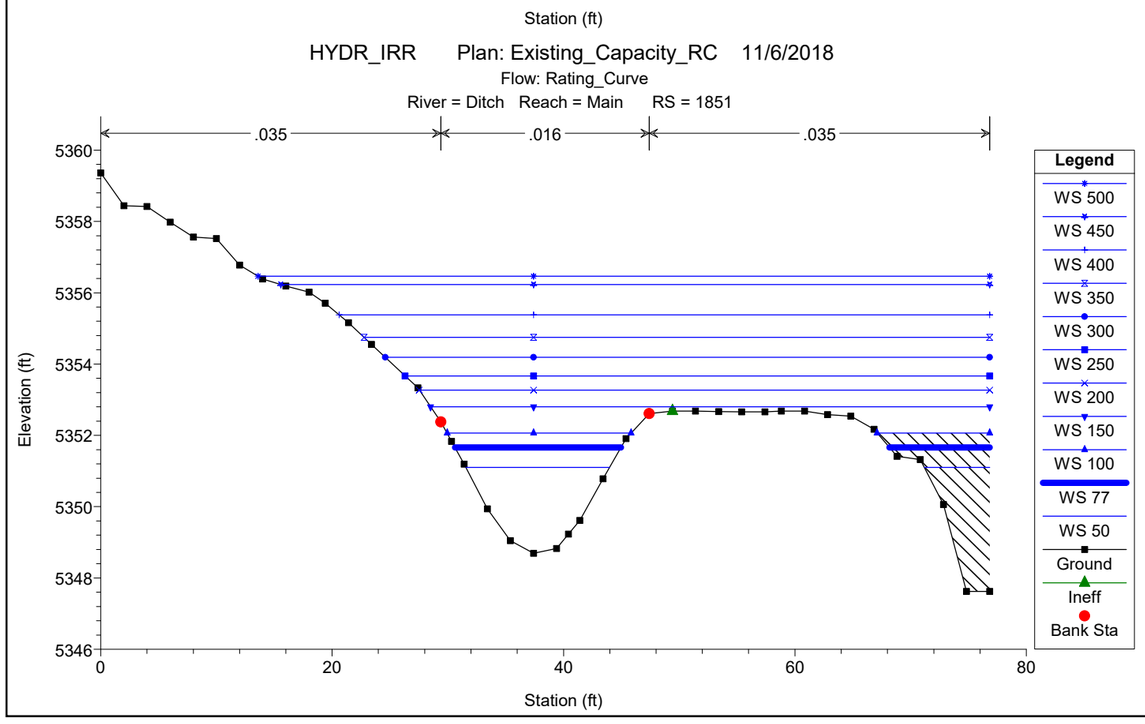

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 2319
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

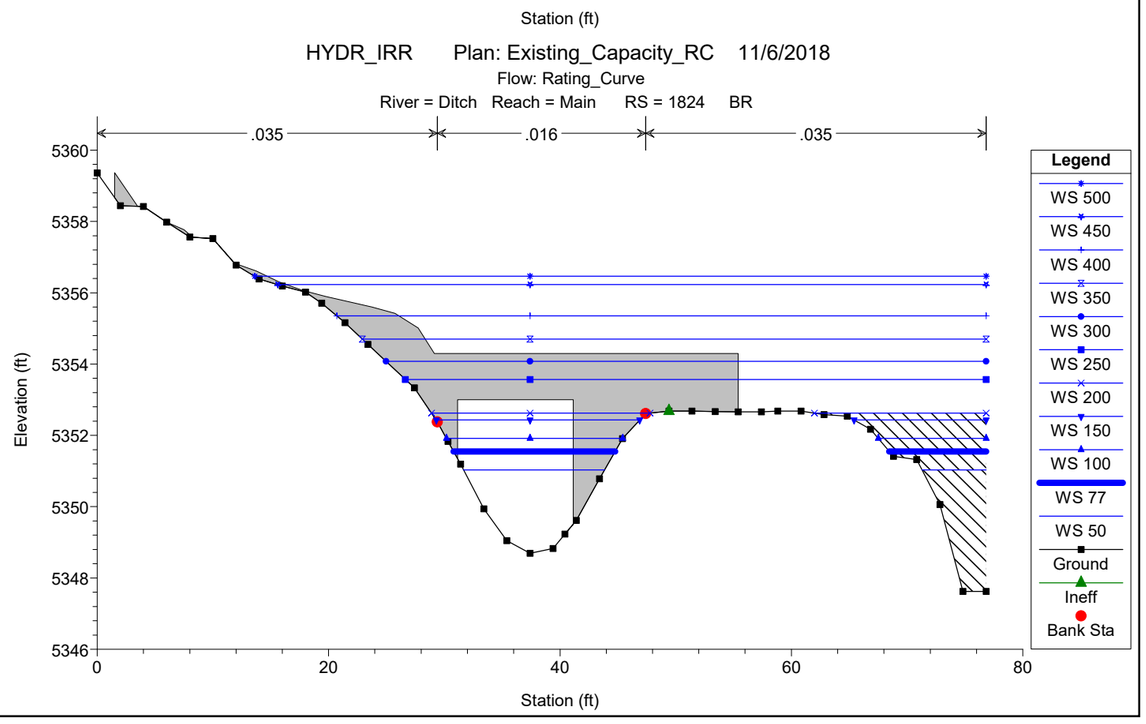

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 2195
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

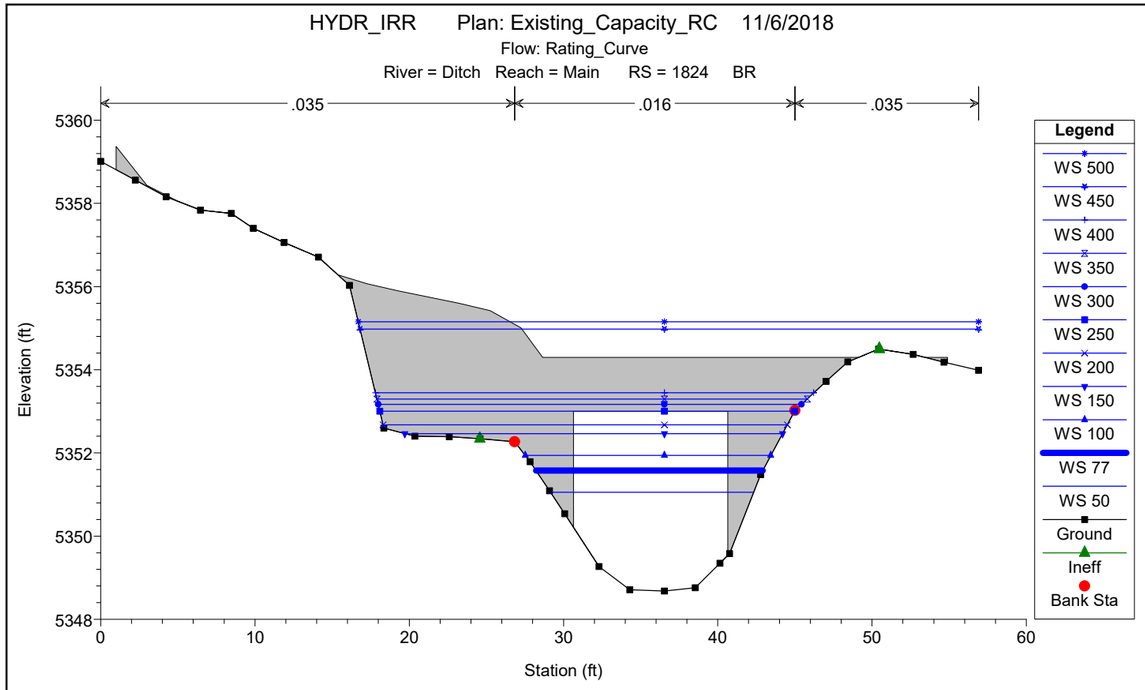

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 2102
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

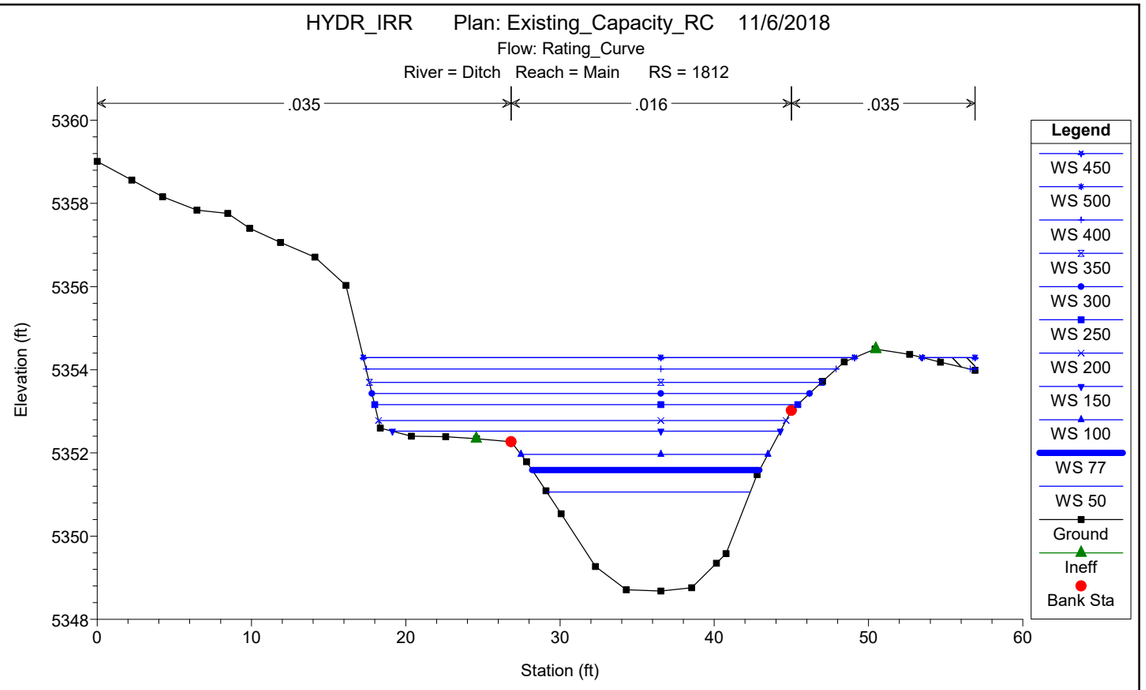

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 2004
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

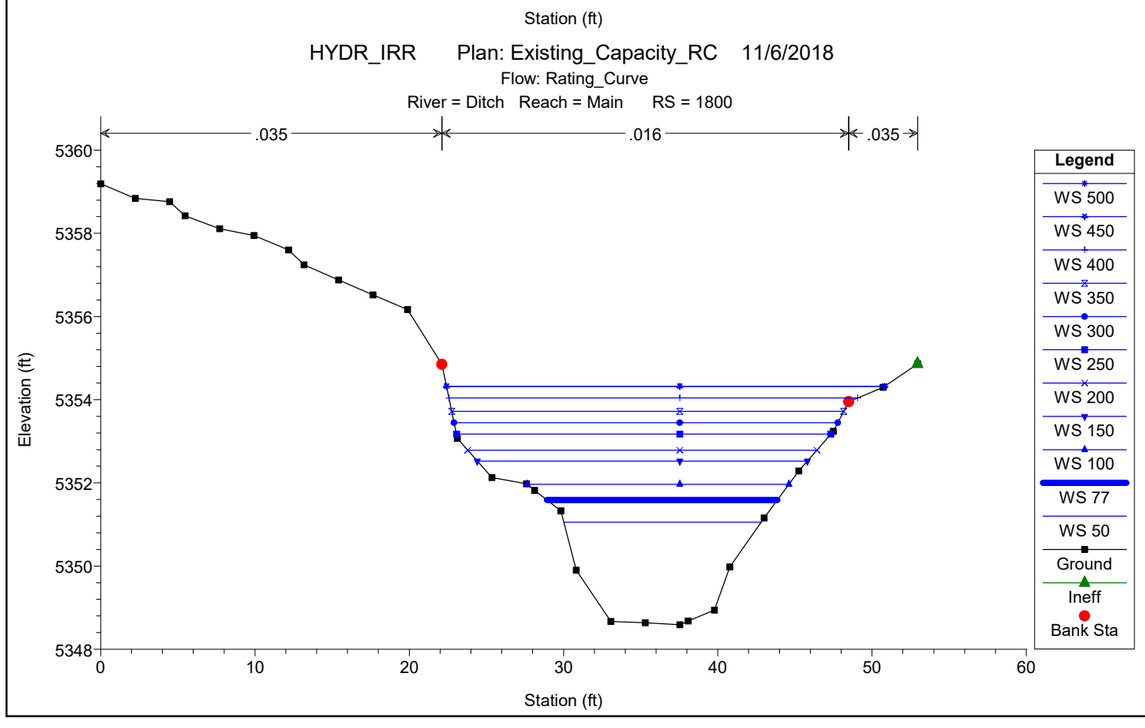

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 1888
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

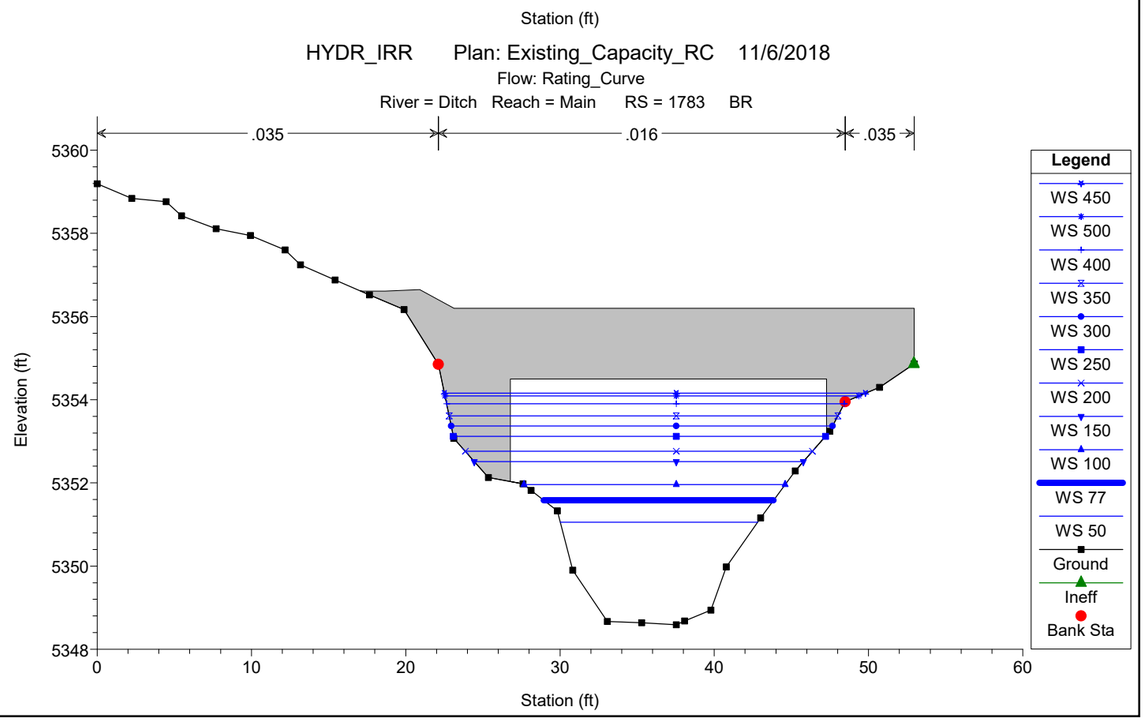

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 1851
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

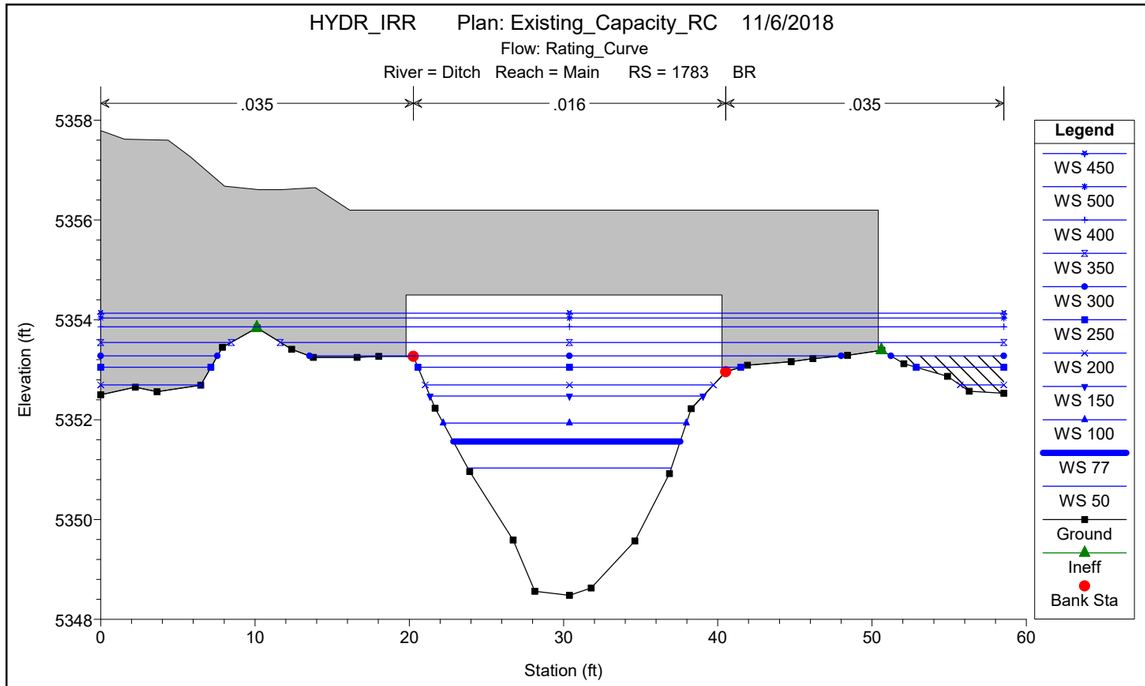

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 1824 BR
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

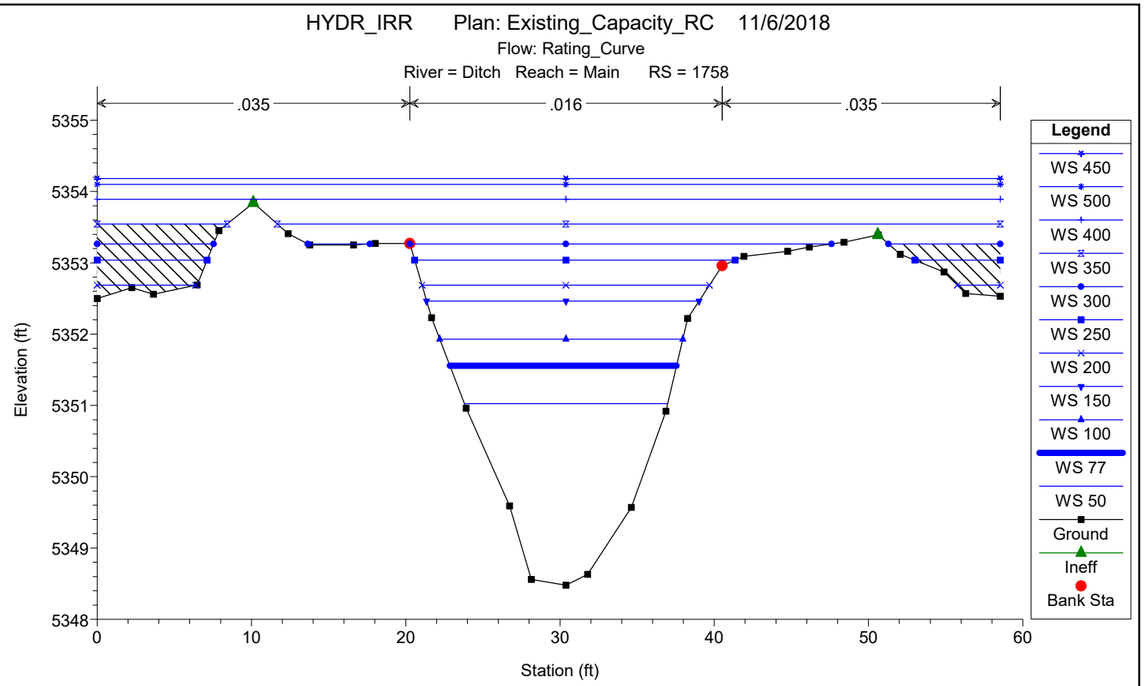

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 1824 BR
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

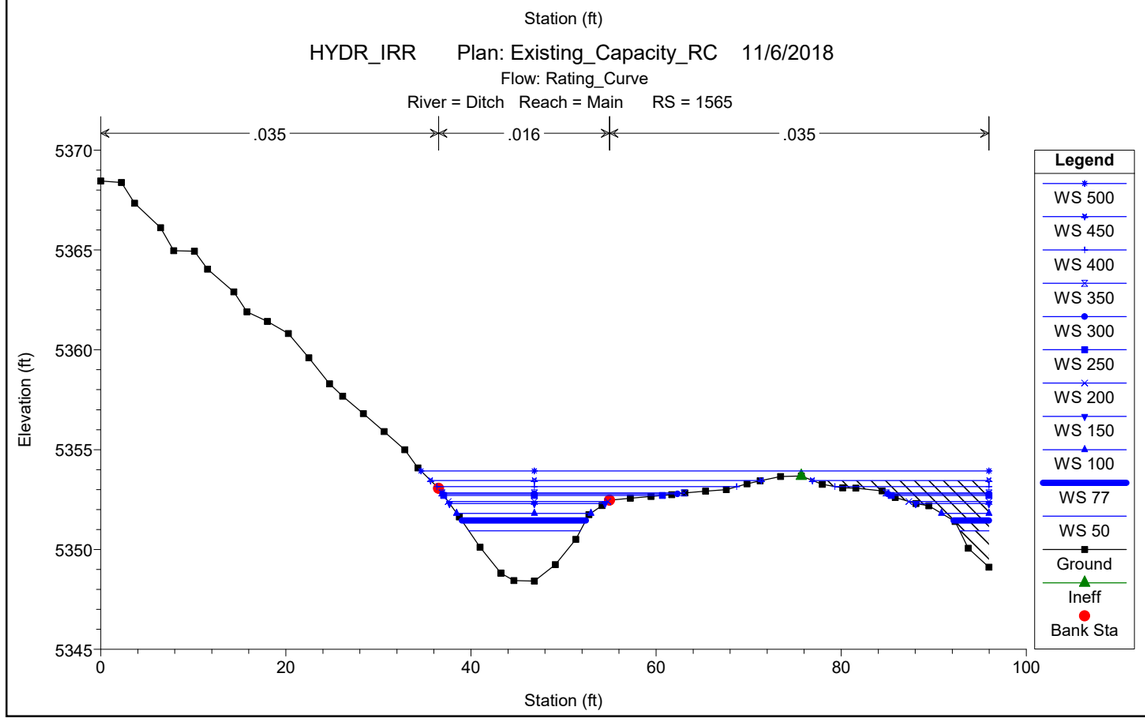

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 1812
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 450
WS 500
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

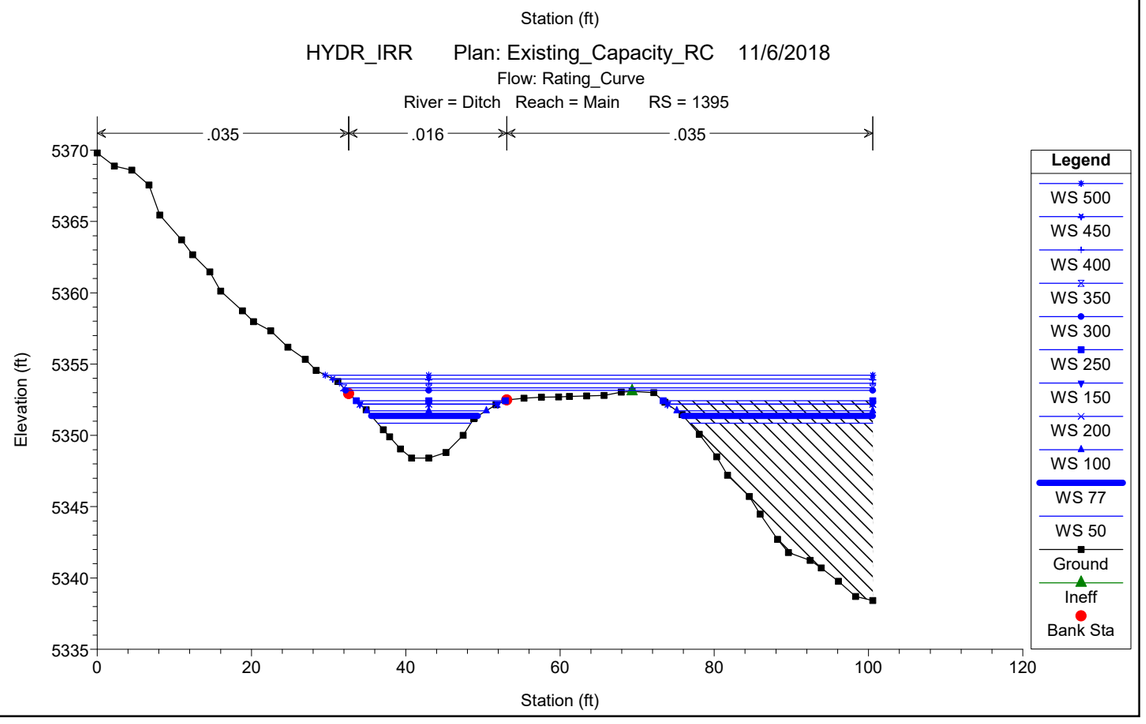

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 1800
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

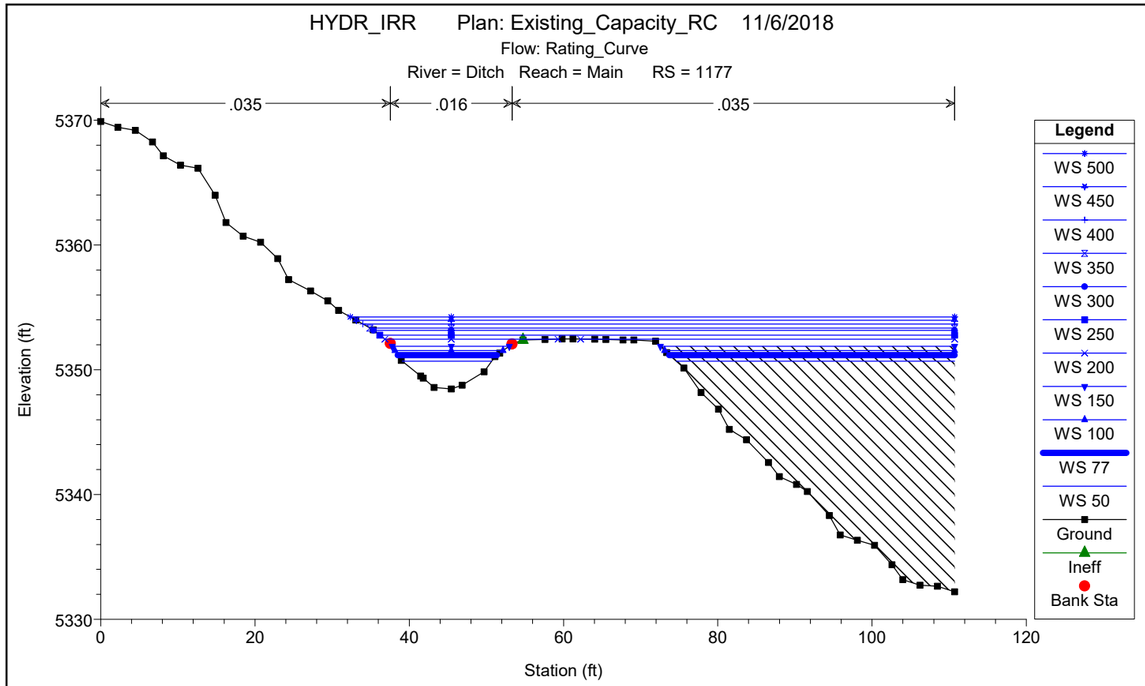

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 1783 BR
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 450
WS 500
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

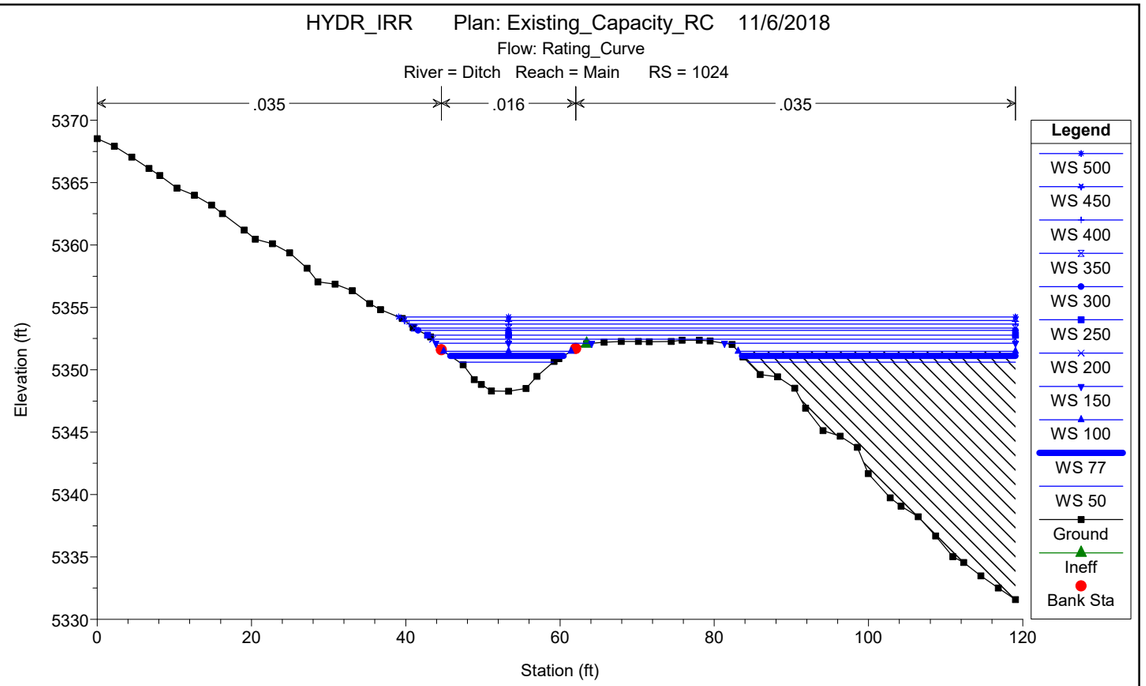

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 1783 BR
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 450
WS 500
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

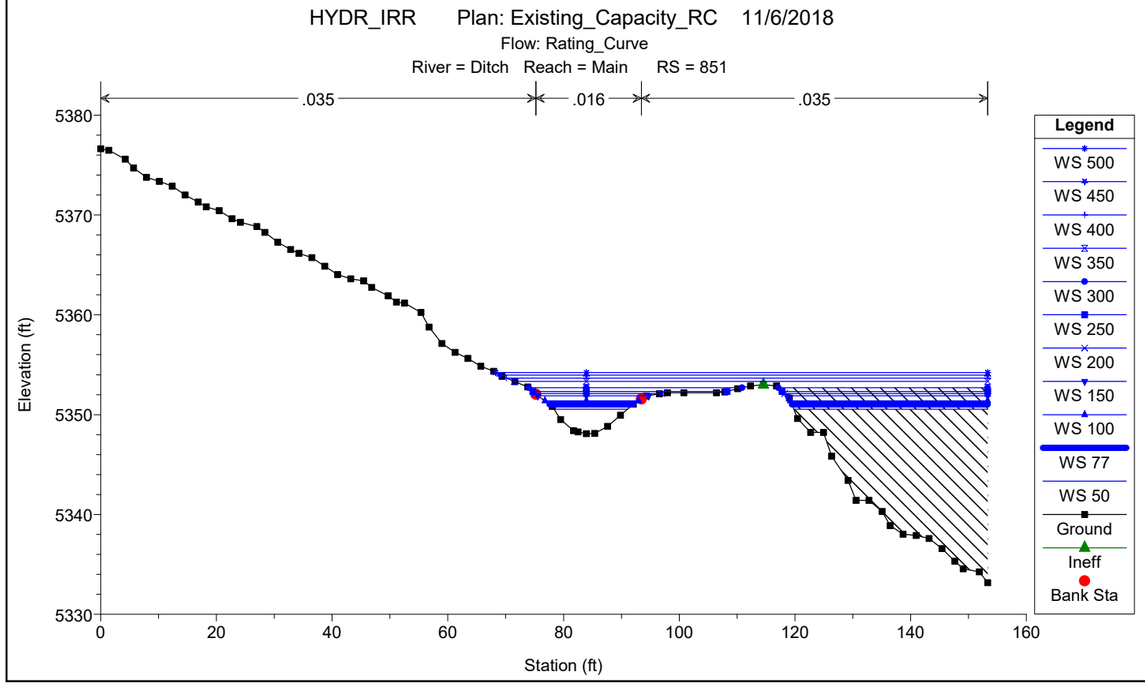

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 1758
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 450
WS 500
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

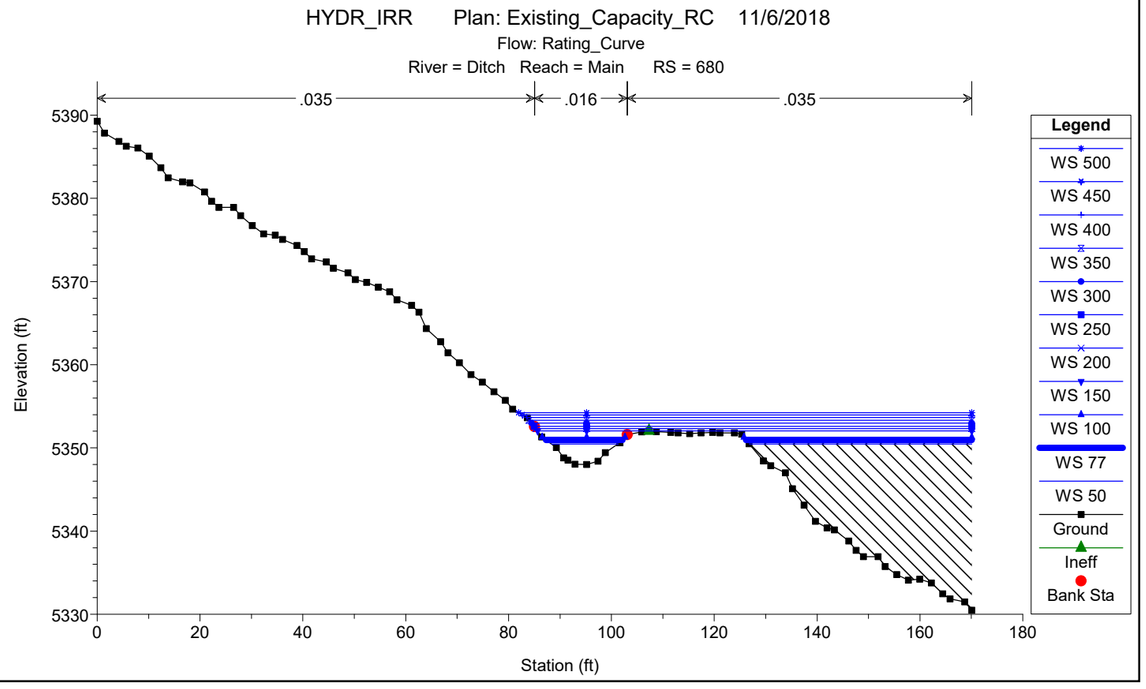

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 1565
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta


HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 1395
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 150
WS 200
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

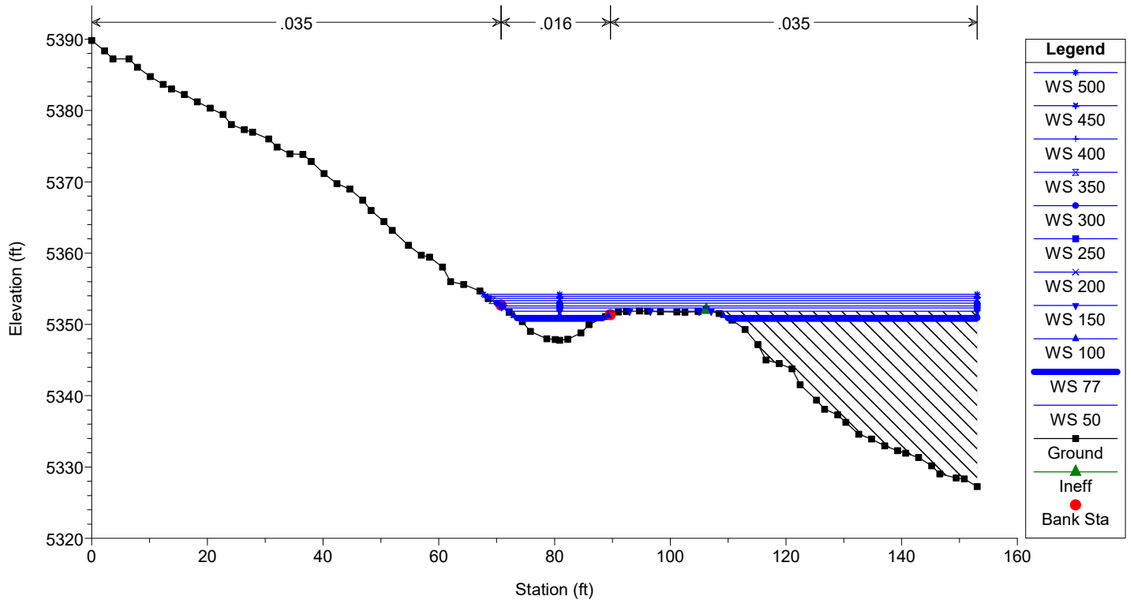

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 1177
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta


HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 1024
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

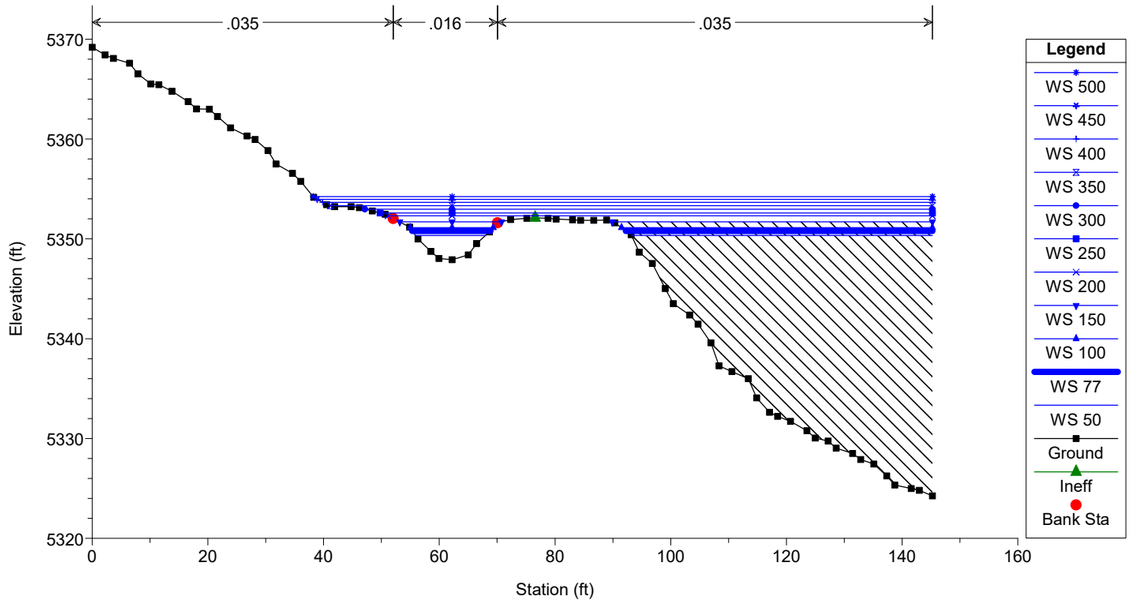

HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 851
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta


HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 680
.035
.016
.035
Elevation (ft)
Station (ft)
Legend
WS 500
WS 450
WS 400
WS 350
WS 300
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

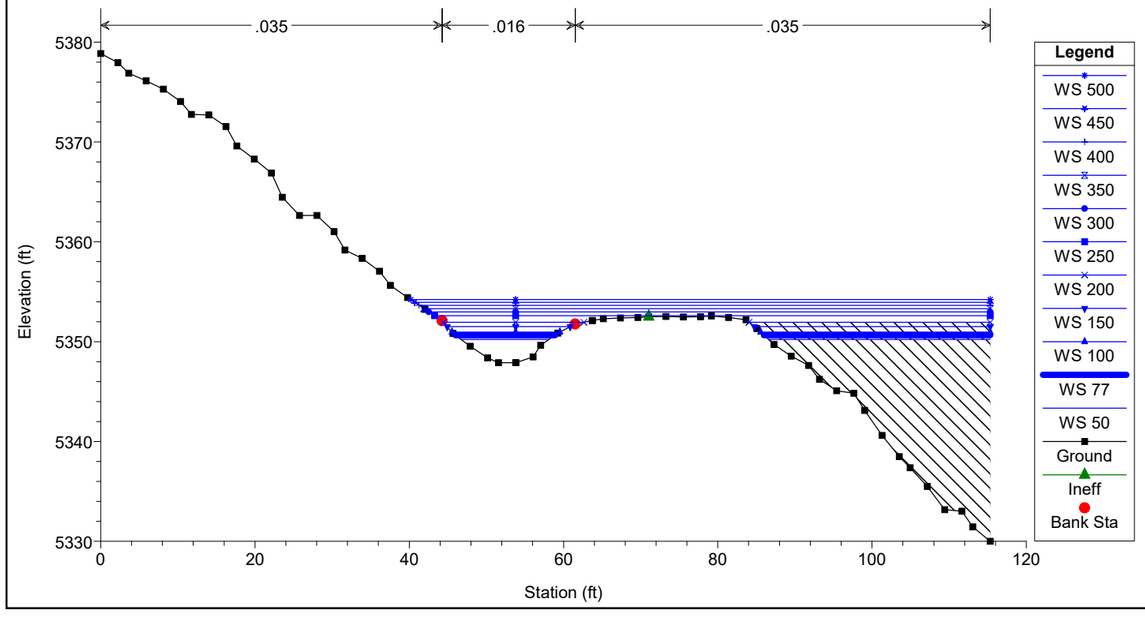
HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 537



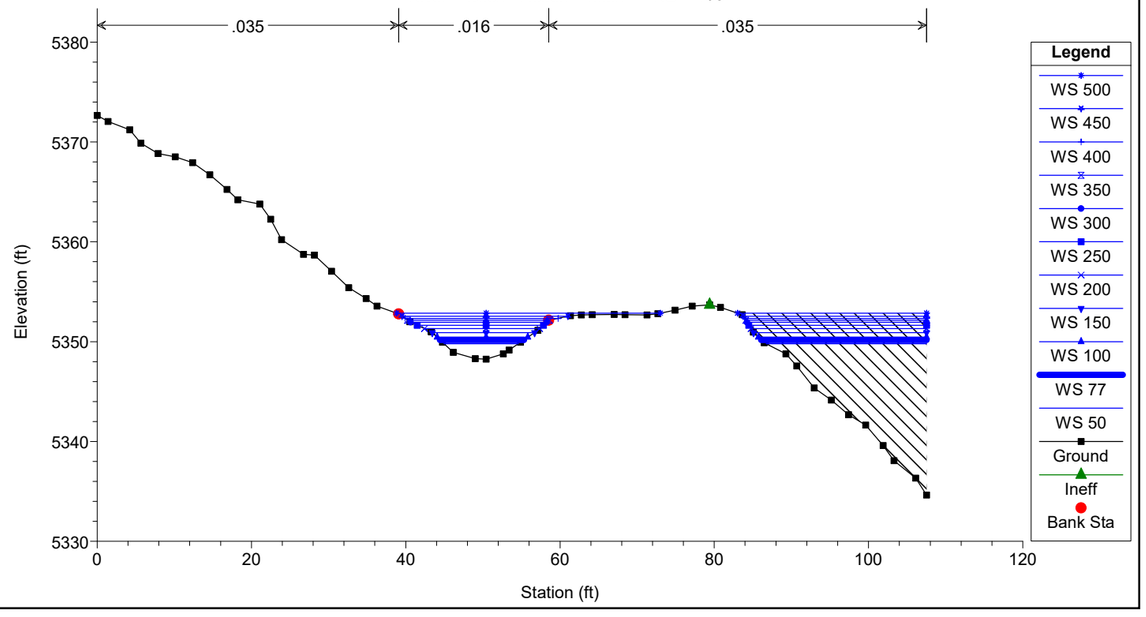
HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 400

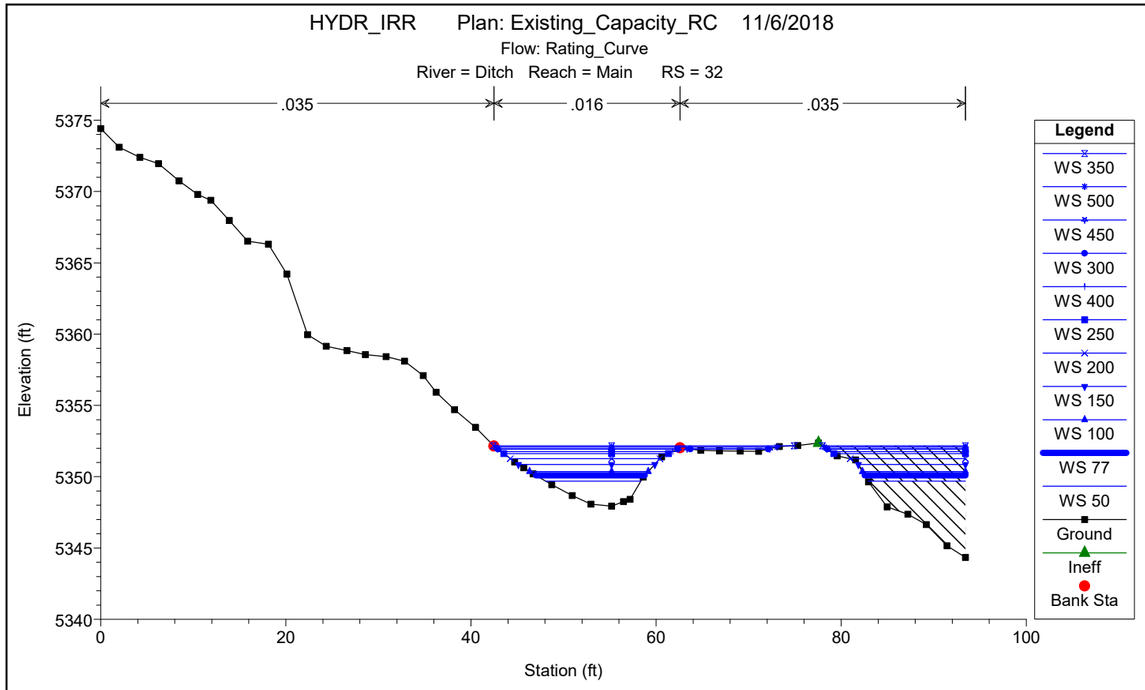


HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 212



HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 105




HYDR_IRR Plan: Existing_Capacity_RC 11/6/2018
Flow: Rating_Curve
River = Ditch Reach = Main RS = 32
.035
.016
.035
Elevation (ft)
5375
5370
5365
5360
5355
5350
5345
5340
0
20
40
60
80
100
Station (ft)
Legend
WS 350
WS 500
WS 450
WS 300
WS 400
WS 250
WS 200
WS 150
WS 100
WS 77
WS 50
Ground
Ineff
Bank Sta

HEC-RAS Plan: Existing_Cap River: Ditch Reach: Main

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)	
Main	31140	77	77.00	5369.60	5370.91	5370.91	5371.43	0.004226	5.78	13.32	13.75	1.04
Main	31140	100	100.00	5369.60	5371.12	5371.12	5371.70	0.003874	6.11	16.36	50.74	1.01
Main	31140	150	150.00	5369.60	5371.52	5371.52	5372.22	0.003473	6.74	22.25	53.80	0.99
Main	31140	200	200.00	5369.60	5371.85	5371.85	5372.67	0.003334	7.29	27.44	55.05	0.99
Main	31140	250	250.00	5369.60	5372.14	5372.14	5373.07	0.003249	7.75	32.27	56.16	0.99
Main	31140	300	300.00	5369.60	5372.39	5372.39	5373.43	0.003270	8.21	36.54	57.11	1.00
Main	31140	350	350.00	5369.60	5378.76	5372.65	5378.77	0.000010	1.07	594.50	117.16	0.07
Main	31140	400	400.00	5369.60	5378.94	5372.87	5378.95	0.000012	1.19	615.72	118.41	0.07
Main	31140	450	450.00	5369.60	5379.24	5373.09	5379.26	0.000014	1.28	651.93	121.47	0.08
Main	31140	500	500.00	5369.60	5379.45	5373.29	5379.46	0.000015	1.38	676.61	124.01	0.08
Main	31140	50	50.00	5369.60	5370.64	5370.64	5371.05	0.004478	5.12	9.77	12.76	1.03
Main	30965	77	77.00	5367.94	5370.29	5369.00	5370.34	0.000184	1.78	43.25	24.79	0.24
Main	30965	100	100.00	5367.94	5370.49	5369.16	5370.56	0.000223	2.07	48.25	25.28	0.26
Main	30965	150	150.00	5367.94	5370.75	5369.47	5370.87	0.000337	2.73	54.96	25.77	0.33
Main	30965	200	200.00	5367.94	5371.21	5369.71	5371.35	0.000331	2.99	66.86	26.60	0.33
Main	30965	250	250.00	5367.94	5371.83	5370.00	5371.97	0.000265	2.99	83.67	33.03	0.30
Main	30965	300	300.00	5367.94	5372.52	5370.20	5372.65	0.000206	2.90	103.31	44.70	0.27
Main	30965	350	350.00	5367.94	5378.76	5370.40	5378.77	0.000005	0.85	733.85	159.48	0.05
Main	30965	400	400.00	5367.94	5378.94	5370.58	5378.95	0.000006	0.94	762.76	161.52	0.05
Main	30965	450	450.00	5367.94	5379.24	5370.76	5379.26	0.000007	1.01	812.83	168.56	0.06
Main	30965	500	500.00	5367.94	5379.45	5370.92	5379.46	0.000007	1.09	846.82	168.56	0.06
Main	30965	50	50.00	5367.94	5369.97	5368.77	5370.00	0.000139	1.41	35.43	23.46	0.20
Main	30685	77	77.00	5367.67	5369.76	5369.76	5370.17	0.004191	5.12	15.04	18.28	1.00
Main	30685	100	100.00	5367.67	5370.10	5370.10	5370.37	0.004516	4.18	23.94	42.70	0.98
Main	30685	150	150.00	5367.67	5370.37	5370.26	5370.65	0.002827	4.22	35.57	43.91	0.83
Main	30685	200	200.00	5367.67	5371.09	5370.41	5371.22	0.000629	2.95	67.71	45.61	0.43
Main	30685	250	250.00	5367.67	5371.78	5370.56	5371.88	0.000286	2.50	99.91	47.34	0.30
Main	30685	300	300.00	5367.67	5372.50	5370.71	5372.58	0.000160	2.23	134.72	48.60	0.24
Main	30685	350	350.00	5367.67	5378.76	5370.81	5378.77	0.000003	0.62	840.17	176.46	0.04
Main	30685	400	400.00	5367.67	5378.94	5370.95	5378.95	0.000004	0.69	872.51	185.55	0.04
Main	30685	450	450.00	5367.67	5379.25	5371.02	5379.25	0.000004	0.74	928.68	185.55	0.04
Main	30685	500	500.00	5367.67	5379.45	5371.17	5379.46	0.000004	0.79	966.19	185.55	0.05
Main	30685	50	50.00	5367.67	5369.66	5369.39	5369.88	0.002301	3.73	13.40	16.68	0.73
Main	30503	77	77.00	5368.25	5369.42	5369.20	5369.54	0.001570	2.85	27.06	39.63	0.61
Main	30503	100	100.00	5368.25	5369.77	5369.31	5369.86	0.000689	2.41	41.42	44.48	0.43
Main	30503	150	150.00	5368.25	5370.37	5369.51	5370.45	0.000331	2.22	67.66	49.91	0.32
Main	30503	200	200.00	5368.25	5371.08	5369.68	5371.15	0.000174	2.00	100.20	75.54	0.24
Main	30503	250	250.00	5368.25	5371.78	5369.82	5371.83	0.000112	1.87	133.93	92.26	0.20
Main	30503	300	300.00	5368.25	5372.51	5369.96	5372.55	0.000075	1.75	172.33	100.76	0.17
Main	30503	350	350.00	5368.25	5378.76	5370.10	5378.77	0.000001	0.48	1249.80	194.24	0.03
Main	30503	400	400.00	5368.25	5378.94	5370.22	5378.95	0.000002	0.54	1284.94	196.04	0.03
Main	30503	450	450.00	5368.25	5379.25	5370.33	5379.25	0.000002	0.59	1345.50	201.89	0.03
Main	30503	500	500.00	5368.25	5379.45	5370.44	5379.46	0.000002	0.63	1386.41	201.89	0.04
Main	30503	50	50.00	5368.25	5369.08	5369.08	5369.27	0.005216	3.54	14.12	36.68	1.01
Main	30453	77	77.00	5366.29	5369.29	5368.20	5369.48	0.000861	3.51	21.94	12.48	0.47
Main	30453	100	100.00	5366.29	5369.56	5368.50	5369.80	0.000956	3.92	25.51	13.21	0.50
Main	30453	150	150.00	5366.29	5370.06	5369.15	5370.40	0.001090	4.63	32.37	14.16	0.54

HEC-RAS Plan: Existing_Cap River: Ditch Reach: Main (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Main	30453	200	200.00	5366.29	5370.76	5369.57	5371.10	0.000889	4.68	42.70	15.48	0.50
Main	30453	250	250.00	5366.29	5371.46	5369.91	5371.79	0.000716	4.63	53.99	16.68	0.45
Main	30453	300	300.00	5366.29	5372.20	5370.22	5372.52	0.000542	4.52	66.52	17.14	0.40
Main	30453	350	350.00	5366.29	5378.72	5370.50	5378.76	0.000041	1.71	226.02	52.88	0.12
Main	30453	400	400.00	5366.29	5378.89	5370.77	5378.94	0.000049	1.90	235.03	52.88	0.13
Main	30453	450	450.00	5366.29	5379.18	5371.02	5379.25	0.000052	2.03	250.62	52.88	0.14
Main	30453	500	500.00	5366.29	5379.38	5371.26	5379.45	0.000058	2.18	260.85	52.88	0.15
Main	30453	50	50.00	5366.29	5368.90	5367.83	5369.03	0.000598	2.86	17.50	10.14	0.38
Main	30409		Bridge									
Main	30379	77	77.00	5365.15	5369.32	5367.11	5369.35	0.000076	1.42	54.42	22.84	0.16
Main	30379	100	100.00	5365.15	5369.60	5367.35	5369.65	0.000089	1.66	60.92	23.40	0.18
Main	30379	150	150.00	5365.15	5370.12	5367.77	5370.19	0.000113	2.09	73.21	24.41	0.20
Main	30379	200	200.00	5365.15	5370.54	5368.09	5370.64	0.000133	2.47	83.84	25.49	0.23
Main	30379	250	250.00	5365.15	5370.91	5368.35	5371.03	0.000152	2.80	93.22	26.47	0.24
Main	30379	300	300.00	5365.15	5371.23	5368.62	5371.38	0.000169	3.11	101.95	27.93	0.26
Main	30379	350	350.00	5365.15	5371.53	5368.85	5371.70	0.000184	3.39	110.61	29.33	0.28
Main	30379	400	400.00	5365.15	5371.81	5369.04	5372.02	0.000196	3.64	119.12	30.64	0.29
Main	30379	450	450.00	5365.15	5372.08	5369.23	5372.31	0.000207	3.87	127.62	32.67	0.30
Main	30379	500	500.00	5365.15	5372.33	5369.34	5372.59	0.000217	4.09	135.97	33.49	0.31
Main	30379	50	50.00	5365.15	5368.93	5366.76	5368.95	0.000056	1.10	45.64	22.07	0.13
Main	30324	77	77.00	5366.54	5369.12	5368.37	5369.30	0.000791	3.37	22.83	14.49	0.47
Main	30324	100	100.00	5366.54	5369.36	5368.60	5369.58	0.000920	3.80	26.32	15.62	0.52
Main	30324	150	150.00	5366.54	5369.79	5369.04	5370.10	0.001099	4.47	33.54	17.82	0.57
Main	30324	200	200.00	5366.54	5370.15	5369.41	5370.54	0.001155	4.96	40.47	20.40	0.60
Main	30324	250	250.00	5366.54	5370.45	5369.73	5370.91	0.001167	5.41	47.02	23.36	0.62
Main	30324	300	300.00	5366.54	5370.72	5370.01	5371.24	0.001179	5.83	53.57	26.45	0.63
Main	30324	350	350.00	5366.54	5370.98	5370.27	5371.56	0.001158	6.15	60.91	29.25	0.63
Main	30324	400	400.00	5366.54	5371.24	5370.48	5371.87	0.001115	6.40	68.82	30.78	0.63
Main	30324	450	450.00	5366.54	5371.50	5370.65	5372.16	0.001066	6.59	77.06	32.42	0.63
Main	30324	500	500.00	5366.54	5371.75	5370.88	5372.43	0.001032	6.78	85.03	33.76	0.62
Main	30324	50	50.00	5366.54	5368.80	5368.02	5368.91	0.000612	2.73	18.31	13.23	0.41
Main	30219	77	77.00	5367.44	5368.66	5368.66	5369.12	0.003841	5.44	14.15	14.97	0.99
Main	30219	100	100.00	5367.44	5368.85	5368.85	5369.38	0.003603	5.82	17.19	15.57	0.98
Main	30219	150	150.00	5367.44	5369.21	5369.21	5369.88	0.003437	6.54	22.93	16.64	0.98
Main	30219	200	200.00	5367.44	5369.50	5369.50	5370.30	0.003463	7.19	27.82	17.50	1.01
Main	30219	250	250.00	5367.44	5369.80	5369.80	5370.68	0.003215	7.51	33.29	18.42	0.98
Main	30219	300	300.00	5367.44	5370.18	5370.02	5371.03	0.002657	7.41	40.46	19.65	0.91
Main	30219	350	350.00	5367.44	5370.53	5370.28	5371.37	0.002295	7.36	47.55	20.81	0.86
Main	30219	400	400.00	5367.44	5370.85	5370.52	5371.69	0.002048	7.34	54.49	21.88	0.82
Main	30219	450	450.00	5367.44	5371.15	5370.73	5371.99	0.001891	7.35	61.22	23.05	0.80
Main	30219	500	500.00	5367.44	5371.43	5370.92	5372.28	0.001771	7.37	67.83	24.17	0.78
Main	30219	50	50.00	5367.44	5368.40	5368.40	5368.76	0.004033	4.78	10.45	14.01	0.98
Main	30087	77	77.00	5365.43	5368.46	5367.20	5368.57	0.000371	2.60	29.59	15.47	0.33
Main	30087	100	100.00	5365.43	5368.73	5367.46	5368.87	0.000429	2.95	33.88	16.28	0.36
Main	30087	150	150.00	5365.43	5369.24	5367.90	5369.43	0.000516	3.53	42.47	17.73	0.40
Main	30087	200	200.00	5365.43	5369.66	5368.26	5369.91	0.000572	3.98	50.30	18.82	0.43

HEC-RAS Plan: Existing_Cap River: Ditch Reach: Main (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Main	30087	250	250.00	5365.43	5370.04	5368.58	5370.33	0.000614	4.34	57.54	19.74	0.45
Main	30087	300	300.00	5365.43	5370.39	5368.88	5370.72	0.000643	4.65	64.53	20.57	0.46
Main	30087	350	350.00	5365.43	5370.71	5369.14	5371.08	0.000670	4.91	71.24	21.47	0.48
Main	30087	400	400.00	5365.43	5371.01	5369.38	5371.42	0.000691	5.14	77.82	22.37	0.49
Main	30087	450	450.00	5365.43	5371.29	5369.61	5371.73	0.000709	5.34	84.21	23.24	0.49
Main	30087	500	500.00	5365.43	5371.55	5369.82	5372.02	0.000726	5.53	90.46	24.16	0.50
Main	30087	50	50.00	5365.43	5368.09	5366.87	5368.16	0.000279	2.08	24.04	14.31	0.28
Main	29983	77	77.00	5365.99	5368.43	5367.31	5368.52	0.000337	2.42	31.82	17.71	0.32
Main	29983	100	100.00	5365.99	5368.70	5367.53	5368.82	0.000380	2.72	36.71	18.62	0.34
Main	29983	150	150.00	5365.99	5369.21	5367.89	5369.37	0.000440	3.22	46.55	20.46	0.38
Main	29983	200	200.00	5365.99	5369.64	5368.20	5369.84	0.000476	3.59	55.67	22.23	0.40
Main	29983	250	250.00	5365.99	5370.02	5368.50	5370.26	0.000500	3.89	64.20	23.71	0.41
Main	29983	300	300.00	5365.99	5370.38	5368.76	5370.64	0.000514	4.14	72.52	25.08	0.42
Main	29983	350	350.00	5365.99	5370.70	5368.99	5371.00	0.000524	4.34	80.57	26.35	0.43
Main	29983	400	400.00	5365.99	5371.01	5369.24	5371.33	0.000530	4.52	88.44	27.58	0.43
Main	29983	450	450.00	5365.99	5371.29	5369.44	5371.64	0.000537	4.68	96.08	28.81	0.44
Main	29983	500	500.00	5365.99	5371.56	5369.63	5371.93	0.000542	4.83	103.54	29.95	0.44
Main	29983	50	50.00	5365.99	5368.07	5367.04	5368.13	0.000271	1.96	25.49	16.65	0.28
Main	29847	77	77.00	5366.55	5367.88	5367.88	5368.38	0.003980	5.63	13.69	13.83	1.00
Main	29847	100	100.00	5366.55	5368.09	5368.09	5368.65	0.003725	6.03	16.59	14.23	0.98
Main	29847	150	150.00	5366.55	5368.47	5368.47	5369.18	0.003544	6.79	22.08	14.96	0.99
Main	29847	200	200.00	5366.55	5368.80	5368.80	5369.64	0.003394	7.35	27.21	15.65	0.98
Main	29847	250	250.00	5366.55	5369.18	5369.08	5370.06	0.002947	7.51	33.28	16.42	0.93
Main	29847	300	300.00	5366.55	5369.52	5369.36	5370.44	0.002696	7.70	38.94	17.11	0.90
Main	29847	350	350.00	5366.55	5369.80	5369.63	5370.79	0.002643	7.99	43.78	17.82	0.90
Main	29847	400	400.00	5366.55	5370.11	5369.87	5371.12	0.002486	8.06	49.65	19.10	0.88
Main	29847	450	450.00	5366.55	5370.42	5370.12	5371.43	0.002337	8.08	55.68	20.37	0.86
Main	29847	500	500.00	5366.55	5370.71	5370.31	5371.73	0.002195	8.09	61.83	21.58	0.84
Main	29847	50	50.00	5366.55	5367.62	5367.62	5368.00	0.004217	4.92	10.17	13.34	0.99
Main	29815	77	77.00	5366.35	5367.61	5367.72	5368.22	0.005229	6.25	12.32	13.32	1.14
Main	29815	100	100.00	5366.35	5367.80	5367.92	5368.50	0.005085	6.74	14.85	13.95	1.15
Main	29815	150	150.00	5366.35	5368.12	5368.29	5369.03	0.005091	7.66	19.58	15.02	1.18
Main	29815	200	200.00	5366.35	5368.41	5368.64	5369.49	0.005024	8.34	23.98	15.92	1.20
Main	29815	250	250.00	5366.35	5369.27	5368.92	5369.91	0.001993	6.44	38.84	18.68	0.79
Main	29815	300	300.00	5366.35	5369.63	5369.19	5370.29	0.001824	6.55	45.77	19.94	0.76
Main	29815	350	350.00	5366.35	5369.93	5369.44	5370.63	0.001754	6.73	51.99	21.07	0.76
Main	29815	400	400.00	5366.35	5370.26	5369.67	5370.97	0.001602	6.76	59.13	22.12	0.73
Main	29815	450	450.00	5366.35	5370.57	5369.90	5371.29	0.001481	6.81	66.04	22.90	0.71
Main	29815	500	500.00	5366.35	5370.85	5370.10	5371.59	0.001397	6.88	72.63	23.62	0.69
Main	29815	50	50.00	5366.35	5367.35	5367.42	5367.83	0.005636	5.59	8.94	12.15	1.15
Main	29694	77	77.00	5366.13	5367.77	5367.23	5367.92	0.000822	3.06	25.17	19.73	0.48
Main	29694	100	100.00	5366.13	5368.02	5367.41	5368.19	0.000793	3.31	30.25	20.39	0.48
Main	29694	150	150.00	5366.13	5368.51	5367.72	5368.72	0.000746	3.71	40.48	21.70	0.48
Main	29694	200	200.00	5366.13	5368.93	5368.00	5369.18	0.000727	4.01	49.94	23.23	0.48
Main	29694	250	250.00	5366.13	5369.41	5368.25	5369.67	0.000629	4.06	61.51	24.95	0.46
Main	29694	300	300.00	5366.13	5369.78	5368.44	5370.06	0.000615	4.23	70.98	26.79	0.46
Main	29694	350	350.00	5366.13	5370.10	5368.69	5370.40	0.000598	4.40	79.93	29.59	0.46

HEC-RAS Plan: Existing_Cap River: Ditch Reach: Main (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Main	29694	400	400.00	5366.13	5370.43	5368.90	5370.74	0.000541	4.50	90.38	33.54	0.44
Main	29694	450	450.00	5366.13	5370.74	5369.08	5371.07	0.000499	4.60	101.50	37.03	0.43
Main	29694	500	500.00	5366.13	5371.03	5369.25	5371.37	0.000469	4.70	112.80	41.06	0.42
Main	29694	50	50.00	5366.13	5367.44	5367.02	5367.55	0.000851	2.66	18.80	18.86	0.47
Main	29530	77	77.00	5366.20	5367.66	5367.16	5367.78	0.000761	2.78	27.71	23.92	0.46
Main	29530	100	100.00	5366.20	5367.93	5367.30	5368.06	0.000657	2.91	34.37	24.65	0.43
Main	29530	150	150.00	5366.20	5368.44	5367.58	5368.60	0.000561	3.17	47.31	26.21	0.42
Main	29530	200	200.00	5366.20	5368.88	5367.82	5369.06	0.000537	3.37	59.34	29.01	0.42
Main	29530	250	250.00	5366.20	5369.38	5368.04	5369.55	0.000471	3.32	75.33	34.69	0.39
Main	29530	300	300.00	5366.20	5369.77	5368.23	5369.95	0.000398	3.38	90.13	42.25	0.37
Main	29530	350	350.00	5366.20	5370.10	5368.41	5370.29	0.000358	3.48	105.75	51.75	0.36
Main	29530	400	400.00	5366.20	5370.45	5368.61	5370.64	0.000314	3.51	125.25	62.11	0.34
Main	29530	450	450.00	5366.20	5370.78	5368.78	5370.97	0.000282	3.55	147.02	76.70	0.33
Main	29530	500	500.00	5366.20	5371.08	5368.95	5371.27	0.000256	3.57	170.48	81.27	0.32
Main	29530	50	50.00	5366.20	5367.29	5366.97	5367.40	0.001051	2.63	19.01	22.93	0.51
Main	29414	77	77.00	5365.72	5367.63	5366.74	5367.71	0.000354	2.27	33.86	21.93	0.32
Main	29414	100	100.00	5365.72	5367.90	5366.90	5368.00	0.000362	2.50	39.96	22.64	0.33
Main	29414	150	150.00	5365.72	5368.41	5367.20	5368.54	0.000378	2.90	51.79	24.08	0.35
Main	29414	200	200.00	5365.72	5368.84	5367.44	5369.00	0.000393	3.20	62.43	25.51	0.36
Main	29414	250	250.00	5365.72	5369.34	5367.66	5369.50	0.000369	3.29	75.91	28.70	0.36
Main	29414	300	300.00	5365.72	5369.72	5367.88	5369.90	0.000340	3.45	88.84	59.94	0.35
Main	29414	350	350.00	5365.72	5370.06	5368.11	5370.25	0.000311	3.54	117.08	78.45	0.34
Main	29414	400	400.00	5365.72	5370.42	5368.31	5370.60	0.000271	3.54	145.65	79.70	0.32
Main	29414	450	450.00	5365.72	5370.76	5368.50	5370.93	0.000242	3.54	172.71	82.05	0.31
Main	29414	500	500.00	5365.72	5371.06	5368.65	5371.24	0.000222	3.56	197.86	84.31	0.30
Main	29414	50	50.00	5365.72	5367.26	5366.53	5367.32	0.000339	1.93	25.91	20.97	0.31
Main	29369	77	77.00	5365.77	5367.59	5366.82	5367.69	0.000455	2.48	31.06	21.42	0.36
Main	29369	100	100.00	5365.77	5367.87	5366.98	5367.98	0.000452	2.70	36.99	22.11	0.37
Main	29369	150	150.00	5365.77	5368.37	5367.28	5368.52	0.000452	3.09	48.48	23.40	0.38
Main	29369	200	200.00	5365.77	5368.80	5367.54	5368.98	0.000457	3.41	58.64	24.43	0.39
Main	29369	250	250.00	5365.77	5369.29	5367.78	5369.48	0.000406	3.52	71.02	25.50	0.37
Main	29369	300	300.00	5365.77	5369.67	5368.01	5369.88	0.000402	3.71	80.76	35.55	0.37
Main	29369	350	350.00	5365.77	5370.00	5368.20	5370.23	0.000391	3.87	100.42	73.72	0.37
Main	29369	400	400.00	5365.77	5370.36	5368.39	5370.59	0.000346	3.87	127.37	74.88	0.36
Main	29369	450	450.00	5365.77	5370.70	5368.58	5370.92	0.000305	3.86	153.30	77.89	0.34
Main	29369	500	500.00	5365.77	5371.02	5368.77	5371.23	0.000277	3.86	177.69	80.78	0.33
Main	29369	50	50.00	5365.77	5367.23	5366.60	5367.30	0.000461	2.14	23.34	20.46	0.35
Main	29297	77	77.00	5364.66	5367.62	5365.89	5367.66	0.000105	1.51	51.05	24.53	0.18
Main	29297	100	100.00	5364.66	5367.90	5366.07	5367.94	0.000123	1.73	57.95	25.50	0.20
Main	29297	150	150.00	5364.66	5368.41	5366.38	5368.48	0.000152	2.10	71.47	27.30	0.23
Main	29297	200	200.00	5364.66	5368.84	5366.68	5368.93	0.000174	2.39	83.55	28.81	0.25
Main	29297	250	250.00	5364.66	5369.34	5366.94	5369.44	0.000166	2.54	98.84	35.38	0.25
Main	29297	300	300.00	5364.66	5369.72	5367.17	5369.83	0.000165	2.73	115.54	54.84	0.25
Main	29297	350	350.00	5364.66	5370.05	5367.35	5370.18	0.000164	2.88	137.26	71.34	0.25
Main	29297	400	400.00	5364.66	5370.41	5367.54	5370.54	0.000155	2.96	162.90	73.78	0.25
Main	29297	450	450.00	5364.66	5370.74	5367.77	5370.88	0.000147	3.03	187.43	75.92	0.25
Main	29297	500	500.00	5364.66	5371.05	5367.92	5371.19	0.000141	3.10	210.41	78.19	0.24

HEC-RAS Plan: Existing_Cap River: Ditch Reach: Main (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Main	29297	50	50.00	5364.66	5367.25	5365.64	5367.27	0.000077	1.19	42.16	23.07	0.15
Main	29205	77	77.00	5366.03	5367.50	5367.08	5367.63	0.000949	2.87	26.87	26.44	0.50
Main	29205	100	100.00	5366.03	5367.78	5367.22	5367.91	0.000740	2.89	34.58	27.74	0.46
Main	29205	150	150.00	5366.03	5368.31	5367.48	5368.45	0.000555	3.02	49.66	29.84	0.41
Main	29205	200	200.00	5366.03	5368.74	5367.72	5368.90	0.000480	3.18	62.98	31.31	0.39
Main	29205	250	250.00	5366.03	5369.26	5367.92	5369.41	0.000374	3.14	79.65	33.18	0.36
Main	29205	300	300.00	5366.03	5369.65	5368.11	5369.81	0.000343	3.23	92.78	34.53	0.35
Main	29205	350	350.00	5366.03	5369.98	5368.28	5370.15	0.000330	3.35	104.50	35.68	0.35
Main	29205	400	400.00	5366.03	5370.34	5368.44	5370.52	0.000320	3.40	117.66	52.17	0.34
Main	29205	450	450.00	5366.03	5370.68	5368.58	5370.86	0.000288	3.40	142.29	72.46	0.33
Main	29205	500	500.00	5366.03	5370.99	5368.74	5371.17	0.000257	3.41	164.61	74.91	0.32
Main	29205	50	50.00	5366.03	5367.11	5366.88	5367.24	0.001594	2.95	16.96	23.72	0.61
Main	29094	77	77.00	5365.46	5367.47	5366.55	5367.55	0.000342	2.25	34.24	21.95	0.32
Main	29094	100	100.00	5365.46	5367.75	5366.72	5367.85	0.000344	2.47	40.45	22.39	0.32
Main	29094	150	150.00	5365.46	5368.27	5367.01	5368.39	0.000363	2.87	52.20	23.66	0.34
Main	29094	200	200.00	5365.46	5368.69	5367.27	5368.85	0.000384	3.20	62.52	24.98	0.36
Main	29094	250	250.00	5365.46	5369.20	5367.50	5369.37	0.000354	3.30	75.74	27.09	0.35
Main	29094	300	300.00	5365.46	5369.58	5367.74	5369.77	0.000359	3.47	86.37	30.12	0.35
Main	29094	350	350.00	5365.46	5369.91	5367.92	5370.11	0.000368	3.64	96.04	33.28	0.36
Main	29094	400	400.00	5365.46	5370.26	5368.13	5370.47	0.000360	3.74	107.05	37.38	0.36
Main	29094	450	450.00	5365.46	5370.59	5368.31	5370.82	0.000352	3.81	117.97	42.18	0.36
Main	29094	500	500.00	5365.46	5370.90	5368.49	5371.13	0.000349	3.89	128.56	44.99	0.36
Main	29094	50	50.00	5365.46	5367.09	5366.34	5367.15	0.000337	1.93	25.93	20.97	0.31
Main	28983	77	77.00	5365.20	5367.34	5366.69	5367.49	0.000745	3.10	24.87	17.74	0.46
Main	28983	100	100.00	5365.20	5367.61	5366.88	5367.79	0.000751	3.36	29.79	18.85	0.47
Main	28983	150	150.00	5365.20	5368.11	5367.25	5368.33	0.000753	3.79	39.57	20.76	0.48
Main	28983	200	200.00	5365.20	5368.52	5367.56	5368.78	0.000755	4.13	48.41	22.21	0.49
Main	28983	250	250.00	5365.20	5369.04	5367.82	5369.31	0.000623	4.13	60.59	24.39	0.46
Main	28983	300	300.00	5365.20	5369.42	5368.07	5369.71	0.000609	4.30	69.84	27.37	0.46
Main	28983	350	350.00	5365.20	5369.74	5368.29	5370.05	0.000614	4.48	78.18	30.38	0.46
Main	28983	400	400.00	5365.20	5370.09	5368.49	5370.41	0.000578	4.54	88.08	35.51	0.45
Main	28983	450	450.00	5365.20	5370.43	5368.71	5370.76	0.000523	4.61	98.80	40.99	0.44
Main	28983	500	500.00	5365.20	5370.75	5368.90	5371.08	0.000466	4.62	118.12	47.12	0.42
Main	28983	50	50.00	5365.20	5366.98	5366.42	5367.09	0.000721	2.68	18.65	16.20	0.44
Main	28878	77	77.00	5365.45	5366.81	5366.81	5367.31	0.003746	5.68	13.55	12.98	0.98
Main	28878	100	100.00	5365.45	5367.02	5367.02	5367.60	0.003629	6.10	16.39	13.67	0.98
Main	28878	150	150.00	5365.45	5367.41	5367.41	5368.13	0.003480	6.79	22.08	15.05	0.99
Main	28878	200	200.00	5365.45	5367.77	5367.75	5368.58	0.003296	7.22	27.68	16.44	0.98
Main	28878	250	250.00	5365.45	5368.76	5368.09	5369.20	0.001377	5.31	47.09	24.44	0.66
Main	28878	300	300.00	5365.45	5369.20	5368.35	5369.61	0.001231	5.10	58.77	36.27	0.62
Main	28878	350	350.00	5365.45	5369.56	5368.63	5369.96	0.001042	5.05	69.28	39.64	0.58
Main	28878	400	400.00	5365.45	5370.00	5368.89	5370.34	0.000731	4.73	94.04	47.33	0.50
Main	28878	450	450.00	5365.45	5370.38	5369.13	5370.70	0.000585	4.61	111.90	48.06	0.46
Main	28878	500	500.00	5365.45	5370.71	5369.27	5371.02	0.000503	4.57	127.94	48.71	0.43
Main	28878	50	50.00	5365.45	5366.52	5366.52	5366.91	0.003956	5.01	9.99	12.19	0.97
Main	28773	77	77.00	5364.82	5366.43	5366.18	5366.73	0.001928	4.41	17.47	14.95	0.72

HEC-RAS Plan: Existing_Cap River: Ditch Reach: Main (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Main	28773	100	100.00	5364.82	5366.12	5366.38	5367.03	0.007620	7.64	13.09	13.88	1.39
Main	28773	150	150.00	5364.82	5366.43	5366.75	5367.57	0.007324	8.59	17.46	14.95	1.40
Main	28773	200	200.00	5364.82	5367.96	5367.07	5368.26	0.000909	4.41	45.37	21.69	0.54
Main	28773	250	250.00	5364.82	5368.82	5367.38	5369.05	0.000528	3.79	65.89	32.00	0.42
Main	28773	300	300.00	5364.82	5369.25	5367.64	5369.48	0.000455	3.84	83.56	41.12	0.40
Main	28773	350	350.00	5364.82	5369.61	5367.89	5369.85	0.000409	3.94	98.37	41.77	0.39
Main	28773	400	400.00	5364.82	5370.03	5368.08	5370.26	0.000346	3.93	116.03	42.53	0.36
Main	28773	450	450.00	5364.82	5370.39	5368.30	5370.63	0.000312	3.97	131.66	43.19	0.35
Main	28773	500	500.00	5364.82	5370.72	5368.47	5370.96	0.000291	4.05	145.79	43.57	0.34
Main	28773	50	50.00	5364.82	5366.13	5365.90	5366.35	0.001862	3.79	13.19	13.91	0.69
Main	28666	77	77.00	5364.70	5365.94	5365.94	5366.42	0.003961	5.59	13.77	14.24	1.00
Main	28666	100	100.00	5364.70	5366.15	5366.15	5366.70	0.003636	5.92	16.90	14.98	0.98
Main	28666	150	150.00	5364.70	5366.52	5366.52	5367.20	0.003452	6.60	22.71	16.27	0.99
Main	28666	200	200.00	5364.70	5367.91	5366.85	5368.17	0.000678	4.11	50.39	27.89	0.47
Main	28666	250	250.00	5364.70	5368.80	5367.13	5368.99	0.000344	3.60	82.50	44.23	0.35
Main	28666	300	300.00	5364.70	5369.23	5367.35	5369.43	0.000308	3.70	102.90	49.64	0.34
Main	28666	350	350.00	5364.70	5369.59	5367.62	5369.80	0.000290	3.83	120.93	50.44	0.34
Main	28666	400	400.00	5364.70	5370.02	5367.87	5370.22	0.000257	3.84	142.48	51.35	0.32
Main	28666	450	450.00	5364.70	5370.38	5368.06	5370.59	0.000238	3.91	161.48	52.01	0.31
Main	28666	500	500.00	5364.70	5370.71	5368.23	5370.92	0.000228	3.99	178.59	52.58	0.31
Main	28666	50	50.00	5364.70	5365.68	5365.68	5366.05	0.004153	4.91	10.18	13.36	0.99
Main	28618	77	77.00	5363.04	5363.81	5364.30	5365.83	0.041522	11.40	6.76	14.34	2.93
Main	28618	100	100.00	5363.04	5365.38	5364.47	5365.50	0.000486	2.85	35.10	20.26	0.38
Main	28618	150	150.00	5363.04	5366.71	5364.79	5366.79	0.000175	2.37	63.81	23.74	0.24
Main	28618	200	200.00	5363.04	5368.03	5365.07	5368.10	0.000085	2.12	107.10	47.49	0.18
Main	28618	250	250.00	5363.04	5368.88	5365.33	5368.95	0.000066	2.11	153.64	55.77	0.16
Main	28618	300	300.00	5363.04	5369.31	5365.57	5369.39	0.000069	2.28	178.25	58.00	0.17
Main	28618	350	350.00	5363.04	5369.67	5365.76	5369.76	0.000073	2.44	199.29	58.79	0.18
Main	28618	400	400.00	5363.04	5370.09	5365.98	5370.18	0.000072	2.55	224.02	59.52	0.18
Main	28618	450	450.00	5363.04	5370.46	5366.17	5370.55	0.000073	2.66	245.78	59.65	0.18
Main	28618	500	500.00	5363.04	5370.78	5366.34	5370.88	0.000075	2.77	265.25	59.76	0.18
Main	28618	50	50.00	5363.04	5363.66	5364.08	5365.43	0.051519	10.67	4.68	12.92	3.13
Main	28483	77	77.00	5362.90	5364.86	5364.14	5365.00	0.000662	3.02	25.47	16.83	0.43
Main	28483	100	100.00	5362.90	5365.29	5364.32	5365.43	0.000529	3.03	32.95	18.12	0.40
Main	28483	150	150.00	5362.90	5366.67	5364.69	5366.77	0.000188	2.45	62.23	31.53	0.25
Main	28483	200	200.00	5362.90	5368.02	5365.00	5368.09	0.000090	2.19	99.51	61.64	0.19
Main	28483	250	250.00	5362.90	5368.89	5365.30	5368.94	0.000057	1.96	190.35	66.24	0.15
Main	28483	300	300.00	5362.90	5369.32	5365.56	5369.37	0.000058	2.10	219.11	67.19	0.16
Main	28483	350	350.00	5362.90	5369.68	5365.81	5369.74	0.000061	2.24	243.54	68.00	0.16
Main	28483	400	400.00	5362.90	5370.10	5366.01	5370.16	0.000060	2.33	272.24	69.06	0.16
Main	28483	450	450.00	5362.90	5370.46	5366.22	5370.54	0.000061	2.43	297.70	70.01	0.17
Main	28483	500	500.00	5362.90	5370.79	5366.39	5370.87	0.000062	2.53	320.73	70.51	0.17
Main	28483	50	50.00	5362.90	5364.27	5363.87	5364.42	0.001108	3.12	16.01	15.10	0.53
Main	28328	77	77.00	5362.43	5364.85	5363.60	5364.92	0.000246	2.14	35.97	18.44	0.27
Main	28328	100	100.00	5362.43	5365.28	5363.77	5365.36	0.000228	2.27	44.09	24.62	0.26
Main	28328	150	150.00	5362.43	5366.67	5364.09	5366.74	0.000123	2.04	73.55	42.66	0.20
Main	28328	200	200.00	5362.43	5368.03	5364.40	5368.07	0.000052	1.67	154.60	46.51	0.14

