# Appendix L
Flood Study (CLOMR)

# FLOOD STUDY (CLOMR)

for

# Carlton Oaks Country Club and Resort

## TM 2019-1 & DR 2019-5

San Diego River (Upper) 060703
City of Santee, CA
County of San Diego

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Flood Study for Carlton Oaks

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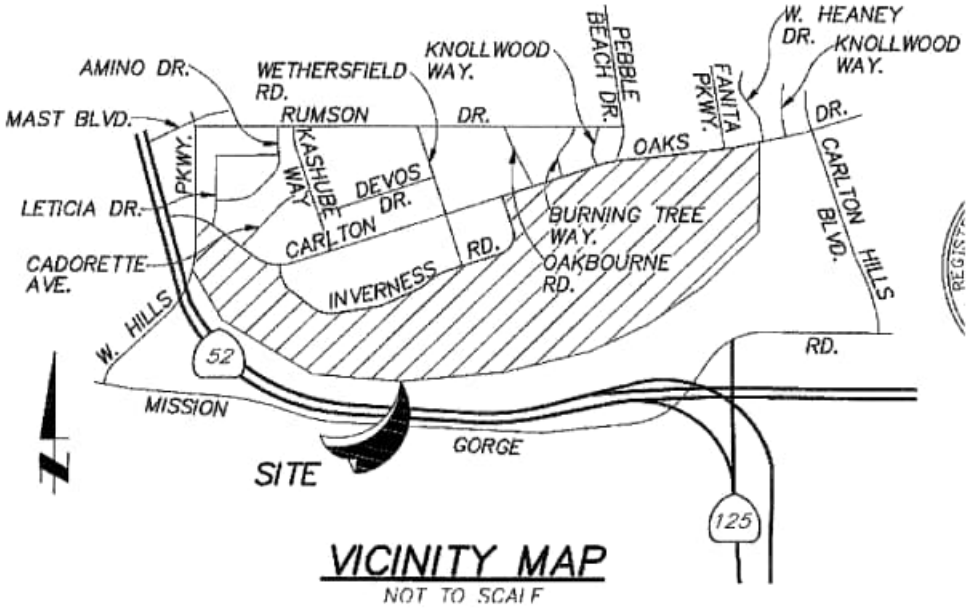


# 1.0 INTRODUCTION

## 1.1 PURPOSE

The purpose of this report is to provide flood modeling to evaluate the potential sources of flooding in conjunction with the Proposed Carlton Oaks Country Club and Resort Project. Two potential sources of flooding have been evaluated: San Diego River, and Sycamore Creek.

In line with that purpose, this report 1) provides documentation of the data collection, methodologies, and results related to San Diego River hydraulic analysis in existing and proposed conditions that will be used as the basis for preparing the project Conditional Letter of Map Revision (CLOMR) for processing through the City and ultimately Federal Emergency Management Agency (FEMA), 2) documents consistency with City of Santee, City of San Diego and FEMA Flood ordinance and regulations, and 3) utilizes the proposed condition model combined with the City specific 100-year flow rate to determine project Base Flood Elevations (BFEs), which buildings shall be appropriately elevated above.

The Sycamore Creek (adjacent to the western limits of the Santee lakes) conveys flows to the San Diego River and enters the site near the northeast end of the golf course under the existing Carlton Oaks Bridge (Carlton Oaks Drive crosses over Sycamore Creek northeast of the proposed Residential North PA-2). A hydraulic analysis for Sycamore

Creek is provided and documented in this report as well to verify that the proposed project would not increase flooding impacts on adjacent areas or upstream of Carlton Oaks Bridge, and would not adversely impact the hydraulic conveyance of Sycamore Creek (Carlton Oaks Drive crosses over Sycamore Creek northeast of the proposed Residential North PA-2). See Exhibit “A” for an Aerial Photo of the property showing the existing Carlton Oaks Bridge and Sycamore Creek locations.

Additionally, the hydraulic calculations and report outline design measures that will be required to ensure that flood impacts associated with the project have been mitigated; and the proposed project itself will be designed in a manner to be consistent with City and FEMA requirements which will avoid onsite hazards, minimize risk levels, protect public safety, and have no negative flooding impacts on adjacent properties.

Drainage, hydrology, and storm water quality mitigation are addresses in separate project’s report entitled “Drainage Report for Carlton Oaks Country Club and Resort” dated May 2025, and “Storm Water Quality Management Plan (SWQMP) for Carlton Oaks Country Club and Resort” dated May 2025, respectively.

## 1.2 EXISTING CONDITIONS

The existing Carlton Oaks Country Club and Resort is located in the City of Santee and City of San Diego, northwest of the State Route 52 / 125 interchange. The project site is bounded by the San Diego River and Forester Creek to the south and east, West Hills Parkway to the west, and Carlton Oaks Drive to the north. Most of the project limits are located within FEMA regulatory limits of San Diego River. The majority of the proposed Residential West (PA-1) is located with the existing floodplain, a small portion of the southwest corner of the proposed Residential North (PA-2) is also located in the existing floodplain, and the proposed Resort Area (PA-3) is located within the existing floodplain and floodway. The project receives runoff from the San Diego River, Sycamore (Santee Lakes) channel, plus several storm drain outfalls from the existing neighborhoods along the Carlton Oaks and Mast Blvd corridors. Runoff from Forester Creek enters at the southeasterly limits of the property. See Exhibit “A” for an Aerial Photo of the property.

**South Channel:** The property includes a vegetated earth berm along the southern and eastern limits, which directs “low flows” from the San Diego River and Forester Creek along the southerly golf course limits. The berm consists of loosely placed soil that was graded per 1995 grading plan G-378, and it is relatively small (compared to the overall river width). To be conservative, HEC-RAS proposed and existing models assumed no berm condition. The berm ends near the western limits of the golf course, just upstream of West Hills Parkway Bridge (West Hills Parkway crosses over San Diego River southwest of the proposed Residential West PA-1). See Exhibit “A” for an Aerial Photo of the property showing the existing West Hills Parkway Bridge location. The existing channel is vegetated with sensitive habitat.

**North Channel:** Runoff from Sycamore channel (adjacent to the western limits of the Santee Lakes) enters the site near the northeast end of the golf course under the Carlton Oaks Drive bridge. Flows are directed southerly and westerly through the northern limits of the golf course through a variety of golf course water features including streams, water hazards and manufactured ponds. The north channel provides drainage relief for overland flows from the majority of the golf course, and the existing neighborhoods north of the property.

Flows from the south and north channels confluence at the west end of the earth berm, approximately 500' upstream of West Hills Parkway bridge. According to the existing model, during larger storm events, the flood water levels will overtop the berm at one or more locations. Anecdotally, the berm has stood up to large flooding events in the past and has likely been reinforced by natural vegetation growth along the sides. The Proposed Project does not require or propose any modifications to the existing berm.

## 1.3 PROJECT DESCRIPTION

Lennar Homes and Carlton Oaks Golf Course, as joint project proponents, are proposing to redevelop the existing Carlton Oaks Country Club into a resort with residential accessory uses (proposed project). An existing clubhouse, restaurant/bar, pro shop, hotel and hotel cottages, and surface parking lot are currently located on the proposed project site and will be demolished as part of the initial project construction.

The proposed project site that will be developed is located on approximately 164.9 acres and would include the redesign of the existing Carlton Oaks Golf Course and the following components: (1) ) redesign of the golf course, (2) reconstruction of the clubhouse and pro shop, practice area, and learning center structure; (3) a hotel and associated cottages; (4) residential accessory uses consisting of two residential neighborhoods (Residential West and Residential North) with open space areas; and (5) related on-site infrastructure. Approximately 3.4 acres consist of areas outside of the project site that will be developed with improvements associated with the Project and are located either in the City of San Diego or Santee (Off-site improvement areas). The off-site improvement areas and the proposed project site (developed and undeveloped) make up the CEQA Study area, totaling approximately168.3 acres. See Exhibit "K" for illustrating the onsite project area and offsite improvements.

**Golf Course Redesign:**

The proposed project would redesign the existing 145 -acre, 18-hole golf course to provide an improved experience for the users of the Carlton Oaks Country Club and Resort. The redesigned golf course would cover approximately 104 acres, and would provide 18 holes, similar to the existing course. The length of the golf course would be reduced from approximately 7,300 yards to 6,450 yards to provide a more engaging golfing experience. Under the current existing conditions, the golf course has a total of approximately 132 acres of turf irrigation with a 30-year-old block type irrigation system.

The new course design would only have approximately 66 acres of turf irrigation (a 50 percent decrease) and would utilize a new modem irrigation system with individual head controls.

The proposed golf course would reshape the existing man-made ponds on the golf course, and the existing maintenance facility in the eastern portion of the project site will remain in its current location. The existing drainage patterns and facilities would be updated within the golf course to improve the flow of drainage, which would reduce the amount of ponding that occurs on the site during rain events. The remaining out-of-play areas around the golf course would be planted with native grasses and smaller shrubs native to the region, which would be selected to require little or no maintenance. There are a number of riparian areas within the project site, providing an environment for native birds, small animals, and aquatic plant and animal species. These areas are planned to be avoided and retained in their current condition.

In addition to the golf course, the Carlton Oaks Golf Course owner would develop several golf amenities including a pro shop, cart barn, and a cart waiting area on the eastern end of the golf course, northeast of the golf resort, as well as two practice areas. A golf learning center structure would also be developed northeast of the pro shop. A new shared surface parking lot would provide parking spaces for users of the golf course, clubhouse, and hotel.

**Carlton Oaks Country Club and Resort Area (PA-3):**

The Carlton Oaks Country Club and Resort would consist of approximately 51,926 square feet of golf related resort amenities including 10 cottage-style hotel units, 42-room hotel, a clubhouse with a restaurant, event space, a golf learning center, a cart barn, a pro shop, and a store all located in the eastern portion of the project site. There would also be a golf cart waiting area and a shared, surface parking lot. The hotel and cottage buildings would be constructed as two-story structures. The clubhouse and resort would also provide an outdoor pool and deck area, a patio, and a courtyard.

**Residential Development:**

The Carlton Oaks Country Club and Resort would include a residential component in the western and northeastern portions of the project site. Residential West (PA-1), in the western portion of the project site, would consist of 86 multi-family detached residential units. Residential North (PA-2) would be located in the northern portion of the project site and would consist of 150 detached multi-family residential units. In addition, six single-family lots would front Carlton Oaks Drive and allow for single-story homes on a minimum of 6,000 square-foot lots. One existing home located at 9225 Inwood Drive has also been included within the project area to allow for minor driveway modifications but no changes to the structure are proposed. The applicant is requesting approval of required easements from the City of San Diego for grading, landscaping, utilities, access, and maintenance.

## Access Points:

Access to Residential West would include a private driveway that would require access easements across two parcels owned by the City of San Diego, these parcels cross both City of San Diego and City of Santee jurisdictions. The proposed easements would allow private and emergency access onto the proposed subdivision.

Residential North and the resort would be accessed from Carlton Oaks Drive at the intersection of Burning Tree Way. This access would be approximately 200 feet west of the existing hotel access road (Inwood Drive). Inwood Drive would be closed and replaced with curb and sidewalk. Additionally, six existing driveway aprons along the project frontage would be closed and replaced with curb and landscaping.

Access to the golf course and resort would be provided by a private drive through Residential North from Carlton Oaks Drive southerly via a new bridge across the San Diego River (North Channel).

Also, a 26-foot-wide private emergency access road for the Residential North and resort parcels would be provided through the existing Vista del Verde condominiums located in the northeastern corner of the project site. This emergency access would comply with the requirements of the City of Santee's Fire Code and would be for the proposed project only and would not be open to the public. A new fence with an emergency access gate will be erected between buildings of the existing adjacent condominium complexes. A private emergency access roadway will also be provided to Residential West "PA-1" via an extension of Private Drive "C" westerly to West Hills Parkway. The emergency vehicle access will be 26 feet wide with curb and gutter and AC pavement and base, with grades and horizontal alignment that meet the City's Fire Code.

The project will also include a 26-foot private utility maintenance roadway between to Residential West "PA-1" and Residential North "PA-2", which will also serve as a pedestrian/golfcart passageway from PA-1 to the resort. The private roadway/pathway will be paved with 26 feet of AC pavement and base with a 2-foot shoulder and will meet the City Fire Code roadway grades and horizontal alignment requirements for firefighting apparatus and vehicles. Gates are located at the west and east limits of the roadway.

## Project Trail Segments:

A multipurpose, public trail will be provided on the property on the north side of the San Diego River, linking with existing and planned trails to the east and west of the site (Project Trail Segment).

A portion of the Project Trail Segment on the eastern side of the project site will be provided beginning at the entrance of Residential North at Carlton Oaks Drive traversing through the resort and along the southeastern border of the project ending slightly west of the jurisdictional line between the City of Santee and the City of San Diego. This portion of the trail will link to the existing Mast Park West Trail, as well as the future

planned trail known as the Carlton Oaks Golf Course Segment.

A portion of the Project Trail Segment on the western side of the project site will be constructed beginning at the Santee jurisdictional line ending at the property line (Station 38+60). This portion of the trail will link to the future planned trail known as the Carlton Oaks Golf Course Segment.

Along the Residential West boundary, a graded bench (located within the Carlton Oaks Golf Course Segment) would also be provided within the easement areas that will be granted to the applicant by the City of San Diego as a part of this project.

In addition to the proposed trail alignment currently proposed through Residential North and the County Club and Resort Area, a supplemental trail offer of dedication is shown on the applicant's map should the City request this supplemental trail alignment. The supplemental trail offer of dedication starts from an area east of the Country Club and Resort parking lot to the property line of the Vista del Verde community. If the City of Santee were to request this supplemental segment, the applicant will agree to dedicate the trail alignment and construct this trail at a later date if the City determines that it desires to build this trail in the future.

## Grading:

Fill will be placed to raise the Residential West (PA-1) and Residential North (PA-2) out of the floodplain, and the Resort Area (PA-3) above the 100-year flood levels of the floodway. Grades in a portion of the existing golf course, located approximately south of the proposed Resort Area, will be lowered to offset for the fill that is being placed in the residential and resort areas. Residential West (PA-1) is a residential development located at the west end of the existing golf course property, located north of the record floodway. Residential West (PA-1) and Residential North area (PA-2) do not encroach into the Floodway but are located in the existing floodplain. (Both PA-1 and PA-2 make up the Residential Area.)

The golf course will be regraded to enhance flows around the proposed Residential and Resort development areas. The Resort Area (PA-3) will encroach into the existing floodway. The Floodway and Floodplain is proposed to be remapped to reflect that Residential West and North are removed from the floodplain and and the Resort Area is fully removed from both the floodplain and floodway. Both residential areas will continue to remain out of the floodway consistent with the current FEMA mapping.

## Offsite Improvements:

The following offsite improvements would be required as part of the implementation of the proposed project.

1. Emergency Vehicle Access: The project will include the construction of a 26-foot-wide emergency vehicle access roadway, pursuant to the City of Santee Fire Department's requirements. This work would include modifications to existing parking, as well as construction work at an offsite location within the

Vista del Verde community in order to construct the emergency vehicle access pathway. The emergency vehicle access roadway will run south from the condominium project onto the golf course property to the developed portion of the resort area. One parking spot that may be lost by such work will also be relocated on the Vista del Verde property subject to the approval of the City of Santee. The project also includes installation of a motorized gate and replacement of the existing chain link fence with a steel tubular fence, on the boundary of the Golf Course property.

2. West Hills Parkway: West Hills Parkway will be widened within the existing right-of-way from Carlton Oaks Drive approximately 700 feet southerly to the existing bridge, in order to provide a dedicated left-turn lane into the project driveway. The roadway will be widened within the existing right-of-way and therefore no additional dedication is required. New striping will include a striped median and increased width for bike lanes. Improvements will also include a new driveway entry for the proposed residential development. Trees are proposed on both sides of West Hills Parkway to provide source control of storm water, limit storm water transport and pollutant conveyance to the collection system, restore predevelopment hydrology to the extent possible, and provide environmentally enhanced roads. Green Street PDP Exempt SWQMP for Carlton Oaks has been prepared per City of San Diego Storm Water Standards\ BMP Design Manual and following the guidance in Appendix J of the Manual. This work falls within the boundaries of City of San Diego and follows their standards. Access into the project has been analyzed for sight-distance, signal warrants and traffic movements by the project engineering team.

3. Extension of a Padre Dam Municipal Water District (PDMWD) Public Water Main: A Padre Dam Municipal Water District public water main will be extended from the end of Carlton Oaks Drive and down West Hills Parkway and into the proposed subdivision to provide a connection to the private water system for Residential West.

4. Access to Residential North and the Resort Area: Residential North and the Resort Area will take access from Carlton Oaks Drive at the intersection of Burning Tree Way. This access point is approximately 200 feet east of the existing hotel access road (Inwood Drive). Inwood Drive will be closed and replaced with curb and sidewalk. Additionally, six existing driveway aprons along the project frontage, will be closed and replaced with curb and landscaping along with other miscellaneous frontage improvements such as overhead power undergrounding and landscaping. Overhead power undergrounding would extend north of Carlton Oaks Drive. Potable and recycled water will be connected to existing main lines in Carlton Oaks Drive and extended into the project.

5. Drainage Improvements: Existing drainage pipes discharge to the golf course at five locations along the north subdivision boundary. All improvements shall be done in a way that will maintain the existing flow and drainage patterns. Each location is described as follows:

A. Existing 42-inch storm drain discharges to the site from a headwall located approximately 15 feet offsite, located within a public easement (City of Santee) on an existing residential lot (Lot 17 of Map 4402). The offsite flows will be picked up onsite by proposed storm drain improvements and discharged into the San Diego River (North Channel).

B. Existing 27-inch storm drain extends onto the project site from an existing residential lot (Lot 14 of Map 5417): This pipe will be extended under the proposed access road to a new headwall and discharge onto the golf course.

C. Existing 18-inch storm drain discharges to the site from a headwall located approximately 15 feet offsite, located within a public easement (City of Santee) on an existing residential lot (Lot 230 of Map 6973): The offsite flows will be picked up onsite by proposed storm drain improvements and discharged onto the golf course.

D. Existing 47”x71” storm drain discharges to the site from a headwall located approximately 20 feet offsite, located within a public easement (City of Santee) on an existing residential lot (Lot 239 of Map 6973). Project proposes to remove the headwall and extend the pipe into the project.

E. An existing 72-inch diameter storm drainpipe discharges to the site from the headwall located approximately immediately offsite at the north property line of Residential West. The existing headwall includes a large concrete energy dissipator and concrete channel. These storm drain facilities are located offsite on existing residential lots (Lots 679 & 680 of Map 7295) and within an existing public easement (City of Santee). The offsite flows will be picked up onsite by proposed storm drain improvements and discharged onto the golf course. The project drainage study includes a hydraulic analysis of the extension of this pipe to ensure that no negative upstream impacts will occur as a result of this project.

6. Sewer Maintenance Hole Improvements: Three existing sewer maintenance holes located offsite within a public easement (Padre Dam Municipal Water District) in the northeast corner of the project within the Vista del Verde condominiums: Engineered sewer manhole liners may be needed in the three manholes between the 8-inch tie-in from the north and the 24-inch tie-in. The need for these liners will be determined in the project design phase. All work will be limited to within the public easement area.

# 2.0 FLOOD HAZARD CONSIDERATIONS

## 2.1 FLOODPLAIN MAPPING AND FLOODING SOURCES

**FEMA Mapping:** The residential areas and Resort Area are proposed to be located in the City of Santee. In addition, a portion of the golf course, the southwest corner of the Resort Area (PA-3), and the primary access to Residential West are proposed to be located in the City of San Diego. The proposed Residential areas are partially located

within the existing FEMA floodplain; and the proposed Resort Area (PA-3) is located within the existing FEMA floodplain and floodway of the San Diego River (Special Flood Hazard Area Zone AE as shown on FIRM Panel 06073Cl634G, dated May 16, 2012 located in Exhibit "H").The existing hotel is located outside of the existing floodplain and floodway and can be seen at cross section AY290. The initial FIRM Panel was prepared using the original flood model for San Diego River (Upper) in 1982. The existing development north of Forester Creek and south of Carlton Oaks golf course was mapped as Zone X as shown on FIRM Panels: 06073C1634G, and modeled as an ineffective area in the original effective model.

This report proposes revisions to FEMA floodplain, a portion of the floodway delineation, and base flood elevations. Changes and revisions comply with FEMA regulations and ordinances. Please refer to Work map in Map Pocket #2.

**City of Santee San Diego River Flood Study (BSI):** In 1992, BSI conducted a Citywide Drainage Study to evaluate the existing storm drain systems and the flood elevations for the San Diego River (BSI, 1992). This study showed that there would be increases in impervious area due to future development, and construction of related street improvements and drainage facilities will result in greater peak flow rates (approximately 30% larger) resulting in increased flood elevations ranging from 1' to 6' higher when compared to the FEMA elevations.

Flood modeling of the San Diego River (BSI July 1992) is shown on the City of Santee Drawing series # 92-165. See Map Pocket #4, Sheet 2 and 3 of the drawing series shows flood elevations for the "Santee Discharge Rates" shown along the project range from about 321.0 at the east end of the project to 310.2 at the west end of the project . This map shows the baseline flood elevations at each cross section being analyzed within this report. Any new construction should be elevated to a minimum of one-foot above the 100-year floodplain provided in this flood study. Residential Area North (PA-2), Residential Area West (PA-1), and Resort Area (PA-3) have been designed so the lowest finished floor elevation is a minimum of 1' above the base flood elevation and thus will meet this requirement in compliance with the City of Santee's ordinance.

**Sycamore Creek:** The upstream end of the golf course receives runoff from the San Diego River (east), Forester Creek (southeast) and Sycamore Creek (northeast). Peak flows are estimated based upon the confluence of hydrographs from all three sources. From the flow adjustments used in the record flood models, flow rates are primarily dependent upon the San Diego River. Runoff from Sycamore Creek enters the golf course site at the Carlton Oaks Bridge, between the proposed grading for PA-2 and PA-3. The drainage basin tributary to Sycamore Creek is estimated at 17 square miles, as documented in the Floodplain Analysis for Farina Lake, Rick Engineering Company, dated May 25, 2007. This report includes flood modeling for different scenarios, with a maximum peak flow of 13,407 CFS during a 100-year storm event determined by HEC-1 analysis (using the 2003 County of San Diego Hydrology Manual). The report includes water surface elevations calculated using the HEC-RAS computer program for a subcritical flow regime. The model begins downstream of Carlton Oaks Blvd at Cross section #100 with a starting water surface elevation equals to the 100-year FEMA

floodplain elevation (318.0), resulting in a water surface of 325.1 just upstream of the Carlton Oaks Drive, per Table 5 - 100-year scenario of the Rick Engineering Company report.

A separate flood model was prepared using Sycamore Creek peak flows to assess the flood elevations of Sycamore Creek through the proposed project area, situated upstream of the confluence with the San Diego River at Cross Section #290 (XS #290). This report presents modeling results for both existing and proposed conditions of the creek. For the Sycamore Creek reach, a tailwater condition was set equal to the 100-Year flood plain water surface elevation of the San Diego River (BSI flow rate) at the confluence cross section.

Specifically, the existing conditions model for Sycamore Creek used the downstream known water surface elevation (WSE) at XS #300, derived from the San Diego River's existing condition 100-Year flood plain model (BSI flows). This WSE served as the reach boundary condition for the Sycamore Creek existing condition model. Similarly, for the proposed conditions model of Sycamore Creek, the downstream known WSE at XS #290 was sourced from the San Diego River's proposed condition 100-Year flood plain model (BSI flows) and applied as the reach boundary condition for the Sycamore Creek proposed condition model.

The Sycamore Creek proposed condition model accounted for an increased flow from the project's proposed four-barrel reinforced concrete box (4x RCB) culvert. To assess this increase, the San Diego River tributary area at the confluence with Sycamore Creek was determined using the USGS StreamStats tool and compared with the drainage area to Sycamore Creek, resulting in an approximate area ratio of 100 to 5. According to Table 3-4 (Coincidental Frequency) from the San Diego County Hydraulic Design Manual (September 2014), when Sycamore Creek reaches its 100-year storm flow rate, the flow rate in the San Diego River at the 4x RCB culvert outfall will correspond to the 50-year peak. The BSI 50-year flow rate was estimated to be 31% higher than the FEMA Q50, based on the Q100 BSI and using a proportional scaling method in line with FEMA data patterns. This estimated flow was then applied in the San Diego River’s proposed condition model (profile PF6) to calculate the flow entering the 4x RCB culvert and subsequently added to the Sycamore Creek flow at Cross Section #100.

Exhibit G of this report presents the results of both existing and proposed condition modeling for Sycamore Creek The modeling aimed to ensure that the project would not negatively impact the hydraulic conveyance of the creek and would not cause increased flooding impacts on adjacent areas or upstream of Carton Oaks Bridge. Additionally, the modeling was conducted to confirm that the project would not be impacted by peak flows from the creek.

In the overall model revealed that the Sycamore Creek peak flows will pass by the time the peak flow event occurs within the San Diego River. However, to be more conservative, the known WSE at cross section 290 in Sycamore Creek model was obtained from San Diego River Flood Study-Proposed model (BSI 100-Year peak flow).

## 2.2 TOPOGRAPHIC INFORMATION

Topographic information for San Diego River is from 1-foot contour topography flown in June 12, 2014. The topographic data is on the National Geodetic Vertical Datum of 1929. This information was used for San Diego River Upper Reach, from 1400 feet west of hills BLVD upstream to 120 feet west of West Hills PKWY downstream. Areas outside of these limits were supplemented with topographic data available from SANDAG, SANGIS website (SANDAG Regional Data Warehouse).The topographic data from SANGIS is on the North American Vertical Datum of 1988 (NAVD88). 2.1' conversion factor was used to convert SANGIS topographic information from NAVD88 to NGVD 29.

The vegetated earth berm along the southern and eastern limits, which directs "low flows" from the San Diego River and Forester Creek along the southerly golf course limits, is relatively small (compared to the overall river width) and is comprised of loosely placed sandy materials. Therefore, HEC-RAS proposed and existing models assume no berm condition to be conservative. The berm ends near the western limits of the golf course, just upstream of West Hills Parkway Bridge.

Even though, the FIRM Panel was recently updated to reflect flood elevations based on NAVD88 datum, the topographic cross sections from FEMA effective model for San Diego River (Upper Reach) were digitized in 1982, based upon NGVD 29 datum. Therefore, no conversion was required.

For cross sections located out of the project area (XS# 330-355, and 242-220) in the proposed and existing models, cross sections from the corrected effective model were used to determine tie in locations.

Please note that a revised proposed model will be prepared based on NAVD88 prior to LOMR approval. Converting datum to NAVD88 will not change any of the current results or conclusions.

## 2.3 HYDROLOGIC INFORMATION

Current FEMA hydrologic information from the original flood modeling for San Diego River (Upper) 1982 was used for profile 1 (floodplain) and profile 2 (Floodway) of the hydraulic analysis . The peak flow from the Citywide Drainage Study for San Diego River (BSI 1992) was incorporated into the hydraulic analysis profile 3 (to determine project BFEs, which buildings shall be appropriately elevated above.)

Table 1 below summarizes the flow-rates as published by FEMA and the City of Santee/ BSI study:

**Table 1 - Comparison of Peak Flow Rates (cfs)**

| San Diego River Location | 10-Year FEMA | 50-Year FEMA | 100-Year FEMA | 100-Year City / BSI | 500-Year FEMA |
|---|---|---|---|---|---|
| W Hills Br (Mission Dam) | 5,500 | 19,000 | 38,000 | 50,000 | 112,000 |

| | | | | | |
|---|---|---|---|---|---|
| 0.7 Mi Downstream of Sycamore Creek | 5,000 | 17,000 | 37,000 | 49,000 | 112,000 |
| Forester Creek Confluence | 4,500 | 16,000 | 36,000 | 48,000 | 112,000 |

*Floodplain Analysis for Fanita Lake*, prepared by Rick Engineering Company, and dated May 25, 2007 included the Sycamore Creek Drainage Basin. The report used the 2003 San Diego County Hydrology Manual to calculate a peak 100-year flowrate of 13,407 cfs for the approximately 17 square mile of the drainage basin tributary to Sycamore Creek. This peak flow was used in Sycamore Creek hydraulic analysis for the existing and proposed conditions.

## 2.4 HYDRAULIC ANALYSIS

Hydraulics analysis performed for San Diego River (Upper) to compare existing and post project (proposed) conditions, and effective (corrected effective) and proposed conditions.

FEMA effective model was used for tie in locations and FEMA Effective floodplain/floodway limits. The **tie in locations** were selected at the cross sections where the changes to WSEL are within 0.5 feet and meets FEMA requirements. Effective known water surface elevation at section 220 was used for downstream **boundary conditions** for corrected effective model, existing conditions model, and proposed conditions models.
**A floodway analysis** run was included in the hydraulic analysis using Method 1. The proposed floodway will convey the base flood flow rate (no split flow) without an increase in water surface elevation compared to the existing condition and with no more than one foot of surcharge.

The original flood modeling for San Diego River (Upper) was prepared in 1982 using the HEC-2 computer program (1976 version) and was used to prepare the initial FIRM Panel. HEC-2 software (4.6.2 from 1991) was used to prepare the duplicate effective model. HEC-2 model was converted to HEC-RAS version 5.07 program and considered as a Corrected Effective model. HEC-RAS version 5.0.7 still used the same methodology for One Dimensional models used by HEC-2 program, but HEC-RAS is based on more current hydraulic modeling algorithm, which provides equivalent but not identical results. In addition, HEC-2 bridge methodology has been refined in HEC-RAS software from the older HEC-2 versions but requires modification. The current methodology for bridge modeling at West Hills Parkway Bridge (Normal bridge routine) was reflected in the Corrected Effective model. The descriptions in Chapter 3-Hydraulic Model go into further detail regarding the hydraulic models analysis.

A separate hydraulic analysis was prepared for Sycamore Creek with known water surface elevation for downstream boundary condition. The known WSE was obtained from San Diego River model (BSI flow) at the confluence location with San Diego River.

## 3.0 HYDRAULIC MODELS

The project must comply with local and federal regulatory standards in order to ensure that any structures which are permitted in the floodway or floodplain will be designed in manner that will avoid onsite hazards, minimize risk levels, and protect public safety.

This project is subject to three separate sets of regulatory standards, FEMA, Local (City of Santee), and Local (City of San Diego for the southwest corner of the Resort Area PA-3, and the golf course). The different standards require multiple flow models of the river to be constructed and analyzed to ensure that two primary objectives are met: 1) that all proposed structures are appropriately elevated above the 100-year flood water surface elevation and; 2) that the project does not create an increase in the upstream and downstream water surface elevations. The federal and local sets of standards are similar; however, the City of Santee requires a more conservative approach than FEMA and City of San Diego by increasing the amount of flow in the San Diego River for the 100-year flood models. This increase in flow results in an approximate 2-foot increase in the water surface elevation, as compared to the FEMA models. The City of San Diego defers to the FEMA modeling protocols, with elevating the lowest floor of the proposed structure, including basement, to be 2 feet above FEMA base flood elevation. Even though there are no structures within the portion of the Resort Area (PA-3) located within the City of San Diego, the entire PA-3 pad will still be elevated 2 feet above the base flood elevation.

The flood models for each agency [same models were used with two different flow rates: FEMA rates (profile1 and 2), and BSI flow rate (profile 3)] utilize the Army Corps of Engineers HEC-RAS software to simulate the flow of the river at various storm events.The software includes variables such as the capacity of the river, flow restrictions such as bridges, and friction within the river such as trees and other obstructions. There is an existing berm along the south edge of the golf course generally located outside the project boundary which was installed by others to deter flooding. The project does not require or propose any modifications to the existing berm. The drainage flow from the project will not impact the berm. For more information regarding drainage analysis, please refer to the Drainage Report for Carlton Oaks Country Club and Resort, prepared by Hunsaker and Associates and dated May 2025. The berm is not considered to be an engineered levy and was placed with loose material. The 100-year flood models have assumed no berm conditions, as the berm is relatively small (compared to the overall river width), comprised of loosely placed sandy materials, and water surface elevation is higher than the berm in most sections.

The Manning's Roughness Coefficients (Manning’s "n") were incorporated in line with the Corrected Effective Model. For the newly added cross section (XS# 315), Manning’s n values from the adjacent downstream and upstream sections were utilized. In the proposed condition model, Manning values for the channel bottom and slopes within the regraded golf course area vary between 0.035 (upstream of cross section #300, consistent with the effective model) and 0.06. This range accounts for differences in channel roughness and vegetation. For overland flow areas, including Residential West (PA-1), Residential North (PA-2), and the Resort Area (PA-3), Manning’s "n" values were averaged at 0.15. This reflects the mixed presence of multi-family residential

properties and a resort area, characterized by typical landscaping, parking, fencing, and hardscape features. Each cross section includes a description detailing where Manning values differ from those in the effective model.

## 3.1 EFFECTIVE MODEL

The record flood modeling for the San Diego River was requested from FEMA (May 8, 2017) and made available by FTP download on May 31, 2017. The original flood modeling for the San Diego River (Upper) was prepared in 1982 using the HEC-2 computer program (1976 version) and was used to prepare the initial FIRM Panel. The cross sections were digitized in 1982, which would be based upon the 1929 datum. The limits of the original study model are from the Mission Trails Dam to just below the Riverford Road Bridge.

The provided FEMA HEC-2 (dated 20-OCT-1982) results (after applying the NGVD29 to NAVD88 conversion of 2.1 feet per FIS Table 12) match the Floodway Data Table in the FIS, and thus this model appears to be the appropriate model to be considered the **Effective Model** for preparing the CLOMR. A copy of the HEC-2 model provided by FEMA are provided in Exhibit "B".

## 3.2 DUPLICATE EFFECTIVE MODEL

Producing the duplicate effective model is required to ensure the effective model's input data have been transferred correctly to the equipment, and to ensure the revised data will be integrated into the effective data to provide a continuous FIS model, upstream and downstream of the revised reach. However, the HEC-2 program is not supported by the current Windows environment, and the program is no longer available from the US Army Corps of Engineers. A newer legacy version of the HEC-2 software (4.6.2 from 1991) was located and installed on a computer capable of emulating a DOS environment. The effective model provided from FEMA was reproduced using HEC-2 software 4.6.2 from 1991 version to produce the **duplicate effective model**. The official copy available from DHS-FEMA was a poor quality, semi-complete, scanned copy in pdf format. Missing or illegible ground data points were supplemented using a more current version of the file provided by the City of Santee (San Diego River-City of Santee model, 06-24-1992), which is provided in Exhibit "I".
The Duplicate Effective Model is included in Exhibit "C".

## 3.3 CORRECTED EFFECTIVE MODEL

To create the corrected effective model, HEC-2 duplicate effective file (USDRFWY.DAT) was imported into HEC-RAS program. HEC-RAS uses the same methodology for One Dimensional models used by HEC-2 program, but HEC-RAS is based on more current hydraulic modeling algorithm, which improve the hydraulic computations. Therefore, when importing a HEC-2 file into the HEC-RAS program, it is important to ensure that any errors are identified and corrected. In this case, an error was detected and a corrective action was taken to adjust the effective model

accordingly. Specifically, at West Hills Parkway Bridge river station number 243, the corrected effective model was modified to include a positive distance between the upstream cross section (#244) and the face of the bridge/culvert, as well as to accurately reflect the actual width of the bridge.

Furthermore, during the evaluation of the West Hills Parkway Bridge at river station number 243 in the duplicate effective model (HEC-2), it was discovered that the piers information for the bridge had been included as part of the bridge deck. To rectify this, the corrected effective model (HEC-RAS) was adjusted to reflect the current methodology for bridge modeling (normal bridge software routine X2, BT). This adjustment required removing the piers information from the bridge deck and subsequently adding it back in using the Pier editor.

To ensure precise prediction of energy losses in the contraction reach upstream of the West Hills Parkway Bridge and the expansion reach downstream of the bridge, ineffective flow areas were added in the corrected effective model. These ineffective flow areas were added downstream of the bridge, in cross sections number 242, 239, 230, and 220 utilizing a 2:1 expansion ratio; and upstream of the bridge in cross section 244, and 245 with a 1:1 contraction ratio. The contraction and expansion ratios for the ineffective flow areas were determined in accordance with guidance found in the HEC-RAS Hydraulic Reference Manual, dated February 2016, published by USACOE (Tables B-3 and B-1, respectively). By incorporating these additional flow areas into the model, a more accurate estimation of energy losses can be obtained, which is crucial for achieving reliable results in hydraulic modeling.

In Addition, the cross sections in the HEC-2 duplicate effective model were arranged to read from right to left looking downstream. To correct this, the cross sections were reversed in the corrected effective model, so that they now read from left to right looking downstream. This includes reverse encroachments and infective area stations. The corrected effective model was truncated at section 220 downstream, and water surface elevation from the effective model was used as known water surface elevation in the downstream boundary conditions. The water surface elevations from the corrected effective model are consistent with the results from the effective model (typically< 0.2’, except for the cross section upstream of the bridge, where ineffective areas were incorporated).
The Corrected Effective Model is included in Exhibit "D".

## 3.4 EXISTING CONDITIONS MODEL

The project topographic mapping shows that the ground surface used in the original modeling has changed since 1982. Notable modifications include fill placement for SR-52 freeway, related Mission Gorge Road improvements, and ongoing modification of the golf course and water features. An Existing Conditions HEC-RAS model was prepared using the updated project topographic mapping for the cross sections within the project area (from cross section 350 upstream to 244 downstream). Cross sections outside the project area were obtained from the corrected effective model. The Existing Condition Models utilized three profiles, 100-year peak flow rates from FEMA was used for Profile

1(FEMA Floodplain), and Profile 2 (FEMA floodway), while BSI/City of Santee peak flow was used for Profile 3. Floodway encroachment for profile 2 were obtained from FEMA effective model floodway limits. Cross section 220 water surface elevation from the effective model was used as known water surface elevation in the downstream boundary conditions. A review of the results indicates that the Existing Conditions water surface elevations are higher than the Corrected Effective model output (less than 0.5' for most of cross sections and up to 0.9' for cross section 330).
The Existing Model is included in Exhibit "E".

## 3.5 POST PROJECT (PROPOSED) CONDITIONS MODEL

A post project model was prepared to modify the baseline flood modeling to show the proposed grading of the Resort and Residential Areas, golf course modifications, and the addition of a four barrels RCP box culvert crossing under the Resort Area (PA-3) entry road. Due to the location, orientation, flow line elevation, and capacity at the outlet, the proposed box culvert (four 12' wide x 8' high) was modeled as a "Lateral Structure" instead of an Inline Structure, Bridge or Split Flow option, Flows through the box culvert are removed just upstream of cross-sections XSEC 320 and returned between cross-sections XSEC 300 and 290, just downstream of the proposed bridge crossing from PA-2 to the Resort. To accommodate potential debris accumulations, a reduction in the culvert's hydraulic capacity was considered. This was achieved by reducing the culvert's width by 2 feet on each side of the vertical piers. With the culvert hydraulics modeled as inlet control, the calculated split flow ranges from 1,640.76 cubic feet per second (CFS) for the FEMA 100-year event (Profile 1) to 2,147.86 CFS for the BSI/Santee 100-year event (Profile 3).

The grading of the Resort Area (PA-3) is within the existing floodway north of the project. As such, the area north of the project for Cross Sections 320 and 310 were considered as ineffective flow areas (contraction ratios 1:1). Additionally, the downstream ineffective flow areas resulting from the Resort Area (PA-3) grading were extended through Cross Sections 300 and 290 (contraction ratios 2:1). Contraction ratios and expansion ratios for the ineffective flow areas were determined in accordance with guidance found in the HEC-RAS Hydraulic Reference Manual, dated February 2016, published by USACOE (Tables B-3 and B-1, respectively). The workmap clearly shows the ineffective flow areas. Floodway encroachments have been revised so that the proposed floodway limits are at, or inside (i.e., towards the channel centerline), the ineffective flow areas. These revised limits represent the boundaries of the river that will convey the base flood flow rate (without split flows) while ensuring no more than one foot of surcharge, and no increase in water surface elevation compared to existing conditions.

The flow profiles encompass the 100-year peak flow rates as defined by FEMA for delineating the 100-year FEMA Floodplain (Profile 1), the FEMA Floodway including the proposed encroachment (Profile 2), and the BSI/City of Santee flow data (Profile 3). Additionally, the BSI 50-year flow rate, estimated via a proportional scaling method based on Q100 BSI and FEMA data patterns, is incorporated as Profile 06 (PF06). This profile

(PF06) is utilized to calculate the split BSI 50-year peak flow from the project's proposed four-barrel reinforced concrete box (4x RCB) culvert, and to integrate it into the Sycamore Creek 100-year peak flow at Cross Section #100 in the proposed Sycamore Creek model.

The analysis of the San Diego River proposed model is organized into two distinct plans: Plan P01 addresses the 100-Year flood plain, incorporating both FEMA and BSI flow rates. Plan P04 is specifically for floodway analysis, designed without split flows.

The Post-Project Model is included in Exhibit "F".

## 3.6 SYCAMORE CREEK MODEL

The intent of Sycamore Creek modeling is to demonstrate that the project will not adversely impact the hydraulic conveyance of Sycamore Creek. As such, existing and proposed condition modeling was performed for the creek and presented in the report.

The existing condition model for Sycamore Creek uses a peak flow of 13,407 CFS, entering at the Carlton Oaks Bridge and terminating at Cross Section 300, where it merges with the San Diego River. In contrast, the proposed condition model accounts for increased flow resulting from the project's proposed four-barrel reinforced concrete box (4x RCB) culvert, introduced at Cross Section #100 and ending at Cross Section 290, also merging with the San Diego River. Additionally, the proposed model includes the one-span, skew bridge connecting PA-2 and PA-3, located between Cross Sections 64 and 69. The proposed three-barrel pipe culvert is modeled as a lateral structure, considering its location, orientation, flow line elevation, and outlet capacity. Both the existing and proposed models extend upstream of the Carlton Oaks Bridge, demonstrating that the project will not elevate water surface levels or increase flooding risks to upstream properties or infrastructure.

To maintain proper downstream control, water surface elevation data was obtained from both San Diego River post-project and existing models, specifically the BSI 100-year peak flow. This data was then implemented as a known water surface elevation for the reach downstream boundary conditions at cross section number 290 for the proposed model and number 300 for the existing model.

he Sycamore Creek model analysis is structured into three specific plans:

P08 - Existing Condition Model with Carlton Oaks Bridge: In this plan, of the total 13,407 cfs flow, 616.74 cfs enters through the upstream bridge opening, while the rest flows over the bridge. This model reveals significant flow overtopping the bridge. For the purpose of our project analysis, the flow rate estimated by this existing condition bridge model (Plan 08) is utilized for both the existing and proposed modeling scenarios (Plans 05 and 07).

P05 - Existing Condition Model with Carlton Oaks Bridge Modeled as a Weir: This model treats the bridge overtopping as a weir, accounting for the overtopping flow

(12,790.26 cfs) at both the upstream and downstream faces of the bridge. The total flow of 13,407 cfs is then continued past the bridge at Cross Section #100.

P07 - Proposed Condition Model with Carlton Oaks Bridge Modeled as a Weir: This model treats the bridge overtopping as a weir, accounting for the overtopping flow (12,790.26 cfs) at both the upstream and downstream faces of the bridge. The total flow of 13,407 cfs, along with an additional 966 cfs from the 4x RCP box culverts, is resumed at Cross Section #100.

The results indicate that in the proposed conditions for Sycamore Creek, water surface elevations will be reduced by 1.96 feet compared to the existing condition model at the downstream face of the Carlton Oaks Bridge. Importantly, there will be no increase in flood elevation upstream of this bridge. Furthermore, in the proposed conditions model for Sycamore Creek, water surface elevations remain below the proposed pad elevations. Therefore, the buildings in PA-2 and the Resort project will not be impacted.

The table below demonstrates that in the proposed conditions, the elevations upstream and at the downstream face of Carlton Oaks Bridge are either consistent with or lower than those in the existing condition model. This comparison is also valid when related to the elevations calculated in the Sycamore/Fanita Lake modeling prepared by Rick Engineering. The only exception is a minor increase (0.07 and 0.1 ft) at cross sections 450 and 500, attributable to the use of lower Manning values at these cross sections in the Sycamore Creek model prepared by Rick Engineering.

**Table 2 – Sycamore Creek Flows; Comparison of Flood Elevations**

| Cross Section | Location | WSEL (Sycamore) Existing Conditions (HA Study) * | WSEL (Sycamore) Proposed Conditions (HA Study) * | Difference (Post Project -Existing) WSEL (ft) | WSEL (REC) *** | Comment |
|---|---|---|---|---|---|---|
| 50 (290 San Diego River) | PA-2 North-Merging with San Diego River in Proposed condition | 318.12** | 317.23** | -0.89 | | |
| 64 | Proposed bridge | NA | 316.58 | NA | | Downstream Face |
| 69 | Proposed bridge | NA | 319.16 | NA | | Upstream Face |
| 80 | Sycamore Section | NA | 320.84 | NA | | |
| 70 (300 San Diego River) | Merging with San Diego River in Existing condition | 319.30** | NA | NA | | |
| 90 | Sycamore Section | NA | 321.20 | NA | | |
| 100 | Sycamore Section (Merging with flows from | 319.44 | 321.37 | 1.93 | 318.00 | REC XSEC 100 (Please note that REC model was terminated |

| | | | | | | |
|---|---|---|---|---|---|---|
| | 4XRCP culvert in proposed Conditions) | | | | | at this cross section and REC used 318 as a known WSE obtained from San Diego River FEMA Flood plain effective model-cross section 310) |
| 200 | downstream of Carlton Oaks Bridge | 322.49 | 320.53 | -1.96 | 322.30 | Carlton Oaks Bridge-downstream Face. |
| 300 | upstream of Carlton Oaks Bridge | 324.62 | 324.62 | 0 | 325.06 | Carlton Oaks Bridge-upstream Face. |
| 400 | Sycamore Section upstream of Carlton Oaks Bridge | 325.28 | 325.28 | 0 | 325.32 | REC XSEC 400 |
| 450 | Sycamore Section upstream of Carlton Oaks Bridge | 325.86 | 325.86 | 0 | 325.79 | REC XSEC 450 |
| 500 | Existing offsite upstream of Carlton Oaks Bridge | 326.24 | 326.24 | 0 | 326.14 | REC XSEC 500 |

* HA Study: Flood Study (CLOMR) for Carlton Oaks, Country Club and Resort prepared by Hunsaker and Associates; San Diego, Inc. and dated May 2025.
** Known water surface elevation obtained from Profile 3 (City of Santee BSI 100-year peak flow) in existing condition and proposed conditions. Please refer to table 5 of this report.
*** Floodplain Analysis for Fanita Lake Prepared by Rick Engineering and dated May 11, 2007.

Based upon the above comparison, the proposed project grading will not impact the Sycamore Creek flood levels upstream of the Carlton Oaks Bridge or adversely impact the hydraulic conveyance of Sycamore Creek.

The Sycamore Creek Models is included in Exhibit "G".

## 4.0 HYDRAULIC RESULTS

In order to fairly assess potential impacts, the Post-Project Model was compared to the Existing Conditions Model results. A comparison of the project models indicates that the proposed project grading will result in a decrease, no increase or a small increase of less than 0.5’ for all cross sections, except for XSEC#260 in which an increase of 0.61 ft was recorded. However, this increase has no negative impact on the proposed project or adjacent areas.

Please see Table 3 comparing Existing and Post Project water surface elevations (WSEL) for profile 1-FEMA floodplain.

Table 3: 100YR Storm Existing and Proposed WSEL Comparison (profile 1- FEMA Floodplain)

| River | Reach | River Station | Existing Condition WSEL (ft) | Post Project Condition WSEL (ft) | Difference (Post Project - Existing) WSEL (ft) |
|---|---|---|---|---|---|
| San Diego River Upper | Main | 220 | 300.76 | 300.76 | 0 |
| | | 230 | 301.76 | 301.76 | 0 |
| | | 239 | 303.29 | 303.29 | 0 |
| | | 242 | 304.29 | 304.29 | 0 |
| | | 243 | Bridge | | |
| | | 244 | 305.49 | 305.38 | -0.11 |
| | | 245 | 306.48 | 306.4 | -0.08 |
| | | 250 | 308.16 | 308.29 | 0.13 |
| | | 260 | 309.84 | 310.45 | 0.61 |
| | | 270 | 313.64 | 313.11 | -0.53 |
| | | 280 | 315.16 | 314.64 | -0.52 |
| | | 285 | 315.69 | 315.08 | -0.61 |
| | | 290 | 316.54 | 315.55 | -0.99 |
| | | 300 | 317.90 | 316.14 | -1.76 |
| | | 310 | 318.67 | 316.90 | -1.77 |
| | | 315 | 318.85 | 317.57 | -1.28 |
| | | 320 | 319.40 | 318.89 | -0.51 |
| | | 330 | 320.10 | 319.72 | -0.38 |
| | | 340 | 320.93 | 320.68 | -0.25 |
| | | 345 | 321.48 | 321.29 | -0.19 |
| | | 355 | 321.98 | 321.84 | -0.14 |

To ensure compliance with FEMA regulations and ordinance, and to select the tie in locations, the results from Post Project Model were compared to the results from the Corrected Effective Model. The comparison indicates that the proposed project grading will result in less than 1' increase in the water surface elevations for all cross sections, and 0.17' at the tie in location upstream. Table 4 show the results of comparing Corrected Effective Model with Post Project Model. The tie-in location downstream was selected at XSEC# 230 using the effective WSE from the FSI Study as a base for comparison instead of the Corrected Effective model.

Table 4: 100YR Storm Corrected Effective Model and Proposed WSEL Comparison (profile 1-FEMA Floodplain)

| River | Reach | River Station | Corrected Effective WSEL (ft) | Post Project Condition WSEL (ft) | Difference (Post Project - Existing) WSEL (ft) |
|---|---|---|---|---|---|
| San Diego River Upper | Main | 220 | 300.76 | 300.76 | 0 |
| | | 230 | 301.76 | 301.76 | 0 |
| | | 239 | 303.29 | 303.29 | 0 |
| | | 242 | 304.29 | 304.29 | 0 |
| | | 243 | Bridge | | |
| | | 244 | 305.49 | 305.38 | -0.11 |
| | | 245 | 306.46 | 306.4 | -0.06 |
| | | 250 | 307.89 | 308.29 | 0.4 |
| | | 260 | 309.82 | 310.45 | 0.63 |
| | | 270 | 313.28 | 313.11 | -0.17 |
| | | 280 | 314.77 | 314.64 | -0.13 |
| | | 285 | 315.22 | 315.08 | -0.14 |
| | | 290 | 316.07 | 315.55 | -0.52 |
| | | 300 | 317.38 | 316.14 | -1.24 |
| | | 310 | 318.07 | 316.90 | -1.17 |
| | | 315 | NA | 317.57 | - |
| | | 320 | 318.61 | 318.89 | 0.28 |
| | | 330 | 319.20 | 319.72 | 0.52 |

| | | | | | |
|---|---|---|---|---|---|
| | | 340 | 320.39 | 320.68 | 0.29 |
| | | 345 | 321.07 | 321.29 | 0.22 |
| | | 355 | 321.67 | 321.84 | 0.17 |

The City Flood Damage Prevention Ordinance (Santee Municipal Code l5.52) requires that for new construction, the lowest finished floor is elevated one foot above the base flood elevation provided in the San Diego River Flood Study. The proposed project has been designed so the lowest finished floor elevation is a minimum of 1' above the highest result between the City BSI Model, and Post Project with BSI/City of Santee flow (profile 3), and thus will meet this requirement in compliance with the City of Santee's ordinance. An expanded discussion of the City of Santee's Flood Damage Prevention Ordinance is provided in Section 5.2 below.

Table 5 show the results of comparing Post-Project Model with City of Santee BSI Study.

Table 5: 100YR Storm BSI Model and Proposed WSEL Comparison (profile 3- Floodplain with City of Santee BSI Flow Rates)

| River | Reach | River Station | BSI WSEL (ft) | Post Project Condition WSEL (ft) | Difference (Post Project - BSI Study) WSEL (ft) |
|---|---|---|---|---|---|
| San Diego River Upper | Main | 220 | 307.13 | 307.13 | 0 |
| | | 230 | 307.25 | 307.28 | 0.03 |
| | | 239 | 307.1 | 307.63 | 0.53 |
| | | 242 | 309.14 | 308.02 | -1.12 |
| | | 243 | Bridge | | |
| | | 244 | 309.91 | 308.81 | -1.1 |
| | | 245 | 309.96 | 309.63 | -0.33 |
| | | 250 | 310.93 | 311.00 | 0.07 |
| | | 260 | 312.56 | 312.61 | 0.05 |
| | | 270 | 314.82 | 314.99 | 0.17 |
| | | 280 | 316.53 | 316.44 | -0.09 |
| | | 285 | 317.04 | 316.83 | -0.21 |

| | | | | | |
|---|---|---|---|---|---|
| | | 290 | 317.51 | 317.23 | -0.28 |
| | | 300 | 318.24 | 317.73 | -0.51 |
| | | 310 | 319.19 | 318.37 | -0.82 |
| | | 315 | NA | 318.96 | - |
| | | 320 | 320.71 | 320.12 | -0.59 |
| | | 330 | 323.86 | 320.99 | -2.86 |
| | | 340 | 325.21 | 322.04 | -3.17 |
| | | 345 | 325.96 | 322.68 | -3.28 |
| | | 355 | 327.04 | 323.21 | -3.83 |

## 100-YEAR FLOODWAY ANALYSIS

The floodway was delineated in accordance with the National Flood Insurance Program (NFIP) Regulation 44 Code of Federal Regulations Ch.1, Section 65.7 (b). The floodway was analyzed using the full base flood flow rate, with no spill flows as outlined in Plan P04- profile PF2. Encroachments were adjusted to reflect the proposed conditions, ensuring that there is no increase in the proposed floodway water surface elevation compared to that of the existing condition, while also maintaining the surcharge below one foot.

All surcharges in water surface elevation are contained within the channel and remain below one foot. This ensures that there will be no potential negative impacts on adjacent structures within the project reach or those immediately upstream and downstream of the project.

The upstream and downstream limits for the study were selected based on the upstream and downstream extents of the project and the sections where there are minimal changes to the post project water surface elevations to allow tie-in with FEMA effective floodplain and floodway lines.

A summary of the post project floodway analysis and comparison to the FEMA flood plain Post Project model is located in Table 6.

Table 6: 100-Year Post Project Floodway WSEL and FEMA Floodplain Comparison

| River | Reach | River Station | Post Project Condition FWY WSEL (ft) | Post Project Floodplain WSEL (ft) | Surcharge (Floodway - Floodplain) WSEL (ft) |
|---|---|---|---|---|---|
| San Diego | Main | 220 | 301.66 | 300.76 | 0.9 |

| | | | | | |
|---|---|---|---|---|---|
| | | 230 | 302.44 | 301.76 | 0.68 |
| | | 239 | 303.79 | 303.29 | 0.5 |
| | | 242 | 304.62 | 304.29 | 0.33 |
| | | 243 | Bridge | | |
| | | 244 | 305.63 | 305.38 | 0.25 |
| | | 245 | 306.51 | 306.4 | 0.11 |
| | | 250 | 308.57 | 308.29 | 0.28 |
| | | 260 | 310.61 | 310.45 | 0.16 |
| | | 270 | 313.2 | 313.11 | 0.09 |
| | | 280 | 314.85 | 314.64 | 0.21 |
| | | 285 | 315.32 | 315.08 | 0.24 |
| | | 290 | 315.76 | 315.55 | 0.21 |
| | | 300 | 316.32 | 316.14 | 0.18 |
| | | 310 | 317.05 | 316.90 | 0.15 |
| | | 315 | 317.83 | 317.57 | 0.26 |
| | | 320 | 319.36 | 318.89 | 0.47 |
| | | 330 | 320.09 | 319.72 | 0.37 |
| | | 340 | 321.01 | 320.68 | 0.33 |
| | | 345 | 321.51 | 321.29 | 0.22 |
| | | 355 | 321.98 | 321.84 | 0.14 |

Table 7 provides a summary of the post-project floodway water surface elevation, as well as a comparison to the existing condition floodway water surface elevation, in order to confirm that the no-rise condition for the floodway has been met.

Table 7: 100YR Floodway Existing and Floodway Proposed WSEL Comparison (profile 2- FEMA Floodway)

| River | Reach | River Station | Existing Condition FWY WSEL (ft) | Post Project Condition FWY WSEL (ft) | FWY Increase (Post Project -Existing) FWY WSEL (ft) |
|---|---|---|---|---|---|

| | | | | | |
|---|---|---|---|---|---|
| San Diego River Upper | Main | 220 | 301.66 | 301.66 | 0 |
| | | 230 | 302.44 | 302.44 | 0 |
| | | 239 | 303.79 | 303.79 | 0 |
| | | 242 | 304.62 | 304.62 | 0 |
| | | 243 | Bridge | | |
| | | 244 | 305.72 | 305.63 | -0.09 |
| | | 245 | 306.58 | 306.51 | -0.07 |
| | | 250 | 308.99 | 308.57 | -0.42 |
| | | 260 | 311.35 | 310.61 | -0.74 |
| | | 270 | 314.09 | 313.2 | -0.89 |
| | | 280 | 315.60 | 314.85 | -0.75 |
| | | 285 | 316.11 | 315.32 | -0.79 |
| | | 290 | 316.86 | 315.76 | -1.10 |
| | | 300 | 318.09 | 316.32 | -1.77 |
| | | 310 | 318.86 | 317.05 | -1.81 |
| | | 315 | 319.03 | 317.83 | -1.20 |
| | | 320 | 319.63 | 319.36 | -0.27 |
| | | 330 | 320.30 | 320.09 | -0.21 |
| | | 340 | 321.15 | 321.01 | -0.14 |
| | | 345 | 321.63 | 321.51 | -0.12 |
| | | 355 | 322.08 | 321.98 | -0.10 |

## Summary of Overall Results

The results of both the FEMA and the City of Santee analyses conclude that the project will have no significant or negative impacts on the upstream and downstream water surface elevations, as compared to the existing condition model. The results align with the requirements of both the City and FEMA, ensuring the avoidance of onsite hazards, minimization of risk levels, protection of public safety, and the prevention of negative flooding impacts on adjacent, upstream, and downstream properties and infrastructures. City of Santee's stricter requirements will assure the protection of public safety by requiring a higher building pad than FEMA. City of San Diego defers to the FEMA modeling protocols, and requires elevating the lowest floor elevation for all the proposed

structures within the City of San Diego 2 feet above FEMA base flood elevations. Even though no structures are proposed within the City of San Diego, all the proposed structures are actually designed to be elevated 2 feet above FEMA base flood elevation in order to meet City of Santee requirements.

# 5.0 Compliance Measures

## 5.1 FEMA

FEMA will require a CLOMR to be submitted with relevant mapping, calculations, forms and models. To ensure that the proposed project meets all of the design criteria for FEMA and City, the applicant must submit all reports and plans to all agencies for review. The City reviews all of the reports in-house and through independent consultants, and sign the MT-2 forms. Upon approval by all agencies, FEMA will issue a CLOMR, which allows the City to issue the grading permit so the project can proceed as shown on the preliminary drawings and models.

Upon completion of the project grading, FEMA requires that a certified survey be performed to verify that the limits and elevation of the grading are in conformance with the approved CLOMR. Upon certification of the grading, the last step is to submit a LOMR (Letter of Map Revision) to FEMA. The LOMR will officially revise the current NFIP map to show changes to the floodplain, floodway, and flood elevations. The revised maps and river modeling will be held at FEMA and at the City as an official record

## 5.2 CITY OF SANTEE FLOOD DAMAGE PROTECTION ORDINANCE

The following sections below reflect the applicable regulations within the City of Santee. A discussion of how the project complies with each section is provided after each applicable regulation.

**All development will be consistent with the City's Flood Damage Prevention Ordinance. Municipal Code 11.36.200A, prohibits encroachment, fill, construction, etc. unless a registered professional engineer demonstrates that these improvements do not increase the flood elevation.**

This report proposes revisions to FEMA floodplain, a portion of the floodway delineation, and base flood elevations. Changes and revisions comply with FEMA regulations and ordinances. The CLOMR must be approved by FEMA, City of Santee and City of San Diego (ie. Prepared, Reviewed and approved by registered Civil Engineers) prior to the issuance of a grading permit for the project. The flood map revision removes the proposed structures from the flood plain and flood way. However, the project proposes slopes adjacent to the revised floodway and flood plain. In compliance with the City's Flood Damage Protection Ordinance, the project will implement measures to eliminate potential scour and erosion to the proposed slopes adjacent to the floodway and the

floodplain by utilizing the latest proprietary technology in slope surface stabilization and slope reinforcement (such as a geotextile turf reinforcement mat that binds to the soil). Additionally, the project evaluates velocities of run-off from both proposed and extensions of existing outfalls and will eliminate the potential for scour and erosion by placing riprap at all storm drain outfalls. All ripraps have been sized and shown and on the Tentative Map and while most locations do not have an impact on environmental areas, any impacts to vegetation have been included within the environmental reports. These slope and erosion protection measures will not have any effect on the flood models or water surface elevations.

**Section 11.36.150 of the City's Flood Damage Prevention Ordinance sets standards for construction within the floodplain and floodways.**

This section of the code dictates that new construction shall be elevated out of the base flood elevations, which this project complies with by removing the Resort Area out of the floodway and the Residential Areas out of the floodplain. This has been achieved by creating a design that allows the river to naturally flow around them. Furthermore, this section requires flood proofing for all improvements within the floodplain and floodway. The proposed improvements include slopes adjacent to the floodway, utilities and a portion of the access road within the floodplain. ). The project will implement measures to eliminate scour and erosion to the slopes adjacent to the floodways by placing riprap and utilizing the latest proprietary technology in slope surface stabilization and slope reinforcement. All service facilities (e.g. electrical, heating, ventilation, plumbing and air conditioning equipment .etc.) are designed and located to prevent water from entering or accumulating within the components during conditions of flooding. All elements that function as a part of the structures, such as furnace, hot water heater, air conditioner, etc., are elevated to or above the base flood elevation.

**Table 11.36.070 of the Santee's Flood Damage Prevention Ordinance provides the required flow rates for the river that must be used in any flood analysis within the City of Santee.**

City of Santee flow rates were combined with the proposed conditions model in this report to determine the project base flood elevations, which the proposed buildings are elevated 1 foot minimum above it. These flow rates are much higher than the required FEMA rates (by a factor of 30 percent), therefore adding additional safety protections for development within the City of Santee.

**Section 11.36.200 outlines development standards within the Floodway. As stated in Section 11.36.200, all development within the floodway must be reviewed and certified by a registered civil engineer.**

The project will be certified by a licensed and experienced professional engineer. Furthermore, several other registered civil engineers will be required to review the project specifically in regard to the flood calculations.

During the project reviewing process by City of Santee and City of San Diego, and before

signing the MT-2 form; a registered civil engineer will review and approve the project. FEMA's registered civil engineer will review and approve the CLOMR (including the proposed grading and improvement plans),prior CLOMR Letter issuance.

**Section 11.36.170 requires that all utilities be designed to prohibit infiltration into or from potential flood waters.**

In compliance with this section of the code, the project will be required to utilize water-tight pressure rated sewer pipe to avoid all infiltration associated with floods or groundwater.

**Sections 11.38.180 outlines standards for subdivisions as it relates to flood hazards. The project reports and Tentative Map have demonstrated compliance with this section of the ordinance.**

Per requirement, the flood hazard areas and elevations of the base flood models have been identified. The elevations of all proposed pads/structures have been provided and will be certified by a registered civil engineer during final engineering. As described above, the project will implement measures to minimize flood damage, will design utilities to minimize any potential impacts from flood damage, and will provide a certification of compliance illustrating how the designed drainage reduces exposure to flood damage.

## 5.3 CITY OF SAN DIEGO SUPPLEMENTAL REGULATIONS FOR SPECIAL FLOOD HAZARD AREAS

The following sections below reflect the applicable regulations for special flood hazard areas in the City of San Diego. A discussion of how the project complies with each section is provided after each applicable regulation.

All proposed development in a Special Flood Hazard Area, including substantial improvements, is subject to the following requirements and all other applicable requirements and regulations of FEMA. The applicant for each development project, including applicants for substantial improvement projects, shall obtain the federal and state permits required by 44 C. F. R. § 60.3(a)(l), as may be amended.

**(a) Development and Permit Review**

**(3) In all cases where a watercourse is to be altered the City Engineer shall do the following:**

(A) **Notify affected, adjacent communities and the California Department of Water Resources of any proposed alteration or relocation of a watercourse and submit evidence of the notice to the Federal Insurance Administration**. During CLOMR process, a public notice with a list of the impacted adjacent properties will be prepared and sent to the City to review and mail it to the property owners impacted by increased flood hazards (SFHA, BFE, and floodway). The City

will send the public notice prior to LOMR Approval.

(B) **Require that the flood carrying capacity of the altered or relocated portion of the watercourse is maintained**. This study provides all required calculations to confirm that the flood carrying of San Diego River will not be impacted by the project (ie. Carry the water of the base flood without increasing the water surface elevation of that flood more than one foot at any point)

(C) **Secure and maintain for public inspection and availability the certifications, appeals, and variances required by these regulations.**
This is not applicable as no structures are proposed within the City of San Diego boundary. Therefore, no low floor certification is required to be maintained for public inspection.

**(4) The applicant shall grant a flowage easement to the City for that portion of the property within a floodway**. The majority of the golf course is within the City of San Diego boundary. The applicant will grant a flowage easement to the City for that portion of the property (i.e. golf course) within the floodway.

**(5) Appropriate agreements shall be secured between the applicant and the City to assure participation by the applicant or any successor in interest in financing of future flood control works.**
This section of the Ordinance is not applicable because no future flood control works are required

**(6) Development in a Special Flood Hazard Area shall not increase or expand a FIRM Zone A.**
Not applicable, as the project is in AE zone.

**(7) In all floodways, any encroachment, including fill, new construction, significant modifications, and other development is prohibited unless certification by a registered professional engineer is provided demonstrating that encroachments will not result in any increase in flood levels during the occurrence of the base flood discharge except as allowed under Code of Federal Regulations Title 44, Chapter 1, Part 60.3(c)(13).**
This report proposes revisions to FEMA floodplain, a portion of the floodway delineation, and base flood elevations. Changes and revisions comply with FEMA regulations and ordinances. The CLOMR will be approved by FEMA, City of Santee and City of San Diego (ie. Prepared, Reviewed and approved by registered Civil Engineers) prior to the grading permit being issued for the project. No structures are proposed within the City of San Diego boundary. However, the project proposes slopes adjacent to the revised floodway and flood plain. In compliance with the City's Flood Damage Protection Ordinance, the project will implement measures to eliminate potential scour and erosion to the proposed

slopes adjacent to the floodway and the floodplain by utilizing the latest proprietary technology in slope surface stabilization and slope reinforcement (such as a geotextile turf reinforcement mat that binds to the soil). Additionally, the project evaluates velocities of run-off from both proposed and extensions of existing outfalls and eliminates the potential for scour and erosion by placing riprap at all storm drain outfalls. All ripraps have been sized and shown on the Tentative Map and while most locations do not have an impact on environmental areas, any impacts to vegetation have been included within the environmental reports. These slope and erosion protection measures will not have any effect on the flood models or water surface elevations.

**(8) The applicant shall obtain, keep, and make available for inspection by the City Engineer the following certifications**:

**(A) certification required for lowest floor elevations; and**

**(B) certification required for elevation or flood proofing of nonresidential structures.**

No structures are proposed within the City of San Diego Boundary.

**(b) Standards for Subdivisions**

**(1) All preliminary subdivision proposals shall identify the Special Flood Hazard Area and the elevation of the base flood**. All SPFHA and BFE were identified for this project

**(2) All final subdivision maps shall provide the elevation of proposed structures and pads. If the site is filled above the base flood elevation, the lowest floor, including basement shall be certified to be 2 feet above the base flood elevation by a registered professional engineer or surveyor, and the certification shall be provided to the City Engineer.** No structures are proposed in City of San Diego. However, all pad elevations were provided on the TM plans and they were elevated 2-ft above FEMA BFE.

**(3) All subdivisions shall be designed to minimize flood damage.**
The proposed project is designed in a manner to be consistent with City of Santee, City of San Diego, and FEMA requirements which will avoid onsite hazards, minimize risk levels, protect public safety, and have no negative flooding impacts on adjacent properties.

**(4) All subdivisions shall have public utilities and facilities such as sewer, gas, electrical, and water systems located and constructed to minimize flood damage.**
No public utilities or facilities are proposed in the floodway or flood plain within the City of San Diego boundary

**(5) All subdivisions shall provide adequate drainage to reduce exposure to flood hazards.**
The project provide adequate drainage to reduce exposure to flood hazards, by

following the City of Santee, City of San Diego, and The California Environmental Quality Act requirements for storm drain system design. Additionally, the Resort Area has been raised out of the floodway and the Residential Areas out of the floodplain by creating a design that allows the river to naturally flow around them.

**(6) The final map shall bear the notation "Subject to Inundation" for those portions of the property with a grade lower than 2 feet above the base flood elevation.**
The final map will provide the required notation where applicable. Please note that no proposed structures will be subject to inundation. However, portion of the property (i.e. The Golf Course) will be subject to inundation.

**(c) Standards of Construction In all Special Flood Hazard Areas**,

the following standards apply for all development.
**(1) All permitted, permanent structures and other significant improvements shall be anchored to prevent flotation, collapse,or lateral movement resulting from hydrodynamic and hydrostatic loads, including the effects of buoyancy.**
This requirement does not apply to the project. No structures or significant improvements are proposed within the City of San Diego

(2**) All permitted permanent structures and other significant improvements shall be constructed with materials and utility equipment resistant to flood damage.**
This requirement does not apply to the project. No structures or significant improvements are proposed within the City of San Diego

**(3) Construction methods and practices that minimize flood damage shall be used.**
The project will implement measures to eliminate scour and erosion to the slopes adjacent to the floodways by placing riprap and utilizing the latest proprietary technology in slope surface stabilization and slope reinforcement.

**(4) All electrical, heating, ventilation, plumbing, and air conditioning equipment and other service facilities shall be designed and located to prevent water from entering or accumulating within the equipment components during conditions of flooding.**
No service facilities are propose within the City of San Diego boundary. However, In compliance with the City of Santee's Flood Damage Protection Ordinance, all proposed service facilities will be designed to prevent water from entering or accumulating within the equipment components during conditions of flooding.

**(5) Breakaway walls shall be certified by a registered engineer or architect to meet all applicable FEMA requirements. The certification shall be provided to the City Engineer before final inspection approval.**
This is not applicable, no breakaway walls are proposed

(**6) New construction or substantial improvement of any structure shall have the**

**lowest floor, including basement, elevated at least 2 feet above the base flood elevation. Upon completion of the development, the elevation of the lowest floor, including basement, shall be certified by a registered professional engineer or surveyor to be properly elevated. The certification shall be provided to the City Engineer before final inspection approval. The City Engineer reserves the right to require a preliminary certification before foundation inspection approval.**
No structures or significant improvements are proposed within the City of San Diego

**(7) New construction or substantial improvement of any structure in FIRM Zone AH or AO shall have the lowest floor, including basement, elevated above the highest adjacent grade at least 2 feet higher than the depth number specified on the FIRM, or at least 4 feet if no depth number is specified. Upon the completion of the structure the elevation of the lowest floor, including basement, shall be certified by a registered professional engineer or surveyor, to be properly elevated. The certification shall be provided to the City Engineer before final inspection approval. The City Engineer may require a preliminary certification before foundation inspection approval.**
The project is in AE zone.

**(8) Permitted nonresidential construction shall either be elevated as required bySection 143.0146(c)(6) or (7) or, together with attendant utility and sanitary facilities, meet the flood proofing requirements of FEMA. Certification by a registered professional engineer or architect that such requirements are met shall be provided to the City Engineer before final inspection approval. The City Engineer may require a preliminary certification before foundation inspection approval.**

This requirement does not apply to the project. The project doesn't propose any structures within the City of San Diego boundary.

**(9) Fully enclosed areas below the lowest floor that are subject to flooding shall be certified by a registered professional engineer or architect that they comply with the flood proofing requirements of FEMA. The certification shall be provided to the City Engineer before final inspection approval**. This is not applicable for the proposed project.

**(10) Within FIRM Zones AH or AO, new construction and substantial improvements of any structure shall be constructed so that there are adequate drainage paths around structures on slopes to guide flood waters around and away from proposed structures.** This requirement does not apply to the project, because the project is located in AE zone.

(**11) All new construction and substantial improvements of structures with fully enclosed areas below the lowest floor, excluding basements, that are usable solely for parking of vehicles, building access, or storage, and which are subject to flooding, shall be designed to automatically equalize hydrostatic flood forces on exterior walls by allowing for the entry and exit of floodwater as required by 44 C. F. R. §60.3(c)(5), as may be amended. Designs for meeting this requirement**

**must be certified by a registered professional engineer or architect, or meet or exceed the minimum criteria in the San Diego municipal Code 143.0146.c.11 (i-iii).** This is not applicable for the proposed project, as no structures are proposed with fully enclosed areas below the lowest floor

## 5.4 Design Measures

In order to achieve compliance with both FEMA, City of San Diego Regulations and City of Santee's Flood Damage Prevention Ordinance, the project has incorporated a number of design features into the project that will encourage the protection of the proposed structures and the overall river corridor.

The layout of the Residential Areas, Resort Area and the configuration of the new golf course all take into consideration the natural resources that are located within and around the project. The proposed development areas are primarily located within the footprint of the existing hotel and golf course. The existing stream that runs through the golf course will maintain the existing flow capacities and natural resources.

The golf course will be redesigned to allow more flow to pass in flooding situations. The Southeast side of the golf course will be graded lower to provide more flood volume. Other sections of the course will be graded to remove existing hills and mounds that would otherwise be an impediment to flow. The overall contouring of the course will be graded with consideration of the San Diego River 100-year flows such that the project does not redirect flows or channelize the flows from the San Diego River.

The proposed shape and location of the hotel site is intentionally designed to avoid disruption to the flow of the San Diego River and to maintain the existing river flow capacity. The proposed Resort Area is located just upstream of where Forester Creek confluences with the San Diego River, therefore avoiding a section of the river that increases in flow volume. The hotel site is contoured to allow flows to pass freely to the south.

The city public storm drain system discharges into the golf course at several locations. The proposed project will improve these channels such that they will be discharged in a manner that will avoid erosion or standing water.

Slope surface stabilization and slope reinforcement will be implemented to ensure that the embankments around the development are engineered to be both aesthetic, stable, and resist erosion. Geotechnical soil reinforcement will be utilized to ensure that even high flow velocities will not erode or damage the proposed development embankments.

# 6. CONCLUSION

The analyses conducted for the proposed Carlton Oaks Country Club and Resort project conclude that the project will have no significant impact on the upstream or downstream water surface elevation, as compared to the effective base flood elevations (Effective

Model). When compared to the current existing conditions, the proposed fill placement and grading modifications to the golf course will result in less than 0.5’ increase to the current 100-year flood elevations (FEMA, FEMA Floodway, or City of Santee / BSI flow rates), except for XSEC#260 an increase of 0.61 ft was recorded. However, this increase has no negative impact on the proposed project or adjacent areas.

The project topographic mapping shows that the ground surfaces used in the original modeling have changed since 1982. Additional modifications include fill placement for SR-52 freeway, related Mission Gorge Road improvements, and modification of the golf course and water features. The modeling indicates that these changes have generally increased the flood elevations compared to the original flood mapping (FEMA 100-year). Similar, but variable differences, have occurred when compared to the City/BSI Study results.

The proposed project is subject to areas associated with flooding, and thus the proposed project pads would be elevated above flood levels (minimum of 1 foot above the BSI flood elevations) consistent with the requirements of the City of Santee Flood Damage Prevention Ordinance, City of San Diego and FEMA Regulations. No development on the project site would occur within the designated 100-year floodway in the post-project condition. A CLOMR will be completed that would demonstrate that if built as proposed, the project would meet minimum Federal Regulations. A LOMR will be completed upon completion of construction and upon FEMA's approval, the floodway will be re-mapped to exclude the proposed development site. The proposed development and grading will not alter the existing flood conditions upstream or downstream of the project and secondary emergency access roads will also be located out of the 100-year floodplain.

## Exhibit A

Aerial Site Photo

# Carlton Oaks Golf Course

Sycamore Creek

Carlton Oaks Bridge

San Diego River

Existing Hotel / Resort

West Hills Pkwy Bridge

North Channel

Forester Creek

Earth Berm

South Channel

Carlton Oaks Golf Course

Mast Blvd
Sycamore Landfill Rd
Kreiner Way
Amino Dr
Leticia Dr
Kaschube Way
Dempster Dr
Parul Ct
Nalin Ct
Allano Way
Lomker Way
Carlton Oaks Dr
Dunwoodie Rd
Inverness Rd
Oakbourne Rd
Medina Dr
St Andrews Dr
Siwanoy Ct
Knollwood Way
Calle Del Verde
Santee Recreational Lakes
Stoyer Dr
Dunbarton Rd
Ruffin Rd
Granda Dr
Woodruff Way
E Heaney
Carlton Hills Blvd
W Hills Pkwy
Via Montisi
Mission Gorge Rd
52
125
Willowgrove Ave
Gorge Ave
Glen Vista Way
Via De Victoria
Marroka Ln
Arly Ct
Stella Ct
Crossway Ct
Paseo Bello
Big Rock Rd
Carpine Dr
Rancho Fanita Dr

Google Earth
© 2020 Google
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2000 ft
N

EXHIBIT B
EFFECTIVE MODEL

Record HEC-2 Model (1982)

FEDERAL EMERGENCY MANAGEMENT AGENCY

# PAYMENT INFORMATION FORM

Community Name: Cities of San Diego and Santee, San Diego County, California

Project Identifier: San Diego River / Carlton Oaks Golf Course Project 73122

**THIS FORM MUST BE MAILED, ALONG WITH THE APPROPRIATE FEE, TO THE ADDRESS BELOW OR FAXED TO THE FAX NUMBER BELOW.**

**Please make check or money order payable to the National Flood Insurance Program.**

**Type of Request:**

☐ MT-1 application
☐ MT-2 application

**LOMC Clearinghouse**
3601 Eisenhower Ave. Suite 500
Alexandria, VA 22304-6426
Attn.: LOMC Manager

☒ EDR application

**FEMA Project Library**
3601 Eisenhower Ave. Suite 500
Alexandria, VA 22304-6426
FAX (703) 960-9125

**Request No. (if known):** _____ **Check No.:** _____ **Amount:** _____

☐ INITIAL FEE* ☐ FINAL FEE ☐ FEE BALANCE** ☐ MASTER CARD ☐ VISA ☐ CHECK ☐ MONEY ORDER

*Note: Check only for EDR and/or Alluvial Fan requests (as appropriate).

****Note: Check only if submitting a corrected fee for an ongoing request.**

**COMPLETE THIS SECTION *ONLY* IF PAYING BY CREDIT CARD**

**CARD NUMBER** EXP. DATE

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
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| 1 | 2 | 3 | 4 | | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | Month | | Year |

_____ _____

Date Signature

NAME *(AS IT APPEARS ON CARD)*: _____
(please print or type)

ADDRESS: 3990 Ruffin Road #120
*(for your credit card receipt-please print or type)* San Diego, CA 92123

DAYTIME PHONE: 858.560.1141

# Federal Emergency Management Agency

Washington, D.C. 20472

**Flood Insurance Study (FIS) Data Request**

Please provide the following information as applicable for the area where you require data:

- Complete community name (including county and state):

  Cities of San Diego & Santee, San Diego County, California

- Community identification number, if known:

  06073

- Name(s) of flooding source(s) and specific location(s) for which data are needed (Attach FIRM panel showing subject area if available):

  San Diego River & Confluence w/ Forrester Creek
  Panel 1634G and portions of 1651G & 1653G
  See Attached

- Specific data needed (see list of available categories on page 1):

  Current Effective Hydraulic Models HEC-2/HEC-RAS

- Effective date of FIRM for which data are requested (enclose an annotated copy of FIRM/FBFM, if available, identifying area of interest):

  May 16, 2012

- Contact person's name:
  Allen Butcher

- Firm Name:
  SB&O, Inc

- Email Address:
  abutcher@sboinc.com

- Daytime Phone/fax number

  Phone #: 858.560.1141 x102

  Fax #:

- Mailing Address:
  3990 Ruffin Road, Suite 120
  San Diego, CA 92123

- I am employed by (choose one):

■ Private Firm ☐ State Agency ☐ Federal Agency ☐ Local Gov't ☐ FEMA Study Contractor* ☐ Other
* Please provide contract number

## NOTES TO USERS

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The community map repository should be consulted for possible updated or additional flood hazard information.

To obtain more detailed information in areas where **Base Flood Elevations (BFEs)** and/or **floodways** have been determined, users are encouraged to consult the Flood Profiles and Floodway Data and/or Summary of Stillwater Elevations tables contained within the Flood Insurance Study (FIS) report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS report should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

**Coastal Base Flood Elevations (BFEs)** shown on this map apply only landward of 0.0' North American Vertical Datum of 1988 (NAVD 88). Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations table in the Flood Insurance Study report for this jurisdiction. Elevations shown in the Summary of Stillwater Elevations table should be used for construction and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

Boundaries of the **floodways** were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study report for this jurisdiction.

Certain areas not in Special Flood Hazard Areas may be protected by **flood control structures**. Refer to Section 2.4 "Flood Protection Measures" of the Flood Insurance Study report for information on flood control structures for this jurisdiction.

The **projection** used in the preparation of this map was Universal Transverse Mercator (UTM) Zone 11. The **horizontal datum** was NAD83, GRS1980 spheroid. Differences in datum, spheroid, projection or UTM zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

Flood elevations on this map are referenced to the North American Vertical Datum of 1988. These flood elevations must be compared to structure and ground elevations referenced to the same **vertical datum**. For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at http://www.ngs.noaa.gov/ or contact the National Geodetic Survey at the following address:

NGS Information Services
NOAA, N/NGS12
National Geodetic Survey
SSMC-3, #9202
1315 East-West Highway
Silver Spring, Maryland 20910-3282
(301) 713-3242

To obtain current elevation, description, and/or location information for **bench marks** shown on this map, please contact the Information Services Branch of the National Geodetic Survey at (301) 713-3242 or visit its website at http://www.ngs.noaa.gov/.

**Base map** information shown on this FIRM was provided in digital format by the USDA National Agriculture Imagery Program (NAIP). This information was photogrammetrically compiled at a scale of 1:24,000 from **aerial photography** dated 2009.

This map reflects more detailed and up-to-date **stream channel configurations** than those shown on the previous FIRM for this jurisdiction. The floodplains and floodways that were transferred from the previous FIRM may have been adjusted to conform to these new stream channel configurations. As a result, the Flood Profiles and Floodway Data tables in the Flood Insurance Study report (which contains *authoritative hydraulic data*) may reflect stream channel distances that differ from what is shown on this map.

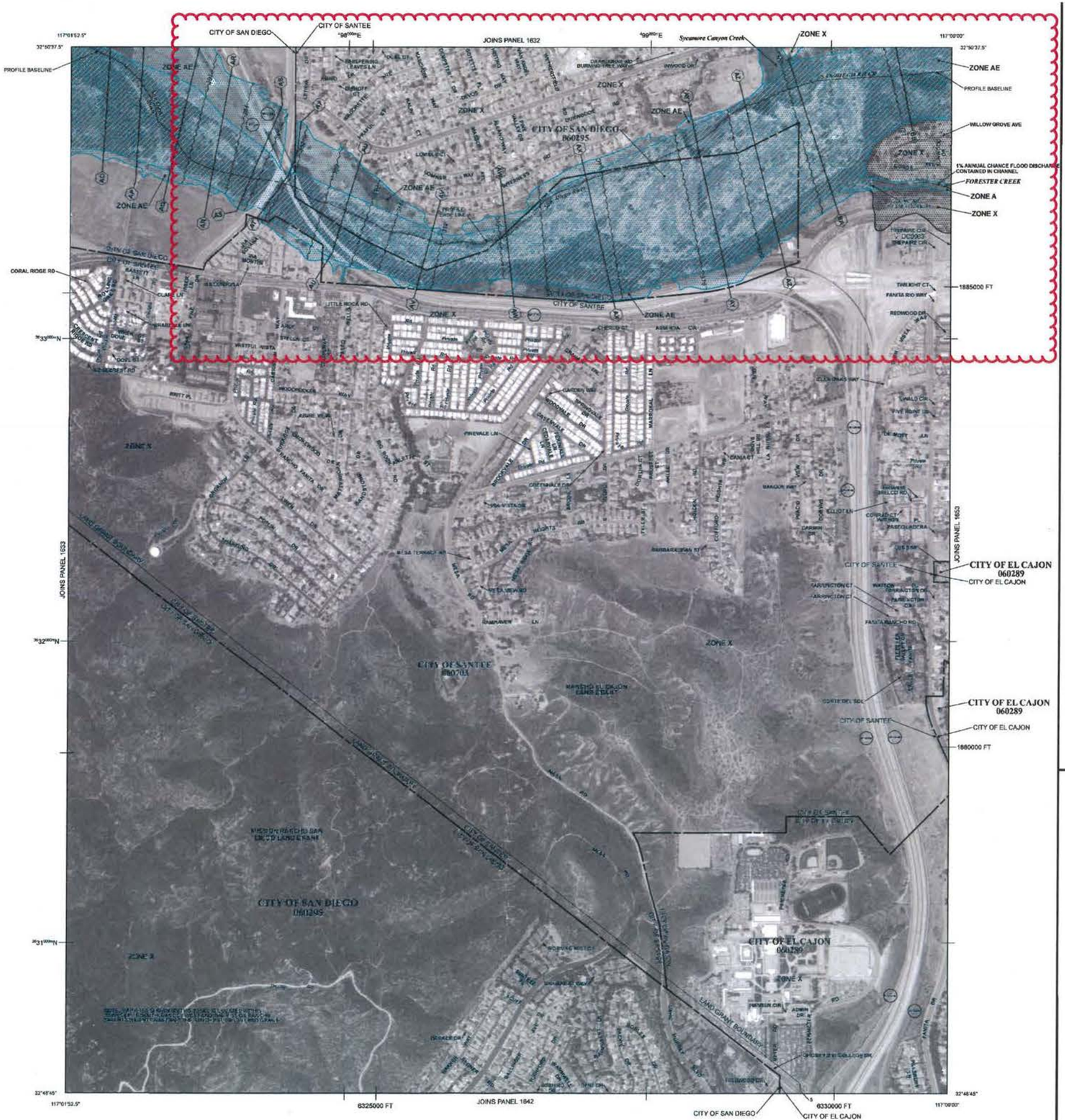
**Corporate limits** shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

Please refer to the separately printed **Map Index** for an overview map of the county showing the layout of map panels; community map repository addresses; and a Listing of Communities table containing National Flood Insurance Program dates for each community as well as a listing of the panels on which each community is located.

Contact the **FEMA Map Service Center** at 1-877-FEMA MAP (1-877-336-2627) for information on available products associated with this FIRM. Available products may include previously issued Letters of Map Change, a Flood Insurance Study report, and/or digital versions of this map. The FEMA Map Service Center may also be reached by Fax at 1-800-358-9620 and its website at http://msc.fema.gov/.

If you have questions about this map or questions concerning the National Flood Insurance Program in general, please call 1-877-FEMA MAP (1-877-336-2627) or visit the FEMA website at http://www.fema.gov/business/nfip/.

The **"profile base lines"** depicted on this map represent the hydraulic modeling baselines that match the flood profiles in the FIS report. As a result of improved topographic data, the "profile base line", in some cases, may deviate significantly from the channel centerline or appear outside the SFHA.




## LEGEND

SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V, and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

| | |
|---|---|
| ZONE A | No Base Flood Elevations determined. |
| ZONE AE | Base Flood Elevations determined. |
| ZONE AH | Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined. |
| ZONE AO | Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined. |
| ZONE AR | Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood. |
| ZONE A99 | Areas to be protected from 1% annual chance flood event by a Federal flood protection system under construction; no Base Flood Elevations determined. |
| ZONE V | Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined. |
| ZONE VE | Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined. |

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

| | |
|---|---|
| ZONE X | Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood. |

OTHER AREAS

| | |
|---|---|
| ZONE X | Areas determined to be outside the 0.2% annual chance floodplain. |
| ZONE D | Areas in which flood hazards are undetermined, but possible. |

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

- 1% annual chance floodplain boundary
- 0.2% annual chance floodplain boundary
- Floodway boundary
- Zone D boundary
- CBRS and OPA boundary
- Boundary dividing Special Flood Hazard Area Zones and boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths, or flood velocities
- 513 — Base Flood Elevation line and value; elevation in feet*
- (EL 987) — Base Flood Elevation value where uniform within zone; elevation in feet*
- * Referenced to the North American Vertical Datum of 1988
- A — A — Cross section line
- 23 — 23 — Transect line
- 97°07'30", 32°22'30" — Geographic coordinates referenced to the North American Datum of 1983 (NAD 83), Western Hemisphere
- 4275000mE — 1000-meter Universal Transverse Mercator grid ticks, zone 11
- 6000000 FT — 5000-foot grid values: California State Plane coordinate system, Zone VI (FIPSZONE = 406), Lambert projection
- DX5510 — Bench mark (see explanation in Notes to Users section of this FIRM panel)
- M1.5 — River Mile

MAP REPOSITORIES
Refer to Map Repositories list on Map Index

EFFECTIVE DATE OF COUNTYWIDE
FLOOD INSURANCE RATE MAP
June 19, 1997

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL
May 16, 2012 – to update corporate limits, to add roads and road names, to incorporate previously issued Letters of Map Revision, and to update map elevations to North American Vertical Datum of 1988.

For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

MAP SCALE 1" = 500'

250 0 250 500 750 1,000 FEET
125 0 125 250 METERS

PANEL 1634G

# FIRM

**FLOOD INSURANCE RATE MAP**

**SAN DIEGO COUNTY, CALIFORNIA AND INCORPORATED AREAS**

**PANEL 1634 OF 2375**

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

| COMMUNITY | NUMBER | PANEL | SUFFIX |
|---|---|---|---|
| EL CAJON, CITY OF | 060289 | 1634 | G |
| SAN DIEGO, CITY OF | 060295 | 1634 | G |
| SANTEE, CITY OF | 060703 | 1634 | G |

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

**MAP NUMBER**
**06073C1634G**

**MAP REVISED**
**MAY 16, 2012**

**Federal Emergency Management Agency**

NATIONAL FLOOD INSURANCE PROGRAM

## NOTES TO USERS

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The **community map repository** should be consulted for possible updated or additional flood hazard information.

To obtain more detailed information in areas where **Base Flood Elevations (BFEs)** and/or **floodways** have been determined, users are encouraged to consult the Flood Profiles and Floodway Data and/or Summary of Stillwater Elevations tables contained within the Flood Insurance Study (FIS) report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS report should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

**Coastal Base Flood Elevations (BFEs)** shown on this map apply only landward of 0.0' North American Vertical Datum of 1988 (NAVD 88). Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations table in the Flood Insurance Study report for this jurisdiction. Elevations shown in the Summary of Stillwater Elevations table should be used for construction and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

Boundaries of the **floodways** were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study report for this jurisdiction.

Certain areas not in Special Flood Hazard Areas may be protected by **flood control structures**. Refer to Section 2.4 "Flood Protection Measures" of the Flood Insurance Study report for information on flood control structures for this jurisdiction.

The **projection** used in the preparation of this map was Universal Transverse Mercator (UTM) Zone 11. The **horizontal datum** was NAD83, GRS1980 spheroid. Differences in datum, spheroid, projection or UTM zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

Flood elevations on this map are referenced to the North American Vertical Datum of 1988. These flood elevations must be compared to structure and ground elevations referenced to the same **vertical datum**. For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at http://www.ngs.noaa.gov/ or contact the National Geodetic Survey at the following address:

NGS Information Services
NOAA, N/NGS12
National Geodetic Survey
SSMC-3, #9202
1315 East-West Highway
Silver Spring, Maryland 20910-3282
(301) 713-3242

To obtain current elevation, description, and/or location information for **bench marks** shown on this map, please contact the Information Services Branch of the National Geodetic Survey at (301) 713-3242 or visit its website at http://www.ngs.noaa.gov/.

**Base map** information shown on this FIRM was provided in digital format by the USDA National Agriculture Imagery Program (NAIP). This information was photogrammetrically compiled at a scale of 1:24,000 from aerial photography dated 2009.

This map reflects more detailed and up-to-date **stream channel configurations** than those shown on the previous FIRM for this jurisdiction. The floodplains and floodways that were transferred from the previous FIRM may have been adjusted to conform to these new stream channel configurations. As a result, the Flood Profiles and Floodway Data tables *in the Flood Insurance Study report (which contains authoritative hydraulic data)* may reflect stream channel distances that differ from what is shown on this map.

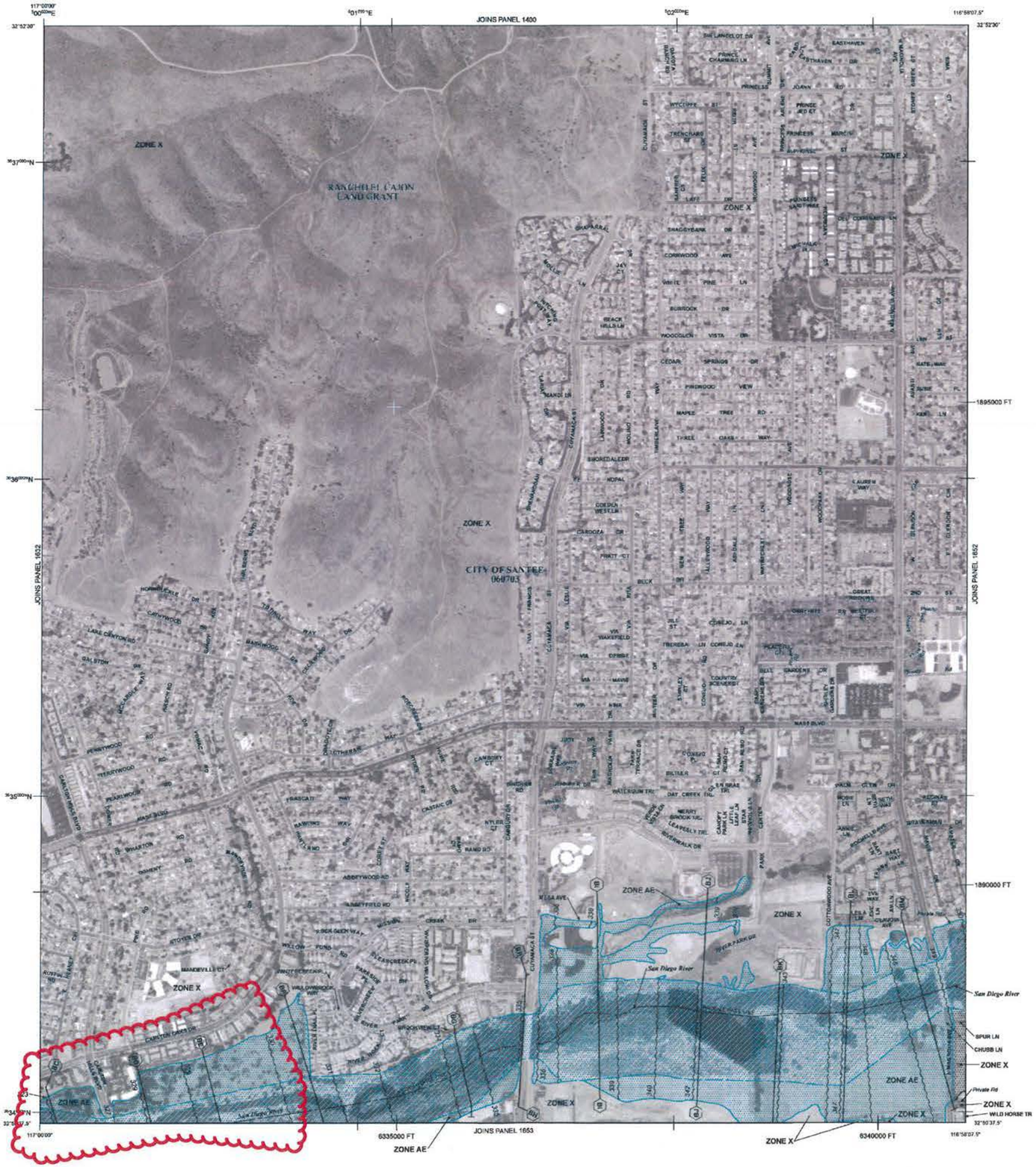
**Corporate limits** shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

Please refer to the separately printed **Map Index** for an overview map of the county showing the layout of map panels; community map repository addresses; and a Listing of Communities table containing National Flood Insurance Program dates for each community as well as a listing of the panels on which each community is located.

Contact the **FEMA Map Service Center** at 1-877-FEMA MAP (1-877-336-2627) for information on available products associated with this FIRM. Available products may include previously issued Letters of Map Change, a Flood Insurance Study report, and/or digital versions of this map. The FEMA Map Service Center may also be reached by Fax at 1-800-358-9620 and its website at http://msc.fema.gov/.

If you have questions about this map or questions concerning the National Flood Insurance Program in general, please call 1-877-FEMA MAP (1-877-336-2627) or visit the FEMA website at http://www.fema.gov/business/nfip/.

The **"profile base lines"** depicted on this map represent the hydraulic modeling baselines that match the flood profiles in the FIS report. As a result of improved topographic data, the "profile base line", in some cases, may deviate significantly from the channel centerline or appear outside the SFHA.




## LEGEND

SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V, and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

| | |
|---|---|
| ZONE A | No Base Flood Elevations determined. |
| ZONE AE | Base Flood Elevations determined. |
| ZONE AH | Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined. |
| ZONE AO | Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined. |
| ZONE AR | Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood. |
| ZONE A99 | Area to be protected from 1% annual chance flood event by a Federal flood protection system under construction; no Base Flood Elevations determined. |
| ZONE V | Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined. |
| ZONE VE | Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined. |

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

| | |
|---|---|
| ZONE X | Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood. |

OTHER AREAS

| | |
|---|---|
| ZONE X | Areas determined to be outside the 0.2% annual chance floodplain. |
| ZONE D | Areas in which flood hazards are undetermined, but possible. |

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

- 1% annual chance floodplain boundary
- 0.2% annual chance floodplain boundary
- Floodway boundary
- Zone D boundary
- CBRS and OPA boundary
- Boundary dividing Special Flood Hazard Area Zones and boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths, or flood velocities
- 513 — Base Flood Elevation line and value; elevation in feet*
- (EL 987) — Base Flood Elevation value where uniform within zone; elevation in feet*

* Referenced to the North American Vertical Datum of 1988

- A — A — Cross section line
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- 6000000 FT — 5000-foot grid values: California State Plane coordinate system, Zone VI (FIPSZONE = 406), Lambert projection
- DX5610 — Bench mark (see explanation in Notes to Users section of this FIRM panel)
- M1.5 — River Mile

MAP REPOSITORIES
Refer to Map Repositories list on Map Index

EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP
June 19, 1997

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL
May 16, 2012 - to update corporate limits, to add roads and road names, to incorporate previously issued Letters of Map Revision, and to update map elevations to North American Vertical Datum of 1988.

For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

MAP SCALE 1" = 500'

500 0 500 1000 1500 FEET
150 0 150 300 METERS

PANEL 1651G

# FIRM

**FLOOD INSURANCE RATE MAP**
**SAN DIEGO COUNTY, CALIFORNIA**
**AND INCORPORATED AREAS**

**PANEL 1651 OF 2375**
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

| COMMUNITY | NUMBER | PANEL | SUFFIX |
|---|---|---|---|
| SANTEE, CITY OF | 060703 | 1651 | G |

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

**MAP NUMBER**
**06073C1651G**

**MAP REVISED**
**MAY 16, 2012**

Federal Emergency Management Agency

NATIONAL FLOOD INSURANCE PROGRAM

## NOTES TO USERS

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The **community map repository** should be consulted for possible updated or additional flood hazard information.

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Boundaries of the **floodways** were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study report for this jurisdiction.

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The **projection** used in the preparation of this map was **Universal Transverse Mercator (UTM) Zone 11**. The **horizontal datum** was NAD83, GRS1980 spheroid. Differences in datum, spheroid, projection or UTM zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

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NGS Information Services
NOAA, N/NGS12
National Geodetic Survey
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Silver Spring, Maryland 20910-3282
(301) 713-3242

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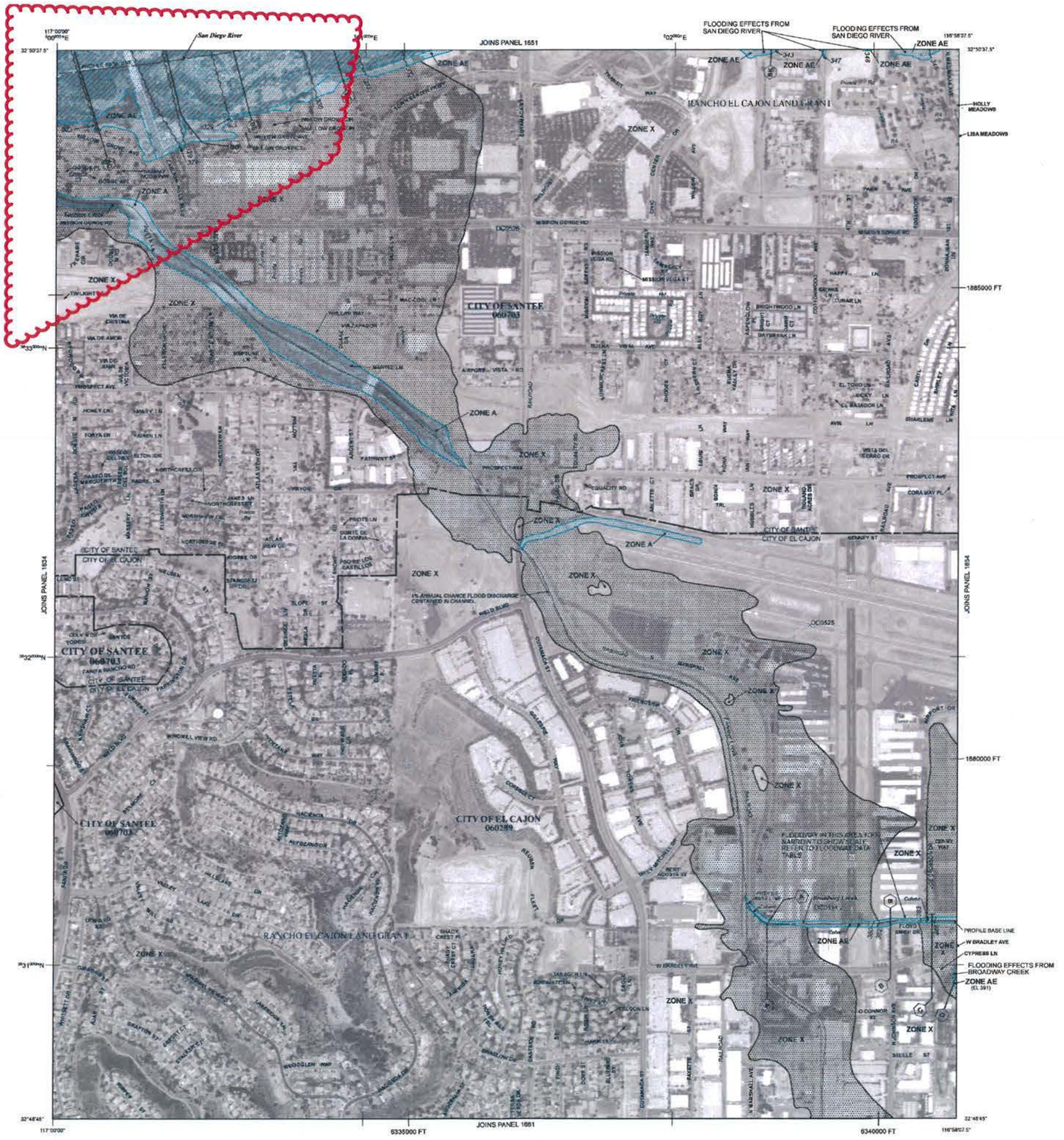


## LEGEND

SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

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| | |
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| | |
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COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

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- 513 — Base Flood Elevation line and value; elevation in feet*
- (EL 987) — Base Flood Elevation value where uniform within zone; elevation in feet*

* Referenced to the North American Vertical Datum of 1988

- A — A — Cross section line
- 23 — 23 — Transect line
- 97°07'30", 32°22'30" — Geographic coordinates referenced to the North American Datum of 1983 (NAD 83), Western Hemisphere
- 4275000mE — 1000-meter Universal Transverse Mercator grid ticks, zone 11
- 6000000 FT — 5000-foot grid values: California State Plane coordinate system, Zone VI (FIPSZONE = 406), Lambert projection
- DX5610 — Bench mark (see explanation in Notes to Users section of this FIRM panel)
- M1.5 — River Mile

MAP REPOSITORIES
Refer to Map Repositories list on Map Index

EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP
June 19, 1997

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL
May 16, 2012 – to update corporate limits, to add roads and road names, to incorporate previously issued Letters of Map Revision, and to update map elevations to North American Vertical Datum of 1988.

For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

MAP SCALE 1" = 500'

PANEL 1653G

# FIRM

**FLOOD INSURANCE RATE MAP**
**SAN DIEGO COUNTY, CALIFORNIA**
**AND INCORPORATED AREAS**

**PANEL 1653 OF 2375**
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

| COMMUNITY | NUMBER | PANEL | SUFFIX |
|---|---|---|---|
| EL CAJON, CITY OF | 060284 | 1653 | G |
| SANTEE, CITY OF | 060703 | 1653 | G |

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

**MAP NUMBER**
**06073C1653G**

**MAP REVISED**
**MAY 16, 2012**

Federal Emergency Management Agency

NATIONAL FLOOD INSURANCE PROGRAM

San Diego River

**********
HEC2 VERSION UPDATED JAN 1976
ERROR CORRECTIONS 01,02,03,04,05,06,07,08,09
MODIFICATIONS 51,52,53,54,55,56,,57,58
**********

20-OCT-82  14:33:14

USDR.FWY
C
T1  UPPER SAN DIEGO RIVER
T2  SECTIONS DIGITIZED IN 1982
T3  100-YEAR

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| J1 | ICHECK | INQ | NINV | IDIR | STRT | METRIC | HVINS | Q | WSEL | FQ | |
| | 0. | 2. | 0. | 0. | 0.000000 | 0.00 | -1.0 | 0. | 289.400 | 0.000 | |
| J2 | NPROF | IPLOT | PRFVS | XSECV | XSECH | FN | ALLDC | IBW | CHNIM | ITRACE | |
| | 1.000 | 0.000 | -1.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | |
| GT | 2.000 | 38000.000 | 38000.000 | 5500.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | |
| NC | 0.125 | @ 0.125 | ch 0.125 | 0.100 | 0.300 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | |
| ET | 0.000 | 0.000 | 7.100 | 0.000 | 0.000 | 0.000 | 120.000 | 400.000 | 0.000 | 0.000 | |
| X1 | 100.000 | 37.000 | 121.500 | 400.100 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | |
| GR | 295.100 | 0.000 | 306.000 | 23.700 | 313.400 | 46.800 | 314.500 | 64.400 | 307.300 | 90.000 | |
| GR | 301.600 | 108.400 | 288.500 | 121.500 | 277.200 | 136.900 | 272.600 | 155.200 | 269.000 | 164.100 | |
| GR | 269.000 | 207.500 | 269.000 | 215.500 | 272.600 | 222.000 | 271.600 | 231.800 | 272.100 | 242.700 | |
| GR | 274.800 | 251.800 | 273.100 | 266.400 | 274.100 | 293.700 | 274.500 | 314.100 | 272.500 | 327.800 | |
| GR | 272.100 | 356.100 | 272.100 | 368.300 | 275.600 | 376.900 | 278.500 | 395.200 | 281.800 | 400.100 | |
| GR | 281.300 | 412.700 | 282.600 | 424.200 | 289.200 | 439.100 | 289.500 | 456.000 | 300.200 | 474.700 | |
| GR | 300.800 | 493.400 | 300.900 | 508.200 | 301.700 | 524.000 | 305.700 | 542.800 | 310.400 | 567.500 | |
| GR | 317.000 | 592.900 | 326.100 | 636.900 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | |
| ET | 0.000 | 0.000 | 7.100 | 0.000 | 0.000 | 0.000 | 120.000 | 395.000 | 0.000 | 0.000 | |
| X1 | 110.000 | 30.000 | 123.100 | 433.800 | 40.000 | 50.000 | 46.000 | 0.000 | 0.000 | 0.000 | |
| GR | 319.700 | 0.000 | 320.800 | 25.600 | 323.700 | 39.100 | 323.400 | 56.600 | 316.200 | 85.600 | |
| GR | 307.400 | 100.700 | 295.100 | 113.300 | 285.400 | 123.100 | 280.000 | 143.000 | 278.600 | 159.700 | |
| GR | 276.900 | 231.400 | 278.800 | 308.800 | 275.000 | 314.500 | 275.000 | 322.100 | 279.800 | 324.700 | |
| GR | 279.700 | 342.200 | 275.900 | 346.200 | 275.500 | 359.700 | 276.800 | 377.500 | 282.200 | 400.800 | |
| GR | 282.900 | 413.900 | 288.800 | 433.800 | 275.300 | 461.100 | 298.500 | 477.900 | 300.600 | 493.300 | |
| GR | 300.100 | 507.200 | 301.200 | 530.400 | 306.500 | 561.400 | 313.900 | 593.100 | 322.800 | 640.400 | |
| ET | 0.000 | 0.000 | 7.100 | 0.000 | 0.000 | 0.000 | 115.000 | 395.000 | 0.000 | 0.000 | |
| X1 | 120.000 | 26.000 | 96.600 | 419.200 | 55.000 | 50.000 | 52.000 | 0.000 | 0.000 | 0.000 | |
| GR | 320.300 | 0.000 | 316.200 | 26.200 | 310.400 | 51.500 | 299.400 | 75.100 | 290.200 | 96.600 | |
| GR | 284.300 | 116.200 | 280.700 | 141.400 | 277.900 | 165.500 | 275.700 | 201.300 | 275.700 | 228.800 | |
| GR | 275.700 | 276.200 | 277.100 | 291.900 | 276.000 | 319.100 | 275.800 | 337.400 | 276.900 | 348.400 | |
| GR | 276.300 | 366.400 | 282.100 | 396.000 | 286.900 | 419.200 | 292.400 | 446.600 | 297.500 | 470.600 | |
| GR | 298.900 | 488.800 | 299.800 | 510.500 | 302.400 | 550.500 | 302.500 | 574.100 | 305.800 | 604.700 | |
| GR | 30.500 | 646.500 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | |
| NC | 0.080 | 0.080 | 0.080 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | |
| ET | 0.000 | 0.000 | 7.100 | 0.000 | 0.000 | 0.000 | 225.000 | 500.000 | 0.000 | 0.000 | |

ATTACHMENT B

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 130.000 | 30.000 | 189.100 | 506.500 | 530.000 | 530.000 | 520.000 | 0.000 | 0.000 | 0.000 |
| GR | 320.100 | 0.000 | 314.700 | 56.000 | 310.500 | 91.800 | 303.500 | 134.100 | 298.500 | 161.800 |
| GR | 289.900 | 189.100 | 284.300 | 216.800 | 284.500 | 242.400 | 276.500 | 258.000 | 275.400 | 274.700 |
| GR | 277.600 | 289.300 | 278.100 | 326.400 | 279.800 | 363.100 | 278.000 | 380.200 | 275.200 | 385.900 |
| GR | 275.200 | 412.900 | 275.200 | 444.500 | 277.500 | 451.100 | 277.500 | 482.100 | 280.500 | 496.000 |
| GR | 288.300 | 506.500 | 289.500 | 557.700 | 296.700 | 571.600 | 298.100 | 594.400 | 297.000 | 629.000 |
| GR | 299.300 | 644.900 | 297.100 | 651.900 | 297.200 | 680.400 | 302.500 | 712.100 | 308.700 | 751.200 |
| ET | 0.000 | 0.000 | 7.100 | 0.000 | 0.000 | 0.000 | 315.000 | 585.000 | 0.000 | 0.000 |
| X1 | 140.000 | 24.000 | 275.000 | 604.100 | 550.000 | 550.000 | 552.000 | 0.000 | 0.000 | 0.000 |
| GR | 314.400 | 0.000 | 315.700 | 53.300 | 315.300 | 99.300 | 313.800 | 151.100 | 310.300 | 203.600 |
| GR | 305.200 | 245.900 | 297.500 | 275.000 | 288.800 | 305.900 | 284.100 | 322.600 | 280.200 | 345.000 |
| GR | 279.400 | 382.800 | 282.700 | 416.300 | 281.600 | 468.100 | 277.800 | 498.600 | 275.000 | 506.400 |
| GR | 274.700 | 511.700 | 274.800 | 556.100 | 283.600 | 580.100 | 293.800 | 604.100 | 292.700 | 627.800 |
| GR | 290.700 | 646.500 | 305.800 | 661.500 | 317.600 | 685.500 | 333.900 | 733.600 | 0.000 | 0.000 |
| ET | 0.000 | 5.100 | 7.100 | 5.100 | 1.000 | 1231.900 | 655.000 | 1200.000 | 0.000 | 0.000 |
| X1 | 150.000 | 34.000 | 734.900 | 1231.900 | 545.000 | 540.000 | 540.000 | 0.000 | 0.000 | 0.000 |
| GR | 307.200 | 0.000 | 303.700 | 106.400 | 303.000 | 237.900 | 299.000 | 313.100 | 297.400 | 382.400 |
| GR | 293.900 | 438.300 | 293.800 | 449.400 | 293.500 | 477.600 | 297.100 | 486.500 | 294.700 | 560.200 |
| GR | 295.300 | 632.300 | 293.800 | 689.100 | 296.100 | 710.800 | 294.600 | 734.900 | 287.200 | 754.000 |
| GR | 281.800 | 775.600 | 279.000 | 787.600 | 282.700 | 791.800 | 284.000 | 831.800 | 282.900 | 918.300 |
| GR | 279.100 | 929.000 | 279.200 | 976.600 | 283.800 | 995.000 | 282.900 | 1074.800 | 281.700 | 1149.200 |
| GR | 282.200 | 1191.100 | 293.400 | 1207.900 | 301.600 | 1231.900 | 300.400 | 1256.800 | 298.900 | 1277.900 |
| GR | 305.900 | 1293.500 | 317.000 | 1338.300 | 323.500 | 1374.900 | 326.800 | 1394.400 | 0.000 | 0.000 |
| NC | 0.035 | 0.035 | 0.045 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 0.000 | 7.100 | 0.000 | 0.000 | 0.000 | 570.000 | 1435.000 | 0.000 | 0.000 |
| X1 | 160.000 | 51.000 | 727.400 | 1605.700 | 630.000 | 690.000 | 690.000 | 0.000 | 0.000 | 0.000 |
| GR | 306.200 | 0.000 | 305.100 | 102.800 | 305.700 | 125.300 | 305.700 | 183.500 | 302.800 | 206.300 |
| GR | 301.000 | 313.800 | 300.300 | 401.900 | 301.100 | 472.500 | 304.500 | 491.000 | 309.700 | 529.100 |
| GR | 295.500 | 551.600 | 289.700 | 569.200 | 282.700 | 576.500 | 281.700 | 593.000 | 282.500 | 601.900 |
| GR | 285.500 | 627.800 | 286.100 | 660.100 | 295.600 | 688.000 | 300.100 | 707.600 | 299.800 | 727.400 |
| GR | 294.100 | 762.100 | 292.000 | 788.000 | 290.100 | 804.400 | 289.000 | 863.400 | 289.500 | 916.600 |
| GR | 289.600 | 1008.300 | 289.000 | 1112.300 | 287.800 | 1178.600 | 286.200 | 1199.400 | 288.400 | 1215.400 |
| GR | 287.800 | 1276.500 | 286.000 | 1353.900 | 283.700 | 1379.300 | 283.800 | 1424.400 | 288.800 | 1431.400 |
| GR | 288.900 | 1517.300 | 289.900 | 1550.000 | 292.800 | 1579.000 | 302.800 | 1605.700 | 307.200 | 1633.100 |
| GR | 310.300 | 1664.600 | 310.800 | 1688.800 | 308.800 | 1695.800 | 314.400 | 1711.400 | 311.400 | 1721.600 |
| GR | 313.300 | 1732.300 | 310.900 | 1741.300 | 311.900 | 1768.300 | 311.100 | 1809.700 | 315.700 | 1833.900 |
| GR | 317.400 | 1896.100 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 0.000 | 7.100 | 0.000 | 0.000 | 0.000 | 1040.000 | 2085.000 | 0.000 | 0.000 |
| X1 | 170.000 | 38.000 | 1503.800 | 2158.800 | 390.000 | 350.000 | 350.000 | 0.000 | 0.000 | 0.000 |
| GR | 308.500 | 0.000 | 308.400 | 111.300 | 306.400 | 202.900 | 304.900 | 219.100 | 305.500 | 242.600 |
| GR | 304.300 | 343.900 | 301.100 | 471.700 | 299.000 | 600.600 | 296.700 | 723.400 | 293.700 | 831.400 |
| GR | 291.600 | 905.400 | 290.200 | 988.800 | 289.000 | 1049.700 | 284.400 | 1081.500 | 285.600 | 1085.200 |
| GR | 285.800 | 1109.700 | 292.000 | 1124.000 | 292.300 | 1187.700 | 294.100 | 1269.500 | 292.500 | 1379.600 |
| GR | 292.300 | 1449.000 | 294.400 | 1503.800 | 293.700 | 1582.100 | 291.400 | 1653.000 | 289.900 | 1761.700 |
| GR | 287.400 | 1784.000 | 286.000 | 1939.100 | 284.500 | 1951.800 | 284.400 | 1980.300 | 286.400 | 1987.300 |
| GR | 288.500 | 2053.800 | 292.100 | 2073.700 | 297.300 | 2158.800 | 305.200 | 2259.300 | 311.400 | 2329.500 |
| GR | 317.200 | 2402.700 | 321.200 | 2450.700 | 321.500 | 2520.800 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 5.100 | 7.100 | 5.100 | 500.000 | 2200.000 | 865.000 | 2065.000 | 0.000 | 0.000 |
| X1 | 180.000 | 46.000 | 1566.500 | 2049.600 | 405.000 | 355.000 | 300.000 | 0.000 | 0.000 | 0.000 |
| GR | 312.400 | 0.000 | 310.600 | 82.000 | 307.300 | 149.600 | 306.600 | 142.800 | 302.100 | 157.200 |
| GR | 300.400 | 242.300 | 305.800 | 259.900 | 299.700 | 276.000 | 299.100 | 323.500 | 302.000 | 351.100 |
| GR | 297.200 | 388.300 | 297.400 | 423.500 | 304.500 | 442.700 | 301.700 | 564.700 | 299.800 | 654.700 |
| GR | 296.400 | 711.500 | 298.800 | 741.300 | 295.400 | 750.300 | 295.100 | 798.300 | 296.400 | 828.300 |
| GR | 297.800 | 853.100 | 286.200 | 869.900 | 284.900 | 880.300 | 284.000 | 896.200 | 284.900 | 915.000 |
| GR | 297.600 | 955.000 | 291.100 | 1011.400 | 290.400 | 1079.800 | 292.900 | 1155.400 | 292.000 | 1259.400 |
| GR | 291.200 | 1362.200 | 290.600 | 1499.300 | 289.500 | 1566.500 | 287.400 | 1593.300 | 287.400 | 1960.400 |
| GR | 289.000 | 2004.800 | 289.300 | 2020.400 | 295.700 | 2049.600 | 300.300 | 2102.000 | 301.200 | 2127.200 |
| GR | 307.600 | 2188.800 | 314.500 | 2265.200 | 319.700 | 2333.600 | 323.700 | 2399.900 | 326.100 | 2456.700 |
| GR | 325.000 | 2538.700 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 0.000 | 7.100 | 0.000 | 0.000 | 0.000 | 710.000 | 2000.000 | 0.000 | 0.000 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 190.000 | 36.000 | 972.800 | 2041.300 | 785.000 | 550.000 | 550.000 | 0.000 | 0.000 | 0.000 |
| GR | 316.700 | 0.000 | 315.900 | 114.900 | 313.500 | 265.100 | 310.500 | 380.000 | 306.900 | 503.800 |
| GR | 305.900 | 560.700 | 297.900 | 573.900 | 296.400 | 604.700 | 300.300 | 611.900 | 299.600 | 642.000 |
| GR | 296.200 | 649.600 | 294.100 | 691.200 | 288.700 | 739.300 | 284.700 | 751.700 | 283.300 | 767.700 |
| GR | 284.800 | 780.200 | 285.700 | 851.500 | 298.100 | 881.500 | 297.300 | 972.800 | 286.600 | 1012.400 |
| GR | 286.600 | 1531.900 | 288.300 | 1542.300 | 288.300 | 1573.500 | 286.600 | 1606.000 | 286.600 | 1999.600 |
| GR | 292.200 | 2012.100 | 293.700 | 2031.700 | 297.100 | 2041.300 | 296.900 | 2060.100 | 301.200 | 2075.000 |
| GR | 307.700 | 2119.000 | 309.700 | 2152.300 | 308.400 | 2219.600 | 309.500 | 2266.800 | 313.400 | 2354.500 |
| GR | 31[illegible].500 | 2439.900 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 0.000 | 7.100 | 0.000 | 0.000 | 0.000 | 935.000 | 2025.000 | 0.000 | 0.000 |
| X1 | 200.000 | 42.000 | 1056.700 | 2113.300 | 630.000 | 595.000 | 600.000 | 0.000 | 0.000 | 0.000 |
| GR | 316.900 | 0.000 | 313.900 | 56.200 | 312.600 | 122.400 | 310.100 | 216.700 | 307.600 | 324.[illegible]00 |
| GR | 304.600 | 427.500 | 304.600 | 520.300 | 302.400 | 585.000 | 295.300 | 604.200 | 292.500 | 618.300 |
| GR | 293.400 | 669.200 | 293.100 | 728.300 | 296.200 | 755.500 | 295.500 | 775.600 | 293.100 | 78[illegible].900 |
| GR | 292.700 | 841.500 | 293.100 | 907.700 | 303.100 | 935.000 | 301.800 | 942.600 | 287.[illegible]00 | 96[illegible].300 |
| GR | 286.000 | 994.400 | 285.300 | 1011.200 | 286.000 | 1037.400 | 296.900 | 1056.700 | 286.[illegible]00 | 1085.[illegible] |
| GR | 287.000 | 1164.600 | 288.700 | 1223.800 | 288.100 | 1403.900 | 288.500 | 1550.[illegible]00 | 289.100 | 174[illegible].[illegible]00 |
| GR | 288.400 | 1904.500 | 286.600 | 1911.400 | 286.600 | 2019.700 | 293.500 | 2043.400 | 294.100 | 2065.[illegible]00 |
| GR | 298.400 | 2092.400 | 301.100 | 2113.300 | 300.500 | 2137.800 | 305.300 | 219[illegible].400 | 312.400 | 2283.500 |
| GR | 316.100 | 2372.600 | 318.500 | 2429.600 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 0.000 | 7.100 | 0.000 | 0.000 | 0.000 | 1040.000 | 2080.000 | 0.000 | 0.000 |
| X1 | 210.000 | 48.000 | 1355.000 | 2185.100 | 450.000 | 350.000 | 350.000 | 0.000 | 0.000 | 0.000 |
| GR | 318.800 | 0.000 | 319.500 | 35.300 | 317.300 | 62.200 | 311.700 | 79.900 | 309.500 | 108.800 |
| GR | 306.300 | 166.100 | 303.100 | 312.900 | 301.600 | 457.400 | 299.800 | 607.800 | 298.000 | 747.800 |
| GR | 298.600 | 839.700 | 298.100 | 875.400 | 294.400 | 891.900 | 294.400 | 974.900 | 294.200 | 1088.000 |
| GR | 297.800 | 1105.700 | 288.100 | 1117.800 | 285.500 | 1133.400 | 287.400 | 1144.100 | 287.800 | 1217.900 |
| GR | 287.400 | 1286.100 | 296.500 | 1313.300 | 299.600 | 1325.800 | 300.000 | 1355.000 | 294.200 | 1382.300 |
| GR | 292.700 | 1414.000 | 290.000 | 1438.500 | 289.800 | 1526.300 | 288.300 | 1571.400 | 288.500 | 1623.500 |
| GR | 288.500 | 1664.400 | 290.500 | 1686.300 | 289.100 | 1834.300 | 288.300 | 1958.500 | 288.200 | 2066.400 |
| GR | 294.500 | 2086.400 | 294.700 | 2128.600 | 298.300 | 2157.400 | 302.000 | 2185.100 | 302.300 | 2216.000 |
| GR | 305.200 | 2229.200 | 307.600 | 2251.800 | 308.300 | 2356.000 | 309.100 | 2371.300 | 315.300 | 2391.300 |
| GR | 316.500 | 2429.400 | 315.400 | 2472.300 | 315.700 | 2518.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | 0.045 | 0.100 | 0.065 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 0.000 | 7.100 | 0.000 | 0.000 | 0.000 | 650.000 | 1620.000 | 0.000 | 0.000 |
| X1 | 220.000 | 44.000 | 1185.200 | 1638.700 | 620.000 | 385.000 | 450.000 | 0.000 | 0.000 | 0.000 |
| GR | 309.400 | 0.000 | 308.100 | 49.100 | 303.400 | 65.100 | 303.800 | 93.700 | 304.800 | 111.300 |
| GR | 300.400 | 135.400 | 298.200 | 205.600 | 295.600 | 275.800 | 296.400 | 311.700 | 299.200 | 325.600 |
| GR | 297.900 | 381.800 | 296.600 | 472.700 | 298.600 | 496.000 | 297.700 | 516.100 | 296.000 | 540.400 |
| GR | 296.000 | 619.400 | 297.000 | 659.300 | 297.100 | 778.200 | 297.000 | 828.000 | 294.100 | 852.700 |
| GR | 291.300 | 877.100 | 291.600 | 941.400 | 291.500 | 1078.800 | 292.800 | 1124.900 | 292.400 | 1185.200 |
| GR | 289.900 | 1220.500 | 289.800 | 1321.400 | 288.800 | 1344.800 | 290.000 | 1386.700 | 292.300 | 1429.000 |
| GR | 292.100 | 1467.400 | 293.800 | 1493.000 | 295.400 | 1567.700 | 296.300 | 1608.000 | 299.800 | 1658.700 |
| GR | 296.200 | 1677.400 | 295.900 | 1703.200 | 299.800 | 1722.600 | 301.500 | 1749.700 | 304.600 | 1768.400 |
| GR | 308.000 | 1845.600 | 314.800 | 1925.800 | 319.700 | 2049.100 | 324.000 | 2142.900 | 0.000 | 0.000 |
| ET | 0.000 | 0.000 | 7.100 | 0.000 | 0.000 | 0.000 | 975.000 | 1710.000 | 0.000 | 0.000 |
| X1 | 230.000 | 39.000 | 1177.300 | 1700.400 | 430.000 | 460.000 | 487.000 | 0.000 | 0.000 | 0.000 |
| GR | 320.600 | 0.000 | 315.600 | 98.600 | 310.700 | 248.500 | 307.700 | 349.800 | 304.400 | 453.100 |
| GR | 301.800 | 481.500 | 297.200 | 508.200 | 295.000 | 514.300 | 296.600 | 561.500 | 298.300 | 572.600 |
| GR | 299.600 | 589.300 | 296.900 | 598.600 | 296.000 | 661.100 | 296.000 | 732.000 | 298.000 | 803.000 |
| GR | 298.200 | 895.600 | 298.800 | 987.500 | 297.500 | 1007.200 | 294.600 | 1034.200 | 292.300 | 1049.000 |
| GR | 293.200 | 1074.800 | 294.100 | 1177.300 | 293.500 | 1277.700 | 293.600 | 1390.600 | 293.800 | 1477.500 |
| GR | 290.200 | 1497.200 | 289.800 | 1554.200 | 290.400 | 1569.500 | 291.800 | 1577.600 | 291.300 | 1624.400 |
| GR | 294.600 | 1642.800 | 295.400 | 1680.200 | 299.800 | 1700.400 | 300.100 | 1740.600 | 303.700 | 1766.400 |
| GR | 304.800 | 1824.300 | 306.500 | 1894.000 | 310.400 | 1966.200 | 312.000 | 2031.800 | 0.000 | 0.000 |
| ET | 0.000 | 5.100 | 0.000 | 5.100 | 450.000 | 1300.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 0.000 | 7.100 | 0.000 | 0.000 | 0.000 | 530.000 | 1190.000 | 0.000 | 0.000 |
| X1 | 239.000 | 35.000 | 794.200 | 1194.900 | 515.000 | 385.000 | 413.000 | 0.000 | 0.000 | 0.000 |
| GR | 326.700 | 0.000 | 325.900 | 9.700 | 313.300 | 33.300 | 302.700 | 58.700 | 299.600 | 75.900 |
| GR | 298.800 | 146.300 | 296.400 | 181.400 | 295.900 | 292.800 | 296.400 | 340.100 | 298.6[illegible] | 359.000 |
| GR | 296.300 | 480.300 | 297.100 | 577.600 | 296.400 | 628.200 | 295.300 | 690.300 | 296.70[illegible] | 723.400 |
| GR | 296.300 | 773.800 | 299.600 | 794.200 | 295.700 | 807.300 | 293.200 | 815.500 | 292.700 | 884.900 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| GR | 290.700 | 929.700 | 291.800 | 952.300 | 294.400 | 972.500 | 293.100 | 1010.800 | 292.600 | 1033.000 |
| GR | 294.400 | 1056.600 | 292.900 | 1097.200 | 293.900 | 1121.500 | 296.800 | 1156.100 | 303.000 | 1194.900 |
| GR | 304.600 | 1220.800 | 306.400 | 1253.000 | 308.500 | 1284.900 | 311.200 | 1349.100 | 314.000 | 1436.200 |
| NC | 0.000 | 0.000 | 0.000 | 0.300 | 0.500 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 5.100 | 5.100 | 5.100 | 1477.700 | 1977.200 | 0.000 | 0.000 | 0.000 | 0.000 |
| | | | | | | | | | | |
| X1 | 242.000 | 35.000 | 1477.700 | 1977.200 | 270.000 | 165.000 | 224.000 | 0.000 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 0.000 | 311.500 | 315.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| BT | 22.000 | 1477.700 | 315.000 | 311.500 | 1557.000 | 315.000 | 311.500 | 1557.000 | 315.000 | 0.000 |
| BT | 1564.000 | 315.000 | 0.000 | 1564.000 | 315.000 | 311.500 | 1640.400 | 315.000 | 311.500 | 1640.400 |
| BT | 315.000 | 0.000 | 1647.400 | 315.000 | 0.000 | 1647.400 | 315.000 | 311.500 | 1723.700 | 315.000 |
| BT | 311.500 | 1723.700 | 315.000 | 0.000 | 1730.700 | 315.000 | 0.000 | 1730.700 | 315.000 | 311.500 |
| BT | 1807.000 | 315.000 | 311.500 | 1807.000 | 315.000 | 0.000 | 1814.000 | 315.000 | 0.000 | 1814.000 |
| BT | 315.000 | 311.500 | 1890.400 | 315.000 | 311.500 | 1890.400 | 315.000 | 0.000 | 1897.400 | 315.000 |
| BT | 0.000 | 1897.400 | 315.000 | 311.500 | 1977.200 | 315.000 | 311.500 | 0.000 | 0.000 | 0.000 |
| GR | 322.300 | 0.000 | 325.600 | 50.000 | 327.800 | 125.300 | 328.000 | 167.900 | 320.900 | 223.500 |
| GR | 317.600 | 265.900 | 313.700 | 374.700 | 316.200 | 478.100 | 320.700 | 644.200 | 321.600 | 741.100 |
| GR | 329.100 | 757.200 | 328.400 | 771.600 | 321.900 | 789.800 | 321.300 | 881.900 | 317.300 | 1023.600 |
| GR | 313.900 | 1127.300 | 310.600 | 1268.700 | 311.600 | 1384.500 | 309.600 | 1444.500 | 309.600 | 1477.700 |
| GR | 298.900 | 1496.500 | 292.900 | 1529.500 | 293.100 | 1544.400 | 293.800 | 1624.200 | 294.000 | 1694.900 |
| GR | 292.500 | 1762.900 | 293.000 | 1804.800 | 291.700 | 1829.100 | 292.100 | 1863.200 | 294.100 | 1921.800 |
| GR | 311.600 | 1977.200 | 312.900 | 2102.500 | 309.600 | 2169.800 | 313.000 | 2266.200 | 316.800 | 2378.200 |
| ET | 0.000 | 5.100 | 5.100 | 5.100 | 1538.300 | 2038.700 | 0.000 | 0.000 | 0.000 | 0.000 |
| | | | | | | | | | | |
| X1 | 244.000 | 36.000 | 1538.300 | 2038.700 | 95.000 | 95.000 | 95.000 | 0.000 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 0.000 | 311.500 | 315.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| BT | 22.000 | 1538.300 | 315.000 | 311.500 | 1618.300 | 315.000 | 311.500 | 1618.300 | 315.000 | 0.000 |
| BT | 1625.300 | 315.000 | 0.000 | 1625.300 | 315.000 | 311.500 | 1701.700 | 315.000 | 311.500 | 1701.700 |
| BT | 315.000 | 0.000 | 1708.700 | 315.000 | 0.000 | 1708.700 | 315.000 | 311.500 | 1785.000 | 315.000 |
| BT | 311.500 | 1785.000 | 315.000 | 0.000 | 1792.000 | 315.000 | 0.000 | 1792.000 | 315.000 | 311.500 |
| BT | 1868.300 | 315.000 | 311.500 | 1868.300 | 315.000 | 0.000 | 1875.300 | 315.000 | 0.000 | 1875.300 |
| BT | 315.000 | 311.500 | 1951.700 | 315.000 | 311.500 | 1951.700 | 315.000 | 0.000 | 1958.700 | 315.000 |
| BT | 0.000 | 1958.700 | 315.000 | 311.500 | 2038.700 | 315.000 | 311.500 | 0.000 | 0.000 | 0.000 |
| GR | 333.700 | 0.000 | 332.900 | 112.500 | 325.100 | 205.800 | 318.300 | 337.400 | 315.900 | 476.300 |
| GR | 313.100 | 545.200 | 326.700 | 602.400 | 328.100 | 710.500 | 327.900 | 857.300 | 309.900 | 896.300 |
| GR | 307.600 | 960.700 | 300.300 | 995.700 | 300.400 | 1057.800 | 300.300 | 1138.400 | 300.500 | 1237.700 |
| GR | 300.400 | 1331.600 | 298.300 | 1412.700 | 296.800 | 1496.600 | 296.000 | 1538.300 | 293.500 | 1563.300 |
| GR | 294.600 | 1610.200 | 293.300 | 1726.300 | 293.100 | 1859.500 | 292.200 | 1881.300 | 293.100 | 1912.800 |
| GR | 294.900 | 1989.500 | 307.800 | 2038.700 | 307.600 | 2130.600 | 307.700 | 2162.900 | 312.800 | 2178.600 |
| GR | 311.600 | 2260.900 | 307.100 | 2281.900 | 307.100 | 2290.600 | 303.900 | 2297.100 | 308.100 | 2393.900 |
| GR | 312.500 | 2498.400 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | 0.110 | 0.045 | 0.100 | 0.100 | 0.300 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 5.100 | 0.000 | 5.100 | 550.000 | 1550.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 0.000 | 7.100 | 0.000 | 0.000 | 0.000 | 730.000 | 1335.000 | 0.000 | 0.000 |
| | | | | | | | | | | |
| X1 | 245.000 | 46.000 | 733.900 | 1365.900 | 150.000 | 210.000 | 177.000 | 0.000 | 0.000 | 0.000 |
| GR | 329.600 | 0.000 | 329.000 | 34.700 | 332.300 | 59.700 | 341.600 | 62.400 | 341.600 | 117.500 |
| GR | 333.400 | 120.900 | 332.700 | 142.800 | 321.900 | 163.700 | 315.100 | 178.000 | 313.100 | 232.600 |
| GR | 307.800 | 301.100 | 304.400 | 332.200 | 299.600 | 356.700 | 299.600 | 421.600 | 294.000 | 495.500 |
| GR | 301.100 | 576.500 | 300.600 | 651.800 | 294.800 | 662.900 | 295.400 | 733.900 | 293.500 | 752.900 |
| GR | 294.300 | 779.000 | 293.900 | 881.800 | 293.600 | 956.600 | 293.600 | 1033.300 | 292.700 | 1075.700 |
| GR | 292.500 | 1095.100 | 292.700 | 1117.100 | 295.300 | 1147.300 | 295.700 | 1193.300 | 296.000 | 1231.500 |
| GR | 295.400 | 1310.200 | 296.100 | 1334.900 | 298.300 | 1353.300 | 302.800 | 1365.900 | 306.000 | 1410.900 |
| GR | 308.700 | 1503.800 | 312.000 | 1574.900 | 314.800 | 1645.600 | 316.800 | 1687.300 | 319.700 | 1720.000 |
| GR | 321.000 | 1804.800 | 323.300 | 1847.500 | 326.300 | 1898.900 | 329.300 | 1959.700 | 330.200 | 1973.300 |
| GR | 330.600 | 2021.600 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | 0.050 | 0.050 | 0.060 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 0.000 | 7.100 | 0.000 | 0.000 | 0.000 | 560.000 | 1275.000 | 0.000 | 0.000 |
| | | | | | | | | | | |
| X1 | 250.000 | 44.000 | 618.100 | 1199.000 | 615.000 | 700.000 | 701.000 | 0.000 | 0.000 | 0.000 |
| GR | 326.900 | 0.000 | 326.600 | 34.200 | 329.600 | 54.800 | 330.100 | 87.400 | 341.800 | 89.900 |
| GR | 341.800 | 142.400 | 331.000 | 145.700 | 330.500 | 161.900 | 318.700 | 181.000 | 310.100 | 203.900 |
| GR | 308.000 | 213.000 | 307.200 | 227.900 | 303.700 | 261.600 | 301.600 | 281.200 | 302.500 | 289.400 |
| GR | 301.900 | 394.200 | 301.600 | 491.500 | 300.000 | 554.100 | 300.100 | 618.100 | 298.300 | 652.900 |
| GR | 295.900 | 707.600 | 296.900 | 759.600 | 297.700 | 846.000 | 298.000 | 941.200 | 297.900 | 1041.000 |
| GR | 295.500 | 1081.200 | 297.700 | 1096.200 | 295.400 | 1107.800 | 294.400 | 1124.000 | 293.700 | 1138.200 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| GR | 294.300 | 1152.900 | 296.600 | 1182.000 | 300.000 | 1199.000 | 299.400 | 1239.200 | 299.900 | 1271.800 |
| GR | 305.000 | 1292.200 | 307.500 | 1315.500 | 308.700 | 1376.500 | 311.900 | 1466.700 | 314.700 | 1527.300 |
| GR | 315.600 | 1559.300 | 319.100 | 1564.800 | 320.100 | 1609.700 | 319.000 | 1652.000 | 0.000 | 0.000 |
| ET | 0.000 | 0.000 | 7.100 | 0.000 | 0.000 | 0.000 | 365.000 | 965.000 | 0.000 | 0.000 |
| | | | | | | | | | | |
| X1 | 260.000 | 36.000 | 419.700 | 982.500 | 1000.000 | 1050.000 | 1031.000 | 0.000 | 0.000 | 0.000 |
| GR | 322.700 | 0.000 | 323.400 | 16.900 | 322.900 | 38.000 | 325.100 | 60.800 | 326.500 | 126.000 |
| GR | 326.800 | 165.900 | 320.200 | 181.300 | 316.500 | 185.800 | 314.200 | 236.300 | 313.200 | 295.300 |
| GR | 311.100 | 318.400 | 309.500 | 338.300 | 305.800 | 352.600 | 303.100 | 419.700 | 300.100 | 438.400 |
| GR | 299.100 | 465.200 | 298.600 | 492.100 | 300.100 | 500.600 | 299.900 | 611.300 | 301.500 | 708.200 |
| GR | 302.100 | 744.400 | 304.400 | 756.700 | 302.300 | 767.700 | 300.700 | 808.000 | 297.800 | 831.100 |
| GR | 297.600 | 838.500 | 297.800 | 857.200 | 302.600 | 885.200 | 302.900 | 939.800 | 305.300 | 962.100 |
| GR | 311.400 | 982.500 | 312.300 | 1006.900 | 313.700 | 1046.900 | 312.100 | 1089.900 | 313.300 | 1122.100 |
| GR | 314.300 | 1221.700 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GT | 2.000 | 37000.000 | 37000.000 | 5500.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 5.100 | 7.100 | 5.100 | 100.000 | 1023.700 | 400.000 | 960.000 | 0.000 | 0.000 |
| | | | | | | | | | | |
| X1 | 270.000 | 42.000 | 400.400 | 958.700 | 815.000 | 1000.000 | 951.000 | 0.000 | 0.000 | 0.000 |
| GR | 320.800 | 0.000 | 320.400 | 21.000 | 322.300 | 40.800 | 323.200 | 57.700 | 333.800 | 63.400 |
| GR | 333.800 | 113.900 | 322.400 | 120.400 | 322.600 | 146.600 | 316.700 | 163.200 | 315.200 | 180.600 |
| GR | 312.600 | 282.900 | 310.400 | 354.800 | 308.600 | 400.400 | 301.000 | 413.000 | 299.800 | 467.100 |
| GR | 300.200 | 478.700 | 299.800 | 493.800 | 301.800 | 505.500 | 303.100 | 608.100 | 304.200 | 694.200 |
| GR | 306.300 | 711.100 | 301.800 | 728.400 | 303.100 | 761.500 | 304.800 | 788.200 | 306.600 | 799.900 |
| GR | 300.800 | 815.300 | 299.400 | 838.000 | 300.800 | 867.400 | 303.800 | 882.800 | 302.500 | 938.100 |
| GR | 307.700 | 956.700 | 310.000 | 988.200 | 313.800 | 1023.700 | 313.000 | 1089.600 | 311.800 | 1118.600 |
| GR | 309.100 | 1150.100 | 309.800 | 1163.900 | 312.600 | 1170.300 | 312.500 | 1212.800 | 312.200 | 1258.400 |
| GR | 314.000 | 1277.000 | 314.700 | 1301.700 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 0.000 | 7.100 | 0.000 | 0.000 | 0.000 | 330.000 | 1630.000 | 0.000 | 0.000 |
| | | | | | | | | | | |
| X1 | 280.000 | 50.000 | 216.800 | 1690.200 | 1060.000 | 1135.000 | 1021.000 | 0.000 | 0.000 | 0.000 |
| GR | 319.500 | 0.000 | 319.000 | 16.600 | 318.500 | 32.800 | 319.200 | 74.500 | 327.100 | 75.300 |
| GR | 327.100 | 110.500 | 319.600 | 113.900 | 318.100 | 175.100 | 312.200 | 192.400 | 308.800 | 202.300 |
| GR | 308.400 | 216.800 | 306.600 | 231.300 | 306.500 | 283.300 | 306.300 | 325.900 | 304.100 | 342.400 |
| GR | 300.700 | 355.700 | 300.100 | 376.600 | 303.200 | 385.900 | 304.300 | 466.400 | 304.800 | 556.900 |
| GR | 305.000 | 655.300 | 306.100 | 772.100 | 305.700 | 843.400 | 304.500 | 868.600 | 304.300 | 921.900 |
| GR | 306.400 | 953.700 | 305.900 | 1029.700 | 304.700 | 1074.300 | 305.600 | 1106.400 | 310.600 | 1125.000 |
| GR | 302.800 | 1139.500 | 301.100 | 1176.600 | 302.700 | 1207.300 | 307.400 | 1215.500 | 307.600 | 1300.900 |
| GR | 307.100 | 1398.900 | 306.600 | 1490.700 | 306.800 | 1547.800 | 307.600 | 1610.900 | 307.600 | 1646.100 |
| GR | 310.500 | 1690.200 | 310.700 | 1704.800 | 315.400 | 1711.700 | 316.900 | 1717.100 | 318.400 | 1760.500 |
| GR | 318.600 | 1801.400 | 321.500 | 1864.600 | 324.300 | 1990.300 | 328.800 | 2110.700 | 331.700 | 2238.400 |
| ET | 0.000 | 0.000 | 7.100 | 0.000 | 0.000 | 0.000 | 330.000 | 1765.000 | 0.000 | 0.000 |
| | | | | | | | | | | |
| X1 | 285.000 | 52.000 | 272.900 | 1768.000 | 660.000 | 640.000 | 688.000 | 0.000 | 0.000 | 0.000 |
| GR | 340.200 | 0.000 | 339.200 | 48.200 | 332.900 | 67.900 | 329.200 | 91.500 | 323.200 | 110.300 |
| GR | 321.200 | 145.300 | 317.800 | 179.900 | 314.300 | 205.000 | 311.400 | 272.900 | 307.500 | 295.200 |
| GR | 306.100 | 386.500 | 303.800 | 480.700 | 302.200 | 506.600 | 304.000 | 517.400 | 306.500 | 535.900 |
| GR | 306.800 | 640.400 | 308.400 | 693.100 | 309.100 | 803.100 | 309.300 | 900.800 | 308.900 | 961.700 |
| GR | 307.900 | 1023.300 | 304.800 | 1048.200 | 306.200 | 1086.400 | 307.200 | 1117.100 | 307.400 | 1215.200 |
| GR | 305.400 | 1282.800 | 306.600 | 1342.400 | 309.700 | 1380.700 | 310.300 | 1460.000 | 308.000 | 1479.000 |
| GR | 306.900 | 1507.000 | 308.200 | 1516.500 | 313.400 | 1523.600 | 312.700 | 1533.400 | 303.700 | 1553.200 |
| GR | 302.400 | 1573.100 | 303.300 | 1609.900 | 305.300 | 1634.100 | 304.900 | 1672.400 | 307.000 | 1680.900 |
| GR | 306.300 | 1706.800 | 310.400 | 1735.400 | 313.700 | 1768.000 | 314.600 | 1840.500 | 314.100 | 1920.400 |
| GR | 317.700 | 1931.100 | 318.100 | 1976.900 | 317.000 | 2020.400 | 318.200 | 2044.400 | 321.400 | 2094.100 |
| GR | 322.900 | 2127.800 | 324.400 | 2237.100 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 0.000 | 7.100 | 0.000 | 0.000 | 0.000 | 770.000 | 2340.000 | 0.000 | 0.000 |
| | | | | | | | | | | |
| X1 | 290.000 | 60.000 | 714.300 | 2568.800 | 645.000 | 695.000 | 653.000 | 0.000 | 0.000 | 0.000 |
| GR | 347.500 | 0.000 | 347.400 | 37.900 | 349.400 | 62.700 | 349.100 | 137.600 | 344.900 | 159.500 |
| GR | 342.100 | 249.700 | 339.700 | 337.800 | 339.100 | 383.000 | 335.600 | 408.700 | 350.100 | 415.800 |
| GR | 350.100 | 509.100 | 334.800 | 514.200 | 331.400 | 528.600 | 324.300 | 553.400 | 322.600 | 587.700 |
| GR | 318.200 | 603.100 | 317.800 | 635.300 | 318.600 | 649.000 | 317.900 | 714.300 | 314.400 | 749.300 |
| GR | 312.000 | 772.500 | 311.000 | 810.100 | 311.000 | 1087.600 | 311.600 | 1095.600 | 311.800 | 1185.300 |
| GR | 311.200 | 1273.700 | 308.900 | 1415.400 | 306.500 | 1439.500 | 308.400 | 1456.500 | 310.400 | 1529.900 |
| GR | 311.700 | 1636.700 | 309.100 | 1666.100 | 306.400 | 1683.900 | 307.100 | 1715.700 | 309.000 | 1750.500 |
| GR | 307.500 | 1829.000 | 308.900 | 1862.500 | 310.400 | 1886.700 | 310.800 | 1939.800 | 310.300 | 1978.300 |
| GR | 311.100 | 2056.400 | 309.200 | 2077.800 | 311.000 | 2113.600 | 316.900 | 2125.300 | 317.100 | 2136.800 |

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|---|---|---|---|---|---|---|---|---|---|---|
| GR | 306.100 | 2149.900 | 304.700 | 2168.000 | 303.100 | 2177.000 | 304.600 | 2196.100 | 305.100 | 2232.500 |
| GR | 310.900 | 2243.800 | 310.700 | 2331.800 | 311.600 | 2378.300 | 308.500 | 2390.200 | 310.500 | 2404.200 |
| GR | 312.300 | 2455.500 | 313.000 | 2513.400 | 314.200 | 2557.600 | 316.900 | 2568.800 | 319.100 | 2610.700 |
| ET | 0.000 | 0.000 | 7.100 | 0.000 | 0.000 | 0.000 | 660.000 | 2130.000 | 0.000 | 0.000 |
| | | | | | | | | | | |
| X1 | 300.000 | 51.000 | 646.500 | 2117.400 | 605.000 | 790.000 | 654.000 | 0.000 | 0.000 | 0.000 |
| GR | 324.000 | 0.000 | 324.800 | 39.900 | 325.300 | 60.600 | 334.000 | 63.100 | 334.000 | 102.600 |
| GR | 325.500 | 106.900 | 324.800 | 156.700 | 322.400 | 167.100 | 321.200 | 311.500 | 318.900 | 446.400 |
| GR | 318.700 | 576.200 | 317.400 | 646.500 | 312.300 | 661.000 | 311.800 | 680.400 | 311.800 | 750.400 |
| GR | 313.700 | 757.100 | 313.400 | 794.500 | 310.200 | 809.100 | 311.800 | 841.900 | 310.800 | 907.500 |
| GR | 312.100 | 927.500 | 314.300 | 954.400 | 313.400 | 1051.200 | 312.200 | 1150.400 | 311.800 | 1200.400 |
| GR | 309.400 | 1236.100 | 310.600 | 1274.200 | 311.400 | 1338.200 | 311.800 | 1440.100 | 310.700 | 1538.500 |
| GR | 311.200 | 1612.100 | 308.600 | 1637.600 | 309.800 | 1697.100 | 309.500 | 1780.800 | 309.200 | 1852.900 |
| GR | 310.900 | 1899.600 | 310.800 | 1940.400 | 315.300 | 1952.800 | 314.100 | 1964.700 | 308.600 | 1987.000 |
| GR | 305.800 | 2003.100 | 305.100 | 2016.300 | 305.800 | 2068.800 | 310.400 | 2088.800 | 313.400 | 2117.400 |
| GR | 313.800 | 2190.600 | 316.100 | 2278.300 | 318.200 | 2369.600 | 320.100 | 2468.200 | 320.600 | 2519.000 |
| GR | 321.200 | 2564.300 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | 0.045 | 0.060 | 0.035 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 5.100 | 7.100 | 5.100 | 600.000 | 2800.000 | 850.000 | 2395.000 | 0.000 | 0.000 |
| | | | | | | | | | | |
| X1 | 310.000 | 65.000 | 837.200 | 2348.300 | 640.000 | 610.000 | 610.000 | 0.000 | 0.000 | 0.000 |
| GR | 320.500 | 0.000 | 320.900 | 78.500 | 320.300 | 192.300 | 319.600 | 337.800 | 318.800 | 386.300 |
| GR | 316.000 | 402.300 | 315.100 | 410.800 | 316.500 | 420.900 | 318.800 | 432.200 | 319.300 | 497.200 |
| GR | 320.400 | 520.100 | 320.300 | 566.100 | 319.500 | 599.600 | 320.300 | 620.600 | 322.100 | 631.800 |
| GR | 320.700 | 661.700 | 320.700 | 709.300 | 321.300 | 727.100 | 318.600 | 750.100 | 319.900 | 783.100 |
| GR | 317.500 | 807.300 | 318.100 | 837.200 | 314.500 | 848.900 | 311.100 | 859.000 | 310.000 | 909.700 |
| GR | 310.500 | 1033.100 | 311.300 | 1106.900 | 310.800 | 1263.400 | 310.800 | 1360.600 | 312.700 | 1375.100 |
| GR | 313.600 | 1448.500 | 313.300 | 1482.000 | 311.100 | 1515.100 | 311.000 | 1540.000 | 312.900 | 1560.100 |
| GR | 314.800 | 1573.500 | 314.100 | 1622.600 | 311.300 | 1637.200 | 312.600 | 1645.300 | 312.000 | 1702.500 |
| GR | 313.100 | 1808.200 | 313.500 | 1863.800 | 312.900 | 1914.600 | 311.600 | 1949.800 | 312.200 | 1979.200 |
| GR | 312.400 | 2097.300 | 312.200 | 2173.900 | 311.500 | 2203.000 | 314.400 | 2212.700 | 316.700 | 2222.800 |
| GR | 316.000 | 2236.900 | 309.200 | 2244.500 | 306.900 | 2255.800 | 305.700 | 2273.800 | 306.400 | 2285.500 |
| GR | 307.900 | 2325.400 | 313.600 | 2334.600 | 316.000 | 2348.300 | 315.600 | 2396.700 | 317.100 | 2504.300 |
| GR | 317.600 | 2557.200 | 320.200 | 2662.800 | 321.700 | 2782.600 | 323.700 | 2904.000 | 324.300 | 2854.100 |
| ET | 0.000 | 5.100 | 7.100 | 5.100 | 1.000 | 1870.600 | 645.000 | 1870.000 | 0.000 | 0.000 |
| | | | | | | | | | | |
| X1 | 320.000 | 65.000 | 530.100 | 1870.600 | 660.000 | 640.000 | 711.000 | 0.000 | 0.000 | 0.000 |
| GR | 322.400 | 0.000 | 323.700 | 101.500 | 322.400 | 187.500 | 321.300 | 294.700 | 322.200 | 328.100 |
| GR | 322.400 | 372.300 | 322.300 | 415.600 | 321.100 | 449.400 | 318.300 | 499.600 | 317.500 | 530.100 |
| GR | 316.300 | 541.300 | 314.800 | 562.600 | 311.400 | 571.400 | 311.300 | 581.500 | 315.900 | 595.500 |
| GR | 312.900 | 610.800 | 313.300 | 683.900 | 313.600 | 766.600 | 313.500 | 843.700 | 314.900 | 881.400 |
| GR | 316.600 | 941.200 | 315.100 | 1011.100 | 313.700 | 1068.600 | 313.000 | 1150.900 | 312.800 | 1194.300 |
| GR | 311.700 | 1207.900 | 311.600 | 1253.300 | 312.400 | 1279.800 | 312.900 | 1311.500 | 315.800 | 1329.100 |
| GR | 318.200 | 1354.100 | 319.200 | 1384.600 | 312.300 | 1413.100 | 309.100 | 1446.800 | 308.500 | 1468.100 |
| GR | 308.700 | 1525.200 | 307.300 | 1576.900 | 307.200 | 1645.100 | 307.200 | 1755.300 | 309.600 | 1767.400 |
| GR | 312.000 | 1795.100 | 316.700 | 1828.400 | 319.000 | 1870.600 | 317.900 | 1940.900 | 319.200 | 2014.700 |
| GR | 318.300 | 2045.700 | 310.600 | 2057.300 | 307.400 | 2069.400 | 307.300 | 2098.700 | 311.700 | 2107.900 |
| GR | 317.900 | 2118.400 | 318.800 | 2181.000 | 315.100 | 2200.700 | 315.200 | 2251.700 | 312.200 | 2264.100 |
| GR | 312.700 | 2315.100 | 313.500 | 2393.000 | 314.600 | 2445.700 | 315.600 | 2525.600 | 318.900 | 2536.000 |
| GR | 323.900 | 2542.800 | 324.600 | 2611.100 | 326.300 | 2625.600 | 328.700 | 2631.200 | 328.200 | 2718.300 |
| ET | 0.000 | 5.100 | 7.100 | 5.100 | 1.000 | 1400.000 | 435.000 | 1280.000 | 0.000 | 0.000 |
| | | | | | | | | | | |
| X1 | 330.000 | 87.000 | 569.900 | 1334.000 | 620.000 | 620.000 | 588.000 | 0.000 | 0.000 | 0.000 |
| GR | 331.200 | 0.000 | 327.400 | 62.100 | 324.800 | 96.200 | 325.900 | 131.500 | 325.800 | 170.100 |
| GR | 328.400 | 184.900 | 346.600 | 191.300 | 346.600 | 242.700 | 329.800 | 244.000 | 330.500 | 304.200 |
| GR | 351.300 | 310.600 | 351.300 | 353.500 | 324.600 | 356.400 | 324.400 | 379.200 | 318.000 | 390.500 |
| GR | 315.900 | 407.300 | 314.900 | 431.000 | 312.500 | 441.800 | 312.500 | 532.600 | 316.700 | 547.800 |
| GR | 323.400 | 560.300 | 324.800 | 569.900 | 322.100 | 576.700 | 314.000 | 592.000 | 314.800 | 627.700 |
| GR | 313.500 | 683.800 | 316.500 | 693.900 | 321.400 | 711.900 | 317.800 | 729.200 | 313.300 | 737.200 |
| GR | 310.000 | 741.600 | 310.000 | 889.200 | 312.900 | 905.300 | 312.600 | 967.000 | 313.200 | 1017.600 |
| GR | 310.200 | 1052.500 | 310.200 | 1069.400 | 313.600 | 1085.800 | 313.800 | 1147.200 | 312.000 | 1194.100 |
| GR | 308.600 | 1203.400 | 308.500 | 1214.700 | 308.600 | 1219.700 | 311.300 | 1234.100 | 313.300 | 1263.800 |
| GR | 314.100 | 1301.500 | 316.300 | 1319.200 | 321.900 | 1334.000 | 326.000 | 1373.700 | 329.800 | 1416.300 |
| GR | 336.600 | 1421.900 | 336.600 | 1466.000 | 330.100 | 1469.300 | 329.300 | 1489.300 | 326.600 | 1495.700 |
| GR | 326.700 | 1547.900 | 327.200 | 1622.600 | 326.500 | 1666.300 | 324.300 | 1672.300 | 323.100 | 1715.600 |

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|---|---|---|---|---|---|---|---|---|---|---|
| GR | 331.000 | 1720.500 | 331.000 | 1761.700 | 323.400 | 1766.700 | 322.400 | 1797.200 | 322.400 | 1834.100 |
| GR | 323.700 | 1861.300 | 332.000 | 1866.900 | 332.000 | 1899.500 | 323.100 | 1903.900 | 323.500 | 1953.300 |
| GR | 322.800 | 1972.900 | 316.600 | 1983.700 | 309.800 | 1992.600 | 309.900 | 2005.400 | 314.300 | 2033.500 |
| GR | 321.600 | 2048.400 | 320.100 | 2098.900 | 322.200 | 2194.000 | 324.100 | 2285.000 | 325.100 | 2330.400 |
| GR | 330.200 | 2342.100 | 328.300 | 2388.200 | 326.100 | 2432.400 | 328.300 | 2515.400 | 340.100 | 2518.600 |
| GR | 340.100 | 2567.200 | 329.400 | 2573.600 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | 0.060 | 0.060 | 0.050 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 5.100 | 7.100 | 5.100 | 1.000 | 1500.000 | 425.000 | 1345.000 | 0.000 | 0.000 |
| | | | | | | | | | | |
| X1 | 340.000 | 82.000 | 361.300 | 1386.000 | 575.000 | 450.000 | 454.000 | 0.000 | 0.000 | 0.000 |
| GR | 332.500 | 0.000 | 331.800 | 43.200 | 330.300 | 70.000 | 331.300 | 104.000 | 331.000 | 144.400 |
| GR | 330.200 | 152.800 | 330.300 | 165.600 | 347.500 | 172.000 | 347.500 | 333.700 | 324.100 | 336.100 |
| GR | 323.400 | 361.300 | 319.800 | 378.100 | 316.600 | 395.700 | 314.700 | 420.900 | 312.200 | 438.900 |
| GR | 312.200 | 528.900 | 312.900 | 533.700 | 311.900 | 563.000 | 311.200 | 644.600 | 311.300 | 684.600 |
| GR | 314.200 | 693.000 | 317.300 | 709.400 | 317.400 | 739.800 | 315.600 | 758.600 | 314.400 | 769.800 |
| GR | 314.200 | 799.000 | 315.400 | 817.400 | 315.700 | 865.800 | 315.100 | 892.200 | 310.400 | 903.900 |
| GR | 310.400 | 1074.700 | 311.000 | 1083.500 | 311.800 | 1141.500 | 314.900 | 1160.300 | 315.700 | 1215.900 |
| GR | 310.600 | 1249.100 | 309.900 | 1285.100 | 310.600 | 1291.100 | 316.100 | 1296.700 | 315.600 | 1309.500 |
| GR | 311.900 | 1319.900 | 311.800 | 1326.000 | 317.500 | 1352.000 | 322.700 | 1372.800 | 324.800 | 1386.000 |
| GR | 326.000 | 1428.800 | 333.600 | 1436.000 | 333.600 | 1473.600 | 326.000 | 1476.000 | 325.000 | 1504.400 |
| GR | 324.100 | 1536.400 | 326.100 | 1569.200 | 334.300 | 1574.400 | 334.300 | 1596.800 | 326.100 | 1602.400 |
| GR | 325.700 | 1685.300 | 325.400 | 1723.700 | 324.900 | 1786.500 | 325.100 | 1862.100 | 325.800 | 1894.900 |
| GR | 325.700 | 1932.900 | 325.200 | 1950.500 | 324.400 | 1993.300 | 325.800 | 2033.300 | 335.500 | 2039.300 |
| GR | 335.500 | 2079.700 | 327.200 | 2084.100 | 325.400 | 2109.800 | 325.100 | 2130.600 | 317.700 | 2139.000 |
| GR | 313.400 | 2148.200 | 313.100 | 2180.200 | 321.000 | 2191.000 | 322.500 | 2205.000 | 323.600 | 2259.400 |
| GR | 323.100 | 2290.600 | 324.100 | 2362.200 | 324.900 | 2389.800 | 326.400 | 2397.800 | 327.900 | 2402.600 |
| GR | 327.000 | 2448.000 | 326.700 | 2478.200 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 5.100 | 7.100 | 5.100 | 1.000 | 2000.000 | 595.000 | 1525.000 | 0.000 | 0.000 |
| | | | | | | | | | | |
| X1 | 345.000 | 87.000 | 448.000 | 1650.200 | 125.000 | 400.000 | 335.000 | 0.000 | 0.000 | 0.000 |
| GR | 337.400 | 0.000 | 333.900 | 83.900 | 329.700 | 155.300 | 329.300 | 168.100 | 330.600 | 201.600 |
| GR | 330.100 | 242.100 | 330.300 | 259.700 | 347.800 | 264.300 | 347.800 | 319.400 | 331.400 | 323.200 |
| GR | 331.200 | 375.500 | 351.500 | 382.000 | 351.500 | 420.900 | 325.500 | 423.000 | 324.200 | 448.000 |
| GR | 321.600 | 457.400 | 319.400 | 469.200 | 317.900 | 484.000 | 318.000 | 499.500 | 319.900 | 519.100 |
| GR | 319.100 | 562.000 | 316.100 | 582.000 | 312.200 | 598.400 | 312.200 | 676.400 | 312.900 | 680.900 |
| GR | 312.500 | 709.200 | 312.200 | 726.700 | 316.500 | 737.400 | 319.800 | 749.200 | 322.900 | 799.500 |
| GR | 323.500 | 842.500 | 319.800 | 860.500 | 315.100 | 877.300 | 313.700 | 894.400 | 315.100 | 914.900 |
| GR | 323.100 | 930.500 | 329.800 | 946.100 | 328.600 | 957.900 | 320.800 | 973.700 | 310.000 | 988.200 |
| GR | 310.000 | 1262.800 | 313.300 | 1269.000 | 313.900 | 1336.100 | 314.000 | 1384.800 | 310.600 | 1393.000 |
| GR | 309.800 | 1410.900 | 310.600 | 1433.900 | 312.500 | 1455.200 | 315.600 | 1464.600 | 315.700 | 1481.800 |
| GR | 313.400 | 1498.400 | 314.400 | 1523.900 | 319.000 | 1545.600 | 320.200 | 1571.200 | 320.100 | 1630.600 |
| GR | 322.800 | 1650.200 | 325.300 | 1699.400 | 333.100 | 1702.600 | 333.100 | 1741.900 | 324.300 | 1746.400 |
| GR | 323.600 | 1781.600 | 323.700 | 1822.800 | 325.400 | 1866.600 | 334.300 | 1871.500 | 334.300 | 1901.000 |
| GR | 325.500 | 1911.200 | 327.700 | 1981.100 | 327.700 | 2079.200 | 334.400 | 2087.700 | 334.400 | 2202.400 |
| GR | 328.100 | 2208.900 | 328.700 | 2262.900 | 329.400 | 2298.900 | 338.400 | 2305.400 | 338.400 | 2328.000 |
| GR | 329.700 | 2333.300 | 328.600 | 2390.100 | 322.600 | 2400.300 | 318.300 | 2409.700 | 318.700 | 2444.500 |
| GR | 324.000 | 2462.400 | 324.800 | 2520.100 | 324.700 | 2595.100 | 325.500 | 2631.500 | 328.500 | 2639.700 |
| GR | 329.100 | 2692.900 | 328.500 | 2742.300 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 5.100 | 7.100 | 5.100 | 591.700 | 1404.900 | 740.000 | 1404.900 | 0.000 | 0.000 |
| | | | | | | | | | | |
| X1 | 355.000 | 83.000 | 591.700 | 1404.900 | 350.000 | 360.000 | 310.000 | 0.000 | 0.000 | 0.000 |
| GR | 332.200 | 0.000 | 332.800 | 14.200 | 330.400 | 19.200 | 331.400 | 84.600 | 330.500 | 120.700 |
| GR | 328.900 | 128.000 | 329.100 | 171.900 | 328.300 | 209.800 | 328.700 | 236.100 | 326.000 | 276.100 |
| GR | 323.900 | 369.100 | 324.200 | 416.800 | 322.500 | 427.400 | 318.700 | 462.300 | 317.800 | 481.500 |
| GR | 317.900 | 522.100 | 318.900 | 544.600 | 320.500 | 591.700 | 319.900 | 643.800 | 319.200 | 678.700 |
| GR | 315.200 | 702.700 | 313.500 | 715.400 | 312.600 | 750.800 | 312.600 | 779.600 | 313.600 | 800.400 |
| GR | 318.600 | 813.000 | 321.800 | 845.100 | 320.200 | 864.200 | 316.400 | 872.400 | 314.200 | 897.200 |
| GR | 312.000 | 919.200 | 311.500 | 1076.100 | 311.400 | 1202.200 | 311.400 | 1276.300 | 313.800 | 1289.300 |
| GR | 315.100 | 1343.400 | 316.100 | 1392.600 | 319.700 | 1404.900 | 315.800 | 1419.100 | 314.900 | 1445.500 |
| GR | 310.800 | 1457.700 | 310.100 | 1472.200 | 310.800 | 1492.700 | 316.700 | 1502.900 | 316.300 | 1540.300 |
| GR | 316.600 | 1562.700 | 319.800 | 1590.800 | 321.000 | 1648.100 | 321.600 | 1734.300 | 323.700 | 1770.000 |
| GR | 325.600 | 1853.400 | 326.300 | 1918.600 | 336.300 | 1925.600 | 336.100 | 1943.000 | 326.600 | 1946.700 |
| GR | 325.000 | 1978.400 | 324.900 | 2028.700 | 326.600 | 2088.000 | 328.900 | 2172.700 | 328.900 | 2215.900 |
| GR | 336.500 | 2219.500 | 336.500 | 2262.600 | 329.500 | 2266.300 | 328.400 | 2337.400 | 329.100 | 2365.800 |
| GR | 337.400 | 2369.100 | 337.400 | 2394.300 | 330.000 | 2400.800 | 329.800 | 2457.500 | 331.400 | 2466.400 |
| GR | 330.100 | 2566.100 | 331.000 | 2666.000 | 330.200 | 2684.500 | 329.200 | 2702.500 | 330.400 | 2754.000 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| GR | 330.500 | 2762.500 | 330.500 | 2809.700 | 321.900 | 2818.300 | 322.500 | 2884.100 | 322.700 | 2930.800 |
| GR | 325.600 | 2945.200 | 329.600 | 2955.300 | 328.600 | 3009.400 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | 0.000 | 0.000 | 0.000 | 0.300 | 0.500 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 5.100 | 5.100 | 5.100 | 808.000 | 1290.300 | 0.000 | 0.000 | 0.000 | 0.000 |
| | | | | | | | | | | |
| X1 | 357.000 | 71.000 | 808.000 | 1290.300 | 220.000 | 240.000 | 275.000 | 0.000 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 0.000 | 326.000 | 329.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| BT | 46.000 | 808.000 | 329.000 | 326.000 | 835.700 | 329.000 | 326.000 | 835.700 | 329.000 | 0.000 |
| BT | 842.700 | 329.000 | 0.000 | 842.700 | 329.000 | 326.000 | 877.700 | 329.000 | 326.000 | 877.700 |
| BT | 329.000 | 0.000 | 884.700 | 329.000 | 0.000 | 884.700 | 329.000 | 326.000 | 919.700 | 329.000 |
| BT | 326.000 | 919.700 | 329.000 | 0.000 | 926.700 | 329.000 | 0.000 | 926.700 | 329.000 | 326.000 |
| BT | 960.200 | 329.000 | 326.000 | 960.200 | 329.000 | 0.000 | 970.200 | 329.000 | 0.000 | 970.200 |
| BT | 329.000 | 326.000 | 1003.700 | 329.000 | 326.000 | 1003.700 | 329.000 | 0.000 | 1010.700 | 329.000 |
| BT | 0.000 | 1010.700 | 329.000 | 326.000 | 1045.700 | 329.000 | 326.000 | 1045.700 | 329.000 | 0.000 |
| BT | 1052.700 | 329.000 | 0.000 | 1052.700 | 329.000 | 326.000 | 1087.700 | 329.000 | 326.000 | 1087.700 |
| BT | 329.000 | 0.000 | 1094.700 | 329.000 | 0.000 | 1094.700 | 329.000 | 326.000 | 1128.200 | 329.000 |
| BT | 326.000 | 1128.200 | 329.000 | 0.000 | 1138.200 | 329.000 | 0.000 | 1138.200 | 329.000 | 326.000 |
| BT | 1171.700 | 329.000 | 326.000 | 1171.700 | 329.000 | 0.000 | 1178.700 | 329.000 | 0.000 | 1178.700 |
| BT | 329.000 | 326.000 | 1213.700 | 329.000 | 326.000 | 1213.700 | 329.000 | 0.000 | 1220.700 | 329.000 |
| BT | 0.000 | 1220.700 | 329.000 | 326.000 | 1255.700 | 329.000 | 326.000 | 1255.700 | 329.000 | 0.000 |
| BT | 1262.700 | 329.000 | 0.000 | 1262.700 | 329.000 | 326.000 | 1290.300 | 329.000 | 326.000 | 0.000 |
| GR | 333.300 | 0.000 | 333.600 | 44.500 | 341.000 | 48.300 | 341.000 | 92.300 | 331.200 | 98.200 |
| GR | 330.400 | 148.900 | 330.800 | 180.300 | 329.500 | 269.800 | 327.900 | 367.600 | 325.100 | 380.900 |
| GR | 325.300 | 435.800 | 322.100 | 447.700 | 319.400 | 466.800 | 317.500 | 523.800 | 317.700 | 612.000 |
| GR | 316.900 | 712.200 | 316.100 | 808.000 | 316.900 | 895.700 | 317.400 | 951.600 | 317.000 | 1004.300 |
| GR | 315.700 | 1017.600 | 313.800 | 1029.500 | 313.200 | 1044.600 | 313.900 | 1066.300 | 316.500 | 1072.300 |
| GR | 318.100 | 1109.900 | 317.100 | 1138.300 | 316.100 | 1200.000 | 312.800 | 1223.800 | 313.400 | 1290.300 |
| GR | 313.600 | 1386.700 | 314.400 | 1440.600 | 314.200 | 1505.200 | 317.100 | 1520.700 | 321.900 | 1534.800 |
| GR | 321.500 | 1547.100 | 317.800 | 1554.100 | 317.800 | 1554.100 | 318.600 | 1607.300 | 320.900 | 1681.000 |
| GR | 320.800 | 1783.900 | 322.700 | 1886.400 | 323.300 | 1906.300 | 332.800 | 1910.500 | 332.800 | 1975.900 |
| GR | 323.400 | 1981.600 | 323.400 | 2054.000 | 325.500 | 2081.300 | 326.500 | 2150.700 | 335.800 | 2154.100 |
| GR | 335.500 | 2238.300 | 327.100 | 2241.200 | 328.100 | 2254.600 | 336.300 | 2256.700 | 335.900 | 2296.000 |
| GR | 327.200 | 2299.200 | 326.700 | 2354.200 | 327.400 | 2436.300 | 328.300 | 2530.900 | 329.000 | 2576.600 |
| GR | 337.300 | 2579.400 | 337.300 | 2617.400 | 328.200 | 2624.700 | 329.400 | 2684.300 | 351.700 | 2688.400 |
| GR | 351.700 | 2748.000 | 329.300 | 2754.300 | 329.700 | 2801.200 | 328.700 | 2842.800 | 329.400 | 2955.700 |
| GR | 329.400 | 3012.900 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 5.100 | 5.100 | 5.100 | 879.500 | 1355.300 | 0.000 | 0.000 | 0.000 | 0.000 |
| | | | | | | | | | | |
| X1 | 359.000 | 80.000 | 879.500 | 1355.300 | 150.000 | 150.000 | 150.000 | 0.000 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 0.000 | 326.000 | 329.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| BT | 46.000 | 879.500 | 329.000 | 326.000 | 903.900 | 329.000 | 326.000 | 903.900 | 329.000 | 0.000 |
| BT | 910.900 | 329.000 | 0.000 | 910.900 | 329.000 | 326.000 | 945.900 | 329.000 | 326.000 | 945.900 |
| BT | 329.000 | 0.000 | 952.900 | 329.000 | 0.000 | 952.900 | 329.000 | 326.000 | 987.900 | 329.000 |
| BT | 326.000 | 987.900 | 329.000 | 0.000 | 994.900 | 329.000 | 0.000 | 994.900 | 329.000 | 326.000 |
| BT | 1028.400 | 329.000 | 326.000 | 1028.400 | 329.000 | 0.000 | 1038.400 | 329.000 | 0.000 | 1038.400 |
| BT | 329.000 | 326.000 | 1071.900 | 329.000 | 326.000 | 1071.900 | 329.000 | 0.000 | 1078.900 | 329.000 |
| BT | 0.000 | 1078.900 | 329.000 | 326.000 | 1113.900 | 329.000 | 326.000 | 1113.900 | 329.000 | 0.000 |
| BT | 1121.100 | 329.000 | 0.000 | 1121.100 | 329.000 | 326.000 | 1155.900 | 329.000 | 326.000 | 1155.900 |
| BT | 329.000 | 0.000 | 1162.900 | 329.000 | 0.000 | 1162.900 | 329.000 | 326.000 | 1196.400 | 329.000 |
| BT | 326.000 | 1196.400 | 329.000 | 0.000 | 1206.400 | 329.000 | 0.000 | 1206.400 | 329.000 | 326.000 |
| BT | 1239.900 | 329.000 | 326.000 | 1239.900 | 329.000 | 0.000 | 1246.900 | 329.000 | 0.000 | 1246.900 |
| BT | 329.000 | 326.000 | 1281.900 | 329.000 | 326.000 | 1281.900 | 329.000 | 0.000 | 1288.900 | 329.000 |
| BT | 0.000 | 1288.900 | 329.000 | 326.000 | 1323.900 | 329.000 | 326.000 | 1323.900 | 329.000 | 0.000 |
| BT | 1330.900 | 329.000 | 0.000 | 1330.900 | 329.000 | 326.000 | 1355.300 | 329.000 | 326.000 | 0.000 |
| GR | 336.400 | 0.000 | 337.600 | 23.600 | 347.800 | 27.700 | 347.800 | 130.900 | 337.800 | 136.700 |
| GR | 332.600 | 154.300 | 330.800 | 163.400 | 331.100 | 200.600 | 331.000 | 242.200 | 330.100 | 344.200 |
| GR | 329.200 | 351.100 | 329.400 | 439.500 | 326.800 | 480.000 | 325.500 | 567.400 | 326.100 | 624.900 |
| GR | 328.100 | 638.600 | 328.000 | 724.900 | 328.200 | 735.900 | 325.900 | 742.400 | 326.600 | 802.200 |
| GR | 320.900 | 825.600 | 317.500 | 853.300 | 315.900 | 879.500 | 318.000 | 920.000 | 318.500 | 981.500 |
| GR | 316.500 | 1017.300 | 317.400 | 1042.100 | 317.800 | 1072.700 | 315.000 | 1087.400 | 314.200 | 1093.200 |
| GR | 313.700 | 1109.200 | 314.200 | 1127.800 | 317.200 | 1134.200 | 318.000 | 1165.900 | 316.900 | 1190.300 |
| GR | 318.100 | 1206.600 | 317.200 | 1261.500 | 314.800 | 1295.700 | 313.400 | 1334.900 | 315.000 | 1355.300 |
| GR | 314.900 | 1375.200 | 314.400 | 1381.500 | 314.000 | 1442.800 | 315.500 | 1485.200 | 315.400 | 1515.500 |
| GR | 314.500 | 1543.400 | 315.800 | 1603.800 | 315.400 | 1656.600 | 318.000 | 1680.300 | 323.100 | 1698.800 |
| GR | 326.300 | 1709.000 | 326.000 | 1780.800 | 325.900 | 1825.200 | 321.900 | 1839.700 | 322.800 | 1875.900 |
| GR | 323.200 | 1959.600 | 324.200 | 2033.900 | 323.600 | 2050.800 | 323.700 | 2085.700 | 325.300 | 2170.800 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| GR | 326.100 | 2272.600 | 326.200 | 2377.800 | 326.700 | 2467.700 | 326.700 | 2562.300 | 328.100 | 2643.900 |
| GR | 328.100 | 2708.700 | 330.900 | 2781.000 | 342.400 | 2783.800 | 342.000 | 2919.400 | 330.700 | 2823.800 |
| GR | 329.200 | 2871.900 | 329.400 | 2911.500 | 329.200 | 2957.500 | 329.700 | 2973.600 | 342.500 | 2976.800 |
| GR | 342.500 | 3000.800 | 330.100 | 3005.600 | 329.200 | 3071.700 | 327.900 | 3103.400 | 329.100 | 3171.400 |
| NC | 0.065 | 0.060 | 0.055 | 0.100 | 0.300 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 5.100 | 7.100 | 5.100 | 666.000 | 1720.000 | 845.000 | 1720.000 | 0.000 | 0.000 |
| X1 | 360.000 | 77.000 | 864.500 | 1720.000 | 345.000 | 550.000 | 303.000 | 0.000 | 0.000 | 0.000 |
| GR | 339.100 | 0.000 | 355.700 | 4.400 | 355.700 | 104.400 | 338.500 | 106.800 | 337.100 | 121.300 |
| GR | 337.100 | 163.200 | 336.600 | 201.000 | 335.200 | 286.800 | 334.300 | 430.200 | 330.600 | 439.600 |
| GR | 325.900 | 461.700 | 324.400 | 488.700 | 323.300 | 537.800 | 321.500 | 572.100 | 321.400 | 642.600 |
| GR | 319.800 | 700.200 | 318.000 | 715.100 | 318.900 | 754.500 | 319.400 | 793.200 | 318.400 | 811.700 |
| GR | 317.100 | 818.600 | 320.700 | 833.500 | 325.700 | 846.000 | 326.300 | 864.500 | 321.500 | 881.400 |
| GR | 318.600 | 901.600 | 317.800 | 962.400 | 316.500 | 984.900 | 318.500 | 1026.800 | 314.800 | 1034.400 |
| GR | 314.500 | 1046.900 | 314.800 | 1059.800 | 318.700 | 1066.700 | 319.400 | 1097.700 | 318.300 | 1148.000 |
| GR | 318.200 | 1190.000 | 318.000 | 1215.700 | 314.100 | 1223.400 | 314.000 | 1250.000 | 313.000 | 1285.800 |
| GR | 313.200 | 1318.400 | 315.300 | 1356.300 | 317.500 | 1387.300 | 317.600 | 1429.200 | 317.100 | 1485.500 |
| GR | 317.600 | 1554.900 | 318.100 | 1637.400 | 317.800 | 1665.200 | 317.300 | 1678.900 | 318.300 | 1702.300 |
| GR | 323.400 | 1720.000 | 323.600 | 1764.700 | 323.000 | 1828.300 | 321.100 | 1871.500 | 321.400 | 1912.500 |
| GR | 323.500 | 1927.000 | 323.900 | 1975.000 | 325.800 | 2022.100 | 327.200 | 2051.100 | 339.700 | 2054.400 |
| GR | 339.700 | 2204.600 | 339.700 | 2427.300 | 329.900 | 2443.800 | 328.100 | 2517.100 | 328.300 | 2626.300 |
| GR | 328.300 | 2735.500 | 327.400 | 2821.300 | 328.700 | 2845.800 | 329.000 | 2887.000 | 328.300 | 2928.800 |
| GR | 331.900 | 2969.100 | 332.100 | 3006.600 | 344.000 | 3015.800 | 344.000 | 3037.200 | 331.400 | 3040.800 |
| GR | 331.400 | 3082.300 | 332.400 | 3115.400 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | 0.050 | 0.035 | 0.035 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | 0.000 | 0.040 | 0.040 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 5.100 | 7.100 | 5.100 | 1.000 | 2000.000 | 930.000 | 1855.000 | 0.000 | 0.000 |
| X1 | 370.000 | 93.000 | 977.500 | 1929.500 | 360.000 | 310.000 | 361.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 320.300 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 356.900 | 0.000 | 357.000 | 29.200 | 347.700 | 44.400 | 342.100 | 67.200 | 336.600 | 69.600 |
| GR | 335.100 | 152.500 | 335.100 | 195.700 | 335.100 | 212.900 | 334.900 | 241.800 | 334.800 | 296.600 |
| GR | 353.300 | 307.000 | 353.300 | 340.600 | 334.900 | 348.200 | 334.900 | 365.900 | 352.200 | 373.900 |
| GR | 352.200 | 407.900 | 333.700 | 413.900 | 332.700 | 465.600 | 332.400 | 501.200 | 328.100 | 516.400 |
| GR | 325.700 | 531.200 | 325.500 | 563.600 | 322.000 | 584.900 | 330.600 | 653.300 | 319.400 | 733.400 |
| GR | 318.900 | 801.000 | 318.400 | 844.600 | 318.700 | 878.700 | 320.300 | 896.300 | 319.600 | 928.700 |
| GR | 320.800 | 946.300 | 320.300 | 968.700 | 322.700 | 977.500 | 321.100 | 989.500 | 319.200 | 1007.600 |
| GR | 315.700 | 1022.400 | 314.600 | 1054.000 | 315.700 | 1078.400 | 319.300 | 1084.400 | 319.400 | 1129.700 |
| GR | 318.100 | 1151.700 | 317.300 | 1167.300 | 318.800 | 1179.300 | 321.600 | 1187.800 | 319.500 | 1197.800 |
| GR | 319.900 | 1259.400 | 318.900 | 1349.900 | 319.300 | 1436.300 | 318.500 | 1500.400 | 317.500 | 1595.300 |
| GR | 314.600 | 1617.900 | 314.500 | 1648.100 | 314.900 | 1701.700 | 317.800 | 1709.300 | 319.300 | 1750.200 |
| GR | 318.700 | 1822.600 | 320.000 | 1852.600 | 317.300 | 1869.800 | 318.500 | 1878.300 | 321.300 | 1887.500 |
| GR | 322.300 | 1911.100 | 324.800 | 1929.500 | 326.900 | 1984.700 | 334.600 | 1989.500 | 334.600 | 2019.100 |
| GR | 326.300 | 2023.200 | 325.700 | 2053.200 | 325.800 | 2090.000 | 327.100 | 2120.400 | 335.000 | 2123.700 |
| GR | 335.000 | 2150.500 | 326.900 | 2152.900 | 326.900 | 2207.300 | 326.000 | 2248.200 | 325.600 | 2289.400 |
| GR | 325.400 | 2319.400 | 322.200 | 2345.400 | 320.700 | 2364.600 | 320.900 | 2427.500 | 322.100 | 2447.500 |
| GR | 325.600 | 2469.100 | 326.900 | 2499.900 | 329.200 | 2525.900 | 329.000 | 2590.800 | 328.800 | 2692.000 |
| GR | 329.300 | 2802.500 | 328.100 | 2897.000 | 327.500 | 2958.600 | 328.700 | 2973.000 | 329.400 | 3019.100 |
| GR | 329.000 | 3063.900 | 330.300 | 3137.500 | 330.800 | 3231.600 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 5.100 | 7.100 | 5.100 | 1.000 | 2000.000 | 945.000 | 1935.000 | 0.000 | 0.000 |
| X1 | 380.000 | 91.000 | 988.000 | 1948.900 | 310.000 | 420.000 | 323.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 322.100 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 357.400 | 0.000 | 357.500 | 43.500 | 349.900 | 56.800 | 340.400 | 76.300 | 334.000 | 84.000 |
| GR | 333.400 | 162.100 | 332.800 | 224.100 | 332.800 | 255.400 | 332.900 | 290.600 | 333.200 | 368.800 |
| GR | 332.700 | 476.500 | 332.500 | 512.100 | 327.900 | 528.700 | 329.500 | 543.400 | 323.600 | 562.400 |
| GR | 322.200 | 581.400 | 322.400 | 636.000 | 320.900 | 657.500 | 319.600 | 721.100 | 319.400 | 774.200 |
| GR | 320.000 | 803.700 | 319.800 | 857.500 | 320.700 | 901.300 | 322.500 | 988.000 | 320.900 | 1028.500 |
| GR | 319.600 | 1056.900 | 315.600 | 1062.100 | 314.700 | 1079.000 | 315.600 | 1099.800 | 319.100 | 1105.800 |
| GR | 319.100 | 1188.100 | 318.800 | 1256.000 | 316.900 | 1281.500 | 319.900 | 1300.200 | 323.500 | 1320.900 |
| GR | 327.000 | 1335.000 | 327.000 | 1386.000 | 322.600 | 1416.800 | 319.700 | 1433.400 | 320.000 | 1469.900 |
| GR | 320.300 | 1513.200 | 318.300 | 1527.400 | 318.100 | 1556.100 | 321.200 | 1565.100 | 319.700 | 1610.300 |
| GR | 319.400 | 1633.400 | 320.500 | 1667.200 | 318.400 | 1681.300 | 316.700 | 1696.200 | 316.200 | 1711.700 |
| GR | 316.900 | 1731.100 | 319.300 | 1749.400 | 320.300 | 1808.400 | 320.200 | 1873.200 | 320.200 | 1927.900 |
| GR | 325.000 | 1938.000 | 328.800 | 1948.900 | 329.300 | 2027.400 | 329.200 | 2091.800 | 337.300 | 2098.200 |
| GR | 337.300 | 2143.600 | 328.700 | 2148.100 | 328.600 | 2205.600 | 330.400 | 2229.500 | 337.000 | 2236.900 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| GR | 337.000 | 2278.400 | 328.800 | 2286.600 | 328.600 | 2362.200 | 326.500 | 2372.900 | 323.200 | 2401.300 |
| GR | 322.700 | 2453.500 | 323.300 | 2520.300 | 324.600 | 2544.700 | 328.200 | 2584.400 | 329.100 | 2614.800 |
| GR | 330.000 | 2719.900 | 328.900 | 2835.800 | 328.000 | 2901.800 | 337.700 | 2906.700 | 337.700 | 2934.600 |
| GR | 330.300 | 2940.700 | 330.000 | 2959.700 | 332.600 | 2963.000 | 329.800 | 3001.900 | 329.100 | 3061.700 |
| GR | 330.300 | 3097.800 | 332.900 | 3108.800 | 333.300 | 3157.400 | 332.900 | 3227.900 | 334.400 | 3309.300 |
| GR | 334.300 | 3389.500 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 5.100 | 7.100 | 5.100 | 1.000 | 2200.000 | 1010.000 | 1980.000 | 0.000 | 0.000 |
| X1 | 390.000 | 92.000 | 1103.000 | 1987.900 | 315.000 | 400.000 | 318.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 322.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 359.100 | 0.000 | 359.300 | 78.100 | 351.300 | 94.400 | 342.200 | 108.100 | 335.500 | 125.600 |
| GR | 334.800 | 143.400 | 334.900 | 205.300 | 332.500 | 259.800 | 333.100 | 326.200 | 335.700 | 349.300 |
| GR | 344.700 | 352.600 | 344.700 | 472.500 | 334.700 | 476.300 | 334.500 | 511.400 | 332.700 | 540.000 |
| GR | 330.100 | 556.000 | 324.800 | 574.600 | 322.700 | 595.300 | 320.300 | 640.300 | 319.100 | 704.900 |
| GR | 319.900 | 748.000 | 319.100 | 783.400 | 319.900 | 828.600 | 322.000 | 876.600 | 323.500 | 941.600 |
| GR | 324.100 | 1031.800 | 324.700 | 1103.000 | 322.800 | 1111.300 | 320.900 | 1134.400 | 316.000 | 1141.100 |
| GR | 315.300 | 1167.900 | 316.000 | 1179.500 | 320.400 | 1187.800 | 322.700 | 1217.400 | 321.900 | 1284.400 |
| GR | 321.100 | 1375.200 | 319.700 | 1442.600 | 321.100 | 1508.500 | 321.200 | 1613.400 | 320.200 | 1681.500 |
| GR | 315.400 | 1698.000 | 316.000 | 1713.800 | 318.400 | 1738.000 | 321.600 | 1793.400 | 321.600 | 1882.500 |
| GR | 320.600 | 1943.500 | 320.900 | 1967.200 | 325.800 | 1987.900 | 326.700 | 2037.200 | 329.400 | 2058.300 |
| GR | 332.200 | 2076.900 | 332.000 | 2098.200 | 339.900 | 2104.400 | 339.900 | 2165.300 | 332.100 | 2167.300 |
| GR | 332.200 | 2179.500 | 340.600 | 2185.300 | 340.600 | 2242.900 | 331.400 | 2246.200 | 330.300 | 2321.800 |
| GR | 330.900 | 2381.000 | 332.300 | 2420.800 | 339.400 | 2422.500 | 339.400 | 2466.100 | 332.100 | 2469.600 |
| GR | 331.000 | 2482.400 | 327.300 | 2494.000 | 325.800 | 2511.400 | 324.300 | 2558.100 | 324.100 | 2598.800 |
| GR | 327.000 | 2634.500 | 329.900 | 2694.200 | 326.400 | 2719.500 | 327.800 | 2731.200 | 332.100 | 2747.700 |
| GR | 333.600 | 2819.100 | 333.000 | 2902.400 | 331.800 | 2930.100 | 329.400 | 2953.000 | 329.400 | 2987.000 |
| GR | 330.000 | 3037.300 | 330.300 | 3090.600 | 331.000 | 3179.700 | 331.500 | 3258.900 | 332.800 | 3299.800 |
| GR | 335.200 | 3314.000 | 335.900 | 3370.800 | 335.800 | 3416.400 | 337.300 | 3475.700 | 338.800 | 3591.400 |
| GR | 355.400 | 3597.900 | 355.300 | 3638.700 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | 0.035 | 0.035 | 0.030 | 0.100 | 0.300 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | 0.040 | 0.040 | 0.040 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 0.000 | 7.100 | 0.000 | 0.000 | 0.000 | 1110.000 | 1840.000 | 0.000 | 0.000 |
| X1 | 400.000 | 75.000 | 1110.000 | 1840.000 | 700.000 | 650.000 | 701.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 321.700 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 342.600 | 0.000 | 342.900 | 56.400 | 352.900 | 63.300 | 352.900 | 161.100 | 342.400 | 164.200 |
| GR | 340.500 | 215.200 | 339.000 | 242.100 | 335.700 | 277.800 | 331.200 | 330.200 | 328.700 | 365.500 |
| GR | 328.700 | 401.300 | 328.300 | 463.700 | 325.800 | 491.100 | 323.300 | 519.500 | 322.200 | 578.600 |
| GR | 323.300 | 640.000 | 325.100 | 711.600 | 324.800 | 774.400 | 325.900 | 851.600 | 327.500 | 949.000 |
| GR | 328.200 | 1054.600 | 327.400 | 1080.200 | 330.200 | 1090.000 | 330.200 | 1110.000 | 318.800 | 1150.000 |
| GR | 318.500 | 1225.000 | 318.400 | 1300.000 | 318.500 | 1400.000 | 319.000 | 1700.000 | 319.500 | 1780.000 |
| GR | 319.700 | 1810.000 | 329.300 | 1840.000 | 329.300 | 1870.000 | 320.100 | 1890.000 | 318.700 | 1901.600 |
| GR | 318.500 | 1921.100 | 324.700 | 1929.600 | 328.800 | 1939.500 | 329.800 | 1975.200 | 336.700 | 1993.000 |
| GR | 341.800 | 2005.100 | 340.700 | 2019.000 | 340.600 | 2068.200 | 335.000 | 2080.700 | 331.500 | 2087.600 |
| GR | 331.800 | 2170.900 | 333.200 | 2266.800 | 334.300 | 2300.500 | 357.200 | 2305.000 | 357.200 | 2352.000 |
| GR | 357.200 | 2410.800 | 334.000 | 2415.800 | 333.600 | 2470.600 | 331.600 | 2560.300 | 329.600 | 2592.000 |
| GR | 328.700 | 2642.400 | 325.600 | 2663.500 | 326.800 | 2691.500 | 329.600 | 2731.700 | 332.700 | 2768.600 |
| GR | 332.200 | 2879.900 | 332.900 | 3013.000 | 331.600 | 3089.300 | 329.400 | 3146.200 | 330.900 | 3216.400 |
| GR | 332.400 | 3302.900 | 333.100 | 3391.900 | 334.100 | 3491.800 | 337.700 | 3496.800 | 338.500 | 3545.900 |
| GR | 338.500 | 3593.700 | 356.700 | 3600.300 | 356.700 | 3765.500 | 340.900 | 3770.000 | 340.100 | 3818.800 |
| ET | 0.000 | 0.000 | 7.100 | 0.000 | 0.000 | 0.000 | 1745.000 | 2415.000 | 0.000 | 0.000 |
| X1 | 410.000 | 76.000 | 1745.000 | 2415.000 | 730.000 | 660.000 | 720.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 323.200 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 339.400 | 0.000 | 338.800 | 34.700 | 340.600 | 60.500 | 349.500 | 66.100 | 349.500 | 96.300 |
| GR | 342.800 | 98.500 | 340.200 | 136.800 | 338.100 | 155.300 | 334.600 | 180.600 | 333.400 | 222.500 |
| GR | 334.800 | 260.100 | 336.500 | 345.000 | 335.700 | 436.600 | 335.500 | 526.000 | 329.900 | 543.300 |
| GR | 326.400 | 565.100 | 326.400 | 579.200 | 326.900 | 600.100 | 327.400 | 666.600 | 328.300 | 706.900 |
| GR | 330.800 | 735.100 | 330.400 | 858.000 | 330.600 | 943.800 | 331.500 | 1061.400 | 332.800 | 1173.400 |
| GR | 332.300 | 1284.600 | 332.000 | 1356.700 | 331.700 | 1462.300 | 331.800 | 1569.900 | 330.700 | 1613.800 |
| GR | 331.300 | 1697.200 | 334.300 | 1707.700 | 334.600 | 1721.000 | 333.000 | 1725.000 | 333.000 | 1745.000 |
| GR | 320.100 | 1790.000 | 320.000 | 1810.000 | 319.500 | 1890.000 | 319.000 | 1990.000 | 318.900 | 2045.000 |
| GR | 319.000 | 2100.000 | 319.500 | 2200.000 | 320.000 | 2305.000 | 320.300 | 2385.000 | 332.800 | 2415.000 |
| GR | 332.800 | 2450.000 | 325.100 | 2455.200 | 324.900 | 2486.500 | 327.100 | 2495.400 | 336.300 | 2514.300 |
| GR | 332.700 | 2530.500 | 341.700 | 2535.700 | 343.500 | 2592.900 | 344.700 | 2638.000 | 345.800 | 2692.100 |
| GR | 346.700 | 2731.100 | 342.400 | 2741.600 | 338.000 | 2750.100 | 337.000 | 2775.500 | 335.200 | 2821.000 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| GR | 334.400 | 2873.400 | 334.500 | 2956.000 | 335.000 | 3024.500 | 334.400 | 3131.600 | 331.200 | 3178.800 |
| GR | 329.400 | 3257.300 | 328.000 | 3320.100 | 331.800 | 3358.000 | 334.000 | 3423.100 | 334.500 | 3542.100 |
| GR | 332.900 | 3662.500 | 331.200 | 3717.300 | 331.600 | 3766.900 | 332.100 | 3854.300 | 332.400 | 3961.500 |
| GR | 333.300 | 4033.600 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 0.000 | 7.100 | 0.000 | 0.000 | 0.000 | 1750.000 | 2525.000 | 0.000 | 0.000 |
| | | | | | | | | | | |
| X1 | 415.000 | 80.000 | 1750.000 | 2525.000 | 895.000 | 820.000 | 850.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 323.600 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 345.900 | 0.000 | 344.600 | 48.000 | 343.300 | 87.200 | 341.600 | 90.000 | 341.400 | 104.000 |
| GR | 340.300 | 137.600 | 342.900 | 150.100 | 343.200 | 167.600 | 352.500 | 172.000 | 352.500 | 224.500 |
| GR | 344.000 | 227.800 | 342.700 | 299.800 | 349.600 | 308.200 | 349.600 | 347.800 | 341.300 | 350.600 |
| GR | 339.600 | 383.000 | 339.300 | 418.600 | 342.100 | 444.600 | 350.500 | 450.200 | 350.300 | 478.700 |
| GR | 341.400 | 481.100 | 340.900 | 509.500 | 334.500 | 519.100 | 331.600 | 531.900 | 330.800 | 541.900 |
| GR | 329.100 | 547.900 | 329.100 | 557.500 | 330.700 | 566.700 | 330.700 | 626.700 | 330.400 | 716.300 |
| GR | 330.000 | 812.000 | 331.500 | 840.800 | 331.000 | 891.200 | 333.300 | 907.600 | 333.800 | 1027.600 |
| GR | 332.700 | 1147.200 | 333.600 | 1242.900 | 334.000 | 1346.100 | 333.800 | 1388.900 | 332.900 | 1486.900 |
| GR | 330.600 | 1544.200 | 329.100 | 1592.200 | 329.700 | 1647.800 | 328.800 | 1683.000 | 333.400 | 1720.000 |
| GR | 333.400 | 1750.000 | 321.300 | 1800.000 | 320.500 | 1960.000 | 320.000 | 2065.000 | 319.900 | 2120.000 |
| GR | 320.000 | 2190.000 | 320.500 | 2290.000 | 321.000 | 2400.000 | 321.300 | 2450.000 | 333.400 | 2525.000 |
| GR | 330.400 | 2533.000 | 329.600 | 2578.200 | 332.000 | 2589.800 | 337.300 | 2601.400 | 339.600 | 2613.400 |
| GR | 342.400 | 2755.900 | 346.100 | 2909.500 | 348.700 | 3015.100 | 341.500 | 3032.400 | 339.900 | 3043.200 |
| GR | 335.600 | 3048.800 | 335.300 | 3116.800 | 335.600 | 3214.400 | 336.600 | 3290.800 | 334.800 | 3312.000 |
| GR | 332.800 | 3337.600 | 331.200 | 3373.700 | 332.500 | 3452.100 | 332.700 | 3534.900 | 334.500 | 3594.500 |
| GR | 335.400 | 3648.500 | 333.800 | 3713.700 | 333.400 | 3748.200 | 335.200 | 3797.800 | 335.300 | 3858.600 |
| ET | 0.000 | 0.000 | 7.100 | 0.000 | 0.000 | 0.000 | 1292.000 | 1972.000 | 0.000 | 0.000 |
| | | | | | | | | | | |
| X1 | 420.000 | 77.000 | 1292.000 | 1972.000 | 425.000 | 425.000 | 425.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 323.200 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 345.200 | 0.000 | 344.500 | 27.200 | 354.600 | 29.200 | 354.600 | 92.400 | 343.100 | 95.200 |
| GR | 341.100 | 122.400 | 341.100 | 156.800 | 342.300 | 185.900 | 352.000 | 193.500 | 352.000 | 226.700 |
| GR | 343.500 | 228.300 | 341.300 | 251.100 | 335.100 | 259.900 | 332.300 | 269.100 | 331.800 | 293.100 |
| GR | 334.200 | 301.100 | 332.500 | 329.100 | 333.400 | 351.500 | 334.400 | 386.300 | 333.000 | 419.900 |
| GR | 330.900 | 436.300 | 329.900 | 455.500 | 330.900 | 507.100 | 331.500 | 607.000 | 331.800 | 681.000 |
| GR | 333.100 | 747.800 | 335.300 | 784.600 | 334.900 | 914.100 | 335.300 | 986.100 | 334.000 | 1055.300 |
| GR | 333.200 | 1120.500 | 331.300 | 1130.100 | 329.700 | 1162.500 | 330.800 | 1239.200 | 333.700 | 1272.000 |
| GR | 333.700 | 1292.000 | 321.500 | 1337.000 | 320.000 | 1627.000 | 321.500 | 1932.000 | 333.700 | 1972.000 |
| GR | 335.100 | 1972.900 | 334.800 | 1996.500 | 340.000 | 2008.500 | 339.900 | 2050.100 | 339.900 | 2082.500 |
| GR | 335.600 | 2092.900 | 331.400 | 2099.700 | 331.700 | 2152.900 | 331.700 | 2186.500 | 334.700 | 2198.300 |
| GR | 335.800 | 2259.300 | 336.400 | 2363.600 | 337.000 | 2483.200 | 336.600 | 2591.600 | 336.200 | 2760.700 |
| GR | 336.700 | 2809.900 | 337.000 | 2896.300 | 335.700 | 2923.500 | 333.100 | 2937.800 | 331.900 | 2989.000 |
| GR | 332.900 | 3062.200 | 335.300 | 3114.600 | 336.200 | 3217.800 | 335.400 | 3276.500 | 336.100 | 3352.100 |
| GR | 336.100 | 3472.500 | 335.100 | 3552.500 | 336.000 | 3649.200 | 336.800 | 3704.800 | 338.500 | 3711.200 |
| GR | 339.600 | 3777.200 | 357.500 | 3779.600 | 357.500 | 3885.500 | 339.000 | 3889.500 | 337.900 | 3948.700 |
| GR | 338.400 | 3991.500 | 340.700 | 4000.700 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | 0.000 | 0.000 | 0.000 | 0.300 | 0.500 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 0.000 | 7.100 | 0.000 | 0.000 | 0.000 | 1661.000 | 2133.700 | 0.000 | 0.000 |
| | | | | | | | | | | |
| X1 | 422.000 | 54.000 | 1661.000 | 2133.700 | 350.000 | 275.000 | 321.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 324.500 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| BT | 46.000 | 1661.000 | 345.000 | 342.000 | 1689.300 | 345.000 | 342.000 | 1689.300 | 345.000 | 0.000 |
| BT | 1696.300 | 345.000 | 0.000 | 1696.300 | 345.000 | 342.000 | 1731.300 | 345.000 | 342.000 | 1731.300 |
| BT | 345.000 | 0.000 | 1738.300 | 345.000 | 0.000 | 1738.300 | 345.000 | 342.000 | 1773.300 | 345.000 |
| BR | 342.000 | 1773.300 | 345.000 | 0.000 | 1780.300 | 345.000 | 0.000 | 1780.300 | 345.000 | 342.000 |
| BT | 1813.800 | 345.000 | 342.000 | 1813.800 | 345.000 | 0.000 | 1823.800 | 345.000 | 0.000 | 1823.800 |
| BT | 345.000 | 342.000 | 1857.300 | 345.000 | 342.000 | 1857.300 | 345.000 | 0.000 | 1864.300 | 345.000 |
| BT | 0.000 | 1864.300 | 345.000 | 342.000 | 1899.300 | 345.000 | 342.000 | 1899.300 | 345.000 | 0.000 |
| BT | 1906.300 | 345.000 | 0.000 | 1906.300 | 345.000 | 342.000 | 1941.300 | 345.000 | 342.000 | 1941.300 |
| BT | 345.000 | 0.000 | 1948.300 | 345.000 | 0.000 | 1948.300 | 345.000 | 342.000 | 1981.800 | 345.000 |
| BT | 342.000 | 1981.800 | 345.000 | 0.000 | 1991.800 | 345.000 | 0.000 | 1991.800 | 345.000 | 342.000 |
| BT | 2025.300 | 345.000 | 342.000 | 2025.300 | 345.000 | 0.000 | 2032.300 | 345.000 | 0.000 | 2032.300 |
| BT | 345.000 | 342.000 | 2067.300 | 345.000 | 342.000 | 2067.300 | 345.000 | 0.000 | 2074.300 | 345.000 |
| BT | 0.000 | 2074.300 | 345.000 | 342.000 | 2109.300 | 345.000 | 342.000 | 2109.300 | 345.000 | 0.000 |
| BT | 2116.300 | 345.000 | 0.000 | 2116.300 | 345.000 | 342.000 | 2133.700 | 345.000 | 342.000 | 0.000 |
| GR | 349.200 | 0.000 | 345.500 | 97.600 | 342.300 | 188.500 | 339.900 | 293.000 | 337.800 | 404.900 |
| GR | 335.100 | 523.600 | 333.400 | 612.500 | 334.400 | 641.800 | 337.900 | 653.000 | 337.200 | 678.600 |
| GR | 335.700 | 696.300 | 335.700 | 731.800 | 335.500 | 780.200 | 338.600 | 831.400 | 337.900 | 854.700 |

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|---|---|---|---|---|---|---|---|---|---|---|
| GR | 338.800 | 930.900 | 337.500 | 965.800 | 335.600 | 1004.000 | 332.700 | 1048.200 | 334.300 | 1123.700 |
| GR | 332.700 | 1225.700 | 334.200 | 1344.100 | 334.000 | 1416.700 | 332.400 | 1470.600 | 332.300 | 1574.400 |
| GR | 332.400 | 1618.000 | 333.900 | 1627.700 | 333.600 | 1661.000 | 327.700 | 1675.500 | 322.400 | 1687.800 |
| GR | 323.100 | 1717.400 | 322.200 | 1821.500 | 322.300 | 1966.100 | 322.300 | 2087.800 | 331.900 | 2110.100 |
| GR | 335.900 | 2133.700 | 334.600 | 2209.200 | 332.900 | 2292.100 | 333.300 | 2390.700 | 335.400 | 2458.300 |
| GR | 335.500 | 2560.300 | 336.300 | 2667.400 | 337.100 | 2793.300 | 337.100 | 2955.700 | 337.200 | 3097.500 |
| GR | 337.700 | 3198.100 | 335.100 | 3247.400 | 333.800 | 3275.800 | 332.500 | 3374.800 | 334.100 | 3444.800 |
| GR | 336.400 | 3544.600 | 336.600 | 3663.600 | 336.600 | 3749.700 | 336.800 | 3828.200 | 0.000 | 0.000 |
| SB | 1.000 | 1.500 | 2.700 | 0.000 | 432.000 | 83.000 | 6500.000 | 2.000 | 325.000 | 325.000 |
| ET | 0.000 | 5.100 | 5.100 | 5.100 | 1664.800 | 2135.500 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 424.000 | 62.000 | 1664.800 | 2135.500 | 170.000 | 170.000 | 170.000 | 0.000 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 1.000 | 342.000 | 345.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 325.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| BT | 46.000 | 1664.800 | 345.000 | 342.000 | 1689.300 | 345.000 | 342.000 | 1689.300 | 345.000 | 0.000 |
| BT | 1696.300 | 345.000 | 0.000 | 1696.300 | 345.000 | 342.000 | 1731.300 | 345.000 | 342.000 | 1731.300 |
| BT | 345.000 | 0.000 | 1738.300 | 345.000 | 0.000 | 1738.300 | 345.000 | 342.000 | 1773.300 | 345.000 |
| BT | 342.000 | 1773.300 | 345.000 | 0.000 | 1780.300 | 345.000 | 0.000 | 1780.300 | 345.000 | 342.000 |
| BT | 1813.800 | 345.000 | 342.000 | 1813.800 | 345.000 | 0.000 | 1823.800 | 345.000 | 0.000 | 1823.800 |
| BT | 345.000 | 342.000 | 1857.300 | 345.000 | 342.000 | 1857.300 | 345.000 | 0.000 | 1864.300 | 345.000 |
| BT | 0.000 | 1864.300 | 345.000 | 342.000 | 1899.300 | 345.000 | 342.000 | 1899.300 | 345.000 | 0.000 |
| BT | 1906.300 | 345.000 | 0.000 | 1906.300 | 345.000 | 342.000 | 1941.300 | 345.000 | 342.000 | 1941.300 |
| BT | 345.000 | 0.000 | 1948.300 | 345.000 | 0.000 | 1948.300 | 345.000 | 342.000 | 1981.800 | 345.000 |
| BT | 342.000 | 1981.800 | 345.000 | 0.000 | 1991.800 | 345.000 | 0.000 | 1991.800 | 345.000 | 342.000 |
| BT | 2025.300 | 345.000 | 342.000 | 2025.300 | 345.000 | 0.000 | 2032.300 | 345.000 | 0.000 | 2032.300 |
| BT | 345.000 | 342.000 | 2067.300 | 345.000 | 342.000 | 2067.300 | 345.000 | 0.000 | 2074.300 | 345.000 |
| BT | 0.000 | 2074.300 | 345.000 | 342.000 | 2109.300 | 345.000 | 342.000 | 2109.300 | 345.000 | 0.000 |
| BT | 2116.300 | 345.000 | 0.000 | 2116.300 | 345.000 | 342.000 | 2135.500 | 345.000 | 342.000 | 0.000 |
| GR | 344.700 | 0.000 | 345.200 | 84.500 | 344.700 | 137.400 | 343.600 | 270.500 | 341.500 | 377.400 |
| GR | 341.100 | 475.400 | 339.900 | 591.000 | 340.400 | 631.800 | 338.600 | 643.800 | 337.400 | 691.100 |
| GR | 335.200 | 701.500 | 333.800 | 718.900 | 333.300 | 733.800 | 335.800 | 744.600 | 335.500 | 822.100 |
| GR | 336.900 | 899.200 | 335.400 | 950.400 | 332.500 | 973.200 | 332.500 | 1045.400 | 332.300 | 1091.100 |
| GR | 333.900 | 1118.700 | 334.900 | 1172.400 | 333.100 | 1211.200 | 332.800 | 1264.400 | 330.300 | 1282.100 |
| GR | 330.600 | 1362.600 | 329.800 | 1471.200 | 328.300 | 1546.100 | 327.600 | 1621.100 | 326.000 | 1664.800 |
| GR | 324.900 | 1722.400 | 324.300 | 1747.600 | 323.100 | 1753.200 | 323.100 | 1788.600 | 323.100 | 1820.400 |
| GR | 324.400 | 1830.400 | 324.000 | 1945.900 | 325.700 | 2020.400 | 325.900 | 2067.400 | 324.500 | 2093.600 |
| GR | 323.500 | 2135.500 | 326.300 | 2185.800 | 327.300 | 2260.800 | 327.100 | 2328.800 | 325.500 | 2370.800 |
| GR | 326.000 | 2386.200 | 327.800 | 2391.700 | 329.200 | 2482.100 | 328.600 | 2572.200 | 330.800 | 2650.800 |
| GR | 330.400 | 2742.200 | 331.400 | 2837.900 | 331.300 | 2933.800 | 331.700 | 3031.300 | 332.100 | 3142.300 |
| GR | 331.700 | 3228.800 | 332.600 | 3332.300 | 332.900 | 3440.500 | 333.900 | 3548.800 | 333.800 | 3671.900 |
| GR | 333.000 | 3757.200 | 332.900 | 3851.300 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | 0.000 | 0.000 | 0.035 | 0.100 | 0.300 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | 0.000 | 0.000 | 0.040 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 5.100 | 7.100 | 5.100 | 1312.700 | 2800.000 | 1540.000 | 2490.000 | 0.000 | 0.000 |
| X1 | 425.000 | 81.000 | 1393.900 | 2499.400 | 400.000 | 350.000 | 210.000 | 0.000 | 0.000 | 0.000 |
| GR | 343.500 | 0.000 | 344.900 | 130.400 | 344.900 | 239.700 | 344.000 | 352.100 | 343.700 | 467.400 |
| GR | 341.600 | 519.400 | 340.600 | 645.500 | 339.400 | 758.400 | 337.400 | 779.600 | 336.500 | 816.400 |
| GR | 334.100 | 830.800 | 333.700 | 843.600 | 335.500 | 865.600 | 335.600 | 901.700 | 335.300 | 946.900 |
| GR | 336.600 | 966.100 | 336.900 | 1043.700 | 335.100 | 1107.000 | 333.300 | 1125.800 | 331.800 | 1174.600 |
| GR | 333.600 | 1223.000 | 334.100 | 1272.700 | 334.800 | 1312.700 | 333.300 | 1357.900 | 333.800 | 1393.900 |
| GR | 331.300 | 1408.300 | 329.600 | 1453.600 | 329.900 | 1514.400 | 329.900 | 1611.300 | 328.600 | 1708.500 |
| GR | 327.000 | 1766.500 | 326.200 | 1848.200 | 327.600 | 1883.000 | 329.000 | 1905.000 | 328.900 | 1929.400 |
| GR | 325.900 | 1935.800 | 326.800 | 1955.800 | 324.100 | 1988.600 | 323.100 | 1995.400 | 322.400 | 2015.800 |
| GR | 323.000 | 2038.400 | 324.900 | 2049.200 | 327.900 | 2056.400 | 328.100 | 2104.400 | 329.100 | 2179.200 |
| GR | 329.600 | 2255.700 | 330.200 | 2360.500 | 331.600 | 2429.300 | 332.600 | 2468.900 | 335.100 | 2490.200 |
| GR | 336.800 | 2499.400 | 337.800 | 2649.800 | 337.700 | 2792.700 | 337.700 | 2935.900 | 338.200 | 3076.000 |
| GR | 338.300 | 3169.600 | 336.200 | 3187.200 | 334.200 | 3238.500 | 332.800 | 3303.300 | 334.000 | 3371.700 |
| GR | 334.100 | 3458.200 | 336.900 | 3467.800 | 337.900 | 3568.600 | 337.900 | 3699.000 | 338.200 | 3839.100 |
| GR | 337.900 | 3974.000 | 337.800 | 4092.000 | 337.400 | 4210.100 | 337.200 | 4327.700 | 337.400 | 4445.400 |
| GR | 337.500 | 4541.800 | 337.200 | 4623.000 | 338.000 | 4704.300 | 339.900 | 4717.100 | 341.300 | 4762.700 |
| GR | 340.100 | 4810.700 | 342.000 | 4820.700 | 343.100 | 4834.300 | 352.200 | 4837.900 | 352.400 | 4912.000 |
| GR | 343.500 | 4919.200 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 5.100 | 7.100 | 5.100 | 1000.000 | 2800.000 | 1520.000 | 2515.000 | 0.000 | 0.000 |
| X1 | 430.000 | 75.000 | 1087.400 | 1913.400 | 550.000 | 770.000 | 465.000 | 0.000 | 0.000 | 0.000 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| GR | 345.300 | 0.000 | 343.900 | 130.500 | 343.300 | 268.600 | 342.900 | 405.600 | 342.100 | 532.100 |
| GR | 341.100 | 682.600 | 339.800 | 806.000 | 339.000 | 882.400 | 336.400 | 892.500 | 336.900 | 939.300 |
| GR | 339.800 | 973.700 | 339.700 | 1057.000 | 338.500 | 1087.400 | 333.800 | 1095.400 | 330.600 | 1136.700 |
| GR | 330.700 | 1194.300 | 330.200 | 1290.000 | 330.200 | 1385.300 | 329.200 | 1473.800 | 327.200 | 1544.600 |
| GR | 330.400 | 1556.700 | 330.500 | 1616.300 | 330.300 | 1703.200 | 328.800 | 1721.600 | 327.200 | 1733.700 |
| GR | 326.800 | 1788.900 | 324.700 | 1869.400 | 324.000 | 1882.400 | 324.700 | 1893.300 | 328.100 | 1896.500 |
| GR | 329.300 | 1905.300 | 332.300 | 1913.400 | 333.000 | 1952.600 | 332.100 | 2047.500 | 333.400 | 2058.700 |
| GR | 334.900 | 2081.100 | 335.100 | 2195.200 | 335.800 | 2304.900 | 334.500 | 2430.700 | 333.500 | 2516.300 |
| GR | 335.900 | 2531.900 | 335.400 | 2574.000 | 335.300 | 2601.600 | 337.800 | 2627.200 | 338.800 | 2643.200 |
| GR | 337.900 | 2736.900 | 337.100 | 2847.800 | 335.000 | 2905.500 | 335.500 | 2955.100 | 337.000 | 3007.200 |
| GR | 336.600 | 3120.500 | 336.200 | 3231.700 | 335.600 | 3367.000 | 334.700 | 3451.100 | 334.800 | 3471.500 |
| GR | 338.800 | 3512.400 | 339.600 | 3576.400 | 339.800 | 3708.900 | 339.400 | 3820.600 | 339.500 | 3948.400 |
| GR | 338.700 | 4058.400 | 339.200 | 4182.900 | 339.100 | 4309.000 | 338.800 | 4443.600 | 338.700 | 4549.200 |
| GR | 339.000 | 4692.200 | 337.800 | 4754.500 | 339.000 | 4775.300 | 341.500 | 4781.700 | 342.200 | 4827.300 |
| GR | 341.100 | 4874.500 | 343.200 | 4889.300 | 343.600 | 4900.900 | 353.500 | 4901.700 | 353.500 | 4945.700 |
| GT | 2.000 | 34000.000 | 34000.000 | 3800.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 5.100 | 7.100 | 5.100 | 1400.000 | 3000.000 | 1505.000 | 2500.000 | 0.000 | 0.000 |
| | | | | | | | | | | |
| X1 | 440.000 | 86.000 | 1643.300 | 1855.200 | 760.000 | 540.000 | 542.000 | 0.000 | 0.000 | 0.000 |
| GR | 366.000 | 0.000 | 365.100 | 64.600 | 364.100 | 118.400 | 362.600 | 169.000 | 359.900 | 213.900 |
| GR | 354.100 | 262.500 | 352.800 | 289.800 | 348.100 | 321.100 | 346.100 | 350.400 | 344.800 | 384.100 |
| GR | 344.000 | 445.900 | 343.300 | 512.600 | 343.100 | 602.900 | 342.500 | 692.800 | 342.500 | 775.900 |
| GR | 342.100 | 817.600 | 336.000 | 832.500 | 334.300 | 847.800 | 333.500 | 879.000 | 331.700 | 897.100 |
| GR | 333.500 | 909.600 | 337.500 | 921.600 | 338.200 | 955.300 | 338.200 | 1015.500 | 337.500 | 1085.000 |
| GR | 338.200 | 1131.100 | 339.600 | 1163.200 | 337.000 | 1202.200 | 338.800 | 1233.900 | 339.000 | 1292.500 |
| GR | 338.400 | 1331.800 | 339.500 | 1347.500 | 339.500 | 1431.300 | 338.900 | 1500.000 | 336.600 | 1522.400 |
| GR | 334.700 | 1562.200 | 336.400 | 1593.500 | 334.900 | 1643.300 | 329.700 | 1658.100 | 329.700 | 1675.800 |
| GR | 328.100 | 1687.800 | 326.400 | 1697.800 | 326.900 | 1741.300 | 326.100 | 1809.000 | 324.700 | 1818.800 |
| GR | 325.800 | 1829.200 | 331.600 | 1842.000 | 335.100 | 1855.200 | 336.300 | 1890.500 | 336.700 | 1990.900 |
| GR | 335.400 | 2099.700 | 334.300 | 2191.500 | 334.700 | 2233.300 | 337.500 | 2241.300 | 338.000 | 2253.000 |
| GR | 337.600 | 2327.600 | 335.900 | 2447.600 | 337.100 | 2518.700 | 337.200 | 2575.300 | 338.000 | 2633.500 |
| GR | 337.800 | 2742.700 | 340.000 | 2765.900 | 340.000 | 2857.900 | 340.200 | 2964.400 | 340.300 | 3137.300 |
| GR | 340.000 | 3233.300 | 337.100 | 3261.700 | 335.300 | 3298.300 | 336.000 | 3352.100 | 336.900 | 3466.800 |
| GR | 337.500 | 3497.700 | 340.100 | 3528.300 | 340.400 | 3669.100 | 341.200 | 3831.300 | 340.900 | 3956.900 |
| GR | 341.500 | 4073.700 | 340.800 | 4223.800 | 339.900 | 4360.700 | 340.100 | 4479.500 | 340.400 | 4590.300 |
| GR | 339.900 | 4690.600 | 340.500 | 4799.400 | 343.400 | 4807.800 | 343.700 | 4855.200 | 342.700 | 4900.200 |
| GR | 339.900 | 4932.700 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 5.100 | 7.100 | 5.100 | 1400.000 | 3000.000 | 1535.000 | 2535.000 | 0.000 | 0.000 |
| | | | | | | | | | | |
| X1 | 450.000 | 77.000 | 1542.400 | 2095.600 | 580.000 | 590.000 | 534.000 | 0.000 | 0.000 | 0.000 |
| GR | 349.200 | 0.000 | 348.600 | 39.800 | 348.700 | 156.000 | 346.700 | 259.300 | 345.300 | 395.300 |
| GR | 344.000 | 516.200 | 343.600 | 611.000 | 343.200 | 652.200 | 340.200 | 664.700 | 339.000 | 688.100 |
| GR | 339.100 | 701.400 | 341.600 | 711.500 | 343.800 | 720.000 | 343.300 | 766.000 | 343.200 | 830.200 |
| GR | 342.300 | 849.900 | 342.600 | 883.000 | 341.500 | 897.100 | 339.300 | 911.600 | 339.500 | 955.600 |
| GR | 338.500 | 986.600 | 341.300 | 997.500 | 340.800 | 1089.100 | 341.300 | 1158.800 | 340.900 | 1253.600 |
| GR | 338.600 | 1341.200 | 339.900 | 1388.800 | 341.000 | 1415.000 | 340.500 | 1474.200 | 341.100 | 1503.700 |
| GR | 339.100 | 1523.900 | 339.900 | 1542.400 | 332.700 | 1555.700 | 327.100 | 1571.500 | 324.800 | 1574.300 |
| GR | 324.800 | 1773.300 | 324.800 | 2067.300 | 328.300 | 2077.100 | 336.600 | 2095.600 | 333.600 | 2110.200 |
| GR | 331.900 | 2192.400 | 331.800 | 2293.300 | 331.600 | 2390.900 | 332.700 | 2431.300 | 336.700 | 2447.400 |
| GR | 335.800 | 2454.600 | 337.800 | 2465.900 | 338.800 | 2540.500 | 338.200 | 2613.500 | 339.700 | 2651.900 |
| GR | 338.700 | 2706.700 | 339.200 | 2729.400 | 340.200 | 2743.100 | 341.300 | 2844.700 | 341.300 | 2931.500 |
| GR | 341.200 | 3036.400 | 340.300 | 3092.400 | 338.900 | 3138.400 | 336.700 | 3164.600 | 336.600 | 3194.100 |
| GR | 338.900 | 3204.600 | 340.600 | 3233.200 | 340.400 | 3316.700 | 339.800 | 3372.800 | 338.700 | 3436.100 |
| GR | 337.900 | 3457.100 | 339.900 | 3492.900 | 341.100 | 3574.900 | 342.800 | 3651.500 | 343.100 | 3804.400 |
| GR | 342.600 | 3952.000 | 343.000 | 4067.800 | 341.500 | 4208.200 | 341.100 | 4373.100 | 340.900 | 4513.100 |
| GR | 340.800 | 4636.100 | 342.100 | 4774.500 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 5.100 | 7.100 | 5.100 | 1.000 | 2700.000 | 1295.000 | 2230.000 | 0.000 | 0.000 |
| | | | | | | | | | | |
| X1 | 460.000 | 77.000 | 1298.200 | 2042.900 | 450.000 | 475.000 | 423.000 | 0.000 | 0.000 | 0.000 |
| GR | 346.900 | 0.000 | 347.100 | 52.900 | 342.000 | 75.400 | 341.100 | 106.100 | 340.800 | 128.700 |
| GR | 341.900 | 154.900 | 341.000 | 204.200 | 342.400 | 244.000 | 345.300 | 260.200 | 345.900 | 282.800 |
| GR | 346.600 | 355.800 | 346.400 | 435.400 | 343.000 | 452.700 | 340.700 | 468.400 | 341.600 | 532.500 |
| GR | 341.100 | 628.500 | 342.500 | 735.100 | 342.500 | 800.000 | 341.400 | 888.700 | 341.400 | 1002.900 |
| GR | 339.600 | 1090.900 | 339.200 | 1174.700 | 336.400 | 1213.100 | 339.600 | 1255.400 | 339.400 | 1298.200 |
| GR | 334.100 | 1304.600 | 327.800 | 1318.300 | 327.400 | 1376.900 | 325.700 | 1404.300 | 327.400 | 1423.200 |
| GR | 327.400 | 1453.100 | 325.100 | 1458.000 | 324.900 | 1461.700 | 325.100 | 1474.900 | 326.200 | 1516.900 |

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|---|---|---|---|---|---|---|---|---|---|---|
| GR | 325.800 | 1589.900 | 324.800 | 1602.000 | 324.800 | 2017.400 | 329.400 | 2026.700 | 336.800 | 2042.900 |
| GR | 334.900 | 2057.800 | 334.400 | 2138.100 | 334.300 | 2231.600 | 332.800 | 2276.000 | 335.100 | 2345.000 |
| GR | 337.000 | 2359.900 | 337.200 | 2422.400 | 337.800 | 2454.300 | 339.600 | 2470.400 | 340.800 | 2531.400 |
| GR | 340.100 | 2589.500 | 339.600 | 2650.800 | 341.300 | 2674.900 | 341.500 | 2727.400 | 341.200 | 2790.400 |
| GR | 339.100 | 2803.700 | 339.200 | 2835.200 | 342.700 | 2843.200 | 343.300 | 2886.400 | 343.500 | 2987.200 |
| GR | 343.200 | 3113.100 | 342.300 | 3203.800 | 343.700 | 3263.500 | 344.000 | 3304.300 | 342.900 | 3325.200 |
| GR | 342.000 | 3428.100 | 340.700 | 3511.200 | 342.800 | 3593.800 | 344.200 | 3725.700 | 344.200 | 3934.200 |
| GR | 343.900 | 4035.000 | 343.100 | 4156.900 | 343.500 | 4281.500 | 343.300 | 4369.300 | 343.800 | 4457.600 |
| GR | 346.100 | 4500.400 | 346.400 | 4541.900 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 5.100 | 7.100 | 5.100 | 300.000 | 3200.000 | 1235.000 | 2250.000 | 0.000 | 0.000 |
| X1 | 470.000 | 86.000 | 1237.900 | 2138.600 | 390.000 | 385.000 | 423.000 | 0.000 | 0.000 | 0.000 |
| GR | 342.200 | 0.000 | 342.400 | 38.700 | 341.700 | 76.200 | 343.600 | 100.400 | 344.100 | 166.200 |
| GR | 345.800 | 177.500 | 348.500 | 186.700 | 349.100 | 270.200 | 349.000 | 363.800 | 348.600 | 382.400 |
| GR | 345.200 | 394.500 | 343.600 | 422.300 | 342.200 | 458.200 | 342.400 | 557.500 | 342.600 | 651.800 |
| GR | 343.000 | 745.400 | 343.100 | 847.100 | 343.500 | 920.500 | 342.600 | 1033.400 | 342.700 | 1148.400 |
| GR | 341.400 | 1214.500 | 340.900 | 1237.900 | 334.000 | 1249.200 | 325.900 | 1260.900 | 324.800 | 1305.700 |
| GR | 325.500 | 1321.400 | 326.600 | 1345.200 | 329.200 | 1360.500 | 327.300 | 1380.300 | 327.600 | 1401.200 |
| GR | 328.800 | 1433.100 | 331.300 | 1456.500 | 332.200 | 1524.200 | 332.400 | 1549.700 | 328.500 | 1565.000 |
| GR | 328.800 | 1598.100 | 331.000 | 1613.000 | 329.100 | 1656.600 | 330.700 | 1711.000 | 330.300 | 1757.800 |
| GR | 328.900 | 1779.600 | 328.600 | 1798.500 | 333.400 | 1807.800 | 332.400 | 1824.700 | 328.900 | 1834.000 |
| GR | 328.900 | 1844.900 | 332.600 | 1855.400 | 332.300 | 1892.900 | 327.600 | 1918.300 | 327.000 | 1951.400 |
| GR | 326.500 | 2027.200 | 326.400 | 2110.700 | 331.600 | 2124.800 | 337.300 | 2138.600 | 338.100 | 2184.500 |
| GR | 338.000 | 2309.600 | 338.800 | 2437.400 | 338.300 | 2533.000 | 338.900 | 2649.500 | 337.800 | 2680.600 |
| GR | 337.600 | 2708.100 | 342.500 | 2719.400 | 342.500 | 2752.400 | 342.800 | 2824.600 | 343.900 | 2923.800 |
| GR | 342.800 | 3009.000 | 345.100 | 3017.800 | 344.600 | 3103.300 | 345.200 | 3227.600 | 345.700 | 3327.700 |
| GR | 343.500 | 3415.100 | 342.900 | 3525.300 | 343.500 | 3613.100 | 343.400 | 3718.000 | 343.600 | 3810.800 |
| GR | 343.200 | 3892.300 | 345.200 | 3918.500 | 344.300 | 3983.000 | 340.900 | 4025.800 | 337.800 | 4078.200 |
| GR | 338.100 | 4139.900 | 339.000 | 4188.300 | 343.600 | 4193.900 | 343.600 | 4291.600 | 344.100 | 4388.300 |
| GR | 345.500 | 4509.500 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 0.000 | 7.100 | 0.000 | 0.000 | 0.000 | 1180.000 | 2190.000 | 0.000 | 0.000 |
| X1 | 480.000 | 80.000 | 1186.500 | 1441.100 | 270.000 | 700.000 | 281.000 | 0.000 | 0.000 | 0.000 |
| GR | 345.300 | 0.000 | 343.900 | 35.400 | 350.000 | 50.300 | 349.500 | 116.700 | 349.900 | 205.300 |
| GR | 349.500 | 295.000 | 347.400 | 301.900 | 344.100 | 308.300 | 343.300 | 370.800 | 342.400 | 456.500 |
| GR | 344.600 | 539.400 | 344.400 | 636.000 | 344.400 | 741.000 | 343.600 | 862.900 | 343.900 | 971.300 |
| GR | 343.300 | 1083.500 | 343.400 | 1130.300 | 341.300 | 1154.400 | 340.800 | 1186.500 | 334.700 | 1198.200 |
| GR | 329.200 | 1207.100 | 326.700 | 1219.200 | 326.900 | 1257.400 | 325.900 | 1286.500 | 325.300 | 1296.500 |
| GR | 326.000 | 1318.800 | 328.900 | 1330.000 | 329.900 | 1354.900 | 327.800 | 1383.200 | 326.000 | 1390.000 |
| GR | 326.100 | 1418.900 | 328.200 | 1423.400 | 331.400 | 1432.200 | 335.000 | 1438.700 | 340.900 | 1441.100 |
| GR | 341.200 | 1511.900 | 340.600 | 1604.900 | 342.400 | 1656.800 | 343.100 | 1738.100 | 342.600 | 1844.600 |
| GR | 342.500 | 1944.300 | 341.200 | 1990.400 | 339.600 | 2019.000 | 338.900 | 2089.100 | 339.200 | 2174.800 |
| GR | 339.000 | 2278.600 | 338.900 | 2364.300 | 339.100 | 2454.100 | 339.300 | 2477.800 | 342.400 | 2502.400 |
| GR | 343.500 | 2577.200 | 343.600 | 2669.800 | 343.800 | 2781.700 | 343.800 | 2875.500 | 345.300 | 2884.300 |
| GR | 345.500 | 2964.800 | 346.200 | 3053.800 | 344.700 | 3151.600 | 347.400 | 3223.600 | 361.700 | 3227.600 |
| GR | 361.700 | 3293.600 | 348.500 | 3300.100 | 347.700 | 3366.500 | 347.900 | 3472.800 | 347.100 | 3562.500 |
| GR | 347.600 | 3678.800 | 347.600 | 3793.100 | 347.100 | 3837.800 | 345.200 | 3856.700 | 346.100 | 3874.400 |
| GR | 369.000 | 3879.200 | 369.000 | 3920.700 | 348.900 | 3924.300 | 348.100 | 3988.700 | 340.200 | 4039.000 |
| GR | 349.600 | 4080.900 | 350.300 | 4187.500 | 350.300 | 4289.000 | 351.900 | 4369.000 | 351.500 | 4422.600 |
| ET | 0.000 | 0.000 | 7.100 | 0.000 | 0.000 | 0.000 | 1200.000 | 2180.000 | 0.000 | 0.000 |
| X1 | 483.000 | 80.000 | 1214.500 | 1486.300 | 129.000 | 165.000 | 153.000 | 0.000 | 0.000 | 0.000 |
| GR | 344.200 | 0.000 | 345.600 | 31.400 | 350.000 | 40.300 | 350.800 | 100.700 | 350.400 | 181.200 |
| GR | 350.000 | 273.700 | 345.900 | 286.700 | 344.200 | 297.200 | 343.700 | 362.400 | 343.500 | 449.700 |
| GR | 344.700 | 545.200 | 344.300 | 668.700 | 344.600 | 765.300 | 344.900 | 910.600 | 344.900 | 1017.600 |
| GR | 343.600 | 1087.600 | 342.300 | 1141.200 | 341.300 | 1177.000 | 342.000 | 1214.500 | 335.700 | 1228.500 |
| GR | 330.900 | 1238.600 | 330.500 | 1287.300 | 331.100 | 1317.500 | 327.300 | 1336.400 | 326.500 | 1353.300 |
| GR | 326.200 | 1372.900 | 326.700 | 1388.500 | 326.600 | 1430.800 | 332.300 | 1444.500 | 336.800 | 1461.700 |
| GR | 342.400 | 1486.300 | 343.600 | 1551.900 | 342.700 | 1610.200 | 343.500 | 1691.600 | 342.900 | 1804.700 |
| GR | 342.200 | 1875.900 | 340.300 | 1925.400 | 339.300 | 2029.000 | 339.300 | 2136.700 | 339.300 | 2253.300 |
| GR | 339.900 | 2352.000 | 341.300 | 2414.300 | 344.200 | 2426.000 | 344.900 | 2473.900 | 343.600 | 2573.700 |
| GR | 343.800 | 2700.500 | 343.700 | 2793.500 | 343.900 | 2842.100 | 345.700 | 2850.200 | 345.800 | 2941.100 |
| GR | 346.300 | 3055.000 | 347.800 | 3097.700 | 348.400 | 3157.700 | 348.300 | 3219.600 | 362.100 | 3223.200 |
| GR | 362.100 | 3335.500 | 347.400 | 3337.900 | 347.300 | 3430.500 | 347.200 | 3533.900 | 358.300 | 3535.500 |
| GR | 358.300 | 3729.900 | 347.700 | 3737.600 | 346.400 | 3819.000 | 345.800 | 3852.300 | 350.200 | 3868.800 |
| GR | 350.300 | 3876.900 | 365.200 | 3878.100 | 365.200 | 3914.300 | 352.800 | 3918.300 | 352.500 | 3955.800 |

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|---|---|---|---|---|---|---|---|---|---|---|
| GR | 363.300 | 3960.200 | 345.300 | 3987.900 | 351.700 | 3990.800 | 350.800 | 4031.100 | 353.600 | 4035.100 |
| GR | 355.700 | 4100.200 | 355.900 | 4167.900 | 353.600 | 4235.900 | 352.800 | 4319.600 | 353.100 | 4400.100 |
| ET | 0.000 | 0.000 | 7.100 | 0.000 | 0.000 | 0.000 | 845.000 | 1810.000 | 0.000 | 0.000 |
| | | | | | | | | | | |
| X1 | 485.000 | 48.000 | 894.000 | 1118.800 | 135.000 | 145.000 | 130.000 | 0.000 | 0.000 | 0.000 |
| GR | 346.600 | 0.000 | 345.400 | 127.400 | 345.400 | 303.100 | 344.700 | 446.600 | 344.700 | 595.000 |
| GR | 343.200 | 715.100 | 342.900 | 813.200 | 339.900 | 894.000 | 337.500 | 953.100 | 335.800 | 980.800 |
| GR | 339.200 | 1031.700 | 335.500 | 1103.500 | 340.700 | 1118.800 | 342.900 | 1179.000 | 343.900 | 1269.400 |
| GR | 343.400 | 1356.300 | 342.900 | 1486.200 | 340.400 | 1529.600 | 339.700 | 1628.100 | 339.500 | 1732.600 |
| GR | 340.300 | 1850.300 | 340.200 | 1931.500 | 341.900 | 1954.400 | 343.900 | 2004.300 | 343.100 | 2102.700 |
| GR | 344.400 | 2206.100 | 343.400 | 2313.800 | 343.400 | 2389.700 | 345.600 | 2450.000 | 346.300 | 2561.700 |
| GR | 346.400 | 2636.900 | 345.400 | 2651.300 | 345.100 | 2673.900 | 345.300 | 2791.600 | 345.600 | 2890.900 |
| GR | 345.900 | 2995.800 | 346.200 | 3105.200 | 346.400 | 3225.300 | 346.300 | 3325.400 | 347.500 | 3429.900 |
| GR | 348.300 | 3482.500 | 351.300 | 3539.200 | 355.500 | 3618.000 | 356.800 | 3672.600 | 357.000 | 3752.600 |
| GR | 355.100 | 3866.300 | 353.900 | 3954.200 | 352.400 | 4010.200 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | 0.000 | 0.000 | 0.050 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 5.100 | 7.100 | 5.100 | 1000.000 | 2700.000 | 1330.000 | 2280.000 | 0.000 | 0.000 |
| | | | | | | | | | | |
| X1 | 490.000 | 82.000 | 1404.800 | 1564.500 | 200.000 | 190.000 | 192.000 | 0.000 | 0.000 | 0.000 |
| GR | 351.500 | 0.000 | 351.100 | 109.300 | 351.300 | 208.400 | 352.500 | 312.000 | 351.700 | 361.600 |
| GR | 349.400 | 379.700 | 349.300 | 417.200 | 361.600 | 422.800 | 361.600 | 490.100 | 349.000 | 491.800 |
| GR | 347.200 | 526.600 | 346.000 | 594.700 | 349.600 | 606.300 | 346.100 | 620.400 | 346.200 | 674.000 |
| GR | 345.500 | 740.500 | 346.300 | 819.200 | 346.400 | 899.300 | 356.100 | 903.800 | 356.100 | 1099.600 |
| GR | 345.800 | 1102.100 | 345.400 | 1179.500 | 345.000 | 1257.200 | 344.900 | 1338.600 | 344.300 | 1404.800 |
| GR | 338.500 | 1415.300 | 332.600 | 1424.100 | 331.300 | 1450.700 | 327.700 | 1455.600 | 327.600 | 1485.700 |
| GR | 327.700 | 1524.600 | 333.800 | 1534.300 | 337.200 | 1564.500 | 338.800 | 1606.000 | 341.800 | 1648.700 |
| GR | 343.400 | 1698.700 | 340.300 | 1720.100 | 338.400 | 1742.700 | 338.000 | 1770.500 | 338.700 | 1785.800 |
| GR | 343.600 | 1796.700 | 342.000 | 1868.800 | 340.800 | 1918.800 | 340.700 | 2019.200 | 340.300 | 2135.200 |
| GR | 341.000 | 2229.200 | 342.100 | 2270.300 | 344.100 | 2289.200 | 345.100 | 2397.700 | 344.700 | 2497.600 |
| GR | 344.900 | 2600.400 | 344.700 | 2660.900 | 346.600 | 2671.400 | 349.400 | 2681.900 | 350.400 | 2712.100 |
| GR | 349.200 | 2731.900 | 345.300 | 2746.000 | 344.600 | 2815.700 | 344.500 | 2891.600 | 346.200 | 2962.200 |
| GR | 347.100 | 3064.600 | 346.600 | 3165.800 | 346.600 | 3241.100 | 346.700 | 3328.600 | 346.300 | 3406.000 |
| GR | 345.700 | 3528.200 | 345.400 | 3655.900 | 345.200 | 3749.700 | 344.900 | 3875.300 | 345.900 | 3933.700 |
| GR | 347.600 | 3990.600 | 351.400 | 4045.300 | 352.700 | 4115.500 | 353.300 | 4151.800 | 352.600 | 4178.400 |
| GR | 345.700 | 3528.200 | 345.400 | 3655.900 | 345.200 | 3749.700 | 344.900 | 3875.300 | 345.900 | 3933.700 |
| GR | 347.600 | 3990.600 | 351.400 | 4045.300 | 352.700 | 4115.500 | 353.300 | 4151.800 | 352.600 | 4178.400 |
| GR | 351.900 | 4196.500 | 352.700 | 4272.300 | 352.100 | 4320.300 | 354.000 | 4379.500 | 353.700 | 4423.800 |
| GR | 361.400 | 4425.800 | 361.400 | 4454.400 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GT | 2.000 | 33000.000 | 33000.000 | 3500.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 5.100 | 7.100 | 5.100 | 993.600 | 2800.000 | 1100.000 | 1910.000 | 0.000 | 0.000 |
| | | | | | | | | | | |
| X1 | 500.000 | 92.000 | 1253.900 | 1528.900 | 495.000 | 470.000 | 472.000 | 0.000 | 0.000 | 0.000 |
| GR | 353.700 | 0.000 | 353.200 | 23.700 | 354.700 | 41.400 | 352.600 | 112.300 | 351.700 | 193.600 |
| GR | 351.700 | 239.100 | 353.000 | 253.200 | 351.500 | 268.900 | 360.300 | 271.700 | 360.300 | 364.800 |
| GR | 351.000 | 366.800 | 351.000 | 368.000 | 359.100 | 370.800 | 359.100 | 430.300 | 349.800 | 431.200 |
| GR | 349.800 | 433.600 | 359.300 | 436.400 | 359.300 | 523.800 | 349.700 | 526.200 | 348.300 | 581.400 |
| GR | 351.400 | 594.600 | 349.700 | 616.400 | 345.300 | 627.300 | 345.400 | 634.500 | 350.700 | 643.700 |
| GR | 349.600 | 647.800 | 349.100 | 680.400 | 344.100 | 684.800 | 344.100 | 820.400 | 347.600 | 832.100 |
| GR | 348.100 | 846.600 | 347.900 | 863.900 | 343.400 | 879.200 | 341.600 | 905.500 | 341.400 | 924.700 |
| GR | 341.900 | 993.600 | 341.200 | 1055.900 | 340.700 | 1132.000 | 340.300 | 1181.100 | 337.500 | 1208.000 |
| GR | 335.900 | 1246.700 | 339.200 | 1253.900 | 333.700 | 1265.200 | 329.600 | 1273.200 | 329.600 | 1361.000 |
| GR | 332.200 | 1363.000 | 331.600 | 1380.000 | 329.100 | 1415.000 | 328.200 | 1432.100 | 328.900 | 1453.700 |
| GR | 329.700 | 1485.900 | 333.800 | 1497.100 | 333.600 | 1516.100 | 338.800 | 1528.900 | 342.900 | 1582.500 |
| GR | 344.500 | 1641.200 | 344.600 | 1671.400 | 343.200 | 1694.800 | 342.300 | 1782.100 | 342.600 | 1889.600 |
| GR | 343.900 | 1906.500 | 345.100 | 1969.300 | 345.100 | 2082.800 | 344.400 | 2190.200 | 345.300 | 2292.400 |
| GR | 345.300 | 2419.600 | 346.100 | 2540.000 | 346.700 | 2587.800 | 346.900 | 2620.000 | 349.200 | 2632.500 |
| GR | 350.200 | 2662.300 | 360.700 | 2666.300 | 360.700 | 2966.200 | 350.500 | 2970.200 | 348.400 | 3051.900 |
| GR | 358.000 | 3055.900 | 357.800 | 3173.500 | 349.500 | 3175.900 | 348.400 | 3260.400 | 348.000 | 3332.100 |
| GR | 347.600 | 3447.600 | 347.800 | 3576.300 | 348.200 | 3644.000 | 346.700 | 3685.800 | 346.600 | 3783.600 |
| GR | 345.600 | 3930.800 | 347.900 | 4020.500 | 350.300 | 4101.400 | 352.000 | 4198.000 | 354.600 | 4215.300 |
| GR | 355.300 | 4317.500 | 356.100 | 4399.500 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 5.100 | 7.100 | 5.100 | 1000.000 | 1800.000 | 1105.000 | 1680.000 | 0.000 | 0.000 |
| | | | | | | | | | | |
| X1 | 505.000 | 92.000 | 1258.700 | 1556.500 | 290.000 | 380.000 | 346.000 | 0.000 | 0.000 | 0.000 |
| GR | 352.000 | 262.500 | 351.900 | 310.700 | 360.500 | 315.300 | 360.500 | 385.200 | 352.600 | 387.200 |
| GR | 352.600 | 392.100 | 361.100 | 397.000 | 361.100 | 415.200 | 351.800 | 418.600 | 350.100 | 490.400 |
| GR | 349.500 | 561.000 | 348.400 | 636.800 | 349.000 | 695.300 | 350.400 | 705.800 | 348.400 | 815.000 |
| GR | 345.700 | 857.700 | 346.500 | 924.600 | 346.400 | 1016.700 | 355.300 | 1025.700 | 355.300 | 1037.000 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| GR | 351.500 | 1039.900 | 348.100 | 1059.700 | 346.000 | 1074.800 | 345.900 | 1131.300 | 344.100 | 1186.800 |
| GR | 342.300 | 1226.600 | 342.100 | 1258.700 | 336.300 | 1270.000 | 338.100 | 1288.600 | 335.000 | 1315.900 |
| GR | 332.100 | 1353.600 | 330.300 | 1369.900 | 328.900 | 1401.600 | 329.700 | 1425.700 | 332.800 | 1450.900 |
| GR | 333.600 | 1537.700 | 339.700 | 1556.500 | 340.600 | 1582.000 | 344.900 | 1612.500 | 345.500 | 1666.100 |
| GR | 344.800 | 1679.500 | 347.000 | 1687.600 | 347.100 | 1742.400 | 348.600 | 1779.500 | 349.400 | 1849.300 |
| GR | 348.700 | 1944.600 | 345.800 | 2002.600 | 347.100 | 2021.900 | 346.200 | 2117.600 | 346.400 | 2203.700 |
| GR | 348.300 | 2287.000 | 349.600 | 2297.300 | 350.400 | 2494.900 | 350.200 | 2612.500 | 350.500 | 2660.900 |
| GR | 355.100 | 2700.600 | 355.700 | 2751.800 | 366.300 | 2755.000 | 366.300 | 2784.600 | 354.600 | 2788.300 |
| GR | 354.600 | 2811.800 | 364.100 | 2817.500 | 364.100 | 2884.100 | 354.600 | 2890.200 | 354.900 | 2906.100 |
| GR | 364.000 | 2907.700 | 364.000 | 2950.300 | 354.400 | 2953.200 | 354.400 | 2964.600 | 363.800 | 2967.800 |
| GR | 363.300 | 3011.200 | 355.000 | 3012.700 | 355.000 | 3021.200 | 364.600 | 3024.500 | 364.600 | 3054.900 |
| GR | 356.000 | 3057.800 | 356.500 | 3065.900 | 365.900 | 3067.100 | 365.900 | 3153.600 | 354.200 | 3156.900 |
| GR | 354.500 | 3233.600 | 365.300 | 3236.400 | 365.300 | 3259.200 | 355.300 | 3262.900 | 354.400 | 3275.800 |
| GR | 349.800 | 3287.600 | 350.000 | 3366.400 | 350.400 | 3481.700 | 350.500 | 3580.800 | 350.200 | 3626.000 |
| GR | 347.600 | 3648.700 | 349.800 | 3667.400 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | 0.000 | 0.000 | 0.000 | 0.300 | 0.500 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 5.100 | 7.100 | 5.100 | 1000.000 | 1800.000 | 1120.000 | 1605.000 | 0.000 | 0.000 |
| | | | | | | | | | | |
| X1 | 508.000 | 52.000 | 1094.300 | 1605.100 | 175.000 | 185.000 | 160.000 | 0.000 | 0.000 | 0.000 |
| BT | 46.000 | 1094.300 | 355.000 | 352.000 | 1144.000 | 355.000 | 352.000 | 1144.000 | 355.000 | 0.000 |
| BT | 1151.000 | 355.000 | 0.000 | 1151.000 | 355.000 | 352.000 | 1186.000 | 355.000 | 352.000 | 1186.000 |
| BT | 355.000 | 0.000 | 1193.000 | 355.000 | 0.000 | 1193.000 | 355.000 | 352.000 | 1228.000 | 355.000 |
| BT | 352.000 | 1228.000 | 355.000 | 0.000 | 1235.000 | 355.000 | 0.000 | 1235.000 | 355.000 | 352.000 |
| BT | 1268.500 | 355.000 | 352.000 | 1268.500 | 355.000 | 0.000 | 1278.500 | 355.000 | 0.000 | 1278.500 |
| BT | 355.000 | 352.000 | 1312.000 | 355.000 | 352.000 | 1312.000 | 355.000 | 0.000 | 1319.000 | 355.000 |
| BT | 0.000 | 1319.000 | 355.000 | 352.000 | 1354.000 | 355.000 | 352.000 | 1354.000 | 355.000 | 0.000 |
| BT | 1361.000 | 355.000 | 0.000 | 1361.000 | 355.000 | 352.000 | 1396.000 | 355.000 | 352.000 | 1396.000 |
| BT | 355.000 | 0.000 | 1403.000 | 355.000 | 0.000 | 1403.000 | 355.000 | 352.000 | 1436.500 | 355.000 |
| BT | 352.000 | 1436.500 | 355.000 | 0.000 | 1446.500 | 355.000 | 0.000 | 1446.300 | 355.000 | 352.000 |
| BT | 1480.000 | 355.000 | 352.000 | 1480.000 | 355.000 | 0.000 | 1487.000 | 355.000 | 0.000 | 1487.000 |
| BT | 355.000 | 352.000 | 1522.000 | 355.000 | 352.000 | 1522.000 | 355.000 | 0.000 | 1529.000 | 355.000 |
| BT | 0.000 | 1529.000 | 355.000 | 352.000 | 1564.000 | 355.000 | 352.000 | 1564.000 | 355.000 | 0.000 |
| BT | 1571.000 | 355.000 | 0.000 | 1571.000 | 355.000 | 352.000 | 1605.100 | 355.000 | 352.000 | 0.000 |
| GR | 354.500 | 0.000 | 353.300 | 64.600 | 353.400 | 129.300 | 353.100 | 227.700 | 351.900 | 327.200 |
| GR | 349.900 | 454.000 | 350.400 | 551.300 | 351.300 | 641.000 | 351.300 | 665.000 | 351.100 | 762.500 |
| GR | 351.100 | 789.100 | 348.600 | 860.500 | 346.000 | 975.900 | 348.700 | 1051.100 | 348.900 | 1094.300 |
| GR | 345.500 | 1111.900 | 343.900 | 1130.400 | 342.600 | 1173.300 | 344.300 | 1180.800 | 338.400 | 1192.000 |
| GR | 335.600 | 1200.100 | 335.700 | 1289.600 | 334.900 | 1352.100 | 336.100 | 1445.200 | 336.100 | 1492.400 |
| GR | 337.800 | 1512.800 | 336.700 | 1546.200 | 336.300 | 1570.700 | 342.500 | 1588.300 | 348.100 | 1605.100 |
| GR | 347.400 | 1668.300 | 347.900 | 1707.900 | 350.900 | 1720.300 | 351.300 | 1751.100 | 349.800 | 1791.200 |
| GR | 351.200 | 1826.400 | 349.500 | 1944.800 | 347.800 | 2040.400 | 346.900 | 2156.300 | 347.900 | 2279.100 |
| GR | 347.500 | 2399.000 | 347.500 | 2507.300 | 347.600 | 2589.800 | 347.500 | 2683.000 | 346.800 | 2782.100 |
| GR | 347.400 | 2866.500 | 348.900 | 2878.500 | 348.600 | 2927.700 | 350.200 | 3035.300 | 350.100 | 3130.800 |
| GR | 350.000 | 3258.800 | 349.600 | 3350.400 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| SB | 1.000 | 1.500 | 2.700 | 0.000 | 428.000 | 83.000 | 6850.000 | 2.000 | 334.000 | 334.000 |
| NC | 0.000 | 0.000 | 0.035 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 5.100 | 5.100 | 5.100 | 1110.500 | 1603.900 | 0.000 | 0.000 | 0.000 | 0.000 |
| | | | | | | | | | | |
| X1 | 510.000 | 55.000 | 1110.500 | 1603.900 | 115.000 | 115.000 | 115.000 | 0.000 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 1.000 | 352.000 | 355.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 334.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| BT | 46.000 | 1110.500 | 355.000 | 352.000 | 1144.000 | 355.000 | 352.000 | 1144.000 | 355.000 | 0.000 |
| BT | 1151.000 | 355.000 | 0.000 | 1151.000 | 355.000 | 352.000 | 1186.000 | 355.000 | 352.000 | 1186.000 |
| BT | 355.000 | 0.000 | 1193.000 | 355.000 | 0.000 | 1193.000 | 355.000 | 352.000 | 1228.000 | 355.000 |
| BT | 352.000 | 1228.000 | 355.000 | 0.000 | 1235.000 | 355.000 | 0.000 | 1235.000 | 355.000 | 352.000 |
| BT | 1268.500 | 355.000 | 352.000 | 1268.500 | 355.000 | 0.000 | 1278.500 | 355.000 | 0.000 | 1278.500 |
| BT | 355.000 | 352.000 | 1312.000 | 355.000 | 352.000 | 1312.000 | 355.000 | 0.000 | 1319.000 | 355.000 |
| BT | 0.000 | 1319.000 | 355.000 | 352.000 | 1354.000 | 355.000 | 352.000 | 1354.000 | 355.000 | 0.000 |
| BT | 1361.000 | 355.000 | 0.000 | 1361.000 | 355.000 | 352.000 | 1396.000 | 355.000 | 352.000 | 1396.000 |
| BT | 355.000 | 0.000 | 1403.000 | 355.000 | 0.000 | 1403.000 | 355.000 | 352.000 | 1436.500 | 355.000 |
| BT | 352.000 | 1436.500 | 355.000 | 0.000 | 1446.500 | 355.000 | 0.000 | 1446.500 | 355.000 | 352.000 |
| BT | 1480.000 | 355.000 | 352.000 | 1480.000 | 355.000 | 0.000 | 1487.000 | 355.000 | 0.000 | 1487.000 |
| BT | 355.000 | 352.000 | 1522.000 | 355.000 | 352.000 | 1522.000 | 355.000 | 0.000 | 1529.000 | 355.000 |
| BT | 0.000 | 1529.000 | 355.000 | 352.000 | 1564.000 | 355.000 | 352.000 | 1564.000 | 355.000 | 0.000 |
| BT | 1571.000 | 355.000 | 0.000 | 1571.000 | 355.000 | 352.000 | 1603.900 | 355.000 | 352.000 | 0.000 |
| GR | 358.200 | 0.000 | 358.300 | 114.000 | 357.800 | 234.800 | 356.400 | 341.900 | 355.900 | 463.200 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| GR | 355.500 | 590.900 | 355.000 | 663.300 | 352.100 | 673.400 | 351.700 | 774.600 | 348.700 | 784.300 |
| GR | 348.400 | 861.400 | 346.600 | 966.100 | 346.300 | 1046.500 | 345.300 | 1110.500 | 343.300 | 1144.400 |
| GR | 344.200 | 1179.600 | 340.700 | 1189.700 | 335.500 | 1196.500 | 335.900 | 1255.300 | 336.000 | 1297.500 |
| GR | 335.400 | 1308.300 | 333.400 | 1346.400 | 335.400 | 1422.400 | 337.500 | 1434.800 | 336.500 | 1526.900 |
| GR | 336.800 | 1562.400 | 339.800 | 1603.900 | 340.200 | 1655.500 | 343.300 | 1713.500 | 344.300 | 1744.300 |
| GR | 350.800 | 1753.500 | 351.600 | 1786.300 | 350.500 | 1812.400 | 345.700 | 1817.800 | 345.400 | 1847.900 |
| GR | 344.400 | 1921.800 | 344.600 | 2013.900 | 344.400 | 2115.400 | 344.600 | 2201.600 | 345.000 | 2292.800 |
| GR | 345.200 | 2396.100 | 345.100 | 2489.000 | 344.800 | 2537.100 | 349.300 | 2541.600 | 349.700 | 2617.900 |
| GR | 350.900 | 2678.300 | 355.400 | 2715.600 | 355.600 | 2808.700 | 356.000 | 2923.500 | 356.500 | 3013.500 |
| GR | 355.800 | 3126.200 | 355.800 | 3233.000 | 354.900 | 3298.200 | 350.100 | 3311.400 | 348.900 | 3373.000 |
| NC | 0.000 | 0.000 | 0.000 | 0.100 | 0.300 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 5.100 | 7.100 | 5.100 | 1.000 | 1700.000 | 650.000 | 1505.000 | 0.000 | 0.000 |
| | | | | | | | | | | |
| X1 | 515.000 | 95.000 | 622.300 | 1523.400 | 400.000 | 200.000 | 399.000 | 0.000 | 0.000 | 0.000 |
| GR | 354.100 | 128.000 | 371.100 | 131.300 | 371.100 | 164.000 | 354.100 | 167.200 | 354.100 | 177.100 |
| GR | 368.200 | 179.100 | 368.200 | 226.900 | 353.500 | 229.100 | 353.900 | 246.500 | 370.800 | 248.200 |
| GR | 370.800 | 285.500 | 353.700 | 287.100 | 353.400 | 296.100 | 364.900 | 298.600 | 364.900 | 320.600 |
| GR | 353.100 | 322.700 | 352.000 | 354.200 | 352.300 | 396.300 | 362.500 | 401.000 | 362.500 | 470.500 |
| GR | 362.500 | 470.500 | 352.700 | 472.900 | 353.500 | 494.500 | 349.600 | 502.700 | 349.800 | 542.500 |
| GR | 347.900 | 555.200 | 350.900 | 563.300 | 346.200 | 572.000 | 345.400 | 606.000 | 344.200 | 622.300 |
| GR | 331.500 | 649.000 | 331.500 | 782.500 | 331.500 | 984.600 | 332.600 | 997.000 | 332.400 | 1080.300 |
| GR | 331.500 | 1086.900 | 331.500 | 1216.600 | 332.900 | 1225.100 | 332.800 | 1253.000 | 334.500 | 1259.500 |
| GR | 333.500 | 1284.900 | 331.500 | 1295.500 | 331.500 | 1475.800 | 333.600 | 1497.300 | 338.800 | 1510.300 |
| GR | 346.800 | 1523.400 | 346.700 | 1570.000 | 345.200 | 1619.100 | 345.100 | 1646.900 | 347.100 | 1677.700 |
| GR | 356.700 | 1682.100 | 356.700 | 1744.300 | 346.000 | 1750.000 | 346.600 | 1777.000 | 355.700 | 1781.500 |
| GR | 355.700 | 1808.100 | 346.900 | 1812.200 | 346.900 | 1829.100 | 357.900 | 1829.100 | 357.900 | 1898.500 |
| GR | 345.500 | 1902.100 | 346.300 | 1997.000 | 347.500 | 2058.400 | 348.000 | 2087.500 | 347.000 | 2106.700 |
| GR | 347.200 | 2136.000 | 348.600 | 2156.400 | 358.300 | 2160.400 | 358.300 | 2229.500 | 350.200 | 2241.500 |
| GR | 349.600 | 2283.600 | 358.700 | 2285.600 | 358.700 | 2356.700 | 350.100 | 2360.400 | 351.200 | 2382.900 |
| GR | 352.500 | 2451.600 | 352.900 | 2485.100 | 361.800 | 2488.000 | 361.800 | 2571.000 | 352.200 | 2574.300 |
| GR | 351.800 | 2614.700 | 361.200 | 2617.600 | 361.200 | 2753.400 | 353.700 | 2755.800 | 354.000 | 2787.300 |
| GR | 365.000 | 2789.800 | 365.000 | 2856.400 | 354.800 | 2858.900 | 355.100 | 2878.500 | 365.900 | 2881.400 |
| GR | 365.900 | 2968.100 | 354.700 | 2971.300 | 354.800 | 3002.400 | 363.900 | 3005.300 | 363.900 | 3063.300 |
| ET | 0.000 | 5.100 | 7.100 | 5.100 | 1.000 | 1450.000 | 735.000 | 1390.000 | 0.000 | 0.000 |
| | | | | | | | | | | |
| X1 | 520.000 | 95.000 | 712.000 | 1389.600 | 500.000 | 525.000 | 587.000 | 0.000 | 0.000 | 0.000 |
| GR | 355.100 | 228.500 | 354.000 | 252.600 | 353.700 | 293.700 | 353.700 | 310.000 | 354.200 | 369.500 |
| GR | 354.500 | 401.800 | 353.600 | 411.700 | 353.300 | 477.800 | 353.400 | 541.000 | 353.600 | 619.100 |
| GR | 353.900 | 659.700 | 351.800 | 688.500 | 347.900 | 694.400 | 347.000 | 712.000 | 343.100 | 722.300 |
| GR | 336.500 | 733.400 | 331.500 | 775.000 | 331.500 | 836.800 | 331.500 | 938.200 | 335.700 | 942.900 |
| GR | 336.100 | 977.600 | 335.500 | 1050.500 | 334.500 | 1124.700 | 331.500 | 1129.300 | 331.500 | 1265.500 |
| GR | 332.800 | 1269.500 | 333.200 | 1309.700 | 332.300 | 1320.500 | 334.400 | 1337.200 | 334.800 | 1368.800 |
| GR | 339.900 | 1380.100 | 346.900 | 1389.600 | 347.200 | 1417.500 | 357.900 | 1420.000 | 357.900 | 1506.600 |
| GR | 346.400 | 1509.100 | 346.400 | 1536.600 | 356.000 | 1541.700 | 356.000 | 1618.000 | 347.200 | 1620.500 |
| GR | 346.700 | 1729.800 | 345.900 | 1743.900 | 345.700 | 1788.100 | 346.400 | 1859.600 | 347.000 | 1974.200 |
| GR | 347.600 | 2076.800 | 348.700 | 2189.300 | 360.000 | 2191.900 | 360.000 | 2297.500 | 349.500 | 2299.600 |
| GR | 350.500 | 2354.400 | 351.900 | 2387.100 | 352.400 | 2468.100 | 352.600 | 2506.700 | 361.200 | 2508.900 |
| GR | 361.200 | 2566.900 | 352.900 | 2569.800 | 352.700 | 2620.400 | 363.200 | 2624.700 | 362.500 | 2653.500 |
| GR | 353.200 | 2659.800 | 353.700 | 2719.400 | 363.700 | 2721.900 | 363.700 | 2784.500 | 354.500 | 2786.800 |
| GR | 354.900 | 2817.200 | 365.700 | 2820.600 | 365.700 | 2883.600 | 356.100 | 2885.800 | 356.200 | 2912.200 |
| GR | 366.800 | 2914.600 | 366.800 | 2995.100 | 355.400 | 2998.900 | 355.500 | 3033.700 | 366.000 | 3035.800 |
| GR | 365.500 | 3096.600 | 354.500 | 3100.500 | 354.400 | 3116.900 | 365.000 | 3118.900 | 364.600 | 3175.100 |
| GR | 354.200 | 3177.700 | 353.000 | 3223.600 | 353.500 | 3320.900 | 353.600 | 3396.700 | 352.500 | 3476.900 |
| GR | 351.100 | 3487.600 | 352.700 | 3497.100 | 352.100 | 3554.800 | 352.100 | 3597.900 | 352.700 | 3678.900 |
| GR | 353.000 | 3764.500 | 353.400 | 3869.500 | 354.100 | 3944.100 | 354.200 | 4019.000 | 353.200 | 4110.700 |
| ET | 0.000 | 5.100 | 7.100 | 5.100 | 500.000 | 3500.000 | 720.000 | 1260.000 | 0.000 | 0.000 |
| | | | | | | | | | | |
| X1 | 530.000 | 88.000 | 893.000 | 1437.600 | 610.000 | 645.000 | 624.000 | 0.000 | 0.000 | 0.000 |
| GR | 352.600 | 0.000 | 353.100 | 140.900 | 353.400 | 238.000 | 355.100 | 322.300 | 356.100 | 386.100 |
| GR | 354.900 | 410.500 | 357.000 | 437.900 | 357.500 | 512.200 | 358.600 | 560.700 | 357.800 | 592.200 |
| GR | 355.400 | 624.600 | 352.000 | 660.600 | 350.100 | 685.200 | 348.900 | 709.200 | 351.600 | 719.100 |
| GR | 351.200 | 744.800 | 351.900 | 765.600 | 348.800 | 773.500 | 348.000 | 798.400 | 341.900 | 815.400 |
| GR | 335.900 | 828.700 | 334.000 | 846.900 | 335.000 | 871.700 | 341.200 | 882.100 | 343.300 | 893.000 |
| GR | 340.600 | 902.100 | 336.400 | 911.600 | 331.500 | 922.800 | 331.500 | 1011.300 | 331.500 | 1229.100 |
| GR | 335.700 | 1237.400 | 335.000 | 1314.400 | 334.700 | 1385.400 | 336.000 | 1410.300 | 344.100 | 1420.200 |
| GR | 343.300 | 1429.300 | 348.700 | 1437.600 | 349.400 | 1460.000 | 348.600 | 1533.700 | 348.700 | 1564.900 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| GR | 364.600 | 252.000 | 362.400 | 351.300 | 361.600 | 394.900 | 362.200 | 437.700 | 363.200 | 457.500 |
| GR | 379.900 | 462.800 | 379.900 | 509.600 | | | | | | |
| GR | 359.900 | 1570.200 | 359.900 | 1661.800 | 349.200 | 1664.800 | 349.200 | 1671.900 | 360.000 | 1674.900 |
| GR | 360.000 | 1713.000 | 349.400 | 1715.800 | 349.000 | 1744.400 | 359.400 | 1748.100 | 359.400 | 1809.100 |
| GR | 349.300 | 1912.400 | 348.800 | 1888.000 | 349.600 | 1981.600 | 350.400 | 2025.400 | 350.300 | 2111.400 |
| GR | 350.900 | 2222.900 | 350.800 | 2302.100 | 350.900 | 2421.600 | 350.600 | 2473.800 | 351.700 | 2491.000 |
| GR | 351.600 | 2626.300 | 351.800 | 2726.600 | 353.400 | 2736.600 | 352.700 | 2851.100 | 352.100 | 3002.800 |
| GR | 350.800 | 3117.700 | 352.000 | 3223.800 | 352.200 | 3298.700 | 354.100 | 3345.600 | 355.200 | 3433.500 |
| GR | 356.200 | 3468.300 | 366.200 | 3470.900 | 366.200 | 3521.900 | 356.500 | 3526.800 | 356.400 | 3566.600 |
| GR | 355.700 | 3632.600 | 354.800 | 3644.600 | 356.500 | 3656.200 | 368.400 | 3659.900 | 368.400 | 3691.500 |
| GR | 357.900 | 3683.600 | 358.400 | 3698.500 | 367.600 | 3701.800 | 367.600 | 3737.500 | 358.300 | 3740.000 |
| GR | 358.200 | 3793.400 | 360.500 | 3831.200 | 360.400 | 3866.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 5.100 | 7.100 | 5.100 | 1.000 | 1350.000 | 720.000 | 1230.000 | 0.000 | 0.000 |
| T | | | | | | | | | | |
| X1 | 535.000 | 62.000 | 890.300 | 1242.500 | 270.000 | 340.000 | 326.000 | 0.000 | 0.000 | 0.000 |
| GR | 353.600 | 0.000 | 353.100 | 85.800 | 352.500 | 206.900 | 353.100 | 331.100 | 353.300 | 453.400 |
| GR | 354.000 | 523.300 | 351.400 | 586.700 | 351.400 | 675.600 | 349.200 | 685.400 | 347.500 | 723.400 |
| GR | 344.900 | 731.600 | 345.900 | 750.800 | 344.300 | 756.900 | 343.500 | 771.300 | 342.500 | 784.300 |
| GR | 341.500 | 811.000 | 343.700 | 824.600 | 347.100 | 841.200 | 345.900 | 853.600 | 345.000 | 890.300 |
| GR | 340.500 | 906.700 | 337.100 | 935.300 | 339.800 | 961.900 | 337.100 | 968.400 | 333.600 | 972.200 |
| GR | 333.900 | 1011.100 | 334.500 | 1079.400 | 334.400 | 1112.900 | 331.500 | 1116.500 | 331.500 | 1148.600 |
| GR | 331.500 | 1198.300 | 334.500 | 1213.400 | 340.600 | 1231.500 | 348.000 | 1242.500 | 348.600 | 1304.300 |
| GR | 348.900 | 1351.700 | 348.400 | 1424.100 | 348.800 | 1523.900 | 347.600 | 1626.500 | 348.000 | 1690.700 |
| GR | 347.800 | 1797.900 | 348.000 | 1856.300 | 348.700 | 1913.700 | 349.500 | 1970.700 | 350.100 | 2109.800 |
| GR | 351.200 | 2223.000 | 352.300 | 2319.900 | 351.900 | 2362.100 | 353.700 | 2373.900 | 353.900 | 2471.700 |
| GR | 353.400 | 2495.800 | 354.300 | 2502.700 | 353.700 | 2566.100 | 353.500 | 2617.200 | 353.200 | 2690.800 |
| GR | 353.900 | 2782.300 | 352.400 | 2862.200 | 353.700 | 2968.300 | 354.300 | 3027.200 | 357.200 | 3100.000 |
| GR | 358.800 | 3167.900 | 359.400 | 3236.200 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 5.100 | 7.100 | 5.100 | 400.000 | 2300.000 | 600.000 | 1110.000 | 0.000 | 0.000 |
| X1 | 540.000 | 68.000 | 647.600 | 1162.700 | 345.000 | 375.000 | 358.000 | 0.000 | 0.000 | 0.000 |
| GR | 355.400 | 0.000 | 356.000 | 26.500 | 354.000 | 60.800 | 353.600 | 99.100 | 352.700 | 187.000 |
| GR | 353.900 | 259.600 | 355.800 | 312.000 | 356.100 | 399.200 | 356.600 | 443.900 | 353.900 | 499.200 |
| GR | 353.100 | 564.900 | 353.100 | 598.000 | 352.300 | 608.900 | 352.600 | 647.600 | 350.200 | 669.000 |
| GR | 346.900 | 690.800 | 343.800 | 719.400 | 340.300 | 766.200 | 339.200 | 796.500 | 337.100 | 801.700 |
| GR | 335.900 | 828.000 | 337.900 | 839.600 | 337.600 | 869.900 | 335.300 | 932.900 | 333.700 | 944.100 |
| GR | 331.500 | 948.900 | 331.500 | 1003.500 | 331.500 | 1061.000 | 334.800 | 1070.800 | 336.900 | 1090.500 |
| GR | 337.300 | 1134.900 | 342.400 | 1148.200 | 350.200 | 1162.700 | 351.200 | 1247.400 | 351.600 | 1303.900 |
| GR | 352.400 | 1381.700 | 352.400 | 1433.800 | 353.700 | 1445.100 | 353.400 | 1507.200 | 352.400 | 1593.800 |
| GR | 353.100 | 1689.100 | 353.300 | 1795.200 | 352.400 | 1835.500 | 353.000 | 1898.000 | 354.600 | 1911.000 |
| GR | 354.900 | 2057.700 | 353.700 | 2076.700 | 354.300 | 2098.500 | 355.300 | 2219.500 | 356.000 | 2319.500 |
| GR | 356.300 | 2411.900 | 354.700 | 2424.800 | 354.700 | 2447.400 | 355.700 | 2451.800 | 356.300 | 2591.300 |
| GR | 354.000 | 2599.400 | 354.300 | 2613.900 | 356.200 | 2621.600 | 356.300 | 2678.000 | 354.700 | 2686.500 |
| GR | 354.900 | 2759.500 | 356.300 | 2814.100 | 360.700 | 2822.500 | 359.900 | 2838.200 | 363.100 | 2893.400 |
| GR | 365.300 | 2969.700 | 363.600 | 2995.100 | 367.000 | 3062.800 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 5.100 | 7.100 | 5.100 | 1.000 | 1800.000 | 550.000 | 1180.000 | 0.000 | 0.000 |
| X1 | 550.000 | 74.000 | 580.000 | 1274.600 | 660.000 | 640.000 | 670.000 | 0.000 | 0.000 | 0.000 |
| GR | 364.800 | 0.000 | 376.600 | 17.800 | 376.600 | 83.500 | 364.700 | 91.500 | 362.800 | 185.300 |
| GR | 362.000 | 209.200 | 360.000 | 221.700 | 359.400 | 282.200 | 358.000 | 324.800 | 358.000 | 364.500 |
| GR | 359.200 | 400.600 | 372.000 | 405.500 | 372.000 | 442.000 | 360.200 | 443.300 | 360.000 | 507.000 |
| GR | 355.900 | 517.100 | 355.500 | 533.800 | 352.900 | 544.000 | 349.200 | 551.600 | 348.900 | 580.000 |
| GR | 344.100 | 589.400 | 342.800 | 628.800 | 342.000 | 686.500 | 340.300 | 719.800 | 339.500 | 774.600 |
| GR | 335.700 | 783.900 | 332.300 | 789.600 | 332.300 | 826.800 | 332.300 | 865.900 | 334.200 | 872.000 |
| GR | 334.400 | 906.100 | 337.900 | 916.300 | 338.200 | 925.100 | 336.200 | 940.200 | 334.400 | 967.400 |
| GR | 334.800 | 1008.400 | 336.000 | 1067.600 | 337.200 | 1122.400 | 341.400 | 1155.700 | 343.700 | 1182.100 |
| GR | 346.400 | 1217.800 | 349.400 | 1247.400 | 352.700 | 1274.600 | 353.900 | 1353.000 | 354.000 | 1460.100 |
| GR | 354.300 | 1606.600 | 356.500 | 1755.800 | 356.600 | 1821.300 | 358.100 | 1829.000 | 358.500 | 1883.600 |
| GR | 358.200 | 1941.400 | 355.300 | 1952.000 | 354.900 | 1989.100 | 355.700 | 2011.700 | 356.800 | 2018.200 |
| GR | 357.600 | 2059.600 | 357.500 | 2093.300 | 352.000 | 2107.900 | 356.900 | 2117.600 | 357.300 | 2205.300 |
| GR | 358.500 | 2304.800 | 358.400 | 2347.400 | 355.400 | 2359.500 | 355.700 | 2472.300 | 355.500 | 2567.800 |
| GR | 356.400 | 2625.400 | 357.400 | 2645.700 | 358.600 | 2672.600 | 364.500 | 2688.300 | 365.200 | 2743.100 |
| GR | 366.200 | 2772.300 | 369.400 | 2783.300 | 372.100 | 2793.000 | 371.200 | 2843.800 | 0.000 | 0.000 |
| ET | 0.000 | 0.000 | 7.100 | 0.000 | 0.000 | 0.000 | 600.000 | 1265.000 | 0.000 | 0.000 |
| X1 | 560.000 | 81.000 | 649.800 | 1269.500 | 565.000 | 580.000 | 628.000 | 0.000 | 0.000 | 0.000 |
| GR | 384.300 | 0.000 | 384.200 | 45.500 | 373.800 | 47.100 | 371.700 | 52.400 | 383.600 | 59.600 |
| GR | 383.600 | 149.700 | 369.800 | 152.100 | 368.000 | 175.200 | 366.800 | 181.600 | 365.900 | 231.300 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| GR | 364.600 | 252.000 | 362.400 | 351.300 | 361.600 | 394.900 | 362.200 | 437.700 | 363.200 | 457.500 |
| GR | 379.900 | 462.800 | 379.900 | 509.600 | 364.200 | 511.600 | 363.500 | 533.900 | 359.200 | 541.200 |
| GR | 358.500 | 561.000 | 353.100 | 569.000 | 349.700 | 601.300 | 344.600 | 611.900 | 343.400 | 641.700 |
| GR | 344.900 | 649.800 | 339.600 | 659.100 | 336.100 | 667.900 | 335.700 | 722.500 | 337.000 | 737.800 |
| GR | 336.300 | 759.700 | 338.000 | 789.100 | 338.000 | 821.000 | 341.500 | 829.100 | 341.100 | 853.400 |
| GR | 337.200 | 867.900 | 335.100 | 873.600 | 335.100 | 976.500 | 337.800 | 983.400 | 338.000 | 1025.100 |
| GR | 335.100 | 1035.900 | 335.100 | 1066.200 | 335.100 | 1132.600 | 339.100 | 1148.300 | 342.300 | 1169.700 |
| GR | 342.400 | 1193.900 | 344.800 | 1210.900 | 344.800 | 1234.000 | 341.500 | 1247.200 | 344.200 | 1258.600 |
| GR | 352.000 | 1269.500 | 352.000 | 1282.400 | 354.100 | 1293.300 | 354.800 | 1364.800 | 355.400 | 1428.200 |
| GR | 357.100 | 1485.900 | 357.500 | 1589.800 | 357.900 | 1677.400 | 359.200 | 1785.700 | 357.700 | 1814.700 |
| GR | 356.600 | 1834.900 | 357.000 | 1895.500 | 356.800 | 1973.100 | 356.200 | 2065.600 | 356.800 | 2161.300 |
| GR | 356.800 | 2233.100 | 359.000 | 2255.000 | 357.900 | 2280.000 | 358.400 | 2352.000 | 361.300 | 2362.000 |
| GR | 362.500 | 2402.800 | 362.600 | 2427.100 | 366.500 | 2444.000 | 367.600 | 2489.700 | 366.700 | 2526.400 |
| GR | 367.800 | 2578.900 | 367.400 | 2601.500 | 362.900 | 2618.100 | 362.300 | 2635.900 | 362.500 | 2686.700 |
| GR | 363.300 | 2730.800 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 0.000 | 7.100 | 0.000 | 0.000 | 0.000 | 175.000 | 912.000 | 0.000 | 0.000 |
| | | | | | | | | | | |
| X1 | 562.000 | 60.000 | 225.000 | 917.000 | 250.000 | 290.000 | 309.000 | 0.000 | 0.000 | 0.000 |
| GR | 363.700 | 0.000 | 363.500 | 27.000 | 364.700 | 51.500 | 379.100 | 55.900 | 379.100 | 95.200 |
| GR | 364.800 | 97.300 | 365.100 | 122.200 | 361.200 | 129.400 | 359.800 | 148.300 | 356.000 | 159.500 |
| GR | 348.200 | 169.900 | 343.100 | 185.700 | 344.200 | 217.700 | 348.900 | 225.000 | 343.900 | 234.600 |
| GR | 340.400 | 241.100 | 338.300 | 254.300 | 335.000 | 257.500 | 335.100 | 273.200 | 339.800 | 276.800 |
| GR | 339.700 | 344.700 | 339.300 | 443.500 | 339.000 | 484.000 | 335.700 | 493.300 | 335.700 | 557.500 |
| GR | 336.400 | 565.600 | 337.000 | 619.000 | 337.000 | 682.800 | 337.100 | 744.700 | 335.600 | 751.500 |
| GR | 335.600 | 773.600 | 335.600 | 796.100 | 337.400 | 804.900 | 338.900 | 845.900 | 342.800 | 855.100 |
| GR | 343.800 | 880.500 | 342.600 | 890.900 | 344.700 | 903.700 | 353.500 | 917.000 | 356.400 | 942.700 |
| GR | 358.300 | 1005.800 | 359.200 | 1068.000 | 386.300 | 1074.800 | 386.300 | 1194.000 | 360.300 | 1198.500 |
| GR | 357.800 | 1269.600 | 357.000 | 1333.400 | 358.500 | 1396.100 | 358.400 | 1484.000 | 358.100 | 1568.700 |
| GR | 358.300 | 1604.100 | 372.200 | 1607.700 | 372.200 | 1674.000 | 359.600 | 1682.400 | 358.600 | 1759.900 |
| GR | 360.200 | 1792.000 | 360.800 | 1839.000 | 364.000 | 1850.300 | 366.200 | 1859.500 | 367.200 | 1884.400 |
| ET | 0.000 | 0.000 | 7.100 | 0.000 | 0.000 | 0.000 | 190.000 | 945.000 | 0.000 | 0.000 |
| | | | | | | | | | | |
| X1 | 564.000 | 58.000 | 222.000 | 957.500 | 195.000 | 245.000 | 229.000 | 0.000 | 0.000 | 0.000 |
| GR | 361.900 | 0.000 | 362.000 | 25.600 | 364.000 | 62.400 | 373.500 | 66.000 | 373.500 | 112.400 |
| GR | 364.800 | 1[illegible]00 | 364.400 | 133.200 | 362.600 | 156.000 | 357.300 | 167.600 | 348.700 | 184.000 |
| GR | 346.500 | 20[illegible] | 346.900 | 222.000 | 343.700 | 233.700 | 342.900 | 277.700 | 342.500 | 299.700 |
| GR | 339.900 | 320.100 | 341.800 | 330.500 | 340.300 | 343.700 | 336.500 | 354.100 | 335.800 | 359.300 |
| GR | 335.800 | 379.700 | 338.400 | 387.700 | 343.400 | 412.100 | 337.200 | 425.300 | 336.400 | 432.500 |
| GR | 338.000 | 453.700 | 337.800 | 480.200 | 336.100 | 493.800 | 336.100 | 531.400 | 337.500 | 538.200 |
| GR | 338.000 | 581.800 | 338.300 | 612.200 | 335.700 | 618.200 | 335.700 | 751.400 | 335.700 | 805.100 |
| GR | 339.500 | 811.500 | 343.200 | 832.300 | 341.600 | 876.300 | 343.300 | 898.300 | 341.300 | 916.700 |
| GR | 341.700 | 936.300 | 350.200 | 947.900 | 355.800 | 957.500 | 357.400 | 987.200 | 358.000 | 1064.400 |
| GR | 358.400 | 1140.800 | 358.300 | 1230.000 | 358.300 | 1328.800 | 358.200 | 1407.600 | 374.200 | 1412.000 |
| GR | 374.200 | 1567.700 | 359.000 | 1571.700 | 358.400 | 1635.300 | 360.600 | 1645.700 | 361.400 | 1688.100 |
| GR | 361.000 | 1708.900 | 365.700 | 1723.300 | 366.600 | 1759.400 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 5.100 | 7.100 | 5.100 | 1.000 | 1000.000 | 225.000 | 780.000 | 0.000 | 0.000 |
| | | | | | | | | | | |
| X1 | 566.000 | 59.000 | 284.100 | 789.900 | 345.000 | 275.000 | 285.000 | 0.000 | 0.000 | 0.000 |
| GR | 388.900 | 0.000 | 380.000 | 27.200 | 372.800 | 60.400 | 366.900 | 77.600 | 367.400 | 120.400 |
| GR | 369.600 | 149.600 | 369.000 | 158.800 | 362.100 | 168.800 | 354.600 | 180.400 | 352.400 | 196.000 |
| GR | 349.900 | 228.900 | 347.500 | 246.900 | 346.300 | 251.700 | 343.400 | 284.100 | 340.900 | 296.100 |
| GR | 338.700 | 305.300 | 336.500 | 308.100 | 336.500 | 323.300 | 338.500 | 328.500 | 338.200 | 339.700 |
| GR | 344.400 | 348.100 | 343.000 | 353.700 | 337.100 | 368.900 | 335.300 | 376.500 | 335.200 | 409.700 |
| GR | 338.000 | 418.500 | 337.800 | 462.500 | 337.900 | 492.100 | 336.100 | 498.100 | 336.100 | 568.600 |
| GR | 336.100 | 642.200 | 338.800 | 645.800 | 338.900 | 655.900 | 341.800 | 664.700 | 342.000 | 708.700 |
| GR | 341.700 | 740.300 | 343.400 | 761.900 | 350.500 | 777.500 | 353.900 | 789.900 | 354.900 | 806.300 |
| GR | 355.900 | 854.700 | 356.200 | 949.200 | 352.800 | 1009.600 | 354.500 | 1028.000 | 354.400 | 1036.800 |
| GR | 355.200 | 1049.200 | 355.200 | 1070.400 | 354.900 | 1079.600 | 358.000 | 1092.400 | 358.800 | 1157.600 |
| GR | 359.000 | 1200.000 | 359.500 | 1266.800 | 360.400 | 1366.100 | 359.900 | 1408.100 | 358.900 | 1425.700 |
| GR | 361.300 | 1432.900 | 362.200 | 1479.300 | 365.000 | 1492.500 | 366.000 | 1532.500 | 0.000 | 0.000 |
| ET | 0.000 | 0.000 | 7.100 | 0.000 | 0.000 | 0.000 | 890.000 | 1340.000 | 0.000 | 0.000 |
| | | | | | | | | | | |
| X1 | 570.000 | 80.000 | 932.600 | 1358.200 | 220.000 | 245.000 | 232.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 385.400 | 651.800 | 383.000 | 659.000 | 381.600 | 681.800 | 377.200 | 691.000 | 376.600 | 706.600 |
| GR | 372.100 | 718.200 | 369.300 | 739.000 | 365.600 | 774.600 | 363.000 | 802.600 | 359.700 | 847.800 |

Moore Business Forms, Inc.