HEC-RAS Plan: Existing_Cap River: Ditch Reach: Main (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Main	28328	250	250.00	5362.43	5368.89	5364.69	5368.93	0.000043	1.70	195.18	48.21	0.13
Main	28328	300	300.00	5362.43	5369.32	5364.94	5369.36	0.000046	1.86	216.11	49.31	0.14
Main	28328	350	350.00	5362.43	5369.68	5365.15	5369.73	0.000050	2.02	234.05	50.39	0.14
Main	28328	400	400.00	5362.43	5370.09	5365.39	5370.15	0.000052	2.14	255.41	52.17	0.15
Main	28328	450	450.00	5362.43	5370.46	5365.59	5370.52	0.000054	2.27	274.71	53.80	0.15
Main	28328	500	500.00	5362.43	5370.78	5365.78	5370.86	0.000056	2.39	292.49	55.14	0.16
Main	28328	50	50.00	5362.43	5364.25	5363.34	5364.31	0.000297	1.98	25.25	17.20	0.29
Main	28211	77	77.00	5361.66	5364.86	5362.75	5364.89	0.000078	1.45	53.05	29.06	0.16
Main	28211	100	100.00	5361.66	5365.29	5362.92	5365.33	0.000084	1.62	61.77	38.40	0.16
Main	28211	150	150.00	5361.66	5366.69	5363.24	5366.72	0.000047	1.48	132.40	51.59	0.13
Main	28211	200	200.00	5361.66	5368.03	5363.55	5368.06	0.000028	1.38	203.04	53.66	0.10
Main	28211	250	250.00	5361.66	5368.89	5363.81	5368.92	0.000025	1.44	251.30	60.12	0.10
Main	28211	300	300.00	5361.66	5369.32	5364.07	5369.35	0.000028	1.59	278.04	63.74	0.11
Main	28211	350	350.00	5361.66	5369.68	5364.30	5369.72	0.000031	1.74	301.35	65.46	0.11
Main	28211	400	400.00	5361.66	5370.10	5364.52	5370.14	0.000033	1.85	330.31	73.62	0.12
Main	28211	450	450.00	5361.66	5370.47	5364.72	5370.51	0.000035	1.96	357.98	77.67	0.12
Main	28211	500	500.00	5361.66	5370.79	5364.92	5370.85	0.000037	2.06	383.43	77.67	0.13
Main	28211	50	50.00	5361.66	5364.26	5362.52	5364.28	0.000069	1.21	41.32	19.04	0.14
Main	28184		Bridge									
Main	28161	77	77.00	5361.27	5364.84	5362.63	5364.88	0.000085	1.49	51.66	20.77	0.17
Main	28161	100	100.00	5361.27	5365.26	5362.84	5365.31	0.000092	1.65	60.72	22.05	0.17
Main	28161	150	150.00	5361.27	5366.63	5363.24	5366.67	0.000062	1.59	94.07	37.00	0.15
Main	28161	200	200.00	5361.27	5367.95	5363.57	5367.98	0.000035	1.49	164.77	63.89	0.12
Main	28161	250	250.00	5361.27	5368.83	5363.87	5368.86	0.000029	1.50	223.28	70.38	0.11
Main	28161	300	300.00	5361.27	5369.27	5364.13	5369.31	0.000031	1.63	255.14	75.79	0.12
Main	28161	350	350.00	5361.27	5369.63	5364.36	5369.67	0.000034	1.76	283.28	78.34	0.12
Main	28161	400	400.00	5361.27	5370.06	5364.60	5370.10	0.000034	1.85	317.12	82.04	0.12
Main	28161	450	450.00	5361.27	5370.43	5364.82	5370.48	0.000035	1.94	347.82	82.97	0.13
Main	28161	500	500.00	5361.27	5370.76	5365.01	5370.81	0.000036	2.02	375.46	83.82	0.13
Main	28161	50	50.00	5361.27	5364.25	5362.28	5364.27	0.000075	1.26	39.84	18.98	0.15
Main	28045	77	77.00	5360.67	5364.84	5361.97	5364.86	0.000035	1.06	72.45	24.95	0.11
Main	28045	100	100.00	5360.67	5365.27	5362.17	5365.29	0.000039	1.20	83.38	28.02	0.12
Main	28045	150	150.00	5360.67	5366.64	5362.53	5366.66	0.000026	1.24	134.04	44.56	0.10
Main	28045	200	200.00	5360.67	5367.95	5362.84	5367.98	0.000019	1.24	195.68	49.94	0.09
Main	28045	250	250.00	5360.67	5368.83	5363.12	5368.86	0.000017	1.32	241.73	55.04	0.09
Main	28045	300	300.00	5360.67	5369.27	5363.35	5369.30	0.000020	1.48	266.89	62.36	0.10
Main	28045	350	350.00	5360.67	5369.63	5363.60	5369.67	0.000023	1.62	291.14	68.96	0.10
Main	28045	400	400.00	5360.67	5370.06	5363.81	5370.10	0.000024	1.73	320.47	68.96	0.11
Main	28045	450	450.00	5360.67	5370.43	5364.00	5370.47	0.000025	1.83	346.06	68.96	0.11
Main	28045	500	500.00	5360.67	5370.76	5364.20	5370.81	0.000027	1.94	368.89	68.96	0.12
Main	28045	50	50.00	5360.67	5364.25	5361.72	5364.26	0.000028	0.86	58.06	23.36	0.10
Main	27967	77	77.00	5361.99	5364.82	5363.22	5364.85	0.000120	1.56	49.31	25.55	0.20
Main	27967	100	100.00	5361.99	5365.24	5363.39	5365.28	0.000121	1.65	60.46	29.42	0.20
Main	27967	150	150.00	5361.99	5366.63	5363.71	5366.66	0.000053	1.43	108.84	65.62	0.14
Main	27967	200	200.00	5361.99	5367.95	5363.98	5367.97	0.000024	1.22	219.18	75.44	0.10
Main	27967	250	250.00	5361.99	5368.83	5364.23	5368.85	0.000019	1.22	285.71	75.44	0.09

HEC-RAS Plan: Existing_Cap River: Ditch Reach: Main (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Main	27967	300	300.00	5361.99	5369.27	5364.45	5369.30	0.000021	1.33	318.71	75.44	0.10
Main	27967	350	350.00	5361.99	5369.64	5364.66	5369.66	0.000022	1.45	346.19	75.44	0.10
Main	27967	400	400.00	5361.99	5370.06	5364.84	5370.09	0.000023	1.53	378.39	75.44	0.10
Main	27967	450	450.00	5361.99	5370.44	5365.04	5370.47	0.000024	1.61	406.45	75.44	0.11
Main	27967	500	500.00	5361.99	5370.77	5365.24	5370.80	0.000025	1.69	431.50	75.44	0.11
Main	27967	50	50.00	5361.99	5364.22	5362.99	5364.25	0.000131	1.41	35.34	22.26	0.20
Main	27902	77	77.00	5361.74	5364.79	5363.12	5364.84	0.000157	1.90	40.61	17.65	0.22
Main	27902	100	100.00	5361.74	5365.21	5363.31	5365.27	0.000166	2.07	48.26	19.10	0.23
Main	27902	150	150.00	5361.74	5366.59	5363.67	5366.65	0.000094	1.92	80.06	55.48	0.18
Main	27902	200	200.00	5361.74	5367.93	5363.98	5367.97	0.000045	1.66	169.06	65.11	0.13
Main	27902	250	250.00	5361.74	5368.82	5364.26	5368.85	0.000035	1.64	226.70	65.11	0.12
Main	27902	300	300.00	5361.74	5369.25	5364.56	5369.29	0.000038	1.79	255.03	65.11	0.13
Main	27902	350	350.00	5361.74	5369.61	5364.80	5369.66	0.000041	1.93	278.58	65.11	0.13
Main	27902	400	400.00	5361.74	5370.04	5365.04	5370.09	0.000042	2.03	306.24	65.11	0.14
Main	27902	450	450.00	5361.74	5370.41	5365.28	5370.46	0.000043	2.13	330.37	65.11	0.14
Main	27902	500	500.00	5361.74	5370.74	5365.49	5370.80	0.000045	2.24	351.87	65.11	0.14
Main	27902	50	50.00	5361.74	5364.20	5362.84	5364.24	0.000149	1.63	30.68	16.37	0.21
Main	27887		Bridge									
Main	27864	77	77.00	5361.46	5364.77	5363.00	5364.83	0.000178	2.02	38.08	17.13	0.23
Main	27864	100	100.00	5361.46	5365.18	5363.22	5365.26	0.000191	2.22	45.00	19.11	0.24
Main	27864	150	150.00	5361.46	5366.55	5363.65	5366.61	0.000108	1.98	84.58	40.71	0.19
Main	27864	200	200.00	5361.46	5367.92	5364.00	5367.96	0.000049	1.68	169.40	63.70	0.14
Main	27864	250	250.00	5361.46	5368.81	5364.33	5368.85	0.000037	1.65	226.42	63.70	0.12
Main	27864	300	300.00	5361.46	5369.25	5364.63	5369.29	0.000040	1.79	254.07	63.70	0.13
Main	27864	350	350.00	5361.46	5369.60	5364.90	5369.65	0.000043	1.94	276.93	63.70	0.14
Main	27864	400	400.00	5361.46	5370.03	5365.16	5370.08	0.000044	2.04	303.90	63.70	0.14
Main	27864	450	450.00	5361.46	5370.40	5365.44	5370.45	0.000045	2.15	327.35	63.70	0.14
Main	27864	500	500.00	5361.46	5370.72	5365.68	5370.79	0.000047	2.25	348.25	63.70	0.15
Main	27864	50	50.00	5361.46	5364.19	5362.68	5364.24	0.000160	1.72	29.04	14.89	0.22
Main	27708	77	77.00	5361.39	5364.72	5363.03	5364.80	0.000224	2.20	34.96	15.60	0.26
Main	27708	100	100.00	5361.39	5365.13	5363.28	5365.22	0.000238	2.41	41.58	17.80	0.27
Main	27708	150	150.00	5361.39	5366.52	5363.73	5366.59	0.000118	2.15	85.14	57.81	0.20
Main	27708	200	200.00	5361.39	5367.91	5364.12	5367.95	0.000051	1.77	178.06	68.21	0.14
Main	27708	250	250.00	5361.39	5368.81	5364.46	5368.84	0.000039	1.72	239.41	68.21	0.13
Main	27708	300	300.00	5361.39	5369.24	5364.74	5369.28	0.000042	1.87	268.98	68.21	0.13
Main	27708	350	350.00	5361.39	5369.60	5365.04	5369.65	0.000045	2.01	293.43	68.21	0.14
Main	27708	400	400.00	5361.39	5370.02	5365.27	5370.07	0.000045	2.11	322.37	68.21	0.14
Main	27708	450	450.00	5361.39	5370.39	5365.54	5370.45	0.000047	2.21	347.49	68.21	0.14
Main	27708	500	500.00	5361.39	5370.72	5365.77	5370.78	0.000049	2.32	369.83	68.21	0.15
Main	27708	50	50.00	5361.39	5364.15	5362.66	5364.21	0.000202	1.89	26.50	13.93	0.24
Main	27580	77	77.00	5361.57	5364.69	5363.10	5364.77	0.000229	2.19	35.16	16.39	0.26
Main	27580	100	100.00	5361.57	5365.10	5363.32	5365.19	0.000235	2.38	42.08	18.95	0.27
Main	27580	150	150.00	5361.57	5366.51	5363.78	5366.58	0.000105	2.15	86.42	54.36	0.20
Main	27580	200	200.00	5361.57	5367.89	5364.14	5367.94	0.000051	1.86	161.69	54.36	0.14
Main	27580	250	250.00	5361.57	5368.79	5364.47	5368.84	0.000042	1.86	210.53	54.36	0.13
Main	27580	300	300.00	5361.57	5369.22	5364.75	5369.27	0.000045	2.03	233.91	54.36	0.14

HEC-RAS Plan: Existing_Cap River: Ditch Reach: Main (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Main	27580	350	350.00	5361.57	5369.58	5365.03	5369.64	0.000050	2.21	253.21	54.36	0.15
Main	27580	400	400.00	5361.57	5370.00	5365.28	5370.06	0.000052	2.34	276.12	54.36	0.15
Main	27580	450	450.00	5361.57	5370.36	5365.51	5370.44	0.000054	2.47	295.97	54.36	0.16
Main	27580	500	500.00	5361.57	5370.69	5365.71	5370.77	0.000057	2.60	313.62	54.36	0.16
Main	27580	50	50.00	5361.57	5364.12	5362.79	5364.18	0.000217	1.90	26.26	14.67	0.25
Main	27505	77	77.00	5362.11	5364.65	5363.43	5364.75	0.000350	2.51	30.67	16.18	0.32
Main	27505	100	100.00	5362.11	5365.06	5363.65	5365.17	0.000335	2.66	37.54	17.83	0.32
Main	27505	150	150.00	5362.11	5366.49	5364.05	5366.57	0.000132	2.33	72.40	30.93	0.22
Main	27505	200	200.00	5362.11	5367.87	5364.37	5367.93	0.000072	2.14	117.06	36.66	0.17
Main	27505	250	250.00	5362.11	5368.76	5364.73	5368.83	0.000061	2.20	157.30	62.28	0.16
Main	27505	300	300.00	5362.11	5369.19	5365.01	5369.27	0.000065	2.39	183.91	62.28	0.17
Main	27505	350	350.00	5362.11	5369.54	5365.25	5369.63	0.000071	2.58	205.80	62.28	0.18
Main	27505	400	400.00	5362.11	5369.96	5365.46	5370.06	0.000071	2.70	232.02	62.28	0.18
Main	27505	450	450.00	5362.11	5370.33	5365.68	5370.43	0.000073	2.83	254.76	62.28	0.18
Main	27505	500	500.00	5362.11	5370.65	5365.88	5370.76	0.000075	2.95	274.95	62.28	0.19
Main	27505	50	50.00	5362.11	5364.07	5363.14	5364.15	0.000380	2.28	21.91	14.32	0.33
Main	27474	77	77.00	5361.52	5364.54	5363.46	5364.72	0.000679	3.41	22.57	15.06	0.43
Main	27474	100	100.00	5361.52	5364.93	5363.77	5365.14	0.000665	3.68	27.20	21.84	0.43
Main	27474	150	150.00	5361.52	5366.46	5364.29	5366.56	0.000187	2.75	82.91	39.88	0.25
Main	27474	200	200.00	5361.52	5367.87	5364.71	5367.93	0.000089	2.34	140.91	45.46	0.18
Main	27474	250	250.00	5361.52	5368.77	5365.04	5368.83	0.000070	2.32	193.22	61.91	0.17
Main	27474	300	300.00	5361.52	5369.19	5365.39	5369.26	0.000075	2.50	219.76	61.91	0.17
Main	27474	350	350.00	5361.52	5369.55	5365.90	5369.62	0.000081	2.69	241.61	61.91	0.18
Main	27474	400	400.00	5361.52	5369.97	5366.10	5370.05	0.000082	2.81	267.76	61.91	0.18
Main	27474	450	450.00	5361.52	5370.34	5366.30	5370.42	0.000084	2.94	290.37	61.91	0.19
Main	27474	500	500.00	5361.52	5370.66	5366.40	5370.75	0.000086	3.08	310.51	61.91	0.19
Main	27474	50	50.00	5361.52	5363.99	5363.08	5364.13	0.000644	2.99	16.72	10.03	0.41
Main	27431	77	77.00	5360.88	5364.61	5362.66	5364.67	0.000177	2.04	37.68	18.03	0.23
Main	27431	100	100.00	5360.88	5365.01	5362.92	5365.09	0.000181	2.28	44.12	20.22	0.24
Main	27431	150	150.00	5360.88	5366.48	5363.32	5366.55	0.000090	2.12	87.10	32.87	0.18
Main	27431	200	200.00	5360.88	5367.87	5363.78	5367.93	0.000055	2.01	136.83	42.11	0.15
Main	27431	250	250.00	5360.88	5368.76	5364.10	5368.82	0.000049	2.07	182.09	55.07	0.14
Main	27431	300	300.00	5360.88	5369.19	5364.44	5369.26	0.000054	2.28	205.56	55.07	0.15
Main	27431	350	350.00	5360.88	5369.54	5364.70	5369.62	0.000060	2.48	224.87	55.07	0.16
Main	27431	400	400.00	5360.88	5369.96	5364.96	5370.05	0.000062	2.62	247.97	55.07	0.17
Main	27431	450	450.00	5360.88	5370.32	5365.19	5370.42	0.000065	2.77	267.89	55.07	0.17
Main	27431	500	500.00	5360.88	5370.65	5365.42	5370.75	0.000068	2.91	285.67	55.07	0.18
Main	27431	50	50.00	5360.88	5364.05	5362.29	5364.09	0.000148	1.70	29.38	14.76	0.21
Main	27387	77	77.00	5361.22	5364.62	5362.70	5364.66	0.000110	1.62	47.55	24.21	0.19
Main	27387	100	100.00	5361.22	5365.02	5362.88	5365.07	0.000117	1.78	56.18	27.98	0.20
Main	27387	150	150.00	5361.22	5366.50	5363.27	5366.53	0.000053	1.59	107.87	35.38	0.14
Main	27387	200	200.00	5361.22	5367.88	5363.58	5367.92	0.000032	1.51	163.96	47.25	0.12
Main	27387	250	250.00	5361.22	5368.78	5363.87	5368.81	0.000028	1.58	212.54	66.07	0.11
Main	27387	300	300.00	5361.22	5369.21	5364.12	5369.25	0.000031	1.74	240.83	66.07	0.12
Main	27387	350	350.00	5361.22	5369.56	5364.38	5369.61	0.000035	1.89	264.19	66.07	0.13
Main	27387	400	400.00	5361.22	5369.98	5364.60	5370.04	0.000036	2.00	291.97	66.07	0.13
Main	27387	450	450.00	5361.22	5370.34	5364.81	5370.40	0.000038	2.12	316.00	66.07	0.13

HEC-RAS Plan: Existing_Cap River: Ditch Reach: Main (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Main	27387	500	500.00	5361.22	5370.67	5365.02	5370.73	0.000040	2.23	337.46	66.07	0.14
Main	27387	50	50.00	5361.22	5364.05	5362.40	5364.08	0.000098	1.37	36.37	18.74	0.17
Main	27344	77	77.00	5361.46	5364.60	5362.92	5364.65	0.000150	1.79	43.09	23.44	0.22
Main	27344	100	100.00	5361.46	5365.01	5363.14	5365.07	0.000148	1.92	54.97	30.71	0.22
Main	27344	150	150.00	5361.46	5366.49	5363.50	5366.53	0.000061	1.70	102.02	33.15	0.15
Main	27344	200	200.00	5361.46	5367.88	5363.81	5367.91	0.000036	1.62	155.68	47.61	0.12
Main	27344	250	250.00	5361.46	5368.77	5364.10	5368.81	0.000032	1.68	204.72	61.07	0.12
Main	27344	300	300.00	5361.46	5369.20	5364.34	5369.25	0.000035	1.84	230.84	61.07	0.13
Main	27344	350	350.00	5361.46	5369.55	5364.59	5369.61	0.000039	2.01	252.40	61.07	0.13
Main	27344	400	400.00	5361.46	5369.97	5364.83	5370.03	0.000040	2.13	277.98	61.07	0.14
Main	27344	450	450.00	5361.46	5370.33	5365.05	5370.40	0.000042	2.25	300.14	61.07	0.14
Main	27344	500	500.00	5361.46	5370.66	5365.22	5370.73	0.000044	2.37	319.94	61.07	0.15
Main	27344	50	50.00	5361.46	5364.04	5362.65	5364.08	0.000141	1.55	32.21	19.20	0.21
Main	27256	77	77.00	5361.19	5364.57	5362.84	5364.64	0.000174	2.12	36.96	17.56	0.24
Main	27256	100	100.00	5361.19	5364.96	5363.07	5365.05	0.000179	2.37	43.84	21.17	0.25
Main	27256	150	150.00	5361.19	5366.45	5363.50	5366.52	0.000086	2.18	89.35	31.73	0.18
Main	27256	200	200.00	5361.19	5367.85	5363.87	5367.91	0.000055	2.08	135.80	36.02	0.15
Main	27256	250	250.00	5361.19	5368.74	5364.19	5368.81	0.000050	2.19	172.21	46.34	0.15
Main	27256	300	300.00	5361.19	5369.16	5364.47	5369.24	0.000056	2.42	192.64	50.36	0.16
Main	27256	350	350.00	5361.19	5369.51	5364.73	5369.60	0.000063	2.65	210.26	51.53	0.17
Main	27256	400	400.00	5361.19	5369.92	5364.99	5370.02	0.000067	2.82	232.28	54.36	0.18
Main	27256	450	450.00	5361.19	5370.28	5365.38	5370.39	0.000070	2.98	251.76	54.36	0.18
Main	27256	500	500.00	5361.19	5370.60	5365.61	5370.72	0.000074	3.14	269.12	54.36	0.19
Main	27256	50	50.00	5361.19	5364.01	5362.52	5364.06	0.000170	1.78	28.19	14.99	0.22
Main	27223		Bridge									
Main	27191	77	77.00	5361.13	5364.56	5362.50	5364.62	0.000166	2.03	37.89	17.06	0.22
Main	27191	100	100.00	5361.13	5364.95	5362.76	5365.03	0.000190	2.30	43.56	20.74	0.24
Main	27191	150	150.00	5361.13	5366.42	5363.21	5366.48	0.000110	2.11	85.19	30.97	0.19
Main	27191	200	200.00	5361.13	5367.79	5363.60	5367.85	0.000065	1.97	133.41	41.20	0.15
Main	27191	250	250.00	5361.13	5368.71	5363.94	5368.76	0.000055	2.02	181.11	60.77	0.14
Main	27191	300	300.00	5361.13	5369.14	5364.26	5369.20	0.000060	2.20	207.10	60.77	0.15
Main	27191	350	350.00	5361.13	5369.49	5364.56	5369.56	0.000066	2.39	228.49	60.77	0.16
Main	27191	400	400.00	5361.13	5369.91	5364.83	5369.99	0.000067	2.51	254.28	60.77	0.16
Main	27191	450	450.00	5361.13	5370.28	5365.12	5370.37	0.000070	2.63	276.59	60.77	0.17
Main	27191	500	500.00	5361.13	5370.60	5365.36	5370.69	0.000073	2.76	296.12	60.77	0.17
Main	27191	50	50.00	5361.13	5364.01	5362.20	5364.05	0.000130	1.65	30.35	13.40	0.19
Main	27113	77	77.00	5361.27	5364.50	5362.83	5364.59	0.000295	2.52	30.55	17.42	0.28
Main	27113	100	100.00	5361.27	5364.89	5363.07	5365.00	0.000307	2.76	39.64	20.48	0.29
Main	27113	150	150.00	5361.27	5366.37	5363.56	5366.46	0.000149	2.54	71.58	24.98	0.22
Main	27113	200	200.00	5361.27	5367.76	5363.98	5367.83	0.000090	2.40	120.88	46.90	0.18
Main	27113	250	250.00	5361.27	5368.68	5364.37	5368.75	0.000074	2.40	164.18	46.90	0.17
Main	27113	300	300.00	5361.27	5369.10	5364.81	5369.19	0.000082	2.63	184.01	46.90	0.18
Main	27113	350	350.00	5361.27	5369.45	5365.07	5369.55	0.000091	2.86	200.23	46.90	0.19
Main	27113	400	400.00	5361.27	5369.87	5365.30	5369.98	0.000094	3.02	219.88	46.90	0.19
Main	27113	450	450.00	5361.27	5370.23	5365.55	5370.35	0.000098	3.18	236.87	46.90	0.20
Main	27113	500	500.00	5361.27	5370.54	5365.78	5370.68	0.000104	3.35	251.62	46.90	0.20

HEC-RAS Plan: Existing_Cap River: Ditch Reach: Main (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Main	27113	50	50.00	5361.27	5363.96	5362.47	5364.03	0.000239	2.07	24.14	11.81	0.25
Main	27096		Bridge									
Main	27078	77	77.00	5361.46	5364.45	5363.07	5364.57	0.000315	2.80	28.53	16.84	0.31
Main	27078	100	100.00	5361.46	5364.82	5363.32	5364.97	0.000323	3.10	36.11	17.74	0.32
Main	27078	150	150.00	5361.46	5366.16	5363.78	5366.30	0.000185	3.03	60.66	19.06	0.26
Main	27078	200	200.00	5361.46	5367.68	5364.16	5367.79	0.000105	2.81	106.86	46.54	0.21
Main	27078	250	250.00	5361.46	5368.63	5364.60	5368.73	0.000084	2.78	151.20	46.54	0.19
Main	27078	300	300.00	5361.46	5369.05	5364.91	5369.16	0.000093	3.05	170.38	46.54	0.20
Main	27078	350	350.00	5361.46	5369.38	5365.18	5369.52	0.000103	3.31	185.99	46.54	0.21
Main	27078	400	400.00	5361.46	5369.79	5365.45	5369.94	0.000107	3.49	205.03	46.54	0.22
Main	27078	450	450.00	5361.46	5370.15	5365.71	5370.31	0.000112	3.68	221.62	46.54	0.23
Main	27078	500	500.00	5361.46	5370.45	5365.94	5370.63	0.000118	3.88	235.78	46.54	0.23
Main	27078	50	50.00	5361.46	5363.93	5362.73	5364.01	0.000293	2.31	21.81	12.58	0.29
Main	27028	77	77.00	5361.53	5364.41	5363.12	5364.55	0.000453	2.99	25.72	14.96	0.35
Main	27028	100	100.00	5361.53	5364.77	5363.38	5364.94	0.000469	3.36	29.96	18.21	0.37
Main	27028	150	150.00	5361.53	5366.16	5363.86	5366.29	0.000212	3.00	65.11	25.45	0.26
Main	27028	200	200.00	5361.53	5367.68	5364.27	5367.78	0.000109	2.67	111.96	39.18	0.20
Main	27028	250	250.00	5361.53	5368.64	5364.64	5368.72	0.000088	2.67	152.98	44.75	0.19
Main	27028	300	300.00	5361.53	5369.05	5364.97	5369.15	0.000098	2.93	171.64	45.79	0.20
Main	27028	350	350.00	5361.53	5369.38	5365.41	5369.50	0.000109	3.19	187.04	45.85	0.21
Main	27028	400	400.00	5361.53	5369.79	5365.67	5369.92	0.000113	3.37	205.78	45.85	0.21
Main	27028	450	450.00	5361.53	5370.15	5365.90	5370.29	0.000118	3.55	222.15	45.85	0.22
Main	27028	500	500.00	5361.53	5370.45	5366.14	5370.61	0.000125	3.74	236.10	45.85	0.23
Main	27028	50	50.00	5361.53	5363.90	5362.77	5363.99	0.000395	2.50	20.00	12.00	0.32
Main	27018		Bridge									
Main	27008	77	77.00	5361.92	5364.36	5363.38	5364.53	0.000622	3.33	23.18	15.90	0.41
Main	27008	100	100.00	5361.92	5364.71	5363.63	5364.92	0.000613	3.68	27.53	21.92	0.42
Main	27008	150	150.00	5361.92	5366.08	5364.09	5366.21	0.000230	3.06	68.39	29.89	0.28
Main	27008	200	200.00	5361.92	5367.64	5364.46	5367.72	0.000103	2.58	122.79	41.37	0.20
Main	27008	250	250.00	5361.92	5368.62	5364.83	5368.70	0.000080	2.55	167.07	47.45	0.18
Main	27008	300	300.00	5361.92	5369.04	5365.15	5369.13	0.000088	2.79	186.92	48.20	0.19
Main	27008	350	350.00	5361.92	5369.37	5365.54	5369.47	0.000099	3.06	203.24	50.98	0.20
Main	27008	400	400.00	5361.92	5369.77	5365.80	5369.89	0.000103	3.23	224.24	52.73	0.21
Main	27008	450	450.00	5361.92	5370.12	5366.00	5370.25	0.000107	3.39	242.83	52.73	0.21
Main	27008	500	500.00	5361.92	5370.42	5366.20	5370.56	0.000112	3.57	258.64	52.73	0.22
Main	27008	50	50.00	5361.92	5363.84	5363.03	5363.97	0.000631	2.89	17.31	11.39	0.41
Main	27000	77	77.00	5361.95	5364.30	5363.51	5364.51	0.000688	3.70	21.48	14.44	0.46
Main	27000	100	100.00	5361.95	5364.64	5363.74	5364.90	0.000682	4.09	25.65	20.70	0.47
Main	27000	150	150.00	5361.95	5366.05	5364.18	5366.20	0.000242	3.34	66.71	30.09	0.30
Main	27000	200	200.00	5361.95	5367.62	5364.59	5367.71	0.000105	2.78	123.93	44.09	0.21
Main	27000	250	250.00	5361.95	5368.62	5364.96	5368.70	0.000079	2.70	171.17	48.43	0.19
Main	27000	300	300.00	5361.95	5369.03	5365.30	5369.13	0.000087	2.95	191.25	48.43	0.20
Main	27000	350	350.00	5361.95	5369.36	5365.72	5369.47	0.000097	3.22	207.23	48.43	0.21
Main	27000	400	400.00	5361.95	5369.76	5365.94	5369.88	0.000100	3.40	226.62	48.43	0.22
Main	27000	450	450.00	5361.95	5370.11	5366.15	5370.25	0.000105	3.59	243.56	48.43	0.23

HEC-RAS Plan: Existing_Cap River: Ditch Reach: Main (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Main	27000	500	500.00	5361.95	5370.41	5366.33	5370.56	0.000111	3.79	257.93	48.43	0.23
Main	27000	50	50.00	5361.95	5363.80	5363.19	5363.96	0.000770	3.23	15.65	11.45	0.47
Main	26977	77	77.00	5361.90	5364.27	5363.43	5364.49	0.000875	3.76	20.46	11.13	0.47
Main	26977	100	100.00	5361.90	5364.61	5363.70	5364.88	0.000931	4.16	24.06	12.23	0.49
Main	26977	150	150.00	5361.90	5365.99	5364.18	5366.19	0.000418	3.62	47.82	21.96	0.35
Main	26977	200	200.00	5361.90	5367.58	5364.58	5367.71	0.000174	3.01	93.93	38.14	0.24
Main	26977	250	250.00	5361.90	5368.58	5364.99	5368.69	0.000126	2.90	132.17	38.14	0.21
Main	26977	300	300.00	5361.90	5368.99	5365.33	5369.12	0.000138	3.18	147.75	38.14	0.22
Main	26977	350	350.00	5361.90	5369.32	5365.77	5369.47	0.000154	3.46	160.10	38.14	0.24
Main	26977	400	400.00	5361.90	5369.71	5366.04	5369.88	0.000160	3.66	175.21	38.14	0.24
Main	26977	450	450.00	5361.90	5370.06	5366.30	5370.24	0.000167	3.87	188.33	38.14	0.25
Main	26977	500	500.00	5361.90	5370.35	5366.57	5370.55	0.000177	4.09	199.43	38.14	0.26
Main	26977	50	50.00	5361.90	5363.78	5363.07	5363.94	0.000833	3.24	15.42	9.86	0.46
Main	26862	77	77.00	5361.47	5364.27	5362.97	5364.40	0.000418	2.86	26.91	14.07	0.34
Main	26862	100	100.00	5361.47	5364.61	5363.23	5364.77	0.000466	3.21	31.17	16.01	0.36
Main	26862	150	150.00	5361.47	5366.01	5363.70	5366.13	0.000224	2.87	60.93	23.61	0.26
Main	26862	200	200.00	5361.47	5367.59	5364.10	5367.68	0.000108	2.53	102.69	28.83	0.19
Main	26862	250	250.00	5361.47	5368.58	5364.44	5368.68	0.000089	2.58	132.31	31.11	0.18
Main	26862	300	300.00	5361.47	5368.99	5364.78	5369.10	0.000102	2.88	145.25	32.75	0.20
Main	26862	350	350.00	5361.47	5369.31	5365.09	5369.45	0.000117	3.18	155.97	34.10	0.21
Main	26862	400	400.00	5361.47	5369.70	5365.42	5369.86	0.000125	3.41	169.81	36.78	0.22
Main	26862	450	450.00	5361.47	5370.04	5365.65	5370.22	0.000135	3.65	183.25	40.41	0.23
Main	26862	500	500.00	5361.47	5370.33	5365.90	5370.53	0.000146	3.89	195.55	44.55	0.24
Main	26862	50	50.00	5361.47	5363.77	5362.66	5363.86	0.000358	2.38	20.98	11.47	0.31
Main	26780	77	77.00	5361.25	5364.04	5363.21	5364.33	0.001163	4.33	17.78	8.35	0.52
Main	26780	100	100.00	5361.25	5364.30	5363.51	5364.69	0.001417	5.00	20.01	9.61	0.58
Main	26780	150	150.00	5361.25	5365.82	5364.07	5366.09	0.000561	4.29	40.43	14.75	0.39
Main	26780	200	200.00	5361.25	5367.45	5364.58	5367.66	0.000276	3.83	64.97	15.36	0.29
Main	26780	250	250.00	5361.25	5368.43	5365.06	5368.65	0.000235	3.95	86.91	30.17	0.28
Main	26780	300	300.00	5361.25	5368.81	5365.46	5369.07	0.000271	4.40	99.32	37.65	0.30
Main	26780	350	350.00	5361.25	5369.10	5365.79	5369.41	0.000307	4.82	110.32	37.65	0.32
Main	26780	400	400.00	5361.25	5369.48	5366.08	5369.82	0.000318	5.08	124.80	37.65	0.33
Main	26780	450	450.00	5361.25	5369.82	5366.36	5370.18	0.000332	5.35	137.30	37.65	0.34
Main	26780	500	500.00	5361.25	5370.09	5366.63	5370.49	0.000351	5.63	147.62	37.65	0.35
Main	26780	50	50.00	5361.25	5363.61	5362.80	5363.80	0.000885	3.48	14.36	7.90	0.46
Main	26683	77	77.00	5361.27	5363.96	5363.13	5364.21	0.001030	4.03	19.12	14.74	0.51
Main	26683	100	100.00	5361.27	5364.21	5363.43	5364.54	0.001235	4.61	21.70	17.70	0.56
Main	26683	150	150.00	5361.27	5365.87	5363.96	5366.01	0.000294	3.25	63.27	25.56	0.30
Main	26683	200	200.00	5361.27	5367.51	5364.40	5367.60	0.000128	2.74	105.74	26.59	0.21
Main	26683	250	250.00	5361.27	5368.50	5364.90	5368.60	0.000107	2.80	132.73	27.69	0.20
Main	26683	300	300.00	5361.27	5368.89	5365.20	5369.01	0.000124	3.14	143.62	29.39	0.21
Main	26683	350	350.00	5361.27	5369.20	5365.44	5369.34	0.000143	3.48	153.76	36.57	0.23
Main	26683	400	400.00	5361.27	5369.59	5365.67	5369.75	0.000153	3.73	168.89	44.15	0.24
Main	26683	450	450.00	5361.27	5369.92	5365.84	5370.11	0.000163	3.96	185.61	50.73	0.25
Main	26683	500	500.00	5361.27	5370.20	5366.06	5370.41	0.000173	4.19	199.93	50.73	0.26
Main	26683	50	50.00	5361.27	5363.55	5362.74	5363.71	0.000803	3.28	15.26	9.09	0.45

HEC-RAS Plan: Existing_Cap River: Ditch Reach: Main (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Main	26664		Bridge									
Main	26642	77	77.00	5361.72	5363.89	5363.32	5364.16	0.001209	4.17	18.48	11.48	0.57
Main	26642	100	100.00	5361.72	5364.14	5363.57	5364.48	0.001352	4.69	21.32	12.46	0.60
Main	26642	150	150.00	5361.72	5365.69	5364.03	5365.88	0.000450	3.58	46.81	19.26	0.36
Main	26642	200	200.00	5361.72	5367.42	5364.42	5367.54	0.000166	2.93	81.01	20.31	0.24
Main	26642	250	250.00	5361.72	5368.43	5364.77	5368.56	0.000134	2.99	101.91	21.00	0.22
Main	26642	300	300.00	5361.72	5368.80	5365.11	5368.96	0.000155	3.36	109.82	21.25	0.24
Main	26642	350	350.00	5361.72	5369.08	5365.48	5369.29	0.000181	3.74	116.42	26.07	0.26
Main	26642	400	400.00	5361.72	5369.46	5365.72	5369.69	0.000195	4.03	127.47	33.97	0.27
Main	26642	450	450.00	5361.72	5369.78	5365.94	5370.04	0.000208	4.29	139.81	39.56	0.28
Main	26642	500	500.00	5361.72	5370.05	5366.16	5370.34	0.000223	4.56	150.41	39.56	0.30
Main	26642	50	50.00	5361.72	5363.47	5362.99	5363.67	0.001153	3.58	13.97	10.40	0.54
Main	26552	77	77.00	5361.72	5363.27	5363.27	5363.88	0.003974	6.25	12.32	10.06	1.00
Main	26552	100	100.00	5361.72	5363.70	5363.53	5364.26	0.002694	5.96	16.77	10.57	0.83
Main	26552	150	150.00	5361.72	5365.65	5363.99	5365.84	0.000430	3.57	48.81	21.26	0.36
Main	26552	200	200.00	5361.72	5367.40	5364.40	5367.52	0.000154	2.88	86.60	21.76	0.23
Main	26552	250	250.00	5361.72	5368.42	5364.79	5368.54	0.000124	2.93	109.14	23.20	0.21
Main	26552	300	300.00	5361.72	5368.79	5365.21	5368.95	0.000144	3.29	118.00	24.67	0.23
Main	26552	350	350.00	5361.72	5369.08	5365.46	5369.26	0.000168	3.66	126.36	34.70	0.25
Main	26552	400	400.00	5361.72	5369.45	5365.68	5369.66	0.000179	3.92	140.26	38.37	0.26
Main	26552	450	450.00	5361.72	5369.77	5365.92	5370.01	0.000190	4.17	153.03	40.78	0.27
Main	26552	500	500.00	5361.72	5370.04	5366.13	5370.31	0.000204	4.43	164.08	41.69	0.29
Main	26552	50	50.00	5361.72	5362.94	5362.94	5363.41	0.004067	5.52	9.07	9.26	0.98
Main	26445	77	77.00	5360.76	5363.25	5362.49	5363.48	0.000958	3.85	20.01	11.11	0.51
Main	26445	100	100.00	5360.76	5363.79	5362.74	5364.02	0.000750	3.83	26.14	11.82	0.45
Main	26445	150	150.00	5360.76	5365.68	5363.22	5365.78	0.000218	2.66	73.55	40.07	0.25
Main	26445	200	200.00	5360.76	5367.44	5363.65	5367.49	0.000078	1.98	144.95	40.84	0.16
Main	26445	250	250.00	5360.76	5368.46	5364.00	5368.51	0.000060	1.94	189.23	51.51	0.14
Main	26445	300	300.00	5360.76	5368.85	5364.34	5368.91	0.000068	2.15	210.52	56.18	0.15
Main	26445	350	350.00	5360.76	5369.15	5364.72	5369.22	0.000077	2.36	227.45	57.12	0.16
Main	26445	400	400.00	5360.76	5369.53	5365.04	5369.61	0.000080	2.50	249.68	58.46	0.17
Main	26445	450	450.00	5360.76	5369.87	5365.29	5369.95	0.000084	2.64	269.55	60.35	0.17
Main	26445	500	500.00	5360.76	5370.15	5365.54	5370.24	0.000090	2.80	286.92	63.31	0.18
Main	26445	50	50.00	5360.76	5362.73	5362.14	5362.92	0.001032	3.47	14.41	10.17	0.51
Main	26387	77	77.00	5360.81	5363.22	5362.49	5363.42	0.000926	3.63	21.23	13.50	0.51
Main	26387	100	100.00	5360.81	5363.78	5362.76	5363.96	0.000639	3.40	29.45	15.52	0.43
Main	26387	150	150.00	5360.81	5365.68	5363.22	5365.76	0.000153	2.32	65.05	47.63	0.23
Main	26387	200	200.00	5360.81	5367.45	5363.58	5367.48	0.000044	1.67	186.63	73.12	0.13
Main	26387	250	250.00	5360.81	5368.47	5363.92	5368.50	0.000030	1.57	263.81	78.00	0.11
Main	26387	300	300.00	5360.81	5368.86	5364.22	5368.90	0.000033	1.71	294.77	80.47	0.12
Main	26387	350	350.00	5360.81	5369.16	5364.49	5369.21	0.000037	1.87	319.40	82.96	0.13
Main	26387	400	400.00	5360.81	5369.55	5364.71	5369.60	0.000038	1.97	352.40	87.74	0.13
Main	26387	450	450.00	5360.81	5369.89	5364.97	5369.94	0.000040	2.07	383.44	94.58	0.13
Main	26387	500	500.00	5360.81	5370.17	5365.15	5370.22	0.000042	2.18	410.62	97.72	0.14
Main	26387	50	50.00	5360.81	5362.66	5362.17	5362.85	0.001159	3.49	14.31	11.51	0.55
Main	26359		Bridge									

HEC-RAS Plan: Existing_Cap River: Ditch Reach: Main (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Main	26334	77	77.00	5360.92	5363.21	5362.33	5363.32	0.000468	2.62	29.44	19.03	0.37
Main	26334	100	100.00	5360.92	5363.77	5362.51	5363.87	0.000308	2.47	40.52	20.58	0.31
Main	26334	150	150.00	5360.92	5365.65	5362.89	5365.70	0.000085	1.78	84.20	25.96	0.17
Main	26334	200	200.00	5360.92	5367.35	5363.17	5367.39	0.000037	1.55	135.28	37.38	0.12
Main	26334	250	250.00	5360.92	5368.30	5363.45	5368.34	0.000031	1.60	176.76	48.57	0.12
Main	26334	300	300.00	5360.92	5368.61	5363.68	5368.66	0.000037	1.81	192.10	50.24	0.13
Main	26334	350	350.00	5360.92	5368.81	5363.90	5368.87	0.000045	2.03	202.20	51.25	0.14
Main	26334	400	400.00	5360.92	5369.12	5364.12	5369.19	0.000050	2.20	218.30	52.86	0.15
Main	26334	450	450.00	5360.92	5369.50	5364.31	5369.58	0.000051	2.32	238.56	55.02	0.15
Main	26334	500	500.00	5360.92	5369.80	5364.50	5369.89	0.000054	2.45	255.88	58.89	0.16
Main	26334	50	50.00	5360.92	5362.64	5362.03	5362.75	0.000688	2.61	19.12	16.71	0.43
Main	26199	77	77.00	5360.92	5363.11		5363.24	0.000567	2.91	26.50	16.46	0.40
Main	26199	100	100.00	5360.92	5363.70		5363.82	0.000389	2.69	37.15	19.53	0.34
Main	26199	150	150.00	5360.92	5365.63		5365.68	0.000087	1.85	82.39	27.53	0.18
Main	26199	200	200.00	5360.92	5367.35		5367.38	0.000037	1.58	147.56	46.99	0.12
Main	26199	250	250.00	5360.92	5368.30		5368.34	0.000030	1.61	195.03	53.53	0.12
Main	26199	300	300.00	5360.92	5368.61		5368.65	0.000036	1.82	212.09	56.91	0.13
Main	26199	350	350.00	5360.92	5368.81		5368.87	0.000044	2.04	223.53	58.51	0.14
Main	26199	400	400.00	5360.92	5369.11		5369.18	0.000048	2.20	242.00	61.19	0.15
Main	26199	450	450.00	5360.92	5369.49		5369.57	0.000049	2.32	265.80	65.02	0.15
Main	26199	500	500.00	5360.92	5369.80		5369.88	0.000052	2.45	286.52	71.31	0.16
Main	26199	50	50.00	5360.92	5362.51		5362.64	0.000796	2.88	17.38	14.34	0.46
Main	26088	77	77.00	5361.01	5363.08	5362.17	5363.18	0.000422	2.51	30.63	19.41	0.35
Main	26088	100	100.00	5361.01	5363.69	5362.33	5363.77	0.000270	2.32	43.18	22.00	0.29
Main	26088	150	150.00	5361.01	5365.63	5362.68	5365.67	0.000071	1.61	93.27	29.93	0.16
Main	26088	200	200.00	5361.01	5367.35	5363.00	5367.38	0.000030	1.31	172.23	55.17	0.11
Main	26088	250	250.00	5361.01	5368.30	5363.25	5368.33	0.000023	1.31	229.34	63.64	0.10
Main	26088	300	300.00	5361.01	5368.61	5363.50	5368.65	0.000027	1.47	249.59	66.41	0.11
Main	26088	350	350.00	5361.01	5368.81	5363.74	5368.85	0.000032	1.65	263.07	68.23	0.12
Main	26088	400	400.00	5361.01	5369.13	5363.92	5369.17	0.000035	1.78	284.87	73.34	0.13
Main	26088	450	450.00	5361.01	5369.50	5364.14	5369.55	0.000036	1.86	313.35	76.82	0.13
Main	26088	500	500.00	5361.01	5369.81	5364.31	5369.87	0.000037	1.96	337.32	79.27	0.13
Main	26088	50	50.00	5361.01	5362.44	5361.90	5362.55	0.000715	2.63	19.03	16.98	0.44
Main	25985	77	77.00	5360.58	5363.07	5361.81	5363.14	0.000245	2.11	36.46	19.69	0.27
Main	25985	100	100.00	5360.58	5363.68	5362.01	5363.74	0.000179	2.03	49.18	21.99	0.24
Main	25985	150	150.00	5360.58	5365.63	5362.35	5365.66	0.000055	1.52	99.00	36.75	0.14
Main	25985	200	200.00	5360.58	5367.35	5362.63	5367.37	0.000025	1.33	170.29	58.49	0.10
Main	25985	250	250.00	5360.58	5368.30	5362.91	5368.33	0.000021	1.38	219.10	67.73	0.10
Main	25985	300	300.00	5360.58	5368.61	5363.18	5368.64	0.000026	1.56	236.67	70.95	0.11
Main	25985	350	350.00	5360.58	5368.81	5363.36	5368.85	0.000031	1.76	248.15	72.97	0.12
Main	25985	400	400.00	5360.58	5369.12	5363.61	5369.17	0.000034	1.90	266.55	75.33	0.13
Main	25985	450	450.00	5360.58	5369.49	5363.82	5369.55	0.000036	2.01	289.64	78.27	0.13
Main	25985	500	500.00	5360.58	5369.80	5364.02	5369.86	0.000038	2.12	308.89	80.86	0.13
Main	25985	50	50.00	5360.58	5362.43	5361.57	5362.49	0.000329	2.04	24.51	17.63	0.30
Main	25877	77	77.00	5360.22	5363.05	5361.58	5363.11	0.000197	1.97	39.02	19.75	0.25
Main	25877	100	100.00	5360.22	5363.67	5361.77	5363.72	0.000149	1.93	51.81	21.83	0.22

HEC-RAS Plan: Existing_Cap River: Ditch Reach: Main (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Main	25877	150	150.00	5360.22	5365.62	5362.14	5365.66	0.000052	1.49	100.74	38.37	0.14
Main	25877	200	200.00	5360.22	5367.34	5362.48	5367.37	0.000025	1.32	166.29	61.40	0.10
Main	25877	250	250.00	5360.22	5368.30	5362.76	5368.32	0.000021	1.37	214.08	72.01	0.10
Main	25877	300	300.00	5360.22	5368.60	5363.00	5368.64	0.000026	1.55	230.87	74.24	0.11
Main	25877	350	350.00	5360.22	5368.80	5363.25	5368.85	0.000031	1.74	241.87	75.69	0.12
Main	25877	400	400.00	5360.22	5369.11	5363.47	5369.16	0.000035	1.89	259.67	78.98	0.13
Main	25877	450	450.00	5360.22	5369.49	5363.68	5369.55	0.000036	2.00	282.58	82.61	0.13
Main	25877	500	500.00	5360.22	5369.79	5363.85	5369.86	0.000038	2.12	301.82	85.17	0.13
Main	25877	50	50.00	5360.22	5362.40	5361.30	5362.46	0.000237	1.85	26.99	17.42	0.26
Main	25769	77	77.00	5360.15	5363.01	5361.58	5363.08	0.000252	2.21	34.85	17.63	0.28
Main	25769	100	100.00	5360.15	5363.63	5361.80	5363.70	0.000194	2.14	46.64	20.15	0.25
Main	25769	150	150.00	5360.15	5365.61	5362.18	5365.65	0.000067	1.62	92.54	26.77	0.15
Main	25769	200	200.00	5360.15	5367.34	5362.56	5367.37	0.000030	1.40	157.37	47.11	0.11
Main	25769	250	250.00	5360.15	5368.29	5362.85	5368.32	0.000025	1.44	205.12	53.35	0.10
Main	25769	300	300.00	5360.15	5368.60	5363.15	5368.64	0.000030	1.62	221.96	55.95	0.11
Main	25769	350	350.00	5360.15	5368.79	5363.41	5368.84	0.000036	1.83	233.03	57.20	0.13
Main	25769	400	400.00	5360.15	5369.10	5363.64	5369.16	0.000040	1.98	250.99	59.16	0.13
Main	25769	450	450.00	5360.15	5369.48	5363.86	5369.54	0.000041	2.08	273.67	61.21	0.14
Main	25769	500	500.00	5360.15	5369.78	5364.05	5369.85	0.000044	2.20	292.49	62.72	0.14
Main	25769	50	50.00	5360.15	5362.36	5361.26	5362.43	0.000293	2.07	24.18	15.28	0.29
Main	25664	77	77.00	5360.14	5362.99	5361.60	5363.06	0.000247	2.16	35.63	18.56	0.27
Main	25664	100	100.00	5360.14	5363.62	5361.82	5363.68	0.000181	2.08	48.08	20.92	0.24
Main	25664	150	150.00	5360.14	5365.60	5362.20	5365.64	0.000058	1.55	96.62	28.19	0.15
Main	25664	200	200.00	5360.14	5367.34	5362.54	5367.36	0.000027	1.36	162.16	47.64	0.11
Main	25664	250	250.00	5360.14	5368.29	5362.85	5368.32	0.000023	1.40	210.72	55.31	0.10
Main	25664	300	300.00	5360.14	5368.60	5363.10	5368.63	0.000027	1.59	228.17	58.10	0.11
Main	25664	350	350.00	5360.14	5368.79	5363.36	5368.84	0.000033	1.79	239.65	59.65	0.12
Main	25664	400	400.00	5360.14	5369.10	5363.58	5369.15	0.000037	1.94	258.38	61.70	0.13
Main	25664	450	450.00	5360.14	5369.48	5363.79	5369.54	0.000038	2.04	282.12	64.42	0.13
Main	25664	500	500.00	5360.14	5369.78	5363.98	5369.85	0.000040	2.16	302.10	67.36	0.14
Main	25664	50	50.00	5360.14	5362.33	5361.31	5362.40	0.000304	2.06	24.28	16.07	0.30
Main	25595	77	77.00	5360.00	5362.98	5361.34	5363.04	0.000168	1.91	40.31	18.63	0.23
Main	25595	100	100.00	5360.00	5363.61	5361.52	5363.67	0.000134	1.90	52.62	20.47	0.21
Main	25595	150	150.00	5360.00	5365.60	5361.93	5365.64	0.000039	1.47	137.38	68.90	0.12
Main	25595	200	200.00	5360.00	5367.34	5362.25	5367.36	0.000017	1.20	275.20	94.83	0.09
Main	25595	250	250.00	5360.00	5368.30	5362.55	5368.31	0.000014	1.19	365.73	94.83	0.08
Main	25595	300	300.00	5360.00	5368.61	5362.81	5368.63	0.000016	1.34	395.18	94.83	0.09
Main	25595	350	350.00	5360.00	5368.80	5363.06	5368.83	0.000020	1.50	413.93	94.83	0.10
Main	25595	400	400.00	5360.00	5369.12	5363.30	5369.14	0.000022	1.61	443.42	94.83	0.10
Main	25595	450	450.00	5360.00	5369.49	5363.51	5369.53	0.000022	1.69	479.36	94.83	0.10
Main	25595	500	500.00	5360.00	5369.80	5363.71	5369.83	0.000024	1.78	508.39	94.83	0.11
Main	25595	50	50.00	5360.00	5362.33	5361.05	5362.37	0.000186	1.74	28.72	16.67	0.23
Main	25394		Bridge									
Main	25316	77	77.00	5358.52	5362.93	5360.14	5362.96	0.000057	1.31	58.66	20.70	0.14
Main	25316	100	100.00	5358.52	5363.49	5360.37	5363.52	0.000057	1.42	70.59	51.81	0.14
Main	25316	150	150.00	5358.52	5365.23	5360.81	5365.25	0.000021	1.15	199.94	77.34	0.09

HEC-RAS Plan: Existing_Cap River: Ditch Reach: Main (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Main	25316	200	200.00	5358.52	5366.65	5361.16	5366.66	0.000013	1.06	312.45	86.39	0.07
Main	25316	250	250.00	5358.52	5367.33	5361.47	5367.34	0.000013	1.14	381.79	108.75	0.08
Main	25316	300	300.00	5358.52	5367.89	5361.75	5367.91	0.000013	1.21	443.65	108.75	0.08
Main	25316	350	350.00	5358.52	5368.39	5362.00	5368.40	0.000013	1.28	497.17	108.75	0.08
Main	25316	400	400.00	5358.52	5368.85	5362.25	5368.87	0.000014	1.34	548.04	108.75	0.08
Main	25316	450	450.00	5358.52	5369.32	5362.46	5369.34	0.000014	1.40	598.38	108.75	0.08
Main	25316	500	500.00	5358.52	5369.66	5362.63	5369.68	0.000015	1.47	635.23	108.75	0.08
Main	25316	50	50.00	5358.52	5362.30	5359.83	5362.31	0.000046	1.08	46.17	18.55	0.12
Main	25255	77	77.00	5359.79	5362.87	5361.21	5362.94	0.000205	2.11	36.43	24.56	0.25
Main	25255	100	100.00	5359.79	5363.42	5361.44	5363.50	0.000185	2.17	45.98	29.69	0.24
Main	25255	150	150.00	5359.79	5365.22	5361.87	5365.25	0.000052	1.53	150.48	79.34	0.14
Main	25255	200	200.00	5359.79	5366.64	5362.23	5366.66	0.000023	1.26	264.96	81.52	0.10
Main	25255	250	250.00	5359.79	5367.32	5362.56	5367.34	0.000022	1.32	320.68	84.17	0.10
Main	25255	300	300.00	5359.79	5367.89	5362.84	5367.91	0.000022	1.40	368.16	120.94	0.10
Main	25255	350	350.00	5359.79	5368.38	5363.10	5368.40	0.000021	1.46	441.63	129.73	0.10
Main	25255	400	400.00	5359.79	5368.85	5363.37	5368.87	0.000021	1.50	502.44	129.73	0.10
Main	25255	450	450.00	5359.79	5369.31	5363.63	5369.33	0.000020	1.53	562.62	129.73	0.10
Main	25255	500	500.00	5359.79	5369.65	5363.86	5369.68	0.000020	1.60	606.58	129.73	0.10
Main	25255	50	50.00	5359.79	5362.24	5360.89	5362.30	0.000207	1.87	26.67	14.66	0.25
Main	25197	77	77.00	5359.38	5362.87	5360.91	5362.92	0.000135	1.81	42.51	31.99	0.21
Main	25197	100	100.00	5359.38	5363.42	5361.16	5363.48	0.000125	1.90	52.55	45.90	0.20
Main	25197	150	150.00	5359.38	5365.22	5361.57	5365.24	0.000033	1.33	180.97	69.09	0.11
Main	25197	200	200.00	5359.38	5366.64	5361.93	5366.66	0.000018	1.19	280.43	70.63	0.09
Main	25197	250	250.00	5359.38	5367.32	5362.24	5367.34	0.000019	1.29	329.46	84.14	0.09
Main	25197	300	300.00	5359.38	5367.89	5362.52	5367.91	0.000019	1.38	385.59	104.81	0.09
Main	25197	350	350.00	5359.38	5368.38	5362.77	5368.40	0.000019	1.46	437.13	104.81	0.09
Main	25197	400	400.00	5359.38	5368.85	5362.99	5368.87	0.000020	1.52	486.15	104.81	0.09
Main	25197	450	450.00	5359.38	5369.31	5363.23	5369.33	0.000020	1.58	534.72	104.81	0.09
Main	25197	500	500.00	5359.38	5369.65	5363.45	5369.67	0.000020	1.66	570.14	104.81	0.10
Main	25197	50	50.00	5359.38	5362.24	5360.61	5362.28	0.000131	1.57	31.83	16.26	0.20
Main	25174		Bridge									
Main	25148	77	77.00	5359.44	5362.86	5361.06	5362.91	0.000146	1.81	42.50	34.14	0.21
Main	25148	100	100.00	5359.44	5363.41	5361.28	5363.47	0.000131	1.87	53.53	41.36	0.21
Main	25148	150	150.00	5359.44	5365.21	5361.64	5365.23	0.000034	1.32	162.52	57.15	0.11
Main	25148	200	200.00	5359.44	5366.63	5362.04	5366.65	0.000020	1.22	246.32	60.61	0.09
Main	25148	250	250.00	5359.44	5367.31	5362.33	5367.33	0.000020	1.32	288.06	80.81	0.09
Main	25148	300	300.00	5359.44	5367.87	5362.58	5367.90	0.000021	1.43	323.43	105.36	0.10
Main	25148	350	350.00	5359.44	5368.37	5362.83	5368.39	0.000021	1.50	395.71	105.36	0.10
Main	25148	400	400.00	5359.44	5368.83	5363.07	5368.86	0.000021	1.57	444.84	105.36	0.10
Main	25148	450	450.00	5359.44	5369.30	5363.28	5369.32	0.000021	1.62	493.61	105.36	0.10
Main	25148	500	500.00	5359.44	5369.63	5363.50	5369.66	0.000022	1.70	529.06	105.36	0.10
Main	25148	50	50.00	5359.44	5362.23	5360.74	5362.27	0.000153	1.61	30.98	18.05	0.21
Main	25094	77	77.00	5359.75	5362.80	5361.22	5362.89	0.000267	2.42	31.86	27.76	0.28
Main	25094	100	100.00	5359.75	5363.35	5361.42	5363.45	0.000249	2.54	39.38	33.95	0.27
Main	25094	150	150.00	5359.75	5365.13	5361.87	5365.21	0.000132	2.22	67.79	53.29	0.20
Main	25094	200	200.00	5359.75	5366.62	5362.29	5366.64	0.000036	1.43	224.20	63.14	0.11

HEC-RAS Plan: Existing_Cap River: Ditch Reach: Main (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Main	25094	250	250.00	5359.75	5367.30	5362.61	5367.33	0.000034	1.52	267.36	70.87	0.11
Main	25094	300	300.00	5359.75	5367.87	5362.95	5367.90	0.000034	1.61	314.33	91.69	0.11
Main	25094	350	350.00	5359.75	5368.36	5363.23	5368.39	0.000034	1.69	361.38	97.67	0.11
Main	25094	400	400.00	5359.75	5368.83	5363.51	5368.86	0.000033	1.76	406.97	97.67	0.11
Main	25094	450	450.00	5359.75	5369.29	5363.75	5369.32	0.000032	1.81	452.19	97.67	0.11
Main	25094	500	500.00	5359.75	5369.63	5364.02	5369.66	0.000033	1.89	485.04	97.67	0.12
Main	25094	50	50.00	5359.75	5362.19	5360.89	5362.25	0.000253	2.08	23.98	12.36	0.26
Main	25083		Bridge									
Main	25062	77	77.00	5359.93	5362.80	5361.30	5362.87	0.000240	2.21	34.89	27.49	0.27
Main	25062	100	100.00	5359.93	5363.35	5361.54	5363.43	0.000206	2.25	44.38	36.84	0.25
Main	25062	150	150.00	5359.93	5365.14	5361.95	5365.17	0.000048	1.53	150.71	59.07	0.13
Main	25062	200	200.00	5359.93	5366.62	5362.30	5366.64	0.000025	1.34	239.41	61.11	0.10
Main	25062	250	250.00	5359.93	5367.30	5362.58	5367.32	0.000025	1.45	281.40	62.86	0.10
Main	25062	300	300.00	5359.93	5367.86	5362.89	5367.89	0.000025	1.56	317.35	64.49	0.10
Main	25062	350	350.00	5359.93	5368.35	5363.13	5368.38	0.000027	1.66	349.23	65.86	0.11
Main	25062	400	400.00	5359.93	5368.81	5363.39	5368.85	0.000027	1.76	380.13	67.35	0.11
Main	25062	450	450.00	5359.93	5369.27	5363.57	5369.31	0.000028	1.85	411.43	75.94	0.11
Main	25062	500	500.00	5359.93	5369.61	5364.04	5369.65	0.000030	1.97	440.94	98.04	0.12
Main	25062	50	50.00	5359.93	5362.18	5361.03	5362.24	0.000258	1.99	25.13	14.95	0.27
Main	24959	77	77.00	5360.06	5362.79	5361.48	5362.84	0.000199	1.92	40.10	44.11	0.25
Main	24959	100	100.00	5360.06	5363.34	5361.66	5363.40	0.000152	1.91	52.45	47.64	0.22
Main	24959	150	150.00	5360.06	5365.14	5361.99	5365.16	0.000033	1.26	166.58	53.34	0.11
Main	24959	200	200.00	5360.06	5366.62	5362.28	5366.63	0.000019	1.16	245.88	54.07	0.09
Main	24959	250	250.00	5360.06	5367.30	5362.53	5367.32	0.000019	1.28	282.86	55.26	0.09
Main	24959	300	300.00	5360.06	5367.86	5362.75	5367.88	0.000020	1.39	314.43	56.62	0.09
Main	24959	350	350.00	5360.06	5368.35	5362.90	5368.38	0.000021	1.50	342.43	57.80	0.10
Main	24959	400	400.00	5360.06	5368.81	5363.16	5368.84	0.000022	1.60	369.44	59.02	0.10
Main	24959	450	450.00	5360.06	5369.27	5363.37	5369.31	0.000023	1.69	396.90	60.62	0.10
Main	24959	500	500.00	5360.06	5369.60	5363.53	5369.64	0.000025	1.79	417.36	62.14	0.11
Main	24959	50	50.00	5360.06	5362.16	5361.25	5362.21	0.000268	1.84	27.14	19.69	0.28
Main	24856	77	77.00	5359.87	5362.75	5361.17	5362.82	0.000205	2.11	36.52	16.19	0.25
Main	24856	100	100.00	5359.87	5363.30	5361.38	5363.38	0.000182	2.19	45.76	17.24	0.24
Main	24856	150	150.00	5359.87	5365.10	5361.77	5365.15	0.000086	1.89	79.57	25.99	0.17
Main	24856	200	200.00	5359.87	5366.58	5362.11	5366.63	0.000058	1.80	111.60	35.09	0.14
Main	24856	250	250.00	5359.87	5367.26	5362.43	5367.31	0.000056	1.90	153.39	36.83	0.14
Main	24856	300	300.00	5359.87	5367.81	5362.72	5367.88	0.000058	2.05	174.11	37.23	0.14
Main	24856	350	350.00	5359.87	5368.30	5362.98	5368.37	0.000060	2.19	192.19	37.57	0.15
Main	24856	400	400.00	5359.87	5368.76	5363.21	5368.83	0.000062	2.33	209.47	37.90	0.15
Main	24856	450	450.00	5359.87	5369.21	5363.46	5369.30	0.000063	2.44	226.76	38.38	0.16
Main	24856	500	500.00	5359.87	5369.54	5363.67	5369.63	0.000067	2.59	239.39	39.08	0.16
Main	24856	50	50.00	5359.87	5362.13	5360.89	5362.19	0.000209	1.86	26.88	14.93	0.24
Main	24755	77	77.00	5359.62	5362.71	5361.03	5362.80	0.000250	2.37	32.52	13.33	0.27
Main	24755	100	100.00	5359.62	5363.26	5361.29	5363.36	0.000235	2.49	40.10	23.09	0.26
Main	24755	150	150.00	5359.62	5365.09	5361.74	5365.14	0.000074	1.92	111.30	40.85	0.16
Main	24755	200	200.00	5359.62	5366.58	5362.12	5366.62	0.000042	1.75	172.94	42.05	0.13
Main	24755	250	250.00	5359.62	5367.26	5362.43	5367.30	0.000044	1.91	201.59	42.59	0.13

HEC-RAS Plan: Existing_Cap River: Ditch Reach: Main (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Main	24755	300	300.00	5359.62	5367.82	5362.81	5367.87	0.000046	2.07	225.55	43.06	0.14
Main	24755	350	350.00	5359.62	5368.30	5363.10	5368.36	0.000049	2.24	246.48	43.46	0.14
Main	24755	400	400.00	5359.62	5368.76	5363.38	5368.83	0.000052	2.38	266.50	43.85	0.15
Main	24755	450	450.00	5359.62	5369.21	5363.89	5369.29	0.000054	2.51	286.52	44.23	0.15
Main	24755	500	500.00	5359.62	5369.54	5364.08	5369.62	0.000058	2.67	301.01	44.50	0.16
Main	24755	50	50.00	5359.62	5362.10	5360.73	5362.16	0.000230	2.02	24.70	12.35	0.25
Main	24636	77	77.00	5359.39	5362.71	5360.63	5362.76	0.000146	1.91	40.34	14.74	0.20
Main	24636	100	100.00	5359.39	5363.26	5360.87	5363.32	0.000151	2.04	49.05	24.98	0.21
Main	24636	150	150.00	5359.39	5365.09	5361.28	5365.13	0.000061	1.75	100.10	29.13	0.14
Main	24636	200	200.00	5359.39	5366.57	5361.65	5366.61	0.000040	1.70	144.72	30.95	0.12
Main	24636	250	250.00	5359.39	5367.24	5361.96	5367.30	0.000043	1.89	165.76	31.60	0.13
Main	24636	300	300.00	5359.39	5367.80	5362.24	5367.86	0.000046	2.08	183.49	32.14	0.14
Main	24636	350	350.00	5359.39	5368.28	5362.55	5368.35	0.000050	2.27	199.01	32.60	0.14
Main	24636	400	400.00	5359.39	5368.73	5362.83	5368.82	0.000054	2.43	213.94	33.08	0.15
Main	24636	450	450.00	5359.39	5369.19	5363.15	5369.28	0.000057	2.58	228.94	33.57	0.15
Main	24636	500	500.00	5359.39	5369.51	5363.51	5369.61	0.000061	2.76	239.80	33.92	0.16
Main	24636	50	50.00	5359.39	5362.10	5360.35	5362.14	0.000121	1.58	31.72	13.75	0.18
Main	24538	77	77.00	5359.94	5362.40	5361.73	5362.71	0.001308	4.44	17.36	9.17	0.57
Main	24538	100	100.00	5359.94	5362.97	5362.01	5363.27	0.001039	4.36	22.93	10.29	0.52
Main	24538	150	150.00	5359.94	5364.99	5362.56	5365.11	0.000307	2.83	52.97	19.16	0.30
Main	24538	200	200.00	5359.94	5366.52	5363.04	5366.60	0.000135	2.31	88.88	26.04	0.21
Main	24538	250	250.00	5359.94	5367.19	5363.56	5367.28	0.000121	2.44	106.65	26.72	0.20
Main	24538	300	300.00	5359.94	5367.75	5363.94	5367.85	0.000116	2.59	121.61	27.29	0.20
Main	24538	350	350.00	5359.94	5368.22	5364.23	5368.34	0.000116	2.75	134.73	27.77	0.21
Main	24538	400	400.00	5359.94	5368.68	5364.49	5368.81	0.000116	2.90	147.41	28.23	0.21
Main	24538	450	450.00	5359.94	5369.13	5364.73	5369.27	0.000114	3.02	160.19	28.68	0.21
Main	24538	500	500.00	5359.94	5369.44	5364.99	5369.60	0.000120	3.19	169.40	29.40	0.22
Main	24538	50	50.00	5359.94	5361.84	5361.30	5362.09	0.001395	4.02	12.43	8.25	0.58
Main	24450	77	77.00	5359.65	5362.43	5361.23	5362.59	0.000561	3.24	23.76	10.36	0.38
Main	24450	100	100.00	5359.65	5363.00	5361.49	5363.17	0.000502	3.36	29.80	11.75	0.36
Main	24450	150	150.00	5359.65	5364.98	5361.95	5365.09	0.000174	2.66	67.11	21.41	0.22
Main	24450	200	200.00	5359.65	5366.50	5362.41	5366.59	0.000106	2.52	102.22	26.07	0.18
Main	24450	250	250.00	5359.65	5367.17	5362.79	5367.27	0.000112	2.79	120.44	29.75	0.19
Main	24450	300	300.00	5359.65	5367.71	5363.17	5367.84	0.000120	3.03	137.20	31.29	0.20
Main	24450	350	350.00	5359.65	5368.18	5363.49	5368.33	0.000128	3.27	152.21	32.34	0.21
Main	24450	400	400.00	5359.65	5368.63	5363.96	5368.79	0.000134	3.48	166.80	32.82	0.21
Main	24450	450	450.00	5359.65	5369.08	5364.25	5369.25	0.000138	3.65	181.52	33.29	0.22
Main	24450	500	500.00	5359.65	5369.39	5364.44	5369.58	0.000148	3.88	191.96	33.63	0.23
Main	24450	50	50.00	5359.65	5361.86	5360.85	5361.98	0.000523	2.78	17.99	9.80	0.36
Main	24387	77	77.00	5359.71	5362.30	5361.49	5362.54	0.000945	3.90	19.74	10.31	0.50
Main	24387	100	100.00	5359.71	5362.90	5361.76	5363.13	0.000729	3.82	26.21	13.36	0.44
Main	24387	150	150.00	5359.71	5364.96	5362.27	5365.08	0.000171	2.80	65.18	20.01	0.24
Main	24387	200	200.00	5359.71	5366.48	5362.72	5366.58	0.000104	2.67	96.68	21.39	0.19
Main	24387	250	250.00	5359.71	5367.14	5363.10	5367.26	0.000112	2.97	111.01	23.18	0.21
Main	24387	300	300.00	5359.71	5367.68	5363.51	5367.83	0.000122	3.27	124.95	27.56	0.22
Main	24387	350	350.00	5359.71	5368.14	5363.78	5368.32	0.000131	3.54	138.54	30.23	0.23
Main	24387	400	400.00	5359.71	5368.58	5364.08	5368.78	0.000139	3.78	152.06	31.02	0.24

HEC-RAS Plan: Existing_Cap River: Ditch Reach: Main (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Main	24387	450	450.00	5359.71	5369.02	5364.32	5369.24	0.000144	3.99	166.01	32.78	0.24
Main	24387	500	500.00	5359.71	5369.33	5364.54	5369.57	0.000155	4.24	176.24	34.28	0.25
Main	24387	50	50.00	5359.71	5361.73	5361.10	5361.92	0.001021	3.54	14.12	9.30	0.51
Main	24300	77	77.00	5359.63	5362.29	5361.14	5362.46	0.000521	3.25	23.77	11.75	0.38
Main	24300	100	100.00	5359.63	5362.89	5361.39	5363.07	0.000408	3.35	30.27	17.63	0.35
Main	24300	150	150.00	5359.63	5364.96	5361.86	5365.06	0.000118	2.58	80.91	25.35	0.20
Main	24300	200	200.00	5359.63	5366.49	5362.27	5366.57	0.000076	2.47	122.04	30.01	0.17
Main	24300	250	250.00	5359.63	5367.15	5362.65	5367.25	0.000082	2.74	142.74	34.45	0.18
Main	24300	300	300.00	5359.63	5367.70	5362.97	5367.81	0.000089	2.99	162.62	38.37	0.19
Main	24300	350	350.00	5359.63	5368.17	5363.54	5368.29	0.000096	3.23	181.67	42.55	0.20
Main	24300	400	400.00	5359.63	5368.61	5363.82	5368.75	0.000100	3.43	201.40	44.40	0.21
Main	24300	450	450.00	5359.63	5369.06	5364.05	5369.21	0.000103	3.59	221.17	44.40	0.21
Main	24300	500	500.00	5359.63	5369.37	5364.30	5369.54	0.000110	3.80	235.00	44.40	0.22
Main	24300	50	50.00	5359.63	5361.71	5360.80	5361.84	0.000555	2.81	17.78	10.09	0.37
Main	24286		Bridge									
Main	24275	77	77.00	5359.57	5362.28	5361.14	5362.44	0.000542	3.15	24.43	11.57	0.38
Main	24275	100	100.00	5359.57	5362.86	5361.40	5363.02	0.000456	3.18	31.41	13.68	0.35
Main	24275	150	150.00	5359.57	5364.94	5361.86	5365.03	0.000133	2.38	73.05	22.83	0.20
Main	24275	200	200.00	5359.57	5366.48	5362.29	5366.55	0.000079	2.25	110.40	26.28	0.16
Main	24275	250	250.00	5359.57	5367.14	5362.66	5367.23	0.000084	2.49	128.75	29.10	0.17
Main	24275	300	300.00	5359.57	5367.68	5363.00	5367.79	0.000090	2.73	144.72	29.81	0.18
Main	24275	350	350.00	5359.57	5368.14	5363.26	5368.26	0.000097	2.95	158.57	30.36	0.19
Main	24275	400	400.00	5359.57	5368.58	5363.72	5368.72	0.000103	3.16	172.06	30.88	0.20
Main	24275	450	450.00	5359.57	5369.02	5363.96	5369.17	0.000107	3.34	185.55	31.40	0.20
Main	24275	500	500.00	5359.57	5369.32	5364.18	5369.49	0.000116	3.56	195.09	31.88	0.21
Main	24275	50	50.00	5359.57	5361.70	5360.81	5361.82	0.000544	2.78	17.98	10.63	0.38
Main	24177	77	77.00	5359.65	5361.99	5361.33	5362.31	0.001371	4.51	17.06	8.88	0.57
Main	24177	100	100.00	5359.65	5362.62	5361.62	5362.91	0.001029	4.38	22.86	10.55	0.50
Main	24177	150	150.00	5359.65	5364.92	5362.17	5365.01	0.000186	2.65	82.62	35.19	0.23
Main	24177	200	200.00	5359.65	5366.48	5362.65	5366.54	0.000089	2.25	138.33	36.10	0.16
Main	24177	250	250.00	5359.65	5367.14	5363.05	5367.21	0.000090	2.43	163.87	41.74	0.17
Main	24177	300	300.00	5359.65	5367.69	5363.44	5367.76	0.000093	2.61	186.96	42.79	0.17
Main	24177	350	350.00	5359.65	5368.15	5363.78	5368.24	0.000097	2.79	206.95	43.47	0.18
Main	24177	400	400.00	5359.65	5368.59	5364.37	5368.69	0.000101	2.95	226.33	43.84	0.18
Main	24177	450	450.00	5359.65	5369.03	5364.57	5369.13	0.000103	3.09	245.54	44.20	0.19
Main	24177	500	500.00	5359.65	5369.34	5364.76	5369.45	0.000110	3.27	259.07	44.46	0.20
Main	24177	50	50.00	5359.65	5361.45	5360.94	5361.70	0.001410	4.02	12.44	8.17	0.57
Main	24082	77	77.00	5359.61	5361.87	5361.26	5362.18	0.001360	4.45	17.29	13.12	0.59
Main	24082	100	100.00	5359.61	5362.55	5361.54	5362.81	0.000895	4.13	24.21	20.70	0.48
Main	24082	150	150.00	5359.61	5364.92	5362.06	5364.98	0.000137	2.19	101.88	40.42	0.20
Main	24082	200	200.00	5359.61	5366.49	5362.50	5366.53	0.000063	1.84	169.60	48.55	0.14
Main	24082	250	250.00	5359.61	5367.15	5362.90	5367.20	0.000062	1.97	203.11	51.54	0.14
Main	24082	300	300.00	5359.61	5367.70	5363.27	5367.75	0.000063	2.11	231.42	51.94	0.14
Main	24082	350	350.00	5359.61	5368.17	5363.60	5368.22	0.000066	2.25	255.67	52.28	0.15
Main	24082	400	400.00	5359.61	5368.61	5363.85	5368.67	0.000067	2.38	279.08	52.61	0.15
Main	24082	450	450.00	5359.61	5369.05	5364.20	5369.11	0.000069	2.50	302.32	55.17	0.16