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|---|---|---|---|---|---|---|---|---|---|---|
| GR | 355.500 | 869.400 | 353.900 | 889.800 | 348.800 | 899.000 | 347.500 | 923.000 | 348.800 | 932.600 |
| GR | 344.200 | 942.600 | 341.700 | 975.800 | 341.400 | 995.800 | 343.000 | 1008.200 | 339.100 | 1020.200 |
| GR | 335.600 | 1027.400 | 335.600 | 1050.600 | 339.600 | 1055.800 | 339.200 | 1088.600 | 338.800 | 1123.300 |
| GR | 336.400 | 1128.900 | 336.400 | 1179.800 | 336.400 | 1219.000 | 339.600 | 1229.400 | 343.500 | 1237.800 |
| GR | 343.600 | 1283.000 | 342.400 | 1308.200 | 344.100 | 1332.600 | 352.300 | 1346.200 | 358.400 | 1358.200 |
| GR | 356.900 | 1437.300 | 356.700 | 1531.700 | 356.500 | 1624.900 | 357.200 | 1734.100 | 359.200 | 1744.100 |
| GR | 357.800 | 1757.700 | 356.800 | 1768.100 | 360.700 | 1782.100 | 357.300 | 1792.100 | 354.600 | 1802.100 |
| GR | 357.500 | 1811.700 | 360.000 | 1822.900 | 360.500 | 1868.100 | 368.200 | 1874.900 | 368.200 | 1905.700 |
| GR | 359.900 | 1907.300 | 359.900 | 1944.100 | 361.500 | 1948.500 | 363.100 | 1986.500 | 362.000 | 1999.300 |
| GR | 364.300 | 2009.700 | 365.100 | 2040.100 | 365.000 | 2067.700 | 363.700 | 2085.200 | 363.800 | 2105.200 |
| GR | 365.000 | 2120.400 | 365.600 | 2140.000 | 364.500 | 2164.000 | 361.700 | 2180.000 | 363.000 | 2193.200 |
| GR | 364.800 | 2219.200 | 364.500 | 2266.000 | 366.100 | 2275.600 | 367.200 | 2313.200 | 369.100 | 2370.400 |
| GR | 371.600 | 2429.200 | 373.500 | 2480.300 | 375.900 | 2531.500 | 378.700 | 2564.300 | 383.400 | 2576.700 |
| GR | 387.000 | 2585.900 | 388.100 | 2644.700 | 387.000 | 2687.900 | 390.400 | 2715.900 | 394.600 | 2725.100 |
| ET | 0.000 | 0.000 | 7.100 | 0.000 | 0.000 | 0.000 | 240.000 | 645.000 | 0.000 | 0.000 |
| X1 | 572.000 | 40.000 | 281.200 | 655.600 | 165.000 | 190.000 | 178.000 | 0.000 | 0.000 | 0.000 |
| GR | 387.200 | 0.000 | 382.300 | 9.600 | 382.100 | 30.500 | 377.900 | 42.900 | 372.000 | 67.400 |
| GR | 369.800 | 80.600 | 365.900 | 119.100 | 364.300 | 138.000 | 361.400 | 149.600 | 358.500 | 178.500 |
| GR | 352.500 | 219.400 | 350.500 | 243.100 | 348.500 | 253.100 | 346.900 | 281.200 | 340.400 | 296.100 |
| GR | 338.000 | 322.900 | 337.800 | 338.200 | 339.800 | 345.400 | 339.600 | 390.700 | 338.800 | 435.700 |
| GR | 336.400 | 444.500 | 336.400 | 509.100 | 336.400 | 592.900 | 339.100 | 600.100 | 343.700 | 614.200 |
| GR | 344.900 | 627.800 | 350.300 | 644.700 | 356.800 | 655.600 | 357.700 | 739.800 | 359.100 | 846.900 |
| GR | 358.100 | 950.000 | 356.700 | 1042.600 | 357.200 | 1122.800 | 358.600 | 1147.300 | 358.600 | 1204.200 |
| GR | 362.100 | 1215.500 | 363.700 | 1248.800 | 362.600 | 1262.000 | 363.600 | 1274.400 | 364.900 | 1306.100 |
| ET | 0.000 | 0.000 | 7.100 | 0.000 | 0.000 | 0.000 | 230.000 | 640.000 | 0.000 | 0.000 |
| X1 | 574.000 | 39.000 | 240.800 | 658.300 | 180.000 | 200.000 | 198.000 | 0.000 | 0.000 | 0.000 |
| GR | 400.000 | 0.000 | 391.400 | 9.300 | 387.200 | 25.500 | 386.200 | 50.600 | 379.200 | 65.100 |
| GR | 376.900 | 71.500 | 374.100 | 95.200 | 368.300 | 108.000 | 367.800 | 132.700 | 368.000 | 151.800 |
| GR | 361.900 | 170.000 | 357.800 | 183.400 | 355.500 | 207.600 | 351.900 | 215.700 | 350.400 | 240.800 |
| GR | 345.500 | 258.300 | 339.200 | 272.400 | 336.800 | 277.600 | 336.900 | 296.300 | 340.800 | 306.000 |
| GR | 340.800 | 346.400 | 340.300 | 377.600 | 336.400 | 384.800 | 336.400 | 478.800 | 336.400 | 577.100 |
| GR | 340.900 | 586.900 | 343.400 | 598.500 | 345.100 | 622.300 | 345.300 | 637.300 | 352.100 | 649.000 |
| GR | 358.100 | 658.300 | 359.800 | 742.100 | 359.500 | 890.200 | 359.400 | 1018.000 | 359.600 | 1107.400 |
| GR | 359.600 | 1154.000 | 363.800 | 1165.300 | 364.400 | 1221.100 | 363.000 | 1247.800 | 0.000 | 0.000 |
| ET | 0.000 | 0.000 | 7.100 | 0.000 | 0.000 | 0.000 | 220.000 | 630.000 | 0.000 | 0.000 |
| X1 | 576.000 | 42.000 | 200.700 | 636.700 | 150.000 | 195.000 | 179.000 | 0.000 | 0.000 | 0.000 |
| GR | 392.500 | 0.000 | 383.100 | 23.800 | 376.500 | 42.300 | 368.800 | 65.200 | 366.700 | 75.200 |
| GR | 364.400 | 114.900 | 363.600 | 133.600 | 357.400 | 148.200 | 356.500 | 175.500 | 356.400 | 200.700 |
| GR | 352.100 | 222.700 | 346.100 | 249.700 | 342.800 | 274.900 | 337.600 | 284.000 | 338.900 | 295.700 |
| GR | 341.400 | 304.800 | 341.500 | 333.400 | 339.700 | 350.700 | 336.600 | 355.300 | 336.500 | 402.400 |
| GR | 336.500 | 492.600 | 343.300 | 505.700 | 344.500 | 525.900 | 347.300 | 543.400 | 347.900 | 561.200 |
| GR | 344.500 | 581.000 | 344.000 | 593.000 | 345.800 | 613.400 | 352.200 | 628.100 | 360.300 | 636.700 |
| GR | 359.400 | 659.700 | 359.600 | 764.200 | 361.000 | 867.300 | 361.200 | 947.500 | 361.100 | 997.900 |
| GR | 376.100 | 1002.200 | 376.100 | 1055.600 | 361.600 | 1057.600 | 360.600 | 1077.500 | 363.000 | 1085.900 |
| GR | 364.300 | 1145.500 | 365.900 | 1195.200 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 0.000 | 7.100 | 0.000 | 0.000 | 0.000 | 750.000 | 1175.000 | 0.000 | 0.000 |
| X1 | 580.000 | 88.000 | 804.900 | 1181.900 | 190.000 | 200.000 | 183.000 | 0.000 | 0.000 | 0.000 |
| GR | 597.100 | 0.000 | 598.500 | 14.000 | 594.900 | 36.600 | 589.700 | 57.400 | 578.700 | 83.700 |
| GR | 563.100 | 117.800 | 546.900 | 153.200 | 529.800 | 189.500 | 508.000 | 229.900 | 487.200 | 266.800 |
| GR | 466.800 | 297.800 | 454.700 | 330.500 | 430.300 | 382.400 | 419.400 | 401.000 | 407.000 | 418.200 |
| GR | 405.900 | 424.200 | 403.600 | 453.500 | 392.400 | 477.500 | 382.800 | 508.800 | 377.500 | 524.100 |
| GR | 376.100 | 552.400 | 365.000 | 572.500 | 358.700 | 595.400 | 359.500 | 640.500 | 358.600 | 674.100 |
| GR | 355.700 | 681.300 | 355.200 | 697.700 | 351.500 | 710.200 | 349.100 | 768.600 | 349.800 | 804.900 |
| GR | 346.300 | 832.800 | 339.600 | 853.100 | 338.200 | 889.800 | 337.000 | 900.800 | 338.300 | 935.400 |
| GR | 341.800 | 951.100 | 342.700 | 984.900 | 343.400 | 1022.800 | 345.900 | 1066.700 | 346.400 | 1117.700 |
| GR | 346.000 | 1153.200 | 351.100 | 1168.400 | 359.900 | 1181.900 | 360.600 | 1211.900 | 361.000 | 1322.400 |
| GR | 361.200 | 1401.400 | 378.300 | 1406.500 | 378.300 | 1505.200 | 362.300 | 1509.400 | 362.100 | 1573.600 |
| GR | 359.600 | 1579.500 | 363.400 | 1587.200 | 365.300 | 1632.200 | 365.200 | 1655.300 | 366.600 | 1700.500 |
| GR | 364.700 | 1735.100 | 365.900 | 1755.700 | 368.300 | 1771.400 | 368.800 | 1812.900 | 364.500 | 1838.200 |
| GR | 364.500 | 1884.100 | 364.500 | 1914.800 | 367.200 | 1960.500 | 369.300 | 1988.800 | 386.400 | 1990.400 |
| GR | 386.400 | 2042.800 | 370.300 | 2047.500 | 370.400 | 2086.900 | 387.200 | 2089.800 | 387.200 | 2128.500 |
| GR | 370.600 | 2130.500 | 368.800 | 2143.700 | 371.300 | 2153.100 | 372.800 | 2171.100 | 379.200 | 2219.200 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| GR | 384.600 | 2248.500 | 385.500 | 2284.300 | [illegible]3.200 | 2268.900 | 398.200 | 2312.100 | 388.700 | 2319.400 |
| GR | 390.000 | 2338.800 | 400.600 | 2359.200 | [illegible]01.600 | 2371.500 | 408.100 | 2382.800 | 411.800 | 2402.700 |
| GR | 412.100 | 2419.400 | 420.600 | 2448.600 | 432.900 | 2506.400 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 0.000 | 7.100 | 0.000 | 0.000 | 0.000 | 320.000 | 755.000 | 0.000 | 0.000 |
| X1 | 582.000 | 39.000 | 305.700 | 762.500 | 130.000 | 145.000 | 154.000 | 0.000 | 0.000 | 0.000 |
| GR | 386.800 | 0.000 | 382.100 | 12.900 | 376.600 | 24.300 | 374.900 | 55.600 | 367.700 | 73.700 |
| GR | 362.800 | 96.300 | 359.100 | 112.200 | 359.200 | 153.900 | 358.700 | 197.500 | 357.300 | 239.100 |
| GR | 359.100 | 260.400 | 359.100 | 283.300 | 356.300 | 306.700 | 347.100 | 328.600 | 344.400 | 348.800 |
| GR | 344.400 | 384.200 | 344.300 | 416.200 | 342.800 | 453.100 | 339.700 | 504.100 | 338.600 | 511.100 |
| GR | 337.500 | 527.800 | 338.600 | 550.700 | 339.000 | 586.800 | 340.000 | 637.600 | 344.900 | 666.400 |
| GR | 346.700 | 697.900 | 345.300 | 736.600 | 350.800 | 747.300 | 360.400 | 762.500 | 361.600 | 778.500 |
| GR | 361.700 | 830.700 | 378.100 | 835.700 | 378.100 | 1055.900 | 360.700 | 1057.700 | 360.700 | 1123.500 |
| GR | 360.900 | 1134.300 | 364.600 | 1143.400 | 365.600 | 1197.400 | 367.100 | 1233.000 | 0.000 | 0.000 |
| ET | 0.000 | 0.000 | 7.100 | 0.000 | 0.000 | 0.000 | 225.000 | 835.000 | 0.000 | 0.000 |
| X1 | 584.000 | 39.000 | 208.000 | 838.400 | 195.000 | 215.000 | 260.000 | 0.000 | 0.000 | 0.000 |
| GR | 383.100 | 0.000 | 369.500 | 33.100 | 361.500 | 55.000 | 361.800 | 80.900 | 359.700 | 97.800 |
| GR | 358.800 | 128.200 | 356.600 | 155.200 | 359.700 | 190.800 | 359.400 | 208.000 | 349.100 | 229.300 |
| GR | 344.000 | 251.400 | 345.500 | 291.600 | 345.400 | 362.900 | 345.900 | 415.200 | 347.200 | 464.100 |
| GR | 347.300 | 501.500 | 343.000 | 520.100 | 343.700 | 569.300 | 343.600 | 649.200 | 342.500 | 675.700 |
| GR | 339.500 | 687.800 | 339.400 | 721.800 | 339.600 | 743.300 | 339.800 | 784.900 | 342.900 | 809.000 |
| GR | 344.600 | 816.900 | 354.100 | 829.600 | 360.100 | 838.400 | 361.200 | 882.300 | 361.500 | 943.200 |
| GR | 370.300 | 946.600 | 370.300 | 998.000 | 361.700 | 1008.200 | 361.000 | 1084.500 | 361.400 | 1156.500 |
| GR | 364.200 | 1166.800 | 366.000 | 1217.700 | 367.200 | 1230.300 | 367.700 | 1261.000 | 0.000 | 0.000 |
| ET | 0.000 | 0.000 | 7.100 | 0.000 | 0.000 | 0.000 | 245.000 | 950.000 | 0.000 | 0.000 |
| X1 | 586.000 | 36.000 | 225.800 | 967.800 | 115.000 | 210.000 | 214.000 | 0.000 | 0.000 | 0.000 |
| GR | 387.300 | 0.000 | 372.500 | 30.700 | 362.500 | 63.300 | 361.000 | 95.100 | 357.700 | 128.900 |
| GR | 359.000 | 158.900 | 359.600 | 225.800 | 352.200 | 245.600 | 346.800 | 266.200 | 346.400 | 346.800 |
| GR | 346.500 | 442.200 | 346.700 | 552.700 | 348.300 | 651.300 | 348.300 | 736.800 | 347.500 | 784.200 |
| GR | 345.900 | 818.000 | 340.900 | 837.500 | 339.500 | 850.700 | 339.400 | 874.100 | 339.500 | 897.300 |
| GR | 340.700 | 915.700 | 342.100 | 929.100 | 351.800 | 943.700 | 359.800 | 959.500 | 362.500 | 967.800 |
| GR | 361.200 | 1022.100 | 361.700 | 1091.700 | 374.500 | 1092.800 | 374.500 | 1183.400 | 361.500 | 1188.000 |
| GR | 361.200 | 1218.800 | 365.000 | 1231.500 | 366.100 | 1263.600 | 366.400 | 1275.900 | 367.900 | 1289.900 |
| GR | 368.800 | 1321.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 5.100 | 7.100 | 5.100 | 300.000 | 1000.000 | 390.000 | 960.000 | 0.000 | 0.000 |
| X1 | 590.000 | 60.000 | 345.400 | 977.200 | 230.000 | 180.000 | 191.000 | 0.000 | 0.000 | 0.000 |
| GR | 360.000 | 0.000 | 356.400 | 19.300 | 355.200 | 37.700 | 357.100 | 64.800 | 357.700 | 97.500 |
| GR | 360.400 | 124.200 | 363.100 | 156.600 | 364.000 | 208.100 | 362.600 | 254.400 | 364.700 | 280.300 |
| GR | 364.600 | 345.400 | 360.100 | 362.500 | 352.000 | 389.800 | 348.000 | 420.200 | 348.100 | 467.700 |
| GR | 348.100 | 532.200 | 348.800 | 609.700 | 348.900 | 697.800 | 349.600 | 765.800 | 348.400 | 792.800 |
| GR | 345.600 | 801.900 | 345.600 | 842.500 | 341.700 | 853.000 | 339.700 | 864.700 | 339.300 | 905.200 |
| GR | 339.400 | 926.400 | 341.600 | 936.100 | 351.000 | 949.900 | 360.800 | 968.400 | 363.400 | 977.200 |
| GR | 362.900 | 1007.500 | 356.100 | 1026.000 | 352.600 | 1046.200 | 350.000 | 1067.500 | 349.100 | 1089.400 |
| GR | 350.500 | 1120.200 | 351.500 | 1143.500 | 355.900 | 1160.300 | 361.800 | 1180.400 | 365.900 | 1187.900 |
| GR | 366.700 | 1236.400 | 368.500 | 1250.400 | 369.200 | 1291.600 | 368.500 | 1318.600 | 369.200 | 1351.300 |
| GR | 369.300 | 1384.000 | 368.600 | 1401.700 | 363.600 | 1417.800 | 364.300 | 1444.300 | 378.800 | 1445.800 |
| GR | 378.800 | 1504.900 | 367.800 | 1512.100 | 367.600 | 1546.100 | 368.700 | 1572.300 | 368.500 | 1595.900 |
| GR | 369.500 | 1647.300 | 381.000 | 1654.000 | 381.000 | 1707.700 | 370.100 | 1710.800 | 370.100 | 1749.000 |
| ET | 0.000 | 5.100 | 7.100 | 5.100 | 700.000 | 1250.000 | 910.000 | 1225.000 | 0.000 | 0.000 |
| X1 | 592.000 | 62.000 | 874.600 | 1243.800 | 220.000 | 185.000 | 198.000 | 0.000 | 0.000 | 0.000 |
| GR | 381.900 | 0.000 | 371.200 | 7.600 | 368.600 | 13.000 | 369.400 | 35.200 | 367.600 | 65.500 |
| GR | 365.600 | 81.900 | 360.400 | 92.200 | 359.300 | 111.500 | 358.300 | 133.000 | 356.600 | 164.800 |
| GR | 354.100 | 186.100 | 354.800 | 197.500 | 358.800 | 206.600 | 361.100 | 216.500 | 361.100 | 237.800 |
| GR | 362.800 | 248.300 | 364.200 | 301.900 | 364.400 | 348.200 | 366.600 | 353.700 | 370.700 | 362.700 |
| GR | 370.400 | 377.700 | 364.600 | 388.800 | 364.200 | 475.200 | 364.200 | 565.700 | 364.300 | 622.400 |
| GR | 366.100 | 633.500 | 370.700 | 651.300 | 370.300 | 670.400 | 366.300 | 682.500 | 364.100 | 715.300 |
| GR | 361.600 | 746.800 | 360.800 | 773.700 | 360.900 | 830.300 | 359.900 | 874.600 | 356.200 | 891.400 |
| GR | 351.100 | 917.200 | 350.500 | 949.800 | 349.900 | 1019.700 | 349.700 | 1060.900 | 346.200 | 1068.600 |
| GR | 343.400 | 1080.500 | 344.100 | 1108.900 | 345.300 | 1118.200 | 343.000 | 1135.000 | 340.300 | 1150.600 |
| GR | 339.500 | 1177.900 | 340.200 | 1195.200 | 348.400 | 1209.100 | 358.600 | 1228.700 | 366.700 | 1243.800 |
| GR | 367.300 | 1271.000 | 358.600 | 1286.300 | 353.800 | 1297.700 | 354.400 | 1323.500 | 354.800 | 1346.500 |
| GR | 354.400 | 1370.400 | 361.600 | 1384.000 | 365.700 | 1393.900 | 366.500 | 1422.500 | 366.600 | 1444.200 |

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|---|---|---|---|---|---|---|---|---|---|---|
| GR | 371.000 | 1456.600 | 372.000 | 1490.200 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | 0.000 | 0.000 | 0.000 | 0.300 | 0.500 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 0.000 | 7.100 | 0.000 | 0.000 | 0.000 | 1130.000 | 1410.000 | 0.000 | 0.000 |
| | | | | | | | | | | |
| X1 | 594.000 | 71.000 | 1150.100 | 1437.900 | 430.000 | 210.000 | 179.000 | 0.000 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 0.000 | 352.000 | 355.600 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| BT | 50.000 | 1156.000 | 355.600 | 352.000 | 1170.000 | 355.600 | 352.000 | 1171.000 | 356.700 | 0.000 |
| BT | 1176.000 | 356.700 | 0.000 | 1176.000 | 355.600 | 352.000 | 1190.000 | 355.600 | 352.000 | 1190.000 |
| BT | 356.700 | 0.000 | 1196.000 | 356.700 | 0.000 | 1196.000 | 355.600 | 352.000 | 1210.000 | 355.600 |
| BT | 352.000 | 1210.000 | 356.700 | 0.000 | 1216.000 | 356.700 | 0.000 | 1216.000 | 355.600 | 352.000 |
| BT | 1230.000 | 355.600 | 352.000 | 1230.000 | 356.700 | 0.000 | 1236.000 | 356.700 | 0.000 | 1236.000 |
| BT | 355.600 | 352.000 | 1250.000 | 355.600 | 352.000 | 1250.000 | 356.700 | 0.000 | 1256.000 | 356.700 |
| BT | 0.000 | 1256.000 | 355.600 | 352.000 | 1270.000 | 355.600 | 352.000 | 1270.000 | 356.700 | 0.000 |
| BT | 1276.000 | 356.700 | 0.000 | 1276.000 | 355.600 | 352.000 | 1290.000 | 355.600 | 352.000 | 1290.000 |
| BT | 356.700 | 0.000 | 1296.000 | 356.700 | 0.000 | 1296.000 | 355.600 | 352.000 | 1310.000 | 355.600 |
| BT | 352.000 | 1310.000 | 356.700 | 0.000 | 1316.000 | 356.700 | 0.000 | 1316.000 | 355.600 | 352.000 |
| BT | 1330.000 | 355.600 | 352.000 | 1330.000 | 356.700 | 0.000 | 1336.000 | 356.700 | 0.000 | 1336.000 |
| BT | 355.600 | 352.000 | 1350.000 | 355.600 | 352.000 | 1350.000 | 356.700 | 0.000 | 1356.000 | 356.700 |
| BT | 0.000 | 1356.000 | 355.600 | 352.000 | 1370.000 | 355.600 | 352.000 | 1370.000 | 356.700 | 0.000 |
| BT | 1376.000 | 356.700 | 0.000 | 1376.000 | 355.600 | 352.000 | 1390.000 | 355.600 | 352.000 | 1390.000 |
| BT | 356.700 | 0.000 | 1396.000 | 356.700 | 0.000 | 1396.000 | 355.600 | 352.000 | 1413.000 | 355.600 |
| BT | 352.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 382.300 | 0.000 | 376.700 | 6.800 | 369.300 | 11.900 | 367.800 | 54.600 | 366.400 | 86.900 |
| GR | 363.500 | 104.500 | 358.600 | 114.400 | 358.600 | 133.700 | 356.500 | 156.100 | 356.600 | 177.900 |
| GR | 358.200 | 188.400 | 357.000 | 224.600 | 358.400 | 248.100 | 360.600 | 269.100 | 364.900 | 285.300 |
| GR | 365.900 | 349.200 | 366.500 | 358.100 | 370.700 | 367.800 | 371.100 | 381.900 | 365.100 | 394.900 |
| GR | 364.200 | 404.600 | 364.300 | 467.700 | 364.500 | 548.000 | 363.800 | 686.000 | 364.200 | 797.000 |
| GR | 364.600 | 840.100 | 370.500 | 850.600 | 369.700 | 871.900 | 365.700 | 880.900 | 364.600 | 895.400 |
| GR | 358.100 | 908.700 | 356.400 | 913.800 | 357.100 | 960.600 | 357.400 | 984.900 | 360.500 | 992.900 |
| GR | 365.700 | 1005.900 | 365.900 | 1055.700 | 364.300 | 1077.300 | 358.500 | 1087.800 | 357.600 | 1105.100 |
| GR | 358.400 | 1130.000 | 359.800 | 1150.100 | 352.900 | 1161.700 | 347.900 | 1181.300 | 344.600 | 1199.100 |
| GR | 343.100 | 1240.200 | 340.100 | 1261.700 | 339.900 | 1281.600 | 340.100 | 1297.200 | 342.200 | 1308.800 |
| GR | 344.800 | 1336.000 | 348.900 | 1349.100 | 350.300 | 1362.400 | 347.500 | 1377.700 | 346.200 | 1391.900 |
| GR | 350.200 | 1403.800 | 360.900 | 1422.000 | 366.800 | 1437.900 | 366.000 | 1494.200 | 365.600 | 1562.200 |
| GR | 371.800 | 1574.100 | 375.900 | 1585.200 | 377.500 | 1636.400 | 376.500 | 1670.100 | 377.800 | 1703.000 |
| GR | 377.300 | 1754.200 | 371.400 | 1773.200 | 365.900 | 1789.900 | 365.400 | 1795.600 | 369.000 | 1810.600 |
| GR | 369.600 | 1895.300 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 0.000 | 7.100 | 0.000 | 0.000 | 0.000 | 1150.000 | 1410.000 | 0.000 | 0.000 |
| | | | | | | | | | | |
| X1 | 595.000 | 0.000 | 0.000 | 0.000 | 6.000 | 6.000 | 6.000 | 0.000 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 0.000 | 352.000 | 355.600 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | 0.000 | 0.000 | 0.000 | 0.100 | 0.300 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 5.100 | 7.100 | 5.100 | 1400.000 | 2200.000 | 1586.000 | 1983.000 | 0.000 | 0.000 |
| | | | | | | | | | | |
| X1 | 600.000 | 75.000 | 1585.500 | 1983.900 | 144.000 | 174.000 | 139.000 | 0.000 | 0.000 | 0.000 |
| GR | 462.000 | 0.000 | 446.400 | 50.700 | 432.900 | 96.200 | 418.400 | 151.900 | 405.000 | 205.500 |
| GR | 389.800 | 259.700 | 382.800 | 286.400 | 377.800 | 304.900 | 368.400 | 315.100 | 368.400 | 351.200 |
| GR | 368.000 | 396.300 | 367.400 | 409.900 | 360.600 | 422.400 | 358.600 | 434.100 | 360.300 | 469.500 |
| GR | 361.800 | 493.100 | 358.100 | 506.500 | 355.900 | 525.500 | 358.500 | 565.200 | 360.100 | 611.300 |
| GR | 360.900 | 641.900 | 363.500 | 658.700 | 364.700 | 671.900 | 365.600 | 709.000 | 371.800 | 723.200 |
| GR | 371.100 | 734.300 | 365.900 | 748.500 | 363.800 | 759.900 | 363.800 | 854.900 | 363.700 | 969.600 |
| GR | 363.700 | 1083.800 | 364.000 | 1181.400 | 363.800 | 1264.900 | 364.100 | 1294.400 | 367.700 | 1305.100 |
| GR | 367.500 | 1378.600 | 367.100 | 1441.300 | 366.100 | 1481.600 | 366.100 | 1548.600 | 364.600 | 1585.500 |
| GR | 356.000 | 1599.700 | 347.600 | 1611.900 | 343.900 | 1622.200 | 343.300 | 1651.400 | 342.100 | 1678.900 |
| GR | 340.200 | 1690.000 | 340.000 | 1710.500 | 340.300 | 1725.000 | 342.700 | 1734.700 | 344.800 | 1771.400 |
| GR | 344.900 | 1814.400 | 350.600 | 1840.500 | 351.400 | 1861.200 | 347.400 | 1883.400 | 349.300 | 1894.800 |
| GR | 354.600 | 1903.600 | 355.800 | 1954.700 | 363.500 | 1969.200 | 366.000 | 1983.900 | 366.100 | 2034.200 |
| GR | 373.400 | 2047.800 | 380.000 | 2059.800 | 381.800 | 2110.600 | 380.400 | 2144.100 | 382.200 | 2176.400 |
| GR | 381.600 | 2241.500 | 374.900 | 2262.500 | 366.500 | 2283.400 | 365.800 | 2288.300 | 370.900 | 2297.600 |
| GR | 371.100 | 2370.300 | 371.900 | 2435.600 | 371.600 | 2459.700 | 377.100 | 2470.600 | 377.800 | 2502.300 |
| ET | 0.000 | 5.100 | 7.100 | 5.100 | 1600.000 | 2400.000 | 1740.000 | 2165.000 | 0.000 | 0.000 |
| | | | | | | | | | | |
| X1 | 605.000 | 89.000 | 1769.300 | 2177.400 | 220.000 | 235.000 | 228.000 | 0.000 | 0.000 | 0.000 |
| GR | 430.300 | 0.000 | 427.000 | 48.900 | 419.700 | 103.600 | 412.100 | 155.600 | 401.900 | 208.300 |
| GR | 392.000 | 261.500 | 383.800 | 311.100 | 376.800 | 360.300 | 369.300 | 400.300 | 365.100 | 418.600 |
| GR | 365.700 | 444.700 | 361.400 | 461.100 | 359.900 | 482.100 | 360.900 | 517.500 | 363.300 | 542.600 |

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|---|---|---|---|---|---|---|---|---|---|---|
| GR | 363.500 | 560.800 | 361.500 | 576.600 | 362.100 | 631.600 | 361.800 | 672.300 | 364.600 | 713.700 |
| GR | 363.100 | 732.600 | 365.000 | 766.600 | 366.500 | 831.400 | 368.000 | 890.800 | 368.000 | 939.300 |
| GR | 369.200 | 970.700 | 371.200 | 989.700 | 370.700 | 1012.600 | 368.000 | 1030.800 | 365.100 | 1047.000 |
| GR | 364.900 | 1087.700 | 363.400 | 1230.100 | 363.000 | 1341.600 | 366.100 | 1367.600 | 366.200 | 1376.100 |
| GR | 371.300 | 1391.400 | 370.900 | 1404.100 | 368.200 | 1421.700 | 369.800 | 1432.200 | 365.900 | 1443.500 |
| GR | 372.900 | 1450.300 | 357.000 | 1452.300 | 356.900 | 1512.300 | 373.100 | 1515.400 | 366.500 | 1521.400 |
| GR | 367.300 | 1557.600 | 368.100 | 1593.800 | 367.000 | 1671.400 | 366.600 | 1734.800 | 365.900 | 1769.300 |
| GR | 355.500 | 1782.100 | 344.500 | 1799.100 | 343.600 | 1844.400 | 340.700 | 1856.200 | 340.200 | 1873.600 |
| GR | 340.700 | 1886.000 | 343.800 | 1893.900 | 344.000 | 1947.100 | 347.900 | 1962.000 | 343.700 | 1983.200 |
| GR | 344.200 | 2054.900 | 344.900 | 2104.100 | 353.700 | 2122.500 | 355.700 | 2159.300 | 360.500 | 2169.500 |
| GR | 365.900 | 2177.400 | 366.200 | 2221.300 | 364.500 | 2230.100 | 367.300 | 2241.000 | 380.600 | 2272.000 |
| GR | 392.500 | 2296.100 | 392.300 | 2344.400 | 390.600 | 2368.800 | 386.800 | 2392.200 | 389.400 | 2421.700 |
| GR | 387.500 | 2467.300 | 388.500 | 2489.900 | 388.800 | 2511.700 | 380.800 | 2534.100 | 372.500 | 2559.300 |
| GR | 371.400 | 2567.000 | 375.400 | 2580.000 | 376.200 | 2641.800 | 379.300 | 2672.900 | 380.400 | 2700.100 |
| GR | 380.100 | 2723.200 | 383.700 | 2741.100 | 386.900 | 2774.500 | 396.800 | 2791.500 | 0.000 | 0.000 |
| ET | 0.000 | 5.100 | 7.100 | 5.100 | 2320.000 | 3000.000 | 2320.000 | 2750.000 | 0.000 | 0.000 |
| | | | | | | | | | | |
| X1 | 610.000 | 94.000 | 2339.500 | 2772.900 | 240.000 | 240.000 | 241.000 | 0.000 | 0.000 | 0.000 |
| GR | 391.300 | 155.100 | 386.700 | 200.900 | 385.600 | 233.200 | 385.900 | 279.100 | 383.800 | 317.000 |
| GR | 379.700 | 388.300 | 376.400 | 429.900 | 373.500 | 469.000 | 370.500 | 540.600 | 368.500 | 595.800 |
| GR | 366.600 | 642.300 | 363.300 | 673.100 | 362.000 | 694.900 | 362.900 | 714.800 | 361.500 | 760.100 |
| GR | 364.200 | 781.900 | 365.600 | 830.300 | 365.100 | 898.500 | 363.300 | 984.000 | 366.100 | 1043.600 |
| GR | 366.100 | 1103.700 | 365.300 | 1131.400 | 363.000 | 1143.900 | 364.300 | 1196.900 | 364.700 | 1251.300 |
| GR | 360.800 | 1270.500 | 354.500 | 1295.400 | 352.700 | 1328.300 | 356.800 | 1343.500 | 364.100 | 1368.400 |
| GR | 362.800 | 1392.800 | 367.800 | 1409.200 | 366.800 | 1458.200 | 353.900 | 1486.200 | 348.000 | 1525.000 |
| GR | 348.000 | 1567.500 | 346.300 | 1655.800 | 346.100 | 1761.400 | 346.400 | 1799.700 | 359.400 | 1838.100 |
| GR | 370.600 | 1870.900 | 371.200 | 1922.500 | 370.900 | 1957.400 | 367.900 | 1998.100 | 369.500 | 2043.100 |
| GR | 368.200 | 2066.600 | 369.700 | 2087.400 | 368.000 | 2098.400 | 367.900 | 2144.900 | 353.500 | 2169.500 |
| GR | 345.900 | 2180.400 | 342.300 | 2197.000 | 343.200 | 2214.600 | 349.900 | 2231.000 | 355.500 | 2240.600 |
| GR | 356.500 | 2271.700 | 356.500 | 2295.200 | 365.600 | 2312.300 | 364.700 | 2339.500 | 353.300 | 2356.500 |
| GR | 345.500 | 2370.400 | 342.300 | 2387.600 | 342.400 | 2420.400 | 340.200 | 2427.500 | 340.100 | 2436.500 |
| GR | 340.200 | 2449.500 | 344.900 | 2459.000 | 344.700 | 2506.200 | 345.900 | 2564.800 | 342.000 | 2586.600 |
| GR | 343.000 | 2608.100 | 348.800 | 2622.300 | 349.500 | 2673.800 | 349.800 | 2710.300 | 358.300 | 2729.300 |
| GR | 358.700 | 2750.800 | 360.800 | 2759.300 | 366.300 | 2772.900 | 368.200 | 2824.700 | 365.600 | 2830.600 |
| GR | 369.600 | 2840.500 | 385.300 | 2865.700 | 400.600 | 2897.100 | 398.200 | 2930.200 | 399.900 | 2942.100 |
| GR | 398.000 | 2989.900 | 395.000 | 3005.500 | 393.000 | 3027.000 | 394.700 | 3048.800 | 393.800 | 3083.600 |
| GR | 391.400 | 3121.600 | 390.200 | 3179.600 | 389.200 | 3301.000 | 387.000 | 3345.200 | 0.000 | 0.000 |
| ET | 0.000 | 5.100 | 7.100 | 5.100 | 2150.000 | 2470.000 | 2150.000 | 2470.000 | 0.000 | 0.000 |
| | | | | | | | | | | |
| X1 | 620.000 | 85.000 | 2200.000 | 2325.800 | 340.000 | 470.000 | 336.000 | 0.000 | 0.000 | 0.000 |
| GR | 371.300 | 0.000 | 371.800 | 177.500 | 371.400 | 292.700 | 371.500 | 413.900 | 370.400 | 514.800 |
| GR | 367.700 | 535.400 | 366.400 | 573.800 | 367.100 | 641.800 | 367.700 | 723.200 | 368.100 | 784.200 |
| GR | 368.100 | 911.300 | 367.600 | 1050.100 | 366.900 | 1142.800 | 366.300 | 1207.800 | 366.500 | 1229.000 |
| GR | 360.100 | 1240.100 | 352.200 | 1254.400 | 348.500 | 1263.700 | 348.400 | 1320.700 | 349.900 | 1426.300 |
| GR | 350.000 | 1512.600 | 350.200 | 1572.000 | 348.300 | 1612.800 | 346.700 | 1620.200 | 347.400 | 1661.900 |
| GR | 352.100 | 1675.900 | 357.400 | 1705.700 | 356.300 | 1726.100 | 359.800 | 1734.200 | 362.800 | 1742.400 |
| GR | 362.900 | 1766.700 | 366.600 | 1776.100 | 367.500 | 1831.600 | 366.100 | 1883.400 | 361.300 | 1894.400 |
| GR | 351.300 | 1915.300 | 346.700 | 1925.200 | 346.800 | 1939.900 | 346.700 | 2001.700 | 343.000 | 2017.300 |
| GR | 343.000 | 2088.300 | 347.400 | 2096.000 | 347.000 | 2148.000 | 360.000 | 2150.000 | 360.000 | 2200.000 |
| GR | 360.000 | 2210.000 | 360.000 | 2220.000 | 342.000 | 2235.000 | 342.000 | 2285.000 | 342.000 | 2315.000 |
| GR | 348.500 | 2325.800 | 343.100 | 2347.500 | 341.200 | 2359.800 | 340.700 | 2385.800 | 339.800 | 2396.400 |
| GR | 340.700 | 2410.000 | 342.200 | 2418.400 | 343.100 | 2493.700 | 342.800 | 2588.100 | 343.400 | 2630.800 |
| GR | 352.400 | 2638.000 | 353.500 | 2661.100 | 354.600 | 2690.900 | 362.300 | 2712.200 | 365.700 | 2738.200 |
| GR | 368.000 | 2753.600 | 368.200 | 2799.800 | 366.900 | 2812.600 | 373.800 | 2825.500 | 385.300 | 2843.000 |
| GR | 388.800 | 2854.900 | 388.700 | 2888.400 | 393.200 | 2909.200 | 399.300 | 2934.700 | 404.000 | 2947.200 |
| GR | 401.400 | 2991.100 | 397.400 | 3017.800 | 397.900 | 3037.200 | 398.500 | 3051.500 | 395.900 | 3096.700 |
| GR | 390.500 | 3144.700 | 388.300 | 3177.000 | 388.400 | 3228.800 | 391.000 | 3274.500 | 390.800 | 3329.700 |
| ET | 0.000 | 5.100 | 7.100 | 5.100 | 2080.000 | 2390.000 | 2080.000 | 2350.000 | 0.000 | 0.000 |
| | | | | | | | | | | |
| X1 | 630.000 | 95.000 | 2196.000 | 2356.000 | 380.000 | 300.000 | 362.000 | 0.000 | 0.000 | 0.000 |
| GR | 382.000 | 222.700 | 377.800 | 303.800 | 376.000 | 381.000 | 373.600 | 461.200 | 372.400 | 551.400 |
| GR | 380.100 | 555.200 | 380.100 | 579.800 | 371.900 | 583.600 | 372.200 | 659.600 | 371.500 | 695.200 |
| GR | 368.900 | 712.000 | 368.300 | 729.600 | 366.800 | 754.800 | 367.200 | 782.900 | 368.100 | 817.600 |
| GR | 369.200 | 848.900 | 369.800 | 896.200 | 370.600 | 966.700 | 371.100 | 1053.500 | 370.600 | 1153.600 |
| GR | 370.600 | 1240.600 | 367.500 | 1317.800 | 366.900 | 1352.200 | 364.800 | 1374.400 | 365.400 | 1401.300 |
| GR | 368.300 | 1438.200 | 369.300 | 1481.700 | 371.500 | 1501.600 | 371.000 | 1584.700 | 368.600 | 1603.000 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| GR | 362.000 | 1614.800 | 362.200 | 1638.700 | 362.100 | 1652.000 | 357.500 | 1662.600 | 356.400 | 1724.700 |
| GR | 356.900 | 1778.400 | 358.300 | 1836.900 | 356.500 | 1880.700 | 355.200 | 1900.100 | 353.800 | 1965.800 |
| GR | 353.000 | 2005.300 | 348.600 | 2011.400 | 345.600 | 2019.300 | 344.300 | 2032.700 | 346.800 | 2051.900 |
| GR | 351.400 | 2064.900 | 360.000 | 2080.000 | 360.000 | 2154.000 | 360.000 | 2176.000 | 360.000 | 2186.000 |
| GR | 360.000 | 2196.000 | 343.000 | 2230.000 | 343.000 | 2260.000 | 343.000 | 2280.000 | 343.000 | 2310.000 |
| GR | 366.000 | 2356.000 | 365.000 | 2361.900 | 370.200 | 2372.000 | 369.700 | 2392.500 | 360.600 | 2403.300 |
| GR | 350.100 | 2417.100 | 344.800 | 2429.300 | 342.700 | 2454.900 | 341.000 | 2460.000 | 342.200 | 2475.000 |
| GR | 346.800 | 2490.400 | 345.700 | 2534.900 | 343.300 | 2545.100 | 343.700 | 2556.700 | 345.200 | 2563.000 |
| GR | 346.000 | 2605.400 | 348.600 | 2618.800 | 358.200 | 2624.600 | 358.500 | 2664.100 | 359.500 | 2684.700 |
| GR | 366.500 | 2701.900 | 368.100 | 2747.800 | 368.400 | 2799.400 | 368.300 | 2844.200 | 368.500 | 2882.400 |
| GR | 370.200 | 2897.100 | 372.600 | 2909.200 | 372.700 | 2941.500 | 381.400 | 2963.400 | 391.100 | 2995.300 |
| GR | 402.300 | 3023.300 | 403.800 | 3040.100 | 402.600 | 3082.500 | 394.600 | 3125.300 | 390.900 | 3139.100 |
| GR | 399.600 | 3143.700 | 397.000 | 3183.900 | 383.300 | 3189.500 | 381.800 | 3205.700 | 384.100 | 3243.500 |
| NC | 0.000 | 0.000 | 0.000 | 0.300 | 0.500 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 5.100 | 7.100 | 5.100 | 1200.000 | 2000.000 | 1500.000 | 1875.000 | 0.000 | 0.000 |
| X1 | 631.000 | 45.000 | 1721.000 | 1875.000 | 285.000 | 110.000 | 211.000 | 0.000 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 0.000 | 368.000 | 372.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| BT | 17.000 | 1306.000 | 372.000 | 0.000 | 1500.000 | 372.000 | 0.000 | 1500.000 | 372.000 | 368.000 |
| BT | 1628.500 | 372.000 | 368.000 | 1628.500 | 372.000 | 0.000 | 1635.500 | 372.000 | 0.000 | 1635.500 |
| BT | 372.000 | 368.000 | 1746.500 | 372.000 | 368.000 | 1746.500 | 372.000 | 0.000 | 1753.500 | 372.000 |
| BT | 0.000 | 1753.500 | 372.000 | 368.000 | 1875.000 | 372.000 | 368.000 | 1875.000 | 372.000 | 0.000 |
| BT | 1912.600 | 372.000 | 0.000 | 1922.400 | 372.000 | 0.000 | 1947.200 | 372.000 | 0.000 | 1956.400 |
| BT | 372.200 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 373.600 | 0.000 | 373.800 | 64.200 | 373.500 | 168.600 | 373.600 | 277.100 | 373.500 | 422.000 |
| GR | 374.500 | 533.900 | 373.000 | 631.200 | 371.700 | 776.600 | 372.100 | 894.100 | 373.000 | 978.300 |
| GR | 373.100 | 1098.100 | 373.200 | 1209.400 | 372.000 | 1306.100 | 367.000 | 1500.000 | 360.000 | 1514.000 |
| GR | 360.000 | 1628.500 | 360.000 | 1635.500 | 360.000 | 1721.000 | 345.000 | 1746.500 | 345.000 | 1753.500 |
| GR | 345.000 | 1831.000 | 367.000 | 1875.000 | 371.000 | 1912.600 | 370.000 | 1922.400 | 370.500 | 1947.200 |
| GR | 372.700 | 1956.400 | 371.400 | 1969.600 | 369.300 | 1979.700 | 370.000 | 2019.100 | 368.700 | 2042.800 |
| GR | 366.200 | 2050.000 | 364.100 | 2066.900 | 357.900 | 2081.900 | 355.300 | 2096.600 | 351.500 | 2105.000 |
| GR | 348.900 | 2118.500 | 348.200 | 2150.000 | 349.200 | 2170.100 | 351.000 | 2182.700 | 358.100 | 2195.400 |
| GR | 363.400 | 2211.000 | 365.700 | 2231.800 | 366.900 | 2279.900 | 367.600 | 2349.500 | 367.800 | 2408.900 |
| ET | 0.000 | 5.100 | 7.100 | 5.100 | 1200.000 | 2000.000 | 1500.000 | 1875.000 | 0.000 | 0.000 |
| X1 | 633.000 | 46.000 | 1721.000 | 1875.000 | 60.000 | 60.000 | 60.000 | 0.000 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 0.000 | 368.000 | 372.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| BT | 16.000 | 1306.000 | 372.000 | 0.000 | 1500.000 | 372.000 | 0.000 | 1500.000 | 372.000 | 368.000 |
| BT | 1628.500 | 372.000 | 368.000 | 1628.500 | 372.000 | 0.000 | 1635.500 | 372.000 | 0.000 | 1635.500 |
| BT | 372.000 | 368.000 | 1746.500 | 372.000 | 368.000 | 1746.500 | 372.000 | 0.000 | 1753.500 | 372.000 |
| BT | 0.000 | 1753.500 | 372.000 | 368.000 | 1875.000 | 372.000 | 368.000 | 1875.000 | 372.000 | 0.000 |
| BT | 1912.600 | 372.000 | 0.000 | 1958.300 | 372.000 | 0.000 | 1972.000 | 371.500 | 0.000 | 0.000 |
| GR | 373.200 | 0.000 | 373.600 | 91.300 | 373.900 | 224.500 | 373.700 | 376.900 | 373.600 | 464.900 |
| GR | 373.000 | 498.000 | 374.100 | 520.700 | 373.900 | 555.400 | 373.800 | 607.200 | 373.800 | 730.900 |
| GR | 373.600 | 838.300 | 373.900 | 963.400 | 373.900 | 1071.400 | 372.900 | 1184.700 | 372.500 | 1269.500 |
| GR | 372.100 | 1298.200 | 372.700 | 1378.000 | 372.500 | 1488.600 | 367.000 | 1500.000 | 360.000 | 1514.000 |
| GR | 360.000 | 1628.500 | 360.000 | 1635.500 | 360.000 | 1721.000 | 345.000 | 1746.500 | 345.000 | 1753.500 |
| GR | 345.000 | 1831.000 | 367.000 | 1875.000 | 369.500 | 1875.000 | 369.500 | 1912.700 | 369.000 | 1958.300 |
| GR | 371.500 | 1972.000 | 370.100 | 2000.400 | 368.500 | 2062.000 | 367.200 | 2085.800 | 363.400 | 2099.800 |
| GR | 352.000 | 2121.900 | 352.000 | 2142.300 | 352.000 | 2158.600 | 357.100 | 2167.800 | 356.900 | 2189.300 |
| GR | 364.200 | 2203.600 | 366.400 | 2243.000 | 367.400 | 2278.500 | 367.900 | 2340.900 | 367.900 | 2405.700 |
| GR | 368.300 | 2426.500 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| EJ | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

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**************************
HEC2 VERSION UPDATED JAN 1976
ERROR CORRECTIONS 01,02,03,04,05,06,07,08,09
MODIFICATIONS 51,52,53,54,55,56,,57,58
**************************

20-OCT-82    14:49:57


EzE8?UA:DvitO
T1       UFPER SAN DIEGO RIVER
T2       SECTIONS DIGITIZED IN 1982
T3       FLOODWAY

J1  ICHECK     ING        NINV       IDIR       STRT      METRIC     HVINS      Q          WSEL       FQ
         0.        3.         0.         0.   0.000000      0.00      -1.0        0.     290.400      0.000
J2  NPROF      IPLOT      PRFVS      XSECV      XSECH      FN         ALLDC      IBW        CHNIM      ITRACE
    15.000      0.000     -1.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000
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SUMMARY PRINTOUT FOR MULTIPLE PROFILES

FLOODWAY

| | SECTION NUMBER | DISCHARGE CFS | CWSEL | CRIWS | EG | HL | STENCL | STENCR | TOPWID | QLOB | QCH | QROB | SSTA | ENDST |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 X | 100.000 | 38000.00 | 289.40 | 0.00 | 290.43 | 0.00 | 0.00 | 0.00 | 329.77 | 0.25 | 36909.38 | 1090.38 | 120.60 | 450.37 |
| | 100.000 | 38000.00 | 290.40 | 0.00 | 291.39 | 0.00 | 120.00 | 400.00 | 280.00 | 1.88 | 37998.12 | 0.00 | 120.00 | 400.00 |
| 2 | 110.000 | 38000.00 | 289.65 | 0.00 | 291.65 | 0.93 | 0.00 | 0.00 | 318.65 | 28.47 | 37969.47 | 2.06 | 118.80 | 437.45 |
| | 110.000 | 38000.00 | 290.54 | 0.00 | 292.50 | 0.82 | 120.00 | 395.00 | 275.00 | 45.69 | 37954.31 | 0.00 | 120.00 | 395.00 |
| 3 | 120.000 | 38000.00 | 291.84 | 0.00 | 293.03 | 1.30 | 0.00 | 0.00 | 351.08 | 4.11 | 37824.01 | 171.88 | 92.75 | 443.84 |
| | 120.000 | 38000.00 | 292.52 | 0.00 | 293.76 | 1.19 | 115.00 | 395.00 | 280.00 | 0.00 | 38000.00 | 0.00 | 115.00 | 395.00 |
| 4 X | 130.000 | 38000.00 | 295.70 | 0.00 | 296.42 | 3.34 | 0.00 | 0.00 | 399.00 | 112.83 | 36470.14 | 1417.03 | 170.68 | 569.68 |
| | 130.000 | 38000.00 | 296.51 | 0.00 | 297.36 | 3.56 | 225.00 | 500.00 | 275.00 | 0.00 | 38000.00 | 0.00 | 225.00 | 500.00 |
| 5 X | 140.000 | 38000.00 | 297.62 | 0.00 | 298.40 | 1.97 | 0.00 | 0.00 | 378.85 | 0.00 | 37216.45 | 783.55 | 274.53 | 653.38 |
| | 140.000 | 38000.00 | 298.55 | 0.00 | 299.42 | 2.05 | 315.00 | 585.00 | 270.00 | 0.00 | 38000.00 | 0.00 | 315.00 | 585.00 |
| 6 X | 150.000 | 38000.00 | 299.35 | 0.00 | 299.94 | 1.18 | 1.00 | 1231.90 | 922.43 | 2658.60 | 35341.40 | 0.00 | 306.51 | 1228.93 |
| | 150.000 | 38000.00 | 300.32 | 0.00 | 300.63 | 1.16 | 655.00 | 1200.00 | 545.00 | 965.13 | 37034.87 | 0.00 | 655.00 | 1200.00 |
| 7 X | 160.000 | 38000.00 | 299.90 | 0.00 | 300.09 | 0.45 | 0.00 | 0.00 | 1038.84 | 8549.23 | 29450.77 | 0.00 | 544.64 | 1597.94 |
| | 160.000 | 38000.00 | 300.87 | 0.00 | 301.09 | 0.45 | 570.00 | 1435.00 | 865.00 | 9214.54 | 23785.46 | 0.00 | 570.00 | 1435.00 |
| 8 | 170.000 | 38000.00 | 300.09 | 0.00 | 300.22 | 0.13 | 0.00 | 0.00 | 1660.76 | 19841.60 | 18111.65 | 46.75 | 533.56 | 2194.32 |
| | 170.000 | 38000.00 | 301.05 | 0.00 | 301.23 | 0.14 | 1040.00 | 2085.00 | 1045.00 | 15886.15 | 22113.85 | 0.00 | 1040.00 | 2085.00 |
| 9 X | 180.000 | 38000.00 | 300.20 | 0.00 | 300.32 | 0.10 | 500.00 | 2200.00 | 1465.30 | 21905.55 | 15966.11 | 129.34 | 635.60 | 2100.90 |
| | 180.000 | 38000.00 | 301.22 | 0.00 | 301.33 | 0.09 | 865.00 | 2065.00 | 1200.00 | 21713.69 | 16163.88 | 122.43 | 865.00 | 2065.00 |
| 10 X | 190.000 | 38000.00 | 300.36 | 0.00 | 300.44 | 0.11 | 0.00 | 0.00 | 1502.29 | 7337.14 | 30577.65 | 85.21 | 569.83 | 2072.12 |
| | 190.000 | 38000.00 | 301.35 | 0.00 | 301.43 | 0.09 | 710.00 | 2000.00 | 1290.00 | 6975.22 | 31024.78 | 0.00 | 710.00 | 2000.00 |
| 11 X | 200.000 | 38000.00 | 300.45 | 0.00 | 300.54 | 0.10 | 0.00 | 0.00 | 1501.26 | 9136.06 | 28863.94 | 0.00 | 590.27 | 2108.27 |
| | 200.000 | 38000.00 | 301.42 | 0.00 | 301.53 | 0.09 | 935.00 | 2025.00 | 1081.86 | 5027.13 | 32972.88 | 0.00 | 943.14 | 2025.00 |
| 12 | 210.000 | 38000.00 | 300.51 | 0.00 | 300.65 | 0.10 | 0.00 | 0.00 | 1625.77 | 14619.28 | 23380.72 | 0.00 | 548.20 | 2173.97 |
| | 210.000 | 38000.00 | 301.47 | 0.00 | 301.64 | 0.09 | 1040.00 | 2080.00 | 1040.00 | 12626.19 | 25373.81 | 0.00 | 1040.00 | 2080.00 |
| 13 X | 220.000 | 38000.00 | 300.76 | 0.00 | 301.01 | 0.33 | 0.00 | 0.00 | 1604.52 | 23749.55 | 13933.35 | 317.10 | 133.42 | 1737.93 |
| | 220.000 | 38000.00 | 301.66 | 0.00 | 301.99 | 0.30 | 650.00 | 1620.00 | 970.00 | 21760.58 | 16239.42 | 0.00 | 650.00 | 1620.00 |
| 14 X | 230.000 | 38000.00 | 301.52 | 0.00 | 301.88 | 0.84 | 0.00 | 0.00 | 1267.67 | 17575.36 | 20358.44 | 66.20 | 483.12 | 1750.79 |
| | 230.000 | 38000.00 | 302.39 | 0.00 | 302.96 | 0.90 | 975.00 | 1710.00 | 735.00 | 11439.47 | 26523.63 | 36.90 | 975.00 | 1710.00 |
| 15 | 239.000 | 38000.00 | 302.74 | 0.00 | 303.49 | 1.49 | 450.00 | 1300.00 | 743.26 | 14674.98 | 23325.02 | 0.00 | 450.00 | 1193.26 |
| | 239.000 | 38000.00 | 303.75 | 0.00 | 304.43 | 1.43 | 530.00 | 1190.00 | 660.00 | 13769.28 | 24230.72 | 0.00 | 530.00 | 1190.00 |
| 16 | 242.000 | 38000.00 | 303.83 | 0.00 | 304.88 | 1.24 | 1477.70 | 1977.20 | 464.76 | 0.00 | 38000.00 | 0.00 | 1487.84 | 1952.60 |
| | 242.000 | 38000.00 | 304.59 | 0.00 | 305.49 | 0.95 | 1477.70 | 1977.20 | 468.49 | 0.00 | 38000.00 | 0.00 | 1486.51 | 1955.00 |
| 17 | 244.000 | 38000.00 | 304.59 | 0.00 | 305.44 | 0.51 | 1538.30 | 2038.70 | 488.16 | 0.00 | 38000.00 | 0.00 | 1538.30 | 2026.46 |
| | 244.000 | 38000.00 | 305.18 | 0.00 | 305.95 | 0.41 | 1538.30 | 2038.70 | 490.42 | 0.00 | 38000.00 | | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 245.000 | 38000.00 | 305.92 | 0.00 | 306.23 | 0.73 | 550.00 | 1550.00 | 859.84 | 4664.02 | 33149.52 | 186.46 | 550.00 | 1409.84 |
| 245.000 | 38000.00 | 306.31 | 0.00 | 306.74 | 0.76 | 730.00 | 1335.00 | 605.00 | 193.12 | 37806.88 | 0.00 | 730.00 | 1335.00 |
| | | | | | | | | | | | | | |
| SECTION NUMBER | DISCHARGE CFS | CWSEL | CRIWS | EG | HL | STENCL | STENCR | TOPWID | QLOB | QCH | QROB | SSTA | ENDST |
| 250.000 | 38000.00 | 307.47 | 0.00 | 307.76 | 1.52 | 0.00 | 0.00 | 1092.29 | 8233.26 | 26863.81 | 2902.93 | 222.91 | 1315.20 |
| 250.000 | 38000.00 | 308.21 | 0.00 | 308.62 | 1.88 | 580.00 | 1275.00 | 695.00 | 1563.71 | 33081.51 | 3354.78 | 580.00 | 1275.00 |
| 260.000 | 38000.00 | 309.62 | 0.00 | 310.46 | 2.54 | 0.00 | 0.00 | 639.78 | 2280.21 | 35719.79 | 0.00 | 336.78 | 976.55 |
| 260.000 | 38000.00 | 310.53 | 0.00 | 311.23 | 2.52 | 365.00 | 965.00 | 600.00 | 2125.12 | 35874.88 | 0.00 | 365.00 | 965.00 |
| 270.000 | 37000.00 | 313.23 | 0.00 | 313.77 | 3.29 | 100.00 | 1023.70 | 760.21 | 882.39 | 35503.05 | 614.57 | 258.15 | 1018.36 |
| 270.000 | 37000.00 | 313.52 | 0.00 | 314.09 | 2.84 | 400.00 | 960.00 | 560.00 | 8.43 | 36935.85 | 35.72 | 400.00 | 960.00 |
| 280.000 | 37000.00 | 314.85 | 0.00 | 314.97 | 1.15 | 0.00 | 0.00 | 1526.28 | 322.42 | 36541.88 | 135.71 | 184.62 | 1710.90 |
| 280.000 | 37000.00 | 315.22 | 0.00 | 315.35 | 1.22 | 330.00 | 1630.00 | 1300.00 | 0.00 | 37000.00 | 0.00 | 330.00 | 1630.00 |
| 285.000 | 37000.00 | 315.35 | 0.00 | 315.50 | 0.52 | 0.00 | 0.00 | 1726.69 | 285.06 | 36551.73 | 163.21 | 197.44 | 1924.13 |
| 285.000 | 37000.00 | 315.74 | 0.00 | 315.89 | 0.53 | 330.00 | 1765.00 | 1435.00 | 0.00 | 37000.00 | 0.00 | 330.00 | 1765.00 |
| 290.000 | 37000.00 | 316.16 | 0.00 | 316.35 | 0.84 | 0.00 | 0.00 | 1819.92 | 0.00 | 37000.00 | 0.00 | 731.72 | 2565.72 |
| 290.000 | 37000.00 | 316.49 | 0.00 | 316.70 | 0.80 | 770.00 | 2340.00 | 1556.97 | 0.00 | 37000.00 | 0.00 | 770.00 | 2340.00 |
| 300.000 | 37000.00 | 317.42 | 0.00 | 317.64 | 1.28 | 0.00 | 0.00 | 1690.10 | 0.00 | 35530.59 | 1469.41 | 645.51 | 2335.61 |
| 300.000 | 37000.00 | 317.69 | 0.00 | 317.91 | 1.21 | 660.00 | 2130.00 | 1470.00 | 0.00 | 36818.93 | 181.06 | 660.00 | 2130.00 |
| 310.000 | 37000.00 | 318.09 | 0.00 | 318.32 | 0.68 | 600.00 | 2800.00 | 1774.98 | 4.03 | 36667.75 | 328.22 | 801.37 | 2577.01 |
| 310.000 | 37000.00 | 318.32 | 0.00 | 318.54 | 0.62 | 850.00 | 2395.00 | 1545.00 | 0.00 | 36864.31 | 135.69 | 850.00 | 2395.00 |
| 320.000 | 37000.00 | 318.63 | 0.00 | 318.95 | 0.60 | 1.00 | 1870.60 | 1350.29 | 19.16 | 36980.84 | 0.00 | 493.71 | 1863.78 |
| 320.000 | 37000.00 | 318.80 | 0.00 | 319.15 | 0.57 | 645.00 | 1870.00 | 1208.10 | 0.00 | 37000.00 | 0.00 | 645.00 | 1866.94 |
| 330.000 | 36000.00 | 319.21 | 0.00 | 319.84 | 0.80 | 1.00 | 1400.00 | 890.21 | 4096.06 | 31903.94 | 0.00 | 388.37 | 1326.88 |
| 330.000 | 36000.00 | 319.38 | 0.00 | 320.06 | 0.81 | 435.00 | 1280.00 | 798.85 | 3772.82 | 32227.18 | 0.00 | 435.00 | 1280.00 |
| 340.000 | 36000.00 | 320.38 | 0.00 | 320.76 | 0.90 | 1.00 | 1500.00 | 988.12 | 0.00 | 36000.00 | 0.00 | 375.40 | 1363.52 |
| 340.000 | 36000.00 | 320.57 | 0.00 | 320.96 | 0.87 | 425.00 | 1345.00 | 920.00 | 0.00 | 36000.00 | 0.00 | 425.00 | 1345.00 |
| 345.000 | 36000.00 | 321.06 | 0.00 | 321.44 | 0.67 | 1.00 | 2000.00 | 1046.01 | 0.00 | 36000.00 | 0.00 | 460.28 | 1637.59 |
| 345.000 | 36000.00 | 321.16 | 0.00 | 321.58 | 0.62 | 595.00 | 1525.00 | 801.15 | 0.00 | 36000.00 | 0.00 | 595.00 | 1525.00 |
| 355.000 | 36000.00 | 321.67 | 0.00 | 322.22 | 0.73 | 591.70 | 1404.90 | 810.41 | 0.00 | 36000.00 | 0.00 | 591.70 | 1404.90 |
| 355.000 | 36000.00 | 321.70 | 0.00 | 322.36 | 0.71 | 740.00 | 1404.90 | 662.72 | 0.00 | 36000.00 | 0.00 | 740.00 | 1404.90 |
| 357.000 | 36000.00 | 322.28 | 0.00 | 324.70 | 1.54 | 808.00 | 1290.30 | 482.30 | 0.00 | 36000.00 | 0.00 | 808.00 | 1290.30 |
| 357.000 | 36000.00 | 322.45 | 0.00 | 324.74 | 1.57 | 808.00 | 1290.30 | 482.30 | 0.00 | 36000.00 | 0.00 | 808.00 | 1290.30 |
| 359.000 | 36000.00 | 325.15 | 0.00 | 326.49 | 1.47 | 879.50 | 1355.30 | 475.80 | 0.00 | 36000.00 | 0.00 | 879.50 | 1355.30 |
| 359.000 | 36000.00 | 325.09 | 0.00 | 326.45 | 1.44 | 879.50 | 1355.30 | 475.80 | 0.00 | 36000.00 | 0.00 | 879.50 | 1355.30 |
| 360.000 | 36000.00 | 327.01 | 0.00 | 327.23 | 0.63 | 666.00 | 1720.00 | 1054.00 | 3902.32 | 32097.68 | 0.00 | 666.00 | 1720.00 |
| 360.000 | 36000.00 | 327.00 | 0.00 | 327.29 | 0.73 | 845.00 | 1720.00 | 875.00 | 16.61 | 35983.39 | 0.00 | 845.00 | 1720.00 |
| 370.000 | 36000.00 | 327.35 | 0.00 | 327.58 | 0.35 | 1.00 | 2000.00 | 1463.90 | 8914.37 | 26963.71 | 121.93 | 521.07 | 1984.98 |
| 370.000 | 36000.00 | 327.40 | 0.00 | 327.85 | 0.51 | 930.00 | 1885.00 | 955.00 | 1327.37 | 34672.63 | 0.00 | 930.00 | 1885.00 |
| 380.000 | 36000.00 | 327.68 | 0.00 | 328.07 | 0.44 | 1.00 | 2000.00 | 1415.64 | 10413.40 | 25586.60 | 0.00 | 530.04 | 1945.69 |
| 380.000 | 36000.00 | 327.96 | 0.00 | 328.65 | 0.73 | 945.00 | 1935.00 | 990.00 | 1354.75 | 34645.25 | 0.00 | 945.00 | 1935.00 |

| SECTION NUMBER | DISCHARGE CFS | CWSEL | CRIWS | EG | HL | STENCL | STENCR | TOPWID | QLOB | QCH | QROB | SSTA | ENDST |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 390.000 | 36000.00 | 328.34 | 0.00 | 328.63 | 0.55 | 1.00 | 2200.00 | 1487.80 | 10177.25 | 25579.87 | 242.88 | 562.19 | 2049.99 |
| 390.000 | 36000.00 | 328.96 | 0.00 | 329.45 | 0.78 | 1010.00 | 1980.00 | 970.00 | 1528.09 | 34471.91 | 0.00 | 1010.00 | 1980.00 |
| 400.000 | 36000.00 | 329.28 | 0.00 | 330.01 | 1.25 | 0.00 | 0.00 | 725.62 | 0.00 | 36000.00 | 0.00 | 1114.31 | 1839.93 |
| 400.000 | 36000.00 | 330.13 | 0.00 | 330.71 | 1.23 | 1110.00 | 1840.00 | 729.66 | 0.00 | 36000.00 | 0.00 | 1110.34 | 1840.00 |
| 410.000 | 36000.00 | 331.04 | 0.00 | 331.88 | 1.84 | 0.00 | 0.00 | 655.53 | 0.00 | 36000.00 | 0.00 | 1753.98 | 2409.51 |
| 410.000 | 36000.00 | 331.42 | 0.00 | 332.18 | 1.41 | 1745.00 | 2415.00 | 658.44 | 0.00 | 36000.00 | 0.00 | 1752.25 | 2410.69 |
| 415.000 | 36000.00 | 332.94 | 0.00 | 333.39 | 1.48 | 0.00 | 0.00 | 769.07 | 0.00 | 36000.00 | 0.00 | 1752.37 | 2521.44 |
| 415.000 | 36000.00 | 333.10 | 0.00 | 333.54 | 1.33 | 1750.00 | 2525.00 | 771.22 | 0.00 | 36000.00 | 0.00 | 1751.51 | 2522.73 |
| 420.000 | 36000.00 | 333.41 | 0.00 | 333.89 | 0.49 | 0.00 | 0.00 | 677.68 | 0.00 | 36000.00 | 0.00 | 1293.23 | 1970.91 |
| 420.000 | 36000.00 | 333.55 | 0.00 | 334.02 | 0.46 | 1292.00 | 1972.00 | 678.60 | 0.00 | 36000.00 | 0.00 | 1292.63 | 1971.44 |
| 422.000 | 36000.00 | 332.97 | 332.22 | 336.07 | 0.87 | 0.00 | 0.00 | 453.89 | 0.00 | 36000.00 | 0.00 | 1662.54 | 2116.43 |
| 422.000 | 36000.00 | 333.12 | 332.22 | 336.11 | 0.83 | 1661.00 | 2133.70 | 455.09 | 0.00 | 36000.00 | 0.00 | 1662.19 | 2117.28 |
| 424.000 | 36000.00 | 334.73 | 0.00 | 336.07 | 0.00 | 1664.80 | 2135.50 | 470.70 | 0.00 | 36000.00 | 0.00 | 1664.80 | 2135.50 |
| 424.000 | 36000.00 | 334.73 | 0.00 | 336.11 | 0.00 | 1664.80 | 2135.50 | 470.70 | 0.00 | 36000.00 | 0.00 | 1664.80 | 2135.50 |
| 425.000 | 36000.00 | 336.16 | 0.00 | 336.46 | 0.32 | 1312.70 | 2800.00 | 1183.27 | 391.85 | 35608.15 | 0.00 | 1312.70 | 2495.97 |
| 425.000 | 36000.00 | 336.15 | 0.00 | 336.54 | 0.37 | 1540.00 | 2490.00 | 950.00 | 0.00 | 36000.00 | 0.00 | 1540.00 | 2490.00 |
| 430.000 | 36000.00 | 336.66 | 0.00 | 337.06 | 0.56 | 1000.00 | 2800.00 | 1525.00 | 0.00 | 32008.57 | 3991.43 | 1090.53 | 2615.53 |
| 430.000 | 36000.00 | 336.59 | 0.00 | 337.72 | 0.96 | 1520.00 | 2515.00 | 995.00 | 0.00 | 30160.04 | 5839.96 | 1520.00 | 2515.00 |
| 440.000 | 34000.00 | 338.16 | 338.16 | 340.00 | 1.28 | 1400.00 | 3000.00 | 1239.34 | 1495.37 | 26521.60 | 5983.03 | 1507.18 | 2746.52 |
| 440.000 | 34000.00 | 338.38 | 0.00 | 340.07 | 2.18 | 1505.00 | 2500.00 | 995.00 | 1638.92 | 26047.01 | 6314.06 | 1505.00 | 2500.00 |
| 450.000 | 34000.00 | 340.35 | 0.00 | 340.50 | 0.33 | 1400.00 | 3000.00 | 1245.60 | 10.97 | 27233.79 | 6755.23 | 1511.28 | 2756.88 |
| 450.000 | 34000.00 | 340.39 | 0.00 | 340.54 | 0.32 | 1535.00 | 2535.00 | 1000.00 | 1.99 | 27395.72 | 6602.29 | 1535.00 | 2535.00 |
| 460.000 | 34000.00 | 340.47 | 0.00 | 340.58 | 0.08 | 1.00 | 2700.00 | 1571.16 | 149.02 | 30447.42 | 3403.57 | 1048.23 | 2663.17 |
| 460.000 | 34000.00 | 340.50 | 0.00 | 340.63 | 0.09 | 1295.00 | 2230.00 | 935.00 | 1.84 | 32206.40 | 1791.76 | 1295.00 | 2230.00 |
| 470.000 | 34000.00 | 340.53 | 0.00 | 340.68 | 0.09 | 300.00 | 3200.00 | 1476.40 | 0.00 | 32595.89 | 1404.11 | 1238.49 | 2714.88 |
| 470.000 | 34000.00 | 340.57 | 0.00 | 340.74 | 0.10 | 1235.00 | 2250.00 | 1011.57 | 0.00 | 33630.88 | 369.12 | 1238.42 | 2250.00 |
| 480.000 | 34000.00 | 339.31 | 336.09 | 341.51 | 0.21 | 0.00 | 0.00 | 628.75 | 0.00 | 33905.88 | 94.13 | 1189.36 | 2477.85 |
| 480.000 | 34000.00 | 339.37 | 0.00 | 341.56 | 0.21 | 1180.00 | 2190.00 | 399.02 | 0.00 | 33957.30 | 42.70 | 1189.25 | 2190.00 |
| 483.000 | 34000.00 | 339.58 | 338.01 | 342.57 | 0.82 | 0.00 | 0.00 | 553.64 | 0.00 | 33908.34 | 91.66 | 1219.88 | 2299.07 |
| 483.000 | 34000.00 | 339.64 | 338.04 | 342.59 | 0.81 | 1200.00 | 2180.00 | 441.53 | 0.00 | 33916.09 | 83.91 | 1219.74 | 2180.00 |
| 485.000 | 34000.00 | 343.86 | 343.86 | 345.24 | 0.91 | 0.00 | 0.00 | 1625.07 | 1340.68 | 18514.65 | 14144.66 | 661.96 | 2402.41 |
| 485.000 | 34000.00 | 343.97 | 343.97 | 345.84 | 0.99 | 845.00 | 1810.00 | 965.00 | 1118.58 | 20911.27 | 11966.15 | 845.00 | 1810.00 |
| 490.000 | 34000.00 | 345.33 | 0.00 | 345.99 | 0.68 | 1000.00 | 2700.00 | 1471.70 | 102.96 | 17448.02 | 16449.02 | 1192.69 | 2664.39 |
| 490.000 | 34000.00 | 346.03 | 0.00 | 346.57 | 0.60 | 1330.00 | 2280.00 | 950.00 | 19[illegible].24 | 16317.62 | 17486.14 | 1330.00 | 2280.00 |
| 500.000 | 33000.00 | 346.29 | 0.00 | 346.63 | 0.61 | 993.60 | 2800.00 | 1561.85 | 6050.[illegible]2 | 22564.77 | 4384.71 | 993.60 | 2555.45 |
| 500.000 | 33000.00 | 346.74 | 0.00 | 347.12 | 0.54 | 1100.00 | 1910.00 | 810.00 | 4923.21 | 23876.08 | 4200.71 | 1100.00 | 1910.00 |

| SECTION NUMBER | DISCHARGE CFS | CWSEL | CRIWS | EG | HL | STENCL | STENCR | TOPWID | QLOB | QCH | QROB | SSTA | ENDST |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 505.000 | 33000.00 | 346.35 | 0.00 | 347.23 | 0.44 | 1000.00 | 1800.00 | 612.98 | 1263.80 | 30188.46 | 1547.74 | 1072.25 | 1685.23 |
| 505.000 | 33000.00 | 346.88 | 0.00 | 347.66 | 0.42 | 1105.00 | 1680.00 | 575.00 | 1542.63 | 29683.20 | 1774.17 | 1105.00 | 1680.00 |
| 508.000 | 33000.00 | 346.70 | 0.00 | 348.10 | 0.61 | 1000.00 | 1800.00 | 495.19 | 0.00 | 33000.00 | 0.00 | 1105.70 | 1600.89 |
| 508.000 | 33000.00 | 347.14 | 0.00 | 348.43 | 0.51 | 1120.00 | 1605.00 | 482.22 | 0.00 | 33000.00 | 0.00 | 1120.00 | 1602.22 |
| 510.000 | 33000.00 | 347.54 | 0.00 | 348.22 | 0.12 | 1110.50 | 1603.90 | 493.40 | 0.00 | 33000.00 | 0.00 | 1110.50 | 1603.90 |
| 510.000 | 33000.00 | 347.85 | 0.00 | 348.48 | 0.06 | 1110.50 | 1603.90 | 493.40 | 0.00 | 33000.00 | 0.00 | 1110.50 | 1603.90 |
| 515.000 | 33000.00 | 348.27 | 0.00 | 348.35 | 0.07 | 1.00 | 1700.00 | 1113.52 | 89.36 | 32726.70 | 183.94 | 552.74 | 1678.24 |
| 515.000 | 33000.00 | 348.53 | 0.00 | 348.61 | 0.07 | 650.00 | 1505.00 | 855.00 | 0.00 | 33000.00 | 0.00 | 650.00 | 1505.00 |
| 520.000 | 33000.00 | 348.26 | 0.00 | 348.44 | 0.06 | 1.00 | 1450.00 | 723.90 | 6.16 | 32974.83 | 19.01 | 693.85 | 1417.75 |
| 520.000 | 33000.00 | 348.53 | 0.00 | 348.70 | 0.06 | 735.00 | 1390.00 | 655.00 | 0.00 | 32999.57 | 0.43 | 735.00 | 1390.00 |
| 530.000 | 33000.00 | 348.36 | 0.00 | 348.57 | 0.12 | 500.00 | 3500.00 | 649.55 | 2603.51 | 30396.49 | 0.00 | 787.51 | 1437.06 |
| 530.000 | 33000.00 | 348.54 | 0.00 | 348.91 | 0.15 | 720.00 | 1260.00 | 478.44 | 3367.27 | 29632.73 | 0.00 | 781.56 | 1260.00 |
| 535.000 | 33000.00 | 348.14 | 0.00 | 348.85 | 0.13 | 1.00 | 1350.00 | 548.22 | 1806.58 | 31193.22 | 0.20 | 709.02 | 1257.25 |
| 535.000 | 33000.00 | 348.49 | 0.00 | 349.17 | 0.17 | 720.00 | 1230.00 | 510.00 | 1984.51 | 31015.49 | 0.00 | 720.00 | 1230.00 |
| 540.000 | 33000.00 | 348.61 | 0.00 | 349.16 | 0.30 | 400.00 | 2300.00 | 480.20 | 0.00 | 33000.00 | 0.00 | 679.53 | 1159.74 |
| 540.000 | 33000.00 | 348.84 | 0.00 | 349.47 | 0.30 | 600.00 | 1110.00 | 432.01 | 0.00 | 33000.00 | 0.00 | 677.99 | 1110.00 |
| 550.000 | 33000.00 | 349.27 | 0.00 | 349.60 | 0.42 | 1.00 | 1800.00 | 694.69 | 1.94 | 32998.06 | 0.00 | 551.45 | 1246.14 |
| 550.000 | 33000.00 | 349.58 | 0.00 | 349.91 | 0.41 | 550.00 | 1180.00 | 629.17 | 7.73 | 32992.27 | 0.00 | 550.82 | 1180.00 |
| 560.000 | 33000.00 | 349.59 | 0.00 | 349.90 | 0.29 | 0.00 | 0.00 | 664.59 | 542.75 | 32457.25 | 0.00 | 601.54 | 1266.13 |
| 560.000 | 33000.00 | 349.88 | 0.00 | 350.18 | 0.26 | 600.00 | 1265.00 | 665.00 | 570.46 | 32429.54 | 0.00 | 600.00 | 1265.00 |
| 562.000 | 33000.00 | 349.76 | 0.00 | 350.03 | 0.12 | 0.00 | 0.00 | 743.54 | 623.00 | 32377.00 | 0.00 | 167.81 | 911.35 |
| 562.000 | 33000.00 | 350.05 | 0.00 | 350.30 | 0.11 | 175.00 | 912.00 | 736.78 | 638.31 | 32361.69 | 0.00 | 175.00 | 911.78 |
| 564.000 | 33000.00 | 349.85 | 0.00 | 350.12 | 0.09 | 0.00 | 0.00 | 765.63 | 142.18 | 32857.82 | 0.00 | 181.80 | 947.43 |
| 564.000 | 33000.00 | 350.13 | 0.00 | 350.38 | 0.08 | 190.00 | 945.00 | 755.00 | 151.02 | 32848.98 | 0.00 | 190.00 | 945.00 |
| 566.000 | 33000.00 | 349.82 | 0.00 | 350.35 | 0.15 | 1.00 | 1000.00 | 546.52 | 534.11 | 32465.89 | 0.00 | 229.49 | 776.01 |
| 566.000 | 33000.00 | 350.09 | 0.00 | 350.59 | 0.14 | 225.00 | 780.00 | 550.27 | 569.70 | 32430.30 | 0.00 | 226.34 | 776.61 |
| 570.000 | 33000.00 | 349.69 | 0.00 | 350.79 | 0.27 | 0.00 | 0.00 | 444.47 | 115.33 | 32884.66 | 0.00 | 897.40 | 1341.87 |
| 570.000 | 33000.00 | 349.96 | 0.00 | 351.01 | 0.25 | 890.00 | 1340.00 | 443.10 | 145.10 | 32854.89 | 0.00 | 896.90 | 1340.00 |
| 572.000 | 33000.00 | 350.12 | 0.00 | 351.11 | 0.30 | 0.00 | 0.00 | 399.11 | 179.12 | 32820.88 | 0.00 | 245.02 | 644.13 |
| 572.000 | 33000.00 | 350.34 | 0.00 | 351.29 | 0.28 | 240.00 | 645.00 | 400.90 | 203.43 | 32796.57 | 0.00 | 243.88 | 644.78 |
| 574.000 | 33000.00 | 350.58 | 0.00 | 351.38 | 0.25 | 0.00 | 0.00 | 408.52 | 0.06 | 32999.93 | 0.00 | 237.86 | 646.38 |
| 574.000 | 33000.00 | 350.77 | 0.00 | 351.55 | 0.24 | 230.00 | 640.00 | 405.36 | 0.45 | 32999.55 | 0.00 | 234.63 | 640.00 |
| 576.000 | 33000.00 | 350.53 | 0.00 | 351.81 | 0.29 | 0.00 | 0.00 | 394.54 | 0.00 | 33000.00 | 0.00 | 229.74 | 624.28 |
| 576.000 | 33000.00 | 350.73 | 0.00 | 351.95 | 0.27 | 220.00 | 630.00 | 395.87 | 0.00 | 33000.00 | 0.00 | 228.85 | 624.73 |
| 580.000 | 33000.00 | 350.33 | 0.00 | 352.88 | 0.69 | 0.00 | 0.00 | 427.55 | 131.46 | 32868.54 | 0.00 | 738.57 | 1166.12 |
| 580.000 | 33000.00 | 350.55 | 0.00 | 352.94 | 0.64 | 750.00 | 1175.00 | 416.78 | 185.23 | 32814.77 | 0.00 | 750.00 | 1166.78 |

| SECTION NUMBER | DISCHARGE CFS | CWSEL | CRIWS | EG | HL | STENCL | STENCR | TOPWID | GLOB | GCH | GROB | SSTA | ENDST |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 582.000 | 33000.00 | 352.55 | 0.00 | 353.50 | 0.46 | 0.00 | 0.00 | 434.44 | 0.00 | 33000.00 | 0.00 | 315.63 | 750.07 |
| 582.000 | 33000.00 | 352.58 | 0.00 | 353.52 | 0.44 | 320.00 | 755.00 | 430.11 | 0.00 | 33000.00 | 0.00 | 320.00 | 750.11 |
| 584.000 | 33000.00 | 353.33 | 0.00 | 353.87 | 0.33 | 0.00 | 0.00 | 608.03 | 0.00 | 33000.00 | 0.00 | 220.55 | 828.57 |
| 584.000 | 33000.00 | 353.35 | 0.00 | 353.88 | 0.32 | 225.00 | 835.00 | 603.60 | 0.00 | 33000.00 | 0.00 | 225.00 | 828.60 |
| 586.000 | 33000.00 | 353.53 | 0.00 | 354.16 | 0.27 | 0.00 | 0.00 | 705.07 | 0.00 | 33000.00 | 0.00 | 242.04 | 947.11 |
| 586.000 | 33000.00 | 353.55 | 0.00 | 354.18 | 0.26 | 245.00 | 950.00 | 702.15 | 0.00 | 33000.00 | 0.00 | 245.00 | 947.15 |
| 590.000 | 33000.00 | 353.55 | 0.00 | 354.79 | 0.45 | 300.00 | 1000.00 | 570.16 | 0.00 | 33000.00 | 0.00 | 384.56 | 954.72 |
| 590.000 | 33000.00 | 353.56 | 0.00 | 354.80 | 0.44 | 390.00 | 60.00 | 564.74 | 0.00 | 33000.00 | 0.00 | 390.00 | 954.74 |
| 592.000 | 33000.00 | 353.79 | 353.79 | 357.33 | 1.13 | 700.00 | 1250.00 | 315.90 | 0.00 | 33000.00 | 0.00 | 903.57 | 1219.47 |
| 592.000 | 33000.00 | 353.74 | 353.74 | 357.35 | 1.13 | 910.00 | 1225.00 | 309.36 NO | 0.00 | 33000.00 | 0.00 | 910.00 | 1219.36 |
| 594.000 | 33000.00 | 356.11 | 352.00 | 362.32 | 3.65 | 0.00 | 0.00 | 257.59 | 0.00 | 33000.00 | 0.00 | 1156.28 | 1413.87 |
| 594.000 | 33000.00 | 356.11 | 352.00 | 362.35 | 3.68 | 1150.00 | 1410.00 | 253.70 | 0.00 | 33000.00 | 0.00 | 1156.29 | 1410.00 |
| 595.000 | 33000.00 | 363.54 | 352.00 | 364.06 | 0.04 | 0.00 | 0.00 | 629.24 | 10271.49 | 22728.51 | 0.00 | 104.27 | 1429.11 |
| 595.000 | 33000.00 | 362.54 | 352.00 | 363.90 | 0.09 | 1150.00 | 1410.00 | 260.00 | 1.56 | 32998.43 | 0.00 | 1150.00 | 1410.00 |
| 600.000 | 33000.00 | 363.74 | 0.00 | 364.18 | 0.11 | 1400.00 | 2200.00 | 383.66 | 0.00 | 33000.00 | 0.00 | 1586.93 | 1970.59 |
| 600.000 | 33000.00 | 363.68 | 0.00 | 364.13 | 0.14 | 1586.00 | 1983.00 | 383.27 NO | 0.00 | 33000.00 | 0.00 | 1587.01 | 1970.28 |
| 605.000 | 33000.00 | 363.93 | 0.00 | 364.27 | 0.08 | 1600.00 | 2400.00 | 402.80 | 0.00 | 33000.00 | 0.00 | 1771.72 | 2174.52 |
| 605.000 | 33000.00 | 363.88 | 0.00 | 364.22 | 0.08 | 1740.00 | 2165.00 | 393.21 | 0.00 | 33000.00 | 0.00 | 1771.79 | 2165.00 |
| 610.000 | 33000.00 | 364.00 | 0.00 | 364.34 | 0.07 | 2320.00 | 3000.00 | 426.69 | 0.00 | 33000.00 | 0.00 | 2340.54 | 2767.23 |
| 610.000 | 33000.00 | 363.94 | 0.00 | 364.29 | 0.07 | 2320.00 | 2750.00 | 409.38 | 0.00 | 33000.00 | 0.00 | 2340.62 | 2750.00 |
| 620.000 | 33000.00 | 363.98 | 0.00 | 364.54 | 0.14 | 2150.00 | 2470.00 | 320.00 | 397.94 | 13159.03 | 19443.03 | 2150.00 | 2470.00 |
| 620.000 | 33000.00 | 363.92 | 0.00 | 364.50 | 0.14 | 2150.00 | 2470.00 | 320.00 | 391.08 | 13154.64 | 19454.28 | 2150.00 | 2470.00 |
| 630.000 | 33000.00 | 362.80 | 0.00 | 365.51 | 0.32 | 2080.00 | 2390.00 | 269.61 | 1275.92 | 31724.08 | 0.00 | 2080.00 | 2349.61 |
| 630.000 | 33000.00 | 362.73 | 0.00 | 365.47 | 0.33 | 2080.00 | 2350.00 | 269.46 | 1233.00 | 31767.00 | 0.00 | 2080.00 | 2349.46 |
| 631.000 | 33000.00 | 364.66 | 364.66 | 368.67 | 0.98 | 1200.00 | 2000.00 | 365.64 | 6394.83 | 26605.17 | 0.00 | 1504.68 | 1870.32 |
| 631.000 | 33000.00 | 364.66 | 364.66 | 368.67 | 0.99 | 1500.00 | 1875.00 | 365.63 | 6389.29 | 26610.71 | 0.00 | 1504.69 | 1870.31 |
| 633.000 | 33000.00 | 367.49 | 364.66 | 369.56 | 0.31 | 1200.00 | 2000.00 | 376.01 | 9465.34 | 23534.65 | 0.00 | 1498.99 | 1875.00 |
| 633.000 | 33000.00 | 367.50 | 364.66 | 369.56 | 0.31 | 1500.00 | 1875.00 | 375.00 | 9496.15 | 23503.85 | 0.00 | 1500.00 | 1875.00 |

| SECTION NUMBER | DISCHARGE CFS | CWSEL | CWSEL DIFF EACH Q | CWSEL DIFF EACH SECTION | CWSEL-WSELK | TOPWID | T.W. DIFF | LENGTH |
|---|---|---|---|---|---|---|---|---|
| 100.000 | 38000.000 | 289.400 | 0.000 | 0.000 | 0.000 | 329.766 | 0.000 | 0.000 |
| 100.000 | 38000.000 | 290.400 | 1.000 | 0.000 | 0.000 | 279.999 | 49.767 | 0.000 |
| 110.000 | 38000.000 | 289.654 | 0.000 | 0.204 | 0.000 | 318.649 | 0.000 | 46.000 |
| 110.000 | 38000.000 | 290.538 | 0.884 | 0.138 | 0.000 | 274.999 | 43.650 | 46.000 |
| 120.000 | 38000.000 | 291.843 | 0.000 | 2.189 | 0.000 | 351.082 | 0.000 | 52.000 |
| 120.000 | 38000.000 | 292.518 | 0.675 | 1.980 | 0.000 | 279.999 | 71.083 | 52.000 |
| 130.000 | 38000.000 | 295.703 | 0.000 | 3.860 | 0.000 | 399.000 | 0.000 | 520.000 |
| 130.000 | 38000.000 | 296.505 | 0.802 | 3.987 | 0.000 | 274.999 | 124.001 | 520.000 |
| 140.000 | 38000.000 | 297.623 | 0.000 | 1.920 | 0.000 | 378.849 | 0.000 | 552.000 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 140. 000 | 38000. 000 | 298. 547 | 0. 924 | 2. 042 | 0. 000 | 269. 999 | 108. 850 | 552. 000 |
| 150. 000 | 38000. 000 | 299. 351 | 0. 000 | 1. 728 | 0. 000 | 922. 428 | 0. 000 | 540. 000 |
| 150. 000 | 38000. 000 | 300. 318 | 0. 967 | 1. 771 | 0. 000 | 544. 999 | 377. 429 | 540. 000 |
| 160. 000 | 38000. 000 | 299. 899 | 0. 000 | 0. 548 | 0. 000 | 1038. 840 | 0. 000 | 690. 000 |
| 160. 000 | 38000. 000 | 300. 866 | 0. 967 | 0. 548 | 0. 000 | 864. 999 | 173. 841 | 690. 000 |
| 170. 000 | 38000. 000 | 300. 092 | 0. 000 | 0. 193 | 0. 000 | 1660. 764 | 0. 000 | 350. 000 |
| 170. 000 | 38000. 000 | 301. 049 | 0. 957 | 0. 183 | 0. 000 | 1044. 999 | 615. 765 | 350. 000 |
| 180. 000 | 38000. 000 | 300. 199 | 0. 000 | 0. 107 | 0. 000 | 1465. 299 | 0. 000 | 300. 000 |
| 180. 000 | 38000. 000 | 301. 217 | 1. 018 | 0. 168 | 0. 000 | 1199. 999 | 265. 300 | 300. 000 |
| 190. 000 | 38000. 000 | 300. 362 | 0. 000 | 0. 163 | 0. 000 | 1502. 294 | 0. 000 | 550. 000 |
| 190. 000 | 38000. 000 | 301. 354 | 0. 992 | 0. 137 | 0. 000 | 1289. 999 | 212. 295 | 550. 000 |
| 200. 000 | 38000. 000 | 300. 450 | 0. 000 | 0. 088 | 0. 000 | 1501. 256 | 0. 000 | 600. 000 |
| 200. 000 | 38000. 000 | 301. 416 | 0. 966 | 0. 062 | 0. 000 | 1081. 857 | 419. 399 | 600. 000 |
| 210. 000 | 38000. 000 | 300. 509 | 0. 000 | 0. 059 | 0. 000 | 1625. 767 | 0. 000 | 350. 000 |
| 210. 000 | 38000. 000 | 301. 469 | 0. 960 | 0. 053 | 0. 000 | 1039. 999 | 585. 768 | 350. 000 |
| 220. 000 | 38000. 000 | 300. 762 | 0. 000 | 0. 253 | 0. 000 | 1604. 516 | 0. 000 | 450. 000 |
| 220. 000 | 38000. 000 | 301. 656 | 0. 894 | 0. 187 | 0. 000 | 969. 999 | 634. 517 | 450. 000 |
| 230. 000 | 38000. 000 | 301. 521 | 0. 000 | 0. 759 | 0. 000 | 1267. 667 | 0. 000 | 487. 000 |
| 230. 000 | 38000. 000 | 302. 394 | 0. 873 | 0. 738 | 0. 000 | 734. 999 | 532. 668 | 487. 000 |
| 239. 000 | 38000. 000 | 302. 738 | 0. 000 | 1. 217 | 0. 000 | 743. 263 | 0. 000 | 413. 000 |
| 239. 000 | 38000. 000 | 303. 746 | 1. 008 | 1. 352 | 0. 000 | 659. 999 | 83. 264 | 413. 000 |
| 242. 000 | 38000. 000 | 303. 829 | 0. 000 | 1. 091 | 0. 000 | 464. 761 | 0. 000 | 224. 000 |
| 242. 000 | 38000. 000 | 304. 586 | 0. 757 | 0. 840 | 0. 000 | 468. 486 | -3. 725 | 224. 000 |
| 244. 000 | 38000. 000 | 304. 589 | 0. 000 | 0. 760 | 0. 000 | 488. 157 | 0. 000 | 95. 000 |
| 244. 000 | 38000. 000 | 305. 182 | 0. 593 | 0. 596 | 0. 000 | 490. 415 | -2. 258 | 95. 000 |
| 245. 000 | 38000. 000 | 305. 925 | 0. 000 | 1. 336 | 0. 000 | 859. 840 | 0. 000 | 177. 000 |
| 245. 000 | 38000. 000 | 306. 312 | 0. 387 | 1. 130 | 0. 000 | 604. 999 | 254. 841 | 177. 000 |
| 250. 000 | 38000. 000 | 307. 468 | 0. 000 | 1. 543 | 0. 000 | 1092. 291 | 0. 000 | 701. 000 |
| 250. 000 | 38000. 000 | 308. 211 | 0. 743 | 1. 899 | 0. 000 | 694. 999 | 397. 292 | 701. 000 |
| 260. 000 | 38000. 000 | 309. 622 | 0. 000 | 2. 154 | 0. 000 | 639. 776 | 0. 000 | 1031. 000 |
| 260. 000 | 38000. 000 | 310. 531 | 0. 909 | 2. 320 | 0. 000 | 599. 999 | 39. 777 | 1031. 000 |
| 270. 000 | 37000. 000 | 313. 233 | 0. 000 | 3. 611 | 0. 000 | 760. 211 | 0. 000 | 951. 000 |
| 270. 000 | 37000. 000 | 313. 521 | 0. 288 | 2. 990 | 0. 000 | 559. 999 | 200. 212 | 951. 000 |
| 280. 000 | 37000. 000 | 314. 852 | 0. 000 | 1. 619 | 0. 000 | 1526. 278 | 0. 000 | 1021. 000 |
| 280. 000 | 37000. 000 | 315. 216 | 0. 364 | 1. 695 | 0. 000 | 1299. 999 | 226. 279 | 1021. 000 |
| 285. 000 | 37000. 000 | 315. 355 | 0. 000 | 0. 503 | 0. 000 | 1726. 687 | 0. 000 | 688. 000 |
| 285. 000 | 37000. 000 | 315. 744 | 0. 389 | 0. 528 | 0. 000 | 1434. 999 | 291. 688 | 688. 000 |
| 290. 000 | 37000. 000 | 316. 159 | 0. 000 | 0. 804 | 0. 000 | 1819. 915 | 0. 000 | 653. 000 |
| 290. 000 | 37000. 000 | 316. 493 | 0. 334 | 0. 749 | 0. 000 | 1556. 969 | 262. 946 | 653. 000 |
| 300. 000 | 37000. 000 | 317. 419 | 0. 000 | 1. 260 | 0. 000 | 1690. 102 | 0. 000 | 654. 000 |
| 300. 000 | 37000. 000 | 317. 691 | 0. 272 | 1. 198 | 0. 000 | 1469. 999 | 220. 103 | 654. 000 |
| 310. 000 | 37000. 000 | 318. 094 | 0. 000 | 0. 675 | 0. 000 | 1774. 981 | 0. 000 | 610. 000 |
| 310. 000 | 37000. 000 | 318. 319 | 0. 225 | 0. 628 | 0. 000 | 1544. 999 | 229. 982 | 610. 000 |
| 320. 000 | 37000. 000 | 318. 629 | 0. 000 | 0. 535 | 0. 000 | 1350. 288 | 0. 000 | 711. 000 |

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|---|---|---|---|---|---|---|---|---|
| 320.000 | 37000.000 | 318.799 | 0.170 | 0.480 | 0.000 | 1208.095 | 142.193 | 711.000 |
| 330.000 | 36000.000 | 319.206 | 0.000 | 0.577 | 0.000 | 890.215 | 0.000 | 588.000 |
| 330.000 | 36000.000 | 319.382 | 0.176 | 0.583 | 0.000 | 798.853 | 91.362 | 588.000 |
| 340.000 | 36000.000 | 320.379 | 0.000 | 1.173 | 0.000 | 988.119 | 0.000 | 454.000 |
| 340.000 | 36000.000 | 320.567 | 0.188 | 1.185 | 0.000 | 919.999 | 68.120 | 454.000 |
| 345.000 | 36000.000 | 321.064 | 0.000 | 0.685 | 0.000 | 1046.009 | 0.000 | 335.000 |
| 345.000 | 36000.000 | 321.161 | 0.097 | 0.594 | 0.000 | 801.147 | 244.862 | 335.000 |
| 355.000 | 36000.000 | 321.673 | 0.000 | 0.609 | 0.000 | 810.410 | 0.000 | 310.000 |
| 355.000 | 36000.000 | 321.701 | 0.028 | 0.540 | 0.000 | 662.720 | 147.690 | 310.000 |
| 357.000 | 36000.000 | 322.278 | 0.000 | 0.605 | 0.000 | 482.299 | 0.000 | 275.000 |
| 357.000 | 36000.000 | 322.452 | 0.174 | 0.751 | 0.000 | 482.299 | 0.000 | 275.000 |
| 359.000 | 36000.000 | 325.146 | 0.000 | 2.868 | 0.000 | 475.799 | 0.000 | 150.000 |
| 359.000 | 36000.000 | 325.090 | -0.056 | 2.638 | 0.000 | 475.799 | 0.000 | 150.000 |
| 360.000 | 36000.000 | 327.011 | 0.000 | 1.865 | 0.000 | 1053.999 | 0.000 | 303.000 |
| 360.000 | 36000.000 | 327.004 | -0.007 | 1.914 | 0.000 | 874.999 | 179.000 | 303.000 |
| 370.000 | 36000.000 | 327.347 | 0.000 | 0.336 | 0.000 | 1463.904 | 0.000 | 361.000 |
| 370.000 | 36000.000 | 327.401 | 0.054 | 0.397 | 0.000 | 954.999 | 508.905 | 361.000 |
| 380.000 | 36000.000 | 327.683 | 0.000 | 0.336 | 0.000 | 1415.645 | 0.000 | 323.000 |
| 380.000 | 36000.000 | 327.955 | 0.272 | 0.554 | 0.000 | 989.999 | 425.646 | 323.000 |
| 390.000 | 36000.000 | 328.336 | 0.000 | 0.653 | 0.000 | 1487.796 | 0.000 | 318.000 |
| 390.000 | 36000.000 | 328.961 | 0.625 | 1.006 | 0.000 | 969.999 | 517.797 | 318.000 |
| 400.000 | 36000.000 | 329.281 | 0.000 | 0.945 | 0.000 | 725.619 | 0.000 | 701.000 |
| 400.000 | 36000.000 | 330.130 | 0.849 | 1.169 | 0.000 | 729.663 | -4.044 | 701.000 |
| 410.000 | 36000.000 | 331.044 | 0.000 | 1.763 | 0.000 | 655.526 | 0.000 | 720.000 |
| 410.000 | 36000.000 | 331.421 | 0.377 | 1.291 | 0.000 | 658.437 | -2.911 | 720.000 |
| 415.000 | 36000.000 | 332.936 | 0.000 | 1.892 | 0.000 | 769.069 | 0.000 | 850.000 |
| 415.000 | 36000.000 | 333.104 | 0.168 | 1.683 | 0.000 | 771.219 | -2.150 | 850.000 |
| 420.000 | 36000.000 | 333.414 | 0.000 | 0.478 | 0.000 | 677.685 | 0.000 | 425.000 |
| 420.000 | 36000.000 | 333.553 | 0.139 | 0.449 | 0.000 | 678.804 | -1.119 | 425.000 |
| 422.000 | 36000.000 | 332.970 | 0.000 | -0.444 | 0.000 | 453.887 | 0.000 | 321.000 |
| 422.000 | 36000.000 | 333.116 | 0.146 | -0.437 | 0.000 | 455.092 | -1.205 | 321.000 |
| 424.000 | 36000.000 | 334.726 | 0.000 | 1.756 | 0.000 | 470.699 | 0.000 | 170.000 |
| 424.000 | 36000.000 | 334.726 | 0.000 | 1.610 | 0.000 | 470.699 | 0.000 | 170.000 |
| 425.000 | 36000.000 | 336.164 | 0.000 | 1.438 | 0.000 | 1183.273 | 0.000 | 218.000 |
| 425.000 | 36000.000 | 336.150 | -0.014 | 1.424 | 0.000 | 949.999 | 233.274 | 218.000 |
| 430.000 | 36000.000 | 336.659 | 0.000 | 0.495 | 0.000 | 1525.000 | 0.000 | 465.000 |
| 430.000 | 36000.000 | 336.588 | -0.071 | 0.438 | 0.000 | 994.999 | 530.001 | 465.000 |
| 440.000 | 34000.000 | 338.163 | 0.000 | 1.504 | 0.000 | 1239.343 | 0.000 | 542.000 |
| 440.000 | 34000.000 | 338.380 | 0.217 | 1.792 | 0.000 | 994.999 | 244.344 | 542.000 |
| 450.000 | 34000.000 | 340.350 | 0.000 | 2.187 | 0.000 | 1245.597 | 0.000 | 534.000 |
| 450.000 | 34000.000 | 340.389 | 0.039 | 2.009 | 0.000 | 999.999 | 245.600 | 534.000 |
| 460.000 | 34000.000 | 340.472 | 0.000 | 0.122 | 0.000 | 1571.157 | 0.000 | 423.000 |
| 460.000 | 34000.000 | 340.499 | 0.027 | 0.110 | 0.000 | 934.999 | 636.158 | 423.000 |
| 470.000 | 34000.000 | 340.533 | 0.000 | 0.061 | 0.000 | 1476.396 | 0.000 | 423.000 |

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|---|---|---|---|---|---|---|---|---|
| 470.000 | 34000.000 | 340.572 | 0.039 | 0.073 | 0.000 | 1011.575 | 464.321 | 423.000 |
| 480.000 | 34000.000 | 339.307 | 0.000 | -1.226 | 0.000 | 628.753 | 0.000 | 281.000 |
| 480.000 | 34000.000 | 339.368 | 0.061 | -1.204 | 0.000 | 399.022 | 229.731 | 281.000 |
| 483.000 | 34000.000 | 339.578 | 0.000 | 0.271 | 0.000 | 553.638 | 0.000 | 153.000 |
| 483.000 | 34000.000 | 339.642 | 0.064 | 0.274 | 0.000 | 441.525 | 112.113 | 153.000 |
| 485.000 | 34000.000 | 343.864 | 0.000 | 4.286 | 0.000 | 1625.067 | 0.000 | 130.000 |
| 485.000 | 34000.000 | 343.973 | 0.109 | 4.331 | 0.000 | 964.999 | 660.068 | 130.000 |
| 490.000 | 34000.000 | 345.331 | 0.000 | 1.467 | 0.000 | 1471.704 | 0.000 | 192.000 |
| 490.000 | 34000.000 | 346.026 | 0.695 | 2.053 | 0.000 | 949.999 | 521.705 | 192.000 |
| 500.000 | 33000.000 | 346.288 | 0.000 | 0.957 | 0.000 | 1561.846 | 0.000 | 472.000 |
| 500.000 | 33000.000 | 346.739 | 0.451 | 0.713 | 0.000 | 809.999 | 751.847 | 472.000 |
| 505.000 | 33000.000 | 346.353 | 0.000 | 0.065 | 0.000 | 612.979 | 0.000 | 346.000 |
| 505.000 | 33000.000 | 346.882 | 0.529 | 0.143 | 0.000 | 574.999 | 37.980 | 346.000 |
| 508.000 | 33000.000 | 346.697 | 0.000 | 0.344 | 0.000 | 495.187 | 0.000 | 160.000 |
| 508.000 | 33000.000 | 347.140 | 0.443 | 0.256 | 0.000 | 482.219 | 12.968 | 160.000 |
| 510.000 | 33000.000 | 347.541 | 0.000 | 0.844 | 0.000 | 493.399 | 0.000 | 115.000 |
| 510.000 | 33000.000 | 347.849 | 0.308 | 0.709 | 0.000 | 493.399 | 0.000 | 115.000 |
| 515.000 | 33000.000 | 348.268 | 0.000 | 0.727 | 0.000 | 1113.516 | 0.000 | 399.000 |
| 515.000 | 33000.000 | 348.528 | 0.260 | 0.679 | 0.000 | 854.999 | 258.517 | 399.000 |
| 520.000 | 33000.000 | 348.265 | 0.000 | -0.003 | 0.000 | 723.900 | 0.000 | 587.000 |
| 520.000 | 33000.000 | 348.528 | 0.263 | 0.000 | 0.000 | 654.999 | 68.901 | 587.000 |
| | | | | | | SEATTLE | SEATTLE | TOPEKA |
| 530.000 | 33000.000 | 348.358 | 0.000 | 0.093 | 0.000 | 649.553 | 0.000 | 624.000 |
| 530.000 | 33000.000 | 348.541 | 0.183 | 0.013 | 0.000 | 478.442 | 171.111 | 624.000 |
| 535.000 | 33000.000 | 348.143 | 0.000 | -0.215 | 0.000 | 548.224 | 0.000 | 326.000 |
| 535.000 | 33000.000 | 348.490 | 0.347 | -0.051 | 0.000 | 509.999 | 38.225 | 326.000 |
| 540.000 | 33000.000 | 348.605 | 0.000 | 0.462 | 0.000 | 480.204 | 0.000 | 358.000 |
| 540.000 | 33000.000 | 348.839 | 0.234 | 0.349 | 0.000 | 432.012 | 48.192 | 358.000 |
| 550.000 | 33000.000 | 349.273 | 0.000 | 0.668 | 0.000 | 694.691 | 0.000 | 670.000 |
| 550.000 | 33000.000 | 349.578 | 0.305 | 0.739 | 0.000 | 629.175 | 65.516 | 670.000 |
| 560.000 | 33000.000 | 349.586 | 0.000 | 0.313 | 0.000 | 664.591 | 0.000 | 628.000 |
| 560.000 | 33000.000 | 349.883 | 0.297 | 0.305 | 0.000 | 664.999 | -0.408 | 628.000 |
| 562.000 | 33000.000 | 349.764 | 0.000 | 0.178 | 0.000 | 743.540 | 0.000 | 309.000 |
| 562.000 | 33000.000 | 350.047 | 0.283 | 0.164 | 0.000 | 736.781 | 6.759 | 309.000 |
| 564.000 | 33000.000 | 349.852 | 0.000 | 0.088 | 0.000 | 765.630 | 0.000 | 229.000 |
| 564.000 | 33000.000 | 350.128 | 0.276 | 0.081 | 0.000 | 754.999 | 10.631 | 229.000 |
| 566.000 | 33000.000 | 349.821 | 0.000 | -0.031 | 0.000 | 546.517 | 0.000 | 285.000 |
| 566.000 | 33000.000 | 350.094 | 0.273 | -0.034 | 0.000 | 550.268 | -3.751 | 285.000 |
| 570.000 | 33000.000 | 349.686 | 0.000 | -0.135 | 0.000 | 444.466 | 0.000 | 232.000 |
| 570.000 | 33000.000 | 349.963 | 0.277 | -0.131 | 0.000 | 443.098 | 1.368 | 232.000 |
| 572.000 | 33000.000 | 350.116 | 0.000 | 0.430 | 0.000 | 399.110 | 0.000 | 178.000 |
| 572.000 | 33000.000 | 350.345 | 0.229 | 0.382 | 0.000 | 400.900 | -1.790 | 178.000 |
| 574.000 | 33000.000 | 350.576 | 0.000 | 0.460 | 0.000 | 408.518 | 0.000 | 198.000 |
| 574.000 | 33000.000 | 350.768 | 0.192 | 0.423 | 0.000 | 405.365 | 3.153 | 198.000 |
| 576.000 | 33000.000 | 350.535 | 0.000 | -0.041 | 0.000 | 394.538 | 0.000 | 179.000 |

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|---|---|---|---|---|---|---|---|---|
| 576.000 | 33000.000 | 350.731 | 0.196 | -0.037 | 0.000 | 395.874 | -1.336 | 179.000 |
| 580.000 | 33000.000 | 350.333 | 0.000 | -0.202 | 0.000 | 427.549 | 0.000 | 183.000 |
| 580.000 | 33000.000 | 350.555 | 0.222 | -0.176 | 0.000 | 416.776 | 10.773 | 183.000 |
| 582.000 | 33000.000 | 352.550 | 0.000 | 2.217 | 0.000 | 434.440 | 0.000 | 154.000 |
| 582.000 | 33000.000 | 352.575 | 0.025 | 2.020 | 0.000 | 430.109 | 4.331 | 154.000 |
| 584.000 | 33000.000 | 353.332 | 0.000 | 0.782 | 0.000 | 608.026 | 0.000 | 260.000 |
| 584.000 | 33000.000 | 353.352 | 0.020 | 0.777 | 0.000 | 603.600 | 4.426 | 260.000 |
| 586.000 | 33000.000 | 353.529 | 0.000 | 0.197 | 0.000 | 705.070 | 0.000 | 214.000 |
| 586.000 | 33000.000 | 353.547 | 0.018 | 0.195 | 0.000 | 702.149 | 2.921 | 214.000 |
| 590.000 | 33000.000 | 353.552 | 0.000 | 0.023 | 0.000 | 570.156 | 0.000 | 191.000 |
| 590.000 | 33000.000 | 353.564 | 0.012 | 0.017 | 0.000 | 564.743 | 5.413 | 191.000 |
| 592.000 | 33000.000 | 353.795 | 0.000 | 0.243 | 0.000 | 315.898 | 0.000 | 198.000 |
| 592.000 | 33000.000 | 353.738 | -0.057 | 0.174 | 0.000 | 309.356 | 6.542 | 198.000 |
| 594.000 | 33000.000 | 356.112 | 0.000 | 2.317 | 0.000 | 257.590 | 0.000 | 179.000 |
| 594.000 | 33000.000 | 356.106 | -0.006 | 2.368 | 0.000 | 253.705 | 3.885 | 179.000 |
| 595.000 | 33000.000 | 363.542 | 0.000 | 7.430 | 0.000 | 629.241 | 0.000 | 6.000 |
| 595.000 | 33000.000 | 362.543 | -0.999 | 6.437 | 0.000 | 259.999 | 369.242 | 6.000 |
| 600.000 | 33000.000 | 363.736 | 0.000 | 0.194 | 0.000 | 383.659 | 0.000 | 139.000 |
| 600.000 | 33000.000 | 363.684 | -0.052 | 1.141 | 0.000 | 383.268 | 0.391 | 139.000 |
| 605.000 | 33000.000 | 363.931 | 0.000 | 0.195 | 0.000 | 402.797 | 0.000 | 228.000 |
| 605.000 | 33000.000 | 363.878 | -0.053 | 0.194 | 0.000 | 393.211 | 9.586 | 228.000 |
| 610.000 | 33000.000 | 363.997 | 0.000 | 0.066 | 0.000 | 426.689 | 0.000 | 241.000 |
| 610.000 | 33000.000 | 363.942 | -0.055 | 0.064 | 0.000 | 409.383 | 17.306 | 241.000 |
| 620.000 | 33000.000 | 363.976 | 0.000 | -0.021 | 0.000 | 319.999 | 0.000 | 336.000 |
| 620.000 | 33000.000 | 363.924 | -0.052 | -0.018 | 0.000 | 319.999 | 0.000 | 336.000 |
| 630.000 | 33000.000 | 362.802 | 0.000 | -1.174 | 0.000 | 269.607 | 0.000 | 362.000 |
| 630.000 | 33000.000 | 362.731 | -0.071 | -1.193 | 0.000 | 269.465 | 0.142 | 362.000 |
| 631.000 | 33000.000 | 364.661 | 0.000 | 1.859 | 0.000 | 365.643 | 0.000 | 211.000 |
| 631.000 | 33000.000 | 364.657 | -0.004 | 1.926 | 0.000 | 365.625 | 0.018 | 211.000 |
| 633.000 | 33000.000 | 367.492 | 0.000 | 2.831 | 0.000 | 376.011 | 0.000 | 60.000 |
| 633.000 | 33000.000 | 367.505 | 0.013 | 2.848 | 0.000 | 374.999 | 1.012 | 60.000 |

DATA FOR LAST CROSS SECTION

| PROFILE | TYPE ENC | TARGET | TOP WIDTH AREA-ACRES | TOP WIDTH AREA-DIFF |
|---|---|---|---|---|
| 1 | 1.000 | 800.000 | 755.626 | 0.000 |
| 2 | 1.000 | 375.000 | 599.518 | -156.109 |

**********
HEC2 VERSION UPDATED JAN 1976
ERROR CORRECTIONS 01,02,03,04,05,06,07,08,09
MODIFICATIONS 51,52,53,54,55,56,,57,58
**********

20-OCT-82  15:05:34

;EjE`@7DO

ATTACHMENT III

Recd 8-15-83
cg

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**************************
HEC2 VERSION UPDATED JAN 1976
ERROR CORRECTIONS 01,02,03,04,05,06,07,08,09
MODIFICATIONS 51,52,53,54,55,56,,57,58
**************************

19-OCT-82   17:24:44

BB,BB
T1      UPPER SAN DIEGO RIVER
T2      SECTIONS DIGITIZED IN 1982
T3      100-YEAR

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
        0.      2.        0.        0.  0.000000      0.00     -1.0       0.   327.011     0.000

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE
    1.000     0.000    -1.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000

NC      0.125     0.125     0.125     0.100     0.300     0.000     0.000     0.000     0.000     0.000
QT      2.000 36000.000 36000.000  4500.000     0.000     0.000     0.000     0.000     0.000     0.000
NC      0.065     0.060     0.055     0.100     0.300     0.000     0.000     0.000     0.000     0.000
ET      0.000     5.100     7.100     5.100   666.000  1720.000   845.000  1720.000     0.000     0.000

X1    360.000    77.000   864.500  1720.000   365.000   550.000   303.000     0.000     0.000     0.000
GR    339.100     0.000   355.700     4.400   355.700   104.400   338.600   106.800   337.100   121.300
GR    337.100   163.200   336.600   201.000   335.200   286.800   334.300   420.200   330.600   439.600
GR    325.900   461.700   324.400   488.700   323.300   537.800   321.500   572.100   321.400   642.600
GR    319.800   700.200   318.000   715.100   318.900   754.500   319.400   795.200   318.400   811.700
GR    317.100   818.600   320.700   833.500   325.700   846.000   326.300   864.500   321.500   881.400
GR    318.600   901.600   317.800   962.400   316.500   984.900   318.500  1026.800   314.800  1034.400
GR    314.500  1046.900   314.800  1059.600   318.700  1066.700   319.400  1097.700   318.300  1148.000
GR    318.200  1190.000   318.000  1215.700   314.100  1223.400   314.000  1250.000   313.000  1285.800
GR    313.200  1318.400   315.300  1356.300   317.500  1387.300   317.600  1429.200   317.100  1485.500
GR    317.600  1554.900   318.100  1637.400   317.800  1665.200   317.300  1678.900   318.300  1702.300
GR    323.400  1720.000   323.600  1764.700   323.000  1828.300   321.100  1871.500   321.400  1912.500
GR    323.500  1927.000   323.900  1975.000   325.800  2022.100   327.200  2051.100   339.700  2054.400
GR    339.700  2204.600   339.700  2427.300   329.900  2443.800   328.100  2517.100   328.300  2626.300
GR    328.300  2735.500   327.400  2821.300   328.700  2845.800   329.000  2887.300   328.300  2928.800
GR    331.900  2969.100   332.100  3006.600   344.000  3015.800   344.000  3037.200   331.400  3040.800
GR    331.400  3082.300   332.400  3115.400     0.000     0.000     0.000     0.000     0.000     0.000
NC      0.050     0.035     0.035     0.000     0.000     0.000     0.000     0.000     0.000     0.000
NC      0.000     0.040     0.040     0.000     0.000     0.000     0.000     0.000     0.000     0.000
ET      0.000     5.100     7.100     5.100     1.000  2000.000   930.000  1885.000     0.000     0.000

X1    370.000    93.000   977.500  1929.500   360.000   310.000   361.000     0.000     0.000     0.000
GR    356.900     0.000   357.000    29.200   347.700    44.400   342.100    57.200   336.600    69.600
GR    335.100   152.500   335.100   195.700   335.100   212.900   334.900   241.800   334.800   296.600
GR    353.300   307.000   353.300   340.600   334.900   348.200   334.900   365.900   352.200   373.900
GR    352.200   407.900   333.700   413.900   332.700   465.600   332.400   501.200   328.100   516.400
GR    325.700   531.200   325.500   563.600   322.000   584.900   320.600   653.300   319.400   733.400
GR    318.900   801.000   318.400   844.600   318.700   878.700   320.300   896.300   319.600   928.700
GR    320.800   946.300   320.300   968.700   322.700   977.500   321.100   989.500   319.200  1007.600
GR    315.700  1022.400   314.600  1054.000   315.700  1078.400   319.300  1084.400   319.400  1129.700
GR    318.100  1151.700   317.300  1167.300   317.800  1179.300   321.600  1187.800   319.500  1197.800
GR    319.900  1259.400   318.900  1349.900   319.300  1436.300   318.500  1500.400   317.500  1595.300
GR    314.600  1612.900   314.500  1648.100   314.900  1701.700   317.800  1709.300   319.300  1750.200
```

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| GR | 318.700 | 1822.600 | 320.000 | 1852.600 | 317.300 | 1869.800 | 318.500 | 1878.300 | 321.300 | 1887.900 |
| GR | 322.300 | 1911.100 | 324.800 | 1929.500 | 326.900 | 1984.700 | 334.600 | 1989.500 | 334.600 | 2019.100 |
| GR | 326.300 | 2023.200 | 325.700 | 2053.200 | 325.800 | 2090.000 | 327.100 | 2120.400 | 335.000 | 2123.700 |
| GR | 335.000 | 2150.500 | 326.900 | 2152.900 | 326.900 | 2207.300 | 326.000 | 2248.200 | 325.600 | 2289.400 |
| GR | 325.400 | 2319.400 | 322.200 | 2345.400 | 320.700 | 2364.600 | 320.900 | 2427.500 | 322.100 | 2447.500 |
| GR | 325.600 | 2469.100 | 326.900 | 2499.900 | 329.200 | 2525.900 | 329.000 | 2590.800 | 328.800 | 2692.000 |
| GR | 329.300 | 2802.500 | 329.100 | 2897.000 | 327.500 | 2958.600 | 328.700 | 2973.000 | 329.400 | 3019.100 |
| GR | 329.000 | 3063.900 | 330.300 | 3137.500 | 330.800 | 3231.600 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 5.100 | 7.100 | 5.100 | 1.000 | 2000.000 | 945.000 | 1935.000 | 0.000 | 0.000 |
| | | | | | | | | | | |
| X1 | 380.000 | 91.000 | 988.000 | 1948.900 | 310.000 | 420.000 | 323.000 | 0.000 | 0.000 | 0.000 |
| GR | 357.400 | 0.000 | 357.500 | 43.500 | 349.900 | 56.800 | 340.400 | 76.300 | 334.000 | 84.000 |
| GR | 333.400 | 162.100 | 332.800 | 224.100 | 332.800 | 255.400 | 332.900 | 290.600 | 333.200 | 369.800 |
| GR | 332.700 | 476.500 | 332.500 | 512.100 | 327.900 | 528.700 | 325.500 | 543.400 | 323.600 | 562.400 |
| GR | 322.200 | 581.400 | 322.400 | 636.000 | 320.900 | 657.500 | 319.600 | 721.100 | 319.400 | 774.200 |
| GR | 320.000 | 803.700 | 319.800 | 857.500 | 320.700 | 901.300 | 322.500 | 988.000 | 320.900 | 1028.500 |
| GR | 319.600 | 1056.900 | 315.600 | 1062.100 | 314.700 | 1079.000 | 315.600 | 1099.800 | 319.100 | 1105.800 |
| GR | 319.100 | 1188.100 | 318.800 | 1256.000 | 316.900 | 1281.500 | 319.900 | 1300.200 | 323.500 | 1320.900 |
| GR | 327.000 | 1335.000 | 327.000 | 1386.000 | 322.600 | 1416.800 | 319.700 | 1433.400 | 320.000 | 1469.900 |
| GR | 320.300 | 1513.200 | 318.300 | 1527.400 | 318.100 | 1556.100 | 321.200 | 1565.100 | 319.700 | 1610.300 |
| GR | 319.400 | 1633.400 | 320.500 | 1667.200 | 318.400 | 1681.300 | 316.700 | 1696.200 | 316.200 | 1711.700 |
| GR | 316.900 | 1731.100 | 319.300 | 1749.400 | 320.300 | 1808.400 | 320.200 | 1873.200 | 320.200 | 1927.900 |
| GR | 325.000 | 1938.000 | 328.800 | 1948.900 | 329.300 | 2027.400 | 329.200 | 2091.800 | 337.300 | 2098.200 |
| GR | 337.300 | 2143.600 | 328.700 | 2148.100 | 328.600 | 2205.600 | 330.400 | 2229.500 | 337.000 | 2236.900 |
| GR | 337.000 | 2278.400 | 328.800 | 2286.600 | 328.600 | 2362.200 | 326.500 | 2372.900 | 323.200 | 2401.300 |
| GR | 322.700 | 2453.500 | 323.300 | 2520.300 | 324.600 | 2544.700 | 328.200 | 2584.400 | 329.100 | 2614.800 |
| GR | 330.000 | 2719.900 | 328.900 | 2835.800 | 328.000 | 2901.800 | 337.700 | 2906.700 | 337.700 | 2934.600 |
| GR | 330.300 | 2940.700 | 330.000 | 2959.700 | 332.600 | 2963.000 | 329.800 | 3001.900 | 329.100 | 3061.700 |
| GR | 330.300 | 3097.800 | 332.900 | 3108.800 | 333.300 | 3157.400 | 332.900 | 3227.900 | 334.400 | 3309.300 |
| GR | 334.300 | 3389.500 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 5.100 | 7.100 | 5.100 | 1.000 | 2200.000 | 1010.000 | 1980.000 | 0.000 | 0.000 |
| | | | | | | | | | | |
| X1 | 390.000 | 92.000 | 1103.000 | 1987.900 | 315.000 | 400.000 | 318.000 | 0.000 | 0.000 | 0.000 |
| GR | 359.100 | 0.000 | 359.300 | 78.100 | 351.300 | 94.400 | 342.200 | 108.100 | 335.500 | 125.600 |
| GR | 334.800 | 143.400 | 334.900 | 205.300 | 332.500 | 259.800 | 333.100 | 326.200 | 335.700 | 349.300 |
| GR | 344.700 | 352.600 | 344.700 | 472.500 | 334.700 | 476.300 | 334.500 | 511.400 | 332.700 | 540.000 |
| GR | 330.100 | 556.000 | 324.800 | 574.600 | 322.700 | 595.300 | 320.300 | 640.300 | 319.100 | 704.900 |
| GR | 319.900 | 748.000 | 319.100 | 783.400 | 319.900 | 828.600 | 322.000 | 876.600 | 323.500 | 941.600 |
| GR | 324.100 | 1031.800 | 324.700 | 1103.000 | 322.800 | 1111.300 | 320.900 | 1134.400 | 316.000 | 1141.100 |
| GR | 315.300 | 1167.900 | 316.000 | 1179.500 | 320.400 | 1187.800 | 322.700 | 1217.400 | 321.900 | 1284.400 |
| GR | 321.100 | 1375.200 | 319.700 | 1442.600 | 321.100 | 1508.500 | 321.200 | 1613.400 | 320.200 | 1681.500 |
| GR | 315.400 | 1698.000 | 316.000 | 1713.800 | 318.400 | 1738.000 | 321.600 | 1793.400 | 321.600 | 1882.500 |
| GR | 320.600 | 1943.500 | 320.900 | 1967.200 | 325.900 | 1987.900 | 326.700 | 2037.200 | 329.400 | 2058.300 |
| GR | 332.200 | 2076.900 | 332.000 | 2098.200 | 339.900 | 2104.400 | 339.900 | 2165.300 | 332.100 | 2167.300 |
| GR | 332.200 | 2179.500 | 340.600 | 2185.300 | 340.600 | 2242.900 | 331.400 | 2246.200 | 330.800 | 2321.800 |
| GR | 330.900 | 2387.000 | 332.300 | 2420.800 | 339.400 | 2422.500 | 339.400 | 2466.100 | 332.100 | 2469.600 |
| GR | 331.000 | 2482.400 | 327.300 | 2494.000 | 325.800 | 2511.400 | 324.300 | 2558.100 | 329.100 | 2598.800 |
| GR | 327.000 | 2634.500 | 329.900 | 2693.200 | 326.400 | 2719.500 | 327.800 | 2731.200 | 332.100 | 2747.700 |
| GR | 333.600 | 2819.100 | 333.000 | 2902.400 | 331.800 | 2930.100 | 329.400 | 2953.000 | 329.400 | 2987.000 |
| GR | 330.000 | 3037.300 | 330.300 | 3090.600 | 331.000 | 3179.700 | 331.500 | 3258.900 | 332.800 | 3299.800 |
| GR | 335.200 | 3314.000 | 335.900 | 3370.800 | 335.000 | 3416.400 | 337.300 | 3475.700 | 338.800 | 3591.400 |
| GR | 355.400 | 3597.900 | 355.300 | 3638.700 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | 0.035 | 0.035 | 0.030 | 0.100 | 0.300 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | 0.040 | 0.040 | 0.040 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 5.100 | 7.100 | 0.000 | 1106.700 | 2400.000 | 1110.000 | 1840.000 | 0.000 | 0.000 |
| | | | | | | | | | | |
| X1 | 400.000 | 85.000 | 1106.700 | 1939.500 | 700.000 | 630.000 | 701.000 | 0.000 | 0.000 | 0.000 |
| GR | 342.600 | 0.000 | 342.900 | 56.400 | 352.900 | 63.300 | 352.900 | 161.100 | 342.400 | 164.200 |
| GR | 340.500 | 215.200 | 339.000 | 242.100 | 335.700 | 277.800 | 331.200 | 330.200 | 328.700 | 365.500 |
| GR | 328.700 | 401.300 | 328.300 | 463.700 | 325.800 | 491.100 | 323.300 | 519.500 | 322.200 | 578.600 |
| GR | 323.300 | 640.000 | 325.100 | 711.600 | 324.800 | 774.400 | 325.900 | 851.600 | 327.500 | 949.000 |
| GR | 328.200 | 1054.600 | 327.400 | 1080.200 | 330.600 | 1087.600 | 330.900 | 1106.700 | 324.300 | 1125.700 |
| GR | 318.200 | 1142.000 | 318.300 | 1237.300 | 318.200 | 1293.500 | 318.000 | 1304.700 | 318.100 | 1317.100 |
| GR | 318.500 | 1364.300 | 318.900 | 1401.200 | 323.100 | 1413.800 | 323.400 | 1443.400 | 326.700 | 1454.800 |
| GR | 327.400 | 1513.700 | 327.200 | 1570.100 | 325.600 | 1615.600 | 321.200 | 1635.200 | 322.600 | 1681.500 |
| GR | 323.500 | 1752.500 | 323.500 | 1809.400 | 320.600 | 1844.000 | 321.700 | 1871.500 | 318.700 | 1901.600 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| GR | 318.300 | 1921.100 | 324.700 | 1929.600 | 328.800 | 1939.500 | 329.800 | 1975.200 | 336.700 | 1993.000 |
| GR | 341.800 | 2005.100 | 340.700 | 2019.000 | 340.600 | 2068.200 | 335.000 | 2080.700 | 331.500 | 2087.600 |
| GR | 331.800 | 2170.900 | 333.200 | 2266.800 | 334.300 | 2300.500 | 357.200 | 2305.000 | 357.200 | 2352.000 |
| GR | 357.200 | 2410.800 | 334.000 | 2415.800 | 333.600 | 2470.600 | 331.600 | 2560.300 | 329.600 | 2592.000 |
| GR | 328.700 | 2642.400 | 325.600 | 2663.500 | 326.800 | 2691.500 | 329.600 | 2731.700 | 332.700 | 2768.600 |
| GR | 332.200 | 2879.900 | 332.900 | 3013.000 | 331.600 | 3089.300 | 329.400 | 3146.200 | 330.900 | 3216.400 |
| GR | 332.400 | 3302.900 | 333.100 | 3391.900 | 334.100 | 3491.800 | 337.700 | 3496.800 | 338.500 | 3545.900 |
| GR | 338.500 | 3593.700 | 356.700 | 3600.300 | 356.700 | 3765.500 | 340.900 | 3770.000 | 340.100 | 3818.800 |
| ET | 0.000 | 5.100 | 7.100 | 0.000 | 1200.000 | 2800.000 | 1745.000 | 2415.000 | 0.000 | 0.000 |
| | | | | | | | | | | |
| X1 | 410.000 | 91.000 | 1721.000 | 2183.500 | 700.000 | 700.000 | 701.000 | 0.000 | 0.000 | 0.000 |
| GR | 339.400 | 0.000 | 338.800 | 34.700 | 340.600 | 60.500 | 349.500 | 66.100 | 349.500 | 96.300 |
| GR | 342.800 | 98.500 | 340.200 | 136.800 | 338.100 | 155.300 | 334.600 | 180.600 | 333.400 | 222.500 |
| GR | 334.800 | 260.100 | 336.500 | 345.000 | 335.700 | 436.600 | 335.500 | 526.000 | 329.900 | 543.300 |
| GR | 326.400 | 565.100 | 326.400 | 579.200 | 326.900 | 600.100 | 327.400 | 666.600 | 328.300 | 706.900 |
| GR | 330.800 | 735.100 | 330.400 | 858.000 | 330.600 | 943.800 | 331.500 | 1061.400 | 332.800 | 1173.400 |
| GR | 332.300 | 1284.600 | 332.000 | 1356.700 | 331.700 | 1462.300 | 331.800 | 1569.900 | 330.700 | 1613.800 |
| GR | 331.300 | 1697.200 | 334.300 | 1707.700 | 334.600 | 1721.000 | 327.000 | 1747.600 | 320.900 | 1770.900 |
| GR | 319.400 | 1782.600 | 319.900 | 1845.400 | 318.700 | 1850.300 | 318.300 | 1858.700 | 318.700 | 1868.000 |
| GR | 317.900 | 1873.300 | 320.600 | 1957.000 | 320.900 | 2034.000 | 321.600 | 2130.300 | 321.700 | 2162.900 |
| GR | 327.500 | 2174.600 | 333.300 | 2178.300 | 334.100 | 2183.500 | 331.400 | 2190.400 | 330.900 | 2215.000 |
| GR | 329.700 | 2236.700 | 325.900 | 2250.800 | 325.800 | 2264.500 | 325.300 | 2317.700 | 325.300 | 2344.700 |
| GR | 327.400 | 2364.000 | 331.900 | 2381.700 | 333.300 | 2389.000 | 332.600 | 2406.300 | 328.000 | 2417.300 |
| GR | 325.400 | 2425.300 | 325.100 | 2450.200 | 324.900 | 2486.500 | 327.100 | 2495.400 | 336.300 | 2514.300 |
| GR | 342.700 | 2530.500 | 341.700 | 2535.700 | 342.500 | 2592.900 | 344.700 | 2638.000 | 345.800 | 2692.100 |
| GR | 346.700 | 2731.100 | 342.400 | 2741.600 | 338.000 | 2750.100 | 337.000 | 2775.500 | 335.200 | 2821.000 |
| GR | 334.400 | 2873.400 | 334.500 | 2956.000 | 335.000 | 3024.500 | 334.400 | 3131.600 | 331.200 | 3178.900 |
| GR | 329.400 | 3257.300 | 328.000 | 3320.100 | 331.800 | 3358.000 | 334.000 | 3429.100 | 334.500 | 3542.100 |
| GR | 332.900 | 3662.500 | 331.200 | 3717.300 | 331.600 | 3766.900 | 332.100 | 3854.300 | 332.400 | 3961.500 |
| GR | 333.300 | 4033.600 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 5.100 | 7.100 | 0.000 | 1300.000 | 2800.000 | 1750.000 | 2525.000 | 0.000 | 0.000 |
| | | | | | | | | | | |
| X1 | 415.000 | 95.000 | 1739.400 | 2028.100 | 880.000 | 910.000 | 893.000 | 0.000 | 0.000 | 0.000 |
| GR | 345.900 | 0.000 | 344.600 | 48.000 | 343.300 | 87.200 | 341.600 | 90.000 | 341.400 | 104.000 |
| GR | 340.300 | 137.600 | 342.900 | 150.100 | 343.200 | 167.600 | 352.500 | 172.000 | 352.500 | 224.500 |
| GR | 344.000 | 227.800 | 342.700 | 299.800 | 349.600 | 308.200 | 349.600 | 347.800 | 341.300 | 350.600 |
| GR | 339.600 | 383.000 | 339.300 | 418.600 | 342.100 | 444.600 | 350.500 | 450.200 | 350.500 | 478.700 |
| GR | 341.400 | 481.100 | 340.900 | 509.500 | 334.500 | 519.100 | 331.600 | 531.900 | 330.800 | 541.900 |
| GR | 329.100 | 547.900 | 329.100 | 557.500 | 330.700 | 566.700 | 330.700 | 626.700 | 330.400 | 716.300 |
| GR | 330.000 | 812.000 | 331.500 | 840.800 | 331.000 | 891.200 | 333.300 | 907.600 | 333.800 | 1027.600 |
| GR | 332.700 | 1147.200 | 333.600 | 1242.900 | 334.000 | 1346.100 | 333.800 | 1368.900 | 332.900 | 1486.900 |
| GR | 330.600 | 1544.200 | 329.100 | 1592.200 | 329.700 | 1647.800 | 328.800 | 1683.000 | 329.600 | 1739.400 |
| GR | 322.600 | 1743.800 | 320.600 | 1753.900 | 320.100 | 1799.100 | 319.200 | 1801.900 | 319.200 | 1816.800 |
| GR | 319.200 | 1876.800 | 321.400 | 1842.000 | 327.100 | 1853.200 | 323.700 | 1875.600 | 321.600 | 1935.700 |
| GR | 323.000 | 1975.600 | 327.200 | 1996.000 | 329.100 | 2028.100 | 328.100 | 2055.700 | 326.300 | 2071.300 |
| GR | 329.600 | 2093.300 | 328.300 | 2148.500 | 328.400 | 2240.500 | 329.000 | 2332.100 | 328.100 | 2403.400 |
| GR | 327.400 | 2451.000 | 330.600 | 2459.400 | 332.500 | 2467.800 | 332.300 | 2482.600 | 330.100 | 2488.200 |
| GR | 330.400 | 2533.000 | 329.600 | 2578.200 | 332.000 | 2589.800 | 337.300 | 2601.400 | 339.600 | 2613.400 |
| GR | 342.400 | 2755.900 | 346.100 | 2909.500 | 348.700 | 3015.100 | 341.500 | 3032.400 | 339.900 | 3043.200 |
| GR | 335.600 | 3048.800 | 335.300 | 3116.800 | 335.600 | 3214.400 | 336.600 | 3290.800 | 334.500 | 3312.000 |
| GR | 332.800 | 3337.600 | 331.200 | 3373.700 | 332.500 | 3452.100 | 332.700 | 3534.900 | 334.500 | 3594.500 |
| GR | 335.400 | 3648.500 | 333.800 | 3713.700 | 333.400 | 3748.200 | 335.200 | 3797.800 | 335.300 | 3858.600 |
| ET | 0.000 | 5.100 | 7.100 | 0.000 | 1000.000 | 2400.000 | 1292.000 | 1972.000 | 0.000 | 0.000 |
| | | | | | | | | | | |
| X1 | 420.000 | 92.000 | 1372.800 | 1803.000 | 400.000 | 390.000 | 399.000 | 0.000 | 0.000 | 0.000 |
| GR | 345.200 | 0.000 | 344.500 | 27.200 | 354.600 | 29.200 | 354.600 | 92.400 | 343.100 | 95.200 |
| GR | 341.100 | 122.400 | 341.100 | 156.800 | 342.300 | 185.900 | 352.000 | 193.500 | 352.000 | 226.700 |
| GR | 343.500 | 228.300 | 341.300 | 251.100 | 335.100 | 259.900 | 332.300 | 269.100 | 331.800 | 293.100 |
| GR | 334.200 | 301.100 | 332.500 | 329.100 | 333.400 | 351.500 | 334.400 | 386.300 | 333.000 | 419.900 |
| GR | 330.900 | 436.300 | 329.900 | 455.500 | 330.900 | 507.100 | 331.500 | 607.000 | 331.800 | 681.000 |
| GR | 333.100 | 747.800 | 335.300 | 784.600 | 334.900 | 914.100 | 335.300 | 986.100 | 334.000 | 1055.300 |
| GR | 333.200 | 1120.500 | 331.300 | 1130.100 | 329.700 | 1162.500 | 330.800 | 1239.200 | 329.600 | 1298.800 |
| GR | 327.100 | 1337.200 | 326.500 | 1372.800 | 322.900 | 1386.400 | 322.400 | 1414.000 | 319.500 | 1418.000 |
| GR | 319.200 | 1465.700 | 319.400 | 1495.300 | 321.500 | 1502.300 | 322.200 | 1539.100 | 320.600 | 1582.300 |
| GR | 322.300 | 1609.300 | 323.100 | 1656.600 | 321.400 | 1684.600 | 321.400 | 1740.600 | 321.700 | 1757.400 |
| GR | 324.600 | 1775.000 | 326.800 | 1803.000 | 328.600 | 1897.800 | 328.400 | 1950.600 | 330.100 | 1960.300 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| GR | 335.100 | 1779.900 | 334.800 | 1996.500 | 340.000 | 2008.500 | 339.900 | 2050.100 | 339.900 | 2082.500 |
| GR | 335.600 | 2072.900 | 331.400 | 2099.700 | 331.700 | 2152.900 | 331.700 | 2186.500 | 334.700 | 2195.700 |
| GR | 335.800 | 2259.300 | 334.400 | 2363.600 | 337.000 | 2483.200 | 336.600 | 2591.600 | 336.200 | 2760.700 |
| GR | 336.700 | 2809.900 | 337.000 | 2896.300 | 335.700 | 2923.500 | 333.100 | 2937.800 | 331.900 | 2989.000 |
| GR | 332.900 | 3062.200 | 335.300 | 3114.600 | 336.200 | 3217.800 | 335.400 | 3276.500 | 336.100 | 3352.100 |
| GR | 336.100 | 3472.500 | 335.100 | 3552.500 | 336.000 | 3649.200 | 336.800 | 3704.800 | 338.500 | 3711.200 |
| GR | 339.600 | 3777.200 | 357.500 | 3779.600 | 357.500 | 3885.500 | 339.000 | 3889.500 | 337.900 | 3948.700 |
| GR | 338.400 | 3991.500 | 340.700 | 4000.700 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | 0.000 | 0.000 | 0.000 | 0.300 | 0.500 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 0.000 | 7.100 | 0.000 | 0.000 | 0.000 | 1661.000 | 2133.700 | 0.000 | 0.000 |
| | | | | | | | | | | |
| X1 | 422.000 | 54.000 | 1661.000 | 2133.700 | 350.000 | 275.000 | 321.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| BT | 46.000 | 1661.000 | 345.000 | 342.000 | 1689.300 | 345.000 | 342.000 | 1689.300 | 345.000 | 0.000 |
| BT | 1696.300 | 345.000 | 0.000 | 1696.300 | 345.000 | 342.000 | 1731.300 | 345.000 | 342.000 | 1731.300 |
| BT | 345.000 | 0.000 | 1738.300 | 345.000 | 0.000 | 1738.300 | 345.000 | 342.000 | 1773.300 | 345.000 |
| BR | 342.000 | 1773.300 | 345.000 | 0.000 | 1780.300 | 345.000 | 0.000 | 1780.300 | 345.000 | 342.000 |
| BT | 1813.800 | 345.000 | 342.000 | 1813.800 | 345.000 | 0.000 | 1823.800 | 345.000 | 0.000 | 1823.800 |
| BT | 345.000 | 342.000 | 1857.300 | 345.000 | 342.000 | 1857.300 | 345.000 | 0.000 | 1864.300 | 345.000 |
| BT | 0.000 | 1864.300 | 345.000 | 342.000 | 1899.300 | 345.000 | 342.000 | 1899.300 | 345.000 | 0.000 |
| BT | 1906.300 | 345.000 | 0.000 | 1906.300 | 345.000 | 342.000 | 1941.300 | 345.000 | 342.000 | 1941.300 |
| BT | 345.000 | 0.000 | 1948.300 | 345.000 | 0.000 | 1948.300 | 345.000 | 342.000 | 1981.800 | 345.000 |
| BT | 342.000 | 1981.800 | 345.000 | 0.000 | 1991.800 | 345.000 | 0.000 | 1991.800 | 345.000 | 342.000 |
| BT | 2025.300 | 345.000 | 342.000 | 2025.300 | 345.000 | 0.000 | 2032.300 | 345.000 | 0.000 | 2032.300 |
| BT | 345.000 | 342.000 | 2067.300 | 345.000 | 342.000 | 2067.300 | 345.000 | 0.000 | 2074.300 | 345.000 |
| BT | 0.000 | 2074.300 | 345.000 | 342.000 | 2109.300 | 345.000 | 342.000 | 2109.300 | 345.000 | 0.000 |
| BT | 2116.300 | 345.000 | 0.000 | 2116.300 | 345.000 | 342.000 | 2133.700 | 345.000 | 342.000 | 0.000 |
| GR | 349.200 | 0.000 | 345.500 | 97.600 | 342.300 | 188.500 | 339.900 | 293.000 | 337.800 | 404.900 |
| GR | 335.100 | 523.600 | 333.400 | 612.500 | 334.400 | 641.800 | 337.900 | 653.000 | 337.200 | 678.600 |
| GR | 335.700 | 696.300 | 335.700 | 731.800 | 335.500 | 780.200 | 338.600 | 831.400 | 337.900 | 854.700 |
| GR | 338.800 | 930.900 | 337.500 | 965.800 | 335.600 | 1004.000 | 332.700 | 1048.200 | 334.300 | 1123.700 |
| GR | 332.700 | 1225.700 | 334.200 | 1344.100 | 334.000 | 1416.700 | 332.400 | 1470.600 | 332.300 | 1574.400 |
| GR | 332.400 | 1618.000 | 333.900 | 1627.700 | 333.600 | 1661.000 | 327.700 | 1673.500 | 322.400 | 1687.800 |
| GR | 323.100 | 1717.400 | 322.200 | 1821.500 | 322.300 | 1966.100 | 322.300 | 2087.800 | 331.900 | 2110.100 |
| GR | 335.900 | 2133.700 | 334.600 | 2209.200 | 332.900 | 2292.100 | 333.300 | 2390.700 | 335.400 | 2458.300 |
| GR | 335.500 | 2560.300 | 336.300 | 2667.400 | 337.100 | 2793.300 | 337.100 | 2955.700 | 337.200 | 3097.500 |
| GR | 337.700 | 3198.100 | 335.100 | 3247.400 | 333.800 | 3275.800 | 332.500 | 3374.800 | 334.100 | 3444.800 |
| GR | 336.400 | 3544.600 | 336.600 | 3663.600 | 336.600 | 3749.700 | 336.800 | 3828.200 | 0.000 | 0.000 |
| BB | 1.000 | 1.500 | 2.700 | 0.000 | 432.000 | 83.000 | 6500.000 | 2.000 | 325.000 | 325.000 |
| ET | 0.000 | 5.100 | 5.100 | 5.100 | 1664.800 | 2135.500 | 0.000 | 0.000 | 0.000 | 0.000 |
| | | | | | | | | | | |
| X1 | 424.000 | 62.000 | 1664.800 | 2135.500 | 170.000 | 170.000 | 170.000 | 0.000 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 1.000 | 342.000 | 345.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 325.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| BT | 46.000 | 1664.800 | 345.000 | 342.000 | 1689.300 | 345.000 | 342.000 | 1689.300 | 345.000 | 0.000 |
| BT | 1696.300 | 345.000 | 0.000 | 1696.300 | 345.000 | 342.000 | 1731.300 | 345.000 | 342.000 | 1731.300 |
| BT | 345.000 | 0.000 | 1738.300 | 345.000 | 0.000 | 1738.300 | 345.000 | 342.000 | 1773.300 | 345.000 |
| BT | 342.000 | 1773.300 | 345.000 | 0.000 | 1780.300 | 345.000 | 0.000 | 1780.300 | 345.000 | 342.000 |
| BT | 1813.800 | 345.000 | 342.000 | 1813.800 | 345.000 | 0.000 | 1823.800 | 345.000 | 0.000 | 1823.800 |
| BT | 345.000 | 342.000 | 1857.300 | 345.000 | 342.000 | 1857.300 | 345.000 | 0.000 | 1864.300 | 345.000 |
| BT | 0.000 | 1864.300 | 345.000 | 342.000 | 1899.300 | 345.000 | 342.000 | 1899.300 | 345.000 | 0.000 |
| BT | 1906.300 | 345.000 | 0.000 | 1906.300 | 345.000 | 342.000 | 1941.300 | 345.000 | 342.000 | 1941.300 |
| BT | 345.000 | 0.000 | 1948.300 | 345.000 | 0.000 | 1948.300 | 345.000 | 342.000 | 1981.800 | 345.000 |
| BT | 342.000 | 1981.800 | 345.000 | 0.000 | 1991.800 | 345.000 | 0.000 | 1991.800 | 345.000 | 342.000 |
| BT | 2025.300 | 345.000 | 342.000 | 2025.300 | 345.000 | 0.000 | 2032.300 | 345.000 | 0.000 | 2032.300 |
| BT | 345.000 | 342.000 | 2067.300 | 345.000 | 342.000 | 2067.300 | 345.000 | 0.000 | 2074.300 | 345.000 |
| BT | 0.000 | 2074.300 | 345.000 | 342.000 | 2109.300 | 345.000 | 342.000 | 2109.300 | 345.000 | 0.000 |
| BT | 2116.300 | 345.000 | 0.000 | 2116.300 | 345.000 | 342.000 | 2135.500 | 345.000 | 342.000 | 0.000 |
| GR | 344.700 | 0.000 | 345.200 | 84.500 | 344.700 | 137.400 | 343.600 | 270.500 | 341.500 | 377.400 |
| GR | 341.100 | 475.400 | 339.900 | 591.000 | 340.400 | 631.800 | 338.600 | 643.800 | 337.400 | 691.100 |
| GR | 335.200 | 701.500 | 333.800 | 718.900 | 333.300 | 733.800 | 335.800 | 744.600 | 335.500 | 822.100 |
| GR | 336.900 | 899.200 | 335.400 | 950.400 | 332.500 | 973.200 | 332.500 | 1045.400 | 332.300 | 1091.100 |
| GR | 333.900 | 1118.700 | 334.900 | 1172.400 | 333.100 | 1211.200 | 332.800 | 1264.400 | 330.300 | 1282.100 |
| GR | 330.600 | 1362.600 | 329.800 | 1471.200 | 328.300 | 1546.100 | 327.600 | 1621.100 | 326.000 | 1664.800 |
| GR | 324.900 | 1722.400 | 324.300 | 1747.600 | 323.100 | 1753.200 | 323.100 | 1788.600 | 323.100 | 1820.400 |
| GR | 324.400 | 1830.400 | 324.000 | 1945.900 | 325.700 | 2020.400 | 325.900 | 2067.400 | 324.500 | 2093.600 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| GR | 323.500 | 2135.500 | 326.300 | 2185.800 | 327.300 | 2260.800 | 327.100 | 2328.800 | 329.500 | 2370.800 |
| GR | 326.000 | 2386.200 | 327.800 | 2391.700 | 329.200 | 2482.100 | 328.600 | 2572.200 | 330.800 | 2650.800 |
| GR | 330.400 | 2742.200 | 331.400 | 2837.900 | 331.300 | 2933.800 | 331.700 | 3031.300 | 332.100 | 3142.300 |
| GR | 331.700 | 3228.800 | 332.600 | 3332.300 | 332.900 | 3440.500 | 333.900 | 3548.800 | 333.800 | 3671.900 |
| GR | 333.000 | 3757.200 | 332.900 | 3851.300 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | 0.000 | 0.000 | 0.035 | 0.100 | 0.300 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | 0.000 | 0.000 | 0.040 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 5.100 | 7.100 | 5.100 | 1312.700 | 2800.000 | 1540.000 | 2490.000 | 0.000 | 0.000 |
| X1 | 425.000 | 81.000 | 1393.900 | 2499.400 | 400.000 | 350.000 | 218.000 | 0.000 | 0.000 | 0.000 |
| GR | 343.500 | 0.000 | 344.900 | 130.400 | 344.900 | 239.700 | 344.000 | 352.100 | 343.700 | 467.400 |
| GR | 341.600 | 519.400 | 340.600 | 645.500 | 339.400 | 758.400 | 337.400 | 779.600 | 336.500 | 816.400 |
| GR | 334.100 | 830.800 | 333.700 | 843.600 | 335.500 | 865.600 | 335.600 | 901.700 | 335.300 | 946.900 |
| GR | 336.600 | 966.100 | 336.900 | 1043.700 | 335.100 | 1107.000 | 333.300 | 1125.800 | 331.800 | 1174.600 |
| GR | 333.600 | 1223.000 | 334.100 | 1272.700 | 334.800 | 1312.700 | 333.300 | 1357.900 | 333.800 | 1393.900 |
| GR | 331.300 | 1408.300 | 329.600 | 1453.600 | 329.900 | 1514.400 | 329.900 | 1611.300 | 328.600 | 1708.500 |
| GR | 327.000 | 1766.500 | 326.200 | 1848.200 | 327.600 | 1883.000 | 329.000 | 1905.000 | 328.900 | 1929.400 |
| GR | 325.900 | 1935.800 | 326.800 | 1955.800 | 324.100 | 1988.600 | 323.100 | 1995.400 | 322.400 | 2015.800 |
| GR | 323.000 | 2038.400 | 324.900 | 2049.200 | 327.900 | 2056.400 | 328.100 | 2104.400 | 329.100 | 2179.200 |
| GR | 329.600 | 2255.700 | 330.200 | 2360.500 | 331.600 | 2429.300 | 332.600 | 2468.900 | 335.100 | 2490.200 |
| GR | 336.800 | 2499.400 | 337.800 | 2649.800 | 337.700 | 2792.700 | 337.700 | 2935.900 | 338.200 | 3076.000 |
| GR | 338.300 | 3169.600 | 336.200 | 3187.200 | 334.200 | 3238.500 | 332.800 | 3303.300 | 334.000 | 3371.700 |
| GR | 334.100 | 3458.200 | 336.900 | 3467.800 | 337.900 | 3568.600 | 337.900 | 3699.000 | 338.200 | 3839.100 |
| GR | 337.900 | 3974.000 | 337.800 | 4092.000 | 337.400 | 4210.100 | 337.200 | 4327.700 | 337.400 | 4445.400 |
| GR | 337.500 | 4541.800 | 337.200 | 4623.000 | 338.000 | 4704.300 | 339.900 | 4717.100 | 341.300 | 4762.700 |
| GR | 340.100 | 4810.700 | 342.000 | 4820.700 | 343.100 | 4834.300 | 352.200 | 4837.900 | 352.400 | 4912.000 |
| GR | 343.500 | 4919.200 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 5.100 | 7.100 | 5.100 | 1000.000 | 2800.000 | 1520.000 | 2515.000 | 0.000 | 0.000 |
| X1 | 430.000 | 75.000 | 1087.400 | 1913.400 | 550.000 | 770.000 | 465.000 | 0.000 | 0.000 | 0.000 |
| GR | 345.300 | 0.000 | 343.900 | 130.500 | 343.300 | 268.600 | 342.900 | 405.600 | 342.100 | 532.100 |
| GR | 341.100 | 682.600 | 339.800 | 806.000 | 339.000 | 882.400 | 336.400 | 892.500 | 336.900 | 939.300 |
| GR | 339.800 | 973.700 | 339.700 | 1057.000 | 338.500 | 1087.400 | 333.800 | 1095.400 | 330.600 | 1136.700 |
| GR | 330.700 | 1194.300 | 330.200 | 1290.000 | 330.200 | 1385.300 | 329.200 | 1473.800 | 327.200 | 1544.600 |
| GR | 330.400 | 1556.700 | 330.500 | 1616.300 | 330.300 | 1703.200 | 328.800 | 1721.600 | 327.200 | 1733.700 |
| GR | 326.800 | 1788.900 | 324.700 | 1869.400 | 324.000 | 1882.400 | 324.700 | 1893.300 | 328.100 | 1896.500 |
| GR | 329.300 | 1905.300 | 332.300 | 1913.400 | 333.000 | 1952.600 | 332.100 | 2047.500 | 333.400 | 2058.700 |
| GR | 334.900 | 2081.100 | 335.100 | 2195.200 | 335.800 | 2304.900 | 334.500 | 2430.700 | 333.500 | 2516.300 |
| GR | 335.900 | 2531.900 | 335.400 | 2574.000 | 335.300 | 2601.600 | 337.800 | 2627.200 | 338.800 | 2643.200 |
| GR | 337.900 | 2736.900 | 337.100 | 2847.800 | 335.000 | 2905.500 | 335.500 | 2955.100 | 337.000 | 3007.200 |
| GR | 336.600 | 3120.500 | 336.200 | 3231.700 | 335.600 | 3367.000 | 334.700 | 3451.100 | 334.800 | 3471.500 |
| GR | 338.800 | 3512.400 | 339.600 | 3576.400 | 339.800 | 3708.900 | 339.400 | 3820.600 | 339.500 | 3948.400 |
| GR | 338.700 | 4059.400 | 339.200 | 4182.900 | 339.100 | 4309.000 | 338.800 | 4443.600 | 338.700 | 4549.200 |
| GR | 339.000 | 4692.200 | 337.800 | 4754.500 | 339.000 | 4775.300 | 341.500 | 4781.700 | 342.200 | 4827.300 |
| GR | 341.100 | 4874.500 | 343.200 | 4809.300 | 343.600 | 4900.900 | 353.500 | 4901.700 | 353.500 | 4945.700 |
| GT | 2.000 | 34000.000 | 34000.000 | 3800.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 5.100 | 7.100 | 5.100 | 1400.000 | 3000.000 | 1505.000 | 2500.000 | 0.000 | 0.000 |
| X1 | 440.000 | 86.000 | 1643.300 | 1855.200 | 760.000 | 540.000 | 542.000 | 0.000 | 0.000 | 0.000 |
| GR | 366.000 | 0.000 | 365.100 | 64.600 | 364.100 | 118.400 | 362.600 | 169.000 | 359.900 | 213.900 |
| GR | 354.100 | 262.500 | 352.800 | 289.800 | 348.100 | 321.100 | 346.100 | 350.400 | 344.800 | 384.100 |
| GR | 344.000 | 445.900 | 343.300 | 512.600 | 343.100 | 602.900 | 342.500 | 692.800 | 342.500 | 775.900 |
| GR | 342.100 | 817.600 | 336.000 | 832.500 | 334.300 | 847.800 | 333.500 | 879.000 | 331.700 | 897.100 |
| GR | 333.500 | 909.600 | 337.500 | 921.600 | 338.200 | 955.300 | 338.200 | 1015.500 | 337.500 | 1085.000 |
| GR | 338.200 | 1131.100 | 339.600 | 1163.200 | 337.000 | 1202.200 | 338.800 | 1233.900 | 339.000 | 1292.500 |
| GR | 338.400 | 1331.800 | 339.500 | 1347.500 | 339.500 | 1431.300 | 338.900 | 1500.000 | 336.600 | 1522.400 |
| GR | 334.700 | 1562.200 | 336.400 | 1593.500 | 334.900 | 1643.000 | 329.700 | 1658.100 | 329.700 | 1675.800 |
| GR | 328.100 | 1687.800 | 326.400 | 1697.800 | 326.900 | 1741.300 | 326.100 | 1809.000 | 324.700 | 1818.800 |
| GR | 325.800 | 1829.200 | 331.600 | 1842.000 | 335.100 | 1855.200 | 336.300 | 1890.500 | 336.700 | 1990.900 |
| GR | 335.400 | 2099.700 | 334.300 | 2191.500 | 334.700 | 2233.300 | 337.500 | 2241.300 | 338.000 | 2253.000 |
| GR | 337.600 | 2327.600 | 335.900 | 2447.600 | 337.100 | 2518.700 | 337.200 | 2575.300 | 338.000 | 2633.500 |
| GR | 337.800 | 2742.700 | 340.000 | 2765.900 | 340.000 | 2857.900 | 340.200 | 2964.400 | 340.300 | 3137.300 |
| GR | 340.000 | 3233.300 | 337.100 | 3261.700 | 335.300 | 3298.300 | 336.000 | 3352.100 | 336.900 | 3466.800 |
| GR | 337.500 | 3497.700 | 340.100 | 3528.300 | 340.400 | 3669.100 | 341.200 | 3631.300 | 340.900 | 3956.900 |
| GR | 341.500 | 4073.700 | 340.800 | 4223.800 | 339.900 | 4360.700 | 340.100 | 4479.300 | 340.400 | 4590.300 |
| GR | 339.900 | 4690.600 | 340.500 | 4799.400 | 343.400 | 4807.800 | 343.700 | 4855.200 | 342.700 | 4900.200 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| GR | 339.900 | 4932.700 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| EJ | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

CCHV= 0.100 CEHV= 0.300
CCHV= 0.100 CEHV= 0.300

| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | GLOB | GCH | GROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

3470 ENCROACHMENT STATIONS= 666.0 1720.0 TYPE= 1 TARGET= 1054.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 360.000 | 14.01 | 327.01 | 0.00 | 327.01 | 327.23 | 0.22 | 0.00 | 0.00 | 326.30 |
| 36000. | 3902. | 32098. | 0. | 1393. | 8319. | 0. | 0. | 0. | 100000.00 |
| 0.00 | 2.80 | 3.86 | 0.00 | 0.065 | 0.055 | 0.060 | 0.000 | 313.00 | 666.00 |
| 0.000995 | 365. | 303. | 550. | 0 | 0 | 1 | 0.00 | 1054.00 | 1720.00 |

3470 ENCROACHMENT STATIONS= 1.0 2000.0 TYPE= 1 TARGET= 1999.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 370.000 | 12.81 | 327.31 | 0.00 | 0.00 | 327.47 | 0.16 | 0.23 | 0.01 | 322.70 |
| 36000. | 7322. | 28595. | 82. | 3066. | 8437. | 81. | 88. | 10. | 324.80 |
| 0.03 | 2.39 | 3.39 | 1.02 | 0.050 | 0.040 | 0.040 | 0.040 | 314.50 | 521.27 |
| 0.000456 | 360. | 361. | 310. | 2 | 0 | 1 | 0.00 | 1463.69 | 1984.96 |

3470 ENCROACHMENT STATIONS= 1.0 2000.0 TYPE= 1 TARGET= 1999.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 380.000 | 12.76 | 327.46 | 0.00 | 0.00 | 327.67 | 0.21 | 0.19 | 0.02 | 322.50 |
| 36000. | 8531. | 27469. | 0. | 2902. | 7044. | 0. | 167. | 21. | 328.80 |
| 0.06 | 2.94 | 3.90 | 0.00 | 0.050 | 0.040 | 0.040 | 0.040 | 314.70 | 531.39 |
| 0.000777 | 310. | 323. | 420. | 2 | 0 | 1 | 0.00 | 1413.68 | 1945.06 |

3470 ENCROACHMENT STATIONS= 1.0 2200.0 TYPE= 1 TARGET= 2199.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 390.000 | 12.41 | 327.71 | 0.00 | 0.00 | 327.95 | 0.24 | 0.27 | 0.01 | 324.70 |
| 36000. | 9852. | 26040. | 108. | 3147. | 6262. | 76. | 238. | 32. | 325.80 |
| 0.08 | 3.13 | 4.16 | 1.42 | 0.050 | 0.040 | 0.040 | 0.040 | 315.30 | 564.37 |
| 0.000929 | 315. | 318. | 400. | 2 | 0 | 1 | 0.00 | 1480.75 | 2045.12 |

CCHV= 0.100 CEHV= 0.300

3470 ENCROACHMENT STATIONS= 1106.7 2400.0 TYPE= 1 TARGET= 1293.300

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 400.000 | 10.43 | 328.43 | 0.00 | 0.00 | 329.15 | 0.72 | 1.06 | 0.15 | 330.90 |
| 36000. | 0. | 36000. | 0. | 0. | 5287. | 0. | 357. | 50. | 328.80 |
| 0.11 | 0.00 | 6.81 | 0.00 | 0.040 | 0.040 | 0.040 | 0.040 | 318.00 | 1113.81 |
| 0.002851 | 700. | 701. | 630. | 2 | 0 | 1 | 0.00 | 824.80 | 1938.61 |

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 1200.0 2800.0 TYPE= 1 TARGET= 1600.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 410.000 | 11.84 | 330.14 | 0.00 | 0.00 | 331.02 | 0.88 | 1.82 | 0.05 | 334.60 |
| 36000. | 0. | 31424. | 4576. | 0. | 4004. | 942. | 439. | 62. | 334.10 |
| 0.13 | 0.00 | 7.85 | 4.86 | 0.040 | 0.040 | 0.040 | 0.040 | 318.30 | 1736.62 |
| 0.002379 | 700. | 701. | 700. | 2 | 0 | 1 | 0.00 | 675.12 | 2501.64 |

```
**************************
HEC2 VERSION UPDATED JAN 1976
ERROR CORRECTIONS 01,02,03,04,05,06,07,08,09
MODIFICATIONS 51,52,53,54,55,56,,57,58
**************************


19-OCT-82   17:27:25


G;F @<a)D@Z
T1       UPPER SAN DIEGO RIVER
T2       SECTIONS DIGITIZED IN 1982
T3.      FLOODWAY

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

          0.        3.        0.        0.  0.000000      0.00     -1.0        0.   327.004     0.000

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     15.000     0.000    -1.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
```

SUMMARY PRINTOUT FOR MULTIPLE PROFILES

FLOODWAY

| SECTION NUMBER | DISCHARGE CFS | CWSEL | CRIWS | EG | HL | STENCL | STENCR | TOPWID | QLOB | QCH | QROB | SSTA | ENDST |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 360.000 | 36000.00 | 327.01 | 0.00 | 327.23 | 0.00 | 666.00 | 1720.00 | 1054.00 | 3902.13 | 32097.85 | 0.00 | 666.00 | 1720.00 |
| 360.000 | 36000.00 | 327.00 | 0.00 | 327.29 | 0.00 | 845.00 | 1720.00 | 875.00 | 16.59 | 35983.41 | 0.00 | 845.00 | 1720.00 |
| 370.000 | 36000.00 | 327.31 | 0.00 | 327.47 | 0.23 | 1.00 | 2000.00 | 1463.69 | 7022.49 | 28595.15 | 82.36 | 521.27 | 1984.96 |
| 370.000 | 36000.00 | 327.35 | 0.00 | 327.63 | 0.33 | 930.00 | 1885.00 | 955.00 | 894.52 | 35105.48 | 0.00 | 930.00 | 1885.00 |
| 380.000 | 36000.00 | 327.46 | 0.00 | 327.67 | 0.19 | 1.00 | 2000.00 | 1413.68 | 8531.39 | 27468.61 | 0.00 | 531.39 | 1945.06 |
| 380.000 | 36000.00 | 327.57 | 0.00 | 327.95 | 0.29 | 945.00 | 1935.00 | 990.00 | 767.84 | 35232.16 | 0.00 | 945.00 | 1935.00 |
| 390.000 | 36000.00 | 327.71 | 0.00 | 327.95 | 0.27 | 1.00 | 2200.00 | 1480.75 | 9851.91 | 26039.90 | 108.19 | 564.37 | 2045.12 |
| 390.000 | 36000.00 | 327.95 | 0.00 | 328.40 | 0.43 | 1010.00 | 1980.00 | 970.00 | 928.24 | 35071.76 | 0.00 | 1010.00 | 1980.00 |
| 400.000 | 36000.00 | 328.43 | 0.00 | 329.15 | 1.06 | 1106.70 | 2400.00 | 824.80 | 0.00 | 36000.00 | 0.00 | 1113.81 | 1938.61 |
| 400.000 | 36000.00 | 329.14 | 0.00 | 329.92 | 1.42 | 1110.00 | 1840.00 | 728.22 | 0.00 | 36000.00 | 0.00 | 1111.78 | 1840.00 |
| 410.000 | 36000.00 | 330.14 | 0.00 | 331.02 | 1.82 | 1200.00 | 2800.00 | 675.12 | 0.00 | 31423.76 | 4576.24 | 1736.62 | 2501.64 |
| 410.000 | 36000.00 | 330.77 | 0.00 | 331.64 | 1.69 | 1745.00 | 2415.00 | 595.84 | 0.00 | 32880.52 | 3119.48 | 1745.00 | 2415.00 |
| 415.000 | 36000.00 | 332.43 | 0.00 | 333.33 | 2.30 | 1300.00 | 2800.00 | 1086.48 | 2479.84 | 24181.63 | 9338.53 | 1498.65 | 2590.74 |
| 415.000 | 36000.00 | 332.83 | 0.00 | 333.87 | 2.19 | 1750.00 | 2525.00 | 775.00 | 0.00 | 25250.69 | 10749.31 | 1750.00 | 2525.00 |
| 420.000 | 36000.00 | 333.51 | 0.00 | 333.97 | 0.60 | 1000.00 | 2400.00 | 969.18 | 3019.97 | 29618.85 | 3361.18 | 1095.52 | 2192.04 |
| 420.000 | 36000.00 | 334.03 | 0.00 | 334.51 | 0.58 | 1292.00 | 1972.00 | 678.24 | 1906.87 | 30655.32 | 3437.81 | 1292.00 | 1970.24 |
| 422.000 | 36000.00 | 333.44 | 0.00 | 335.31 | 0.63 | 0.00 | 0.00 | 457.78 | 0.00 | 36000.00 | 0.00 | 1661.40 | 2119.18 |
| 422.000 | 36000.00 | 334.00 | 0.00 | 335.68 | 0.57 | 1661.00 | 2133.70 | 461.48 | 0.00 | 36000.00 | 0.00 | 1661.00 | 2122.48 |
| 424.000 | 36000.00 | 334.73 | 0.00 | 335.73 | 0.43 | 1664.80 | 2135.50 | 470.70 | 0.00 | 36000.00 | 0.00 | 1664.80 | 2135.50 |
| 424.000 | 36000.00 | 334.73 | 0.00 | 335.73 | 0.05 | 1664.80 | 2135.50 | 470.70 | 0.00 | 36000.00 | 0.00 | 1664.80 | 2135.50 |
| 425.000 | 36000.00 | 335.83 | 0.00 | 336.15 | 0.36 | 1312.70 | 2800.00 | 1181.43 | 327.09 | 35672.91 | 0.00 | 1312.70 | 2494.13 |
| 425.000 | 36000.00 | 335.77 | 0.00 | 336.19 | 0.40 | 1540.00 | 2490.00 | 950.00 | 0.00 | 36000.00 | 0.00 | 1540.00 | 2490.00 |
| 430.000 | 36000.00 | 336.40 | 0.00 | 336.84 | 0.65 | 1000.00 | 2800.00 | 1521.93 | 0.00 | 32411.72 | 3588.28 | 1090.97 | 2612.90 |
| 430.000 | 36000.00 | 336.30 | 0.00 | 337.59 | 1.13 | 1520.00 | 2515.00 | 995.00 | 0.00 | 30808.11 | 5191.89 | 1520.00 | 2515.00 |
| 440.000 | 34000.00 | 338.17 | 338.17 | 340.00 | 1.40 | 1400.00 | 3000.00 | 1239.52 | 1500.18 | 26490.29 | 6009.53 | 1507.10 | 2746.61 |
| 440.000 | 34000.00 | 338.39 | 0.00 | 340.07 | 2.36 | 1505.00 | 2500.00 | 995.00 | 1642.17 | 26029.62 | 6328.21 | 1505.00 | 2500.00 |

| SECTION NUMBER | DISCHARGE CFS | CWSEL | CWSEL DIFF EACH Q | CWSEL DIFF EACH SECTION | CWSEL-WSELK | TOPWID | T.W. DIFF | LENGTH |
|---|---|---|---|---|---|---|---|---|
| 360.000 | 36000.000 | 327.011 | 0.000 | 0.000 | 0.000 | 1053.999 | 0.000 | 303.000 |
| 360.000 | 36000.000 | 327.004 | -0.007 | 0.000 | 0.000 | 874.999 | 179.000 | 303.000 |
| 370.000 | 36000.000 | 327.311 | 0.000 | 0.300 | 0.000 | 1463.689 | 0.000 | 361.000 |
| 370.000 | 36000.000 | 327.351 | 0.040 | 0.347 | 0.000 | 954.999 | 508.690 | 361.000 |
| 380.000 | 36000.000 | 327.462 | 0.000 | 0.151 | 0.000 | 1413.676 | 0.000 | 323.000 |
| 380.000 | 36000.000 | 327.574 | 0.112 | 0.223 | 0.000 | 989.999 | 423.677 | 323.000 |
| 390.000 | 36000.000 | 327.714 | 0.000 | 0.252 | 0.000 | 1480.748 | 0.000 | 318.000 |
| 390.000 | 36000.000 | 327.951 | 0.237 | 0.377 | 0.000 | 969.999 | 510.749 | 318.000 |
| 400.000 | 36000.000 | 328.430 | 0.000 | 0.716 | 0.000 | 824.798 | 0.000 | 701.000 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 400.000 | 36000.000 | 329.135 | 0.705 | 1.184 | 0.000 | 728.220 | 96.578 | 701.000 |
| 410.000 | 36000.000 | 330.139 | 0.000 | 1.709 | 0.000 | 675.117 | 0.000 | 701.000 |
| 410.000 | 36000.000 | 330.767 | 0.628 | 1.632 | 0.000 | 595.838 | 79.279 | 701.000 |
| 415.000 | 36000.000 | 332.428 | 0.000 | 2.289 | 0.000 | 1086.478 | 0.000 | 893.000 |
| 415.000 | 36000.000 | 332.854 | 0.426 | 2.087 | 0.000 | 774.999 | 311.479 | 893.000 |
| 420.000 | 36000.000 | 333.507 | 0.000 | 1.079 | 0.000 | 969.182 | 0.000 | 399.000 |
| 420.000 | 36000.000 | 334.027 | 0.520 | 1.173 | 0.000 | 678.238 | 290.944 | 399.000 |
| 422.000 | 36000.000 | 333.438 | 0.000 | -0.069 | 0.000 | 457.778 | 0.000 | 321.000 |
| 422.000 | 36000.000 | 333.996 | 0.558 | -0.031 | 0.000 | 461.485 | -3.707 | 321.000 |
| 424.000 | 36000.000 | 334.726 | 0.000 | 1.288 | 0.000 | 470.699 | 0.000 | 170.000 |
| 424.000 | 36000.000 | 334.726 | 0.000 | 0.730 | 0.000 | 470.699 | 0.000 | 170.000 |
| 425.000 | 36000.000 | 335.825 | 0.000 | 1.099 | 0.000 | 1181.427 | 0.000 | 218.000 |
| 425.000 | 36000.000 | 335.765 | -0.060 | 1.039 | 0.000 | 949.999 | 231.428 | 218.000 |
| 430.000 | 36000.000 | 336.402 | 0.000 | 0.577 | 0.000 | 1521.927 | 0.000 | 465.000 |
| 430.000 | 36000.000 | 336.296 | -0.106 | 0.531 | 0.000 | 994.999 | 526.928 | 465.000 |
| 440.000 | 34000.000 | 338.171 | 0.000 | 1.769 | 0.000 | 1239.517 | 0.000 | 542.000 |
| 440.000 | 34000.000 | 338.386 | 0.215 | 2.090 | 0.000 | 994.999 | 244.518 | 542.000 |

DATA FOR LAST CROSS SECTION

| PROFILE | TYPE ENC | TARGET | TOP WIDTH AREA-ACRES | TOP WIDTH AREA-DIFF |
|---|---|---|---|---|
| 1 | 1.000 | 1600.000 | 135.415 | 0.000 |
| 2 | 1.000 | 995.000 | 101.711 | -33.705 |

**********
HEC2 VERSION UPDATED JAN 1976
ERROR CORRECTIONS 01, 02, 03, 04, 05, 06, 07, 08, 09
MODIFICATIONS 51, 52, 53, 54, 55, 56, , 57, 58
**********

19-OCT-82  17:28:49

]E F@d?9)D!1(Z

## Exhibit C

HEC-2 Model (Duplicate Effective Model)

```
1*****************************************
 *  HEC-2 WATER SURFACE PROFILES           *
 *                                         *
 *  Version   4.6.2;  May 1991             *
 *                                         *
 *  RUN DATE    21APR23    TIME   12:00:07  *
 *****************************************
```

```
 ***************************************
 *  U.S. ARMY CORPS OF ENGINEERS       *
 *  HYDROLOGIC ENGINEERING CENTER      *
 *  609 SECOND STREET, SUITE D         *
 *  DAVIS, CALIFORNIA 95616-4687       *
 *          (916) 756-1104             *
 ***************************************
```

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

```
1
    21APR23      12:00:07                                                                                  PAGE    1
```

```
                                                                                    THIS RUN EXECUTED 21APR23    12:00:07
 ************************************
  HEC-2 WATER SURFACE PROFILES

  Version   4.6.2;  May 1991
 ************************************
```

```
 T1        UPPER SAN DIEGO RIVER   RECREATE ORIGINAL HEC-2 MODEL MAY 2020 Hunsaker
 T2        SECTIONS DIGITIZED IN 1982   20-OCT-82
 T3        100-YEAR

 J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

       0         2         0         0       0.0      0.00      -1.0         0     289.4         0

 J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

      1         0        -1         0         0         0         0         0         0         0


 QT        2      38000      38000          0          0          0          0          0          0          0
 NC     .125       .125       .125         .1         .3          0          0          0          0          0
 ET        0          0        7.1          0          0          0        120        400          0          0
 X1      100         37      121.5      400.1
 GR    295.1          0      306.0       23.7      313.4       46.8      314.5       64.4      307.3       90.0
 GR    301.6      108.4      288.5      121.5      277.2      136.9      272.6      155.2      269.0      164.1
 GR    269.0      207.5      269.0      215.5      272.6      222.0      271.6      231.8      272.1      242.7
```

```
GR    274.8      251.8      273.1      266.4      274.1      293.7      274.5      314.1      272.5      327.8
GR    272.1      356.1      272.1      368.3      275.6      376.9      278.5      395.2      281.8      400.1
GR    281.3      412.7      282.6      424.2      289.2      439.1      289.5      456.0      300.2      474.7
GR    300.8      493.4      300.9      508.2      301.7      524.0      305.7      542.8      310.4      567.5
GR    317.0      592.9      326.1      636.9

ET      0          0        7.1          0          0          0        120        395          0          0
X1    110         30      123.1      433.8         40         50         46
GR    319.7          0      320.8       25.6      323.7       39.1      323.4       56.6      316.2       85.6
GR    307.4      100.7      295.1      113.3      285.4      123.1      280.0      143.0      278.6      159.7
GR    276.9      231.4      278.8      308.8      275.0      314.5      275.0      322.1      279.8      324.7
GR    279.7      342.2      275.9      346.2      275.5      359.7      276.8      377.5      282.2      400.8
GR    282.9      413.9      288.8      433.8      295.2      461.1      298.5      477.9      300.6      493.3
GR    300.1      507.2      301.2      530.4      306.5      561.4      313.9      593.1      322.8      640.4

ET      0          0        7.1          0          0          0        115        395          0          0
X1    120         26       96.6      419.2         55         50         52          0          0          0
GR    320.3          0      316.2       26.2      310.4       51.5      299.4       75.1      290.2       96.6
GR    284.3      116.2      280.7      141.4      277.9      165.5      275.7      201.3      275.7      228.8
GR    275.7      276.2      277.1      291.9      276.0      319.1      275.8      337.4      276.9      348.8
GR    276.3      366.4      282.1      396.0      286.9      419.2      292.4      446.6      297.5      470.6
GR    298.9      488.8      299.8      510.5      302.4      550.5      302.5      574.1      305.8      604.7
GR    309.5      646.5
1
```



```
NC     0.08       0.08       0.08
ET      0          0        7.1          0          0          0      225.0      500.0
X1    130         30      189.1      506.5      530.0      520.0      520.0
GR    320.1          0      314.7       56.0      310.5       91.8      303.5      134.1      298.5      161.8
GR    289.9      189.1      284.3      216.8      284.5      242.4      276.5      258.0      275.4      274.7
GR    277.6      289.3      278.1      326.4      279.8      363.1      278.0      380.2      275.2      385.9
GR    275.2      412.9      275.2      444.5      277.5      451.1      277.5      482.1      280.5      496.0
GR    288.3      506.5      289.5      557.7      296.7      571.6      298.1      594.4      297.0      629.0
GR    299.3      644.9      297.1      651.9      297.2      680.4      302.5      712.1      308.7      751.2

ET      0          0        7.1          0          0          0      315.0      585.0
X1    140         24      275.0      604.1      550.0      550.0      552.0
GR    314.4          0      315.7       53.3      315.3       99.3      313.8      151.1      310.3      203.6
GR    305.2      245.9      297.5      275.0      288.8      305.9      284.1      322.6      280.2      345.0
GR    279.4      382.8      282.7      416.3      281.6      468.1      277.8      498.6      275.0      506.4
GR    274.7      511.7      274.8      556.1      283.6      580.1      293.8      604.1      292.7      627.8
GR    290.7      646.5      305.8      661.5      317.6      685.5      333.9      733.6

ET      0        5.1        7.1          0          1     1231.9      655.0     1200.0
X1    150         34      734.9     1231.9      545.0      540.0      540.0
GR    307.2          0      303.7      106.4      303.0      237.9      299.0      313.1      297.4      382.4
GR    295.9      438.3      293.8      449.4      293.5      477.6      297.1      486.5      294.7      560.2
GR    295.3      632.3      293.8      689.1      296.1      710.8      294.6      734.9      287.2      754.0
GR    281.8      775.6      279.0      787.6      282.7      791.8      284.0      831.8      282.9      918.3
GR    279.1      929.0      279.2      976.6      283.8      995.0      282.9     1074.8      281.7     1149.2
GR    282.2     1191.1      283.4     1207.9      301.6     1231.9      300.4     1256.8      298.9     1277.9
GR    305.9     1293.5      317.0     1338.3      323.5     1374.9      326.8     1394.4
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 NC    0.035      0.035      0.045
 ET        0          0        7.1          0          0          0      570.0     1435.0
 X1      160         51      727.4     1605.7      630.0      690.0      690.0
 GR    306.2          0      305.1      102.8      305.7      125.3      305.7       183.5      302.8       206.3
 GR    301.0      313.8      300.3      401.9      301.1      472.5      304.5       491.0      309.7       529.1
 GR    295.5      551.6      289.7      569.2      282.7      576.5      281.7       593.0      282.5       601.9
 GR    285.5      627.8      286.1      660.1      295.6      688.0      300.1       707.6      299.8       727.4
 GR    294.1      762.1      292.0      788.0      290.1      804.4      289.0       863.4      289.5       916.6
 GR    289.6     1008.3      289.0     1112.3      287.8     1178.6      286.2      1199.4      288.4      1215.4
 GR    287.8     1276.5      286.0     1353.9      283.7     1379.3      283.8      1424.4      288.8      1431.4
 GR    288.9     1517.3      289.9     1550.0      292.8     1579.0      302.8      1605.7      307.2      1633.1
 GR    310.3     1664.6      310.8     1688.8      308.8     1695.8      314.4      1711.4      311.4      1721.6
 GR    313.3     1732.3      310.9     1741.3      311.9     1768.3      311.1      1809.7      315.7      1833.9
 GR    317.4     1896.1

 ET        0          0        7.1          0          0          0     1040.0     2085.0
 X1      170         38     1503.8     2158.8      390.0      350.0      350.0
 GR    308.5          0      308.4      111.3      306.4      202.9      304.9       219.1      305.5       242.6
 GR    304.3      343.9      301.1      471.7      299.0      600.6      296.7       723.4      293.7       831.4
 GR    291.6      905.4      290.2      988.8      289.0     1049.7      284.4      1081.5      285.6      1085.2
 GR    285.8     1109.7      292.0     1124.0      292.3     1187.7      294.1      1269.5      292.5      1379.6
 GR    292.3     1449.0      294.4     1503.8      293.7     1582.1      291.4      1653.0      289.8      1761.7
 GR    287.4     1784.0      286.0     1939.1      284.5     1951.8      284.4      1980.3      286.4      1987.3
 GR    288.5     2053.8      292.1     2073.7      297.3     2158.8      305.2      2259.3      311.4      2329.5
 GR    317.2     2402.7      321.2     2450.7      321.5     2520.8
1
    21APR23      12:00:07                                                                                    PAGE    3


 ET        0        5.1        7.1          0      500.0     2200.0      865.0     2065.0
 X1      180         46     1566.5     2049.6      405.0      255.0      300.0
 GR    312.4          0      310.6       82.0      307.3       99.6      306.6       142.8      302.1       157.2
 GR    300.4      242.3      305.8      259.9      299.7      276.0      299.1       323.5      302.0       351.1
 GR    297.2      388.3      297.4      423.5      304.5      442.7      301.7       564.7      299.8       654.7
 GR    296.4      711.5      298.8      741.5      295.4      750.3      295.1       798.3      298.4       828.3
 GR    297.8      853.1      286.2      869.9      284.9      880.3      284.0       896.2      284.9       915.0
 GR    287.6      955.0      291.1     1011.4      290.4     1079.8      292.9      1155.4      292.0      1259.4
 GR    291.2     1362.2      290.6     1499.3      289.5     1566.5      287.4      1593.3      287.4      1960.4
 GR    289.0     2004.8      289.3     2020.4      295.7     2049.6      300.3      2102.0      301.2      2127.2
 GR    307.6     2188.8      314.5     2265.2      319.7     2333.6      323.7      2399.9      326.1      2456.7
 GR    325.0     2538.7

 ET        0          0        7.1          0          0          0      710.0     2000.0
 X1      190         36      972.8     2041.3      785.0      550.0      550.0
 GR    316.7          0      315.9      114.9      313.5      265.1      310.5       380.0      306.9       503.8
 GR    305.9      560.7      297.9      573.9      296.4      604.7      300.3       611.9      299.6       642.0
 GR    296.2      649.6      294.1      691.2      288.7      739.3      284.7       751.7      283.3       767.7
 GR    284.8      780.2      285.7      851.5      298.1      881.5      297.3       972.8      286.6      1012.4
 GR    286.6     1531.9      288.3     1542.3      288.3     1573.5      286.6      1606.0      286.6      1999.6
 GR    292.2     2012.1      293.7     2031.7      297.1     2041.3      296.9      2060.1      301.2      2075.0
 GR    307.7     2119.0      309.7     2152.3      308.4     2219.6      309.5      2266.8      313.4      2354.5
 GR    317.5     2439.9
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ET        0         0       7.1         0         0         0     935.0    2025.0
X1      200        42    1056.7    2113.3     630.0     595.0     600.0
GR    316.9         0     313.9      56.2     312.6     122.4     310.1     216.7     307.6     324.4
GR    306.6     427.5     304.6     520.3     302.4     585.0     295.3     604.2     292.5     618.3
GR    293.4     669.2     293.1     728.3     296.2     755.5     295.5     775.6     293.1     788.9
GR    292.7     841.5     293.1     907.7     303.1     935.0     301.8     942.6     287.0     963.5
GR    286.0     994.4     285.3    1011.2     286.0    1037.4     296.9    1056.7     286.6    1085.6
GR    287.0    1164.6     288.7    1223.8     288.1    1403.9     288.5    1550.4     289.1    1765.6
GR    288.4    1904.5     286.6    1911.4     286.6    2019.7     293.5    2043.4     294.1    2065.1
GR    298.4    2092.4     301.1    2113.3     300.5    2137.8     305.3    2194.4     312.4    2283.5
GR    316.1    2372.6     318.5    2429.6

ET        0         0       7.1         0         0         0    1040.0    2080.0
X1      210        48    1355.0    2185.1     450.0     350.0     350.0
GR    318.8         0     319.5      35.3     317.3      62.2     311.7      79.9     309.5     108.8
GR    306.3     166.1     303.1     312.9     301.6     457.4     299.8     607.8     298.0     747.8
GR    298.6     839.7     298.1     875.4     294.4     891.9     294.4     974.9     294.2    1088.0
GR    297.8    1105.7     288.1    1117.8     285.5    1133.4     287.6    1144.1     287.8    1217.9
GR    287.4    1286.1     296.5    1313.3     299.6    1325.8     300.0    1355.0     294.2    1382.3
GR    292.7    1414.0     290.0    1438.5     289.8    1526.3     289.3    1571.4     288.5    1623.5
GR    288.5    1664.4     290.5    1686.8     289.1    1834.5     288.3    1958.5     288.2    2066.4
GR    294.5    2086.4     294.7    2128.6     298.3    2157.4     302.0    2185.1     302.3    2216.0
GR    305.2    2229.2     307.6    2291.8     308.8    2356.0     309.1    2371.3     315.3    2391.3
GR    316.5    2429.4     315.4    2472.3     318.7    2518.0
1
   21APR23      12:00:07                                                                          PAGE     4


NC    0.045        .1      0.065
ET        0         0       7.1         0         0         0     650.0    1620.0
X1      220        44    1185.2    1658.7     620.0     385.0     450.0
GR    309.4         0     308.1      49.1     303.4      65.1     303.8      93.7     304.8     111.3
GR    300.4     135.4     298.2     205.6     295.6     275.8     296.4     311.7     299.2     325.6
GR    297.9     381.8     296.6     472.7     298.6     496.0     297.7     516.1     296.0     540.4
GR    296.0     619.4     297.0     659.3     297.1     778.2     297.0     828.0     294.1     852.7
GR    291.3     877.1     291.6     961.4     291.5    1078.8     292.8    1124.9     292.4    1185.2
GR    289.9    1220.5     289.8    1321.4     288.8    1344.8     290.0    1386.7     292.3    1429.0
GR    292.1    1467.4     293.8    1493.0     295.4    1567.7     296.3    1608.0     299.8    1658.7
GR    296.2    1677.4     295.9    1703.2     299.8    1722.6     301.5    1749.7     304.6    1768.4
GR    308.0    1845.6     314.8    1925.8     319.7    2049.1     324.0    2142.9

ET        0         0       7.1         0         0         0     975.0    1710.0
X1      230        39    1177.3    1700.4     430.0     460.0     487.0
GR    320.6         0     315.6      98.6     310.7     248.5     307.7     349.8     304.4     453.1
GR    301.8     481.5     297.2     508.2     295.0     514.3     296.6     561.5     298.3     572.6
GR    299.6     589.3     296.9     598.8     296.0     661.1     296.0     732.0     298.0     803.0
GR    298.2     895.6     298.8     987.5     297.5    1007.2     294.6    1034.2     292.3    1049.0
GR    293.2    1074.8     294.1    1177.3     293.5    1277.7     293.6    1390.6     293.8    1477.5
GR    290.2    1497.2     289.8    1554.2     290.4    1569.5     291.8    1577.6     291.3    1624.4
GR    294.6    1642.8     295.4    1680.2     299.8    1700.4     300.1    1740.6     303.7    1766.4
GR    304.8    1824.3     306.5    1894.0     310.4    1966.2     312.0    2031.8

ET        0       5.1       7.1         0     450.0    1300.0     530.0    1190.0
X1      239        35     794.2    1194.9     515.0       385       413         0         0         0
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GR    326.7         0      325.9       9.7      313.3       33.3      302.7       58.7      299.6       75.9
GR    298.8       146.3    296.4     184.4      295.9      292.8      296.4      340.1      298.6      359.0
GR    298.3       480.3    297.1     577.6      296.4      628.2      295.3      690.3      296.7      723.4
GR    296.3       773.8    299.6     794.2      295.7      807.3      293.2      815.5      292.7      884.9
GR    290.7       929.7    291.8     952.3      294.4      972.5      293.1     1010.8      292.6     1033.0
GR    294.4      1056.6    292.9    1097.2      293.9     1121.5      296.8     1156.1      303.0     1194.9
GR    304.6      1220.8    306.4    1253.0      308.5     1284.9      311.2     1349.1      314.0     1436.2

NC        0          0         0       0.3        0.5
ET        0        5.1       5.1         0     1477.7     1977.2
X1      242         35    1477.7    1977.2        270        165        224
X2        0          0         0     311.5      315.0
BT       22     1477.7     315.0     311.5     1557.0      315.0      311.5     1557.0      315.0          0
BT   1564.0      315.0         0    1564.0      315.0      311.5     1640.4      315.0      311.5     1640.4
BT    315.0          0    1647.4     315.0          0     1647.4      315.0      311.5     1723.7      315.0
BT    311.5     1723.7     315.0         0     1730.7      315.0          0     1730.7      315.0      311.5
BT   1807.0      315.0     311.5    1807.0      315.0          0     1814.0      315.0          0     1814.0
BT    315.0      311.5    1890.4     315.0      311.5     1890.4      315.0          0     1897.4      315.0
BT        0     1897.4     315.0     311.5     1977.2      315.0      311.5          0          0          0
GR    322.3          0     325.6      50.0      327.8      125.3      328.0      167.9      320.9      223.5
GR    317.6      265.9     313.7     374.7      316.2      478.1      320.7      644.2      321.6      741.1
GR    329.1      757.2     328.4     771.6      321.9      789.8      321.3      881.9      317.3     1023.6
GR    313.9     1127.3     310.6    1268.7      311.6     1384.5      309.6     1444.5      309.6     1477.7
GR    298.9     1496.5     292.9    1529.5      293.1     1544.4      293.8     1624.2      294.0     1694.9
GR    292.5     1762.9     293.0    1804.8      291.7     1829.1      292.1     1863.2      294.1     1921.8
GR    311.6     1977.2     312.9    2102.5      309.6     2169.8      313.0     2266.2      316.8     2378.2
1
   21APR23      12:00:07                                                                              PAGE    5


ET        0        5.1       5.1         0     1538.3     2038.7
X1      244         36    1538.3    2038.7         95         95         95
X2        0          0         0     311.5      315.0
BT       22     1538.3     315.0     311.5     1618.3      315.0      311.5     1618.3      315.0          0
BT   1625.3      315.0         0    1625.3      315.0      311.5     1701.7      315.0      311.5     1701.7
BT    315.0          0    1708.7     315.0          0     1708.7      315.0      311.5     1785.0      315.0
BT    311.5     1785.0     315.0         0     1792.0      315.0          0     1792.0      315.0      311.5
BT   1868.3      315.0     311.5    1868.3      315.0          0     1875.3      315.0          0     1875.3
BT    315.0      311.5    1951.7     315.0      311.5     1951.7      315.0          0     1958.7      315.0
BT        0     1958.7     315.0     311.5     2038.7      315.0      311.5          0          0          0
GR    333.7          0     332.9     112.5      325.1      205.8      318.3      337.4      315.9      476.3
GR    313.1      545.2     326.7     602.4      328.1      710.5      327.9      857.3      309.9      896.3
GR    307.6      960.7     300.3     995.7      300.4     1057.8      300.3     1138.4      300.5     1237.7
GR    300.4     1331.6     298.3    1412.7      296.8     1496.6      296.0     1538.3      293.5     1563.3
GR    294.6     1610.2     293.3    1726.3      293.1     1859.5      292.2     1881.3      293.1     1912.8
GR    294.9     1989.5     307.8    2038.7      307.6     2130.6      307.7     2162.9      312.8     2178.6
GR    311.6     2260.9     307.1    2281.9      307.1     2290.6      303.9     2297.1      308.1     2393.9
GR    312.5     2498.4

NC     0.11      0.045       0.1       0.1        0.3
ET        0        5.1       7.1         0      550.0     1550.0      730.0     1335.0
X1      245         46     733.9    1365.9        150        210        177
GR    329.6          0     329.0      34.7      332.3       59.7      341.6       62.4      341.6      117.5
GR    333.4      120.9     332.7     142.8      321.9      163.7      315.1      178.0      313.1      232.6
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 GR    307.8      301.1      304.4      332.2      299.6      356.7      299.6      421.6      299.0      495.5
 GR    301.1      576.5      300.6      651.8      294.8      662.9      295.4      733.9      293.5      752.9
 GR    294.3      779.0      293.9      881.8      293.6      956.6      293.6     1033.3      292.7     1075.7
 GR    292.5     1095.1      292.7     1117.1      295.3     1147.3      295.7     1193.3      296.0     1231.5
 GR    295.4     1310.2      296.1     1334.9      298.3     1353.3      302.8     1365.9      306.0     1410.9
 GR    308.7     1503.8      312.0     1574.9      314.8     1645.6      316.8     1687.3      319.7     1720.0
 GR    321.0     1804.8      323.3     1847.5      326.3     1898.9      329.3     1959.7      330.2     1973.3
 GR    330.6     2021.6

 NC     0.05       0.05       0.06
 ET        0          0        7.1          0          0          0      580.0     1275.0
 X1      250         44      618.1     1199.0      615.0      700.0      701.0
 GR    326.9          0      326.6       34.2      329.6       54.8      330.1       87.4      341.8       89.9
 GR    341.8      142.4      331.0      145.7      330.5      161.9      318.7      181.0      310.1      203.9
 GR    308.0      213.0      307.2      227.9      303.7      261.6      301.6      281.2      302.5      289.4
 GR    301.9      394.2      301.6      491.5      300.0      554.1      300.1      618.1      298.3      652.9
 GR    295.9      707.6      296.9      759.6      297.7      846.0      298.0      941.2      297.9     1041.0
 GR    295.5     1081.2      297.7     1096.2      295.4     1107.8      294.4     1124.0      293.7     1138.2
 GR    294.3     1152.9      296.6     1182.0      300.0     1199.0      299.4     1238.2      299.9     1271.8
 GR    305.0     1292.2      307.5     1315.5      308.7     1376.5      311.9     1466.7      314.7     1527.3
 GR    315.6     1559.3      319.1     1564.8      320.1     1609.7      319.0     1632.0          0          0

 ET        0          0        7.1          0          0          0      365.0      965.0
 X1      260         36      419.7      982.5     1000.0     1050.0     1031.0
 GR    322.7          0      323.4       16.9      322.9       38.0      325.1       60.8      326.5      126.0
 GR    326.8      165.9      320.2      181.3      316.5      185.8      314.2      236.3      313.2      295.3
 GR    311.1      318.4      309.5      338.3      305.8      352.6      303.1      419.7      300.1      438.4
 GR    299.1      465.2      298.6      492.1      300.1      500.6      299.9      611.3      301.5      708.2
 GR    302.1      744.4      304.4      756.7      302.3      767.7      300.7      808.0      297.8      831.1
1
    21APR23      12:00:07                                                                                 PAGE    6


 GR    297.6      838.5      297.8      857.2      302.6      885.2      302.9      939.8      305.3      962.1
 GR    311.4      982.5      312.3     1006.9      313.7     1046.9      312.1     1089.9      313.3     1122.1
 GR    314.3     1221.7

 QT        2      37000      37000
 ET        0        5.1        7.1          0        100     1023.7        400        960
 X1      270         42      400.4      958.7      815.0     1000.0      951.0
 GR    320.8          0      320.4       21.0      322.3       40.8      323.2       57.7      333.8       63.4
 GR    333.8      113.9      322.4      120.4      322.6      146.6      316.7      163.2      315.2      180.6
 GR    312.6      282.9      310.4      354.8      308.6      400.4      301.0      413.0      299.8      467.1
 GR    300.2      478.7      299.8      493.8      301.8      505.5      303.1      608.1      304.2      694.2
 GR    306.3      711.1      301.8      728.4      303.1      761.5      304.8      788.2      306.6      799.9
 GR    300.8      815.3      299.4      838.0      300.8      867.4      303.8      882.8      302.5      938.1
 GR    307.7      958.7      310.0      988.2      313.8     1023.7      313.0     1089.6      311.8     1118.6
 GR    309.1     1150.1      309.8     1163.9      312.6     1170.3      312.5     1212.8      312.2     1258.4
 GR    314.0     1277.0      314.7     1301.7

 ET        0          0        7.1          0          0          0      330.0     1630.0
 X1      280         50      216.8     1690.2     1060.0     1135.0     1021.0
 GR    319.5          0      319.0       16.6      318.5       32.8      319.2       74.5      327.1       75.3
 GR    327.1      110.5      319.6      113.9      318.1      175.1      312.2      192.4      308.8      202.3
 GR    308.4      216.8      306.6      231.3      306.5      283.3      306.3      325.9      304.1      342.4
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GR    300.7     355.7     300.1     376.6     303.2     385.9     304.3     466.4     304.8     556.9
GR    305.0     655.3     306.1     772.1     305.7     843.4     304.5     868.6     304.3     921.9
GR    306.4     953.7     305.9    1029.7     304.7    1074.3     305.6    1106.4     310.6    1125.0
GR    302.8    1139.5     301.1    1176.6     302.7    1207.3     307.4    1215.5     307.6    1300.9
GR    307.1    1398.9     306.6    1490.7     306.8    1547.8     307.6    1610.9     307.6    1646.1
GR    310.5    1690.2     310.7    1704.8     315.4    1711.7     316.9    1717.1     318.4    1760.5
GR    318.6    1801.4     321.3    1864.6     324.3    1990.3     328.8    2110.7     331.7    2238.4

ET       0         0       7.1         0         0         0     330.0    1765.0
X1     285        52     272.9    1768.0     660.0     640.0     688.0
GR    340.2         0     339.2      48.2     332.9      67.9     329.2      91.5     323.2     110.3
GR    321.2     145.3     317.8     179.9     314.3     205.0     311.4     272.9     307.5     295.2
GR    306.1     386.5     303.8     480.7     302.2     506.6     304.0     517.4     306.5     535.9
GR    306.8     640.4     308.4     693.1     309.1     803.1     309.3     900.8     308.9     961.7
GR    307.9    1023.3     304.8    1048.2     306.2    1086.4     307.2    1117.1     307.4    1215.2
GR    305.4    1282.8     306.6    1342.4     309.7    1380.7     310.3    1460.0     308.0    1479.0
GR    306.9    1507.0     308.2    1516.5     313.4    1523.6     312.7    1533.4     303.7    1553.2
GR    302.4    1573.1     303.3    1609.9     305.3    1634.1     304.9    1672.4     307.0    1680.9
GR    306.3    1706.8     310.4    1735.4     313.7    1768.0     314.6    1840.5     314.1    1920.4
GR    317.7    1931.1     318.1    1976.9     317.0    2020.4     318.2    2044.4     321.4    2094.1
GR    322.9    2127.8     324.4    2237.1

ET       0         0       7.1         0         0         0     770.0    2340.0
X1     290        60     714.3    2568.8     645.0     695.0     653.0
GR    347.5         0     347.4      37.9     349.4      62.7     349.1     137.6     344.9     159.5
GR    342.1     249.7     339.7     337.8     339.1     383.0     335.6     408.7     350.1     415.8
GR    350.1     509.1     334.8     514.2     331.4     528.6     342.3     553.4     322.6     587.7
GR    318.2     603.1     317.8     635.3     318.6     649.0     317.9     714.3     314.4     749.3
GR    312.0     772.5     311.0     810.1     311.0    1087.6     311.6    1095.6     311.8    1185.3
GR    311.2    1273.7     308.9    1415.4     306.5    1439.5     308.4    1456.5     310.4    1529.9
GR    311.7    1636.7     309.1    1666.1     306.4    1683.9     307.1    1715.7     309.0    1750.5
GR    307.5    1829.0     308.9    1862.5     310.4    1886.7     310.8    1939.8     310.3    1978.3
1
   21APR23      12:00:07                                                                    PAGE    7


GR    311.1    2056.4     309.2    2077.8     311.0    2113.6     316.9    2125.3     317.1    2136.8
GR    306.1    2149.9     304.7    2168.0     303.1    2177.0     304.6    2196.1     305.1    2232.5
GR    310.9    2243.8     310.7    2331.8     311.6    2378.3     308.5    2390.2     310.5    2404.2
GR    312.3    2455.5     313.0    2513.4     314.2    2557.6     316.9    2568.8     319.1    2610.7

ET       0         0       7.1         0         0         0     660.0    2130.0
X1     300        51     646.5    2117.4     605.0     790.0     654.0
GR    324.0         0     324.8      39.9     325.3      60.6     334.0      63.1     334.0     102.6
GR    325.5     106.9     324.8     156.7     322.4     167.1     321.2     311.5     318.9     446.4
GR    318.7     576.2     317.4     646.5     312.3     661.0     311.8     680.4     311.8     750.4
GR    313.7     757.1     313.4     794.5     310.2     809.1     311.8     841.9     310.8     907.5
GR    312.1     927.5     314.3     954.4     313.4    1051.2     312.2    1150.4     311.8    1200.4
GR    309.4    1236.1     310.6    1274.2     311.4    1338.2     311.8    1440.1     310.7    1538.5
GR    311.2    1612.1     308.6    1637.6     309.8    1697.1     309.5    1780.8     309.2    1852.9
GR    310.9    1899.6     310.8    1940.4     315.3    1952.8     314.1    1964.7     308.6    1987.0
GR    305.8    2003.1     305.1    2016.3     305.8    2068.8     310.4    2088.8     313.4    2117.4
GR    313.8    2190.6     316.1    2278.3     318.2    2369.6     320.1    2468.2     320.6    2519.0
GR    321.2    2564.3
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NC    0.045       0.06      0.035
ET        0        5.1        7.1          0       600.0      2800.0       850.0      2395.0
X1      310         65      837.2       2348.3       640.0       610.0       610.0
GR    320.5          0      320.9         78.5       320.3       192.3       319.6       337.8       318.8       386.3
GR    316.0      402.3      315.1        410.8       316.5       420.9       318.8       432.2       319.3       497.2
GR    320.4      520.1      320.3        566.1       319.5       599.6       320.3       620.6       322.1       631.8
GR    320.7      661.7      320.7        709.3       321.3       727.1       318.6       750.1       319.9       783.1
GR    317.5      807.3      318.1        837.2       314.5       848.9       311.1       859.0       310.0       909.7
GR    310.5     1033.1      311.3       1106.9       310.8      1263.4       310.8      1360.6       312.7      1375.1
GR    313.6     1448.5      313.3       1482.0       311.1      1515.1       311.0      1540.0       312.9      1560.1
GR    314.8     1573.5      314.1       1622.6       311.3      1637.2       312.6      1645.3       312.0      1702.0
GR    313.1     1808.2      313.5       1863.8       312.9      1914.6       311.6      1949.8       312.2      1979.2
GR    312.4     2097.3      312.2       2173.9       311.5      2203.0       314.6      2212.7       316.7      2222.8
GR    316.0     2236.9      309.2       2244.5       306.9      2255.8       305.7      2273.8       306.4      2285.5
GR    307.9     2325.4      313.6       2334.6       316.0      2348.3       315.6      2396.7       317.1      2504.3
GR    317.6     2557.2      320.2       2662.8       321.7      2782.6       323.7      2904.0       324.3      2954.1

ET        0        5.1        7.1          0          1      1870.6       645.0      1870.0
X1      320         65      530.1       1870.6       660.0       640.0       711.0
GR    322.4          0      323.7        101.5       322.4       187.5       321.3       294.7       322.2       328.1
GR    322.4      372.3      322.3        415.6       321.1       449.4       318.3       499.6       317.5       530.1
GR    316.3      541.3      314.8        562.6       311.4       571.4       311.3       581.5       315.9       595.5
GR    312.9      610.8      313.3        683.9       313.6       766.6       313.5       843.7       314.9       881.4
GR    316.6      941.2      315.1       1011.1       313.7      1068.6       313.0      1150.9       312.8      1194.3
GR    311.7     1207.9      311.6       1253.3       312.4      1279.8       312.9      1311.5       315.8      1329.1
GR    318.2     1354.1      319.2       1384.6       312.3      1413.1       309.1      1446.8       308.5      1468.1
GR    308.7     1525.2      307.3       1576.9       307.2      1645.1       307.2      1755.3       309.6      1767.4
GR    312.0     1795.1      316.7       1828.4       319.0      1870.6       317.9      1940.9       319.2      2014.7
GR    318.3     2045.7      310.6       2057.3       307.4      2069.4       307.3      2098.7       311.7      2107.9
GR    317.9     2118.4      318.8       2181.0       315.1      2200.7       315.2      2251.7       312.2      2264.1
GR    312.7     2315.1      313.5       2393.0       314.6      2445.7       315.6      2525.6       318.9      2536.0
GR    323.9     2542.8      324.6       2611.1       326.3      2625.6       328.7      2631.2       328.2      2718.3
1
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QT        2      36000      36000
ET        0        5.1        7.1          0          1      1400.0       435.0      1280.0
X1      330         87      569.9       1334.0       620.0       620.0       588.0
GR    331.2          0      327.4         62.1       324.8        96.2       325.9       131.5       325.8       170.1
GR    328.4      184.9      346.6        191.3       346.6       242.7       329.8       244.0       330.5       304.2
GR    351.3      310.6      351.3        353.5       324.6       356.4       324.4       379.2       318.0       390.5
GR    315.9      407.3      314.9        431.0       312.5       441.8       312.5       532.6       316.7       547.8
GR    323.4      560.3      324.8        569.9       322.1       576.7       314.0       592.0       314.8       627.7
GR    313.5      683.8      316.5        693.9       321.4       711.9       317.8       729.2       313.3       737.2
GR    310.0      741.6      310.0        889.2       312.9       905.3       312.6       967.0       313.2      1017.6
GR    310.2     1052.5      310.2       1069.4       313.6      1085.8       313.8      1147.2       312.0      1194.1
GR    308.6     1203.4      308.5       1214.7       308.6      1219.7       311.3      1234.1       313.3      1263.8
GR    314.1     1301.5      316.3       1319.2       321.9      1334.0       326.0      1373.7       329.8      1416.3
GR    336.6     1421.9      336.6       1466.0       330.1      1469.3       329.3      1489.3       326.6      1495.7
GR    326.7     1547.9      327.2       1622.6       326.5      1666.3       324.3      1672.3       323.1      1715.6
GR    331.0     1720.5      331.0       1761.7       323.4      1766.7       322.4      1797.2       322.4      1834.1
GR    323.7     1861.3      332.0       1866.9       332.0      1899.5       323.1      1903.9       323.5      1953.3
GR    322.8     1972.9      316.6       1983.7       309.8      1992.6       309.9      2005.4       314.3      2033.5
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GR    321.6     2048.4     320.1     2098.9     322.2     2194.0     324.1     2285.0     325.1     2330.4
GR    330.2     2342.1     328.3     2388.2     326.1     2432.4     328.3     2515.4     340.1     2518.6
GR    340.1     2567.2     329.4     2573.6

NC     0.06       0.06       0.05
ET        0        5.1        7.1          0        1.0     1500.0      425.0     1345.0
X1      340         82      361.3     1386.0      575.0      450.0      454.0
GR    332.5          0      331.8       43.2      330.3       70.0      331.3      104.0      331.0      144.4
GR    330.2      152.8      330.3      165.6      347.5      172.0      347.5      333.7      324.1      336.1
GR    323.4      361.3      319.8      378.1      316.6      395.7      314.7      420.9      312.2      438.9
GR    312.2      528.9      312.9      533.7      311.9      563.0      311.2      644.6      311.3      684.6
GR    314.2      693.0      317.3      709.4      317.4      739.8      315.6      758.6      314.4      769.8
GR    314.2      799.0      315.4      817.4      315.7      865.8      315.1      892.2      310.4      903.9
GR    310.4     1074.7      311.0     1083.5      311.8     1141.5      314.9     1160.3      315.7     1215.9
GR    310.6     1249.1      309.9     1285.1      310.6     1291.1      316.1     1296.7      315.6     1309.5
GR    311.9     1319.9      311.8     1326.0      317.5     1352.0      322.7     1372.8      324.8     1386.0
GR    326.0     1428.8      333.6     1436.0      336.0     1473.6      326.0     1476.0      325.0     1504.4
GR    324.1     1536.4      326.1     1569.2      334.3     1574.4      334.3     1596.8      326.1     1602.4
GR    325.7     1685.3      325.4     1723.7      324.9     1786.5      325.1     1862.1      325.8     1894.9
GR    325.7     1932.9      325.2     1950.5      324.4     1993.3      325.8     2033.3      335.5     2039.3
GR    335.5     2079.7      327.2     2084.1      325.4     2109.8      325.1     2130.6      317.7     2139.0
GR    313.4     2148.2      313.1     2180.2      321.0     2191.0      322.5     2205.0      323.6     2259.4
GR    323.1     2290.6      324.1     2362.2      324.9     2389.8      326.4     2397.8      327.9     2402.6
GR    327.0     2449.0      326.7     2492.2

ET        0        5.1        7.1          0        1.0     2000.0      595.0     1525.0
X1      345         87      448.0     1650.2      125.0      400.0      335.0
GR    337.4          0      333.8       83.9      329.7      155.3      329.3      168.1      330.6      201.6
GR    330.1      242.1      330.3      259.7      347.8      264.3      347.8      319.4      331.4      323.2
GR    331.2      375.5      351.5      382.0      351.5      420.9      325.5      423.0      324.2      448.0
GR    321.6      457.4      319.4      469.2      317.9      484.0      318.0      499.5      319.9      519.1
GR    319.1      562.0      316.1      582.0      312.2      594.4      312.2      676.4      312.9      680.9
GR    312.5      709.2      312.2      726.7      316.5      737.4      319.8      749.2      322.9      799.5
GR    323.5      842.5      319.8      860.5      315.1      877.3      313.7      894.4      315.1      914.9
GR    323.1      930.5      329.8      946.1      328.6      957.9      320.8      973.7      310.0      988.2
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GR    310.0     1262.8      313.3     1269.0      313.9     1336.1      314.0     1384.8      310.6     1393.0
GR    309.8     1410.8      310.6     1433.9      312.5     1455.2      315.6     1464.6      315.7     1481.8
GR    313.4     1498.4      314.4     1523.9      319.0     1545.6      320.2     1571.2      320.1     1630.6
GR    322.8     1650.2      325.3     1699.4      333.1     1702.6      333.1     1741.9      324.3     1746.4
GR    323.6     1781.6      323.7     1822.8      325.4     1866.6      334.3     1871.5      334.3     1901.0
GR    325.5     1911.2      327.7     1981.1      327.7     2079.2      334.4     2087.7      334.4     2202.4
GR    328.1     2208.9      328.7     2262.9      329.4     2298.9      338.4     2305.4      338.4     2328.0
GR    329.7     2333.3      328.6     2390.1      322.6     2400.3      318.3     2409.7      318.7     2444.5
GR    324.0     2462.4      324.8     2520.1      324.7     2595.1      325.5     2631.5      328.5     2639.7
GR    329.1     2692.9      328.5     2742.3

ET        0        5.1        7.1          0      591.7     1404.9      740.0     1404.9
X1      355         83      591.7     1404.9      350.0      360.0      310.0
GR    332.2          0      332.8       14.2      330.4       19.2      331.4       84.6      330.5      120.7
GR    328.9      128.0      329.1      171.9      328.3      209.8      328.7      236.1      326.0      276.1
GR    323.9      369.1      324.2      416.8      322.5      427.4      318.7      462.3      317.8      481.5
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 GR    317.9      522.1      318.9      544.6      320.5      591.7      319.9      643.8      319.2      678.7
 GR    315.2      702.7      313.5      715.4      312.6      750.8      312.6      779.6      313.6      800.4
 GR    318.6      813.0      321.8      845.1      320.2      864.2      316.4      872.4      314.2      897.2
 GR    312.0      919.2      311.5     1076.1      311.4     1202.2      311.4     1276.3      313.8     1289.3
 GR    315.1     1343.4      316.1     1392.6      319.7     1404.9      315.8     1419.1      314.9     1445.5
 GR    310.8     1457.7      310.1     1472.2      310.8     1492.7      316.7     1502.9      316.3     1540.3
 GR    316.6     1562.7      319.8     1590.8      321.0     1648.1      321.6     1734.3      323.7     1770.0
 GR    325.6     1853.4      326.3     1918.6      336.3     1925.6      336.1     1943.0      326.6     1946.7
 GR    325.0     1978.4      324.9     2028.7      326.6     2088.0      328.9     2172.7      328.9     2215.9
 GR    336.5     2219.5      336.5     2262.6      329.5     2266.3      328.4     2337.4      329.1     2365.8
 GR    337.4     2369.1      337.4     2394.3      330.0     2400.8      329.8     2457.5      331.4     2466.4
 GR    330.1     2566.1      331.0     2666.0      330.2     2694.5      328.2     2703.5      330.6     2706.3
 GR    330.5     2762.5      330.5     2809.7      321.9     2818.3      322.5     2884.1      322.7     2930.8
 GR    325.6     2945.2      329.6     2955.3      328.6     3009.4
1
    21APR23      12:00:07                                                                                  PAGE   10


     SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
     Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
     TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
     SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


 *PROF 1
0

 CCHV=     .100 CEHV=     .300
 *SECNO 100.000
    100.000     20.40    289.40       .00    289.40    290.43      1.03       .00       .00    288.50
    38000.0        .2   36909.5    1090.3        .4    4490.0     237.9        .0        .0    281.80
        .00       .61      8.22      4.58      .125      .125      .125      .000    269.00    120.60
    .012226        0.        0.        0.         0         0         0       .00    329.77    450.37


 *SECNO 110.000

 3301 HV CHANGED MORE THAN HVINS


 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .56

    110.000     14.65    289.65       .00       .00    291.65      1.99       .93       .29    285.40
    38000.0      28.5   37969.5       2.1       9.1    3349.6       1.6       4.3        .3    288.80
        .00      3.11     11.34      1.32      .125      .125      .125      .000    275.00    118.80
    .039468       40.       46.       50.         2         0         0       .00    318.65    437.45


 *SECNO 120.000

 3301 HV CHANGED MORE THAN HVINS


 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.51
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| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 120.000 | 16.14 | 291.84 | .00 | .00 | 293.03 | 1.19 | 1.30 | .08 | 290.20 |
| 38000.0 | 4.1 | 37824.1 | 171.8 | 3.2 | 4315.7 | 60.9 | 8.9 | .7 | 286.90 |
| .00 | 1.30 | 8.76 | 2.82 | .125 | .125 | .125 | .000 | 275.70 | 92.76 |
| .017292 | 55. | 52. | 50. | 2 | 0 | 0 | .00 | 351.08 | 443.84 |

*SECNO 130.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.28

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 130.000 | 20.50 | 295.70 | .00 | .00 | 296.42 | .72 | 3.34 | .05 | 289.90 |
| 38000.0 | 112.8 | 36470.4 | 1416.8 | 53.5 | 5292.8 | 385.5 | 69.3 | 5.2 | 288.30 |
| .02 | 2.11 | 6.89 | 3.68 | .080 | .080 | .080 | .000 | 275.20 | 170.68 |
| .003322 | 530. | 520. | 520. | 4 | 0 | 0 | .00 | 399.00 | 569.68 |

1



| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | L-BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | R-BANK ELEV |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

*SECNO 140.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 140.000 | 22.92 | 297.62 | .00 | .00 | 298.40 | .78 | 1.97 | .02 | 297.50 |
| 38000.0 | .0 | 37216.6 | 783.4 | .0 | 5206.8 | 238.2 | 140.1 | 10.1 | 293.80 |
| .05 | .01 | 7.15 | 3.29 | .080 | .080 | .080 | .000 | 274.70 | 274.53 |
| .003830 | 550. | 552. | 550. | 3 | 0 | 0 | .00 | 378.85 | 653.38 |

*SECNO 150.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.65

3470 ENCROACHMENT STATIONS= 1.0 1231.9 TYPE= 1 TARGET= 1230.900

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 150.000 | 20.35 | 299.35 | .00 | .00 | 299.63 | .28 | 1.18 | .05 | 294.60 |
| 38000.0 | 2657.8 | 35342.1 | .0 | 1511.0 | 8009.1 | .0 | 232.9 | 18.2 | 100000.00 |
| .08 | 1.76 | 4.41 | .00 | .080 | .080 | .000 | .000 | 279.00 | 306.52 |
| .001414 | 545. | 540. | 540. | 2 | 0 | 0 | .00 | 922.41 | 1228.93 |

*SECNO 160.000

3265 DIVIDED FLOW

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.94

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 160.000 | 18.20 | 299.90 | .00 | .00 | 300.09 | .19 | .45 | .01 | 299.80 |
| 38000.0 | 8548.8 | 29451.2 | .0 | 1853.6 | 9421.4 | .0 | 395.3 | 33.4 | 302.80 |
| .14 | 4.61 | 3.13 | .00 | .035 | .045 | .000 | .000 | 281.70 | 544.64 |

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   .000377      630.      690.      690.         2         0         0       .00   1038.79   1597.94


 *SECNO 170.000
   170.000     15.69    300.09       .00       .00    300.22       .13       .13       .01    294.40
   38000.0   19840.6   18112.6      46.7    6511.3    6604.3      49.6     497.3      44.7    297.30
       .17      3.05      2.74       .94      .035      .045      .035      .000    284.40    533.59
   .000317      390.      350.      350.         2         0         0       .00   1660.72   2194.31


 *SECNO 180.000

 3470 ENCROACHMENT STATIONS=      500.0    2200.0  TYPE=      1  TARGET=     1700.000
   180.000     16.20    300.20       .00       .00    300.32       .12       .10       .00    289.50
   38000.0   21904.6   15967.1     128.3    7570.5    5945.1     115.5     606.5      57.7    295.70
       .21      2.89      2.69      1.11      .035      .045      .035      .000    284.00    635.63
   .000233      405.      300.      255.         0         0         0       .00   1465.26   2100.89


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     SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
     Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
     TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
     SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


 *SECNO 190.000
   190.000     17.06    300.36       .00       .00    300.44       .08       .11       .00    297.30
   38000.0    7336.1   30578.8      85.1    3008.5   14163.7      84.1     830.0      80.1    297.10
       .29      2.44      2.16      1.01      .035      .045      .035      .000    283.30    569.83
   .000137      785.      550.      550.         1         0         0       .00   1502.28   2072.11


 *SECNO 200.000

 3265 DIVIDED FLOW

   200.000     15.15    300.45       .00       .00    300.54       .09       .10       .00    296.90
   38000.0    9135.3   28864.7        .0    3606.9   12268.7        .0    1060.5     101.0    301.10
       .36      2.53      2.35       .00      .035      .045      .000      .000    285.30    590.27
   .000193      630.      600.      595.         2         0         0       .00   1501.25   2108.27


 *SECNO 210.000
   210.000     15.01    300.51       .00       .00    300.65       .14       .10       .02    300.00
   38000.0   14618.4   23381.6        .0    4453.4    8247.7        .0    1184.5     115.1    302.00
       .39      3.28      2.83       .00      .035      .045      .000      .000    285.50    548.24
   .000340      450.      350.      350.         0         0         0       .00   1625.72   2173.97


 *SECNO 220.000
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 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .48

    220.000     11.96    300.76       .00       .00    301.01       .25       .33       .03    292.40
    38000.0   23748.7   13934.3     317.1    5504.0    3915.4     237.0    1319.3     135.3    299.80
        .43      4.31      3.56      1.34      .045      .065      .100      .000    288.80    133.42
    .001451      620.      450.      385.         2         0         0       .00   1604.51   1737.93


 *SECNO 230.000
    230.000     11.72    301.52       .00       .00    301.88       .36       .84       .03    294.10
    38000.0   17574.3   20359.5      66.2    3465.7    4405.5      70.4    1411.7     150.2    299.80
        .46      5.07      4.62       .94      .045      .065      .100      .000    289.80    483.12
    .002392      430.      487.      460.         2         0         0       .00   1267.66   1750.78


 *SECNO 239.000
1
    21APR23      12:00:07                                                                          PAGE   13


     SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
     Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
     TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
     SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST



 3470 ENCROACHMENT STATIONS=      450.0    1300.0  TYPE=      1  TARGET=      850.000
    239.000     12.04    302.74       .00       .00    303.49       .75      1.49       .12    299.60
    38000.0   14633.3   23366.7        .0    1990.2    3507.3        .0    1481.7     160.9    303.00
        .47      7.35      6.66       .00      .045      .065      .000      .000    290.70    450.00
    .004712      515.      413.      385.         2         0         0       .00    743.28   1193.28


 CCHV=     .300 CEHV=     .500
 *SECNO 242.000

 3370 NORMAL BRIDGE, NRD=  22 MIN ELTRD=   315.00 MAX ELLC=   311.50


 3470 ENCROACHMENT STATIONS=     1477.7    1977.2  TYPE=      1  TARGET=      499.500
    242.000     12.13    303.83       .00       .00    304.88      1.05      1.24       .15    309.60
    38000.0        .0   38000.0        .0        .0    4623.9        .0    1508.8     164.2 100000.00
        .48       .00      8.22       .00      .000      .065      .000      .000    291.70   1487.83
    .006098      270.      224.      165.         2         0         0       .00    464.77   1952.61


 *SECNO 244.000

 3370 NORMAL BRIDGE, NRD=  22 MIN ELTRD=   315.00 MAX ELLC=   311.50


 3470 ENCROACHMENT STATIONS=     1538.3    2038.7  TYPE=      1  TARGET=      500.400
    244.000     12.39    304.59       .00       .00    305.45       .85       .51       .06    296.00
    38000.0        .0   38000.0        .0        .0    5121.5        .0    1519.4     165.2 100000.00
```

```
       .49       .00      7.42       .00      .000      .065      .000      .000    292.20   1538.30
   .004712       95.       95.       95.         2         0         0       .00    488.16   2026.46


CCHV=     .100 CEHV=     .300
*SECNO 245.000

3301 HV CHANGED MORE THAN HVINS


3470 ENCROACHMENT STATIONS=      550.0    1550.0  TYPE=      1  TARGET=     1000.000
   245.000     13.43    305.93       .00       .00    306.24       .31       .74       .05    295.40
   38000.0    4628.9   33184.3     186.9    1379.2    7206.5      68.7    1547.0     167.9    302.80
       .50      3.36      4.60      2.72      .110      .100      .045      .000    292.50    550.00
   .003750      150.      177.      210.         2         0         0       .00    859.86   1409.86


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   21APR23      12:00:07                                                                                PAGE   14


    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


*SECNO 250.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.60

   250.000     13.77    307.47       .00       .00    307.76       .29      1.52       .00    300.10
   38000.0    8234.4   26862.5    2903.1    2209.0    5995.9     698.2    1684.8     183.1    300.00
       .54      3.73      4.48      4.16      .050      .060      .050      .000    293.70    222.87
   .001459      615.      701.      700.         3         0         0       .00   1092.35   1315.22


*SECNO 260.000

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .54

   260.000     12.02    309.62       .00       .00    310.46       .83      2.53       .16    303.10
   38000.0    2280.1   35719.9        .0     375.4    4827.7        .0    1850.9     203.4    311.40
       .58      6.07      7.40       .00      .050      .060      .000      .000    297.60    336.78
   .005037     1000.     1031.     1050.         2         0         0       .00    639.78    976.56


*SECNO 270.000

3470 ENCROACHMENT STATIONS=      100.0    1023.7  TYPE=      1  TARGET=      923.700
   270.000     13.83    313.23       .00       .00    313.77       .54      3.29       .03    308.60
   37000.0     882.2   35503.3     614.5     302.1    5939.6     177.9    1976.8     218.4    307.70
```

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| .62 | 2.92 | 5.98 | 3.45 | .050 | .060 | .050 | .000 | 299.40 | 258.16 |
| .002521 | 815. | 951. | 1000. | 2 | 0 | 0 | .00 | 760.20 | 1018.36 |

*SECNO 280.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.99

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 280.000 | 14.75 | 314.85 | .00 | .00 | 314.97 | .11 | 1.15 | .04 | 308.40 |
| 37000.0 | 322.4 | 36541.9 | 135.7 | 144.1 | 13441.2 | 74.8 | 2212.7 | 245.4 | 310.50 |
| .73 | 2.24 | 2.72 | 1.82 | .050 | .060 | .050 | .000 | 300.10 | 184.62 |
| .000635 | 1060. | 1021. | 1135. | 3 | 0 | 0 | .00 | 1526.28 | 1710.90 |

1



| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | L-BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | R-BANK ELEV |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

*SECNO 285.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 285.000 | 13.15 | 315.35 | .00 | .00 | 315.49 | .14 | .52 | .01 | 311.40 |
| 37000.0 | 285.0 | 36551.9 | 163.1 | 174.0 | 12095.0 | 169.8 | 2418.6 | 270.9 | 313.70 |
| .79 | 1.64 | 3.02 | .96 | .050 | .060 | .050 | .000 | 302.20 | 197.44 |
| .000922 | 660. | 688. | 640. | 2 | 0 | 0 | .00 | 1726.68 | 1924.13 |

*SECNO 290.000

3265 DIVIDED FLOW

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .69

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 290.000 | 13.06 | 316.16 | .00 | .00 | 316.35 | .19 | .84 | .01 | 317.90 |
| 37000.0 | .0 | 37000.0 | .0 | .0 | 10597.1 | .0 | 2591.3 | 297.6 | 316.90 |
| .85 | .00 | 3.49 | .00 | .000 | .060 | .000 | .000 | 303.10 | 731.72 |
| .001909 | 645. | 653. | 695. | 2 | 0 | 0 | .00 | 1819.91 | 2565.72 |

*SECNO 300.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 300.000 | 12.32 | 317.42 | .00 | .00 | 317.64 | .22 | 1.28 | .01 | 317.40 |
| 37000.0 | .0 | 35530.8 | 1469.2 | .0 | 9365.7 | 533.7 | 2746.0 | 324.3 | 313.40 |
| .89 | .01 | 3.79 | 2.75 | .050 | .060 | .050 | .000 | 305.10 | 645.52 |
| .001996 | 605. | 654. | 790. | 2 | 0 | 0 | .00 | 1690.08 | 2335.60 |

*SECNO 310.000

3265 DIVIDED FLOW

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.67

3470 ENCROACHMENT STATIONS=      600.0    2800.0  TYPE=      1  TARGET=     2200.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 310.000 | 12.39 | 318.09 | .00 | .00 | 318.32 | .23 | .68 | .00 | 318.10 |
| 37000.0 | 4.0 | 36667.7 | 328.3 | 10.3 | 9512.3 | 341.5 | 2884.4 | 348.5 | 316.00 |
| .94 | .39 | 3.85 | .96 | .045 | .035 | .060 | .000 | 305.70 | 801.37 |
| .000714 | 640. | 610. | 610. | 2 | 0 | 0 | .00 | 1774.97 | 2577.00 |

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| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | L-BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | R-BANK ELEV |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

*SECNO 320.000

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS=        1.0    1870.6  TYPE=      1  TARGET=     1869.600

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 320.000 | 11.43 | 318.63 | .00 | .00 | 318.95 | .32 | .60 | .03 | 317.50 |
| 37000.0 | 19.2 | 36980.8 | .0 | 23.2 | 8147.6 | .0 | 3031.3 | 373.8 | 100000.00 |
| .98 | .83 | 4.54 | .00 | .045 | .035 | .000 | .000 | 307.20 | 493.70 |
| .001007 | 660. | 711. | 640. | 2 | 0 | 0 | .00 | 1350.30 | 1863.79 |

*SECNO 330.000

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS=        1.0    1400.0  TYPE=      1  TARGET=     1399.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 330.000 | 10.71 | 319.21 | .00 | .00 | 319.84 | .63 | .80 | .09 | 324.80 |
| 36000.0 | 4095.9 | 31904.1 | .0 | 873.6 | 4857.5 | .0 | 3125.4 | 389.0 | 321.90 |
| 1.01 | 4.69 | 6.57 | .00 | .045 | .035 | .000 | .000 | 308.50 | 388.37 |
| .001922 | 620. | 588. | 620. | 2 | 0 | 0 | .00 | 890.22 | 1326.88 |

*SECNO 340.000

3470 ENCROACHMENT STATIONS=        1.0    1500.0  TYPE=      1  TARGET=     1499.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 340.000 | 10.48 | 320.38 | .00 | .00 | 320.76 | .38 | .90 | .02 | 323.40 |
| 36000.0 | .0 | 36000.0 | .0 | .0 | 7250.2 | .0 | 3194.3 | 399.0 | 324.80 |
| 1.03 | .00 | 4.97 | .00 | .000 | .050 | .000 | .000 | 309.90 | 375.40 |
| .001976 | 575. | 454. | 450. | 2 | 0 | 0 | .00 | 988.12 | 1363.52 |

*SECNO 345.000

```
 3265 DIVIDED FLOW


 3470 ENCROACHMENT STATIONS=        1.0    2000.0  TYPE=      1  TARGET=     1999.000
    345.000     11.26    321.06       .00       .00    321.43       .37       .67       .00    324.20
    36000.0        .0   36000.0        .0        .0    7361.8        .0    3250.5     406.9    322.80
       1.05       .00      4.89       .00      .000      .050      .000      .000    309.80    460.28
    .002036      125.      335.      400.         2         0         0       .00   1046.01   1637.59


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    21APR23      12:00:07                                                                                PAGE   17

     SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
     Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
     TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
     SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


 *SECNO 355.000

 3265 DIVIDED FLOW


 3470 ENCROACHMENT STATIONS=      591.7    1404.9  TYPE=      1  TARGET=      813.200
    355.000     11.57    321.67       .00       .00    322.22       .55       .73       .05    320.50
    36000.0        .0   36000.0        .0        .0    6060.2        .0    3298.2     413.5 100000.00
       1.07       .00      5.94       .00      .000      .050      .000      .000    310.10    591.70
    .002761      350.      310.      360.         2         0         0       .00    810.36   1404.90


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    21APR23      12:00:07                                                                                PAGE   18

 T1         UPPER SAN DIEGO RIVER   RECREATE ORIGINAL HEC-2 MODEL MAY 2020 Hunsak
 T2         SECTIONS DIGITIZED IN 1982   20-OCT-82
 T3         100-YEAR FLOODWAY

 J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

        0         3         0         0       0.0      0.00      -1.0         0     290.4         0

 J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

      15         0        -1         0         0         0         0         0         0         0

1
    21APR23      12:00:07                                                                                PAGE   19

     SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
     Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
```

| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
|---|---|---|---|---|---|---|---|---|---|
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

*PROF 2
0

CCHV= .100 CEHV= .300
*SECNO 100.000

3470 ENCROACHMENT STATIONS= 120.0 400.0 TYPE= 1 TARGET= 280.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 100.000 | 21.40 | 290.40 | .00 | 289.40 | 291.39 | .99 | .00 | .00 | 288.50 |
| 38000.0 | 1.7 | 37998.3 | .0 | 1.7 | 4767.8 | .0 | .0 | .0 | 100000.00 |
| .00 | .97 | 7.97 | .00 | .125 | .125 | .000 | .000 | 269.00 | 120.00 |
| .011032 | 0. | 0. | 0. | 0 | 0 | 0 | .00 | 280.00 | 400.00 |

*SECNO 110.000

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .57

3470 ENCROACHMENT STATIONS= 120.0 395.0 TYPE= 1 TARGET= 275.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 110.000 | 15.54 | 290.54 | .00 | 289.65 | 292.50 | 1.96 | .82 | .29 | 285.40 |
| 38000.0 | 35.3 | 37964.7 | .0 | 11.2 | 3373.7 | .0 | 4.3 | .3 | 100000.00 |
| .00 | 3.16 | 11.25 | .00 | .125 | .125 | .000 | .000 | 275.00 | 120.00 |
| .033743 | 40. | 46. | 50. | 2 | 0 | 0 | .00 | 275.00 | 395.00 |

*SECNO 120.000

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.43

3470 ENCROACHMENT STATIONS= 115.0 395.0 TYPE= 1 TARGET= 280.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 120.000 | 16.82 | 292.52 | .00 | 291.84 | 293.76 | 1.24 | 1.19 | .07 | 100000.00 |
| 38000.0 | .0 | 38000.0 | .0 | .0 | 4243.8 | .0 | 8.9 | .6 | 100000.00 |
| .00 | .00 | 8.95 | .00 | .000 | .125 | .000 | .000 | 275.70 | 115.00 |
| .016558 | 55. | 52. | 50. | 2 | 0 | 0 | .00 | 280.00 | 395.00 |

1


| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | L-BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | R-BANK ELEV |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

*SECNO 130.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.11

3470 ENCROACHMENT STATIONS=      225.0     500.0  TYPE=      1  TARGET=      275.000

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 130.000 | 21.31 | 296.51 | .00 | 295.70 | 297.36 | .86 | 3.56 | .04 | 100000.00 | |
| 38000.0 | .0 | 38000.0 | .0 | .0 | 5118.1 | .0 | 64.7 | 3.9 | 100000.00 | |
| .02 | .00 | 7.42 | .00 | .000 | .080 | .000 | .000 | 275.20 | 225.00 | |
| .003715 | 530. | 520. | 520. | 4 | 0 | 0 | .00 | 275.00 | 500.00 | |

*SECNO 140.000

3470 ENCROACHMENT STATIONS=      315.0     585.0  TYPE=      1  TARGET=      270.000

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 140.000 | 23.85 | 298.55 | .00 | 297.62 | 299.42 | .87 | 2.05 | .00 | 100000.00 | |
| 38000.0 | .0 | 38000.0 | .0 | .0 | 5075.4 | .0 | 129.3 | 7.4 | 100000.00 | |
| .04 | .00 | 7.49 | .00 | .000 | .080 | .000 | .000 | 274.70 | 315.00 | |
| .003719 | 550. | 552. | 550. | 3 | 0 | 0 | .00 | 270.00 | 585.00 | |

*SECNO 150.000

3301 HV CHANGED MORE THAN HVINS

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.63

3470 ENCROACHMENT STATIONS=      655.0    1200.0  TYPE=      1  TARGET=      545.000

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 150.000 | 21.32 | 300.32 | .00 | 299.35 | 300.63 | .31 | 1.16 | .06 | 294.60 | |
| 38000.0 | 920.1 | 37079.9 | .0 | 443.1 | 8163.3 | .0 | 214.2 | 12.4 | 100000.00 | |
| .08 | 2.08 | 4.54 | .00 | .080 | .080 | .000 | .000 | 279.00 | 655.00 | |
| .001396 | 545. | 540. | 540. | 2 | 0 | 0 | .00 | 545.00 | 1200.00 | |

*SECNO 160.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.89

3470 ENCROACHMENT STATIONS=      570.0    1435.0  TYPE=      1  TARGET=      865.000

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 160.000 | 19.17 | 300.87 | .00 | 299.90 | 301.10 | .22 | .45 | .01 | 299.80 | |
| 38000.0 | 9081.9 | 28918.1 | .0 | 1853.7 | 8545.8 | .0 | 363.1 | 23.5 | 100000.00 | |
| .13 | 4.90 | 3.38 | .00 | .035 | .045 | .000 | .000 | 281.70 | 570.00 | |
| .000389 | 630. | 690. | 690. | 2 | 0 | 0 | .00 | 865.00 | 1435.00 | |

1

| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | R-BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

*SECNO 170.000

3470 ENCROACHMENT STATIONS= 1040.0 2085.0 TYPE= 1 TARGET= 1045.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 170.000 | 16.65 | 301.05 | .00 | 300.09 | 301.24 | .19 | .14 | .00 | 294.40 |
| 38000.0 | 15766.7 | 22233.3 | .0 | 4268.1 | 6791.4 | .0 | 452.1 | 31.4 | 100000.00 |
| .16 | 3.69 | 3.27 | .00 | .035 | .045 | .000 | .000 | 284.40 | 1040.00 |
| .000378 | 390. | 350. | 350. | 2 | 0 | 0 | .00 | 1045.00 | 2085.00 |

*SECNO 180.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.43

3470 ENCROACHMENT STATIONS= 865.0 2065.0 TYPE= 1 TARGET= 1200.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 180.000 | 17.22 | 301.22 | .00 | 300.20 | 301.34 | .11 | .09 | .01 | 289.50 |
| 38000.0 | 21683.5 | 16211.7 | 104.8 | 7586.2 | 6437.6 | 74.6 | 553.0 | 40.5 | 295.70 |
| .19 | 2.86 | 2.52 | 1.40 | .035 | .045 | .035 | .000 | 284.00 | 865.00 |
| .000184 | 405. | 300. | 255. | 2 | 0 | 0 | .00 | 1200.00 | 2065.00 |

*SECNO 190.000

3470 ENCROACHMENT STATIONS= 710.0 2000.0 TYPE= 1 TARGET= 1290.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 190.000 | 18.06 | 301.36 | .00 | 300.36 | 301.43 | .07 | .09 | .00 | 297.30 |
| 38000.0 | 6875.2 | 31124.8 | .0 | 2765.3 | 14860.1 | .0 | 781.2 | 58.9 | 100000.00 |
| .27 | 2.49 | 2.09 | .00 | .035 | .045 | .000 | .000 | 283.30 | 710.00 |
| .000117 | 785. | 550. | 550. | 2 | 0 | 0 | .00 | 1290.00 | 2000.00 |

*SECNO 200.000

3470 ENCROACHMENT STATIONS= 935.0 2025.0 TYPE= 1 TARGET= 1090.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 200.000 | 16.12 | 301.42 | .00 | 300.45 | 301.54 | .11 | .09 | .01 | 296.90 |
| 38000.0 | 5026.5 | 32973.4 | .0 | 1478.7 | 12758.4 | .0 | 1002.1 | 75.3 | 100000.00 |
| .34 | 3.40 | 2.58 | .00 | .035 | .045 | .000 | .000 | 285.30 | 943.13 |
| .000201 | 630. | 600. | 595. | 2 | 0 | 0 | .00 | 1081.87 | 2025.00 |

*SECNO 210.000

3470 ENCROACHMENT STATIONS= 1040.0 2080.0 TYPE= 1 TARGET= 1040.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 210.000 | 15.98 | 301.48 | .00 | 300.51 | 301.65 | .17 | .09 | .02 | 300.00 |
| 38000.0 | 12567.7 | 25432.3 | .0 | 3252.1 | 8523.0 | .0 | 1112.0 | 84.3 | 100000.00 |
| .37 | 3.86 | 2.98 | .00 | .035 | .045 | .000 | .000 | 285.50 | 1040.00 |
| .000311 | 450. | 350. | 350. | 0 | 0 | 0 | .00 | 1040.00 | 2080.00 |

1

```
    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


*SECNO 220.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .47


3470 ENCROACHMENT STATIONS=      650.0    1620.0  TYPE=      1  TARGET=      970.000
   220.000     12.86    301.66       .00    300.76    302.00       .33       .30       .05    292.40
   38000.0   21745.3   16254.7        .0    4225.6    4218.6        .0    1231.1      96.4 100000.00
       .40      5.15      3.85       .00      .045      .065      .000      .000    288.80    650.00
   .001393      620.      450.      385.         2         0         0       .00    970.00   1620.00


*SECNO 230.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .69


3470 ENCROACHMENT STATIONS=      975.0    1710.0  TYPE=      1  TARGET=      735.000
   230.000     12.60    302.40       .00    301.52    302.97       .57       .90       .07    294.10
   38000.0   11420.6   26547.7      31.7    1579.2    4865.9      24.6    1310.6     105.4    299.80
       .42      7.23      5.46      1.29      .045      .065      .100      .000    289.80    975.00
   .002920      430.      487.      460.         2         0         0       .00    735.00   1710.00


*SECNO 239.000

3470 ENCROACHMENT STATIONS=      530.0    1190.0  TYPE=      1  TARGET=      660.000
   239.000     13.06    303.76       .00    302.74    304.43       .68      1.43       .03    299.60
   38000.0   13674.2   24325.8        .0    1889.0    3908.1        .0    1372.8     112.6 100000.00
       .44      7.24      6.22       .00      .045      .065      .000      .000    290.70    530.00
   .003539      515.      413.      385.         2         0         0       .00    660.00   1190.00


CCHV=     .300 CEHV=     .500
*SECNO 242.000

3370 NORMAL BRIDGE, NRD=  22 MIN ELTRD=   315.00 MAX ELLC=   311.50


3470 ENCROACHMENT STATIONS=     1477.7    1977.2  TYPE=      1  TARGET=      499.500
   242.000     12.90    304.60       .00    303.83    305.50       .90       .95       .11    309.60
   38000.0        .0   38000.0        .0        .0    4980.4        .0    1401.5     115.6 100000.00
       .45       .00      7.63       .00      .000      .065      .000      .000    291.70   1486.49
   .004816      270.      224.      165.         2         0         0       .00    468.53   1955.03


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| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | L-BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | R-BANK ELEV |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

*SECNO 244.000

3370 NORMAL BRIDGE, NRD= 22 MIN ELTRD= 315.00 MAX ELLC= 311.50

3470 ENCROACHMENT STATIONS= 1538.3 2038.7 TYPE= 1 TARGET= 500.400

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 244.000 | 12.99 | 305.19 | .00 | 304.59 | 305.95 | .76 | .41 | .04 | 296.00 |
| 38000.0 | .0 | 38000.0 | .0 | .0 | 5414.2 | .0 | 1412.9 | 116.7 | 100000.00 |
| .45 | .00 | 7.02 | .00 | .000 | .065 | .000 | .000 | 292.20 | 1538.30 |
| .003946 | 95. | 95. | 95. | 2 | 0 | 0 | .00 | 490.45 | 2028.75 |

CCHV= .100 CEHV= .300
*SECNO 245.000

3470 ENCROACHMENT STATIONS= 730.0 1335.0 TYPE= 1 TARGET= 605.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 245.000 | 13.82 | 306.32 | .00 | 305.93 | 306.75 | .43 | .76 | .03 | 295.40 |
| 38000.0 | 79.4 | 37920.6 | .0 | 42.6 | 7214.5 | .0 | 1438.6 | 118.9 | 100000.00 |
| .46 | 1.86 | 5.26 | .00 | .110 | .100 | .000 | .000 | 292.50 | 730.00 |
| .004658 | 150. | 177. | 210. | 2 | 0 | 0 | .00 | 605.00 | 1335.00 |

*SECNO 250.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.62

3470 ENCROACHMENT STATIONS= 580.0 1275.0 TYPE= 1 TARGET= 695.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 250.000 | 14.53 | 308.23 | .00 | 307.47 | 308.64 | .41 | 1.90 | .00 | 300.10 |
| 38000.0 | 1383.6 | 33304.9 | 3311.5 | 310.6 | 6433.6 | 647.6 | 1556.1 | 129.3 | 300.00 |
| .50 | 4.45 | 5.18 | 5.11 | .050 | .060 | .050 | .000 | 293.70 | 580.00 |
| .001774 | 615. | 701. | 700. | 2 | 0 | 0 | .00 | 695.00 | 1275.00 |

*SECNO 260.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .70

3470 ENCROACHMENT STATIONS= 365.0 965.0 TYPE= 1 TARGET= 600.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 260.000 | 12.96 | 310.56 | .00 | 309.62 | 311.27 | .70 | 2.53 | .09 | 303.10 |
| 38000.0 | 2011.5 | 35988.5 | .0 | 347.9 | 5319.2 | .0 | 1710.6 | 144.6 | 100000.00 |
| .54 | 5.78 | 6.77 | .00 | .050 | .060 | .000 | .000 | 297.60 | 365.00 |
| .003634 | 1000. | 1031. | 1050. | 2 | 0 | 0 | .00 | 600.00 | 965.00 |

| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | L-BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | R-BANK ELEV |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

*SECNO 270.000

3470 ENCROACHMENT STATIONS= 400.0 960.0 TYPE= 1 TARGET= 560.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 270.000 | 14.14 | 313.54 | .00 | 313.23 | 314.11 | .57 | 2.83 | .01 | 308.60 |
| 37000.0 | 1.5 | 36986.9 | 11.6 | 2.0 | 6112.1 | 7.5 | 1838.7 | 157.2 | 307.70 |
| .59 | .76 | 6.05 | 1.55 | .050 | .060 | .050 | .000 | 299.40 | 400.00 |
| .002487 | 815. | 951. | 1000. | 2 | 0 | 0 | .00 | 560.00 | 960.00 |

*SECNO 280.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.90

3470 ENCROACHMENT STATIONS= 330.0 1630.0 TYPE= 1 TARGET= 1300.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 280.000 | 15.13 | 315.23 | .00 | 314.85 | 315.36 | .13 | 1.21 | .04 | 100000.00 |
| 37000.0 | .0 | 37000.0 | .0 | .0 | 12622.9 | .0 | 2058.4 | 179.0 | 100000.00 |
| .68 | .00 | 2.93 | .00 | .000 | .060 | .000 | .000 | 300.10 | 330.00 |
| .000692 | 1060. | 1021. | 1135. | 3 | 0 | 0 | .00 | 1300.00 | 1630.00 |

*SECNO 285.000

3470 ENCROACHMENT STATIONS= 330.0 1765.0 TYPE= 1 TARGET= 1435.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 285.000 | 13.55 | 315.75 | .00 | 315.35 | 315.90 | .14 | .53 | .00 | 100000.00 |
| 37000.0 | .0 | 37000.0 | .0 | .0 | 12244.7 | .0 | 2254.8 | 200.6 | 100000.00 |
| .75 | .00 | 3.02 | .00 | .000 | .060 | .000 | .000 | 302.20 | 330.00 |
| .000867 | 660. | 688. | 640. | 2 | 0 | 0 | .00 | 1435.00 | 1765.00 |

*SECNO 290.000

3265 DIVIDED FLOW

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .69

3470 ENCROACHMENT STATIONS= 770.0 2340.0 TYPE= 1 TARGET= 1570.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 290.000 | 13.40 | 316.50 | .00 | 316.16 | 316.71 | .21 | .79 | .02 | 100000.00 |
| 37000.0 | .0 | 37000.0 | .0 | .0 | 10132.7 | .0 | 2422.5 | 223.0 | 100000.00 |
| .80 | .00 | 3.65 | .00 | .000 | .060 | .000 | .000 | 303.10 | 770.00 |
| .001816 | 645. | 653. | 695. | 2 | 0 | 0 | .00 | 1556.99 | 2340.00 |

| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | L-BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | R-BANK ELEV |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

*SECNO 300.000

3470 ENCROACHMENT STATIONS= 660.0 2130.0 TYPE= 1 TARGET= 1470.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 300.000 | 12.60 | 317.70 | .00 | 317.42 | 317.92 | .22 | 1.21 | .00 | 100000.00 |
| 37000.0 | .0 | 36850.5 | 149.5 | .0 | 9736.7 | 53.7 | 2572.2 | 245.8 | 313.40 |
| .84 | .00 | 3.78 | 2.79 | .000 | .060 | .050 | .000 | 305.10 | 660.00 |
| .001870 | 605. | 654. | 790. | 2 | 0 | 0 | .00 | 1470.00 | 2130.00 |

*SECNO 310.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.71

3470 ENCROACHMENT STATIONS= 850.0 2395.0 TYPE= 1 TARGET= 1545.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 310.000 | 12.62 | 318.32 | .00 | 318.09 | 318.54 | .22 | .62 | .00 | 100000.00 |
| 37000.0 | .0 | 36869.1 | 130.9 | .0 | 9835.6 | 117.4 | 2710.4 | 266.9 | 316.00 |
| .89 | .00 | 3.75 | 1.12 | .000 | .035 | .060 | .000 | 305.70 | 850.00 |
| .000640 | 640. | 610. | 610. | 2 | 0 | 0 | .00 | 1545.00 | 2395.00 |

*SECNO 320.000

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 645.0 1870.0 TYPE= 1 TARGET= 1225.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 320.000 | 11.60 | 318.80 | .00 | 318.63 | 319.15 | .35 | .57 | .04 | 100000.00 |
| 37000.0 | .0 | 37000.0 | .0 | .0 | 7822.9 | .0 | 2855.4 | 289.3 | 100000.00 |
| .93 | .00 | 4.73 | .00 | .000 | .035 | .000 | .000 | 307.20 | 645.00 |
| .001037 | 660. | 711. | 640. | 2 | 0 | 0 | .00 | 1208.26 | 1866.99 |

*SECNO 330.000

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 435.0 1280.0 TYPE= 1 TARGET= 845.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 330.000 | 10.88 | 319.38 | .00 | 319.21 | 320.06 | .67 | .81 | .10 | 324.80 |
| 36000.0 | 3716.4 | 32283.6 | .0 | 746.2 | 4781.6 | .0 | 2945.8 | 302.9 | 100000.00 |
| .96 | 4.98 | 6.75 | .00 | .045 | .035 | .000 | .000 | 308.50 | 435.00 |
| .001925 | 620. | 588. | 620. | 2 | 0 | 0 | .00 | 798.88 | 1280.00 |

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| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | L-BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | R-BANK ELEV |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

*SECNO 340.000

3470 ENCROACHMENT STATIONS= 425.0 1345.0 TYPE= 1 TARGET= 920.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 340.000 | 10.67 | 320.57 | .00 | 320.38 | 320.96 | .39 | .87 | .03 | 100000.00 |
| 36000.0 | .0 | 36000.0 | .0 | .0 | 7202.0 | .0 | 3013.1 | 312.0 | 100000.00 |
| .98 | .00 | 5.00 | .00 | .000 | .050 | .000 | .000 | 309.90 | 425.00 |
| .001865 | 575. | 454. | 450. | 2 | 0 | 0 | .00 | 920.00 | 1345.00 |

*SECNO 345.000

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 595.0 1525.0 TYPE= 1 TARGET= 930.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 345.000 | 11.36 | 321.16 | .00 | 321.06 | 321.59 | .42 | .62 | .01 | 100000.00 |
| 36000.0 | .0 | 36000.0 | .0 | .0 | 6899.9 | .0 | 3067.3 | 318.6 | 100000.00 |
| 1.00 | .00 | 5.22 | .00 | .000 | .050 | .000 | .000 | 309.80 | 595.00 |
| .001819 | 125. | 335. | 400. | 2 | 0 | 0 | .00 | 801.23 | 1525.00 |

*SECNO 355.000

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 740.0 1404.9 TYPE= 1 TARGET= 664.900

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 355.000 | 11.60 | 321.70 | .00 | 321.67 | 322.36 | .66 | .71 | .07 | 100000.00 |
| 36000.0 | .0 | 36000.0 | .0 | .0 | 5522.3 | .0 | 3111.6 | 323.8 | 100000.00 |
| 1.01 | .00 | 6.52 | .00 | .000 | .050 | .000 | .000 | 310.10 | 740.00 |
| .002928 | 350. | 310. | 360. | 2 | 0 | 0 | .00 | 662.78 | 1404.90 |

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THIS RUN EXECUTED 21APR23 12:00:19

**********
HEC-2 WATER SURFACE PROFILES

Version 4.6.2; May 1991
**********

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

100-YEAR

SUMMARY PRINTOUT TABLE 150

| | SECNO | XLCH | ELTRD | ELLC | ELMIN | Q | CWSEL | CRIWS | EG | 10*KS | VCH | AREA | .01K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 100.000 | .00 | .00 | .00 | 269.00 | 38000.00 | 289.40 | .00 | 290.43 | 122.26 | 8.22 | 4728.29 | 3436.70 |
| | 100.000 | .00 | .00 | .00 | 269.00 | 38000.00 | 290.40 | .00 | 291.39 | 110.32 | 7.97 | 4769.48 | 3617.97 |
| * | 110.000 | 46.00 | .00 | .00 | 275.00 | 38000.00 | 289.65 | .00 | 291.65 | 394.68 | 11.34 | 3360.34 | 1912.77 |
| * | 110.000 | 46.00 | .00 | .00 | 275.00 | 38000.00 | 290.54 | .00 | 292.50 | 337.43 | 11.25 | 3384.92 | 2068.66 |
| * | 120.000 | 52.00 | .00 | .00 | 275.70 | 38000.00 | 291.84 | .00 | 293.03 | 172.92 | 8.76 | 4379.82 | 2889.74 |
| * | 120.000 | 52.00 | .00 | .00 | 275.70 | 38000.00 | 292.52 | .00 | 293.76 | 165.58 | 8.95 | 4243.83 | 2953.10 |
| * | 130.000 | 520.00 | .00 | .00 | 275.20 | 38000.00 | 295.70 | .00 | 296.42 | 33.22 | 6.89 | 5731.76 | 6593.43 |
| * | 130.000 | 520.00 | .00 | .00 | 275.20 | 38000.00 | 296.51 | .00 | 297.36 | 37.15 | 7.42 | 5118.10 | 6234.76 |
| | 140.000 | 552.00 | .00 | .00 | 274.70 | 38000.00 | 297.62 | .00 | 298.40 | 38.30 | 7.15 | 5445.05 | 6140.57 |
| | 140.000 | 552.00 | .00 | .00 | 274.70 | 38000.00 | 298.55 | .00 | 299.42 | 37.19 | 7.49 | 5075.37 | 6231.44 |
| * | 150.000 | 540.00 | .00 | .00 | 279.00 | 38000.00 | 299.35 | .00 | 299.63 | 14.14 | 4.41 | 9520.11 | 10105.13 |
| * | 150.000 | 540.00 | .00 | .00 | 279.00 | 38000.00 | 300.32 | .00 | 300.63 | 13.96 | 4.54 | 8606.42 | 10170.08 |
| * | 160.000 | 690.00 | .00 | .00 | 281.70 | 38000.00 | 299.90 | .00 | 300.09 | 3.77 | 3.13 | 11274.98 | 19581.09 |
| * | 160.000 | 690.00 | .00 | .00 | 281.70 | 38000.00 | 300.87 | .00 | 301.10 | 3.89 | 3.38 | 10399.56 | 19256.20 |
| | 170.000 | 350.00 | .00 | .00 | 284.40 | 38000.00 | 300.09 | .00 | 300.22 | 3.17 | 2.74 | 13165.21 | 21333.05 |
| | 170.000 | 350.00 | .00 | .00 | 284.40 | 38000.00 | 301.05 | .00 | 301.24 | 3.78 | 3.27 | 11059.56 | 19534.04 |
| | 180.000 | 300.00 | .00 | .00 | 284.00 | 38000.00 | 300.20 | .00 | 300.32 | 2.33 | 2.69 | 13631.07 | 24878.27 |
| * | 180.000 | 300.00 | .00 | .00 | 284.00 | 38000.00 | 301.22 | .00 | 301.34 | 1.84 | 2.52 | 14098.45 | 27979.19 |
| | 190.000 | 550.00 | .00 | .00 | 283.30 | 38000.00 | 300.36 | .00 | 300.44 | 1.37 | 2.16 | 17256.31 | 32487.74 |
| | 190.000 | 550.00 | .00 | .00 | 283.30 | 38000.00 | 301.36 | .00 | 301.43 | 1.17 | 2.09 | 17625.34 | 35203.34 |
| | 200.000 | 600.00 | .00 | .00 | 285.30 | 38000.00 | 300.45 | .00 | 300.54 | 1.93 | 2.35 | 15875.64 | 27378.20 |
| | 200.000 | 600.00 | .00 | .00 | 285.30 | 38000.00 | 301.42 | .00 | 301.54 | 2.01 | 2.58 | 14237.02 | 26802.23 |

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| | SECNO | XLCH | ELTRD | ELLC | ELMIN | Q | CWSEL | CRIWS | EG | 10*KS | VCH | AREA | .01K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 210.000 | 350.00 | .00 | .00 | 285.50 | 38000.00 | 300.51 | .00 | 300.65 | 3.40 | 2.83 | 12701.04 | 20606.26 |
| | 210.000 | 350.00 | .00 | .00 | 285.50 | 38000.00 | 301.48 | .00 | 301.65 | 3.11 | 2.98 | 11775.14 | 21535.14 |
| * | 220.000 | 450.00 | .00 | .00 | 288.80 | 38000.00 | 300.76 | .00 | 301.01 | 14.51 | 3.56 | 9656.47 | 9977.33 |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| * | 220.000 | 450.00 | .00 | .00 | 288.80 | 38000.00 | 301.66 | .00 | 302.00 | 13.93 | 3.85 | 8444.19 | 10181.71 |
| | 230.000 | 487.00 | .00 | .00 | 289.80 | 38000.00 | 301.52 | .00 | 301.88 | 23.92 | 4.62 | 7941.62 | 7769.66 |
| * | 230.000 | 487.00 | .00 | .00 | 289.80 | 38000.00 | 302.40 | .00 | 302.97 | 29.20 | 5.46 | 6469.71 | 7032.21 |
| | 239.000 | 413.00 | .00 | .00 | 290.70 | 38000.00 | 302.74 | .00 | 303.49 | 47.12 | 6.66 | 5497.43 | 5535.78 |
| | 239.000 | 413.00 | .00 | .00 | 290.70 | 38000.00 | 303.76 | .00 | 304.43 | 35.39 | 6.22 | 5797.05 | 6387.40 |
| | 242.000 | 224.00 | 315.00 | 311.50 | 291.70 | 38000.00 | 303.83 | .00 | 304.88 | 60.98 | 8.22 | 4623.88 | 4866.15 |
| | 242.000 | 224.00 | 315.00 | 311.50 | 291.70 | 38000.00 | 304.60 | .00 | 305.50 | 48.16 | 7.63 | 4980.35 | 5475.57 |
| | 244.000 | 95.00 | 315.00 | 311.50 | 292.20 | 38000.00 | 304.59 | .00 | 305.45 | 47.12 | 7.42 | 5121.51 | 5536.03 |
| | 244.000 | 95.00 | 315.00 | 311.50 | 292.20 | 38000.00 | 305.19 | .00 | 305.95 | 39.46 | 7.02 | 5414.17 | 6049.36 |
| | 245.000 | 177.00 | .00 | .00 | 292.50 | 38000.00 | 305.93 | .00 | 306.24 | 37.50 | 4.60 | 8654.41 | 6205.38 |
| | 245.000 | 177.00 | .00 | .00 | 292.50 | 38000.00 | 306.32 | .00 | 306.75 | 46.58 | 5.26 | 7257.15 | 5567.82 |
| * | 250.000 | 701.00 | .00 | .00 | 293.70 | 38000.00 | 307.47 | .00 | 307.76 | 14.59 | 4.48 | 8903.12 | 9947.28 |
| * | 250.000 | 701.00 | .00 | .00 | 293.70 | 38000.00 | 308.23 | .00 | 308.64 | 17.74 | 5.18 | 7391.84 | 9022.86 |
| * | 260.000 | 1031.00 | .00 | .00 | 297.60 | 38000.00 | 309.62 | .00 | 310.46 | 50.37 | 7.40 | 5203.05 | 5354.18 |
| * | 260.000 | 1031.00 | .00 | .00 | 297.60 | 38000.00 | 310.56 | .00 | 311.27 | 36.34 | 6.77 | 5667.06 | 6304.01 |
| | 270.000 | 951.00 | .00 | .00 | 299.40 | 37000.00 | 313.23 | .00 | 313.77 | 25.21 | 5.98 | 6419.55 | 7369.38 |
| | 270.000 | 951.00 | .00 | .00 | 299.40 | 37000.00 | 313.54 | .00 | 314.11 | 24.87 | 6.05 | 6121.56 | 7419.49 |
| * | 280.000 | 1021.00 | .00 | .00 | 300.10 | 37000.00 | 314.85 | .00 | 314.97 | 6.35 | 2.72 | 13660.08 | 14681.43 |
| * | 280.000 | 1021.00 | .00 | .00 | 300.10 | 37000.00 | 315.23 | .00 | 315.36 | 6.92 | 2.93 | 12622.94 | 14069.83 |
| | 285.000 | 688.00 | .00 | .00 | 302.20 | 37000.00 | 315.35 | .00 | 315.49 | 9.22 | 3.02 | 12438.79 | 12187.96 |
| | 285.000 | 688.00 | .00 | .00 | 302.20 | 37000.00 | 315.75 | .00 | 315.90 | 8.67 | 3.02 | 12244.70 | 12566.59 |
| * | 290.000 | 653.00 | .00 | .00 | 303.10 | 37000.00 | 316.16 | .00 | 316.35 | 19.09 | 3.49 | 10597.10 | 8468.76 |
| * | 290.000 | 653.00 | .00 | .00 | 303.10 | 37000.00 | 316.50 | .00 | 316.71 | 18.16 | 3.65 | 10132.65 | 8682.78 |
| | 300.000 | 654.00 | .00 | .00 | 305.10 | 37000.00 | 317.42 | .00 | 317.64 | 19.96 | 3.79 | 9899.45 | 8282.00 |
| | 300.000 | 654.00 | .00 | .00 | 305.10 | 37000.00 | 317.70 | .00 | 317.92 | 18.70 | 3.78 | 9790.35 | 8555.31 |
| * | 310.000 | 610.00 | .00 | .00 | 305.70 | 37000.00 | 318.09 | .00 | 318.32 | 7.14 | 3.85 | 9864.22 | 13849.45 |
| * | 310.000 | 610.00 | .00 | .00 | 305.70 | 37000.00 | 318.32 | .00 | 318.54 | 6.40 | 3.75 | 9952.92 | 14621.57 |
| | 320.000 | 711.00 | .00 | .00 | 307.20 | 37000.00 | 318.63 | .00 | 318.95 | 10.07 | 4.54 | 8170.80 | 11659.34 |
| | 320.000 | 711.00 | .00 | .00 | 307.20 | 37000.00 | 318.80 | .00 | 319.15 | 10.37 | 4.73 | 7822.88 | 11488.39 |
| | 330.000 | 588.00 | .00 | .00 | 308.50 | 36000.00 | 319.21 | .00 | 319.84 | 19.22 | 6.57 | 5731.14 | 8210.62 |
| | 330.000 | 588.00 | .00 | .00 | 308.50 | 36000.00 | 319.38 | .00 | 320.06 | 19.25 | 6.75 | 5527.78 | 8204.36 |

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21APR23 12:00:07 PAGE 29

| SECNO | XLCH | ELTRD | ELLC | ELMIN | Q | CWSEL | CRIWS | EG | 10*KS | VCH | AREA | .01K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 340.000 | 454.00 | .00 | .00 | 309.90 | 36000.00 | 320.38 | .00 | 320.76 | 19.76 | 4.97 | 7250.19 | 8097.84 |
| 340.000 | 454.00 | .00 | .00 | 309.90 | 36000.00 | 320.57 | .00 | 320.96 | 18.65 | 5.00 | 7202.04 | 8335.81 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 345.000 | 335.00 | .00 | .00 | 309.80 | 36000.00 | 321.06 | .00 | 321.43 | 20.36 | 4.89 | 7361.82 | 7978.11 |
| 345.000 | 335.00 | .00 | .00 | 309.80 | 36000.00 | 321.16 | .00 | 321.59 | 18.19 | 5.22 | 6899.91 | 8440.01 |
| 355.000 | 310.00 | .00 | .00 | 310.10 | 36000.00 | 321.67 | .00 | 322.22 | 27.61 | 5.94 | 6060.24 | 6851.06 |
| 355.000 | 310.00 | .00 | .00 | 310.10 | 36000.00 | 321.70 | .00 | 322.36 | 29.28 | 6.52 | 5522.25 | 6653.42 |

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100-YEAR

SUMMARY PRINTOUT TABLE 150

| | SECNO | Q | CWSEL | DIFWSP | DIFWSX | DIFKWS | TOPWID | XLCH |
|---|---|---|---|---|---|---|---|---|
| | 100.000 | 38000.00 | 289.40 | .00 | .00 | .00 | 329.77 | .00 |
| | 100.000 | 38000.00 | 290.40 | 1.00 | .00 | 1.00 | 280.00 | .00 |
| * | 110.000 | 38000.00 | 289.65 | .00 | .25 | .00 | 318.65 | 46.00 |
| * | 110.000 | 38000.00 | 290.54 | .88 | .14 | .88 | 275.00 | 46.00 |
| * | 120.000 | 38000.00 | 291.84 | .00 | 2.19 | .00 | 351.08 | 52.00 |
| * | 120.000 | 38000.00 | 292.52 | .68 | 1.98 | .68 | 280.00 | 52.00 |
| * | 130.000 | 38000.00 | 295.70 | .00 | 3.86 | .00 | 399.00 | 520.00 |
| * | 130.000 | 38000.00 | 296.51 | .80 | 3.99 | .80 | 275.00 | 520.00 |
| | 140.000 | 38000.00 | 297.62 | .00 | 1.92 | .00 | 378.85 | 552.00 |
| | 140.000 | 38000.00 | 298.55 | .92 | 2.04 | .92 | 270.00 | 552.00 |
| * | 150.000 | 38000.00 | 299.35 | .00 | 1.73 | .00 | 922.41 | 540.00 |
| * | 150.000 | 38000.00 | 300.32 | .97 | 1.77 | .97 | 545.00 | 540.00 |
| * | 160.000 | 38000.00 | 299.90 | .00 | .55 | .00 | 1038.79 | 690.00 |
| * | 160.000 | 38000.00 | 300.87 | .97 | .55 | .97 | 865.00 | 690.00 |
| | 170.000 | 38000.00 | 300.09 | .00 | .19 | .00 | 1660.72 | 350.00 |
| | 170.000 | 38000.00 | 301.05 | .96 | .18 | .96 | 1045.00 | 350.00 |
| | 180.000 | 38000.00 | 300.20 | .00 | .11 | .00 | 1465.26 | 300.00 |
| * | 180.000 | 38000.00 | 301.22 | 1.02 | .17 | 1.02 | 1200.00 | 300.00 |
| | 190.000 | 38000.00 | 300.36 | .00 | .16 | .00 | 1502.28 | 550.00 |
| | 190.000 | 38000.00 | 301.36 | 1.00 | .14 | 1.00 | 1290.00 | 550.00 |
| | 200.000 | 38000.00 | 300.45 | .00 | .09 | .00 | 1501.25 | 600.00 |
| | 200.000 | 38000.00 | 301.42 | .97 | .06 | .97 | 1081.87 | 600.00 |
| | 210.000 | 38000.00 | 300.51 | .00 | .06 | .00 | 1625.72 | 350.00 |
| | 210.000 | 38000.00 | 301.48 | .97 | .05 | .97 | 1040.00 | 350.00 |
| * | 220.000 | 38000.00 | 300.76 | .00 | .25 | .00 | 1604.51 | 450.00 |

| | SECNO | Q | CWSEL | DIFWSP | DIFWSX | DIFKWS | TOPWID | XLCH |
|---|---|---|---|---|---|---|---|---|
| * | 220.000 | 38000.00 | 301.66 | .90 | .19 | .90 | 970.00 | 450.00 |
| | 230.000 | 38000.00 | 301.52 | .00 | .76 | .00 | 1267.66 | 487.00 |
| * | 230.000 | 38000.00 | 302.40 | .88 | .74 | .88 | 735.00 | 487.00 |
| | 239.000 | 38000.00 | 302.74 | .00 | 1.22 | .00 | 743.28 | 413.00 |
| | 239.000 | 38000.00 | 303.76 | 1.02 | 1.35 | 1.02 | 660.00 | 413.00 |
| | 242.000 | 38000.00 | 303.83 | .00 | 1.09 | .00 | 464.77 | 224.00 |
| | 242.000 | 38000.00 | 304.60 | .76 | .84 | .76 | 468.53 | 224.00 |

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| | SECNO | Q | CWSEL | DIFWSP | DIFWSX | DIFKWS | TOPWID | XLCH |
|---|---|---|---|---|---|---|---|---|
| | 244.000 | 38000.00 | 304.59 | .00 | .76 | .00 | 488.16 | 95.00 |
| | 244.000 | 38000.00 | 305.19 | .60 | .59 | .60 | 490.45 | 95.00 |
| | 245.000 | 38000.00 | 305.93 | .00 | 1.34 | .00 | 859.86 | 177.00 |
| | 245.000 | 38000.00 | 306.32 | .39 | 1.13 | .39 | 605.00 | 177.00 |
| * | 250.000 | 38000.00 | 307.47 | .00 | 1.54 | .00 | 1092.35 | 701.00 |
| * | 250.000 | 38000.00 | 308.23 | .76 | 1.92 | .76 | 695.00 | 701.00 |
| * | 260.000 | 38000.00 | 309.62 | .00 | 2.15 | .00 | 639.78 | 1031.00 |
| * | 260.000 | 38000.00 | 310.56 | .94 | 2.33 | .94 | 600.00 | 1031.00 |
| | 270.000 | 37000.00 | 313.23 | .00 | 3.61 | .00 | 760.20 | 951.00 |
| | 270.000 | 37000.00 | 313.54 | .31 | 2.98 | .31 | 560.00 | 951.00 |
| * | 280.000 | 37000.00 | 314.85 | .00 | 1.62 | .00 | 1526.28 | 1021.00 |
| * | 280.000 | 37000.00 | 315.23 | .38 | 1.69 | .38 | 1300.00 | 1021.00 |
| | 285.000 | 37000.00 | 315.35 | .00 | .50 | .00 | 1726.68 | 688.00 |
| | 285.000 | 37000.00 | 315.75 | .40 | .53 | .40 | 1435.00 | 688.00 |
| * | 290.000 | 37000.00 | 316.16 | .00 | .80 | .00 | 1819.91 | 653.00 |
| * | 290.000 | 37000.00 | 316.50 | .34 | .75 | .34 | 1556.99 | 653.00 |
| | 300.000 | 37000.00 | 317.42 | .00 | 1.26 | .00 | 1690.08 | 654.00 |
| | 300.000 | 37000.00 | 317.70 | .28 | 1.20 | .28 | 1470.00 | 654.00 |
| * | 310.000 | 37000.00 | 318.09 | .00 | .68 | .00 | 1774.97 | 610.00 |
| * | 310.000 | 37000.00 | 318.32 | .23 | .63 | .23 | 1545.00 | 610.00 |
| | 320.000 | 37000.00 | 318.63 | .00 | .53 | .00 | 1350.30 | 711.00 |
| | 320.000 | 37000.00 | 318.80 | .17 | .48 | .17 | 1208.26 | 711.00 |
| | 330.000 | 36000.00 | 319.21 | .00 | .58 | .00 | 890.22 | 588.00 |
| | 330.000 | 36000.00 | 319.38 | .18 | .58 | .18 | 798.88 | 588.00 |
| | 340.000 | 36000.00 | 320.38 | .00 | 1.17 | .00 | 988.12 | 454.00 |
| | 340.000 | 36000.00 | 320.57 | .19 | 1.19 | .19 | 920.00 | 454.00 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 345.000 | 36000.00 | 321.06 | .00 | .68 | .00 | 1046.01 | 335.00 |
| 345.000 | 36000.00 | 321.16 | .10 | .59 | .10 | 801.23 | 335.00 |
| 355.000 | 36000.00 | 321.67 | .00 | .61 | .00 | 810.36 | 310.00 |
| 355.000 | 36000.00 | 321.70 | .03 | .54 | .03 | 662.78 | 310.00 |

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SUMMARY OF ERRORS AND SPECIAL NOTES

WARNING SECNO= 110.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 110.000 PROFILE= 2 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 120.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 120.000 PROFILE= 2 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 130.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 130.000 PROFILE= 2 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 150.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 150.000 PROFILE= 2 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 160.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 160.000 PROFILE= 2 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 180.000 PROFILE= 2 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 220.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 220.000 PROFILE= 2 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 230.000 PROFILE= 2 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 250.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 250.000 PROFILE= 2 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 260.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 260.000 PROFILE= 2 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 280.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 280.000 PROFILE= 2 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 290.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 290.000 PROFILE= 2 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 310.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 310.000 PROFILE= 2 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

HEC-RAS HEC-RAS 5.0.7 March 2019
U.S. Army Corps of Engineers
Hydrologic Engineering Center
609 Second Street
Davis, California

```
X     X  XXXXXX    XXXX        XXXX       XX      XXXX
X     X  X        X    X      X   X     X  X    X
X     X  X        X           X   X    X    X   X
XXXXXXX  XXXX     X       XXX  XXXX     XXXXXX    XXXX
X     X  X        X           X  X     X    X        X
X     X  X        X    X      X   X    X    X        X
X     X  XXXXXX    XXXX       X    X   X    X   XXXXX
```

PROJECT DATA
Project Title: Duplicate Effective Model
Project File : DuplicateEffective.prj
Run Date and Time: 8/17/2022 4:06:58 PM

Project in English units

Project Description:
UPPER SAN DIEGO RIVER   RECREATE ORIGINAL HEC-2 MODEL

SECTIONS DIGITIZED IN 1982   20-OCT-82
       100-YEAR

PLAN DATA

Plan Title: Imported Plan 01
Plan File : r:\1759\Hyd\CLOMR\Calcs\Duplicate Effective Model\DuplicateEffective.p01

          Geometry Title: Imported Geom 01
          Geometry File : r:\1759\Hyd\CLOMR\Calcs\Duplicate Effective Model\DuplicateEffective.g01

          Flow Title    : Imported Flow 01
          Flow File     : r:\1759\Hyd\CLOMR\Calcs\Duplicate Effective Model\DuplicateEffective.f01

Plan Summary Information:
Number of:  Cross Sections =   31    Multiple Openings  =    0
            Culverts       =    0    Inline Structures  =    0
            Bridges        =    1    Lateral Structures =    0

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

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

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

River = RIVER-1          Reach = Reach-1

| RS | Profile | Method | Value1 | Value2 |
|---|---|---|---|---|
| 100 | PF 2 | 1 | 120 | 400 |
| 110 | PF 2 | 1 | 120 | 395 |
| 120 | PF 2 | 1 | 115 | 395 |
| 130 | PF 2 | 1 | 225 | 500 |
| 140 | PF 2 | 1 | 315 | 585 |
| 150 | PF 2 | 1 | 655 | 1200 |
| 160 | PF 2 | 1 | 570 | 1435 |
| 170 | PF 2 | 1 | 1040 | 2085 |
| 180 | PF 2 | 1 | 865 | 2065 |
| 190 | PF 2 | 1 | 710 | 2000 |
| 200 | PF 2 | 1 | 935 | 2025 |
| 210 | PF 2 | 1 | 1040 | 2080 |
| 220 | PF 2 | 1 | 650 | 1620 |
| 230 | PF 2 | 1 | 975 | 1710 |
| 239 | PF 2 | 1 | 530 | 1190 |
| 242 | PF 2 | 1 | 1477.7 | 1977.2 |
| 243 | PF 2 | 0 | | |
| 244 | PF 2 | 1 | 1538.3 | 2038.7 |
| 245 | PF 2 | 1 | 730 | 1335 |
| 250 | PF 2 | 1 | 580 | 1275 |
| 260 | PF 2 | 1 | 365 | 965 |
| 270 | PF 2 | 1 | 400 | 960 |
| 280 | PF 2 | 1 | 330 | 1630 |
| 285 | PF 2 | 1 | 330 | 1765 |
| 290 | PF 2 | 1 | 770 | 2340 |
| 300 | PF 2 | 1 | 660 | 2130 |
| 310 | PF 2 | 1 | 850 | 2395 |
| 320 | PF 2 | 1 | 645 | 1870 |
| 330 | PF 2 | 1 | 435 | 1280 |
| 340 | PF 2 | 1 | 425 | 1345 |
| 345 | PF 2 | 1 | 595 | 1525 |
| 355 | PF 2 | 1 | 740 | 1404.9 |

FLOW DATA

Flow Title: Imported Flow 01
Flow File : r:\1759\Hyd\CLOMR\Calcs\Duplicate Effective Model\DuplicateEffective.f01

Flow Data (cfs)

| River | Reach | RS | PF 1 | PF 2 |
|---|---|---|---|---|
| RIVER-1 | Reach-1 | 355 | 36000 | 36000 |
| RIVER-1 | Reach-1 | 320 | 37000 | 37000 |
| RIVER-1 | Reach-1 | 260 | 38000 | 38000 |

Boundary Conditions

| River | Reach | Profile | Upstream | Downstream |
|---|---|---|---|---|
| RIVER-1 | Reach-1 | PF 1 | | Known WS = 289.4 |
| RIVER-1 | Reach-1 | PF 2 | | Known WS = 290.4 |

GEOMETRY DATA

Geometry Title: Imported Geom 01
Geometry File : r:\1759\Hyd\CLOMR\Calcs\Duplicate Effective Model\DuplicateEffective.g01

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 355

INPUT
Description:
Station Elevation Data num= 83

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 332.2 | 14.2 | 332.8 | 19.2 | 330.4 | 84.6 | 331.4 | 120.7 | 330.5 |
| 128 | 328.9 | 171.9 | 329.1 | 209.8 | 328.3 | 236.1 | 328.7 | 276.1 | 326 |
| 369.1 | 323.9 | 416.8 | 324.2 | 427.4 | 322.5 | 462.3 | 318.7 | 481.5 | 317.8 |
| 522.1 | 317.9 | 544.6 | 318.9 | 591.7 | 320.5 | 643.8 | 319.9 | 678.7 | 319.2 |
| 702.7 | 315.2 | 715.4 | 313.5 | 750.8 | 312.6 | 779.6 | 312.6 | 800.4 | 313.6 |
| 813 | 318.6 | 845.1 | 321.8 | 864.2 | 320.2 | 872.4 | 316.4 | 897.2 | 314.2 |
| 919.2 | 312 | 1076.1 | 311.5 | 1202.2 | 311.4 | 1276.3 | 311.4 | 1289.3 | 313.8 |
| 1343.4 | 315.1 | 1392.6 | 316.1 | 1404.9 | 319.7 | 1419.1 | 315.8 | 1445.5 | 314.9 |
| 1457.7 | 310.8 | 1472.2 | 310.1 | 1492.7 | 310.8 | 1502.9 | 316.7 | 1540.3 | 316.3 |
| 1562.7 | 316.6 | 1590.8 | 319.8 | 1648.1 | 321 | 1734.3 | 321.6 | 1770 | 323.7 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 1853.4 | 325.6 | 1918.6 | 326.3 | 1925.6 | 336.3 | 1943 | 336.1 | 1946.7 | 326.6 |
| 1978.4 | 325 | 2028.7 | 324.9 | 2088 | 326.6 | 2172.7 | 328.9 | 2215.9 | 328.9 |
| 2219.5 | 336.5 | 2262.6 | 336.5 | 2266.3 | 329.5 | 2337.4 | 328.4 | 2365.8 | 329.1 |
| 2369.1 | 337.4 | 2394.3 | 337.4 | 2400.8 | 330 | 2457.5 | 329.8 | 2466.4 | 331.4 |
| 2566.1 | 330.1 | 2666 | 331 | 2694.5 | 330.2 | 2703.5 | 328.2 | 2706.3 | 330.6 |
| 2762.5 | 330.5 | 2809.7 | 330.5 | 2818.3 | 321.9 | 2884.1 | 322.5 | 2930.8 | 322.7 |
| 2945.2 | 325.6 | 2955.3 | 329.6 | 3009.4 | 328.6 | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .06 | 591.7 | .05 | 1404.9 | .06 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 591.7 | 1404.9 | 350 | 310 | 360 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 321.97 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.39 | Wt. n-Val. | 0.060 | 0.050 | 0.060 |
| W.S. Elev (ft) | 321.58 | Reach Len. (ft) | 350.00 | 310.00 | 360.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 414.31 | 5990.69 | 1288.00 |
| E.G. Slope (ft/ft) | 0.002166 | Area (sq ft) | 414.31 | 5990.69 | 1288.00 |
| Q Total (cfs) | 36000.00 | Flow (cfs) | 915.40 | 31405.91 | 3678.69 |
| Top Width (ft) | 1291.58 | Top Width (ft) | 155.89 | 808.47 | 327.21 |
| Vel Total (ft/s) | 4.68 | Avg. Vel. (ft/s) | 2.21 | 5.24 | 2.86 |
| Max Chl Dpth (ft) | 11.48 | Hydr. Depth (ft) | 2.66 | 7.41 | 3.94 |
| Conv. Total (cfs) | 773448.0 | Conv. (cfs) | 19667.0 | 674745.5 | 79035.5 |
| Length Wtd. (ft) | 313.19 | Wetted Per. (ft) | 156.12 | 811.93 | 330.24 |
| Min Ch El (ft) | 311.40 | Shear (lb/sq ft) | 0.36 | 1.00 | 0.53 |
| Alpha | 1.14 | Stream Power (lb/ft s) | 0.79 | 5.23 | 1.51 |
| Frctn Loss (ft) | 0.68 | Cum Volume (acre-ft) | 606.39 | 2679.32 | 102.27 |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 103.88 | 301.74 | 34.23 |

Warning: Divided flow computed for this cross-section.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 322.37 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.66 | Wt. n-Val. | | 0.050 | |
| W.S. Elev (ft) | 321.71 | Reach Len. (ft) | 350.00 | 310.00 | 360.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 5525.76 | |
| E.G. Slope (ft/ft) | 0.002923 | Area (sq ft) | | 5525.76 | |
| Q Total (cfs) | 36000.00 | Flow (cfs) | | 36000.00 | |
| Top Width (ft) | 662.89 | Top Width (ft) | | 662.89 | |
| Vel Total (ft/s) | 6.51 | Avg. Vel. (ft/s) | | 6.51 | |
| Max Chl Dpth (ft) | 10.31 | Hydr. Depth (ft) | | 8.34 | |
| Conv. Total (cfs) | 665879.3 | Conv. (cfs) | | 665879.3 | |
| Length Wtd. (ft) | 310.00 | Wetted Per. (ft) | | 676.74 | |
| Min Ch El (ft) | 311.40 | Shear (lb/sq ft) | | 1.49 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 9.71 | |
| Frctn Loss (ft) | 0.70 | Cum Volume (acre-ft) | 384.18 | 2722.83 | 17.01 |

| | | | | | |
|---|---|---|---|---|---|
| C & E Loss (ft) | 0.07 | Cum SA (acres) | 40.81 | 280.30 | 2.67 |

Warning: Divided flow computed for this cross-section.

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 345

INPUT
Description:
Station Elevation Data num= 87

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 337.4 | 83.9 | 333.8 | 155.3 | 329.7 | 168.1 | 329.3 | 201.6 | 330.6 |
| 242.1 | 330.1 | 259.7 | 330.3 | 264.3 | 347.8 | 319.4 | 347.8 | 323.2 | 331.4 |
| 375.5 | 331.2 | 382 | 351.5 | 420.9 | 351.5 | 423 | 325.5 | 448 | 324.2 |
| 457.4 | 321.6 | 469.2 | 319.4 | 484 | 317.9 | 499.5 | 318 | 519.1 | 319.9 |
| 562 | 319.1 | 582 | 316.1 | 594.4 | 312.2 | 676.4 | 312.2 | 680.9 | 312.9 |
| 709.2 | 312.5 | 726.7 | 312.2 | 737.4 | 316.5 | 749.2 | 319.8 | 799.5 | 322.9 |
| 842.5 | 323.5 | 860.5 | 319.8 | 877.3 | 315.1 | 894.4 | 313.7 | 914.9 | 315.1 |
| 930.5 | 323.1 | 946.1 | 329.8 | 957.9 | 328.6 | 973.7 | 320.8 | 988.2 | 310 |
| 1262.8 | 310 | 1269 | 313.3 | 1336.1 | 313.9 | 1384.8 | 314 | 1393 | 310.6 |
| 1410.8 | 309.8 | 1433.9 | 310.6 | 1455.2 | 312.5 | 1464.6 | 315.6 | 1481.8 | 315.7 |
| 1498.4 | 313.4 | 1523.9 | 314.4 | 1545.6 | 319 | 1571.2 | 320.2 | 1630.6 | 320.1 |
| 1650.2 | 322.8 | 1699.4 | 325.3 | 1702.6 | 333.1 | 1741.9 | 333.1 | 1746.4 | 324.3 |
| 1781.6 | 323.6 | 1822.8 | 323.7 | 1866.6 | 325.4 | 1871.5 | 334.3 | 1901 | 334.3 |
| 1911.2 | 325.5 | 1981.1 | 327.7 | 2079.2 | 327.7 | 2087.7 | 334.4 | 2202.4 | 334.4 |
| 2208.9 | 328.1 | 2262.9 | 328.7 | 2298.9 | 329.4 | 2305.4 | 338.4 | 2328 | 338.4 |
| 2333.3 | 329.7 | 2390.1 | 328.6 | 2400.3 | 322.6 | 2409.7 | 318.3 | 2444.5 | 318.7 |
| 2462.4 | 324 | 2520.1 | 324.8 | 2595.1 | 324.7 | 2631.5 | 325.5 | 2639.7 | 328.5 |
| 2692.9 | 329.1 | 2742.3 | 328.5 | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .06 | 448 | .05 | 1650.2 | .06 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 448 | 1650.2 | 125 | 335 | 400 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 321.29 | Element | | | |
| Vel Head (ft) | 0.38 | Wt. n-Val. | | 0.050 | 0.060 |
| W.S. Elev (ft) | 320.91 | Reach Len. (ft) | 125.00 | 335.00 | 400.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 7204.14 | 99.65 |
| E.G. Slope (ft/ft) | 0.002151 | Area (sq ft) | | 7204.14 | 99.65 |
| Q Total (cfs) | 36000.00 | Flow (cfs) | | 35815.97 | 184.03 |
| Top Width (ft) | 1088.29 | Top Width (ft) | | 1040.31 | 47.98 |
| Vel Total (ft/s) | 4.93 | Avg. Vel. (ft/s) | | 4.97 | 1.85 |
| Max Chl Dpth (ft) | 11.11 | Hydr. Depth (ft) | | 6.93 | 2.08 |

| | | | | | |
|---|---|---|---|---|---|
| Conv. Total (cfs) | 776245.2 | Conv. (cfs) | | 772277.1 | 3968.1 |
| Length Wtd. (ft) | 336.09 | Wetted Per. (ft) | | 1051.56 | 48.87 |
| Min Ch El (ft) | 309.80 | Shear (lb/sq ft) | | 0.92 | 0.27 |
| Alpha | 1.01 | Stream Power (lb/ft s) | | 4.57 | 0.51 |
| Frctn Loss (ft) | 0.70 | Cum Volume (acre-ft) | 604.72 | 2632.37 | 96.54 |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 103.25 | 295.16 | 32.68 |

Warning: Divided flow computed for this cross-section.

CROSS SECTION OUTPUT  Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 321.59 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.42 | Wt. n-Val. | | 0.050 | |
| W.S. Elev (ft) | 321.17 | Reach Len. (ft) | 125.00 | 335.00 | 400.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 6905.25 | |
| E.G. Slope (ft/ft) | 0.001816 | Area (sq ft) | | 6905.25 | |
| Q Total (cfs) | 36000.00 | Flow (cfs) | | 36000.00 | |
| Top Width (ft) | 801.39 | Top Width (ft) | | 801.39 | |
| Vel Total (ft/s) | 5.21 | Avg. Vel. (ft/s) | | 5.21 | |
| Max Chl Dpth (ft) | 11.37 | Hydr. Depth (ft) | | 8.62 | |
| Conv. Total (cfs) | 844858.0 | Conv. (cfs) | | 844858.0 | |
| Length Wtd. (ft) | 335.00 | Wetted Per. (ft) | | 826.63 | |
| Min Ch El (ft) | 309.80 | Shear (lb/sq ft) | | 0.95 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 4.94 | |
| Frctn Loss (ft) | 0.62 | Cum Volume (acre-ft) | 384.18 | 2678.59 | 17.01 |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 40.81 | 275.09 | 2.67 |

Warning: Divided flow computed for this cross-section.

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1  RS: 340

INPUT
Description:
Station Elevation Data  num=  82

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 332.5 | 43.2 | 331.8 | 70 | 330.3 | 104 | 331.3 | 144.4 | 331 |
| 152.8 | 330.2 | 165.6 | 330.3 | 172 | 347.5 | 333.7 | 347.5 | 336.1 | 324.1 |
| 361.3 | 323.4 | 378.1 | 319.8 | 395.7 | 316.6 | 420.9 | 314.7 | 438.9 | 312.2 |
| 528.9 | 312.2 | 533.7 | 312.9 | 563 | 311.9 | 644.6 | 311.2 | 684.6 | 311.3 |
| 693 | 314.2 | 709.4 | 317.3 | 739.8 | 317.4 | 758.6 | 315.6 | 769.8 | 314.4 |
| 799 | 314.2 | 817.4 | 315.4 | 865.8 | 315.7 | 892.2 | 315.1 | 903.9 | 310.4 |
| 1074.7 | 310.4 | 1083.5 | 311 | 1141.5 | 311.8 | 1160.3 | 314.9 | 1215.9 | 315.7 |
| 1249.1 | 310.6 | 1285.1 | 309.9 | 1291.1 | 310.6 | 1296.7 | 316.1 | 1309.5 | 315.6 |
| 1319.9 | 311.9 | 1326 | 311.8 | 1352 | 317.5 | 1372.8 | 322.7 | 1386 | 324.8 |
| 1428.8 | 326 | 1436 | 333.6 | 1473.6 | 336 | 1476 | 326 | 1504.4 | 325 |
| 1536.4 | 324.1 | 1569.2 | 326.1 | 1574.4 | 334.3 | 1596.8 | 334.3 | 1602.4 | 326.1 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1685.3 | 325.7 | 1723.7 | 325.4 | 1786.5 | 324.9 | 1862.1 | 325.1 | 1894.9 | 325.8 |
| 1932.9 | 325.7 | 1950.5 | 325.2 | 1993.3 | 324.4 | 2033.3 | 325.8 | 2039.3 | 335.5 |
| 2079.7 | 335.5 | 2084.1 | 327.2 | 2109.8 | 325.4 | 2130.6 | 325.1 | 2139 | 317.7 |
| 2148.2 | 313.4 | 2180.2 | 313.1 | 2191 | 321 | 2205 | 322.5 | 2259.4 | 323.6 |
| 2290.6 | 323.1 | 2362.2 | 324.1 | 2389.8 | 324.9 | 2397.8 | 326.4 | 2402.6 | 327.9 |
| 2449 | 327 | 2492.2 | 326.7 | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .06 | 361.3 | .05 | 1386 | .06 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 361.3 | 1386 | 575 | 454 | 450 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 320.59 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.37 | Wt. n-Val. | | 0.050 | 0.060 |
| W.S. Elev (ft) | 320.22 | Reach Len. (ft) | 575.00 | 454.00 | 450.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 7094.07 | 304.31 |
| E.G. Slope (ft/ft) | 0.002003 | Area (sq ft) | | 7094.07 | 304.31 |
| Q Total (cfs) | 36000.00 | Flow (cfs) | | 34981.86 | 1018.14 |
| Top Width (ft) | 1040.55 | Top Width (ft) | | 986.75 | 53.80 |
| Vel Total (ft/s) | 4.87 | Avg. Vel. (ft/s) | | 4.93 | 3.35 |
| Max Chl Dpth (ft) | 10.32 | Hydr. Depth (ft) | | 7.19 | 5.66 |
| Conv. Total (cfs) | 804320.7 | Conv. (cfs) | | 781573.2 | 22747.5 |
| Length Wtd. (ft) | 460.05 | Wetted Per. (ft) | | 993.85 | 58.03 |
| Min Ch El (ft) | 309.90 | Shear (lb/sq ft) | | 0.89 | 0.66 |
| Alpha | 1.01 | Stream Power (lb/ft s) | | 4.40 | 2.19 |
| Frctn Loss (ft) | 0.91 | Cum Volume (acre-ft) | 604.72 | 2577.39 | 94.68 |
| C & E Loss (ft) | 0.02 | Cum SA (acres) | 103.25 | 287.37 | 32.21 |

Warning: Divided flow computed for this cross-section.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 320.97 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.39 | Wt. n-Val. | | 0.050 | |
| W.S. Elev (ft) | 320.58 | Reach Len. (ft) | 575.00 | 454.00 | 450.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 7209.77 | |
| E.G. Slope (ft/ft) | 0.001859 | Area (sq ft) | | 7209.77 | |
| Q Total (cfs) | 36000.00 | Flow (cfs) | | 36000.00 | |
| Top Width (ft) | 920.00 | Top Width (ft) | | 920.00 | |
| Vel Total (ft/s) | 4.99 | Avg. Vel. (ft/s) | | 4.99 | |
| Max Chl Dpth (ft) | 10.68 | Hydr. Depth (ft) | | 7.84 | |
| Conv. Total (cfs) | 834959.4 | Conv. (cfs) | | 834959.4 | |
| Length Wtd. (ft) | 460.02 | Wetted Per. (ft) | | 937.22 | |
| Min Ch El (ft) | 309.90 | Shear (lb/sq ft) | | 0.89 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 4.46 | |
| Frctn Loss (ft) | 0.87 | Cum Volume (acre-ft) | 384.18 | 2624.32 | 17.01 |
| C & E Loss (ft) | 0.03 | Cum SA (acres) | 40.81 | 268.47 | 2.67 |

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 330

INPUT
Description:
Station Elevation Data num= 87

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 331.2 | 62.1 | 327.4 | 96.2 | 324.8 | 131.5 | 325.9 | 170.1 | 325.8 |
| 184.9 | 328.4 | 191.3 | 346.6 | 242.7 | 346.6 | 244 | 329.8 | 304.2 | 330.5 |
| 310.6 | 351.3 | 353.5 | 351.3 | 356.4 | 324.6 | 379.2 | 324.4 | 390.5 | 318 |
| 407.3 | 315.9 | 431 | 314.9 | 441.8 | 312.5 | 532.6 | 312.5 | 547.8 | 316.7 |
| 560.3 | 323.4 | 569.9 | 324.8 | 576.7 | 322.1 | 592 | 314 | 627.7 | 314.8 |
| 683.8 | 313.5 | 693.9 | 316.5 | 711.9 | 321.4 | 729.2 | 317.8 | 737.2 | 313.3 |
| 741.6 | 310 | 889.2 | 310 | 905.3 | 312.9 | 967 | 312.6 | 1017.6 | 313.2 |
| 1052.5 | 310.2 | 1069.4 | 310.2 | 1085.8 | 313.6 | 1147.2 | 313.8 | 1194.1 | 312 |
| 1203.4 | 308.6 | 1214.7 | 308.5 | 1219.7 | 308.6 | 1234.1 | 311.3 | 1263.8 | 313.3 |
| 1301.5 | 314.1 | 1319.2 | 316.3 | 1334 | 321.9 | 1373.7 | 326 | 1416.3 | 329.8 |
| 1421.9 | 336.6 | 1466 | 336.6 | 1469.3 | 330.1 | 1489.3 | 329.3 | 1495.7 | 326.6 |
| 1547.9 | 326.7 | 1622.6 | 327.2 | 1666.3 | 326.5 | 1672.3 | 324.3 | 1715.6 | 323.1 |
| 1720.5 | 331 | 1761.7 | 331 | 1766.7 | 323.4 | 1797.2 | 322.4 | 1834.1 | 322.4 |
| 1861.3 | 323.7 | 1866.9 | 332 | 1899.5 | 332 | 1903.9 | 323.1 | 1953.3 | 323.5 |
| 1972.9 | 322.8 | 1983.7 | 316.6 | 1992.6 | 309.8 | 2005.4 | 309.9 | 2033.5 | 314.3 |
| 2048.4 | 321.6 | 2098.9 | 320.1 | 2194 | 322.2 | 2285 | 324.1 | 2330.4 | 325.1 |
| 2342.1 | 330.2 | 2388.2 | 328.3 | 2432.4 | 326.1 | 2515.4 | 328.3 | 2518.6 | 340.1 |
| 2567.2 | 340.1 | 2573.6 | 329.4 | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .045 | 569.9 | .035 | 1334 | .06 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 569.9 | 1334 | 620 | 588 | 620 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 319.66 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.60 | Wt. n-Val. | 0.045 | 0.035 | 0.060 |
| W.S. Elev (ft) | 319.06 | Reach Len. (ft) | 620.00 | 588.00 | 620.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 849.70 | 4751.54 | 394.01 |
| E.G. Slope (ft/ft) | 0.001939 | Area (sq ft) | 849.70 | 4751.54 | 394.01 |
| Q Total (cfs) | 36000.00 | Flow (cfs) | 3678.05 | 30938.52 | 1383.43 |
| Top Width (ft) | 951.59 | Top Width (ft) | 163.57 | 724.21 | 63.80 |
| Vel Total (ft/s) | 6.00 | Avg. Vel. (ft/s) | 4.33 | 6.51 | 3.51 |
| Max Chl Dpth (ft) | 10.56 | Hydr. Depth (ft) | 5.19 | 6.56 | 6.18 |
| Conv. Total (cfs) | 817522.1 | Conv. (cfs) | 83524.5 | 702581.3 | 31416.3 |
| Length Wtd. (ft) | 592.04 | Wetted Per. (ft) | 165.43 | 731.03 | 68.20 |
| Min Ch El (ft) | 308.50 | Shear (lb/sq ft) | 0.62 | 0.79 | 0.70 |

| | | | | | |
|---|---|---|---|---|---|
| Alpha | 1.08 | Stream Power (lb/ft s) | 2.69 | 5.12 | 2.46 |
| Frctn Loss (ft) | 0.70 | Cum Volume (acre-ft) | 599.12 | 2515.66 | 91.07 |
| C & E Loss (ft) | 0.11 | Cum SA (acres) | 102.17 | 278.45 | 31.61 |

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

CROSS SECTION OUTPUT Profile #PF 2

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 320.06 | Element | | | |
| Vel Head (ft) | 0.68 | Wt. n-Val. | 0.045 | 0.035 | |
| W.S. Elev (ft) | 319.39 | Reach Len. (ft) | 620.00 | 588.00 | 620.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 746.39 | 4782.98 | |
| E.G. Slope (ft/ft) | 0.001940 | Area (sq ft) | 746.39 | 4782.98 | |
| Q Total (cfs) | 36000.00 | Flow (cfs) | 3580.89 | 32419.11 | |
| Top Width (ft) | 798.91 | Top Width (ft) | 117.81 | 681.09 | |
| Vel Total (ft/s) | 6.51 | Avg. Vel. (ft/s) | 4.80 | 6.78 | |
| Max Chl Dpth (ft) | 10.89 | Hydr. Depth (ft) | 6.34 | 7.02 | |
| Conv. Total (cfs) | 817277.9 | Conv. (cfs) | 81293.9 | 735984.0 | |
| Length Wtd. (ft) | 589.57 | Wetted Per. (ft) | 124.60 | 693.16 | |
| Min Ch El (ft) | 308.50 | Shear (lb/sq ft) | 0.73 | 0.84 | |
| Alpha | 1.03 | Stream Power (lb/ft s) | 3.48 | 5.67 | |
| Frctn Loss (ft) | 0.81 | Cum Volume (acre-ft) | 379.26 | 2561.82 | 17.01 |
| C & E Loss (ft) | 0.10 | Cum SA (acres) | 40.04 | 260.13 | 2.67 |

Warning: Divided flow computed for this cross-section.

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 320

INPUT
Description:
Station Elevation Data num= 65

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 322.4 | 101.5 | 323.7 | 187.5 | 322.4 | 294.7 | 321.3 | 328.1 | 322.2 |
| 372.3 | 322.4 | 415.6 | 322.3 | 449.4 | 321.1 | 499.6 | 318.3 | 530.1 | 317.5 |
| 541.3 | 316.3 | 562.6 | 314.8 | 571.4 | 311.4 | 581.5 | 311.3 | 595.5 | 315.9 |
| 610.8 | 312.9 | 683.9 | 313.3 | 766.6 | 313.6 | 843.7 | 313.5 | 881.4 | 314.9 |
| 941.2 | 316.6 | 1011.1 | 315.1 | 1068.6 | 313.7 | 1150.9 | 313 | 1194.3 | 312.8 |
| 1207.9 | 311.7 | 1253.3 | 311.6 | 1279.8 | 312.4 | 1311.5 | 312.9 | 1329.1 | 315.8 |
| 1354.1 | 318.2 | 1384.6 | 319.2 | 1413.1 | 312.3 | 1446.8 | 309.1 | 1468.1 | 308.5 |
| 1525.2 | 308.7 | 1576.9 | 307.3 | 1645.1 | 307.2 | 1755.3 | 307.2 | 1767.4 | 309.6 |
| 1795.1 | 312 | 1828.4 | 316.7 | 1870.6 | 319 | 1940.9 | 317.9 | 2014.7 | 319.2 |
| 2045.7 | 318.3 | 2057.3 | 310.6 | 2069.4 | 307.4 | 2098.7 | 307.3 | 2107.9 | 311.7 |
| 2118.4 | 317.9 | 2181 | 318.8 | 2200.7 | 315.1 | 2251.7 | 315.2 | 2264.1 | 312.2 |
| 2315.1 | 312.7 | 2393 | 313.5 | 2445.7 | 314.6 | 2525.6 | 315.6 | 2536 | 318.9 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2542.8 | 323.9 | 2611.1 | 324.6 | 2625.6 | 326.3 | 2631.2 | 328.7 | 2718.3 | 328.2 |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .045 | 530.1 | .035 | 1870.6 | .06 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 530.1 | 1870.6 | 660 | 711 | 640 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 318.86 | Element | | | |
| Vel Head (ft) | 0.23 | Wt. n-Val. | 0.045 | 0.035 | 0.060 |
| W.S. Elev (ft) | 318.63 | Reach Len. (ft) | 660.00 | 711.00 | 640.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 23.07 | 8142.99 | 2225.22 |
| E.G. Slope (ft/ft) | 0.000795 | Area (sq ft) | 23.07 | 8142.99 | 2225.22 |
| Q Total (cfs) | 37000.00 | Flow (cfs) | 15.87 | 32834.19 | 4149.94 |
| Top Width (ft) | 1925.14 | Top Width (ft) | 36.33 | 1313.72 | 575.09 |
| Vel Total (ft/s) | 3.56 | Avg. Vel. (ft/s) | 0.69 | 4.03 | 1.86 |
| Max Chl Dpth (ft) | 11.43 | Hydr. Depth (ft) | 0.63 | 6.20 | 3.87 |
| Conv. Total (cfs) | 1311916.0 | Conv. (cfs) | 562.6 | 1164208.0 | 147145.2 |
| Length Wtd. (ft) | 706.67 | Wetted Per. (ft) | 36.35 | 1317.67 | 581.72 |
| Min Ch El (ft) | 307.20 | Shear (lb/sq ft) | 0.03 | 0.31 | 0.19 |
| Alpha | 1.17 | Stream Power (lb/ft s) | 0.02 | 1.24 | 0.35 |
| Frctn Loss (ft) | 0.53 | Cum Volume (acre-ft) | 592.90 | 2428.63 | 72.43 |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 100.75 | 264.70 | 27.06 |

Warning: Divided flow computed for this cross-section.

CROSS SECTION OUTPUT Profile #PF 2

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 319.15 | Element | | | |
| Vel Head (ft) | 0.35 | Wt. n-Val. | | 0.035 | |
| W.S. Elev (ft) | 318.81 | Reach Len. (ft) | 660.00 | 711.00 | 640.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 7824.76 | |
| E.G. Slope (ft/ft) | 0.001037 | Area (sq ft) | | 7824.76 | |
| Q Total (cfs) | 37000.00 | Flow (cfs) | | 37000.00 | |
| Top Width (ft) | 1208.34 | Top Width (ft) | | 1208.34 | |
| Vel Total (ft/s) | 4.73 | Avg. Vel. (ft/s) | | 4.73 | |
| Max Chl Dpth (ft) | 11.61 | Hydr. Depth (ft) | | 6.48 | |
| Conv. Total (cfs) | 1149112.0 | Conv. (cfs) | | 1149112.0 | |
| Length Wtd. (ft) | 710.87 | Wetted Per. (ft) | | 1216.26 | |
| Min Ch El (ft) | 307.20 | Shear (lb/sq ft) | | 0.42 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 1.97 | |
| Frctn Loss (ft) | 0.57 | Cum Volume (acre-ft) | 373.95 | 2476.73 | 17.01 |
| C & E Loss (ft) | 0.04 | Cum SA (acres) | 39.20 | 247.38 | 2.67 |

Warning: Divided flow computed for this cross-section.

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 310

INPUT
Description:
Station Elevation Data num= 65

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 320.5 | 78.5 | 320.9 | 192.3 | 320.3 | 337.8 | 319.6 | 386.3 | 318.8 |
| 402.3 | 316 | 410.8 | 315.1 | 420.9 | 316.5 | 432.2 | 318.8 | 497.2 | 319.3 |
| 520.1 | 320.4 | 566.1 | 320.3 | 599.6 | 319.5 | 620.6 | 320.3 | 631.8 | 322.1 |
| 661.7 | 320.7 | 709.3 | 320.7 | 727.1 | 321.3 | 750.1 | 318.6 | 783.1 | 319.9 |
| 807.3 | 317.5 | 837.2 | 318.1 | 848.9 | 314.5 | 859 | 311.1 | 909.7 | 310 |
| 1033.1 | 310.5 | 1106.9 | 311.3 | 1263.4 | 310.8 | 1360.6 | 310.8 | 1375.1 | 312.7 |
| 1448.5 | 313.6 | 1482 | 313.3 | 1515.1 | 311.1 | 1540 | 311 | 1560.1 | 312.9 |
| 1573.5 | 314.8 | 1622.6 | 314.1 | 1637.2 | 311.3 | 1645.3 | 312.6 | 1702 | 312 |
| 1808.2 | 313.1 | 1863.8 | 313.5 | 1914.6 | 312.9 | 1949.8 | 311.6 | 1979.2 | 312.2 |
| 2097.3 | 312.4 | 2173.9 | 312.2 | 2203 | 311.5 | 2212.7 | 314.6 | 2222.8 | 316.7 |
| 2236.9 | 316 | 2244.5 | 309.2 | 2255.8 | 306.9 | 2273.8 | 305.7 | 2285.5 | 306.4 |
| 2325.4 | 307.9 | 2334.6 | 313.6 | 2348.3 | 316 | 2396.7 | 315.6 | 2504.3 | 317.1 |
| 2557.2 | 317.6 | 2662.8 | 320.2 | 2782.6 | 321.7 | 2904 | 323.7 | 2954.1 | 324.3 |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .045 | 837.2 | .035 | 2348.3 | .06 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 837.2 | 2348.3 | 640 | 610 | 610 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 318.32 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.23 | Wt. n-Val. | 0.045 | 0.035 | 0.060 |
| W.S. Elev (ft) | 318.10 | Reach Len. (ft) | 640.00 | 610.00 | 610.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 74.38 | 9527.06 | 343.76 |
| E.G. Slope (ft/ft) | 0.000708 | Area (sq ft) | 74.38 | 9527.06 | 343.76 |
| Q Total (cfs) | 37000.00 | Flow (cfs) | 81.93 | 36621.09 | 296.98 |
| Top Width (ft) | 1814.42 | Top Width (ft) | 74.22 | 1511.09 | 229.10 |
| Vel Total (ft/s) | 3.72 | Avg. Vel. (ft/s) | 1.10 | 3.84 | 0.86 |
| Max Chl Dpth (ft) | 12.40 | Hydr. Depth (ft) | 1.00 | 6.30 | 1.50 |
| Conv. Total (cfs) | 1390103.0 | Conv. (cfs) | 3078.2 | 1375867.0 | 11157.5 |
| Length Wtd. (ft) | 610.03 | Wetted Per. (ft) | 74.75 | 1518.53 | 229.12 |
| Min Ch El (ft) | 305.70 | Shear (lb/sq ft) | 0.04 | 0.28 | 0.07 |
| Alpha | 1.06 | Stream Power (lb/ft s) | 0.05 | 1.07 | 0.06 |
| Frctn Loss (ft) | 0.68 | Cum Volume (acre-ft) | 592.17 | 2284.42 | 53.56 |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 99.91 | 241.64 | 21.15 |

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

CROSS SECTION OUTPUT  Profile #PF 2

| | | | | | | |
|---|---|---|---|---|---|---|
| E.G. Elev (ft) | 318.54 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.22 | Wt. n-Val. | | 0.035 | 0.060 |
| W.S. Elev (ft) | 318.33 | Reach Len. (ft) | 640.00 | 610.00 | 610.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 9844.98 | 117.65 |
| E.G. Slope (ft/ft) | 0.000638 | Area (sq ft) | | 9844.98 | 117.65 |
| Q Total (cfs) | 37000.00 | Flow (cfs) | | 36868.73 | 131.27 |
| Top Width (ft) | 1545.00 | Top Width (ft) | | 1498.30 | 46.70 |
| Vel Total (ft/s) | 3.71 | Avg. Vel. (ft/s) | | 3.74 | 1.12 |
| Max Chl Dpth (ft) | 12.63 | Hydr. Depth (ft) | | 6.57 | 2.52 |
| Conv. Total (cfs) | 1464330.0 | Conv. (cfs) | | 1459135.0 | 5195.4 |
| Length Wtd. (ft) | 610.00 | Wetted Per. (ft) | | 1509.33 | 49.41 |
| Min Ch El (ft) | 305.70 | Shear (lb/sq ft) | | 0.26 | 0.09 |
| Alpha | 1.01 | Stream Power (lb/ft s) | | 0.97 | 0.11 |
| Frctn Loss (ft) | 0.62 | Cum Volume (acre-ft) | 373.95 | 2332.52 | 16.15 |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 39.20 | 225.29 | 2.32 |

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

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1  RS: 300

INPUT
Description:
Station Elevation Data  num=  51

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 324 | 39.9 | 324.8 | 60.6 | 325.3 | 63.1 | 334 | 102.6 | 334 |
| 106.9 | 325.5 | 156.7 | 324.8 | 167.1 | 322.4 | 311.5 | 321.2 | 446.4 | 318.9 |
| 576.2 | 318.7 | 646.5 | 317.4 | 661 | 312.3 | 680.4 | 311.8 | 750.4 | 311.8 |
| 757.1 | 313.7 | 794.5 | 313.4 | 809.1 | 310.2 | 841.9 | 311.8 | 907.5 | 310.8 |
| 927.5 | 312.1 | 954.4 | 314.3 | 1051.2 | 313.4 | 1150.4 | 312.2 | 1200.4 | 311.8 |
| 1236.1 | 309.4 | 1274.2 | 310.6 | 1338.2 | 311.4 | 1440.1 | 311.8 | 1538.5 | 310.7 |
| 1612.1 | 311.2 | 1637.6 | 308.6 | 1697.1 | 309.8 | 1780.8 | 309.5 | 1852.9 | 309.2 |
| 1899.6 | 310.9 | 1940.4 | 310.8 | 1952.8 | 315.3 | 1964.7 | 314.1 | 1987 | 308.6 |
| 2003.1 | 305.8 | 2016.3 | 305.1 | 2068.8 | 305.8 | 2088.8 | 310.4 | 2117.4 | 313.4 |
| 2190.6 | 313.8 | 2278.3 | 316.1 | 2369.6 | 318.2 | 2468.2 | 320.1 | 2519 | 320.6 |
| 2564.3 | 321.2 | | | | | | | | |

Manning's n Values  num=  3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .05 | 646.5 | .06 | 2117.4 | .05 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 646.5 | 2117.4 | 605 | 654 | 790 | .1 | .3 |

CROSS SECTION OUTPUT  Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 317.64 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.22 | Wt. n-Val. | 0.050 | 0.060 | 0.050 |
| W.S. Elev (ft) | 317.42 | Reach Len. (ft) | 605.00 | 654.00 | 790.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 0.01 | 9368.58 | 534.11 |
| E.G. Slope (ft/ft) | 0.002014 | Area (sq ft) | 0.01 | 9368.58 | 534.11 |
| Q Total (cfs) | 37000.00 | Flow (cfs) | 0.00 | 35706.68 | 1293.32 |
| Top Width (ft) | 1690.27 | Top Width (ft) | 1.08 | 1470.90 | 218.29 |
| Vel Total (ft/s) | 3.74 | Avg. Vel. (ft/s) | 0.06 | 3.81 | 2.42 |
| Max Chl Dpth (ft) | 12.32 | Hydr. Depth (ft) | 0.01 | 6.37 | 2.45 |
| Conv. Total (cfs) | 824439.7 | Conv. (cfs) | 0.0 | 795621.6 | 28818.0 |
| Length Wtd. (ft) | 656.38 | Wetted Per. (ft) | 1.08 | 1475.33 | 218.33 |
| Min Ch El (ft) | 305.10 | Shear (lb/sq ft) | 0.00 | 0.80 | 0.31 |
| Alpha | 1.02 | Stream Power (lb/ft s) | 0.00 | 3.04 | 0.74 |
| Frctn Loss (ft) | 1.29 | Cum Volume (acre-ft) | 591.62 | 2152.12 | 47.42 |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 99.36 | 220.76 | 18.02 |

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

CROSS SECTION OUTPUT  Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 317.92 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.22 | Wt. n-Val. | | 0.060 | 0.050 |
| W.S. Elev (ft) | 317.70 | Reach Len. (ft) | 605.00 | 654.00 | 790.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 9746.28 | 53.76 |
| E.G. Slope (ft/ft) | 0.001865 | Area (sq ft) | | 9746.28 | 53.76 |
| Q Total (cfs) | 37000.00 | Flow (cfs) | | 36850.37 | 149.63 |
| Top Width (ft) | 1470.00 | Top Width (ft) | | 1457.40 | 12.60 |
| Vel Total (ft/s) | 3.78 | Avg. Vel. (ft/s) | | 3.78 | 2.78 |
| Max Chl Dpth (ft) | 12.60 | Hydr. Depth (ft) | | 6.69 | 4.27 |
| Conv. Total (cfs) | 856838.1 | Conv. (cfs) | | 853372.9 | 3465.2 |
| Length Wtd. (ft) | 654.28 | Wetted Per. (ft) | | 1466.07 | 16.83 |
| Min Ch El (ft) | 305.10 | Shear (lb/sq ft) | | 0.77 | 0.37 |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 2.93 | 1.03 |
| Frctn Loss (ft) | 1.20 | Cum Volume (acre-ft) | 373.95 | 2195.35 | 14.95 |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 39.20 | 204.59 | 1.91 |

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

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1  RS: 290

INPUT
Description:

Station Elevation Data num= 60

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 347.5 | 37.9 | 347.4 | 62.7 | 349.4 | 137.6 | 349.1 | 159.5 | 344.9 |
| 249.7 | 342.1 | 337.8 | 339.7 | 383 | 339.1 | 408.7 | 335.6 | 415.8 | 350.1 |
| 509.1 | 350.1 | 514.2 | 334.8 | 528.6 | 331.4 | 553.4 | 342.3 | 587.7 | 322.6 |
| 603.1 | 318.2 | 635.3 | 317.8 | 649 | 318.6 | 714.3 | 317.9 | 749.3 | 314.4 |
| 772.5 | 312 | 810.1 | 311 | 1087.6 | 311 | 1095.6 | 311.6 | 1185.3 | 311.8 |
| 1273.7 | 311.2 | 1415.4 | 308.9 | 1439.5 | 306.5 | 1456.5 | 308.4 | 1529.9 | 310.4 |
| 1636.7 | 311.7 | 1666.1 | 309.1 | 1683.9 | 306.4 | 1715.7 | 307.1 | 1750.5 | 309 |
| 1829 | 307.5 | 1862.5 | 308.9 | 1886.7 | 310.4 | 1939.8 | 310.8 | 1978.3 | 310.3 |
| 2056.4 | 311.1 | 2077.8 | 309.2 | 2113.6 | 311 | 2125.3 | 316.9 | 2136.8 | 317.1 |
| 2149.9 | 306.1 | 2168 | 304.7 | 2177 | 303.1 | 2196.1 | 304.6 | 2232.5 | 305.1 |
| 2243.8 | 310.9 | 2331.8 | 310.7 | 2378.3 | 311.6 | 2390.2 | 308.5 | 2404.2 | 310.5 |
| 2455.5 | 312.3 | 2513.4 | 313 | 2557.6 | 314.2 | 2568.8 | 316.9 | 2610.7 | 319.1 |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .05 | 714.3 | .06 | 2568.8 | .05 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 714.3 | 2568.8 | 645 | 653 | 695 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 316.34 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.19 | Wt. n-Val. | | 0.060 | |
| W.S. Elev (ft) | 316.15 | Reach Len. (ft) | 645.00 | 653.00 | 695.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 10585.27 | |
| E.G. Slope (ft/ft) | 0.001916 | Area (sq ft) | | 10585.27 | |
| Q Total (cfs) | 37000.00 | Flow (cfs) | | 37000.00 | |
| Top Width (ft) | 1819.80 | Top Width (ft) | | 1819.80 | |
| Vel Total (ft/s) | 3.50 | Avg. Vel. (ft/s) | | 3.50 | |
| Max Chl Dpth (ft) | 13.05 | Hydr. Depth (ft) | | 5.82 | |
| Conv. Total (cfs) | 845242.1 | Conv. (cfs) | | 845242.1 | |
| Length Wtd. (ft) | 653.06 | Wetted Per. (ft) | | 1828.31 | |
| Min Ch El (ft) | 303.10 | Shear (lb/sq ft) | | 0.69 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 2.42 | |
| Frctn Loss (ft) | 0.84 | Cum Volume (acre-ft) | 591.62 | 2002.32 | 42.57 |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 99.35 | 196.06 | 16.04 |

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

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 316.72 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.21 | Wt. n-Val. | | 0.060 | |
| W.S. Elev (ft) | 316.51 | Reach Len. (ft) | 645.00 | 653.00 | 695.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 10146.96 | |
| E.G. Slope (ft/ft) | 0.001808 | Area (sq ft) | | 10146.96 | |

| | | | | | |
|---|---|---|---|---|---|
| Q Total (cfs) | 37000.00 | Flow (cfs) | 37000.00 | | |
| Top Width (ft) | 1557.02 | Top Width (ft) | 1557.02 | | |
| Vel Total (ft/s) | 3.65 | Avg. Vel. (ft/s) | 3.65 | | |
| Max Chl Dpth (ft) | 13.41 | Hydr. Depth (ft) | 6.52 | | |
| Conv. Total (cfs) | 870201.8 | Conv. (cfs) | 870201.8 | | |
| Length Wtd. (ft) | 653.00 | Wetted Per. (ft) | 1574.62 | | |
| Min Ch El (ft) | 303.10 | Shear (lb/sq ft) | 0.73 | | |
| Alpha | 1.00 | Stream Power (lb/ft s) | 2.65 | | |
| Frctn Loss (ft) | 0.79 | Cum Volume (acre-ft) | 373.95 | 2046.01 | 14.46 |
| C & E Loss (ft) | 0.02 | Cum SA (acres) | 39.20 | 181.96 | 1.79 |

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

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 285

INPUT
Description:
Station Elevation Data num= 52

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 340.2 | 48.2 | 339.2 | 67.9 | 332.9 | 91.5 | 329.2 | 110.3 | 323.2 |
| 145.3 | 321.2 | 179.9 | 317.8 | 205 | 314.3 | 272.9 | 311.4 | 295.2 | 307.5 |
| 386.5 | 306.1 | 480.7 | 303.8 | 506.6 | 302.2 | 517.4 | 304 | 535.9 | 306.5 |
| 640.4 | 306.8 | 693.1 | 308.4 | 803.1 | 309.1 | 900.8 | 309.3 | 961.7 | 308.9 |
| 1023.3 | 307.9 | 1048.2 | 304.8 | 1086.4 | 306.2 | 1117.1 | 307.2 | 1215.2 | 307.4 |
| 1282.8 | 305.4 | 1342.4 | 306.6 | 1380.7 | 309.7 | 1460 | 310.3 | 1479 | 308 |
| 1507 | 306.9 | 1516.5 | 308.2 | 1523.6 | 313.4 | 1533.4 | 312.7 | 1553.2 | 303.7 |
| 1573.1 | 302.4 | 1609.9 | 303.3 | 1634.1 | 305.3 | 1672.4 | 304.9 | 1680.9 | 307 |
| 1706.8 | 306.3 | 1735.4 | 310.4 | 1768 | 313.7 | 1840.5 | 314.6 | 1920.4 | 314.1 |
| 1931.1 | 317.7 | 1976.9 | 318.1 | 2020.4 | 317 | 2044.4 | 318.2 | 2094.1 | 321.4 |
| 2127.8 | 322.9 | 2237.1 | 324.4 | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .05 | 272.9 | .06 | 1768 | .05 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 272.9 | 1768 | 660 | 688 | 640 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 315.48 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.14 | Wt. n-Val. | 0.050 | 0.060 | 0.050 |
| W.S. Elev (ft) | 315.34 | Reach Len. (ft) | 660.00 | 688.00 | 640.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 173.23 | 12079.83 | 168.24 |
| E.G. Slope (ft/ft) | 0.000926 | Area (sq ft) | 173.23 | 12079.83 | 168.24 |

| | | | | | |
|---|---|---|---|---|---|
| Q Total (cfs) | 37000.00 | Flow (cfs) | 272.54 | 36567.63 | 159.83 |
| Top Width (ft) | 1726.58 | Top Width (ft) | 75.38 | 1495.10 | 156.10 |
| Vel Total (ft/s) | 2.98 | Avg. Vel. (ft/s) | 1.57 | 3.03 | 0.95 |
| Max Chl Dpth (ft) | 13.14 | Hydr. Depth (ft) | 2.30 | 8.08 | 1.08 |
| Conv. Total (cfs) | 1215579.0 | Conv. (cfs) | 8954.0 | 1201374.0 | 5250.9 |
| Length Wtd. (ft) | 687.60 | Wetted Per. (ft) | 75.52 | 1501.07 | 156.31 |
| Min Ch El (ft) | 302.20 | Shear (lb/sq ft) | 0.13 | 0.47 | 0.06 |
| Alpha | 1.02 | Stream Power (lb/ft s) | 0.21 | 1.41 | 0.06 |
| Frctn Loss (ft) | 0.53 | Cum Volume (acre-ft) | 590.34 | 1832.44 | 41.23 |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 98.79 | 171.22 | 14.79 |

CROSS SECTION OUTPUT  Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 315.91 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.14 | Wt. n-Val. | | 0.060 | |
| W.S. Elev (ft) | 315.77 | Reach Len. (ft) | 660.00 | 688.00 | 640.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 12269.01 | |
| E.G. Slope (ft/ft) | 0.000861 | Area (sq ft) | | 12269.01 | |
| Q Total (cfs) | 37000.00 | Flow (cfs) | | 37000.00 | |
| Top Width (ft) | 1435.00 | Top Width (ft) | | 1435.00 | |
| Vel Total (ft/s) | 3.02 | Avg. Vel. (ft/s) | | 3.02 | |
| Max Chl Dpth (ft) | 13.57 | Hydr. Depth (ft) | | 8.55 | |
| Conv. Total (cfs) | 1260642.0 | Conv. (cfs) | | 1260642.0 | |
| Length Wtd. (ft) | 688.00 | Wetted Per. (ft) | | 1451.78 | |
| Min Ch El (ft) | 302.20 | Shear (lb/sq ft) | | 0.45 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 1.37 | |
| Frctn Loss (ft) | 0.53 | Cum Volume (acre-ft) | 373.95 | 1877.99 | 14.46 |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 39.20 | 159.54 | 1.79 |

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1  RS: 280

INPUT
Description:
Station Elevation Data  num=  50

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 319.5 | 16.6 | 319 | 32.8 | 318.5 | 74.5 | 319.2 | 75.3 | 327.1 |
| 110.5 | 327.1 | 113.9 | 319.6 | 175.1 | 318.1 | 192.4 | 312.2 | 202.3 | 308.8 |
| 216.8 | 308.4 | 231.3 | 306.6 | 283.3 | 306.5 | 325.9 | 306.3 | 342.4 | 304.1 |
| 355.7 | 300.7 | 376.6 | 300.1 | 385.9 | 303.2 | 466.4 | 304.3 | 556.9 | 304.8 |
| 655.3 | 305 | 772.1 | 306.1 | 843.4 | 305.7 | 868.6 | 304.5 | 921.9 | 304.3 |
| 953.7 | 306.4 | 1029.7 | 305.9 | 1074.3 | 304.7 | 1106.4 | 305.6 | 1125 | 310.6 |
| 1139.5 | 302.8 | 1176.6 | 301.1 | 1207.3 | 302.7 | 1215.5 | 307.4 | 1300.9 | 307.6 |
| 1398.9 | 307.1 | 1490.7 | 306.6 | 1547.8 | 306.8 | 1610.9 | 307.6 | 1646.1 | 307.6 |
| 1690.2 | 310.5 | 1704.8 | 310.7 | 1711.7 | 315.4 | 1717.1 | 316.9 | 1760.5 | 318.4 |
| 1801.4 | 318.6 | 1864.6 | 321.3 | 1990.3 | 324.3 | 2110.7 | 328.8 | 2238.4 | 331.7 |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .05 | 216.8 | .06 | 1690.2 | .05 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 216.8 | 1690.2 | 1060 | 1021 | 1135 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 314.95 | Element | | | |
| Vel Head (ft) | 0.11 | Wt. n-Val. | 0.050 | 0.060 | 0.050 |
| W.S. Elev (ft) | 314.84 | Reach Len. (ft) | 1060.00 | 1021.00 | 1135.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 143.54 | 13416.19 | 74.41 |
| E.G. Slope (ft/ft) | 0.000641 | Area (sq ft) | 143.54 | 13416.19 | 74.41 |
| Q Total (cfs) | 37000.00 | Flow (cfs) | 286.94 | 36586.74 | 126.32 |
| Top Width (ft) | 1526.20 | Top Width (ft) | 32.13 | 1473.40 | 20.67 |
| Vel Total (ft/s) | 2.71 | Avg. Vel. (ft/s) | 2.00 | 2.73 | 1.70 |
| Max Chl Dpth (ft) | 14.74 | Hydr. Depth (ft) | 4.47 | 9.11 | 3.60 |
| Conv. Total (cfs) | 1461608.0 | Conv. (cfs) | 11334.9 | 1445283.0 | 4990.1 |
| Length Wtd. (ft) | 1023.25 | Wetted Per. (ft) | 33.14 | 1478.80 | 21.95 |
| Min Ch El (ft) | 300.10 | Shear (lb/sq ft) | 0.17 | 0.36 | 0.14 |
| Alpha | 1.00 | Stream Power (lb/ft s) | 0.35 | 0.99 | 0.23 |
| Frctn Loss (ft) | 1.15 | Cum Volume (acre-ft) | 587.94 | 1631.09 | 39.45 |
| C & E Loss (ft) | 0.04 | Cum SA (acres) | 97.98 | 147.77 | 13.50 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 2

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 315.38 | Element | | | |
| Vel Head (ft) | 0.13 | Wt. n-Val. | | 0.060 | |
| W.S. Elev (ft) | 315.24 | Reach Len. (ft) | 1060.00 | 1021.00 | 1135.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 12643.06 | |
| E.G. Slope (ft/ft) | 0.000688 | Area (sq ft) | | 12643.06 | |
| Q Total (cfs) | 37000.00 | Flow (cfs) | | 37000.00 | |
| Top Width (ft) | 1300.00 | Top Width (ft) | | 1300.00 | |
| Vel Total (ft/s) | 2.93 | Avg. Vel. (ft/s) | | 2.93 | |
| Max Chl Dpth (ft) | 15.14 | Hydr. Depth (ft) | | 9.73 | |
| Conv. Total (cfs) | 1410519.0 | Conv. (cfs) | | 1410519.0 | |
| Length Wtd. (ft) | 1021.02 | Wetted Per. (ft) | | 1322.30 | |
| Min Ch El (ft) | 300.10 | Shear (lb/sq ft) | | 0.41 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 1.20 | |
| Frctn Loss (ft) | 1.20 | Cum Volume (acre-ft) | 373.95 | 1681.26 | 14.46 |
| C & E Loss (ft) | 0.04 | Cum SA (acres) | 39.20 | 137.94 | 1.79 |

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

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

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 270

INPUT
Description:
Station Elevation Data num= 42

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 320.8 | 21 | 320.4 | 40.8 | 322.3 | 57.7 | 323.2 | 63.4 | 333.8 |
| 113.9 | 333.8 | 120.4 | 322.4 | 146.6 | 322.6 | 163.2 | 316.7 | 180.6 | 315.2 |
| 282.9 | 312.6 | 354.8 | 310.4 | 400.4 | 308.6 | 413 | 301 | 467.1 | 299.8 |
| 478.7 | 300.2 | 493.8 | 299.8 | 505.5 | 301.8 | 608.1 | 303.1 | 694.2 | 304.2 |
| 711.1 | 306.3 | 728.4 | 301.8 | 761.5 | 303.1 | 788.2 | 304.8 | 799.9 | 306.6 |
| 815.3 | 300.8 | 838 | 299.4 | 867.4 | 300.8 | 882.8 | 303.8 | 938.1 | 302.5 |
| 958.7 | 307.7 | 988.2 | 310 | 1023.7 | 313.8 | 1089.6 | 313 | 1118.6 | 311.8 |
| 1150.1 | 309.1 | 1163.9 | 309.8 | 1170.3 | 312.6 | 1212.8 | 312.5 | 1258.4 | 312.2 |
| 1277 | 314 | 1301.7 | 314.7 | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .05 | 400.4 | .06 | 958.7 | .05 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 400.4 | 958.7 | 815 | 951 | 1000 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 313.76 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.53 | Wt. n-Val. | 0.050 | 0.060 | 0.050 |
| W.S. Elev (ft) | 313.23 | Reach Len. (ft) | 815.00 | 951.00 | 1000.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 302.16 | 5939.80 | 431.20 |
| E.G. Slope (ft/ft) | 0.002489 | Area (sq ft) | 302.16 | 5939.80 | 431.20 |
| Q Total (cfs) | 37000.00 | Flow (cfs) | 739.96 | 35274.36 | 985.68 |
| Top Width (ft) | 958.53 | Top Width (ft) | 142.25 | 558.30 | 257.98 |
| Vel Total (ft/s) | 5.54 | Avg. Vel. (ft/s) | 2.45 | 5.94 | 2.29 |
| Max Chl Dpth (ft) | 13.83 | Hydr. Depth (ft) | 2.12 | 10.64 | 1.67 |
| Conv. Total (cfs) | 741668.6 | Conv. (cfs) | 14832.7 | 707077.9 | 19758.0 |
| Length Wtd. (ft) | 946.38 | Wetted Per. (ft) | 142.33 | 563.63 | 259.03 |
| Min Ch El (ft) | 299.40 | Shear (lb/sq ft) | 0.33 | 1.64 | 0.26 |
| Alpha | 1.10 | Stream Power (lb/ft s) | 0.81 | 9.72 | 0.59 |
| Frctn Loss (ft) | 3.29 | Cum Volume (acre-ft) | 582.51 | 1404.25 | 32.86 |
| C & E Loss (ft) | 0.03 | Cum SA (acres) | 95.86 | 123.96 | 9.87 |

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

CROSS SECTION OUTPUT  Profile #PF 2

| | | | Element | Left OB | Channel | Right OB |
|---|---|---|---|---|---|---|
| E.G. Elev (ft) | 314.13 | | | | | |
| Vel Head (ft) | 0.57 | | Wt. n-Val. | 0.050 | 0.060 | 0.050 |
| W.S. Elev (ft) | 313.56 | | Reach Len. (ft) | 815.00 | 951.00 | 1000.00 |
| Crit W.S. (ft) | | | Flow Area (sq ft) | 1.98 | 6126.11 | 7.56 |
| E.G. Slope (ft/ft) | 0.002469 | | Area (sq ft) | 1.98 | 6126.11 | 7.56 |
| Q Total (cfs) | 37000.00 | | Flow (cfs) | 1.51 | 36986.82 | 11.67 |
| Top Width (ft) | 560.00 | | Top Width (ft) | 0.40 | 558.30 | 1.30 |
| Vel Total (ft/s) | 6.03 | | Avg. Vel. (ft/s) | 0.76 | 6.04 | 1.54 |
| Max Chl Dpth (ft) | 14.16 | | Hydr. Depth (ft) | 4.95 | 10.97 | 5.81 |
| Conv. Total (cfs) | 744692.5 | | Conv. (cfs) | 30.4 | 744427.3 | 234.8 |
| Length Wtd. (ft) | 947.33 | | Wetted Per. (ft) | 5.35 | 563.63 | 7.07 |
| Min Ch El (ft) | 299.40 | | Shear (lb/sq ft) | 0.06 | 1.68 | 0.16 |
| Alpha | 1.00 | | Stream Power (lb/ft s) | 0.04 | 10.11 | 0.25 |
| Frctn Loss (ft) | 2.78 | | Cum Volume (acre-ft) | 373.92 | 1461.29 | 14.36 |
| C & E Loss (ft) | 0.01 | | Cum SA (acres) | 39.19 | 116.16 | 1.78 |

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

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1  RS: 260

INPUT
Description:
Station Elevation Data  num=  36

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 322.7 | 16.9 | 323.4 | 38 | 322.9 | 60.8 | 325.1 | 126 | 326.5 |
| 165.9 | 326.8 | 181.3 | 320.2 | 185.8 | 316.5 | 236.3 | 314.2 | 295.3 | 313.2 |
| 318.4 | 311.1 | 338.3 | 309.5 | 352.6 | 305.8 | 419.7 | 303.1 | 438.4 | 300.1 |
| 465.2 | 299.1 | 492.1 | 298.6 | 500.6 | 300.1 | 611.3 | 299.9 | 708.2 | 301.5 |
| 744.4 | 302.1 | 756.7 | 304.4 | 767.7 | 302.3 | 808 | 300.7 | 831.1 | 297.8 |
| 838.5 | 297.6 | 857.2 | 297.8 | 885.2 | 302.6 | 939.8 | 302.9 | 962.1 | 305.3 |
| 982.5 | 311.4 | 1006.9 | 312.3 | 1046.9 | 313.7 | 1089.9 | 312.1 | 1122.1 | 313.3 |
| 1221.7 | 314.3 | | | | | | | | |

Manning's n Values  num=  3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .05 | 419.7 | .06 | 982.5 | .05 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 419.7 | 982.5 | 1000 | 1031 | 1050 | .1 | .3 |

CROSS SECTION OUTPUT  Profile #PF 1

| | | | Element | Left OB | Channel | Right OB |
|---|---|---|---|---|---|---|
| E.G. Elev (ft) | 310.44 | | | | | |

| | | | | | |
|---|---|---|---|---|---|
| Vel Head (ft) | 0.84 | Wt. n-Val. | 0.050 | 0.060 | |
| W.S. Elev (ft) | 309.60 | Reach Len. (ft) | 1000.00 | 1031.00 | 1050.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 373.47 | 4814.84 | |
| E.G. Slope (ft/ft) | 0.005116 | Area (sq ft) | 373.47 | 4814.84 | |
| Q Total (cfs) | 38000.00 | Flow (cfs) | 2160.88 | 35839.12 | |
| Top Width (ft) | 639.42 | Top Width (ft) | 82.64 | 556.78 | |
| Vel Total (ft/s) | 7.32 | Avg. Vel. (ft/s) | 5.79 | 7.44 | |
| Max Chl Dpth (ft) | 12.00 | Hydr. Depth (ft) | 4.52 | 8.65 | |
| Conv. Total (cfs) | 531259.0 | Conv. (cfs) | 30210.1 | 501048.9 | |
| Length Wtd. (ft) | 1027.59 | Wetted Per. (ft) | 83.17 | 558.99 | |
| Min Ch El (ft) | 297.60 | Shear (lb/sq ft) | 1.43 | 2.75 | |
| Alpha | 1.01 | Stream Power (lb/ft s) | 8.30 | 20.48 | |
| Frctn Loss (ft) | 2.82 | Cum Volume (acre-ft) | 576.19 | 1286.86 | 27.91 |
| C & E Loss (ft) | 0.16 | Cum SA (acres) | 93.75 | 111.79 | 6.90 |

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 311.34 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.69 | Wt. n-Val. | 0.050 | 0.060 | |
| W.S. Elev (ft) | 310.65 | Reach Len. (ft) | 1000.00 | 1031.00 | 1050.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 352.81 | 5368.23 | |
| E.G. Slope (ft/ft) | 0.003523 | Area (sq ft) | 352.81 | 5368.23 | |
| Q Total (cfs) | 38000.00 | Flow (cfs) | 2025.36 | 35974.64 | |
| Top Width (ft) | 600.00 | Top Width (ft) | 54.70 | 545.30 | |
| Vel Total (ft/s) | 6.64 | Avg. Vel. (ft/s) | 5.74 | 6.70 | |
| Max Chl Dpth (ft) | 13.05 | Hydr. Depth (ft) | 6.45 | 9.84 | |
| Conv. Total (cfs) | 640214.9 | Conv. (cfs) | 34122.8 | 606092.2 | |
| Length Wtd. (ft) | 1030.41 | Wetted Per. (ft) | 60.09 | 551.49 | |
| Min Ch El (ft) | 297.60 | Shear (lb/sq ft) | 1.29 | 2.14 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | 7.41 | 14.35 | |
| Frctn Loss (ft) | 2.42 | Cum Volume (acre-ft) | 370.60 | 1335.82 | 14.27 |
| C & E Loss (ft) | 0.09 | Cum SA (acres) | 38.68 | 104.11 | 1.76 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 250

INPUT
Description:
Station Elevation Data num= 44

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 326.9 | 34.2 | 326.6 | 54.8 | 329.6 | 87.4 | 330.1 | 89.9 | 341.8 |
| 142.4 | 341.8 | 145.7 | 331 | 161.9 | 330.5 | 181 | 318.7 | 203.9 | 310.1 |
| 213 | 308 | 227.9 | 307.2 | 261.6 | 303.7 | 281.2 | 301.6 | 289.4 | 302.5 |
| 394.2 | 301.9 | 491.5 | 301.6 | 554.1 | 300 | 618.1 | 300.1 | 652.9 | 298.3 |
| 707.6 | 295.9 | 759.6 | 296.9 | 846 | 297.7 | 941.2 | 298 | 1041 | 297.9 |
| 1081.2 | 295.5 | 1096.2 | 297.7 | 1107.8 | 295.4 | 1124 | 294.4 | 1138.2 | 293.7 |
| 1152.9 | 294.3 | 1182 | 296.6 | 1199 | 300 | 1238.2 | 299.4 | 1271.8 | 299.9 |
| 1292.2 | 305 | 1315.5 | 307.5 | 1376.5 | 308.7 | 1466.7 | 311.9 | 1527.3 | 314.7 |
| 1559.3 | 315.6 | 1564.8 | 319.1 | 1609.7 | 320.1 | 1632 | 319 | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .05 | 618.1 | .06 | 1199 | .05 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 618.1 | 1199 | 615 | 701 | 700 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 307.46 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.32 | Wt. n-Val. | 0.050 | 0.060 | 0.050 |
| W.S. Elev (ft) | 307.14 | Reach Len. (ft) | 615.00 | 701.00 | 700.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 2080.97 | 5806.31 | 660.75 |
| E.G. Slope (ft/ft) | 0.001711 | Area (sq ft) | 2080.97 | 5806.31 | 660.75 |
| Q Total (cfs) | 38000.00 | Flow (cfs) | 7811.14 | 27566.86 | 2622.01 |
| Top Width (ft) | 1083.74 | Top Width (ft) | 389.66 | 580.90 | 113.18 |
| Vel Total (ft/s) | 4.45 | Avg. Vel. (ft/s) | 3.75 | 4.75 | 3.97 |
| Max Chl Dpth (ft) | 13.44 | Hydr. Depth (ft) | 5.34 | 10.00 | 5.84 |
| Conv. Total (cfs) | 918642.2 | Conv. (cfs) | 188832.6 | 666423.1 | 63386.5 |
| Length Wtd. (ft) | 684.16 | Wetted Per. (ft) | 390.02 | 581.96 | 113.93 |
| Min Ch El (ft) | 293.70 | Shear (lb/sq ft) | 0.57 | 1.07 | 0.62 |
| Alpha | 1.03 | Stream Power (lb/ft s) | 2.14 | 5.06 | 2.46 |
| Frctn Loss (ft) | 1.65 | Cum Volume (acre-ft) | 548.02 | 1161.16 | 19.95 |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 88.33 | 98.33 | 5.54 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 308.83 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.40 | Wt. n-Val. | 0.050 | 0.060 | 0.050 |
| W.S. Elev (ft) | 308.44 | Reach Len. (ft) | 615.00 | 701.00 | 700.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 318.73 | 6556.83 | 663.68 |

| | | | | | |
|---|---|---|---|---|---|
| E.G. Slope (ft/ft) | 0.001675 | Area (sq ft) | 318.73 | 6556.83 | 663.68 |
| Q Total (cfs) | 38000.00 | Flow (cfs) | 1398.72 | 33395.57 | 3205.72 |
| Top Width (ft) | 695.00 | Top Width (ft) | 38.10 | 580.90 | 76.00 |
| Vel Total (ft/s) | 5.04 | Avg. Vel. (ft/s) | 4.39 | 5.09 | 4.83 |
| Max Chl Dpth (ft) | 14.74 | Hydr. Depth (ft) | 8.37 | 11.29 | 8.73 |
| Conv. Total (cfs) | 928611.8 | Conv. (cfs) | 34180.6 | 816092.6 | 78338.6 |
| Length Wtd. (ft) | 699.29 | Wetted Per. (ft) | 46.50 | 581.96 | 83.84 |
| Min Ch El (ft) | 293.70 | Shear (lb/sq ft) | 0.72 | 1.18 | 0.83 |
| Alpha | 1.00 | Stream Power (lb/ft s) | 3.14 | 6.00 | 4.00 |
| Frctn Loss (ft) | 1.77 | Cum Volume (acre-ft) | 362.90 | 1194.70 | 6.27 |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 37.61 | 90.78 | 0.85 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 245

INPUT
Description:
Station Elevation Data num= 46

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 329.6 | 34.7 | 329 | 59.7 | 332.3 | 62.4 | 341.6 | 117.5 | 341.6 |
| 120.9 | 333.4 | 142.8 | 332.7 | 163.7 | 321.9 | 178 | 315.1 | 232.6 | 313.1 |
| 301.1 | 307.8 | 332.2 | 304.4 | 356.7 | 299.6 | 421.6 | 299.6 | 495.5 | 299 |
| 576.5 | 301.1 | 651.8 | 300.6 | 662.9 | 294.8 | 733.9 | 295.4 | 752.9 | 293.5 |
| 779 | 294.3 | 881.8 | 293.9 | 956.6 | 293.6 | 1033.3 | 293.6 | 1075.7 | 292.7 |
| 1095.1 | 292.5 | 1117.1 | 292.7 | 1147.3 | 295.3 | 1193.3 | 295.7 | 1231.5 | 296 |
| 1310.2 | 295.4 | 1334.9 | 296.1 | 1353.3 | 298.3 | 1365.9 | 302.8 | 1410.9 | 306 |
| 1503.8 | 308.7 | 1574.9 | 312 | 1645.6 | 314.8 | 1687.3 | 316.8 | 1720 | 319.7 |
| 1804.8 | 321 | 1847.5 | 323.3 | 1898.9 | 326.3 | 1959.7 | 329.3 | 1973.3 | 330.2 |
| 2021.6 | 330.6 | | | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .11 | 733.9 | .1 | 1365.9 | .045 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 733.9 | 1365.9 | 150 | 177 | 210 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 305.80 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.27 | Wt. n-Val. | 0.110 | 0.100 | 0.045 |
| W.S. Elev (ft) | 305.53 | Reach Len. (ft) | 150.00 | 177.00 | 210.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 2561.20 | 6955.87 | 52.39 |

| | | | | | |
|---|---|---|---|---|---|
| E.G. Slope (ft/ft) | 0.003644 | Area (sq ft) | 2561.20 | 6955.87 | 52.39 |
| Q Total (cfs) | 38000.00 | Flow (cfs) | 7037.99 | 30833.72 | 128.29 |
| Top Width (ft) | 1082.42 | Top Width (ft) | 412.03 | 632.00 | 38.39 |
| Vel Total (ft/s) | 3.97 | Avg. Vel. (ft/s) | 2.75 | 4.43 | 2.45 |
| Max Chl Dpth (ft) | 13.03 | Hydr. Depth (ft) | 6.22 | 11.01 | 1.36 |
| Conv. Total (cfs) | 629503.1 | Conv. (cfs) | 116590.4 | 510787.4 | 2125.2 |
| Length Wtd. (ft) | 169.92 | Wetted Per. (ft) | 414.02 | 633.16 | 38.48 |
| Min Ch El (ft) | 292.50 | Shear (lb/sq ft) | 1.41 | 2.50 | 0.31 |
| Alpha | 1.10 | Stream Power (lb/ft s) | 3.87 | 11.08 | 0.76 |
| Frctn Loss (ft) | 0.41 | Cum Volume (acre-ft) | 515.25 | 1058.47 | 14.22 |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 82.67 | 88.57 | 4.32 |

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

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 307.06 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.41 | Wt. n-Val. | 0.110 | 0.100 | |
| W.S. Elev (ft) | 306.66 | Reach Len. (ft) | 150.00 | 177.00 | 210.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 43.97 | 7418.25 | |
| E.G. Slope (ft/ft) | 0.004250 | Area (sq ft) | 43.97 | 7418.25 | |
| Q Total (cfs) | 38000.00 | Flow (cfs) | 78.63 | 37921.37 | |
| Top Width (ft) | 605.00 | Top Width (ft) | 3.90 | 601.10 | |
| Vel Total (ft/s) | 5.09 | Avg. Vel. (ft/s) | 1.79 | 5.11 | |
| Max Chl Dpth (ft) | 14.16 | Hydr. Depth (ft) | 11.27 | 12.34 | |
| Conv. Total (cfs) | 582926.8 | Conv. (cfs) | 1206.2 | 581720.6 | |
| Length Wtd. (ft) | 176.97 | Wetted Per. (ft) | 15.19 | 611.89 | |
| Min Ch El (ft) | 292.50 | Shear (lb/sq ft) | 0.77 | 3.22 | |
| Alpha | 1.01 | Stream Power (lb/ft s) | 1.37 | 16.44 | |
| Frctn Loss (ft) | 0.68 | Cum Volume (acre-ft) | 360.34 | 1082.25 | 0.94 |
| C & E Loss (ft) | 0.03 | Cum SA (acres) | 37.32 | 81.27 | 0.24 |

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 244

INPUT
Description:
Station Elevation Data num= 36

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 333.7 | 112.5 | 332.9 | 205.8 | 325.1 | 337.4 | 318.3 | 476.3 | 315.9 |
| 545.2 | 313.1 | 602.4 | 326.7 | 710.5 | 328.1 | 857.3 | 327.9 | 896.3 | 309.9 |
| 960.7 | 307.6 | 995.7 | 300.3 | 1057.8 | 300.4 | 1138.4 | 300.3 | 1237.7 | 300.5 |
| 1331.6 | 300.4 | 1412.7 | 298.3 | 1496.6 | 296.8 | 1538.3 | 296 | 1563.3 | 293.5 |
| 1610.2 | 294.6 | 1726.3 | 293.3 | 1859.5 | 293.1 | 1881.3 | 292.2 | 1912.8 | 293.1 |
| 1989.5 | 294.9 | 2038.7 | 307.8 | 2130.6 | 307.6 | 2162.9 | 307.7 | 2178.6 | 312.8 |
| 2260.9 | 311.6 | 2281.9 | 307.1 | 2290.6 | 307.1 | 2297.1 | 303.9 | 2393.9 | 308.1 |

2498.4 312.5

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .045 | 1538.3 | .065 | 2038.7 | .1 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 1538.3 | 2038.7 | 95 | 95 | .3 | .5 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 305.38 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.32 | Wt. n-Val. | 0.045 | 0.065 | 0.100 |
| W.S. Elev (ft) | 305.07 | Reach Len. (ft) | 5.00 | 5.00 | 5.00 |
| Crit W.S. (ft) | 299.65 | Flow Area (sq ft) | 3080.25 | 5353.73 | 17.07 |
| E.G. Slope (ft/ft) | 0.001720 | Area (sq ft) | 3080.25 | 5353.73 | 17.07 |
| Q Total (cfs) | 38000.00 | Flow (cfs) | 13050.93 | 24941.77 | 7.30 |
| Top Width (ft) | 1084.70 | Top Width (ft) | 565.46 | 489.98 | 29.26 |
| Vel Total (ft/s) | 4.50 | Avg. Vel. (ft/s) | 4.24 | 4.66 | 0.43 |
| Max Chl Dpth (ft) | 12.87 | Hydr. Depth (ft) | 5.45 | 10.93 | 0.58 |
| Conv. Total (cfs) | 916273.9 | Conv. (cfs) | 314690.2 | 601407.8 | 176.0 |
| Length Wtd. (ft) | 5.00 | Wetted Per. (ft) | 566.00 | 491.48 | 29.56 |
| Min Ch El (ft) | 292.20 | Shear (lb/sq ft) | 0.58 | 1.17 | 0.06 |
| Alpha | 1.01 | Stream Power (lb/ft s) | 2.48 | 5.45 | 0.03 |
| Frctn Loss (ft) | 0.01 | Cum Volume (acre-ft) | 505.54 | 1033.46 | 14.05 |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 80.99 | 86.29 | 4.16 |

Warning: Divided flow computed for this cross-section.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 306.35 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.71 | Wt. n-Val. | | 0.065 | |
| W.S. Elev (ft) | 305.65 | Reach Len. (ft) | 5.00 | 5.00 | 5.00 |
| Crit W.S. (ft) | 299.64 | Flow Area (sq ft) | | 5639.67 | |
| E.G. Slope (ft/ft) | 0.003466 | Area (sq ft) | | 5639.67 | |
| Q Total (cfs) | 38000.00 | Flow (cfs) | | 38000.00 | |
| Top Width (ft) | 492.20 | Top Width (ft) | | 492.20 | |
| Vel Total (ft/s) | 6.74 | Avg. Vel. (ft/s) | | 6.74 | |
| Max Chl Dpth (ft) | 13.45 | Hydr. Depth (ft) | | 11.46 | |
| Conv. Total (cfs) | 645475.3 | Conv. (cfs) | | 645475.3 | |
| Length Wtd. (ft) | 5.00 | Wetted Per. (ft) | | 503.43 | |
| Min Ch El (ft) | 292.20 | Shear (lb/sq ft) | | 2.42 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 16.33 | |
| Frctn Loss (ft) | 0.02 | Cum Volume (acre-ft) | 360.26 | 1055.72 | 0.94 |
| C & E Loss (ft) | 0.05 | Cum SA (acres) | 37.31 | 79.05 | 0.24 |

BRIDGE

RIVER: RIVER-1
REACH: Reach-1 RS: 243

INPUT
Description: Bridge #1
Distance from Upstream XS = 0
Deck/Roadway Width = 95
Weir Coefficient = 2.6
Upstream Deck/Roadway Coordinates
num= 22

| Sta | Hi Cord | Lo Cord | Sta | Hi Cord | Lo Cord | Sta | Hi Cord | Lo Cord |
|---|---|---|---|---|---|---|---|---|
| 1538.3 | 315 | 311.5 | 1618.3 | 315 | 311.5 | 1618.3 | 315 | 0 |
| 1625.3 | 315 | 0 | 1625.3 | 315 | 311.5 | 1701.7 | 315 | 311.5 |
| 1701.7 | 315 | 0 | 1708.7 | 315 | 0 | 1708.7 | 315 | 311.5 |
| 1785 | 315 | 311.5 | 1785 | 315 | 0 | 1792 | 315 | 0 |
| 1792 | 315 | 311.5 | 1868.3 | 315 | 311.5 | 1868.3 | 315 | 0 |
| 1875.3 | 315 | 0 | 1875.3 | 315 | 311.5 | 1951.7 | 315 | 311.5 |
| 1951.7 | 315 | 0 | 1958.7 | 315 | 0 | 1958.7 | 315 | 311.5 |
| 2038.7 | 315 | 311.5 | | | | | | |

Upstream Bridge Cross Section Data
Station Elevation Data num= 36

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 333.7 | 112.5 | 332.9 | 205.8 | 325.1 | 337.4 | 318.3 | 476.3 | 315.9 |
| 545.2 | 313.1 | 602.4 | 326.7 | 710.5 | 328.1 | 857.3 | 327.9 | 896.3 | 309.9 |
| 960.7 | 307.6 | 995.7 | 300.3 | 1057.8 | 300.4 | 1138.4 | 300.3 | 1237.7 | 300.5 |
| 1331.6 | 300.4 | 1412.7 | 298.3 | 1496.6 | 296.8 | 1538.3 | 296 | 1563.3 | 293.5 |
| 1610.2 | 294.6 | 1726.3 | 293.3 | 1859.5 | 293.1 | 1881.3 | 292.2 | 1912.8 | 293.1 |
| 1989.5 | 294.9 | 2038.7 | 307.8 | 2130.6 | 307.6 | 2162.9 | 307.7 | 2178.6 | 312.8 |
| 2260.9 | 311.6 | 2281.9 | 307.1 | 2290.6 | 307.1 | 2297.1 | 303.9 | 2393.9 | 308.1 |
| 2498.4 | 312.5 | | | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .045 | 1538.3 | .065 | 2038.7 | .1 |

| Bank Sta: Left | Right | Coeff Contr. | Expan. |
|---|---|---|---|
| 1538.3 | 2038.7 | .3 | .5 |

Downstream Deck/Roadway Coordinates
num= 22

| Sta | Hi Cord | Lo Cord | Sta | Hi Cord | Lo Cord | Sta | Hi Cord | Lo Cord |
|---|---|---|---|---|---|---|---|---|
| 1477.7 | 315 | 311.5 | 1557 | 315 | 311.5 | 1557 | 315 | 0 |
| 1564 | 315 | 0 | 1564 | 315 | 311.5 | 1640.4 | 315 | 311.5 |
| 1640.4 | 315 | 0 | 1647.4 | 315 | 0 | 1647.4 | 315 | 311.5 |
| 1723.7 | 315 | 311.5 | 1723.7 | 315 | 0 | 1730.7 | 315 | 0 |
| 1730.7 | 315 | 311.5 | 1807 | 315 | 311.5 | 1807 | 315 | 0 |
| 1814 | 315 | 0 | 1814 | 315 | 311.5 | 1890.4 | 315 | 311.5 |
| 1890.4 | 315 | 0 | 1897.4 | 315 | 0 | 1897.4 | 315 | 311.5 |
| 1977.2 | 315 | 311.5 | | | | | | |

Downstream Bridge Cross Section Data

Station Elevation Data num= 35

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 322.3 | 50 | 325.6 | 125.3 | 327.8 | 167.9 | 328 | 223.5 | 320.9 |
| 265.9 | 317.6 | 374.7 | 313.7 | 478.1 | 316.2 | 644.2 | 320.7 | 741.1 | 321.6 |
| 757.2 | 329.1 | 771.6 | 328.4 | 789.8 | 321.9 | 881.9 | 321.3 | 1023.6 | 317.3 |
| 1127.3 | 313.9 | 1268.7 | 310.6 | 1384.5 | 311.6 | 1444.5 | 309.6 | 1477.7 | 309.6 |
| 1496.5 | 298.9 | 1529.5 | 292.9 | 1544.4 | 293.1 | 1624.2 | 293.8 | 1694.9 | 294 |
| 1762.9 | 292.5 | 1804.8 | 293 | 1829.1 | 291.7 | 1863.2 | 292.1 | 1921.8 | 294.1 |
| 1977.2 | 311.6 | 2102.5 | 312.9 | 2169.8 | 309.6 | 2266.2 | 313 | 2378.2 | 316.8 |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .045 | 1477.7 | .065 | 1977.2 | .1 |

| Bank Sta: Left | Right | Coeff Contr. | Expan. |
|---|---|---|---|
| 1477.7 | 1977.2 | .3 | .5 |

Upstream Embankment side slope = 0 horiz. to 1.0 vertical
Downstream Embankment side slope = 0 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow = .98
Elevation at which weir flow begins = 315
Energy head used in spillway design =
Spillway height used in design =
Weir crest shape = Broad Crested

Number of Bridge Coefficient Sets = 1

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

High Flow Method
Energy Only

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

BRIDGE OUTPUT Profile #PF 1

| | | | Inside BR US | Inside BR DS |
|---|---|---|---|---|
| E.G. US. (ft) | 305.38 | Element | | |
| W.S. US. (ft) | 305.07 | E.G. Elev (ft) | 305.36 | 304.67 |
| Q Total (cfs) | 38000.00 | W.S. Elev (ft) | 305.01 | 303.28 |
| Q Bridge (cfs) | 23082.87 | Crit W.S. (ft) | 299.94 | 300.01 |
| Q Weir (cfs) | | Max Chl Dpth (ft) | 12.81 | 11.58 |
| Weir Sta Lft (ft) | | Vel Total (ft/s) | 4.76 | 9.46 |
| Weir Sta Rgt (ft) | | Flow Area (sq ft) | 7989.41 | 4016.41 |
| Weir Submerg | | Froude # Chl | 0.25 | 0.54 |
| Weir Max Depth (ft) | | Specif Force (cu ft) | 42138.02 | 30999.80 |

| | | | | |
|---|---|---|---|---|
| Min El Weir Flow (ft) | 309.61 | Hydr Depth (ft) | 7.63 | 9.40 |
| Min El Prs (ft) | 311.50 | W.P. Total (ft) | 1173.40 | 530.58 |
| Delta EG (ft) | 0.87 | Conv. Total (cfs) | 780151.6 | 353978.3 |
| Delta WS (ft) | 1.72 | Top Width (ft) | 1047.78 | 427.05 |
| BR Open Area (sq ft) | 7690.35 | Frctn Loss (ft) | 0.38 | 0.04 |
| BR Open Vel (ft/s) | 5.75 | C & E Loss (ft) | 0.31 | 0.12 |
| BR Sluice Coef | | Shear Total (lb/sq ft) | 1.01 | 5.45 |
| BR Sel Method | Energy only | Power Total (lb/ft s) | 4.80 | 51.53 |

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

BRIDGE OUTPUT Profile #PF 2

| | | | Inside BR US | Inside BR DS |
|---|---|---|---|---|
| E.G. US. (ft) | 306.35 | Element | | |
| W.S. US. (ft) | 305.65 | E.G. Elev (ft) | 306.29 | 305.66 |
| Q Total (cfs) | 38000.00 | W.S. Elev (ft) | 305.43 | 304.59 |
| Q Bridge (cfs) | 38000.00 | Crit W.S. (ft) | 299.99 | 300.00 |
| Q Weir (cfs) | | Max Chl Dpth (ft) | 13.23 | 12.89 |
| Weir Sta Lft (ft) | | Vel Total (ft/s) | 7.43 | 8.30 |
| Weir Sta Rgt (ft) | | Flow Area (sq ft) | 5117.30 | 4579.11 |
| Weir Submerg | | Froude # Chl | 0.39 | 0.45 |
| Weir Max Depth (ft) | | Specif Force (cu ft) | 38516.42 | 35246.21 |
| Min El Weir Flow (ft) | 311.61 | Hydr Depth (ft) | 11.21 | 10.56 |
| Min El Prs (ft) | 311.50 | W.P. Total (ft) | 576.41 | 550.65 |
| Delta EG (ft) | 0.81 | Conv. Total (cfs) | 501566.7 | 429669.7 |
| Delta WS (ft) | 1.01 | Top Width (ft) | 456.36 | 433.49 |
| BR Open Area (sq ft) | 7690.35 | Frctn Loss (ft) | 0.57 | 0.03 |
| BR Open Vel (ft/s) | 8.30 | C & E Loss (ft) | 0.06 | 0.09 |
| BR Sluice Coef | | Shear Total (lb/sq ft) | 3.18 | 4.06 |
| BR Sel Method | Energy only | Power Total (lb/ft s) | 23.62 | 33.70 |

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 242

INPUT
Description:
Station Elevation Data num= 35

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 322.3 | 50 | 325.6 | 125.3 | 327.8 | 167.9 | 328 | 223.5 | 320.9 |
| 265.9 | 317.6 | 374.7 | 313.7 | 478.1 | 316.2 | 644.2 | 320.7 | 741.1 | 321.6 |
| 757.2 | 329.1 | 771.6 | 328.4 | 789.8 | 321.9 | 881.9 | 321.3 | 1023.6 | 317.3 |
| 1127.3 | 313.9 | 1268.7 | 310.6 | 1384.5 | 311.6 | 1444.5 | 309.6 | 1477.7 | 309.6 |
| 1496.5 | 298.9 | 1529.5 | 292.9 | 1544.4 | 293.1 | 1624.2 | 293.8 | 1694.9 | 294 |
| 1762.9 | 292.5 | 1804.8 | 293 | 1829.1 | 291.7 | 1863.2 | 292.1 | 1921.8 | 294.1 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1977.2 | 311.6 | 2102.5 | 312.9 | 2169.8 | 309.6 | 2266.2 | 313 | 2378.2 | 316.8 |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .045 | 1477.7 | .065 | 1977.2 | .1 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 1477.7 | 1977.2 | 270 | 224 | 165 | .3 | .5 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 304.51 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 1.16 | Wt. n-Val. | | 0.065 | |
| W.S. Elev (ft) | 303.35 | Reach Len. (ft) | 270.00 | 224.00 | 165.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 4400.59 | |
| E.G. Slope (ft/ft) | 0.007141 | Area (sq ft) | | 4400.59 | |
| Q Total (cfs) | 38000.00 | Flow (cfs) | | 38000.00 | |
| Top Width (ft) | 462.40 | Top Width (ft) | | 462.40 | |
| Vel Total (ft/s) | 8.64 | Avg. Vel. (ft/s) | | 8.64 | |
| Max Chl Dpth (ft) | 11.65 | Hydr. Depth (ft) | | 9.52 | |
| Conv. Total (cfs) | 449674.0 | Conv. (cfs) | | 449674.0 | |
| Length Wtd. (ft) | 236.52 | Wetted Per. (ft) | | 465.64 | |
| Min Ch El (ft) | 291.70 | Shear (lb/sq ft) | | 4.21 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 36.38 | |
| Frctn Loss (ft) | 0.94 | Cum Volume (acre-ft) | 502.21 | 1023.67 | 14.03 |
| C & E Loss (ft) | 0.38 | Cum SA (acres) | 80.37 | 85.32 | 4.13 |

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 305.54 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.90 | Wt. n-Val. | | 0.065 | |
| W.S. Elev (ft) | 304.64 | Reach Len. (ft) | 270.00 | 224.00 | 165.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 5002.65 | |
| E.G. Slope (ft/ft) | 0.004750 | Area (sq ft) | | 5002.65 | |
| Q Total (cfs) | 38000.00 | Flow (cfs) | | 38000.00 | |
| Top Width (ft) | 468.77 | Top Width (ft) | | 468.77 | |
| Vel Total (ft/s) | 7.60 | Avg. Vel. (ft/s) | | 7.60 | |
| Max Chl Dpth (ft) | 12.94 | Hydr. Depth (ft) | | 10.67 | |
| Conv. Total (cfs) | 551378.5 | Conv. (cfs) | | 551378.5 | |
| Length Wtd. (ft) | 232.25 | Wetted Per. (ft) | | 472.55 | |
| Min Ch El (ft) | 291.70 | Shear (lb/sq ft) | | 3.14 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 23.84 | |
| Frctn Loss (ft) | 0.94 | Cum Volume (acre-ft) | 360.26 | 1045.09 | 0.94 |
| C & E Loss (ft) | 0.11 | Cum SA (acres) | 37.31 | 78.08 | 0.24 |

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

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 239

INPUT
Description:
Station Elevation Data num= 35

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 326.7 | 9.7 | 325.9 | 33.3 | 313.3 | 58.7 | 302.7 | 75.9 | 299.6 |
| 146.3 | 298.8 | 184.4 | 296.4 | 292.8 | 295.9 | 340.1 | 296.4 | 359 | 298.6 |
| 480.3 | 298.3 | 577.6 | 297.1 | 628.2 | 296.4 | 690.3 | 295.3 | 723.4 | 296.7 |
| 773.8 | 296.3 | 794.2 | 299.6 | 807.3 | 295.7 | 815.5 | 293.2 | 884.9 | 292.7 |
| 929.7 | 290.7 | 952.3 | 291.8 | 972.5 | 294.4 | 1010.8 | 293.1 | 1033 | 292.6 |
| 1056.6 | 294.4 | 1097.2 | 292.9 | 1121.5 | 293.9 | 1156.1 | 296.8 | 1194.9 | 303 |
| 1220.8 | 304.6 | 1253 | 306.4 | 1284.9 | 308.5 | 1349.1 | 311.2 | 1436.2 | 314 |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .045 | 794.2 | .065 | 1194.9 | .1 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 794.2 | 1194.9 | 515 | 413 | 385 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | | |
|---|---|---|---|---|---|---|
| E.G. Elev (ft) | 303.18 | Element | Left OB | Channel | Right OB | |
| Vel Head (ft) | 0.40 | Wt. n-Val. | 0.045 | 0.065 | | |
| W.S. Elev (ft) | 302.79 | Reach Len. (ft) | 515.00 | 413.00 | 385.00 | |
| Crit W.S. (ft) | | Flow Area (sq ft) | 4009.35 | 3526.02 | | |
| E.G. Slope (ft/ft) | 0.002547 | Area (sq ft) | 4009.35 | 3526.02 | | |
| Q Total (cfs) | 38000.00 | Flow (cfs) | 20676.92 | 17323.08 | | |
| Top Width (ft) | 1135.08 | Top Width (ft) | 735.71 | 399.37 | | |
| Vel Total (ft/s) | 5.04 | Avg. Vel. (ft/s) | 5.16 | 4.91 | | |
| Max Chl Dpth (ft) | 12.09 | Hydr. Depth (ft) | 5.45 | 8.83 | | |
| Conv. Total (cfs) | 752909.3 | Conv. (cfs) | 409680.1 | 343229.1 | | |
| Length Wtd. (ft) | 463.65 | Wetted Per. (ft) | 736.53 | 401.29 | | |
| Min Ch El (ft) | 290.70 | Shear (lb/sq ft) | 0.87 | 1.40 | | |
| Alpha | 1.00 | Stream Power (lb/ft s) | 4.46 | 6.87 | | |
| Frctn Loss (ft) | 1.13 | Cum Volume (acre-ft) | 489.79 | 1003.29 | 14.03 | |
| C & E Loss (ft) | 0.02 | Cum SA (acres) | 78.09 | 83.11 | 4.13 | |

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

CROSS SECTION OUTPUT  Profile #PF 2

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 304.49 | Element | | | |
| Vel Head (ft) | 0.67 | Wt. n-Val. | 0.045 | 0.065 | |
| W.S. Elev (ft) | 303.82 | Reach Len. (ft) | 515.00 | 413.00 | 385.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 1906.16 | 3933.82 | |
| E.G. Slope (ft/ft) | 0.003476 | Area (sq ft) | 1906.16 | 3933.82 | |
| Q Total (cfs) | 38000.00 | Flow (cfs) | 13634.33 | 24365.67 | |
| Top Width (ft) | 660.00 | Top Width (ft) | 264.20 | 395.80 | |
| Vel Total (ft/s) | 6.51 | Avg. Vel. (ft/s) | 7.15 | 6.19 | |
| Max Chl Dpth (ft) | 13.12 | Hydr. Depth (ft) | 7.21 | 9.94 | |
| Conv. Total (cfs) | 644556.0 | Conv. (cfs) | 231265.5 | 413290.5 | |
| Length Wtd. (ft) | 446.19 | Wetted Per. (ft) | 270.65 | 399.28 | |
| Min Ch El (ft) | 290.70 | Shear (lb/sq ft) | 1.53 | 2.14 | |
| Alpha | 1.01 | Stream Power (lb/ft s) | 10.93 | 13.24 | |
| Frctn Loss (ft) | 1.41 | Cum Volume (acre-ft) | 354.35 | 1022.12 | 0.94 |
| C & E Loss (ft) | 0.04 | Cum SA (acres) | 36.49 | 75.85 | 0.24 |

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

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1  RS: 230

INPUT
Description:
Station Elevation Data  num=  39

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 320.6 | 98.6 | 315.6 | 248.5 | 310.7 | 349.8 | 307.7 | 453.1 | 304.4 |
| 481.5 | 301.8 | 508.2 | 297.2 | 514.3 | 295 | 561.5 | 296.6 | 572.6 | 298.3 |
| 589.3 | 299.6 | 598.8 | 296.9 | 661.1 | 296 | 732 | 296 | 803 | 298 |
| 895.6 | 298.2 | 987.5 | 298.8 | 1007.2 | 297.5 | 1034.2 | 294.6 | 1049 | 292.3 |
| 1074.8 | 293.2 | 1177.3 | 294.1 | 1277.7 | 293.5 | 1390.6 | 293.6 | 1477.5 | 293.8 |
| 1497.2 | 290.2 | 1554.2 | 289.8 | 1569.5 | 290.4 | 1577.6 | 291.8 | 1624.4 | 291.3 |
| 1642.8 | 294.6 | 1680.2 | 295.4 | 1700.4 | 299.8 | 1740.6 | 300.1 | 1766.4 | 303.7 |
| 1824.3 | 304.8 | 1894 | 306.5 | 1966.2 | 310.4 | 2031.8 | 312 | | |

Manning's n Values  num=  3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .045 | 1177.3 | .065 | 1700.4 | .1 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 1177.3 | 1700.4 | 430 | 487 | 460 | .1 | .3 |

CROSS SECTION OUTPUT  Profile #PF 1

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 302.03 | Element | | | |
| Vel Head (ft) | 0.34 | Wt. n-Val. | 0.045 | 0.065 | 0.100 |

| | | | | | |
|---|---|---|---|---|---|
| W.S. Elev (ft) | 301.69 | Reach Len. (ft) | 430.00 | 487.00 | 460.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 3585.08 | 4495.36 | 79.14 |
| E.G. Slope (ft/ft) | 0.002345 | Area (sq ft) | 3585.08 | 4495.36 | 79.14 |
| Q Total (cfs) | 38000.00 | Flow (cfs) | 17080.65 | 20843.75 | 75.60 |
| Top Width (ft) | 1269.89 | Top Width (ft) | 695.18 | 523.10 | 51.61 |
| Vel Total (ft/s) | 4.66 | Avg. Vel. (ft/s) | 4.76 | 4.64 | 0.96 |
| Max Chl Dpth (ft) | 11.89 | Hydr. Depth (ft) | 5.16 | 8.59 | 1.53 |
| Conv. Total (cfs) | 784792.4 | Conv. (cfs) | 352756.9 | 430474.1 | 1561.4 |
| Length Wtd. (ft) | 457.01 | Wetted Per. (ft) | 696.96 | 524.34 | 51.72 |
| Min Ch El (ft) | 289.80 | Shear (lb/sq ft) | 0.75 | 1.25 | 0.22 |
| Alpha | 1.01 | Stream Power (lb/ft s) | 3.59 | 5.82 | 0.21 |
| Frctn Loss (ft) | 0.87 | Cum Volume (acre-ft) | 444.89 | 965.26 | 13.68 |
| C & E Loss (ft) | 0.03 | Cum SA (acres) | 69.63 | 78.73 | 3.90 |

CROSS SECTION OUTPUT  Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 303.04 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.55 | Wt. n-Val. | 0.045 | 0.065 | 0.100 |
| W.S. Elev (ft) | 302.49 | Reach Len. (ft) | 430.00 | 487.00 | 460.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 1597.49 | 4913.26 | 25.49 |
| E.G. Slope (ft/ft) | 0.002896 | Area (sq ft) | 1597.49 | 4913.26 | 25.49 |
| Q Total (cfs) | 38000.00 | Flow (cfs) | 11103.86 | 26862.86 | 33.28 |
| Top Width (ft) | 735.00 | Top Width (ft) | 202.30 | 523.10 | 9.60 |
| Vel Total (ft/s) | 5.81 | Avg. Vel. (ft/s) | 6.95 | 5.47 | 1.31 |
| Max Chl Dpth (ft) | 12.69 | Hydr. Depth (ft) | 7.90 | 9.39 | 2.66 |
| Conv. Total (cfs) | 706188.0 | Conv. (cfs) | 206353.0 | 499216.6 | 618.5 |
| Length Wtd. (ft) | 462.74 | Wetted Per. (ft) | 206.47 | 524.34 | 12.22 |
| Min Ch El (ft) | 289.80 | Shear (lb/sq ft) | 1.40 | 1.69 | 0.38 |
| Alpha | 1.04 | Stream Power (lb/ft s) | 9.72 | 9.26 | 0.49 |
| Frctn Loss (ft) | 0.92 | Cum Volume (acre-ft) | 333.64 | 980.17 | 0.83 |
| C & E Loss (ft) | 0.07 | Cum SA (acres) | 33.73 | 71.50 | 0.19 |

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1  RS: 220

INPUT
Description:
Station Elevation Data  num=  44

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 309.4 | 49.1 | 308.1 | 65.1 | 303.4 | 93.7 | 303.8 | 111.3 | 304.8 |
| 135.4 | 300.4 | 205.6 | 298.2 | 275.8 | 295.6 | 311.7 | 296.4 | 325.6 | 299.2 |
| 381.8 | 297.9 | 472.7 | 296.6 | 496 | 298.6 | 516.1 | 297.7 | 540.4 | 296 |
| 619.4 | 296 | 659.3 | 297 | 778.2 | 297.1 | 828 | 297 | 852.7 | 294.1 |
| 877.1 | 291.3 | 961.4 | 291.6 | 1078.8 | 291.5 | 1124.9 | 292.8 | 1185.2 | 292.4 |
| 1220.5 | 289.9 | 1321.4 | 289.8 | 1344.8 | 288.8 | 1386.7 | 290 | 1429 | 292.3 |
| 1467.4 | 292.1 | 1493 | 293.8 | 1567.7 | 295.4 | 1608 | 296.3 | 1658.7 | 299.8 |
| 1677.4 | 296.2 | 1703.2 | 295.9 | 1722.6 | 299.8 | 1749.7 | 301.5 | 1768.4 | 304.6 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 1845.6 | 308 | 1925.8 | 314.8 | 2049.1 | 319.7 | 2142.9 | 324 |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .045 | 1185.2 | .065 | 1658.7 | .1 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 1185.2 | 1658.7 | 620 | 450 | 385 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 301.13 | Element | | | |
| Vel Head (ft) | 0.24 | Wt. n-Val. | 0.045 | 0.065 | 0.100 |
| W.S. Elev (ft) | 300.89 | Reach Len. (ft) | 620.00 | 450.00 | 385.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 5640.90 | 3977.05 | 247.49 |
| E.G. Slope (ft/ft) | 0.001589 | Area (sq ft) | 5640.90 | 3977.05 | 247.49 |
| Q Total (cfs) | 38000.00 | Flow (cfs) | 22726.61 | 14967.39 | 305.99 |
| Top Width (ft) | 1607.29 | Top Width (ft) | 1052.49 | 473.50 | 81.30 |
| Vel Total (ft/s) | 3.85 | Avg. Vel. (ft/s) | 4.03 | 3.76 | 1.24 |
| Max Chl Dpth (ft) | 12.09 | Hydr. Depth (ft) | 5.36 | 8.40 | 3.04 |
| Conv. Total (cfs) | 953237.3 | Conv. (cfs) | 570101.4 | 375459.9 | 7675.9 |
| Length Wtd. (ft) | 527.58 | Wetted Per. (ft) | 1053.46 | 473.89 | 82.07 |
| Min Ch El (ft) | 288.80 | Shear (lb/sq ft) | 0.53 | 0.83 | 0.30 |
| Alpha | 1.03 | Stream Power (lb/ft s) | 2.14 | 3.13 | 0.37 |
| Frctn Loss (ft) | 0.38 | Cum Volume (acre-ft) | 399.36 | 917.90 | 11.96 |
| C & E Loss (ft) | 0.03 | Cum SA (acres) | 61.01 | 73.16 | 3.20 |

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

CROSS SECTION OUTPUT Profile #PF 2

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 302.05 | Element | | | |
| Vel Head (ft) | 0.32 | Wt. n-Val. | 0.045 | 0.065 | |
| W.S. Elev (ft) | 301.73 | Reach Len. (ft) | 620.00 | 450.00 | 385.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 4260.65 | 4247.01 | |
| E.G. Slope (ft/ft) | 0.001451 | Area (sq ft) | 4260.65 | 4247.01 | |
| Q Total (cfs) | 38000.00 | Flow (cfs) | 21226.55 | 16773.45 | |
| Top Width (ft) | 970.00 | Top Width (ft) | 535.20 | 434.80 | |
| Vel Total (ft/s) | 4.47 | Avg. Vel. (ft/s) | 4.98 | 3.95 | |
| Max Chl Dpth (ft) | 12.93 | Hydr. Depth (ft) | 7.96 | 9.77 | |
| Conv. Total (cfs) | 997567.6 | Conv. (cfs) | 557234.8 | 440332.8 | |
| Length Wtd. (ft) | 523.55 | Wetted Per. (ft) | 540.51 | 439.70 | |
| Min Ch El (ft) | 288.80 | Shear (lb/sq ft) | 0.71 | 0.87 | |
| Alpha | 1.04 | Stream Power (lb/ft s) | 3.56 | 3.46 | |
| Frctn Loss (ft) | 0.32 | Cum Volume (acre-ft) | 304.73 | 928.97 | 0.69 |
| C & E Loss (ft) | 0.05 | Cum SA (acres) | 30.09 | 66.14 | 0.14 |

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

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 210

INPUT
Description:
Station Elevation Data num= 48

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 318.8 | 35.3 | 319.5 | 62.2 | 317.3 | 79.9 | 311.7 | 108.8 | 309.5 |
| 166.1 | 306.3 | 312.9 | 303.1 | 457.4 | 301.6 | 607.8 | 299.8 | 747.8 | 298 |
| 839.7 | 298.6 | 875.4 | 298.1 | 891.9 | 294.4 | 974.9 | 294.4 | 1088 | 294.2 |
| 1105.7 | 297.8 | 1117.8 | 288.1 | 1133.4 | 285.5 | 1144.1 | 287.6 | 1217.9 | 287.8 |
| 1286.1 | 287.4 | 1313.3 | 296.5 | 1325.8 | 299.6 | 1355 | 300 | 1382.3 | 294.2 |
| 1414 | 292.7 | 1438.5 | 290 | 1526.3 | 289.8 | 1571.4 | 289.3 | 1623.5 | 288.5 |
| 1664.4 | 288.5 | 1686.8 | 290.5 | 1834.5 | 289.1 | 1958.5 | 288.3 | 2066.4 | 288.2 |
| 2086.4 | 294.5 | 2128.6 | 294.7 | 2157.4 | 298.3 | 2185.1 | 302 | 2216 | 302.3 |
| 2229.2 | 305.2 | 2291.8 | 307.6 | 2356 | 308.8 | 2371.3 | 309.1 | 2391.3 | 315.3 |
| 2429.4 | 316.5 | 2472.3 | 315.4 | 2518 | 318.7 | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .035 | 1355 | .045 | 2185.1 | .035 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 1355 | 2185.1 | 450 | 350 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 300.72 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.14 | Wt. n-Val. | 0.035 | 0.045 | |
| W.S. Elev (ft) | 300.58 | Reach Len. (ft) | 450.00 | 350.00 | 350.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 4508.40 | 8303.35 | |
| E.G. Slope (ft/ft) | 0.000409 | Area (sq ft) | 4508.40 | 8303.35 | |
| Q Total (cfs) | 38000.00 | Flow (cfs) | 12073.34 | 25926.66 | |
| Top Width (ft) | 1631.91 | Top Width (ft) | 812.43 | 819.47 | |
| Vel Total (ft/s) | 2.97 | Avg. Vel. (ft/s) | 2.68 | 3.12 | |
| Max Chl Dpth (ft) | 15.08 | Hydr. Depth (ft) | 5.55 | 10.13 | |
| Conv. Total (cfs) | 1878276.0 | Conv. (cfs) | 596764.6 | 1281511.0 | |
| Length Wtd. (ft) | 377.53 | Wetted Per. (ft) | 818.92 | 821.72 | |
| Min Ch El (ft) | 288.20 | Shear (lb/sq ft) | 0.14 | 0.26 | |
| Alpha | 1.02 | Stream Power (lb/ft s) | 0.38 | 0.81 | |
| Frctn Loss (ft) | 0.10 | Cum Volume (acre-ft) | 327.13 | 854.47 | 10.86 |
| C & E Loss (ft) | 0.02 | Cum SA (acres) | 47.74 | 66.48 | 2.84 |

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

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 301.69 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.16 | Wt. n-Val. | 0.035 | 0.045 | |
| W.S. Elev (ft) | 301.52 | Reach Len. (ft) | 450.00 | 350.00 | 350.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 3264.57 | 8551.58 | |
| E.G. Slope (ft/ft) | 0.000331 | Area (sq ft) | 3264.57 | 8551.58 | |
| Q Total (cfs) | 38000.00 | Flow (cfs) | 11652.82 | 26347.18 | |
| Top Width (ft) | 1040.00 | Top Width (ft) | 315.00 | 725.00 | |
| Vel Total (ft/s) | 3.22 | Avg. Vel. (ft/s) | 3.57 | 3.08 | |
| Max Chl Dpth (ft) | 16.02 | Hydr. Depth (ft) | 10.36 | 11.80 | |
| Conv. Total (cfs) | 2090015.0 | Conv. (cfs) | 640909.6 | 1449106.0 | |
| Length Wtd. (ft) | 371.59 | Wetted Per. (ft) | 328.29 | 735.60 | |
| Min Ch El (ft) | 288.20 | Shear (lb/sq ft) | 0.21 | 0.24 | |
| Alpha | 1.01 | Stream Power (lb/ft s) | 0.73 | 0.74 | |
| Frctn Loss (ft) | 0.09 | Cum Volume (acre-ft) | 251.17 | 862.86 | 0.69 |
| C & E Loss (ft) | 0.02 | Cum SA (acres) | 24.04 | 60.15 | 0.14 |

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 200

INPUT
Description:
Station Elevation Data num= 42

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 316.9 | 56.2 | 313.9 | 122.4 | 312.6 | 216.7 | 310.1 | 324.4 | 307.6 |
| 427.5 | 306.6 | 520.3 | 304.6 | 585 | 302.4 | 604.2 | 295.3 | 618.3 | 292.5 |
| 669.2 | 293.4 | 728.3 | 293.1 | 755.5 | 296.2 | 775.6 | 295.5 | 788.9 | 293.1 |
| 841.5 | 292.7 | 907.7 | 293.1 | 935 | 303.1 | 942.6 | 301.8 | 963.5 | 287 |
| 994.4 | 286 | 1011.2 | 285.3 | 1037.4 | 286 | 1056.7 | 296.9 | 1085.6 | 286.6 |
| 1164.6 | 287 | 1223.8 | 288.7 | 1403.9 | 288.1 | 1550.4 | 288.5 | 1765.6 | 289.1 |
| 1904.5 | 288.4 | 1911.4 | 286.6 | 2019.7 | 286.6 | 2043.4 | 293.5 | 2065.1 | 294.1 |
| 2092.4 | 298.4 | 2113.3 | 301.1 | 2137.8 | 300.5 | 2194.4 | 305.3 | 2283.5 | 312.4 |
| 2372.6 | 316.1 | 2429.6 | 318.5 | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .035 | 1056.7 | .045 | 2113.3 | .035 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 1056.7 | 2113.3 | 630 | 600 | 595 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 300.60 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.09 | Wt. n-Val. | 0.035 | 0.045 | 0.000 |
| W.S. Elev (ft) | 300.51 | Reach Len. (ft) | 630.00 | 600.00 | 595.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 3635.76 | 12336.17 | 0.00 |
| E.G. Slope (ft/ft) | 0.000193 | Area (sq ft) | 3635.76 | 12336.17 | 0.00 |

| | | | | | |
|---|---|---|---|---|---|
| Q Total (cfs) | 38000.00 | Flow (cfs) | 8846.15 | 29153.85 | 0.00 |
| Top Width (ft) | 1502.91 | Top Width (ft) | 450.12 | 1052.06 | 0.72 |
| Vel Total (ft/s) | 2.38 | Avg. Vel. (ft/s) | 2.43 | 2.36 | 0.02 |
| Max Chl Dpth (ft) | 15.21 | Hydr. Depth (ft) | 8.08 | 11.73 | 0.01 |
| Conv. Total (cfs) | 2734307.0 | Conv. (cfs) | 636529.0 | 2097778.0 | 0.0 |
| Length Wtd. (ft) | 605.83 | Wetted Per. (ft) | 460.27 | 1055.57 | 0.73 |
| Min Ch El (ft) | 286.60 | Shear (lb/sq ft) | 0.10 | 0.14 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | 0.23 | 0.33 | |
| Frctn Loss (ft) | 0.10 | Cum Volume (acre-ft) | 285.06 | 771.55 | 10.86 |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 41.22 | 58.96 | 2.84 |

Warning: Divided flow computed for this cross-section.

CROSS SECTION OUTPUT  Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 301.58 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.11 | Wt. n-Val. | 0.035 | 0.045 | |
| W.S. Elev (ft) | 301.46 | Reach Len. (ft) | 630.00 | 600.00 | 595.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 1483.38 | 12798.59 | |
| E.G. Slope (ft/ft) | 0.000202 | Area (sq ft) | 1483.38 | 12798.59 | |
| Q Total (cfs) | 38000.00 | Flow (cfs) | 4758.10 | 33241.91 | |
| Top Width (ft) | 1081.93 | Top Width (ft) | 113.63 | 968.30 | |
| Vel Total (ft/s) | 2.66 | Avg. Vel. (ft/s) | 3.21 | 2.60 | |
| Max Chl Dpth (ft) | 16.16 | Hydr. Depth (ft) | 13.05 | 13.22 | |
| Conv. Total (cfs) | 2672116.0 | Conv. (cfs) | 334583.8 | 2337532.0 | |
| Length Wtd. (ft) | 604.27 | Wetted Per. (ft) | 121.13 | 983.88 | |
| Min Ch El (ft) | 286.60 | Shear (lb/sq ft) | 0.15 | 0.16 | |
| Alpha | 1.02 | Stream Power (lb/ft s) | 0.50 | 0.43 | |
| Frctn Loss (ft) | 0.09 | Cum Volume (acre-ft) | 226.65 | 777.09 | 0.69 |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 21.83 | 53.35 | 0.14 |

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1  RS: 190

INPUT
Description:
Station Elevation Data  num=  36

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 316.7 | 114.9 | 315.9 | 265.1 | 313.5 | 380 | 310.5 | 503.8 | 306.9 |
| 560.7 | 305.9 | 573.9 | 297.9 | 604.7 | 296.4 | 611.9 | 300.3 | 642 | 299.6 |
| 649.6 | 296.2 | 691.2 | 294.1 | 739.3 | 288.7 | 751.7 | 284.7 | 767.7 | 283.3 |
| 780.2 | 284.8 | 851.5 | 285.7 | 881.5 | 298.1 | 972.8 | 297.3 | 1012.4 | 286.6 |
| 1531.9 | 286.6 | 1542.3 | 288.3 | 1573.5 | 288.3 | 1606 | 286.6 | 1999.6 | 286.6 |
| 2012.1 | 292.2 | 2031.7 | 293.7 | 2041.3 | 297.1 | 2060.1 | 296.9 | 2075 | 301.2 |
| 2119 | 307.7 | 2152.3 | 309.7 | 2219.6 | 308.4 | 2266.8 | 309.5 | 2354.5 | 313.4 |
| 2439.9 | 317.5 | | | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .035 | 972.8 | .045 | 2041.3 | .035 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 972.8 | 2041.3 | 785 | 550 | 550 .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 300.50 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.08 | Wt. n-Val. | 0.035 | 0.045 | 0.035 |
| W.S. Elev (ft) | 300.42 | Reach Len. (ft) | 785.00 | 550.00 | 550.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 3030.57 | 14222.13 | 85.79 |
| E.G. Slope (ft/ft) | 0.000148 | Area (sq ft) | 3030.57 | 14222.13 | 85.79 |
| Q Total (cfs) | 38000.00 | Flow (cfs) | 5939.52 | 31974.19 | 86.29 |
| Top Width (ft) | 1502.56 | Top Width (ft) | 403.06 | 1068.50 | 31.00 |
| Vel Total (ft/s) | 2.19 | Avg. Vel. (ft/s) | 1.96 | 2.25 | 1.01 |
| Max Chl Dpth (ft) | 17.12 | Hydr. Depth (ft) | 7.52 | 13.31 | 2.77 |
| Conv. Total (cfs) | 3127954.0 | Conv. (cfs) | 488909.2 | 2631942.0 | 7102.7 |
| Length Wtd. (ft) | 633.49 | Wetted Per. (ft) | 409.13 | 1071.94 | 31.50 |
| Min Ch El (ft) | 286.60 | Shear (lb/sq ft) | 0.07 | 0.12 | 0.03 |
| Alpha | 1.01 | Stream Power (lb/ft s) | 0.13 | 0.27 | 0.03 |
| Frctn Loss (ft) | 0.12 | Cum Volume (acre-ft) | 236.85 | 588.64 | 10.28 |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 35.05 | 44.36 | 2.62 |

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 301.47 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.07 | Wt. n-Val. | 0.035 | 0.045 | |
| W.S. Elev (ft) | 301.40 | Reach Len. (ft) | 785.00 | 550.00 | 550.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 2775.43 | 14899.80 | |
| E.G. Slope (ft/ft) | 0.000122 | Area (sq ft) | 2775.43 | 14899.80 | |
| Q Total (cfs) | 38000.00 | Flow (cfs) | 6060.10 | 31939.90 | |
| Top Width (ft) | 1290.00 | Top Width (ft) | 262.80 | 1027.20 | |
| Vel Total (ft/s) | 2.15 | Avg. Vel. (ft/s) | 2.18 | 2.14 | |
| Max Chl Dpth (ft) | 18.10 | Hydr. Depth (ft) | 10.56 | 14.51 | |
| Conv. Total (cfs) | 3445216.0 | Conv. (cfs) | 549430.6 | 2895785.0 | |
| Length Wtd. (ft) | 635.07 | Wetted Per. (ft) | 275.64 | 1043.46 | |
| Min Ch El (ft) | 286.60 | Shear (lb/sq ft) | 0.08 | 0.11 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | 0.17 | 0.23 | |
| Frctn Loss (ft) | 0.09 | Cum Volume (acre-ft) | 195.85 | 586.33 | 0.69 |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 19.11 | 39.61 | 0.14 |

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 180

INPUT

Description:

Station Elevation Data num= 46

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 312.4 | 82 | 310.6 | 99.6 | 307.3 | 142.8 | 306.6 | 157.2 | 302.1 |
| 242.3 | 300.4 | 259.9 | 305.8 | 276 | 299.7 | 323.5 | 299.1 | 351.1 | 302 |
| 388.3 | 297.2 | 423.5 | 297.4 | 442.7 | 304.5 | 564.7 | 301.7 | 654.7 | 299.8 |
| 711.5 | 296.4 | 741.5 | 298.8 | 750.3 | 295.4 | 798.3 | 295.1 | 828.3 | 298.4 |
| 853.1 | 297.8 | 869.9 | 286.2 | 880.3 | 284.9 | 896.2 | 284 | 915 | 284.9 |
| 955 | 287.6 | 1011.4 | 291.1 | 1079.8 | 290.4 | 1155.4 | 292.9 | 1259.4 | 292 |
| 1362.2 | 291.2 | 1499.3 | 290.6 | 1566.5 | 289.5 | 1593.3 | 287.4 | 1960.4 | 287.4 |
| 2004.8 | 289 | 2020.4 | 289.3 | 2049.6 | 295.7 | 2102 | 300.3 | 2127.2 | 301.2 |
| 2188.8 | 307.6 | 2265.2 | 314.5 | 2333.6 | 319.7 | 2399.9 | 323.7 | 2456.7 | 326.1 |
| 2538.7 | 325 | | | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .035 | 1566.5 | .045 | 2049.6 | .035 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 1566.5 | 2049.6 | 405 | 300 | 255 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 300.37 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.12 | Wt. n-Val. | 0.035 | 0.045 | 0.035 |
| W.S. Elev (ft) | 300.25 | Reach Len. (ft) | 405.00 | 300.00 | 255.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 7817.29 | 5970.10 | 118.14 |
| E.G. Slope (ft/ft) | 0.000255 | Area (sq ft) | 7817.29 | 5970.10 | 118.14 |
| Q Total (cfs) | 38000.00 | Flow (cfs) | 21060.41 | 16801.36 | 138.23 |
| Top Width (ft) | 1594.85 | Top Width (ft) | 1059.87 | 483.10 | 51.88 |
| Vel Total (ft/s) | 2.73 | Avg. Vel. (ft/s) | 2.69 | 2.81 | 1.17 |
| Max Chl Dpth (ft) | 16.25 | Hydr. Depth (ft) | 7.38 | 12.36 | 2.28 |
| Conv. Total (cfs) | 2380582.0 | Conv. (cfs) | 1319369.0 | 1052553.0 | 8659.5 |
| Length Wtd. (ft) | 354.77 | Wetted Per. (ft) | 1065.77 | 483.91 | 52.08 |
| Min Ch El (ft) | 287.40 | Shear (lb/sq ft) | 0.12 | 0.20 | 0.04 |
| Alpha | 1.01 | Stream Power (lb/ft s) | 0.31 | 0.55 | 0.04 |
| Frctn Loss (ft) | 0.11 | Cum Volume (acre-ft) | 139.11 | 461.16 | 8.99 |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 21.86 | 34.56 | 2.10 |

Warning: Divided flow computed for this cross-section.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 301.37 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.11 | Wt. n-Val. | 0.035 | 0.045 | 0.035 |
| W.S. Elev (ft) | 301.26 | Reach Len. (ft) | 405.00 | 300.00 | 255.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 7611.29 | 6454.94 | 75.18 |
| E.G. Slope (ft/ft) | 0.000188 | Area (sq ft) | 7611.29 | 6454.94 | 75.18 |
| Q Total (cfs) | 38000.00 | Flow (cfs) | 21452.13 | 16440.84 | 107.03 |
| Top Width (ft) | 1200.00 | Top Width (ft) | 701.50 | 483.10 | 15.40 |
| Vel Total (ft/s) | 2.69 | Avg. Vel. (ft/s) | 2.82 | 2.55 | 1.42 |

| | | | | | |
|---|---|---|---|---|---|
| Max Chl Dpth (ft) | 17.26 | Hydr. Depth (ft) | 10.85 | 13.36 | 4.88 |
| Conv. Total (cfs) | 2770902.0 | Conv. (cfs) | 1564257.0 | 1198841.0 | 7804.2 |
| Length Wtd. (ft) | 350.90 | Wetted Per. (ft) | 714.62 | 483.91 | 19.67 |
| Min Ch El (ft) | 287.40 | Shear (lb/sq ft) | 0.13 | 0.16 | 0.04 |
| Alpha | 1.01 | Stream Power (lb/ft s) | 0.35 | 0.40 | 0.06 |
| Frctn Loss (ft) | 0.09 | Cum Volume (acre-ft) | 102.26 | 451.51 | 0.22 |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 10.42 | 30.07 | 0.05 |

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

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 170

INPUT
Description:
Station Elevation Data num= 38

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 308.5 | 111.3 | 308.4 | 202.9 | 306.4 | 219.1 | 304.9 | 242.6 | 305.5 |
| 343.9 | 304.3 | 471.7 | 301.1 | 600.6 | 299 | 723.4 | 296.7 | 831.4 | 293.7 |
| 905.4 | 291.6 | 988.8 | 290.2 | 1049.7 | 289 | 1081.5 | 284.4 | 1085.2 | 285.6 |
| 1109.7 | 285.8 | 1124 | 292 | 1187.7 | 292.3 | 1269.5 | 294.1 | 1379.6 | 292.5 |
| 1449 | 292.3 | 1503.8 | 294.4 | 1582.1 | 293.7 | 1653 | 291.4 | 1761.7 | 289.8 |
| 1784 | 287.4 | 1939.1 | 286 | 1951.8 | 284.5 | 1980.3 | 284.4 | 1987.3 | 286.4 |
| 2053.8 | 288.5 | 2073.7 | 292.1 | 2158.8 | 297.3 | 2259.3 | 305.2 | 2329.5 | 311.4 |
| 2402.7 | 317.2 | 2450.7 | 321.2 | 2520.8 | 321.5 | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .035 | 1503.8 | .045 | 2158.8 | .035 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 1503.8 | 2158.8 | 390 | 350 | 350 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 300.26 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.13 | Wt. n-Val. | 0.035 | 0.045 | 0.035 |
| W.S. Elev (ft) | 300.14 | Reach Len. (ft) | 390.00 | 350.00 | 350.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 6554.26 | 6633.25 | 51.15 |
| E.G. Slope (ft/ft) | 0.000355 | Area (sq ft) | 6554.26 | 6633.25 | 51.15 |
| Q Total (cfs) | 38000.00 | Flow (cfs) | 18663.92 | 19284.57 | 51.51 |
| Top Width (ft) | 1664.00 | Top Width (ft) | 972.92 | 655.00 | 36.08 |
| Vel Total (ft/s) | 2.87 | Avg. Vel. (ft/s) | 2.85 | 2.91 | 1.01 |
| Max Chl Dpth (ft) | 15.74 | Hydr. Depth (ft) | 6.74 | 10.13 | 1.42 |
| Conv. Total (cfs) | 2018056.0 | Conv. (cfs) | 991179.9 | 1024141.0 | 2735.4 |
| Length Wtd. (ft) | 363.89 | Wetted Per. (ft) | 974.93 | 656.07 | 36.19 |
| Min Ch El (ft) | 284.40 | Shear (lb/sq ft) | 0.15 | 0.22 | 0.03 |

| | | | | |
|---|---|---|---|---|
| Alpha | 1.00 | Stream Power (lb/ft s) | 0.42 | 0.65 | 0.03 |
| Frctn Loss (ft) | 0.14 | Cum Volume (acre-ft) | 72.30 | 417.76 | 8.50 |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 12.41 | 30.65 | 1.84 |

CROSS SECTION OUTPUT  Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 301.27 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.18 | Wt. n-Val. | 0.035 | 0.045 | |
| W.S. Elev (ft) | 301.09 | Reach Len. (ft) | 390.00 | 350.00 | 350.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 4284.52 | 6811.94 | |
| E.G. Slope (ft/ft) | 0.000386 | Area (sq ft) | 4284.52 | 6811.94 | |
| Q Total (cfs) | 38000.00 | Flow (cfs) | 15432.35 | 22567.65 | |
| Top Width (ft) | 1045.00 | Top Width (ft) | 463.80 | 581.20 | |
| Vel Total (ft/s) | 3.42 | Avg. Vel. (ft/s) | 3.60 | 3.31 | |
| Max Chl Dpth (ft) | 16.69 | Hydr. Depth (ft) | 9.24 | 11.72 | |
| Conv. Total (cfs) | 1933830.0 | Conv. (cfs) | 785356.6 | 1148474.0 | |
| Length Wtd. (ft) | 362.25 | Wetted Per. (ft) | 477.58 | 590.43 | |
| Min Ch El (ft) | 284.40 | Shear (lb/sq ft) | 0.22 | 0.28 | |
| Alpha | 1.01 | Stream Power (lb/ft s) | 0.78 | 0.92 | |
| Frctn Loss (ft) | 0.15 | Cum Volume (acre-ft) | 46.96 | 405.83 | |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 5.00 | 26.41 | |

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1  RS: 160

INPUT
Description:
Station Elevation Data  num=  51

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 306.2 | 102.8 | 305.1 | 125.3 | 305.7 | 183.5 | 305.7 | 206.3 | 302.8 |
| 313.8 | 301 | 401.9 | 300.3 | 472.5 | 301.1 | 491 | 304.5 | 529.1 | 309.7 |
| 551.6 | 295.5 | 569.2 | 289.7 | 576.5 | 282.7 | 593 | 281.7 | 601.9 | 282.5 |
| 627.8 | 285.5 | 660.1 | 286.1 | 688 | 295.6 | 707.6 | 300.1 | 727.4 | 299.8 |
| 762.1 | 294.1 | 788 | 292 | 804.4 | 290.1 | 863.4 | 289 | 916.6 | 289.5 |
| 1008.3 | 289.6 | 1112.3 | 289 | 1178.6 | 287.8 | 1199.4 | 286.2 | 1215.4 | 288.4 |
| 1276.5 | 287.8 | 1353.9 | 286 | 1379.3 | 283.7 | 1424.4 | 283.8 | 1431.4 | 288.8 |
| 1517.3 | 288.9 | 1550 | 289.9 | 1579 | 292.8 | 1605.7 | 302.8 | 1633.1 | 307.2 |
| 1664.6 | 310.3 | 1688.8 | 310.8 | 1695.8 | 308.8 | 1711.4 | 314.4 | 1721.6 | 311.4 |
| 1732.3 | 313.3 | 1741.3 | 310.9 | 1768.3 | 311.9 | 1809.7 | 311.1 | 1833.9 | 315.7 |
| 1896.1 | 317.4 | | | | | | | | |

Manning's n Values  num=  3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .035 | 727.4 | .045 | 1605.7 | .035 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 727.4 | 1605.7 | 630 | 690 | 690 | .1 | .3 |

CROSS SECTION OUTPUT  Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 300.12 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.18 | Wt. n-Val. | 0.035 | 0.045 | |
| W.S. Elev (ft) | 299.94 | Reach Len. (ft) | 630.00 | 690.00 | 690.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 1861.85 | 9463.78 | |
| E.G. Slope (ft/ft) | 0.000392 | Area (sq ft) | 1861.85 | 9463.78 | |
| Q Total (cfs) | 38000.00 | Flow (cfs) | 7725.36 | 30274.64 | |
| Top Width (ft) | 1042.43 | Top Width (ft) | 171.75 | 870.67 | |
| Vel Total (ft/s) | 3.36 | Avg. Vel. (ft/s) | 4.15 | 3.20 | |
| Max Chl Dpth (ft) | 18.24 | Hydr. Depth (ft) | 10.84 | 10.87 | |
| Conv. Total (cfs) | 1918692.0 | Conv. (cfs) | 390068.1 | 1528624.0 | |
| Length Wtd. (ft) | 681.95 | Wetted Per. (ft) | 179.10 | 874.75 | |
| Min Ch El (ft) | 283.70 | Shear (lb/sq ft) | 0.25 | 0.26 | |
| Alpha | 1.04 | Stream Power (lb/ft s) | 1.06 | 0.85 | |
| Frctn Loss (ft) | 0.46 | Cum Volume (acre-ft) | 34.62 | 353.09 | 8.29 |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 7.29 | 24.52 | 1.69 |

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

CROSS SECTION OUTPUT  Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 301.12 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.21 | Wt. n-Val. | 0.035 | 0.045 | |
| W.S. Elev (ft) | 300.92 | Reach Len. (ft) | 630.00 | 690.00 | 690.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 1860.73 | 8577.35 | |
| E.G. Slope (ft/ft) | 0.000419 | Area (sq ft) | 1860.73 | 8577.35 | |
| Q Total (cfs) | 38000.00 | Flow (cfs) | 7838.70 | 30161.30 | |
| Top Width (ft) | 865.00 | Top Width (ft) | 157.40 | 707.60 | |
| Vel Total (ft/s) | 3.64 | Avg. Vel. (ft/s) | 4.21 | 3.52 | |
| Max Chl Dpth (ft) | 19.22 | Hydr. Depth (ft) | 11.82 | 12.12 | |
| Conv. Total (cfs) | 1857284.0 | Conv. (cfs) | 383123.6 | 1474160.0 | |
| Length Wtd. (ft) | 683.08 | Wetted Per. (ft) | 174.22 | 722.34 | |
| Min Ch El (ft) | 283.70 | Shear (lb/sq ft) | 0.28 | 0.31 | |
| Alpha | 1.02 | Stream Power (lb/ft s) | 1.18 | 1.09 | |
| Frctn Loss (ft) | 0.48 | Cum Volume (acre-ft) | 19.45 | 344.00 | |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 2.22 | 21.23 | |

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

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1  RS: 150

INPUT
Description:
Station Elevation Data num= 34

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 307.2 | 106.4 | 303.7 | 237.9 | 303 | 313.1 | 299 | 382.4 | 297.4 |
| 438.3 | 295.9 | 449.4 | 293.8 | 477.6 | 293.5 | 486.5 | 297.1 | 560.2 | 294.7 |
| 632.3 | 295.3 | 689.1 | 293.8 | 710.8 | 296.1 | 734.9 | 294.6 | 754 | 287.2 |
| 775.6 | 281.8 | 787.6 | 279 | 791.8 | 282.7 | 831.8 | 284 | 918.3 | 282.9 |
| 929 | 279.1 | 976.6 | 279.2 | 995 | 283.8 | 1074.8 | 282.9 | 1149.2 | 281.7 |
| 1191.1 | 282.2 | 1207.9 | 283.4 | 1231.9 | 301.6 | 1256.8 | 300.4 | 1277.9 | 298.9 |
| 1293.5 | 305.9 | 1338.3 | 317 | 1374.9 | 323.5 | 1394.4 | 326.8 | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .08 | 734.9 | .08 | 1231.9 | .08 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 734.9 | 1231.9 | 545 | 540 | 540 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 299.65 | Element | | | |
| Vel Head (ft) | 0.29 | Wt. n-Val. | 0.080 | 0.080 | 0.080 |
| W.S. Elev (ft) | 299.36 | Reach Len. (ft) | 545.00 | 540.00 | 540.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 1517.17 | 8016.26 | 1.76 |
| E.G. Slope (ft/ft) | 0.001426 | Area (sq ft) | 1517.17 | 8016.26 | 1.76 |
| Q Total (cfs) | 38000.00 | Flow (cfs) | 2466.67 | 35532.88 | 0.46 |
| Top Width (ft) | 930.28 | Top Width (ft) | 428.65 | 494.05 | 7.57 |
| Vel Total (ft/s) | 3.99 | Avg. Vel. (ft/s) | 1.63 | 4.43 | 0.26 |
| Max Chl Dpth (ft) | 20.36 | Hydr. Depth (ft) | 3.54 | 16.23 | 0.23 |
| Conv. Total (cfs) | 1006403.0 | Conv. (cfs) | 65327.9 | 941063.3 | 12.2 |
| Length Wtd. (ft) | 540.16 | Wetted Per. (ft) | 429.83 | 504.50 | 7.69 |
| Min Ch El (ft) | 279.00 | Shear (lb/sq ft) | 0.31 | 1.41 | 0.02 |
| Alpha | 1.17 | Stream Power (lb/ft s) | 0.51 | 6.27 | 0.01 |
| Frctn Loss (ft) | 1.19 | Cum Volume (acre-ft) | 10.19 | 214.65 | 8.28 |
| C & E Loss (ft) | 0.05 | Cum SA (acres) | 2.95 | 13.71 | 1.63 |

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 2

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 300.64 | Element | | | |
| Vel Head (ft) | 0.31 | Wt. n-Val. | 0.080 | 0.080 | |
| W.S. Elev (ft) | 300.32 | Reach Len. (ft) | 545.00 | 540.00 | 540.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 443.45 | 8165.23 | |
| E.G. Slope (ft/ft) | 0.001395 | Area (sq ft) | 443.45 | 8165.23 | |
| Q Total (cfs) | 38000.00 | Flow (cfs) | 920.47 | 37079.53 | |

| | | | | |
|---|---|---|---|---|
| Top Width (ft) | 545.00 | Top Width (ft) | 79.90 | 465.10 |
| Vel Total (ft/s) | 4.41 | Avg. Vel. (ft/s) | 2.08 | 4.54 |
| Max Chl Dpth (ft) | 21.32 | Hydr. Depth (ft) | 5.55 | 17.56 |
| Conv. Total (cfs) | 1017263.0 | Conv. (cfs) | 24641.1 | 992621.9 |
| Length Wtd. (ft) | 540.06 | Wetted Per. (ft) | 85.70 | 487.64 |
| Min Ch El (ft) | 279.00 | Shear (lb/sq ft) | 0.45 | 1.46 |
| Alpha | 1.04 | Stream Power (lb/ft s) | 0.94 | 6.62 |
| Frctn Loss (ft) | 1.16 | Cum Volume (acre-ft) | 2.79 | 211.40 |
| C & E Loss (ft) | 0.06 | Cum SA (acres) | 0.50 | 11.94 |

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 140

INPUT
Description:
Station Elevation Data num= 24

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 314.4 | 53.3 | 315.7 | 99.3 | 315.3 | 151.1 | 313.8 | 203.6 | 310.3 |
| 245.9 | 305.2 | 275 | 297.5 | 305.9 | 288.8 | 322.6 | 284.1 | 345 | 280.2 |
| 382.8 | 279.4 | 416.3 | 282.7 | 468.1 | 281.6 | 498.6 | 277.8 | 506.4 | 275 |
| 511.7 | 274.7 | 556.1 | 274.8 | 580.1 | 283.6 | 604.1 | 293.8 | 627.8 | 292.7 |
| 646.5 | 290.7 | 661.5 | 305.8 | 685.5 | 317.6 | 733.6 | 333.9 | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .08 | 275 | .08 | 604.1 | .08 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 275 | 604.1 | 550 | 552 | 550 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 298.42 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.78 | Wt. n-Val. | 0.080 | 0.080 | 0.080 |
| W.S. Elev (ft) | 297.63 | Reach Len. (ft) | 550.00 | 552.00 | 550.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 0.03 | 5210.18 | 238.75 |
| E.G. Slope (ft/ft) | 0.003828 | Area (sq ft) | 0.03 | 5210.18 | 238.75 |
| Q Total (cfs) | 38000.00 | Flow (cfs) | 0.01 | 37245.01 | 754.98 |
| Top Width (ft) | 378.89 | Top Width (ft) | 0.51 | 329.10 | 49.29 |
| Vel Total (ft/s) | 6.97 | Avg. Vel. (ft/s) | 0.19 | 7.15 | 3.16 |
| Max Chl Dpth (ft) | 22.93 | Hydr. Depth (ft) | 0.07 | 15.83 | 4.84 |

| | | | | | |
|---|---|---|---|---|---|
| Conv. Total (cfs) | 614166.4 | Conv. (cfs) | 0.1 | 601964.1 | 12202.2 |
| Length Wtd. (ft) | 551.94 | Wetted Per. (ft) | 0.52 | 335.84 | 52.31 |
| Min Ch El (ft) | 274.70 | Shear (lb/sq ft) | 0.02 | 3.71 | 1.09 |
| Alpha | 1.03 | Stream Power (lb/ft s) | 0.00 | 26.50 | 3.45 |
| Frctn Loss (ft) | 1.97 | Cum Volume (acre-ft) | 0.70 | 132.67 | 6.79 |
| C & E Loss (ft) | 0.02 | Cum SA (acres) | 0.26 | 8.61 | 1.28 |

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

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 299.42 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.87 | Wt. n-Val. | | 0.080 | |
| W.S. Elev (ft) | 298.55 | Reach Len. (ft) | 550.00 | 552.00 | 550.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 5076.12 | |
| E.G. Slope (ft/ft) | 0.003718 | Area (sq ft) | | 5076.12 | |
| Q Total (cfs) | 38000.00 | Flow (cfs) | | 38000.00 | |
| Top Width (ft) | 270.00 | Top Width (ft) | | 270.00 | |
| Vel Total (ft/s) | 7.49 | Avg. Vel. (ft/s) | | 7.49 | |
| Max Chl Dpth (ft) | 23.85 | Hydr. Depth (ft) | | 18.80 | |
| Conv. Total (cfs) | 623195.4 | Conv. (cfs) | | 623195.4 | |
| Length Wtd. (ft) | 552.00 | Wetted Per. (ft) | | 298.71 | |
| Min Ch El (ft) | 274.70 | Shear (lb/sq ft) | | 3.94 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 29.53 | |
| Frctn Loss (ft) | 2.05 | Cum Volume (acre-ft) | 0.01 | 129.32 | |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 0.00 | 7.39 | |

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

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 130

INPUT
Description:
Station Elevation Data num= 30

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 320.1 | 56 | 314.7 | 91.8 | 310.5 | 134.1 | 303.5 | 161.8 | 298.5 |
| 189.1 | 289.9 | 216.8 | 284.3 | 242.4 | 284.5 | 258 | 276.5 | 274.7 | 275.4 |
| 289.3 | 277.6 | 326.4 | 278.1 | 363.1 | 279.8 | 380.2 | 278 | 385.9 | 275.2 |
| 412.9 | 275.2 | 444.5 | 275.2 | 451.1 | 277.5 | 482.1 | 277.5 | 496 | 280.5 |
| 506.5 | 288.3 | 557.7 | 289.5 | 571.6 | 296.7 | 594.4 | 298.1 | 629 | 297 |
| 644.9 | 299.3 | 651.9 | 297.1 | 680.4 | 297.2 | 712.1 | 302.5 | 751.2 | 308.7 |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|

```
       0     .08   189.1     .08   506.5     .08

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         189.1   506.5              530     520     520             .1       .3
```

CROSS SECTION OUTPUT  Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 296.43 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.72 | Wt. n-Val. | 0.080 | 0.080 | 0.080 |
| W.S. Elev (ft) | 295.71 | Reach Len. (ft) | 530.00 | 520.00 | 520.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 53.60 | 5295.34 | 385.96 |
| E.G. Slope (ft/ft) | 0.003328 | Area (sq ft) | 53.60 | 5295.34 | 385.96 |
| Q Total (cfs) | 38000.00 | Flow (cfs) | 113.30 | 36526.77 | 1359.94 |
| Top Width (ft) | 399.04 | Top Width (ft) | 18.45 | 317.40 | 63.19 |
| Vel Total (ft/s) | 6.63 | Avg. Vel. (ft/s) | 2.11 | 6.90 | 3.52 |
| Max Chl Dpth (ft) | 20.51 | Hydr. Depth (ft) | 2.91 | 16.68 | 6.11 |
| Conv. Total (cfs) | 658745.2 | Conv. (cfs) | 1964.0 | 633206.1 | 23575.1 |
| Length Wtd. (ft) | 520.02 | Wetted Per. (ft) | 19.34 | 324.17 | 64.72 |
| Min Ch El (ft) | 275.20 | Shear (lb/sq ft) | 0.58 | 3.39 | 1.24 |
| Alpha | 1.05 | Stream Power (lb/ft s) | 1.22 | 23.41 | 4.37 |
| Frctn Loss (ft) | 3.34 | Cum Volume (acre-ft) | 0.36 | 66.10 | 2.84 |
| C & E Loss (ft) | 0.05 | Cum SA (acres) | 0.14 | 4.51 | 0.57 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT  Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 297.36 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.86 | Wt. n-Val. | | 0.080 | |
| W.S. Elev (ft) | 296.51 | Reach Len. (ft) | 530.00 | 520.00 | 520.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 5118.84 | |
| E.G. Slope (ft/ft) | 0.003714 | Area (sq ft) | | 5118.84 | |
| Q Total (cfs) | 38000.00 | Flow (cfs) | | 38000.00 | |
| Top Width (ft) | 275.00 | Top Width (ft) | | 275.00 | |
| Vel Total (ft/s) | 7.42 | Avg. Vel. (ft/s) | | 7.42 | |
| Max Chl Dpth (ft) | 21.31 | Hydr. Depth (ft) | | 18.61 | |
| Conv. Total (cfs) | 623525.4 | Conv. (cfs) | | 623525.4 | |
| Length Wtd. (ft) | 520.00 | Wetted Per. (ft) | | 304.79 | |
| Min Ch El (ft) | 275.20 | Shear (lb/sq ft) | | 3.89 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 28.91 | |
| Frctn Loss (ft) | 3.56 | Cum Volume (acre-ft) | 0.01 | 64.73 | |
| C & E Loss (ft) | 0.04 | Cum SA (acres) | 0.00 | 3.93 | |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 120

INPUT
Description:
Station Elevation Data num= 26

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 320.3 | 26.2 | 316.2 | 51.5 | 310.4 | 75.1 | 299.4 | 96.6 | 290.2 |
| 116.2 | 284.3 | 141.4 | 280.7 | 165.5 | 277.9 | 201.3 | 275.7 | 228.8 | 275.7 |
| 276.2 | 275.7 | 291.9 | 277.1 | 319.1 | 276 | 337.4 | 275.8 | 348.8 | 276.9 |
| 366.4 | 276.3 | 396 | 282.1 | 419.2 | 286.9 | 446.6 | 292.4 | 470.6 | 297.5 |
| 488.8 | 298.9 | 510.5 | 299.8 | 550.5 | 302.4 | 574.1 | 302.5 | 604.7 | 305.8 |
| 646.5 | 309.5 | | | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .125 | 96.6 | .125 | 419.2 | .125 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 96.6 | 419.2 | 55 | 52 | 50 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 293.04 | Element | | | |
| Vel Head (ft) | 1.19 | Wt. n-Val. | 0.125 | 0.125 | 0.125 |
| W.S. Elev (ft) | 291.85 | Reach Len. (ft) | 55.00 | 52.00 | 50.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 3.19 | 4318.37 | 61.11 |
| E.G. Slope (ft/ft) | 0.017261 | Area (sq ft) | 3.19 | 4318.37 | 61.11 |
| Q Total (cfs) | 38000.00 | Flow (cfs) | 4.15 | 37823.42 | 172.43 |
| Top Width (ft) | 351.14 | Top Width (ft) | 3.86 | 322.60 | 24.68 |
| Vel Total (ft/s) | 8.67 | Avg. Vel. (ft/s) | 1.30 | 8.76 | 2.82 |
| Max Chl Dpth (ft) | 16.15 | Hydr. Depth (ft) | 0.83 | 13.39 | 2.48 |
| Conv. Total (cfs) | 289231.0 | Conv. (cfs) | 31.6 | 287886.9 | 1312.4 |
| Length Wtd. (ft) | 52.00 | Wetted Per. (ft) | 4.20 | 325.16 | 25.17 |
| Min Ch El (ft) | 275.70 | Shear (lb/sq ft) | 0.82 | 14.31 | 2.62 |
| Alpha | 1.02 | Stream Power (lb/ft s) | 1.07 | 125.35 | 7.38 |
| Frctn Loss (ft) | 1.30 | Cum Volume (acre-ft) | 0.01 | 8.72 | 0.17 |
| C & E Loss (ft) | 0.08 | Cum SA (acres) | 0.01 | 0.69 | 0.05 |

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 293.77 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 1.25 | Wt. n-Val. | | 0.125 | |
| W.S. Elev (ft) | 292.52 | Reach Len. (ft) | 55.00 | 52.00 | 50.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 4243.63 | |
| E.G. Slope (ft/ft) | 0.016566 | Area (sq ft) | | 4243.63 | |
| Q Total (cfs) | 38000.00 | Flow (cfs) | | 38000.00 | |
| Top Width (ft) | 280.00 | Top Width (ft) | | 280.00 | |
| Vel Total (ft/s) | 8.95 | Avg. Vel. (ft/s) | | 8.95 | |
| Max Chl Dpth (ft) | 16.82 | Hydr. Depth (ft) | | 15.16 | |
| Conv. Total (cfs) | 295243.9 | Conv. (cfs) | | 295243.9 | |
| Length Wtd. (ft) | 52.00 | Wetted Per. (ft) | | 299.71 | |
| Min Ch El (ft) | 275.70 | Shear (lb/sq ft) | | 14.64 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 131.12 | |
| Frctn Loss (ft) | 1.19 | Cum Volume (acre-ft) | 0.01 | 8.85 | |
| C & E Loss (ft) | 0.07 | Cum SA (acres) | 0.00 | 0.62 | |

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 110

INPUT
Description:
Station Elevation Data num= 30

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 319.7 | 25.6 | 320.8 | 39.1 | 323.7 | 56.6 | 323.4 | 85.6 | 316.2 |
| 100.7 | 307.4 | 113.3 | 295.1 | 123.1 | 285.4 | 143 | 280 | 159.7 | 278.6 |
| 231.4 | 276.9 | 308.8 | 278.8 | 314.5 | 275 | 322.1 | 275 | 324.7 | 279.8 |
| 342.2 | 279.7 | 346.2 | 275.9 | 359.7 | 275.5 | 377.5 | 276.8 | 400.8 | 282.2 |
| 413.9 | 282.9 | 433.8 | 288.8 | 461.1 | 295.2 | 477.9 | 298.5 | 493.3 | 300.6 |
| 507.2 | 300.1 | 530.4 | 301.2 | 561.4 | 306.5 | 593.1 | 313.9 | 640.4 | 322.8 |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .125 | 123.1 | .125 | 433.8 | .125 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 123.1 | 433.8 | 40 | 46 | 50 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 291.66 | Element | Left OB | Channel | Right OB |

| | | | | | |
|---|---|---|---|---|---|
| Vel Head (ft) | 1.99 | Wt. n-Val. | 0.125 | 0.125 | 0.125 |
| W.S. Elev (ft) | 289.67 | Reach Len. (ft) | 40.00 | 46.00 | 50.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 9.23 | 3355.41 | 1.63 |
| E.G. Slope (ft/ft) | 0.039252 | Area (sq ft) | 9.23 | 3355.41 | 1.63 |
| Q Total (cfs) | 38000.00 | Flow (cfs) | 28.71 | 37969.11 | 2.17 |
| Top Width (ft) | 318.75 | Top Width (ft) | 4.32 | 310.70 | 3.73 |
| Vel Total (ft/s) | 11.29 | Avg. Vel. (ft/s) | 3.11 | 11.32 | 1.33 |
| Max Chl Dpth (ft) | 14.67 | Hydr. Depth (ft) | 2.14 | 10.80 | 0.44 |
| Conv. Total (cfs) | 191802.9 | Conv. (cfs) | 144.9 | 191647.0 | 11.0 |
| Length Wtd. (ft) | 46.04 | Wetted Per. (ft) | 6.08 | 318.59 | 3.83 |
| Min Ch El (ft) | 275.00 | Shear (lb/sq ft) | 3.72 | 25.81 | 1.04 |
| Alpha | 1.00 | Stream Power (lb/ft s) | 11.58 | 292.04 | 1.39 |
| Frctn Loss (ft) | 0.93 | Cum Volume (acre-ft) | 0.00 | 4.14 | 0.14 |
| C & E Loss (ft) | 0.28 | Cum SA (acres) | 0.00 | 0.31 | 0.03 |

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 292.50 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 1.97 | Wt. n-Val. | 0.125 | 0.125 | |
| W.S. Elev (ft) | 290.54 | Reach Len. (ft) | 40.00 | 46.00 | 50.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 11.17 | 3373.43 | |
| E.G. Slope (ft/ft) | 0.033763 | Area (sq ft) | 11.17 | 3373.43 | |
| Q Total (cfs) | 38000.00 | Flow (cfs) | 35.25 | 37964.75 | |
| Top Width (ft) | 275.00 | Top Width (ft) | 3.10 | 271.90 | |
| Vel Total (ft/s) | 11.23 | Avg. Vel. (ft/s) | 3.16 | 11.25 | |
| Max Chl Dpth (ft) | 15.54 | Hydr. Depth (ft) | 3.60 | 12.41 | |
| Conv. Total (cfs) | 206806.6 | Conv. (cfs) | 191.8 | 206614.8 | |
| Length Wtd. (ft) | 46.00 | Wetted Per. (ft) | 6.43 | 288.45 | |
| Min Ch El (ft) | 275.00 | Shear (lb/sq ft) | 3.66 | 24.65 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | 11.55 | 277.43 | |
| Frctn Loss (ft) | 0.82 | Cum Volume (acre-ft) | 0.01 | 4.30 | |
| C & E Loss (ft) | 0.29 | Cum SA (acres) | 0.00 | 0.29 | |

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 100

INPUT
Description:
Station Elevation Data num= 37

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 295.1 | 23.7 | 306 | 46.8 | 313.4 | 64.4 | 314.5 | 90 | 307.3 |
| 108.4 | 301.6 | 121.5 | 288.5 | 136.9 | 277.2 | 155.2 | 272.6 | 164.1 | 269 |
| 207.5 | 269 | 215.5 | 269 | 222 | 272.6 | 231.8 | 271.6 | 242.7 | 272.1 |
| 251.8 | 274.8 | 266.4 | 273.1 | 293.7 | 274.1 | 314.1 | 274.5 | 327.8 | 272.5 |
| 356.1 | 272.1 | 368.3 | 272.1 | 376.9 | 275.6 | 395.2 | 278.5 | 400.1 | 281.8 |
| 412.7 | 281.3 | 424.2 | 282.6 | 439.1 | 289.2 | 456 | 289.5 | 474.7 | 300.2 |
| 493.4 | 300.8 | 508.2 | 300.9 | 524 | 301.7 | 542.8 | 305.7 | 567.5 | 310.4 |
| 592.9 | 317 | 636.9 | 326.1 | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .125 | 121.5 | .125 | 400.1 | .125 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 121.5 | 400.1 | 0 | 0 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 290.44 | Element | | | |
| Vel Head (ft) | 1.04 | Wt. n-Val. | 0.125 | 0.125 | 0.125 |
| W.S. Elev (ft) | 289.40 | Reach Len. (ft) | | | |
| Crit W.S. (ft) | 281.35 | Flow Area (sq ft) | 0.40 | 4490.03 | 237.86 |
| E.G. Slope (ft/ft) | 0.012376 | Area (sq ft) | 0.40 | 4490.03 | 237.86 |
| Q Total (cfs) | 38000.00 | Flow (cfs) | 0.25 | 37130.13 | 869.62 |
| Top Width (ft) | 329.77 | Top Width (ft) | 0.90 | 278.60 | 50.27 |
| Vel Total (ft/s) | 8.04 | Avg. Vel. (ft/s) | 0.62 | 8.27 | 3.66 |
| Max Chl Dpth (ft) | 20.40 | Hydr. Depth (ft) | 0.45 | 16.12 | 4.73 |
| Conv. Total (cfs) | 341577.6 | Conv. (cfs) | 2.2 | 333758.5 | 7816.9 |
| Length Wtd. (ft) | | Wetted Per. (ft) | 1.27 | 287.15 | 51.75 |
| Min Ch El (ft) | 269.00 | Shear (lb/sq ft) | 0.25 | 12.08 | 3.55 |
| Alpha | 1.04 | Stream Power (lb/ft s) | 0.15 | 99.91 | 12.98 |
| Frctn Loss (ft) | | Cum Volume (acre-ft) | | | |
| C & E Loss (ft) | | Cum SA (acres) | | | |

CROSS SECTION OUTPUT Profile #PF 2

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 291.39 | Element | | | |
| Vel Head (ft) | 0.99 | Wt. n-Val. | 0.125 | 0.125 | |
| W.S. Elev (ft) | 290.40 | Reach Len. (ft) | | | |
| Crit W.S. (ft) | 281.34 | Flow Area (sq ft) | 1.72 | 4767.76 | |
| E.G. Slope (ft/ft) | 0.011035 | Area (sq ft) | 1.72 | 4767.76 | |
| Q Total (cfs) | 38000.00 | Flow (cfs) | 1.67 | 37998.33 | |
| Top Width (ft) | 280.00 | Top Width (ft) | 1.50 | 278.50 | |
| Vel Total (ft/s) | 7.97 | Avg. Vel. (ft/s) | 0.97 | 7.97 | |

| | | | | | |
|---|---|---|---|---|---|
| Max Chl Dpth (ft) | 21.40 | Hydr. Depth (ft) | 1.15 | 17.12 |
| Conv. Total (cfs) | 361745.0 | Conv. (cfs) | 15.9 | 361729.1 |
| Length Wtd. (ft) | | Wetted Per. (ft) | 2.52 | 295.69 |
| Min Ch El (ft) | 269.00 | Shear (lb/sq ft) | 0.47 | 11.11 |
| Alpha | 1.00 | Stream Power (lb/ft s) | 0.46 | 88.53 |
| Frctn Loss (ft) | | Cum Volume (acre-ft) | | |
| C & E Loss (ft) | | Cum SA (acres) | | |

SUMMARY OF MANNING'S N VALUES

River:RIVER-1

| Reach | River Sta. | n1 | n2 | n3 |
|---|---|---|---|---|
| Reach-1 | 355 | .06 | .05 | .06 |
| Reach-1 | 345 | .06 | .05 | .06 |
| Reach-1 | 340 | .06 | .05 | .06 |
| Reach-1 | 330 | .045 | .035 | .06 |
| Reach-1 | 320 | .045 | .035 | .06 |
| Reach-1 | 310 | .045 | .035 | .06 |
| Reach-1 | 300 | .05 | .06 | .05 |
| Reach-1 | 290 | .05 | .06 | .05 |
| Reach-1 | 285 | .05 | .06 | .05 |
| Reach-1 | 280 | .05 | .06 | .05 |
| Reach-1 | 270 | .05 | .06 | .05 |
| Reach-1 | 260 | .05 | .06 | .05 |
| Reach-1 | 250 | .05 | .06 | .05 |
| Reach-1 | 245 | .11 | .1 | .045 |
| Reach-1 | 244 | .045 | .065 | .1 |
| Reach-1 | 243 | Bridge | | |
| Reach-1 | 242 | .045 | .065 | .1 |
| Reach-1 | 239 | .045 | .065 | .1 |
| Reach-1 | 230 | .045 | .065 | .1 |
| Reach-1 | 220 | .045 | .065 | .1 |
| Reach-1 | 210 | .035 | .045 | .035 |
| Reach-1 | 200 | .035 | .045 | .035 |
| Reach-1 | 190 | .035 | .045 | .035 |
| Reach-1 | 180 | .035 | .045 | .035 |
| Reach-1 | 170 | .035 | .045 | .035 |
| Reach-1 | 160 | .035 | .045 | .035 |
| Reach-1 | 150 | .08 | .08 | .08 |
| Reach-1 | 140 | .08 | .08 | .08 |
| Reach-1 | 130 | .08 | .08 | .08 |
| Reach-1 | 120 | .125 | .125 | .125 |
| Reach-1 | 110 | .125 | .125 | .125 |
| Reach-1 | 100 | .125 | .125 | .125 |

SUMMARY OF REACH LENGTHS

River: RIVER-1

| Reach | River Sta. | Left | Channel | Right |
|---|---|---|---|---|
| Reach-1 | 355 | 350 | 310 | 360 |
| Reach-1 | 345 | 125 | 335 | 400 |
| Reach-1 | 340 | 575 | 454 | 450 |
| Reach-1 | 330 | 620 | 588 | 620 |
| Reach-1 | 320 | 660 | 711 | 640 |
| Reach-1 | 310 | 640 | 610 | 610 |
| Reach-1 | 300 | 605 | 654 | 790 |
| Reach-1 | 290 | 645 | 653 | 695 |
| Reach-1 | 285 | 660 | 688 | 640 |
| Reach-1 | 280 | 1060 | 1021 | 1135 |
| Reach-1 | 270 | 815 | 951 | 1000 |
| Reach-1 | 260 | 1000 | 1031 | 1050 |
| Reach-1 | 250 | 615 | 701 | 700 |
| Reach-1 | 245 | 150 | 177 | 210 |
| Reach-1 | 244 | 95 | 95 | 95 |
| Reach-1 | 243 | Bridge | | |
| Reach-1 | 242 | 270 | 224 | 165 |
| Reach-1 | 239 | 515 | 413 | 385 |
| Reach-1 | 230 | 430 | 487 | 460 |
| Reach-1 | 220 | 620 | 450 | 385 |
| Reach-1 | 210 | 450 | 350 | 350 |
| Reach-1 | 200 | 630 | 600 | 595 |
| Reach-1 | 190 | 785 | 550 | 550 |
| Reach-1 | 180 | 405 | 300 | 255 |
| Reach-1 | 170 | 390 | 350 | 350 |
| Reach-1 | 160 | 630 | 690 | 690 |
| Reach-1 | 150 | 545 | 540 | 540 |
| Reach-1 | 140 | 550 | 552 | 550 |
| Reach-1 | 130 | 530 | 520 | 520 |
| Reach-1 | 120 | 55 | 52 | 50 |
| Reach-1 | 110 | 40 | 46 | 50 |
| Reach-1 | 100 | 0 | 0 | 0 |

SUMMARY OF CONTRACTION AND EXPANSION COEFFICIENTS
River: RIVER-1

| Reach | River Sta. | Contr. | Expan. |
|---|---|---|---|
| Reach-1 | 355 | .1 | .3 |
| Reach-1 | 345 | .1 | .3 |
| Reach-1 | 340 | .1 | .3 |

| | | | | |
|---|---|---|---|---|
| Reach-1 | 330 | | .1 | .3 |
| Reach-1 | 320 | | .1 | .3 |
| Reach-1 | 310 | | .1 | .3 |
| Reach-1 | 300 | | .1 | .3 |
| Reach-1 | 290 | | .1 | .3 |
| Reach-1 | 285 | | .1 | .3 |
| Reach-1 | 280 | | .1 | .3 |
| Reach-1 | 270 | | .1 | .3 |
| Reach-1 | 260 | | .1 | .3 |
| Reach-1 | 250 | | .1 | .3 |
| Reach-1 | 245 | | .1 | .3 |
| Reach-1 | 244 | | .3 | .5 |
| Reach-1 | 243 | Bridge | | |
| Reach-1 | 242 | | .3 | .5 |
| Reach-1 | 239 | | .1 | .3 |
| Reach-1 | 230 | | .1 | .3 |
| Reach-1 | 220 | | .1 | .3 |
| Reach-1 | 210 | | .1 | .3 |
| Reach-1 | 200 | | .1 | .3 |
| Reach-1 | 190 | | .1 | .3 |
| Reach-1 | 180 | | .1 | .3 |
| Reach-1 | 170 | | .1 | .3 |
| Reach-1 | 160 | | .1 | .3 |
| Reach-1 | 150 | | .1 | .3 |
| Reach-1 | 140 | | .1 | .3 |
| Reach-1 | 130 | | .1 | .3 |
| Reach-1 | 120 | | .1 | .3 |
| Reach-1 | 110 | | .1 | .3 |
| Reach-1 | 100 | | .1 | .3 |

EXHIBIT D
CORRECTED EFFECTIVE MODEL

HEC-RAS HEC-RAS 5.0.7 March 2019
U.S. Army Corps of Engineers
Hydrologic Engineering Center
609 Second Street
Davis, California

```
X     X  XXXXXX    XXXX        XXXX       XX      XXXX
X     X  X        X    X      X   X     X  X    X
X     X  X        X           X   X    X    X   X
XXXXXXX  XXXX     X       XXX  XXXX     XXXXXX    XXXX
X     X  X        X           X  X     X    X        X
X     X  X        X    X      X   X    X    X        X
X     X  XXXXXX    XXXX       X    X   X    X   XXXXX
```

PROJECT DATA
Project Title: Corrected Effective Model
Project File : CorrectedEffective.prj
Run Date and Time: 4/21/2023 2:39:01 PM

Project in English units

Project Description:
UPPER SAN DIEGO RIVER- Corrected Effective Model- Hunsaker&Associates

PROFILE 1 - 100 YEAR FLOODPLAIN (FEMA)
PROFILE 2 - 100 YEAR
FLOODWAY (FEMA)

PLAN DATA

Plan Title: Imported Plan 01
Plan File : r:\1759\Plot\Hydrology\FEMA\To the City\02 01-20-2023\04-20-2023\HEC-RAS 04-20-2023\Corrected Effective Model\CorrectedEffective.p01

Geometry Title: Imported Geom 01
Geometry File : r:\1759\Plot\Hydrology\FEMA\To the City\02 01-20-2023\04-20-2023\HEC-RAS 04-20-2023\Corrected Effective Model\CorrectedEffective.g01

Flow Title : Imported Flow 01
Flow File : r:\1759\Plot\Hydrology\FEMA\To the City\02 01-20-2023\04-20-2023\HEC-RAS 04-20-2023\Corrected Effective Model\CorrectedEffective.f01

Plan Summary Information:
Number of: Cross Sections = 19 Multiple Openings = 0
Culverts = 0 Inline Structures = 0
Bridges = 1 Lateral Structures = 0

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

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

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

River = RIVER-1          Reach = Reach-1

| RS | Profile | Method | Value1 | Value2 |
|---|---|---|---|---|
| 355 | PF 2 | 1 | 1604.5 | 2269.4 |
| 345 | PF 2 | 1 | 1217.3 | 2147.3 |
| 340 | PF 2 | 1 | 1147.2 | 2067.2 |
| 330 | PF 2 | 1 | 1293.6 | 2138.6 |
| 320 | PF 2 | 1 | 848.3 | 2073.3 |
| 315 | PF 2 | 1 | 831 | 2340.8 |
| 310 | PF 2 | 1 | 559.1 | 2104.1 |
| 300 | PF 2 | 1 | 434.3 | 1904.3 |
| 290 | PF 2 | 1 | 270.7 | 1840.7 |
| 285 | PF 2 | 1 | 472.1 | 1907.1 |
| 280 | PF 2 | 1 | 608.4 | 1908.4 |
| 270 | PF 2 | 1 | 341.7 | 901.7 |
| 260 | PF 2 | 1 | 256.7 | 856.7 |
| 250 | PF 2 | 1 | 357 | 1052 |
| 245 | PF 2 | 1 | 686.6 | 1291.6 |
| 244 | PF 2 | 1 | 459.7 | 960.1 |
| 242 | PF 2 | 1 | 401 | 900.5 |
| 239 | PF 2 | 1 | 246.2 | 906.2 |
| 230 | PF 2 | 1 | 321.8 | 1056.8 |
| 220 | PF 2 | 1 | 522.9 | 1492.9 |
| 210 | PF 2 | 1 | 438 | 1478 |
| 200 | PF 2 | 1 | 404.6 | 1494.6 |
| 190 | PF 2 | 1 | 710 | 2000 |
| 180 | PF 2 | 1 | 865 | 2065 |
| 170 | PF 2 | 1 | 1040 | 2085 |
| 160 | PF 2 | 1 | 570 | 1435 |
| 150 | PF 2 | 1 | 655 | 1200 |
| 140 | PF 2 | 1 | 315 | 585 |
| 130 | PF 2 | 1 | 225 | 500 |
| 120 | PF 2 | 1 | 115 | 395 |
| 110 | PF 2 | 1 | 120 | 395 |
| 100 | PF 2 | 1 | 120 | 400 |

FLOW DATA

Flow Title: Imported Flow 01
Flow File : r:\1759\Plot\Hydrology\FEMA\To the City\02 01-20-2023\04-20-2023\HEC-RAS 04-20-2023\Corrected Effective Model\CorrectedEffective.f01

Flow Data (cfs)

| River | Reach | RS | PF 1 | PF 2 | PF 3 |
|---|---|---|---|---|---|
| RIVER-1 | Reach-1 | 355 | 36000 | 36000 | 48000 |
| RIVER-1 | Reach-1 | 320 | 37000 | 37000 | 49000 |
| RIVER-1 | Reach-1 | 260 | 38000 | 38000 | 50000 |

Boundary Conditions

| River | Reach | Profile | Upstream | Downstream |
|---|---|---|---|---|
| RIVER-1 | Reach-1 | PF 1 | | Known WS = 300.76 |
| RIVER-1 | Reach-1 | PF 2 | | Known WS = 301.66 |
| RIVER-1 | Reach-1 | PF 3 | | Known WS = 307.13 |

GEOMETRY DATA

Geometry Title: Imported Geom 01
Geometry File : r:\1759\Plot\Hydrology\FEMA\To the City\02 01-20-2023\04-20-2023\HEC-RAS 04-20-2023\Corrected Effective Model\CorrectedEffective.g01

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 355

INPUT
Description: reversed cross section and encroachments
Ineffective flow area
Per FEMA Study
Station Elevation Data num= 80

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 328.6 | 54.1 | 329.6 | 64.2 | 325.6 | 78.6 | 322.7 | 125.3 | 322.5 |
| 191.1 | 321.9 | 199.7 | 330.5 | 303.1 | 330.6 | 305.9 | 328.2 | 314.9 | 330.2 |
| 343.4 | 331 | 443.3 | 330.1 | 543 | 331.4 | 551.9 | 329.8 | 608.6 | 330 |
| 615.1 | 337.4 | 640.3 | 337.4 | 643.6 | 329.1 | 672 | 328.4 | 743.1 | 329.5 |
| 746.8 | 336.5 | 789.9 | 336.5 | 793.5 | 328.9 | 836.7 | 328.9 | 980.7 | 324.9 |
| 1031 | 325 | 1062.7 | 326.6 | 1066.4 | 336.1 | 1083.8 | 336.3 | 1090.8 | 326.3 |
| 1156 | 325.6 | 1239.4 | 323.7 | 1275.1 | 321.6 | 1361.3 | 321 | 1418.6 | 319.8 |
| 1446.7 | 316.6 | 1469.1 | 316.3 | 1506.5 | 316.7 | 1516.7 | 310.8 | 1537.2 | 310.1 |
| 1551.7 | 310.8 | 1563.9 | 314.9 | 1590.3 | 315.8 | 1604.5 | 319.7 | 1616.8 | 316.1 |
| 1666 | 315.1 | 1720.1 | 313.8 | 1733.1 | 311.4 | 1933.3 | 311.5 | 2090.2 | 312 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2112.2 | 314.2 | 2137 | 316.4 | 2145.2 | 320.2 | 2164.3 | 321.8 | 2196.4 | 318.6 |
| 2209 | 313.6 | 2229.8 | 312.6 | 2258.6 | 312.6 | 2294 | 313.5 | 2306.7 | 315.2 |
| 2330.7 | 319.2 | 2365.6 | 319.9 | 2417.7 | 320.5 | 2464.8 | 318.9 | 2487.3 | 317.9 |
| 2527.9 | 317.8 | 2547.1 | 318.7 | 2582 | 322.5 | 2592.6 | 324.2 | 2640.3 | 323.9 |
| 2733.3 | 326 | 2773.3 | 328.7 | 2799.6 | 328.3 | 2837.5 | 329.1 | 2881.4 | 328.9 |
| 2888.7 | 330.5 | 2924.8 | 331.4 | 2990.2 | 330.4 | 2995.2 | 332.8 | 3009.4 | 332.2 |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .06 | 1604.5 | .05 | 2417.7 | .06 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 1604.5 | 2417.7 | 360 | 310 | 350 | .1 | .3 |

Ineffective Flow num= 2

| Sta L | Sta R | Elev | Permanent |
|---|---|---|---|
| 0 | 1604.5 | 322 | F |
| 2417.7 | 3009.4 | 322 | F |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | | |
|---|---|---|---|---|---|---|
| E.G. Elev (ft) | 322.22 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.55 | Wt. n-Val. | | 0.050 | |
| W.S. Elev (ft) | 321.67 | Reach Len. (ft) | 360.00 | 310.00 | 350.00 |
| Crit W.S. (ft) | 317.36 | Flow Area (sq ft) | | 6058.62 | |
| E.G. Slope (ft/ft) | 0.002750 | Area (sq ft) | 1317.19 | 6058.62 | 428.14 |
| Q Total (cfs) | 36000.00 | Flow (cfs) | | 36000.00 | |
| Top Width (ft) | 1297.77 | Top Width (ft) | 330.65 | 810.42 | 156.71 |
| Vel Total (ft/s) | 5.94 | Avg. Vel. (ft/s) | | 5.94 | |
| Max Chl Dpth (ft) | 11.57 | Hydr. Depth (ft) | | 7.48 | |
| Conv. Total (cfs) | 686445.6 | Conv. (cfs) | | 686445.6 | |
| Length Wtd. (ft) | 310.00 | Wetted Per. (ft) | | 813.88 | |
| Min Ch El (ft) | 311.40 | Shear (lb/sq ft) | | 1.28 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 7.59 | |
| Frctn Loss (ft) | 0.73 | Cum Volume (acre-ft) | 92.47 | 1796.14 | 222.42 |
| C & E Loss (ft) | 0.05 | Cum SA (acres) | 31.73 | 228.62 | 43.71 |

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

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 322.36 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.66 | Wt. n-Val. | | 0.050 | |
| W.S. Elev (ft) | 321.70 | Reach Len. (ft) | 360.00 | 310.00 | 350.00 |
| Crit W.S. (ft) | 317.48 | Flow Area (sq ft) | | 5516.36 | |
| E.G. Slope (ft/ft) | 0.002938 | Area (sq ft) | | 5516.36 | |
| Q Total (cfs) | 36000.00 | Flow (cfs) | | 36000.00 | |
| Top Width (ft) | 662.70 | Top Width (ft) | | 662.70 | |
| Vel Total (ft/s) | 6.53 | Avg. Vel. (ft/s) | | 6.53 | |
| Max Chl Dpth (ft) | 10.30 | Hydr. Depth (ft) | | 8.32 | |
| Conv. Total (cfs) | 664129.3 | Conv. (cfs) | | 664129.3 | |
| Length Wtd. (ft) | 310.00 | Wetted Per. (ft) | | 676.54 | |
| Min Ch El (ft) | 311.40 | Shear (lb/sq ft) | | 1.50 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 9.76 | |

| | | | | | |
|---|---|---|---|---|---|
| Frctn Loss (ft) | 0.71 | Cum Volume (acre-ft) | 16.21 | 1796.00 | 79.03 |
| C & E Loss (ft) | 0.07 | Cum SA (acres) | 2.52 | 214.07 | 10.72 |

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

CROSS SECTION OUTPUT Profile #PF 3

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 323.45 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.44 | Wt. n-Val. | 0.060 | 0.050 | 0.060 |
| W.S. Elev (ft) | 323.01 | Reach Len. (ft) | 360.00 | 310.00 | 350.00 |
| Crit W.S. (ft) | 318.35 | Flow Area (sq ft) | 1848.77 | 7147.40 | 645.83 |
| E.G. Slope (ft/ft) | 0.002009 | Area (sq ft) | 1848.77 | 7147.40 | 645.83 |
| Q Total (cfs) | 48000.00 | Flow (cfs) | 5806.80 | 40432.62 | 1760.59 |
| Top Width (ft) | 1449.27 | Top Width (ft) | 468.57 | 813.20 | 167.49 |
| Vel Total (ft/s) | 4.98 | Avg. Vel. (ft/s) | 3.14 | 5.66 | 2.73 |
| Max Chl Dpth (ft) | 12.91 | Hydr. Depth (ft) | 3.95 | 8.79 | 3.86 |
| Conv. Total (cfs) | 1070897.0 | Conv. (cfs) | 129551.8 | 902066.1 | 39279.3 |
| Length Wtd. (ft) | 313.98 | Wetted Per. (ft) | 472.13 | 816.68 | 167.81 |
| Min Ch El (ft) | 311.40 | Shear (lb/sq ft) | 0.49 | 1.10 | 0.48 |
| Alpha | 1.15 | Stream Power (lb/ft s) | 1.54 | 6.21 | 1.32 |
| Frctn Loss (ft) | 0.65 | Cum Volume (acre-ft) | 165.51 | 2226.47 | 394.10 |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 44.54 | 230.37 | 53.69 |

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

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 345

INPUT
Description: reversed Section
Station Elevation Data num= 87

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 328.5 | 49.4 | 329.1 | 102.6 | 328.5 | 110.8 | 325.5 | 147.2 | 324.7 |
| 222.2 | 324.8 | 279.9 | 324 | 297.8 | 318.7 | 332.6 | 318.3 | 342 | 322.6 |
| 352.2 | 328.6 | 409 | 329.7 | 414.3 | 338.4 | 436.9 | 338.4 | 443.4 | 329.4 |
| 479.4 | 328.7 | 533.4 | 328.1 | 539.9 | 334.4 | 654.6 | 334.4 | 663.1 | 327.7 |
| 761.2 | 327.7 | 831.1 | 325.5 | 841.3 | 334.3 | 870.8 | 334.3 | 875.7 | 325.4 |
| 919.5 | 323.7 | 960.7 | 323.6 | 995.9 | 324.3 | 1000.4 | 333.1 | 1039.7 | 333.1 |
| 1042.9 | 325.3 | 1092.1 | 322.8 | 1111.7 | 320.1 | 1171.1 | 320.2 | 1196.7 | 319 |
| 1218.4 | 314.4 | 1243.9 | 313.4 | 1260.5 | 315.7 | 1277.7 | 315.6 | 1287.1 | 312.5 |
| 1308.4 | 310.6 | 1331.5 | 309.8 | 1349.3 | 310.6 | 1357.5 | 314 | 1406.2 | 313.9 |
| 1473.3 | 313.3 | 1479.5 | 310 | 1754.1 | 310 | 1768.6 | 320.8 | 1784.4 | 328.6 |
| 1796.2 | 329.8 | 1811.8 | 323.1 | 1827.4 | 315.1 | 1847.9 | 313.7 | 1865 | 315.1 |
| 1881.8 | 319.8 | 1899.8 | 323.5 | 1942.8 | 322.9 | 1993.1 | 319.8 | 2004.9 | 316.5 |
| 2015.6 | 312.2 | 2033.1 | 312.5 | 2061.4 | 312.9 | 2065.9 | 312.2 | 2147.9 | 312.2 |
| 2160.3 | 316.1 | 2180.3 | 319.1 | 2223.2 | 319.9 | 2242.8 | 318 | 2258.3 | 317.9 |
| 2273.1 | 319.4 | 2284.9 | 321.6 | 2294.3 | 324.2 | 2319.3 | 325.5 | 2321.4 | 351.5 |
| 2360.3 | 351.5 | 2366.8 | 331.2 | 2419.1 | 331.4 | 2422.9 | 347.8 | 2478 | 347.8 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2482.6 | 330.3 | 2500.2 | 330.1 | 2540.7 | 330.6 | 2574.2 | 329.3 | 2587 | 329.7 |
| 2658.4 | 333.8 | 2742.3 | 337.4 | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .06 | 1092.1 | .05 | 2294.3 | .06 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 1092.1 | 2294.3 | 400 | 335 | 125 | .1 | .3 |

Ineffective Flow num= 1

| Sta L | Sta R | Elev | Permanent |
|---|---|---|---|
| 0 | 742.3 | 322 | F |

CROSS SECTION OUTPUT Profile #PF 1

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 321.44 | Element | | | |
| Vel Head (ft) | 0.37 | Wt. n-Val. | | 0.050 | |
| W.S. Elev (ft) | 321.07 | Reach Len. (ft) | 400.00 | 335.00 | 125.00 |
| Crit W.S. (ft) | 316.13 | Flow Area (sq ft) | | 7368.56 | |
| E.G. Slope (ft/ft) | 0.002031 | Area (sq ft) | 107.28 | 7368.56 | |
| Q Total (cfs) | 36000.00 | Flow (cfs) | | 36000.00 | |
| Top Width (ft) | 1095.11 | Top Width (ft) | 48.86 | 1046.25 | |
| Vel Total (ft/s) | 4.89 | Avg. Vel. (ft/s) | | 4.89 | |
| Max Chl Dpth (ft) | 11.27 | Hydr. Depth (ft) | | 7.04 | |
| Conv. Total (cfs) | 798808.6 | Conv. (cfs) | | 798808.6 | |
| Length Wtd. (ft) | 335.00 | Wetted Per. (ft) | | 1057.62 | |
| Min Ch El (ft) | 309.80 | Shear (lb/sq ft) | | 0.88 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 4.32 | |
| Frctn Loss (ft) | 0.67 | Cum Volume (acre-ft) | 86.58 | 1748.36 | 220.70 |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 30.16 | 222.02 | 43.09 |

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

CROSS SECTION OUTPUT Profile #PF 2

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 321.58 | Element | | | |
| Vel Head (ft) | 0.42 | Wt. n-Val. | | 0.050 | |
| W.S. Elev (ft) | 321.16 | Reach Len. (ft) | 400.00 | 335.00 | 125.00 |
| Crit W.S. (ft) | 316.13 | Flow Area (sq ft) | | 6896.55 | |
| E.G. Slope (ft/ft) | 0.001822 | Area (sq ft) | | 6896.55 | |
| Q Total (cfs) | 36000.00 | Flow (cfs) | | 36000.00 | |
| Top Width (ft) | 801.12 | Top Width (ft) | | 801.12 | |
| Vel Total (ft/s) | 5.22 | Avg. Vel. (ft/s) | | 5.22 | |
| Max Chl Dpth (ft) | 11.36 | Hydr. Depth (ft) | | 8.61 | |
| Conv. Total (cfs) | 843288.1 | Conv. (cfs) | | 843288.1 | |
| Length Wtd. (ft) | 335.00 | Wetted Per. (ft) | | 826.33 | |
| Min Ch El (ft) | 309.80 | Shear (lb/sq ft) | | 0.95 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 4.96 | |
| Frctn Loss (ft) | 0.62 | Cum Volume (acre-ft) | 16.21 | 1751.83 | 79.03 |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 2.52 | 208.86 | 10.72 |

Warning: Divided flow computed for this cross-section.

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

CROSS SECTION OUTPUT Profile #PF 3

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 322.80 | Element | | | |
| Vel Head (ft) | 0.46 | Wt. n-Val. | 0.060 | 0.050 | |
| W.S. Elev (ft) | 322.34 | Reach Len. (ft) | 400.00 | 335.00 | 125.00 |
| Crit W.S. (ft) | 317.04 | Flow Area (sq ft) | 174.06 | 8732.06 | |
| E.G. Slope (ft/ft) | 0.002137 | Area (sq ft) | 174.06 | 8732.06 | |
| Q Total (cfs) | 48000.00 | Flow (cfs) | 417.68 | 47582.32 | |
| Top Width (ft) | 1148.93 | Top Width (ft) | 55.95 | 1092.98 | |
| Vel Total (ft/s) | 5.39 | Avg. Vel. (ft/s) | 2.40 | 5.45 | |
| Max Chl Dpth (ft) | 12.54 | Hydr. Depth (ft) | 3.11 | 7.99 | |
| Conv. Total (cfs) | 1038354.0 | Conv. (cfs) | 9035.3 | 1029319.0 | |
| Length Wtd. (ft) | 335.28 | Wetted Per. (ft) | 57.36 | 1105.36 | |
| Min Ch El (ft) | 309.80 | Shear (lb/sq ft) | 0.40 | 1.05 | |
| Alpha | 1.02 | Stream Power (lb/ft s) | 0.97 | 5.74 | |
| Frctn Loss (ft) | 0.72 | Cum Volume (acre-ft) | 157.15 | 2169.97 | 391.51 |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 42.38 | 223.59 | 53.02 |

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

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 340

INPUT
Description: reversed Cross section
Station Elevation Data num= 82

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 326.7 | 43.2 | 327 | 89.6 | 327.9 | 94.4 | 326.4 | 102.4 | 324.9 |
| 130 | 324.1 | 201.6 | 323.1 | 232.8 | 323.6 | 287.2 | 322.5 | 301.2 | 321 |
| 312 | 313.1 | 344 | 313.4 | 353.2 | 317.7 | 361.6 | 325.1 | 382.4 | 325.4 |
| 408.1 | 327.2 | 412.5 | 335.5 | 452.9 | 335.5 | 458.9 | 325.8 | 498.9 | 324.4 |
| 541.7 | 325.2 | 559.3 | 325.7 | 597.3 | 325.8 | 630.1 | 325.1 | 705.7 | 324.9 |
| 768.5 | 325.4 | 806.9 | 325.7 | 889.8 | 326.1 | 895.4 | 334.3 | 917.8 | 334.3 |
| 923 | 326.1 | 955.8 | 324.1 | 987.8 | 325 | 1016.2 | 326 | 1018.6 | 336 |
| 1056.2 | 333.6 | 1063.4 | 326 | 1106.2 | 324.8 | 1119.4 | 322.7 | 1140.2 | 317.5 |
| 1166.2 | 311.8 | 1172.3 | 311.9 | 1182.7 | 315.6 | 1195.5 | 316.1 | 1201.1 | 310.6 |
| 1207.1 | 309.9 | 1243.1 | 310.6 | 1276.3 | 315.7 | 1331.9 | 314.9 | 1350.7 | 311.8 |
| 1408.7 | 311 | 1417.5 | 310.4 | 1588.3 | 310.4 | 1600 | 315.1 | 1626.4 | 315.7 |
| 1674.8 | 315.4 | 1693.2 | 314.2 | 1722.4 | 314.4 | 1733.6 | 315.6 | 1752.4 | 317.4 |
| 1782.8 | 317.3 | 1799.2 | 314.2 | 1807.6 | 311.3 | 1847.6 | 311.2 | 1929.2 | 311.9 |
| 1958.5 | 312.9 | 1963.3 | 312.2 | 2053.3 | 312.2 | 2071.3 | 314.7 | 2096.5 | 316.6 |
| 2114.1 | 319.8 | 2130.9 | 323.4 | 2156.1 | 324.1 | 2158.5 | 347.5 | 2320.2 | 347.5 |
| 2326.6 | 330.3 | 2339.4 | 330.2 | 2347.8 | 331 | 2388.2 | 331.3 | 2422.2 | 330.3 |
| 2449 | 331.8 | 2492.2 | 332.5 | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .06 | 1106.2 | .05 | 2130.9 | .06 |

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

| 1106.2 | 2130.9 | | 450 | 454 | 575 | .1 | .3 |
|---|---|---|---|---|---|---|---|

Ineffective Flow num= 1

| Sta L | Sta R | Elev | Permanent |
|---|---|---|---|
| 0 | 992.2 | 325.5 | F |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 320.77 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.38 | Wt. n-Val. | | 0.050 | |
| W.S. Elev (ft) | 320.39 | Reach Len. (ft) | 450.00 | 454.00 | 575.00 |
| Crit W.S. (ft) | 316.26 | Flow Area (sq ft) | | 7257.49 | |
| E.G. Slope (ft/ft) | 0.001970 | Area (sq ft) | 313.25 | 7257.49 | |
| Q Total (cfs) | 36000.00 | Flow (cfs) | | 36000.00 | |
| Top Width (ft) | 1042.39 | Top Width (ft) | 54.21 | 988.18 | |
| Vel Total (ft/s) | 4.96 | Avg. Vel. (ft/s) | | 4.96 | |
| Max Chl Dpth (ft) | 10.49 | Hydr. Depth (ft) | | 7.34 | |
| Conv. Total (cfs) | 811010.4 | Conv. (cfs) | | 811010.4 | |
| Length Wtd. (ft) | 460.48 | Wetted Per. (ft) | | 995.33 | |
| Min Ch El (ft) | 309.90 | Shear (lb/sq ft) | | 0.90 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 4.45 | |
| Frctn Loss (ft) | 0.91 | Cum Volume (acre-ft) | 84.65 | 1692.12 | 220.70 |
| C & E Loss (ft) | 0.03 | Cum SA (acres) | 29.69 | 214.20 | 43.09 |

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

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 320.95 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.39 | Wt. n-Val. | | 0.050 | |
| W.S. Elev (ft) | 320.57 | Reach Len. (ft) | 450.00 | 454.00 | 575.00 |
| Crit W.S. (ft) | 316.26 | Flow Area (sq ft) | | 7196.79 | |
| E.G. Slope (ft/ft) | 0.001870 | Area (sq ft) | | 7196.79 | |
| Q Total (cfs) | 36000.00 | Flow (cfs) | | 36000.00 | |
| Top Width (ft) | 920.00 | Top Width (ft) | | 920.00 | |
| Vel Total (ft/s) | 5.00 | Avg. Vel. (ft/s) | | 5.00 | |
| Max Chl Dpth (ft) | 10.67 | Hydr. Depth (ft) | | 7.82 | |
| Conv. Total (cfs) | 832474.0 | Conv. (cfs) | | 832474.0 | |
| Length Wtd. (ft) | 460.02 | Wetted Per. (ft) | | 937.19 | |
| Min Ch El (ft) | 309.90 | Shear (lb/sq ft) | | 0.90 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 4.48 | |
| Frctn Loss (ft) | 0.88 | Cum Volume (acre-ft) | 16.21 | 1697.64 | 79.03 |
| C & E Loss (ft) | 0.03 | Cum SA (acres) | 2.52 | 202.24 | 10.72 |

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

CROSS SECTION OUTPUT Profile #PF 3

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 322.08 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.50 | Wt. n-Val. | | 0.050 | |
| W.S. Elev (ft) | 321.58 | Reach Len. (ft) | 450.00 | 454.00 | 575.00 |

| | | | | | |
|---|---|---|---|---|---|
| Crit W.S. (ft) | 317.07 | Flow Area (sq ft) | | 8439.60 | |
| E.G. Slope (ft/ft) | 0.002148 | Area (sq ft) | 380.86 | 8439.60 | |
| Q Total (cfs) | 48000.00 | Flow (cfs) | | 48000.00 | |
| Top Width (ft) | 1060.28 | Top Width (ft) | 61.78 | 998.50 | |
| Vel Total (ft/s) | 5.69 | Avg. Vel. (ft/s) | | 5.69 | |
| Max Chl Dpth (ft) | 11.68 | Hydr. Depth (ft) | | 8.45 | |
| Conv. Total (cfs) | 1035592.0 | Conv. (cfs) | | 1035592.0 | |
| Length Wtd. (ft) | 460.78 | Wetted Per. (ft) | | 1005.91 | |
| Min Ch El (ft) | 309.90 | Shear (lb/sq ft) | | 1.13 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 6.40 | |
| Frctn Loss (ft) | 1.01 | Cum Volume (acre-ft) | 154.61 | 2103.94 | 391.51 |
| C & E Loss (ft) | 0.04 | Cum SA (acres) | 41.84 | 215.55 | 53.02 |

Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 330

INPUT
Description: Ineffective area Per FEMA Effective Study
Station Elevation Data num= 87

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 329.4 | 6.4 | 340.1 | 55 | 340.1 | 58.2 | 328.3 | 141.2 | 326.1 |
| 185.4 | 328.3 | 231.5 | 330.2 | 243.2 | 325.1 | 288.6 | 324.1 | 379.6 | 322.2 |
| 474.7 | 320.1 | 525.2 | 321.6 | 540.1 | 314.3 | 568.2 | 309.9 | 581 | 309.8 |
| 589.9 | 316.6 | 600.7 | 322.8 | 620.3 | 323.5 | 669.7 | 323.1 | 674.1 | 332 |
| 706.7 | 332 | 712.3 | 323.7 | 739.5 | 322.4 | 776.4 | 322.4 | 806.9 | 323.4 |
| 811.9 | 331 | 853.1 | 331 | 858 | 323.1 | 901.3 | 324.3 | 907.3 | 326.5 |
| 951 | 327.2 | 1025.7 | 326.7 | 1077.9 | 326.6 | 1084.3 | 329.3 | 1104.3 | 330.1 |
| 1107.6 | 336.6 | 1151.7 | 336.6 | 1157.3 | 329.8 | 1199.9 | 326 | 1239.6 | 321.9 |
| 1254.4 | 316.3 | 1272.1 | 314.1 | 1309.8 | 313.3 | 1339.5 | 311.3 | 1353.9 | 308.6 |
| 1358.9 | 308.5 | 1370.2 | 308.6 | 1379.5 | 312 | 1426.4 | 313.8 | 1487.8 | 313.6 |
| 1504.2 | 310.2 | 1521.1 | 310.2 | 1556 | 313.2 | 1606.6 | 312.6 | 1668.3 | 312.9 |
| 1684.4 | 310 | 1832 | 310 | 1836.4 | 313.3 | 1844.4 | 317.8 | 1861.7 | 321.4 |
| 1879.7 | 316.5 | 1889.8 | 313.5 | 1945.9 | 314.8 | 1981.6 | 314 | 1996.9 | 322.1 |
| 2003.7 | 324.8 | 2013.3 | 323.4 | 2025.8 | 316.7 | 2041 | 312.5 | 2131.8 | 312.5 |
| 2142.6 | 314.9 | 2166.3 | 315.9 | 2183.1 | 318 | 2194.4 | 324.4 | 2217.2 | 324.6 |
| 2220.1 | 351.3 | 2263 | 351.3 | 2269.4 | 330.5 | 2329.6 | 329.8 | 2330.9 | 346.6 |
| 2382.3 | 346.6 | 2388.7 | 328.4 | 2403.5 | 325.8 | 2442.1 | 325.9 | 2477.4 | 324.8 |
| 2511.5 | 327.4 | 2573.6 | 331.2 | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .06 | 1239.6 | .035 | 2003.7 | .045 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 1239.6 | 2003.7 | 620 | 588 | 620 | .1 | .3 |

Ineffective Flow num= 1

| Sta L | Sta R | Elev | Permanent |
|---|---|---|---|
| 0 | 1173.6 | 329.3 | F |

CROSS SECTION OUTPUT  Profile #PF 1

| | | | | | | |
|---|---|---|---|---|---|---|
| E.G. Elev (ft) | 319.84 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.64 | Wt. n-Val. | | 0.035 | 0.045 |
| W.S. Elev (ft) | 319.20 | Reach Len. (ft) | 620.00 | 588.00 | 620.00 |
| Crit W.S. (ft) | 316.37 | Flow Area (sq ft) | | 4849.57 | 871.85 |
| E.G. Slope (ft/ft) | 0.001962 | Area (sq ft) | 402.67 | 4849.57 | 871.85 |
| Q Total (cfs) | 36000.00 | Flow (cfs) | | 32146.56 | 3853.44 |
| Top Width (ft) | 954.35 | Top Width (ft) | 64.31 | 725.97 | 164.07 |
| Vel Total (ft/s) | 6.29 | Avg. Vel. (ft/s) | | 6.63 | 4.42 |
| Max Chl Dpth (ft) | 10.70 | Hydr. Depth (ft) | | 6.68 | 5.31 |
| Conv. Total (cfs) | 812669.4 | Conv. (cfs) | | 725681.3 | 86988.1 |
| Length Wtd. (ft) | 589.70 | Wetted Per. (ft) | | 732.87 | 165.99 |
| Min Ch El (ft) | 308.50 | Shear (lb/sq ft) | | 0.81 | 0.64 |
| Alpha | 1.04 | Stream Power (lb/ft s) | | 5.37 | 2.84 |
| Frctn Loss (ft) | 0.81 | Cum Volume (acre-ft) | 80.95 | 1629.03 | 214.94 |
| C & E Loss (ft) | 0.10 | Cum SA (acres) | 29.08 | 205.26 | 42.00 |

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

CROSS SECTION OUTPUT  Profile #PF 2

| | | | | | | |
|---|---|---|---|---|---|---|
| E.G. Elev (ft) | 320.04 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.68 | Wt. n-Val. | | 0.035 | 0.045 |
| W.S. Elev (ft) | 319.36 | Reach Len. (ft) | 620.00 | 588.00 | 620.00 |
| Crit W.S. (ft) | 316.37 | Flow Area (sq ft) | | 4765.30 | 743.33 |
| E.G. Slope (ft/ft) | 0.001963 | Area (sq ft) | | 4765.30 | 743.33 |
| Q Total (cfs) | 36000.00 | Flow (cfs) | | 32420.83 | 3579.17 |
| Top Width (ft) | 798.59 | Top Width (ft) | | 680.83 | 117.76 |
| Vel Total (ft/s) | 6.54 | Avg. Vel. (ft/s) | | 6.80 | 4.82 |
| Max Chl Dpth (ft) | 10.86 | Hydr. Depth (ft) | | 7.00 | 6.31 |
| Conv. Total (cfs) | 812445.2 | Conv. (cfs) | | 731670.8 | 80774.4 |
| Length Wtd. (ft) | 589.57 | Wetted Per. (ft) | | 692.86 | 124.51 |
| Min Ch El (ft) | 308.50 | Shear (lb/sq ft) | | 0.84 | 0.73 |
| Alpha | 1.03 | Stream Power (lb/ft s) | | 5.74 | 3.52 |
| Frctn Loss (ft) | 0.82 | Cum Volume (acre-ft) | 16.21 | 1635.30 | 74.13 |
| C & E Loss (ft) | 0.10 | Cum SA (acres) | 2.52 | 193.90 | 9.94 |

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

CROSS SECTION OUTPUT  Profile #PF 3

| | | | | | | |
|---|---|---|---|---|---|---|
| E.G. Elev (ft) | 321.04 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.85 | Wt. n-Val. | | 0.035 | 0.045 |
| W.S. Elev (ft) | 320.18 | Reach Len. (ft) | 620.00 | 588.00 | 620.00 |
| Crit W.S. (ft) | 317.22 | Flow Area (sq ft) | | 5573.65 | 1035.83 |

| | | | Corrected | Effective | rep |
|---|---|---|---|---|---|
| E.G. Slope (ft/ft) | 0.002223 | Area (sq ft) | 468.38 | 5573.65 | 1035.83 |
| Q Total (cfs) | 48000.00 | Flow (cfs) | | 42622.30 | 5377.70 |
| Top Width (ft) | 981.16 | Top Width (ft) | 74.67 | 738.83 | 167.66 |
| Vel Total (ft/s) | 7.26 | Avg. Vel. (ft/s) | | 7.65 | 5.19 |
| Max Chl Dpth (ft) | 11.68 | Hydr. Depth (ft) | | 7.54 | 6.18 |
| Conv. Total (cfs) | 1018087.0 | Conv. (cfs) | | 904025.1 | 114061.8 |
| Length Wtd. (ft) | 591.67 | Wetted Per. (ft) | | 746.40 | 170.09 |
| Min Ch El (ft) | 308.50 | Shear (lb/sq ft) | | 1.04 | 0.85 |
| Alpha | 1.04 | Stream Power (lb/ft s) | | 7.92 | 4.39 |
| Frctn Loss (ft) | 0.71 | Cum Volume (acre-ft) | 150.22 | 2030.91 | 384.67 |
| C & E Loss (ft) | 0.17 | Cum SA (acres) | 41.13 | 206.49 | 51.91 |

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 320

INPUT
Description: CONFLUENCE WITH SYCAMORE CREEK
Station Elevation Data num= 65

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 328.2 | 87.1 | 328.7 | 92.7 | 326.3 | 107.2 | 324.6 | 175.5 | 323.9 |
| 182.3 | 318.9 | 192.7 | 315.6 | 272.6 | 314.6 | 325.3 | 313.5 | 403.2 | 312.7 |
| 454.2 | 312.2 | 466.6 | 315.2 | 517.6 | 315.1 | 537.3 | 318.8 | 599.9 | 317.9 |
| 610.4 | 311.7 | 619.6 | 307.3 | 648.9 | 307.4 | 661 | 310.6 | 672.6 | 318.3 |
| 703.6 | 319.2 | 777.4 | 317.9 | 847.7 | 319 | 889.9 | 316.7 | 923.2 | 312 |
| 950.9 | 309.6 | 963 | 307.2 | 1073.2 | 307.2 | 1141.4 | 307.3 | 1193.1 | 308.7 |
| 1250.2 | 308.5 | 1271.5 | 309.1 | 1305.2 | 312.3 | 1333.7 | 319.2 | 1364.2 | 318.2 |
| 1389.2 | 315.8 | 1406.8 | 312.9 | 1438.5 | 312.4 | 1465 | 311.6 | 1510.4 | 311.7 |
| 1524 | 312.8 | 1567.4 | 313 | 1649.7 | 313.7 | 1707.2 | 315.1 | 1777.1 | 316.6 |
| 1836.9 | 314.9 | 1874.6 | 313.5 | 1951.7 | 313.6 | 2034.4 | 313.3 | 2107.5 | 312.9 |
| 2122.8 | 315.9 | 2136.8 | 311.3 | 2146.9 | 311.4 | 2155.7 | 314.8 | 2177 | 316.3 |
| 2188.2 | 317.5 | 2218.7 | 318.3 | 2268.9 | 321.1 | 2302.7 | 322.3 | 2346 | 322.4 |
| 2390.2 | 322.2 | 2423.6 | 321.3 | 2530.8 | 322.4 | 2616.8 | 323.7 | 2718.3 | 322.4 |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .06 | 847.7 | .035 | 2188.2 | .045 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 847.7 | 2188.2 | 640 | 711 | 660 | .1 | .3 |

Ineffective Flow num= 1

| Sta L | Sta R | Elev | Permanent |
|---|---|---|---|
| 0 | 847.7 | 319 | F |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 318.93 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.32 | Wt. n-Val. | | 0.035 | 0.045 |
| W.S. Elev (ft) | 318.61 | Reach Len. (ft) | 640.00 | 711.00 | 660.00 |
| Crit W.S. (ft) | 314.77 | Flow Area (sq ft) | | 8127.04 | 22.63 |
| E.G. Slope (ft/ft) | 0.001015 | Area (sq ft) | 2218.25 | 8127.04 | 22.63 |
| Q Total (cfs) | 37000.00 | Flow (cfs) | | 36982.57 | 17.43 |
| Top Width (ft) | 1921.45 | Top Width (ft) | 572.26 | 1313.08 | 36.11 |
| Vel Total (ft/s) | 4.54 | Avg. Vel. (ft/s) | | 4.55 | 0.77 |
| Max Chl Dpth (ft) | 11.41 | Hydr. Depth (ft) | | 6.19 | 0.63 |
| Conv. Total (cfs) | 1161335.0 | Conv. (cfs) | | 1160788.0 | 547.0 |
| Length Wtd. (ft) | 710.70 | Wetted Per. (ft) | | 1317.02 | 36.13 |
| Min Ch El (ft) | 307.20 | Shear (lb/sq ft) | | 0.39 | 0.04 |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 1.78 | 0.03 |
| Frctn Loss (ft) | 0.60 | Cum Volume (acre-ft) | 62.30 | 1541.44 | 208.58 |
| C & E Loss (ft) | 0.03 | Cum SA (acres) | 24.55 | 191.50 | 40.58 |

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

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 319.12 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.35 | Wt. n-Val. | | 0.035 | |
| W.S. Elev (ft) | 318.77 | Reach Len. (ft) | 640.00 | 711.00 | 660.00 |
| Crit W.S. (ft) | 314.83 | Flow Area (sq ft) | | 7779.55 | |
| E.G. Slope (ft/ft) | 0.001055 | Area (sq ft) | | 7779.55 | |
| Q Total (cfs) | 37000.00 | Flow (cfs) | | 37000.00 | |
| Top Width (ft) | 1206.36 | Top Width (ft) | | 1206.36 | |
| Vel Total (ft/s) | 4.76 | Avg. Vel. (ft/s) | | 4.76 | |
| Max Chl Dpth (ft) | 11.57 | Hydr. Depth (ft) | | 6.45 | |
| Conv. Total (cfs) | 1139335.0 | Conv. (cfs) | | 1139335.0 | |
| Length Wtd. (ft) | 710.88 | Wetted Per. (ft) | | 1214.23 | |
| Min Ch El (ft) | 307.20 | Shear (lb/sq ft) | | 0.42 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 2.01 | |
| Frctn Loss (ft) | 0.58 | Cum Volume (acre-ft) | 16.21 | 1550.64 | 68.84 |
| C & E Loss (ft) | 0.04 | Cum SA (acres) | 2.52 | 181.17 | 9.11 |

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

CROSS SECTION OUTPUT Profile #PF 3

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 320.15 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.27 | Wt. n-Val. | 0.060 | 0.035 | 0.045 |
| W.S. Elev (ft) | 319.88 | Reach Len. (ft) | 640.00 | 711.00 | 660.00 |
| Crit W.S. (ft) | 315.57 | Flow Area (sq ft) | 3038.49 | 9815.00 | 82.64 |
| E.G. Slope (ft/ft) | 0.000760 | Area (sq ft) | 3038.49 | 9815.00 | 82.64 |
| Q Total (cfs) | 49000.00 | Flow (cfs) | 5664.22 | 43241.41 | 94.37 |
| Top Width (ft) | 2066.02 | Top Width (ft) | 666.73 | 1340.50 | 58.79 |
| Vel Total (ft/s) | 3.79 | Avg. Vel. (ft/s) | 1.86 | 4.41 | 1.14 |
| Max Chl Dpth (ft) | 12.68 | Hydr. Depth (ft) | 4.56 | 7.32 | 1.41 |
| Conv. Total (cfs) | 1776889.0 | Conv. (cfs) | 205402.0 | 1568065.0 | 3422.3 |

| | | | | | |
|---|---|---|---|---|---|
| Length Wtd. (ft) | 706.26 | Wetted Per. (ft) | 673.76 | 1344.53 | 58.84 |
| Min Ch El (ft) | 307.20 | Shear (lb/sq ft) | 0.21 | 0.35 | 0.07 |
| Alpha | 1.22 | Stream Power (lb/ft s) | 0.40 | 1.53 | 0.08 |
| Frctn Loss (ft) | 0.50 | Cum Volume (acre-ft) | 125.26 | 1927.05 | 376.71 |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 35.85 | 192.46 | 50.30 |

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

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 310

INPUT
Description: CONFLUENCE WITH SYCAMORE CREEK
Station Elevation Data num= 66

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 324.3 | 50.1 | 323.7 | 171.5 | 321.7 | 291.3 | 320.2 | 396.9 | 317.6 |
| 449.8 | 317.1 | 557.4 | 315.6 | 605.8 | 316 | 619.5 | 313.6 | 628.7 | 307.9 |
| 668.6 | 306.4 | 680.3 | 305.7 | 698.3 | 306.9 | 709.6 | 309.2 | 717.2 | 316 |
| 731.3 | 316.7 | 741.4 | 314.6 | 751.1 | 311.5 | 780.2 | 312.2 | 847.7 | 312.376 |
| 856.8 | 312.4 | 974.9 | 312.2 | 1004.3 | 311.6 | 1039.5 | 312.9 | 1090.3 | 313.5 |
| 1145.9 | 313.1 | 1252.1 | 312 | 1308.8 | 312.6 | 1316.9 | 311.3 | 1331.5 | 314.1 |
| 1380.6 | 314.8 | 1394 | 312.9 | 1414.1 | 311 | 1439 | 311.1 | 1472.1 | 313.3 |
| 1505.6 | 313.6 | 1579 | 312.7 | 1593.5 | 310.8 | 1690.7 | 310.8 | 1847.2 | 311.3 |
| 1921 | 310.5 | 2044.4 | 310 | 2095.1 | 311.1 | 2105.2 | 314.5 | 2116.9 | 318.1 |
| 2146.8 | 317.5 | 2171 | 319.9 | 2204 | 318.6 | 2227 | 321.3 | 2244.8 | 320.7 |
| 2292.4 | 320.7 | 2322.3 | 322.1 | 2333.5 | 320.3 | 2354.5 | 319.5 | 2388 | 320.3 |
| 2434 | 320.4 | 2456.9 | 319.3 | 2521.9 | 318.8 | 2533.2 | 316.5 | 2543.3 | 315.1 |
| 2551.8 | 316 | 2567.8 | 318.8 | 2616.3 | 319.6 | 2761.8 | 320.3 | 2875.6 | 320.9 |
| 2954.1 | 320.5 | | | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .06 | 605.8 | .035 | 2116.9 | .045 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 605.8 | 2116.9 | 610 | 610 | 640 | .1 | .3 |

Ineffective Flow num= 2

| Sta L | Sta R | Elev | Permanent |
|---|---|---|---|
| 0 | 154.1 | 322 | F |
| 2354.1 | 2954.1 | 320 | F |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 318.30 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.23 | Wt. n-Val. | 0.060 | 0.035 | 0.045 |
| W.S. Elev (ft) | 318.07 | Reach Len. (ft) | 610.00 | 610.00 | 640.00 |
| Crit W.S. (ft) | 314.35 | Flow Area (sq ft) | 338.32 | 9491.09 | 9.85 |
| E.G. Slope (ft/ft) | 0.000721 | Area (sq ft) | 338.32 | 9491.09 | 72.64 |
| Q Total (cfs) | 37000.00 | Flow (cfs) | 292.48 | 36703.72 | 3.80 |
| Top Width (ft) | 1811.69 | Top Width (ft) | 228.13 | 1511.01 | 72.54 |
| Vel Total (ft/s) | 3.76 | Avg. Vel. (ft/s) | 0.86 | 3.87 | 0.39 |

| | | | | | |
|---|---|---|---|---|---|
| Max Chl Dpth (ft) | 12.37 | Hydr. Depth (ft) | 1.48 | 6.28 | 0.29 |
| Conv. Total (cfs) | 1378307.0 | Conv. (cfs) | 10895.4 | 1367271.0 | 141.4 |
| Length Wtd. (ft) | 610.00 | Wetted Per. (ft) | 228.15 | 1518.45 | 34.40 |
| Min Ch El (ft) | 305.70 | Shear (lb/sq ft) | 0.07 | 0.28 | 0.01 |
| Alpha | 1.05 | Stream Power (lb/ft s) | 0.06 | 1.09 | 0.00 |
| Frctn Loss (ft) | 0.69 | Cum Volume (acre-ft) | 43.52 | 1397.66 | 207.85 |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 18.67 | 168.45 | 39.75 |

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

CROSS SECTION OUTPUT Profile #PF 2

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 318.50 | Element | | | |
| Vel Head (ft) | 0.22 | Wt. n-Val. | 0.060 | 0.035 | |
| W.S. Elev (ft) | 318.28 | Reach Len. (ft) | 610.00 | 610.00 | 640.00 |
| Crit W.S. (ft) | 314.33 | Flow Area (sq ft) | 115.34 | 9770.92 | |
| E.G. Slope (ft/ft) | 0.000655 | Area (sq ft) | 115.34 | 9770.92 | |
| Q Total (cfs) | 37000.00 | Flow (cfs) | 128.71 | 36871.29 | |
| Top Width (ft) | 1545.00 | Top Width (ft) | 46.70 | 1498.30 | |
| Vel Total (ft/s) | 3.74 | Avg. Vel. (ft/s) | 1.12 | 3.77 | |
| Max Chl Dpth (ft) | 12.58 | Hydr. Depth (ft) | 2.47 | 6.52 | |
| Conv. Total (cfs) | 1445947.0 | Conv. (cfs) | 5029.9 | 1440917.0 | |
| Length Wtd. (ft) | 610.00 | Wetted Per. (ft) | 49.36 | 1509.28 | |
| Min Ch El (ft) | 305.70 | Shear (lb/sq ft) | 0.10 | 0.26 | |
| Alpha | 1.01 | Stream Power (lb/ft s) | 0.11 | 1.00 | |
| Frctn Loss (ft) | 0.64 | Cum Volume (acre-ft) | 15.37 | 1407.40 | 68.84 |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 2.18 | 159.09 | 9.11 |

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

CROSS SECTION OUTPUT Profile #PF 3

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 319.65 | Element | | | |
| Vel Head (ft) | 0.27 | Wt. n-Val. | 0.060 | 0.035 | 0.045 |
| W.S. Elev (ft) | 319.38 | Reach Len. (ft) | 610.00 | 610.00 | 640.00 |
| Crit W.S. (ft) | 314.93 | Flow Area (sq ft) | 670.85 | 11464.31 | 75.33 |
| E.G. Slope (ft/ft) | 0.000661 | Area (sq ft) | 670.85 | 11464.31 | 226.89 |
| Q Total (cfs) | 49000.00 | Flow (cfs) | 762.76 | 48165.86 | 71.39 |
| Top Width (ft) | 2015.22 | Top Width (ft) | 281.17 | 1511.10 | 222.95 |
| Vel Total (ft/s) | 4.01 | Avg. Vel. (ft/s) | 1.14 | 4.20 | 0.95 |
| Max Chl Dpth (ft) | 13.68 | Hydr. Depth (ft) | 2.39 | 7.59 | 1.00 |
| Conv. Total (cfs) | 1905521.0 | Conv. (cfs) | 29662.2 | 1873082.0 | 2776.2 |
| Length Wtd. (ft) | 610.03 | Wetted Per. (ft) | 281.21 | 1518.54 | 75.43 |
| Min Ch El (ft) | 305.70 | Shear (lb/sq ft) | 0.10 | 0.31 | 0.04 |
| Alpha | 1.08 | Stream Power (lb/ft s) | 0.11 | 1.31 | 0.04 |
| Frctn Loss (ft) | 0.63 | Cum Volume (acre-ft) | 98.01 | 1753.39 | 374.37 |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 28.89 | 169.19 | 48.17 |

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

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 300

INPUT
Description:
Station Elevation Data num= 54

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 321.2 | 45.3 | 320.6 | 96.1 | 320.1 | 194.7 | 318.2 | 286 | 316.1 |
| 373.7 | 313.8 | 446 | 313.405 | 446.9 | 313.4 | 475.5 | 310.4 | 495.5 | 305.8 |
| 548 | 305.1 | 561.2 | 305.8 | 577.3 | 308.6 | 599.6 | 314.1 | 611.5 | 315.3 |
| 623.9 | 310.8 | 664.7 | 310.9 | 711.4 | 309.2 | 783.5 | 309.5 | 867.2 | 309.8 |
| 926.7 | 308.6 | 952.2 | 311.2 | 1025.8 | 310.7 | 1124.2 | 311.8 | 1226.1 | 311.4 |
| 1290.1 | 310.6 | 1328.2 | 309.4 | 1363.9 | 311.8 | 1413.9 | 312.2 | 1513.1 | 313.4 |
| 1609.9 | 314.3 | 1636.8 | 312.1 | 1656.8 | 310.8 | 1722.4 | 311.8 | 1755.2 | 310.2 |
| 1769.8 | 313.4 | 1807.2 | 313.7 | 1813.9 | 311.8 | 1883.9 | 311.8 | 1903.3 | 312.3 |
| 1904.3 | 312.652 | 1917.8 | 317.4 | 1988.1 | 318.7 | 2117.4 | 318.899 | 2117.9 | 318.9 |
| 2252.8 | 321.2 | 2397.2 | 322.4 | 2407.6 | 324.8 | 2457.4 | 325.5 | 2461.7 | 334 |
| 2501.2 | 334 | 2503.7 | 325.3 | 2524.4 | 324.8 | 2564.3 | 324 | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .05 | 446.9 | .06 | 1917.8 | .05 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 446.9 | 1917.8 | 790 | 654 | 605 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 317.61 | Element | | | |
| Vel Head (ft) | 0.22 | Wt. n-Val. | 0.050 | 0.060 | |
| W.S. Elev (ft) | 317.38 | Reach Len. (ft) | 790.00 | 654.00 | 605.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 526.31 | 9315.88 | |
| E.G. Slope (ft/ft) | 0.002054 | Area (sq ft) | 526.31 | 9315.88 | |
| Q Total (cfs) | 37000.00 | Flow (cfs) | 1280.46 | 35719.54 | |
| Top Width (ft) | 1687.58 | Top Width (ft) | 216.73 | 1470.86 | |
| Vel Total (ft/s) | 3.76 | Avg. Vel. (ft/s) | 2.43 | 3.83 | |
| Max Chl Dpth (ft) | 12.28 | Hydr. Depth (ft) | 2.43 | 6.33 | |
| Conv. Total (cfs) | 816448.2 | Conv. (cfs) | 28254.9 | 788193.3 | |
| Length Wtd. (ft) | 656.35 | Wetted Per. (ft) | 216.77 | 1475.29 | |
| Min Ch El (ft) | 305.10 | Shear (lb/sq ft) | 0.31 | 0.81 | |
| Alpha | 1.02 | Stream Power (lb/ft s) | 0.76 | 3.10 | |
| Frctn Loss (ft) | 1.33 | Cum Volume (acre-ft) | 37.46 | 1265.98 | 207.32 |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 15.55 | 147.57 | 39.22 |

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

the need for additional cross sections.

CROSS SECTION OUTPUT  Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 317.86 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.23 | Wt. n-Val. | 0.050 | 0.060 | |
| W.S. Elev (ft) | 317.63 | Reach Len. (ft) | 790.00 | 654.00 | 605.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 52.89 | 9645.73 | |
| E.G. Slope (ft/ft) | 0.001930 | Area (sq ft) | 52.89 | 9645.73 | |
| Q Total (cfs) | 37000.00 | Flow (cfs) | 148.56 | 36851.44 | |
| Top Width (ft) | 1470.00 | Top Width (ft) | 12.60 | 1457.40 | |
| Vel Total (ft/s) | 3.81 | Avg. Vel. (ft/s) | 2.81 | 3.82 | |
| Max Chl Dpth (ft) | 12.53 | Hydr. Depth (ft) | 4.20 | 6.62 | |
| Conv. Total (cfs) | 842156.5 | Conv. (cfs) | 3381.4 | 838775.1 | |
| Length Wtd. (ft) | 654.27 | Wetted Per. (ft) | 16.76 | 1466.00 | |
| Min Ch El (ft) | 305.10 | Shear (lb/sq ft) | 0.38 | 0.79 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | 1.07 | 3.03 | |
| Frctn Loss (ft) | 1.27 | Cum Volume (acre-ft) | 14.19 | 1271.45 | 68.84 |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 1.77 | 138.40 | 9.11 |

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

CROSS SECTION OUTPUT  Profile #PF 3

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 319.02 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.26 | Wt. n-Val. | 0.050 | 0.060 | 0.050 |
| W.S. Elev (ft) | 318.76 | Reach Len. (ft) | 790.00 | 654.00 | 605.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 867.44 | 11342.09 | 51.26 |
| E.G. Slope (ft/ft) | 0.001817 | Area (sq ft) | 867.44 | 11342.09 | 51.26 |
| Q Total (cfs) | 49000.00 | Flow (cfs) | 2327.19 | 46633.86 | 38.94 |
| Top Width (ft) | 1862.61 | Top Width (ft) | 281.35 | 1470.90 | 110.36 |
| Vel Total (ft/s) | 4.00 | Avg. Vel. (ft/s) | 2.68 | 4.11 | 0.76 |
| Max Chl Dpth (ft) | 13.66 | Hydr. Depth (ft) | 3.08 | 7.71 | 0.46 |
| Conv. Total (cfs) | 1149654.0 | Conv. (cfs) | 54601.3 | 1094139.0 | 913.7 |
| Length Wtd. (ft) | 657.22 | Wetted Per. (ft) | 281.41 | 1475.33 | 110.37 |
| Min Ch El (ft) | 305.10 | Shear (lb/sq ft) | 0.35 | 0.87 | 0.05 |
| Alpha | 1.03 | Stream Power (lb/ft s) | 0.94 | 3.58 | 0.04 |
| Frctn Loss (ft) | 1.11 | Cum Volume (acre-ft) | 87.24 | 1593.70 | 372.32 |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 24.95 | 148.31 | 45.72 |

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

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1  RS: 290

INPUT
Description:
Station Elevation Data  num=  61

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 319.1 | 41.9 | 316.9 | 53.1 | 314.2 | 97.3 | 313 | 155.2 | 312.3 |
| 206.5 | 310.5 | 220.5 | 308.5 | 232.4 | 311.6 | 278.9 | 310.7 | 366.9 | 310.9 |
| 378.2 | 305.1 | 414.6 | 304.6 | 433.7 | 303.1 | 442.7 | 304.7 | 460.8 | 306.1 |
| 473.9 | 317.1 | 485.4 | 316.9 | 497.1 | 311 | 532.9 | 309.2 | 554.3 | 311.1 |
| 632.4 | 310.3 | 670.9 | 310.8 | 724 | 310.4 | 748.2 | 308.9 | 781.7 | 307.5 |
| 860.2 | 309 | 895 | 307.1 | 926.8 | 306.4 | 944.6 | 309.1 | 974 | 311.7 |
| 1080.8 | 310.4 | 1154.2 | 308.4 | 1171.2 | 306.5 | 1195.3 | 308.9 | 1337 | 311.2 |
| 1425.4 | 311.8 | 1515.1 | 311.6 | 1523.1 | 311 | 1800.6 | 311 | 1838.2 | 312 |
| 1861.4 | 314.4 | 1896.4 | 317.9 | 1961.7 | 318.6 | 1975.4 | 317.8 | 2007.6 | 318.2 |
| 2023 | 322.6 | 2057.3 | 342.3 | 2082.1 | 331.4 | 2096.5 | 334.8 | 2101.6 | 350.1 |
| 2194.9 | 350.1 | 2202 | 335.6 | 2227.7 | 339.1 | 2272.9 | 339.7 | 2361 | 342.1 |
| 2451.2 | 344.9 | 2473.1 | 349.1 | 2548 | 349.4 | 2568.8 | 347.723 | 2572.8 | 347.4 |
| 2610.7 | 347.5 | | | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .05 | 41.9 | .06 | 1896.4 | .05 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 41.9 | 1896.4 | 695 | 653 | 645 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 316.27 | Element | | | |
| Vel Head (ft) | 0.20 | Wt. n-Val. | | 0.060 | |
| W.S. Elev (ft) | 316.07 | Reach Len. (ft) | 695.00 | 653.00 | 645.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 10439.77 | |
| E.G. Slope (ft/ft) | 0.002005 | Area (sq ft) | | 10439.77 | |
| Q Total (cfs) | 37000.00 | Flow (cfs) | | 37000.00 | |
| Top Width (ft) | 1818.41 | Top Width (ft) | | 1818.41 | |
| Vel Total (ft/s) | 3.54 | Avg. Vel. (ft/s) | | 3.54 | |
| Max Chl Dpth (ft) | 12.97 | Hydr. Depth (ft) | | 5.74 | |
| Conv. Total (cfs) | 826402.6 | Conv. (cfs) | | 826402.6 | |
| Length Wtd. (ft) | 653.05 | Wetted Per. (ft) | | 1826.86 | |
| Min Ch El (ft) | 303.10 | Shear (lb/sq ft) | | 0.72 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 2.53 | |
| Frctn Loss (ft) | 0.89 | Cum Volume (acre-ft) | 32.69 | 1117.67 | 207.32 |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 13.59 | 122.88 | 39.22 |

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

CROSS SECTION OUTPUT Profile #PF 2

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 316.59 | Element | | | |
| Vel Head (ft) | 0.22 | Wt. n-Val. | | 0.060 | |
| W.S. Elev (ft) | 316.37 | Reach Len. (ft) | 695.00 | 653.00 | 645.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 9934.69 | |
| E.G. Slope (ft/ft) | 0.001939 | Area (sq ft) | | 9934.69 | |
| Q Total (cfs) | 37000.00 | Flow (cfs) | | 37000.00 | |
| Top Width (ft) | 1556.59 | Top Width (ft) | | 1556.59 | |
| Vel Total (ft/s) | 3.72 | Avg. Vel. (ft/s) | | 3.72 | |

| | | | | | |
|---|---|---|---|---|---|
| Max Chl Dpth (ft) | 13.27 | Hydr. Depth (ft) | | 6.38 | |
| Conv. Total (cfs) | 840353.2 | Conv. (cfs) | | 840353.2 | |
| Length Wtd. (ft) | 653.00 | Wetted Per. (ft) | | 1573.83 | |
| Min Ch El (ft) | 303.10 | Shear (lb/sq ft) | | 0.76 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 2.85 | |
| Frctn Loss (ft) | 0.85 | Cum Volume (acre-ft) | 13.71 | 1124.46 | 68.84 |
| C & E Loss (ft) | 0.02 | Cum SA (acres) | 1.65 | 115.77 | 9.11 |

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

CROSS SECTION OUTPUT Profile #PF 3

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 317.90 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.21 | Wt. n-Val. | 0.050 | 0.060 | |
| W.S. Elev (ft) | 317.69 | Reach Len. (ft) | 695.00 | 653.00 | 645.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 5.91 | 13406.85 | |
| E.G. Slope (ft/ft) | 0.001566 | Area (sq ft) | 5.91 | 13406.85 | |
| Q Total (cfs) | 49000.00 | Flow (cfs) | 3.73 | 48996.27 | |
| Top Width (ft) | 1867.38 | Top Width (ft) | 15.00 | 1852.38 | |
| Vel Total (ft/s) | 3.65 | Avg. Vel. (ft/s) | 0.63 | 3.65 | |
| Max Chl Dpth (ft) | 14.59 | Hydr. Depth (ft) | 0.39 | 7.24 | |
| Conv. Total (cfs) | 1238324.0 | Conv. (cfs) | 94.2 | 1238229.0 | |
| Length Wtd. (ft) | 653.26 | Wetted Per. (ft) | 15.02 | 1861.58 | |
| Min Ch El (ft) | 303.10 | Shear (lb/sq ft) | 0.04 | 0.70 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | 0.02 | 2.57 | |
| Frctn Loss (ft) | 0.74 | Cum Volume (acre-ft) | 79.32 | 1407.91 | 371.97 |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 22.27 | 123.36 | 44.95 |

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 285

INPUT
Description:
Station Elevation Data num= 52

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 324.4 | 109.3 | 322.9 | 143 | 321.4 | 192.7 | 318.2 | 216.7 | 317 |
| 260.2 | 318.1 | 306 | 317.7 | 316.7 | 314.1 | 396.6 | 314.6 | 469.1 | 313.7 |
| 501.7 | 310.4 | 530.3 | 306.3 | 556.2 | 307 | 564.7 | 304.9 | 603 | 305.3 |
| 627.2 | 303.3 | 664 | 302.4 | 683.9 | 303.7 | 703.7 | 312.7 | 713.5 | 313.4 |
| 720.6 | 308.2 | 730.1 | 306.9 | 758.1 | 308 | 777.1 | 310.3 | 856.4 | 309.7 |
| 894.7 | 306.6 | 954.3 | 305.4 | 1021.9 | 307.4 | 1120 | 307.2 | 1150.7 | 306.2 |
| 1188.9 | 304.8 | 1213.8 | 307.9 | 1275.4 | 308.9 | 1336.3 | 309.3 | 1434 | 309.1 |
| 1544 | 308.4 | 1596.7 | 306.8 | 1701.2 | 306.5 | 1719.7 | 304 | 1730.5 | 302.2 |
| 1756.4 | 303.8 | 1850.6 | 306.1 | 1941.9 | 307.5 | 1964.2 | 311.4 | 2032.1 | 314.3 |
| 2057.2 | 317.8 | 2091.8 | 321.2 | 2126.8 | 323.2 | 2145.6 | 329.2 | 2169.2 | 332.9 |
| 2188.9 | 339.2 | 2237.1 | 340.2 | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .05 | 469.1 | .06 | 1964.2 | .05 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 469.1 | 1964.2 | 640 | 688 | 660 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 315.37 | Element | | | |
| Vel Head (ft) | 0.15 | Wt. n-Val. | 0.050 | 0.060 | 0.050 |
| W.S. Elev (ft) | 315.22 | Reach Len. (ft) | 640.00 | 688.00 | 660.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 149.10 | 11896.36 | 164.03 |
| E.G. Slope (ft/ft) | 0.000977 | Area (sq ft) | 149.10 | 11896.36 | 164.03 |
| Q Total (cfs) | 37000.00 | Flow (cfs) | 134.44 | 36607.96 | 257.59 |
| Top Width (ft) | 1725.34 | Top Width (ft) | 155.73 | 1495.10 | 74.50 |
| Vel Total (ft/s) | 3.03 | Avg. Vel. (ft/s) | 0.90 | 3.08 | 1.57 |
| Max Chl Dpth (ft) | 13.02 | Hydr. Depth (ft) | 0.96 | 7.96 | 2.20 |
| Conv. Total (cfs) | 1183659.0 | Conv. (cfs) | 4301.0 | 1171118.0 | 8240.6 |
| Length Wtd. (ft) | 687.65 | Wetted Per. (ft) | 155.92 | 1501.07 | 74.63 |
| Min Ch El (ft) | 302.20 | Shear (lb/sq ft) | 0.06 | 0.48 | 0.13 |
| Alpha | 1.02 | Stream Power (lb/ft s) | 0.05 | 1.49 | 0.21 |
| Frctn Loss (ft) | 0.48 | Cum Volume (acre-ft) | 31.50 | 950.25 | 206.11 |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 12.35 | 98.05 | 38.67 |

CROSS SECTION OUTPUT Profile #PF 2

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 315.72 | Element | | | |
| Vel Head (ft) | 0.15 | Wt. n-Val. | | 0.060 | |
| W.S. Elev (ft) | 315.57 | Reach Len. (ft) | 640.00 | 688.00 | 660.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 11988.95 | |
| E.G. Slope (ft/ft) | 0.000930 | Area (sq ft) | | 11988.95 | |
| Q Total (cfs) | 37000.00 | Flow (cfs) | | 37000.00 | |
| Top Width (ft) | 1435.00 | Top Width (ft) | | 1435.00 | |
| Vel Total (ft/s) | 3.09 | Avg. Vel. (ft/s) | | 3.09 | |
| Max Chl Dpth (ft) | 13.37 | Hydr. Depth (ft) | | 8.35 | |
| Conv. Total (cfs) | 1213266.0 | Conv. (cfs) | | 1213266.0 | |
| Length Wtd. (ft) | 688.00 | Wetted Per. (ft) | | 1451.39 | |
| Min Ch El (ft) | 302.20 | Shear (lb/sq ft) | | 0.48 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 1.48 | |
| Frctn Loss (ft) | 0.49 | Cum Volume (acre-ft) | 13.71 | 960.14 | 68.84 |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 1.65 | 93.35 | 9.11 |

CROSS SECTION OUTPUT Profile #PF 3

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 317.15 | Element | | | |
| Vel Head (ft) | 0.16 | Wt. n-Val. | 0.050 | 0.060 | 0.050 |
| W.S. Elev (ft) | 316.98 | Reach Len. (ft) | 640.00 | 688.00 | 660.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 427.79 | 14527.66 | 306.26 |
| E.G. Slope (ft/ft) | 0.000851 | Area (sq ft) | 427.79 | 14527.66 | 306.26 |
| Q Total (cfs) | 49000.00 | Flow (cfs) | 710.34 | 47676.84 | 612.82 |
| Top Width (ft) | 1743.19 | Top Width (ft) | 160.96 | 1495.10 | 87.13 |
| Vel Total (ft/s) | 3.21 | Avg. Vel. (ft/s) | 1.66 | 3.28 | 2.00 |
| Max Chl Dpth (ft) | 14.78 | Hydr. Depth (ft) | 2.66 | 9.72 | 3.52 |

| | | | | | |
|---|---|---|---|---|---|
| Conv. Total (cfs) | 1679288.0 | Conv. (cfs) | 24344.1 | 1633942.0 | 21002.0 |
| Length Wtd. (ft) | 687.29 | Wetted Per. (ft) | 161.44 | 1501.07 | 87.37 |
| Min Ch El (ft) | 302.20 | Shear (lb/sq ft) | 0.14 | 0.51 | 0.19 |
| Alpha | 1.03 | Stream Power (lb/ft s) | 0.23 | 1.69 | 0.37 |
| Frctn Loss (ft) | 0.45 | Cum Volume (acre-ft) | 75.86 | 1198.53 | 369.70 |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 20.86 | 98.27 | 44.31 |

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 280

INPUT
Description:
Station Elevation Data num= 50

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 331.7 | 127.7 | 319 | 248.1 | 318.5 | 373.8 | 319.2 | 437 | 327.1 |
| 477.9 | 327.1 | 521.3 | 319.6 | 526.7 | 318.1 | 533.6 | 312.2 | 548.2 | 308.8 |
| 592.3 | 308.4 | 627.5 | 306.6 | 690.6 | 306.5 | 747.7 | 306.3 | 839.5 | 304.1 |
| 937.5 | 300.7 | 1022.9 | 300.1 | 1031.1 | 303.2 | 1061.8 | 304.3 | 1098.9 | 304.8 |
| 1113.4 | 305 | 1132 | 306.1 | 1164.1 | 305.7 | 1208.7 | 304.5 | 1284.7 | 304.3 |
| 1316.5 | 306.4 | 1369.8 | 305.9 | 1395 | 304.7 | 1466.3 | 305.6 | 1583.1 | 310.6 |
| 1681.5 | 302.8 | 1772 | 301.1 | 1852.5 | 302.7 | 1861.8 | 307.4 | 1882.7 | 307.6 |
| 1896 | 307.1 | 1912.5 | 306.6 | 1955.1 | 306.8 | 2007.1 | 307.6 | 2021.6 | 307.6 |
| 2036.1 | 310.5 | 2046 | 310.7 | 2063.3 | 315.4 | 2124.5 | 316.9 | 2127.9 | 318.4 |
| 2163.1 | 318.6 | 2163.9 | 321.3 | 2205.6 | 324.3 | 2221.8 | 328.8 | 2238.4 | 331.7 |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .05 | 548.2 | .06 | 2021.6 | .05 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 548.2 | 2021.6 | 1135 | 1021 | 1060 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 314.87 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.10 | Wt. n-Val. | 0.050 | 0.060 | 0.050 |
| W.S. Elev (ft) | 314.77 | Reach Len. (ft) | 1135.00 | 1021.00 | 1060.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 66.23 | 14254.34 | 154.76 |
| E.G. Slope (ft/ft) | 0.000524 | Area (sq ft) | 66.23 | 14254.34 | 154.76 |
| Q Total (cfs) | 37000.00 | Flow (cfs) | 103.74 | 36637.81 | 258.46 |
| Top Width (ft) | 1530.39 | Top Width (ft) | 17.61 | 1473.40 | 39.39 |
| Vel Total (ft/s) | 2.56 | Avg. Vel. (ft/s) | 1.57 | 2.57 | 1.67 |
| Max Chl Dpth (ft) | 14.67 | Hydr. Depth (ft) | 3.76 | 9.67 | 3.93 |
| Conv. Total (cfs) | 1616820.0 | Conv. (cfs) | 4533.0 | 1600993.0 | 11293.9 |
| Length Wtd. (ft) | 1022.56 | Wetted Per. (ft) | 18.95 | 1475.88 | 40.22 |
| Min Ch El (ft) | 300.10 | Shear (lb/sq ft) | 0.11 | 0.32 | 0.13 |
| Alpha | 1.01 | Stream Power (lb/ft s) | 0.18 | 0.81 | 0.21 |
| Frctn Loss (ft) | 1.01 | Cum Volume (acre-ft) | 29.92 | 743.74 | 203.69 |
| C & E Loss (ft) | 0.04 | Cum SA (acres) | 11.07 | 74.60 | 37.81 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 315.22 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.12 | Wt. n-Val. | | 0.060 | |
| W.S. Elev (ft) | 315.10 | Reach Len. (ft) | 1135.00 | 1021.00 | 1060.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 13431.31 | |
| E.G. Slope (ft/ft) | 0.000560 | Area (sq ft) | | 13431.31 | |
| Q Total (cfs) | 37000.00 | Flow (cfs) | | 37000.00 | |
| Top Width (ft) | 1300.00 | Top Width (ft) | | 1300.00 | |
| Vel Total (ft/s) | 2.75 | Avg. Vel. (ft/s) | | 2.75 | |
| Max Chl Dpth (ft) | 15.00 | Hydr. Depth (ft) | | 10.33 | |
| Conv. Total (cfs) | 1563221.0 | Conv. (cfs) | | 1563221.0 | |
| Length Wtd. (ft) | 1021.02 | Wetted Per. (ft) | | 1318.35 | |
| Min Ch El (ft) | 300.10 | Shear (lb/sq ft) | | 0.36 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 0.98 | |
| Frctn Loss (ft) | 1.05 | Cum Volume (acre-ft) | 13.71 | 759.39 | 68.84 |
| C & E Loss (ft) | 0.04 | Cum SA (acres) | 1.65 | 71.75 | 9.11 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 3

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 316.68 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.13 | Wt. n-Val. | 0.050 | 0.060 | 0.050 |
| W.S. Elev (ft) | 316.56 | Reach Len. (ft) | 1135.00 | 1021.00 | 1060.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 99.51 | 16883.60 | 255.70 |
| E.G. Slope (ft/ft) | 0.000521 | Area (sq ft) | 99.51 | 16883.60 | 255.70 |
| Q Total (cfs) | 49000.00 | Flow (cfs) | 186.39 | 48465.05 | 348.56 |
| Top Width (ft) | 1581.95 | Top Width (ft) | 19.69 | 1473.40 | 88.86 |
| Vel Total (ft/s) | 2.84 | Avg. Vel. (ft/s) | 1.87 | 2.87 | 1.36 |
| Max Chl Dpth (ft) | 16.46 | Hydr. Depth (ft) | 5.05 | 11.46 | 2.88 |
| Conv. Total (cfs) | 2146282.0 | Conv. (cfs) | 8164.2 | 2122850.0 | 15267.3 |
| Length Wtd. (ft) | 1025.57 | Wetted Per. (ft) | 21.69 | 1475.88 | 89.79 |
| Min Ch El (ft) | 300.10 | Shear (lb/sq ft) | 0.15 | 0.37 | 0.09 |
| Alpha | 1.01 | Stream Power (lb/ft s) | 0.28 | 1.07 | 0.13 |
| Frctn Loss (ft) | 0.98 | Cum Volume (acre-ft) | 71.99 | 950.47 | 365.44 |
| C & E Loss (ft) | 0.04 | Cum SA (acres) | 19.53 | 74.83 | 42.97 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 270

INPUT
Description:
Station Elevation Data num= 42

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 314.7 | 24.7 | 314 | 43.3 | 312.2 | 88.9 | 312.5 | 131.4 | 312.6 |
| 137.8 | 309.8 | 151.6 | 309.1 | 183.1 | 311.8 | 212.1 | 313 | 278 | 313.8 |
| 313.5 | 310 | 343 | 307.7 | 363.6 | 302.5 | 418.9 | 303.8 | 434.3 | 300.8 |
| 463.7 | 299.4 | 486.4 | 300.8 | 501.8 | 306.6 | 513.5 | 304.8 | 540.2 | 303.1 |
| 573.3 | 301.8 | 590.6 | 306.3 | 607.5 | 304.2 | 693.6 | 303.1 | 796.2 | 301.8 |
| 807.9 | 299.8 | 823 | 300.2 | 834.6 | 299.8 | 888.7 | 301 | 901.3 | 308.6 |
| 946.9 | 310.4 | 1018.8 | 312.6 | 1121.1 | 315.2 | 1138.5 | 316.7 | 1155.1 | 322.6 |
| 1181.3 | 322.4 | 1187.8 | 333.8 | 1238.3 | 333.8 | 1244 | 323.2 | 1260.9 | 322.3 |
| 1280.7 | 320.4 | 1301.7 | 320.8 | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .05 | 343 | .06 | 901.3 | .05 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 343 | 901.3 | 1000 | 951 | 815 | .1 | .3 |

Ineffective Flow num= 2

| Sta L | Sta R | Elev | Permanent |
|---|---|---|---|
| 0 | 278.7 | 313.79 | F |
| 1201.7 | 1301.7 | 333.8 | F |

CROSS SECTION OUTPUT Profile #PF 1

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 313.82 | Element | | | |
| Vel Head (ft) | 0.54 | Wt. n-Val. | 0.050 | 0.060 | 0.050 |
| W.S. Elev (ft) | 313.28 | Reach Len. (ft) | 1000.00 | 951.00 | 815.00 |
| Crit W.S. (ft) | 307.73 | Flow Area (sq ft) | 181.04 | 5969.14 | 309.69 |
| E.G. Slope (ft/ft) | 0.002504 | Area (sq ft) | 444.90 | 5969.14 | 309.69 |
| Q Total (cfs) | 37000.00 | Flow (cfs) | 559.55 | 35674.54 | 765.92 |
| Top Width (ft) | 965.96 | Top Width (ft) | 263.34 | 558.30 | 144.32 |
| Vel Total (ft/s) | 5.73 | Avg. Vel. (ft/s) | 3.09 | 5.98 | 2.47 |
| Max Chl Dpth (ft) | 13.88 | Hydr. Depth (ft) | 3.01 | 10.69 | 2.15 |
| Conv. Total (cfs) | 739396.3 | Conv. (cfs) | 11181.8 | 712908.6 | 15305.9 |
| Length Wtd. (ft) | 945.99 | Wetted Per. (ft) | 60.42 | 563.63 | 144.40 |
| Min Ch El (ft) | 299.40 | Shear (lb/sq ft) | 0.47 | 1.66 | 0.34 |
| Alpha | 1.06 | Stream Power (lb/ft s) | 1.45 | 9.89 | 0.83 |
| Frctn Loss (ft) | 3.18 | Cum Volume (acre-ft) | 23.26 | 506.73 | 198.04 |
| C & E Loss (ft) | 0.03 | Cum SA (acres) | 7.41 | 50.79 | 35.57 |

Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #PF 2

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 314.13 | Element | | | |
| Vel Head (ft) | 0.57 | Wt. n-Val. | 0.050 | 0.060 | 0.050 |
| W.S. Elev (ft) | 313.56 | Reach Len. (ft) | 1000.00 | 951.00 | 815.00 |
| Crit W.S. (ft) | 307.74 | Flow Area (sq ft) | 7.55 | 6123.92 | 1.98 |
| E.G. Slope (ft/ft) | 0.002472 | Area (sq ft) | 7.55 | 6123.92 | 1.98 |
| Q Total (cfs) | 37000.00 | Flow (cfs) | 11.66 | 36986.82 | 1.51 |
| Top Width (ft) | 560.00 | Top Width (ft) | 1.30 | 558.30 | 0.40 |
| Vel Total (ft/s) | 6.03 | Avg. Vel. (ft/s) | 1.54 | 6.04 | 0.76 |
| Max Chl Dpth (ft) | 14.16 | Hydr. Depth (ft) | 5.81 | 10.97 | 4.95 |
| Conv. Total (cfs) | 744247.4 | Conv. (cfs) | 234.6 | 743982.4 | 30.4 |
| Length Wtd. (ft) | 947.34 | Wetted Per. (ft) | 7.06 | 563.63 | 5.34 |
| Min Ch El (ft) | 299.40 | Shear (lb/sq ft) | 0.16 | 1.68 | 0.06 |
| Alpha | 1.00 | Stream Power (lb/ft s) | 0.25 | 10.13 | 0.04 |
| Frctn Loss (ft) | 2.79 | Cum Volume (acre-ft) | 13.61 | 530.21 | 68.81 |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 1.63 | 49.97 | 9.10 |

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #PF 3

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 315.66 | Element | | | |
| Vel Head (ft) | 0.57 | Wt. n-Val. | 0.050 | 0.060 | 0.050 |
| W.S. Elev (ft) | 315.08 | Reach Len. (ft) | 1000.00 | 951.00 | 815.00 |
| Crit W.S. (ft) | 308.82 | Flow Area (sq ft) | 1021.48 | 6974.98 | 633.55 |
| E.G. Slope (ft/ft) | 0.002283 | Area (sq ft) | 1021.48 | 6974.98 | 633.55 |
| Q Total (cfs) | 49000.00 | Flow (cfs) | 2993.61 | 44159.01 | 1847.38 |
| Top Width (ft) | 1116.51 | Top Width (ft) | 343.00 | 558.30 | 215.21 |
| Vel Total (ft/s) | 5.68 | Avg. Vel. (ft/s) | 2.93 | 6.33 | 2.92 |
| Max Chl Dpth (ft) | 15.68 | Hydr. Depth (ft) | 2.98 | 12.49 | 2.94 |
| Conv. Total (cfs) | 1025484.0 | Conv. (cfs) | 62651.0 | 924170.6 | 38662.5 |
| Length Wtd. (ft) | 945.19 | Wetted Per. (ft) | 344.52 | 563.63 | 215.31 |
| Min Ch El (ft) | 299.40 | Shear (lb/sq ft) | 0.42 | 1.76 | 0.42 |
| Alpha | 1.15 | Stream Power (lb/ft s) | 1.24 | 11.17 | 1.22 |
| Frctn Loss (ft) | 2.76 | Cum Volume (acre-ft) | 57.39 | 670.86 | 354.62 |
| C & E Loss (ft) | 0.03 | Cum SA (acres) | 14.81 | 51.01 | 39.27 |

Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 260

INPUT
Description:
Station Elevation Data num= 36

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 314.3 | 99.6 | 313.3 | 131.8 | 312.1 | 174.8 | 313.7 | 214.8 | 312.3 |
| 239.2 | 311.4 | 259.6 | 305.3 | 281.9 | 302.9 | 336.5 | 302.6 | 364.5 | 297.8 |
| 383.2 | 297.6 | 390.6 | 297.8 | 413.7 | 300.7 | 454 | 302.3 | 465 | 304.4 |
| 477.3 | 302.1 | 513.5 | 301.5 | 610.4 | 299.9 | 721.1 | 300.1 | 729.6 | 298.6 |
| 756.5 | 299.1 | 783.3 | 300.1 | 802 | 303.1 | 869.1 | 305.8 | 883.4 | 309.5 |
| 903.3 | 311.1 | 926.4 | 313.2 | 985.4 | 314.2 | 1035.9 | 316.5 | 1040.4 | 320.2 |
| 1055.8 | 326.8 | 1095.7 | 326.5 | 1160.9 | 325.1 | 1183.7 | 322.9 | 1204.8 | 323.4 |
| 1221.7 | 322.7 | | | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .05 | 239.2 | .06 | 802 | .05 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 239.2 | 802 | 1050 | 1031 | 1000 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 310.62 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.80 | Wt. n-Val. | | 0.060 | 0.050 |
| W.S. Elev (ft) | 309.82 | Reach Len. (ft) | 1050.00 | 1031.00 | 1000.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 4937.11 | 391.90 |
| E.G. Slope (ft/ft) | 0.004705 | Area (sq ft) | | 4937.11 | 391.90 |
| Q Total (cfs) | 38000.00 | Flow (cfs) | | 35802.51 | 2197.49 |
| Top Width (ft) | 642.88 | Top Width (ft) | | 557.51 | 85.37 |
| Vel Total (ft/s) | 7.13 | Avg. Vel. (ft/s) | | 7.25 | 5.61 |
| Max Chl Dpth (ft) | 12.22 | Hydr. Depth (ft) | | 8.86 | 4.59 |
| Conv. Total (cfs) | 553993.5 | Conv. (cfs) | | 521956.8 | 32036.7 |
| Length Wtd. (ft) | 1027.33 | Wetted Per. (ft) | | 559.75 | 85.90 |
| Min Ch El (ft) | 297.60 | Shear (lb/sq ft) | | 2.59 | 1.34 |
| Alpha | 1.01 | Stream Power (lb/ft s) | | 18.79 | 7.51 |
| Frctn Loss (ft) | 2.30 | Cum Volume (acre-ft) | 18.15 | 387.68 | 191.48 |
| C & E Loss (ft) | 0.16 | Cum SA (acres) | 4.39 | 38.61 | 33.42 |

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 311.33 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.69 | Wt. n-Val. | | 0.060 | 0.050 |
| W.S. Elev (ft) | 310.64 | Reach Len. (ft) | 1050.00 | 1031.00 | 1000.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 5360.95 | 352.08 |
| E.G. Slope (ft/ft) | 0.003539 | Area (sq ft) | | 5360.95 | 352.08 |
| Q Total (cfs) | 38000.00 | Flow (cfs) | | 35976.68 | 2023.33 |
| Top Width (ft) | 600.00 | Top Width (ft) | | 545.30 | 54.70 |
| Vel Total (ft/s) | 6.65 | Avg. Vel. (ft/s) | | 6.71 | 5.75 |
| Max Chl Dpth (ft) | 13.04 | Hydr. Depth (ft) | | 9.83 | 6.44 |
| Conv. Total (cfs) | 638741.0 | Conv. (cfs) | | 604731.0 | 34010.0 |
| Length Wtd. (ft) | 1030.41 | Wetted Per. (ft) | | 551.48 | 60.08 |

| | | | | | |
|---|---|---|---|---|---|
| Min Ch El (ft) | 297.60 | Shear (lb/sq ft) | | 2.15 | 1.29 |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 14.41 | 7.44 |
| Frctn Loss (ft) | 2.44 | Cum Volume (acre-ft) | 13.52 | 404.84 | 65.50 |
| C & E Loss (ft) | 0.09 | Cum SA (acres) | 1.62 | 37.92 | 8.59 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 3

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 312.87 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.86 | Wt. n-Val. | 0.050 | 0.060 | 0.050 |
| W.S. Elev (ft) | 312.01 | Reach Len. (ft) | 1050.00 | 1031.00 | 1000.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 5.11 | 6168.42 | 608.67 |
| E.G. Slope (ft/ft) | 0.003834 | Area (sq ft) | 5.11 | 6168.42 | 608.67 |
| Q Total (cfs) | 50000.00 | Flow (cfs) | 4.28 | 46533.47 | 3462.25 |
| Top Width (ft) | 690.81 | Top Width (ft) | 16.65 | 562.80 | 111.36 |
| Vel Total (ft/s) | 7.37 | Avg. Vel. (ft/s) | 0.84 | 7.54 | 5.69 |
| Max Chl Dpth (ft) | 14.41 | Hydr. Depth (ft) | 0.31 | 10.96 | 5.47 |
| Conv. Total (cfs) | 807545.4 | Conv. (cfs) | 69.1 | 751557.8 | 55918.5 |
| Length Wtd. (ft) | 1026.53 | Wetted Per. (ft) | 16.66 | 565.27 | 111.99 |
| Min Ch El (ft) | 297.60 | Shear (lb/sq ft) | 0.07 | 2.61 | 1.30 |
| Alpha | 1.02 | Stream Power (lb/ft s) | 0.06 | 19.70 | 7.40 |
| Frctn Loss (ft) | 1.65 | Cum Volume (acre-ft) | 45.60 | 527.39 | 343.00 |
| C & E Loss (ft) | 0.18 | Cum SA (acres) | 10.68 | 38.78 | 36.22 |

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 250

INPUT
Description:
Station Elevation Data num= 44

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 319 | 22.3 | 320.1 | 67.2 | 319.1 | 72.7 | 315.6 | 104.7 | 314.7 |
| 165.3 | 311.9 | 255.5 | 308.7 | 316.5 | 307.5 | 339.8 | 305 | 360.2 | 299.9 |
| 393.8 | 299.4 | 433 | 300 | 450 | 296.6 | 479.1 | 294.3 | 493.8 | 293.7 |
| 508 | 294.4 | 524.2 | 295.4 | 535.8 | 297.7 | 550.8 | 295.5 | 591 | 297.9 |
| 690.8 | 298 | 786 | 297.7 | 872.4 | 296.9 | 924.4 | 295.9 | 979.1 | 298.3 |
| 1013.9 | 300.1 | 1077.9 | 300 | 1140.5 | 301.6 | 1237.8 | 301.9 | 1342.6 | 302.5 |
| 1350.8 | 301.6 | 1370.4 | 303.7 | 1404.1 | 307.2 | 1419 | 308 | 1428.1 | 310.1 |
| 1451 | 318.7 | 1470.1 | 330.5 | 1486.3 | 331 | 1489.6 | 341.8 | 1542.1 | 341.8 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 1544.6 | 330.1 | 1577.2 | 329.6 | 1597.8 | 326.6 | 1632 | 326.9 |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .05 | 433 | .06 | 1013.9 | .05 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 433 | 1013.9 | 700 | 701 | 615 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 308.15 | Element | | | |
| Vel Head (ft) | 0.26 | Wt. n-Val. | 0.050 | 0.060 | 0.050 |
| W.S. Elev (ft) | 307.89 | Reach Len. (ft) | 700.00 | 701.00 | 615.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 750.96 | 6239.79 | 2376.56 |
| E.G. Slope (ft/ft) | 0.001307 | Area (sq ft) | 750.96 | 6239.79 | 2376.56 |
| Q Total (cfs) | 38000.00 | Flow (cfs) | 2507.10 | 27164.51 | 8328.40 |
| Top Width (ft) | 1120.27 | Top Width (ft) | 136.32 | 580.90 | 403.05 |
| Vel Total (ft/s) | 4.06 | Avg. Vel. (ft/s) | 3.34 | 4.35 | 3.50 |
| Max Chl Dpth (ft) | 14.19 | Hydr. Depth (ft) | 5.51 | 10.74 | 5.90 |
| Conv. Total (cfs) | 1051109.0 | Conv. (cfs) | 69348.4 | 751391.2 | 230369.8 |
| Length Wtd. (ft) | 687.55 | Wetted Per. (ft) | 137.10 | 581.96 | 403.43 |
| Min Ch El (ft) | 293.70 | Shear (lb/sq ft) | 0.45 | 0.87 | 0.48 |
| Alpha | 1.03 | Stream Power (lb/ft s) | 1.49 | 3.81 | 1.68 |
| Frctn Loss (ft) | 1.38 | Cum Volume (acre-ft) | 9.10 | 255.41 | 159.70 |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 2.75 | 25.14 | 27.82 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 2

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 308.80 | Element | | | |
| Vel Head (ft) | 0.40 | Wt. n-Val. | 0.050 | 0.060 | 0.050 |
| W.S. Elev (ft) | 308.40 | Reach Len. (ft) | 700.00 | 701.00 | 615.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 661.21 | 6537.99 | 317.49 |
| E.G. Slope (ft/ft) | 0.001691 | Area (sq ft) | 661.21 | 6537.99 | 317.49 |
| Q Total (cfs) | 38000.00 | Flow (cfs) | 3202.49 | 33400.29 | 1397.22 |
| Top Width (ft) | 695.00 | Top Width (ft) | 76.00 | 580.90 | 38.10 |
| Vel Total (ft/s) | 5.06 | Avg. Vel. (ft/s) | 4.84 | 5.11 | 4.40 |
| Max Chl Dpth (ft) | 14.70 | Hydr. Depth (ft) | 8.70 | 11.25 | 8.33 |
| Conv. Total (cfs) | 924037.3 | Conv. (cfs) | 77874.3 | 812187.3 | 33975.8 |
| Length Wtd. (ft) | 699.29 | Wetted Per. (ft) | 83.81 | 581.96 | 46.46 |
| Min Ch El (ft) | 293.70 | Shear (lb/sq ft) | 0.83 | 1.19 | 0.72 |
| Alpha | 1.00 | Stream Power (lb/ft s) | 4.03 | 6.06 | 3.17 |
| Frctn Loss (ft) | 1.79 | Cum Volume (acre-ft) | 5.56 | 264.03 | 57.81 |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 0.70 | 24.60 | 7.52 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate

the need for additional cross sections.

CROSS SECTION OUTPUT  Profile #PF 3

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 311.04 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.25 | Wt. n-Val. | 0.050 | 0.060 | 0.050 |
| W.S. Elev (ft) | 310.79 | Reach Len. (ft) | 700.00 | 701.00 | 615.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 1310.63 | 7924.50 | 3567.78 |
| E.G. Slope (ft/ft) | 0.000881 | Area (sq ft) | 1310.63 | 7924.50 | 3567.78 |
| Q Total (cfs) | 50000.00 | Flow (cfs) | 3613.03 | 33217.34 | 13169.63 |
| Top Width (ft) | 1233.35 | Top Width (ft) | 236.42 | 580.90 | 416.04 |
| Vel Total (ft/s) | 3.91 | Avg. Vel. (ft/s) | 2.76 | 4.19 | 3.69 |
| Max Chl Dpth (ft) | 17.09 | Hydr. Depth (ft) | 5.54 | 13.64 | 8.58 |
| Conv. Total (cfs) | 1684514.0 | Conv. (cfs) | 121723.9 | 1119102.0 | 443688.4 |
| Length Wtd. (ft) | 685.55 | Wetted Per. (ft) | 237.23 | 581.96 | 416.79 |
| Min Ch El (ft) | 293.70 | Shear (lb/sq ft) | 0.30 | 0.75 | 0.47 |
| Alpha | 1.04 | Stream Power (lb/ft s) | 0.84 | 3.14 | 1.74 |
| Frctn Loss (ft) | 0.97 | Cum Volume (acre-ft) | 29.74 | 360.61 | 295.06 |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 7.63 | 25.24 | 30.17 |

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

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1  RS: 245

INPUT
Description: Ineffective area has been added (Contraction reach 1:1)
Station Elevation Data  num=  46

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 330.6 | 48.3 | 330.2 | 61.9 | 329.3 | 122.7 | 326.3 | 174.1 | 323.3 |
| 216.8 | 321 | 301.6 | 319.7 | 334.3 | 316.8 | 376 | 314.8 | 446.7 | 312 |
| 517.8 | 308.7 | 610.7 | 306 | 655.7 | 302.8 | 668.3 | 298.3 | 686.7 | 296.1 |
| 711.4 | 295.4 | 790.1 | 296 | 828.3 | 295.7 | 874.3 | 295.3 | 904.5 | 292.7 |
| 926.5 | 292.5 | 945.9 | 292.7 | 988.3 | 293.6 | 1065 | 293.6 | 1139.8 | 293.9 |
| 1242.6 | 294.3 | 1268.7 | 293.5 | 1287.7 | 295.4 | 1358.7 | 294.8 | 1369.8 | 300.6 |
| 1445.1 | 301.1 | 1526.1 | 299 | 1600 | 299.6 | 1664.9 | 299.6 | 1689.4 | 304.4 |
| 1720.5 | 307.8 | 1789 | 313.1 | 1843.6 | 315.1 | 1857.9 | 321.9 | 1878.8 | 332.7 |
| 1900.7 | 333.4 | 1904.1 | 341.6 | 1959.2 | 341.6 | 1961.9 | 332.3 | 1986.9 | 329 |
| 2021.6 | 329.6 | | | | | | | | |

Manning's n Values  num=  3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .045 | 655.7 | .1 | 1287.7 | .11 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 655.7 | 1287.7 | 140.2 | 147.4 | 160 | .1 | .3 |

Ineffective Flow  num=  2

| Sta L | Sta R | Elev | Permanent |
|---|---|---|---|
| 0 | 642 | 313.25 | F |
| 1371.7 | 2021.6 | 313.25 | F |

CROSS SECTION OUTPUT  Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 306.77 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.31 | Wt. n-Val. | 0.045 | 0.100 | 0.110 |
| W.S. Elev (ft) | 306.46 | Reach Len. (ft) | 140.20 | 147.40 | 160.00 |
| Crit W.S. (ft) | 299.04 | Flow Area (sq ft) | 43.47 | 7543.86 | 914.93 |
| E.G. Slope (ft/ft) | 0.003440 | Area (sq ft) | 96.35 | 7543.86 | 2948.50 |
| Q Total (cfs) | 38000.00 | Flow (cfs) | 181.48 | 34296.49 | 3522.03 |
| Top Width (ft) | 1113.38 | Top Width (ft) | 60.83 | 632.00 | 420.54 |
| Vel Total (ft/s) | 4.47 | Avg. Vel. (ft/s) | 4.17 | 4.55 | 3.85 |
| Max Chl Dpth (ft) | 13.96 | Hydr. Depth (ft) | 3.17 | 11.94 | 10.89 |
| Conv. Total (cfs) | 647904.0 | Conv. (cfs) | 3094.3 | 584758.8 | 60050.9 |
| Length Wtd. (ft) | 147.97 | Wetted Per. (ft) | 13.73 | 633.16 | 85.43 |
| Min Ch El (ft) | 292.50 | Shear (lb/sq ft) | 0.68 | 2.56 | 2.30 |
| Alpha | 1.01 | Stream Power (lb/ft s) | 2.84 | 11.63 | 8.85 |
| Frctn Loss (ft) | 0.52 | Cum Volume (acre-ft) | 2.30 | 144.50 | 122.11 |
| C & E Loss (ft) | 0.04 | Cum SA (acres) | 1.16 | 15.38 | 22.00 |

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

CROSS SECTION OUTPUT  Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 307.01 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.41 | Wt. n-Val. | | 0.100 | 0.110 |
| W.S. Elev (ft) | 306.60 | Reach Len. (ft) | 140.20 | 147.40 | 160.00 |
| Crit W.S. (ft) | 299.29 | Flow Area (sq ft) | | 7385.43 | 43.75 |
| E.G. Slope (ft/ft) | 0.004312 | Area (sq ft) | | 7385.43 | 43.75 |
| Q Total (cfs) | 38000.00 | Flow (cfs) | | 37921.24 | 78.76 |
| Top Width (ft) | 605.00 | Top Width (ft) | | 601.10 | 3.90 |
| Vel Total (ft/s) | 5.11 | Avg. Vel. (ft/s) | | 5.13 | 1.80 |
| Max Chl Dpth (ft) | 14.10 | Hydr. Depth (ft) | | 12.29 | 11.22 |
| Conv. Total (cfs) | 578671.3 | Conv. (cfs) | | 577471.9 | 1199.4 |
| Length Wtd. (ft) | 147.41 | Wetted Per. (ft) | | 611.84 | 15.14 |
| Min Ch El (ft) | 292.50 | Shear (lb/sq ft) | | 3.25 | 0.78 |
| Alpha | 1.01 | Stream Power (lb/ft s) | | 16.69 | 1.40 |
| Frctn Loss (ft) | 0.56 | Cum Volume (acre-ft) | 0.24 | 152.00 | 55.26 |
| C & E Loss (ft) | 0.03 | Cum SA (acres) | 0.09 | 15.09 | 7.22 |

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

CROSS SECTION OUTPUT  Profile #PF 3

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 310.06 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.33 | Wt. n-Val. | 0.045 | 0.100 | 0.110 |
| W.S. Elev (ft) | 309.73 | Reach Len. (ft) | 140.20 | 147.40 | 160.00 |
| Crit W.S. (ft) | 299.95 | Flow Area (sq ft) | 88.27 | 9610.65 | 1189.63 |
| E.G. Slope (ft/ft) | 0.002611 | Area (sq ft) | 472.44 | 9610.65 | 4379.73 |
| Q Total (cfs) | 50000.00 | Flow (cfs) | 514.83 | 44732.47 | 4752.70 |
| Top Width (ft) | 1249.85 | Top Width (ft) | 160.10 | 632.00 | 457.75 |
| Vel Total (ft/s) | 4.59 | Avg. Vel. (ft/s) | 5.83 | 4.65 | 4.00 |
| Max Chl Dpth (ft) | 17.23 | Hydr. Depth (ft) | 6.44 | 15.21 | 14.16 |
| Conv. Total (cfs) | 978563.6 | Conv. (cfs) | 10075.9 | 875471.3 | 93016.4 |

| | | | | | |
|---|---|---|---|---|---|
| Length Wtd. (ft) | 147.96 | Wetted Per. (ft) | 13.73 | 633.16 | 85.43 |
| Min Ch El (ft) | 292.50 | Shear (lb/sq ft) | 1.05 | 2.47 | 2.27 |
| Alpha | 1.01 | Stream Power (lb/ft s) | 6.11 | 11.52 | 9.07 |
| Frctn Loss (ft) | 0.38 | Cum Volume (acre-ft) | 15.42 | 219.51 | 238.96 |
| C & E Loss (ft) | 0.04 | Cum SA (acres) | 4.45 | 15.48 | 24.00 |

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

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 244

INPUT
Description: MAST BLVD BRIDGE (NORMAL BRIDGE ROUTINE)
-ineffective area has
been added (cross section at the face of the bridge)
Station Elevation Data num= 35

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 312.5 | 104.5 | 308.1 | 201.3 | 303.9 | 207.8 | 307.1 | 216.5 | 307.1 |
| 237.5 | 311.6 | 319.8 | 312.8 | 335.5 | 307.7 | 367.8 | 307.6 | 459.7 | 307.8 |
| 508.9 | 294.9 | 585.6 | 293.1 | 617.1 | 292.2 | 638.9 | 293.1 | 772.1 | 293.3 |
| 888.2 | 294.6 | 935.1 | 293.5 | 960.1 | 296 | 1085.7 | 298.3 | 1166.8 | 300.4 |
| 1260.7 | 300.5 | 1360 | 300.3 | 1440.6 | 300.4 | 1502.7 | 300.3 | 1537.7 | 307.6 |
| 1602.1 | 309.9 | 1641.1 | 327.9 | 1787.9 | 328.1 | 1896 | 326.7 | 1953.2 | 313.1 |
| 2022.1 | 315.9 | 2161 | 318.3 | 2292.6 | 325.1 | 2385.9 | 332.9 | 2498.4 | 333.7 |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .1 | 459.7 | .065 | 960.1 | .045 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 459.7 | 960.1 | 104.8 | 124.6 | 145 | .3 | .5 |

Ineffective Flow num= 2

| Sta L | Sta R | Elev | Permanent |
|---|---|---|---|
| 0 | 459.7 | 311.5 | F |
| 960.1 | 2498.4 | 311.5 | F |

CROSS SECTION OUTPUT Profile #PF 1

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 306.22 | Element | | | |
| Vel Head (ft) | 0.73 | Wt. n-Val. | | 0.065 | |
| W.S. Elev (ft) | 305.49 | Reach Len. (ft) | 35.00 | 35.00 | 35.00 |
| Crit W.S. (ft) | 299.66 | Flow Area (sq ft) | | 5561.37 | |
| E.G. Slope (ft/ft) | 0.003533 | Area (sq ft) | 31.70 | 5561.37 | 3322.20 |
| Q Total (cfs) | 38000.00 | Flow (cfs) | | 38000.00 | |
| Top Width (ft) | 1098.95 | Top Width (ft) | 39.88 | 491.59 | 567.48 |
| Vel Total (ft/s) | 6.83 | Avg. Vel. (ft/s) | | 6.83 | |
| Max Chl Dpth (ft) | 13.29 | Hydr. Depth (ft) | | 11.31 | |
| Conv. Total (cfs) | 639339.1 | Conv. (cfs) | | 639339.1 | |
| Length Wtd. (ft) | 35.00 | Wetted Per. (ft) | | 493.15 | |
| Min Ch El (ft) | 292.20 | Shear (lb/sq ft) | | 2.49 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 16.99 | |

| | | | | | |
|---|---|---|---|---|---|
| Frctn Loss (ft) | 0.16 | Cum Volume (acre-ft) | 2.09 | 122.33 | 110.59 |
| C & E Loss (ft) | 0.06 | Cum SA (acres) | 1.00 | 13.48 | 20.19 |

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

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 306.42 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.70 | Wt. n-Val. | | 0.065 | |
| W.S. Elev (ft) | 305.72 | Reach Len. (ft) | 35.00 | 35.00 | 35.00 |
| Crit W.S. (ft) | 299.66 | Flow Area (sq ft) | | 5676.50 | |
| E.G. Slope (ft/ft) | 0.003395 | Area (sq ft) | | 5676.50 | |
| Q Total (cfs) | 38000.00 | Flow (cfs) | | 38000.00 | |
| Top Width (ft) | 492.48 | Top Width (ft) | | 492.48 | |
| Vel Total (ft/s) | 6.69 | Avg. Vel. (ft/s) | | 6.69 | |
| Max Chl Dpth (ft) | 13.52 | Hydr. Depth (ft) | | 11.53 | |
| Conv. Total (cfs) | 652195.7 | Conv. (cfs) | | 652195.7 | |
| Length Wtd. (ft) | 35.00 | Wetted Per. (ft) | | 503.80 | |
| Min Ch El (ft) | 292.20 | Shear (lb/sq ft) | | 2.39 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 15.99 | |
| Frctn Loss (ft) | 0.15 | Cum Volume (acre-ft) | 0.24 | 129.90 | 55.18 |
| C & E Loss (ft) | 0.05 | Cum SA (acres) | 0.09 | 13.24 | 7.22 |

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

CROSS SECTION OUTPUT Profile #PF 3

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 309.64 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.74 | Wt. n-Val. | | 0.065 | |
| W.S. Elev (ft) | 308.90 | Reach Len. (ft) | 35.00 | 35.00 | 35.00 |
| Crit W.S. (ft) | 300.87 | Flow Area (sq ft) | | 7256.49 | |
| E.G. Slope (ft/ft) | 0.002582 | Area (sq ft) | 485.94 | 7256.49 | 5303.49 |
| Q Total (cfs) | 50000.00 | Flow (cfs) | | 50000.00 | |
| Top Width (ft) | 1381.57 | Top Width (ft) | 267.23 | 500.40 | 613.94 |
| Vel Total (ft/s) | 6.89 | Avg. Vel. (ft/s) | | 6.89 | |
| Max Chl Dpth (ft) | 16.70 | Hydr. Depth (ft) | | 14.50 | |
| Conv. Total (cfs) | 984027.8 | Conv. (cfs) | | 984027.8 | |
| Length Wtd. (ft) | 35.00 | Wetted Per. (ft) | | 502.26 | |
| Min Ch El (ft) | 292.20 | Shear (lb/sq ft) | | 2.33 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 16.05 | |
| Frctn Loss (ft) | 0.12 | Cum Volume (acre-ft) | 13.88 | 190.98 | 221.18 |
| C & E Loss (ft) | 0.05 | Cum SA (acres) | 3.76 | 13.57 | 22.03 |

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

BRIDGE

RIVER: RIVER-1
REACH: Reach-1 RS: 243

```
INPUT
Description: Bridge #1
- Bridge was modeled as a Normal Bridge in  the
             effective model
-Piers were modeled as a part of the deck. Pier
             information has been deleted from the Deck , and re-entered as a
             separate pier information in HEC-RAS
-Deck width and distance
             have been revised (0 value is not correct for the distance from
             the Face cross Section).
Ineffective area has been included in
             the contraction reach (1:1) and Expansion Reach (2:1)
Distance from Upstream XS =      35
Deck/Roadway Width        =      55
Weir Coefficient          =     2.6
Upstream  Deck/Roadway Coordinates
    num=      22
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
   459.7     315   311.5   539.7     315   311.5   539.7     315   311.5
   546.7     315   311.5   546.7     315   311.5   623.1     315   311.5
   623.1     315   311.5   630.1     315   311.5   630.1     315   311.5
   706.4     315   311.5   706.4     315   311.5   713.4     315   311.5
   713.4     315   311.5   789.7     315   311.5   789.7     315   311.5
   796.7     315   311.5   796.7     315   311.5   873.1     315   311.5
   873.1     315   311.5   880.1     315   311.5   880.1     315   311.5
   960.1     315   311.5

Upstream Bridge Cross Section Data
Station Elevation Data    num=      35
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0   312.5   104.5   308.1   201.3   303.9   207.8   307.1   216.5   307.1
   237.5   311.6   319.8   312.8   335.5   307.7   367.8   307.6   459.7   307.8
   508.9   294.9   585.6   293.1   617.1   292.2   638.9   293.1   772.1   293.3
   888.2   294.6   935.1   293.5   960.1     296  1085.7   298.3  1166.8   300.4
  1260.7   300.5    1360   300.3  1440.6   300.4  1502.7   300.3  1537.7   307.6
  1602.1   309.9  1641.1   327.9  1787.9   328.1    1896   326.7  1953.2   313.1
  2022.1   315.9    2161   318.3  2292.6   325.1  2385.9   332.9  2498.4   333.7

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0      .1   459.7    .065   960.1    .045

Bank Sta: Left   Right    Coeff Contr.   Expan.
         459.7   960.1             .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
       0   459.7   311.5       F
   960.1  2498.4   311.5       F

Downstream  Deck/Roadway Coordinates
    num=      22
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
     401     315   311.5   480.8     315   311.5   480.8     315   311.5
   487.8     315   311.5   487.8     315   311.5   564.2     315   311.5
```

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 564.2 | 315 | 311.5 | 571.2 | 315 | 311.5 | 571.2 | 315 | 311.5 |
| 647.5 | 315 | 311.5 | 647.5 | 315 | 311.5 | 654.5 | 315 | 311.5 |
| 654.5 | 315 | 311.5 | 730.8 | 315 | 311.5 | 730.8 | 315 | 311.5 |
| 737.8 | 315 | 311.5 | 737.8 | 315 | 311.5 | 814.2 | 315 | 311.5 |
| 814.2 | 315 | 311.5 | 821.2 | 315 | 311.5 | 821.2 | 315 | 311.5 |
| 900.5 | 315 | 311.5 | | | | | | |

Downstream Bridge Cross Section Data
Station Elevation Data num= 35

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 316.8 | 112 | 313 | 208.4 | 309.6 | 275.7 | 312.9 | 401 | 311.6 |
| 456.4 | 294.1 | 515 | 292.1 | 549.1 | 291.7 | 573.4 | 293 | 615.3 | 292.5 |
| 683.3 | 294 | 754 | 293.8 | 833.8 | 293.1 | 848.7 | 292.9 | 881.7 | 298.9 |
| 900.5 | 309.6 | 933.7 | 309.6 | 993.7 | 311.6 | 1109.5 | 310.6 | 1250.9 | 313.9 |
| 1354.6 | 317.3 | 1496.3 | 321.3 | 1588.4 | 321.9 | 1606.6 | 328.4 | 1621 | 329.1 |
| 1637.1 | 321.6 | 1734 | 320.7 | 1900.1 | 316.2 | 2003.5 | 313.7 | 2112.3 | 317.6 |
| 2154.7 | 320.9 | 2210.3 | 328 | 2252.9 | 327.8 | 2328.2 | 325.6 | 2378.2 | 322.3 |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .1 | 401 | .065 | 900.5 | .045 |

Bank Sta: Left Right Coeff Contr. Expan.
401 900.5 .3 .5
Ineffective Flow num= 2

| Sta L | Sta R | Elev | Permanent |
|---|---|---|---|
| 0 | 401 | 313.25 | F |
| 900.5 | 2378.2 | 313.25 | F |

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

Number of Piers = 5

Pier Data
Pier Station Upstream= 543.2 Downstream= 484.3
Upstream num= 2

| Width | Elev | Width | Elev |
|---|---|---|---|
| 7 | 0 | 7 | 311.5 |

Downstream num= 2

| Width | Elev | Width | Elev |
|---|---|---|---|
| 7 | 0 | 7 | 311.5 |

Pier Data
Pier Station Upstream= 626.6 Downstream= 567.7
Upstream num= 2

| Width | Elev | Width | Elev |
|---|---|---|---|
| 7 | 0 | 7 | 311.5 |

Downstream num= 2

| Width | Elev | Width | Elev |
|---|---|---|---|

```
       7       0       7   311.5

Pier Data
Pier Station     Upstream=   709.9    Downstream=     651
Upstream     num=       2
    Width   Elev    Width   Elev
       7       0       7   311.5
Downstream     num=       2
    Width   Elev    Width   Elev
       7       0       7   311.5

Pier Data
Pier Station     Upstream=   793.2    Downstream=   734.3
Upstream     num=       2
    Width   Elev    Width   Elev
       7       0       7   311.5
Downstream     num=       2
    Width   Elev    Width   Elev
       7       0       7   311.5

Pier Data
Pier Station     Upstream=   876.6    Downstream=   817.7
Upstream     num=       2
    Width   Elev    Width   Elev
       7       0       7   311.5
Downstream     num=       2
    Width   Elev    Width   Elev
       7       0       7   311.5

Number of Bridge Coefficient Sets =  1

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

High Flow Method
       Energy Only

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

BRIDGE OUTPUT  Profile #PF 1

  E.G. US. (ft)               306.22    Element                Inside BR US  Inside BR DS
  W.S. US. (ft)               305.49    E.G. Elev (ft)              306.00        305.54
  Q Total (cfs)             38000.00    W.S. Elev (ft)              305.08        304.44
  Q Bridge (cfs)            38000.00    Crit W.S. (ft)              300.00        300.01
  Q Weir (cfs)                          Max Chl Dpth (ft)            12.88         12.74
  Weir Sta Lft (ft)                     Vel Total (ft/s)              7.66          8.41
  Weir Sta Rgt (ft)                     Flow Area (sq ft)          4959.43       4516.98
  Weir Submerg                          Froude # Chl                  0.38          0.46
```

| | | | | |
|---|---|---|---|---|
| Weir Max Depth (ft) | | Specif Force (cu ft) | 37050.15 | 34728.68 |
| Min El Weir Flow (ft) | 309.61 | Hydr Depth (ft) | 10.90 | 10.44 |
| Min El Prs (ft) | 311.50 | W.P. Total (ft) | 580.67 | 548.45 |
| Delta EG (ft) | 0.97 | Conv. Total (cfs) | 473715.9 | 421120.7 |
| Delta WS (ft) | 1.20 | Top Width (ft) | 1050.27 | 432.78 |
| BR Open Area (sq ft) | 7690.35 | Frctn Loss (ft) | 0.40 | 0.22 |
| BR Open Vel (ft/s) | 8.41 | C & E Loss (ft) | 0.06 | 0.07 |
| BR Sluice Coef | | Shear Total (lb/sq ft) | 3.43 | 4.19 |
| BR Sel Method | Energy only | Power Total (lb/ft s) | 26.29 | 35.22 |

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

BRIDGE OUTPUT Profile #PF 2

| | | Element | Inside BR US | Inside BR DS |
|---|---|---|---|---|
| E.G. US. (ft) | 306.42 | E.G. Elev (ft) | 306.21 | 305.80 |
| W.S. US. (ft) | 305.72 | W.S. Elev (ft) | 305.34 | 304.76 |
| Q Total (cfs) | 38000.00 | Crit W.S. (ft) | 300.00 | 300.00 |
| Q Bridge (cfs) | 38000.00 | Max Chl Dpth (ft) | 13.14 | 13.06 |
| Q Weir (cfs) | | Vel Total (ft/s) | 7.48 | 8.16 |
| Weir Sta Lft (ft) | | Flow Area (sq ft) | 5077.39 | 4654.77 |
| Weir Sta Rgt (ft) | | Froude # Chl | 0.36 | 0.44 |
| Weir Submerg | | Specif Force (cu ft) | 38139.38 | 35891.98 |
| Weir Max Depth (ft) | | Hydr Depth (ft) | 11.13 | 10.72 |
| Min El Weir Flow (ft) | 309.61 | W.P. Total (ft) | 584.53 | 553.32 |
| Min El Prs (ft) | 311.50 | Conv. Total (cfs) | 490466.3 | 440143.6 |
| Delta EG (ft) | 0.90 | Top Width (ft) | 456.03 | 434.35 |
| Delta WS (ft) | 1.10 | Frctn Loss (ft) | 0.37 | 0.20 |
| BR Open Area (sq ft) | 7690.35 | C & E Loss (ft) | 0.05 | 0.07 |
| BR Open Vel (ft/s) | 8.16 | Shear Total (lb/sq ft) | 3.26 | 3.91 |
| BR Sluice Coef | | Power Total (lb/ft s) | 24.36 | 31.96 |
| BR Sel Method | Energy only | | | |

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

BRIDGE OUTPUT Profile #PF 3

| | | Element | Inside BR US | Inside BR DS |
|---|---|---|---|---|
| E.G. US. (ft) | 309.64 | E.G. Elev (ft) | 309.47 | 309.13 |
| W.S. US. (ft) | 308.90 | W.S. Elev (ft) | 308.56 | 308.10 |
| Q Total (cfs) | 50000.00 | Crit W.S. (ft) | 301.26 | 301.32 |
| Q Bridge (cfs) | 50000.00 | Max Chl Dpth (ft) | 16.36 | 16.40 |
| Q Weir (cfs) | | Vel Total (ft/s) | 7.62 | 8.15 |
| Weir Sta Lft (ft) | | Flow Area (sq ft) | 6565.00 | 6132.94 |
| Weir Sta Rgt (ft) | | Froude # Chl | 0.33 | 0.39 |
| Weir Submerg | | Specif Force (cu ft) | 59877.75 | 56919.77 |
| Weir Max Depth (ft) | | Hydr Depth (ft) | 14.11 | 13.60 |
| Min El Weir Flow (ft) | 309.61 | W.P. Total (ft) | 630.42 | 604.56 |
| Min El Prs (ft) | 311.50 | Conv. Total (cfs) | 715682.7 | 657005.8 |
| Delta EG (ft) | 0.73 | Top Width (ft) | 1326.71 | 450.79 |
| Delta WS (ft) | 0.88 | Frctn Loss (ft) | 0.29 | 0.15 |
| BR Open Area (sq ft) | 7690.35 | C & E Loss (ft) | 0.04 | 0.07 |
| BR Open Vel (ft/s) | 8.15 | | | |

| | | | | |
|---|---|---|---|---|
| BR Sluice Coef | | Shear Total (lb/sq ft) | 3.17 | 3.67 |
| BR Sel Method | Energy only | Power Total (lb/ft s) | 24.17 | 29.90 |

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

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 242

INPUT
Description: ineffective area has been added (cross section at the face of the bridge)

Station Elevation Data num= 35

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 316.8 | 112 | 313 | 208.4 | 309.6 | 275.7 | 312.9 | 401 | 311.6 |
| 456.4 | 294.1 | 515 | 292.1 | 549.1 | 291.7 | 573.4 | 293 | 615.3 | 292.5 |
| 683.3 | 294 | 754 | 293.8 | 833.8 | 293.1 | 848.7 | 292.9 | 881.7 | 298.9 |
| 900.5 | 309.6 | 933.7 | 309.6 | 993.7 | 311.6 | 1109.5 | 310.6 | 1250.9 | 313.9 |
| 1354.6 | 317.3 | 1496.3 | 321.3 | 1588.4 | 321.9 | 1606.6 | 328.4 | 1621 | 329.1 |
| 1637.1 | 321.6 | 1734 | 320.7 | 1900.1 | 316.2 | 2003.5 | 313.7 | 2112.3 | 317.6 |
| 2154.7 | 320.9 | 2210.3 | 328 | 2252.9 | 327.8 | 2328.2 | 325.6 | 2378.2 | 322.3 |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .1 | 401 | .065 | 900.5 | .045 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 401 | 900.5 | 165 | 224 | 270 | .3 | .5 |

Ineffective Flow num= 2

| Sta L | Sta R | Elev | Permanent |
|---|---|---|---|
| 0 | 401 | 313.25 | F |
| 900.5 | 2378.2 | 313.25 | F |

CROSS SECTION OUTPUT Profile #PF 1

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 305.25 | Element | | | |
| Vel Head (ft) | 0.96 | Wt. n-Val. | | 0.065 | |
| W.S. Elev (ft) | 304.29 | Reach Len. (ft) | 165.00 | 224.00 | 270.00 |
| Crit W.S. (ft) | 299.62 | Flow Area (sq ft) | | 4836.56 | |
| E.G. Slope (ft/ft) | 0.005287 | Area (sq ft) | | 4836.56 | |
| Q Total (cfs) | 38000.00 | Flow (cfs) | | 38000.00 | |
| Top Width (ft) | 467.02 | Top Width (ft) | | 467.02 | |
| Vel Total (ft/s) | 7.86 | Avg. Vel. (ft/s) | | 7.86 | |
| Max Chl Dpth (ft) | 12.59 | Hydr. Depth (ft) | | 10.36 | |
| Conv. Total (cfs) | 522605.8 | Conv. (cfs) | | 522605.8 | |
| Length Wtd. (ft) | 232.17 | Wetted Per. (ft) | | 470.66 | |
| Min Ch El (ft) | 291.70 | Shear (lb/sq ft) | | 3.39 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 26.65 | |
| Frctn Loss (ft) | 1.10 | Cum Volume (acre-ft) | 2.06 | 108.40 | 106.06 |
| C & E Loss (ft) | 0.10 | Cum SA (acres) | 0.95 | 12.18 | 19.38 |

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 305.52 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.90 | Wt. n-Val. | | 0.065 | |
| W.S. Elev (ft) | 304.62 | Reach Len. (ft) | 165.00 | 224.00 | 270.00 |
| Crit W.S. (ft) | 299.63 | Flow Area (sq ft) | | 4993.90 | |
| E.G. Slope (ft/ft) | 0.004776 | Area (sq ft) | | 4993.90 | |
| Q Total (cfs) | 38000.00 | Flow (cfs) | | 38000.00 | |
| Top Width (ft) | 468.68 | Top Width (ft) | | 468.68 | |
| Vel Total (ft/s) | 7.61 | Avg. Vel. (ft/s) | | 7.61 | |
| Max Chl Dpth (ft) | 12.92 | Hydr. Depth (ft) | | 10.66 | |
| Conv. Total (cfs) | 549848.9 | Conv. (cfs) | | 549848.9 | |
| Length Wtd. (ft) | 232.24 | Wetted Per. (ft) | | 472.45 | |
| Min Ch El (ft) | 291.70 | Shear (lb/sq ft) | | 3.15 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 23.98 | |
| Frctn Loss (ft) | 0.95 | Cum Volume (acre-ft) | 0.24 | 115.60 | 55.18 |
| C & E Loss (ft) | 0.11 | Cum SA (acres) | 0.09 | 11.93 | 7.22 |

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF 3

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 308.91 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.89 | Wt. n-Val. | | 0.065 | |
| W.S. Elev (ft) | 308.02 | Reach Len. (ft) | 165.00 | 224.00 | 270.00 |
| Crit W.S. (ft) | 300.88 | Flow Area (sq ft) | | 6614.62 | |
| E.G. Slope (ft/ft) | 0.003407 | Area (sq ft) | | 6614.62 | |
| Q Total (cfs) | 50000.00 | Flow (cfs) | | 50000.00 | |
| Top Width (ft) | 485.40 | Top Width (ft) | | 485.40 | |
| Vel Total (ft/s) | 7.56 | Avg. Vel. (ft/s) | | 7.56 | |
| Max Chl Dpth (ft) | 16.32 | Hydr. Depth (ft) | | 13.63 | |
| Conv. Total (cfs) | 856588.9 | Conv. (cfs) | | 856588.9 | |
| Length Wtd. (ft) | 233.07 | Wetted Per. (ft) | | 490.60 | |
| Min Ch El (ft) | 291.70 | Shear (lb/sq ft) | | 2.87 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 21.68 | |
| Frctn Loss (ft) | 0.56 | Cum Volume (acre-ft) | 13.27 | 172.34 | 213.78 |
| C & E Loss (ft) | 0.16 | Cum SA (acres) | 3.38 | 12.23 | 21.16 |

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

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 239

INPUT
Description: -add ineffective flow  area (Expansion Reach)
Station Elevation Data    num=      35

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 314 | 87.1 | 311.2 | 151.3 | 308.5 | 183.2 | 306.4 | 215.4 | 304.6 |
| 241.3 | 303 | 280.1 | 296.8 | 314.7 | 293.9 | 339 | 292.9 | 379.6 | 294.4 |
| 403.2 | 292.6 | 425.4 | 293.1 | 463.7 | 294.4 | 483.9 | 291.8 | 506.5 | 290.7 |
| 551.3 | 292.7 | 620.7 | 293.2 | 628.9 | 295.7 | 642 | 299.6 | 662.4 | 296.3 |
| 712.8 | 296.7 | 745.9 | 295.3 | 808 | 296.4 | 858.6 | 297.1 | 955.9 | 298.3 |
| 1077.2 | 298.6 | 1096.1 | 296.4 | 1143.4 | 295.9 | 1251.8 | 296.4 | 1289.9 | 298.8 |
| 1360.3 | 299.6 | 1377.5 | 302.7 | 1402.9 | 313.3 | 1426.5 | 325.9 | 1436.2 | 326.7 |

Manning's n Values        num=       3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .1 | 241.3 | .065 | 642 | .045 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 241.3 | 642 | 385 | 413 | 515 | .1 | .3 |

Ineffective Flow     num=       2

| Sta L | Sta R | Elev | Permanent |
|---|---|---|---|
| 0 | 201.8 | 313.25 | F |
| 906.2 | 1436.2 | 313.25 | F |

CROSS SECTION OUTPUT  Profile #PF 1

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 304.05 | Element | | | |
| Vel Head (ft) | 0.75 | Wt. n-Val. | 0.100 | 0.065 | 0.045 |
| W.S. Elev (ft) | 303.29 | Reach Len. (ft) | 385.00 | 413.00 | 515.00 |
| Crit W.S. (ft) | 299.63 | Flow Area (sq ft) | 0.70 | 3729.01 | 1767.20 |
| E.G. Slope (ft/ft) | 0.004249 | Area (sq ft) | 0.70 | 3729.01 | 4382.61 |
| Q Total (cfs) | 38000.00 | Flow (cfs) | 0.19 | 24506.64 | 13493.17 |
| Top Width (ft) | 1142.39 | Top Width (ft) | 4.76 | 400.70 | 736.92 |
| Vel Total (ft/s) | 6.91 | Avg. Vel. (ft/s) | 0.27 | 6.57 | 7.64 |
| Max Chl Dpth (ft) | 12.59 | Hydr. Depth (ft) | 0.15 | 9.31 | 6.69 |
| Conv. Total (cfs) | 582943.8 | Conv. (cfs) | 2.9 | 375947.2 | 206993.7 |
| Length Wtd. (ft) | 447.70 | Wetted Per. (ft) | 4.77 | 402.64 | 264.51 |
| Min Ch El (ft) | 290.70 | Shear (lb/sq ft) | 0.04 | 2.46 | 1.77 |
| Alpha | 1.02 | Stream Power (lb/ft s) | 0.01 | 16.15 | 13.53 |
| Frctn Loss (ft) | 1.70 | Cum Volume (acre-ft) | 2.06 | 86.38 | 92.48 |
| C & E Loss (ft) | 0.07 | Cum SA (acres) | 0.94 | 9.95 | 17.09 |

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate the need for additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT  Profile #PF 2

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 304.47 | Element | | | |
| Vel Head (ft) | 0.67 | Wt. n-Val. | | 0.065 | 0.045 |
| W.S. Elev (ft) | 303.79 | Reach Len. (ft) | 385.00 | 413.00 | 515.00 |
| Crit W.S. (ft) | 299.64 | Flow Area (sq ft) | | 3923.34 | 1899.16 |
| E.G. Slope (ft/ft) | 0.003511 | Area (sq ft) | | 3923.34 | 1899.16 |
| Q Total (cfs) | 38000.00 | Flow (cfs) | | 24380.19 | 13619.81 |
| Top Width (ft) | 660.00 | Top Width (ft) | | 395.80 | 264.20 |

| | | | | | |
|---|---|---|---|---|---|
| Vel Total (ft/s) | 6.53 | Avg. Vel. (ft/s) | | 6.21 | 7.17 |
| Max Chl Dpth (ft) | 13.09 | Hydr. Depth (ft) | | 9.91 | 7.19 |
| Conv. Total (cfs) | 641341.7 | Conv. (cfs) | | 411474.6 | 229867.1 |
| Length Wtd. (ft) | 446.15 | Wetted Per. (ft) | | 399.25 | 270.62 |
| Min Ch El (ft) | 290.70 | Shear (lb/sq ft) | | 2.15 | 1.54 |
| Alpha | 1.01 | Stream Power (lb/ft s) | | 13.38 | 11.03 |
| Frctn Loss (ft) | 1.43 | Cum Volume (acre-ft) | 0.24 | 92.67 | 49.30 |
| C & E Loss (ft) | 0.04 | Cum SA (acres) | 0.09 | 9.71 | 6.40 |

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #PF 3

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 308.19 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.57 | Wt. n-Val. | 0.100 | 0.065 | 0.045 |
| W.S. Elev (ft) | 307.63 | Reach Len. (ft) | 385.00 | 413.00 | 515.00 |
| Crit W.S. (ft) | 300.56 | Flow Area (sq ft) | 135.09 | 5464.84 | 2911.71 |
| E.G. Slope (ft/ft) | 0.001762 | Area (sq ft) | 178.99 | 5464.84 | 7587.45 |
| Q Total (cfs) | 50000.00 | Flow (cfs) | 191.03 | 29838.00 | 19970.97 |
| Top Width (ft) | 1224.73 | Top Width (ft) | 76.73 | 400.70 | 747.30 |
| Vel Total (ft/s) | 5.87 | Avg. Vel. (ft/s) | 1.41 | 5.46 | 6.86 |
| Max Chl Dpth (ft) | 16.93 | Hydr. Depth (ft) | 3.42 | 13.64 | 11.02 |
| Conv. Total (cfs) | 1191153.0 | Conv. (cfs) | 4551.0 | 710832.4 | 475769.5 |
| Length Wtd. (ft) | 453.52 | Wetted Per. (ft) | 39.57 | 402.64 | 264.51 |
| Min Ch El (ft) | 290.70 | Shear (lb/sq ft) | 0.38 | 1.49 | 1.21 |
| Alpha | 1.06 | Stream Power (lb/ft s) | 0.53 | 8.15 | 8.31 |
| Frctn Loss (ft) | 0.54 | Cum Volume (acre-ft) | 12.93 | 141.29 | 190.23 |
| C & E Loss (ft) | 0.08 | Cum SA (acres) | 3.24 | 9.95 | 18.84 |

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

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 230

INPUT
Description: Ineffective flow-Expansion Reach
Station Elevation Data num= 39

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 312 | 65.6 | 310.4 | 137.8 | 306.5 | 207.5 | 304.8 | 265.4 | 303.7 |
| 291.2 | 300.1 | 331.4 | 299.8 | 351.6 | 295.4 | 389 | 294.6 | 407.4 | 291.3 |
| 454.2 | 291.8 | 462.3 | 290.4 | 477.6 | 289.8 | 534.6 | 290.2 | 554.3 | 293.8 |
| 641.2 | 293.6 | 754.1 | 293.5 | 854.5 | 294.1 | 957 | 293.2 | 982.8 | 292.3 |
| 997.6 | 294.6 | 1024.6 | 297.5 | 1044.3 | 298.8 | 1136.2 | 298.2 | 1228.8 | 298 |
| 1299.8 | 296 | 1370.7 | 296 | 1433 | 296.9 | 1442.5 | 299.6 | 1459.2 | 298.3 |
| 1470.3 | 296.6 | 1517.5 | 295 | 1523.6 | 297.2 | 1550.3 | 301.8 | 1578.7 | 304.4 |
| 1682 | 307.7 | 1783.3 | 310.7 | 1933.2 | 315.6 | 2031.8 | 320.6 | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .1 | 331.4 | .065 | 854.5 | .045 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 331.4 | 854.5 | 460 | 487 | 430 | .1 | .3 |

Ineffective Flow num= 2

| Sta L | Sta R | Elev | Permanent |
|---|---|---|---|
| 0 | 61.8 | 313.25 | F |
| 1233.8 | 2031.8 | 313.25 | F |

CROSS SECTION OUTPUT Profile #PF 1

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 302.27 | Element | | | |
| Vel Head (ft) | 0.51 | Wt. n-Val. | 0.100 | 0.065 | 0.045 |
| W.S. Elev (ft) | 301.76 | Reach Len. (ft) | 460.00 | 487.00 | 430.00 |
| Crit W.S. (ft) | 297.85 | Flow Area (sq ft) | 82.76 | 4531.83 | 2070.54 |
| E.G. Slope (ft/ft) | 0.003420 | Area (sq ft) | 82.76 | 4531.83 | 3633.57 |
| Q Total (cfs) | 38000.00 | Flow (cfs) | 97.74 | 25515.28 | 12386.99 |
| Top Width (ft) | 1270.79 | Top Width (ft) | 52.11 | 523.10 | 695.58 |
| Vel Total (ft/s) | 5.68 | Avg. Vel. (ft/s) | 1.18 | 5.63 | 5.98 |
| Max Chl Dpth (ft) | 11.96 | Hydr. Depth (ft) | 1.59 | 8.66 | 5.46 |
| Conv. Total (cfs) | 649800.6 | Conv. (cfs) | 1671.3 | 436311.6 | 211817.8 |
| Length Wtd. (ft) | 461.16 | Wetted Per. (ft) | 52.23 | 524.34 | 379.70 |
| Min Ch El (ft) | 289.80 | Shear (lb/sq ft) | 0.34 | 1.85 | 1.16 |
| Alpha | 1.02 | Stream Power (lb/ft s) | 0.40 | 10.39 | 6.97 |
| Frctn Loss (ft) | 1.14 | Cum Volume (acre-ft) | 1.69 | 47.22 | 45.09 |
| C & E Loss (ft) | 0.06 | Cum SA (acres) | 0.69 | 5.57 | 8.62 |

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #PF 2

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 303.00 | Element | | | |
| Vel Head (ft) | 0.55 | Wt. n-Val. | 0.100 | 0.065 | 0.045 |
| W.S. Elev (ft) | 302.44 | Reach Len. (ft) | 460.00 | 487.00 | 430.00 |
| Crit W.S. (ft) | 297.86 | Flow Area (sq ft) | 25.04 | 4888.27 | 1587.83 |
| E.G. Slope (ft/ft) | 0.002948 | Area (sq ft) | 25.04 | 4888.27 | 1587.83 |
| Q Total (cfs) | 38000.00 | Flow (cfs) | 32.67 | 26874.77 | 11092.57 |
| Top Width (ft) | 735.00 | Top Width (ft) | 9.60 | 523.10 | 202.30 |
| Vel Total (ft/s) | 5.85 | Avg. Vel. (ft/s) | 1.30 | 5.50 | 6.99 |
| Max Chl Dpth (ft) | 12.64 | Hydr. Depth (ft) | 2.61 | 9.34 | 7.85 |
| Conv. Total (cfs) | 699903.2 | Conv. (cfs) | 601.7 | 494993.0 | 204308.5 |
| Length Wtd. (ft) | 462.77 | Wetted Per. (ft) | 12.17 | 524.34 | 206.42 |
| Min Ch El (ft) | 289.80 | Shear (lb/sq ft) | 0.38 | 1.72 | 1.42 |
| Alpha | 1.04 | Stream Power (lb/ft s) | 0.49 | 9.43 | 9.89 |
| Frctn Loss (ft) | 0.94 | Cum Volume (acre-ft) | 0.13 | 50.90 | 28.69 |
| C & E Loss (ft) | 0.07 | Cum SA (acres) | 0.05 | 5.35 | 3.64 |

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT  Profile #PF 3

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 307.57 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.29 | Wt. n-Val. | 0.100 | 0.065 | 0.045 |
| W.S. Elev (ft) | 307.28 | Reach Len. (ft) | 460.00 | 487.00 | 430.00 |
| Crit W.S. (ft) | 299.08 | Flow Area (sq ft) | 728.21 | 7418.30 | 4163.52 |
| E.G. Slope (ft/ft) | 0.000870 | Area (sq ft) | 728.21 | 7418.30 | 7721.56 |
| Q Total (cfs) | 50000.00 | Flow (cfs) | 734.92 | 29254.25 | 20010.83 |
| Top Width (ft) | 1545.51 | Top Width (ft) | 208.05 | 523.10 | 814.36 |
| Vel Total (ft/s) | 4.06 | Avg. Vel. (ft/s) | 1.01 | 3.94 | 4.81 |
| Max Chl Dpth (ft) | 17.48 | Hydr. Depth (ft) | 3.50 | 14.18 | 10.98 |
| Conv. Total (cfs) | 1695491.0 | Conv. (cfs) | 24921.0 | 992005.9 | 678563.6 |
| Length Wtd. (ft) | 457.44 | Wetted Per. (ft) | 208.35 | 524.34 | 379.70 |
| Min Ch El (ft) | 289.80 | Shear (lb/sq ft) | 0.19 | 0.77 | 0.60 |
| Alpha | 1.11 | Stream Power (lb/ft s) | 0.19 | 3.03 | 2.86 |
| Frctn Loss (ft) | 0.24 | Cum Volume (acre-ft) | 8.92 | 80.21 | 99.67 |
| C & E Loss (ft) | 0.04 | Cum SA (acres) | 1.98 | 5.57 | 9.61 |

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

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1  RS: 220

INPUT
Description: Ineffective flow-Expansion Reach
Station Elevation Data  num=  44

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 324 | 93.8 | 319.7 | 217.1 | 314.8 | 297.3 | 308 | 374.5 | 304.6 |
| 393.2 | 301.5 | 420.3 | 299.8 | 439.7 | 295.9 | 465.5 | 296.2 | 484.2 | 299.8 |
| 534.9 | 296.3 | 575.2 | 295.4 | 649.9 | 293.8 | 675.5 | 292.1 | 713.9 | 292.3 |
| 756.2 | 290 | 798.1 | 288.8 | 821.5 | 289.8 | 922.4 | 289.9 | 957.7 | 292.4 |
| 1018 | 292.8 | 1064.1 | 291.5 | 1181.5 | 291.6 | 1265.8 | 291.3 | 1290.2 | 294.1 |
| 1314.9 | 297 | 1364.7 | 297.1 | 1483.6 | 297 | 1523.5 | 296 | 1602.5 | 296 |
| 1626.8 | 297.7 | 1646.9 | 298.6 | 1670.2 | 296.6 | 1761.1 | 297.9 | 1817.3 | 299.2 |
| 1831.2 | 296.4 | 1867.1 | 295.6 | 1937.3 | 298.2 | 2007.5 | 300.4 | 2031.6 | 304.8 |
| 2049.2 | 303.8 | 2077.8 | 303.4 | 2093.8 | 308.1 | 2142.9 | 309.4 | | |

Manning's n Values  num=  3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .1 | 484.2 | .065 | 957.7 | .045 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 484.2 | 957.7 | 0 | 0 | 0 | .1 | .3 |

Ineffective Flow  num=  2

| Sta L | Sta R | Elev | Permanent |
|---|---|---|---|
| 0 | 56 | 313.25 | F |
| 1681.8 | 2142.9 | 313.25 | F |

CROSS SECTION OUTPUT  Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 301.08 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.32 | Wt. n-Val. | 0.100 | 0.065 | 0.045 |
| W.S. Elev (ft) | 300.76 | Reach Len. (ft) | | | |
| Crit W.S. (ft) | 296.44 | Flow Area (sq ft) | 236.93 | 3914.77 | 4520.70 |
| E.G. Slope (ft/ft) | 0.001870 | Area (sq ft) | 236.93 | 3914.77 | 5502.52 |
| Q Total (cfs) | 38000.00 | Flow (cfs) | 314.02 | 15812.66 | 21873.32 |
| Top Width (ft) | 1604.48 | Top Width (ft) | 79.20 | 473.50 | 1051.77 |
| Vel Total (ft/s) | 4.38 | Avg. Vel. (ft/s) | 1.33 | 4.04 | 4.84 |
| Max Chl Dpth (ft) | 11.96 | Hydr. Depth (ft) | 2.99 | 8.27 | 6.24 |
| Conv. Total (cfs) | 878855.8 | Conv. (cfs) | 7262.6 | 365711.7 | 505881.5 |
| Length Wtd. (ft) | | Wetted Per. (ft) | 79.97 | 473.89 | 724.63 |
| Min Ch El (ft) | 288.80 | Shear (lb/sq ft) | 0.35 | 0.96 | 0.73 |
| Alpha | 1.06 | Stream Power (lb/ft s) | 0.46 | 3.89 | 3.52 |
| Frctn Loss (ft) | | Cum Volume (acre-ft) | | | |
| C & E Loss (ft) | | Cum SA (acres) | | | |

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

CROSS SECTION OUTPUT  Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 301.99 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.33 | Wt. n-Val. | | 0.065 | 0.045 |
| W.S. Elev (ft) | 301.66 | Reach Len. (ft) | | | |
| Crit W.S. (ft) | 296.15 | Flow Area (sq ft) | | 4217.24 | 4224.02 |
| E.G. Slope (ft/ft) | 0.001490 | Area (sq ft) | | 4217.24 | 4224.02 |
| Q Total (cfs) | 38000.00 | Flow (cfs) | | 16798.66 | 21201.34 |
| Top Width (ft) | 970.00 | Top Width (ft) | | 434.80 | 535.20 |
| Vel Total (ft/s) | 4.50 | Avg. Vel. (ft/s) | | 3.98 | 5.02 |
| Max Chl Dpth (ft) | 12.86 | Hydr. Depth (ft) | | 9.70 | 7.89 |
| Conv. Total (cfs) | 984565.4 | Conv. (cfs) | | 435246.9 | 549318.5 |
| Length Wtd. (ft) | | Wetted Per. (ft) | | 439.63 | 540.45 |
| Min Ch El (ft) | 288.80 | Shear (lb/sq ft) | | 0.89 | 0.73 |
| Alpha | 1.04 | Stream Power (lb/ft s) | | 3.55 | 3.65 |
| Frctn Loss (ft) | | Cum Volume (acre-ft) | | | |
| C & E Loss (ft) | | Cum SA (acres) | | | |

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

CROSS SECTION OUTPUT  Profile #PF 3

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 307.28 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.15 | Wt. n-Val. | 0.100 | 0.065 | 0.045 |
| W.S. Elev (ft) | 307.13 | Reach Len. (ft) | | | |
| Crit W.S. (ft) | 297.37 | Flow Area (sq ft) | 961.20 | 6930.97 | 9133.22 |
| E.G. Slope (ft/ft) | 0.000362 | Area (sq ft) | 961.20 | 6930.97 | 12473.01 |
| Q Total (cfs) | 50000.00 | Flow (cfs) | 868.91 | 18038.38 | 31092.72 |
| Top Width (ft) | 1773.44 | Top Width (ft) | 167.15 | 473.50 | 1132.80 |
| Vel Total (ft/s) | 2.94 | Avg. Vel. (ft/s) | 0.90 | 2.60 | 3.40 |
| Max Chl Dpth (ft) | 18.33 | Hydr. Depth (ft) | 5.75 | 14.64 | 12.61 |
| Conv. Total (cfs) | 2626576.0 | Conv. (cfs) | 45645.1 | 947583.3 | 1633348.0 |
| Length Wtd. (ft) | | Wetted Per. (ft) | 168.24 | 473.89 | 724.63 |

| | | | | | |
|---|---|---|---|---|---|
| Min Ch El (ft) | 288.80 | Shear (lb/sq ft) | 0.13 | 0.33 | 0.29 |
| Alpha | 1.12 | Stream Power (lb/ft s) | 0.12 | 0.86 | 0.97 |
| Frctn Loss (ft) | | Cum Volume (acre-ft) | | | |
| C & E Loss (ft) | | Cum SA (acres) | | | |

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

SUMMARY OF MANNING'S N VALUES

River:RIVER-1

| Reach | River Sta. | n1 | n2 | n3 |
|---|---|---|---|---|
| Reach-1 | 355 | .06 | .05 | .06 |
| Reach-1 | 345 | .06 | .05 | .06 |
| Reach-1 | 340 | .06 | .05 | .06 |
| Reach-1 | 330 | .06 | .035 | .045 |
| Reach-1 | 320 | .06 | .035 | .045 |
| Reach-1 | 310 | .06 | .035 | .045 |
| Reach-1 | 300 | .05 | .06 | .05 |
| Reach-1 | 290 | .05 | .06 | .05 |
| Reach-1 | 285 | .05 | .06 | .05 |
| Reach-1 | 280 | .05 | .06 | .05 |
| Reach-1 | 270 | .05 | .06 | .05 |
| Reach-1 | 260 | .05 | .06 | .05 |
| Reach-1 | 250 | .05 | .06 | .05 |
| Reach-1 | 245 | .045 | .1 | .11 |
| Reach-1 | 244 | .1 | .065 | .045 |
| Reach-1 | 243 | Bridge | | |
| Reach-1 | 242 | .1 | .065 | .045 |
| Reach-1 | 239 | .1 | .065 | .045 |
| Reach-1 | 230 | .1 | .065 | .045 |
| Reach-1 | 220 | .1 | .065 | .045 |

SUMMARY OF REACH LENGTHS

River: RIVER-1

| Reach | River Sta. | Left | Channel | Right |
|---|---|---|---|---|
| Reach-1 | 355 | 360 | 310 | 350 |
| Reach-1 | 345 | 400 | 335 | 125 |
| Reach-1 | 340 | 450 | 454 | 575 |
| Reach-1 | 330 | 620 | 588 | 620 |
| Reach-1 | 320 | 640 | 711 | 660 |
| Reach-1 | 310 | 610 | 610 | 640 |
| Reach-1 | 300 | 790 | 654 | 605 |
| Reach-1 | 290 | 695 | 653 | 645 |
| Reach-1 | 285 | 640 | 688 | 660 |

| | | | | |
|---|---|---|---|---|
| Reach-1 | 280 | 1135 | 1021 | 1060 |
| Reach-1 | 270 | 1000 | 951 | 815 |
| Reach-1 | 260 | 1050 | 1031 | 1000 |
| Reach-1 | 250 | 700 | 701 | 615 |
| Reach-1 | 245 | 140.2 | 147.4 | 160 |
| Reach-1 | 244 | 104.8 | 124.6 | 145 |
| Reach-1 | 243 | Bridge | | |
| Reach-1 | 242 | 165 | 224 | 270 |
| Reach-1 | 239 | 385 | 413 | 515 |
| Reach-1 | 230 | 460 | 487 | 430 |
| Reach-1 | 220 | 0 | 0 | 0 |

SUMMARY OF CONTRACTION AND EXPANSION COEFFICIENTS
River: RIVER-1

| Reach | River Sta. | Contr. | Expan. |
|---|---|---|---|
| Reach-1 | 355 | .1 | .3 |
| Reach-1 | 345 | .1 | .3 |
| Reach-1 | 340 | .1 | .3 |
| Reach-1 | 330 | .1 | .3 |
| Reach-1 | 320 | .1 | .3 |
| Reach-1 | 310 | .1 | .3 |
| Reach-1 | 300 | .1 | .3 |
| Reach-1 | 290 | .1 | .3 |
| Reach-1 | 285 | .1 | .3 |
| Reach-1 | 280 | .1 | .3 |
| Reach-1 | 270 | .1 | .3 |
| Reach-1 | 260 | .1 | .3 |
| Reach-1 | 250 | .1 | .3 |
| Reach-1 | 245 | .1 | .3 |
| Reach-1 | 244 | .3 | .5 |
| Reach-1 | 243 | Bridge | |
| Reach-1 | 242 | .3 | .5 |
| Reach-1 | 239 | .1 | .3 |
| Reach-1 | 230 | .1 | .3 |
| Reach-1 | 220 | .1 | .3 |