HEC-RAS Plan: Existing_Cap River: Ditch Reach: Main (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Main	24082	500	500.00	5359.61	5369.36	5364.40	5369.43	0.000073	2.64	319.33	55.41	0.16
Main	24082	50	50.00	5359.61	5361.28	5360.87	5361.55	0.001635	4.19	11.93	8.64	0.63
Main	24007	77	77.00	5359.50	5361.91	5360.83	5362.07	0.000572	3.17	24.26	11.85	0.39
Main	24007	100	100.00	5359.50	5362.59	5361.12	5362.73	0.000417	3.08	32.50	17.20	0.34
Main	24007	150	150.00	5359.50	5364.92	5361.55	5364.98	0.000086	2.02	103.87	35.80	0.16
Main	24007	200	200.00	5359.50	5366.48	5361.95	5366.52	0.000049	1.84	162.09	40.82	0.13
Main	24007	250	250.00	5359.50	5367.14	5362.27	5367.19	0.000052	2.02	191.62	51.77	0.13
Main	24007	300	300.00	5359.50	5367.69	5362.60	5367.74	0.000055	2.18	222.79	63.80	0.14
Main	24007	350	350.00	5359.50	5368.15	5362.93	5368.21	0.000057	2.33	252.48	63.80	0.15
Main	24007	400	400.00	5359.50	5368.60	5363.21	5368.67	0.000059	2.45	280.95	63.80	0.15
Main	24007	450	450.00	5359.50	5369.04	5363.60	5369.11	0.000060	2.55	308.96	63.80	0.15
Main	24007	500	500.00	5359.50	5369.34	5363.97	5369.42	0.000064	2.69	328.59	63.80	0.16
Main	24007	50	50.00	5359.50	5361.31	5360.58	5361.44	0.000652	2.89	17.29	11.26	0.41
Main	23968		Bridge									
Main	23940	77	77.00	5359.39	5361.64	5361.06	5361.96	0.001451	4.54	16.98	12.59	0.61
Main	23940	100	100.00	5359.39	5362.43	5361.36	5362.67	0.000815	3.93	25.42	22.08	0.47
Main	23940	150	150.00	5359.39	5364.64	5361.90	5364.69	0.000114	2.10	103.96	38.48	0.19
Main	23940	200	200.00	5359.39	5366.28	5362.34	5366.32	0.000051	1.79	175.97	59.17	0.14
Main	23940	250	250.00	5359.39	5367.04	5362.73	5367.08	0.000047	1.87	223.04	62.08	0.13
Main	23940	300	300.00	5359.39	5367.62	5363.07	5367.66	0.000047	1.99	258.77	62.08	0.13
Main	23940	350	350.00	5359.39	5368.11	5363.39	5368.15	0.000048	2.11	289.09	62.08	0.14
Main	23940	400	400.00	5359.39	5368.57	5363.64	5368.62	0.000049	2.22	317.70	62.08	0.14
Main	23940	450	450.00	5359.39	5369.02	5363.82	5369.07	0.000050	2.31	345.68	62.08	0.14
Main	23940	500	500.00	5359.39	5369.33	5363.98	5369.39	0.000053	2.44	365.14	62.08	0.15
Main	23940	50	50.00	5359.39	5360.97	5360.70	5361.30	0.002204	4.64	10.78	8.55	0.73
Main	23911	77	77.00	5359.16	5361.74	5360.43	5361.83	0.000301	2.41	31.93	15.92	0.29
Main	23911	100	100.00	5359.16	5362.50	5360.63	5362.58	0.000209	2.28	43.78	29.13	0.25
Main	23911	150	150.00	5359.16	5364.65	5361.02	5364.68	0.000046	1.52	139.04	44.26	0.13
Main	23911	200	200.00	5359.16	5366.29	5361.36	5366.31	0.000025	1.38	215.26	54.24	0.10
Main	23911	250	250.00	5359.16	5367.05	5361.66	5367.07	0.000025	1.49	258.25	58.05	0.10
Main	23911	300	300.00	5359.16	5367.62	5361.95	5367.65	0.000027	1.62	292.28	59.98	0.10
Main	23911	350	350.00	5359.16	5368.11	5362.24	5368.15	0.000029	1.75	322.56	65.14	0.11
Main	23911	400	400.00	5359.16	5368.57	5362.50	5368.61	0.000030	1.85	352.61	65.14	0.11
Main	23911	450	450.00	5359.16	5369.02	5362.72	5369.07	0.000031	1.95	381.91	65.14	0.11
Main	23911	500	500.00	5359.16	5369.34	5363.16	5369.38	0.000034	2.07	402.36	65.14	0.12
Main	23911	50	50.00	5359.16	5361.07	5360.14	5361.15	0.000370	2.24	22.28	14.08	0.31
Main	23887	77	77.00	5358.88	5361.60	5360.62	5361.81	0.000761	3.64	21.18	13.56	0.44
Main	23887	100	100.00	5358.88	5362.38	5360.89	5362.56	0.000514	3.40	29.44	21.04	0.37
Main	23887	150	150.00	5358.88	5364.63	5361.41	5364.67	0.000087	1.97	122.85	45.57	0.16
Main	23887	200	200.00	5358.88	5366.28	5361.85	5366.31	0.000042	1.67	203.43	61.31	0.12
Main	23887	250	250.00	5358.88	5367.04	5362.24	5367.07	0.000040	1.76	251.10	63.91	0.12
Main	23887	300	300.00	5358.88	5367.62	5362.54	5367.65	0.000041	1.88	289.00	66.37	0.12
Main	23887	350	350.00	5358.88	5368.11	5363.05	5368.15	0.000042	1.99	321.44	66.37	0.12
Main	23887	400	400.00	5358.88	5368.57	5363.50	5368.61	0.000044	2.10	352.09	66.37	0.13
Main	23887	450	450.00	5358.88	5369.02	5363.68	5369.06	0.000044	2.19	382.01	66.37	0.13
Main	23887	500	500.00	5358.88	5369.33	5363.82	5369.38	0.000047	2.31	402.84	66.37	0.13

HEC-RAS Plan: Existing_Cap River: Ditch Reach: Main (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Main	23887	50	50.00	5358.88	5360.96	5360.25	5361.13	0.000867	3.35	14.91	9.26	0.47
Main	23878		Bridge									
Main	23866	77	77.00	5358.80	5361.65	5359.90	5361.73	0.000240	2.25	34.28	12.55	0.24
Main	23866	100	100.00	5358.80	5362.42	5360.11	5362.50	0.000196	2.27	44.06	20.23	0.22
Main	23866	150	150.00	5358.80	5364.62	5360.54	5364.66	0.000069	1.69	128.96	47.71	0.13
Main	23866	200	200.00	5358.80	5366.28	5360.89	5366.30	0.000036	1.45	219.04	68.99	0.10
Main	23866	250	250.00	5358.80	5367.04	5361.24	5367.06	0.000035	1.53	273.24	74.50	0.10
Main	23866	300	300.00	5358.80	5367.62	5361.55	5367.64	0.000036	1.62	318.33	78.39	0.10
Main	23866	350	350.00	5358.80	5368.10	5361.84	5368.13	0.000037	1.71	356.65	78.39	0.10
Main	23866	400	400.00	5358.80	5368.57	5362.10	5368.60	0.000038	1.78	392.82	78.39	0.10
Main	23866	450	450.00	5358.80	5369.02	5362.34	5369.05	0.000038	1.85	428.15	78.39	0.10
Main	23866	500	500.00	5358.80	5369.33	5362.64	5369.37	0.000041	1.95	452.72	78.39	0.11
Main	23866	50	50.00	5358.80	5361.00	5359.63	5361.06	0.000223	1.91	26.19	12.22	0.23
Main	23861		Culvert									
Main	23856	77	77.00	5358.70	5361.62	5359.82	5361.70	0.000226	2.22	34.72	12.43	0.23
Main	23856	100	100.00	5358.70	5362.38	5360.05	5362.46	0.000190	2.26	44.28	14.79	0.21
Main	23856	150	150.00	5358.70	5364.59	5360.45	5364.63	0.000069	1.75	115.59	42.72	0.14
Main	23856	200	200.00	5358.70	5366.24	5360.79	5366.27	0.000037	1.54	199.24	64.99	0.11
Main	23856	250	250.00	5358.70	5366.98	5361.15	5367.01	0.000035	1.62	252.14	73.79	0.11
Main	23856	300	300.00	5358.70	5367.54	5361.45	5367.57	0.000036	1.72	293.28	73.79	0.11
Main	23856	350	350.00	5358.70	5368.00	5361.76	5368.04	0.000038	1.83	327.51	73.79	0.11
Main	23856	400	400.00	5358.70	5368.44	5362.00	5368.48	0.000039	1.93	359.83	73.79	0.11
Main	23856	450	450.00	5358.70	5368.89	5362.31	5368.93	0.000040	2.00	392.80	73.79	0.12
Main	23856	500	500.00	5358.70	5369.22	5362.58	5369.26	0.000042	2.11	417.12	73.79	0.12
Main	23856	50	50.00	5358.70	5360.98	5359.54	5361.04	0.000202	1.86	26.83	12.20	0.22
Main	23836		Bridge									
Main	23812	77	77.00	5358.81	5361.52	5360.24	5361.67	0.000479	3.00	25.64	11.14	0.35
Main	23812	100	100.00	5358.81	5362.31	5360.48	5362.44	0.000345	2.88	34.69	16.54	0.30
Main	23812	150	150.00	5358.81	5364.55	5360.97	5364.60	0.000085	1.91	111.30	42.79	0.16
Main	23812	200	200.00	5358.81	5366.23	5361.39	5366.26	0.000040	1.61	203.95	69.43	0.11
Main	23812	250	250.00	5358.81	5366.97	5361.75	5367.00	0.000037	1.68	255.52	69.43	0.11
Main	23812	300	300.00	5358.81	5367.53	5362.10	5367.56	0.000038	1.78	294.10	69.43	0.11
Main	23812	350	350.00	5358.81	5367.99	5362.43	5368.03	0.000039	1.90	326.23	69.43	0.12
Main	23812	400	400.00	5358.81	5368.42	5362.80	5368.47	0.000041	2.00	356.51	69.43	0.12
Main	23812	450	450.00	5358.81	5368.87	5363.27	5368.91	0.000041	2.08	387.43	69.43	0.12
Main	23812	500	500.00	5358.81	5369.20	5363.66	5369.25	0.000044	2.19	410.17	69.43	0.13
Main	23812	50	50.00	5358.81	5360.90	5359.90	5361.01	0.000488	2.65	18.86	10.44	0.35
Main	23778	77	77.00	5359.03	5361.41	5360.52	5361.62	0.000832	3.70	20.80	10.26	0.46
Main	23778	100	100.00	5359.03	5362.23	5360.78	5362.41	0.000473	3.39	29.72	11.83	0.36
Main	23778	150	150.00	5359.03	5364.52	5361.26	5364.59	0.000097	2.29	107.46	59.40	0.18
Main	23778	200	200.00	5359.03	5366.23	5361.67	5366.26	0.000038	1.75	233.96	80.34	0.12
Main	23778	250	250.00	5359.03	5366.97	5362.07	5367.00	0.000034	1.78	293.74	80.34	0.11
Main	23778	300	300.00	5359.03	5367.53	5362.41	5367.56	0.000034	1.87	338.43	80.34	0.12
Main	23778	350	350.00	5359.03	5367.99	5362.75	5368.02	0.000036	1.97	375.69	80.34	0.12

HEC-RAS Plan: Existing_Cap River: Ditch Reach: Main (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Main	23778	400	400.00	5359.03	5368.43	5363.52	5368.46	0.000036	2.06	410.76	80.34	0.12
Main	23778	450	450.00	5359.03	5368.87	5363.75	5368.91	0.000037	2.13	446.54	80.34	0.12
Main	23778	500	500.00	5359.03	5369.20	5363.98	5369.24	0.000039	2.24	472.94	80.34	0.13
Main	23778	50	50.00	5359.03	5360.78	5360.17	5360.96	0.000986	3.44	14.53	9.54	0.49
Main	23728		Bridge									
Main	23692	77	77.00	5358.81	5361.35	5360.39	5361.54	0.000747	3.58	21.51	10.45	0.44
Main	23692	100	100.00	5358.81	5362.20	5360.63	5362.36	0.000466	3.24	30.90	11.77	0.35
Main	23692	150	150.00	5358.81	5364.40	5361.13	5364.47	0.000111	2.22	107.38	76.28	0.19
Main	23692	200	200.00	5358.81	5366.20	5361.53	5366.23	0.000034	1.54	245.00	76.28	0.11
Main	23692	250	250.00	5358.81	5366.96	5361.96	5366.99	0.000031	1.58	302.73	76.28	0.10
Main	23692	300	300.00	5358.81	5367.52	5362.33	5367.55	0.000031	1.67	345.30	76.28	0.11
Main	23692	350	350.00	5358.81	5367.98	5362.66	5368.01	0.000032	1.77	380.69	76.28	0.11
Main	23692	400	400.00	5358.81	5368.42	5362.98	5368.45	0.000033	1.86	413.95	76.28	0.11
Main	23692	450	450.00	5358.81	5368.86	5363.36	5368.90	0.000034	1.94	447.80	76.28	0.11
Main	23692	500	500.00	5358.81	5369.19	5363.93	5369.23	0.000036	2.04	472.76	76.28	0.12
Main	23692	50	50.00	5358.81	5360.70	5360.04	5360.87	0.000888	3.34	14.98	9.65	0.47
Main	23586	77	77.00	5358.69	5361.32	5360.04	5361.45	0.000422	2.85	26.98	12.16	0.34
Main	23586	100	100.00	5358.69	5362.19	5360.28	5362.29	0.000271	2.64	37.94	13.22	0.27
Main	23586	150	150.00	5358.69	5364.40	5360.72	5364.45	0.000073	1.92	112.42	47.09	0.15
Main	23586	200	200.00	5358.69	5366.19	5361.12	5366.22	0.000034	1.61	196.88	47.09	0.11
Main	23586	250	250.00	5358.69	5366.94	5361.46	5366.98	0.000034	1.74	232.22	47.09	0.11
Main	23586	300	300.00	5358.69	5367.50	5361.79	5367.54	0.000037	1.90	258.25	47.09	0.12
Main	23586	350	350.00	5358.69	5367.95	5362.09	5368.00	0.000041	2.06	279.84	47.09	0.12
Main	23586	400	400.00	5358.69	5368.38	5362.38	5368.44	0.000044	2.21	300.09	47.09	0.13
Main	23586	450	450.00	5358.69	5368.82	5362.65	5368.88	0.000046	2.34	320.77	47.09	0.14
Main	23586	500	500.00	5358.69	5369.14	5362.88	5369.21	0.000050	2.49	335.87	47.09	0.14
Main	23586	50	50.00	5358.69	5360.66	5359.73	5360.77	0.000476	2.60	19.21	11.36	0.35
Main	23571		Bridge									
Main	23560	77	77.00	5358.43	5361.33		5361.43	0.000319	2.55	30.18	13.35	0.30
Main	23560	100	100.00	5358.43	5362.15		5362.24	0.000216	2.39	41.88	14.89	0.25
Main	23560	150	150.00	5358.43	5364.36		5364.40	0.000052	1.66	133.21	51.33	0.13
Main	23560	200	200.00	5358.43	5366.19		5366.22	0.000024	1.40	227.27	51.33	0.10
Main	23560	250	250.00	5358.43	5366.95		5366.97	0.000025	1.52	265.84	51.33	0.10
Main	23560	300	300.00	5358.43	5367.50		5367.53	0.000027	1.66	294.19	51.33	0.10
Main	23560	350	350.00	5358.43	5367.96		5367.99	0.000029	1.81	317.70	51.33	0.11
Main	23560	400	400.00	5358.43	5368.39		5368.43	0.000032	1.94	339.78	51.33	0.12
Main	23560	450	450.00	5358.43	5368.82		5368.87	0.000033	2.06	362.24	51.33	0.12
Main	23560	500	500.00	5358.43	5369.14		5369.20	0.000036	2.20	378.71	51.33	0.13
Main	23560	50	50.00	5358.43	5360.66		5360.74	0.000341	2.30	21.74	12.12	0.30
Main	23517	77	77.00	5358.12	5361.32	5359.61	5361.41	0.000262	2.39	32.18	13.42	0.27
Main	23517	100	100.00	5358.12	5362.15	5359.85	5362.23	0.000189	2.26	44.26	15.63	0.24
Main	23517	150	150.00	5358.12	5364.36	5360.32	5364.39	0.000040	1.48	158.96	56.99	0.12
Main	23517	200	200.00	5358.12	5366.20	5360.73	5366.21	0.000019	1.25	263.34	56.99	0.09
Main	23517	250	250.00	5358.12	5366.95	5361.09	5366.97	0.000019	1.36	306.19	56.99	0.09
Main	23517	300	300.00	5358.12	5367.50	5361.42	5367.52	0.000021	1.49	337.69	56.99	0.09

HEC-RAS Plan: Existing_Cap River: Ditch Reach: Main (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Main	23517	350	350.00	5358.12	5367.96	5361.73	5367.99	0.000023	1.63	363.79	56.99	0.10
Main	23517	400	400.00	5358.12	5368.39	5361.99	5368.42	0.000025	1.75	388.34	56.99	0.10
Main	23517	450	450.00	5358.12	5368.83	5362.67	5368.86	0.000026	1.86	413.33	56.99	0.11
Main	23517	500	500.00	5358.12	5369.15	5362.90	5369.19	0.000029	1.98	431.61	56.99	0.11
Main	23517	50	50.00	5358.12	5360.66	5359.28	5360.73	0.000255	2.10	23.77	12.02	0.26
Main	23496		Bridge									
Main	23478	77	77.00	5358.56	5361.29	5359.85	5361.38	0.000298	2.46	31.28	13.84	0.29
Main	23478	100	100.00	5358.56	5362.12	5360.07	5362.20	0.000203	2.29	43.61	26.55	0.24
Main	23478	150	150.00	5358.56	5364.31	5360.49	5364.33	0.000037	1.39	178.83	70.77	0.11
Main	23478	200	200.00	5358.56	5366.10	5360.83	5366.12	0.000016	1.14	305.78	70.77	0.08
Main	23478	250	250.00	5358.56	5366.80	5361.20	5366.81	0.000016	1.23	354.92	70.77	0.08
Main	23478	300	300.00	5358.56	5367.28	5361.50	5367.30	0.000018	1.36	389.10	70.77	0.09
Main	23478	350	350.00	5358.56	5367.66	5361.79	5367.68	0.000020	1.49	415.70	70.77	0.09
Main	23478	400	400.00	5358.56	5367.99	5362.10	5368.02	0.000023	1.61	439.31	70.77	0.10
Main	23478	450	450.00	5358.56	5368.32	5362.71	5368.35	0.000025	1.73	462.53	70.77	0.10
Main	23478	500	500.00	5358.56	5368.60	5362.91	5368.63	0.000027	1.84	482.36	70.77	0.11
Main	23478	50	50.00	5358.56	5360.63	5359.55	5360.71	0.000326	2.22	22.51	12.83	0.30
Main	23437	77	77.00	5358.75	5361.25	5360.03	5361.36	0.000378	2.68	28.77	13.67	0.33
Main	23437	100	100.00	5358.75	5362.09	5360.24	5362.19	0.000234	2.46	40.66	24.57	0.26
Main	23437	150	150.00	5358.75	5364.30	5360.65	5364.33	0.000044	1.51	169.47	73.01	0.12
Main	23437	200	200.00	5358.75	5366.10	5361.02	5366.12	0.000018	1.20	300.80	73.01	0.08
Main	23437	250	250.00	5358.75	5366.80	5361.33	5366.81	0.000019	1.29	351.49	73.01	0.08
Main	23437	300	300.00	5358.75	5367.28	5361.66	5367.30	0.000021	1.42	386.75	73.01	0.09
Main	23437	350	350.00	5358.75	5367.66	5361.90	5367.68	0.000023	1.55	414.20	73.01	0.10
Main	23437	400	400.00	5358.75	5367.99	5362.15	5368.02	0.000026	1.67	438.59	73.01	0.10
Main	23437	450	450.00	5358.75	5368.32	5362.83	5368.35	0.000028	1.79	462.54	73.01	0.11
Main	23437	500	500.00	5358.75	5368.60	5362.99	5368.63	0.000030	1.91	482.97	73.01	0.11
Main	23437	50	50.00	5358.75	5360.59	5359.73	5360.68	0.000470	2.51	19.93	12.82	0.35
Main	23419		Bridge									
Main	23403	77	77.00	5358.63	5361.20	5360.09	5361.34	0.000489	2.99	25.72	12.56	0.37
Main	23403	100	100.00	5358.63	5362.06	5360.32	5362.17	0.000301	2.69	37.15	34.13	0.30
Main	23403	150	150.00	5358.63	5364.19	5360.77	5364.22	0.000050	1.53	163.00	76.64	0.13
Main	23403	200	200.00	5358.63	5366.10	5361.16	5366.11	0.000017	1.15	314.87	79.71	0.08
Main	23403	250	250.00	5358.63	5366.79	5361.50	5366.81	0.000017	1.23	370.45	79.71	0.08
Main	23403	300	300.00	5358.63	5367.28	5361.81	5367.29	0.000019	1.34	409.09	79.71	0.09
Main	23403	350	350.00	5358.63	5367.65	5362.14	5367.67	0.000021	1.46	439.18	79.71	0.09
Main	23403	400	400.00	5358.63	5367.99	5362.78	5368.01	0.000023	1.58	465.84	79.71	0.10
Main	23403	450	450.00	5358.63	5368.32	5362.93	5368.34	0.000025	1.69	492.00	79.71	0.10
Main	23403	500	500.00	5358.63	5368.60	5363.07	5368.63	0.000027	1.80	514.26	79.71	0.11
Main	23403	50	50.00	5358.63	5360.53	5359.80	5360.66	0.000619	2.83	17.64	11.64	0.41
Main	23321	77	77.00	5358.55	5361.12	5360.13	5361.29	0.000605	3.27	23.52	11.65	0.41
Main	23321	100	100.00	5358.55	5362.01	5360.37	5362.14	0.000350	2.92	34.26	16.03	0.31
Main	23321	150	150.00	5358.55	5364.17	5360.81	5364.21	0.000070	1.78	137.80	74.13	0.15
Main	23321	200	200.00	5358.55	5366.09	5361.21	5366.11	0.000022	1.27	290.01	79.58	0.09
Main	23321	250	250.00	5358.55	5366.79	5361.56	5366.80	0.000022	1.35	345.54	79.58	0.09

HEC-RAS Plan: Existing_Cap River: Ditch Reach: Main (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Main	23321	300	300.00	5358.55	5367.27	5361.89	5367.29	0.000023	1.46	384.12	79.58	0.09
Main	23321	350	350.00	5358.55	5367.65	5362.24	5367.67	0.000025	1.58	414.08	79.58	0.10
Main	23321	400	400.00	5358.55	5367.98	5362.58	5368.01	0.000028	1.70	440.66	79.58	0.11
Main	23321	450	450.00	5358.55	5368.31	5363.06	5368.34	0.000030	1.81	466.77	79.58	0.11
Main	23321	500	500.00	5358.55	5368.59	5363.23	5368.62	0.000032	1.92	488.96	79.58	0.11
Main	23321	50	50.00	5358.55	5360.44	5359.80	5360.59	0.000820	3.17	15.79	10.91	0.46
Main	23271	77	77.00	5358.64	5361.10	5360.04	5361.25	0.000587	3.20	24.04	11.70	0.39
Main	23271	100	100.00	5358.64	5361.99	5360.29	5362.12	0.000343	2.83	35.38	13.60	0.31
Main	23271	150	150.00	5358.64	5364.15	5360.74	5364.20	0.000081	1.93	115.09	62.88	0.16
Main	23271	200	200.00	5358.64	5366.08	5361.15	5366.10	0.000028	1.44	236.36	62.88	0.10
Main	23271	250	250.00	5358.64	5366.78	5361.53	5366.80	0.000028	1.54	280.15	62.88	0.10
Main	23271	300	300.00	5358.64	5367.26	5361.86	5367.29	0.000030	1.68	310.48	62.88	0.11
Main	23271	350	350.00	5358.64	5367.63	5362.18	5367.67	0.000034	1.83	334.06	62.88	0.12
Main	23271	400	400.00	5358.64	5367.97	5362.45	5368.01	0.000037	1.98	354.91	62.88	0.12
Main	23271	450	450.00	5358.64	5368.29	5362.97	5368.34	0.000040	2.11	375.36	62.88	0.13
Main	23271	500	500.00	5358.64	5368.57	5363.23	5368.62	0.000044	2.25	392.70	62.88	0.13
Main	23271	50	50.00	5358.64	5360.40	5359.71	5360.55	0.000772	3.08	16.24	10.76	0.44
Main	23246	77	77.00	5358.61	5361.10	5359.95	5361.23	0.000458	2.90	26.59	12.60	0.35
Main	23246	100	100.00	5358.61	5362.00	5360.18	5362.10	0.000273	2.61	38.38	16.10	0.28
Main	23246	150	150.00	5358.61	5364.16	5360.61	5364.20	0.000068	1.76	126.34	65.29	0.15
Main	23246	200	200.00	5358.61	5366.08	5360.98	5366.10	0.000023	1.30	271.14	76.29	0.09
Main	23246	250	250.00	5358.61	5366.78	5361.30	5366.80	0.000023	1.38	324.29	76.29	0.09
Main	23246	300	300.00	5358.61	5367.26	5361.63	5367.29	0.000024	1.50	361.17	76.29	0.10
Main	23246	350	350.00	5358.61	5367.64	5361.92	5367.67	0.000027	1.63	389.86	76.29	0.10
Main	23246	400	400.00	5358.61	5367.97	5362.25	5368.00	0.000029	1.75	415.22	76.29	0.11
Main	23246	450	450.00	5358.61	5368.30	5362.51	5368.33	0.000032	1.86	440.15	76.29	0.11
Main	23246	500	500.00	5358.61	5368.58	5363.09	5368.61	0.000034	1.98	461.30	76.29	0.12
Main	23246	50	50.00	5358.61	5360.40	5359.65	5360.52	0.000603	2.77	18.06	11.81	0.39
Main	23241		Bridge									
Main	23234	77	77.00	5358.71	5360.90	5360.15	5361.10	0.000837	3.60	21.37	11.87	0.47
Main	23234	100	100.00	5358.71	5361.60	5360.38	5361.78	0.000528	3.33	30.03	18.28	0.38
Main	23234	150	150.00	5358.71	5363.89	5360.81	5363.93	0.000080	1.77	136.29	65.32	0.16
Main	23234	200	200.00	5358.71	5366.08	5361.19	5366.09	0.000020	1.19	308.73	87.61	0.08
Main	23234	250	250.00	5358.71	5366.78	5361.54	5366.79	0.000019	1.25	369.82	87.61	0.08
Main	23234	300	300.00	5358.71	5367.26	5361.83	5367.28	0.000021	1.36	412.12	87.61	0.09
Main	23234	350	350.00	5358.71	5367.64	5362.16	5367.66	0.000023	1.47	445.02	87.61	0.09
Main	23234	400	400.00	5358.71	5367.97	5362.40	5367.99	0.000025	1.58	474.15	87.61	0.10
Main	23234	450	450.00	5358.71	5368.29	5362.97	5368.32	0.000027	1.68	502.68	87.61	0.10
Main	23234	500	500.00	5358.71	5368.57	5363.16	5368.60	0.000029	1.79	526.90	87.61	0.11
Main	23234	50	50.00	5358.71	5360.31	5359.84	5360.49	0.001103	3.44	14.55	11.19	0.53
Main	23180	77	77.00	5358.54	5360.88	5359.93	5361.04	0.000624	3.23	23.84	12.06	0.41
Main	23180	100	100.00	5358.54	5361.59	5360.16	5361.74	0.000423	3.07	32.62	14.84	0.34
Main	23180	150	150.00	5358.54	5363.82	5360.58	5363.91	0.000131	2.34	70.57	17.24	0.19
Main	23180	200	200.00	5358.54	5366.02	5360.93	5366.08	0.000069	2.05	109.59	18.39	0.14
Main	23180	250	250.00	5358.54	5366.69	5361.28	5366.77	0.000080	2.31	122.16	18.74	0.16
Main	23180	300	300.00	5358.54	5367.15	5361.62	5367.25	0.000095	2.60	130.81	18.98	0.17

HEC-RAS Plan: Existing_Cap River: Ditch Reach: Main (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Main	23180	350	350.00	5358.54	5367.50	5361.93	5367.62	0.000113	2.89	137.43	19.17	0.19
Main	23180	400	400.00	5358.54	5367.80	5362.24	5367.95	0.000132	3.17	143.27	19.32	0.20
Main	23180	450	450.00	5358.54	5368.10	5362.50	5368.27	0.000149	3.43	149.04	20.51	0.22
Main	23180	500	500.00	5358.54	5368.34	5362.74	5368.54	0.000166	3.70	155.18	29.72	0.23
Main	23180	50	50.00	5358.54	5360.28	5359.65	5360.42	0.000752	2.98	16.76	11.59	0.44
Main	22882		Bridge									
Main	22640	77	77.00	5357.87	5360.69	5359.26	5360.78	0.000285	2.44	31.59	13.89	0.28
Main	22640	100	100.00	5357.87	5361.47	5359.47	5361.55	0.000202	2.34	42.73	14.76	0.24
Main	22640	150	150.00	5357.87	5363.19	5359.90	5363.26	0.000116	2.13	70.50	17.71	0.19
Main	22640	200	200.00	5357.87	5364.86	5360.26	5364.92	0.000073	1.91	111.61	53.08	0.15
Main	22640	250	250.00	5357.87	5365.46	5360.58	5365.53	0.000072	2.05	147.93	61.81	0.16
Main	22640	300	300.00	5357.87	5365.94	5360.88	5366.01	0.000072	2.18	177.98	63.20	0.16
Main	22640	350	350.00	5357.87	5366.18	5361.15	5366.26	0.000084	2.41	193.03	63.90	0.17
Main	22640	400	400.00	5357.87	5366.45	5361.43	5366.54	0.000091	2.59	210.40	64.72	0.18
Main	22640	450	450.00	5357.87	5366.80	5361.67	5366.90	0.000092	2.70	232.89	65.79	0.18
Main	22640	500	500.00	5357.87	5366.88	5361.92	5367.00	0.000108	2.94	238.33	66.04	0.20
Main	22640	50	50.00	5357.87	5360.06	5358.97	5360.13	0.000302	2.17	23.08	13.19	0.29
Main	22569	77	77.00	5358.19	5360.50	5359.64	5360.71	0.000869	3.74	20.61	10.36	0.47
Main	22569	100	100.00	5358.19	5361.33	5359.87	5361.50	0.000531	3.38	29.60	12.12	0.37
Main	22569	150	150.00	5358.19	5363.14	5360.38	5363.24	0.000203	2.61	65.78	23.29	0.24
Main	22569	200	200.00	5358.19	5364.84	5360.81	5364.91	0.000094	2.24	110.09	33.27	0.17
Main	22569	250	250.00	5358.19	5365.43	5361.19	5365.51	0.000099	2.47	133.39	48.83	0.18
Main	22569	300	300.00	5358.19	5365.90	5361.58	5366.00	0.000104	2.67	157.93	56.21	0.19
Main	22569	350	350.00	5358.19	5366.13	5361.96	5366.25	0.000123	2.97	171.23	60.27	0.21
Main	22569	400	400.00	5358.19	5366.39	5362.36	5366.52	0.000135	3.19	187.03	60.27	0.22
Main	22569	450	450.00	5358.19	5366.73	5362.61	5366.87	0.000138	3.33	207.57	60.27	0.22
Main	22569	500	500.00	5358.19	5366.80	5362.82	5366.97	0.000163	3.65	211.78	60.27	0.24
Main	22569	50	50.00	5358.19	5359.88	5359.29	5360.06	0.001032	3.47	14.42	9.66	0.50
Main	22552	77	77.00	5358.03	5360.51	5359.49	5360.69	0.000653	3.37	22.88	11.13	0.41
Main	22552	100	100.00	5358.03	5361.34	5359.75	5361.48	0.000409	3.07	32.57	14.46	0.33
Main	22552	150	150.00	5358.03	5363.15	5360.21	5363.24	0.000157	2.40	72.98	24.44	0.22
Main	22552	200	200.00	5358.03	5364.84	5360.63	5364.91	0.000076	2.10	122.01	37.79	0.16
Main	22552	250	250.00	5358.03	5365.44	5361.02	5365.51	0.000079	2.30	149.65	51.32	0.17
Main	22552	300	300.00	5358.03	5365.91	5361.33	5365.99	0.000084	2.49	173.98	51.32	0.17
Main	22552	350	350.00	5358.03	5366.14	5361.70	5366.24	0.000099	2.77	185.66	51.32	0.19
Main	22552	400	400.00	5358.03	5366.40	5362.15	5366.52	0.000110	3.00	199.12	51.32	0.20
Main	22552	450	450.00	5358.03	5366.74	5362.39	5366.87	0.000115	3.16	216.53	51.32	0.21
Main	22552	500	500.00	5358.03	5366.81	5362.58	5366.96	0.000136	3.47	220.17	51.32	0.23
Main	22552	50	50.00	5358.03	5359.89	5359.14	5360.04	0.000738	3.08	16.23	10.26	0.43
Main	22546		Bridge									
Main	22541	77	77.00	5357.97	5360.46	5359.58	5360.67	0.000820	3.67	21.00	10.90	0.47
Main	22541	100	100.00	5357.97	5361.30	5359.84	5361.46	0.000480	3.24	30.89	16.14	0.36
Main	22541	150	150.00	5357.97	5363.10	5360.34	5363.19	0.000156	2.51	71.82	24.71	0.22
Main	22541	200	200.00	5357.97	5364.83	5360.77	5364.90	0.000074	2.20	124.18	38.71	0.16
Main	22541	250	250.00	5357.97	5365.43	5361.15	5365.51	0.000078	2.42	152.86	50.73	0.17

HEC-RAS Plan: Existing_Cap River: Ditch Reach: Main (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Main	22541	300	300.00	5357.97	5365.90	5361.50	5365.98	0.000083	2.62	176.59	50.73	0.18
Main	22541	350	350.00	5357.97	5366.12	5361.93	5366.23	0.000099	2.92	187.87	50.73	0.19
Main	22541	400	400.00	5357.97	5366.37	5362.18	5366.50	0.000111	3.17	200.82	50.73	0.21
Main	22541	450	450.00	5357.97	5366.71	5362.41	5366.84	0.000116	3.34	217.71	50.73	0.21
Main	22541	500	500.00	5357.97	5366.77	5362.61	5366.94	0.000139	3.67	220.93	50.73	0.23
Main	22541	50	50.00	5357.97	5359.83	5359.21	5360.02	0.000973	3.43	14.56	9.77	0.50
Main	22516	77	77.00	5358.00	5360.35	5359.62	5360.62	0.001179	4.20	18.35	9.70	0.54
Main	22516	100	100.00	5358.00	5361.23	5359.85	5361.44	0.000648	3.62	27.64	12.55	0.41
Main	22516	150	150.00	5358.00	5363.07	5360.44	5363.18	0.000193	2.78	68.03	28.65	0.24
Main	22516	200	200.00	5358.00	5364.82	5360.88	5364.90	0.000085	2.34	134.18	53.20	0.17
Main	22516	250	250.00	5358.00	5365.43	5361.27	5365.50	0.000085	2.50	166.21	53.20	0.17
Main	22516	300	300.00	5358.00	5365.90	5361.78	5365.98	0.000089	2.68	191.18	53.20	0.18
Main	22516	350	350.00	5358.00	5366.12	5362.08	5366.22	0.000105	2.97	203.02	53.20	0.20
Main	22516	400	400.00	5358.00	5366.37	5362.36	5366.49	0.000117	3.21	216.66	53.20	0.21
Main	22516	450	450.00	5358.00	5366.71	5362.60	5366.84	0.000122	3.37	234.43	53.20	0.21
Main	22516	500	500.00	5358.00	5366.77	5362.82	5366.93	0.000145	3.70	237.83	53.20	0.23
Main	22516	50	50.00	5358.00	5359.73	5359.23	5359.97	0.001425	3.96	12.64	8.70	0.58
Main	22473		Bridge									
Main	22411	77	77.00	5357.91	5360.31	5359.14	5360.39	0.000297	2.30	33.52	21.50	0.30
Main	22411	100	100.00	5357.91	5360.98	5359.35	5361.05	0.000196	2.17	46.00	24.96	0.25
Main	22411	150	150.00	5357.91	5363.05	5359.69	5363.08	0.000044	1.49	135.48	48.76	0.13
Main	22411	200	200.00	5357.91	5364.84	5360.00	5364.86	0.000018	1.22	267.26	76.96	0.09
Main	22411	250	250.00	5357.91	5365.44	5360.28	5365.46	0.000019	1.34	313.59	76.96	0.09
Main	22411	300	300.00	5357.91	5365.91	5360.53	5365.94	0.000021	1.46	349.81	76.96	0.10
Main	22411	350	350.00	5357.91	5366.14	5360.75	5366.17	0.000025	1.63	367.25	76.96	0.11
Main	22411	400	400.00	5357.91	5366.40	5360.99	5366.43	0.000029	1.77	387.17	76.96	0.11
Main	22411	450	450.00	5357.91	5366.73	5361.16	5366.77	0.000030	1.88	412.98	76.96	0.12
Main	22411	500	500.00	5357.91	5366.80	5361.38	5366.85	0.000036	2.07	418.21	76.96	0.13
Main	22411	50	50.00	5357.91	5359.70	5358.90	5359.78	0.000386	2.18	22.94	16.69	0.33
Main	22269	77	77.00	5357.40	5360.30	5358.64	5360.35	0.000156	1.86	41.39	20.14	0.22
Main	22269	100	100.00	5357.40	5360.97	5358.83	5361.02	0.000117	1.84	55.20	33.74	0.20
Main	22269	150	150.00	5357.40	5363.05	5359.20	5363.07	0.000032	1.39	143.14	49.87	0.11
Main	22269	200	200.00	5357.40	5364.84	5359.53	5364.85	0.000016	1.22	256.16	66.39	0.08
Main	22269	250	250.00	5357.40	5365.44	5359.81	5365.46	0.000017	1.35	296.06	66.39	0.09
Main	22269	300	300.00	5357.40	5365.91	5360.08	5365.93	0.000020	1.49	327.22	66.39	0.09
Main	22269	350	350.00	5357.40	5366.13	5360.32	5366.16	0.000024	1.67	342.10	66.39	0.11
Main	22269	400	400.00	5357.40	5366.39	5360.55	5366.43	0.000027	1.83	359.15	66.39	0.11
Main	22269	450	450.00	5357.40	5366.72	5360.72	5366.77	0.000029	1.96	381.32	66.39	0.12
Main	22269	500	500.00	5357.40	5366.79	5360.98	5366.84	0.000035	2.15	385.66	66.39	0.13
Main	22269	50	50.00	5357.40	5359.69	5358.41	5359.73	0.000162	1.64	30.46	17.27	0.22
Main	22165	77	77.00	5358.02	5360.25	5359.11	5360.33	0.000283	2.18	35.27	20.20	0.29
Main	22165	100	100.00	5358.02	5360.95	5359.28	5361.00	0.000171	1.94	59.25	53.73	0.23
Main	22165	150	150.00	5358.02	5363.05	5359.63	5363.07	0.000027	1.21	182.61	66.27	0.10
Main	22165	200	200.00	5358.02	5364.84	5359.93	5364.85	0.000012	1.02	317.56	79.58	0.07
Main	22165	250	250.00	5358.02	5365.44	5360.19	5365.46	0.000013	1.13	365.44	79.58	0.08
Main	22165	300	300.00	5358.02	5365.91	5360.43	5365.93	0.000014	1.24	402.89	79.58	0.08

HEC-RAS Plan: Existing_Cap River: Ditch Reach: Main (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Main	22165	350	350.00	5358.02	5366.14	5360.66	5366.16	0.000017	1.39	420.81	79.58	0.09
Main	22165	400	400.00	5358.02	5366.39	5361.06	5366.42	0.000019	1.52	441.32	79.58	0.10
Main	22165	450	450.00	5358.02	5366.73	5361.22	5366.76	0.000021	1.62	468.02	79.58	0.10
Main	22165	500	500.00	5358.02	5366.80	5361.33	5366.83	0.000025	1.78	473.38	79.58	0.11
Main	22165	50	50.00	5358.02	5359.63	5358.87	5359.70	0.000393	2.14	23.41	17.93	0.33
Main	22106	77	77.00	5357.61	5360.25	5358.85	5360.31	0.000202	2.00	38.47	19.21	0.25
Main	22106	100	100.00	5357.61	5360.94	5359.04	5360.99	0.000140	1.91	52.35	53.40	0.21
Main	22106	150	150.00	5357.61	5363.05	5359.37	5363.07	0.000025	1.19	195.45	69.20	0.10
Main	22106	200	200.00	5357.61	5364.84	5359.70	5364.85	0.000011	1.00	346.92	98.47	0.07
Main	22106	250	250.00	5357.61	5365.44	5359.97	5365.45	0.000012	1.09	406.21	98.47	0.07
Main	22106	300	300.00	5357.61	5365.91	5360.17	5365.93	0.000013	1.19	452.56	98.47	0.08
Main	22106	350	350.00	5357.61	5366.14	5360.46	5366.16	0.000016	1.33	474.77	98.47	0.09
Main	22106	400	400.00	5357.61	5366.40	5360.66	5366.42	0.000018	1.45	500.25	98.47	0.09
Main	22106	450	450.00	5357.61	5366.73	5360.83	5366.76	0.000019	1.54	533.33	98.47	0.09
Main	22106	500	500.00	5357.61	5366.80	5361.34	5366.83	0.000022	1.69	539.97	98.47	0.10
Main	22106	50	50.00	5357.61	5359.62	5358.58	5359.68	0.000241	1.85	27.02	17.58	0.26
Main	22050		Bridge									
Main	21990	77	77.00	5357.45	5360.08	5358.96	5360.24	0.000540	3.13	24.59	11.73	0.38
Main	21990	100	100.00	5357.45	5360.78	5359.21	5360.92	0.000396	3.03	33.04	12.89	0.33
Main	21990	150	150.00	5357.45	5363.01	5359.67	5363.05	0.000060	1.71	155.15	77.98	0.14
Main	21990	200	200.00	5357.45	5364.83	5360.09	5364.84	0.000020	1.24	322.74	93.59	0.09
Main	21990	250	250.00	5357.45	5365.43	5360.45	5365.45	0.000021	1.33	379.04	93.59	0.09
Main	21990	300	300.00	5357.45	5365.90	5360.77	5365.92	0.000022	1.43	423.05	93.59	0.09
Main	21990	350	350.00	5357.45	5366.12	5361.07	5366.15	0.000026	1.59	443.98	93.59	0.10
Main	21990	400	400.00	5357.45	5366.38	5361.37	5366.41	0.000029	1.72	468.01	93.59	0.11
Main	21990	450	450.00	5357.45	5366.72	5361.94	5366.74	0.000031	1.82	499.36	93.59	0.11
Main	21990	500	500.00	5357.45	5366.78	5362.12	5366.81	0.000037	1.99	505.35	93.59	0.12
Main	21990	50	50.00	5357.45	5359.49	5358.63	5359.61	0.000571	2.80	17.87	10.87	0.38
Main	21880	77	77.00	5357.25	5360.07	5358.61	5360.17	0.000315	2.54	30.29	21.80	0.30
Main	21880	100	100.00	5357.25	5360.76	5358.86	5360.86	0.000245	2.49	40.22	33.19	0.27
Main	21880	150	150.00	5357.25	5363.01	5359.30	5363.04	0.000043	1.51	156.84	76.70	0.12
Main	21880	200	200.00	5357.25	5364.83	5359.67	5364.84	0.000018	1.20	305.25	83.00	0.08
Main	21880	250	250.00	5357.25	5365.43	5360.03	5365.44	0.000019	1.31	355.10	83.00	0.09
Main	21880	300	300.00	5357.25	5365.89	5360.32	5365.91	0.000021	1.43	394.00	83.00	0.09
Main	21880	350	350.00	5357.25	5366.12	5360.65	5366.14	0.000025	1.60	412.40	83.00	0.10
Main	21880	400	400.00	5357.25	5366.37	5360.92	5366.40	0.000028	1.74	433.60	83.00	0.11
Main	21880	450	450.00	5357.25	5366.71	5361.34	5366.74	0.000030	1.85	461.32	83.00	0.11
Main	21880	500	500.00	5357.25	5366.77	5361.50	5366.81	0.000036	2.03	466.43	83.00	0.12
Main	21880	50	50.00	5357.25	5359.47	5358.33	5359.54	0.000307	2.21	22.58	12.39	0.29
Main	21838	77	77.00	5357.06	5360.08	5358.28	5360.15	0.000172	2.02	38.05	15.02	0.22
Main	21838	100	100.00	5357.06	5360.78	5358.50	5360.84	0.000143	2.05	48.85	26.93	0.21
Main	21838	150	150.00	5357.06	5363.00	5358.90	5363.03	0.000042	1.52	132.58	60.84	0.12
Main	21838	200	200.00	5357.06	5364.82	5359.26	5364.84	0.000021	1.30	243.00	60.84	0.09
Main	21838	250	250.00	5357.06	5365.42	5359.56	5365.44	0.000023	1.44	279.42	60.84	0.09
Main	21838	300	300.00	5357.06	5365.88	5359.86	5365.91	0.000025	1.59	307.79	60.84	0.10
Main	21838	350	350.00	5357.06	5366.10	5360.13	5366.14	0.000031	1.79	321.10	60.84	0.11

HEC-RAS Plan: Existing_Cap River: Ditch Reach: Main (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Main	21838	400	400.00	5357.06	5366.35	5360.36	5366.40	0.000036	1.96	336.43	60.84	0.12
Main	21838	450	450.00	5357.06	5366.68	5360.64	5366.73	0.000039	2.09	356.54	60.84	0.13
Main	21838	500	500.00	5357.06	5366.74	5360.88	5366.80	0.000046	2.31	360.04	60.84	0.14
Main	21838	50	50.00	5357.06	5359.48	5358.02	5359.52	0.000155	1.71	29.24	14.22	0.21
Main	21780		Bridge									
Main	21717	77	77.00	5357.48	5359.98	5358.78	5360.10	0.000406	2.74	28.08	13.55	0.34
Main	21717	100	100.00	5357.48	5360.65	5359.01	5360.76	0.000303	2.66	37.65	28.69	0.30
Main	21717	150	150.00	5357.48	5362.97	5359.43	5363.00	0.000043	1.47	171.54	76.56	0.12
Main	21717	200	200.00	5357.48	5364.81	5359.80	5364.83	0.000017	1.16	312.62	76.56	0.08
Main	21717	250	250.00	5357.48	5365.41	5360.14	5365.43	0.000018	1.27	358.38	76.56	0.08
Main	21717	300	300.00	5357.48	5365.88	5360.45	5365.89	0.000020	1.39	394.08	76.56	0.09
Main	21717	350	350.00	5357.48	5366.09	5360.74	5366.12	0.000024	1.56	410.72	76.56	0.10
Main	21717	400	400.00	5357.48	5366.34	5361.01	5366.37	0.000027	1.70	429.93	76.56	0.11
Main	21717	450	450.00	5357.48	5366.67	5361.45	5366.71	0.000030	1.82	455.20	76.56	0.11
Main	21717	500	500.00	5357.48	5366.73	5361.61	5366.77	0.000035	2.00	459.46	76.56	0.12
Main	21717	50	50.00	5357.48	5359.39	5358.48	5359.48	0.000443	2.46	20.29	12.63	0.34
Main	21620	77	77.00	5357.10	5359.92	5358.56	5360.05	0.000442	2.91	26.47	11.78	0.34
Main	21620	100	100.00	5357.10	5360.60	5358.83	5360.73	0.000353	2.87	34.81	20.33	0.31
Main	21620	150	150.00	5357.10	5362.94	5359.32	5362.98	0.000068	1.86	121.16	54.21	0.15
Main	21620	200	200.00	5357.10	5364.79	5359.74	5364.82	0.000029	1.52	221.74	54.21	0.10
Main	21620	250	250.00	5357.10	5365.39	5360.10	5365.42	0.000032	1.69	253.93	54.21	0.11
Main	21620	300	300.00	5357.10	5365.85	5360.47	5365.89	0.000036	1.86	278.94	54.21	0.12
Main	21620	350	350.00	5357.10	5366.06	5360.77	5366.11	0.000043	2.09	290.35	54.21	0.13
Main	21620	400	400.00	5357.10	5366.30	5361.25	5366.36	0.000050	2.29	303.59	54.21	0.14
Main	21620	450	450.00	5357.10	5366.63	5361.42	5366.69	0.000054	2.45	321.19	54.21	0.15
Main	21620	500	500.00	5357.10	5366.67	5361.61	5366.75	0.000066	2.70	323.65	54.21	0.16
Main	21620	50	50.00	5357.10	5359.34	5358.23	5359.44	0.000411	2.51	19.92	10.76	0.33
Main	21542		Bridge									
Main	21463	77	77.00	5356.99	5359.88	5358.40	5359.98	0.000292	2.48	31.06	15.69	0.29
Main	21463	100	100.00	5356.99	5360.39	5358.63	5360.49	0.000273	2.62	38.18	27.59	0.28
Main	21463	150	150.00	5356.99	5362.89	5359.07	5362.92	0.000039	1.54	159.57	52.73	0.12
Main	21463	200	200.00	5356.99	5364.78	5359.44	5364.80	0.000019	1.32	259.52	52.73	0.09
Main	21463	250	250.00	5356.99	5365.38	5359.80	5365.40	0.000021	1.49	290.75	52.73	0.09
Main	21463	300	300.00	5356.99	5365.83	5360.07	5365.86	0.000025	1.66	314.98	52.73	0.10
Main	21463	350	350.00	5356.99	5366.04	5360.40	5366.08	0.000030	1.87	325.92	52.73	0.11
Main	21463	400	400.00	5356.99	5366.28	5360.86	5366.33	0.000036	2.07	338.62	52.73	0.12
Main	21463	450	450.00	5356.99	5366.61	5361.15	5366.66	0.000039	2.22	355.63	52.73	0.13
Main	21463	500	500.00	5356.99	5366.65	5361.37	5366.71	0.000048	2.45	357.77	52.73	0.14
Main	21463	50	50.00	5356.99	5359.30	5358.08	5359.37	0.000274	2.13	23.44	12.59	0.28
Main	21389	77	77.00	5357.14	5359.86	5358.47	5359.96	0.000292	2.45	31.46	14.24	0.29
Main	21389	100	100.00	5357.14	5360.37	5358.68	5360.47	0.000269	2.57	38.86	17.22	0.28
Main	21389	150	150.00	5357.14	5362.88	5359.11	5362.91	0.000046	1.60	137.34	46.37	0.13
Main	21389	200	200.00	5357.14	5364.78	5359.47	5364.80	0.000022	1.38	225.34	46.37	0.09
Main	21389	250	250.00	5357.14	5365.37	5359.79	5365.40	0.000025	1.56	252.76	46.37	0.10
Main	21389	300	300.00	5357.14	5365.82	5360.10	5365.86	0.000029	1.74	273.98	46.37	0.11

HEC-RAS Plan: Existing_Cap River: Ditch Reach: Main (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Main	21389	350	350.00	5357.14	5366.03	5360.35	5366.07	0.000036	1.97	283.47	46.37	0.12
Main	21389	400	400.00	5357.14	5366.27	5360.62	5366.32	0.000042	2.17	294.49	46.37	0.13
Main	21389	450	450.00	5357.14	5366.59	5360.87	5366.65	0.000046	2.33	309.32	46.37	0.14
Main	21389	500	500.00	5357.14	5366.62	5361.14	5366.70	0.000056	2.58	311.02	46.37	0.15
Main	21389	50	50.00	5357.14	5359.28	5358.16	5359.35	0.000289	2.13	23.43	13.33	0.28
Main	21347	77	77.00	5357.00	5359.84	5358.44	5359.94	0.000328	2.58	29.79	13.43	0.31
Main	21347	100	100.00	5357.00	5360.34	5358.67	5360.46	0.000307	2.71	36.85	21.62	0.30
Main	21347	150	150.00	5357.00	5362.88	5359.11	5362.91	0.000042	1.52	155.77	52.72	0.12
Main	21347	200	200.00	5357.00	5364.78	5359.50	5364.80	0.000020	1.29	255.86	52.72	0.09
Main	21347	250	250.00	5357.00	5365.37	5359.85	5365.39	0.000022	1.45	287.06	52.72	0.09
Main	21347	300	300.00	5357.00	5365.83	5360.16	5365.86	0.000025	1.61	311.23	52.72	0.10
Main	21347	350	350.00	5357.00	5366.03	5360.46	5366.07	0.000031	1.82	322.07	52.72	0.11
Main	21347	400	400.00	5357.00	5366.27	5361.02	5366.32	0.000036	2.01	334.68	52.72	0.12
Main	21347	450	450.00	5357.00	5366.59	5361.32	5366.64	0.000040	2.16	351.59	52.72	0.13
Main	21347	500	500.00	5357.00	5366.63	5361.50	5366.69	0.000049	2.39	353.65	52.72	0.14
Main	21347	50	50.00	5357.00	5359.26	5358.12	5359.34	0.000312	2.24	22.36	12.35	0.29
Main	21265		Bridge									
Main	21186	77	77.00	5356.85	5359.67	5358.54	5359.85	0.000614	3.35	22.97	10.50	0.40
Main	21186	100	100.00	5356.85	5360.18	5358.81	5360.37	0.000591	3.50	28.58	12.89	0.40
Main	21186	150	150.00	5356.85	5362.55	5359.30	5362.60	0.000083	1.95	119.47	44.83	0.16
Main	21186	200	200.00	5356.85	5364.24	5359.76	5364.27	0.000040	1.67	195.14	44.83	0.12
Main	21186	250	250.00	5356.85	5364.69	5360.18	5364.73	0.000047	1.91	215.10	44.83	0.13
Main	21186	300	300.00	5356.85	5364.99	5360.54	5365.05	0.000057	2.17	228.87	44.83	0.15
Main	21186	350	350.00	5356.85	5365.35	5361.16	5365.41	0.000064	2.38	244.70	44.83	0.16
Main	21186	400	400.00	5356.85	5365.75	5361.38	5365.82	0.000068	2.55	262.60	44.83	0.16
Main	21186	450	450.00	5356.85	5366.18	5361.58	5366.26	0.000070	2.68	282.19	44.83	0.17
Main	21186	500	500.00	5356.85	5365.95	5361.75	5366.05	0.000097	3.08	271.60	44.83	0.19
Main	21186	50	50.00	5356.85	5359.13	5358.18	5359.26	0.000563	2.87	17.44	9.76	0.38
Main	21132	77	77.00	5356.91	5359.32	5358.95	5359.73	0.001964	5.08	15.15	9.50	0.71
Main	21132	100	100.00	5356.91	5359.94	5359.22	5360.28	0.001287	4.64	21.54	15.19	0.59
Main	21132	150	150.00	5356.91	5362.54	5359.75	5362.59	0.000098	2.17	112.98	46.02	0.18
Main	21132	200	200.00	5356.91	5364.23	5360.23	5364.27	0.000044	1.81	191.13	46.02	0.13
Main	21132	250	250.00	5356.91	5364.68	5360.57	5364.72	0.000051	2.06	211.58	46.02	0.14
Main	21132	300	300.00	5356.91	5364.98	5361.08	5365.04	0.000062	2.33	225.64	46.02	0.16
Main	21132	350	350.00	5356.91	5365.34	5361.34	5365.40	0.000069	2.55	241.82	46.02	0.17
Main	21132	400	400.00	5356.91	5365.73	5361.54	5365.81	0.000073	2.73	260.16	46.02	0.18
Main	21132	450	450.00	5356.91	5366.17	5361.79	5366.26	0.000075	2.86	280.27	46.02	0.18
Main	21132	500	500.00	5356.91	5365.93	5361.98	5366.04	0.000104	3.30	269.15	46.02	0.21
Main	21132	50	50.00	5356.91	5358.68	5358.55	5359.11	0.002983	5.26	9.51	7.95	0.85
Main	21098	77	77.00	5356.50	5359.50	5357.99	5359.61	0.000379	2.75	28.00	11.77	0.31
Main	21098	100	100.00	5356.50	5360.07	5358.23	5360.20	0.000328	2.86	35.11	20.66	0.30
Main	21098	150	150.00	5356.50	5362.54	5358.71	5362.59	0.000059	1.84	127.00	44.17	0.14
Main	21098	200	200.00	5356.50	5364.24	5359.16	5364.27	0.000033	1.65	201.78	44.17	0.11
Main	21098	250	250.00	5356.50	5364.68	5359.54	5364.72	0.000040	1.90	221.40	44.17	0.12
Main	21098	300	300.00	5356.50	5364.99	5359.89	5365.04	0.000049	2.16	234.88	44.17	0.14
Main	21098	350	350.00	5356.50	5365.34	5360.20	5365.40	0.000056	2.38	250.41	44.17	0.15

HEC-RAS Plan: Existing_Cap River: Ditch Reach: Main (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Main	21098	400	400.00	5356.50	5365.74	5360.46	5365.81	0.000061	2.55	268.01	44.17	0.15
Main	21098	450	450.00	5356.50	5366.17	5360.94	5366.25	0.000063	2.70	287.31	44.17	0.16
Main	21098	500	500.00	5356.50	5365.93	5361.07	5366.04	0.000087	3.10	276.66	44.17	0.19
Main	21098	50	50.00	5356.50	5358.89	5357.65	5358.97	0.000341	2.36	21.20	10.57	0.29
Main	21090		Bridge									
Main	21074	77	77.00	5356.50	5359.49	5358.04	5359.60	0.000328	2.62	29.39	12.56	0.30
Main	21074	100	100.00	5356.50	5360.07	5358.28	5360.18	0.000292	2.71	36.84	13.37	0.29
Main	21074	150	150.00	5356.50	5362.53	5358.74	5362.58	0.000062	1.86	113.98	42.03	0.15
Main	21074	200	200.00	5356.50	5364.22	5359.13	5364.26	0.000034	1.67	185.09	42.03	0.11
Main	21074	250	250.00	5356.50	5364.66	5359.47	5364.71	0.000041	1.92	203.56	42.03	0.13
Main	21074	300	300.00	5356.50	5364.96	5359.81	5365.02	0.000051	2.18	216.16	42.03	0.14
Main	21074	350	350.00	5356.50	5365.31	5360.09	5365.38	0.000058	2.40	230.73	42.03	0.15
Main	21074	400	400.00	5356.50	5365.70	5360.36	5365.78	0.000063	2.58	247.29	42.03	0.16
Main	21074	450	450.00	5356.50	5366.14	5360.66	5366.23	0.000065	2.73	265.49	42.03	0.16
Main	21074	500	500.00	5356.50	5365.88	5361.11	5366.00	0.000090	3.14	254.82	42.03	0.19
Main	21074	50	50.00	5356.50	5358.88	5357.70	5358.96	0.000318	2.28	21.96	11.74	0.29
Main	21049	77	77.00	5356.47	5359.42	5358.18	5359.58	0.000522	3.16	24.39	10.95	0.37
Main	21049	100	100.00	5356.47	5360.00	5358.45	5360.16	0.000455	3.23	30.94	15.88	0.35
Main	21049	150	150.00	5356.47	5362.54	5358.94	5362.57	0.000061	1.80	149.15	70.77	0.14
Main	21049	200	200.00	5356.47	5364.23	5359.38	5364.25	0.000026	1.43	269.10	70.77	0.10
Main	21049	250	250.00	5356.47	5364.67	5359.76	5364.70	0.000030	1.60	300.44	70.77	0.11
Main	21049	300	300.00	5356.47	5364.98	5360.13	5365.01	0.000036	1.80	321.86	70.77	0.12
Main	21049	350	350.00	5356.47	5365.33	5360.75	5365.36	0.000040	1.96	346.64	70.77	0.12
Main	21049	400	400.00	5356.47	5365.72	5361.01	5365.76	0.000042	2.07	374.73	70.77	0.13
Main	21049	450	450.00	5356.47	5366.16	5361.25	5366.20	0.000043	2.16	405.59	70.77	0.13
Main	21049	500	500.00	5356.47	5365.91	5361.54	5365.97	0.000060	2.50	388.14	70.77	0.15
Main	21049	50	50.00	5356.47	5358.82	5357.85	5358.94	0.000511	2.76	18.11	10.12	0.36
Main	20989		Bridge									
Main	20931	77	77.00	5356.84	5359.39	5358.13	5359.50	0.000342	2.59	29.71	13.86	0.31
Main	20931	100	100.00	5356.84	5359.95	5358.35	5360.06	0.000291	2.66	37.60	14.44	0.29
Main	20931	150	150.00	5356.84	5362.41	5358.76	5362.45	0.000057	1.67	131.03	56.17	0.14
Main	20931	200	200.00	5356.84	5364.21	5359.12	5364.23	0.000025	1.38	232.15	56.17	0.10
Main	20931	250	250.00	5356.84	5364.65	5359.40	5364.68	0.000030	1.57	256.83	56.17	0.11
Main	20931	300	300.00	5356.84	5364.95	5359.72	5364.98	0.000036	1.78	273.56	56.17	0.12
Main	20931	350	350.00	5356.84	5365.29	5359.98	5365.34	0.000041	1.96	292.95	56.17	0.13
Main	20931	400	400.00	5356.84	5365.69	5360.26	5365.73	0.000043	2.09	315.03	56.17	0.13
Main	20931	450	450.00	5356.84	5366.12	5360.50	5366.17	0.000044	2.20	339.36	56.17	0.13
Main	20931	500	500.00	5356.84	5365.86	5360.84	5365.93	0.000062	2.54	324.63	56.17	0.16
Main	20931	50	50.00	5356.84	5358.79	5357.86	5358.87	0.000378	2.33	21.49	13.22	0.32
Main	20840	77	77.00	5356.62	5359.25	5358.27	5359.43	0.000688	3.42	22.51	11.67	0.43
Main	20840	100	100.00	5356.62	5359.83	5358.53	5360.01	0.000543	3.38	29.58	12.81	0.39
Main	20840	150	150.00	5356.62	5362.41	5359.02	5362.44	0.000055	1.71	149.29	58.86	0.14
Main	20840	200	200.00	5356.62	5364.21	5359.44	5364.23	0.000024	1.39	255.40	58.86	0.10
Main	20840	250	250.00	5356.62	5364.65	5359.80	5364.67	0.000028	1.59	281.24	58.86	0.11
Main	20840	300	300.00	5356.62	5364.95	5360.15	5364.98	0.000034	1.80	298.74	58.86	0.12

HEC-RAS Plan: Existing_Cap River: Ditch Reach: Main (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Main	20840	350	350.00	5356.62	5365.29	5360.58	5365.33	0.000039	1.97	319.09	58.86	0.13
Main	20840	400	400.00	5356.62	5365.68	5361.03	5365.73	0.000041	2.11	342.22	58.86	0.13
Main	20840	450	450.00	5356.62	5366.12	5361.23	5366.17	0.000043	2.22	367.72	58.86	0.13
Main	20840	500	500.00	5356.62	5365.85	5361.35	5365.92	0.000060	2.57	352.25	58.86	0.16
Main	20840	50	50.00	5356.62	5358.65	5357.90	5358.80	0.000781	3.16	15.83	10.41	0.45
Main	20820	77	77.00	5356.29	5359.28	5357.90	5359.41	0.000412	2.87	26.85	11.98	0.34
Main	20820	100	100.00	5356.29	5359.85	5358.17	5359.98	0.000362	2.94	33.98	17.30	0.32
Main	20820	150	150.00	5356.29	5362.41	5358.64	5362.44	0.000045	1.56	162.28	58.63	0.12
Main	20820	200	200.00	5356.29	5364.21	5359.09	5364.23	0.000021	1.31	267.86	58.63	0.09
Main	20820	250	250.00	5356.29	5364.65	5359.44	5364.67	0.000025	1.51	293.60	58.63	0.10
Main	20820	300	300.00	5356.29	5364.95	5359.79	5364.98	0.000031	1.71	311.09	58.63	0.11
Main	20820	350	350.00	5356.29	5365.29	5360.11	5365.33	0.000035	1.88	331.33	58.63	0.12
Main	20820	400	400.00	5356.29	5365.69	5360.39	5365.73	0.000038	2.02	354.37	58.63	0.12
Main	20820	450	450.00	5356.29	5366.12	5360.67	5366.16	0.000039	2.13	379.79	58.63	0.13
Main	20820	500	500.00	5356.29	5365.86	5361.18	5365.92	0.000055	2.46	364.42	58.63	0.15
Main	20820	50	50.00	5356.29	5358.68	5357.56	5358.77	0.000400	2.51	19.94	10.94	0.33
Main	20778	77	77.00	5356.14	5359.30	5357.54	5359.38	0.000234	2.31	33.29	13.21	0.26
Main	20778	100	100.00	5356.14	5359.87	5357.77	5359.96	0.000220	2.43	41.09	19.97	0.25
Main	20778	150	150.00	5356.14	5362.41	5358.24	5362.43	0.000035	1.41	171.33	57.22	0.11
Main	20778	200	200.00	5356.14	5364.21	5358.64	5364.23	0.000018	1.22	274.28	57.22	0.08
Main	20778	250	250.00	5356.14	5364.65	5359.00	5364.67	0.000021	1.41	299.40	57.22	0.09
Main	20778	300	300.00	5356.14	5364.95	5359.31	5364.97	0.000026	1.60	316.44	57.22	0.10
Main	20778	350	350.00	5356.14	5365.29	5359.62	5365.33	0.000030	1.77	336.23	57.22	0.11
Main	20778	400	400.00	5356.14	5365.69	5359.90	5365.72	0.000033	1.90	358.72	57.22	0.12
Main	20778	450	450.00	5356.14	5366.12	5360.60	5366.16	0.000034	2.01	383.53	57.22	0.12
Main	20778	500	500.00	5356.14	5365.86	5360.84	5365.91	0.000047	2.32	368.50	57.22	0.14
Main	20778	50	50.00	5356.14	5358.69	5357.23	5358.75	0.000208	1.96	25.56	12.28	0.24
Main	20765		Bridge									
Main	20755	77	77.00	5356.27	5359.24	5357.73	5359.35	0.000342	2.68	28.76	11.91	0.30
Main	20755	100	100.00	5356.27	5359.80	5357.97	5359.92	0.000317	2.81	35.63	12.65	0.29
Main	20755	150	150.00	5356.27	5362.36	5358.45	5362.39	0.000052	1.66	141.85	48.50	0.13
Main	20755	200	200.00	5356.27	5364.20	5358.86	5364.22	0.000026	1.43	230.96	48.50	0.10
Main	20755	250	250.00	5356.27	5364.63	5359.23	5364.66	0.000031	1.64	252.13	48.50	0.11
Main	20755	300	300.00	5356.27	5364.93	5359.54	5364.97	0.000039	1.87	266.46	48.50	0.12
Main	20755	350	350.00	5356.27	5365.27	5359.87	5365.32	0.000045	2.07	283.08	48.50	0.13
Main	20755	400	400.00	5356.27	5365.66	5360.17	5365.72	0.000048	2.22	302.03	48.50	0.14
Main	20755	450	450.00	5356.27	5366.09	5360.90	5366.15	0.000051	2.35	322.87	48.50	0.14
Main	20755	500	500.00	5356.27	5365.82	5361.07	5365.90	0.000070	2.71	309.75	48.50	0.16
Main	20755	50	50.00	5356.27	5358.65	5357.39	5358.73	0.000308	2.27	22.01	11.14	0.28
Main	20751	77	77.00	5356.26	5359.21	5357.79	5359.34	0.000399	2.89	26.64	11.36	0.33
Main	20751	100	100.00	5356.26	5359.77	5358.07	5359.91	0.000352	3.04	33.14	12.00	0.32
Main	20751	150	150.00	5356.26	5362.33	5358.57	5362.39	0.000071	2.06	106.63	35.68	0.16
Main	20751	200	200.00	5356.26	5364.17	5358.98	5364.21	0.000038	1.85	172.37	35.68	0.12
Main	20751	250	250.00	5356.26	5364.60	5359.34	5364.66	0.000048	2.14	187.63	35.68	0.14
Main	20751	300	300.00	5356.26	5364.88	5359.69	5364.96	0.000060	2.46	197.77	35.68	0.15
Main	20751	350	350.00	5356.26	5365.22	5360.02	5365.31	0.000070	2.73	209.61	35.68	0.17

HEC-RAS Plan: Existing_Cap River: Ditch Reach: Main (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Main	20751	400	400.00	5356.26	5365.60	5360.31	5365.70	0.000077	2.95	223.20	35.68	0.18
Main	20751	450	450.00	5356.26	5366.02	5360.54	5366.13	0.000081	3.13	238.24	35.68	0.18
Main	20751	500	500.00	5356.26	5365.72	5361.03	5365.88	0.000114	3.62	227.66	35.68	0.22
Main	20751	50	50.00	5356.26	5358.63	5357.45	5358.73	0.000379	2.47	20.25	10.61	0.31
Main	20653		Bridge									
Main	20318	77	77.00	5356.39	5358.93	5357.96	5359.11	0.000663	3.36	22.93	11.81	0.42
Main	20318	100	100.00	5356.39	5359.43	5358.20	5359.62	0.000581	3.43	29.17	13.06	0.40
Main	20318	150	150.00	5356.39	5362.26	5358.69	5362.29	0.000041	1.46	176.46	65.34	0.12
Main	20318	200	200.00	5356.39	5364.15	5359.11	5364.17	0.000017	1.18	299.99	65.34	0.08
Main	20318	250	250.00	5356.39	5364.58	5359.47	5364.60	0.000021	1.35	327.88	65.34	0.09
Main	20318	300	300.00	5356.39	5364.86	5359.81	5364.89	0.000025	1.54	346.32	65.34	0.10
Main	20318	350	350.00	5356.39	5365.20	5360.11	5365.22	0.000029	1.70	367.98	65.34	0.11
Main	20318	400	400.00	5356.39	5365.58	5360.73	5365.61	0.000031	1.82	392.93	65.34	0.11
Main	20318	450	450.00	5356.39	5366.00	5360.92	5366.04	0.000032	1.92	420.56	65.34	0.12
Main	20318	500	500.00	5356.39	5365.69	5361.07	5365.74	0.000046	2.24	400.59	65.34	0.14
Main	20318	50	50.00	5356.39	5358.34	5357.62	5358.49	0.000733	3.06	16.33	10.68	0.44
Main	20161	77	77.00	5356.02	5358.91	5357.39	5359.00	0.000272	2.39	32.20	23.37	0.28
Main	20161	100	100.00	5356.02	5359.42	5357.61	5359.52	0.000260	2.52	39.68	34.60	0.28
Main	20161	150	150.00	5356.02	5362.26	5358.05	5362.28	0.000026	1.24	190.98	55.58	0.10
Main	20161	200	200.00	5356.02	5364.15	5358.44	5364.17	0.000013	1.10	296.06	55.58	0.07
Main	20161	250	250.00	5356.02	5364.58	5358.76	5364.60	0.000017	1.28	319.76	55.58	0.08
Main	20161	300	300.00	5356.02	5364.86	5359.08	5364.88	0.000021	1.47	335.36	55.58	0.09
Main	20161	350	350.00	5356.02	5365.19	5359.37	5365.22	0.000024	1.64	353.71	55.58	0.10
Main	20161	400	400.00	5356.02	5365.57	5359.67	5365.60	0.000027	1.77	374.85	55.58	0.11
Main	20161	450	450.00	5356.02	5365.99	5360.01	5366.03	0.000028	1.89	398.29	55.58	0.11
Main	20161	500	500.00	5356.02	5365.68	5360.20	5365.73	0.000040	2.18	381.14	55.58	0.13
Main	20161	50	50.00	5356.02	5358.32	5357.10	5358.39	0.000259	2.07	24.16	13.04	0.27
Main	20150		Bridge									
Main	20142	77	77.00	5355.99	5358.89	5357.41	5358.99	0.000301	2.51	30.72	13.23	0.29
Main	20142	100	100.00	5355.99	5359.39	5357.63	5359.50	0.000294	2.65	37.70	23.10	0.29
Main	20142	150	150.00	5355.99	5362.22	5358.06	5362.25	0.000042	1.56	129.35	33.90	0.12
Main	20142	200	200.00	5355.99	5364.13	5358.45	5364.16	0.000024	1.45	194.06	33.90	0.10
Main	20142	250	250.00	5355.99	5364.55	5358.80	5364.59	0.000030	1.70	208.24	33.90	0.11
Main	20142	300	300.00	5355.99	5364.82	5359.15	5364.87	0.000038	1.96	217.41	33.90	0.12
Main	20142	350	350.00	5355.99	5365.14	5359.45	5365.20	0.000045	2.19	228.34	33.90	0.14
Main	20142	400	400.00	5355.99	5365.51	5359.74	5365.59	0.000050	2.39	240.95	33.90	0.15
Main	20142	450	450.00	5355.99	5365.93	5360.08	5366.01	0.000054	2.55	255.04	33.90	0.15
Main	20142	500	500.00	5355.99	5365.59	5360.32	5365.71	0.000076	2.95	243.73	33.90	0.18
Main	20142	50	50.00	5355.99	5358.31	5357.08	5358.38	0.000278	2.15	23.31	12.26	0.27
Main	20128	77	77.00	5355.96	5358.89	5357.40	5358.98	0.000294	2.50	30.81	14.98	0.29
Main	20128	100	100.00	5355.96	5359.39	5357.62	5359.50	0.000285	2.67	37.47	23.13	0.28
Main	20128	150	150.00	5355.96	5362.22	5358.04	5362.25	0.000044	1.63	126.89	31.71	0.12
Main	20128	200	200.00	5355.96	5364.13	5358.44	5364.16	0.000026	1.53	187.42	31.71	0.10
Main	20128	250	250.00	5355.96	5364.54	5358.76	5364.58	0.000033	1.80	200.64	31.71	0.11
Main	20128	300	300.00	5355.96	5364.81	5359.09	5364.87	0.000043	2.07	209.17	31.71	0.13

HEC-RAS Plan: Existing_Cap River: Ditch Reach: Main (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Main	20128	350	350.00	5355.96	5365.13	5359.39	5365.20	0.000050	2.32	219.35	31.71	0.14
Main	20128	400	400.00	5355.96	5365.50	5359.67	5365.58	0.000057	2.53	231.10	31.71	0.15
Main	20128	450	450.00	5355.96	5365.92	5360.09	5366.01	0.000061	2.70	244.23	31.71	0.16
Main	20128	500	500.00	5355.96	5365.58	5360.31	5365.70	0.000086	3.13	233.53	31.71	0.19
Main	20128	50	50.00	5355.96	5358.30	5357.10	5358.38	0.000274	2.13	23.43	12.29	0.27
Main	19958		Bridge									
Main	19644	77	77.00	5356.14	5358.45	5357.79	5358.69	0.001061	3.95	19.52	15.59	0.53
Main	19644	100	100.00	5356.14	5359.04	5358.03	5359.25	0.000783	3.70	27.04	27.26	0.47
Main	19644	150	150.00	5356.14	5362.10	5358.53	5362.12	0.000034	1.44	178.18	53.73	0.11
Main	19644	200	200.00	5356.14	5364.09	5358.94	5364.11	0.000016	1.24	285.09	53.73	0.08
Main	19644	250	250.00	5356.14	5364.50	5359.39	5364.52	0.000020	1.44	307.20	53.73	0.09
Main	19644	300	300.00	5356.14	5364.76	5359.61	5364.79	0.000026	1.66	321.19	53.73	0.11
Main	19644	350	350.00	5356.14	5365.08	5359.88	5365.11	0.000030	1.84	338.19	53.73	0.12
Main	19644	400	400.00	5356.14	5365.45	5360.15	5365.49	0.000033	2.00	357.97	53.73	0.12
Main	19644	450	450.00	5356.14	5365.86	5360.32	5365.91	0.000035	2.13	380.24	53.73	0.13
Main	19644	500	500.00	5356.14	5365.50	5360.46	5365.56	0.000051	2.48	360.62	53.73	0.15
Main	19644	50	50.00	5356.14	5357.81	5357.43	5358.06	0.001538	3.96	12.63	10.07	0.62
Main	19623	77	77.00	5355.90	5358.47	5357.46	5358.64	0.000606	3.24	23.78	12.14	0.41
Main	19623	100	100.00	5355.90	5359.06	5357.70	5359.21	0.000480	3.20	31.29	17.67	0.37
Main	19623	150	150.00	5355.90	5362.10	5358.16	5362.12	0.000028	1.33	205.45	64.66	0.10
Main	19623	200	200.00	5355.90	5364.09	5358.56	5364.10	0.000013	1.11	334.11	64.66	0.07
Main	19623	250	250.00	5355.90	5364.50	5358.94	5364.52	0.000016	1.29	360.79	64.66	0.08
Main	19623	300	300.00	5355.90	5364.77	5359.59	5364.79	0.000020	1.48	377.64	64.66	0.09
Main	19623	350	350.00	5355.90	5365.08	5359.86	5365.11	0.000024	1.65	398.17	64.66	0.10
Main	19623	400	400.00	5355.90	5365.45	5360.06	5365.48	0.000026	1.78	422.04	64.66	0.11
Main	19623	450	450.00	5355.90	5365.87	5360.30	5365.90	0.000028	1.89	448.90	64.66	0.11
Main	19623	500	500.00	5355.90	5365.50	5360.45	5365.55	0.000040	2.21	425.41	64.66	0.13
Main	19623	50	50.00	5355.90	5357.84	5357.15	5357.98	0.000731	3.04	16.47	10.99	0.44
Main	19551		Bridge									
Main	19472	77	77.00	5355.27	5358.40	5356.55	5358.48	0.000209	2.20	35.05	13.60	0.24
Main	19472	100	100.00	5355.27	5358.96	5356.79	5359.05	0.000197	2.33	43.03	31.09	0.24
Main	19472	150	150.00	5355.27	5361.75	5357.23	5361.77	0.000026	1.30	192.43	57.83	0.10
Main	19472	200	200.00	5355.27	5363.46	5357.60	5363.47	0.000015	1.19	290.95	57.83	0.08
Main	19472	250	250.00	5355.27	5364.05	5357.97	5364.07	0.000018	1.34	325.03	57.83	0.08
Main	19472	300	300.00	5355.27	5364.36	5358.26	5364.38	0.000022	1.53	343.07	57.83	0.09
Main	19472	350	350.00	5355.27	5364.77	5358.62	5364.80	0.000025	1.67	366.99	57.83	0.10
Main	19472	400	400.00	5355.27	5365.21	5358.87	5365.25	0.000027	1.80	392.40	57.83	0.10
Main	19472	450	450.00	5355.27	5365.68	5359.43	5365.72	0.000028	1.90	419.45	57.83	0.11
Main	19472	500	500.00	5355.27	5365.03	5359.64	5365.08	0.000045	2.30	381.67	57.83	0.14
Main	19472	50	50.00	5355.27	5357.80	5356.25	5357.85	0.000179	1.84	27.18	12.54	0.22
Main	19457	77	77.00	5355.47	5358.38	5356.88	5358.47	0.000276	2.42	31.83	13.53	0.28
Main	19457	100	100.00	5355.47	5358.94	5357.09	5359.04	0.000249	2.52	39.64	27.54	0.27
Main	19457	150	150.00	5355.47	5361.75	5357.53	5361.77	0.000027	1.31	197.50	61.07	0.10
Main	19457	200	200.00	5355.47	5363.46	5357.89	5363.47	0.000015	1.18	301.57	61.07	0.08
Main	19457	250	250.00	5355.47	5364.05	5358.21	5364.07	0.000017	1.32	337.53	61.07	0.08