HEC-RAS Plan: Imported Plan 01 River: RIVER-1 Reach: Reach-1

| 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) | |
| Reach-1 | 220 | PF 1 | 38000.00 | 288.80 | 300.76 | 296.44 | 301.08 | 0.001870 | 4.04 | 8672.41 | 1604.48 | 0.25 |
| Reach-1 | 220 | PF 2 | 38000.00 | 288.80 | 301.66 | 296.15 | 301.99 | 0.001490 | 3.98 | 8441.26 | 970.00 | 0.23 |
| Reach-1 | 220 | PF 3 | 50000.00 | 288.80 | 307.13 | 297.37 | 307.28 | 0.000362 | 2.60 | 17025.38 | 1773.44 | 0.12 |
| | | | | | | | | | | | | |
| Reach-1 | 230 | PF 1 | 38000.00 | 289.80 | 301.76 | 297.85 | 302.27 | 0.003420 | 5.63 | 6685.13 | 1270.79 | 0.34 |
| Reach-1 | 230 | PF 2 | 38000.00 | 289.80 | 302.44 | 297.86 | 303.00 | 0.002948 | 5.50 | 6501.14 | 735.00 | 0.32 |
| Reach-1 | 230 | PF 3 | 50000.00 | 289.80 | 307.28 | 299.08 | 307.57 | 0.000870 | 3.94 | 12310.04 | 1545.51 | 0.18 |
| | | | | | | | | | | | | |
| Reach-1 | 239 | PF 1 | 38000.00 | 290.70 | 303.29 | 299.63 | 304.05 | 0.004249 | 6.57 | 5496.90 | 1142.39 | 0.38 |
| Reach-1 | 239 | PF 2 | 38000.00 | 290.70 | 303.79 | 299.64 | 304.47 | 0.003511 | 6.21 | 5822.50 | 660.00 | 0.35 |
| Reach-1 | 239 | PF 3 | 50000.00 | 290.70 | 307.63 | 300.56 | 308.19 | 0.001762 | 5.46 | 8511.64 | 1224.73 | 0.26 |
| | | | | | | | | | | | | |
| Reach-1 | 242 | PF 1 | 38000.00 | 291.70 | 304.29 | 299.62 | 305.25 | 0.005287 | 7.86 | 4836.56 | 467.02 | 0.43 |
| Reach-1 | 242 | PF 2 | 38000.00 | 291.70 | 304.62 | 299.63 | 305.52 | 0.004776 | 7.61 | 4993.90 | 468.68 | 0.41 |
| Reach-1 | 242 | PF 3 | 50000.00 | 291.70 | 308.02 | 300.88 | 308.91 | 0.003407 | 7.56 | 6614.62 | 485.40 | 0.36 |
| | | | | | | | | | | | | |
| Reach-1 | 243 | | Bridge | | | | | | | | | |
| | | | | | | | | | | | | |
| Reach-1 | 244 | PF 1 | 38000.00 | 292.20 | 305.49 | 299.66 | 306.22 | 0.003533 | 6.83 | 5561.37 | 1098.95 | 0.36 |
| Reach-1 | 244 | PF 2 | 38000.00 | 292.20 | 305.72 | 299.66 | 306.42 | 0.003395 | 6.69 | 5676.50 | 492.48 | 0.35 |
| Reach-1 | 244 | PF 3 | 50000.00 | 292.20 | 308.90 | 300.87 | 309.64 | 0.002582 | 6.89 | 7256.49 | 1381.57 | 0.32 |
| | | | | | | | | | | | | |
| Reach-1 | 245 | PF 1 | 38000.00 | 292.50 | 306.46 | 299.04 | 306.77 | 0.003440 | 4.55 | 8502.26 | 1113.38 | 0.23 |
| Reach-1 | 245 | PF 2 | 38000.00 | 292.50 | 306.60 | 299.29 | 307.01 | 0.004312 | 5.13 | 7429.18 | 605.00 | 0.26 |
| Reach-1 | 245 | PF 3 | 50000.00 | 292.50 | 309.73 | 299.95 | 310.06 | 0.002611 | 4.65 | 10888.54 | 1249.85 | 0.21 |
| | | | | | | | | | | | | |
| Reach-1 | 250 | PF 1 | 38000.00 | 293.70 | 307.89 | | 308.15 | 0.001307 | 4.35 | 9367.31 | 1120.27 | 0.23 |
| Reach-1 | 250 | PF 2 | 38000.00 | 293.70 | 308.40 | | 308.80 | 0.001691 | 5.11 | 7516.69 | 695.00 | 0.27 |
| Reach-1 | 250 | PF 3 | 50000.00 | 293.70 | 310.79 | | 311.04 | 0.000881 | 4.19 | 12802.92 | 1233.35 | 0.20 |
| | | | | | | | | | | | | |
| Reach-1 | 260 | PF 1 | 38000.00 | 297.60 | 309.82 | | 310.62 | 0.004705 | 7.25 | 5329.01 | 642.88 | 0.43 |
| Reach-1 | 260 | PF 2 | 38000.00 | 297.60 | 310.64 | | 311.33 | 0.003539 | 6.71 | 5713.03 | 600.00 | 0.38 |
| Reach-1 | 260 | PF 3 | 50000.00 | 297.60 | 312.01 | | 312.87 | 0.003834 | 7.54 | 6782.21 | 690.81 | 0.40 |
| | | | | | | | | | | | | |
| Reach-1 | 270 | PF 1 | 37000.00 | 299.40 | 313.28 | 307.73 | 313.82 | 0.002504 | 5.98 | 6459.87 | 965.96 | 0.32 |
| Reach-1 | 270 | PF 2 | 37000.00 | 299.40 | 313.56 | 307.74 | 314.13 | 0.002472 | 6.04 | 6133.45 | 560.00 | 0.32 |
| Reach-1 | 270 | PF 3 | 49000.00 | 299.40 | 315.08 | 308.82 | 315.66 | 0.002283 | 6.33 | 8630.01 | 1116.51 | 0.32 |
| | | | | | | | | | | | | |
| Reach-1 | 280 | PF 1 | 37000.00 | 300.10 | 314.77 | | 314.87 | 0.000524 | 2.57 | 14475.33 | 1530.39 | 0.15 |
| Reach-1 | 280 | PF 2 | 37000.00 | 300.10 | 315.10 | | 315.22 | 0.000560 | 2.75 | 13431.31 | 1300.00 | 0.15 |
| Reach-1 | 280 | PF 3 | 49000.00 | 300.10 | 316.56 | | 316.68 | 0.000521 | 2.87 | 17238.81 | 1581.95 | 0.15 |
| | | | | | | | | | | | | |
| Reach-1 | 285 | PF 1 | 37000.00 | 302.20 | 315.22 | | 315.37 | 0.000977 | 3.08 | 12209.50 | 1725.34 | 0.19 |
| Reach-1 | 285 | PF 2 | 37000.00 | 302.20 | 315.57 | | 315.72 | 0.000930 | 3.09 | 11988.95 | 1435.00 | 0.19 |
| Reach-1 | 285 | PF 3 | 49000.00 | 302.20 | 316.98 | | 317.15 | 0.000851 | 3.28 | 15261.71 | 1743.19 | 0.19 |
| | | | | | | | | | | | | |
| Reach-1 | 290 | PF 1 | 37000.00 | 303.10 | 316.07 | | 316.27 | 0.002005 | 3.54 | 10439.77 | 1818.41 | 0.26 |
| Reach-1 | 290 | PF 2 | 37000.00 | 303.10 | 316.37 | | 316.59 | 0.001939 | 3.72 | 9934.69 | 1556.59 | 0.26 |
| Reach-1 | 290 | PF 3 | 49000.00 | 303.10 | 317.69 | | 317.90 | 0.001566 | 3.65 | 13412.76 | 1867.38 | 0.24 |
| | | | | | | | | | | | | |
| Reach-1 | 300 | PF 1 | 37000.00 | 305.10 | 317.38 | | 317.61 | 0.002054 | 3.83 | 9842.19 | 1687.58 | 0.27 |
| Reach-1 | 300 | PF 2 | 37000.00 | 305.10 | 317.63 | | 317.86 | 0.001930 | 3.82 | 9698.62 | 1470.00 | 0.26 |
| Reach-1 | 300 | PF 3 | 49000.00 | 305.10 | 318.76 | | 319.02 | 0.001817 | 4.11 | 12260.79 | 1862.61 | 0.26 |
| | | | | | | | | | | | | |
| Reach-1 | 310 | PF 1 | 37000.00 | 305.70 | 318.07 | 314.35 | 318.30 | 0.000721 | 3.87 | 9839.27 | 1811.69 | 0.27 |
| Reach-1 | 310 | PF 2 | 37000.00 | 305.70 | 318.28 | 314.33 | 318.50 | 0.000655 | 3.77 | 9886.26 | 1545.00 | 0.26 |
| Reach-1 | 310 | PF 3 | 49000.00 | 305.70 | 319.38 | 314.93 | 319.65 | 0.000661 | 4.20 | 12210.49 | 2015.22 | 0.27 |
| | | | | | | | | | | | | |
| Reach-1 | 320 | PF 1 | 37000.00 | 307.20 | 318.61 | 314.77 | 318.93 | 0.001015 | 4.55 | 8149.67 | 1921.45 | 0.32 |
| Reach-1 | 320 | PF 2 | 37000.00 | 307.20 | 318.77 | 314.83 | 319.12 | 0.001055 | 4.76 | 7779.55 | 1206.36 | 0.33 |
| Reach-1 | 320 | PF 3 | 49000.00 | 307.20 | 319.88 | 315.57 | 320.15 | 0.000760 | 4.41 | 12936.14 | 2066.02 | 0.29 |
| | | | | | | | | | | | | |
| Reach-1 | 330 | PF 1 | 36000.00 | 308.50 | 319.20 | 316.37 | 319.84 | 0.001962 | 6.63 | 5721.42 | 954.35 | 0.45 |
| Reach-1 | 330 | PF 2 | 36000.00 | 308.50 | 319.36 | 316.37 | 320.04 | 0.001963 | 6.80 | 5508.63 | 798.59 | 0.45 |
| Reach-1 | 330 | PF 3 | 48000.00 | 308.50 | 320.18 | 317.22 | 321.04 | 0.002223 | 7.65 | 6609.48 | 981.16 | 0.49 |
| | | | | | | | | | | | | |
| Reach-1 | 340 | PF 1 | 36000.00 | 309.90 | 320.39 | 316.26 | 320.77 | 0.001970 | 4.96 | 7257.49 | 1042.39 | 0.32 |
| Reach-1 | 340 | PF 2 | 36000.00 | 309.90 | 320.57 | 316.26 | 320.95 | 0.001870 | 5.00 | 7196.79 | 920.00 | 0.32 |
| Reach-1 | 340 | PF 3 | 48000.00 | 309.90 | 321.58 | 317.07 | 322.08 | 0.002148 | 5.69 | 8439.60 | 1060.28 | 0.34 |
| | | | | | | | | | | | | |
| Reach-1 | 345 | PF 1 | 36000.00 | 309.80 | 321.07 | 316.13 | 321.44 | 0.002031 | 4.89 | 7368.56 | 1095.11 | 0.32 |
| Reach-1 | 345 | PF 2 | 36000.00 | 309.80 | 321.16 | 316.13 | 321.58 | 0.001822 | 5.22 | 6896.55 | 801.12 | 0.31 |
| Reach-1 | 345 | PF 3 | 48000.00 | 309.80 | 322.34 | 317.04 | 322.80 | 0.002137 | 5.45 | 8906.12 | 1148.93 | 0.34 |
| | | | | | | | | | | | | |
| Reach-1 | 355 | PF 1 | 36000.00 | 311.40 | 321.67 | 317.36 | 322.22 | 0.002750 | 5.94 | 6058.62 | 1297.77 | 0.38 |
| Reach-1 | 355 | PF 2 | 36000.00 | 311.40 | 321.70 | 317.48 | 322.36 | 0.002938 | 6.53 | 5516.36 | 662.70 | 0.40 |

HEC-RAS Plan: Imported Plan 01 River: RIVER-1 Reach: Reach-1 (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) | |
| Reach-1 | 355 | PF 3 | 48000.00 | 311.40 | 323.01 | 318.35 | 323.45 | 0.002009 | 5.66 | 9642.01 | 1449.27 | 0.34 |

EXHIBIT E
EXISTING CONDITIONS MODEL

HEC-RAS HEC-RAS 5.0.7 March 2019
U.S. Army Corps of Engineers
Hydrologic Engineering Center
609 Second Street
Davis, California

```
X     X  XXXXXX    XXXX        XXXX       XX      XXXX
X     X  X        X    X       X   X     X  X    X
X     X  X        X            X   X    X    X   X
XXXXXXX  XXXX     X       XXX  XXXX     XXXXXX    XXXX
X     X  X        X            X  X     X    X        X
X     X  X        X    X       X   X    X    X        X
X     X  XXXXXX    XXXX        X    X   X    X   XXXXX
```

PROJECT DATA
Project Title: Carlton Oaks Existing
Project File : CarltonOaksExisting.prj
Run Date and Time: 12/19/2023 4:05:21 PM

Project in English units

Project Description:
UPPER SAN DIEGO RIVER EXISTING CONDITIONS
Profile 1: FEMA
100-Year Flood Plain
Profile 2:  FEMA Fwy
Profile 3:
100-Year Flood Plain with BSI Flows
Revised per Existing topo

Record Floodway Locations
12/15/2023

PLAN DATA

Plan Title: Plan 01
Plan File : r:\1759\Plot\Hydrology\FEMA\To the City\12 12-14-2023\San Diego River\Existing\CarltonOaksExisting.p01

Geometry Title: UpperSanDiego-EX
Geometry File : r:\1759\Plot\Hydrology\FEMA\To the City\12 12-14-2023\San Diego River\Existing\CarltonOaksExisting.g01

Flow Title    : 100 Year Flow
Flow File     : r:\1759\Plot\Hydrology\FEMA\To the City\12 12-14-2023\San Diego River\Existing\CarltonOaksExisting.f01

Plan Summary Information:
Number of: Cross Sections = 20 Multiple Openings = 0
Culverts = 0 Inline Structures = 0
Bridges = 1 Lateral Structures = 0

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

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

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

River = San Diego River Reach = Reach 1

| RS | Profile | Method | Value1 | Value2 |
|---|---|---|---|---|
| 355 | PF 2 | 1 | 1604.5 | 2269.4 |
| 345 | PF 2 | 1 | 1217.3 | 2147.3 |
| 340 | PF 2 | 1 | 1147.2 | 2067.2 |
| 330 | PF 2 | 1 | 1293.6 | 2138.6 |
| 320 | PF 2 | 1 | 848.3 | 2073.3 |
| 315 | PF 2 | 1 | 831 | 2340.8 |
| 310 | PF 2 | 1 | 559.1 | 2104.1 |
| 300 | PF 2 | 1 | 434.3 | 1904.3 |
| 290 | PF 2 | 1 | 270.7 | 1840.7 |
| 285 | PF 2 | 1 | 472.1 | 1907.1 |
| 280 | PF 2 | 1 | 608.4 | 1908.4 |
| 270 | PF 2 | 1 | 341.7 | 901.7 |
| 260 | PF 2 | 1 | 256.7 | 856.7 |
| 250 | PF 2 | 1 | 357 | 1052 |
| 245 | PF 2 | 1 | 686.6 | 1291.6 |
| 244 | PF 2 | 1 | 459.7 | 960.1 |
| 242 | PF 2 | 1 | 401 | 900.5 |
| 239 | PF 2 | 1 | 246.2 | 906.2 |
| 230 | PF 2 | 1 | 321.8 | 1056.8 |
| 220 | PF 2 | 1 | 522.9 | 1492.9 |
| 210 | PF 2 | 1 | 438 | 1478 |
| 200 | PF 2 | 1 | 404.6 | 1494.6 |

FLOW DATA

Flow Title: 100 Year Flow
Flow File : r:\1759\Plot\Hydrology\FEMA\To the City\12 12-14-2023\San Diego River\Existing\CarltonOaksExisting.f01

Flow Data (cfs)

| River | Reach | RS | PF 1 | PF 2 | PF 3 | PF 4 | PF 5 |
|---|---|---|---|---|---|---|---|
| San Diego River | Reach 1 | 355 | 36000 | 36000 | 48000 | 4500 | 16000 |
| San Diego River | Reach 1 | 320 | 37000 | 37000 | 49000 | 5000 | 17000 |
| San Diego River | Reach 1 | 260 | 38000 | 38000 | 50000 | 5500 | 19000 |

Boundary Conditions

| River | Reach | Profile | Upstream | Downstream |
|---|---|---|---|---|
| San Diego River | Reach 1 | PF 1 | | Known WS = 300.76 |
| San Diego River | Reach 1 | PF 2 | | Known WS = 301.66 |
| San Diego River | Reach 1 | PF 3 | | Known WS = 307.13 |
| San Diego River | Reach 1 | PF 4 | | Known WS = 300.13 |
| San Diego River | Reach 1 | PF 5 | | Known WS = 300.13 |

GEOMETRY DATA

Geometry Title: UpperSanDiego-EX
Geometry File : r:\1759\Plot\Hydrology\FEMA\To the City\12 12-14-2023\San Diego River\Existing\CarltonOaksExisting.g01

CROSS SECTION

RIVER: San Diego River
REACH: Reach 1 RS: 355

INPUT
Description: Corrected Effective Geometry
Station Elevation Data num= 80

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 328.6 | 54.1 | 329.6 | 64.2 | 325.6 | 78.6 | 322.7 | 125.3 | 322.5 |
| 191.1 | 321.9 | 199.7 | 330.5 | 303.1 | 330.6 | 305.9 | 328.2 | 314.9 | 330.2 |
| 343.4 | 331 | 443.3 | 330.1 | 543 | 331.4 | 551.9 | 329.8 | 608.6 | 330 |
| 615.1 | 337.4 | 640.3 | 337.4 | 643.6 | 329.1 | 672 | 328.4 | 743.1 | 329.5 |
| 746.8 | 336.5 | 789.9 | 336.5 | 793.5 | 328.9 | 836.7 | 328.9 | 980.7 | 324.9 |
| 1031 | 325 | 1062.7 | 326.6 | 1066.4 | 336.1 | 1083.8 | 336.3 | 1090.8 | 326.3 |
| 1156 | 325.6 | 1239.4 | 323.7 | 1275.1 | 321.6 | 1361.3 | 321 | 1418.6 | 319.8 |
| 1446.7 | 316.6 | 1469.1 | 316.3 | 1506.5 | 316.7 | 1516.7 | 310.8 | 1537.2 | 310.1 |
| 1551.7 | 310.8 | 1563.9 | 314.9 | 1590.3 | 315.8 | 1604.5 | 319.7 | 1616.8 | 316.1 |
| 1666 | 315.1 | 1720.1 | 313.8 | 1733.1 | 311.4 | 1933.3 | 311.5 | 2090.2 | 312 |
| 2112.2 | 314.2 | 2137 | 316.4 | 2145.2 | 320.2 | 2164.3 | 321.8 | 2196.4 | 318.6 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 2209 | 313.6 | 2229.8 | 312.6 | 2258.6 | 312.6 | 2294 | 313.5 | 2306.7 | 315.2 |
| 2330.7 | 319.2 | 2365.6 | 319.9 | 2417.7 | 320.5 | 2464.8 | 318.9 | 2487.3 | 317.9 |
| 2527.9 | 317.8 | 2547.1 | 318.7 | 2582 | 322.5 | 2592.6 | 324.2 | 2640.3 | 323.9 |
| 2733.3 | 326 | 2773.3 | 328.7 | 2799.6 | 328.3 | 2837.5 | 329.1 | 2881.4 | 328.9 |
| 2888.7 | 330.5 | 2924.8 | 331.4 | 2990.2 | 330.4 | 2995.2 | 332.8 | 3009.4 | 332.2 |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .06 | 1604.5 | .05 | 2417.7 | .06 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 1604.5 | 2417.7 | 360 | 310 | 350 | .1 | .3 |

Ineffective Flow num= 2

| Sta L | Sta R | Elev | Permanent |
|---|---|---|---|
| 0 | 1604.5 | 326 | F |
| 2417.7 | 3009.4 | 326 | F |

CROSS SECTION OUTPUT Profile #PF 1

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 322.49 | Element | | | |
| Vel Head (ft) | 0.51 | Wt. n-Val. | | 0.050 | |
| W.S. Elev (ft) | 321.98 | Reach Len. (ft) | 360.00 | 310.00 | 350.00 |
| Crit W.S. (ft) | 317.36 | Flow Area (sq ft) | | 6308.79 | |
| E.G. Slope (ft/ft) | 0.002414 | Area (sq ft) | 1420.15 | 6308.79 | 476.82 |
| Q Total (cfs) | 36000.00 | Flow (cfs) | | 36000.00 | |
| Top Width (ft) | 1317.59 | Top Width (ft) | 344.86 | 813.20 | 159.53 |
| Vel Total (ft/s) | 5.71 | Avg. Vel. (ft/s) | | 5.71 | |
| Max Chl Dpth (ft) | 11.88 | Hydr. Depth (ft) | | 7.76 | |
| Conv. Total (cfs) | 732658.3 | Conv. (cfs) | | 732658.3 | |
| Length Wtd. (ft) | 310.00 | Wetted Per. (ft) | | 816.68 | |
| Min Ch El (ft) | 311.40 | Shear (lb/sq ft) | | 1.16 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 6.64 | |
| Frctn Loss (ft) | 0.63 | Cum Volume (acre-ft) | 110.50 | 1732.51 | 236.87 |
| C & E Loss (ft) | 0.05 | Cum SA (acres) | 29.51 | 222.66 | 43.16 |

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

CROSS SECTION OUTPUT Profile #PF 2

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 322.68 | Element | | | |
| Vel Head (ft) | 0.61 | Wt. n-Val. | | 0.050 | |
| W.S. Elev (ft) | 322.08 | Reach Len. (ft) | 360.00 | 310.00 | 350.00 |
| Crit W.S. (ft) | 317.49 | Flow Area (sq ft) | | 5766.69 | |
| E.G. Slope (ft/ft) | 0.002549 | Area (sq ft) | | 5766.69 | |
| Q Total (cfs) | 36000.00 | Flow (cfs) | | 36000.00 | |
| Top Width (ft) | 664.90 | Top Width (ft) | | 664.90 | |
| Vel Total (ft/s) | 6.24 | Avg. Vel. (ft/s) | | 6.24 | |
| Max Chl Dpth (ft) | 10.68 | Hydr. Depth (ft) | | 8.67 | |
| Conv. Total (cfs) | 713036.6 | Conv. (cfs) | | 713036.6 | |
| Length Wtd. (ft) | 310.00 | Wetted Per. (ft) | | 679.50 | |

| | | | | | |
|---|---|---|---|---|---|
| Min Ch El (ft) | 311.40 | Shear (lb/sq ft) | | 1.35 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 8.43 | |
| Frctn Loss (ft) | 0.61 | Cum Volume (acre-ft) | 21.35 | 1770.26 | 79.86 |
| C & E Loss (ft) | 0.07 | Cum SA (acres) | 3.08 | 212.49 | 10.75 |

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

CROSS SECTION OUTPUT Profile #PF 3

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 323.98 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.65 | Wt. n-Val. | | 0.050 | |
| W.S. Elev (ft) | 323.32 | Reach Len. (ft) | 360.00 | 310.00 | 350.00 |
| Crit W.S. (ft) | 318.35 | Flow Area (sq ft) | | 7400.66 | |
| E.G. Slope (ft/ft) | 0.002521 | Area (sq ft) | 1995.82 | 7400.66 | 698.30 |
| Q Total (cfs) | 48000.00 | Flow (cfs) | | 48000.00 | |
| Top Width (ft) | 1458.36 | Top Width (ft) | 475.73 | 813.20 | 169.44 |
| Vel Total (ft/s) | 6.49 | Avg. Vel. (ft/s) | | 6.49 | |
| Max Chl Dpth (ft) | 13.22 | Hydr. Depth (ft) | | 9.10 | |
| Conv. Total (cfs) | 955965.1 | Conv. (cfs) | | 955965.1 | |
| Length Wtd. (ft) | 310.00 | Wetted Per. (ft) | | 816.68 | |
| Min Ch El (ft) | 311.40 | Shear (lb/sq ft) | | 1.43 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 9.25 | |
| Frctn Loss (ft) | 0.66 | Cum Volume (acre-ft) | 175.64 | 2149.44 | 406.79 |
| C & E Loss (ft) | 0.07 | Cum SA (acres) | 40.11 | 225.06 | 50.70 |

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

CROSS SECTION OUTPUT Profile #PF 4

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 315.84 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.08 | Wt. n-Val. | | 0.050 | |
| W.S. Elev (ft) | 315.76 | Reach Len. (ft) | 360.00 | 310.00 | 350.00 |
| Crit W.S. (ft) | 313.28 | Flow Area (sq ft) | | 1953.79 | |
| E.G. Slope (ft/ft) | 0.001255 | Area (sq ft) | 253.45 | 1953.79 | |
| Q Total (cfs) | 4500.00 | Flow (cfs) | | 4500.00 | |
| Top Width (ft) | 683.74 | Top Width (ft) | 80.99 | 602.74 | |
| Vel Total (ft/s) | 2.30 | Avg. Vel. (ft/s) | | 2.30 | |
| Max Chl Dpth (ft) | 5.66 | Hydr. Depth (ft) | | 3.24 | |
| Conv. Total (cfs) | 127029.8 | Conv. (cfs) | | 127029.8 | |
| Length Wtd. (ft) | 310.00 | Wetted Per. (ft) | | 603.77 | |
| Min Ch El (ft) | 311.40 | Shear (lb/sq ft) | | 0.25 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 0.58 | |
| Frctn Loss (ft) | 0.25 | Cum Volume (acre-ft) | 19.20 | 542.87 | 98.28 |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 10.54 | 178.63 | 29.87 |

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

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

CROSS SECTION OUTPUT Profile #PF 5

| | | | | | | |
|---|---|---|---|---|---|---|
| E.G. Elev (ft) | 319.18 | Element | Left OB | Channel | Right OB | |
| Vel Head (ft) | 0.25 | Wt. n-Val. | | 0.050 | | |
| W.S. Elev (ft) | 318.94 | Reach Len. (ft) | 360.00 | 310.00 | 350.00 | |
| Crit W.S. (ft) | 315.25 | Flow Area (sq ft) | | 4002.69 | | |
| E.G. Slope (ft/ft) | 0.001683 | Area (sq ft) | 707.33 | 4002.69 | 69.53 | |
| Q Total (cfs) | 16000.00 | Flow (cfs) | | 16000.00 | | |
| Top Width (ft) | 932.45 | Top Width (ft) | 175.52 | 671.43 | 85.49 | |
| Vel Total (ft/s) | 4.00 | Avg. Vel. (ft/s) | | 4.00 | | |
| Max Chl Dpth (ft) | 8.84 | Hydr. Depth (ft) | | 5.96 | | |
| Conv. Total (cfs) | 389989.0 | Conv. (cfs) | | 389989.0 | | |
| Length Wtd. (ft) | 310.00 | Wetted Per. (ft) | | 674.28 | | |
| Min Ch El (ft) | 311.40 | Shear (lb/sq ft) | | 0.62 | | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 2.49 | | |
| Frctn Loss (ft) | 0.41 | Cum Volume (acre-ft) | 51.03 | 1090.73 | 146.56 | |
| C & E Loss (ft) | 0.03 | Cum SA (acres) | 15.29 | 212.33 | 35.74 | |

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

CROSS SECTION

RIVER: San Diego River
REACH: Reach 1 RS: 345

INPUT
Description: Corrected Effective Geometry
Station Elevation Data num= 87

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 328.5 | 49.4 | 329.1 | 102.6 | 328.5 | 110.8 | 325.5 | 147.2 | 324.7 |
| 222.2 | 324.8 | 279.9 | 324 | 297.8 | 318.7 | 332.6 | 318.3 | 342 | 322.6 |
| 352.2 | 328.6 | 409 | 329.7 | 414.3 | 338.4 | 436.9 | 338.4 | 443.4 | 329.4 |
| 479.4 | 328.7 | 533.4 | 328.1 | 539.9 | 334.4 | 654.6 | 334.4 | 663.1 | 327.7 |
| 761.2 | 327.7 | 831.1 | 325.5 | 841.3 | 334.3 | 870.8 | 334.3 | 875.7 | 325.4 |
| 919.5 | 323.7 | 960.7 | 323.6 | 995.9 | 324.3 | 1000.4 | 333.1 | 1039.7 | 333.1 |
| 1042.9 | 325.3 | 1092.1 | 322.8 | 1111.7 | 320.1 | 1171.1 | 320.2 | 1196.7 | 319 |
| 1218.4 | 314.4 | 1243.9 | 313.4 | 1260.5 | 315.7 | 1277.7 | 315.6 | 1287.1 | 312.5 |
| 1308.4 | 310.6 | 1331.5 | 309.8 | 1349.3 | 310.6 | 1357.5 | 314 | 1406.2 | 313.9 |
| 1473.3 | 313.3 | 1479.5 | 310 | 1754.1 | 310 | 1768.6 | 320.8 | 1784.4 | 328.6 |
| 1796.2 | 329.8 | 1811.8 | 323.1 | 1827.4 | 315.1 | 1847.9 | 313.7 | 1865 | 315.1 |
| 1881.8 | 319.8 | 1899.8 | 323.5 | 1942.8 | 322.9 | 1993.1 | 319.8 | 2004.9 | 316.5 |
| 2015.6 | 312.2 | 2033.1 | 312.5 | 2061.4 | 312.9 | 2065.9 | 312.2 | 2147.9 | 312.2 |
| 2160.3 | 316.1 | 2180.3 | 319.1 | 2223.2 | 319.9 | 2242.8 | 318 | 2258.3 | 317.9 |
| 2273.1 | 319.4 | 2284.9 | 321.6 | 2294.3 | 324.2 | 2319.3 | 325.5 | 2321.4 | 351.5 |
| 2360.3 | 351.5 | 2366.8 | 331.2 | 2419.1 | 331.4 | 2422.9 | 347.8 | 2478 | 347.8 |
| 2482.6 | 330.3 | 2500.2 | 330.1 | 2540.7 | 330.6 | 2574.2 | 329.3 | 2587 | 329.7 |
| 2658.4 | 333.8 | 2742.3 | 337.4 | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .06 | 1092.1 | .05 | 2294.3 | .06 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 1092.1 | 2294.3 | 400 | 335 | 125 | .1 | .3 |

Ineffective Flow num= 1

| Sta L | Sta R | Elev | Permanent |
|---|---|---|---|
| 0 | 742.3 | 326 | F |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 321.81 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.33 | Wt. n-Val. | | 0.050 | |
| W.S. Elev (ft) | 321.48 | Reach Len. (ft) | 400.00 | 335.00 | 125.00 |
| Crit W.S. (ft) | 316.13 | Flow Area (sq ft) | | 7798.78 | |
| E.G. Slope (ft/ft) | 0.001714 | Area (sq ft) | 127.68 | 7798.78 | |
| Q Total (cfs) | 36000.00 | Flow (cfs) | | 36000.00 | |
| Top Width (ft) | 1112.76 | Top Width (ft) | 51.13 | 1061.63 | |
| Vel Total (ft/s) | 4.62 | Avg. Vel. (ft/s) | | 4.62 | |
| Max Chl Dpth (ft) | 11.68 | Hydr. Depth (ft) | | 7.35 | |
| Conv. Total (cfs) | 869461.5 | Conv. (cfs) | | 869461.5 | |
| Length Wtd. (ft) | 335.00 | Wetted Per. (ft) | | 1073.32 | |
| Min Ch El (ft) | 309.80 | Shear (lb/sq ft) | | 0.78 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 3.59 | |
| Frctn Loss (ft) | 0.55 | Cum Volume (acre-ft) | 104.10 | 1682.31 | 234.96 |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 27.87 | 215.99 | 42.52 |

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

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 322.01 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.38 | Wt. n-Val. | | 0.050 | |
| W.S. Elev (ft) | 321.63 | Reach Len. (ft) | 400.00 | 335.00 | 125.00 |
| Crit W.S. (ft) | 316.13 | Flow Area (sq ft) | | 7272.35 | |
| E.G. Slope (ft/ft) | 0.001559 | Area (sq ft) | | 7272.35 | |
| Q Total (cfs) | 36000.00 | Flow (cfs) | | 36000.00 | |
| Top Width (ft) | 812.79 | Top Width (ft) | | 812.79 | |
| Vel Total (ft/s) | 4.95 | Avg. Vel. (ft/s) | | 4.95 | |
| Max Chl Dpth (ft) | 11.83 | Hydr. Depth (ft) | | 8.95 | |
| Conv. Total (cfs) | 911800.9 | Conv. (cfs) | | 911800.9 | |
| Length Wtd. (ft) | 335.00 | Wetted Per. (ft) | | 839.22 | |
| Min Ch El (ft) | 309.80 | Shear (lb/sq ft) | | 0.84 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 4.17 | |
| Frctn Loss (ft) | 0.51 | Cum Volume (acre-ft) | 21.35 | 1723.86 | 79.86 |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 3.08 | 207.24 | 10.75 |

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

CROSS SECTION OUTPUT Profile #PF 3

| | | | | | | |
|---|---|---|---|---|---|---|
| E.G. Elev (ft) | 323.25 | Element | Left OB | Channel | Right OB | |
| Vel Head (ft) | 0.42 | Wt. n-Val. | 0.060 | 0.050 | | |
| W.S. Elev (ft) | 322.83 | Reach Len. (ft) | 400.00 | 335.00 | 125.00 | |
| Crit W.S. (ft) | 317.04 | Flow Area (sq ft) | 0.01 | 9267.35 | | |
| E.G. Slope (ft/ft) | 0.001821 | Area (sq ft) | 201.89 | 9267.35 | | |
| Q Total (cfs) | 48000.00 | Flow (cfs) | 0.00 | 48000.00 | | |
| Top Width (ft) | 1169.35 | Top Width (ft) | 59.12 | 1110.23 | | |
| Vel Total (ft/s) | 5.18 | Avg. Vel. (ft/s) | 0.06 | 5.18 | | |
| Max Chl Dpth (ft) | 13.03 | Hydr. Depth (ft) | 0.01 | 8.35 | | |
| Conv. Total (cfs) | 1124684.0 | Conv. (cfs) | 0.0 | 1124684.0 | | |
| Length Wtd. (ft) | 335.00 | Wetted Per. (ft) | 0.59 | 1123.00 | | |
| Min Ch El (ft) | 309.80 | Shear (lb/sq ft) | 0.00 | 0.94 | | |
| Alpha | 1.00 | Stream Power (lb/ft s) | 0.00 | 4.86 | | |
| Frctn Loss (ft) | 0.59 | Cum Volume (acre-ft) | 166.56 | 2090.13 | 403.99 | |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 37.90 | 218.21 | 50.02 | |

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

CROSS SECTION OUTPUT Profile #PF 4

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 315.58 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.04 | Wt. n-Val. | | 0.050 | |
| W.S. Elev (ft) | 315.54 | Reach Len. (ft) | 400.00 | 335.00 | 125.00 |
| Crit W.S. (ft) | 311.87 | Flow Area (sq ft) | | 2674.66 | |
| E.G. Slope (ft/ft) | 0.000564 | Area (sq ft) | | 2674.66 | |
| Q Total (cfs) | 4500.00 | Flow (cfs) | | 4500.00 | |
| Top Width (ft) | 721.13 | Top Width (ft) | | 721.13 | |
| Vel Total (ft/s) | 1.68 | Avg. Vel. (ft/s) | | 1.68 | |
| Max Chl Dpth (ft) | 5.74 | Hydr. Depth (ft) | | 3.71 | |
| Conv. Total (cfs) | 189457.8 | Conv. (cfs) | | 189457.8 | |
| Length Wtd. (ft) | 335.00 | Wetted Per. (ft) | | 726.85 | |
| Min Ch El (ft) | 309.80 | Shear (lb/sq ft) | | 0.13 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 0.22 | |
| Frctn Loss (ft) | 0.22 | Cum Volume (acre-ft) | 18.15 | 526.40 | 98.28 |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 10.21 | 173.92 | 29.87 |

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

CROSS SECTION OUTPUT Profile #PF 5

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 318.75 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.16 | Wt. n-Val. | | 0.050 | |
| W.S. Elev (ft) | 318.59 | Reach Len. (ft) | 400.00 | 335.00 | 125.00 |

| | | | | | |
|---|---|---|---|---|---|
| Crit W.S. (ft) | 314.19 | Flow Area (sq ft) | | 5042.64 | |
| E.G. Slope (ft/ft) | 0.001046 | Area (sq ft) | 3.85 | 5042.64 | |
| Q Total (cfs) | 16000.00 | Flow (cfs) | | 16000.00 | |
| Top Width (ft) | 858.13 | Top Width (ft) | 26.21 | 831.91 | |
| Vel Total (ft/s) | 3.17 | Avg. Vel. (ft/s) | | 3.17 | |
| Max Chl Dpth (ft) | 8.79 | Hydr. Depth (ft) | | 6.06 | |
| Conv. Total (cfs) | 494622.7 | Conv. (cfs) | | 494622.7 | |
| Length Wtd. (ft) | 335.00 | Wetted Per. (ft) | | 840.95 | |
| Min Ch El (ft) | 309.80 | Shear (lb/sq ft) | | 0.39 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 1.24 | |
| Frctn Loss (ft) | 0.37 | Cum Volume (acre-ft) | 48.09 | 1058.54 | 146.28 |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 14.46 | 206.98 | 35.40 |

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

CROSS SECTION

RIVER: San Diego River
REACH: Reach 1 RS: 340

INPUT
Description: Corrected Effective Geometry
Station Elevation Data num= 81

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 326.7 | 43.2 | 327 | 89.6 | 327.9 | 94.4 | 326.4 | 102.4 | 324.9 |
| 130 | 324.1 | 201.6 | 323.1 | 232.8 | 323.6 | 287.2 | 322.5 | 301.2 | 321 |
| 312 | 313.1 | 344 | 313.4 | 353.2 | 317.7 | 361.6 | 325.1 | 382.4 | 325.4 |
| 408.1 | 327.2 | 412.5 | 335.5 | 452.9 | 335.5 | 458.9 | 325.8 | 498.9 | 324.4 |
| 541.7 | 325.2 | 559.3 | 325.7 | 597.3 | 325.8 | 630.1 | 325.1 | 705.7 | 324.9 |
| 806.9 | 325.7 | 889.8 | 326.1 | 895.4 | 334.3 | 917.8 | 334.3 | 923 | 326.1 |
| 955.8 | 324.1 | 987.8 | 325 | 1016.2 | 326 | 1018.6 | 336 | 1056.2 | 333.6 |
| 1063.4 | 326 | 1106.2 | 324.8 | 1119.4 | 322.7 | 1140.2 | 317.5 | 1166.2 | 311.8 |
| 1172.3 | 311.9 | 1182.7 | 315.6 | 1195.5 | 316.1 | 1201.1 | 310.6 | 1207.1 | 309.9 |
| 1243.1 | 310.6 | 1276.3 | 315.7 | 1331.9 | 314.9 | 1350.7 | 311.8 | 1408.7 | 311 |
| 1417.5 | 310.4 | 1588.3 | 310.4 | 1600 | 315.1 | 1626.4 | 315.7 | 1674.8 | 315.4 |
| 1693.2 | 314.2 | 1722.4 | 314.4 | 1733.6 | 315.6 | 1752.4 | 317.4 | 1782.8 | 317.3 |
| 1799.2 | 314.2 | 1807.6 | 311.3 | 1847.6 | 311.2 | 1929.2 | 311.9 | 1958.5 | 312.9 |
| 1963.3 | 312.2 | 2053.3 | 312.2 | 2071.3 | 314.7 | 2096.5 | 316.6 | 2114.1 | 319.8 |
| 2130.9 | 323.4 | 2156.1 | 324.1 | 2158.5 | 347.5 | 2320.2 | 347.5 | 2326.6 | 330.3 |
| 2339.4 | 330.2 | 2347.8 | 331 | 2388.2 | 331.3 | 2422.2 | 330.3 | 2449 | 331.8 |
| 2492.2 | 332.5 | | | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .06 | 1106.2 | .05 | 2130.9 | .06 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 1106.2 | 2130.9 | 575 | 454 | 575 | .1 | .3 |

Ineffective Flow num= 1

| Sta L | Sta R | Elev | Permanent |
|---|---|---|---|
| 0 | 992.2 | 326 | F |

CROSS SECTION OUTPUT  Profile #PF 1

| | | | | | | |
|---|---|---|---|---|---|---|
| E.G. Elev (ft) | 321.26 | Element | Left OB | Channel | Right OB | |
| Vel Head (ft) | 0.33 | Wt. n-Val. | | 0.050 | | |
| W.S. Elev (ft) | 320.93 | Reach Len. (ft) | 575.00 | 454.00 | 575.00 | |
| Crit W.S. (ft) | 316.27 | Flow Area (sq ft) | | 7795.05 | | |
| E.G. Slope (ft/ft) | 0.001563 | Area (sq ft) | 343.04 | 7795.05 | | |
| Q Total (cfs) | 36000.00 | Flow (cfs) | | 36000.00 | | |
| Top Width (ft) | 1048.46 | Top Width (ft) | 55.57 | 992.89 | | |
| Vel Total (ft/s) | 4.62 | Avg. Vel. (ft/s) | | 4.62 | | |
| Max Chl Dpth (ft) | 11.03 | Hydr. Depth (ft) | | 7.85 | | |
| Conv. Total (cfs) | 910638.3 | Conv. (cfs) | | 910638.3 | | |
| Length Wtd. (ft) | 460.75 | Wetted Per. (ft) | | 1000.15 | | |
| Min Ch El (ft) | 309.90 | Shear (lb/sq ft) | | 0.76 | | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 3.51 | | |
| Frctn Loss (ft) | 0.65 | Cum Volume (acre-ft) | 101.94 | 1622.35 | 234.96 | |
| C & E Loss (ft) | 0.02 | Cum SA (acres) | 27.38 | 208.09 | 42.52 | |

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

CROSS SECTION OUTPUT  Profile #PF 2

| | | | | | | |
|---|---|---|---|---|---|---|
| E.G. Elev (ft) | 321.49 | Element | Left OB | Channel | Right OB | |
| Vel Head (ft) | 0.34 | Wt. n-Val. | | 0.050 | | |
| W.S. Elev (ft) | 321.15 | Reach Len. (ft) | 575.00 | 454.00 | 575.00 | |
| Crit W.S. (ft) | 316.26 | Flow Area (sq ft) | | 7733.08 | | |
| E.G. Slope (ft/ft) | 0.001474 | Area (sq ft) | | 7733.08 | | |
| Q Total (cfs) | 36000.00 | Flow (cfs) | | 36000.00 | | |
| Top Width (ft) | 920.00 | Top Width (ft) | | 920.00 | | |
| Vel Total (ft/s) | 4.66 | Avg. Vel. (ft/s) | | 4.66 | | |
| Max Chl Dpth (ft) | 11.25 | Hydr. Depth (ft) | | 8.41 | | |
| Conv. Total (cfs) | 937632.8 | Conv. (cfs) | | 937632.8 | | |
| Length Wtd. (ft) | 460.11 | Wetted Per. (ft) | | 938.36 | | |
| Min Ch El (ft) | 309.90 | Shear (lb/sq ft) | | 0.76 | | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 3.53 | | |
| Frctn Loss (ft) | 0.64 | Cum Volume (acre-ft) | 21.35 | 1666.16 | 79.86 | |
| C & E Loss (ft) | 0.02 | Cum SA (acres) | 3.08 | 200.57 | 10.75 | |

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

CROSS SECTION OUTPUT  Profile #PF 3

| | | | | | | |
|---|---|---|---|---|---|---|
| E.G. Elev (ft) | 322.66 | Element | Left OB | Channel | Right OB | |
| Vel Head (ft) | 0.43 | Wt. n-Val. | | 0.050 | | |
| W.S. Elev (ft) | 322.22 | Reach Len. (ft) | 575.00 | 454.00 | 575.00 | |
| Crit W.S. (ft) | 317.07 | Flow Area (sq ft) | | 9087.39 | | |

| | | | | | |
|---|---|---|---|---|---|
| E.G. Slope (ft/ft) | 0.001692 | Area (sq ft) | 423.02 | 9087.39 | |
| Q Total (cfs) | 48000.00 | Flow (cfs) | | 48000.00 | |
| Top Width (ft) | 1072.66 | Top Width (ft) | 68.55 | 1004.10 | |
| Vel Total (ft/s) | 5.28 | Avg. Vel. (ft/s) | | 5.28 | |
| Max Chl Dpth (ft) | 12.32 | Hydr. Depth (ft) | | 9.05 | |
| Conv. Total (cfs) | 1166985.0 | Conv. (cfs) | | 1166985.0 | |
| Length Wtd. (ft) | 461.04 | Wetted Per. (ft) | | 1011.67 | |
| Min Ch El (ft) | 309.90 | Shear (lb/sq ft) | | 0.95 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 5.01 | |
| Frctn Loss (ft) | 0.72 | Cum Volume (acre-ft) | 163.69 | 2019.55 | 403.99 |
| C & E Loss (ft) | 0.02 | Cum SA (acres) | 37.32 | 210.08 | 50.02 |

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

CROSS SECTION OUTPUT Profile #PF 4

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 315.36 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.05 | Wt. n-Val. | | 0.050 | |
| W.S. Elev (ft) | 315.31 | Reach Len. (ft) | 575.00 | 454.00 | 575.00 |
| Crit W.S. (ft) | 312.47 | Flow Area (sq ft) | | 2493.08 | |
| E.G. Slope (ft/ft) | 0.000759 | Area (sq ft) | 73.20 | 2493.08 | |
| Q Total (cfs) | 4500.00 | Flow (cfs) | | 4500.00 | |
| Top Width (ft) | 795.05 | Top Width (ft) | 39.11 | 755.94 | |
| Vel Total (ft/s) | 1.80 | Avg. Vel. (ft/s) | | 1.80 | |
| Max Chl Dpth (ft) | 5.41 | Hydr. Depth (ft) | | 3.30 | |
| Conv. Total (cfs) | 163374.4 | Conv. (cfs) | | 163374.4 | |
| Length Wtd. (ft) | 458.87 | Wetted Per. (ft) | | 761.38 | |
| Min Ch El (ft) | 309.90 | Shear (lb/sq ft) | | 0.16 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 0.28 | |
| Frctn Loss (ft) | 0.33 | Cum Volume (acre-ft) | 17.82 | 506.53 | 98.28 |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 10.03 | 168.24 | 29.87 |

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

CROSS SECTION OUTPUT Profile #PF 5

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 318.37 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.15 | Wt. n-Val. | | 0.050 | |
| W.S. Elev (ft) | 318.22 | Reach Len. (ft) | 575.00 | 454.00 | 575.00 |
| Crit W.S. (ft) | 314.16 | Flow Area (sq ft) | | 5141.46 | |
| E.G. Slope (ft/ft) | 0.001194 | Area (sq ft) | 201.85 | 5141.46 | |
| Q Total (cfs) | 16000.00 | Flow (cfs) | | 16000.00 | |
| Top Width (ft) | 1016.92 | Top Width (ft) | 48.80 | 968.12 | |
| Vel Total (ft/s) | 3.11 | Avg. Vel. (ft/s) | | 3.11 | |
| Max Chl Dpth (ft) | 8.32 | Hydr. Depth (ft) | | 5.31 | |
| Conv. Total (cfs) | 462977.6 | Conv. (cfs) | | 462977.6 | |
| Length Wtd. (ft) | 459.87 | Wetted Per. (ft) | | 974.80 | |
| Min Ch El (ft) | 309.90 | Shear (lb/sq ft) | | 0.39 | |

| | | | | | |
|---|---|---|---|---|---|
| Alpha | 1.00 | Stream Power (lb/ft s) | 1.22 | | |
| Frctn Loss (ft) | 0.47 | Cum Volume (acre-ft) | 47.15 | 1019.38 | 146.28 |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 14.11 | 200.06 | 35.40 |

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

CROSS SECTION

RIVER: San Diego River
REACH: Reach 1 RS: 330

INPUT
Description: Corrected Effective Geometry
Station Elevation Data num= 85

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 329.4 | 6.4 | 340.1 | 55 | 340.1 | 58.2 | 328.3 | 141.2 | 326.1 |
| 185.4 | 328.3 | 231.5 | 330.2 | 243.2 | 325.1 | 474.7 | 320.1 | 525.2 | 321.6 |
| 540.1 | 314.3 | 568.2 | 309.9 | 581 | 309.8 | 589.9 | 316.6 | 600.7 | 322.8 |
| 620.3 | 323.5 | 669.7 | 323.1 | 674.1 | 332 | 706.7 | 332 | 712.3 | 323.7 |
| 739.5 | 322.4 | 776.4 | 322.4 | 806.9 | 323.4 | 811.9 | 331 | 853.1 | 331 |
| 858 | 323.1 | 901.3 | 324.3 | 907.3 | 326.5 | 951 | 327.2 | 1025.7 | 326.7 |
| 1077.9 | 326.6 | 1084.3 | 329.3 | 1104.3 | 330.1 | 1107.6 | 336.6 | 1151.7 | 336.6 |
| 1157.3 | 329.8 | 1199.9 | 326 | 1239.6 | 321.9 | 1254.4 | 316.3 | 1272.1 | 314.1 |
| 1309.8 | 313.3 | 1339.5 | 311.3 | 1353.9 | 308.6 | 1358.9 | 308.5 | 1370.2 | 308.6 |
| 1379.5 | 312 | 1426.4 | 313.8 | 1487.8 | 313.6 | 1504.2 | 310.2 | 1521.1 | 310.2 |
| 1556 | 313.2 | 1606.6 | 312.6 | 1668.3 | 312.9 | 1684.4 | 310 | 1832 | 310 |
| 1836.4 | 313.3 | 1844.4 | 317.8 | 1861.7 | 321.4 | 1879.7 | 316.5 | 1889.8 | 313.5 |
| 1945.9 | 314.8 | 1981.6 | 314 | 1996.9 | 322.1 | 2003.7 | 324.8 | 2013.3 | 323.4 |
| 2025.8 | 316.7 | 2041 | 312.5 | 2131.8 | 312.5 | 2142.6 | 314.9 | 2166.3 | 315.9 |
| 2183.1 | 318 | 2194.4 | 324.4 | 2217.2 | 324.6 | 2220.1 | 351.3 | 2263 | 351.3 |
| 2269.4 | 330.5 | 2329.6 | 329.8 | 2330.9 | 346.6 | 2382.3 | 346.6 | 2388.7 | 328.4 |
| 2403.5 | 325.8 | 2442.1 | 325.9 | 2477.4 | 324.8 | 2511.5 | 327.4 | 2573.6 | 331.2 |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .06 | 1239.6 | .035 | 2003.7 | .045 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 1239.6 | 2003.7 | 620 | 588 | 620 | .1 | .3 |

Ineffective Flow num= 1

| Sta L | Sta R | Elev | Permanent |
|---|---|---|---|
| 0 | 1173.6 | 329.3 | F |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | | |
|---|---|---|---|---|---|---|
| E.G. Elev (ft) | 320.59 | Element | | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.49 | Wt. n-Val. | | | 0.035 | 0.045 |
| W.S. Elev (ft) | 320.10 | Reach Len. (ft) | | 620.00 | 588.00 | 620.00 |
| Crit W.S. (ft) | 316.37 | Flow Area (sq ft) | | | 5510.41 | 1021.48 |

| | | | | | |
|---|---|---|---|---|---|
| E.G. Slope (ft/ft) | 0.001297 | Area (sq ft) | 462.29 | 5510.41 | 1021.48 |
| Q Total (cfs) | 36000.00 | Flow (cfs) | | 31980.61 | 4019.39 |
| Top Width (ft) | 972.79 | Top Width (ft) | 67.73 | 737.72 | 167.34 |
| Vel Total (ft/s) | 5.51 | Avg. Vel. (ft/s) | | 5.80 | 3.93 |
| Max Chl Dpth (ft) | 11.60 | Hydr. Depth (ft) | | 7.47 | 6.10 |
| Conv. Total (cfs) | 999519.1 | Conv. (cfs) | | 887923.1 | 111596.0 |
| Length Wtd. (ft) | 589.76 | Wetted Per. (ft) | | 745.23 | 169.74 |
| Min Ch El (ft) | 308.50 | Shear (lb/sq ft) | | 0.60 | 0.49 |
| Alpha | 1.04 | Stream Power (lb/ft s) | | 3.48 | 1.92 |
| Frctn Loss (ft) | 0.77 | Cum Volume (acre-ft) | 96.62 | 1553.01 | 228.21 |
| C & E Loss (ft) | 0.03 | Cum SA (acres) | 26.57 | 199.07 | 41.41 |

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

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 320.83 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.53 | Wt. n-Val. | | 0.035 | 0.045 |
| W.S. Elev (ft) | 320.30 | Reach Len. (ft) | 620.00 | 588.00 | 620.00 |
| Crit W.S. (ft) | 316.37 | Flow Area (sq ft) | | 5408.89 | 854.68 |
| E.G. Slope (ft/ft) | 0.001310 | Area (sq ft) | | 5408.89 | 854.68 |
| Q Total (cfs) | 36000.00 | Flow (cfs) | | 32366.80 | 3633.20 |
| Top Width (ft) | 810.07 | Top Width (ft) | | 690.56 | 119.51 |
| Vel Total (ft/s) | 5.75 | Avg. Vel. (ft/s) | | 5.98 | 4.25 |
| Max Chl Dpth (ft) | 11.80 | Hydr. Depth (ft) | | 7.83 | 7.15 |
| Conv. Total (cfs) | 994495.3 | Conv. (cfs) | | 894128.8 | 100366.6 |
| Length Wtd. (ft) | 589.59 | Wetted Per. (ft) | | 703.98 | 127.44 |
| Min Ch El (ft) | 308.50 | Shear (lb/sq ft) | | 0.63 | 0.55 |
| Alpha | 1.03 | Stream Power (lb/ft s) | | 3.76 | 2.33 |
| Frctn Loss (ft) | 0.76 | Cum Volume (acre-ft) | 21.35 | 1597.68 | 74.22 |
| C & E Loss (ft) | 0.04 | Cum SA (acres) | 3.08 | 192.18 | 9.96 |

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

CROSS SECTION OUTPUT Profile #PF 3

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 321.92 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.64 | Wt. n-Val. | | 0.035 | 0.045 |
| W.S. Elev (ft) | 321.28 | Reach Len. (ft) | 620.00 | 588.00 | 620.00 |
| Crit W.S. (ft) | 317.22 | Flow Area (sq ft) | | 6388.29 | 1221.09 |
| E.G. Slope (ft/ft) | 0.001434 | Area (sq ft) | 599.96 | 6388.29 | 1221.09 |
| Q Total (cfs) | 48000.00 | Flow (cfs) | | 42415.61 | 5584.39 |
| Top Width (ft) | 1090.88 | Top Width (ft) | 166.22 | 753.04 | 171.62 |
| Vel Total (ft/s) | 6.31 | Avg. Vel. (ft/s) | | 6.64 | 4.57 |
| Max Chl Dpth (ft) | 12.78 | Hydr. Depth (ft) | | 8.48 | 7.12 |
| Conv. Total (cfs) | 1267360.0 | Conv. (cfs) | | 1119914.0 | 147446.5 |
| Length Wtd. (ft) | 589.84 | Wetted Per. (ft) | | 761.34 | 174.62 |
| Min Ch El (ft) | 308.50 | Shear (lb/sq ft) | | 0.75 | 0.63 |

| | | | | | |
|---|---|---|---|---|---|
| Alpha | 1.04 | Stream Power (lb/ft s) | | 4.99 | 2.86 |
| Frctn Loss (ft) | 0.79 | Cum Volume (acre-ft) | 156.94 | 1938.91 | 395.93 |
| C & E Loss (ft) | 0.05 | Cum SA (acres) | 35.77 | 200.92 | 48.89 |

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

CROSS SECTION OUTPUT Profile #PF 4

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 315.03 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.07 | Wt. n-Val. | | 0.035 | 0.045 |
| W.S. Elev (ft) | 314.96 | Reach Len. (ft) | 620.00 | 588.00 | 620.00 |
| Crit W.S. (ft) | 312.34 | Flow Area (sq ft) | | 1882.65 | 247.76 |
| E.G. Slope (ft/ft) | 0.000685 | Area (sq ft) | 163.55 | 1882.65 | 247.76 |
| Q Total (cfs) | 4500.00 | Flow (cfs) | | 4137.63 | 362.37 |
| Top Width (ft) | 833.54 | Top Width (ft) | 48.99 | 672.67 | 111.87 |
| Vel Total (ft/s) | 2.11 | Avg. Vel. (ft/s) | | 2.20 | 1.46 |
| Max Chl Dpth (ft) | 6.46 | Hydr. Depth (ft) | | 2.80 | 2.21 |
| Conv. Total (cfs) | 171996.6 | Conv. (cfs) | | 158146.1 | 13850.5 |
| Length Wtd. (ft) | 589.22 | Wetted Per. (ft) | | 676.44 | 112.47 |
| Min Ch El (ft) | 308.50 | Shear (lb/sq ft) | | 0.12 | 0.09 |
| Alpha | 1.03 | Stream Power (lb/ft s) | | 0.26 | 0.14 |
| Frctn Loss (ft) | 0.26 | Cum Volume (acre-ft) | 16.25 | 483.73 | 96.65 |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 9.44 | 160.79 | 29.13 |

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

CROSS SECTION OUTPUT Profile #PF 5

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 317.90 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.22 | Wt. n-Val. | | 0.035 | 0.045 |
| W.S. Elev (ft) | 317.68 | Reach Len. (ft) | 620.00 | 588.00 | 620.00 |
| Crit W.S. (ft) | 314.60 | Flow Area (sq ft) | | 3764.97 | 627.85 |
| E.G. Slope (ft/ft) | 0.000888 | Area (sq ft) | 309.61 | 3764.97 | 627.85 |
| Q Total (cfs) | 16000.00 | Flow (cfs) | | 14448.84 | 1551.16 |
| Top Width (ft) | 921.78 | Top Width (ft) | 58.58 | 706.63 | 156.57 |
| Vel Total (ft/s) | 3.64 | Avg. Vel. (ft/s) | | 3.84 | 2.47 |
| Max Chl Dpth (ft) | 9.18 | Hydr. Depth (ft) | | 5.33 | 4.01 |
| Conv. Total (cfs) | 536982.0 | Conv. (cfs) | | 484922.9 | 52059.1 |
| Length Wtd. (ft) | 589.50 | Wetted Per. (ft) | | 712.50 | 157.79 |
| Min Ch El (ft) | 308.50 | Shear (lb/sq ft) | | 0.29 | 0.22 |
| Alpha | 1.05 | Stream Power (lb/ft s) | | 1.12 | 0.54 |
| Frctn Loss (ft) | 0.57 | Cum Volume (acre-ft) | 43.77 | 972.97 | 142.13 |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 13.41 | 191.33 | 34.37 |

Warning: Divided flow computed for this cross-section.

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

CROSS SECTION

RIVER: San Diego River
REACH: Reach 1 RS: 320

INPUT
Description: 320 start Revising per Existing Topo
From Stations 0 to 1290.09,
Geometry from the corrected effective model.(Forrest Creek -
Offsite existing development).
Revising per Survey Data (June
12, 2014) starts from Station 1141.4.
Manning's coefficients are
derived from the Corrected Effective Model.
Station Elevation Data num= 247

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 328.2 | 87.1 | 328.7 | 92.7 | 326.3 | 107.2 | 324.6 | 175.5 | 323.9 |
| 182.3 | 318.9 | 192.7 | 315.6 | 272.6 | 314.6 | 325.3 | 313.5 | 403.2 | 312.7 |
| 454.2 | 312.2 | 466.6 | 315.2 | 517.6 | 315.1 | 537.3 | 318.8 | 599.9 | 317.9 |
| 610.4 | 311.7 | 619.6 | 307.3 | 648.9 | 307.4 | 661 | 310.6 | 672.6 | 318.3 |
| 703.6 | 319.2 | 777.4 | 317.9 | 847.7 | 319 | 889.9 | 316.7 | 923.2 | 312 |
| 950.9 | 309.6 | 963 | 307.2 | 1073.2 | 307.2 | 1141.4 | 307.3 | 1193.1 | 308.7 |
| 1250.2 | 308.5 | 1290.09 | 320 | 1331.79 | 319 | 1339.45 | 318 | 1350.57 | 315.96 |
| 1357.34 | 315.58 | 1365.01 | 315.29 | 1370.12 | 314.92 | 1377.79 | 314.2 | 1383.57 | 313.96 |
| 1398.23 | 313.63 | 1403.34 | 313.64 | 1408.45 | 313.47 | 1418.67 | 313.45 | 1428.9 | 313.28 |
| 1431.45 | 313.38 | 1438.4 | 313.38 | 1441.67 | 313.44 | 1449.34 | 313.77 | 1457.01 | 313.94 |
| 1459.56 | 313.94 | 1467.23 | 314.1 | 1480 | 314.47 | 1485.12 | 314.7 | 1500.45 | 315.15 |
| 1513.23 | 315.42 | 1519.49 | 315.39 | 1536.22 | 315.49 | 1538.78 | 315.6 | 1543.89 | 315.6 |
| 1546.45 | 315.7 | 1551.56 | 315.73 | 1554.39 | 315.84 | 1566.89 | 315.8 | 1572 | 315.64 |
| 1581.8 | 315.62 | 1592.35 | 315.67 | 1597.56 | 315.94 | 1602.67 | 315.98 | 1607.78 | 316.12 |
| 1612.89 | 316.16 | 1621.87 | 316.53 | 1630.78 | 316.81 | 1640.85 | 316.99 | 1646.11 | 316.94 |
| 1653.78 | 317.32 | 1656.33 | 317.26 | 1664 | 317.37 | 1669.11 | 317.54 | 1674.59 | 317.45 |
| 1684.44 | 317.4 | 1688.41 | 317.47 | 1695.68 | 317.41 | 1702.33 | 317.55 | 1712.55 | 317.56 |
| 1717.66 | 317.65 | 1725.2 | 317.68 | 1730.44 | 317.61 | 1732.99 | 317.75 | 1740.66 | 317.8 |
| 1745.76 | 317.64 | 1750.87 | 317.35 | 1758.52 | 317.02 | 1763.25 | 316.5 | 1768.74 | 316.05 |
| 1773.84 | 315.78 | 1786.18 | 315.65 | 1792.88 | 315.71 | 1801.92 | 315.51 | 1809.58 | 315.08 |
| 1812.13 | 315.01 | 1824.62 | 314.23 | 1835.66 | 314.13 | 1842.76 | 314.25 | 1847.87 | 314.47 |
| 1858.48 | 315.05 | 1863.18 | 315.15 | 1865.74 | 315.31 | 1870.84 | 315.25 | 1883.87 | 315.25 |
| 1891.26 | 315.33 | 1901.47 | 315.11 | 1916.79 | 315.01 | 1924.45 | 315.03 | 1932.11 | 315.22 |
| 1942.32 | 315.25 | 1949.47 | 315.11 | 1952.53 | 314.97 | 1962.74 | 314.68 | 1975.5 | 314.71 |
| 1985.71 | 315.14 | 1993.37 | 315.73 | 1998.48 | 316.53 | 2003.58 | 316.99 | 2006.13 | 317.04 |
| 2008.71 | 316.89 | 2016.34 | 315.78 | 2021.45 | 315.34 | 2029.11 | 315.07 | 2036.77 | 314.66 |
| 2039.32 | 314.61 | 2046.8 | 314.62 | 2049.53 | 314.7 | 2052.08 | 314.59 | 2057.38 | 314.64 |
| 2062.29 | 314.84 | 2067.4 | 314.74 | 2072.5 | 314.96 | 2075.06 | 314.95 | 2080.16 | 315.16 |
| 2082.71 | 315.13 | 2085.27 | 314.82 | 2087.82 | 314.06 | 2092.92 | 312.23 | 2098.03 | 311.8 |
| 2103.14 | 311.22 | 2105.69 | 311.06 | 2108.24 | 311.1 | 2113.35 | 313.08 | 2115.9 | 313.67 |
| 2121 | 315.62 | 2126.11 | 316.67 | 2128.66 | 317.04 | 2133.77 | 317.22 | 2136.32 | 317.54 |
| 2138.87 | 318.2 | 2141.43 | 319.32 | 2143.98 | 319.82 | 2146.26 | 320.56 | 2149.08 | 321.65 |
| 2151.64 | 323.02 | 2154.19 | 324.02 | 2156.74 | 325.89 | 2164.4 | 326.49 | 2169.5 | 326.66 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2179.72 | 326.74 | 2182.27 | 326.66 | 2188.2 | 326.66 | 2200.14 | 326.66 | 2220.56 | 325.88 |
| 2233.32 | 325.5 | 2248.64 | 325.38 | 2253.74 | 325.26 | 2258.85 | 325.57 | 2261.4 | 325.23 |
| 2263.95 | 324.48 | 2269.06 | 323.4 | 2274.16 | 322.81 | 2281.82 | 323.38 | 2289.48 | 323.65 |
| 2292.03 | 323.63 | 2294.59 | 323.78 | 2304.8 | 323.88 | 2312.45 | 323.89 | 2322.66 | 323.59 |
| 2330.32 | 323.06 | 2332.88 | 322.94 | 2343.09 | 323.56 | 2351.51 | 323.93 | 2355.85 | 324.38 |
| 2359.98 | 324.33 | 2371.17 | 323.75 | 2378.82 | 323.75 | 2383.93 | 323.82 | 2394.14 | 324.07 |
| 2401.8 | 324.55 | 2406.9 | 324.66 | 2414.56 | 324.71 | 2419.22 | 324.95 | 2424.77 | 325.38 |
| 2431.92 | 325.79 | 2442.5 | 326.03 | 2457.96 | 326.02 | 2465.61 | 325.83 | 2470.72 | 325.51 |
| 2473.27 | 324.65 | 2475.82 | 324.21 | 2480.93 | 323.73 | 2483.48 | 323.61 | 2488.59 | 323.53 |
| 2498.8 | 323.64 | 2503.87 | 323.63 | 2514.11 | 323.79 | 2525.03 | 323.76 | 2542.19 | 324.07 |
| 2547.3 | 324.54 | 2552.4 | 324.03 | 2557.51 | 324 | 2565.17 | 323.78 | 2575.38 | 323.86 |
| 2580.48 | 323.81 | 2585.59 | 323.85 | 2588.14 | 323.74 | 2592.74 | 323.78 | 2599.09 | 323.97 |
| 2603.46 | 324.01 | 2607.55 | 324.18 | 2616.02 | 324.39 | 2618.77 | 324.58 | 2623.88 | 325.09 |
| 2626.43 | 325.04 | 2628.71 | 325.18 | 2639.2 | 325.47 | 2643.52 | 325.68 | 2654.51 | 325.86 |
| 2657.06 | 325.94 | 2664.72 | 325.53 | 2667.27 | 325.61 | 2672.38 | 325.5 | 2677.49 | 325.56 |
| 2682.59 | 325.44 | 2692.19 | 325.58 | 2697.91 | 325.59 | 2700.46 | 325.68 | 2709.12 | 325.54 |
| 2717.58 | 325.62 | 2732.54 | 326.12 | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .06 | 847.7 | .035 | 2188.2 | .045 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 847.7 | 2188.2 | 260 | 431 | 405 .1 | .3 |

Ineffective Flow num= 1

| Sta L | Sta R | Elev | Permanent |
|---|---|---|---|
| 0 | 847.7 | 323 | F |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | | |
|---|---|---|---|---|---|---|
| E.G. Elev (ft) | 319.79 | Element | Left OB | Channel | Right OB | |
| Vel Head (ft) | 0.39 | Wt. n-Val. | | 0.035 | | |
| W.S. Elev (ft) | 319.40 | Reach Len. (ft) | 260.00 | 431.00 | 405.00 | |
| Crit W.S. (ft) | 315.92 | Flow Area (sq ft) | | 7408.00 | | |
| E.G. Slope (ft/ft) | 0.001321 | Area (sq ft) | 2719.42 | 7408.00 | | |
| Q Total (cfs) | 37000.00 | Flow (cfs) | | 37000.00 | | |
| Top Width (ft) | 1933.07 | Top Width (ft) | 666.08 | 1266.99 | | |
| Vel Total (ft/s) | 4.99 | Avg. Vel. (ft/s) | | 4.99 | | |
| Max Chl Dpth (ft) | 12.20 | Hydr. Depth (ft) | | 5.85 | | |
| Conv. Total (cfs) | 1018111.0 | Conv. (cfs) | | 1018111.0 | | |
| Length Wtd. (ft) | 421.77 | Wetted Per. (ft) | | 1271.89 | | |
| Min Ch El (ft) | 307.20 | Shear (lb/sq ft) | | 0.48 | | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 2.40 | | |
| Frctn Loss (ft) | 0.59 | Cum Volume (acre-ft) | 73.98 | 1465.82 | 220.94 | |
| C & E Loss (ft) | 0.02 | Cum SA (acres) | 21.35 | 185.54 | 40.22 | |

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

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 320.02 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.39 | Wt. n-Val. | | 0.035 | |
| W.S. Elev (ft) | 319.63 | Reach Len. (ft) | 260.00 | 431.00 | 405.00 |
| Crit W.S. (ft) | 316.01 | Flow Area (sq ft) | | 7344.57 | |
| E.G. Slope (ft/ft) | 0.001281 | Area (sq ft) | | 7344.57 | |
| Q Total (cfs) | 37000.00 | Flow (cfs) | | 37000.00 | |
| Top Width (ft) | 1208.23 | Top Width (ft) | | 1208.23 | |
| Vel Total (ft/s) | 5.04 | Avg. Vel. (ft/s) | | 5.04 | |
| Max Chl Dpth (ft) | 12.43 | Hydr. Depth (ft) | | 6.08 | |
| Conv. Total (cfs) | 1033745.0 | Conv. (cfs) | | 1033745.0 | |
| Length Wtd. (ft) | 427.40 | Wetted Per. (ft) | | 1216.71 | |
| Min Ch El (ft) | 307.20 | Shear (lb/sq ft) | | 0.48 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 2.43 | |
| Frctn Loss (ft) | 0.60 | Cum Volume (acre-ft) | 21.35 | 1511.60 | 68.13 |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 3.08 | 179.36 | 9.11 |

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

CROSS SECTION OUTPUT Profile #PF 3

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 321.07 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.46 | Wt. n-Val. | | 0.035 | |
| W.S. Elev (ft) | 320.61 | Reach Len. (ft) | 260.00 | 431.00 | 405.00 |
| Crit W.S. (ft) | 316.71 | Flow Area (sq ft) | | 8966.82 | |
| E.G. Slope (ft/ft) | 0.001267 | Area (sq ft) | 3525.33 | 8966.82 | |
| Q Total (cfs) | 49000.00 | Flow (cfs) | | 49000.00 | |
| Top Width (ft) | 1966.41 | Top Width (ft) | 667.72 | 1298.68 | |
| Vel Total (ft/s) | 5.46 | Avg. Vel. (ft/s) | | 5.46 | |
| Max Chl Dpth (ft) | 13.41 | Hydr. Depth (ft) | | 6.90 | |
| Conv. Total (cfs) | 1376704.0 | Conv. (cfs) | | 1376704.0 | |
| Length Wtd. (ft) | 421.78 | Wetted Per. (ft) | | 1303.85 | |
| Min Ch El (ft) | 307.20 | Shear (lb/sq ft) | | 0.54 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 2.97 | |
| Frctn Loss (ft) | 0.53 | Cum Volume (acre-ft) | 127.58 | 1835.27 | 387.24 |
| C & E Loss (ft) | 0.03 | Cum SA (acres) | 29.83 | 187.08 | 47.67 |

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

CROSS SECTION OUTPUT Profile #PF 4

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 314.77 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.06 | Wt. n-Val. | | 0.035 | |
| W.S. Elev (ft) | 314.70 | Reach Len. (ft) | 260.00 | 431.00 | 405.00 |
| Crit W.S. (ft) | 309.73 | Flow Area (sq ft) | | 2498.60 | |
| E.G. Slope (ft/ft) | 0.000320 | Area (sq ft) | 640.26 | 2498.60 | |
| Q Total (cfs) | 5000.00 | Flow (cfs) | | 5000.00 | |
| Top Width (ft) | 844.25 | Top Width (ft) | 262.06 | 582.19 | |
| Vel Total (ft/s) | 2.00 | Avg. Vel. (ft/s) | | 2.00 | |
| Max Chl Dpth (ft) | 7.50 | Hydr. Depth (ft) | | 4.29 | |

| | | | | | |
|---|---|---|---|---|---|
| Conv. Total (cfs) | 279306.8 | Conv. (cfs) | 279306.8 | | |
| Length Wtd. (ft) | 419.60 | Wetted Per. (ft) | 584.80 | | |
| Min Ch El (ft) | 307.20 | Shear (lb/sq ft) | 0.09 | | |
| Alpha | 1.00 | Stream Power (lb/ft s) | 0.17 | | |
| Frctn Loss (ft) | 0.32 | Cum Volume (acre-ft) | 10.53 | 454.16 | 94.88 |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 7.23 | 152.32 | 28.33 |

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

CROSS SECTION OUTPUT Profile #PF 5

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 317.32 | Element | | | |
| Vel Head (ft) | 0.21 | Wt. n-Val. | | 0.035 | |
| W.S. Elev (ft) | 317.11 | Reach Len. (ft) | 260.00 | 431.00 | 405.00 |
| Crit W.S. (ft) | 312.32 | Flow Area (sq ft) | | 4651.06 | |
| E.G. Slope (ft/ft) | 0.001060 | Area (sq ft) | 1540.80 | 4651.06 | |
| Q Total (cfs) | 17000.00 | Flow (cfs) | | 17000.00 | |
| Top Width (ft) | 1487.48 | Top Width (ft) | 409.97 | 1077.50 | |
| Vel Total (ft/s) | 3.66 | Avg. Vel. (ft/s) | | 3.66 | |
| Max Chl Dpth (ft) | 9.91 | Hydr. Depth (ft) | | 4.32 | |
| Conv. Total (cfs) | 522191.0 | Conv. (cfs) | | 522191.0 | |
| Length Wtd. (ft) | 421.98 | Wetted Per. (ft) | | 1081.50 | |
| Min Ch El (ft) | 307.20 | Shear (lb/sq ft) | | 0.28 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 1.04 | |
| Frctn Loss (ft) | 0.62 | Cum Volume (acre-ft) | 30.60 | 916.16 | 137.67 |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 10.07 | 179.29 | 33.25 |

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

CROSS SECTION

RIVER: San Diego River
REACH: Reach 1 RS: 315

INPUT
Description: New Xsection-Survey Data (June 12, 2014)
Manning's coefficients
are similar to what is used for upstream and downstream cross secctions in the Corrected Effective Model.
Station Elevation Data num= 490

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 326.37 | 4.8 | 326.34 | 10.25 | 325.97 | 18.78 | 326.48 | 24.07 | 325.99 |
| 29.36 | 326.09 | 33.27 | 325.91 | 36.26 | 326.09 | 40.19 | 325.99 | 42.58 | 326.17 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 50.51 | 327.44 | 58.4 | 328.05 | 60.99 | 328.38 | 63.58 | 328.43 | 66.17 | 328.86 |
| 72.23 | 329 | 76.53 | 328.8 | 81.71 | 328.87 | 84.29 | 328.5 | 89.47 | 328.36 |
| 94.67 | 328.06 | 96.71 | 328.06 | 111.18 | 327.7 | 118.46 | 327.35 | 123.62 | 327.53 |
| 126.27 | 327.46 | 131.56 | 327.67 | 136.85 | 327.44 | 147.43 | 327.27 | 152.72 | 327.38 |
| 158.01 | 327.29 | 160.66 | 327.38 | 169.56 | 327.36 | 176.53 | 327.45 | 179.18 | 327.38 |
| 193.24 | 327.36 | 199.19 | 327.24 | 202.86 | 327.28 | 208.12 | 327.19 | 221.26 | 327.09 |
| 229.15 | 326.97 | 238.18 | 326.93 | 246.87 | 326.81 | 250.12 | 326.89 | 255.36 | 326.78 |
| 260.59 | 326.92 | 265.83 | 326.8 | 271.06 | 326.85 | 276.29 | 326.7 | 284.14 | 326.8 |
| 297.23 | 326.9 | 299.85 | 327.1 | 312.82 | 327.04 | 318.17 | 327.21 | 326.02 | 327.19 |
| 331.25 | 327.4 | 333.87 | 327.36 | 344.37 | 327.56 | 357.51 | 327.73 | 362.77 | 327.99 |
| 378.47 | 328.15 | 381.17 | 328.06 | 389.05 | 328.38 | 396.94 | 328.35 | 402.2 | 327.89 |
| 412.2 | 326.25 | 417.97 | 325.61 | 425.85 | 325.37 | 428.08 | 325.17 | 438.99 | 325.28 |
| 444.25 | 325.41 | 457.39 | 325.86 | 460.02 | 325.88 | 465.78 | 326.16 | 475.79 | 326.53 |
| 478.42 | 326.71 | 488.93 | 326.25 | 507.82 | 325.83 | 517.84 | 325.65 | 537.22 | 325.21 |
| 544.13 | 325.24 | 547.14 | 325.01 | 552.01 | 324.42 | 555.08 | 324.23 | 565 | 322.89 |
| 570.41 | 322.24 | 578.3 | 321.47 | 580.93 | 321.53 | 586.18 | 321.96 | 588.81 | 322.97 |
| 591.44 | 324.28 | 596.6 | 325.5 | 599.32 | 326.03 | 601.95 | 326.13 | 604.68 | 325.49 |
| 609.84 | 323.29 | 612.47 | 322.34 | 615.09 | 321.85 | 620.35 | 321.4 | 626.51 | 321.35 |
| 638.42 | 321.12 | 641.38 | 321 | 649.26 | 320.41 | 652.31 | 319.94 | 654.29 | 319.38 |
| 657.15 | 318.28 | 662.41 | 316.69 | 665.03 | 316.24 | 668.18 | 315.36 | 670.17 | 314.59 |
| 672.15 | 314.25 | 675.55 | 313.97 | 683.43 | 313.74 | 693.98 | 313.53 | 702.17 | 313.63 |
| 707.09 | 313.88 | 712.35 | 313.57 | 717.6 | 313.67 | 722.86 | 313.41 | 730.74 | 313.47 |
| 736 | 313.83 | 742.66 | 313.42 | 745.57 | 313.57 | 750.76 | 313.25 | 754.4 | 313.25 |
| 759.66 | 313.96 | 762.28 | 313.92 | 767.54 | 313.27 | 771.37 | 313.4 | 773.35 | 313.69 |
| 775.43 | 314.33 | 778.05 | 314.44 | 780.68 | 313.86 | 785.94 | 313.33 | 791.25 | 313.12 |
| 797.16 | 313.23 | 801.71 | 313.54 | 807.08 | 313.34 | 809.6 | 313.37 | 814.85 | 313.07 |
| 820.11 | 312.95 | 827.99 | 312.92 | 833.25 | 313.19 | 838.51 | 312.56 | 841.14 | 312.66 |
| 843.76 | 313.1 | 846.39 | 312.78 | 848.76 | 313.01 | 851.65 | 314.27 | 854.71 | 315.29 |
| 856.91 | 315.79 | 862.16 | 316.46 | 864.79 | 316.36 | 867.42 | 315.93 | 877.93 | 316.18 |
| 880.5 | 316 | 888.45 | 315.06 | 893.7 | 314.63 | 896.33 | 315 | 898.96 | 314.85 |
| 901.59 | 313.95 | 904.32 | 312.53 | 906.85 | 310.87 | 909.47 | 309.59 | 914.73 | 307.71 |
| 917.36 | 307.42 | 919.99 | 307.69 | 922.62 | 308.49 | 926 | 309.161 | 927.87 | 309.36 |
| 933.13 | 310.41 | 937.01 | 310.47 | 951.53 | 311.12 | 956.79 | 310.59 | 962.04 | 310.61 |
| 967.3 | 312.27 | 972.56 | 313.48 | 975.18 | 313.79 | 980.44 | 313.81 | 985.67 | 313.53 |
| 988.33 | 313.89 | 991.63 | 313.82 | 993.58 | 314.06 | 996.21 | 313.6 | 1001.47 | 313.6 |
| 1004.1 | 313.84 | 1006.72 | 313.74 | 1011.98 | 313.23 | 1017.24 | 312.48 | 1021.39 | 310.39 |
| 1025.12 | 308.71 | 1030.38 | 307.53 | 1035.64 | 307.86 | 1038.27 | 308.3 | 1042.29 | 309.33 |
| 1047.19 | 310.83 | 1055.13 | 312.98 | 1059.29 | 314.37 | 1064.55 | 316 | 1098.72 | 316 |
| 1100.77 | 315.96 | 1106.72 | 314.27 | 1109.23 | 313.8 | 1114.49 | 313.05 | 1126.56 | 312.98 |
| 1130.26 | 312.91 | 1135.52 | 313 | 1140.77 | 313.22 | 1156.33 | 313.17 | 1164.43 | 312.91 |
| 1169.69 | 313.08 | 1178.15 | 314.01 | 1182.12 | 314.2 | 1190.06 | 314.34 | 1198 | 313.89 |
| 1201.23 | 313.62 | 1203.85 | 313.65 | 1214.37 | 313.2 | 1220.44 | 312.56 | 1223.79 | 312.45 |
| 1232.77 | 312.39 | 1235.39 | 312.59 | 1238.02 | 313.17 | 1243.28 | 314.01 | 1248.54 | 315.2 |
| 1255.54 | 317.25 | 1259.05 | 318.02 | 1264.31 | 318.44 | 1269.56 | 318.51 | 1275.39 | 318.26 |
| 1282.71 | 317.22 | 1287.96 | 316.27 | 1293.22 | 315.07 | 1295.23 | 314.8 | 1301.18 | 313.67 |
| 1306.36 | 313.11 | 1311.1 | 312.09 | 1319.5 | 311.14 | 1322.13 | 310.95 | 1324.76 | 311.12 |
| 1330.95 | 310.99 | 1340.53 | 311.2 | 1343.16 | 311.37 | 1351.04 | 312.67 | 1358.93 | 313.22 |
| 1366.81 | 313.38 | 1379.96 | 313.45 | 1382.67 | 313.53 | 1400.4 | 313.72 | 1414.13 | 314.06 |
| 1438.1 | 314.28 | 1443.04 | 314.25 | 1456.18 | 314.31 | 1463.9 | 314.28 | 1474.58 | 314.41 |
| 1477.21 | 314.38 | 1500.86 | 314.72 | 1503.49 | 314.82 | 1511.38 | 315.74 | 1514 | 315.87 |
| 1516.63 | 316.33 | 1519.26 | 316.22 | 1521.89 | 315.49 | 1532.4 | 314.76 | 1537.32 | 314.63 |
| 1543.27 | 314.62 | 1553.19 | 314.5 | 1561.13 | 314.16 | 1569.2 | 313.96 | 1578.99 | 314.01 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1590.23 | 314.15 | 1595.48 | 313.98 | 1598.83 | 314.05 | 1606.77 | 313.95 | 1611.25 | 313.72 |
| 1624.4 | 313.9 | 1629.65 | 313.81 | 1637.54 | 314.06 | 1645.42 | 314.22 | 1658.36 | 315.53 |
| 1664.31 | 315.67 | 1666.45 | 315.59 | 1669.08 | 315.22 | 1679.59 | 313.45 | 1684.85 | 312.98 |
| 1690.11 | 312.97 | 1692.73 | 313.3 | 1698.22 | 314.93 | 1700.62 | 315.2 | 1707.97 | 315.52 |
| 1716.39 | 315.64 | 1719.87 | 315.58 | 1726.9 | 315.25 | 1737.42 | 315.48 | 1746.81 | 315.3 |
| 1753.18 | 315.3 | 1758.43 | 314.84 | 1763.68 | 314.61 | 1773.51 | 314.48 | 1782.05 | 314.62 |
| 1795.17 | 315.14 | 1797.79 | 315.51 | 1803.04 | 316.69 | 1808.29 | 318.96 | 1810.91 | 319.74 |
| 1813.53 | 320.21 | 1816.16 | 320.27 | 1826.65 | 320.18 | 1829.22 | 319.69 | 1831.9 | 318.68 |
| 1835.19 | 317.94 | 1839.17 | 317.27 | 1845.02 | 317.05 | 1850.27 | 315.76 | 1853.1 | 315.22 |
| 1858.14 | 314.48 | 1863.39 | 314.08 | 1868.64 | 314.03 | 1873.88 | 314.18 | 1878.45 | 314.47 |
| 1880.96 | 315.1 | 1884.94 | 316.46 | 1892.25 | 318.73 | 1896.87 | 320.5 | 1900.12 | 321.39 |
| 1902.84 | 321.62 | 1910.62 | 321.43 | 1918.49 | 321.38 | 1928.99 | 321.38 | 1934.24 | 321.11 |
| 1942.11 | 320.42 | 1947.36 | 320.22 | 1955.23 | 320.22 | 1965.72 | 320.36 | 1970.97 | 320.2 |
| 1982.43 | 319.25 | 1986.71 | 318.58 | 1998.35 | 314.39 | 2002.33 | 313.4 | 2010.29 | 312.47 |
| 2016.26 | 312.08 | 2023.45 | 311.78 | 2033.95 | 311.5 | 2038.14 | 311.66 | 2040.13 | 311.94 |
| 2044.44 | 312.99 | 2047.07 | 313.21 | 2052.31 | 312.41 | 2057.56 | 312.45 | 2062.81 | 312.32 |
| 2066 | 312.68 | 2070.68 | 312.52 | 2075.95 | 312.1 | 2078.55 | 312.28 | 2083.8 | 312.98 |
| 2085.89 | 312.93 | 2089.05 | 312.56 | 2094.3 | 312.54 | 2102.17 | 311.45 | 2104.79 | 311.33 |
| 2112.66 | 311.47 | 2115.29 | 311.45 | 2120.54 | 312.25 | 2125.39 | 312.12 | 2131.03 | 312.33 |
| 2136.28 | 311.9 | 2144.15 | 311.61 | 2146.78 | 311.65 | 2154.65 | 312.57 | 2159.9 | 311.97 |
| 2162.52 | 311.81 | 2173.44 | 311.95 | 2175.64 | 311.85 | 2181.4 | 312.49 | 2186.13 | 312.36 |
| 2199.47 | 312.96 | 2204.5 | 312.58 | 2207.27 | 312.53 | 2213.23 | 313.25 | 2215 | 313.37 |
| 2222.87 | 312.72 | 2231.14 | 312.34 | 2233.13 | 312.4 | 2243.86 | 312.18 | 2246.49 | 312.43 |
| 2259 | 312.31 | 2262.23 | 312.21 | 2267.48 | 312.46 | 2285.84 | 312.92 | 2288.47 | 313.18 |
| 2293.72 | 313.32 | 2301.59 | 313.09 | 2306.84 | 313.26 | 2312.08 | 313.67 | 2322.58 | 313.75 |
| 2332.62 | 314.53 | 2334.6 | 314.59 | 2339.4 | 315 | 2359.32 | 316.43 | 2364.56 | 316.73 |
| 2375.4 | 317.043 | 2382.93 | 317.06 | 2388.79 | 317.31 | 2393.43 | 317.38 | 2401.3 | 317.32 |
| 2403.92 | 317.08 | 2409.17 | 316.88 | 2417.04 | 316.86 | 2424.14 | 317.12 | 2427.54 | 317.33 |
| 2435.41 | 318.26 | 2438.07 | 318.44 | 2440.66 | 319.22 | 2443.28 | 321.2 | 2445.91 | 321.69 |
| 2451.15 | 321.81 | 2462.87 | 321.81 | 2472.15 | 321.75 | 2474.77 | 321.61 | 2480.02 | 321.72 |
| 2482.64 | 322.07 | 2485.27 | 323.31 | 2487.89 | 323.95 | 2493.78 | 323.92 | 2498.38 | 322.93 |
| 2501.74 | 323.04 | 2503.73 | 322.84 | 2506.26 | 323.23 | 2511.69 | 322.95 | 2516.75 | 322.91 |
| 2521.64 | 322.48 | 2532.5 | 322.41 | 2537.74 | 322.46 | 2550.86 | 322.4 | 2553.49 | 322.22 |
| 2556.11 | 321.83 | 2558.74 | 321.71 | 2567.4 | 321.58 | 2571.86 | 321.45 | 2577.1 | 321.46 |
| 2584.98 | 321.33 | 2587.6 | 321.71 | 2592.85 | 321.51 | 2598.09 | 321.08 | 2600.72 | 321.19 |
| 2611.21 | 321.84 | 2619.09 | 322.09 | 2629.58 | 322.28 | 2632.21 | 322.5 | 2634.83 | 322.49 |
| 2637.45 | 322.14 | 2645.33 | 322 | 2653.2 | 321.75 | 2661.07 | 321.38 | 2671.57 | 321.09 |
| 2676.89 | 321.57 | 2694.74 | 322.28 | 2697.8 | 322.79 | 2703.05 | 322.35 | 2708.3 | 322.22 |
| 2716.17 | 322.34 | 2726.67 | 322.59 | 2734.54 | 322.59 | 2737.16 | 322.66 | 2750.45 | 322.66 |
| 2763.4 | 322.81 | 2768.36 | 323.31 | 2774.33 | 323.04 | 2784.27 | 323.31 | 2794.89 | 323.53 |
| 2812.13 | 323.76 | 2826.38 | 324.07 | 2831.63 | 324.36 | 2834.25 | 324.62 | 2839.5 | 324.8 |
| 2842.12 | 324.62 | 2849.99 | 324.47 | 2860.49 | 324.58 | 2875.8 | 324.54 | 2879.78 | 324.38 |
| 2891.72 | 324.62 | 2897.23 | 324.54 | 2905.1 | 324.55 | 2910.34 | 324.06 | 2915.59 | 323.69 |
| 2918.22 | 323.64 | 2923.55 | 323.31 | 2928.71 | 323.19 | 2936.58 | 322.65 | 2941.83 | 322.76 |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .06 | 926 | .035 | 2375.4 | .045 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 926 | 2375.4 | 380 | 280 | 255 .1 | .3 |

Ineffective Flow num= 1

| Sta L | Sta R | Elev | Permanent |
|---|---|---|---|
| 0 | 648.46 | 323 | F |

CROSS SECTION OUTPUT  Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 319.18 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.33 | Wt. n-Val. | 0.060 | 0.035 | 0.045 |
| W.S. Elev (ft) | 318.85 | Reach Len. (ft) | 380.00 | 280.00 | 255.00 |
| Crit W.S. (ft) | 316.16 | Flow Area (sq ft) | 1402.68 | 6812.54 | 100.25 |
| E.G. Slope (ft/ft) | 0.001481 | Area (sq ft) | 1402.68 | 6812.54 | 100.25 |
| Q Total (cfs) | 37000.00 | Flow (cfs) | 3970.02 | 32858.49 | 171.50 |
| Top Width (ft) | 1667.87 | Top Width (ft) | 270.32 | 1333.52 | 64.02 |
| Vel Total (ft/s) | 4.45 | Avg. Vel. (ft/s) | 2.83 | 4.82 | 1.71 |
| Max Chl Dpth (ft) | 11.43 | Hydr. Depth (ft) | 5.19 | 5.11 | 1.57 |
| Conv. Total (cfs) | 961592.3 | Conv. (cfs) | 103176.6 | 853958.6 | 4457.0 |
| Length Wtd. (ft) | 289.83 | Wetted Per. (ft) | 274.02 | 1342.79 | 64.17 |
| Min Ch El (ft) | 307.53 | Shear (lb/sq ft) | 0.47 | 0.47 | 0.14 |
| Alpha | 1.09 | Stream Power (lb/ft s) | 1.34 | 2.26 | 0.25 |
| Frctn Loss (ft) | 0.28 | Cum Volume (acre-ft) | 61.68 | 1395.47 | 220.48 |
| C & E Loss (ft) | 0.04 | Cum SA (acres) | 18.55 | 172.68 | 39.92 |

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

CROSS SECTION OUTPUT  Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 319.42 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.39 | Wt. n-Val. | 0.060 | 0.035 | |
| W.S. Elev (ft) | 319.03 | Reach Len. (ft) | 380.00 | 280.00 | 255.00 |
| Crit W.S. (ft) | 316.35 | Flow Area (sq ft) | 533.21 | 6956.84 | |
| E.G. Slope (ft/ft) | 0.001562 | Area (sq ft) | 533.21 | 6956.84 | |
| Q Total (cfs) | 37000.00 | Flow (cfs) | 1556.00 | 35444.00 | |
| Top Width (ft) | 1396.51 | Top Width (ft) | 95.00 | 1301.51 | |
| Vel Total (ft/s) | 4.94 | Avg. Vel. (ft/s) | 2.92 | 5.09 | |
| Max Chl Dpth (ft) | 11.61 | Hydr. Depth (ft) | 5.61 | 5.35 | |
| Conv. Total (cfs) | 936215.4 | Conv. (cfs) | 39371.7 | 896843.8 | |
| Length Wtd. (ft) | 283.04 | Wetted Per. (ft) | 103.57 | 1314.76 | |
| Min Ch El (ft) | 307.53 | Shear (lb/sq ft) | 0.50 | 0.52 | |
| Alpha | 1.03 | Stream Power (lb/ft s) | 1.46 | 2.63 | |
| Frctn Loss (ft) | 0.29 | Cum Volume (acre-ft) | 19.76 | 1440.85 | 68.13 |
| C & E Loss (ft) | 0.05 | Cum SA (acres) | 2.80 | 166.95 | 9.11 |

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

CROSS SECTION OUTPUT  Profile #PF 3

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 320.51 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.37 | Wt. n-Val. | 0.060 | 0.035 | 0.045 |
| W.S. Elev (ft) | 320.15 | Reach Len. (ft) | 380.00 | 280.00 | 255.00 |
| Crit W.S. (ft) | 316.79 | Flow Area (sq ft) | 1756.64 | 8561.41 | 185.43 |
| E.G. Slope (ft/ft) | 0.001236 | Area (sq ft) | 1756.64 | 8561.41 | 185.43 |
| Q Total (cfs) | 49000.00 | Flow (cfs) | 5216.61 | 43359.02 | 424.37 |
| Top Width (ft) | 1701.61 | Top Width (ft) | 275.03 | 1360.09 | 66.49 |
| Vel Total (ft/s) | 4.67 | Avg. Vel. (ft/s) | 2.97 | 5.06 | 2.29 |
| Max Chl Dpth (ft) | 12.73 | Hydr. Depth (ft) | 6.39 | 6.29 | 2.79 |
| Conv. Total (cfs) | 1393577.0 | Conv. (cfs) | 148362.1 | 1233146.0 | 12069.1 |
| Length Wtd. (ft) | 289.50 | Wetted Per. (ft) | 278.93 | 1370.04 | 67.01 |
| Min Ch El (ft) | 307.53 | Shear (lb/sq ft) | 0.49 | 0.48 | 0.21 |
| Alpha | 1.09 | Stream Power (lb/ft s) | 1.44 | 2.44 | 0.49 |
| Frctn Loss (ft) | 0.24 | Cum Volume (acre-ft) | 111.82 | 1748.55 | 386.38 |
| C & E Loss (ft) | 0.04 | Cum SA (acres) | 27.02 | 173.92 | 47.36 |

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

CROSS SECTION OUTPUT Profile #PF 4

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 314.44 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.16 | Wt. n-Val. | 0.060 | 0.035 | |
| W.S. Elev (ft) | 314.28 | Reach Len. (ft) | 380.00 | 280.00 | 255.00 |
| Crit W.S. (ft) | 313.37 | Flow Area (sq ft) | 269.07 | 1328.85 | |
| E.G. Slope (ft/ft) | 0.003409 | Area (sq ft) | 269.07 | 1328.85 | |
| Q Total (cfs) | 5000.00 | Flow (cfs) | 666.57 | 4333.43 | |
| Top Width (ft) | 1077.52 | Top Width (ft) | 201.66 | 875.86 | |
| Vel Total (ft/s) | 3.13 | Avg. Vel. (ft/s) | 2.48 | 3.26 | |
| Max Chl Dpth (ft) | 6.86 | Hydr. Depth (ft) | 1.33 | 1.52 | |
| Conv. Total (cfs) | 85638.7 | Conv. (cfs) | 11416.9 | 74221.8 | |
| Length Wtd. (ft) | 289.98 | Wetted Per. (ft) | 204.16 | 880.61 | |
| Min Ch El (ft) | 307.53 | Shear (lb/sq ft) | 0.28 | 0.32 | |
| Alpha | 1.02 | Stream Power (lb/ft s) | 0.69 | 1.05 | |
| Frctn Loss (ft) | 0.47 | Cum Volume (acre-ft) | 7.82 | 435.22 | 94.88 |
| C & E Loss (ft) | 0.03 | Cum SA (acres) | 5.85 | 145.11 | 28.33 |

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

CROSS SECTION OUTPUT Profile #PF 5

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 316.70 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.24 | Wt. n-Val. | 0.060 | 0.035 | |
| W.S. Elev (ft) | 316.46 | Reach Len. (ft) | 380.00 | 280.00 | 255.00 |
| Crit W.S. (ft) | 314.84 | Flow Area (sq ft) | 765.05 | 3719.38 | |
| E.G. Slope (ft/ft) | 0.002176 | Area (sq ft) | 765.05 | 3719.38 | |
| Q Total (cfs) | 17000.00 | Flow (cfs) | 1793.37 | 15206.63 | |

| | | | | | |
|---|---|---|---|---|---|
| Top Width (ft) | 1508.64 | Top Width (ft) | 262.09 | 1246.55 | |
| Vel Total (ft/s) | 3.79 | Avg. Vel. (ft/s) | 2.34 | 4.09 | |
| Max Chl Dpth (ft) | 9.04 | Hydr. Depth (ft) | 2.92 | 2.98 | |
| Conv. Total (cfs) | 364420.1 | Conv. (cfs) | 38443.6 | 325976.5 | |
| Length Wtd. (ft) | 289.81 | Wetted Per. (ft) | 265.43 | 1253.97 | |
| Min Ch El (ft) | 307.53 | Shear (lb/sq ft) | 0.39 | 0.40 | |
| Alpha | 1.08 | Stream Power (lb/ft s) | 0.92 | 1.65 | |
| Frctn Loss (ft) | 0.35 | Cum Volume (acre-ft) | 23.72 | 874.75 | 137.67 |
| C & E Loss (ft) | 0.04 | Cum SA (acres) | 8.07 | 167.79 | 33.25 |

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

CROSS SECTION

RIVER: San Diego River
REACH: Reach 1 RS: 310

INPUT
Description: Survey Data (June 12, 2014)
Manning's coefficients are derived
from the Corrected Effective Model.
Station Elevation Data num= 490

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 329.1 | 5.08 | 329.21 | 15.37 | 329.76 | 23.08 | 329.9 | 28.78 | 330.25 |
| 38.52 | 330.96 | 43.66 | 331.42 | 53.95 | 332.24 | 56.52 | 332.32 | 59.1 | 332.04 |
| 61.67 | 331.54 | 66.81 | 330.01 | 71.83 | 328.21 | 79.67 | 325.55 | 82.18 | 324.97 |
| 84.82 | 323.91 | 87.39 | 323.12 | 90.46 | 322.95 | 92.53 | 323.03 | 102.89 | 323.69 |
| 107.03 | 323.7 | 113.24 | 323.5 | 118.26 | 323.06 | 123.6 | 323.06 | 149.12 | 323.56 |
| 159.41 | 323.73 | 161.98 | 323.93 | 164.56 | 324.45 | 167.13 | 324.66 | 172.27 | 324.31 |
| 185.13 | 323.9 | 187.71 | 323.63 | 195.43 | 323.43 | 210.55 | 323.16 | 223.73 | 323.02 |
| 236.59 | 322.93 | 247.8 | 322.25 | 249.46 | 322.06 | 254.01 | 320.94 | 257.18 | 320.38 |
| 259.75 | 320.2 | 264.35 | 320.27 | 270.04 | 320.24 | 274.7 | 320.53 | 277.76 | 320.96 |
| 290.63 | 320.73 | 296.4 | 320.75 | 300.92 | 320.95 | 303.49 | 320.9 | 305.74 | 320.4 |
| 311.21 | 319.67 | 313.79 | 319.06 | 318.93 | 319.01 | 324.36 | 319.13 | 334.37 | 319.07 |
| 336.94 | 318.95 | 339.52 | 318.45 | 344.66 | 316.25 | 347.13 | 315.7 | 352.38 | 313.34 |
| 355.4 | 312.92 | 360.1 | 312.78 | 363.68 | 312.92 | 371.96 | 312.91 | 378.11 | 313.06 |
| 385.83 | 312.62 | 390.98 | 312.84 | 396.12 | 312.66 | 401.27 | 312.71 | 403.84 | 312.51 |
| 411.56 | 312.7 | 423.69 | 312.42 | 434.03 | 312.75 | 442.31 | 312.71 | 445.01 | 312.49 |
| 447.58 | 312.74 | 450.16 | 312.54 | 455.3 | 312.6 | 460.45 | 312.29 | 465.59 | 312.35 |
| 470.74 | 312.59 | 475.89 | 312.38 | 481.03 | 312.82 | 483.6 | 313.44 | 488.75 | 313.36 |
| 493.9 | 312.55 | 496.47 | 312.46 | 504.19 | 312.47 | 506.76 | 312.61 | 514.48 | 312.49 |
| 519.63 | 312.15 | 522.2 | 312.16 | 527.15 | 312.58 | 529.22 | 312.36 | 532.49 | 312.34 |
| 535.06 | 312.16 | 540.21 | 312.02 | 545.36 | 312 | 550.5 | 312.23 | 555.65 | 312.35 |
| 558.22 | 312.63 | 560.79 | 312.64 | 563.37 | 312.33 | 566.47 | 312.25 | 571.09 | 311.96 |
| 576.23 | 311.97 | 580.95 | 312.2 | 586.53 | 311.83 | 596.82 | 311.96 | 601.64 | 311.84 |
| 605.8 | 312.133 | 612.26 | 313.36 | 614.83 | 313.96 | 622.55 | 315.03 | 632.84 | 314.96 |
| 635.41 | 314.5 | 640.56 | 314.33 | 649.24 | 312.49 | 653.42 | 311.09 | 656 | 310.45 |
| 658.57 | 309.42 | 661.14 | 308.05 | 663.72 | 307.66 | 666.29 | 307.98 | 668.86 | 308.97 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 671.43 | 309.69 | 676.58 | 310.4 | 684.3 | 308.36 | 689.45 | 307.23 | 697.16 | 305.65 |
| 699.74 | 305.31 | 707.46 | 305.25 | 709.24 | 305.45 | 712.6 | 306.81 | 715.18 | 308.38 |
| 719.59 | 310.28 | 722.9 | 311.42 | 725.8 | 311.73 | 728.04 | 312.61 | 733.19 | 316 |
| 761.49 | 316 | 767.18 | 315.55 | 774.36 | 312.98 | 776.93 | 312.27 | 779.6 | 311.77 |
| 782.07 | 311.57 | 787.22 | 311.41 | 789.95 | 311.49 | 802.66 | 311.37 | 807.8 | 311.42 |
| 820.67 | 311.33 | 829.26 | 311.58 | 841.25 | 312.26 | 845.82 | 312.4 | 848.97 | 312.38 |
| 856.16 | 312.07 | 859.27 | 311.86 | 861.84 | 311.39 | 866.98 | 309.91 | 869.56 | 309.39 |
| 872.13 | 309.06 | 874.7 | 308.93 | 877.28 | 308.99 | 882.42 | 309.32 | 885.13 | 309.83 |
| 890.14 | 310.47 | 893.41 | 311.22 | 897.55 | 311.85 | 903.01 | 312.19 | 908.15 | 312.18 |
| 918.44 | 311.88 | 927.97 | 311.77 | 949.11 | 311.85 | 959.61 | 312.03 | 965.83 | 312.32 |
| 969.97 | 312.43 | 977.62 | 312.42 | 985.34 | 312.55 | 990.49 | 312.56 | 995.64 | 312.43 |
| 1000.78 | 312.1 | 1008.5 | 311.89 | 1013.65 | 311.96 | 1026.51 | 311.89 | 1031.66 | 311.75 |
| 1036.19 | 311.52 | 1039.38 | 311.49 | 1044.52 | 311.63 | 1052.24 | 312 | 1054.81 | 311.97 |
| 1059.96 | 312.39 | 1065.16 | 312.59 | 1070.25 | 312.54 | 1075.4 | 312.62 | 1080.54 | 312.84 |
| 1085.69 | 313.19 | 1093.41 | 313.33 | 1101.13 | 313.94 | 1111.42 | 314.38 | 1113.99 | 314.42 |
| 1124.29 | 314.03 | 1129.3 | 314.01 | 1134.58 | 314.47 | 1144.87 | 316.03 | 1147.44 | 316.32 |
| 1152.59 | 316.63 | 1155.16 | 316.69 | 1165.45 | 315.78 | 1173.17 | 315.37 | 1178.32 | 315.54 |
| 1185.17 | 316.3 | 1188.61 | 316.27 | 1193.76 | 315.75 | 1198.9 | 314.8 | 1206.62 | 313.49 |
| 1212.07 | 312.89 | 1216.91 | 312.46 | 1222.06 | 311.79 | 1227.21 | 311.26 | 1229.78 | 311.14 |
| 1234.93 | 311.25 | 1240.07 | 311.76 | 1242.64 | 312.23 | 1250.36 | 314.01 | 1252.94 | 314.42 |
| 1255.51 | 314.6 | 1258.08 | 314.23 | 1260.66 | 313.31 | 1263.23 | 311.78 | 1265.8 | 310.76 |
| 1268.38 | 310.52 | 1278.67 | 310.39 | 1286.57 | 310.23 | 1294.11 | 310.26 | 1296.68 | 310.37 |
| 1301.82 | 311.25 | 1307.26 | 311.06 | 1312.12 | 310.68 | 1317.61 | 310.39 | 1324.98 | 310.29 |
| 1335.27 | 310.23 | 1342.99 | 310.24 | 1350.71 | 310.44 | 1361.06 | 310.97 | 1371.3 | 311.23 |
| 1384.16 | 311.81 | 1392.1 | 312.03 | 1396.24 | 312.28 | 1417.61 | 313.29 | 1425.33 | 313.88 |
| 1435.55 | 314.06 | 1440.77 | 314.22 | 1448.49 | 313.9 | 1451.06 | 313.64 | 1458.78 | 312.35 |
| 1461.35 | 312.07 | 1466.5 | 311.97 | 1469.07 | 312.1 | 1474.22 | 312.79 | 1476.94 | 313.26 |
| 1481.08 | 313.69 | 1497.37 | 314.45 | 1505.09 | 314.31 | 1510.24 | 314.06 | 1520.53 | 314.19 |
| 1530.82 | 314.19 | 1533.4 | 313.98 | 1541.12 | 312.94 | 1548.83 | 312.38 | 1553.98 | 312.2 |
| 1556.55 | 312.26 | 1563.85 | 312.66 | 1569.42 | 313.07 | 1577.14 | 313.29 | 1582.28 | 313.56 |
| 1590 | 313.29 | 1595.15 | 313.32 | 1597.72 | 313.5 | 1605.44 | 315.06 | 1608.01 | 315.28 |
| 1610.59 | 315.26 | 1613.16 | 314.94 | 1615.73 | 314.88 | 1620.88 | 315.48 | 1623.46 | 315.45 |
| 1626.24 | 314.56 | 1627.97 | 313.6 | 1631.18 | 312.77 | 1633.76 | 311.78 | 1636.33 | 311.88 |
| 1638.91 | 312.51 | 1644.06 | 312.97 | 1649.21 | 313.01 | 1654.82 | 312.95 | 1656.93 | 313.05 |
| 1659.51 | 312.39 | 1667.23 | 311.06 | 1669.81 | 311.12 | 1672.38 | 310.92 | 1685.8 | 310.84 |
| 1687.83 | 310.61 | 1690.41 | 311.09 | 1692.98 | 311.78 | 1695.56 | 312.14 | 1703.28 | 311.12 |
| 1705.86 | 311.12 | 1713.58 | 312.34 | 1716.16 | 312.53 | 1723.88 | 312.17 | 1726.46 | 312.23 |
| 1731.24 | 312.72 | 1734.18 | 312.88 | 1741.91 | 311.83 | 1747.06 | 312.28 | 1753.96 | 311.96 |
| 1759.93 | 311.9 | 1762.22 | 311.79 | 1765.08 | 311.35 | 1770.23 | 312.52 | 1772.55 | 312.42 |
| 1780.53 | 311.82 | 1783.1 | 311.53 | 1790.83 | 312.01 | 1793.4 | 312.02 | 1803.53 | 311.82 |
| 1808.85 | 311.27 | 1811.43 | 311.21 | 1814 | 311.34 | 1819.15 | 311.38 | 1821.73 | 311.3 |
| 1826.88 | 311.78 | 1829.45 | 311.73 | 1832.03 | 311.28 | 1834.51 | 311.31 | 1837.18 | 310.96 |
| 1839.75 | 311.22 | 1844.9 | 311.34 | 1855.2 | 311.75 | 1857.78 | 311.96 | 1861.36 | 312.89 |
| 1863.43 | 313.23 | 1870.65 | 313.95 | 1873.23 | 314.34 | 1878.38 | 315.39 | 1880.95 | 315.15 |
| 1886.1 | 313.94 | 1888.68 | 313.53 | 1896.4 | 313.35 | 1898.98 | 313.49 | 1904.13 | 314.2 |
| 1910.93 | 313.56 | 1914.43 | 313.41 | 1917.13 | 313.49 | 1919.58 | 313.35 | 1924.73 | 312.54 |
| 1927.3 | 312.28 | 1929.52 | 312.75 | 1935.03 | 313.18 | 1942.75 | 313.54 | 1945.33 | 313.85 |
| 1947.9 | 313.85 | 1953.05 | 314.31 | 1955.63 | 313.78 | 1958.44 | 313.45 | 1965.93 | 313.34 |
| 1971.08 | 313.66 | 1976.23 | 313.63 | 1981.38 | 313.05 | 1986.53 | 313.35 | 1989.42 | 313.28 |
| 1991.68 | 313.05 | 1996.83 | 312.93 | 1999.4 | 313.07 | 2007.13 | 312.97 | 2012.28 | 313.32 |
| 2017.43 | 313.29 | 2022.58 | 312.78 | 2025.15 | 312.77 | 2030.3 | 313.67 | 2032.88 | 313.89 |
| 2034.86 | 313.74 | 2040.6 | 313.71 | 2045.18 | 313.52 | 2048.33 | 313.61 | 2053.31 | 314.27 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2056.05 | 314.4 | 2058.63 | 313.72 | 2061.2 | 313.35 | 2063.78 | 313.44 | 2066.35 | 313.34 |
| 2076.65 | 313.69 | 2084.38 | 312.79 | 2089.53 | 313.12 | 2097.25 | 313.01 | 2105.08 | 313.61 |
| 2110.13 | 313.67 | 2112.7 | 313.87 | 2115.28 | 314.66 | 2116.9 | 314.934 | 2123 | 316.05 |
| 2125.58 | 316.86 | 2128.15 | 318.04 | 2130.73 | 318.7 | 2138.45 | 318.8 | 2141.02 | 318.77 |
| 2143.6 | 319.05 | 2151.32 | 320.24 | 2161.62 | 321.3 | 2166.77 | 322.4 | 2169.35 | 322.3 |
| 2171.92 | 322.43 | 2177.37 | 322.38 | 2179.65 | 322.17 | 2182.22 | 322.19 | 2192.52 | 322.68 |
| 2200.25 | 322.69 | 2202.82 | 322.44 | 2220.3 | 322.29 | 2236.3 | 322.11 | 2244.02 | 322.08 |
| 2251.72 | 322.53 | 2264.62 | 322.01 | 2272.38 | 321.97 | 2277.5 | 322.14 | 2282.65 | 322.12 |
| 2287.8 | 321.95 | 2292.95 | 322.12 | 2300.67 | 322.15 | 2305.82 | 322.36 | 2308.4 | 322.15 |
| 2315.75 | 322.19 | 2324.67 | 322.12 | 2334.15 | 322.43 | 2336.72 | 322.25 | 2341.87 | 322.33 |
| 2352.17 | 322.21 | 2362.47 | 321.25 | 2367.62 | 321.06 | 2375.35 | 320.59 | 2377.92 | 320.34 |
| 2385.97 | 320.79 | 2394.23 | 321.01 | 2406.25 | 321.06 | 2411.4 | 321.33 | 2413.97 | 321.29 |
| 2419.12 | 320.91 | 2424.27 | 320.88 | 2437.15 | 320.25 | 2439.72 | 320.38 | 2442.3 | 320.71 |
| 2447.45 | 320.88 | 2450.02 | 320.84 | 2460.32 | 320.94 | 2466.52 | 320.85 | 2474.78 | 320.19 |
| 2478.35 | 319.99 | 2488.65 | 319.59 | 2493.37 | 319.57 | 2499.57 | 319.36 | 2506.67 | 319.35 |
| 2511.82 | 319.19 | 2519.54 | 319.19 | 2522.29 | 319.28 | 2529.84 | 319.14 | 2537.57 | 319.29 |
| 2545.29 | 319.02 | 2550.44 | 319 | 2560.74 | 318.75 | 2568.47 | 318.36 | 2581.34 | 318.29 |
| 2586.49 | 317.64 | 2591.64 | 315.46 | 2594.22 | 315.65 | 2596.79 | 316.37 | 2598.71 | 317.38 |
| 2601.94 | 318.79 | 2604.52 | 319.05 | 2609.67 | 320.17 | 2612.24 | 320.33 | 2621.43 | 320.13 |
| 2630.27 | 320.07 | 2640.57 | 320.23 | 2658.59 | 320.31 | 2668.89 | 320.28 | 2681.77 | 320.31 |
| 2689.49 | 320.25 | 2704.94 | 320.3 | 2712.67 | 320.44 | 2717.82 | 320.24 | 2720.24 | 320.31 |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .06 | 605.8 | .035 | 2116.9 | .045 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 605.8 | 2116.9 | 610 | 610 | 640 .1 | .3 |

Ineffective Flow num= 2

| Sta L | Sta R | Elev | Permanent |
|---|---|---|---|
| 0 | 154.1 | 324.5 | F |
| 2354.1 | 2720.24 | 320 | F |

CROSS SECTION OUTPUT Profile #PF 1

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 318.86 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.19 | Wt. n-Val. | 0.060 | 0.035 | 0.045 |
| W.S. Elev (ft) | 318.67 | Reach Len. (ft) | 610.00 | 610.00 | 640.00 |
| Crit W.S. (ft) | 314.88 | Flow Area (sq ft) | 1599.91 | 9231.72 | 29.00 |
| E.G. Slope (ft/ft) | 0.000665 | Area (sq ft) | 1599.91 | 9231.72 | 69.14 |
| Q Total (cfs) | 37000.00 | Flow (cfs) | 3355.88 | 33604.50 | 39.63 |
| Top Width (ft) | 1831.55 | Top Width (ft) | 267.41 | 1511.10 | 53.03 |
| Vel Total (ft/s) | 3.41 | Avg. Vel. (ft/s) | 2.10 | 3.64 | 1.37 |
| Max Chl Dpth (ft) | 13.42 | Hydr. Depth (ft) | 5.98 | 6.11 | 2.12 |
| Conv. Total (cfs) | 1434528.0 | Conv. (cfs) | 130110.8 | 1302881.0 | 1536.4 |
| Length Wtd. (ft) | 610.06 | Wetted Per. (ft) | 268.87 | 1523.14 | 14.27 |
| Min Ch El (ft) | 305.25 | Shear (lb/sq ft) | 0.25 | 0.25 | 0.08 |
| Alpha | 1.07 | Stream Power (lb/ft s) | 0.52 | 0.92 | 0.12 |
| Frctn Loss (ft) | 0.70 | Cum Volume (acre-ft) | 48.58 | 1343.91 | 219.98 |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 16.21 | 163.53 | 39.58 |

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

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 319.08 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.23 | Wt. n-Val. | 0.060 | 0.035 | |
| W.S. Elev (ft) | 318.86 | Reach Len. (ft) | 610.00 | 610.00 | 640.00 |
| Crit W.S. (ft) | 315.04 | Flow Area (sq ft) | 317.74 | 9449.75 | |
| E.G. Slope (ft/ft) | 0.000714 | Area (sq ft) | 317.74 | 9449.75 | |
| Q Total (cfs) | 37000.00 | Flow (cfs) | 693.88 | 36306.12 | |
| Top Width (ft) | 1545.00 | Top Width (ft) | 46.70 | 1498.30 | |
| Vel Total (ft/s) | 3.79 | Avg. Vel. (ft/s) | 2.18 | 3.84 | |
| Max Chl Dpth (ft) | 13.61 | Hydr. Depth (ft) | 6.80 | 6.31 | |
| Conv. Total (cfs) | 1385086.0 | Conv. (cfs) | 25975.1 | 1359111.0 | |
| Length Wtd. (ft) | 610.00 | Wetted Per. (ft) | 52.98 | 1515.51 | |
| Min Ch El (ft) | 305.25 | Shear (lb/sq ft) | 0.27 | 0.28 | |
| Alpha | 1.02 | Stream Power (lb/ft s) | 0.58 | 1.07 | |
| Frctn Loss (ft) | 0.73 | Cum Volume (acre-ft) | 16.04 | 1388.12 | 68.13 |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 2.18 | 157.95 | 9.11 |

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

CROSS SECTION OUTPUT Profile #PF 3

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 320.23 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.23 | Wt. n-Val. | 0.060 | 0.035 | 0.045 |
| W.S. Elev (ft) | 320.00 | Reach Len. (ft) | 610.00 | 610.00 | 640.00 |
| Crit W.S. (ft) | 315.44 | Flow Area (sq ft) | 1981.87 | 11246.50 | 225.49 |
| E.G. Slope (ft/ft) | 0.000604 | Area (sq ft) | 1981.87 | 11246.50 | 225.49 |
| Q Total (cfs) | 49000.00 | Flow (cfs) | 4260.81 | 44508.23 | 230.96 |
| Top Width (ft) | 1971.84 | Top Width (ft) | 297.08 | 1511.10 | 163.66 |
| Vel Total (ft/s) | 3.64 | Avg. Vel. (ft/s) | 2.15 | 3.96 | 1.02 |
| Max Chl Dpth (ft) | 14.75 | Hydr. Depth (ft) | 6.67 | 7.44 | 1.38 |
| Conv. Total (cfs) | 1993203.0 | Conv. (cfs) | 173319.7 | 1810488.0 | 9394.9 |
| Length Wtd. (ft) | 610.18 | Wetted Per. (ft) | 298.66 | 1523.14 | 165.60 |
| Min Ch El (ft) | 305.25 | Shear (lb/sq ft) | 0.25 | 0.28 | 0.05 |
| Alpha | 1.10 | Stream Power (lb/ft s) | 0.54 | 1.10 | 0.05 |
| Frctn Loss (ft) | 0.64 | Cum Volume (acre-ft) | 95.51 | 1684.89 | 385.17 |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 24.52 | 164.70 | 46.68 |

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

CROSS SECTION OUTPUT  Profile #PF 4

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 313.94 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.06 | Wt. n-Val. | 0.060 | 0.035 | |
| W.S. Elev (ft) | 313.88 | Reach Len. (ft) | 610.00 | 610.00 | 640.00 |
| Crit W.S. (ft) | 312.27 | Flow Area (sq ft) | 351.68 | 2309.23 | |
| E.G. Slope (ft/ft) | 0.000943 | Area (sq ft) | 351.68 | 2309.23 | |
| Q Total (cfs) | 5000.00 | Flow (cfs) | 331.27 | 4668.73 | |
| Top Width (ft) | 1441.43 | Top Width (ft) | 254.63 | 1186.81 | |
| Vel Total (ft/s) | 1.88 | Avg. Vel. (ft/s) | 0.94 | 2.02 | |
| Max Chl Dpth (ft) | 8.63 | Hydr. Depth (ft) | 1.38 | 1.95 | |
| Conv. Total (cfs) | 162805.3 | Conv. (cfs) | 10786.4 | 152018.9 | |
| Length Wtd. (ft) | 610.00 | Wetted Per. (ft) | 255.16 | 1195.95 | |
| Min Ch El (ft) | 305.25 | Shear (lb/sq ft) | 0.08 | 0.11 | |
| Alpha | 1.10 | Stream Power (lb/ft s) | 0.08 | 0.23 | |
| Frctn Loss (ft) | 0.88 | Cum Volume (acre-ft) | 5.11 | 423.53 | 94.88 |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 3.86 | 138.48 | 28.33 |

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

CROSS SECTION OUTPUT  Profile #PF 5

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 316.31 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.12 | Wt. n-Val. | 0.060 | 0.035 | 0.045 |
| W.S. Elev (ft) | 316.19 | Reach Len. (ft) | 610.00 | 610.00 | 640.00 |
| Crit W.S. (ft) | 313.72 | Flow Area (sq ft) | 945.45 | 5489.13 | 4.29 |
| E.G. Slope (ft/ft) | 0.000782 | Area (sq ft) | 945.45 | 5489.13 | 7.07 |
| Q Total (cfs) | 17000.00 | Flow (cfs) | 1541.35 | 15455.70 | 2.95 |
| Top Width (ft) | 1764.97 | Top Width (ft) | 260.87 | 1491.33 | 12.77 |
| Vel Total (ft/s) | 2.64 | Avg. Vel. (ft/s) | 1.63 | 2.82 | 0.69 |
| Max Chl Dpth (ft) | 10.94 | Hydr. Depth (ft) | 3.62 | 3.68 | 0.65 |
| Conv. Total (cfs) | 607797.3 | Conv. (cfs) | 55107.7 | 552584.1 | 105.4 |
| Length Wtd. (ft) | 610.00 | Wetted Per. (ft) | 261.84 | 1503.33 | 6.67 |
| Min Ch El (ft) | 305.25 | Shear (lb/sq ft) | 0.18 | 0.18 | 0.03 |
| Alpha | 1.07 | Stream Power (lb/ft s) | 0.29 | 0.50 | 0.02 |
| Frctn Loss (ft) | 0.83 | Cum Volume (acre-ft) | 16.26 | 845.16 | 137.64 |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 5.78 | 158.99 | 33.22 |

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

CROSS SECTION

RIVER: San Diego River

REACH: Reach 1 RS: 300

INPUT
Description: Survey Data (June 12, 2014)
Manning's coefficients are derived
from the Corrected Effective Model.
Station Elevation Data num= 491

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 363.62 | 3.76 | 364.84 | 6.33 | 365.19 | 12.17 | 365.6 | 20.43 | 366.25 |
| 26.94 | 366.72 | 32.09 | 367.16 | 34.66 | 367.3 | 39.81 | 367.77 | 42.39 | 367.38 |
| 44.96 | 364.93 | 47.54 | 363.01 | 50.11 | 362 | 55.53 | 359.5 | 60.42 | 356.51 |
| 65.57 | 352.38 | 68.14 | 350.81 | 72.05 | 348.73 | 75.87 | 346.52 | 80.31 | 343.61 |
| 83.59 | 341.76 | 86.17 | 339.91 | 88.74 | 338.43 | 91.32 | 337.12 | 93.89 | 335.58 |
| 99.05 | 332.11 | 101.62 | 330.56 | 106.77 | 327.26 | 109.21 | 325.76 | 111.92 | 323.95 |
| 114.5 | 322.72 | 117.07 | 321.83 | 119.65 | 321.5 | 124.8 | 321.55 | 135.1 | 321.78 |
| 138.12 | 321.9 | 147.98 | 322.08 | 155.7 | 322.12 | 158.28 | 322.25 | 160.85 | 322.06 |
| 166 | 320.39 | 168.58 | 319.77 | 171.15 | 319.37 | 176.31 | 319.45 | 181.47 | 319.31 |
| 184.03 | 319.33 | 189.18 | 319.17 | 195.93 | 318.67 | 200.06 | 318.45 | 204.19 | 318.46 |
| 207.21 | 318.71 | 214.93 | 318.96 | 217.51 | 318.94 | 220.09 | 318.77 | 225.24 | 318.77 |
| 227.81 | 318.61 | 235.54 | 318.54 | 245.48 | 318.5 | 248.41 | 318.58 | 256.14 | 318.49 |
| 275.26 | 318.38 | 279.32 | 318.42 | 287.04 | 318.18 | 292.97 | 318.17 | 299.92 | 318.06 |
| 302.5 | 317.97 | 305.07 | 318.04 | 307.65 | 317.92 | 315.37 | 317.92 | 320.52 | 318.23 |
| 323.1 | 318.31 | 328.25 | 318.71 | 330.13 | 318.36 | 335.98 | 317.51 | 341.13 | 316.98 |
| 346.28 | 316.88 | 348.85 | 316.63 | 354 | 315.94 | 356.58 | 315.74 | 359.15 | 315.88 |
| 363.17 | 315.29 | 366.88 | 314.59 | 369.36 | 314.38 | 374.61 | 314.2 | 377.62 | 313.77 |
| 382.33 | 313.67 | 384.91 | 313.92 | 387.48 | 314.64 | 389.8 | 315.46 | 392.63 | 316.03 |
| 397.78 | 315.67 | 400.21 | 315.24 | 404.46 | 313.99 | 408.08 | 313.32 | 413.24 | 313.4 |
| 415.81 | 313.3 | 418.39 | 312.84 | 420.96 | 312.63 | 426.11 | 312.48 | 428.69 | 312.23 |
| 431.3 | 311.32 | 436.41 | 311.42 | 438.99 | 311.65 | 441.86 | 311.75 | 446.9 | 311.71 |
| 449.29 | 311.66 | 457.02 | 312.95 | 462.17 | 312.74 | 464.74 | 312.87 | 472.47 | 312.76 |
| 474.66 | 312.02 | 477.62 | 311.19 | 480.19 | 310.81 | 482.77 | 310.71 | 485.34 | 310.74 |
| 487.92 | 310.25 | 490.5 | 309.47 | 493.07 | 308.37 | 497.37 | 306.9 | 498.22 | 306.71 |
| 503.56 | 306.78 | 507.69 | 306.68 | 511.1 | 306.43 | 515.95 | 305.62 | 518.02 | 305.57 |
| 523.97 | 306.06 | 526.55 | 306.1 | 529.13 | 306.76 | 532.47 | 307.96 | 534.53 | 308.52 |
| 539.43 | 308.82 | 544.58 | 308.81 | 547.15 | 308.94 | 549.73 | 308.86 | 552.3 | 308.93 |
| 554.88 | 309.25 | 560.03 | 309.64 | 570.33 | 311.01 | 572.91 | 311.66 | 578.06 | 312.75 |
| 583.21 | 314 | 614.11 | 314 | 615.06 | 313.79 | 617.12 | 313.07 | 619.26 | 312.59 |
| 621.84 | 312.43 | 624.41 | 312.44 | 632.14 | 313.33 | 634.71 | 313.46 | 639.86 | 313.31 |
| 647.59 | 312.87 | 652.74 | 312.41 | 660.47 | 311.88 | 668.19 | 311.43 | 686.22 | 310.67 |
| 701.77 | 310.19 | 711.97 | 309.81 | 717.12 | 309.58 | 727.43 | 309.51 | 732.58 | 309.4 |
| 737.73 | 309.12 | 742.88 | 308.93 | 750.6 | 308.75 | 758.33 | 308.29 | 765.78 | 308.03 |
| 771.21 | 308.03 | 776.36 | 308.34 | 784.08 | 309.38 | 791.81 | 310.2 | 794.38 | 310.42 |
| 799.54 | 310.55 | 807.26 | 310.29 | 809.84 | 310.27 | 817.56 | 310.06 | 822.71 | 310.06 |
| 825.65 | 310.18 | 833.01 | 310.65 | 840.1 | 310.62 | 845.89 | 310.41 | 850.43 | 310.47 |
| 853.62 | 310.76 | 856.62 | 311.15 | 861.34 | 311.52 | 866.49 | 311.52 | 871.64 | 311 |
| 876.8 | 310.12 | 884.52 | 309.81 | 889.67 | 309.53 | 895.85 | 309.43 | 897.92 | 309.46 |
| 907.7 | 310.04 | 910.27 | 310 | 915.43 | 309.75 | 920.58 | 309.22 | 925.73 | 308.8 |
| 930.88 | 308.25 | 936.03 | 308.48 | 941.18 | 309.08 | 946.33 | 308.58 | 953.66 | 308.29 |
| 961.78 | 308.34 | 970.18 | 308.32 | 972.08 | 308.39 | 974.31 | 308.66 | 977.23 | 309.39 |
| 979.81 | 310.3 | 982.57 | 310.99 | 984.63 | 311.28 | 987.53 | 311.43 | 995.26 | 311.18 |
| 1002.99 | 311.03 | 1010.71 | 310.97 | 1021.01 | 310.56 | 1031.32 | 310.39 | 1036.47 | 310.5 |
| 1041.62 | 310.54 | 1048.64 | 310.81 | 1069.95 | 312.11 | 1075.1 | 312.32 | 1077.67 | 312.49 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1085.4 | 312.76 | 1093.12 | 312.9 | 1098.27 | 313.24 | 1103.42 | 313.89 | 1108.58 | 314.84 |
| 1113.73 | 315.96 | 1118.84 | 317.2 | 1121.45 | 317.75 | 1124.03 | 318.1 | 1126.6 | 318.3 |
| 1129.08 | 318.34 | 1131.75 | 317.95 | 1134.33 | 317.14 | 1139.49 | 315.87 | 1142.05 | 315.1 |
| 1147.2 | 313.33 | 1149.81 | 312.69 | 1152.36 | 312.2 | 1154.93 | 311.96 | 1160.08 | 311.75 |
| 1162.66 | 311.8 | 1165.23 | 312 | 1170.38 | 312.57 | 1172.96 | 312.39 | 1178.11 | 310.93 |
| 1181.14 | 310.24 | 1185.83 | 309.33 | 1189.03 | 309.1 | 1193.16 | 308.92 | 1196.14 | 308.88 |
| 1201.29 | 309 | 1206.44 | 309.38 | 1211.59 | 310.41 | 1215.87 | 311.48 | 1219.31 | 312.22 |
| 1224.13 | 312.88 | 1227.04 | 313.06 | 1232.19 | 313.06 | 1237.34 | 312.85 | 1242.49 | 312.52 |
| 1253.04 | 311.62 | 1257.17 | 311.5 | 1263.09 | 311.41 | 1275.97 | 311.53 | 1283.7 | 311.71 |
| 1291.42 | 312.08 | 1296.57 | 312.38 | 1309.45 | 313.02 | 1317.18 | 313.56 | 1324.9 | 314.16 |
| 1330.05 | 314.39 | 1337.93 | 314.27 | 1342.93 | 314 | 1345.51 | 313.74 | 1350.66 | 313.55 |
| 1353.23 | 313.53 | 1358.38 | 313.81 | 1360.96 | 314.38 | 1363.53 | 315.25 | 1366.11 | 316.43 |
| 1368.68 | 317.47 | 1371.26 | 318.15 | 1373.83 | 318.61 | 1376.41 | 318.56 | 1378.98 | 318.19 |
| 1384.14 | 317.14 | 1389.29 | 316.22 | 1394.44 | 315.51 | 1399.59 | 314.91 | 1404.74 | 314.07 |
| 1407.89 | 313.65 | 1412.02 | 313.43 | 1416.15 | 313.4 | 1422.34 | 313.24 | 1425.34 | 313.25 |
| 1430.49 | 313.69 | 1435.64 | 314.75 | 1445.94 | 317.43 | 1451.25 | 318.44 | 1456.24 | 319.14 |
| 1461.4 | 319.71 | 1469.12 | 319.94 | 1471.7 | 319.96 | 1476.85 | 319.81 | 1482 | 319.49 |
| 1487.15 | 319.28 | 1489.72 | 318.82 | 1492.3 | 318.01 | 1494.87 | 316.38 | 1497.45 | 315.02 |
| 1500.03 | 314.53 | 1502.6 | 314.32 | 1507.75 | 314.3 | 1512.9 | 314.57 | 1515.48 | 314.37 |
| 1518.05 | 313.94 | 1523.2 | 312.87 | 1525.78 | 312.52 | 1530.93 | 312.11 | 1536.08 | 311.99 |
| 1541.23 | 312.03 | 1546.38 | 312.22 | 1562.74 | 313.39 | 1566.98 | 313.66 | 1575.13 | 313.93 |
| 1590.16 | 314.01 | 1597.89 | 313.94 | 1605.61 | 313.76 | 1610.76 | 313.55 | 1618.49 | 313.31 |
| 1628.81 | 312.87 | 1631.37 | 312.81 | 1639.09 | 312.44 | 1644.24 | 312.36 | 1651.97 | 312.58 |
| 1657.12 | 312.82 | 1659.7 | 312.87 | 1662.27 | 312.61 | 1667.42 | 311.59 | 1670 | 311.19 |
| 1672.57 | 310.97 | 1680.3 | 310.75 | 1688.02 | 310.7 | 1693.18 | 310.84 | 1706.05 | 311.08 |
| 1708.63 | 311.2 | 1713.78 | 311.28 | 1726.65 | 311.56 | 1729.23 | 311.72 | 1734.11 | 311.86 |
| 1747.26 | 311.99 | 1752.41 | 312.11 | 1754.98 | 312.27 | 1757.56 | 312.67 | 1760.95 | 313.44 |
| 1765.28 | 314.53 | 1773.01 | 313.88 | 1780.74 | 313.91 | 1785.89 | 314.06 | 1791.04 | 314.37 |
| 1796.05 | 314.74 | 1798.76 | 314.86 | 1803.91 | 314.91 | 1809.07 | 314.62 | 1812.56 | 313.82 |
| 1814.63 | 313.23 | 1816.69 | 312.92 | 1818.76 | 312.06 | 1821.94 | 310.94 | 1827.09 | 310.43 |
| 1832.24 | 310.14 | 1837.39 | 310.09 | 1847.66 | 310.19 | 1852.85 | 310.53 | 1860.57 | 310.79 |
| 1868.3 | 310.56 | 1876.02 | 310.65 | 1878.6 | 310.85 | 1883.75 | 311.93 | 1888.9 | 311.87 |
| 1896.63 | 312.01 | 1901.78 | 312.82 | 1904.35 | 313.81 | 1909.5 | 315.61 | 1913.73 | 316.89 |
| 1917.8 | 318.441 | 1922.38 | 319.25 | 1935.26 | 320.39 | 1940.41 | 320.73 | 1948.13 | 321.38 |
| 1953.28 | 321.54 | 1961.01 | 321.22 | 1973.89 | 321.04 | 1981.87 | 320.99 | 1989.34 | 321.03 |
| 1999.64 | 321.39 | 2007.37 | 321.46 | 2009.94 | 321.34 | 2017.67 | 320.74 | 2027.97 | 320.31 |
| 2033.48 | 320.3 | 2043.42 | 320.87 | 2048.57 | 321.05 | 2064.45 | 321.34 | 2069.17 | 321.37 |
| 2074.32 | 321.31 | 2082.05 | 321.01 | 2087.2 | 320.91 | 2097.52 | 320.87 | 2101.62 | 320.74 |
| 2105.23 | 320.49 | 2107.8 | 320.16 | 2118.26 | 318.07 | 2120.68 | 317.66 | 2123.26 | 317.36 |
| 2126.4 | 317.16 | 2130.98 | 316.73 | 2140.85 | 316.14 | 2149.11 | 315.88 | 2151.58 | 315.87 |
| 2159.43 | 316.26 | 2164.46 | 316.76 | 2169.61 | 317.49 | 2174.76 | 318 | 2177.34 | 318.17 |
| 2182.49 | 318.37 | 2188.34 | 318.49 | 2196.59 | 318.47 | 2210.82 | 318.49 | 2228.84 | 318.99 |
| 2239.15 | 318.98 | 2241.72 | 318.92 | 2246.87 | 319.09 | 2252.34 | 319.17 | 2254.6 | 319.27 |
| 2260.6 | 319.7 | 2267.47 | 320.57 | 2270.05 | 320.63 | 2280.35 | 320.54 | 2285.5 | 320.66 |
| 2288.08 | 320.64 | 2293.63 | 320.86 | 2306.1 | 321.19 | 2316.34 | 321.41 | 2318.41 | 321.36 |
| 2324.13 | 321.4 | 2331.86 | 321.27 | 2342.16 | 320.97 | 2347.31 | 320.97 | 2349.88 | 321.09 |
| 2355.04 | 321.62 | 2362.76 | 322.83 | 2367.91 | 323.35 | 2375.64 | 323.58 | 2378.21 | 323.57 |
| 2383.36 | 323.35 | 2386.54 | 323.12 | 2393.67 | 322.88 | 2396.24 | 322.93 | 2398.93 | 323.22 |
| 2401.39 | 323.28 | 2403.97 | 323.5 | 2406.54 | 323.92 | 2409.12 | 324.87 | 2420.22 | 325.5 |
| 2421.99 | 325.53 | 2424.57 | 325.38 | 2432.3 | 325.32 | 2434.87 | 325.43 | 2442.29 | 325.29 |
| 2447.75 | 325.29 | 2454.68 | 325.44 | 2460.87 | 325.47 | 2468.35 | 325.44 | 2473.5 | 325.53 |
| 2483.8 | 325.03 | 2489.78 | 325.09 | 2493.91 | 325.34 | 2500.1 | 324.98 | 2509.56 | 324.93 |

```
 2514.55  325.21 2517.28  325.18 2519.86  325.37 2522.81  325.93 2525.01  326.07
 2527.58  325.84 2529.01  325.56 2532.73  324.57 2535.31  324.28 2543.03  323.89
 2549.37  324.09

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .05   446.9     .06  1917.8     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         446.9  1917.8              790     654     605             .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
       0       0               F
```

CROSS SECTION OUTPUT  Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 318.15 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.26 | Wt. n-Val. | 0.050 | 0.060 | 0.050 |
| W.S. Elev (ft) | 317.90 | Reach Len. (ft) | 790.00 | 654.00 | 605.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 405.30 | 8652.98 | 68.63 |
| E.G. Slope (ft/ft) | 0.002457 | Area (sq ft) | 405.30 | 8652.98 | 68.63 |
| Q Total (cfs) | 37000.00 | Flow (cfs) | 1385.14 | 35497.14 | 117.72 |
| Top Width (ft) | 1573.83 | Top Width (ft) | 113.57 | 1405.84 | 54.42 |
| Vel Total (ft/s) | 4.05 | Avg. Vel. (ft/s) | 3.42 | 4.10 | 1.72 |
| Max Chl Dpth (ft) | 12.33 | Hydr. Depth (ft) | 3.57 | 6.16 | 1.26 |
| Conv. Total (cfs) | 746491.1 | Conv. (cfs) | 27945.7 | 716170.3 | 2375.0 |
| Length Wtd. (ft) | 656.47 | Wetted Per. (ft) | 114.68 | 1416.30 | 54.61 |
| Min Ch El (ft) | 305.57 | Shear (lb/sq ft) | 0.54 | 0.94 | 0.19 |
| Alpha | 1.01 | Stream Power (lb/ft s) | 1.85 | 3.84 | 0.33 |
| Frctn Loss (ft) | 1.39 | Cum Volume (acre-ft) | 34.54 | 1218.68 | 218.97 |
| C & E Loss (ft) | 0.02 | Cum SA (acres) | 13.54 | 143.11 | 38.79 |

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

CROSS SECTION OUTPUT  Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 318.35 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.26 | Wt. n-Val. | 0.050 | 0.060 | |
| W.S. Elev (ft) | 318.09 | Reach Len. (ft) | 790.00 | 654.00 | 605.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 81.37 | 8893.46 | |
| E.G. Slope (ft/ft) | 0.002389 | Area (sq ft) | 81.37 | 8893.46 | |
| Q Total (cfs) | 37000.00 | Flow (cfs) | 308.27 | 36691.73 | |
| Top Width (ft) | 1411.95 | Top Width (ft) | 12.60 | 1399.35 | |
| Vel Total (ft/s) | 4.12 | Avg. Vel. (ft/s) | 3.79 | 4.13 | |
| Max Chl Dpth (ft) | 12.52 | Hydr. Depth (ft) | 6.46 | 6.36 | |
| Conv. Total (cfs) | 756923.8 | Conv. (cfs) | 6306.3 | 750617.4 | |
| Length Wtd. (ft) | 654.57 | Wetted Per. (ft) | 19.32 | 1413.56 | |
| Min Ch El (ft) | 305.57 | Shear (lb/sq ft) | 0.63 | 0.94 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | 2.38 | 3.87 | |

| | | | | | |
|---|---|---|---|---|---|
| Frctn Loss (ft) | 1.27 | Cum Volume (acre-ft) | 13.25 | 1259.68 | 68.13 |
| C & E Loss (ft) | 0.02 | Cum SA (acres) | 1.77 | 137.66 | 9.11 |

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

CROSS SECTION OUTPUT Profile #PF 3

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 319.59 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.29 | Wt. n-Val. | 0.050 | 0.060 | 0.050 |
| W.S. Elev (ft) | 319.30 | Reach Len. (ft) | 790.00 | 654.00 | 605.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 688.51 | 10652.70 | 201.98 |
| E.G. Slope (ft/ft) | 0.002211 | Area (sq ft) | 688.51 | 10652.70 | 201.98 |
| Q Total (cfs) | 49000.00 | Flow (cfs) | 1827.44 | 46822.04 | 350.51 |
| Top Width (ft) | 1851.52 | Top Width (ft) | 261.78 | 1441.80 | 147.94 |
| Vel Total (ft/s) | 4.24 | Avg. Vel. (ft/s) | 2.65 | 4.40 | 1.74 |
| Max Chl Dpth (ft) | 13.73 | Hydr. Depth (ft) | 2.63 | 7.39 | 1.37 |
| Conv. Total (cfs) | 1042016.0 | Conv. (cfs) | 38861.8 | 995700.4 | 7453.9 |
| Length Wtd. (ft) | 656.36 | Wetted Per. (ft) | 263.05 | 1452.86 | 148.37 |
| Min Ch El (ft) | 305.57 | Shear (lb/sq ft) | 0.36 | 1.01 | 0.19 |
| Alpha | 1.04 | Stream Power (lb/ft s) | 0.96 | 4.45 | 0.33 |
| Frctn Loss (ft) | 1.22 | Cum Volume (acre-ft) | 76.81 | 1531.56 | 382.03 |
| C & E Loss (ft) | 0.02 | Cum SA (acres) | 20.61 | 144.02 | 44.40 |

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

CROSS SECTION OUTPUT Profile #PF 4

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 313.06 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.07 | Wt. n-Val. | 0.050 | 0.060 | |
| W.S. Elev (ft) | 312.99 | Reach Len. (ft) | 790.00 | 654.00 | 605.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 29.71 | 2298.79 | |
| E.G. Slope (ft/ft) | 0.002507 | Area (sq ft) | 29.71 | 2298.79 | |
| Q Total (cfs) | 5000.00 | Flow (cfs) | 44.38 | 4955.62 | |
| Top Width (ft) | 1027.09 | Top Width (ft) | 29.32 | 997.77 | |
| Vel Total (ft/s) | 2.15 | Avg. Vel. (ft/s) | 1.49 | 2.16 | |
| Max Chl Dpth (ft) | 7.42 | Hydr. Depth (ft) | 1.01 | 2.30 | |
| Conv. Total (cfs) | 99865.7 | Conv. (cfs) | 886.4 | 98979.3 | |
| Length Wtd. (ft) | 654.60 | Wetted Per. (ft) | 29.53 | 1002.76 | |
| Min Ch El (ft) | 305.57 | Shear (lb/sq ft) | 0.16 | 0.36 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | 0.24 | 0.77 | |
| Frctn Loss (ft) | 1.95 | Cum Volume (acre-ft) | 2.44 | 391.27 | 94.88 |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 1.87 | 123.18 | 28.33 |

Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate

the need for additional cross sections.

CROSS SECTION OUTPUT  Profile #PF 5

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 315.47 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.16 | Wt. n-Val. | 0.050 | 0.060 | |
| W.S. Elev (ft) | 315.31 | Reach Len. (ft) | 790.00 | 654.00 | 605.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 152.89 | 5097.23 | |
| E.G. Slope (ft/ft) | 0.002922 | Area (sq ft) | 152.89 | 5097.23 | |
| Q Total (cfs) | 17000.00 | Flow (cfs) | 430.08 | 16569.92 | |
| Top Width (ft) | 1412.77 | Top Width (ft) | 73.36 | 1339.41 | |
| Vel Total (ft/s) | 3.24 | Avg. Vel. (ft/s) | 2.81 | 3.25 | |
| Max Chl Dpth (ft) | 9.74 | Hydr. Depth (ft) | 2.08 | 3.81 | |
| Conv. Total (cfs) | 314488.4 | Conv. (cfs) | 7956.2 | 306532.2 | |
| Length Wtd. (ft) | 655.72 | Wetted Per. (ft) | 74.18 | 1347.06 | |
| Min Ch El (ft) | 305.57 | Shear (lb/sq ft) | 0.38 | 0.69 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | 1.06 | 2.24 | |
| Frctn Loss (ft) | 1.88 | Cum Volume (acre-ft) | 8.57 | 771.03 | 137.59 |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 3.44 | 139.17 | 33.12 |

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

CROSS SECTION

RIVER: San Diego River
REACH: Reach 1  RS: 290

INPUT
Description: Survey Data (June 12, 2014)
 Manning's coefficients are derived
 from the Corrected Effective Model.
Station Elevation Data  num=  492

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 334.95 | 2.48 | 334.94 | 5.04 | 335.09 | 10.15 | 335.25 | 20.39 | 335.69 |
| 25.51 | 335.81 | 35.74 | 335.7 | 41.9 | 335.452 | 43.42 | 335.38 | 45.98 | 335.47 |
| 51.09 | 335.9 | 56.33 | 336.67 | 60.43 | 336.96 | 63.89 | 337.26 | 66.45 | 337.41 |
| 71.56 | 337.81 | 74.12 | 337.94 | 81.44 | 338.2 | 89.48 | 338.53 | 92.03 | 338.56 |
| 97.15 | 338.81 | 102.27 | 339.01 | 107.39 | 339.11 | 109.95 | 339.21 | 117.15 | 339.36 |
| 122.74 | 339.56 | 128.18 | 339.82 | 140.65 | 340.22 | 145.77 | 340.31 | 150.89 | 340.5 |
| 156 | 340.81 | 158.56 | 340.56 | 161.12 | 339.73 | 163.68 | 338.65 | 168.8 | 336.4 |
| 171.36 | 335.41 | 176.47 | 333.21 | 184.15 | 330.13 | 188.57 | 328.73 | 194.39 | 326.74 |
| 199.07 | 325.3 | 202.06 | 324.25 | 204.62 | 323.54 | 207.18 | 323.31 | 212.3 | 323.54 |
| 217.41 | 323.5 | 224.28 | 323.38 | 230.21 | 323.22 | 235.33 | 323.36 | 236.17 | 322.59 |
| 236.88 | 322.23 | 237.88 | 321.09 | 240.44 | 315.58 | 243 | 310.28 | 244.02 | 310.18 |
| 248.12 | 310.78 | 250.68 | 310.8 | 255.8 | 310.47 | 258.35 | 310.5 | 260.91 | 310.35 |
| 263.47 | 310.32 | 266.29 | 310.62 | 271.15 | 310.77 | 276.27 | 311.11 | 281.38 | 311.08 |
| 291.62 | 310.71 | 296.74 | 310.61 | 299.3 | 310.74 | 306.97 | 310.61 | 309.53 | 310.42 |
| 312.09 | 310.32 | 314.65 | 310.34 | 317.21 | 310.49 | 319.77 | 310.51 | 324.88 | 309.98 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 330 | 310.01 | 333.51 | 310.26 | 335.12 | 310.45 | 342.79 | 310.23 | 347.91 | 310.25 |
| 353.03 | 310.44 | 360.71 | 310.94 | 365.02 | 311.73 | 368.38 | 311.91 | 370.94 | 311.83 |
| 373.5 | 311.49 | 378.62 | 311.09 | 381.18 | 310.6 | 383.92 | 310.27 | 386.29 | 310.17 |
| 388.85 | 308.91 | 391.41 | 306.63 | 393.97 | 303.15 | 396.53 | 302 | 399.09 | 301.71 |
| 401.65 | 301.92 | 404.21 | 302.6 | 407.03 | 303.05 | 409.32 | 302.93 | 414.44 | 303.16 |
| 415.43 | 303.38 | 419.56 | 304.71 | 422.12 | 305.17 | 427.23 | 306.6 | 429.79 | 307.01 |
| 440.03 | 308.25 | 445.15 | 308.69 | 447.7 | 308.69 | 450.26 | 308.52 | 452.82 | 308.62 |
| 455.38 | 309.64 | 457.94 | 311.68 | 460.5 | 312 | 483.53 | 312 | 486.09 | 311.97 |
| 488.64 | 311.01 | 491.2 | 310.39 | 493.76 | 309.98 | 496.32 | 309.72 | 499.45 | 309.55 |
| 505.75 | 309.28 | 511.68 | 308.9 | 513.68 | 308.84 | 516.8 | 308.86 | 524.63 | 309 |
| 530.93 | 309.03 | 535.12 | 309.1 | 537.28 | 309 | 541.42 | 308.97 | 547.52 | 309.03 |
| 552.64 | 308.92 | 555.2 | 308.96 | 560.31 | 309.16 | 562.4 | 309.29 | 565.43 | 309.58 |
| 570.55 | 309.77 | 573.11 | 309.82 | 580.79 | 309.66 | 588.47 | 309.38 | 593.59 | 309.4 |
| 596.15 | 309.67 | 601.27 | 310.39 | 603.83 | 310.66 | 606.39 | 310.69 | 608.95 | 310.51 |
| 614.07 | 310.32 | 619.19 | 310.37 | 621.75 | 310.49 | 624.31 | 310.78 | 629.55 | 310.85 |
| 634.55 | 311.12 | 637.11 | 311.16 | 642.23 | 311.34 | 647.34 | 311.38 | 652.46 | 311.47 |
| 657.58 | 311.42 | 672.94 | 311.07 | 676.68 | 311.09 | 680.62 | 311.05 | 685.74 | 311.07 |
| 690.86 | 311.15 | 693.42 | 311.14 | 701.1 | 311.34 | 711.34 | 311.5 | 716.46 | 311.45 |
| 728.17 | 311.15 | 731.82 | 310.95 | 734.47 | 310.69 | 739.49 | 310.53 | 744.61 | 310.62 |
| 749.16 | 310.92 | 765.09 | 312.84 | 770.21 | 313.34 | 780.45 | 314.16 | 783.01 | 314.15 |
| 785.57 | 313.99 | 790.69 | 313.48 | 793.25 | 312.9 | 798.37 | 311.37 | 806.05 | 309.57 |
| 811.17 | 308.62 | 816.29 | 308.06 | 818.85 | 307.86 | 821.41 | 307.8 | 828.89 | 307.78 |
| 834.2 | 307.73 | 836.76 | 307.66 | 841.88 | 307.69 | 844.44 | 307.62 | 849.56 | 307.59 |
| 857.24 | 307.33 | 859.8 | 307.31 | 862.36 | 307.4 | 870.04 | 307.78 | 875.16 | 307.96 |
| 880.28 | 308.38 | 882.84 | 308.51 | 898.14 | 308.53 | 903.32 | 308.61 | 911 | 308.67 |
| 917.03 | 308.81 | 923.79 | 308.79 | 926.35 | 308.84 | 928.91 | 308.99 | 931.47 | 309.53 |
| 934.03 | 310.22 | 939.15 | 311.31 | 941.71 | 311.77 | 946.83 | 312.84 | 951.95 | 314.08 |
| 954.51 | 314.76 | 959.63 | 315.75 | 964.75 | 316.81 | 972.43 | 317.94 | 975.78 | 318.4 |
| 979.98 | 318.86 | 982.67 | 319.01 | 985.23 | 318.91 | 990.35 | 318.25 | 995.47 | 317.33 |
| 1000.58 | 316.54 | 1003.14 | 316.07 | 1015.94 | 313.83 | 1021.06 | 313.03 | 1026.14 | 312.4 |
| 1028.74 | 312.15 | 1034.53 | 311.83 | 1036.42 | 311.77 | 1044.1 | 311.84 | 1051.78 | 312.04 |
| 1054.34 | 311.98 | 1059.46 | 311.59 | 1061.81 | 311.28 | 1067.14 | 310.25 | 1074.4 | 308.56 |
| 1077.38 | 307.97 | 1079.94 | 307.6 | 1085.06 | 307.12 | 1090.17 | 306.8 | 1095.29 | 306.63 |
| 1100.41 | 306.56 | 1105.53 | 306.32 | 1108.09 | 306.41 | 1115.77 | 306.91 | 1118.47 | 307 |
| 1126.01 | 307.35 | 1128.57 | 307.57 | 1131.13 | 307.88 | 1133.16 | 308.04 | 1138.81 | 308.25 |
| 1146.49 | 308.28 | 1159.29 | 308.11 | 1172.09 | 308.23 | 1174.65 | 308.35 | 1179.76 | 308.34 |
| 1184.88 | 308.45 | 1192.56 | 308.38 | 1197.68 | 308.29 | 1200.24 | 308.31 | 1210.48 | 308.27 |
| 1215.6 | 308.14 | 1223.28 | 308.12 | 1238.64 | 308 | 1248.88 | 308 | 1259.2 | 308.12 |
| 1266.79 | 308.05 | 1271.91 | 307.96 | 1274.47 | 308.01 | 1282.15 | 307.78 | 1284.71 | 307.77 |
| 1290.53 | 307.83 | 1294.95 | 307.81 | 1305.19 | 308.09 | 1312.87 | 308.34 | 1323.11 | 308.86 |
| 1330.79 | 309.41 | 1335.91 | 309.66 | 1341.03 | 309.72 | 1343.59 | 309.84 | 1349.29 | 310.02 |
| 1356.38 | 310.18 | 1361.88 | 310.19 | 1369.18 | 310.12 | 1374.3 | 310.18 | 1379.42 | 310.47 |
| 1384.96 | 311.01 | 1389.66 | 311.65 | 1394.78 | 312.07 | 1399.9 | 312.15 | 1405.02 | 312.06 |
| 1410.14 | 312.19 | 1412.7 | 312.42 | 1420.38 | 313.23 | 1428.06 | 314.2 | 1433.22 | 314.72 |
| 1435.74 | 314.87 | 1441.62 | 315.34 | 1443.41 | 315.4 | 1448.53 | 314.59 | 1453.65 | 314.03 |
| 1463.89 | 313.17 | 1468.9 | 312.91 | 1474.13 | 312.72 | 1476.69 | 312.67 | 1483.58 | 312.44 |
| 1487.78 | 312.16 | 1489.49 | 311.95 | 1492.05 | 311.36 | 1494.61 | 311.16 | 1497.17 | 310.85 |
| 1499.73 | 310.65 | 1502.47 | 310.7 | 1504.85 | 311.16 | 1507.41 | 311.03 | 1509.97 | 310.8 |
| 1512.53 | 310.71 | 1517.65 | 310.62 | 1522.77 | 310.79 | 1527.89 | 310.54 | 1530.44 | 310.07 |
| 1533 | 309.91 | 1804.33 | 309.91 | 1806.89 | 310.12 | 1812.01 | 311.64 | 1817.13 | 313.47 |
| 1822.25 | 314.57 | 1824.81 | 314.68 | 1829.93 | 315.06 | 1840.17 | 316.02 | 1842.73 | 316.07 |
| 1847.85 | 315.82 | 1850.41 | 315.81 | 1858.09 | 316.45 | 1863.21 | 317.2 | 1872.77 | 319.18 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1876.01 | 319.78 | 1878.08 | 319.92 | 1881.13 | 320.38 | 1884.37 | 320.58 | 1893.92 | 321.1 | | |
| 1896.4 | 321.158 | 1899.04 | 321.22 | 1904.16 | 321.1 | 1909.28 | 320.86 | 1911.84 | 320.62 | | |
| 1916.96 | 320.39 | 1924.24 | 320.39 | 1927.2 | 320.45 | 1932.63 | 320.19 | 1940 | 319.51 | | |
| 1942.56 | 319.42 | 1945.22 | 319.63 | 1949.42 | 320.14 | 1952.8 | 320.48 | 1957.92 | 320.6 | | |
| 1963.04 | 320.95 | 1965.6 | 321.3 | 1968.16 | 321.77 | 1970.72 | 322.43 | 1973.27 | 322.89 | | |
| 1975.83 | 323.1 | 1978.8 | 323.21 | 1982.99 | 323.65 | 1986.07 | 324.19 | 1988.63 | 324.52 | | |
| 1993.75 | 325.28 | 1998.87 | 324.8 | 2001.43 | 324.73 | 2003.98 | 324.82 | 2006.55 | 325.48 | | |
| 2009.11 | 326.02 | 2011.67 | 326.23 | 2014.47 | 326.27 | 2019.35 | 326.03 | 2024.47 | 325.92 | | |
| 2027.03 | 326.06 | 2034.71 | 327 | 2039.83 | 327.86 | 2042.39 | 328.16 | 2045.95 | 328.72 | | |
| 2050.49 | 329.3 | 2057.75 | 330.11 | 2060.3 | 330.23 | 2065.42 | 330.29 | 2073.1 | 330.69 | | |
| 2075.66 | 330.89 | 2078.22 | 331.23 | 2080.78 | 331.66 | 2083.34 | 332.58 | 2085.9 | 333.41 | | |
| 2088.46 | 333.8 | 2091.02 | 334.06 | 2101.26 | 334.56 | 2103.82 | 334.74 | 2108.94 | 334.94 | | |
| 2111.5 | 334.8 | 2126.86 | 334.72 | 2139.66 | 334.78 | 2155.27 | 334.78 | 2157.57 | 334.76 | | |
| 2160.13 | 334.83 | 2162.69 | 335.06 | 2165.25 | 335.54 | 2168.07 | 336.17 | 2169.75 | 336.46 | | |
| 2173.95 | 337.71 | 2178.14 | 338.65 | 2180.61 | 338.75 | 2183.17 | 338.48 | 2186.54 | 337.93 | | |
| 2188.63 | 337.76 | 2190.85 | 337.68 | 2193.41 | 337.7 | 2195.97 | 337.81 | 2201.22 | 338.26 | | |
| 2206.21 | 338.4 | 2211.33 | 338.63 | 2216.45 | 338.98 | 2228.5 | 339.53 | 2230.6 | 339.71 | | |
| 2232.7 | 339.99 | 2236.92 | 340.69 | 2238.99 | 340.81 | 2247.16 | 341.05 | 2249.72 | 341.23 | | |
| 2252.28 | 341.3 | 2259.98 | 341.19 | 2262.52 | 341.27 | 2267.64 | 341.28 | 2275.32 | 341.45 | | |
| 2277.88 | 341.64 | 2283 | 341.62 | 2285.56 | 341.73 | 2290.68 | 341.81 | 2293.24 | 341.92 | | |
| 2300.92 | 342.05 | 2303.48 | 342.16 | 2311.16 | 342.34 | 2313.72 | 342.43 | 2321.4 | 342.58 | | |
| 2336.75 | 343.05 | 2346.99 | 343.25 | 2352.11 | 343.24 | 2359.79 | 343.48 | 2367.47 | 343.55 | | |
| 2375.15 | 343.77 | 2385.39 | 344.13 | 2393.07 | 344.32 | 2395.63 | 344.42 | 2398.19 | 344.43 | | |
| 2403.31 | 344.55 | 2408.43 | 344.77 | 2413.54 | 344.83 | 2416.1 | 344.96 | 2421.22 | 345.05 | | |
| 2423.78 | 345.04 | 2426.34 | 345.17 | 2431.46 | 345.61 | 2436.58 | 346.17 | 2441.7 | 346.51 | | |
| 2446.82 | 346.75 | 2449.38 | 346.92 | 2454.5 | 347.44 | 2464.74 | 349.03 | 2467.3 | 349.33 | | |
| 2472.42 | 349.63 | 2474.98 | 349.73 | 2485.22 | 349.91 | 2490.34 | 350.05 | 2495.46 | 349.81 | | |
| 2498.02 | 349.95 | 2500.57 | 350.54 | 2505.69 | 350.77 | 2518.49 | 350.65 | 2528.73 | 350.5 | | |
| 2533.85 | 350.28 | 2536.41 | 350.24 | 2539.06 | 350.35 | 2547.45 | 350.55 | 2551.77 | 350.69 | | |
| 2554.33 | 350.37 | 2556.89 | 349.95 | 2562.14 | 349.27 | 2567.13 | 348.72 | 2572.25 | 348.68 | | |
| 2574.73 | 348.48 | 2577.37 | 348.37 | 2585.05 | 348.43 | 2592.72 | 348.59 | 2595.28 | 348.57 | | |
| 2602.96 | 348.64 | 2607.9 | 348.59 | | | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .05 | 41.9 | .06 | 1896.4 | .05 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 41.9 | 1896.4 | 695 | 653 | 645 .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | | |
|---|---|---|---|---|---|---|
| E.G. Elev (ft) | 316.75 | Element | Left OB | Channel | Right OB | |
| Vel Head (ft) | 0.21 | Wt. n-Val. | | 0.060 | | |
| W.S. Elev (ft) | 316.54 | Reach Len. (ft) | 695.00 | 653.00 | 645.00 | |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 10129.69 | | |
| E.G. Slope (ft/ft) | 0.001850 | Area (sq ft) | | 10129.69 | | |
| Q Total (cfs) | 37000.00 | Flow (cfs) | | 37000.00 | | |
| Top Width (ft) | 1581.55 | Top Width (ft) | | 1581.55 | | |
| Vel Total (ft/s) | 3.65 | Avg. Vel. (ft/s) | | 3.65 | | |
| Max Chl Dpth (ft) | 14.83 | Hydr. Depth (ft) | | 6.40 | | |
| Conv. Total (cfs) | 860216.9 | Conv. (cfs) | | 860216.9 | | |

| | | | | | |
|---|---|---|---|---|---|
| Length Wtd. (ft) | 653.08 | Wetted Per. (ft) | | 1595.31 | |
| Min Ch El (ft) | 301.71 | Shear (lb/sq ft) | | 0.73 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 2.68 | |
| Frctn Loss (ft) | 0.89 | Cum Volume (acre-ft) | 30.87 | 1077.68 | 218.49 |
| C & E Loss (ft) | 0.02 | Cum SA (acres) | 12.51 | 120.68 | 38.41 |

Warning: Divided flow computed for this cross-section.

CROSS SECTION OUTPUT  Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 317.06 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.20 | Wt. n-Val. | | 0.060 | |
| W.S. Elev (ft) | 316.86 | Reach Len. (ft) | 695.00 | 653.00 | 645.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 10438.97 | |
| E.G. Slope (ft/ft) | 0.001615 | Area (sq ft) | | 10438.97 | |
| Q Total (cfs) | 37000.00 | Flow (cfs) | | 37000.00 | |
| Top Width (ft) | 1536.58 | Top Width (ft) | | 1536.58 | |
| Vel Total (ft/s) | 3.54 | Avg. Vel. (ft/s) | | 3.54 | |
| Max Chl Dpth (ft) | 15.15 | Hydr. Depth (ft) | | 6.79 | |
| Conv. Total (cfs) | 920678.1 | Conv. (cfs) | | 920678.1 | |
| Length Wtd. (ft) | 653.00 | Wetted Per. (ft) | | 1553.28 | |
| Min Ch El (ft) | 301.71 | Shear (lb/sq ft) | | 0.68 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 2.40 | |
| Frctn Loss (ft) | 0.78 | Cum Volume (acre-ft) | 12.51 | 1114.56 | 68.13 |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 1.65 | 115.62 | 9.11 |

Warning: Divided flow computed for this cross-section.

CROSS SECTION OUTPUT  Profile #PF 3

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 318.35 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.23 | Wt. n-Val. | | 0.060 | |
| W.S. Elev (ft) | 318.12 | Reach Len. (ft) | 695.00 | 653.00 | 645.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 12646.59 | |
| E.G. Slope (ft/ft) | 0.001589 | Area (sq ft) | | 12646.59 | |
| Q Total (cfs) | 49000.00 | Flow (cfs) | | 49000.00 | |
| Top Width (ft) | 1610.97 | Top Width (ft) | | 1610.97 | |
| Vel Total (ft/s) | 3.87 | Avg. Vel. (ft/s) | | 3.87 | |
| Max Chl Dpth (ft) | 16.40 | Hydr. Depth (ft) | | 7.85 | |
| Conv. Total (cfs) | 1229409.0 | Conv. (cfs) | | 1229409.0 | |
| Length Wtd. (ft) | 653.12 | Wetted Per. (ft) | | 1626.13 | |
| Min Ch El (ft) | 301.71 | Shear (lb/sq ft) | | 0.77 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 2.99 | |
| Frctn Loss (ft) | 0.79 | Cum Volume (acre-ft) | 70.57 | 1356.65 | 380.63 |
| C & E Loss (ft) | 0.02 | Cum SA (acres) | 18.24 | 121.10 | 43.37 |

Warning: Divided flow computed for this cross-section.

CROSS SECTION OUTPUT  Profile #PF 4

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 311.11 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.08 | Wt. n-Val. | | 0.060 | |
| W.S. Elev (ft) | 311.03 | Reach Len. (ft) | 695.00 | 653.00 | 645.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 2178.53 | |
| E.G. Slope (ft/ft) | 0.003583 | Area (sq ft) | | 2178.53 | |
| Q Total (cfs) | 5000.00 | Flow (cfs) | | 5000.00 | |
| Top Width (ft) | 1123.68 | Top Width (ft) | | 1123.68 | |
| Vel Total (ft/s) | 2.30 | Avg. Vel. (ft/s) | | 2.30 | |
| Max Chl Dpth (ft) | 9.32 | Hydr. Depth (ft) | | 1.94 | |
| Conv. Total (cfs) | 83535.7 | Conv. (cfs) | | 83535.7 | |
| Length Wtd. (ft) | 653.00 | Wetted Per. (ft) | | 1130.76 | |
| Min Ch El (ft) | 301.71 | Shear (lb/sq ft) | | 0.43 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 0.99 | |
| Frctn Loss (ft) | 1.86 | Cum Volume (acre-ft) | 2.17 | 357.66 | 94.88 |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 1.60 | 107.26 | 28.33 |

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

CROSS SECTION OUTPUT Profile #PF 5

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 313.59 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.15 | Wt. n-Val. | | 0.060 | |
| W.S. Elev (ft) | 313.43 | Reach Len. (ft) | 695.00 | 653.00 | 645.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 5401.58 | |
| E.G. Slope (ft/ft) | 0.002819 | Area (sq ft) | | 5401.58 | |
| Q Total (cfs) | 17000.00 | Flow (cfs) | | 17000.00 | |
| Top Width (ft) | 1448.06 | Top Width (ft) | | 1448.06 | |
| Vel Total (ft/s) | 3.15 | Avg. Vel. (ft/s) | | 3.15 | |
| Max Chl Dpth (ft) | 11.72 | Hydr. Depth (ft) | | 3.73 | |
| Conv. Total (cfs) | 320178.2 | Conv. (cfs) | | 320178.2 | |
| Length Wtd. (ft) | 653.00 | Wetted Per. (ft) | | 1458.75 | |
| Min Ch El (ft) | 301.71 | Shear (lb/sq ft) | | 0.65 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 2.05 | |
| Frctn Loss (ft) | 1.30 | Cum Volume (acre-ft) | 7.18 | 692.22 | 137.59 |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 2.78 | 118.24 | 33.12 |

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

CROSS SECTION

RIVER: San Diego River
REACH: Reach 1 RS: 285

INPUT

Description: Survey Data (June 12, 2014)
 Manning's coefficients are derived
            from the Corrected Effective Model.
Station Elevation Data    num=     492

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 328.08 | 5.36 | 327.9 | 13.04 | 327.81 | 20.42 | 327.63 | 23.27 | 327.6 |
| 28.38 | 327.65 | 30.94 | 327.84 | 33.5 | 327.9 | 38.61 | 327.34 | 41.17 | 327.22 |
| 46.29 | 327.12 | 48.84 | 327.33 | 51.4 | 328.1 | 53.96 | 329.12 | 59.07 | 331.78 |
| 61.63 | 332.78 | 64.19 | 333.33 | 66.75 | 333 | 69.31 | 332.31 | 71.86 | 331.37 |
| 77.21 | 329.64 | 82.09 | 329.24 | 87.21 | 328.96 | 89.77 | 328.87 | 92.32 | 328.68 |
| 102.55 | 328.29 | 106.66 | 328.39 | 115.77 | 328.51 | 120.46 | 328.52 | 123.48 | 328.64 |
| 128.13 | 328.69 | 138.36 | 328.65 | 143.48 | 328.56 | 148.59 | 328.31 | 151.15 | 328.11 |
| 153.71 | 327.31 | 157.14 | 326 | 161.38 | 324.5 | 163.94 | 323.95 | 166.5 | 323.71 |
| 171.61 | 324.68 | 173.96 | 324.96 | 176.73 | 325.48 | 179.28 | 326.21 | 182.38 | 326.23 |
| 189.52 | 325.81 | 194.63 | 326.06 | 199.75 | 326.21 | 202.3 | 326.22 | 207.42 | 326.35 |
| 212.53 | 326.41 | 217.65 | 326.53 | 220.21 | 326.53 | 222.76 | 326.65 | 233 | 326.81 |
| 238.11 | 326.66 | 245.48 | 325.93 | 250.9 | 325.66 | 256.01 | 325.19 | 261.13 | 325.05 |
| 263.69 | 325.11 | 271.36 | 325.71 | 284.15 | 326.54 | 289.26 | 326.57 | 298.06 | 326.29 |
| 307.17 | 326.12 | 312.28 | 326.1 | 314.84 | 326.03 | 325.07 | 326.01 | 330.19 | 325.92 |
| 337.86 | 325.69 | 342.97 | 325.48 | 348.09 | 325.74 | 350.65 | 325.97 | 353.21 | 326.01 |
| 355.76 | 325.58 | 358.32 | 324.9 | 360.88 | 323.82 | 365.99 | 322.04 | 368.55 | 321.48 |
| 371.11 | 321.19 | 373.67 | 321.59 | 381.34 | 323.66 | 383.9 | 323.9 | 391.57 | 324.11 |
| 399.24 | 324 | 406.92 | 323.76 | 411.64 | 323.5 | 414.59 | 323.41 | 417.15 | 323.71 |
| 419.7 | 324.46 | 422.26 | 323.7 | 427.38 | 320.83 | 430.57 | 318.08 | 432.49 | 316.55 |
| 434.78 | 315.33 | 436.88 | 314.48 | 440.17 | 313.71 | 442.72 | 313.87 | 445.28 | 313.59 |
| 447.84 | 313.45 | 452.95 | 313.58 | 457.91 | 313.02 | 460.63 | 312.89 | 463.18 | 312.49 |
| 468.1 | 311.01 | 469.1 | 310.844 | 470.53 | 310.72 | 473.42 | 310.8 | 475.97 | 310.41 |
| 483.65 | 310.22 | 486.2 | 309.87 | 489.46 | 309.7 | 491.57 | 309.43 | 493.67 | 308.78 |
| 496.43 | 308.55 | 498.99 | 308.62 | 502.08 | 308.43 | 503.99 | 307.97 | 506.29 | 308.27 |
| 509.22 | 308.09 | 511.78 | 308.15 | 516.9 | 308.5 | 519.45 | 308.45 | 522.01 | 308.5 |
| 525.22 | 308.8 | 527.13 | 308.87 | 530.08 | 308.71 | 532.24 | 308.38 | 534.8 | 307.73 |
| 537.36 | 307.41 | 539.91 | 307.41 | 542.05 | 307.53 | 545.03 | 307.98 | 547.59 | 307.95 |
| 552.7 | 308.11 | 555.26 | 308.47 | 557.82 | 308.67 | 560.38 | 308.5 | 565.18 | 308.07 |
| 573.16 | 307.98 | 575.7 | 307.69 | 578.28 | 307.77 | 580.84 | 307.97 | 583.39 | 307.93 |
| 585.95 | 307.73 | 588.51 | 307.69 | 591.07 | 307.99 | 593.62 | 307.77 | 596.18 | 307.13 |
| 601.3 | 306.27 | 606.41 | 304.69 | 611.64 | 303.64 | 614.09 | 303.34 | 619.2 | 303.17 |
| 624.08 | 303.84 | 626.87 | 304.04 | 629.43 | 303.83 | 631.99 | 303.51 | 637.11 | 302.44 |
| 639.66 | 301.75 | 642.22 | 301.64 | 644.78 | 302.31 | 655.01 | 305.34 | 657.73 | 306.12 |
| 660.12 | 306.62 | 662.68 | 306.75 | 666.14 | 306.69 | 668.25 | 306.75 | 670.35 | 306.66 |
| 672.91 | 306.76 | 678.03 | 308.2 | 680.59 | 308.98 | 683.14 | 310 | 712.42 | 310 |
| 721.51 | 307.88 | 726.62 | 307.13 | 731.74 | 306.97 | 739.41 | 307.09 | 744.53 | 307.42 |
| 748.17 | 307.41 | 754.76 | 307.28 | 757.31 | 307.08 | 759.87 | 306.67 | 762.43 | 306.03 |
| 769.21 | 304.75 | 770.1 | 304.54 | 772.66 | 304.31 | 777.62 | 304.16 | 782.89 | 304.24 |
| 790.56 | 304.12 | 795.68 | 304.58 | 800.8 | 304.13 | 803.35 | 303.64 | 809.17 | 304.17 |
| 810.64 | 304.54 | 813.91 | 304.79 | 817.58 | 304.83 | 821.26 | 305.09 | 823.89 | 305.18 |
| 828.1 | 305.1 | 831.49 | 305.1 | 834.04 | 304.93 | 838.62 | 305.07 | 841.72 | 305.05 |
| 844.28 | 304.91 | 846.83 | 304.9 | 851.24 | 305.06 | 857.06 | 305.2 | 867.29 | 305.76 |
| 872.41 | 306.19 | 877.52 | 306.45 | 880.68 | 306.7 | 885.2 | 306.63 | 887.76 | 306.98 |
| 890.31 | 307.13 | 892.87 | 306.97 | 897.99 | 307.31 | 900.54 | 307.74 | 903.1 | 307.84 |
| 905.66 | 307.44 | 908.51 | 307.3 | 912.23 | 307.37 | 915.89 | 307.3 | 918.45 | 307.59 |
| 922.75 | 308.19 | 926.96 | 308.43 | 928.68 | 308.64 | 931.16 | 308.07 | 933.79 | 307.62 |
| 936.35 | 307.72 | 944.02 | 307.88 | 946.58 | 307.99 | 951.7 | 308.02 | 954.3 | 307.91 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 958.51 | 307.9 | 961.93 | 307.99 | 964.82 | 307.94 | 969.6 | 307.76 | 974.72 | 307.94 |
| 979.83 | 308.2 | 982.39 | 308.24 | 990.06 | 308.5 | 992.62 | 308.65 | 998.47 | 308.83 |
| 1007.97 | 308.97 | 1013.08 | 308.88 | 1017.4 | 308.62 | 1023.31 | 308.46 | 1033.54 | 308.49 |
| 1036.1 | 308.43 | 1041.21 | 308.09 | 1046.33 | 307.83 | 1053.16 | 307.67 | 1059.47 | 307.6 |
| 1066.79 | 307.56 | 1071.91 | 307.65 | 1074.19 | 308 | 1076.29 | 308.15 | 1082.14 | 307.8 |
| 1084.71 | 308.03 | 1087.25 | 307.96 | 1094.47 | 307.9 | 1097.48 | 308.02 | 1107.71 | 308.02 |
| 1112.05 | 307.97 | 1115.39 | 308.01 | 1120.46 | 307.91 | 1122.57 | 307.95 | 1128.18 | 307.93 |
| 1130.73 | 307.84 | 1135.85 | 307.9 | 1138.41 | 307.82 | 1143.52 | 307.45 | 1148.64 | 306.83 |
| 1153.75 | 306.32 | 1158.87 | 305.98 | 1163.98 | 305.8 | 1171.66 | 305.75 | 1179.33 | 305.94 |
| 1189.56 | 306.38 | 1194.67 | 306.51 | 1197.23 | 306.64 | 1204.9 | 307.22 | 1217.69 | 308.01 |
| 1223.53 | 308.45 | 1229.84 | 309.04 | 1236.15 | 309.78 | 1240.35 | 310.41 | 1248.38 | 311.87 |
| 1253.5 | 312.58 | 1256.06 | 312.84 | 1258.62 | 313 | 1261.17 | 313.06 | 1263.73 | 313.02 |
| 1268.85 | 312.8 | 1276.52 | 312.7 | 1282.42 | 313.19 | 1288.73 | 313.85 | 1291.86 | 314.02 |
| 1296.98 | 313.98 | 1299.54 | 313.88 | 1302.1 | 313.41 | 1304.65 | 312.54 | 1307.21 | 311.41 |
| 1309.77 | 310.56 | 1312.33 | 310.3 | 1317.44 | 310.17 | 1322.56 | 310.16 | 1327.67 | 310.2 |
| 1332.9 | 310.56 | 1335 | 310.58 | 1343.02 | 310.11 | 1358.36 | 309.92 | 1366.04 | 309.74 |
| 1370.76 | 309.71 | 1378.83 | 309.79 | 1381.38 | 309.78 | 1389.06 | 310.08 | 1394.17 | 310.1 |
| 1402.31 | 309.89 | 1409.52 | 309.45 | 1414.63 | 308.94 | 1422.31 | 308.41 | 1432.54 | 308.06 |
| 1435.09 | 307.91 | 1440.17 | 307.81 | 1445.32 | 307.8 | 1452.79 | 307.62 | 1460.67 | 307.59 |
| 1465.79 | 307.71 | 1475.5 | 307.99 | 1481.13 | 308.19 | 1491.36 | 308.49 | 1496.48 | 308.79 |
| 1499.04 | 309.06 | 1501.59 | 309.22 | 1504.15 | 309.49 | 1511.82 | 310.15 | 1514.38 | 310.3 |
| 1519.5 | 310.41 | 1522.05 | 310.1 | 1524.61 | 308.95 | 1527.17 | 308.06 | 1529.73 | 307.57 |
| 1534.84 | 307.25 | 1539.96 | 307.08 | 1547.63 | 306.91 | 1555.3 | 306.93 | 1560.42 | 307.08 |
| 1562.98 | 307.49 | 1565.53 | 308.08 | 1568.09 | 308.34 | 1570.65 | 308.28 | 1575.76 | 307.83 |
| 1583.2 | 307.63 | 1586 | 307.52 | 1591.11 | 307.57 | 1596.23 | 307.71 | 1600.02 | 307.7 |
| 1604.23 | 307.61 | 1611.57 | 307.59 | 1616.85 | 307.47 | 1621.8 | 307.52 | 1624.36 | 307.48 |
| 1629.48 | 307.56 | 1634.59 | 307.44 | 1642.26 | 307.41 | 1648.4 | 307.33 | 1655.05 | 307.15 |
| 1660.17 | 307.17 | 1667.84 | 307.08 | 1670.4 | 307.17 | 1675.51 | 307.19 | 1678.07 | 307.29 |
| 1685.74 | 307.8 | 1688.36 | 307.68 | 1693.42 | 307.3 | 1698.53 | 307.24 | 1701.09 | 306.25 |
| 1703.65 | 304.77 | 1706.21 | 303.85 | 1708.76 | 303.14 | 1713.88 | 303.14 | 1718.99 | 302.71 |
| 1721.55 | 302.62 | 1724.11 | 302.75 | 1726.67 | 302.98 | 1729.22 | 303.11 | 1731.78 | 303.53 |
| 1734.34 | 303.85 | 1739.45 | 304.83 | 1742.01 | 305 | 1744.57 | 305.03 | 1747.13 | 305.28 |
| 1754.8 | 305.24 | 1759.92 | 305.31 | 1762.47 | 305.45 | 1766.19 | 305.49 | 1772.7 | 305.73 |
| 1775.26 | 305.73 | 1782.93 | 305.86 | 1790.61 | 305.87 | 1795.72 | 305.79 | 1800.84 | 305.92 |
| 1803.4 | 306.05 | 1811.07 | 306.71 | 1814.56 | 307.12 | 1818.74 | 307.71 | 1826.42 | 309.05 |
| 1831.39 | 309.74 | 1836.65 | 310.28 | 1841.91 | 310.45 | 1844.01 | 310.45 | 1851.99 | 310.31 |
| 1854.41 | 310.23 | 1858.73 | 309.93 | 1867.34 | 309.22 | 1869.9 | 309.08 | 1887.8 | 308.58 |
| 1895.47 | 308.48 | 1900.59 | 308.53 | 1913.38 | 309.06 | 1918.49 | 309.18 | 1923.61 | 309.45 |
| 1926.16 | 309.7 | 1933.84 | 310.33 | 1938.95 | 310.58 | 1944.07 | 311.01 | 1947.07 | 311.4 |
| 1951.74 | 311.85 | 1954.3 | 312.16 | 1959.41 | 312.63 | 1964.2 | 313.194 | 1972.82 | 314.19 |
| 1977.32 | 314.62 | 1979.87 | 314.96 | 1987.55 | 315.87 | 1992.66 | 316.34 | 1995.22 | 316.46 |
| 2000.34 | 316.41 | 2002.89 | 316.3 | 2005.45 | 316.06 | 2008.07 | 315.69 | 2015.68 | 315.26 |
| 2023.35 | 315.6 | 2025.91 | 315.87 | 2036.14 | 317.44 | 2041.26 | 318.14 | 2045.93 | 318.85 |
| 2058.55 | 319.91 | 2064.28 | 320.57 | 2071.95 | 321.17 | 2074.51 | 321.28 | 2081.68 | 321.43 |
| 2089.85 | 321.9 | 2092.41 | 321.95 | 2094.97 | 322.12 | 2100.61 | 322.79 | 2105.2 | 323.15 |
| 2112.87 | 323.18 | 2117.99 | 323.38 | 2120.55 | 323.57 | 2123.1 | 323.96 | 2125.66 | 324.53 |
| 2133.33 | 325.92 | 2138.45 | 327.09 | 2143.56 | 328.19 | 2148.99 | 329.64 | 2151.46 | 330.19 |
| 2153.8 | 331.02 | 2156.35 | 331.36 | 2158.91 | 331.42 | 2161.47 | 331.36 | 2164.03 | 331.55 |
| 2166.58 | 331.93 | 2169.14 | 333.45 | 2171.7 | 334.81 | 2174.26 | 335.88 | 2176.33 | 335.45 |
| 2179.37 | 335.18 | 2181.93 | 335.48 | 2184.49 | 336.22 | 2189.6 | 337.38 | 2193.16 | 338.43 |
| 2197.28 | 339.52 | 2202.39 | 340.36 | 2204.95 | 340.7 | 2207.51 | 340.84 | 2210.06 | 341.09 |
| 2215.18 | 341.09 | 2218.221 | 341.02 | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .05 | 469.1 | .06 | 1964.2 | .05 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 469.1 | 1964.2 | 640 | 688 | 660 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 315.84 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.15 | Wt. n-Val. | 0.050 | 0.060 | 0.050 |
| W.S. Elev (ft) | 315.69 | Reach Len. (ft) | 640.00 | 688.00 | 660.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 84.55 | 11710.42 | 31.12 |
| E.G. Slope (ft/ft) | 0.001043 | Area (sq ft) | 84.55 | 11710.42 | 31.12 |
| Q Total (cfs) | 37000.00 | Flow (cfs) | 144.33 | 36823.72 | 31.95 |
| Top Width (ft) | 1567.96 | Top Width (ft) | 34.99 | 1495.10 | 37.87 |
| Vel Total (ft/s) | 3.13 | Avg. Vel. (ft/s) | 1.71 | 3.14 | 1.03 |
| Max Chl Dpth (ft) | 14.05 | Hydr. Depth (ft) | 2.42 | 7.83 | 0.82 |
| Conv. Total (cfs) | 1145468.0 | Conv. (cfs) | 4468.1 | 1140010.0 | 989.2 |
| Length Wtd. (ft) | 687.86 | Wetted Per. (ft) | 35.66 | 1502.57 | 38.04 |
| Min Ch El (ft) | 301.64 | Shear (lb/sq ft) | 0.15 | 0.51 | 0.05 |
| Alpha | 1.01 | Stream Power (lb/ft s) | 0.26 | 1.60 | 0.05 |
| Frctn Loss (ft) | 0.55 | Cum Volume (acre-ft) | 30.19 | 913.98 | 218.26 |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 12.23 | 97.62 | 38.13 |

Warning: Divided flow computed for this cross-section.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 316.26 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.15 | Wt. n-Val. | | 0.060 | |
| W.S. Elev (ft) | 316.11 | Reach Len. (ft) | 640.00 | 688.00 | 660.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 12009.99 | |
| E.G. Slope (ft/ft) | 0.000928 | Area (sq ft) | | 12009.99 | |
| Q Total (cfs) | 37000.00 | Flow (cfs) | | 37000.00 | |
| Top Width (ft) | 1435.00 | Top Width (ft) | | 1435.00 | |
| Vel Total (ft/s) | 3.08 | Avg. Vel. (ft/s) | | 3.08 | |
| Max Chl Dpth (ft) | 14.47 | Hydr. Depth (ft) | | 8.37 | |
| Conv. Total (cfs) | 1214849.0 | Conv. (cfs) | | 1214849.0 | |
| Length Wtd. (ft) | 688.00 | Wetted Per. (ft) | | 1454.92 | |
| Min Ch El (ft) | 301.64 | Shear (lb/sq ft) | | 0.48 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 1.47 | |
| Frctn Loss (ft) | 0.53 | Cum Volume (acre-ft) | 12.51 | 946.29 | 68.13 |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 1.65 | 93.35 | 9.11 |

CROSS SECTION OUTPUT Profile #PF 3

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 317.54 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.18 | Wt. n-Val. | 0.050 | 0.060 | 0.050 |

| | | | | | |
|---|---|---|---|---|---|
| W.S. Elev (ft) | 317.36 | Reach Len. (ft) | 640.00 | 688.00 | 660.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 145.66 | 14217.38 | 130.33 |
| E.G. Slope (ft/ft) | 0.000948 | Area (sq ft) | 145.66 | 14217.38 | 130.33 |
| Q Total (cfs) | 49000.00 | Flow (cfs) | 321.95 | 48500.61 | 177.44 |
| Top Width (ft) | 1604.18 | Top Width (ft) | 37.63 | 1495.10 | 71.45 |
| Vel Total (ft/s) | 3.38 | Avg. Vel. (ft/s) | 2.21 | 3.41 | 1.36 |
| Max Chl Dpth (ft) | 15.72 | Hydr. Depth (ft) | 3.87 | 9.51 | 1.82 |
| Conv. Total (cfs) | 1591365.0 | Conv. (cfs) | 10456.0 | 1575147.0 | 5762.9 |
| Length Wtd. (ft) | 687.75 | Wetted Per. (ft) | 38.80 | 1502.57 | 71.81 |
| Min Ch El (ft) | 301.64 | Shear (lb/sq ft) | 0.22 | 0.56 | 0.11 |
| Alpha | 1.01 | Stream Power (lb/ft s) | 0.49 | 1.91 | 0.15 |
| Frctn Loss (ft) | 0.53 | Cum Volume (acre-ft) | 69.41 | 1155.30 | 379.66 |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 17.94 | 97.82 | 42.84 |

CROSS SECTION OUTPUT  Profile #PF 4

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 309.24 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.06 | Wt. n-Val. | | 0.060 | |
| W.S. Elev (ft) | 309.18 | Reach Len. (ft) | 640.00 | 688.00 | 660.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 2503.59 | |
| E.G. Slope (ft/ft) | 0.002309 | Area (sq ft) | | 2503.59 | |
| Q Total (cfs) | 5000.00 | Flow (cfs) | | 5000.00 | |
| Top Width (ft) | 1146.00 | Top Width (ft) | | 1146.00 | |
| Vel Total (ft/s) | 2.00 | Avg. Vel. (ft/s) | | 2.00 | |
| Max Chl Dpth (ft) | 7.54 | Hydr. Depth (ft) | | 2.18 | |
| Conv. Total (cfs) | 104055.6 | Conv. (cfs) | | 104055.6 | |
| Length Wtd. (ft) | 688.00 | Wetted Per. (ft) | | 1151.53 | |
| Min Ch El (ft) | 301.64 | Shear (lb/sq ft) | | 0.31 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 0.63 | |
| Frctn Loss (ft) | 1.29 | Cum Volume (acre-ft) | 2.17 | 322.56 | 94.88 |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 1.60 | 90.25 | 28.33 |

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

CROSS SECTION OUTPUT  Profile #PF 5

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 312.27 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.11 | Wt. n-Val. | 0.050 | 0.060 | |
| W.S. Elev (ft) | 312.17 | Reach Len. (ft) | 640.00 | 688.00 | 660.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 3.46 | 6505.89 | |
| E.G. Slope (ft/ft) | 0.001486 | Area (sq ft) | 3.46 | 6505.89 | |
| Q Total (cfs) | 17000.00 | Flow (cfs) | 3.09 | 16996.91 | |
| Top Width (ft) | 1435.13 | Top Width (ft) | 4.84 | 1430.29 | |
| Vel Total (ft/s) | 2.61 | Avg. Vel. (ft/s) | 0.89 | 2.61 | |
| Max Chl Dpth (ft) | 10.53 | Hydr. Depth (ft) | 0.71 | 4.55 | |
| Conv. Total (cfs) | 440959.8 | Conv. (cfs) | 80.2 | 440879.6 | |
| Length Wtd. (ft) | 687.99 | Wetted Per. (ft) | 5.03 | 1437.32 | |
| Min Ch El (ft) | 301.64 | Shear (lb/sq ft) | 0.06 | 0.42 | |

| | | | | | |
|---|---|---|---|---|---|
| Alpha | 1.00 | Stream Power (lb/ft s) | 0.06 | 1.10 | |
| Frctn Loss (ft) | 0.69 | Cum Volume (acre-ft) | 7.16 | 602.97 | 137.59 |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 2.74 | 96.67 | 33.12 |

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

CROSS SECTION

RIVER: San Diego River
REACH: Reach 1 RS: 280

INPUT
Description: Survey Data (June 12, 2014)
Manning's coefficients are derived
from the Corrected Effective Model.
Station Elevation Data num= 460

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 332.56 | 5.17 | 332.57 | 10.16 | 332.16 | 12.86 | 332.01 | 20.99 | 331.83 |
| 35.91 | 331.55 | 38.48 | 331.47 | 41.04 | 331.15 | 43.6 | 330.94 | 46.16 | 330.97 |
| 53.84 | 330.75 | 74.34 | 330.07 | 79.46 | 329.97 | 89.71 | 329.56 | 94.83 | 329.5 |
| 117.88 | 328.95 | 120.45 | 328.85 | 123.01 | 329 | 125.57 | 328.75 | 130.69 | 328.39 |
| 135.82 | 328.16 | 143.5 | 327.95 | 146.06 | 327.97 | 151.18 | 327.79 | 156.31 | 327.76 |
| 158.87 | 327.66 | 161.43 | 327.77 | 163.99 | 327.59 | 166.55 | 327.2 | 169.3 | 327.11 |
| 171.68 | 326.93 | 179.36 | 326.75 | 184.49 | 326.95 | 187.05 | 326.99 | 189.61 | 326.78 |
| 194.73 | 326.12 | 199.85 | 325.92 | 202.8 | 326.07 | 204.98 | 326.06 | 212.66 | 325.48 |
| 217.79 | 325.03 | 220.35 | 324.91 | 228.03 | 325 | 235.72 | 325.2 | 238.4 | 325.2 |
| 246.77 | 325.49 | 251.09 | 325.69 | 261.43 | 325.34 | 269.02 | 325.19 | 271.9 | 325.06 |
| 276.7 | 324.98 | 281.83 | 324.77 | 286.95 | 324.68 | 294.63 | 324.34 | 302.32 | 324.72 |
| 310 | 325.01 | 315.13 | 325.01 | 320.06 | 325.21 | 325.37 | 325.22 | 327.93 | 325.16 |
| 333.06 | 324.7 | 338.18 | 324.78 | 340.74 | 324.75 | 343.1 | 324.63 | 358.67 | 324.11 |
| 363.8 | 323.91 | 368.92 | 323.64 | 381.73 | 323.08 | 389.41 | 322.81 | 391.97 | 322.66 |
| 397.1 | 322.53 | 402.22 | 322.28 | 407.34 | 321.79 | 412.47 | 321.53 | 417.59 | 321.17 |
| 420.57 | 320.88 | 427.84 | 320.29 | 430.4 | 320.23 | 438.08 | 320.28 | 440.64 | 320.39 |
| 448.33 | 320.11 | 450.89 | 320.16 | 456.01 | 320.04 | 461.14 | 319.8 | 463.7 | 319.73 |
| 476.51 | 319.25 | 491.87 | 318.59 | 497 | 318.44 | 509.81 | 317.88 | 512.37 | 317.69 |
| 516.9 | 317.48 | 520.05 | 317.42 | 525.18 | 317.19 | 527.74 | 317.29 | 532.86 | 318.2 |
| 535.42 | 318.74 | 537.98 | 319.74 | 543.11 | 322.47 | 545.67 | 323.72 | 548.2 | 324.155 |
| 550.79 | 323.83 | 553.35 | 322.81 | 555.91 | 321.69 | 560.87 | 318.53 | 563.6 | 318.13 |
| 566.16 | 316.66 | 567.15 | 314.97 | 569.24 | 311.77 | 571.28 | 308.37 | 573.43 | 308.88 |
| 578.97 | 309.83 | 584.39 | 309.08 | 586 | 309.09 | 589.21 | 308.61 | 594.34 | 308.44 |
| 596.9 | 308.52 | 600.65 | 309.01 | 604.58 | 309.2 | 606.94 | 309.44 | 612.27 | 309.8 |
| 615.31 | 309.95 | 622.52 | 309.69 | 625.08 | 308.6 | 627.64 | 308.3 | 629.97 | 308.27 |
| 635.32 | 307.81 | 637.88 | 307.7 | 640.45 | 307.69 | 645.57 | 307.47 | 648.13 | 307.46 |
| 650.69 | 307.67 | 653.25 | 307.51 | 658.38 | 307.36 | 661.38 | 307.18 | 671.19 | 306.97 |
| 673.75 | 307.01 | 678.87 | 307.46 | 684.41 | 307.34 | 686.51 | 307.37 | 689.12 | 307.55 |
| 699.36 | 307.77 | 701.92 | 307.76 | 704.49 | 307.5 | 707.05 | 307.06 | 709.54 | 307.4 |
| 711.63 | 307.53 | 714.73 | 307.89 | 717.92 | 307.67 | 719.86 | 307.3 | 724.98 | 306.78 |
| 727.54 | 306.82 | 730.1 | 307.01 | 732.66 | 307.3 | 734.67 | 307.27 | 737.79 | 307.09 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 740.35 | 307.07 | 745.14 | 306.62 | 750.59 | 306.69 | 755.72 | 306.66 | 757.7 | 306.82 |
| 761.89 | 306.76 | 766.08 | 306.58 | 773.65 | 307.14 | 776.21 | 307.19 | 778.77 | 306.94 |
| 781.33 | 306.5 | 783.89 | 306.23 | 786.46 | 306.3 | 789.11 | 306.11 | 794.14 | 306.18 |
| 799.58 | 306.15 | 801.83 | 306.37 | 809.51 | 306.39 | 812.07 | 306.34 | 814.63 | 306.44 |
| 817.2 | 306.32 | 822.32 | 306.4 | 824.88 | 306.11 | 830.99 | 306.06 | 835.13 | 306.22 |
| 837.69 | 306.26 | 840.25 | 306.48 | 845.37 | 307.05 | 847.93 | 307.18 | 850.5 | 306.88 |
| 853.06 | 306.83 | 858.18 | 306.85 | 865.87 | 306.44 | 868.43 | 306.52 | 870.99 | 306.42 |
| 877.06 | 306.55 | 878.67 | 306.53 | 881.29 | 306.34 | 886.36 | 306.34 | 891.11 | 306.48 |
| 896.6 | 306.9 | 900.09 | 306.82 | 904.29 | 306.53 | 906.85 | 306.71 | 909.41 | 306.64 |
| 912.66 | 306.75 | 924.78 | 306.93 | 932.47 | 306.64 | 935.03 | 306.86 | 937.78 | 306.99 |
| 942.71 | 307.02 | 945.27 | 306.98 | 950.4 | 307.09 | 952.96 | 307.23 | 958.08 | 307.71 |
| 965 | 307.32 | 968.33 | 307.2 | 975.47 | 306.81 | 978.57 | 306.72 | 981.14 | 306.77 |
| 983.7 | 306.97 | 988.04 | 306.9 | 991.38 | 307.09 | 993.94 | 306.93 | 996.51 | 306.34 |
| 999.07 | 305.99 | 1000.6 | 306.05 | 1006.54 | 306.07 | 1009.31 | 305.92 | 1011.88 | 305.68 |
| 1014.44 | 304.2 | 1015.26 | 303.54 | 1017.35 | 302.17 | 1019.56 | 301.18 | 1021.54 | 300.63 |
| 1024.68 | 299.55 | 1027.24 | 298.96 | 1029.63 | 298.83 | 1032.37 | 298.84 | 1034.93 | 299.11 |
| 1037.49 | 299.54 | 1040.05 | 299.42 | 1042.61 | 299.04 | 1046.67 | 299.04 | 1050.3 | 298.92 |
| 1052.86 | 299.72 | 1055.04 | 300.96 | 1057.98 | 302.77 | 1060.55 | 304.24 | 1063.11 | 305.17 |
| 1065.67 | 305.93 | 1211.68 | 305.92 | 1216.8 | 305.95 | 1219.36 | 306.05 | 1222.56 | 305.96 |
| 1227.05 | 306.01 | 1229.61 | 305.86 | 1232.17 | 305.91 | 1237.29 | 306.18 | 1239.86 | 306.68 |
| 1242.42 | 307.07 | 1250.1 | 306.62 | 1252.66 | 306.05 | 1255.22 | 305.21 | 1257.79 | 304.56 |
| 1260.35 | 304.31 | 1265.47 | 304.52 | 1268.03 | 304.82 | 1273.16 | 305.13 | 1278.28 | 305.36 |
| 1280.84 | 305.65 | 1285.96 | 305.82 | 1287.47 | 305.67 | 1293.48 | 305.38 | 1298.77 | 305.18 |
| 1301.33 | 304.97 | 1303.9 | 304.96 | 1311.58 | 305.15 | 1316.7 | 305.12 | 1321.83 | 304.99 |
| 1325.17 | 305 | 1326.95 | 304.88 | 1332.07 | 305.01 | 1334.63 | 304.86 | 1339.76 | 303.84 |
| 1344.88 | 303.49 | 1350.29 | 304 | 1352.56 | 304.1 | 1355.13 | 303.93 | 1360.25 | 304.2 |
| 1362.81 | 304.56 | 1367.93 | 305.4 | 1369.14 | 305.5 | 1373.06 | 305.59 | 1380.74 | 305.64 |
| 1385.82 | 305.84 | 1388.43 | 305.78 | 1396.36 | 306.17 | 1401.23 | 306.26 | 1408.92 | 306.5 |
| 1414.04 | 306.51 | 1417.3 | 306.59 | 1421.73 | 306.53 | 1431.97 | 306.69 | 1434.54 | 306.66 |
| 1437.1 | 306.73 | 1442.22 | 306.72 | 1447.34 | 306.77 | 1449.91 | 306.72 | 1452.47 | 306.8 |
| 1457.59 | 306.71 | 1459.18 | 306.79 | 1462.71 | 306.8 | 1465.27 | 306.6 | 1470.4 | 306.54 |
| 1472.96 | 306.65 | 1478.03 | 306.72 | 1480.12 | 306.67 | 1486.4 | 306.26 | 1490.89 | 306.07 |
| 1496.01 | 306.03 | 1498.97 | 306.06 | 1508.82 | 306.05 | 1513.94 | 305.92 | 1519.07 | 306.09 |
| 1521.63 | 306.12 | 1524.19 | 306 | 1526.75 | 305.66 | 1537 | 304.17 | 1542.12 | 303.61 |
| 1547.24 | 303.28 | 1552.37 | 303.2 | 1559.69 | 303.22 | 1570.3 | 303.53 | 1575.42 | 303.78 |
| 1580.55 | 304.28 | 1585.67 | 304.93 | 1590.79 | 305.38 | 1593.35 | 305.49 | 1603.6 | 305.47 |
| 1609.95 | 305.63 | 1613.85 | 305.67 | 1618.97 | 305.65 | 1624.09 | 305.57 | 1631.78 | 305.6 |
| 1634.34 | 305.54 | 1637.17 | 305.58 | 1656.01 | 306.14 | 1659.95 | 306.29 | 1665.08 | 306.32 |
| 1670.2 | 306.52 | 1677.89 | 306.54 | 1680.45 | 306.51 | 1688.13 | 306.06 | 1693.25 | 305.8 |
| 1699.99 | 305.3 | 1708.36 | 304.81 | 1712.55 | 304.66 | 1718.83 | 304.5 | 1726.56 | 304.43 |
| 1735.58 | 304.46 | 1744.49 | 304.38 | 1752.17 | 304.25 | 1759.86 | 304.04 | 1766.99 | 303.98 |
| 1772.66 | 304.08 | 1780.35 | 304.33 | 1782.91 | 304.48 | 1790.59 | 305.11 | 1795.72 | 305.41 |
| 1800.5 | 305.52 | 1805.96 | 305.43 | 1808.53 | 305.2 | 1811.09 | 304.8 | 1816.21 | 304.2 |
| 1821.33 | 303.75 | 1823.53 | 303.62 | 1829.02 | 303.5 | 1834.14 | 303.53 | 1839.26 | 303.46 |
| 1844.47 | 303.75 | 1846.95 | 303.68 | 1849.51 | 302.64 | 1852.07 | 302.47 | 1854.94 | 302.68 |
| 1857.03 | 302.98 | 1859.76 | 303.01 | 1864.88 | 302.81 | 1867.5 | 302.42 | 1869.6 | 302.74 |
| 1872.57 | 302.92 | 1877.69 | 304.58 | 1880.25 | 305.14 | 1882.81 | 305.6 | 1887.93 | 305.86 |
| 1890.5 | 305.94 | 1898.18 | 305.88 | 1903.3 | 305.98 | 1908.43 | 306.18 | 1910.99 | 306.16 |
| 1917.76 | 306.24 | 1921.24 | 306.2 | 1925.13 | 306.38 | 1931.48 | 306.74 | 1936.6 | 306.94 |
| 1949.17 | 307 | 1951.97 | 307.2 | 1957.1 | 307.33 | 1959.69 | 307.28 | 1963.83 | 307.36 |
| 1972.2 | 307.61 | 1977.59 | 307.64 | 1984.77 | 307.83 | 1991.05 | 307.91 | 1998.08 | 308.16 |
| 2003.21 | 308.71 | 2005.71 | 309.03 | 2010.89 | 309.38 | 2016.01 | 309.22 | 2021.6 | 309.25 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2023.7 | 309.34 | 2026.26 | 310.27 | 2028.82 | 311.83 | 2036.5 | 315.19 | 2039.05 | 316.03 | | |
| 2041.38 | 316.48 | 2043.49 | 317.28 | 2046.71 | 318.01 | 2049.27 | 318.07 | 2054.37 | 318.42 | | |
| 2056.93 | 318.84 | 2059.48 | 318.77 | 2064.59 | 318.78 | 2067.14 | 318.88 | 2069.69 | 319.14 | | |
| 2072.25 | 319.82 | 2074.8 | 319.32 | 2077.35 | 319.03 | 2085.02 | 318.99 | 2094.22 | 319.12 | | |
| 2100.34 | 319.25 | 2102.67 | 319.25 | 2105.44 | 319.41 | 2113.1 | 319.41 | 2118.21 | 319.69 | | |
| 2120.77 | 319.5 | 2128.43 | 319.62 | 2133.53 | 319.65 | 2143.75 | 319.79 | 2148.85 | 319.82 | | |
| 2156.52 | 319.94 | 2166.73 | 319.8 | 2169.28 | 319.94 | 2176.94 | 320.09 | 2184.6 | 319.9 | | |
| 2189.33 | 319.63 | 2192.27 | 319.57 | 2194.82 | 319.4 | 2199.93 | 319.62 | 2202.48 | 319.8 | | |
| 2210.14 | 320.04 | 2217.8 | 320.1 | 2222.91 | 320.05 | 2228.02 | 319.84 | 2228.86 | 319.94 | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .05 | 548.2 | .06 | 2021.6 | .05 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 548.2 | 2021.6 | 1135 | 1021 | 1060 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | | |
|---|---|---|---|---|---|---|
| E.G. Elev (ft) | 315.28 | Element | Left OB | Channel | Right OB | |
| Vel Head (ft) | 0.12 | Wt. n-Val. | | 0.060 | 0.050 | |
| W.S. Elev (ft) | 315.16 | Reach Len. (ft) | 1135.00 | 1021.00 | 1060.00 | |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 13452.34 | 49.21 | |
| E.G. Slope (ft/ft) | 0.000639 | Area (sq ft) | | 13452.34 | 49.21 | |
| Q Total (cfs) | 37000.00 | Flow (cfs) | | 36922.24 | 77.76 | |
| Top Width (ft) | 1469.39 | Top Width (ft) | | 1454.56 | 14.83 | |
| Vel Total (ft/s) | 2.74 | Avg. Vel. (ft/s) | | 2.74 | 1.58 | |
| Max Chl Dpth (ft) | 16.33 | Hydr. Depth (ft) | | 9.25 | 3.32 | |
| Conv. Total (cfs) | 1463951.0 | Conv. (cfs) | | 1460874.0 | 3076.6 | |
| Length Wtd. (ft) | 1021.95 | Wetted Per. (ft) | | 1465.01 | 16.13 | |
| Min Ch El (ft) | 298.83 | Shear (lb/sq ft) | | 0.37 | 0.12 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 1.01 | 0.19 | |
| Frctn Loss (ft) | 1.10 | Cum Volume (acre-ft) | 29.57 | 715.27 | 217.66 | |
| C & E Loss (ft) | 0.04 | Cum SA (acres) | 11.97 | 74.33 | 37.73 | |

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

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

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 315.73 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.13 | Wt. n-Val. | | 0.060 | |
| W.S. Elev (ft) | 315.60 | Reach Len. (ft) | 1135.00 | 1021.00 | 1060.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 12916.01 | |
| E.G. Slope (ft/ft) | 0.000640 | Area (sq ft) | | 12916.01 | |
| Q Total (cfs) | 37000.00 | Flow (cfs) | | 37000.00 | |
| Top Width (ft) | 1300.00 | Top Width (ft) | | 1300.00 | |
| Vel Total (ft/s) | 2.86 | Avg. Vel. (ft/s) | | 2.86 | |
| Max Chl Dpth (ft) | 16.77 | Hydr. Depth (ft) | | 9.94 | |

| | | | | | |
|---|---|---|---|---|---|
| Conv. Total (cfs) | 1462018.0 | Conv. (cfs) | | 1462018.0 | |
| Length Wtd. (ft) | 1021.02 | Wetted Per. (ft) | | 1321.78 | |
| Min Ch El (ft) | 298.83 | Shear (lb/sq ft) | | 0.39 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 1.12 | |
| Frctn Loss (ft) | 1.08 | Cum Volume (acre-ft) | 12.51 | 749.45 | 68.13 |
| C & E Loss (ft) | 0.04 | Cum SA (acres) | 1.65 | 71.75 | 9.11 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 3

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 317.00 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.15 | Wt. n-Val. | | 0.060 | 0.050 |
| W.S. Elev (ft) | 316.86 | Reach Len. (ft) | 1135.00 | 1021.00 | 1060.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 15922.21 | 79.27 |
| E.G. Slope (ft/ft) | 0.000639 | Area (sq ft) | | 15922.21 | 79.27 |
| Q Total (cfs) | 49000.00 | Flow (cfs) | | 48861.39 | 138.61 |
| Top Width (ft) | 1476.56 | Top Width (ft) | | 1455.78 | 20.77 |
| Vel Total (ft/s) | 3.06 | Avg. Vel. (ft/s) | | 3.07 | 1.75 |
| Max Chl Dpth (ft) | 18.03 | Hydr. Depth (ft) | | 10.94 | 3.82 |
| Conv. Total (cfs) | 1938343.0 | Conv. (cfs) | | 1932860.0 | 5483.0 |
| Length Wtd. (ft) | 1025.73 | Wetted Per. (ft) | | 1467.15 | 22.33 |
| Min Ch El (ft) | 298.83 | Shear (lb/sq ft) | | 0.43 | 0.14 |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 1.33 | 0.25 |
| Frctn Loss (ft) | 1.07 | Cum Volume (acre-ft) | 68.34 | 917.28 | 378.08 |
| C & E Loss (ft) | 0.04 | Cum SA (acres) | 17.66 | 74.52 | 42.14 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 4

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 307.95 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.04 | Wt. n-Val. | | 0.060 | |
| W.S. Elev (ft) | 307.91 | Reach Len. (ft) | 1135.00 | 1021.00 | 1060.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 3019.86 | |
| E.G. Slope (ft/ft) | 0.001547 | Area (sq ft) | | 3019.86 | |
| Q Total (cfs) | 5000.00 | Flow (cfs) | | 5000.00 | |
| Top Width (ft) | 1356.56 | Top Width (ft) | | 1356.56 | |
| Vel Total (ft/s) | 1.66 | Avg. Vel. (ft/s) | | 1.66 | |
| Max Chl Dpth (ft) | 9.08 | Hydr. Depth (ft) | | 2.23 | |
| Conv. Total (cfs) | 127127.2 | Conv. (cfs) | | 127127.2 | |
| Length Wtd. (ft) | 1021.07 | Wetted Per. (ft) | | 1362.62 | |
| Min Ch El (ft) | 298.83 | Shear (lb/sq ft) | | 0.21 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 0.35 | |

| | | | | | |
|---|---|---|---|---|---|
| Frctn Loss (ft) | 1.37 | Cum Volume (acre-ft) | 2.17 | 278.94 | 94.88 |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 1.60 | 70.48 | 28.33 |

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

CROSS SECTION OUTPUT Profile #PF 5

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 311.57 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.07 | Wt. n-Val. | | 0.060 | 0.050 |
| W.S. Elev (ft) | 311.51 | Reach Len. (ft) | 1135.00 | 1021.00 | 1060.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 8140.99 | 10.25 |
| E.G. Slope (ft/ft) | 0.000719 | Area (sq ft) | | 8140.99 | 10.25 |
| Q Total (cfs) | 17000.00 | Flow (cfs) | | 16989.67 | 10.33 |
| Top Width (ft) | 1458.89 | Top Width (ft) | | 1452.20 | 6.69 |
| Vel Total (ft/s) | 2.09 | Avg. Vel. (ft/s) | | 2.09 | 1.01 |
| Max Chl Dpth (ft) | 12.68 | Hydr. Depth (ft) | | 5.61 | 1.53 |
| Conv. Total (cfs) | 634167.3 | Conv. (cfs) | | 633782.1 | 385.2 |
| Length Wtd. (ft) | 1021.17 | Wetted Per. (ft) | | 1460.66 | 7.20 |
| Min Ch El (ft) | 298.83 | Shear (lb/sq ft) | | 0.25 | 0.06 |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 0.52 | 0.06 |
| Frctn Loss (ft) | 1.07 | Cum Volume (acre-ft) | 7.13 | 487.30 | 137.51 |
| C & E Loss (ft) | 0.02 | Cum SA (acres) | 2.70 | 73.91 | 33.07 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: San Diego River
REACH: Reach 1 RS: 270

INPUT
Description: Survey Data (June 12, 2014)
Manning's coefficients are derived
from the Corrected Effective Model.
Station Elevation Data num= 488

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 311.5 | 4.03 | 311.65 | 16.61 | 311.94 | 19.12 | 311.97 | 21.64 | 312.03 |
| 24.15 | 312.03 | 29.18 | 312.16 | 31.7 | 312.19 | 36.73 | 312.32 | 41.76 | 312.25 |
| 46.79 | 311.94 | 49.3 | 311.84 | 51.82 | 311.69 | 54.33 | 311.61 | 56.85 | 311.5 |
| 59.36 | 311.42 | 60.08 | 311.37 | 64.39 | 311.01 | 66.91 | 310.91 | 69.42 | 310.97 |
| 74.45 | 311.42 | 79.48 | 311.69 | 82 | 311.77 | 89.54 | 311.94 | 92.06 | 312.07 |
| 94.57 | 312.16 | 97.09 | 312.19 | 99.6 | 312.14 | 102.12 | 312.06 | 104.63 | 312.03 |
| 107.15 | 311.97 | 109.66 | 311.88 | 112.18 | 311.81 | 117.21 | 311.75 | 122.24 | 311.61 |
| 127.27 | 311.53 | 129.78 | 311.47 | 132.3 | 311.38 | 134.81 | 311.25 | 137.33 | 311.15 |
| 139.84 | 311.18 | 142.36 | 311.53 | 144.87 | 312.01 | 147.39 | 312.7 | 149.9 | 313.69 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 152.42 | 314.88 | 154.93 | 315.98 | 157.45 | 317.13 | 159.96 | 318.05 | 162.48 | 318.62 |
| 164.99 | 318.75 | 167.51 | 318.29 | 170.02 | 317.3 | 175.05 | 314.66 | 177.57 | 313.56 |
| 179.95 | 312.91 | 182.6 | 312.1 | 185.11 | 311.55 | 187.63 | 311.23 | 190.14 | 311.18 |
| 191.52 | 311.33 | 192.66 | 311.41 | 195.17 | 311.51 | 196.06 | 311.51 | 197.69 | 311.56 |
| 200.2 | 311.37 | 202.72 | 311.24 | 205.23 | 311.32 | 207.75 | 311.48 | 210.26 | 311.59 |
| 212.78 | 311.62 | 215.29 | 311.7 | 217.81 | 311.74 | 220.99 | 311.75 | 222.84 | 311.74 |
| 225.35 | 311.87 | 230.38 | 311.95 | 232.9 | 312.02 | 235.41 | 312.02 | 237.93 | 311.98 |
| 245.92 | 312.1 | 248.18 | 312.15 | 250.5 | 312.12 | 253.02 | 312.18 | 255.53 | 312.27 |
| 258.05 | 312.32 | 260.56 | 312.34 | 264.05 | 312.28 | 265.59 | 312.23 | 270.62 | 312.45 |
| 273.14 | 312.47 | 276 | 312.44 | 280.68 | 312.47 | 283.2 | 312.43 | 285.71 | 312.47 |
| 288.23 | 312.56 | 290.74 | 312.78 | 293.51 | 313.12 | 295.77 | 313.37 | 298.29 | 313.79 |
| 300.31 | 314.03 | 303.32 | 314.27 | 305.83 | 314.64 | 308.35 | 314.52 | 310.86 | 314.22 |
| 313.38 | 313.85 | 315.89 | 313.36 | 318.37 | 313.13 | 320.92 | 312.84 | 323.44 | 312.68 |
| 325.24 | 312.46 | 326.85 | 312.3 | 327.5 | 312.19 | 329.77 | 311.98 | 330.98 | 311.89 |
| 333.5 | 311.35 | 334.3 | 311.14 | 335.32 | 310.81 | 336.01 | 310.63 | 336.57 | 310.57 |
| 338.53 | 310.25 | 341.04 | 310.03 | 343 | 309.18 | 346.07 | 307.77 | 347.9 | 307.02 |
| 348.59 | 306.76 | 349.45 | 306.68 | 350.17 | 306.56 | 351.1 | 306.49 | 356.13 | 306.26 |
| 358.65 | 306.62 | 361.16 | 307.17 | 361.5 | 307.22 | 363.57 | 307.83 | 364.53 | 307.86 |
| 366.4 | 307.82 | 368.3 | 307.63 | 369.22 | 307.6 | 370.56 | 307.44 | 371.22 | 307.43 |
| 372.05 | 307.32 | 372.83 | 307.29 | 373.74 | 307.14 | 376.25 | 307.23 | 378.77 | 306.35 |
| 379.63 | 305.86 | 380.52 | 305.46 | 381.28 | 305.05 | 381.89 | 304.89 | 384.16 | 304.39 |
| 386.43 | 304.04 | 388.69 | 303.57 | 391.34 | 303.06 | 391.82 | 302.94 | 393.23 | 302.76 |
| 394.65 | 302.31 | 395.49 | 301.98 | 396.37 | 301.71 | 397.47 | 301.86 | 397.76 | 301.86 |
| 398.89 | 302.06 | 400.02 | 302.49 | 401.4 | 303.07 | 402.29 | 303.13 | 403.12 | 303.04 |
| 403.92 | 303.07 | 406.43 | 303.47 | 406.82 | 303.47 | 408.77 | 303.14 | 408.95 | 303.13 |
| 411.46 | 302.35 | 413.98 | 302.35 | 419.01 | 302.5 | 420.42 | 302.42 | 424.04 | 302.26 |
| 426.55 | 301.75 | 427.22 | 301.74 | 429.07 | 301.65 | 431.58 | 301.9 | 434.1 | 302.29 |
| 436.29 | 302.2 | 436.61 | 302.16 | 439.13 | 301.98 | 439.85 | 302.13 | 440.82 | 302.4 |
| 441.64 | 302.57 | 444.16 | 303.14 | 446.67 | 303.42 | 449.19 | 303.32 | 451.7 | 302.62 |
| 453.97 | 301.69 | 456.73 | 300.53 | 459.25 | 299.76 | 461.76 | 299.35 | 463.48 | 299.2 |
| 466.79 | 298.87 | 469.31 | 298.5 | 471.82 | 297.98 | 472.55 | 297.86 | 474.81 | 297.57 |
| 476.85 | 297.34 | 479.37 | 297.19 | 481.88 | 297.12 | 484.4 | 297.09 | 489.43 | 297.09 |
| 491.94 | 298.11 | 494.46 | 299.66 | 496.97 | 300.43 | 499.49 | 300.96 | 502.01 | 301.63 |
| 504.52 | 302.39 | 507.03 | 303.35 | 509.55 | 304.95 | 539.73 | 305.61 | 540.54 | 305.27 |
| 541.55 | 304.77 | 542.24 | 304.48 | 544.76 | 303.76 | 547.27 | 303.25 | 549.79 | 302.53 |
| 552.3 | 302.08 | 554.82 | 301.81 | 559.85 | 301.45 | 562.36 | 301.34 | 564.88 | 301.31 |
| 567.39 | 301.38 | 570 | 301.5 | 572.42 | 301.59 | 574.94 | 301.76 | 577.45 | 301.96 |
| 579.97 | 302.24 | 582.48 | 302.56 | 583.59 | 302.77 | 585 | 302.99 | 587.51 | 303.28 |
| 590.03 | 303.47 | 592.66 | 303.54 | 594.93 | 303.65 | 597.57 | 303.88 | 600.09 | 304.2 |
| 602.6 | 304.62 | 605.12 | 304.92 | 606.26 | 305.02 | 608.52 | 305.17 | 615.18 | 305.5 |
| 617.69 | 305.81 | 620.21 | 306.25 | 622.72 | 306.76 | 625.24 | 307.07 | 627.75 | 306.92 |
| 630.27 | 306.18 | 632.78 | 305.14 | 635.3 | 304.4 | 637.81 | 304.03 | 640.33 | 303.91 |
| 642.84 | 303.9 | 645.36 | 303.92 | 647.88 | 304.11 | 650.39 | 304.41 | 652.9 | 304.63 |
| 655.42 | 304.56 | 660.45 | 303.85 | 662.97 | 303.56 | 665.48 | 303.37 | 668 | 303.25 |
| 670.51 | 303.24 | 673.03 | 303.28 | 676.51 | 303.42 | 680.57 | 303.63 | 683.09 | 303.74 |
| 685.6 | 303.75 | 688.45 | 303.71 | 690.63 | 303.61 | 693.15 | 303.45 | 698.18 | 303.19 |
| 700.69 | 303.16 | 705.72 | 303.15 | 708.24 | 303.19 | 710.75 | 303.19 | 715.78 | 303.26 |
| 718.3 | 303.24 | 720.81 | 303.06 | 723.33 | 302.7 | 726.37 | 302.13 | 728 | 301.88 |
| 730.87 | 301.34 | 733.17 | 301.06 | 736.48 | 300.82 | 738.42 | 300.64 | 740.93 | 300.33 |
| 743.45 | 300.11 | 745.96 | 299.96 | 755.83 | 299.73 | 758.54 | 299.71 | 763.57 | 299.7 |
| 773.63 | 299.75 | 776.14 | 299.81 | 778.85 | 300.07 | 780.76 | 300.32 | 783.69 | 300.5 |
| 786.2 | 300.56 | 788.72 | 300.72 | 791.23 | 300.96 | 794.36 | 301.36 | 796.26 | 301.63 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 801.16 | 302.46 | 803.81 | 303.02 | 806.32 | 303.44 | 808.84 | 303.71 | 810.22 | 303.74 |
| 812.49 | 303.67 | 813.87 | 303.57 | 816.38 | 303.34 | 818.9 | 303.15 | 821.41 | 302.91 |
| 823.93 | 302.39 | 831.47 | 300.23 | 836.5 | 298.74 | 839.02 | 298.74 | 841.53 | 298.89 |
| 844.05 | 299.36 | 846.56 | 299.95 | 849.08 | 300.36 | 851.02 | 300.47 | 854.11 | 300.54 |
| 856.62 | 300.5 | 859.14 | 300.37 | 862.35 | 300.29 | 864.62 | 300.28 | 866.68 | 300.39 |
| 869.2 | 300.26 | 871.71 | 300.09 | 874.23 | 300.16 | 874.9 | 300.23 | 875.95 | 300.41 |
| 876.74 | 300.48 | 879.26 | 300.32 | 881.77 | 300.46 | 885.01 | 300.81 | 886.2 | 301.09 |
| 886.8 | 301.16 | 887.28 | 301.15 | 889.32 | 301.2 | 889.55 | 301.23 | 891.85 | 301.35 |
| 894.35 | 301.52 | 896.86 | 301.85 | 899.38 | 302.54 | 901.3 | 303.229 | 901.89 | 303.44 |
| 904.41 | 304.47 | 906.92 | 305.85 | 909.44 | 307.53 | 909.94 | 307.79 | 911.95 | 308.72 |
| 914.47 | 309.28 | 916.98 | 309.24 | 919.5 | 309.16 | 921.27 | 309.15 | 923.54 | 309.11 |
| 927.04 | 309.01 | 929.56 | 309.06 | 932.07 | 309.18 | 937.1 | 309.31 | 939.62 | 309.45 |
| 944.65 | 309.79 | 949.68 | 310.22 | 952.19 | 310.41 | 954.71 | 310.56 | 957.53 | 310.69 |
| 959.74 | 310.83 | 962.07 | 310.9 | 964.33 | 310.84 | 966.6 | 310.75 | 968.87 | 310.63 |
| 972.31 | 310.38 | 973.4 | 310.32 | 977.34 | 310.14 | 979.86 | 310.08 | 982.37 | 310.12 |
| 984.73 | 310.19 | 987 | 310.22 | 992.43 | 310.35 | 994.95 | 310.44 | 998.33 | 310.65 |
| 999.98 | 310.73 | 1002.49 | 310.95 | 1005.01 | 311.09 | 1012.55 | 311.78 | 1016.46 | 312.03 |
| 1020.1 | 312.23 | 1022.61 | 312.42 | 1025.13 | 312.67 | 1030.16 | 312.9 | 1032.67 | 312.96 |
| 1035.19 | 313 | 1036.86 | 313.09 | 1040.22 | 313.2 | 1045.25 | 313.34 | 1053.57 | 313.51 |
| 1055.01 | 313.52 | 1060.32 | 313.77 | 1062.83 | 313.92 | 1065.34 | 314.19 | 1067.85 | 314.57 |
| 1072.87 | 315.46 | 1075.38 | 315.88 | 1077.89 | 316.24 | 1080.4 | 316.5 | 1082.91 | 316.73 |
| 1085.42 | 316.89 | 1090.44 | 317.06 | 1092.95 | 317.1 | 1095.46 | 317.09 | 1097.97 | 317.06 |
| 1100.48 | 316.99 | 1102.99 | 316.89 | 1105.5 | 316.69 | 1108.01 | 316.44 | 1112.62 | 316.02 |
| 1115.54 | 315.8 | 1118.05 | 315.71 | 1120.56 | 315.73 | 1123.07 | 315.7 | 1125.58 | 315.37 |
| 1128.09 | 315.17 | 1130.6 | 315.16 | 1133.11 | 315.18 | 1135.62 | 315.34 | 1137.97 | 315.68 |
| 1140.28 | 316.07 | 1143.15 | 316.62 | 1144.89 | 316.9 | 1148.17 | 317.29 | 1150.68 | 317.64 |
| 1153.19 | 318.16 | 1161.02 | 319.73 | 1163.23 | 320.12 | 1165.74 | 320.67 | 1168.25 | 321.25 |
| 1170.76 | 321.86 | 1173.27 | 322.52 | 1175.78 | 323.04 | 1178.29 | 322.95 | 1180.8 | 322.81 |
| 1184.06 | 322.87 | 1190.84 | 322.88 | 1193.28 | 322.94 | 1195.86 | 322.97 | 1200.88 | 323.11 |
| 1203.39 | 323.08 | 1205.9 | 323.1 | 1211.72 | 323.25 | 1215.94 | 323.38 | 1218.45 | 323.41 |
| 1220.96 | 323.38 | 1223.47 | 323.46 | 1228.49 | 323.46 | 1231 | 323.44 | 1233.51 | 323.44 |
| 1243.55 | 323.47 | 1248.59 | 323.41 | 1250.89 | 323.4 | 1253.59 | 323.37 | 1256.1 | 323.37 |
| 1261.12 | 323.39 | 1263.63 | 323.53 | 1266.14 | 323.4 | 1268.65 | 323.19 | 1271.16 | 322.96 |
| 1273.94 | 322.73 | 1276.18 | 322.38 | 1278.68 | 322.19 | 1280.85 | 322.18 | 1283.7 | 322.07 |
| 1285.46 | 321.83 | 1286.21 | 321.69 | 1288.72 | 320.97 | 1291.23 | 320.78 | 1293.74 | 320.73 |
| 1294.68 | 320.68 | 1295.38 | 320.59 | 1296.98 | 320.49 | 1298.14 | 320.52 | 1298.76 | 320.49 |
| 1301.27 | 320.62 | 1303.9 | 320.66 | 1306.14 | 320.74 | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .05 | 343 | .06 | 901.3 | .05 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 343 | 901.3 | 1000 | 951 | 815 | .1 | .3 |

Ineffective Flow num= 2

| Sta L | Sta R | Elev | Permanent |
|---|---|---|---|
| 0 | 278.7 | 314.64 | F |
| 1201.7 | 1306.14 | 333.8 | F |

CROSS SECTION OUTPUT Profile #PF 1

| E.G. Elev (ft) | 314.14 | Element | Left OB | Channel | Right OB |
|---|---|---|---|---|---|

| | | | | | |
|---|---|---|---|---|---|
| Vel Head (ft) | 0.49 | Wt. n-Val. | 0.050 | 0.060 | 0.050 |
| W.S. Elev (ft) | 313.64 | Reach Len. (ft) | 1000.00 | 951.00 | 815.00 |
| Crit W.S. (ft) | 307.63 | Flow Area (sq ft) | 68.69 | 6201.80 | 469.16 |
| E.G. Slope (ft/ft) | 0.002199 | Area (sq ft) | 519.46 | 6201.80 | 469.16 |
| Q Total (cfs) | 37000.00 | Flow (cfs) | 128.44 | 35520.53 | 1351.02 |
| Top Width (ft) | 1012.96 | Top Width (ft) | 298.35 | 558.30 | 156.30 |
| Vel Total (ft/s) | 5.49 | Avg. Vel. (ft/s) | 1.87 | 5.73 | 2.88 |
| Max Chl Dpth (ft) | 16.55 | Hydr. Depth (ft) | 1.45 | 11.11 | 3.00 |
| Conv. Total (cfs) | 789098.9 | Conv. (cfs) | 2739.3 | 757546.3 | 28813.3 |
| Length Wtd. (ft) | 946.27 | Wetted Per. (ft) | 47.80 | 566.17 | 157.93 |
| Min Ch El (ft) | 297.09 | Shear (lb/sq ft) | 0.20 | 1.50 | 0.41 |
| Alpha | 1.06 | Stream Power (lb/ft s) | 0.37 | 8.61 | 1.17 |
| Frctn Loss (ft) | 3.29 | Cum Volume (acre-ft) | 22.80 | 484.93 | 211.35 |
| C & E Loss (ft) | 0.05 | Cum SA (acres) | 8.09 | 50.74 | 35.65 |

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 314.60 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.51 | Wt. n-Val. | 0.050 | 0.060 | 0.050 |
| W.S. Elev (ft) | 314.09 | Reach Len. (ft) | 1000.00 | 951.00 | 815.00 |
| Crit W.S. (ft) | 307.65 | Flow Area (sq ft) | 6.02 | 6452.91 | 4.32 |
| E.G. Slope (ft/ft) | 0.002089 | Area (sq ft) | 6.02 | 6452.91 | 4.32 |
| Q Total (cfs) | 37000.00 | Flow (cfs) | 8.41 | 36988.47 | 3.12 |
| Top Width (ft) | 560.00 | Top Width (ft) | 1.30 | 558.30 | 0.40 |
| Vel Total (ft/s) | 5.72 | Avg. Vel. (ft/s) | 1.40 | 5.73 | 0.72 |
| Max Chl Dpth (ft) | 17.00 | Hydr. Depth (ft) | 4.63 | 11.56 | 10.79 |
| Conv. Total (cfs) | 809606.5 | Conv. (cfs) | 184.1 | 809354.3 | 68.2 |
| Length Wtd. (ft) | 948.07 | Wetted Per. (ft) | 5.77 | 566.17 | 11.14 |
| Min Ch El (ft) | 297.09 | Shear (lb/sq ft) | 0.14 | 1.49 | 0.05 |
| Alpha | 1.00 | Stream Power (lb/ft s) | 0.19 | 8.52 | 0.04 |
| Frctn Loss (ft) | 2.54 | Cum Volume (acre-ft) | 12.43 | 522.45 | 68.08 |
| C & E Loss (ft) | 0.02 | Cum SA (acres) | 1.63 | 49.97 | 9.10 |

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #PF 3

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 315.89 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.52 | Wt. n-Val. | 0.050 | 0.060 | 0.050 |
| W.S. Elev (ft) | 315.38 | Reach Len. (ft) | 1000.00 | 951.00 | 815.00 |

| | | | | | |
|---|---|---|---|---|---|
| Crit W.S. (ft) | 308.73 | Flow Area (sq ft) | 1063.59 | 7170.10 | 757.90 |
| E.G. Slope (ft/ft) | 0.002006 | Area (sq ft) | 1063.59 | 7170.10 | 757.90 |
| Q Total (cfs) | 49000.00 | Flow (cfs) | 3100.44 | 43206.23 | 2693.33 |
| Top Width (ft) | 1062.61 | Top Width (ft) | 322.87 | 558.30 | 181.44 |
| Vel Total (ft/s) | 5.45 | Avg. Vel. (ft/s) | 2.92 | 6.03 | 3.55 |
| Max Chl Dpth (ft) | 18.29 | Hydr. Depth (ft) | 3.29 | 12.84 | 4.18 |
| Conv. Total (cfs) | 1094136.0 | Conv. (cfs) | 69230.6 | 964765.4 | 60140.3 |
| Length Wtd. (ft) | 945.68 | Wetted Per. (ft) | 328.99 | 566.17 | 183.20 |
| Min Ch El (ft) | 297.09 | Shear (lb/sq ft) | 0.40 | 1.59 | 0.52 |
| Alpha | 1.12 | Stream Power (lb/ft s) | 1.18 | 9.56 | 1.84 |
| Frctn Loss (ft) | 2.82 | Cum Volume (acre-ft) | 54.48 | 646.65 | 367.89 |
| C & E Loss (ft) | 0.05 | Cum SA (acres) | 13.46 | 50.91 | 39.68 |

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #PF 4

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 306.58 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.08 | Wt. n-Val. | | 0.060 | 0.050 |
| W.S. Elev (ft) | 306.50 | Reach Len. (ft) | 1000.00 | 951.00 | 815.00 |
| Crit W.S. (ft) | 302.77 | Flow Area (sq ft) | | 2242.34 | 11.96 |
| E.G. Slope (ft/ft) | 0.001174 | Area (sq ft) | | 2242.34 | 11.96 |
| Q Total (cfs) | 5000.00 | Flow (cfs) | | 4983.21 | 16.79 |
| Top Width (ft) | 528.65 | Top Width (ft) | | 522.06 | 6.59 |
| Vel Total (ft/s) | 2.22 | Avg. Vel. (ft/s) | | 2.22 | 1.40 |
| Max Chl Dpth (ft) | 9.41 | Hydr. Depth (ft) | | 4.30 | 1.81 |
| Conv. Total (cfs) | 145943.5 | Conv. (cfs) | | 145453.3 | 490.2 |
| Length Wtd. (ft) | 950.78 | Wetted Per. (ft) | | 528.97 | 7.38 |
| Min Ch El (ft) | 297.09 | Shear (lb/sq ft) | | 0.31 | 0.12 |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 0.69 | 0.17 |
| Frctn Loss (ft) | 2.66 | Cum Volume (acre-ft) | 2.17 | 217.27 | 94.74 |
| C & E Loss (ft) | 0.03 | Cum SA (acres) | 1.60 | 48.47 | 28.25 |

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #PF 5

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 310.49 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.24 | Wt. n-Val. | 0.050 | 0.060 | 0.050 |

| | | | | | |
|---|---|---|---|---|---|
| W.S. Elev (ft) | 310.25 | Reach Len. (ft) | 1000.00 | 951.00 | 815.00 |
| Crit W.S. (ft) | 305.30 | Flow Area (sq ft) | 1.54 | 4307.52 | 82.63 |
| E.G. Slope (ft/ft) | 0.001670 | Area (sq ft) | 1.54 | 4307.52 | 82.63 |
| Q Total (cfs) | 17000.00 | Flow (cfs) | 0.89 | 16862.36 | 136.75 |
| Top Width (ft) | 624.79 | Top Width (ft) | 4.46 | 558.30 | 62.03 |
| Vel Total (ft/s) | 3.87 | Avg. Vel. (ft/s) | 0.58 | 3.91 | 1.65 |
| Max Chl Dpth (ft) | 13.16 | Hydr. Depth (ft) | 0.34 | 7.72 | 1.33 |
| Conv. Total (cfs) | 416027.5 | Conv. (cfs) | 21.8 | 412659.2 | 3346.5 |
| Length Wtd. (ft) | 949.97 | Wetted Per. (ft) | 4.65 | 566.17 | 63.51 |
| Min Ch El (ft) | 297.09 | Shear (lb/sq ft) | 0.03 | 0.79 | 0.14 |
| Alpha | 1.02 | Stream Power (lb/ft s) | 0.02 | 3.10 | 0.22 |
| Frctn Loss (ft) | 3.07 | Cum Volume (acre-ft) | 7.11 | 341.41 | 136.38 |
| C & E Loss (ft) | 0.04 | Cum SA (acres) | 2.65 | 50.34 | 32.23 |

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: San Diego River
REACH: Reach 1 RS: 260

INPUT
Description: Survey Data (June 12, 2014)
Manning's coefficients are derived
from the Corrected Effective Model.
Station Elevation Data num= 458

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 314.92 | 3.45 | 315.01 | 6.04 | 315.17 | 7.03 | 315.37 | 8.63 | 315.64 |
| 9.07 | 315.63 | 11.1 | 315.49 | 13.14 | 315.27 | 13.81 | 315.22 | 15.18 | 315.17 |
| 16.4 | 315.16 | 19.25 | 314.89 | 21.29 | 314.76 | 23.33 | 314.69 | 29.35 | 314.53 |
| 37.12 | 314.41 | 39.71 | 314.41 | 42.3 | 314.34 | 47.48 | 314.28 | 50.07 | 314.28 |
| 51.85 | 314.55 | 52.67 | 314.69 | 55.26 | 315.25 | 57.85 | 315.78 | 60.44 | 316.08 |
| 63.03 | 316.68 | 65.62 | 317.52 | 68.21 | 318.28 | 73.39 | 319.57 | 76.31 | 320.2 |
| 78.57 | 320.6 | 81.16 | 320.96 | 83.75 | 321.1 | 86.34 | 321.04 | 88.53 | 320.94 |
| 91.52 | 320.77 | 94.11 | 320.67 | 96.6 | 320.51 | 100.76 | 320.28 | 104.47 | 320.05 |
| 107.06 | 319.93 | 109.65 | 319.74 | 112.24 | 319.59 | 119.09 | 319.12 | 123.17 | 318.89 |
| 127.79 | 318.56 | 130.38 | 318.4 | 132.97 | 318.17 | 135.56 | 317.9 | 138.15 | 317.65 |
| 141.51 | 317.29 | 151.1 | 316.35 | 151.69 | 316.3 | 153.69 | 316.19 | 155.77 | 316.1 |
| 157.81 | 316.04 | 158.87 | 315.98 | 164.05 | 315.03 | 166.64 | 314.89 | 169.23 | 314.79 |
| 171.82 | 314.81 | 174.11 | 314.87 | 177.01 | 314.89 | 179.6 | 314.98 | 182.26 | 315 |
| 184.78 | 314.95 | 187.37 | 314.84 | 189.96 | 314.7 | 195.14 | 314.49 | 197.73 | 314.46 |
| 200.32 | 314.26 | 202.63 | 314.16 | 210.78 | 313.72 | 213.27 | 313.55 | 215.86 | 313.42 |
| 220.7 | 313.11 | 223.01 | 312.98 | 226.22 | 312.76 | 228.81 | 312.67 | 231.16 | 312.75 |
| 231.4 | 312.77 | 233.19 | 313.06 | 233.99 | 313.2 | 236.58 | 313.83 | 237.27 | 313.89 |
| 239.2 | 313.926 | 241.34 | 313.16 | 242.5 | 312.57 | 243.38 | 312.16 | 244.36 | 311.61 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 245.42 | 310.84 | 247.46 | 309.41 | 249.54 | 308 | 252.13 | 306.73 | 253.57 | 306.16 |
| 254.72 | 305.66 | 257.31 | 304.26 | 259.9 | 303.04 | 261.72 | 302.43 | 262.49 | 302.21 |
| 263.76 | 302.23 | 265.08 | 302.27 | 267.67 | 302.52 | 268.43 | 302.69 | 269.87 | 302.98 |
| 271.91 | 303.26 | 272.85 | 303.33 | 273.94 | 303.35 | 274.5 | 303.44 | 275.44 | 303.52 |
| 275.98 | 303.53 | 277.97 | 303.62 | 280.06 | 303.54 | 280.62 | 303.53 | 283.21 | 303.44 |
| 288.39 | 303.36 | 290.98 | 303.2 | 293.57 | 303.21 | 296.16 | 303.19 | 298.75 | 303.05 |
| 300.43 | 303.01 | 303.94 | 303 | 306.54 | 302.97 | 311.71 | 302.85 | 314.3 | 302.84 |
| 316.73 | 303.11 | 319.48 | 303.24 | 322.07 | 303.18 | 324.88 | 302.73 | 325.7 | 302.62 |
| 326.92 | 302.4 | 327.82 | 302.16 | 328.96 | 301.76 | 329.84 | 301.6 | 330.99 | 301.46 |
| 333.03 | 301.3 | 335.02 | 301.09 | 337.11 | 301.15 | 340.2 | 301.33 | 341.18 | 301.44 |
| 342.04 | 301.43 | 342.79 | 301.48 | 343.22 | 301.43 | 344.82 | 301.34 | 347.97 | 301.22 |
| 350.56 | 300.82 | 351.38 | 300.62 | 353.15 | 300.23 | 354.4 | 299.81 | 355.45 | 299.42 |
| 357.49 | 298.58 | 358.33 | 298.25 | 363.51 | 297.13 | 363.98 | 297.06 | 365.65 | 296.87 |
| 366.88 | 296.75 | 367.69 | 296.7 | 368.69 | 296.55 | 371.28 | 296.28 | 373.87 | 296.22 |
| 375.84 | 296.01 | 376.46 | 295.92 | 379.05 | 295.65 | 379.92 | 295.61 | 381.64 | 295.59 |
| 384.23 | 295.73 | 384.63 | 295.83 | 386.03 | 296.09 | 386.82 | 296.3 | 389.41 | 297.47 |
| 390.11 | 297.72 | 391.99 | 298.29 | 394.19 | 299.03 | 394.58 | 299.12 | 397.17 | 299.64 |
| 399.76 | 300.36 | 400.3 | 300.45 | 402.3 | 300.74 | 404.94 | 301.01 | 407.53 | 301.51 |
| 408.46 | 301.64 | 409.47 | 301.86 | 411.88 | 302 | 438.61 | 302 | 441.2 | 301.53 |
| 443.12 | 301.07 | 443.79 | 300.93 | 446.38 | 300.71 | 448.97 | 300.74 | 454.15 | 300.98 |
| 456.74 | 301.04 | 459.33 | 301.25 | 461.92 | 301.57 | 464.51 | 301.84 | 467.1 | 301.98 |
| 474.87 | 302.04 | 477.46 | 302.08 | 482.64 | 302.14 | 485.23 | 302.21 | 490.4 | 302.29 |
| 492.99 | 302.38 | 495.58 | 302.51 | 498.16 | 302.75 | 500.76 | 303.05 | 506.31 | 303.46 |
| 508.53 | 303.59 | 511.12 | 303.67 | 513.71 | 303.54 | 516.3 | 303.08 | 518.89 | 302.54 |
| 521.48 | 301.94 | 524.07 | 301.55 | 526.66 | 301.25 | 529.25 | 301.12 | 534.43 | 300.81 |
| 537.02 | 300.69 | 539.61 | 300.75 | 542.2 | 300.72 | 545.05 | 300.63 | 549.12 | 300.56 |
| 552.56 | 300.48 | 555.15 | 300.56 | 560.33 | 300.81 | 563.4 | 301.08 | 568.1 | 301.52 |
| 570.69 | 301.84 | 573.28 | 302.12 | 578.46 | 302.76 | 583.78 | 303.33 | 586.22 | 303.56 |
| 588.81 | 303.77 | 591.4 | 303.95 | 593.99 | 304.06 | 599.17 | 304.17 | 601.76 | 304.26 |
| 604.35 | 304.28 | 606.94 | 304.35 | 612.12 | 304.38 | 614.71 | 304.33 | 617.3 | 304.24 |
| 619.89 | 304.11 | 620.48 | 304.07 | 625.07 | 303.69 | 627.66 | 303.45 | 638.02 | 302.62 |
| 640.86 | 302.36 | 643.2 | 302.18 | 650.97 | 301.44 | 653.56 | 301.27 | 658.74 | 301.05 |
| 663.92 | 300.88 | 666.51 | 300.89 | 669.4 | 300.84 | 671.69 | 300.74 | 674.28 | 300.67 |
| 679.46 | 300.44 | 682.05 | 300.42 | 687.22 | 300.48 | 689.81 | 300.41 | 692.4 | 300.29 |
| 694.99 | 300.09 | 697.58 | 299.85 | 700.17 | 299.56 | 702.02 | 299.38 | 702.76 | 299.32 |
| 705.35 | 299.2 | 720.89 | 300.88 | 731.25 | 299.16 | 739.02 | 298.81 | 746.79 | 300.31 |
| 759.14 | 299.26 | 759.74 | 299.12 | 761.14 | 299.45 | 762.33 | 299.69 | 763.18 | 299.67 |
| 764.4 | 299.58 | 765.22 | 299.56 | 766.32 | 299.63 | 767.51 | 299.74 | 770.1 | 300.46 |
| 771.33 | 300.71 | 772.69 | 301.01 | 775.28 | 301.97 | 775.86 | 302.06 | 777.44 | 302.25 |
| 777.87 | 302.24 | 780.46 | 302.11 | 783.05 | 302.11 | 788.23 | 302.27 | 790.82 | 302.42 |
| 793.74 | 302.83 | 795.78 | 303.03 | 797.82 | 303.19 | 798.59 | 303.24 | 801.18 | 303.44 |
| 802 | 303.488 | 803.77 | 303.62 | 805.97 | 303.65 | 806.36 | 303.67 | 808 | 303.83 |
| 808.96 | 303.94 | 811.55 | 304.35 | 814.14 | 304.81 | 816.73 | 305.39 | 819.32 | 305.9 |
| 821.91 | 306.32 | 824.3 | 306.53 | 827.09 | 306.61 | 830.42 | 306.55 | 832.27 | 306.56 |
| 834.86 | 306.46 | 836.53 | 306.37 | 840.04 | 306.21 | 842.63 | 306.12 | 845.22 | 306.16 |
| 847.81 | 306.22 | 850.4 | 306.33 | 852.99 | 306.53 | 855.58 | 306.84 | 858.17 | 307.24 |
| 860.76 | 307.69 | 863.35 | 308.2 | 865.94 | 308.79 | 868.54 | 309.32 | 871.13 | 309.6 |
| 873.2 | 309.9 | 875.24 | 310.16 | 879.32 | 310.65 | 881.49 | 310.89 | 885.43 | 310.74 |
| 886.67 | 310.72 | 891.54 | 310.57 | 893.58 | 310.55 | 895.62 | 310.5 | 897.65 | 310.42 |
| 899.62 | 310.32 | 902.21 | 310.25 | 903.77 | 310.33 | 904.8 | 310.36 | 905.8 | 310.5 |
| 906.61 | 310.53 | 907.39 | 310.61 | 907.84 | 310.69 | 909.5 | 310.79 | 910.16 | 310.86 |
| 911.92 | 311.12 | 912.57 | 311.17 | 915.16 | 311.27 | 915.99 | 311.19 | 917.27 | 311.25 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 918.03 | 311.25 | 919.05 | 311.34 | 920.34 | 311.5 | 922.93 | 311.75 | 928.22 | 312.1 |
| 930.71 | 312.4 | 932.29 | 312.53 | 933.3 | 312.59 | 935.89 | 312.72 | 938.6 | 312.79 |
| 940.44 | 312.85 | 943.66 | 312.86 | 944.52 | 312.87 | 946.25 | 312.93 | 948.84 | 313.06 |
| 952.67 | 313.18 | 958.78 | 313.34 | 961.79 | 313.39 | 964.38 | 313.47 | 969.56 | 313.52 |
| 972.15 | 313.5 | 974.74 | 313.58 | 977.33 | 313.57 | 979.15 | 313.62 | 982.51 | 313.69 |
| 985.86 | 313.72 | 990.28 | 313.79 | 995.47 | 314.25 | 998.06 | 314.32 | 1000.65 | 314.49 |
| 1001.57 | 314.56 | 1004.95 | 314.87 | 1008.42 | 315.14 | 1011.01 | 315.24 | 1013.6 | 315.21 |
| 1016.19 | 315.27 | 1021.37 | 315.29 | 1023.96 | 315.31 | 1026.02 | 315.63 | 1026.55 | 315.68 |
| 1029.14 | 315.8 | 1030.09 | 316.09 | 1031.04 | 316.44 | 1032.13 | 316.8 | 1034.17 | 317.55 |
| 1034.59 | 317.75 | 1036.2 | 318.64 | 1036.91 | 319.01 | 1039.5 | 319.94 | 1042.09 | 321.26 |
| 1044.68 | 323.16 | 1045.26 | 323.43 | 1046.39 | 324.01 | 1049.86 | 325.43 | 1050.47 | 325.56 |
| 1052.46 | 325.9 | 1056.58 | 326.15 | 1057.64 | 326.2 | 1060.65 | 326.2 | 1065.41 | 326.3 |
| 1070.59 | 326.34 | 1073.18 | 326.42 | 1074.92 | 326.44 | 1081.03 | 326.47 | 1083.54 | 326.46 |
| 1086.13 | 326.48 | 1088.72 | 326.55 | 1091.31 | 326.56 | 1096.49 | 326.67 | 1099.08 | 326.68 |
| 1101.4 | 326.66 | 1104.26 | 326.67 | 1106.85 | 326.65 | 1109.44 | 326.65 | 1111.59 | 326.63 |
| 1117.7 | 326.62 | 1119.74 | 326.59 | 1122.4 | 326.53 | 1124.99 | 326.5 | 1129.93 | 326.48 |
| 1135.35 | 326.4 | 1137.94 | 326.38 | 1140.12 | 326.28 | 1143.12 | 326.13 | 1146.23 | 325.93 |
| 1148.3 | 325.84 | 1153.48 | 325.68 | 1158.45 | 325.35 | 1166.14 | 324.68 | 1169.02 | 324.48 |
| 1174.2 | 323.92 | 1174.75 | 323.89 | 1179.39 | 323.43 | 1181.98 | 323.25 | 1184.57 | 323.42 |
| 1184.94 | 323.42 | 1187.16 | 323.31 | 1189.75 | 323.36 | 1194.93 | 323.44 | 1197.17 | 323.49 |
| 1200.11 | 323.49 | 1202.7 | 323.53 | 1205.29 | 323.53 | 1207.88 | 323.5 | 1209.39 | 323.46 |
| 1211.43 | 323.38 | 1213.46 | 323.28 | 1216.09 | 323.2 | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .05 | 239.2 | .06 | 802 | .05 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 239.2 | 802 | 1050 | 1031 | 1000 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | | |
|---|---|---|---|---|---|---|
| E.G. Elev (ft) | 310.80 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.96 | Wt. n-Val. | | 0.060 | 0.050 |
| W.S. Elev (ft) | 309.84 | Reach Len. (ft) | 1050.00 | 1031.00 | 1000.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 4621.90 | 245.10 |
| E.G. Slope (ft/ft) | 0.006172 | Area (sq ft) | | 4621.90 | 245.10 |
| Q Total (cfs) | 38000.00 | Flow (cfs) | | 36697.42 | 1302.58 |
| Top Width (ft) | 625.96 | Top Width (ft) | | 555.16 | 70.81 |
| Vel Total (ft/s) | 7.81 | Avg. Vel. (ft/s) | | 7.94 | 5.31 |
| Max Chl Dpth (ft) | 14.25 | Hydr. Depth (ft) | | 8.33 | 3.46 |
| Conv. Total (cfs) | 483698.7 | Conv. (cfs) | | 467118.2 | 16580.5 |
| Length Wtd. (ft) | 1025.37 | Wetted Per. (ft) | | 560.63 | 71.37 |
| Min Ch El (ft) | 295.59 | Shear (lb/sq ft) | | 3.18 | 1.32 |
| Alpha | 1.01 | Stream Power (lb/ft s) | | 25.22 | 7.03 |
| Frctn Loss (ft) | 2.20 | Cum Volume (acre-ft) | 16.84 | 366.78 | 204.67 |
| C & E Loss (ft) | 0.22 | Cum SA (acres) | 4.66 | 38.58 | 33.53 |

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

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

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 312.04 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.69 | Wt. n-Val. | | 0.060 | 0.050 |
| W.S. Elev (ft) | 311.35 | Reach Len. (ft) | 1050.00 | 1031.00 | 1000.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 5418.56 | 305.99 |
| E.G. Slope (ft/ft) | 0.003534 | Area (sq ft) | | 5418.56 | 305.99 |
| Q Total (cfs) | 38000.00 | Flow (cfs) | | 36386.68 | 1613.32 |
| Top Width (ft) | 600.00 | Top Width (ft) | | 545.30 | 54.70 |
| Vel Total (ft/s) | 6.64 | Avg. Vel. (ft/s) | | 6.72 | 5.27 |
| Max Chl Dpth (ft) | 15.76 | Hydr. Depth (ft) | | 9.94 | 5.59 |
| Conv. Total (cfs) | 639258.7 | Conv. (cfs) | | 612118.4 | 27140.3 |
| Length Wtd. (ft) | 1030.44 | Wetted Per. (ft) | | 556.19 | 59.35 |
| Min Ch El (ft) | 295.59 | Shear (lb/sq ft) | | 2.15 | 1.14 |
| Alpha | 1.01 | Stream Power (lb/ft s) | | 14.43 | 6.00 |
| Frctn Loss (ft) | 2.55 | Cum Volume (acre-ft) | 12.36 | 392.87 | 65.18 |
| C & E Loss (ft) | 0.08 | Cum SA (acres) | 1.62 | 37.92 | 8.59 |

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

CROSS SECTION OUTPUT Profile #PF 3

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 313.02 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 1.01 | Wt. n-Val. | | 0.060 | 0.050 |
| W.S. Elev (ft) | 312.01 | Reach Len. (ft) | 1050.00 | 1031.00 | 1000.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 5828.95 | 464.03 |
| E.G. Slope (ft/ft) | 0.004857 | Area (sq ft) | | 5828.95 | 464.03 |
| Q Total (cfs) | 50000.00 | Flow (cfs) | | 47703.38 | 2296.62 |
| Top Width (ft) | 683.23 | Top Width (ft) | | 558.35 | 124.88 |
| Vel Total (ft/s) | 7.95 | Avg. Vel. (ft/s) | | 8.18 | 4.95 |
| Max Chl Dpth (ft) | 16.42 | Hydr. Depth (ft) | | 10.44 | 3.72 |
| Conv. Total (cfs) | 717476.4 | Conv. (cfs) | | 684521.0 | 32955.4 |
| Length Wtd. (ft) | 1025.21 | Wetted Per. (ft) | | 564.50 | 125.60 |
| Min Ch El (ft) | 295.59 | Shear (lb/sq ft) | | 3.13 | 1.12 |
| Alpha | 1.03 | Stream Power (lb/ft s) | | 25.62 | 5.54 |
| Frctn Loss (ft) | 1.61 | Cum Volume (acre-ft) | 42.27 | 504.75 | 356.46 |
| C & E Loss (ft) | 0.24 | Cum SA (acres) | 9.75 | 38.72 | 36.81 |

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT  Profile #PF 4

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 303.89 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.33 | Wt. n-Val. | | 0.060 | 0.050 |
| W.S. Elev (ft) | 303.55 | Reach Len. (ft) | 1050.00 | 1031.00 | 1000.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 1188.03 | 0.03 |
| E.G. Slope (ft/ft) | 0.010956 | Area (sq ft) | | 1188.03 | 0.03 |
| Q Total (cfs) | 5500.00 | Flow (cfs) | | 5499.99 | 0.01 |
| Top Width (ft) | 494.80 | Top Width (ft) | | 493.94 | 0.86 |
| Vel Total (ft/s) | 4.63 | Avg. Vel. (ft/s) | | 4.63 | 0.31 |
| Max Chl Dpth (ft) | 7.96 | Hydr. Depth (ft) | | 2.41 | 0.03 |
| Conv. Total (cfs) | 52546.7 | Conv. (cfs) | | 52546.6 | 0.1 |
| Length Wtd. (ft) | 1025.76 | Wetted Per. (ft) | | 497.76 | 0.87 |
| Min Ch El (ft) | 295.59 | Shear (lb/sq ft) | | 1.63 | 0.02 |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 7.56 | 0.01 |
| Frctn Loss (ft) | 2.27 | Cum Volume (acre-ft) | 2.17 | 179.83 | 94.63 |
| C & E Loss (ft) | 0.09 | Cum SA (acres) | 1.60 | 37.38 | 28.18 |

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT  Profile #PF 5

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 307.37 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.66 | Wt. n-Val. | | 0.060 | 0.050 |
| W.S. Elev (ft) | 306.72 | Reach Len. (ft) | 1050.00 | 1031.00 | 1000.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 2893.51 | 52.55 |
| E.G. Slope (ft/ft) | 0.007655 | Area (sq ft) | | 2893.51 | 52.55 |
| Q Total (cfs) | 19000.00 | Flow (cfs) | | 18863.83 | 136.17 |
| Top Width (ft) | 602.38 | Top Width (ft) | | 549.83 | 52.54 |
| Vel Total (ft/s) | 6.45 | Avg. Vel. (ft/s) | | 6.52 | 2.59 |
| Max Chl Dpth (ft) | 11.13 | Hydr. Depth (ft) | | 5.26 | 1.00 |
| Conv. Total (cfs) | 217156.6 | Conv. (cfs) | | 215600.3 | 1556.3 |
| Length Wtd. (ft) | 1025.56 | Wetted Per. (ft) | | 554.44 | 52.82 |
| Min Ch El (ft) | 295.59 | Shear (lb/sq ft) | | 2.49 | 0.48 |
| Alpha | 1.02 | Stream Power (lb/ft s) | | 16.26 | 1.23 |
| Frctn Loss (ft) | 2.39 | Cum Volume (acre-ft) | 7.09 | 262.80 | 135.12 |
| C & E Loss (ft) | 0.15 | Cum SA (acres) | 2.60 | 38.25 | 31.16 |

Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: San Diego River
REACH: Reach 1 RS: 250

INPUT
Description: Survey Data (June 12, 2014)
Manning's coefficients are derived
from the Corrected Effective Model.
Station Elevation Data num= 487

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 318.928 | 4.622 | 319.038 | 12.594 | 319.122 | 15.7 | 319.219 | 18.322 | 319.25 |
| 20.943 | 319.338 | 23.564 | 319.328 | 27.682 | 319.281 | 31.428 | 319.298 | 39.292 | 319.281 |
| 44.535 | 319.187 | 47.157 | 319.187 | 50.459 | 319.114 | 52.399 | 319.125 | 55.021 | 319.054 |
| 62.416 | 318.932 | 65.506 | 318.795 | 70.749 | 318.707 | 73.37 | 318.703 | 75.992 | 318.391 |
| 78.613 | 317.554 | 81.234 | 316.809 | 83.856 | 316.561 | 85.869 | 316.428 | 89.098 | 316.266 |
| 91.72 | 315.968 | 94.341 | 315.712 | 99.584 | 315.049 | 102.274 | 314.726 | 106.26 | 314.353 |
| 110.069 | 314.028 | 112.691 | 313.926 | 115.312 | 313.884 | 117.933 | 313.746 | 120.555 | 313.65 |
| 125.798 | 313.318 | 130.175 | 313.011 | 133.662 | 312.813 | 144.147 | 312.28 | 146.118 | 312.16 |
| 152.011 | 311.755 | 154.633 | 311.639 | 159.875 | 311.35 | 166.047 | 311.046 | 170.361 | 310.792 |
| 172.982 | 310.674 | 175.603 | 310.607 | 183.468 | 310.352 | 188.71 | 310.219 | 193.953 | 310.062 |
| 199.196 | 309.855 | 204.438 | 309.773 | 207.06 | 309.75 | 209.681 | 309.688 | 212.303 | 309.656 |
| 214.924 | 309.594 | 222.788 | 309.485 | 225.834 | 309.401 | 228.031 | 309.372 | 230.652 | 309.268 |
| 233.273 | 309.196 | 239.784 | 308.97 | 243.77 | 308.875 | 249.002 | 308.688 | 252.117 | 308.545 |
| 256.866 | 308.38 | 262.108 | 308.25 | 267.351 | 308.042 | 269.973 | 307.991 | 272.594 | 308.021 |
| 277.055 | 307.809 | 280.458 | 307.777 | 283.628 | 307.611 | 285.701 | 307.475 | 287.614 | 307.426 |
| 293.565 | 307.157 | 296.186 | 307.075 | 303.557 | 306.759 | 305.55 | 306.696 | 309.293 | 306.625 |
| 311.914 | 306.531 | 317.157 | 306.412 | 321.493 | 306.266 | 325.021 | 306.077 | 330.445 | 305.822 |
| 335.513 | 305.529 | 339.41 | 305.056 | 343.388 | 304.625 | 346.013 | 304.263 | 349.353 | 303.693 |
| 351.262 | 303.297 | 353.887 | 302.877 | 359.794 | 302.391 | 363.273 | 302.183 | 367.011 | 301.849 |
| 367.998 | 301.875 | 369.239 | 302.008 | 372.261 | 302.203 | 374.886 | 302.224 | 376.203 | 302.187 |
| 380.135 | 302.17 | 385.148 | 302.097 | 388.01 | 301.744 | 389.125 | 301.636 | 395.884 | 301.094 |
| 398.509 | 301.045 | 403.046 | 300.767 | 405.034 | 300.679 | 407.026 | 300.502 | 408.999 | 300.22 |
| 411.029 | 300.153 | 413.031 | 300.017 | 416.842 | 299.881 | 419.037 | 299.753 | 423.041 | 299.565 |
| 427.045 | 299.351 | 433 | 299.093 | 442.986 | 298.66 | 450.829 | 298.328 | 453.443 | 298.379 |
| 455.072 | 298.488 | 459.076 | 298.625 | 461.678 | 298.649 | 463.08 | 298.758 | 463.901 | 298.687 |
| 468.942 | 296.956 | 471.744 | 296.116 | 474.358 | 295.412 | 476.972 | 295.75 | 479.095 | 296.279 |
| 479.587 | 296.345 | 481.097 | 296.243 | 482.201 | 296.233 | 486.033 | 295.852 | 487.43 | 295.658 |
| 489.105 | 295.329 | 491.107 | 295.062 | 495.273 | 294.729 | 497.887 | 294.724 | 503.137 | 294.783 |
| 505.122 | 295.088 | 505.729 | 295.272 | 508.343 | 296.433 | 509.127 | 296.681 | 511.692 | 297.173 |
| 513.572 | 297.348 | 516.186 | 297.87 | 517.136 | 298.003 | 518.8 | 298.328 | 521.414 | 298.563 |
| 523.143 | 298.407 | 525.145 | 298.181 | 526.642 | 298.086 | 529.256 | 298.099 | 534.484 | 298.083 |
| 539.713 | 298.088 | 543.166 | 298.045 | 545.168 | 297.986 | 547.17 | 297.994 | 550.169 | 297.953 |
| 555.397 | 297.948 | 561.186 | 298.101 | 563.24 | 298.188 | 565.854 | 298.239 | 568.468 | 298.253 |
| 571.198 | 298.237 | 573.696 | 298.195 | 575.202 | 298.335 | 577.204 | 298.444 | 581.538 | 298.578 |
| 584.152 | 298.496 | 587.216 | 298.792 | 589.686 | 299.081 | 591.22 | 299.309 | 591.995 | 299.358 |
| 597.241 | 299.156 | 599.23 | 299.099 | 602.451 | 299.272 | 605.065 | 299.439 | 607.679 | 299.382 |
| 609.241 | 299.244 | 612.908 | 298.86 | 615.248 | 298.771 | 618.136 | 298.726 | 620.75 | 298.641 |
| 622.906 | 298.445 | 625.259 | 298.278 | 625.978 | 298.188 | 628.592 | 298.041 | 636.43 | 298.08 |
| 639.28 | 298.03 | 643.28 | 298.28 | 646.89 | 298.37 | 649.51 | 298.16 | 652.12 | 298.06 |
| 657.3 | 297.94 | 659.96 | 298.02 | 663.3 | 298.24 | 665.19 | 298.34 | 667.8 | 298.58 |
| 671.31 | 298.71 | 675.32 | 298.89 | 678.26 | 298.85 | 686.1 | 298.97 | 688.72 | 298.9 |

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 691.33  298.91  693.95  298.92  696.56  298.98  720.09  298.98 721.369  298.98
730.543 298.924 735.771 298.775 743.613 298.594 747.398 298.566 751.403 298.467
753.405 298.359 756.684 298.062 759.298 297.771 761.414 297.454 764.526 297.108
767.421 296.918  775.43 296.779 779.435 296.725 782.825 296.724 785.442 296.906
788.053 297.174 790.667 297.385 794.005 297.451 798.509  297.49  801.46 297.458
805.464 297.319 809.469 297.046  811.58 296.941 814.194 296.898 822.036 296.682
827.265 296.816 829.879 297.049 832.493 297.312 835.107 297.782 837.721 298.441
839.503 298.723 842.949 299.318 845.563  299.62 848.178 299.615 850.792 299.474
853.406 299.259  856.02     299 858.634 298.962  863.53 299.131 866.476 298.998
871.705 298.622 876.933 298.563 879.547 298.438 881.551 297.634 883.553 296.565
884.775 295.994 885.556 295.797 887.558 295.464 890.003 295.188 893.565  295.29
895.231 295.307 897.846 295.236  900.46 295.278 901.574 295.379 903.576 295.626
905.219 295.733 910.916 295.938 911.585  296.03 913.587 296.412 916.144 297.125
918.758 297.651 921.597 297.904 923.987 297.987 925.601 298.006 927.603  297.97
929.215 297.874 931.829 297.785 937.615 297.634   944.9  297.38 947.514 297.413
949.628 297.641 952.742 297.906 955.356 297.938  957.97 298.115 960.584 298.247
963.198 298.316 968.427 298.267 973.659 298.438 978.883 298.519 984.111 298.868
986.725 298.921 991.954 298.969 994.568  299.08 997.182 299.1331005.024 299.365
1007.695 299.5971010.252 299.7241012.866 299.883  1013.9 300.0011015.481 300.215
1018.095 300.274 1021.71 300.2741028.551 300.3881031.165 300.2551033.779 300.195
1036.393 300.2711039.007 300.3071041.622 300.453 1046.85 300.6631052.078  300.74
1054.692 300.629 1059.92 300.2791062.534 299.9971067.763 299.3441070.377 298.971
1075.605 298.0761078.219 297.9791080.833 298.1171083.781 298.4521086.062 298.629
1088.676 298.608 1091.29 298.5551093.904 297.9251096.518 297.0151099.132   296.5
1101.746 296.4381106.974   296.51112.203 296.7131114.817 296.7811120.045 297.118
1122.659 297.3541125.273 297.5351127.887 297.7461130.501 297.9061133.115  298.11
1137.843 298.3551140.958 298.6111146.186 298.9011151.414 299.0491153.861 299.102
1159.868 298.9721161.871 298.9691167.099 299.0291169.713  299.011172.327 299.028
1175.886 298.9851177.555  298.991181.893 299.0461183.895 299.104  1187.9 299.273
1190.626 299.415 1193.24 299.5211198.468 299.7951203.696 300.0351206.311 300.082
1213.929 300.0511219.381 299.9721221.995 299.8711224.609 299.7081227.223 299.514
1229.838  299.381232.452 299.211 1237.68 299.0891242.908 299.1071245.522 299.174
1248.136 299.2791248.453 299.164 1249.97 298.992 1250.75 298.5391251.973 297.689
1253.365 296.5331253.975 296.0981255.979   295.51257.979 295.5571259.982 295.662
1263.821 295.6121264.527 295.6871266.435 295.9931269.049 296.1781271.663 295.745
1273.998 295.8681276.891 296.1081279.506 296.0551280.005 296.0981282.007 296.124
1284.734 296.3071286.011 296.4831287.348 296.5831289.962 296.8521292.576 296.984
 1295.19 296.7531296.023 296.936 1297.39 297.1311300.027 297.6071301.154 297.706
 1302.03 297.7051303.033  297.861308.261 297.7471310.039 297.7511313.489 297.705
1316.103 297.6151318.717 297.2081322.052 297.1421324.412 297.1561326.057 297.135
1329.174 297.0451332.064 297.1421334.066  297.331337.016 297.727 1339.63 297.799
1340.073 297.8631342.244 298.3551344.077 298.894 1346.08 299.5591347.472 300.086
1350.087  301.221352.701 302.4291356.091 304.0331357.929 304.6961360.096  305.23
1360.543 305.3061363.157 306.0091365.771 306.3281367.187 306.2931368.385 306.316
1370.999 306.6951373.614 306.8681376.228 306.5691378.116 306.2521380.119 305.969
1381.456 305.6671384.123 305.3451386.684 305.584 1390.13  305.861394.134 306.118
1397.141 306.2351399.755 306.4451402.144 306.5911404.983 306.8151407.597 307.184
1410.211 307.4421412.825 307.573 1416.16 307.7021418.053  307.861420.667 308.133
1423.282 308.4381425.896 308.7741431.124 309.5081432.178 309.8391433.738 310.512
 1434.18 310.8381436.182 312.1361438.185 312.658 1441.58 313.1771442.189 313.318
1444.191 313.9691446.809 315.5381449.423 316.7531450.198 317.1471452.037 318.278
1454.203 319.7781456.205 320.9171458.207 321.9761459.258 322.806 1460.21 323.423
```

1461.291 324.4121462.212 325.5121462.493 325.6711464.214 328.0971465.107 329.251
1466.216 330.2341466.786 330.3391467.721  330.86 1472.95  330.981478.178 330.999
1480.792 331.0631484.237 330.9691486.956 330.9381491.248     3311496.477 331.118
1499.091 331.049 1504.26 331.0311506.262 331.0041509.547     3311512.161 330.969
1514.776 330.969 1517.39 330.938

Manning's n Values  num=  3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .05 | 433 | .06 | 1013.9 | .05 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 433 | 1013.9 | 700 | 701 | 615 | .1 | .3 |

Ineffective Flow  num=  1

| Sta L | Sta R | Elev | Permanent |
|---|---|---|---|
| 1222 | 1517.39 | 300 | F |

CROSS SECTION OUTPUT  Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 308.38 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.23 | Wt. n-Val. | 0.050 | 0.060 | 0.050 |
| W.S. Elev (ft) | 308.16 | Reach Len. (ft) | 700.00 | 701.00 | 615.00 |
| Crit W.S. (ft) | 301.90 | Flow Area (sq ft) | 712.27 | 5921.80 | 3403.79 |
| E.G. Slope (ft/ft) | 0.001079 | Area (sq ft) | 712.27 | 5921.80 | 3403.79 |
| Q Total (cfs) | 38000.00 | Flow (cfs) | 1814.78 | 22577.64 | 13607.58 |
| Top Width (ft) | 1156.37 | Top Width (ft) | 168.51 | 580.90 | 406.96 |
| Vel Total (ft/s) | 3.79 | Avg. Vel. (ft/s) | 2.55 | 3.81 | 4.00 |
| Max Chl Dpth (ft) | 13.43 | Hydr. Depth (ft) | 4.23 | 10.19 | 8.36 |
| Conv. Total (cfs) | 1156767.0 | Conv. (cfs) | 55244.1 | 687291.0 | 414231.3 |
| Length Wtd. (ft) | 681.86 | Wetted Per. (ft) | 168.94 | 583.70 | 410.75 |
| Min Ch El (ft) | 294.72 | Shear (lb/sq ft) | 0.28 | 0.68 | 0.56 |
| Alpha | 1.02 | Stream Power (lb/ft s) | 0.72 | 2.61 | 2.23 |
| Frctn Loss (ft) | 1.45 | Cum Volume (acre-ft) | 8.26 | 242.00 | 162.78 |
| C & E Loss (ft) | 0.02 | Cum SA (acres) | 2.63 | 25.14 | 28.04 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT  Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 309.41 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.42 | Wt. n-Val. | 0.050 | 0.060 | 0.050 |
| W.S. Elev (ft) | 308.99 | Reach Len. (ft) | 700.00 | 701.00 | 615.00 |
| Crit W.S. (ft) | 303.02 | Flow Area (sq ft) | 603.46 | 6406.14 | 328.11 |
| E.G. Slope (ft/ft) | 0.001835 | Area (sq ft) | 603.46 | 6406.14 | 328.11 |
| Q Total (cfs) | 38000.00 | Flow (cfs) | 2894.41 | 33566.19 | 1539.40 |
| Top Width (ft) | 695.00 | Top Width (ft) | 76.00 | 580.90 | 38.10 |
| Vel Total (ft/s) | 5.18 | Avg. Vel. (ft/s) | 4.80 | 5.24 | 4.69 |
| Max Chl Dpth (ft) | 14.27 | Hydr. Depth (ft) | 7.94 | 11.03 | 8.61 |
| Conv. Total (cfs) | 887005.4 | Conv. (cfs) | 67561.9 | 783510.3 | 35933.1 |

| | | | | | |
|---|---|---|---|---|---|
| Length Wtd. (ft) | 699.11 | Wetted Per. (ft) | 82.53 | 583.70 | 46.38 |
| Min Ch El (ft) | 294.72 | Shear (lb/sq ft) | 0.84 | 1.26 | 0.81 |
| Alpha | 1.00 | Stream Power (lb/ft s) | 4.02 | 6.59 | 3.80 |
| Frctn Loss (ft) | 2.26 | Cum Volume (acre-ft) | 5.09 | 252.93 | 57.90 |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 0.70 | 24.60 | 7.52 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The cross section had to be extended vertically during the critical depth calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #PF 3

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 311.17 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.22 | Wt. n-Val. | 0.050 | 0.060 | 0.050 |
| W.S. Elev (ft) | 310.95 | Reach Len. (ft) | 700.00 | 701.00 | 615.00 |
| Crit W.S. (ft) | 302.68 | Flow Area (sq ft) | 1319.23 | 7544.74 | 4565.44 |
| E.G. Slope (ft/ft) | 0.000768 | Area (sq ft) | 1319.23 | 7544.74 | 4565.44 |
| Q Total (cfs) | 50000.00 | Flow (cfs) | 3161.73 | 28521.51 | 18316.77 |
| Top Width (ft) | 1266.66 | Top Width (ft) | 265.31 | 580.90 | 420.45 |
| Vel Total (ft/s) | 3.72 | Avg. Vel. (ft/s) | 2.40 | 3.78 | 4.01 |
| Max Chl Dpth (ft) | 16.23 | Hydr. Depth (ft) | 4.97 | 12.99 | 10.86 |
| Conv. Total (cfs) | 1804077.0 | Conv. (cfs) | 114079.9 | 1029100.0 | 660897.1 |
| Length Wtd. (ft) | 681.31 | Wetted Per. (ft) | 265.78 | 583.70 | 424.66 |
| Min Ch El (ft) | 294.72 | Shear (lb/sq ft) | 0.24 | 0.62 | 0.52 |
| Alpha | 1.04 | Stream Power (lb/ft s) | 0.57 | 2.34 | 2.07 |
| Frctn Loss (ft) | 1.01 | Cum Volume (acre-ft) | 26.37 | 346.48 | 298.73 |
| C & E Loss (ft) | 0.02 | Cum SA (acres) | 6.55 | 25.24 | 30.56 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 4

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 301.53 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.05 | Wt. n-Val. | 0.050 | 0.060 | 0.050 |
| W.S. Elev (ft) | 301.48 | Reach Len. (ft) | 700.00 | 701.00 | 615.00 |
| Crit W.S. (ft) | 299.21 | Flow Area (sq ft) | 54.03 | 2046.77 | 1014.58 |
| E.G. Slope (ft/ft) | 0.000919 | Area (sq ft) | 54.03 | 2046.77 | 1014.58 |
| Q Total (cfs) | 5500.00 | Flow (cfs) | 57.50 | 3546.09 | 1896.42 |
| Top Width (ft) | 959.65 | Top Width (ft) | 41.99 | 580.90 | 336.76 |
| Vel Total (ft/s) | 1.77 | Avg. Vel. (ft/s) | 1.06 | 1.73 | 1.87 |
| Max Chl Dpth (ft) | 6.76 | Hydr. Depth (ft) | 1.29 | 3.52 | 3.01 |
| Conv. Total (cfs) | 181458.8 | Conv. (cfs) | 1897.0 | 116994.3 | 62567.5 |
| Length Wtd. (ft) | 683.24 | Wetted Per. (ft) | 42.07 | 583.70 | 339.41 |
| Min Ch El (ft) | 294.72 | Shear (lb/sq ft) | 0.07 | 0.20 | 0.17 |

| | | | | | |
|---|---|---|---|---|---|
| Alpha | 1.01 | Stream Power (lb/ft s) | 0.08 | 0.35 | 0.32 |
| Frctn Loss (ft) | 0.91 | Cum Volume (acre-ft) | 1.52 | 141.55 | 82.98 |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 1.10 | 24.66 | 24.31 |

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

CROSS SECTION OUTPUT Profile #PF 5

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 304.83 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.14 | Wt. n-Val. | 0.050 | 0.060 | 0.050 |
| W.S. Elev (ft) | 304.69 | Reach Len. (ft) | 700.00 | 701.00 | 615.00 |
| Crit W.S. (ft) | 300.52 | Flow Area (sq ft) | 291.96 | 3906.58 | 2103.84 |
| E.G. Slope (ft/ft) | 0.001110 | Area (sq ft) | 291.96 | 3906.58 | 2103.84 |
| Q Total (cfs) | 19000.00 | Flow (cfs) | 631.14 | 11447.29 | 6921.57 |
| Top Width (ft) | 1015.08 | Top Width (ft) | 90.18 | 580.90 | 344.00 |
| Vel Total (ft/s) | 3.01 | Avg. Vel. (ft/s) | 2.16 | 2.93 | 3.29 |
| Max Chl Dpth (ft) | 9.96 | Hydr. Depth (ft) | 3.24 | 6.73 | 6.12 |
| Conv. Total (cfs) | 570289.4 | Conv. (cfs) | 18943.8 | 343593.2 | 207752.4 |
| Length Wtd. (ft) | 682.06 | Wetted Per. (ft) | 90.50 | 583.70 | 347.34 |
| Min Ch El (ft) | 294.72 | Shear (lb/sq ft) | 0.22 | 0.46 | 0.42 |
| Alpha | 1.02 | Stream Power (lb/ft s) | 0.48 | 1.36 | 1.38 |
| Frctn Loss (ft) | 1.46 | Cum Volume (acre-ft) | 3.58 | 182.33 | 110.37 |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 1.51 | 24.87 | 26.61 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: San Diego River
REACH: Reach 1 RS: 245

INPUT
Description: Survey Data (June 12, 2014)
Manning's coefficients are derived
from the Corrected Effective Model.
Station Elevation Data num= 499

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 332 | 2.84 | 332.19 | 5.61 | 331.73 | 8.38 | 331.47 | 11.15 | 331.35 |
| 13.91 | 331.34 | 16.68 | 331.19 | 22.22 | 331.11 | 27.76 | 330.97 | 36.57 | 330.92 |
| 47.13 | 330.62 | 52.67 | 330.54 | 55.44 | 330.59 | 58.21 | 330.86 | 60.98 | 331.66 |
| 63.74 | 332.05 | 66.51 | 331.88 | 72.05 | 331.1 | 74.82 | 331.13 | 78.38 | 331.34 |
| 80.35 | 331.62 | 83.47 | 331.43 | 85.89 | 330.53 | 88.66 | 328.99 | 91.43 | 328.22 |
| 94.2 | 326.76 | 96.6 | 325.29 | 98.48 | 324.29 | 102.5 | 322.5 | 105.27 | 322.02 |
| 110.81 | 321.97 | 122.87 | 321.76 | 138.49 | 321.39 | 146.79 | 321.17 | 157.87 | 320.93 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 160.64 | 320.84 | 180.01 | 320.7 | 182.9 | 320.72 | 193.86 | 320.68 | 204.93 | 320.51 |
| 218.77 | 320.18 | 224.18 | 320.09 | 232.61 | 319.89 | 246.45 | 319.6 | 263.06 | 319.16 |
| 267.33 | 319.1 | 274.14 | 318.93 | 279.67 | 319.02 | 282.44 | 318.94 | 287.98 | 319.34 |
| 290.75 | 319.66 | 296.28 | 319.88 | 299.05 | 320.09 | 304.59 | 320.63 | 310.13 | 320.93 |
| 315.66 | 321.01 | 317.04 | 320.71 | 323.97 | 318.15 | 327.36 | 317.19 | 329.5 | 317.06 |
| 332.27 | 317.08 | 357.38 | 317 | 368.26 | 316.94 | 382.1 | 316.9 | 386.89 | 316.81 |
| 393.17 | 316.75 | 398.65 | 316.84 | 407.02 | 316.8 | 415.32 | 316.63 | 427.63 | 316.42 |
| 431.93 | 316.38 | 458.69 | 315.94 | 462.56 | 315.75 | 467.92 | 315.56 | 470.69 | 315.66 |
| 476.22 | 315.73 | 484.53 | 315.91 | 487.3 | 315.91 | 491.66 | 316.05 | 496.21 | 316.07 |
| 509.44 | 316.44 | 514.98 | 316.44 | 520.52 | 316.71 | 523.29 | 316.79 | 526.05 | 316.64 |
| 528.1 | 316.82 | 537.13 | 316.66 | 539.36 | 316.75 | 542.66 | 316.7 | 556.51 | 316.75 |
| 567.58 | 316.72 | 570.35 | 316.78 | 578.65 | 316.84 | 581.42 | 316.78 | 586.96 | 316.96 |
| 590.62 | 316.81 | 591.89 | 316.86 | 595.26 | 317.4 | 602.26 | 317.7 | 603.57 | 317.54 |
| 608.08 | 316.74 | 617.41 | 316.59 | 622.95 | 316.31 | 628.48 | 316.16 | 629.41 | 315.13 |
| 631.37 | 310.13 | 633.16 | 306.96 | 634.02 | 305.95 | 636.79 | 305.58 | 639.56 | 304.94 |
| 645.09 | 304.22 | 647.86 | 304.06 | 653.4 | 304.17 | 655.7 | 304.089 | 659.43 | 303.85 |
| 661.7 | 303.59 | 666.93 | 303.22 | 670.01 | 302.56 | 672.56 | 302.12 | 676.31 | 301.19 |
| 681.08 | 299.79 | 686.62 | 298.64 | 693.2 | 297.84 | 695.4 | 297.65 | 698.83 | 297.15 |
| 701.22 | 296.89 | 704.46 | 296.87 | 706.33 | 296.77 | 711.53 | 296.66 | 717.07 | 296.31 |
| 719.84 | 296.21 | 722.61 | 296.46 | 725.09 | 296.35 | 728.84 | 296.63 | 730.91 | 296.98 |
| 736.45 | 296.78 | 740.1 | 296.9 | 747.61 | 296.93 | 749.48 | 297 | 751.36 | 296.92 |
| 755.11 | 296.59 | 758.59 | 296.54 | 761.36 | 296.61 | 766.37 | 296.48 | 769.67 | 296.55 |
| 771.99 | 296.2 | 773.87 | 295.68 | 775.75 | 295.39 | 777.97 | 295.44 | 780.74 | 295.95 |
| 783.51 | 296.63 | 785.13 | 296.61 | 788.88 | 296.38 | 791.81 | 296.51 | 794.51 | 296.75 |
| 797.35 | 297.11 | 800.12 | 297.15 | 802.01 | 296.98 | 803.89 | 297.03 | 805.99 | 297.36 |
| 808.42 | 297.47 | 811.82 | 297.32 | 818.9 | 296.76 | 825.03 | 296.92 | 827.8 | 296.77 |
| 830.57 | 295.86 | 835.1 | 295.52 | 843.29 | 295.61 | 847.04 | 295.56 | 849.95 | 295.74 |
| 858.25 | 296.46 | 863.92 | 297.64 | 866.56 | 298.01 | 871.43 | 298.2 | 880.4 | 298.09 |
| 882.68 | 298.15 | 885.94 | 297.99 | 888.7 | 297.4 | 891.47 | 296.65 | 894.24 | 294.91 |
| 897.01 | 292.78 | 899.78 | 291.77 | 901.44 | 291.49 | 904.95 | 291.1 | 908.95 | 291.11 |
| 910.85 | 291.03 | 919.16 | 291.38 | 924.69 | 291.73 | 927.46 | 292.07 | 930.23 | 292.55 |
| 933 | 292.91 | 938.53 | 293.22 | 941.3 | 293.57 | 944.6 | 293.75 | 949.61 | 294.29 |
| 952.1 | 294.81 | 955.14 | 295.33 | 960.68 | 296.05 | 966.22 | 296.28 | 968.99 | 296.5 |
| 971.75 | 296.56 | 980.06 | 296.47 | 982.83 | 296.5 | 985.87 | 296.35 | 991.13 | 296.54 |
| 993.9 | 296.58 | 1002.21 | 296.24 | 1007.74 | 295.79 | 1012.13 | 296.12 | 1015.89 | 296.33 |
| 1021.37 | 296.38 | 1027.19 | 296.13 | 1032.66 | 296.1 | 1035.43 | 296.16 | 1040.28 | 295.83 |
| 1043.73 | 295.98 | 1049.27 | 295.7 | 1054.8 | 295.28 | 1060.34 | 295.51 | 1065.88 | 295.65 |
| 1068.65 | 295.89 | 1074.18 | 296.73 | 1076.95 | 296.71 | 1085.26 | 296.34 | 1088.02 | 296.28 |
| 1101.87 | 296.43 | 1107.4 | 296.07 | 1110.17 | 296 | 1115.32 | 296.16 | 1118.48 | 296.02 |
| 1121.24 | 296.25 | 1124.01 | 296.36 | 1126.78 | 296.28 | 1129.55 | 296.33 | 1137.85 | 296.69 |
| 1143.39 | 297.12 | 1146.16 | 297.68 | 1160.35 | 297.39 | 1165.54 | 297.2 | 1167.85 | 297.25 |
| 1173.84 | 297.03 | 1177.23 | 297.12 | 1184.92 | 297.09 | 1190.45 | 297.31 | 1195.99 | 297.19 |
| 1201.53 | 296.88 | 1209.12 | 296.24 | 1212.6 | 296.01 | 1220.9 | 295.67 | 1226.44 | 295.56 |
| 1234.75 | 294.97 | 1243.05 | 294.53 | 1248.59 | 294.5 | 1254.21 | 294.22 | 1259.66 | 294.29 |
| 1261.65 | 294.84 | 1263.53 | 295.06 | 1267.96 | 295.29 | 1271.03 | 295.35 | 1273.5 | 295.72 |
| 1276.66 | 295.67 | 1279.04 | 295.4 | 1281.81 | 295.43 | 1287.7 | 295.836 | 1292.88 | 295.97 |
| 1295.42 | 295.86 | 1298.42 | 295.89 | 1301.18 | 296.15 | 1304.8 | 295.61 | 1306.72 | 295.44 |
| 1309.49 | 295.37 | 1312.26 | 295.62 | 1314.18 | 296.05 | 1317.79 | 296.63 | 1320.56 | 297.38 |
| 1325.44 | 297.46 | 1328.87 | 297.78 | 1331.64 | 297.63 | 1337.17 | 297.01 | 1339.94 | 297.08 |
| 1342.71 | 297.44 | 1346.08 | 297.33 | 1348.25 | 297.45 | 1351.01 | 298.15 | 1356.55 | 300.77 |
| 1359.32 | 301.34 | 1362.09 | 301.39 | 1364.86 | 301.25 | 1368.59 | 300.94 | 1373.16 | 300.46 |
| 1381.47 | 299.84 | 1387 | 299.65 | 1392.54 | 299.72 | 1398.08 | 299.53 | 1400.84 | 299.5 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1405.55 | 299.76 | 1409.15 | 299.66 | 1411.92 | 299.41 | 1414.69 | 298.92 | 1417.45 | 298.11 |
| 1422.99 | 296.16 | 1424.87 | 296.01 | 1426.75 | 296.09 | 1428.53 | 296.39 | 1434.06 | 298.55 |
| 1436.83 | 299.2 | 1440.47 | 299.75 | 1445.14 | 300.21 | 1451.14 | 300.54 | 1458.64 | 300.66 |
| 1462.4 | 300.62 | 1472.82 | 300.69 | 1481.13 | 300.56 | 1486.66 | 300.53 | 1492.2 | 300.65 |
| 1500.5 | 300.61 | 1506.04 | 300.75 | 1509.3 | 300.95 | 1516.8 | 301.57 | 1524.31 | 302.39 |
| 1528.06 | 302.74 | 1530.96 | 303.09 | 1533.72 | 303.57 | 1539.26 | 304.83 | 1542.03 | 305.23 |
| 1545.25 | 305.49 | 1554.32 | 305.78 | 1561.41 | 306.33 | 1564.18 | 306.59 | 1569.71 | 307.23 |
| 1575.25 | 308.43 | 1578.02 | 308.92 | 1583.55 | 309.7 | 1586.22 | 309.89 | 1589.09 | 309.93 |
| 1594.63 | 309.6 | 1597.4 | 309.23 | 1605.7 | 307.12 | 1614.36 | 305.23 | 1619.54 | 304.41 |
| 1631.24 | 303.35 | 1635 | 303.13 | 1641.69 | 302.83 | 1644.46 | 302.81 | 1652.76 | 302.55 |
| 1659.38 | 302.24 | 1672.14 | 301.39 | 1674.91 | 301.18 | 1680.45 | 300.97 | 1688.75 | 300.85 |
| 1704.41 | 300.81 | 1710.9 | 300.76 | 1716.43 | 300.91 | 1724.74 | 301.29 | 1730.28 | 301.62 |
| 1733.04 | 301.67 | 1741.35 | 302.46 | 1746.89 | 302.82 | 1754.8 | 303.2 | 1760.69 | 303.44 |
| 1764.45 | 303.76 | 1769.03 | 304.23 | 1771.8 | 304.78 | 1777.34 | 306.9 | 1779.45 | 307.45 |
| 1782.87 | 307.91 | 1785.64 | 307.95 | 1789.72 | 308.37 | 1791.18 | 308.62 | 1794.46 | 309.59 |
| 1798.21 | 310.87 | 1801.37 | 311.79 | 1805.72 | 312.31 | 1809.47 | 312.62 | 1816.98 | 312.88 |
| 1824.48 | 312.94 | 1832.7 | 312.77 | 1835.47 | 313.06 | 1841.01 | 314.5 | 1846.99 | 315.71 |
| 1853.75 | 317.19 | 1858.25 | 318.37 | 1860.39 | 319.21 | 1863.16 | 320.56 | 1865.4 | 322.04 |
| 1871.22 | 326.19 | 1873.26 | 327.09 | 1874.23 | 327.69 | 1877.01 | 329.75 | 1879.77 | 331.55 |
| 1882.64 | 333.1 | 1885.3 | 334.05 | 1888.07 | 334.39 | 1893.61 | 334.27 | 1895.77 | 334.34 |
| 1901.91 | 334.27 | 1907.03 | 334.3 | 1912.99 | 334.09 | 1918.52 | 334.13 | 1924.06 | 333.97 |
| 1929.6 | 333.97 | 1937.9 | 333.91 | 1955.81 | 333.89 | 1960.05 | 333.76 | 1964.35 | 333.72 |
| 1968.35 | 333.47 | 1973.89 | 332.63 | 1979.43 | 331.73 | 1985.82 | 331.12 | 1987.73 | 331 |
| 1993.45 | 330.46 | 1996.04 | 330.33 | 2004.34 | 330.65 | 2009.88 | 330.75 | 2018.18 | 330.91 |
| 2025.22 | 330.99 | 2034.79 | 331 | 2040.33 | 330.93 | 2045.87 | 330.91 | 2048.63 | 330.8 |
| 2051.66 | 330.78 | 2057.11 | 330.57 | 2059.71 | 330.69 | 2066.49 | 331.27 | 2070.78 | 331.72 |
| 2079.09 | 332.37 | 2087.39 | 333.11 | 2092.76 | 333.34 | 2098.23 | 333.4 | 2101.23 | 333.5 |
| 2109.54 | 333.38 | 2115.27 | 333.52 | 2124.65 | 333.5 | 2127.33 | 333.59 | 2135.91 | 333.6 |
| 2139.99 | 333.73 | 2145.29 | 333.81 | 2148.29 | 334.13 | 2151.06 | 334 | 2156.6 | 334.06 |
| 2170.44 | 334.65 | 2173.21 | 335.34 | 2175.98 | 337.02 | 2178.75 | 338.58 | 2181.51 | 339.28 |
| 2192.59 | 339.58 | 2200.89 | 339.16 | 2206.43 | 338.83 | 2211.97 | 338.69 | 2217.5 | 338.73 |
| 2220.46 | 338.62 | 2228.58 | 338.57 | 2234.11 | 338.33 | 2239.09 | 338.3 | 2245.19 | 338 |
| 2250.35 | 337.65 | 2253.49 | 337.36 | 2257.85 | 336.81 | 2261.8 | 336.21 | 2267.03 | 335.65 |
| 2270.1 | 335.38 | 2272.87 | 334.97 | 2281.17 | 335.14 | 2283.94 | 335.09 | 2286.71 | 335.16 |
| 2290.31 | 335.15 | 2306.09 | 334.97 | 2308.86 | 334.88 | 2314.39 | 334.84 | 2319.93 | 334.69 |
| 2325.47 | 334.66 | 2331 | 334.5 | 2333.77 | 334.48 | 2342.08 | 334.25 | 2347.61 | 334.06 |
| 2350.38 | 334.05 | 2355.92 | 333.9 | 2361.04 | 333.71 | 2364.22 | 333.68 | 2369.76 | 333.72 |
| 2375.3 | 333.94 | 2383.45 | 334.18 | 2389.14 | 334.31 | 2400.21 | 334.27 | 2414.05 | 333.97 |
| 2416.82 | 334.07 | 2422.36 | 334.84 | 2424.83 | 335.33 | 2427.9 | 335.55 | 2432.33 | 335.68 |
| 2434.21 | 335.89 | 2441.74 | 336.53 | 2444.51 | 336.81 | 2450.04 | 337.19 | 2455.58 | 337.39 |
| 2462.35 | 337.43 | 2469.85 | 337.65 | 2474.96 | 337.45 | 2498.59 | 337.08 | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .045 | 655.7 | .1 | 1287.7 | .11 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 655.7 | 1287.7 | 140.2 | 147.4 | 160 | .1 | .3 |

Ineffective Flow num= 2

| Sta L | Sta R | Elev | Permanent |
|---|---|---|---|
| 0 | 642 | 313.25 | F |
| 1371.7 | 2498.59 | 313.25 | F |

CROSS SECTION OUTPUT  Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 306.91 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.44 | Wt. n-Val. | 0.045 | 0.100 | 0.110 |
| W.S. Elev (ft) | 306.48 | Reach Len. (ft) | 140.20 | 147.40 | 160.00 |
| Crit W.S. (ft) | 300.76 | Flow Area (sq ft) | 31.30 | 6431.43 | 741.55 |
| E.G. Slope (ft/ft) | 0.005987 | Area (sq ft) | 40.89 | 6431.43 | 2476.76 |
| Q Total (cfs) | 38000.00 | Flow (cfs) | 138.48 | 34579.88 | 3281.65 |
| Top Width (ft) | 1096.97 | Top Width (ft) | 22.13 | 632.00 | 442.85 |
| Vel Total (ft/s) | 5.27 | Avg. Vel. (ft/s) | 4.42 | 5.38 | 4.43 |
| Max Chl Dpth (ft) | 15.45 | Hydr. Depth (ft) | 2.28 | 10.18 | 8.83 |
| Conv. Total (cfs) | 491097.6 | Conv. (cfs) | 1789.7 | 446897.2 | 42410.8 |
| Length Wtd. (ft) | 147.93 | Wetted Per. (ft) | 13.73 | 635.99 | 85.12 |
| Min Ch El (ft) | 291.03 | Shear (lb/sq ft) | 0.85 | 3.78 | 3.26 |
| Alpha | 1.01 | Stream Power (lb/ft s) | 3.77 | 20.32 | 14.41 |
| Frctn Loss (ft) | 0.67 | Cum Volume (acre-ft) | 2.21 | 142.60 | 121.27 |
| C & E Loss (ft) | 0.03 | Cum SA (acres) | 1.10 | 15.38 | 22.04 |

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

CROSS SECTION OUTPUT  Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 307.13 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.55 | Wt. n-Val. | | 0.100 | 0.110 |
| W.S. Elev (ft) | 306.58 | Reach Len. (ft) | 140.20 | 147.40 | 160.00 |
| Crit W.S. (ft) | 300.98 | Flow Area (sq ft) | | 6355.73 | 41.72 |
| E.G. Slope (ft/ft) | 0.007116 | Area (sq ft) | | 6355.73 | 41.72 |
| Q Total (cfs) | 38000.00 | Flow (cfs) | | 37904.05 | 95.95 |
| Top Width (ft) | 605.00 | Top Width (ft) | | 601.10 | 3.90 |
| Vel Total (ft/s) | 5.94 | Avg. Vel. (ft/s) | | 5.96 | 2.30 |
| Max Chl Dpth (ft) | 15.55 | Hydr. Depth (ft) | | 10.57 | 10.70 |
| Conv. Total (cfs) | 450457.5 | Conv. (cfs) | | 449320.1 | 1137.4 |
| Length Wtd. (ft) | 147.42 | Wetted Per. (ft) | | 612.45 | 14.55 |
| Min Ch El (ft) | 291.03 | Shear (lb/sq ft) | | 4.61 | 1.27 |
| Alpha | 1.01 | Stream Power (lb/ft s) | | 27.50 | 2.93 |
| Frctn Loss (ft) | 0.70 | Cum Volume (acre-ft) | 0.24 | 150.24 | 55.29 |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 0.09 | 15.09 | 7.22 |

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

CROSS SECTION OUTPUT  Profile #PF 3

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 310.14 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.43 | Wt. n-Val. | 0.045 | 0.100 | 0.110 |
| W.S. Elev (ft) | 309.71 | Reach Len. (ft) | 140.20 | 147.40 | 160.00 |
| Crit W.S. (ft) | 301.75 | Flow Area (sq ft) | 75.60 | 8475.04 | 1013.17 |

| | | | | | |
|---|---|---|---|---|---|
| E.G. Slope (ft/ft) | 0.004037 | Area (sq ft) | 115.81 | 8475.04 | 3996.47 |
| Q Total (cfs) | 50000.00 | Flow (cfs) | 494.45 | 44972.46 | 4533.09 |
| Top Width (ft) | 1154.10 | Top Width (ft) | 24.09 | 632.00 | 498.00 |
| Vel Total (ft/s) | 5.23 | Avg. Vel. (ft/s) | 6.54 | 5.31 | 4.47 |
| Max Chl Dpth (ft) | 18.68 | Hydr. Depth (ft) | 5.52 | 13.41 | 12.06 |
| Conv. Total (cfs) | 786962.9 | Conv. (cfs) | 7782.2 | 707833.2 | 71347.5 |
| Length Wtd. (ft) | 147.94 | Wetted Per. (ft) | 13.73 | 635.99 | 85.12 |
| Min Ch El (ft) | 291.03 | Shear (lb/sq ft) | 1.39 | 3.36 | 3.00 |
| Alpha | 1.01 | Stream Power (lb/ft s) | 9.07 | 17.82 | 13.42 |
| Frctn Loss (ft) | 0.47 | Cum Volume (acre-ft) | 14.84 | 217.58 | 238.29 |
| C & E Loss (ft) | 0.03 | Cum SA (acres) | 4.23 | 15.48 | 24.07 |

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

CROSS SECTION OUTPUT Profile #PF 4

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 300.62 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.05 | Wt. n-Val. | | 0.100 | 0.110 |
| W.S. Elev (ft) | 300.57 | Reach Len. (ft) | 140.20 | 147.40 | 160.00 |
| Crit W.S. (ft) | 297.23 | Flow Area (sq ft) | | 2747.87 | 253.48 |
| E.G. Slope (ft/ft) | 0.002131 | Area (sq ft) | | 2747.87 | 367.93 |
| Q Total (cfs) | 5500.00 | Flow (cfs) | | 5125.10 | 374.90 |
| Top Width (ft) | 766.00 | Top Width (ft) | | 609.27 | 156.73 |
| Vel Total (ft/s) | 1.83 | Avg. Vel. (ft/s) | | 1.87 | 1.48 |
| Max Chl Dpth (ft) | 9.54 | Hydr. Depth (ft) | | 4.51 | 3.70 |
| Conv. Total (cfs) | 119138.1 | Conv. (cfs) | | 111017.3 | 8120.8 |
| Length Wtd. (ft) | 147.83 | Wetted Per. (ft) | | 612.91 | 69.40 |
| Min Ch El (ft) | 291.03 | Shear (lb/sq ft) | | 0.60 | 0.49 |
| Alpha | 1.01 | Stream Power (lb/ft s) | | 1.11 | 0.72 |
| Frctn Loss (ft) | 0.13 | Cum Volume (acre-ft) | 1.09 | 102.97 | 73.22 |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 0.76 | 15.08 | 20.82 |

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

CROSS SECTION OUTPUT Profile #PF 5

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 303.36 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.25 | Wt. n-Val. | | 0.100 | 0.110 |
| W.S. Elev (ft) | 303.11 | Reach Len. (ft) | 140.20 | 147.40 | 160.00 |
| Crit W.S. (ft) | 299.03 | Flow Area (sq ft) | | 4311.85 | 459.02 |
| E.G. Slope (ft/ft) | 0.005709 | Area (sq ft) | | 4311.85 | 1111.43 |
| Q Total (cfs) | 19000.00 | Flow (cfs) | | 17559.27 | 1440.73 |
| Top Width (ft) | 981.25 | Top Width (ft) | | 620.27 | 360.98 |
| Vel Total (ft/s) | 3.98 | Avg. Vel. (ft/s) | | 4.07 | 3.14 |
| Max Chl Dpth (ft) | 12.08 | Hydr. Depth (ft) | | 6.95 | 5.46 |
| Conv. Total (cfs) | 251455.6 | Conv. (cfs) | | 232388.2 | 19067.4 |

| | | | | | |
|---|---|---|---|---|---|
| Length Wtd. (ft) | 147.88 | Wetted Per. (ft) | 624.21 | 85.12 | |
| Min Ch El (ft) | 291.03 | Shear (lb/sq ft) | 2.46 | 1.92 | |
| Alpha | 1.01 | Stream Power (lb/ft s) | 10.03 | 6.03 | |
| Frctn Loss (ft) | 0.51 | Cum Volume (acre-ft) | 1.23 | 116.20 | 87.67 |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 0.78 | 15.20 | 21.63 |

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

CROSS SECTION

RIVER: San Diego River
REACH: Reach 1 RS: 244

INPUT
Description: MAST BLVD BRIDGE (NORMAL BRIDGE ROUTINE)-
Corrected Effective
Geometry
Station Elevation Data num= 35

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 312.5 | 104.5 | 308.1 | 201.3 | 303.9 | 207.8 | 307.1 | 216.5 | 307.1 |
| 237.5 | 311.6 | 319.8 | 312.8 | 335.5 | 307.7 | 367.8 | 307.6 | 459.7 | 307.8 |
| 508.9 | 294.9 | 585.6 | 293.1 | 617.1 | 292.2 | 638.9 | 293.1 | 772.1 | 293.3 |
| 888.2 | 294.6 | 935.1 | 293.5 | 960.1 | 296 | 1085.7 | 298.3 | 1166.8 | 300.4 |
| 1260.7 | 300.5 | 1360 | 300.3 | 1440.6 | 300.4 | 1502.7 | 300.3 | 1537.7 | 307.6 |
| 1602.1 | 309.9 | 1641.1 | 327.9 | 1787.9 | 328.1 | 1896 | 326.7 | 1953.2 | 313.1 |
| 2022.1 | 315.9 | 2161 | 318.3 | 2292.6 | 325.1 | 2385.9 | 332.9 | 2498.4 | 333.7 |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .1 | 459.7 | .065 | 960.1 | .045 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 459.7 | 960.1 | 104.8 | 124.6 | 145 | .3 | .5 |

Ineffective Flow num= 2

| Sta L | Sta R | Elev | Permanent |
|---|---|---|---|
| 0 | 459.7 | 311.5 | F |
| 960.1 | 2498.4 | 311.5 | F |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 306.21 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.73 | Wt. n-Val. | | 0.065 | |
| W.S. Elev (ft) | 305.49 | Reach Len. (ft) | 35.00 | 35.00 | 35.00 |
| Crit W.S. (ft) | 299.66 | Flow Area (sq ft) | | 5560.77 | |
| E.G. Slope (ft/ft) | 0.003534 | Area (sq ft) | 31.65 | 5560.77 | 3321.51 |
| Q Total (cfs) | 38000.00 | Flow (cfs) | | 38000.00 | |
| Top Width (ft) | 1098.91 | Top Width (ft) | 39.84 | 491.59 | 567.48 |

| | | | | | |
|---|---|---|---|---|---|
| Vel Total (ft/s) | 6.83 | Avg. Vel. (ft/s) | | 6.83 | |
| Max Chl Dpth (ft) | 13.29 | Hydr. Depth (ft) | | 11.31 | |
| Conv. Total (cfs) | 639228.1 | Conv. (cfs) | | 639228.1 | |
| Length Wtd. (ft) | 35.00 | Wetted Per. (ft) | | 493.15 | |
| Min Ch El (ft) | 292.20 | Shear (lb/sq ft) | | 2.49 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 17.00 | |
| Frctn Loss (ft) | 0.16 | Cum Volume (acre-ft) | 2.09 | 122.31 | 110.62 |
| C & E Loss (ft) | 0.06 | Cum SA (acres) | 1.00 | 13.48 | 20.19 |

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

CROSS SECTION OUTPUT Profile #PF 2

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 306.42 | Element | | | |
| Vel Head (ft) | 0.70 | Wt. n-Val. | | 0.065 | |
| W.S. Elev (ft) | 305.72 | Reach Len. (ft) | 35.00 | 35.00 | 35.00 |
| Crit W.S. (ft) | 299.66 | Flow Area (sq ft) | | 5675.99 | |
| E.G. Slope (ft/ft) | 0.003396 | Area (sq ft) | | 5675.99 | |
| Q Total (cfs) | 38000.00 | Flow (cfs) | | 38000.00 | |
| Top Width (ft) | 492.48 | Top Width (ft) | | 492.48 | |
| Vel Total (ft/s) | 6.69 | Avg. Vel. (ft/s) | | 6.69 | |
| Max Chl Dpth (ft) | 13.52 | Hydr. Depth (ft) | | 11.53 | |
| Conv. Total (cfs) | 652102.3 | Conv. (cfs) | | 652102.3 | |
| Length Wtd. (ft) | 35.00 | Wetted Per. (ft) | | 503.79 | |
| Min Ch El (ft) | 292.20 | Shear (lb/sq ft) | | 2.39 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 15.99 | |
| Frctn Loss (ft) | 0.15 | Cum Volume (acre-ft) | 0.24 | 129.89 | 55.21 |
| C & E Loss (ft) | 0.05 | Cum SA (acres) | 0.09 | 13.24 | 7.22 |

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

CROSS SECTION OUTPUT Profile #PF 3

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 309.64 | Element | | | |
| Vel Head (ft) | 0.74 | Wt. n-Val. | | 0.065 | |
| W.S. Elev (ft) | 308.90 | Reach Len. (ft) | 35.00 | 35.00 | 35.00 |
| Crit W.S. (ft) | 300.87 | Flow Area (sq ft) | | 7256.28 | |
| E.G. Slope (ft/ft) | 0.002582 | Area (sq ft) | 485.82 | 7256.28 | 5303.23 |
| Q Total (cfs) | 50000.00 | Flow (cfs) | | 50000.00 | |
| Top Width (ft) | 1381.54 | Top Width (ft) | 267.21 | 500.40 | 613.93 |
| Vel Total (ft/s) | 6.89 | Avg. Vel. (ft/s) | | 6.89 | |
| Max Chl Dpth (ft) | 16.70 | Hydr. Depth (ft) | | 14.50 | |
| Conv. Total (cfs) | 983979.4 | Conv. (cfs) | | 983979.4 | |
| Length Wtd. (ft) | 35.00 | Wetted Per. (ft) | | 502.26 | |
| Min Ch El (ft) | 292.20 | Shear (lb/sq ft) | | 2.33 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 16.05 | |
| Frctn Loss (ft) | 0.12 | Cum Volume (acre-ft) | 13.88 | 190.97 | 221.21 |
| C & E Loss (ft) | 0.05 | Cum SA (acres) | 3.76 | 13.57 | 22.03 |

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

CROSS SECTION OUTPUT Profile #PF 4

| | | | | | | |
|---|---|---|---|---|---|---|
| E.G. Elev (ft) | 300.49 | Element | Left OB | Channel | Right OB | |
| Vel Head (ft) | 0.05 | Wt. n-Val. | | 0.065 | | |
| W.S. Elev (ft) | 300.44 | Reach Len. (ft) | 35.00 | 35.00 | 35.00 | |
| Crit W.S. (ft) | 295.29 | Flow Area (sq ft) | | 3127.44 | | |
| E.G. Slope (ft/ft) | 0.000477 | Area (sq ft) | | 3127.44 | 520.09 | |
| Q Total (cfs) | 5500.00 | Flow (cfs) | | 5500.00 | | |
| Top Width (ft) | 929.35 | Top Width (ft) | | 472.33 | 457.02 | |
| Vel Total (ft/s) | 1.76 | Avg. Vel. (ft/s) | | 1.76 | | |
| Max Chl Dpth (ft) | 8.24 | Hydr. Depth (ft) | | 6.62 | | |
| Conv. Total (cfs) | 251772.8 | Conv. (cfs) | | 251772.8 | | |
| Length Wtd. (ft) | 35.00 | Wetted Per. (ft) | | 473.24 | | |
| Min Ch El (ft) | 292.20 | Shear (lb/sq ft) | | 0.20 | | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 0.35 | | |
| Frctn Loss (ft) | 0.02 | Cum Volume (acre-ft) | 1.09 | 93.03 | 71.59 | |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 0.76 | 13.25 | 19.70 | |

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

CROSS SECTION OUTPUT Profile #PF 5

| | | | | | | |
|---|---|---|---|---|---|---|
| E.G. Elev (ft) | 302.84 | Element | Left OB | Channel | Right OB | |
| Vel Head (ft) | 0.33 | Wt. n-Val. | | 0.065 | | |
| W.S. Elev (ft) | 302.51 | Reach Len. (ft) | 35.00 | 35.00 | 35.00 | |
| Crit W.S. (ft) | 297.44 | Flow Area (sq ft) | | 4112.43 | | |
| E.G. Slope (ft/ft) | 0.002339 | Area (sq ft) | | 4112.43 | 1651.30 | |
| Q Total (cfs) | 19000.00 | Flow (cfs) | | 19000.00 | | |
| Top Width (ft) | 1033.40 | Top Width (ft) | | 480.22 | 553.19 | |
| Vel Total (ft/s) | 4.62 | Avg. Vel. (ft/s) | | 4.62 | | |
| Max Chl Dpth (ft) | 10.31 | Hydr. Depth (ft) | | 8.56 | | |
| Conv. Total (cfs) | 392866.0 | Conv. (cfs) | | 392866.0 | | |
| Length Wtd. (ft) | 35.00 | Wetted Per. (ft) | | 481.40 | | |
| Min Ch El (ft) | 292.20 | Shear (lb/sq ft) | | 1.25 | | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 5.76 | | |
| Frctn Loss (ft) | 0.10 | Cum Volume (acre-ft) | 1.23 | 101.95 | 82.60 | |
| C & E Loss (ft) | 0.02 | Cum SA (acres) | 0.78 | 13.34 | 19.96 | |

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

BRIDGE

RIVER: San Diego River
REACH: Reach 1 RS: 243

```
INPUT
Description:
Distance from Upstream XS =      35
Deck/Roadway Width        =      55
Weir Coefficient          =     2.6
Upstream  Deck/Roadway Coordinates
    num=       2
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
   459.7     315   311.5   960.1     315   311.5

Upstream Bridge Cross Section Data
Station Elevation Data    num=      35
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0   312.5   104.5   308.1   201.3   303.9   207.8   307.1   216.5   307.1
   237.5   311.6   319.8   312.8   335.5   307.7   367.8   307.6   459.7   307.8
   508.9   294.9   585.6   293.1   617.1   292.2   638.9   293.1   772.1   293.3
   888.2   294.6   935.1   293.5   960.1     296  1085.7   298.3  1166.8   300.4
  1260.7   300.5    1360   300.3  1440.6   300.4  1502.7   300.3  1537.7   307.6
  1602.1   309.9  1641.1   327.9  1787.9   328.1    1896   326.7  1953.2   313.1
  2022.1   315.9    2161   318.3  2292.6   325.1  2385.9   332.9  2498.4   333.7

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0      .1   459.7    .065   960.1    .045

Bank Sta: Left   Right    Coeff Contr.   Expan.
         459.7   960.1            .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
       0   459.7   311.5       F
   960.1  2498.4   311.5       F

Downstream  Deck/Roadway Coordinates
    num=       2
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
     401     315   311.5   900.5     315   311.5

Downstream Bridge Cross Section Data
Station Elevation Data    num=      35
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0   316.8     112     313   208.4   309.6   275.7   312.9     401   311.6
   456.4   294.1     515   292.1   549.1   291.7   573.4     293   615.3   292.5
   683.3     294     754   293.8   833.8   293.1   848.7   292.9   881.7   298.9
   900.5   309.6   933.7   309.6   993.7   311.6  1109.5   310.6  1250.9   313.9
  1354.6   317.3  1496.3   321.3  1588.4   321.9  1606.6   328.4    1621   329.1
  1637.1   321.6    1734   320.7  1900.1   316.2  2003.5   313.7  2112.3   317.6
  2154.7   320.9  2210.3     328  2252.9   327.8  2328.2   325.6  2378.2   322.3

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0      .1     401    .065   900.5    .045
```

```
Bank Sta: Left   Right    Coeff Contr.   Expan.
          401   900.5            .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
       0     401  313.25       F
   900.5  2378.2  313.25       F

Upstream Embankment side slope              =       0 horiz. to 1.0 vertical
Downstream Embankment side slope            =       0 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow =     .98
Elevation at which weir flow begins         =     315
Energy head used in spillway design         =
Spillway height used in design              =
Weir crest shape                            = Broad Crested

Number of Piers =  5

Pier Data
Pier Station     Upstream=   543.2    Downstream=   484.3
Upstream     num=       2
    Width   Elev    Width   Elev
       7       0       7   311.5
Downstream     num=       2
    Width   Elev    Width   Elev
       7       0       7   311.5

Pier Data
Pier Station     Upstream=   626.6    Downstream=   567.7
Upstream     num=       2
    Width   Elev    Width   Elev
       7       0       7   311.5
Downstream     num=       2
    Width   Elev    Width   Elev
       7       0       7   311.5

Pier Data
Pier Station     Upstream=   709.9    Downstream=     651
Upstream     num=       2
    Width   Elev    Width   Elev
       7       0       7   311.5
Downstream     num=       2
    Width   Elev    Width   Elev
       7       0       7   311.5

Pier Data
Pier Station     Upstream=   793.2    Downstream=   734.3
Upstream     num=       2
    Width   Elev    Width   Elev
       7       0       7   311.5
Downstream     num=       2
    Width   Elev    Width   Elev
```

```
       7       0       7   311.5

Pier Data
Pier Station     Upstream=   876.6    Downstream=   817.7
Upstream     num=       2
    Width   Elev    Width   Elev
       7       0       7   311.5
Downstream     num=       2
    Width   Elev    Width   Elev
       7       0       7   311.5

Number of Bridge Coefficient Sets =  1

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

High Flow Method
       Energy Only

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

BRIDGE OUTPUT  Profile #PF 1

  E.G. US. (ft)               306.21    Element                Inside BR US  Inside BR DS
  W.S. US. (ft)               305.49    E.G. Elev (ft)              306.00        305.54
  Q Total (cfs)             38000.00    W.S. Elev (ft)              305.08        304.44
  Q Bridge (cfs)            38000.00    Crit W.S. (ft)              300.00        300.01
  Q Weir (cfs)                          Max Chl Dpth (ft)            12.88         12.74
  Weir Sta Lft (ft)                     Vel Total (ft/s)              7.66          8.41
  Weir Sta Rgt (ft)                     Flow Area (sq ft)          4958.81       4516.24
  Weir Submerg                          Froude # Chl                  0.38          0.46
  Weir Max Depth (ft)                   Specif Force (cu ft)      37044.48      34722.59
  Min El Weir Flow (ft)        315.00   Hydr Depth (ft)              10.90         10.44
  Min El Prs (ft)              311.50   W.P. Total (ft)             580.64        548.42
  Delta EG (ft)                  0.97   Conv. Total (cfs)         473627.5      421019.1
  Delta WS (ft)                  1.20   Top Width (ft)             1050.22        432.78
  BR Open Area (sq ft)        7690.35   Frctn Loss (ft)               0.40          0.22
  BR Open Vel (ft/s)             8.41   C & E Loss (ft)               0.06          0.07
  BR Sluice Coef                        Shear Total (lb/sq ft)        3.43          4.19
  BR Sel Method           Energy only   Power Total (lb/ft s)         26.30         35.24


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

BRIDGE OUTPUT  Profile #PF 2
```

| | | | | |
|---|---|---|---|---|
| E.G. US. (ft) | 306.42 | Element | Inside BR US | Inside BR DS |
| W.S. US. (ft) | 305.72 | E.G. Elev (ft) | 306.21 | 305.80 |
| Q Total (cfs) | 38000.00 | W.S. Elev (ft) | 305.34 | 304.76 |
| Q Bridge (cfs) | 38000.00 | Crit W.S. (ft) | 300.00 | 300.00 |
| Q Weir (cfs) | | Max Chl Dpth (ft) | 13.14 | 13.06 |
| Weir Sta Lft (ft) | | Vel Total (ft/s) | 7.48 | 8.16 |
| Weir Sta Rgt (ft) | | Flow Area (sq ft) | 5076.86 | 4654.16 |
| Weir Submerg | | Froude # Chl | 0.36 | 0.44 |
| Weir Max Depth (ft) | | Specif Force (cu ft) | 38134.41 | 35886.71 |
| Min El Weir Flow (ft) | 315.00 | Hydr Depth (ft) | 11.13 | 10.72 |
| Min El Prs (ft) | 311.50 | W.P. Total (ft) | 584.52 | 553.30 |
| Delta EG (ft) | 0.90 | Conv. Total (cfs) | 490390.9 | 440058.9 |
| Delta WS (ft) | 1.10 | Top Width (ft) | 456.02 | 434.34 |
| BR Open Area (sq ft) | 7690.35 | Frctn Loss (ft) | 0.37 | 0.20 |
| BR Open Vel (ft/s) | 8.16 | C & E Loss (ft) | 0.05 | 0.07 |
| BR Sluice Coef | | Shear Total (lb/sq ft) | 3.26 | 3.92 |
| BR Sel Method | Energy only | Power Total (lb/ft s) | 24.37 | 31.97 |

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

BRIDGE OUTPUT Profile #PF 3

| | | | | |
|---|---|---|---|---|
| E.G. US. (ft) | 309.64 | Element | Inside BR US | Inside BR DS |
| W.S. US. (ft) | 308.90 | E.G. Elev (ft) | 309.47 | 309.13 |
| Q Total (cfs) | 50000.00 | W.S. Elev (ft) | 308.56 | 308.10 |
| Q Bridge (cfs) | 50000.00 | Crit W.S. (ft) | 301.26 | 301.32 |
| Q Weir (cfs) | | Max Chl Dpth (ft) | 16.36 | 16.40 |
| Weir Sta Lft (ft) | | Vel Total (ft/s) | 7.62 | 8.15 |
| Weir Sta Rgt (ft) | | Flow Area (sq ft) | 6564.78 | 6132.68 |
| Weir Submerg | | Froude # Chl | 0.33 | 0.39 |
| Weir Max Depth (ft) | | Specif Force (cu ft) | 59874.96 | 56916.75 |
| Min El Weir Flow (ft) | 315.00 | Hydr Depth (ft) | 14.11 | 13.60 |
| Min El Prs (ft) | 311.50 | W.P. Total (ft) | 630.41 | 604.55 |
| Delta EG (ft) | 0.73 | Conv. Total (cfs) | 715645.8 | 656965.7 |
| Delta WS (ft) | 0.88 | Top Width (ft) | 1326.68 | 450.79 |
| BR Open Area (sq ft) | 7690.35 | Frctn Loss (ft) | 0.29 | 0.15 |
| BR Open Vel (ft/s) | 8.15 | C & E Loss (ft) | 0.04 | 0.07 |
| BR Sluice Coef | | Shear Total (lb/sq ft) | 3.17 | 3.67 |
| BR Sel Method | Energy only | Power Total (lb/ft s) | 24.17 | 29.91 |

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

BRIDGE OUTPUT Profile #PF 4

| | | | | |
|---|---|---|---|---|
| E.G. US. (ft) | 300.49 | Element | Inside BR US | Inside BR DS |
| W.S. US. (ft) | 300.44 | E.G. Elev (ft) | 300.47 | 300.43 |
| Q Total (cfs) | 5500.00 | W.S. Elev (ft) | 300.41 | 300.37 |

| | | | | |
|---|---|---|---|---|
| Q Bridge (cfs) | 5500.00 | Crit W.S. (ft) | 295.39 | 295.07 |
| Q Weir (cfs) | | Max Chl Dpth (ft) | 8.21 | 8.66 |
| Weir Sta Lft (ft) | | Vel Total (ft/s) | 1.91 | 1.97 |
| Weir Sta Rgt (ft) | | Flow Area (sq ft) | 2873.57 | 2792.84 |
| Weir Submerg | | Froude # Chl | 0.12 | 0.13 |
| Weir Max Depth (ft) | | Specif Force (cu ft) | 10048.57 | 10250.81 |
| Min El Weir Flow (ft) | 315.00 | Hydr Depth (ft) | 6.57 | 6.77 |
| Min El Prs (ft) | 311.50 | W.P. Total (ft) | 510.80 | 485.88 |
| Delta EG (ft) | 0.09 | Conv. Total (cfs) | 207786.9 | 204868.6 |
| Delta WS (ft) | 0.09 | Top Width (ft) | 848.87 | 412.71 |
| BR Open Area (sq ft) | 7690.35 | Frctn Loss (ft) | 0.04 | 0.02 |
| BR Open Vel (ft/s) | 1.97 | C & E Loss (ft) | 0.00 | 0.00 |
| BR Sluice Coef | | Shear Total (lb/sq ft) | 0.25 | 0.26 |
| BR Sel Method | Energy only | Power Total (lb/ft s) | 0.47 | 0.51 |

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

BRIDGE OUTPUT Profile #PF 5

| | | | | |
|---|---|---|---|---|
| E.G. US. (ft) | 302.84 | Element | Inside BR US | Inside BR DS |
| W.S. US. (ft) | 302.51 | E.G. Elev (ft) | 302.71 | 302.47 |
| Q Total (cfs) | 19000.00 | W.S. Elev (ft) | 302.31 | 302.01 |
| Q Bridge (cfs) | 19000.00 | Crit W.S. (ft) | 297.65 | 297.51 |
| Q Weir (cfs) | | Max Chl Dpth (ft) | 10.11 | 10.31 |
| Weir Sta Lft (ft) | | Vel Total (ft/s) | 5.12 | 5.46 |
| Weir Sta Rgt (ft) | | Flow Area (sq ft) | 3710.17 | 3476.84 |
| Weir Submerg | | Froude # Chl | 0.28 | 0.34 |
| Weir Max Depth (ft) | | Specif Force (cu ft) | 18990.70 | 18284.59 |
| Min El Weir Flow (ft) | 315.00 | Hydr Depth (ft) | 8.35 | 8.26 |
| Min El Prs (ft) | 311.50 | W.P. Total (ft) | 539.16 | 511.06 |
| Delta EG (ft) | 0.53 | Conv. Total (cfs) | 306851.4 | 285370.9 |
| Delta WS (ft) | 0.60 | Top Width (ft) | 996.67 | 420.79 |
| BR Open Area (sq ft) | 7690.35 | Frctn Loss (ft) | 0.23 | 0.12 |
| BR Open Vel (ft/s) | 5.46 | C & E Loss (ft) | 0.02 | 0.03 |
| BR Sluice Coef | | Shear Total (lb/sq ft) | 1.65 | 1.88 |
| BR Sel Method | Energy only | Power Total (lb/ft s) | 8.43 | 10.29 |

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

CROSS SECTION

RIVER: San Diego River
REACH: Reach 1 RS: 242

INPUT
Description: Corrected Effective Geometry
Station Elevation Data num= 35

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 316.8 | 112 | 313 | 208.4 | 309.6 | 275.7 | 312.9 | 401 | 311.6 |
| 456.4 | 294.1 | 515 | 292.1 | 549.1 | 291.7 | 573.4 | 293 | 615.3 | 292.5 |
| 683.3 | 294 | 754 | 293.8 | 833.8 | 293.1 | 848.7 | 292.9 | 881.7 | 298.9 |
| 900.5 | 309.6 | 933.7 | 309.6 | 993.7 | 311.6 | 1109.5 | 310.6 | 1250.9 | 313.9 |
| 1354.6 | 317.3 | 1496.3 | 321.3 | 1588.4 | 321.9 | 1606.6 | 328.4 | 1621 | 329.1 |
| 1637.1 | 321.6 | 1734 | 320.7 | 1900.1 | 316.2 | 2003.5 | 313.7 | 2112.3 | 317.6 |
| 2154.7 | 320.9 | 2210.3 | 328 | 2252.9 | 327.8 | 2328.2 | 325.6 | 2378.2 | 322.3 |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .1 | 401 | .065 | 900.5 | .045 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 401 | 900.5 | 165 | 224 | 270 | .3 | .5 |

Ineffective Flow num= 2

| Sta L | Sta R | Elev | Permanent |
|---|---|---|---|
| 0 | 401 | 313.25 | F |
| 900.5 | 2378.2 | 313.25 | F |

CROSS SECTION OUTPUT Profile #PF 1

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 305.25 | Element | | | |
| Vel Head (ft) | 0.96 | Wt. n-Val. | | 0.065 | |
| W.S. Elev (ft) | 304.29 | Reach Len. (ft) | 165.00 | 224.00 | 270.00 |
| Crit W.S. (ft) | 299.62 | Flow Area (sq ft) | | 4835.71 | |
| E.G. Slope (ft/ft) | 0.005290 | Area (sq ft) | | 4835.71 | |
| Q Total (cfs) | 38000.00 | Flow (cfs) | | 38000.00 | |
| Top Width (ft) | 467.01 | Top Width (ft) | | 467.01 | |
| Vel Total (ft/s) | 7.86 | Avg. Vel. (ft/s) | | 7.86 | |
| Max Chl Dpth (ft) | 12.59 | Hydr. Depth (ft) | | 10.35 | |
| Conv. Total (cfs) | 522459.1 | Conv. (cfs) | | 522459.1 | |
| Length Wtd. (ft) | 232.18 | Wetted Per. (ft) | | 470.65 | |
| Min Ch El (ft) | 291.70 | Shear (lb/sq ft) | | 3.39 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 26.67 | |
| Frctn Loss (ft) | 1.10 | Cum Volume (acre-ft) | 2.06 | 108.39 | 106.09 |
| C & E Loss (ft) | 0.10 | Cum SA (acres) | 0.95 | 12.18 | 19.38 |

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF 2

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 305.52 | Element | | | |
| Vel Head (ft) | 0.90 | Wt. n-Val. | | 0.065 | |
| W.S. Elev (ft) | 304.62 | Reach Len. (ft) | 165.00 | 224.00 | 270.00 |
| Crit W.S. (ft) | 299.63 | Flow Area (sq ft) | | 4993.21 | |
| E.G. Slope (ft/ft) | 0.004778 | Area (sq ft) | | 4993.21 | |
| Q Total (cfs) | 38000.00 | Flow (cfs) | | 38000.00 | |
| Top Width (ft) | 468.67 | Top Width (ft) | | 468.67 | |

| | | | | | |
|---|---|---|---|---|---|
| Vel Total (ft/s) | 7.61 | Avg. Vel. (ft/s) | | 7.61 | |
| Max Chl Dpth (ft) | 12.92 | Hydr. Depth (ft) | | 10.65 | |
| Conv. Total (cfs) | 549728.9 | Conv. (cfs) | | 549728.9 | |
| Length Wtd. (ft) | 232.26 | Wetted Per. (ft) | | 472.44 | |
| Min Ch El (ft) | 291.70 | Shear (lb/sq ft) | | 3.15 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 23.99 | |
| Frctn Loss (ft) | 0.94 | Cum Volume (acre-ft) | 0.24 | 115.59 | 55.21 |
| C & E Loss (ft) | 0.11 | Cum SA (acres) | 0.09 | 11.93 | 7.22 |

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF 3

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 308.91 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.89 | Wt. n-Val. | | 0.065 | |
| W.S. Elev (ft) | 308.02 | Reach Len. (ft) | 165.00 | 224.00 | 270.00 |
| Crit W.S. (ft) | 300.88 | Flow Area (sq ft) | | 6614.34 | |
| E.G. Slope (ft/ft) | 0.003408 | Area (sq ft) | | 6614.34 | |
| Q Total (cfs) | 50000.00 | Flow (cfs) | | 50000.00 | |
| Top Width (ft) | 485.40 | Top Width (ft) | | 485.40 | |
| Vel Total (ft/s) | 7.56 | Avg. Vel. (ft/s) | | 7.56 | |
| Max Chl Dpth (ft) | 16.32 | Hydr. Depth (ft) | | 13.63 | |
| Conv. Total (cfs) | 856532.0 | Conv. (cfs) | | 856532.0 | |
| Length Wtd. (ft) | 233.08 | Wetted Per. (ft) | | 490.60 | |
| Min Ch El (ft) | 291.70 | Shear (lb/sq ft) | | 2.87 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 21.68 | |
| Frctn Loss (ft) | 0.56 | Cum Volume (acre-ft) | 13.27 | 172.34 | 213.81 |
| C & E Loss (ft) | 0.16 | Cum SA (acres) | 3.38 | 12.23 | 21.16 |

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

CROSS SECTION OUTPUT Profile #PF 4

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 300.40 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.05 | Wt. n-Val. | | 0.065 | |
| W.S. Elev (ft) | 300.35 | Reach Len. (ft) | 165.00 | 224.00 | 270.00 |
| Crit W.S. (ft) | 294.97 | Flow Area (sq ft) | | 3034.95 | |
| E.G. Slope (ft/ft) | 0.000493 | Area (sq ft) | | 3034.95 | |
| Q Total (cfs) | 5500.00 | Flow (cfs) | | 5500.00 | |
| Top Width (ft) | 447.63 | Top Width (ft) | | 447.63 | |
| Vel Total (ft/s) | 1.81 | Avg. Vel. (ft/s) | | 1.81 | |
| Max Chl Dpth (ft) | 8.65 | Hydr. Depth (ft) | | 6.78 | |
| Conv. Total (cfs) | 247803.9 | Conv. (cfs) | | 247803.9 | |
| Length Wtd. (ft) | 230.24 | Wetted Per. (ft) | | 449.61 | |
| Min Ch El (ft) | 291.70 | Shear (lb/sq ft) | | 0.21 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 0.38 | |
| Frctn Loss (ft) | 0.10 | Cum Volume (acre-ft) | 1.09 | 84.72 | 70.86 |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 0.76 | 12.01 | 19.09 |

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

CROSS SECTION OUTPUT Profile #PF 5

| | | | | | | |
|---|---|---|---|---|---|---|
| E.G. Elev (ft) | 302.31 | Element | Left OB | Channel | Right OB | |
| Vel Head (ft) | 0.40 | Wt. n-Val. | | 0.065 | | |
| W.S. Elev (ft) | 301.91 | Reach Len. (ft) | 165.00 | 224.00 | 270.00 | |
| Crit W.S. (ft) | 297.28 | Flow Area (sq ft) | | 3740.85 | | |
| E.G. Slope (ft/ft) | 0.003001 | Area (sq ft) | | 3740.85 | | |
| Q Total (cfs) | 19000.00 | Flow (cfs) | | 19000.00 | | |
| Top Width (ft) | 455.33 | Top Width (ft) | | 455.33 | | |
| Vel Total (ft/s) | 5.08 | Avg. Vel. (ft/s) | | 5.08 | | |
| Max Chl Dpth (ft) | 10.21 | Hydr. Depth (ft) | | 8.22 | | |
| Conv. Total (cfs) | 346852.2 | Conv. (cfs) | | 346852.2 | | |
| Length Wtd. (ft) | 231.12 | Wetted Per. (ft) | | 457.96 | | |
| Min Ch El (ft) | 291.70 | Shear (lb/sq ft) | | 1.53 | | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 7.77 | | |
| Frctn Loss (ft) | 0.64 | Cum Volume (acre-ft) | 1.23 | 91.40 | 80.34 | |
| C & E Loss (ft) | 0.04 | Cum SA (acres) | 0.78 | 12.07 | 19.16 | |

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

CROSS SECTION

RIVER: San Diego River
REACH: Reach 1 RS: 239

INPUT
Description: Corrected Effective Geometry
Station Elevation Data num= 34

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 314 | 87.1 | 311.2 | 151.3 | 308.5 | 183.2 | 306.4 | 215.4 | 304.6 |
| 241.3 | 303 | 280.1 | 296.8 | 314.7 | 293.9 | 339 | 292.9 | 379.6 | 294.4 |
| 403.2 | 292.6 | 425.4 | 293.1 | 463.7 | 294.4 | 483.9 | 291.8 | 506.5 | 290.7 |
| 551.3 | 292.7 | 620.7 | 293.2 | 628.9 | 295.7 | 642 | 299.6 | 662.4 | 296.3 |
| 712.8 | 296.7 | 745.9 | 295.3 | 808 | 296.4 | 955.9 | 298.3 | 1077.2 | 298.6 |
| 1096.1 | 296.4 | 1143.4 | 295.9 | 1251.8 | 296.4 | 1289.9 | 298.8 | 1360.3 | 299.6 |
| 1377.5 | 302.7 | 1402.9 | 313.3 | 1426.5 | 325.9 | 1436.2 | 326.7 | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .1 | 241.3 | .065 | 642 | .045 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 241.3 | 642 | 385 | 413 | 515 .1 | .3 |

Ineffective Flow num= 2

| Sta L | Sta R | Elev | Permanent |
|---|---|---|---|
| 0 | 201.8 | 313.25 | F |

906.2 1436.2 313.25 F

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | | |
|---|---|---|---|---|---|---|
| E.G. Elev (ft) | 304.05 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.75 | Wt. n-Val. | 0.100 | 0.065 | 0.045 |
| W.S. Elev (ft) | 303.29 | Reach Len. (ft) | 385.00 | 413.00 | 515.00 |
| Crit W.S. (ft) | 299.63 | Flow Area (sq ft) | 0.70 | 3728.71 | 1770.06 |
| E.G. Slope (ft/ft) | 0.004242 | Area (sq ft) | 0.70 | 3728.71 | 4385.77 |
| Q Total (cfs) | 38000.00 | Flow (cfs) | 0.19 | 24481.97 | 13517.85 |
| Top Width (ft) | 1142.37 | Top Width (ft) | 4.75 | 400.70 | 736.92 |
| Vel Total (ft/s) | 6.91 | Avg. Vel. (ft/s) | 0.27 | 6.57 | 7.64 |
| Max Chl Dpth (ft) | 12.59 | Hydr. Depth (ft) | 0.15 | 9.31 | 6.70 |
| Conv. Total (cfs) | 583454.8 | Conv. (cfs) | 2.9 | 375897.9 | 207554.0 |
| Length Wtd. (ft) | 447.73 | Wetted Per. (ft) | 4.76 | 402.64 | 264.51 |
| Min Ch El (ft) | 290.70 | Shear (lb/sq ft) | 0.04 | 2.45 | 1.77 |
| Alpha | 1.02 | Stream Power (lb/ft s) | 0.01 | 16.10 | 13.53 |
| Frctn Loss (ft) | 1.70 | Cum Volume (acre-ft) | 2.06 | 86.37 | 92.50 |
| C & E Loss (ft) | 0.07 | Cum SA (acres) | 0.94 | 9.95 | 17.09 |

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 304.46 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.67 | Wt. n-Val. | | 0.065 | 0.045 |
| W.S. Elev (ft) | 303.79 | Reach Len. (ft) | 385.00 | 413.00 | 515.00 |
| Crit W.S. (ft) | 299.62 | Flow Area (sq ft) | | 3923.15 | 1902.09 |
| E.G. Slope (ft/ft) | 0.003505 | Area (sq ft) | | 3923.15 | 1902.09 |
| Q Total (cfs) | 38000.00 | Flow (cfs) | | 24357.54 | 13642.46 |
| Top Width (ft) | 660.00 | Top Width (ft) | | 395.80 | 264.20 |
| Vel Total (ft/s) | 6.52 | Avg. Vel. (ft/s) | | 6.21 | 7.17 |
| Max Chl Dpth (ft) | 13.09 | Hydr. Depth (ft) | | 9.91 | 7.20 |
| Conv. Total (cfs) | 641885.9 | Conv. (cfs) | | 411441.2 | 230444.8 |
| Length Wtd. (ft) | 446.19 | Wetted Per. (ft) | | 399.25 | 270.65 |
| Min Ch El (ft) | 290.70 | Shear (lb/sq ft) | | 2.15 | 1.54 |
| Alpha | 1.01 | Stream Power (lb/ft s) | | 13.35 | 11.03 |
| Frctn Loss (ft) | 1.43 | Cum Volume (acre-ft) | 0.24 | 92.67 | 49.32 |
| C & E Loss (ft) | 0.04 | Cum SA (acres) | 0.09 | 9.71 | 6.40 |

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #PF 3

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 308.19 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.57 | Wt. n-Val. | 0.100 | 0.065 | 0.045 |

| | | | | | |
|---|---|---|---|---|---|
| W.S. Elev (ft) | 307.63 | Reach Len. (ft) | 385.00 | 413.00 | 515.00 |
| Crit W.S. (ft) | 300.56 | Flow Area (sq ft) | 135.09 | 5464.83 | 2914.76 |
| E.G. Slope (ft/ft) | 0.001760 | Area (sq ft) | 178.98 | 5464.83 | 7601.12 |
| Q Total (cfs) | 50000.00 | Flow (cfs) | 190.90 | 29817.13 | 19991.97 |
| Top Width (ft) | 1224.73 | Top Width (ft) | 76.73 | 400.70 | 747.30 |
| Vel Total (ft/s) | 5.87 | Avg. Vel. (ft/s) | 1.41 | 5.46 | 6.86 |
| Max Chl Dpth (ft) | 16.93 | Hydr. Depth (ft) | 3.42 | 13.64 | 11.03 |
| Conv. Total (cfs) | 1191982.0 | Conv. (cfs) | 4550.9 | 710829.9 | 476601.6 |
| Length Wtd. (ft) | 453.54 | Wetted Per. (ft) | 39.57 | 402.64 | 264.51 |
| Min Ch El (ft) | 290.70 | Shear (lb/sq ft) | 0.37 | 1.49 | 1.21 |
| Alpha | 1.06 | Stream Power (lb/ft s) | 0.53 | 8.13 | 8.30 |
| Frctn Loss (ft) | 0.54 | Cum Volume (acre-ft) | 12.93 | 141.28 | 190.25 |
| C & E Loss (ft) | 0.08 | Cum SA (acres) | 3.24 | 9.95 | 18.84 |

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

CROSS SECTION OUTPUT Profile #PF 4

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 300.29 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.04 | Wt. n-Val. | | 0.065 | 0.045 |
| W.S. Elev (ft) | 300.26 | Reach Len. (ft) | 385.00 | 413.00 | 515.00 |
| Crit W.S. (ft) | 295.07 | Flow Area (sq ft) | | 2534.86 | 967.36 |
| E.G. Slope (ft/ft) | 0.000388 | Area (sq ft) | | 2534.86 | 2167.30 |
| Q Total (cfs) | 5500.00 | Flow (cfs) | | 4006.90 | 1493.10 |
| Top Width (ft) | 1105.46 | Top Width (ft) | | 383.52 | 721.94 |
| Vel Total (ft/s) | 1.57 | Avg. Vel. (ft/s) | | 1.58 | 1.54 |
| Max Chl Dpth (ft) | 9.56 | Hydr. Depth (ft) | | 6.61 | 3.66 |
| Conv. Total (cfs) | 279299.3 | Conv. (cfs) | | 203477.0 | 75822.3 |
| Length Wtd. (ft) | 440.96 | Wetted Per. (ft) | | 385.24 | 264.51 |
| Min Ch El (ft) | 290.70 | Shear (lb/sq ft) | | 0.16 | 0.09 |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 0.25 | 0.14 |
| Frctn Loss (ft) | 0.11 | Cum Volume (acre-ft) | 1.09 | 70.40 | 64.14 |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 0.76 | 9.87 | 16.85 |

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

CROSS SECTION OUTPUT Profile #PF 5

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 301.63 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.32 | Wt. n-Val. | | 0.065 | 0.045 |
| W.S. Elev (ft) | 301.31 | Reach Len. (ft) | 385.00 | 413.00 | 515.00 |
| Crit W.S. (ft) | 297.86 | Flow Area (sq ft) | | 2942.83 | 1246.00 |
| E.G. Slope (ft/ft) | 0.002587 | Area (sq ft) | | 2942.83 | 2931.78 |
| Q Total (cfs) | 19000.00 | Flow (cfs) | | 13119.84 | 5880.16 |
| Top Width (ft) | 1117.91 | Top Width (ft) | | 390.12 | 727.79 |
| Vel Total (ft/s) | 4.54 | Avg. Vel. (ft/s) | | 4.46 | 4.72 |
| Max Chl Dpth (ft) | 10.61 | Hydr. Depth (ft) | | 7.54 | 4.72 |
| Conv. Total (cfs) | 373575.1 | Conv. (cfs) | | 257960.3 | 115614.9 |

| | | | | | |
|---|---|---|---|---|---|
| Length Wtd. (ft) | 443.55 | Wetted Per. (ft) | | 391.93 | 264.51 |
| Min Ch El (ft) | 290.70 | Shear (lb/sq ft) | | 1.21 | 0.76 |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 5.41 | 3.59 |
| Frctn Loss (ft) | 0.89 | Cum Volume (acre-ft) | 1.23 | 74.22 | 71.26 |
| C & E Loss (ft) | 0.04 | Cum SA (acres) | 0.78 | 9.90 | 16.91 |

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

CROSS SECTION

RIVER: San Diego River
REACH: Reach 1 RS: 230

INPUT
Description: Corrected Effective Geometry
Station Elevation Data num= 39

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 312 | 65.6 | 310.4 | 137.8 | 306.5 | 207.5 | 304.8 | 265.4 | 303.7 |
| 291.2 | 300.1 | 331.4 | 299.8 | 351.6 | 295.4 | 389 | 294.6 | 407.4 | 291.3 |
| 454.2 | 291.8 | 462.3 | 290.4 | 477.6 | 289.8 | 534.6 | 290.2 | 554.3 | 293.8 |
| 641.2 | 293.6 | 754.1 | 293.5 | 854.5 | 294.1 | 957 | 293.2 | 982.8 | 292.3 |
| 997.6 | 294.6 | 1024.6 | 297.5 | 1044.3 | 298.8 | 1136.2 | 298.2 | 1228.8 | 298 |
| 1299.8 | 296 | 1370.7 | 296 | 1433 | 296.9 | 1442.5 | 299.6 | 1459.2 | 298.3 |
| 1470.3 | 296.6 | 1517.5 | 295 | 1523.6 | 297.2 | 1550.3 | 301.8 | 1578.7 | 304.4 |
| 1682 | 307.7 | 1783.3 | 310.7 | 1933.2 | 315.6 | 2031.8 | 320.6 | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .1 | 331.4 | .065 | 854.5 | .045 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 331.4 | 854.5 | 460 | 487 | 430 | .1 | .3 |

Ineffective Flow num= 2

| Sta L | Sta R | Elev | Permanent |
|---|---|---|---|
| 0 | 61.8 | 313.25 | F |
| 1233.8 | 2031.8 | 313.25 | F |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 302.27 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.51 | Wt. n-Val. | 0.100 | 0.065 | 0.045 |
| W.S. Elev (ft) | 301.76 | Reach Len. (ft) | 460.00 | 487.00 | 430.00 |
| Crit W.S. (ft) | 297.85 | Flow Area (sq ft) | 82.78 | 4532.04 | 2070.69 |
| E.G. Slope (ft/ft) | 0.003419 | Area (sq ft) | 82.78 | 4532.04 | 3633.85 |
| Q Total (cfs) | 38000.00 | Flow (cfs) | 97.76 | 25514.88 | 12387.36 |
| Top Width (ft) | 1270.80 | Top Width (ft) | 52.12 | 523.10 | 695.58 |
| Vel Total (ft/s) | 5.68 | Avg. Vel. (ft/s) | 1.18 | 5.63 | 5.98 |
| Max Chl Dpth (ft) | 11.96 | Hydr. Depth (ft) | 1.59 | 8.66 | 5.46 |
| Conv. Total (cfs) | 649860.2 | Conv. (cfs) | 1671.9 | 436344.9 | 211843.4 |
| Length Wtd. (ft) | 461.15 | Wetted Per. (ft) | 52.23 | 524.34 | 379.70 |

| | | | | | |
|---|---|---|---|---|---|
| Min Ch El (ft) | 289.80 | Shear (lb/sq ft) | 0.34 | 1.85 | 1.16 |
| Alpha | 1.02 | Stream Power (lb/ft s) | 0.40 | 10.39 | 6.96 |
| Frctn Loss (ft) | 1.14 | Cum Volume (acre-ft) | 1.69 | 47.21 | 45.09 |
| C & E Loss (ft) | 0.06 | Cum SA (acres) | 0.69 | 5.57 | 8.62 |

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 303.00 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.55 | Wt. n-Val. | 0.100 | 0.065 | 0.045 |
| W.S. Elev (ft) | 302.44 | Reach Len. (ft) | 460.00 | 487.00 | 430.00 |
| Crit W.S. (ft) | 297.86 | Flow Area (sq ft) | 25.04 | 4888.45 | 1587.90 |
| E.G. Slope (ft/ft) | 0.002947 | Area (sq ft) | 25.04 | 4888.45 | 1587.90 |
| Q Total (cfs) | 38000.00 | Flow (cfs) | 32.67 | 26874.68 | 11092.65 |
| Top Width (ft) | 735.00 | Top Width (ft) | 9.60 | 523.10 | 202.30 |
| Vel Total (ft/s) | 5.84 | Avg. Vel. (ft/s) | 1.30 | 5.50 | 6.99 |
| Max Chl Dpth (ft) | 12.64 | Hydr. Depth (ft) | 2.61 | 9.35 | 7.85 |
| Conv. Total (cfs) | 699947.4 | Conv. (cfs) | 601.8 | 495022.7 | 204322.8 |
| Length Wtd. (ft) | 462.76 | Wetted Per. (ft) | 12.17 | 524.34 | 206.42 |
| Min Ch El (ft) | 289.80 | Shear (lb/sq ft) | 0.38 | 1.72 | 1.42 |
| Alpha | 1.04 | Stream Power (lb/ft s) | 0.49 | 9.43 | 9.89 |
| Frctn Loss (ft) | 0.94 | Cum Volume (acre-ft) | 0.13 | 50.89 | 28.69 |
| C & E Loss (ft) | 0.07 | Cum SA (acres) | 0.05 | 5.35 | 3.64 |

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #PF 3

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 307.57 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.29 | Wt. n-Val. | 0.100 | 0.065 | 0.045 |
| W.S. Elev (ft) | 307.28 | Reach Len. (ft) | 460.00 | 487.00 | 430.00 |
| Crit W.S. (ft) | 299.08 | Flow Area (sq ft) | 728.23 | 7418.33 | 4163.54 |
| E.G. Slope (ft/ft) | 0.000870 | Area (sq ft) | 728.23 | 7418.33 | 7721.61 |
| Q Total (cfs) | 50000.00 | Flow (cfs) | 734.93 | 29254.21 | 20010.86 |
| Top Width (ft) | 1545.51 | Top Width (ft) | 208.05 | 523.10 | 814.36 |
| Vel Total (ft/s) | 4.06 | Avg. Vel. (ft/s) | 1.01 | 3.94 | 4.81 |
| Max Chl Dpth (ft) | 17.48 | Hydr. Depth (ft) | 3.50 | 14.18 | 10.98 |
| Conv. Total (cfs) | 1695505.0 | Conv. (cfs) | 24921.6 | 992013.2 | 678570.0 |
| Length Wtd. (ft) | 457.44 | Wetted Per. (ft) | 208.35 | 524.34 | 379.70 |
| Min Ch El (ft) | 289.80 | Shear (lb/sq ft) | 0.19 | 0.77 | 0.60 |
| Alpha | 1.11 | Stream Power (lb/ft s) | 0.19 | 3.03 | 2.86 |
| Frctn Loss (ft) | 0.24 | Cum Volume (acre-ft) | 8.92 | 80.20 | 99.67 |
| C & E Loss (ft) | 0.04 | Cum SA (acres) | 1.98 | 5.57 | 9.61 |

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

CROSS SECTION OUTPUT Profile #PF 4

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 300.18 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.02 | Wt. n-Val. | 0.100 | 0.065 | 0.045 |
| W.S. Elev (ft) | 300.16 | Reach Len. (ft) | 460.00 | 487.00 | 430.00 |
| Crit W.S. (ft) | 294.28 | Flow Area (sq ft) | 8.60 | 3695.51 | 1464.12 |
| E.G. Slope (ft/ft) | 0.000164 | Area (sq ft) | 8.60 | 3695.51 | 2528.90 |
| Q Total (cfs) | 5500.00 | Flow (cfs) | 0.58 | 3976.98 | 1522.44 |
| Top Width (ft) | 1250.06 | Top Width (ft) | 40.66 | 523.10 | 686.30 |
| Vel Total (ft/s) | 1.06 | Avg. Vel. (ft/s) | 0.07 | 1.08 | 1.04 |
| Max Chl Dpth (ft) | 10.36 | Hydr. Depth (ft) | 0.21 | 7.06 | 3.86 |
| Conv. Total (cfs) | 429477.1 | Conv. (cfs) | 45.3 | 310549.3 | 118882.5 |
| Length Wtd. (ft) | 462.90 | Wetted Per. (ft) | 40.66 | 524.34 | 379.70 |
| Min Ch El (ft) | 289.80 | Shear (lb/sq ft) | 0.00 | 0.07 | 0.04 |
| Alpha | 1.00 | Stream Power (lb/ft s) | 0.00 | 0.08 | 0.04 |
| Frctn Loss (ft) | 0.04 | Cum Volume (acre-ft) | 1.05 | 40.87 | 36.38 |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 0.58 | 5.57 | 8.53 |

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

CROSS SECTION OUTPUT Profile #PF 5

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 300.70 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.19 | Wt. n-Val. | 0.100 | 0.065 | 0.045 |
| W.S. Elev (ft) | 300.51 | Reach Len. (ft) | 460.00 | 487.00 | 430.00 |
| Crit W.S. (ft) | 296.06 | Flow Area (sq ft) | 23.19 | 3877.67 | 1596.21 |
| E.G. Slope (ft/ft) | 0.001607 | Area (sq ft) | 23.19 | 3877.67 | 2768.25 |
| Q Total (cfs) | 19000.00 | Flow (cfs) | 9.13 | 13487.66 | 5503.21 |
| Top Width (ft) | 1254.57 | Top Width (ft) | 43.15 | 523.10 | 688.32 |
| Vel Total (ft/s) | 3.46 | Avg. Vel. (ft/s) | 0.39 | 3.48 | 3.45 |
| Max Chl Dpth (ft) | 10.71 | Hydr. Depth (ft) | 0.54 | 7.41 | 4.21 |
| Conv. Total (cfs) | 473996.8 | Conv. (cfs) | 227.7 | 336479.4 | 137289.8 |
| Length Wtd. (ft) | 462.53 | Wetted Per. (ft) | 43.18 | 524.34 | 379.70 |
| Min Ch El (ft) | 289.80 | Shear (lb/sq ft) | 0.05 | 0.74 | 0.42 |
| Alpha | 1.01 | Stream Power (lb/ft s) | 0.02 | 2.58 | 1.45 |
| Frctn Loss (ft) | 0.45 | Cum Volume (acre-ft) | 1.13 | 41.88 | 37.56 |
| C & E Loss (ft) | 0.03 | Cum SA (acres) | 0.59 | 5.57 | 8.54 |

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

CROSS SECTION

RIVER: San Diego River
REACH: Reach 1 RS: 220

INPUT
Description: Corrected Effective Geometry
Station Elevation Data num= 43

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 324 | 93.8 | 319.7 | 217.1 | 314.8 | 297.3 | 308 | 374.5 | 304.6 |
| 393.2 | 301.5 | 420.3 | 299.8 | 439.7 | 295.9 | 465.5 | 296.2 | 484.2 | 299.8 |
| 534.9 | 296.3 | 649.9 | 293.8 | 675.5 | 292.1 | 713.9 | 292.3 | 756.2 | 290 |
| 798.1 | 288.8 | 821.5 | 289.8 | 922.4 | 289.9 | 957.7 | 292.4 | 1018 | 292.8 |
| 1064.1 | 291.5 | 1181.5 | 291.6 | 1265.8 | 291.3 | 1290.2 | 294.1 | 1314.9 | 297 |
| 1364.7 | 297.1 | 1483.6 | 297 | 1523.5 | 296 | 1602.5 | 296 | 1626.8 | 297.7 |
| 1646.9 | 298.6 | 1670.2 | 296.6 | 1761.1 | 297.9 | 1817.3 | 299.2 | 1831.2 | 296.4 |
| 1867.1 | 295.6 | 1937.3 | 298.2 | 2007.5 | 300.4 | 2031.6 | 304.8 | 2049.2 | 303.8 |
| 2077.8 | 303.4 | 2093.8 | 308.1 | 2142.9 | 309.4 | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .1 | 484.2 | .065 | 957.7 | .045 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 484.2 | 957.7 | 0 | 0 | 0 .1 | .3 |

Ineffective Flow num= 2

| Sta L | Sta R | Elev | Permanent |
|---|---|---|---|
| 0 | 56 | 313.25 | F |
| 1681.8 | 2142.9 | 313.25 | F |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 301.08 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.32 | Wt. n-Val. | 0.100 | 0.065 | 0.045 |
| W.S. Elev (ft) | 300.76 | Reach Len. (ft) | | | |
| Crit W.S. (ft) | 296.44 | Flow Area (sq ft) | 236.93 | 3913.40 | 4520.70 |
| E.G. Slope (ft/ft) | 0.001870 | Area (sq ft) | 236.93 | 3913.40 | 5502.52 |
| Q Total (cfs) | 38000.00 | Flow (cfs) | 314.10 | 15807.25 | 21878.65 |
| Top Width (ft) | 1604.48 | Top Width (ft) | 79.20 | 473.50 | 1051.77 |
| Vel Total (ft/s) | 4.38 | Avg. Vel. (ft/s) | 1.33 | 4.04 | 4.84 |
| Max Chl Dpth (ft) | 11.96 | Hydr. Depth (ft) | 2.99 | 8.26 | 6.24 |
| Conv. Total (cfs) | 878641.8 | Conv. (cfs) | 7262.6 | 365497.7 | 505881.5 |
| Length Wtd. (ft) | | Wetted Per. (ft) | 79.97 | 473.89 | 724.63 |
| Min Ch El (ft) | 288.80 | Shear (lb/sq ft) | 0.35 | 0.96 | 0.73 |
| Alpha | 1.06 | Stream Power (lb/ft s) | 0.46 | 3.90 | 3.53 |
| Frctn Loss (ft) | | Cum Volume (acre-ft) | | | |
| C & E Loss (ft) | | Cum SA (acres) | | | |

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

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 301.99 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.33 | Wt. n-Val. | | 0.065 | 0.045 |
| W.S. Elev (ft) | 301.66 | Reach Len. (ft) | | | |
| Crit W.S. (ft) | 296.14 | Flow Area (sq ft) | | 4215.87 | 4224.02 |
| E.G. Slope (ft/ft) | 0.001490 | Area (sq ft) | | 4215.87 | 4224.02 |
| Q Total (cfs) | 38000.00 | Flow (cfs) | | 16793.57 | 21206.43 |
| Top Width (ft) | 970.00 | Top Width (ft) | | 434.80 | 535.20 |
| Vel Total (ft/s) | 4.50 | Avg. Vel. (ft/s) | | 3.98 | 5.02 |
| Max Chl Dpth (ft) | 12.86 | Hydr. Depth (ft) | | 9.70 | 7.89 |
| Conv. Total (cfs) | 984329.0 | Conv. (cfs) | | 435010.5 | 549318.5 |
| Length Wtd. (ft) | | Wetted Per. (ft) | | 439.63 | 540.45 |
| Min Ch El (ft) | 288.80 | Shear (lb/sq ft) | | 0.89 | 0.73 |
| Alpha | 1.04 | Stream Power (lb/ft s) | | 3.55 | 3.65 |
| Frctn Loss (ft) | | Cum Volume (acre-ft) | | | |
| C & E Loss (ft) | | Cum SA (acres) | | | |

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

CROSS SECTION OUTPUT Profile #PF 3

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 307.28 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.15 | Wt. n-Val. | 0.100 | 0.065 | 0.045 |
| W.S. Elev (ft) | 307.13 | Reach Len. (ft) | | | |
| Crit W.S. (ft) | 297.37 | Flow Area (sq ft) | 961.20 | 6929.59 | 9133.22 |
| E.G. Slope (ft/ft) | 0.000362 | Area (sq ft) | 961.20 | 6929.59 | 12473.01 |
| Q Total (cfs) | 50000.00 | Flow (cfs) | 869.01 | 18034.57 | 31096.42 |
| Top Width (ft) | 1773.44 | Top Width (ft) | 167.15 | 473.50 | 1132.80 |
| Vel Total (ft/s) | 2.94 | Avg. Vel. (ft/s) | 0.90 | 2.60 | 3.40 |
| Max Chl Dpth (ft) | 18.33 | Hydr. Depth (ft) | 5.75 | 14.63 | 12.61 |
| Conv. Total (cfs) | 2626263.0 | Conv. (cfs) | 45645.1 | 947270.3 | 1633348.0 |
| Length Wtd. (ft) | | Wetted Per. (ft) | 168.24 | 473.89 | 724.63 |
| Min Ch El (ft) | 288.80 | Shear (lb/sq ft) | 0.13 | 0.33 | 0.29 |
| Alpha | 1.12 | Stream Power (lb/ft s) | 0.12 | 0.86 | 0.97 |
| Frctn Loss (ft) | | Cum Volume (acre-ft) | | | |
| C & E Loss (ft) | | Cum SA (acres) | | | |

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

CROSS SECTION OUTPUT Profile #PF 4

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 300.14 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.01 | Wt. n-Val. | 0.100 | 0.065 | 0.045 |
| W.S. Elev (ft) | 300.13 | Reach Len. (ft) | | | |
| Crit W.S. (ft) | 292.51 | Flow Area (sq ft) | 190.20 | 3615.09 | 4064.51 |
| E.G. Slope (ft/ft) | 0.000054 | Area (sq ft) | 190.20 | 3615.09 | 4841.95 |
| Q Total (cfs) | 5500.00 | Flow (cfs) | 40.42 | 2350.23 | 3109.35 |
| Top Width (ft) | 1583.85 | Top Width (ft) | 69.16 | 473.50 | 1041.19 |
| Vel Total (ft/s) | 0.70 | Avg. Vel. (ft/s) | 0.21 | 0.65 | 0.76 |
| Max Chl Dpth (ft) | 11.33 | Hydr. Depth (ft) | 2.75 | 7.63 | 5.61 |
| Conv. Total (cfs) | 749456.3 | Conv. (cfs) | 5508.0 | 320253.1 | 423695.2 |

| | | | | | |
|---|---|---|---|---|---|
| Length Wtd. (ft) | | Wetted Per. (ft) | 69.90 | 473.89 | 724.63 |
| Min Ch El (ft) | 288.80 | Shear (lb/sq ft) | 0.01 | 0.03 | 0.02 |
| Alpha | 1.05 | Stream Power (lb/ft s) | 0.00 | 0.02 | 0.01 |
| Frctn Loss (ft) | | Cum Volume (acre-ft) | | | |
| C & E Loss (ft) | | Cum SA (acres) | | | |

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

CROSS SECTION OUTPUT Profile #PF 5

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 300.22 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.09 | Wt. n-Val. | 0.100 | 0.065 | 0.045 |
| W.S. Elev (ft) | 300.13 | Reach Len. (ft) | | | |
| Crit W.S. (ft) | 294.29 | Flow Area (sq ft) | 190.20 | 3615.09 | 4064.51 |
| E.G. Slope (ft/ft) | 0.000643 | Area (sq ft) | 190.20 | 3615.09 | 4841.95 |
| Q Total (cfs) | 19000.00 | Flow (cfs) | 139.64 | 8118.96 | 10741.40 |
| Top Width (ft) | 1583.85 | Top Width (ft) | 69.16 | 473.50 | 1041.19 |
| Vel Total (ft/s) | 2.41 | Avg. Vel. (ft/s) | 0.73 | 2.25 | 2.64 |
| Max Chl Dpth (ft) | 11.33 | Hydr. Depth (ft) | 2.75 | 7.63 | 5.61 |
| Conv. Total (cfs) | 749456.3 | Conv. (cfs) | 5508.0 | 320253.1 | 423695.2 |
| Length Wtd. (ft) | | Wetted Per. (ft) | 69.90 | 473.89 | 724.63 |
| Min Ch El (ft) | 288.80 | Shear (lb/sq ft) | 0.11 | 0.31 | 0.23 |
| Alpha | 1.05 | Stream Power (lb/ft s) | 0.08 | 0.69 | 0.59 |
| Frctn Loss (ft) | | Cum Volume (acre-ft) | | | |
| C & E Loss (ft) | | Cum SA (acres) | | | |

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

SUMMARY OF REACH LENGTHS

River: San Diego River

| Reach | River Sta. | Left | Channel | Right |
|---|---|---|---|---|
| Reach 1 | 355 | 360 | 310 | 350 |
| Reach 1 | 345 | 400 | 335 | 125 |
| Reach 1 | 340 | 575 | 454 | 575 |
| Reach 1 | 330 | 620 | 588 | 620 |
| Reach 1 | 320 | 260 | 431 | 405 |
| Reach 1 | 315 | 380 | 280 | 255 |
| Reach 1 | 310 | 610 | 610 | 640 |
| Reach 1 | 300 | 790 | 654 | 605 |
| Reach 1 | 290 | 695 | 653 | 645 |
| Reach 1 | 285 | 640 | 688 | 660 |
| Reach 1 | 280 | 1135 | 1021 | 1060 |
| Reach 1 | 270 | 1000 | 951 | 815 |
| Reach 1 | 260 | 1050 | 1031 | 1000 |
| Reach 1 | 250 | 700 | 701 | 615 |

| | | | | |
|---|---|---|---|---|
| Reach 1 | 245 | 140.2 | 147.4 | 160 |
| Reach 1 | 244 | 104.8 | 124.6 | 145 |
| Reach 1 | 243 | Bridge | | |
| Reach 1 | 242 | 165 | 224 | 270 |
| Reach 1 | 239 | 385 | 413 | 515 |
| Reach 1 | 230 | 460 | 487 | 430 |
| Reach 1 | 220 | 0 | 0 | 0 |

SUMMARY OF CONTRACTION AND EXPANSION COEFFICIENTS
River: San Diego River

| Reach | River Sta. | Contr. | Expan. |
|---|---|---|---|
| Reach 1 | 355 | .1 | .3 |
| Reach 1 | 345 | .1 | .3 |
| Reach 1 | 340 | .1 | .3 |
| Reach 1 | 330 | .1 | .3 |
| Reach 1 | 320 | .1 | .3 |
| Reach 1 | 315 | .1 | .3 |
| Reach 1 | 310 | .1 | .3 |
| Reach 1 | 300 | .1 | .3 |
| Reach 1 | 290 | .1 | .3 |
| Reach 1 | 285 | .1 | .3 |
| Reach 1 | 280 | .1 | .3 |
| Reach 1 | 270 | .1 | .3 |
| Reach 1 | 260 | .1 | .3 |
| Reach 1 | 250 | .1 | .3 |
| Reach 1 | 245 | .1 | .3 |
| Reach 1 | 244 | .3 | .5 |
| Reach 1 | 243 | Bridge | |
| Reach 1 | 242 | .3 | .5 |
| Reach 1 | 239 | .1 | .3 |
| Reach 1 | 230 | .1 | .3 |
| Reach 1 | 220 | .1 | .3 |

HEC-RAS Plan: Existing-PL1 River: San Diego River Reach: Reach 1

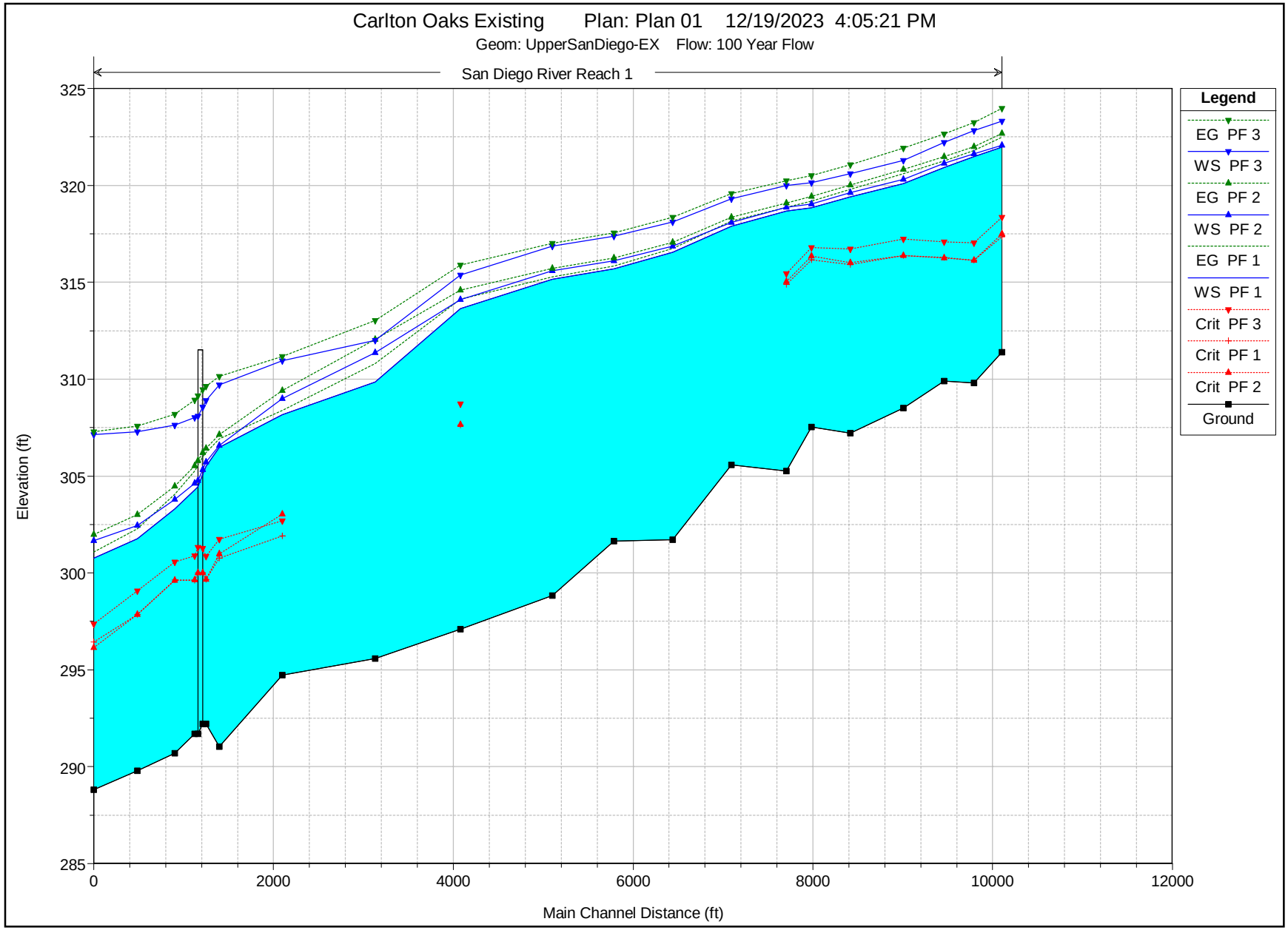
| Reach | River Sta | Profile | Q Total | Min Ch El | W.S. Elev | Crit W.S. | E.G. Elev | E.G. Slope | Vel Chnl | Flow Area | Top Width | Froude # Chl |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | (cfs) | (ft) | (ft) | (ft) | (ft) | (ft/ft) | (ft/s) | (sq ft) | (ft) | |
| Reach 1 | 220 | PF 1 | 38000.00 | 288.80 | 300.76 | 296.44 | 301.08 | 0.001870 | 4.04 | 8671.03 | 1604.48 | 0.25 |
| Reach 1 | 220 | PF 2 | 38000.00 | 288.80 | 301.66 | 296.14 | 301.99 | 0.001490 | 3.98 | 8439.89 | 970.00 | 0.23 |
| Reach 1 | 220 | PF 3 | 50000.00 | 288.80 | 307.13 | 297.37 | 307.28 | 0.000362 | 2.60 | 17024.01 | 1773.44 | 0.12 |
| | | | | | | | | | | | | |
| Reach 1 | 230 | PF 1 | 38000.00 | 289.80 | 301.76 | 297.85 | 302.27 | 0.003419 | 5.63 | 6685.51 | 1270.80 | 0.34 |
| Reach 1 | 230 | PF 2 | 38000.00 | 289.80 | 302.44 | 297.86 | 303.00 | 0.002947 | 5.50 | 6501.38 | 735.00 | 0.32 |
| Reach 1 | 230 | PF 3 | 50000.00 | 289.80 | 307.28 | 299.08 | 307.57 | 0.000870 | 3.94 | 12310.10 | 1545.51 | 0.18 |
| | | | | | | | | | | | | |
| Reach 1 | 239 | PF 1 | 38000.00 | 290.70 | 303.29 | 299.63 | 304.05 | 0.004242 | 6.57 | 5499.47 | 1142.37 | 0.38 |
| Reach 1 | 239 | PF 2 | 38000.00 | 290.70 | 303.79 | 299.62 | 304.46 | 0.003505 | 6.21 | 5825.24 | 660.00 | 0.35 |
| Reach 1 | 239 | PF 3 | 50000.00 | 290.70 | 307.63 | 300.56 | 308.19 | 0.001760 | 5.46 | 8514.67 | 1224.73 | 0.26 |
| | | | | | | | | | | | | |
| Reach 1 | 242 | PF 1 | 38000.00 | 291.70 | 304.29 | 299.62 | 305.25 | 0.005290 | 7.86 | 4835.71 | 467.01 | 0.43 |
| Reach 1 | 242 | PF 2 | 38000.00 | 291.70 | 304.62 | 299.63 | 305.52 | 0.004778 | 7.61 | 4993.21 | 468.67 | 0.41 |
| Reach 1 | 242 | PF 3 | 50000.00 | 291.70 | 308.02 | 300.88 | 308.91 | 0.003408 | 7.56 | 6614.34 | 485.40 | 0.36 |
| | | | | | | | | | | | | |
| Reach 1 | 243 | | Bridge | | | | | | | | | |
| | | | | | | | | | | | | |
| Reach 1 | 244 | PF 1 | 38000.00 | 292.20 | 305.49 | 299.66 | 306.21 | 0.003534 | 6.83 | 5560.77 | 1098.91 | 0.36 |
| Reach 1 | 244 | PF 2 | 38000.00 | 292.20 | 305.72 | 299.66 | 306.42 | 0.003396 | 6.69 | 5675.99 | 492.48 | 0.35 |
| Reach 1 | 244 | PF 3 | 50000.00 | 292.20 | 308.90 | 300.87 | 309.64 | 0.002582 | 6.89 | 7256.28 | 1381.54 | 0.32 |
| | | | | | | | | | | | | |
| Reach 1 | 245 | PF 1 | 38000.00 | 291.03 | 306.48 | 300.76 | 306.91 | 0.005987 | 5.38 | 7204.27 | 1096.97 | 0.30 |
| Reach 1 | 245 | PF 2 | 38000.00 | 291.03 | 306.58 | 300.98 | 307.13 | 0.007116 | 5.96 | 6397.45 | 605.00 | 0.32 |
| Reach 1 | 245 | PF 3 | 50000.00 | 291.03 | 309.71 | 301.75 | 310.14 | 0.004037 | 5.31 | 9563.80 | 1154.10 | 0.26 |
| | | | | | | | | | | | | |
| Reach 1 | 250 | PF 1 | 38000.00 | 294.72 | 308.16 | 301.90 | 308.38 | 0.001079 | 3.81 | 10037.86 | 1156.37 | 0.21 |
| Reach 1 | 250 | PF 2 | 38000.00 | 294.72 | 308.99 | 303.02 | 309.41 | 0.001835 | 5.24 | 7337.71 | 695.00 | 0.28 |
| Reach 1 | 250 | PF 3 | 50000.00 | 294.72 | 310.95 | 302.68 | 311.17 | 0.000768 | 3.78 | 13429.41 | 1266.66 | 0.18 |
| | | | | | | | | | | | | |
| Reach 1 | 260 | PF 1 | 38000.00 | 295.59 | 309.84 | | 310.80 | 0.006172 | 7.94 | 4867.00 | 625.96 | 0.49 |
| Reach 1 | 260 | PF 2 | 38000.00 | 295.59 | 311.35 | | 312.04 | 0.003534 | 6.72 | 5724.55 | 600.00 | 0.38 |
| Reach 1 | 260 | PF 3 | 50000.00 | 295.59 | 312.01 | | 313.02 | 0.004857 | 8.18 | 6292.97 | 683.23 | 0.45 |
| | | | | | | | | | | | | |
| Reach 1 | 270 | PF 1 | 37000.00 | 297.09 | 313.64 | 307.63 | 314.14 | 0.002199 | 5.73 | 6739.66 | 1012.96 | 0.30 |
| Reach 1 | 270 | PF 2 | 37000.00 | 297.09 | 314.09 | 307.65 | 314.60 | 0.002089 | 5.73 | 6463.24 | 560.00 | 0.30 |
| Reach 1 | 270 | PF 3 | 49000.00 | 297.09 | 315.38 | 308.73 | 315.89 | 0.002006 | 6.03 | 8991.59 | 1062.61 | 0.30 |
| | | | | | | | | | | | | |
| Reach 1 | 280 | PF 1 | 37000.00 | 298.83 | 315.16 | | 315.28 | 0.000639 | 2.74 | 13501.55 | 1469.39 | 0.16 |

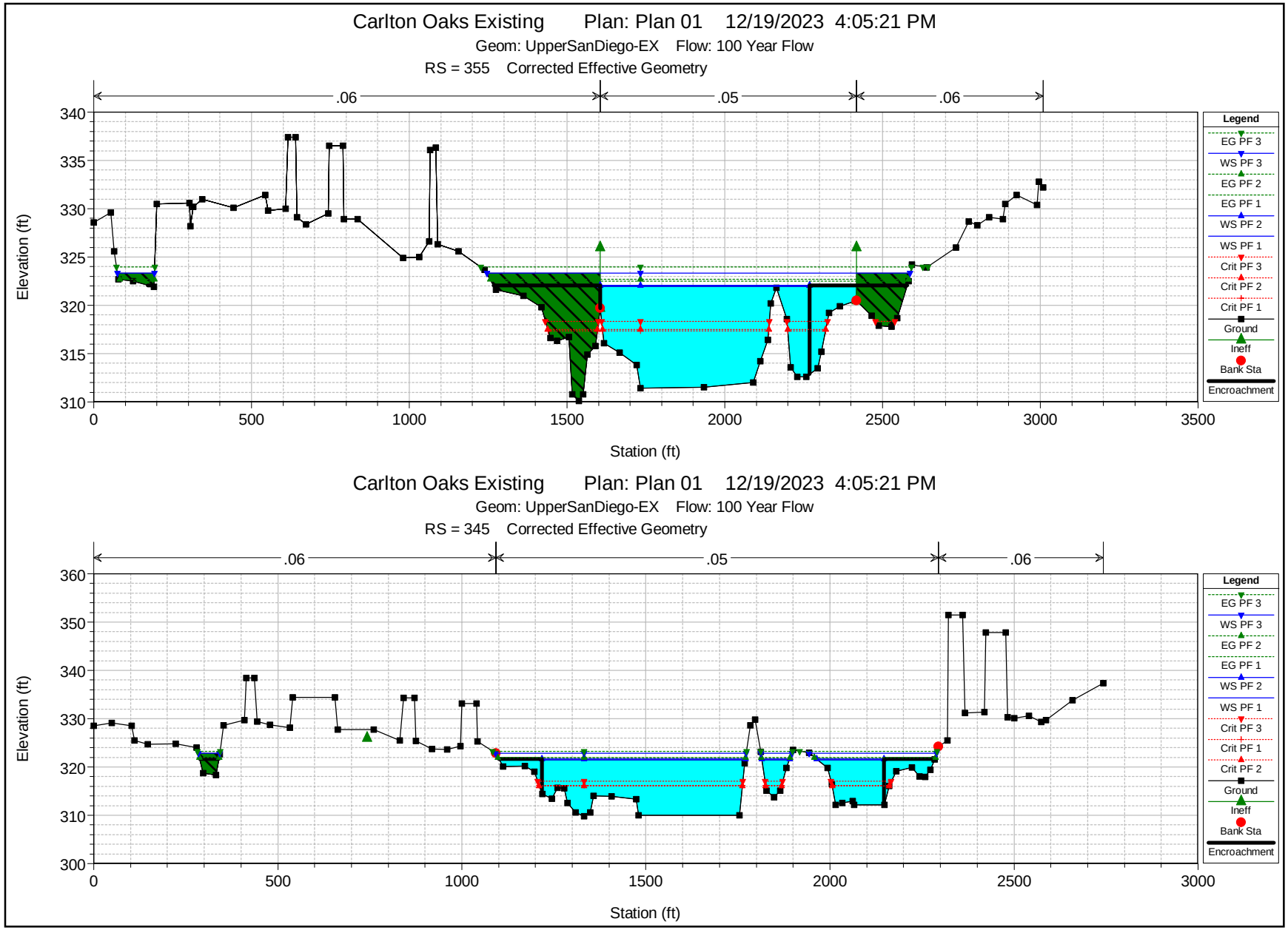
HEC-RAS Plan: Existing-PL1 River: San Diego River Reach: Reach 1 (Continued)

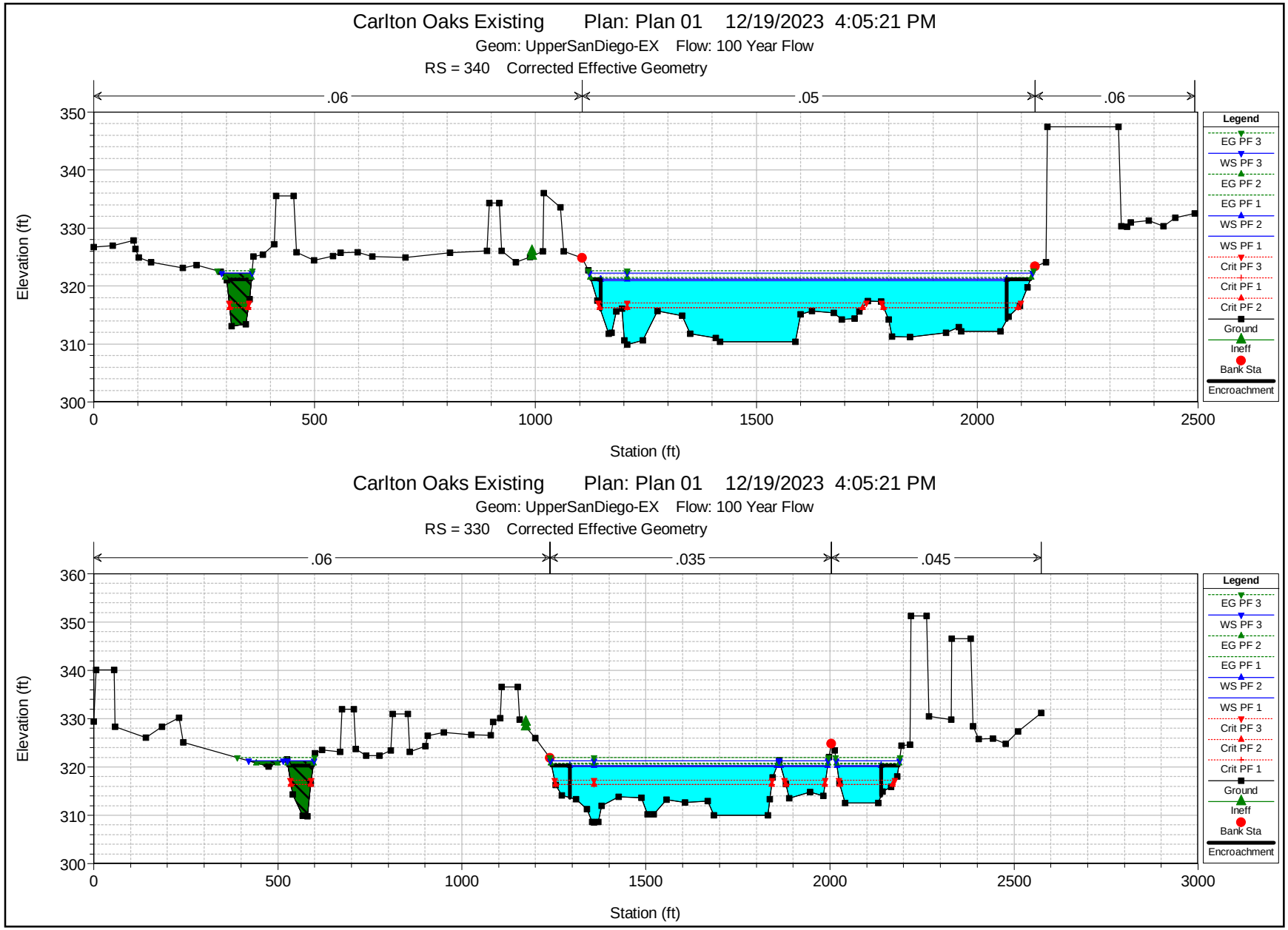
| Reach | River Sta | Profile | Q Total | Min Ch El | W.S. Elev | Crit W.S. | E.G. Elev | E.G. Slope | Vel Chnl | Flow Area | Top Width | Froude # Chl |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | (cfs) | (ft) | (ft) | (ft) | (ft) | (ft/ft) | (ft/s) | (sq ft) | (ft) | |
| Reach 1 | 280 | PF 2 | 37000.00 | 298.83 | 315.60 | | 315.73 | 0.000640 | 2.86 | 12916.01 | 1300.00 | 0.16 |
| Reach 1 | 280 | PF 3 | 49000.00 | 298.83 | 316.86 | | 317.00 | 0.000639 | 3.07 | 16001.48 | 1476.56 | 0.16 |
| | | | | | | | | | | | | |
| Reach 1 | 285 | PF 1 | 37000.00 | 301.64 | 315.69 | | 315.84 | 0.001043 | 3.14 | 11826.09 | 1567.96 | 0.20 |
| Reach 1 | 285 | PF 2 | 37000.00 | 301.64 | 316.11 | | 316.26 | 0.000928 | 3.08 | 12009.99 | 1435.00 | 0.19 |
| Reach 1 | 285 | PF 3 | 49000.00 | 301.64 | 317.36 | | 317.54 | 0.000948 | 3.41 | 14493.37 | 1604.18 | 0.20 |
| | | | | | | | | | | | | |
| Reach 1 | 290 | PF 1 | 37000.00 | 301.71 | 316.54 | | 316.75 | 0.001850 | 3.65 | 10129.69 | 1581.55 | 0.25 |
| Reach 1 | 290 | PF 2 | 37000.00 | 301.71 | 316.86 | | 317.06 | 0.001615 | 3.54 | 10438.97 | 1536.58 | 0.24 |
| Reach 1 | 290 | PF 3 | 49000.00 | 301.71 | 318.12 | | 318.35 | 0.001589 | 3.87 | 12646.59 | 1610.97 | 0.24 |
| | | | | | | | | | | | | |
| Reach 1 | 300 | PF 1 | 37000.00 | 305.57 | 317.90 | | 318.15 | 0.002457 | 4.10 | 9126.91 | 1573.83 | 0.29 |
| Reach 1 | 300 | PF 2 | 37000.00 | 305.57 | 318.09 | | 318.35 | 0.002389 | 4.13 | 8974.82 | 1411.95 | 0.29 |
| Reach 1 | 300 | PF 3 | 49000.00 | 305.57 | 319.30 | | 319.59 | 0.002211 | 4.40 | 11543.19 | 1851.52 | 0.29 |
| | | | | | | | | | | | | |
| Reach 1 | 310 | PF 1 | 37000.00 | 305.25 | 318.67 | 314.88 | 318.86 | 0.000665 | 3.64 | 10860.64 | 1831.55 | 0.26 |
| Reach 1 | 310 | PF 2 | 37000.00 | 305.25 | 318.86 | 315.04 | 319.08 | 0.000714 | 3.84 | 9767.49 | 1545.00 | 0.27 |
| Reach 1 | 310 | PF 3 | 49000.00 | 305.25 | 320.00 | 315.44 | 320.23 | 0.000604 | 3.96 | 13453.85 | 1971.84 | 0.26 |
| | | | | | | | | | | | | |
| Reach 1 | 315 | PF 1 | 37000.00 | 307.53 | 318.85 | 316.16 | 319.18 | 0.001481 | 4.82 | 8315.47 | 1667.87 | 0.38 |
| Reach 1 | 315 | PF 2 | 37000.00 | 307.53 | 319.03 | 316.35 | 319.42 | 0.001562 | 5.09 | 7490.04 | 1396.51 | 0.39 |
| Reach 1 | 315 | PF 3 | 49000.00 | 307.53 | 320.15 | 316.79 | 320.51 | 0.001236 | 5.06 | 10503.48 | 1701.61 | 0.36 |
| | | | | | | | | | | | | |
| Reach 1 | 320 | PF 1 | 37000.00 | 307.20 | 319.40 | 315.92 | 319.79 | 0.001321 | 4.99 | 7408.00 | 1933.07 | 0.36 |
| Reach 1 | 320 | PF 2 | 37000.00 | 307.20 | 319.63 | 316.01 | 320.02 | 0.001281 | 5.04 | 7344.57 | 1208.23 | 0.36 |
| Reach 1 | 320 | PF 3 | 49000.00 | 307.20 | 320.61 | 316.71 | 321.07 | 0.001267 | 5.46 | 8966.82 | 1966.41 | 0.37 |
| | | | | | | | | | | | | |
| Reach 1 | 330 | PF 1 | 36000.00 | 308.50 | 320.10 | 316.37 | 320.59 | 0.001297 | 5.80 | 6531.89 | 972.79 | 0.37 |
| Reach 1 | 330 | PF 2 | 36000.00 | 308.50 | 320.30 | 316.37 | 320.83 | 0.001310 | 5.98 | 6263.57 | 810.07 | 0.38 |
| Reach 1 | 330 | PF 3 | 48000.00 | 308.50 | 321.28 | 317.22 | 321.92 | 0.001434 | 6.64 | 7609.38 | 1090.88 | 0.40 |
| | | | | | | | | | | | | |
| Reach 1 | 340 | PF 1 | 36000.00 | 309.90 | 320.93 | 316.27 | 321.26 | 0.001563 | 4.62 | 7795.05 | 1048.46 | 0.29 |
| Reach 1 | 340 | PF 2 | 36000.00 | 309.90 | 321.15 | 316.26 | 321.49 | 0.001474 | 4.66 | 7733.08 | 920.00 | 0.28 |
| Reach 1 | 340 | PF 3 | 48000.00 | 309.90 | 322.22 | 317.07 | 322.66 | 0.001692 | 5.28 | 9087.39 | 1072.66 | 0.31 |
| | | | | | | | | | | | | |
| Reach 1 | 345 | PF 1 | 36000.00 | 309.80 | 321.48 | 316.13 | 321.81 | 0.001714 | 4.62 | 7798.78 | 1112.76 | 0.30 |
| Reach 1 | 345 | PF 2 | 36000.00 | 309.80 | 321.63 | 316.13 | 322.01 | 0.001559 | 4.95 | 7272.35 | 812.79 | 0.29 |
| Reach 1 | 345 | PF 3 | 48000.00 | 309.80 | 322.83 | 317.04 | 323.25 | 0.001821 | 5.18 | 9267.36 | 1169.35 | 0.32 |
| | | | | | | | | | | | | |

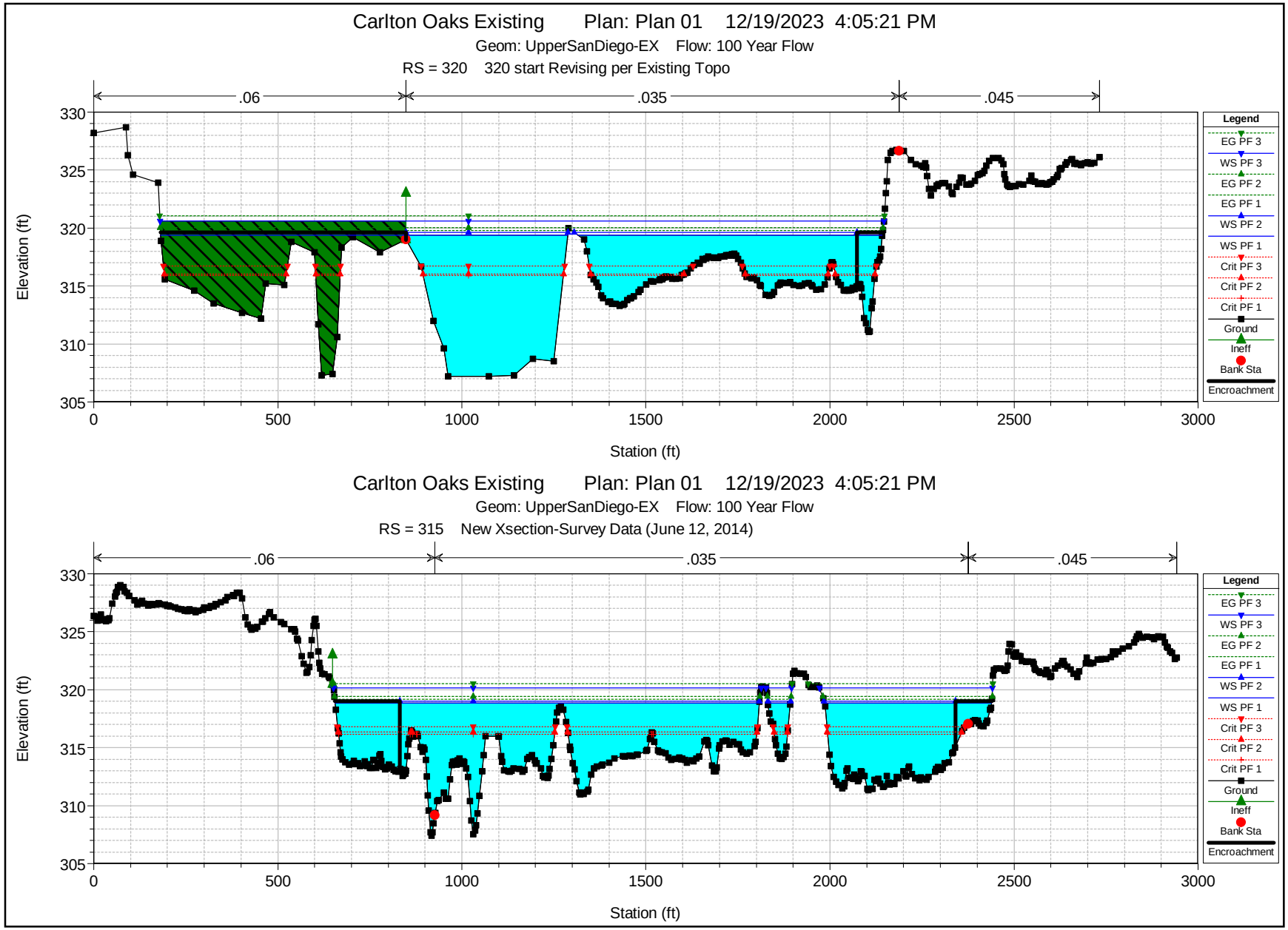
HEC-RAS Plan: Existing-PL1 River: San Diego River Reach: Reach 1 (Continued)

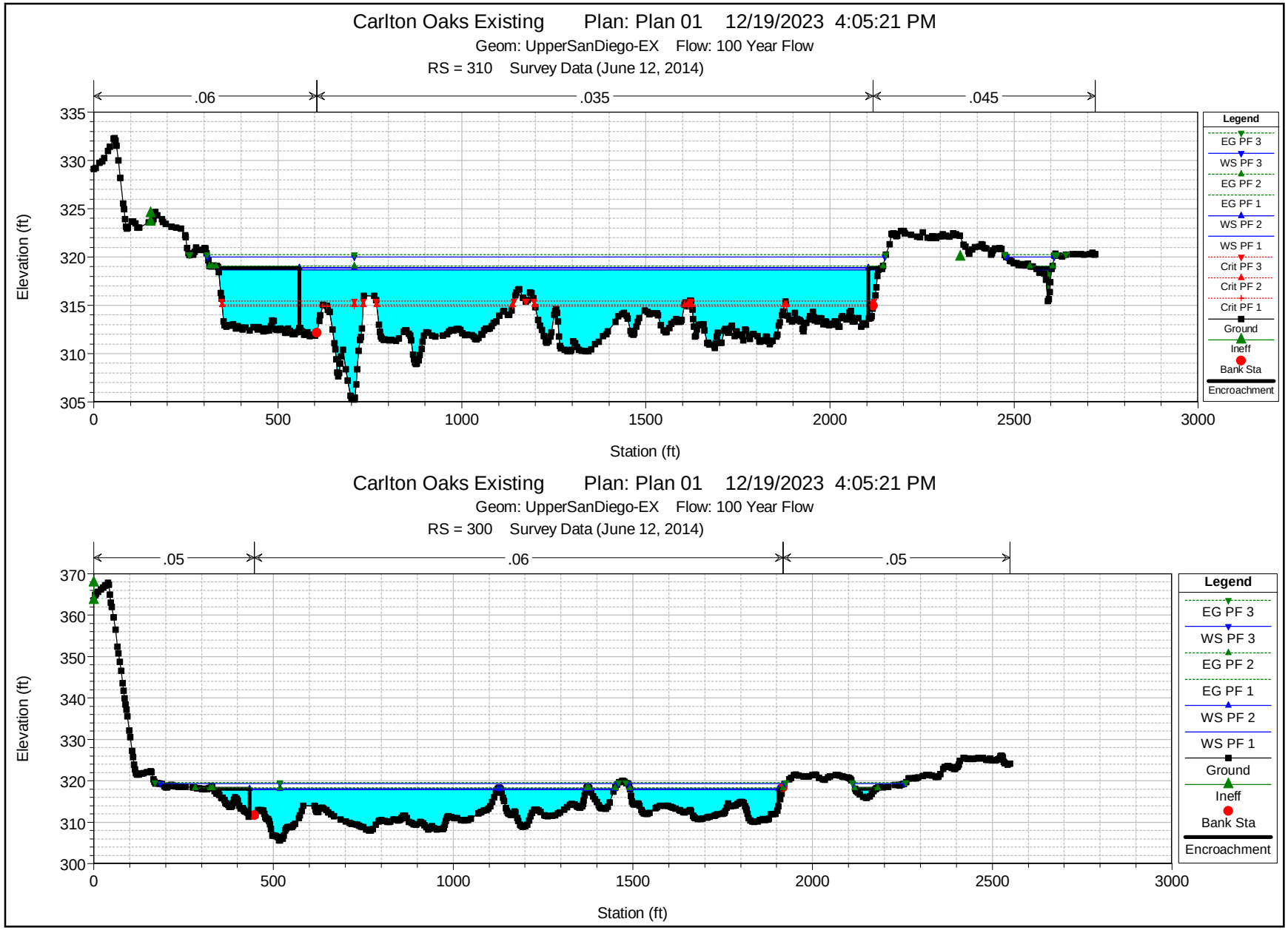
| Reach | River Sta | Profile | Q Total | Min Ch El | W.S. Elev | Crit W.S. | E.G. Elev | E.G. Slope | Vel Chnl | Flow Area | Top Width | Froude # Chl |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | (cfs) | (ft) | (ft) | (ft) | (ft) | (ft/ft) | (ft/s) | (sq ft) | (ft) | |
| Reach 1 | 355 | PF 1 | 36000.00 | 311.40 | 321.98 | 317.36 | 322.49 | 0.002414 | 5.71 | 6308.79 | 1317.59 | 0.36 |
| Reach 1 | 355 | PF 2 | 36000.00 | 311.40 | 322.08 | 317.49 | 322.68 | 0.002549 | 6.24 | 5766.69 | 664.90 | 0.37 |
| Reach 1 | 355 | PF 3 | 48000.00 | 311.40 | 323.32 | 318.35 | 323.98 | 0.002521 | 6.49 | 7400.66 | 1458.36 | 0.38 |

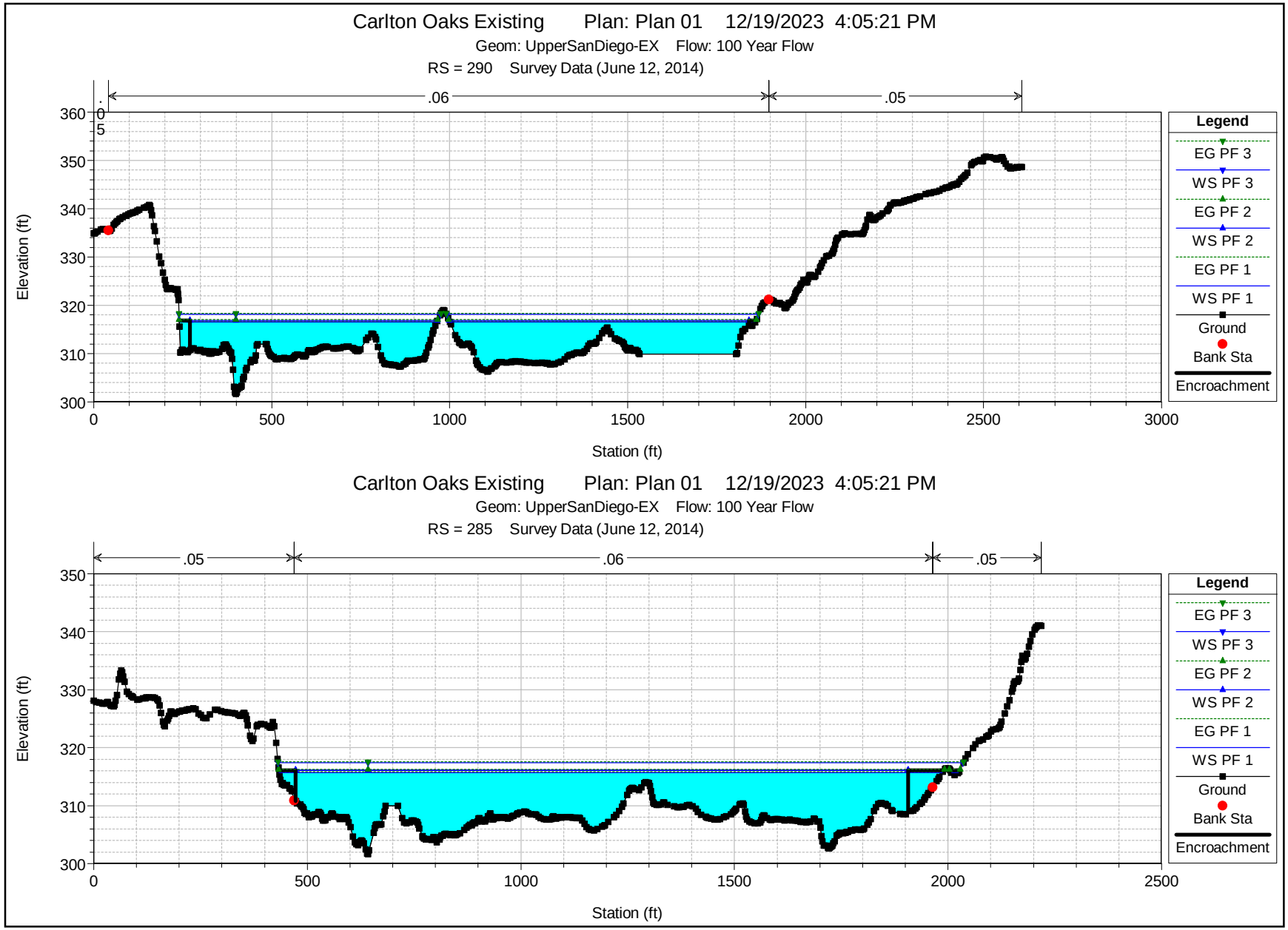

Carlton Oaks Existing Plan: Plan 01 12/19/2023 4:05:21 PM
Geom: UpperSanDiego-EX Flow: 100 Year Flow
San Diego River Reach 1
Elevation (ft)
325
320
315
310
305
300
295
290
285
0
2000
4000
6000
8000
10000
12000
Main Channel Distance (ft)
Legend
EG PF 3
WS PF 3
EG PF 2
WS PF 2
EG PF 1
WS PF 1
Crit PF 3
Crit PF 1
Crit PF 2
Ground

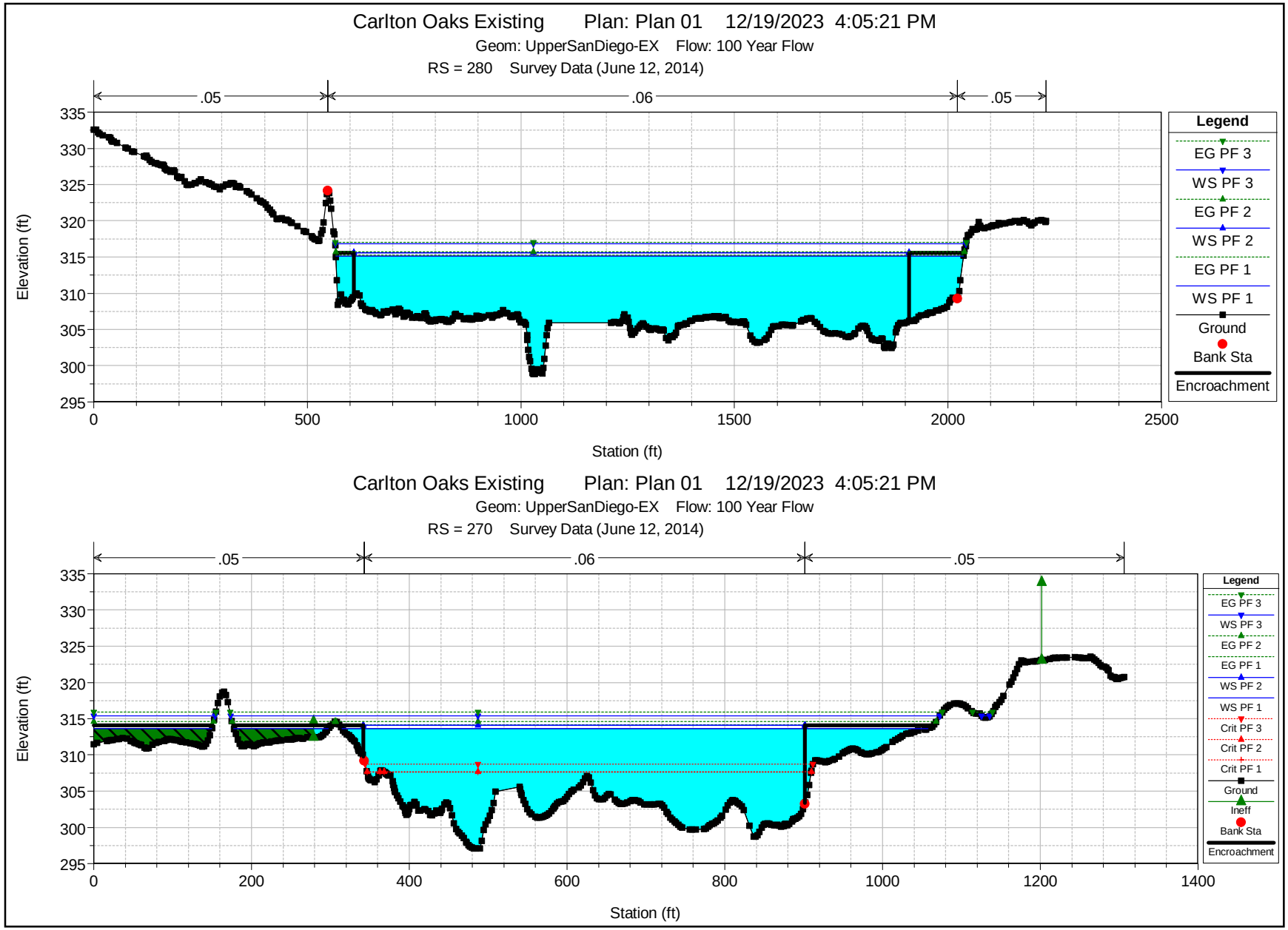

Carlton Oaks Existing Plan: Plan 01 12/19/2023 4:05:21 PM
Geom: UpperSanDiego-EX Flow: 100 Year Flow
RS = 355 Corrected Effective Geometry
.06
.05
.06
Elevation (ft)
Station (ft)
Legend
EG PF 3
WS PF 3
EG PF 2
EG PF 1
WS PF 2
WS PF 1
Crit PF 3
Crit PF 2
Crit PF 1
Ground
Ineff
Bank Sta
Encroachment
Carlton Oaks Existing Plan: Plan 01 12/19/2023 4:05:21 PM
Geom: UpperSanDiego-EX Flow: 100 Year Flow
RS = 345 Corrected Effective Geometry
.06
.05
.06
Elevation (ft)
Station (ft)
Legend
EG PF 3
WS PF 3
EG PF 2
EG PF 1
WS PF 2
WS PF 1
Crit PF 3
Crit PF 1
Crit PF 2
Ground
Ineff
Bank Sta
Encroachment

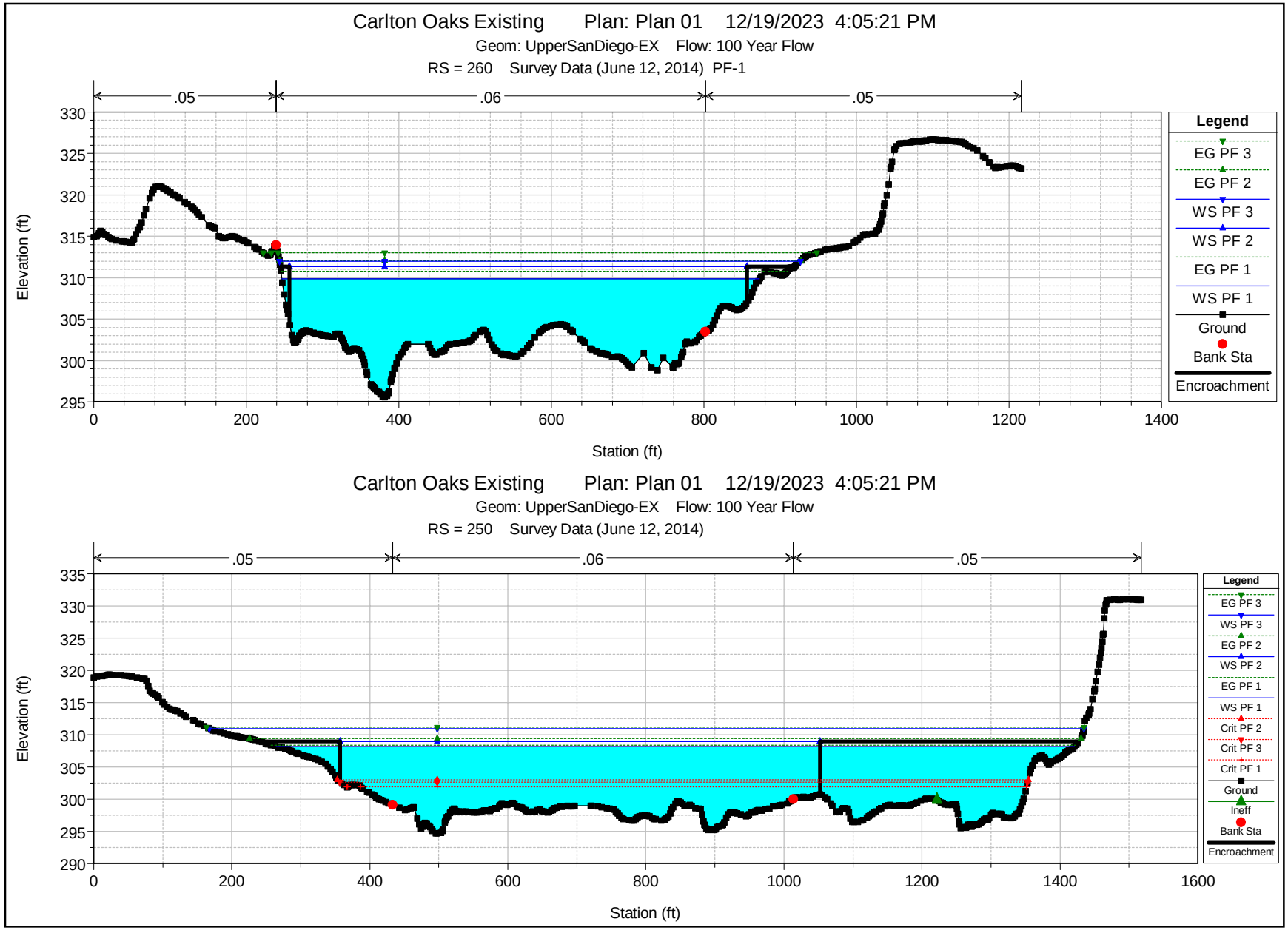

Carlton Oaks Existing Plan: Plan 01 12/19/2023 4:05:21 PM
Geom: UpperSanDiego-EX Flow: 100 Year Flow
RS = 340 Corrected Effective Geometry
.06
.05
.06
Elevation (ft)
Station (ft)
Legend
EG PF 3
WS PF 3
EG PF 2
EG PF 1
WS PF 2
WS PF 1
Crit PF 3
Crit PF 1
Crit PF 2
Ground
Ineff
Bank Sta
Encroachment
Carlton Oaks Existing Plan: Plan 01 12/19/2023 4:05:21 PM
Geom: UpperSanDiego-EX Flow: 100 Year Flow
RS = 330 Corrected Effective Geometry
.06
.035
.045
Elevation (ft)
Station (ft)
Legend
EG PF 3
WS PF 3
EG PF 2
EG PF 1
WS PF 2
WS PF 1
Crit PF 3
Crit PF 2
Crit PF 1
Ground
Ineff
Bank Sta
Encroachment

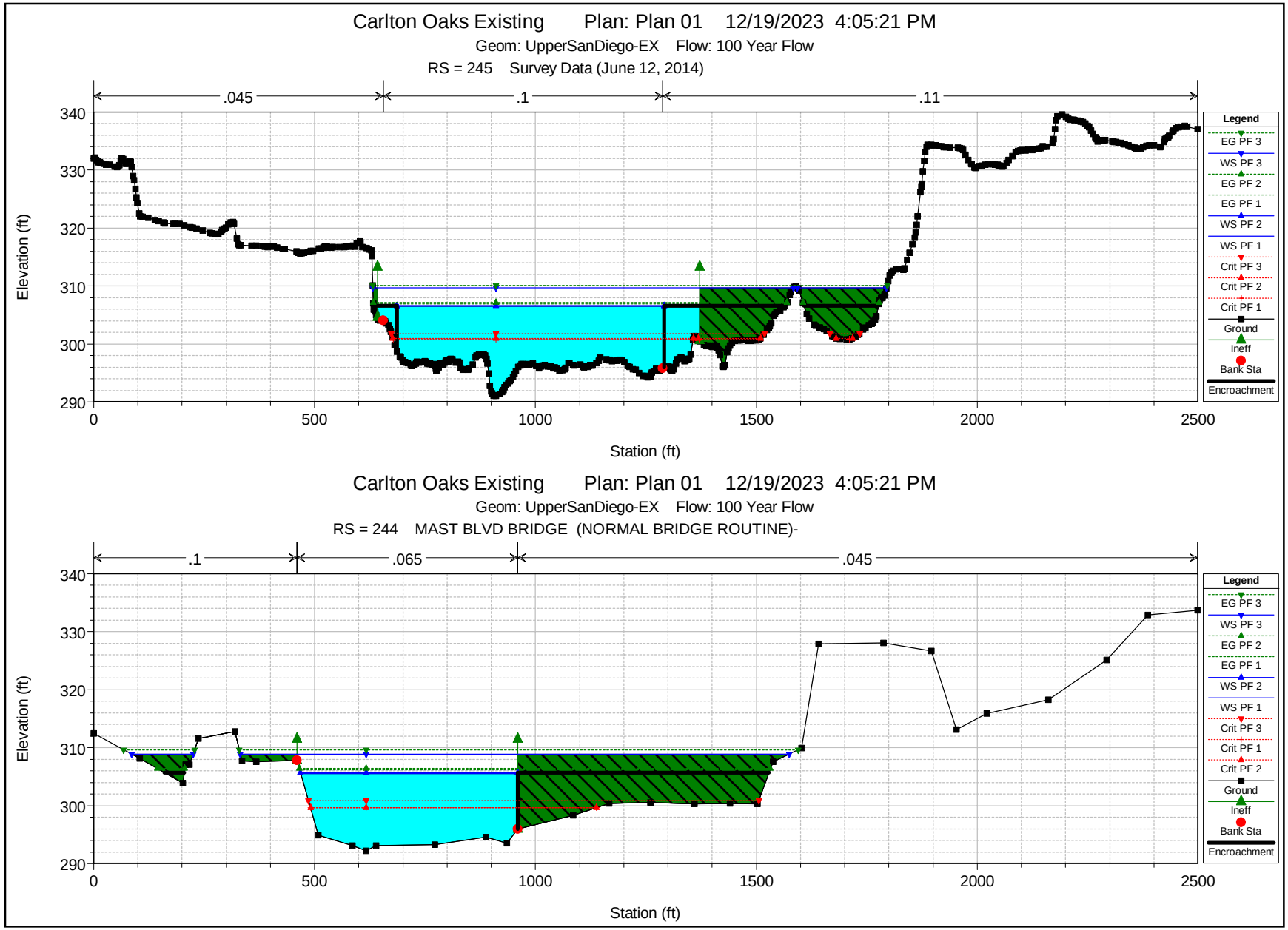

Carlton Oaks Existing Plan: Plan 01 12/19/2023 4:05:21 PM
Geom: UpperSanDiego-EX Flow: 100 Year Flow
RS = 320 320 start Revising per Existing Topo
.06
.035
.045
Elevation (ft)
330
325
320
315
310
305
0
500
1000
1500
2000
2500
3000
Station (ft)
Legend
EG PF 3
WS PF 3
EG PF 2
EG PF 1
WS PF 2
WS PF 1
Crit PF 3
Crit PF 2
Crit PF 1
Ground
Ineff
Bank Sta
Encroachment
Carlton Oaks Existing Plan: Plan 01 12/19/2023 4:05:21 PM
Geom: UpperSanDiego-EX Flow: 100 Year Flow
RS = 315 New Xsection-Survey Data (June 12, 2014)
.06
.035
.045
Elevation (ft)
330
325
320
315
310
305
0
500
1000
1500
2000
2500
3000
Station (ft)
Legend
EG PF 3
WS PF 3
EG PF 2
EG PF 1
WS PF 2
WS PF 1
Crit PF 3
Crit PF 2
Crit PF 1
Ground
Ineff
Bank Sta
Encroachment

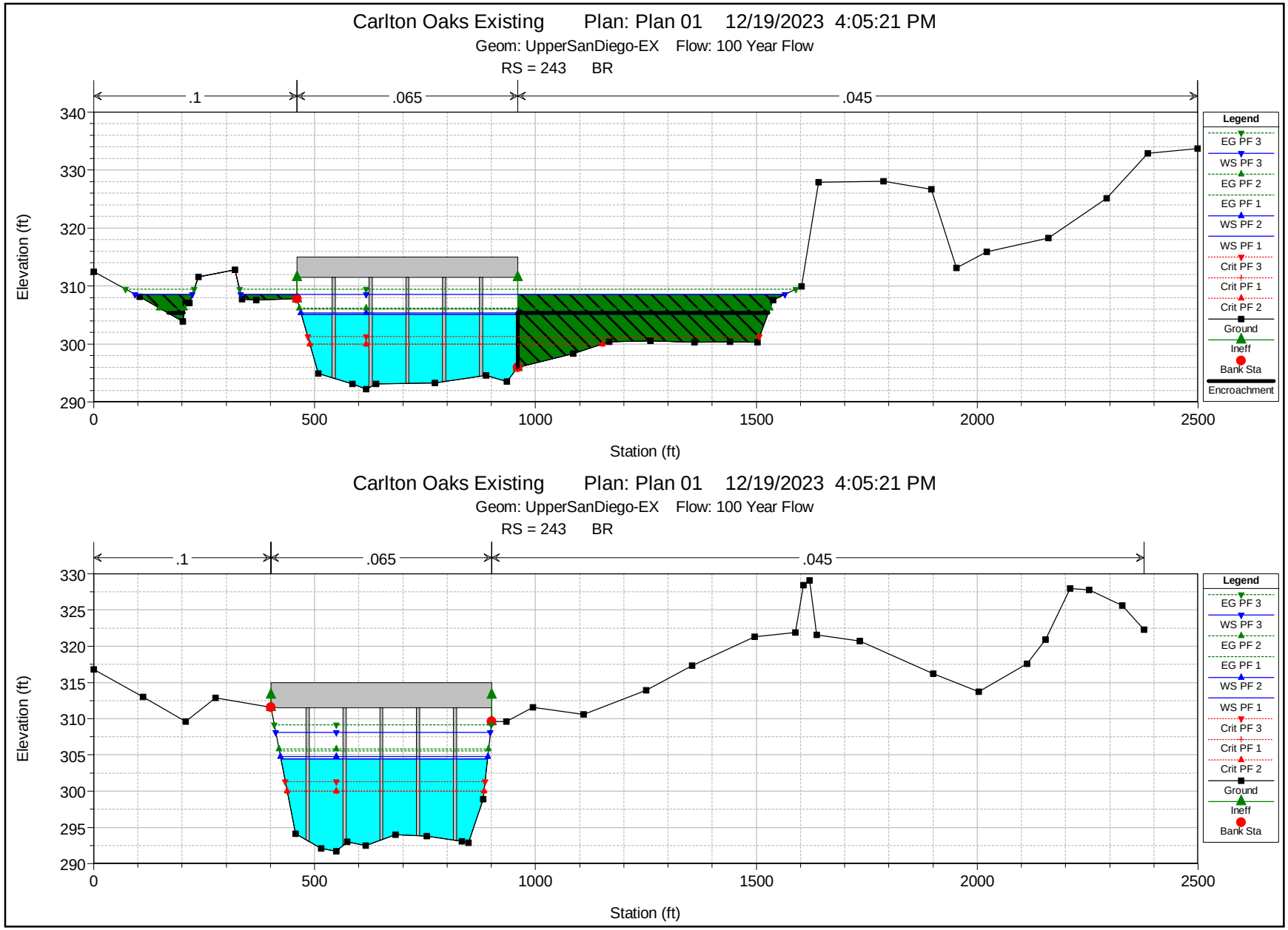

Carlton Oaks Existing Plan: Plan 01 12/19/2023 4:05:21 PM
Geom: UpperSanDiego-EX Flow: 100 Year Flow
RS = 310 Survey Data (June 12, 2014)
.06
.035
.045
Elevation (ft)
335
330
325
320
315
310
305
0
500
1000
1500
2000
2500
3000
Station (ft)
Legend
EG PF 3
WS PF 3
EG PF 2
EG PF 1
WS PF 2
WS PF 1
Crit PF 3
Crit PF 2
Crit PF 1
Ground
Ineff
Bank Sta
Encroachment
Carlton Oaks Existing Plan: Plan 01 12/19/2023 4:05:21 PM
Geom: UpperSanDiego-EX Flow: 100 Year Flow
RS = 300 Survey Data (June 12, 2014)
.05
.06
.05
Elevation (ft)
370
360
350
340
330
320
310
300
0
500
1000
1500
2000
2500
3000
Station (ft)
Legend
EG PF 3
WS PF 3
EG PF 2
EG PF 1
WS PF 2
WS PF 1
Ground
Ineff
Bank Sta
Encroachment

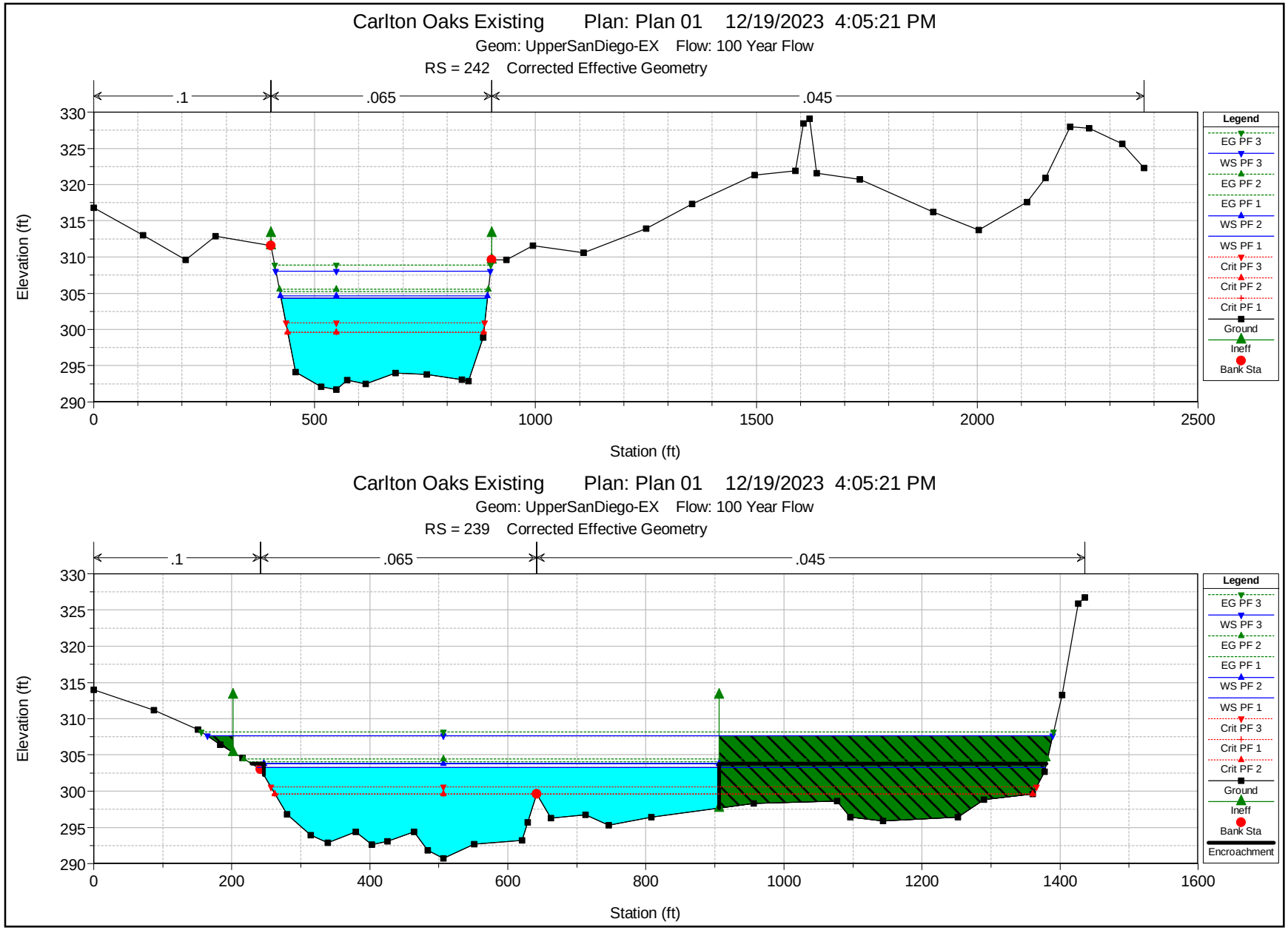

Carlton Oaks Existing Plan: Plan 01 12/19/2023 4:05:21 PM
Geom: UpperSanDiego-EX Flow: 100 Year Flow
RS = 290 Survey Data (June 12, 2014)
.06
.05
Elevation (ft)
Station (ft)
Legend
EG PF 3
WS PF 3
EG PF 2
WS PF 2
EG PF 1
WS PF 1
Ground
Bank Sta
Encroachment
Carlton Oaks Existing Plan: Plan 01 12/19/2023 4:05:21 PM
Geom: UpperSanDiego-EX Flow: 100 Year Flow
RS = 285 Survey Data (June 12, 2014)
.05
.06
.05
Elevation (ft)
Station (ft)
Legend
EG PF 3
WS PF 3
EG PF 2
WS PF 2
EG PF 1
WS PF 1
Ground
Bank Sta
Encroachment


Carlton Oaks Existing Plan: Plan 01 12/19/2023 4:05:21 PM
Geom: UpperSanDiego-EX Flow: 100 Year Flow
RS = 280 Survey Data (June 12, 2014)
.05
.06
.05
Elevation (ft)
335
330
325
320
315
310
305
300
295
0
500
1000
1500
2000
2500
Station (ft)
Legend
EG PF 3
WS PF 3
EG PF 2
WS PF 2
EG PF 1
WS PF 1
Ground
Bank Sta
Encroachment
Carlton Oaks Existing Plan: Plan 01 12/19/2023 4:05:21 PM
Geom: UpperSanDiego-EX Flow: 100 Year Flow
RS = 270 Survey Data (June 12, 2014)
.05
.06
.05
Elevation (ft)
335
330
325
320
315
310
305
300
295
0
200
400
600
800
1000
1200
1400
Station (ft)
Legend
EG PF 3
WS PF 3
EG PF 2
EG PF 1
WS PF 2
WS PF 1
Crit PF 3
Crit PF 2
Crit PF 1
Ground
Ineff
Bank Sta
Encroachment


Carlton Oaks Existing Plan: Plan 01 12/19/2023 4:05:21 PM
Geom: UpperSanDiego-EX Flow: 100 Year Flow
RS = 260 Survey Data (June 12, 2014) PF-1
.05
.06
.05
Elevation (ft)
Station (ft)
Legend
EG PF 3
EG PF 2
WS PF 3
WS PF 2
EG PF 1
WS PF 1
Ground
Bank Sta
Encroachment
Carlton Oaks Existing Plan: Plan 01 12/19/2023 4:05:21 PM
Geom: UpperSanDiego-EX Flow: 100 Year Flow
RS = 250 Survey Data (June 12, 2014)
.05
.06
.05
Elevation (ft)
Station (ft)
Legend
EG PF 3
WS PF 3
EG PF 2
WS PF 2
EG PF 1
WS PF 1
Crit PF 2
Crit PF 3
Crit PF 1
Ground
Ineff
Bank Sta
Encroachment


Carlton Oaks Existing Plan: Plan 01 12/19/2023 4:05:21 PM
Geom: UpperSanDiego-EX Flow: 100 Year Flow
RS = 245 Survey Data (June 12, 2014)
.045
.1
.11
Elevation (ft)
340
330
320
310
300
290
0
500
1000
1500
2000
2500
Station (ft)
Legend
EG PF 3
WS PF 3
EG PF 2
EG PF 1
WS PF 2
WS PF 1
Crit PF 3
Crit PF 2
Crit PF 1
Ground
Ineff
Bank Sta
Encroachment
Carlton Oaks Existing Plan: Plan 01 12/19/2023 4:05:21 PM
Geom: UpperSanDiego-EX Flow: 100 Year Flow
RS = 244 MAST BLVD BRIDGE (NORMAL BRIDGE ROUTINE)-
.1
.065
.045
Elevation (ft)
340
330
320
310
300
290
0
500
1000
1500
2000
2500
Station (ft)
Legend
EG PF 3
WS PF 3
EG PF 2
EG PF 1
WS PF 2
WS PF 1
Crit PF 3
Crit PF 1
Crit PF 2
Ground
Ineff
Bank Sta
Encroachment


Carlton Oaks Existing Plan: Plan 01 12/19/2023 4:05:21 PM
Geom: UpperSanDiego-EX Flow: 100 Year Flow
RS = 243 BR
.1
.065
.045
Elevation (ft)
Station (ft)
Legend
EG PF 3
WS PF 3
EG PF 2
EG PF 1
WS PF 2
WS PF 1
Crit PF 3
Crit PF 1
Crit PF 2
Ground
Ineff
Bank Sta
Encroachment
Carlton Oaks Existing Plan: Plan 01 12/19/2023 4:05:21 PM
Geom: UpperSanDiego-EX Flow: 100 Year Flow
RS = 243 BR
.1
.065
.045
Elevation (ft)
Station (ft)
Legend
EG PF 3
WS PF 3
EG PF 2
EG PF 1
WS PF 2
WS PF 1
Crit PF 3
Crit PF 1
Crit PF 2
Ground
Ineff
Bank Sta


Carlton Oaks Existing Plan: Plan 01 12/19/2023 4:05:21 PM
Geom: UpperSanDiego-EX Flow: 100 Year Flow
RS = 242 Corrected Effective Geometry
.1
.065
.045
Elevation (ft)
Station (ft)
Legend
EG PF 3
WS PF 3
EG PF 2
EG PF 1
WS PF 2
WS PF 1
Crit PF 3
Crit PF 2
Crit PF 1
Ground
Ineff
Bank Sta
Carlton Oaks Existing Plan: Plan 01 12/19/2023 4:05:21 PM
Geom: UpperSanDiego-EX Flow: 100 Year Flow
RS = 239 Corrected Effective Geometry
.1
.065
.045
Elevation (ft)
Station (ft)
Legend
EG PF 3
WS PF 3
EG PF 2
EG PF 1
WS PF 2
WS PF 1
Crit PF 3
Crit PF 1
Crit PF 2
Ground
Ineff
Bank Sta
Encroachment

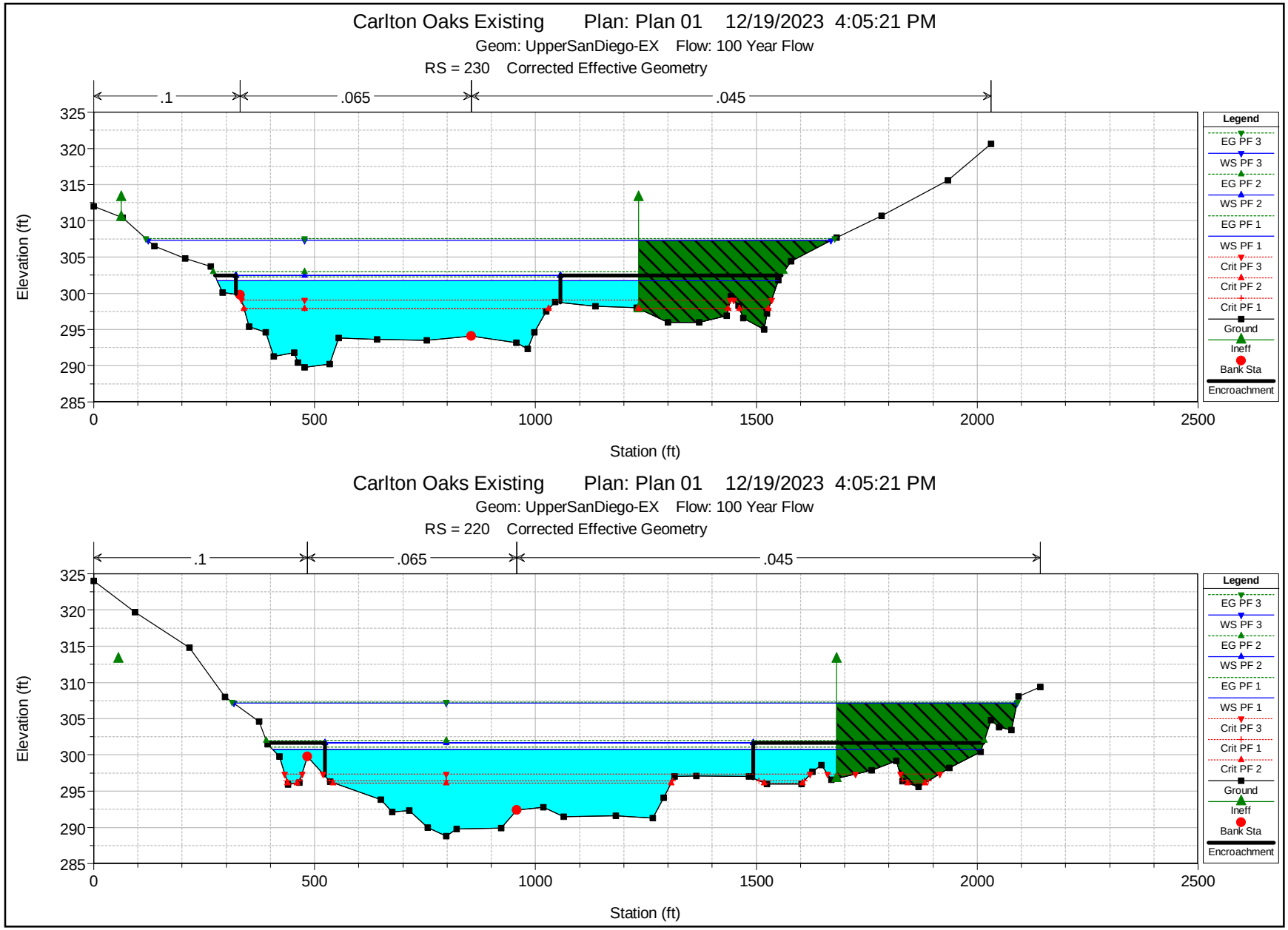

Carlton Oaks Existing Plan: Plan 01 12/19/2023 4:05:21 PM
Geom: UpperSanDiego-EX Flow: 100 Year Flow
RS = 230 Corrected Effective Geometry
.1
.065
.045
Elevation (ft)
Station (ft)
Legend
EG PF 3
WS PF 3
EG PF 2
WS PF 2
EG PF 1
WS PF 1
Crit PF 3
Crit PF 2
Crit PF 1
Ground
Ineff
Bank Sta
Encroachment
Carlton Oaks Existing Plan: Plan 01 12/19/2023 4:05:21 PM
Geom: UpperSanDiego-EX Flow: 100 Year Flow
RS = 220 Corrected Effective Geometry
.1
.065
.045
Elevation (ft)
Station (ft)
Legend
EG PF 3
WS PF 3
EG PF 2
WS PF 2
EG PF 1
WS PF 1
Crit PF 3
Crit PF 1
Crit PF 2
Ground
Ineff
Bank Sta
Encroachment

EXHIBIT F
POST PROJECT CONDITIONS
MODEL

POST PROJECT CONDITIONS MODEL
PLAN P01
FEMA 100-YEAR FLOODPLAIN (PF01)
FLOODPLAIN WITH BSI  YEAR FLOWS (PF03)

# Table A-5

## Table A-5 Average Manning Roughness Coefficients for Natural Channels

**Minor Streams (Surface Width at Flood Stage < 100 ft)**

| | |
|---|---|
| Fairly Regular Section | |
| (A) Some Grass and Weeds, Little or No Brush | 0.030 |
| (B) Dense Growth of Weeds, Depth of Flow Materially Greater Than Weed Height | 0.040 |
| (C) Some Weeds, Light Brush on Banks | 0.040 |
| (D) Some Weeds, Heavy Brush on Banks | 0.060 |
| (E) For Trees within Channel with Branches Submerged at High Stage, Increase All Above Values By | 0.015 |
| Irregular Section, with Pools, Slight Channel Meander | |
| Channels (A) to (E) Above, Increase All Values By | 0.015 |
| Mountain Streams; No Vegetation in Channel, Banks Usually Steep, Trees and Brush along Banks Submerged at High Stage | |
| (A) Bottom, Gravel, Cobbles and Few Boulders | 0.050 |
| (B) Bottom, Cobbles with Large Boulders | 0.060 |

**Flood Plains (Adjacent To Natural Streams)**

| | |
|---|---|
| Pasture, No Brush | |
| (A) Short Grass | 0.030 |
| (B) High Grass | 0.040 |
| Cultivated Areas | |
| (A) No Crop | 0.040 |
| (B) Mature Row Crops | 0.040 |
| (C) Mature Field Crops | 0.050 |
| Heavy Weeds, Scattered Brush | 0.050 |
| Light Brush and Trees | 0.060 |
| Medium To Dense Brush | 0.090 |
| Dense Willows | 0.170 |
| Cleared Land with Tree Stumps, 100-150 Per Acre | 0.060 |
| Heavy Stand of Timber, Little Undergrowth | |
| (A) Flood Depth below Branches | 0.110 |
| (B) Flood Depth Reaches Branches | 0.140 |

HEC-RAS HEC-RAS 5.0.7 March 2019
U.S. Army Corps of Engineers
Hydrologic Engineering Center
609 Second Street
Davis, California

```
X     X  XXXXXX    XXXX        XXXX       XX      XXXX
X     X  X        X    X      X   X     X  X    X
X     X  X        X           X   X    X    X   X
XXXXXXX  XXXX     X       XXX  XXXX     XXXXXX    XXXX
X     X  X        X           X  X     X    X        X
X     X  X        X    X      X   X    X    X        X
X     X  XXXXXX    XXXX       X    X   X    X   XXXXX
```

PROJECT DATA
Project Title: Carlton Oaks PR
Project File : CarltonOaksPR.prj
Run Date and Time: 2/7/2024 1:49:05 PM

Project in English units

Project Description:
UPPER SAN DIEGO RIVER PROPOSED CONDITIONS
Profile 1 FEMA
100-Year Floodplain, Profile 2 FEMA Floodwy, Profile 3 BSI 100-Year
Flow
Revised Existing topo+ Proposed 2023
Floodway proposed
conditions

PLAN DATA

Plan Title: Plan 01
Plan File : r:\1759\Plot\Hydrology\FEMA\To the City\12 12-14-2023\San Diego River\Proposed\CarltonOaksPR.p01

Geometry Title: revised-UpperSanDiego-PR
Geometry File : r:\1759\Plot\Hydrology\FEMA\To the City\12 12-14-2023\San Diego River\Proposed\CarltonOaksPR.g01

Flow Title : 100 Year Flow
Flow File : r:\1759\Plot\Hydrology\FEMA\To the City\12 12-14-2023\San Diego River\Proposed\CarltonOaksPR.f01

Plan Summary Information:
Number of: Cross Sections = 20 Multiple Openings = 0

```
            Culverts       =    0    Inline Structures  =    0
            Bridges        =    1    Lateral Structures =    1

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

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

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

River = San Diego River  Reach = Reach 1
RS      Profile           Method  Value1  Value2
355     PF 2                   1  1604.5  2269.4
345     PF 2                   1  1217.3  2147.3
340     PF 2                   1  1147.2  2067.2
330     PF 2                   1  1293.6  2138.6
320     PF 2                   1   848.3  1725.2
315     PF 2                   1     831  1690.6
310     PF 2                   1   559.1  1277.4
300     PF 2                   1   434.3  1520.7
290     PF 2                   1   250.7    1725
285     PF 2                   1   472.1  1907.1
280     PF 2                   1   608.4  1908.4
270     PF 2                   1   341.7   901.7
260     PF 2                   1   256.7   856.7
250     PF 2                   1     357    1052
245     PF 2                   1   686.6  1291.6
244     PF 2                   1   459.7   960.1
242     PF 2                   1     401   900.5
239     PF 2                   1   246.2   906.2
230     PF 2                   1   321.8  1056.8
220     PF 2                   1   522.9  1492.9



FLOW DATA

Flow Title: 100 Year Flow
Flow File : r:\1759\Plot\Hydrology\FEMA\To the City\12 12-14-2023\San Diego River\Proposed\CarltonOaksPR.f01
```

Flow Data (cfs)

| River | Reach | RS | PF 1 | PF 2 | PF 3 | PF 4 | PF 5 | PF 6 |
|---|---|---|---|---|---|---|---|---|
| San Diego River | Reach 1 | 355 | 36000 | 36000 | 48000 | 4500 | 16000 | 21333 |
| San Diego River | Reach 1 | 320 | 37000 | 37000 | 49000 | 5000 | 17000 | 22513 |
| San Diego River | Reach 1 | 260 | 38000 | 38000 | 50000 | 5500 | 19000 | 25000 |

Boundary Conditions

| River | Reach | Profile | Upstream | Downstream |
|---|---|---|---|---|
| San Diego River | Reach 1 | PF 1 | | Known WS = 300.76 |
| San Diego River | Reach 1 | PF 2 | | Known WS = 301.66 |
| San Diego River | Reach 1 | PF 3 | | Known WS = 307.13 |
| San Diego River | Reach 1 | PF 4 | | Known WS = 300.76 |
| San Diego River | Reach 1 | PF 5 | | Known WS = 300.76 |
| San Diego River | Reach 1 | PF 6 | | Known WS = 301 |

GEOMETRY DATA

Geometry Title: revised-UpperSanDiego-PR
Geometry File : r:\1759\Plot\Hydrology\FEMA\To the City\12 12-14-2023\San Diego River\Proposed\CarltonOaksPR.g01

CROSS SECTION

RIVER: San Diego River
REACH: Reach 1 RS: 355

INPUT
Description: Corrected Effective Geometry
Station Elevation Data num= 80

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 328.6 | 54.1 | 329.6 | 64.2 | 325.6 | 78.6 | 322.7 | 125.3 | 322.5 |
| 191.1 | 321.9 | 199.7 | 330.5 | 303.1 | 330.6 | 305.9 | 328.2 | 314.9 | 330.2 |
| 343.4 | 331 | 443.3 | 330.1 | 543 | 331.4 | 551.9 | 329.8 | 608.6 | 330 |
| 615.1 | 337.4 | 640.3 | 337.4 | 643.6 | 329.1 | 672 | 328.4 | 743.1 | 329.5 |
| 746.8 | 336.5 | 789.9 | 336.5 | 793.5 | 328.9 | 836.7 | 328.9 | 980.7 | 324.9 |
| 1031 | 325 | 1062.7 | 326.6 | 1066.4 | 336.1 | 1083.8 | 336.3 | 1090.8 | 326.3 |
| 1156 | 325.6 | 1239.4 | 323.7 | 1275.1 | 321.6 | 1361.3 | 321 | 1418.6 | 319.8 |
| 1446.7 | 316.6 | 1469.1 | 316.3 | 1506.5 | 316.7 | 1516.7 | 310.8 | 1537.2 | 310.1 |
| 1551.7 | 310.8 | 1563.9 | 314.9 | 1590.3 | 315.8 | 1604.5 | 319.7 | 1616.8 | 316.1 |
| 1666 | 315.1 | 1720.1 | 313.8 | 1733.1 | 311.4 | 1933.3 | 311.5 | 2090.2 | 312 |
| 2112.2 | 314.2 | 2137 | 316.4 | 2145.2 | 320.2 | 2164.3 | 321.8 | 2196.4 | 318.6 |
| 2209 | 313.6 | 2229.8 | 312.6 | 2258.6 | 312.6 | 2294 | 313.5 | 2306.7 | 315.2 |
| 2330.7 | 319.2 | 2365.6 | 319.9 | 2417.7 | 320.5 | 2464.8 | 318.9 | 2487.3 | 317.9 |
| 2527.9 | 317.8 | 2547.1 | 318.7 | 2582 | 322.5 | 2592.6 | 324.2 | 2640.3 | 323.9 |
| 2733.3 | 326 | 2773.3 | 328.7 | 2799.6 | 328.3 | 2837.5 | 329.1 | 2881.4 | 328.9 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2888.7 | 330.5 | 2924.8 | 331.4 | 2990.2 | 330.4 | 2995.2 | 332.8 | 3009.4 | 332.2 |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .06 | 1604.5 | .05 | 2417.7 | .06 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 1604.5 | 2417.7 | 360 | 310 | 350 | .1 | .3 |

Ineffective Flow num= 2

| Sta L | Sta R | Elev | Permanent |
|---|---|---|---|
| 0 | 1604.5 | 326 | F |
| 2417.7 | 3009.4 | 326 | F |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | | |
|---|---|---|---|---|---|---|
| E.G. Elev (ft) | 322.36 | Element | Left OB | Channel | Right OB | |
| Vel Head (ft) | 0.53 | Wt. n-Val. | | 0.050 | | |
| W.S. Elev (ft) | 321.84 | Reach Len. (ft) | 360.00 | 310.00 | 350.00 | |
| Crit W.S. (ft) | 317.36 | Flow Area (sq ft) | | 6191.11 | | |
| E.G. Slope (ft/ft) | 0.002571 | Area (sq ft) | 1371.36 | 6191.11 | 453.83 | |
| Q Total (cfs) | 36000.00 | Flow (cfs) | | 36000.00 | | |
| Top Width (ft) | 1304.83 | Top Width (ft) | 333.42 | 813.20 | 158.21 | |
| Vel Total (ft/s) | 5.81 | Avg. Vel. (ft/s) | | 5.81 | | |
| Max Chl Dpth (ft) | 11.74 | Hydr. Depth (ft) | | 7.61 | | |
| Conv. Total (cfs) | 710022.3 | Conv. (cfs) | | 710022.3 | | |
| Length Wtd. (ft) | 310.00 | Wetted Per. (ft) | | 816.68 | | |
| Min Ch El (ft) | 311.40 | Shear (lb/sq ft) | | 1.22 | | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 7.07 | | |
| Frctn Loss (ft) | 0.67 | Cum Volume (acre-ft) | 91.83 | 1664.91 | 157.75 | |
| C & E Loss (ft) | 0.05 | Cum SA (acres) | 28.45 | 213.79 | 30.69 | |

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

CROSS SECTION OUTPUT Profile #PF 3

| | | | | | | |
|---|---|---|---|---|---|---|
| E.G. Elev (ft) | 323.88 | Element | Left OB | Channel | Right OB | |
| Vel Head (ft) | 0.67 | Wt. n-Val. | | 0.050 | | |
| W.S. Elev (ft) | 323.21 | Reach Len. (ft) | 360.00 | 310.00 | 350.00 | |
| Crit W.S. (ft) | 318.35 | Flow Area (sq ft) | | 7307.35 | | |
| E.G. Slope (ft/ft) | 0.002630 | Area (sq ft) | 1941.38 | 7307.35 | 678.90 | |
| Q Total (cfs) | 48000.00 | Flow (cfs) | | 48000.00 | | |
| Top Width (ft) | 1455.01 | Top Width (ft) | 473.09 | 813.20 | 168.72 | |
| Vel Total (ft/s) | 6.57 | Avg. Vel. (ft/s) | | 6.57 | | |
| Max Chl Dpth (ft) | 13.11 | Hydr. Depth (ft) | | 8.99 | | |
| Conv. Total (cfs) | 935960.6 | Conv. (cfs) | | 935960.6 | | |
| Length Wtd. (ft) | 310.00 | Wetted Per. (ft) | | 816.68 | | |
| Min Ch El (ft) | 311.40 | Shear (lb/sq ft) | | 1.47 | | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 9.65 | | |
| Frctn Loss (ft) | 0.69 | Cum Volume (acre-ft) | 155.69 | 2086.47 | 291.64 | |
| C & E Loss (ft) | 0.07 | Cum SA (acres) | 36.91 | 216.43 | 34.92 | |

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

CROSS SECTION OUTPUT Profile #PF 6

| | | | | | | |
|---|---|---|---|---|---|---|
| E.G. Elev (ft) | 319.98 | Element | Left OB | Channel | Right OB | |
| Vel Head (ft) | 0.35 | Wt. n-Val. | | 0.050 | | |
| W.S. Elev (ft) | 319.63 | Reach Len. (ft) | 360.00 | 310.00 | 350.00 | |
| Crit W.S. (ft) | 315.93 | Flow Area (sq ft) | | 4477.88 | | |
| E.G. Slope (ft/ft) | 0.002199 | Area (sq ft) | 832.13 | 4477.88 | 138.16 | |
| Q Total (cfs) | 21333.00 | Flow (cfs) | | 21333.00 | | |
| Top Width (ft) | 1001.68 | Top Width (ft) | 184.14 | 705.24 | 112.30 | |
| Vel Total (ft/s) | 4.76 | Avg. Vel. (ft/s) | | 4.76 | | |
| Max Chl Dpth (ft) | 9.53 | Hydr. Depth (ft) | | 6.35 | | |
| Conv. Total (cfs) | 454944.4 | Conv. (cfs) | | 454944.4 | | |
| Length Wtd. (ft) | 310.00 | Wetted Per. (ft) | | 708.41 | | |
| Min Ch El (ft) | 311.40 | Shear (lb/sq ft) | | 0.87 | | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 4.13 | | |
| Frctn Loss (ft) | 0.54 | Cum Volume (acre-ft) | 49.00 | 1234.13 | 129.09 | |
| C & E Loss (ft) | 0.04 | Cum SA (acres) | 15.59 | 204.80 | 28.27 | |

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

CROSS SECTION

RIVER: San Diego River
REACH: Reach 1 RS: 345

INPUT
Description: Corrected Effective Geometry
Station Elevation Data num= 87

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 328.5 | 49.4 | 329.1 | 102.6 | 328.5 | 110.8 | 325.5 | 147.2 | 324.7 |
| 222.2 | 324.8 | 279.9 | 324 | 297.8 | 318.7 | 332.6 | 318.3 | 342 | 322.6 |
| 352.2 | 328.6 | 409 | 329.7 | 414.3 | 338.4 | 436.9 | 338.4 | 443.4 | 329.4 |
| 479.4 | 328.7 | 533.4 | 328.1 | 539.9 | 334.4 | 654.6 | 334.4 | 663.1 | 327.7 |
| 761.2 | 327.7 | 831.1 | 325.5 | 841.3 | 334.3 | 870.8 | 334.3 | 875.7 | 325.4 |
| 919.5 | 323.7 | 960.7 | 323.6 | 995.9 | 324.3 | 1000.4 | 333.1 | 1039.7 | 333.1 |
| 1042.9 | 325.3 | 1092.1 | 322.8 | 1111.7 | 320.1 | 1171.1 | 320.2 | 1196.7 | 319 |
| 1218.4 | 314.4 | 1243.9 | 313.4 | 1260.5 | 315.7 | 1277.7 | 315.6 | 1287.1 | 312.5 |
| 1308.4 | 310.6 | 1331.5 | 309.8 | 1349.3 | 310.6 | 1357.5 | 314 | 1406.2 | 313.9 |
| 1473.3 | 313.3 | 1479.5 | 310 | 1754.1 | 310 | 1768.6 | 320.8 | 1784.4 | 328.6 |
| 1796.2 | 329.8 | 1811.8 | 323.1 | 1827.4 | 315.1 | 1847.9 | 313.7 | 1865 | 315.1 |
| 1881.8 | 319.8 | 1899.8 | 323.5 | 1942.8 | 322.9 | 1993.1 | 319.8 | 2004.9 | 316.5 |
| 2015.6 | 312.2 | 2033.1 | 312.5 | 2061.4 | 312.9 | 2065.9 | 312.2 | 2147.9 | 312.2 |
| 2160.3 | 316.1 | 2180.3 | 319.1 | 2223.2 | 319.9 | 2242.8 | 318 | 2258.3 | 317.9 |
| 2273.1 | 319.4 | 2284.9 | 321.6 | 2294.3 | 324.2 | 2319.3 | 325.5 | 2321.4 | 351.5 |
| 2360.3 | 351.5 | 2366.8 | 331.2 | 2419.1 | 331.4 | 2422.9 | 347.8 | 2478 | 347.8 |

```
  2482.6   330.3  2500.2   330.1  2540.7   330.6  2574.2   329.3    2587   329.7
  2658.4   333.8  2742.3   337.4

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .06  1092.1     .05  2294.3     .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        1092.1  2294.3             400     335     125             .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
       0   742.3     326       F

CROSS SECTION OUTPUT  Profile #PF 1

  E.G. Elev (ft)            321.64    Element                  Left OB    Channel   Right OB
  Vel Head (ft)               0.35    Wt. n-Val.                           0.050
  W.S. Elev (ft)            321.29    Reach Len. (ft)          400.00     335.00     125.00
  Crit W.S. (ft)            316.13    Flow Area (sq ft)                  7598.52
  E.G. Slope (ft/ft)      0.001853    Area (sq ft)             118.11    7598.52
  Q Total (cfs)           36000.00    Flow (cfs)                        36000.00
  Top Width (ft)           1104.57    Top Width (ft)            50.07    1054.50
  Vel Total (ft/s)            4.74    Avg. Vel. (ft/s)                     4.74
  Max Chl Dpth (ft)          11.49    Hydr. Depth (ft)                     7.21
  Conv. Total (cfs)       836355.9    Conv. (cfs)                       836355.9
  Length Wtd. (ft)          335.00    Wetted Per. (ft)                  1066.04
  Min Ch El (ft)            309.80    Shear (lb/sq ft)                     0.82
  Alpha                       1.00    Stream Power (lb/ft s)               3.91
  Frctn Loss (ft)             0.60    Cum Volume (acre-ft)       85.67    1615.84     155.92
  C & E Loss (ft)             0.00    Cum SA (acres)             26.86     207.14      30.05


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

CROSS SECTION OUTPUT  Profile #PF 3

  E.G. Elev (ft)            323.12    Element                  Left OB    Channel   Right OB
  Vel Head (ft)               0.43    Wt. n-Val.                           0.050
  W.S. Elev (ft)            322.68    Reach Len. (ft)          400.00     335.00     125.00
  Crit W.S. (ft)            317.04    Flow Area (sq ft)                  9105.89
  E.G. Slope (ft/ft)      0.001920    Area (sq ft)             193.41    9105.89
  Q Total (cfs)           48000.00    Flow (cfs)                        48000.00
  Top Width (ft)           1163.00    Top Width (ft)            57.80    1105.21
  Vel Total (ft/s)            5.27    Avg. Vel. (ft/s)                     5.27
  Max Chl Dpth (ft)          12.88    Hydr. Depth (ft)                     8.24
  Conv. Total (cfs)      1095560.0     Conv. (cfs)                      1095560.0
  Length Wtd. (ft)          335.00    Wetted Per. (ft)                  1117.86
  Min Ch El (ft)            309.80    Shear (lb/sq ft)                     0.98
  Alpha                       1.00    Stream Power (lb/ft s)               5.15
  Frctn Loss (ft)             0.62    Cum Volume (acre-ft)      146.87    2028.07     288.91
  C & E Loss (ft)             0.00    Cum SA (acres)             34.72     209.61      34.24
```

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

CROSS SECTION OUTPUT Profile #PF 6

| | | | | | | |
|---|---|---|---|---|---|---|
| E.G. Elev (ft) | 319.40 | Element | Left OB | Channel | Right OB | |
| Vel Head (ft) | 0.23 | Wt. n-Val. | | 0.050 | | |
| W.S. Elev (ft) | 319.17 | Reach Len. (ft) | 400.00 | 335.00 | 125.00 | |
| Crit W.S. (ft) | 314.77 | Flow Area (sq ft) | | 5528.71 | | |
| E.G. Slope (ft/ft) | 0.001436 | Area (sq ft) | 24.49 | 5528.71 | | |
| Q Total (cfs) | 21333.00 | Flow (cfs) | | 21333.00 | | |
| Top Width (ft) | 900.45 | Top Width (ft) | 38.29 | 862.16 | | |
| Vel Total (ft/s) | 3.86 | Avg. Vel. (ft/s) | | 3.86 | | |
| Max Chl Dpth (ft) | 9.37 | Hydr. Depth (ft) | | 6.41 | | |
| Conv. Total (cfs) | 562915.1 | Conv. (cfs) | | 562915.1 | | |
| Length Wtd. (ft) | 335.00 | Wetted Per. (ft) | | 871.83 | | |
| Min Ch El (ft) | 309.80 | Shear (lb/sq ft) | | 0.57 | | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 2.19 | | |
| Frctn Loss (ft) | 0.51 | Cum Volume (acre-ft) | 45.46 | 1198.53 | 128.54 | |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 14.67 | 199.22 | 27.82 | |

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

CROSS SECTION

RIVER: San Diego River
REACH: Reach 1 RS: 340

INPUT
Description: Corrected Effective Geometry
Station Elevation Data num= 81

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 326.7 | 43.2 | 327 | 89.6 | 327.9 | 94.4 | 326.4 | 102.4 | 324.9 |
| 130 | 324.1 | 201.6 | 323.1 | 232.8 | 323.6 | 287.2 | 322.5 | 301.2 | 321 |
| 312 | 313.1 | 344 | 313.4 | 353.2 | 317.7 | 361.6 | 325.1 | 382.4 | 325.4 |
| 408.1 | 327.2 | 412.5 | 335.5 | 452.9 | 335.5 | 458.9 | 325.8 | 498.9 | 324.4 |
| 541.7 | 325.2 | 559.3 | 325.7 | 597.3 | 325.8 | 630.1 | 325.1 | 705.7 | 324.9 |
| 806.9 | 325.7 | 889.8 | 326.1 | 895.4 | 334.3 | 917.8 | 334.3 | 923 | 326.1 |
| 955.8 | 324.1 | 987.8 | 325 | 1016.2 | 326 | 1018.6 | 336 | 1056.2 | 333.6 |
| 1063.4 | 326 | 1106.2 | 324.8 | 1119.4 | 322.7 | 1140.2 | 317.5 | 1166.2 | 311.8 |
| 1172.3 | 311.9 | 1182.7 | 315.6 | 1195.5 | 316.1 | 1201.1 | 310.6 | 1207.1 | 309.9 |
| 1243.1 | 310.6 | 1276.3 | 315.7 | 1331.9 | 314.9 | 1350.7 | 311.8 | 1408.7 | 311 |
| 1417.5 | 310.4 | 1588.3 | 310.4 | 1600 | 315.1 | 1626.4 | 315.7 | 1674.8 | 315.4 |
| 1693.2 | 314.2 | 1722.4 | 314.4 | 1733.6 | 315.6 | 1752.4 | 317.4 | 1782.8 | 317.3 |
| 1799.2 | 314.2 | 1807.6 | 311.3 | 1847.6 | 311.2 | 1929.2 | 311.9 | 1958.5 | 312.9 |
| 1963.3 | 312.2 | 2053.3 | 312.2 | 2071.3 | 314.7 | 2096.5 | 316.6 | 2114.1 | 319.8 |
| 2130.9 | 323.4 | 2156.1 | 324.1 | 2158.5 | 347.5 | 2320.2 | 347.5 | 2326.6 | 330.3 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2339.4 | 330.2 | 2347.8 | 331 | 2388.2 | 331.3 | 2422.2 | 330.3 | 2449 | 331.8 |
| 2492.2 | 332.5 | | | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .06 | 1106.2 | .05 | 2130.9 | .06 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 1106.2 | 2130.9 | 575 | 454 | 575 | .1 | .3 |

Ineffective Flow num= 1

| Sta L | Sta R | Elev | Permanent |
|---|---|---|---|
| 0 | 992.2 | 326 | F |

CROSS SECTION OUTPUT Profile #PF 1

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 321.04 | Element | | | |
| Vel Head (ft) | 0.35 | Wt. n-Val. | | 0.050 | |
| W.S. Elev (ft) | 320.68 | Reach Len. (ft) | 575.00 | 454.00 | 575.00 |
| Crit W.S. (ft) | 316.27 | Flow Area (sq ft) | | 7551.36 | |
| E.G. Slope (ft/ft) | 0.001732 | Area (sq ft) | 329.46 | 7551.36 | |
| Q Total (cfs) | 36000.00 | Flow (cfs) | | 36000.00 | |
| Top Width (ft) | 1045.71 | Top Width (ft) | 54.95 | 990.76 | |
| Vel Total (ft/s) | 4.77 | Avg. Vel. (ft/s) | | 4.77 | |
| Max Chl Dpth (ft) | 10.78 | Hydr. Depth (ft) | | 7.62 | |
| Conv. Total (cfs) | 864948.1 | Conv. (cfs) | | 864948.1 | |
| Length Wtd. (ft) | 460.65 | Wetted Per. (ft) | | 997.97 | |
| Min Ch El (ft) | 309.90 | Shear (lb/sq ft) | | 0.82 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 3.90 | |
| Frctn Loss (ft) | 0.75 | Cum Volume (acre-ft) | 83.62 | 1557.58 | 155.92 |
| C & E Loss (ft) | 0.02 | Cum SA (acres) | 26.38 | 199.28 | 30.05 |

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

CROSS SECTION OUTPUT Profile #PF 3

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 322.49 | Element | | | |
| Vel Head (ft) | 0.45 | Wt. n-Val. | | 0.050 | |
| W.S. Elev (ft) | 322.04 | Reach Len. (ft) | 575.00 | 454.00 | 575.00 |
| Crit W.S. (ft) | 317.07 | Flow Area (sq ft) | | 8901.04 | |
| E.G. Slope (ft/ft) | 0.001809 | Area (sq ft) | 410.47 | 8901.04 | |
| Q Total (cfs) | 48000.00 | Flow (cfs) | | 48000.00 | |
| Top Width (ft) | 1069.10 | Top Width (ft) | 66.61 | 1002.49 | |
| Vel Total (ft/s) | 5.39 | Avg. Vel. (ft/s) | | 5.39 | |
| Max Chl Dpth (ft) | 12.14 | Hydr. Depth (ft) | | 8.88 | |
| Conv. Total (cfs) | 1128604.0 | Conv. (cfs) | | 1128604.0 | |
| Length Wtd. (ft) | 461.00 | Wetted Per. (ft) | | 1010.02 | |
| Min Ch El (ft) | 309.90 | Shear (lb/sq ft) | | 1.00 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 5.37 | |
| Frctn Loss (ft) | 0.78 | Cum Volume (acre-ft) | 144.10 | 1958.83 | 288.91 |
| C & E Loss (ft) | 0.02 | Cum SA (acres) | 34.15 | 201.50 | 34.24 |

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

CROSS SECTION OUTPUT Profile #PF 6

| | | | | | | |
|---|---|---|---|---|---|---|
| E.G. Elev (ft) | 318.89 | Element | Left OB | Channel | Right OB | |
| Vel Head (ft) | 0.23 | Wt. n-Val. | | 0.050 | | |
| W.S. Elev (ft) | 318.66 | Reach Len. (ft) | 575.00 | 454.00 | 575.00 | |
| Crit W.S. (ft) | 314.81 | Flow Area (sq ft) | | 5562.87 | | |
| E.G. Slope (ft/ft) | 0.001642 | Area (sq ft) | 223.28 | 5562.87 | | |
| Q Total (cfs) | 21333.00 | Flow (cfs) | | 21333.00 | | |
| Top Width (ft) | 1022.14 | Top Width (ft) | 49.89 | 972.25 | | |
| Vel Total (ft/s) | 3.83 | Avg. Vel. (ft/s) | | 3.83 | | |
| Max Chl Dpth (ft) | 8.76 | Hydr. Depth (ft) | | 5.72 | | |
| Conv. Total (cfs) | 526417.0 | Conv. (cfs) | | 526417.0 | | |
| Length Wtd. (ft) | 459.90 | Wetted Per. (ft) | | 979.02 | | |
| Min Ch El (ft) | 309.90 | Shear (lb/sq ft) | | 0.58 | | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 2.23 | | |
| Frctn Loss (ft) | 0.72 | Cum Volume (acre-ft) | 44.33 | 1155.88 | 128.54 | |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 14.27 | 192.17 | 27.82 | |

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

CROSS SECTION

RIVER: San Diego River
REACH: Reach 1 RS: 330

INPUT
Description: Corrected Effective Geometry
Station Elevation Data num= 85

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 329.4 | 6.4 | 340.1 | 55 | 340.1 | 58.2 | 328.3 | 141.2 | 326.1 |
| 185.4 | 328.3 | 231.5 | 330.2 | 243.2 | 325.1 | 474.7 | 320.1 | 525.2 | 321.6 |
| 540.1 | 314.3 | 568.2 | 309.9 | 581 | 309.8 | 589.9 | 316.6 | 600.7 | 322.8 |
| 620.3 | 323.5 | 669.7 | 323.1 | 674.1 | 332 | 706.7 | 332 | 712.3 | 323.7 |
| 739.5 | 322.4 | 776.4 | 322.4 | 806.9 | 323.4 | 811.9 | 331 | 853.1 | 331 |
| 858 | 323.1 | 901.3 | 324.3 | 907.3 | 326.5 | 951 | 327.2 | 1025.7 | 326.7 |
| 1077.9 | 326.6 | 1084.3 | 329.3 | 1104.3 | 330.1 | 1107.6 | 336.6 | 1151.7 | 336.6 |
| 1157.3 | 329.8 | 1199.9 | 326 | 1239.6 | 321.9 | 1254.4 | 316.3 | 1272.1 | 314.1 |
| 1309.8 | 313.3 | 1339.5 | 311.3 | 1353.9 | 308.6 | 1358.9 | 308.5 | 1370.2 | 308.6 |
| 1379.5 | 312 | 1426.4 | 313.8 | 1487.8 | 313.6 | 1504.2 | 310.2 | 1521.1 | 310.2 |
| 1556 | 313.2 | 1606.6 | 312.6 | 1668.3 | 312.9 | 1684.4 | 310 | 1832 | 310 |
| 1836.4 | 313.3 | 1844.4 | 317.8 | 1861.7 | 321.4 | 1879.7 | 316.5 | 1889.8 | 313.5 |
| 1945.9 | 314.8 | 1981.6 | 314 | 1996.9 | 322.1 | 2003.7 | 324.8 | 2013.3 | 323.4 |
| 2025.8 | 316.7 | 2041 | 312.5 | 2131.8 | 312.5 | 2142.6 | 314.9 | 2166.3 | 315.9 |
| 2183.1 | 318 | 2194.4 | 324.4 | 2217.2 | 324.6 | 2220.1 | 351.3 | 2263 | 351.3 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2269.4 | 330.5 | 2329.6 | 329.8 | 2330.9 | 346.6 | 2382.3 | 346.6 | 2388.7 | 328.4 |
| 2403.5 | 325.8 | 2442.1 | 325.9 | 2477.4 | 324.8 | 2511.5 | 327.4 | 2573.6 | 331.2 |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .06 | 1239.6 | .035 | 2003.7 | .045 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 1239.6 | 2003.7 | 620 | 588 | 620 .1 | .3 |

Ineffective Flow num= 2

| Sta L | Sta R | Elev | Permanent |
|---|---|---|---|
| 0 | 1173.6 | 329.3 | F |
| 2187.3 | 2573.6 | 321.5 | F |

CROSS SECTION OUTPUT Profile #PF 1

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 320.27 | Element | | | |
| Vel Head (ft) | 0.55 | Wt. n-Val. | | 0.035 | 0.045 |
| W.S. Elev (ft) | 319.72 | Reach Len. (ft) | 620.00 | 588.00 | 620.00 |
| Crit W.S. (ft) | 316.37 | Flow Area (sq ft) | | 5231.39 | 958.23 |
| E.G. Slope (ft/ft) | 0.001534 | Area (sq ft) | 436.86 | 5231.39 | 958.23 |
| Q Total (cfs) | 36000.00 | Flow (cfs) | | 32045.74 | 3954.26 |
| Top Width (ft) | 965.04 | Top Width (ft) | 66.29 | 732.78 | 165.97 |
| Vel Total (ft/s) | 5.82 | Avg. Vel. (ft/s) | | 6.13 | 4.13 |
| Max Chl Dpth (ft) | 11.22 | Hydr. Depth (ft) | | 7.14 | 5.77 |
| Conv. Total (cfs) | 919010.4 | Conv. (cfs) | | 818065.8 | 100944.6 |
| Length Wtd. (ft) | 589.77 | Wetted Per. (ft) | | 740.03 | 168.16 |
| Min Ch El (ft) | 308.50 | Shear (lb/sq ft) | | 0.68 | 0.55 |
| Alpha | 1.04 | Stream Power (lb/ft s) | | 4.15 | 2.25 |
| Frctn Loss (ft) | 0.85 | Cum Volume (acre-ft) | 78.56 | 1490.97 | 149.60 |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 25.58 | 190.30 | 28.96 |

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

CROSS SECTION OUTPUT Profile #PF 3

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 321.68 | Element | | | |
| Vel Head (ft) | 0.69 | Wt. n-Val. | | 0.035 | 0.045 |
| W.S. Elev (ft) | 320.99 | Reach Len. (ft) | 620.00 | 588.00 | 620.00 |
| Crit W.S. (ft) | 317.23 | Flow Area (sq ft) | | 6176.58 | 1172.53 |
| E.G. Slope (ft/ft) | 0.001596 | Area (sq ft) | 556.45 | 6176.58 | 1172.86 |
| Q Total (cfs) | 48000.00 | Flow (cfs) | | 42442.95 | 5557.05 |
| Top Width (ft) | 1062.59 | Top Width (ft) | 142.61 | 749.38 | 170.60 |
| Vel Total (ft/s) | 6.53 | Avg. Vel. (ft/s) | | 6.87 | 4.74 |
| Max Chl Dpth (ft) | 12.49 | Hydr. Depth (ft) | | 8.24 | 6.92 |
| Conv. Total (cfs) | 1201422.0 | Conv. (cfs) | | 1062331.0 | 139090.7 |
| Length Wtd. (ft) | 589.88 | Wetted Per. (ft) | | 757.48 | 172.20 |
| Min Ch El (ft) | 308.50 | Shear (lb/sq ft) | | 0.81 | 0.68 |
| Alpha | 1.04 | Stream Power (lb/ft s) | | 5.58 | 3.22 |
| Frctn Loss (ft) | 0.89 | Cum Volume (acre-ft) | 137.72 | 1880.25 | 281.17 |

| | | | | | |
|---|---|---|---|---|---|
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 32.77 | 192.37 | 33.12 |

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

CROSS SECTION OUTPUT Profile #PF 6

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 318.16 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.37 | Wt. n-Val. | | 0.035 | 0.045 |
| W.S. Elev (ft) | 317.79 | Reach Len. (ft) | 620.00 | 588.00 | 620.00 |
| Crit W.S. (ft) | 315.11 | Flow Area (sq ft) | | 3841.34 | 644.82 |
| E.G. Slope (ft/ft) | 0.001477 | Area (sq ft) | 315.96 | 3841.34 | 644.82 |
| Q Total (cfs) | 21333.00 | Flow (cfs) | | 19250.89 | 2082.11 |
| Top Width (ft) | 924.34 | Top Width (ft) | 58.99 | 707.70 | 157.64 |
| Vel Total (ft/s) | 4.76 | Avg. Vel. (ft/s) | | 5.01 | 3.23 |
| Max Chl Dpth (ft) | 9.29 | Hydr. Depth (ft) | | 5.43 | 4.09 |
| Conv. Total (cfs) | 555055.1 | Conv. (cfs) | | 500881.5 | 54173.6 |
| Length Wtd. (ft) | 589.55 | Wetted Per. (ft) | | 713.67 | 158.89 |
| Min Ch El (ft) | 308.50 | Shear (lb/sq ft) | | 0.50 | 0.37 |
| Alpha | 1.05 | Stream Power (lb/ft s) | | 2.49 | 1.21 |
| Frctn Loss (ft) | 0.74 | Cum Volume (acre-ft) | 40.77 | 1106.87 | 124.28 |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 13.55 | 183.41 | 26.78 |

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

LATERAL STRUCTURE

RIVER: San Diego River
REACH: Reach 1 RS: 322

INPUT
Description:
Lateral structure position = Next ot right bank station
Distance from Upstream XS =
Deck/Roadway Width = 100
Weir Coefficient = 3.1
Weir Flow Reference = Water Surface
Weir Embankment Coordinates num = 2

| Sta | Elev | Sta | Elev |
|---|---|---|---|
| 0 | 323.5 | 75 | 323.5 |

Weir crest shape = Broad Crested

Number of Culverts = 4

| Culvert Name | Shape | Rise | Span |
|---|---|---|---|
| Culvert #1 | Box | 8 | 10.5 |

```
FHWA Chart # 8 - flared wingwalls
FHWA Scale # 3 - Wingwall flared 0 deg. (sides extended straight)
Solution Criteria = Inlet control
Culvert Upstrm Dist  Length    Top n  Bottom n  Depth Blocked  Entrance Loss Coef   Exit Loss Coef
                       88     .013     .013        0                  .2               .3
Upstream   Elevation =  313
           Centerline Station =  10
Downstream Elevation =  312.5
           Centerline Station =  10

Culvert Name     Shape      Rise    Span
Culvert #2           Box       8    10.5
FHWA Chart # 8 - flared wingwalls
FHWA Scale # 3 - Wingwall flared 0 deg. (sides extended straight)
Solution Criteria = Highest U.S. EG
Culvert Upstrm Dist  Length    Top n  Bottom n  Depth Blocked  Entrance Loss Coef   Exit Loss Coef
                       78     .013     .013        0                  .2               .3
Upstream   Elevation =  313
           Centerline Station =  23
Downstream Elevation =  312.5
           Centerline Station =  23

Culvert Name     Shape      Rise    Span
Culvert #3           Box       8    10.5
FHWA Chart # 8 - flared wingwalls
FHWA Scale # 3 - Wingwall flared 0 deg. (sides extended straight)
Solution Criteria = Highest U.S. EG
Culvert Upstrm Dist  Length    Top n  Bottom n  Depth Blocked  Entrance Loss Coef   Exit Loss Coef
                     68.3      .013     .013        0                  .2               .3
Upstream   Elevation =  313
           Centerline Station =  36
Downstream Elevation =  312.5
           Centerline Station =  36

Culvert Name     Shape      Rise    Span
Culvert #4           Box       8    10.5
FHWA Chart # 8 - flared wingwalls
FHWA Scale # 3 - Wingwall flared 0 deg. (sides extended straight)
Solution Criteria = Highest U.S. EG
Culvert Upstrm Dist  Length    Top n  Bottom n  Depth Blocked  Entrance Loss Coef   Exit Loss Coef
                       50     .013     .013        0                  .2               .3
Upstream   Elevation =  313
           Centerline Station =  49
Downstream Elevation =  312.5
           Centerline Station =  49

CROSS SECTION


RIVER: San Diego River
REACH: Reach 1           RS: 320
```

INPUT
Description: 320 start Revising per Existing Topo and Proposed grading.Resort
East
From Stations 0 to 1290.09, Geometry from the corrected
effective model.(Forrest Creek - Offsite existing
development).
start regrading at station 1290.09
Station 1738.31
to 1927 proposed resort n =0.15
In the non-disturbed area,
Manning's coefficients are derived from the Corrected Effective
Model.
Station Elevation Data num= 166

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 328.2 | 87.1 | 328.7 | 92.7 | 326.3 | 107.2 | 324.6 | 175.5 | 323.9 |
| 182.3 | 318.9 | 192.7 | 315.6 | 272.6 | 314.6 | 325.3 | 313.5 | 403.2 | 312.7 |
| 454.2 | 312.2 | 466.6 | 315.2 | 517.6 | 315.1 | 537.3 | 318.8 | 599.9 | 317.9 |
| 610.4 | 311.7 | 619.6 | 307.3 | 648.9 | 307.4 | 661 | 310.6 | 672.6 | 318.3 |
| 703.6 | 319.2 | 777.4 | 317.9 | 847.7 | 319 | 889.9 | 316.7 | 923.2 | 312 |
| 950.9 | 309.6 | 963 | 307.2 | 1073.2 | 307.2 | 1141.4 | 307.3 | 1193.1 | 308.7 |
| 1250.2 | 308.5 | 1290.09 | 320 | 1342.26 | 316 | 1356.77 | 314 | 1366.58 | 313 |
| 1369.82 | 311 | 1457.79 | 311 | 1504.75 | 312 | 1590.76 | 314 | 1687.87 | 316 |
| 1692.08 | 318 | 1703.35 | 318 | 1724.42 | 318 | 1731.81 | 320 | 1738.71 | 320.8 |
| 1818.46 | 320.6 | 1929.08 | 322 | 1939.46 | 320 | 1959.37 | 318 | 1974.86 | 314.5 |
| 2023 | 315.34 | 2029.11 | 315.07 | 2036.77 | 314.66 | 2039.32 | 314.61 | 2046.8 | 314.62 |
| 2049.53 | 314.7 | 2052.08 | 314.59 | 2057.38 | 314.64 | 2062.29 | 314.84 | 2067.4 | 314.74 |
| 2072.5 | 314.96 | 2076.43 | 312.07 | 2092.92 | 312 | 2098.03 | 311.8 | 2103.14 | 311.22 |
| 2105.69 | 311.06 | 2108.24 | 311.1 | 2113.35 | 313.08 | 2115.9 | 313.67 | 2121 | 315.62 |
| 2126.11 | 316.67 | 2128.66 | 317.04 | 2133.77 | 317.22 | 2136.32 | 317.54 | 2138.87 | 318.2 |
| 2141.43 | 319.32 | 2143.98 | 319.82 | 2146.26 | 320.56 | 2149.08 | 321.65 | 2151.64 | 323.02 |
| 2154.19 | 324.02 | 2156.74 | 325.89 | 2164.4 | 326.49 | 2169.5 | 326.66 | 2179.72 | 326.74 |
| 2182.27 | 326.66 | 2188.2 | 326.66 | 2200.14 | 326.66 | 2220.56 | 325.88 | 2233.32 | 325.5 |
| 2248.64 | 325.38 | 2253.74 | 325.26 | 2258.85 | 325.57 | 2261.4 | 325.23 | 2263.95 | 324.48 |
| 2269.06 | 323.4 | 2274.16 | 322.81 | 2281.82 | 323.38 | 2289.48 | 323.65 | 2292.03 | 323.63 |
| 2294.59 | 323.78 | 2304.8 | 323.88 | 2312.45 | 323.89 | 2322.66 | 323.59 | 2330.32 | 323.06 |
| 2332.88 | 322.94 | 2343.09 | 323.56 | 2351.51 | 323.93 | 2355.85 | 324.38 | 2359.98 | 324.33 |
| 2371.17 | 323.75 | 2378.82 | 323.75 | 2383.93 | 323.82 | 2394.14 | 324.07 | 2401.8 | 324.55 |
| 2406.9 | 324.66 | 2414.56 | 324.71 | 2419.22 | 324.95 | 2424.77 | 325.38 | 2431.92 | 325.79 |
| 2442.5 | 326.03 | 2457.96 | 326.02 | 2465.61 | 325.83 | 2470.72 | 325.51 | 2473.27 | 324.65 |
| 2475.82 | 324.21 | 2480.93 | 323.73 | 2483.48 | 323.61 | 2488.59 | 323.53 | 2498.8 | 323.64 |
| 2503.87 | 323.63 | 2514.11 | 323.79 | 2525.03 | 323.76 | 2542.19 | 324.07 | 2547.3 | 324.54 |
| 2552.4 | 324.03 | 2557.51 | 324 | 2565.17 | 323.78 | 2575.38 | 323.86 | 2580.48 | 323.81 |
| 2585.59 | 323.85 | 2588.14 | 323.74 | 2592.74 | 323.78 | 2599.09 | 323.97 | 2603.46 | 324.01 |
| 2607.55 | 324.18 | 2616.02 | 324.39 | 2618.77 | 324.58 | 2623.88 | 325.09 | 2626.43 | 325.04 |
| 2628.71 | 325.18 | 2639.2 | 325.47 | 2643.52 | 325.68 | 2654.51 | 325.86 | 2657.06 | 325.94 |
| 2664.72 | 325.53 | 2667.27 | 325.61 | 2672.38 | 325.5 | 2677.49 | 325.56 | 2682.59 | 325.44 |
| 2692.19 | 325.58 | 2697.91 | 325.59 | 2700.46 | 325.68 | 2709.12 | 325.54 | 2717.58 | 325.62 |
| 2732.54 | 326.12 | | | | | | | | |

Manning's n Values num= 5

| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|---|---|---|---|
| 0 | .06 | 847.7 | .035 | 1738.71 | .15 | 1929.08 | .03 | 2188.2 | .045 |

```
Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         847.7  2188.2              260     431     405             .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
       0     847     323       F
  1725.2 2732.54   321.5       F
```

CROSS SECTION OUTPUT  Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 319.41 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.52 | Wt. n-Val. | | 0.035 | |
| W.S. Elev (ft) | 318.89 | Reach Len. (ft) | 260.00 | 431.00 | 405.00 |
| Crit W.S. (ft) | 314.61 | Flow Area (sq ft) | | 6111.42 | |
| E.G. Slope (ft/ft) | 0.001361 | Area (sq ft) | 2382.66 | 6903.49 | |
| Q Total (cfs) | 35359.28 | Flow (cfs) | | 35359.28 | |
| Top Width (ft) | 1678.78 | Top Width (ft) | 629.40 | 1049.39 | |
| Vel Total (ft/s) | 5.79 | Avg. Vel. (ft/s) | | 5.79 | |
| Max Chl Dpth (ft) | 11.69 | Hydr. Depth (ft) | | 7.13 | |
| Conv. Total (cfs) | 958567.4 | Conv. (cfs) | | 958567.4 | |
| Length Wtd. (ft) | 421.10 | Wetted Per. (ft) | | 860.62 | |
| Min Ch El (ft) | 307.20 | Shear (lb/sq ft) | | 0.60 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 3.49 | |
| Frctn Loss (ft) | 0.91 | Cum Volume (acre-ft) | 58.49 | 1409.07 | 142.78 |
| C & E Loss (ft) | 0.04 | Cum SA (acres) | 20.63 | 178.27 | 27.78 |

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

CROSS SECTION OUTPUT  Profile #PF 3

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 320.78 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.66 | Wt. n-Val. | 0.060 | 0.035 | |
| W.S. Elev (ft) | 320.12 | Reach Len. (ft) | 260.00 | 431.00 | 405.00 |
| Crit W.S. (ft) | 315.71 | Flow Area (sq ft) | 0.79 | 7183.98 | |
| E.G. Slope (ft/ft) | 0.001438 | Area (sq ft) | 3199.92 | 8226.41 | |
| Q Total (cfs) | 46848.73 | Flow (cfs) | 0.80 | 46847.93 | |
| Top Width (ft) | 1758.27 | Top Width (ft) | 667.06 | 1091.21 | |
| Vel Total (ft/s) | 6.52 | Avg. Vel. (ft/s) | 1.02 | 6.52 | |
| Max Chl Dpth (ft) | 12.92 | Hydr. Depth (ft) | 1.13 | 8.19 | |
| Conv. Total (cfs) | 1235344.0 | Conv. (cfs) | 21.1 | 1235323.0 | |
| Length Wtd. (ft) | 420.18 | Wetted Per. (ft) | 0.70 | 881.32 | |
| Min Ch El (ft) | 307.20 | Shear (lb/sq ft) | 0.10 | 0.73 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | 0.10 | 4.77 | |
| Frctn Loss (ft) | 0.85 | Cum Volume (acre-ft) | 110.99 | 1783.04 | 272.82 |
| C & E Loss (ft) | 0.03 | Cum SA (acres) | 27.01 | 179.95 | 31.90 |

Warning: Divided flow computed for this cross-section.

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

CROSS SECTION OUTPUT Profile #PF 6

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 317.41 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.33 | Wt. n-Val. | | 0.035 | |
| W.S. Elev (ft) | 317.08 | Reach Len. (ft) | 260.00 | 431.00 | 405.00 |
| Crit W.S. (ft) | 313.02 | Flow Area (sq ft) | | 4649.91 | |
| E.G. Slope (ft/ft) | 0.001068 | Area (sq ft) | 1525.82 | 5117.00 | |
| Q Total (cfs) | 21544.92 | Flow (cfs) | | 21544.92 | |
| Top Width (ft) | 1334.70 | Top Width (ft) | 409.55 | 925.15 | |
| Vel Total (ft/s) | 4.63 | Avg. Vel. (ft/s) | | 4.63 | |
| Max Chl Dpth (ft) | 9.88 | Hydr. Depth (ft) | | 6.13 | |
| Conv. Total (cfs) | 659278.3 | Conv. (cfs) | | 659278.3 | |
| Length Wtd. (ft) | 423.54 | Wetted Per. (ft) | | 761.90 | |
| Min Ch El (ft) | 307.20 | Shear (lb/sq ft) | | 0.41 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 1.89 | |
| Frctn Loss (ft) | 0.88 | Cum Volume (acre-ft) | 27.66 | 1046.41 | 119.69 |
| C & E Loss (ft) | 0.06 | Cum SA (acres) | 10.22 | 172.39 | 25.65 |

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: San Diego River
REACH: Reach 1 RS: 315

INPUT
Description: New Xsection-
Survey Data (June 12, 2014) and proposed
grading
proposed grading starts at station # 1110.6
Station
1379.96 to 1561.13 the exisitng building and grading to
stay
proposed resort at station 1702.4 to 1970.5- n=0.15
Station Elevation Data num= 386

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 326.37 | 4.8 | 326.34 | 10.25 | 325.97 | 18.78 | 326.48 | 24.07 | 325.99 |
| 29.36 | 326.09 | 33.27 | 325.91 | 36.26 | 326.09 | 40.19 | 325.99 | 42.58 | 326.17 |
| 50.51 | 327.44 | 58.4 | 328.05 | 60.99 | 328.38 | 63.58 | 328.43 | 66.17 | 328.86 |
| 72.23 | 329 | 76.53 | 328.8 | 81.71 | 328.87 | 84.29 | 328.5 | 89.47 | 328.36 |
| 94.67 | 328.06 | 96.71 | 328.06 | 111.18 | 327.7 | 118.46 | 327.35 | 123.62 | 327.53 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 126.27 | 327.46 | 131.56 | 327.67 | 136.85 | 327.44 | 147.43 | 327.27 | 152.72 | 327.38 |
| 158.01 | 327.29 | 160.66 | 327.38 | 169.56 | 327.36 | 176.53 | 327.45 | 179.18 | 327.38 |
| 193.24 | 327.36 | 199.19 | 327.24 | 202.86 | 327.28 | 208.12 | 327.19 | 221.26 | 327.09 |
| 229.15 | 326.97 | 238.18 | 326.93 | 246.87 | 326.81 | 250.12 | 326.89 | 255.36 | 326.78 |
| 260.59 | 326.92 | 265.83 | 326.8 | 271.06 | 326.85 | 276.29 | 326.7 | 284.14 | 326.8 |
| 297.23 | 326.9 | 299.85 | 327.1 | 312.82 | 327.04 | 318.17 | 327.21 | 326.02 | 327.19 |
| 331.25 | 327.4 | 333.87 | 327.36 | 344.37 | 327.56 | 357.51 | 327.73 | 362.77 | 327.99 |
| 378.47 | 328.15 | 381.17 | 328.06 | 389.05 | 328.38 | 396.94 | 328.35 | 402.2 | 327.89 |
| 412.2 | 326.25 | 417.97 | 325.61 | 425.85 | 325.37 | 428.08 | 325.17 | 438.99 | 325.28 |
| 444.25 | 325.41 | 457.39 | 325.86 | 460.02 | 325.88 | 465.78 | 326.16 | 475.79 | 326.53 |
| 478.42 | 326.71 | 488.93 | 326.25 | 507.82 | 325.83 | 517.84 | 325.65 | 537.22 | 325.21 |
| 544.13 | 325.24 | 547.14 | 325.01 | 552.01 | 324.42 | 555.08 | 324.23 | 565 | 322.89 |
| 570.41 | 322.24 | 578.3 | 321.47 | 580.93 | 321.53 | 586.18 | 321.96 | 588.81 | 322.97 |
| 591.44 | 324.28 | 596.6 | 325.5 | 599.32 | 326.03 | 601.95 | 326.13 | 604.68 | 325.49 |
| 609.84 | 323.29 | 612.47 | 322.34 | 615.09 | 321.85 | 620.35 | 321.4 | 626.51 | 321.35 |
| 638.42 | 321.12 | 641.38 | 321 | 649.26 | 320.41 | 652.31 | 319.94 | 654.29 | 319.38 |
| 657.15 | 318.28 | 662.41 | 316.69 | 665.03 | 316.24 | 668.18 | 315.36 | 670.17 | 314.59 |
| 672.15 | 314.25 | 675.55 | 313.97 | 683.43 | 313.74 | 693.98 | 313.53 | 702.17 | 313.63 |
| 707.09 | 313.88 | 712.35 | 313.57 | 717.6 | 313.67 | 722.86 | 313.41 | 730.74 | 313.47 |
| 736 | 313.83 | 742.66 | 313.42 | 745.57 | 313.57 | 750.76 | 313.25 | 754.4 | 313.25 |
| 759.66 | 313.96 | 762.28 | 313.92 | 767.54 | 313.27 | 771.37 | 313.4 | 773.35 | 313.69 |
| 775.43 | 314.33 | 778.05 | 314.44 | 780.68 | 313.86 | 785.94 | 313.33 | 791.25 | 313.12 |
| 797.16 | 313.23 | 801.71 | 313.54 | 807.08 | 313.34 | 809.6 | 313.37 | 814.85 | 313.07 |
| 820.11 | 312.95 | 827.99 | 312.92 | 833.25 | 313.19 | 838.51 | 312.56 | 841.14 | 312.66 |
| 843.76 | 313.1 | 846.39 | 312.78 | 848.76 | 313.01 | 851.65 | 314.27 | 854.71 | 315.29 |
| 856.91 | 315.79 | 862.16 | 316.46 | 864.79 | 316.36 | 867.42 | 315.93 | 877.93 | 316.18 |
| 880.5 | 316 | 888.45 | 315.06 | 893.7 | 314.63 | 896.33 | 315 | 898.96 | 314.85 |
| 901.59 | 313.95 | 904.32 | 312.53 | 906.85 | 310.87 | 909.47 | 309.59 | 914.73 | 307.71 |
| 917.36 | 307.42 | 919.99 | 307.69 | 922.62 | 308.49 | 926 | 309.161 | 927.87 | 309.36 |
| 933.13 | 310.41 | 937.01 | 310.47 | 951.53 | 311.12 | 956.79 | 310.59 | 962.04 | 310.61 |
| 967.3 | 312.27 | 972.56 | 313.48 | 975.18 | 313.79 | 980.44 | 313.81 | 985.67 | 313.53 |
| 988.33 | 313.89 | 991.63 | 313.82 | 993.58 | 314.06 | 996.21 | 313.6 | 1001.47 | 313.6 |
| 1004.1 | 313.84 | 1006.72 | 313.74 | 1011.98 | 313.23 | 1017.24 | 312.48 | 1021.39 | 310.39 |
| 1025.12 | 308.71 | 1030.38 | 307.53 | 1035.64 | 307.86 | 1038.27 | 308.3 | 1042.29 | 309.33 |
| 1047.19 | 310.83 | 1055.13 | 312.98 | 1059.29 | 314.37 | 1064.55 | 316 | 1098.72 | 316 |
| 1110.6 | 315 | 1115.91 | 309.39 | 1120.66 | 309.14 | 1142.85 | 309 | 1211.52 | 308.1 |
| 1219.42 | 308 | 1257.7 | 308 | 1273.08 | 308.82 | 1304 | 309 | 1329.86 | 310.04 |
| 1358.7 | 313 | 1379.96 | 313.45 | 1382.67 | 313.53 | 1400.4 | 313.72 | 1414.13 | 314.06 |
| 1438.1 | 314.28 | 1443.04 | 314.25 | 1456.18 | 314.31 | 1463.9 | 314.28 | 1474.58 | 314.41 |
| 1477.21 | 314.38 | 1500.86 | 314.72 | 1503.49 | 314.82 | 1511.38 | 315.74 | 1514 | 315.87 |
| 1516.63 | 316.33 | 1519.26 | 316.22 | 1521.89 | 315.49 | 1532.4 | 314.76 | 1537.32 | 314.63 |
| 1543.27 | 314.62 | 1553.19 | 314.5 | 1561.13 | 314.16 | 1588.49 | 313.55 | 1613.72 | 316 |
| 1678.29 | 316 | 1697.3 | 320 | 1702.4 | 322.8 | 1792.31 | 322.8 | 1821 | 322.4 |
| 1915.15 | 323 | 1970.5 | 323.4 | 1978.53 | 320 | 1987.77 | 318 | 1997.24 | 315 |
| 2003.13 | 313 | 2066 | 312.68 | 2070.68 | 312.52 | 2075.95 | 312.1 | 2078.55 | 312.28 |
| 2083.8 | 312.98 | 2085.89 | 312.93 | 2089.05 | 312.56 | 2094.3 | 312.54 | 2102.17 | 311.45 |
| 2104.79 | 311.33 | 2112.66 | 311.47 | 2115.29 | 311.45 | 2120.54 | 312.25 | 2125.39 | 312.12 |
| 2131.03 | 312.33 | 2136.28 | 311.9 | 2144.15 | 311.61 | 2146.78 | 311.65 | 2154.65 | 312.57 |
| 2159.9 | 311.97 | 2162.52 | 311.81 | 2173.44 | 311.95 | 2175.64 | 311.85 | 2181.4 | 312.49 |
| 2186.13 | 312.36 | 2199.47 | 312.96 | 2204.5 | 312.58 | 2207.27 | 312.53 | 2213.23 | 313.25 |
| 2215 | 313.37 | 2222.87 | 312.72 | 2231.14 | 312.34 | 2233.13 | 312.4 | 2243.86 | 312.18 |
| 2246.49 | 312.43 | 2259 | 312.31 | 2262.23 | 312.21 | 2267.48 | 312.46 | 2285.84 | 312.92 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2288.47 | 313.18 | 2293.72 | 313.32 | 2301.59 | 313.09 | 2306.84 | 313.26 | 2312.08 | 313.67 |
| 2322.58 | 313.75 | 2332.62 | 314.53 | 2334.6 | 314.59 | 2339.4 | 315 | 2359.32 | 316.43 |
| 2364.56 | 316.73 | 2375.4 | 317.043 | 2382.93 | 317.06 | 2388.79 | 317.31 | 2393.43 | 317.38 |
| 2401.3 | 317.32 | 2403.92 | 317.08 | 2409.17 | 316.88 | 2417.04 | 316.86 | 2424.14 | 317.12 |
| 2427.54 | 317.33 | 2435.41 | 318.26 | 2438.07 | 318.44 | 2440.66 | 319.22 | 2443.28 | 321.2 |
| 2445.91 | 321.69 | 2451.15 | 321.81 | 2462.87 | 321.81 | 2472.15 | 321.75 | 2474.77 | 321.61 |
| 2480.02 | 321.72 | 2482.64 | 322.07 | 2485.27 | 323.31 | 2487.89 | 323.95 | 2493.78 | 323.92 |
| 2498.38 | 322.93 | 2501.74 | 323.04 | 2503.73 | 322.84 | 2506.26 | 323.23 | 2511.69 | 322.95 |
| 2516.75 | 322.91 | 2521.64 | 322.48 | 2532.5 | 322.41 | 2537.74 | 322.46 | 2550.86 | 322.4 |
| 2553.49 | 322.22 | 2556.11 | 321.83 | 2558.74 | 321.71 | 2567.4 | 321.58 | 2571.86 | 321.45 |
| 2577.1 | 321.46 | 2584.98 | 321.33 | 2587.6 | 321.71 | 2592.85 | 321.51 | 2598.09 | 321.08 |
| 2600.72 | 321.19 | 2611.21 | 321.84 | 2619.09 | 322.09 | 2629.58 | 322.28 | 2632.21 | 322.5 |
| 2634.83 | 322.49 | 2637.45 | 322.14 | 2645.33 | 322 | 2653.2 | 321.75 | 2661.07 | 321.38 |
| 2671.57 | 321.09 | 2676.89 | 321.57 | 2694.74 | 322.28 | 2697.8 | 322.79 | 2703.05 | 322.35 |
| 2708.3 | 322.22 | 2716.17 | 322.34 | 2726.67 | 322.59 | 2734.54 | 322.59 | 2737.16 | 322.66 |
| 2750.45 | 322.66 | 2763.4 | 322.81 | 2768.36 | 323.31 | 2774.33 | 323.04 | 2784.27 | 323.31 |
| 2794.89 | 323.53 | 2812.13 | 323.76 | 2826.38 | 324.07 | 2831.63 | 324.36 | 2834.25 | 324.62 |
| 2839.5 | 324.8 | 2842.12 | 324.62 | 2849.99 | 324.47 | 2860.49 | 324.58 | 2875.8 | 324.54 |
| 2879.78 | 324.38 | 2891.72 | 324.62 | 2897.23 | 324.54 | 2905.1 | 324.55 | 2910.34 | 324.06 |
| 2915.59 | 323.69 | 2918.22 | 323.64 | 2923.55 | 323.31 | 2928.71 | 323.19 | 2936.58 | 322.65 |
| 2941.83 | 322.76 | | | | | | | | |

Manning's n Values num= 5

| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|---|---|---|---|
| 0 | .06 | 926 | .035 | 1702.4 | .15 | 1970.5 | .035 | 2375.4 | .045 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 926 | 2375.4 | 380 | 280 | 255 | .1 | .3 |

Ineffective Flow num= 2

| Sta L | Sta R | Elev | Permanent |
|---|---|---|---|
| 0 | 648.46 | 323 | F |
| 1699.64 | 2941.83 | 322.2 | F |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 318.46 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.89 | Wt. n-Val. | 0.060 | 0.035 | |
| W.S. Elev (ft) | 317.57 | Reach Len. (ft) | 380.00 | 280.00 | 255.00 |
| Crit W.S. (ft) | 316.08 | Flow Area (sq ft) | 1059.10 | 3939.36 | |
| E.G. Slope (ft/ft) | 0.003936 | Area (sq ft) | 1059.10 | 5679.75 | 23.90 |
| Q Total (cfs) | 35359.28 | Flow (cfs) | 4093.05 | 31266.22 | |
| Top Width (ft) | 1466.64 | Top Width (ft) | 266.49 | 1146.00 | 54.15 |
| Vel Total (ft/s) | 7.07 | Avg. Vel. (ft/s) | 3.86 | 7.94 | |
| Max Chl Dpth (ft) | 10.15 | Hydr. Depth (ft) | 3.97 | 5.19 | |
| Conv. Total (cfs) | 563604.1 | Conv. (cfs) | 65240.6 | 498363.4 | |
| Length Wtd. (ft) | 290.52 | Wetted Per. (ft) | 269.98 | 765.84 | |
| Min Ch El (ft) | 307.53 | Shear (lb/sq ft) | 0.96 | 1.26 | |
| Alpha | 1.15 | Stream Power (lb/ft s) | 3.73 | 10.03 | |
| Frctn Loss (ft) | 0.80 | Cum Volume (acre-ft) | 48.22 | 1346.82 | 142.67 |
| C & E Loss (ft) | 0.06 | Cum SA (acres) | 17.96 | 167.41 | 27.53 |

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

CROSS SECTION OUTPUT Profile #PF 3

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 319.90 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.94 | Wt. n-Val. | 0.060 | 0.035 | |
| W.S. Elev (ft) | 318.96 | Reach Len. (ft) | 380.00 | 280.00 | 255.00 |
| Crit W.S. (ft) | 316.91 | Flow Area (sq ft) | 1432.07 | 4998.60 | |
| E.G. Slope (ft/ft) | 0.003084 | Area (sq ft) | 1432.07 | 7278.90 | 107.23 |
| Q Total (cfs) | 46848.73 | Flow (cfs) | 5927.15 | 40921.58 | |
| Top Width (ft) | 1493.37 | Top Width (ft) | 270.61 | 1158.38 | 64.38 |
| Vel Total (ft/s) | 7.29 | Avg. Vel. (ft/s) | 4.14 | 8.19 | |
| Max Chl Dpth (ft) | 11.54 | Hydr. Depth (ft) | 5.29 | 6.52 | |
| Conv. Total (cfs) | 843576.8 | Conv. (cfs) | 106726.6 | 736850.2 | |
| Length Wtd. (ft) | 291.84 | Wetted Per. (ft) | 274.33 | 772.58 | |
| Min Ch El (ft) | 307.53 | Shear (lb/sq ft) | 1.01 | 1.25 | |
| Alpha | 1.14 | Stream Power (lb/ft s) | 4.16 | 10.20 | |
| Frctn Loss (ft) | 0.69 | Cum Volume (acre-ft) | 97.16 | 1706.33 | 272.33 |
| C & E Loss (ft) | 0.04 | Cum SA (acres) | 24.21 | 168.82 | 31.60 |

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

CROSS SECTION OUTPUT Profile #PF 6

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 316.47 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.92 | Wt. n-Val. | 0.060 | 0.035 | |
| W.S. Elev (ft) | 315.55 | Reach Len. (ft) | 380.00 | 280.00 | 255.00 |
| Crit W.S. (ft) | 314.72 | Flow Area (sq ft) | 544.34 | 2469.24 | |
| E.G. Slope (ft/ft) | 0.005767 | Area (sq ft) | 544.34 | 3462.85 | |
| Q Total (cfs) | 21544.92 | Flow (cfs) | 1878.79 | 19666.13 | |
| Top Width (ft) | 1211.95 | Top Width (ft) | 230.08 | 981.87 | |
| Vel Total (ft/s) | 7.15 | Avg. Vel. (ft/s) | 3.45 | 7.96 | |
| Max Chl Dpth (ft) | 8.13 | Hydr. Depth (ft) | 2.37 | 3.92 | |
| Conv. Total (cfs) | 283709.5 | Conv. (cfs) | 24740.4 | 258969.1 | |
| Length Wtd. (ft) | 287.15 | Wetted Per. (ft) | 233.17 | 635.95 | |
| Min Ch El (ft) | 307.53 | Shear (lb/sq ft) | 0.84 | 1.40 | |
| Alpha | 1.15 | Stream Power (lb/ft s) | 2.90 | 11.13 | |
| Frctn Loss (ft) | 0.91 | Cum Volume (acre-ft) | 21.48 | 1003.96 | 119.69 |
| C & E Loss (ft) | 0.11 | Cum SA (acres) | 8.31 | 162.96 | 25.65 |

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: San Diego River
REACH: Reach 1 RS: 310

INPUT
Description: Resort West
Survey Data (June 12, 2014), and proposed grading
.
Golf course proposed grading start at sation 782.2
proposed
resort station 1277.2 to 1589.3. n= 0.15
In the non-disturbed
area, Manning's coefficients are derived from the Corrected
Effective Model.
Station Elevation Data num= 375

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 329.1 | 5.08 | 329.21 | 15.37 | 329.76 | 23.08 | 329.9 | 28.78 | 330.25 |
| 38.52 | 330.96 | 43.66 | 331.42 | 53.95 | 332.24 | 56.52 | 332.32 | 59.1 | 332.04 |
| 61.67 | 331.54 | 66.81 | 330.01 | 71.83 | 328.21 | 79.67 | 325.55 | 82.18 | 324.97 |
| 84.82 | 323.91 | 87.39 | 323.12 | 90.46 | 322.95 | 92.53 | 323.03 | 102.89 | 323.69 |
| 107.03 | 323.7 | 113.24 | 323.5 | 118.26 | 323.06 | 123.6 | 323.06 | 149.12 | 323.56 |
| 159.41 | 323.73 | 161.98 | 323.93 | 164.56 | 324.45 | 167.13 | 324.66 | 172.27 | 324.31 |
| 185.13 | 323.9 | 187.71 | 323.63 | 195.43 | 323.43 | 210.55 | 323.16 | 223.73 | 323.02 |
| 236.59 | 322.93 | 247.8 | 322.25 | 249.46 | 322.06 | 254.01 | 320.94 | 257.18 | 320.38 |
| 259.75 | 320.2 | 264.35 | 320.27 | 270.04 | 320.24 | 274.7 | 320.53 | 277.76 | 320.96 |
| 290.63 | 320.73 | 296.4 | 320.75 | 300.92 | 320.95 | 303.49 | 320.9 | 305.74 | 320.4 |
| 311.21 | 319.67 | 313.79 | 319.06 | 318.93 | 319.01 | 324.36 | 319.13 | 334.37 | 319.07 |
| 336.94 | 318.95 | 339.52 | 318.45 | 344.66 | 316.25 | 347.13 | 315.7 | 352.38 | 313.34 |
| 355.4 | 312.92 | 360.1 | 312.78 | 363.68 | 312.92 | 371.96 | 312.91 | 378.11 | 313.06 |
| 385.83 | 312.62 | 390.98 | 312.84 | 396.12 | 312.66 | 401.27 | 312.71 | 403.84 | 312.51 |
| 411.56 | 312.7 | 423.69 | 312.42 | 434.03 | 312.75 | 442.31 | 312.71 | 445.01 | 312.49 |
| 447.58 | 312.74 | 450.16 | 312.54 | 455.3 | 312.6 | 460.45 | 312.29 | 465.59 | 312.35 |
| 470.74 | 312.59 | 475.89 | 312.38 | 481.03 | 312.82 | 483.6 | 313.44 | 488.75 | 313.36 |
| 493.9 | 312.55 | 496.47 | 312.46 | 504.19 | 312.47 | 506.76 | 312.61 | 514.48 | 312.49 |
| 519.63 | 312.15 | 522.2 | 312.16 | 527.15 | 312.58 | 529.22 | 312.36 | 532.49 | 312.34 |
| 535.06 | 312.16 | 540.21 | 312.02 | 545.36 | 312 | 550.5 | 312.23 | 555.65 | 312.35 |
| 558.22 | 312.63 | 560.79 | 312.64 | 563.37 | 312.33 | 566.47 | 312.25 | 571.09 | 311.96 |
| 576.23 | 311.97 | 580.95 | 312.2 | 586.53 | 311.83 | 596.82 | 311.96 | 601.64 | 311.84 |
| 605.8 | 312.133 | 612.26 | 313.36 | 614.83 | 313.96 | 622.55 | 315.03 | 632.84 | 314.96 |
| 635.41 | 314.5 | 640.56 | 314.33 | 649.24 | 312.49 | 653.42 | 311.09 | 656 | 310.45 |
| 658.57 | 309.42 | 661.14 | 308.05 | 663.72 | 307.66 | 697.16 | 305.65 | 699.74 | 305.31 |
| 707.46 | 305.25 | 709.24 | 305.45 | 712.6 | 306.81 | 715.18 | 308.38 | 719.59 | 310.28 |
| 722.9 | 311.42 | 725.8 | 311.73 | 728.04 | 312.61 | 733.19 | 316 | 761.49 | 316 |
| 767.18 | 315.55 | 774.36 | 312.98 | 778.73 | 310.07 | 782.2 | 309.92 | 787.99 | 309.36 |
| 807.33 | 308.64 | 819.64 | 308 | 849.74 | 307 | 864.61 | 306 | 1040 | 306 |
| 1047.4 | 307.19 | 1075.14 | 307.89 | 1089.8 | 308 | 1109.11 | 313.12 | 1124.54 | 314.97 |
| 1136.04 | 315 | 1149.62 | 315 | 1155.69 | 314 | 1163.68 | 314 | 1219.2 | 314 |
| 1244.96 | 314 | 1274 | 320 | 1278 | 322.5 | 1511 | 322.5 | 1573 | 322.8 |
| 1589 | 322.5 | 1591 | 322 | 1594 | 320 | 1603 | 316 | 1608.01 | 315.28 |
| 1610.59 | 315.26 | 1613.16 | 314.94 | 1615.73 | 314.88 | 1620.88 | 315.48 | 1623.46 | 315.45 |
| 1626.24 | 314.56 | 1627.97 | 313.6 | 1631.18 | 312.77 | 1633.76 | 311.78 | 1636.33 | 311.88 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1638.91 | 312.51 | 1644.06 | 312.97 | 1649.21 | 313.01 | 1654.82 | 312.95 | 1656.93 | 313.05 | | |
| 1659.51 | 312.39 | 1667.23 | 311.06 | 1669.81 | 311.12 | 1672.38 | 310.92 | 1685.8 | 310.84 | | |
| 1687.83 | 310.61 | 1690.41 | 311.09 | 1692.98 | 311.78 | 1695.56 | 312.14 | 1703.28 | 311.12 | | |
| 1705.86 | 311.12 | 1713.58 | 312.34 | 1716.16 | 312.53 | 1723.88 | 312.17 | 1726.46 | 312.23 | | |
| 1731.24 | 312.72 | 1734.18 | 312.88 | 1741.91 | 311.83 | 1747.06 | 312.28 | 1753.96 | 311.96 | | |
| 1759.93 | 311.9 | 1762.22 | 311.79 | 1765.08 | 311.35 | 1770.23 | 312.52 | 1772.55 | 312.42 | | |
| 1780.53 | 311.82 | 1783.1 | 311.53 | 1790.83 | 312.01 | 1793.4 | 312.02 | 1803.53 | 311.82 | | |
| 1808.85 | 311.27 | 1811.43 | 311.21 | 1814 | 311.34 | 1819.15 | 311.38 | 1821.73 | 311.3 | | |
| 1826.88 | 311.78 | 1829.45 | 311.73 | 1832.03 | 311.28 | 1834.51 | 311.31 | 1837.18 | 310.96 | | |
| 1839.75 | 311.22 | 1844.9 | 311.34 | 1855.2 | 311.75 | 1857.78 | 311.96 | 1861.36 | 312.89 | | |
| 1863.43 | 313.23 | 1870.65 | 313.95 | 1873.23 | 314.34 | 1878.38 | 315.39 | 1880.95 | 315.15 | | |
| 1886.1 | 313.94 | 1888.68 | 313.53 | 1896.4 | 313.35 | 1898.98 | 313.49 | 1904.13 | 314.2 | | |
| 1910.93 | 313.56 | 1914.43 | 313.41 | 1917.13 | 313.49 | 1919.58 | 313.35 | 1924.73 | 312.54 | | |
| 1927.3 | 312.28 | 1929.52 | 312.75 | 1935.03 | 313.18 | 1942.75 | 313.54 | 1945.33 | 313.85 | | |
| 1947.9 | 313.85 | 1953.05 | 314.31 | 1955.63 | 313.78 | 1958.44 | 313.45 | 1965.93 | 313.34 | | |
| 1971.08 | 313.66 | 1976.23 | 313.63 | 1981.38 | 313.05 | 1986.53 | 313.35 | 1989.42 | 313.28 | | |
| 1991.68 | 313.05 | 1996.83 | 312.93 | 1999.4 | 313.07 | 2007.13 | 312.97 | 2012.28 | 313.32 | | |
| 2017.43 | 313.29 | 2022.58 | 312.78 | 2025.15 | 312.77 | 2030.3 | 313.67 | 2032.88 | 313.89 | | |
| 2034.86 | 313.74 | 2040.6 | 313.71 | 2045.18 | 313.52 | 2048.33 | 313.61 | 2053.31 | 314.27 | | |
| 2056.05 | 314.4 | 2058.63 | 313.72 | 2061.2 | 313.35 | 2063.78 | 313.44 | 2066.35 | 313.34 | | |
| 2076.65 | 313.69 | 2084.38 | 312.79 | 2089.53 | 313.12 | 2097.25 | 313.01 | 2105.08 | 313.61 | | |
| 2110.13 | 313.67 | 2112.7 | 313.87 | 2115.28 | 314.66 | 2116.9 | 314.934 | 2123 | 316.05 | | |
| 2125.58 | 316.86 | 2128.15 | 318.04 | 2130.73 | 318.7 | 2138.45 | 318.8 | 2141.02 | 318.77 | | |
| 2143.6 | 319.05 | 2151.32 | 320.24 | 2161.62 | 321.3 | 2166.77 | 322.4 | 2169.35 | 322.3 | | |
| 2171.92 | 322.43 | 2177.37 | 322.38 | 2179.65 | 322.17 | 2182.22 | 322.19 | 2192.52 | 322.68 | | |
| 2200.25 | 322.69 | 2202.82 | 322.44 | 2220.3 | 322.29 | 2236.3 | 322.11 | 2244.02 | 322.08 | | |
| 2251.72 | 322.53 | 2264.62 | 322.01 | 2272.38 | 321.97 | 2277.5 | 322.14 | 2282.65 | 322.12 | | |
| 2287.8 | 321.95 | 2292.95 | 322.12 | 2300.67 | 322.15 | 2305.82 | 322.36 | 2308.4 | 322.15 | | |
| 2315.75 | 322.19 | 2324.67 | 322.12 | 2334.15 | 322.43 | 2336.72 | 322.25 | 2341.87 | 322.33 | | |
| 2352.17 | 322.21 | 2362.47 | 321.25 | 2367.62 | 321.06 | 2375.35 | 320.59 | 2377.92 | 320.34 | | |
| 2385.97 | 320.79 | 2394.23 | 321.01 | 2406.25 | 321.06 | 2411.4 | 321.33 | 2413.97 | 321.29 | | |
| 2419.12 | 320.91 | 2424.27 | 320.88 | 2437.15 | 320.25 | 2439.72 | 320.38 | 2442.3 | 320.71 | | |
| 2447.45 | 320.88 | 2450.02 | 320.84 | 2460.32 | 320.94 | 2466.52 | 320.85 | 2474.78 | 320.19 | | |
| 2478.35 | 319.99 | 2488.65 | 319.59 | 2493.37 | 319.57 | 2499.57 | 319.36 | 2506.67 | 319.35 | | |
| 2511.82 | 319.19 | 2519.54 | 319.19 | 2522.29 | 319.28 | 2529.84 | 319.14 | 2537.57 | 319.29 | | |
| 2545.29 | 319.02 | 2550.44 | 319 | 2560.74 | 318.75 | 2568.47 | 318.36 | 2581.34 | 318.29 | | |
| 2586.49 | 317.64 | 2591.64 | 315.46 | 2594.22 | 315.65 | 2596.79 | 316.37 | 2598.71 | 317.38 | | |
| 2601.94 | 318.79 | 2604.52 | 319.05 | 2609.67 | 320.17 | 2612.24 | 320.33 | 2621.43 | 320.13 | | |
| 2630.27 | 320.07 | 2640.57 | 320.23 | 2658.59 | 320.31 | 2668.89 | 320.28 | 2681.77 | 320.31 | | |
| 2689.49 | 320.25 | 2704.94 | 320.3 | 2712.67 | 320.44 | 2717.82 | 320.24 | 2720.24 | 320.31 | | |

Manning's n Values num= 5

| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|---|---|---|---|
| 0 | .06 | 605.8 | .035 | 1278 | .15 | 1591 | .035 | 2116.9 | .045 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 605.8 | 2116.9 | 610 | 610 | 640 | .1 | .3 |

Ineffective Flow num= 2

| Sta L | Sta R | Elev | Permanent |
|---|---|---|---|
| 0 | 154.1 | 324.5 | F |
| 1277.2 | 2720.24 | 322.5 | F |

CROSS SECTION OUTPUT  Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 317.60 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.70 | Wt. n-Val. | 0.060 | 0.035 | |
| W.S. Elev (ft) | 316.90 | Reach Len. (ft) | 610.00 | 610.00 | 640.00 |
| Crit W.S. (ft) | 313.68 | Flow Area (sq ft) | 1131.02 | 4578.91 | |
| E.G. Slope (ft/ft) | 0.002049 | Area (sq ft) | 1131.02 | 6666.29 | 18.18 |
| Q Total (cfs) | 35359.28 | Flow (cfs) | 3346.35 | 32012.93 | |
| Top Width (ft) | 1450.08 | Top Width (ft) | 262.65 | 1169.11 | 18.32 |
| Vel Total (ft/s) | 6.19 | Avg. Vel. (ft/s) | 2.96 | 6.99 | |
| Max Chl Dpth (ft) | 11.65 | Hydr. Depth (ft) | 4.31 | 7.01 | |
| Conv. Total (cfs) | 781165.1 | Conv. (cfs) | 73928.3 | 707236.9 | |
| Length Wtd. (ft) | 610.00 | Wetted Per. (ft) | 263.77 | 659.86 | |
| Min Ch El (ft) | 305.25 | Shear (lb/sq ft) | 0.55 | 0.89 | |
| Alpha | 1.18 | Stream Power (lb/ft s) | 1.62 | 6.21 | |
| Frctn Loss (ft) | 1.04 | Cum Volume (acre-ft) | 38.67 | 1307.14 | 142.55 |
| C & E Loss (ft) | 0.12 | Cum SA (acres) | 15.65 | 159.97 | 27.31 |

Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate the need for additional cross sections.
Note:  Multiple critical depths were found at this location.  The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT  Profile #PF 3

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 319.17 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.80 | Wt. n-Val. | 0.060 | 0.035 | |
| W.S. Elev (ft) | 318.37 | Reach Len. (ft) | 610.00 | 610.00 | 640.00 |
| Crit W.S. (ft) | 315.08 | Flow Area (sq ft) | 1519.05 | 5542.85 | |
| E.G. Slope (ft/ft) | 0.001864 | Area (sq ft) | 1519.05 | 8389.91 | 54.26 |
| Q Total (cfs) | 46848.73 | Flow (cfs) | 5169.88 | 41678.84 | |
| Top Width (ft) | 1490.74 | Top Width (ft) | 266.08 | 1179.52 | 45.14 |
| Vel Total (ft/s) | 6.63 | Avg. Vel. (ft/s) | 3.40 | 7.52 | |
| Max Chl Dpth (ft) | 13.12 | Hydr. Depth (ft) | 5.71 | 8.39 | |
| Conv. Total (cfs) | 1085093.0 | Conv. (cfs) | 119742.9 | 965350.4 | |
| Length Wtd. (ft) | 610.00 | Wetted Per. (ft) | 267.50 | 667.11 | |
| Min Ch El (ft) | 305.25 | Shear (lb/sq ft) | 0.66 | 0.97 | |
| Alpha | 1.17 | Stream Power (lb/ft s) | 2.25 | 7.27 | |
| Frctn Loss (ft) | 0.96 | Cum Volume (acre-ft) | 84.29 | 1655.98 | 271.85 |
| C & E Loss (ft) | 0.14 | Cum SA (acres) | 21.87 | 161.31 | 31.28 |

Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate the need for additional cross sections.
Note:  Multiple critical depths were found at this location.  The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT  Profile #PF 6

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 315.45 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.55 | Wt. n-Val. | 0.060 | 0.035 | |

| | | | | | |
|---|---|---|---|---|---|
| W.S. Elev (ft) | 314.90 | Reach Len. (ft) | 610.00 | 610.00 | 640.00 |
| Crit W.S. (ft) | 311.52 | Flow Area (sq ft) | 610.80 | 3321.57 | |
| E.G. Slope (ft/ft) | 0.002003 | Area (sq ft) | 610.80 | 4389.00 | |
| Q Total (cfs) | 21544.92 | Flow (cfs) | 1203.64 | 20341.28 | |
| Top Width (ft) | 1311.08 | Top Width (ft) | 256.88 | 1054.20 | |
| Vel Total (ft/s) | 5.48 | Avg. Vel. (ft/s) | 1.97 | 6.12 | |
| Max Chl Dpth (ft) | 9.65 | Hydr. Depth (ft) | 2.38 | 5.85 | |
| Conv. Total (cfs) | 481423.2 | Conv. (cfs) | 26895.5 | 454527.7 | |
| Length Wtd. (ft) | 610.00 | Wetted Per. (ft) | 257.63 | 574.00 | |
| Min Ch El (ft) | 305.25 | Shear (lb/sq ft) | 0.30 | 0.72 | |
| Alpha | 1.19 | Stream Power (lb/ft s) | 0.58 | 4.43 | |
| Frctn Loss (ft) | 1.07 | Cum Volume (acre-ft) | 16.44 | 978.73 | 119.69 |
| C & E Loss (ft) | 0.10 | Cum SA (acres) | 6.18 | 156.42 | 25.65 |

Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: San Diego River
REACH: Reach 1 RS: 300

INPUT
Description: Survey Data (June 12, 2014), and proposed grading .
Golf course
proposed grading starts at station 667.46. n=0.05
Poposed bridge
from PA-2 to PA-3 station 1722 to 1763. n = 0.15
Proposed PA-2
station 1949 to 2549.37
In the non-disturbed area, Manning's
coefficients are derived from the Corrected Effective Model.
Station Elevation Data num= 384

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 363.62 | 3.76 | 364.84 | 6.33 | 365.19 | 12.17 | 365.6 | 20.43 | 366.25 |
| 26.94 | 366.72 | 32.09 | 367.16 | 34.66 | 367.3 | 39.81 | 367.77 | 42.39 | 367.38 |
| 44.96 | 364.93 | 47.54 | 363.01 | 50.11 | 362 | 55.53 | 359.5 | 60.42 | 356.51 |
| 65.57 | 352.38 | 68.14 | 350.81 | 72.05 | 348.73 | 75.87 | 346.52 | 80.31 | 343.61 |
| 83.59 | 341.76 | 86.17 | 339.91 | 88.74 | 338.43 | 91.32 | 337.12 | 93.89 | 335.58 |
| 99.05 | 332.11 | 101.62 | 330.56 | 106.77 | 327.26 | 109.21 | 325.76 | 111.92 | 323.95 |
| 114.5 | 322.72 | 117.07 | 321.83 | 119.65 | 321.5 | 124.8 | 321.55 | 135.1 | 321.78 |
| 138.12 | 321.9 | 147.98 | 322.08 | 155.7 | 322.12 | 158.28 | 322.25 | 160.85 | 322.06 |
| 166 | 320.39 | 168.58 | 319.77 | 171.15 | 319.37 | 176.31 | 319.45 | 181.47 | 319.31 |
| 184.03 | 319.33 | 189.18 | 319.17 | 195.93 | 318.67 | 200.06 | 318.45 | 204.19 | 318.46 |
| 207.21 | 318.71 | 214.93 | 318.96 | 217.51 | 318.94 | 220.09 | 318.77 | 225.24 | 318.77 |
| 227.81 | 318.61 | 235.54 | 318.54 | 245.48 | 318.5 | 248.41 | 318.58 | 256.14 | 318.49 |
| 275.26 | 318.38 | 279.32 | 318.42 | 287.04 | 318.18 | 292.97 | 318.17 | 299.92 | 318.06 |
| 302.5 | 317.97 | 305.07 | 318.04 | 307.65 | 317.92 | 315.37 | 317.92 | 320.52 | 318.23 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 323.1 | 318.31 | 328.25 | 318.71 | 330.13 | 318.36 | 335.98 | 317.51 | 341.13 | 316.98 |
| 346.28 | 316.88 | 348.85 | 316.63 | 354 | 315.94 | 356.58 | 315.74 | 359.15 | 315.88 |
| 363.17 | 315.29 | 366.88 | 314.59 | 369.36 | 314.38 | 374.61 | 314.2 | 377.62 | 313.77 |
| 382.33 | 313.67 | 384.91 | 313.92 | 387.48 | 314.64 | 389.8 | 315.46 | 392.63 | 316.03 |
| 397.78 | 315.67 | 400.21 | 315.24 | 404.46 | 313.99 | 408.08 | 313.32 | 413.24 | 313.4 |
| 415.81 | 313.3 | 418.39 | 312.84 | 420.96 | 312.63 | 426.11 | 312.48 | 428.69 | 312.23 |
| 431.3 | 311.32 | 436.41 | 311.42 | 438.99 | 311.65 | 441.86 | 311.75 | 446.9 | 311.71 |
| 449.29 | 311.66 | 457.02 | 312.95 | 462.17 | 312.74 | 464.74 | 312.87 | 472.47 | 312.76 |
| 474.66 | 312.02 | 477.62 | 311.19 | 480.19 | 310.81 | 482.77 | 310.71 | 485.34 | 310.74 |
| 487.92 | 310.25 | 490.5 | 309.47 | 493.07 | 308.37 | 497.37 | 306.9 | 498.22 | 306.71 |
| 503.56 | 306.78 | 507.69 | 306.68 | 511.1 | 306.43 | 515.95 | 305.62 | 518.02 | 305.57 |
| 523.97 | 306.06 | 526.55 | 306.1 | 529.13 | 306.76 | 532.47 | 307.96 | 534.53 | 308.52 |
| 539.43 | 308.82 | 544.58 | 308.81 | 547.15 | 308.94 | 549.73 | 308.86 | 552.3 | 308.93 |
| 554.88 | 309.25 | 560.03 | 309.64 | 570.33 | 311.01 | 572.91 | 311.66 | 578.06 | 312.75 |
| 583.21 | 314 | 614.11 | 314 | 667.46 | 310 | 670.39 | 308.96 | 702.35 | 308 |
| 774.1 | 308 | 809.13 | 309.33 | 904.35 | 309.81 | 932.16 | 308.23 | 1055 | 308 |
| 1074.32 | 305.41 | 1083.59 | 305.19 | 1094.06 | 307.84 | 1153 | 308.5 | 1225.53 | 308 |
| 1248.14 | 308 | 1264.82 | 308 | 1269.77 | 307 | 1457.28 | 307 | 1469.9 | 308 |
| 1503 | 309 | 1538.4 | 309 | 1541 | 309.02 | 1544.1 | 309.2 | 1545 | 309.27 |
| 1546.6 | 309.4 | 1554.59 | 309 | 1565.61 | 310 | 1584.49 | 312 | 1591.5 | 313 |
| 1598.54 | 314 | 1609.01 | 316 | 1617.23 | 317.01 | 1626.2 | 317.01 | 1634.08 | 316 |
| 1651.91 | 314 | 1652.2 | 313.53 | 1654 | 313.53 | 1658.4 | 313.58 | 1661.6 | 313.66 |
| 1664.6 | 313.76 | 1669.8 | 313.88 | 1673.7 | 313.96 | 1686.35 | 314 | 1695 | 316 |
| 1699 | 318 | 1703 | 320 | 1708 | 322 | 1722 | 324 | 1763 | 324 |
| 1771 | 322 | 1775 | 320 | 1780 | 318 | 1784 | 316 | 1788.2 | 314.28 |
| 1791.3 | 314.47 | 1794.4 | 314.59 | 1797.7 | 314.73 | 1800.6 | 314.81 | 1803.7 | 314.94 |
| 1806.7 | 315.03 | 1809.07 | 314.62 | 1812.56 | 313.82 | 1814.63 | 313.23 | 1816.69 | 312.92 |
| 1818.76 | 312.06 | 1821.94 | 310.94 | 1827.09 | 310.43 | 1832.24 | 310.14 | 1837.39 | 310.09 |
| 1847.66 | 310.19 | 1852.85 | 310.53 | 1860.57 | 310.79 | 1868.3 | 310.56 | 1876.02 | 310.65 |
| 1878.6 | 310.85 | 1883.75 | 311.93 | 1888.9 | 311.87 | 1896.63 | 312.01 | 1901.78 | 312.82 |
| 1904.35 | 313.81 | 1909.5 | 315.61 | 1913.73 | 316.89 | 1917 | 316 | 1917.8 | 316.347 |
| 1921.61 | 318 | 1931 | 320 | 1944 | 326 | 1949 | 328.2 | 1989.1 | 328.19 |
| 1992.2 | 328.12 | 1993.4 | 328.08 | 1994.2 | 328.09 | 1995.9 | 328.05 | 1998.3 | 327.94 |
| 2000.9 | 327.39 | 2001.4 | 327.23 | 2002.4 | 326.99 | 2003.3 | 326.81 | 2004.5 | 326.45 |
| 2007.6 | 325.81 | 2008.3 | 325.74 | 2010.6 | 325.68 | 2011 | 325.65 | 2013.3 | 325.41 |
| 2013.8 | 325.39 | 2014.7 | 325.42 | 2015.7 | 325.38 | 2016.9 | 325.48 | 2018.2 | 325.37 |
| 2020.7 | 325.21 | 2023.2 | 325.18 | 2026.2 | 324.98 | 2028.1 | 324.81 | 2029.3 | 324.73 |
| 2032.3 | 324.58 | 2036 | 324.37 | 2038 | 324.24 | 2041.6 | 324.15 | 2044.7 | 324.41 |
| 2045.5 | 324.75 | 2047.9 | 326.18 | 2050.4 | 326.65 | 2052.9 | 326.97 | 2057.8 | 327.54 |
| 2060.3 | 327.78 | 2062.8 | 327.81 | 2112.7 | 327.81 | 2114.8 | 327.99 | 2115.8 | 328.05 |
| 2117.4 | 328.25 | 2118.9 | 328.46 | 2122 | 328.78 | 2125.6 | 328.82 | 2129.7 | 328.84 |
| 2132.2 | 328.84 | 2136 | 328.83 | 2142 | 328.86 | 2148.5 | 328.86 | 2152 | 328.89 |
| 2159.4 | 328.9 | 2162.1 | 328.93 | 2164.4 | 328.93 | 2168.3 | 328.88 | 2169.3 | 328.89 |
| 2170.7 | 328.85 | 2173.4 | 328.81 | 2174.5 | 328.81 | 2176.8 | 328.87 | 2179 | 328.89 |
| 2180.7 | 328.89 | 2181.7 | 328.85 | 2183.8 | 328.82 | 2221.4 | 328.81 | 2223.4 | 328.79 |
| 2226.3 | 328.72 | 2227 | 328.67 | 2228.8 | 328.8 | 2230.1 | 328.86 | 2233.2 | 328.66 |
| 2235.9 | 328.54 | 2239.4 | 328.56 | 2241.2 | 328.69 | 2243.7 | 328.76 | 2244.7 | 328.72 |
| 2246.1 | 328.71 | 2248.8 | 328.55 | 2251.1 | 328.47 | 2254.9 | 328.36 | 2257 | 328.33 |
| 2260.9 | 328.31 | 2268.4 | 328.32 | 2270.9 | 328.33 | 2273.4 | 328.31 | 2275.9 | 328.33 |
| 2277.5 | 328.3 | 2279.6 | 328.22 | 2280.8 | 327.77 | 2281.6 | 327.44 | 2282.7 | 327.03 |
| 2283.3 | 326.76 | 2285.7 | 325.56 | 2288.8 | 324.27 | 2291.9 | 324.06 | 2295 | 324.3 |
| 2295.7 | 324.33 | 2298 | 324.55 | 2301.2 | 324.83 | 2304.3 | 325.07 | 2305.6 | 325.14 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2306.2 | 325.21 | 2308.1 | 325.34 | 2310.3 | 325.59 | 2310.9 | 325.64 | 2313.6 | 325.82 |
| 2314.5 | 325.87 | 2315.5 | 325.89 | 2318 | 326.07 | 2319.8 | 326.26 | 2320.5 | 326.31 |
| 2322.8 | 326.54 | 2323.4 | 326.58 | 2325.9 | 326.6 | 2326.8 | 326.73 | 2327.9 | 326.94 |
| 2329 | 327.09 | 2332.1 | 327.19 | 2389.8 | 327.19 | 2393.9 | 327.14 | 2394.8 | 326.88 |
| 2397 | 326.07 | 2397.3 | 325.84 | 2399.8 | 323.76 | 2400.1 | 323.49 | 2403.2 | 323.76 |
| 2406.3 | 324.52 | 2409.4 | 325 | 2420.22 | 325.5 | 2421.99 | 325.53 | 2424.57 | 325.38 |
| 2432.3 | 325.32 | 2434.87 | 325.43 | 2442.29 | 325.29 | 2447.75 | 325.29 | 2454.68 | 325.44 |
| 2460.87 | 325.47 | 2468.35 | 325.44 | 2473.5 | 325.53 | 2483.8 | 325.03 | 2489.78 | 325.09 |
| 2493.91 | 325.34 | 2500.1 | 324.98 | 2509.56 | 324.93 | 2514.55 | 325.21 | 2517.28 | 325.18 |
| 2519.86 | 325.37 | 2522.81 | 325.93 | 2525.01 | 326.07 | 2527.58 | 325.84 | 2529.01 | 325.56 |
| 2532.73 | 324.57 | 2535.31 | 324.28 | 2543.03 | 323.89 | 2549.37 | 324.09 | | |

Manning's n Values num= 6

| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|---|---|---|---|
| 0 | .05 | 446.9 | .06 | 667.46 | .05 | 1722 | .15 | 1763 | .05 |
| 1949 | .15 | | | | | | | | |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 446.9 | 1917.8 | 790 | 654 | 605 .1 | .3 |

Ineffective Flow num= 1

| Sta L | Sta R | Elev | Permanent |
|---|---|---|---|
| 1520.7 | 2549.37 | 321.5 | F |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 316.43 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.29 | Wt. n-Val. | 0.050 | 0.051 | |
| W.S. Elev (ft) | 316.14 | Reach Len. (ft) | 790.00 | 654.00 | 605.00 |
| Crit W.S. (ft) | 311.60 | Flow Area (sq ft) | 222.68 | 8089.58 | |
| E.G. Slope (ft/ft) | 0.001451 | Area (sq ft) | 222.68 | 9176.70 | |
| Q Total (cfs) | 35359.28 | Flow (cfs) | 443.48 | 34915.80 | |
| Top Width (ft) | 1448.45 | Top Width (ft) | 94.42 | 1354.03 | |
| Vel Total (ft/s) | 4.25 | Avg. Vel. (ft/s) | 1.99 | 4.32 | |
| Max Chl Dpth (ft) | 10.95 | Hydr. Depth (ft) | 2.36 | 7.53 | |
| Conv. Total (cfs) | 928200.9 | Conv. (cfs) | 11641.6 | 916559.3 | |
| Length Wtd. (ft) | 654.83 | Wetted Per. (ft) | 95.43 | 1076.86 | |
| Min Ch El (ft) | 305.19 | Shear (lb/sq ft) | 0.21 | 0.68 | |
| Alpha | 1.02 | Stream Power (lb/ft s) | 0.42 | 2.94 | |
| Frctn Loss (ft) | 0.66 | Cum Volume (acre-ft) | 29.19 | 1196.21 | 142.41 |
| C & E Loss (ft) | 0.03 | Cum SA (acres) | 13.15 | 142.30 | 27.18 |

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

CROSS SECTION OUTPUT Profile #PF 3

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 318.07 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.34 | Wt. n-Val. | 0.050 | 0.051 | |
| W.S. Elev (ft) | 317.73 | Reach Len. (ft) | 790.00 | 654.00 | 605.00 |

| | | | | | |
|---|---|---|---|---|---|
| Crit W.S. (ft) | 312.34 | Flow Area (sq ft) | 387.00 | 9796.53 | |
| E.G. Slope (ft/ft) | 0.001342 | Area (sq ft) | 387.00 | 11363.64 | 2.22 |
| Q Total (cfs) | 46848.73 | Flow (cfs) | 954.10 | 45894.63 | |
| Top Width (ft) | 1504.49 | Top Width (ft) | 112.46 | 1388.84 | 3.20 |
| Vel Total (ft/s) | 4.60 | Avg. Vel. (ft/s) | 2.47 | 4.68 | |
| Max Chl Dpth (ft) | 12.54 | Hydr. Depth (ft) | 3.44 | 9.12 | |
| Conv. Total (cfs) | 1278885.0 | Conv. (cfs) | 26045.3 | 1252840.0 | |
| Length Wtd. (ft) | 655.35 | Wetted Per. (ft) | 113.56 | 1076.86 | |
| Min Ch El (ft) | 305.19 | Shear (lb/sq ft) | 0.29 | 0.76 | |
| Alpha | 1.02 | Stream Power (lb/ft s) | 0.70 | 3.57 | |
| Frctn Loss (ft) | 0.59 | Cum Volume (acre-ft) | 70.94 | 1517.66 | 271.44 |
| C & E Loss (ft) | 0.03 | Cum SA (acres) | 19.22 | 143.32 | 30.93 |

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

CROSS SECTION OUTPUT Profile #PF 6

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 314.27 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.21 | Wt. n-Val. | 0.050 | 0.051 | |
| W.S. Elev (ft) | 314.07 | Reach Len. (ft) | 790.00 | 654.00 | 605.00 |
| Crit W.S. (ft) | 310.58 | Flow Area (sq ft) | 72.79 | 5860.19 | |
| E.G. Slope (ft/ft) | 0.001549 | Area (sq ft) | 72.79 | 6432.66 | |
| Q Total (cfs) | 21544.92 | Flow (cfs) | 114.85 | 21430.07 | |
| Top Width (ft) | 1333.55 | Top Width (ft) | 52.61 | 1280.94 | |
| Vel Total (ft/s) | 3.63 | Avg. Vel. (ft/s) | 1.58 | 3.66 | |
| Max Chl Dpth (ft) | 8.88 | Hydr. Depth (ft) | 1.38 | 5.46 | |
| Conv. Total (cfs) | 547417.6 | Conv. (cfs) | 2918.2 | 544499.4 | |
| Length Wtd. (ft) | 654.35 | Wetted Per. (ft) | 52.97 | 1076.86 | |
| Min Ch El (ft) | 305.19 | Shear (lb/sq ft) | 0.13 | 0.53 | |
| Alpha | 1.01 | Stream Power (lb/ft s) | 0.21 | 1.92 | |
| Frctn Loss (ft) | 0.74 | Cum Volume (acre-ft) | 11.66 | 902.95 | 119.69 |
| C & E Loss (ft) | 0.02 | Cum SA (acres) | 4.02 | 140.07 | 25.65 |

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

CROSS SECTION

RIVER: San Diego River
REACH: Reach 1 RS: 290

INPUT
Description: Survey Data (June 12, 2014), and proposed grading Proposed
gradingstartsstart at station 485.22, n=0.04
Proposed PA-2
station 1896.4, n=0.15

In the non-disturbed area, Manning's
coefficients are derived from the Corrected Effective Model.

Station Elevation Data num= 498

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 334.95 | 2.48 | 334.94 | 5.04 | 335.09 | 10.15 | 335.25 | 20.39 | 335.69 |
| 25.51 | 335.81 | 35.74 | 335.7 | 41.9 | 335.452 | 43.42 | 335.38 | 45.98 | 335.47 |
| 51.09 | 335.9 | 56.33 | 336.67 | 60.43 | 336.96 | 63.89 | 337.26 | 66.45 | 337.41 |
| 71.56 | 337.81 | 74.12 | 337.94 | 81.44 | 338.2 | 89.48 | 338.53 | 92.03 | 338.56 |
| 97.15 | 338.81 | 102.27 | 339.01 | 107.39 | 339.11 | 109.95 | 339.21 | 117.15 | 339.36 |
| 122.74 | 339.56 | 128.18 | 339.82 | 140.65 | 340.22 | 145.77 | 340.31 | 150.89 | 340.5 |
| 156 | 340.81 | 158.56 | 340.56 | 161.12 | 339.73 | 163.68 | 338.65 | 168.8 | 336.4 |
| 171.36 | 335.41 | 176.47 | 333.21 | 184.15 | 330.13 | 188.57 | 328.73 | 194.39 | 326.74 |
| 199.07 | 325.3 | 202.06 | 324.25 | 204.62 | 323.54 | 207.18 | 323.31 | 212.3 | 323.54 |
| 217.41 | 323.5 | 224.28 | 323.38 | 230.21 | 323.22 | 235.33 | 323.36 | 236.17 | 322.59 |
| 236.88 | 322.23 | 237.88 | 321.09 | 240.44 | 315.58 | 243 | 310.28 | 244.02 | 310.18 |
| 248.12 | 310.78 | 250.68 | 310.8 | 255.8 | 310.47 | 258.35 | 310.5 | 260.91 | 310.35 |
| 263.47 | 310.32 | 266.29 | 310.62 | 271.15 | 310.77 | 276.27 | 311.11 | 281.38 | 311.08 |
| 291.62 | 310.71 | 296.74 | 310.61 | 299.3 | 310.74 | 306.97 | 310.61 | 309.53 | 310.42 |
| 312.09 | 310.32 | 314.65 | 310.34 | 317.21 | 310.49 | 319.77 | 310.51 | 324.88 | 309.98 |
| 330 | 310.01 | 333.51 | 310.26 | 335.12 | 310.45 | 342.79 | 310.23 | 347.91 | 310.25 |
| 353.03 | 310.44 | 360.71 | 310.94 | 365.02 | 311.73 | 368.38 | 311.91 | 370.94 | 311.83 |
| 373.5 | 311.49 | 378.62 | 311.09 | 381.18 | 310.6 | 383.92 | 310.27 | 386.29 | 310.17 |
| 388.85 | 308.91 | 391.41 | 306.63 | 393.97 | 303.15 | 396.53 | 302 | 399.09 | 301.71 |
| 401.65 | 301.92 | 404.21 | 302.6 | 407.03 | 303.05 | 409.32 | 302.93 | 414.44 | 303.16 |
| 415.43 | 303.38 | 419.56 | 304.71 | 422.12 | 305.17 | 427.23 | 306.6 | 429.79 | 307.01 |
| 440.03 | 308.25 | 445.15 | 308.69 | 447.7 | 308.69 | 450.26 | 308.52 | 452.82 | 308.62 |
| 455.38 | 309.64 | 457.94 | 311.68 | 460.5 | 312 | 483.53 | 312 | 485.22 | 311.07 |
| 488.4 | 311.16 | 493.5 | 310.95 | 494 | 310.92 | 496.5 | 310.82 | 504.1 | 310.56 |
| 506.6 | 310.46 | 509.9 | 310.36 | 511.6 | 310.43 | 513 | 310.47 | 519.1 | 310.78 |
| 521.7 | 310.88 | 525.2 | 310.98 | 528.3 | 311 | 571.3 | 310.99 | 574.1 | 310.97 |
| 577.5 | 310.86 | 580.5 | 310.65 | 586.7 | 310.13 | 589.8 | 310.03 | 595.9 | 310.09 |
| 597.2 | 310.12 | 602.3 | 310.19 | 612.3 | 310.39 | 614.9 | 310.42 | 617.3 | 310.47 |
| 619.9 | 310.51 | 626.6 | 310.58 | 630 | 310.6 | 632.8 | 310.58 | 635.8 | 310.47 |
| 638.9 | 310.4 | 642 | 310.42 | 645.1 | 310.47 | 648.1 | 310.31 | 650.1 | 309.97 |
| 652.6 | 309.5 | 654.3 | 309.22 | 657.3 | 309.14 | 660.4 | 309.18 | 664.7 | 309.21 |
| 673.2 | 309.32 | 676.5 | 309.34 | 685.4 | 309.45 | 688 | 309.46 | 688.3 | 309.47 |
| 692.9 | 309.52 | 697.3 | 309.56 | 703.4 | 309.64 | 705.5 | 309.65 | 710.5 | 309.7 |
| 712.6 | 309.73 | 713.1 | 309.71 | 715.7 | 309.72 | 718.1 | 309.39 | 718.8 | 309.36 |
| 720.6 | 308.85 | 723.1 | 308.27 | 723.7 | 308.08 | 724.9 | 307.78 | 725.7 | 307.74 |
| 727.7 | 307.49 | 728 | 307.47 | 730.7 | 307.48 | 731 | 307.46 | 734.1 | 307.53 |
| 743.3 | 307.84 | 746.4 | 307.97 | 748.3 | 307.97 | 749.5 | 307.99 | 752.5 | 307.97 |
| 764.8 | 307.72 | 767.9 | 307.56 | 771 | 307.62 | 771 | 307.63 | 774.1 | 307.78 |
| 777.1 | 307.91 | 780.2 | 307.99 | 782.8 | 307.97 | 786.3 | 307.91 | 792.5 | 307.77 |
| 795.6 | 307.71 | 798.5 | 307.69 | 801.7 | 307.69 | 807.8 | 307.78 | 808.8 | 307.8 |
| 814 | 307.97 | 816.3 | 307.99 | 823.2 | 307.95 | 826.3 | 307.91 | 829.3 | 307.86 |
| 844.7 | 307.8 | 846.5 | 307.81 | 849 | 307.81 | 850.8 | 307.82 | 854.1 | 307.91 |
| 859.1 | 308.11 | 861.6 | 308.2 | 869.2 | 308.53 | 872.3 | 308.65 | 875.4 | 308.74 |
| 879.3 | 308.78 | 884.6 | 308.73 | 887.7 | 308.73 | 890.8 | 308.69 | 893.8 | 308.63 |
| 897 | 308.53 | 900.9 | 308.36 | 903.1 | 308.27 | 906.1 | 308.12 | 909.2 | 307.99 |
| 922.1 | 307.32 | 924.7 | 307.15 | 927.1 | 306.95 | 930.7 | 306.42 | 939.7 | 306 |
| 1268.05 | 306 | 1279 | 307 | 1290.11 | 307 | 1296.1 | 306 | 1318.8 | 306 |
| 1332.1 | 307 | 1383 | 308 | 1417 | 310 | 1423 | 312 | 1432 | 314 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 1486 | 314 | 1492.5 | 311 | 1525.3 | 309 | 1799.69 | 309 | 1817.13 | 313.47 | |
| 1822.25 | 314.57 | 1824.81 | 314.68 | 1829.93 | 315.06 | 1838.09 | 316.02 | 1848.88 | 320 | |
| 1861.13 | 326 | 1864.16 | 327.2 | 1896.4 | 327.2 | 1924.2 | 327.15 | 1925.9 | 327.09 | |
| 1926.8 | 326.85 | 1928.5 | 326.08 | 1929 | 325.93 | 1930.6 | 324.85 | 1931.8 | 324.02 | |
| 1932.1 | 323.89 | 1934.3 | 323.73 | 1935.1 | 323.7 | 1938.2 | 323.7 | 1941.3 | 323.71 | |
| 1944.3 | 323.75 | 1948.2 | 323.76 | 1950.5 | 323.78 | 1952.2 | 323.81 | 1953.6 | 323.82 | |
| 1956.1 | 323.87 | 1962.8 | 323.96 | 1965.9 | 324.17 | 1967 | 324.9 | 1968.9 | 326.1 | |
| 1971.9 | 326.86 | 1972.5 | 326.99 | 1975.1 | 327.47 | 1977.1 | 327.74 | 1978.1 | 327.84 | |
| 1979.6 | 327.74 | 1982.2 | 327.53 | 1984.3 | 327.34 | 1987.6 | 327.67 | 1989.7 | 327.85 | |
| 1990.4 | 327.95 | 1992.2 | 327.97 | 1993.5 | 328 | 2033.4 | 328 | 2036.5 | 328.07 | |
| 2038.8 | 328.39 | 2040.1 | 328.53 | 2042.7 | 328.66 | 2045.1 | 328.67 | 2045.7 | 328.69 | |
| 2085.6 | 328.69 | 2087.9 | 328.77 | 2088.7 | 328.81 | 2090.4 | 329.19 | 2091.8 | 329.49 | |
| 2092.9 | 329.54 | 2094.9 | 329.59 | 2128.6 | 329.59 | 2130.7 | 329.69 | 2131.7 | 329.76 | |
| 2133.2 | 330.65 | 2133.3 | 330.69 | 2134.8 | 331.7 | 2135.8 | 332.31 | 2137.9 | 333.55 | |
| 2138.3 | 333.91 | 2140.1 | 335.43 | 2140.8 | 335.96 | 2140.9 | 336.07 | 2141.2 | 336.17 | |
| 2143.3 | 337.3 | 2144 | 337.58 | 2147.1 | 337.69 | 2196.2 | 337.69 | 2198.7 | 337.6 | |
| 2199.3 | 337.56 | 2201.2 | 337.34 | 2202.4 | 337.22 | 2205.4 | 337.07 | 2206.3 | 337.07 | |
| 2208.8 | 337.17 | 2211.3 | 337.34 | 2212 | 337.36 | 2216 | 337.4 | 2217.7 | 337.41 | |
| 2226.9 | 337.41 | 2230 | 337.39 | 2233.1 | 337.34 | 2235.7 | 337.17 | 2239.2 | 336.92 | |
| 2242.3 | 336.77 | 2243.5 | 336.93 | 2245.4 | 337.16 | 2248.4 | 336.86 | 2251.6 | 336.65 | |
| 2254.6 | 336.52 | 2255.3 | 336.54 | 2256.6 | 336.54 | 2257.7 | 336.57 | 2260.7 | 336.76 | |
| 2261.7 | 336.8 | 2265.9 | 336.9 | 2266.7 | 336.91 | 2276.1 | 336.91 | 2276.8 | 336.9 | |
| 2279 | 336.91 | 2282.2 | 336.91 | 2285.3 | 336.89 | 2286.8 | 336.86 | 2288.4 | 336.85 | |
| 2289.4 | 336.83 | 2293.8 | 336.83 | 2294.5 | 336.82 | 2296.9 | 336.53 | 2297.6 | 336.47 | |
| 2300.7 | 336.09 | 2303.7 | 335.98 | 2304.5 | 335.79 | 2306.5 | 335.55 | 2307 | 335.45 | |
| 2307.8 | 335.12 | 2309.9 | 334.18 | 2312.9 | 334.19 | 2314.5 | 334.25 | 2318.3 | 334.41 | |
| 2322.3 | 334.57 | 2327.1 | 334.75 | 2329.6 | 334.86 | 2331.4 | 334.93 | 2334.1 | 335.05 | |
| 2337.5 | 335.18 | 2339.7 | 335.29 | 2340.6 | 335.32 | 2344.8 | 335.5 | 2346.7 | 335.62 | |
| 2347.3 | 335.69 | 2349.7 | 336.26 | 2349.8 | 336.3 | 2352.3 | 336.74 | 2352.9 | 336.83 | |
| 2353.8 | 337.13 | 2354.8 | 337.62 | 2356 | 337.9 | 2357.3 | 337.99 | 2359 | 338.09 | |
| 2361.7 | 338.2 | 2365.2 | 338.4 | 2368.2 | 338.69 | 2371.3 | 338.84 | 2374.4 | 339.02 | |
| 2377.6 | 339.23 | 2380.5 | 339.41 | 2385 | 339.62 | 2386.7 | 339.71 | 2387.6 | 339.74 | |
| 2389.7 | 339.85 | 2390.1 | 339.8 | 2391.6 | 339.89 | 2393.1 | 339.9 | 2395.9 | 339.79 | |
| 2399 | 339.63 | 2400.1 | 339.45 | 2401 | 339.43 | 2402 | 339.33 | 2402.7 | 339.33 | |
| 2405.2 | 339.29 | 2407.7 | 338.99 | 2408.2 | 338.96 | 2410.2 | 339.03 | 2411.2 | 339.04 | |
| 2414.3 | 339.44 | 2415.3 | 339.62 | 2417.8 | 340.11 | 2419.6 | 340.48 | 2420.7 | 340.72 | |
| 2423.5 | 341.25 | 2425.3 | 341.47 | 2426.6 | 341.61 | 2429.7 | 341.6 | 2430.4 | 341.38 | |
| 2432.7 | 340.39 | 2432.9 | 340.4 | 2435.8 | 341.1 | 2436.5 | 341.31 | 2437.9 | 341.8 | |
| 2438.9 | 342.09 | 2440.4 | 342.44 | 2442 | 342.76 | 2443 | 342.86 | 2445 | 343.03 | |
| 2445.5 | 343.06 | 2448.1 | 343.13 | 2448.3 | 343.07 | 2450.5 | 342.54 | 2451.2 | 342.28 | |
| 2452.2 | 342.06 | 2453 | 341.77 | 2454.2 | 341.6 | 2457.3 | 342.67 | 2460.6 | 343.3 | |
| 2461.5 | 343.33 | 2463.1 | 343.41 | 2465.6 | 343.52 | 2468.1 | 343.59 | 2469.6 | 343.61 | |
| 2470.7 | 343.4 | 2471.9 | 342.96 | 2473.2 | 342.64 | 2475.7 | 342.31 | 2481.9 | 342.93 | |
| 2483.2 | 343.08 | 2485 | 343.27 | 2487.6 | 343.65 | 2488.3 | 343.77 | 2489.4 | 344.22 | |
| 2491.1 | 344.87 | 2494.2 | 345.01 | 2497.2 | 345.12 | 2506.5 | 345.4 | 2508.4 | 345.38 | |
| 2510.9 | 345.29 | 2512.6 | 345.21 | 2515.7 | 345.12 | 2516 | 345.16 | 2517.3 | 345.45 | |
| 2518.7 | 345.74 | 2521 | 345.85 | 2523.1 | 345.92 | 2524.9 | 345.96 | 2528 | 346.05 | |
| 2531 | 346.09 | 2533.6 | 346.08 | 2536.1 | 345.98 | 2540.3 | 345.83 | 2549.5 | 346.13 | |
| 2555.6 | 346.42 | 2556.3 | 346.49 | 2558.5 | 346.76 | 2561.3 | 347.09 | 2564.8 | 347.41 | |
| 2567.9 | 347.57 | 2571 | 347.72 | 2576.4 | 347.99 | 2580.2 | 348.23 | 2581.4 | 348.33 | |
| 2583.3 | 348.46 | 2586.3 | 348.68 | 2589.4 | 348.79 | 2592.5 | 348.8 | 2596.6 | 348.83 | |
| 2599.1 | 348.87 | 2601.7 | 348.88 | 2604.8 | 348.48 | | | | | |

Manning's n Values num= 4

| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|---|---|
| 0 | .05 | 41.9 | .06 | 485.22 | .04 | 1896.4 | .15 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 41.9 | 1896.4 | 695 | 653 | 645 | .1 | .3 |

Ineffective Flow num= 1

| Sta L | Sta R | Elev | Permanent |
|---|---|---|---|
| 1725.3 | 2604.8 | 321.5 | F |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | | |
|---|---|---|---|---|---|---|
| E.G. Elev (ft) | 315.74 | Element | Left OB | Channel | Right OB | |
| Vel Head (ft) | 0.20 | Wt. n-Val. | | 0.042 | | |
| W.S. Elev (ft) | 315.55 | Reach Len. (ft) | 695.00 | 653.00 | 645.00 | |
| Crit W.S. (ft) | 310.93 | Flow Area (sq ft) | | 10407.01 | | |
| E.G. Slope (ft/ft) | 0.000748 | Area (sq ft) | | 10984.02 | | |
| Q Total (cfs) | 37000.00 | Flow (cfs) | | 37000.00 | | |
| Top Width (ft) | 1593.62 | Top Width (ft) | | 1593.62 | | |
| Vel Total (ft/s) | 3.56 | Avg. Vel. (ft/s) | | 3.56 | | |
| Max Chl Dpth (ft) | 13.84 | Hydr. Depth (ft) | | 7.01 | | |
| Conv. Total (cfs) | 1352745.0 | Conv. (cfs) | | 1352745.0 | | |
| Length Wtd. (ft) | 653.04 | Wetted Per. (ft) | | 1495.69 | | |
| Min Ch El (ft) | 301.71 | Shear (lb/sq ft) | | 0.32 | | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 1.16 | | |
| Frctn Loss (ft) | 0.48 | Cum Volume (acre-ft) | 27.17 | 1044.86 | 142.41 | |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 12.29 | 120.17 | 27.18 | |

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

CROSS SECTION OUTPUT Profile #PF 3

| | | | | | | |
|---|---|---|---|---|---|---|
| E.G. Elev (ft) | 317.45 | Element | Left OB | Channel | Right OB | |
| Vel Head (ft) | 0.22 | Wt. n-Val. | | 0.042 | | |
| W.S. Elev (ft) | 317.23 | Reach Len. (ft) | 695.00 | 653.00 | 645.00 | |
| Crit W.S. (ft) | 311.58 | Flow Area (sq ft) | | 12899.38 | | |
| E.G. Slope (ft/ft) | 0.000646 | Area (sq ft) | | 13666.69 | | |
| Q Total (cfs) | 49000.00 | Flow (cfs) | | 49000.00 | | |
| Top Width (ft) | 1601.69 | Top Width (ft) | | 1601.69 | | |
| Vel Total (ft/s) | 3.80 | Avg. Vel. (ft/s) | | 3.80 | | |
| Max Chl Dpth (ft) | 15.52 | Hydr. Depth (ft) | | 8.68 | | |
| Conv. Total (cfs) | 1927956.0 | Conv. (cfs) | | 1927956.0 | | |
| Length Wtd. (ft) | 653.09 | Wetted Per. (ft) | | 1497.55 | | |
| Min Ch El (ft) | 301.71 | Shear (lb/sq ft) | | 0.35 | | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 1.32 | | |
| Frctn Loss (ft) | 0.41 | Cum Volume (acre-ft) | 67.43 | 1329.77 | 271.42 | |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 18.20 | 120.87 | 30.90 | |

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

CROSS SECTION OUTPUT  Profile #PF 6

| | | | | | | |
|---|---|---|---|---|---|---|
| E.G. Elev (ft) | 313.52 | Element | Left OB | Channel | Right OB | |
| Vel Head (ft) | 0.15 | Wt. n-Val. | | 0.042 | | |
| W.S. Elev (ft) | 313.36 | Reach Len. (ft) | 695.00 | 653.00 | 645.00 | |
| Crit W.S. (ft) | 309.84 | Flow Area (sq ft) | | 7200.74 | | |
| E.G. Slope (ft/ft) | 0.000876 | Area (sq ft) | | 7562.53 | | |
| Q Total (cfs) | 22513.00 | Flow (cfs) | | 22513.00 | | |
| Top Width (ft) | 1516.97 | Top Width (ft) | | 1516.97 | | |
| Vel Total (ft/s) | 3.13 | Avg. Vel. (ft/s) | | 3.13 | | |
| Max Chl Dpth (ft) | 11.65 | Hydr. Depth (ft) | | 5.05 | | |
| Conv. Total (cfs) | 760596.0 | Conv. (cfs) | | 760596.0 | | |
| Length Wtd. (ft) | 653.01 | Wetted Per. (ft) | | 1434.82 | | |
| Min Ch El (ft) | 301.71 | Shear (lb/sq ft) | | 0.27 | | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 0.86 | | |
| Frctn Loss (ft) | 0.60 | Cum Volume (acre-ft) | 11.00 | 797.89 | 119.69 | |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 3.54 | 119.06 | 25.65 | |

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

CROSS SECTION

RIVER: San Diego River
REACH: Reach 1  RS: 285

INPUT
Description: Survey Data (June 12, 2014), and proposed grading Proposed
gradingstarts start at station 730, n=0.04
Proposed PA-2  station
1964.2 to 2054.18, n=0.15
In the non-disturbed area, Manning's
coefficients are derived from the Corrected Effective Model.
Station Elevation Data  num=  273

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 328.08 | 5.36 | 327.9 | 13.04 | 327.81 | 20.42 | 327.63 | 23.27 | 327.6 |
| 28.38 | 327.65 | 30.94 | 327.84 | 33.5 | 327.9 | 38.61 | 327.34 | 41.17 | 327.22 |
| 46.29 | 327.12 | 48.84 | 327.33 | 51.4 | 328.1 | 53.96 | 329.12 | 59.07 | 331.78 |
| 61.63 | 332.78 | 64.19 | 333.33 | 66.75 | 333 | 69.31 | 332.31 | 71.86 | 331.37 |
| 77.21 | 329.64 | 82.09 | 329.24 | 87.21 | 328.96 | 89.77 | 328.87 | 92.32 | 328.68 |
| 102.55 | 328.29 | 106.66 | 328.39 | 115.77 | 328.51 | 120.46 | 328.52 | 123.48 | 328.64 |
| 128.13 | 328.69 | 138.36 | 328.65 | 143.48 | 328.56 | 148.59 | 328.31 | 151.15 | 328.11 |
| 153.71 | 327.31 | 157.14 | 326 | 161.38 | 324.5 | 163.94 | 323.95 | 166.5 | 323.71 |
| 171.61 | 324.68 | 173.96 | 324.96 | 176.73 | 325.48 | 179.28 | 326.21 | 182.38 | 326.23 |
| 189.52 | 325.81 | 194.63 | 326.06 | 199.75 | 326.21 | 202.3 | 326.22 | 207.42 | 326.35 |
| 212.53 | 326.41 | 217.65 | 326.53 | 220.21 | 326.53 | 222.76 | 326.65 | 233 | 326.81 |
| 238.11 | 326.66 | 245.48 | 325.93 | 250.9 | 325.66 | 256.01 | 325.19 | 261.13 | 325.05 |
| 263.69 | 325.11 | 271.36 | 325.71 | 284.15 | 326.54 | 289.26 | 326.57 | 298.06 | 326.29 |
| 307.17 | 326.12 | 312.28 | 326.1 | 314.84 | 326.03 | 325.07 | 326.01 | 330.19 | 325.92 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 337.86 | 325.69 | 342.97 | 325.48 | 348.09 | 325.74 | 350.65 | 325.97 | 353.21 | 326.01 |
| 355.76 | 325.58 | 358.32 | 324.9 | 360.88 | 323.82 | 365.99 | 322.04 | 368.55 | 321.48 |
| 371.11 | 321.19 | 373.67 | 321.59 | 381.34 | 323.66 | 383.9 | 323.9 | 391.57 | 324.11 |
| 399.24 | 324 | 406.92 | 323.76 | 411.64 | 323.5 | 414.59 | 323.41 | 417.15 | 323.71 |
| 419.7 | 324.46 | 422.26 | 323.7 | 427.38 | 320.83 | 430.57 | 318.08 | 432.49 | 316.55 |
| 434.78 | 315.33 | 436.88 | 314.48 | 440.17 | 313.71 | 442.72 | 313.87 | 445.28 | 313.59 |
| 447.84 | 313.45 | 452.95 | 313.58 | 457.91 | 313.02 | 460.63 | 312.89 | 463.18 | 312.49 |
| 468.1 | 311.01 | 469.1 | 310.844 | 470.53 | 310.72 | 473.42 | 310.8 | 475.97 | 310.41 |
| 483.65 | 310.22 | 486.2 | 309.87 | 489.46 | 309.7 | 491.57 | 309.43 | 493.67 | 308.78 |
| 496.43 | 308.55 | 498.99 | 308.62 | 502.08 | 308.43 | 503.99 | 307.97 | 506.29 | 308.27 |
| 509.22 | 308.09 | 511.78 | 308.15 | 516.9 | 308.5 | 519.45 | 308.45 | 522.01 | 308.5 |
| 525.22 | 308.8 | 527.13 | 308.87 | 530.08 | 308.71 | 532.24 | 308.38 | 534.8 | 307.73 |
| 537.36 | 307.41 | 539.91 | 307.41 | 542.05 | 307.53 | 545.03 | 307.98 | 547.59 | 307.95 |
| 552.7 | 308.11 | 555.26 | 308.47 | 557.82 | 308.67 | 560.38 | 308.5 | 565.18 | 308.07 |
| 573.16 | 307.98 | 575.7 | 307.69 | 578.28 | 307.77 | 580.84 | 307.97 | 583.39 | 307.93 |
| 585.95 | 307.73 | 588.51 | 307.69 | 591.07 | 307.99 | 593.62 | 307.77 | 596.18 | 307.13 |
| 601.3 | 306.27 | 606.41 | 304.69 | 611.64 | 303.64 | 614.09 | 303.34 | 619.2 | 303.17 |
| 624.08 | 303.84 | 626.87 | 304.04 | 629.43 | 303.83 | 631.99 | 303.51 | 637.11 | 302.44 |
| 639.66 | 301.75 | 642.22 | 301.64 | 644.78 | 302.31 | 655.01 | 305.34 | 657.73 | 306.12 |
| 660.12 | 306.62 | 662.68 | 306.75 | 666.14 | 306.69 | 668.25 | 306.75 | 670.35 | 306.66 |
| 672.91 | 306.76 | 678.03 | 308.2 | 680.59 | 308.98 | 683.14 | 310 | 712.42 | 310 |
| 722.26 | 308 | 730 | 307 | 785 | 308 | 791.9 | 310 | 819.57 | 310 |
| 846.1 | 308 | 867.14 | 307 | 874.55 | 306 | 887 | 305.5 | 900.36 | 306 |
| 913.09 | 308 | 922 | 308.5 | 931.14 | 308 | 941.58 | 307 | 970.67 | 306 |
| 1030.4 | 305 | 1080.4 | 304.5 | 1127.55 | 305 | 1191.99 | 306 | 1203.67 | 307 |
| 1204.9 | 307.22 | 1216.37 | 308 | 1236.87 | 310 | 1271.36 | 312 | 1285 | 312.5 |
| 1303.5 | 312 | 1321.1 | 310 | 1379.39 | 308 | 1449.095 | 307 | 1463.37 | 307 |
| 1475.37 | 308 | 1492.97 | 310 | 1502 | 312 | 1508.04 | 312.5 | 1516.28 | 312 |
| 1521.11 | 310 | 1530 | 308 | 1663 | 308 | 1693.8 | 308 | 1700.9 | 307 |
| 1709.09 | 305 | 1713.308 | 303 | 1726.85 | 303 | 1742.01 | 305 | 1761.77 | 307 |
| 1768.82 | 308 | 1777.9 | 309 | 1829.21 | 310 | 1835.09 | 311 | 1844.41 | 312 |
| 1852.81 | 312 | 1866.37 | 311 | 1874.73 | 310 | 1914.03 | 310 | 1939.58 | 310.5 |
| 1959.11 | 320 | 1964.2 | 322.144 | 1966.47 | 323.1 | 2040 | 323.1 | 2054.18 | 321.3 |
| 2084.2 | 321 | 2089.85 | 321.9 | 2092.41 | 321.95 | 2094.97 | 322.12 | 2100.61 | 322.79 |
| 2105.2 | 323.15 | 2112.87 | 323.18 | 2117.99 | 323.38 | 2120.55 | 323.57 | 2123.1 | 323.96 |
| 2125.66 | 324.53 | 2133.33 | 325.92 | 2138.45 | 327.09 | 2143.56 | 328.19 | 2148.99 | 329.64 |
| 2151.46 | 330.19 | 2153.8 | 331.02 | 2156.35 | 331.36 | 2158.91 | 331.42 | 2161.47 | 331.36 |
| 2164.03 | 331.55 | 2166.58 | 331.93 | 2169.14 | 333.45 | 2171.7 | 334.81 | 2174.26 | 335.88 |
| 2176.33 | 335.45 | 2179.37 | 335.18 | 2181.93 | 335.48 | 2184.49 | 336.22 | 2189.6 | 337.38 |
| 2193.16 | 338.43 | 2197.28 | 339.52 | 2202.39 | 340.36 | 2204.95 | 340.7 | 2207.51 | 340.84 |
| 2210.06 | 341.09 | 2215.18 | 341.092 | 218.221 | 341.02 | | | | |

Manning's n Values num= 5

| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|---|---|---|---|
| 0 | .05 | 469.1 | .06 | 730 | .04 | 1964.2 | .15 | 2054.18 | .05 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 469.1 | 1964.2 | 640 | 688 | 660 | .1 | .3 |

Ineffective Flow num= 1

| Sta L | Sta R | Elev | Permanent |
|---|---|---|---|
| 2084.22 | 218.221 | 321.5 | F |

CROSS SECTION OUTPUT  Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 315.26 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.19 | Wt. n-Val. | 0.050 | 0.043 | |
| W.S. Elev (ft) | 315.08 | Reach Len. (ft) | 640.00 | 688.00 | 660.00 |
| Crit W.S. (ft) | 310.28 | Flow Area (sq ft) | 63.64 | 10689.84 | |
| E.G. Slope (ft/ft) | 0.000711 | Area (sq ft) | 63.64 | 10689.84 | |
| Q Total (cfs) | 37000.00 | Flow (cfs) | 76.25 | 36923.75 | |
| Top Width (ft) | 1513.60 | Top Width (ft) | 33.70 | 1479.90 | |
| Vel Total (ft/s) | 3.44 | Avg. Vel. (ft/s) | 1.20 | 3.45 | |
| Max Chl Dpth (ft) | 13.44 | Hydr. Depth (ft) | 1.89 | 7.22 | |
| Conv. Total (cfs) | 1387815.0 | Conv. (cfs) | 2860.0 | 1384955.0 | |
| Length Wtd. (ft) | 687.93 | Wetted Per. (ft) | 34.23 | 1487.38 | |
| Min Ch El (ft) | 301.64 | Shear (lb/sq ft) | 0.08 | 0.32 | |
| Alpha | 1.01 | Stream Power (lb/ft s) | 0.10 | 1.10 | |
| Frctn Loss (ft) | 0.47 | Cum Volume (acre-ft) | 26.67 | 882.41 | 142.41 |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 12.02 | 97.13 | 27.18 |

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

CROSS SECTION OUTPUT  Profile #PF 3

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 317.04 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.21 | Wt. n-Val. | 0.050 | 0.043 | |
| W.S. Elev (ft) | 316.83 | Reach Len. (ft) | 640.00 | 688.00 | 660.00 |
| Crit W.S. (ft) | 310.92 | Flow Area (sq ft) | 125.71 | 13282.72 | |
| E.G. Slope (ft/ft) | 0.000603 | Area (sq ft) | 125.71 | 13282.72 | |
| Q Total (cfs) | 49000.00 | Flow (cfs) | 203.88 | 48796.12 | |
| Top Width (ft) | 1520.45 | Top Width (ft) | 36.96 | 1483.49 | |
| Vel Total (ft/s) | 3.65 | Avg. Vel. (ft/s) | 1.62 | 3.67 | |
| Max Chl Dpth (ft) | 15.19 | Hydr. Depth (ft) | 3.40 | 8.95 | |
| Conv. Total (cfs) | 1995562.0 | Conv. (cfs) | 8303.2 | 1987259.0 | |
| Length Wtd. (ft) | 687.87 | Wetted Per. (ft) | 37.94 | 1491.38 | |
| Min Ch El (ft) | 301.64 | Shear (lb/sq ft) | 0.12 | 0.34 | |
| Alpha | 1.01 | Stream Power (lb/ft s) | 0.20 | 1.23 | |
| Frctn Loss (ft) | 0.42 | Cum Volume (acre-ft) | 66.43 | 1127.77 | 271.42 |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 17.90 | 97.75 | 30.90 |

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

CROSS SECTION OUTPUT  Profile #PF 6

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 312.92 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.15 | Wt. n-Val. | 0.050 | 0.043 | |
| W.S. Elev (ft) | 312.77 | Reach Len. (ft) | 640.00 | 688.00 | 660.00 |
| Crit W.S. (ft) | 309.21 | Flow Area (sq ft) | 7.12 | 7278.44 | |
| E.G. Slope (ft/ft) | 0.000951 | Area (sq ft) | 7.12 | 7278.44 | |
| Q Total (cfs) | 22513.00 | Flow (cfs) | 6.05 | 22506.95 | |
| Top Width (ft) | 1482.86 | Top Width (ft) | 7.71 | 1475.15 | |
| Vel Total (ft/s) | 3.09 | Avg. Vel. (ft/s) | 0.85 | 3.09 | |

| | | | | | |
|---|---|---|---|---|---|
| Max Chl Dpth (ft) | 11.13 | Hydr. Depth (ft) | 0.92 | 4.93 | |
| Conv. Total (cfs) | 730170.5 | Conv. (cfs) | 196.2 | 729974.3 | |
| Length Wtd. (ft) | 687.98 | Wetted Per. (ft) | 7.96 | 1482.10 | |
| Min Ch El (ft) | 301.64 | Shear (lb/sq ft) | 0.05 | 0.29 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | 0.05 | 0.90 | |
| Frctn Loss (ft) | 0.57 | Cum Volume (acre-ft) | 10.94 | 686.65 | 119.69 |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 3.48 | 96.63 | 25.65 |

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

CROSS SECTION

RIVER: San Diego River
REACH: Reach 1 RS: 280

INPUT
Description: Survey Data (June 12, 2014), and proposed grading Proposed gradingstarts at 1435.62, n=0.04
In the non-disturbed area, Manning's coefficients are derived from the Corrected Effective Model.

Station Elevation Data num= 368

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 332.56 | 5.17 | 332.57 | 10.16 | 332.16 | 12.86 | 332.01 | 20.99 | 331.83 |
| 35.91 | 331.55 | 38.48 | 331.47 | 41.04 | 331.15 | 43.6 | 330.94 | 46.16 | 330.97 |
| 53.84 | 330.75 | 74.34 | 330.07 | 79.46 | 329.97 | 89.71 | 329.56 | 94.83 | 329.5 |
| 117.88 | 328.95 | 120.45 | 328.85 | 123.01 | 329 | 125.57 | 328.75 | 130.69 | 328.39 |
| 135.82 | 328.16 | 143.5 | 327.95 | 146.06 | 327.97 | 151.18 | 327.79 | 156.31 | 327.76 |
| 158.87 | 327.66 | 161.43 | 327.77 | 163.99 | 327.59 | 166.55 | 327.2 | 169.3 | 327.11 |
| 171.68 | 326.93 | 179.36 | 326.75 | 184.49 | 326.95 | 187.05 | 326.99 | 189.61 | 326.78 |
| 194.73 | 326.12 | 199.85 | 325.92 | 202.8 | 326.07 | 204.98 | 326.06 | 212.66 | 325.48 |
| 217.79 | 325.03 | 220.35 | 324.91 | 228.03 | 325 | 235.72 | 325.2 | 238.4 | 325.2 |
| 246.77 | 325.49 | 251.09 | 325.69 | 261.43 | 325.34 | 269.02 | 325.19 | 271.9 | 325.06 |
| 276.7 | 324.98 | 281.83 | 324.77 | 286.95 | 324.68 | 294.63 | 324.34 | 302.32 | 324.72 |
| 310 | 325.01 | 315.13 | 325.01 | 320.06 | 325.21 | 325.37 | 325.22 | 327.93 | 325.16 |
| 333.06 | 324.7 | 338.18 | 324.78 | 340.74 | 324.75 | 343.1 | 324.63 | 358.67 | 324.11 |
| 363.8 | 323.91 | 368.92 | 323.64 | 381.73 | 323.08 | 389.41 | 322.81 | 391.97 | 322.66 |
| 397.1 | 322.53 | 402.22 | 322.28 | 407.34 | 321.79 | 412.47 | 321.53 | 417.59 | 321.17 |
| 420.57 | 320.88 | 427.84 | 320.29 | 430.4 | 320.23 | 438.08 | 320.28 | 440.64 | 320.39 |
| 448.33 | 320.11 | 450.89 | 320.16 | 456.01 | 320.04 | 461.14 | 319.8 | 463.7 | 319.73 |
| 476.51 | 319.25 | 491.87 | 318.59 | 497 | 318.44 | 509.81 | 317.88 | 512.37 | 317.69 |
| 516.9 | 317.48 | 520.05 | 317.42 | 525.18 | 317.19 | 527.74 | 317.29 | 532.86 | 318.2 |
| 535.42 | 318.74 | 537.98 | 319.74 | 543.11 | 322.47 | 545.67 | 323.72 | 548.2 | 324.155 |
| 550.79 | 323.83 | 553.35 | 322.81 | 555.91 | 321.69 | 560.87 | 318.53 | 563.6 | 318.13 |
| 566.16 | 316.66 | 567.15 | 314.97 | 569.24 | 311.77 | 571.28 | 308.37 | 573.43 | 308.88 |
| 578.97 | 309.83 | 584.39 | 309.08 | 586 | 309.09 | 589.21 | 308.61 | 594.34 | 308.44 |
| 596.9 | 308.52 | 600.65 | 309.01 | 604.58 | 309.2 | 606.94 | 309.44 | 612.27 | 309.8 |
| 615.31 | 309.95 | 622.52 | 309.69 | 625.08 | 308.6 | 627.64 | 308.3 | 629.97 | 308.27 |
| 635.32 | 307.81 | 637.88 | 307.7 | 640.45 | 307.69 | 645.57 | 307.47 | 648.13 | 307.46 |
| 650.69 | 307.67 | 653.25 | 307.51 | 658.38 | 307.36 | 661.38 | 307.18 | 671.19 | 306.97 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 673.75 | 307.01 | 678.87 | 307.46 | 684.41 | 307.34 | 686.51 | 307.37 | 689.12 | 307.55 |
| 699.36 | 307.77 | 701.92 | 307.76 | 704.49 | 307.5 | 707.05 | 307.06 | 709.54 | 307.4 |
| 711.63 | 307.53 | 714.73 | 307.89 | 717.92 | 307.67 | 719.86 | 307.3 | 724.98 | 306.78 |
| 727.54 | 306.82 | 730.1 | 307.01 | 732.66 | 307.3 | 734.67 | 307.27 | 737.79 | 307.09 |
| 740.35 | 307.07 | 745.14 | 306.62 | 750.59 | 306.69 | 755.72 | 306.66 | 757.7 | 306.82 |
| 761.89 | 306.76 | 766.08 | 306.58 | 773.65 | 307.14 | 776.21 | 307.19 | 778.77 | 306.94 |
| 781.33 | 306.5 | 783.89 | 306.23 | 786.46 | 306.3 | 789.11 | 306.11 | 794.14 | 306.18 |
| 799.58 | 306.15 | 801.83 | 306.37 | 809.51 | 306.39 | 812.07 | 306.34 | 814.63 | 306.44 |
| 817.2 | 306.32 | 822.32 | 306.4 | 824.88 | 306.11 | 830.99 | 306.06 | 835.13 | 306.22 |
| 837.69 | 306.26 | 840.25 | 306.48 | 845.37 | 307.05 | 847.93 | 307.18 | 850.5 | 306.88 |
| 853.06 | 306.83 | 858.18 | 306.85 | 865.87 | 306.44 | 868.43 | 306.52 | 870.99 | 306.42 |
| 877.06 | 306.55 | 878.67 | 306.53 | 881.29 | 306.34 | 886.36 | 306.34 | 891.11 | 306.48 |
| 896.6 | 306.9 | 900.09 | 306.82 | 904.29 | 306.53 | 906.85 | 306.71 | 909.41 | 306.64 |
| 912.66 | 306.75 | 924.78 | 306.93 | 932.47 | 306.64 | 935.03 | 306.86 | 937.78 | 306.99 |
| 942.71 | 307.02 | 945.27 | 306.98 | 950.4 | 307.09 | 952.96 | 307.23 | 958.08 | 307.71 |
| 965 | 307.32 | 968.33 | 307.2 | 975.47 | 306.81 | 978.57 | 306.72 | 981.14 | 306.77 |
| 983.7 | 306.97 | 988.04 | 306.9 | 991.38 | 307.09 | 993.94 | 306.93 | 996.51 | 306.34 |
| 999.07 | 305.99 | 1000.6 | 306.05 | 1006.54 | 306.07 | 1009.31 | 305.92 | 1011.88 | 305.68 |
| 1014.44 | 304.2 | 1015.26 | 303.54 | 1017.35 | 302.17 | 1019.56 | 301.18 | 1021.54 | 300.63 |
| 1024.68 | 299.55 | 1027.24 | 298.96 | 1029.63 | 298.83 | 1032.37 | 298.84 | 1034.93 | 299.11 |
| 1037.49 | 299.54 | 1040.05 | 299.42 | 1042.61 | 299.04 | 1046.67 | 299.04 | 1050.3 | 298.92 |
| 1052.86 | 299.72 | 1055.04 | 300.96 | 1057.98 | 302.77 | 1060.55 | 304.24 | 1063.11 | 305.17 |
| 1065.67 | 305.93 | 1211.68 | 305.92 | 1216.8 | 305.95 | 1219.36 | 306.05 | 1222.56 | 305.96 |
| 1227.05 | 306.01 | 1229.61 | 305.86 | 1232.17 | 305.91 | 1237.29 | 306.18 | 1239.86 | 306.68 |
| 1242.42 | 307.07 | 1250.1 | 306.62 | 1252.66 | 306.05 | 1255.22 | 305.21 | 1257.79 | 304.56 |
| 1260.35 | 304.31 | 1272.37 | 304.19 | 1344.88 | 303.49 | 1350.29 | 304 | 1352.56 | 304.1 |
| 1355.13 | 303.93 | 1360.25 | 304.2 | 1362.81 | 304.56 | 1367.93 | 305.4 | 1369.14 | 305.5 |
| 1373.06 | 305.59 | 1380.74 | 305.64 | 1385.82 | 305.84 | 1388.43 | 305.78 | 1396.36 | 306.17 |
| 1401.23 | 306.26 | 1408.92 | 306.5 | 1414.04 | 306.51 | 1417.3 | 306.59 | 1421.73 | 306.53 |
| 1431.97 | 306.69 | 1434.54 | 306.66 | 1435.62 | 306.5 | 1466.04 | 306 | 1504.96 | 306 |
| 1520.25 | 307 | 1533.1 | 308 | 1536.24 | 308.5 | 1554.65 | 308 | 1581.9 | 307 |
| 1653.55 | 306.37 | 1687.22 | 308 | 1703.58 | 312 | 1715.73 | 316 | 1727.06 | 316 |
| 1738.61 | 312 | 1764.4 | 306 | 1780.91 | 305 | 1803.51 | 304 | 1825.15 | 304 |
| 1835.04 | 305 | 1845.02 | 305 | 1852.07 | 302.47 | 1854.94 | 302.68 | 1857.03 | 302.98 |
| 1859.76 | 303.01 | 1864.88 | 302.81 | 1867.5 | 302.42 | 1869.6 | 302.74 | 1872.57 | 302.92 |
| 1877.69 | 304.58 | 1880.25 | 305.14 | 1882.81 | 305.6 | 1887.93 | 305.86 | 1890.5 | 305.94 |
| 1896.95 | 305 | 1967.09 | 305 | 1974.46 | 305.81 | 1979.38 | 307.44 | 1988.6 | 309.91 |
| 1997.83 | 309.62 | 2016.27 | 309.63 | 2021.6 | 310 | 2023.7 | 310 | 2026.26 | 310.27 |
| 2028.82 | 311.83 | 2036.5 | 315.19 | 2039.05 | 316.03 | 2041.38 | 316.48 | 2043.49 | 317.28 |
| 2046.71 | 318.01 | 2049.27 | 318.07 | 2054.37 | 318.42 | 2056.93 | 318.84 | 2059.48 | 318.77 |
| 2064.59 | 318.78 | 2067.14 | 318.88 | 2069.69 | 319.14 | 2072.25 | 319.82 | 2074.8 | 319.32 |
| 2077.35 | 319.03 | 2085.02 | 318.99 | 2094.22 | 319.12 | 2100.34 | 319.25 | 2102.67 | 319.25 |
| 2105.44 | 319.41 | 2113.1 | 319.41 | 2118.21 | 319.69 | 2120.77 | 319.5 | 2128.43 | 319.62 |
| 2133.53 | 319.65 | 2143.75 | 319.79 | 2148.85 | 319.82 | 2156.52 | 319.94 | 2166.73 | 319.8 |
| 2169.28 | 319.94 | 2176.94 | 320.09 | 2184.6 | 319.9 | 2189.33 | 319.63 | 2192.27 | 319.57 |
| 2194.82 | 319.4 | 2199.93 | 319.62 | 2202.48 | 319.8 | 2210.14 | 320.04 | 2217.8 | 320.1 |
| 2222.91 | 320.05 | 2228.02 | 319.84 | 2228.86 | 319.94 | | | | |

Manning's n Values num= 4

| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|---|---|
| 0 | .05 | 548.2 | .06 | 1435.62 | .04 | 1974.46 | .05 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 548.2 | 2021.6 | 1135 | 1021 | 1060 | .1 | .3 |

CROSS SECTION OUTPUT  Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 314.78 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.15 | Wt. n-Val. | | 0.051 | 0.050 |
| W.S. Elev (ft) | 314.64 | Reach Len. (ft) | 1135.00 | 1021.00 | 1060.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 12013.23 | 39.45 |
| E.G. Slope (ft/ft) | 0.000655 | Area (sq ft) | | 12013.23 | 39.45 |
| Q Total (cfs) | 37000.00 | Flow (cfs) | | 36942.00 | 58.00 |
| Top Width (ft) | 1448.47 | Top Width (ft) | | 1434.83 | 13.64 |
| Vel Total (ft/s) | 3.07 | Avg. Vel. (ft/s) | | 3.08 | 1.47 |
| Max Chl Dpth (ft) | 15.81 | Hydr. Depth (ft) | | 8.37 | 2.89 |
| Conv. Total (cfs) | 1446218.0 | Conv. (cfs) | | 1443951.0 | 2267.0 |
| Length Wtd. (ft) | 1021.61 | Wetted Per. (ft) | | 1447.41 | 14.68 |
| Min Ch El (ft) | 298.83 | Shear (lb/sq ft) | | 0.34 | 0.11 |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 1.04 | 0.16 |
| Frctn Loss (ft) | 1.05 | Cum Volume (acre-ft) | 26.20 | 703.12 | 142.11 |
| C & E Loss (ft) | 0.04 | Cum SA (acres) | 11.77 | 74.12 | 27.08 |

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT  Profile #PF 3

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 316.61 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.17 | Wt. n-Val. | | 0.051 | 0.050 |
| W.S. Elev (ft) | 316.44 | Reach Len. (ft) | 1135.00 | 1021.00 | 1060.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 14610.08 | 68.45 |
| E.G. Slope (ft/ft) | 0.000611 | Area (sq ft) | | 14610.08 | 68.45 |
| Q Total (cfs) | 49000.00 | Flow (cfs) | | 48889.06 | 110.95 |
| Top Width (ft) | 1474.87 | Top Width (ft) | | 1455.31 | 19.56 |
| Vel Total (ft/s) | 3.34 | Avg. Vel. (ft/s) | | 3.35 | 1.62 |
| Max Chl Dpth (ft) | 17.61 | Hydr. Depth (ft) | | 10.04 | 3.50 |
| Conv. Total (cfs) | 1982527.0 | Conv. (cfs) | | 1978038.0 | 4488.8 |
| Length Wtd. (ft) | 1024.48 | Wetted Per. (ft) | | 1469.36 | 20.88 |
| Min Ch El (ft) | 298.83 | Shear (lb/sq ft) | | 0.38 | 0.13 |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 1.27 | 0.20 |
| Frctn Loss (ft) | 0.96 | Cum Volume (acre-ft) | 65.51 | 907.49 | 270.90 |
| C & E Loss (ft) | 0.04 | Cum SA (acres) | 17.63 | 74.54 | 30.76 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT  Profile #PF 6

| | | | | | | |
|---|---|---|---|---|---|---|
| E.G. Elev (ft) | 312.34 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.11 | Wt. n-Val. | | 0.051 | 0.050 |
| W.S. Elev (ft) | 312.23 | Reach Len. (ft) | 1135.00 | 1021.00 | 1060.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 8577.12 | 13.24 |
| E.G. Slope (ft/ft) | 0.000730 | Area (sq ft) | | 8577.12 | 13.24 |
| Q Total (cfs) | 22513.00 | Flow (cfs) | | 22498.89 | 14.11 |
| Top Width (ft) | 1427.12 | Top Width (ft) | | 1418.99 | 8.13 |
| Vel Total (ft/s) | 2.62 | Avg. Vel. (ft/s) | | 2.62 | 1.07 |
| Max Chl Dpth (ft) | 13.40 | Hydr. Depth (ft) | | 6.04 | 1.63 |
| Conv. Total (cfs) | 833185.9 | Conv. (cfs) | | 832663.8 | 522.1 |
| Length Wtd. (ft) | 1021.17 | Wetted Per. (ft) | | 1429.48 | 8.67 |
| Min Ch El (ft) | 298.83 | Shear (lb/sq ft) | | 0.27 | 0.07 |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 0.72 | 0.07 |
| Frctn Loss (ft) | 1.05 | Cum Volume (acre-ft) | 10.89 | 561.44 | 119.59 |
| C & E Loss (ft) | 0.03 | Cum SA (acres) | 3.42 | 73.78 | 25.59 |

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: San Diego River
REACH: Reach 1  RS: 270

INPUT
Description: Survey Data (June 12, 2014), and proposed grading Proposed grading start at station# 564, n=0.04
In the non-disturbed area, Manning's coefficients are derived from the Corrected Effective Model.

Station Elevation Data  num=  410

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 311.5 | 4.03 | 311.65 | 16.61 | 311.94 | 19.12 | 311.97 | 21.64 | 312.03 |
| 24.15 | 312.03 | 29.18 | 312.16 | 31.7 | 312.19 | 36.73 | 312.32 | 41.76 | 312.25 |
| 46.79 | 311.94 | 49.3 | 311.84 | 51.82 | 311.69 | 54.33 | 311.61 | 56.85 | 311.5 |
| 59.36 | 311.42 | 60.08 | 311.37 | 64.39 | 311.01 | 66.91 | 310.91 | 69.42 | 310.97 |
| 74.45 | 311.42 | 79.48 | 311.69 | 82 | 311.77 | 89.54 | 311.94 | 92.06 | 312.07 |
| 94.57 | 312.16 | 97.09 | 312.19 | 99.6 | 312.14 | 102.12 | 312.06 | 104.63 | 312.03 |
| 107.15 | 311.97 | 109.66 | 311.88 | 112.18 | 311.81 | 117.21 | 311.75 | 122.24 | 311.61 |
| 127.27 | 311.53 | 129.78 | 311.47 | 132.3 | 311.38 | 134.81 | 311.25 | 137.33 | 311.15 |
| 139.84 | 311.18 | 142.36 | 311.53 | 144.87 | 312.01 | 147.39 | 312.7 | 149.9 | 313.69 |
| 152.42 | 314.88 | 154.93 | 315.98 | 157.45 | 317.13 | 159.96 | 318.05 | 162.48 | 318.62 |
| 164.99 | 318.75 | 167.51 | 318.29 | 170.02 | 317.3 | 175.05 | 314.66 | 177.57 | 313.56 |
| 179.95 | 312.91 | 182.6 | 312.1 | 185.11 | 311.55 | 187.63 | 311.23 | 190.14 | 311.18 |
| 191.52 | 311.33 | 192.66 | 311.41 | 195.17 | 311.51 | 196.06 | 311.51 | 197.69 | 311.56 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 200.2 | 311.37 | 202.72 | 311.24 | 205.23 | 311.32 | 207.75 | 311.48 | 210.26 | 311.59 |
| 212.78 | 311.62 | 215.29 | 311.7 | 217.81 | 311.74 | 220.99 | 311.75 | 222.84 | 311.74 |
| 225.35 | 311.87 | 230.38 | 311.95 | 232.9 | 312.02 | 235.41 | 312.02 | 237.93 | 311.98 |
| 245.92 | 312.1 | 248.18 | 312.15 | 250.5 | 312.12 | 253.02 | 312.18 | 255.53 | 312.27 |
| 258.05 | 312.32 | 260.56 | 312.34 | 264.05 | 312.28 | 265.59 | 312.23 | 270.62 | 312.45 |
| 273.14 | 312.47 | 276 | 312.44 | 280.68 | 312.47 | 283.2 | 312.43 | 285.71 | 312.47 |
| 288.23 | 312.56 | 290.74 | 312.78 | 293.51 | 313.12 | 295.77 | 313.37 | 298.29 | 313.79 |
| 300.31 | 314.03 | 303.32 | 314.27 | 305.83 | 314.64 | 308.35 | 314.52 | 310.86 | 314.22 |
| 313.38 | 313.85 | 315.89 | 313.36 | 318.37 | 313.13 | 320.92 | 312.84 | 323.44 | 312.68 |
| 325.24 | 312.46 | 326.85 | 312.3 | 327.5 | 312.19 | 329.77 | 311.98 | 330.98 | 311.89 |
| 333.5 | 311.35 | 334.3 | 311.14 | 335.32 | 310.81 | 336.01 | 310.63 | 336.57 | 310.57 |
| 338.53 | 310.25 | 341.04 | 310.03 | 343 | 309.18 | 346.07 | 307.77 | 347.9 | 307.02 |
| 348.59 | 306.76 | 349.45 | 306.68 | 350.17 | 306.56 | 351.1 | 306.49 | 356.13 | 306.26 |
| 358.65 | 306.62 | 361.16 | 307.17 | 361.5 | 307.22 | 363.57 | 307.83 | 364.53 | 307.86 |
| 366.4 | 307.82 | 368.3 | 307.63 | 369.22 | 307.6 | 370.56 | 307.44 | 371.22 | 307.43 |
| 372.05 | 307.32 | 372.83 | 307.29 | 373.74 | 307.14 | 376.25 | 307.23 | 378.77 | 306.35 |
| 379.63 | 305.86 | 380.52 | 305.46 | 381.28 | 305.05 | 381.89 | 304.89 | 384.16 | 304.39 |
| 386.43 | 304.04 | 388.69 | 303.57 | 391.34 | 303.06 | 391.82 | 302.94 | 393.23 | 302.76 |
| 394.65 | 302.31 | 395.49 | 301.98 | 396.37 | 301.71 | 397.47 | 301.86 | 397.76 | 301.86 |
| 398.89 | 302.06 | 400.02 | 302.49 | 401.4 | 303.07 | 402.29 | 303.13 | 403.12 | 303.04 |
| 403.92 | 303.07 | 406.43 | 303.47 | 406.82 | 303.47 | 408.77 | 303.14 | 408.95 | 303.13 |
| 411.46 | 302.35 | 413.98 | 302.35 | 419.01 | 302.5 | 420.42 | 302.42 | 424.04 | 302.26 |
| 426.55 | 301.75 | 427.22 | 301.74 | 429.07 | 301.65 | 431.58 | 301.9 | 434.1 | 302.29 |
| 436.29 | 302.2 | 436.61 | 302.16 | 439.13 | 301.98 | 439.85 | 302.13 | 440.82 | 302.4 |
| 441.64 | 302.57 | 444.16 | 303.14 | 446.67 | 303.42 | 449.19 | 303.32 | 451.7 | 302.62 |
| 453.97 | 301.69 | 456.73 | 300.53 | 459.25 | 299.76 | 461.76 | 299.35 | 463.48 | 299.2 |
| 466.79 | 298.87 | 469.31 | 298.5 | 471.82 | 297.98 | 472.55 | 297.86 | 474.81 | 297.57 |
| 476.85 | 297.34 | 479.37 | 297.19 | 481.88 | 297.12 | 484.4 | 297.09 | 489.43 | 297.09 |
| 491.94 | 298.11 | 494.46 | 299.66 | 496.97 | 300.43 | 499.49 | 300.96 | 502.01 | 301.63 |
| 504.52 | 302.39 | 507.03 | 303.35 | 509.55 | 304.95 | 539.73 | 305.61 | 540.54 | 305.27 |
| 541.55 | 304.77 | 542.24 | 304.48 | 544.76 | 303.76 | 547.27 | 303.25 | 549.79 | 302.53 |
| 552.3 | 302.08 | 554.82 | 301.81 | 559.85 | 301.45 | 561.7 | 301 | 564 | 302 |
| 575.22 | 303 | 579.77 | 304 | 582.78 | 305 | 604.98 | 305 | 610.86 | 306 |
| 624.5 | 307.5 | 633.03 | 306 | 647.38 | 305 | 658.82 | 304 | 730.18 | 302 |
| 748.97 | 300 | 773.22 | 299.81 | 781.81 | 300 | 783.69 | 300.56 | 786.2 | 300.72 |
| 788.72 | 300.96 | 791.23 | 301.36 | 794.36 | 301.63 | 796.26 | 302.46 | 801.16 | 303.02 |
| 803.81 | 303.44 | 806.32 | 303.71 | 808.84 | 303.74 | 810.22 | 303.67 | 812.49 | 303.57 |
| 813.87 | 303.34 | 816.38 | 303.15 | 818.9 | 302.91 | 821.41 | 302.39 | 823.93 | 300.23 |
| 831.47 | 298.74 | 836.5 | 298.74 | 839.02 | 298.89 | 841.53 | 299.36 | 844.05 | 299.95 |
| 846.56 | 300.36 | 849.08 | 300.47 | 851.02 | 300.54 | 854.11 | 300.5 | 856.62 | 300.37 |
| 859.14 | 300.29 | 862.35 | 300.28 | 864.62 | 300.39 | 866.68 | 300.26 | 869.2 | 300.09 |
| 871.71 | 300.16 | 874.23 | 300.23 | 874.9 | 300.41 | 875.95 | 300.48 | 876.74 | 300.32 |
| 879.26 | 300.46 | 881.77 | 300.81 | 885.01 | 301.09 | 886.2 | 301.16 | 886.8 | 301.15 |
| 887.28 | 301.2 | 889.32 | 301.23 | 889.55 | 301.35 | 891.85 | 301.52 | 894.35 | 301.85 |
| 896.86 | 302.54 | 899.38 | 303.229 | 901.3 | 303.44 | 901.89 | 304.47 | 904.41 | 305.85 |
| 906.92 | 307.53 | 909.44 | 307.79 | 909.94 | 308.72 | 911.95 | 309.28 | 914.47 | 309.24 |
| 916.98 | 309.16 | 919.5 | 309.15 | 921.27 | 309.11 | 923.54 | 309.01 | 927.04 | 309.06 |
| 929.56 | 309.18 | 932.07 | 309.31 | 937.1 | 309.45 | 939.62 | 309.79 | 944.65 | 310.22 |
| 949.68 | 310.41 | 952.19 | 310.56 | 954.71 | 310.69 | 957.53 | 310.83 | 959.74 | 310.9 |
| 962.07 | 310.84 | 964.33 | 310.75 | 966.6 | 310.63 | 968.87 | 310.38 | 972.31 | 310.32 |
| 973.4 | 310.14 | 977.34 | 310.08 | 979.86 | 310.12 | 982.37 | 310.19 | 984.73 | 310.22 |
| 987 | 310.35 | 992.43 | 310.44 | 994.95 | 310.65 | 998.33 | 310.73 | 999.98 | 310.95 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 1002.49 | 311.09 | 1005.01 | 311.78 | 1012.55 | 312.03 | 1016.46 | 312.23 | 1020.1 | 312.42 |
| 1022.61 | 312.67 | 1025.13 | 312.9 | 1030.16 | 312.96 | 1032.67 | 313 | 1035.19 | 313.09 |
| 1036.86 | 313.2 | 1040.22 | 313.34 | 1045.25 | 313.51 | 1053.57 | 313.52 | 1055.01 | 313.77 |
| 1060.32 | 313.92 | 1062.83 | 314.19 | 1065.34 | 314.57 | 1067.85 | 315.46 | 1086.35 | 322.18 |
| 1093.2 | 321.99 | 1111.24 | 322.531 | 116.773 | 323.12 | 1129.35 | 316 | 1130.6 | 315.18 |
| 1133.11 | 315.34 | 1135.62 | 315.68 | 1137.97 | 316.07 | 1140.28 | 316.62 | 1143.15 | 316.9 |
| 1144.89 | 317.29 | 1148.17 | 317.64 | 1150.68 | 318.16 | 1153.19 | 319.73 | 1161.02 | 320.12 |
| 1163.23 | 320.67 | 1165.74 | 321.25 | 1168.25 | 321.86 | 1170.76 | 322.52 | 1173.27 | 323.04 |
| 1175.78 | 322.95 | 1178.29 | 322.81 | 1180.8 | 322.87 | 1184.06 | 322.88 | 1190.84 | 322.94 |
| 1193.28 | 322.97 | 1195.86 | 323.11 | 1200.88 | 323.08 | 1203.39 | 323.1 | 1205.9 | 323.25 |
| 1211.72 | 323.38 | 1215.94 | 323.41 | 1218.45 | 323.38 | 1220.96 | 323.46 | 1223.47 | 323.46 |
| 1228.49 | 323.44 | 1231 | 323.44 | 1233.51 | 323.47 | 1243.55 | 323.41 | 1248.59 | 323.4 |
| 1250.89 | 323.37 | 1253.59 | 323.37 | 1256.1 | 323.39 | 1261.12 | 323.53 | 1263.63 | 323.4 |
| 1266.14 | 323.19 | 1268.65 | 322.96 | 1271.16 | 322.73 | 1273.94 | 322.38 | 1276.18 | 322.19 |
| 1278.68 | 322.18 | 1280.85 | 322.07 | 1283.7 | 321.83 | 1285.46 | 321.69 | 1286.21 | 320.97 |
| 1288.72 | 320.78 | 1291.23 | 320.73 | 1293.74 | 320.68 | 1294.68 | 320.59 | 1295.38 | 320.49 |
| 1296.98 | 320.52 | 1298.14 | 320.49 | 1298.76 | 320.62 | 1301.27 | 320.66 | 1303.9 | 320.74 |

Manning's n Values num= 4

| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|---|---|
| 0 | .05 | 343 | .06 | 564 | .04 | 781.81 | .05 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 343 | 901.3 | 1000 | 951 | 815 | .1 | .3 |

Ineffective Flow num= 2

| Sta L | Sta R | Elev | Permanent |
|---|---|---|---|
| 0 | 278.7 | 314.64 | F |
| 1201.7 | 1303.9 | 333.8 | F |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | | |
|---|---|---|---|---|---|---|
| E.G. Elev (ft) | 313.69 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.58 | Wt. n-Val. | 0.050 | 0.049 | 0.050 |
| W.S. Elev (ft) | 313.11 | Reach Len. (ft) | 1000.00 | 951.00 | 815.00 |
| Crit W.S. (ft) | 307.81 | Flow Area (sq ft) | 45.41 | 5823.92 | 363.98 |
| E.G. Slope (ft/ft) | 0.001829 | Area (sq ft) | 363.40 | 5823.92 | 363.98 |
| Q Total (cfs) | 37000.00 | Flow (cfs) | 69.63 | 36041.04 | 889.33 |
| Top Width (ft) | 979.59 | Top Width (ft) | 287.10 | 558.30 | 134.19 |
| Vel Total (ft/s) | 5.94 | Avg. Vel. (ft/s) | 1.53 | 6.19 | 2.44 |
| Max Chl Dpth (ft) | 16.02 | Hydr. Depth (ft) | 1.16 | 10.43 | 2.71 |
| Conv. Total (cfs) | 865074.4 | Conv. (cfs) | 1627.9 | 842653.6 | 20792.9 |
| Length Wtd. (ft) | 947.08 | Wetted Per. (ft) | 39.65 | 566.66 | 136.57 |
| Min Ch El (ft) | 297.09 | Shear (lb/sq ft) | 0.13 | 1.17 | 0.30 |
| Alpha | 1.06 | Stream Power (lb/ft s) | 0.20 | 7.26 | 0.74 |
| Frctn Loss (ft) | 2.44 | Cum Volume (acre-ft) | 21.46 | 494.07 | 137.20 |
| C & E Loss (ft) | 0.02 | Cum SA (acres) | 8.03 | 50.76 | 25.28 |

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

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #PF 3

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 315.60 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.61 | Wt. n-Val. | 0.050 | 0.049 | 0.050 |
| W.S. Elev (ft) | 314.99 | Reach Len. (ft) | 1000.00 | 951.00 | 815.00 |
| Crit W.S. (ft) | 308.89 | Flow Area (sq ft) | 940.17 | 6875.29 | 657.37 |
| E.G. Slope (ft/ft) | 0.001623 | Area (sq ft) | 940.17 | 6875.29 | 657.37 |
| Q Total (cfs) | 49000.00 | Flow (cfs) | 2282.37 | 44761.54 | 1956.09 |
| Top Width (ft) | 1044.80 | Top Width (ft) | 321.26 | 558.30 | 165.23 |
| Vel Total (ft/s) | 5.78 | Avg. Vel. (ft/s) | 2.43 | 6.51 | 2.98 |
| Max Chl Dpth (ft) | 17.90 | Hydr. Depth (ft) | 2.93 | 12.31 | 3.98 |
| Conv. Total (cfs) | 1216331.0 | Conv. (cfs) | 56655.4 | 1111119.0 | 48556.2 |
| Length Wtd. (ft) | 946.23 | Wetted Per. (ft) | 326.83 | 566.66 | 167.76 |
| Min Ch El (ft) | 297.09 | Shear (lb/sq ft) | 0.29 | 1.23 | 0.40 |
| Alpha | 1.18 | Stream Power (lb/ft s) | 0.71 | 8.00 | 1.18 |
| Frctn Loss (ft) | 2.11 | Cum Volume (acre-ft) | 53.26 | 655.70 | 262.07 |
| C & E Loss (ft) | 0.02 | Cum SA (acres) | 13.45 | 50.94 | 28.51 |

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #PF 6

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 311.26 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.37 | Wt. n-Val. | 0.050 | 0.049 | 0.050 |
| W.S. Elev (ft) | 310.89 | Reach Len. (ft) | 1000.00 | 951.00 | 815.00 |
| Crit W.S. (ft) | 306.16 | Flow Area (sq ft) | 5.63 | 4584.66 | 116.08 |
| E.G. Slope (ft/ft) | 0.001558 | Area (sq ft) | 5.63 | 4584.66 | 116.08 |
| Q Total (cfs) | 22513.00 | Flow (cfs) | 5.16 | 22336.83 | 171.01 |
| Top Width (ft) | 663.78 | Top Width (ft) | 7.93 | 558.30 | 97.55 |
| Vel Total (ft/s) | 4.78 | Avg. Vel. (ft/s) | 0.92 | 4.87 | 1.47 |
| Max Chl Dpth (ft) | 13.80 | Hydr. Depth (ft) | 0.71 | 8.21 | 1.19 |
| Conv. Total (cfs) | 570269.8 | Conv. (cfs) | 130.6 | 565807.4 | 4331.8 |
| Length Wtd. (ft) | 949.13 | Wetted Per. (ft) | 8.18 | 566.66 | 99.79 |
| Min Ch El (ft) | 297.09 | Shear (lb/sq ft) | 0.07 | 0.79 | 0.11 |
| Alpha | 1.03 | Stream Power (lb/ft s) | 0.06 | 3.84 | 0.17 |
| Frctn Loss (ft) | 2.31 | Cum Volume (acre-ft) | 10.81 | 407.19 | 118.02 |
| C & E Loss (ft) | 0.02 | Cum SA (acres) | 3.32 | 50.61 | 24.31 |

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate

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

CROSS SECTION

RIVER: San Diego River
REACH: Reach 1 RS: 260

INPUT
Description: Survey Data (June 12, 2014), and proposed grading Proposed grading start at station 523.75, n=0.05
In the non-disturbed area, Manning's coefficients are derived from the Corrected Effective Model.

Station Elevation Data num= 402

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 314.92 | 3.45 | 315.01 | 6.04 | 315.17 | 7.03 | 315.37 | 8.63 | 315.64 |
| 9.07 | 315.63 | 11.1 | 315.49 | 13.14 | 315.27 | 13.81 | 315.22 | 15.18 | 315.17 |
| 16.4 | 315.16 | 19.25 | 314.89 | 21.29 | 314.76 | 23.33 | 314.69 | 29.35 | 314.53 |
| 37.12 | 314.41 | 39.71 | 314.41 | 42.3 | 314.34 | 47.48 | 314.28 | 50.07 | 314.28 |
| 51.85 | 314.55 | 52.67 | 314.69 | 55.26 | 315.25 | 57.85 | 315.78 | 60.44 | 316.08 |
| 63.03 | 316.68 | 65.62 | 317.52 | 68.21 | 318.28 | 73.39 | 319.57 | 76.31 | 320.2 |
| 78.57 | 320.6 | 81.16 | 320.96 | 83.75 | 321.1 | 86.34 | 321.04 | 88.53 | 320.94 |
| 91.52 | 320.77 | 94.11 | 320.67 | 96.6 | 320.51 | 100.76 | 320.28 | 104.47 | 320.05 |
| 107.06 | 319.93 | 109.65 | 319.74 | 112.24 | 319.59 | 119.09 | 319.12 | 123.17 | 318.89 |
| 127.79 | 318.56 | 130.38 | 318.4 | 132.97 | 318.17 | 135.56 | 317.9 | 138.15 | 317.65 |
| 141.51 | 317.29 | 151.1 | 316.35 | 151.69 | 316.3 | 153.69 | 316.19 | 155.77 | 316.1 |
| 157.81 | 316.04 | 158.87 | 315.98 | 164.05 | 315.03 | 166.64 | 314.89 | 169.23 | 314.79 |
| 171.82 | 314.81 | 174.11 | 314.87 | 177.01 | 314.89 | 179.6 | 314.98 | 182.26 | 315 |
| 184.78 | 314.95 | 187.37 | 314.84 | 189.96 | 314.7 | 195.14 | 314.49 | 197.73 | 314.46 |
| 200.32 | 314.26 | 202.63 | 314.16 | 210.78 | 313.72 | 213.27 | 313.55 | 215.86 | 313.42 |
| 220.7 | 313.11 | 223.01 | 312.98 | 226.22 | 312.76 | 228.81 | 312.67 | 231.16 | 312.75 |
| 231.4 | 312.77 | 233.19 | 313.06 | 233.99 | 313.2 | 236.58 | 313.83 | 237.27 | 313.89 |
| 239.2 | 313.926 | 241.34 | 313.16 | 242.5 | 312.57 | 243.38 | 312.16 | 244.36 | 311.61 |
| 245.42 | 310.84 | 247.46 | 309.41 | 249.54 | 308 | 252.13 | 306.73 | 253.57 | 306.16 |
| 254.72 | 305.66 | 257.31 | 304.26 | 259.9 | 303.04 | 261.72 | 302.43 | 262.49 | 302.21 |
| 263.76 | 302.23 | 265.08 | 302.27 | 267.67 | 302.52 | 268.43 | 302.69 | 269.87 | 302.98 |
| 271.91 | 303.26 | 272.85 | 303.33 | 273.94 | 303.35 | 274.5 | 303.44 | 275.44 | 303.52 |
| 275.98 | 303.53 | 277.97 | 303.62 | 280.06 | 303.54 | 280.62 | 303.53 | 283.21 | 303.44 |
| 288.39 | 303.36 | 290.98 | 303.2 | 293.57 | 303.21 | 296.16 | 303.19 | 298.75 | 303.05 |
| 300.43 | 303.01 | 303.94 | 303 | 306.54 | 302.97 | 311.71 | 302.85 | 314.3 | 302.84 |
| 316.73 | 303.11 | 319.48 | 303.24 | 322.07 | 303.18 | 324.88 | 302.73 | 325.7 | 302.62 |
| 326.92 | 302.4 | 327.82 | 302.16 | 328.96 | 301.76 | 329.84 | 301.6 | 330.99 | 301.46 |
| 333.03 | 301.3 | 335.02 | 301.09 | 337.11 | 301.15 | 340.2 | 301.33 | 341.18 | 301.44 |
| 342.04 | 301.43 | 342.79 | 301.48 | 343.22 | 301.43 | 344.82 | 301.34 | 347.97 | 301.22 |
| 350.56 | 300.82 | 351.38 | 300.62 | 353.15 | 300.23 | 354.4 | 299.81 | 355.45 | 299.42 |
| 357.49 | 298.58 | 358.33 | 298.25 | 363.51 | 297.13 | 363.98 | 297.06 | 365.65 | 296.87 |
| 366.88 | 296.75 | 367.69 | 296.7 | 368.69 | 296.55 | 371.28 | 296.28 | 373.87 | 296.22 |
| 375.84 | 296.01 | 376.46 | 295.92 | 379.05 | 295.65 | 379.92 | 295.61 | 381.64 | 295.59 |
| 384.23 | 295.73 | 384.63 | 295.83 | 386.03 | 296.09 | 386.82 | 296.3 | 389.41 | 297.47 |
| 390.11 | 297.72 | 391.99 | 298.29 | 394.19 | 299.03 | 394.58 | 299.12 | 397.17 | 299.64 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 399.76 | 300.36 | 400.3 | 300.45 | 402.3 | 300.74 | 404.94 | 301.01 | 407.53 | 301.51 |
| 408.46 | 301.64 | 409.47 | 301.86 | 411.88 | 302 | 438.61 | 302 | 441.2 | 301.53 |
| 443.12 | 301.07 | 443.79 | 300.93 | 446.38 | 300.71 | 448.97 | 300.74 | 454.15 | 300.98 |
| 456.74 | 301.04 | 459.33 | 301.25 | 461.92 | 301.57 | 464.51 | 301.84 | 467.1 | 301.98 |
| 474.87 | 302.04 | 477.46 | 302.08 | 482.64 | 302.14 | 485.23 | 302.21 | 490.4 | 302.29 |
| 492.99 | 302.38 | 495.58 | 302.51 | 498.16 | 302.75 | 500.76 | 303.05 | 506.31 | 303.46 |
| 508.53 | 303.59 | 511.12 | 303.67 | 513.71 | 303.54 | 516.3 | 303.08 | 518.89 | 302.54 |
| 521.48 | 301.94 | 523.75 | 302 | 530.97 | 301 | 552.09 | 300.3 | 562.39 | 301 |
| 570.87 | 302 | 598.18 | 302 | 611.86 | 302 | 705.35 | 299.2 | 720.89 | 300.88 |
| 731.25 | 299.16 | 739.02 | 298.81 | 746.79 | 300.31 | 759.14 | 299.26 | 759.74 | 299.12 |
| 761.14 | 299.45 | 762.33 | 299.69 | 763.18 | 299.67 | 764.4 | 299.58 | 765.22 | 299.56 |
| 766.32 | 299.63 | 767.51 | 299.74 | 770.1 | 300.46 | 771.33 | 300.71 | 772.69 | 301.01 |
| 775.28 | 301.97 | 775.86 | 302.06 | 777.44 | 302.25 | 777.87 | 302.24 | 780.46 | 302.11 |
| 783.05 | 302.11 | 788.23 | 302.27 | 790.82 | 302.42 | 793.74 | 302.83 | 795.78 | 303.03 |
| 797.82 | 303.19 | 798.59 | 303.24 | 801.18 | 303.44 | 802 | 303.488 | 803.77 | 303.62 |
| 805.97 | 303.65 | 806.36 | 303.67 | 808 | 303.83 | 808.96 | 303.94 | 811.55 | 304.35 |
| 814.14 | 304.81 | 816.73 | 305.39 | 819.32 | 305.9 | 821.91 | 306.32 | 824.3 | 306.53 |
| 827.09 | 306.61 | 830.42 | 306.55 | 832.27 | 306.56 | 834.86 | 306.46 | 836.53 | 306.37 |
| 840.04 | 306.21 | 842.63 | 306.12 | 845.22 | 306.16 | 847.81 | 306.22 | 850.4 | 306.33 |
| 852.99 | 306.53 | 855.58 | 306.84 | 858.17 | 307.24 | 860.76 | 307.69 | 863.35 | 308.2 |
| 865.94 | 308.79 | 868.54 | 309.32 | 871.13 | 309.6 | 873.2 | 309.9 | 875.24 | 310.16 |
| 879.32 | 310.65 | 881.49 | 310.89 | 885.43 | 310.74 | 886.67 | 310.72 | 891.54 | 310.57 |
| 893.58 | 310.55 | 895.62 | 310.5 | 897.65 | 310.42 | 899.62 | 310.32 | 902.21 | 310.25 |
| 903.77 | 310.33 | 904.8 | 310.36 | 905.8 | 310.5 | 906.61 | 310.53 | 907.39 | 310.61 |
| 907.84 | 310.69 | 909.5 | 310.79 | 910.16 | 310.86 | 911.92 | 311.12 | 912.57 | 311.17 |
| 915.16 | 311.27 | 915.99 | 311.19 | 917.27 | 311.25 | 918.03 | 311.25 | 919.05 | 311.34 |
| 920.34 | 311.5 | 922.93 | 311.75 | 928.22 | 312.1 | 930.71 | 312.4 | 932.29 | 312.53 |
| 933.3 | 312.59 | 935.89 | 312.72 | 938.6 | 312.79 | 940.44 | 312.85 | 943.66 | 312.86 |
| 944.52 | 312.87 | 946.25 | 312.93 | 948.84 | 313.06 | 952.67 | 313.18 | 958.78 | 313.34 |
| 961.79 | 313.39 | 964.38 | 313.47 | 969.56 | 313.52 | 972.15 | 313.5 | 974.74 | 313.58 |
| 977.33 | 313.57 | 979.15 | 313.62 | 982.51 | 313.69 | 985.86 | 313.72 | 990.28 | 313.79 |
| 995.47 | 314.25 | 998.06 | 314.32 | 1000.65 | 314.49 | 1001.57 | 314.56 | 1004.9 | 316 |
| 1030.09 | 316.09 | 1031.04 | 316.44 | 1032.13 | 316.8 | 1034.17 | 317.55 | 1034.59 | 317.75 |
| 1036.2 | 318.64 | 1036.91 | 319.01 | 1039.5 | 319.94 | 1042.09 | 321.26 | 1044.68 | 323.16 |
| 1045.26 | 323.43 | 1046.39 | 324.01 | 1049.86 | 325.43 | 1050.47 | 325.56 | 1052.46 | 325.9 |
| 1056.58 | 326.15 | 1057.64 | 326.2 | 1060.65 | 326.2 | 1065.41 | 326.3 | 1070.59 | 326.34 |
| 1073.18 | 326.42 | 1074.92 | 326.44 | 1081.03 | 326.47 | 1083.54 | 326.46 | 1086.13 | 326.48 |
| 1088.72 | 326.55 | 1091.31 | 326.56 | 1096.49 | 326.67 | 1099.08 | 326.68 | 1101.4 | 326.66 |
| 1104.26 | 326.67 | 1106.85 | 326.65 | 1109.44 | 326.65 | 1111.59 | 326.63 | 1117.7 | 326.62 |
| 1119.74 | 326.59 | 1122.4 | 326.53 | 1124.99 | 326.5 | 1129.93 | 326.48 | 1135.35 | 326.4 |
| 1137.94 | 326.38 | 1140.12 | 326.28 | 1143.12 | 326.13 | 1146.23 | 325.93 | 1148.3 | 325.84 |
| 1153.48 | 325.68 | 1158.45 | 325.35 | 1166.14 | 324.68 | 1169.02 | 324.48 | 1174.2 | 323.92 |
| 1174.75 | 323.89 | 1179.39 | 323.43 | 1181.98 | 323.25 | 1184.57 | 323.42 | 1184.94 | 323.42 |
| 1187.16 | 323.31 | 1189.75 | 323.36 | 1194.93 | 323.44 | 1197.17 | 323.49 | 1200.11 | 323.49 |
| 1202.7 | 323.53 | 1205.29 | 323.53 | 1207.88 | 323.5 | 1209.39 | 323.46 | 1211.43 | 323.38 |
| 1213.46 | 323.28 | 1216.09 | 323.2 | | | | | | |

Manning's n Values num= 5

| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|---|---|---|---|
| 0 | .05 | 239.2 | .06 | 523.75 | .05 | 705.35 | .06 | 802 | .05 |

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

239.2 802 1050 1031 1000 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 311.23 | Element | | | |
| Vel Head (ft) | 0.78 | Wt. n-Val. | | 0.056 | 0.050 |
| W.S. Elev (ft) | 310.45 | Reach Len. (ft) | 1050.00 | 1031.00 | 1000.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 5114.99 | 290.28 |
| E.G. Slope (ft/ft) | 0.003853 | Area (sq ft) | | 5114.99 | 290.28 |
| Q Total (cfs) | 38000.00 | Flow (cfs) | | 36700.95 | 1299.05 |
| Top Width (ft) | 640.12 | Top Width (ft) | | 556.02 | 84.10 |
| Vel Total (ft/s) | 7.03 | Avg. Vel. (ft/s) | | 7.18 | 4.48 |
| Max Chl Dpth (ft) | 14.86 | Hydr. Depth (ft) | | 9.20 | 3.45 |
| Conv. Total (cfs) | 612166.2 | Conv. (cfs) | | 591239.0 | 20927.2 |
| Length Wtd. (ft) | 1030.09 | Wetted Per. (ft) | | 561.45 | 84.71 |
| Min Ch El (ft) | 295.59 | Shear (lb/sq ft) | | 2.19 | 0.82 |
| Alpha | 1.02 | Stream Power (lb/ft s) | | 15.72 | 3.69 |
| Frctn Loss (ft) | 2.38 | Cum Volume (acre-ft) | 17.29 | 374.67 | 131.08 |
| C & E Loss (ft) | 0.10 | Cum SA (acres) | 4.74 | 38.59 | 23.24 |

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 3

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 313.47 | Element | | | |
| Vel Head (ft) | 0.86 | Wt. n-Val. | | 0.056 | 0.050 |
| W.S. Elev (ft) | 312.61 | Reach Len. (ft) | 1050.00 | 1031.00 | 1000.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 6320.87 | 540.72 |
| E.G. Slope (ft/ft) | 0.003243 | Area (sq ft) | | 6320.87 | 540.72 |
| Q Total (cfs) | 50000.00 | Flow (cfs) | | 47662.39 | 2337.61 |
| Top Width (ft) | 691.27 | Top Width (ft) | | 559.58 | 131.69 |
| Vel Total (ft/s) | 7.29 | Avg. Vel. (ft/s) | | 7.54 | 4.32 |
| Max Chl Dpth (ft) | 17.02 | Hydr. Depth (ft) | | 11.30 | 4.11 |
| Conv. Total (cfs) | 877954.6 | Conv. (cfs) | | 836908.3 | 41046.3 |
| Length Wtd. (ft) | 1030.04 | Wetted Per. (ft) | | 565.63 | 132.45 |
| Min Ch El (ft) | 295.59 | Shear (lb/sq ft) | | 2.26 | 0.83 |
| Alpha | 1.04 | Stream Power (lb/ft s) | | 17.06 | 3.57 |
| Frctn Loss (ft) | 1.89 | Cum Volume (acre-ft) | 42.47 | 511.65 | 250.87 |
| C & E Loss (ft) | 0.12 | Cum SA (acres) | 9.76 | 38.74 | 25.73 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 6

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 308.92 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.59 | Wt. n-Val. | | 0.056 | 0.050 |
| W.S. Elev (ft) | 308.33 | Reach Len. (ft) | 1050.00 | 1031.00 | 1000.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 3941.07 | 145.60 |
| E.G. Slope (ft/ft) | 0.004057 | Area (sq ft) | | 3941.07 | 145.60 |
| Q Total (cfs) | 25000.00 | Flow (cfs) | | 24514.83 | 485.17 |
| Top Width (ft) | 614.87 | Top Width (ft) | | 552.95 | 61.92 |
| Vel Total (ft/s) | 6.12 | Avg. Vel. (ft/s) | | 6.22 | 3.33 |
| Max Chl Dpth (ft) | 12.74 | Hydr. Depth (ft) | | 7.13 | 2.35 |
| Conv. Total (cfs) | 392491.3 | Conv. (cfs) | | 384874.3 | 7616.9 |
| Length Wtd. (ft) | 1030.28 | Wetted Per. (ft) | | 557.72 | 62.35 |
| Min Ch El (ft) | 295.59 | Shear (lb/sq ft) | | 1.79 | 0.59 |
| Alpha | 1.02 | Stream Power (lb/ft s) | | 11.13 | 1.97 |
| Frctn Loss (ft) | 2.37 | Cum Volume (acre-ft) | 10.75 | 314.13 | 115.57 |
| C & E Loss (ft) | 0.08 | Cum SA (acres) | 3.23 | 38.48 | 22.81 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: San Diego River
REACH: Reach 1 RS: 250

INPUT
Description: Survey Data (June 12, 2014), and proposed grading
Proposed
grading start at 737.45, n=0.04
Proposed PA-1 staton, n=0.15
In
the non-disturbed area, Manning's coefficients are derived from
the Corrected Effective Model.
Station Elevation Data num= 309

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 318.93 | 4.62 | 319.04 | 12.59 | 319.12 | 15.7 | 319.22 | 18.32 | 319.25 |
| 20.94 | 319.34 | 23.56 | 319.33 | 27.68 | 319.28 | 31.43 | 319.3 | 39.29 | 319.28 |
| 44.54 | 319.19 | 47.16 | 319.19 | 50.46 | 319.11 | 52.4 | 319.12 | 55.02 | 319.05 |
| 62.42 | 318.93 | 65.51 | 318.8 | 70.75 | 318.71 | 73.37 | 318.7 | 75.99 | 318.39 |
| 78.61 | 317.55 | 81.23 | 316.81 | 83.86 | 316.56 | 85.87 | 316.43 | 89.1 | 316.27 |
| 91.72 | 315.97 | 94.34 | 315.71 | 99.58 | 315.05 | 102.27 | 314.73 | 106.26 | 314.35 |
| 110.07 | 314.03 | 112.69 | 313.93 | 115.31 | 313.88 | 120.55 | 313.65 | 125.8 | 313.32 |
| 130.17 | 313.01 | 133.66 | 312.81 | 144.15 | 312.28 | 152.01 | 311.76 | 154.63 | 311.64 |
| 159.88 | 311.35 | 166.05 | 311.05 | 170.36 | 310.79 | 172.98 | 310.67 | 175.6 | 310.61 |
| 183.47 | 310.35 | 188.71 | 310.22 | 193.95 | 310.06 | 199.2 | 309.86 | 204.44 | 309.77 |
| 207.06 | 309.75 | 212.3 | 309.66 | 214.92 | 309.59 | 222.79 | 309.49 | 225.83 | 309.4 |
| 228.03 | 309.37 | 233.27 | 309.2 | 239.78 | 308.97 | 243.77 | 308.87 | 249 | 308.69 |
| 252.12 | 308.54 | 256.87 | 308.38 | 262.11 | 308.25 | 267.35 | 308.04 | 269.97 | 307.99 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 272.59 | 308.02 | 277.05 | 307.81 | 280.46 | 307.78 | 285.7 | 307.48 | 287.61 | 307.43 |
| 293.56 | 307.16 | 296.19 | 307.07 | 303.56 | 306.76 | 309.29 | 306.62 | 311.91 | 306.53 |
| 317.16 | 306.41 | 321.49 | 306.27 | 325.02 | 306.08 | 327.64 | 305.97 | 335.51 | 305.53 |
| 339.41 | 305.06 | 343.39 | 304.62 | 347.36 | 304.05 | 349.35 | 303.69 | 351.26 | 303.3 |
| 353.89 | 302.88 | 359.79 | 302.39 | 363.27 | 302.18 | 367.01 | 301.85 | 368 | 301.88 |
| 369.24 | 302.01 | 372.26 | 302.2 | 374.89 | 302.22 | 376.2 | 302.19 | 380.14 | 302.17 |
| 385.15 | 302.1 | 388.01 | 301.74 | 395.88 | 301.09 | 398.51 | 301.04 | 403.05 | 300.77 |
| 405.03 | 300.68 | 407.03 | 300.5 | 409 | 300.22 | 411.03 | 300.15 | 413.03 | 300.02 |
| 416.84 | 299.88 | 419.04 | 299.75 | 427.04 | 299.35 | 433 | 299.092 | 450.83 | 298.33 |
| 453.44 | 298.38 | 455.07 | 298.49 | 459.08 | 298.62 | 461.68 | 298.65 | 463.08 | 298.76 |
| 463.9 | 298.69 | 468.94 | 296.96 | 471.74 | 296.12 | 474.36 | 295.41 | 476.97 | 295.75 |
| 479.1 | 296.28 | 479.59 | 296.35 | 481.1 | 296.24 | 482.2 | 296.23 | 486.03 | 295.85 |
| 487.43 | 295.66 | 489.1 | 295.33 | 491.11 | 295.06 | 495.27 | 294.73 | 497.89 | 294.72 |
| 503.14 | 294.78 | 505.12 | 295.09 | 505.73 | 295.27 | 508.34 | 296.43 | 509.13 | 296.68 |
| 511.69 | 297.17 | 513.57 | 297.35 | 516.19 | 297.87 | 517.14 | 298 | 518.8 | 298.33 |
| 521.41 | 298.56 | 523.14 | 298.41 | 525.15 | 298.18 | 526.64 | 298.09 | 529.26 | 298.1 |
| 534.48 | 298.08 | 539.71 | 298.09 | 545.17 | 297.99 | 550.17 | 297.95 | 555.4 | 297.95 |
| 561.19 | 298.1 | 563.24 | 298.19 | 565.85 | 298.24 | 571.2 | 298.24 | 573.7 | 298.19 |
| 575.2 | 298.34 | 578.92 | 298.51 | 581.54 | 298.58 | 584.15 | 298.5 | 587.22 | 298.79 |
| 589.69 | 299.08 | 591.22 | 299.31 | 591.99 | 299.36 | 597.24 | 299.16 | 599.23 | 299.1 |
| 602.45 | 299.27 | 605.07 | 299.44 | 607.24 | 299.41 | 609.24 | 299.24 | 612.91 | 298.86 |
| 615.25 | 298.77 | 618.14 | 298.73 | 621.25 | 298.61 | 622.91 | 298.44 | 625.26 | 298.28 |
| 625.98 | 298.19 | 628.59 | 298.04 | 633.27 | 297.9 | 636.43 | 298.08 | 639.28 | 298.03 |
| 643.28 | 298.28 | 646.89 | 298.37 | 649.51 | 298.16 | 652.12 | 298.06 | 657.3 | 297.94 |
| 659.96 | 298.02 | 663.3 | 298.24 | 665.19 | 298.34 | 667.8 | 298.58 | 671.31 | 298.71 |
| 675.32 | 298.89 | 678.26 | 298.85 | 680.87 | 299.01 | 683.49 | 299.09 | 686.1 | 298.97 |
| 688.72 | 298.9 | 691.33 | 298.91 | 693.95 | 298.92 | 695.34 | 298.97 | 696.56 | 298.98 |
| 720.09 | 298.98 | 727.34 | 298.98 | 737.45 | 298.66 | 770.58 | 298 | 790.39 | 296.68 |
| 819.65 | 296.68 | 838.35 | 298 | 866.67 | 298 | 877.89 | 295.19 | 893.56 | 295.29 |
| 895.23 | 295.31 | 897.85 | 295.24 | 900.46 | 295.28 | 903.58 | 295.63 | 905.22 | 295.73 |
| 910.92 | 295.94 | 913.59 | 296.41 | 916.14 | 297.12 | 917.59 | 297.44 | 919.59 | 297.75 |
| 921.6 | 297.9 | 923.99 | 297.99 | 925.6 | 298.01 | 927.6 | 297.97 | 929.21 | 297.87 |
| 931.52 | 298 | 938.6 | 300 | 951.75 | 300 | 960.67 | 298 | 1002.48 | 298 |
| 1013.9 | 299.754 | 1015.5 | 300 | 1042.19 | 300 | 1062.53 | 300 | 1066.39 | 300 |
| 1066.39 | 307 | 1069.81 | 308 | 1073.81 | 310 | 1077.8 | 312 | 1081.81 | 314 |
| 1085.26 | 315.5 | 1156.32 | 315.5 | 1174.31 | 313.9 | 1229.4 | 315.3 | 1314.98 | 315.3 |
| 1340.67 | 314 | 1360.7 | 315.6 | 1437.02 | 316 | 1438.65 | 315 | 1440.5 | 315 |
| 1440.5 | 313 | 1441.58 | 313.18 | 1442.19 | 313.32 | 1444.19 | 313.97 | 1446.81 | 315.54 |
| 1449.42 | 316.75 | 1450.2 | 317.15 | 1452.04 | 318.28 | 1454.2 | 319.78 | 1456.21 | 320.92 |
| 1457.27 | 321.44 | 1458.21 | 321.98 | 1459.26 | 322.81 | 1460.21 | 323.42 | 1461.29 | 324.41 |
| 1462.21 | 325.51 | 1462.49 | 325.67 | 1464.21 | 328.1 | 1465.11 | 329.25 | 1466.22 | 330.23 |
| 1466.79 | 330.34 | 1467.72 | 330.86 | 1472.95 | 330.98 | 1478.18 | 331 | 1480.79 | 331.06 |
| 1484.24 | 330.97 | 1486.96 | 330.94 | 1491.25 | 331 | 1496.48 | 331.12 | 1499.09 | 331.05 |
| 1504.26 | 331.03 | 1506.26 | 331 | 1509.55 | 331 | 1517.39 | 330.94 | 1520.28 | 330.84 |
| 1527.85 | 330.78 | 1533.07 | 330.72 | 1540.92 | 330.69 | 1546.14 | 330.72 | 1550.31 | 330.69 |
| 1552.31 | 330.73 | 1553.99 | 330.71 | 1556.32 | 330.6 | 1559.22 | 330.53 | 1561.83 | 330.37 |
| 1564.44 | 330.28 | 1569.67 | 330.19 | 1574.9 | 329.93 | 1580.13 | 329.81 | 1588.36 | 329.23 |
| 1590.36 | 329.13 | 1594.36 | 328.79 | 1595.81 | 328.72 | 1598.43 | 328.47 | 1601.04 | 327.93 |
| 1603.66 | 327.44 | 1606.27 | 327.22 | 1608.38 | 327.22 | 1611.64 | 327.26 | | |

Manning's n Values num= 7

| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|---|---|---|---|