HEC-RAS Plan: Existing_Cap River: Ditch Reach: Main (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Main	19457	300	300.00	5355.47	5364.36	5358.54	5364.38	0.000021	1.50	356.62	61.07	0.09
Main	19457	350	350.00	5355.47	5364.77	5358.81	5364.80	0.000024	1.64	381.90	61.07	0.10
Main	19457	400	400.00	5355.47	5365.21	5359.10	5365.24	0.000026	1.76	408.74	61.07	0.10
Main	19457	450	450.00	5355.47	5365.68	5359.73	5365.71	0.000027	1.86	437.31	61.07	0.11
Main	19457	500	500.00	5355.47	5365.03	5359.92	5365.08	0.000044	2.26	397.44	61.07	0.13
Main	19457	50	50.00	5355.47	5357.77	5356.59	5357.84	0.000268	2.09	23.88	12.76	0.27
Main	19455		Bridge									
Main	19449	77	77.00	5355.49	5358.37	5356.93	5358.47	0.000285	2.45	31.43	13.88	0.29
Main	19449	100	100.00	5355.49	5358.94	5357.15	5359.04	0.000251	2.53	39.51	31.70	0.27
Main	19449	150	150.00	5355.49	5361.74	5357.57	5361.76	0.000025	1.23	210.43	66.25	0.09
Main	19449	200	200.00	5355.49	5363.46	5357.93	5363.47	0.000014	1.09	324.13	66.25	0.07
Main	19449	250	250.00	5355.49	5364.05	5358.28	5364.06	0.000015	1.22	363.28	66.25	0.08
Main	19449	300	300.00	5355.49	5364.36	5358.58	5364.38	0.000019	1.39	384.01	66.25	0.09
Main	19449	350	350.00	5355.49	5364.77	5358.85	5364.80	0.000021	1.52	411.38	66.25	0.09
Main	19449	400	400.00	5355.49	5365.21	5359.09	5365.24	0.000022	1.63	440.46	66.25	0.10
Main	19449	450	450.00	5355.49	5365.68	5359.65	5365.71	0.000023	1.72	471.42	66.25	0.10
Main	19449	500	500.00	5355.49	5365.03	5359.86	5365.07	0.000038	2.09	428.23	66.25	0.13
Main	19449	50	50.00	5355.49	5357.77	5356.60	5357.84	0.000286	2.15	23.30	12.96	0.28
Main	19421	77	77.00	5355.55	5358.37	5356.83	5358.45	0.000249	2.29	33.56	14.19	0.26
Main	19421	100	100.00	5355.55	5358.93	5357.05	5359.02	0.000221	2.39	41.79	15.25	0.25
Main	19421	150	150.00	5355.55	5361.72	5357.45	5361.75	0.000038	1.55	136.46	38.83	0.12
Main	19421	200	200.00	5355.55	5363.44	5357.79	5363.47	0.000024	1.47	203.14	38.83	0.10
Main	19421	250	250.00	5355.55	5364.02	5358.13	5364.06	0.000028	1.67	225.84	38.83	0.10
Main	19421	300	300.00	5355.55	5364.33	5358.44	5364.37	0.000035	1.91	237.65	38.83	0.12
Main	19421	350	350.00	5355.55	5364.73	5358.72	5364.79	0.000039	2.11	253.37	38.83	0.13
Main	19421	400	400.00	5355.55	5365.16	5358.97	5365.23	0.000043	2.28	270.15	38.83	0.13
Main	19421	450	450.00	5355.55	5365.62	5359.22	5365.70	0.000045	2.42	288.05	38.83	0.14
Main	19421	500	500.00	5355.55	5364.95	5359.63	5365.05	0.000073	2.93	261.69	38.83	0.17
Main	19421	50	50.00	5355.55	5357.76	5356.56	5357.83	0.000244	1.99	25.19	13.44	0.26
Main	19357		Bridge									
Main	19268	77	77.00	5355.32	5358.26	5356.94	5358.38	0.000387	2.77	27.82	12.91	0.33
Main	19268	100	100.00	5355.32	5358.82	5357.18	5358.95	0.000333	2.82	35.44	46.47	0.31
Main	19268	150	150.00	5355.32	5361.45	5357.65	5361.46	0.000025	1.20	238.00	81.78	0.09
Main	19268	200	200.00	5355.32	5362.91	5358.04	5362.92	0.000014	1.08	357.76	81.78	0.07
Main	19268	250	250.00	5355.32	5363.37	5358.40	5363.38	0.000017	1.22	394.77	81.78	0.08
Main	19268	300	300.00	5355.32	5363.40	5358.73	5363.42	0.000023	1.46	397.97	81.78	0.10
Main	19268	350	350.00	5355.32	5363.57	5359.01	5363.59	0.000029	1.64	411.15	81.78	0.11
Main	19268	400	400.00	5355.32	5363.72	5359.42	5363.75	0.000034	1.82	424.04	81.78	0.12
Main	19268	450	450.00	5355.32	5363.88	5359.56	5363.91	0.000040	1.99	436.78	81.78	0.13
Main	19268	500	500.00	5355.32	5364.03	5359.79	5364.07	0.000045	2.15	449.20	81.78	0.14
Main	19268	50	50.00	5355.32	5357.67	5356.58	5357.76	0.000383	2.43	20.57	11.78	0.32
Main	19201	77	77.00	5355.50	5358.25	5356.87	5358.34	0.000278	2.39	32.18	20.87	0.29
Main	19201	100	100.00	5355.50	5358.83	5357.08	5358.91	0.000215	2.36	50.46	38.22	0.26
Main	19201	150	150.00	5355.50	5361.44	5357.47	5361.46	0.000023	1.22	226.13	74.79	0.09
Main	19201	200	200.00	5355.50	5362.91	5357.83	5362.92	0.000014	1.12	335.68	74.79	0.08

HEC-RAS Plan: Existing_Cap River: Ditch Reach: Main (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Main	19201	250	250.00	5355.50	5363.36	5358.13	5363.38	0.000017	1.28	369.46	74.79	0.08
Main	19201	300	300.00	5355.50	5363.40	5358.45	5363.42	0.000023	1.52	372.27	74.79	0.10
Main	19201	350	350.00	5355.50	5363.56	5358.92	5363.59	0.000029	1.72	384.18	74.79	0.11
Main	19201	400	400.00	5355.50	5363.71	5359.13	5363.75	0.000035	1.91	395.86	74.79	0.12
Main	19201	450	450.00	5355.50	5363.87	5359.32	5363.91	0.000041	2.09	407.33	74.79	0.13
Main	19201	500	500.00	5355.50	5364.02	5359.49	5364.07	0.000046	2.26	418.54	74.79	0.14
Main	19201	50	50.00	5355.50	5357.66	5356.57	5357.73	0.000285	2.11	23.74	13.81	0.28
Main	19165	77	77.00	5355.64	5358.18	5357.06	5358.32	0.000509	3.04	25.32	12.33	0.37
Main	19165	100	100.00	5355.64	5358.75	5357.30	5358.89	0.000420	3.07	32.60	44.55	0.34
Main	19165	150	150.00	5355.64	5361.45	5357.76	5361.46	0.000027	1.18	233.05	82.18	0.10
Main	19165	200	200.00	5355.64	5362.91	5358.14	5362.92	0.000015	1.05	353.47	82.18	0.07
Main	19165	250	250.00	5355.64	5363.36	5358.49	5363.38	0.000017	1.19	390.59	82.18	0.08
Main	19165	300	300.00	5355.64	5363.40	5358.83	5363.42	0.000024	1.42	393.72	82.18	0.10
Main	19165	350	350.00	5355.64	5363.56	5359.19	5363.58	0.000030	1.60	406.88	82.18	0.11
Main	19165	400	400.00	5355.64	5363.72	5359.45	5363.75	0.000035	1.77	419.72	82.18	0.12
Main	19165	450	450.00	5355.64	5363.87	5359.59	5363.90	0.000041	1.94	432.44	82.18	0.13
Main	19165	500	500.00	5355.64	5364.02	5359.74	5364.06	0.000047	2.09	444.84	82.18	0.14
Main	19165	50	50.00	5355.64	5357.60	5356.72	5357.71	0.000539	2.72	18.40	11.42	0.38
Main	19076	77	77.00	5355.16	5358.17	5356.67	5358.27	0.000314	2.55	30.22	13.21	0.30
Main	19076	100	100.00	5355.16	5358.75	5356.91	5358.85	0.000258	2.57	46.17	48.72	0.27
Main	19076	150	150.00	5355.16	5361.44	5357.36	5361.46	0.000024	1.22	238.47	98.98	0.09
Main	19076	200	200.00	5355.16	5362.91	5357.77	5362.92	0.000013	1.05	383.75	98.98	0.07
Main	19076	250	250.00	5355.16	5363.36	5358.12	5363.37	0.000015	1.18	428.55	98.98	0.08
Main	19076	300	300.00	5355.16	5363.40	5358.46	5363.42	0.000021	1.40	432.27	98.98	0.09
Main	19076	350	350.00	5355.16	5363.56	5359.12	5363.58	0.000026	1.58	448.07	98.98	0.10
Main	19076	400	400.00	5355.16	5363.72	5359.32	5363.74	0.000031	1.74	463.54	98.98	0.11
Main	19076	450	450.00	5355.16	5363.87	5359.47	5363.90	0.000036	1.90	478.86	98.98	0.12
Main	19076	500	500.00	5355.16	5364.02	5359.62	5364.06	0.000041	2.04	493.79	98.98	0.13
Main	19076	50	50.00	5355.16	5357.59	5356.33	5357.66	0.000291	2.19	22.82	12.11	0.28
Main	19053	77	77.00	5355.50	5358.11	5356.91	5358.26	0.000512	3.08	25.04	13.95	0.36
Main	19053	100	100.00	5355.50	5358.68	5357.13	5358.84	0.000444	3.16	31.69	31.53	0.34
Main	19053	150	150.00	5355.50	5361.44	5357.63	5361.46	0.000028	1.24	243.71	96.01	0.09
Main	19053	200	200.00	5355.50	5362.91	5358.04	5362.92	0.000015	1.05	384.68	96.01	0.07
Main	19053	250	250.00	5355.50	5363.36	5358.42	5363.37	0.000017	1.18	428.14	96.01	0.08
Main	19053	300	300.00	5355.50	5363.40	5358.76	5363.42	0.000023	1.40	431.75	96.01	0.09
Main	19053	350	350.00	5355.50	5363.56	5359.39	5363.58	0.000029	1.58	447.08	96.01	0.10
Main	19053	400	400.00	5355.50	5363.72	5359.56	5363.74	0.000034	1.75	462.08	96.01	0.11
Main	19053	450	450.00	5355.50	5363.87	5359.71	5363.90	0.000040	1.90	476.99	96.01	0.12
Main	19053	500	500.00	5355.50	5364.02	5359.83	5364.05	0.000045	2.05	491.42	96.01	0.13
Main	19053	50	50.00	5355.50	5357.54	5356.56	5357.65	0.000494	2.66	18.77	10.61	0.35
Main	18997		Bridge									
Main	18948	77	77.00	5355.65	5358.10	5356.88	5358.17	0.000259	2.17	35.48	19.06	0.28
Main	18948	100	100.00	5355.65	5358.68	5357.05	5358.75	0.000196	2.12	47.19	21.16	0.25
Main	18948	150	150.00	5355.65	5361.19	5357.41	5361.20	0.000020	1.06	237.78	98.26	0.09
Main	18948	200	200.00	5355.65	5362.56	5357.71	5362.57	0.000011	0.94	372.36	98.26	0.07
Main	18948	250	250.00	5355.65	5363.23	5357.98	5363.24	0.000011	1.01	438.37	98.26	0.07

HEC-RAS Plan: Existing_Cap River: Ditch Reach: Main (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Main	18948	300	300.00	5355.65	5363.18	5358.24	5363.19	0.000016	1.23	433.43	98.26	0.09
Main	18948	350	350.00	5355.65	5363.34	5358.45	5363.36	0.000020	1.38	448.79	98.26	0.10
Main	18948	400	400.00	5355.65	5363.49	5358.71	5363.52	0.000024	1.53	464.24	98.26	0.10
Main	18948	450	450.00	5355.65	5363.65	5358.90	5363.68	0.000027	1.67	479.97	98.26	0.11
Main	18948	500	500.00	5355.65	5363.81	5359.38	5363.84	0.000031	1.80	495.37	98.26	0.12
Main	18948	50	50.00	5355.65	5357.51	5356.63	5357.58	0.000309	2.01	24.86	17.31	0.30
Main	18872	77	77.00	5355.55	5358.06	5356.93	5358.15	0.000328	2.34	32.91	19.40	0.31
Main	18872	100	100.00	5355.55	5358.66	5357.12	5358.73	0.000206	2.23	47.50	32.25	0.26
Main	18872	150	150.00	5355.55	5361.18	5357.49	5361.20	0.000022	1.20	211.85	79.69	0.10
Main	18872	200	200.00	5355.55	5362.55	5357.83	5362.57	0.000013	1.11	321.11	79.69	0.08
Main	18872	250	250.00	5355.55	5363.22	5358.11	5363.24	0.000014	1.20	374.54	79.69	0.08
Main	18872	300	300.00	5355.55	5363.17	5358.36	5363.19	0.000020	1.46	370.26	79.69	0.10
Main	18872	350	350.00	5355.55	5363.32	5358.61	5363.35	0.000025	1.65	382.48	79.69	0.11
Main	18872	400	400.00	5355.55	5363.48	5358.91	5363.51	0.000030	1.83	394.77	79.69	0.12
Main	18872	450	450.00	5355.55	5363.63	5359.14	5363.68	0.000035	2.00	407.30	79.69	0.13
Main	18872	500	500.00	5355.55	5363.79	5359.32	5363.84	0.000040	2.16	419.52	79.69	0.14
Main	18872	50	50.00	5355.55	5357.47	5356.64	5357.55	0.000411	2.24	22.30	16.46	0.34
Main	18846	77	77.00	5355.46	5358.04	5356.87	5358.14	0.000357	2.51	30.63	16.65	0.33
Main	18846	100	100.00	5355.46	5358.64	5357.08	5358.73	0.000252	2.43	41.31	27.85	0.28
Main	18846	150	150.00	5355.46	5361.17	5357.44	5361.20	0.000030	1.39	169.07	60.38	0.11
Main	18846	200	200.00	5355.46	5362.54	5357.81	5362.56	0.000019	1.31	251.85	60.38	0.09
Main	18846	250	250.00	5355.46	5363.21	5358.15	5363.24	0.000020	1.44	292.24	60.38	0.10
Main	18846	300	300.00	5355.46	5363.15	5358.39	5363.19	0.000030	1.74	288.73	60.38	0.12
Main	18846	350	350.00	5355.46	5363.30	5358.64	5363.35	0.000038	1.98	297.76	60.38	0.13
Main	18846	400	400.00	5355.46	5363.45	5359.02	5363.51	0.000045	2.20	306.81	60.38	0.15
Main	18846	450	450.00	5355.46	5363.61	5359.21	5363.67	0.000053	2.41	316.01	60.38	0.16
Main	18846	500	500.00	5355.46	5363.75	5359.41	5363.83	0.000060	2.61	324.97	60.38	0.17
Main	18846	50	50.00	5355.46	5357.45	5356.57	5357.53	0.000411	2.33	21.44	14.67	0.34
Main	18817		Bridge									
Main	18797	77	77.00	5355.37	5357.86	5357.03	5358.06	0.000822	3.61	21.32	11.66	0.47
Main	18797	100	100.00	5355.37	5358.46	5357.27	5358.65	0.000605	3.49	28.66	12.83	0.41
Main	18797	150	150.00	5355.37	5360.85	5357.75	5360.89	0.000074	1.88	132.67	62.91	0.16
Main	18797	200	200.00	5355.37	5361.96	5358.17	5362.00	0.000046	1.74	202.77	62.91	0.13
Main	18797	250	250.00	5355.37	5362.38	5358.52	5362.42	0.000053	1.94	228.91	62.91	0.14
Main	18797	300	300.00	5355.37	5362.88	5358.84	5362.92	0.000054	2.07	260.40	62.91	0.14
Main	18797	350	350.00	5355.37	5362.87	5359.48	5362.93	0.000073	2.42	259.69	62.91	0.17
Main	18797	400	400.00	5355.37	5363.05	5359.73	5363.12	0.000085	2.66	271.09	62.91	0.18
Main	18797	450	450.00	5355.37	5363.22	5359.93	5363.31	0.000097	2.88	282.02	62.91	0.20
Main	18797	500	500.00	5355.37	5363.40	5360.10	5363.50	0.000107	3.08	293.17	62.91	0.21
Main	18797	50	50.00	5355.37	5357.31	5356.68	5357.47	0.000912	3.29	15.20	10.59	0.48
Main	18732	77	77.00	5355.12	5357.85	5356.65	5357.99	0.000472	2.96	25.99	12.48	0.36
Main	18732	100	100.00	5355.12	5358.45	5356.88	5358.59	0.000393	2.94	34.06	35.28	0.34
Main	18732	150	150.00	5355.12	5360.85	5357.35	5360.88	0.000044	1.52	165.00	64.68	0.13
Main	18732	200	200.00	5355.12	5361.97	5357.76	5361.99	0.000031	1.47	236.98	64.68	0.11
Main	18732	250	250.00	5355.12	5362.38	5358.13	5362.41	0.000036	1.66	263.89	64.68	0.12
Main	18732	300	300.00	5355.12	5362.88	5358.46	5362.91	0.000037	1.79	296.23	64.68	0.12

HEC-RAS Plan: Existing_Cap River: Ditch Reach: Main (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Main	18732	350	350.00	5355.12	5362.87	5358.98	5362.92	0.000051	2.09	295.56	64.68	0.14
Main	18732	400	400.00	5355.12	5363.05	5359.17	5363.11	0.000060	2.30	307.31	64.68	0.16
Main	18732	450	450.00	5355.12	5363.23	5359.34	5363.29	0.000068	2.50	318.59	64.68	0.17
Main	18732	500	500.00	5355.12	5363.41	5359.50	5363.48	0.000076	2.69	330.08	64.68	0.18
Main	18732	50	50.00	5355.12	5357.30	5356.30	5357.40	0.000447	2.57	19.47	11.34	0.35
Main	18712	77	77.00	5354.99	5357.81	5356.69	5357.97	0.000570	3.22	23.92	11.57	0.39
Main	18712	100	100.00	5354.99	5358.42	5356.95	5358.57	0.000467	3.19	31.36	16.59	0.36
Main	18712	150	150.00	5354.99	5360.84	5357.45	5360.88	0.000059	1.76	137.69	50.51	0.14
Main	18712	200	200.00	5354.99	5361.95	5357.87	5361.99	0.000042	1.73	193.90	50.51	0.13
Main	18712	250	250.00	5354.99	5362.37	5358.26	5362.41	0.000050	1.97	214.72	50.51	0.14
Main	18712	300	300.00	5354.99	5362.86	5358.60	5362.91	0.000053	2.13	239.85	50.51	0.15
Main	18712	350	350.00	5354.99	5362.85	5359.15	5362.91	0.000073	2.49	238.99	50.51	0.17
Main	18712	400	400.00	5354.99	5363.02	5359.39	5363.10	0.000086	2.75	247.84	50.51	0.19
Main	18712	450	450.00	5354.99	5363.19	5359.63	5363.29	0.000099	3.00	256.32	50.51	0.20
Main	18712	500	500.00	5354.99	5363.36	5359.81	5363.47	0.000111	3.24	264.98	50.51	0.21
Main	18712	50	50.00	5354.99	5357.27	5356.31	5357.39	0.000538	2.79	17.92	10.51	0.38
Main	18615		Bridge									
Main	18506	77	77.00	5354.86	5357.68	5356.57	5357.85	0.000612	3.34	23.08	14.21	0.40
Main	18506	100	100.00	5354.86	5358.30	5356.86	5358.47	0.000490	3.31	30.24	32.70	0.37
Main	18506	150	150.00	5354.86	5360.73	5357.35	5360.76	0.000056	1.60	159.57	58.63	0.13
Main	18506	200	200.00	5354.86	5361.85	5357.77	5361.88	0.000039	1.54	225.15	58.63	0.11
Main	18506	250	250.00	5354.86	5362.27	5358.16	5362.30	0.000046	1.74	249.40	58.63	0.13
Main	18506	300	300.00	5354.86	5362.78	5358.50	5362.81	0.000047	1.88	279.49	58.63	0.13
Main	18506	350	350.00	5354.86	5362.73	5358.84	5362.77	0.000067	2.21	276.31	58.63	0.15
Main	18506	400	400.00	5354.86	5362.89	5359.12	5362.95	0.000079	2.45	285.76	58.63	0.17
Main	18506	450	450.00	5354.86	5363.04	5359.42	5363.11	0.000091	2.67	294.83	58.63	0.18
Main	18506	500	500.00	5354.86	5363.20	5359.65	5363.28	0.000103	2.88	304.34	58.63	0.19
Main	18506	50	50.00	5354.86	5357.15	5356.21	5357.28	0.000562	2.85	17.53	10.17	0.38
Main	18423	77	77.00	5354.84	5357.65	5356.37	5357.79	0.000453	2.96	26.02	16.26	0.35
Main	18423	100	100.00	5354.84	5358.29	5356.61	5358.42	0.000370	2.97	33.70	43.63	0.32
Main	18423	150	150.00	5354.84	5360.73	5357.07	5360.75	0.000035	1.40	207.13	86.29	0.11
Main	18423	200	200.00	5354.84	5361.85	5357.51	5361.87	0.000024	1.31	303.79	86.29	0.09
Main	18423	250	250.00	5354.84	5362.27	5357.87	5362.29	0.000027	1.47	339.56	86.29	0.10
Main	18423	300	300.00	5354.84	5362.78	5358.20	5362.80	0.000028	1.57	383.93	86.29	0.10
Main	18423	350	350.00	5354.84	5362.73	5358.54	5362.76	0.000039	1.85	379.38	86.29	0.12
Main	18423	400	400.00	5354.84	5362.89	5358.94	5362.93	0.000046	2.04	393.41	86.29	0.13
Main	18423	450	450.00	5354.84	5363.05	5359.10	5363.09	0.000053	2.22	406.93	86.29	0.14
Main	18423	500	500.00	5354.84	5363.21	5359.23	5363.26	0.000060	2.38	421.09	86.29	0.15
Main	18423	50	50.00	5354.84	5357.13	5356.02	5357.22	0.000396	2.49	20.11	10.87	0.32
Main	18360	77	77.00	5354.89	5357.63	5356.38	5357.76	0.000442	2.91	26.49	12.38	0.35
Main	18360	100	100.00	5354.89	5358.27	5356.61	5358.40	0.000344	2.87	35.02	16.37	0.31
Main	18360	150	150.00	5354.89	5360.73	5357.10	5360.75	0.000038	1.46	198.76	83.82	0.12
Main	18360	200	200.00	5354.89	5361.85	5357.50	5361.87	0.000025	1.35	292.85	83.82	0.10
Main	18360	250	250.00	5354.89	5362.27	5357.86	5362.29	0.000028	1.51	327.56	83.82	0.10
Main	18360	300	300.00	5354.89	5362.78	5358.16	5362.80	0.000029	1.60	370.65	83.82	0.11
Main	18360	350	350.00	5354.89	5362.73	5358.52	5362.76	0.000041	1.89	366.07	83.82	0.13

HEC-RAS Plan: Existing_Cap River: Ditch Reach: Main (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Main	18360	400	400.00	5354.89	5362.89	5359.25	5362.92	0.000048	2.08	379.62	83.82	0.14
Main	18360	450	450.00	5354.89	5363.04	5359.48	5363.09	0.000055	2.26	392.67	83.82	0.15
Main	18360	500	500.00	5354.89	5363.21	5359.63	5363.26	0.000062	2.43	406.30	83.82	0.16
Main	18360	50	50.00	5354.89	5357.10	5356.03	5357.20	0.000399	2.47	20.24	11.45	0.33
Main	18319	77	77.00	5354.89	5357.60	5356.40	5357.74	0.000475	2.99	25.72	11.90	0.36
Main	18319	100	100.00	5354.89	5358.24	5356.62	5358.38	0.000376	2.97	33.67	12.81	0.32
Main	18319	150	150.00	5354.89	5360.69	5357.10	5360.75	0.000075	1.95	114.97	58.01	0.16
Main	18319	200	200.00	5354.89	5361.82	5357.51	5361.86	0.000050	1.84	180.43	58.01	0.13
Main	18319	250	250.00	5354.89	5362.23	5357.83	5362.28	0.000058	2.07	204.11	58.01	0.14
Main	18319	300	300.00	5354.89	5362.74	5358.20	5362.80	0.000060	2.21	233.74	58.01	0.15
Main	18319	350	350.00	5354.89	5362.67	5358.51	5362.75	0.000085	2.61	229.69	58.01	0.18
Main	18319	400	400.00	5354.89	5362.82	5358.80	5362.92	0.000101	2.89	238.38	58.01	0.19
Main	18319	450	450.00	5354.89	5362.97	5359.09	5363.08	0.000117	3.15	246.71	58.01	0.21
Main	18319	500	500.00	5354.89	5363.12	5359.41	5363.25	0.000131	3.39	255.49	58.01	0.22
Main	18319	50	50.00	5354.89	5357.08	5356.06	5357.18	0.000429	2.54	19.72	11.17	0.34
Main	18273		Bridge									
Main	18216	77	77.00	5355.39	5357.57	5356.54	5357.67	0.000383	2.49	30.92	18.05	0.34
Main	18216	100	100.00	5355.39	5358.21	5356.74	5358.30	0.000247	2.32	43.08	19.77	0.28
Main	18216	150	150.00	5355.39	5360.36	5357.11	5360.39	0.000052	1.57	116.95	58.00	0.14
Main	18216	200	200.00	5355.39	5361.17	5357.42	5361.21	0.000044	1.63	169.23	60.87	0.13
Main	18216	250	250.00	5355.39	5361.45	5357.67	5361.50	0.000055	1.89	186.11	60.87	0.15
Main	18216	300	300.00	5355.39	5361.75	5357.95	5361.81	0.000063	2.10	204.53	60.87	0.16
Main	18216	350	350.00	5355.39	5362.12	5358.16	5362.18	0.000066	2.25	226.62	60.87	0.17
Main	18216	400	400.00	5355.39	5362.29	5358.41	5362.37	0.000076	2.48	237.17	60.87	0.18
Main	18216	450	450.00	5355.39	5362.49	5358.61	5362.58	0.000085	2.67	249.27	60.87	0.19
Main	18216	500	500.00	5355.39	5362.69	5358.80	5362.79	0.000092	2.85	261.36	60.87	0.20
Main	18216	50	50.00	5355.39	5357.04	5356.30	5357.12	0.000461	2.31	21.68	16.55	0.36
Main	18202	77	77.00	5355.27	5357.57	5356.51	5357.66	0.000344	2.41	31.92	17.88	0.32
Main	18202	100	100.00	5355.27	5358.21	5356.69	5358.29	0.000228	2.28	43.92	19.42	0.27
Main	18202	150	150.00	5355.27	5360.36	5357.04	5360.39	0.000045	1.52	137.54	63.77	0.13
Main	18202	200	200.00	5355.27	5361.18	5357.34	5361.21	0.000038	1.58	192.36	67.58	0.12
Main	18202	250	250.00	5355.27	5361.45	5357.63	5361.50	0.000048	1.83	211.13	67.58	0.14
Main	18202	300	300.00	5355.27	5361.76	5357.89	5361.81	0.000055	2.03	231.66	67.58	0.15
Main	18202	350	350.00	5355.27	5362.12	5358.12	5362.18	0.000058	2.18	256.17	67.58	0.16
Main	18202	400	400.00	5355.27	5362.29	5358.35	5362.36	0.000067	2.39	267.95	67.58	0.17
Main	18202	450	450.00	5355.27	5362.49	5358.54	5362.57	0.000075	2.58	281.42	67.58	0.18
Main	18202	500	500.00	5355.27	5362.69	5358.75	5362.78	0.000081	2.75	294.95	67.58	0.19
Main	18202	50	50.00	5355.27	5357.04	5356.25	5357.11	0.000399	2.20	22.72	16.61	0.33
Main	18190		Bridge									
Main	18176	77	77.00	5355.18	5357.56	5356.35	5357.64	0.000275	2.21	34.81	18.87	0.29
Main	18176	100	100.00	5355.18	5358.20	5356.54	5358.27	0.000190	2.10	47.56	20.90	0.25
Main	18176	150	150.00	5355.18	5360.31	5356.91	5360.34	0.000044	1.51	122.21	52.88	0.13
Main	18176	200	200.00	5355.18	5361.13	5357.19	5361.16	0.000039	1.61	165.30	52.88	0.13
Main	18176	250	250.00	5355.18	5361.40	5357.46	5361.44	0.000050	1.88	179.53	52.88	0.14
Main	18176	300	300.00	5355.18	5361.70	5357.71	5361.76	0.000058	2.11	195.46	52.88	0.16

HEC-RAS Plan: Existing_Cap River: Ditch Reach: Main (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Main	18176	350	350.00	5355.18	5362.06	5357.97	5362.13	0.000062	2.27	214.75	52.88	0.16
Main	18176	400	400.00	5355.18	5362.23	5358.19	5362.31	0.000073	2.51	223.53	52.88	0.18
Main	18176	450	450.00	5355.18	5362.42	5358.38	5362.52	0.000082	2.72	233.70	52.88	0.19
Main	18176	500	500.00	5355.18	5362.62	5358.57	5362.73	0.000091	2.91	244.08	52.88	0.20
Main	18176	50	50.00	5355.18	5357.03	5356.12	5357.09	0.000296	1.98	25.24	17.25	0.29
Main	18093	77	77.00	5355.28	5357.54	5356.36	5357.61	0.000247	2.07	37.12	27.60	0.27
Main	18093	100	100.00	5355.28	5358.19	5356.53	5358.25	0.000158	1.95	51.36	47.18	0.23
Main	18093	150	150.00	5355.28	5360.32	5356.87	5360.33	0.000023	1.15	216.77	83.10	0.10
Main	18093	200	200.00	5355.28	5361.13	5357.16	5361.15	0.000020	1.21	284.61	83.10	0.09
Main	18093	250	250.00	5355.28	5361.41	5357.41	5361.43	0.000025	1.40	307.22	83.10	0.11
Main	18093	300	300.00	5355.28	5361.71	5357.65	5361.74	0.000029	1.56	332.49	83.10	0.11
Main	18093	350	350.00	5355.28	5362.08	5357.85	5362.11	0.000031	1.68	362.97	83.10	0.12
Main	18093	400	400.00	5355.28	5362.25	5358.06	5362.28	0.000037	1.85	377.09	83.10	0.13
Main	18093	450	450.00	5355.28	5362.44	5358.23	5362.49	0.000041	2.00	393.40	83.10	0.14
Main	18093	500	500.00	5355.28	5362.64	5358.41	5362.69	0.000045	2.14	410.00	83.10	0.15
Main	18093	50	50.00	5355.28	5357.01	5356.13	5357.06	0.000286	1.89	26.39	19.20	0.28
Main	17998	77	77.00	5355.39	5357.52	5356.44	5357.59	0.000270	2.10	36.65	41.95	0.28
Main	17998	100	100.00	5355.39	5358.18	5356.61	5358.24	0.000166	1.94	51.59	49.25	0.23
Main	17998	150	150.00	5355.39	5360.32	5356.90	5360.33	0.000024	1.12	198.61	81.95	0.10
Main	17998	200	200.00	5355.39	5361.13	5357.19	5361.15	0.000021	1.18	265.51	81.95	0.09
Main	17998	250	250.00	5355.39	5361.40	5357.44	5361.43	0.000026	1.38	287.72	81.95	0.11
Main	17998	300	300.00	5355.39	5361.71	5357.66	5361.73	0.000030	1.53	312.61	81.95	0.11
Main	17998	350	350.00	5355.39	5362.07	5357.86	5362.10	0.000032	1.65	342.66	81.95	0.12
Main	17998	400	400.00	5355.39	5362.24	5358.06	5362.28	0.000038	1.82	356.51	81.95	0.13
Main	17998	450	450.00	5355.39	5362.44	5358.26	5362.48	0.000042	1.96	372.55	81.95	0.14
Main	17998	500	500.00	5355.39	5362.64	5358.45	5362.69	0.000046	2.10	388.88	81.95	0.15
Main	17998	50	50.00	5355.39	5356.97	5356.21	5357.03	0.000344	1.97	25.34	19.99	0.31
Main	17958	77	77.00	5355.40	5357.47	5356.65	5357.57	0.000471	2.55	30.16	31.05	0.37
Main	17958	100	100.00	5355.40	5358.15	5356.82	5358.23	0.000250	2.23	44.91	49.83	0.28
Main	17958	150	150.00	5355.40	5360.31	5357.15	5360.33	0.000027	1.13	195.99	73.32	0.10
Main	17958	200	200.00	5355.40	5361.13	5357.44	5361.15	0.000023	1.19	255.85	73.32	0.10
Main	17958	250	250.00	5355.40	5361.40	5357.70	5361.42	0.000029	1.39	275.72	73.32	0.11
Main	17958	300	300.00	5355.40	5361.70	5357.92	5361.73	0.000034	1.55	297.92	73.32	0.12
Main	17958	350	350.00	5355.40	5362.07	5358.14	5362.10	0.000035	1.67	324.80	73.32	0.13
Main	17958	400	400.00	5355.40	5362.24	5358.31	5362.28	0.000042	1.85	337.15	73.32	0.14
Main	17958	450	450.00	5355.40	5362.43	5358.54	5362.48	0.000047	2.00	351.44	73.32	0.15
Main	17958	500	500.00	5355.40	5362.63	5358.72	5362.69	0.000051	2.14	366.01	73.32	0.15
Main	17958	50	50.00	5355.40	5356.91	5356.41	5357.01	0.000748	2.59	19.31	18.28	0.44
Main	17814		Bridge									
Main	17738	77	77.00	5354.81	5357.36	5356.15	5357.45	0.000292	2.34	32.91	17.05	0.30
Main	17738	100	100.00	5354.81	5358.07	5356.34	5358.14	0.000196	2.20	45.54	26.92	0.25
Main	17738	150	150.00	5354.81	5360.13	5356.69	5360.16	0.000046	1.48	136.70	55.32	0.13
Main	17738	200	200.00	5354.81	5361.04	5357.02	5361.06	0.000037	1.51	195.60	75.68	0.12
Main	17738	250	250.00	5354.81	5361.29	5357.30	5361.33	0.000047	1.76	214.85	75.68	0.14
Main	17738	300	300.00	5354.81	5361.59	5357.56	5361.64	0.000053	1.95	237.61	75.68	0.15
Main	17738	350	350.00	5354.81	5361.97	5357.83	5362.02	0.000055	2.07	266.21	75.68	0.15

HEC-RAS Plan: Existing_Cap River: Ditch Reach: Main (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Main	17738	400	400.00	5354.81	5362.12	5358.08	5362.19	0.000064	2.29	278.04	75.68	0.16
Main	17738	450	450.00	5354.81	5362.31	5358.28	5362.39	0.000072	2.46	292.23	75.68	0.17
Main	17738	500	500.00	5354.81	5362.51	5358.50	5362.59	0.000078	2.62	306.97	75.68	0.18
Main	17738	50	50.00	5354.81	5356.79	5355.87	5356.86	0.000332	2.13	23.49	15.76	0.31
Main	17663	77	77.00	5354.94	5357.35		5357.42	0.000229	2.05	37.49	44.14	0.26
Main	17663	100	100.00	5354.94	5358.06		5358.12	0.000150	1.91	52.49	48.05	0.22
Main	17663	150	150.00	5354.94	5360.13		5360.16	0.000032	1.28	164.47	70.80	0.11
Main	17663	200	200.00	5354.94	5361.04		5361.06	0.000025	1.30	237.80	92.93	0.10
Main	17663	250	250.00	5354.94	5361.29		5361.32	0.000032	1.52	261.74	94.00	0.12
Main	17663	300	300.00	5354.94	5361.59		5361.63	0.000037	1.68	290.06	94.00	0.13
Main	17663	350	350.00	5354.94	5361.97		5362.01	0.000038	1.78	325.68	94.00	0.13
Main	17663	400	400.00	5354.94	5362.13		5362.18	0.000044	1.96	340.41	94.00	0.14
Main	17663	450	450.00	5354.94	5362.32		5362.37	0.000049	2.11	358.18	94.00	0.15
Main	17663	500	500.00	5354.94	5362.51		5362.57	0.000053	2.24	376.54	94.00	0.16
Main	17663	50	50.00	5354.94	5356.77		5356.83	0.000269	1.89	26.49	38.03	0.28
Main	17575	77	77.00	5354.88	5357.34		5357.40	0.000189	1.88	40.90	45.74	0.24
Main	17575	100	100.00	5354.88	5358.06		5358.10	0.000119	1.75	57.34	56.44	0.20
Main	17575	150	150.00	5354.88	5360.13		5360.15	0.000023	1.16	209.16	98.07	0.10
Main	17575	200	200.00	5354.88	5361.04		5361.06	0.000018	1.16	303.34	104.90	0.09
Main	17575	250	250.00	5354.88	5361.30		5361.32	0.000023	1.34	330.18	104.90	0.10
Main	17575	300	300.00	5354.88	5361.60		5361.62	0.000026	1.49	361.88	104.90	0.11
Main	17575	350	350.00	5354.88	5361.98		5362.00	0.000027	1.58	401.68	104.90	0.11
Main	17575	400	400.00	5354.88	5362.13		5362.17	0.000032	1.74	418.23	104.90	0.12
Main	17575	450	450.00	5354.88	5362.32		5362.36	0.000036	1.88	438.15	104.90	0.13
Main	17575	500	500.00	5354.88	5362.52		5362.56	0.000039	2.00	458.79	104.90	0.13
Main	17575	50	50.00	5354.88	5356.76		5356.80	0.000225	1.74	28.78	39.40	0.25
Main	17453	77	77.00	5355.02	5357.29	5356.13	5357.37	0.000269	2.18	35.39	38.10	0.28
Main	17453	100	100.00	5355.02	5358.02	5356.32	5358.09	0.000166	1.99	50.32	48.00	0.23
Main	17453	150	150.00	5355.02	5360.12	5356.63	5360.15	0.000034	1.30	176.88	97.70	0.11
Main	17453	200	200.00	5355.02	5361.03	5356.94	5361.05	0.000024	1.27	265.66	97.70	0.10
Main	17453	250	250.00	5355.02	5361.29	5357.20	5361.31	0.000031	1.47	290.46	97.70	0.11
Main	17453	300	300.00	5355.02	5361.59	5357.44	5361.62	0.000034	1.62	319.85	97.70	0.12
Main	17453	350	350.00	5355.02	5361.97	5357.67	5362.00	0.000035	1.71	356.92	97.70	0.12
Main	17453	400	400.00	5355.02	5362.12	5357.90	5362.16	0.000041	1.88	372.18	97.70	0.13
Main	17453	450	450.00	5355.02	5362.31	5358.08	5362.36	0.000046	2.02	390.55	97.70	0.14
Main	17453	500	500.00	5355.02	5362.51	5358.31	5362.56	0.000050	2.15	409.68	97.70	0.15
Main	17453	50	50.00	5355.02	5356.70	5355.89	5356.77	0.000349	2.05	24.38	33.50	0.31
Main	17371	77	77.00	5354.61	5357.25	5355.89	5357.34	0.000309	2.47	31.21	33.78	0.30
Main	17371	100	100.00	5354.61	5357.98	5356.12	5358.07	0.000219	2.34	42.65	45.56	0.26
Main	17371	150	150.00	5354.61	5360.12	5356.54	5360.14	0.000038	1.41	189.61	88.75	0.12
Main	17371	200	200.00	5354.61	5361.03	5356.88	5361.05	0.000028	1.37	270.38	88.75	0.10
Main	17371	250	250.00	5354.61	5361.28	5357.22	5361.31	0.000036	1.59	292.79	88.75	0.12
Main	17371	300	300.00	5354.61	5361.58	5357.51	5361.62	0.000041	1.76	319.44	88.75	0.13
Main	17371	350	350.00	5354.61	5361.96	5357.78	5362.00	0.000042	1.86	353.06	88.75	0.13
Main	17371	400	400.00	5354.61	5362.12	5358.04	5362.16	0.000050	2.05	366.80	88.75	0.14
Main	17371	450	450.00	5354.61	5362.30	5358.31	5362.35	0.000055	2.21	383.44	88.75	0.15
Main	17371	500	500.00	5354.61	5362.50	5358.98	5362.55	0.000060	2.35	400.73	88.75	0.16

HEC-RAS Plan: Existing_Cap River: Ditch Reach: Main (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Main	17371	50	50.00	5354.61	5356.67	5355.61	5356.74	0.000314	2.17	23.02	28.94	0.29
Main	17306	77	77.00	5354.41	5357.22	5355.81	5357.32	0.000323	2.57	30.01	50.10	0.30
Main	17306	100	100.00	5354.41	5357.95	5356.03	5358.05	0.000244	2.51	39.78	55.89	0.26
Main	17306	150	150.00	5354.41	5360.12	5356.44	5360.14	0.000044	1.53	192.51	96.49	0.12
Main	17306	200	200.00	5354.41	5361.03	5356.84	5361.05	0.000032	1.46	280.61	96.49	0.11
Main	17306	250	250.00	5354.41	5361.28	5357.17	5361.31	0.000040	1.68	304.92	96.49	0.12
Main	17306	300	300.00	5354.41	5361.58	5357.48	5361.61	0.000045	1.84	333.95	96.49	0.13
Main	17306	350	350.00	5354.41	5361.96	5357.78	5361.99	0.000047	1.94	370.51	96.49	0.13
Main	17306	400	400.00	5354.41	5362.12	5358.04	5362.16	0.000055	2.13	385.49	96.49	0.14
Main	17306	450	450.00	5354.41	5362.30	5358.31	5362.35	0.000061	2.29	403.58	96.49	0.15
Main	17306	500	500.00	5354.41	5362.50	5358.55	5362.55	0.000066	2.43	422.38	96.49	0.16
Main	17306	50	50.00	5354.41	5356.64	5355.50	5356.72	0.000303	2.19	22.81	45.15	0.28
Main	17209	77	77.00	5354.15	5357.19	5355.62	5357.29	0.000280	2.48	31.08	12.99	0.28
Main	17209	100	100.00	5354.15	5357.94	5355.87	5358.03	0.000216	2.43	41.13	22.54	0.25
Main	17209	150	150.00	5354.15	5360.11	5356.32	5360.14	0.000044	1.54	170.13	77.66	0.12
Main	17209	200	200.00	5354.15	5361.02	5356.70	5361.05	0.000034	1.53	240.92	77.66	0.11
Main	17209	250	250.00	5354.15	5361.27	5357.05	5361.30	0.000044	1.78	260.22	77.66	0.13
Main	17209	300	300.00	5354.15	5361.57	5357.38	5361.61	0.000051	1.97	283.39	77.66	0.14
Main	17209	350	350.00	5354.15	5361.94	5357.67	5361.99	0.000053	2.10	312.63	77.66	0.14
Main	17209	400	400.00	5354.15	5362.10	5357.97	5362.15	0.000063	2.31	324.42	77.66	0.15
Main	17209	450	450.00	5354.15	5362.28	5358.65	5362.34	0.000071	2.50	338.68	77.66	0.16
Main	17209	500	500.00	5354.15	5362.47	5358.84	5362.54	0.000078	2.66	353.58	77.66	0.17
Main	17209	50	50.00	5354.15	5356.62	5355.32	5356.69	0.000250	2.09	23.92	12.17	0.26
Main	17150	77	77.00	5354.46	5357.13	5355.88	5357.26	0.000448	2.89	26.61	12.40	0.35
Main	17150	100	100.00	5354.46	5357.89	5356.13	5358.01	0.000315	2.72	36.75	14.25	0.30
Main	17150	150	150.00	5354.46	5360.09	5356.59	5360.13	0.000063	1.77	133.31	63.70	0.15
Main	17150	200	200.00	5354.46	5361.01	5356.97	5361.04	0.000049	1.76	191.47	63.70	0.13
Main	17150	250	250.00	5354.46	5361.25	5357.35	5361.30	0.000062	2.05	206.96	63.70	0.15
Main	17150	300	300.00	5354.46	5361.54	5357.70	5361.60	0.000072	2.28	225.72	63.70	0.16
Main	17150	350	350.00	5354.46	5361.92	5358.01	5361.98	0.000076	2.43	249.51	63.70	0.17
Main	17150	400	400.00	5354.46	5362.06	5358.48	5362.14	0.000090	2.69	258.78	63.70	0.19
Main	17150	450	450.00	5354.46	5362.24	5358.73	5362.33	0.000101	2.91	270.10	63.70	0.20
Main	17150	500	500.00	5354.46	5362.43	5359.01	5362.53	0.000111	3.10	282.04	63.70	0.21
Main	17150	50	50.00	5354.46	5356.57	5355.57	5356.67	0.000426	2.51	19.96	11.38	0.33
Main	17072		Bridge									
Main	16978	77	77.00	5354.44	5357.09	5355.75	5357.18	0.000301	2.41	31.98	15.72	0.30
Main	16978	100	100.00	5354.44	5357.65	5355.96	5357.74	0.000254	2.42	41.34	17.68	0.28
Main	16978	150	150.00	5354.44	5359.39	5356.39	5359.44	0.000070	1.76	125.99	71.36	0.16
Main	16978	200	200.00	5354.44	5360.47	5356.74	5360.50	0.000042	1.60	202.82	71.36	0.13
Main	16978	250	250.00	5354.44	5360.95	5357.03	5360.98	0.000044	1.75	236.83	71.36	0.13
Main	16978	300	300.00	5354.44	5361.32	5357.34	5361.36	0.000048	1.91	263.24	71.36	0.14
Main	16978	350	350.00	5354.44	5361.76	5357.63	5361.81	0.000048	2.00	294.91	71.36	0.14
Main	16978	400	400.00	5354.44	5361.90	5357.88	5361.95	0.000058	2.22	304.46	71.36	0.16
Main	16978	450	450.00	5354.44	5362.08	5358.09	5362.14	0.000065	2.41	317.32	71.36	0.17
Main	16978	500	500.00	5354.44	5362.27	5358.32	5362.34	0.000071	2.57	331.12	71.36	0.18
Main	16978	50	50.00	5354.44	5356.52	5355.46	5356.59	0.000309	2.13	23.47	14.36	0.29

HEC-RAS Plan: Existing_Cap River: Ditch Reach: Main (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Main	16855	77	77.00	5354.23	5357.06		5357.14	0.000264	2.31	33.36	32.85	0.28
Main	16855	100	100.00	5354.23	5357.62		5357.71	0.000218	2.34	42.77	45.35	0.26
Main	16855	150	150.00	5354.23	5359.39		5359.43	0.000055	1.67	152.94	81.95	0.14
Main	16855	200	200.00	5354.23	5360.47		5360.50	0.000034	1.52	241.37	81.95	0.12
Main	16855	250	250.00	5354.23	5360.95		5360.98	0.000036	1.66	280.42	81.95	0.12
Main	16855	300	300.00	5354.23	5361.32		5361.35	0.000039	1.81	310.80	81.95	0.13
Main	16855	350	350.00	5354.23	5361.76		5361.80	0.000039	1.90	347.21	81.95	0.13
Main	16855	400	400.00	5354.23	5361.90		5361.94	0.000047	2.11	358.17	81.95	0.14
Main	16855	450	450.00	5354.23	5362.07		5362.13	0.000054	2.28	372.90	81.95	0.15
Main	16855	500	500.00	5354.23	5362.27		5362.33	0.000059	2.43	388.78	81.95	0.16
Main	16855	50	50.00	5354.23	5356.49		5356.55	0.000249	2.00	24.98	14.05	0.26
Main	16739	77	77.00	5354.71	5357.06	5355.70	5357.10	0.000154	1.73	44.40	47.63	0.22
Main	16739	100	100.00	5354.71	5357.63	5355.86	5357.68	0.000118	1.74	57.55	50.46	0.19
Main	16739	150	150.00	5354.71	5359.39	5356.16	5359.42	0.000041	1.42	140.87	94.31	0.12
Main	16739	200	200.00	5354.71	5360.47	5356.40	5360.49	0.000026	1.32	242.59	94.31	0.10
Main	16739	250	250.00	5354.71	5360.95	5356.63	5360.97	0.000028	1.44	287.63	94.31	0.11
Main	16739	300	300.00	5354.71	5361.32	5356.87	5361.35	0.000030	1.57	322.53	94.31	0.11
Main	16739	350	350.00	5354.71	5361.76	5357.04	5361.79	0.000030	1.65	364.44	94.31	0.11
Main	16739	400	400.00	5354.71	5361.89	5357.25	5361.93	0.000036	1.83	377.06	94.31	0.13
Main	16739	450	450.00	5354.71	5362.07	5357.43	5362.12	0.000041	1.98	394.00	94.31	0.13
Main	16739	500	500.00	5354.71	5362.27	5357.60	5362.32	0.000044	2.11	412.33	94.31	0.14
Main	16739	50	50.00	5354.71	5356.48	5355.49	5356.52	0.000184	1.58	31.73	45.30	0.23
Main	16645	77	77.00	5354.68	5357.03	5355.70	5357.09	0.000183	1.86	41.36	41.80	0.24
Main	16645	100	100.00	5354.68	5357.61	5355.88	5357.67	0.000138	1.84	54.38	44.75	0.21
Main	16645	150	150.00	5354.68	5359.39	5356.18	5359.41	0.000031	1.21	188.66	78.89	0.11
Main	16645	200	200.00	5354.68	5360.47	5356.47	5360.49	0.000021	1.17	273.60	78.89	0.09
Main	16645	250	250.00	5354.68	5360.95	5356.72	5360.97	0.000023	1.30	311.23	78.89	0.10
Main	16645	300	300.00	5354.68	5361.32	5356.95	5361.34	0.000025	1.43	340.47	78.89	0.10
Main	16645	350	350.00	5354.68	5361.76	5357.15	5361.79	0.000026	1.52	375.45	78.89	0.11
Main	16645	400	400.00	5354.68	5361.90	5357.35	5361.93	0.000031	1.70	386.00	78.89	0.12
Main	16645	450	450.00	5354.68	5362.07	5357.55	5362.11	0.000036	1.85	400.18	78.89	0.13
Main	16645	500	500.00	5354.68	5362.27	5357.73	5362.31	0.000040	1.98	415.47	78.89	0.13
Main	16645	50	50.00	5354.68	5356.46	5355.48	5356.50	0.000218	1.71	29.26	37.13	0.25
Main	16528	77	77.00	5354.76	5357.00	5355.80	5357.06	0.000218	1.95	39.45	39.40	0.26
Main	16528	100	100.00	5354.76	5357.59	5355.98	5357.65	0.000154	1.88	54.51	58.10	0.22
Main	16528	150	150.00	5354.76	5359.39	5356.27	5359.41	0.000028	1.18	203.98	77.61	0.10
Main	16528	200	200.00	5354.76	5360.47	5356.54	5360.48	0.000019	1.14	287.61	77.61	0.09
Main	16528	250	250.00	5354.76	5360.95	5356.78	5360.96	0.000021	1.27	324.60	77.61	0.10
Main	16528	300	300.00	5354.76	5361.32	5357.00	5361.34	0.000023	1.41	353.32	77.61	0.10
Main	16528	350	350.00	5354.76	5361.76	5357.24	5361.78	0.000024	1.51	387.73	77.61	0.11
Main	16528	400	400.00	5354.76	5361.89	5357.44	5361.92	0.000029	1.68	398.08	77.61	0.12
Main	16528	450	450.00	5354.76	5362.07	5357.70	5362.11	0.000034	1.83	412.02	77.61	0.12
Main	16528	500	500.00	5354.76	5362.27	5357.90	5362.31	0.000037	1.96	427.03	77.61	0.13
Main	16528	50	50.00	5354.76	5356.42	5355.59	5356.47	0.000286	1.85	27.01	23.80	0.28
Main	16398	77	77.00	5354.15	5356.97	5355.48	5357.04	0.000203	2.05	37.61	40.38	0.25
Main	16398	100	100.00	5354.15	5357.56	5355.69	5357.63	0.000164	2.06	48.66	47.44	0.23

HEC-RAS Plan: Existing_Cap River: Ditch Reach: Main (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Main	16398	150	150.00	5354.15	5359.39	5356.06	5359.40	0.000027	1.20	213.18	80.44	0.10
Main	16398	200	200.00	5354.15	5360.47	5356.37	5360.48	0.000019	1.18	299.98	80.44	0.09
Main	16398	250	250.00	5354.15	5360.94	5356.68	5360.96	0.000022	1.31	338.28	80.44	0.10
Main	16398	300	300.00	5354.15	5361.31	5356.91	5361.33	0.000024	1.45	368.05	80.44	0.10
Main	16398	350	350.00	5354.15	5361.76	5357.19	5361.78	0.000025	1.55	403.71	80.44	0.11
Main	16398	400	400.00	5354.15	5361.89	5357.43	5361.92	0.000031	1.73	414.40	80.44	0.12
Main	16398	450	450.00	5354.15	5362.07	5357.63	5362.10	0.000035	1.89	428.81	80.44	0.13
Main	16398	500	500.00	5354.15	5362.26	5357.87	5362.30	0.000039	2.03	444.33	80.44	0.13
Main	16398	50	50.00	5354.15	5356.39	5355.21	5356.44	0.000209	1.81	27.61	34.50	0.25
Main	16262	77	77.00	5354.19	5356.96	5355.35	5357.01	0.000135	1.72	44.88	47.38	0.20
Main	16262	100	100.00	5354.19	5357.56	5355.50	5357.60	0.000111	1.74	57.54	50.36	0.19
Main	16262	150	150.00	5354.19	5359.39	5355.85	5359.40	0.000017	0.89	258.23	80.98	0.08
Main	16262	200	200.00	5354.19	5360.47	5356.14	5360.48	0.000013	0.91	357.34	96.55	0.07
Main	16262	250	250.00	5354.19	5360.95	5356.38	5360.96	0.000014	1.02	403.40	96.55	0.08
Main	16262	300	300.00	5354.19	5361.32	5356.64	5361.33	0.000016	1.14	439.18	96.55	0.08
Main	16262	350	350.00	5354.19	5361.76	5356.86	5361.78	0.000017	1.22	482.04	96.55	0.09
Main	16262	400	400.00	5354.19	5361.89	5357.08	5361.91	0.000021	1.36	494.91	96.55	0.09
Main	16262	450	450.00	5354.19	5362.07	5357.29	5362.10	0.000024	1.49	512.30	96.55	0.10
Main	16262	500	500.00	5354.19	5362.27	5357.46	5362.29	0.000026	1.60	531.02	96.55	0.11
Main	16262	50	50.00	5354.19	5356.38	5355.10	5356.41	0.000136	1.50	33.34	43.30	0.20
Main	16146	77	77.00	5353.95	5356.95	5355.04	5356.99	0.000106	1.61	47.81	58.29	0.18
Main	16146	100	100.00	5353.95	5357.55	5355.22	5357.59	0.000097	1.66	60.09	64.88	0.18
Main	16146	150	150.00	5353.95	5359.39	5355.57	5359.40	0.000013	0.81	306.06	105.90	0.07
Main	16146	200	200.00	5353.95	5360.47	5355.89	5360.48	0.000010	0.81	420.34	105.90	0.06
Main	16146	250	250.00	5353.95	5360.95	5356.15	5360.95	0.000011	0.91	470.86	105.90	0.07
Main	16146	300	300.00	5353.95	5361.32	5356.38	5361.33	0.000013	1.02	510.11	105.90	0.07
Main	16146	350	350.00	5353.95	5361.76	5356.62	5361.77	0.000013	1.09	557.16	105.90	0.08
Main	16146	400	400.00	5353.95	5361.90	5356.84	5361.91	0.000016	1.22	571.33	105.90	0.08
Main	16146	450	450.00	5353.95	5362.08	5357.09	5362.09	0.000019	1.33	590.41	105.90	0.09
Main	16146	500	500.00	5353.95	5362.27	5357.28	5362.29	0.000021	1.43	610.94	105.90	0.10
Main	16146	50	50.00	5353.95	5356.37	5354.81	5356.40	0.000096	1.36	36.79	53.30	0.17
Main	16054	77	77.00	5353.80	5356.93	5355.14	5356.98	0.000131	1.76	43.74	54.33	0.20
Main	16054	100	100.00	5353.80	5357.53	5355.33	5357.58	0.000114	1.80	55.41	59.15	0.19
Main	16054	150	150.00	5353.80	5359.38	5355.68	5359.39	0.000020	0.97	247.07	78.33	0.09
Main	16054	200	200.00	5353.80	5360.46	5356.02	5360.47	0.000014	0.97	337.48	87.20	0.08
Main	16054	250	250.00	5353.80	5360.94	5356.29	5360.95	0.000016	1.09	379.71	90.50	0.08
Main	16054	300	300.00	5353.80	5361.31	5356.57	5361.32	0.000018	1.21	414.07	95.98	0.09
Main	16054	350	350.00	5353.80	5361.75	5356.79	5361.77	0.000019	1.30	460.86	110.05	0.09
Main	16054	400	400.00	5353.80	5361.89	5357.03	5361.91	0.000023	1.45	475.37	110.05	0.10
Main	16054	450	450.00	5353.80	5362.06	5357.27	5362.09	0.000026	1.57	494.98	110.05	0.11
Main	16054	500	500.00	5353.80	5362.26	5357.46	5362.29	0.000029	1.69	516.26	110.05	0.11
Main	16054	50	50.00	5353.80	5356.35	5354.85	5356.39	0.000122	1.50	33.24	49.34	0.19
Main	15937	77	77.00	5354.28	5356.87		5356.96	0.000273	2.30	33.45	45.00	0.28
Main	15937	100	100.00	5354.28	5357.48		5357.56	0.000213	2.28	43.81	50.81	0.26
Main	15937	150	150.00	5354.28	5359.35		5359.39	0.000059	1.66	133.82	69.44	0.14
Main	15937	200	200.00	5354.28	5360.44		5360.47	0.000037	1.55	213.72	85.71	0.12
Main	15937	250	250.00	5354.28	5360.91		5360.95	0.000040	1.69	261.60	102.38	0.13

HEC-RAS Plan: Existing_Cap River: Ditch Reach: Main (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Main	15937	300	300.00	5354.28	5361.28		5361.32	0.000042	1.82	299.24	102.38	0.13
Main	15937	350	350.00	5354.28	5361.73		5361.77	0.000041	1.89	344.73	102.38	0.13
Main	15937	400	400.00	5354.28	5361.85		5361.90	0.000049	2.09	357.73	102.38	0.14
Main	15937	450	450.00	5354.28	5362.03		5362.08	0.000055	2.25	375.53	102.38	0.15
Main	15937	500	500.00	5354.28	5362.22		5362.28	0.000060	2.39	395.02	102.38	0.16
Main	15937	50	50.00	5354.28	5356.30		5356.36	0.000285	2.05	24.42	36.77	0.28
Main	15834	77	77.00	5354.41	5356.87	5355.47	5356.92	0.000178	1.89	40.79	70.83	0.23
Main	15834	100	100.00	5354.41	5357.48	5355.65	5357.53	0.000135	1.87	53.49	80.73	0.21
Main	15834	150	150.00	5354.41	5359.37	5355.97	5359.38	0.000015	0.89	315.20	123.58	0.08
Main	15834	200	200.00	5354.41	5360.45	5356.26	5360.46	0.000010	0.85	449.40	123.58	0.06
Main	15834	250	250.00	5354.41	5360.93	5356.52	5360.94	0.000011	0.95	508.18	123.58	0.07
Main	15834	300	300.00	5354.41	5361.30	5356.75	5361.31	0.000012	1.05	553.79	123.58	0.07
Main	15834	350	350.00	5354.41	5361.74	5356.99	5361.75	0.000013	1.11	608.71	123.58	0.08
Main	15834	400	400.00	5354.41	5361.87	5357.19	5361.89	0.000015	1.24	624.88	123.58	0.08
Main	15834	450	450.00	5354.41	5362.05	5357.39	5362.07	0.000018	1.35	646.66	123.58	0.09
Main	15834	500	500.00	5354.41	5362.24	5357.58	5362.26	0.000020	1.45	670.50	123.58	0.09
Main	15834	50	50.00	5354.41	5356.29	5355.23	5356.33	0.000203	1.70	29.36	52.47	0.24
Main	15725	77	77.00	5354.36	5356.85	5355.41	5356.90	0.000192	1.94	39.61	57.46	0.24
Main	15725	100	100.00	5354.36	5357.46	5355.60	5357.52	0.000153	1.90	52.64	68.01	0.22
Main	15725	150	150.00	5354.36	5359.37	5355.94	5359.37	0.000011	0.74	354.40	122.01	0.06
Main	15725	200	200.00	5354.36	5360.45	5356.24	5360.46	0.000008	0.74	498.21	134.64	0.06
Main	15725	250	250.00	5354.36	5360.93	5356.52	5360.94	0.000009	0.83	562.31	134.64	0.06
Main	15725	300	300.00	5354.36	5361.30	5356.76	5361.31	0.000010	0.92	611.95	134.64	0.07
Main	15725	350	350.00	5354.36	5361.74	5357.01	5361.75	0.000011	0.99	671.84	134.64	0.07
Main	15725	400	400.00	5354.36	5361.88	5357.23	5361.88	0.000013	1.10	689.46	134.64	0.08
Main	15725	450	450.00	5354.36	5362.05	5357.46	5362.06	0.000015	1.20	713.19	134.64	0.08
Main	15725	500	500.00	5354.36	5362.24	5357.65	5362.26	0.000016	1.29	739.16	134.64	0.09
Main	15725	50	50.00	5354.36	5356.26	5355.17	5356.31	0.000207	1.75	28.63	54.15	0.24
Main	15628	77	77.00	5353.94	5356.84	5355.07	5356.88	0.000124	1.68	45.88	28.06	0.20
Main	15628	100	100.00	5353.94	5357.46	5355.24	5357.50	0.000100	1.69	59.21	49.85	0.18
Main	15628	150	150.00	5353.94	5359.36	5355.57	5359.37	0.000018	1.04	278.21	125.46	0.09
Main	15628	200	200.00	5353.94	5360.45	5355.91	5360.46	0.000012	0.96	414.82	125.46	0.07
Main	15628	250	250.00	5353.94	5360.92	5356.19	5360.94	0.000013	1.06	474.48	125.46	0.08
Main	15628	300	300.00	5353.94	5361.29	5356.45	5361.31	0.000014	1.16	520.67	125.46	0.08
Main	15628	350	350.00	5353.94	5361.74	5356.69	5361.75	0.000015	1.22	576.36	125.46	0.08
Main	15628	400	400.00	5353.94	5361.87	5356.90	5361.88	0.000018	1.36	592.65	125.46	0.09
Main	15628	450	450.00	5353.94	5362.04	5357.09	5362.06	0.000020	1.48	614.58	125.46	0.10
Main	15628	500	500.00	5353.94	5362.23	5357.31	5362.25	0.000022	1.58	638.66	125.46	0.10
Main	15628	50	50.00	5353.94	5356.26	5354.81	5356.29	0.000117	1.45	34.52	24.03	0.19
Main	15476	77	77.00	5354.30	5356.81	5355.49	5356.86	0.000172	1.78	43.27	36.28	0.23
Main	15476	100	100.00	5354.30	5357.44	5355.66	5357.48	0.000120	1.72	58.30	57.09	0.20
Main	15476	150	150.00	5354.30	5359.35	5355.96	5359.37	0.000023	1.08	233.85	117.77	0.09
Main	15476	200	200.00	5354.30	5360.45	5356.22	5360.46	0.000014	0.98	362.37	117.77	0.08
Main	15476	250	250.00	5354.30	5360.92	5356.44	5360.93	0.000015	1.07	418.32	117.77	0.08
Main	15476	300	300.00	5354.30	5361.29	5356.69	5361.30	0.000016	1.17	461.68	117.77	0.08
Main	15476	350	350.00	5354.30	5361.73	5356.89	5361.75	0.000016	1.23	513.90	117.77	0.09
Main	15476	400	400.00	5354.30	5361.86	5357.08	5361.88	0.000020	1.37	529.08	117.77	0.09

HEC-RAS Plan: Existing_Cap River: Ditch Reach: Main (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Main	15476	450	450.00	5354.30	5362.03	5357.26	5362.06	0.000022	1.48	549.55	117.77	0.10
Main	15476	500	500.00	5354.30	5362.23	5357.42	5362.25	0.000025	1.59	572.03	117.77	0.11
Main	15476	50	50.00	5354.30	5356.23	5355.28	5356.27	0.000213	1.66	30.18	21.37	0.25
Main	15360	77	77.00	5354.44	5356.78	5355.49	5356.84	0.000196	1.92	40.07	20.99	0.25
Main	15360	100	100.00	5354.44	5357.42	5355.66	5357.47	0.000139	1.86	53.88	22.66	0.21
Main	15360	150	150.00	5354.44	5359.34	5355.97	5359.36	0.000037	1.36	163.24	108.66	0.12
Main	15360	200	200.00	5354.44	5360.44	5356.25	5360.45	0.000021	1.22	287.18	113.36	0.09
Main	15360	250	250.00	5354.44	5360.91	5356.51	5360.93	0.000022	1.32	340.98	113.36	0.10
Main	15360	300	300.00	5354.44	5361.28	5356.74	5361.30	0.000024	1.43	382.61	113.36	0.10
Main	15360	350	350.00	5354.44	5361.72	5356.94	5361.74	0.000024	1.49	432.92	113.36	0.10
Main	15360	400	400.00	5354.44	5361.85	5357.16	5361.88	0.000028	1.65	447.20	113.36	0.11
Main	15360	450	450.00	5354.44	5362.02	5357.35	5362.05	0.000032	1.78	466.74	113.36	0.12
Main	15360	500	500.00	5354.44	5362.21	5357.54	5362.25	0.000035	1.90	488.27	113.36	0.13
Main	15360	50	50.00	5354.44	5356.19	5355.26	5356.24	0.000239	1.78	28.11	19.55	0.26
Main	15297		Bridge									
Main	15234	77	77.00	5354.17	5356.63	5355.69	5356.74	0.000443	2.64	29.22	17.09	0.36
Main	15234	100	100.00	5354.17	5357.29	5355.88	5357.38	0.000277	2.45	40.89	24.61	0.29
Main	15234	150	150.00	5354.17	5359.20	5356.24	5359.25	0.000078	1.87	87.69	81.90	0.17
Main	15234	200	200.00	5354.17	5360.19	5356.55	5360.22	0.000042	1.60	218.51	109.75	0.13
Main	15234	250	250.00	5354.17	5360.67	5356.82	5360.70	0.000042	1.69	271.64	112.52	0.13
Main	15234	300	300.00	5354.17	5361.16	5357.07	5361.19	0.000039	1.74	327.87	119.48	0.13
Main	15234	350	350.00	5354.17	5361.65	5357.33	5361.69	0.000036	1.76	388.05	121.18	0.12
Main	15234	400	400.00	5354.17	5361.77	5357.55	5361.81	0.000043	1.95	402.60	121.18	0.13
Main	15234	450	450.00	5354.17	5361.95	5357.76	5361.99	0.000048	2.09	423.61	121.18	0.14
Main	15234	500	500.00	5354.17	5362.14	5357.97	5362.19	0.000052	2.21	447.22	121.18	0.15
Main	15234	50	50.00	5354.17	5356.04	5355.43	5356.14	0.000634	2.56	19.50	15.89	0.41
Main	15130	77	77.00	5354.19	5356.61	5355.37	5356.69	0.000271	2.26	34.03	27.65	0.28
Main	15130	100	100.00	5354.19	5357.27	5355.56	5357.34	0.000189	2.18	45.93	39.55	0.24
Main	15130	150	150.00	5354.19	5359.20	5355.93	5359.23	0.000044	1.46	151.20	66.48	0.13
Main	15130	200	200.00	5354.19	5360.19	5356.23	5360.21	0.000032	1.43	233.44	89.25	0.11
Main	15130	250	250.00	5354.19	5360.67	5356.51	5360.70	0.000034	1.56	276.06	89.25	0.12
Main	15130	300	300.00	5354.19	5361.15	5356.78	5361.18	0.000034	1.65	319.42	89.25	0.12
Main	15130	350	350.00	5354.19	5361.65	5357.02	5361.68	0.000033	1.72	363.70	89.25	0.12
Main	15130	400	400.00	5354.19	5361.77	5357.24	5361.81	0.000040	1.91	374.38	89.25	0.13
Main	15130	450	450.00	5354.19	5361.94	5357.46	5361.99	0.000046	2.08	389.63	89.25	0.14
Main	15130	500	500.00	5354.19	5362.13	5357.66	5362.18	0.000050	2.22	406.84	89.25	0.15
Main	15130	50	50.00	5354.19	5356.01	5355.10	5356.08	0.000327	2.08	23.98	16.34	0.30
Main	15045	77	77.00	5353.95	5356.58	5355.33	5356.66	0.000275	2.24	34.40	38.94	0.29
Main	15045	100	100.00	5353.95	5357.26	5355.51	5357.33	0.000188	2.12	47.14	41.91	0.24
Main	15045	150	150.00	5353.95	5359.21	5355.87	5359.22	0.000033	1.26	184.99	84.03	0.11
Main	15045	200	200.00	5353.95	5360.19	5356.21	5360.21	0.000024	1.24	270.82	86.99	0.10
Main	15045	250	250.00	5353.95	5360.67	5356.48	5360.69	0.000026	1.37	312.32	86.99	0.10
Main	15045	300	300.00	5353.95	5361.16	5356.74	5361.18	0.000026	1.46	354.58	86.99	0.11
Main	15045	350	350.00	5353.95	5361.65	5356.99	5361.68	0.000026	1.53	397.78	86.99	0.11
Main	15045	400	400.00	5353.95	5361.77	5357.21	5361.80	0.000032	1.71	408.19	86.99	0.12
Main	15045	450	450.00	5353.95	5361.94	5357.44	5361.98	0.000036	1.86	423.10	86.99	0.13

HEC-RAS Plan: Existing_Cap River: Ditch Reach: Main (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Main	15045	500	500.00	5353.95	5362.14	5357.63	5362.18	0.000040	2.00	439.92	86.99	0.13
Main	15045	50	50.00	5353.95	5355.98	5355.08	5356.05	0.000327	2.08	24.07	25.08	0.30
Main	14967	77	77.00	5354.05	5356.58	5355.33	5356.64	0.000209	1.95	39.59	46.08	0.25
Main	14967	100	100.00	5354.05	5357.26	5355.48	5357.31	0.000135	1.83	54.67	54.25	0.21
Main	14967	150	150.00	5354.05	5359.21	5355.82	5359.22	0.000023	1.09	219.42	84.46	0.09
Main	14967	200	200.00	5354.05	5360.19	5356.07	5360.21	0.000017	1.09	304.63	87.59	0.08
Main	14967	250	250.00	5354.05	5360.67	5356.35	5360.69	0.000019	1.21	347.39	91.92	0.09
Main	14967	300	300.00	5354.05	5361.16	5356.57	5361.18	0.000020	1.30	392.99	94.64	0.09
Main	14967	350	350.00	5354.05	5361.65	5356.77	5361.67	0.000020	1.37	439.99	94.64	0.09
Main	14967	400	400.00	5354.05	5361.77	5356.98	5361.80	0.000024	1.53	451.35	94.64	0.10
Main	14967	450	450.00	5354.05	5361.95	5357.16	5361.98	0.000028	1.66	467.62	94.64	0.11
Main	14967	500	500.00	5354.05	5362.14	5357.36	5362.17	0.000031	1.78	485.92	94.64	0.12
Main	14967	50	50.00	5354.05	5355.97	5355.10	5356.02	0.000278	1.85	27.01	36.33	0.28
Main	14857	77	77.00	5354.29	5356.56	5355.23	5356.61	0.000186	1.87	41.19	23.48	0.24
Main	14857	100	100.00	5354.29	5357.25	5355.42	5357.29	0.000122	1.77	56.65	28.67	0.20
Main	14857	150	150.00	5354.29	5359.18	5355.73	5359.22	0.000041	1.41	111.60	82.45	0.12
Main	14857	200	200.00	5354.29	5360.18	5356.00	5360.20	0.000026	1.31	227.01	86.42	0.10
Main	14857	250	250.00	5354.29	5360.66	5356.24	5360.68	0.000028	1.43	268.24	86.42	0.11
Main	14857	300	300.00	5354.29	5361.14	5356.45	5361.17	0.000028	1.53	310.14	86.42	0.11
Main	14857	350	350.00	5354.29	5361.64	5356.70	5361.67	0.000028	1.59	353.01	86.42	0.11
Main	14857	400	400.00	5354.29	5361.76	5356.89	5361.79	0.000034	1.77	363.14	86.42	0.12
Main	14857	450	450.00	5354.29	5361.92	5357.08	5361.97	0.000038	1.93	377.74	86.42	0.13
Main	14857	500	500.00	5354.29	5362.12	5357.26	5362.17	0.000042	2.06	394.20	86.42	0.14
Main	14857	50	50.00	5354.29	5355.94	5355.02	5355.99	0.000240	1.76	28.33	20.00	0.26
Main	14708	77	77.00	5354.29	5356.53	5355.24	5356.59	0.000187	1.87	41.12	58.89	0.24
Main	14708	100	100.00	5354.29	5357.23	5355.39	5357.28	0.000123	1.77	56.57	61.71	0.20
Main	14708	150	150.00	5354.29	5359.20	5355.70	5359.21	0.000016	0.92	261.39	76.95	0.08
Main	14708	200	200.00	5354.29	5360.19	5355.97	5360.20	0.000013	0.96	345.94	95.35	0.07
Main	14708	250	250.00	5354.29	5360.67	5356.22	5360.68	0.000015	1.07	392.03	97.58	0.08
Main	14708	300	300.00	5354.29	5361.15	5356.43	5361.16	0.000016	1.17	442.52	112.67	0.08
Main	14708	350	350.00	5354.29	5361.65	5356.65	5361.66	0.000016	1.23	501.23	118.82	0.08
Main	14708	400	400.00	5354.29	5361.77	5356.87	5361.78	0.000019	1.38	515.39	118.82	0.09
Main	14708	450	450.00	5354.29	5361.94	5357.06	5361.96	0.000022	1.50	535.64	118.82	0.10
Main	14708	500	500.00	5354.29	5362.13	5357.24	5362.15	0.000025	1.61	558.44	118.82	0.11
Main	14708	50	50.00	5354.29	5355.91	5355.01	5355.96	0.000248	1.77	28.20	55.42	0.26
Main	14657	77	77.00	5354.11	5356.50	5355.19	5356.57	0.000247	2.18	35.36	17.20	0.27
Main	14657	100	100.00	5354.11	5357.20	5355.36	5357.27	0.000172	2.09	47.74	28.32	0.23
Main	14657	150	150.00	5354.11	5359.17	5355.73	5359.20	0.000048	1.59	129.44	52.79	0.13
Main	14657	200	200.00	5354.11	5360.16	5356.04	5360.19	0.000038	1.61	189.49	68.17	0.12
Main	14657	250	250.00	5354.11	5360.63	5356.33	5360.67	0.000041	1.78	221.74	68.17	0.13
Main	14657	300	300.00	5354.11	5361.12	5356.54	5361.16	0.000043	1.91	254.59	68.17	0.13
Main	14657	350	350.00	5354.11	5361.61	5356.80	5361.66	0.000043	2.01	288.31	68.17	0.13
Main	14657	400	400.00	5354.11	5361.72	5357.04	5361.78	0.000053	2.24	295.80	68.17	0.15
Main	14657	450	450.00	5354.11	5361.88	5357.28	5361.95	0.000061	2.44	306.89	68.17	0.16
Main	14657	500	500.00	5354.11	5362.07	5357.47	5362.15	0.000067	2.62	319.47	68.17	0.17
Main	14657	50	50.00	5354.11	5355.88	5354.95	5355.94	0.000299	2.00	24.94	16.27	0.29

HEC-RAS Plan: Existing_Cap River: Ditch Reach: Main (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Main	14605		Bridge									
Main	14550	77	77.00	5353.92	5356.48	5355.01	5356.54	0.000195	2.00	38.41	18.98	0.24
Main	14550	100	100.00	5353.92	5357.18	5355.21	5357.24	0.000142	1.94	51.57	22.78	0.21
Main	14550	150	150.00	5353.92	5359.11	5355.56	5359.15	0.000053	1.60	96.44	38.87	0.14
Main	14550	200	200.00	5353.92	5360.06	5355.86	5360.10	0.000042	1.65	156.18	56.51	0.13
Main	14550	250	250.00	5353.92	5360.50	5356.12	5360.55	0.000048	1.85	181.59	58.88	0.14
Main	14550	300	300.00	5353.92	5361.00	5356.41	5361.05	0.000049	1.98	211.69	60.93	0.14
Main	14550	350	350.00	5353.92	5361.52	5356.63	5361.58	0.000048	2.07	243.59	62.36	0.14
Main	14550	400	400.00	5353.92	5361.61	5356.87	5361.68	0.000059	2.32	249.31	62.94	0.16
Main	14550	450	450.00	5353.92	5361.76	5357.08	5361.85	0.000069	2.54	258.85	63.90	0.17
Main	14550	500	500.00	5353.92	5361.94	5357.31	5362.04	0.000077	2.73	270.34	65.43	0.18
Main	14550	50	50.00	5353.92	5355.85	5354.79	5355.91	0.000220	1.81	27.59	16.78	0.25
Main	14449	77	77.00	5353.42	5356.46	5354.67	5356.52	0.000156	1.91	40.40	22.71	0.22
Main	14449	100	100.00	5353.42	5357.17	5354.88	5357.23	0.000120	1.90	53.16	29.06	0.19
Main	14449	150	150.00	5353.42	5359.11	5355.26	5359.15	0.000047	1.65	105.96	49.98	0.13
Main	14449	200	200.00	5353.42	5360.04	5355.61	5360.09	0.000044	1.78	142.24	59.37	0.13
Main	14449	250	250.00	5353.42	5360.48	5355.91	5360.54	0.000052	2.03	161.21	63.77	0.14
Main	14449	300	300.00	5353.42	5360.98	5356.17	5361.04	0.000055	2.21	184.48	68.62	0.15
Main	14449	350	350.00	5353.42	5361.52	5356.45	5361.57	0.000044	2.07	285.34	74.32	0.14
Main	14449	400	400.00	5353.42	5361.61	5356.69	5361.67	0.000054	2.33	292.10	74.49	0.15
Main	14449	450	450.00	5353.42	5361.76	5356.93	5361.83	0.000062	2.54	303.32	74.81	0.16
Main	14449	500	500.00	5353.42	5361.94	5357.15	5362.02	0.000070	2.72	316.74	75.36	0.17
Main	14449	50	50.00	5353.42	5355.84	5354.41	5355.88	0.000150	1.65	30.38	15.50	0.21
Main	14383	77	77.00	5353.39	5356.46	5354.64	5356.51	0.000149	1.85	41.63	45.19	0.21
Main	14383	100	100.00	5353.39	5357.17	5354.88	5357.22	0.000116	1.81	55.16	49.30	0.19
Main	14383	150	150.00	5353.39	5359.11	5355.26	5359.14	0.000044	1.42	109.78	73.17	0.13
Main	14383	200	200.00	5353.39	5360.05	5355.59	5360.08	0.000036	1.50	150.97	86.36	0.12
Main	14383	250	250.00	5353.39	5360.49	5355.89	5360.53	0.000042	1.69	173.61	92.35	0.13
Main	14383	300	300.00	5353.39	5361.01	5356.17	5361.03	0.000023	1.35	368.06	104.16	0.10
Main	14383	350	350.00	5353.39	5361.54	5356.44	5361.56	0.000022	1.41	429.69	120.28	0.10
Main	14383	400	400.00	5353.39	5361.63	5356.60	5361.66	0.000027	1.57	441.20	120.28	0.11
Main	14383	450	450.00	5353.39	5361.79	5356.88	5361.82	0.000031	1.71	459.81	120.28	0.12
Main	14383	500	500.00	5353.39	5361.97	5357.12	5362.00	0.000035	1.82	481.84	120.28	0.12
Main	14383	50	50.00	5353.39	5355.83	5354.39	5355.87	0.000144	1.62	30.96	19.52	0.21
Main	14278	77	77.00	5353.92	5356.43	5355.15	5356.49	0.000215	2.01	38.36	30.76	0.26
Main	14278	100	100.00	5353.92	5357.15	5355.30	5357.20	0.000138	1.88	53.28	34.61	0.21
Main	14278	150	150.00	5353.92	5359.11	5355.65	5359.14	0.000034	1.34	154.52	55.61	0.11
Main	14278	200	200.00	5353.92	5360.05	5355.92	5360.08	0.000028	1.40	209.97	63.92	0.11
Main	14278	250	250.00	5353.92	5360.49	5356.18	5360.52	0.000032	1.58	238.32	65.23	0.12
Main	14278	300	300.00	5353.92	5360.99	5356.41	5361.02	0.000033	1.70	270.96	66.59	0.12
Main	14278	350	350.00	5353.92	5361.51	5356.66	5361.55	0.000033	1.79	306.52	70.05	0.12
Main	14278	400	400.00	5353.92	5361.60	5356.87	5361.65	0.000041	2.02	312.88	74.02	0.14
Main	14278	450	450.00	5353.92	5361.75	5357.06	5361.81	0.000049	2.22	324.03	75.74	0.15
Main	14278	500	500.00	5353.92	5361.93	5357.27	5362.00	0.000054	2.38	337.60	79.74	0.16
Main	14278	50	50.00	5353.92	5355.79	5354.91	5355.85	0.000285	1.91	26.17	24.19	0.28
Main	14193	77	77.00	5353.51	5356.41	5354.90	5356.47	0.000199	2.04	37.81	38.62	0.25