```
      0     .05     433     .06  737.45     .04  877.89     .06  931.52     .04
 1085.26     .15 1441.58     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           433  1013.9              700     701     615             .1       .3
```

CROSS SECTION OUTPUT  Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 308.75 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.45 | Wt. n-Val. | 0.050 | 0.050 | 0.040 |
| W.S. Elev (ft) | 308.29 | Reach Len. (ft) | 700.00 | 701.00 | 615.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 736.03 | 6057.29 | 438.39 |
| E.G. Slope (ft/ft) | 0.001543 | Area (sq ft) | 736.03 | 6057.29 | 438.39 |
| Q Total (cfs) | 38000.00 | Flow (cfs) | 2255.01 | 33431.20 | 2313.80 |
| Top Width (ft) | 810.09 | Top Width (ft) | 172.69 | 580.90 | 56.50 |
| Vel Total (ft/s) | 5.25 | Avg. Vel. (ft/s) | 3.06 | 5.52 | 5.28 |
| Max Chl Dpth (ft) | 13.57 | Hydr. Depth (ft) | 4.26 | 10.43 | 7.76 |
| Conv. Total (cfs) | 967360.1 | Conv. (cfs) | 57405.5 | 851052.8 | 58901.9 |
| Length Wtd. (ft) | 694.64 | Wetted Per. (ft) | 173.12 | 583.67 | 63.73 |
| Min Ch El (ft) | 294.72 | Shear (lb/sq ft) | 0.41 | 1.00 | 0.66 |
| Alpha | 1.05 | Stream Power (lb/ft s) | 1.25 | 5.52 | 3.50 |
| Frctn Loss (ft) | 1.90 | Cum Volume (acre-ft) | 8.42 | 242.45 | 122.72 |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 2.66 | 25.14 | 21.62 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT  Profile #PF 3

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 311.46 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.46 | Wt. n-Val. | 0.050 | 0.050 | 0.040 |
| W.S. Elev (ft) | 311.00 | Reach Len. (ft) | 700.00 | 701.00 | 615.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 1332.99 | 7629.50 | 598.62 |
| E.G. Slope (ft/ft) | 0.001175 | Area (sq ft) | 1332.99 | 7629.50 | 598.62 |
| Q Total (cfs) | 50000.00 | Flow (cfs) | 3970.23 | 42835.42 | 3194.35 |
| Top Width (ft) | 908.95 | Top Width (ft) | 266.14 | 580.90 | 61.91 |
| Vel Total (ft/s) | 5.23 | Avg. Vel. (ft/s) | 2.98 | 5.61 | 5.34 |
| Max Chl Dpth (ft) | 16.28 | Hydr. Depth (ft) | 5.01 | 13.13 | 9.67 |
| Conv. Total (cfs) | 1458703.0 | Conv. (cfs) | 115827.7 | 1249683.0 | 93192.2 |
| Length Wtd. (ft) | 694.31 | Wetted Per. (ft) | 266.61 | 583.67 | 69.78 |
| Min Ch El (ft) | 294.72 | Shear (lb/sq ft) | 0.37 | 0.96 | 0.63 |
| Alpha | 1.08 | Stream Power (lb/ft s) | 1.09 | 5.38 | 3.36 |
| Frctn Loss (ft) | 1.39 | Cum Volume (acre-ft) | 26.40 | 346.56 | 237.79 |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 6.55 | 25.24 | 23.51 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate

the need for additional cross sections.

CROSS SECTION OUTPUT  Profile #PF 6

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 306.47 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.32 | Wt. n-Val. | 0.050 | 0.050 | 0.040 |
| W.S. Elev (ft) | 306.15 | Reach Len. (ft) | 700.00 | 701.00 | 615.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 435.24 | 4811.42 | 323.01 |
| E.G. Slope (ft/ft) | 0.001479 | Area (sq ft) | 435.24 | 4811.42 | 323.01 |
| Q Total (cfs) | 25000.00 | Flow (cfs) | 1246.91 | 22314.21 | 1438.89 |
| Top Width (ft) | 742.67 | Top Width (ft) | 109.28 | 580.90 | 52.49 |
| Vel Total (ft/s) | 4.49 | Avg. Vel. (ft/s) | 2.86 | 4.64 | 4.45 |
| Max Chl Dpth (ft) | 11.43 | Hydr. Depth (ft) | 3.98 | 8.28 | 6.15 |
| Conv. Total (cfs) | 650094.4 | Conv. (cfs) | 32424.2 | 580253.7 | 37416.5 |
| Length Wtd. (ft) | 695.00 | Wetted Per. (ft) | 109.66 | 583.67 | 58.66 |
| Min Ch El (ft) | 294.72 | Shear (lb/sq ft) | 0.37 | 0.76 | 0.51 |
| Alpha | 1.03 | Stream Power (lb/ft s) | 1.05 | 3.53 | 2.26 |
| Frctn Loss (ft) | 1.81 | Cum Volume (acre-ft) | 5.50 | 210.55 | 110.19 |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 1.91 | 25.06 | 21.50 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: San Diego River
REACH: Reach 1  RS: 245

INPUT
Description: Survey Data (June 12, 2014), and proposed grading-Proposed grading starts at station 1373.16
In the non-disturbed area, Manning's coefficients are derived from the Corrected Effective Model.
Station Elevation Data  num=  428

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 332 | 2.84 | 332.19 | 5.61 | 331.73 | 8.38 | 331.47 | 11.15 | 331.35 |
| 13.91 | 331.34 | 16.68 | 331.19 | 22.22 | 331.11 | 27.76 | 330.97 | 36.57 | 330.92 |
| 47.13 | 330.62 | 52.67 | 330.54 | 55.44 | 330.59 | 58.21 | 330.86 | 60.98 | 331.66 |
| 63.74 | 332.05 | 66.51 | 331.88 | 72.05 | 331.1 | 74.82 | 331.13 | 78.38 | 331.34 |
| 80.35 | 331.62 | 83.47 | 331.43 | 85.89 | 330.53 | 88.66 | 328.99 | 91.43 | 328.22 |
| 94.2 | 326.76 | 96.6 | 325.29 | 98.48 | 324.29 | 102.5 | 322.5 | 105.27 | 322.02 |
| 110.81 | 321.97 | 122.87 | 321.76 | 138.49 | 321.39 | 146.79 | 321.17 | 157.87 | 320.93 |
| 160.64 | 320.84 | 180.01 | 320.7 | 182.9 | 320.72 | 193.86 | 320.68 | 204.93 | 320.51 |
| 218.77 | 320.18 | 224.18 | 320.09 | 232.61 | 319.89 | 246.45 | 319.6 | 263.06 | 319.16 |
| 267.33 | 319.1 | 274.14 | 318.93 | 279.67 | 319.02 | 282.44 | 318.94 | 287.98 | 319.34 |
| 290.75 | 319.66 | 296.28 | 319.88 | 299.05 | 320.09 | 304.59 | 320.63 | 310.13 | 320.93 |
| 315.66 | 321.01 | 317.04 | 320.71 | 323.97 | 318.15 | 327.36 | 317.19 | 329.5 | 317.06 |
| 332.27 | 317.08 | 357.38 | 317 | 368.26 | 316.94 | 382.1 | 316.9 | 386.89 | 316.81 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 393.17 | 316.75 | 398.65 | 316.84 | 407.02 | 316.8 | 415.32 | 316.63 | 427.63 | 316.42 |
| 431.93 | 316.38 | 458.69 | 315.94 | 462.56 | 315.75 | 467.92 | 315.56 | 470.69 | 315.66 |
| 476.22 | 315.73 | 484.53 | 315.91 | 487.3 | 315.91 | 491.66 | 316.05 | 496.21 | 316.07 |
| 509.44 | 316.44 | 514.98 | 316.44 | 520.52 | 316.71 | 523.29 | 316.79 | 526.05 | 316.64 |
| 528.1 | 316.82 | 537.13 | 316.66 | 539.36 | 316.75 | 542.66 | 316.7 | 556.51 | 316.75 |
| 567.58 | 316.72 | 570.35 | 316.78 | 578.65 | 316.84 | 581.42 | 316.78 | 586.96 | 316.96 |
| 590.62 | 316.81 | 591.89 | 316.86 | 595.26 | 317.4 | 602.26 | 317.7 | 603.57 | 317.54 |
| 608.08 | 316.74 | 617.41 | 316.59 | 622.95 | 316.31 | 628.48 | 316.16 | 629.41 | 315.13 |
| 631.37 | 310.13 | 633.16 | 306.96 | 634.02 | 305.95 | 636.79 | 305.58 | 639.56 | 304.94 |
| 645.09 | 304.22 | 647.86 | 304.06 | 653.4 | 304.17 | 655.7 | 304.089 | 659.43 | 303.85 |
| 661.7 | 303.59 | 666.93 | 303.22 | 670.01 | 302.56 | 672.56 | 302.12 | 676.31 | 301.19 |
| 681.08 | 299.79 | 686.62 | 298.64 | 693.2 | 297.84 | 695.4 | 297.65 | 698.83 | 297.15 |
| 701.22 | 296.89 | 704.46 | 296.87 | 706.33 | 296.77 | 711.53 | 296.66 | 717.07 | 296.31 |
| 719.84 | 296.21 | 722.61 | 296.46 | 725.09 | 296.35 | 728.84 | 296.63 | 730.91 | 296.98 |
| 736.45 | 296.78 | 740.1 | 296.9 | 747.61 | 296.93 | 749.48 | 297 | 751.36 | 296.92 |
| 755.11 | 296.59 | 758.59 | 296.54 | 761.36 | 296.61 | 766.37 | 296.48 | 769.67 | 296.55 |
| 771.99 | 296.2 | 773.87 | 295.68 | 775.75 | 295.39 | 777.97 | 295.44 | 780.74 | 295.95 |
| 783.51 | 296.63 | 785.13 | 296.61 | 788.88 | 296.38 | 791.81 | 296.51 | 794.51 | 296.75 |
| 797.35 | 297.11 | 800.12 | 297.15 | 802.01 | 296.98 | 803.89 | 297.03 | 805.99 | 297.36 |
| 808.42 | 297.47 | 811.82 | 297.32 | 818.9 | 296.76 | 825.03 | 296.92 | 827.8 | 296.77 |
| 830.57 | 295.86 | 835.1 | 295.52 | 843.29 | 295.61 | 847.04 | 295.56 | 849.95 | 295.74 |
| 858.25 | 296.46 | 863.92 | 297.64 | 866.56 | 298.01 | 871.43 | 298.2 | 880.4 | 298.09 |
| 882.68 | 298.15 | 885.94 | 297.99 | 888.7 | 297.4 | 891.47 | 296.65 | 894.24 | 294.91 |
| 897.01 | 292.78 | 899.78 | 291.77 | 901.44 | 291.49 | 904.95 | 291.1 | 908.95 | 291.11 |
| 910.85 | 291.03 | 919.16 | 291.38 | 924.69 | 291.73 | 927.46 | 292.07 | 930.23 | 292.55 |
| 933 | 292.91 | 938.53 | 293.22 | 941.3 | 293.57 | 944.6 | 293.75 | 949.61 | 294.29 |
| 952.1 | 294.81 | 955.14 | 295.33 | 960.68 | 296.05 | 966.22 | 296.28 | 968.99 | 296.5 |
| 971.75 | 296.56 | 980.06 | 296.47 | 982.83 | 296.5 | 985.87 | 296.35 | 991.13 | 296.54 |
| 993.9 | 296.58 | 1002.21 | 296.24 | 1007.74 | 295.79 | 1012.13 | 296.12 | 1015.89 | 296.33 |
| 1021.37 | 296.38 | 1027.19 | 296.13 | 1032.66 | 296.1 | 1035.43 | 296.16 | 1040.28 | 295.83 |
| 1043.73 | 295.98 | 1049.27 | 295.7 | 1054.8 | 295.28 | 1060.34 | 295.51 | 1065.88 | 295.65 |
| 1068.65 | 295.89 | 1074.18 | 296.73 | 1076.95 | 296.71 | 1085.26 | 296.34 | 1088.02 | 296.28 |
| 1101.87 | 296.43 | 1107.4 | 296.07 | 1110.17 | 296 | 1115.32 | 296.16 | 1118.48 | 296.02 |
| 1121.24 | 296.25 | 1124.01 | 296.36 | 1126.78 | 296.28 | 1129.55 | 296.33 | 1137.85 | 296.69 |
| 1143.39 | 297.12 | 1146.16 | 297.68 | 1160.35 | 297.39 | 1165.54 | 297.2 | 1167.85 | 297.25 |
| 1173.84 | 297.03 | 1177.23 | 297.12 | 1184.92 | 297.09 | 1190.45 | 297.31 | 1195.99 | 297.19 |
| 1201.53 | 296.88 | 1209.12 | 296.24 | 1212.6 | 296.01 | 1220.9 | 295.67 | 1226.44 | 295.56 |
| 1234.75 | 294.97 | 1243.05 | 294.53 | 1248.59 | 294.5 | 1254.21 | 294.22 | 1259.66 | 294.29 |
| 1261.65 | 294.84 | 1263.53 | 295.06 | 1267.96 | 295.29 | 1271.03 | 295.35 | 1273.5 | 295.72 |
| 1276.66 | 295.67 | 1279.04 | 295.4 | 1281.81 | 295.43 | 1287.7 | 295.836 | 1292.88 | 295.97 |
| 1295.42 | 295.86 | 1298.42 | 295.89 | 1301.18 | 296.15 | 1304.8 | 295.61 | 1306.72 | 295.44 |
| 1309.49 | 295.37 | 1312.26 | 295.62 | 1314.18 | 296.05 | 1317.79 | 296.63 | 1320.56 | 297.38 |
| 1325.44 | 297.46 | 1328.87 | 297.78 | 1331.64 | 297.63 | 1337.17 | 297.01 | 1339.94 | 297.08 |
| 1342.71 | 297.44 | 1346.08 | 297.33 | 1348.25 | 297.45 | 1351.01 | 298.15 | 1356.55 | 300.77 |
| 1359.32 | 301.34 | 1362.09 | 301.39 | 1364.86 | 301.25 | 1368.59 | 300.94 | 1373.16 | 300.46 |
| 1381.47 | 299.84 | 1387 | 299.65 | 1393.96 | 299.72 | 1399.37 | 300 | 1400.01 | 301.39 |
| 1411.74 | 302.1 | 1429.9 | 310 | 1436.51 | 312 | 1508.82 | 312 | 1526.87 | 312.1 |
| 1555.9 | 313.1 | 1593.3 | 313.1 | 1636.57 | 312.8 | 1640.47 | 314.6 | 1700.95 | 314.6 |
| 1728.04 | 314.2 | 1771.31 | 314.2 | 1843.95 | 313.8 | 1845.34 | 315.71 | 1853.75 | 317.19 |
| 1858.25 | 318.37 | 1860.39 | 319.21 | 1863.16 | 320.56 | 1865.4 | 322.04 | 1871.22 | 326.19 |
| 1873.26 | 327.09 | 1874.23 | 327.69 | 1877.01 | 329.75 | 1879.77 | 331.55 | 1882.64 | 333.1 |
| 1885.3 | 334.05 | 1888.07 | 334.39 | 1893.61 | 334.27 | 1895.77 | 334.34 | 1901.91 | 334.27 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 1907.03 | 334.3 | 1912.99 | 334.09 | 1918.52 | 334.13 | 1924.06 | 333.97 | 1929.6 | 333.97 |
| 1937.9 | 333.91 | 1955.81 | 333.89 | 1960.05 | 333.76 | 1964.35 | 333.72 | 1968.35 | 333.47 |
| 1973.89 | 332.63 | 1979.43 | 331.73 | 1985.82 | 331.12 | 1987.73 | 331 | 1993.45 | 330.46 |
| 1996.04 | 330.33 | 2004.34 | 330.65 | 2009.88 | 330.75 | 2018.18 | 330.91 | 2025.22 | 330.99 |
| 2034.79 | 331 | 2040.33 | 330.93 | 2045.87 | 330.91 | 2048.63 | 330.8 | 2051.66 | 330.78 |
| 2057.11 | 330.57 | 2059.71 | 330.69 | 2066.49 | 331.27 | 2070.78 | 331.72 | 2079.09 | 332.37 |
| 2087.39 | 333.11 | 2092.76 | 333.34 | 2098.23 | 333.4 | 2101.23 | 333.5 | 2109.54 | 333.38 |
| 2115.27 | 333.52 | 2124.65 | 333.5 | 2127.33 | 333.59 | 2135.91 | 333.6 | 2139.99 | 333.73 |
| 2145.29 | 333.81 | 2148.29 | 334.13 | 2151.06 | 334 | 2156.6 | 334.06 | 2170.44 | 334.65 |
| 2173.21 | 335.34 | 2175.98 | 337.02 | 2178.75 | 338.58 | 2181.51 | 339.28 | 2192.59 | 339.58 |
| 2200.89 | 339.16 | 2206.43 | 338.83 | 2211.97 | 338.69 | 2217.5 | 338.73 | 2220.46 | 338.62 |
| 2228.58 | 338.57 | 2234.11 | 338.33 | 2239.09 | 338.3 | 2245.19 | 338 | 2250.35 | 337.65 |
| 2253.49 | 337.36 | 2257.85 | 336.81 | 2261.8 | 336.21 | 2267.03 | 335.65 | 2270.1 | 335.38 |
| 2272.87 | 334.97 | 2281.17 | 335.14 | 2283.94 | 335.09 | 2286.71 | 335.16 | 2290.31 | 335.15 |
| 2306.09 | 334.97 | 2308.86 | 334.88 | 2314.39 | 334.84 | 2319.93 | 334.69 | 2325.47 | 334.66 |
| 2331 | 334.5 | 2333.77 | 334.48 | 2342.08 | 334.25 | 2347.61 | 334.06 | 2350.38 | 334.05 |
| 2355.92 | 333.9 | 2361.04 | 333.71 | 2364.22 | 333.68 | 2369.76 | 333.72 | 2375.3 | 333.94 |
| 2383.45 | 334.18 | 2389.14 | 334.31 | 2400.21 | 334.27 | 2414.05 | 333.97 | 2416.82 | 334.07 |
| 2422.36 | 334.84 | 2424.83 | 335.33 | 2427.9 | 335.55 | 2432.33 | 335.68 | 2434.21 | 335.89 |
| 2441.74 | 336.53 | 2444.51 | 336.81 | 2450.04 | 337.19 | 2455.58 | 337.39 | 2462.35 | 337.43 |
| 2469.85 | 337.65 | 2474.96 | 337.45 | 2498.59 | 337.08 | | | | |

Manning's n Values num= 6

| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|---|---|---|---|
| 0 | .045 | 655.7 | .1 | 1287.7 | .11 | 1373.16 | .04 | 1508.82 | .15 |
| 1888.07 | .05 | | | | | | | | |

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

| | | | | | | |
|---|---|---|---|---|---|---|
| 655.7 | 1287.7 | | 140.2 | 147.4 | 160 | .1 | .3 |

Ineffective Flow num= 2

| Sta L | Sta R | Elev | Permanent |
|---|---|---|---|
| 0 | 642 | 313.25 | F |
| 1371.7 | 2498.59 | 313.25 | F |

CROSS SECTION OUTPUT Profile #PF 1

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 306.84 | Element | | | |
| Vel Head (ft) | 0.44 | Wt. n-Val. | 0.045 | 0.100 | 0.110 |
| W.S. Elev (ft) | 306.40 | Reach Len. (ft) | 140.20 | 147.40 | 160.00 |
| Crit W.S. (ft) | 300.76 | Flow Area (sq ft) | 30.22 | 6381.75 | 734.94 |
| E.G. Slope (ft/ft) | 0.006148 | Area (sq ft) | 39.15 | 6381.75 | 993.74 |
| Q Total (cfs) | 38000.00 | Flow (cfs) | 132.37 | 34591.39 | 3276.24 |
| Top Width (ft) | 787.98 | Top Width (ft) | 22.06 | 632.00 | 133.92 |
| Vel Total (ft/s) | 5.32 | Avg. Vel. (ft/s) | 4.38 | 5.42 | 4.46 |
| Max Chl Dpth (ft) | 15.37 | Hydr. Depth (ft) | 2.21 | 10.10 | 8.75 |
| Conv. Total (cfs) | 484629.4 | Conv. (cfs) | 1688.2 | 441158.0 | 41783.2 |
| Length Wtd. (ft) | 147.93 | Wetted Per. (ft) | 13.73 | 635.99 | 85.12 |
| Min Ch El (ft) | 291.03 | Shear (lb/sq ft) | 0.84 | 3.85 | 3.31 |
| Alpha | 1.01 | Stream Power (lb/ft s) | 3.70 | 20.88 | 14.77 |
| Frctn Loss (ft) | 0.69 | Cum Volume (acre-ft) | 2.19 | 142.36 | 112.61 |
| C & E Loss (ft) | 0.03 | Cum SA (acres) | 1.09 | 15.38 | 20.28 |

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

CROSS SECTION OUTPUT Profile #PF 3

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 310.07 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.43 | Wt. n-Val. | 0.045 | 0.100 | 0.110 |
| W.S. Elev (ft) | 309.63 | Reach Len. (ft) | 140.20 | 147.40 | 160.00 |
| Crit W.S. (ft) | 301.75 | Flow Area (sq ft) | 74.55 | 8426.57 | 1006.72 |
| E.G. Slope (ft/ft) | 0.004117 | Area (sq ft) | 113.96 | 8426.57 | 1439.06 |
| Q Total (cfs) | 50000.00 | Flow (cfs) | 487.80 | 44982.91 | 4529.29 |
| Top Width (ft) | 797.41 | Top Width (ft) | 24.05 | 632.00 | 141.36 |
| Vel Total (ft/s) | 5.26 | Avg. Vel. (ft/s) | 6.54 | 5.34 | 4.50 |
| Max Chl Dpth (ft) | 18.60 | Hydr. Depth (ft) | 5.44 | 13.33 | 11.98 |
| Conv. Total (cfs) | 779294.9 | Conv. (cfs) | 7602.8 | 701099.1 | 70593.0 |
| Length Wtd. (ft) | 147.94 | Wetted Per. (ft) | 13.73 | 635.99 | 85.12 |
| Min Ch El (ft) | 291.03 | Shear (lb/sq ft) | 1.40 | 3.41 | 3.04 |
| Alpha | 1.01 | Stream Power (lb/ft s) | 9.13 | 18.18 | 13.67 |
| Frctn Loss (ft) | 0.48 | Cum Volume (acre-ft) | 14.78 | 217.36 | 223.40 |
| C & E Loss (ft) | 0.03 | Cum SA (acres) | 4.22 | 15.48 | 22.07 |

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

CROSS SECTION OUTPUT Profile #PF 6

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 304.66 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.31 | Wt. n-Val. | 0.045 | 0.100 | 0.110 |
| W.S. Elev (ft) | 304.35 | Reach Len. (ft) | 140.20 | 147.40 | 160.00 |
| Crit W.S. (ft) | 299.62 | Flow Area (sq ft) | 2.44 | 5086.81 | 562.83 |
| E.G. Slope (ft/ft) | 0.005770 | Area (sq ft) | 2.44 | 5086.81 | 724.17 |
| Q Total (cfs) | 25000.00 | Flow (cfs) | 2.16 | 22963.28 | 2034.57 |
| Top Width (ft) | 772.80 | Top Width (ft) | 11.60 | 632.00 | 129.21 |
| Vel Total (ft/s) | 4.42 | Avg. Vel. (ft/s) | 0.89 | 4.51 | 3.61 |
| Max Chl Dpth (ft) | 13.32 | Hydr. Depth (ft) | 0.21 | 8.05 | 6.70 |
| Conv. Total (cfs) | 329112.1 | Conv. (cfs) | 28.4 | 302299.7 | 26784.0 |
| Length Wtd. (ft) | 147.91 | Wetted Per. (ft) | 11.61 | 635.99 | 85.12 |
| Min Ch El (ft) | 291.03 | Shear (lb/sq ft) | 0.08 | 2.88 | 2.38 |
| Alpha | 1.01 | Stream Power (lb/ft s) | 0.07 | 13.01 | 8.61 |
| Frctn Loss (ft) | 0.57 | Cum Volume (acre-ft) | 1.99 | 130.90 | 102.80 |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 0.94 | 15.30 | 20.22 |

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

CROSS SECTION

RIVER: San Diego River
REACH: Reach 1 RS: 244

INPUT
Description: Begin Grading-West site-regrading starts at station 1160.21
 PA-1
            starts st Station 1221.2 manning = 0.15
Station Elevation Data    num=      50

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 312.5 | 104.5 | 308.1 | 201.3 | 303.9 | 207.8 | 307.1 | 216.5 | 307.1 |
| 237.5 | 311.6 | 319.8 | 312.8 | 335.5 | 307.7 | 367.8 | 307.6 | 459.7 | 307.8 |
| 508.9 | 294.9 | 585.6 | 293.1 | 617.1 | 292.2 | 638.9 | 293.1 | 772.1 | 293.3 |
| 888.2 | 294.6 | 935.1 | 293.5 | 960.1 | 296 | 1085.7 | 298.3 | 1160.21 | 301.08 |
| 1160.21 | 309 | 1162.4 | 310 | 1170.59 | 314 | 1173.4 | 314.5 | 1176.28 | 315.3 |
| 1182.66 | 315.26 | 1189.2 | 316 | 1198.08 | 316 | 1221.2 | 316 | 1237.79 | 315.57 |
| 1240.81 | 313 | 1261.99 | 312 | 1324.4 | 313.4 | 1364.6 | 313.8 | 1401.66 | 314.2 |
| 1444.79 | 314.2 | 1501.32 | 316 | 1507.4 | 318.78 | 1564.26 | 319 | 1579.2 | 316 |
| 1591.26 | 313.39 | 1618.49 | 327.9 | 1787.9 | 328.1 | 1896 | 326.7 | 1953.2 | 313.1 |
| 2022.1 | 315.9 | 2161 | 318.3 | 2292.6 | 325.1 | 2385.9 | 332.9 | 2498.4 | 333.7 |

Manning's n Values        num=       4

| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|---|---|
| 0 | .1 | 459.7 | .065 | 960.1 | .045 | 1221.2 | .15 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 459.7 | 960.1 | 104.8 | 124.6 | 145 | .1 | .3 |

Ineffective Flow     num=       2

| Sta L | Sta R | Elev | Permanent |
|---|---|---|---|
| 0 | 459.7 | 311.5 | F |
| 960.1 | 2498.4 | 311.5 | F |

CROSS SECTION OUTPUT  Profile #PF 1

| | | | | | | |
|---|---|---|---|---|---|---|
| E.G. Elev (ft) | 306.12 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.74 | Wt. n-Val. | | 0.065 | |
| W.S. Elev (ft) | 305.38 | Reach Len. (ft) | 35.00 | 35.00 | 35.00 |
| Crit W.S. (ft) | 299.66 | Flow Area (sq ft) | | 5509.08 | |
| E.G. Slope (ft/ft) | 0.003642 | Area (sq ft) | 27.60 | 5509.08 | 1458.37 |
| Q Total (cfs) | 38000.00 | Flow (cfs) | | 38000.00 | |
| Top Width (ft) | 728.50 | Top Width (ft) | 37.21 | 491.18 | 200.11 |
| Vel Total (ft/s) | 6.90 | Avg. Vel. (ft/s) | | 6.90 | |
| Max Chl Dpth (ft) | 13.18 | Hydr. Depth (ft) | | 11.22 | |
| Conv. Total (cfs) | 629708.6 | Conv. (cfs) | | 629708.6 | |
| Length Wtd. (ft) | 35.00 | Wetted Per. (ft) | | 492.73 | |
| Min Ch El (ft) | 292.20 | Shear (lb/sq ft) | | 2.54 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 17.53 | |
| Frctn Loss (ft) | 0.17 | Cum Volume (acre-ft) | 2.09 | 122.24 | 108.11 |
| C & E Loss (ft) | 0.02 | Cum SA (acres) | 1.00 | 13.48 | 19.66 |

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

CROSS SECTION OUTPUT  Profile #PF 3

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 309.55 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.75 | Wt. n-Val. | | 0.065 | |
| W.S. Elev (ft) | 308.81 | Reach Len. (ft) | 35.00 | 35.00 | 35.00 |
| Crit W.S. (ft) | 300.87 | Flow Area (sq ft) | | 7210.64 | |
| E.G. Slope (ft/ft) | 0.002637 | Area (sq ft) | 461.58 | 7210.64 | 2143.27 |
| Q Total (cfs) | 50000.00 | Flow (cfs) | | 50000.00 | |
| Top Width (ft) | 964.85 | Top Width (ft) | 264.34 | 500.40 | 200.11 |
| Vel Total (ft/s) | 6.93 | Avg. Vel. (ft/s) | | 6.93 | |
| Max Chl Dpth (ft) | 16.61 | Hydr. Depth (ft) | | 14.41 | |
| Conv. Total (cfs) | 973685.1 | Conv. (cfs) | | 973685.1 | |
| Length Wtd. (ft) | 35.00 | Wetted Per. (ft) | | 502.26 | |
| Min Ch El (ft) | 292.20 | Shear (lb/sq ft) | | 2.36 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 16.39 | |
| Frctn Loss (ft) | 0.12 | Cum Volume (acre-ft) | 13.85 | 190.91 | 216.82 |
| C & E Loss (ft) | 0.02 | Cum SA (acres) | 3.75 | 13.57 | 21.45 |

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

CROSS SECTION OUTPUT Profile #PF 6

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 304.08 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.45 | Wt. n-Val. | | 0.065 | |
| W.S. Elev (ft) | 303.63 | Reach Len. (ft) | 35.00 | 35.00 | 35.00 |
| Crit W.S. (ft) | 298.20 | Flow Area (sq ft) | | 4652.47 | |
| E.G. Slope (ft/ft) | 0.002717 | Area (sq ft) | | 4652.47 | 1106.98 |
| Q Total (cfs) | 25000.00 | Flow (cfs) | | 25000.00 | |
| Top Width (ft) | 684.60 | Top Width (ft) | | 484.49 | 200.11 |
| Vel Total (ft/s) | 5.37 | Avg. Vel. (ft/s) | | 5.37 | |
| Max Chl Dpth (ft) | 11.43 | Hydr. Depth (ft) | | 9.60 | |
| Conv. Total (cfs) | 479634.2 | Conv. (cfs) | | 479634.2 | |
| Length Wtd. (ft) | 35.00 | Wetted Per. (ft) | | 485.81 | |
| Min Ch El (ft) | 292.20 | Shear (lb/sq ft) | | 1.62 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 8.73 | |
| Frctn Loss (ft) | 0.12 | Cum Volume (acre-ft) | 1.98 | 114.42 | 99.43 |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 0.92 | 13.41 | 19.61 |

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

BRIDGE

RIVER: San Diego River
REACH: Reach 1 RS: 243

INPUT
Description:
Distance from Upstream XS = 35
Deck/Roadway Width = 55

Weir Coefficient = 2.6
Upstream Deck/Roadway Coordinates
num= 2

| Sta Hi Cord | Lo Cord | Sta Hi Cord | Lo Cord |
|---|---|---|---|
| 459.7 | 315 | 311.5 | 960.1 | 315 | 311.5 |

Upstream Bridge Cross Section Data
Station Elevation Data num= 50

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 312.5 | 104.5 | 308.1 | 201.3 | 303.9 | 207.8 | 307.1 | 216.5 | 307.1 |
| 237.5 | 311.6 | 319.8 | 312.8 | 335.5 | 307.7 | 367.8 | 307.6 | 459.7 | 307.8 |
| 508.9 | 294.9 | 585.6 | 293.1 | 617.1 | 292.2 | 638.9 | 293.1 | 772.1 | 293.3 |
| 888.2 | 294.6 | 935.1 | 293.5 | 960.1 | 296 | 1085.7 | 298.3 | 1160.21 | 301.08 |
| 1160.21 | 309 | 1162.4 | 310 | 1170.59 | 314 | 1173.4 | 314.5 | 1176.28 | 315.3 |
| 1182.66 | 315.26 | 1189.2 | 316 | 1198.08 | 316 | 1221.2 | 316 | 1237.79 | 315.57 |
| 1240.81 | 313 | 1261.99 | 312 | 1324.4 | 313.4 | 1364.6 | 313.8 | 1401.66 | 314.2 |
| 1444.79 | 314.2 | 1501.32 | 316 | 1507.4 | 318.78 | 1564.26 | 319 | 1579.2 | 316 |
| 1591.26 | 313.39 | 1618.49 | 327.9 | 1787.9 | 328.1 | 1896 | 326.7 | 1953.2 | 313.1 |
| 2022.1 | 315.9 | 2161 | 318.3 | 2292.6 | 325.1 | 2385.9 | 332.9 | 2498.4 | 333.7 |

Manning's n Values num= 4

| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|---|---|
| 0 | .1 | 459.7 | .065 | 960.1 | .045 | 1221.2 | .15 |

Bank Sta: Left Right Coeff Contr. Expan.
459.7 960.1 .1 .3
Ineffective Flow num= 2

| Sta L | Sta R | Elev | Permanent |
|---|---|---|---|
| 0 | 459.7 | 311.5 | F |
| 960.1 | 2498.4 | 311.5 | F |

Downstream Deck/Roadway Coordinates
num= 2

| Sta Hi Cord | Lo Cord | Sta Hi Cord | Lo Cord |
|---|---|---|---|
| 401 | 315 | 311.5 | 900.5 | 315 | 311.5 |

Downstream Bridge Cross Section Data
Station Elevation Data num= 35

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 316.8 | 112 | 313 | 208.4 | 309.6 | 275.7 | 312.9 | 401 | 311.6 |
| 456.4 | 294.1 | 515 | 292.1 | 549.1 | 291.7 | 573.4 | 293 | 615.3 | 292.5 |
| 683.3 | 294 | 754 | 293.8 | 833.8 | 293.1 | 848.7 | 292.9 | 881.7 | 298.9 |
| 900.5 | 309.6 | 933.7 | 309.6 | 993.7 | 311.6 | 1109.5 | 310.6 | 1250.9 | 313.9 |
| 1354.6 | 317.3 | 1496.3 | 321.3 | 1588.4 | 321.9 | 1606.6 | 328.4 | 1621 | 329.1 |
| 1637.1 | 321.6 | 1734 | 320.7 | 1900.1 | 316.2 | 2003.5 | 313.7 | 2112.3 | 317.6 |
| 2154.7 | 320.9 | 2210.3 | 328 | 2252.9 | 327.8 | 2328.2 | 325.6 | 2378.2 | 322.3 |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .1 | 401 | .065 | 900.5 | .045 |

Bank Sta: Left Right Coeff Contr. Expan.

```
          401   900.5             .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
       0     401  313.25       F
   900.5  2378.2  313.25       F

Upstream Embankment side slope              =       0 horiz. to 1.0 vertical
Downstream Embankment side slope            =       0 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow =     .98
Elevation at which weir flow begins         =     315
Energy head used in spillway design         =
Spillway height used in design              =
Weir crest shape                            = Broad Crested

Number of Piers =  5

Pier Data
Pier Station     Upstream=   543.2    Downstream=   484.3
Upstream     num=       2
    Width   Elev    Width   Elev
       7       0       7   311.5
Downstream     num=       2
    Width   Elev    Width   Elev
       7       0       7   311.5

Pier Data
Pier Station     Upstream=   626.6    Downstream=   567.7
Upstream     num=       2
    Width   Elev    Width   Elev
       7       0       7   311.5
Downstream     num=       2
    Width   Elev    Width   Elev
       7       0       7   311.5

Pier Data
Pier Station     Upstream=   709.9    Downstream=     651
Upstream     num=       2
    Width   Elev    Width   Elev
       7       0       7   311.5
Downstream     num=       2
    Width   Elev    Width   Elev
       7       0       7   311.5

Pier Data
Pier Station     Upstream=   793.2    Downstream=   734.3
Upstream     num=       2
    Width   Elev    Width   Elev
       7       0       7   311.5
Downstream     num=       2
    Width   Elev    Width   Elev
       7       0       7   311.5
```

Pier Data
Pier Station  Upstream=  876.6  Downstream=  817.7
Upstream  num=  2

| Width | Elev | Width | Elev |
|---|---|---|---|
| 7 | 0 | 7 | 311.5 |

Downstream  num=  2

| Width | Elev | Width | Elev |
|---|---|---|---|
| 7 | 0 | 7 | 311.5 |

Number of Bridge Coefficient Sets = 1

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

High Flow Method
Energy Only

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

BRIDGE OUTPUT Profile #PF 1

| | | | Inside BR US | Inside BR DS |
|---|---|---|---|---|
| E.G. US. (ft) | 306.12 | Element | | |
| W.S. US. (ft) | 305.38 | E.G. Elev (ft) | 305.94 | 305.52 |
| Q Total (cfs) | 38000.00 | W.S. Elev (ft) | 305.01 | 304.41 |
| Q Bridge (cfs) | 38000.00 | Crit W.S. (ft) | 300.00 | 300.01 |
| Q Weir (cfs) | | Max Chl Dpth (ft) | 12.81 | 12.71 |
| Weir Sta Lft (ft) | | Vel Total (ft/s) | 7.71 | 8.44 |
| Weir Sta Rgt (ft) | | Flow Area (sq ft) | 4926.99 | 4502.03 |
| Weir Submerg | | Froude # Chl | 0.38 | 0.46 |
| Weir Max Depth (ft) | | Specif Force (cu ft) | 36757.19 | 34605.89 |
| Min El Weir Flow (ft) | 315.00 | Hydr Depth (ft) | 10.83 | 10.41 |
| Min El Prs (ft) | 311.50 | W.P. Total (ft) | 579.60 | 547.92 |
| Delta EG (ft) | 0.88 | Conv. Total (cfs) | 469136.5 | 419070.5 |
| Delta WS (ft) | 1.10 | Top Width (ft) | 682.78 | 432.61 |
| BR Open Area (sq ft) | 7690.35 | Frctn Loss (ft) | 0.40 | 0.23 |
| BR Open Vel (ft/s) | 8.44 | C & E Loss (ft) | 0.02 | 0.04 |
| BR Sluice Coef | | Shear Total (lb/sq ft) | 3.48 | 4.22 |
| BR Sel Method | Energy only | Power Total (lb/ft s) | 26.85 | 35.60 |

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

BRIDGE OUTPUT Profile #PF 3

| | | | | |
|---|---|---|---|---|
| E.G. US. (ft) | 309.55 | Element | Inside BR US | Inside BR DS |

| | | | | |
|---|---|---|---|---|
| W.S. US. (ft) | 308.81 | E.G. Elev (ft) | 309.41 | 309.11 |
| Q Total (cfs) | 50000.00 | W.S. Elev (ft) | 308.50 | 308.07 |
| Q Bridge (cfs) | 50000.00 | Crit W.S. (ft) | 301.26 | 301.32 |
| Q Weir (cfs) | | Max Chl Dpth (ft) | 16.30 | 16.37 |
| Weir Sta Lft (ft) | | Vel Total (ft/s) | 7.65 | 8.17 |
| Weir Sta Rgt (ft) | | Flow Area (sq ft) | 6537.51 | 6118.15 |
| Weir Submerg | | Froude # Chl | 0.33 | 0.39 |
| Weir Max Depth (ft) | | Specif Force (cu ft) | 59540.48 | 56749.43 |
| Min El Weir Flow (ft) | 315.00 | Hydr Depth (ft) | 14.05 | 13.58 |
| Min El Prs (ft) | 311.50 | W.P. Total (ft) | 629.71 | 604.06 |
| Delta EG (ft) | 0.64 | Conv. Total (cfs) | 711227.1 | 654731.5 |
| Delta WS (ft) | 0.78 | Top Width (ft) | 920.36 | 450.63 |
| BR Open Area (sq ft) | 7690.35 | Frctn Loss (ft) | 0.29 | 0.15 |
| BR Open Vel (ft/s) | 8.17 | C & E Loss (ft) | 0.01 | 0.04 |
| BR Sluice Coef | | Shear Total (lb/sq ft) | 3.20 | 3.69 |
| BR Sel Method | Energy only | Power Total (lb/ft s) | 24.50 | 30.14 |

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

BRIDGE OUTPUT Profile #PF 6

| | | | | |
|---|---|---|---|---|
| E.G. US. (ft) | 304.08 | Element | Inside BR US | Inside BR DS |
| W.S. US. (ft) | 303.63 | E.G. Elev (ft) | 303.94 | 303.66 |
| Q Total (cfs) | 25000.00 | W.S. Elev (ft) | 303.39 | 303.03 |
| Q Bridge (cfs) | 25000.00 | Crit W.S. (ft) | 298.46 | 298.38 |
| Q Weir (cfs) | | Max Chl Dpth (ft) | 11.19 | 11.33 |
| Weir Sta Lft (ft) | | Vel Total (ft/s) | 5.96 | 6.40 |
| Weir Sta Rgt (ft) | | Flow Area (sq ft) | 4195.34 | 3909.00 |
| Weir Submerg | | Froude # Chl | 0.31 | 0.37 |
| Weir Max Depth (ft) | | Specif Force (cu ft) | 24891.26 | 23796.71 |
| Min El Weir Flow (ft) | 315.00 | Hydr Depth (ft) | 9.35 | 9.18 |
| Min El Prs (ft) | 311.50 | W.P. Total (ft) | 555.39 | 526.72 |
| Delta EG (ft) | 0.59 | Conv. Total (cfs) | 369226.1 | 339994.3 |
| Delta WS (ft) | 0.69 | Top Width (ft) | 648.70 | 425.81 |
| BR Open Area (sq ft) | 7690.35 | Frctn Loss (ft) | 0.27 | 0.15 |
| BR Open Vel (ft/s) | 6.40 | C & E Loss (ft) | 0.01 | 0.03 |
| BR Sluice Coef | | Shear Total (lb/sq ft) | 2.16 | 2.51 |
| BR Sel Method | Energy only | Power Total (lb/ft s) | 12.88 | 16.02 |

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

CROSS SECTION

RIVER: San Diego River
REACH: Reach 1 RS: 242

INPUT

Description: Corrected Effective Geometry
Station Elevation Data num= 35

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 316.8 | 112 | 313 | 208.4 | 309.6 | 275.7 | 312.9 | 401 | 311.6 |
| 456.4 | 294.1 | 515 | 292.1 | 549.1 | 291.7 | 573.4 | 293 | 615.3 | 292.5 |
| 683.3 | 294 | 754 | 293.8 | 833.8 | 293.1 | 848.7 | 292.9 | 881.7 | 298.9 |
| 900.5 | 309.6 | 933.7 | 309.6 | 993.7 | 311.6 | 1109.5 | 310.6 | 1250.9 | 313.9 |
| 1354.6 | 317.3 | 1496.3 | 321.3 | 1588.4 | 321.9 | 1606.6 | 328.4 | 1621 | 329.1 |
| 1637.1 | 321.6 | 1734 | 320.7 | 1900.1 | 316.2 | 2003.5 | 313.7 | 2112.3 | 317.6 |
| 2154.7 | 320.9 | 2210.3 | 328 | 2252.9 | 327.8 | 2328.2 | 325.6 | 2378.2 | 322.3 |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .1 | 401 | .065 | 900.5 | .045 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 401 | 900.5 | 165 | 224 | 270 | .3 | .5 |

Ineffective Flow num= 2

| Sta L | Sta R | Elev | Permanent |
|---|---|---|---|
| 0 | 401 | 313.25 | F |
| 900.5 | 2378.2 | 313.25 | F |

CROSS SECTION OUTPUT Profile #PF 1

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 305.25 | Element | | | |
| Vel Head (ft) | 0.96 | Wt. n-Val. | | 0.065 | |
| W.S. Elev (ft) | 304.29 | Reach Len. (ft) | 165.00 | 224.00 | 270.00 |
| Crit W.S. (ft) | 299.62 | Flow Area (sq ft) | | 4835.65 | |
| E.G. Slope (ft/ft) | 0.005290 | Area (sq ft) | | 4835.65 | |
| Q Total (cfs) | 38000.00 | Flow (cfs) | | 38000.00 | |
| Top Width (ft) | 467.01 | Top Width (ft) | | 467.01 | |
| Vel Total (ft/s) | 7.86 | Avg. Vel. (ft/s) | | 7.86 | |
| Max Chl Dpth (ft) | 12.59 | Hydr. Depth (ft) | | 10.35 | |
| Conv. Total (cfs) | 522449.2 | Conv. (cfs) | | 522449.2 | |
| Length Wtd. (ft) | 232.18 | Wetted Per. (ft) | | 470.65 | |
| Min Ch El (ft) | 291.70 | Shear (lb/sq ft) | | 3.39 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 26.67 | |
| Frctn Loss (ft) | 1.10 | Cum Volume (acre-ft) | 2.06 | 108.39 | 106.09 |
| C & E Loss (ft) | 0.10 | Cum SA (acres) | 0.95 | 12.18 | 19.38 |

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF 3

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 308.91 | Element | | | |
| Vel Head (ft) | 0.89 | Wt. n-Val. | | 0.065 | |
| W.S. Elev (ft) | 308.02 | Reach Len. (ft) | 165.00 | 224.00 | 270.00 |
| Crit W.S. (ft) | 300.88 | Flow Area (sq ft) | | 6614.34 | |
| E.G. Slope (ft/ft) | 0.003408 | Area (sq ft) | | 6614.34 | |

| | | | | | |
|---|---|---|---|---|---|
| Q Total (cfs) | 50000.00 | Flow (cfs) | | 50000.00 | |
| Top Width (ft) | 485.40 | Top Width (ft) | | 485.40 | |
| Vel Total (ft/s) | 7.56 | Avg. Vel. (ft/s) | | 7.56 | |
| Max Chl Dpth (ft) | 16.32 | Hydr. Depth (ft) | | 13.63 | |
| Conv. Total (cfs) | 856532.0 | Conv. (cfs) | | 856532.0 | |
| Length Wtd. (ft) | 233.08 | Wetted Per. (ft) | | 490.60 | |
| Min Ch El (ft) | 291.70 | Shear (lb/sq ft) | | 2.87 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 21.68 | |
| Frctn Loss (ft) | 0.56 | Cum Volume (acre-ft) | 13.27 | 172.34 | 213.81 |
| C & E Loss (ft) | 0.16 | Cum SA (acres) | 3.38 | 12.23 | 21.16 |

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

CROSS SECTION OUTPUT Profile #PF 6

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 303.49 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.55 | Wt. n-Val. | | 0.065 | |
| W.S. Elev (ft) | 302.94 | Reach Len. (ft) | 165.00 | 224.00 | 270.00 |
| Crit W.S. (ft) | 298.09 | Flow Area (sq ft) | | 4210.24 | |
| E.G. Slope (ft/ft) | 0.003559 | Area (sq ft) | | 4210.24 | |
| Q Total (cfs) | 25000.00 | Flow (cfs) | | 25000.00 | |
| Top Width (ft) | 460.37 | Top Width (ft) | | 460.37 | |
| Vel Total (ft/s) | 5.94 | Avg. Vel. (ft/s) | | 5.94 | |
| Max Chl Dpth (ft) | 11.24 | Hydr. Depth (ft) | | 9.15 | |
| Conv. Total (cfs) | 419048.3 | Conv. (cfs) | | 419048.3 | |
| Length Wtd. (ft) | 231.71 | Wetted Per. (ft) | | 463.44 | |
| Min Ch El (ft) | 291.70 | Shear (lb/sq ft) | | 2.02 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 11.99 | |
| Frctn Loss (ft) | 0.73 | Cum Volume (acre-ft) | 1.98 | 102.53 | 97.90 |
| C & E Loss (ft) | 0.06 | Cum SA (acres) | 0.92 | 12.13 | 19.33 |

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

CROSS SECTION

RIVER: San Diego River
REACH: Reach 1 RS: 239

INPUT
Description: Corrected Effective Geometry
Station Elevation Data num= 34

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 314 | 87.1 | 311.2 | 151.3 | 308.5 | 183.2 | 306.4 | 215.4 | 304.6 |
| 241.3 | 303 | 280.1 | 296.8 | 314.7 | 293.9 | 339 | 292.9 | 379.6 | 294.4 |
| 403.2 | 292.6 | 425.4 | 293.1 | 463.7 | 294.4 | 483.9 | 291.8 | 506.5 | 290.7 |
| 551.3 | 292.7 | 620.7 | 293.2 | 628.9 | 295.7 | 642 | 299.6 | 662.4 | 296.3 |
| 712.8 | 296.7 | 745.9 | 295.3 | 808 | 296.4 | 955.9 | 298.3 | 1077.2 | 298.6 |
| 1096.1 | 296.4 | 1143.4 | 295.9 | 1251.8 | 296.4 | 1289.9 | 298.8 | 1360.3 | 299.6 |
| 1377.5 | 302.7 | 1402.9 | 313.3 | 1426.5 | 325.9 | 1436.2 | 326.7 | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .1 | 241.3 | .065 | 642 | .045 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 241.3 | 642 | 385 | 413 | 515 | .1 | .3 |

Ineffective Flow num= 2

| Sta L | Sta R | Elev | Permanent |
|---|---|---|---|
| 0 | 201.8 | 313.25 | F |
| 906.2 | 1436.2 | 313.25 | F |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 304.05 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.75 | Wt. n-Val. | 0.100 | 0.065 | 0.045 |
| W.S. Elev (ft) | 303.29 | Reach Len. (ft) | 385.00 | 413.00 | 515.00 |
| Crit W.S. (ft) | 299.63 | Flow Area (sq ft) | 0.70 | 3728.65 | 1770.02 |
| E.G. Slope (ft/ft) | 0.004242 | Area (sq ft) | 0.70 | 3728.65 | 4385.66 |
| Q Total (cfs) | 38000.00 | Flow (cfs) | 0.19 | 24482.05 | 13517.76 |
| Top Width (ft) | 1142.37 | Top Width (ft) | 4.75 | 400.70 | 736.92 |
| Vel Total (ft/s) | 6.91 | Avg. Vel. (ft/s) | 0.27 | 6.57 | 7.64 |
| Max Chl Dpth (ft) | 12.59 | Hydr. Depth (ft) | 0.15 | 9.31 | 6.70 |
| Conv. Total (cfs) | 583436.6 | Conv. (cfs) | 2.9 | 375887.6 | 207546.2 |
| Length Wtd. (ft) | 447.73 | Wetted Per. (ft) | 4.76 | 402.64 | 264.51 |
| Min Ch El (ft) | 290.70 | Shear (lb/sq ft) | 0.04 | 2.45 | 1.77 |
| Alpha | 1.02 | Stream Power (lb/ft s) | 0.01 | 16.10 | 13.53 |
| Frctn Loss (ft) | 1.70 | Cum Volume (acre-ft) | 2.06 | 86.37 | 92.50 |
| C & E Loss (ft) | 0.07 | Cum SA (acres) | 0.94 | 9.95 | 17.09 |

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #PF 3

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 308.19 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.57 | Wt. n-Val. | 0.100 | 0.065 | 0.045 |
| W.S. Elev (ft) | 307.63 | Reach Len. (ft) | 385.00 | 413.00 | 515.00 |
| Crit W.S. (ft) | 300.56 | Flow Area (sq ft) | 135.09 | 5464.83 | 2914.76 |
| E.G. Slope (ft/ft) | 0.001760 | Area (sq ft) | 178.98 | 5464.83 | 7601.12 |
| Q Total (cfs) | 50000.00 | Flow (cfs) | 190.90 | 29817.13 | 19991.97 |
| Top Width (ft) | 1224.73 | Top Width (ft) | 76.73 | 400.70 | 747.30 |
| Vel Total (ft/s) | 5.87 | Avg. Vel. (ft/s) | 1.41 | 5.46 | 6.86 |
| Max Chl Dpth (ft) | 16.93 | Hydr. Depth (ft) | 3.42 | 13.64 | 11.03 |
| Conv. Total (cfs) | 1191982.0 | Conv. (cfs) | 4550.9 | 710829.9 | 476601.6 |
| Length Wtd. (ft) | 453.54 | Wetted Per. (ft) | 39.57 | 402.64 | 264.51 |
| Min Ch El (ft) | 290.70 | Shear (lb/sq ft) | 0.37 | 1.49 | 1.21 |
| Alpha | 1.06 | Stream Power (lb/ft s) | 0.53 | 8.13 | 8.30 |
| Frctn Loss (ft) | 0.54 | Cum Volume (acre-ft) | 12.93 | 141.28 | 190.25 |
| C & E Loss (ft) | 0.08 | Cum SA (acres) | 3.24 | 9.95 | 18.84 |

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

CROSS SECTION OUTPUT Profile #PF 6

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 302.69 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.42 | Wt. n-Val. | | 0.065 | 0.045 |
| W.S. Elev (ft) | 302.27 | Reach Len. (ft) | 385.00 | 413.00 | 515.00 |
| Crit W.S. (ft) | 298.47 | Flow Area (sq ft) | | 3319.05 | 1498.85 |
| E.G. Slope (ft/ft) | 0.002837 | Area (sq ft) | | 3319.05 | 3630.84 |
| Q Total (cfs) | 25000.00 | Flow (cfs) | | 16620.72 | 8379.28 |
| Top Width (ft) | 1129.21 | Top Width (ft) | | 396.11 | 733.10 |
| Vel Total (ft/s) | 5.19 | Avg. Vel. (ft/s) | | 5.01 | 5.59 |
| Max Chl Dpth (ft) | 11.57 | Hydr. Depth (ft) | | 8.38 | 5.67 |
| Conv. Total (cfs) | 469331.0 | Conv. (cfs) | | 312024.7 | 157306.3 |
| Length Wtd. (ft) | 446.24 | Wetted Per. (ft) | | 397.99 | 264.51 |
| Min Ch El (ft) | 290.70 | Shear (lb/sq ft) | | 1.48 | 1.00 |
| Alpha | 1.01 | Stream Power (lb/ft s) | | 7.40 | 5.61 |
| Frctn Loss (ft) | 0.98 | Cum Volume (acre-ft) | 1.98 | 83.17 | 86.64 |
| C & E Loss (ft) | 0.05 | Cum SA (acres) | 0.92 | 9.93 | 17.05 |

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: San Diego River
REACH: Reach 1 RS: 230

INPUT
Description: Corrected Effective Geometry
Station Elevation Data num= 39

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 312 | 65.6 | 310.4 | 137.8 | 306.5 | 207.5 | 304.8 | 265.4 | 303.7 |
| 291.2 | 300.1 | 331.4 | 299.8 | 351.6 | 295.4 | 389 | 294.6 | 407.4 | 291.3 |
| 454.2 | 291.8 | 462.3 | 290.4 | 477.6 | 289.8 | 534.6 | 290.2 | 554.3 | 293.8 |
| 641.2 | 293.6 | 754.1 | 293.5 | 854.5 | 294.1 | 957 | 293.2 | 982.8 | 292.3 |
| 997.6 | 294.6 | 1024.6 | 297.5 | 1044.3 | 298.8 | 1136.2 | 298.2 | 1228.8 | 298 |
| 1299.8 | 296 | 1370.7 | 296 | 1433 | 296.9 | 1442.5 | 299.6 | 1459.2 | 298.3 |
| 1470.3 | 296.6 | 1517.5 | 295 | 1523.6 | 297.2 | 1550.3 | 301.8 | 1578.7 | 304.4 |
| 1682 | 307.7 | 1783.3 | 310.7 | 1933.2 | 315.6 | 2031.8 | 320.6 | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .1 | 331.4 | .065 | 854.5 | .045 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 331.4 | 854.5 | 460 | 487 | 430 | .1 | .3 |

Ineffective Flow num= 2

| Sta L | Sta R | Elev | Permanent |
|---|---|---|---|
| 0 | 61.8 | 313.25 | F |
| 1233.8 | 2031.8 | 313.25 | F |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 302.27 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.51 | Wt. n-Val. | 0.100 | 0.065 | 0.045 |
| W.S. Elev (ft) | 301.76 | Reach Len. (ft) | 460.00 | 487.00 | 430.00 |
| Crit W.S. (ft) | 297.85 | Flow Area (sq ft) | 82.76 | 4531.88 | 2070.58 |
| E.G. Slope (ft/ft) | 0.003420 | Area (sq ft) | 82.76 | 4531.88 | 3633.63 |
| Q Total (cfs) | 38000.00 | Flow (cfs) | 97.74 | 25515.18 | 12387.08 |
| Top Width (ft) | 1270.80 | Top Width (ft) | 52.11 | 523.10 | 695.58 |
| Vel Total (ft/s) | 5.68 | Avg. Vel. (ft/s) | 1.18 | 5.63 | 5.98 |
| Max Chl Dpth (ft) | 11.96 | Hydr. Depth (ft) | 1.59 | 8.66 | 5.46 |
| Conv. Total (cfs) | 649814.4 | Conv. (cfs) | 1671.4 | 436319.3 | 211823.7 |
| Length Wtd. (ft) | 461.15 | Wetted Per. (ft) | 52.23 | 524.34 | 379.70 |
| Min Ch El (ft) | 289.80 | Shear (lb/sq ft) | 0.34 | 1.85 | 1.16 |
| Alpha | 1.02 | Stream Power (lb/ft s) | 0.40 | 10.39 | 6.96 |
| Frctn Loss (ft) | 1.14 | Cum Volume (acre-ft) | 1.69 | 47.21 | 45.09 |
| C & E Loss (ft) | 0.06 | Cum SA (acres) | 0.69 | 5.57 | 8.62 |

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #PF 3

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 307.57 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.29 | Wt. n-Val. | 0.100 | 0.065 | 0.045 |
| W.S. Elev (ft) | 307.28 | Reach Len. (ft) | 460.00 | 487.00 | 430.00 |
| Crit W.S. (ft) | 299.08 | Flow Area (sq ft) | 728.23 | 7418.33 | 4163.54 |
| E.G. Slope (ft/ft) | 0.000870 | Area (sq ft) | 728.23 | 7418.33 | 7721.61 |
| Q Total (cfs) | 50000.00 | Flow (cfs) | 734.93 | 29254.21 | 20010.86 |
| Top Width (ft) | 1545.51 | Top Width (ft) | 208.05 | 523.10 | 814.36 |
| Vel Total (ft/s) | 4.06 | Avg. Vel. (ft/s) | 1.01 | 3.94 | 4.81 |
| Max Chl Dpth (ft) | 17.48 | Hydr. Depth (ft) | 3.50 | 14.18 | 10.98 |
| Conv. Total (cfs) | 1695505.0 | Conv. (cfs) | 24921.6 | 992013.2 | 678570.0 |
| Length Wtd. (ft) | 457.44 | Wetted Per. (ft) | 208.35 | 524.34 | 379.70 |
| Min Ch El (ft) | 289.80 | Shear (lb/sq ft) | 0.19 | 0.77 | 0.60 |
| Alpha | 1.11 | Stream Power (lb/ft s) | 0.19 | 3.03 | 2.86 |
| Frctn Loss (ft) | 0.24 | Cum Volume (acre-ft) | 8.92 | 80.20 | 99.67 |
| C & E Loss (ft) | 0.04 | Cum SA (acres) | 1.98 | 5.57 | 9.61 |

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

CROSS SECTION OUTPUT Profile #PF 6

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 301.66 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.24 | Wt. n-Val. | 0.100 | 0.065 | 0.045 |
| W.S. Elev (ft) | 301.41 | Reach Len. (ft) | 460.00 | 487.00 | 430.00 |
| Crit W.S. (ft) | 296.67 | Flow Area (sq ft) | 64.94 | 4348.54 | 1937.63 |
| E.G. Slope (ft/ft) | 0.001747 | Area (sq ft) | 64.94 | 4348.54 | 3390.19 |
| Q Total (cfs) | 25000.00 | Flow (cfs) | 48.21 | 17024.76 | 7927.03 |
| Top Width (ft) | 1266.25 | Top Width (ft) | 49.60 | 523.10 | 693.55 |
| Vel Total (ft/s) | 3.94 | Avg. Vel. (ft/s) | 0.74 | 3.92 | 4.09 |
| Max Chl Dpth (ft) | 11.61 | Hydr. Depth (ft) | 1.31 | 8.31 | 5.11 |
| Conv. Total (cfs) | 598096.4 | Conv. (cfs) | 1153.3 | 407297.9 | 189645.2 |
| Length Wtd. (ft) | 461.31 | Wetted Per. (ft) | 49.69 | 524.34 | 379.70 |
| Min Ch El (ft) | 289.80 | Shear (lb/sq ft) | 0.14 | 0.90 | 0.56 |
| Alpha | 1.02 | Stream Power (lb/ft s) | 0.11 | 3.54 | 2.28 |
| Frctn Loss (ft) | 0.49 | Cum Volume (acre-ft) | 1.70 | 46.82 | 45.14 |
| C & E Loss (ft) | 0.04 | Cum SA (acres) | 0.70 | 5.57 | 8.62 |

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

CROSS SECTION

RIVER: San Diego River
REACH: Reach 1 RS: 220

INPUT
Description: Corrected Effective Geometry
Station Elevation Data num= 43

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 324 | 93.8 | 319.7 | 217.1 | 314.8 | 297.3 | 308 | 374.5 | 304.6 |
| 393.2 | 301.5 | 420.3 | 299.8 | 439.7 | 295.9 | 465.5 | 296.2 | 484.2 | 299.8 |
| 534.9 | 296.3 | 649.9 | 293.8 | 675.5 | 292.1 | 713.9 | 292.3 | 756.2 | 290 |
| 798.1 | 288.8 | 821.5 | 289.8 | 922.4 | 289.9 | 957.7 | 292.4 | 1018 | 292.8 |
| 1064.1 | 291.5 | 1181.5 | 291.6 | 1265.8 | 291.3 | 1290.2 | 294.1 | 1314.9 | 297 |
| 1364.7 | 297.1 | 1483.6 | 297 | 1523.5 | 296 | 1602.5 | 296 | 1626.8 | 297.7 |
| 1646.9 | 298.6 | 1670.2 | 296.6 | 1761.1 | 297.9 | 1817.3 | 299.2 | 1831.2 | 296.4 |
| 1867.1 | 295.6 | 1937.3 | 298.2 | 2007.5 | 300.4 | 2031.6 | 304.8 | 2049.2 | 303.8 |
| 2077.8 | 303.4 | 2093.8 | 308.1 | 2142.9 | 309.4 | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .1 | 484.2 | .065 | 957.7 | .045 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 484.2 | 957.7 | 0 | 0 | .1 | .3 |

Ineffective Flow num= 2

| Sta L | Sta R | Elev | Permanent |
|---|---|---|---|
| 0 | 56 | 313.25 | F |
| 1681.8 | 2142.9 | 313.25 | F |

CROSS SECTION OUTPUT  Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 301.08 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.32 | Wt. n-Val. | 0.100 | 0.065 | 0.045 |
| W.S. Elev (ft) | 300.76 | Reach Len. (ft) | | | |
| Crit W.S. (ft) | 296.44 | Flow Area (sq ft) | 236.93 | 3913.40 | 4520.70 |
| E.G. Slope (ft/ft) | 0.001870 | Area (sq ft) | 236.93 | 3913.40 | 5502.52 |
| Q Total (cfs) | 38000.00 | Flow (cfs) | 314.10 | 15807.25 | 21878.65 |
| Top Width (ft) | 1604.48 | Top Width (ft) | 79.20 | 473.50 | 1051.77 |
| Vel Total (ft/s) | 4.38 | Avg. Vel. (ft/s) | 1.33 | 4.04 | 4.84 |
| Max Chl Dpth (ft) | 11.96 | Hydr. Depth (ft) | 2.99 | 8.26 | 6.24 |
| Conv. Total (cfs) | 878641.8 | Conv. (cfs) | 7262.6 | 365497.7 | 505881.5 |
| Length Wtd. (ft) | | Wetted Per. (ft) | 79.97 | 473.89 | 724.63 |
| Min Ch El (ft) | 288.80 | Shear (lb/sq ft) | 0.35 | 0.96 | 0.73 |
| Alpha | 1.06 | Stream Power (lb/ft s) | 0.46 | 3.90 | 3.53 |
| Frctn Loss (ft) | | Cum Volume (acre-ft) | | | |
| C & E Loss (ft) | | Cum SA (acres) | | | |

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

CROSS SECTION OUTPUT  Profile #PF 3

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 307.28 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.15 | Wt. n-Val. | 0.100 | 0.065 | 0.045 |
| W.S. Elev (ft) | 307.13 | Reach Len. (ft) | | | |
| Crit W.S. (ft) | 297.37 | Flow Area (sq ft) | 961.20 | 6929.59 | 9133.22 |
| E.G. Slope (ft/ft) | 0.000362 | Area (sq ft) | 961.20 | 6929.59 | 12473.01 |
| Q Total (cfs) | 50000.00 | Flow (cfs) | 869.01 | 18034.57 | 31096.42 |
| Top Width (ft) | 1773.44 | Top Width (ft) | 167.15 | 473.50 | 1132.80 |
| Vel Total (ft/s) | 2.94 | Avg. Vel. (ft/s) | 0.90 | 2.60 | 3.40 |
| Max Chl Dpth (ft) | 18.33 | Hydr. Depth (ft) | 5.75 | 14.63 | 12.61 |
| Conv. Total (cfs) | 2626263.0 | Conv. (cfs) | 45645.1 | 947270.3 | 1633348.0 |
| Length Wtd. (ft) | | Wetted Per. (ft) | 168.24 | 473.89 | 724.63 |
| Min Ch El (ft) | 288.80 | Shear (lb/sq ft) | 0.13 | 0.33 | 0.29 |
| Alpha | 1.12 | Stream Power (lb/ft s) | 0.12 | 0.86 | 0.97 |
| Frctn Loss (ft) | | Cum Volume (acre-ft) | | | |
| C & E Loss (ft) | | Cum SA (acres) | | | |

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

CROSS SECTION OUTPUT  Profile #PF 6

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 301.13 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.13 | Wt. n-Val. | 0.100 | 0.065 | 0.045 |
| W.S. Elev (ft) | 301.00 | Reach Len. (ft) | | | |
| Crit W.S. (ft) | 294.92 | Flow Area (sq ft) | 256.40 | 4027.03 | 4694.48 |
| E.G. Slope (ft/ft) | 0.000722 | Area (sq ft) | 256.40 | 4027.03 | 5755.09 |
| Q Total (cfs) | 25000.00 | Flow (cfs) | 215.83 | 10304.28 | 14479.90 |
| Top Width (ft) | 1609.62 | Top Width (ft) | 83.03 | 473.50 | 1053.09 |

| | | | | | |
|---|---|---|---|---|---|
| Vel Total (ft/s) | 2.78 | Avg. Vel. (ft/s) | 0.84 | 2.56 | 3.08 |
| Max Chl Dpth (ft) | 12.20 | Hydr. Depth (ft) | 3.09 | 8.50 | 6.48 |
| Conv. Total (cfs) | 930091.7 | Conv. (cfs) | 8029.5 | 383356.9 | 538705.3 |
| Length Wtd. (ft) | | Wetted Per. (ft) | 83.80 | 473.89 | 724.63 |
| Min Ch El (ft) | 288.80 | Shear (lb/sq ft) | 0.14 | 0.38 | 0.29 |
| Alpha | 1.06 | Stream Power (lb/ft s) | 0.12 | 0.98 | 0.90 |
| Frctn Loss (ft) | | Cum Volume (acre-ft) | | | |
| C & E Loss (ft) | | Cum SA (acres) | | | |

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

SUMMARY OF REACH LENGTHS

River: San Diego River

| Reach | River Sta. | Left | Channel | Right |
|---|---|---|---|---|
| Reach 1 | 355 | 360 | 310 | 350 |
| Reach 1 | 345 | 400 | 335 | 125 |
| Reach 1 | 340 | 575 | 454 | 575 |
| Reach 1 | 330 | 620 | 588 | 620 |
| Reach 1 | 322 | Lat Struct | | |
| Reach 1 | 320 | 260 | 431 | 405 |
| Reach 1 | 315 | 380 | 280 | 255 |
| Reach 1 | 310 | 610 | 610 | 640 |
| Reach 1 | 300 | 790 | 654 | 605 |
| Reach 1 | 290 | 695 | 653 | 645 |
| Reach 1 | 285 | 640 | 688 | 660 |
| Reach 1 | 280 | 1135 | 1021 | 1060 |
| Reach 1 | 270 | 1000 | 951 | 815 |
| Reach 1 | 260 | 1050 | 1031 | 1000 |
| Reach 1 | 250 | 700 | 701 | 615 |
| Reach 1 | 245 | 140.2 | 147.4 | 160 |
| Reach 1 | 244 | 104.8 | 124.6 | 145 |
| Reach 1 | 243 | Bridge | | |
| Reach 1 | 242 | 165 | 224 | 270 |
| Reach 1 | 239 | 385 | 413 | 515 |
| Reach 1 | 230 | 460 | 487 | 430 |
| Reach 1 | 220 | 0 | 0 | 0 |

SUMMARY OF CONTRACTION AND EXPANSION COEFFICIENTS
River: San Diego River

| Reach | River Sta. | Contr. | Expan. |
|---|---|---|---|

| | | | | |
|---|---|---|---|---|
| Reach 1 | 355 | | .1 | .3 |
| Reach 1 | 345 | | .1 | .3 |
| Reach 1 | 340 | | .1 | .3 |
| Reach 1 | 330 | | .1 | .3 |
| Reach 1 | 322 | Lat Struct | | |
| Reach 1 | 320 | | .1 | .3 |
| Reach 1 | 315 | | .1 | .3 |
| Reach 1 | 310 | | .1 | .3 |
| Reach 1 | 300 | | .1 | .3 |
| Reach 1 | 290 | | .1 | .3 |
| Reach 1 | 285 | | .1 | .3 |
| Reach 1 | 280 | | .1 | .3 |
| Reach 1 | 270 | | .1 | .3 |
| Reach 1 | 260 | | .1 | .3 |
| Reach 1 | 250 | | .1 | .3 |
| Reach 1 | 245 | | .1 | .3 |
| Reach 1 | 244 | | .1 | .3 |
| Reach 1 | 243 | Bridge | | |
| Reach 1 | 242 | | .3 | .5 |
| Reach 1 | 239 | | .1 | .3 |
| Reach 1 | 230 | | .1 | .3 |
| Reach 1 | 220 | | .1 | .3 |

HEC-RAS Plan: Plan 01 River: San Diego River Reach: Reach 1

| 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) | |
| Reach 1 | 220 | PF 1 | 38000.00 | 288.80 | 300.76 | 296.44 | 301.08 | 0.001870 | 4.04 | 8671.03 | 1604.48 | 0.25 |
| Reach 1 | 220 | PF 3 | 50000.00 | 288.80 | 307.13 | 297.37 | 307.28 | 0.000362 | 2.60 | 17024.01 | 1773.44 | 0.12 |
| | | | | | | | | | | | | |
| Reach 1 | 230 | PF 1 | 38000.00 | 289.80 | 301.76 | 297.85 | 302.27 | 0.003420 | 5.63 | 6685.22 | 1270.80 | 0.34 |
| Reach 1 | 230 | PF 3 | 50000.00 | 289.80 | 307.28 | 299.08 | 307.57 | 0.000870 | 3.94 | 12310.10 | 1545.51 | 0.18 |
| | | | | | | | | | | | | |
| Reach 1 | 239 | PF 1 | 38000.00 | 290.70 | 303.29 | 299.63 | 304.05 | 0.004242 | 6.57 | 5499.37 | 1142.37 | 0.38 |
| Reach 1 | 239 | PF 3 | 50000.00 | 290.70 | 307.63 | 300.56 | 308.19 | 0.001760 | 5.46 | 8514.67 | 1224.73 | 0.26 |
| | | | | | | | | | | | | |
| Reach 1 | 242 | PF 1 | 38000.00 | 291.70 | 304.29 | 299.62 | 305.25 | 0.005290 | 7.86 | 4835.65 | 467.01 | 0.43 |
| Reach 1 | 242 | PF 3 | 50000.00 | 291.70 | 308.02 | 300.88 | 308.91 | 0.003408 | 7.56 | 6614.34 | 485.40 | 0.36 |
| | | | | | | | | | | | | |
| Reach 1 | 243 | | Bridge | | | | | | | | | |
| | | | | | | | | | | | | |
| Reach 1 | 244 | PF 1 | 38000.00 | 292.20 | 305.38 | 299.66 | 306.12 | 0.003642 | 6.90 | 5509.08 | 728.50 | 0.36 |
| Reach 1 | 244 | PF 3 | 50000.00 | 292.20 | 308.81 | 300.87 | 309.55 | 0.002637 | 6.93 | 7210.64 | 964.85 | 0.32 |
| | | | | | | | | | | | | |
| Reach 1 | 245 | PF 1 | 38000.00 | 291.03 | 306.40 | 300.76 | 306.84 | 0.006148 | 5.42 | 7146.91 | 787.98 | 0.30 |
| Reach 1 | 245 | PF 3 | 50000.00 | 291.03 | 309.63 | 301.75 | 310.07 | 0.004117 | 5.34 | 9507.84 | 797.41 | 0.26 |
| | | | | | | | | | | | | |
| Reach 1 | 250 | PF 1 | 38000.00 | 294.72 | 308.29 | | 308.75 | 0.001543 | 5.52 | 7231.70 | 810.09 | 0.30 |
| Reach 1 | 250 | PF 3 | 50000.00 | 294.72 | 311.00 | | 311.46 | 0.001175 | 5.61 | 9561.11 | 908.95 | 0.27 |
| | | | | | | | | | | | | |
| Reach 1 | 260 | PF 1 | 38000.00 | 295.59 | 310.45 | | 311.23 | 0.003853 | 7.18 | 5405.28 | 640.12 | 0.42 |
| Reach 1 | 260 | PF 3 | 50000.00 | 295.59 | 312.61 | | 313.47 | 0.003243 | 7.54 | 6861.59 | 691.27 | 0.40 |
| | | | | | | | | | | | | |
| Reach 1 | 270 | PF 1 | 37000.00 | 297.09 | 313.11 | 307.81 | 313.69 | 0.001829 | 6.19 | 6233.30 | 979.59 | 0.34 |
| Reach 1 | 270 | PF 3 | 49000.00 | 297.09 | 314.99 | 308.89 | 315.60 | 0.001623 | 6.51 | 8472.83 | 1044.80 | 0.33 |
| | | | | | | | | | | | | |
| Reach 1 | 280 | PF 1 | 37000.00 | 298.83 | 314.64 | | 314.78 | 0.000655 | 3.08 | 12052.69 | 1448.47 | 0.19 |
| Reach 1 | 280 | PF 3 | 49000.00 | 298.83 | 316.44 | | 316.61 | 0.000611 | 3.35 | 14678.53 | 1474.87 | 0.19 |
| | | | | | | | | | | | | |
| Reach 1 | 285 | PF 1 | 37000.00 | 301.64 | 315.08 | 310.28 | 315.26 | 0.000711 | 3.45 | 10753.49 | 1513.60 | 0.23 |
| Reach 1 | 285 | PF 3 | 49000.00 | 301.64 | 316.83 | 310.92 | 317.04 | 0.000603 | 3.67 | 13408.43 | 1520.45 | 0.22 |
| | | | | | | | | | | | | |
| Reach 1 | 290 | PF 1 | 37000.00 | 301.71 | 315.55 | 310.93 | 315.74 | 0.000748 | 3.56 | 10407.01 | 1593.62 | 0.24 |
| Reach 1 | 290 | PF 3 | 49000.00 | 301.71 | 317.23 | 311.58 | 317.45 | 0.000646 | 3.80 | 12899.38 | 1601.69 | 0.23 |
| | | | | | | | | | | | | |
| Reach 1 | 300 | PF 1 | 35359.28 | 305.19 | 316.14 | 311.60 | 316.43 | 0.001451 | 4.32 | 8312.26 | 1448.45 | 0.28 |

HEC-RAS Plan: Plan 01 River: San Diego River Reach: Reach 1 (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) | |
| Reach 1 | 300 | PF 3 | 46848.73 | 305.19 | 317.73 | 312.34 | 318.07 | 0.001342 | 4.68 | 10183.53 | 1504.49 | 0.27 |
| | | | | | | | | | | | | |
| Reach 1 | 310 | PF 1 | 35359.28 | 305.25 | 316.90 | 313.68 | 317.60 | 0.002049 | 6.99 | 5709.93 | 1450.08 | 0.47 |
| Reach 1 | 310 | PF 3 | 46848.73 | 305.25 | 318.37 | 315.08 | 319.17 | 0.001864 | 7.52 | 7061.91 | 1490.74 | 0.46 |
| | | | | | | | | | | | | |
| Reach 1 | 315 | PF 1 | 35359.28 | 307.53 | 317.57 | 316.08 | 318.46 | 0.003936 | 7.94 | 4998.46 | 1466.64 | 0.61 |
| Reach 1 | 315 | PF 3 | 46848.73 | 307.53 | 318.96 | 316.91 | 319.90 | 0.003084 | 8.19 | 6430.67 | 1493.37 | 0.57 |
| | | | | | | | | | | | | |
| Reach 1 | 320 | PF 1 | 35359.28 | 307.20 | 318.89 | 314.61 | 319.41 | 0.001361 | 5.79 | 6111.42 | 1678.78 | 0.38 |
| Reach 1 | 320 | PF 3 | 46848.73 | 307.20 | 320.12 | 315.71 | 320.78 | 0.001438 | 6.52 | 7184.77 | 1758.27 | 0.40 |
| | | | | | | | | | | | | |
| Reach 1 | 322 | | Lat Struct | | | | | | | | | |
| | | | | | | | | | | | | |
| Reach 1 | 330 | PF 1 | 36000.00 | 308.50 | 319.72 | 316.37 | 320.27 | 0.001534 | 6.13 | 6189.63 | 965.04 | 0.40 |
| Reach 1 | 330 | PF 3 | 48000.00 | 308.50 | 320.99 | 317.23 | 321.68 | 0.001596 | 6.87 | 7349.11 | 1062.59 | 0.42 |
| | | | | | | | | | | | | |
| Reach 1 | 340 | PF 1 | 36000.00 | 309.90 | 320.68 | 316.27 | 321.04 | 0.001732 | 4.77 | 7551.36 | 1045.71 | 0.30 |
| Reach 1 | 340 | PF 3 | 48000.00 | 309.90 | 322.04 | 317.07 | 322.49 | 0.001809 | 5.39 | 8901.04 | 1069.10 | 0.32 |
| | | | | | | | | | | | | |
| Reach 1 | 345 | PF 1 | 36000.00 | 309.80 | 321.29 | 316.13 | 321.64 | 0.001853 | 4.74 | 7598.52 | 1104.57 | 0.31 |
| Reach 1 | 345 | PF 3 | 48000.00 | 309.80 | 322.68 | 317.04 | 323.12 | 0.001920 | 5.27 | 9105.89 | 1163.00 | 0.32 |
| | | | | | | | | | | | | |
| Reach 1 | 355 | PF 1 | 36000.00 | 311.40 | 321.84 | 317.36 | 322.36 | 0.002571 | 5.81 | 6191.11 | 1304.83 | 0.37 |
| Reach 1 | 355 | PF 3 | 48000.00 | 311.40 | 323.21 | 318.35 | 323.88 | 0.002630 | 6.57 | 7307.35 | 1455.01 | 0.39 |

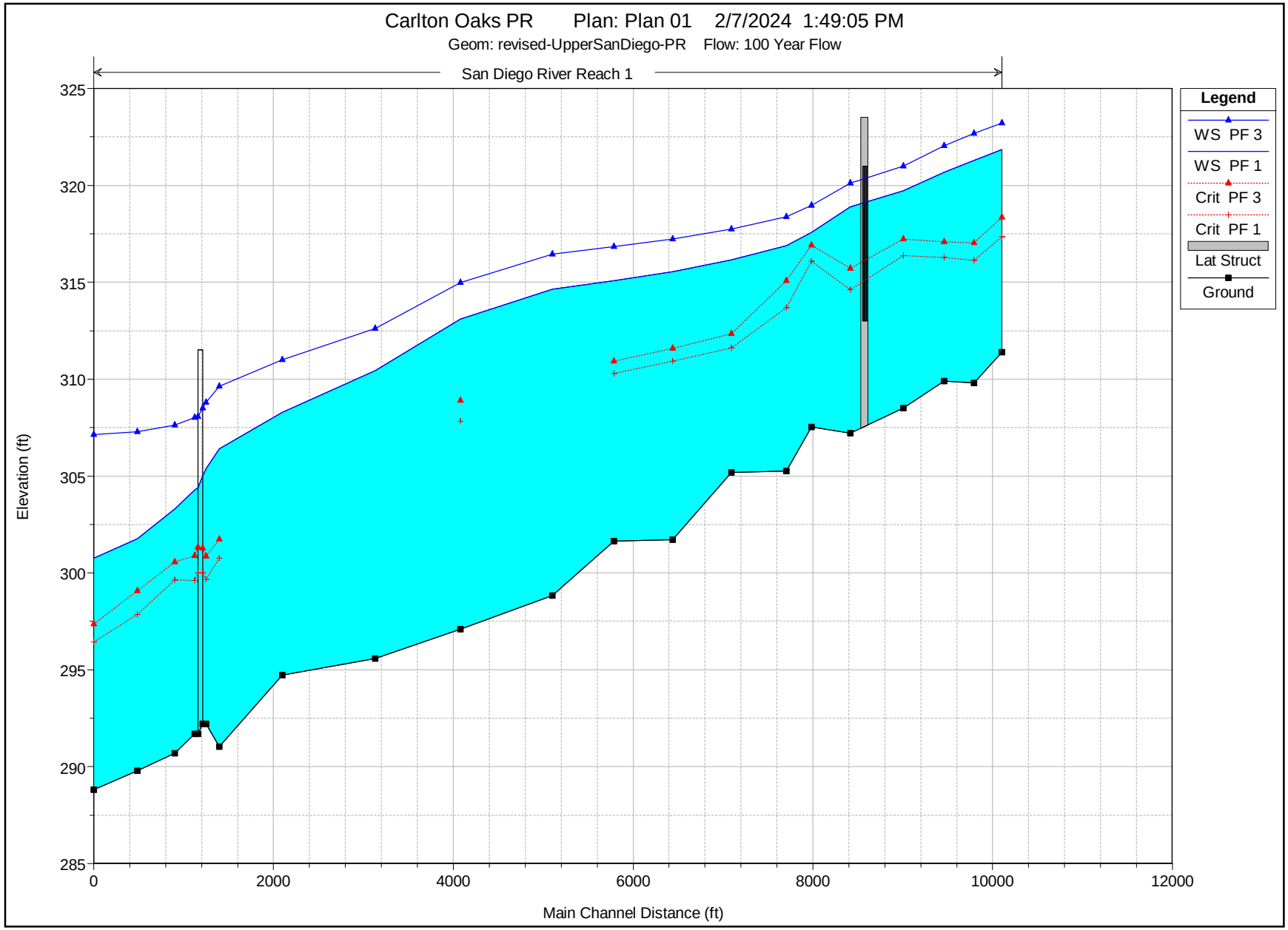
Plan: Plan 01  San Diego River  Reach 1  RS: 322  Culv Group:  Culvert #1  Profile: PF 6

| | | | |
|---|---|---|---|
| E.G. US. (ft) | 317.66 | Weir Sta US (ft) | |
| W.S. US. (ft) | 317.31 | Weir Sta DS (ft) | |
| E.G. DS (ft) | 317.56 | Min El Weir Flow (ft) | 323.50 |
| W.S. DS (ft) | 317.22 | Wr Top Wdth (ft) | |
| Q US (cfs) | 21333.00 | Weir Max Depth (ft) | |
| Q Leaving Total (cfs) | 965.13 | Weir Avg Depth (ft) | |
| Q DS (cfs) | 21544.92 | Weir Flow Area (sq ft) | |
| Perc Q Leaving | 4.54 | Weir Coef (ft^1/2) | 0.000 |
| Q Weir (cfs) | 0.00 | Weir Submerg | |
| Q Gates (cfs) | | | |
| Q Culv (cfs) | 965.13 | Q Culv Group (cfs) | 242.69 |
| Q Lat RC (cfs) | | # Barrels | 1 |
| Q Outlet TS (cfs) | 0.00 | Culv Length (ft) | 88.00 |
| Q Breach (cfs) | | Culv Depth Blocked (ft) | |
| Breach Avg Velocity (ft/s) | | Culv Inv El Up (ft) | 313.00 |
| Breach Flow Area (sq ft) | | Culv Inv El Dn (ft) | 312.50 |
| Breach WD (ft) | | | |
| Breach Top El (ft) | | | |
| Breach Bottom El (ft) | | | |
| Breach SSL (ft) | | | |
| Breach SSR (ft) | | | |

Profile PF06: Estimated Q50 BSI based on the Q100 BSI, following the proportional scaling method aligned with the pattern observed in FEMA data).
PF-6 to calculate the flow from the San Diego River that enters the proposed culverts and commingles with Sycamore Creek at Cross Section #100, before the proposed bridge connecting PA-2 and PA-3

HEC-RAS Plan: Plan 01 River: San Diego River Reach: Reach 1 Profile: PF 6

| 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) | |
| Reach 1 | 220 | PF 6 | 25000.00 | 288.80 | 301.00 | 294.92 | 301.13 | 0.000722 | 2.56 | 8977.91 | 1609.62 | 0.15 |
| Reach 1 | 230 | PF 6 | 25000.00 | 289.80 | 301.41 | 296.67 | 301.66 | 0.001747 | 3.92 | 6351.11 | 1266.25 | 0.24 |
| Reach 1 | 239 | PF 6 | 25000.00 | 290.70 | 302.27 | 298.47 | 302.69 | 0.002837 | 5.01 | 4817.90 | 1129.21 | 0.30 |
| Reach 1 | 242 | PF 6 | 25000.00 | 291.70 | 302.94 | 298.09 | 303.49 | 0.003559 | 5.94 | 4210.24 | 460.37 | 0.35 |
| Reach 1 | 243 | | Bridge | | | | | | | | | |
| Reach 1 | 244 | PF 6 | 25000.00 | 292.20 | 303.63 | 298.20 | 304.08 | 0.002717 | 5.37 | 4652.47 | 684.60 | 0.31 |
| Reach 1 | 245 | PF 6 | 25000.00 | 291.03 | 304.35 | 299.62 | 304.66 | 0.005770 | 4.51 | 5652.08 | 772.80 | 0.28 |
| Reach 1 | 250 | PF 6 | 25000.00 | 294.72 | 306.15 | | 306.47 | 0.001479 | 4.64 | 5569.67 | 742.67 | 0.28 |
| Reach 1 | 260 | PF 6 | 25000.00 | 295.59 | 308.33 | | 308.92 | 0.004057 | 6.22 | 4086.68 | 614.87 | 0.41 |
| Reach 1 | 270 | PF 6 | 22513.00 | 297.09 | 310.89 | 306.16 | 311.26 | 0.001558 | 4.87 | 4706.37 | 663.78 | 0.30 |
| Reach 1 | 280 | PF 6 | 22513.00 | 298.83 | 312.23 | | 312.34 | 0.000730 | 2.62 | 8590.36 | 1427.12 | 0.19 |
| Reach 1 | 285 | PF 6 | 22513.00 | 301.64 | 312.77 | 309.21 | 312.92 | 0.000951 | 3.09 | 7285.56 | 1482.86 | 0.25 |
| Reach 1 | 290 | PF 6 | 22513.00 | 301.71 | 313.36 | 309.84 | 313.52 | 0.000876 | 3.13 | 7200.74 | 1516.97 | 0.25 |
| Reach 1 | 300 | PF 6 | 21544.92 | 305.19 | 314.07 | 310.58 | 314.27 | 0.001549 | 3.66 | 5932.98 | 1333.55 | 0.28 |
| Reach 1 | 310 | PF 6 | 21544.92 | 305.25 | 314.90 | 311.52 | 315.45 | 0.002003 | 6.12 | 3932.37 | 1311.08 | 0.45 |
| Reach 1 | 315 | PF 6 | 21544.92 | 307.53 | 315.55 | 314.72 | 316.47 | 0.005767 | 7.96 | 3013.58 | 1211.95 | 0.71 |
| Reach 1 | 320 | PF 6 | 21544.92 | 307.20 | 317.08 | 313.02 | 317.41 | 0.001068 | 4.63 | 4649.91 | 1334.70 | 0.33 |
| Reach 1 | 322 | | Lat Struct | | | | | | | | | |
| Reach 1 | 330 | PF 6 | 21333.00 | 308.50 | 317.79 | 315.11 | 318.16 | 0.001477 | 5.01 | 4486.16 | 924.34 | 0.38 |
| Reach 1 | 340 | PF 6 | 21333.00 | 309.90 | 318.66 | 314.81 | 318.89 | 0.001642 | 3.83 | 5562.87 | 1022.14 | 0.28 |
| Reach 1 | 345 | PF 6 | 21333.00 | 309.80 | 319.17 | 314.77 | 319.40 | 0.001436 | 3.86 | 5528.71 | 900.45 | 0.27 |
| Reach 1 | 355 | PF 6 | 21333.00 | 311.40 | 319.63 | 315.93 | 319.98 | 0.002199 | 4.76 | 4477.88 | 1001.68 | 0.33 |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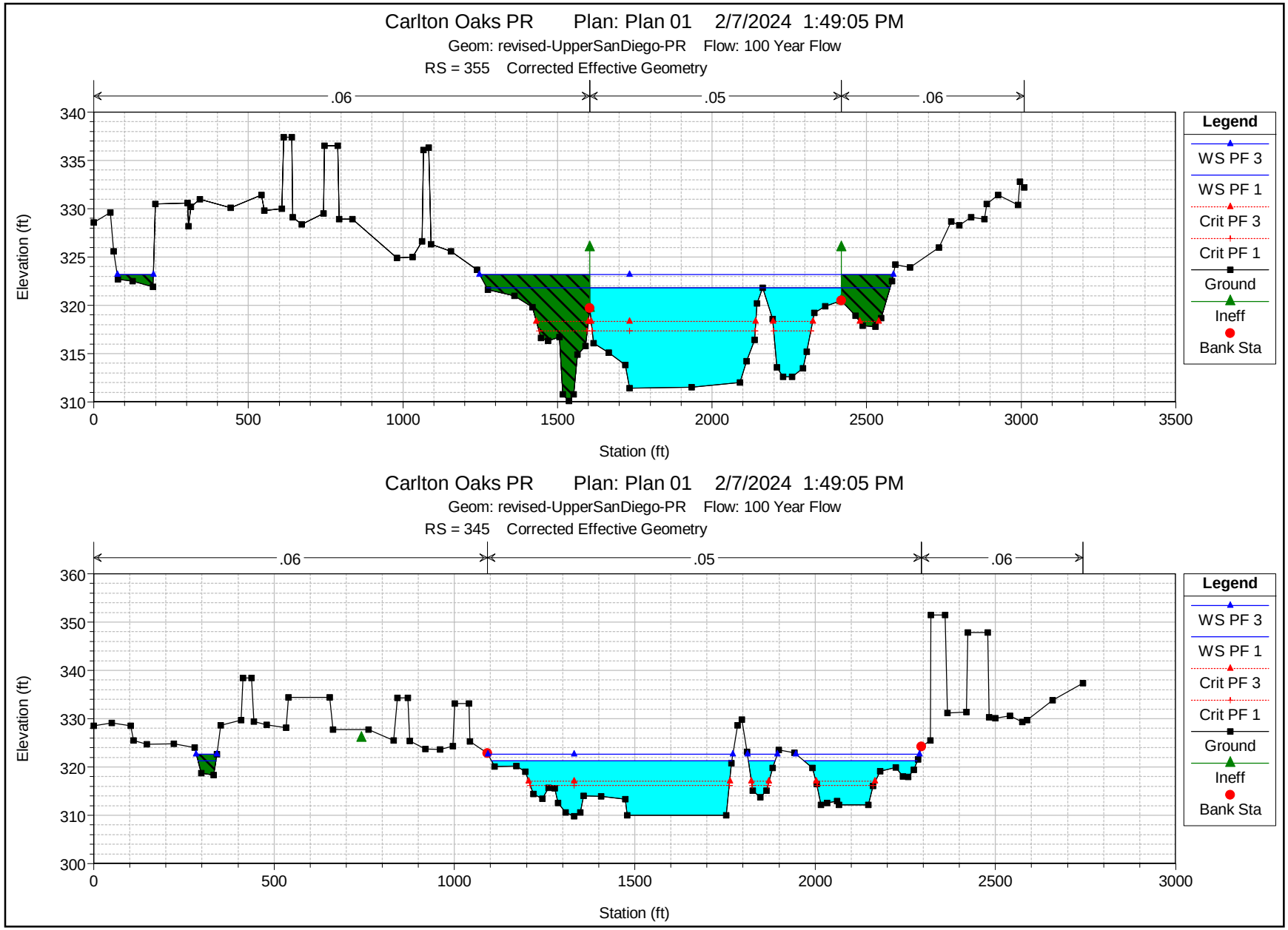
Geom: revised-UpperSanDiego-PR Flow: 100 Year Flow
San Diego River Reach 1
Elevation (ft)
325
320
315
310
305
300
295
290
285
0
2000
4000
6000
8000
10000
12000
Main Channel Distance (ft)
Legend
WS PF 3
WS PF 1
Crit PF 3
Crit PF 1
Lat Struct
Ground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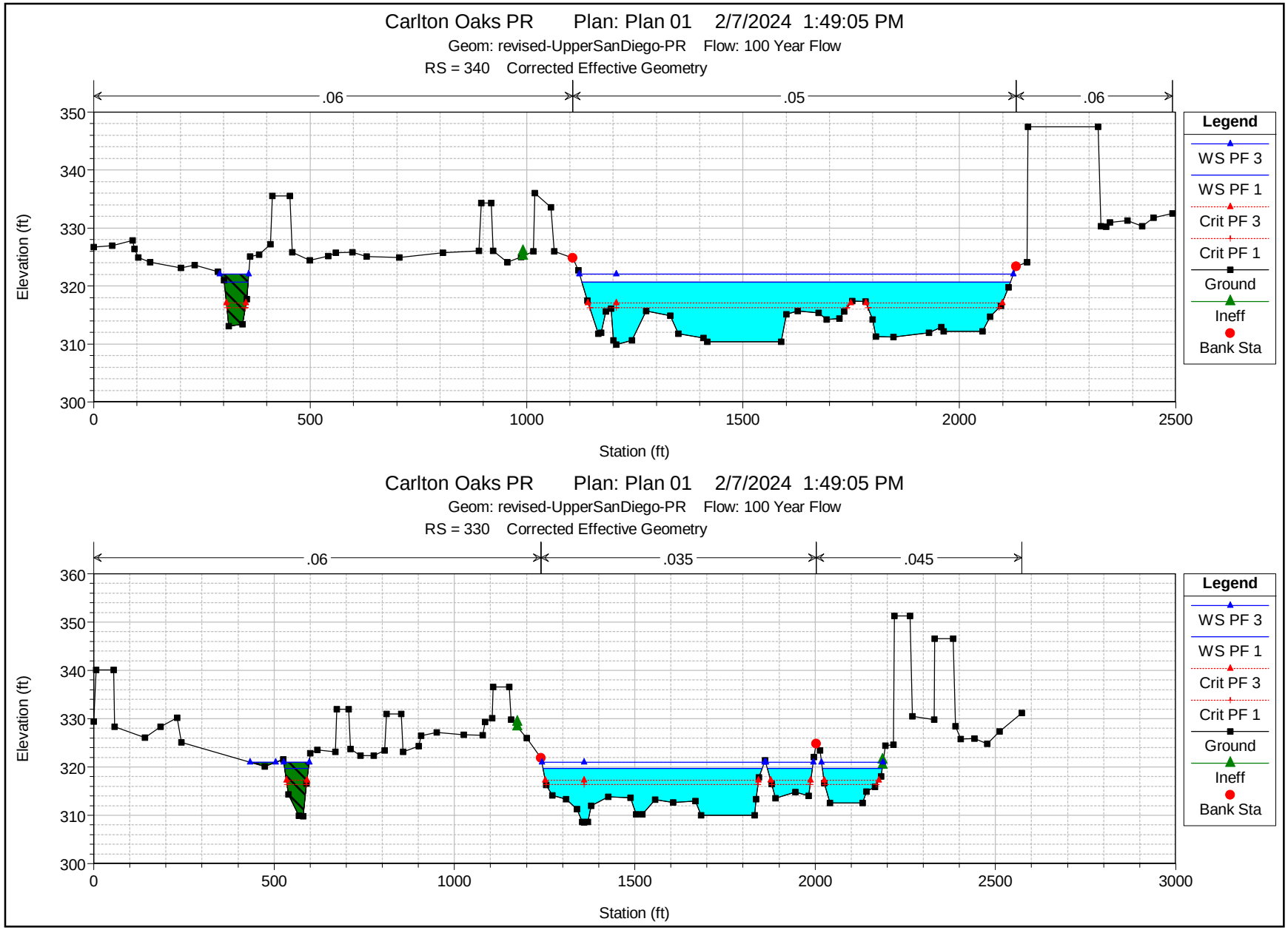
Geom: revised-UpperSanDiego-PR Flow: 100 Year Flow
RS = 355 Corrected Effective Geometry
.06
.05
.06
Elevation (ft)
340
335
330
325
320
315
310
0
500
1000
1500
2000
2500
3000
3500
Station (ft)
Legend
WS PF 3
WS PF 1
Crit PF 3
Crit PF 1
Ground
Ineff
Bank Sta
Carlton Oaks PR Plan: Plan 01 2/7/2024 1:49:05 PM
Geom: revised-UpperSanDiego-PR Flow: 100 Year Flow
RS = 345 Corrected Effective Geometry
.06
.05
.06
Elevation (ft)
360
350
340
330
320
310
300
0
500
1000
1500
2000
2500
3000
Station (ft)
Legend
WS PF 3
WS PF 1
Crit PF 3
Crit PF 1
Ground
Ineff
Bank Sta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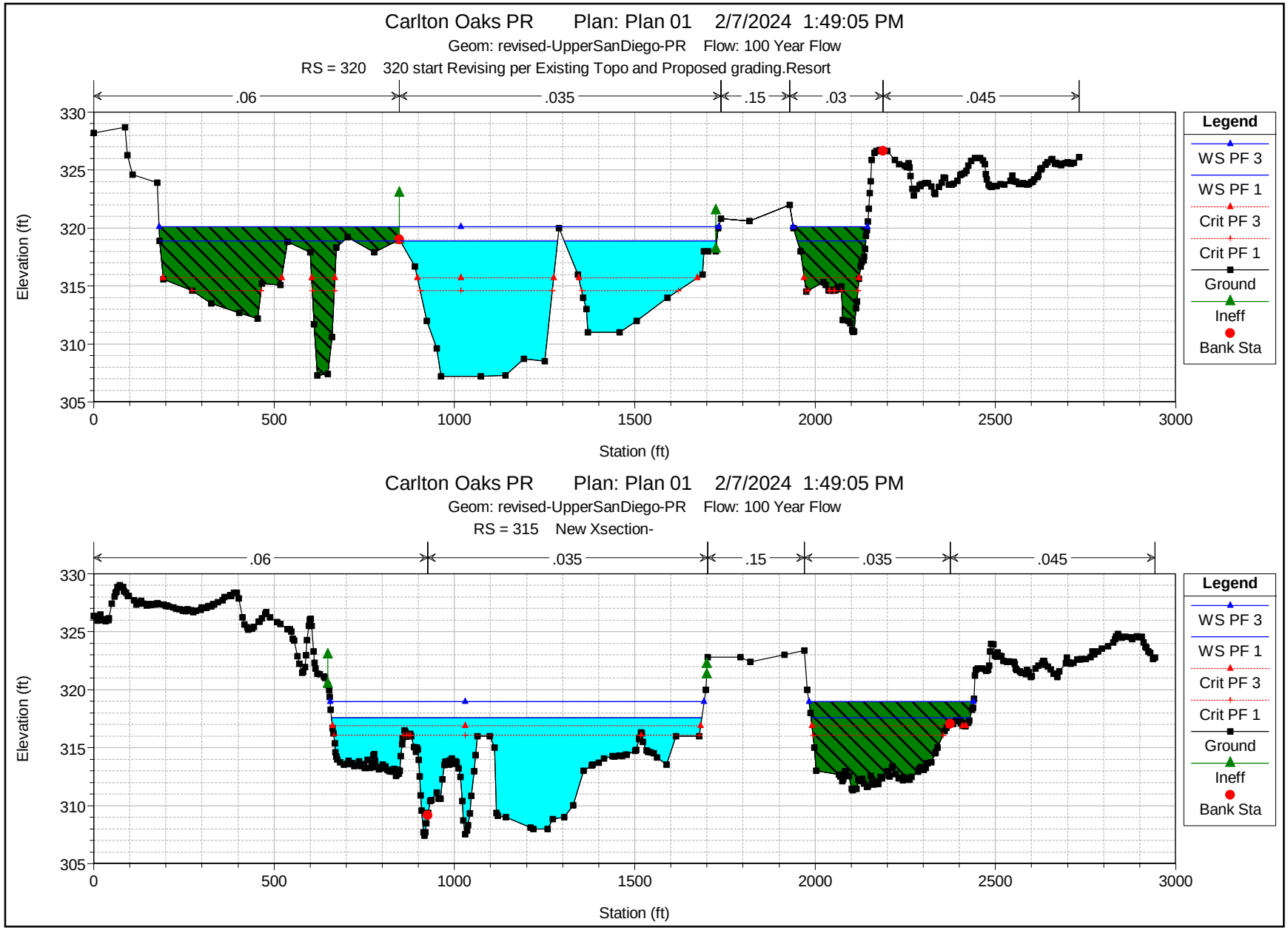
RS = 340 Corrected Effective Geometry
.06
.05
.06
Elevation (ft)
350
340
330
320
310
300
0
500
1000
1500
2000
2500
Station (ft)
Legend
WS PF 3
WS PF 1
Crit PF 3
Crit PF 1
Ground
Ineff
Bank Sta
Carlton Oaks PR Plan: Plan 01 2/7/2024 1:49:05 PM
Geom: revised-UpperSanDiego-PR Flow: 100 Year Flow
RS = 330 Corrected Effective Geometry
.06
.035
.045
Elevation (ft)
360
350
340
330
320
310
300
0
500
1000
1500
2000
2500
3000
Station (ft)
Legend
WS PF 3
WS PF 1
Crit PF 3
Crit PF 1
Ground
Ineff
Bank Sta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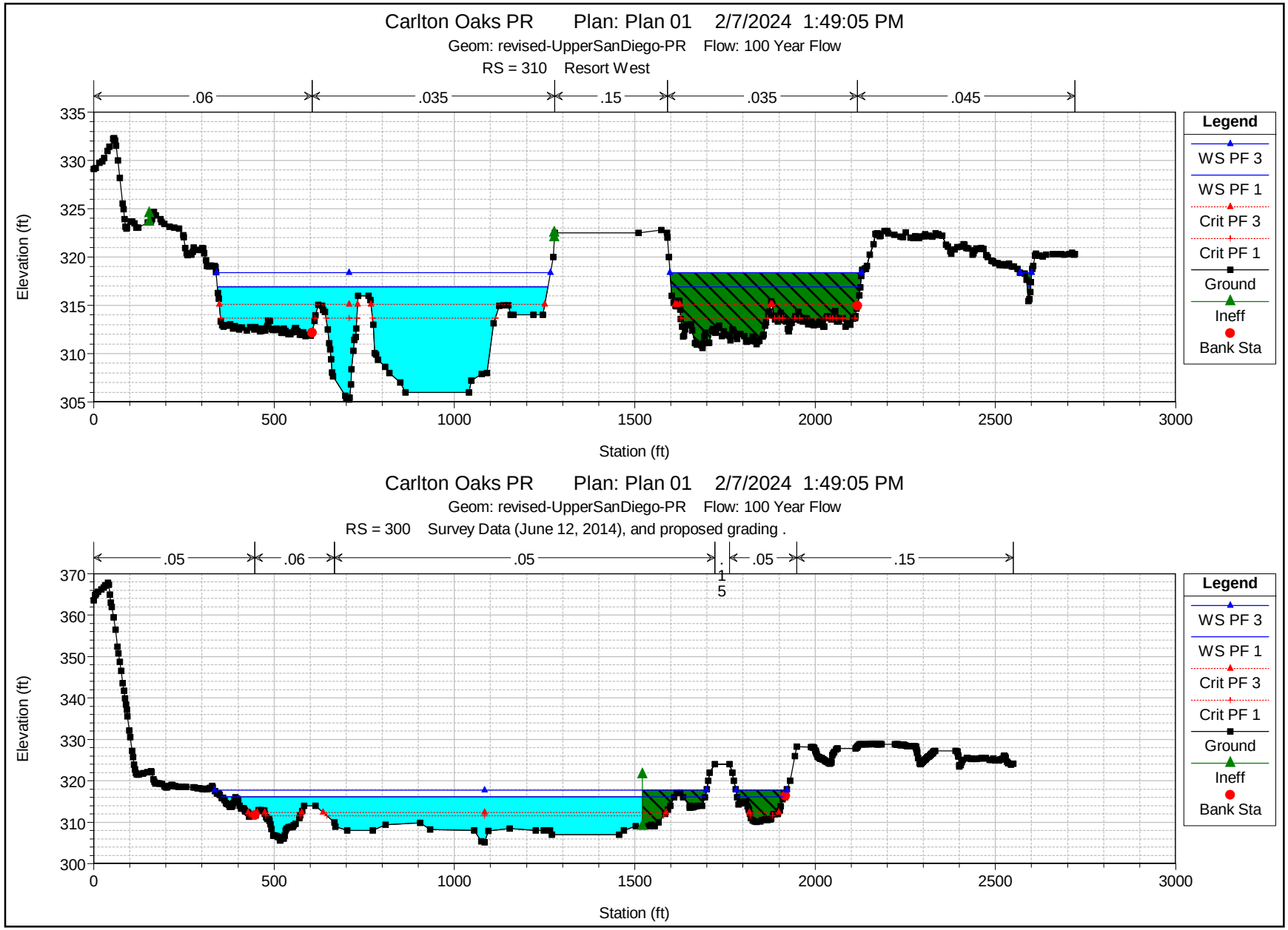
RS = 320 320 start Revising per Existing Topo and Proposed grading.Resort
.06
.035
.15
.03
.045
Elevation (ft)
330
325
320
315
310
305
0
500
1000
1500
2000
2500
3000
Station (ft)
Legend
WS PF 3
WS PF 1
Crit PF 3
Crit PF 1
Ground
Ineff
Bank Sta
Carlton Oaks PR Plan: Plan 01 2/7/2024 1:49:05 PM
Geom: revised-UpperSanDiego-PR Flow: 100 Year Flow
RS = 315 New Xsection-
.06
.035
.15
.035
.045
Elevation (ft)
330
325
320
315
310
305
0
500
1000
1500
2000
2500
3000
Station (ft)
Legend
WS PF 3
WS PF 1
Crit PF 3
Crit PF 1
Ground
Ineff
Bank Sta


Carlton Oaks PR Plan: Plan 01 2/7/2024 1:49:05 PM
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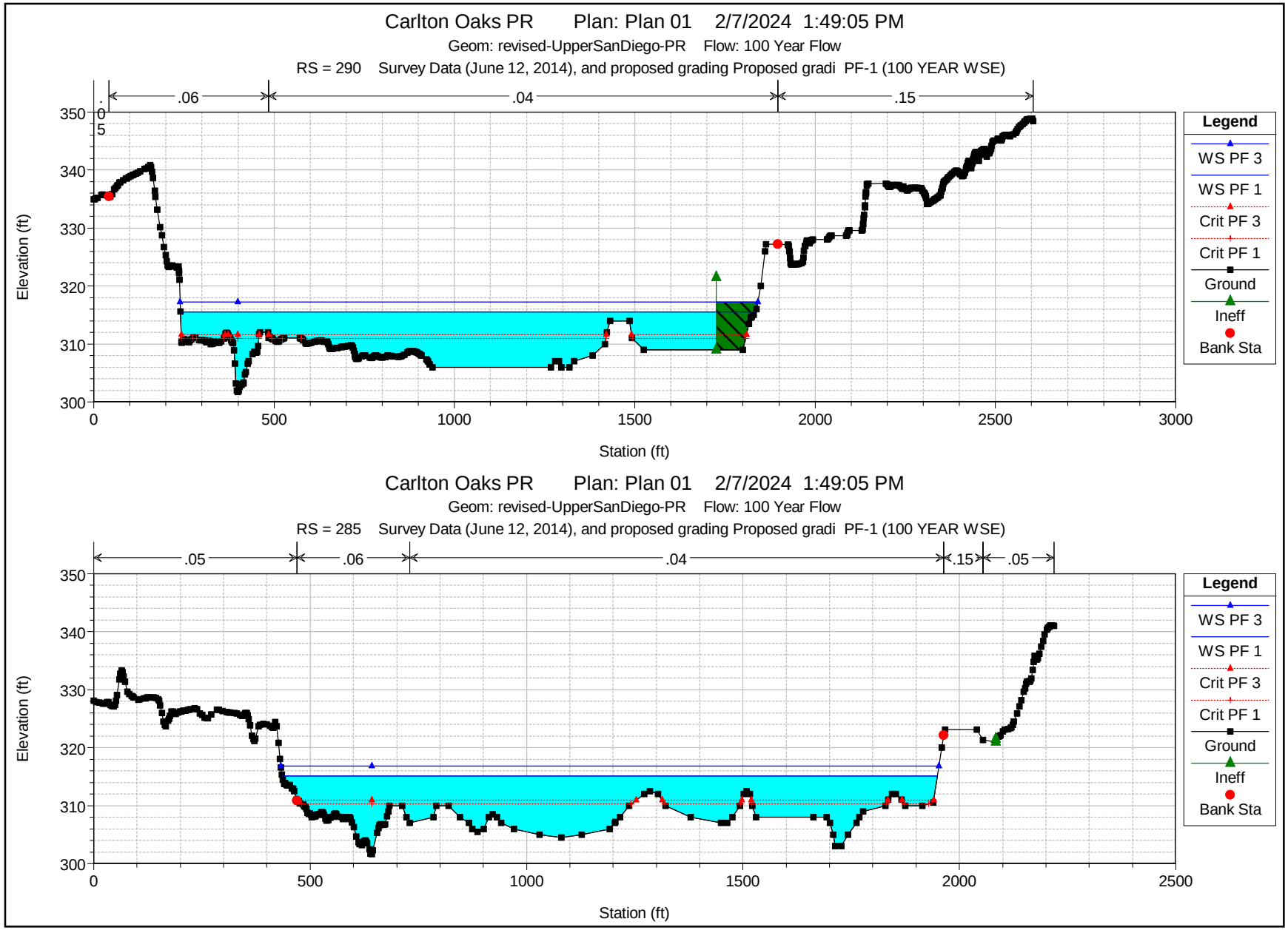
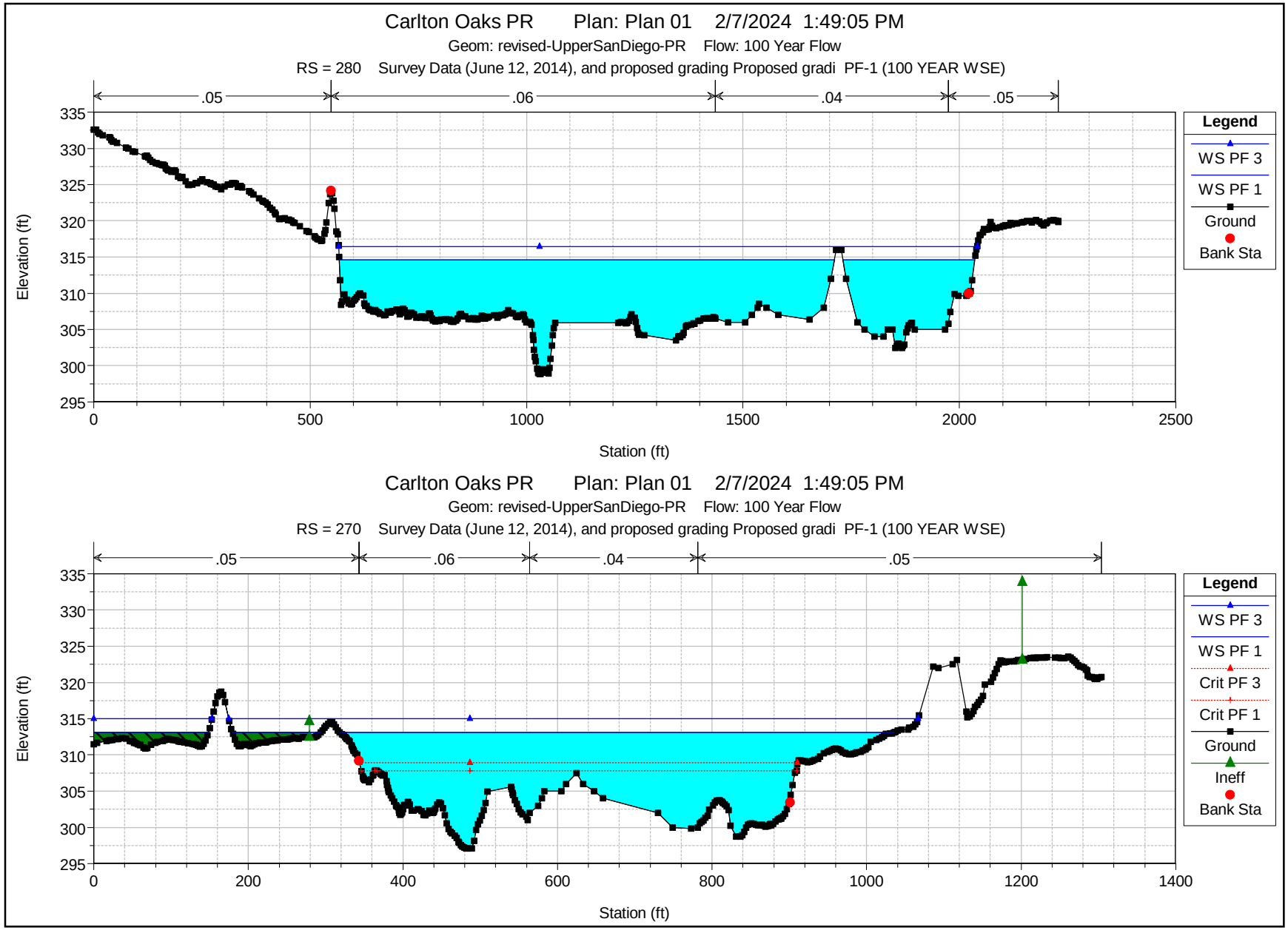
RS = 310 Resort West
.06
.035
.15
.035
.045
Elevation (ft)
335
330
325
320
315
310
305
0
500
1000
1500
2000
2500
3000
Station (ft)
Legend
WS PF 3
WS PF 1
Crit PF 3
Crit PF 1
Ground
Ineff
Bank Sta
Carlton Oaks PR Plan: Plan 01 2/7/2024 1:49:05 PM
Geom: revised-UpperSanDiego-PR Flow: 100 Year Flow
RS = 300 Survey Data (June 12, 2014), and proposed grading .
.05
.06
.05
.15
.05
.15
Elevation (ft)
370
360
350
340
330
320
310
300
0
500
1000
1500
2000
2500
3000
Station (ft)
Legend
WS PF 3
WS PF 1
Crit PF 3
Crit PF 1
Ground
Ineff
Bank Sta


Carlton Oaks PR Plan: Plan 01 2/7/2024 1:49:05 PM
Geom: revised-UpperSanDiego-PR Flow: 100 Year Flow
RS = 290 Survey Data (June 12, 2014), and proposed grading Proposed gradi PF-1 (100 YEAR WSE)
.06
.04
.15
Elevation (ft)
Station (ft)
Legend
WS PF 3
WS PF 1
Crit PF 3
Crit PF 1
Ground
Ineff
Bank Sta
Carlton Oaks PR Plan: Plan 01 2/7/2024 1:49:05 PM
Geom: revised-UpperSanDiego-PR Flow: 100 Year Flow
RS = 285 Survey Data (June 12, 2014), and proposed grading Proposed gradi PF-1 (100 YEAR WSE)
.05
.06
.04
.15
.05
Elevation (ft)
Station (ft)
Legend
WS PF 3
WS PF 1
Crit PF 3
Crit PF 1
Ground
Ineff
Bank Sta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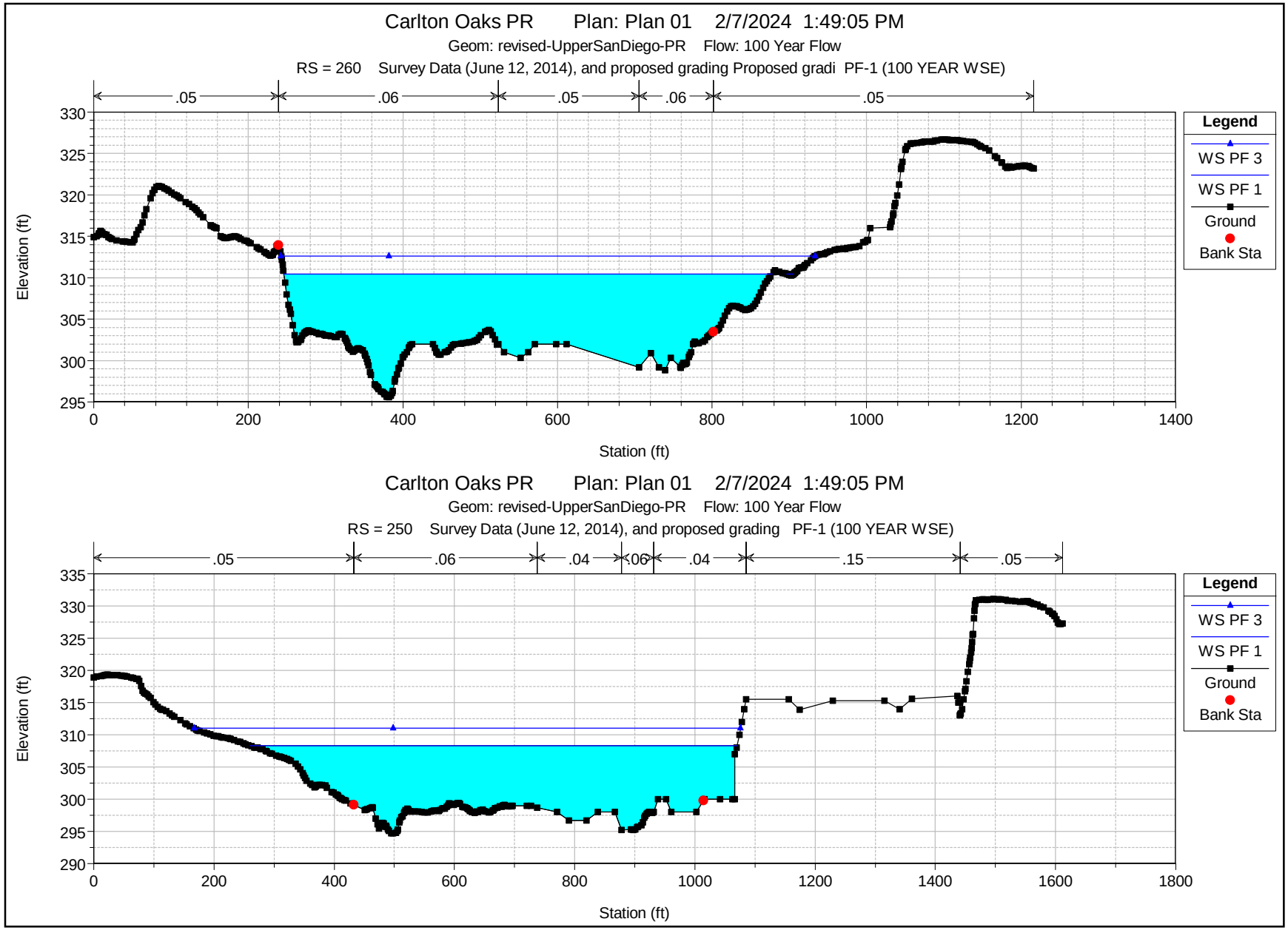
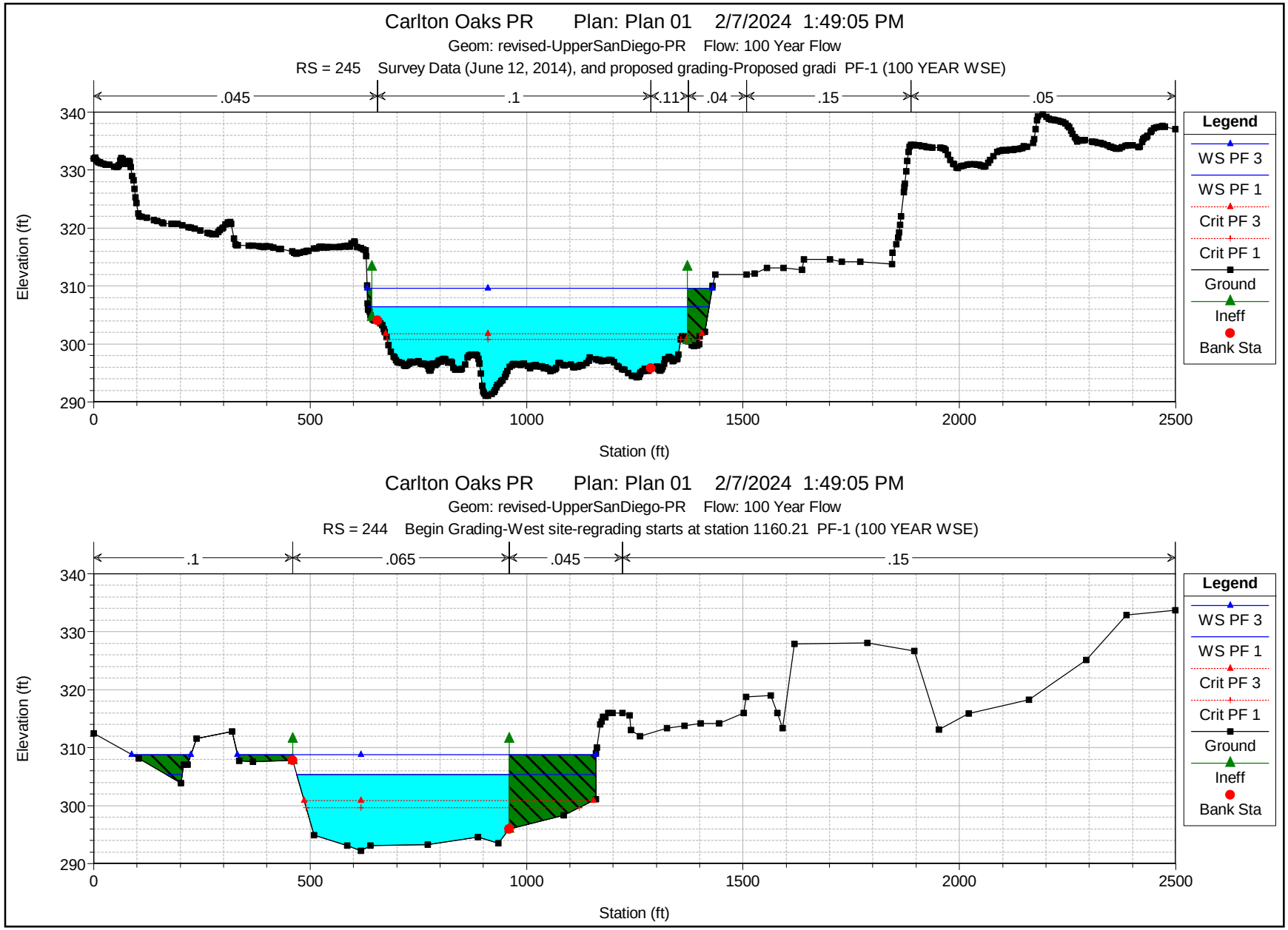
Geom: revised-UpperSanDiego-PR Flow: 100 Year Flow
RS = 280 Survey Data (June 12, 2014), and proposed grading Proposed gradi PF-1 (100 YEAR WSE)
.05
.06
.04
.05
Elevation (ft)
335
330
325
320
315
310
305
300
295
0
500
1000
1500
2000
2500
Station (ft)
Legend
WS PF 3
WS PF 1
Ground
Bank Sta
Carlton Oaks PR Plan: Plan 01 2/7/2024 1:49:05 PM
Geom: revised-UpperSanDiego-PR Flow: 100 Year Flow
RS = 270 Survey Data (June 12, 2014), and proposed grading Proposed gradi PF-1 (100 YEAR WSE)
.05
.06
.04
.05
Elevation (ft)
335
330
325
320
315
310
305
300
295
0
200
400
600
800
1000
1200
1400
Station (ft)
Legend
WS PF 3
WS PF 1
Crit PF 3
Crit PF 1
Ground
Ineff
Bank Sta


Carlton Oaks PR Plan: Plan 01 2/7/2024 1:49:05 PM
Geom: revised-UpperSanDiego-PR Flow: 100 Year Flow
RS = 260 Survey Data (June 12, 2014), and proposed grading Proposed gradi PF-1 (100 YEAR WSE)
.05
.06
.05
.06
.05
Elevation (ft)
330
325
320
315
310
305
300
295
0
200
400
600
800
1000
1200
1400
Station (ft)
Legend
WS PF 3
WS PF 1
Ground
Bank Sta
Carlton Oaks PR Plan: Plan 01 2/7/2024 1:49:05 PM
Geom: revised-UpperSanDiego-PR Flow: 100 Year Flow
RS = 250 Survey Data (June 12, 2014), and proposed grading PF-1 (100 YEAR WSE)
.05
.06
.04
.06
.04
.15
.05
Elevation (ft)
335
330
325
320
315
310
305
300
295
290
0
200
400
600
800
1000
1200
1400
1600
1800
Station (ft)
Legend
WS PF 3
WS PF 1
Ground
Bank Sta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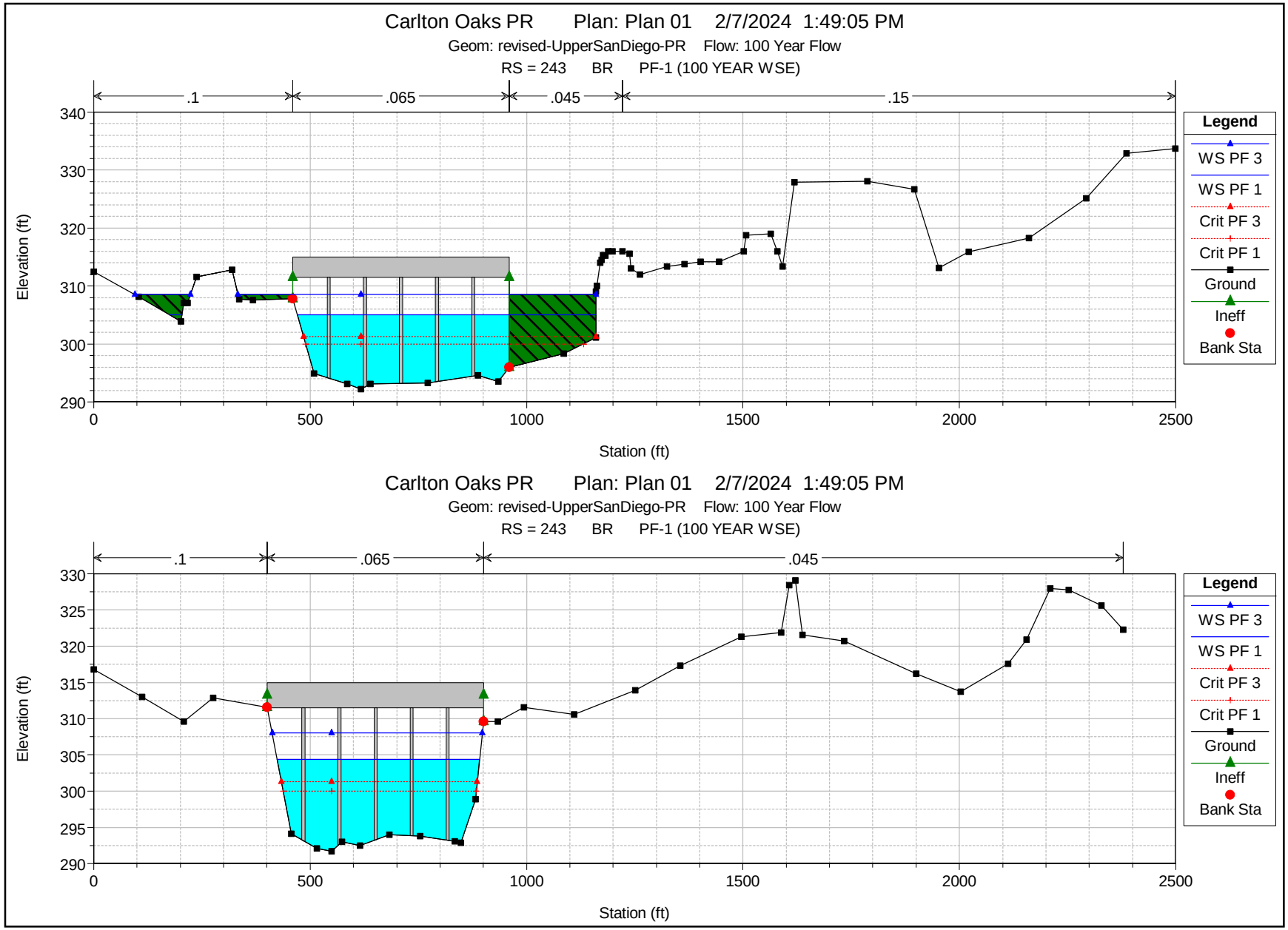
Geom: revised-UpperSanDiego-PR Flow: 100 Year Flow
RS = 245 Survey Data (June 12, 2014), and proposed grading-Proposed gradi PF-1 (100 YEAR WSE)
.045
.1
.11
.04
.15
.05
Elevation (ft)
340
330
320
310
300
290
0
500
1000
1500
2000
2500
Station (ft)
Legend
WS PF 3
WS PF 1
Crit PF 3
Crit PF 1
Ground
Ineff
Bank Sta
Carlton Oaks PR Plan: Plan 01 2/7/2024 1:49:05 PM
Geom: revised-UpperSanDiego-PR Flow: 100 Year Flow
RS = 244 Begin Grading-West site-regrading starts at station 1160.21 PF-1 (100 YEAR WSE)
.1
.065
.045
.15
Elevation (ft)
340
330
320
310
300
290
0
500
1000
1500
2000
2500
Station (ft)
Legend
WS PF 3
WS PF 1
Crit PF 3
Crit PF 1
Ground
Ineff
Bank Sta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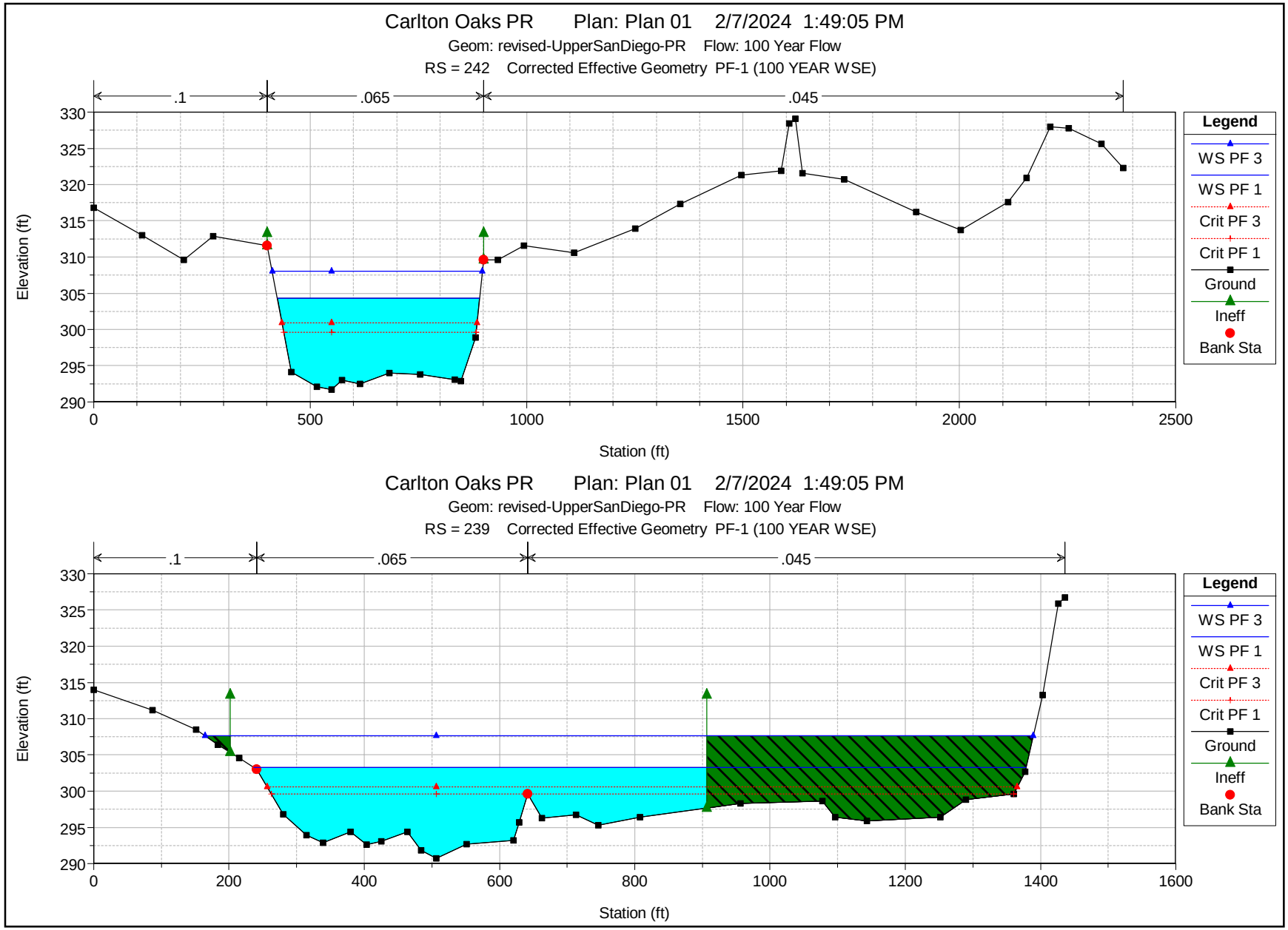
RS = 243 BR PF-1 (100 YEAR WSE)
.1
.065
.045
.15
Elevation (ft)
340
330
320
310
300
290
0
500
1000
1500
2000
2500
Station (ft)
Legend
WS PF 3
WS PF 1
Crit PF 3
Crit PF 1
Ground
Ineff
Bank Sta
Carlton Oaks PR Plan: Plan 01 2/7/2024 1:49:05 PM
Geom: revised-UpperSanDiego-PR Flow: 100 Year Flow
RS = 243 BR PF-1 (100 YEAR WSE)
.1
.065
.045
Elevation (ft)
330
325
320
315
310
305
300
295
290
0
500
1000
1500
2000
2500
Station (ft)
Legend
WS PF 3
WS PF 1
Crit PF 3
Crit PF 1
Ground
Ineff
Bank Sta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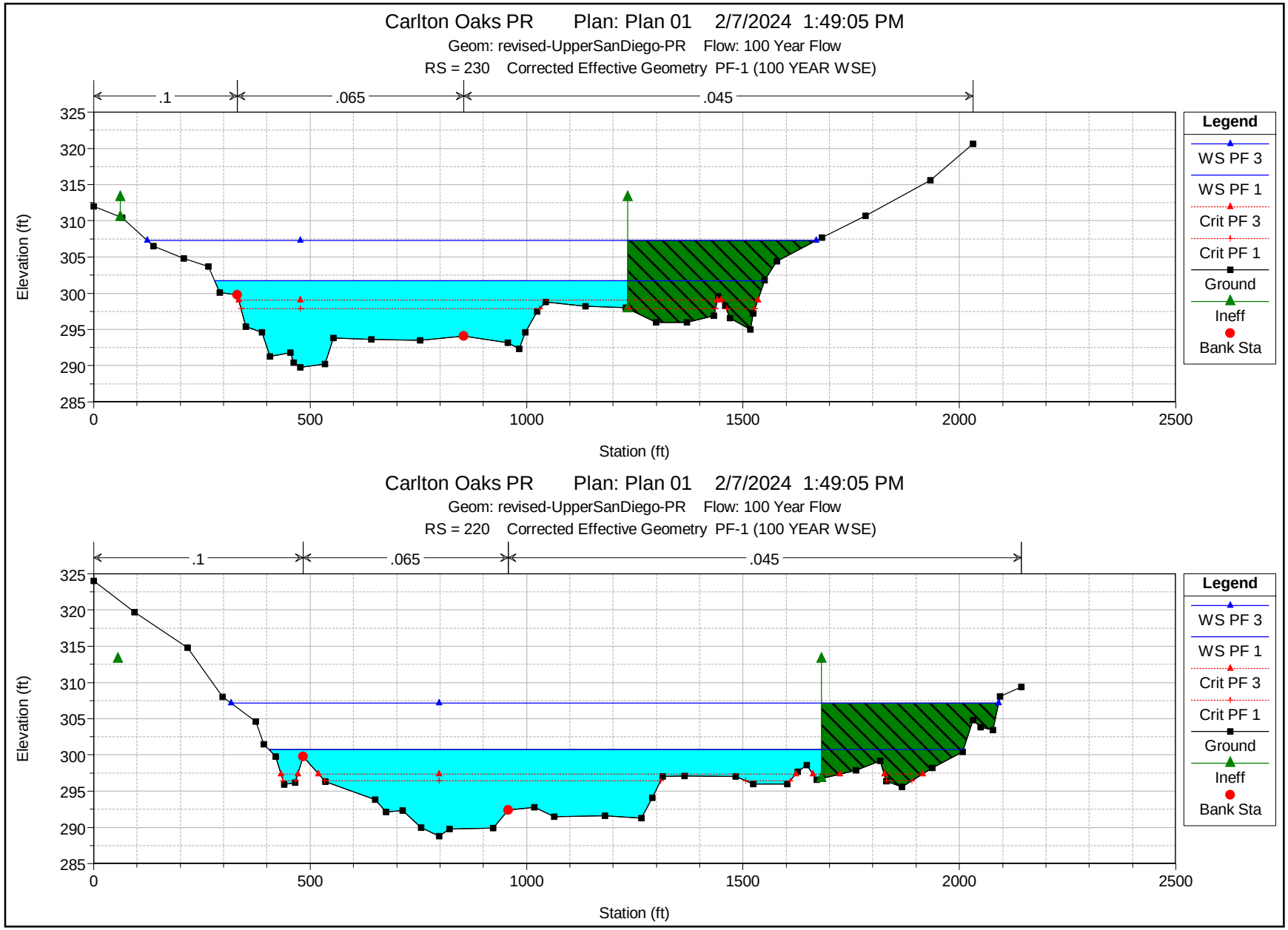
.1
.065
.045
Elevation (ft)
330
325
320
315
310
305
300
295
290
0
500
1000
1500
2000
2500
Station (ft)
Legend
WS PF 3
WS PF 1
Crit PF 3
Crit PF 1
Ground
Ineff
Bank Sta
Carlton Oaks PR Plan: Plan 01 2/7/2024 1:49:05 PM
Geom: revised-UpperSanDiego-PR Flow: 100 Year Flow
RS = 239 Corrected Effective Geometry PF-1 (100 YEAR WSE)
.1
.065
.045
Elevation (ft)
330
325
320
315
310
305
300
295
290
0
200
400
600
800
1000
1200
1400
1600
Station (ft)
Legend
WS PF 3
WS PF 1
Crit PF 3
Crit PF 1
Ground
Ineff
Bank Sta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.1
.065
.045
Elevation (ft)
325
320
315
310
305
300
295
290
285
0
500
1000
1500
2000
2500
Station (ft)
Legend
WS PF 3
WS PF 1
Crit PF 3
Crit PF 1
Ground
Ineff
Bank Sta
Carlton Oaks PR Plan: Plan 01 2/7/2024 1:49:05 PM
Geom: revised-UpperSanDiego-PR Flow: 100 Year Flow
RS = 220 Corrected Effective Geometry PF-1 (100 YEAR WSE)
.1
.065
.045
Elevation (ft)
325
320
315
310
305
300
295
290
285
0
500
1000
1500
2000
2500
Station (ft)
Legend
WS PF 3
WS PF 1
Crit PF 3
Crit PF 1
Ground
Ineff
Bank Sta

POST PROJECT CONDITIONS MODEL PLAN P04
FEMA 100-YEAR FLOODWAY (PF02) - NO SPLIT FLOW

| X-SEC # | Existing Conditions Encroachment | | Proposed Conditions Encroachment | | |
|---|---|---|---|---|---|
| | Left | Right | Left | Right | |
| 355 | 1604.5 | 2269.4 | 1604.5 | 2269.4 | |
| 345 | 1217.3 | 2147.3 | 1217.3 | 2147.3 | |
| 340 | 1147.2 | 2067.2 | 1147.2 | 2067.2 | |
| 330 | 1293.6 | 2138.6 | 1293.6 | 2138.6 | |
| 322 | | | | | |
| 320 | 848.3 | 2073.3 | 848.3 | 1725.2 | Revised Encroachment in Proposed conditions |
| 315 | 831 | 2340.8 | 831 | 1690.6 | |
| 310 | 559.1 | 2104.1 | 559.1 | 1277.4 | |
| 300 | 434.3 | 1904.3 | 434.3 | 1520.7 | |
| 290 | 270.7 | 1840.7 | 250.7 | 1725 | Manning reduced at the proposed grading within the golfcourse to 0.04 from 0.06 |
| 285 | 472.1 | 1907.1 | 472.1 | 1907.1 | Per Table A-5 from SD County HDM 2014, Page A-6 (High Grass in the flood plain) |
| 280 | 608.4 | 1908.4 | 608.4 | 1908.4 | |
| 270 | 341.7 | 901.7 | 341.7 | 901.7 | |
| 260 | 256.7 | 856.7 | 256.7 | 856.7 | |
| 250 | 357 | 1052 | 357 | 1052 | |
| 245 | 686.6 | 1291.6 | 686.6 | 1291.6 | |
| 244 | 459.7 | 960.1 | 459.7 | 960.1 | |
| 243 | | | | | |
| 242 | 401 | 900.5 | 401 | 900.5 | |
| 239 | 246.2 | 906.2 | 246.2 | 906.2 | |
| 230 | 321.8 | 1056.8 | 321.8 | 1056.8 | |
| 220 | 522.9 | 1492.9 | 522.9 | 1492.9 | |

HEC-RAS HEC-RAS 5.0.7 March 2019
U.S. Army Corps of Engineers
Hydrologic Engineering Center
609 Second Street
Davis, California

```
X     X  XXXXXX    XXXX        XXXX       XX      XXXX
X     X  X        X    X      X   X     X  X    X
X     X  X        X           X   X    X    X   X
XXXXXXX  XXXX     X       XXX  XXXX     XXXXXX    XXXX
X     X  X        X           X  X     X    X        X
X     X  X        X    X      X   X    X    X        X
X     X  XXXXXX    XXXX       X    X   X    X   XXXXX
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PROJECT DATA
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Project File : CarltonOaksPR.prj
Run Date and Time: 2/7/2024 3:08:02 PM

Project in English units

Project Description:
UPPER SAN DIEGO RIVER PROPOSED CONDITIONS
Profile 1 FEMA
100-Year Floodplain, Profile 2 FEMA Floodwy, Profile 3 BSI 100-Year
Flow
Revised Existing topo+ Proposed 2023
Floodway proposed
conditions

PLAN DATA

Plan Title: Plan 04
Plan File : r:\1759\Plot\Hydrology\FEMA\To the City\12 12-14-2023\San Diego River\Proposed\CarltonOaksPR.p04

Geometry Title: revised-UpperSanDiego-PR
Geometry File : r:\1759\Plot\Hydrology\FEMA\To the City\12 12-14-2023\San Diego River\Proposed\CarltonOaksPR.g01

Flow Title : 100 Year Flow
Flow File : r:\1759\Plot\Hydrology\FEMA\To the City\12 12-14-2023\San Diego River\Proposed\CarltonOaksPR.f01

Plan Summary Information:
Number of: Cross Sections = 20 Multiple Openings = 0

```
            Culverts       =    0    Inline Structures  =    0
            Bridges        =    1    Lateral Structures =    1

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

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

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

River = San Diego River  Reach = Reach 1
RS      Profile           Method  Value1  Value2
355     PF 2                   1  1604.5  2269.4
345     PF 2                   1  1217.3  2147.3
340     PF 2                   1  1147.2  2067.2
330     PF 2                   1  1293.6  2138.6
320     PF 2                   1   848.3  1725.2
315     PF 2                   1     831  1690.6
310     PF 2                   1   559.1  1277.4
300     PF 2                   1   434.3  1520.7
290     PF 2                   1   250.7    1725
285     PF 2                   1   472.1  1907.1
280     PF 2                   1   608.4  1908.4
270     PF 2                   1   341.7   901.7
260     PF 2                   1   256.7   856.7
250     PF 2                   1     357    1052
245     PF 2                   1   686.6  1291.6
244     PF 2                   1   459.7   960.1
242     PF 2                   1     401   900.5
239     PF 2                   1   246.2   906.2
230     PF 2                   1   321.8  1056.8
220     PF 2                   1   522.9  1492.9



FLOW DATA

Flow Title: 100 Year Flow
Flow File : r:\1759\Plot\Hydrology\FEMA\To the City\12 12-14-2023\San Diego River\Proposed\CarltonOaksPR.f01
```

Flow Data (cfs)

| River | Reach | RS | PF 1 | PF 2 | PF 3 | PF 4 | PF 5 | PF 6 |
|---|---|---|---|---|---|---|---|---|
| San Diego River | Reach 1 | 355 | 36000 | 36000 | 48000 | 4500 | 16000 | 21333 |
| San Diego River | Reach 1 | 320 | 37000 | 37000 | 49000 | 5000 | 17000 | 22513 |
| San Diego River | Reach 1 | 260 | 38000 | 38000 | 50000 | 5500 | 19000 | 25000 |

Boundary Conditions

| River | Reach | Profile | Upstream | Downstream |
|---|---|---|---|---|
| San Diego River | Reach 1 | PF 1 | | Known WS = 300.76 |
| San Diego River | Reach 1 | PF 2 | | Known WS = 301.66 |
| San Diego River | Reach 1 | PF 3 | | Known WS = 307.13 |
| San Diego River | Reach 1 | PF 4 | | Known WS = 300.76 |
| San Diego River | Reach 1 | PF 5 | | Known WS = 300.76 |
| San Diego River | Reach 1 | PF 6 | | Known WS = 301 |

GEOMETRY DATA

Geometry Title: revised-UpperSanDiego-PR
Geometry File : r:\1759\Plot\Hydrology\FEMA\To the City\12 12-14-2023\San Diego River\Proposed\CarltonOaksPR.g01

CROSS SECTION

RIVER: San Diego River
REACH: Reach 1 RS: 355

INPUT
Description: Corrected Effective Geometry
Station Elevation Data num= 80

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 328.6 | 54.1 | 329.6 | 64.2 | 325.6 | 78.6 | 322.7 | 125.3 | 322.5 |
| 191.1 | 321.9 | 199.7 | 330.5 | 303.1 | 330.6 | 305.9 | 328.2 | 314.9 | 330.2 |
| 343.4 | 331 | 443.3 | 330.1 | 543 | 331.4 | 551.9 | 329.8 | 608.6 | 330 |
| 615.1 | 337.4 | 640.3 | 337.4 | 643.6 | 329.1 | 672 | 328.4 | 743.1 | 329.5 |
| 746.8 | 336.5 | 789.9 | 336.5 | 793.5 | 328.9 | 836.7 | 328.9 | 980.7 | 324.9 |
| 1031 | 325 | 1062.7 | 326.6 | 1066.4 | 336.1 | 1083.8 | 336.3 | 1090.8 | 326.3 |
| 1156 | 325.6 | 1239.4 | 323.7 | 1275.1 | 321.6 | 1361.3 | 321 | 1418.6 | 319.8 |
| 1446.7 | 316.6 | 1469.1 | 316.3 | 1506.5 | 316.7 | 1516.7 | 310.8 | 1537.2 | 310.1 |
| 1551.7 | 310.8 | 1563.9 | 314.9 | 1590.3 | 315.8 | 1604.5 | 319.7 | 1616.8 | 316.1 |
| 1666 | 315.1 | 1720.1 | 313.8 | 1733.1 | 311.4 | 1933.3 | 311.5 | 2090.2 | 312 |
| 2112.2 | 314.2 | 2137 | 316.4 | 2145.2 | 320.2 | 2164.3 | 321.8 | 2196.4 | 318.6 |
| 2209 | 313.6 | 2229.8 | 312.6 | 2258.6 | 312.6 | 2294 | 313.5 | 2306.7 | 315.2 |
| 2330.7 | 319.2 | 2365.6 | 319.9 | 2417.7 | 320.5 | 2464.8 | 318.9 | 2487.3 | 317.9 |
| 2527.9 | 317.8 | 2547.1 | 318.7 | 2582 | 322.5 | 2592.6 | 324.2 | 2640.3 | 323.9 |
| 2733.3 | 326 | 2773.3 | 328.7 | 2799.6 | 328.3 | 2837.5 | 329.1 | 2881.4 | 328.9 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2888.7 | 330.5 | 2924.8 | 331.4 | 2990.2 | 330.4 | 2995.2 | 332.8 | 3009.4 | 332.2 |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .06 | 1604.5 | .05 | 2417.7 | .06 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 1604.5 | 2417.7 | 360 | 310 | 350 | .1 | .3 |

Ineffective Flow num= 2

| Sta L | Sta R | Elev | Permanent |
|---|---|---|---|
| 0 | 1604.5 | 326 | F |
| 2417.7 | 3009.4 | 326 | F |

CROSS SECTION OUTPUT Profile #PF 2

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 322.60 | Element | | | |
| Vel Head (ft) | 0.62 | Wt. n-Val. | | 0.050 | |
| W.S. Elev (ft) | 321.98 | Reach Len. (ft) | 360.00 | 310.00 | 350.00 |
| Crit W.S. (ft) | 317.49 | Flow Area (sq ft) | | 5705.00 | |
| E.G. Slope (ft/ft) | 0.002641 | Area (sq ft) | | 5705.00 | |
| Q Total (cfs) | 36000.00 | Flow (cfs) | | 36000.00 | |
| Top Width (ft) | 664.90 | Top Width (ft) | | 664.90 | |
| Vel Total (ft/s) | 6.31 | Avg. Vel. (ft/s) | | 6.31 | |
| Max Chl Dpth (ft) | 10.58 | Hydr. Depth (ft) | | 8.58 | |
| Conv. Total (cfs) | 700497.6 | Conv. (cfs) | | 700497.6 | |
| Length Wtd. (ft) | 310.00 | Wetted Per. (ft) | | 679.31 | |
| Min Ch El (ft) | 311.40 | Shear (lb/sq ft) | | 1.38 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 8.74 | |
| Frctn Loss (ft) | 0.63 | Cum Volume (acre-ft) | 18.53 | 1604.46 | 78.63 |
| C & E Loss (ft) | 0.07 | Cum SA (acres) | 3.08 | 189.40 | 10.74 |

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

CROSS SECTION

RIVER: San Diego River
REACH: Reach 1 RS: 345

INPUT
Description: Corrected Effective Geometry
Station Elevation Data num= 87

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 328.5 | 49.4 | 329.1 | 102.6 | 328.5 | 110.8 | 325.5 | 147.2 | 324.7 |
| 222.2 | 324.8 | 279.9 | 324 | 297.8 | 318.7 | 332.6 | 318.3 | 342 | 322.6 |
| 352.2 | 328.6 | 409 | 329.7 | 414.3 | 338.4 | 436.9 | 338.4 | 443.4 | 329.4 |
| 479.4 | 328.7 | 533.4 | 328.1 | 539.9 | 334.4 | 654.6 | 334.4 | 663.1 | 327.7 |
| 761.2 | 327.7 | 831.1 | 325.5 | 841.3 | 334.3 | 870.8 | 334.3 | 875.7 | 325.4 |
| 919.5 | 323.7 | 960.7 | 323.6 | 995.9 | 324.3 | 1000.4 | 333.1 | 1039.7 | 333.1 |
| 1042.9 | 325.3 | 1092.1 | 322.8 | 1111.7 | 320.1 | 1171.1 | 320.2 | 1196.7 | 319 |
| 1218.4 | 314.4 | 1243.9 | 313.4 | 1260.5 | 315.7 | 1277.7 | 315.6 | 1287.1 | 312.5 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1308.4 | 310.6 | 1331.5 | 309.8 | 1349.3 | 310.6 | 1357.5 | 314 | 1406.2 | 313.9 |
| 1473.3 | 313.3 | 1479.5 | 310 | 1754.1 | 310 | 1768.6 | 320.8 | 1784.4 | 328.6 |
| 1796.2 | 329.8 | 1811.8 | 323.1 | 1827.4 | 315.1 | 1847.9 | 313.7 | 1865 | 315.1 |
| 1881.8 | 319.8 | 1899.8 | 323.5 | 1942.8 | 322.9 | 1993.1 | 319.8 | 2004.9 | 316.5 |
| 2015.6 | 312.2 | 2033.1 | 312.5 | 2061.4 | 312.9 | 2065.9 | 312.2 | 2147.9 | 312.2 |
| 2160.3 | 316.1 | 2180.3 | 319.1 | 2223.2 | 319.9 | 2242.8 | 318 | 2258.3 | 317.9 |
| 2273.1 | 319.4 | 2284.9 | 321.6 | 2294.3 | 324.2 | 2319.3 | 325.5 | 2321.4 | 351.5 |
| 2360.3 | 351.5 | 2366.8 | 331.2 | 2419.1 | 331.4 | 2422.9 | 347.8 | 2478 | 347.8 |
| 2482.6 | 330.3 | 2500.2 | 330.1 | 2540.7 | 330.6 | 2574.2 | 329.3 | 2587 | 329.7 |
| 2658.4 | 333.8 | 2742.3 | 337.4 | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .06 | 1092.1 | .05 | 2294.3 | .06 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 1092.1 | 2294.3 | 400 | 335 | 125 | .1 | .3 |

Ineffective Flow num= 1

| Sta L | Sta R | Elev | Permanent |
|---|---|---|---|
| 0 | 742.3 | 326 | F |

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | | |
|---|---|---|---|---|---|---|
| E.G. Elev (ft) | 321.90 | Element | Left OB | Channel | Right OB | |
| Vel Head (ft) | 0.39 | Wt. n-Val. | | 0.050 | | |
| W.S. Elev (ft) | 321.51 | Reach Len. (ft) | 400.00 | 335.00 | 125.00 | |
| Crit W.S. (ft) | 316.13 | Flow Area (sq ft) | | 7180.65 | | |
| E.G. Slope (ft/ft) | 0.001618 | Area (sq ft) | | 7180.65 | | |
| Q Total (cfs) | 36000.00 | Flow (cfs) | | 36000.00 | | |
| Top Width (ft) | 809.96 | Top Width (ft) | | 809.96 | | |
| Vel Total (ft/s) | 5.01 | Avg. Vel. (ft/s) | | 5.01 | | |
| Max Chl Dpth (ft) | 11.71 | Hydr. Depth (ft) | | 8.87 | | |
| Conv. Total (cfs) | 894946.1 | Conv. (cfs) | | 894946.1 | | |
| Length Wtd. (ft) | 335.00 | Wetted Per. (ft) | | 836.09 | | |
| Min Ch El (ft) | 309.80 | Shear (lb/sq ft) | | 0.87 | | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 4.35 | | |
| Frctn Loss (ft) | 0.53 | Cum Volume (acre-ft) | 18.53 | 1558.60 | 78.63 | |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 3.08 | 184.15 | 10.74 | |

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

CROSS SECTION

RIVER: San Diego River
REACH: Reach 1 RS: 340

INPUT
Description: Corrected Effective Geometry
Station Elevation Data num= 81

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 326.7 | 43.2 | 327 | 89.6 | 327.9 | 94.4 | 326.4 | 102.4 | 324.9 |
| 130 | 324.1 | 201.6 | 323.1 | 232.8 | 323.6 | 287.2 | 322.5 | 301.2 | 321 |
| 312 | 313.1 | 344 | 313.4 | 353.2 | 317.7 | 361.6 | 325.1 | 382.4 | 325.4 |
| 408.1 | 327.2 | 412.5 | 335.5 | 452.9 | 335.5 | 458.9 | 325.8 | 498.9 | 324.4 |
| 541.7 | 325.2 | 559.3 | 325.7 | 597.3 | 325.8 | 630.1 | 325.1 | 705.7 | 324.9 |
| 806.9 | 325.7 | 889.8 | 326.1 | 895.4 | 334.3 | 917.8 | 334.3 | 923 | 326.1 |
| 955.8 | 324.1 | 987.8 | 325 | 1016.2 | 326 | 1018.6 | 336 | 1056.2 | 333.6 |
| 1063.4 | 326 | 1106.2 | 324.8 | 1119.4 | 322.7 | 1140.2 | 317.5 | 1166.2 | 311.8 |
| 1172.3 | 311.9 | 1182.7 | 315.6 | 1195.5 | 316.1 | 1201.1 | 310.6 | 1207.1 | 309.9 |
| 1243.1 | 310.6 | 1276.3 | 315.7 | 1331.9 | 314.9 | 1350.7 | 311.8 | 1408.7 | 311 |
| 1417.5 | 310.4 | 1588.3 | 310.4 | 1600 | 315.1 | 1626.4 | 315.7 | 1674.8 | 315.4 |
| 1693.2 | 314.2 | 1722.4 | 314.4 | 1733.6 | 315.6 | 1752.4 | 317.4 | 1782.8 | 317.3 |
| 1799.2 | 314.2 | 1807.6 | 311.3 | 1847.6 | 311.2 | 1929.2 | 311.9 | 1958.5 | 312.9 |
| 1963.3 | 312.2 | 2053.3 | 312.2 | 2071.3 | 314.7 | 2096.5 | 316.6 | 2114.1 | 319.8 |
| 2130.9 | 323.4 | 2156.1 | 324.1 | 2158.5 | 347.5 | 2320.2 | 347.5 | 2326.6 | 330.3 |
| 2339.4 | 330.2 | 2347.8 | 331 | 2388.2 | 331.3 | 2422.2 | 330.3 | 2449 | 331.8 |
| 2492.2 | 332.5 | | | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .06 | 1106.2 | .05 | 2130.9 | .06 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 1106.2 | 2130.9 | 575 | 454 | 575 | .1 | .3 |

Ineffective Flow num= 1

| Sta L | Sta R | Elev | Permanent |
|---|---|---|---|
| 0 | 992.2 | 326 | F |

CROSS SECTION OUTPUT Profile #PF 2

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 321.36 | Element | | | |
| Vel Head (ft) | 0.35 | Wt. n-Val. | | 0.050 | |
| W.S. Elev (ft) | 321.01 | Reach Len. (ft) | 575.00 | 454.00 | 575.00 |
| Crit W.S. (ft) | 316.26 | Flow Area (sq ft) | | 7606.01 | |
| E.G. Slope (ft/ft) | 0.001557 | Area (sq ft) | | 7606.01 | |
| Q Total (cfs) | 36000.00 | Flow (cfs) | | 36000.00 | |
| Top Width (ft) | 920.00 | Top Width (ft) | | 920.00 | |
| Vel Total (ft/s) | 4.73 | Avg. Vel. (ft/s) | | 4.73 | |
| Max Chl Dpth (ft) | 11.11 | Hydr. Depth (ft) | | 8.27 | |
| Conv. Total (cfs) | 912273.7 | Conv. (cfs) | | 912273.7 | |
| Length Wtd. (ft) | 460.09 | Wetted Per. (ft) | | 938.08 | |
| Min Ch El (ft) | 309.90 | Shear (lb/sq ft) | | 0.79 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 3.73 | |
| Frctn Loss (ft) | 0.68 | Cum Volume (acre-ft) | 18.53 | 1501.75 | 78.63 |
| C & E Loss (ft) | 0.02 | Cum SA (acres) | 3.08 | 177.50 | 10.74 |

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

CROSS SECTION

RIVER: San Diego River
REACH: Reach 1 RS: 330

INPUT
Description: Corrected Effective Geometry
Station Elevation Data num= 85

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 329.4 | 6.4 | 340.1 | 55 | 340.1 | 58.2 | 328.3 | 141.2 | 326.1 |
| 185.4 | 328.3 | 231.5 | 330.2 | 243.2 | 325.1 | 474.7 | 320.1 | 525.2 | 321.6 |
| 540.1 | 314.3 | 568.2 | 309.9 | 581 | 309.8 | 589.9 | 316.6 | 600.7 | 322.8 |
| 620.3 | 323.5 | 669.7 | 323.1 | 674.1 | 332 | 706.7 | 332 | 712.3 | 323.7 |
| 739.5 | 322.4 | 776.4 | 322.4 | 806.9 | 323.4 | 811.9 | 331 | 853.1 | 331 |
| 858 | 323.1 | 901.3 | 324.3 | 907.3 | 326.5 | 951 | 327.2 | 1025.7 | 326.7 |
| 1077.9 | 326.6 | 1084.3 | 329.3 | 1104.3 | 330.1 | 1107.6 | 336.6 | 1151.7 | 336.6 |
| 1157.3 | 329.8 | 1199.9 | 326 | 1239.6 | 321.9 | 1254.4 | 316.3 | 1272.1 | 314.1 |
| 1309.8 | 313.3 | 1339.5 | 311.3 | 1353.9 | 308.6 | 1358.9 | 308.5 | 1370.2 | 308.6 |
| 1379.5 | 312 | 1426.4 | 313.8 | 1487.8 | 313.6 | 1504.2 | 310.2 | 1521.1 | 310.2 |
| 1556 | 313.2 | 1606.6 | 312.6 | 1668.3 | 312.9 | 1684.4 | 310 | 1832 | 310 |
| 1836.4 | 313.3 | 1844.4 | 317.8 | 1861.7 | 321.4 | 1879.7 | 316.5 | 1889.8 | 313.5 |
| 1945.9 | 314.8 | 1981.6 | 314 | 1996.9 | 322.1 | 2003.7 | 324.8 | 2013.3 | 323.4 |
| 2025.8 | 316.7 | 2041 | 312.5 | 2131.8 | 312.5 | 2142.6 | 314.9 | 2166.3 | 315.9 |
| 2183.1 | 318 | 2194.4 | 324.4 | 2217.2 | 324.6 | 2220.1 | 351.3 | 2263 | 351.3 |
| 2269.4 | 330.5 | 2329.6 | 329.8 | 2330.9 | 346.6 | 2382.3 | 346.6 | 2388.7 | 328.4 |
| 2403.5 | 325.8 | 2442.1 | 325.9 | 2477.4 | 324.8 | 2511.5 | 327.4 | 2573.6 | 331.2 |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .06 | 1239.6 | .035 | 2003.7 | .045 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 1239.6 | 2003.7 | 620 | 588 | 620 | .1 | .3 |

Ineffective Flow num= 2

| Sta L | Sta R | Elev | Permanent |
|---|---|---|---|
| 0 | 1173.6 | 329.3 | F |
| 2187.3 | 2573.6 | 321.5 | F |

CROSS SECTION OUTPUT Profile #PF 2

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 320.65 | Element | | | |
| Vel Head (ft) | 0.56 | Wt. n-Val. | | 0.035 | 0.045 |
| W.S. Elev (ft) | 320.09 | Reach Len. (ft) | 620.00 | 588.00 | 620.00 |
| Crit W.S. (ft) | 316.35 | Flow Area (sq ft) | | 5268.56 | 830.40 |
| E.G. Slope (ft/ft) | 0.001425 | Area (sq ft) | | 5268.56 | 830.40 |
| Q Total (cfs) | 36000.00 | Flow (cfs) | | 32377.22 | 3622.78 |
| Top Width (ft) | 807.58 | Top Width (ft) | | 688.45 | 119.13 |
| Vel Total (ft/s) | 5.90 | Avg. Vel. (ft/s) | | 6.15 | 4.36 |
| Max Chl Dpth (ft) | 11.59 | Hydr. Depth (ft) | | 7.65 | 6.97 |
| Conv. Total (cfs) | 953740.2 | Conv. (cfs) | | 857762.7 | 95977.5 |
| Length Wtd. (ft) | 589.59 | Wetted Per. (ft) | | 701.57 | 126.81 |
| Min Ch El (ft) | 308.50 | Shear (lb/sq ft) | | 0.67 | 0.58 |
| Alpha | 1.03 | Stream Power (lb/ft s) | | 4.10 | 2.54 |

| | | | | | |
|---|---|---|---|---|---|
| Frctn Loss (ft) | 0.78 | Cum Volume (acre-ft) | 18.53 | 1434.65 | 73.15 |
| C & E Loss (ft) | 0.02 | Cum SA (acres) | 3.08 | 169.11 | 9.95 |

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

LATERAL STRUCTURE

RIVER: San Diego River
REACH: Reach 1 RS: 322

INPUT
Description:
Lateral structure position = Next ot right bank station
Distance from Upstream XS =
Deck/Roadway Width = 100
Weir Coefficient = 3.1
Weir Flow Reference = Water Surface
Weir Embankment Coordinates num = 2

| Sta | Elev | Sta | Elev |
|---|---|---|---|
| 0 | 323.5 | 75 | 323.5 |

Weir crest shape = Broad Crested

Number of Culverts = 4

| Culvert Name | Shape | Rise | Span |
|---|---|---|---|
| Culvert #1 | Box | 8 | 10.5 |

FHWA Chart # 8 - flared wingwalls
FHWA Scale # 3 - Wingwall flared 0 deg. (sides extended straight)
Solution Criteria = Inlet control

| Culvert Upstrm Dist | Length | Top n | Bottom n | Depth Blocked | Entrance Loss Coef | Exit Loss Coef |
|---|---|---|---|---|---|---|
| | 88 | .013 | .013 | 0 | .2 | .3 |

Upstream Elevation = 313
Centerline Station = 10
Downstream Elevation = 312.5
Centerline Station = 10

| Culvert Name | Shape | Rise | Span |
|---|---|---|---|
| Culvert #2 | Box | 8 | 10.5 |

FHWA Chart # 8 - flared wingwalls
FHWA Scale # 3 - Wingwall flared 0 deg. (sides extended straight)
Solution Criteria = Highest U.S. EG

| Culvert Upstrm Dist | Length | Top n | Bottom n | Depth Blocked | Entrance Loss Coef | Exit Loss Coef |
|---|---|---|---|---|---|---|
| | 78 | .013 | .013 | 0 | .2 | .3 |

Upstream Elevation = 313
Centerline Station = 23
Downstream Elevation = 312.5
Centerline Station = 23

```
Culvert Name     Shape      Rise    Span
Culvert #3           Box       8    10.5
FHWA Chart # 8 - flared wingwalls
FHWA Scale # 3 - Wingwall flared 0 deg. (sides extended straight)
Solution Criteria = Highest U.S. EG
Culvert Upstrm Dist  Length    Top n  Bottom n  Depth Blocked  Entrance Loss Coef   Exit Loss Coef
                      68.3     .013     .013        0                  .2               .3
Upstream   Elevation =  313
           Centerline Station =  36
Downstream Elevation =  312.5
           Centerline Station =  36

Culvert Name     Shape      Rise    Span
Culvert #4           Box       8    10.5
FHWA Chart # 8 - flared wingwalls
FHWA Scale # 3 - Wingwall flared 0 deg. (sides extended straight)
Solution Criteria = Highest U.S. EG
Culvert Upstrm Dist  Length    Top n  Bottom n  Depth Blocked  Entrance Loss Coef   Exit Loss Coef
                        50     .013     .013        0                  .2               .3
Upstream   Elevation =  313
           Centerline Station =  49
Downstream Elevation =  312.5
           Centerline Station =  49

CROSS SECTION


RIVER: San Diego River
REACH: Reach 1            RS: 320

INPUT
Description: 320 start Revising per Existing Topo and Proposed grading.Resort
             East
From Stations 0 to 1290.09, Geometry from the corrected
             effective model.(Forrest Creek - Offsite existing
             development).
start regrading at station 1290.09
Station 1738.31
             to 1927 proposed resort n =0.15
In the non-disturbed area,
             Manning's coefficients are derived from the Corrected Effective
             Model.
Station Elevation Data    num=     166
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0   328.2    87.1   328.7    92.7   326.3   107.2   324.6   175.5   323.9
   182.3   318.9   192.7   315.6   272.6   314.6   325.3   313.5   403.2   312.7
   454.2   312.2   466.6   315.2   517.6   315.1   537.3   318.8   599.9   317.9
   610.4   311.7   619.6   307.3   648.9   307.4     661   310.6   672.6   318.3
   703.6   319.2   777.4   317.9   847.7     319   889.9   316.7   923.2     312
   950.9   309.6     963   307.2  1073.2   307.2  1141.4   307.3  1193.1   308.7
  1250.2   308.5 1290.09     320 1342.26     316 1356.77     314 1366.58     313
```

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1369.82 | 311 | 1457.79 | 311 | 1504.75 | 312 | 1590.76 | 314 | 1687.87 | 316 | | |
| 1692.08 | 318 | 1703.35 | 318 | 1724.42 | 318 | 1731.81 | 320 | 1738.71 | 320.8 | | |
| 1818.46 | 320.6 | 1929.08 | 322 | 1939.46 | 320 | 1959.37 | 318 | 1974.86 | 314.5 | | |
| 2023 | 315.34 | 2029.11 | 315.07 | 2036.77 | 314.66 | 2039.32 | 314.61 | 2046.8 | 314.62 | | |
| 2049.53 | 314.7 | 2052.08 | 314.59 | 2057.38 | 314.64 | 2062.29 | 314.84 | 2067.4 | 314.74 | | |
| 2072.5 | 314.96 | 2076.43 | 312.07 | 2092.92 | 312 | 2098.03 | 311.8 | 2103.14 | 311.22 | | |
| 2105.69 | 311.06 | 2108.24 | 311.1 | 2113.35 | 313.08 | 2115.9 | 313.67 | 2121 | 315.62 | | |
| 2126.11 | 316.67 | 2128.66 | 317.04 | 2133.77 | 317.22 | 2136.32 | 317.54 | 2138.87 | 318.2 | | |
| 2141.43 | 319.32 | 2143.98 | 319.82 | 2146.26 | 320.56 | 2149.08 | 321.65 | 2151.64 | 323.02 | | |
| 2154.19 | 324.02 | 2156.74 | 325.89 | 2164.4 | 326.49 | 2169.5 | 326.66 | 2179.72 | 326.74 | | |
| 2182.27 | 326.66 | 2188.2 | 326.66 | 2200.14 | 326.66 | 2220.56 | 325.88 | 2233.32 | 325.5 | | |
| 2248.64 | 325.38 | 2253.74 | 325.26 | 2258.85 | 325.57 | 2261.4 | 325.23 | 2263.95 | 324.48 | | |
| 2269.06 | 323.4 | 2274.16 | 322.81 | 2281.82 | 323.38 | 2289.48 | 323.65 | 2292.03 | 323.63 | | |
| 2294.59 | 323.78 | 2304.8 | 323.88 | 2312.45 | 323.89 | 2322.66 | 323.59 | 2330.32 | 323.06 | | |
| 2332.88 | 322.94 | 2343.09 | 323.56 | 2351.51 | 323.93 | 2355.85 | 324.38 | 2359.98 | 324.33 | | |
| 2371.17 | 323.75 | 2378.82 | 323.75 | 2383.93 | 323.82 | 2394.14 | 324.07 | 2401.8 | 324.55 | | |
| 2406.9 | 324.66 | 2414.56 | 324.71 | 2419.22 | 324.95 | 2424.77 | 325.38 | 2431.92 | 325.79 | | |
| 2442.5 | 326.03 | 2457.96 | 326.02 | 2465.61 | 325.83 | 2470.72 | 325.51 | 2473.27 | 324.65 | | |
| 2475.82 | 324.21 | 2480.93 | 323.73 | 2483.48 | 323.61 | 2488.59 | 323.53 | 2498.8 | 323.64 | | |
| 2503.87 | 323.63 | 2514.11 | 323.79 | 2525.03 | 323.76 | 2542.19 | 324.07 | 2547.3 | 324.54 | | |
| 2552.4 | 324.03 | 2557.51 | 324 | 2565.17 | 323.78 | 2575.38 | 323.86 | 2580.48 | 323.81 | | |
| 2585.59 | 323.85 | 2588.14 | 323.74 | 2592.74 | 323.78 | 2599.09 | 323.97 | 2603.46 | 324.01 | | |
| 2607.55 | 324.18 | 2616.02 | 324.39 | 2618.77 | 324.58 | 2623.88 | 325.09 | 2626.43 | 325.04 | | |
| 2628.71 | 325.18 | 2639.2 | 325.47 | 2643.52 | 325.68 | 2654.51 | 325.86 | 2657.06 | 325.94 | | |
| 2664.72 | 325.53 | 2667.27 | 325.61 | 2672.38 | 325.5 | 2677.49 | 325.56 | 2682.59 | 325.44 | | |
| 2692.19 | 325.58 | 2697.91 | 325.59 | 2700.46 | 325.68 | 2709.12 | 325.54 | 2717.58 | 325.62 | | |
| 2732.54 | 326.12 | | | | | | | | | | |

Manning's n Values num= 5

| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|---|---|---|---|
| 0 | .06 | 847.7 | .035 | 1738.71 | .15 | 1929.08 | .03 | 2188.2 | .045 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 847.7 | 2188.2 | 260 | 431 | 405 | .1 | .3 |

Ineffective Flow num= 2

| Sta L | Sta R | Elev | Permanent |
|---|---|---|---|
| 0 | 847 | 323 | F |
| 1725.2 | 2732.54 | 321.5 | F |

CROSS SECTION OUTPUT Profile #PF 2

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 319.86 | Element | | | |
| Vel Head (ft) | 0.50 | Wt. n-Val. | | 0.035 | |
| W.S. Elev (ft) | 319.36 | Reach Len. (ft) | 260.00 | 431.00 | 405.00 |
| Crit W.S. (ft) | 314.77 | Flow Area (sq ft) | | 6519.30 | |
| E.G. Slope (ft/ft) | 0.001222 | Area (sq ft) | | 6519.30 | |
| Q Total (cfs) | 37000.00 | Flow (cfs) | | 37000.00 | |
| Top Width (ft) | 866.31 | Top Width (ft) | | 866.31 | |
| Vel Total (ft/s) | 5.68 | Avg. Vel. (ft/s) | | 5.68 | |
| Max Chl Dpth (ft) | 12.16 | Hydr. Depth (ft) | | 7.53 | |
| Conv. Total (cfs) | 1058602.0 | Conv. (cfs) | | 1058602.0 | |
| Length Wtd. (ft) | 426.99 | Wetted Per. (ft) | | 871.56 | |

| | | | | | |
|---|---|---|---|---|---|
| Min Ch El (ft) | 307.20 | Shear (lb/sq ft) | | 0.57 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 3.24 | |
| Frctn Loss (ft) | 0.89 | Cum Volume (acre-ft) | 18.53 | 1355.09 | 67.24 |
| C & E Loss (ft) | 0.06 | Cum SA (acres) | 3.08 | 158.62 | 9.11 |

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: San Diego River
REACH: Reach 1 RS: 315

INPUT
Description: New Xsection-
Survey Data (June 12, 2014) and proposed grading
proposed grading starts at station # 1110.6
Station 1379.96 to 1561.13 the exisitng building and grading to stay
proposed resort at station 1702.4 to 1970.5- n=0.15
Station Elevation Data num= 386

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 326.37 | 4.8 | 326.34 | 10.25 | 325.97 | 18.78 | 326.48 | 24.07 | 325.99 |
| 29.36 | 326.09 | 33.27 | 325.91 | 36.26 | 326.09 | 40.19 | 325.99 | 42.58 | 326.17 |
| 50.51 | 327.44 | 58.4 | 328.05 | 60.99 | 328.38 | 63.58 | 328.43 | 66.17 | 328.86 |
| 72.23 | 329 | 76.53 | 328.8 | 81.71 | 328.87 | 84.29 | 328.5 | 89.47 | 328.36 |
| 94.67 | 328.06 | 96.71 | 328.06 | 111.18 | 327.7 | 118.46 | 327.35 | 123.62 | 327.53 |
| 126.27 | 327.46 | 131.56 | 327.67 | 136.85 | 327.44 | 147.43 | 327.27 | 152.72 | 327.38 |
| 158.01 | 327.29 | 160.66 | 327.38 | 169.56 | 327.36 | 176.53 | 327.45 | 179.18 | 327.38 |
| 193.24 | 327.36 | 199.19 | 327.24 | 202.86 | 327.28 | 208.12 | 327.19 | 221.26 | 327.09 |
| 229.15 | 326.97 | 238.18 | 326.93 | 246.87 | 326.81 | 250.12 | 326.89 | 255.36 | 326.78 |
| 260.59 | 326.92 | 265.83 | 326.8 | 271.06 | 326.85 | 276.29 | 326.7 | 284.14 | 326.8 |
| 297.23 | 326.9 | 299.85 | 327.1 | 312.82 | 327.04 | 318.17 | 327.21 | 326.02 | 327.19 |
| 331.25 | 327.4 | 333.87 | 327.36 | 344.37 | 327.56 | 357.51 | 327.73 | 362.77 | 327.99 |
| 378.47 | 328.15 | 381.17 | 328.06 | 389.05 | 328.38 | 396.94 | 328.35 | 402.2 | 327.89 |
| 412.2 | 326.25 | 417.97 | 325.61 | 425.85 | 325.37 | 428.08 | 325.17 | 438.99 | 325.28 |
| 444.25 | 325.41 | 457.39 | 325.86 | 460.02 | 325.88 | 465.78 | 326.16 | 475.79 | 326.53 |
| 478.42 | 326.71 | 488.93 | 326.25 | 507.82 | 325.83 | 517.84 | 325.65 | 537.22 | 325.21 |
| 544.13 | 325.24 | 547.14 | 325.01 | 552.01 | 324.42 | 555.08 | 324.23 | 565 | 322.89 |
| 570.41 | 322.24 | 578.3 | 321.47 | 580.93 | 321.53 | 586.18 | 321.96 | 588.81 | 322.97 |
| 591.44 | 324.28 | 596.6 | 325.5 | 599.32 | 326.03 | 601.95 | 326.13 | 604.68 | 325.49 |
| 609.84 | 323.29 | 612.47 | 322.34 | 615.09 | 321.85 | 620.35 | 321.4 | 626.51 | 321.35 |
| 638.42 | 321.12 | 641.38 | 321 | 649.26 | 320.41 | 652.31 | 319.94 | 654.29 | 319.38 |
| 657.15 | 318.28 | 662.41 | 316.69 | 665.03 | 316.24 | 668.18 | 315.36 | 670.17 | 314.59 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 672.15 | 314.25 | 675.55 | 313.97 | 683.43 | 313.74 | 693.98 | 313.53 | 702.17 | 313.63 |
| 707.09 | 313.88 | 712.35 | 313.57 | 717.6 | 313.67 | 722.86 | 313.41 | 730.74 | 313.47 |
| 736 | 313.83 | 742.66 | 313.42 | 745.57 | 313.57 | 750.76 | 313.25 | 754.4 | 313.25 |
| 759.66 | 313.96 | 762.28 | 313.92 | 767.54 | 313.27 | 771.37 | 313.4 | 773.35 | 313.69 |
| 775.43 | 314.33 | 778.05 | 314.44 | 780.68 | 313.86 | 785.94 | 313.33 | 791.25 | 313.12 |
| 797.16 | 313.23 | 801.71 | 313.54 | 807.08 | 313.34 | 809.6 | 313.37 | 814.85 | 313.07 |
| 820.11 | 312.95 | 827.99 | 312.92 | 833.25 | 313.19 | 838.51 | 312.56 | 841.14 | 312.66 |
| 843.76 | 313.1 | 846.39 | 312.78 | 848.76 | 313.01 | 851.65 | 314.27 | 854.71 | 315.29 |
| 856.91 | 315.79 | 862.16 | 316.46 | 864.79 | 316.36 | 867.42 | 315.93 | 877.93 | 316.18 |
| 880.5 | 316 | 888.45 | 315.06 | 893.7 | 314.63 | 896.33 | 315 | 898.96 | 314.85 |
| 901.59 | 313.95 | 904.32 | 312.53 | 906.85 | 310.87 | 909.47 | 309.59 | 914.73 | 307.71 |
| 917.36 | 307.42 | 919.99 | 307.69 | 922.62 | 308.49 | 926 | 309.161 | 927.87 | 309.36 |
| 933.13 | 310.41 | 937.01 | 310.47 | 951.53 | 311.12 | 956.79 | 310.59 | 962.04 | 310.61 |
| 967.3 | 312.27 | 972.56 | 313.48 | 975.18 | 313.79 | 980.44 | 313.81 | 985.67 | 313.53 |
| 988.33 | 313.89 | 991.63 | 313.82 | 993.58 | 314.06 | 996.21 | 313.6 | 1001.47 | 313.6 |
| 1004.1 | 313.84 | 1006.72 | 313.74 | 1011.98 | 313.23 | 1017.24 | 312.48 | 1021.39 | 310.39 |
| 1025.12 | 308.71 | 1030.38 | 307.53 | 1035.64 | 307.86 | 1038.27 | 308.3 | 1042.29 | 309.33 |
| 1047.19 | 310.83 | 1055.13 | 312.98 | 1059.29 | 314.37 | 1064.55 | 316 | 1098.72 | 316 |
| 1110.6 | 315 | 1115.91 | 309.39 | 1120.66 | 309.14 | 1142.85 | 309 | 1211.52 | 308.1 |
| 1219.42 | 308 | 1257.7 | 308 | 1273.08 | 308.82 | 1304 | 309 | 1329.86 | 310.04 |
| 1358.7 | 313 | 1379.96 | 313.45 | 1382.67 | 313.53 | 1400.4 | 313.72 | 1414.13 | 314.06 |
| 1438.1 | 314.28 | 1443.04 | 314.25 | 1456.18 | 314.31 | 1463.9 | 314.28 | 1474.58 | 314.41 |
| 1477.21 | 314.38 | 1500.86 | 314.72 | 1503.49 | 314.82 | 1511.38 | 315.74 | 1514 | 315.87 |
| 1516.63 | 316.33 | 1519.26 | 316.22 | 1521.89 | 315.49 | 1532.4 | 314.76 | 1537.32 | 314.63 |
| 1543.27 | 314.62 | 1553.19 | 314.5 | 1561.13 | 314.16 | 1588.49 | 313.55 | 1613.72 | 316 |
| 1678.29 | 316 | 1697.3 | 320 | 1702.4 | 322.8 | 1792.31 | 322.8 | 1821 | 322.4 |
| 1915.15 | 323 | 1970.5 | 323.4 | 1978.53 | 320 | 1987.77 | 318 | 1997.24 | 315 |
| 2003.13 | 313 | 2066 | 312.68 | 2070.68 | 312.52 | 2075.95 | 312.1 | 2078.55 | 312.28 |
| 2083.8 | 312.98 | 2085.89 | 312.93 | 2089.05 | 312.56 | 2094.3 | 312.54 | 2102.17 | 311.45 |
| 2104.79 | 311.33 | 2112.66 | 311.47 | 2115.29 | 311.45 | 2120.54 | 312.25 | 2125.39 | 312.12 |
| 2131.03 | 312.33 | 2136.28 | 311.9 | 2144.15 | 311.61 | 2146.78 | 311.65 | 2154.65 | 312.57 |
| 2159.9 | 311.97 | 2162.52 | 311.81 | 2173.44 | 311.95 | 2175.64 | 311.85 | 2181.4 | 312.49 |
| 2186.13 | 312.36 | 2199.47 | 312.96 | 2204.5 | 312.58 | 2207.27 | 312.53 | 2213.23 | 313.25 |
| 2215 | 313.37 | 2222.87 | 312.72 | 2231.14 | 312.34 | 2233.13 | 312.4 | 2243.86 | 312.18 |
| 2246.49 | 312.43 | 2259 | 312.31 | 2262.23 | 312.21 | 2267.48 | 312.46 | 2285.84 | 312.92 |
| 2288.47 | 313.18 | 2293.72 | 313.32 | 2301.59 | 313.09 | 2306.84 | 313.26 | 2312.08 | 313.67 |
| 2322.58 | 313.75 | 2332.62 | 314.53 | 2334.6 | 314.59 | 2339.4 | 315 | 2359.32 | 316.43 |
| 2364.56 | 316.73 | 2375.4 | 317.043 | 2382.93 | 317.06 | 2388.79 | 317.31 | 2393.43 | 317.38 |
| 2401.3 | 317.32 | 2403.92 | 317.08 | 2409.17 | 316.88 | 2417.04 | 316.86 | 2424.14 | 317.12 |
| 2427.54 | 317.33 | 2435.41 | 318.26 | 2438.07 | 318.44 | 2440.66 | 319.22 | 2443.28 | 321.2 |
| 2445.91 | 321.69 | 2451.15 | 321.81 | 2462.87 | 321.81 | 2472.15 | 321.75 | 2474.77 | 321.61 |
| 2480.02 | 321.72 | 2482.64 | 322.07 | 2485.27 | 323.31 | 2487.89 | 323.95 | 2493.78 | 323.92 |
| 2498.38 | 322.93 | 2501.74 | 323.04 | 2503.73 | 322.84 | 2506.26 | 323.23 | 2511.69 | 322.95 |
| 2516.75 | 322.91 | 2521.64 | 322.48 | 2532.5 | 322.41 | 2537.74 | 322.46 | 2550.86 | 322.4 |
| 2553.49 | 322.22 | 2556.11 | 321.83 | 2558.74 | 321.71 | 2567.4 | 321.58 | 2571.86 | 321.45 |
| 2577.1 | 321.46 | 2584.98 | 321.33 | 2587.6 | 321.71 | 2592.85 | 321.51 | 2598.09 | 321.08 |
| 2600.72 | 321.19 | 2611.21 | 321.84 | 2619.09 | 322.09 | 2629.58 | 322.28 | 2632.21 | 322.5 |
| 2634.83 | 322.49 | 2637.45 | 322.14 | 2645.33 | 322 | 2653.2 | 321.75 | 2661.07 | 321.38 |
| 2671.57 | 321.09 | 2676.89 | 321.57 | 2694.74 | 322.28 | 2697.8 | 322.79 | 2703.05 | 322.35 |
| 2708.3 | 322.22 | 2716.17 | 322.34 | 2726.67 | 322.59 | 2734.54 | 322.59 | 2737.16 | 322.66 |
| 2750.45 | 322.66 | 2763.4 | 322.81 | 2768.36 | 323.31 | 2774.33 | 323.04 | 2784.27 | 323.31 |
| 2794.89 | 323.53 | 2812.13 | 323.76 | 2826.38 | 324.07 | 2831.63 | 324.36 | 2834.25 | 324.62 |

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 2839.5   324.8 2842.12  324.62 2849.99  324.47 2860.49  324.58  2875.8  324.54
2879.78  324.38 2891.72  324.62 2897.23  324.54  2905.1  324.55 2910.34  324.06
2915.59  323.69 2918.22  323.64 2923.55  323.31 2928.71  323.19 2936.58  322.65
2941.83  322.76

Manning's n Values        num=       5
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
       0     .06     926    .035  1702.4     .15  1970.5    .035  2375.4    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           926  2375.4              380     280     255             .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
       0  648.46     323       F
1699.64 2941.83   322.2       F

CROSS SECTION OUTPUT  Profile #PF 2

  E.G. Elev (ft)            318.92    Element                  Left OB    Channel   Right OB
  Vel Head (ft)               1.09    Wt. n-Val.                0.060      0.035
  W.S. Elev (ft)            317.83    Reach Len. (ft)          380.00     280.00     255.00
  Crit W.S. (ft)            316.37    Flow Area (sq ft)        419.05    4135.69
  E.G. Slope (ft/ft)      0.004267    Area (sq ft)             419.05    4135.69
  Q Total (cfs)           37000.00    Flow (cfs)              1734.79   35265.20
  Top Width (ft)            855.97    Top Width (ft)            95.00     760.97
  Vel Total (ft/s)            8.12    Avg. Vel. (ft/s)           4.14       8.53
  Max Chl Dpth (ft)          10.41    Hydr. Depth (ft)           4.41       5.43
  Conv. Total (cfs)       566410.8    Conv. (cfs)             26556.9   539853.9
  Length Wtd. (ft)          283.41    Wetted Per. (ft)         102.37     767.09
  Min Ch El (ft)            307.53    Shear (lb/sq ft)           1.09       1.44
  Alpha                       1.06    Stream Power (lb/ft s)     4.51      12.25
  Frctn Loss (ft)             0.90    Cum Volume (acre-ft)      17.28    1302.38      67.24
  C & E Loss (ft)             0.05    Cum SA (acres)             2.80     150.57       9.11


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

CROSS SECTION


RIVER: San Diego River
REACH: Reach 1            RS: 310

INPUT
Description: Resort West
Survey Data (June 12, 2014), and proposed grading
             .
Golf course proposed grading start at sation 782.2
proposed
             resort station 1277.2 to 1589.3. n= 0.15
In the non-disturbed
             area, Manning's coefficients are derived from the Corrected
```

Effective Model.
Station Elevation Data num= 375

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 329.1 | 5.08 | 329.21 | 15.37 | 329.76 | 23.08 | 329.9 | 28.78 | 330.25 |
| 38.52 | 330.96 | 43.66 | 331.42 | 53.95 | 332.24 | 56.52 | 332.32 | 59.1 | 332.04 |
| 61.67 | 331.54 | 66.81 | 330.01 | 71.83 | 328.21 | 79.67 | 325.55 | 82.18 | 324.97 |
| 84.82 | 323.91 | 87.39 | 323.12 | 90.46 | 322.95 | 92.53 | 323.03 | 102.89 | 323.69 |
| 107.03 | 323.7 | 113.24 | 323.5 | 118.26 | 323.06 | 123.6 | 323.06 | 149.12 | 323.56 |
| 159.41 | 323.73 | 161.98 | 323.93 | 164.56 | 324.45 | 167.13 | 324.66 | 172.27 | 324.31 |
| 185.13 | 323.9 | 187.71 | 323.63 | 195.43 | 323.43 | 210.55 | 323.16 | 223.73 | 323.02 |
| 236.59 | 322.93 | 247.8 | 322.25 | 249.46 | 322.06 | 254.01 | 320.94 | 257.18 | 320.38 |
| 259.75 | 320.2 | 264.35 | 320.27 | 270.04 | 320.24 | 274.7 | 320.53 | 277.76 | 320.96 |
| 290.63 | 320.73 | 296.4 | 320.75 | 300.92 | 320.95 | 303.49 | 320.9 | 305.74 | 320.4 |
| 311.21 | 319.67 | 313.79 | 319.06 | 318.93 | 319.01 | 324.36 | 319.13 | 334.37 | 319.07 |
| 336.94 | 318.95 | 339.52 | 318.45 | 344.66 | 316.25 | 347.13 | 315.7 | 352.38 | 313.34 |
| 355.4 | 312.92 | 360.1 | 312.78 | 363.68 | 312.92 | 371.96 | 312.91 | 378.11 | 313.06 |
| 385.83 | 312.62 | 390.98 | 312.84 | 396.12 | 312.66 | 401.27 | 312.71 | 403.84 | 312.51 |
| 411.56 | 312.7 | 423.69 | 312.42 | 434.03 | 312.75 | 442.31 | 312.71 | 445.01 | 312.49 |
| 447.58 | 312.74 | 450.16 | 312.54 | 455.3 | 312.6 | 460.45 | 312.29 | 465.59 | 312.35 |
| 470.74 | 312.59 | 475.89 | 312.38 | 481.03 | 312.82 | 483.6 | 313.44 | 488.75 | 313.36 |
| 493.9 | 312.55 | 496.47 | 312.46 | 504.19 | 312.47 | 506.76 | 312.61 | 514.48 | 312.49 |
| 519.63 | 312.15 | 522.2 | 312.16 | 527.15 | 312.58 | 529.22 | 312.36 | 532.49 | 312.34 |
| 535.06 | 312.16 | 540.21 | 312.02 | 545.36 | 312 | 550.5 | 312.23 | 555.65 | 312.35 |
| 558.22 | 312.63 | 560.79 | 312.64 | 563.37 | 312.33 | 566.47 | 312.25 | 571.09 | 311.96 |
| 576.23 | 311.97 | 580.95 | 312.2 | 586.53 | 311.83 | 596.82 | 311.96 | 601.64 | 311.84 |
| 605.8 | 312.133 | 612.26 | 313.36 | 614.83 | 313.96 | 622.55 | 315.03 | 632.84 | 314.96 |
| 635.41 | 314.5 | 640.56 | 314.33 | 649.24 | 312.49 | 653.42 | 311.09 | 656 | 310.45 |
| 658.57 | 309.42 | 661.14 | 308.05 | 663.72 | 307.66 | 697.16 | 305.65 | 699.74 | 305.31 |
| 707.46 | 305.25 | 709.24 | 305.45 | 712.6 | 306.81 | 715.18 | 308.38 | 719.59 | 310.28 |
| 722.9 | 311.42 | 725.8 | 311.73 | 728.04 | 312.61 | 733.19 | 316 | 761.49 | 316 |
| 767.18 | 315.55 | 774.36 | 312.98 | 778.73 | 310.07 | 782.2 | 309.92 | 787.99 | 309.36 |
| 807.33 | 308.64 | 819.64 | 308 | 849.74 | 307 | 864.61 | 306 | 1040 | 306 |
| 1047.4 | 307.19 | 1075.14 | 307.89 | 1089.8 | 308 | 1109.11 | 313.12 | 1124.54 | 314.97 |
| 1136.04 | 315 | 1149.62 | 315 | 1155.69 | 314 | 1163.68 | 314 | 1219.2 | 314 |
| 1244.96 | 314 | 1274 | 320 | 1278 | 322.5 | 1511 | 322.5 | 1573 | 322.8 |
| 1589 | 322.5 | 1591 | 322 | 1594 | 320 | 1603 | 316 | 1608.01 | 315.28 |
| 1610.59 | 315.26 | 1613.16 | 314.94 | 1615.73 | 314.88 | 1620.88 | 315.48 | 1623.46 | 315.45 |
| 1626.24 | 314.56 | 1627.97 | 313.6 | 1631.18 | 312.77 | 1633.76 | 311.78 | 1636.33 | 311.88 |
| 1638.91 | 312.51 | 1644.06 | 312.97 | 1649.21 | 313.01 | 1654.82 | 312.95 | 1656.93 | 313.05 |
| 1659.51 | 312.39 | 1667.23 | 311.06 | 1669.81 | 311.12 | 1672.38 | 310.92 | 1685.8 | 310.84 |
| 1687.83 | 310.61 | 1690.41 | 311.09 | 1692.98 | 311.78 | 1695.56 | 312.14 | 1703.28 | 311.12 |
| 1705.86 | 311.12 | 1713.58 | 312.34 | 1716.16 | 312.53 | 1723.88 | 312.17 | 1726.46 | 312.23 |
| 1731.24 | 312.72 | 1734.18 | 312.88 | 1741.91 | 311.83 | 1747.06 | 312.28 | 1753.96 | 311.96 |
| 1759.93 | 311.9 | 1762.22 | 311.79 | 1765.08 | 311.35 | 1770.23 | 312.52 | 1772.55 | 312.42 |
| 1780.53 | 311.82 | 1783.1 | 311.53 | 1790.83 | 312.01 | 1793.4 | 312.02 | 1803.53 | 311.82 |
| 1808.85 | 311.27 | 1811.43 | 311.21 | 1814 | 311.34 | 1819.15 | 311.38 | 1821.73 | 311.3 |
| 1826.88 | 311.78 | 1829.45 | 311.73 | 1832.03 | 311.28 | 1834.51 | 311.31 | 1837.18 | 310.96 |
| 1839.75 | 311.22 | 1844.9 | 311.34 | 1855.2 | 311.75 | 1857.78 | 311.96 | 1861.36 | 312.89 |
| 1863.43 | 313.23 | 1870.65 | 313.95 | 1873.23 | 314.34 | 1878.38 | 315.39 | 1880.95 | 315.15 |
| 1886.1 | 313.94 | 1888.68 | 313.53 | 1896.4 | 313.35 | 1898.98 | 313.49 | 1904.13 | 314.2 |
| 1910.93 | 313.56 | 1914.43 | 313.41 | 1917.13 | 313.49 | 1919.58 | 313.35 | 1924.73 | 312.54 |
| 1927.3 | 312.28 | 1929.52 | 312.75 | 1935.03 | 313.18 | 1942.75 | 313.54 | 1945.33 | 313.85 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1947.9 | 313.85 | 1953.05 | 314.31 | 1955.63 | 313.78 | 1958.44 | 313.45 | 1965.93 | 313.34 |
| 1971.08 | 313.66 | 1976.23 | 313.63 | 1981.38 | 313.05 | 1986.53 | 313.35 | 1989.42 | 313.28 |
| 1991.68 | 313.05 | 1996.83 | 312.93 | 1999.4 | 313.07 | 2007.13 | 312.97 | 2012.28 | 313.32 |
| 2017.43 | 313.29 | 2022.58 | 312.78 | 2025.15 | 312.77 | 2030.3 | 313.67 | 2032.88 | 313.89 |
| 2034.86 | 313.74 | 2040.6 | 313.71 | 2045.18 | 313.52 | 2048.33 | 313.61 | 2053.31 | 314.27 |
| 2056.05 | 314.4 | 2058.63 | 313.72 | 2061.2 | 313.35 | 2063.78 | 313.44 | 2066.35 | 313.34 |
| 2076.65 | 313.69 | 2084.38 | 312.79 | 2089.53 | 313.12 | 2097.25 | 313.01 | 2105.08 | 313.61 |
| 2110.13 | 313.67 | 2112.7 | 313.87 | 2115.28 | 314.66 | 2116.9 | 314.934 | 2123 | 316.05 |
| 2125.58 | 316.86 | 2128.15 | 318.04 | 2130.73 | 318.7 | 2138.45 | 318.8 | 2141.02 | 318.77 |
| 2143.6 | 319.05 | 2151.32 | 320.24 | 2161.62 | 321.3 | 2166.77 | 322.4 | 2169.35 | 322.3 |
| 2171.92 | 322.43 | 2177.37 | 322.38 | 2179.65 | 322.17 | 2182.22 | 322.19 | 2192.52 | 322.68 |
| 2200.25 | 322.69 | 2202.82 | 322.44 | 2220.3 | 322.29 | 2236.3 | 322.11 | 2244.02 | 322.08 |
| 2251.72 | 322.53 | 2264.62 | 322.01 | 2272.38 | 321.97 | 2277.5 | 322.14 | 2282.65 | 322.12 |
| 2287.8 | 321.95 | 2292.95 | 322.12 | 2300.67 | 322.15 | 2305.82 | 322.36 | 2308.4 | 322.15 |
| 2315.75 | 322.19 | 2324.67 | 322.12 | 2334.15 | 322.43 | 2336.72 | 322.25 | 2341.87 | 322.33 |
| 2352.17 | 322.21 | 2362.47 | 321.25 | 2367.62 | 321.06 | 2375.35 | 320.59 | 2377.92 | 320.34 |
| 2385.97 | 320.79 | 2394.23 | 321.01 | 2406.25 | 321.06 | 2411.4 | 321.33 | 2413.97 | 321.29 |
| 2419.12 | 320.91 | 2424.27 | 320.88 | 2437.15 | 320.25 | 2439.72 | 320.38 | 2442.3 | 320.71 |
| 2447.45 | 320.88 | 2450.02 | 320.84 | 2460.32 | 320.94 | 2466.52 | 320.85 | 2474.78 | 320.19 |
| 2478.35 | 319.99 | 2488.65 | 319.59 | 2493.37 | 319.57 | 2499.57 | 319.36 | 2506.67 | 319.35 |
| 2511.82 | 319.19 | 2519.54 | 319.19 | 2522.29 | 319.28 | 2529.84 | 319.14 | 2537.57 | 319.29 |
| 2545.29 | 319.02 | 2550.44 | 319 | 2560.74 | 318.75 | 2568.47 | 318.36 | 2581.34 | 318.29 |
| 2586.49 | 317.64 | 2591.64 | 315.46 | 2594.22 | 315.65 | 2596.79 | 316.37 | 2598.71 | 317.38 |
| 2601.94 | 318.79 | 2604.52 | 319.05 | 2609.67 | 320.17 | 2612.24 | 320.33 | 2621.43 | 320.13 |
| 2630.27 | 320.07 | 2640.57 | 320.23 | 2658.59 | 320.31 | 2668.89 | 320.28 | 2681.77 | 320.31 |
| 2689.49 | 320.25 | 2704.94 | 320.3 | 2712.67 | 320.44 | 2717.82 | 320.24 | 2720.24 | 320.31 |

Manning's n Values num= 5

| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|---|---|---|---|
| 0 | .06 | 605.8 | .035 | 1278 | .15 | 1591 | .035 | 2116.9 | .045 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 605.8 | 2116.9 | 610 | 610 | 640 | .1 | .3 |

Ineffective Flow num= 2

| Sta L | Sta R | Elev | Permanent |
|---|---|---|---|
| 0 | 154.1 | 324.5 | F |
| 1277.2 | 2720.24 | 322.5 | F |

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 317.96 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.92 | Wt. n-Val. | 0.060 | 0.035 | |
| W.S. Elev (ft) | 317.05 | Reach Len. (ft) | 610.00 | 610.00 | 640.00 |
| Crit W.S. (ft) | 313.63 | Flow Area (sq ft) | 233.41 | 4677.69 | |
| E.G. Slope (ft/ft) | 0.002446 | Area (sq ft) | 233.41 | 4677.69 | |
| Q Total (cfs) | 37000.00 | Flow (cfs) | 786.19 | 36213.81 | |
| Top Width (ft) | 700.62 | Top Width (ft) | 46.70 | 653.92 | |
| Vel Total (ft/s) | 7.53 | Avg. Vel. (ft/s) | 3.37 | 7.74 | |
| Max Chl Dpth (ft) | 11.80 | Hydr. Depth (ft) | 5.00 | 7.15 | |
| Conv. Total (cfs) | 748194.9 | Conv. (cfs) | 15897.9 | 732296.9 | |
| Length Wtd. (ft) | 610.00 | Wetted Per. (ft) | 51.18 | 660.60 | |
| Min Ch El (ft) | 305.25 | Shear (lb/sq ft) | 0.70 | 1.08 | |

| | | | | | |
|---|---|---|---|---|---|
| Alpha | 1.04 | Stream Power (lb/ft s) | 2.35 | 8.37 | |
| Frctn Loss (ft) | 1.16 | Cum Volume (acre-ft) | 14.44 | 1274.06 | 67.24 |
| C & E Loss (ft) | 0.18 | Cum SA (acres) | 2.18 | 146.02 | 9.11 |

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: San Diego River
REACH: Reach 1 RS: 300

INPUT
Description: Survey Data (June 12, 2014), and proposed grading .
Golf course
proposed grading starts at station 667.46. n=0.05
Poposed bridge
from PA-2 to PA-3 station 1722 to 1763. n = 0.15
Proposed PA-2
station 1949 to 2549.37
In the non-disturbed area, Manning's
coefficients are derived from the Corrected Effective Model.
Station Elevation Data num= 384

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 363.62 | 3.76 | 364.84 | 6.33 | 365.19 | 12.17 | 365.6 | 20.43 | 366.25 |
| 26.94 | 366.72 | 32.09 | 367.16 | 34.66 | 367.3 | 39.81 | 367.77 | 42.39 | 367.38 |
| 44.96 | 364.93 | 47.54 | 363.01 | 50.11 | 362 | 55.53 | 359.5 | 60.42 | 356.51 |
| 65.57 | 352.38 | 68.14 | 350.81 | 72.05 | 348.73 | 75.87 | 346.52 | 80.31 | 343.61 |
| 83.59 | 341.76 | 86.17 | 339.91 | 88.74 | 338.43 | 91.32 | 337.12 | 93.89 | 335.58 |
| 99.05 | 332.11 | 101.62 | 330.56 | 106.77 | 327.26 | 109.21 | 325.76 | 111.92 | 323.95 |
| 114.5 | 322.72 | 117.07 | 321.83 | 119.65 | 321.5 | 124.8 | 321.55 | 135.1 | 321.78 |
| 138.12 | 321.9 | 147.98 | 322.08 | 155.7 | 322.12 | 158.28 | 322.25 | 160.85 | 322.06 |
| 166 | 320.39 | 168.58 | 319.77 | 171.15 | 319.37 | 176.31 | 319.45 | 181.47 | 319.31 |
| 184.03 | 319.33 | 189.18 | 319.17 | 195.93 | 318.67 | 200.06 | 318.45 | 204.19 | 318.46 |
| 207.21 | 318.71 | 214.93 | 318.96 | 217.51 | 318.94 | 220.09 | 318.77 | 225.24 | 318.77 |
| 227.81 | 318.61 | 235.54 | 318.54 | 245.48 | 318.5 | 248.41 | 318.58 | 256.14 | 318.49 |
| 275.26 | 318.38 | 279.32 | 318.42 | 287.04 | 318.18 | 292.97 | 318.17 | 299.92 | 318.06 |
| 302.5 | 317.97 | 305.07 | 318.04 | 307.65 | 317.92 | 315.37 | 317.92 | 320.52 | 318.23 |
| 323.1 | 318.31 | 328.25 | 318.71 | 330.13 | 318.36 | 335.98 | 317.51 | 341.13 | 316.98 |
| 346.28 | 316.88 | 348.85 | 316.63 | 354 | 315.94 | 356.58 | 315.74 | 359.15 | 315.88 |
| 363.17 | 315.29 | 366.88 | 314.59 | 369.36 | 314.38 | 374.61 | 314.2 | 377.62 | 313.77 |
| 382.33 | 313.67 | 384.91 | 313.92 | 387.48 | 314.64 | 389.8 | 315.46 | 392.63 | 316.03 |
| 397.78 | 315.67 | 400.21 | 315.24 | 404.46 | 313.99 | 408.08 | 313.32 | 413.24 | 313.4 |
| 415.81 | 313.3 | 418.39 | 312.84 | 420.96 | 312.63 | 426.11 | 312.48 | 428.69 | 312.23 |
| 431.3 | 311.32 | 436.41 | 311.42 | 438.99 | 311.65 | 441.86 | 311.75 | 446.9 | 311.71 |
| 449.29 | 311.66 | 457.02 | 312.95 | 462.17 | 312.74 | 464.74 | 312.87 | 472.47 | 312.76 |
| 474.66 | 312.02 | 477.62 | 311.19 | 480.19 | 310.81 | 482.77 | 310.71 | 485.34 | 310.74 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 487.92 | 310.25 | 490.5 | 309.47 | 493.07 | 308.37 | 497.37 | 306.9 | 498.22 | 306.71 |
| 503.56 | 306.78 | 507.69 | 306.68 | 511.1 | 306.43 | 515.95 | 305.62 | 518.02 | 305.57 |
| 523.97 | 306.06 | 526.55 | 306.1 | 529.13 | 306.76 | 532.47 | 307.96 | 534.53 | 308.52 |
| 539.43 | 308.82 | 544.58 | 308.81 | 547.15 | 308.94 | 549.73 | 308.86 | 552.3 | 308.93 |
| 554.88 | 309.25 | 560.03 | 309.64 | 570.33 | 311.01 | 572.91 | 311.66 | 578.06 | 312.75 |
| 583.21 | 314 | 614.11 | 314 | 667.46 | 310 | 670.39 | 308.96 | 702.35 | 308 |
| 774.1 | 308 | 809.13 | 309.33 | 904.35 | 309.81 | 932.16 | 308.23 | 1055 | 308 |
| 1074.32 | 305.41 | 1083.59 | 305.19 | 1094.06 | 307.84 | 1153 | 308.5 | 1225.53 | 308 |
| 1248.14 | 308 | 1264.82 | 308 | 1269.77 | 307 | 1457.28 | 307 | 1469.9 | 308 |
| 1503 | 309 | 1538.4 | 309 | 1541 | 309.02 | 1544.1 | 309.2 | 1545 | 309.27 |
| 1546.6 | 309.4 | 1554.59 | 309 | 1565.61 | 310 | 1584.49 | 312 | 1591.5 | 313 |
| 1598.54 | 314 | 1609.01 | 316 | 1617.23 | 317.01 | 1626.2 | 317.01 | 1634.08 | 316 |
| 1651.91 | 314 | 1652.2 | 313.53 | 1654 | 313.53 | 1658.4 | 313.58 | 1661.6 | 313.66 |
| 1664.6 | 313.76 | 1669.8 | 313.88 | 1673.7 | 313.96 | 1686.35 | 314 | 1695 | 316 |
| 1699 | 318 | 1703 | 320 | 1708 | 322 | 1722 | 324 | 1763 | 324 |
| 1771 | 322 | 1775 | 320 | 1780 | 318 | 1784 | 316 | 1788.2 | 314.28 |
| 1791.3 | 314.47 | 1794.4 | 314.59 | 1797.7 | 314.73 | 1800.6 | 314.81 | 1803.7 | 314.94 |
| 1806.7 | 315.03 | 1809.07 | 314.62 | 1812.56 | 313.82 | 1814.63 | 313.23 | 1816.69 | 312.92 |
| 1818.76 | 312.06 | 1821.94 | 310.94 | 1827.09 | 310.43 | 1832.24 | 310.14 | 1837.39 | 310.09 |
| 1847.66 | 310.19 | 1852.85 | 310.53 | 1860.57 | 310.79 | 1868.3 | 310.56 | 1876.02 | 310.65 |
| 1878.6 | 310.85 | 1883.75 | 311.93 | 1888.9 | 311.87 | 1896.63 | 312.01 | 1901.78 | 312.82 |
| 1904.35 | 313.81 | 1909.5 | 315.61 | 1913.73 | 316.89 | 1917 | 316 | 1917.8 | 316.347 |
| 1921.61 | 318 | 1931 | 320 | 1944 | 326 | 1949 | 328.2 | 1989.1 | 328.19 |
| 1992.2 | 328.12 | 1993.4 | 328.08 | 1994.2 | 328.09 | 1995.9 | 328.05 | 1998.3 | 327.94 |
| 2000.9 | 327.39 | 2001.4 | 327.23 | 2002.4 | 326.99 | 2003.3 | 326.81 | 2004.5 | 326.45 |
| 2007.6 | 325.81 | 2008.3 | 325.74 | 2010.6 | 325.68 | 2011 | 325.65 | 2013.3 | 325.41 |
| 2013.8 | 325.39 | 2014.7 | 325.42 | 2015.7 | 325.38 | 2016.9 | 325.48 | 2018.2 | 325.37 |
| 2020.7 | 325.21 | 2023.2 | 325.18 | 2026.2 | 324.98 | 2028.1 | 324.81 | 2029.3 | 324.73 |
| 2032.3 | 324.58 | 2036 | 324.37 | 2038 | 324.24 | 2041.6 | 324.15 | 2044.7 | 324.41 |
| 2045.5 | 324.75 | 2047.9 | 326.18 | 2050.4 | 326.65 | 2052.9 | 326.97 | 2057.8 | 327.54 |
| 2060.3 | 327.78 | 2062.8 | 327.81 | 2112.7 | 327.81 | 2114.8 | 327.99 | 2115.8 | 328.05 |
| 2117.4 | 328.25 | 2118.9 | 328.46 | 2122 | 328.78 | 2125.6 | 328.82 | 2129.7 | 328.84 |
| 2132.2 | 328.84 | 2136 | 328.83 | 2142 | 328.86 | 2148.5 | 328.86 | 2152 | 328.89 |
| 2159.4 | 328.9 | 2162.1 | 328.93 | 2164.4 | 328.93 | 2168.3 | 328.88 | 2169.3 | 328.89 |
| 2170.7 | 328.85 | 2173.4 | 328.81 | 2174.5 | 328.81 | 2176.8 | 328.87 | 2179 | 328.89 |
| 2180.7 | 328.89 | 2181.7 | 328.85 | 2183.8 | 328.82 | 2221.4 | 328.81 | 2223.4 | 328.79 |
| 2226.3 | 328.72 | 2227 | 328.67 | 2228.8 | 328.8 | 2230.1 | 328.86 | 2233.2 | 328.66 |
| 2235.9 | 328.54 | 2239.4 | 328.56 | 2241.2 | 328.69 | 2243.7 | 328.76 | 2244.7 | 328.72 |
| 2246.1 | 328.71 | 2248.8 | 328.55 | 2251.1 | 328.47 | 2254.9 | 328.36 | 2257 | 328.33 |
| 2260.9 | 328.31 | 2268.4 | 328.32 | 2270.9 | 328.33 | 2273.4 | 328.31 | 2275.9 | 328.33 |
| 2277.5 | 328.3 | 2279.6 | 328.22 | 2280.8 | 327.77 | 2281.6 | 327.44 | 2282.7 | 327.03 |
| 2283.3 | 326.76 | 2285.7 | 325.56 | 2288.8 | 324.27 | 2291.9 | 324.06 | 2295 | 324.3 |
| 2295.7 | 324.33 | 2298 | 324.55 | 2301.2 | 324.83 | 2304.3 | 325.07 | 2305.6 | 325.14 |
| 2306.2 | 325.21 | 2308.1 | 325.34 | 2310.3 | 325.59 | 2310.9 | 325.64 | 2313.6 | 325.82 |
| 2314.5 | 325.87 | 2315.5 | 325.89 | 2318 | 326.07 | 2319.8 | 326.26 | 2320.5 | 326.31 |
| 2322.8 | 326.54 | 2323.4 | 326.58 | 2325.9 | 326.6 | 2326.8 | 326.73 | 2327.9 | 326.94 |
| 2329 | 327.09 | 2332.1 | 327.19 | 2389.8 | 327.19 | 2393.9 | 327.14 | 2394.8 | 326.88 |
| 2397 | 326.07 | 2397.3 | 325.84 | 2399.8 | 323.76 | 2400.1 | 323.49 | 2403.2 | 323.76 |
| 2406.3 | 324.52 | 2409.4 | 325 | 2420.22 | 325.5 | 2421.99 | 325.53 | 2424.57 | 325.38 |
| 2432.3 | 325.32 | 2434.87 | 325.43 | 2442.29 | 325.29 | 2447.75 | 325.29 | 2454.68 | 325.44 |
| 2460.87 | 325.47 | 2468.35 | 325.44 | 2473.5 | 325.53 | 2483.8 | 325.03 | 2489.78 | 325.09 |
| 2493.91 | 325.34 | 2500.1 | 324.98 | 2509.56 | 324.93 | 2514.55 | 325.21 | 2517.28 | 325.18 |

```
 2519.86  325.37 2522.81  325.93 2525.01  326.07 2527.58  325.84 2529.01  325.56
 2532.73  324.57 2535.31  324.28 2543.03  323.89 2549.37  324.09

Manning's n Values        num=       6
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
       0     .05   446.9     .06  667.46     .05    1722     .15    1763     .05
    1949     .15

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         446.9  1917.8              790     654     605             .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
  1520.7 2549.37   321.5       F

CROSS SECTION OUTPUT  Profile #PF 2

  E.G. Elev (ft)            316.62    Element                  Left OB    Channel   Right OB
  Vel Head (ft)               0.31    Wt. n-Val.                0.050      0.051
  W.S. Elev (ft)            316.32    Reach Len. (ft)          790.00     654.00     605.00
  Crit W.S. (ft)            311.71    Flow Area (sq ft)         59.08    8275.45
  E.G. Slope (ft/ft)      0.001516    Area (sq ft)              59.08    8275.45
  Q Total (cfs)           37000.00    Flow (cfs)               153.58   36846.42
  Top Width (ft)           1086.40    Top Width (ft)            12.60    1073.80
  Vel Total (ft/s)            4.44    Avg. Vel. (ft/s)           2.60       4.45
  Max Chl Dpth (ft)          11.13    Hydr. Depth (ft)           4.69       7.71
  Conv. Total (cfs)       950167.9    Conv. (cfs)              3944.1   946223.8
  Length Wtd. (ft)          654.28    Wetted Per. (ft)          17.55    1084.18
  Min Ch El (ft)            305.19    Shear (lb/sq ft)           0.32       0.72
  Alpha                       1.00    Stream Power (lb/ft s)     0.83       3.22
  Frctn Loss (ft)             0.64    Cum Volume (acre-ft)      12.39    1183.36      67.24
  C & E Loss (ft)             0.04    Cum SA (acres)             1.77     133.93       9.11


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

CROSS SECTION


RIVER: San Diego River
REACH: Reach 1            RS: 290

INPUT
Description: Survey Data (June 12, 2014), and proposed grading Proposed
             gradingstartsstart at station 485.22, n=0.04
Proposed PA-2
             station 1896.4, n=0.15
In the non-disturbed area, Manning's
             coefficients are derived from the Corrected Effective Model.
Station Elevation Data    num=     498
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
```

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 334.95 | 2.48 | 334.94 | 5.04 | 335.09 | 10.15 | 335.25 | 20.39 | 335.69 |
| 25.51 | 335.81 | 35.74 | 335.7 | 41.9 | 335.452 | 43.42 | 335.38 | 45.98 | 335.47 |
| 51.09 | 335.9 | 56.33 | 336.67 | 60.43 | 336.96 | 63.89 | 337.26 | 66.45 | 337.41 |
| 71.56 | 337.81 | 74.12 | 337.94 | 81.44 | 338.2 | 89.48 | 338.53 | 92.03 | 338.56 |
| 97.15 | 338.81 | 102.27 | 339.01 | 107.39 | 339.11 | 109.95 | 339.21 | 117.15 | 339.36 |
| 122.74 | 339.56 | 128.18 | 339.82 | 140.65 | 340.22 | 145.77 | 340.31 | 150.89 | 340.5 |
| 156 | 340.81 | 158.56 | 340.56 | 161.12 | 339.73 | 163.68 | 338.65 | 168.8 | 336.4 |
| 171.36 | 335.41 | 176.47 | 333.21 | 184.15 | 330.13 | 188.57 | 328.73 | 194.39 | 326.74 |
| 199.07 | 325.3 | 202.06 | 324.25 | 204.62 | 323.54 | 207.18 | 323.31 | 212.3 | 323.54 |
| 217.41 | 323.5 | 224.28 | 323.38 | 230.21 | 323.22 | 235.33 | 323.36 | 236.17 | 322.59 |
| 236.88 | 322.23 | 237.88 | 321.09 | 240.44 | 315.58 | 243 | 310.28 | 244.02 | 310.18 |
| 248.12 | 310.78 | 250.68 | 310.8 | 255.8 | 310.47 | 258.35 | 310.5 | 260.91 | 310.35 |
| 263.47 | 310.32 | 266.29 | 310.62 | 271.15 | 310.77 | 276.27 | 311.11 | 281.38 | 311.08 |
| 291.62 | 310.71 | 296.74 | 310.61 | 299.3 | 310.74 | 306.97 | 310.61 | 309.53 | 310.42 |
| 312.09 | 310.32 | 314.65 | 310.34 | 317.21 | 310.49 | 319.77 | 310.51 | 324.88 | 309.98 |
| 330 | 310.01 | 333.51 | 310.26 | 335.12 | 310.45 | 342.79 | 310.23 | 347.91 | 310.25 |
| 353.03 | 310.44 | 360.71 | 310.94 | 365.02 | 311.73 | 368.38 | 311.91 | 370.94 | 311.83 |
| 373.5 | 311.49 | 378.62 | 311.09 | 381.18 | 310.6 | 383.92 | 310.27 | 386.29 | 310.17 |
| 388.85 | 308.91 | 391.41 | 306.63 | 393.97 | 303.15 | 396.53 | 302 | 399.09 | 301.71 |
| 401.65 | 301.92 | 404.21 | 302.6 | 407.03 | 303.05 | 409.32 | 302.93 | 414.44 | 303.16 |
| 415.43 | 303.38 | 419.56 | 304.71 | 422.12 | 305.17 | 427.23 | 306.6 | 429.79 | 307.01 |
| 440.03 | 308.25 | 445.15 | 308.69 | 447.7 | 308.69 | 450.26 | 308.52 | 452.82 | 308.62 |
| 455.38 | 309.64 | 457.94 | 311.68 | 460.5 | 312 | 483.53 | 312 | 485.22 | 311.07 |
| 488.4 | 311.16 | 493.5 | 310.95 | 494 | 310.92 | 496.5 | 310.82 | 504.1 | 310.56 |
| 506.6 | 310.46 | 509.9 | 310.36 | 511.6 | 310.43 | 513 | 310.47 | 519.1 | 310.78 |
| 521.7 | 310.88 | 525.2 | 310.98 | 528.3 | 311 | 571.3 | 310.99 | 574.1 | 310.97 |
| 577.5 | 310.86 | 580.5 | 310.65 | 586.7 | 310.13 | 589.8 | 310.03 | 595.9 | 310.09 |
| 597.2 | 310.12 | 602.3 | 310.19 | 612.3 | 310.39 | 614.9 | 310.42 | 617.3 | 310.47 |
| 619.9 | 310.51 | 626.6 | 310.58 | 630 | 310.6 | 632.8 | 310.58 | 635.8 | 310.47 |
| 638.9 | 310.4 | 642 | 310.42 | 645.1 | 310.47 | 648.1 | 310.31 | 650.1 | 309.97 |
| 652.6 | 309.5 | 654.3 | 309.22 | 657.3 | 309.14 | 660.4 | 309.18 | 664.7 | 309.21 |
| 673.2 | 309.32 | 676.5 | 309.34 | 685.4 | 309.45 | 688 | 309.46 | 688.3 | 309.47 |
| 692.9 | 309.52 | 697.3 | 309.56 | 703.4 | 309.64 | 705.5 | 309.65 | 710.5 | 309.7 |
| 712.6 | 309.73 | 713.1 | 309.71 | 715.7 | 309.72 | 718.1 | 309.39 | 718.8 | 309.36 |
| 720.6 | 308.85 | 723.1 | 308.27 | 723.7 | 308.08 | 724.9 | 307.78 | 725.7 | 307.74 |
| 727.7 | 307.49 | 728 | 307.47 | 730.7 | 307.48 | 731 | 307.46 | 734.1 | 307.53 |
| 743.3 | 307.84 | 746.4 | 307.97 | 748.3 | 307.97 | 749.5 | 307.99 | 752.5 | 307.97 |
| 764.8 | 307.72 | 767.9 | 307.56 | 771 | 307.62 | 771 | 307.63 | 774.1 | 307.78 |
| 777.1 | 307.91 | 780.2 | 307.99 | 782.8 | 307.97 | 786.3 | 307.91 | 792.5 | 307.77 |
| 795.6 | 307.71 | 798.5 | 307.69 | 801.7 | 307.69 | 807.8 | 307.78 | 808.8 | 307.8 |
| 814 | 307.97 | 816.3 | 307.99 | 823.2 | 307.95 | 826.3 | 307.91 | 829.3 | 307.86 |
| 844.7 | 307.8 | 846.5 | 307.81 | 849 | 307.81 | 850.8 | 307.82 | 854.1 | 307.91 |
| 859.1 | 308.11 | 861.6 | 308.2 | 869.2 | 308.53 | 872.3 | 308.65 | 875.4 | 308.74 |
| 879.3 | 308.78 | 884.6 | 308.73 | 887.7 | 308.73 | 890.8 | 308.69 | 893.8 | 308.63 |
| 897 | 308.53 | 900.9 | 308.36 | 903.1 | 308.27 | 906.1 | 308.12 | 909.2 | 307.99 |
| 922.1 | 307.32 | 924.7 | 307.15 | 927.1 | 306.95 | 930.7 | 306.42 | 939.7 | 306 |
| 1268.05 | 306 | 1279 | 307 | 1290.11 | 307 | 1296.1 | 306 | 1318.8 | 306 |
| 1332.1 | 307 | 1383 | 308 | 1417 | 310 | 1423 | 312 | 1432 | 314 |
| 1486 | 314 | 1492.5 | 311 | 1525.3 | 309 | 1799.69 | 309 | 1817.13 | 313.47 |
| 1822.25 | 314.57 | 1824.81 | 314.68 | 1829.93 | 315.06 | 1838.09 | 316.02 | 1848.88 | 320 |
| 1861.13 | 326 | 1864.16 | 327.2 | 1896.4 | 327.2 | 1924.2 | 327.15 | 1925.9 | 327.09 |
| 1926.8 | 326.85 | 1928.5 | 326.08 | 1929 | 325.93 | 1930.6 | 324.85 | 1931.8 | 324.02 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1932.1 | 323.89 | 1934.3 | 323.73 | 1935.1 | 323.7 | 1938.2 | 323.7 | 1941.3 | 323.71 |
| 1944.3 | 323.75 | 1948.2 | 323.76 | 1950.5 | 323.78 | 1952.2 | 323.81 | 1953.6 | 323.82 |
| 1956.1 | 323.87 | 1962.8 | 323.96 | 1965.9 | 324.17 | 1967 | 324.9 | 1968.9 | 326.1 |
| 1971.9 | 326.86 | 1972.5 | 326.99 | 1975.1 | 327.47 | 1977.1 | 327.74 | 1978.1 | 327.84 |
| 1979.6 | 327.74 | 1982.2 | 327.53 | 1984.3 | 327.34 | 1987.6 | 327.67 | 1989.7 | 327.85 |
| 1990.4 | 327.95 | 1992.2 | 327.97 | 1993.5 | 328 | 2033.4 | 328 | 2036.5 | 328.07 |
| 2038.8 | 328.39 | 2040.1 | 328.53 | 2042.7 | 328.66 | 2045.1 | 328.67 | 2045.7 | 328.69 |
| 2085.6 | 328.69 | 2087.9 | 328.77 | 2088.7 | 328.81 | 2090.4 | 329.19 | 2091.8 | 329.49 |
| 2092.9 | 329.54 | 2094.9 | 329.59 | 2128.6 | 329.59 | 2130.7 | 329.69 | 2131.7 | 329.76 |
| 2133.2 | 330.65 | 2133.3 | 330.69 | 2134.8 | 331.7 | 2135.8 | 332.31 | 2137.9 | 333.55 |
| 2138.3 | 333.91 | 2140.1 | 335.43 | 2140.8 | 335.96 | 2140.9 | 336.07 | 2141.2 | 336.17 |
| 2143.3 | 337.3 | 2144 | 337.58 | 2147.1 | 337.69 | 2196.2 | 337.69 | 2198.7 | 337.6 |
| 2199.3 | 337.56 | 2201.2 | 337.34 | 2202.4 | 337.22 | 2205.4 | 337.07 | 2206.3 | 337.07 |
| 2208.8 | 337.17 | 2211.3 | 337.34 | 2212 | 337.36 | 2216 | 337.4 | 2217.7 | 337.41 |
| 2226.9 | 337.41 | 2230 | 337.39 | 2233.1 | 337.34 | 2235.7 | 337.17 | 2239.2 | 336.92 |
| 2242.3 | 336.77 | 2243.5 | 336.93 | 2245.4 | 337.16 | 2248.4 | 336.86 | 2251.6 | 336.65 |
| 2254.6 | 336.52 | 2255.3 | 336.54 | 2256.6 | 336.54 | 2257.7 | 336.57 | 2260.7 | 336.76 |
| 2261.7 | 336.8 | 2265.9 | 336.9 | 2266.7 | 336.91 | 2276.1 | 336.91 | 2276.8 | 336.9 |
| 2279 | 336.91 | 2282.2 | 336.91 | 2285.3 | 336.89 | 2286.8 | 336.86 | 2288.4 | 336.85 |
| 2289.4 | 336.83 | 2293.8 | 336.83 | 2294.5 | 336.82 | 2296.9 | 336.53 | 2297.6 | 336.47 |
| 2300.7 | 336.09 | 2303.7 | 335.98 | 2304.5 | 335.79 | 2306.5 | 335.55 | 2307 | 335.45 |
| 2307.8 | 335.12 | 2309.9 | 334.18 | 2312.9 | 334.19 | 2314.5 | 334.25 | 2318.3 | 334.41 |
| 2322.3 | 334.57 | 2327.1 | 334.75 | 2329.6 | 334.86 | 2331.4 | 334.93 | 2334.1 | 335.05 |
| 2337.5 | 335.18 | 2339.7 | 335.29 | 2340.6 | 335.32 | 2344.8 | 335.5 | 2346.7 | 335.62 |
| 2347.3 | 335.69 | 2349.7 | 336.26 | 2349.8 | 336.3 | 2352.3 | 336.74 | 2352.9 | 336.83 |
| 2353.8 | 337.13 | 2354.8 | 337.62 | 2356 | 337.9 | 2357.3 | 337.99 | 2359 | 338.09 |
| 2361.7 | 338.2 | 2365.2 | 338.4 | 2368.2 | 338.69 | 2371.3 | 338.84 | 2374.4 | 339.02 |
| 2377.6 | 339.23 | 2380.5 | 339.41 | 2385 | 339.62 | 2386.7 | 339.71 | 2387.6 | 339.74 |
| 2389.7 | 339.85 | 2390.1 | 339.8 | 2391.6 | 339.89 | 2393.1 | 339.9 | 2395.9 | 339.79 |
| 2399 | 339.63 | 2400.1 | 339.45 | 2401 | 339.43 | 2402 | 339.33 | 2402.7 | 339.33 |
| 2405.2 | 339.29 | 2407.7 | 338.99 | 2408.2 | 338.96 | 2410.2 | 339.03 | 2411.2 | 339.04 |
| 2414.3 | 339.44 | 2415.3 | 339.62 | 2417.8 | 340.11 | 2419.6 | 340.48 | 2420.7 | 340.72 |
| 2423.5 | 341.25 | 2425.3 | 341.47 | 2426.6 | 341.61 | 2429.7 | 341.6 | 2430.4 | 341.38 |
| 2432.7 | 340.39 | 2432.9 | 340.4 | 2435.8 | 341.1 | 2436.5 | 341.31 | 2437.9 | 341.8 |
| 2438.9 | 342.09 | 2440.4 | 342.44 | 2442 | 342.76 | 2443 | 342.86 | 2445 | 343.03 |
| 2445.5 | 343.06 | 2448.1 | 343.13 | 2448.3 | 343.07 | 2450.5 | 342.54 | 2451.2 | 342.28 |
| 2452.2 | 342.06 | 2453 | 341.77 | 2454.2 | 341.6 | 2457.3 | 342.67 | 2460.6 | 343.3 |
| 2461.5 | 343.33 | 2463.1 | 343.41 | 2465.6 | 343.52 | 2468.1 | 343.59 | 2469.6 | 343.61 |
| 2470.7 | 343.4 | 2471.9 | 342.96 | 2473.2 | 342.64 | 2475.7 | 342.31 | 2481.9 | 342.93 |
| 2483.2 | 343.08 | 2485 | 343.27 | 2487.6 | 343.65 | 2488.3 | 343.77 | 2489.4 | 344.22 |
| 2491.1 | 344.87 | 2494.2 | 345.01 | 2497.2 | 345.12 | 2506.5 | 345.4 | 2508.4 | 345.38 |
| 2510.9 | 345.29 | 2512.6 | 345.21 | 2515.7 | 345.12 | 2516 | 345.16 | 2517.3 | 345.45 |
| 2518.7 | 345.74 | 2521 | 345.85 | 2523.1 | 345.92 | 2524.9 | 345.96 | 2528 | 346.05 |
| 2531 | 346.09 | 2533.6 | 346.08 | 2536.1 | 345.98 | 2540.3 | 345.83 | 2549.5 | 346.13 |
| 2555.6 | 346.42 | 2556.3 | 346.49 | 2558.5 | 346.76 | 2561.3 | 347.09 | 2564.8 | 347.41 |
| 2567.9 | 347.57 | 2571 | 347.72 | 2576.4 | 347.99 | 2580.2 | 348.23 | 2581.4 | 348.33 |
| 2583.3 | 348.46 | 2586.3 | 348.68 | 2589.4 | 348.79 | 2592.5 | 348.8 | 2596.6 | 348.83 |
| 2599.1 | 348.87 | 2601.7 | 348.88 | 2604.8 | 348.48 | | | | |

Manning's n Values num= 4

| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|---|---|
| 0 | .05 | 41.9 | .06 | 485.22 | .04 | 1896.4 | .15 |

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
41.9 1896.4 695 653 645 .1 .3
Ineffective Flow num= 1
Sta L Sta R Elev Permanent
1725.3 2604.8 321.5 F

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | | |
|---|---|---|---|---|---|---|
| E.G. Elev (ft) | 315.95 | Element | Left OB | Channel | Right OB | |
| Vel Head (ft) | 0.19 | Wt. n-Val. | | 0.042 | | |
| W.S. Elev (ft) | 315.76 | Reach Len. (ft) | 695.00 | 653.00 | 645.00 | |
| Crit W.S. (ft) | 310.94 | Flow Area (sq ft) | | 10670.26 | | |
| E.G. Slope (ft/ft) | 0.000687 | Area (sq ft) | | 10670.26 | | |
| Q Total (cfs) | 37000.00 | Flow (cfs) | | 37000.00 | | |
| Top Width (ft) | 1474.30 | Top Width (ft) | | 1474.30 | | |
| Vel Total (ft/s) | 3.47 | Avg. Vel. (ft/s) | | 3.47 | | |
| Max Chl Dpth (ft) | 14.05 | Hydr. Depth (ft) | | 7.24 | | |
| Conv. Total (cfs) | 1411932.0 | Conv. (cfs) | | 1411932.0 | | |
| Length Wtd. (ft) | 653.00 | Wetted Per. (ft) | | 1493.51 | | |
| Min Ch El (ft) | 301.71 | Shear (lb/sq ft) | | 0.31 | | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 1.06 | | |
| Frctn Loss (ft) | 0.44 | Cum Volume (acre-ft) | 11.85 | 1041.14 | 67.24 | |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 1.65 | 114.80 | 9.11 | |

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

CROSS SECTION

RIVER: San Diego River
REACH: Reach 1 RS: 285

INPUT
Description: Survey Data (June 12, 2014), and proposed grading Proposed
gradingstarts start at station 730, n=0.04
Proposed PA-2 station
1964.2 to 2054.18, n=0.15
In the non-disturbed area, Manning's
coefficients are derived from the Corrected Effective Model.
Station Elevation Data num= 273

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 328.08 | 5.36 | 327.9 | 13.04 | 327.81 | 20.42 | 327.63 | 23.27 | 327.6 |
| 28.38 | 327.65 | 30.94 | 327.84 | 33.5 | 327.9 | 38.61 | 327.34 | 41.17 | 327.22 |
| 46.29 | 327.12 | 48.84 | 327.33 | 51.4 | 328.1 | 53.96 | 329.12 | 59.07 | 331.78 |
| 61.63 | 332.78 | 64.19 | 333.33 | 66.75 | 333 | 69.31 | 332.31 | 71.86 | 331.37 |
| 77.21 | 329.64 | 82.09 | 329.24 | 87.21 | 328.96 | 89.77 | 328.87 | 92.32 | 328.68 |
| 102.55 | 328.29 | 106.66 | 328.39 | 115.77 | 328.51 | 120.46 | 328.52 | 123.48 | 328.64 |
| 128.13 | 328.69 | 138.36 | 328.65 | 143.48 | 328.56 | 148.59 | 328.31 | 151.15 | 328.11 |
| 153.71 | 327.31 | 157.14 | 326 | 161.38 | 324.5 | 163.94 | 323.95 | 166.5 | 323.71 |
| 171.61 | 324.68 | 173.96 | 324.96 | 176.73 | 325.48 | 179.28 | 326.21 | 182.38 | 326.23 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 189.52 | 325.81 | 194.63 | 326.06 | 199.75 | 326.21 | 202.3 | 326.22 | 207.42 | 326.35 |
| 212.53 | 326.41 | 217.65 | 326.53 | 220.21 | 326.53 | 222.76 | 326.65 | 233 | 326.81 |
| 238.11 | 326.66 | 245.48 | 325.93 | 250.9 | 325.66 | 256.01 | 325.19 | 261.13 | 325.05 |
| 263.69 | 325.11 | 271.36 | 325.71 | 284.15 | 326.54 | 289.26 | 326.57 | 298.06 | 326.29 |
| 307.17 | 326.12 | 312.28 | 326.1 | 314.84 | 326.03 | 325.07 | 326.01 | 330.19 | 325.92 |
| 337.86 | 325.69 | 342.97 | 325.48 | 348.09 | 325.74 | 350.65 | 325.97 | 353.21 | 326.01 |
| 355.76 | 325.58 | 358.32 | 324.9 | 360.88 | 323.82 | 365.99 | 322.04 | 368.55 | 321.48 |
| 371.11 | 321.19 | 373.67 | 321.59 | 381.34 | 323.66 | 383.9 | 323.9 | 391.57 | 324.11 |
| 399.24 | 324 | 406.92 | 323.76 | 411.64 | 323.5 | 414.59 | 323.41 | 417.15 | 323.71 |
| 419.7 | 324.46 | 422.26 | 323.7 | 427.38 | 320.83 | 430.57 | 318.08 | 432.49 | 316.55 |
| 434.78 | 315.33 | 436.88 | 314.48 | 440.17 | 313.71 | 442.72 | 313.87 | 445.28 | 313.59 |
| 447.84 | 313.45 | 452.95 | 313.58 | 457.91 | 313.02 | 460.63 | 312.89 | 463.18 | 312.49 |
| 468.1 | 311.01 | 469.1 | 310.844 | 470.53 | 310.72 | 473.42 | 310.8 | 475.97 | 310.41 |
| 483.65 | 310.22 | 486.2 | 309.87 | 489.46 | 309.7 | 491.57 | 309.43 | 493.67 | 308.78 |
| 496.43 | 308.55 | 498.99 | 308.62 | 502.08 | 308.43 | 503.99 | 307.97 | 506.29 | 308.27 |
| 509.22 | 308.09 | 511.78 | 308.15 | 516.9 | 308.5 | 519.45 | 308.45 | 522.01 | 308.5 |
| 525.22 | 308.8 | 527.13 | 308.87 | 530.08 | 308.71 | 532.24 | 308.38 | 534.8 | 307.73 |
| 537.36 | 307.41 | 539.91 | 307.41 | 542.05 | 307.53 | 545.03 | 307.98 | 547.59 | 307.95 |
| 552.7 | 308.11 | 555.26 | 308.47 | 557.82 | 308.67 | 560.38 | 308.5 | 565.18 | 308.07 |
| 573.16 | 307.98 | 575.7 | 307.69 | 578.28 | 307.77 | 580.84 | 307.97 | 583.39 | 307.93 |
| 585.95 | 307.73 | 588.51 | 307.69 | 591.07 | 307.99 | 593.62 | 307.77 | 596.18 | 307.13 |
| 601.3 | 306.27 | 606.41 | 304.69 | 611.64 | 303.64 | 614.09 | 303.34 | 619.2 | 303.17 |
| 624.08 | 303.84 | 626.87 | 304.04 | 629.43 | 303.83 | 631.99 | 303.51 | 637.11 | 302.44 |
| 639.66 | 301.75 | 642.22 | 301.64 | 644.78 | 302.31 | 655.01 | 305.34 | 657.73 | 306.12 |
| 660.12 | 306.62 | 662.68 | 306.75 | 666.14 | 306.69 | 668.25 | 306.75 | 670.35 | 306.66 |
| 672.91 | 306.76 | 678.03 | 308.2 | 680.59 | 308.98 | 683.14 | 310 | 712.42 | 310 |
| 722.26 | 308 | 730 | 307 | 785 | 308 | 791.9 | 310 | 819.57 | 310 |
| 846.1 | 308 | 867.14 | 307 | 874.55 | 306 | 887 | 305.5 | 900.36 | 306 |
| 913.09 | 308 | 922 | 308.5 | 931.14 | 308 | 941.58 | 307 | 970.67 | 306 |
| 1030.4 | 305 | 1080.4 | 304.5 | 1127.55 | 305 | 1191.99 | 306 | 1203.67 | 307 |
| 1204.9 | 307.22 | 1216.37 | 308 | 1236.87 | 310 | 1271.36 | 312 | 1285 | 312.5 |
| 1303.5 | 312 | 1321.1 | 310 | 1379.39 | 308 | 1449.095 | 307 | 1463.37 | 307 |
| 1475.37 | 308 | 1492.97 | 310 | 1502 | 312 | 1508.04 | 312.5 | 1516.28 | 312 |
| 1521.11 | 310 | 1530 | 308 | 1663 | 308 | 1693.8 | 308 | 1700.9 | 307 |
| 1709.09 | 305 | 1713.308 | 303 | 1726.85 | 303 | 1742.01 | 305 | 1761.77 | 307 |
| 1768.82 | 308 | 1777.9 | 309 | 1829.21 | 310 | 1835.09 | 311 | 1844.41 | 312 |
| 1852.81 | 312 | 1866.37 | 311 | 1874.73 | 310 | 1914.03 | 310 | 1939.58 | 310.5 |
| 1959.11 | 320 | 1964.2 | 322.144 | 1966.47 | 323.1 | 2040 | 323.1 | 2054.18 | 321.3 |
| 2084.2 | 321 | 2089.85 | 321.9 | 2092.41 | 321.95 | 2094.97 | 322.12 | 2100.61 | 322.79 |
| 2105.2 | 323.15 | 2112.87 | 323.18 | 2117.99 | 323.38 | 2120.55 | 323.57 | 2123.1 | 323.96 |
| 2125.66 | 324.53 | 2133.33 | 325.92 | 2138.45 | 327.09 | 2143.56 | 328.19 | 2148.99 | 329.64 |
| 2151.46 | 330.19 | 2153.8 | 331.02 | 2156.35 | 331.36 | 2158.91 | 331.42 | 2161.47 | 331.36 |
| 2164.03 | 331.55 | 2166.58 | 331.93 | 2169.14 | 333.45 | 2171.7 | 334.81 | 2174.26 | 335.88 |
| 2176.33 | 335.45 | 2179.37 | 335.18 | 2181.93 | 335.48 | 2184.49 | 336.22 | 2189.6 | 337.38 |
| 2193.16 | 338.43 | 2197.28 | 339.52 | 2202.39 | 340.36 | 2204.95 | 340.7 | 2207.51 | 340.84 |
| 2210.06 | 341.09 | 2215.18 | 341.092 | 218.221 | 341.02 | | | | |

Manning's n Values num= 5

| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|---|---|---|---|
| 0 | .05 | 469.1 | .06 | 730 | .04 | 1964.2 | .15 | 2054.18 | .05 |

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

```
        469.1  1964.2              640     688     660             .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
  2084.22218.221   321.5       F

CROSS SECTION OUTPUT  Profile #PF 2

  E.G. Elev (ft)            315.51    Element                  Left OB    Channel   Right OB
  Vel Head (ft)               0.18    Wt. n-Val.                           0.043
  W.S. Elev (ft)            315.32    Reach Len. (ft)          640.00     688.00     660.00
  Crit W.S. (ft)            310.28    Flow Area (sq ft)                  10848.39
  E.G. Slope (ft/ft)      0.000658    Area (sq ft)                       10848.39
  Q Total (cfs)           37000.00    Flow (cfs)                         37000.00
  Top Width (ft)           1435.00    Top Width (ft)                      1435.00
  Vel Total (ft/s)            3.41    Avg. Vel. (ft/s)                       3.41
  Max Chl Dpth (ft)          13.68    Hydr. Depth (ft)                       7.56
  Conv. Total (cfs)       1442819.0    Conv. (cfs)                        1442819.0
  Length Wtd. (ft)          688.00    Wetted Per. (ft)                   1451.31
  Min Ch El (ft)            301.64    Shear (lb/sq ft)                       0.31
  Alpha                       1.00    Stream Power (lb/ft s)                 1.05
  Frctn Loss (ft)             0.48    Cum Volume (acre-ft)       11.85     879.85      67.24
  C & E Loss (ft)             0.00    Cum SA (acres)              1.65      92.99       9.11


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

CROSS SECTION


RIVER: San Diego River
REACH: Reach 1            RS: 280

INPUT
Description: Survey Data (June 12, 2014), and proposed grading Proposed
             gradingstarts at 1435.62, n=0.04
In the non-disturbed area,
             Manning's coefficients are derived from the Corrected Effective
             Model.
Station Elevation Data    num=     368
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0  332.56    5.17  332.57   10.16  332.16   12.86  332.01   20.99  331.83
   35.91  331.55   38.48  331.47   41.04  331.15    43.6  330.94   46.16  330.97
   53.84  330.75   74.34  330.07   79.46  329.97   89.71  329.56   94.83   329.5
  117.88  328.95  120.45  328.85  123.01     329  125.57  328.75  130.69  328.39
  135.82  328.16   143.5  327.95  146.06  327.97  151.18  327.79  156.31  327.76
  158.87  327.66  161.43  327.77  163.99  327.59  166.55   327.2   169.3  327.11
  171.68  326.93  179.36  326.75  184.49  326.95  187.05  326.99  189.61  326.78
  194.73  326.12  199.85  325.92   202.8  326.07  204.98  326.06  212.66  325.48
  217.79  325.03  220.35  324.91  228.03     325  235.72   325.2   238.4   325.2
  246.77  325.49  251.09  325.69  261.43  325.34  269.02  325.19   271.9  325.06
   276.7  324.98  281.83  324.77  286.95  324.68  294.63  324.34  302.32  324.72
     310  325.01  315.13  325.01  320.06  325.21  325.37  325.22  327.93  325.16
```

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 333.06 | 324.7 | 338.18 | 324.78 | 340.74 | 324.75 | 343.1 | 324.63 | 358.67 | 324.11 |
| 363.8 | 323.91 | 368.92 | 323.64 | 381.73 | 323.08 | 389.41 | 322.81 | 391.97 | 322.66 |
| 397.1 | 322.53 | 402.22 | 322.28 | 407.34 | 321.79 | 412.47 | 321.53 | 417.59 | 321.17 |
| 420.57 | 320.88 | 427.84 | 320.29 | 430.4 | 320.23 | 438.08 | 320.28 | 440.64 | 320.39 |
| 448.33 | 320.11 | 450.89 | 320.16 | 456.01 | 320.04 | 461.14 | 319.8 | 463.7 | 319.73 |
| 476.51 | 319.25 | 491.87 | 318.59 | 497 | 318.44 | 509.81 | 317.88 | 512.37 | 317.69 |
| 516.9 | 317.48 | 520.05 | 317.42 | 525.18 | 317.19 | 527.74 | 317.29 | 532.86 | 318.2 |
| 535.42 | 318.74 | 537.98 | 319.74 | 543.11 | 322.47 | 545.67 | 323.72 | 548.2 | 324.155 |
| 550.79 | 323.83 | 553.35 | 322.81 | 555.91 | 321.69 | 560.87 | 318.53 | 563.6 | 318.13 |
| 566.16 | 316.66 | 567.15 | 314.97 | 569.24 | 311.77 | 571.28 | 308.37 | 573.43 | 308.88 |
| 578.97 | 309.83 | 584.39 | 309.08 | 586 | 309.09 | 589.21 | 308.61 | 594.34 | 308.44 |
| 596.9 | 308.52 | 600.65 | 309.01 | 604.58 | 309.2 | 606.94 | 309.44 | 612.27 | 309.8 |
| 615.31 | 309.95 | 622.52 | 309.69 | 625.08 | 308.6 | 627.64 | 308.3 | 629.97 | 308.27 |
| 635.32 | 307.81 | 637.88 | 307.7 | 640.45 | 307.69 | 645.57 | 307.47 | 648.13 | 307.46 |
| 650.69 | 307.67 | 653.25 | 307.51 | 658.38 | 307.36 | 661.38 | 307.18 | 671.19 | 306.97 |
| 673.75 | 307.01 | 678.87 | 307.46 | 684.41 | 307.34 | 686.51 | 307.37 | 689.12 | 307.55 |
| 699.36 | 307.77 | 701.92 | 307.76 | 704.49 | 307.5 | 707.05 | 307.06 | 709.54 | 307.4 |
| 711.63 | 307.53 | 714.73 | 307.89 | 717.92 | 307.67 | 719.86 | 307.3 | 724.98 | 306.78 |
| 727.54 | 306.82 | 730.1 | 307.01 | 732.66 | 307.3 | 734.67 | 307.27 | 737.79 | 307.09 |
| 740.35 | 307.07 | 745.14 | 306.62 | 750.59 | 306.69 | 755.72 | 306.66 | 757.7 | 306.82 |
| 761.89 | 306.76 | 766.08 | 306.58 | 773.65 | 307.14 | 776.21 | 307.19 | 778.77 | 306.94 |
| 781.33 | 306.5 | 783.89 | 306.23 | 786.46 | 306.3 | 789.11 | 306.11 | 794.14 | 306.18 |
| 799.58 | 306.15 | 801.83 | 306.37 | 809.51 | 306.39 | 812.07 | 306.34 | 814.63 | 306.44 |
| 817.2 | 306.32 | 822.32 | 306.4 | 824.88 | 306.11 | 830.99 | 306.06 | 835.13 | 306.22 |
| 837.69 | 306.26 | 840.25 | 306.48 | 845.37 | 307.05 | 847.93 | 307.18 | 850.5 | 306.88 |
| 853.06 | 306.83 | 858.18 | 306.85 | 865.87 | 306.44 | 868.43 | 306.52 | 870.99 | 306.42 |
| 877.06 | 306.55 | 878.67 | 306.53 | 881.29 | 306.34 | 886.36 | 306.34 | 891.11 | 306.48 |
| 896.6 | 306.9 | 900.09 | 306.82 | 904.29 | 306.53 | 906.85 | 306.71 | 909.41 | 306.64 |
| 912.66 | 306.75 | 924.78 | 306.93 | 932.47 | 306.64 | 935.03 | 306.86 | 937.78 | 306.99 |
| 942.71 | 307.02 | 945.27 | 306.98 | 950.4 | 307.09 | 952.96 | 307.23 | 958.08 | 307.71 |
| 965 | 307.32 | 968.33 | 307.2 | 975.47 | 306.81 | 978.57 | 306.72 | 981.14 | 306.77 |
| 983.7 | 306.97 | 988.04 | 306.9 | 991.38 | 307.09 | 993.94 | 306.93 | 996.51 | 306.34 |
| 999.07 | 305.99 | 1000.6 | 306.05 | 1006.54 | 306.07 | 1009.31 | 305.92 | 1011.88 | 305.68 |
| 1014.44 | 304.2 | 1015.26 | 303.54 | 1017.35 | 302.17 | 1019.56 | 301.18 | 1021.54 | 300.63 |
| 1024.68 | 299.55 | 1027.24 | 298.96 | 1029.63 | 298.83 | 1032.37 | 298.84 | 1034.93 | 299.11 |
| 1037.49 | 299.54 | 1040.05 | 299.42 | 1042.61 | 299.04 | 1046.67 | 299.04 | 1050.3 | 298.92 |
| 1052.86 | 299.72 | 1055.04 | 300.96 | 1057.98 | 302.77 | 1060.55 | 304.24 | 1063.11 | 305.17 |
| 1065.67 | 305.93 | 1211.68 | 305.92 | 1216.8 | 305.95 | 1219.36 | 306.05 | 1222.56 | 305.96 |
| 1227.05 | 306.01 | 1229.61 | 305.86 | 1232.17 | 305.91 | 1237.29 | 306.18 | 1239.86 | 306.68 |
| 1242.42 | 307.07 | 1250.1 | 306.62 | 1252.66 | 306.05 | 1255.22 | 305.21 | 1257.79 | 304.56 |
| 1260.35 | 304.31 | 1272.37 | 304.19 | 1344.88 | 303.49 | 1350.29 | 304 | 1352.56 | 304.1 |
| 1355.13 | 303.93 | 1360.25 | 304.2 | 1362.81 | 304.56 | 1367.93 | 305.4 | 1369.14 | 305.5 |
| 1373.06 | 305.59 | 1380.74 | 305.64 | 1385.82 | 305.84 | 1388.43 | 305.78 | 1396.36 | 306.17 |
| 1401.23 | 306.26 | 1408.92 | 306.5 | 1414.04 | 306.51 | 1417.3 | 306.59 | 1421.73 | 306.53 |
| 1431.97 | 306.69 | 1434.54 | 306.66 | 1435.62 | 306.5 | 1466.04 | 306 | 1504.96 | 306 |
| 1520.25 | 307 | 1533.1 | 308 | 1536.24 | 308.5 | 1554.65 | 308 | 1581.9 | 307 |
| 1653.55 | 306.37 | 1687.22 | 308 | 1703.58 | 312 | 1715.73 | 316 | 1727.06 | 316 |
| 1738.61 | 312 | 1764.4 | 306 | 1780.91 | 305 | 1803.51 | 304 | 1825.15 | 304 |
| 1835.04 | 305 | 1845.02 | 305 | 1852.07 | 302.47 | 1854.94 | 302.68 | 1857.03 | 302.98 |
| 1859.76 | 303.01 | 1864.88 | 302.81 | 1867.5 | 302.42 | 1869.6 | 302.74 | 1872.57 | 302.92 |
| 1877.69 | 304.58 | 1880.25 | 305.14 | 1882.81 | 305.6 | 1887.93 | 305.86 | 1890.5 | 305.94 |
| 1896.95 | 305 | 1967.09 | 305 | 1974.46 | 305.81 | 1979.38 | 307.44 | 1988.6 | 309.91 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1997.83 | 309.62 | 2016.27 | 309.63 | 2021.6 | 310 | 2023.7 | 310 | 2026.26 | 310.27 |
| 2028.82 | 311.83 | 2036.5 | 315.19 | 2039.05 | 316.03 | 2041.38 | 316.48 | 2043.49 | 317.28 |
| 2046.71 | 318.01 | 2049.27 | 318.07 | 2054.37 | 318.42 | 2056.93 | 318.84 | 2059.48 | 318.77 |
| 2064.59 | 318.78 | 2067.14 | 318.88 | 2069.69 | 319.14 | 2072.25 | 319.82 | 2074.8 | 319.32 |
| 2077.35 | 319.03 | 2085.02 | 318.99 | 2094.22 | 319.12 | 2100.34 | 319.25 | 2102.67 | 319.25 |
| 2105.44 | 319.41 | 2113.1 | 319.41 | 2118.21 | 319.69 | 2120.77 | 319.5 | 2128.43 | 319.62 |
| 2133.53 | 319.65 | 2143.75 | 319.79 | 2148.85 | 319.82 | 2156.52 | 319.94 | 2166.73 | 319.8 |
| 2169.28 | 319.94 | 2176.94 | 320.09 | 2184.6 | 319.9 | 2189.33 | 319.63 | 2192.27 | 319.57 |
| 2194.82 | 319.4 | 2199.93 | 319.62 | 2202.48 | 319.8 | 2210.14 | 320.04 | 2217.8 | 320.1 |
| 2222.91 | 320.05 | 2228.02 | 319.84 | 2228.86 | 319.94 | | | | |

Manning's n Values num= 4

| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|---|---|
| 0 | .05 | 548.2 | .06 | 1435.62 | .04 | 1974.46 | .05 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 548.2 | 2021.6 | 1135 | 1021 | 1060 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 2

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 315.02 | Element | | | |
| Vel Head (ft) | 0.17 | Wt. n-Val. | | 0.052 | |
| W.S. Elev (ft) | 314.85 | Reach Len. (ft) | 1135.00 | 1021.00 | 1060.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 11170.51 | |
| E.G. Slope (ft/ft) | 0.000756 | Area (sq ft) | | 11170.51 | |
| Q Total (cfs) | 37000.00 | Flow (cfs) | | 37000.00 | |
| Top Width (ft) | 1281.84 | Top Width (ft) | | 1281.84 | |
| Vel Total (ft/s) | 3.31 | Avg. Vel. (ft/s) | | 3.31 | |
| Max Chl Dpth (ft) | 16.02 | Hydr. Depth (ft) | | 8.71 | |
| Conv. Total (cfs) | 1346038.0 | Conv. (cfs) | | 1346038.0 | |
| Length Wtd. (ft) | 1021.01 | Wetted Per. (ft) | | 1305.24 | |
| Min Ch El (ft) | 298.83 | Shear (lb/sq ft) | | 0.40 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 1.34 | |
| Frctn Loss (ft) | 1.15 | Cum Volume (acre-ft) | 11.85 | 705.96 | 67.24 |
| C & E Loss (ft) | 0.04 | Cum SA (acres) | 1.65 | 71.54 | 9.11 |

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: San Diego River
REACH: Reach 1 RS: 270

INPUT
Description: Survey Data (June 12, 2014), and proposed grading Proposed grading start at station# 564, n=0.04

In the non-disturbed area,
Manning's coefficients are derived from the Corrected Effective Model.

Station Elevation Data num= 410

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 311.5 | 4.03 | 311.65 | 16.61 | 311.94 | 19.12 | 311.97 | 21.64 | 312.03 |
| 24.15 | 312.03 | 29.18 | 312.16 | 31.7 | 312.19 | 36.73 | 312.32 | 41.76 | 312.25 |
| 46.79 | 311.94 | 49.3 | 311.84 | 51.82 | 311.69 | 54.33 | 311.61 | 56.85 | 311.5 |
| 59.36 | 311.42 | 60.08 | 311.37 | 64.39 | 311.01 | 66.91 | 310.91 | 69.42 | 310.97 |
| 74.45 | 311.42 | 79.48 | 311.69 | 82 | 311.77 | 89.54 | 311.94 | 92.06 | 312.07 |
| 94.57 | 312.16 | 97.09 | 312.19 | 99.6 | 312.14 | 102.12 | 312.06 | 104.63 | 312.03 |
| 107.15 | 311.97 | 109.66 | 311.88 | 112.18 | 311.81 | 117.21 | 311.75 | 122.24 | 311.61 |
| 127.27 | 311.53 | 129.78 | 311.47 | 132.3 | 311.38 | 134.81 | 311.25 | 137.33 | 311.15 |
| 139.84 | 311.18 | 142.36 | 311.53 | 144.87 | 312.01 | 147.39 | 312.7 | 149.9 | 313.69 |
| 152.42 | 314.88 | 154.93 | 315.98 | 157.45 | 317.13 | 159.96 | 318.05 | 162.48 | 318.62 |
| 164.99 | 318.75 | 167.51 | 318.29 | 170.02 | 317.3 | 175.05 | 314.66 | 177.57 | 313.56 |
| 179.95 | 312.91 | 182.6 | 312.1 | 185.11 | 311.55 | 187.63 | 311.23 | 190.14 | 311.18 |
| 191.52 | 311.33 | 192.66 | 311.41 | 195.17 | 311.51 | 196.06 | 311.51 | 197.69 | 311.56 |
| 200.2 | 311.37 | 202.72 | 311.24 | 205.23 | 311.32 | 207.75 | 311.48 | 210.26 | 311.59 |
| 212.78 | 311.62 | 215.29 | 311.7 | 217.81 | 311.74 | 220.99 | 311.75 | 222.84 | 311.74 |
| 225.35 | 311.87 | 230.38 | 311.95 | 232.9 | 312.02 | 235.41 | 312.02 | 237.93 | 311.98 |
| 245.92 | 312.1 | 248.18 | 312.15 | 250.5 | 312.12 | 253.02 | 312.18 | 255.53 | 312.27 |
| 258.05 | 312.32 | 260.56 | 312.34 | 264.05 | 312.28 | 265.59 | 312.23 | 270.62 | 312.45 |
| 273.14 | 312.47 | 276 | 312.44 | 280.68 | 312.47 | 283.2 | 312.43 | 285.71 | 312.47 |
| 288.23 | 312.56 | 290.74 | 312.78 | 293.51 | 313.12 | 295.77 | 313.37 | 298.29 | 313.79 |
| 300.31 | 314.03 | 303.32 | 314.27 | 305.83 | 314.64 | 308.35 | 314.52 | 310.86 | 314.22 |
| 313.38 | 313.85 | 315.89 | 313.36 | 318.37 | 313.13 | 320.92 | 312.84 | 323.44 | 312.68 |
| 325.24 | 312.46 | 326.85 | 312.3 | 327.5 | 312.19 | 329.77 | 311.98 | 330.98 | 311.89 |
| 333.5 | 311.35 | 334.3 | 311.14 | 335.32 | 310.81 | 336.01 | 310.63 | 336.57 | 310.57 |
| 338.53 | 310.25 | 341.04 | 310.03 | 343 | 309.18 | 346.07 | 307.77 | 347.9 | 307.02 |
| 348.59 | 306.76 | 349.45 | 306.68 | 350.17 | 306.56 | 351.1 | 306.49 | 356.13 | 306.26 |
| 358.65 | 306.62 | 361.16 | 307.17 | 361.5 | 307.22 | 363.57 | 307.83 | 364.53 | 307.86 |
| 366.4 | 307.82 | 368.3 | 307.63 | 369.22 | 307.6 | 370.56 | 307.44 | 371.22 | 307.43 |
| 372.05 | 307.32 | 372.83 | 307.29 | 373.74 | 307.14 | 376.25 | 307.23 | 378.77 | 306.35 |
| 379.63 | 305.86 | 380.52 | 305.46 | 381.28 | 305.05 | 381.89 | 304.89 | 384.16 | 304.39 |
| 386.43 | 304.04 | 388.69 | 303.57 | 391.34 | 303.06 | 391.82 | 302.94 | 393.23 | 302.76 |
| 394.65 | 302.31 | 395.49 | 301.98 | 396.37 | 301.71 | 397.47 | 301.86 | 397.76 | 301.86 |
| 398.89 | 302.06 | 400.02 | 302.49 | 401.4 | 303.07 | 402.29 | 303.13 | 403.12 | 303.04 |
| 403.92 | 303.07 | 406.43 | 303.47 | 406.82 | 303.47 | 408.77 | 303.14 | 408.95 | 303.13 |
| 411.46 | 302.35 | 413.98 | 302.35 | 419.01 | 302.5 | 420.42 | 302.42 | 424.04 | 302.26 |
| 426.55 | 301.75 | 427.22 | 301.74 | 429.07 | 301.65 | 431.58 | 301.9 | 434.1 | 302.29 |
| 436.29 | 302.2 | 436.61 | 302.16 | 439.13 | 301.98 | 439.85 | 302.13 | 440.82 | 302.4 |
| 441.64 | 302.57 | 444.16 | 303.14 | 446.67 | 303.42 | 449.19 | 303.32 | 451.7 | 302.62 |
| 453.97 | 301.69 | 456.73 | 300.53 | 459.25 | 299.76 | 461.76 | 299.35 | 463.48 | 299.2 |
| 466.79 | 298.87 | 469.31 | 298.5 | 471.82 | 297.98 | 472.55 | 297.86 | 474.81 | 297.57 |
| 476.85 | 297.34 | 479.37 | 297.19 | 481.88 | 297.12 | 484.4 | 297.09 | 489.43 | 297.09 |
| 491.94 | 298.11 | 494.46 | 299.66 | 496.97 | 300.43 | 499.49 | 300.96 | 502.01 | 301.63 |
| 504.52 | 302.39 | 507.03 | 303.35 | 509.55 | 304.95 | 539.73 | 305.61 | 540.54 | 305.27 |
| 541.55 | 304.77 | 542.24 | 304.48 | 544.76 | 303.76 | 547.27 | 303.25 | 549.79 | 302.53 |
| 552.3 | 302.08 | 554.82 | 301.81 | 559.85 | 301.45 | 561.7 | 301 | 564 | 302 |
| 575.22 | 303 | 579.77 | 304 | 582.78 | 305 | 604.98 | 305 | 610.86 | 306 |
| 624.5 | 307.5 | 633.03 | 306 | 647.38 | 305 | 658.82 | 304 | 730.18 | 302 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 748.97 | 300 | 773.22 | 299.81 | 781.81 | 300 | 783.69 | 300.56 | 786.2 | 300.72 |
| 788.72 | 300.96 | 791.23 | 301.36 | 794.36 | 301.63 | 796.26 | 302.46 | 801.16 | 303.02 |
| 803.81 | 303.44 | 806.32 | 303.71 | 808.84 | 303.74 | 810.22 | 303.67 | 812.49 | 303.57 |
| 813.87 | 303.34 | 816.38 | 303.15 | 818.9 | 302.91 | 821.41 | 302.39 | 823.93 | 300.23 |
| 831.47 | 298.74 | 836.5 | 298.74 | 839.02 | 298.89 | 841.53 | 299.36 | 844.05 | 299.95 |
| 846.56 | 300.36 | 849.08 | 300.47 | 851.02 | 300.54 | 854.11 | 300.5 | 856.62 | 300.37 |
| 859.14 | 300.29 | 862.35 | 300.28 | 864.62 | 300.39 | 866.68 | 300.26 | 869.2 | 300.09 |
| 871.71 | 300.16 | 874.23 | 300.23 | 874.9 | 300.41 | 875.95 | 300.48 | 876.74 | 300.32 |
| 879.26 | 300.46 | 881.77 | 300.81 | 885.01 | 301.09 | 886.2 | 301.16 | 886.8 | 301.15 |
| 887.28 | 301.2 | 889.32 | 301.23 | 889.55 | 301.35 | 891.85 | 301.52 | 894.35 | 301.85 |
| 896.86 | 302.54 | 899.38 | 303.229 | 901.3 | 303.44 | 901.89 | 304.47 | 904.41 | 305.85 |
| 906.92 | 307.53 | 909.44 | 307.79 | 909.94 | 308.72 | 911.95 | 309.28 | 914.47 | 309.24 |
| 916.98 | 309.16 | 919.5 | 309.15 | 921.27 | 309.11 | 923.54 | 309.01 | 927.04 | 309.06 |
| 929.56 | 309.18 | 932.07 | 309.31 | 937.1 | 309.45 | 939.62 | 309.79 | 944.65 | 310.22 |
| 949.68 | 310.41 | 952.19 | 310.56 | 954.71 | 310.69 | 957.53 | 310.83 | 959.74 | 310.9 |
| 962.07 | 310.84 | 964.33 | 310.75 | 966.6 | 310.63 | 968.87 | 310.38 | 972.31 | 310.32 |
| 973.4 | 310.14 | 977.34 | 310.08 | 979.86 | 310.12 | 982.37 | 310.19 | 984.73 | 310.22 |
| 987 | 310.35 | 992.43 | 310.44 | 994.95 | 310.65 | 998.33 | 310.73 | 999.98 | 310.95 |
| 1002.49 | 311.09 | 1005.01 | 311.78 | 1012.55 | 312.03 | 1016.46 | 312.23 | 1020.1 | 312.42 |
| 1022.61 | 312.67 | 1025.13 | 312.9 | 1030.16 | 312.96 | 1032.67 | 313 | 1035.19 | 313.09 |
| 1036.86 | 313.2 | 1040.22 | 313.34 | 1045.25 | 313.51 | 1053.57 | 313.52 | 1055.01 | 313.77 |
| 1060.32 | 313.92 | 1062.83 | 314.19 | 1065.34 | 314.57 | 1067.85 | 315.46 | 1086.35 | 322.18 |
| 1093.2 | 321.99 | 1111.24 | 322.531 | 1116.773 | 323.12 | 1129.35 | 316 | 1130.6 | 315.18 |
| 1133.11 | 315.34 | 1135.62 | 315.68 | 1137.97 | 316.07 | 1140.28 | 316.62 | 1143.15 | 316.9 |
| 1144.89 | 317.29 | 1148.17 | 317.64 | 1150.68 | 318.16 | 1153.19 | 319.73 | 1161.02 | 320.12 |
| 1163.23 | 320.67 | 1165.74 | 321.25 | 1168.25 | 321.86 | 1170.76 | 322.52 | 1173.27 | 323.04 |
| 1175.78 | 322.95 | 1178.29 | 322.81 | 1180.8 | 322.87 | 1184.06 | 322.88 | 1190.84 | 322.94 |
| 1193.28 | 322.97 | 1195.86 | 323.11 | 1200.88 | 323.08 | 1203.39 | 323.1 | 1205.9 | 323.25 |
| 1211.72 | 323.38 | 1215.94 | 323.41 | 1218.45 | 323.38 | 1220.96 | 323.46 | 1223.47 | 323.46 |
| 1228.49 | 323.44 | 1231 | 323.44 | 1233.51 | 323.47 | 1243.55 | 323.41 | 1248.59 | 323.4 |
| 1250.89 | 323.37 | 1253.59 | 323.37 | 1256.1 | 323.39 | 1261.12 | 323.53 | 1263.63 | 323.4 |
| 1266.14 | 323.19 | 1268.65 | 322.96 | 1271.16 | 322.73 | 1273.94 | 322.38 | 1276.18 | 322.19 |
| 1278.68 | 322.18 | 1280.85 | 322.07 | 1283.7 | 321.83 | 1285.46 | 321.69 | 1286.21 | 320.97 |
| 1288.72 | 320.78 | 1291.23 | 320.73 | 1293.74 | 320.68 | 1294.68 | 320.59 | 1295.38 | 320.49 |
| 1296.98 | 320.52 | 1298.14 | 320.49 | 1298.76 | 320.62 | 1301.27 | 320.66 | 1303.9 | 320.74 |

Manning's n Values num= 4

| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|---|---|
| 0 | .05 | 343 | .06 | 564 | .04 | 781.81 | .05 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 343 | 901.3 | 1000 | 951 | 815 | .1 | .3 |

Ineffective Flow num= 2

| Sta L | Sta R | Elev | Permanent |
|---|---|---|---|
| 0 | 278.7 | 314.64 | F |
| 1201.7 | 1303.9 | 333.8 | F |

CROSS SECTION OUTPUT Profile #PF 2

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 313.82 | Element | | | |
| Vel Head (ft) | 0.62 | Wt. n-Val. | 0.050 | 0.049 | 0.050 |
| W.S. Elev (ft) | 313.20 | Reach Len. (ft) | 1000.00 | 951.00 | 815.00 |

| | | | | | |
|---|---|---|---|---|---|
| Crit W.S. (ft) | 307.80 | Flow Area (sq ft) | 4.86 | 5875.80 | 3.77 |
| E.G. Slope (ft/ft) | 0.001871 | Area (sq ft) | 4.86 | 5875.80 | 3.77 |
| Q Total (cfs) | 37000.00 | Flow (cfs) | 6.24 | 36991.21 | 2.55 |
| Top Width (ft) | 560.00 | Top Width (ft) | 1.30 | 558.30 | 0.40 |
| Vel Total (ft/s) | 6.29 | Avg. Vel. (ft/s) | 1.28 | 6.30 | 0.68 |
| Max Chl Dpth (ft) | 16.11 | Hydr. Depth (ft) | 3.74 | 10.52 | 9.41 |
| Conv. Total (cfs) | 855399.1 | Conv. (cfs) | 144.3 | 855196.0 | 58.9 |
| Length Wtd. (ft) | 948.63 | Wetted Per. (ft) | 4.88 | 566.66 | 9.87 |
| Min Ch El (ft) | 297.09 | Shear (lb/sq ft) | 0.12 | 1.21 | 0.04 |
| Alpha | 1.00 | Stream Power (lb/ft s) | 0.15 | 7.62 | 0.03 |
| Frctn Loss (ft) | 2.43 | Cum Volume (acre-ft) | 11.79 | 506.18 | 67.20 |
| C & E Loss (ft) | 0.02 | Cum SA (acres) | 1.63 | 49.97 | 9.10 |

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: San Diego River
REACH: Reach 1 RS: 260

INPUT
Description: Survey Data (June 12, 2014), and proposed grading Proposed grading start at station 523.75, n=0.05
In the non-disturbed area,
Manning's coefficients are derived from the Corrected Effective Model.

Station Elevation Data num= 402

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 314.92 | 3.45 | 315.01 | 6.04 | 315.17 | 7.03 | 315.37 | 8.63 | 315.64 |
| 9.07 | 315.63 | 11.1 | 315.49 | 13.14 | 315.27 | 13.81 | 315.22 | 15.18 | 315.17 |
| 16.4 | 315.16 | 19.25 | 314.89 | 21.29 | 314.76 | 23.33 | 314.69 | 29.35 | 314.53 |
| 37.12 | 314.41 | 39.71 | 314.41 | 42.3 | 314.34 | 47.48 | 314.28 | 50.07 | 314.28 |
| 51.85 | 314.55 | 52.67 | 314.69 | 55.26 | 315.25 | 57.85 | 315.78 | 60.44 | 316.08 |
| 63.03 | 316.68 | 65.62 | 317.52 | 68.21 | 318.28 | 73.39 | 319.57 | 76.31 | 320.2 |
| 78.57 | 320.6 | 81.16 | 320.96 | 83.75 | 321.1 | 86.34 | 321.04 | 88.53 | 320.94 |
| 91.52 | 320.77 | 94.11 | 320.67 | 96.6 | 320.51 | 100.76 | 320.28 | 104.47 | 320.05 |
| 107.06 | 319.93 | 109.65 | 319.74 | 112.24 | 319.59 | 119.09 | 319.12 | 123.17 | 318.89 |
| 127.79 | 318.56 | 130.38 | 318.4 | 132.97 | 318.17 | 135.56 | 317.9 | 138.15 | 317.65 |
| 141.51 | 317.29 | 151.1 | 316.35 | 151.69 | 316.3 | 153.69 | 316.19 | 155.77 | 316.1 |
| 157.81 | 316.04 | 158.87 | 315.98 | 164.05 | 315.03 | 166.64 | 314.89 | 169.23 | 314.79 |
| 171.82 | 314.81 | 174.11 | 314.87 | 177.01 | 314.89 | 179.6 | 314.98 | 182.26 | 315 |
| 184.78 | 314.95 | 187.37 | 314.84 | 189.96 | 314.7 | 195.14 | 314.49 | 197.73 | 314.46 |
| 200.32 | 314.26 | 202.63 | 314.16 | 210.78 | 313.72 | 213.27 | 313.55 | 215.86 | 313.42 |
| 220.7 | 313.11 | 223.01 | 312.98 | 226.22 | 312.76 | 228.81 | 312.67 | 231.16 | 312.75 |
| 231.4 | 312.77 | 233.19 | 313.06 | 233.99 | 313.2 | 236.58 | 313.83 | 237.27 | 313.89 |
| 239.2 | 313.926 | 241.34 | 313.16 | 242.5 | 312.57 | 243.38 | 312.16 | 244.36 | 311.61 |
| 245.42 | 310.84 | 247.46 | 309.41 | 249.54 | 308 | 252.13 | 306.73 | 253.57 | 306.16 |
| 254.72 | 305.66 | 257.31 | 304.26 | 259.9 | 303.04 | 261.72 | 302.43 | 262.49 | 302.21 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 263.76 | 302.23 | 265.08 | 302.27 | 267.67 | 302.52 | 268.43 | 302.69 | 269.87 | 302.98 |
| 271.91 | 303.26 | 272.85 | 303.33 | 273.94 | 303.35 | 274.5 | 303.44 | 275.44 | 303.52 |
| 275.98 | 303.53 | 277.97 | 303.62 | 280.06 | 303.54 | 280.62 | 303.53 | 283.21 | 303.44 |
| 288.39 | 303.36 | 290.98 | 303.2 | 293.57 | 303.21 | 296.16 | 303.19 | 298.75 | 303.05 |
| 300.43 | 303.01 | 303.94 | 303 | 306.54 | 302.97 | 311.71 | 302.85 | 314.3 | 302.84 |
| 316.73 | 303.11 | 319.48 | 303.24 | 322.07 | 303.18 | 324.88 | 302.73 | 325.7 | 302.62 |
| 326.92 | 302.4 | 327.82 | 302.16 | 328.96 | 301.76 | 329.84 | 301.6 | 330.99 | 301.46 |
| 333.03 | 301.3 | 335.02 | 301.09 | 337.11 | 301.15 | 340.2 | 301.33 | 341.18 | 301.44 |
| 342.04 | 301.43 | 342.79 | 301.48 | 343.22 | 301.43 | 344.82 | 301.34 | 347.97 | 301.22 |
| 350.56 | 300.82 | 351.38 | 300.62 | 353.15 | 300.23 | 354.4 | 299.81 | 355.45 | 299.42 |
| 357.49 | 298.58 | 358.33 | 298.25 | 363.51 | 297.13 | 363.98 | 297.06 | 365.65 | 296.87 |
| 366.88 | 296.75 | 367.69 | 296.7 | 368.69 | 296.55 | 371.28 | 296.28 | 373.87 | 296.22 |
| 375.84 | 296.01 | 376.46 | 295.92 | 379.05 | 295.65 | 379.92 | 295.61 | 381.64 | 295.59 |
| 384.23 | 295.73 | 384.63 | 295.83 | 386.03 | 296.09 | 386.82 | 296.3 | 389.41 | 297.47 |
| 390.11 | 297.72 | 391.99 | 298.29 | 394.19 | 299.03 | 394.58 | 299.12 | 397.17 | 299.64 |
| 399.76 | 300.36 | 400.3 | 300.45 | 402.3 | 300.74 | 404.94 | 301.01 | 407.53 | 301.51 |
| 408.46 | 301.64 | 409.47 | 301.86 | 411.88 | 302 | 438.61 | 302 | 441.2 | 301.53 |
| 443.12 | 301.07 | 443.79 | 300.93 | 446.38 | 300.71 | 448.97 | 300.74 | 454.15 | 300.98 |
| 456.74 | 301.04 | 459.33 | 301.25 | 461.92 | 301.57 | 464.51 | 301.84 | 467.1 | 301.98 |
| 474.87 | 302.04 | 477.46 | 302.08 | 482.64 | 302.14 | 485.23 | 302.21 | 490.4 | 302.29 |
| 492.99 | 302.38 | 495.58 | 302.51 | 498.16 | 302.75 | 500.76 | 303.05 | 506.31 | 303.46 |
| 508.53 | 303.59 | 511.12 | 303.67 | 513.71 | 303.54 | 516.3 | 303.08 | 518.89 | 302.54 |
| 521.48 | 301.94 | 523.75 | 302 | 530.97 | 301 | 552.09 | 300.3 | 562.39 | 301 |
| 570.87 | 302 | 598.18 | 302 | 611.86 | 302 | 705.35 | 299.2 | 720.89 | 300.88 |
| 731.25 | 299.16 | 739.02 | 298.81 | 746.79 | 300.31 | 759.14 | 299.26 | 759.74 | 299.12 |
| 761.14 | 299.45 | 762.33 | 299.69 | 763.18 | 299.67 | 764.4 | 299.58 | 765.22 | 299.56 |
| 766.32 | 299.63 | 767.51 | 299.74 | 770.1 | 300.46 | 771.33 | 300.71 | 772.69 | 301.01 |
| 775.28 | 301.97 | 775.86 | 302.06 | 777.44 | 302.25 | 777.87 | 302.24 | 780.46 | 302.11 |
| 783.05 | 302.11 | 788.23 | 302.27 | 790.82 | 302.42 | 793.74 | 302.83 | 795.78 | 303.03 |
| 797.82 | 303.19 | 798.59 | 303.24 | 801.18 | 303.44 | 802 | 303.488 | 803.77 | 303.62 |
| 805.97 | 303.65 | 806.36 | 303.67 | 808 | 303.83 | 808.96 | 303.94 | 811.55 | 304.35 |
| 814.14 | 304.81 | 816.73 | 305.39 | 819.32 | 305.9 | 821.91 | 306.32 | 824.3 | 306.53 |
| 827.09 | 306.61 | 830.42 | 306.55 | 832.27 | 306.56 | 834.86 | 306.46 | 836.53 | 306.37 |
| 840.04 | 306.21 | 842.63 | 306.12 | 845.22 | 306.16 | 847.81 | 306.22 | 850.4 | 306.33 |
| 852.99 | 306.53 | 855.58 | 306.84 | 858.17 | 307.24 | 860.76 | 307.69 | 863.35 | 308.2 |
| 865.94 | 308.79 | 868.54 | 309.32 | 871.13 | 309.6 | 873.2 | 309.9 | 875.24 | 310.16 |
| 879.32 | 310.65 | 881.49 | 310.89 | 885.43 | 310.74 | 886.67 | 310.72 | 891.54 | 310.57 |
| 893.58 | 310.55 | 895.62 | 310.5 | 897.65 | 310.42 | 899.62 | 310.32 | 902.21 | 310.25 |
| 903.77 | 310.33 | 904.8 | 310.36 | 905.8 | 310.5 | 906.61 | 310.53 | 907.39 | 310.61 |
| 907.84 | 310.69 | 909.5 | 310.79 | 910.16 | 310.86 | 911.92 | 311.12 | 912.57 | 311.17 |
| 915.16 | 311.27 | 915.99 | 311.19 | 917.27 | 311.25 | 918.03 | 311.25 | 919.05 | 311.34 |
| 920.34 | 311.5 | 922.93 | 311.75 | 928.22 | 312.1 | 930.71 | 312.4 | 932.29 | 312.53 |
| 933.3 | 312.59 | 935.89 | 312.72 | 938.6 | 312.79 | 940.44 | 312.85 | 943.66 | 312.86 |
| 944.52 | 312.87 | 946.25 | 312.93 | 948.84 | 313.06 | 952.67 | 313.18 | 958.78 | 313.34 |
| 961.79 | 313.39 | 964.38 | 313.47 | 969.56 | 313.52 | 972.15 | 313.5 | 974.74 | 313.58 |
| 977.33 | 313.57 | 979.15 | 313.62 | 982.51 | 313.69 | 985.86 | 313.72 | 990.28 | 313.79 |
| 995.47 | 314.25 | 998.06 | 314.32 | 1000.65 | 314.49 | 1001.57 | 314.56 | 1004.9 | 316 |
| 1030.09 | 316.09 | 1031.04 | 316.44 | 1032.13 | 316.8 | 1034.17 | 317.55 | 1034.59 | 317.75 |
| 1036.2 | 318.64 | 1036.91 | 319.01 | 1039.5 | 319.94 | 1042.09 | 321.26 | 1044.68 | 323.16 |
| 1045.26 | 323.43 | 1046.39 | 324.01 | 1049.86 | 325.43 | 1050.47 | 325.56 | 1052.46 | 325.9 |
| 1056.58 | 326.15 | 1057.64 | 326.2 | 1060.65 | 326.2 | 1065.41 | 326.3 | 1070.59 | 326.34 |
| 1073.18 | 326.42 | 1074.92 | 326.44 | 1081.03 | 326.47 | 1083.54 | 326.46 | 1086.13 | 326.48 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1088.72 | 326.55 | 1091.31 | 326.56 | 1096.49 | 326.67 | 1099.08 | 326.68 | 1101.4 | 326.66 |
| 1104.26 | 326.67 | 1106.85 | 326.65 | 1109.44 | 326.65 | 1111.59 | 326.63 | 1117.7 | 326.62 |
| 1119.74 | 326.59 | 1122.4 | 326.53 | 1124.99 | 326.5 | 1129.93 | 326.48 | 1135.35 | 326.4 |
| 1137.94 | 326.38 | 1140.12 | 326.28 | 1143.12 | 326.13 | 1146.23 | 325.93 | 1148.3 | 325.84 |
| 1153.48 | 325.68 | 1158.45 | 325.35 | 1166.14 | 324.68 | 1169.02 | 324.48 | 1174.2 | 323.92 |
| 1174.75 | 323.89 | 1179.39 | 323.43 | 1181.98 | 323.25 | 1184.57 | 323.42 | 1184.94 | 323.42 |
| 1187.16 | 323.31 | 1189.75 | 323.36 | 1194.93 | 323.44 | 1197.17 | 323.49 | 1200.11 | 323.49 |
| 1202.7 | 323.53 | 1205.29 | 323.53 | 1207.88 | 323.5 | 1209.39 | 323.46 | 1211.43 | 323.38 |
| 1213.46 | 323.28 | 1216.09 | 323.2 | | | | | | |

Manning's n Values num= 5

| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|---|---|---|---|
| 0 | .05 | 239.2 | .06 | 523.75 | .05 | 705.35 | .06 | 802 | .05 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 239.2 | 802 | 1050 | 1031 | 1000 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 2

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 311.38 | Element | | | |
| Vel Head (ft) | 0.77 | Wt. n-Val. | | 0.056 | 0.050 |
| W.S. Elev (ft) | 310.61 | Reach Len. (ft) | 1050.00 | 1031.00 | 1000.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 5168.65 | 265.15 |
| E.G. Slope (ft/ft) | 0.003665 | Area (sq ft) | | 5168.65 | 265.15 |
| Q Total (cfs) | 38000.00 | Flow (cfs) | | 36694.91 | 1305.09 |
| Top Width (ft) | 600.00 | Top Width (ft) | | 545.30 | 54.70 |
| Vel Total (ft/s) | 6.99 | Avg. Vel. (ft/s) | | 7.10 | 4.92 |
| Max Chl Dpth (ft) | 15.02 | Hydr. Depth (ft) | | 9.48 | 4.85 |
| Conv. Total (cfs) | 627656.6 | Conv. (cfs) | | 606100.1 | 21556.5 |
| Length Wtd. (ft) | 1030.37 | Wetted Per. (ft) | | 555.21 | 58.60 |
| Min Ch El (ft) | 295.59 | Shear (lb/sq ft) | | 2.13 | 1.04 |
| Alpha | 1.01 | Stream Power (lb/ft s) | | 15.12 | 5.10 |
| Frctn Loss (ft) | 2.26 | Cum Volume (acre-ft) | 11.73 | 385.62 | 64.68 |
| C & E Loss (ft) | 0.10 | Cum SA (acres) | 1.62 | 37.92 | 8.59 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: San Diego River
REACH: Reach 1 RS: 250

INPUT
Description: Survey Data (June 12, 2014), and proposed grading
Proposed
grading start at 737.45, n=0.04
Proposed PA-1 staton, n=0.15

In the non-disturbed area, Manning's coefficients are derived from the Corrected Effective Model.

Station Elevation Data num= 309

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 318.93 | 4.62 | 319.04 | 12.59 | 319.12 | 15.7 | 319.22 | 18.32 | 319.25 |
| 20.94 | 319.34 | 23.56 | 319.33 | 27.68 | 319.28 | 31.43 | 319.3 | 39.29 | 319.28 |
| 44.54 | 319.19 | 47.16 | 319.19 | 50.46 | 319.11 | 52.4 | 319.12 | 55.02 | 319.05 |
| 62.42 | 318.93 | 65.51 | 318.8 | 70.75 | 318.71 | 73.37 | 318.7 | 75.99 | 318.39 |
| 78.61 | 317.55 | 81.23 | 316.81 | 83.86 | 316.56 | 85.87 | 316.43 | 89.1 | 316.27 |
| 91.72 | 315.97 | 94.34 | 315.71 | 99.58 | 315.05 | 102.27 | 314.73 | 106.26 | 314.35 |
| 110.07 | 314.03 | 112.69 | 313.93 | 115.31 | 313.88 | 120.55 | 313.65 | 125.8 | 313.32 |
| 130.17 | 313.01 | 133.66 | 312.81 | 144.15 | 312.28 | 152.01 | 311.76 | 154.63 | 311.64 |
| 159.88 | 311.35 | 166.05 | 311.05 | 170.36 | 310.79 | 172.98 | 310.67 | 175.6 | 310.61 |
| 183.47 | 310.35 | 188.71 | 310.22 | 193.95 | 310.06 | 199.2 | 309.86 | 204.44 | 309.77 |
| 207.06 | 309.75 | 212.3 | 309.66 | 214.92 | 309.59 | 222.79 | 309.49 | 225.83 | 309.4 |
| 228.03 | 309.37 | 233.27 | 309.2 | 239.78 | 308.97 | 243.77 | 308.87 | 249 | 308.69 |
| 252.12 | 308.54 | 256.87 | 308.38 | 262.11 | 308.25 | 267.35 | 308.04 | 269.97 | 307.99 |
| 272.59 | 308.02 | 277.05 | 307.81 | 280.46 | 307.78 | 285.7 | 307.48 | 287.61 | 307.43 |
| 293.56 | 307.16 | 296.19 | 307.07 | 303.56 | 306.76 | 309.29 | 306.62 | 311.91 | 306.53 |
| 317.16 | 306.41 | 321.49 | 306.27 | 325.02 | 306.08 | 327.64 | 305.97 | 335.51 | 305.53 |
| 339.41 | 305.06 | 343.39 | 304.62 | 347.36 | 304.05 | 349.35 | 303.69 | 351.26 | 303.3 |
| 353.89 | 302.88 | 359.79 | 302.39 | 363.27 | 302.18 | 367.01 | 301.85 | 368 | 301.88 |
| 369.24 | 302.01 | 372.26 | 302.2 | 374.89 | 302.22 | 376.2 | 302.19 | 380.14 | 302.17 |
| 385.15 | 302.1 | 388.01 | 301.74 | 395.88 | 301.09 | 398.51 | 301.04 | 403.05 | 300.77 |
| 405.03 | 300.68 | 407.03 | 300.5 | 409 | 300.22 | 411.03 | 300.15 | 413.03 | 300.02 |
| 416.84 | 299.88 | 419.04 | 299.75 | 427.04 | 299.35 | 433 | 299.092 | 450.83 | 298.33 |
| 453.44 | 298.38 | 455.07 | 298.49 | 459.08 | 298.62 | 461.68 | 298.65 | 463.08 | 298.76 |
| 463.9 | 298.69 | 468.94 | 296.96 | 471.74 | 296.12 | 474.36 | 295.41 | 476.97 | 295.75 |
| 479.1 | 296.28 | 479.59 | 296.35 | 481.1 | 296.24 | 482.2 | 296.23 | 486.03 | 295.85 |
| 487.43 | 295.66 | 489.1 | 295.33 | 491.11 | 295.06 | 495.27 | 294.73 | 497.89 | 294.72 |
| 503.14 | 294.78 | 505.12 | 295.09 | 505.73 | 295.27 | 508.34 | 296.43 | 509.13 | 296.68 |
| 511.69 | 297.17 | 513.57 | 297.35 | 516.19 | 297.87 | 517.14 | 298 | 518.8 | 298.33 |
| 521.41 | 298.56 | 523.14 | 298.41 | 525.15 | 298.18 | 526.64 | 298.09 | 529.26 | 298.1 |
| 534.48 | 298.08 | 539.71 | 298.09 | 545.17 | 297.99 | 550.17 | 297.95 | 555.4 | 297.95 |
| 561.19 | 298.1 | 563.24 | 298.19 | 565.85 | 298.24 | 571.2 | 298.24 | 573.7 | 298.19 |
| 575.2 | 298.34 | 578.92 | 298.51 | 581.54 | 298.58 | 584.15 | 298.5 | 587.22 | 298.79 |
| 589.69 | 299.08 | 591.22 | 299.31 | 591.99 | 299.36 | 597.24 | 299.16 | 599.23 | 299.1 |
| 602.45 | 299.27 | 605.07 | 299.44 | 607.24 | 299.41 | 609.24 | 299.24 | 612.91 | 298.86 |
| 615.25 | 298.77 | 618.14 | 298.73 | 621.25 | 298.61 | 622.91 | 298.44 | 625.26 | 298.28 |
| 625.98 | 298.19 | 628.59 | 298.04 | 633.27 | 297.9 | 636.43 | 298.08 | 639.28 | 298.03 |
| 643.28 | 298.28 | 646.89 | 298.37 | 649.51 | 298.16 | 652.12 | 298.06 | 657.3 | 297.94 |
| 659.96 | 298.02 | 663.3 | 298.24 | 665.19 | 298.34 | 667.8 | 298.58 | 671.31 | 298.71 |
| 675.32 | 298.89 | 678.26 | 298.85 | 680.87 | 299.01 | 683.49 | 299.09 | 686.1 | 298.97 |
| 688.72 | 298.9 | 691.33 | 298.91 | 693.95 | 298.92 | 695.34 | 298.97 | 696.56 | 298.98 |
| 720.09 | 298.98 | 727.34 | 298.98 | 737.45 | 298.66 | 770.58 | 298 | 790.39 | 296.68 |
| 819.65 | 296.68 | 838.35 | 298 | 866.67 | 298 | 877.89 | 295.19 | 893.56 | 295.29 |
| 895.23 | 295.31 | 897.85 | 295.24 | 900.46 | 295.28 | 903.58 | 295.63 | 905.22 | 295.73 |
| 910.92 | 295.94 | 913.59 | 296.41 | 916.14 | 297.12 | 917.59 | 297.44 | 919.59 | 297.75 |
| 921.6 | 297.9 | 923.99 | 297.99 | 925.6 | 298.01 | 927.6 | 297.97 | 929.21 | 297.87 |
| 931.52 | 298 | 938.6 | 300 | 951.75 | 300 | 960.67 | 298 | 1002.48 | 298 |
| 1013.9 | 299.754 | 1015.5 | 300 | 1042.19 | 300 | 1062.53 | 300 | 1066.39 | 300 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1066.39 | 307 | 1069.81 | 308 | 1073.81 | 310 | 1077.8 | 312 | 1081.81 | 314 | | |
| 1085.26 | 315.5 | 1156.32 | 315.5 | 1174.31 | 313.9 | 1229.4 | 315.3 | 1314.98 | 315.3 | | |
| 1340.67 | 314 | 1360.7 | 315.6 | 1437.02 | 316 | 1438.65 | 315 | 1440.5 | 315 | | |
| 1440.5 | 313 | 1441.58 | 313.18 | 1442.19 | 313.32 | 1444.19 | 313.97 | 1446.81 | 315.54 | | |
| 1449.42 | 316.75 | 1450.2 | 317.15 | 1452.04 | 318.28 | 1454.2 | 319.78 | 1456.21 | 320.92 | | |
| 1457.27 | 321.44 | 1458.21 | 321.98 | 1459.26 | 322.81 | 1460.21 | 323.42 | 1461.29 | 324.41 | | |
| 1462.21 | 325.51 | 1462.49 | 325.67 | 1464.21 | 328.1 | 1465.11 | 329.25 | 1466.22 | 330.23 | | |
| 1466.79 | 330.34 | 1467.72 | 330.86 | 1472.95 | 330.98 | 1478.18 | 331 | 1480.79 | 331.06 | | |
| 1484.24 | 330.97 | 1486.96 | 330.94 | 1491.25 | 331 | 1496.48 | 331.12 | 1499.09 | 331.05 | | |
| 1504.26 | 331.03 | 1506.26 | 331 | 1509.55 | 331 | 1517.39 | 330.94 | 1520.28 | 330.84 | | |
| 1527.85 | 330.78 | 1533.07 | 330.72 | 1540.92 | 330.69 | 1546.14 | 330.72 | 1550.31 | 330.69 | | |
| 1552.31 | 330.73 | 1553.99 | 330.71 | 1556.32 | 330.6 | 1559.22 | 330.53 | 1561.83 | 330.37 | | |
| 1564.44 | 330.28 | 1569.67 | 330.19 | 1574.9 | 329.93 | 1580.13 | 329.81 | 1588.36 | 329.23 | | |
| 1590.36 | 329.13 | 1594.36 | 328.79 | 1595.81 | 328.72 | 1598.43 | 328.47 | 1601.04 | 327.93 | | |
| 1603.66 | 327.44 | 1606.27 | 327.22 | 1608.38 | 327.22 | 1611.64 | 327.26 | | | | |

Manning's n Values num= 7

| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|---|---|---|---|
| 0 | .05 | 433 | .06 | 737.45 | .04 | 877.89 | .06 | 931.52 | .04 |
| 1085.26 | .15 | 1441.58 | .05 | | | | | | |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 433 | 1013.9 | 700 | 701 | 615 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 2

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 309.02 | Element | | | |
| Vel Head (ft) | 0.45 | Wt. n-Val. | 0.050 | 0.050 | 0.040 |
| W.S. Elev (ft) | 308.57 | Reach Len. (ft) | 700.00 | 701.00 | 615.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 572.01 | 6219.83 | 326.88 |
| E.G. Slope (ft/ft) | 0.001456 | Area (sq ft) | 572.01 | 6219.83 | 326.88 |
| Q Total (cfs) | 38000.00 | Flow (cfs) | 2366.02 | 33938.30 | 1695.69 |
| Top Width (ft) | 695.00 | Top Width (ft) | 76.00 | 580.90 | 38.10 |
| Vel Total (ft/s) | 5.34 | Avg. Vel. (ft/s) | 4.14 | 5.46 | 5.19 |
| Max Chl Dpth (ft) | 13.85 | Hydr. Depth (ft) | 7.53 | 10.71 | 8.58 |
| Conv. Total (cfs) | 995840.8 | Conv. (cfs) | 62004.6 | 889398.4 | 44437.8 |
| Length Wtd. (ft) | 698.94 | Wetted Per. (ft) | 82.11 | 583.67 | 46.69 |
| Min Ch El (ft) | 294.72 | Shear (lb/sq ft) | 0.63 | 0.97 | 0.64 |
| Alpha | 1.01 | Stream Power (lb/ft s) | 2.62 | 5.29 | 3.30 |
| Frctn Loss (ft) | 1.94 | Cum Volume (acre-ft) | 4.84 | 250.85 | 57.89 |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 0.70 | 24.60 | 7.52 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: San Diego River

REACH: Reach 1 RS: 245

INPUT
Description: Survey Data (June 12, 2014), and proposed grading-Proposed grading
starts at station 1373.16
In the non-disturbed area, Manning's
coefficients are derived from the Corrected Effective Model.
Station Elevation Data num= 428

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 332 | 2.84 | 332.19 | 5.61 | 331.73 | 8.38 | 331.47 | 11.15 | 331.35 |
| 13.91 | 331.34 | 16.68 | 331.19 | 22.22 | 331.11 | 27.76 | 330.97 | 36.57 | 330.92 |
| 47.13 | 330.62 | 52.67 | 330.54 | 55.44 | 330.59 | 58.21 | 330.86 | 60.98 | 331.66 |
| 63.74 | 332.05 | 66.51 | 331.88 | 72.05 | 331.1 | 74.82 | 331.13 | 78.38 | 331.34 |
| 80.35 | 331.62 | 83.47 | 331.43 | 85.89 | 330.53 | 88.66 | 328.99 | 91.43 | 328.22 |
| 94.2 | 326.76 | 96.6 | 325.29 | 98.48 | 324.29 | 102.5 | 322.5 | 105.27 | 322.02 |
| 110.81 | 321.97 | 122.87 | 321.76 | 138.49 | 321.39 | 146.79 | 321.17 | 157.87 | 320.93 |
| 160.64 | 320.84 | 180.01 | 320.7 | 182.9 | 320.72 | 193.86 | 320.68 | 204.93 | 320.51 |
| 218.77 | 320.18 | 224.18 | 320.09 | 232.61 | 319.89 | 246.45 | 319.6 | 263.06 | 319.16 |
| 267.33 | 319.1 | 274.14 | 318.93 | 279.67 | 319.02 | 282.44 | 318.94 | 287.98 | 319.34 |
| 290.75 | 319.66 | 296.28 | 319.88 | 299.05 | 320.09 | 304.59 | 320.63 | 310.13 | 320.93 |
| 315.66 | 321.01 | 317.04 | 320.71 | 323.97 | 318.15 | 327.36 | 317.19 | 329.5 | 317.06 |
| 332.27 | 317.08 | 357.38 | 317 | 368.26 | 316.94 | 382.1 | 316.9 | 386.89 | 316.81 |
| 393.17 | 316.75 | 398.65 | 316.84 | 407.02 | 316.8 | 415.32 | 316.63 | 427.63 | 316.42 |
| 431.93 | 316.38 | 458.69 | 315.94 | 462.56 | 315.75 | 467.92 | 315.56 | 470.69 | 315.66 |
| 476.22 | 315.73 | 484.53 | 315.91 | 487.3 | 315.91 | 491.66 | 316.05 | 496.21 | 316.07 |
| 509.44 | 316.44 | 514.98 | 316.44 | 520.52 | 316.71 | 523.29 | 316.79 | 526.05 | 316.64 |
| 528.1 | 316.82 | 537.13 | 316.66 | 539.36 | 316.75 | 542.66 | 316.7 | 556.51 | 316.75 |
| 567.58 | 316.72 | 570.35 | 316.78 | 578.65 | 316.84 | 581.42 | 316.78 | 586.96 | 316.96 |
| 590.62 | 316.81 | 591.89 | 316.86 | 595.26 | 317.4 | 602.26 | 317.7 | 603.57 | 317.54 |
| 608.08 | 316.74 | 617.41 | 316.59 | 622.95 | 316.31 | 628.48 | 316.16 | 629.41 | 315.13 |
| 631.37 | 310.13 | 633.16 | 306.96 | 634.02 | 305.95 | 636.79 | 305.58 | 639.56 | 304.94 |
| 645.09 | 304.22 | 647.86 | 304.06 | 653.4 | 304.17 | 655.7 | 304.089 | 659.43 | 303.85 |
| 661.7 | 303.59 | 666.93 | 303.22 | 670.01 | 302.56 | 672.56 | 302.12 | 676.31 | 301.19 |
| 681.08 | 299.79 | 686.62 | 298.64 | 693.2 | 297.84 | 695.4 | 297.65 | 698.83 | 297.15 |
| 701.22 | 296.89 | 704.46 | 296.87 | 706.33 | 296.77 | 711.53 | 296.66 | 717.07 | 296.31 |
| 719.84 | 296.21 | 722.61 | 296.46 | 725.09 | 296.35 | 728.84 | 296.63 | 730.91 | 296.98 |
| 736.45 | 296.78 | 740.1 | 296.9 | 747.61 | 296.93 | 749.48 | 297 | 751.36 | 296.92 |
| 755.11 | 296.59 | 758.59 | 296.54 | 761.36 | 296.61 | 766.37 | 296.48 | 769.67 | 296.55 |
| 771.99 | 296.2 | 773.87 | 295.68 | 775.75 | 295.39 | 777.97 | 295.44 | 780.74 | 295.95 |
| 783.51 | 296.63 | 785.13 | 296.61 | 788.88 | 296.38 | 791.81 | 296.51 | 794.51 | 296.75 |
| 797.35 | 297.11 | 800.12 | 297.15 | 802.01 | 296.98 | 803.89 | 297.03 | 805.99 | 297.36 |
| 808.42 | 297.47 | 811.82 | 297.32 | 818.9 | 296.76 | 825.03 | 296.92 | 827.8 | 296.77 |
| 830.57 | 295.86 | 835.1 | 295.52 | 843.29 | 295.61 | 847.04 | 295.56 | 849.95 | 295.74 |
| 858.25 | 296.46 | 863.92 | 297.64 | 866.56 | 298.01 | 871.43 | 298.2 | 880.4 | 298.09 |
| 882.68 | 298.15 | 885.94 | 297.99 | 888.7 | 297.4 | 891.47 | 296.65 | 894.24 | 294.91 |
| 897.01 | 292.78 | 899.78 | 291.77 | 901.44 | 291.49 | 904.95 | 291.1 | 908.95 | 291.11 |
| 910.85 | 291.03 | 919.16 | 291.38 | 924.69 | 291.73 | 927.46 | 292.07 | 930.23 | 292.55 |
| 933 | 292.91 | 938.53 | 293.22 | 941.3 | 293.57 | 944.6 | 293.75 | 949.61 | 294.29 |
| 952.1 | 294.81 | 955.14 | 295.33 | 960.68 | 296.05 | 966.22 | 296.28 | 968.99 | 296.5 |
| 971.75 | 296.56 | 980.06 | 296.47 | 982.83 | 296.5 | 985.87 | 296.35 | 991.13 | 296.54 |
| 993.9 | 296.58 | 1002.21 | 296.24 | 1007.74 | 295.79 | 1012.13 | 296.12 | 1015.89 | 296.33 |
| 1021.37 | 296.38 | 1027.19 | 296.13 | 1032.66 | 296.1 | 1035.43 | 296.16 | 1040.28 | 295.83 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1043.73 | 295.98 | 1049.27 | 295.7 | 1054.8 | 295.28 | 1060.34 | 295.51 | 1065.88 | 295.65 |
| 1068.65 | 295.89 | 1074.18 | 296.73 | 1076.95 | 296.71 | 1085.26 | 296.34 | 1088.02 | 296.28 |
| 1101.87 | 296.43 | 1107.4 | 296.07 | 1110.17 | 296 | 1115.32 | 296.16 | 1118.48 | 296.02 |
| 1121.24 | 296.25 | 1124.01 | 296.36 | 1126.78 | 296.28 | 1129.55 | 296.33 | 1137.85 | 296.69 |
| 1143.39 | 297.12 | 1146.16 | 297.68 | 1160.35 | 297.39 | 1165.54 | 297.2 | 1167.85 | 297.25 |
| 1173.84 | 297.03 | 1177.23 | 297.12 | 1184.92 | 297.09 | 1190.45 | 297.31 | 1195.99 | 297.19 |
| 1201.53 | 296.88 | 1209.12 | 296.24 | 1212.6 | 296.01 | 1220.9 | 295.67 | 1226.44 | 295.56 |
| 1234.75 | 294.97 | 1243.05 | 294.53 | 1248.59 | 294.5 | 1254.21 | 294.22 | 1259.66 | 294.29 |
| 1261.65 | 294.84 | 1263.53 | 295.06 | 1267.96 | 295.29 | 1271.03 | 295.35 | 1273.5 | 295.72 |
| 1276.66 | 295.67 | 1279.04 | 295.4 | 1281.81 | 295.43 | 1287.7 | 295.836 | 1292.88 | 295.97 |
| 1295.42 | 295.86 | 1298.42 | 295.89 | 1301.18 | 296.15 | 1304.8 | 295.61 | 1306.72 | 295.44 |
| 1309.49 | 295.37 | 1312.26 | 295.62 | 1314.18 | 296.05 | 1317.79 | 296.63 | 1320.56 | 297.38 |
| 1325.44 | 297.46 | 1328.87 | 297.78 | 1331.64 | 297.63 | 1337.17 | 297.01 | 1339.94 | 297.08 |
| 1342.71 | 297.44 | 1346.08 | 297.33 | 1348.25 | 297.45 | 1351.01 | 298.15 | 1356.55 | 300.77 |
| 1359.32 | 301.34 | 1362.09 | 301.39 | 1364.86 | 301.25 | 1368.59 | 300.94 | 1373.16 | 300.46 |
| 1381.47 | 299.84 | 1387 | 299.65 | 1393.96 | 299.72 | 1399.37 | 300 | 1400.01 | 301.39 |
| 1411.74 | 302.1 | 1429.9 | 310 | 1436.51 | 312 | 1508.82 | 312 | 1526.87 | 312.1 |
| 1555.9 | 313.1 | 1593.3 | 313.1 | 1636.57 | 312.8 | 1640.47 | 314.6 | 1700.95 | 314.6 |
| 1728.04 | 314.2 | 1771.31 | 314.2 | 1843.95 | 313.8 | 1845.34 | 315.71 | 1853.75 | 317.19 |
| 1858.25 | 318.37 | 1860.39 | 319.21 | 1863.16 | 320.56 | 1865.4 | 322.04 | 1871.22 | 326.19 |
| 1873.26 | 327.09 | 1874.23 | 327.69 | 1877.01 | 329.75 | 1879.77 | 331.55 | 1882.64 | 333.1 |
| 1885.3 | 334.05 | 1888.07 | 334.39 | 1893.61 | 334.27 | 1895.77 | 334.34 | 1901.91 | 334.27 |
| 1907.03 | 334.3 | 1912.99 | 334.09 | 1918.52 | 334.13 | 1924.06 | 333.97 | 1929.6 | 333.97 |
| 1937.9 | 333.91 | 1955.81 | 333.89 | 1960.05 | 333.76 | 1964.35 | 333.72 | 1968.35 | 333.47 |
| 1973.89 | 332.63 | 1979.43 | 331.73 | 1985.82 | 331.12 | 1987.73 | 331 | 1993.45 | 330.46 |
| 1996.04 | 330.33 | 2004.34 | 330.65 | 2009.88 | 330.75 | 2018.18 | 330.91 | 2025.22 | 330.99 |
| 2034.79 | 331 | 2040.33 | 330.93 | 2045.87 | 330.91 | 2048.63 | 330.8 | 2051.66 | 330.78 |
| 2057.11 | 330.57 | 2059.71 | 330.69 | 2066.49 | 331.27 | 2070.78 | 331.72 | 2079.09 | 332.37 |
| 2087.39 | 333.11 | 2092.76 | 333.34 | 2098.23 | 333.4 | 2101.23 | 333.5 | 2109.54 | 333.38 |
| 2115.27 | 333.52 | 2124.65 | 333.5 | 2127.33 | 333.59 | 2135.91 | 333.6 | 2139.99 | 333.73 |
| 2145.29 | 333.81 | 2148.29 | 334.13 | 2151.06 | 334 | 2156.6 | 334.06 | 2170.44 | 334.65 |
| 2173.21 | 335.34 | 2175.98 | 337.02 | 2178.75 | 338.58 | 2181.51 | 339.28 | 2192.59 | 339.58 |
| 2200.89 | 339.16 | 2206.43 | 338.83 | 2211.97 | 338.69 | 2217.5 | 338.73 | 2220.46 | 338.62 |
| 2228.58 | 338.57 | 2234.11 | 338.33 | 2239.09 | 338.3 | 2245.19 | 338 | 2250.35 | 337.65 |
| 2253.49 | 337.36 | 2257.85 | 336.81 | 2261.8 | 336.21 | 2267.03 | 335.65 | 2270.1 | 335.38 |
| 2272.87 | 334.97 | 2281.17 | 335.14 | 2283.94 | 335.09 | 2286.71 | 335.16 | 2290.31 | 335.15 |
| 2306.09 | 334.97 | 2308.86 | 334.88 | 2314.39 | 334.84 | 2319.93 | 334.69 | 2325.47 | 334.66 |
| 2331 | 334.5 | 2333.77 | 334.48 | 2342.08 | 334.25 | 2347.61 | 334.06 | 2350.38 | 334.05 |
| 2355.92 | 333.9 | 2361.04 | 333.71 | 2364.22 | 333.68 | 2369.76 | 333.72 | 2375.3 | 333.94 |
| 2383.45 | 334.18 | 2389.14 | 334.31 | 2400.21 | 334.27 | 2414.05 | 333.97 | 2416.82 | 334.07 |
| 2422.36 | 334.84 | 2424.83 | 335.33 | 2427.9 | 335.55 | 2432.33 | 335.68 | 2434.21 | 335.89 |
| 2441.74 | 336.53 | 2444.51 | 336.81 | 2450.04 | 337.19 | 2455.58 | 337.39 | 2462.35 | 337.43 |
| 2469.85 | 337.65 | 2474.96 | 337.45 | 2498.59 | 337.08 | | | | |

Manning's n Values num= 6

| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|---|---|---|---|
| 0 | .045 | 655.7 | .1 | 1287.7 | .11 | 1373.16 | .04 | 1508.82 | .15 |
| 1888.07 | .05 | | | | | | | | |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 655.7 | 1287.7 | 140.2 | 147.4 | 160 | .1 | .3 |

Ineffective Flow num= 2

| Sta L | Sta R | Elev | Permanent |
|---|---|---|---|
| 0 | 642 | 313.25 | F |
| 1371.7 | 2498.59 | 313.25 | F |

CROSS SECTION OUTPUT  Profile #PF 2

| | | | | | | |
|---|---|---|---|---|---|---|
| E.G. Elev (ft) | 307.07 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.56 | Wt. n-Val. | | 0.100 | 0.110 |
| W.S. Elev (ft) | 306.51 | Reach Len. (ft) | 140.20 | 147.40 | 160.00 |
| Crit W.S. (ft) | 300.98 | Flow Area (sq ft) | | 6310.95 | 41.43 |
| E.G. Slope (ft/ft) | 0.007285 | Area (sq ft) | | 6310.95 | 41.43 |
| Q Total (cfs) | 38000.00 | Flow (cfs) | | 37903.71 | 96.29 |
| Top Width (ft) | 605.00 | Top Width (ft) | | 601.10 | 3.90 |
| Vel Total (ft/s) | 5.98 | Avg. Vel. (ft/s) | | 6.01 | 2.32 |
| Max Chl Dpth (ft) | 15.48 | Hydr. Depth (ft) | | 10.50 | 10.62 |
| Conv. Total (cfs) | 445220.5 | Conv. (cfs) | | 444092.4 | 1128.1 |
| Length Wtd. (ft) | 147.42 | Wetted Per. (ft) | | 612.38 | 14.47 |
| Min Ch El (ft) | 291.03 | Shear (lb/sq ft) | | 4.69 | 1.30 |
| Alpha | 1.01 | Stream Power (lb/ft s) | | 28.15 | 3.03 |
| Frctn Loss (ft) | 0.72 | Cum Volume (acre-ft) | 0.24 | 150.02 | 55.29 |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 0.09 | 15.08 | 7.22 |

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

CROSS SECTION

RIVER: San Diego River
REACH: Reach 1  RS: 244

INPUT
Description: Begin Grading-West site-regrading starts at station 1160.21
 PA-1
  starts st Station 1221.2 manning = 0.15
Station Elevation Data  num=  50

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 312.5 | 104.5 | 308.1 | 201.3 | 303.9 | 207.8 | 307.1 | 216.5 | 307.1 |
| 237.5 | 311.6 | 319.8 | 312.8 | 335.5 | 307.7 | 367.8 | 307.6 | 459.7 | 307.8 |
| 508.9 | 294.9 | 585.6 | 293.1 | 617.1 | 292.2 | 638.9 | 293.1 | 772.1 | 293.3 |
| 888.2 | 294.6 | 935.1 | 293.5 | 960.1 | 296 | 1085.7 | 298.3 | 1160.21 | 301.08 |
| 1160.21 | 309 | 1162.4 | 310 | 1170.59 | 314 | 1173.4 | 314.5 | 1176.28 | 315.3 |
| 1182.66 | 315.26 | 1189.2 | 316 | 1198.08 | 316 | 1221.2 | 316 | 1237.79 | 315.57 |
| 1240.81 | 313 | 1261.99 | 312 | 1324.4 | 313.4 | 1364.6 | 313.8 | 1401.66 | 314.2 |
| 1444.79 | 314.2 | 1501.32 | 316 | 1507.4 | 318.78 | 1564.26 | 319 | 1579.2 | 316 |
| 1591.26 | 313.39 | 1618.49 | 327.9 | 1787.9 | 328.1 | 1896 | 326.7 | 1953.2 | 313.1 |
| 2022.1 | 315.9 | 2161 | 318.3 | 2292.6 | 325.1 | 2385.9 | 332.9 | 2498.4 | 333.7 |

Manning's n Values  num=  4

| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|---|---|

```
       0      .1   459.7    .065   960.1    .045  1221.2     .15

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         459.7   960.1            104.8   124.6     145             .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
       0   459.7   311.5       F
   960.1  2498.4   311.5       F

CROSS SECTION OUTPUT  Profile #PF 2

  E.G. Elev (ft)            306.33    Element                  Left OB    Channel   Right OB
  Vel Head (ft)               0.71    Wt. n-Val.                           0.065
  W.S. Elev (ft)            305.63    Reach Len. (ft)           35.00      35.00      35.00
  Crit W.S. (ft)            299.66    Flow Area (sq ft)                  5628.26
  E.G. Slope (ft/ft)      0.003488    Area (sq ft)                       5628.26
  Q Total (cfs)           38000.00    Flow (cfs)                        38000.00
  Top Width (ft)            492.11    Top Width (ft)                      492.11
  Vel Total (ft/s)            6.75    Avg. Vel. (ft/s)                      6.75
  Max Chl Dpth (ft)          13.43    Hydr. Depth (ft)                     11.44
  Conv. Total (cfs)       643396.7    Conv. (cfs)                       643396.7
  Length Wtd. (ft)           35.00    Wetted Per. (ft)                    503.31
  Min Ch El (ft)            292.20    Shear (lb/sq ft)                      2.44
  Alpha                       1.00    Stream Power (lb/ft s)               16.44
  Frctn Loss (ft)             0.16    Cum Volume (acre-ft)        0.24     129.82      55.21
  C & E Loss (ft)             0.02    Cum SA (acres)              0.09      13.23       7.22


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

BRIDGE


RIVER: San Diego River
REACH: Reach 1            RS: 243

INPUT
Description:
Distance from Upstream XS =      35
Deck/Roadway Width        =      55
Weir Coefficient          =     2.6
Upstream  Deck/Roadway Coordinates
    num=       2
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
   459.7     315   311.5   960.1     315   311.5

Upstream Bridge Cross Section Data
Station Elevation Data    num=      50
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0   312.5   104.5   308.1   201.3   303.9   207.8   307.1   216.5   307.1
   237.5   311.6   319.8   312.8   335.5   307.7   367.8   307.6   459.7   307.8
   508.9   294.9   585.6   293.1   617.1   292.2   638.9   293.1   772.1   293.3
```

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 888.2 | 294.6 | 935.1 | 293.5 | 960.1 | 296 | 1085.7 | 298.3 | 1160.21 | 301.08 | | |
| 1160.21 | 309 | 1162.4 | 310 | 1170.59 | 314 | 1173.4 | 314.5 | 1176.28 | 315.3 | | |
| 1182.66 | 315.26 | 1189.2 | 316 | 1198.08 | 316 | 1221.2 | 316 | 1237.79 | 315.57 | | |
| 1240.81 | 313 | 1261.99 | 312 | 1324.4 | 313.4 | 1364.6 | 313.8 | 1401.66 | 314.2 | | |
| 1444.79 | 314.2 | 1501.32 | 316 | 1507.4 | 318.78 | 1564.26 | 319 | 1579.2 | 316 | | |
| 1591.26 | 313.39 | 1618.49 | 327.9 | 1787.9 | 328.1 | 1896 | 326.7 | 1953.2 | 313.1 | | |
| 2022.1 | 315.9 | 2161 | 318.3 | 2292.6 | 325.1 | 2385.9 | 332.9 | 2498.4 | 333.7 | | |

Manning's n Values num= 4

| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|---|---|
| 0 | .1 | 459.7 | .065 | 960.1 | .045 | 1221.2 | .15 |

Bank Sta: Left Right Coeff Contr. Expan.

| | | | |
|---|---|---|---|
| 459.7 | 960.1 | .1 | .3 |

Ineffective Flow num= 2

| Sta L | Sta R | Elev | Permanent |
|---|---|---|---|
| 0 | 459.7 | 311.5 | F |
| 960.1 | 2498.4 | 311.5 | F |

Downstream Deck/Roadway Coordinates

num= 2

| Sta Hi Cord | Lo Cord | Sta Hi Cord | Lo Cord |
|---|---|---|---|
| 401 | 315 | 311.5 | 900.5 | 315 | 311.5 |

Downstream Bridge Cross Section Data

Station Elevation Data num= 35

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 316.8 | 112 | 313 | 208.4 | 309.6 | 275.7 | 312.9 | 401 | 311.6 |
| 456.4 | 294.1 | 515 | 292.1 | 549.1 | 291.7 | 573.4 | 293 | 615.3 | 292.5 |
| 683.3 | 294 | 754 | 293.8 | 833.8 | 293.1 | 848.7 | 292.9 | 881.7 | 298.9 |
| 900.5 | 309.6 | 933.7 | 309.6 | 993.7 | 311.6 | 1109.5 | 310.6 | 1250.9 | 313.9 |
| 1354.6 | 317.3 | 1496.3 | 321.3 | 1588.4 | 321.9 | 1606.6 | 328.4 | 1621 | 329.1 |
| 1637.1 | 321.6 | 1734 | 320.7 | 1900.1 | 316.2 | 2003.5 | 313.7 | 2112.3 | 317.6 |
| 2154.7 | 320.9 | 2210.3 | 328 | 2252.9 | 327.8 | 2328.2 | 325.6 | 2378.2 | 322.3 |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .1 | 401 | .065 | 900.5 | .045 |

Bank Sta: Left Right Coeff Contr. Expan.

| | | | |
|---|---|---|---|
| 401 | 900.5 | .3 | .5 |

Ineffective Flow num= 2

| Sta L | Sta R | Elev | Permanent |
|---|---|---|---|
| 0 | 401 | 313.25 | F |
| 900.5 | 2378.2 | 313.25 | F |

Upstream Embankment side slope = 0 horiz. to 1.0 vertical
Downstream Embankment side slope = 0 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow = .98
Elevation at which weir flow begins = 315
Energy head used in spillway design =
Spillway height used in design =

```
Weir crest shape                          = Broad Crested

Number of Piers =  5

Pier Data
Pier Station     Upstream=   543.2    Downstream=   484.3
Upstream     num=       2
    Width   Elev    Width   Elev
       7       0       7   311.5
Downstream     num=       2
    Width   Elev    Width   Elev
       7       0       7   311.5

Pier Data
Pier Station     Upstream=   626.6    Downstream=   567.7
Upstream     num=       2
    Width   Elev    Width   Elev
       7       0       7   311.5
Downstream     num=       2
    Width   Elev    Width   Elev
       7       0       7   311.5

Pier Data
Pier Station     Upstream=   709.9    Downstream=     651
Upstream     num=       2
    Width   Elev    Width   Elev
       7       0       7   311.5
Downstream     num=       2
    Width   Elev    Width   Elev
       7       0       7   311.5

Pier Data
Pier Station     Upstream=   793.2    Downstream=   734.3
Upstream     num=       2
    Width   Elev    Width   Elev
       7       0       7   311.5
Downstream     num=       2
    Width   Elev    Width   Elev
       7       0       7   311.5

Pier Data
Pier Station     Upstream=   876.6    Downstream=   817.7
Upstream     num=       2
    Width   Elev    Width   Elev
       7       0       7   311.5
Downstream     num=       2
    Width   Elev    Width   Elev
       7       0       7   311.5

Number of Bridge Coefficient Sets =  1

Low Flow Methods and Data
```

Energy
Selected Low Flow Methods = Highest Energy Answer

High Flow Method
Energy Only

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

BRIDGE OUTPUT Profile #PF 2

| | | | | |
|---|---|---|---|---|
| E.G. US. (ft) | 306.33 | Element | Inside BR US | Inside BR DS |
| W.S. US. (ft) | 305.63 | E.G. Elev (ft) | 306.16 | 305.77 |
| Q Total (cfs) | 38000.00 | W.S. Elev (ft) | 305.28 | 304.73 |
| Q Bridge (cfs) | 38000.00 | Crit W.S. (ft) | 300.00 | 300.00 |
| Q Weir (cfs) | | Max Chl Dpth (ft) | 13.08 | 13.03 |
| Weir Sta Lft (ft) | | Vel Total (ft/s) | 7.53 | 8.19 |
| Weir Sta Rgt (ft) | | Flow Area (sq ft) | 5047.84 | 4640.73 |
| Weir Submerg | | Froude # Chl | 0.37 | 0.44 |
| Weir Max Depth (ft) | | Specif Force (cu ft) | 37862.97 | 35770.82 |
| Min El Weir Flow (ft) | 315.00 | Hydr Depth (ft) | 11.08 | 10.69 |
| Min El Prs (ft) | 311.50 | W.P. Total (ft) | 583.57 | 552.83 |
| Delta EG (ft) | 0.81 | Conv. Total (cfs) | 486255.1 | 438194.0 |
| Delta WS (ft) | 1.00 | Top Width (ft) | 455.78 | 434.19 |
| BR Open Area (sq ft) | 7690.35 | Frctn Loss (ft) | 0.37 | 0.20 |
| BR Open Vel (ft/s) | 8.19 | C & E Loss (ft) | 0.02 | 0.04 |
| BR Sluice Coef | | Shear Total (lb/sq ft) | 3.30 | 3.94 |
| BR Sel Method | Energy only | Power Total (lb/ft s) | 24.83 | 32.27 |

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

CROSS SECTION

RIVER: San Diego River
REACH: Reach 1 RS: 242

INPUT
Description: Corrected Effective Geometry
Station Elevation Data num= 35

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 316.8 | 112 | 313 | 208.4 | 309.6 | 275.7 | 312.9 | 401 | 311.6 |
| 456.4 | 294.1 | 515 | 292.1 | 549.1 | 291.7 | 573.4 | 293 | 615.3 | 292.5 |
| 683.3 | 294 | 754 | 293.8 | 833.8 | 293.1 | 848.7 | 292.9 | 881.7 | 298.9 |
| 900.5 | 309.6 | 933.7 | 309.6 | 993.7 | 311.6 | 1109.5 | 310.6 | 1250.9 | 313.9 |
| 1354.6 | 317.3 | 1496.3 | 321.3 | 1588.4 | 321.9 | 1606.6 | 328.4 | 1621 | 329.1 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1637.1 | 321.6 | 1734 | 320.7 | 1900.1 | 316.2 | 2003.5 | 313.7 | 2112.3 | 317.6 |
| 2154.7 | 320.9 | 2210.3 | 328 | 2252.9 | 327.8 | 2328.2 | 325.6 | 2378.2 | 322.3 |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .1 | 401 | .065 | 900.5 | .045 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 401 | 900.5 | 165 | 224 | 270 | .3 | .5 |

Ineffective Flow num= 2

| Sta L | Sta R | Elev | Permanent |
|---|---|---|---|
| 0 | 401 | 313.25 | F |
| 900.5 | 2378.2 | 313.25 | F |

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | | |
|---|---|---|---|---|---|---|
| E.G. Elev (ft) | 305.52 | Element | Left OB | Channel | Right OB | |
| Vel Head (ft) | 0.90 | Wt. n-Val. | | 0.065 | | |
| W.S. Elev (ft) | 304.62 | Reach Len. (ft) | 165.00 | 224.00 | 270.00 | |
| Crit W.S. (ft) | 299.63 | Flow Area (sq ft) | | 4993.21 | | |
| E.G. Slope (ft/ft) | 0.004778 | Area (sq ft) | | 4993.21 | | |
| Q Total (cfs) | 38000.00 | Flow (cfs) | | 38000.00 | | |
| Top Width (ft) | 468.67 | Top Width (ft) | | 468.67 | | |
| Vel Total (ft/s) | 7.61 | Avg. Vel. (ft/s) | | 7.61 | | |
| Max Chl Dpth (ft) | 12.92 | Hydr. Depth (ft) | | 10.65 | | |
| Conv. Total (cfs) | 549728.9 | Conv. (cfs) | | 549728.9 | | |
| Length Wtd. (ft) | 232.26 | Wetted Per. (ft) | | 472.44 | | |
| Min Ch El (ft) | 291.70 | Shear (lb/sq ft) | | 3.15 | | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 23.99 | | |
| Frctn Loss (ft) | 0.94 | Cum Volume (acre-ft) | 0.24 | 115.59 | 55.21 | |
| C & E Loss (ft) | 0.11 | Cum SA (acres) | 0.09 | 11.93 | 7.22 | |

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: San Diego River
REACH: Reach 1 RS: 239

INPUT
Description: Corrected Effective Geometry
Station Elevation Data num= 34

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 314 | 87.1 | 311.2 | 151.3 | 308.5 | 183.2 | 306.4 | 215.4 | 304.6 |
| 241.3 | 303 | 280.1 | 296.8 | 314.7 | 293.9 | 339 | 292.9 | 379.6 | 294.4 |
| 403.2 | 292.6 | 425.4 | 293.1 | 463.7 | 294.4 | 483.9 | 291.8 | 506.5 | 290.7 |
| 551.3 | 292.7 | 620.7 | 293.2 | 628.9 | 295.7 | 642 | 299.6 | 662.4 | 296.3 |
| 712.8 | 296.7 | 745.9 | 295.3 | 808 | 296.4 | 955.9 | 298.3 | 1077.2 | 298.6 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1096.1 | 296.4 | 1143.4 | 295.9 | 1251.8 | 296.4 | 1289.9 | 298.8 | 1360.3 | 299.6 |
| 1377.5 | 302.7 | 1402.9 | 313.3 | 1426.5 | 325.9 | 1436.2 | 326.7 | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .1 | 241.3 | .065 | 642 | .045 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 241.3 | 642 | 385 | 413 | 515 | .1 | .3 |

Ineffective Flow num= 2

| Sta L | Sta R | Elev | Permanent |
|---|---|---|---|
| 0 | 201.8 | 313.25 | F |
| 906.2 | 1436.2 | 313.25 | F |

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | | |
|---|---|---|---|---|---|---|
| E.G. Elev (ft) | 304.46 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.67 | Wt. n-Val. | | 0.065 | 0.045 |
| W.S. Elev (ft) | 303.79 | Reach Len. (ft) | 385.00 | 413.00 | 515.00 |
| Crit W.S. (ft) | 299.62 | Flow Area (sq ft) | | 3923.15 | 1902.09 |
| E.G. Slope (ft/ft) | 0.003505 | Area (sq ft) | | 3923.15 | 1902.09 |
| Q Total (cfs) | 38000.00 | Flow (cfs) | | 24357.54 | 13642.46 |
| Top Width (ft) | 660.00 | Top Width (ft) | | 395.80 | 264.20 |
| Vel Total (ft/s) | 6.52 | Avg. Vel. (ft/s) | | 6.21 | 7.17 |
| Max Chl Dpth (ft) | 13.09 | Hydr. Depth (ft) | | 9.91 | 7.20 |
| Conv. Total (cfs) | 641885.9 | Conv. (cfs) | | 411441.2 | 230444.8 |
| Length Wtd. (ft) | 446.19 | Wetted Per. (ft) | | 399.25 | 270.65 |
| Min Ch El (ft) | 290.70 | Shear (lb/sq ft) | | 2.15 | 1.54 |
| Alpha | 1.01 | Stream Power (lb/ft s) | | 13.35 | 11.03 |
| Frctn Loss (ft) | 1.43 | Cum Volume (acre-ft) | 0.24 | 92.67 | 49.32 |
| C & E Loss (ft) | 0.04 | Cum SA (acres) | 0.09 | 9.71 | 6.40 |

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: San Diego River
REACH: Reach 1 RS: 230

INPUT
Description: Corrected Effective Geometry
Station Elevation Data num= 39

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 312 | 65.6 | 310.4 | 137.8 | 306.5 | 207.5 | 304.8 | 265.4 | 303.7 |
| 291.2 | 300.1 | 331.4 | 299.8 | 351.6 | 295.4 | 389 | 294.6 | 407.4 | 291.3 |
| 454.2 | 291.8 | 462.3 | 290.4 | 477.6 | 289.8 | 534.6 | 290.2 | 554.3 | 293.8 |
| 641.2 | 293.6 | 754.1 | 293.5 | 854.5 | 294.1 | 957 | 293.2 | 982.8 | 292.3 |
| 997.6 | 294.6 | 1024.6 | 297.5 | 1044.3 | 298.8 | 1136.2 | 298.2 | 1228.8 | 298 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1299.8 | 296 | 1370.7 | 296 | 1433 | 296.9 | 1442.5 | 299.6 | 1459.2 | 298.3 |
| 1470.3 | 296.6 | 1517.5 | 295 | 1523.6 | 297.2 | 1550.3 | 301.8 | 1578.7 | 304.4 |
| 1682 | 307.7 | 1783.3 | 310.7 | 1933.2 | 315.6 | 2031.8 | 320.6 | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .1 | 331.4 | .065 | 854.5 | .045 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 331.4 | 854.5 | 460 | 487 | 430 | .1 | .3 |

Ineffective Flow num= 2

| Sta L | Sta R | Elev | Permanent |
|---|---|---|---|
| 0 | 61.8 | 313.25 | F |
| 1233.8 | 2031.8 | 313.25 | F |

CROSS SECTION OUTPUT Profile #PF 2

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 303.00 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.55 | Wt. n-Val. | 0.100 | 0.065 | 0.045 |
| W.S. Elev (ft) | 302.44 | Reach Len. (ft) | 460.00 | 487.00 | 430.00 |
| Crit W.S. (ft) | 297.86 | Flow Area (sq ft) | 25.04 | 4888.45 | 1587.90 |
| E.G. Slope (ft/ft) | 0.002947 | Area (sq ft) | 25.04 | 4888.45 | 1587.90 |
| Q Total (cfs) | 38000.00 | Flow (cfs) | 32.67 | 26874.68 | 11092.65 |
| Top Width (ft) | 735.00 | Top Width (ft) | 9.60 | 523.10 | 202.30 |
| Vel Total (ft/s) | 5.84 | Avg. Vel. (ft/s) | 1.30 | 5.50 | 6.99 |
| Max Chl Dpth (ft) | 12.64 | Hydr. Depth (ft) | 2.61 | 9.35 | 7.85 |
| Conv. Total (cfs) | 699947.4 | Conv. (cfs) | 601.8 | 495022.7 | 204322.8 |
| Length Wtd. (ft) | 462.76 | Wetted Per. (ft) | 12.17 | 524.34 | 206.42 |
| Min Ch El (ft) | 289.80 | Shear (lb/sq ft) | 0.38 | 1.72 | 1.42 |
| Alpha | 1.04 | Stream Power (lb/ft s) | 0.49 | 9.43 | 9.89 |
| Frctn Loss (ft) | 0.94 | Cum Volume (acre-ft) | 0.13 | 50.89 | 28.69 |
| C & E Loss (ft) | 0.07 | Cum SA (acres) | 0.05 | 5.35 | 3.64 |

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: San Diego River
REACH: Reach 1 RS: 220

INPUT
Description: Corrected Effective Geometry
Station Elevation Data num= 43

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 324 | 93.8 | 319.7 | 217.1 | 314.8 | 297.3 | 308 | 374.5 | 304.6 |
| 393.2 | 301.5 | 420.3 | 299.8 | 439.7 | 295.9 | 465.5 | 296.2 | 484.2 | 299.8 |
| 534.9 | 296.3 | 649.9 | 293.8 | 675.5 | 292.1 | 713.9 | 292.3 | 756.2 | 290 |
| 798.1 | 288.8 | 821.5 | 289.8 | 922.4 | 289.9 | 957.7 | 292.4 | 1018 | 292.8 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1064.1 | 291.5 | 1181.5 | 291.6 | 1265.8 | 291.3 | 1290.2 | 294.1 | 1314.9 | 297 |
| 1364.7 | 297.1 | 1483.6 | 297 | 1523.5 | 296 | 1602.5 | 296 | 1626.8 | 297.7 |
| 1646.9 | 298.6 | 1670.2 | 296.6 | 1761.1 | 297.9 | 1817.3 | 299.2 | 1831.2 | 296.4 |
| 1867.1 | 295.6 | 1937.3 | 298.2 | 2007.5 | 300.4 | 2031.6 | 304.8 | 2049.2 | 303.8 |
| 2077.8 | 303.4 | 2093.8 | 308.1 | 2142.9 | 309.4 | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .1 | 484.2 | .065 | 957.7 | .045 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 484.2 | 957.7 | 0 | 0 | 0 .1 | .3 |

Ineffective Flow num= 2

| Sta L | Sta R | Elev | Permanent |
|---|---|---|---|
| 0 | 56 | 313.25 | F |
| 1681.8 | 2142.9 | 313.25 | F |

CROSS SECTION OUTPUT Profile #PF 2

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 301.99 | Element | | | |
| Vel Head (ft) | 0.33 | Wt. n-Val. | | 0.065 | 0.045 |
| W.S. Elev (ft) | 301.66 | Reach Len. (ft) | | | |
| Crit W.S. (ft) | 296.14 | Flow Area (sq ft) | | 4215.87 | 4224.02 |
| E.G. Slope (ft/ft) | 0.001490 | Area (sq ft) | | 4215.87 | 4224.02 |
| Q Total (cfs) | 38000.00 | Flow (cfs) | | 16793.57 | 21206.43 |
| Top Width (ft) | 970.00 | Top Width (ft) | | 434.80 | 535.20 |
| Vel Total (ft/s) | 4.50 | Avg. Vel. (ft/s) | | 3.98 | 5.02 |
| Max Chl Dpth (ft) | 12.86 | Hydr. Depth (ft) | | 9.70 | 7.89 |
| Conv. Total (cfs) | 984329.0 | Conv. (cfs) | | 435010.5 | 549318.5 |
| Length Wtd. (ft) | | Wetted Per. (ft) | | 439.63 | 540.45 |
| Min Ch El (ft) | 288.80 | Shear (lb/sq ft) | | 0.89 | 0.73 |
| Alpha | 1.04 | Stream Power (lb/ft s) | | 3.55 | 3.65 |
| Frctn Loss (ft) | | Cum Volume (acre-ft) | | | |
| C & E Loss (ft) | | Cum SA (acres) | | | |

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

SUMMARY OF REACH LENGTHS

River: San Diego River

| Reach | River Sta. | Left | Channel | Right |
|---|---|---|---|---|
| Reach 1 | 355 | 360 | 310 | 350 |
| Reach 1 | 345 | 400 | 335 | 125 |
| Reach 1 | 340 | 575 | 454 | 575 |
| Reach 1 | 330 | 620 | 588 | 620 |
| Reach 1 | 322 | Lat Struct | | |
| Reach 1 | 320 | 260 | 431 | 405 |

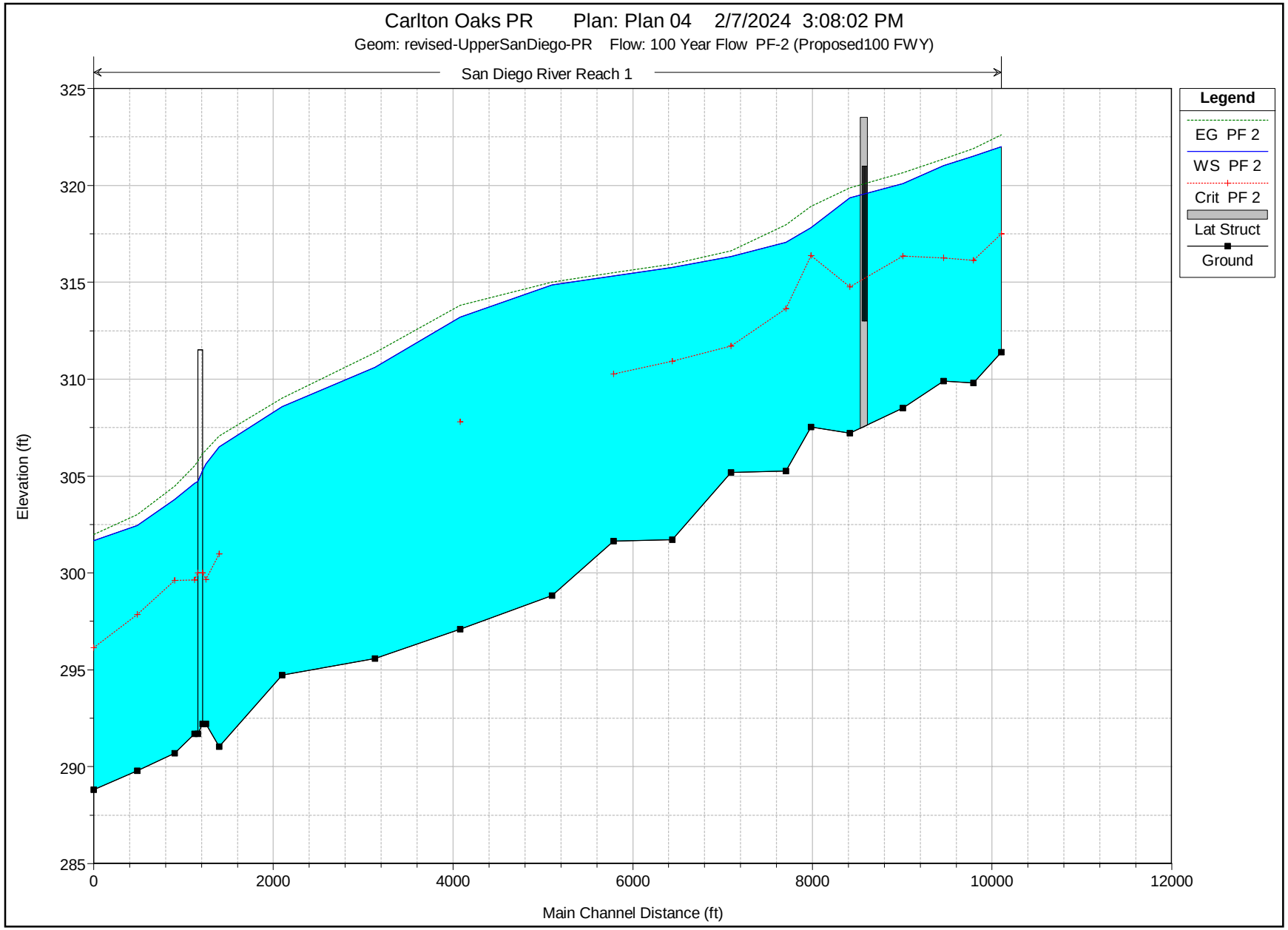
| | | | | |
|---|---|---|---|---|
| Reach 1 | 315 | 380 | 280 | 255 |
| Reach 1 | 310 | 610 | 610 | 640 |
| Reach 1 | 300 | 790 | 654 | 605 |
| Reach 1 | 290 | 695 | 653 | 645 |
| Reach 1 | 285 | 640 | 688 | 660 |
| Reach 1 | 280 | 1135 | 1021 | 1060 |
| Reach 1 | 270 | 1000 | 951 | 815 |
| Reach 1 | 260 | 1050 | 1031 | 1000 |
| Reach 1 | 250 | 700 | 701 | 615 |
| Reach 1 | 245 | 140.2 | 147.4 | 160 |
| Reach 1 | 244 | 104.8 | 124.6 | 145 |
| Reach 1 | 243 | Bridge | | |
| Reach 1 | 242 | 165 | 224 | 270 |
| Reach 1 | 239 | 385 | 413 | 515 |
| Reach 1 | 230 | 460 | 487 | 430 |
| Reach 1 | 220 | 0 | 0 | 0 |

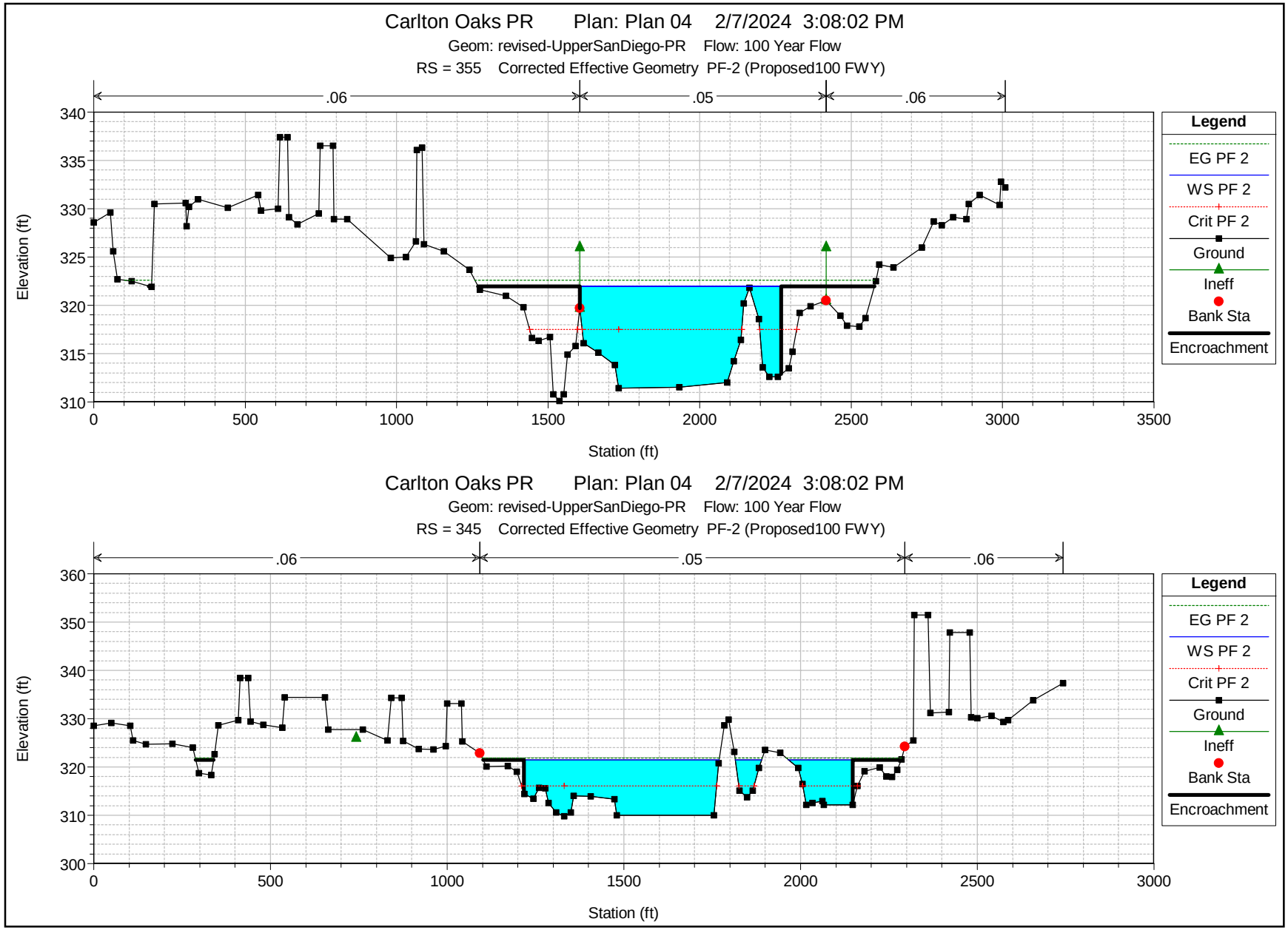
SUMMARY OF CONTRACTION AND EXPANSION COEFFICIENTS
River: San Diego River

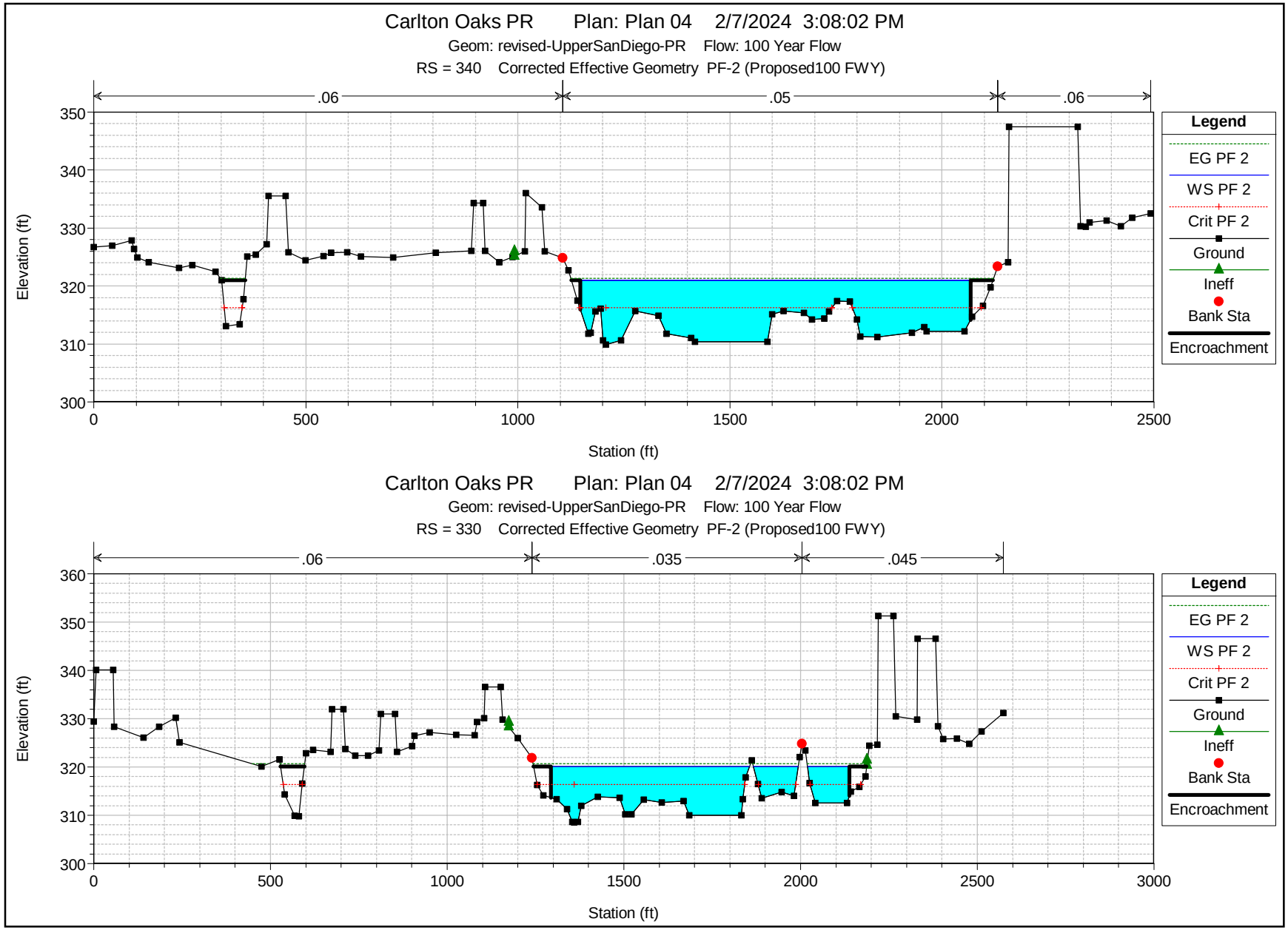
| Reach | River Sta. | Contr. | Expan. |
|---|---|---|---|
| Reach 1 | 355 | .1 | .3 |
| Reach 1 | 345 | .1 | .3 |
| Reach 1 | 340 | .1 | .3 |
| Reach 1 | 330 | .1 | .3 |
| Reach 1 | 322 | Lat Struct | |
| Reach 1 | 320 | .1 | .3 |
| Reach 1 | 315 | .1 | .3 |
| Reach 1 | 310 | .1 | .3 |
| Reach 1 | 300 | .1 | .3 |
| Reach 1 | 290 | .1 | .3 |
| Reach 1 | 285 | .1 | .3 |
| Reach 1 | 280 | .1 | .3 |
| Reach 1 | 270 | .1 | .3 |
| Reach 1 | 260 | .1 | .3 |
| Reach 1 | 250 | .1 | .3 |
| Reach 1 | 245 | .1 | .3 |
| Reach 1 | 244 | .1 | .3 |
| Reach 1 | 243 | Bridge | |
| Reach 1 | 242 | .3 | .5 |
| Reach 1 | 239 | .1 | .3 |
| Reach 1 | 230 | .1 | .3 |
| Reach 1 | 220 | .1 | .3 |

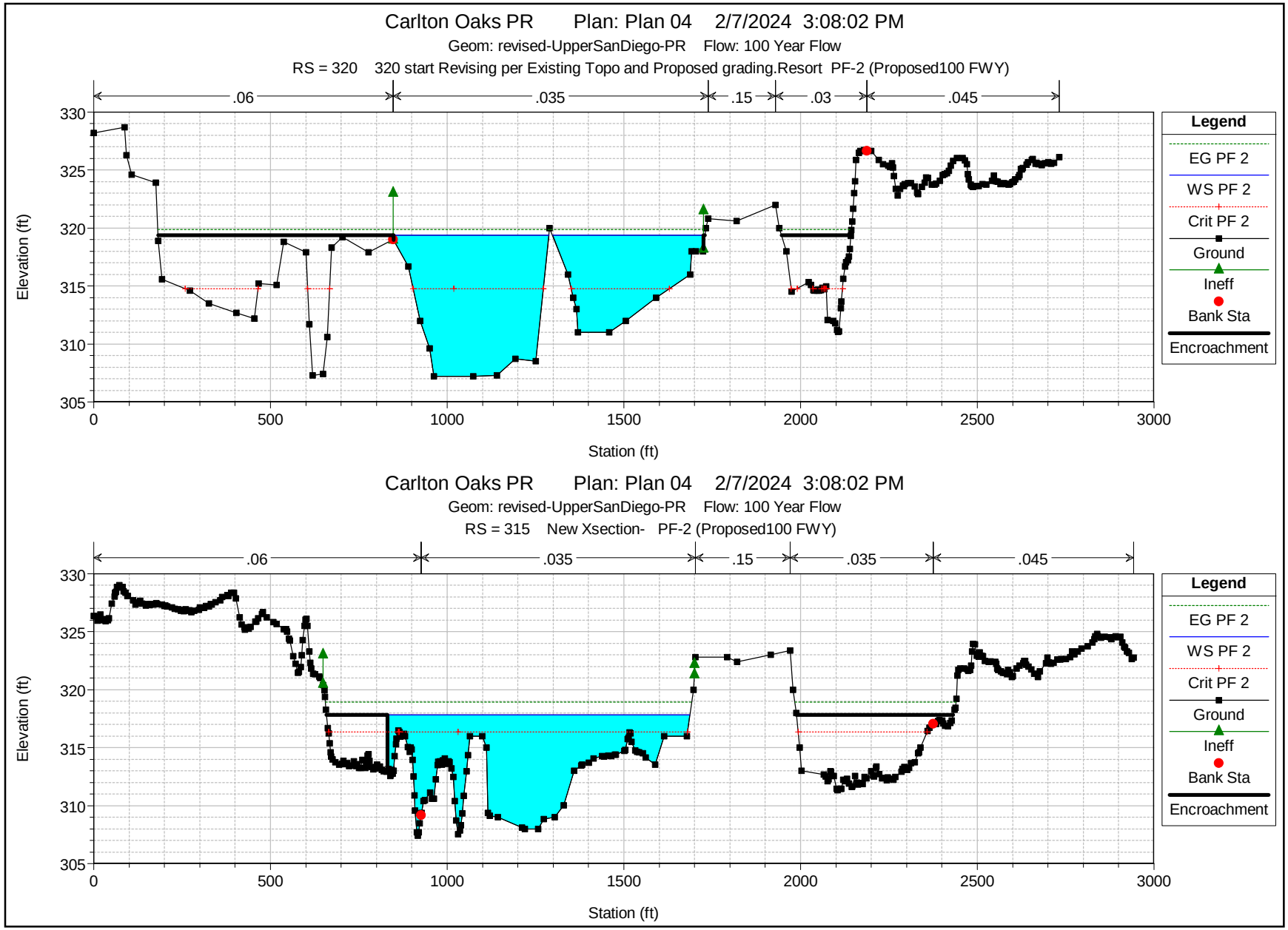
HEC-RAS Plan: NO Lateral flows River: San Diego River Reach: Reach 1 Profile: PF 2

| 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) | |
| Reach 1 | 220 | PF 2 | 38000.00 | 288.80 | 301.66 | 296.14 | 301.99 | 0.001490 | 3.98 | 8439.89 | 970.00 | 0.23 |
| Reach 1 | 230 | PF 2 | 38000.00 | 289.80 | 302.44 | 297.86 | 303.00 | 0.002947 | 5.50 | 6501.38 | 735.00 | 0.32 |
| Reach 1 | 239 | PF 2 | 38000.00 | 290.70 | 303.79 | 299.62 | 304.46 | 0.003505 | 6.21 | 5825.24 | 660.00 | 0.35 |
| Reach 1 | 242 | PF 2 | 38000.00 | 291.70 | 304.62 | 299.63 | 305.52 | 0.004778 | 7.61 | 4993.21 | 468.67 | 0.41 |
| Reach 1 | 243 | | Bridge | | | | | | | | | |
| Reach 1 | 244 | PF 2 | 38000.00 | 292.20 | 305.63 | 299.66 | 306.33 | 0.003488 | 6.75 | 5628.26 | 492.11 | 0.35 |
| Reach 1 | 245 | PF 2 | 38000.00 | 291.03 | 306.51 | 300.98 | 307.07 | 0.007285 | 6.01 | 6352.38 | 605.00 | 0.33 |
| Reach 1 | 250 | PF 2 | 38000.00 | 294.72 | 308.57 | | 309.02 | 0.001456 | 5.46 | 7118.72 | 695.00 | 0.29 |
| Reach 1 | 260 | PF 2 | 38000.00 | 295.59 | 310.61 | | 311.38 | 0.003665 | 7.10 | 5433.80 | 600.00 | 0.41 |
| Reach 1 | 270 | PF 2 | 37000.00 | 297.09 | 313.20 | 307.80 | 313.82 | 0.001871 | 6.30 | 5884.43 | 560.00 | 0.34 |
| Reach 1 | 280 | PF 2 | 37000.00 | 298.83 | 314.85 | | 315.02 | 0.000756 | 3.31 | 11170.51 | 1281.84 | 0.20 |
| Reach 1 | 285 | PF 2 | 37000.00 | 301.64 | 315.32 | 310.28 | 315.51 | 0.000658 | 3.41 | 10848.39 | 1435.00 | 0.22 |
| Reach 1 | 290 | PF 2 | 37000.00 | 301.71 | 315.76 | 310.94 | 315.95 | 0.000687 | 3.47 | 10670.26 | 1474.30 | 0.23 |
| Reach 1 | 300 | PF 2 | 37000.00 | 305.19 | 316.32 | 311.71 | 316.62 | 0.001516 | 4.45 | 8334.54 | 1086.40 | 0.28 |
| Reach 1 | 310 | PF 2 | 37000.00 | 305.25 | 317.05 | 313.63 | 317.96 | 0.002446 | 7.74 | 4911.11 | 700.62 | 0.51 |
| Reach 1 | 315 | PF 2 | 37000.00 | 307.53 | 317.83 | 316.37 | 318.92 | 0.004267 | 8.53 | 4554.74 | 855.97 | 0.64 |
| Reach 1 | 320 | PF 2 | 37000.00 | 307.20 | 319.36 | 314.77 | 319.86 | 0.001222 | 5.68 | 6519.30 | 866.31 | 0.36 |
| Reach 1 | 322 | | Lat Struct | | | | | | | | | |
| Reach 1 | 330 | PF 2 | 36000.00 | 308.50 | 320.09 | 316.35 | 320.65 | 0.001425 | 6.15 | 6098.96 | 807.58 | 0.39 |
| Reach 1 | 340 | PF 2 | 36000.00 | 309.90 | 321.01 | 316.26 | 321.36 | 0.001557 | 4.73 | 7606.01 | 920.00 | 0.29 |
| Reach 1 | 345 | PF 2 | 36000.00 | 309.80 | 321.51 | 316.13 | 321.90 | 0.001618 | 5.01 | 7180.65 | 809.96 | 0.30 |
| Reach 1 | 355 | PF 2 | 36000.00 | 311.40 | 321.98 | 317.49 | 322.60 | 0.002641 | 6.31 | 5705.00 | 664.90 | 0.38 |


Carlton Oaks PR Plan: Plan 04 2/7/2024 3:08:02 PM
Geom: revised-UpperSanDiego-PR Flow: 100 Year Flow PF-2 (Proposed100 FWY)
San Diego River Reach 1
Legend
EG PF 2
WS PF 2
Crit PF 2
Lat Struct
Ground
Elevation (ft)
325
320
315
310
305
300
295
290
285
0
2000
4000
6000
8000
10000
12000
Main Channel Distance (ft)


Carlton Oaks PR Plan: Plan 04 2/7/2024 3:08:02 PM
Geom: revised-UpperSanDiego-PR Flow: 100 Year Flow
RS = 355 Corrected Effective Geometry PF-2 (Proposed100 FWY)
.06
.05
.06
Elevation (ft)
340
335
330
325
320
315
310
0
500
1000
1500
2000
2500
3000
3500
Station (ft)
Legend
EG PF 2
WS PF 2
Crit PF 2
Ground
Ineff
Bank Sta
Encroachment
Carlton Oaks PR Plan: Plan 04 2/7/2024 3:08:02 PM
Geom: revised-UpperSanDiego-PR Flow: 100 Year Flow
RS = 345 Corrected Effective Geometry PF-2 (Proposed100 FWY)
.06
.05
.06
Elevation (ft)
360
350
340
330
320
310
300
0
500
1000
1500
2000
2500
3000
Station (ft)
Legend
EG PF 2
WS PF 2
Crit PF 2
Ground
Ineff
Bank Sta
Encroachment


Carlton Oaks PR Plan: Plan 04 2/7/2024 3:08:02 PM
Geom: revised-UpperSanDiego-PR Flow: 100 Year Flow
RS = 340 Corrected Effective Geometry PF-2 (Proposed100 FWY)
.06
.05
.06
Elevation (ft)
350
340
330
320
310
300
0
500
1000
1500
2000
2500
Station (ft)
Legend
EG PF 2
WS PF 2
Crit PF 2
Ground
Ineff
Bank Sta
Encroachment
Carlton Oaks PR Plan: Plan 04 2/7/2024 3:08:02 PM
Geom: revised-UpperSanDiego-PR Flow: 100 Year Flow
RS = 330 Corrected Effective Geometry PF-2 (Proposed100 FWY)
.06
.035
.045
Elevation (ft)
360
350
340
330
320
310
300
0
500
1000
1500
2000
2500
3000
Station (ft)
Legend
EG PF 2
WS PF 2
Crit PF 2
Ground
Ineff
Bank Sta
Encroachment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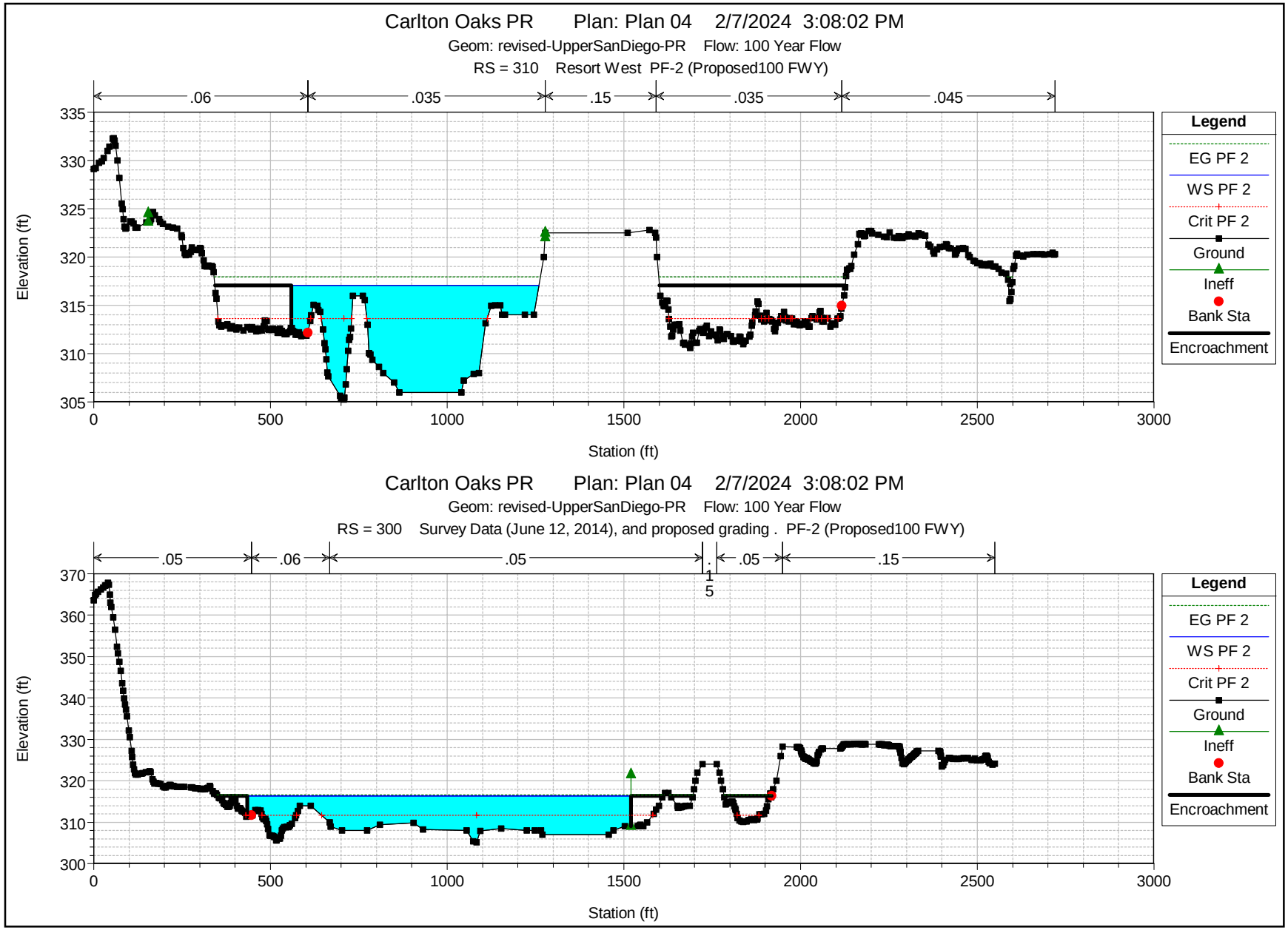
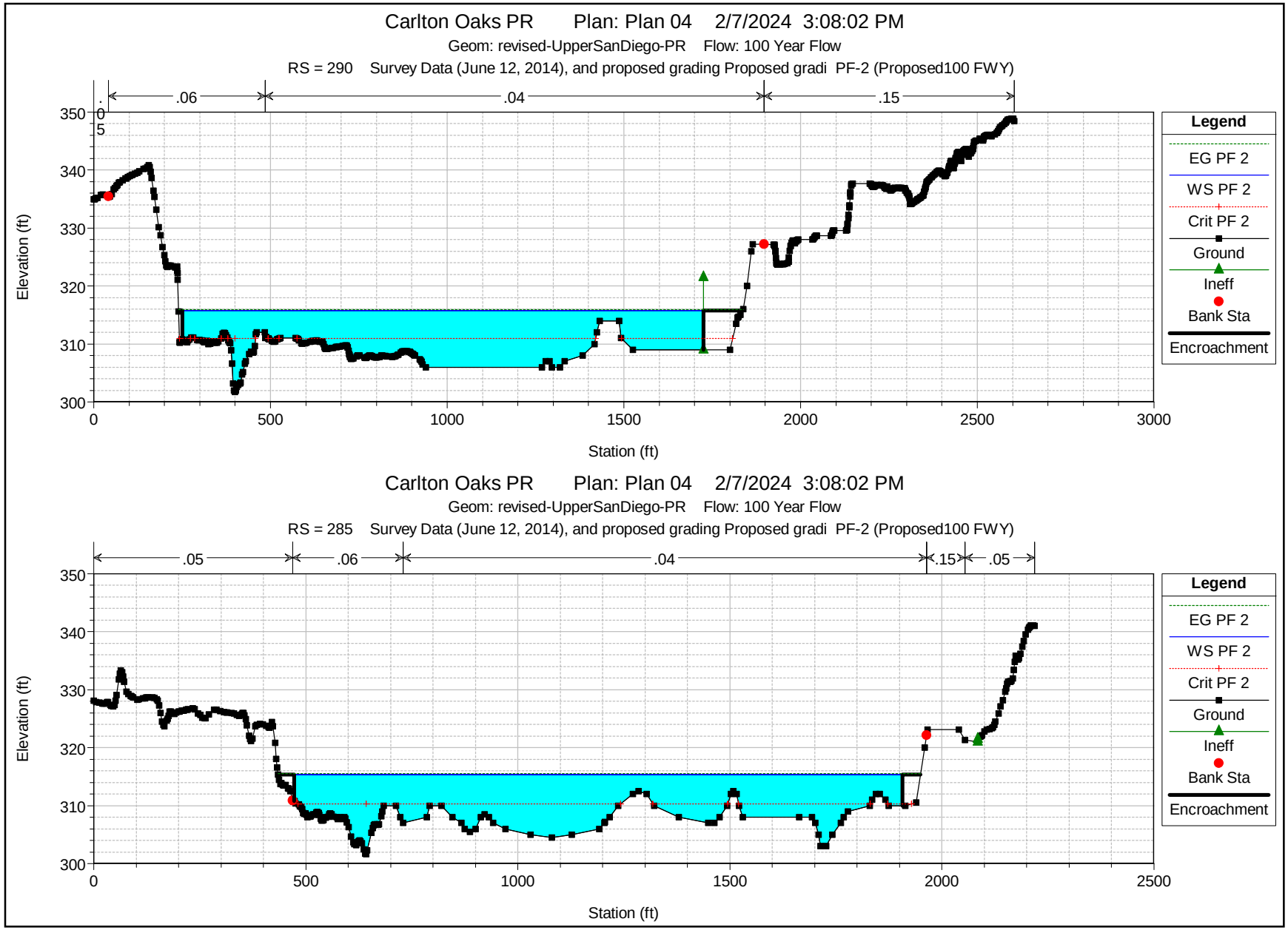
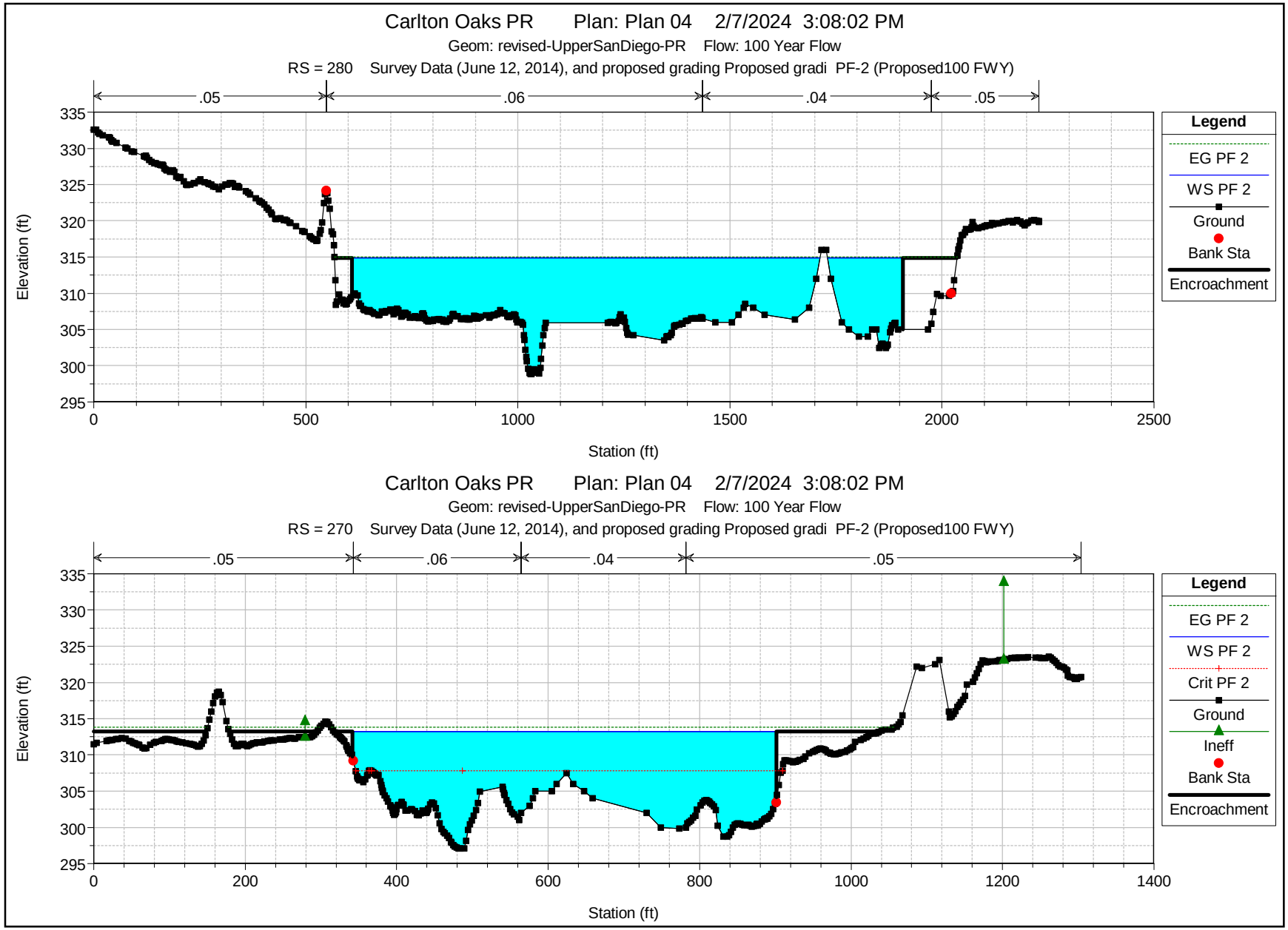
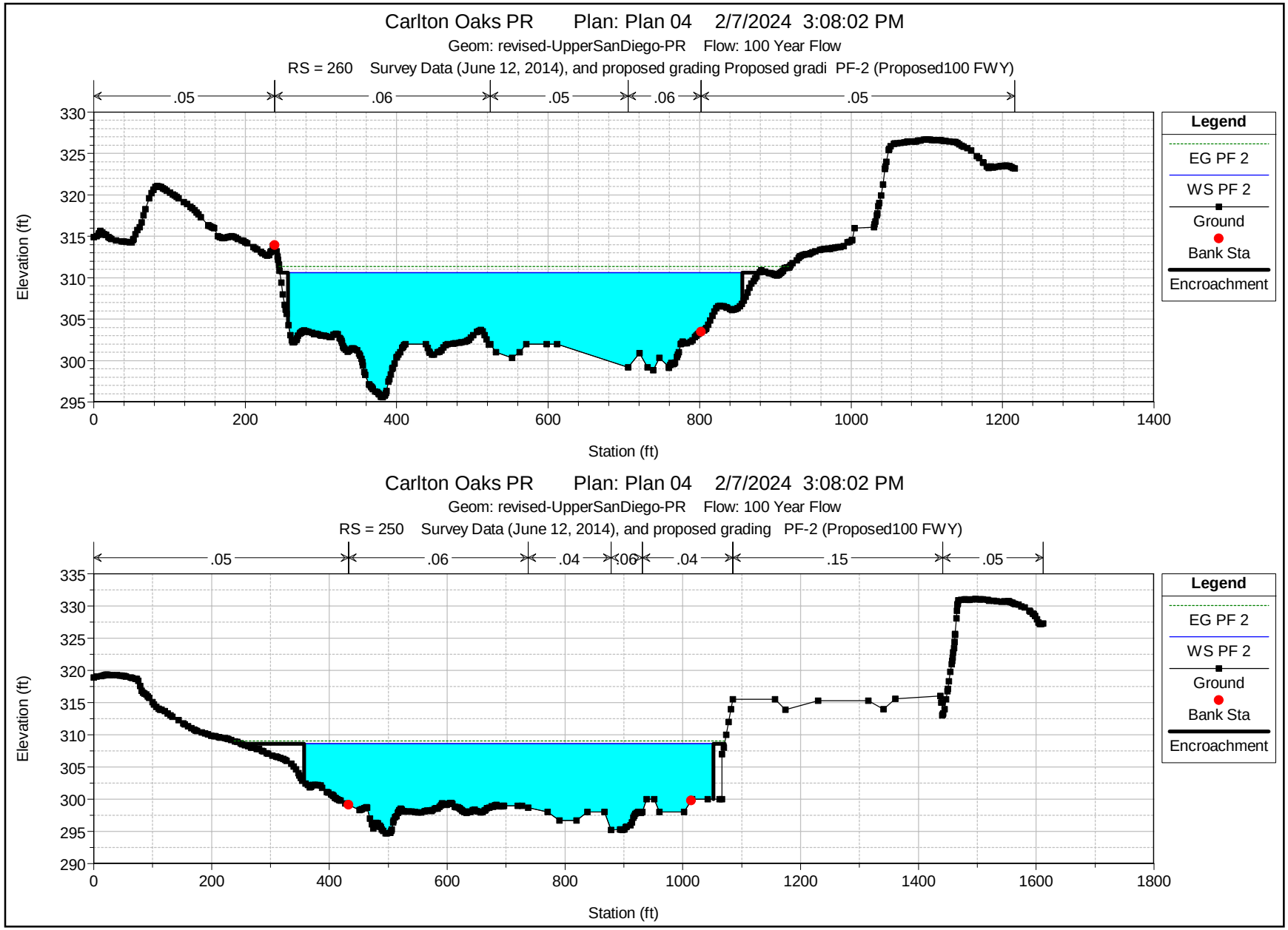
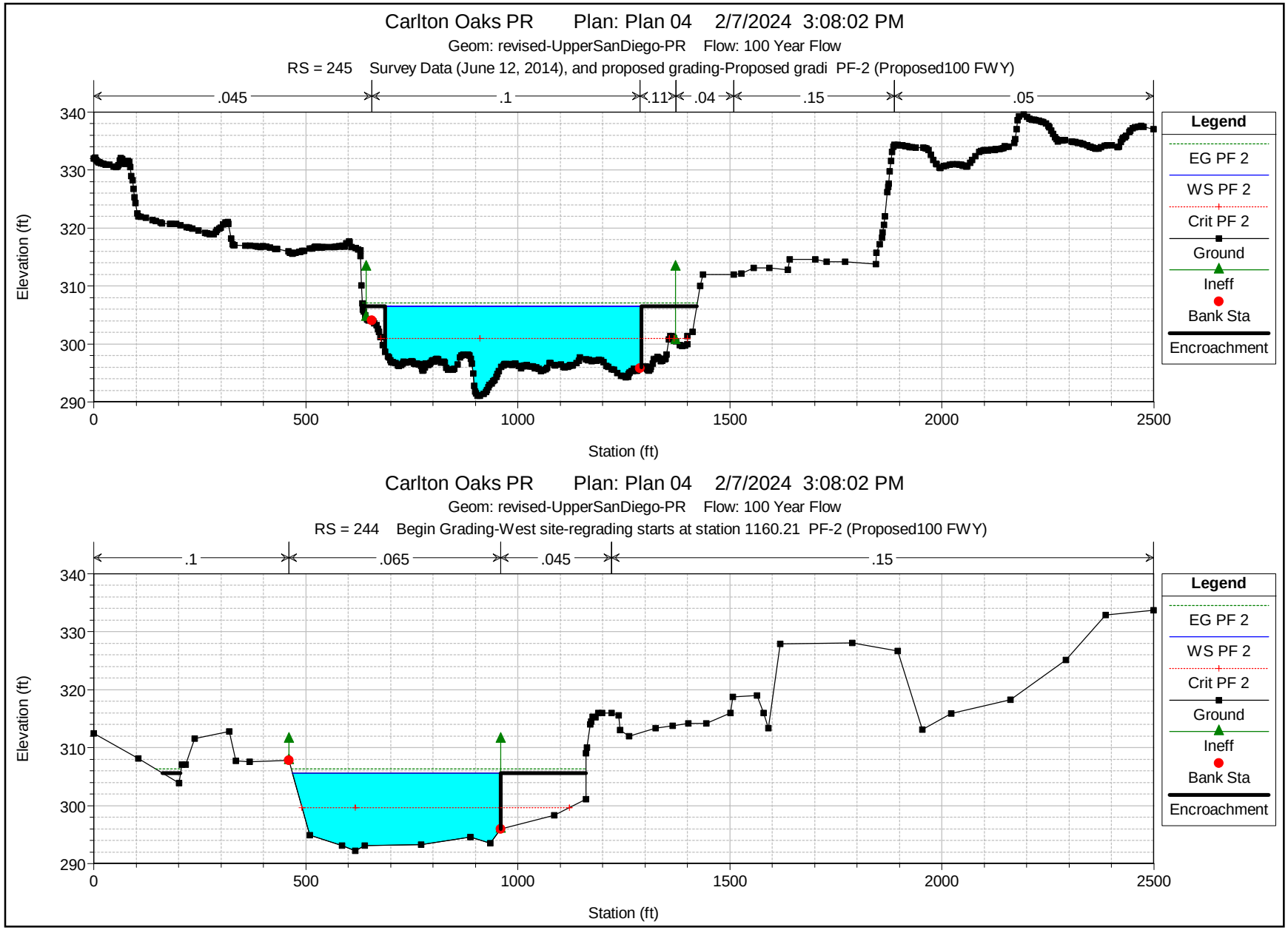
Geom: revised-UpperSanDiego-PR Flow: 100 Year Flow
RS = 320 320 start Revising per Existing Topo and Proposed grading.Resort PF-2 (Proposed100 FWY)
.06
.035
.15
.03
.045
Elevation (ft)
330
325
320
315
310
305
0
500
1000
1500
2000
2500
3000
Station (ft)
Legend
EG PF 2
WS PF 2
Crit PF 2
Ground
Ineff
Bank Sta
Encroachment
Carlton Oaks PR Plan: Plan 04 2/7/2024 3:08:02 PM
Geom: revised-UpperSanDiego-PR Flow: 100 Year Flow
RS = 315 New Xsection- PF-2 (Proposed100 FWY)
.06
.035
.15
.035
.045
Elevation (ft)
330
325
320
315
310
305
0
500
1000
1500
2000
2500
3000
Station (ft)
Legend
EG PF 2
WS PF 2
Crit PF 2
Ground
Ineff
Bank Sta
Encroachment

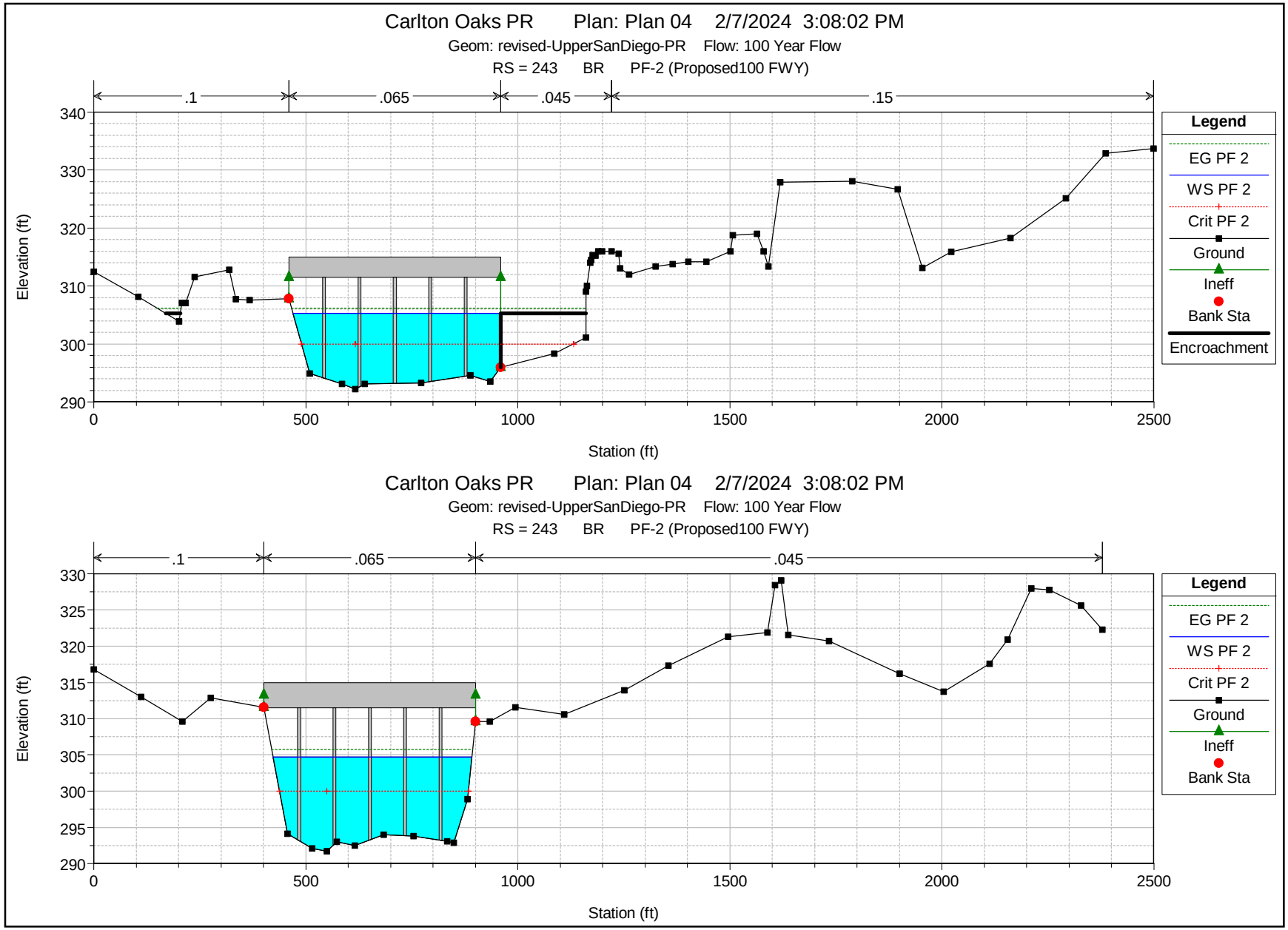

Carlton Oaks PR Plan: Plan 04 2/7/2024 3:08:02 PM
Geom: revised-UpperSanDiego-PR Flow: 100 Year Flow
RS = 310 Resort West PF-2 (Proposed100 FWY)
.06
.035
.15
.035
.045
Elevation (ft)
Station (ft)
Legend
EG PF 2
WS PF 2
Crit PF 2
Ground
Ineff
Bank Sta
Encroachment
Carlton Oaks PR Plan: Plan 04 2/7/2024 3:08:02 PM
Geom: revised-UpperSanDiego-PR Flow: 100 Year Flow
RS = 300 Survey Data (June 12, 2014), and proposed grading . PF-2 (Proposed100 FWY)
.05
.06
.05
.15
.05
.15
Elevation (ft)
Station (ft)
Legend
EG PF 2
WS PF 2
Crit PF 2
Ground
Ineff
Bank Sta
Encroachment

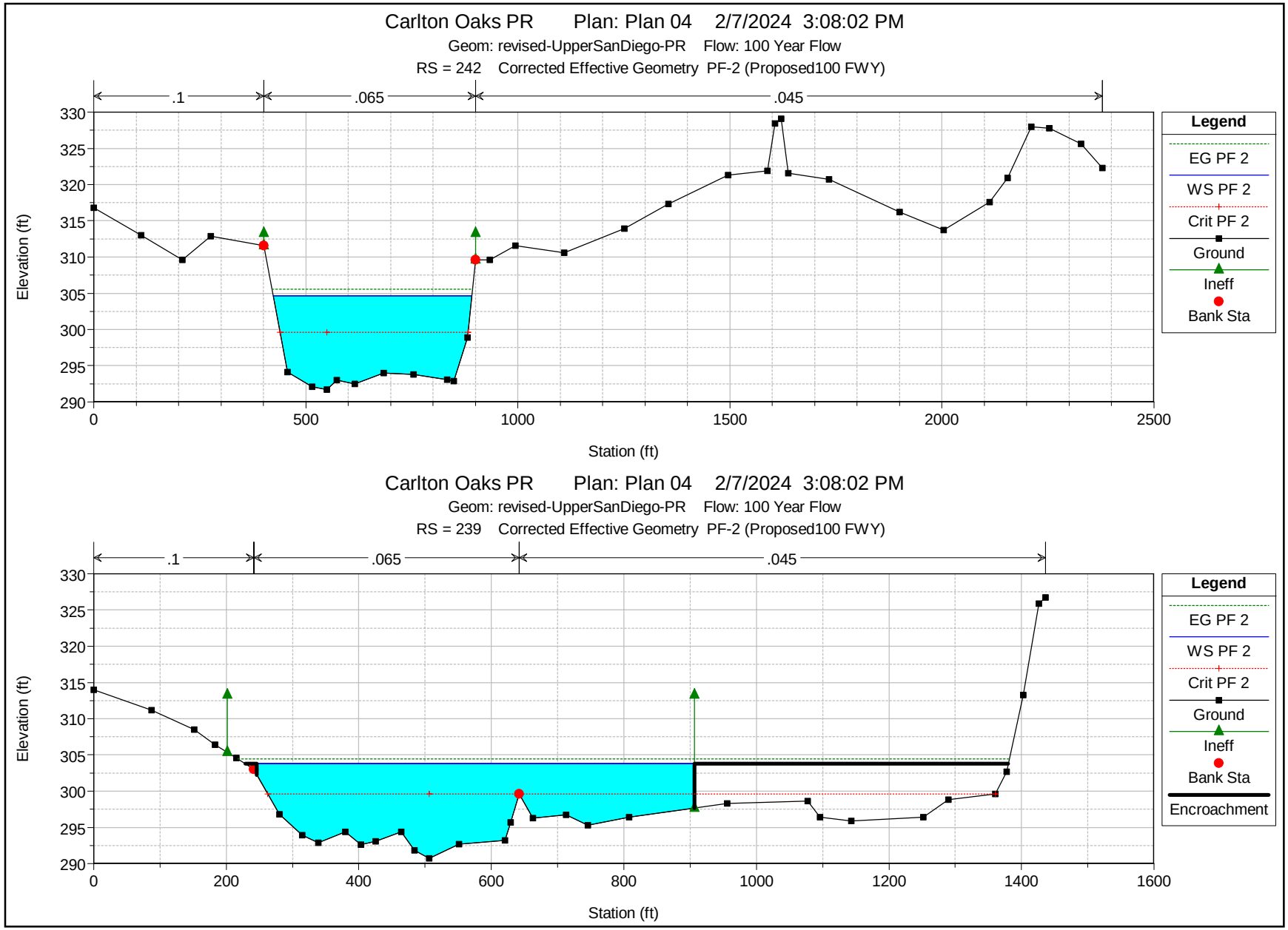

Carlton Oaks PR Plan: Plan 04 2/7/2024 3:08:02 PM
Geom: revised-UpperSanDiego-PR Flow: 100 Year Flow
RS = 290 Survey Data (June 12, 2014), and proposed grading Proposed gradi PF-2 (Proposed100 FWY)
.06
.04
.15
Elevation (ft)
Station (ft)
Legend
EG PF 2
WS PF 2
Crit PF 2
Ground
Ineff
Bank Sta
Encroachment
Carlton Oaks PR Plan: Plan 04 2/7/2024 3:08:02 PM
Geom: revised-UpperSanDiego-PR Flow: 100 Year Flow
RS = 285 Survey Data (June 12, 2014), and proposed grading Proposed gradi PF-2 (Proposed100 FWY)
.05
.06
.04
.15
.05
Elevation (ft)
Station (ft)
Legend
EG PF 2
WS PF 2
Crit PF 2
Ground
Ineff
Bank Sta
Encroachment


Carlton Oaks PR Plan: Plan 04 2/7/2024 3:08:02 PM
Geom: revised-UpperSanDiego-PR Flow: 100 Year Flow
RS = 280 Survey Data (June 12, 2014), and proposed grading Proposed gradi PF-2 (Proposed100 FWY)
.05
.06
.04
.05
Elevation (ft)
335
330
325
320
315
310
305
300
295
0
500
1000
1500
2000
2500
Station (ft)
Legend
EG PF 2
WS PF 2
Ground
Bank Sta
Encroachment
Carlton Oaks PR Plan: Plan 04 2/7/2024 3:08:02 PM
Geom: revised-UpperSanDiego-PR Flow: 100 Year Flow
RS = 270 Survey Data (June 12, 2014), and proposed grading Proposed gradi PF-2 (Proposed100 FWY)
.05
.06
.04
.05
Elevation (ft)
335
330
325
320
315
310
305
300
295
0
200
400
600
800
1000
1200
1400
Station (ft)
Legend
EG PF 2
WS PF 2
Crit PF 2
Ground
Ineff
Bank Sta
Encroachment


Carlton Oaks PR Plan: Plan 04 2/7/2024 3:08:02 PM
Geom: revised-UpperSanDiego-PR Flow: 100 Year Flow
RS = 260 Survey Data (June 12, 2014), and proposed grading Proposed gradi PF-2 (Proposed100 FWY)
.05
.06
.05
.06
.05
Elevation (ft)
330
325
320
315
310
305
300
295
0
200
400
600
800
1000
1200
1400
Station (ft)
Legend
EG PF 2
WS PF 2
Ground
Bank Sta
Encroachment
Carlton Oaks PR Plan: Plan 04 2/7/2024 3:08:02 PM
Geom: revised-UpperSanDiego-PR Flow: 100 Year Flow
RS = 250 Survey Data (June 12, 2014), and proposed grading PF-2 (Proposed100 FWY)
.05
.06
.04
.06
.04
.15
.05
Elevation (ft)
335
330
325
320
315
310
305
300
295
290
0
200
400
600
800
1000
1200
1400
1600
1800
Station (ft)
Legend
EG PF 2
WS PF 2
Ground
Bank Sta
Encroachment


Carlton Oaks PR Plan: Plan 04 2/7/2024 3:08:02 PM
Geom: revised-UpperSanDiego-PR Flow: 100 Year Flow
RS = 245 Survey Data (June 12, 2014), and proposed grading-Proposed gradi PF-2 (Proposed100 FWY)
.045
.1
.11
.04
.15
.05
Elevation (ft)
340
330
320
310
300
290
0
500
1000
1500
2000
2500
Station (ft)
Legend
EG PF 2
WS PF 2
Crit PF 2
Ground
Ineff
Bank Sta
Encroachment
Carlton Oaks PR Plan: Plan 04 2/7/2024 3:08:02 PM
Geom: revised-UpperSanDiego-PR Flow: 100 Year Flow
RS = 244 Begin Grading-West site-regrading starts at station 1160.21 PF-2 (Proposed100 FWY)
.1
.065
.045
.15
Elevation (ft)
340
330
320
310
300
290
0
500
1000
1500
2000
2500
Station (ft)
Legend
EG PF 2
WS PF 2
Crit PF 2
Ground
Ineff
Bank Sta
Encroachment


Carlton Oaks PR Plan: Plan 04 2/7/2024 3:08:02 PM
Geom: revised-UpperSanDiego-PR Flow: 100 Year Flow
RS = 243 BR PF-2 (Proposed100 FWY)
.1
.065
.045
.15
Elevation (ft)
340
330
320
310
300
290
0
500
1000
1500
2000
2500
Station (ft)
Legend
EG PF 2
WS PF 2
Crit PF 2
Ground
Ineff
Bank Sta
Encroachment
Carlton Oaks PR Plan: Plan 04 2/7/2024 3:08:02 PM
Geom: revised-UpperSanDiego-PR Flow: 100 Year Flow
RS = 243 BR PF-2 (Proposed100 FWY)
.1
.065
.045
Elevation (ft)
330
325
320
315
310
305
300
295
290
0
500
1000
1500
2000
2500
Station (ft)
Legend
EG PF 2
WS PF 2
Crit PF 2
Ground
Ineff
Bank Sta


Carlton Oaks PR Plan: Plan 04 2/7/2024 3:08:02 PM
Geom: revised-UpperSanDiego-PR Flow: 100 Year Flow
RS = 242 Corrected Effective Geometry PF-2 (Proposed100 FWY)
.1
.065
.045
Elevation (ft)
330
325
320
315
310
305
300
295
290
0
500
1000
1500
2000
2500
Station (ft)
Legend
EG PF 2
WS PF 2
Crit PF 2
Ground
Ineff
Bank Sta
Carlton Oaks PR Plan: Plan 04 2/7/2024 3:08:02 PM
Geom: revised-UpperSanDiego-PR Flow: 100 Year Flow
RS = 239 Corrected Effective Geometry PF-2 (Proposed100 FWY)
.1
.065
.045
Elevation (ft)
330
325
320
315
310
305
300
295
290
0
200
400
600
800
1000
1200
1400
1600
Station (ft)
Legend
EG PF 2
WS PF 2
Crit PF 2
Ground
Ineff
Bank Sta
Encroachment

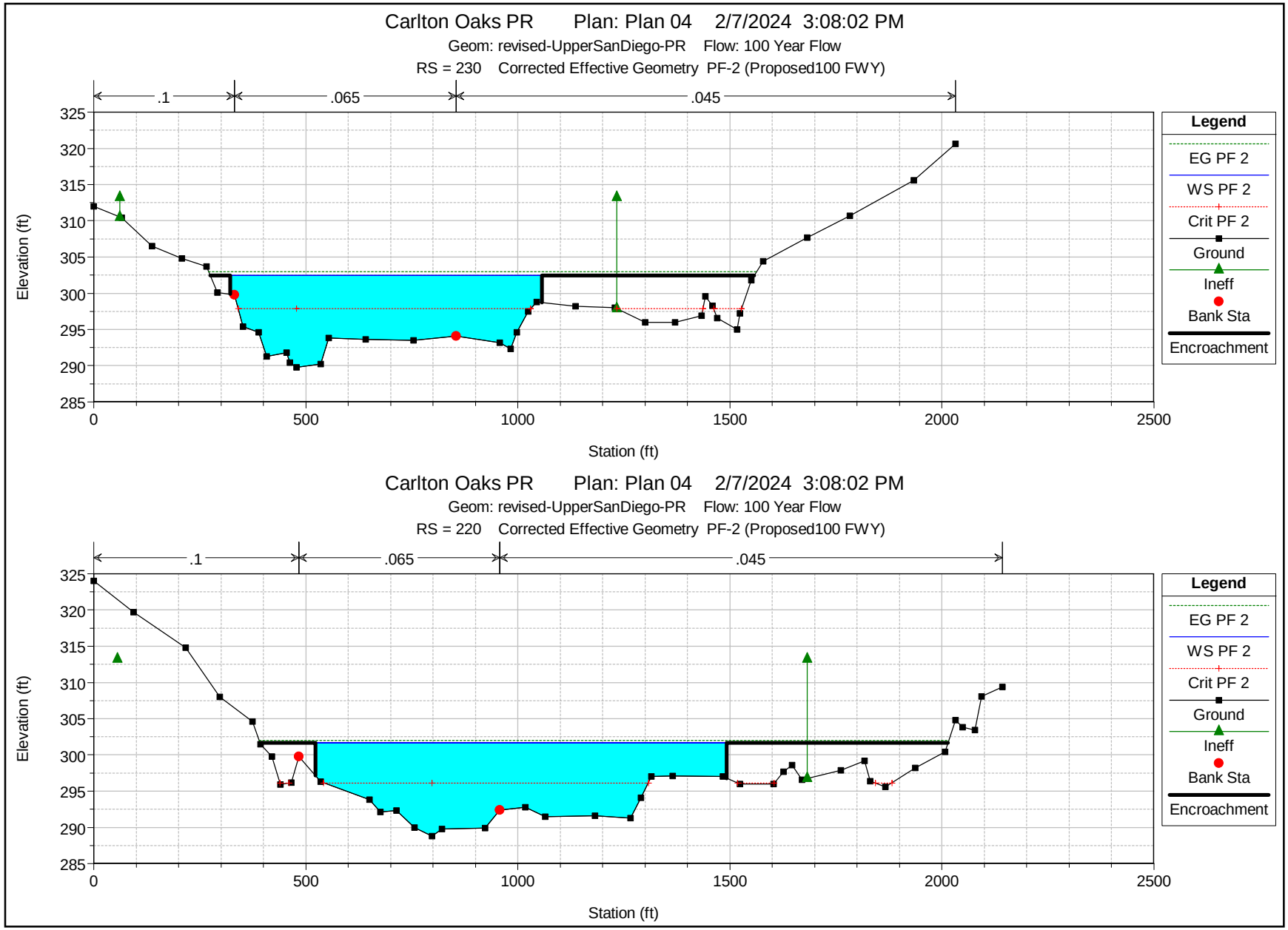

Carlton Oaks PR Plan: Plan 04 2/7/2024 3:08:02 PM
Geom: revised-UpperSanDiego-PR Flow: 100 Year Flow
RS = 230 Corrected Effective Geometry PF-2 (Proposed100 FWY)
.1
.065
.045
Elevation (ft)
325
320
315
310
305
300
295
290
285
0
500
1000
1500
2000
2500
Station (ft)
Legend
EG PF 2
WS PF 2
Crit PF 2
Ground
Ineff
Bank Sta
Encroachment
Carlton Oaks PR Plan: Plan 04 2/7/2024 3:08:02 PM
Geom: revised-UpperSanDiego-PR Flow: 100 Year Flow
RS = 220 Corrected Effective Geometry PF-2 (Proposed100 FWY)
.1
.065
.045
Elevation (ft)
325
320
315
310
305
300
295
290
285
0
500
1000
1500
2000
2500
Station (ft)
Legend
EG PF 2
WS PF 2
Crit PF 2
Ground
Ineff
Bank Sta
Encroachment

EXHIBIT G
SYCAMORE CREEK MODEL

EXISTING CONDITIONS
SYCAMORE CREEK MODEL

HEC-RAS HEC-RAS 5.0.7 March 2019
U.S. Army Corps of Engineers
Hydrologic Engineering Center
609 Second Street
Davis, California

```
X     X  XXXXXX    XXXX        XXXX       XX      XXXX
X     X  X        X    X       X   X     X  X    X
X     X  X        X            X   X    X    X   X
XXXXXXX  XXXX     X       XXX  XXXX     XXXXXX    XXXX
X     X  X        X            X  X     X    X        X
X     X  X        X    X       X   X    X    X        X
X     X  XXXXXX    XXXX        X    X   X    X   XXXXX
```

PROJECT DATA
Project Title: Sycamore Creek
Project File : SycamoreCreek.prj
Run Date and Time: 12/19/2023 3:15:46 PM

Project in English units

PLAN DATA

Plan Title: Plan 08
Plan File : r:\1759\Plot\Hydrology\FEMA\To the City\12 12-14-2023\Sycamore Creek\SycamoreCreek.p08

Geometry Title: SYC-EX-extend-(100-year)
Geometry File : r:\1759\Plot\Hydrology\FEMA\To the City\12 12-14-2023\Sycamore Creek\SycamoreCreek.g06

Flow Title    : SY-EX-Flow
Flow File     : r:\1759\Plot\Hydrology\FEMA\To the City\12 12-14-2023\Sycamore Creek\SycamoreCreek.f05

Plan Summary Information:
Number of:  Cross Sections =    7    Multiple Openings  =    0
            Culverts       =    0    Inline Structures  =    0
            Bridges        =    1    Lateral Structures =    0

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

Computation Options

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

FLOW DATA

Flow Title: SY-EX-Flow
Flow File : r:\1759\Plot\Hydrology\FEMA\To the City\12 12-14-2023\Sycamore Creek\SycamoreCreek.f05

Flow Data (cfs)

| River | Reach | RS | Scenario 1 |
|---|---|---|---|
| Sycamore Creek | Reach | 500 | 13407 |
| Sycamore Creek | Reach | 70 | 25000 |

Boundary Conditions

| River | Reach | Profile | Upstream | Downstream |
|---|---|---|---|---|
| Sycamore Creek | Reach | Scenario 1 | | Known WS = 319.3 |

GEOMETRY DATA

Geometry Title: SYC-EX-extend-(100-year)
Geometry File : r:\1759\Plot\Hydrology\FEMA\To the City\12 12-14-2023\Sycamore Creek\SycamoreCreek.g06

CROSS SECTION

RIVER: Sycamore Creek
REACH: Reach RS: 500

INPUT
Description: 0.023 for the Santa recreational Lake
0.035 AC road+ short to
medium grass
0.09 Creek medium t odense brush
0.045 houses+
landscape
Station Elevation Data num= 102

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 346 | .48 | 345.42 | 2.61 | 344 | 2.66 | 343.94 | 5.57 | 342 |
| 9.1 | 340.54 | 10.94 | 340 | 12.03 | 339.37 | 15.95 | 338 | 16.87 | 337.09 |
| 19.22 | 336 | 37.85 | 334.58 | 44.1 | 334.36 | 91.44 | 334.1 | 91.71 | 334.1 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 92 | 334.1 | 103.16 | 334.09 | 104.62 | 334.09 | 105.32 | 334.08 | 106.24 | 334.08 |
| 110.23 | 334 | 114.92 | 334 | 117 | 333.976 | 177.13 | 333.27 | 185.06 | 333.3 |
| 190.91 | 333.29 | 250.26 | 334 | 260.57 | 334 | 265.06 | 334.09 | 265.59 | 334.1 |
| 301.99 | 334.1 | 304.29 | 334.05 | 306.99 | 334 | 308.9 | 332.43 | 309.47 | 332 |
| 311.94 | 331.29 | 316.88 | 330 | 317.16 | 329.75 | 324.23 | 329.29 | 326.75 | 328 |
| 372.87 | 328 | 378.15 | 326.23 | 378.76 | 326 | 379.37 | 325.68 | 380.21 | 325.39 |
| 386.6 | 324 | 391.32 | 323.22 | 395.69 | 322.75 | 399.05 | 322 | 1057.41 | 322 |
| 1059.55 | 323.35 | 1061.33 | 324 | 1088.34 | 324 | 1155.18 | 324.93 | 1174 | 324.02 |
| 1174.06 | 324.02 | 1174.41 | 324 | 1182.58 | 322.46 | 1185.46 | 322 | 1187.3 | 321.2 |
| 1190.19 | 320.23 | 1191.3 | 320 | 1191.98 | 319.72 | 1196.05 | 318.7 | 1197.6 | 318.55 |
| 1197.89 | 318.45 | 1198.77 | 318 | 1205.35 | 318 | 1207.04 | 318 | 1215.51 | 318.47 |
| 1248.19 | 320 | 1271.68 | 320 | 1281.23 | 320 | 1308.2 | 320 | 1337.97 | 320 |
| 1360.39 | 320 | 1365.31 | 321.25 | 1375.35 | 324.28 | 1375.39 | 324.29 | 1390.4 | 328.82 |
| 1391.91 | 330 | 1417.68 | 338.79 | 1419.76 | 339.3 | 1423 | 340 | 1434.66 | 340 |
| 1472.4 | 340.51 | 1480.96 | 340 | 1489.05 | 339.24 | 1489.71 | 339.26 | 1536.35 | 339.46 |
| 1546.35 | 339.59 | 1549.55 | 340 | 1551 | 340.64 | 1554.92 | 342 | 1559.9 | 343.46 |
| 1562.26 | 344 | 1571.8 | 344.47 | 1578.84 | 344.71 | 1586.79 | 344.95 | 1595.93 | 345.12 |
| 1602.63 | 345.18 | 1623.79 | 346 | | | | | | |

Manning's n Values num= 5

| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|---|---|---|---|
| 0 | .035 | 326.75 | .023 | 1057.41 | .035 | 1174.06 | .09 | 1360.39 | .045 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 1174 | 1375.35 | 484.65 | 511.2 | 513.2 | .1 | .3 |

CROSS SECTION OUTPUT Profile #Scenario 1

| | | | | | | |
|---|---|---|---|---|---|---|
| E.G. Elev (ft) | 327.42 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.13 | Wt. n-Val. | 0.024 | 0.087 | 0.045 |
| W.S. Elev (ft) | 327.29 | Reach Len. (ft) | 484.65 | 511.20 | 513.20 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 3903.05 | 1461.17 | 15.02 |
| E.G. Slope (ft/ft) | 0.000271 | Area (sq ft) | 3903.05 | 1461.17 | 15.02 |
| Q Total (cfs) | 13407.00 | Flow (cfs) | 11863.62 | 1532.96 | 10.42 |
| Top Width (ft) | 1010.34 | Top Width (ft) | 799.01 | 201.35 | 9.98 |
| Vel Total (ft/s) | 2.49 | Avg. Vel. (ft/s) | 3.04 | 1.05 | 0.69 |
| Max Chl Dpth (ft) | 9.29 | Hydr. Depth (ft) | 4.88 | 7.26 | 1.51 |
| Conv. Total (cfs) | 814221.6 | Conv. (cfs) | 720490.4 | 93098.2 | 633.0 |
| Length Wtd. (ft) | 491.41 | Wetted Per. (ft) | 800.21 | 202.85 | 10.42 |
| Min Ch El (ft) | 318.00 | Shear (lb/sq ft) | 0.08 | 0.12 | 0.02 |
| Alpha | 1.34 | Stream Power (lb/ft s) | 0.25 | 0.13 | 0.02 |
| Frctn Loss (ft) | 0.17 | Cum Volume (acre-ft) | 251.09 | 144.19 | 22.45 |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 56.06 | 17.02 | 8.93 |

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Sycamore Creek
REACH: Reach RS: 450

INPUT
Description: 0.023 for the Santa recreational Lake
0.035 AC road+ short to
medium grass
0.09 Creek medium t odense brush
0.045 houses+
landscape
Station Elevation Data num= 101

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 344 | 17.26 | 344 | 20.59 | 343.57 | 23.56 | 343.47 | 37.59 | 342 |
| 41.63 | 340.86 | 43.32 | 340 | 45.06 | 338.83 | 49.52 | 338 | 108.46 | 330 |
| 113.23 | 329.57 | 121.31 | 328.71 | 131.1 | 328 | 198.19 | 328 | 215.69 | 329 |
| 217.89 | 329.29 | 249.45 | 330 | 252.84 | 330.01 | 257.89 | 328.27 | 258.41 | 328 |
| 259.21 | 327.72 | 263.54 | 326 | 267.83 | 326 | 271.35 | 324.26 | 273.16 | 324.46 |
| 291.29 | 326 | 447.75 | 326 | 453.6 | 325.88 | 461.37 | 326 | 464.52 | 326 |
| 479 | 326.38 | 494.64 | 326.57 | 508.17 | 326.54 | 533.29 | 326.23 | 538.75 | 326 |
| 548.32 | 326 | 583.38 | 324.55 | 604.58 | 324 | 612.4 | 323.61 | 634.1 | 322.7 |
| 646.44 | 322.3 | 649.79 | 322 | 835.68 | 322 | 859.71 | 322.96 | 865.16 | 322 |
| 893.59 | 322 | 906.95 | 324 | 919.69 | 324 | 933.72 | 322.74 | 946.86 | 322 |
| 1024.16 | 320.67 | 1052.36 | 320.27 | 1052.39 | 320.27 | 1069.11 | 320 | 1082.55 | 320 |
| 1106.56 | 320 | 1112.67 | 318.77 | 1115.34 | 318 | 1118.62 | 317.28 | 1125.27 | 316 |
| 1137.06 | 314 | 1149.25 | 314 | 1153.58 | 314.04 | 1154.62 | 314.1 | 1163.46 | 314.3 |
| 1169.47 | 314.53 | 1184.76 | 315.59 | 1193.79 | 315.87 | 1196.5 | 316 | 1228.7 | 316 |
| 1289.08 | 318 | 1294.75 | 319.64 | 1294.78 | 319.65 | 1296.82 | 320.34 | 1297.25 | 320.7 |
| 1302.63 | 322.24 | 1310.3 | 324.11 | 1330.91 | 330 | 1418.17 | 330 | 1425.14 | 329.24 |
| 1475.4 | 329.56 | 1487.5 | 330 | 1512.95 | 331.13 | 1538.06 | 332 | 1549.66 | 332 |
| 1550.33 | 332.31 | 1553.11 | 334 | 1555.85 | 334.9 | 1563.92 | 336 | 1565.63 | 337.16 |
| 1570.84 | 338 | 1572.31 | 338.52 | 1580.22 | 340 | 1584.67 | 341.39 | 1586.5 | 342 |
| 1591.39 | 343.46 | 1592.65 | 344 | 1595.12 | 345.34 | 1599.14 | 345.8 | 1601.31 | 346 |
| 1604.01 | 346 | | | | | | | | |

Manning's n Values num= 5

| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|---|---|---|---|
| 0 | .035 | 538.75 | .023 | 919.69 | .035 | 1118.62 | .09 | 1296.82 | .045 |

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
1052.39 1294.75 163.58 199.56 223.24 .1 .3
Ineffective Flow num= 1

| Sta L | Sta R | Elev | Permanent |
|---|---|---|---|
| 462 | 627 | 330 | F |

CROSS SECTION OUTPUT Profile #Scenario 1

| | | | | | | |
|---|---|---|---|---|---|---|
| E.G. Elev (ft) | 327.25 | Element | Left OB | Channel | Right OB | |
| Vel Head (ft) | 0.13 | Wt. n-Val. | 0.027 | 0.072 | 0.051 | |
| W.S. Elev (ft) | 327.11 | Reach Len. (ft) | 163.58 | 199.56 | 223.24 | |
| Crit W.S. (ft) | 322.39 | Flow Area (sq ft) | 2424.04 | 2450.89 | 93.96 | |
| E.G. Slope (ft/ft) | 0.000461 | Area (sq ft) | 2698.46 | 2450.89 | 93.96 | |
| Q Total (cfs) | 13407.00 | Flow (cfs) | 8132.87 | 5134.25 | 139.88 | |
| Top Width (ft) | 1060.08 | Top Width (ft) | 791.66 | 242.36 | 26.06 | |
| Vel Total (ft/s) | 2.70 | Avg. Vel. (ft/s) | 3.36 | 2.09 | 1.49 | |

| | | | | | |
|---|---|---|---|---|---|
| Max Chl Dpth (ft) | 13.11 | Hydr. Depth (ft) | 3.87 | 10.11 | 3.61 |
| Conv. Total (cfs) | 624372.2 | Conv. (cfs) | 378752.8 | 239105.1 | 6514.4 |
| Length Wtd. (ft) | 184.31 | Wetted Per. (ft) | 627.72 | 243.28 | 27.17 |
| Min Ch El (ft) | 314.00 | Shear (lb/sq ft) | 0.11 | 0.29 | 0.10 |
| Alpha | 1.17 | Stream Power (lb/ft s) | 0.37 | 0.61 | 0.15 |
| Frctn Loss (ft) | 0.15 | Cum Volume (acre-ft) | 214.37 | 121.24 | 21.80 |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 47.21 | 14.42 | 8.72 |

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

CROSS SECTION

RIVER: Sycamore Creek
REACH: Reach RS: 400

INPUT
Description: 0.09 Creek medium t odense brush
0.045 houses (buildings)+
parking area+ landscape
Station Elevation Data num= 101

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 338 | .21 | 338 | 1.12 | 337.74 | 8.25 | 336 | 11.02 | 334.07 |
| 11.32 | 333.91 | 16.15 | 332 | 22.08 | 330 | 47.54 | 328.37 | 67.02 | 328.46 |
| 77.13 | 328.55 | 115.32 | 328 | 138.57 | 328 | 145.26 | 327.01 | 147.88 | 326.66 |
| 153.6 | 326.29 | 155.07 | 326.24 | 156.95 | 326 | 184.97 | 326 | 189.2 | 326.1 |
| 211.91 | 326.98 | 235.19 | 327.84 | 238.28 | 328 | 275.37 | 328 | 275.57 | 327.82 |
| 281.09 | 326 | 284.67 | 324.66 | 286.51 | 324 | 294.81 | 324 | 308.89 | 324.47 |
| 419.7 | 324.68 | 457.3 | 324.67 | 462.04 | 324.73 | 498.49 | 325.01 | 504.39 | 325.01 |
| 515.48 | 325.09 | 520.86 | 325.08 | 536.12 | 325.18 | 545.12 | 325.21 | 594.18 | 325.04 |
| 602.87 | 324.99 | 633.01 | 324.87 | 644.44 | 324.85 | 716.39 | 324.46 | 727.52 | 324.38 |
| 768.74 | 324 | 791.41 | 324 | 807.68 | 323.76 | 838.96 | 322.8 | 845.41 | 322.6 |
| 868.9 | 322 | 881.07 | 322 | 892.7 | 321.57 | 902.92 | 321.34 | 948.37 | 320.84 |
| 960.48 | 320.65 | 966.06 | 320.56 | 988.85 | 320.21 | 993.5 | 320.19 | 1011.36 | 320 |
| 1041.42 | 320 | 1065.21 | 319.4 | 1065.28 | 319.4 | 1083.68 | 318.94 | 1123.34 | 318 |
| 1124.7 | 317.76 | 1132.52 | 316 | 1135.34 | 314.39 | 1136.69 | 314 | 1170.93 | 314 |
| 1304.97 | 316 | 1307.64 | 316.64 | 1308.71 | 317.05 | 1314.11 | 320 | 1314.97 | 320.19 |
| 1315 | 320.2 | 1319.26 | 321.16 | 1322.52 | 322 | 1329.49 | 324.1 | 1332.61 | 326 |
| 1347.79 | 327 | 1352.19 | 327.04 | 1357.77 | 326.99 | 1431.55 | 326.53 | 1434.01 | 326.49 |
| 1449.92 | 326 | 1491.44 | 326 | 1513.13 | 326.5 | 1574.68 | 327.31 | 1585.54 | 327.42 |
| 1587.93 | 327.48 | 1593.01 | 327.52 | 1599.21 | 327.61 | 1608.14 | 328 | 1610.54 | 329.25 |
| 1612.64 | 330 | 1618.12 | 330.65 | 1633.37 | 332 | 1635.41 | 332.5 | 1639.14 | 333.24 |
| 1639.65 | 334 | | | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .045 | 1041.42 | .09 | 1332.61 | .045 |

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

1065.28 1315 290.22 278.09 271.36 .1 .3

Ineffective Flow num= 3

| Sta L | Sta R | Elev | Permanent |
|---|---|---|---|
| 0 | 842 | 321 | F |
| 842 | 1062 | 330 | F |
| 1573 | 1639.65 | 321 | F |

CROSS SECTION OUTPUT Profile #Scenario 1

| | | | | | | |
|---|---|---|---|---|---|---|
| E.G. Elev (ft) | 327.09 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.17 | Wt. n-Val. | 0.046 | 0.090 | 0.074 |
| W.S. Elev (ft) | 326.93 | Reach Len. (ft) | 290.22 | 278.09 | 271.36 |
| Crit W.S. (ft) | 320.39 | Flow Area (sq ft) | 1393.15 | 2750.81 | 167.77 |
| E.G. Slope (ft/ft) | 0.001884 | Area (sq ft) | 2725.75 | 2750.81 | 167.77 |
| Q Total (cfs) | 13407.00 | Flow (cfs) | 3469.91 | 9716.22 | 220.87 |
| Top Width (ft) | 1310.37 | Top Width (ft) | 851.61 | 249.72 | 209.04 |
| Vel Total (ft/s) | 3.11 | Avg. Vel. (ft/s) | 2.49 | 3.53 | 1.32 |
| Max Chl Dpth (ft) | 12.93 | Hydr. Depth (ft) | 2.21 | 11.02 | 0.80 |
| Conv. Total (cfs) | 308889.0 | Conv. (cfs) | 79944.7 | 223855.8 | 5088.6 |
| Length Wtd. (ft) | 283.59 | Wetted Per. (ft) | 632.21 | 251.38 | 210.14 |
| Min Ch El (ft) | 314.00 | Shear (lb/sq ft) | 0.26 | 1.29 | 0.09 |
| Alpha | 1.10 | Stream Power (lb/ft s) | 0.65 | 4.55 | 0.12 |
| Frctn Loss (ft) | 0.22 | Cum Volume (acre-ft) | 204.18 | 109.32 | 21.13 |
| C & E Loss (ft) | 0.03 | Cum SA (acres) | 44.12 | 13.29 | 8.12 |

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

CROSS SECTION

RIVER: Sycamore Creek
REACH: Reach RS: 300

INPUT
Description: 0.035 AC road+ short to medium grass
0.08 Creek medium odense
brush
0.045 houses+ landscape
Station Elevation Data num= 101

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 326.9 | 2.71 | 326.86 | 4.84 | 326.81 | 7.05 | 326.76 | 13.21 | 327.6 |
| 17.53 | 328.05 | 24.55 | 327.96 | 32.42 | 328.47 | 46.58 | 328.62 | 93.74 | 326.9 |
| 95.92 | 326.8 | 97.95 | 326.67 | 101.7 | 326.36 | 103.87 | 326.73 | 109.94 | 326.8 |
| 114.01 | 326 | 164.4 | 326 | 198.56 | 325.51 | 204.46 | 325.49 | 234.71 | 325.45 |
| 244.93 | 325.43 | 247.08 | 325.43 | 346.79 | 324 | 347.98 | 324 | 699.16 | 324 |
| 790.88 | 322.16 | 792.13 | 322.16 | 813.92 | 322.1 | 814.54 | 322.1 | 814.85 | 322.1 |
| 844.83 | 322 | 1074.15 | 322 | 1203.28 | 320.26 | 1220.36 | 320 | 1257.95 | 320 |
| 1258.05 | 320 | 1270.88 | 320 | 1309.73 | 319.63 | 1316.14 | 318 | 1316.31 | 317.94 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 1320.69 | 316 | 1323.26 | 314.42 | 1323.92 | 314 | 1387.93 | 314 | 1411.01 | 313.84 | |
| 1415.96 | 313.85 | 1421.73 | 314.95 | 1430.1 | 314 | 1454.02 | 314 | 1457.01 | 314 | |
| 1472.57 | 314 | 1478.77 | 316.81 | 1478.87 | 316.86 | 1479.02 | 316.93 | 1486.47 | 320 | |
| 1492.6 | 321.89 | 1492.87 | 322 | 1493.51 | 322.27 | 1497.83 | 324 | 1516.18 | 324 | |
| 1539.49 | 324 | 1557.89 | 324 | 1576.09 | 324 | 1584.94 | 323.84 | 1585.17 | 323.84 | |
| 1592.19 | 324 | 1605.09 | 324 | 1607.37 | 324 | 1608.02 | 324 | 1611.34 | 324 | |
| 1649.18 | 324 | 1678.88 | 324.11 | 1683.07 | 324 | 1684.65 | 324 | 1684.79 | 324 | |
| 1687.31 | 324 | 1693.67 | 324 | 1701.42 | 324 | 1704.28 | 324 | 1801.5 | 324 | |
| 1804.71 | 324 | 1805.6 | 324.02 | 1824.42 | 324.39 | 1826.39 | 324.46 | 1866.12 | 325.48 | |
| 1884.04 | 325.83 | 1886.97 | 326 | 1903.67 | 327.44 | 1908.78 | 328 | 1911.3 | 329.35 | |
| 1913.18 | 330 | 1913.9 | 330.37 | 1918.57 | 332 | 1923.41 | 333.53 | 1925.36 | 334 | |
| 1926.23 | 334.45 | 1929.81 | 336 | 1932.53 | 336.76 | 1940.9 | 338 | 1942.33 | 338.7 | |
| 1951.53 | 340 | | | | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .035 | 1316.14 | .08 | 1497.83 | .045 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 1323.26 | 1472.57 | 95.85 | 94.82 | 94.72 | .3 | .5 |

Ineffective Flow num= 5

| Sta L | Sta R | Elev | Permanent |
|---|---|---|---|
| 0 | 495 | 321 | F |
| 495 | 626 | 330 | F |
| 626 | 1309.17 | 321 | F |
| 1495.61 | 1538 | 321 | F |
| 1538 | 1951.53 | 330 | F |

CROSS SECTION OUTPUT Profile #Scenario 1

| | | | | | | |
|---|---|---|---|---|---|---|
| E.G. Elev (ft) | 326.84 | Element | Left OB | Channel | Right OB | |
| Vel Head (ft) | 0.07 | Wt. n-Val. | 0.036 | 0.080 | 0.067 | |
| W.S. Elev (ft) | 326.77 | Reach Len. (ft) | 25.00 | 25.00 | 25.00 | |
| Crit W.S. (ft) | 321.01 | Flow Area (sq ft) | 4225.36 | 1903.33 | 301.96 | |
| E.G. Slope (ft/ft) | 0.000422 | Area (sq ft) | 4588.63 | 1903.33 | 1194.07 | |
| Q Total (cfs) | 13407.00 | Flow (cfs) | 9031.91 | 3959.54 | 415.55 | |
| Top Width (ft) | 1797.79 | Top Width (ft) | 1225.12 | 149.31 | 423.37 | |
| Vel Total (ft/s) | 2.08 | Avg. Vel. (ft/s) | 2.14 | 2.08 | 1.38 | |
| Max Chl Dpth (ft) | 12.93 | Hydr. Depth (ft) | 3.86 | 12.75 | 4.62 | |
| Conv. Total (cfs) | 652400.6 | Conv. (cfs) | 439503.4 | 192676.0 | 20221.2 | |
| Length Wtd. (ft) | 25.00 | Wetted Per. (ft) | 1095.36 | 149.59 | 67.37 | |
| Min Ch El (ft) | 313.84 | Shear (lb/sq ft) | 0.10 | 0.34 | 0.12 | |
| Alpha | 1.02 | Stream Power (lb/ft s) | 0.22 | 0.70 | 0.16 | |
| Frctn Loss (ft) | 0.01 | Cum Volume (acre-ft) | 179.82 | 94.47 | 16.89 | |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 37.20 | 12.02 | 6.15 | |

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

BRIDGE

RIVER: Sycamore Creek
REACH: Reach RS: 250

INPUT
Description:
Distance from Upstream XS = 25
Deck/Roadway Width = 65
Weir Coefficient = 3
Upstream Deck/Roadway Coordinates
num= 7

| Sta | Hi Cord | Lo Cord | Sta | Hi Cord | Lo Cord | Sta | Hi Cord | Lo Cord |
|---|---|---|---|---|---|---|---|---|
| 1038 | 321.5 | 318.5 | 1270.8 | 321.3 | 318.3 | 1316.1 | 321.3 | 318.3 |
| 1415 | 321.6 | 318.6 | 1444 | 321.7 | 318.7 | 1497.8 | 322 | 319 |
| 1576 | 322 | 319 | | | | | | |

Upstream Bridge Cross Section Data
Station Elevation Data num= 101

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 326.9 | 2.71 | 326.86 | 4.84 | 326.81 | 7.05 | 326.76 | 13.21 | 327.6 |
| 17.53 | 328.05 | 24.55 | 327.96 | 32.42 | 328.47 | 46.58 | 328.62 | 93.74 | 326.9 |
| 95.92 | 326.8 | 97.95 | 326.67 | 101.7 | 326.36 | 103.87 | 326.73 | 109.94 | 326.8 |
| 114.01 | 326 | 164.4 | 326 | 198.56 | 325.51 | 204.46 | 325.49 | 234.71 | 325.45 |
| 244.93 | 325.43 | 247.08 | 325.43 | 346.79 | 324 | 347.98 | 324 | 699.16 | 324 |
| 790.88 | 322.16 | 792.13 | 322.16 | 813.92 | 322.1 | 814.54 | 322.1 | 814.85 | 322.1 |
| 844.83 | 322 | 1074.15 | 322 | 1203.28 | 320.26 | 1220.36 | 320 | 1257.95 | 320 |
| 1258.05 | 320 | 1270.88 | 320 | 1309.73 | 319.63 | 1316.14 | 318 | 1316.31 | 317.94 |
| 1320.69 | 316 | 1323.26 | 314.42 | 1323.92 | 314 | 1387.93 | 314 | 1411.01 | 313.84 |
| 1415.96 | 313.85 | 1421.73 | 314.95 | 1430.1 | 314 | 1454.02 | 314 | 1457.01 | 314 |
| 1472.57 | 314 | 1478.77 | 316.81 | 1478.87 | 316.86 | 1479.02 | 316.93 | 1486.47 | 320 |
| 1492.6 | 321.89 | 1492.87 | 322 | 1493.51 | 322.27 | 1497.83 | 324 | 1516.18 | 324 |
| 1539.49 | 324 | 1557.89 | 324 | 1576.09 | 324 | 1584.94 | 323.84 | 1585.17 | 323.84 |
| 1592.19 | 324 | 1605.09 | 324 | 1607.37 | 324 | 1608.02 | 324 | 1611.34 | 324 |
| 1649.18 | 324 | 1678.88 | 324.11 | 1683.07 | 324 | 1684.65 | 324 | 1684.79 | 324 |
| 1687.31 | 324 | 1693.67 | 324 | 1701.42 | 324 | 1704.28 | 324 | 1801.5 | 324 |
| 1804.71 | 324 | 1805.6 | 324.02 | 1824.42 | 324.39 | 1826.39 | 324.46 | 1866.12 | 325.48 |
| 1884.04 | 325.83 | 1886.97 | 326 | 1903.67 | 327.44 | 1908.78 | 328 | 1911.3 | 329.35 |
| 1913.18 | 330 | 1913.9 | 330.37 | 1918.57 | 332 | 1923.41 | 333.53 | 1925.36 | 334 |
| 1926.23 | 334.45 | 1929.81 | 336 | 1932.53 | 336.76 | 1940.9 | 338 | 1942.33 | 338.7 |
| 1951.53 | 340 | | | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .035 | 1316.14 | .08 | 1497.83 | .045 |

| Bank Sta: Left | Right | Coeff Contr. | Expan. |
|---|---|---|---|
| 1323.26 | 1472.57 | .3 | .5 |

Ineffective Flow num= 5

| Sta L | Sta R | Elev | Permanent |
|---|---|---|---|
| 0 | 495 | 321 | F |

```
     495     626     330       F
     626 1309.17     321       F
 1495.61    1538     321       F
    1538 1951.53     330       F

Downstream  Deck/Roadway Coordinates
    num=       7
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
     808     323     320    1353     321     318  1464.3   321.5   318.5
    1483   321.6   318.6  1500.8   321.6   318.6    1560   321.8   318.8
  1582.6     322     319

Downstream Bridge Cross Section Data
Station Elevation Data    num=     101
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0  327.46   28.23  326.41   44.34     326  299.22     326  399.15     324
  399.19     324  399.22     324   402.1     324  405.23     324  816.63     324
  843.92  322.38  851.28     322  852.31     322  882.13     322  885.37     322
  905.31     322  915.28     322  923.84     322  925.93     322  929.19     322
  937.09     322  969.52     322  972.34     322  995.39     322 1010.89     322
  1035.6     322 1052.64  321.42 1090.99  321.25 1103.71  321.21 1107.61  321.26
 1141.78  321.26 1149.32   321.2  1224.8  320.02    1226     320 1227.14     320
 1300.05     320 1300.14     320 1328.99     320 1353.28     320 1353.62     320
 1353.66  319.99 1359.29     318 1359.35  317.98 1359.38  317.97 1363.29  315.97
 1368.06     314 1462.45  312.04  1464.3  312.03 1464.38  312.03 1466.48  312.43
 1466.85  312.51 1502.13  312.53 1502.41   312.6 1506.34  314.57 1509.85  316.47
 1512.47  317.67  1512.5  317.68 1513.61   318.2 1517.04  320.09 1529.08     322
 1534.27     322 1535.44     322 1554.42     322  1558.1     322 1560.62     322
 1563.47     322 1565.63     322 1626.77     322 1630.35     322 1632.59     322
 1679.24     322 1679.48     322 1681.04  322.07 1681.35  322.08 1682.74     322
 1701.61  322.31 1799.76     324 1811.41     324 1832.13     324 1859.32     324
 1859.48     324 1867.76     324 1868.41     324 1868.68     324 1899.87     324
 1899.92     324 1900.25     324 1927.85     324 1931.37  324.11 1933.92  324.24
 1963.05     326 1970.76     326 1983.01  326.46 1985.11  326.53 2008.56  327.79
 2011.05     328 2012.61     328 2039.87  329.62 2040.73  329.66 2045.52     330
 2045.53     330

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0    .045 1353.28     .08 1560.62    .045

Bank Sta: Left   Right    Coeff Contr.   Expan.
       1359.29 1512.47             .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
       0 1330.23     321       F
 1527.39 2045.53     321       F

Upstream Embankment side slope              =       0 horiz. to 1.0 vertical
Downstream Embankment side slope            =       0 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow =     .95
Elevation at which weir flow begins         =     321
```

```
Energy head used in spillway design         =
Spillway height used in design              =
Weir crest shape                            = Broad Crested

Number of Piers =  2

Pier Data
Pier Station     Upstream= 1398.47    Downstream=  1463.8
Upstream     num=       2
    Width   Elev    Width   Elev
       1     314       1     320
Downstream     num=       2
    Width   Elev    Width   Elev
       1     314       1     320

Pier Data
Pier Station     Upstream=  1446.3    Downstream=  1416.1
Upstream     num=       2
    Width   Elev    Width   Elev
       1     314       1     320
Downstream     num=       2
    Width   Elev    Width   Elev
       1     312       1     320

Number of Bridge Coefficient Sets =  1

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

High Flow Method
       Energy Only

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

BRIDGE OUTPUT  Profile #Scenario 1

  E.G. US. (ft)               326.84    Element                Inside BR US  Inside BR DS
  W.S. US. (ft)               326.77    E.G. Elev (ft)              326.81        325.28
  Q Total (cfs)             13407.00    W.S. Elev (ft)              326.70        320.71
  Q Bridge (cfs)              616.74    Crit W.S. (ft)              322.82        318.35
  Q Weir (cfs)                          Max Chl Dpth (ft)            12.86          8.68
  Weir Sta Lft (ft)                     Vel Total (ft/s)             2.39         17.13
  Weir Sta Rgt (ft)                     Flow Area (sq ft)          5599.20        782.67
  Weir Submerg                          Froude # Chl                 0.13          1.03
  Weir Max Depth (ft)                   Specif Force (cu ft)      19102.79      11090.10
  Min El Weir Flow (ft)       321.31    Hydr Depth (ft)              4.30
```

| | | | | |
|---|---|---|---|---|
| Min El Prs (ft) | 318.92 | W.P. Total (ft) | 1657.94 | 332.31 |
| Delta EG (ft) | 3.61 | Conv. Total (cfs) | 454952.7 | 25910.8 |
| Delta WS (ft) | 4.25 | Top Width (ft) | 1790.79 | |
| BR Open Area (sq ft) | 708.36 | Frctn Loss (ft) | 0.20 | 0.11 |
| BR Open Vel (ft/s) | 0.87 | C & E Loss (ft) | 1.34 | 1.93 |
| BR Sluice Coef | | Shear Total (lb/sq ft) | 0.18 | 39.37 |
| BR Sel Method | Energy only | Power Total (lb/ft s) | 0.44 | 674.35 |

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: Sycamore Creek
REACH: Reach RS: 200

INPUT
Description: 0.035 AC road+ short to medium grass
0.08 Creek medium odense
brush
0.045 houses+ landscape
Station Elevation Data num= 101

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 327.46 | 28.23 | 326.41 | 44.34 | 326 | 299.22 | 326 | 399.15 | 324 |
| 399.19 | 324 | 399.22 | 324 | 402.1 | 324 | 405.23 | 324 | 816.63 | 324 |
| 843.92 | 322.38 | 851.28 | 322 | 852.31 | 322 | 882.13 | 322 | 885.37 | 322 |
| 905.31 | 322 | 915.28 | 322 | 923.84 | 322 | 925.93 | 322 | 929.19 | 322 |
| 937.09 | 322 | 969.52 | 322 | 972.34 | 322 | 995.39 | 322 | 1010.89 | 322 |
| 1035.6 | 322 | 1052.64 | 321.42 | 1090.99 | 321.25 | 1103.71 | 321.21 | 1107.61 | 321.26 |
| 1141.78 | 321.26 | 1149.32 | 321.2 | 1224.8 | 320.02 | 1226 | 320 | 1227.14 | 320 |
| 1300.05 | 320 | 1300.14 | 320 | 1328.99 | 320 | 1353.28 | 320 | 1353.62 | 320 |
| 1353.66 | 319.99 | 1359.29 | 318 | 1359.35 | 317.98 | 1359.38 | 317.97 | 1363.29 | 315.97 |
| 1368.06 | 314 | 1462.45 | 312.04 | 1464.3 | 312.03 | 1464.38 | 312.03 | 1466.48 | 312.43 |
| 1466.85 | 312.51 | 1502.13 | 312.53 | 1502.41 | 312.6 | 1506.34 | 314.57 | 1509.85 | 316.47 |
| 1512.47 | 317.67 | 1512.5 | 317.68 | 1513.61 | 318.2 | 1517.04 | 320.09 | 1529.08 | 322 |
| 1534.27 | 322 | 1535.44 | 322 | 1554.42 | 322 | 1558.1 | 322 | 1560.62 | 322 |
| 1563.47 | 322 | 1565.63 | 322 | 1626.77 | 322 | 1630.35 | 322 | 1632.59 | 322 |
| 1679.24 | 322 | 1679.48 | 322 | 1681.04 | 322.07 | 1681.35 | 322.08 | 1682.74 | 322 |

```
 1701.61  322.31 1799.76     324 1811.41     324 1832.13     324 1859.32     324
 1859.48     324 1867.76     324 1868.41     324 1868.68     324 1899.87     324
 1899.92     324 1900.25     324 1927.85     324 1931.37  324.11 1933.92  324.24
 1963.05     326 1970.76     326 1983.01  326.46 1985.11  326.53 2008.56  327.79
 2011.05     328 2012.61     328 2039.87  329.62 2040.73  329.66 2045.52     330
 2045.53     330

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0    .045 1353.28     .08 1560.62    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       1359.29 1512.47             301  307.18     316             .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
       0 1330.23     321       F
 1527.39 2045.53     321       F

CROSS SECTION OUTPUT  Profile #Scenario 1

  E.G. Elev (ft)            323.23    Element                  Left OB    Channel   Right OB
  Vel Head (ft)               0.70    Wt. n-Val.                0.046      0.080      0.059
  W.S. Elev (ft)            322.53    Reach Len. (ft)          301.00     307.18     316.00
  Crit W.S. (ft)            319.42    Flow Area (sq ft)        723.71    1430.78     123.71
  E.G. Slope (ft/ft)      0.008126    Area (sq ft)             723.71    1430.78     123.71
  Q Total (cfs)           13407.00    Flow (cfs)              2661.70   10526.05     219.25
  Top Width (ft)            872.69    Top Width (ft)           517.83     153.18     201.68
  Vel Total (ft/s)            5.88    Avg. Vel. (ft/s)           3.68       7.36       1.77
  Max Chl Dpth (ft)          10.50    Hydr. Depth (ft)           1.40       9.34       0.61
  Conv. Total (cfs)       148731.4    Conv. (cfs)             29527.7   116771.4     2432.3
  Length Wtd. (ft)          306.74    Wetted Per. (ft)         518.21     155.34     202.45
  Min Ch El (ft)            312.03    Shear (lb/sq ft)           0.71       4.67       0.31
  Alpha                       1.31    Stream Power (lb/ft s)     2.61      34.37       0.55
  Frctn Loss (ft)             2.89    Cum Volume (acre-ft)     174.05      91.73      15.39
  C & E Loss (ft)             0.02    Cum SA (acres)            35.56      11.81       5.58


Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
         the need for additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid, water surface was used.

CROSS SECTION


RIVER: Sycamore Creek
REACH: Reach              RS: 100

INPUT
Description:
Station Elevation Data    num=     101
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0     320     5.9     320   12.54     318   18.89  316.23   19.93     316
```

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 138.69 | 316 | 243.19 | 314.75 | 259.69 | 314.69 | 285.98 | 314 | 313.63 | 314 |
| 320.87 | 316 | 332.1 | 318 | 341.59 | 320 | 352.45 | 320 | 362.13 | 318.13 |
| 363.2 | 318 | 396.32 | 316 | 566.04 | 316 | 583.37 | 314.68 | 590.43 | 314.61 |
| 609.26 | 314 | 665.47 | 314 | 698.45 | 313.7 | 713.65 | 313.17 | 716.99 | 313.12 |
| 740.12 | 312 | 744.01 | 311.37 | 751.39 | 310 | 782.07 | 310 | 802.86 | 312 |
| 822.52 | 312 | 847.25 | 312.66 | 854.61 | 312.72 | 864.73 | 312 | 951.52 | 311.98 |
| 995.57 | 311.4 | 1006.26 | 311.36 | 1040.45 | 310 | 1069.5 | 310 | 1118.53 | 311.6 |
| 1127.3 | 312 | 1130.69 | 312 | 1144.57 | 313.53 | 1157.38 | 313.67 | 1177.21 | 313.36 |
| 1177.28 | 313.36 | 1194.29 | 312.94 | 1204.3 | 312 | 1211.39 | 310.26 | 1211.93 | 310 |
| 1235.53 | 308.55 | 1269.25 | 308.93 | 1283.61 | 308.98 | 1294.48 | 309.81 | 1343.59 | 311.55 |
| 1351.9 | 312 | 1365.51 | 313 | 1365.6 | 313 | 1379 | 314 | 1383.25 | 315.34 |
| 1385.69 | 316 | 1386.66 | 316.43 | 1391.44 | 318 | 1394.82 | 320 | 1419.35 | 320 |
| 1471.26 | 320 | 1485.07 | 318 | 1509.45 | 318 | 1513.77 | 316.56 | 1515.79 | 316 |
| 1516.09 | 315.71 | 1523.67 | 314 | 1583.01 | 314 | 1597.6 | 314.44 | 1634.63 | 316 |
| 1662.36 | 316.97 | 1687.28 | 318 | 1732.34 | 318 | 1735.36 | 317.58 | 1737.74 | 317.04 |
| 1752.05 | 316 | 1759.32 | 314.76 | 1762.18 | 314 | 1784.85 | 314 | 1797.38 | 315.09 |
| 1800.4 | 316 | 1806.47 | 316.29 | 1809.74 | 316.24 | 1836.22 | 316.71 | 1864.1 | 316.77 |
| 1874.12 | 317.02 | 1885.56 | 317.03 | 1899.33 | 318 | 1913.02 | 319.36 | 1925.04 | 320 |
| 1950.72 | 321.09 | 1978.21 | 322 | 1985.66 | 324 | 1995.77 | 324.35 | 2030.44 | 326 |
| 2042.34 | 326 | | | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .035 | 854.61 | .09 | 1394.82 | .035 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 1204.3 | 1351.9 | 1794.15 | 589.3 | 429.11 | .1 | .3 |

Ineffective Flow num= 2

| Sta L | Sta R | Elev | Permanent |
|---|---|---|---|
| 0 | 1175 | 321 | F |
| 1394.82 | 2042.34 | 321 | F |

CROSS SECTION OUTPUT Profile #Scenario 1

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 320.32 | Element | | | |
| Vel Head (ft) | 0.88 | Wt. n-Val. | 0.090 | 0.090 | 0.090 |
| W.S. Elev (ft) | 319.44 | Reach Len. (ft) | 1794.15 | 589.30 | 429.11 |
| Crit W.S. (ft) | 315.99 | Flow Area (sq ft) | 190.55 | 1418.10 | 219.56 |
| E.G. Slope (ft/ft) | 0.011090 | Area (sq ft) | 6542.97 | 1418.10 | 1630.07 |
| Q Total (cfs) | 13407.00 | Flow (cfs) | 1152.98 | 11123.40 | 1130.62 |
| Top Width (ft) | 1809.04 | Top Width (ft) | 1180.11 | 147.60 | 481.33 |
| Vel Total (ft/s) | 7.33 | Avg. Vel. (ft/s) | 6.05 | 7.84 | 5.15 |
| Max Chl Dpth (ft) | 10.89 | Hydr. Depth (ft) | 6.50 | 9.61 | 5.23 |
| Conv. Total (cfs) | 127310.9 | Conv. (cfs) | 10948.5 | 105626.1 | 10736.2 |
| Length Wtd. (ft) | 649.29 | Wetted Per. (ft) | 29.35 | 147.99 | 43.08 |
| Min Ch El (ft) | 308.55 | Shear (lb/sq ft) | 4.49 | 6.63 | 3.53 |
| Alpha | 1.05 | Stream Power (lb/ft s) | 27.20 | 52.04 | 18.17 |
| Frctn Loss (ft) | 0.70 | Cum Volume (acre-ft) | 148.95 | 81.69 | 9.03 |
| C & E Loss (ft) | 0.24 | Cum SA (acres) | 29.70 | 10.75 | 3.10 |

Warning: Divided flow computed for this cross-section.

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: Sycamore Creek
REACH: Reach RS: 70

INPUT
Description: San Diego River 300
Station Elevation Data num= 491

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 363.62 | 3.76 | 364.84 | 6.33 | 365.19 | 12.17 | 365.6 | 20.43 | 366.25 |
| 26.94 | 366.72 | 32.09 | 367.16 | 34.66 | 367.3 | 39.81 | 367.77 | 42.39 | 367.38 |
| 44.96 | 364.93 | 47.54 | 363.01 | 50.11 | 362 | 55.53 | 359.5 | 60.42 | 356.51 |
| 65.57 | 352.38 | 68.14 | 350.81 | 72.05 | 348.73 | 75.87 | 346.52 | 80.31 | 343.61 |
| 83.59 | 341.76 | 86.17 | 339.91 | 88.74 | 338.43 | 91.32 | 337.12 | 93.89 | 335.58 |
| 99.05 | 332.11 | 101.62 | 330.56 | 106.77 | 327.26 | 109.21 | 325.76 | 111.92 | 323.95 |
| 114.5 | 322.72 | 117.07 | 321.83 | 119.65 | 321.5 | 124.8 | 321.55 | 135.1 | 321.78 |
| 138.12 | 321.9 | 147.98 | 322.08 | 155.7 | 322.12 | 158.28 | 322.25 | 160.85 | 322.06 |
| 166 | 320.39 | 168.58 | 319.77 | 171.15 | 319.37 | 176.31 | 319.45 | 181.47 | 319.31 |
| 184.03 | 319.33 | 189.18 | 319.17 | 195.93 | 318.67 | 200.06 | 318.45 | 204.19 | 318.46 |
| 207.21 | 318.71 | 214.93 | 318.96 | 217.51 | 318.94 | 220.09 | 318.77 | 225.24 | 318.77 |
| 227.81 | 318.61 | 235.54 | 318.54 | 245.48 | 318.5 | 248.41 | 318.58 | 256.14 | 318.49 |
| 275.26 | 318.38 | 279.32 | 318.42 | 287.04 | 318.18 | 292.97 | 318.17 | 299.92 | 318.06 |
| 302.5 | 317.97 | 305.07 | 318.04 | 307.65 | 317.92 | 315.37 | 317.92 | 320.52 | 318.23 |
| 323.1 | 318.31 | 328.25 | 318.71 | 330.13 | 318.36 | 335.98 | 317.51 | 341.13 | 316.98 |
| 346.28 | 316.88 | 348.85 | 316.63 | 354 | 315.94 | 356.58 | 315.74 | 359.15 | 315.88 |
| 363.17 | 315.29 | 366.88 | 314.59 | 369.36 | 314.38 | 374.61 | 314.2 | 377.62 | 313.77 |
| 382.33 | 313.67 | 384.91 | 313.92 | 387.48 | 314.64 | 389.8 | 315.46 | 392.63 | 316.03 |
| 397.78 | 315.67 | 400.21 | 315.24 | 404.46 | 313.99 | 408.08 | 313.32 | 413.24 | 313.4 |
| 415.81 | 313.3 | 418.39 | 312.84 | 420.96 | 312.63 | 426.11 | 312.48 | 428.69 | 312.23 |
| 431.3 | 311.32 | 436.41 | 311.42 | 438.99 | 311.65 | 441.86 | 311.75 | 446.9 | 311.71 |
| 449.29 | 311.66 | 457.02 | 312.95 | 462.17 | 312.74 | 464.74 | 312.87 | 472.47 | 312.76 |
| 474.66 | 312.02 | 477.62 | 311.19 | 480.19 | 310.81 | 482.77 | 310.71 | 485.34 | 310.74 |
| 487.92 | 310.25 | 490.5 | 309.47 | 493.07 | 308.37 | 497.37 | 306.9 | 498.22 | 306.71 |
| 503.56 | 306.78 | 507.69 | 306.68 | 511.1 | 306.43 | 515.95 | 305.62 | 518.02 | 305.57 |
| 523.97 | 306.06 | 526.55 | 306.1 | 529.13 | 306.76 | 532.47 | 307.96 | 534.53 | 308.52 |
| 539.43 | 308.82 | 544.58 | 308.81 | 547.15 | 308.94 | 549.73 | 308.86 | 552.3 | 308.93 |
| 554.88 | 309.25 | 560.03 | 309.64 | 570.33 | 311.01 | 572.91 | 311.66 | 578.06 | 312.75 |
| 583.21 | 314 | 614.11 | 314 | 615.06 | 313.79 | 617.12 | 313.07 | 619.26 | 312.59 |
| 621.84 | 312.43 | 624.41 | 312.44 | 632.14 | 313.33 | 634.71 | 313.46 | 639.86 | 313.31 |
| 647.59 | 312.87 | 652.74 | 312.41 | 660.47 | 311.88 | 668.19 | 311.43 | 686.22 | 310.67 |
| 701.77 | 310.19 | 711.97 | 309.81 | 717.12 | 309.58 | 727.43 | 309.51 | 732.58 | 309.4 |
| 737.73 | 309.12 | 742.88 | 308.93 | 750.6 | 308.75 | 758.33 | 308.29 | 765.78 | 308.03 |
| 771.21 | 308.03 | 776.36 | 308.34 | 784.08 | 309.38 | 791.81 | 310.2 | 794.38 | 310.42 |
| 799.54 | 310.55 | 807.26 | 310.29 | 809.84 | 310.27 | 817.56 | 310.06 | 822.71 | 310.06 |
| 825.65 | 310.18 | 833.01 | 310.65 | 840.1 | 310.62 | 845.89 | 310.41 | 850.43 | 310.47 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 853.62 | 310.76 | 856.62 | 311.15 | 861.34 | 311.52 | 866.49 | 311.52 | 871.64 | 311 |
| 876.8 | 310.12 | 884.52 | 309.81 | 889.67 | 309.53 | 895.85 | 309.43 | 897.92 | 309.46 |
| 907.7 | 310.04 | 910.27 | 310 | 915.43 | 309.75 | 920.58 | 309.22 | 925.73 | 308.8 |
| 930.88 | 308.25 | 936.03 | 308.48 | 941.18 | 309.08 | 946.33 | 308.58 | 953.66 | 308.29 |
| 961.78 | 308.34 | 970.18 | 308.32 | 972.08 | 308.39 | 974.31 | 308.66 | 977.23 | 309.39 |
| 979.81 | 310.3 | 982.57 | 310.99 | 984.63 | 311.28 | 987.53 | 311.43 | 995.26 | 311.18 |
| 1002.99 | 311.03 | 1010.71 | 310.97 | 1021.01 | 310.56 | 1031.32 | 310.39 | 1036.47 | 310.5 |
| 1041.62 | 310.54 | 1048.64 | 310.81 | 1069.95 | 312.11 | 1075.1 | 312.32 | 1077.67 | 312.49 |
| 1085.4 | 312.76 | 1093.12 | 312.9 | 1098.27 | 313.24 | 1103.42 | 313.89 | 1108.58 | 314.84 |
| 1113.73 | 315.96 | 1118.84 | 317.2 | 1121.45 | 317.75 | 1124.03 | 318.1 | 1126.6 | 318.3 |
| 1129.08 | 318.34 | 1131.75 | 317.95 | 1134.33 | 317.14 | 1139.49 | 315.87 | 1142.05 | 315.1 |
| 1147.2 | 313.33 | 1149.81 | 312.69 | 1152.36 | 312.2 | 1154.93 | 311.96 | 1160.08 | 311.75 |
| 1162.66 | 311.8 | 1165.23 | 312 | 1170.38 | 312.57 | 1172.96 | 312.39 | 1178.11 | 310.93 |
| 1181.14 | 310.24 | 1185.83 | 309.33 | 1189.03 | 309.1 | 1193.16 | 308.92 | 1196.14 | 308.88 |
| 1201.29 | 309 | 1206.44 | 309.38 | 1211.59 | 310.41 | 1215.87 | 311.48 | 1219.31 | 312.22 |
| 1224.13 | 312.88 | 1227.04 | 313.06 | 1232.19 | 313.06 | 1237.34 | 312.85 | 1242.49 | 312.52 |
| 1253.04 | 311.62 | 1257.17 | 311.5 | 1263.09 | 311.41 | 1275.97 | 311.53 | 1283.7 | 311.71 |
| 1291.42 | 312.08 | 1296.57 | 312.38 | 1309.45 | 313.02 | 1317.18 | 313.56 | 1324.9 | 314.16 |
| 1330.05 | 314.39 | 1337.93 | 314.27 | 1342.93 | 314 | 1345.51 | 313.74 | 1350.66 | 313.55 |
| 1353.23 | 313.53 | 1358.38 | 313.81 | 1360.96 | 314.38 | 1363.53 | 315.25 | 1366.11 | 316.43 |
| 1368.68 | 317.47 | 1371.26 | 318.15 | 1373.83 | 318.61 | 1376.41 | 318.56 | 1378.98 | 318.19 |
| 1384.14 | 317.14 | 1389.29 | 316.22 | 1394.44 | 315.51 | 1399.59 | 314.91 | 1404.74 | 314.07 |
| 1407.89 | 313.65 | 1412.02 | 313.43 | 1416.15 | 313.4 | 1422.34 | 313.24 | 1425.34 | 313.25 |
| 1430.49 | 313.69 | 1435.64 | 314.75 | 1445.94 | 317.43 | 1451.25 | 318.44 | 1456.24 | 319.14 |
| 1461.4 | 319.71 | 1469.12 | 319.94 | 1471.7 | 319.96 | 1476.85 | 319.81 | 1482 | 319.49 |
| 1487.15 | 319.28 | 1489.72 | 318.82 | 1492.3 | 318.01 | 1494.87 | 316.38 | 1497.45 | 315.02 |
| 1500.03 | 314.53 | 1502.6 | 314.32 | 1507.75 | 314.3 | 1512.9 | 314.57 | 1515.48 | 314.37 |
| 1518.05 | 313.94 | 1523.2 | 312.87 | 1525.78 | 312.52 | 1530.93 | 312.11 | 1536.08 | 311.99 |
| 1541.23 | 312.03 | 1546.38 | 312.22 | 1562.74 | 313.39 | 1566.98 | 313.66 | 1575.13 | 313.93 |
| 1590.16 | 314.01 | 1597.89 | 313.94 | 1605.61 | 313.76 | 1610.76 | 313.55 | 1618.49 | 313.31 |
| 1628.81 | 312.87 | 1631.37 | 312.81 | 1639.09 | 312.44 | 1644.24 | 312.36 | 1651.97 | 312.58 |
| 1657.12 | 312.82 | 1659.7 | 312.87 | 1662.27 | 312.61 | 1667.42 | 311.59 | 1670 | 311.19 |
| 1672.57 | 310.97 | 1680.3 | 310.75 | 1688.02 | 310.7 | 1693.18 | 310.84 | 1706.05 | 311.08 |
| 1708.63 | 311.2 | 1713.78 | 311.28 | 1726.65 | 311.56 | 1729.23 | 311.72 | 1734.11 | 311.86 |
| 1747.26 | 311.99 | 1752.41 | 312.11 | 1754.98 | 312.27 | 1757.56 | 312.67 | 1760.95 | 313.44 |
| 1765.28 | 314.53 | 1773.01 | 313.88 | 1780.74 | 313.91 | 1785.89 | 314.06 | 1791.04 | 314.37 |
| 1796.05 | 314.74 | 1798.76 | 314.86 | 1803.91 | 314.91 | 1809.07 | 314.62 | 1812.56 | 313.82 |
| 1814.63 | 313.23 | 1816.69 | 312.92 | 1818.76 | 312.06 | 1821.94 | 310.94 | 1827.09 | 310.43 |
| 1832.24 | 310.14 | 1837.39 | 310.09 | 1847.66 | 310.19 | 1852.85 | 310.53 | 1860.57 | 310.79 |
| 1868.3 | 310.56 | 1876.02 | 310.65 | 1878.6 | 310.85 | 1883.75 | 311.93 | 1888.9 | 311.87 |
| 1896.63 | 312.01 | 1901.78 | 312.82 | 1904.35 | 313.81 | 1909.5 | 315.61 | 1913.73 | 316.89 |
| 1917.8 | 318.441 | 1922.38 | 319.25 | 1935.26 | 320.39 | 1940.41 | 320.73 | 1948.13 | 321.38 |
| 1953.28 | 321.54 | 1961.01 | 321.22 | 1973.89 | 321.04 | 1981.87 | 320.99 | 1989.34 | 321.03 |
| 1999.64 | 321.39 | 2007.37 | 321.46 | 2009.94 | 321.34 | 2017.67 | 320.74 | 2027.97 | 320.31 |
| 2033.48 | 320.3 | 2043.42 | 320.87 | 2048.57 | 321.05 | 2064.45 | 321.34 | 2069.17 | 321.37 |
| 2074.32 | 321.31 | 2082.05 | 321.01 | 2087.2 | 320.91 | 2097.52 | 320.87 | 2101.62 | 320.74 |
| 2105.23 | 320.49 | 2107.8 | 320.16 | 2118.26 | 318.07 | 2120.68 | 317.66 | 2123.26 | 317.36 |
| 2126.4 | 317.16 | 2130.98 | 316.73 | 2140.85 | 316.14 | 2149.11 | 315.88 | 2151.58 | 315.87 |
| 2159.43 | 316.26 | 2164.46 | 316.76 | 2169.61 | 317.49 | 2174.76 | 318 | 2177.34 | 318.17 |
| 2182.49 | 318.37 | 2188.34 | 318.49 | 2196.59 | 318.47 | 2210.82 | 318.49 | 2228.84 | 318.99 |
| 2239.15 | 318.98 | 2241.72 | 318.92 | 2246.87 | 319.09 | 2252.34 | 319.17 | 2254.6 | 319.27 |
| 2260.6 | 319.7 | 2267.47 | 320.57 | 2270.05 | 320.63 | 2280.35 | 320.54 | 2285.5 | 320.66 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2288.08 | 320.64 | 2293.63 | 320.86 | 2306.1 | 321.19 | 2316.34 | 321.41 | 2318.41 | 321.36 |
| 2324.13 | 321.4 | 2331.86 | 321.27 | 2342.16 | 320.97 | 2347.31 | 320.97 | 2349.88 | 321.09 |
| 2355.04 | 321.62 | 2362.76 | 322.83 | 2367.91 | 323.35 | 2375.64 | 323.58 | 2378.21 | 323.57 |
| 2383.36 | 323.35 | 2386.54 | 323.12 | 2393.67 | 322.88 | 2396.24 | 322.93 | 2398.93 | 323.22 |
| 2401.39 | 323.28 | 2403.97 | 323.5 | 2406.54 | 323.92 | 2409.12 | 324.87 | 2420.22 | 325.5 |
| 2421.99 | 325.53 | 2424.57 | 325.38 | 2432.3 | 325.32 | 2434.87 | 325.43 | 2442.29 | 325.29 |
| 2447.75 | 325.29 | 2454.68 | 325.44 | 2460.87 | 325.47 | 2468.35 | 325.44 | 2473.5 | 325.53 |
| 2483.8 | 325.03 | 2489.78 | 325.09 | 2493.91 | 325.34 | 2500.1 | 324.98 | 2509.56 | 324.93 |
| 2514.55 | 325.21 | 2517.28 | 325.18 | 2519.86 | 325.37 | 2522.81 | 325.93 | 2525.01 | 326.07 |
| 2527.58 | 325.84 | 2529.01 | 325.56 | 2532.73 | 324.57 | 2535.31 | 324.28 | 2543.03 | 323.89 |
| 2549.37 | 324.09 | | | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .05 | 446.9 | .06 | 1917.8 | .05 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 446.9 | 1917.8 | 0 | 0 | 0 .1 | .3 |

CROSS SECTION OUTPUT Profile #Scenario 1

| | | | | | | |
|---|---|---|---|---|---|---|
| E.G. Elev (ft) | 319.38 | Element | Left OB | Channel | Right OB | |
| Vel Head (ft) | 0.08 | Wt. n-Val. | 0.050 | 0.060 | 0.050 | |
| W.S. Elev (ft) | 319.30 | Reach Len. (ft) | | | | |
| Crit W.S. (ft) | 313.43 | Flow Area (sq ft) | 689.53 | 10658.29 | 202.55 | |
| E.G. Slope (ft/ft) | 0.000575 | Area (sq ft) | 689.53 | 10658.29 | 202.55 | |
| Q Total (cfs) | 25000.00 | Flow (cfs) | 933.54 | 23887.02 | 179.44 | |
| Top Width (ft) | 1851.89 | Top Width (ft) | 261.90 | 1441.93 | 148.06 | |
| Vel Total (ft/s) | 2.16 | Avg. Vel. (ft/s) | 1.35 | 2.24 | 0.89 | |
| Max Chl Dpth (ft) | 13.73 | Hydr. Depth (ft) | 2.63 | 7.39 | 1.37 | |
| Conv. Total (cfs) | 1042943.0 | Conv. (cfs) | 38945.0 | 996512.1 | 7485.9 | |
| Length Wtd. (ft) | | Wetted Per. (ft) | 263.17 | 1452.99 | 148.49 | |
| Min Ch El (ft) | 305.57 | Shear (lb/sq ft) | 0.09 | 0.26 | 0.05 | |
| Alpha | 1.04 | Stream Power (lb/ft s) | 0.13 | 0.59 | 0.04 | |
| Frctn Loss (ft) | | Cum Volume (acre-ft) | | | | |
| C & E Loss (ft) | | Cum SA (acres) | | | | |

Warning: Divided flow computed for this cross-section.

SUMMARY OF REACH LENGTHS

River: Sycamore Creek

| Reach | River Sta. | Left | Channel | Right |
|---|---|---|---|---|
| Reach | 500 | 484.65 | 511.2 | 513.2 |
| Reach | 450 | 163.58 | 199.56 | 223.24 |
| Reach | 400 | 290.22 | 278.09 | 271.36 |
| Reach | 300 | 95.85 | 94.82 | 94.72 |

| | | | | | |
|---|---|---|---|---|---|
| Reach | 250 | Bridge | | | |
| Reach | 200 | | 301 | 307.18 | 316 |
| Reach | 100 | | 1794.15 | 589.3 | 429.11 |
| Reach | 70 | | 0 | 0 | 0 |

SUMMARY OF CONTRACTION AND EXPANSION COEFFICIENTS
River: Sycamore Creek

| Reach | River Sta. | Contr. | Expan. |
|---|---|---|---|
| Reach | 500 | .1 | .3 |
| Reach | 450 | .1 | .3 |
| Reach | 400 | .1 | .3 |
| Reach | 300 | .3 | .5 |
| Reach | 250 | Bridge | |
| Reach | 200 | .1 | .3 |
| Reach | 100 | .1 | .3 |
| Reach | 70 | .1 | .3 |

HEC-RAS Plan: Plan 08 River: Sycamore Creek Reach: Reach Profile: Scenario 1

| 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) | |
| Reach | 70 | Scenario 1 | 25000.00 | 305.57 | 319.30 | 313.43 | 319.38 | 0.000575 | 2.24 | 11550.37 | 1851.89 | 0.15 |
| Reach | 100 | Scenario 1 | 13407.00 | 308.55 | 319.44 | 315.99 | 320.32 | 0.011090 | 7.84 | 1828.20 | 1809.04 | 0.45 |
| Reach | 200 | Scenario 1 | 13407.00 | 312.03 | 322.53 | 319.42 | 323.23 | 0.008126 | 7.36 | 2278.20 | 872.69 | 0.42 |
| Reach | 250 | | Bridge | | | | | | | | | |
| Reach | 300 | Scenario 1 | 13407.00 | 313.84 | 326.77 | 321.01 | 326.84 | 0.000422 | 2.08 | 6430.65 | 1797.79 | 0.10 |
| Reach | 400 | Scenario 1 | 13407.00 | 314.00 | 326.93 | 320.39 | 327.09 | 0.001884 | 3.53 | 4311.73 | 1310.37 | 0.19 |
| Reach | 450 | Scenario 1 | 13407.00 | 314.00 | 327.11 | 322.39 | 327.25 | 0.000461 | 2.09 | 4968.90 | 1060.08 | 0.12 |
| Reach | 500 | Scenario 1 | 13407.00 | 318.00 | 327.29 | | 327.42 | 0.000271 | 1.05 | 5379.25 | 1010.34 | 0.07 |

Plan: Plan 08  Sycamore Creek  Reach  RS: 250  Profile: Scenario 1

| E.G. US. (ft) | 326.84 | Element | Inside BR US | Inside BR DS |
|---|---|---|---|---|
| W.S. US. (ft) | 326.77 | E.G. Elev (ft) | 326.81 | 325.28 |
| Q Total (cfs) | 13407.00 | W.S. Elev (ft) | 326.70 | 320.71 |
| Q Bridge (cfs) | 616.74 | Crit W.S. (ft) | 322.82 | 318.35 |
| Q Weir (cfs) | | Max Chl Dpth (ft) | 12.86 | 8.68 |
| Weir Sta Lft (ft) | | Vel Total (ft/s) | 2.39 | 17.13 |
| Weir Sta Rgt (ft) | | Flow Area (sq ft) | 5599.20 | 782.67 |
| Weir Submerg | | Froude # Chl | 0.13 | 1.03 |
| Weir Max Depth (ft) | | Specif Force (cu ft) | 19102.79 | 11090.10 |
| Min El Weir Flow (ft) | 321.31 | Hydr Depth (ft) | 4.30 | |
| Min El Prs (ft) | 318.92 | W.P. Total (ft) | 1657.94 | 332.31 |
| Delta EG (ft) | 3.61 | Conv. Total (cfs) | 454952.7 | 25910.8 |
| Delta WS (ft) | 4.25 | Top Width (ft) | 1790.79 | |
| BR Open Area (sq ft) | 708.36 | Frctn Loss (ft) | 0.20 | 0.11 |
| BR Open Vel (ft/s) | 0.87 | C & E Loss (ft) | 1.34 | 1.93 |
| BR Sluice Coef | | Shear Total (lb/sq ft) | 0.18 | 39.37 |
| BR Sel Method | Energy only | Power Total (lb/ft s) | 0.44 | 674.35 |

HEC-RAS HEC-RAS 5.0.7 March 2019
U.S. Army Corps of Engineers
Hydrologic Engineering Center
609 Second Street
Davis, California

```
X     X  XXXXXX    XXXX        XXXX       XX      XXXX
X     X  X        X    X       X   X     X  X    X
X     X  X        X            X   X    X    X   X
XXXXXXX  XXXX     X       XXX  XXXX     XXXXXX    XXXX
X     X  X        X            X  X     X    X        X
X     X  X        X    X       X   X    X    X        X
X     X  XXXXXX    XXXX        X    X   X    X   XXXXX
```

PROJECT DATA
Project Title: Sycamore Creek
Project File : SycamoreCreek.prj
Run Date and Time: 12/19/2023 3:18:54 PM

Project in English units

PLAN DATA

Plan Title: Plan 05
Plan File : r:\1759\Plot\Hydrology\FEMA\To the City\12 12-14-2023\Sycamore Creek\SycamoreCreek.p05

Geometry Title: SYC-EX-remove Carlton Bridge-Weir
Geometry File : r:\1759\Plot\Hydrology\FEMA\To the City\12 12-14-2023\Sycamore Creek\SycamoreCreek.g14

Flow Title    : SY-EX-Flow-remove-bridge-Weir
Flow File     : r:\1759\Plot\Hydrology\FEMA\To the City\12 12-14-2023\Sycamore Creek\SycamoreCreek.f11

Plan Summary Information:
Number of:  Cross Sections =    7    Multiple Openings  =    0
            Culverts       =    0    Inline Structures  =    1
            Bridges        =    0    Lateral Structures =    0

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

Computation Options

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

FLOW DATA

Flow Title: SY-EX-Flow-remove-bridge-Weir
Flow File : r:\1759\Plot\Hydrology\FEMA\To the City\12 12-14-2023\Sycamore Creek\SycamoreCreek.f11

Flow Data (cfs)

| River | Reach | RS | Scenario 1 |
|---|---|---|---|
| Sycamore Creek | Reach | 500 | 13407 |
| Sycamore Creek | Reach | 300 | 12790.26 |
| Sycamore Creek | Reach | 100 | 13407 |
| Sycamore Creek | Reach | 70 | 25000 |

Boundary Conditions

| River | Reach | Profile | Upstream | Downstream |
|---|---|---|---|---|
| Sycamore Creek | Reach | Scenario 1 | | Known WS = 319.3 |

GEOMETRY DATA

Geometry Title: SYC-EX-remove Carlton Bridge-Weir
Geometry File : r:\1759\Plot\Hydrology\FEMA\To the City\12 12-14-2023\Sycamore Creek\SycamoreCreek.g14

CROSS SECTION

RIVER: Sycamore Creek
REACH: Reach RS: 500

INPUT
Description: 0.023 for the Santa recreational Lake
0.035 AC road+ short to
medium grass
0.09 Creek medium t odense brush
0.045 houses+
landscape
Station Elevation Data num= 102

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 346 | .48 | 345.42 | 2.61 | 344 | 2.66 | 343.94 | 5.57 | 342 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 9.1 | 340.54 | 10.94 | 340 | 12.03 | 339.37 | 15.95 | 338 | 16.87 | 337.09 | |
| 19.22 | 336 | 37.85 | 334.58 | 44.1 | 334.36 | 91.44 | 334.1 | 91.71 | 334.1 | |
| 92 | 334.1 | 103.16 | 334.09 | 104.62 | 334.09 | 105.32 | 334.08 | 106.24 | 334.08 | |
| 110.23 | 334 | 114.92 | 334 | 117 | 333.976 | 177.13 | 333.27 | 185.06 | 333.3 | |
| 190.91 | 333.29 | 250.26 | 334 | 260.57 | 334 | 265.06 | 334.09 | 265.59 | 334.1 | |
| 301.99 | 334.1 | 304.29 | 334.05 | 306.99 | 334 | 308.9 | 332.43 | 309.47 | 332 | |
| 311.94 | 331.29 | 316.88 | 330 | 317.16 | 329.75 | 324.23 | 329.29 | 326.75 | 328 | |
| 372.87 | 328 | 378.15 | 326.23 | 378.76 | 326 | 379.37 | 325.68 | 380.21 | 325.39 | |
| 386.6 | 324 | 391.32 | 323.22 | 395.69 | 322.75 | 399.05 | 322 | 1057.41 | 322 | |
| 1059.55 | 323.35 | 1061.33 | 324 | 1088.34 | 324 | 1155.18 | 324.93 | 1174 | 324.02 | |
| 1174.06 | 324.02 | 1174.41 | 324 | 1182.58 | 322.46 | 1185.46 | 322 | 1187.3 | 321.2 | |
| 1190.19 | 320.23 | 1191.3 | 320 | 1191.98 | 319.72 | 1196.05 | 318.7 | 1197.6 | 318.55 | |
| 1197.89 | 318.45 | 1198.77 | 318 | 1205.35 | 318 | 1207.04 | 318 | 1215.51 | 318.47 | |
| 1248.19 | 320 | 1271.68 | 320 | 1281.23 | 320 | 1308.2 | 320 | 1337.97 | 320 | |
| 1360.39 | 320 | 1365.31 | 321.25 | 1375.35 | 324.28 | 1375.39 | 324.29 | 1390.4 | 328.82 | |
| 1391.91 | 330 | 1417.68 | 338.79 | 1419.76 | 339.3 | 1423 | 340 | 1434.66 | 340 | |
| 1472.4 | 340.51 | 1480.96 | 340 | 1489.05 | 339.24 | 1489.71 | 339.26 | 1536.35 | 339.46 | |
| 1546.35 | 339.59 | 1549.55 | 340 | 1551 | 340.64 | 1554.92 | 342 | 1559.9 | 343.46 | |
| 1562.26 | 344 | 1571.8 | 344.47 | 1578.84 | 344.71 | 1586.79 | 344.95 | 1595.93 | 345.12 | |
| 1602.63 | 345.18 | 1623.79 | 346 | | | | | | | |

Manning's n Values num= 5

| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|---|---|---|---|
| 0 | .035 | 326.75 | .023 | 1057.41 | .035 | 1174.06 | .09 | 1360.39 | .045 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 1174 | 1375.35 | 484.65 | 511.2 | 513.2 | .1 | .3 |

CROSS SECTION OUTPUT Profile #Scenario 1

| | | | | | | |
|---|---|---|---|---|---|---|
| E.G. Elev (ft) | 326.44 | Element | Left OB | Channel | Right OB | |
| Vel Head (ft) | 0.20 | Wt. n-Val. | 0.023 | 0.087 | 0.045 | |
| W.S. Elev (ft) | 326.24 | Reach Len. (ft) | 484.65 | 511.20 | 513.20 | |
| Crit W.S. (ft) | | Flow Area (sq ft) | 3069.34 | 1250.66 | 6.40 | |
| E.G. Slope (ft/ft) | 0.000565 | Area (sq ft) | 3069.34 | 1250.66 | 6.40 | |
| Q Total (cfs) | 13407.00 | Flow (cfs) | 11694.39 | 1707.78 | 4.83 | |
| Top Width (ft) | 1003.75 | Top Width (ft) | 795.89 | 201.35 | 6.51 | |
| Vel Total (ft/s) | 3.10 | Avg. Vel. (ft/s) | 3.81 | 1.37 | 0.75 | |
| Max Chl Dpth (ft) | 8.24 | Hydr. Depth (ft) | 3.86 | 6.21 | 0.98 | |
| Conv. Total (cfs) | 563950.6 | Conv. (cfs) | 491911.8 | 71835.8 | 203.0 | |
| Length Wtd. (ft) | 492.42 | Wetted Per. (ft) | 796.92 | 202.85 | 6.80 | |
| Min Ch El (ft) | 318.00 | Shear (lb/sq ft) | 0.14 | 0.22 | 0.03 | |
| Alpha | 1.34 | Stream Power (lb/ft s) | 0.52 | 0.30 | 0.03 | |
| Frctn Loss (ft) | 0.36 | Cum Volume (acre-ft) | 218.65 | 140.59 | 17.26 | |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 53.04 | 17.15 | 7.61 | |

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Sycamore Creek
REACH: Reach RS: 450

INPUT
Description: 0.023 for the Santa recreational Lake
0.035 AC road+ short to
medium grass
0.09 Creek medium t odense brush
0.045 houses+
landscape

Station Elevation Data num= 101

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 344 | 17.26 | 344 | 20.59 | 343.57 | 23.56 | 343.47 | 37.59 | 342 |
| 41.63 | 340.86 | 43.32 | 340 | 45.06 | 338.83 | 49.52 | 338 | 108.46 | 330 |
| 113.23 | 329.57 | 121.31 | 328.71 | 131.1 | 328 | 198.19 | 328 | 215.69 | 329 |
| 217.89 | 329.29 | 249.45 | 330 | 252.84 | 330.01 | 257.89 | 328.27 | 258.41 | 328 |
| 259.21 | 327.72 | 263.54 | 326 | 267.83 | 326 | 271.35 | 324.26 | 273.16 | 324.46 |
| 291.29 | 326 | 447.75 | 326 | 453.6 | 325.88 | 461.37 | 326 | 464.52 | 326 |
| 479 | 326.38 | 494.64 | 326.57 | 508.17 | 326.54 | 533.29 | 326.23 | 538.75 | 326 |
| 548.32 | 326 | 583.38 | 324.55 | 604.58 | 324 | 612.4 | 323.61 | 634.1 | 322.7 |
| 646.44 | 322.3 | 649.79 | 322 | 835.68 | 322 | 859.71 | 322.96 | 865.16 | 322 |
| 893.59 | 322 | 906.95 | 324 | 919.69 | 324 | 933.72 | 322.74 | 946.86 | 322 |
| 1024.16 | 320.67 | 1052.36 | 320.27 | 1052.39 | 320.27 | 1069.11 | 320 | 1082.55 | 320 |
| 1106.56 | 320 | 1112.67 | 318.77 | 1115.34 | 318 | 1118.62 | 317.28 | 1125.27 | 316 |
| 1137.06 | 314 | 1149.25 | 314 | 1153.58 | 314.04 | 1154.62 | 314.1 | 1163.46 | 314.3 |
| 1169.47 | 314.53 | 1184.76 | 315.59 | 1193.79 | 315.87 | 1196.5 | 316 | 1228.7 | 316 |
| 1289.08 | 318 | 1294.75 | 319.64 | 1294.78 | 319.65 | 1296.82 | 320.34 | 1297.25 | 320.7 |
| 1302.63 | 322.24 | 1310.3 | 324.11 | 1330.91 | 330 | 1418.17 | 330 | 1425.14 | 329.24 |
| 1475.4 | 329.56 | 1487.5 | 330 | 1512.95 | 331.13 | 1538.06 | 332 | 1549.66 | 332 |
| 1550.33 | 332.31 | 1553.11 | 334 | 1555.85 | 334.9 | 1563.92 | 336 | 1565.63 | 337.16 |
| 1570.84 | 338 | 1572.31 | 338.52 | 1580.22 | 340 | 1584.67 | 341.39 | 1586.5 | 342 |
| 1591.39 | 343.46 | 1592.65 | 344 | 1595.12 | 345.34 | 1599.14 | 345.8 | 1601.31 | 346 |
| 1604.01 | 346 | | | | | | | | |

Manning's n Values num= 5

| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|---|---|---|---|
| 0 | .035 | 538.75 | .023 | 919.69 | .035 | 1118.62 | .09 | 1296.82 | .045 |

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

| Left | Right | Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 1052.39 | 1294.75 | 163.58 | 199.56 | 223.24 | .1 | .3 |

Ineffective Flow num= 1

| Sta L | Sta R | Elev | Permanent |
|---|---|---|---|
| 462 | 627 | 330 | F |

CROSS SECTION OUTPUT Profile #Scenario 1

| | | | | | | |
|---|---|---|---|---|---|---|
| E.G. Elev (ft) | 326.08 | Element | Left OB | Channel | Right OB | |
| Vel Head (ft) | 0.22 | Wt. n-Val. | 0.027 | 0.074 | 0.052 | |
| W.S. Elev (ft) | 325.86 | Reach Len. (ft) | 163.58 | 199.56 | 223.24 | |
| Crit W.S. (ft) | 322.39 | Flow Area (sq ft) | 1664.76 | 2147.44 | 64.07 | |
| E.G. Slope (ft/ft) | 0.001006 | Area (sq ft) | 1772.68 | 2147.44 | 64.07 | |
| Q Total (cfs) | 13407.00 | Flow (cfs) | 7282.88 | 6002.88 | 121.25 | |

| | | | | | |
|---|---|---|---|---|---|
| Top Width (ft) | 786.35 | Top Width (ft) | 522.31 | 242.36 | 21.68 |
| Vel Total (ft/s) | 3.46 | Avg. Vel. (ft/s) | 4.37 | 2.80 | 1.89 |
| Max Chl Dpth (ft) | 11.86 | Hydr. Depth (ft) | 3.72 | 8.86 | 2.95 |
| Conv. Total (cfs) | 422660.2 | Conv. (cfs) | 229595.2 | 189242.7 | 3822.4 |
| Length Wtd. (ft) | 188.87 | Wetted Per. (ft) | 447.77 | 243.28 | 22.61 |
| Min Ch El (ft) | 314.00 | Shear (lb/sq ft) | 0.23 | 0.55 | 0.18 |
| Alpha | 1.16 | Stream Power (lb/ft s) | 1.02 | 1.55 | 0.34 |
| Frctn Loss (ft) | 0.37 | Cum Volume (acre-ft) | 191.72 | 120.65 | 16.84 |
| C & E Loss (ft) | 0.02 | Cum SA (acres) | 45.70 | 14.54 | 7.45 |

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

CROSS SECTION

RIVER: Sycamore Creek
REACH: Reach RS: 400

INPUT
Description: 0.09 Creek medium t odense brush
0.045 houses (buildings)+
parking area+ landscape
Station Elevation Data num= 101

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 338 | .21 | 338 | 1.12 | 337.74 | 8.25 | 336 | 11.02 | 334.07 |
| 11.32 | 333.91 | 16.15 | 332 | 22.08 | 330 | 47.54 | 328.37 | 67.02 | 328.46 |
| 77.13 | 328.55 | 115.32 | 328 | 138.57 | 328 | 145.26 | 327.01 | 147.88 | 326.66 |
| 153.6 | 326.29 | 155.07 | 326.24 | 156.95 | 326 | 184.97 | 326 | 189.2 | 326.1 |
| 211.91 | 326.98 | 235.19 | 327.84 | 238.28 | 328 | 275.37 | 328 | 275.57 | 327.82 |
| 281.09 | 326 | 284.67 | 324.66 | 286.51 | 324 | 294.81 | 324 | 308.89 | 324.47 |
| 419.7 | 324.68 | 457.3 | 324.67 | 462.04 | 324.73 | 498.49 | 325.01 | 504.39 | 325.01 |
| 515.48 | 325.09 | 520.86 | 325.08 | 536.12 | 325.18 | 545.12 | 325.21 | 594.18 | 325.04 |
| 602.87 | 324.99 | 633.01 | 324.87 | 644.44 | 324.85 | 716.39 | 324.46 | 727.52 | 324.38 |
| 768.74 | 324 | 791.41 | 324 | 807.68 | 323.76 | 838.96 | 322.8 | 845.41 | 322.6 |
| 868.9 | 322 | 881.07 | 322 | 892.7 | 321.57 | 902.92 | 321.34 | 948.37 | 320.84 |
| 960.48 | 320.65 | 966.06 | 320.56 | 988.85 | 320.21 | 993.5 | 320.19 | 1011.36 | 320 |
| 1041.42 | 320 | 1065.21 | 319.4 | 1065.28 | 319.4 | 1083.68 | 318.94 | 1123.34 | 318 |
| 1124.7 | 317.76 | 1132.52 | 316 | 1135.34 | 314.39 | 1136.69 | 314 | 1170.93 | 314 |
| 1304.97 | 316 | 1307.64 | 316.64 | 1308.71 | 317.05 | 1314.11 | 320 | 1314.97 | 320.19 |
| 1315 | 320.2 | 1319.26 | 321.16 | 1322.52 | 322 | 1329.49 | 324.1 | 1332.61 | 326 |
| 1347.79 | 327 | 1352.19 | 327.04 | 1357.77 | 326.99 | 1431.55 | 326.53 | 1434.01 | 326.49 |
| 1449.92 | 326 | 1491.44 | 326 | 1513.13 | 326.5 | 1574.68 | 327.31 | 1585.54 | 327.42 |
| 1587.93 | 327.48 | 1593.01 | 327.52 | 1599.21 | 327.61 | 1608.14 | 328 | 1610.54 | 329.25 |
| 1612.64 | 330 | 1618.12 | 330.65 | 1633.37 | 332 | 1635.41 | 332.5 | 1639.14 | 333.24 |
| 1639.65 | 334 | | | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|

```
       0    .045 1041.42     .09 1332.61    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       1065.28    1315           290.22  278.09  271.36             .1       .3
Ineffective Flow     num=       3
   Sta L   Sta R    Elev  Permanent
       0     842     321       F
     842    1062     330       F
    1573 1639.65     321       F

CROSS SECTION OUTPUT  Profile #Scenario 1

  E.G. Elev (ft)            325.69    Element                  Left OB    Channel   Right OB
  Vel Head (ft)               0.41    Wt. n-Val.                0.049      0.090     0.090
  W.S. Elev (ft)            325.28    Reach Len. (ft)          290.22     278.09    271.36
  Crit W.S. (ft)            320.39    Flow Area (sq ft)        417.93    2338.79     48.27
  E.G. Slope (ft/ft)      0.005313    Area (sq ft)            1387.55    2338.79     48.27
  Q Total (cfs)           13407.00    Flow (cfs)               840.79   12450.95    115.27
  Top Width (ft)           1048.40    Top Width (ft)           782.26     249.72     16.42
  Vel Total (ft/s)            4.78    Avg. Vel. (ft/s)           2.01       5.32      2.39
  Max Chl Dpth (ft)          11.28    Hydr. Depth (ft)           0.74       9.37      2.94
  Conv. Total (cfs)       183929.1    Conv. (cfs)             11534.7   170813.1    1581.3
  Length Wtd. (ft)           281.35    Wetted Per. (ft)         562.51     251.38     17.27
  Min Ch El (ft)             314.00    Shear (lb/sq ft)           0.25       3.09      0.93
  Alpha                        1.17    Stream Power (lb/ft s)     0.50      16.43      2.21
  Frctn Loss (ft)              0.82    Cum Volume (acre-ft)     185.78     110.38     16.55
  C & E Loss (ft)              0.07    Cum SA (acres)            43.25      13.42      7.35


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

CROSS SECTION


RIVER: Sycamore Creek
REACH: Reach             RS: 300

INPUT
Description: 0.035 AC road+ short to medium grass
0.08 Creek medium odense
           brush
0.045 houses+ landscape
Station Elevation Data    num=     101
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0   326.9    2.71  326.86    4.84  326.81    7.05  326.76   13.21   327.6
   17.53  328.05   24.55  327.96   32.42  328.47   46.58  328.62   93.74   326.9
   95.92   326.8   97.95  326.67   101.7  326.36  103.87  326.73  109.94   326.8
  114.01     326   164.4     326  198.56  325.51  204.46  325.49  234.71  325.45
  244.93  325.43  247.08  325.43  346.79     324  347.98     324  699.16     324
  790.88  322.16  792.13  322.16  813.92   322.1  814.54   322.1  814.85   322.1
```

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 844.83 | 322 | 1074.15 | 322 | 1203.28 | 320.26 | 1220.36 | 320 | 1257.95 | 320 |
| 1258.05 | 320 | 1270.88 | 320 | 1309.73 | 319.63 | 1316.14 | 318 | 1316.31 | 317.94 |
| 1320.69 | 316 | 1323.26 | 314.42 | 1323.92 | 314 | 1387.93 | 314 | 1411.01 | 313.84 |
| 1415.96 | 313.85 | 1421.73 | 314.95 | 1430.1 | 314 | 1454.02 | 314 | 1457.01 | 314 |
| 1472.57 | 314 | 1478.77 | 316.81 | 1478.87 | 316.86 | 1479.02 | 316.93 | 1486.47 | 320 |
| 1492.6 | 321.89 | 1492.87 | 322 | 1493.51 | 322.27 | 1497.83 | 324 | 1516.18 | 324 |
| 1539.49 | 324 | 1557.89 | 324 | 1576.09 | 324 | 1584.94 | 323.84 | 1585.17 | 323.84 |
| 1592.19 | 324 | 1605.09 | 324 | 1607.37 | 324 | 1608.02 | 324 | 1611.34 | 324 |
| 1649.18 | 324 | 1678.88 | 324.11 | 1683.07 | 324 | 1684.65 | 324 | 1684.79 | 324 |
| 1687.31 | 324 | 1693.67 | 324 | 1701.42 | 324 | 1704.28 | 324 | 1801.5 | 324 |
| 1804.71 | 324 | 1805.6 | 324.02 | 1824.42 | 324.39 | 1826.39 | 324.46 | 1866.12 | 325.48 |
| 1884.04 | 325.83 | 1886.97 | 326 | 1903.67 | 327.44 | 1908.78 | 328 | 1911.3 | 329.35 |
| 1913.18 | 330 | 1913.9 | 330.37 | 1918.57 | 332 | 1923.41 | 333.53 | 1925.36 | 334 |
| 1926.23 | 334.45 | 1929.81 | 336 | 1932.53 | 336.76 | 1940.9 | 338 | 1942.33 | 338.7 |
| 1951.53 | 340 | | | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .035 | 1316.14 | .08 | 1497.83 | .045 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 1323.26 | 1472.57 | 95.85 | 94.82 | 94.72 | .3 | .5 |

Ineffective Flow num= 5

| Sta L | Sta R | Elev | Permanent |
|---|---|---|---|
| 0 | 495 | 321 | F |
| 495 | 626 | 330 | F |
| 626 | 1309.17 | 321 | F |
| 1495.61 | 1538 | 321 | F |
| 1538 | 1951.53 | 330 | F |

CROSS SECTION OUTPUT Profile #Scenario 1

| | | | | | | |
|---|---|---|---|---|---|---|
| E.G. Elev (ft) | 324.80 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.18 | Wt. n-Val. | 0.036 | 0.080 | 0.077 |
| W.S. Elev (ft) | 324.62 | Reach Len. (ft) | 95.85 | 94.82 | 94.72 |
| Crit W.S. (ft) | 320.05 | Flow Area (sq ft) | 2072.52 | 1581.80 | 161.06 |
| E.G. Slope (ft/ft) | 0.001794 | Area (sq ft) | 2153.68 | 1581.80 | 334.97 |
| Q Total (cfs) | 12790.26 | Flow (cfs) | 6455.43 | 5995.96 | 338.87 |
| Top Width (ft) | 1529.02 | Top Width (ft) | 1019.67 | 149.31 | 360.04 |
| Vel Total (ft/s) | 3.35 | Avg. Vel. (ft/s) | 3.11 | 3.79 | 2.10 |
| Max Chl Dpth (ft) | 10.78 | Hydr. Depth (ft) | 2.33 | 10.59 | 2.46 |
| Conv. Total (cfs) | 301931.8 | Conv. (cfs) | 152389.4 | 141542.9 | 7999.5 |
| Length Wtd. (ft) | 94.82 | Wetted Per. (ft) | 889.78 | 149.59 | 67.37 |
| Min Ch El (ft) | 313.84 | Shear (lb/sq ft) | 0.26 | 1.18 | 0.27 |
| Alpha | 1.05 | Stream Power (lb/ft s) | 0.81 | 4.49 | 0.56 |
| Frctn Loss (ft) | | Cum Volume (acre-ft) | 173.99 | 97.86 | 15.36 |
| C & E Loss (ft) | | Cum SA (acres) | 37.25 | 12.14 | 6.18 |

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

INLINE STRUCTURE

RIVER: Sycamore Creek
REACH: Reach RS: 250

INPUT
Description:
Distance from Upstream XS = 25
Deck/Roadway Width = 65
Weir Coefficient = 3
Weir Embankment Coordinates num = 7

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 1038 | 321.5 | 1270.8 | 321.3 | 1316.1 | 321.3 | 1415 | 321.6 | 1444 | 321.7 |
| 1497.8 | 322 | 1576 | 322 | | | | | | |

Upstream Embankment side slope = 0 horiz. to 1.0 vertical
Downstream Embankment side slope = 0 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow = .98
Elevation at which weir flow begins =
Weir crest shape = Broad Crested

CROSS SECTION

RIVER: Sycamore Creek
REACH: Reach RS: 200

INPUT
Description: 0.035 AC road+ short to medium grass
0.08 Creek medium odense
brush
0.045 houses+ landscape
Station Elevation Data num= 101

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 327.46 | 28.23 | 326.41 | 44.34 | 326 | 299.22 | 326 | 399.15 | 324 |
| 399.19 | 324 | 399.22 | 324 | 402.1 | 324 | 405.23 | 324 | 816.63 | 324 |
| 843.92 | 322.38 | 851.28 | 322 | 852.31 | 322 | 882.13 | 322 | 885.37 | 322 |
| 905.31 | 322 | 915.28 | 322 | 923.84 | 322 | 925.93 | 322 | 929.19 | 322 |
| 937.09 | 322 | 969.52 | 322 | 972.34 | 322 | 995.39 | 322 | 1010.89 | 322 |
| 1035.6 | 322 | 1052.64 | 321.42 | 1090.99 | 321.25 | 1103.71 | 321.21 | 1107.61 | 321.26 |
| 1141.78 | 321.26 | 1149.32 | 321.2 | 1224.8 | 320.02 | 1226 | 320 | 1227.14 | 320 |
| 1300.05 | 320 | 1300.14 | 320 | 1328.99 | 320 | 1353.28 | 320 | 1353.62 | 320 |
| 1353.66 | 319.99 | 1359.29 | 318 | 1359.35 | 317.98 | 1359.38 | 317.97 | 1363.29 | 315.97 |
| 1368.06 | 314 | 1462.45 | 312.04 | 1464.3 | 312.03 | 1464.38 | 312.03 | 1466.48 | 312.43 |
| 1466.85 | 312.51 | 1502.13 | 312.53 | 1502.41 | 312.6 | 1506.34 | 314.57 | 1509.85 | 316.47 |
| 1512.47 | 317.67 | 1512.5 | 317.68 | 1513.61 | 318.2 | 1517.04 | 320.09 | 1529.08 | 322 |
| 1534.27 | 322 | 1535.44 | 322 | 1554.42 | 322 | 1558.1 | 322 | 1560.62 | 322 |
| 1563.47 | 322 | 1565.63 | 322 | 1626.77 | 322 | 1630.35 | 322 | 1632.59 | 322 |
| 1679.24 | 322 | 1679.48 | 322 | 1681.04 | 322.07 | 1681.35 | 322.08 | 1682.74 | 322 |
| 1701.61 | 322.31 | 1799.76 | 324 | 1811.41 | 324 | 1832.13 | 324 | 1859.32 | 324 |
| 1859.48 | 324 | 1867.76 | 324 | 1868.41 | 324 | 1868.68 | 324 | 1899.87 | 324 |

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 1899.92     324 1900.25     324 1927.85     324 1931.37  324.11 1933.92  324.24
 1963.05     326 1970.76     326 1983.01  326.46 1985.11  326.53 2008.56  327.79
 2011.05     328 2012.61     328 2039.87  329.62 2040.73  329.66 2045.52     330
 2045.53     330

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0    .045 1353.28     .08 1560.62    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       1359.29 1512.47              301  307.18     316             .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
       0 1330.23     321       F
 1527.39 2045.53     321       F

CROSS SECTION OUTPUT  Profile #Scenario 1

  E.G. Elev (ft)            323.15    Element                  Left OB    Channel   Right OB
  Vel Head (ft)               0.66    Wt. n-Val.                0.046     0.080      0.060
  W.S. Elev (ft)            322.49    Reach Len. (ft)          301.00    307.18     316.00
  Crit W.S. (ft)            319.22    Flow Area (sq ft)        704.42   1425.08     116.23
  E.G. Slope (ft/ft)      0.007627    Area (sq ft)             704.42   1425.08     116.23
  Q Total (cfs)           12790.26    Flow (cfs)              2467.29  10130.55     192.42
  Top Width (ft)            869.90    Top Width (ft)           517.20    153.18     199.52
  Vel Total (ft/s)            5.70    Avg. Vel. (ft/s)           3.50      7.11       1.66
  Max Chl Dpth (ft)          10.46    Hydr. Depth (ft)           1.36      9.30       0.58
  Conv. Total (cfs)       146450.0    Conv. (cfs)             28250.8  115996.1     2203.2
  Length Wtd. (ft)          306.77    Wetted Per. (ft)         517.58    155.34     200.28
  Min Ch El (ft)            312.03    Shear (lb/sq ft)           0.65      4.37       0.28
  Alpha                       1.31    Stream Power (lb/ft s)     2.27     31.05       0.46
  Frctn Loss (ft)             2.81    Cum Volume (acre-ft)     173.99     91.71      15.36
  C & E Loss (ft)             0.02    Cum SA (acres)            35.56     11.81       5.57


Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
         the need for additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid, energy was used.

CROSS SECTION


RIVER: Sycamore Creek
REACH: Reach              RS: 100

INPUT
Description:
Station Elevation Data    num=     101
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0     320     5.9     320   12.54     318   18.89  316.23   19.93     316
  138.69     316  243.19  314.75  259.69  314.69  285.98     314  313.63     314
  320.87     316   332.1     318  341.59     320  352.45     320  362.13  318.13
```

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 363.2 | 318 | 396.32 | 316 | 566.04 | 316 | 583.37 | 314.68 | 590.43 | 314.61 | |
| 609.26 | 314 | 665.47 | 314 | 698.45 | 313.7 | 713.65 | 313.17 | 716.99 | 313.12 | |
| 740.12 | 312 | 744.01 | 311.37 | 751.39 | 310 | 782.07 | 310 | 802.86 | 312 | |
| 822.52 | 312 | 847.25 | 312.66 | 854.61 | 312.72 | 864.73 | 312 | 951.52 | 311.98 | |
| 995.57 | 311.4 | 1006.26 | 311.36 | 1040.45 | 310 | 1069.5 | 310 | 1118.53 | 311.6 | |
| 1127.3 | 312 | 1130.69 | 312 | 1144.57 | 313.53 | 1157.38 | 313.67 | 1177.21 | 313.36 | |
| 1177.28 | 313.36 | 1194.29 | 312.94 | 1204.3 | 312 | 1211.39 | 310.26 | 1211.93 | 310 | |
| 1235.53 | 308.55 | 1269.25 | 308.93 | 1283.61 | 308.98 | 1294.48 | 309.81 | 1343.59 | 311.55 | |
| 1351.9 | 312 | 1365.51 | 313 | 1365.6 | 313 | 1379 | 314 | 1383.25 | 315.34 | |
| 1385.69 | 316 | 1386.66 | 316.43 | 1391.44 | 318 | 1394.82 | 320 | 1419.35 | 320 | |
| 1471.26 | 320 | 1485.07 | 318 | 1509.45 | 318 | 1513.77 | 316.56 | 1515.79 | 316 | |
| 1516.09 | 315.71 | 1523.67 | 314 | 1583.01 | 314 | 1597.6 | 314.44 | 1634.63 | 316 | |
| 1662.36 | 316.97 | 1687.28 | 318 | 1732.34 | 318 | 1735.36 | 317.58 | 1737.74 | 317.04 | |
| 1752.05 | 316 | 1759.32 | 314.76 | 1762.18 | 314 | 1784.85 | 314 | 1797.38 | 315.09 | |
| 1800.4 | 316 | 1806.47 | 316.29 | 1809.74 | 316.24 | 1836.22 | 316.71 | 1864.1 | 316.77 | |
| 1874.12 | 317.02 | 1885.56 | 317.03 | 1899.33 | 318 | 1913.02 | 319.36 | 1925.04 | 320 | |
| 1950.72 | 321.09 | 1978.21 | 322 | 1985.66 | 324 | 1995.77 | 324.35 | 2030.44 | 326 | |
| 2042.34 | 326 | | | | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .035 | 854.61 | .09 | 1394.82 | .035 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 1204.3 | 1351.9 | 1794.15 | 589.3 | 429.11 | .1 | .3 |

Ineffective Flow num= 2

| Sta L | Sta R | Elev | Permanent |
|---|---|---|---|
| 0 | 1175 | 321 | F |
| 1394.82 | 2042.34 | 321 | F |

CROSS SECTION OUTPUT Profile #Scenario 1

| | | | | | | |
|---|---|---|---|---|---|---|
| E.G. Elev (ft) | 320.32 | Element | Left OB | Channel | Right OB | |
| Vel Head (ft) | 0.88 | Wt. n-Val. | 0.090 | 0.090 | 0.090 | |
| W.S. Elev (ft) | 319.44 | Reach Len. (ft) | 1794.15 | 589.30 | 429.11 | |
| Crit W.S. (ft) | 315.99 | Flow Area (sq ft) | 190.55 | 1418.10 | 219.56 | |
| E.G. Slope (ft/ft) | 0.011090 | Area (sq ft) | 6542.97 | 1418.10 | 1630.07 | |
| Q Total (cfs) | 13407.00 | Flow (cfs) | 1152.98 | 11123.40 | 1130.62 | |
| Top Width (ft) | 1809.04 | Top Width (ft) | 1180.11 | 147.60 | 481.33 | |
| Vel Total (ft/s) | 7.33 | Avg. Vel. (ft/s) | 6.05 | 7.84 | 5.15 | |
| Max Chl Dpth (ft) | 10.89 | Hydr. Depth (ft) | 6.50 | 9.61 | 5.23 | |
| Conv. Total (cfs) | 127310.9 | Conv. (cfs) | 10948.5 | 105626.1 | 10736.2 | |
| Length Wtd. (ft) | 649.29 | Wetted Per. (ft) | 29.35 | 147.99 | 43.08 | |
| Min Ch El (ft) | 308.55 | Shear (lb/sq ft) | 4.49 | 6.63 | 3.53 | |
| Alpha | 1.05 | Stream Power (lb/ft s) | 27.20 | 52.04 | 18.17 | |
| Frctn Loss (ft) | 0.70 | Cum Volume (acre-ft) | 148.95 | 81.69 | 9.03 | |
| C & E Loss (ft) | 0.24 | Cum SA (acres) | 29.70 | 10.75 | 3.10 | |

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.

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

CROSS SECTION

RIVER: Sycamore Creek
REACH: Reach RS: 70

INPUT
Description: San Diego River 300
Station Elevation Data num= 491

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 363.62 | 3.76 | 364.84 | 6.33 | 365.19 | 12.17 | 365.6 | 20.43 | 366.25 |
| 26.94 | 366.72 | 32.09 | 367.16 | 34.66 | 367.3 | 39.81 | 367.77 | 42.39 | 367.38 |
| 44.96 | 364.93 | 47.54 | 363.01 | 50.11 | 362 | 55.53 | 359.5 | 60.42 | 356.51 |
| 65.57 | 352.38 | 68.14 | 350.81 | 72.05 | 348.73 | 75.87 | 346.52 | 80.31 | 343.61 |
| 83.59 | 341.76 | 86.17 | 339.91 | 88.74 | 338.43 | 91.32 | 337.12 | 93.89 | 335.58 |
| 99.05 | 332.11 | 101.62 | 330.56 | 106.77 | 327.26 | 109.21 | 325.76 | 111.92 | 323.95 |
| 114.5 | 322.72 | 117.07 | 321.83 | 119.65 | 321.5 | 124.8 | 321.55 | 135.1 | 321.78 |
| 138.12 | 321.9 | 147.98 | 322.08 | 155.7 | 322.12 | 158.28 | 322.25 | 160.85 | 322.06 |
| 166 | 320.39 | 168.58 | 319.77 | 171.15 | 319.37 | 176.31 | 319.45 | 181.47 | 319.31 |
| 184.03 | 319.33 | 189.18 | 319.17 | 195.93 | 318.67 | 200.06 | 318.45 | 204.19 | 318.46 |
| 207.21 | 318.71 | 214.93 | 318.96 | 217.51 | 318.94 | 220.09 | 318.77 | 225.24 | 318.77 |
| 227.81 | 318.61 | 235.54 | 318.54 | 245.48 | 318.5 | 248.41 | 318.58 | 256.14 | 318.49 |
| 275.26 | 318.38 | 279.32 | 318.42 | 287.04 | 318.18 | 292.97 | 318.17 | 299.92 | 318.06 |
| 302.5 | 317.97 | 305.07 | 318.04 | 307.65 | 317.92 | 315.37 | 317.92 | 320.52 | 318.23 |
| 323.1 | 318.31 | 328.25 | 318.71 | 330.13 | 318.36 | 335.98 | 317.51 | 341.13 | 316.98 |
| 346.28 | 316.88 | 348.85 | 316.63 | 354 | 315.94 | 356.58 | 315.74 | 359.15 | 315.88 |
| 363.17 | 315.29 | 366.88 | 314.59 | 369.36 | 314.38 | 374.61 | 314.2 | 377.62 | 313.77 |
| 382.33 | 313.67 | 384.91 | 313.92 | 387.48 | 314.64 | 389.8 | 315.46 | 392.63 | 316.03 |
| 397.78 | 315.67 | 400.21 | 315.24 | 404.46 | 313.99 | 408.08 | 313.32 | 413.24 | 313.4 |
| 415.81 | 313.3 | 418.39 | 312.84 | 420.96 | 312.63 | 426.11 | 312.48 | 428.69 | 312.23 |
| 431.3 | 311.32 | 436.41 | 311.42 | 438.99 | 311.65 | 441.86 | 311.75 | 446.9 | 311.71 |
| 449.29 | 311.66 | 457.02 | 312.95 | 462.17 | 312.74 | 464.74 | 312.87 | 472.47 | 312.76 |
| 474.66 | 312.02 | 477.62 | 311.19 | 480.19 | 310.81 | 482.77 | 310.71 | 485.34 | 310.74 |
| 487.92 | 310.25 | 490.5 | 309.47 | 493.07 | 308.37 | 497.37 | 306.9 | 498.22 | 306.71 |
| 503.56 | 306.78 | 507.69 | 306.68 | 511.1 | 306.43 | 515.95 | 305.62 | 518.02 | 305.57 |
| 523.97 | 306.06 | 526.55 | 306.1 | 529.13 | 306.76 | 532.47 | 307.96 | 534.53 | 308.52 |
| 539.43 | 308.82 | 544.58 | 308.81 | 547.15 | 308.94 | 549.73 | 308.86 | 552.3 | 308.93 |
| 554.88 | 309.25 | 560.03 | 309.64 | 570.33 | 311.01 | 572.91 | 311.66 | 578.06 | 312.75 |
| 583.21 | 314 | 614.11 | 314 | 615.06 | 313.79 | 617.12 | 313.07 | 619.26 | 312.59 |
| 621.84 | 312.43 | 624.41 | 312.44 | 632.14 | 313.33 | 634.71 | 313.46 | 639.86 | 313.31 |
| 647.59 | 312.87 | 652.74 | 312.41 | 660.47 | 311.88 | 668.19 | 311.43 | 686.22 | 310.67 |
| 701.77 | 310.19 | 711.97 | 309.81 | 717.12 | 309.58 | 727.43 | 309.51 | 732.58 | 309.4 |
| 737.73 | 309.12 | 742.88 | 308.93 | 750.6 | 308.75 | 758.33 | 308.29 | 765.78 | 308.03 |
| 771.21 | 308.03 | 776.36 | 308.34 | 784.08 | 309.38 | 791.81 | 310.2 | 794.38 | 310.42 |
| 799.54 | 310.55 | 807.26 | 310.29 | 809.84 | 310.27 | 817.56 | 310.06 | 822.71 | 310.06 |
| 825.65 | 310.18 | 833.01 | 310.65 | 840.1 | 310.62 | 845.89 | 310.41 | 850.43 | 310.47 |
| 853.62 | 310.76 | 856.62 | 311.15 | 861.34 | 311.52 | 866.49 | 311.52 | 871.64 | 311 |
| 876.8 | 310.12 | 884.52 | 309.81 | 889.67 | 309.53 | 895.85 | 309.43 | 897.92 | 309.46 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 907.7 | 310.04 | 910.27 | 310 | 915.43 | 309.75 | 920.58 | 309.22 | 925.73 | 308.8 |
| 930.88 | 308.25 | 936.03 | 308.48 | 941.18 | 309.08 | 946.33 | 308.58 | 953.66 | 308.29 |
| 961.78 | 308.34 | 970.18 | 308.32 | 972.08 | 308.39 | 974.31 | 308.66 | 977.23 | 309.39 |
| 979.81 | 310.3 | 982.57 | 310.99 | 984.63 | 311.28 | 987.53 | 311.43 | 995.26 | 311.18 |
| 1002.99 | 311.03 | 1010.71 | 310.97 | 1021.01 | 310.56 | 1031.32 | 310.39 | 1036.47 | 310.5 |
| 1041.62 | 310.54 | 1048.64 | 310.81 | 1069.95 | 312.11 | 1075.1 | 312.32 | 1077.67 | 312.49 |
| 1085.4 | 312.76 | 1093.12 | 312.9 | 1098.27 | 313.24 | 1103.42 | 313.89 | 1108.58 | 314.84 |
| 1113.73 | 315.96 | 1118.84 | 317.2 | 1121.45 | 317.75 | 1124.03 | 318.1 | 1126.6 | 318.3 |
| 1129.08 | 318.34 | 1131.75 | 317.95 | 1134.33 | 317.14 | 1139.49 | 315.87 | 1142.05 | 315.1 |
| 1147.2 | 313.33 | 1149.81 | 312.69 | 1152.36 | 312.2 | 1154.93 | 311.96 | 1160.08 | 311.75 |
| 1162.66 | 311.8 | 1165.23 | 312 | 1170.38 | 312.57 | 1172.96 | 312.39 | 1178.11 | 310.93 |
| 1181.14 | 310.24 | 1185.83 | 309.33 | 1189.03 | 309.1 | 1193.16 | 308.92 | 1196.14 | 308.88 |
| 1201.29 | 309 | 1206.44 | 309.38 | 1211.59 | 310.41 | 1215.87 | 311.48 | 1219.31 | 312.22 |
| 1224.13 | 312.88 | 1227.04 | 313.06 | 1232.19 | 313.06 | 1237.34 | 312.85 | 1242.49 | 312.52 |
| 1253.04 | 311.62 | 1257.17 | 311.5 | 1263.09 | 311.41 | 1275.97 | 311.53 | 1283.7 | 311.71 |
| 1291.42 | 312.08 | 1296.57 | 312.38 | 1309.45 | 313.02 | 1317.18 | 313.56 | 1324.9 | 314.16 |
| 1330.05 | 314.39 | 1337.93 | 314.27 | 1342.93 | 314 | 1345.51 | 313.74 | 1350.66 | 313.55 |
| 1353.23 | 313.53 | 1358.38 | 313.81 | 1360.96 | 314.38 | 1363.53 | 315.25 | 1366.11 | 316.43 |
| 1368.68 | 317.47 | 1371.26 | 318.15 | 1373.83 | 318.61 | 1376.41 | 318.56 | 1378.98 | 318.19 |
| 1384.14 | 317.14 | 1389.29 | 316.22 | 1394.44 | 315.51 | 1399.59 | 314.91 | 1404.74 | 314.07 |
| 1407.89 | 313.65 | 1412.02 | 313.43 | 1416.15 | 313.4 | 1422.34 | 313.24 | 1425.34 | 313.25 |
| 1430.49 | 313.69 | 1435.64 | 314.75 | 1445.94 | 317.43 | 1451.25 | 318.44 | 1456.24 | 319.14 |
| 1461.4 | 319.71 | 1469.12 | 319.94 | 1471.7 | 319.96 | 1476.85 | 319.81 | 1482 | 319.49 |
| 1487.15 | 319.28 | 1489.72 | 318.82 | 1492.3 | 318.01 | 1494.87 | 316.38 | 1497.45 | 315.02 |
| 1500.03 | 314.53 | 1502.6 | 314.32 | 1507.75 | 314.3 | 1512.9 | 314.57 | 1515.48 | 314.37 |
| 1518.05 | 313.94 | 1523.2 | 312.87 | 1525.78 | 312.52 | 1530.93 | 312.11 | 1536.08 | 311.99 |
| 1541.23 | 312.03 | 1546.38 | 312.22 | 1562.74 | 313.39 | 1566.98 | 313.66 | 1575.13 | 313.93 |
| 1590.16 | 314.01 | 1597.89 | 313.94 | 1605.61 | 313.76 | 1610.76 | 313.55 | 1618.49 | 313.31 |
| 1628.81 | 312.87 | 1631.37 | 312.81 | 1639.09 | 312.44 | 1644.24 | 312.36 | 1651.97 | 312.58 |
| 1657.12 | 312.82 | 1659.7 | 312.87 | 1662.27 | 312.61 | 1667.42 | 311.59 | 1670 | 311.19 |
| 1672.57 | 310.97 | 1680.3 | 310.75 | 1688.02 | 310.7 | 1693.18 | 310.84 | 1706.05 | 311.08 |
| 1708.63 | 311.2 | 1713.78 | 311.28 | 1726.65 | 311.56 | 1729.23 | 311.72 | 1734.11 | 311.86 |
| 1747.26 | 311.99 | 1752.41 | 312.11 | 1754.98 | 312.27 | 1757.56 | 312.67 | 1760.95 | 313.44 |
| 1765.28 | 314.53 | 1773.01 | 313.88 | 1780.74 | 313.91 | 1785.89 | 314.06 | 1791.04 | 314.37 |
| 1796.05 | 314.74 | 1798.76 | 314.86 | 1803.91 | 314.91 | 1809.07 | 314.62 | 1812.56 | 313.82 |
| 1814.63 | 313.23 | 1816.69 | 312.92 | 1818.76 | 312.06 | 1821.94 | 310.94 | 1827.09 | 310.43 |
| 1832.24 | 310.14 | 1837.39 | 310.09 | 1847.66 | 310.19 | 1852.85 | 310.53 | 1860.57 | 310.79 |
| 1868.3 | 310.56 | 1876.02 | 310.65 | 1878.6 | 310.85 | 1883.75 | 311.93 | 1888.9 | 311.87 |
| 1896.63 | 312.01 | 1901.78 | 312.82 | 1904.35 | 313.81 | 1909.5 | 315.61 | 1913.73 | 316.89 |
| 1917.8 | 318.441 | 1922.38 | 319.25 | 1935.26 | 320.39 | 1940.41 | 320.73 | 1948.13 | 321.38 |
| 1953.28 | 321.54 | 1961.01 | 321.22 | 1973.89 | 321.04 | 1981.87 | 320.99 | 1989.34 | 321.03 |
| 1999.64 | 321.39 | 2007.37 | 321.46 | 2009.94 | 321.34 | 2017.67 | 320.74 | 2027.97 | 320.31 |
| 2033.48 | 320.3 | 2043.42 | 320.87 | 2048.57 | 321.05 | 2064.45 | 321.34 | 2069.17 | 321.37 |
| 2074.32 | 321.31 | 2082.05 | 321.01 | 2087.2 | 320.91 | 2097.52 | 320.87 | 2101.62 | 320.74 |
| 2105.23 | 320.49 | 2107.8 | 320.16 | 2118.26 | 318.07 | 2120.68 | 317.66 | 2123.26 | 317.36 |
| 2126.4 | 317.16 | 2130.98 | 316.73 | 2140.85 | 316.14 | 2149.11 | 315.88 | 2151.58 | 315.87 |
| 2159.43 | 316.26 | 2164.46 | 316.76 | 2169.61 | 317.49 | 2174.76 | 318 | 2177.34 | 318.17 |
| 2182.49 | 318.37 | 2188.34 | 318.49 | 2196.59 | 318.47 | 2210.82 | 318.49 | 2228.84 | 318.99 |
| 2239.15 | 318.98 | 2241.72 | 318.92 | 2246.87 | 319.09 | 2252.34 | 319.17 | 2254.6 | 319.27 |
| 2260.6 | 319.7 | 2267.47 | 320.57 | 2270.05 | 320.63 | 2280.35 | 320.54 | 2285.5 | 320.66 |
| 2288.08 | 320.64 | 2293.63 | 320.86 | 2306.1 | 321.19 | 2316.34 | 321.41 | 2318.41 | 321.36 |
| 2324.13 | 321.4 | 2331.86 | 321.27 | 2342.16 | 320.97 | 2347.31 | 320.97 | 2349.88 | 321.09 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2355.04 | 321.62 | 2362.76 | 322.83 | 2367.91 | 323.35 | 2375.64 | 323.58 | 2378.21 | 323.57 |
| 2383.36 | 323.35 | 2386.54 | 323.12 | 2393.67 | 322.88 | 2396.24 | 322.93 | 2398.93 | 323.22 |
| 2401.39 | 323.28 | 2403.97 | 323.5 | 2406.54 | 323.92 | 2409.12 | 324.87 | 2420.22 | 325.5 |
| 2421.99 | 325.53 | 2424.57 | 325.38 | 2432.3 | 325.32 | 2434.87 | 325.43 | 2442.29 | 325.29 |
| 2447.75 | 325.29 | 2454.68 | 325.44 | 2460.87 | 325.47 | 2468.35 | 325.44 | 2473.5 | 325.53 |
| 2483.8 | 325.03 | 2489.78 | 325.09 | 2493.91 | 325.34 | 2500.1 | 324.98 | 2509.56 | 324.93 |
| 2514.55 | 325.21 | 2517.28 | 325.18 | 2519.86 | 325.37 | 2522.81 | 325.93 | 2525.01 | 326.07 |
| 2527.58 | 325.84 | 2529.01 | 325.56 | 2532.73 | 324.57 | 2535.31 | 324.28 | 2543.03 | 323.89 |
| 2549.37 | 324.09 | | | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .05 | 446.9 | .06 | 1917.8 | .05 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 446.9 | 1917.8 | 0 | 0 | 0 .1 | .3 |

CROSS SECTION OUTPUT Profile #Scenario 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 319.38 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.08 | Wt. n-Val. | 0.050 | 0.060 | 0.050 |
| W.S. Elev (ft) | 319.30 | Reach Len. (ft) | | | |
| Crit W.S. (ft) | 313.43 | Flow Area (sq ft) | 689.53 | 10658.29 | 202.55 |
| E.G. Slope (ft/ft) | 0.000575 | Area (sq ft) | 689.53 | 10658.29 | 202.55 |
| Q Total (cfs) | 25000.00 | Flow (cfs) | 933.54 | 23887.02 | 179.44 |
| Top Width (ft) | 1851.89 | Top Width (ft) | 261.90 | 1441.93 | 148.06 |
| Vel Total (ft/s) | 2.16 | Avg. Vel. (ft/s) | 1.35 | 2.24 | 0.89 |
| Max Chl Dpth (ft) | 13.73 | Hydr. Depth (ft) | 2.63 | 7.39 | 1.37 |
| Conv. Total (cfs) | 1042943.0 | Conv. (cfs) | 38945.0 | 996512.1 | 7485.9 |
| Length Wtd. (ft) | | Wetted Per. (ft) | 263.17 | 1452.99 | 148.49 |
| Min Ch El (ft) | 305.57 | Shear (lb/sq ft) | 0.09 | 0.26 | 0.05 |
| Alpha | 1.04 | Stream Power (lb/ft s) | 0.13 | 0.59 | 0.04 |
| Frctn Loss (ft) | | Cum Volume (acre-ft) | | | |
| C & E Loss (ft) | | Cum SA (acres) | | | |

Warning: Divided flow computed for this cross-section.