HEC-RAS Plan: Existing_Cap River: Ditch Reach: Main (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Main	14193	100	100.00	5353.51	5357.13	5355.10	5357.19	0.000141	1.95	51.35	44.01	0.21
Main	14193	150	150.00	5353.51	5359.12	5355.47	5359.13	0.000025	1.14	202.78	65.20	0.10
Main	14193	200	200.00	5353.51	5360.06	5355.80	5360.07	0.000021	1.20	266.22	69.92	0.09
Main	14193	250	250.00	5353.51	5360.50	5356.10	5360.52	0.000024	1.35	297.34	71.47	0.10
Main	14193	300	300.00	5353.51	5360.99	5356.36	5361.02	0.000025	1.47	333.18	73.02	0.10
Main	14193	350	350.00	5353.51	5361.52	5356.60	5361.55	0.000026	1.56	372.94	80.25	0.11
Main	14193	400	400.00	5353.51	5361.61	5356.84	5361.64	0.000032	1.75	380.37	81.96	0.12
Main	14193	450	450.00	5353.51	5361.76	5357.05	5361.80	0.000037	1.92	392.77	83.37	0.13
Main	14193	500	500.00	5353.51	5361.94	5357.28	5361.99	0.000042	2.07	409.26	96.45	0.14
Main	14193	50	50.00	5353.51	5355.77	5354.66	5355.83	0.000223	1.85	27.01	34.28	0.25
Main	14159	77	77.00	5353.67	5356.41	5354.86	5356.46	0.000147	1.75	43.90	46.47	0.22
Main	14159	100	100.00	5353.67	5357.14	5355.03	5357.18	0.000101	1.66	60.16	57.43	0.18
Main	14159	150	150.00	5353.67	5359.12	5355.39	5359.13	0.000020	1.02	221.50	74.36	0.09
Main	14159	200	200.00	5353.67	5360.06	5355.67	5360.07	0.000016	1.06	293.94	79.77	0.08
Main	14159	250	250.00	5353.67	5360.50	5355.92	5360.52	0.000019	1.19	329.79	82.49	0.09
Main	14159	300	300.00	5353.67	5361.00	5356.19	5361.01	0.000019	1.29	370.97	83.35	0.09
Main	14159	350	350.00	5353.67	5361.52	5356.37	5361.54	0.000019	1.35	415.21	84.58	0.09
Main	14159	400	400.00	5353.67	5361.62	5356.60	5361.64	0.000024	1.52	423.13	89.07	0.10
Main	14159	450	450.00	5353.67	5361.77	5356.81	5361.80	0.000028	1.67	438.50	109.99	0.11
Main	14159	500	500.00	5353.67	5361.95	5356.99	5361.98	0.000031	1.80	458.69	116.97	0.12
Main	14159	50	50.00	5353.67	5355.78	5354.60	5355.82	0.000174	1.62	30.86	19.46	0.23
Main	14071	77	77.00	5353.84	5356.40	5354.83	5356.45	0.000146	1.75	43.96	28.45	0.21
Main	14071	100	100.00	5353.84	5357.13	5355.03	5357.17	0.000101	1.67	60.02	76.02	0.18
Main	14071	150	150.00	5353.84	5359.12	5355.33	5359.13	0.000018	0.98	252.92	96.82	0.08
Main	14071	200	200.00	5353.84	5360.06	5355.61	5360.07	0.000014	0.98	349.82	108.59	0.08
Main	14071	250	250.00	5353.84	5360.50	5355.91	5360.51	0.000016	1.09	398.15	111.48	0.08
Main	14071	300	300.00	5353.84	5361.00	5356.14	5361.01	0.000016	1.17	458.72	133.67	0.08
Main	14071	350	350.00	5353.84	5361.53	5356.37	5361.54	0.000015	1.21	529.40	133.67	0.08
Main	14071	400	400.00	5353.84	5361.62	5356.58	5361.64	0.000019	1.35	541.80	133.67	0.09
Main	14071	450	450.00	5353.84	5361.77	5356.79	5361.79	0.000022	1.47	562.23	133.67	0.10
Main	14071	500	500.00	5353.84	5361.95	5356.97	5361.98	0.000024	1.58	586.32	133.67	0.10
Main	14071	50	50.00	5353.84	5355.76	5354.61	5355.80	0.000170	1.61	31.10	19.18	0.22
Main	13867	77	77.00	5353.93	5356.36	5354.97	5356.42	0.000175	1.86	41.36	46.88	0.23
Main	13867	100	100.00	5353.93	5357.10	5355.14	5357.15	0.000116	1.74	57.55	54.40	0.19
Main	13867	150	150.00	5353.93	5359.09	5355.44	5359.12	0.000035	1.36	124.06	99.39	0.12
Main	13867	200	200.00	5353.93	5360.05	5355.76	5360.07	0.000016	1.06	334.30	108.67	0.08
Main	13867	250	250.00	5353.93	5360.49	5356.00	5360.51	0.000018	1.17	382.22	108.67	0.09
Main	13867	300	300.00	5353.93	5360.99	5356.24	5361.01	0.000018	1.24	436.23	108.67	0.09
Main	13867	350	350.00	5353.93	5361.52	5356.42	5361.54	0.000017	1.29	493.65	108.67	0.09
Main	13867	400	400.00	5353.93	5361.61	5356.67	5361.63	0.000021	1.45	503.57	108.67	0.10
Main	13867	450	450.00	5353.93	5361.76	5356.85	5361.79	0.000024	1.58	520.02	108.67	0.11
Main	13867	500	500.00	5353.93	5361.94	5357.08	5361.97	0.000027	1.70	539.44	108.67	0.11
Main	13867	50	50.00	5353.93	5355.71	5354.74	5355.76	0.000229	1.76	28.34	19.24	0.26
Main	13782	77	77.00	5353.86	5356.35	5354.91	5356.40	0.000170	1.86	41.47	38.61	0.23
Main	13782	100	100.00	5353.86	5357.09	5355.11	5357.14	0.000114	1.74	57.45	48.00	0.19
Main	13782	150	150.00	5353.86	5359.09	5355.41	5359.12	0.000036	1.40	119.72	88.68	0.12
Main	13782	200	200.00	5353.86	5360.05	5355.70	5360.06	0.000019	1.16	297.51	97.47	0.09

HEC-RAS Plan: Existing_Cap River: Ditch Reach: Main (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Main	13782	250	250.00	5353.86	5360.49	5355.95	5360.51	0.000021	1.29	340.43	97.47	0.09
Main	13782	300	300.00	5353.86	5360.98	5356.15	5361.01	0.000021	1.38	388.79	97.47	0.10
Main	13782	350	350.00	5353.86	5361.51	5356.43	5361.54	0.000021	1.43	440.28	97.47	0.10
Main	13782	400	400.00	5353.86	5361.60	5356.60	5361.63	0.000025	1.61	448.99	97.47	0.11
Main	13782	450	450.00	5353.86	5361.75	5356.85	5361.79	0.000030	1.75	463.60	97.47	0.12
Main	13782	500	500.00	5353.86	5361.93	5357.05	5361.97	0.000033	1.88	480.83	97.47	0.12
Main	13782	50	50.00	5353.86	5355.69	5354.70	5355.74	0.000217	1.75	28.65	18.89	0.25
Main	13737		Bridge									
Main	13695	77	77.00	5353.61	5356.26	5354.83	5356.33	0.000230	2.16	35.68	46.38	0.26
Main	13695	100	100.00	5353.61	5356.96	5355.04	5357.02	0.000166	2.09	47.93	56.14	0.23
Main	13695	150	150.00	5353.61	5358.96	5355.41	5358.97	0.000023	1.08	245.97	107.36	0.09
Main	13695	200	200.00	5353.61	5360.03	5355.73	5360.04	0.000016	1.02	366.06	113.18	0.08
Main	13695	250	250.00	5353.61	5360.47	5356.03	5360.49	0.000017	1.13	416.57	113.18	0.08
Main	13695	300	300.00	5353.61	5360.98	5356.31	5360.99	0.000017	1.20	473.44	113.18	0.08
Main	13695	350	350.00	5353.61	5361.51	5356.56	5361.52	0.000017	1.25	533.73	113.18	0.08
Main	13695	400	400.00	5353.61	5361.60	5356.80	5361.61	0.000021	1.41	543.79	113.18	0.09
Main	13695	450	450.00	5353.61	5361.75	5357.02	5361.77	0.000024	1.53	560.81	113.18	0.10
Main	13695	500	500.00	5353.61	5361.93	5357.22	5361.95	0.000027	1.65	580.93	113.18	0.11
Main	13695	50	50.00	5353.61	5355.62	5354.59	5355.68	0.000268	1.98	25.27	32.69	0.27
Main	13601	77	77.00	5353.58	5356.25	5354.67	5356.31	0.000173	1.95	39.47	45.89	0.23
Main	13601	100	100.00	5353.58	5356.95	5354.84	5357.00	0.000130	1.93	51.83	49.71	0.20
Main	13601	150	150.00	5353.58	5358.96	5355.21	5358.97	0.000021	1.09	242.20	100.94	0.09
Main	13601	200	200.00	5353.58	5360.02	5355.52	5360.04	0.000015	1.07	349.74	100.94	0.08
Main	13601	250	250.00	5353.58	5360.47	5355.79	5360.48	0.000017	1.20	394.74	100.94	0.08
Main	13601	300	300.00	5353.58	5360.97	5356.02	5360.99	0.000018	1.29	445.41	100.94	0.09
Main	13601	350	350.00	5353.58	5361.50	5356.28	5361.52	0.000018	1.35	499.08	100.94	0.09
Main	13601	400	400.00	5353.58	5361.59	5356.54	5361.61	0.000022	1.52	507.96	100.94	0.10
Main	13601	450	450.00	5353.58	5361.74	5356.77	5361.77	0.000026	1.66	523.04	100.94	0.11
Main	13601	500	500.00	5353.58	5361.92	5356.98	5361.95	0.000029	1.79	540.83	100.94	0.11
Main	13601	50	50.00	5353.58	5355.60	5354.42	5355.65	0.000187	1.74	28.75	39.96	0.23
Main	13489	77	77.00	5353.50	5356.20	5354.83	5356.28	0.000260	2.28	33.79	44.63	0.28
Main	13489	100	100.00	5353.50	5356.91	5355.04	5356.99	0.000184	2.17	46.09	49.42	0.24
Main	13489	150	150.00	5353.50	5358.95	5355.43	5358.97	0.000029	1.19	203.15	85.05	0.10
Main	13489	200	200.00	5353.50	5360.02	5355.77	5360.03	0.000020	1.15	304.54	95.24	0.09
Main	13489	250	250.00	5353.50	5360.46	5356.05	5360.48	0.000022	1.28	347.00	95.24	0.09
Main	13489	300	300.00	5353.50	5360.97	5356.34	5360.98	0.000022	1.36	394.76	95.24	0.10
Main	13489	350	350.00	5353.50	5361.50	5356.60	5361.52	0.000022	1.42	445.45	95.24	0.10
Main	13489	400	400.00	5353.50	5361.58	5356.85	5361.61	0.000027	1.59	453.63	95.24	0.11
Main	13489	450	450.00	5353.50	5361.73	5357.06	5361.76	0.000031	1.74	467.72	95.24	0.12
Main	13489	500	500.00	5353.50	5361.91	5357.30	5361.94	0.000035	1.87	484.47	95.24	0.12
Main	13489	50	50.00	5353.50	5355.55	5354.54	5355.62	0.000306	2.11	23.69	14.87	0.29
Main	13463		Bridge									
Main	13439	77	77.00	5353.38	5356.14	5354.83	5356.23	0.000326	2.50	30.75	42.38	0.31
Main	13439	100	100.00	5353.38	5356.85	5355.03	5356.94	0.000228	2.37	42.11	47.09	0.26
Main	13439	150	150.00	5353.38	5358.81	5355.47	5358.82	0.000034	1.27	200.24	97.89	0.11

HEC-RAS Plan: Existing_Cap River: Ditch Reach: Main (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Main	13439	200	200.00	5353.38	5359.98	5355.85	5360.00	0.000020	1.16	315.39	97.89	0.09
Main	13439	250	250.00	5353.38	5360.44	5356.12	5360.45	0.000022	1.28	359.89	97.89	0.09
Main	13439	300	300.00	5353.38	5360.95	5356.46	5360.97	0.000023	1.36	409.88	97.89	0.10
Main	13439	350	350.00	5353.38	5361.49	5356.69	5361.50	0.000022	1.42	462.51	97.89	0.10
Main	13439	400	400.00	5353.38	5361.57	5356.98	5361.59	0.000027	1.59	470.68	97.89	0.11
Main	13439	450	450.00	5353.38	5361.72	5357.22	5361.74	0.000032	1.74	485.07	97.89	0.12
Main	13439	500	500.00	5353.38	5361.89	5357.45	5361.92	0.000035	1.87	502.23	97.89	0.12
Main	13439	50	50.00	5353.38	5355.50	5354.53	5355.59	0.000373	2.31	21.65	18.28	0.32
Main	13277	77	77.00	5353.53	5356.11	5354.67	5356.18	0.000199	2.00	38.45	55.59	0.25
Main	13277	100	100.00	5353.53	5356.84	5354.85	5356.89	0.000137	1.89	52.78	61.65	0.21
Main	13277	150	150.00	5353.53	5358.81	5355.20	5358.82	0.000017	0.94	265.61	95.24	0.08
Main	13277	200	200.00	5353.53	5359.98	5355.52	5359.99	0.000012	0.91	388.08	104.65	0.07
Main	13277	250	250.00	5353.53	5360.44	5355.81	5360.45	0.000013	1.02	435.65	104.65	0.07
Main	13277	300	300.00	5353.53	5360.95	5356.07	5360.96	0.000014	1.10	489.15	104.65	0.08
Main	13277	350	350.00	5353.53	5361.49	5356.31	5361.50	0.000014	1.16	545.36	104.65	0.08
Main	13277	400	400.00	5353.53	5361.57	5356.54	5361.58	0.000017	1.30	554.10	104.65	0.09
Main	13277	450	450.00	5353.53	5361.72	5356.72	5361.74	0.000020	1.43	569.48	104.65	0.09
Main	13277	500	500.00	5353.53	5361.89	5356.92	5361.91	0.000022	1.54	587.88	104.65	0.10
Main	13277	50	50.00	5353.53	5355.47	5354.39	5355.52	0.000236	1.86	26.95	50.27	0.26
Main	13223	77	77.00	5353.72	5356.10	5354.77	5356.16	0.000205	1.99	38.76	44.44	0.25
Main	13223	100	100.00	5353.72	5356.83	5354.96	5356.88	0.000132	1.86	53.75	49.28	0.21
Main	13223	150	150.00	5353.72	5358.80	5355.26	5358.81	0.000022	1.09	221.06	86.72	0.09
Main	13223	200	200.00	5353.72	5359.98	5355.57	5359.99	0.000015	1.05	323.15	86.72	0.08
Main	13223	250	250.00	5353.72	5360.43	5355.82	5360.45	0.000017	1.18	362.45	86.72	0.09
Main	13223	300	300.00	5353.72	5360.94	5356.07	5360.96	0.000018	1.28	406.65	86.72	0.09
Main	13223	350	350.00	5353.72	5361.48	5356.31	5361.50	0.000018	1.35	453.23	86.72	0.09
Main	13223	400	400.00	5353.72	5361.56	5356.51	5361.58	0.000022	1.52	460.26	86.72	0.10
Main	13223	450	450.00	5353.72	5361.71	5356.72	5361.73	0.000026	1.66	472.88	86.72	0.11
Main	13223	500	500.00	5353.72	5361.88	5356.91	5361.91	0.000030	1.80	487.95	86.72	0.12
Main	13223	50	50.00	5353.72	5355.45	5354.55	5355.51	0.000272	1.89	26.41	38.01	0.28
Main	13181		Bridge									
Main	13136	77	77.00	5353.40	5356.05	5354.64	5356.13	0.000259	2.28	33.72	38.61	0.28
Main	13136	100	100.00	5353.40	5356.78	5354.85	5356.85	0.000185	2.16	46.31	44.98	0.24
Main	13136	150	150.00	5353.40	5358.75	5355.25	5358.76	0.000027	1.18	217.02	83.83	0.10
Main	13136	200	200.00	5353.40	5359.92	5355.59	5359.93	0.000018	1.12	315.13	83.83	0.08
Main	13136	250	250.00	5353.40	5360.35	5355.88	5360.36	0.000020	1.27	351.23	83.83	0.09
Main	13136	300	300.00	5353.40	5360.84	5356.20	5360.85	0.000022	1.37	392.21	83.83	0.10
Main	13136	350	350.00	5353.40	5361.35	5356.47	5361.37	0.000022	1.45	435.60	83.83	0.10
Main	13136	400	400.00	5353.40	5361.40	5356.73	5361.42	0.000028	1.64	439.28	83.83	0.11
Main	13136	450	450.00	5353.40	5361.50	5356.96	5361.53	0.000033	1.81	448.12	83.83	0.12
Main	13136	500	500.00	5353.40	5361.64	5357.14	5361.67	0.000038	1.97	459.30	83.83	0.13
Main	13136	50	50.00	5353.40	5355.41	5354.36	5355.47	0.000290	2.08	24.00	34.03	0.29
Main	13004	77	77.00	5353.21	5356.01	5354.55	5356.09	0.000252	2.27	33.86	51.29	0.27
Main	13004	100	100.00	5353.21	5356.75	5354.78	5356.83	0.000177	2.16	46.22	54.84	0.23
Main	13004	150	150.00	5353.21	5358.75	5355.18	5358.76	0.000018	0.98	280.24	109.18	0.08
Main	13004	200	200.00	5353.21	5359.92	5355.53	5359.92	0.000012	0.94	408.08	109.18	0.07

HEC-RAS Plan: Existing_Cap River: Ditch Reach: Main (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Main	13004	250	250.00	5353.21	5360.35	5355.86	5360.36	0.000014	1.06	455.16	109.18	0.08
Main	13004	300	300.00	5353.21	5360.84	5356.13	5360.85	0.000015	1.14	508.63	109.18	0.08
Main	13004	350	350.00	5353.21	5361.36	5356.41	5361.37	0.000015	1.20	565.14	109.18	0.08
Main	13004	400	400.00	5353.21	5361.40	5356.63	5361.42	0.000019	1.36	569.99	109.18	0.09
Main	13004	450	450.00	5353.21	5361.51	5356.88	5361.52	0.000022	1.50	581.56	109.18	0.10
Main	13004	500	500.00	5353.21	5361.64	5357.09	5361.66	0.000026	1.63	596.22	109.18	0.11
Main	13004	50	50.00	5353.21	5355.37	5354.28	5355.44	0.000282	2.07	24.13	48.21	0.28
Main	12937	77	77.00	5353.32	5355.99	5354.68	5356.07	0.000292	2.37	32.49	51.74	0.29
Main	12937	100	100.00	5353.32	5356.74	5354.89	5356.81	0.000196	2.23	44.92	55.70	0.24
Main	12937	150	150.00	5353.32	5358.74	5355.27	5358.75	0.000019	0.98	278.10	114.86	0.08
Main	12937	200	200.00	5353.32	5359.92	5355.62	5359.92	0.000012	0.93	412.70	114.86	0.07
Main	12937	250	250.00	5353.32	5360.35	5355.91	5360.36	0.000014	1.04	462.22	114.86	0.08
Main	12937	300	300.00	5353.32	5360.84	5356.20	5360.85	0.000015	1.12	518.47	114.86	0.08
Main	12937	350	350.00	5353.32	5361.35	5356.46	5361.37	0.000015	1.18	577.92	114.86	0.08
Main	12937	400	400.00	5353.32	5361.40	5356.69	5361.41	0.000019	1.34	582.97	114.86	0.09
Main	12937	450	450.00	5353.32	5361.50	5356.94	5361.52	0.000022	1.47	595.14	114.86	0.10
Main	12937	500	500.00	5353.32	5361.64	5357.16	5361.66	0.000026	1.60	610.56	114.86	0.10
Main	12937	50	50.00	5353.32	5355.34	5354.41	5355.41	0.000354	2.21	22.66	48.09	0.31
Main	12764	77	77.00	5353.28	5355.96	5354.45	5356.03	0.000211	2.09	36.81	46.59	0.25
Main	12764	100	100.00	5353.28	5356.72	5354.66	5356.78	0.000144	1.98	50.56	52.54	0.21
Main	12764	150	150.00	5353.28	5358.74	5355.04	5358.75	0.000020	1.05	255.08	106.51	0.09
Main	12764	200	200.00	5353.28	5359.91	5355.38	5359.92	0.000013	0.99	380.10	106.51	0.07
Main	12764	250	250.00	5353.28	5360.34	5355.66	5360.35	0.000015	1.11	425.92	106.51	0.08
Main	12764	300	300.00	5353.28	5360.83	5355.93	5360.84	0.000016	1.20	478.03	106.51	0.08
Main	12764	350	350.00	5353.28	5361.35	5356.20	5361.36	0.000016	1.26	533.16	106.51	0.08
Main	12764	400	400.00	5353.28	5361.39	5356.42	5361.41	0.000020	1.42	537.68	106.51	0.09
Main	12764	450	450.00	5353.28	5361.50	5356.66	5361.52	0.000024	1.57	548.81	106.51	0.10
Main	12764	500	500.00	5353.28	5361.63	5356.86	5361.65	0.000028	1.70	563.01	106.51	0.11
Main	12764	50	50.00	5353.28	5355.30	5354.19	5355.36	0.000241	1.92	26.06	43.11	0.26
Main	12632	77	77.00	5353.03	5355.93	5354.68	5356.00	0.000234	2.06	37.43	19.82	0.26
Main	12632	100	100.00	5353.03	5356.70	5354.85	5356.76	0.000148	1.85	53.93	23.75	0.22
Main	12632	150	150.00	5353.03	5358.72	5355.19	5358.75	0.000032	1.25	174.63	94.50	0.11
Main	12632	200	200.00	5353.03	5359.90	5355.46	5359.92	0.000018	1.13	286.02	94.50	0.09
Main	12632	250	250.00	5353.03	5360.33	5355.73	5360.35	0.000020	1.26	326.62	94.50	0.09
Main	12632	300	300.00	5353.03	5360.82	5355.95	5360.84	0.000021	1.34	372.77	94.50	0.10
Main	12632	350	350.00	5353.03	5361.34	5356.21	5361.36	0.000020	1.40	421.63	94.50	0.10
Main	12632	400	400.00	5353.03	5361.38	5356.42	5361.41	0.000026	1.58	425.37	94.50	0.11
Main	12632	450	450.00	5353.03	5361.48	5356.66	5361.51	0.000031	1.74	434.97	94.50	0.12
Main	12632	500	500.00	5353.03	5361.61	5356.91	5361.65	0.000035	1.89	447.29	94.50	0.13
Main	12632	50	50.00	5353.03	5355.26	5354.41	5355.32	0.000343	2.03	24.66	18.07	0.31
Main	12540	77	77.00	5353.04	5355.92	5354.28	5355.97	0.000150	1.84	41.79	39.04	0.22
Main	12540	100	100.00	5353.04	5356.70	5354.47	5356.74	0.000105	1.76	56.71	41.73	0.18
Main	12540	150	150.00	5353.04	5358.73	5354.82	5358.74	0.000015	0.93	316.36	135.45	0.08
Main	12540	200	200.00	5353.04	5359.91	5355.13	5359.91	0.000009	0.86	475.82	135.45	0.06
Main	12540	250	250.00	5353.04	5360.34	5355.41	5360.35	0.000011	0.96	534.22	135.45	0.07
Main	12540	300	300.00	5353.04	5360.83	5355.66	5360.84	0.000011	1.02	600.42	135.45	0.07
Main	12540	350	350.00	5353.04	5361.35	5355.89	5361.35	0.000011	1.07	670.53	135.45	0.07

HEC-RAS Plan: Existing_Cap River: Ditch Reach: Main (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Main	12540	400	400.00	5353.04	5361.39	5356.13	5361.40	0.000014	1.21	676.15	135.45	0.08
Main	12540	450	450.00	5353.04	5361.49	5356.35	5361.51	0.000017	1.34	690.24	135.45	0.09
Main	12540	500	500.00	5353.04	5361.62	5356.51	5361.64	0.000019	1.45	708.16	135.45	0.09
Main	12540	50	50.00	5353.04	5355.25	5354.01	5355.29	0.000173	1.68	29.74	36.70	0.23
Main	12392	77	77.00	5353.32	5355.88	5354.48	5355.95	0.000221	2.12	36.38	48.46	0.26
Main	12392	100	100.00	5353.32	5356.67	5354.68	5356.73	0.000143	1.98	50.62	53.04	0.21
Main	12392	150	150.00	5353.32	5358.73	5355.02	5358.74	0.000013	0.79	314.47	97.57	0.07
Main	12392	200	200.00	5353.32	5359.91	5355.35	5359.91	0.000010	0.81	429.24	97.57	0.06
Main	12392	250	250.00	5353.32	5360.34	5355.64	5360.34	0.000011	0.93	471.21	97.57	0.07
Main	12392	300	300.00	5353.32	5360.83	5355.91	5360.83	0.000012	1.02	518.86	97.57	0.07
Main	12392	350	350.00	5353.32	5361.34	5356.12	5361.35	0.000013	1.09	569.31	97.57	0.07
Main	12392	400	400.00	5353.32	5361.38	5356.38	5361.40	0.000016	1.24	573.26	97.57	0.08
Main	12392	450	450.00	5353.32	5361.49	5356.58	5361.50	0.000020	1.37	583.31	97.57	0.09
Main	12392	500	500.00	5353.32	5361.62	5356.80	5361.64	0.000023	1.49	596.13	97.57	0.10
Main	12392	50	50.00	5353.32	5355.20	5354.22	5355.26	0.000283	2.00	25.00	38.04	0.28
Main	12336	77	77.00	5352.94	5355.87	5354.20	5355.93	0.000180	1.98	38.91	51.72	0.23
Main	12336	100	100.00	5352.94	5356.66	5354.41	5356.72	0.000129	1.87	53.50	58.91	0.20
Main	12336	150	150.00	5352.94	5358.72	5354.80	5358.73	0.000019	1.04	246.71	95.79	0.08
Main	12336	200	200.00	5352.94	5359.90	5355.13	5359.91	0.000013	1.00	359.58	95.79	0.07
Main	12336	250	250.00	5352.94	5360.33	5355.41	5360.34	0.000015	1.13	400.73	95.79	0.08
Main	12336	300	300.00	5352.94	5360.82	5355.70	5360.83	0.000016	1.22	447.46	95.79	0.08
Main	12336	350	350.00	5352.94	5361.34	5355.98	5361.35	0.000016	1.29	496.95	95.79	0.08
Main	12336	400	400.00	5352.94	5361.38	5356.23	5361.40	0.000021	1.47	500.73	95.79	0.10
Main	12336	450	450.00	5352.94	5361.48	5356.45	5361.50	0.000025	1.62	510.42	95.79	0.10
Main	12336	500	500.00	5352.94	5361.61	5356.65	5361.63	0.000029	1.76	522.81	95.79	0.11
Main	12336	50	50.00	5352.94	5355.19	5353.93	5355.24	0.000199	1.79	27.86	17.79	0.24
Main	12211	77	77.00	5352.21	5355.86	5353.75	5355.91	0.000132	1.85	41.65	44.74	0.20
Main	12211	100	100.00	5352.21	5356.65	5354.01	5356.70	0.000091	1.83	56.83	56.66	0.18
Main	12211	150	150.00	5352.21	5358.72	5354.44	5358.73	0.000015	1.02	298.15	103.18	0.08
Main	12211	200	200.00	5352.21	5359.90	5354.81	5359.91	0.000011	0.98	419.82	103.18	0.07
Main	12211	250	250.00	5352.21	5360.33	5355.15	5360.34	0.000012	1.10	464.15	103.18	0.07
Main	12211	300	300.00	5352.21	5360.82	5355.44	5360.83	0.000013	1.20	514.43	103.18	0.08
Main	12211	350	350.00	5352.21	5361.34	5355.72	5361.35	0.000014	1.26	567.79	103.18	0.08
Main	12211	400	400.00	5352.21	5361.38	5355.98	5361.39	0.000017	1.43	571.87	103.18	0.09
Main	12211	450	450.00	5352.21	5361.48	5356.22	5361.50	0.000021	1.58	582.30	103.18	0.10
Main	12211	500	500.00	5352.21	5361.61	5356.42	5361.63	0.000024	1.72	595.65	103.18	0.11
Main	12211	50	50.00	5352.21	5355.18	5353.45	5355.22	0.000130	1.61	31.03	41.24	0.20
Main	12116	77	77.00	5352.57	5355.86	5353.78	5355.90	0.000096	1.56	49.46	45.57	0.18
Main	12116	100	100.00	5352.57	5356.65	5353.99	5356.69	0.000066	1.51	66.73	51.58	0.15
Main	12116	150	150.00	5352.57	5358.72	5354.37	5358.73	0.000013	0.95	279.25	102.36	0.07
Main	12116	200	200.00	5352.57	5359.90	5354.70	5359.91	0.000010	0.93	399.95	102.36	0.06
Main	12116	250	250.00	5352.57	5360.33	5354.97	5360.34	0.000011	1.05	443.88	102.36	0.07
Main	12116	300	300.00	5352.57	5360.82	5355.25	5360.83	0.000012	1.14	493.76	102.36	0.07
Main	12116	350	350.00	5352.57	5361.33	5355.49	5361.35	0.000012	1.21	546.64	102.36	0.08
Main	12116	400	400.00	5352.57	5361.37	5355.72	5361.39	0.000016	1.37	550.69	102.36	0.09
Main	12116	450	450.00	5352.57	5361.47	5355.92	5361.49	0.000019	1.52	560.94	102.36	0.10
Main	12116	500	500.00	5352.57	5361.60	5356.11	5361.63	0.000022	1.65	574.08	102.36	0.10

HEC-RAS Plan: Existing_Cap River: Ditch Reach: Main (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Main	12116	50	50.00	5352.57	5355.17	5353.51	5355.20	0.000097	1.38	36.27	41.25	0.17
Main	12016	77	77.00	5353.14	5355.84	5354.25	5355.88	0.000129	1.65	46.75	48.05	0.20
Main	12016	100	100.00	5353.14	5356.65	5354.42	5356.68	0.000080	1.51	66.30	57.12	0.16
Main	12016	150	150.00	5353.14	5358.72	5354.75	5358.73	0.000012	0.86	301.67	102.42	0.07
Main	12016	200	200.00	5353.14	5359.90	5355.04	5359.91	0.000008	0.84	422.45	102.42	0.06
Main	12016	250	250.00	5353.14	5360.33	5355.29	5360.34	0.000010	0.95	466.46	102.42	0.07
Main	12016	300	300.00	5353.14	5360.82	5355.51	5360.83	0.000011	1.04	516.32	102.42	0.07
Main	12016	350	350.00	5353.14	5361.33	5355.72	5361.35	0.000011	1.10	569.23	102.42	0.07
Main	12016	400	400.00	5353.14	5361.37	5355.92	5361.39	0.000014	1.25	573.28	102.42	0.08
Main	12016	450	450.00	5353.14	5361.47	5356.12	5361.49	0.000017	1.39	583.53	102.42	0.09
Main	12016	500	500.00	5353.14	5361.60	5356.28	5361.62	0.000019	1.51	596.68	102.42	0.10
Main	12016	50	50.00	5353.14	5355.15	5354.05	5355.19	0.000166	1.57	31.90	43.89	0.22
Main	11904	77	77.00	5353.42	5355.82	5354.36	5355.87	0.000141	1.68	45.71	22.73	0.21
Main	11904	100	100.00	5353.42	5356.64	5354.54	5356.67	0.000085	1.54	65.17	59.98	0.17
Main	11904	150	150.00	5353.42	5358.72	5354.82	5358.73	0.000015	0.96	269.42	110.47	0.08
Main	11904	200	200.00	5353.42	5359.90	5355.11	5359.91	0.000010	0.90	399.96	110.47	0.07
Main	11904	250	250.00	5353.42	5360.33	5355.34	5360.34	0.000011	1.02	447.37	110.47	0.07
Main	11904	300	300.00	5353.42	5360.81	5355.56	5360.83	0.000012	1.09	501.15	110.47	0.07
Main	11904	350	350.00	5353.42	5361.33	5355.74	5361.34	0.000012	1.15	558.27	110.47	0.08
Main	11904	400	400.00	5353.42	5361.37	5355.96	5361.39	0.000015	1.31	562.54	110.47	0.08
Main	11904	450	450.00	5353.42	5361.47	5356.16	5361.49	0.000018	1.44	573.59	110.47	0.09
Main	11904	500	500.00	5353.42	5361.60	5356.33	5361.62	0.000021	1.56	587.67	110.47	0.10
Main	11904	50	50.00	5353.42	5355.13	5354.15	5355.17	0.000203	1.64	30.46	21.02	0.24
Main	11780	77	77.00	5353.35	5355.80	5354.31	5355.85	0.000154	1.79	43.05	51.45	0.22
Main	11780	100	100.00	5353.35	5356.62	5354.46	5356.66	0.000097	1.67	60.02	56.45	0.18
Main	11780	150	150.00	5353.35	5358.71	5354.79	5358.73	0.000016	0.97	257.07	92.20	0.08
Main	11780	200	200.00	5353.35	5359.90	5355.07	5359.90	0.000011	0.94	382.99	111.18	0.07
Main	11780	250	250.00	5353.35	5360.32	5355.33	5360.34	0.000013	1.06	430.71	111.18	0.07
Main	11780	300	300.00	5353.35	5360.81	5355.54	5360.82	0.000014	1.14	484.84	111.18	0.08
Main	11780	350	350.00	5353.35	5361.33	5355.79	5361.34	0.000014	1.20	542.33	111.18	0.08
Main	11780	400	400.00	5353.35	5361.37	5355.99	5361.38	0.000018	1.36	546.56	111.18	0.09
Main	11780	450	450.00	5353.35	5361.47	5356.20	5361.49	0.000022	1.50	557.58	111.18	0.10
Main	11780	500	500.00	5353.35	5361.59	5356.32	5361.62	0.000025	1.63	571.75	111.18	0.10
Main	11780	50	50.00	5353.35	5355.10	5354.09	5355.14	0.000208	1.70	29.37	33.53	0.24
Main	11725	77	77.00	5353.31	5355.75	5354.59	5355.83	0.000303	2.37	32.54	25.23	0.30
Main	11725	100	100.00	5353.31	5356.58	5354.78	5356.65	0.000173	2.12	47.12	47.17	0.23
Main	11725	150	150.00	5353.31	5358.71	5355.12	5358.72	0.000030	1.23	206.22	95.47	0.10
Main	11725	200	200.00	5353.31	5359.89	5355.44	5359.90	0.000018	1.13	319.36	95.47	0.08
Main	11725	250	250.00	5353.31	5360.32	5355.73	5360.33	0.000021	1.26	360.19	95.47	0.09
Main	11725	300	300.00	5353.31	5360.80	5355.98	5360.82	0.000021	1.35	406.62	95.47	0.09
Main	11725	350	350.00	5353.31	5361.32	5356.23	5361.34	0.000021	1.41	455.94	95.47	0.09
Main	11725	400	400.00	5353.31	5361.36	5356.44	5361.38	0.000027	1.60	459.39	95.47	0.11
Main	11725	450	450.00	5353.31	5361.45	5356.69	5361.48	0.000032	1.77	468.67	95.47	0.12
Main	11725	500	500.00	5353.31	5361.58	5356.86	5361.62	0.000037	1.92	480.65	95.47	0.13
Main	11725	50	50.00	5353.31	5355.03	5354.30	5355.12	0.000481	2.38	20.97	15.66	0.36
Main	11690		Bridge									

HEC-RAS Plan: Existing_Cap River: Ditch Reach: Main (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Main	11656	77	77.00	5352.92	5355.69	5354.17	5355.76	0.000218	2.12	36.31	25.83	0.25
Main	11656	100	100.00	5352.92	5356.49	5354.36	5356.55	0.000140	1.98	50.87	33.36	0.21
Main	11656	150	150.00	5352.92	5358.38	5354.76	5358.40	0.000032	1.34	200.67	92.71	0.11
Main	11656	200	200.00	5352.92	5359.58	5355.10	5359.59	0.000019	1.21	311.49	92.71	0.09
Main	11656	250	250.00	5352.92	5360.21	5355.40	5360.23	0.000019	1.29	370.07	92.71	0.09
Main	11656	300	300.00	5352.92	5360.74	5355.70	5360.76	0.000019	1.37	419.68	92.71	0.09
Main	11656	350	350.00	5352.92	5361.28	5355.96	5361.30	0.000019	1.43	469.57	92.71	0.09
Main	11656	400	400.00	5352.92	5361.31	5356.19	5361.33	0.000025	1.63	471.87	92.71	0.10
Main	11656	450	450.00	5352.92	5361.40	5356.42	5361.43	0.000030	1.80	480.25	92.71	0.11
Main	11656	500	500.00	5352.92	5361.52	5356.65	5361.56	0.000034	1.95	491.57	92.71	0.12
Main	11656	50	50.00	5352.92	5354.98	5353.88	5355.05	0.000266	2.00	25.05	15.05	0.27
Main	11536	77	77.00	5352.46	5355.67	5353.91	5355.73	0.000173	1.99	38.77	35.82	0.23
Main	11536	100	100.00	5352.46	5356.48	5354.11	5356.53	0.000120	1.88	53.20	41.29	0.20
Main	11536	150	150.00	5352.46	5358.38	5354.52	5358.40	0.000026	1.24	219.15	92.25	0.10
Main	11536	200	200.00	5352.46	5359.58	5354.86	5359.59	0.000017	1.15	329.51	92.25	0.08
Main	11536	250	250.00	5352.46	5360.21	5355.20	5360.22	0.000017	1.23	387.75	92.25	0.08
Main	11536	300	300.00	5352.46	5360.74	5355.50	5360.76	0.000017	1.31	437.12	92.25	0.09
Main	11536	350	350.00	5352.46	5361.28	5355.77	5361.30	0.000017	1.38	486.76	92.25	0.09
Main	11536	400	400.00	5352.46	5361.31	5356.02	5361.33	0.000022	1.57	488.97	92.25	0.10
Main	11536	450	450.00	5352.46	5361.40	5356.24	5361.42	0.000027	1.74	497.30	92.25	0.11
Main	11536	500	500.00	5352.46	5361.52	5356.46	5361.55	0.000031	1.89	508.52	92.25	0.12
Main	11536	50	50.00	5352.46	5354.96	5353.59	5355.01	0.000189	1.81	27.63	25.57	0.23
Main	11443	77	77.00	5352.89	5355.65	5354.15	5355.72	0.000193	2.02	38.12	42.01	0.24
Main	11443	100	100.00	5352.89	5356.47	5354.34	5356.52	0.000111	1.88	54.63	52.12	0.20
Main	11443	150	150.00	5352.89	5358.38	5354.72	5358.39	0.000019	1.09	258.31	98.83	0.09
Main	11443	200	200.00	5352.89	5359.58	5355.04	5359.59	0.000013	1.03	376.49	98.83	0.07
Main	11443	250	250.00	5352.89	5360.21	5355.33	5360.22	0.000013	1.12	438.89	98.83	0.08
Main	11443	300	300.00	5352.89	5360.74	5355.60	5360.76	0.000013	1.20	491.78	98.83	0.08
Main	11443	350	350.00	5352.89	5361.28	5355.84	5361.30	0.000014	1.27	545.01	98.83	0.08
Main	11443	400	400.00	5352.89	5361.31	5356.05	5361.32	0.000018	1.44	547.32	98.83	0.09
Main	11443	450	450.00	5352.89	5361.40	5356.27	5361.42	0.000021	1.60	556.35	98.83	0.10
Main	11443	500	500.00	5352.89	5361.52	5356.45	5361.55	0.000025	1.74	568.41	98.83	0.11
Main	11443	50	50.00	5352.89	5354.93	5353.88	5354.99	0.000256	1.94	25.76	37.96	0.27
Main	11294	77	77.00	5352.60	5355.61	5354.00	5355.68	0.000228	2.21	34.76	49.22	0.26
Main	11294	100	100.00	5352.60	5356.44	5354.23	5356.50	0.000154	2.06	48.56	52.86	0.22
Main	11294	150	150.00	5352.60	5358.38	5354.67	5358.39	0.000018	0.98	288.54	102.50	0.08
Main	11294	200	200.00	5352.60	5359.58	5355.01	5359.59	0.000012	0.93	411.21	102.50	0.07
Main	11294	250	250.00	5352.60	5360.21	5355.35	5360.22	0.000012	1.01	475.87	102.50	0.07
Main	11294	300	300.00	5352.60	5360.74	5355.65	5360.75	0.000012	1.08	530.78	102.50	0.07
Main	11294	350	350.00	5352.60	5361.28	5355.94	5361.29	0.000013	1.15	585.98	102.50	0.07
Main	11294	400	400.00	5352.60	5361.31	5356.19	5361.32	0.000016	1.31	588.38	102.50	0.08
Main	11294	450	450.00	5352.60	5361.40	5356.43	5361.42	0.000020	1.45	597.79	102.50	0.09
Main	11294	500	500.00	5352.60	5361.52	5356.66	5361.54	0.000023	1.57	610.25	102.50	0.10
Main	11294	50	50.00	5352.60	5354.89	5353.68	5354.95	0.000267	2.06	24.22	45.94	0.27
Main	11222	77	77.00	5352.57	5355.59	5354.01	5355.67	0.000218	2.15	35.86	45.81	0.26
Main	11222	100	100.00	5352.57	5356.43	5354.25	5356.49	0.000148	1.97	50.76	57.33	0.22

HEC-RAS Plan: Existing_Cap River: Ditch Reach: Main (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Main	11222	150	150.00	5352.57	5358.38	5354.67	5358.39	0.000017	0.96	288.05	107.23	0.08
Main	11222	200	200.00	5352.57	5359.58	5355.01	5359.58	0.000011	0.91	416.44	107.23	0.07
Main	11222	250	250.00	5352.57	5360.21	5355.34	5360.22	0.000011	0.98	484.14	107.23	0.07
Main	11222	300	300.00	5352.57	5360.74	5355.61	5360.75	0.000012	1.06	541.52	107.23	0.07
Main	11222	350	350.00	5352.57	5361.28	5355.84	5361.29	0.000012	1.12	599.27	107.23	0.07
Main	11222	400	400.00	5352.57	5361.31	5356.13	5361.32	0.000015	1.27	601.79	107.23	0.08
Main	11222	450	450.00	5352.57	5361.40	5356.36	5361.41	0.000018	1.41	611.63	107.23	0.09
Main	11222	500	500.00	5352.57	5361.52	5356.61	5361.54	0.000021	1.53	624.61	107.23	0.10
Main	11222	50	50.00	5352.57	5354.87	5353.70	5354.93	0.000273	2.04	24.49	27.86	0.28
Main	11113	77	77.00	5352.65	5355.59	5353.83	5355.64	0.000128	1.73	44.41	36.42	0.20
Main	11113	100	100.00	5352.65	5356.43	5354.02	5356.47	0.000088	1.63	61.29	42.96	0.17
Main	11113	150	150.00	5352.65	5358.37	5354.36	5358.39	0.000022	1.12	223.42	99.55	0.09
Main	11113	200	200.00	5352.65	5359.57	5354.66	5359.58	0.000014	1.04	342.90	99.55	0.08
Main	11113	250	250.00	5352.65	5360.20	5354.94	5360.21	0.000014	1.11	405.70	99.55	0.08
Main	11113	300	300.00	5352.65	5360.74	5355.22	5360.75	0.000014	1.19	458.98	99.55	0.08
Main	11113	350	350.00	5352.65	5361.28	5355.45	5361.29	0.000014	1.25	512.59	99.55	0.08
Main	11113	400	400.00	5352.65	5361.30	5355.67	5361.32	0.000018	1.42	514.68	99.55	0.09
Main	11113	450	450.00	5352.65	5361.39	5355.90	5361.41	0.000022	1.58	523.68	99.55	0.10
Main	11113	500	500.00	5352.65	5361.51	5356.10	5361.54	0.000026	1.71	535.54	99.55	0.11
Main	11113	50	50.00	5352.65	5354.86	5353.58	5354.90	0.000152	1.60	31.18	28.86	0.21
Main	11027	77	77.00	5352.83	5355.55	5354.17	5355.62	0.000220	2.11	36.56	35.08	0.26
Main	11027	100	100.00	5352.83	5356.40	5354.36	5356.46	0.000132	1.90	52.62	42.75	0.21
Main	11027	150	150.00	5352.83	5358.37	5354.71	5358.38	0.000028	1.23	204.66	94.42	0.10
Main	11027	200	200.00	5352.83	5359.57	5355.03	5359.58	0.000017	1.13	318.12	94.42	0.08
Main	11027	250	250.00	5352.83	5360.20	5355.33	5360.21	0.000017	1.20	377.73	94.42	0.09
Main	11027	300	300.00	5352.83	5360.73	5355.59	5360.75	0.000017	1.28	428.22	94.42	0.09
Main	11027	350	350.00	5352.83	5361.27	5355.83	5361.29	0.000017	1.35	479.07	94.42	0.09
Main	11027	400	400.00	5352.83	5361.29	5356.05	5361.31	0.000022	1.53	480.96	94.42	0.10
Main	11027	450	450.00	5352.83	5361.38	5356.29	5361.41	0.000026	1.70	489.35	94.42	0.11
Main	11027	500	500.00	5352.83	5361.50	5356.50	5361.53	0.000030	1.84	500.51	94.42	0.12
Main	11027	50	50.00	5352.83	5354.82	5353.89	5354.88	0.000322	2.09	23.96	25.03	0.30
Main	10932	77	77.00	5352.52	5355.56	5353.77	5355.60	0.000119	1.67	46.21	38.61	0.19
Main	10932	100	100.00	5352.52	5356.41	5353.96	5356.44	0.000078	1.56	64.27	45.79	0.16
Main	10932	150	150.00	5352.52	5358.37	5354.30	5358.38	0.000021	1.05	203.63	65.70	0.09
Main	10932	200	200.00	5352.52	5359.57	5354.62	5359.58	0.000014	1.03	302.17	96.71	0.08
Main	10932	250	250.00	5352.52	5360.20	5354.89	5360.21	0.000015	1.12	363.18	96.71	0.08
Main	10932	300	300.00	5352.52	5360.73	5355.14	5360.75	0.000015	1.20	414.89	96.71	0.08
Main	10932	350	350.00	5352.52	5361.27	5355.37	5361.29	0.000015	1.26	466.97	96.71	0.08
Main	10932	400	400.00	5352.52	5361.29	5355.59	5361.31	0.000019	1.43	468.86	96.71	0.09
Main	10932	450	450.00	5352.52	5361.38	5355.79	5361.41	0.000023	1.59	477.46	96.71	0.10
Main	10932	500	500.00	5352.52	5361.50	5356.00	5361.53	0.000027	1.73	488.79	96.71	0.11
Main	10932	50	50.00	5352.52	5354.82	5353.53	5354.85	0.000147	1.57	31.94	30.25	0.21
Main	10876	77	77.00	5352.33	5355.53	5353.78	5355.59	0.000176	1.98	38.84	25.24	0.23
Main	10876	100	100.00	5352.33	5356.39	5353.99	5356.44	0.000118	1.83	54.77	32.81	0.20
Main	10876	150	150.00	5352.33	5358.35	5354.43	5358.38	0.000033	1.35	160.31	62.42	0.11
Main	10876	200	200.00	5352.33	5359.56	5354.79	5359.58	0.000022	1.29	258.10	89.94	0.09
Main	10876	250	250.00	5352.33	5360.19	5355.09	5360.21	0.000021	1.37	314.84	89.94	0.10

HEC-RAS Plan: Existing_Cap River: Ditch Reach: Main (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Main	10876	300	300.00	5352.33	5360.72	5355.39	5360.75	0.000022	1.46	362.92	89.94	0.10
Main	10876	350	350.00	5352.33	5361.26	5355.65	5361.29	0.000021	1.52	411.32	89.94	0.10
Main	10876	400	400.00	5352.33	5361.28	5355.89	5361.31	0.000028	1.73	412.86	89.94	0.11
Main	10876	450	450.00	5352.33	5361.36	5356.14	5361.40	0.000033	1.92	420.58	89.94	0.12
Main	10876	500	500.00	5352.33	5361.48	5356.34	5361.53	0.000038	2.08	430.95	89.94	0.13
Main	10876	50	50.00	5352.33	5354.79	5353.48	5354.84	0.000209	1.86	26.86	15.55	0.25
Main	10846		Bridge									
Main	10811	77	77.00	5353.03	5355.36	5354.28	5355.45	0.000357	2.50	30.81	20.42	0.32
Main	10811	100	100.00	5353.03	5356.26	5354.46	5356.33	0.000181	2.14	46.74	28.10	0.24
Main	10811	150	150.00	5353.03	5358.15	5354.83	5358.18	0.000053	1.54	133.53	63.17	0.14
Main	10811	200	200.00	5353.03	5359.18	5355.16	5359.21	0.000036	1.48	209.26	83.79	0.12
Main	10811	250	250.00	5353.03	5359.59	5355.44	5359.63	0.000040	1.65	245.55	92.77	0.13
Main	10811	300	300.00	5353.03	5359.86	5355.71	5359.90	0.000046	1.84	270.70	94.12	0.14
Main	10811	350	350.00	5353.03	5360.13	5355.95	5360.18	0.000051	2.00	295.93	94.12	0.15
Main	10811	400	400.00	5353.03	5360.44	5356.16	5360.49	0.000054	2.11	324.79	94.12	0.15
Main	10811	450	450.00	5353.03	5360.79	5356.40	5360.84	0.000053	2.19	357.83	94.12	0.15
Main	10811	500	500.00	5353.03	5361.17	5356.63	5361.22	0.000051	2.23	393.82	94.12	0.15
Main	10811	50	50.00	5353.03	5354.56	5354.01	5354.68	0.000739	2.76	18.12	15.12	0.44
Main	10672	77	77.00	5352.82	5355.33	5353.98	5355.40	0.000217	2.05	37.62	30.40	0.26
Main	10672	100	100.00	5352.82	5356.25	5354.17	5356.30	0.000115	1.77	56.34	36.19	0.19
Main	10672	150	150.00	5352.82	5358.15	5354.52	5358.17	0.000031	1.26	172.34	80.83	0.11
Main	10672	200	200.00	5352.82	5359.18	5354.81	5359.20	0.000022	1.24	255.90	80.83	0.10
Main	10672	250	250.00	5352.82	5359.59	5355.11	5359.62	0.000025	1.40	289.25	80.83	0.10
Main	10672	300	300.00	5352.82	5359.86	5355.36	5359.89	0.000030	1.58	310.92	80.83	0.11
Main	10672	350	350.00	5352.82	5360.13	5355.58	5360.16	0.000034	1.73	332.54	80.83	0.12
Main	10672	400	400.00	5352.82	5360.44	5355.81	5360.48	0.000037	1.86	357.29	80.83	0.13
Main	10672	450	450.00	5352.82	5360.79	5356.01	5360.83	0.000038	1.95	385.63	80.83	0.13
Main	10672	500	500.00	5352.82	5361.17	5356.20	5361.21	0.000038	2.02	416.49	80.83	0.13
Main	10672	50	50.00	5352.82	5354.51	5353.72	5354.58	0.000405	2.21	22.65	22.57	0.34
Main	10553	77	77.00	5352.69	5355.31	5353.83	5355.37	0.000205	2.05	37.57	33.05	0.25
Main	10553	100	100.00	5352.69	5356.23	5354.03	5356.28	0.000117	1.81	55.31	40.26	0.19
Main	10553	150	150.00	5352.69	5358.15	5354.42	5358.16	0.000026	1.18	199.79	84.25	0.10
Main	10553	200	200.00	5352.69	5359.18	5354.72	5359.20	0.000019	1.17	286.88	84.25	0.09
Main	10553	250	250.00	5352.69	5359.59	5355.02	5359.61	0.000023	1.32	321.64	84.25	0.10
Main	10553	300	300.00	5352.69	5359.86	5355.28	5359.89	0.000027	1.49	344.23	84.25	0.11
Main	10553	350	350.00	5352.69	5360.13	5355.54	5360.16	0.000031	1.64	366.77	84.25	0.11
Main	10553	400	400.00	5352.69	5360.44	5355.74	5360.47	0.000033	1.76	392.60	84.25	0.12
Main	10553	450	450.00	5352.69	5360.79	5355.98	5360.82	0.000035	1.85	422.18	84.25	0.12
Main	10553	500	500.00	5352.69	5361.17	5356.20	5361.21	0.000035	1.92	454.35	84.25	0.12
Main	10553	50	50.00	5352.69	5354.46	5353.59	5354.54	0.000357	2.15	23.20	26.44	0.32
Main	10389	77	77.00	5352.15	5355.26	5353.76	5355.34	0.000242	2.16	35.58	32.86	0.27
Main	10389	100	100.00	5352.15	5356.21	5354.00	5356.26	0.000125	1.83	54.94	57.09	0.20
Main	10389	150	150.00	5352.15	5358.15	5354.42	5358.16	0.000020	1.05	253.58	100.67	0.09
Main	10389	200	200.00	5352.15	5359.18	5354.78	5359.19	0.000014	1.02	357.74	100.67	0.08
Main	10389	250	250.00	5352.15	5359.59	5355.08	5359.61	0.000016	1.15	399.38	100.67	0.08
Main	10389	300	300.00	5352.15	5359.86	5355.38	5359.88	0.000019	1.30	426.41	100.67	0.09

HEC-RAS Plan: Existing_Cap River: Ditch Reach: Main (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Main	10389	350	350.00	5352.15	5360.13	5355.61	5360.15	0.000022	1.43	453.40	100.67	0.10
Main	10389	400	400.00	5352.15	5360.44	5355.86	5360.46	0.000024	1.53	484.32	100.67	0.10
Main	10389	450	450.00	5352.15	5360.79	5356.08	5360.81	0.000025	1.61	519.66	100.67	0.11
Main	10389	500	500.00	5352.15	5361.17	5356.26	5361.20	0.000025	1.67	558.20	100.67	0.11
Main	10389	50	50.00	5352.15	5354.39	5353.44	5354.47	0.000413	2.35	21.30	14.46	0.34
Main	10345		Bridge									
Main	10309	77	77.00	5352.52	5355.17	5353.98	5355.28	0.000413	2.75	28.00	35.54	0.34
Main	10309	100	100.00	5352.52	5356.13	5354.22	5356.22	0.000219	2.36	42.45	52.03	0.26
Main	10309	150	150.00	5352.52	5357.95	5354.65	5357.96	0.000034	1.24	215.77	103.74	0.11
Main	10309	200	200.00	5352.52	5359.13	5355.02	5359.14	0.000019	1.12	338.25	103.74	0.09
Main	10309	250	250.00	5352.52	5359.55	5355.34	5359.57	0.000022	1.24	382.62	103.74	0.09
Main	10309	300	300.00	5352.52	5359.82	5355.65	5359.84	0.000026	1.40	410.63	103.74	0.10
Main	10309	350	350.00	5352.52	5360.10	5355.93	5360.12	0.000029	1.53	438.75	103.74	0.11
Main	10309	400	400.00	5352.52	5360.41	5356.19	5360.43	0.000031	1.63	471.01	103.74	0.11
Main	10309	450	450.00	5352.52	5360.76	5356.48	5360.79	0.000031	1.70	507.99	103.74	0.11
Main	10309	500	500.00	5352.52	5361.15	5356.68	5361.18	0.000031	1.75	548.21	103.74	0.11
Main	10309	50	50.00	5352.52	5354.25	5353.70	5354.40	0.000882	3.12	16.02	12.15	0.48
Main	10230	77	77.00	5352.47	5355.12	5353.93	5355.25	0.000439	2.87	26.83	38.32	0.35
Main	10230	100	100.00	5352.47	5356.10	5354.17	5356.20	0.000233	2.48	40.38	42.91	0.26
Main	10230	150	150.00	5352.47	5357.94	5354.62	5357.96	0.000037	1.34	208.33	90.79	0.11
Main	10230	200	200.00	5352.47	5359.12	5354.99	5359.14	0.000022	1.22	315.66	90.79	0.09
Main	10230	250	250.00	5352.47	5359.55	5355.33	5359.57	0.000025	1.37	354.40	90.79	0.10
Main	10230	300	300.00	5352.47	5359.82	5355.66	5359.84	0.000030	1.54	378.83	90.79	0.11
Main	10230	350	350.00	5352.47	5360.09	5355.95	5360.11	0.000035	1.68	403.30	90.79	0.12
Main	10230	400	400.00	5352.47	5360.40	5356.21	5360.43	0.000037	1.80	431.45	90.79	0.12
Main	10230	450	450.00	5352.47	5360.75	5356.45	5360.78	0.000038	1.89	463.72	90.79	0.12
Main	10230	500	500.00	5352.47	5361.14	5356.75	5361.17	0.000038	1.95	498.88	90.79	0.12
Main	10230	50	50.00	5352.47	5354.15	5353.59	5354.32	0.000955	3.29	15.18	20.87	0.50
Main	10129	77	77.00	5351.80	5355.15	5353.20	5355.20	0.000136	1.83	41.98	39.08	0.21
Main	10129	100	100.00	5351.80	5356.13	5353.42	5356.17	0.000083	1.68	59.64	43.61	0.17
Main	10129	150	150.00	5351.80	5357.94	5353.81	5357.96	0.000023	1.20	205.50	72.91	0.09
Main	10129	200	200.00	5351.80	5359.12	5354.17	5359.13	0.000017	1.17	310.76	92.83	0.08
Main	10129	250	250.00	5351.80	5359.55	5354.49	5359.56	0.000019	1.31	350.28	92.83	0.09
Main	10129	300	300.00	5351.80	5359.81	5354.77	5359.84	0.000023	1.48	375.12	92.83	0.10
Main	10129	350	350.00	5351.80	5360.08	5355.04	5360.11	0.000027	1.63	400.05	92.83	0.11
Main	10129	400	400.00	5351.80	5360.39	5355.23	5360.42	0.000029	1.75	428.79	92.83	0.11
Main	10129	450	450.00	5351.80	5360.75	5355.53	5360.78	0.000030	1.84	461.74	92.83	0.12
Main	10129	500	500.00	5351.80	5361.13	5355.75	5361.17	0.000030	1.90	497.64	92.83	0.12
Main	10129	50	50.00	5351.80	5354.20	5352.93	5354.25	0.000204	1.86	26.88	20.63	0.24
Main	10078	77	77.00	5351.52	5355.15	5353.02	5355.19	0.000107	1.66	46.36	34.05	0.18
Main	10078	100	100.00	5351.52	5356.13	5353.24	5356.16	0.000068	1.53	65.45	38.67	0.15
Main	10078	150	150.00	5351.52	5357.94	5353.65	5357.96	0.000022	1.17	195.08	66.26	0.09
Main	10078	200	200.00	5351.52	5359.12	5353.98	5359.13	0.000016	1.16	292.17	87.34	0.08
Main	10078	250	250.00	5351.52	5359.54	5354.29	5359.56	0.000019	1.31	329.32	87.34	0.09
Main	10078	300	300.00	5351.52	5359.81	5354.58	5359.83	0.000023	1.48	352.60	87.34	0.10
Main	10078	350	350.00	5351.52	5360.08	5354.81	5360.11	0.000027	1.64	376.02	87.34	0.11

HEC-RAS Plan: Existing_Cap River: Ditch Reach: Main (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Main	10078	400	400.00	5351.52	5360.39	5355.06	5360.42	0.000029	1.76	402.97	87.34	0.11
Main	10078	450	450.00	5351.52	5360.74	5355.30	5360.78	0.000031	1.85	433.93	87.34	0.12
Main	10078	500	500.00	5351.52	5361.13	5355.52	5361.17	0.000031	1.92	467.66	87.34	0.12
Main	10078	50	50.00	5351.52	5354.20	5352.72	5354.24	0.000152	1.66	30.11	21.74	0.21
Main	10052	77	77.00	5351.44	5355.12	5353.26	5355.19	0.000190	2.11	36.49	39.72	0.24
Main	10052	100	100.00	5351.44	5356.10	5353.50	5356.16	0.000122	1.89	52.91	49.87	0.20
Main	10052	150	150.00	5351.44	5357.94	5353.94	5357.95	0.000023	1.13	230.65	86.22	0.09
Main	10052	200	200.00	5351.44	5359.12	5354.32	5359.13	0.000016	1.09	332.44	86.22	0.08
Main	10052	250	250.00	5351.44	5359.55	5354.64	5359.56	0.000019	1.24	369.11	86.22	0.09
Main	10052	300	300.00	5351.44	5359.81	5354.98	5359.83	0.000022	1.41	392.18	86.22	0.10
Main	10052	350	350.00	5351.44	5360.08	5355.25	5360.10	0.000026	1.55	415.34	86.22	0.10
Main	10052	400	400.00	5351.44	5360.39	5355.53	5360.42	0.000029	1.67	441.99	86.22	0.11
Main	10052	450	450.00	5351.44	5360.75	5355.85	5360.77	0.000030	1.76	472.55	86.22	0.11
Main	10052	500	500.00	5351.44	5361.13	5356.08	5361.16	0.000030	1.84	505.89	86.22	0.11
Main	10052	50	50.00	5351.44	5354.16	5352.96	5354.23	0.000277	2.14	23.42	26.82	0.28
Main	9996	77	77.00	5351.87	5355.10	5353.27	5355.17	0.000210	2.20	35.05	33.43	0.25
Main	9996	100	100.00	5351.87	5356.09	5353.50	5356.15	0.000129	1.99	50.55	41.45	0.20
Main	9996	150	150.00	5351.87	5357.93	5353.94	5357.95	0.000031	1.32	193.97	79.71	0.10
Main	9996	200	200.00	5351.87	5359.11	5354.36	5359.13	0.000021	1.26	288.24	79.71	0.09
Main	9996	250	250.00	5351.87	5359.54	5354.72	5359.56	0.000025	1.43	322.06	79.71	0.10
Main	9996	300	300.00	5351.87	5359.80	5355.03	5359.83	0.000030	1.61	343.27	79.71	0.11
Main	9996	350	350.00	5351.87	5360.07	5355.34	5360.10	0.000034	1.78	364.56	79.71	0.12
Main	9996	400	400.00	5351.87	5360.38	5355.62	5360.41	0.000038	1.91	389.08	79.71	0.12
Main	9996	450	450.00	5351.87	5360.73	5355.88	5360.77	0.000039	2.01	417.26	79.71	0.13
Main	9996	500	500.00	5351.87	5361.12	5356.13	5361.16	0.000040	2.09	448.05	79.71	0.13
Main	9996	50	50.00	5351.87	5354.14	5352.96	5354.21	0.000308	2.23	22.43	15.20	0.29
Main	9913	77	77.00	5352.03	5355.10	5353.34	5355.15	0.000144	1.82	42.36	48.11	0.21
Main	9913	100	100.00	5352.03	5356.10	5353.53	5356.14	0.000082	1.61	62.17	52.30	0.17
Main	9913	150	150.00	5352.03	5357.94	5353.92	5357.95	0.000018	1.02	248.19	88.52	0.08
Main	9913	200	200.00	5352.03	5359.12	5354.26	5359.13	0.000013	0.99	352.83	88.52	0.07
Main	9913	250	250.00	5352.03	5359.54	5354.52	5359.56	0.000015	1.12	390.39	88.52	0.08
Main	9913	300	300.00	5352.03	5359.81	5354.79	5359.83	0.000018	1.27	414.08	88.52	0.09
Main	9913	350	350.00	5352.03	5360.08	5355.03	5360.10	0.000021	1.41	437.76	88.52	0.10
Main	9913	400	400.00	5352.03	5360.39	5355.28	5360.41	0.000023	1.52	465.04	88.52	0.10
Main	9913	450	450.00	5352.03	5360.74	5355.51	5360.77	0.000024	1.61	496.37	88.52	0.10
Main	9913	500	500.00	5352.03	5361.13	5355.69	5361.15	0.000024	1.68	530.56	88.52	0.11
Main	9913	50	50.00	5352.03	5354.13	5353.06	5354.19	0.000263	1.97	25.41	25.24	0.28
Main	9866	77	77.00	5352.07	5355.09	5353.37	5355.15	0.000165	1.93	39.93	33.12	0.23
Main	9866	100	100.00	5352.07	5356.09	5353.58	5356.13	0.000095	1.70	58.72	39.30	0.18
Main	9866	150	150.00	5352.07	5357.93	5353.97	5357.95	0.000027	1.18	198.70	92.40	0.10
Main	9866	200	200.00	5352.07	5359.11	5354.30	5359.13	0.000017	1.09	308.20	92.40	0.08
Main	9866	250	250.00	5352.07	5359.54	5354.60	5359.55	0.000019	1.23	347.40	92.40	0.09
Main	9866	300	300.00	5352.07	5359.80	5354.89	5359.82	0.000023	1.38	371.99	92.40	0.10
Main	9866	350	350.00	5352.07	5360.07	5355.14	5360.10	0.000027	1.52	396.67	92.40	0.11
Main	9866	400	400.00	5352.07	5360.38	5355.37	5360.41	0.000029	1.63	425.14	92.40	0.11
Main	9866	450	450.00	5352.07	5360.73	5355.59	5360.76	0.000029	1.71	457.80	92.40	0.11
Main	9866	500	500.00	5352.07	5361.12	5355.83	5361.15	0.000029	1.77	493.49	92.40	0.11

HEC-RAS Plan: Existing_Cap River: Ditch Reach: Main (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Main	9866	50	50.00	5352.07	5354.10	5353.10	5354.17	0.000303	2.09	23.93	15.06	0.29
Main	9802		Bridge									
Main	9713	77	77.00	5351.77	5355.07	5353.21	5355.12	0.000118	1.69	45.59	54.84	0.19
Main	9713	100	100.00	5351.77	5356.08	5353.41	5356.12	0.000068	1.51	66.01	60.32	0.15
Main	9713	150	150.00	5351.77	5357.86	5353.78	5357.88	0.000018	1.01	233.53	72.36	0.08
Main	9713	200	200.00	5351.77	5359.06	5354.09	5359.07	0.000013	1.01	319.71	72.36	0.07
Main	9713	250	250.00	5351.77	5359.48	5354.39	5359.50	0.000016	1.15	350.69	72.36	0.08
Main	9713	300	300.00	5351.77	5359.75	5354.64	5359.76	0.000019	1.32	369.63	72.36	0.09
Main	9713	350	350.00	5351.77	5360.01	5354.89	5360.03	0.000023	1.46	388.78	72.36	0.10
Main	9713	400	400.00	5351.77	5360.32	5355.10	5360.35	0.000025	1.58	411.15	72.36	0.10
Main	9713	450	450.00	5351.77	5360.68	5355.31	5360.71	0.000027	1.68	437.04	72.36	0.11
Main	9713	500	500.00	5351.77	5361.07	5355.51	5361.10	0.000027	1.76	465.31	72.36	0.11
Main	9713	50	50.00	5351.77	5354.07	5352.92	5354.12	0.000222	1.83	27.35	17.06	0.25
Main	9648	77	77.00	5352.15	5355.06	5353.29	5355.11	0.000130	1.72	44.86	24.23	0.20
Main	9648	100	100.00	5352.15	5356.08	5353.51	5356.11	0.000072	1.50	66.63	45.98	0.16
Main	9648	150	150.00	5352.15	5357.86	5353.86	5357.87	0.000023	1.15	187.90	65.92	0.10
Main	9648	200	200.00	5352.15	5359.05	5354.18	5359.06	0.000017	1.13	266.50	65.92	0.08
Main	9648	250	250.00	5352.15	5359.48	5354.44	5359.50	0.000020	1.29	294.63	65.92	0.09
Main	9648	300	300.00	5352.15	5359.73	5354.71	5359.76	0.000024	1.47	311.72	65.92	0.10
Main	9648	350	350.00	5352.15	5360.00	5354.96	5360.03	0.000028	1.63	329.01	65.92	0.11
Main	9648	400	400.00	5352.15	5360.30	5355.15	5360.34	0.000031	1.77	349.25	65.92	0.12
Main	9648	450	450.00	5352.15	5360.66	5355.38	5360.70	0.000033	1.87	372.78	65.92	0.12
Main	9648	500	500.00	5352.15	5361.05	5355.57	5361.10	0.000033	1.95	398.47	65.92	0.12
Main	9648	50	50.00	5352.15	5354.05	5353.06	5354.11	0.000266	1.92	25.98	17.13	0.28
Main	9602	77	77.00	5351.19	5355.07	5352.80	5355.10	0.000085	1.49	51.60	20.58	0.17
Main	9602	100	100.00	5351.19	5356.08	5353.03	5356.11	0.000051	1.36	73.64	35.41	0.13
Main	9602	150	150.00	5351.19	5357.85	5353.41	5357.87	0.000022	1.20	172.05	65.26	0.09
Main	9602	200	200.00	5351.19	5359.05	5353.78	5359.06	0.000016	1.18	258.51	75.70	0.08
Main	9602	250	250.00	5351.19	5359.47	5354.06	5359.49	0.000019	1.34	290.78	75.70	0.09
Main	9602	300	300.00	5351.19	5359.73	5354.36	5359.76	0.000024	1.52	310.33	75.70	0.10
Main	9602	350	350.00	5351.19	5359.99	5354.60	5360.03	0.000028	1.69	330.18	75.70	0.11
Main	9602	400	400.00	5351.19	5360.30	5354.82	5360.34	0.000030	1.82	353.40	75.70	0.12
Main	9602	450	450.00	5351.19	5360.66	5355.04	5360.70	0.000032	1.92	380.42	75.70	0.12
Main	9602	500	500.00	5351.19	5361.05	5355.22	5361.09	0.000032	1.99	409.95	75.70	0.12
Main	9602	50	50.00	5351.19	5354.05	5352.51	5354.09	0.000137	1.56	32.15	17.49	0.20
Main	9522	77	77.00	5351.50	5355.05	5352.99	5355.09	0.000115	1.68	45.74	21.11	0.19
Main	9522	100	100.00	5351.50	5356.06	5353.20	5356.10	0.000071	1.50	66.46	32.66	0.15
Main	9522	150	150.00	5351.50	5357.85	5353.59	5357.87	0.000028	1.28	165.90	80.90	0.10
Main	9522	200	200.00	5351.50	5359.04	5353.97	5359.06	0.000019	1.21	262.72	80.90	0.09
Main	9522	250	250.00	5351.50	5359.47	5354.25	5359.49	0.000022	1.37	297.24	80.90	0.10
Main	9522	300	300.00	5351.50	5359.73	5354.55	5359.76	0.000026	1.55	318.14	80.90	0.11
Main	9522	350	350.00	5351.50	5359.99	5354.80	5360.02	0.000030	1.71	339.31	80.90	0.11
Main	9522	400	400.00	5351.50	5360.30	5355.03	5360.34	0.000033	1.83	364.16	80.90	0.12
Main	9522	450	450.00	5351.50	5360.65	5355.25	5360.70	0.000034	1.93	393.07	80.90	0.12
Main	9522	500	500.00	5351.50	5361.04	5355.44	5361.09	0.000034	1.99	424.67	80.90	0.12
Main	9522	50	50.00	5351.50	5354.03	5352.71	5354.08	0.000194	1.78	28.06	15.85	0.24

HEC-RAS Plan: Existing_Cap River: Ditch Reach: Main (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Main	9474	77	77.00	5351.93	5355.05	5353.15	5355.09	0.000098	1.55	49.57	22.04	0.18
Main	9474	100	100.00	5351.93	5356.07	5353.35	5356.10	0.000057	1.39	72.13	43.15	0.14
Main	9474	150	150.00	5351.93	5357.85	5353.71	5357.87	0.000020	1.11	204.67	87.31	0.09
Main	9474	200	200.00	5351.93	5359.05	5354.00	5359.06	0.000014	1.06	309.03	87.31	0.08
Main	9474	250	250.00	5351.93	5359.47	5354.23	5359.49	0.000016	1.20	346.33	87.31	0.08
Main	9474	300	300.00	5351.93	5359.73	5354.48	5359.75	0.000019	1.36	369.01	87.31	0.09
Main	9474	350	350.00	5351.93	5360.00	5354.72	5360.02	0.000023	1.50	391.95	87.31	0.10
Main	9474	400	400.00	5351.93	5360.30	5354.94	5360.33	0.000025	1.61	418.76	87.31	0.11
Main	9474	450	450.00	5351.93	5360.66	5355.14	5360.69	0.000026	1.70	450.01	87.31	0.11
Main	9474	500	500.00	5351.93	5361.05	5355.32	5361.09	0.000026	1.76	484.12	87.31	0.11
Main	9474	50	50.00	5351.93	5354.02	5352.89	5354.07	0.000199	1.71	29.21	18.73	0.24
Main	9395	77	77.00	5351.53	5354.98	5353.16	5355.07	0.000240	2.34	32.97	15.71	0.26
Main	9395	100	100.00	5351.53	5356.03	5353.41	5356.09	0.000129	1.98	63.91	40.91	0.19
Main	9395	150	150.00	5351.53	5357.83	5353.90	5357.86	0.000045	1.57	147.40	53.34	0.12
Main	9395	200	200.00	5351.53	5359.03	5354.30	5359.06	0.000032	1.53	219.62	65.00	0.11
Main	9395	250	250.00	5351.53	5359.45	5354.66	5359.49	0.000038	1.73	247.14	65.00	0.12
Main	9395	300	300.00	5351.53	5359.71	5355.02	5359.75	0.000046	1.96	263.67	65.00	0.13
Main	9395	350	350.00	5351.53	5359.96	5355.32	5360.02	0.000054	2.17	280.43	65.00	0.14
Main	9395	400	400.00	5351.53	5360.27	5355.91	5360.33	0.000059	2.33	300.14	65.00	0.15
Main	9395	450	450.00	5351.53	5360.62	5356.16	5360.69	0.000061	2.45	323.25	65.00	0.16
Main	9395	500	500.00	5351.53	5361.01	5356.34	5361.08	0.000062	2.54	348.51	65.00	0.16
Main	9395	50	50.00	5351.53	5353.95	5352.84	5354.04	0.000374	2.43	20.61	11.16	0.31
Main	9383		Bridge									
Main	9374	77	77.00	5351.54	5354.94	5353.13	5355.03	0.000235	2.31	33.29	16.72	0.26
Main	9374	100	100.00	5351.54	5355.96	5353.39	5356.02	0.000121	1.98	64.90	40.70	0.19
Main	9374	150	150.00	5351.54	5357.81	5353.85	5357.84	0.000043	1.58	151.44	54.38	0.12
Main	9374	200	200.00	5351.54	5359.03	5354.26	5359.05	0.000030	1.52	232.65	70.83	0.11
Main	9374	250	250.00	5351.54	5359.45	5354.62	5359.48	0.000035	1.72	262.78	70.83	0.12
Main	9374	300	300.00	5351.54	5359.70	5354.95	5359.74	0.000043	1.94	280.66	70.83	0.13
Main	9374	350	350.00	5351.54	5359.96	5355.26	5360.01	0.000050	2.15	298.75	70.83	0.14
Main	9374	400	400.00	5351.54	5360.26	5355.85	5360.32	0.000054	2.30	320.12	70.83	0.15
Main	9374	450	450.00	5351.54	5360.61	5356.06	5360.67	0.000057	2.42	345.16	70.83	0.15
Main	9374	500	500.00	5351.54	5361.00	5356.24	5361.06	0.000057	2.50	372.52	70.83	0.15
Main	9374	50	50.00	5351.54	5353.91	5352.79	5354.00	0.000376	2.42	20.69	11.32	0.32
Main	9271	77	77.00	5351.09	5354.95	5352.61	5354.99	0.000083	1.50	51.31	36.43	0.16
Main	9271	100	100.00	5351.09	5355.97	5352.83	5356.00	0.000049	1.38	73.61	44.72	0.13
Main	9271	150	150.00	5351.09	5357.82	5353.21	5357.83	0.000017	1.09	215.62	77.54	0.08
Main	9271	200	200.00	5351.09	5359.03	5353.58	5359.04	0.000013	1.08	309.71	77.54	0.07
Main	9271	250	250.00	5351.09	5359.46	5353.88	5359.47	0.000015	1.23	342.72	77.54	0.08
Main	9271	300	300.00	5351.09	5359.71	5354.15	5359.73	0.000019	1.41	362.37	77.54	0.09
Main	9271	350	350.00	5351.09	5359.97	5354.40	5359.99	0.000022	1.56	382.21	77.54	0.10
Main	9271	400	400.00	5351.09	5360.27	5354.65	5360.30	0.000025	1.69	405.73	77.54	0.11
Main	9271	450	450.00	5351.09	5360.62	5354.89	5360.66	0.000026	1.80	433.10	77.54	0.11
Main	9271	500	500.00	5351.09	5361.01	5355.07	5361.05	0.000027	1.88	463.12	77.54	0.11
Main	9271	50	50.00	5351.09	5353.92	5352.32	5353.96	0.000123	1.53	32.62	16.53	0.19

HEC-RAS Plan: Existing_Cap River: Ditch Reach: Main (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Main	9216	77	77.00	5351.50	5354.94	5352.84	5354.98	0.000107	1.63	47.21	19.64	0.19
Main	9216	100	100.00	5351.50	5355.96	5353.06	5355.99	0.000065	1.45	69.02	23.51	0.15
Main	9216	150	150.00	5351.50	5357.81	5353.47	5357.83	0.000025	1.22	168.21	74.25	0.10
Main	9216	200	200.00	5351.50	5359.03	5353.82	5359.04	0.000017	1.17	258.45	74.25	0.08
Main	9216	250	250.00	5351.50	5359.45	5354.12	5359.47	0.000020	1.33	289.99	74.25	0.09
Main	9216	300	300.00	5351.50	5359.70	5354.41	5359.73	0.000024	1.51	308.66	74.25	0.10
Main	9216	350	350.00	5351.50	5359.96	5354.66	5359.99	0.000028	1.67	327.59	74.25	0.11
Main	9216	400	400.00	5351.50	5360.26	5354.90	5360.30	0.000031	1.80	350.03	74.25	0.12
Main	9216	450	450.00	5351.50	5360.61	5355.10	5360.66	0.000032	1.90	376.20	74.25	0.12
Main	9216	500	500.00	5351.50	5361.00	5355.31	5361.04	0.000033	1.98	404.92	74.25	0.12
Main	9216	50	50.00	5351.50	5353.90	5352.56	5353.95	0.000184	1.75	28.53	16.22	0.23
Main	9191		Bridge									
Main	9146	77	77.00	5351.35	5354.90	5352.76	5354.94	0.000101	1.63	47.30	32.79	0.18
Main	9146	100	100.00	5351.35	5355.91	5352.94	5355.95	0.000066	1.49	67.30	38.73	0.15
Main	9146	150	150.00	5351.35	5357.67	5353.37	5357.69	0.000022	1.12	212.46	87.47	0.09
Main	9146	200	200.00	5351.35	5358.78	5353.69	5358.80	0.000016	1.09	309.84	87.47	0.08
Main	9146	250	250.00	5351.35	5359.10	5354.00	5359.12	0.000019	1.26	337.69	87.47	0.09
Main	9146	300	300.00	5351.35	5359.43	5354.27	5359.46	0.000022	1.40	366.77	87.47	0.10
Main	9146	350	350.00	5351.35	5359.77	5354.53	5359.79	0.000025	1.52	396.07	87.47	0.10
Main	9146	400	400.00	5351.35	5360.13	5354.80	5360.16	0.000026	1.62	427.76	87.47	0.11
Main	9146	450	450.00	5351.35	5360.52	5355.01	5360.55	0.000027	1.70	461.93	87.47	0.11
Main	9146	500	500.00	5351.35	5360.94	5355.22	5360.97	0.000027	1.76	498.02	87.47	0.11
Main	9146	50	50.00	5351.35	5353.87	5352.48	5353.91	0.000162	1.69	29.57	15.86	0.22
Main	8995	77	77.00	5351.88	5354.89	5353.02	5354.93	0.000106	1.59	48.30	35.71	0.18
Main	8995	100	100.00	5351.88	5355.90	5353.20	5355.94	0.000062	1.41	70.80	46.77	0.14
Main	8995	150	150.00	5351.88	5357.67	5353.55	5357.68	0.000018	1.02	231.24	86.83	0.08
Main	8995	200	200.00	5351.88	5358.78	5353.85	5358.79	0.000013	1.01	327.87	86.83	0.07
Main	8995	250	250.00	5351.88	5359.10	5354.10	5359.12	0.000016	1.17	355.51	86.83	0.08
Main	8995	300	300.00	5351.88	5359.43	5354.38	5359.45	0.000019	1.30	384.38	86.83	0.09
Main	8995	350	350.00	5351.88	5359.77	5354.61	5359.79	0.000021	1.42	413.43	86.83	0.10
Main	8995	400	400.00	5351.88	5360.13	5354.82	5360.15	0.000022	1.52	444.88	86.83	0.10
Main	8995	450	450.00	5351.88	5360.52	5355.03	5360.55	0.000023	1.59	478.80	86.83	0.10
Main	8995	500	500.00	5351.88	5360.93	5355.23	5360.96	0.000023	1.66	514.63	86.83	0.10
Main	8995	50	50.00	5351.88	5353.83	5352.78	5353.88	0.000219	1.78	28.01	17.92	0.25
Main	8897	77	77.00	5351.23	5354.86	5352.79	5354.91	0.000134	1.80	42.77	39.95	0.20
Main	8897	100	100.00	5351.23	5355.89	5353.00	5355.93	0.000080	1.60	62.77	48.45	0.16
Main	8897	150	150.00	5351.23	5357.67	5353.43	5357.68	0.000021	1.10	225.89	82.30	0.09
Main	8897	200	200.00	5351.23	5358.78	5353.81	5358.79	0.000015	1.09	317.56	82.30	0.08
Main	8897	250	250.00	5351.23	5359.10	5354.14	5359.11	0.000019	1.26	343.68	82.30	0.09
Main	8897	300	300.00	5351.23	5359.43	5354.45	5359.45	0.000022	1.41	370.96	82.30	0.10
Main	8897	350	350.00	5351.23	5359.76	5354.73	5359.79	0.000025	1.54	398.45	82.30	0.10
Main	8897	400	400.00	5351.23	5360.12	5354.95	5360.15	0.000026	1.64	428.23	82.30	0.11
Main	8897	450	450.00	5351.23	5360.51	5355.23	5360.54	0.000027	1.73	460.34	82.30	0.11
Main	8897	500	500.00	5351.23	5360.93	5355.47	5360.96	0.000027	1.79	494.25	82.30	0.11
Main	8897	50	50.00	5351.23	5353.80	5352.48	5353.86	0.000220	1.93	25.96	14.22	0.25
Main	8808	77	77.00	5350.85	5354.84	5352.77	5354.90	0.000156	1.95	39.53	23.31	0.22

HEC-RAS Plan: Existing_Cap River: Ditch Reach: Main (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Main	8808	100	100.00	5350.85	5355.87	5353.00	5355.92	0.000102	1.73	57.94	32.58	0.18
Main	8808	150	150.00	5350.85	5357.64	5353.48	5357.68	0.000043	1.55	116.84	79.04	0.13
Main	8808	200	200.00	5350.85	5358.77	5353.86	5358.79	0.000024	1.33	253.48	86.29	0.10
Main	8808	250	250.00	5350.85	5359.08	5354.22	5359.11	0.000030	1.53	280.65	86.29	0.11
Main	8808	300	300.00	5350.85	5359.41	5354.55	5359.45	0.000034	1.69	309.13	86.29	0.12
Main	8808	350	350.00	5350.85	5359.75	5354.81	5359.78	0.000036	1.82	337.83	86.29	0.12
Main	8808	400	400.00	5350.85	5360.11	5355.10	5360.15	0.000038	1.92	369.01	86.29	0.13
Main	8808	450	450.00	5350.85	5360.50	5355.35	5360.54	0.000038	2.00	402.67	86.29	0.13
Main	8808	500	500.00	5350.85	5360.91	5355.65	5360.96	0.000037	2.05	438.32	86.29	0.13
Main	8808	50	50.00	5350.85	5353.77	5352.41	5353.84	0.000246	2.06	24.27	12.85	0.26
Main	8717	77	77.00	5350.45	5354.85	5352.22	5354.88	0.000071	1.46	52.82	39.10	0.15
Main	8717	100	100.00	5350.45	5355.88	5352.44	5355.91	0.000052	1.37	73.03	45.82	0.13
Main	8717	150	150.00	5350.45	5357.65	5352.86	5357.67	0.000015	0.99	240.87	78.45	0.08
Main	8717	200	200.00	5350.45	5358.77	5353.22	5358.79	0.000012	1.01	328.75	78.45	0.07
Main	8717	250	250.00	5350.45	5359.09	5353.53	5359.11	0.000016	1.18	353.53	78.45	0.08
Main	8717	300	300.00	5350.45	5359.42	5353.78	5359.44	0.000019	1.33	379.46	78.45	0.09
Main	8717	350	350.00	5350.45	5359.75	5354.08	5359.78	0.000021	1.46	405.63	78.45	0.10
Main	8717	400	400.00	5350.45	5360.11	5354.34	5360.14	0.000023	1.57	433.93	78.45	0.10
Main	8717	450	450.00	5350.45	5360.50	5354.59	5360.53	0.000024	1.66	464.54	78.45	0.10
Main	8717	500	500.00	5350.45	5360.92	5354.79	5360.95	0.000024	1.73	496.91	78.45	0.11
Main	8717	50	50.00	5350.45	5353.78	5351.90	5353.82	0.000094	1.43	35.00	32.01	0.17
Main	8696	77	77.00	5350.81	5354.84	5352.46	5354.88	0.000097	1.60	48.07	33.77	0.17
Main	8696	100	100.00	5350.81	5355.87	5352.69	5355.91	0.000062	1.45	69.04	42.33	0.14
Main	8696	150	150.00	5350.81	5357.65	5353.10	5357.67	0.000019	1.07	218.14	73.66	0.09
Main	8696	200	200.00	5350.81	5358.77	5353.47	5358.78	0.000015	1.08	300.65	73.66	0.08
Main	8696	250	250.00	5350.81	5359.09	5353.82	5359.10	0.000019	1.26	323.88	73.66	0.09
Main	8696	300	300.00	5350.81	5359.42	5354.13	5359.44	0.000022	1.42	348.16	73.66	0.10
Main	8696	350	350.00	5350.81	5359.75	5354.41	5359.78	0.000025	1.55	372.65	73.66	0.10
Main	8696	400	400.00	5350.81	5360.11	5354.66	5360.14	0.000027	1.67	399.23	73.66	0.11
Main	8696	450	450.00	5350.81	5360.50	5354.90	5360.53	0.000028	1.76	427.93	73.66	0.11
Main	8696	500	500.00	5350.81	5360.91	5355.10	5360.95	0.000028	1.83	458.29	73.66	0.11
Main	8696	50	50.00	5350.81	5353.77	5352.14	5353.81	0.000142	1.65	30.27	26.41	0.20
Main	8667		Bridge									
Main	8638	77	77.00	5351.38	5354.80	5352.67	5354.85	0.000123	1.80	42.76	15.21	0.19
Main	8638	100	100.00	5351.38	5355.83	5352.86	5355.87	0.000083	1.68	60.00	27.48	0.16
Main	8638	150	150.00	5351.38	5357.52	5353.27	5357.55	0.000039	1.49	148.37	79.30	0.12
Main	8638	200	200.00	5351.38	5358.53	5353.64	5358.56	0.000029	1.46	228.98	79.30	0.10
Main	8638	250	250.00	5351.38	5358.71	5353.94	5358.75	0.000040	1.74	243.27	79.30	0.12
Main	8638	300	300.00	5351.38	5358.88	5354.22	5358.93	0.000051	2.00	256.48	79.30	0.14
Main	8638	350	350.00	5351.38	5359.04	5354.52	5359.10	0.000062	2.23	269.45	79.30	0.15
Main	8638	400	400.00	5351.38	5359.21	5354.77	5359.28	0.000072	2.45	282.57	79.30	0.17
Main	8638	450	450.00	5351.38	5359.38	5355.05	5359.46	0.000081	2.65	295.78	79.30	0.18
Main	8638	500	500.00	5351.38	5359.54	5355.27	5359.63	0.000090	2.84	308.59	79.30	0.19
Main	8638	50	50.00	5351.38	5353.73	5352.36	5353.78	0.000190	1.84	27.24	13.83	0.23
Main	8571	77	77.00	5351.17	5354.79	5352.59	5354.84	0.000109	1.68	45.82	17.52	0.18
Main	8571	100	100.00	5351.17	5355.83	5352.81	5355.86	0.000068	1.53	65.39	27.38	0.15

HEC-RAS Plan: Existing_Cap River: Ditch Reach: Main (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Main	8571	150	150.00	5351.17	5357.52	5353.22	5357.54	0.000030	1.34	170.34	88.78	0.11
Main	8571	200	200.00	5351.17	5358.53	5353.58	5358.56	0.000022	1.31	260.64	88.78	0.09
Main	8571	250	250.00	5351.17	5358.71	5353.90	5358.74	0.000030	1.56	276.68	88.78	0.11
Main	8571	300	300.00	5351.17	5358.88	5354.14	5358.92	0.000038	1.79	291.51	88.78	0.13
Main	8571	350	350.00	5351.17	5359.05	5354.45	5359.09	0.000046	2.00	306.07	88.78	0.14
Main	8571	400	400.00	5351.17	5359.21	5354.70	5359.27	0.000054	2.19	320.85	88.78	0.15
Main	8571	450	450.00	5351.17	5359.38	5354.96	5359.44	0.000061	2.37	335.64	88.78	0.16
Main	8571	500	500.00	5351.17	5359.54	5355.19	5359.61	0.000067	2.53	350.07	88.78	0.17
Main	8571	50	50.00	5351.17	5353.72	5352.30	5353.77	0.000171	1.75	28.55	14.74	0.22
Main	8451	77	77.00	5351.07	5354.78	5352.40	5354.83	0.000102	1.67	46.07	16.12	0.17
Main	8451	100	100.00	5351.07	5355.82	5352.60	5355.85	0.000069	1.56	64.37	28.44	0.15
Main	8451	150	150.00	5351.07	5357.52	5353.03	5357.54	0.000028	1.30	191.16	86.07	0.10
Main	8451	200	200.00	5351.07	5358.53	5353.40	5358.55	0.000021	1.27	279.34	86.71	0.09
Main	8451	250	250.00	5351.07	5358.71	5353.74	5358.74	0.000029	1.51	295.00	86.71	0.11
Main	8451	300	300.00	5351.07	5358.88	5354.04	5358.91	0.000037	1.73	309.48	86.71	0.12
Main	8451	350	350.00	5351.07	5359.04	5354.31	5359.09	0.000045	1.94	323.63	86.71	0.13
Main	8451	400	400.00	5351.07	5359.21	5354.57	5359.26	0.000052	2.13	338.06	86.71	0.14
Main	8451	450	450.00	5351.07	5359.38	5354.85	5359.43	0.000059	2.31	352.50	86.71	0.15
Main	8451	500	500.00	5351.07	5359.54	5355.10	5359.60	0.000066	2.47	366.56	86.71	0.16
Main	8451	50	50.00	5351.07	5353.70	5352.09	5353.75	0.000144	1.67	29.95	14.00	0.20
Main	8370	77	77.00	5351.18	5354.70	5353.01	5354.81	0.000308	2.60	29.57	11.90	0.29
Main	8370	100	100.00	5351.18	5355.76	5353.26	5355.84	0.000171	2.32	44.52	17.38	0.22
Main	8370	150	150.00	5351.18	5357.49	5353.78	5357.53	0.000060	1.82	149.76	83.94	0.14
Main	8370	200	200.00	5351.18	5358.52	5354.21	5358.55	0.000039	1.67	236.08	83.94	0.12
Main	8370	250	250.00	5351.18	5358.70	5354.62	5358.74	0.000053	1.97	250.88	83.94	0.14
Main	8370	300	300.00	5351.18	5358.86	5354.98	5358.91	0.000067	2.25	264.44	83.94	0.16
Main	8370	350	350.00	5351.18	5359.02	5355.27	5359.08	0.000080	2.51	277.80	83.94	0.17
Main	8370	400	400.00	5351.18	5359.18	5355.60	5359.25	0.000093	2.74	291.41	83.94	0.19
Main	8370	450	450.00	5351.18	5359.34	5355.90	5359.43	0.000104	2.95	305.10	83.94	0.20
Main	8370	500	500.00	5351.18	5359.50	5356.13	5359.59	0.000115	3.14	318.42	83.94	0.21
Main	8370	50	50.00	5351.18	5353.59	5352.62	5353.72	0.000556	2.86	17.46	9.93	0.38
Main	8329	77	77.00	5351.11	5354.72	5352.87	5354.78	0.000190	2.08	37.05	15.50	0.24
Main	8329	100	100.00	5351.11	5355.77	5353.13	5355.83	0.000109	1.82	55.05	48.30	0.19
Main	8329	150	150.00	5351.11	5357.50	5353.56	5357.52	0.000029	1.28	212.26	97.89	0.10
Main	8329	200	200.00	5351.11	5358.53	5353.94	5358.54	0.000020	1.21	312.40	97.89	0.09
Main	8329	250	250.00	5351.11	5358.71	5354.26	5358.73	0.000027	1.43	329.94	97.89	0.10
Main	8329	300	300.00	5351.11	5358.87	5354.60	5358.90	0.000035	1.65	346.05	97.89	0.12
Main	8329	350	350.00	5351.11	5359.03	5354.85	5359.07	0.000042	1.84	361.92	97.89	0.13
Main	8329	400	400.00	5351.11	5359.20	5355.15	5359.24	0.000049	2.02	378.12	97.89	0.14
Main	8329	450	450.00	5351.11	5359.36	5355.39	5359.41	0.000055	2.18	394.33	97.89	0.15
Main	8329	500	500.00	5351.11	5359.53	5355.61	5359.58	0.000061	2.33	410.10	97.89	0.16
Main	8329	50	50.00	5351.11	5353.60	5352.55	5353.69	0.000372	2.34	21.39	12.76	0.32
Main	8296		Bridge									
Main	8267	77	77.00	5351.43	5354.68	5352.87	5354.75	0.000181	2.04	37.77	15.93	0.23
Main	8267	100	100.00	5351.43	5355.69	5353.11	5355.73	0.000089	1.68	81.32	64.11	0.17
Main	8267	150	150.00	5351.43	5357.25	5353.55	5357.27	0.000030	1.27	220.32	108.83	0.10

HEC-RAS Plan: Existing_Cap River: Ditch Reach: Main (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Main	8267	200	200.00	5351.43	5358.29	5353.90	5358.31	0.000019	1.18	334.20	108.83	0.09
Main	8267	250	250.00	5351.43	5358.49	5354.22	5358.51	0.000025	1.39	356.09	108.83	0.10
Main	8267	300	300.00	5351.43	5358.69	5354.51	5358.71	0.000031	1.58	377.03	108.83	0.11
Main	8267	350	350.00	5351.43	5358.87	5354.80	5358.90	0.000037	1.75	397.01	108.83	0.12
Main	8267	400	400.00	5351.43	5359.06	5355.07	5359.09	0.000042	1.90	417.31	108.83	0.13
Main	8267	450	450.00	5351.43	5359.24	5355.31	5359.28	0.000047	2.05	437.08	108.83	0.14
Main	8267	500	500.00	5351.43	5359.41	5355.83	5359.46	0.000052	2.18	456.05	108.83	0.15
Main	8267	50	50.00	5351.43	5353.55	5352.58	5353.64	0.000381	2.34	21.39	13.31	0.33
Main	8168	77	77.00	5351.11	5354.67	5352.53	5354.72	0.000130	1.86	41.47	40.68	0.20
Main	8168	100	100.00	5351.11	5355.69	5352.75	5355.72	0.000059	1.41	109.02	59.44	0.14
Main	8168	150	150.00	5351.11	5357.25	5353.17	5357.26	0.000023	1.14	240.05	91.71	0.09
Main	8168	200	200.00	5351.11	5358.29	5353.50	5358.30	0.000017	1.12	335.92	91.71	0.08
Main	8168	250	250.00	5351.11	5358.49	5353.88	5358.51	0.000023	1.33	354.33	91.71	0.09
Main	8168	300	300.00	5351.11	5358.69	5354.17	5358.71	0.000029	1.52	371.93	91.71	0.11
Main	8168	350	350.00	5351.11	5358.87	5354.42	5358.90	0.000035	1.70	388.72	91.71	0.12
Main	8168	400	400.00	5351.11	5359.05	5354.74	5359.09	0.000041	1.86	405.74	91.71	0.13
Main	8168	450	450.00	5351.11	5359.23	5355.00	5359.27	0.000046	2.01	422.35	91.71	0.14
Main	8168	500	500.00	5351.11	5359.41	5355.26	5359.45	0.000051	2.16	438.25	91.71	0.14
Main	8168	50	50.00	5351.11	5353.54	5352.21	5353.60	0.000216	1.95	25.61	17.90	0.25
Main	8064	77	77.00	5351.26	5354.66	5352.58	5354.71	0.000134	1.87	41.16	33.07	0.20
Main	8064	100	100.00	5351.26	5355.66	5352.80	5355.71	0.000098	1.75	57.11	61.49	0.17
Main	8064	150	150.00	5351.26	5357.24	5353.21	5357.26	0.000028	1.21	233.85	114.83	0.10
Main	8064	200	200.00	5351.26	5358.29	5353.54	5358.30	0.000018	1.12	354.28	114.83	0.08
Main	8064	250	250.00	5351.26	5358.49	5353.87	5358.51	0.000024	1.32	377.27	114.83	0.09
Main	8064	300	300.00	5351.26	5358.68	5354.18	5358.70	0.000030	1.50	399.36	114.83	0.11
Main	8064	350	350.00	5351.26	5358.87	5354.47	5358.89	0.000035	1.66	420.28	114.83	0.12
Main	8064	400	400.00	5351.26	5359.05	5354.71	5359.08	0.000040	1.81	441.69	114.83	0.12
Main	8064	450	450.00	5351.26	5359.23	5354.98	5359.27	0.000045	1.94	462.44	114.83	0.13
Main	8064	500	500.00	5351.26	5359.41	5355.26	5359.44	0.000049	2.07	482.40	114.83	0.14
Main	8064	50	50.00	5351.26	5353.51	5352.30	5353.57	0.000238	1.99	25.08	13.36	0.26
Main	8028		Bridge									
Main	7985	77	77.00	5351.27	5354.59	5352.76	5354.68	0.000250	2.41	31.95	55.49	0.26
Main	7985	100	100.00	5351.27	5355.56	5353.01	5355.65	0.000168	2.28	44.07	62.33	0.21
Main	7985	150	150.00	5351.27	5357.01	5353.49	5357.02	0.000025	1.11	250.90	82.46	0.09
Main	7985	200	200.00	5351.27	5357.95	5353.88	5357.96	0.000021	1.13	354.60	119.94	0.08
Main	7985	250	250.00	5351.27	5358.22	5354.27	5358.24	0.000026	1.31	386.99	119.94	0.09
Main	7985	300	300.00	5351.27	5358.48	5354.62	5358.49	0.000031	1.46	417.39	119.94	0.10
Main	7985	350	350.00	5351.27	5358.69	5354.93	5358.71	0.000036	1.61	443.21	119.94	0.11
Main	7985	400	400.00	5351.27	5358.91	5355.21	5358.93	0.000041	1.75	468.63	119.94	0.12
Main	7985	450	450.00	5351.27	5359.10	5355.50	5359.13	0.000045	1.88	492.41	119.94	0.12
Main	7985	500	500.00	5351.27	5359.29	5355.77	5359.32	0.000049	2.00	514.72	119.94	0.13
Main	7985	50	50.00	5351.27	5353.42	5352.42	5353.53	0.000463	2.63	19.00	45.50	0.34
Main	7852	77	77.00	5350.93	5354.58	5352.49	5354.64	0.000162	2.01	38.32	51.98	0.22
Main	7852	100	100.00	5350.93	5355.56	5352.72	5355.61	0.000097	1.85	62.10	97.20	0.17
Main	7852	150	150.00	5350.93	5357.00	5353.18	5357.01	0.000016	0.95	326.03	120.83	0.08
Main	7852	200	200.00	5350.93	5357.95	5353.55	5357.96	0.000013	0.94	440.78	120.83	0.07

HEC-RAS Plan: Existing_Cap River: Ditch Reach: Main (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Main	7852	250	250.00	5350.93	5358.22	5353.95	5358.23	0.000016	1.10	473.35	120.83	0.08
Main	7852	300	300.00	5350.93	5358.48	5354.25	5358.49	0.000019	1.23	503.97	120.83	0.09
Main	7852	350	350.00	5350.93	5358.69	5354.57	5358.71	0.000023	1.37	530.04	120.83	0.09
Main	7852	400	400.00	5350.93	5358.90	5354.85	5358.92	0.000026	1.49	555.59	120.83	0.10
Main	7852	450	450.00	5350.93	5359.10	5355.12	5359.12	0.000029	1.61	579.49	120.83	0.11
Main	7852	500	500.00	5350.93	5359.29	5355.73	5359.31	0.000032	1.72	601.96	120.83	0.11
Main	7852	50	50.00	5350.93	5353.39	5352.14	5353.47	0.000293	2.20	22.69	42.16	0.28
Main	7709	77	77.00	5351.12	5354.57	5352.44	5354.62	0.000109	1.64	47.25	54.13	0.19
Main	7709	100	100.00	5351.12	5355.59	5352.67	5355.60	0.000025	0.98	176.72	93.88	0.09
Main	7709	150	150.00	5351.12	5357.00	5353.06	5357.01	0.000013	0.88	328.28	119.42	0.07
Main	7709	200	200.00	5351.12	5357.95	5353.41	5357.96	0.000010	0.89	441.70	119.42	0.07
Main	7709	250	250.00	5351.12	5358.22	5353.70	5358.23	0.000013	1.04	473.89	119.42	0.08
Main	7709	300	300.00	5351.12	5358.47	5354.01	5358.49	0.000016	1.18	503.97	119.42	0.08
Main	7709	350	350.00	5351.12	5358.69	5354.28	5358.70	0.000019	1.31	529.69	119.42	0.09
Main	7709	400	400.00	5351.12	5358.90	5354.54	5358.92	0.000021	1.43	554.82	119.42	0.10
Main	7709	450	450.00	5351.12	5359.10	5354.70	5359.12	0.000024	1.54	578.38	119.42	0.10
Main	7709	500	500.00	5351.12	5359.28	5354.70	5359.31	0.000026	1.65	600.54	119.42	0.11
Main	7709	50	50.00	5351.12	5353.37	5352.15	5353.43	0.000222	1.90	26.32	38.78	0.25
Main	7548	77	77.00	5350.96	5354.56	5352.26	5354.60	0.000088	1.56	49.48	18.22	0.17
Main	7548	100	100.00	5350.96	5355.56	5352.47	5355.59	0.000051	1.45	80.26	79.86	0.13
Main	7548	150	150.00	5350.96	5356.99	5352.86	5357.01	0.000022	1.20	235.32	110.12	0.09
Main	7548	200	200.00	5350.96	5357.94	5353.19	5357.96	0.000017	1.16	340.28	110.12	0.08
Main	7548	250	250.00	5350.96	5358.21	5353.49	5358.23	0.000021	1.34	369.69	110.12	0.09
Main	7548	300	300.00	5350.96	5358.46	5353.78	5358.48	0.000025	1.50	397.17	110.12	0.10
Main	7548	350	350.00	5350.96	5358.67	5354.04	5358.70	0.000029	1.66	420.61	110.12	0.11
Main	7548	400	400.00	5350.96	5358.88	5354.29	5358.91	0.000033	1.80	443.51	110.12	0.12
Main	7548	450	450.00	5350.96	5359.07	5354.51	5359.11	0.000037	1.93	464.97	110.12	0.13
Main	7548	500	500.00	5350.96	5359.26	5354.75	5359.30	0.000041	2.06	485.24	110.12	0.13
Main	7548	50	50.00	5350.96	5353.34	5351.98	5353.39	0.000169	1.72	28.99	15.49	0.22
Main	7505		Bridge									
Main	7460	77	77.00	5350.46	5354.52	5351.94	5354.55	0.000071	1.43	53.75	47.09	0.15
Main	7460	100	100.00	5350.46	5355.46	5352.12	5355.48	0.000030	1.12	154.53	116.30	0.10
Main	7460	150	150.00	5350.46	5356.97	5352.53	5356.98	0.000012	0.90	329.60	116.30	0.07
Main	7460	200	200.00	5350.46	5357.94	5352.87	5357.95	0.000010	0.90	442.44	116.30	0.06
Main	7460	250	250.00	5350.46	5358.21	5353.18	5358.22	0.000013	1.05	473.61	116.30	0.07
Main	7460	300	300.00	5350.46	5358.46	5353.47	5358.47	0.000016	1.19	502.63	116.30	0.08
Main	7460	350	350.00	5350.46	5358.67	5353.75	5358.69	0.000018	1.32	527.45	116.30	0.09
Main	7460	400	400.00	5350.46	5358.88	5354.00	5358.90	0.000021	1.44	551.64	116.30	0.10
Main	7460	450	450.00	5350.46	5359.07	5354.22	5359.09	0.000024	1.56	574.35	116.30	0.10
Main	7460	500	500.00	5350.46	5359.26	5354.46	5359.28	0.000026	1.67	595.70	116.30	0.11
Main	7460	50	50.00	5350.46	5353.32	5351.66	5353.35	0.000112	1.51	33.19	15.49	0.18
Main	7255	77	77.00	5350.70	5354.50	5351.99	5354.53	0.000074	1.48	51.98	44.76	0.15
Main	7255	100	100.00	5350.70	5355.45	5352.20	5355.47	0.000034	1.22	135.32	104.94	0.11
Main	7255	150	150.00	5350.70	5356.96	5352.62	5356.97	0.000015	0.99	293.86	104.94	0.08
Main	7255	200	200.00	5350.70	5357.93	5352.97	5357.94	0.000012	1.00	395.77	104.94	0.07
Main	7255	250	250.00	5350.70	5358.20	5353.27	5358.21	0.000015	1.17	423.70	104.94	0.08

HEC-RAS Plan: Existing_Cap River: Ditch Reach: Main (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Main	7255	300	300.00	5350.70	5358.45	5353.55	5358.47	0.000019	1.32	449.78	104.94	0.09
Main	7255	350	350.00	5350.70	5358.66	5353.81	5358.68	0.000022	1.47	471.97	104.94	0.10
Main	7255	400	400.00	5350.70	5358.87	5354.06	5358.89	0.000026	1.60	493.64	104.94	0.10
Main	7255	450	450.00	5350.70	5359.06	5354.29	5359.09	0.000029	1.73	513.93	104.94	0.11
Main	7255	500	500.00	5350.70	5359.24	5354.50	5359.27	0.000032	1.86	533.10	104.94	0.12
Main	7255	50	50.00	5350.70	5353.29	5351.73	5353.33	0.000128	1.58	31.71	17.92	0.19
Main	7096	77	77.00	5350.64	5354.49	5351.96	5354.52	0.000075	1.45	52.94	53.85	0.16
Main	7096	100	100.00	5350.64	5355.44	5352.19	5355.46	0.000046	1.37	85.16	96.82	0.13
Main	7096	150	150.00	5350.64	5356.96	5352.59	5356.97	0.000012	0.88	332.51	114.08	0.07
Main	7096	200	200.00	5350.64	5357.93	5352.92	5357.94	0.000010	0.89	443.24	114.08	0.06
Main	7096	250	250.00	5350.64	5358.20	5353.23	5358.21	0.000012	1.04	473.66	114.08	0.07
Main	7096	300	300.00	5350.64	5358.45	5353.54	5358.46	0.000015	1.18	502.01	114.08	0.08
Main	7096	350	350.00	5350.64	5358.66	5353.81	5358.68	0.000018	1.31	526.13	114.08	0.09
Main	7096	400	400.00	5350.64	5358.87	5354.06	5358.88	0.000021	1.43	549.64	114.08	0.10
Main	7096	450	450.00	5350.64	5359.06	5354.30	5359.08	0.000023	1.55	571.81	114.08	0.10
Main	7096	500	500.00	5350.64	5359.24	5354.53	5359.27	0.000026	1.66	592.64	114.08	0.11
Main	7096	50	50.00	5350.64	5353.27	5351.68	5353.31	0.000129	1.58	31.65	37.72	0.20
Main	6941	77	77.00	5350.82	5354.46	5352.19	5354.51	0.000103	1.67	49.12	39.88	0.18
Main	6941	100	100.00	5350.82	5355.43	5352.41	5355.46	0.000043	1.33	131.47	98.83	0.12
Main	6941	150	150.00	5350.82	5356.96	5352.84	5356.97	0.000017	1.05	282.12	98.83	0.08
Main	6941	200	200.00	5350.82	5357.93	5353.19	5357.94	0.000014	1.05	378.11	98.83	0.07
Main	6941	250	250.00	5350.82	5358.19	5353.52	5358.21	0.000018	1.23	404.31	98.83	0.09
Main	6941	300	300.00	5350.82	5358.44	5353.83	5358.46	0.000022	1.39	428.68	98.83	0.09
Main	6941	350	350.00	5350.82	5358.65	5354.14	5358.67	0.000026	1.55	449.43	98.83	0.10
Main	6941	400	400.00	5350.82	5358.86	5354.44	5358.88	0.000030	1.70	469.65	98.83	0.11
Main	6941	450	450.00	5350.82	5359.05	5354.65	5359.08	0.000034	1.83	488.71	98.83	0.12
Main	6941	500	500.00	5350.82	5359.23	5355.13	5359.26	0.000037	1.97	506.57	98.83	0.13
Main	6941	50	50.00	5350.82	5353.22	5351.87	5353.28	0.000211	1.89	26.49	14.15	0.24
Main	6839	77	77.00	5350.59	5354.45	5352.06	5354.49	0.000113	1.68	45.74	78.36	0.19
Main	6839	100	100.00	5350.59	5355.44	5352.28	5355.45	0.000024	0.96	205.04	111.83	0.09
Main	6839	150	150.00	5350.59	5356.96	5352.74	5356.97	0.000011	0.81	375.14	111.83	0.06
Main	6839	200	200.00	5350.59	5357.93	5353.12	5357.94	0.000009	0.83	483.74	111.83	0.06
Main	6839	250	250.00	5350.59	5358.20	5353.43	5358.20	0.000012	0.98	513.39	111.83	0.07
Main	6839	300	300.00	5350.59	5358.44	5353.79	5358.45	0.000014	1.11	541.08	111.83	0.08
Main	6839	350	350.00	5350.59	5358.65	5354.08	5358.67	0.000017	1.24	564.61	111.83	0.08
Main	6839	400	400.00	5350.59	5358.86	5354.39	5358.88	0.000020	1.37	587.60	111.83	0.09
Main	6839	450	450.00	5350.59	5359.05	5354.72	5359.07	0.000022	1.48	609.23	111.83	0.10
Main	6839	500	500.00	5350.59	5359.24	5354.72	5359.25	0.000025	1.59	629.54	111.83	0.10
Main	6839	50	50.00	5350.59	5353.20	5351.73	5353.26	0.000194	1.87	26.74	27.30	0.23
Main	6753	77	77.00	5346.30	5354.47	5348.22	5354.48	0.000022	0.91	84.22	72.72	0.08
Main	6753	100	100.00	5346.30	5355.44	5348.53	5355.45	0.000011	0.73	224.29	90.60	0.06
Main	6753	150	150.00	5346.30	5356.96	5349.10	5356.96	0.000008	0.71	361.96	90.60	0.05
Main	6753	200	200.00	5346.30	5357.93	5349.63	5357.94	0.000007	0.77	449.91	90.60	0.05
Main	6753	250	250.00	5346.30	5358.20	5350.06	5358.20	0.000010	0.92	473.93	90.60	0.06
Main	6753	300	300.00	5346.30	5358.44	5350.50	5358.45	0.000012	1.05	496.23	90.60	0.07
Main	6753	350	350.00	5346.30	5358.65	5350.91	5358.67	0.000015	1.19	515.29	90.60	0.07
Main	6753	400	400.00	5346.30	5358.86	5351.40	5358.87	0.000018	1.31	533.83	90.60	0.08

HEC-RAS Plan: Existing_Cap River: Ditch Reach: Main (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Main	6753	450	450.00	5346.30	5359.05	5351.76	5359.07	0.000021	1.43	551.26	90.60	0.09
Main	6753	500	500.00	5346.30	5359.23	5352.10	5359.25	0.000024	1.54	567.63	90.60	0.09
Main	6753	50	50.00	5346.30	5353.23	5347.79	5353.24	0.000019	0.80	62.83	27.77	0.07
Main	6702		Culvert									
Main	6595	77	77.00	5345.60	5353.81	5347.66	5353.82	0.000014	0.77	99.88	43.28	0.07
Main	6595	100	100.00	5345.60	5354.61	5347.98	5354.61	0.000013	0.77	164.06	96.12	0.06
Main	6595	150	150.00	5345.60	5356.95	5348.55	5356.96	0.000004	0.60	409.38	96.12	0.04
Main	6595	200	200.00	5345.60	5357.92	5349.03	5357.93	0.000004	0.66	502.59	96.12	0.04
Main	6595	250	250.00	5345.60	5358.19	5349.45	5358.20	0.000006	0.79	528.07	96.12	0.05
Main	6595	300	300.00	5345.60	5358.43	5349.84	5358.44	0.000008	0.91	551.35	96.12	0.06
Main	6595	350	350.00	5345.60	5358.64	5350.17	5358.65	0.000010	1.03	571.72	96.12	0.06
Main	6595	400	400.00	5345.60	5358.83	5350.51	5358.85	0.000011	1.14	589.84	96.12	0.07
Main	6595	450	450.00	5345.60	5359.05	5350.84	5359.06	0.000013	1.24	610.53	96.12	0.07
Main	6595	500	500.00	5345.60	5359.22	5351.32	5359.24	0.000015	1.35	626.96	96.12	0.08
Main	6595	50	50.00	5345.60	5352.96	5347.23	5352.96	0.000010	0.62	81.24	30.41	0.05
Main	6450	77	77.00	5350.41	5353.75	5351.76	5353.80	0.000139	1.80	42.75	34.28	0.21
Main	6450	100	100.00	5350.41	5354.55	5351.97	5354.60	0.000094	1.71	58.93	54.42	0.18
Main	6450	150	150.00	5350.41	5356.95	5352.40	5356.96	0.000013	0.94	296.73	103.14	0.07
Main	6450	200	200.00	5350.41	5357.92	5352.77	5357.93	0.000011	0.96	396.85	103.14	0.07
Main	6450	250	250.00	5350.41	5358.18	5353.06	5358.19	0.000014	1.12	424.04	103.14	0.08
Main	6450	300	300.00	5350.41	5358.42	5353.38	5358.44	0.000017	1.28	448.87	103.14	0.09
Main	6450	350	350.00	5350.41	5358.63	5353.66	5358.65	0.000020	1.42	470.47	103.14	0.09
Main	6450	400	400.00	5350.41	5358.82	5353.92	5358.84	0.000024	1.56	489.71	103.14	0.10
Main	6450	450	450.00	5350.41	5359.03	5354.13	5359.06	0.000026	1.69	511.72	103.14	0.11
Main	6450	500	500.00	5350.41	5359.20	5354.35	5359.23	0.000030	1.81	529.19	103.14	0.12
Main	6450	50	50.00	5350.41	5352.90	5351.46	5352.95	0.000171	1.74	28.69	15.18	0.22
Main	6248	77	77.00	5350.56	5353.69	5352.11	5353.76	0.000215	2.12	36.26	16.93	0.26
Main	6248	100	100.00	5350.56	5354.52	5352.32	5354.58	0.000144	1.94	51.54	38.88	0.21
Main	6248	150	150.00	5350.56	5356.94	5352.75	5356.95	0.000022	1.12	207.50	97.61	0.09
Main	6248	200	200.00	5350.56	5357.91	5353.11	5357.92	0.000017	1.12	302.39	97.61	0.08
Main	6248	250	250.00	5350.56	5358.17	5353.40	5358.19	0.000022	1.30	327.84	97.61	0.10
Main	6248	300	300.00	5350.56	5358.41	5353.70	5358.43	0.000026	1.47	351.15	97.61	0.11
Main	6248	350	350.00	5350.56	5358.61	5353.96	5358.64	0.000031	1.64	371.36	97.61	0.12
Main	6248	400	400.00	5350.56	5358.80	5354.24	5358.83	0.000036	1.79	389.28	97.61	0.12
Main	6248	450	450.00	5350.56	5359.01	5354.48	5359.05	0.000039	1.93	409.87	97.61	0.13
Main	6248	500	500.00	5350.56	5359.18	5354.69	5359.22	0.000044	2.06	426.12	97.61	0.14
Main	6248	50	50.00	5350.56	5352.82	5351.79	5352.90	0.000339	2.21	22.65	14.30	0.31
Main	6069	77	77.00	5350.57	5353.67	5351.98	5353.73	0.000174	1.96	39.21	17.66	0.23
Main	6069	100	100.00	5350.57	5354.50	5352.19	5354.55	0.000116	1.81	55.27	22.88	0.20
Main	6069	150	150.00	5350.57	5356.93	5352.59	5356.95	0.000020	1.16	201.34	76.90	0.09
Main	6069	200	200.00	5350.57	5357.90	5352.93	5357.92	0.000017	1.18	294.97	106.43	0.08
Main	6069	250	250.00	5350.57	5358.16	5353.24	5358.18	0.000021	1.38	322.62	106.43	0.10
Main	6069	300	300.00	5350.57	5358.40	5353.52	5358.43	0.000026	1.55	347.87	106.43	0.11
Main	6069	350	350.00	5350.57	5358.61	5353.78	5358.64	0.000031	1.72	369.75	106.43	0.12
Main	6069	400	400.00	5350.57	5358.79	5354.03	5358.83	0.000036	1.89	389.19	106.43	0.13
Main	6069	450	450.00	5350.57	5359.00	5354.22	5359.04	0.000039	2.02	411.53	106.43	0.13

HEC-RAS Plan: Existing_Cap River: Ditch Reach: Main (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Main	6069	500	500.00	5350.57	5359.16	5354.45	5359.21	0.000044	2.17	429.15	106.43	0.14
Main	6069	50	50.00	5350.57	5352.78	5351.68	5352.84	0.000272	2.03	24.67	15.13	0.28
Main	5821	77	77.00	5350.29	5353.64	5351.72	5353.69	0.000135	1.76	43.73	41.90	0.21
Main	5821	100	100.00	5350.29	5354.48	5351.93	5354.52	0.000088	1.63	62.34	57.53	0.17
Main	5821	150	150.00	5350.29	5356.93	5352.34	5356.94	0.000011	0.87	304.49	99.67	0.07
Main	5821	200	200.00	5350.29	5357.91	5352.69	5357.91	0.000009	0.90	401.38	99.67	0.06
Main	5821	250	250.00	5350.29	5358.17	5353.01	5358.18	0.000012	1.07	427.32	99.67	0.07
Main	5821	300	300.00	5350.29	5358.40	5353.26	5358.42	0.000015	1.22	451.02	99.67	0.08
Main	5821	350	350.00	5350.29	5358.61	5353.53	5358.63	0.000018	1.36	471.56	99.67	0.09
Main	5821	400	400.00	5350.29	5358.79	5353.77	5358.82	0.000021	1.50	489.81	99.67	0.10
Main	5821	450	450.00	5350.29	5359.00	5354.01	5359.03	0.000024	1.62	510.79	99.67	0.11
Main	5821	500	500.00	5350.29	5359.17	5354.22	5359.20	0.000027	1.75	527.33	99.67	0.11
Main	5821	50	50.00	5350.29	5352.73	5351.40	5352.78	0.000199	1.80	27.71	28.85	0.24
Main	5802		Bridge									
Main	5771	77	77.00	5349.59	5353.64	5350.95	5353.66	0.000052	1.26	61.22	43.04	0.13
Main	5771	100	100.00	5349.59	5354.46	5351.14	5354.49	0.000042	1.25	79.96	54.41	0.12
Main	5771	150	150.00	5349.59	5356.93	5351.49	5356.94	0.000008	0.77	334.38	106.43	0.06
Main	5771	200	200.00	5349.59	5357.90	5351.84	5357.91	0.000007	0.81	437.79	106.43	0.05
Main	5771	250	250.00	5349.59	5358.16	5352.12	5358.17	0.000009	0.96	465.44	106.43	0.06
Main	5771	300	300.00	5349.59	5358.40	5352.37	5358.41	0.000012	1.09	490.59	106.43	0.07
Main	5771	350	350.00	5349.59	5358.61	5352.63	5358.62	0.000014	1.22	512.52	106.43	0.08
Main	5771	400	400.00	5349.59	5358.79	5352.86	5358.81	0.000017	1.35	531.80	106.43	0.09
Main	5771	450	450.00	5349.59	5359.00	5353.08	5359.02	0.000019	1.46	554.15	106.43	0.09
Main	5771	500	500.00	5349.59	5359.16	5353.30	5359.19	0.000021	1.58	571.77	106.43	0.10
Main	5771	50	50.00	5349.59	5352.74	5350.69	5352.76	0.000058	1.15	43.39	32.03	0.13
Main	5582	77	77.00	5349.88	5353.61	5351.34	5353.65	0.000088	1.52	50.70	65.16	0.17
Main	5582	100	100.00	5349.88	5354.46	5351.53	5354.47	0.000027	0.99	175.05	87.27	0.10
Main	5582	150	150.00	5349.88	5356.93	5351.94	5356.94	0.000005	0.64	451.05	122.26	0.05
Main	5582	200	200.00	5349.88	5357.90	5352.29	5357.91	0.000005	0.68	569.91	122.26	0.05
Main	5582	250	250.00	5349.88	5358.16	5352.60	5358.17	0.000007	0.81	601.73	122.26	0.05
Main	5582	300	300.00	5349.88	5358.40	5352.88	5358.41	0.000008	0.92	630.62	122.26	0.06
Main	5582	350	350.00	5349.88	5358.61	5353.13	5358.62	0.000010	1.04	655.82	122.26	0.07
Main	5582	400	400.00	5349.88	5358.79	5353.36	5358.80	0.000012	1.15	678.02	122.26	0.07
Main	5582	450	450.00	5349.88	5359.00	5353.58	5359.01	0.000013	1.25	703.75	122.26	0.08
Main	5582	500	500.00	5349.88	5359.16	5353.80	5359.18	0.000015	1.35	723.99	122.26	0.08
Main	5582	50	50.00	5349.88	5352.70	5351.06	5352.74	0.000111	1.47	33.97	53.76	0.18
Main	5471	77	77.00	5349.79	5353.60	5351.31	5353.64	0.000076	1.43	54.02	55.36	0.16
Main	5471	100	100.00	5349.79	5354.46	5351.50	5354.47	0.000028	1.00	163.25	78.84	0.10
Main	5471	150	150.00	5349.79	5356.93	5351.86	5356.94	0.000005	0.65	429.56	114.19	0.05
Main	5471	200	200.00	5349.79	5357.90	5352.18	5357.91	0.000005	0.70	540.52	114.19	0.05
Main	5471	250	250.00	5349.79	5358.16	5352.46	5358.17	0.000007	0.83	570.13	114.19	0.06
Main	5471	300	300.00	5349.79	5358.40	5352.75	5358.41	0.000009	0.95	597.11	114.19	0.06
Main	5471	350	350.00	5349.79	5358.60	5352.99	5358.61	0.000010	1.06	620.59	114.19	0.07
Main	5471	400	400.00	5349.79	5358.79	5353.24	5358.80	0.000012	1.18	641.33	114.19	0.08
Main	5471	450	450.00	5349.79	5359.00	5353.46	5359.01	0.000014	1.28	665.25	114.19	0.08
Main	5471	500	500.00	5349.79	5359.16	5353.68	5359.18	0.000016	1.38	684.09	114.19	0.09

HEC-RAS Plan: Existing_Cap River: Ditch Reach: Main (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Main	5471	50	50.00	5349.79	5352.69	5351.02	5352.72	0.000096	1.38	36.23	47.52	0.17
Main	5379	77	77.00	5350.03	5353.59	5351.40	5353.63	0.000084	1.48	51.85	71.81	0.17
Main	5379	100	100.00	5350.03	5354.46	5351.58	5354.47	0.000018	0.81	216.51	94.46	0.08
Main	5379	150	150.00	5350.03	5356.93	5351.97	5356.93	0.000004	0.57	494.45	116.26	0.04
Main	5379	200	200.00	5350.03	5357.90	5352.30	5357.91	0.000004	0.62	607.42	116.26	0.04
Main	5379	250	250.00	5350.03	5358.16	5352.58	5358.17	0.000005	0.74	637.68	116.26	0.05
Main	5379	300	300.00	5350.03	5358.40	5352.86	5358.41	0.000007	0.85	665.15	116.26	0.06
Main	5379	350	350.00	5350.03	5358.61	5353.10	5358.61	0.000008	0.96	689.11	116.26	0.06
Main	5379	400	400.00	5350.03	5358.79	5353.31	5358.80	0.000010	1.06	710.17	116.26	0.07
Main	5379	450	450.00	5350.03	5359.00	5353.55	5359.01	0.000011	1.16	734.58	116.26	0.07
Main	5379	500	500.00	5350.03	5359.16	5353.75	5359.18	0.000013	1.25	753.82	116.26	0.08
Main	5379	50	50.00	5350.03	5352.68	5351.09	5352.71	0.000113	1.46	34.28	57.71	0.19
Main	5331		Bridge									
Main	5297	77	77.00	5349.73	5353.55	5351.27	5353.59	0.000089	1.53	50.45	71.52	0.17
Main	5297	100	100.00	5349.73	5354.42	5351.48	5354.42	0.000021	0.84	206.67	88.25	0.08
Main	5297	150	150.00	5349.73	5356.93	5351.86	5356.93	0.000004	0.57	504.92	140.19	0.04
Main	5297	200	200.00	5349.73	5357.90	5352.18	5357.91	0.000004	0.61	641.27	140.19	0.04
Main	5297	250	250.00	5349.73	5358.16	5352.50	5358.17	0.000005	0.72	677.62	140.19	0.05
Main	5297	300	300.00	5349.73	5358.40	5352.77	5358.40	0.000007	0.83	710.75	140.19	0.05
Main	5297	350	350.00	5349.73	5358.60	5353.02	5358.61	0.000008	0.93	739.64	140.19	0.06
Main	5297	400	400.00	5349.73	5358.79	5353.27	5358.79	0.000010	1.03	765.04	140.19	0.07
Main	5297	450	450.00	5349.73	5358.99	5353.53	5359.00	0.000011	1.11	794.33	140.19	0.07
Main	5297	500	500.00	5349.73	5359.16	5353.75	5359.17	0.000012	1.20	817.61	140.19	0.08
Main	5297	50	50.00	5349.73	5352.67	5350.99	5352.70	0.000105	1.45	34.59	59.59	0.18
Main	5202	77	77.00	5349.77	5353.55	5351.21	5353.58	0.000080	1.46	52.83	64.34	0.16
Main	5202	100	100.00	5349.77	5354.41	5351.44	5354.42	0.000020	0.86	190.91	74.24	0.08
Main	5202	150	150.00	5349.77	5356.93	5351.84	5356.93	0.000005	0.60	477.22	132.24	0.04
Main	5202	200	200.00	5349.77	5357.90	5352.14	5357.91	0.000004	0.65	605.84	132.24	0.04
Main	5202	250	250.00	5349.77	5358.16	5352.48	5358.17	0.000006	0.77	640.06	132.24	0.05
Main	5202	300	300.00	5349.77	5358.40	5352.73	5358.40	0.000007	0.88	671.25	132.24	0.06
Main	5202	350	350.00	5349.77	5358.60	5353.00	5358.61	0.000009	0.99	698.44	132.24	0.06
Main	5202	400	400.00	5349.77	5358.78	5353.22	5358.79	0.000010	1.09	722.33	132.24	0.07
Main	5202	450	450.00	5349.77	5358.99	5353.43	5359.00	0.000012	1.18	749.90	132.24	0.07
Main	5202	500	500.00	5349.77	5359.16	5353.66	5359.17	0.000013	1.28	771.72	132.24	0.08
Main	5202	50	50.00	5349.77	5352.66	5350.95	5352.69	0.000100	1.40	35.63	53.48	0.17
Main	5044	77	77.00	5349.12	5353.54	5350.63	5353.57	0.000070	1.38	55.67	73.18	0.15
Main	5044	100	100.00	5349.12	5354.41	5350.86	5354.42	0.000012	0.68	253.21	97.50	0.07
Main	5044	150	150.00	5349.12	5356.93	5351.29	5356.93	0.000003	0.50	568.16	132.71	0.04
Main	5044	200	200.00	5349.12	5357.90	5351.69	5357.90	0.000003	0.55	697.18	132.71	0.04
Main	5044	250	250.00	5349.12	5358.16	5352.02	5358.16	0.000004	0.65	731.52	132.71	0.04
Main	5044	300	300.00	5349.12	5358.40	5352.34	5358.40	0.000005	0.75	762.89	132.71	0.05
Main	5044	350	350.00	5349.12	5358.60	5352.61	5358.61	0.000007	0.85	790.17	132.71	0.05
Main	5044	400	400.00	5349.12	5358.78	5352.96	5358.79	0.000008	0.94	814.14	132.71	0.06
Main	5044	450	450.00	5349.12	5358.99	5353.24	5359.00	0.000009	1.02	841.88	132.71	0.06
Main	5044	500	500.00	5349.12	5359.16	5353.47	5359.17	0.000010	1.11	863.78	132.71	0.07
Main	5044	50	50.00	5349.12	5352.65	5350.33	5352.67	0.000065	1.26	39.53	65.16	0.14

HEC-RAS Plan: Existing_Cap River: Ditch Reach: Main (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Main	4882	77	77.00	5349.91	5353.49	5351.21	5353.54	0.000353	2.32	45.26	64.95	0.29
Main	4882	100	100.00	5349.91	5354.41	5351.45	5354.42	0.000016	0.61	278.27	87.21	0.06
Main	4882	150	150.00	5349.91	5356.93	5351.89	5356.93	0.000005	0.52	569.03	126.36	0.04
Main	4882	200	200.00	5349.91	5357.90	5352.28	5357.90	0.000005	0.58	691.94	126.36	0.04
Main	4882	250	250.00	5349.91	5358.16	5352.62	5358.16	0.000006	0.69	724.64	126.36	0.05
Main	4882	300	300.00	5349.91	5358.40	5352.89	5358.40	0.000008	0.80	754.50	126.36	0.05
Main	4882	350	350.00	5349.91	5358.60	5353.29	5358.61	0.000010	0.91	780.48	126.36	0.06
Main	4882	400	400.00	5349.91	5358.78	5353.54	5358.79	0.000012	1.01	803.31	126.36	0.07
Main	4882	450	450.00	5349.91	5358.99	5353.71	5359.00	0.000014	1.10	829.71	126.36	0.07
Main	4882	500	500.00	5349.91	5359.16	5353.71	5359.16	0.000016	1.19	850.57	126.36	0.08
Main	4882	50	50.00	5349.91	5352.61	5350.88	5352.65	0.000414	2.24	31.58	59.96	0.30
Main	4788	77	77.00	5349.35	5353.49	5350.88	5353.53	0.000070	1.42	54.14	33.89	0.15
Main	4788	100	100.00	5349.35	5354.39	5351.11	5354.41	0.000034	1.17	128.90	74.04	0.11
Main	4788	150	150.00	5349.35	5356.92	5351.50	5356.93	0.000007	0.74	397.36	115.32	0.05
Main	4788	200	200.00	5349.35	5357.90	5351.87	5357.90	0.000006	0.78	509.47	115.32	0.05
Main	4788	250	250.00	5349.35	5358.15	5352.18	5358.16	0.000008	0.92	539.14	115.32	0.06
Main	4788	300	300.00	5349.35	5358.39	5352.47	5358.40	0.000010	1.06	566.17	115.32	0.07
Main	4788	350	350.00	5349.35	5358.59	5352.72	5358.60	0.000012	1.18	589.65	115.32	0.07
Main	4788	400	400.00	5349.35	5358.77	5352.99	5358.79	0.000015	1.31	610.26	115.32	0.08
Main	4788	450	450.00	5349.35	5358.98	5353.24	5359.00	0.000017	1.42	634.13	115.32	0.09
Main	4788	500	500.00	5349.35	5359.14	5353.42	5359.16	0.000019	1.53	652.94	115.32	0.09
Main	4788	50	50.00	5349.35	5352.60	5350.58	5352.63	0.000075	1.31	38.14	26.90	0.15
Main	4648	77	77.00	5349.83	5353.45	5351.36	5353.51	0.000155	1.94	39.69	51.65	0.22
Main	4648	100	100.00	5349.83	5354.35	5351.61	5354.40	0.000101	1.81	55.50	62.21	0.18
Main	4648	150	150.00	5349.83	5356.92	5352.05	5356.93	0.000008	0.76	398.30	117.30	0.06
Main	4648	200	200.00	5349.83	5357.90	5352.46	5357.90	0.000007	0.79	512.34	117.30	0.05
Main	4648	250	250.00	5349.83	5358.15	5352.82	5358.16	0.000009	0.93	542.46	117.30	0.06
Main	4648	300	300.00	5349.83	5358.39	5353.15	5358.40	0.000011	1.06	569.96	117.30	0.07
Main	4648	350	350.00	5349.83	5358.59	5353.44	5358.60	0.000014	1.19	593.84	117.30	0.08
Main	4648	400	400.00	5349.83	5358.77	5353.72	5358.78	0.000016	1.32	614.80	117.30	0.08
Main	4648	450	450.00	5349.83	5358.98	5353.95	5358.99	0.000019	1.43	639.09	117.30	0.09
Main	4648	500	500.00	5349.83	5359.14	5354.18	5359.16	0.000021	1.54	658.16	117.30	0.10
Main	4648	50	50.00	5349.83	5352.56	5351.04	5352.61	0.000187	1.87	26.75	44.42	0.23
Main	4546	77	77.00	5349.70	5353.44	5351.30	5353.49	0.000128	1.86	41.69	57.26	0.20
Main	4546	100	100.00	5349.70	5354.34	5351.56	5354.39	0.000080	1.78	61.15	71.66	0.17
Main	4546	150	150.00	5349.70	5356.92	5352.00	5356.93	0.000007	0.77	392.76	103.80	0.06
Main	4546	200	200.00	5349.70	5357.90	5352.37	5357.90	0.000007	0.83	493.78	103.80	0.05
Main	4546	250	250.00	5349.70	5358.15	5352.74	5358.16	0.000009	0.98	520.34	103.80	0.06
Main	4546	300	300.00	5349.70	5358.38	5353.04	5358.40	0.000012	1.12	544.56	103.80	0.07
Main	4546	350	350.00	5349.70	5358.59	5353.32	5358.60	0.000014	1.26	565.65	103.80	0.08
Main	4546	400	400.00	5349.70	5358.77	5353.53	5358.78	0.000017	1.40	584.10	103.80	0.09
Main	4546	450	450.00	5349.70	5358.97	5353.74	5358.99	0.000019	1.52	605.59	103.80	0.09
Main	4546	500	500.00	5349.70	5359.13	5354.01	5359.16	0.000022	1.64	622.36	103.80	0.10
Main	4546	50	50.00	5349.70	5352.54	5350.98	5352.59	0.000172	1.79	27.86	51.67	0.22
Main	4496		Bridge									

HEC-RAS Plan: Existing_Cap River: Ditch Reach: Main (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Main	4464	77	77.00	5350.01	5353.40	5351.55	5353.46	0.000169	2.04	37.99	66.47	0.23
Main	4464	100	100.00	5350.01	5354.29	5351.79	5354.31	0.000043	1.26	148.29	80.74	0.12
Main	4464	150	150.00	5350.01	5356.85	5352.24	5356.86	0.000007	0.75	425.14	122.89	0.05
Main	4464	200	200.00	5350.01	5357.88	5352.59	5357.88	0.000006	0.77	551.15	122.89	0.05
Main	4464	250	250.00	5350.01	5358.13	5352.95	5358.14	0.000008	0.91	582.35	122.89	0.06
Main	4464	300	300.00	5350.01	5358.36	5353.24	5358.37	0.000010	1.04	610.91	122.89	0.07
Main	4464	350	350.00	5350.01	5358.57	5353.50	5358.58	0.000012	1.17	635.69	122.89	0.07
Main	4464	400	400.00	5350.01	5358.74	5353.72	5358.75	0.000015	1.29	657.29	122.89	0.08
Main	4464	450	450.00	5350.01	5358.95	5353.76	5358.96	0.000017	1.40	682.74	122.89	0.09
Main	4464	500	500.00	5350.01	5359.11	5353.85	5359.13	0.000019	1.51	702.54	122.89	0.09
Main	4464	50	50.00	5350.01	5352.50	5351.21	5352.56	0.000255	2.04	24.51	39.58	0.27
Main	4306	77	77.00	5349.32	5353.40	5350.88	5353.43	0.000061	1.33	57.95	48.00	0.14
Main	4306	100	100.00	5349.32	5354.27	5351.10	5354.30	0.000045	1.28	78.44	60.11	0.13
Main	4306	150	150.00	5349.32	5356.85	5351.47	5356.85	0.000008	0.79	304.88	84.52	0.06
Main	4306	200	200.00	5349.32	5357.87	5351.79	5357.88	0.000007	0.85	406.77	118.71	0.06
Main	4306	250	250.00	5349.32	5358.12	5352.10	5358.14	0.000010	1.00	436.68	118.71	0.07
Main	4306	300	300.00	5349.32	5358.35	5352.36	5358.37	0.000012	1.15	463.93	118.71	0.07
Main	4306	350	350.00	5349.32	5358.55	5352.61	5358.57	0.000015	1.29	487.63	118.71	0.08
Main	4306	400	400.00	5349.32	5358.73	5352.83	5358.75	0.000017	1.42	508.21	118.71	0.09
Main	4306	450	450.00	5349.32	5358.93	5353.06	5358.96	0.000020	1.54	532.50	118.71	0.10
Main	4306	500	500.00	5349.32	5359.09	5353.27	5359.12	0.000022	1.66	551.28	118.71	0.10
Main	4306	50	50.00	5349.32	5352.50	5350.60	5352.52	0.000073	1.25	39.84	23.90	0.15
Main	4220	77	77.00	5349.91	5353.40	5351.24	5353.42	0.000079	1.35	57.22	61.05	0.16
Main	4220	100	100.00	5349.91	5354.28	5351.45	5354.29	0.000027	0.96	158.22	76.47	0.10
Main	4220	150	150.00	5349.91	5356.85	5351.81	5356.85	0.000006	0.67	360.11	82.94	0.05
Main	4220	200	200.00	5349.91	5357.87	5352.10	5357.88	0.000005	0.73	466.53	125.37	0.05
Main	4220	250	250.00	5349.91	5358.13	5352.39	5358.13	0.000007	0.86	499.80	134.19	0.06
Main	4220	300	300.00	5349.91	5358.36	5352.66	5358.37	0.000009	0.99	530.66	134.19	0.07
Main	4220	350	350.00	5349.91	5358.56	5352.89	5358.57	0.000011	1.11	557.46	134.19	0.07
Main	4220	400	400.00	5349.91	5358.73	5353.10	5358.75	0.000013	1.23	580.85	134.19	0.08
Main	4220	450	450.00	5349.91	5358.94	5353.30	5358.95	0.000015	1.33	608.37	134.19	0.09
Main	4220	500	500.00	5349.91	5359.09	5353.49	5359.11	0.000017	1.44	629.67	134.19	0.09
Main	4220	50	50.00	5349.91	5352.48	5351.00	5352.52	0.000114	1.39	35.94	42.23	0.19
Main	4001	77	77.00	5349.84	5353.37	5351.31	5353.40	0.000095	1.53	50.26	60.02	0.18
Main	4001	100	100.00	5349.84	5354.28	5351.51	5354.29	0.000023	0.94	171.04	66.84	0.09
Main	4001	150	150.00	5349.84	5356.85	5351.90	5356.85	0.000006	0.72	347.40	70.16	0.05
Main	4001	200	200.00	5349.84	5357.87	5352.22	5357.88	0.000006	0.80	423.57	85.00	0.05
Main	4001	250	250.00	5349.84	5358.12	5352.51	5358.13	0.000009	0.96	445.33	87.88	0.06
Main	4001	300	300.00	5349.84	5358.35	5352.76	5358.36	0.000011	1.11	465.86	97.25	0.07
Main	4001	350	350.00	5349.84	5358.55	5353.02	5358.57	0.000014	1.26	485.93	104.33	0.08
Main	4001	400	400.00	5349.84	5358.72	5353.24	5358.74	0.000016	1.40	504.65	112.54	0.09
Main	4001	450	450.00	5349.84	5358.93	5353.41	5358.95	0.000019	1.52	528.22	118.80	0.10
Main	4001	500	500.00	5349.84	5359.08	5353.62	5359.11	0.000021	1.65	546.99	120.68	0.10
Main	4001	50	50.00	5349.84	5352.45	5351.01	5352.49	0.000143	1.56	32.02	48.90	0.21
Main	3848	77	77.00	5349.59	5353.33	5351.15	5353.38	0.000133	1.83	42.04	70.39	0.20
Main	3848	100	100.00	5349.59	5354.28	5351.39	5354.28	0.000016	0.77	227.04	75.17	0.07
Main	3848	150	150.00	5349.59	5356.85	5351.83	5356.85	0.000005	0.62	424.55	80.46	0.04

HEC-RAS Plan: Existing_Cap River: Ditch Reach: Main (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Main	3848	200	200.00	5349.59	5357.87	5352.20	5357.88	0.000005	0.70	512.92	90.20	0.05
Main	3848	250	250.00	5349.59	5358.12	5352.56	5358.13	0.000007	0.84	536.17	95.44	0.05
Main	3848	300	300.00	5349.59	5358.35	5352.87	5358.36	0.000009	0.98	559.22	102.33	0.06
Main	3848	350	350.00	5349.59	5358.55	5353.19	5358.56	0.000011	1.11	579.89	105.36	0.07
Main	3848	400	400.00	5349.59	5358.73	5353.51	5358.74	0.000014	1.24	598.30	107.33	0.08
Main	3848	450	450.00	5349.59	5358.93	5353.51	5358.94	0.000016	1.35	620.38	109.03	0.08
Main	3848	500	500.00	5349.59	5359.09	5353.51	5359.10	0.000018	1.47	637.62	110.38	0.09
Main	3848	50	50.00	5349.59	5352.41	5350.82	5352.46	0.000163	1.77	28.30	64.90	0.22
Main	3718	77	77.00	5349.42	5353.36	5350.97	5353.37	0.000025	0.95	142.29	62.21	0.09
Main	3718	100	100.00	5349.42	5354.27	5351.18	5354.28	0.000016	0.89	199.93	63.79	0.08
Main	3718	150	150.00	5349.42	5356.85	5351.58	5356.85	0.000005	0.72	411.74	112.10	0.05
Main	3718	200	200.00	5349.42	5357.87	5351.94	5357.88	0.000005	0.78	531.42	117.17	0.05
Main	3718	250	250.00	5349.42	5358.12	5352.23	5358.13	0.000007	0.92	560.89	117.17	0.06
Main	3718	300	300.00	5349.42	5358.35	5352.38	5358.36	0.000009	1.06	587.66	117.17	0.07
Main	3718	350	350.00	5349.42	5358.55	5352.38	5358.56	0.000011	1.20	611.00	117.17	0.07
Main	3718	400	400.00	5349.42	5358.72	5352.42	5358.74	0.000013	1.33	631.20	117.17	0.08
Main	3718	450	450.00	5349.42	5358.93	5352.61	5358.94	0.000015	1.45	655.11	117.17	0.09
Main	3718	500	500.00	5349.42	5359.08	5352.69	5359.10	0.000017	1.57	673.48	117.17	0.09
Main	3718	50	50.00	5349.42	5352.43	5350.65	5352.44	0.000045	1.01	85.18	61.03	0.12
Main	3631	77	77.00	5348.77	5353.32	5350.48	5353.36	0.000079	1.55	49.84	44.28	0.16
Main	3631	100	100.00	5348.77	5354.26	5350.74	5354.28	0.000031	1.08	144.72	54.58	0.10
Main	3631	150	150.00	5348.77	5356.84	5351.20	5356.85	0.000009	0.82	299.45	68.18	0.06
Main	3631	200	200.00	5348.77	5357.87	5351.59	5357.87	0.000009	0.91	375.27	75.43	0.06
Main	3631	250	250.00	5348.77	5358.12	5351.95	5358.13	0.000012	1.08	394.09	75.43	0.07
Main	3631	300	300.00	5348.77	5358.34	5352.28	5358.36	0.000015	1.25	411.22	75.43	0.08
Main	3631	350	350.00	5348.77	5358.54	5352.58	5358.56	0.000019	1.42	426.06	75.43	0.09
Main	3631	400	400.00	5348.77	5358.71	5352.86	5358.73	0.000023	1.58	438.84	75.43	0.10
Main	3631	450	450.00	5348.77	5358.91	5353.12	5358.94	0.000026	1.72	454.05	75.43	0.11
Main	3631	500	500.00	5348.77	5359.06	5353.36	5359.10	0.000030	1.87	465.65	75.43	0.11
Main	3631	50	50.00	5348.77	5352.40	5350.12	5352.43	0.000082	1.39	35.89	37.88	0.15
Main	3471		Culvert									
Main	3360	77	77.00	5349.30	5352.34	5350.84	5352.43	0.000286	2.43	31.66	14.53	0.29
Main	3360	100	100.00	5349.30	5352.76	5351.08	5352.87	0.000304	2.63	38.06	17.02	0.30
Main	3360	150	150.00	5349.30	5353.38	5351.54	5353.51	0.000327	3.00	55.39	31.78	0.32
Main	3360	200	200.00	5349.30	5353.60	5351.91	5353.80	0.000437	3.66	62.40	32.45	0.38
Main	3360	250	250.00	5349.30	5353.91	5352.26	5354.15	0.000469	4.06	72.92	37.32	0.40
Main	3360	300	300.00	5349.30	5354.33	5352.57	5354.59	0.000426	4.20	90.25	48.55	0.39
Main	3360	350	350.00	5349.30	5354.88	5352.92	5355.11	0.000331	4.06	122.13	64.65	0.35
Main	3360	400	400.00	5349.30	5355.50	5353.30	5355.70	0.000242	3.81	165.21	75.27	0.31
Main	3360	450	450.00	5349.30	5356.34	5353.47	5356.48	0.000150	3.33	236.00	87.94	0.25
Main	3360	500	500.00	5349.30	5356.59	5353.67	5356.73	0.000151	3.45	257.89	88.63	0.25
Main	3360	50	50.00	5349.30	5351.76	5350.50	5351.83	0.000269	2.11	23.65	12.94	0.28
Main	3027	77	77.00	5349.50	5352.15	5350.84	5352.27	0.000911	3.62	31.05	48.52	0.45
Main	3027	100	100.00	5349.50	5352.56	5351.08	5352.70	0.000947	3.93	36.78	50.08	0.47
Main	3027	150	150.00	5349.50	5353.13	5351.54	5353.31	0.001251	4.20	46.09	56.79	0.55
Main	3027	200	200.00	5349.50	5353.63	5351.92	5353.64	0.000101	1.31	214.96	65.21	0.16

HEC-RAS Plan: Existing_Cap River: Ditch Reach: Main (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Main	3027	250	250.00	5349.50	5353.95	5352.23	5353.97	0.000116	1.55	236.25	65.55	0.18
Main	3027	300	300.00	5349.50	5354.38	5352.76	5354.40	0.000120	1.77	264.72	69.22	0.19
Main	3027	350	350.00	5349.50	5354.93	5352.99	5354.95	0.000112	1.93	306.23	80.98	0.19
Main	3027	400	400.00	5349.50	5355.54	5353.30	5355.56	0.000099	2.03	362.55	105.42	0.18
Main	3027	450	450.00	5349.50	5356.37	5353.42	5356.39	0.000068	1.91	456.59	115.18	0.15
Main	3027	500	500.00	5349.50	5356.62	5353.42	5356.64	0.000071	2.02	485.33	115.18	0.16
Main	3027	50	50.00	5349.50	5351.59	5350.52	5351.68	0.000875	3.17	23.46	46.50	0.44
Main	2915	77	77.00	5348.88	5352.14	5350.44	5352.21	0.000211	2.18	35.33	55.35	0.25
Main	2915	100	100.00	5348.88	5352.54	5350.67	5352.63	0.000227	2.40	41.65	56.86	0.26
Main	2915	150	150.00	5348.88	5353.10	5351.08	5353.24	0.000298	2.93	51.16	60.30	0.31
Main	2915	200	200.00	5348.88	5353.41	5351.49	5353.60	0.000402	3.52	56.88	63.67	0.36
Main	2915	250	250.00	5348.88	5353.95	5351.82	5353.96	0.000055	1.41	278.43	72.40	0.14
Main	2915	300	300.00	5348.88	5354.37	5352.10	5354.39	0.000056	1.53	309.68	73.57	0.14
Main	2915	350	350.00	5348.88	5354.92	5352.39	5354.94	0.000051	1.60	351.20	78.72	0.14
Main	2915	400	400.00	5348.88	5355.53	5352.68	5355.56	0.000044	1.63	401.18	83.90	0.13
Main	2915	450	450.00	5348.88	5356.36	5352.93	5356.38	0.000035	1.60	476.49	102.93	0.12
Main	2915	500	500.00	5348.88	5356.61	5353.18	5356.63	0.000037	1.71	502.94	109.77	0.12
Main	2915	50	50.00	5348.88	5351.57	5350.10	5351.63	0.000187	1.84	27.11	53.33	0.23
Main	2777	77	77.00	5349.04	5352.10	5350.56	5352.18	0.000247	2.25	34.15	51.96	0.27
Main	2777	100	100.00	5349.04	5352.51	5350.78	5352.60	0.000255	2.44	40.91	54.00	0.28
Main	2777	150	150.00	5349.04	5353.06	5351.21	5353.19	0.000317	2.94	51.08	57.81	0.32
Main	2777	200	200.00	5349.04	5353.36	5351.57	5353.55	0.000398	3.52	57.75	63.43	0.36
Main	2777	250	250.00	5349.04	5353.69	5351.93	5353.92	0.000431	3.93	67.50	77.03	0.38
Main	2777	300	300.00	5349.04	5354.34	5352.21	5354.38	0.000105	2.19	247.18	93.43	0.20
Main	2777	350	350.00	5349.04	5354.89	5352.50	5354.93	0.000084	2.14	300.77	99.39	0.18
Main	2777	400	400.00	5349.04	5355.51	5352.75	5355.55	0.000065	2.05	364.36	105.16	0.16
Main	2777	450	450.00	5349.04	5356.34	5352.99	5356.38	0.000045	1.89	453.43	108.13	0.14
Main	2777	500	500.00	5349.04	5356.59	5353.19	5356.63	0.000047	1.98	480.25	108.13	0.14
Main	2777	50	50.00	5349.04	5351.54	5350.23	5351.60	0.000230	1.96	25.56	49.08	0.26
Main	2621	77	77.00	5348.83	5352.07	5350.38	5352.14	0.000221	2.18	35.35	72.92	0.26
Main	2621	100	100.00	5348.83	5352.47	5350.60	5352.56	0.000234	2.37	42.12	74.84	0.27
Main	2621	150	150.00	5348.83	5353.02	5351.05	5353.14	0.000310	2.85	52.65	80.36	0.31
Main	2621	200	200.00	5348.83	5353.30	5351.45	5353.48	0.000385	3.41	59.67	87.91	0.36
Main	2621	250	250.00	5348.83	5353.83	5351.76	5353.84	0.000029	1.06	381.68	93.31	0.10
Main	2621	300	300.00	5348.83	5354.35	5352.11	5354.36	0.000028	1.14	430.25	94.90	0.10
Main	2621	350	350.00	5348.83	5354.90	5352.39	5354.92	0.000026	1.20	484.63	102.13	0.10
Main	2621	400	400.00	5348.83	5355.52	5352.67	5355.53	0.000023	1.24	549.42	106.57	0.10
Main	2621	450	450.00	5348.83	5356.35	5352.94	5356.37	0.000019	1.22	639.91	110.79	0.09
Main	2621	500	500.00	5348.83	5356.60	5353.13	5356.62	0.000020	1.31	667.68	112.64	0.09
Main	2621	50	50.00	5348.83	5351.51	5350.04	5351.56	0.000193	1.86	26.90	70.30	0.24
Main	2479	77	77.00	5348.75	5352.05	5350.37	5352.11	0.000167	1.96	39.31	54.66	0.23
Main	2479	100	100.00	5348.75	5352.46	5350.58	5352.53	0.000170	2.16	46.53	59.94	0.23
Main	2479	150	150.00	5348.75	5353.09	5350.97	5353.10	0.000023	0.90	261.96	66.53	0.09
Main	2479	200	200.00	5348.75	5353.41	5351.30	5353.42	0.000031	1.13	283.36	67.09	0.10
Main	2479	250	250.00	5348.75	5353.82	5351.57	5353.84	0.000036	1.30	311.13	67.82	0.11
Main	2479	300	300.00	5348.75	5354.34	5351.85	5354.36	0.000036	1.41	346.68	70.48	0.12
Main	2479	350	350.00	5348.75	5354.89	5352.12	5354.91	0.000035	1.50	386.89	77.43	0.12

HEC-RAS Plan: Existing_Cap River: Ditch Reach: Main (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Main	2479	400	400.00	5348.75	5355.51	5352.35	5355.53	0.000032	1.56	438.30	85.84	0.11
Main	2479	450	450.00	5348.75	5356.34	5352.56	5356.36	0.000027	1.55	512.34	93.93	0.11
Main	2479	500	500.00	5348.75	5356.59	5352.56	5356.61	0.000029	1.66	536.93	102.67	0.11
Main	2479	50	50.00	5348.75	5351.49	5350.06	5351.53	0.000153	1.66	30.10	52.89	0.21
Main	2378	77	77.00	5349.17	5351.94	5350.87	5352.08	0.000533	3.00	25.67	73.67	0.39
Main	2378	100	100.00	5349.17	5352.34	5351.12	5352.49	0.000511	3.17	31.51	75.53	0.39
Main	2378	150	150.00	5349.17	5352.85	5351.58	5353.07	0.000606	3.78	39.73	80.54	0.43
Main	2378	200	200.00	5349.17	5353.42	5351.98	5353.42	0.000013	0.59	446.96	92.73	0.07
Main	2378	250	250.00	5349.17	5353.83	5352.31	5353.83	0.000016	0.71	485.55	94.13	0.07
Main	2378	300	300.00	5349.17	5354.35	5352.60	5354.35	0.000017	0.81	534.78	96.20	0.08
Main	2378	350	350.00	5349.17	5354.90	5352.88	5354.90	0.000016	0.89	588.44	97.92	0.08
Main	2378	400	400.00	5349.17	5355.52	5353.21	5355.52	0.000016	0.95	649.28	98.95	0.08
Main	2378	450	450.00	5349.17	5356.35	5353.21	5356.36	0.000013	0.98	733.38	102.53	0.07
Main	2378	500	500.00	5349.17	5356.60	5353.21	5356.60	0.000015	1.07	758.91	103.29	0.08
Main	2378	50	50.00	5349.17	5351.39	5350.49	5351.50	0.000559	2.72	18.41	70.95	0.39
Main	2319	77	77.00	5349.09	5351.89	5350.88	5352.04	0.000585	3.12	24.69	62.76	0.41
Main	2319	100	100.00	5349.09	5352.29	5351.14	5352.46	0.000560	3.29	30.39	64.43	0.41
Main	2319	150	150.00	5349.09	5353.00	5351.56	5353.00	0.000006	0.37	471.21	82.61	0.04
Main	2319	200	200.00	5349.09	5353.42	5351.96	5353.42	0.000008	0.47	505.59	83.66	0.05
Main	2319	250	250.00	5349.09	5353.83	5352.33	5353.83	0.000011	0.58	540.50	85.48	0.06
Main	2319	300	300.00	5349.09	5354.35	5352.64	5354.35	0.000012	0.68	585.39	87.98	0.06
Main	2319	350	350.00	5349.09	5354.90	5353.00	5354.90	0.000012	0.77	634.52	90.01	0.07
Main	2319	400	400.00	5349.09	5355.52	5353.00	5355.52	0.000012	0.84	691.24	93.35	0.07
Main	2319	450	450.00	5349.09	5356.35	5353.00	5356.35	0.000011	0.90	770.24	96.67	0.07
Main	2319	500	500.00	5349.09	5356.60	5353.00	5356.60	0.000012	0.98	794.41	98.11	0.07
Main	2319	50	50.00	5349.09	5351.34	5350.52	5351.46	0.000619	2.83	17.64	60.40	0.41
Main	2195	77	77.00	5348.95	5351.84	5350.73	5351.97	0.000472	2.89	26.68	53.34	0.37
Main	2195	100	100.00	5348.95	5352.24	5350.97	5352.39	0.000468	3.07	32.59	55.61	0.37
Main	2195	150	150.00	5348.95	5353.00	5351.42	5353.00	0.000010	0.52	381.16	70.56	0.06
Main	2195	200	200.00	5348.95	5353.41	5351.80	5353.42	0.000013	0.68	410.47	71.52	0.07
Main	2195	250	250.00	5348.95	5353.82	5352.12	5353.83	0.000016	0.82	440.14	72.51	0.08
Main	2195	300	300.00	5348.95	5354.34	5352.42	5354.35	0.000018	0.94	478.00	73.92	0.08
Main	2195	350	350.00	5348.95	5354.89	5352.73	5354.90	0.000019	1.04	519.17	75.48	0.08
Main	2195	400	400.00	5348.95	5355.51	5352.73	5355.52	0.000018	1.12	566.30	77.11	0.09
Main	2195	450	450.00	5348.95	5356.34	5352.73	5356.35	0.000017	1.17	631.17	78.69	0.08
Main	2195	500	500.00	5348.95	5356.59	5352.73	5356.60	0.000019	1.27	650.63	79.12	0.09
Main	2195	50	50.00	5348.95	5351.28	5350.36	5351.39	0.000497	2.60	19.24	50.16	0.37
Main	2102	77	77.00	5348.87	5351.82	5350.54	5351.92	0.000382	2.63	29.31	45.23	0.34
Main	2102	100	100.00	5348.87	5352.22	5350.81	5352.34	0.000380	2.79	35.82	47.54	0.34
Main	2102	150	150.00	5348.87	5352.83	5351.24	5352.98	0.000418	3.19	47.03	51.90	0.36
Main	2102	200	200.00	5348.87	5353.41	5351.64	5353.41	0.000032	1.00	296.31	68.55	0.10
Main	2102	250	250.00	5348.87	5353.82	5351.97	5353.83	0.000037	1.17	324.58	69.46	0.11
Main	2102	300	300.00	5348.87	5354.33	5352.26	5354.35	0.000037	1.29	360.78	70.80	0.12
Main	2102	350	350.00	5348.87	5354.88	5352.54	5354.90	0.000036	1.38	400.10	72.09	0.12
Main	2102	400	400.00	5348.87	5355.50	5352.79	5355.52	0.000033	1.45	445.01	73.61	0.11
Main	2102	450	450.00	5348.87	5356.33	5352.98	5356.35	0.000027	1.46	507.29	75.67	0.11
Main	2102	500	500.00	5348.87	5356.58	5352.98	5356.60	0.000030	1.58	525.91	76.19	0.11

HEC-RAS Plan: Existing_Cap River: Ditch Reach: Main (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Main	2102	50	50.00	5348.87	5351.26	5350.19	5351.34	0.000385	2.35	21.26	42.68	0.33
Main	2004	77	77.00	5348.76	5351.75	5350.58	5351.88	0.000495	2.87	26.79	37.72	0.38
Main	2004	100	100.00	5348.76	5352.15	5350.86	5352.30	0.000473	3.02	33.13	42.76	0.38
Main	2004	150	150.00	5348.76	5352.92	5351.33	5352.93	0.000038	1.06	218.71	52.10	0.11
Main	2004	200	200.00	5348.76	5353.40	5351.73	5353.41	0.000047	1.30	243.63	53.03	0.13
Main	2004	250	250.00	5348.76	5353.80	5352.06	5353.82	0.000055	1.52	265.39	53.84	0.14
Main	2004	300	300.00	5348.76	5354.32	5352.34	5354.34	0.000057	1.69	293.39	55.31	0.15
Main	2004	350	350.00	5348.76	5354.86	5352.51	5354.89	0.000056	1.82	324.20	57.10	0.15
Main	2004	400	400.00	5348.76	5355.48	5352.51	5355.51	0.000052	1.91	359.97	58.96	0.15
Main	2004	450	450.00	5348.76	5356.31	5352.51	5356.35	0.000044	1.93	410.14	62.33	0.14
Main	2004	500	500.00	5348.76	5356.56	5352.51	5356.59	0.000048	2.09	425.61	65.04	0.15
Main	2004	50	50.00	5348.76	5351.19	5350.20	5351.30	0.000503	2.61	19.16	33.11	0.37
Main	1888	77	77.00	5348.76	5351.67	5350.63	5351.82	0.000575	3.08	25.00	40.05	0.41
Main	1888	100	100.00	5348.76	5352.07	5350.88	5352.23	0.000551	3.23	30.93	45.99	0.40
Main	1888	150	150.00	5348.76	5352.92	5351.35	5352.93	0.000021	0.78	279.12	56.78	0.08
Main	1888	200	200.00	5348.76	5353.40	5351.75	5353.40	0.000027	0.99	306.33	58.00	0.10
Main	1888	250	250.00	5348.76	5353.80	5352.09	5353.81	0.000033	1.18	330.21	59.26	0.11
Main	1888	300	300.00	5348.76	5354.32	5352.37	5354.33	0.000035	1.34	361.18	61.11	0.12
Main	1888	350	350.00	5348.76	5354.87	5352.52	5354.88	0.000036	1.46	395.25	62.88	0.12
Main	1888	400	400.00	5348.76	5355.48	5352.52	5355.50	0.000035	1.56	434.62	64.98	0.12
Main	1888	450	450.00	5348.76	5356.32	5352.52	5356.34	0.000030	1.61	490.01	67.71	0.11
Main	1888	500	500.00	5348.76	5356.56	5352.52	5356.58	0.000034	1.74	506.86	70.28	0.12
Main	1888	50	50.00	5348.76	5351.11	5350.27	5351.23	0.000599	2.80	17.83	36.77	0.40
Main	1851	77	77.00	5348.69	5351.66	5350.53	5351.79	0.000485	2.90	26.58	23.01	0.38
Main	1851	100	100.00	5348.69	5352.06	5350.79	5352.21	0.000473	3.06	32.67	25.63	0.38
Main	1851	150	150.00	5348.69	5352.81	5351.23	5352.91	0.000308	2.84	76.70	48.31	0.31
Main	1851	200	200.00	5348.69	5353.27	5351.58	5353.39	0.000280	3.03	99.45	49.30	0.31
Main	1851	250	250.00	5348.69	5353.67	5351.97	5353.80	0.000270	3.23	119.28	50.53	0.31
Main	1851	300	300.00	5348.69	5354.19	5352.28	5354.32	0.000224	3.24	146.08	52.24	0.29
Main	1851	350	350.00	5348.69	5354.75	5352.56	5354.87	0.000183	3.20	175.80	54.07	0.27
Main	1851	400	400.00	5348.69	5355.38	5352.75	5355.49	0.000145	3.11	210.49	56.21	0.24
Main	1851	450	450.00	5348.69	5356.23	5352.90	5356.33	0.000103	2.91	260.14	61.26	0.21
Main	1851	500	500.00	5348.69	5356.47	5353.04	5356.57	0.000110	3.09	274.75	63.23	0.22
Main	1851	50	50.00	5348.69	5351.10	5350.18	5351.21	0.000502	2.62	19.09	18.08	0.37
Main	1824		Bridge									
Main	1812	77	77.00	5348.68	5351.59	5350.26	5351.70	0.000352	2.59	29.70	14.74	0.32
Main	1812	100	100.00	5348.68	5351.97	5350.51	5352.09	0.000369	2.82	35.47	16.01	0.33
Main	1812	150	150.00	5348.68	5352.52	5350.96	5352.70	0.000426	3.34	46.02	25.15	0.37
Main	1812	200	200.00	5348.68	5352.78	5351.35	5353.03	0.000558	4.01	52.75	26.42	0.42
Main	1812	250	250.00	5348.68	5353.16	5351.68	5353.45	0.000565	4.34	63.02	27.43	0.43
Main	1812	300	300.00	5348.68	5353.43	5351.99	5353.77	0.000605	4.75	70.51	28.37	0.46
Main	1812	350	350.00	5348.68	5353.70	5352.27	5354.09	0.000627	5.09	78.21	29.31	0.47
Main	1812	400	400.00	5348.68	5354.02	5352.57	5354.43	0.000606	5.29	87.68	30.77	0.47
Main	1812	450	450.00	5348.68	5354.29	5352.81	5354.74	0.000601	5.51	96.34	35.29	0.47
Main	1812	500	500.00	5348.68	5354.29	5353.03	5354.84	0.000745	6.13	96.19	35.21	0.53
Main	1812	50	50.00	5348.68	5351.06	5349.94	5351.14	0.000328	2.24	22.28	13.18	0.30

HEC-RAS Plan: Existing_Cap River: Ditch Reach: Main (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Main	1800	77	77.00	5348.59	5351.59	5350.15	5351.69	0.000342	2.54	30.35	14.93	0.31
Main	1800	100	100.00	5348.59	5351.96	5350.40	5352.08	0.000371	2.75	36.35	16.95	0.33
Main	1800	150	150.00	5348.59	5352.53	5350.86	5352.68	0.000459	3.16	47.46	21.39	0.37
Main	1800	200	200.00	5348.59	5352.79	5351.24	5353.01	0.000600	3.76	53.22	22.63	0.43
Main	1800	250	250.00	5348.59	5353.17	5351.63	5353.42	0.000609	4.01	62.31	24.27	0.44
Main	1800	300	300.00	5348.59	5353.45	5351.95	5353.74	0.000649	4.35	69.04	24.87	0.46
Main	1800	350	350.00	5348.59	5353.72	5352.30	5354.05	0.000669	4.61	75.87	25.41	0.47
Main	1800	400	400.00	5348.59	5354.04	5352.52	5354.39	0.000642	4.76	84.13	26.48	0.47
Main	1800	450	450.00	5348.59	5354.32	5352.76	5354.70	0.000624	4.92	91.89	28.39	0.46
Main	1800	500	500.00	5348.59	5354.33	5352.93	5354.79	0.000768	5.46	91.96	28.40	0.51
Main	1800	50	50.00	5348.59	5351.06	5349.79	5351.13	0.000291	2.17	23.09	12.80	0.28
Main	1783		Bridge									
Main	1758	77	77.00	5348.48	5351.56	5350.30	5351.67	0.000398	2.69	28.58	14.70	0.34
Main	1758	100	100.00	5348.48	5351.93	5350.56	5352.06	0.000406	2.92	34.26	15.76	0.35
Main	1758	150	150.00	5348.48	5352.46	5351.00	5352.65	0.000496	3.48	43.15	17.67	0.39
Main	1758	200	200.00	5348.48	5352.69	5351.38	5352.96	0.000704	4.24	47.16	27.79	0.47
Main	1758	250	250.00	5348.48	5353.04	5351.72	5353.37	0.000768	4.63	54.00	33.43	0.50
Main	1758	300	300.00	5348.48	5353.27	5352.03	5353.67	0.000860	5.12	59.49	46.16	0.53
Main	1758	350	350.00	5348.48	5353.54	5352.30	5353.98	0.000828	5.33	75.23	55.29	0.53
Main	1758	400	400.00	5348.48	5353.89	5352.54	5354.29	0.000690	5.22	101.88	58.54	0.49
Main	1758	450	450.00	5348.48	5354.18	5352.82	5354.57	0.000630	5.26	118.86	58.54	0.48
Main	1758	500	500.00	5348.48	5354.10	5353.02	5354.61	0.000850	6.02	114.11	58.54	0.55
Main	1758	50	50.00	5348.48	5351.03	5349.95	5351.11	0.000387	2.36	21.18	13.19	0.33
Main	1565	77	77.00	5348.41	5351.45	5350.27	5351.58	0.000466	2.92	26.41	17.23	0.37
Main	1565	100	100.00	5348.41	5351.81	5350.53	5351.97	0.000491	3.18	31.46	19.64	0.38
Main	1565	150	150.00	5348.41	5352.30	5351.00	5352.53	0.000644	3.83	39.16	24.72	0.44
Main	1565	200	200.00	5348.41	5352.40	5351.40	5352.77	0.001033	4.90	40.82	25.90	0.56
Main	1565	250	250.00	5348.41	5352.70	5351.75	5353.16	0.001129	5.42	46.77	34.18	0.60
Main	1565	300	300.00	5348.41	5352.78	5352.08	5353.40	0.001477	6.30	48.76	36.29	0.68
Main	1565	350	350.00	5348.41	5352.83	5352.38	5353.63	0.001907	7.22	49.92	37.27	0.78
Main	1565	400	400.00	5348.41	5353.15	5352.65	5353.96	0.001711	7.28	59.58	49.04	0.75
Main	1565	450	450.00	5348.41	5353.46	5352.93	5354.26	0.001513	7.31	70.00	54.80	0.72
Main	1565	500	500.00	5348.41	5353.93	5353.19	5354.44	0.000900	6.18	123.00	61.35	0.56
Main	1565	50	50.00	5348.41	5350.93	5349.89	5351.03	0.000435	2.52	19.83	15.22	0.35
Main	1395	77	77.00	5348.40	5351.37	5350.19	5351.50	0.000473	2.90	26.54	38.41	0.37
Main	1395	100	100.00	5348.40	5351.73	5350.43	5351.88	0.000507	3.14	31.81	40.91	0.39
Main	1395	150	150.00	5348.40	5352.19	5350.89	5352.42	0.000663	3.79	39.55	44.47	0.45
Main	1395	200	200.00	5348.40	5352.18	5351.30	5352.58	0.001199	5.09	39.27	44.34	0.60
Main	1395	250	250.00	5348.40	5352.44	5351.67	5352.94	0.001425	5.68	44.03	46.52	0.66
Main	1395	300	300.00	5348.40	5353.16	5352.02	5353.18	0.000075	1.52	300.94	68.33	0.16
Main	1395	350	350.00	5348.40	5353.33	5352.24	5353.36	0.000089	1.72	312.40	68.61	0.17
Main	1395	400	400.00	5348.40	5353.65	5352.57	5353.68	0.000092	1.87	334.70	69.16	0.18
Main	1395	450	450.00	5348.40	5353.96	5352.85	5353.99	0.000095	2.01	355.65	70.01	0.18
Main	1395	500	500.00	5348.40	5354.23	5353.09	5354.26	0.000098	2.14	374.72	70.98	0.19
Main	1395	50	50.00	5348.40	5350.86	5349.81	5350.96	0.000427	2.50	19.97	35.86	0.34

HEC-RAS Plan: Existing_Cap River: Ditch Reach: Main (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Main	1177	77	77.00	5348.47	5351.18	5350.34	5351.37	0.000749	3.43	22.42	49.85	0.46
Main	1177	100	100.00	5348.47	5351.53	5350.58	5351.74	0.000759	3.69	27.09	51.58	0.47
Main	1177	150	150.00	5348.47	5351.89	5351.05	5352.23	0.001058	4.63	32.37	53.33	0.56
Main	1177	200	200.00	5348.47	5352.45	5351.41	5352.46	0.000008	0.45	501.88	70.96	0.05
Main	1177	250	250.00	5348.47	5352.77	5351.79	5352.78	0.000012	0.60	525.70	74.51	0.06
Main	1177	300	300.00	5348.47	5353.17	5352.10	5353.17	0.000014	0.72	555.11	75.32	0.07
Main	1177	350	350.00	5348.47	5353.34	5352.40	5353.34	0.000018	0.83	567.87	75.78	0.08
Main	1177	400	400.00	5348.47	5353.66	5352.40	5353.67	0.000020	0.94	592.63	76.70	0.09
Main	1177	450	450.00	5348.47	5353.96	5352.40	5353.97	0.000023	1.05	615.98	77.56	0.09
Main	1177	500	500.00	5348.47	5354.24	5352.40	5354.25	0.000025	1.15	637.15	78.34	0.10
Main	1177	50	50.00	5348.47	5350.68	5349.98	5350.83	0.000775	3.07	16.31	47.64	0.46
Main	1024	77	77.00	5348.27	5351.12	5350.01	5351.26	0.000550	2.98	25.84	50.16	0.40
Main	1024	100	100.00	5348.27	5351.47	5350.28	5351.63	0.000567	3.19	31.33	52.44	0.41
Main	1024	150	150.00	5348.27	5352.12	5350.76	5352.12	0.000006	0.39	430.08	57.91	0.04
Main	1024	200	200.00	5348.27	5352.45	5351.16	5352.45	0.000012	0.61	452.43	75.58	0.06
Main	1024	250	250.00	5348.27	5352.77	5351.51	5352.78	0.000016	0.74	476.76	76.24	0.07
Main	1024	300	300.00	5348.27	5353.16	5351.80	5353.17	0.000019	0.87	506.89	77.43	0.08
Main	1024	350	350.00	5348.27	5353.33	5352.02	5353.34	0.000024	1.01	519.90	77.93	0.09
Main	1024	400	400.00	5348.27	5353.65	5352.10	5353.66	0.000026	1.13	545.20	78.61	0.10
Main	1024	450	450.00	5348.27	5353.96	5352.10	5353.97	0.000029	1.24	569.09	79.19	0.11
Main	1024	500	500.00	5348.27	5354.23	5352.10	5354.24	0.000031	1.35	590.64	79.96	0.11
Main	1024	50	50.00	5348.27	5350.62	5349.64	5350.72	0.000498	2.62	19.11	46.88	0.37
Main	851	77	77.00	5348.08	5351.04	5349.88	5351.17	0.000466	2.85	27.02	48.29	0.37
Main	851	100	100.00	5348.08	5351.38	5350.11	5351.53	0.000503	3.10	32.31	50.29	0.39
Main	851	150	150.00	5348.08	5351.89	5350.60	5352.10	0.000578	3.65	41.21	53.83	0.42
Main	851	200	200.00	5348.08	5352.11	5350.97	5352.42	0.000773	4.44	45.72	56.96	0.50
Main	851	250	250.00	5348.08	5352.33	5351.35	5352.73	0.000904	5.08	51.96	69.08	0.55
Main	851	300	300.00	5348.08	5352.70	5351.60	5353.12	0.000818	5.26	64.92	73.08	0.53
Main	851	350	350.00	5348.08	5353.33	5351.91	5353.34	0.000023	1.00	526.81	81.79	0.09
Main	851	400	400.00	5348.08	5353.65	5352.11	5353.66	0.000026	1.12	553.47	83.18	0.10
Main	851	450	450.00	5348.08	5353.95	5352.46	5353.96	0.000028	1.23	578.75	84.28	0.10
Main	851	500	500.00	5348.08	5354.22	5352.68	5354.24	0.000031	1.33	601.65	85.02	0.11
Main	851	50	50.00	5348.08	5350.55	5349.54	5350.64	0.000418	2.45	20.39	46.17	0.34
Main	680	77	77.00	5348.00	5350.96	5349.77	5351.08	0.000480	2.84	27.07	58.75	0.37
Main	680	100	100.00	5348.00	5351.30	5350.05	5351.45	0.000501	3.09	32.32	60.41	0.39
Main	680	150	150.00	5348.00	5352.03	5350.52	5352.04	0.000003	0.27	622.47	84.44	0.03
Main	680	200	200.00	5348.00	5352.32	5350.93	5352.32	0.000004	0.36	646.72	84.78	0.04
Main	680	250	250.00	5348.00	5352.60	5351.25	5352.60	0.000006	0.45	670.57	85.11	0.05
Main	680	300	300.00	5348.00	5352.98	5351.53	5352.99	0.000008	0.54	703.17	85.62	0.05
Main	680	350	350.00	5348.00	5353.33	5351.77	5353.33	0.000009	0.63	732.72	86.08	0.06
Main	680	400	400.00	5348.00	5353.65	5352.04	5353.66	0.000010	0.71	760.62	86.57	0.06
Main	680	450	450.00	5348.00	5353.95	5352.04	5353.96	0.000012	0.79	786.91	87.38	0.07
Main	680	500	500.00	5348.00	5354.22	5352.04	5354.23	0.000013	0.87	810.69	88.12	0.07
Main	680	50	50.00	5348.00	5350.47	5349.39	5350.57	0.000438	2.46	20.29	56.23	0.35
Main	537	77	77.00	5347.79	5350.91	5349.58	5351.02	0.000397	2.68	28.68	57.88	0.34
Main	537	100	100.00	5347.79	5351.24	5349.84	5351.38	0.000439	2.95	33.87	60.24	0.36
Main	537	150	150.00	5347.79	5351.84	5350.31	5352.02	0.000455	3.39	45.24	75.45	0.38

HEC-RAS Plan: Existing_Cap River: Ditch Reach: Main (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Main	537	200	200.00	5347.79	5352.32	5350.73	5352.32	0.000003	0.31	720.13	81.78	0.03
Main	537	250	250.00	5347.79	5352.60	5351.05	5352.60	0.000004	0.39	743.06	82.17	0.04
Main	537	300	300.00	5347.79	5352.98	5351.40	5352.99	0.000006	0.47	774.62	82.99	0.04
Main	537	350	350.00	5347.79	5353.33	5351.65	5353.33	0.000007	0.55	803.33	83.82	0.05
Main	537	400	400.00	5347.79	5353.65	5352.03	5353.65	0.000008	0.62	830.51	84.58	0.05
Main	537	450	450.00	5347.79	5353.95	5352.03	5353.96	0.000009	0.70	856.14	84.98	0.06
Main	537	500	500.00	5347.79	5354.22	5352.03	5354.23	0.000010	0.78	879.21	85.35	0.06
Main	537	50	50.00	5347.79	5350.43	5349.21	5350.51	0.000328	2.26	22.11	54.87	0.30
Main	400	77	77.00	5347.90	5350.80	5349.72	5350.95	0.000556	3.07	25.05	66.50	0.40
Main	400	100	100.00	5347.90	5351.12	5350.01	5351.30	0.000595	3.39	29.53	68.13	0.42
Main	400	150	150.00	5347.90	5351.70	5350.46	5351.94	0.000679	3.89	38.58	72.93	0.45
Main	400	200	200.00	5347.90	5352.32	5350.87	5352.32	0.000001	0.19	1008.21	94.10	0.02
Main	400	250	250.00	5347.90	5352.60	5351.21	5352.60	0.000002	0.24	1034.74	95.48	0.02
Main	400	300	300.00	5347.90	5352.98	5351.54	5352.98	0.000002	0.30	1071.69	98.06	0.03
Main	400	350	350.00	5347.90	5353.33	5351.84	5353.33	0.000003	0.35	1106.30	104.06	0.03
Main	400	400	400.00	5347.90	5353.65	5352.13	5353.65	0.000003	0.41	1140.20	105.41	0.04
Main	400	450	450.00	5347.90	5353.95	5352.13	5353.96	0.000004	0.46	1172.15	106.32	0.04
Main	400	500	500.00	5347.90	5354.22	5352.13	5354.23	0.000005	0.52	1201.12	107.04	0.04
Main	400	50	50.00	5347.90	5350.35	5349.35	5350.45	0.000490	2.61	19.16	64.14	0.37
Main	212	77	77.00	5347.89	5350.65	5349.70	5350.83	0.000736	3.40	22.65	42.25	0.45
Main	212	100	100.00	5347.89	5350.95	5350.00	5351.17	0.000796	3.74	26.74	43.75	0.48
Main	212	150	150.00	5347.89	5351.50	5350.49	5351.79	0.000883	4.30	34.92	46.52	0.51
Main	212	200	200.00	5347.89	5351.94	5350.89	5352.29	0.000916	4.74	42.33	49.46	0.53
Main	212	250	250.00	5347.89	5352.59	5351.25	5352.60	0.000026	0.93	407.48	72.04	0.09
Main	212	300	300.00	5347.89	5352.97	5351.55	5352.98	0.000030	1.08	434.98	72.78	0.10
Main	212	350	350.00	5347.89	5353.32	5351.83	5353.33	0.000034	1.22	460.01	73.44	0.11
Main	212	400	400.00	5347.89	5353.64	5352.06	5353.65	0.000038	1.35	483.70	74.04	0.12
Main	212	450	450.00	5347.89	5353.94	5352.29	5353.95	0.000041	1.48	505.95	74.60	0.12
Main	212	500	500.00	5347.89	5354.21	5352.50	5354.22	0.000044	1.60	526.05	75.10	0.13
Main	212	50	50.00	5347.89	5350.22	5349.31	5350.35	0.000627	2.87	17.41	40.10	0.41
Main	105	77	77.00	5348.24	5350.18	5350.04	5350.66	0.002894	5.56	13.84	32.35	0.87
Main	105	100	100.00	5348.24	5350.45	5350.31	5350.99	0.002812	5.92	16.88	33.59	0.87
Main	105	150	150.00	5348.24	5350.90	5350.77	5351.59	0.002830	6.63	22.63	35.70	0.89
Main	105	200	200.00	5348.24	5351.30	5351.15	5352.08	0.002848	7.11	28.15	37.69	0.91
Main	105	250	250.00	5348.24	5351.65	5351.51	5352.51	0.002798	7.44	33.61	39.44	0.92
Main	105	300	300.00	5348.24	5351.95	5351.83	5352.88	0.002778	7.75	38.72	40.94	0.92
Main	105	350	350.00	5348.24	5352.15	5352.09	5353.21	0.002967	8.28	42.29	41.85	0.96
Main	105	400	400.00	5348.24	5352.33	5352.33	5353.52	0.003070	8.75	45.81	43.44	0.99
Main	105	450	450.00	5348.24	5352.54	5352.54	5353.81	0.003013	9.04	50.22	45.28	0.99
Main	105	500	500.00	5348.24	5352.85	5352.85	5354.09	0.002612	8.94	58.78	58.67	0.93
Main	105	50	50.00	5348.24	5349.80	5349.72	5350.19	0.003089	5.03	9.94	30.48	0.87
Main	32	77	77.00	5347.93	5350.09	5349.78	5350.45	0.002001	4.81	16.02	22.64	0.73
Main	32	100	100.00	5347.93	5350.37	5350.04	5350.78	0.002002	5.15	19.43	23.97	0.74
Main	32	150	150.00	5347.93	5350.86	5350.48	5351.37	0.002000	5.72	26.23	26.31	0.76
Main	32	200	200.00	5347.93	5351.26	5350.88	5351.85	0.002001	6.17	32.39	28.58	0.77
Main	32	250	250.00	5347.93	5351.62	5351.22	5352.27	0.002001	6.50	38.48	32.01	0.78
Main	32	300	300.00	5347.93	5351.94	5351.52	5352.64	0.002001	6.75	45.30	42.75	0.79

HEC-RAS Plan: Existing_Cap River: Ditch Reach: Main (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Main	32	350	350.00	5347.93	5352.18	5351.79	5352.95	0.002004	7.06	52.54	47.93	0.80
Main	32	400	400.00	5347.93	5351.77	5352.12	5353.23	0.004325	9.72	41.15	33.09	1.15
Main	32	450	450.00	5347.93	5351.96	5352.38	5353.51	0.004367	10.00	46.06	43.48	1.16
Main	32	500	500.00	5347.93	5352.08	5352.38	5353.80	0.004647	10.53	49.58	45.69	1.21
Main	32	50	50.00	5347.93	5349.69	5349.42	5349.98	0.002002	4.28	11.69	20.83	0.71

2D Analysis - Check Line
Line ID: RP_DS_2
100-Year Peak Flow at Downstream: 143.80 cfs
Volume Accumulation at Downstream: 26.39 acre-ft

2D Analysis - Check Line
Line ID: CP7
100-Year Peak Flow at Upstream: 2431.72 cfs
Volume Accumulation at Upstream: 476.49 acre-ft

2D Analysis - Check Line
Line ID: CP06
100-Year Peak Flow at Downstream: 484.84 cfs
Volume Accumulation at Downstream: 69.31 acre-ft

2D Analysis - Check Line
Line ID: RN_DS_2
100-Year Peak Flow at Downstream: 331.00 cfs
Volume Accumulation at Downstream: 37.70 acre-ft

2D Analysis - Check Line
Line ID: RN_DS_3
100-Year Peak Flow at Downstream: 231.64 cfs
Volume Accumulation at Downstream: 16.88 acre-ft

2D Analysis - Check Line
Line ID: CPO12
100-Year Peak Flow at Downstream: 404.58 cfs
100-Year Peak Flow at Downstream: 670.26 cfs
Volume Accumulation at Upstream: 42.20 acre-ft
Volume Accumulation at Downstream: 200.97 acre-ft

2D Analysis - Check Line
Line ID: CPO6
100-Year Peak Flow at Downstream: 204.80 cfs
Volume Accumulation at Downstream: 29.18 acre-ft

2D Analysis - Check Line
Line ID: CPO3
100-Year Peak Flow at Downstream: 484.84 cfs
Volume Accumulation at Downstream: 69.31 acre-ft

2D Analysis - Check Line
Line ID: CAB18
100-Year Peak Flow at Upstream: 875.00 cfs
100-Year Peak Flow at Downstream: 852.23 cfs
Volume Accumulation at Upstream: 113.97 acre-ft
Volume Accumulation at Downstream: 111.6 acre-ft

2D Analysis - Check Line
Line ID: RP
100-Year Peak Flow at Upstream: 285.70 cfs
Volume Accumulation at Upstream: 48.60 acre-ft

2D Analysis - Check Line
Line ID: CPO2
100-Year Peak Flow at Upstream: 74.94 cfs
100-Year Peak Flow at Upstream: 191.84 cfs
Volume Accumulation at Upstream: 6.69 acre-ft
Volume Accumulation at Downstream: 24.84 acre-ft

2D Analysis - Check Line
Line ID: CAB16
100-Year Peak Flow at Upstream: 132.07 cfs
100-Year Peak Flow at Downstream: 174.53 cfs
Volume Accumulation at Upstream: 12.66 acre-ft
Volume Accumulation at Downstream: 30.95 acre-ft

2D Analysis - Check Line
Line ID: RN
100-Year Peak Flow at Upstream: 691.75 cfs
Volume Accumulation at Upstream: 76.44 acre-ft

2D Analysis - Check Line
Line ID: AB17
100-Year Peak Flow at Upstream: 72.86 cfs
100-Year Peak Flow at Downstream: 87.57 cfs
Volume Accumulation at Upstream: 9.90 acre-ft
Volume Accumulation at Downstream: 21.34 acre-ft

2D Analysis - Check Line
Line ID: NN06
100-Year Peak Flow at Upstream: 240.13 cfs
Volume Accumulation at Upstream: 46.82 acre-ft

2D Analysis - Check Line
Line ID: AB15
100-Year Peak Flow at Upstream: 54.65 cfs
100-Year Peak Flow at Downstream: 56.27 cfs
Volume Accumulation at Upstream: 5.95 acre-ft
Volume Accumulation at Downstream: 4.12 acre-ft

2D Analysis - Check Line
Line ID: NN08_DS_3
100-Year Peak Flow at Downstream: 31.60 cfs
Volume Accumulation at Downstream: 8.94 acre-ft

2D Analysis - Check Line
Line ID: CPO3_DS
100-Year Peak Flow at Downstream: 286.41 cfs
Volume Accumulation at Downstream: 28.55 acre-ft

2D Analysis - Check Line
Line ID: NN08
100-Year Peak Flow at Upstream: 264.86 cfs
Volume Accumulation at Upstream: 30.00 acre-ft

2D Analysis - Check Line
Line ID: CPO6_DS
100-Year Peak Flow at Downstream: 291.72 cfs
Volume Accumulation at Downstream: 83.74 acre-ft

2D Analysis - Check Line
Line ID: NN07D
100-Year Peak Flow at Upstream: 46.45 cfs
100-Year Peak Flow at Downstream: 24.75 cfs
Volume Accumulation at Upstream: 6.6 acre-ft
Volume Accumulation at Downstream: 6.48 acre-ft

2D Analysis - Check Line
Line ID: RP_DS_1
100-Year Peak Flow at Downstream: 199.45 cfs
Volume Accumulation at Downstream: 43.77 acre-ft

2D Analysis - Check Line
Line ID: RN_DS_1
100-Year Peak Flow at Downstream: 45.09 cfs
Volume Accumulation at Downstream: 10.97 acre-ft

2D Analysis - Check Line
Line ID: CP7_DS
100-Year Peak Flow at Downstream: 2381.77 cfs
Volume Accumulation at Downstream: 524.85 acre-ft

2D Analysis - Check Line
Line ID: NN07E
100-Year Peak Flow at Upstream: 54.38 cfs
100-Year Peak Flow at Downstream: 66.99 cfs
Volume Accumulation at Upstream: 5.97 acre-ft
Volume Accumulation at Downstream: 7.67 acre-ft

2D Analysis - Check Line
Line ID: NN08_DS_2
100-Year Peak Flow at Downstream: 104.47 cfs
Volume Accumulation at Downstream: 22.03 acre-ft

2D Analysis - Check Line
Line ID: NN08_DS_1
100-Year Peak Flow at Downstream: 158.29 cfs
Volume Accumulation at Downstream: 16.82 acre-ft

2D Analysis - Check Line
Line ID: NN06_DS_1
100-Year Peak Flow at Downstream: 61.10 cfs
Volume Accumulation at Downstream: 14.48 acre-ft

2D Analysis - Check Line
Line ID: NN06_DS_2
100-Year Peak Flow at Downstream: 61.30 cfs
Volume Accumulation at Downstream: 13.51 acre-ft

2D Analysis - Check Line
Line ID: NN09
100-Year Peak Flow at Upstream: 214.93 cfs
100-Year Peak Flow at Downstream: 236.09 cfs
Volume Accumulation at Upstream: 20.56 acre-ft
Volume Accumulation at Downstream: 42.39 acre-ft

2D Analysis - Check Line
Line ID: CP7_DS
100-Year Peak Flow at Downstream: 2381.77 cfs
Volume Accumulation at Downstream: 524.85 acre-ft

2D Inflow Hydrograph Summary

Inflow Hydrograph ID	Hydro. Elements	Watershed	100-Year Peak Flow (cfs)
1	Subbasin NN09	North Ninth	336.40
2	Subbasin NN07E	North Ninth	123.40
3	Subbasin NN07D	North Ninth	47.20
4	Subbasin NN07C	North Ninth	56.10
5	Subbasin NN07B	North Ninth	69.00
6	Subbasin NN08	North Ninth	226.30
7	Subbasin NN07A	North Ninth	96.70
8	Subbasin NN05	North Ninth	107.40
9	Subbasin NN06	North Ninth	223.30
10	Subbasin NN03	North Ninth	80.50
11	CPNN_2D	North Ninth	443.30
12	Subbasin NN04	North Ninth	225.10
13	Subbasin RN	Northeast Canon	188.30
14	RP	Northeast Canon	297.20
15	CP7	Northeast Canon	2525.10
16A	CPO12	Orchard	919.30
16B	CPO6	Orchard	292.80
16C	CPO3	Orchard	330.30
17	CPO2	Orchard	80.80
18	CAB16	Abbey	216.40
19	CAB18	Abbey	924.60
20	AB17	Abbey	114.50
21	AB15	Abbey	82.10

Point Discharge Summary

Point Discharge ID	CC Outlet ID	Outlet Size	Full Flow Capacity (cfs)	2D Inflow Hydrograph ID
1*	NCSB-10	120" (BW) Concrete Pan	16	N/A
2	N9SB-128	24" Clay Pipe	28	1
3	N9SB-51	20" Steel Pipe	20	1
4	N9SB-103	12" CMP	6	7
5	N9SB-60	12" HDPE	5	8
6	N9SB-97	12" CMP	6	8
7	NCB-08	12" (BW) x 24" (TW) x 12" (Depth) Concrete Parab.	13	9
8**	NCB-10	24" (BW) x 96" (TW) x 8" (Depth) Concrete V-Ditch	21	12
9**	NCB-11	70" (BW) x 84" (TW) x 24" (Depth) Riprap Rundown	164	13
10***	OAB-03	48" x 64" HERCP	295	16A
11	OAB-04	18" HDPE	15	16B
12	OAB-06	12" CMP	6	16C
13	OAB-08	18" Plastic	7	18
14	AB-22	18" CMP	14	20
15	AB-20	18" CMP	14	20

*Point Discharge #1 is falls outside of the 2D extent and is not shown on this figure. Refer to **Figure C5** for all Point Discharge Locations
** Discharges 8 and 9 were not modeled using additional hydrographs as the surface flows from Yale Pl enter the ditch at these locations
*** Hydrograph 16A was reduced to account for full flow capacity of 48" x 64" HERCP that discharges to the Hydraulic Ditch at Point Discrharge #10

Hydraulic Ditch Spill Gates and Overflow Weirs

Location	Type
Spanish House	Spill Gate
Sand Creek	Spill Gate
WPA	Overflow Weir
Abbey	Overflow Weir
Dozier	Spill Gate
Hampton Inn	Spill Gate

NOTES:

1. No inflows were added to the 2D model south of the Hydraulic Irrigation Ditch.

N

0 450 900
Feet

1 in = 450 feet

Legend

- Hydraulic Ditch Centerline
- Roads
- Existing CC Storm Facilities
- Existing CC Detention Basin
- Point Discharge Location
- Spill Gates and Overflow Weirs
- 15 — 2D Inflow Hydrograph
- 2D Analysis Extent
- 2D Check Lines
- Abbey Watershed Subbasin Boundary
- Headwaters Watershed Subbasin Boundary
- North Ninth Watershed Subbasin Boundary
- Northeast Watershed Subbasin Boundary
- Orchard Watershed Subbasin Boundary

Maximum Depth (2D Analysis)

- 0.25 - 0.50
- 0.51 - 1.00
- 1.01 - 2.0
- 2.01 - 3.50
- 3.51 - 5.00

FEMA Flood Hazard Areas

- 0.2 PCT ANNUAL CHANCE
- Zones A, AE, AH, AO
- Zone X (No Fill)

HYDRAULIC IRRIGATION DITCH

FIGURE C2: EXISTING CONDITION 2D ANALYSIS OF CANON CITY WATERSHEDS

2D Analysis - Check Line
Line ID: RP_DS_2
100-Year Peak Flow at Downstream: 153.84 cfs
Volume Accumulation at Downstream: 29.11 acre-ft

2D Analysis - Check Line
Line ID: CPJ
100-Year Peak Flow at Upstream: 2525.93 cfs
Volume Accumulation at Upstream: 491.94 acre-ft

2D Analysis - Check Line
Line ID: CPO3
100-Year Peak Flow at Downstream: 496.58 cfs
Volume Accumulation at Downstream: 72.09 acre-ft

2D Analysis - Check Line
Line ID: RN_DS_2
100-Year Peak Flow at Downstream: 351.62 cfs
Volume Accumulation at Downstream: 39.10 acre-ft

2D Analysis - Check Line
Line ID: RN_DS_3
100-Year Peak Flow at Downstream: 254.53 cfs
Volume Accumulation at Downstream: 17.70 acre-ft

2D Analysis - Check Line
Line ID: CPO12
100-Year Peak Flow at Downstream: 640.14 cfs
100-Year Peak Flow at Downstream: 875.12 cfs
Volume Accumulation at Upstream: 62.47 acre-ft
Volume Accumulation at Downstream: 237.02 acre-ft

2D Analysis - Check Line
Line ID: CPO6
100-Year Peak Flow at Downstream: 369.09 cfs
Volume Accumulation at Downstream: 42.66 acre-ft

2D Analysis - Check Line
Line ID: CAB18
100-Year Peak Flow at Upstream: 1066.28 cfs
100-Year Peak Flow at Downstream: 968.78 cfs
Volume Accumulation at Upstream: 137.75 acre-ft
Volume Accumulation at Downstream: 133.95 acre-ft

2D Analysis - Check Line
Line ID: RP
100-Year Peak Flow at Upstream: 332.44 cfs
Volume Accumulation at Upstream: 56.32 acre-ft

2D Analysis - Check Line
Line ID: CPO2
100-Year Peak Flow at Upstream: 94.15 cfs
100-Year Peak Flow at Downstream: 237.99 cfs
Volume Accumulation at Upstream: 8.87 acre-ft
Volume Accumulation at Downstream: 27.65 acre-ft

2D Analysis - Check Line
Line ID: CAB16
100-Year Peak Flow at Upstream: 156.93 cfs
100-Year Peak Flow at Downstream: 167.24 cfs
Volume Accumulation at Upstream: 16.14 acre-ft
Volume Accumulation at Downstream: 33.22 acre-ft

2D Analysis - Check Line
Line ID: RN
100-Year Peak Flow at Upstream: 736.09 cfs
Volume Accumulation at Upstream: 79.81 acre-ft

2D Analysis - Check Line
Line ID: AB17
100-Year Peak Flow at Upstream: 80.54 cfs
100-Year Peak Flow at Downstream: 102.67 cfs
Volume Accumulation at Upstream: 11.17 acre-ft
Volume Accumulation at Downstream: 22.96 acre-ft

2D Analysis - Check Line
Line ID: NN06
100-Year Peak Flow at Upstream: 275.53 cfs
Volume Accumulation at Upstream: 49.40 acre-ft

2D Analysis - Check Line
Line ID: AB15
100-Year Peak Flow at Upstream: 79.62 cfs
100-Year Peak Flow at Downstream: 62.58 cfs
Volume Accumulation at Upstream: 7.99 acre-ft
Volume Accumulation at Downstream: 4.58 acre-ft

2D Analysis - Check Line
Line ID: CPO3_DS
100-Year Peak Flow at Downstream: 292.62 cfs
Volume Accumulation at Downstream: 29.97 acre-ft

2D Analysis - Check Line
Line ID: NN08_DS_3
100-Year Peak Flow at Downstream: 37.32 cfs
Volume Accumulation at Downstream: 9.56 acre-ft

2D Analysis - Check Line
Line ID: NN08
100-Year Peak Flow at Upstream: 312.08 cfs
Volume Accumulation at Upstream: 32.53 acre-ft

2D Analysis - Check Line
Line ID: CPO6_DS
100-Year Peak Flow at Downstream: 469.21 cfs
Volume Accumulation at Downstream: 98.68 acre-ft

2D Analysis - Check Line
Line ID: RP_DS_1
100-Year Peak Flow at Downstream: 235.95 cfs
Volume Accumulation at Downstream: 49.14 acre-ft

2D Analysis - Check Line
Line ID: RN_DS_1
100-Year Peak Flow at Downstream: 55.68 cfs
Volume Accumulation at Downstream: 11.53 acre-ft

2D Analysis - Check Line
Line ID: NN07D
100-Year Peak Flow at Upstream: 48.42 cfs
100-Year Peak Flow at Downstream: 50.42 cfs
Volume Accumulation at Upstream: 7.24 acre-ft
Volume Accumulation at Downstream: 7.09 acre-ft

2D Analysis - Check Line
Line ID: NN08_DS_2
100-Year Peak Flow at Downstream: 131.83 cfs
Volume Accumulation at Downstream: 23.37 acre-ft

2D Analysis - Check Line
Line ID: NN08_DS_1
100-Year Peak Flow at Downstream: 163.62 cfs
Volume Accumulation at Downstream: 17.97 acre-ft

2D Analysis - Check Line
Line ID: NN06_DS_1
100-Year Peak Flow at Downstream: 67.66 cfs
Volume Accumulation at Downstream: 14.95 acre-ft

2D Analysis - Check Line
Line ID: NN06_DS_2
100-Year Peak Flow at Downstream: 83.36 cfs
Volume Accumulation at Downstream: 14.54 acre-ft

2D Analysis - Check Line
Line ID: CP7_DS
100-Year Peak Flow at Downstream: 2487.33 cfs
Volume Accumulation at Downstream: 561.37 acre-ft

2D Analysis - Check Line
Line ID: NN07E
100-Year Peak Flow at Upstream: 60.04 cfs
100-Year Peak Flow at Downstream: 73.41 cfs
Volume Accumulation at Upstream: 7.29 acre-ft
Volume Accumulation at Downstream: 9.04 acre-ft

2D Analysis - Check Line
Line ID: NN09
100-Year Peak Flow at Upstream: 334.16 cfs
100-Year Peak Flow at Downstream: 283.45 cfs
Volume Accumulation at Upstream: 28.97 acre-ft
Volume Accumulation at Downstream: 56.37 acre-ft

2D Inflow Hydrograph Summary

Inflow Hydrograph ID	Hydro. Elements	Watershed	100-Year Peak Flow (cfs)
1	Subbasin NN09	North Ninth	400.60
2	Subbasin NN07E	North Ninth	138.10
3	Subbasin NN07D	North Ninth	53.50
4	Subbasin NN07C	North Ninth	61.50
5	Subbasin NN07B	North Ninth	77.10
6	Subbasin NN08	North Ninth	232.90
7	Subbasin NN07A	North Ninth	106.80
8	Subbasin NN05	North Ninth	121.70
9	Subbasin NN06	North Ninth	227.80
10	Subbasin NN03	North Ninth	91.90
11	CPNN_2D	North Ninth	459.30
12	Subbasin NN04	North Ninth	232.60
13	Subbasin RN	Northeast Canon	190.20
14	RP	Northeast Canon	340.70
15	CP7	Northeast Canon	2613.70
16A	CPO12	Orchard	1370.00
16B	CPO6	Orchard	286.10
16C	CPO3	Orchard	343.20
17	CPO2	Orchard	99.70
18	CAB16	Abbey	268.60
19	CAB18	Abbey	1136.40
20	AB17	Abbey	129.90
21	AB15	Abbey	107.70

Point Discharge Summary

Point Discharge ID	CC Outlet ID	Outlet Size	Full Flow Capacity (cfs)	2D Inflow Hydrograph ID
1*	NCSB-10	120" (BW) Concrete Pan	16	N/A
2	N9SB-128	24" Clay Pipe	28	1
3	N9SB-51	20" Steel Pipe	20	1
4	N9SB-103	12" CMP	6	7
5	N9SB-60	12" HDPE	5	8
6	N9SB-97	12" CMP	6	8
7	NCB-08	12" (BW) x 24" (TW) x 12" (Depth) Concrete Parab.	13	9
8**	NCB-10	24" (BW) x 96" (TW) x 8" (Depth) Concrete V-Ditch	21	12
9**	NCB-11	70" (BW) x 84" (TW) x 24" (Depth) Riprap Rundown	164	13
10***	OAB-03	48" x 64" HERCP	295	16A
11	OAB-04	18" HDPE	15	16B
12	OAB-06	12" CMP	6	16C
13	OAB-08	18" Plastic	7	18
14	AB-22	18" CMP	14	20
15	AB-20	18" CMP	14	20

*Point Discharge #1 is falls outside of the 2D extent and is not shown on this figure. Refer to **Figure C5** for all Point Discharge Locations
** Discharges 8 and 9 were not modeled using additional hydrographs as the surface flows from Yale Pl enter the ditch at these locations
*** Hydrograph 16A was reduced to account for full flow capacity of 48" x 64" HERCP that discharges to the Hydraulic Ditch at Point Discrcharge #10

Hydraulic Ditch Spill Gates and Overflow Weirs

Location	Type
Spanish House	Spill Gate
Sand Creek	Spill Gate
WPA	Overflow Weir
Abbey	Overflow Weir
Dozier	Spill Gate
Hampton Inn	Spill Gate

NOTES:

1. No inflows were added to the 2D model south of the Hydraulic Irrigation Ditch.

N

0 450 900
Feet

1 in = 450 feet

Legend

- Hydraulic Ditch Centerline
- Roads
- Existing CC Storm Facilities
- Existing CC Detention Basin
- Point Discharge Location
- Spill Gates and Overflow Weirs
- 15 — 2D Inflow Hydrograph
- 2D Analysis Extent
- 2D Check Lines
- Abbey Watershed Subbasin Boundary
- Headwaters Watershed Subbasin Boundary
- North Ninth Watershed Subbasin Boundary
- Northeast Watershed Subbasin Boundary
- Orchard Watershed Subbasin Boundary

Maximum Depth (2D Analysis)

- 0.25 - 0.50
- 0.51 - 1.00
- 1.01 - 2.0
- 2.01 - 3.50
- 3.51 - 5.00

FEMA Flood Hazard Areas

- 0.2 PCT ANNUAL CHANCE
- Zones A, AE, AH, AO
- Zone X (No Fill)

HYDRAULIC IRRIGATION DITCH

FIGURE C3: FUTURE CONDITION 2D ANALYSIS OF CANON CITY WATERSHEDS

2D Inflow Hydrograph ID	Hydro. Element ID	Watershed	Contributing Subbasins
1	Subbasin NN09	North Ninth	NN09
2	Subbasin NN07E	North Ninth	NN07E
3	Subbasin NN07D	North Ninth	NN07D
4	Subbasin NN07C	North Ninth	NN07C
5	Subbasin NN07B	North Ninth	NN07B
6	Subbasin NN08	North Ninth	NN08
7	Subbasin NN07A	North Ninth	NN07A
8	Subbasin NN05	North Ninth	NN05
9	Subbasin NN06	North Ninth	NN06
10	Subbasin NN03	North Ninth	NN03
11	CPNN_2D	North Ninth	NN01, NN02
12	Subbasin NN04	North Ninth	NN04
13	Subbasin RN	Northeast Canon	RN
14	RP	Northeast Canon	P, SN
15	CP7	Northeast Canon	A, B, C, D, E, F, G, H, J, K, L, M, N, O, Q
16A*	CPO12	Orchard	12, 14, 16, 18, 20, 22, 24
16B	CPO6	Orchard	26, 28, 30
16C	CPO3	Orchard	32, 34
17	CPO2	Orchard	2, 4
18	CAB16	Abbey	AB16, AB26
19	CAB18	Abbey	AB18, AB28, AB30, AB32, AB34, AB36, AB38, AB40, AB42, AB44
20	AB17	Abbey	AB17
21	AB15	Abbey	AB15

* Hydrograph altered due to affects from Point Discharge #10. Point Discharge #10 has full flow capacity of 295 cfs.

N

0 450 900

Feet

1 in = 450 feet

Legend

- Hydraulic Ditch Centerline
- Roads
- Existing Storm Facilities
- Existing Det. Pond
- 2D Inflow Hydrograph
- 2D Analysis Extent
- Point Discharge Location
- Spill Gates and Overflow Weirs

Maximum Depth (2D Analysis)

- 0.25 - 0.50
- 0.51 - 1.00
- 1.01 - 2.0
- 2.01 - 3.50
- 3.51 - 5.00

NOTES:

1. No inflows were added to the 2D model south of the Hydraulic Irrigation Ditch.

HYDRAULIC IRRIGATION DITCH

FIGURE C4: INFLOW HYDROGRAPH SUMMARY OF CANON CITY WATERSHEDS FOR 2D MODELING

CITY OF CANON CITY COLORADO

SNC·LAVALIN

ATKINS

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Point Discharge ID: #9
Canon City Outlet ID: NCB-11
Outlet Size: 70" (BW) x 84" (TW) x 24" (Depth) Riprap Rundown
Full Flow Capacity: 164 cfs

Reported Overflow Location:
659 Del Rey

Point Discharge ID: #13
Canon City Outlet ID: OAB-08
Outlet Size: 18" Plastic
Full Flow Capacity: 7 cfs

Reported Overflow Location:
616 & 614 Field Ave

Abbey Upper Channel
Upper Channel Passes Over the Hydraulic Irrigation Ditch
Hydraulic Irrigation Ditch is Conveyed Under Abbey Upper Channel via 54" Syphon

Point Discharge ID: #15
Canon City Outlet ID: AB-22
Outlet Size: 18" CMP
Full Flow Capacity: 14 cfs

Point Discharge ID: #7
Canon City Outlet ID: NCB-08
Outlet Size: 12" (BW) x 24" (TW) x 12" (depth) Concrete Parabolic
Full Flow Capacity: 13 cfs

Point Discharge ID: #6
Canon City Outlet ID: N9SB-97
Outlet Size: 12" CMP
Full Flow Capacity: 6 cfs

Point Discharge ID: #5
Canon City Outlet ID: N9SB-60
Outlet Size: 12" HDPE
Full Flow Capacity: 5 cfs

Point Discharge ID: #4
Canon City Outlet ID: N9SB-103
Outlet Size: 12" CMP
Full Flow Capacity: 6 cfs

Point Discharge ID: #10
Canon City Outlet ID: OAB-03
Outlet Size: 48" x 64" HERCP
Full Flow Capacity: 295 cfs
2D Inflow Hydrograph ID: 16A

Point Discharge ID: #12
Canon City Outlet ID: OAB-06
Outlet Size: 12" CMP
Full Flow Capacity: 6 cfs

Point Discharge ID: #11
Canon City Outlet ID: OAB-04
Outlet Size: 18" HDPE
Full Flow Capacity: 15 cfs

Point Discharge ID: #14
Canon City Outlet ID: AB-22
Outlet Size: 18" CMP
Full Flow Capacity: 14 cfs

Reported Overflow Location:
725 Hazel Ave

Point Discharge ID: #8
Canon City Outlet ID: NCB-10
Outlet Size: 24" (BW) x 96" (TW) x 8" (Depth) Concrete V-Ditch
Full Flow Capacity: 21 cfs

Point Discharge ID: #3
Canon City Outlet ID: N9SB-51
Outlet Size: 20" Steel Pipe
Full Flow Capacity: 20 cfs

Point Discharge ID: #2
Canon City Outlet ID: N9SB-128
Outlet Size: 24" Clay
Full Flow Capacity: 28 cfs

Point Discharge ID: #1
Canon City Outlet ID: NCSB-10
Outlet Size: 120" (BW) Concrete Pan
Full Flow Capacity: 16 cfs

Buggywhip Drainage Channel
Orchard Ave. Storm Drain System
Pear and Yarbrough Channel
WPA - Middle Channel
WPA
Abbey
Dozier
Sand Creek
Spanish House
Abbey Detention Basin
Abbey Lower Channel

N

0 600 1,200
Feet

1 in = 600 feet

Legend

- Hydraulic Ditch Centerline
- Existing CC Storm Facilities
- Existing CC Detention Basin
- Roads
- Point Discharge Locations
- Spill Gates and Overflow Weirs

HYDRAULIC IRRIGATION DITCH

FIGURE C5: POINT DISCHARGE LOCATIONS

CITY of CAÑON CITY COLORADO

SNC·LAVALIN

ATKINS
Member of the SNC-Lavalin Group

Elliptical Pipe (PointDischarge_Flows.fm8) Report

Label	Solve For	Roughness Coefficient	Channel Slope (ft/ft)	Normal Depth (in)	Rise (in)	Span (in)	Discharge (ft³/s)	Percent Full (%)	Velocity (ft/s)	Discharge Full (ft³/s)	Max Discharge (ft³/s)
Point Discharge #10	Full Flow Capacity	0.013	0.02000	48.00	48.00	64.00	295.24	100.0	17.62	295.05	319.24

Circular Pipe (PointDischarge_Flows.fm8) Report

Label	Solve For	Roughness Coefficient	Channel Slope (ft/ft)	Normal Depth (in)	Diameter (in)	Discharge (ft^3/s)	Velocity (ft/s)	Maximum Discharge (ft^3/s)	Discharge Full (ft^3/s)
Point Discharge #2	Full Flow Capacity	0.015	0.02000	24.00	24.00	27.73	8.83	29.82	27.73
Point Discharge #3	Full Flow Capacity	0.013	0.02000	20.00	20.00	19.67	9.02	21.16	19.67
Point Discharge #4	Full Flow Capacity	0.011	0.02000	12.00	12.00	5.95	7.58	6.41	5.95
Point Discharge #5	Full Flow Capacity	0.013	0.02000	12.00	12.00	5.04	6.41	5.42	5.04
Point Discharge #6	Full Flow Capacity	0.011	0.02000	12.00	12.00	5.95	7.58	6.41	5.95
Point Discharge #11	Full Flow Capacity	0.013	0.02000	18.00	18.00	14.85	8.41	15.98	14.85
Point Discharge #12	Full Flow Capacity	0.011	0.02000	12.00	12.00	5.95	7.58	6.41	5.95
Point Discharge #13	Full Flow Capacity	0.010	0.02000	12.00	12.00	6.55	8.34	7.05	6.55
Point Discharge #14	Full Flow Capacity	0.014	0.02000	18.00	18.00	13.79	7.81	14.84	13.79
Point Discharge #15	Full Flow Capacity	0.014	0.02000	18.00	18.00	13.79	7.81	14.84	13.79

Parabolic Channel (PointDischarge_Flows.fm8) Report

Label	Solve For	Roughness Coefficient	Channel Slope (ft/ft)	Constructed Depth (in)	Normal Depth (in)	Constructed Top Width (in)	Discharge (ft^3/s)	Top Width (ft)	Velocity (ft/s)
Point Discharge #7	Discharge	0.013	0.02000	12.00	12.00	24.00	12.67	2.00	9.50

Triangular Channel (PointDischarge_Flows.fm8) Report

Label	Solve For	Roughness Coefficient	Channel Slope (ft/ft)	Normal Depth (in)	Left Side Slope (ft/ft (H:V))	Right Side Slope (ft/ft (H:V))	Discharge (ft^3/s)	Flow Area (ft^2)	Top Width (ft)	Velocity (ft/s)
Point Discharge #8	Discharge	0.013	0.02000	8.00	6.00	6.00	20.53	2.67	8.00	7.70
Point Discharge #1	Discharge	0.013	0.02000	6.00	10.00	10.00	15.98	2.50	10.00	6.39

Trapezoidal Channel (PointDischarge_Flows.fm8) Report

Label	Solve For	Friction Method	Roughness Coefficient	Channel Slope (ft/ft)	Normal Depth (in)	Left Side Slope (ft/ft (H:V))	Right Side Slope (ft/ft (H:V))	Bottom Width (in)	Discharge (ft³/s)	Top Width (ft)	Velocity (ft/s)
Point Discharge #9	Discharge	Manning Formula	0.035	0.02000	24.00	2.00	2.00	84.00	163.71	15.00	7.44

Appendix D. Suggested Master-Level Projects

D.1. Master Plan Facilities Summary from Previous Studies

D.2. Suggested Master Level Projects Summary

NE Canon (1993)
Alternative #1 - 26 acre-ft
Alternative #3 - 30 acre-ft
Alternative #4 - 30 acre-ft

NE Canon
15th Street Detention Basin

Orchard Avenue Detention Basin

NE Canon (2017)
9th Street Detention Basin

NE Canon (1993)
Alternative #1 - 55 acre-ft
Alternative #2 - 18 acre-ft
Alternative #3 - 18 acre-ft
Alternative #4 - 13 acre-ft
Alternative #5 - 13 acre-ft

NE Canon (2017)
5th Street Detention Basin Design Alternative

NE Canon (1993)
Alternative #2 - 26 acre-ft

NE Canon (1993)
Alternative #1 - 36 acre-ft
Alternative #2 - 18 acre-ft
Alternative #4 - 18 acre-ft
Alternative #5 - 20 acre-ft

North 9th Street Facilities

North 7th Street Facilities

Hogback Detention Basin #1
Volume = 2.0 acre-ft

Hogback Detention Basin #2
Volume = 0.7 acre-ft

Hogback Detention Basin #3
Volume = 1.0 acre-ft

Hogback Detention Basin #4
Volume = 1.0 acre-ft

Hogback Detention Basin #5
Volume = 0.5 acre-ft

Hogback Detention Basin #8
Volume = 0.8 acre-ft

Hogback Detention Basin #9
Volume = 0.4 acre-ft

2-60" RCP

5' Riprap Channel

48" RCP

8' x 3' Box Culvert

Existing 72" CMP

72" RCP

4' Riprap Channel w/ Drop Structures

Abbey Detention Basin

ABDB

4' Grass Lined Channel w/ Drop Struc.

8' x 4' Box Culvert

6' Riprap Channel

Legend

Hogback Master Plan (1995)
- Hogback Storm Facilities
- Hogback Detention Basin

Abbey Planning Study (1998)
- Abbey - Alternative #2
- Abbey - Alternative #3
- Abbey Detention Basin

Legend

Existing Features
- Hydraulic Ditch Centerline
- Roads
- Existing Storm Facilities
- Existing Det. Pond
- Subbasins (2018)

Storm Drain. Facilities (1974)
- Proposed Storm Drain Facilities
- North 9th Street Facilities
- North 7th Street Facilities

Northeast Canon (2017)
- NE Canon WB Channel
- NE Canon EB Channel
- 5th Street Storm Drain
- 9th & 15th St. Det. Basins
- 5th St. Basin Alternative

Northeast Canon (1993)
- Alternative #1 Basin Layout
- Alternative #2 Basin Layout

Orchard Ave. Drain. Basin Study (1994)
- Orchard Ave. - Alternative #2
- Orchard Ave. - Alternative #3
- Orchard Ave. - Alternative #4
- Orchard Ave. - Alternative #5

N

0 450 900
Feet

1 in = 450 feet

HYDRAULIC IRRIGATION DITCH

FIGURE D1: PREVIOUS STUDIES MASTER PLAN DESIGNS SUMMARY

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Master Level Project #3
15th Street Detention Basin and Channel Improvements
Conceptual layout utlizes detention basin design and channel improvements from The Northeast Canon City Detention Basins Design Project (2017).
Benefits:
1) Reduce flooding impacts around the WPA channel by approximately 60-70%.
2) Improve west branch channel and replace culverts to pass all upstream flow to the Arkansas River.
3) Channel Improvements south of the DItch will improve the capacity of the channel to allow for potential reception of flows from the WPA Overflow Weir.

Master Level Project #4
Orchard Avenue Storm Facilities Improvements
Conceptual layout utlizes Alternative #4 from the Orchard Avenue Planning Study (1994).
Benefits:
1) Replaces outfall currently discharging to the Hydraulic Ditch.
2) Will reduce risk of overtopping of the Ditch in this area, as is reported in the existing condition.
3) Will reduce the risk of downstream flooding along US 50.

Master Level Project #5
Conceptual Layout proposed with this study to mitigate flooding from the western subbasins within the Abbey Watershed.
Benefits:
1) Mitigates overtopping of the Ditch that is currently observed at 616/614 Field Ave.
2) Improves channel and culverts of the existing Abbey storm facilities.
3) Mitigates the CAB16 inflow to the Abbey Detention Basin. This is important because within the Abbey Detention Basin – Updated Hydrology and Additional Capacity Analysis Memo (2017) by Atkins, analysis shows that the Abbey Detention Basin does not have capacity for the 100-year storm event.

Master Level Project #2
9th Street Detention Basin and Channel Improvements
Conceptual layout utlizes detention basin design and channel improvements from The Northeast Canon City Detention Basins Design Project (2017).
Benefits:
1) Increase capacity of 9th Street Detention Basin to 110 acre-ft.
2) Improve channel and replace culverts to pass all upstream flow to the east basin.
3) Reduce flooding impact downstream affecting the Ditch due to basin and channel improvements. Specifically, the flooding impacting St. Thomas More Hospital.

Master Level Project #6
Conceptual storm drain along Pear St and increase in capacity for the Abbey Detention Basin and downstream channel.
Benefits:
1) Perpetuates existing drainage analysis for the Abbey Watershed and accounts for the higher NOAA Atlas 14 rainfall information.
2) Has the potential to be scaled to include Orchard Watershed flows as well.
3) Utilizes placement of existing storm drainage facilities, to be sized accordingly with the observed increase of flows.
4) The increase of capacity to the Abbey Detention Basin may allow for flow to be received from the Abbey Overflow Weir.

Master Level Project #1
North 9th Street Storm Drain Improvements
Conceptual layout utlizes proposed storm drain layout from Canon City Storm Facilities (1974).
Benefits:
1) Will greatly reduce flooding impacting the Ditch from the North 9th Street watershed.
2) Reduces runoff from North 9th watershed affecting the WPA Channels.
3) North 7th Street Alternative provides flooding relief to the observed overflow location of 725 Hazel Ave.
4) Storm Facility proposed along Mystic Avenue to tie into the North 9th Street system will provide relief to the overflow at 725 Hazel Ave. as well.

Master Level Project #7
Conceptual storm drain with two branches to relieve the point discharge flows at Glenmoor Road and to accomodate potential storm release from the Dozier spill gate.
Benefits:
1) Mitigates surface flow flooding along Glenmoor Road and Dozier Avenue.
2) Follows existing drainage patterns to 4 Mile Creek.
3) Potential for additional branch to relieve flooding along US-50.

Legend

Maximum Depth (2D Analysis)
- 0.25 - 0.50
- 0.51 - 1.00
- 1.01 - 2.0
- 2.01 - 3.50
- 3.51 - 5.00

FEMA Flood Hazard Areas
- 0.2 PCT ANNUAL CHANCE
- Zones A, AE, AH, AO
- Zone X (No Fill)

N

0 450 900
Feet

1 in = 450 feet

Legend

Existing Features
- Hydraulic Ditch Centerline
- Roads
- Existing Storm Facilities
- Existing Det. Pond
- Subbasins (2018)

Master Level Project #1
- North 9th Street Facilities
- North 7th Street Facilities

Master Level Project #2
- NE Canon WB Channel
- 9th Street Det. Basin

Master Level Project #3
- NE Canon EB Channel
- 15th Street Det. Basin

Master Level Project #4
- Orchard Ave. - Alternative #4

Master Level Project #5
- Abbey Det. Basin #2
- Abbey Storm Drain Altern.

Master Level Project #6
- Abbey Det. Basin #2
- Abbey Storm Drain Altern. #2

Master Level Project #7
- Glenmoor and Dozier Storm Drain

HYDRAULIC IRRIGATION DITCH

FIGURE D2: MASTER LEVEL PROJECT RECOMMENDATIONS SUMMARY

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Appendix E. Selected Master-Level Projects

E.1. Meeting-Minutes from 10/23/2018

E.2. Selected Master-Level Conceptual Projects Summary

E.3. Preliminary Cost Analysis for Selected Master-Level Projects

Meeting Notes

Project:	Cañon City - Hydraulic Irrigation Ditch		
Subject:	Draft Summary Report Meeting		
Meeting place:	128 Main Street Cañon City, CO	Meeting no:	1
Date and time:	23 October 2018 at 4:00	Minutes by:	Michael Tanner
Present:	Michael Tanner Jacob Beedle Adam Lancaster Glenda DeBekker Tim Payne Ashley Smith Douglas Buford Jerry Butts Preston Troutman Jim Meisner Kaitlin Turner Amanda Cochran Ray Lippis Manny Colon John Hamrick Judy Lohnes Don Moore Rick Romano	Representing:	Atkins Global Atkins Global Cañon City Cañon City Fremont County Cañon City Fruitland Ditch Fruitland Ditch Cañon City Cañon City Cañon City Cañon City Hydraulic Ditch Hydraulic Ditch Cañon City NAACOG Fremont County Cañon City

- Atkins Global – Powerpoint Presentation on Draft Summary Report
    - Jacob Beedle (Atkins Global) introduced the project and the general outline of the study approach taken by Atkins on the project.
    - Jacob outlines the existing reports that were consulted to develop the hydrologic parameters used in the hydrologic analysis of the study area watersheds.

Date issued:	01 November 2018	File Ref:	

NOTE TO RECIPIENTS:
These meeting notes record Atkins understanding of the meeting and intended actions arising therefrom.
Your agreement that the notes form a true record of the discussion will be assumed unless adverse comments are received in writing within five days of receipt.

- Jacob outlines the hydrologic results shown for each watershed. Notes that we will not get into great detail on these slides as they have been provided to the group.
- Jacob explains the approach and parameters used for the 1-Dimensional Modeling.
- Group reviews the Ditch Capacity Figure from the slide.

- Discussion on the 1-Dimensional Ditch Capacity Figure
  - General confusion from the group about the location of the decreed flow “breakout” cross-section. On the figure it is shown as a red cross-section. Confusion centers on the other cross-section “Sections” that were grouped together to show similar capacity. Note made by MT to make the cross section more noticeable in next submittal to avoid confusion.
  - Jacob draws attention to the Overflow Weirs and Spill-gates located along the Ditch. States to the group that Atkins is open to coordination with the Hydraulic Ditch on the Overflow Weirs and the Spill-gates.
- Discussion on 2-Dimensional Results Figures
  - Jacob outlined the parameters and approach to the 2-D Hydraulic modeling.
  - Group reviewed the Existing and Future Condition Figures.
- Jacob outlines the Master Level Designs taken from the previous reports.
- Group views the 7 Master Level Projects identified by Atkins. Shown in Figure D-2.
- Jacob asks the group if they want to break and review the figures for 15 minutes and reconvene to ask questions and share comments. Judy facilitates the discussion, and the group decides not to break to review the figures and elects to discuss more thoroughly the 7 Master Level Projects shown in Figure D-2.
- Discussion on Master Level Projects
  - Jim expressed concern over the inundation results as the map does not show flooding at his house, located approximately at North 9th Street and Beech Street.
  - John discusses the option of having a figure that shows the inundation areas after the master level projects are implemented.
  - Discussion progresses from the North Ninth system to the Northeast Cañon improvements (9th street and 15th street detention basins). Ray expresses speculation over the affects of the basins being designed to the 100-year storm.

- Discussion moves to the Abbey Detention Basin and the improvements associated with the Abbey Detention Basin.

- Hydraulic Ditch representatives comment on the effectiveness of the Abbey Detention Basin as it is constructed. Express concern that they cannot use the detention basin in any storm event.

- After some discussion, Ray states that it is the position of the Hydraulic Ditch that no more stormwater runoff be allowed to discharge into the ditch.

- Discussion turns to the Orchard Ave improvements and the size of the pipe that currently discharges into the Hydraulic Ditch. Atkins informs the group that the size of the pipe is 48” x 64” HERCP with an approximate full flow capacity of 295 cfs.

- Discussion returns to the Abbey Detention Basin and the associated improvements in that area. Adam expresses that it is his opinion that one of the proposed conceptual projects include a pipe that runs along Pear Street and conveys flows to the Abbey Detention Basin. It is discussed that this will be included in the final Master Level Projects.

- Manny discusses the area by Dozier and says that the Hydraulic Ditch is receiving flows by the Hampton Inn due to the new development by Sunrise Mesa Drive. Current hydrology does not indicate that the Ditch is receiving flows here.

- To finalize discussion on the Master Level Projects, it is confirmed with the Hydraulic Ditch representatives that detention options for Master Level Projects are not desired and that direct conveyance beyond the Hydraulic Ditch via storm drain is the desired option moving forward.

- Master Level Projects agreed upon for development moving forward (show on the attached Figure):

    - North Ninth Drainage System
    - WPA Channel Improvements
    - Orchard Avenue Storm Drain Improvements
    - Abbey Storm Drain along Pear Street and the Lower Drainageway Improvements
    - Increase Capacity of the Abbey Detention Basin

ACTION ITEM	DESCRIPTION AND ACTION	DEADLINE	RESPONSIBLE
1.	Draft Summary Report	12/14/2018	Atkins Global

Master Level Project #3
Reach: Orchard West Leg 1
Conceptual Conveyance Structure: 14' x 6' CBC
Conceptual Design Flow: 1370 cfs
System Upstream Invert: 5363.00
System Downstream Invert: 5349.00
Length: 1553 LF
Slope: 0.009 (ft/ft)

Master Level Project #3
Reach: Orchard Existing Leg
Conceptual Conveyance Structure: 43" x 68" HERCP
Conceptual Design Flow: 214.5 cfs
System Upstream Invert: 5350.00
System Downstream Invert: 5337.00
Length: 1229 LF
Slope: 0.011 (ft/ft)

Master Level Project #2
Reach: NE WPA 1
Conceptual Conveyance Structure: Concrete Trap.
(D=6', 3:1 SS, BW=10')
Conceptual Design Flow: 2813.7 cfs
System Upstream Invert: 5350.86
System Downstream Invert: 5322.00
Length: 2217 LF
Slope: 0.018 (ft/ft)

Master Level Project #4
Reach: Abbey Upper Channel 1
Conceptual Conveyance Structure: Concrete Trap.
(D=4', 3:1 SS, BW=3')
Conceptual Design Flow: 268.6 cfs
System Upstream Invert: 5353.50
System Downstream Invert: 5350.30
Length: 1453.17 LF
Slope: 0.002 (ft/ft)

Master Level Project #3
Reach: Orchard East Leg 1
Conceptual Conveyance Structure: 10' x 5' CBC
Conceptual Design Flow: 629.3 cfs
System Upstream Invert: 5359.00
System Downstream Invert: 5349.00
Length: 1370 LF
Slope: 0.007 (ft/ft)

Master Level Project #4
Reach: Abbey Upper Channel 2
Conceptual Conveyance Structure: Concrete Trap.
(D=5', 3:1 SS, BW=18')
Conceptual Design Flow: 1372.9 cfs
System Upstream Invert: 5350.30
System Downstream Invert: 5343.71
Length: 345 LF
Slope: 0.019 (ft/ft)

Master Level Project #1
Reach: North Ninth Leg 1
Conceptual Conveyance Structure: 8' x 5' CBC
Conceptual Design Flow: 705 cfs
System Upstream Invert: 5413.72
System Downstream Invert: 5376.13
Length: 2127 LF
Slope: 0.017 (ft/ft)

Master Level Project #2
Reach: NE WPA 2 (CULV000171)
Conceptual Conveyance Structure: 14' x 10' CBC
Conceptual Design Flow: 3261.4 cfs
System Upstream Invert: 5322.00
System Downstream Invert: 5321.00
Length: 75 LF
Slope: 0.013 (ft/ft)

Master Level Project #5
Reach: Abbey Detention Basin Improvements
Conceptual Design: Increase Storage Capacity
from 53.09 AC-FT to 102 AC-FT
100-year Peak Inflow: 1432.7 cfs
100-year Peak Outflow: 166.5 cfs
100-year Peak Stage: 5352.60
100-year Peak Storage: 98.8 ac-ft
Spillway Crest Elevation: 5353.00
Freeboard: 0.4 feet

Master Level Project #2
Reach: NE WPA 3
Conceptual Conveyance Structure: Concrete Trap.
(D=8', 2:1 SS, BW=10')
Conceptual Design Flow: 3261.4 cfs
System Upstream Invert: 5321.00
System Downstream Invert: 5319.66
Length: 226.20 LF
Slope: 0.006 (ft/ft)

Master Level Project #1
Reach: North Ninth Leg 2
Conceptual Conveyance Structure: (2) 8' x 4' CBC
Conceptual Design Flow: 1072.3 cfs
System Upstream Invert: 5376.13
System Downstream Invert: 5350.41
Length: 1920 LF
Slope: 0.013 (ft/ft)

Master Level Project #3
Reach: Orchard Trunk 1
Conceptual Conveyance Structure: 12' x 8' CBC
Conceptual Design Flow: 1573.0 cfs
System Upstream Invert: 5349.00
System Downstream Invert: 5337.00
Length: 1338 LF
Slope: 0.009 (ft/ft)

Master Level Project #4
Reach: Abbey Lower Channel
Conceptual Conveyance Structure: Earthen Trap.
(D=4', 3:1 SS, BW=8')I
Conceptual Design Flow: 315.2 cfs
System Upstream Invert: 5333.47
System Downstream Invert: 5306.96
Length: 2528 LF
Slope: 0.010 (ft/ft)

Master Level Project #2
Reach: NE WPA 4 (PIPE001407)
Conceptual Conveyance Structure: 16' x 10' CBC
Conceptual Design Flow: 3261.4 cfs
System Upstream Invert: 5319.66
System Downstream Invert: 5311.78
Length: 1108 LF
Slope: 0.007 (ft/ft)

Master Level Project #3
Reach: Orchard Trunk 2
Conceptual Conveyance Structure: 12' x 8' CBC
Conceptual Design Flow: 1573.0 cfs
System Upstream Invert: 5337.00
System Downstream Invert: 5313.78
Length: 2110 LF
Slope: 0.011 (ft/ft)

Master Level Project #1
Reach: North Ninth Leg 3
Conceptual Conveyance Structure: (2) 9' x 5' CBC
Conceptual Design Flow: 1456.2 cfs
System Upstream Invert: 5350.41
System Downstream Invert: 5313.16
Length: 4503 LF
Slope: 0.008 (ft/ft)

Master Level Project #2
Reach: NE WPA 5
Conceptual Conveyance Structure: Concrete Trap.
(D=8', 2:1 SS, BW=10')
Conceptual Design Flow: 3770.6 cfs
System Upstream Invert: 5311.78
System Downstream Invert: 5304.12
Length: 914.69 LF
Slope: 0.008 (ft/ft)

Master Level Project #4
Reach: CULV000213 Replacement
Conceptual Conveyance Structure: 8' x 4' CBC
Conceptual Design Flow: 315.2 cfs
System Upstream Invert: 5306.96
System Downstream Invert: 5304.89
Length: 192 LF
Slope: 0.011 (ft/ft)

Master Level Project #2
Reach: NE WPA 6 (CULV000133)
Conceptual Conveyance Structure: 16' x 10' CBC
Conceptual Design Flow: 3770.6 cfs
System Upstream Invert: 5304.85
System Downstream Invert: 5304.12
Length: 73 LF
Slope: 0.010 (ft/ft)

Master Level Project #3
Reach: Orchard Trunk 3
Conceptual Conveyance Structure: 12' x 8' CBC
Conceptual Design Flow: 1712.0 cfs
System Upstream Invert: 5313.78
System Downstream Invert: 5288.33
Length: 2271 LF
Slope: 0.011 (ft/ft)

Master Level Project #4
Reach: Rhodes Ave Channel
Conceptual Conveyance Structure: Earthen Trap.
(D=4', 3:1 SS, BW=6')
Conceptual Design Flow: 315.2 cfs
System Upstream Invert: 5304.89
System Downstream Invert: 5272.83
Length: 2433.37 LF
Slope: 0.013 (ft/ft)

Master Level Project #2
Reach: NE WPA 7
Conceptual Conveyance Structure: Concrete Trap.
(D=8', 2:1 SS, BW=10')
Conceptual Design Flow: 3770.6 cfs
System Upstream Invert: 5304.12
System Downstream Invert: 5303.00
Length: 156 LF
Slope: 0.007 (ft/ft)

Master Level Project #2
Reach: NE WPA 9
Conceptual Conveyance Structure: Concrete Trap.
(D=8', 2:1 SS, BW=10')
Conceptual Design Flow: 3770.6 cfs
System Upstream Invert: 5302.65
System Downstream Invert: 5301.00
Length: 124 LF
Slope: 0.013 (ft/ft)

Master Level Project #2
Reach: NE WPA 8
Conceptual Conveyance Structure: 14' x 10' CBC
Conceptual Design Flow: 3770.6 cfs
System Upstream Invert: 5303.00
System Downstream Invert: 5302.65
Length: 24 LF
Slope: 0.015 (ft/ft)

Master Level Project #2
Reach: NE WPA 10 (PIPE000470)
Conceptual Conveyance Structure: 18' x 10' CBC
Conceptual Design Flow: 3818.3 cfs
System Upstream Invert: 5301.00
System Downstream Invert: 5291.25
Length: 1339 LF
Slope: 0.007 (ft/ft)

Legend

Maximum Depth (2D Analysis)
- 0.25 - 0.50
- 0.51 - 1.00
- 1.01 - 2.0
- 2.01 - 3.50
- 3.51 - 5.00

FEMA Flood Hazard Areas
- 0.2 PCT ANNUAL CHANCE
- Zones A, AE, AH, AO
- Zone X (No Fill)

N

0 450 900
Feet

1 in = 450 feet

Legend

Existing Features
- Hydraulic Ditch Centerline
- Roads
- Existing Storm Facilities
- Existing Det. Pond
- Subbasins (2018)

Master Level Project #1
- North 9th Street Facilities
- Reach Section Divider

Master Level Project #2
- NE Canon Improvements
- Reach Section Divider

Master Level Project #3
- Orchard Ave. Storm Drain
- Reach Section Divider

Master Level Project #4
- Abbey Channel Improvements
- Reach Section Divider

Master Level Project #5
- Abbey Det. Basin Capacity Improvements

HYDRAULIC IRRIGATION DITCH

FIGURE E1: SELECTED MASTER LEVEL PROJECTS

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	System	HEC-HMS Node For Design Flow	Design Flow (cfs)	Storm Conveyance Structure	Length (LF)	Upstream Ground Elevation	Upstream Invert Elevation	Downstream Ground Elevation	Downstream Invert Elevation	Slope (ft/ft)
Abbey Storm Drain	Abbey Upper Channel 1	CAB16	268.6	Concrete Trap. (D=4', 3:1 SS, BW=3')	1453.17	5357.94	5353.5	5355.51	5350.3	0.002202082
	Abbey Upper Channel 2	CABBEYIN	1372.9	Concrete Trap. (D=5', 3:1 SS, BW=18')	345.22	5355.51	5350.3	5343.71	5343.71	0.019089276
	Abbey Lower Channel	*CAB08	315.2	Earthen Trap. (D=4', 3:1 SS, BW=8')	2527.68	5333.47	5333.47	5313	5306.96	0.010487878
	CULV000213 Replacement	*CAB08	315.2	8' x 4' CBC	192.31	5313	5306.96	5310	5304.89	0.010763871
	Rhodes Ave Channel	*CAB08	315.2	Earthen Trap. (D=4', 3:1 SS, BW=6')	2433.37	5310	5304.89	5284.6	5272.83	0.013175144
North Ninth Storm Drain	North Ninth Leg 1	CPNN01B	705	8' x 5' CBC	2127	5420.72	5413.72	5383.13	5376.13	0.017672779
	North Ninth Leg 2	CPNN01B+CPNN02B	1072.3	(2) 8' x 4' CBC	1920	5383.13	5376.13	5360.76	5350.41	0.013395833
	North Ninth Leg 3	CPNN01B+CPNN02B+CPNN03B	1456.2	(2) 9' x 5' CBC	4502.46	5360.76	5350.41	5321.16	5313.16	0.008273255
Northeast Canon	NE WPA 1	**CP7	2813.7	Concrete Trap. (D=6', 3:1 SS, BW=10')	2217.12	5357	5350.86	5334.42	5322	0.013016887
	NE WPA 2 (CULV000171)	**CP8	3261.4	14' x 10' CBC	75	5334.42	5322	5332.78	5321	0.013333333
	NE WPA 3	**CP8	3261.4	Concrete Trap. (D=8', 2:1 SS, BW=10')	226.2	5332.78	5321	5331.66	5319.66	0.005923961
	NE WPA 4 (PIPE001407)	**CP8	3261.4	16' x 10' CBC	1108.35	5331.66	5319.66	5323.78	5311.78	0.007109668
	NE WPA 5	**CP8a	3770.6	Concrete Trap. (D=8', 2:1 SS, BW=10')	914.69	5323.78	5311.78	5316.85	5304.85	0.007576337
	NE WPA 6 (CULV000133)	**CP8a	3770.6	16' x 10' CBC	72.69	5316.85	5304.85	5316.23	5304.12	0.010042647
	NE WPA 7	**CP8a	3770.6	Concrete Trap. (D=8', 2:1 SS, BW=10')	156.31	5316.23	5304.12	5315.93	5303	0.007165249
	NE WPA 8	**CP8a	3770.6	14' x 10' CBC	24	5315.93	5303	5315.87	5302.65	0.014583333
	NE WPA 9	**CP8a	3770.6	Concrete Trap. (D=8', 2:1 SS, BW=10')	123.94	5315.87	5302.65	5312.25	5301	0.013312893
	NE WPA 10 (PIPE000470)	**CP9	3818.3	18' x 10' CBC	1338.52	5312.25	5301	5302	5291.25	0.007284165
Orchard	Orchard West Leg 1	CPO12	1370	14' x 6' CBC	1553.2	5371.35	5363	5361.82	5349	0.009013649
	Orchard East Leg 1	CPO6 + CPO3	629.3	10' x 5' CBC	1370.21	5367.25	5359	5361.82	5349	0.007298151
	Orchard Existing Leg	Full Flow Capacity of HERCP	214.53	43" x 68" HERCP	1228.97	5355.5 (Bottom of Ditch)	5350	5347.37	5337	0.010577964
	Orchard Trunk 1	CPO4	1573	12' x 8' CBC	1337.79	5361.82	5349	5347.37	5337	0.008970018
	Orchard Trunk 2	CPO4	1573	12' x 8' CBC	2109.88	5347.37	5337	5323.78	5313.78	0.011005365
	Orchard Trunk 3	CPO7	1712	12' x 8' CBC	2271.12	5323.78	5313.78	5298.33	5288.33	0.011205925

*Abbey System is sized to receive a constant flowrate of 50 cfs from the Ditch via the Abbey Detention Basin Spillway. HEC-HMS Modeling used for CAB08 design flow is the Abbey_MASTER file, instead of the Abbey_2018 HEC-HMS used to determine inflows for the 2D modeling.

**Northeast Canon Improvements are sized to receive an additional 200 cfs from the Ditch in storm events via the WPA Spillway. Design flows are calculated using the HEC-HMS Model results +200 cfs for the received Ditch flows.

Worksheet for Abbey Storm Upper Channel 1

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.013	
Channel Slope	0.00220	ft/ft
Left Side Slope	3.00	ft/ft (H:V)
Right Side Slope	3.00	ft/ft (H:V)
Bottom Width	3.00	ft
Discharge	268.60	ft³/s

Results

Normal Depth	3.00	ft
Flow Area	36.04	ft²
Wetted Perimeter	21.98	ft
Hydraulic Radius	1.64	ft
Top Width	21.01	ft
Critical Depth	3.01	ft
Critical Slope	0.00218	ft/ft
Velocity	7.45	ft/s
Velocity Head	0.86	ft
Specific Energy	3.87	ft
Froude Number	1.00	
Flow Type	Supercritical	

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	3.00	ft
Critical Depth	3.01	ft
Channel Slope	0.00220	ft/ft

Worksheet for Abbey Storm Upper Channel 1

GVF Output Data

Critical Slope	0.00218	ft/ft

Worksheet for Abbey Storm Upper Channel 2

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.013	
Channel Slope	0.01908	ft/ft
Left Side Slope	3.00	ft/ft (H:V)
Right Side Slope	3.00	ft/ft (H:V)
Bottom Width	18.00	ft
Discharge	1372.90	ft³/s

Results

Normal Depth	2.35	ft
Flow Area	58.92	ft²
Wetted Perimeter	32.87	ft
Hydraulic Radius	1.79	ft
Top Width	32.11	ft
Critical Depth	4.41	ft
Critical Slope	0.00176	ft/ft
Velocity	23.30	ft/s
Velocity Head	8.44	ft
Specific Energy	10.79	ft
Froude Number	3.03	
Flow Type	Supercritical	

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	2.35	ft
Critical Depth	4.41	ft
Channel Slope	0.01908	ft/ft

Worksheet for Abbey Storm Upper Channel 2

GVF Output Data

Critical Slope	0.00176	ft/ft

Worksheet for Abbey Lower Channel

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.035	
Channel Slope	0.01050	ft/ft
Left Side Slope	3.00	ft/ft (H:V)
Right Side Slope	3.00	ft/ft (H:V)
Bottom Width	8.00	ft
Discharge	315.20	ft³/s

Results

Normal Depth	2.90	ft
Flow Area	48.32	ft²
Wetted Perimeter	26.31	ft
Hydraulic Radius	1.84	ft
Top Width	25.37	ft
Critical Depth	2.63	ft
Critical Slope	0.01550	ft/ft
Velocity	6.52	ft/s
Velocity Head	0.66	ft
Specific Energy	3.56	ft
Froude Number	0.83	
Flow Type	Subcritical	

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	2.90	ft
Critical Depth	2.63	ft
Channel Slope	0.01050	ft/ft

Worksheet for Abbey Lower Channel

GVF Output Data

Critical Slope	0.01550	ft/ft

Worksheet for Abbey CULV000213

Project Description

Friction Method	Manning Formula
Solve For	Full Flow Capacity

Input Data

Roughness Coefficient	0.013	
Channel Slope	0.01076	ft/ft
Normal Depth	4.00	ft
Height	4.00	ft
Bottom Width	8.00	ft
Discharge	459.62	ft³/s

Results

Flow Area	32.00	ft²
Wetted Perimeter	24.00	ft
Hydraulic Radius	1.33	ft
Top Width	8.00	ft
Critical Depth	4.68	ft
Percent Full	100.0	%
Critical Slope	0.00414	ft/ft
Velocity	14.36	ft/s
Velocity Head	3.21	ft
Specific Energy	7.21	ft
Froude Number	1.27	
Discharge Full	459.62	ft³/s
Slope Full	0.01076	ft/ft
Flow Type	Supercritical	

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Average End Depth Over Rise	0.00	%
Normal Depth Over Rise	100.00	%
Downstream Velocity	Infinity	ft/s

Worksheet for Abbey CULV000213

GVF Output Data

Upstream Velocity	Infinity	ft/s
Normal Depth	4.00	ft
Critical Depth	4.68	ft
Channel Slope	0.01076	ft/ft
Critical Slope	0.00414	ft/ft

Worksheet for Rhodes Ave Channel

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.035	
Channel Slope	0.01318	ft/ft
Left Side Slope	3.00	ft/ft (H:V)
Right Side Slope	3.00	ft/ft (H:V)
Bottom Width	6.00	ft
Discharge	315.20	ft³/s

Results

Normal Depth	2.96	ft
Flow Area	44.02	ft²
Wetted Perimeter	24.71	ft
Hydraulic Radius	1.78	ft
Top Width	23.75	ft
Critical Depth	2.85	ft
Critical Slope	0.01548	ft/ft
Velocity	7.16	ft/s
Velocity Head	0.80	ft
Specific Energy	3.76	ft
Froude Number	0.93	
Flow Type	Subcritical	

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	2.96	ft
Critical Depth	2.85	ft
Channel Slope	0.01318	ft/ft

Worksheet for Rhodes Ave Channel

GVF Output Data

Critical Slope	0.01548	ft/ft

Worksheet for North Ninth Storm Drain 1

Project Description

Friction Method	Manning Formula
Solve For	Full Flow Capacity

Input Data

Roughness Coefficient	0.013	
Channel Slope	0.01770	ft/ft
Normal Depth	5.00	ft
Height	5.00	ft
Bottom Width	8.00	ft
Discharge	810.63	ft³/s

Results

Flow Area	40.00	ft²
Wetted Perimeter	26.00	ft
Hydraulic Radius	1.54	ft
Top Width	8.00	ft
Critical Depth	6.83	ft
Percent Full	100.0	%
Critical Slope	0.00490	ft/ft
Velocity	20.27	ft/s
Velocity Head	6.38	ft
Specific Energy	11.38	ft
Froude Number	1.60	
Discharge Full	810.63	ft³/s
Slope Full	0.01770	ft/ft
Flow Type	Supercritical	

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Average End Depth Over Rise	0.00	%
Normal Depth Over Rise	100.00	%
Downstream Velocity	Infinity	ft/s

Worksheet for North Ninth Storm Drain 1

GVF Output Data

Upstream Velocity	Infinity	ft/s
Normal Depth	5.00	ft
Critical Depth	6.83	ft
Channel Slope	0.01770	ft/ft
Critical Slope	0.00490	ft/ft

Worksheet for North Ninth Storm Drain 2

Project Description

Friction Method	Manning Formula
Solve For	Full Flow Capacity

Input Data

Roughness Coefficient	0.013	
Channel Slope	0.01340	ft/ft
Normal Depth	4.00	ft
Height	4.00	ft
Bottom Width	16.00	ft
Discharge	1158.23	ft³/s

Results

Flow Area	64.00	ft²
Wetted Perimeter	40.00	ft
Hydraulic Radius	1.60	ft
Top Width	16.00	ft
Critical Depth	5.46	ft
Percent Full	100.0	%
Critical Slope	0.00280	ft/ft
Velocity	18.10	ft/s
Velocity Head	5.09	ft
Specific Energy	9.09	ft
Froude Number	1.60	
Discharge Full	1158.23	ft³/s
Slope Full	0.01340	ft/ft
Flow Type	Supercritical	

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Average End Depth Over Rise	0.00	%
Normal Depth Over Rise	100.00	%
Downstream Velocity	Infinity	ft/s

Worksheet for North Ninth Storm Drain 2

GVF Output Data

Upstream Velocity	Infinity	ft/s
Normal Depth	4.00	ft
Critical Depth	5.46	ft
Channel Slope	0.01340	ft/ft
Critical Slope	0.00280	ft/ft

Worksheet for North Ninth Storm Drain 3

Project Description

Friction Method	Manning Formula
Solve For	Full Flow Capacity

Input Data

Roughness Coefficient	0.013	
Channel Slope	0.00827	ft/ft
Normal Depth	5.00	ft
Height	5.00	ft
Bottom Width	18.00	ft
Discharge	1463.42	ft³/s

Results

Flow Area	90.00	ft²
Wetted Perimeter	46.00	ft
Hydraulic Radius	1.96	ft
Top Width	18.00	ft
Critical Depth	5.90	ft
Percent Full	100.0	%
Critical Slope	0.00267	ft/ft
Velocity	16.26	ft/s
Velocity Head	4.11	ft
Specific Energy	9.11	ft
Froude Number	1.28	
Discharge Full	1463.42	ft³/s
Slope Full	0.00827	ft/ft
Flow Type	Supercritical	

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Average End Depth Over Rise	0.00	%
Normal Depth Over Rise	100.00	%
Downstream Velocity	Infinity	ft/s

Worksheet for North Ninth Storm Drain 3

GVF Output Data

Upstream Velocity	Infinity	ft/s
Normal Depth	5.00	ft
Critical Depth	5.90	ft
Channel Slope	0.00827	ft/ft
Critical Slope	0.00267	ft/ft

Worksheet for Northeast WPA 1

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.013	
Channel Slope	0.01300	ft/ft
Left Side Slope	3.00	ft/ft (H:V)
Right Side Slope	3.00	ft/ft (H:V)
Bottom Width	10.00	ft
Discharge	2813.17	ft³/s

Results

Normal Depth	4.58	ft
Flow Area	108.86	ft²
Wetted Perimeter	38.99	ft
Hydraulic Radius	2.79	ft
Top Width	37.50	ft
Critical Depth	7.38	ft
Critical Slope	0.00160	ft/ft
Velocity	25.84	ft/s
Velocity Head	10.38	ft
Specific Energy	14.96	ft
Froude Number	2.67	
Flow Type	Supercritical	

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	4.58	ft
Critical Depth	7.38	ft
Channel Slope	0.01300	ft/ft

Worksheet for Northeast WPA 1

GVF Output Data

Critical Slope	0.00160	ft/ft

Worksheet for Northeast WPA 2 (CULV000171)

Project Description

Friction Method	Manning Formula
Solve For	Full Flow Capacity

Input Data

Roughness Coefficient	0.013	
Channel Slope	0.01333	ft/ft
Normal Depth	10.00	ft
Height	10.00	ft
Bottom Width	14.00	ft
Discharge	3771.97	ft³/s

Results

Flow Area	140.00	ft²
Wetted Perimeter	48.00	ft
Hydraulic Radius	2.92	ft
Top Width	14.00	ft
Critical Depth	13.12	ft
Percent Full	100.0	%
Critical Slope	0.00427	ft/ft
Velocity	26.94	ft/s
Velocity Head	11.28	ft
Specific Energy	21.28	ft
Froude Number	1.50	
Discharge Full	3771.97	ft³/s
Slope Full	0.01333	ft/ft
Flow Type	Supercritical	

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Average End Depth Over Rise	0.00	%
Normal Depth Over Rise	100.00	%
Downstream Velocity	Infinity	ft/s

Worksheet for Northeast WPA 2 (CULV000171)

GVF Output Data

Upstream Velocity	Infinity	ft/s
Normal Depth	10.00	ft
Critical Depth	13.12	ft
Channel Slope	0.01333	ft/ft
Critical Slope	0.00427	ft/ft

Worksheet for Northeast WPA 3

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.013	
Channel Slope	0.00590	ft/ft
Left Side Slope	2.00	ft/ft (H:V)
Right Side Slope	2.00	ft/ft (H:V)
Bottom Width	10.00	ft
Discharge	3261.40	ft³/s

Results

Normal Depth	6.55	ft
Flow Area	151.23	ft²
Wetted Perimeter	39.28	ft
Hydraulic Radius	3.85	ft
Top Width	36.19	ft
Critical Depth	8.89	ft
Critical Slope	0.00158	ft/ft
Velocity	21.57	ft/s
Velocity Head	7.23	ft
Specific Energy	13.78	ft
Froude Number	1.86	
Flow Type	Supercritical	

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	6.55	ft
Critical Depth	8.89	ft
Channel Slope	0.00590	ft/ft

Worksheet for Northeast WPA 3

GVF Output Data

Critical Slope	0.00158	ft/ft

Worksheet for Northeast WPA 4 (PIPE001407)

Project Description

Friction Method	Manning Formula
Solve For	Full Flow Capacity

Input Data

Roughness Coefficient	0.013	
Channel Slope	0.00711	ft/ft
Normal Depth	10.00	ft
Height	10.00	ft
Bottom Width	16.00	ft
Discharge	3262.25	ft³/s

Results

Flow Area	160.00	ft²
Wetted Perimeter	52.00	ft
Hydraulic Radius	3.08	ft
Top Width	16.00	ft
Critical Depth	10.89	ft
Percent Full	100.0	%
Critical Slope	0.00349	ft/ft
Velocity	20.39	ft/s
Velocity Head	6.46	ft
Specific Energy	16.46	ft
Froude Number	1.14	
Discharge Full	3262.25	ft³/s
Slope Full	0.00711	ft/ft
Flow Type	Supercritical	

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Average End Depth Over Rise	0.00	%
Normal Depth Over Rise	100.00	%
Downstream Velocity	Infinity	ft/s

Worksheet for Northeast WPA 4 (PIPE001407)

GVF Output Data

Upstream Velocity	Infinity	ft/s
Normal Depth	10.00	ft
Critical Depth	10.89	ft
Channel Slope	0.00711	ft/ft
Critical Slope	0.00349	ft/ft

Worksheet for Northeast WPA 5

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.013	
Channel Slope	0.00757	ft/ft
Left Side Slope	2.00	ft/ft (H:V)
Right Side Slope	2.00	ft/ft (H:V)
Bottom Width	10.00	ft
Discharge	3770.60	ft³/s

Results

Normal Depth	6.61	ft
Flow Area	153.54	ft²
Wetted Perimeter	39.57	ft
Hydraulic Radius	3.88	ft
Top Width	36.45	ft
Critical Depth	9.53	ft
Critical Slope	0.00155	ft/ft
Velocity	24.56	ft/s
Velocity Head	9.37	ft
Specific Energy	15.98	ft
Froude Number	2.11	
Flow Type	Supercritical	

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	6.61	ft
Critical Depth	9.53	ft
Channel Slope	0.00757	ft/ft

Worksheet for Northeast WPA 5

GVF Output Data

Critical Slope	0.00155	ft/ft

Worksheet for Northeast WPA 6 (CULV000133)

Project Description

Friction Method	Manning Formula
Solve For	Full Flow Capacity

Input Data

Roughness Coefficient	0.013	
Channel Slope	0.01000	ft/ft
Normal Depth	10.00	ft
Height	10.00	ft
Bottom Width	16.00	ft
Discharge	3868.86	ft³/s

Results

Flow Area	160.00	ft²
Wetted Perimeter	52.00	ft
Hydraulic Radius	3.08	ft
Top Width	16.00	ft
Critical Depth	12.20	ft
Percent Full	100.0	%
Critical Slope	0.00368	ft/ft
Velocity	24.18	ft/s
Velocity Head	9.09	ft
Specific Energy	19.09	ft
Froude Number	1.35	
Discharge Full	3868.86	ft³/s
Slope Full	0.01000	ft/ft
Flow Type	Supercritical	

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Average End Depth Over Rise	0.00	%
Normal Depth Over Rise	100.00	%
Downstream Velocity	Infinity	ft/s

Worksheet for Northeast WPA 6 (CULV000133)

GVF Output Data

Upstream Velocity	Infinity	ft/s
Normal Depth	10.00	ft
Critical Depth	12.20	ft
Channel Slope	0.01000	ft/ft
Critical Slope	0.00368	ft/ft

Worksheet for Northeast WPA 7

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.013	
Channel Slope	0.00717	ft/ft
Left Side Slope	2.00	ft/ft (H:V)
Right Side Slope	2.00	ft/ft (H:V)
Bottom Width	10.00	ft
Discharge	3770.60	ft³/s

Results

Normal Depth	6.70	ft
Flow Area	156.70	ft²
Wetted Perimeter	39.95	ft
Hydraulic Radius	3.92	ft
Top Width	36.79	ft
Critical Depth	9.53	ft
Critical Slope	0.00155	ft/ft
Velocity	24.06	ft/s
Velocity Head	9.00	ft
Specific Energy	15.70	ft
Froude Number	2.06	
Flow Type	Supercritical	

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	6.70	ft
Critical Depth	9.53	ft
Channel Slope	0.00717	ft/ft

Worksheet for Northeast WPA 7

GVF Output Data

Critical Slope	0.00155	ft/ft

Worksheet for Northeast WPA 8

Project Description

Friction Method	Manning Formula
Solve For	Full Flow Capacity

Input Data

Roughness Coefficient	0.013	
Channel Slope	0.01458	ft/ft
Normal Depth	10.00	ft
Height	10.00	ft
Bottom Width	14.00	ft
Discharge	3944.42	ft³/s

Results

Flow Area	140.00	ft²
Wetted Perimeter	48.00	ft
Hydraulic Radius	2.92	ft
Top Width	14.00	ft
Critical Depth	13.51	ft
Percent Full	100.0	%
Critical Slope	0.00434	ft/ft
Velocity	28.17	ft/s
Velocity Head	12.34	ft
Specific Energy	22.34	ft
Froude Number	1.57	
Discharge Full	3944.42	ft³/s
Slope Full	0.01458	ft/ft
Flow Type	Supercritical	

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Average End Depth Over Rise	0.00	%
Normal Depth Over Rise	100.00	%
Downstream Velocity	Infinity	ft/s

Worksheet for Northeast WPA 8

GVF Output Data

Upstream Velocity	Infinity	ft/s
Normal Depth	10.00	ft
Critical Depth	13.51	ft
Channel Slope	0.01458	ft/ft
Critical Slope	0.00434	ft/ft

Worksheet for Northeast WPA 9

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.013	
Channel Slope	0.01331	ft/ft
Left Side Slope	2.00	ft/ft (H:V)
Right Side Slope	2.00	ft/ft (H:V)
Bottom Width	10.00	ft
Discharge	3770.60	ft³/s

Results

Normal Depth	5.78	ft
Flow Area	124.61	ft²
Wetted Perimeter	35.85	ft
Hydraulic Radius	3.48	ft
Top Width	33.12	ft
Critical Depth	9.53	ft
Critical Slope	0.00155	ft/ft
Velocity	30.26	ft/s
Velocity Head	14.23	ft
Specific Energy	20.01	ft
Froude Number	2.75	
Flow Type	Supercritical	

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	5.78	ft
Critical Depth	9.53	ft
Channel Slope	0.01331	ft/ft

Worksheet for Northeast WPA 9

GVF Output Data

Critical Slope	0.00155	ft/ft

Worksheet for Northeast WPA 10 (PIPE000470)

Project Description

Friction Method	Manning Formula
Solve For	Full Flow Capacity

Input Data

Roughness Coefficient	0.013	
Channel Slope	0.00728	ft/ft
Normal Depth	10.00	ft
Height	10.00	ft
Bottom Width	18.00	ft
Discharge	3824.42	ft³/s

Results

Flow Area	180.00	ft²
Wetted Perimeter	56.00	ft
Hydraulic Radius	3.21	ft
Top Width	18.00	ft
Critical Depth	11.20	ft
Percent Full	100.0	%
Critical Slope	0.00323	ft/ft
Velocity	21.25	ft/s
Velocity Head	7.02	ft
Specific Energy	17.02	ft
Froude Number	1.18	
Discharge Full	3824.42	ft³/s
Slope Full	0.00728	ft/ft
Flow Type	Supercritical	

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Average End Depth Over Rise	0.00	%
Normal Depth Over Rise	100.00	%
Downstream Velocity	Infinity	ft/s

Worksheet for Northeast WPA 10 (PIPE000470)

GVF Output Data

Upstream Velocity	Infinity	ft/s
Normal Depth	10.00	ft
Critical Depth	11.20	ft
Channel Slope	0.00728	ft/ft
Critical Slope	0.00323	ft/ft

Worksheet for Orchard Ave West Leg 1

Project Description

Friction Method	Manning Formula
Solve For	Full Flow Capacity

Input Data

Roughness Coefficient	0.013	
Channel Slope	0.00901	ft/ft
Normal Depth	6.00	ft
Height	6.00	ft
Bottom Width	14.00	ft
Discharge	1494.54	ft³/s

Results

Flow Area	84.00	ft²
Wetted Perimeter	40.00	ft
Hydraulic Radius	2.10	ft
Top Width	14.00	ft
Critical Depth	7.08	ft
Percent Full	100.0	%
Critical Slope	0.00326	ft/ft
Velocity	17.79	ft/s
Velocity Head	4.92	ft
Specific Energy	10.92	ft
Froude Number	1.28	
Discharge Full	1494.54	ft³/s
Slope Full	0.00901	ft/ft
Flow Type	Supercritical	

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Average End Depth Over Rise	0.00	%
Normal Depth Over Rise	100.00	%
Downstream Velocity	Infinity	ft/s

Worksheet for Orchard Ave West Leg 1

GVF Output Data

Upstream Velocity	Infinity	ft/s
Normal Depth	6.00	ft
Critical Depth	7.08	ft
Channel Slope	0.00901	ft/ft
Critical Slope	0.00326	ft/ft

Worksheet for Orchard Ave East Leg 1

Project Description

Friction Method	Manning Formula
Solve For	Full Flow Capacity

Input Data

Roughness Coefficient	0.013	
Channel Slope	0.00730	ft/ft
Normal Depth	5.00	ft
Height	5.00	ft
Bottom Width	10.00	ft
Discharge	686.31	ft³/s

Results

Flow Area	50.00	ft²
Wetted Perimeter	30.00	ft
Hydraulic Radius	1.67	ft
Top Width	10.00	ft
Critical Depth	5.27	ft
Percent Full	100.0	%
Critical Slope	0.00370	ft/ft
Velocity	13.73	ft/s
Velocity Head	2.93	ft
Specific Energy	7.93	ft
Froude Number	1.08	
Discharge Full	686.31	ft³/s
Slope Full	0.00730	ft/ft
Flow Type	Supercritical	

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Average End Depth Over Rise	0.00	%
Normal Depth Over Rise	100.00	%
Downstream Velocity	Infinity	ft/s

Worksheet for Orchard Ave East Leg 1

GVF Output Data

Upstream Velocity	Infinity	ft/s
Normal Depth	5.00	ft
Critical Depth	5.27	ft
Channel Slope	0.00730	ft/ft
Critical Slope	0.00370	ft/ft

Worksheet for Orchard Ave Existing Leg

Project Description

Friction Method	Manning Formula
Solve For	Full Flow Capacity

Input Data

Roughness Coefficient	0.013	
Channel Slope	0.01058	ft/ft
Rise	4.00	ft
Span	5.33	ft

Results

Discharge	214.53	ft³/s
Normal Depth	4.00	ft
Flow Area	16.74	ft²
Wetted Perimeter	14.72	ft
Hydraulic Radius	1.14	ft
Top Width	0.00	ft
Critical Depth	3.67	ft
Percent Full	100.0	%
Critical Slope	0.00907	ft/ft
Velocity	12.81	ft/s
Velocity Head	2.55	ft
Specific Energy	6.55	ft
Froude Number	0.00	
Maximum Discharge	231.97	ft³/s
Discharge Full	214.40	ft³/s
Slope Full	0.01056	ft/ft
Flow Type	Subcritical	

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Average End Depth Over Rise	0.00	%
Normal Depth Over Rise	100.00	%

Worksheet for Orchard Ave Existing Leg

GVF Output Data

Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	4.00	ft
Critical Depth	3.67	ft
Channel Slope	0.01058	ft/ft
Critical Slope	0.00907	ft/ft

Worksheet for Orchard Ave Trunk 1

Project Description

Friction Method	Manning Formula
Solve For	Full Flow Capacity

Input Data

Roughness Coefficient	0.013	
Channel Slope	0.00897	ft/ft
Normal Depth	8.00	ft
Height	8.00	ft
Bottom Width	12.00	ft
Discharge	1862.92	ft³/s

Results

Flow Area	96.00	ft²
Wetted Perimeter	40.00	ft
Hydraulic Radius	2.40	ft
Top Width	12.00	ft
Critical Depth	9.08	ft
Percent Full	100.0	%
Critical Slope	0.00403	ft/ft
Velocity	19.41	ft/s
Velocity Head	5.85	ft
Specific Energy	13.85	ft
Froude Number	1.21	
Discharge Full	1862.92	ft³/s
Slope Full	0.00897	ft/ft
Flow Type	Supercritical	

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Average End Depth Over Rise	0.00	%
Normal Depth Over Rise	100.00	%
Downstream Velocity	Infinity	ft/s

Worksheet for Orchard Ave Trunk 1

GVF Output Data

Upstream Velocity	Infinity	ft/s
Normal Depth	8.00	ft
Critical Depth	9.08	ft
Channel Slope	0.00897	ft/ft
Critical Slope	0.00403	ft/ft

Worksheet for Orchard Ave Trunk 2

Project Description

Friction Method	Manning Formula
Solve For	Full Flow Capacity

Input Data

Roughness Coefficient	0.013	
Channel Slope	0.01050	ft/ft
Normal Depth	8.00	ft
Height	8.00	ft
Bottom Width	12.00	ft
Discharge	2015.54	ft³/s

Results

Flow Area	96.00	ft²
Wetted Perimeter	40.00	ft
Hydraulic Radius	2.40	ft
Top Width	12.00	ft
Critical Depth	9.57	ft
Percent Full	100.0	%
Critical Slope	0.00414	ft/ft
Velocity	21.00	ft/s
Velocity Head	6.85	ft
Specific Energy	14.85	ft
Froude Number	1.31	
Discharge Full	2015.54	ft³/s
Slope Full	0.01050	ft/ft
Flow Type	Supercritical	

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Average End Depth Over Rise	0.00	%
Normal Depth Over Rise	100.00	%
Downstream Velocity	Infinity	ft/s

Worksheet for Orchard Ave Trunk 2

GVF Output Data

Upstream Velocity	Infinity	ft/s
Normal Depth	8.00	ft
Critical Depth	9.57	ft
Channel Slope	0.01050	ft/ft
Critical Slope	0.00414	ft/ft

Worksheet for Orchard Ave Trunk 3

Project Description

Friction Method	Manning Formula
Solve For	Full Flow Capacity

Input Data

Roughness Coefficient	0.013	
Channel Slope	0.01090	ft/ft
Normal Depth	8.00	ft
Height	8.00	ft
Bottom Width	12.00	ft
Discharge	2053.57	ft³/s

Results

Flow Area	96.00	ft²
Wetted Perimeter	40.00	ft
Hydraulic Radius	2.40	ft
Top Width	12.00	ft
Critical Depth	9.69	ft
Percent Full	100.0	%
Critical Slope	0.00416	ft/ft
Velocity	21.39	ft/s
Velocity Head	7.11	ft
Specific Energy	15.11	ft
Froude Number	1.33	
Discharge Full	2053.57	ft³/s
Slope Full	0.01090	ft/ft
Flow Type	Supercritical	

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Average End Depth Over Rise	0.00	%
Normal Depth Over Rise	100.00	%
Downstream Velocity	Infinity	ft/s

Worksheet for Orchard Ave Trunk 3

GVF Output Data

Upstream Velocity	Infinity	ft/s
Normal Depth	8.00	ft
Critical Depth	9.69	ft
Channel Slope	0.01090	ft/ft
Critical Slope	0.00416	ft/ft

Project Info

Project Name : Canon City Master Plan Selections
Estimator : MPT
Date : 11/27/2018

Project Drainageways :

Drainageway Name	Drainageway Abbreviation (Prefix for Reach ID)	Length (mi)	Number of Reaches
North Ninth Storm Drain	NN_SD	1.66 mi	3
Northeast Canon System	NE_SD	0.50 mi	5
Orchard Ave System	Orchard_SD	1.87 mi	6
Abbey Detention Basin System	Abbey_SD	0.04 mi	2
		0.00 mi	0
		0.00 mi	0
		0.00 mi	0
		0.00 mi	0
		0.00 mi	0
		0.00 mi	0
	Totals :	4.06 mi	16

Jurisdictions/Sponsors :

Jurisdiction
CDOT

Construction Cost Index (CCI)	
CCI Base Year :	2012
CCI Base Quarter :	1
Base CCI :	1.0000
Most Recent CCI Year :	2018
Most Recent CCI Quarter :	2
Most Recently Published CCI :	1.4500
Elapsed Time (years) :	6.25
Percentage Change in CCI :	45.0%

Benefit Cost Analysis	
Effective Interest Rate (%):	

SUMMARY BY REACH

Project Name : Canon City Master Plan Selections
Estimator : MPT
Data : 11/27/2018

REACH	CAPITAL	EASEMENT / ROW	ENGINEERING	LEGAL / ADMINISTRATIVE	CONTRACT ADMIN/CM	CONTINGENCY	TOTAL CAPITAL COST	ANNUAL O&M COST	50-YEAR O&M COST
NN_SD-Reach1	$2,374,852.00	$0.00	$356,228.00	$118,743.00	$237,485.00	$593,713.00	$3,681,021.00	$0.00	$0.00
NN_SD-Reach2	$3,968,575.00	$0.00	$595,286.00	$198,429.00	$396,858.00	$992,144.00	$6,151,292.00	$0.00	$0.00
NN_SD-Reach3	$10,756,408.00	$0.00	$1,613,461.00	$537,820.00	$1,075,641.00	$2,689,102.00	$16,672,432.00	$0.00	$0.00
Orchard_SD-ReachWest 1	$3,194,208.00	$0.00	$479,131.00	$159,710.00	$319,421.00	$798,552.00	$4,951,022.00	$0.00	$0.00
Orchard_SD-ReachEast 1	$1,832,603.00	$0.00	$274,890.00	$91,630.00	$183,260.00	$458,151.00	$2,840,534.00	$0.00	$0.00
Orchard_SD-ReachExist 1	$518,834.00	$0.00	$77,825.00	$25,942.00	$51,883.00	$129,709.00	$804,193.00	$0.00	$0.00
Orchard_SD-ReachTrunk 1	$2,486,529.00	$0.00	$372,979.00	$124,326.00	$248,653.00	$621,632.00	$3,854,119.00	$0.00	$0.00
Orchard_SD-ReachTrunk 2	$3,904,648.00	$0.00	$585,697.00	$195,232.00	$390,465.00	$976,162.00	$6,052,204.00	$0.00	$0.00
Orchard_SD-ReachTrunk 3	$4,239,196.00	$0.00	$635,879.00	$211,960.00	$423,920.00	$1,059,799.00	$6,570,754.00	$0.00	$0.00
NE_SD-ReachWPA 2	$251,222.00	$0.00	$37,683.00	$12,561.00	$25,122.00	$62,806.00	$389,394.00	$0.00	$0.00
NE_SD-ReachWPA 4	$3,332,159.00	$0.00	$499,824.00	$166,608.00	$333,216.00	$833,040.00	$5,164,847.00	$0.00	$0.00
NE_SD-ReachWPA 6	$289,203.00	$0.00	$43,380.00	$14,460.00	$28,920.00	$72,301.00	$448,264.00	$0.00	$0.00
NE_SD-ReachWPA 8	$133,910.00	$0.00	$20,087.00	$6,696.00	$13,391.00	$33,478.00	$207,562.00	$0.00	$0.00
NE_SD-ReachWPA 10	$4,565,633.00	$0.00	$684,845.00	$228,282.00	$456,563.00	$1,141,408.00	$7,076,731.00	$0.00	$0.00
Abbey_SD-ReachCULV00021	$214,060.00	$0.00	$32,109.00	$10,703.00	$21,406.00	$53,515.00	$331,793.00	$0.00	$0.00
Abbey_SD-ReachDetention Ba	$3,557,321.00	$0.00	$533,598.00	$177,866.00	$355,732.00	$889,330.00	$5,513,847.00	$0.00	$0.00
Totals	**$45,619,361**	**$0**	**$6,842,902**	**$2,280,968**	**$4,561,936**	**$11,404,842**	**$70,710,009**	**$0**	**$0**

MASTER PLAN COST ESTIMATE FOR INDIVIDUAL REACH

PROJECT :	**Canon City Master Plan Selections**			
DRAINAGEWAY :	**North Ninth Storm Drain**			
REACH :	**1**			
JURISDICTION :	**CDOT**			
REACH ID:	**NN_SD-Reach1**	**MPT**	**DATE :**	**11/27/2018**

DESCRIPTION		QUANTITY	UNIT	UNIT COST	TOTAL COST	USER COMMENTS
Pipe Culverts and Storm Drains						
Manholes and Inlets						
Type B Manhole (Pipe Dia. 48" and larger, deflection < 10 degrees)		7	EA	$17,400.00	$121,800.00	
Concrete Box Culverts						
Box Culvert Pipe						
Individual Box Span (ft)	**Box Height (ft)**	**No. of Barrels**	**Length (ft)**			
8	5	1	2127	L.F.	$957.76	$2,037,156.00

Master Plan Capital Improvement Cost Summary					
Capital Improvement Costs					
Pipe Culverts and Storm Drains					$121,800.00
Concrete Box Culverts					$2,037,156.00
Hydraulic Structures					$0.00
Channel Improvements					$0.00
Detention/Water Quality Facilities					$0.00
Removals					$0.00
Landscaping and Maintenance Improvements					$0.00
Special Items (User Defined)					$0.00
Subtotal Capital Improvement Costs					**$2,158,956.00**
Additional Capital Improvement Costs					
Dewatering			L.S.		$0.00
Mobilization		5%			$107,948.00
Traffic Control			L.S.		$0.00
Utility Coordination/Relocation			L.S.		$0.00
Stormwater Management/Erosion Control		5%			$107,948.00
Subtotal Additional Capital Improvement Costs					**$215,896.00**
Land Acquisition Costs					
ROW/Easements					$0.00
Subtotal Land Acquisition Costs					**$0.00**
Other Costs (percentage of Capital Improvement Costs)					
Engineering		15%			$356,228.00
Legal/Administrative		5%			$118,743.00
Contract Admin/Construction Management		10%			$237,485.00
Contingency		25%			$593,713.00
Subtotal Other Costs					**$1,306,169.00**
Total Capital Improvement Costs					**$3,681,021.00**

MASTER PLAN COST ESTIMATE FOR INDIVIDUAL REACH

PROJECT :	**Canon City Master Plan Selections**			
DRAINAGEWAY :	**North Ninth Storm Drain**			
REACH :	**2**			
JURISDICTION :	**CDOT**			
REACH ID:	**NN_SD-Reach2**	**MPT**	**DATE :**	**11/27/2018**

DESCRIPTION		QUANTITY	UNIT	UNIT COST	TOTAL COST	USER COMMENTS
Pipe Culverts and Storm Drains						
Manholes and Inlets						
Type B Manhole (Pipe Dia. 48" and larger, deflection < 10 degrees)		8	EA	$17,400.00	$139,200.00	
Concrete Box Culverts						
Box Culvert Pipe						
Individual Box Span (ft)	**Box Height (ft)**	**No. of Barrels**	**Length (ft)**			
8	4	2	1920	L.F.	$1,806.56	$3,468,595.00

Master Plan Capital Improvement Cost Summary				
Capital Improvement Costs				
Pipe Culverts and Storm Drains			$139,200.00	
Concrete Box Culverts			$3,468,595.00	
Hydraulic Structures			$0.00	
Channel Improvements			$0.00	
Detention/Water Quality Facilities			$0.00	
Removals			$0.00	
Landscaping and Maintenance Improvements			$0.00	
Special Items (User Defined)			$0.00	
Subtotal Capital Improvement Costs			**$3,607,795.00**	
Additional Capital Improvement Costs				
Dewatering		L.S.	$0.00	
Mobilization	5%		$180,390.00	
Traffic Control		L.S.	$0.00	
Utility Coordination/Relocation		L.S.	$0.00	
Stormwater Management/Erosion Control	5%		$180,390.00	
Subtotal Additional Capital Improvement Costs			**$360,780.00**	
Land Acquisition Costs				
ROW/Easements			$0.00	
Subtotal Land Acquisition Costs			**$0.00**	
Other Costs (percentage of Capital Improvement Costs)				
Engineering	15%		$595,286.00	
Legal/Administrative	5%		$198,429.00	
Contract Admin/Construction Management	10%		$396,858.00	
Contingency	25%		$992,144.00	
Subtotal Other Costs			**$2,182,717.00**	
Total Capital Improvement Costs			**$6,151,292.00**	

MASTER PLAN COST ESTIMATE FOR INDIVIDUAL REACH

PROJECT :	Canon City Master Plan Selections		
DRAINAGEWAY :	North Ninth Storm Drain		
REACH :	3		
JURISDICTION :	CDOT		
REACH ID:	NN_SD-Reach3 MPT	DATE :	11/27/2018

DESCRIPTION			QUANTITY	UNIT	UNIT COST	TOTAL COST	USER COMMENTS
Pipe Culverts and Storm Drains							
Manholes and Inlets							
Type B Manhole (Pipe Dia. 48" and larger, deflection < 10 degrees)			15	EA	$17,400.00	$261,000.00	
Concrete Box Culverts							
Box Culvert Pipe							
Individual Box Span (ft)	**Box Height (ft)**	**No. of Barrels**	**Length (ft)**				
9	5	2	4503	L.F.	$2,109.71	$9,500,002.00	
Headwall and Toewalls							
Individual Box Span (ft)	**No. of Barrels**	**Total Span (ft)**					
9	2	21.00	1	EA	$2,025.45	$2,025.00	
Wingwalls (includes wingwalls on either side of channel and concrete apron)							
Individual Box Span (ft)	**Box Rise (ft)**	**No. of Barrels**					
9	5	2	1	EA	$15,524.52	$15,524.50	

Master Plan Capital Improvement Cost Summary				
Capital Improvement Costs				
Pipe Culverts and Storm Drains			$261,000.00	
Concrete Box Culverts			$9,517,552.00	
Hydraulic Structures			$0.00	
Channel Improvements			$0.00	
Detention/Water Quality Facilities			$0.00	
Removals			$0.00	
Landscaping and Maintenance Improvements			$0.00	
Special Items (User Defined)			$0.00	
Subtotal Capital Improvement Costs			**$9,778,552.00**	
Additional Capital Improvement Costs				
Dewatering		L.S.	$0.00	
Mobilization	5%		$488,928.00	
Traffic Control		L.S.	$0.00	
Utility Coordination/Relocation		L.S.	$0.00	
Stormwater Management/Erosion Control	5%		$488,928.00	
Subtotal Additional Capital Improvement Costs			**$977,856.00**	
Land Acquisition Costs				
ROW/Easements			$0.00	
Subtotal Land Acquisition Costs			**$0.00**	
Other Costs (percentage of Capital Improvement Costs)				
Engineering	15%		$1,613,461.00	
Legal/Administrative	5%		$537,820.00	
Contract Admin/Construction Management	10%		$1,075,641.00	
Contingency	25%		$2,689,102.00	
Subtotal Other Costs			**$5,916,024.00**	
Total Capital Improvement Costs			**$16,672,432.00**	

MASTER PLAN COST ESTIMATE FOR INDIVIDUAL REACH

PROJECT :	Canon City Master Plan Selections			
DRAINAGEWAY :	Orchard Ave System			
REACH :	West 1			
JURISDICTION :	CDOT			
REACH ID:	Orchard_SD-ReachWest 1	MPT	DATE :	11/27/2018

DESCRIPTION			QUANTITY	UNIT	UNIT COST	TOTAL COST	USER COMMENTS
Pipe Culverts and Storm Drains							
Manholes and Inlets							
Type B Manhole (Pipe Dia. 48" and larger, deflection < 10 degrees)			6	EA	$17,400.00	$104,400.00	
Concrete Box Culverts							
Box Culvert Pipe							
Individual Box Span (ft)	**Box Height (ft)**	**No. of Barrels**	**Length (ft)**				
14	6	1	1553	L.F.	$1,802.36	$2,799,426.00	

Master Plan Capital Improvement Cost Summary				
Capital Improvement Costs				
Pipe Culverts and Storm Drains			$104,400.00	
Concrete Box Culverts			$2,799,426.00	
Hydraulic Structures			$0.00	
Channel Improvements			$0.00	
Detention/Water Quality Facilities			$0.00	
Removals			$0.00	
Landscaping and Maintenance Improvements			$0.00	
Special Items (User Defined)			$0.00	
Subtotal Capital Improvement Costs			**$2,903,826.00**	
Additional Capital Improvement Costs				
Dewatering		L.S.	$0.00	
Mobilization	5%		$145,191.00	
Traffic Control		L.S.	$0.00	
Utility Coordination/Relocation		L.S.	$0.00	
Stormwater Management/Erosion Control	5%		$145,191.00	
Subtotal Additional Capital Improvement Costs			**$290,382.00**	
Land Acquisition Costs				
ROW/Easements			$0.00	
Subtotal Land Acquisition Costs			**$0.00**	
Other Costs (percentage of Capital Improvement Costs)				
Engineering	15%		$479,131.00	
Legal/Administrative	5%		$159,710.00	
Contract Admin/Construction Management	10%		$319,421.00	
Contingency	25%		$798,552.00	
Subtotal Other Costs			**$1,756,814.00**	
Total Capital Improvement Costs			**$4,951,022.00**	

MASTER PLAN COST ESTIMATE FOR INDIVIDUAL REACH

PROJECT :	**Canon City Master Plan Selections**			
DRAINAGEWAY :	**Orchard Ave System**			
REACH :	**East 1**			
JURISDICTION :	**CDOT**			
REACH ID:	**Orchard_SD-ReachEast 1**	**MPT**	**DATE :**	**11/27/2018**

DESCRIPTION			QUANTITY	UNIT	UNIT COST	TOTAL COST	USER COMMENTS
Pipe Culverts and Storm Drains							
Manholes and Inlets							
Type B Manhole (Pipe Dia. 48" and larger, deflection < 10 degrees)			5	EA	$17,400.00	$87,000.00	
Concrete Box Culverts							
Box Culvert Pipe							
Individual Box Span (ft)	**Box Height (ft)**	**No. of Barrels**	**Length (ft)**				
10	5	1	1370	L.F.	$1,152.38	$1,579,003.00	

Master Plan Capital Improvement Cost Summary				
Capital Improvement Costs				
Pipe Culverts and Storm Drains			$87,000.00	
Concrete Box Culverts			$1,579,003.00	
Hydraulic Structures			$0.00	
Channel Improvements			$0.00	
Detention/Water Quality Facilities			$0.00	
Removals			$0.00	
Landscaping and Maintenance Improvements			$0.00	
Special Items (User Defined)			$0.00	
Subtotal Capital Improvement Costs			**$1,666,003.00**	
Additional Capital Improvement Costs				
Dewatering		L.S.	$0.00	
Mobilization	5%		$83,300.00	
Traffic Control		L.S.	$0.00	
Utility Coordination/Relocation		L.S.	$0.00	
Stormwater Management/Erosion Control	5%		$83,300.00	
Subtotal Additional Capital Improvement Costs			**$166,600.00**	
Land Acquisition Costs				
ROW/Easements			$0.00	
Subtotal Land Acquisition Costs			**$0.00**	
Other Costs (percentage of Capital Improvement Costs)				
Engineering	15%		$274,890.00	
Legal/Administrative	5%		$91,630.00	
Contract Admin/Construction Management	10%		$183,260.00	
Contingency	25%		$458,151.00	
Subtotal Other Costs			**$1,007,931.00**	
Total Capital Improvement Costs			**$2,840,534.00**	

MASTER PLAN COST ESTIMATE FOR INDIVIDUAL REACH

PROJECT :	**Canon City Master Plan Selections**			
DRAINAGEWAY :	**Orchard Ave System**			
REACH :	**Exist 1**			
JURISDICTION :	**CDOT**			
REACH ID:	**Orchard_SD-ReachExist 1**	**MPT**	**DATE :**	**11/27/2018**

DESCRIPTION			QUANTITY	UNIT	UNIT COST	TOTAL COST	USER COMMENTS
Pipe Culverts and Storm Drains							
Circular Pipes							
Diameter (in)	**Length (ft)**	**No. of Barrels**					
54-inch	1228.97	1	1229	L.F.	$313.00	$384,668.00	
Manholes and Inlets							
Type B Manhole (Pipe Dia. 48" and larger, deflection < 10 degrees)			5	EA	$17,400.00	$87,000.00	

Master Plan Capital Improvement Cost Summary				
Capital Improvement Costs				
Pipe Culverts and Storm Drains			$471,668.00	
Concrete Box Culverts			$0.00	
Hydraulic Structures			$0.00	
Channel Improvements			$0.00	
Detention/Water Quality Facilities			$0.00	
Removals			$0.00	
Landscaping and Maintenance Improvements			$0.00	
Special Items (User Defined)			$0.00	
Subtotal Capital Improvement Costs			**$471,668.00**	
Additional Capital Improvement Costs				
Dewatering		L.S.	$0.00	
Mobilization	5%		$23,583.00	
Traffic Control		L.S.	$0.00	
Utility Coordination/Relocation		L.S.	$0.00	
Stormwater Management/Erosion Control	5%		$23,583.00	
Subtotal Additional Capital Improvement Costs			**$47,166.00**	
Land Acquisition Costs				
ROW/Easements			$0.00	
Subtotal Land Acquisition Costs			**$0.00**	
Other Costs (percentage of Capital Improvement Costs)				
Engineering	15%		$77,825.00	
Legal/Administrative	5%		$25,942.00	
Contract Admin/Construction Management	10%		$51,883.00	
Contingency	25%		$129,709.00	
Subtotal Other Costs			**$285,359.00**	
Total Capital Improvement Costs			**$804,193.00**	

MASTER PLAN COST ESTIMATE FOR INDIVIDUAL REACH

PROJECT :	**Canon City Master Plan Selections**			
DRAINAGEWAY :	**Orchard Ave System**			
REACH :	**Trunk 1**			
JURISDICTION :	**CDOT**			
REACH ID:	**Orchard_SD-ReachTrunk 1**	**MPT**	**DATE :**	**11/27/2018**

DESCRIPTION			QUANTITY	UNIT	UNIT COST	TOTAL COST	USER COMMENTS
Pipe Culverts and Storm Drains							
Manholes and Inlets							
Type B Manhole (Pipe Dia. 48" and larger, deflection < 10 degrees)			5	EA	$17,400.00	$87,000.00	
Concrete Box Culverts							
Box Culvert Pipe							
Individual Box Span (ft)	**Box Height (ft)**	**No. of Barrels**	**Length (ft)**				
12	8	1	1338	L.F.	$1,624.68	$2,173,481.00	

Master Plan Capital Improvement Cost Summary				
Capital Improvement Costs				
Pipe Culverts and Storm Drains			$87,000.00	
Concrete Box Culverts			$2,173,481.00	
Hydraulic Structures			$0.00	
Channel Improvements			$0.00	
Detention/Water Quality Facilities			$0.00	
Removals			$0.00	
Landscaping and Maintenance Improvements			$0.00	
Special Items (User Defined)			$0.00	
Subtotal Capital Improvement Costs			**$2,260,481.00**	
Additional Capital Improvement Costs				
Dewatering		L.S.	$0.00	
Mobilization	5%		$113,024.00	
Traffic Control		L.S.	$0.00	
Utility Coordination/Relocation		L.S.	$0.00	
Stormwater Management/Erosion Control	5%		$113,024.00	
Subtotal Additional Capital Improvement Costs			**$226,048.00**	
Land Acquisition Costs				
ROW/Easements			$0.00	
Subtotal Land Acquisition Costs			**$0.00**	
Other Costs (percentage of Capital Improvement Costs)				
Engineering	15%		$372,979.00	
Legal/Administrative	5%		$124,326.00	
Contract Admin/Construction Management	10%		$248,653.00	
Contingency	25%		$621,632.00	
Subtotal Other Costs			**$1,367,590.00**	
Total Capital Improvement Costs			**$3,854,119.00**	

MASTER PLAN COST ESTIMATE FOR INDIVIDUAL REACH

PROJECT :	**Canon City Master Plan Selections**			
DRAINAGEWAY :	**Orchard Ave System**			
REACH :	**Trunk 2**			
JURISDICTION :	**CDOT**			
REACH ID:	**Orchard_SD-ReachTrunk 2**	**MPT**	**DATE :**	**11/27/2018**

DESCRIPTION			QUANTITY	UNIT	UNIT COST	TOTAL COST	USER COMMENTS
Pipe Culverts and Storm Drains							
Manholes and Inlets							
Type B Manhole (Pipe Dia. 48" and larger, deflection < 10 degrees)			7	EA	$17,400.00	$121,800.00	
Concrete Box Culverts							
Box Culvert Pipe							
Individual Box Span (ft)	**Box Height (ft)**	**No. of Barrels**	**Length (ft)**				
12	8	1	2110	L.F.	$1,624.68	$3,427,880.00	

Master Plan Capital Improvement Cost Summary				
Capital Improvement Costs				
Pipe Culverts and Storm Drains			$121,800.00	
Concrete Box Culverts			$3,427,880.00	
Hydraulic Structures			$0.00	
Channel Improvements			$0.00	
Detention/Water Quality Facilities			$0.00	
Removals			$0.00	
Landscaping and Maintenance Improvements			$0.00	
Special Items (User Defined)			$0.00	
Subtotal Capital Improvement Costs			**$3,549,680.00**	
Additional Capital Improvement Costs				
Dewatering		L.S.	$0.00	
Mobilization	5%		$177,484.00	
Traffic Control		L.S.	$0.00	
Utility Coordination/Relocation		L.S.	$0.00	
Stormwater Management/Erosion Control	5%		$177,484.00	
Subtotal Additional Capital Improvement Costs			**$354,968.00**	
Land Acquisition Costs				
ROW/Easements			$0.00	
Subtotal Land Acquisition Costs			**$0.00**	
Other Costs (percentage of Capital Improvement Costs)				
Engineering	15%		$585,697.00	
Legal/Administrative	5%		$195,232.00	
Contract Admin/Construction Management	10%		$390,465.00	
Contingency	25%		$976,162.00	
Subtotal Other Costs			**$2,147,556.00**	
Total Capital Improvement Costs			**$6,052,204.00**	

MASTER PLAN COST ESTIMATE FOR INDIVIDUAL REACH

PROJECT :	Canon City Master Plan Selections			
DRAINAGEWAY :	Orchard Ave System			
REACH :	Trunk 3			
JURISDICTION :	CDOT			
REACH ID:	Orchard_SD-ReachTrunk 3	MPT	DATE :	11/27/2018

DESCRIPTION			QUANTITY	UNIT	UNIT COST	TOTAL COST	USER COMMENTS
Pipe Culverts and Storm Drains							
Manholes and Inlets							
Type B Manhole (Pipe Dia. 48" and larger, deflection < 10 degrees)			8	EA	$17,400.00	$139,200.00	
Concrete Box Culverts							
Box Culvert Pipe							
Individual Box Span (ft)	**Box Height (ft)**	**No. of Barrels**	**Length (ft)**				
12	8	1	2271	L.F.	$1,624.68	$3,689,843.00	
Headwall and Toewalls							
Individual Box Span (ft)	**No. of Barrels**	**Total Span (ft)**					
12	1	14.00	1	EA	$1,421.70	$1,422.00	
Wingwalls (includes wingwalls on either side of channel and concrete apron)							
Individual Box Span (ft)	**Box Rise (ft)**	**No. of Barrels**					
12	8	1	1	EA	$23,348.50	$23,348.50	

Master Plan Capital Improvement Cost Summary				
Capital Improvement Costs				
Pipe Culverts and Storm Drains			$139,200.00	
Concrete Box Culverts			$3,714,614.00	
Hydraulic Structures			$0.00	
Channel Improvements			$0.00	
Detention/Water Quality Facilities			$0.00	
Removals			$0.00	
Landscaping and Maintenance Improvements			$0.00	
Special Items (User Defined)			$0.00	
Subtotal Capital Improvement Costs			**$3,853,814.00**	
Additional Capital Improvement Costs				
Dewatering		L.S.	$0.00	
Mobilization	5%		$192,691.00	
Traffic Control		L.S.	$0.00	
Utility Coordination/Relocation		L.S.	$0.00	
Stormwater Management/Erosion Control	5%		$192,691.00	
Subtotal Additional Capital Improvement Costs			**$385,382.00**	
Land Acquisition Costs				
ROW/Easements			$0.00	
Subtotal Land Acquisition Costs			**$0.00**	
Other Costs (percentage of Capital Improvement Costs)				
Engineering	15%		$635,879.00	
Legal/Administrative	5%		$211,960.00	
Contract Admin/Construction Management	10%		$423,920.00	
Contingency	25%		$1,059,799.00	
Subtotal Other Costs			**$2,331,558.00**	
Total Capital Improvement Costs			**$6,570,754.00**	

MASTER PLAN COST ESTIMATE FOR INDIVIDUAL REACH

PROJECT :	**Canon City Master Plan Selections**		
DRAINAGEWAY :	**Northeast Canon System**		
REACH :	**WPA 2**		
JURISDICTION :	**CDOT**		
REACH ID:	**NE_SD-ReachWPA 2**	**DATE :**	**11/27/2018**

DESCRIPTION			QUANTITY	UNIT	UNIT COST	TOTAL COST	USER COMMENTS
Concrete Box Culverts							
Box Culvert Pipe							
Individual Box Span (ft)	**Box Height (ft)**	**No. of Barrels**	**Length (ft)**				
14	10	1	75	L.F.	$2,091.13	$156,835.00	
Headwall and Toewalls							
Individual Box Span (ft)	**No. of Barrels**	**Total Span (ft)**					
14	1	16.00	2	EA	$1,727.20	$3,454.00	
Wingwalls (includes wingwalls on either side of channel and concrete apron)							
Individual Box Span (ft)	**Box Rise (ft)**	**No. of Barrels**					
14	10	1	2	EA	$34,047.70	$68,095.40	

Master Plan Capital Improvement Cost Summary				
Capital Improvement Costs				
Pipe Culverts and Storm Drains			$0.00	
Concrete Box Culverts			$228,384.00	
Hydraulic Structures			$0.00	
Channel Improvements			$0.00	
Detention/Water Quality Facilities			$0.00	
Removals			$0.00	
Landscaping and Maintenance Improvements			$0.00	
Special Items (User Defined)			$0.00	
Subtotal Capital Improvement Costs			**$228,384.00**	
Additional Capital Improvement Costs				
Dewatering		L.S.	$0.00	
Mobilization	5%		$11,419.00	
Traffic Control		L.S.	$0.00	
Utility Coordination/Relocation		L.S.	$0.00	
Stormwater Management/Erosion Control	5%		$11,419.00	
Subtotal Additional Capital Improvement Costs			**$22,838.00**	
Land Acquisition Costs				
ROW/Easements			$0.00	
Subtotal Land Acquisition Costs			**$0.00**	
Other Costs (percentage of Capital Improvement Costs)				
Engineering	15%		$37,683.00	
Legal/Administrative	5%		$12,561.00	
Contract Admin/Construction Management	10%		$25,122.00	
Contingency	25%		$62,806.00	
Subtotal Other Costs			**$138,172.00**	
Total Capital Improvement Costs			**$389,394.00**	

MASTER PLAN COST ESTIMATE FOR INDIVIDUAL REACH

PROJECT :	Canon City Master Plan Selections			
DRAINAGEWAY :	Northeast Canon System			
REACH :	WPA 4			
JURISDICTION :	CDOT			
REACH ID:	NE_SD-ReachWPA 4	MPT	DATE :	11/27/2018

DESCRIPTION			QUANTITY	UNIT	UNIT COST	TOTAL COST	USER COMMENTS
Pipe Culverts and Storm Drains							
Manholes and Inlets							
Type B Manhole (Pipe Dia. 48" and larger, deflection < 10 degrees)			4	EA	$17,400.00	$69,600.00	
Concrete Box Culverts							
Box Culvert Pipe							
Individual Box Span (ft)	**Box Height (ft)**	**No. of Barrels**	**Length (ft)**				
16	10	1	1108	L.F.	$2,603.87	$2,885,999.00	
Headwall and Toewalls							
Individual Box Span (ft)	**No. of Barrels**	**Total Span (ft)**					
16	1	18.00	2	EA	$1,912.50	$3,825.00	
Wingwalls (includes wingwalls on either side of channel and concrete apron)							
Individual Box Span (ft)	**Box Rise (ft)**	**No. of Barrels**					
16	10	1	2	EA	$34,905.38	$69,810.80	

Master Plan Capital Improvement Cost Summary				
Capital Improvement Costs				
Pipe Culverts and Storm Drains			$69,600.00	
Concrete Box Culverts			$2,959,635.00	
Hydraulic Structures			$0.00	
Channel Improvements			$0.00	
Detention/Water Quality Facilities			$0.00	
Removals			$0.00	
Landscaping and Maintenance Improvements			$0.00	
Special Items (User Defined)			$0.00	
Subtotal Capital Improvement Costs			**$3,029,235.00**	
Additional Capital Improvement Costs				
Dewatering		L.S.	$0.00	
Mobilization	5%		$151,462.00	
Traffic Control		L.S.	$0.00	
Utility Coordination/Relocation		L.S.	$0.00	
Stormwater Management/Erosion Control	5%		$151,462.00	
Subtotal Additional Capital Improvement Costs			**$302,924.00**	
Land Acquisition Costs				
ROW/Easements			$0.00	
Subtotal Land Acquisition Costs			**$0.00**	
Other Costs (percentage of Capital Improvement Costs)				
Engineering	15%		$499,824.00	
Legal/Administrative	5%		$166,608.00	
Contract Admin/Construction Management	10%		$333,216.00	
Contingency	25%		$833,040.00	
Subtotal Other Costs			**$1,832,688.00**	
Total Capital Improvement Costs			**$5,164,847.00**	

MASTER PLAN COST ESTIMATE FOR INDIVIDUAL REACH

PROJECT :	Canon City Master Plan Selections		
DRAINAGEWAY :	Northeast Canon System		
REACH :	WPA 6		
JURISDICTION :	CDOT		
REACH ID:	NE_SD-ReachWPA 6 MPT	DATE :	11/27/2018

DESCRIPTION			QUANTITY	UNIT	UNIT COST	TOTAL COST	USER COMMENTS
Concrete Box Culverts							
Box Culvert Pipe							
Individual Box Span (ft)	**Box Height (ft)**	**No. of Barrels**	**Length (ft)**				
16	10	1	73	L.F.	$2,603.87	$189,275.00	
Headwall and Toewalls							
Individual Box Span (ft)	**No. of Barrels**	**Total Span (ft)**					
16	1	18.00	2	EA	$1,912.50	$3,825.00	
Wingwalls (includes wingwalls on either side of channel and concrete apron)							
Individual Box Span (ft)	**Box Rise (ft)**	**No. of Barrels**					
16	10	1	2	EA	$34,905.38	$69,810.80	

Master Plan Capital Improvement Cost Summary				
Capital Improvement Costs				
Pipe Culverts and Storm Drains			$0.00	
Concrete Box Culverts			$262,911.00	
Hydraulic Structures			$0.00	
Channel Improvements			$0.00	
Detention/Water Quality Facilities			$0.00	
Removals			$0.00	
Landscaping and Maintenance Improvements			$0.00	
Special Items (User Defined)			$0.00	
Subtotal Capital Improvement Costs			**$262,911.00**	
Additional Capital Improvement Costs				
Dewatering		L.S.	$0.00	
Mobilization	5%		$13,146.00	
Traffic Control		L.S.	$0.00	
Utility Coordination/Relocation		L.S.	$0.00	
Stormwater Management/Erosion Control	5%		$13,146.00	
Subtotal Additional Capital Improvement Costs			**$26,292.00**	
Land Acquisition Costs				
ROW/Easements			$0.00	
Subtotal Land Acquisition Costs			**$0.00**	
Other Costs (percentage of Capital Improvement Costs)				
Engineering	15%		$43,380.00	
Legal/Administrative	5%		$14,460.00	
Contract Admin/Construction Management	10%		$28,920.00	
Contingency	25%		$72,301.00	
Subtotal Other Costs			**$159,061.00**	
Total Capital Improvement Costs			**$448,264.00**	

MASTER PLAN COST ESTIMATE FOR INDIVIDUAL REACH

PROJECT :	Canon City Master Plan Selections		
DRAINAGEWAY :	Northeast Canon System		
REACH :	WPA 8		
JURISDICTION :	CDOT		
REACH ID:	NE_SD-ReachWPA 8 MPT	DATE :	11/27/2018

DESCRIPTION			QUANTITY	UNIT	UNIT COST	TOTAL COST	USER COMMENTS
Concrete Box Culverts							
Box Culvert Pipe							
Individual Box Span (ft)	**Box Height (ft)**	**No. of Barrels**	**Length (ft)**				
14	10	1	24	L.F.	$2,091.13	$50,187.00	
Headwall and Toewalls							
Individual Box Span (ft)	**No. of Barrels**	**Total Span (ft)**					
14	1	16.00	2	EA	$1,727.20	$3,454.00	
Wingwalls (includes wingwalls on either side of channel and concrete apron)							
Individual Box Span (ft)	**Box Rise (ft)**	**No. of Barrels**					
14	10	1	2	EA	$34,047.70	$68,095.40	

Master Plan Capital Improvement Cost Summary				
Capital Improvement Costs				
Pipe Culverts and Storm Drains			$0.00	
Concrete Box Culverts			$121,736.00	
Hydraulic Structures			$0.00	
Channel Improvements			$0.00	
Detention/Water Quality Facilities			$0.00	
Removals			$0.00	
Landscaping and Maintenance Improvements			$0.00	
Special Items (User Defined)			$0.00	
Subtotal Capital Improvement Costs			**$121,736.00**	
Additional Capital Improvement Costs				
Dewatering		L.S.	$0.00	
Mobilization	5%		$6,087.00	
Traffic Control		L.S.	$0.00	
Utility Coordination/Relocation		L.S.	$0.00	
Stormwater Management/Erosion Control	5%		$6,087.00	
Subtotal Additional Capital Improvement Costs			**$12,174.00**	
Land Acquisition Costs				
ROW/Easements			$0.00	
Subtotal Land Acquisition Costs			**$0.00**	
Other Costs (percentage of Capital Improvement Costs)				
Engineering	15%		$20,087.00	
Legal/Administrative	5%		$6,696.00	
Contract Admin/Construction Management	10%		$13,391.00	
Contingency	25%		$33,478.00	
Subtotal Other Costs			**$73,652.00**	
Total Capital Improvement Costs			**$207,562.00**	

MASTER PLAN COST ESTIMATE FOR INDIVIDUAL REACH

PROJECT :	Canon City Master Plan Selections			
DRAINAGEWAY :	Northeast Canon System			
REACH :	WPA 10			
JURISDICTION :	CDOT			
REACH ID:	NE_SD-ReachWPA 10	MPT	DATE :	11/27/2018

DESCRIPTION			QUANTITY	UNIT	UNIT COST	TOTAL COST	USER COMMENTS
Pipe Culverts and Storm Drains							
Manholes and Inlets							
Type B Manhole (Pipe Dia. 48" and larger, deflection < 10 degrees)			5	EA	$17,400.00	$87,000.00	
Concrete Box Culverts							
Box Culvert Pipe							
Individual Box Span (ft)	**Box Height (ft)**	**No. of Barrels**	**Length (ft)**				
18	10	1	1339	L.F.	$2,979.06	$3,987,531.00	
Headwall and Toewalls							
Individual Box Span (ft)	**No. of Barrels**	**Total Span (ft)**					
18	1	20.00	2	EA	$2,259.00	$4,518.00	
Wingwalls (includes wingwalls on either side of channel and concrete apron)							
Individual Box Span (ft)	**Box Rise (ft)**	**No. of Barrels**					
18	10	1	2	EA	$35,763.06	$71,526.10	

Master Plan Capital Improvement Cost Summary				
Capital Improvement Costs				
Pipe Culverts and Storm Drains			$87,000.00	
Concrete Box Culverts			$4,063,575.00	
Hydraulic Structures			$0.00	
Channel Improvements			$0.00	
Detention/Water Quality Facilities			$0.00	
Removals			$0.00	
Landscaping and Maintenance Improvements			$0.00	
Special Items (User Defined)			$0.00	
Subtotal Capital Improvement Costs			**$4,150,575.00**	
Additional Capital Improvement Costs				
Dewatering		L.S.	$0.00	
Mobilization	5%		$207,529.00	
Traffic Control		L.S.	$0.00	
Utility Coordination/Relocation		L.S.	$0.00	
Stormwater Management/Erosion Control	5%		$207,529.00	
Subtotal Additional Capital Improvement Costs			**$415,058.00**	
Land Acquisition Costs				
ROW/Easements			$0.00	
Subtotal Land Acquisition Costs			**$0.00**	
Other Costs (percentage of Capital Improvement Costs)				
Engineering	15%		$684,845.00	
Legal/Administrative	5%		$228,282.00	
Contract Admin/Construction Management	10%		$456,563.00	
Contingency	25%		$1,141,408.00	
Subtotal Other Costs			**$2,511,098.00**	
Total Capital Improvement Costs			**$7,076,731.00**	

MASTER PLAN COST ESTIMATE FOR INDIVIDUAL REACH

PROJECT :	Canon City Master Plan Selections		
DRAINAGEWAY :	Abbey Detention Basin System		
REACH :	CULV000213		
JURISDICTION :	CDOT		
REACH ID:	Abbey_SD-ReachCULV000213 MPT	DATE :	11/27/2018

DESCRIPTION			QUANTITY	UNIT	UNIT COST	TOTAL COST	USER COMMENTS
Concrete Box Culverts							
Box Culvert Pipe							
Individual Box Span (ft)	**Box Height (ft)**	**No. of Barrels**	**Length (ft)**				
8	4	1	192	L.F.	$903.28	$173,710.00	
Headwall and Toewalls							
Individual Box Span (ft)	**No. of Barrels**	**Total Span (ft)**					
8	1	10.00	2	EA	$964.50	$1,929.00	
Wingwalls (includes wingwalls on either side of channel and concrete apron)							
Individual Box Span (ft)	**Box Rise (ft)**	**No. of Barrels**					
8	4	1	2	EA	$9,480.57	$18,961.10	

Master Plan Capital Improvement Cost Summary				
Capital Improvement Costs				
Pipe Culverts and Storm Drains			$0.00	
Concrete Box Culverts			$194,600.00	
Hydraulic Structures			$0.00	
Channel Improvements			$0.00	
Detention/Water Quality Facilities			$0.00	
Removals			$0.00	
Landscaping and Maintenance Improvements			$0.00	
Special Items (User Defined)			$0.00	
Subtotal Capital Improvement Costs			**$194,600.00**	
Additional Capital Improvement Costs				
Dewatering		L.S.	$0.00	
Mobilization	5%		$9,730.00	
Traffic Control		L.S.	$0.00	
Utility Coordination/Relocation		L.S.	$0.00	
Stormwater Management/Erosion Control	5%		$9,730.00	
Subtotal Additional Capital Improvement Costs			**$19,460.00**	
Land Acquisition Costs				
ROW/Easements			$0.00	
Subtotal Land Acquisition Costs			**$0.00**	
Other Costs (percentage of Capital Improvement Costs)				
Engineering	15%		$32,109.00	
Legal/Administrative	5%		$10,703.00	
Contract Admin/Construction Management	10%		$21,406.00	
Contingency	25%		$53,515.00	
Subtotal Other Costs			**$117,733.00**	
Total Capital Improvement Costs			**$331,793.00**	

MASTER PLAN COST ESTIMATE FOR INDIVIDUAL REACH

PROJECT :	**Canon City Master Plan Selections**			
DRAINAGEWAY :	**Abbey Detention Basin System**			
REACH :	**Detention Basin**			
JURISDICTION :	**CDOT**			
REACH ID:	**Abbey_SD-ReachDetention Basin**	**MPT**	**DATE :**	**11/27/2018**

DESCRIPTION		QUANTITY	UNIT	UNIT COST	TOTAL COST	USER COMMENTS
Detention/Water Quality Facilities						
Detention (Complete-in-Place)						
Detention Facility 1 (Complete-in-Place)		49	AC-FT	$66,120.00	$3,233,929.00	

Master Plan Capital Improvement Cost Summary				
Capital Improvement Costs				
Pipe Culverts and Storm Drains				$0.00
Concrete Box Culverts				$0.00
Hydraulic Structures				$0.00
Channel Improvements				$0.00
Detention/Water Quality Facilities				$3,233,929.00
Removals				$0.00
Landscaping and Maintenance Improvements				$0.00
Special Items (User Defined)				$0.00
Subtotal Capital Improvement Costs				**$3,233,929.00**
Additional Capital Improvement Costs				
Dewatering			L.S.	$0.00
Mobilization		5%		$161,696.00
Traffic Control			L.S.	$0.00
Utility Coordination/Relocation			L.S.	$0.00
Stormwater Management/Erosion Control		5%		$161,696.00
Subtotal Additional Capital Improvement Costs				**$323,392.00**
Land Acquisition Costs				
ROW/Easements				$0.00
Subtotal Land Acquisition Costs				**$0.00**
Other Costs (percentage of Capital Improvement Costs)				
Engineering		15%		$533,598.00
Legal/Administrative		5%		$177,866.00
Contract Admin/Construction Management		10%		$355,732.00
Contingency		25%		$889,330.00
Subtotal Other Costs				**$1,956,526.00**
Total Capital Improvement Costs				**$5,513,847.00**

Cost Data

Item	Unit	Unit Cost 2012 Q1	Adjusted Unit Cost 2018 Q2
Circular Pipes			
12-inch	L.F.	$36.00	$52.00
18-inch	L.F.	$54.00	$78.00
24-inch	L.F.	$72.00	$104.00
30-inch	L.F.	$90.00	$131.00
36-inch	L.F.	$108.00	$157.00
42-inch	L.F.	$126.00	$183.00
48-inch	L.F.	$144.00	$209.00
54-inch	L.F.	$216.00	$313.00
60-inch	L.F.	$240.00	$348.00
66-inch	L.F.	$264.00	$383.00
72-inch	L.F.	$360.00	$522.00
78-inch	L.F.	$390.00	$566.00
84-inch	L.F.	$420.00	$609.00
90-inch	L.F.	$450.00	$653.00
96-inch	L.F.	$480.00	$696.00
102-inch	L.F.	$714.00	$1,035.00
108-inch	L.F.	$756.00	$1,096.00
120-inch	L.F.	$840.00	$1,218.00
Flared End Sections			
12-inch	EA	$710.00	$1,030.00
18-inch	EA	$920.00	$1,334.00
24-inch	EA	$970.00	$1,407.00
30-inch	EA	$1,570.00	$2,277.00
36-inch	EA	$1,610.00	$2,335.00
42-inch	EA	$1,700.00	$2,465.00
48-inch	EA	$2,060.00	$2,987.00
Manholes and Inlets			
Manhole, 4' Dia. (Pipe Dia. < 36"), Depth > 15-feet)	EA	$2,900.00	$4,205.00
Manhole, 5' Dia. (Pipe Dia. 36" - 42"), Depth > 15-feet)	EA	$3,900.00	$5,655.00
Manhole, 6' Dia. (Pipe Dia. , Depth > 15-feet)	EA	$4,300.00	$6,235.00
Type B Manhole (Pipe Dia. 48" and larger, deflection < 10 degrees)	EA	$12,000.00	$17,400.00
Type P Manhole (Pipe Dia. 48" and larger, deflection > 10 degrees)	EA	$15,000.00	$21,750.00
Storm Inlet, Type R/Type 14, 5-foot, 10-foot deep avg.	EA	$4,600.00	$6,670.00
Headwalls for Circular Pipes			
See Headwall Table			See Headwall Table
Wingwalls for Circular Pipes			
See Wingwall Table			See Wingwall Table
Box Culverts			
See Box Culvert Table			See Box Culvert Table
Hydraulic Structures			
Grouted Boulders, 36-inch	C.Y.	$190.00	$276.00
Soil Riprap, Type M	C.Y.	$70.00	$102.00
Excavation, Complete-in-Place	C.Y.	$11.00	$16.00
Bedding, Granular Type II	C.Y.	$58.00	$84.00
Grout	C.Y.	$240.00	$348.00
Check Structure, Concrete	L.F.	$270.00	$392.00
Channel Improvements			
Boulder Edging, 12" High	L.F.	$60.00	$87.00
Boulder Edging, 24" High	L.F.	$75.00	$109.00
Boulder Edging, 36" High	L.F.	$90.00	$131.00
Concrete Low Flow Channel	L.F.	$40.00	$58.00
Grouted Boulders, 12"	S.Y.	$130.00	$189.00
Grouted Boulders, 18"	S.Y.	$150.00	$218.00
Grouted Boulders, 24"	S.Y.	$170.00	$247.00
Grouted Boulders, 36"	S.Y.	$190.00	$276.00
Grouted Boulders, 48"	S.Y.	$200.00	$290.00
6-inch Riprap, Type VL	C.Y.	$45.00	$65.00
9-inch Riprap, Type L	C.Y.	$55.00	$80.00
12-inch Riprap, Type M	C.Y.	$60.00	$87.00
18-inch Riprap, Type H	C.Y.	$80.00	$116.00
24-inch Riprap, Type VH	C.Y.	$85.00	$123.00
Soil Riprap, Type VL	C.Y.	$50.00	$73.00
Soil Riprap, Type L	C.Y.	$60.00	$87.00
Soil Riprap, Type M	C.Y.	$70.00	$102.00
Soil Riprap, Type H	C.Y.	$80.00	$116.00
Soil Riprap, Type VH	C.Y.	$90.00	$131.00
Excavation, Low Range	C.Y.	$11.00	$16.00
Excavation, Mid Range	C.Y.	$24.00	$35.00
Excavation, High Range	C.Y.	$31.00	$45.00
Detention/Water Quality Facilities			
Excavation, Low Range	C.Y.	$11.00	$16.00
Excavation, Mid Range	C.Y.	$24.00	$35.00
Excavation, High Range	C.Y.	$31.00	$45.00
Outlet Works	EA	User Defined	User Defined
Water Quality Appurtenances	EA	User Defined	User Defined
Detention (Complete-in-Place)	AC-FT	$45,600.00	$66,120.00
Landscaping and Recreation Improvements			
Wetlands Plantings	ACRE	$25,000.00	$36,250.00
Reclamation & seeding (native grasses)	ACRE	$1,000.00	$1,450.00
Trail/Path, Concrete (10' Width)	L.F.	$44.00	$64.00
Trail/Path, Crusher Fines (10' Width)	L.F.	$11.00	$16.00
Removals			
Removal of culvert pipe (D<48")	L.F.	$20.00	$29.00
Removal of culvert pipe (48"<D<84")	L.F.	$50.00	$73.00
Removal of culvert pipe (D>84")	L.F.	$75.00	$109.00
Concrete Box Culvert	L.F./CELL	$100.00	$145.00
Land Acquisition			
Temporary Easements	EA	User Defined	User Defined
Easement/ROW Acquisition	ACRE	User Defined	User Defined
Concrete and Steel			
Concrete	C.Y.	$600.00	$870.00
Steel	LB.	$0.90	$1.00
Operation and Maintenance			
Culvert Maintenance	L.F.	$1.00	$1.00
Manhole and Inlet Maintenance	EA	$50.00	$73.00
Hydraulic Structure Maintenance	EA	$500.00	$725.00
Channel Maintenance	L.F.	$2.00	$3.00
Detention/WQ Maintenance	ACRE	$1,500.00	$2,175.00
Mowing	ACRE	$50.00	$73.00
Trail Maintenance	L.F.	$5.00	$7.00

Box Culvert (CDOT M-601-1)

Span (feet)	Cost $/LF Rise (feet)								
	2	3	4	5	6	7	8	9	10
4	$506.51	$517.39	$583.44	$704.46	$770.40	$836.34	$903.28	$968.35	$1,034.29
5	$572.45	$638.39	$704.46	$770.40	$836.34	$903.28	$957.76	$1,054.85	$1,152.38
6	$638.39	$704.46	$770.40	$836.34	$857.46	$878.58	$1,012.24	$1,141.36	$1,270.47
7	$704.46	$770.40	$836.34	$903.28	$942.83	$982.38	$1,086.18	$1,210.83	$1,335.48
8	$770.40	$836.34	$903.28	$957.76	$1,012.24	$1,086.18	$1,160.12	$1,234.65	$1,309.18
9	ERROR	$903.28	$968.35	$1,054.85	$1,141.36	$1,210.83	$1,280.30	$1,349.23	$1,418.17
10	ERROR	$968.35	$1,034.29	$1,152.38	$1,270.47	$1,335.48	$1,400.48	$1,463.82	$1,527.15
11	ERROR	$1,034.29	$1,101.23	$1,236.40	$1,371.57	$1,442.08	$1,512.58	$1,582.60	$1,652.63
12	ERROR	ERROR	$1,167.17	$1,319.92	$1,472.67	$1,548.68	$1,624.68	$1,701.39	$1,778.10
13	ERROR	ERROR	ERROR	ERROR	$1,637.52	$1,708.27	$1,779.03	$1,856.82	$1,934.62
14	ERROR	ERROR	ERROR	ERROR	$1,802.36	$1,867.87	$1,933.37	$2,012.25	$2,091.13
15	ERROR	ERROR	ERROR	ERROR	$2,027.48	$2,103.69	$2,179.90	$2,263.70	$2,347.50
16	ERROR	ERROR	ERROR	ERROR	$2,252.59	$2,339.51	$2,426.43	$2,515.15	$2,603.87
17	ERROR	ERROR	ERROR	ERROR	ERROR	ERROR	$2,610.62	$2,701.04	$2,791.47
18	ERROR	ERROR	ERROR	ERROR	ERROR	ERROR	$2,794.81	$2,886.94	$2,979.06
19	ERROR	ERROR	ERROR	ERROR	ERROR	ERROR	$3,141.16	$3,222.18	$3,303.20
20	ERROR	ERROR	ERROR	ERROR	ERROR	ERROR	$3,487.51	$3,557.42	$3,627.33

Headwall/Toewall (CDOT M-601-2)

Span (feet)	Steel (lbs/lf)
4	18.9
6	22.1
8	22.5
10	28.2
12	27.6
14	34
16	32.3
18	39
20	38.6

Notes: Concrete quantity estimated as 0.085 CY/LF per standard detail.
Weight of steel for span of 4 feet was linearly extrapolated.

Expanded Table

Span (feet)	RISE																										
	concrete	steel	2'	concrete	steel	3'	concrete	steel	4'	concrete	steel	5'	concrete	steel	6'	concrete	steel	7'	concrete	steel	8'	concrete	steel	9'	concrete	steel	10'
4	0.473	95	$507	0.484	97	$517	0.545	109	$583																		
5	0.535	107	$572	0.597	119	$638	0.658	132	$704	0.720	144	$770															
6	0.597	119	$638	0.658	132	$704	0.720	144	$770	0.782	156	$836	0.808	155	$857	0.834	153	$879									
7	0.658	132	$704	0.720	144	$770	0.782	156	$836	0.844	169	$903	0.884	174	$943	0.924	179	$982									
8	0.720	144	$770	0.782	156	$836	0.844	169	$903	0.898	177	$958	0.952	184	$1,012	1.014	204	$1,086	1.076	224	$1,160	1.145	239	$1,235	1.214	253	$1,309
9				0.844	169	$903	0.905	181	$968	0.986	197	$1,055	1.067	214	$1,141	1.128	229	$1,211	1.190	245	$1,280	1.260	253	$1,349	1.330	262	$1,418
10				0.905	181	$968	0.967	193	$1,034	1.074	218	$1,152	1.181	243	$1,270	1.243	255	$1,335	1.304	266	$1,400	1.375	268	$1,464	1.445	270	$1,527
11				0.967	193	$1,034	1.029	206	$1,101	1.145	240	$1,236	1.261	275	$1,372	1.323	292	$1,442	1.384	309	$1,513	1.461	312	$1,583	1.538	315	$1,653
12							1.091	218	$1,167	1.216	262	$1,320	1.341	306	$1,473	1.403	329	$1,549	1.464	351	$1,625	1.547	356	$1,701	1.630	360	$1,778
13													1.485	346	$1,638	1.546	363	$1,708	1.608	381	$1,779	1.686	390	$1,857	1.765	400	$1,935
14													1.628	386	$1,802	1.690	398	$1,868	1.751	410	$1,933	1.825	425	$2,012	1.899	439	$2,091
15													1.843	425	$2,027	1.906	445	$2,104	1.970	466	$2,180	2.060	472	$2,264	2.150	477	$2,348
16													2.057	463	$2,253	2.123	493	$2,340	2.189	522	$2,426	2.295	519	$2,515	2.401	515	$2,604
17																			2.376	544	$2,611	2.473	550	$2,701	2.570	556	$2,791
18																			2.563	565	$2,795	2.651	581	$2,887	2.738	597	$2,979
19																			2.868	646	$3,141	2.933	670	$3,222	2.999	695	$3,303
20																			3.173	727	$3,488	3.216	760	$3,557	3.259	792	$3,627

Concrete Cost ($/cy) =	$870.00
Steel Cost ($/lb) =	$1.00

Uses CDOT M-601-1 Single Concrete Box Culvert
Assumes 8 feet of cover
Assumes 10" wall thickness and 200 lb steel per cubic yard for small box culverts

Available Box Sizes - For Data Validation

Span	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Rise	2	2	2	2	2												
		3	3	3	3	3	3	3									
		4	4	4	4	4	4	4	4								
		5	5	5	5	5	5	5	5								
		6	6	6	6	6	6	6	6	6	6	6	6				
		7	7	7	7	7	7	7	7	7	7	7	7				
		8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
		9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
		10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10

Concrete Ditch Cost Estimate Summary

Channel	Flow	Type	LF	Mesh Req'd (SY)	Concrete Req'd (CY)	Cost Of Mesh (602-00210)	Cost Of Concrete (601-05016)	Cost per Linear Foot	Total Cost
NE WPA 1	2613.7	10' BW x 6' Depth (3:1 SS) 6" Concrete Depth	2217.12	11824.52175	1888.655889	$374,246.11	$472,163.97	$381.76	$846,410.09
NE WPA 3	3261.4	12' BW x 9' Depth (2:1 SS) 6" Concrete Depth	226.2	1313.203535	192.6886962	$41,562.89	$48,172.17	$396.71	$89,735.07
NE WPA 5	3770.6	10' BW x 8' Depth (2:1 SS) 6" Concrete Depth	914.69	4675.035471	779.1795912	$147,964.87	$194,794.90	$374.73	$342,759.77
NE WPA 7	3770.6	10' BW x 8' Depth (2:1 SS) 6" Concrete Depth	156.31	798.9097886	133.1528298	$25,285.49	$33,288.21	$374.73	$58,573.70
NE WPA 9	3770.6	10' BW x 8' Depth (2:1 SS) 6" Concrete Depth	123.94	633.4647764	105.5784129	$20,049.16	$26,394.60	$374.73	$46,443.76
Abbey 1	268.6	3' BW x 4' Depth (3:1 SS) 6" Concrete Depth	1453.17	7427.23906	1237.884318	$235,072.12	$309,471.08	$374.73	$544,543.20
Abbey 2	1372.9	18' BW x 5' Depth (3:1 SS) 6" Concrete Depth	345.22	1903.677474	306.8619154	$60,251.39	$76,715.48	$396.75	$136,966.87
							TOTAL		$1,383,922.39

Trapezoidal Cross Sectional Areas				
BW	Height (w/ 1' Freeboard)	SS	Area @ 6" Depth	
10'	6	3:1	23	ft^2
12'	9	2:1	24	ft^2
10'	8	2:1	21	ft^2
18'	5	3:1	24	ft^2
3'	4	3:1	13.5	ft^2

Width for Wire Mesh				
BW	Height (w/ 1' Freeboard)	SS	Width	
10'	6	3:1	48	
12'	9	2:1	52.25	
10'	8	2:1	46	
18'	5	3:1	49.63	
3'	4	3:1	28.3	

Concrete Cost ($/cy)	$250.00
Wire Cost ($/SY)	$31.65

Earthen Ditch Cost Estimate Summary

Channel	Flow	Type	LF	Area of Excavation (SF)	Total Volume of Excavation (CF)	Volume of Excavation (CY)	Cost per Linear Foot	Cost Of Excavation
Abbey 3	315.2	8' BW x 4' Depth (3:1 SS)	2527.68	115	290683.2	10,766.03	149.07	$376,811.18
Abbey 4	315.2	6' BW x 4' Depth (3:1 SS)	2433.37	72	175202.64	6,488.98	93.33	$227,114.31
						TOTAL		$603,925.48

Unit Cost of Excavation	
$35.00	per CY

Appendix F. Data CDs

Note: Two copies of the Data CDs are provided for the City.

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