SUMMARY OF REACH LENGTHS

River: Sycamore Creek

| Reach | River Sta. | Left | Channel | Right |
|---|---|---|---|---|
| Reach | 500 | 484.65 | 511.2 | 513.2 |
| Reach | 450 | 163.58 | 199.56 | 223.24 |
| Reach | 400 | 290.22 | 278.09 | 271.36 |
| Reach | 300 | 95.85 | 94.82 | 94.72 |
| Reach | 250 | Inl Struct | | |
| Reach | 200 | 301 | 307.18 | 316 |

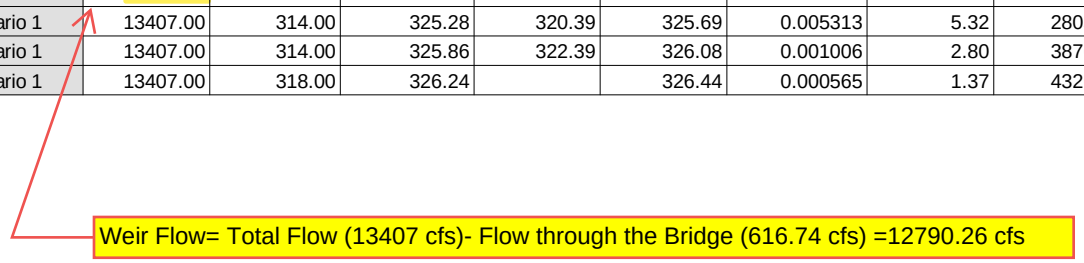
| | | | | |
|---|---|---|---|---|
| Reach | 100 | 1794.15 | 589.3 | 429.11 |
| Reach | 70 | 0 | 0 | 0 |

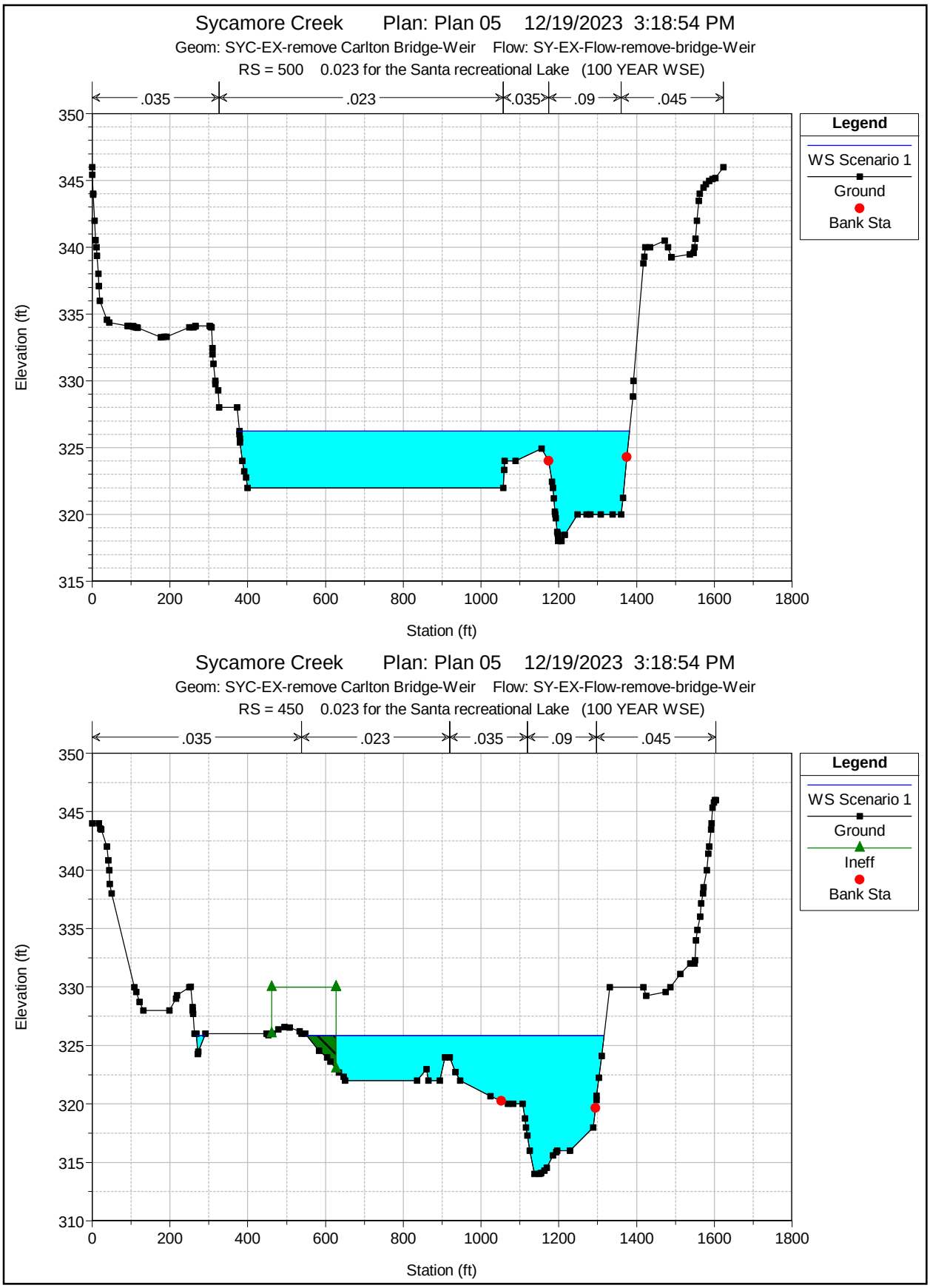
SUMMARY OF CONTRACTION AND EXPANSION COEFFICIENTS
River: Sycamore Creek

| Reach | River Sta. | Contr. | Expan. |
|---|---|---|---|
| Reach | 500 | .1 | .3 |
| Reach | 450 | .1 | .3 |
| Reach | 400 | .1 | .3 |
| Reach | 300 | .3 | .5 |
| Reach | 250 | Inl Struct | |
| Reach | 200 | .1 | .3 |
| Reach | 100 | .1 | .3 |
| Reach | 70 | .1 | .3 |

HEC-RAS Plan: Plan 05 River: Sycamore Creek Reach: Reach Profile: Scenario 1

| 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) | |
| Reach | 70 | Scenario 1 | 25000.00 | 305.57 | 319.30 | 313.43 | 319.38 | 0.000575 | 2.24 | 11550.37 | 1851.89 | 0.15 |
| Reach | 100 | Scenario 1 | 13407.00 | 308.55 | 319.44 | 315.99 | 320.32 | 0.011090 | 7.84 | 1828.20 | 1809.04 | 0.45 |
| Reach | 200 | Scenario 1 | 12790.26 | 312.03 | 322.49 | 319.22 | 323.15 | 0.007627 | 7.11 | 2245.73 | 869.90 | 0.41 |
| Reach | 250 | | Inl Struct | | | | | | | | | |
| Reach | 300 | Scenario 1 | 12790.26 | 313.84 | 324.62 | 320.05 | 324.80 | 0.001794 | 3.79 | 3815.38 | 1529.02 | 0.21 |
| Reach | 400 | Scenario 1 | 13407.00 | 314.00 | 325.28 | 320.39 | 325.69 | 0.005313 | 5.32 | 2805.00 | 1048.40 | 0.31 |
| Reach | 450 | Scenario 1 | 13407.00 | 314.00 | 325.86 | 322.39 | 326.08 | 0.001006 | 2.80 | 3876.27 | 786.35 | 0.17 |
| Reach | 500 | Scenario 1 | 13407.00 | 318.00 | 326.24 | | 326.44 | 0.000565 | 1.37 | 4326.41 | 1003.75 | 0.10 |

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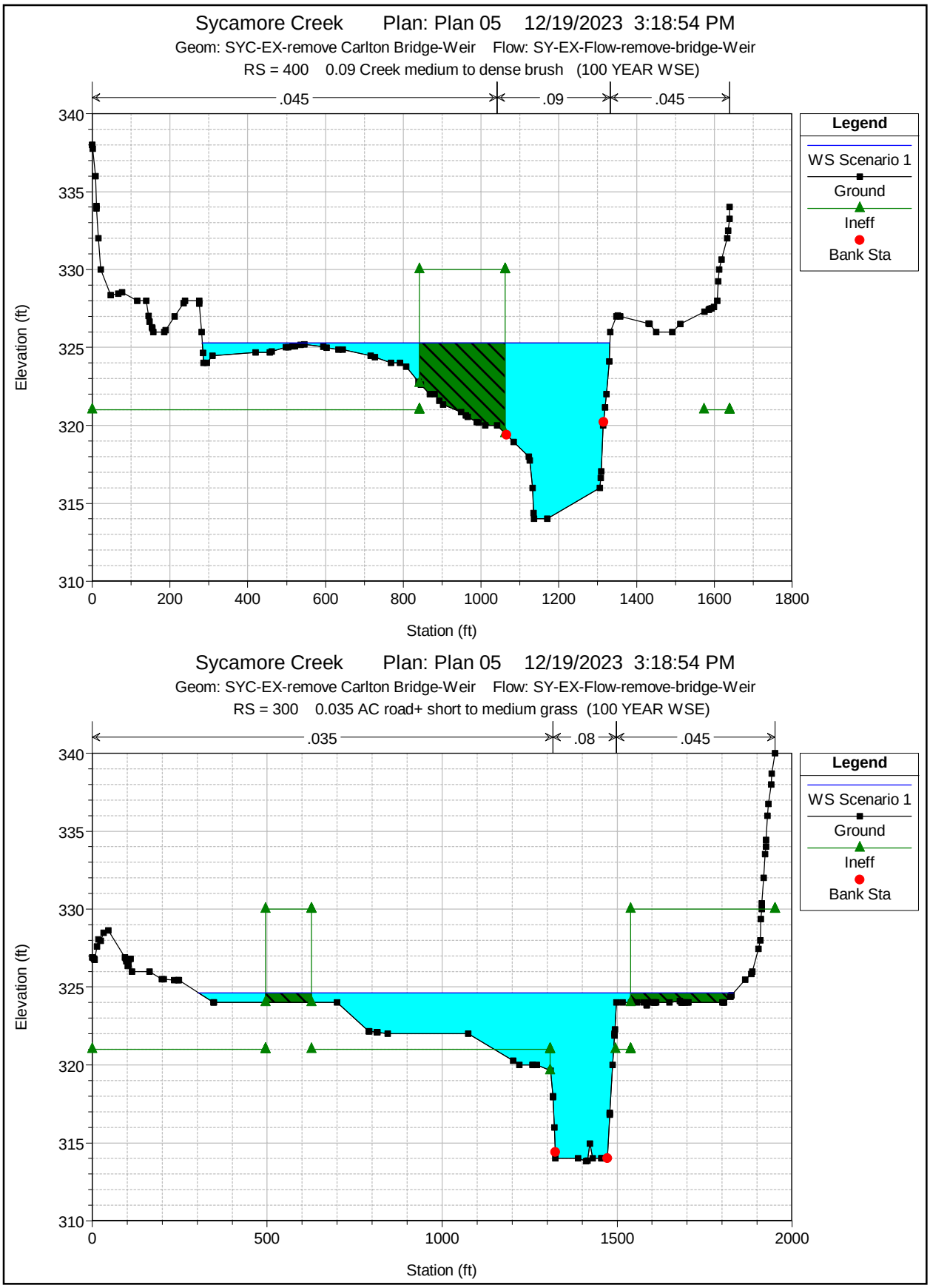
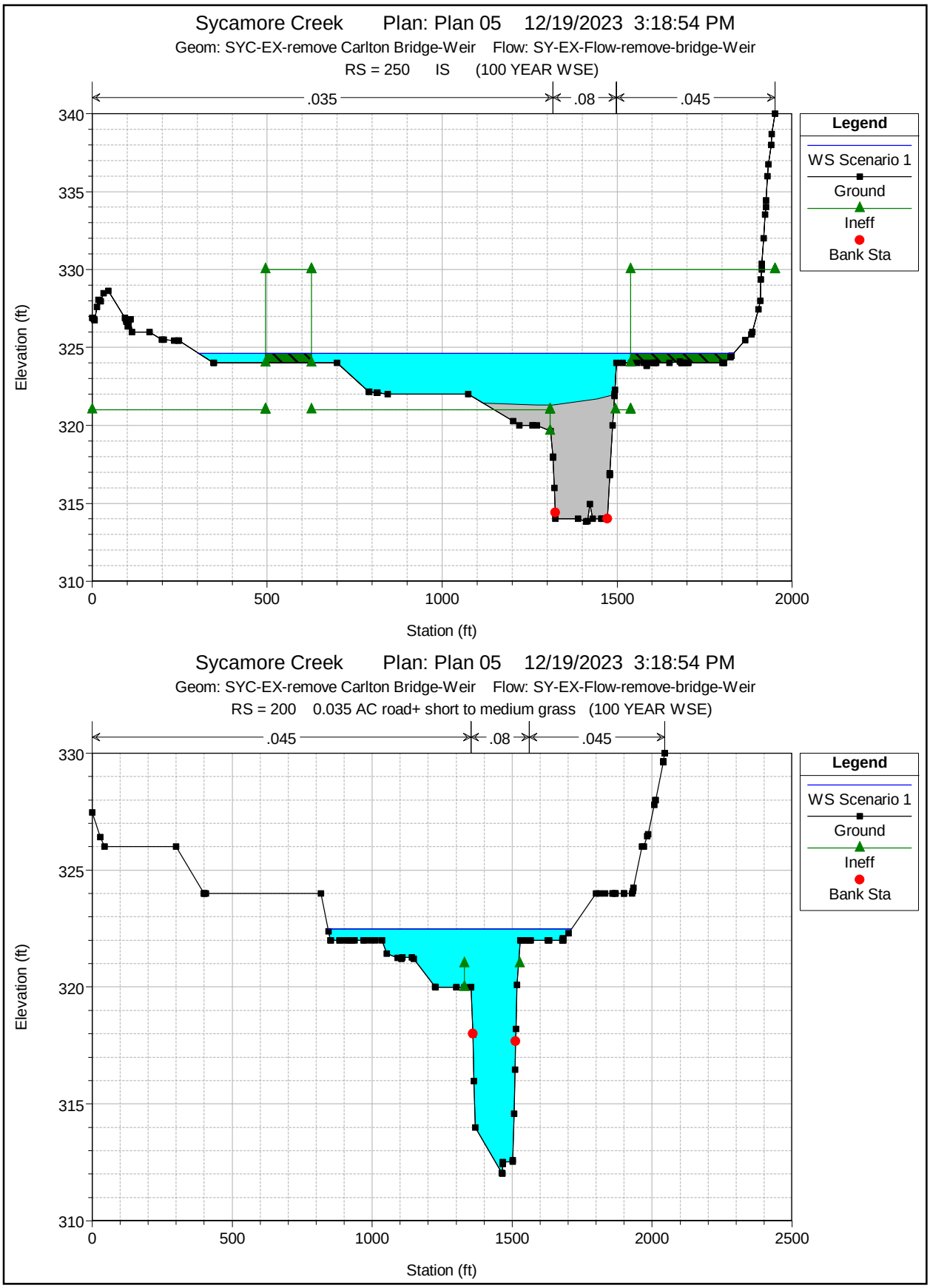
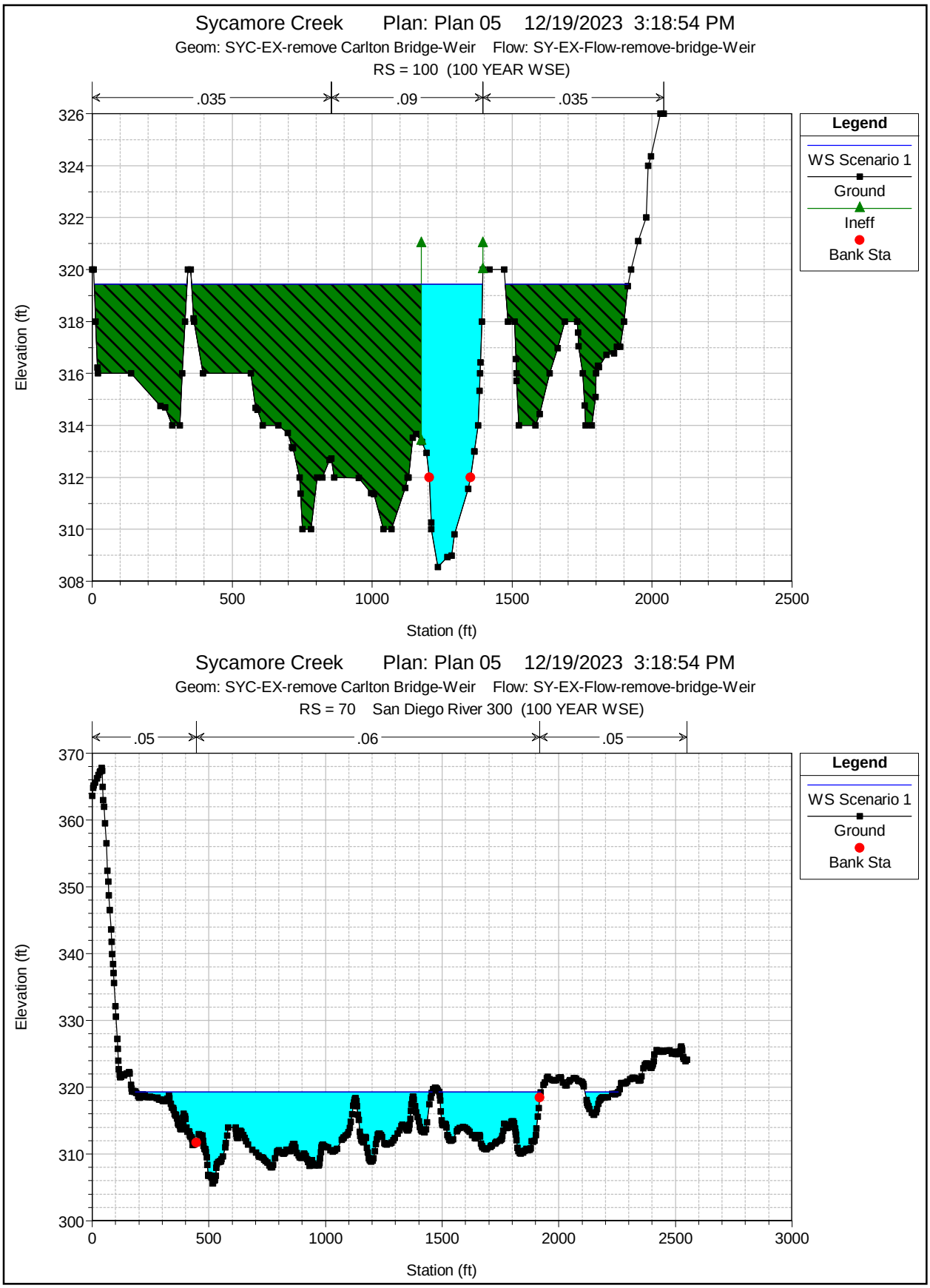
Geom: SYC-EX-remove Carlton Bridge-Weir Flow: SY-EX-Flow-remove-bridge-Weir
RS = 500 0.023 for the Santa recreational Lake (100 YEAR WSE)
.035
.023
.035
.09
.045
Legend
WS Scenario 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Sycamore Creek Plan: Plan 05 12/19/2023 3:18:54 PM
Geom: SYC-EX-remove Carlton Bridge-Weir Flow: SY-EX-Flow-remove-bridge-Weir
RS = 450 0.023 for the Santa recreational Lake (100 YEAR WSE)
.035
.023
.035
.09
.045
Legend
WS Scenario 1
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)


Sycamore Creek Plan: Plan 05 12/19/2023 3:18:54 PM
Geom: SYC-EX-remove Carlton Bridge-Weir Flow: SY-EX-Flow-remove-bridge-Weir
RS = 400 0.09 Creek medium to dense brush (100 YEAR WSE)
.045
.09
.045
Legend
WS Scenario 1
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
340
335
330
325
320
315
310
0
200
400
600
800
1000
1200
1400
1600
1800
Sycamore Creek Plan: Plan 05 12/19/2023 3:18:54 PM
Geom: SYC-EX-remove Carlton Bridge-Weir Flow: SY-EX-Flow-remove-bridge-Weir
RS = 300 0.035 AC road+ short to medium grass (100 YEAR WSE)
.035
.08
.045
Legend
WS Scenario 1
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
340
335
330
325
320
315
310
0
500
1000
1500
2000

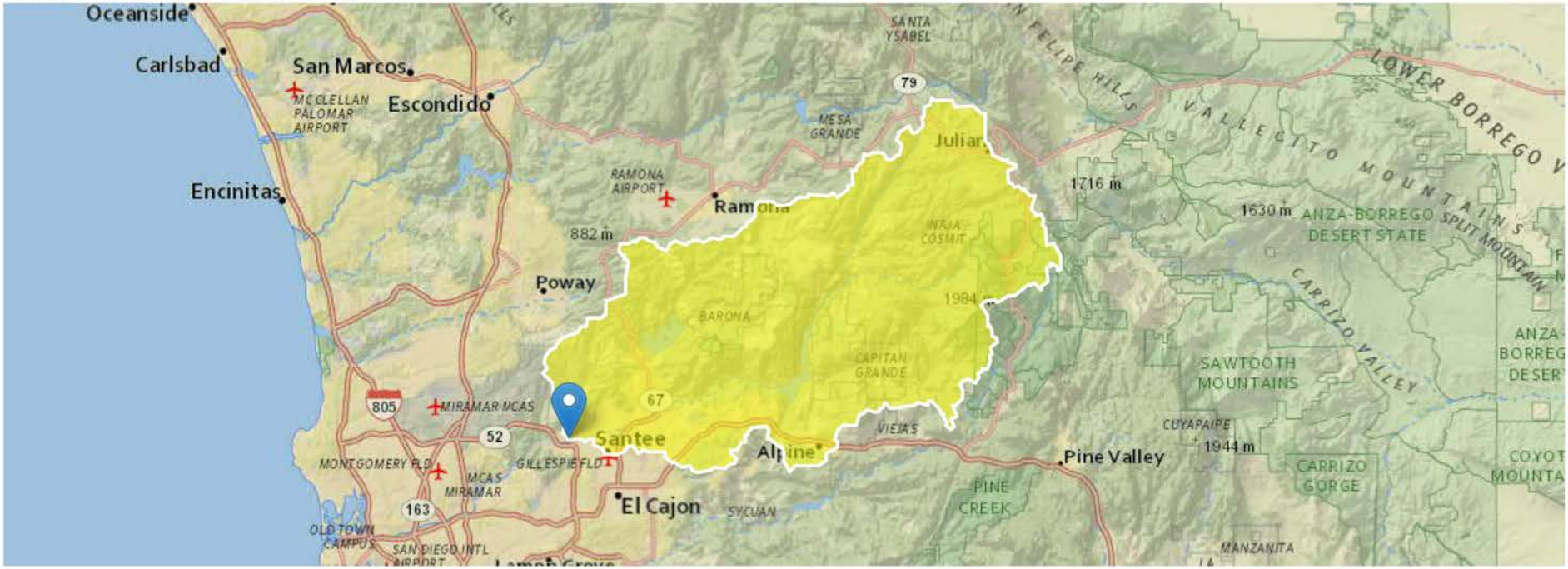

Sycamore Creek Plan: Plan 05 12/19/2023 3:18:54 PM
Geom: SYC-EX-remove Carlton Bridge-Weir Flow: SY-EX-Flow-remove-bridge-Weir
RS = 250 IS (100 YEAR WSE)
.035
.08
.045
Legend
WS Scenario 1
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
340
335
330
325
320
315
310
0
500
1000
1500
2000
Sycamore Creek Plan: Plan 05 12/19/2023 3:18:54 PM
Geom: SYC-EX-remove Carlton Bridge-Weir Flow: SY-EX-Flow-remove-bridge-Weir
RS = 200 0.035 AC road+ short to medium grass (100 YEAR WSE)
.045
.08
.045
Legend
WS Scenario 1
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
330
325
320
315
310
0
500
1000
1500
2000
2500


Sycamore Creek Plan: Plan 05 12/19/2023 3:18:54 PM
Geom: SYC-EX-remove Carlton Bridge-Weir Flow: SY-EX-Flow-remove-bridge-Weir
RS = 100 (100 YEAR WSE)
.035
.09
.035
Legend
WS Scenario 1
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
Sycamore Creek Plan: Plan 05 12/19/2023 3:18:54 PM
Geom: SYC-EX-remove Carlton Bridge-Weir Flow: SY-EX-Flow-remove-bridge-Weir
RS = 70 San Diego River 300 (100 YEAR WSE)
.05
.06
.05
Legend
WS Scenario 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

PROPOSED CONDITIONS
SYCAMORE CREEK MODEL

# StreamStats Report

**Region ID:** CA
**Workspace ID:** CA20230727213209983000
**Clicked Point (Latitude, Longitude):** 32.84143, -117.01083
**Time:** 2023-07-27 14:32:34 -0700




Collapse All

## Basin Characteristics

| Parameter Code | Parameter Description | Value | Unit |
|---|---|---|---|
| BASINPERIM | Perimeter of the drainage basin as defined in SIR 2004-5262 | 140 | miles |
| DRNAREA | Area that drains to a point on a stream | 339.4 | square miles |
| ELEV | Mean Basin Elevation | 2224 | feet |

| Parameter Code | Parameter Description | Value | Unit |
|---|---|---|---|
| LFPLENGTH | Length of longest flow path | 40 | miles |
| OUTLETELEV | Elevation of the stream outlet in feet above NAVD88 | 323 | feet |
| PRECIP | Mean Annual Precipitation | 21.1 | inches |

## Peak-Flow Statistics

### Peak-Flow Statistics Parameters [2012 5113 Region 5 South Coast]

| Parameter Code | Parameter Name | Value | Units | Min Limit | Max Limit |
|---|---|---|---|---|---|
| DRNAREA | Drainage Area | 339.4 | square miles | 0.04 | 850 |
| PRECIP | Mean Annual Precipitation | 21.1 | inches | 10 | 45 |

### Peak-Flow Statistics Flow Report [2012 5113 Region 5 South Coast]

PII: Prediction Interval-Lower, PIu: Prediction Interval-Upper, ASEp: Average Standard Error of Prediction, SE: Standard Error (other -- see report)

| Statistic | Value | Unit | PII | PIu | ASEp |
|---|---|---|---|---|---|
| 50-percent AEP flood | 1800 | ft^3/s | 331 | 9790 | 134 |
| 20-percent AEP flood | 7870 | ft^3/s | 2350 | 26300 | 83.1 |
| 10-percent AEP flood | 16400 | ft^3/s | 6150 | 43700 | 64 |
| 4-percent AEP flood | 33600 | ft^3/s | 14800 | 76100 | 51.5 |
| 2-percent AEP flood | 52200 | ft^3/s | 24500 | 111000 | 47.6 |
| 1-percent AEP flood | 75200 | ft^3/s | 35100 | 161000 | 47.2 |
| 0.5-percent AEP flood | 105000 | ft^3/s | 48400 | 228000 | 47.7 |
| 0.2-percent AEP flood | 149000 | ft^3/s | 65400 | 340000 | 52 |

*Peak-Flow Statistics Citations*

**Gotvald, A.J., Barth, N.A., Veilleux, A.G., and Parrett, Charles,2012, Methods for determining magnitude and frequency of floods in California, based on data through water year 2006: U.S. Geological Survey Scientific Investigations Report 2012–5113, 38 p., 1 pl. (http://pubs.usgs.gov/sir/2012/5113/)**

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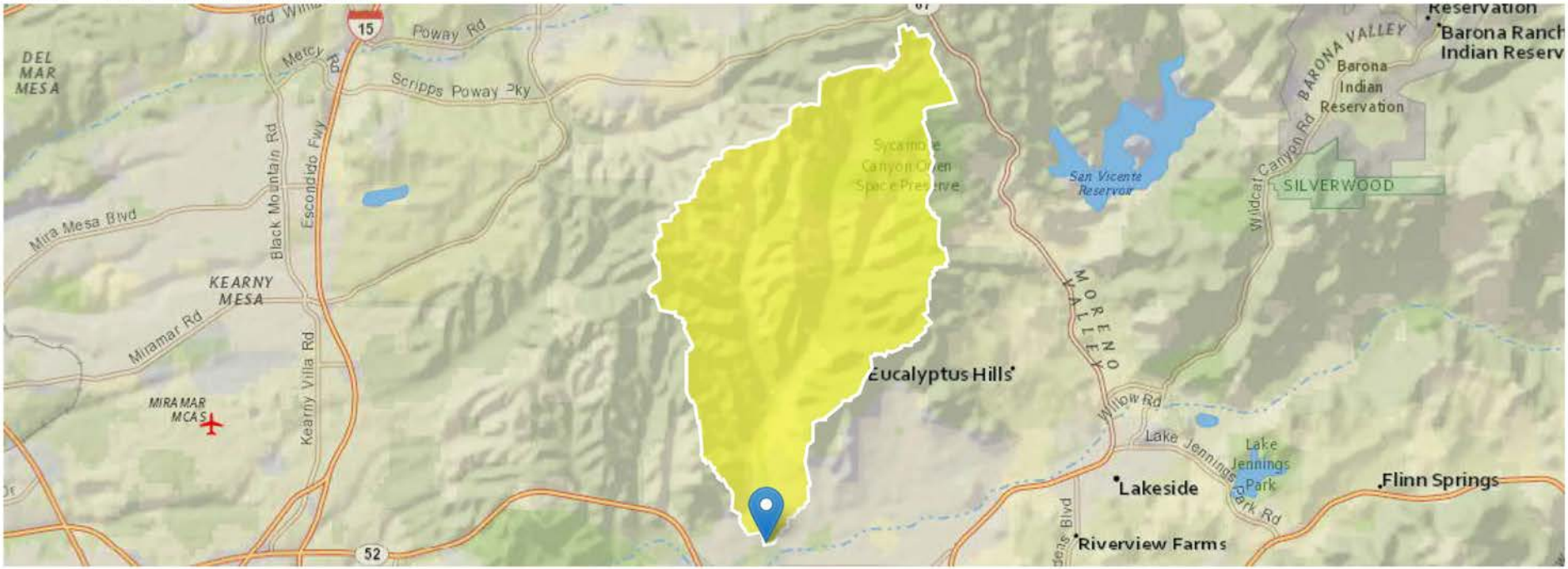
Application Version: 4.16.1
StreamStats Services Version: 1.2.22
NSS Services Version: 2.2.1

# StreamStats Report

**Region ID:** CA
**Workspace ID:** CA20230722002005961000
**Clicked Point (Latitude, Longitude):** 32.84383, -117.00710
**Time:** 2023-07-21 17:20:28 -0700




Collapse All

## Basin Characteristics

| Parameter Code | Parameter Description | Value | Unit |
|---|---|---|---|
| BASINPERIM | Perimeter of the drainage basin as defined in SIR 2004-5262 | | miles |
| BSLDEM30M | Mean basin slope computed from 30 m DEM | | percent |
| CENTROXA83 | X coordinate of the centroid, in NAD_1983_Albers, meters | | meters |

| Parameter Code | Parameter Description | Value | Unit |
|---|---|---|---|
| DRNAREA | Area that drains to a point on a stream | 17.1 | square miles |
| PRECIP | Mean Annual Precipitation | 15 | inches |

## Peak-Flow Statistics

### Peak-Flow Statistics Parameters [2012 5113 Region 5 South Coast]

| Parameter Code | Parameter Name | Value | Units | Min Limit | Max Limit |
|---|---|---|---|---|---|
| DRNAREA | Drainage Area | 17.1 | square miles | 0.04 | 850 |
| PRECIP | Mean Annual Precipitation | 15 | inches | 10 | 45 |

### Peak-Flow Statistics Flow Report [2012 5113 Region 5 South Coast]

PII: Prediction Interval-Lower, PIu: Prediction Interval-Upper, ASEp: Average Standard Error of Prediction, SE: Standard Error (other -- see report)

| Statistic | Value | Unit | PII | PIu | ASEp |
|---|---|---|---|---|---|
| 50-percent AEP flood | 186 | ft^3/s | 34 | 1020 | 134 |
| 20-percent AEP flood | 642 | ft^3/s | 192 | 2150 | 83.1 |
| 10-percent AEP flood | 1100 | ft^3/s | 413 | 2930 | 64 |
| 4-percent AEP flood | 1780 | ft^3/s | 789 | 4020 | 51.5 |
| 2-percent AEP flood | 2390 | ft^3/s | 1130 | 5080 | 47.6 |
| 1-percent AEP flood | 3050 | ft^3/s | 1430 | 6490 | 47.2 |
| 0.5-percent AEP flood | 3810 | ft^3/s | 1770 | 8200 | 47.7 |
| 0.2-percent AEP flood | 4770 | ft^3/s | 2110 | 10800 | 52 |

*Peak-Flow Statistics Citations*

**Gotvald, A.J., Barth, N.A., Veilleux, A.G., and Parrett, Charles,2012, Methods for determining magnitude and frequency of floods in California, based on data through water year 2006: U.S. Geological Survey Scientific Investigations Report 2012–5113, 38 p., 1 pl. (http://pubs.usgs.gov/sir/2012/5113/)**

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Application Version: 4.16.1
StreamStats Services Version: 1.2.22
NSS Services Version: 2.2.1

**Table 1 - Comparison of Peak Flow Rates (cfs)**

| San Diego River Location | 10-Year FEMA | 50-Year FEMA | 100-Year FEMA | 100-Year City / BSI | 500-Year FEMA |
|---|---|---|---|---|---|
| W Hills Br (Mission Dam) | 5,500 | 19,000 | 38,000 | 50,000 | 112,000 |
| 0.7 Mi Downstream of Sycamore Creek | 5,000 | 17,000 | 37,000 | 49,000 | 112,000 |
| Forester Creek Confluence | 4,500 | 16,000 | 36,000 | 48,000 | 112,000 |

To estimate Q50 BSI (Estimated based on the Q100 BSI, following the proportional scaling method aligned with the pattern observed in FEMA data).
Q50 BSI is used in San Diego River Proposed as profile PF-6 to calculate the flow from the San Diego River that enters
the proposed culverts and commingles with Sycamore Creek at Cross Section #100, before the proposed bridge connecting PA-2 and PA-3
To calculate 50 Year BSI= 19,000(FEMA 50 Year X 50,000 (BSI 100 Year)/ 38,000 (FEMA)= 25,000 cfs

from the tributary system can be qualitatively evaluated by a comparison of the drainage area of the main stem to the area of the tributary. For example, if the tributary system has a drainage area much smaller than that of the main stem, the peak discharge from the tributary may be out of phase with the peak discharge from the main stem. Table 3-4_provides a comparison of discharge frequencies for coincidental occurrence for a 100 year design storm. This table can be used to establish an appropriate tailwater WSEL for the tributary based on the expected coincident storm frequency in the main stem. For example, if the main stem has a drainage area of 1000 acres and the tributary has a drainage area of 10 acres the ratio of main stem drainage area to tributary drainage area is 2000 to 20 which equals 100 to 1. From Table 3-4 for the 100 year design storm occurring over both areas, the flow rate in the main stem will equal that of a 25 year storm when the tributary flow rate reaches its 100 year peak. Conversely, when the flow rate in the main stem reaches its 100 year peak at the outfall of the tributary, the flow rate from the tributary will have fallen to the 25 year flow rate.

**Table 3-4 Coincidental Frequency Table**

| Area Ratio | 100 Year Coincidental Frequency | |
|---|---|---|
| | Main Stem | Tributary |
| 10,000 to 1 and Greater | 2<br>100 | 100<br>2 |
| Between 9,999 to 1 and 1,000 to 1 | 10<br>100 | 100<br>10 |
| Between 999 to 1 and 100 to 1 | 25<br>100 | 100<br>25 |
| Between 99.9 to 1 and 10 to 1 | 50<br>100 | 100<br>50 |
| Between 9.99 to 1 and 1 to 1 | 100<br>100 | 100<br>100 |

17.1/339.4=5%

**Coincidental Channel Hydraulic Calculations**

The engineer may use the 100 year WSEL in the main stem as the tailwater elevation for all mainline hydraulic calculations in the tributary regardless of the relative sizes of the drainage areas.

Where the engineer, for the purpose of analyzing the mainline hydraulics in the tributary, proposes to use two different frequencies, one for main stem and a different frequency for the tributary drainage system, two design water surfaces must be calculated:

1. The water surface in the main stem will be the WSEL of the larger frequency as shown in Table 3-4 (100). The tributary would then use the lower frequency shown in Table 3-4 (5,10 etc.) for its mainline hydraulic calculations. For example, for a drainage area ratio between 100 to 1 and 999 to1 and a 100 year storm the main stem control WSEL would be calculated using a 100 year storm and the mainline hydraulics in the tributary would be calculated using a 25 year storm.
2. In the second case, the water surface in the main stem will be the WSEL of the smaller frequency as shown in Table 3-4 (2, 10 etc.). The tributary would then use the larger

HEC-RAS HEC-RAS 5.0.7 March 2019
U.S. Army Corps of Engineers
Hydrologic Engineering Center
609 Second Street
Davis, California

```
X     X  XXXXXX    XXXX        XXXX       XX      XXXX
X     X  X        X    X       X   X     X  X    X
X     X  X        X            X   X    X    X   X
XXXXXXX  XXXX     X       XXX  XXXX     XXXXXX    XXXX
X     X  X        X            X  X     X    X        X
X     X  X        X    X       X   X    X    X        X
X     X  XXXXXX    XXXX        X    X   X    X   XXXXX
```

PROJECT DATA
Project Title: Sycamore Creek
Project File : SycamoreCreek.prj
Run Date and Time: 2/7/2024 3:24:02 PM

Project in English units

PLAN DATA

Plan Title: Plan 07
Plan File : r:\1759\Plot\Hydrology\FEMA\To the City\12 12-14-2023\Sycamore Creek\SycamoreCreek.p07

Geometry Title: PRSYC-Remove-Carlton-Weir
Geometry File : r:\1759\Plot\Hydrology\FEMA\To the City\12 12-14-2023\Sycamore Creek\SycamoreCreek.g15

Flow Title    : SY-PR-Flow-removeBridge-weir
Flow File     : r:\1759\Plot\Hydrology\FEMA\To the City\12 12-14-2023\Sycamore Creek\SycamoreCreek.f13

Plan Summary Information:
Number of:  Cross Sections =   11    Multiple Openings  =    0
            Culverts       =    0    Inline Structures  =    1
            Bridges        =    1    Lateral Structures =    1

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

Computation Options

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

FLOW DATA

Flow Title: SY-PR-Flow-removeBridge-weir
Flow File : r:\1759\Plot\Hydrology\FEMA\To the City\12 12-14-2023\Sycamore Creek\SycamoreCreek.f13

Flow Data (cfs)

| River | Reach | RS | Scenario 1 |
|---|---|---|---|
| Sycamore Creek | Reach | 500 | 13407 |
| Sycamore Creek | Reach | 300 | 12790.26 |
| Sycamore Creek | Reach | 100 | 14373 |
| Sycamore Creek | Reach | 50 | 25000 |

Boundary Conditions

| River | Reach | Profile | Upstream | Downstream |
|---|---|---|---|---|
| Sycamore Creek | Reach | Scenario 1 | | Known WS = 317.23 |

GEOMETRY DATA

Geometry Title: PRSYC-Remove-Carlton-Weir
Geometry File : r:\1759\Plot\Hydrology\FEMA\To the City\12 12-14-2023\Sycamore Creek\SycamoreCreek.g15

CROSS SECTION

RIVER: Sycamore Creek
REACH: Reach RS: 500

INPUT
Description: 0.023 for the Santa recreational Lake
0.035 AC road+ short to
medium grass
0.09 Creek medium t odense brush
0.045 houses+
landscape
Station Elevation Data num= 102

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 346 | .48 | 345.42 | 2.61 | 344 | 2.66 | 343.94 | 5.57 | 342 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 9.1 | 340.54 | 10.94 | 340 | 12.03 | 339.37 | 15.95 | 338 | 16.87 | 337.09 | |
| 19.22 | 336 | 37.85 | 334.58 | 44.1 | 334.36 | 91.44 | 334.1 | 91.71 | 334.1 | |
| 92 | 334.1 | 103.16 | 334.09 | 104.62 | 334.09 | 105.32 | 334.08 | 106.24 | 334.08 | |
| 110.23 | 334 | 114.92 | 334 | 117 | 333.976 | 177.13 | 333.27 | 185.06 | 333.3 | |
| 190.91 | 333.29 | 250.26 | 334 | 260.57 | 334 | 265.06 | 334.09 | 265.59 | 334.1 | |
| 301.99 | 334.1 | 304.29 | 334.05 | 306.99 | 334 | 308.9 | 332.43 | 309.47 | 332 | |
| 311.94 | 331.29 | 316.88 | 330 | 317.16 | 329.75 | 324.23 | 329.29 | 326.75 | 328 | |
| 372.87 | 328 | 378.15 | 326.23 | 378.76 | 326 | 379.37 | 325.68 | 380.21 | 325.39 | |
| 386.6 | 324 | 391.32 | 323.22 | 395.69 | 322.75 | 399.05 | 322 | 1057.41 | 322 | |
| 1059.55 | 323.35 | 1061.33 | 324 | 1088.34 | 324 | 1155.18 | 324.93 | 1174 | 324.02 | |
| 1174.06 | 324.02 | 1174.41 | 324 | 1182.58 | 322.46 | 1185.46 | 322 | 1187.3 | 321.2 | |
| 1190.19 | 320.23 | 1191.3 | 320 | 1191.98 | 319.72 | 1196.05 | 318.7 | 1197.6 | 318.55 | |
| 1197.89 | 318.45 | 1198.77 | 318 | 1205.35 | 318 | 1207.04 | 318 | 1215.51 | 318.47 | |
| 1248.19 | 320 | 1271.68 | 320 | 1281.23 | 320 | 1308.2 | 320 | 1337.97 | 320 | |
| 1360.39 | 320 | 1365.31 | 321.25 | 1375.35 | 324.28 | 1375.39 | 324.29 | 1390.4 | 328.82 | |
| 1391.91 | 330 | 1417.68 | 338.79 | 1419.76 | 339.3 | 1423 | 340 | 1434.66 | 340 | |
| 1472.4 | 340.51 | 1480.96 | 340 | 1489.05 | 339.24 | 1489.71 | 339.26 | 1536.35 | 339.46 | |
| 1546.35 | 339.59 | 1549.55 | 340 | 1551 | 340.64 | 1554.92 | 342 | 1559.9 | 343.46 | |
| 1562.26 | 344 | 1571.8 | 344.47 | 1578.84 | 344.71 | 1586.79 | 344.95 | 1595.93 | 345.12 | |
| 1602.63 | 345.18 | 1623.79 | 346 | | | | | | | |

Manning's n Values num= 5

| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|---|---|---|---|
| 0 | .035 | 326.75 | .023 | 1057.41 | .035 | 1174.06 | .09 | 1360.39 | .045 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 1174 | 1375.35 | 484.65 | 511.2 | 513.2 | .1 | .3 |

CROSS SECTION OUTPUT Profile #Scenario 1

| | | | | | | |
|---|---|---|---|---|---|---|
| E.G. Elev (ft) | 326.44 | Element | Left OB | Channel | Right OB | |
| Vel Head (ft) | 0.20 | Wt. n-Val. | 0.023 | 0.087 | 0.045 | |
| W.S. Elev (ft) | 326.24 | Reach Len. (ft) | 484.65 | 511.20 | 513.20 | |
| Crit W.S. (ft) | | Flow Area (sq ft) | 3069.34 | 1250.66 | 6.40 | |
| E.G. Slope (ft/ft) | 0.000565 | Area (sq ft) | 3069.34 | 1250.66 | 6.40 | |
| Q Total (cfs) | 13407.00 | Flow (cfs) | 11694.39 | 1707.78 | 4.83 | |
| Top Width (ft) | 1003.75 | Top Width (ft) | 795.89 | 201.35 | 6.51 | |
| Vel Total (ft/s) | 3.10 | Avg. Vel. (ft/s) | 3.81 | 1.37 | 0.75 | |
| Max Chl Dpth (ft) | 8.24 | Hydr. Depth (ft) | 3.86 | 6.21 | 0.98 | |
| Conv. Total (cfs) | 563950.6 | Conv. (cfs) | 491911.8 | 71835.8 | 203.0 | |
| Length Wtd. (ft) | 492.42 | Wetted Per. (ft) | 796.92 | 202.85 | 6.80 | |
| Min Ch El (ft) | 318.00 | Shear (lb/sq ft) | 0.14 | 0.22 | 0.03 | |
| Alpha | 1.34 | Stream Power (lb/ft s) | 0.52 | 0.30 | 0.03 | |
| Frctn Loss (ft) | 0.36 | Cum Volume (acre-ft) | 127.42 | 152.04 | 3.47 | |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 28.16 | 17.42 | 2.13 | |

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Sycamore Creek
REACH: Reach RS: 450

INPUT
Description: 0.023 for the Santa recreational Lake
0.035 AC road+ short to
medium grass
0.09 Creek medium t odense brush
0.045 houses+
landscape

Station Elevation Data num= 101

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 344 | 17.26 | 344 | 20.59 | 343.57 | 23.56 | 343.47 | 37.59 | 342 |
| 41.63 | 340.86 | 43.32 | 340 | 45.06 | 338.83 | 49.52 | 338 | 108.46 | 330 |
| 113.23 | 329.57 | 121.31 | 328.71 | 131.1 | 328 | 198.19 | 328 | 215.69 | 329 |
| 217.89 | 329.29 | 249.45 | 330 | 252.84 | 330.01 | 257.89 | 328.27 | 258.41 | 328 |
| 259.21 | 327.72 | 263.54 | 326 | 267.83 | 326 | 271.35 | 324.26 | 273.16 | 324.46 |
| 291.29 | 326 | 447.75 | 326 | 453.6 | 325.88 | 461.37 | 326 | 464.52 | 326 |
| 479 | 326.38 | 494.64 | 326.57 | 508.17 | 326.54 | 533.29 | 326.23 | 538.75 | 326 |
| 548.32 | 326 | 583.38 | 324.55 | 604.58 | 324 | 612.4 | 323.61 | 634.1 | 322.7 |
| 646.44 | 322.3 | 649.79 | 322 | 835.68 | 322 | 859.71 | 322.96 | 865.16 | 322 |
| 893.59 | 322 | 906.95 | 324 | 919.69 | 324 | 933.72 | 322.74 | 946.86 | 322 |
| 1024.16 | 320.67 | 1052.36 | 320.27 | 1052.39 | 320.27 | 1069.11 | 320 | 1082.55 | 320 |
| 1106.56 | 320 | 1112.67 | 318.77 | 1115.34 | 318 | 1118.62 | 317.28 | 1125.27 | 316 |
| 1137.06 | 314 | 1149.25 | 314 | 1153.58 | 314.04 | 1154.62 | 314.1 | 1163.46 | 314.3 |
| 1169.47 | 314.53 | 1184.76 | 315.59 | 1193.79 | 315.87 | 1196.5 | 316 | 1228.7 | 316 |
| 1289.08 | 318 | 1294.75 | 319.64 | 1294.78 | 319.65 | 1296.82 | 320.34 | 1297.25 | 320.7 |
| 1302.63 | 322.24 | 1310.3 | 324.11 | 1330.91 | 330 | 1418.17 | 330 | 1425.14 | 329.24 |
| 1475.4 | 329.56 | 1487.5 | 330 | 1512.95 | 331.13 | 1538.06 | 332 | 1549.66 | 332 |
| 1550.33 | 332.31 | 1553.11 | 334 | 1555.85 | 334.9 | 1563.92 | 336 | 1565.63 | 337.16 |
| 1570.84 | 338 | 1572.31 | 338.52 | 1580.22 | 340 | 1584.67 | 341.39 | 1586.5 | 342 |
| 1591.39 | 343.46 | 1592.65 | 344 | 1595.12 | 345.34 | 1599.14 | 345.8 | 1601.31 | 346 |
| 1604.01 | 346 | | | | | | | | |

Manning's n Values num= 5

| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|---|---|---|---|
| 0 | .035 | 538.75 | .023 | 919.69 | .035 | 1118.62 | .09 | 1296.82 | .045 |

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

| Left | Right | Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 1052.39 | 1294.75 | 163.58 | 199.56 | 223.24 | .1 | .3 |

Ineffective Flow num= 1

| Sta L | Sta R | Elev | Permanent |
|---|---|---|---|
| 462 | 627 | 330 | F |

CROSS SECTION OUTPUT Profile #Scenario 1

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 326.08 | Element | | | |
| Vel Head (ft) | 0.22 | Wt. n-Val. | 0.027 | 0.074 | 0.052 |
| W.S. Elev (ft) | 325.86 | Reach Len. (ft) | 163.58 | 199.56 | 223.24 |
| Crit W.S. (ft) | 322.39 | Flow Area (sq ft) | 1664.78 | 2147.45 | 64.07 |
| E.G. Slope (ft/ft) | 0.001006 | Area (sq ft) | 1772.70 | 2147.45 | 64.07 |
| Q Total (cfs) | 13407.00 | Flow (cfs) | 7282.90 | 6002.85 | 121.25 |

| | | | | | |
|---|---|---|---|---|---|
| Top Width (ft) | 786.35 | Top Width (ft) | 522.31 | 242.36 | 21.68 |
| Vel Total (ft/s) | 3.46 | Avg. Vel. (ft/s) | 4.37 | 2.80 | 1.89 |
| Max Chl Dpth (ft) | 11.86 | Hydr. Depth (ft) | 3.72 | 8.86 | 2.95 |
| Conv. Total (cfs) | 422664.5 | Conv. (cfs) | 229598.3 | 189243.8 | 3822.4 |
| Length Wtd. (ft) | 188.87 | Wetted Per. (ft) | 447.77 | 243.28 | 22.61 |
| Min Ch El (ft) | 314.00 | Shear (lb/sq ft) | 0.23 | 0.55 | 0.18 |
| Alpha | 1.16 | Stream Power (lb/ft s) | 1.02 | 1.55 | 0.34 |
| Frctn Loss (ft) | 0.37 | Cum Volume (acre-ft) | 100.48 | 132.10 | 3.05 |
| C & E Loss (ft) | 0.02 | Cum SA (acres) | 20.82 | 14.82 | 1.97 |

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

CROSS SECTION

RIVER: Sycamore Creek
REACH: Reach RS: 400

INPUT
Description: 0.09 Creek medium t odense brush
0.045 houses (buildings)+
parking area+ landscape
Station Elevation Data num= 101

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 338 | .21 | 338 | 1.12 | 337.74 | 8.25 | 336 | 11.02 | 334.07 |
| 11.32 | 333.91 | 16.15 | 332 | 22.08 | 330 | 47.54 | 328.37 | 67.02 | 328.46 |
| 77.13 | 328.55 | 115.32 | 328 | 138.57 | 328 | 145.26 | 327.01 | 147.88 | 326.66 |
| 153.6 | 326.29 | 155.07 | 326.24 | 156.95 | 326 | 184.97 | 326 | 189.2 | 326.1 |
| 211.91 | 326.98 | 235.19 | 327.84 | 238.28 | 328 | 275.37 | 328 | 275.57 | 327.82 |
| 281.09 | 326 | 284.67 | 324.66 | 286.51 | 324 | 294.81 | 324 | 308.89 | 324.47 |
| 419.7 | 324.68 | 457.3 | 324.67 | 462.04 | 324.73 | 498.49 | 325.01 | 504.39 | 325.01 |
| 515.48 | 325.09 | 520.86 | 325.08 | 536.12 | 325.18 | 545.12 | 325.21 | 594.18 | 325.04 |
| 602.87 | 324.99 | 633.01 | 324.87 | 644.44 | 324.85 | 716.39 | 324.46 | 727.52 | 324.38 |
| 768.74 | 324 | 791.41 | 324 | 807.68 | 323.76 | 838.96 | 322.8 | 845.41 | 322.6 |
| 868.9 | 322 | 881.07 | 322 | 892.7 | 321.57 | 902.92 | 321.34 | 948.37 | 320.84 |
| 960.48 | 320.65 | 966.06 | 320.56 | 988.85 | 320.21 | 993.5 | 320.19 | 1011.36 | 320 |
| 1041.42 | 320 | 1065.21 | 319.4 | 1065.28 | 319.4 | 1083.68 | 318.94 | 1123.34 | 318 |
| 1124.7 | 317.76 | 1132.52 | 316 | 1135.34 | 314.39 | 1136.69 | 314 | 1170.93 | 314 |
| 1304.97 | 316 | 1307.64 | 316.64 | 1308.71 | 317.05 | 1314.11 | 320 | 1314.97 | 320.19 |
| 1315 | 320.2 | 1319.26 | 321.16 | 1322.52 | 322 | 1329.49 | 324.1 | 1332.61 | 326 |
| 1347.79 | 327 | 1352.19 | 327.04 | 1357.77 | 326.99 | 1431.55 | 326.53 | 1434.01 | 326.49 |
| 1449.92 | 326 | 1491.44 | 326 | 1513.13 | 326.5 | 1574.68 | 327.31 | 1585.54 | 327.42 |
| 1587.93 | 327.48 | 1593.01 | 327.52 | 1599.21 | 327.61 | 1608.14 | 328 | 1610.54 | 329.25 |
| 1612.64 | 330 | 1618.12 | 330.65 | 1633.37 | 332 | 1635.41 | 332.5 | 1639.14 | 333.24 |
| 1639.65 | 334 | | | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|

```
       0    .045 1041.42     .09 1332.61    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       1065.28    1315           290.22  278.09  271.36             .1       .3
Ineffective Flow     num=       3
   Sta L   Sta R    Elev  Permanent
       0     842     321       F
     842    1062     330       F
    1573 1639.65     321       F
```

CROSS SECTION OUTPUT  Profile #Scenario 1

| | | | | | | |
|---|---|---|---|---|---|---|
| E.G. Elev (ft) | 325.69 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.41 | Wt. n-Val. | 0.049 | 0.090 | 0.090 |
| W.S. Elev (ft) | 325.28 | Reach Len. (ft) | 290.22 | 278.09 | 271.36 |
| Crit W.S. (ft) | 320.39 | Flow Area (sq ft) | 417.91 | 2338.79 | 48.27 |
| E.G. Slope (ft/ft) | 0.005313 | Area (sq ft) | 1387.52 | 2338.79 | 48.27 |
| Q Total (cfs) | 13407.00 | Flow (cfs) | 840.74 | 12450.99 | 115.27 |
| Top Width (ft) | 1048.40 | Top Width (ft) | 782.25 | 249.72 | 16.42 |
| Vel Total (ft/s) | 4.78 | Avg. Vel. (ft/s) | 2.01 | 5.32 | 2.39 |
| Max Chl Dpth (ft) | 11.28 | Hydr. Depth (ft) | 0.74 | 9.37 | 2.94 |
| Conv. Total (cfs) | 183927.4 | Conv. (cfs) | 11533.9 | 170812.2 | 1581.3 |
| Length Wtd. (ft) | 281.35 | Wetted Per. (ft) | 562.51 | 251.38 | 17.27 |
| Min Ch El (ft) | 314.00 | Shear (lb/sq ft) | 0.25 | 3.09 | 0.93 |
| Alpha | 1.17 | Stream Power (lb/ft s) | 0.50 | 16.43 | 2.21 |
| Frctn Loss (ft) | 0.82 | Cum Volume (acre-ft) | 94.55 | 121.82 | 2.76 |
| C & E Loss (ft) | 0.07 | Cum SA (acres) | 18.37 | 13.69 | 1.87 |

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

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

CROSS SECTION

RIVER: Sycamore Creek
REACH: Reach  RS: 300

INPUT

Description: 0.035 AC road+ short to medium grass
0.08 Creek medium odense brush
0.045 houses+ landscape

Station Elevation Data  num=  101

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 326.9 | 2.71 | 326.86 | 4.84 | 326.81 | 7.05 | 326.76 | 13.21 | 327.6 |
| 17.53 | 328.05 | 24.55 | 327.96 | 32.42 | 328.47 | 46.58 | 328.62 | 93.74 | 326.9 |
| 95.92 | 326.8 | 97.95 | 326.67 | 101.7 | 326.36 | 103.87 | 326.73 | 109.94 | 326.8 |
| 114.01 | 326 | 164.4 | 326 | 198.56 | 325.51 | 204.46 | 325.49 | 234.71 | 325.45 |
| 244.93 | 325.43 | 247.08 | 325.43 | 346.79 | 324 | 347.98 | 324 | 699.16 | 324 |
| 790.88 | 322.16 | 792.13 | 322.16 | 813.92 | 322.1 | 814.54 | 322.1 | 814.85 | 322.1 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 844.83 | 322 | 1074.15 | 322 | 1203.28 | 320.26 | 1220.36 | 320 | 1257.95 | 320 |
| 1258.05 | 320 | 1270.88 | 320 | 1309.73 | 319.63 | 1316.14 | 318 | 1316.31 | 317.94 |
| 1320.69 | 316 | 1323.26 | 314.42 | 1323.92 | 314 | 1387.93 | 314 | 1411.01 | 313.84 |
| 1415.96 | 313.85 | 1421.73 | 314.95 | 1430.1 | 314 | 1454.02 | 314 | 1457.01 | 314 |
| 1472.57 | 314 | 1478.77 | 316.81 | 1478.87 | 316.86 | 1479.02 | 316.93 | 1486.47 | 320 |
| 1492.6 | 321.89 | 1492.87 | 322 | 1493.51 | 322.27 | 1497.83 | 324 | 1516.18 | 324 |
| 1539.49 | 324 | 1557.89 | 324 | 1576.09 | 324 | 1584.94 | 323.84 | 1585.17 | 323.84 |
| 1592.19 | 324 | 1605.09 | 324 | 1607.37 | 324 | 1608.02 | 324 | 1611.34 | 324 |
| 1649.18 | 324 | 1678.88 | 324.11 | 1683.07 | 324 | 1684.65 | 324 | 1684.79 | 324 |
| 1687.31 | 324 | 1693.67 | 324 | 1701.42 | 324 | 1704.28 | 324 | 1801.5 | 324 |
| 1804.71 | 324 | 1805.6 | 324.02 | 1824.42 | 324.39 | 1826.39 | 324.46 | 1866.12 | 325.48 |
| 1884.04 | 325.83 | 1886.97 | 326 | 1903.67 | 327.44 | 1908.78 | 328 | 1911.3 | 329.35 |
| 1913.18 | 330 | 1913.9 | 330.37 | 1918.57 | 332 | 1923.41 | 333.53 | 1925.36 | 334 |
| 1926.23 | 334.45 | 1929.81 | 336 | 1932.53 | 336.76 | 1940.9 | 338 | 1942.33 | 338.7 |
| 1951.53 | 340 | | | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .035 | 1316.14 | .08 | 1497.83 | .045 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 1323.26 | 1472.57 | 95.85 | 94.82 | 94.72 | .3 | .5 |

Ineffective Flow num= 5

| Sta L | Sta R | Elev | Permanent |
|---|---|---|---|
| 0 | 495 | 321 | F |
| 495 | 626 | 330 | F |
| 626 | 1309.17 | 321 | F |
| 1495.61 | 1538 | 321 | F |
| 1538 | 1951.53 | 330 | F |

CROSS SECTION OUTPUT Profile #Scenario 1

| | | | | | | |
|---|---|---|---|---|---|---|
| E.G. Elev (ft) | 324.80 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.18 | Wt. n-Val. | 0.036 | 0.080 | 0.077 |
| W.S. Elev (ft) | 324.62 | Reach Len. (ft) | 95.85 | 94.82 | 94.72 |
| Crit W.S. (ft) | 320.05 | Flow Area (sq ft) | 2072.52 | 1581.80 | 161.06 |
| E.G. Slope (ft/ft) | 0.001794 | Area (sq ft) | 2153.68 | 1581.80 | 334.97 |
| Q Total (cfs) | 12790.26 | Flow (cfs) | 6455.43 | 5995.96 | 338.87 |
| Top Width (ft) | 1529.02 | Top Width (ft) | 1019.67 | 149.31 | 360.04 |
| Vel Total (ft/s) | 3.35 | Avg. Vel. (ft/s) | 3.11 | 3.79 | 2.10 |
| Max Chl Dpth (ft) | 10.78 | Hydr. Depth (ft) | 2.33 | 10.59 | 2.46 |
| Conv. Total (cfs) | 301931.8 | Conv. (cfs) | 152389.4 | 141542.9 | 7999.5 |
| Length Wtd. (ft) | 94.82 | Wetted Per. (ft) | 889.78 | 149.59 | 67.37 |
| Min Ch El (ft) | 313.84 | Shear (lb/sq ft) | 0.26 | 1.18 | 0.27 |
| Alpha | 1.05 | Stream Power (lb/ft s) | 0.81 | 4.49 | 0.56 |
| Frctn Loss (ft) | | Cum Volume (acre-ft) | 82.75 | 109.31 | 1.57 |
| C & E Loss (ft) | | Cum SA (acres) | 12.37 | 12.42 | 0.70 |

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

INLINE STRUCTURE

RIVER: Sycamore Creek
REACH: Reach RS: 250

INPUT
Description:
Distance from Upstream XS = 25
Deck/Roadway Width = 65
Weir Coefficient = 3
Weir Embankment Coordinates num = 7

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 1038 | 321.5 | 1270.8 | 321.3 | 1316.1 | 321.3 | 1415 | 321.6 | 1444 | 321.7 |
| 1497.8 | 322 | 1576 | 322 | | | | | | |

Upstream Embankment side slope = 0 horiz. to 1.0 vertical
Downstream Embankment side slope = 0 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow = .98
Elevation at which weir flow begins =
Weir crest shape = Broad Crested

CROSS SECTION

RIVER: Sycamore Creek
REACH: Reach RS: 200

INPUT
Description: 0.035 AC road+ short to medium grass
0.08 Creek medium odense
brush
0.045 houses+ landscape
Station Elevation Data num= 101

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 327.46 | 28.23 | 326.41 | 44.34 | 326 | 299.22 | 326 | 399.15 | 324 |
| 399.19 | 324 | 399.22 | 324 | 402.1 | 324 | 405.23 | 324 | 816.63 | 324 |
| 843.92 | 322.38 | 851.28 | 322 | 852.31 | 322 | 882.13 | 322 | 885.37 | 322 |
| 905.31 | 322 | 915.28 | 322 | 923.84 | 322 | 925.93 | 322 | 929.19 | 322 |
| 937.09 | 322 | 969.52 | 322 | 972.34 | 322 | 995.39 | 322 | 1010.89 | 322 |
| 1035.6 | 322 | 1052.64 | 321.42 | 1090.99 | 321.25 | 1103.71 | 321.21 | 1107.61 | 321.26 |
| 1141.78 | 321.26 | 1149.32 | 321.2 | 1224.8 | 320.02 | 1226 | 320 | 1227.14 | 320 |
| 1300.05 | 320 | 1300.14 | 320 | 1328.99 | 320 | 1353.28 | 320 | 1353.62 | 320 |
| 1353.66 | 319.99 | 1359.29 | 318 | 1359.35 | 317.98 | 1359.38 | 317.97 | 1363.29 | 315.97 |
| 1368.06 | 314 | 1462.45 | 312.04 | 1464.3 | 312.03 | 1464.38 | 312.03 | 1466.48 | 312.43 |
| 1466.85 | 312.51 | 1502.13 | 312.53 | 1502.41 | 312.6 | 1506.34 | 314.57 | 1509.85 | 316.47 |
| 1512.47 | 317.67 | 1512.5 | 317.68 | 1513.61 | 318.2 | 1517.04 | 320.09 | 1529.08 | 322 |
| 1534.27 | 322 | 1535.44 | 322 | 1554.42 | 322 | 1558.1 | 322 | 1560.62 | 322 |
| 1563.47 | 322 | 1565.63 | 322 | 1626.77 | 322 | 1630.35 | 322 | 1632.59 | 322 |
| 1679.24 | 322 | 1679.48 | 322 | 1681.04 | 322.07 | 1681.35 | 322.08 | 1682.74 | 322 |
| 1701.61 | 322.31 | 1799.76 | 324 | 1811.41 | 324 | 1832.13 | 324 | 1859.32 | 324 |
| 1859.48 | 324 | 1867.76 | 324 | 1868.41 | 324 | 1868.68 | 324 | 1899.87 | 324 |

```
 1899.92     324 1900.25     324 1927.85     324 1931.37  324.11 1933.92  324.24
 1963.05     326 1970.76     326 1983.01  326.46 1985.11  326.53 2008.56  327.79
 2011.05     328 2012.61     328 2039.87  329.62 2040.73  329.66 2045.52     330
 2045.53     330

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0    .045 1353.28     .08 1560.62    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       1359.29 1512.47              301  307.18     316             .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
       0 1330.23     321       F
 1527.39 2045.53     321       F

CROSS SECTION OUTPUT  Profile #Scenario 1

  E.G. Elev (ft)            322.49    Element                  Left OB    Channel   Right OB
  Vel Head (ft)               1.96    Wt. n-Val.                0.060      0.080      0.080
  W.S. Elev (ft)            320.53    Reach Len. (ft)          301.00     307.18     316.00
  Crit W.S. (ft)            319.22    Flow Area (sq ft)         21.19    1125.75       8.36
  E.G. Slope (ft/ft)      0.026254    Area (sq ft)              86.02    1125.75       8.36
  Q Total (cfs)           12790.26    Flow (cfs)                76.79   12687.61      25.86
  Top Width (ft)            327.96    Top Width (ft)           167.41     153.18       7.37
  Vel Total (ft/s)           11.07    Avg. Vel. (ft/s)           3.62      11.27       3.10
  Max Chl Dpth (ft)           8.50    Hydr. Depth (ft)           0.73       7.35       1.13
  Conv. Total (cfs)         78937.6    Conv. (cfs)               473.9    78304.0      159.6
  Length Wtd. (ft)          304.40    Wetted Per. (ft)          29.40     155.34       8.01
  Min Ch El (ft)            312.03    Shear (lb/sq ft)           1.18      11.88       1.71
  Alpha                       1.03    Stream Power (lb/ft s)     4.28     133.87       5.29
  Frctn Loss (ft)             0.13    Cum Volume (acre-ft)      82.75     103.16       1.57
  C & E Loss (ft)             0.96    Cum SA (acres)            11.06      12.09       0.30


Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for additional cross
         sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than
         1.4.  This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
         the need for additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid, energy was used.

CROSS SECTION


RIVER: Sycamore Creek
REACH: Reach              RS: 100

INPUT
Description:
Station Elevation Data    num=      62
```

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 320 | 5.9 | 320 | 12.54 | 318 | 18.89 | 316.23 | 19.93 | 316 |
| 138.69 | 316 | 243.19 | 314.75 | 259.69 | 314.69 | 285.98 | 314 | 313.63 | 314 |
| 320.87 | 316 | 332.1 | 318 | 341.59 | 320 | 346.65 | 320 | 356.89 | 321 |
| 371.55 | 321 | 401.47 | 322.5 | 428.35 | 323.5 | 448.66 | 316 | 742.12 | 312 |
| 744.01 | 311.37 | 751.39 | 310 | 782.07 | 310 | 802.86 | 312 | 822.52 | 312 |
| 847.25 | 312.66 | 854.61 | 312.72 | 864.73 | 312 | 951.52 | 311.98 | 995.57 | 311.4 |
| 1006.26 | 311.36 | 1040.45 | 310 | 1069.5 | 310 | 1118.53 | 311.6 | 1127.3 | 312 |
| 1130.69 | 312 | 1144.57 | 313.53 | 1157.38 | 313.67 | 1177.21 | 313.36 | 1177.28 | 313.36 |
| 1194.29 | 312.94 | 1204.3 | 312 | 1211.39 | 310.26 | 1211.93 | 310 | 1235.53 | 308.55 |
| 1269.25 | 308.93 | 1283.61 | 308.98 | 1294.48 | 309.81 | 1343.59 | 311.55 | 1351.9 | 312 |
| 1365.51 | 313 | 1365.6 | 313 | 1379 | 314 | 1383.25 | 315.34 | 1385.69 | 316 |
| 1386.66 | 316.43 | 1391.44 | 318 | 1394.82 | 320 | 1405 | 321 | 1419.39 | 324 |
| 1462.42 | 324 | 2042.34 | 333.6 | | | | | | |

Manning's n Values num= 4

| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|---|---|
| 0 | .035 | 854.61 | .09 | 1394.82 | .035 | 1419.39 | .15 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 1204.3 | 1351.9 | 263.29 | 199.09 | 115 | .1 | .3 |

Ineffective Flow num= 2

| Sta L | Sta R | Elev | Permanent |
|---|---|---|---|
| 0 | 1175 | 321 | F |
| 1394.82 | 2042.34 | 321 | F |

CROSS SECTION OUTPUT Profile #Scenario 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 321.40 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.03 | Wt. n-Val. | 0.048 | 0.090 | 0.089 |
| W.S. Elev (ft) | 321.37 | Reach Len. (ft) | 263.29 | 199.09 | 115.00 |
| Crit W.S. (ft) | 316.26 | Flow Area (sq ft) | 8662.77 | 1702.68 | 311.19 |
| E.G. Slope (ft/ft) | 0.000138 | Area (sq ft) | 8662.77 | 1702.68 | 311.19 |
| Q Total (cfs) | 14373.00 | Flow (cfs) | 12473.45 | 1684.53 | 215.02 |
| Top Width (ft) | 1351.50 | Top Width (ft) | 1149.04 | 147.60 | 54.86 |
| Vel Total (ft/s) | 1.35 | Avg. Vel. (ft/s) | 1.44 | 0.99 | 0.69 |
| Max Chl Dpth (ft) | 12.82 | Hydr. Depth (ft) | 7.54 | 11.54 | 5.67 |
| Conv. Total (cfs) | 1222421.0 | Conv. (cfs) | 1060864.0 | 143268.9 | 18287.7 |
| Length Wtd. (ft) | 239.43 | Wetted Per. (ft) | 1153.25 | 147.99 | 56.20 |
| Min Ch El (ft) | 308.55 | Shear (lb/sq ft) | 0.06 | 0.10 | 0.05 |
| Alpha | 1.06 | Stream Power (lb/ft s) | 0.09 | 0.10 | 0.03 |
| Frctn Loss (ft) | 0.04 | Cum Volume (acre-ft) | 52.53 | 93.19 | 0.41 |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 6.52 | 11.03 | 0.07 |

Warning: Multiple water surfaces were found that could balance the energy equation. The program selected the water surface whose main channel velocity head was the closest to the previously computed cross section.
Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: Sycamore Creek
REACH: Reach RS: 90

INPUT
Description:
Station Elevation Data num= 173

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 322.5 | 217.26 | 322 | 221.53 | 320 | 229.52 | 316 | 233.54 | 314 |
| 254.87 | 312 | 264.6 | 310.79 | 267.4 | 310.54 | 281.5 | 310.97 | 303.9 | 312.62 |
| 306.7 | 312.71 | 309.5 | 312.5 | 312.7 | 312.17 | 315.1 | 311.81 | 316.1 | 311.72 |
| 317.9 | 311.71 | 319.9 | 311.76 | 321.7 | 311.93 | 323.5 | 312.14 | 323.6 | 312.17 |
| 323.8 | 312.22 | 325.4 | 312.52 | 326.3 | 312.51 | 327.3 | 312.6 | 329.1 | 312.68 |
| 331 | 312.67 | 360.8 | 310.88 | 362.7 | 310.78 | 368.3 | 310.93 | 421.6 | 311.07 |
| 424 | 311.21 | 427.2 | 311.3 | 429.6 | 311.27 | 434.5 | 311.29 | 445.6 | 312.13 |
| 446.8 | 312.19 | 448 | 312.17 | 449.6 | 312.19 | 451.9 | 312.05 | 452.4 | 312.04 |
| 456.6 | 312.11 | 458 | 312.02 | 459.4 | 311.99 | 460.8 | 311.91 | 463.1 | 311.51 |
| 463.6 | 311.45 | 465 | 311.24 | 466.4 | 311.12 | 466.8 | 311.29 | 467.7 | 311.4 |
| 468.7 | 311.69 | 469.2 | 311.75 | 470.5 | 311.81 | 472.4 | 311.76 | 474.3 | 311.79 |
| 483.2 | 311.71 | 488.8 | 310.84 | 539.2 | 310.57 | 539.4 | 310.58 | 541.2 | 310.68 |
| 542 | 310.67 | 543.1 | 310.68 | 544.8 | 310.6 | 546.8 | 311.08 | 550.1 | 311.64 |
| 552.4 | 311.96 | 553.2 | 311.96 | 554.3 | 312.06 | 556 | 312.31 | 556.1 | 312.32 |
| 556.3 | 312.34 | 558 | 312.38 | 558.8 | 312.38 | 561.6 | 312.23 | 561.7 | 312.23 |
| 564.4 | 312.05 | 565.83 | 11.8424 | 567.3 | 311.62 | 570.1 | 311.48 | 572.9 | 311.59 |
| 574.7 | 311.78 | 575.7 | 311.87 | 576.6 | 311.9 | 578.5 | 311.91 | 581.3 | 311.69 |
| 584.1 | 311.72 | 585.9 | 311.91 | 586.9 | 311.99 | 589.7 | 312.16 | 591.5 | 311.93 |
| 593.3 | 311.56 | 595 | 311.48 | 595.2 | 311.46 | 595.3 | 311.45 | 598.1 | 311.61 |
| 600.6 | 311.86 | 602.6 | 311.85 | 603.7 | 311.93 | 604.5 | 311.95 | 606.4 | 312.21 |
| 606.5 | 312.23 | 608.2 | 312 | 609.3 | 311.95 | 611.7 | 311.99 | 614.9 | 312.1 |
| 617.2 | 312.15 | 617.5 | 312.18 | 617.7 | 312.19 | 619.4 | 312.14 | 620.5 | 312.01 |
| 626.1 | 310.93 | 626.8 | 310.86 | 628.9 | 310.52 | 631.7 | 310.31 | 632.4 | 310.31 |
| 633.8 | 310.48 | 634.3 | 310.57 | 637.3 | 308.5 | 687.3 | 308.5 | 723.6 | 310.83 |
| 727 | 310.76 | 729.1 | 310.78 | 735.4 | 310.96 | 738.4 | 311.28 | 741 | 311.79 |
| 743.8 | 311.82 | 744 | 311.82 | 745.9 | 311.88 | 747.7 | 311.85 | 748.7 | 311.8 |
| 749.6 | 311.78 | 751.5 | 312.12 | 753.3 | 312.56 | 755 | 312.89 | 755.2 | 312.91 |
| 757.1 | 313.09 | 757.8 | 313.16 | 760.6 | 313.46 | 760.8 | 313.46 | 761.1 | 313.46 |
| 762.6 | 313.41 | 763.4 | 313.3 | 764.5 | 313.15 | 766.2 | 312.99 | 766.4 | 312.98 |
| 769 | 313.05 | 770.1 | 313.18 | 771.8 | 313.31 | 773.8 | 313.73 | 774.6 | 313.84 |
| 777.4 | 314.04 | 779.4 | 314.1 | 780.2 | 314.16 | 782.7 | 314.62 | 783 | 314.68 |
| 783.1 | 314.71 | 785 | 315.28 | 788.4 | 316.38 | 791.4 | 317.54 | 796.1 | 319.09 |
| 797 | 319.34 | 799.7 | 319.95 | 799.8 | 319.97 | 799.9 | 319.98 | 802.6 | 320.45 |
| 803.6 | 320.56 | 805.4 | 320.75 | 807.24 | 322 | 811.36 | 324 | 814.13 | 325 |
| 853.1 | 325 | 864.77 | 325 | 960.74 | 324.9 | | | | |

Manning's n Values num= 5

| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|---|---|---|---|
| 0 | .15 | 217.26 | .09 | 488.8 | .03 | 751.5 | .04 | 864.77 | .15 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 565.8 | 853.1 | 320.95 | 231.7 | 125.17 | .1 | .3 |

CROSS SECTION OUTPUT  Profile #Scenario 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 321.34 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.14 | Wt. n-Val. | 0.060 | 0.031 | |
| W.S. Elev (ft) | 321.20 | Reach Len. (ft) | 320.95 | 231.70 | 125.17 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 3278.79 | 2330.95 | |
| E.G. Slope (ft/ft) | 0.000262 | Area (sq ft) | 3278.79 | 2330.95 | |
| Q Total (cfs) | 14373.00 | Flow (cfs) | 5869.93 | 8503.07 | |
| Top Width (ft) | 587.09 | Top Width (ft) | 346.83 | 240.26 | |
| Vel Total (ft/s) | 2.56 | Avg. Vel. (ft/s) | 1.79 | 3.65 | |
| Max Chl Dpth (ft) | 12.70 | Hydr. Depth (ft) | 9.45 | 9.70 | |
| Conv. Total (cfs) | 887353.5 | Conv. (cfs) | 362395.2 | 524958.3 | |
| Length Wtd. (ft) | 257.32 | Wetted Per. (ft) | 349.38 | 242.72 | |
| Min Ch El (ft) | 308.50 | Shear (lb/sq ft) | 0.15 | 0.16 | |
| Alpha | 1.40 | Stream Power (lb/ft s) | 0.28 | 0.57 | |
| Frctn Loss (ft) | 0.11 | Cum Volume (acre-ft) | 16.44 | 83.97 | |
| C & E Loss (ft) | 0.02 | Cum SA (acres) | 2.00 | 10.14 | |

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

CROSS SECTION

RIVER: Sycamore Creek
REACH: Reach  RS: 80

INPUT
Description:
Station Elevation Data  num=  55

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 321 | 10 | 318 | 18.79 | 316 | 24 | 313 | 37.05 | 314 |
| 69.07 | 314 | 82.15 | 311 | 87.21 | 310 | 89.7 | 308.45 | 114 | 308.49 |
| 290.79 | 308.78 | 310.93 | 310 | 314.6 | 311.92 | 314.7 | 311.91 | 315 | 311.91 |
| 316.4 | 311.97 | 317.5 | 311.89 | 318.3 | 311.95 | 320 | 312.12 | 320.2 | 312.13 |
| 320.3 | 312.13 | 320.4 | 312.13 | 322.1 | 312.15 | 323.9 | 311.89 | 325.8 | 311.75 |
| 325.9 | 311.72 | 328.6 | 311.09 | 329.5 | 311.06 | 331.4 | 311.09 | 333.3 | 310.96 |
| 334.2 | 310.92 | 335.1 | 310.98 | 337 | 311.16 | 338.9 | 311.26 | 342.5 | 311.53 |
| 345.3 | 312.01 | 346.3 | 312.4 | 347.8 | 313.13 | 350.1 | 314.13 | 350.9 | 314.54 |
| 351.9 | 314.98 | 353.8 | 315.76 | 356.5 | 316.79 | 357.5 | 317.09 | 359.2 | 317.5 |
| 361.3 | 317.91 | 362 | 318.03 | 363.1 | 318.09 | 364.8 | 318.1 | 367.6 | 317.94 |
| 370.6 | 317.94 | 372.53 | 320 | 385.48 | 326 | 431.52 | 326.209 | 561.42 | 326.8 |

Manning's n Values  num=  6

| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|---|---|---|---|
| 0 | .09 | 10 | .04 | 89.7 | .03 | 310.93 | .09 | 372.53 | .04 |
| 385.48 | .15 | | | | | | | | |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 114 | 431.52 | 12 | 250 | 515 | .1 | .3 |

Ineffective Flow  num=  1

| Sta L | Sta R | Elev | Permanent |
|---|---|---|---|
| 0 | 87.21 | 322 | F |

CROSS SECTION OUTPUT  Profile #Scenario 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 321.21 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.37 | Wt. n-Val. | 0.031 | 0.048 | |
| W.S. Elev (ft) | 320.84 | Reach Len. (ft) | 12.00 | 250.00 | 515.00 |
| Crit W.S. (ft) | 313.78 | Flow Area (sq ft) | 329.57 | 2829.38 | |
| E.G. Slope (ft/ft) | 0.000793 | Area (sq ft) | 886.20 | 2829.38 | |
| Q Total (cfs) | 14373.00 | Flow (cfs) | 2381.98 | 11991.02 | |
| Top Width (ft) | 373.82 | Top Width (ft) | 113.47 | 260.35 | |
| Vel Total (ft/s) | 4.55 | Avg. Vel. (ft/s) | 7.23 | 4.24 | |
| Max Chl Dpth (ft) | 12.39 | Hydr. Depth (ft) | 12.30 | 10.87 | |
| Conv. Total (cfs) | 510477.0 | Conv. (cfs) | 84599.4 | 425877.6 | |
| Length Wtd. (ft) | 229.86 | Wetted Per. (ft) | 27.23 | 263.26 | |
| Min Ch El (ft) | 308.49 | Shear (lb/sq ft) | 0.60 | 0.53 | |
| Alpha | 1.14 | Stream Power (lb/ft s) | 4.33 | 2.25 | |
| Frctn Loss (ft) | 0.34 | Cum Volume (acre-ft) | 1.09 | 70.25 | |
| C & E Loss (ft) | 0.12 | Cum SA (acres) | 0.30 | 8.81 | |

Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Note:  Manning's n values were composited to a single value in the main channel.
Note:  Multiple critical depths were found at this location.  The critical depth with the lowest, valid, energy was used.

LATERAL STRUCTURE

RIVER: Sycamore Creek
REACH: Reach  RS: 75

INPUT
Description:
Lateral structure position  = Next ot left bank station
Distance from Upstream XS =
Deck/Roadway Width  =  110
Weir Coefficient  =  3.1
Weir Flow Reference  = Water Surface
Weir Embankment Coordinates  num =  2

| Sta | Elev | Sta | Elev |
|---|---|---|---|
| 0 | 324 | 110 | 324 |

Weir crest shape  = Broad Crested

Number of Culverts =  3

| Culvert Name | Shape | Rise | Span |
|---|---|---|---|

```
Culvert #1      Circular     6.5
FHWA Chart # 1 - Concrete Pipe Culvert
FHWA Scale # 1 - Square edge entrance with headwall
Solution Criteria = Highest U.S. EG
Culvert Upstrm Dist  Length    Top n  Bottom n  Depth Blocked  Entrance Loss Coef   Exit Loss Coef
                        110     .013     .013        0                  .2               .3
Upstream   Elevation =  314
           Centerline Station =  23.2
Downstream Elevation =  312
           Centerline Station =  70

Culvert Name     Shape      Rise    Span
Culvert #2      Circular     6.5
FHWA Chart # 1 - Concrete Pipe Culvert
FHWA Scale # 1 - Square edge entrance with headwall
Solution Criteria = Highest U.S. EG
Culvert Upstrm Dist  Length    Top n  Bottom n  Depth Blocked  Entrance Loss Coef   Exit Loss Coef
                        110     .013     .013        0                  .2               .3
Upstream   Elevation =  314
           Centerline Station =  40
Downstream Elevation =  312
           Centerline Station =  86

Culvert Name     Shape      Rise    Span
Culvert #3      Circular     6.5
FHWA Chart # 1 - Concrete Pipe Culvert
FHWA Scale # 1 - Square edge entrance with headwall
Solution Criteria = Highest U.S. EG
Culvert Upstrm Dist  Length    Top n  Bottom n  Depth Blocked  Entrance Loss Coef   Exit Loss Coef
                        110     .013     .013        0                  .2               .3
Upstream   Elevation =  314
           Centerline Station =  52.5
Downstream Elevation =  312
           Centerline Station =  96

CROSS SECTION


RIVER: Sycamore Creek
REACH: Reach              RS: 69

INPUT
Description:
Station Elevation Data    num=      48
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0     321  27.122     321  29.752     320  33.028     318  36.493     316
  41.777     314  76.218     314  84.438     313  87.649     312  90.598     311
  95.513     310 101.321   308.4 118.777 308.385 160.496  308.35 197.416     310
 200.833 310.834 201.511     311 206.049     312 211.104     313 220.712     314
 235.301     314  245.17     314 269.558     314 277.774     316 293.428     318
 332.051     320 340.243     320 340.243     314 359.911     314  368.07     312
 373.984     310 378.555   308.4 437.796   308.3 445.676     310 447.667     311
```

```
 451.902     315 453.048     316 480.443     316 523.192     316 532.088     315
 548.226     315 557.843     318 566.034   319.5 566.034     326  570.13     326
  586.51     326 597.981     326 606.173     328

Manning's n Values        num=       2
     Sta   n Val     Sta   n Val
       0     .05 101.321     .03

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        245.17  586.51             106  104.85     164             .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
       0 332.576     323       F
 566.034 606.173     323       F
Skew Angle = 35

CROSS SECTION OUTPUT  Profile #Scenario 1

  E.G. Elev (ft)            320.75    Element                  Left OB    Channel   Right OB
  Vel Head (ft)               1.59    Wt. n-Val.                           0.030
  W.S. Elev (ft)            319.16    Reach Len. (ft)           12.57      12.57      12.57
  Crit W.S. (ft)            317.91    Flow Area (sq ft)                   1362.26
  E.G. Slope (ft/ft)      0.003954    Area (sq ft)             1689.88    1568.87
  Q Total (cfs)           13772.30    Flow (cfs)                         13772.30
  Top Width (ft)            508.56    Top Width (ft)            214.04     294.52
  Vel Total (ft/s)           10.11    Avg. Vel. (ft/s)                     10.11
  Max Chl Dpth (ft)          10.86    Hydr. Depth (ft)                      6.08
  Conv. Total (cfs)       219029.6    Conv. (cfs)                        219029.6
  Length Wtd. (ft)           12.57    Wetted Per. (ft)                    232.92
  Min Ch El (ft)            308.30    Shear (lb/sq ft)                      1.44
  Alpha                       1.00    Stream Power (lb/ft s)                14.59
  Frctn Loss (ft)             0.07    Cum Volume (acre-ft)        0.74      57.63
  C & E Loss (ft)             0.27    Cum SA (acres)              0.25       7.22


Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for additional cross
         sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than
         1.4.  This may indicate the need for additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid, water surface was used.

BRIDGE


RIVER: Sycamore Creek
REACH: Reach              RS: 65

INPUT
Description:
Distance from Upstream XS =   12.57
Deck/Roadway Width        =      40
```

```
Weir Coefficient          =     2.6
Bridge Deck/Roadway Skew  =      35
Bridge Pier Skew          =      35
Upstream  Deck/Roadway Coordinates
    num=       5
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
 191.682     323       0     332     325     320     332     325     322
     600     327     322  740.18     326       0

Upstream Bridge Cross Section Data
Station Elevation Data    num=      48
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0     321  27.122     321  29.752     320  33.028     318  36.493     316
  41.777     314  76.218     314  84.438     313  87.649     312  90.598     311
  95.513     310 101.321   308.4 118.777 308.385 160.496  308.35 197.416     310
 200.833 310.834 201.511     311 206.049     312 211.104     313 220.712     314
 235.301     314  245.17     314 269.558     314 277.774     316 293.428     318
 332.051     320 340.243     320 340.243     314 359.911     314  368.07     312
 373.984     310 378.555   308.4 437.796   308.3 445.676     310 447.667     311
 451.902     315 453.048     316 480.443     316 523.192     316 532.088     315
 548.226     315 557.843     318 566.034   319.5 566.034     326  570.13     326
  586.51     326 597.981     326 606.173     328

Manning's n Values        num=       2
     Sta   n Val     Sta   n Val
       0     .05 101.321     .03

Bank Sta: Left   Right    Coeff Contr.   Expan.
        245.17  586.51             .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
       0 332.576     323       F
 566.034 606.173     323       F
Skew Angle = 35

Downstream  Deck/Roadway Coordinates
    num=       5
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
  277.91     323       0     420     325     320     420     325     322
     680     327     322  739.05     326       0

Downstream Bridge Cross Section Data
Station Elevation Data    num=      36
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0   321.7   18.84     320  27.851     318  36.862     316  53.245     314
  69.628     314  99.937     320 124.577     320 196.596     320 255.575     316
 257.951     314 290.037 312.263 294.895     312 339.948     320 343.225     320
 343.225     312 439.065     312 445.955     310 447.994     309  452.09   308.3
 516.208   308.3 530.811   308.3  537.88     309 539.494     310 545.228     312
 568.492     312 568.492     322 573.406     322 630.174 325.186 644.673     326
 670.066     326 679.896 323.943 698.737     320 711.843     320 738.056     326
     750   327.2
```

```
Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04 447.994     .03 545.228     .04

Bank Sta: Left   Right    Coeff Contr.   Expan.
       290.037 630.174             .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
       0 341.709   322.5       F
 579.239     750   322.5       F
Skew Angle = 35

Upstream Embankment side slope              =       0 horiz. to 1.0 vertical
Downstream Embankment side slope            =       0 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow =     .95
Elevation at which weir flow begins         =     325
Energy head used in spillway design         =
Spillway height used in design              =
Weir crest shape                            = Broad Crested

Number of Bridge Coefficient Sets =  1

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

High Flow Method
       Energy Only

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

BRIDGE OUTPUT  Profile #Scenario 1

  E.G. US. (ft)               320.75    Element                Inside BR US  Inside BR DS
  W.S. US. (ft)               319.16    E.G. Elev (ft)              320.40        319.23
  Q Total (cfs)             13772.30    W.S. Elev (ft)              317.91        316.04
  Q Bridge (cfs)            13772.30    Crit W.S. (ft)              317.91        316.03
  Q Weir (cfs)                          Max Chl Dpth (ft)             9.61          7.74
  Weir Sta Lft (ft)                     Vel Total (ft/s)             12.66         14.33
  Weir Sta Rgt (ft)                     Flow Area (sq ft)          1087.87        961.27
  Weir Submerg                          Froude # Chl                  1.00          0.91
  Weir Max Depth (ft)                   Specif Force (cu ft)       9346.33       9407.54
  Min El Weir Flow (ft)       325.00    Hydr Depth (ft)               5.01          6.40
  Min El Prs (ft)             322.00    W.P. Total (ft)             224.96        161.74
  Delta EG (ft)                 2.62    Conv. Total (cfs)         154087.4      158483.2
  Delta WS (ft)                 2.58    Top Width (ft)              217.32        150.25
```

| | | | | |
|---|---|---|---|---|
| BR Open Area (sq ft) | 1849.56 | Frctn Loss (ft) | 0.31 | 0.28 |
| BR Open Vel (ft/s) | 14.33 | C & E Loss (ft) | 0.21 | 0.82 |
| BR Sluice Coef | | Shear Total (lb/sq ft) | 2.41 | 2.80 |
| BR Sel Method | Energy only | Power Total (lb/ft s) | 30.53 | 40.14 |

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: Sycamore Creek
REACH: Reach RS: 64

INPUT
Description:
Station Elevation Data num= 36

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 321.7 | 18.84 | 320 | 27.851 | 318 | 36.862 | 316 | 53.245 | 314 |
| 69.628 | 314 | 99.937 | 320 | 124.577 | 320 | 196.596 | 320 | 255.575 | 316 |
| 257.951 | 314 | 290.037 | 312.263 | 294.895 | 312 | 339.948 | 320 | 343.225 | 320 |
| 343.225 | 312 | 439.065 | 312 | 445.955 | 310 | 447.994 | 309 | 452.09 | 308.3 |
| 516.208 | 308.3 | 530.811 | 308.3 | 537.88 | 309 | 539.494 | 310 | 545.228 | 312 |
| 568.492 | 312 | 568.492 | 322 | 573.406 | 322 | 630.174 | 325.186 | 644.673 | 326 |
| 670.066 | 326 | 679.896 | 323.943 | 698.737 | 320 | 711.843 | 320 | 738.056 | 326 |
| 750 | 327.2 | | | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .04 | 447.994 | .03 | 545.228 | .04 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 290.037 | 630.174 | 160.87 | 315.7 | 1469 | .3 | .5 |

Ineffective Flow num= 2

| Sta L | Sta R | Elev | Permanent |
|---|---|---|---|
| 0 | 341.709 | 322.5 | F |
| 579.239 | 750 | 322.5 | F |

Skew Angle = 35

CROSS SECTION OUTPUT  Profile #Scenario 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 318.12 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 1.54 | Wt. n-Val. | | 0.033 | |
| W.S. Elev (ft) | 316.58 | Reach Len. (ft) | 160.87 | 315.70 | 1469.00 |
| Crit W.S. (ft) | 315.30 | Flow Area (sq ft) | | 1382.00 | |
| E.G. Slope (ft/ft) | 0.004119 | Area (sq ft) | 202.55 | 1462.66 | |
| Q Total (cfs) | 13772.30 | Flow (cfs) | | 13772.30 | |
| Top Width (ft) | 347.32 | Top Width (ft) | 91.41 | 255.91 | |
| Vel Total (ft/s) | 9.97 | Avg. Vel. (ft/s) | | 9.97 | |
| Max Chl Dpth (ft) | 8.28 | Hydr. Depth (ft) | | 6.13 | |
| Conv. Total (cfs) | 214580.4 | Conv. (cfs) | | 214580.4 | |
| Length Wtd. (ft) | 315.70 | Wetted Per. (ft) | | 235.66 | |
| Min Ch El (ft) | 308.30 | Shear (lb/sq ft) | | 1.51 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 15.03 | |
| Frctn Loss (ft) | 0.09 | Cum Volume (acre-ft) | 0.37 | 54.85 | |
| C & E Loss (ft) | 0.75 | Cum SA (acres) | 0.17 | 6.73 | |

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: Sycamore Creek
REACH: Reach  RS: 50

INPUT
Description: San Diego River 290
Station Elevation Data  num=  498

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 334.95 | 2.48 | 334.94 | 5.04 | 335.09 | 10.15 | 335.25 | 20.39 | 335.69 |
| 25.51 | 335.81 | 35.74 | 335.7 | 41.9 | 335.452 | 43.42 | 335.38 | 45.98 | 335.47 |
| 51.09 | 335.9 | 56.33 | 336.67 | 60.43 | 336.96 | 63.89 | 337.26 | 66.45 | 337.41 |
| 71.56 | 337.81 | 74.12 | 337.94 | 81.44 | 338.2 | 89.48 | 338.53 | 92.03 | 338.56 |
| 97.15 | 338.81 | 102.27 | 339.01 | 107.39 | 339.11 | 109.95 | 339.21 | 117.15 | 339.36 |
| 122.74 | 339.56 | 128.18 | 339.82 | 140.65 | 340.22 | 145.77 | 340.31 | 150.89 | 340.5 |
| 156 | 340.81 | 158.56 | 340.56 | 161.12 | 339.73 | 163.68 | 338.65 | 168.8 | 336.4 |
| 171.36 | 335.41 | 176.47 | 333.21 | 184.15 | 330.13 | 188.57 | 328.73 | 194.39 | 326.74 |
| 199.07 | 325.3 | 202.06 | 324.25 | 204.62 | 323.54 | 207.18 | 323.31 | 212.3 | 323.54 |
| 217.41 | 323.5 | 224.28 | 323.38 | 230.21 | 323.22 | 235.33 | 323.36 | 236.17 | 322.59 |
| 236.88 | 322.23 | 237.88 | 321.09 | 240.44 | 315.58 | 243 | 310.28 | 244.02 | 310.18 |
| 248.12 | 310.78 | 250.68 | 310.8 | 255.8 | 310.47 | 258.35 | 310.5 | 260.91 | 310.35 |
| 263.47 | 310.32 | 266.29 | 310.62 | 271.15 | 310.77 | 276.27 | 311.11 | 281.38 | 311.08 |
| 291.62 | 310.71 | 296.74 | 310.61 | 299.3 | 310.74 | 306.97 | 310.61 | 309.53 | 310.42 |
| 312.09 | 310.32 | 314.65 | 310.34 | 317.21 | 310.49 | 319.77 | 310.51 | 324.88 | 309.98 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 330 | 310.01 | 333.51 | 310.26 | 335.12 | 310.45 | 342.79 | 310.23 | 347.91 | 310.25 |
| 353.03 | 310.44 | 360.71 | 310.94 | 365.02 | 311.73 | 368.38 | 311.91 | 370.94 | 311.83 |
| 373.5 | 311.49 | 378.62 | 311.09 | 381.18 | 310.6 | 383.92 | 310.27 | 386.29 | 310.17 |
| 388.85 | 308.91 | 391.41 | 306.63 | 393.97 | 303.15 | 396.53 | 302 | 399.09 | 301.71 |
| 401.65 | 301.92 | 404.21 | 302.6 | 407.03 | 303.05 | 409.32 | 302.93 | 414.44 | 303.16 |
| 415.43 | 303.38 | 419.56 | 304.71 | 422.12 | 305.17 | 427.23 | 306.6 | 429.79 | 307.01 |
| 440.03 | 308.25 | 445.15 | 308.69 | 447.7 | 308.69 | 450.26 | 308.52 | 452.82 | 308.62 |
| 455.38 | 309.64 | 457.94 | 311.68 | 460.5 | 312 | 483.53 | 312 | 485.22 | 311.07 |
| 488.4 | 311.16 | 493.5 | 310.95 | 494 | 310.92 | 496.5 | 310.82 | 504.1 | 310.56 |
| 506.6 | 310.46 | 509.9 | 310.36 | 511.6 | 310.43 | 513 | 310.47 | 519.1 | 310.78 |
| 521.7 | 310.88 | 525.2 | 310.98 | 528.3 | 311 | 571.3 | 310.99 | 574.1 | 310.97 |
| 577.5 | 310.86 | 580.5 | 310.65 | 586.7 | 310.13 | 589.8 | 310.03 | 595.9 | 310.09 |
| 597.2 | 310.12 | 602.3 | 310.19 | 612.3 | 310.39 | 614.9 | 310.42 | 617.3 | 310.47 |
| 619.9 | 310.51 | 626.6 | 310.58 | 630 | 310.6 | 632.8 | 310.58 | 635.8 | 310.47 |
| 638.9 | 310.4 | 642 | 310.42 | 645.1 | 310.47 | 648.1 | 310.31 | 650.1 | 309.97 |
| 652.6 | 309.5 | 654.3 | 309.22 | 657.3 | 309.14 | 660.4 | 309.18 | 664.7 | 309.21 |
| 673.2 | 309.32 | 676.5 | 309.34 | 685.4 | 309.45 | 688 | 309.46 | 688.3 | 309.47 |
| 692.9 | 309.52 | 697.3 | 309.56 | 703.4 | 309.64 | 705.5 | 309.65 | 710.5 | 309.7 |
| 712.6 | 309.73 | 713.1 | 309.71 | 715.7 | 309.72 | 718.1 | 309.39 | 718.8 | 309.36 |
| 720.6 | 308.85 | 723.1 | 308.27 | 723.7 | 308.08 | 724.9 | 307.78 | 725.7 | 307.74 |
| 727.7 | 307.49 | 728 | 307.47 | 730.7 | 307.48 | 731 | 307.46 | 734.1 | 307.53 |
| 743.3 | 307.84 | 746.4 | 307.97 | 748.3 | 307.97 | 749.5 | 307.99 | 752.5 | 307.97 |
| 764.8 | 307.72 | 767.9 | 307.56 | 771 | 307.62 | 771 | 307.63 | 774.1 | 307.78 |
| 777.1 | 307.91 | 780.2 | 307.99 | 782.8 | 307.97 | 786.3 | 307.91 | 792.5 | 307.77 |
| 795.6 | 307.71 | 798.5 | 307.69 | 801.7 | 307.69 | 807.8 | 307.78 | 808.8 | 307.8 |
| 814 | 307.97 | 816.3 | 307.99 | 823.2 | 307.95 | 826.3 | 307.91 | 829.3 | 307.86 |
| 844.7 | 307.8 | 846.5 | 307.81 | 849 | 307.81 | 850.8 | 307.82 | 854.1 | 307.91 |
| 859.1 | 308.11 | 861.6 | 308.2 | 869.2 | 308.53 | 872.3 | 308.65 | 875.4 | 308.74 |
| 879.3 | 308.78 | 884.6 | 308.73 | 887.7 | 308.73 | 890.8 | 308.69 | 893.8 | 308.63 |
| 897 | 308.53 | 900.9 | 308.36 | 903.1 | 308.27 | 906.1 | 308.12 | 909.2 | 307.99 |
| 922.1 | 307.32 | 924.7 | 307.15 | 927.1 | 306.95 | 930.7 | 306.42 | 939.7 | 306 |
| 1268.05 | 306 | 1279 | 307 | 1290.11 | 307 | 1296.1 | 306 | 1318.8 | 306 |
| 1332.1 | 307 | 1383 | 308 | 1417 | 310 | 1423 | 312 | 1432 | 314 |
| 1486 | 314 | 1492.5 | 311 | 1525.3 | 309 | 1799.69 | 309 | 1817.13 | 313.47 |
| 1822.25 | 314.57 | 1824.81 | 314.68 | 1829.93 | 315.06 | 1838.09 | 316.02 | 1848.88 | 320 |
| 1861.13 | 326 | 1864.16 | 327.2 | 1896.4 | 327.2 | 1924.2 | 327.15 | 1925.9 | 327.09 |
| 1926.8 | 326.85 | 1928.5 | 326.08 | 1929 | 325.93 | 1930.6 | 324.85 | 1931.8 | 324.02 |
| 1932.1 | 323.89 | 1934.3 | 323.73 | 1935.1 | 323.7 | 1938.2 | 323.7 | 1941.3 | 323.71 |
| 1944.3 | 323.75 | 1948.2 | 323.76 | 1950.5 | 323.78 | 1952.2 | 323.81 | 1953.6 | 323.82 |
| 1956.1 | 323.87 | 1962.8 | 323.96 | 1965.9 | 324.17 | 1967 | 324.9 | 1968.9 | 326.1 |
| 1971.9 | 326.86 | 1972.5 | 326.99 | 1975.1 | 327.47 | 1977.1 | 327.74 | 1978.1 | 327.84 |
| 1979.6 | 327.74 | 1982.2 | 327.53 | 1984.3 | 327.34 | 1987.6 | 327.67 | 1989.7 | 327.85 |
| 1990.4 | 327.95 | 1992.2 | 327.97 | 1993.5 | 328 | 2033.4 | 328 | 2036.5 | 328.07 |
| 2038.8 | 328.39 | 2040.1 | 328.53 | 2042.7 | 328.66 | 2045.1 | 328.67 | 2045.7 | 328.69 |
| 2085.6 | 328.69 | 2087.9 | 328.77 | 2088.7 | 328.81 | 2090.4 | 329.19 | 2091.8 | 329.49 |
| 2092.9 | 329.54 | 2094.9 | 329.59 | 2128.6 | 329.59 | 2130.7 | 329.69 | 2131.7 | 329.76 |
| 2133.2 | 330.65 | 2133.3 | 330.69 | 2134.8 | 331.7 | 2135.8 | 332.31 | 2137.9 | 333.55 |
| 2138.3 | 333.91 | 2140.1 | 335.43 | 2140.8 | 335.96 | 2140.9 | 336.07 | 2141.2 | 336.17 |
| 2143.3 | 337.3 | 2144 | 337.58 | 2147.1 | 337.69 | 2196.2 | 337.69 | 2198.7 | 337.6 |
| 2199.3 | 337.56 | 2201.2 | 337.34 | 2202.4 | 337.22 | 2205.4 | 337.07 | 2206.3 | 337.07 |
| 2208.8 | 337.17 | 2211.3 | 337.34 | 2212 | 337.36 | 2216 | 337.4 | 2217.7 | 337.41 |
| 2226.9 | 337.41 | 2230 | 337.39 | 2233.1 | 337.34 | 2235.7 | 337.17 | 2239.2 | 336.92 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2242.3 | 336.77 | 2243.5 | 336.93 | 2245.4 | 337.16 | 2248.4 | 336.86 | 2251.6 | 336.65 |
| 2254.6 | 336.52 | 2255.3 | 336.54 | 2256.6 | 336.54 | 2257.7 | 336.57 | 2260.7 | 336.76 |
| 2261.7 | 336.8 | 2265.9 | 336.9 | 2266.7 | 336.91 | 2276.1 | 336.91 | 2276.8 | 336.9 |
| 2279 | 336.91 | 2282.2 | 336.91 | 2285.3 | 336.89 | 2286.8 | 336.86 | 2288.4 | 336.85 |
| 2289.4 | 336.83 | 2293.8 | 336.83 | 2294.5 | 336.82 | 2296.9 | 336.53 | 2297.6 | 336.47 |
| 2300.7 | 336.09 | 2303.7 | 335.98 | 2304.5 | 335.79 | 2306.5 | 335.55 | 2307 | 335.45 |
| 2307.8 | 335.12 | 2309.9 | 334.18 | 2312.9 | 334.19 | 2314.5 | 334.25 | 2318.3 | 334.41 |
| 2322.3 | 334.57 | 2327.1 | 334.75 | 2329.6 | 334.86 | 2331.4 | 334.93 | 2334.1 | 335.05 |
| 2337.5 | 335.18 | 2339.7 | 335.29 | 2340.6 | 335.32 | 2344.8 | 335.5 | 2346.7 | 335.62 |
| 2347.3 | 335.69 | 2349.7 | 336.26 | 2349.8 | 336.3 | 2352.3 | 336.74 | 2352.9 | 336.83 |
| 2353.8 | 337.13 | 2354.8 | 337.62 | 2356 | 337.9 | 2357.3 | 337.99 | 2359 | 338.09 |
| 2361.7 | 338.2 | 2365.2 | 338.4 | 2368.2 | 338.69 | 2371.3 | 338.84 | 2374.4 | 339.02 |
| 2377.6 | 339.23 | 2380.5 | 339.41 | 2385 | 339.62 | 2386.7 | 339.71 | 2387.6 | 339.74 |
| 2389.7 | 339.85 | 2390.1 | 339.8 | 2391.6 | 339.89 | 2393.1 | 339.9 | 2395.9 | 339.79 |
| 2399 | 339.63 | 2400.1 | 339.45 | 2401 | 339.43 | 2402 | 339.33 | 2402.7 | 339.33 |
| 2405.2 | 339.29 | 2407.7 | 338.99 | 2408.2 | 338.96 | 2410.2 | 339.03 | 2411.2 | 339.04 |
| 2414.3 | 339.44 | 2415.3 | 339.62 | 2417.8 | 340.11 | 2419.6 | 340.48 | 2420.7 | 340.72 |
| 2423.5 | 341.25 | 2425.3 | 341.47 | 2426.6 | 341.61 | 2429.7 | 341.6 | 2430.4 | 341.38 |
| 2432.7 | 340.39 | 2432.9 | 340.4 | 2435.8 | 341.1 | 2436.5 | 341.31 | 2437.9 | 341.8 |
| 2438.9 | 342.09 | 2440.4 | 342.44 | 2442 | 342.76 | 2443 | 342.86 | 2445 | 343.03 |
| 2445.5 | 343.06 | 2448.1 | 343.13 | 2448.3 | 343.07 | 2450.5 | 342.54 | 2451.2 | 342.28 |
| 2452.2 | 342.06 | 2453 | 341.77 | 2454.2 | 341.6 | 2457.3 | 342.67 | 2460.6 | 343.3 |
| 2461.5 | 343.33 | 2463.1 | 343.41 | 2465.6 | 343.52 | 2468.1 | 343.59 | 2469.6 | 343.61 |
| 2470.7 | 343.4 | 2471.9 | 342.96 | 2473.2 | 342.64 | 2475.7 | 342.31 | 2481.9 | 342.93 |
| 2483.2 | 343.08 | 2485 | 343.27 | 2487.6 | 343.65 | 2488.3 | 343.77 | 2489.4 | 344.22 |
| 2491.1 | 344.87 | 2494.2 | 345.01 | 2497.2 | 345.12 | 2506.5 | 345.4 | 2508.4 | 345.38 |
| 2510.9 | 345.29 | 2512.6 | 345.21 | 2515.7 | 345.12 | 2516 | 345.16 | 2517.3 | 345.45 |
| 2518.7 | 345.74 | 2521 | 345.85 | 2523.1 | 345.92 | 2524.9 | 345.96 | 2528 | 346.05 |
| 2531 | 346.09 | 2533.6 | 346.08 | 2536.1 | 345.98 | 2540.3 | 345.83 | 2549.5 | 346.13 |
| 2555.6 | 346.42 | 2556.3 | 346.49 | 2558.5 | 346.76 | 2561.3 | 347.09 | 2564.8 | 347.41 |
| 2567.9 | 347.57 | 2571 | 347.72 | 2576.4 | 347.99 | 2580.2 | 348.23 | 2581.4 | 348.33 |
| 2583.3 | 348.46 | 2586.3 | 348.68 | 2589.4 | 348.79 | 2592.5 | 348.8 | 2596.6 | 348.83 |
| 2599.1 | 348.87 | 2601.7 | 348.88 | 2604.8 | 348.48 | | | | |

Manning's n Values num= 4

| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|---|---|
| 0 | .05 | 41.9 | .06 | 485.22 | .04 | 1896.4 | .15 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 41.9 | 1896.4 | 0 | 0 | .1 | .3 |

CROSS SECTION OUTPUT Profile #Scenario 1

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 317.28 | Element | | | |
| Vel Head (ft) | 0.05 | Wt. n-Val. | | 0.042 | |
| W.S. Elev (ft) | 317.23 | Reach Len. (ft) | | | |
| Crit W.S. (ft) | 309.97 | Flow Area (sq ft) | | 13672.75 | |
| E.G. Slope (ft/ft) | 0.000153 | Area (sq ft) | | 13672.75 | |
| Q Total (cfs) | 25000.00 | Flow (cfs) | | 25000.00 | |
| Top Width (ft) | 1601.70 | Top Width (ft) | | 1601.70 | |
| Vel Total (ft/s) | 1.83 | Avg. Vel. (ft/s) | | 1.83 | |
| Max Chl Dpth (ft) | 15.52 | Hydr. Depth (ft) | | 8.54 | |

| | | | |
|---|---|---|---|
| Conv. Total (cfs) | 2023461.0 | Conv. (cfs) | 2023461.0 |
| Length Wtd. (ft) | | Wetted Per. (ft) | 1614.59 |
| Min Ch El (ft) | 301.71 | Shear (lb/sq ft) | 0.08 |
| Alpha | 1.00 | Stream Power (lb/ft s) | 0.15 |
| Frctn Loss (ft) | | Cum Volume (acre-ft) | |
| C & E Loss (ft) | | Cum SA (acres) | |

SUMMARY OF REACH LENGTHS

River: Sycamore Creek

| Reach | River Sta. | Left | Channel | Right |
|---|---|---|---|---|
| Reach | 500 | 484.65 | 511.2 | 513.2 |
| Reach | 450 | 163.58 | 199.56 | 223.24 |
| Reach | 400 | 290.22 | 278.09 | 271.36 |
| Reach | 300 | 95.85 | 94.82 | 94.72 |
| Reach | 250 | Inl Struct | | |
| Reach | 200 | 301 | 307.18 | 316 |
| Reach | 100 | 263.29 | 199.09 | 115 |
| Reach | 90 | 320.95 | 231.7 | 125.17 |
| Reach | 80 | 12 | 250 | 515 |
| Reach | 75 | Lat Struct | | |
| Reach | 69 | 106 | 104.85 | 164 |
| Reach | 65 | Bridge | | |
| Reach | 64 | 160.87 | 315.7 | 1469 |
| Reach | 50 | 0 | 0 | 0 |

SUMMARY OF CONTRACTION AND EXPANSION COEFFICIENTS
River: Sycamore Creek

| Reach | River Sta. | Contr. | Expan. |
|---|---|---|---|
| Reach | 500 | .1 | .3 |
| Reach | 450 | .1 | .3 |
| Reach | 400 | .1 | .3 |
| Reach | 300 | .3 | .5 |
| Reach | 250 | Inl Struct | |
| Reach | 200 | .3 | .5 |
| Reach | 100 | .1 | .3 |
| Reach | 90 | .1 | .3 |
| Reach | 80 | .1 | .3 |
| Reach | 75 | Lat Struct | |
| Reach | 69 | .3 | .5 |
| Reach | 65 | Bridge | |

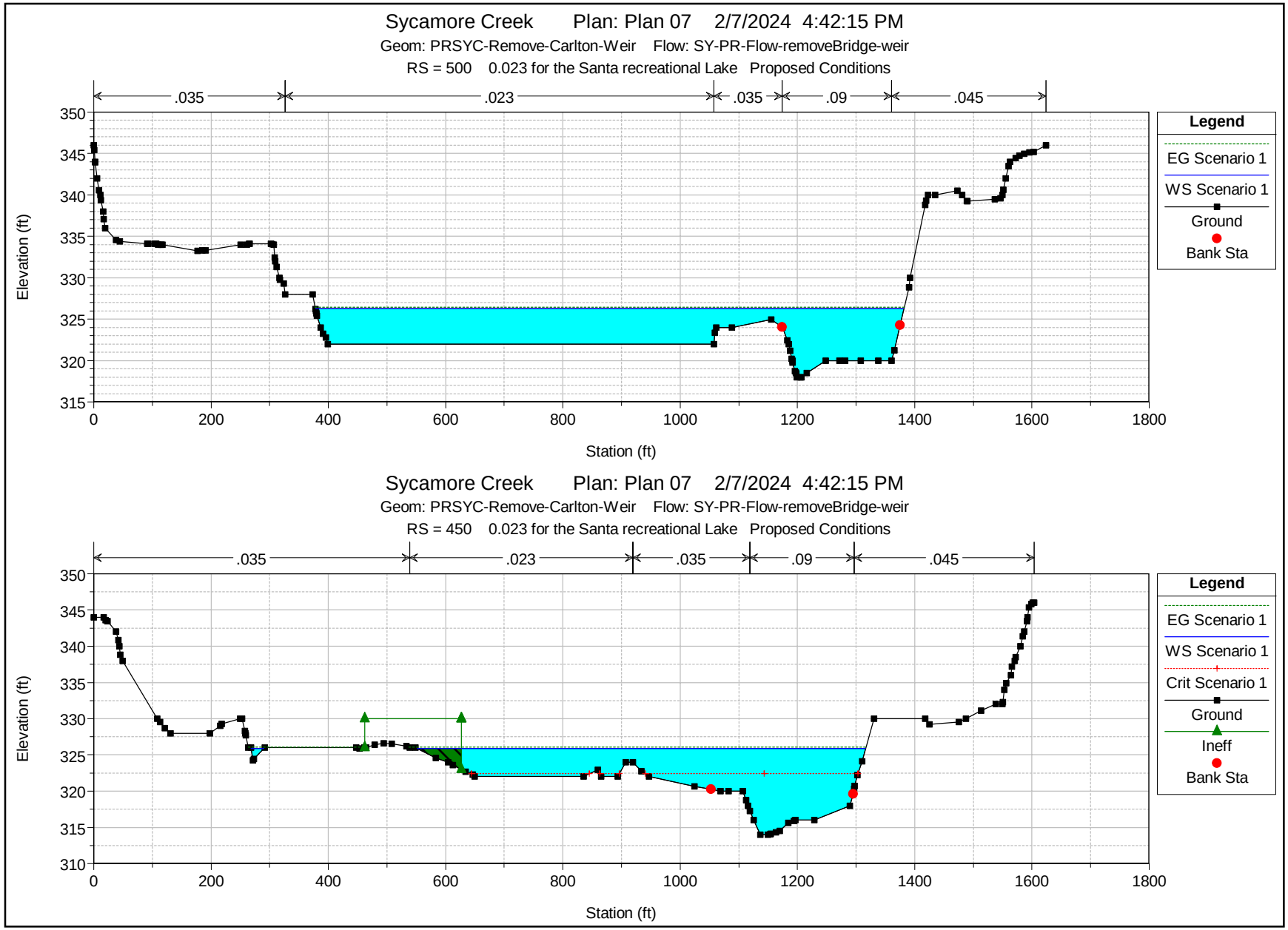
| | | | |
|---|---|---|---|
| Reach | 64 | .3 | .5 |
| Reach | 50 | .1 | .3 |

HEC-RAS Plan: PR-SYC-WEIR River: Sycamore Creek Reach: Reach Profile: Scenario 1

| 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) | |
| Reach | 50 | Scenario 1 | 25000.00 | 301.71 | 317.23 | 309.97 | 317.28 | 0.000153 | 1.83 | 13672.75 | 1601.70 | 0.11 |
| Reach | 64 | Scenario 1 | 13772.30 | 308.30 | 316.58 | 315.30 | 318.12 | 0.004119 | 9.97 | 1382.00 | 347.32 | 0.71 |
| Reach | 65 | | Bridge | | | | | | | | | |
| Reach | 69 | Scenario 1 | 13772.30 | 308.30 | 319.16 | 317.91 | 320.75 | 0.003954 | 10.11 | 1362.26 | 508.56 | 0.72 |
| Reach | 75 | | Lat Struct | | | | | | | | | |
| Reach | 80 | Scenario 1 | 14373.00 | 308.49 | 320.84 | 313.78 | 321.21 | 0.000793 | 4.24 | 3158.95 | 373.82 | 0.23 |
| Reach | 90 | Scenario 1 | 14373.00 | 308.50 | 321.20 | | 321.34 | 0.000262 | 3.65 | 5609.74 | 587.09 | 0.21 |
| Reach | 100 | Scenario 1 | 14373.00 | 308.55 | 321.37 | 316.26 | 321.40 | 0.000138 | 0.99 | 10676.64 | 1351.50 | 0.05 |
| Reach | 200 | Scenario 1 | 12790.26 | 312.03 | 320.53 | 319.22 | 322.49 | 0.026254 | 11.27 | 1155.30 | 327.96 | 0.73 |
| Reach | 250 | | Inl Struct | | | | | | | | | |
| Reach | 300 | Scenario 1 | 12790.26 | 313.84 | 324.62 | 320.05 | 324.80 | 0.001794 | 3.79 | 3815.38 | 1529.02 | 0.21 |
| Reach | 400 | Scenario 1 | 13407.00 | 314.00 | 325.28 | 320.39 | 325.69 | 0.005313 | 5.32 | 2804.97 | 1048.40 | 0.31 |
| Reach | 450 | Scenario 1 | 13407.00 | 314.00 | 325.86 | 322.39 | 326.08 | 0.001006 | 2.80 | 3876.29 | 786.35 | 0.17 |
| Reach | 500 | Scenario 1 | 13407.00 | 318.00 | 326.24 | | 326.44 | 0.000565 | 1.37 | 4326.41 | 1003.75 | 0.10 |

Weir Flow= Total Flow (13407 cfs)- Flow through the Bridge (616.74 cfs) =12790.26 cfs

Adding the flow from the proposed four-barrel box (4x RCB) culvert (Split flow from San Diego River-Proposed-Plan01-PF6) to Sycamore Creek Flow= 13407+ 965.13= 14372.13 rounded up to 14373 cfs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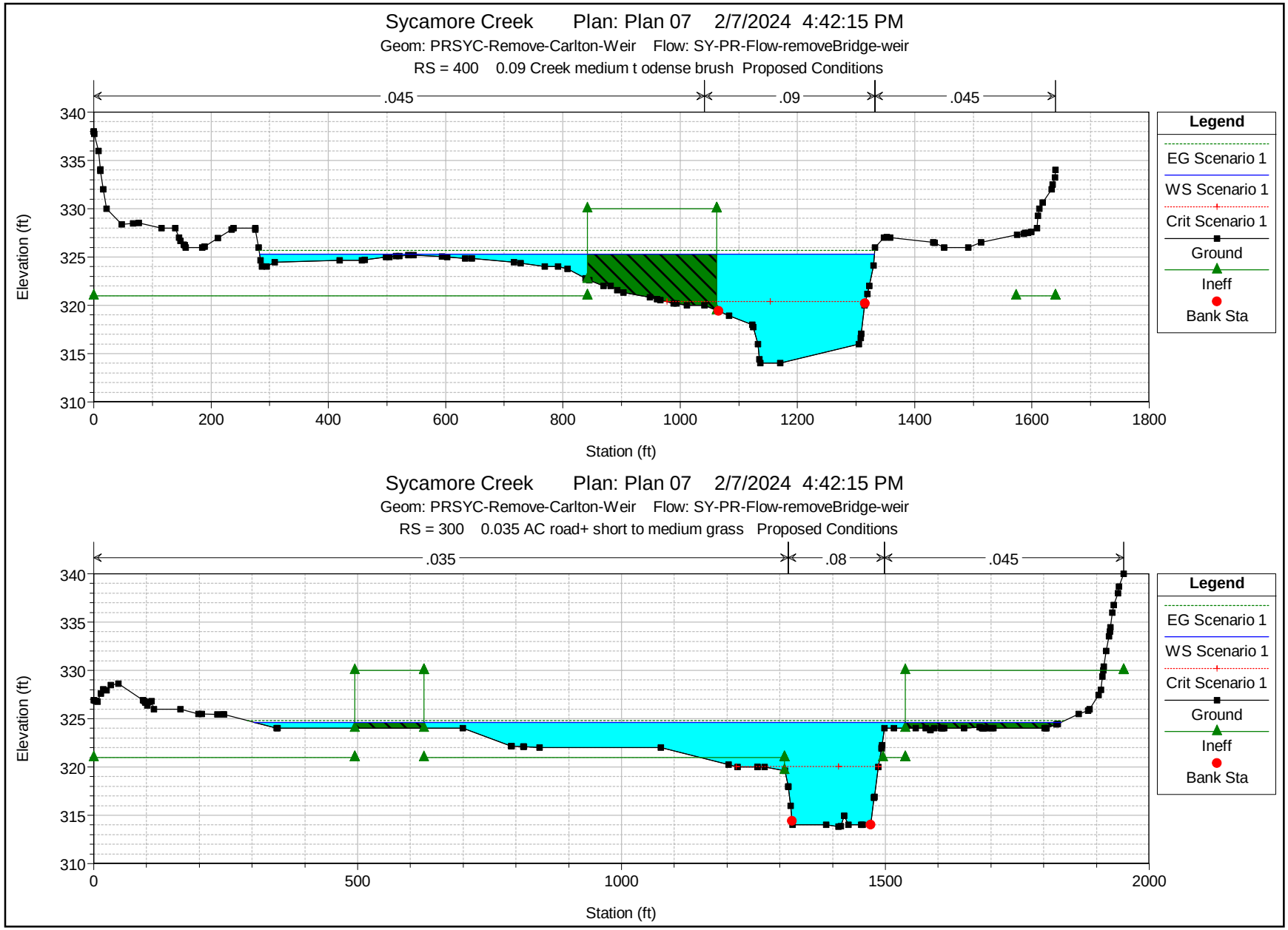
Geom: PRSYC-Remove-Carlton-Weir Flow: SY-PR-Flow-removeBridge-weir
RS = 500 0.023 for the Santa recreational Lake Proposed Conditions
.035
.023
.035
.09
.045
Elevation (ft)
Station (ft)
Legend
EG Scenario 1
WS Scenario 1
Ground
Bank Sta
Sycamore Creek Plan: Plan 07 2/7/2024 4:42:15 PM
Geom: PRSYC-Remove-Carlton-Weir Flow: SY-PR-Flow-removeBridge-weir
RS = 450 0.023 for the Santa recreational Lake Proposed Conditions
.035
.023
.035
.09
.045
Elevation (ft)
Station (ft)
Legend
EG Scenario 1
WS Scenario 1
Crit Scenario 1
Ground
Ineff
Bank Sta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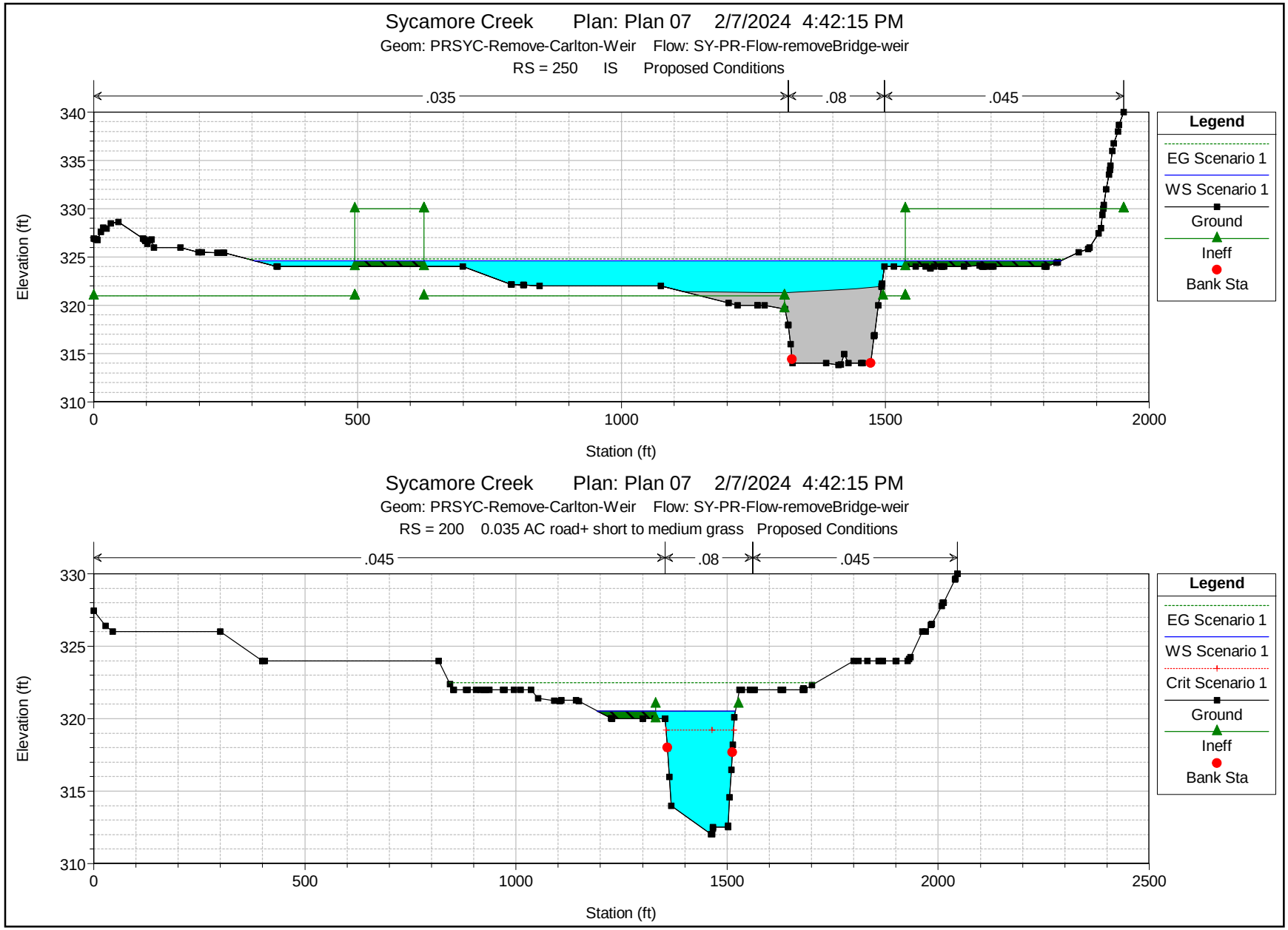
.045
.09
.045
Elevation (ft)
340
335
330
325
320
315
310
0
200
400
600
800
1000
1200
1400
1600
1800
Station (ft)
Legend
EG Scenario 1
WS Scenario 1
Crit Scenario 1
Ground
Ineff
Bank Sta
Sycamore Creek Plan: Plan 07 2/7/2024 4:42:15 PM
Geom: PRSYC-Remove-Carlton-Weir Flow: SY-PR-Flow-removeBridge-weir
RS = 300 0.035 AC road+ short to medium grass Proposed Conditions
.035
.08
.045
Elevation (ft)
340
335
330
325
320
315
310
0
500
1000
1500
2000
Station (ft)
Legend
EG Scenario 1
WS Scenario 1
Crit Scenario 1
Ground
Ineff
Bank Sta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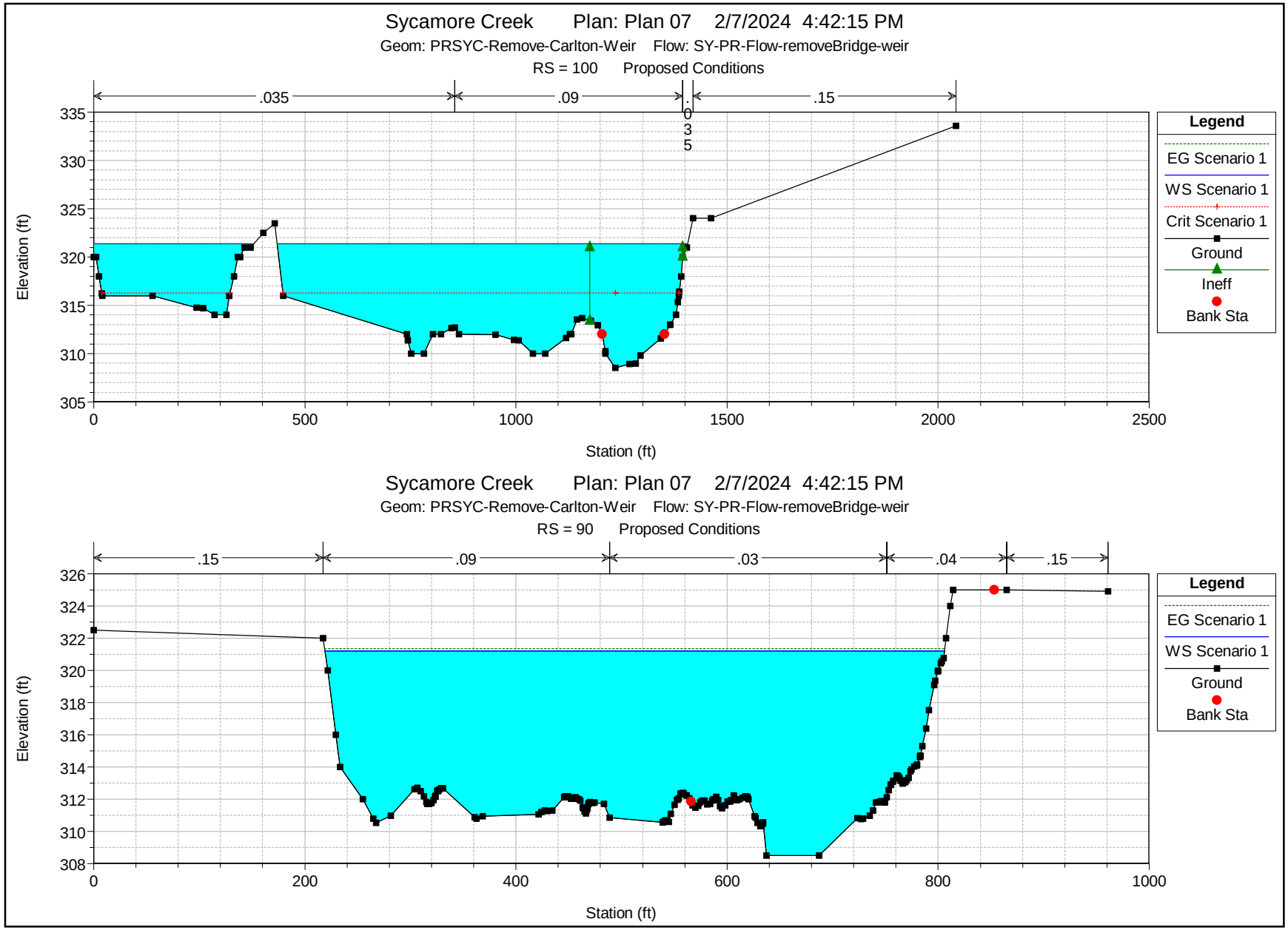
Geom: PRSYC-Remove-Carlton-Weir Flow: SY-PR-Flow-removeBridge-weir
RS = 250 IS Proposed Conditions
.035
.08
.045
Elevation (ft)
340
335
330
325
320
315
310
0
500
1000
1500
2000
Station (ft)
Legend
EG Scenario 1
WS Scenario 1
Ground
Ineff
Bank Sta
Sycamore Creek Plan: Plan 07 2/7/2024 4:42:15 PM
Geom: PRSYC-Remove-Carlton-Weir Flow: SY-PR-Flow-removeBridge-weir
RS = 200 0.035 AC road+ short to medium grass Proposed Conditions
.045
.08
.045
Elevation (ft)
330
325
320
315
310
0
500
1000
1500
2000
2500
Station (ft)
Legend
EG Scenario 1
WS Scenario 1
Crit Scenario 1
Ground
Ineff
Bank Sta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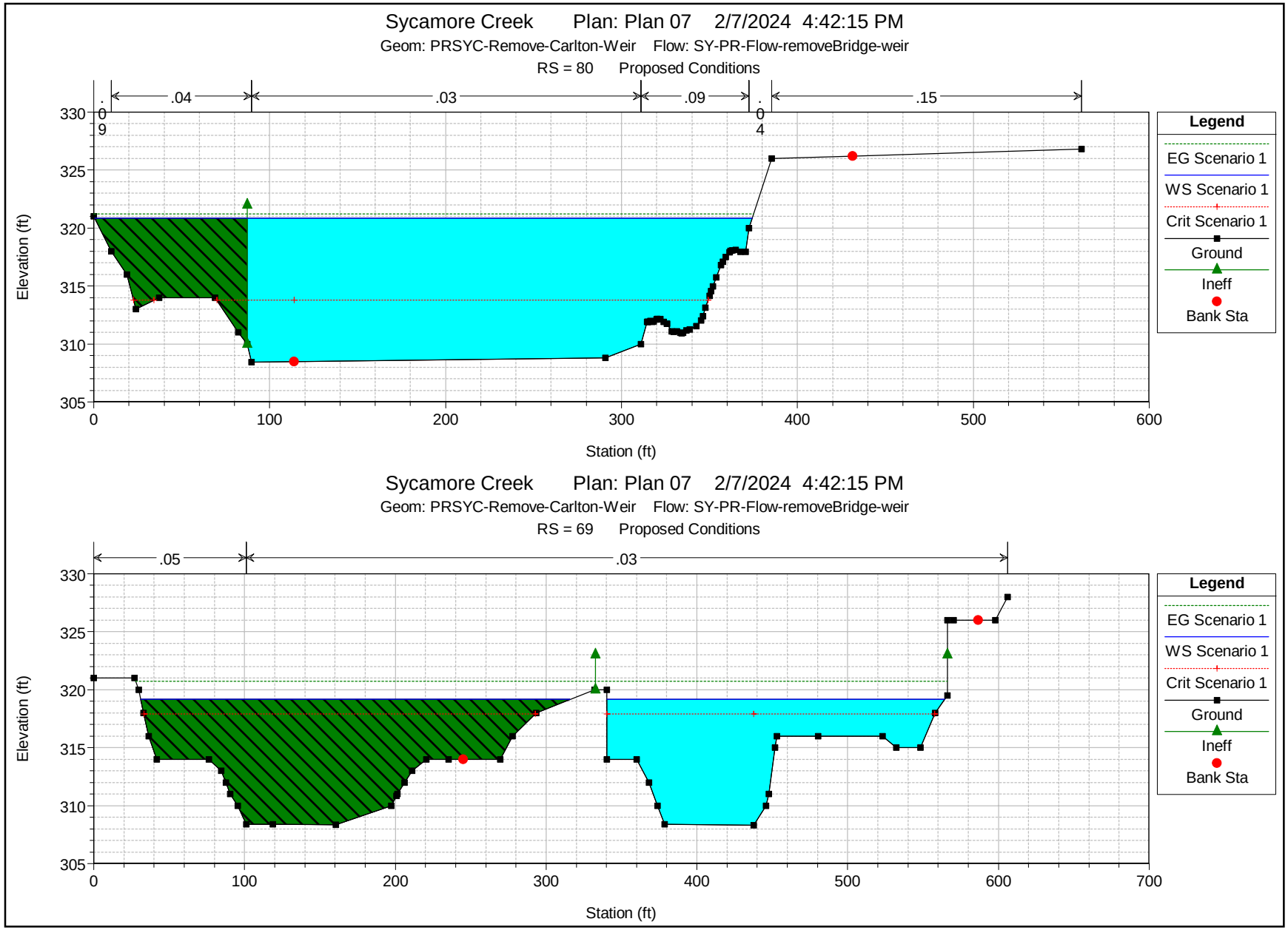
Geom: PRSYC-Remove-Carlton-Weir Flow: SY-PR-Flow-removeBridge-weir
RS = 100 Proposed Conditions
.035
.09
.035
.15
Elevation (ft)
Station (ft)
Legend
EG Scenario 1
WS Scenario 1
Crit Scenario 1
Ground
Ineff
Bank Sta
Sycamore Creek Plan: Plan 07 2/7/2024 4:42:15 PM
Geom: PRSYC-Remove-Carlton-Weir Flow: SY-PR-Flow-removeBridge-weir
RS = 90 Proposed Conditions
.15
.09
.03
.04
.15
Elevation (ft)
Station (ft)
Legend
EG Scenario 1
WS Scenario 1
Ground
Bank Sta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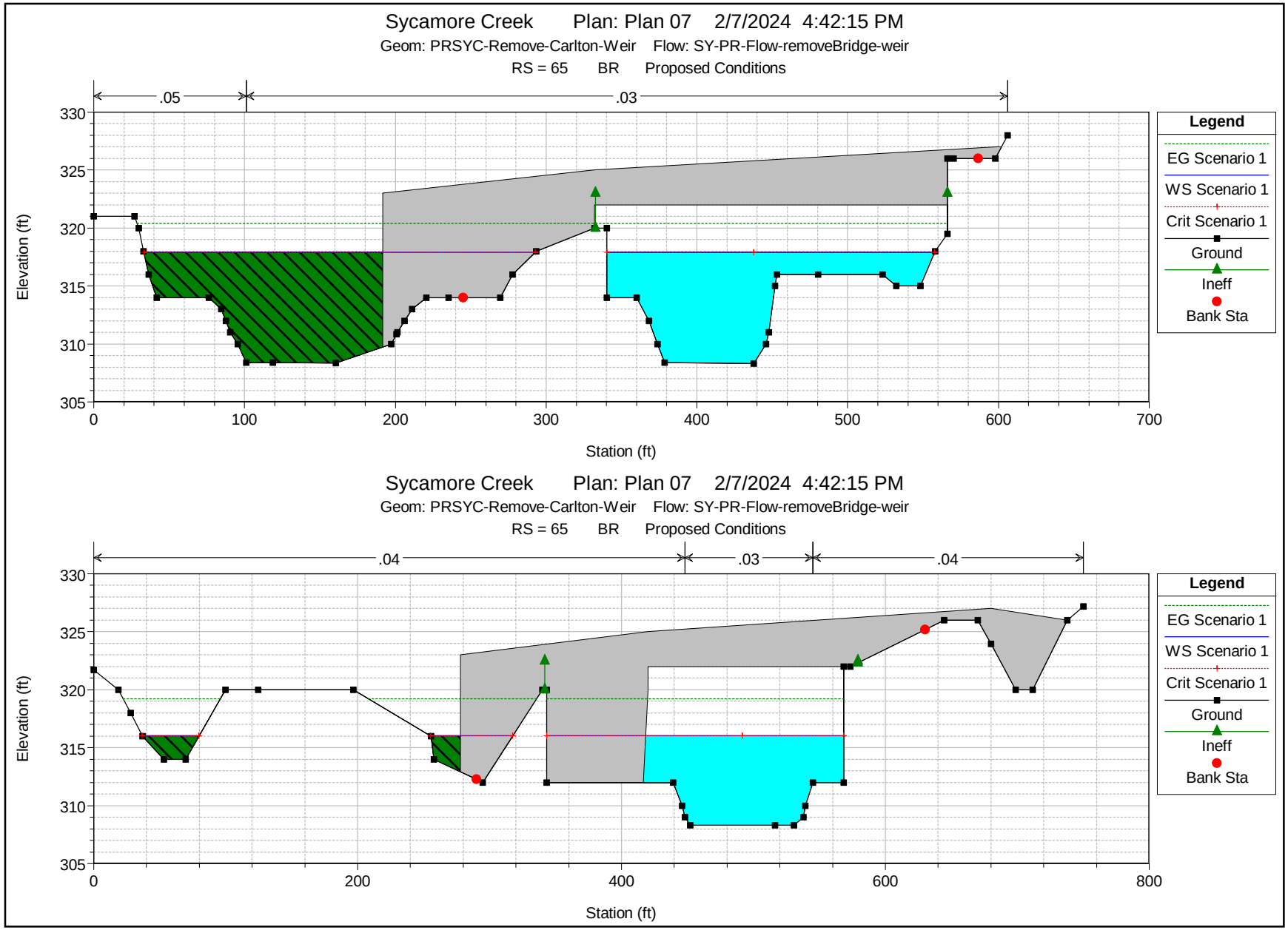
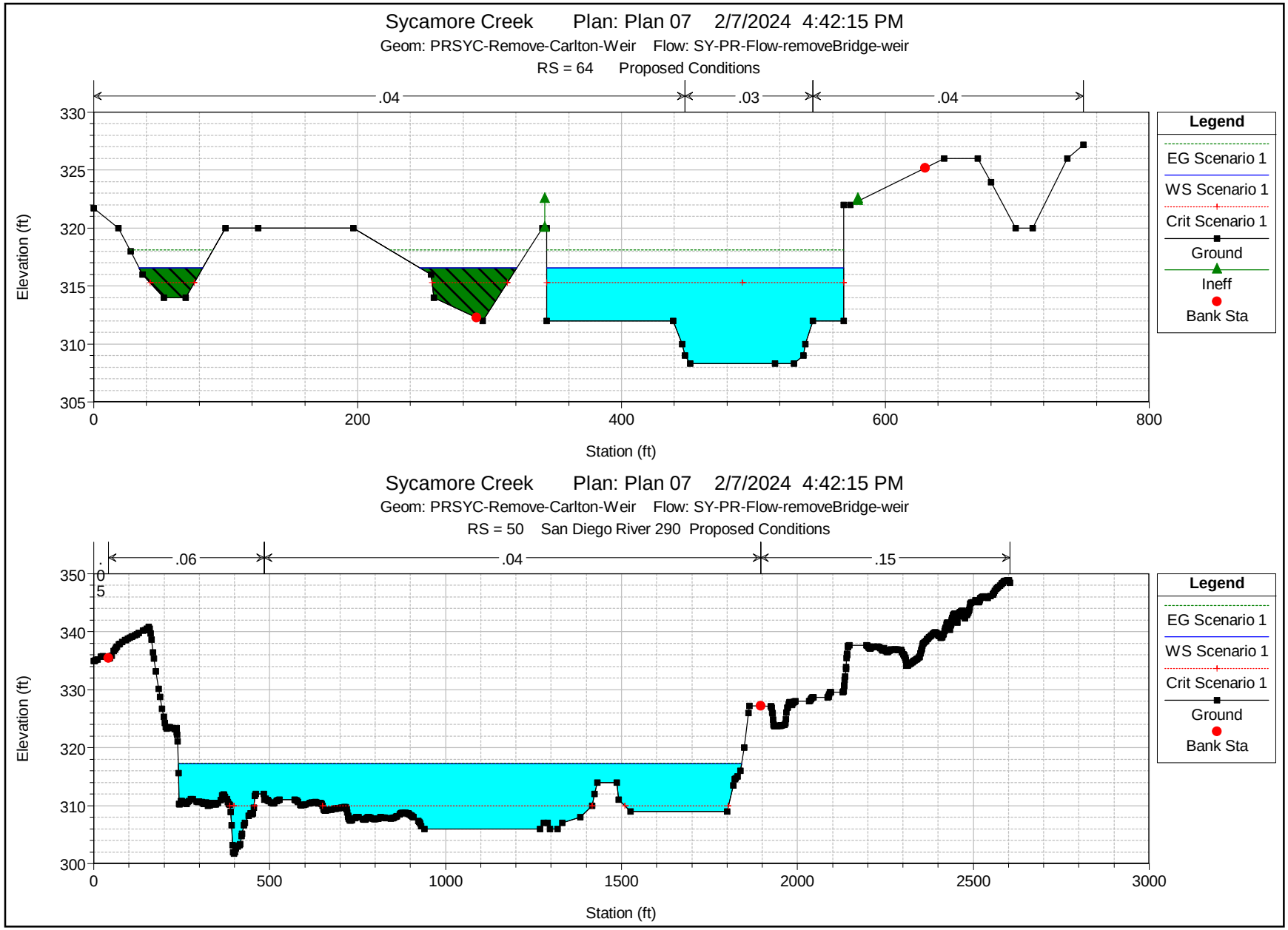
Geom: PRSYC-Remove-Carlton-Weir Flow: SY-PR-Flow-removeBridge-weir
RS = 80 Proposed Conditions
.09
.04
.03
.09
.04
.15
Elevation (ft)
Station (ft)
Legend
EG Scenario 1
WS Scenario 1
Crit Scenario 1
Ground
Ineff
Bank Sta
Sycamore Creek Plan: Plan 07 2/7/2024 4:42:15 PM
Geom: PRSYC-Remove-Carlton-Weir Flow: SY-PR-Flow-removeBridge-weir
RS = 69 Proposed Conditions
.05
.03
Elevation (ft)
Station (ft)
Legend
EG Scenario 1
WS Scenario 1
Crit Scenario 1
Ground
Ineff
Bank Sta


Sycamore Creek Plan: Plan 07 2/7/2024 4:42:15 PM
Geom: PRSYC-Remove-Carlton-Weir Flow: SY-PR-Flow-removeBridge-weir
RS = 65 BR Proposed Conditions
.05
.03
Elevation (ft)
330
325
320
315
310
305
0
100
200
300
400
500
600
700
Station (ft)
Legend
EG Scenario 1
WS Scenario 1
Crit Scenario 1
Ground
Ineff
Bank Sta
Sycamore Creek Plan: Plan 07 2/7/2024 4:42:15 PM
Geom: PRSYC-Remove-Carlton-Weir Flow: SY-PR-Flow-removeBridge-weir
RS = 65 BR Proposed Conditions
.04
.03
.04
Elevation (ft)
330
325
320
315
310
305
0
200
400
600
800
Station (ft)
Legend
EG Scenario 1
WS Scenario 1
Crit Scenario 1
Ground
Ineff
Bank Sta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Geom: PRSYC-Remove-Carlton-Weir Flow: SY-PR-Flow-removeBridge-weir
RS = 64 Proposed Conditions
.04
.03
.04
Elevation (ft)
330
325
320
315
310
305
0
200
400
600
800
Station (ft)
Legend
EG Scenario 1
WS Scenario 1
Crit Scenario 1
Ground
Ineff
Bank Sta
Sycamore Creek Plan: Plan 07 2/7/2024 4:42:15 PM
Geom: PRSYC-Remove-Carlton-Weir Flow: SY-PR-Flow-removeBridge-weir
RS = 50 San Diego River 290 Proposed Conditions
.05
.06
.04
.15
Elevation (ft)
350
340
330
320
310
300
0
500
1000
1500
2000
2500
3000
Station (ft)
Legend
EG Scenario 1
WS Scenario 1
Crit Scenario 1
Ground
Bank Sta

EXHIBIT H

FIRM Panel 06073C1634G (NAD 1988)

# NOTES TO USERS

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The **community map repository** should be consulted for possible updated or additional flood hazard information.

To obtain more detailed information in areas where **Base Flood Elevations** (BFEs) and/or **floodways** have been determined, users are encouraged to consult the Flood Profiles and Floodway Data and/or Summary of Stillwater Elevations tables contained within the Flood Insurance Study (FIS) report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS report should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

**Coastal Base Flood Elevations (BFEs)** shown on this map apply only landward of 0.0' North American Vertical Datum of 1988 (NAVD 88). Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations table in the Flood Insurance Study report for this jurisdiction. Elevations shown in the Summary of Stillwater Elevations table should be used for construction and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

Boundaries of the **floodways** were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study report for this jurisdiction.

Certain areas not in Special Flood Hazard Areas may be protected by **flood control structures**. Refer to Section 2.4 "Flood Protection Measures" of the Flood Insurance Study report for information on flood control structures for this jurisdiction.

The **projection** used in the preparation of this map was Universal Transverse Mercator (UTM) Zone 11. The **horizontal datum** was NAD83, GRS1980 spheroid. Differences in datum, spheroid, projection or UTM zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

Flood elevations on this map are referenced to the North American Vertical Datum of 1988. These flood elevations must be compared to structure and ground elevations referenced to the same **vertical datum**. For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at http://www.ngs.noaa.gov/ or contact the National Geodetic Survey at the following address:

NGS Information Services
NOAA, N/NGS12
National Geodetic Survey
SSMC-3, #9202
1315 East-West Highway
Silver Spring, Maryland 20910-3282
(301) 713-3242

To obtain current elevation, description, and/or location information for **bench marks** shown on this map, please contact the Information Services Branch of the National Geodetic Survey at **(301) 713-3242** or visit its website at http://www.ngs.noaa.gov/.

**Base map** information shown on this FIRM was provided in digital format by the USDA National Agriculture Imagery Program (NAIP). this information was photogrammetrically compiled at a scale of 1:24,000 from aerial photography dated 2009.

This map reflects more detailed and up-to-date **stream channel configurations** than those shown on the previous FIRM for this jurisdiction. The floodplains and floodways that were transferred from the previous FIRM may have been adjusted to conform to these new stream channel configurations. As a result, the Flood Profiles and Floodway Data tables *in the Flood Insurance Study report (which contains authoritative hydraulic data)* may reflect stream channel distances that differ from what is shown on this map.

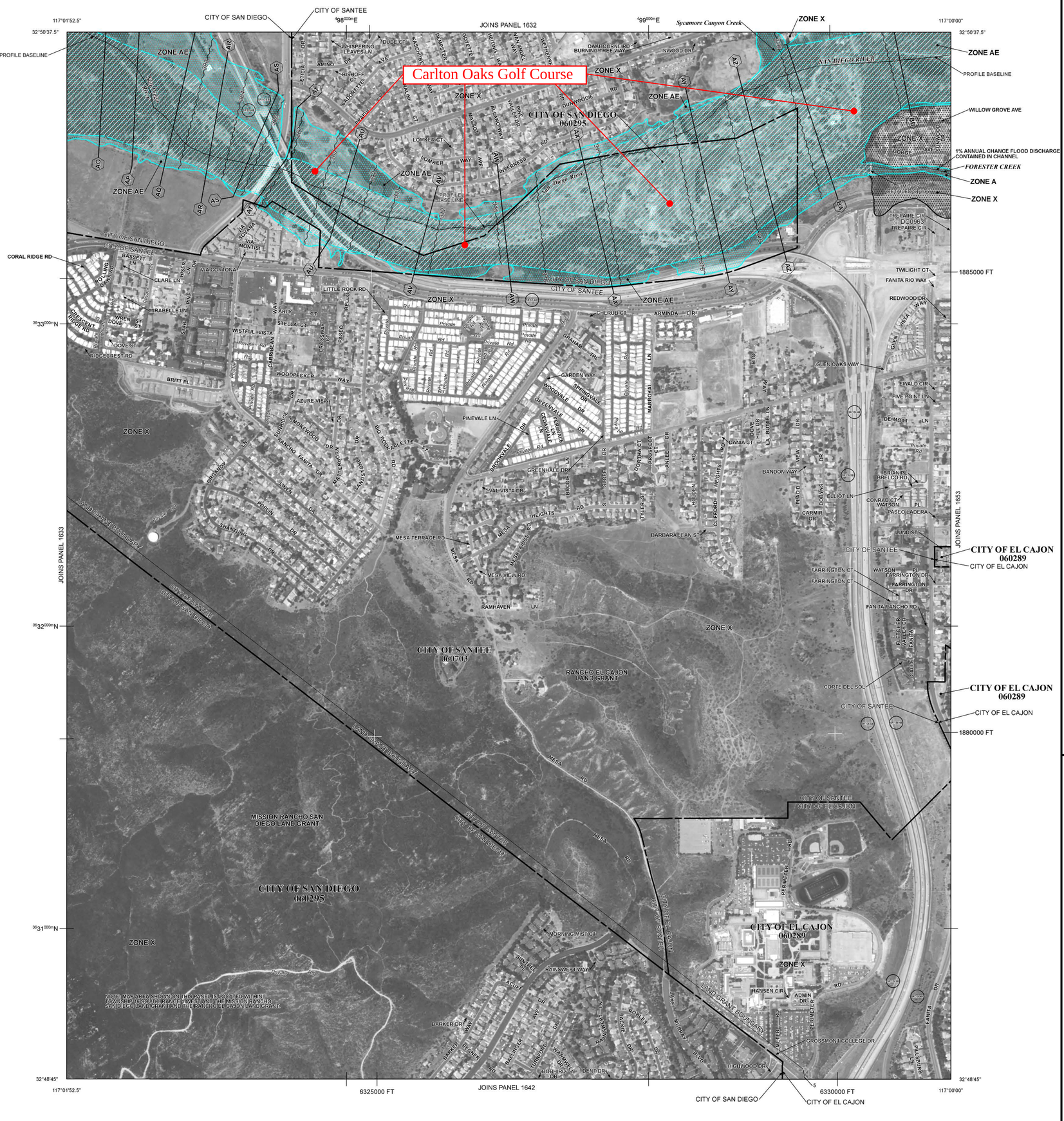
**Corporate limits** shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

Please refer to the separately printed **Map Index** for an overview map of the county showing the layout of map panels; community map repository addresses; and a Listing of Communities table containing National Flood Insurance Program dates for each community as well as a listing of the panels on which each community is located.

Contact the **FEMA Map Service Center** at 1-877-FEMA MAP (1-877-336-2627) for information on available products associated with this FIRM. Available products may include previously issued Letters of Map Change, a Flood Insurance Study report, and/or digital versions of this map. The FEMA Map Service Center may also be reached by Fax at 1-800-358-9620 and its website at http://msc.fema.gov/.

If you have **questions about this map** or questions concerning the National Flood Insurance Program in general, please call **1-877-FEMA MAP** (1-877-336-2627) or visit the FEMA website at http://www.fema.gov/business/nfip/.

The **"profile base lines"** depicted on this map represent the hydraulic modeling baselines that match the flood profiles in the FIS report. As a result of improved topographic data, the "profile base line", in some cases, may deviate significantly from the channel centerline or appear outside the SFHA.




# LEGEND

SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V, and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

| | |
|---|---|
| ZONE A | No Base Flood Elevations determined. |
| ZONE AE | Base Flood Elevations determined. |
| ZONE AH | Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined. |
| ZONE AO | Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined. |
| ZONE AR | Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood. |
| ZONE A99 | Areas to be protected from 1% annual chance flood event by a Federal flood protection system under construction; no Base Flood Elevations determined. |
| ZONE V | Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined. |
| ZONE VE | Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined. |

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

| | |
|---|---|
| ZONE X | Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood. |

OTHER AREAS

| | |
|---|---|
| ZONE X | Areas determined to be outside the 0.2% annual chance floodplain. |
| ZONE D | Areas in which flood hazards are undetermined, but possible. |

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

| | |
|---|---|
| | 1% annual chance floodplain boundary |
| | 0.2% annual chance floodplain boundary |
| | Floodway boundary |
| | Zone D boundary |
| | CBRS and OPA boundary |
| | Boundary dividing Special Flood Hazard Area Zones and boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths, or flood velocities |
| 513 (EL 987) | Base Flood Elevation line and value; elevation in feet* |
| | Base Flood Elevation value where uniform within zone; elevation in feet* |

* Referenced to the North American Vertical Datum of 1988

| | |
|---|---|
| A — A | Cross section line |
| 23 — 23 | Transect line |
| 97°07'30", 32°22'30" | Geographic coordinates referenced to the North American Datum of 1983 (NAD 83), Western Hemisphere |
| 4275000mE | 1000-meter Universal Transverse Mercator grid ticks, zone 11 |
| 6000000 FT | 5000-foot grid values: California State Plane coordinate system, Zone VI (FIPSZONE = 406), Lambert projection |
| DX5510 | Bench mark (see explanation in Notes to Users section of this FIRM panel) |
| M1.5 | River Mile |

MAP REPOSITORIES
Refer to Map Repositories list on Map Index

EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP
June 19, 1997

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL
May 16, 2012 – to update corporate limits, to add roads and road names, to incorporate previously issued Letters of Map Revision, and to update map elevations to North American Vertical Datum of 1988.

For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

MAP SCALE 1" = 500'

250 0 250 500 750 1,000 FEET
150 0 150 300 METERS

NFIP
NATIONAL FLOOD INSURANCE PROGRAM

PANEL 1634G

# FIRM
## FLOOD INSURANCE RATE MAP
## SAN DIEGO COUNTY, CALIFORNIA
## AND INCORPORATED AREAS

**PANEL 1634 OF 2375**

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

| COMMUNITY | NUMBER | PANEL | SUFFIX |
|---|---|---|---|
| EL CAJON, CITY OF | 060289 | 1634 | G |
| SAN DIEGO, CITY OF | 060295 | 1634 | G |
| SANTEE, CITY OF | 060703 | 1634 | G |

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

**MAP NUMBER**
**06073C1634G**

**MAP REVISED**
**MAY 16, 2012**

Federal Emergency Management Agency

**Exhibit I**

BSI Report Modeling (1992) excerpts

FEMA 100-Year
City of Santee 100-Year

```
**************************************************
*  WATER SURFACE PROFILES                        *
*  DEVELOPED BY THE COE                          *
*  VERSION OF SEPTEMBER 1988                     *
*                                                *
*  RUN DATE     6/24/92   TIME   12:49:14        *
**************************************************
```

```
**************************************
*  DODSON AND ASSOCIATES, INC.       *
*  HYDROLOGIST AND CIVIL ENGINEERS   *
*  7015 W TIDWELL SUITE 107          *
*  HOUSTON, TEXAS 77092              *
*  (713) 895-8322                    *
**************************************
```

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

END OF BANNER

THIS RUN EXECUTED 6/24/92 12:49:14

```
**********************************************
  HEC2 RELEASE DATED SEPT 88

**********************************************

T1      SAN DIEGO RIVER
T2      CITY OF SANTEE
T3      PROFILE 1 - 100 YEAR FLOODPLAIN (FEMA)
T4      PROFILE 2 - 100 YEAR FLOODWAY (FEMA)

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

       0         2                             0                                   280.54

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

      1         0        -1                                      -1                            0


J3  VARIABLE CODES FOR SUMMARY PRINTOUT

     38          1          2          8         43         13         14         15          3          5
     55         26         56                    38         21         23         22         24         16
     17         18         39         33         25         20         12                    38          4
     53         54         10         11         51         52         58                   110        200

NC      .08        .08       0.18        0.1         0.3
QT        2      38000      38000
ET                   0        8.1                                                          340.0       600.0
         MISSION DAM - DOWNSTREAM LIMIT OF STUDY (SUB-CRITICAL FLOW ASSUMED)
X1      100       42.0      340.8      600.7        0.0        0.0        0.0
GR    322.0      106.3      320.0      113.0      318.0      136.3      316.0      145.1      314.0      149.2
GR    312.0      156.4      310.0      163.1      308.0      173.8      306.0      184.7      304.0      195.9
GR    302.0      206.5      300.0      254.3      298.0      260.1      296.0      265.0      294.0      267.5
GR    292.0      274.0      290.0      278.2      288.0      289.9      286.0      302.9      284.0      308.8
GR    282.0      315.2      280.0      340.8      278.0      347.4      276.0      353.5      274.0      360.8
GR    272.0      383.8      270.0      502.7      270.0      562.6      272.0      577.0      274.0      584.1
GR    276.0      589.9      278.0      597.2      280.0      600.7      290.0      612.3      300.0      626.4
GR    310.0      650.9      312.0      658.7      314.0      662.9      314.0      676.5      312.0      689.0
GR    310.0      703.7      300.0      723.7
```

PROFILE 1 - 100 YEAR FLO

SUMMARY PRINTOUT TABLE 110

| | SECNO | CWSEL | DIFKWS | EG | TOPWID | QLOB | QCH | QROB | PERENC | STENCL | STCHL | STCHR | STENCR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| * | 100.000 | 280.55 | .01 | 284.91 | 267.60 | 7.36 | 37992.07 | .56 | .00 | .00 | 340.80 | 600.70 | .00 |
| | 100.000 | 281.55 | 1.00 | 285.06 | 260.00 | 5.97 | 37994.03 | .00 | 260.00 | 340.00 | 340.80 | 600.70 | 600.00 |
| * | 110.000 | 287.97 | .00 | 289.86 | 316.99 | 2882.51 | 34433.88 | 683.61 | .00 | .00 | 339.70 | 600.30 | .00 |
| * | 110.000 | 287.62 | -.35 | 289.66 | 300.00 | 2680.68 | 34735.79 | 583.53 | 300.00 | 310.00 | 339.70 | 600.30 | 610.00 |
| * | 120.000 | 290.82 | .00 | 292.02 | 352.03 | 3808.51 | 31137.15 | 3054.34 | .00 | .00 | 354.50 | 602.50 | .00 |
| * | 120.000 | 290.74 | -.08 | 291.97 | 340.00 | 3737.62 | 31235.66 | 3026.72 | 340.00 | 310.00 | 354.50 | 602.50 | 650.00 |
| * | 130.000 | 297.99 | .00 | 298.61 | 477.59 | 5618.51 | 23527.88 | 8853.60 | .00 | .00 | 353.00 | 583.50 | .00 |
| * | 130.000 | 298.39 | .40 | 299.10 | 353.00 | 2399.01 | 25722.11 | 9878.88 | 353.00 | 330.00 | 353.00 | 583.50 | 683.00 |
| | 140.000 | 301.91 | .00 | 302.44 | 395.33 | 3860.58 | 28377.58 | 5761.85 | .00 | .00 | 242.60 | 482.40 | .00 |
| | 140.000 | 302.54 | .63 | 303.10 | 330.00 | 2665.03 | 29260.41 | 6074.56 | 330.00 | 215.00 | 242.60 | 482.40 | 545.00 |
| * | 150.000 | 303.43 | .00 | 303.62 | 976.14 | 870.98 | 22246.51 | 14882.51 | 1061.50 | 108.50 | 273.60 | 738.10 | 1170.00 |
| * | 150.000 | 303.99 | .56 | 304.17 | 955.00 | 475.86 | 21623.91 | 15900.24 | 955.00 | 245.00 | 273.60 | 738.10 | 1200.00 |
| * | 160.000 | 303.97 | .00 | 304.05 | 1351.05 | 33311.62 | 3778.80 | 909.58 | .00 | .00 | 1331.10 | 1412.30 | .00 |
| * | 160.000 | 304.48 | .51 | 304.56 | 1313.47 | 33042.74 | 3788.47 | 1168.79 | 1445.00 | 415.00 | 1331.10 | 1412.30 | 1860.00 |
| * | 170.000 | 304.08 | .00 | 304.13 | 1634.62 | 27876.56 | 1803.74 | 8319.70 | 2000.00 | .00 | 1483.20 | 1544.10 | 2000.00 |
| * | 170.000 | 304.59 | .51 | 304.64 | 1580.00 | 27690.71 | 1777.98 | 8531.31 | 1580.00 | 410.00 | 1483.20 | 1544.10 | 1990.00 |
| * | 180.000 | 304.13 | .00 | 304.20 | 1478.97 | 32332.93 | 3921.19 | 1745.88 | 2000.00 | .00 | 1530.00 | 1759.00 | 2000.00 |
| * | 180.000 | 304.63 | .50 | 304.69 | 1455.00 | 32330.47 | 3919.01 | 1750.52 | 1455.00 | 485.00 | 1530.00 | 1759.00 | 1940.00 |
| * | 190.000 | 304.17 | .00 | 304.23 | 1446.03 | 35057.10 | 2848.29 | 94.61 | .00 | .00 | 1576.30 | 1809.70 | .00 |
| * | 190.000 | 304.67 | .50 | 304.72 | 1433.19 | 35033.61 | 2854.60 | 111.79 | 1450.00 | 470.00 | 1576.30 | 1809.70 | 1920.00 |
| * | 200.000 | 304.23 | .00 | 304.29 | 1650.98 | 25806.00 | 2295.95 | 9898.06 | .00 | .00 | 1439.70 | 1562.70 | .00 |
| * | 200.000 | 304.72 | .49 | 304.77 | 1605.00 | 25540.55 | 2287.97 | 10171.48 | 1605.00 | 370.00 | 1439.70 | 1562.70 | 1975.00 |
| | 209.000 | 304.37 | .00 | 304.43 | 1918.02 | 19214.92 | 5154.75 | 13630.33 | .00 | .00 | 1233.40 | 1479.20 | .00 |
| | 209.000 | 304.84 | .47 | 304.91 | 1700.00 | 19153.99 | 5150.53 | 13695.48 | 1700.00 | 400.00 | 1233.40 | 1479.20 | 2100.00 |
| * | 210.000 | 304.27 | .00 | 304.48 | 1912.23 | 6900.28 | 8610.63 | 22489.09 | .00 | .00 | 1233.40 | 1479.20 | .00 |
| * | 210.000 | 304.74 | .47 | 304.96 | 1700.00 | 7308.99 | 8447.90 | 22243.12 | 1700.00 | 400.00 | 1233.40 | 1479.20 | 2100.00 |
| * | 211.000 | 304.44 | .00 | 304.51 | 1922.28 | 19150.20 | 5138.87 | 13710.93 | .00 | .00 | 1233.40 | 1479.20 | .00 |
| * | 211.000 | 304.91 | .47 | 304.98 | 1700.00 | 19103.19 | 5138.39 | 13758.43 | 1700.00 | 400.00 | 1233.40 | 1479.20 | 2100.00 |
| | 220.000 | 304.71 | .00 | 304.84 | 1684.15 | 6257.56 | 4678.44 | 27064.00 | .00 | .00 | 745.80 | 1065.00 | .00 |
| | 220.000 | 305.15 | .44 | 305.28 | 1585.00 | 6056.05 | 4574.76 | 27369.20 | 1585.00 | 515.00 | 745.80 | 1065.00 | 2100.00 |
| | 230.000 | 304.89 | .00 | 305.11 | 1225.00 | 2673.15 | 3499.23 | 31827.62 | 1225.00 | 825.00 | 941.10 | 1142.70 | 2050.00 |
| | 230.000 | 305.30 | .41 | 305.52 | 1175.00 | 2808.74 | 3511.09 | 31680.16 | 1175.00 | 825.00 | 941.10 | 1142.70 | 2000.00 |

| | SECNO | CWSEL | DIFKWS | EG | TOPWID | QLOB | QCH | QROB | PERENC | STENCL | STCHL | STCHR | STENCR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| * | 239.000 | 304.95 | .00 | 305.82 | 670.00 | 2261.69 | 13043.76 | 22694.55 | 670.00 | 2370.00 | 2398.50 | 2724.40 | 3040.00 |
| * | 239.000 | 305.35 | .40 | 306.17 | 670.00 | 2259.47 | 12748.31 | 22992.22 | 670.00 | 2370.00 | 2398.50 | 2724.40 | 3040.00 |
| * | 240.000 | 306.98 | .00 | 307.39 | 493.99 | 2.52 | 37997.48 | .00 | .00 | .00 | 2519.30 | 3031.90 | .00 |
| * | 240.000 | 307.18 | .20 | 307.58 | 494.00 | 4.16 | 37995.84 | .00 | 494.00 | 2517.00 | 2519.30 | 3031.90 | 3011.00 |
| * | 242.000 | 306.97 | .00 | 307.45 | 493.85 | .86 | 37999.14 | .00 | .00 | .00 | 2519.30 | 3031.90 | .00 |
| * | 242.000 | 307.17 | .20 | 307.64 | 492.00 | 1.13 | 37998.87 | .00 | 492.00 | 2518.00 | 2519.30 | 3031.90 | 3010.00 |
| | 243.000 | 307.03 | .00 | 307.51 | 494.44 | .00 | 37980.43 | 19.57 | .00 | .00 | 2480.00 | 3001.90 | .00 |
| | 243.000 | 307.23 | .20 | 307.70 | 492.00 | .00 | 37979.57 | 20.43 | 492.00 | 2518.00 | 2480.00 | 3001.90 | 3010.00 |
| * | 244.000 | 307.12 | .00 | 307.54 | 510.84 | .00 | 38000.00 | .00 | .00 | .00 | 2550.50 | 3075.60 | .00 |
| * | 244.000 | 307.32 | .20 | 307.72 | 510.00 | .00 | 38000.00 | .00 | 510.00 | 2560.00 | 2550.50 | 3075.60 | 3070.00 |
| * | 245.000 | 307.60 | .00 | 307.90 | 857.36 | 15026.80 | 17368.06 | 5605.15 | 1415.00 | 100.00 | 928.40 | 1396.30 | 1515.00 |
| * | 245.000 | 307.71 | .11 | 308.15 | 650.00 | 16802.16 | 20194.79 | 1003.05 | 650.00 | 760.00 | 928.40 | 1396.30 | 1410.00 |
| | 250.000 | 308.39 | .00 | 308.53 | 1193.16 | 5707.58 | 5891.06 | 26401.36 | .00 | .00 | 2566.70 | 2740.60 | .00 |
| | 250.000 | 308.80 | .42 | 309.00 | 910.00 | 7098.65 | 7154.32 | 23747.03 | 910.00 | 2400.00 | 2566.70 | 2740.60 | 3310.00 |
| * | 260.000 | 309.50 | .00 | 310.32 | 678.32 | 533.73 | 9184.47 | 28281.80 | .00 | .00 | 2375.20 | 2544.60 | .00 |
| * | 260.000 | 310.26 | .76 | 311.00 | 610.00 | 551.27 | 8980.21 | 28468.53 | 610.00 | 2340.00 | 2375.20 | 2544.60 | 2950.00 |
| * | 270.000 | 312.91 | .00 | 313.42 | 1073.31 | 3461.44 | 6445.73 | 27092.83 | .00 | .00 | 2509.50 | 2678.60 | .00 |
| | 270.000 | 313.23 | .33 | 313.82 | 720.00 | 3105.61 | 6763.26 | 27131.14 | 720.00 | 2270.00 | 2509.50 | 2678.60 | 2990.00 |
| * | 280.000 | 314.65 | .00 | 314.79 | 1526.23 | 4252.20 | 2248.31 | 30499.49 | .00 | .00 | 958.00 | 1060.00 | .00 |
| * | 280.000 | 315.11 | .46 | 315.27 | 1330.00 | 4165.22 | 2469.75 | 30365.03 | 1330.00 | 560.00 | 958.00 | 1060.00 | 1890.00 |
| | 285.000 | 315.19 | .00 | 315.32 | 1709.02 | 2834.58 | 1494.35 | 32671.08 | .00 | .00 | 706.60 | 792.20 | .00 |
| | 285.000 | 315.65 | .46 | 315.78 | 1490.00 | 2706.90 | 1482.49 | 32810.61 | 1490.00 | 525.00 | 706.60 | 792.20 | 2015.00 |
| | 290.000 | 315.74 | .00 | 315.91 | 1774.24 | 5645.31 | 2055.89 | 29298.80 | .00 | .00 | 2655.10 | 2758.90 | .00 |
| | 290.000 | 316.14 | .40 | 316.32 | 1544.09 | 3023.11 | 2153.92 | 31822.96 | 1594.00 | 2560.00 | 2655.10 | 2758.90 | 4154.00 |
| * | 300.000 | 316.68 | .00 | 316.97 | 1605.71 | 2017.92 | 2638.47 | 32343.61 | 1800.00 | 2340.00 | 2536.20 | 2708.70 | 4140.00 |
| * | 300.000 | 317.04 | .37 | 317.34 | 1410.53 | .00 | 2677.51 | 34322.49 | 1474.00 | 2540.00 | 2536.20 | 2708.70 | 4014.00 |
| * | 310.000 | 317.75 | .00 | 317.94 | 1743.70 | 923.33 | 958.02 | 35118.64 | 1770.00 | 2460.00 | 2698.40 | 2822.30 | 4230.00 |
| | 310.000 | 318.17 | .42 | 318.42 | 1350.00 | 601.93 | 1202.76 | 35195.31 | 1350.00 | 2650.00 | 2698.40 | 2822.30 | 4000.00 |
| * | 320.000 | 319.50 | .00 | 320.03 | 1322.48 | 415.25 | 9871.67 | 26713.07 | 1350.00 | 950.00 | 988.70 | 1300.00 | 2300.00 |
| * | 320.000 | 320.17 | .67 | 320.70 | 1120.00 | .00 | 9169.39 | 27830.61 | 1120.00 | 1030.00 | 988.70 | 1300.00 | 2150.00 |
| * | 330.000 | 322.64 | .00 | 322.98 | 949.66 | 17451.99 | 6631.55 | 11916.46 | 1020.00 | 1280.00 | 1760.00 | 1917.00 | 2300.00 |
| * | 330.000 | 322.98 | .34 | 323.31 | 880.00 | 17175.08 | 6803.74 | 12021.19 | 880.00 | 1370.00 | 1760.00 | 1917.00 | 2250.00 |
| | 340.000 | 323.83 | .00 | 324.12 | 958.29 | 5787.50 | 16945.86 | 13266.64 | 980.00 | 1200.00 | 1410.00 | 1843.20 | 2180.00 |
| | 340.000 | 324.11 | .27 | 324.37 | 960.00 | 5852.52 | 16845.83 | 13301.65 | 960.00 | 1220.00 | 1410.00 | 1843.20 | 2180.00 |

| | SECNO | CWSEL | DIFKWS | EG | TOPWID | QLOB | QCH | QROB | PERENC | STENCL | STCHL | STCHR | STENCR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 345.000 | 324.53 | .00 | 324.88 | 1060.00 | 9000.79 | 20015.56 | 6983.65 | 1060.00 | 1210.00 | 1509.80 | 1995.50 | 2270.00 |
| | 345.000 | 324.73 | .20 | 325.09 | 970.00 | 8257.22 | 20489.92 | 7252.86 | 970.00 | 1300.00 | 1509.80 | 1995.50 | 2270.00 |
| | 355.000 | 325.62 | .00 | 326.04 | 1000.00 | 7691.40 | 24308.14 | 4000.46 | 1000.00 | 1370.00 | 1731.40 | 2253.80 | 2370.00 |
| | 355.000 | 325.80 | .18 | 326.25 | 870.00 | 6679.52 | 25134.85 | 4185.63 | 870.00 | 1500.00 | 1731.40 | 2253.80 | 2370.00 |
| | 356.000 | 327.08 | .00 | 327.84 | 941.47 | 6303.11 | 29018.37 | 678.52 | 950.00 | 1340.00 | 1836.00 | 2258.20 | 2290.00 |
| | 356.000 | 327.26 | .19 | 328.14 | 762.01 | 4129.55 | 31121.67 | 748.78 | 770.00 | 1520.00 | 1836.00 | 2258.20 | 2290.00 |
| * | 358.000 | 326.84 | .00 | 327.84 | 940.81 | 3033.19 | 32965.38 | 1.43 | 960.00 | 1340.00 | 1836.00 | 2278.40 | 2300.00 |
| * | 358.000 | 327.12 | .28 | 328.14 | 771.59 | 2047.65 | 33949.40 | 2.95 | 790.00 | 1510.00 | 1836.00 | 2278.40 | 2300.00 |
| | 360.000 | 328.47 | .00 | 328.74 | 1070.00 | 28115.08 | 6467.28 | 1417.64 | 1070.00 | 1530.00 | 2187.00 | 2382.90 | 2600.00 |
| | 360.000 | 328.74 | .27 | 329.03 | 870.00 | 28837.45 | 6698.35 | 464.20 | 870.00 | 1565.00 | 2187.00 | 2382.90 | 2435.00 |
| | 370.000 | 329.02 | .00 | 329.21 | 1338.57 | 26811.51 | 2887.07 | 6301.42 | 1350.00 | 1470.00 | 2234.10 | 2326.40 | 2820.00 |
| | 370.000 | 329.28 | .26 | 329.51 | 1030.00 | 29820.38 | 3193.21 | 2986.41 | 1030.00 | 1470.00 | 2234.10 | 2326.40 | 2500.00 |
| | 380.000 | 329.41 | .00 | 329.60 | 1420.00 | 25573.75 | 1930.68 | 8495.57 | 1420.00 | 1540.00 | 2380.90 | 2436.40 | 2960.00 |
| | 380.000 | 329.72 | .31 | 329.98 | 1085.00 | 29821.24 | 2221.74 | 3957.03 | 1085.00 | 1540.00 | 2380.90 | 2436.40 | 2625.00 |
| | 390.000 | 330.20 | .00 | 330.53 | 1060.00 | 24818.01 | 5296.69 | 5885.29 | 1060.00 | 1680.00 | 2250.00 | 2402.00 | 2740.00 |
| | 390.000 | 330.65 | .45 | 331.03 | 890.00 | 25682.97 | 5933.40 | 4383.62 | 890.00 | 1730.00 | 2250.00 | 2402.00 | 2620.00 |
| * | 400.000 | 331.24 | .00 | 331.46 | 856.00 | 3270.18 | 30980.14 | 1749.68 | 856.00 | 1749.00 | 1877.60 | 2531.60 | 2605.00 |
| * | 400.000 | 331.76 | .51 | 331.98 | 765.00 | 1660.89 | 32449.65 | 1889.46 | 765.00 | 1820.00 | 1877.60 | 2531.60 | 2585.00 |
| | 410.000 | 331.93 | .00 | 332.20 | 745.35 | 1728.32 | 32629.26 | 1642.42 | 750.00 | 2970.00 | 3065.30 | 3645.90 | 3720.00 |
| | 410.000 | 332.41 | .47 | 332.65 | 739.50 | 1831.68 | 32451.58 | 1716.74 | 739.50 | 2970.50 | 3065.30 | 3645.90 | 3710.00 |
| | 415.000 | 332.64 | .00 | 332.86 | 765.00 | 1523.24 | 32139.30 | 2337.46 | 765.00 | 3180.00 | 3252.30 | 3865.00 | 3945.00 |
| | 415.000 | 333.04 | .40 | 333.25 | 745.00 | 1560.20 | 32031.77 | 2408.03 | 745.00 | 3200.00 | 3252.30 | 3865.00 | 3945.00 |
| | 420.000 | 333.04 | .00 | 333.36 | 654.27 | 2397.63 | 30350.63 | 3251.73 | 685.00 | 3380.00 | 3467.10 | 3988.90 | 4065.00 |
| | 420.000 | 333.40 | .36 | 333.70 | 653.50 | 2447.66 | 30235.22 | 3317.12 | 653.50 | 3411.50 | 3467.10 | 3988.90 | 4065.00 |
| * | 421.000 | 333.18 | .00 | 334.57 | 441.57 | 1644.00 | 34227.24 | 128.76 | .00 | .00 | 2650.00 | 3049.10 | .00 |
| * | 421.000 | 333.51 | .33 | 334.80 | 440.00 | 1687.24 | 34171.24 | 141.53 | 440.00 | 2617.00 | 2650.00 | 3049.10 | 3057.00 |
| | 422.000 | 332.75 | .00 | 335.11 | 440.48 | 971.30 | 34795.57 | 233.13 | .00 | .00 | 2645.00 | 3044.70 | .00 |
| | 422.000 | 333.13 | .37 | 335.28 | 440.00 | 1013.78 | 34734.45 | 251.77 | 440.00 | 2617.00 | 2645.00 | 3044.70 | 3057.00 |
| | 423.000 | 333.68 | .00 | 335.58 | 442.85 | 1074.27 | 34646.00 | 279.73 | .00 | .00 | 4645.00 | 5044.70 | .00 |
| | 423.000 | 333.86 | .18 | 335.69 | 442.00 | 1093.63 | 34617.20 | 289.16 | 442.00 | 4616.00 | 4645.00 | 5044.70 | 5058.00 |
| | 424.000 | 333.88 | .00 | 335.68 | 450.42 | 720.63 | 33946.33 | 1333.04 | .00 | .00 | 4658.90 | 5055.00 | .00 |
| | 424.000 | 334.09 | .20 | 335.79 | 449.00 | 743.15 | 33908.34 | 1348.51 | 449.00 | 4633.00 | 4658.90 | 5055.00 | 5082.00 |
| * | 425.000 | 336.57 | .00 | 336.91 | 1029.97 | 12474.41 | 12538.88 | 10986.71 | 1035.00 | 4365.00 | 4805.90 | 5113.20 | 5400.00 |
| * | 425.000 | 336.64 | .07 | 337.09 | 850.00 | 13918.51 | 14370.78 | 7710.71 | 850.00 | 4420.00 | 4805.90 | 5113.20 | 5270.00 |

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**************************************************
*  WATER SURFACE PROFILES                        *
*  DEVELOPED BY THE COE                          *
*  VERSION OF SEPTEMBER 1988                     *
*                                                *
*  RUN DATE     6/24/92   TIME   13: 0: 4        *
**************************************************
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**************************************
*  DODSON AND ASSOCIATES, INC.       *
*  HYDROLOGIST AND CIVIL ENGINEERS   *
*  7015 W TIDWELL SUITE 107          *
*  HOUSTON, TEXAS 77092              *
*  (713) 895-8322                    *
**************************************
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X     X  XXXXXXX   XXXXX             XXXXX
X     X  X        X     X           X     X
X     X  X        X                       X
XXXXXXX  XXXX     X          XXXXX    XXXXX
X     X  X        X                  X
X     X  X        X     X            X
X     X  XXXXXXX   XXXXX             XXXXXXX
```

END OF BANNER

THIS RUN EXECUTED 6/24/92 13: 0: 5

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**********************************************
  HEC2 RELEASE DATED SEPT 88

**********************************************

T1      SAN DIEGO RIVER
T2      CITY OF SANTEE
T3      PROFILE 1 - 100 YEAR FLOODPLAIN (SANTEE)
T4      PROFILE 2 - 100 YEAR FLOODWAY (SANTEE)

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

       0         2                             0                                  282.53

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

      1         0        -1                                      -1                           15

J3  VARIABLE CODES FOR SUMMARY PRINTOUT

     38          1          2          8         43         13         14         15          3          5
     55         26         56                    38         21         23         22         24         16
     17         18         39         33         25         20         12                    38          4
     53         54         10         11         51         52         58                   110        200

NC      .08        .08       0.18        0.1         0.3
QT        2      50000      50000
ET                   0        8.1                                                          340.0       600.0
        MISSION DAM - DOWNSTREAM LIMIT OF STUDY (SUB-CRITICAL FLOW ASSUMED)
X1      100       42.0      340.8      600.7        0.0        0.0        0.0
GR    322.0      106.3      320.0      113.0      318.0      136.3      316.0      145.1      314.0      149.2
GR    312.0      156.4      310.0      163.1      308.0      173.8      306.0      184.7      304.0      195.9
GR    302.0      206.5      300.0      254.3      298.0      260.1      296.0      265.0      294.0      267.5
GR    292.0      274.0      290.0      278.2      288.0      289.9      286.0      302.9      284.0      308.8
GR    282.0      315.2      280.0      340.8      278.0      347.4      276.0      353.5      274.0      360.8
GR    272.0      383.8      270.0      502.7      270.0      562.6      272.0      577.0      274.0      584.1
GR    276.0      589.9      278.0      597.2      280.0      600.7      290.0      612.3      300.0      626.4
GR    310.0      650.9      312.0      658.7      314.0      662.9      314.0      676.5      312.0      689.0
GR    310.0      703.7      300.0      723.7
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NC     0.08       0.08       0.18
ET                   0        8.1                                                  310.0       610.0
X1      110       42.0      339.7      600.3       45.0       45.0       45.0
GR    322.0      102.1      320.0      107.6      318.0      116.9      316.0      127.8      314.0      137.2
GR    312.0      150.6      310.0      159.7      308.0      165.6      306.0      171.6      304.0      186.0
GR    302.0      199.6      300.0      228.0      298.0      257.2      296.0      261.3      294.0      270.2
GR    292.0      276.4      290.0      280.6      288.0      299.4      286.0      308.1      284.0      314.0
GR    282.0      319.1      280.0      339.7      278.0      369.2      276.0      377.8      274.0      405.7
GR    274.0      424.4      276.0      513.7      274.0      561.0      274.0      571.2      278.0      589.6
GR    276.0      590.1      280.0      600.3      290.0      620.6      300.0      629.3      310.0      638.9
GR    312.0      644.0      314.0      647.2      318.0      659.0      320.0      669.0      322.0      682.9
GR    322.0      707.6      320.0      723.0

NC     0.08       0.08       0.18
ET                   0        8.1                                                  310.0         650
X1      120       32.0      354.5      602.5       55.0       55.0       55.0
GR    308.0      102.3      306.0      116.7      304.0      151.7      302.0      196.8      300.0      221.4
GR    298.0      252.0      296.0      274.8      294.0      281.9      292.0      290.3      290.0      304.3
GR    288.0      311.6      286.0      319.1      284.0      327.2      282.0      341.2      280.0      354.5
GR    278.0      367.7      276.0      399.7      274.0      403.0      274.0      425.1      274.0      467.8
GR    274.0      547.3      276.0      555.0      278.0      566.9      280.0      602.5      288.0      643.7
GR    290.0      648.8      300.0      670.6      310.0      693.0      312.0      702.1      314.0      713.5
GR    316.0      721.4      318.0      739.3

NC     0.08       0.08       0.18
ET                   0        8.1                                                  330.0         683
X1      130       39.0      353.0      583.5      520.0      520.0      520.0
GR    312.0       79.0      310.0       90.0      308.0       98.0      306.0      104.9      304.0      118.2
GR    302.0      123.6      300.0      141.8      298.0      205.2      296.0      271.7      294.0      278.5
GR    292.0      282.7      290.0      289.9      288.0      325.4      286.0      341.4      284.0      346.3
GR    280.0      353.0      278.0      357.1      278.0      375.2      278.0      394.4      276.0      420.6
GR    276.0      449.2      278.0      454.6      280.0      583.5      282.0      599.6      284.0      611.7
GR    286.0      627.5      288.0      644.3      290.0      653.5      298.0      683.1      300.0      687.1
GR    302.0      701.7      304.0      711.7      306.0      720.8      308.0      730.8      310.0      741.8
GR    312.0      759.2      314.0      773.7      316.0      790.4      318.0      820.0

NC     0.08       0.08       0.18       0.03       0.05
ET                   0        8.1                                                  215.0         545
X1      140       32.0      242.6      482.4      555.0      555.0      555.0
GR    330.0      102.8      320.0      127.5      310.0      152.4      300.0      161.2      294.0      209.3
GR    294.0      217.9      290.0      230.3      288.0      233.1      286.0      237.3      284.0      242.6
GR    282.0      247.1      280.0      259.9      278.0      269.7      276.0      332.7      276.0      349.0
GR    278.0      361.2      280.0      371.2      282.0      467.9      284.0      482.4      286.0      497.6
GR    288.0      507.7      290.0      514.9      300.0      546.9      302.0      555.2      304.0      562.8
GR    306.0      577.1      308.0      587.4      310.0      606.1      312.0      626.3      314.0      654.4
GR    316.0      690.6      316.0      781.7

NC     0.08      0.035       0.16
ET                 6.1        8.1                                      108.5      1200.0         245        1200
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X1      150       39.0      273.6      738.1      555.0      555.0      580.0
GR    324.0      108.5      322.0      117.6      320.0      129.6      318.0      140.8      316.0      151.8
GR    314.0      159.5      312.0      167.6      310.0      175.6      300.0      203.4      298.0      206.4
GR    298.0      208.7      298.0      256.1      290.0      273.6      288.0      277.8      286.0      284.5
GR    284.0      293.6      282.0      385.5      280.0      411.0      280.0      552.4      280.0      655.2
GR    280.0      703.0      290.0      738.1      292.0      750.6      294.0      758.6      296.0      870.3
GR    296.0      894.6      296.0     1042.4      298.0     1080.5      300.0     1153.4      302.0     1232.5
GR    304.0     1332.3      306.0     1432.2      308.0     1480.5      310.0     1538.6      312.0     1585.5
GR    314.0     1637.3      316.0     1690.9      318.0     1742.0      320.0     1781.4

NH        3        0.04      497.4       0.08     1450.1       0.040     2720.0
ET                    0        8.1                                                415       1860
X1      160         56     1331.1     1412.3      900.0      670.0      670.0
GR    322.0        0.0      320.0       55.0      318.0       85.0      316.0      133.6      314.0      158.2
GR    312.0      166.4      310.0      280.5      308.0      342.6      306.0      358.4      304.0      371.8
GR    302.0      379.5      300.0      388.4      298.0      395.0      296.0      400.8      294.0      409.4
GR    292.0      416.6      284.0      497.4      282.0      524.4      282.0      589.9      284.0      597.7
GR    286.0      637.8      288.0      649.2      290.0     1193.1      292.0     1208.4      294.0     1225.6
GR    296.0     1239.8      298.0     1254.6      300.0     1263.4      302.0     1271.5      302.0     1277.6
GR    300.0     1286.7      298.0     1294.6      296.0     1302.7      294.0     1320.7      292.0     1331.1
GR    290.0     1339.6      282.0     1363.6      282.0     1400.5      290.0     1412.3      300.0     1439.6
GR    306.0     1450.1      308.0     1483.3      306.0     1504.8      304.0     1515.9      302.0     1528.7
GR    302.0     1778.9      304.0     1792.9      306.0     1798.8      306.0     1873.0      304.0     1879.5
GR    304.0     1911.4      305.0     1930.0      310.0     2125.0      315.0     2430.0      320.0     2620.0
GR    328.0     2720.0

NC        0          0          0        0.1        0.3
NH        3        0.04      744.3       0.08     1725.4       0.04      3120.0
ET                    0        8.1                                                410       1990
X1      170         42.0     1483.2     1544.1      325.0      315.0      320.0
GR    320.0      164.6      318.0      193.5      316.0      222.9      314.0      243.0      312.0      266.0
GR    310.0      289.5      308.0      311.8      306.0      336.8      304.0      354.7      302.0      384.8
GR    300.0      407.7      298.0      429.7      296.0      457.8      294.0      489.8      292.0      530.3
GR    290.0      535.9      288.0      569.7      286.0      744.3      284.0      761.0      282.0      772.2
GR    282.0      813.9      284.0      822.3      286.0      830.3      288.0      842.6      290.0      867.5
GR    292.0      977.6      292.0     1483.2      290.0     1487.1      284.0     1504.3      284.0     1529.0
GR    290.0     1544.1      292.0     1725.4      294.0     1819.8      296.0     1883.7      298.0     1988.6
GR    300.0     2050.0      300.0     2200.0      305.0     2400.0      310.0     2630.0      310.0     2680.0
GR    315.0     2880.0      320.0     3120.0

NH        4        0.04      608.0       0.03     1109.0       0.08      1759.0       0.04     2935.0
ET                    0        8.1                                                485       1940
X1      180         35.0     1530.0     1759.0      529.0      570.0      550.0
GR    324.0      208.3      322.0      247.9      320.0      282.2      318.0      313.0      316.0      344.4
GR    314.0      371.7      310.0      415.0      300.0      531.0      290.0      608.0      288.0      647.0
GR    286.0      703.0      286.0     1032.0      288.0     1053.0      290.0     1109.0      292.0     1308.0
GR    292.0     1530.0      290.0     1603.0      288.0     1627.0      286.0     1640.0      286.0     1743.0
GR    288.0     1750.0      290.0     1759.0      296.0     1772.0      298.0     1800.0      296.0     1827.0
GR    296.0     1884.0      298.0     1887.0      300.0     1962.0      300.0     2380.0      305.0     2390.0
GR    300.0     2440.0      305.0     2500.0      310.0     2570.0      315.0     2850.0      320.0     2935.0
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NH        4       0.04      508.2       0.03      1455.3        0.08      1827.3        0.04      2950.0
ET                   0        8.1                                                      470        1920
X1      190         52     1576.3     1809.7       505.0       505.0       505.0
GR    322.0       35.0      320.0       61.0       318.0        85.0       316.0       135.7       314.0       193.6
GR    312.0      243.3      310.0      277.0       310.0       339.0       310.0       407.4       308.0       424.7
GR    306.0      438.4      304.0      449.2       302.0       457.0       300.0       466.5       298.0       472.3
GR    296.0      500.5      294.0      508.2       292.0       518.3       290.0       524.8       288.0       531.3
GR    286.0      540.8      286.0      978.3       286.0      1036.5       286.0      1374.7       288.0      1391.0
GR    290.0     1413.5      292.0     1428.0       294.0      1443.6       296.0      1455.3       296.0      1576.3
GR    294.0     1586.7      292.0     1592.6       290.0      1603.2       288.0      1646.1       286.0      1668.1
GR    286.0     1706.0      286.0     1711.1       286.0      1798.8       288.0      1804.1       290.0      1809.7
GR    300.0     1827.3      302.0     1830.0       304.0      1891.2       306.0      1927.1       308.0      1932.4
GR    308.0     1936.0      306.0     1942.7       306.0      1952.2       310.0      2150.0       315.0      2380.0
GR    320.0     2750.0      325.0     2950.0

NH        3       0.04      459.2       0.125     1599.5        0.04      2585.0
ET                   0        8.1                                                      370        1975
X1      200         57.0     1439.7     1562.7       720.0       750.0       740.0
GR    320.0       25.0      318.0       95.0       316.0       152.8       314.0       197.7       312.0       232.1
GR    310.0      257.8      308.0      284.8       306.0       307.0       304.0       333.7       302.0       359.3
GR    300.0      383.4      298.0      415.9       296.0       429.0       294.0       459.2       292.0       478.2
GR    290.0      484.7      288.0      492.8       286.0       975.5       286.0      1006.1       286.0      1203.4
GR    286.0     1406.9      288.0     1416.2       290.0      1423.8       292.0      1430.8       294.0      1434.3
GR    296.0     1439.7      296.0     1463.1       294.0      1466.8       292.0      1469.6       290.0      1474.0
GR    286.0     1482.4      286.0     1532.8       288.0      1548.0       290.0      1554.3       292.0      1558.1
GR    294.0     1562.7      296.0     1567.3       298.0      1570.1       300.0      1574.3       300.0      1585.0
GR    296.0     1593.3      294.0     1599.5       294.0      1637.4       294.0      1665.6       294.0      1695.5
GR    296.0     1771.3      296.0     1775.4       294.0      1779.7       294.0      1907.5       296.0      1914.0
GR    298.0     1918.9      300.0     1923.5       302.0      1929.2       305.0      2000.0       310.0      2300.0
GR    315.0     2490.0      320.0     2585.0

NH        3       0.04      465.0       0.125     1479.2        0.04      2610.0
ET                   0        8.1                                                      400        2100
X1      209         47     1233.4     1479.2       430.0       365.0       390.0
GR    320.0       40.0      318.0       95.0       316.0       140.4       314.0       213.9       312.0       238.5
GR    310.0      249.4      308.0      258.8       308.0       278.4       308.0       306.3       306.0       357.7
GR    304.0      383.3      302.0      436.4       300.0       460.0       298.0       465.0       296.0       473.7
GR    294.0      492.3      292.0      514.5       290.0       554.4       288.0       673.2       286.0       779.3
GR    286.0     1081.2      288.0     1151.0       290.0      1166.1       292.0      1186.0       294.0      1203.7
GR    296.0     1225.8      298.0     1233.4       298.0      1266.3       296.0      1274.8       294.0      1280.7
GR    292.0     1291.8      290.0     1309.1       288.0      1316.7       286.0      1323.7       286.0      1437.3
GR    288.0     1458.5      290.0     1465.4       292.0      1471.5       294.0      1479.2       296.0      1655.4
GR    298.0     1934.4      300.0     2100.0       305.0      2325.0       310.0      2510.0       315.0      2540.0
GR    320.0     2550.0      325.0     2610.0

NH        3       0.04      465.0       0.125     1479.2        0.04      2610.0
ET                   0        8.1                                                      400        2100
X1      210         35     1233.4     1479.2        10.0        10.0        10.0
GR    320.0       40.0      318.0       95.0       316.0       140.4       314.0       213.9       312.0       238.5
GR    310.0      249.4      308.0      258.8       308.0       278.4       308.0       306.3       306.0       357.7
GR    304.0      383.3      302.0      436.4       300.0       460.0       298.0       465.0       298.0      1233.4
GR    298.0     1266.3      296.0     1274.8       294.0      1280.7       292.0      1291.8       290.0      1309.1
GR    288.0     1316.7      286.0     1323.7       286.0      1437.3       288.0      1458.5       290.0      1465.4
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GR    292.0    1471.5     294.0    1479.2     296.0    1655.4     298.0    1934.4     300.0    2100.0
GR    305.0    2325.0     310.0    2510.0     315.0    2540.0     320.0    2550.0     325.0    2610.0

NH        3       0.04     465.0     0.125    1479.2       0.04    2610.0
ET                   0       8.1                                          400        2100
X1      211         47    1233.4    1479.2      10.0       10.0       10.0
GR    320.0       40.0     318.0      95.0     316.0      140.4     314.0      213.9     312.0      238.5
GR    310.0      249.4     308.0     258.8     308.0      278.4     308.0      306.3     306.0      357.7
GR    304.0      383.3     302.0     436.4     300.0      460.0     298.0      465.0     296.0      473.7
GR    294.0      492.3     292.0     514.5     290.0      554.4     288.0      673.2     286.0      779.3
GR    286.0     1081.2     288.0    1151.0     290.0     1166.1     292.0     1186.0     294.0     1203.7
GR    296.0     1225.8     298.0    1233.4     298.0     1266.3     296.0     1274.8     294.0     1280.7
GR    292.0     1291.8     290.0    1309.1     288.0     1316.7     286.0     1323.7     286.0     1437.3
GR    288.0     1458.5     290.0    1465.4     292.0     1471.5     294.0     1479.2     296.0     1655.4
GR    298.0     1934.4     300.0    2100.0     305.0     2325.0     310.0     2510.0     315.0     2540.0
GR    320.0     2550.0     325.0    2610.0

NC     0.04       0.04       0.20
ET                   0       8.1                                          515        2100
X1      220         41     745.8    1065.0      830.0      770.0      810.0
GR    322.0      150.4     320.0     203.3     318.0      243.5     316.0      285.0     314.0      322.2
GR    312.0      347.7     310.0     374.4     308.0      400.2     306.0      431.4     304.0      465.2
GR    302.0      485.6     300.0     510.2     298.0      524.9     298.0      574.3     298.0      584.8
GR    296.0      651.5     294.0     736.3     292.0      745.8     290.0      809.7     288.0      832.4
GR    288.0      990.1     290.0    1026.9     292.0     1065.0     294.0     1377.8     296.0     1394.0
GR    298.0     1420.2     298.0    1493.8     298.0     1539.1     298.0     1562.9     298.0     1687.3
GR    298.0     1757.3     298.0    1873.0     298.0     1920.0     298.0     1964.6     300.0     2085.9
GR    302.0     2110.3     304.0    2117.1     306.0     2174.7     308.0     2188.1     315.0     2330.0
GR    320.0     2390.0

NC     0.04       0.04       0.20
ET                 6.1       8.1                          825.0     2050.0        825        2000
X1      230        45.0     941.1    1142.7      465.0      505.0      490.0
GR    330.0      101.0     328.0     152.6     326.0      218.4     324.0      300.8     322.0      348.6
GR    320.0      387.2     318.0     451.4     316.0      496.5     314.0      545.0     312.0      593.3
GR    310.0      634.8     308.0     671.1     306.0      723.4     304.0      811.3     302.0      829.7
GR    300.0      865.9     298.0     889.4     296.0      902.0     294.0      939.5     292.0      941.1
GR    290.0      955.7     288.0    1002.9     288.0     1074.8     290.0     1090.0     292.0     1142.7
GR    294.0     1280.3     294.0    1427.1     294.0     1543.5     296.0     1559.7     298.0     1575.7
GR    298.0     1826.4     298.0    1844.4     298.0     2021.3     298.0     2061.1     300.0     2083.4
GR    302.0     2094.8     304.0    2109.5     306.0     2146.5     308.0     2209.0     310.0     2253.9
GR    312.0     2329.1     314.0    2373.7     316.0     2415.5     316.0     2439.6     318.0     2450.0

NC     0.04       0.04       0.20
ET                 6.1       8.1                         2370.0     3040.0     2370.0     3040.0
X1      239         36    2398.5    2724.4      400.0      440.0      420.0
GR    326.0     1750.0     324.0    1802.0     322.0     1870.0     320.0     1920.0     318.0     2005.0
GR    316.0     2080.0     314.0    2125.5     312.0     2165.8     310.0     2233.3     308.0     2269.5
GR    306.0     2294.3     304.0    2331.7     302.0     2347.4     300.0     2357.7     298.0     2367.2
GR    296.0     2385.3     294.0    2398.5     292.0     2401.7     290.0     2404.4     290.0     2656.3
GR    292.0     2715.8     294.0    2724.4     296.0     2731.5     298.0     2742.2     298.0     2758.1
GR    296.0     2827.0     296.0    2869.3     298.0     2999.5     298.0     3198.0     298.0     3387.9
GR    300.0     3450.9     310.0    3495.2     320.0     3518.9     322.0     3522.4     324.0     3525.4
GR    326.0     3527.8
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NC     0.04       0.04       0.20
ET                   0        8.1                                          2517.0        3011
X1      240         65     2519.3     3031.9       195.0       255.0       230.0
GR    330.0     1682.0      328.0     1750.0       326.0      1805.0       324.0      1860.0       322.0      1920.0
GR    320.0     1980.0      318.0     2060.0       316.0      2139.9       314.0      2194.2       312.0      2259.3
GR    312.0     2339.4      312.0     2505.0       310.0      2508.9       308.0      2515.1       306.0      2519.3
GR    304.0     2524.1      302.0     2530.1       300.0      2533.9       298.0      2537.2       296.0      2540.2
GR    294.0     2543.1      292.0     2549.3       291.0      2584.8       291.0      2591.8       290.0      2668.2
GR    290.0     2675.2      290.0     2751.5       290.0      2758.5       290.0      2834.8       290.0      2841.8
GR    291.0     2918.2      291.0     2925.2       292.0      2934.7       294.0      2939.9       296.0      2954.4
GR    296.0     2977.8      296.0     2999.2       300.0      3001.9       306.0      3004.5       310.0      3031.9
GR    311.0     3036.7      312.0     3041.5       314.0      3074.7       310.0      3080.0       310.0      3180.0
GR    310.0     3238.5      320.0     3430.4       322.0      3475.0       324.0      3592.2       326.0      3677.8
GR    328.0     3684.3      328.0     3733.7       326.0      3788.3       324.0      3847.3       322.0      3883.8
GR    320.0     3953.1      318.0     4017.4       318.0      4167.3       320.0      4201.2       322.0      4225.0
GR    324.0     4239.0      326.0     4260.1       328.0      4274.0       330.0      4291.5       328.0      4386.5

NC     0.03       0.03       0.04         0.3          0.5
ET                   0        8.1                                            2518        3010
        MAST BLVD BRIDGE  (NORMAL BRIDGE ROUTINE)
X1      242         57     2519.3     3031.9           10          10          10
BT      -31     2339.4      312.0      312.0      2505.0       315.0       311.5      2584.8       315.0       311.5
BT              2584.8      315.0      291.0      2591.8       315.0       291.0      2591.8       315.0       311.5
BT              2668.2      315.0      311.5      2668.2       315.0       290.0      2675.2       315.0       290.0
BT              2675.2      315.0      311.5      2751.5       315.0       311.5      2751.5       315.0       290.0
BT              2758.5      315.0      290.0      2758.5       315.0       311.5      2834.8       315.0       311.5
BT              2834.8      315.0      290.0      2841.8       315.0       290.0      2841.8       315.0       311.5
BT              2918.2      315.0      311.5      2918.2       315.0       291.0      2925.2       315.0       291.0
BT              2925.2      315.0      311.5      3004.5       315.0       311.5      3004.5       315.0       306.0
BT              3031.9      315.0      310.0      3036.7       315.0       311.0      3041.5       315.1       312.0
BT              3074.7      315.5      314.0      3080.0       315.6       310.0      3238.5       317.6       310.0
BT              3350.0      320.0      320.0
GR    330.0     1682.0      328.0     1750.0       326.0      1805.0       324.0      1860.0       322.0      1920.0
GR    320.0     1960.0      318.0     2020.0       316.0      2090.0       314.0      2170.0       312.0      2339.4
GR    312.0     2505.0      310.0     2508.9       308.0      2515.1       306.0      2519.3       304.0      2524.1
GR    302.0     2530.1      300.0     2533.9       298.0      2537.2       296.0      2540.2       294.0      2543.1
GR    292.0     2549.3      291.0     2584.8       291.0      2591.8       290.0      2668.2       290.0      2675.2
GR    290.0     2751.5      290.0     2758.5       290.0      2834.8       290.0      2841.8       291.0      2918.2
GR    291.0     2925.2      292.0     2934.7       294.0      2939.9       296.0      2954.4       296.0      2977.8
GR    296.0     2999.2      300.0     3001.9       306.0      3004.5       310.0      3031.9       311.0      3036.7
GR    312.0     3041.5      314.0     3074.7       310.0      3080.0       310.0      3180.0       310.0      3238.5
GR    320.0     3350.0      322.0     3415.0       324.0      3490.0       326.0      3590.0       328.0      3750.0
GR    328.0     3860.0      326.0     3970.0       324.0      4040.0       324.0      4210.0       326.0      4270.0
GR    328.0     4325.0      330.0     4380.0

NC     0.03       0.03       0.04
ET                   0        8.1                                            2518        3010
X1      243         58     2480.0     3001.9          65.0        65.0        65.0
BT      -31     2339.4      312.0      312.0      2505.0       315.0       311.5      2584.8       315.0       311.5
BT              2584.8      315.0      291.0      2591.8       315.0       291.0      2591.8       315.0       311.5
BT              2668.2      315.0      311.5      2668.2       315.0       290.0      2675.2       315.0       290.0
BT              2675.2      315.0      311.5      2751.5       315.0       311.5      2751.5       315.0       290.0
BT              2758.5      315.0      290.0      2758.5       315.0       311.5      2834.8       315.0       311.5
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| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| BT | | 2834.8 | 315.0 | 290.0 | 2841.8 | 315.0 | 290.0 | 2841.8 | 315.0 | 311.5 |
| BT | | 2918.2 | 315.0 | 311.5 | 2918.2 | 315.0 | 291.0 | 2925.2 | 315.0 | 291.0 |
| BT | | 2925.2 | 315.0 | 311.5 | 3004.5 | 315.0 | 311.5 | 3004.5 | 315.0 | 306.0 |
| BT | | 3031.9 | 315.0 | 310.0 | 3036.7 | 315.0 | 311.0 | 3041.5 | 315.1 | 312.0 |
| BT | | 3074.7 | 315.5 | 314.0 | 3080.0 | 315.6 | 310.0 | 3238.5 | 317.6 | 310.0 |
| BT | | 3350.0 | 320.0 | 320.0 | | | | | | |
| GR | 330.0 | 1682.0 | 328.0 | 1750.0 | 326.0 | 1805.0 | 324.0 | 1860.0 | 322.0 | 1920.0 |
| GR | 320.0 | 1960.0 | 318.0 | 2020.0 | 316.0 | 2090.0 | 314.0 | 2170.0 | 312.0 | 2339.4 |
| GR | 313.0 | 2480.0 | 312.0 | 2505.0 | 310.0 | 2508.9 | 308.0 | 2515.1 | 306.0 | 2519.3 |
| GR | 304.0 | 2524.1 | 302.0 | 2530.1 | 300.0 | 2533.9 | 298.0 | 2537.2 | 296.0 | 2540.2 |
| GR | 294.0 | 2543.1 | 292.0 | 2549.3 | 291.0 | 2584.8 | 291.0 | 2591.8 | 290.0 | 2668.2 |
| GR | 290.0 | 2675.2 | 290.0 | 2751.5 | 290.0 | 2758.5 | 290.0 | 2834.8 | 290.0 | 2841.8 |
| GR | 291.0 | 2918.2 | 291.0 | 2925.2 | 292.0 | 2934.7 | 294.0 | 2939.9 | 296.0 | 2954.4 |
| GR | 296.0 | 2977.8 | 296.0 | 2999.2 | 300.0 | 3001.9 | 306.0 | 3004.5 | 310.0 | 3031.9 |
| GR | 311.0 | 3036.7 | 312.0 | 3041.5 | 314.0 | 3074.7 | 310.0 | 3080.0 | 310.0 | 3180.0 |
| GR | 310.0 | 3238.5 | 320.0 | 3350.0 | 322.0 | 3415.0 | 324.0 | 3490.0 | 326.0 | 3590.0 |
| GR | 328.0 | 3750.0 | 328.0 | 3860.0 | 326.0 | 3970.0 | 324.0 | 4040.0 | 324.0 | 4210.0 |
| GR | 326.0 | 4270.0 | 328.0 | 4325.0 | 330.0 | 4380.0 | | | | |
| NC | 0.04 | 0.055 | 0.14 | | | | | | | |
| ET | | 0 | 8.1 | | | | | 2560.0 | 3070.0 | |
| X1 | 244 | 64 | 2550.5 | 3075.6 | 10 | 10 | 10 | | | |
| GR | 330.0 | 1720.0 | 328.0 | 1730.0 | 326.0 | 1750.0 | 324.0 | 1765.0 | 322.0 | 1800.0 |
| GR | 320.0 | 1940.0 | 318.0 | 1980.0 | 316.0 | 2020.0 | 314.0 | 2050.0 | 312.0 | 2111.7 |
| GR | 310.0 | 2149.8 | 310.0 | 2157.7 | 310.0 | 2251.0 | 310.0 | 2267.6 | 312.0 | 2320.7 |
| GR | 314.0 | 2518.2 | 314.0 | 2535.4 | 312.0 | 2545.0 | 312.0 | 2546.4 | 310.0 | 2550.5 |
| GR | 308.0 | 2557.6 | 306.0 | 2562.4 | 304.0 | 2568.1 | 302.0 | 2573.4 | 300.0 | 2579.0 |
| GR | 298.0 | 2585.3 | 296.0 | 2593.3 | 294.0 | 2609.6 | 293.0 | 2637.6 | 293.0 | 2644.6 |
| GR | 292.0 | 2688.9 | 292.0 | 2721.0 | 292.0 | 2728.0 | 291.0 | 2804.3 | 291.0 | 2811.3 |
| GR | 291.0 | 2887.6 | 291.0 | 2894.6 | 290.0 | 2971.0 | 290.0 | 2978.0 | 290.0 | 3005.0 |
| GR | 292.0 | 3010.4 | 294.0 | 3039.7 | 296.0 | 3046.7 | 298.0 | 3051.9 | 300.0 | 3058.0 |
| GR | 310.0 | 3075.6 | 312.0 | 3078.7 | 316.0 | 3088.0 | 318.0 | 3283.0 | 320.0 | 3382.0 |
| GR | 310.0 | 3647.0 | 320.0 | 3685.0 | 328.0 | 3700.0 | 328.0 | 3800.0 | 328.0 | 3810.0 |
| GR | 326.0 | 3878.0 | 324.0 | 3883.0 | 322.0 | 3888.0 | 320.0 | 3945.0 | 318.0 | 4015.0 |
| GR | 316.0 | 4050.0 | 318.0 | 4125.0 | 320.0 | 4200.0 | 336.0 | 4520.0 | | |
| NC | 0.04 | 0.055 | 0.14 | | | | | | | |
| ET | | 6.1 | 8.1 | | | 100.0 | 1515.0 | 760.0 | 1410.0 | |
| X1 | 245 | 55.0 | 928.4 | 1396.3 | 210.0 | 200.0 | 165.0 | | | |
| GR | 330.0 | 158.8 | 328.0 | 203.0 | 326.0 | 244.5 | 324.0 | 276.7 | 322.0 | 313.6 |
| GR | 320.0 | 380.0 | 318.0 | 410.8 | 316.0 | 447.3 | 314.0 | 493.0 | 312.0 | 535.8 |
| GR | 308.0 | 648.8 | 306.0 | 693.5 | 304.0 | 735.4 | 302.0 | 760.3 | 298.0 | 776.5 |
| GR | 296.0 | 786.2 | 294.0 | 816.6 | 292.0 | 928.4 | 290.0 | 1067.4 | 290.0 | 1374.2 |
| GR | 292.0 | 1396.3 | 294.0 | 1408.0 | 296.0 | 1451.6 | 298.0 | 1461.4 | 298.0 | 1492.8 |
| GR | 296.0 | 1508.5 | 296.0 | 1527.0 | 298.0 | 1536.0 | 300.0 | 1591.3 | 300.0 | 1591.9 |
| GR | 300.0 | 1612.0 | 302.0 | 1617.0 | 304.0 | 1625.9 | 306.0 | 1648.9 | 308.0 | 1670.8 |
| GR | 310.0 | 1676.4 | 310.0 | 1678.4 | 308.0 | 1692.3 | 306.0 | 1707.5 | 304.0 | 1734.3 |
| GR | 302.0 | 1771.4 | 302.0 | 1833.7 | 304.0 | 1856.0 | 306.0 | 1865.7 | 308.0 | 1878.7 |
| GR | 310.0 | 1886.9 | 312.0 | 1891.3 | 314.0 | 1927.9 | 316.0 | 1936.3 | 318.0 | 1942.1 |
| GR | 320.0 | 1950.0 | 330.0 | 1962.9 | 332.0 | 1971.6 | 332.0 | 2064.2 | 330.0 | 2076.3 |

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NC        0         0         0       0.1       0.3
NH        4     0.125    2050.0       .04    2550.8       0.14    2947.3     0.055    3701.7
ET                          8.1                                                2400    3310.0
X1      250        52    2566.7    2740.6     705.0      790.0      740.0
GR    330.0    1762.0     328.0    1791.0     326.0     1829.0     324.0    1887.0     322.0    1980.0
GR    320.0    2050.0     318.0    2153.8     316.0     2187.3     314.0    2194.5     312.0    2244.8
GR    310.0    2282.9     308.0    2358.3     306.0     2411.1     304.0    2450.5     302.0    2460.8
GR    300.0    2470.2     298.0    2478.8     296.0     2550.8     294.0    2566.7     294.0    2567.0
GR    292.0    2570.7     290.0    2677.6     290.0     2719.3     292.0    2733.9     294.0    2740.6
GR    294.0    2740.7     296.0    2760.8     296.0     2947.3     296.0    2972.9     294.0    3000.5
GR    294.0    3022.9     296.0    3054.0     298.0     3089.0     300.0    3130.4     300.0    3144.4
GR    298.0    3185.1     296.0    3192.7     296.0     3221.8     298.0    3249.3     296.0    3439.1
GR    298.0    3444.5     300.0    3452.9     302.0     3468.9     304.0    3495.0     306.0    3516.7
GR    308.0    3536.0     310.0    3542.2     320.0     3564.9     328.0    3580.4     330.0    3586.6
GR    330.0    3657.8     328.0    3701.7

NH        5     0.125    2162.1      0.06    2323.9       0.14    2544.6     0.055    3145.9     0.125
NH   3432.0
ET                  0       8.1                                                2340    2950.0
X1      260        50    2375.2    2544.6    1035.0     1020.0     1025.0
GR    330.0    1180.0     325.0    1530.0     322.0     1660.0     320.0    1700.0     318.0    1850.0
GR    316.0    2025.0     314.0    2030.0     312.0     2162.1     312.0    2242.9     312.0    2273.9
GR    310.0    2323.9     308.0    2334.9     306.0     2346.8     304.0    2353.6     302.0    2368.8
GR    300.0    2375.2     298.0    2409.3     296.0     2425.8     294.0    2436.4     294.0    2436.7
GR    294.0    2480.1     294.0    2480.2     296.0     2491.6     298.0    2530.6     300.0    2544.6
GR    302.0    2601.0     302.0    2634.8     302.0     2684.7     302.0    2743.0     300.0    2774.6
GR    298.0    2795.7     298.0    2809.3     298.0     2825.2     298.0    2856.1     300.0    2866.4
GR    302.0    2905.5     304.0    2921.1     306.0     2962.3     308.0    2975.8     310.0    3014.6
GR    312.0    3039.4     314.0    3096.0     316.0     3124.5     318.0    3131.9     320.0    3140.0
GR    322.0    3142.8     324.0    3145.9     324.0     3266.1     324.0    3330.0     326.0    3432.0

QT        2      49000      49000
NH        5     0.125    2125.8      0.06    2393.6       0.14    2678.6     0.055    3249.6     0.125
NH   3555.0
ET                  0       8.1                                                2270    2990
X1      270        44    2509.5    2678.6     985.0      930.0      965.0
GR    330.0    1280.0     325.0    1480.0     320.0     1600.0     318.0    1669.0     316.0    1755.0
GR    314.0    1945.0     312.0    2125.8     310.0     2228.0     310.0    2393.6     308.0    2417.3
GR    306.0    2450.5     302.0    2477.3     300.0     2509.5     298.0    2526.5     298.0    2592.8
GR    300.0    2630.4     304.0    2678.6     304.0     2720.6     302.0    2739.0     300.0    2802.1
GR    300.0    2883.1     300.0    2900.1     298.0     2906.1     298.0    2961.0     300.0    2970.1
GR    308.0    2994.6     310.0    3071.9     312.0     3096.3     314.0    3142.5     316.0    3164.8
GR    316.0    3178.8     316.0    3229.5     318.0     3233.8     320.0    3239.2     322.0    3249.6
GR    322.0    3347.9     320.0    3371.3     320.0     3373.7     320.0    3377.1     322.0    3435.0
GR    324.0    3544.0     326.0    3549.0     328.0     3551.0     330.0    3555.0

NH        5     0.125     388.0      0.06     548.0       0.14    1290.0     0.055    2038.0     0.125
NH   2380.0
ET                  0       8.1                                                 560    1890.0
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X1      280        49      958.0     1060.0     1045.0     1030.0     1040.0
GR    328.0     118.0     326.0      195.0      324.0      255.0      322.0      310.0      320.0      388.0
GR    318.0     455.0     316.0      493.0      314.0      498.0      312.0      503.0      310.0      520.0
GR    308.0     548.0     306.0      950.0      306.0      958.0      300.0      977.0      300.0     1030.0
GR    302.0    1038.0     304.0     1043.0      306.0     1060.0      306.0     1242.0      304.0     1290.0
GR    304.0    1340.0     302.0     1370.0      304.0     1385.0      306.0     1408.0      306.0     1432.0
GR    304.0    1502.0     304.0     1570.0      306.0     1635.0      306.0     1665.0      304.0     1690.0
GR    302.0    1800.0     300.0     1830.0      300.0     1850.0      302.0     1855.0      304.0     1862.0
GR    306.0    1933.0     308.0     1995.0      310.0     2005.0      312.0     2010.0      314.0     2019.0
GR    316.0    2030.0     318.0     2038.0      318.0     2170.0      320.0     2211.0      322.0     2219.0
GR    324.0    2232.0     326.0     2300.0      328.0     2360.0      330.0     2380.0

NC     0.06     0.055      0.14
ET                 0       8.1                                                  525     2015.0
X1      285        51     706.6      792.2      665.0      680.0      670.0
GR    325.8       0.0     324.0      111.4      322.0      204.5      318.0      284.9      316.0      402.4
GR    314.0     406.6     312.0      564.3      308.0      625.5      306.0      706.6      304.0      713.6
GR    302.0     721.9     302.0      768.4      304.0      774.6      304.0      774.8      306.0      783.7
GR    310.0     792.2     310.0      820.3      306.0      831.0      304.0      909.5      306.0     1062.5
GR    306.0    1231.8     306.0     1288.1      308.0     1337.2      310.0     1352.2      312.0     1376.4
GR    312.0    1405.7     310.0     1409.6      308.0     1512.8      308.0     1601.1      308.0     1616.3
GR    306.0    1785.5     304.0     1816.6      304.0     1841.7      306.0     1982.3      308.0     1993.1
GR    310.0    2008.2     312.0     2039.8      314.0     2079.9      316.0     2135.9      318.0     2157.1
GR    320.0    2174.6     322.0     2204.7      324.0     2220.1      326.0     2227.3      328.0     2237.7
GR    330.0    2241.4     332.0     2247.8      334.0     2257.8      336.0     2266.8      338.0     2277.9
GR    340.0    2307.8

NC     0.04     0.055      0.14
ET                 0       8.1                                                 2560     4154.0
X1      290        81    2655.1     2758.9      645.0      645.0      645.0
GR    330.0    1550.0     328.0     1610.0      326.0     1680.0      324.0     1757.0      322.0     1830.0
GR    320.0    1890.0     320.0     2050.0      318.0     2222.0      316.0     2230.2      316.0     2237.9
GR    318.0    2241.4     318.0     2290.7      316.0     2324.5      314.0     2341.2      312.0     2393.6
GR    312.0    2459.9     312.0     2477.7      310.0     2544.8      308.0     2655.1      306.0     2672.8
GR    304.0    2682.0     302.0     2691.9      302.0     2719.3      304.0     2741.6      304.0     2741.8
GR    306.0    2745.0     308.0     2747.9      310.0     2758.9      308.0     2834.0      308.0     2864.6
GR    310.0    2932.1     310.0     2951.1      310.0     2962.7      310.0     2968.0      308.0     3040.7
GR    308.0    3091.2     310.0     3099.7      310.0     3116.1      308.0     3135.0      308.0     3243.2
GR    310.0    3252.7     312.0     3259.7      314.0     3266.2      316.0     3270.9      318.0     3279.1
GR    320.0    3297.7     318.0     3309.3      316.0     3322.4      314.0     3334.8      312.0     3346.4
GR    310.0    3359.6     308.0     3411.2      306.0     3446.4      308.0     3646.0      310.0     3700.6
GR    314.0    3730.0     314.0     3744.6      312.0     3754.3      310.0     3798.3      308.0     3810.6
GR    310.0    4077.9     312.0     4133.1      314.0     4137.9      316.0     4157.2      318.0     4169.3
GR    320.0    4258.6     322.0     4307.3      324.0     4323.7      326.0     4340.8      328.0     4352.3
GR    330.0    4377.5     332.0     4385.1      334.0     4419.5      336.0     4492.5      338.0     4512.0
GR    340.0    4563.8     342.0     4650.1      344.0     4715.6      346.0     4746.7      348.0     4761.2
GR    348.0    4861.4

NH        5     0.125     2037.0       0.04     2536.2       0.14     2749.7      0.055     4600.0      0.125
NH   4970.0
ET                6.1       8.1                          2340.0     4140.0       2540     4014.0
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X1      300         80     2536.2     2708.7       655.0       670.0       660.0
GR    330.0     1520.0      328.0     1596.0       326.0      1600.0       324.0      1750.0       322.0      1759.0
GR    320.0     2037.0      318.0     2261.7       316.0      2362.4       314.0      2425.6       312.0      2536.2
GR    308.0     2597.1      306.0     2620.7       306.0      2648.3       308.0      2667.9       312.0      2686.7
GR    314.0     2708.7      314.0     2749.7       312.0      2772.3       310.0      2798.1       308.0      2823.3
GR    308.0     2917.1      308.0     2989.5       308.0      3029.4       308.0      3049.3       308.0      3090.7
GR    308.0     3096.6      310.0     3151.2       312.0      3254.8       312.0      3258.8       312.0      3289.5
GR    312.0     3415.7      314.0     3465.6       316.0      3469.2       318.0      3471.7       318.0      3481.0
GR    316.0     3491.1      314.0     3500.1       314.0      3528.6       316.0      3536.7       318.0      3545.1
GR    320.0     3548.4      322.0     3554.1       322.0      3569.0       320.0      3574.4       318.0      3584.7
GR    316.0     3594.2      314.0     3607.1       312.0      3618.5       312.0      3634.5       312.0      3736.6
GR    312.0     3852.4      312.0     3897.2       310.0      3904.3       308.0      3907.9       308.0      3966.7
GR    312.0     4002.1      314.0     4006.7       316.0      4010.8       318.0      4022.5       320.0      4028.6
GR    320.0     4053.6      320.0     4083.9       320.0      4114.5       320.0      4148.3       320.0      4199.1
GR    318.0     4210.5      316.0     4222.5       316.0      4260.1       318.0      4362.2       320.0      4437.5
GR    322.0     4445.4      324.0     4453.2       326.0      4461.8       326.0      4472.2       324.0      4481.0
GR    324.0     4600.0      324.0     4750.0       326.0      4875.0       328.0      4955.0       330.0      4970.0

NC     0.04      0.055       0.14
ET                 6.1         8.1                             2460.0      4230.0         2650      4000.0
        CONFLUENCE WITH SYCAMORE CREEK
X1      310         60     2698.4     2822.3       620.0       600.0       610.0
GR    330.0     1530.0      328.0     1565.0       326.0      1682.0       324.0      2100.0       324.0      2102.5
GR    322.0     2202.8      320.0     2315.0       320.0      2355.0       318.0      2455.0       316.0      2580.0
GR    314.0     2698.4      312.0     2738.8       310.0      2752.5       308.0      2761.7       308.0      2773.1
GR    310.0     2793.7      312.0     2798.9       314.0      2811.2       316.0      2822.3       316.0      2833.7
GR    314.0     2843.4      312.0     2851.5       310.0      2944.2       310.0      2978.5       310.0      3016.0
GR    310.0     3032.5      312.0     3085.0       312.0      3099.4       312.0      3160.0       312.0      3297.0
GR    312.0     3324.1      312.0     3343.1       310.0      3422.3       310.0      3422.5       312.0      3462.6
GR    312.0     3549.5      312.0     3553.5       314.0      3569.6       312.0      3686.9       310.0      3695.8
GR    308.0     3710.0      308.0     4070.0       310.0      4130.0       312.0      4191.2       314.0      4198.4
GR    316.0     4207.2      318.0     4215.0       320.0      4234.2       318.0      4662.2       316.0      4670.3
GR    316.0     4679.2      318.0     4685.6       320.0      4801.6       320.0      4805.3       320.0      4906.2
GR    322.0     5240.0      324.0     5415.0       326.0      5650.0       328.0      6065.0       330.0      6240.0

NC     0.04      0.055       0.14
ET                 6.1         8.1                              950.0      2300.0      1030.0      2150.0
        CONFLUENCE WITH FORRESTER CREEK
X1      320          43      988.7     1300.0       665.0       840.0       750.0
GR    328.0      180.8      328.0      185.1       328.0       185.1       326.0       192.2       326.0       192.2
GR    324.0      205.3      322.0      220.2       322.0       224.7       320.0       234.1       318.0       251.7
GR    316.0      282.5      314.0      309.3       312.0       454.2       316.0       680.0       310.0       730.0
GR    318.0      765.0      318.0      968.3       316.0       988.7       314.0      1009.1       312.0      1023.2
GR    310.0     1060.0      310.0     1115.0       312.0      1300.0       316.0      1477.9       314.0      1512.5
GR    314.0     1669.5      316.0     1785.6       316.0      1960.5       316.0      2203.0       316.0      2220.5
GR    318.0     2265.2      320.0     2274.9       322.0      2286.6       324.0      2288.4       326.0      2292.2
GR    326.0     2358.1      324.0     2396.8       324.0      2423.1       324.0      2449.8       324.0      2697.0
GR    326.0     2905.0      328.0     3290.0       330.0      3865.0
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QT        2      48000      48000
NC     0.06       0.06      0.085
ET                  6.1        8.1                          1280.0      2300.0        1370      2250.0
X1      330       53.0     1760.0     1917.0       870.0       700.0       780.0
GR    328.0      105.6      326.0      212.4       326.0       248.3       328.0       289.1       328.0       289.1
GR    328.0      336.2      328.0      336.2       326.0       339.6       324.0       358.2       322.0       490.2
GR    320.0      585.0      318.0      622.0       316.0       629.0       314.0       636.0       312.0       640.0
GR    312.0      679.0      314.0      682.1       316.0       686.2       318.0       689.7       320.0       693.1
GR    322.0      699.6      324.0      990.1       326.0      1003.5       328.0      1176.8       330.0      1185.3
GR    330.0     1278.5      328.0     1292.7       326.0      1316.0       324.0      1326.0       322.0      1332.0
GR    320.0     1340.0      318.0     1347.0       316.0      1352.0       314.0      1393.0       314.0      1760.0
GR    312.0     1770.0      312.0     1910.0       314.0      1917.0       316.0      1925.3       316.0      1929.3
GR    314.0     2113.3      316.0     2239.8       318.0      2264.8       320.0      2271.8       322.0      2278.2
GR    324.0     2283.0      326.0     2310.9       328.0      2319.4       330.0      2480.0       328.0      2492.6
GR    328.0     2590.5      330.0     2632.1       332.0      2667.4

NC     0.06       0.06      0.085
ET                  6.1        8.1                          1200.0      2180.0        1220      2180.0
X1      340       58.0     1410.0     1843.2       520.0       505.0       505.0
GR    326.0      129.4      326.0      194.9       324.0       207.9       322.0       368.5       320.0       374.7
GR    318.0      387.3      316.0      393.1       320.0       454.2       322.0       461.0       324.0       466.8
GR    326.0      493.4      326.0      583.0       326.0       668.9       326.0       685.7       326.0       728.0
GR    326.0      794.9      326.0      831.2       326.0      1049.6       326.0      1089.2       328.0      1122.7
GR    328.0     1171.1      326.0     1192.0       324.0      1221.3       322.0      1226.0       320.0      1233.0
GR    318.0     1245.0      316.0     1250.0       316.0      1391.0       318.0      1399.0       320.0      1410.0
GR    318.0     1433.0      316.0     1440.0       314.0      1450.0       312.0      1513.0       310.0      1528.0
GR    310.0     1548.0      310.0     1670.0       312.0      1690.0       314.0      1695.0       316.0      1705.0
GR    318.0     1843.2      318.0     1890.7       316.0      1903.5       314.0      1909.3       316.0      2190.0
GR    318.0     2199.2      320.0     2211.0       322.0      2219.6       324.0      2228.2       328.0      2260.3
GR    326.0     2261.5      330.0     2307.8       332.0      2363.1       332.0      2452.5       332.0      2466.5
GR    332.0     2507.3      332.0     2524.9       334.0      2579.9

NC     0.06       0.06      0.085
ET                  6.1        8.1                          1210.0      2270.0        1300      2270.0
X1      345       71.0     1509.8     1995.5       320.0       250.0       280.0
GR    328.0      121.6      328.0      195.4       328.0       197.1       328.0       205.9       326.0       217.1
GR    324.0      302.0      324.0      332.2       326.0       361.0       326.0       372.0       324.0       378.0
GR    322.0      383.8      320.0      391.6       320.0       438.3       322.0       442.1       324.0       445.2
GR    326.0      446.6      328.0      453.5       328.0       582.7       328.0       587.1       328.0       619.2
GR    328.0      630.9      328.0      855.7       326.0       989.7       326.0      1086.9       326.0      1148.5
GR    324.0     1188.9      322.0     1212.2       320.0      1312.0       318.0      1318.0       316.0      1330.0
GR    316.0     1445.0      318.0     1452.0       320.0      1490.1       322.0      1497.6       322.0      1509.8
GR    320.0     1515.6      316.0     1530.7       314.0      1582.0       314.0      1668.0       312.0      1783.0
GR    312.0     1834.0      314.0     1841.0       316.0      1851.0       318.0      1860.0       318.0      1934.1
GR    318.0     1966.8      320.0     1976.4       322.0      1986.7       324.0      1995.5       324.0      2065.9
GR    322.0     2086.6      320.0     2101.4       318.0      2107.1       316.0      2111.7       318.0      2265.9
GR    320.0     2279.5      320.0     2339.1       318.0      2355.0       318.0      2362.5       320.0      2373.9
GR    322.0     2384.1      324.0     2391.7       326.0      2422.8       328.0      2436.8       330.0      2448.2
GR    332.0     2567.8      332.0     2583.1       332.0      2692.6       334.0      2726.2       336.0      2767.6
GR    338.0     2808.6
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NC     0.06       0.06      0.085        0.3        0.5
ET                 6.1        8.1                          1370.0      2370.0        1500      2370.0
X1      355        44.0     1731.4     2253.8       275.0       295.0       285.0
GR    328.1       132.4      328.1      151.4       322.0       174.5       328.0       407.0       330.0       527.2
GR    330.0       673.5      328.0      955.5       326.0      1275.4       324.0      1336.9       322.0      1491.7
GR    320.0      1530.6      320.0     1695.0       322.0      1702.4       322.0      1731.4       320.0      1735.2
GR    318.0      1738.1      316.0     1830.0       316.0      2035.0       314.0      2044.0       314.0      2075.0
GR    316.0      2088.0      318.0     2121.1       318.0      2175.9       318.0      2233.6       320.0      2240.9
GR    322.0      2253.8      322.0     2286.8       320.0      2302.5       318.0      2305.5       318.0      2416.9
GR    320.0      2429.4      322.0     2486.5       322.0      2527.9       320.0      2572.0       320.0      2633.9
GR    322.0      2656.8      324.0     2681.1       326.0      2773.1       328.0      2858.1       330.0      2956.9
GR    330.0      2974.1      332.0     2988.9       334.0      3095.7       334.0      3105.5

NC     0.06       0.06      0.085
ET                 6.1        8.1                          1340.0      2290.0        1520        2290
X1      356        52.0     1836.0     2258.2       250.0       250.0       250.0
X3       10
GR    330.0       270.0      328.0      521.0       326.0       767.7       326.0       773.5       326.0       795.9
GR    326.0       805.9      326.0      961.7       324.0      1053.5       324.0      1110.4       324.0      1123.6
GR    324.0      1496.7      326.0     1678.4       326.0      1787.6       324.0      1794.7       322.0      1813.4
GR    320.0      1822.3      318.0     1829.3       316.0      1836.0       316.0      1864.3       317.0      1871.3
GR    318.0      1906.3      318.0     1913.3       318.0      1946.8       318.0      1956.8       318.0      1990.3
GR    318.0      1997.3      318.0     2032.3       318.0      2039.3       318.0      2074.3       318.0      2081.3
GR    316.0      2110.0      318.0     2114.8       318.0      2121.0       318.0      2124.8       318.0      2158.3
GR    318.0      2165.3      318.0     2200.3       318.0      2207.3       318.0      2242.3       319.0      2249.3
GR    320.0      2258.2      322.0     2267.5       324.0      2277.0       326.0      2278.4       328.0      2284.1
GR    328.0      2342.9      326.0     2455.2       326.0      2673.1       328.0      2756.9       330.0      2870.0
GR    332.0      3004.7      334.0     3069.9

NC     0.06       0.03       0.04
SB      0.9        1.6       2.75          0       450.0        77.0      3112.0           2       318.0       318.0
ET                6.11       8.11                          1340.0      2300.0        1510        2300
        CARLTON HILLS BLVD BRIDGE  (SPECIAL BRIDGE ROUTINE)
X1      358         45     1850.0     2278.4        65.0        65.0        65.0
X2        0          0          1      326.0       324.0           0           0           0           0           0
X3       10          0          0          0           0           0           0           0           0           0
BT      -15      430.0      328.0      328.0       780.0       326.0       326.0      1090.0       324.0       324.0
BT             1496.7      324.0      324.0      1678.4       327.0       326.0      1787.6       328.9       326.0
BT             2278.4      329.0      326.0      2284.1       328.9       328.0      2342.9       328.0       328.0
BT             2490.0      326.0      326.0      2640.1       326.0       326.0      2756.9       328.0       328.0
BT             2870.0      330.0      330.0      3030.0       332.0       332.0      3110.0       334.0       334.0
GR    328.0       430.0      326.0      780.0       324.0      1090.0       324.0      1496.7       326.0      1678.4
GR    326.0      1787.6      324.0     1794.7       322.0      1813.4       320.0      1822.3       318.0      1829.3
GR    316.0      1850.0      316.0     1864.3       317.0      1871.3       317.0      1906.3       318.0      1913.3
GR    318.0      1946.8      318.0     1956.8       318.0      1990.3       318.0      1997.3       318.0      2032.3
GR    318.0      2039.3      318.0     2074.3       318.0      2081.3       316.0      2110.0       318.0      2114.8
GR    318.0      2121.0      318.0     2124.8       318.0      2158.3       318.0      2165.3       318.0      2200.3
GR    318.0      2207.3      318.0     2242.3       319.0      2249.3       320.0      2258.2       322.0      2267.5
GR    324.0      2277.0      326.0     2278.4       328.0      2284.1       328.0      2342.9       326.0      2490.0
GR    326.0      2640.0      328.0     2756.9       330.0      2870.0       332.0      3030.0       334.0      3110.0
```

```
NC     0.06      0.085      0.085
ET                6.1        8.1                          1530.0      2600.0        1565        2435
X1      360       35.0     2187.0     2382.9       335.0       355.0       345.0
GR    330.0      275.8      328.0      424.1       326.0      1248.3       326.0      1356.6       326.0      1544.0
GR    324.0     1558.2      322.0     1570.1       320.0      1575.0       318.0      1879.0       318.0      1920.0
GR    316.0     1933.3      316.0     2012.0       320.0      2112.8       320.0      2187.0       318.0      2200.0
GR    318.0     2356.8      320.0     2382.9       322.0      2395.5       324.0      2406.1       326.0      2412.3
GR    328.0     2438.3      328.0     2460.9       326.0      2525.5       324.0      2540.0       322.0      2549.1
GR    322.0     2624.0      324.0     2726.5       326.0      2779.5       328.0      2795.5       330.0      2805.8
GR    332.0     2819.3      334.0     2827.7       336.0      2891.8       338.0      3130.9       340.0      3190.3

NC     0.06      0.085      0.085        0.1         0.3
ET                6.1        8.1                          1470.0      2820.0      1470.0        2500
X1      370       44.0     2234.1     2326.4       345.0       350.0       345.0
GR    330.0      149.4      328.0      349.9       328.0       355.0       328.0       360.9       328.0       514.3
GR    328.0      816.5      326.0      846.9       324.0       870.6       322.0       913.9       322.0       984.9
GR    324.0     1004.3      326.0     1014.1       326.0      1049.3       326.0      1077.6       326.0      1245.4
GR    326.0     1248.2      326.0     1279.9       326.0      1282.3       326.0      1388.8       324.0      1421.2
GR    320.0     1541.9      320.0     1573.2       320.0      1590.2       318.0      1630.0       318.0      1725.0
GR    320.0     1835.0      320.0     2154.6       320.0      2203.7       320.0      2234.1       318.0      2243.0
GR    318.0     2313.0      320.0     2326.4       322.0      2340.6       322.0      2387.8       322.0      2642.0
GR    324.0     2740.0      326.0     2768.0       328.0      2805.0       330.0      2812.0       332.0      2821.0
GR    334.0     2889.0      336.0     3030.0       338.0      3135.0       340.0      3266.0

NC     0.06      0.085      0.085
ET                6.1        8.1                          1540.0      2960.0      1540.0        2625
X1      380        60      2380.9     2436.4       320.0       320.0       320.0
GR    335.0       0.0      334.0       95.0       332.0       395.4       330.0       414.4       330.0       476.9
GR    330.0      528.2      330.0      778.2       330.0       880.6       328.0       894.6       326.0       927.8
GR    324.0      975.1      324.0     1076.0       326.0      1107.4       328.0      1122.8       330.0      1165.2
GR    330.0     1214.1      330.0     1487.9       330.0      1533.6       328.0      1545.8       326.0      1553.1
GR    324.0     1557.9      322.0     1566.1       320.0      1758.3       318.0      1764.9       318.0      1792.8
GR    320.0     1806.1      320.0     1859.6       320.0      1872.8       320.0      1931.1       320.0      1967.5
GR    322.0     2063.7      324.0     2067.2       326.0      2082.5       328.0      2095.9       328.0      2156.1
GR    326.0     2164.9      324.0     2175.2       322.0      2185.4       320.0      2198.5       320.0      2262.3
GR    320.0     2380.9      318.0     2387.6       318.0      2425.8       318.0      2426.4       318.0      2426.7
GR    320.0     2436.4      322.0     2457.0       322.0      2585.1       322.0      2817.3       324.0      2918.0
GR    326.0     2943.0      328.0     2954.1       330.0      2962.7       332.0      2970.9       334.0      3048.8
GR    334.0     3201.4      334.0     3225.7       334.0      3250.0       334.0      3273.6       342.0      3413.7

NC     0.06      0.085      0.085
ET                6.1        8.1                          1680.0        2740      1730.0        2620
X1      390       45.0     2250.0     2402.0       520.0       520.0       520.0
GR    336.0      100.0      336.0      273.0       336.0       510.0       336.0       800.0       334.0       810.0
GR    332.0      890.0      330.0     1000.0       332.0      1270.0       332.0      1540.0       330.0      1552.0
GR    328.0     1562.0      326.0     1590.0       324.0      1603.0       322.0      1661.0       322.0      1728.0
GR    322.0     1775.0      320.0     1781.0       318.0      1822.0       318.0      1859.0       320.0      1862.0
GR    322.0     1908.0      322.0     2195.0       324.0      2220.0       324.0      2250.0       322.0      2315.0
GR    320.0     2327.0      318.0     2337.0       318.0      2380.0       320.0      2389.0       322.0      2396.0
GR    324.0     2402.0      324.0     2780.0       322.0      2795.0       322.0      2982.0       324.0      3008.0
GR    326.0     3019.0      328.0     3025.0       330.0      3035.0       332.0      3042.0       334.0      3049.0
GR    336.0     3060.0      338.0     3110.0       336.0      3278.0       336.0      3480.0       340.0      3490.0
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NC     0.04       0.04      0.075
ET                 6.1        8.1                          1749.0        2605      1820.0        2585
        DOWNSTREAM END MISSION CREEK DEVELOPMENT
X1       400          41     1877.6     2531.6       705.0        495.0       540.0
GR     338.0         0.0      336.0      236.4       334.0        957.0       332.0       972.3       332.0      1180.4
GR     332.0      1508.0      330.0     1641.2       328.0       1671.9       326.0      1712.6       324.0      1759.2
GR     324.0      1792.6      326.0     1801.2       328.0       1806.5       328.0      1836.3       326.0      1845.9
GR     324.0      1857.9      322.0     1870.4       320.0       1877.6       318.0      1888.9       318.0      2400.6
GR     320.0      2531.6      322.0     2547.9       324.0       2556.9       326.0      2565.0       328.0      2575.5
GR     330.0      2587.7      330.0     2630.0       331.0       2680.0       333.0      2820.0       325.0      2925.0
GR     324.0      3153.7      326.0     3185.0       328.0       3195.3       330.0      3323.2       332.0      3352.4
GR     334.0      3366.1      336.0     3386.9       338.0       3409.9       340.0      3428.3       342.0      3444.8
GR     344.0      3506.3

NH         4       0.125     2329.0       0.04      3065.3       0.065      3645.9        0.04      5376.7
ET                   6.1        8.1                          2970.0        3720      2970.5        3710
X1       410          46     3065.3     3645.9       672.0        726.0       700.0
GR     340.0         930.0      338.0     1205.0       336.0       1335.0       336.0      1760.0       336.0      2329.0
GR     336.0      2523.4      336.0     2540.8       334.0       2618.2       332.0      2807.8       332.0      2898.9
GR     332.0      2943.8      330.0     3015.9       328.0       3024.1       326.0      3034.7       324.0      3043.6
GR     322.0      3053.5      320.0     3065.3       318.0       3081.7       318.0      3558.9       320.0      3645.9
GR     322.0      3656.9      324.0     3667.7       326.0       3675.2       328.0      3684.9       330.0      3699.4
GR     332.0      3715.9      333.0     3755.0       334.0       3860.0       333.0      4020.0       333.0      4120.0
GR     334.0      4170.0      335.0     4230.0       333.0       4300.0       336.0      4380.0       335.0      4510.0
GR     333.0      4760.0      334.0     4840.0       333.0       4900.0       337.0      5000.0       337.0      5080.0
GR     336.0      5120.0      337.0     5170.0       338.0       5260.0       338.0      5269.2       340.0      5281.8
GR     340.0      5376.7

NH         4       0.125     2616.7       0.04      3252.3       0.065      3865.0        0.04      5263.5
ET                   6.1        8.1                          3200.0        3945      3200.0        3945.0
X1       415          40     3252.3     3865.0       765.0        800.0       780.0
GR     340.0         940.0      338.0     1132.0       338.0       1245.0       336.0      1772.0       336.0      2616.7
GR     338.0      2647.1      338.0     2816.3       336.0       2850.7       334.0      2899.9       332.0      3198.5
GR     330.0      3207.0      328.0     3214.0       326.0       3221.8       324.0      3232.7       322.0      3244.9
GR     320.0      3252.3      318.0     3270.4       318.0       3533.8       320.0      3538.4       320.0      3567.0
GR     318.0      3578.2      318.0     3739.3       320.0       3865.0       322.0      3882.3       324.0      3895.0
GR     326.0      3908.4      328.0     3915.9       330.0       3937.1       332.0      3945.0       331.0      4320.0
GR     335.0      4330.0      334.0     4435.0       334.0       4575.0       335.0      4715.0       333.0      4930.0
GR     334.0      5080.0      334.0     5130.0       338.0       5160.0       340.0      5183.8       340.0      5263.5

NH         4       0.125     2200.0       0.04      3467.1       0.075      3988.9        0.04      5306.6
ET                   6.1        8.1                          3378.9        4065      3411.5        4065
X1       420          54     3467.1     3988.9       480.0        480.0       480.0
GR     340.0      1100.0      338.0     1210.0       338.0       1695.0       338.0      2200.0       338.0      2595.0
GR     340.0      2628.1      342.0     2709.7       342.0       2717.4       340.0      2781.4       338.0      2791.8
GR     336.0      2796.5      336.0     3236.7       338.0       3240.6       340.0      3248.5       342.0      3378.9
GR     342.0      3387.0      340.0     3392.3       338.0       3397.4       336.0      3401.5       334.0      3407.4
GR     332.0      3414.4      330.0     3420.1       328.0       3428.7       326.0      3435.2       324.0      3445.0
GR     322.0      3454.6      320.0     3467.1       318.0       3492.9       318.0      3634.8       320.0      3642.3
GR     322.0      3651.5      322.0     3741.8       320.0       3758.6       318.0      3766.4       318.0      3891.7
GR     320.0      3988.9      322.0     4008.9       324.0       4018.8       326.0      4031.9       328.0      4038.0
GR     330.0      4049.3      332.0     4057.5       333.0       4075.0       334.0      4205.0       334.0      4285.0
GR     334.0      4340.0      334.0     4445.0       335.0       4610.0       335.0      4720.0       335.0      4880.0
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GR    336.0     5005.0      336.0     5075.0       334.0      5090.0       342.0      5306.6
NC     0.04       0.04       0.05
ET                   0        8.1                                                    2617        3057
X1      421         63.0     2650.0     3049.1       375.0       375.0       375.0
GR    340.0      302.7      340.0      591.8       340.0       719.1       340.0      1070.0       340.0      1093.6
GR    340.0     1099.7      340.0     1139.2       340.0      1478.6       340.0      1590.3       340.0      1920.7
GR    342.0     2207.1      344.0     2445.7       344.0      2588.2       342.0      2593.0       340.0      2600.3
GR    338.0     2606.1      336.0     2609.4       334.0      2614.9       332.0      2617.7       330.0      2624.7
GR    328.0     2627.8      326.0     2640.4       325.0      2650.0       325.0      2666.7       324.0      2680.6
GR    324.0     2701.7      324.0     2708.7       324.0      2742.2       324.0      2752.2       324.0      2785.7
GR    324.0     2792.7      324.0     2827.7       324.0      2834.7       324.0      2869.7       324.0      2876.7
GR    324.0     2910.2      324.0     2920.2       324.0      2953.7       324.0      2960.7       324.0      2995.7
GR    324.0     3002.7      324.0     3024.8       325.0      3037.7       326.0      3044.7       328.0      3049.1
GR    330.0     3052.6      332.0     3056.2       334.0      3058.6       336.0      3062.2       338.0      3073.0
GR    340.0     3081.4      342.0     3085.6       344.0      3153.8       344.0      3220.9       342.0      3349.9
GR    340.0     3643.4      339.0     3825.0       339.0      3866.7       340.0      4418.3       342.0      4554.5
GR    344.0     4615.8      346.0     4685.8       348.0      4726.0
NC     0.04       0.04       0.03        0.3         0.5
ET                   0        8.1                                                    2617        3057
       CUYAMACA BRIDGE - UPSTREAM END OF MISSION CREEK  DEVELOPMENT
       (NORMAL BRIDGE ROUTINE)
X1      422          56     2645.0     3044.7        10.0        10.0        10.0
BT      -53      2445.7      344.0      344.0      2588.2       344.9       344.0      2593.0       345.0       342.0
BT               2600.3      345.0      342.0      2617.7       345.0       342.0      2617.7       345.0       332.0
BT               2624.7      345.0      330.0      2624.7       345.0       342.0      2659.7       345.0       342.0
BT               2659.7      345.0      325.0      2666.7       345.0       325.0      2666.7       345.0       342.0
BT               2701.7      345.0      342.0      2701.7       345.0       324.0      2708.7       345.0       324.0
BT               2708.7      345.0      342.0      2742.2       345.0       342.0      2742.2       345.0       324.0
BT               2752.2      345.0      324.0      2752.2       345.0       342.0      2785.7       345.0       342.0
BT               2785.7      345.0      324.0      2792.7       345.0       324.0      2792.7       345.0       342.0
BT               2827.7      345.0      342.0      2827.7       345.0       324.0      2834.7       345.0       324.0
BT               2834.7      345.0      342.0      2869.7       345.0       342.0      2869.7       345.0       324.0
BT               2876.7      345.0      324.0      2876.7       345.0       342.0      2910.2       345.0       342.0
BT               2910.2      345.0      324.0      2920.2       345.0       324.0      2920.2       345.0       342.0
BT               2953.7      345.0      342.0      2953.7       345.0       324.0      2960.7       345.0       324.0
BT               2960.7      345.0      342.0      2995.7       345.0       342.0      2995.7       345.0       324.0
BT               3002.7      345.0      324.0      3002.7       345.0       342.0      3037.7       345.0       342.0
BT               3037.7      345.0      325.0      3044.7       345.0       326.0      3044.7       345.0       342.0
BT               3073.0      345.0      342.0      3081.4       344.9       342.0      3085.6       344.9       342.0
BT               3153.8      344.5      344.0      3220.9       344.0       344.0
GR    340.0         0.0      340.0     1995.0       342.0      2250.0       344.0      2445.7       344.0      2588.2
GR    342.0     2593.0      340.0     2600.3       338.0      2606.1       336.0      2609.4       334.0      2614.9
GR    332.0     2617.7      330.0     2624.7       328.0      2627.8       326.0      2645.0       325.0      2659.7
GR    325.0     2666.7      324.0     2680.6       324.0      2701.7       324.0      2708.7       324.0      2742.2
GR    324.0     2752.2      324.0     2785.7       324.0      2792.7       324.0      2827.7       324.0      2834.7
GR    324.0     2869.7      324.0     2876.7       324.0      2910.2       324.0      2920.2       324.0      2953.7
GR    324.0     2960.7      324.0     2995.7       324.0      3002.7       324.0      3024.8       325.0      3037.7
GR    326.0     3044.7      328.0     3049.1       330.0      3052.6       332.0      3056.2       334.0      3058.6
GR    336.0     3062.2      338.0     3073.0       340.0      3081.4       342.0      3085.6       344.0      3153.8
GR    344.0     3220.9      342.0     3349.9       340.0      3650.0       339.0      4000.0       340.0      4200.0
GR    342.0     4440.0      344.0     4600.0       346.0      4675.0       348.0      4726.0       350.0      4765.0
GR    360.0     4940.0
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NC     0.04       0.04       0.03
ET                   0        8.1                                                    4616        5058
X1      423         61     4645.0     5044.7       65.0       65.0       65.0
BT      -53     4445.7      344.0      344.0     4588.2      344.9      344.0     4593.0      345.0      342.0
BT          4600.3      345.0      342.0     4617.7      345.0      342.0     4617.7      345.0      332.0
BT          4624.7      345.0      330.0     4624.7      345.0      342.0     4659.7      345.0      342.0
BT          4659.7      345.0      325.0     4666.7      345.0      325.0     4666.7      345.0      342.0
BT          4701.7      345.0      342.0     4701.7      345.0      324.0     4708.7      345.0      324.0
BT          4708.7      345.0      342.0     4742.2      345.0      342.0     4742.2      345.0      324.0
BT          4752.2      345.0      324.0     4752.2      345.0      342.0     4785.7      345.0      342.0
BT          4785.7      345.0      324.0     4792.7      345.0      324.0     4792.7      345.0      342.0
BT          4827.7      345.0      342.0     4827.7      345.0      324.0     4834.7      345.0      324.0
BT          4834.7      345.0      342.0     4869.7      345.0      342.0     4869.7      345.0      324.0
BT          4876.7      345.0      324.0     4876.7      345.0      342.0     4910.2      345.0      342.0
BT          4910.2      345.0      324.0     4920.2      345.0      324.0     4920.2      345.0      342.0
BT          4953.7      345.0      342.0     4953.7      345.0      324.0     4960.7      345.0      324.0
BT          4960.7      345.0      342.0     4995.7      345.0      342.0     4995.7      345.0      324.0
BT          5002.7      345.0      324.0     5002.7      345.0      342.0     5037.7      345.0      342.0
BT          5037.7      345.0      325.0     5044.7      345.0      326.0     5044.7      345.0      342.0
BT          5073.0      345.0      342.0     5081.4      344.9      342.0     5085.6      344.9      342.0
BT          5153.8      344.5      344.0     5220.9      344.0      344.0
GR     350.0       600.0      348.0       780.0      346.0     1090.0      344.0     1300.0      342.0     1545.0
GR     340.0      1790.0      340.0      3995.0      342.0     4250.0      344.0     4445.7      344.0     4588.2
GR     342.0      4593.0      340.0      4600.3      338.0     4606.1      336.0     4609.4      334.0     4614.9
GR     332.0      4617.7      330.0      4624.7      328.0     4627.8      326.0     4645.0      325.0     4659.7
GR     325.0      4666.7      324.0      4680.6      324.0     4701.7      324.0     4708.7      324.0     4742.2
GR     324.0      4752.2      324.0      4785.7      324.0     4792.7      324.0     4827.7      324.0     4834.7
GR     324.0      4869.7      324.0      4876.7      324.0     4910.2      324.0     4920.2      324.0     4953.7
GR     324.0      4960.7      324.0      4995.7      324.0     5002.7      324.0     5024.8      325.0     5037.7
GR     326.0      5044.7      328.0      5049.1      330.0     5052.6      332.0     5056.2      334.0     5058.6
GR     336.0      5062.2      338.0      5073.0      340.0     5081.4      342.0     5085.6      344.0     5153.8
GR     344.0      5220.9      342.0      5349.9      340.0     5650.0      339.0     6000.0      340.0     6200.0
GR     342.0      6440.0      344.0      6600.0      346.0     6675.0      348.0     6726.0      350.0     6765.0
GR     360.0      6940.0

NH         4       0.125     2035.0        0.04     4613.8        0.05     5104.2        0.04     6952.0
ET                     0        8.1                                                    4633        5082
X1       424         69     4658.9     5055.0       10.0       10.0       10.0
GR     350.0       580.0      348.0       750.0      348.0     1080.0      346.0     1150.0      346.0     1370.0
GR     344.0      1575.0      342.0      1580.0      342.0     1800.0      340.0     2035.0      340.0     2132.2
GR     340.0      2145.0      340.0      2380.5      340.0     3990.8      342.0     4119.1      344.0     4360.6
GR     344.0      4609.4      342.0      4613.8      340.0     4620.1      338.0     4624.0      336.0     4628.1
GR     334.0      4631.9      332.0      4638.5      331.0     4643.2      329.0     4650.2      328.0     4654.6
GR     326.0      4658.9      326.0      4685.2      326.0     4692.2      326.0     4727.2      326.0     4734.2
GR     326.0      4767.7      326.0      4777.7      326.0     4811.2      326.0     4818.2      326.0     4853.2
GR     326.0      4860.2      326.0      4895.2      326.0     4902.2      326.0     4935.7      326.0     4945.7
GR     326.0      4979.2      326.0      4986.2      326.0     5021.2      326.0     5028.2      326.0     5055.0
GR     327.0      5063.2      328.0      5070.2      330.0     5075.7      332.0     5080.9      334.0     5082.8
GR     336.0      5089.5      338.0      5094.7      340.0     5097.0      342.0     5104.2      344.0     5110.0
GR     344.0      5259.8      342.0      5451.8      340.0     5618.0      340.0     5725.4      339.0     5804.5
GR     339.0      5968.7      340.0      6027.7      340.0     6173.6      342.0     6449.1      344.0     6595.1
GR     346.0      6870.0      348.0      6910.0      350.0     6930.0      358.0     6952.0
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NH        4      0.125     2041.0      0.045     4805.9       0.075     5113.2       0.045     6961.0
ET                 6.1        8.1                            4365.0     5270.0        4420     5270.0
X1      425         39     4805.9     5113.2       285.0       215.0       225.0
GR    350.0     1185.0      348.0     1262.0       346.0      1390.0       344.0      1890.0       342.0      2041.0
GR    340.0     2142.0      338.0     2150.0       335.9      3406.5       334.0      3428.9       334.0      3510.7
GR    335.9     3568.7      338.0     3680.0       338.0      4166.4       338.0      4189.8       338.0      4366.3
GR    336.0     4371.5      334.0     4381.6       332.0      4456.4       330.0      4626.7       328.0      4805.9
GR    326.0     4838.8      326.0     4902.3       326.0      4999.7       326.0      5043.9       328.0      5113.2
GR    330.0     5344.6      332.0     5451.5       334.0      5583.1       334.0      5617.4       334.0      5729.9
GR    336.0     6044.3      338.0     6089.0       340.0      6181.4       342.0      6428.1       344.0      6890.0
GR    346.0     6935.0      348.0     6942.0       350.0      6948.0       356.0      6961.0

NC        0          0          0        0.1         0.3
NH        4      0.125     2555.0      0.045     5520.6       0.075     5704.9       0.045     7548.0
ET                 6.1        8.1                            4540.0     6200.0        4860     5860.0
X1      430         37     5520.6     5704.9       495.0       465.0       470.0
GR    350.0     1340.0      346.0     1807.0       346.0      2122.0       344.0      2253.0       344.0      2412.0
GR    342.0     2555.0      340.0     2657.0       338.0      3921.0       336.0      3959.0       336.0      4058.5
GR    336.0     4473.2      336.0     4516.0       338.0      4556.7       338.0      4811.0       336.0      4905.8
GR    336.0     5036.3      336.0     5322.7       334.0      5369.8       332.0      5505.1       330.0      5511.1
GR    328.0     5520.6      326.0     5536.0       326.0      5665.0       328.0      5704.9       330.0      5717.6
GR    330.0     5849.9      330.0     6295.6       332.0      6315.9       334.0      6349.1       336.0      6378.4
GR    338.0     6557.5      340.0     6787.6       342.0      7019.6       344.0      7440.0       346.0      7530.0
GR    348.0     7540.0      350.0     7548.0

QT        2      46000      46000
NH        4      0.125     2030.0      0.045     5118.7       0.075     5291.8       0.045     6650.0
ET                 6.1        8.1                            4030.0     5760.0        4365     5420
X1      440         52     5118.7     5291.8       535.0       550.0       545.0
GR    350.0     1080.0      346.0     1445.0       348.0      1459.0       348.0      1550.0       346.0      1675.0
GR    344.0     2030.0      342.0     2150.0       340.0      3430.3       338.0      3456.9       336.0      3631.7
GR    336.0     3663.2      338.0     3687.3       340.0      3714.2       340.0      4208.8       338.0      4388.9
GR    338.0     4524.7      338.0     4718.6       336.0      4725.0       330.0      5052.0       330.0      5084.9
GR    334.0     5107.3      332.0     5113.6       330.0      5118.7       328.0      5127.5       328.0      5264.0
GR    330.0     5291.8      332.0     5305.1       334.0      5311.0       336.0      5334.8       336.0      5369.0
GR    336.0     5422.4      338.0     5442.9       340.0      5522.5       340.0      5563.3       338.0      5749.0
GR    338.0     5763.4      338.0     5848.7       338.0      5939.2       338.0      6011.5       336.0      6039.2
GR    334.0     6050.3      332.0     6058.1       332.0      6066.5       334.0      6091.4       336.0      6112.2
GR    338.0     6120.5      340.0     6132.0       342.0      6409.4       344.0      6585.0       346.0      6618.2
GR    348.0     6637.6      350.0     6650.0

NH        4      0.125     2072.0      0.055     4864.8        0.03     5377.9       0.055     6949.6
ET                 6.1        8.1                            4030.0     5680.0        4375     5410.0
X1      450         49     4864.8     5377.9       575.0       545.0       530.0
GR    350.0     1240.0      348.0     1440.0       350.0      1520.0       338.0      1585.0       338.0      1743.0
GR    336.0     1937.0      344.0     2072.0       344.0      2130.0       344.0      2155.0       342.0      2165.0
GR    342.0     2872.7      342.0     3360.1       340.0      3445.5       340.0      3579.3       340.0      3711.6
GR    338.0     3740.8      336.0     3747.9       336.0      3753.9       338.0      3789.5       340.0      3843.7
GR    342.0     4093.9      342.0     4177.2       340.0      4218.7       338.0      4487.1       336.0      4498.4
GR    334.0     4510.9      332.0     4641.3       332.0      4651.7       334.0      4820.3       336.0      4836.0
GR    336.0     4854.3      334.0     4857.6       332.0      4862.0       330.0      4864.8       328.0      4871.7
GR    328.0     5369.9      330.0     5377.9       340.0      5397.3       340.0      5957.7       340.0      6045.4
GR    342.0     6101.1      342.0     6215.9       340.0      6230.0       340.0      6278.0       342.0      6293.1
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GR    344.0    6493.9     346.0    6760.6     348.0    6921.3     350.0    6949.6

NH        4     0.125    2055.0     0.055    4626.2      0.03    5331.2     0.055    6792.0
ET              6.1        8.1                          4025.0    5620.0      4380    5360.0
X1      460       43    4626.2    5331.2     480.0     425.0     440.0
GR    350.0    1220.0     346.0    1470.0     344.0    1860.0     346.0    2055.0     346.0    2132.0
GR    346.0    2162.0     344.0    2208.0     342.0    3091.2     342.0    3321.4     344.0    3345.9
GR    344.0    3411.5     342.0    3819.8     340.0    3824.7     340.0    3844.0     342.0    3912.4
GR    342.0    3979.8     340.0    4198.8     338.0    4226.4     336.0    4313.8     336.0    4582.0
GR    336.0    4610.6     334.0    4617.1     332.0    4620.2     330.0    4626.2     328.0    4630.1
GR    328.0    5252.6     330.0    5331.2     340.0    5356.8     340.0    5383.4     340.0    5476.7
GR    342.0    5845.6     342.0    5959.6     342.0    6188.7     344.0    6197.4     346.0    6296.4
GR    346.0    6376.8     344.0    6385.2     342.0    6399.7     342.0    6575.7     344.0    6587.7
GR    346.0    6645.3     348.0    6750.0     350.0    6792.0

NH        6     0.125    1790.0     0.045    2590.0      0.100    3579.6     0.045    5002.1      0.07
NH   5145.9     0.045    6460.0
ET              6.1        8.1                          3700.0    5310.0      4125    5130.0
X1      470       64    5002.1    5145.9     790.0     430.0     480.0
GR    350.0     600.0     346.0    1245.0     348.0    1323.0     348.0    1790.0     348.0    1885.0
GR    346.0    1892.0     346.0    2590.0     346.0    3020.0     346.0    3483.5     346.0    3520.4
GR    346.0    3579.6     344.0    3685.9     342.0    3709.5     340.0    3715.3     338.0    3720.0
GR    338.0    3725.9     340.0    3732.2     340.0    3847.1     338.0    4279.4     336.0    4285.0
GR    334.0    4293.9     332.0    4306.5     332.0    4345.6     332.0    4372.4     330.0    4384.2
GR    330.0    4423.6     340.0    4459.4     342.0    4471.1     342.0    4556.9     340.0    4613.1
GR    338.0    4618.3     336.0    4624.9     334.0    4632.7     334.0    4698.0     336.0    4706.4
GR    338.0    4729.0     338.0    4764.9     338.0    4837.2     338.0    4863.7     336.0    4874.6
GR    334.0    4887.4     332.0    4914.2     330.0    5002.1     328.0    5083.6     328.0    5130.1
GR    330.0    5145.9     340.0    5162.1     342.0    5168.9     344.0    5235.6     344.0    5596.5
GR    342.0    5821.0     342.0    5959.5     344.0    5994.9     346.0    6007.4     348.0    6035.5
GR    348.0    6205.0     346.0    6216.0     344.0    6220.0     342.0    6315.0     342.0    6386.0
GR    344.0    6405.0     346.0    6419.0     348.0    6435.0     350.0    6460.0

NH        4     0.100    2619.8     0.045    3872.7      0.07    4124.9     0.045    5570.7
ET              6.1        8.1                          2870.0    4250.0      3105    4125.6
X1      480       41    3872.7    4124.9     305.0     280.0     280.0
GR    356.0    1132.0     356.0    1228.0     354.0    1275.0     352.0    1286.0     352.0    1390.0
GR    350.0    1446.0     348.0    1450.0     346.0    1455.0     346.0    1467.0     348.0    1950.0
GR    348.0    2113.2     346.0    2545.0     344.0    2619.8     342.0    2664.9     342.0    2687.7
GR    342.0    2739.0     342.0    3361.5     344.0    3483.8     344.0    3688.0     342.0    3866.6
GR    340.0    3872.7     330.0    3894.3     330.0    4069.2     332.0    4095.4     334.0    4114.1
GR    336.0    4116.2     338.0    4120.0     340.0    4124.9     342.0    4132.6     344.0    4189.7
GR    344.0    4740.3     344.0    5007.8     346.0    5016.3     348.0    5024.5     348.0    5269.2
GR    346.0    5273.4     344.0    5277.1     344.0    5511.3     346.0    5541.5     348.0    5560.0
GR    350.0    5570.7

NH        4     0.100    2502.0     0.045    3854.9      0.07    4098.1     0.045    5643.7
ET              6.1        8.1                          2900.0    4240.0       3120     4140
X1      483       45    3854.9    4098.1     100.0     105.0     100.0
GR    356.0    1105.0     356.0    1280.0     354.0    1290.0     352.0    1430.0     350.0    1454.0
GR    348.0    1460.0     348.0    2105.1     346.0    2502.0     344.0    2612.0     342.0    2665.7
GR    342.0    2683.7     342.0    2769.5     342.0    3359.5     342.0    3379.8     342.0    3410.7
GR    344.0    3450.4     344.0    3816.5     342.0    3837.7     340.0    3854.9     330.0    3895.7
GR    330.0    4009.3     332.0    4079.9     334.0    4088.0     336.0    4091.9     338.0    4095.3
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GR    340.0     4098.1      342.0     4103.2      342.0     4137.8      340.0     4141.5      340.0     4162.6
GR    342.0     4171.8      344.0     4215.5      344.0     4767.9      344.0     5026.4      346.0     5036.5
GR    348.0     5044.5      348.0     5286.1      346.0     5290.9      344.0     5396.7      344.0     5436.4
GR    344.0     5502.7      344.0     5543.5      346.0     5604.2      348.0     5621.7      350.0     5643.7

NC    0.045      0.045       0.07
ET                 6.1         8.1                         2920.0     4190.0        3080        4095
X1      484          26     3795.2     4061.4      110.0      160.0      115.0
GR    356.0     1100.0      356.0     1270.0      354.0     1315.0      352.0     1350.0      350.0     1373.0
GR    348.0     1419.0      346.0     1810.0      344.0     2690.0      342.0     2965.4      342.0     3369.7
GR    344.0     3472.5      344.0     3650.8      342.0     3795.2      340.0     3810.8      330.0     3835.1
GR    330.0     3898.3      332.0     3907.2      334.0     3912.9      336.0     3918.5      338.0     3980.9
GR    340.0     4017.8      342.0     4061.4      344.0     4422.3      346.0     4997.8      348.0     5278.5
GR    350.0     5330.8

NC    0.045      0.045       0.07
ET                 6.1         8.1                         2920.0     4180.0        3080        4095
        CHUBB LANE CROSSING
X1      485          20     3795.2     4061.4       10.0       10.0       10.0
GR    356.0     1100.0      356.0     1270.0      354.0     1315.0      352.0     1350.0      350.0     1373.0
GR    348.0     1419.0      346.0     1810.0      344.0     2690.0      342.0     2965.4      342.0     3369.7
GR    344.0     3472.5      344.0     3650.8      342.0     3795.2      340.0     3810.8      340.0     4017.8
GR    342.0     4061.4      344.0     4422.3      346.0     4997.8      348.0     5278.5      350.0     5330.8

NC    0.045      0.045       0.07
ET                 6.1         8.1                         2920.0     4180.0        3080        4095
X1      486          26     3795.2     4061.4       10.0       10.0       10.0
GR    356.0     1100.0      356.0     1270.0      354.0     1315.0      352.0     1350.0      350.0     1373.0
GR    348.0     1419.0      346.0     1810.0      344.0     2690.0      342.0     2965.4      342.0     3369.7
GR    344.0     3472.5      344.0     3650.8      342.0     3795.2      340.0     3810.8      330.0     3835.1
GR    330.0     3898.3      332.0     3907.2      334.0     3912.9      336.0     3918.5      338.0     3980.9
GR    340.0     4017.8      342.0     4061.4      344.0     4422.3      346.0     4997.8      348.0     5278.5
GR    350.0     5330.8

NH        4       0.04     3797.7       0.07      3905.4        .075     4110.0       0.125     5380.0
ET                 6.1         8.1                         3060.0     4120.0        3030        4050
X1      490          36     3797.7     3905.4       175.0      175.0      175.0
GR    354.0      110.0      354.0     1280.0      352.0     1310.0      350.0     1330.0      348.0     1358.0
GR    346.0     1408.0      346.0     2451.7      342.0     3056.1      342.0     3463.8      342.0     3544.0
GR    342.0     3616.0      342.0     3686.6      340.0     3704.2      340.0     3748.6      340.0     3774.1
GR    338.0     3780.9      336.0     3797.7      334.0     3806.3      332.0     3814.2      330.0     3830.2
GR    330.0     3875.2      332.0     3892.7      334.0     3900.1      336.0     3905.4      338.0     3911.0
GR    340.0     3917.1      342.0     3924.4      342.0     4001.3      346.0     4712.1      348.0     4717.7
GR    348.0     4725.7      346.0     4737.3      346.0     4793.3      348.0     4841.3      350.0     4959.4
GR    352.0     5380.0

QT        2      45000       45000
NH        5      0.085      2633.5       0.03      3766.7        0.04     4005.4        0.03     4739.8       0.125
NH   6165.0
ET                 6.1         8.1                         3430.0     4190.0        3280        4155
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X1      500        44     3766.7     4005.4       495.0       525.0       510.0
GR    358.0     830.0      356.0      900.0       354.0      1045.0       352.0      1089.0       350.0      1175.0
GR    348.0    1242.0      348.0     2080.0       348.0      2633.5       346.0      2640.9       346.0      2735.0
GR    346.0    2810.0      344.0     3339.8       342.0      3695.5       338.0      3741.7       336.0      3751.7
GR    334.0    3766.7      332.0     3793.9       330.0      3843.9       330.0      3989.1       332.0      3998.5
GR    334.0    4005.4      336.0     4015.5       338.0      4023.5       340.0      4112.9       338.0      4126.6
GR    336.0    4139.9      336.0     4175.3       338.0      4185.5       340.0      4201.8       342.0      4395.8
GR    342.0    4399.9      346.0     4407.0       346.0      4469.5       346.0      4591.4       348.0      4594.7
GR    348.0    4599.1      348.0     4617.3       348.0      4625.8       348.0      4647.7       348.0      4679.9
GR    348.0    4739.8      350.0     4933.4       352.0      5300.0       354.0      6165.0

NH        5     0.065     2393.3       0.03      3835.4        0.04      4360.7        0.03      4590.8       0.125
NH   6670.0
ET                  0        8.1                                                    3851.0      4335.0
X1      507        63     3860.7     4289.5       510.0       450.0       470.0
GR    360.0     960.0      358.0     1050.0       356.0      1095.0       354.0      1357.0       352.0      1435.0
GR    350.0    1590.0      348.0     1765.0       348.0      1800.0       350.0      2192.2       350.0      2393.3
GR    348.0    3070.0      348.0     3487.6       350.0      3675.1       352.0      3743.8       352.0      3835.4
GR    350.0    3839.8      348.0     3847.1       346.0      3853.6       344.0      3856.3       342.0      3860.7
GR    340.0    3865.6      339.0     3869.5       338.0      3876.5       336.0      3889.4       336.0      3911.5
GR    336.0    3918.5      336.0     3953.5       336.0      3960.5       336.0      3994.0       334.0      4004.0
GR    334.0    4037.5      334.0     4044.5       334.0      4079.5       334.0      4086.5       334.0      4121.5
GR    334.0    4128.5      334.0     4162.0       336.0      4172.0       336.0      4205.5       336.0      4212.5
GR    336.0    4226.3      337.0     4247.5       338.0      4252.3       339.0      4254.5       340.0      4259.3
GR    342.0    4267.2      342.0     4267.4       342.0      4289.5       342.0      4296.5       342.0      4304.1
GR    342.0    4322.4      346.0     4332.1       348.0      4339.3       350.0      4346.2       352.0      4360.7
GR    352.0    4419.1      350.0     4539.4       350.0      4590.8       352.0      5410.1       354.0      6320.0
GR    356.0    6500.0      358.0     6600.0       360.0      6670.0

NC     0.04       0.04       0.03        0.3         0.5
ET                  0        8.1                                                    3852      4334.0
        MAGNOLIA AVE BRIDGE  (NORMAL BRIDGE ROUTINE)
X1      508         58     3860.7     4289.5        10.0        10.0        10.0
BT      -49     3743.8      352.0      352.0      3835.4       354.5       352.0      3869.5       355.0       352.0
BT             3869.5      355.0      339.0      3876.5       355.0       338.0      3876.5       355.0       352.0
BT             3911.5      355.0      352.0      3911.5       355.0       336.0      3918.5       355.0       336.0
BT             3918.5      355.0      352.0      3953.5       355.0       352.0      3953.5       355.0       336.0
BT             3960.5      355.0      336.0      3960.5       355.0       352.0      3994.0       355.0       352.0
BT             3994.0      355.0      336.0      4004.0       355.0       336.0      4004.0       355.0       352.0
BT             4037.5      355.0      352.0      4037.5       355.0       336.0      4044.5       355.0       336.0
BT             4044.5      355.0      352.0      4079.5       355.0       352.0      4079.5       355.0       336.0
BT             4086.5      355.0      336.0      4086.5       355.0       352.0      4121.5       355.0       352.0
BT             4121.5      355.0      336.0      4128.5       355.0       336.0      4128.5       355.0       352.0
BT             4162.0      355.0      352.0      4162.0       355.0       336.0      4172.0       355.0       336.0
BT             4172.0      355.0      352.0      4205.5       355.0       352.0      4205.5       355.0       336.0
BT             4212.5      355.0      336.0      4212.5       355.0       352.0      4247.5       355.0       352.0
BT             4247.5      355.0      337.0      4254.5       355.0       339.0      4254.5       355.0       352.0
BT             4289.5      355.0      352.0      4289.5       355.0       342.0      4296.5       355.0       342.0
BT             4296.5      355.0      352.0      4346.2       355.0       352.0      4360.7       354.0       352.0
BT             4450.0      352.0      352.0
GR    360.0     965.0      358.0     1085.0       356.0      1225.0       354.0      1345.0       352.0      1510.0
GR    350.0    2420.0      348.0     3070.0       348.0      3487.6       350.0      3675.1       352.0      3743.8
GR    352.0    3835.4      350.0     3839.8       348.0      3847.1       346.0      3853.6       344.0      3856.3
GR    342.0    3860.7      340.0     3865.6       339.0      3869.5       338.0      3876.5       336.0      3889.4
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GR    336.0    3911.5     336.0    3918.5     336.0    3953.5     336.0    3960.5     336.0    3994.0
GR    334.0    4004.0     334.0    4037.5     334.0    4044.5     334.0    4079.5     334.0    4086.5
GR    334.0    4121.5     334.0    4128.5     334.0    4162.0     336.0    4172.0     336.0    4205.5
GR    336.0    4212.5     336.0    4226.3     337.0    4247.5     338.0    4252.3     339.0    4254.5
GR    340.0    4259.3     342.0    4267.2     342.0    4267.4     342.0    4289.5     342.0    4296.5
GR    342.0    4304.1     342.0    4322.4     346.0    4332.1     348.0    4339.3     350.0    4346.2
GR    352.0    4360.7     352.0    4450.0     352.0    5050.0     352.0    5450.0     354.0    6150.0
GR    356.0    6290.0     358.0    6680.0     360.0    6810.0

NC     0.04     0.04      0.03
ET                 0       8.1                                              3851.0     4335.0
X1      509       58    3889.4    4322.4       65.0       65.0       65.0
BT      -49    3743.8     352.0     352.0    3835.4     354.5     352.0    3869.5     355.0     352.0
BT           3869.5     355.0     339.0    3876.5     355.0     338.0    3876.5     355.0     352.0
BT           3911.5     355.0     352.0    3911.5     355.0     336.0    3918.5     355.0     336.0
BT           3918.5     355.0     352.0    3953.5     355.0     352.0    3953.5     355.0     336.0
BT           3960.5     355.0     336.0    3960.5     355.0     352.0    3994.0     355.0     352.0
BT           3994.0     355.0     336.0    4004.0     355.0     336.0    4004.0     355.0     352.0
BT           4037.5     355.0     352.0    4037.5     355.0     336.0    4044.5     355.0     336.0
BT           4044.5     355.0     352.0    4079.5     355.0     352.0    4079.5     355.0     336.0
BT           4086.5     355.0     336.0    4086.5     355.0     352.0    4121.5     355.0     352.0
BT           4121.5     355.0     336.0    4128.5     355.0     336.0    4128.5     355.0     352.0
BT           4162.0     355.0     352.0    4162.0     355.0     336.0    4172.0     355.0     336.0
BT           4172.0     355.0     352.0    4205.5     355.0     352.0    4205.5     355.0     336.0
BT           4212.5     355.0     336.0    4212.5     355.0     352.0    4247.5     355.0     352.0
BT           4247.5     355.0     337.0    4254.5     355.0     339.0    4254.5     355.0     352.0
BT           4289.5     355.0     352.0    4289.5     355.0     342.0    4296.5     355.0     342.0
BT           4296.5     355.0     352.0    4346.2     355.0     352.0    4360.7     354.0     352.0
BT           4450.0     352.0     352.0
GR    360.0     965.0     358.0    1085.0     356.0    1225.0     354.0    1345.0     352.0    1510.0
GR    350.0    2420.0     348.0    3070.0     348.0    3487.6     350.0    3675.1     352.0    3743.8
GR    352.0    3835.4     350.0    3839.8     348.0    3847.1     346.0    3853.6     344.0    3856.3
GR    342.0    3860.7     340.0    3865.6     339.0    3869.5     338.0    3876.5     336.0    3889.4
GR    336.0    3911.5     336.0    3918.5     336.0    3953.5     336.0    3960.5     336.0    3994.0
GR    334.0    4004.0     334.0    4037.5     334.0    4044.5     334.0    4079.5     334.0    4086.5
GR    334.0    4121.5     334.0    4128.5     334.0    4162.0     336.0    4172.0     336.0    4205.5
GR    336.0    4212.5     336.0    4226.3     337.0    4247.5     338.0    4252.3     339.0    4254.5
GR    340.0    4259.3     342.0    4267.2     342.0    4267.4     342.0    4289.5     342.0    4296.5
GR    342.0    4304.1     342.0    4322.4     346.0    4332.1     348.0    4339.3     350.0    4346.2
GR    352.0    4360.7     352.0    4450.0     352.0    5050.0     352.0    5450.0     354.0    6150.0
GR    356.0    6290.0     358.0    6680.0     360.0    6810.0

NC        0         0         0       0.1       0.3
NH        5     0.125    3603.7      0.03    3864.3      0.04    4357.7      0.03    4787.9     0.125
NH   6500.0
ET                6.1       8.1                                   3864.3     4357.7     3867.0     4352.0
X1      510        67    3885.3    4317.2       10.0       10.0       10.0
GR    360.0    1000.0     358.0    1120.0     356.0    1230.0     354.0    1350.0     352.0    1480.0
GR    352.0    2160.4     354.0    2166.0     354.0    2725.2     352.0    2794.1     350.0    2800.2
GR    348.0    2927.2     348.0    3502.2     350.0    3603.7     352.0    3725.7     352.0    3854.6
GR    350.0    3859.7     348.0    3864.3     346.0    3872.7     344.0    3875.1     342.0    3885.3
GR    340.0    3888.1     339.0    3897.2     336.0    3904.2     336.0    3939.2     336.0    3946.2
GR    335.0    3981.2     335.0    3988.2     335.0    4021.7     335.0    4031.7     335.0    4065.2
GR    334.0    4072.2     334.0    4099.9     333.0    4107.2     333.0    4114.2     332.0    4118.2
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GR    332.0    4138.2     334.0    4141.3     334.0    4149.2     335.0    4156.2     335.0    4189.7
GR    335.0    4199.7     335.0    4233.2     336.0    4240.2     336.0    4261.1     338.0    4264.2
GR    340.0    4272.0     340.0    4275.2     341.0    4282.2     341.0    4317.2     342.0    4324.2
GR    344.0    4330.0     346.0    4338.6     348.0    4357.7     348.0    4451.3     346.0    4474.4
GR    346.0    4560.8     348.0    4643.2     350.0    4686.4     352.0    4787.9     354.0    4949.8
GR    356.0    5106.6     356.0    5735.0     354.0    5745.0     354.0    5815.0     356.0    6265.0
GR    358.0    6305.0     360.0    6500.0

NH        3      .125    3614.7       0.04    4704.9      0.125    6505.0
ET              6.1        8.1                         3640.0    4470.0       3750    4440.0
X1      515       53     3935.0    4447.8     250.0     350.0     275.0
GR    362.0     710.0     360.0     720.0     358.0     785.0     356.0     866.0     354.0    1170.0
GR    352.0    1700.0     352.0    2020.0     354.0    2100.0     354.0    2376.8     352.0    2799.9
GR    350.0    3013.6     348.0    3176.9     348.0    3407.4     348.0    3614.7     348.0    3639.6
GR    346.0    3642.6     346.0    3643.2     344.0    3648.3     342.0    3652.1     340.0    3656.8
GR    338.0    3665.5     346.0    3667.9     336.0    3675.4     334.0    3935.0     332.0    3951.7
GR    332.0    4435.6     334.0    4447.8     336.0    4456.4     338.0    4469.2     340.0    4526.5
GR    342.0    4537.8     344.0    4543.0     346.0    4557.9     348.0    4603.2     350.0    4609.2
GR    352.0    4615.3     352.0    4647.6     352.0    4662.2     354.0    4666.4     354.0    4704.9
GR    354.0    4863.6     356.0    5134.3     356.0    5500.0     354.0    5620.0     354.0    5675.0
GR    356.0    5765.0     356.0    5830.0     354.0    5880.0     354.0    5940.0     356.0    6035.0
GR    358.0    6120.0     360.0    6420.0     362.0    6505.0

NH        5     0.125    4258.6       0.04    4387.7       0.03    4851.5       0.04    5018.7      0.125
NH   6900.0
ET              6.1        8.1                         4240.0    5000.0    4240.0    4865.0
X1      520       65     4347.8    4855.3     515.0     590.0     560.0
GR    362.0    1250.0     360.0    1261.0     358.0    1319.0     356.0    1540.0     354.0    1650.0
GR    352.0    2055.0     352.0    2209.2     354.0    2588.6     356.0    2679.1     356.0    2743.9
GR    354.0    3131.2     354.0    3204.9     354.0    3232.3     352.0    3297.2     352.0    3308.2
GR    352.0    3319.1     352.0    3327.2     352.0    3343.9     350.0    3512.7     348.0    3663.8
GR    348.0    3669.4     348.0    3965.0     348.0    4106.2     348.0    4106.7     348.0    4158.5
GR    348.0    4258.6     346.0    4263.3     344.0    4268.6     342.0    4272.0     340.0    4275.2
GR    338.0    4279.7     336.0    4283.7     334.0    4347.8     332.0    4387.7     332.0    4523.9
GR    334.0    4530.9     334.0    4704.9     332.0    4708.7     332.0    4851.5     334.0    4855.3
GR    336.0    4860.2     338.0    4866.8     340.0    4876.8     342.0    4919.9     344.0    4927.6
GR    346.0    4929.8     348.0    4933.4     350.0    4951.4     352.0    4959.9     354.0    4990.6
GR    356.0    4998.1     356.0    5018.7     354.0    5361.1     354.0    5395.8     356.0    5475.0
GR    358.0    5510.0     356.0    5585.0     356.0    5930.0     358.0    5965.0     356.0    6150.0
GR    356.0    6200.0     358.0    6290.0     358.0    6720.0     360.0    6810.0     362.0    6900.0

NH        4     0.100    4012.3       0.04    4190.2       0.03    4516.3       0.04    6460.0
ET              6.1        8.1                         4050.0    4691.0       4170    4650.0
X1      530       53     4190.2    4516.3     640.0     610.0     620.0
GR    362.0    1570.0     360.0    1582.0     358.0    1775.0     356.0    1790.0     356.0    1985.0
GR    356.0    2190.2     354.0    2655.8     354.0    2937.3     352.0    2958.0     350.0    3490.2
GR    350.0    4012.3     350.0    4089.9     348.0    4095.2     346.0    4143.4     344.0    4151.9
GR    342.0    4155.4     340.0    4159.6     338.0    4174.5     336.0    4183.0     334.0    4190.2
GR    334.0    4516.3     336.0    4525.2     338.0    4589.7     340.0    4647.5     350.0    4666.3
GR    352.0    4674.7     360.0    4691.0     360.0    4705.1     354.0    4712.6     352.0    4718.3
GR    350.0    4725.4     350.0    4760.9     352.0    4781.7     354.0    4795.3     356.0    4806.9
GR    358.0    4832.0     360.0    4863.8     360.0    4905.5     358.0    5015.0     356.0    5040.0
GR    356.0    5300.0     354.0    5430.0     356.0    5500.0     358.0    5680.0     358.0    5783.0
GR    356.0    5787.0     354.0    5855.0     354.0    5975.0     356.0    6035.0     358.0    6040.0
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GR    360.0    6410.0     360.0    6455.0     362.0    6460.0

NH        4     0.100    1987.3      0.04    2128.1      0.03    2406.4      0.04    3590.0
ET              6.1       8.1                          2070.0    2600.0      2120    2530.0
X1      535       36    2119.8    2411.1     290.0     275.0     280.0
GR    360.0      0.0     358.0     188.8     356.0     211.0     354.0     228.7     354.0     314.3
GR    354.0    334.2     354.0     351.3     354.0     695.4     352.0    1004.9     352.0    1261.4
GR    352.0   1339.2     350.0    1389.9     350.0    1987.3     350.0    2065.4     348.0    2095.4
GR    346.0   2098.9     344.0    2102.4     342.0    2107.7     340.0    2113.5     338.0    2117.2
GR    336.0   2119.8     334.0    2128.1     334.0    2406.4     336.0    2411.1     338.0    2445.2
GR    340.0   2478.5     342.0    2515.2     344.0    2529.9     346.0    2535.1     348.0    2543.0
GR    350.0   2635.3     352.0    2651.1     354.0    2773.2     356.0    3360.0     358.0    3390.0
GR    360.0   3590.0

NH        4     0.100    1900.0      0.04    2065.8      0.03    2390.6      0.04    3240.0
ET              0         8.1                                              2055    2467.0
X1      540       36    2055.8    2395.1     365.0     335.0     350.0
GR    364.0    126.0     362.0     255.0     360.0     292.6     358.0     352.3     356.0     382.5
GR    356.0    410.9     356.0     877.4     354.0     963.3     354.0     968.2     354.0    1262.3
GR    354.0   1625.0     354.0    1706.5     352.0    1727.1     351.0    1900.0     350.0    2004.7
GR    340.0   2027.6     338.0    2035.3     336.0    2055.8     334.0    2065.8     334.0    2390.6
GR    336.0   2395.1     338.0    2410.3     340.0    2416.7     342.0    2432.0     344.0    2444.2
GR    346.0   2460.4     348.0    2466.0     350.0    2474.7     352.0    2495.3     354.0    2555.1
GR    354.0   2571.0     354.0    2617.2     356.0    2676.7     356.0    3100.0     358.0    3200.0
GR    360.0   3240.0

NH        6     0.100    1120.0      0.06    1701.3      0.04    1900.5      0.03    2149.2      0.04
NH   2539.6     0.125    2909.2
ET              0         8.1                                              1830.0      2350
X1      550       40.0    1894.0    2153.3     645.0     655.0     650.0
GR    370.0    147.4     368.0     151.1     366.0     158.9     364.0     168.9     364.0     250.9
GR    364.0    308.1     362.0     326.8     358.0     354.2     356.0     381.8     356.0     568.8
GR    356.0   1120.0     354.0    1377.0     354.0    1422.7     354.0    1701.3     352.0    1718.0
GR    350.0   1746.6     340.0    1828.0     338.0    1831.6     336.0    1894.0     334.0    1900.5
GR    334.0   2149.2     336.0    2153.3     338.0    2156.8     340.0    2199.4     342.0    2214.0
GR    344.0   2223.8     344.0    2280.7     344.0    2333.5     346.0    2348.4     348.0    2353.7
GR    350.0   2356.8     352.0    2359.2     354.0    2368.0     356.0    2382.7     358.0    2421.7
GR    360.0   2425.5     360.0    2539.6     360.0    2636.9     362.0    2722.6     364.0    2909.2

NH        4      0.05    1643.0      0.03    1885.4      0.04    2282.7     0.125    2809.5
ET              0         8.1                                               1575      2200
X1      560       46.0    1638.2    1898.1     605.0     595.0     600.0
GR    362.0    136.3     362.0     194.5     364.0     210.8     366.0     233.2     366.0     287.9
GR    366.0    315.1     366.0     371.5     364.0     385.2     362.0     390.9     360.0     455.9
GR    358.0    466.9     356.0     617.4     356.0     992.7     358.0    1010.1     358.0    1064.6
GR    356.0   1372.1     354.0    1497.6     352.0    1542.9     350.0    1558.0     340.0    1585.4
GR    338.0   1592.1     336.0    1638.2     334.0    1643.0     334.0    1885.4     336.0    1898.1
GR    338.0   2060.8     340.0    2071.8     342.0    2121.3     344.0    2208.5     346.0    2214.3
GR    348.0   2217.3     350.0    2220.7     352.0    2224.7     354.0    2227.4     356.0    2254.0
GR    358.0   2260.6     360.0    2279.6     362.0    2282.7     362.0    2385.4     362.0    2469.4
GR    364.0   2537.2     366.0    2600.1     368.0    2650.4     370.0    2686.2     372.0    2770.6
GR    374.0   2809.5
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NH       4     0.100     986.3      0.05    1187.5      0.03    1383.4      0.04    1850.5
ET             0       8.1                                     1080       1790
X1     562      40.0    1181.4    1385.0     280.0     285.0     280.0
GR   366.0     106.5     364.0     123.2     362.0     127.7     360.0     134.7     360.0     138.6
GR   360.0     169.0     358.0     191.7     358.0     219.4     358.0     231.0     356.0     395.2
GR   356.0     419.7     356.0     630.2     356.0     691.3     356.0     986.3     354.0    1059.2
GR   352.0    1064.0     350.0    1068.5     340.0    1107.5     338.0    1127.7     336.0    1181.4
GR   334.0    1187.5     334.0    1383.4     336.0    1385.0     334.0    1453.1     334.0    1484.7
GR   338.0    1555.7     340.0    1600.9     340.0    1633.0     340.0    1698.3     342.0    1712.0
GR   344.0    1780.4     346.0    1790.8     348.0    1797.9     350.0    1801.1     352.0    1812.1
GR   354.0    1816.6     356.0    1819.1     358.0    1821.8     360.0    1826.7     362.0    1850.5

NH       5     0.100     821.7      0.05    1102.1      0.03    1325.5      0.04    1694.5     0.125
NH  1835.5
ET             0       8.1                                      920       1650
X1     564      34.0    1053.1    1332.2     220.0     220.0     220.0
GR   364.0     130.8     362.0     135.1     360.0     178.5     360.0     194.3     360.0     199.1
GR   358.0     210.6     356.0     821.7     354.0     896.6     351.0     902.2     350.0     905.0
GR   348.0     910.5     346.0     916.1     344.0     926.7     342.0     943.3     338.0     959.8
GR   336.0    1053.1     334.0    1102.1     334.0    1325.5     336.0    1332.2     338.0    1506.9
GR   340.0    1539.8     342.0    1592.1     344.0    1621.6     346.0    1636.2     348.0    1647.2
GR   350.0    1658.3     352.0    1675.0     354.0    1680.3     356.0    1684.4     358.0    1688.6
GR   360.0    1691.3     362.0    1694.5     362.0    1830.3     362.0    1835.5

NC   0.085      0.06      0.03
ET             0       8.1                                      870       1405
X1     566      48.0     971.9    1257.5     280.0     280.0     280.0
GR   364.0     125.7     362.0     130.3     360.0     226.0     358.0     539.3     356.0     545.7
GR   354.0     549.2     354.0     586.2     354.0     836.5     351.0     841.5     350.0     846.0
GR   348.0     852.7     346.0     861.9     344.0     870.9     342.0     873.4     340.0     878.6
GR   338.0     882.9     338.0     891.3     340.0     897.1     342.0     928.0     342.0     943.5
GR   340.0     966.5     338.0     971.9     336.0     987.3     334.0    1006.2     334.0    1248.3
GR   336.0    1249.2     338.0    1257.5     340.0    1312.0     342.0    1319.6     344.0    1359.0
GR   346.0    1374.5     348.0    1397.8     350.0    1410.4     352.0    1435.6     354.0    1452.7
GR   356.0    1461.4     358.0    1472.7     360.0    1475.8     362.0    1480.2     364.0    1482.6
GR   366.0    1485.5     368.0    1547.3     370.0    1556.3     372.0    1562.2     374.0    1573.8
GR   376.0    1582.1     378.0    1591.8     380.0    1597.3

NC   0.085      0.06      0.03
ET             0       8.1                                     1525       1960
X1     570      51.0    1642.7    1843.3     285.0     280.0     280.0
GR   370.0     581.4     368.0     587.2     366.0     591.4     364.0     596.0     362.0     671.4
GR   362.0     686.5     364.0     810.8     364.0     840.9     362.0     859.4     360.0     914.8
GR   358.0    1050.7     356.0    1054.8     354.0    1061.1     354.0    1070.1     356.0    1074.5
GR   358.0    1079.1     358.0    1092.1     356.0    1097.0     356.0    1108.1     358.0    1112.0
GR   358.0    1127.6     356.0    1130.5     356.0    1466.0     356.0    1513.1     354.0    1516.3
GR   351.0    1518.8     350.0    1522.2     348.0    1526.1     346.0    1531.5     344.0    1537.1
GR   342.0    1556.5     342.0    1580.3     342.0    1627.4     340.0    1635.2     338.0    1638.2
GR   336.0    1642.7     334.0    1647.9     334.0    1837.5     336.0    1843.3     338.0    1860.7
GR   340.0    1867.9     342.0    1914.8     344.0    1920.4     346.0    1948.3     348.0    1964.0
GR   350.0    1970.5     352.0    1974.8     354.0    1999.3     356.0    2006.6     358.0    2013.6
GR   360.0    2028.7
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NC    0.085       0.06       0.03
ET                   0        8.1                                                  757        1150
X1      572         32      832.0     1056.1      200.0       178.0       187.0
GR    362.0      120.8      360.0      184.3      358.0       190.8       356.0       276.1       356.0       440.2
GR    356.0      738.5      354.0      746.9      351.0       749.1       350.0       755.1       348.0       759.7
GR    346.0      769.4      344.0      772.6      342.0       775.3       340.0       780.9       338.0       784.1
GR    336.0      832.0      334.0      838.1      334.0      1051.5       336.0      1056.1       338.0      1063.0
GR    340.0     1097.3      342.0     1102.0      344.0      1105.3       346.0      1109.4       348.0      1153.3
GR    350.0     1161.6      352.0     1183.2      354.0      1196.0       356.0      1212.6       358.0      1239.7
GR    360.0     1250.9      362.0     1260.0

NC    0.085       0.06       0.03
ET                   0        8.1                                                  705      1090.0
X1      574         35.0      747.5     1043.6      210.0       190.0       200.0
GR    362.0      129.2      362.0      138.5      362.0       163.3       360.0       186.2       358.0       190.0
GR    358.0      577.1      358.0      687.6      356.0       694.4       354.0       697.9       351.0       701.0
GR    350.0      704.4      348.0      710.2      346.0       713.6       344.0       716.8       342.0       721.3
GR    340.0      725.5      338.0      741.6      336.0       747.5       334.0       749.7       334.0      1039.4
GR    336.0     1043.6      338.0     1048.8      340.0      1081.1       342.0      1085.0       349.9      1097.5
GR    350.0     1106.8      350.0     1121.7      352.0      1128.8       354.0      1131.7       356.0      1148.3
GR    358.0     1163.7      360.0     1176.6      362.0      1185.2       364.0      1192.5       366.0      1192.6

NC    0.085       0.06       0.03
ET                   0        8.1                                                  688        1060
X1      576         30.0      733.4      959.3      190.0       165.0       170.0
GR    362.0      169.2      360.0      207.0      358.0       657.3       356.0       661.5       354.0       667.9
GR    351.0      683.0      350.0      687.3      348.0       693.7       346.0       700.1       344.0       706.9
GR    342.0      713.0      340.0      714.2      338.0       733.4       336.0       737.2       334.0       739.6
GR    334.0      948.2      336.0      952.2      338.0       959.3       340.0      1048.8       342.0      1075.6
GR    349.9     1095.6      352.0     1099.3      354.0      1104.0       356.0      1108.2       356.0      1123.7
GR    356.0     1139.6      358.0     1143.4      360.0      1146.4       362.0      1153.0       364.0      1184.9

NC    0.085       0.06       0.03
ET                   0        8.1                                                  615.0       1080
X1      582         39.0      698.2      914.1      335.0       310.0       330.0
GR    364.0      137.4      362.0      189.7      360.0       205.4       360.0       212.2       360.0       221.3
GR    358.0      568.5      356.0      572.6      354.0       576.1       351.0       579.3       350.0       581.9
GR    348.0      586.0      346.0      590.1      344.0       593.5       344.0       610.4       346.0       616.5
GR    346.0      623.7      344.0      627.6      344.0       643.0       344.0       680.1       342.0       683.7
GR    340.0      693.0      338.0      698.2      336.0       704.7       336.0       909.2       338.0       914.1
GR    340.0      919.5      342.0     1044.1      342.0      1107.0       342.0      1140.7       344.0      1144.9
GR    346.0     1148.3      348.0     1150.5      350.0      1152.8       352.0      1156.0       354.0      1159.9
GR    356.0     1163.4      358.0     1215.1      360.0      1219.2       370.0      1239.5

NC    0.085       0.06       0.03
ET                   0        8.1                                                  538.0       1085
X1      584         33.0      632.7      857.9      210.0       190.0       200.0
GR    364.0      135.1      364.0      145.5      364.0       174.9       362.0       191.2       360.0       196.8
GR    358.0      515.4      356.0      518.5      354.0       526.4       351.0       533.5       350.0       540.1
GR    348.0      551.7      346.0      557.5      344.0       561.9       342.0       573.5       340.0       581.2
GR    338.0      632.7      336.0      644.9      336.0       851.8       338.0       857.9       342.0       992.7
GR    344.0     1066.7      346.0     1072.5      348.0      1095.0       350.0      1098.7       352.0      1100.7
GR    354.0     1107.8      356.0     1111.0      358.0      1121.2       358.0      1163.7       358.0      1244.0
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GR    360.0    1267.6     362.0    1299.1     364.0    1309.3

NC    0.085      0.06      0.03
ET                 0       8.1                                          465.0       960
X1      586      34.0     582.7     772.7     205.0     205.0     205.0
GR    366.0     110.7     364.0     182.5     362.0     188.7     360.0     329.3     360.0     355.9
GR    360.0     383.3     360.0     412.5     360.0     444.5     350.0     465.8     348.0     470.9
GR    346.0     483.4     344.0     488.8     342.0     507.1     338.0     582.7     336.0     593.3
GR    336.0     767.0     338.0     772.7     340.0     929.5     342.0    1012.7     344.0    1019.4
GR    346.0    1023.4     348.0    1027.9     350.0    1031.1     360.0    1046.7     362.0    1051.5
GR    362.0    1124.7     360.0    1174.0     360.0    1212.8     360.0    1229.7     358.0    1236.1
GR    358.0    1312.4     360.0    1327.9     362.0    1354.8     364.0    1367.3

NC    0.085      0.06      0.03
ET                 6.1       8.1                344.8       800       371.0       720
X1      592      57.0     443.9     597.6     375.0     385.0     380.0
GR    370.0     130.6     368.0     136.8     366.0     139.9     364.0     191.1     362.0     195.4
GR    360.0     202.2     360.0     222.8     362.0     241.9     364.0     302.7     364.0     344.8
GR    362.0     348.7     360.0     350.8     350.0     371.6     348.0     375.7     346.0     380.7
GR    344.0     395.9     342.0     402.9     340.0     408.7     338.0     443.9     336.0     467.1
GR    336.0     563.3     338.0     572.4     338.0     581.7     338.0     597.6     340.0     602.0
GR    340.0     671.2     340.0     724.3     342.0     747.9     344.0     751.6     346.0     756.9
GR    348.0     760.9     349.9     777.6     352.0     786.1     354.0     792.1     358.0     816.9
GR    360.0     823.8     362.0     905.7     364.0     928.2     364.0     966.1     364.0    1187.2
GR    366.0    1201.8     368.0    1207.7     368.0    1228.7     366.0    1234.6     364.0    1241.2
GR    362.0    1345.3     360.0    1375.6     358.0    1382.2     356.0    1387.4     356.0    1419.4
GR    358.0    1476.4     360.0    1493.0     362.0    1501.1     364.0    1504.4     366.0    1512.4
GR    368.0    1529.3     370.0    1578.1

NC    0.075      0.065     0.125
ET                 0       8.1                                          595.0       830.0
X1      594       80.0     630.7     779.9     230.0     230.0     230.0
GR    368.0     189.5     366.0     194.5     366.0     207.4     368.0     213.8     370.0     220.5
GR    372.0     225.8     374.0     231.6     376.0     243.5     376.0     310.6     376.0     366.8
GR    376.0     391.0     374.0     415.0     372.0     422.3     370.0     427.1     368.0     428.7
GR    366.0     431.0     364.0     562.6     362.0     564.8     360.0     571.4     350.0     596.8
GR    348.0     609.4     346.0     613.4     344.0     617.0     342.0     630.7     340.0     637.0
GR    340.0     712.7     340.0     738.3     340.0     743.7     342.0     779.9     344.0     790.4
GR    346.0     800.8     348.0     808.4     350.0     822.9     360.0     901.4     358.0     908.6
GR    358.0     939.7     360.0     949.9     362.0     955.8     364.0     964.0     364.0     994.9
GR    362.0    1004.8     360.0    1014.2     358.0    1025.8     356.0    1057.6     356.0    1075.6
GR    358.0    1082.9     360.0    1086.9     362.0    1091.8     364.0    1098.9     366.0    1107.1
GR    368.0    1111.3     370.0    1116.3     370.0    1123.9     368.0    1148.6     366.0    1153.0
GR    364.0    1164.1     364.0    1432.2     364.0    1449.6     364.0    1466.1     366.0    1605.9
GR    368.0    1611.6     370.0    1615.0     370.0    1633.0     368.0    1637.6     366.0    1642.8
GR    364.0    1669.4     364.0    1683.8     364.0    1718.7     362.0    1724.1     360.0    1731.7
GR    358.0    1764.6     356.0    1819.5     356.0    1840.9     358.0    1880.0     360.0    1887.5
GR    362.0    1891.9     364.0    1899.2     366.0    1911.8     368.0    1973.0     370.0    1986.0
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NC    0.075      0.065      0.125
ET                 6.1        8.1                          600.0      1050.0       660.0       995.0
X1      600        76.0      778.9      979.1       145.0      155.0       150.0
GR    376.0       107.5      374.0      132.1       372.0      135.5       368.0       303.5       368.0       319.6
GR    370.0       325.3      372.0      329.6       374.0      335.7       376.0       341.2       378.0       346.9
GR    380.0       352.9      380.0      443.7       380.0      471.0       380.0       520.9       378.0       541.4
GR    376.0       544.6      374.0      548.5       372.0      551.8       370.0       557.8       368.0       560.1
GR    366.0       563.7      364.0      640.1       362.0      649.0       360.0       652.5       358.0       658.2
GR    356.0       665.5      354.0      675.5       352.0      693.7       350.0       706.0       348.0       714.2
GR    348.0       720.6      348.0      757.2       346.0      778.9       344.0       788.4       342.0       801.2
GR    342.0       944.1      344.0      973.4       346.0      979.1       348.0       986.4       350.0       988.7
GR    360.0      1001.5      362.0     1006.2       364.0     1020.1       366.0      1144.4       368.0      1278.3
GR    370.0      1282.7      370.0     1293.0       368.0     1297.8       366.0      1301.3       364.0      1304.6
GR    364.0      1385.5      366.0     1396.2       366.0     1412.0       364.0      1420.3       364.0      1639.3
GR    364.0      1714.3      364.0     1832.9       366.0     1845.3       368.0      1849.6       370.0      1855.1
GR    370.0      1872.1      368.0     1877.6       366.0     1885.2       364.0      1934.5       362.0      1938.2
GR    360.0      1948.6      360.0     1966.8       360.0     2011.3       358.0      2020.0       358.0      2086.0
GR    360.0      2170.5      362.0     2176.6       364.0     2184.5       366.0      2191.1       368.0      2252.7
GR    370.0      2281.2

NC    0.075      0.065      0.125
ET                 6.1        8.1                          200.0       652.3         280       645.0
X1      610          75      319.9      622.8       295.0      355.0       315.0
GR    390.0       103.3      390.0      133.2       388.0      139.9       382.0       151.5       380.0       156.0
GR    370.0       177.5      368.0      180.4       366.0      189.1       364.0       252.7       362.0       256.4
GR    360.0       260.7      358.0      266.5       356.0      272.8       354.0       301.5       352.0       304.8
GR    350.0       308.1      348.0      313.6       346.0      319.9       344.0       381.3       342.0       409.0
GR    342.0       604.8      344.0      615.0       346.0      622.8       348.0       626.7       350.0       630.3
GR    360.0       645.0      362.0      648.2       364.0      652.3       364.0       727.8       362.0       732.5
GR    360.0       738.6      358.0      742.9       356.0      746.9       356.0       792.1       358.0       799.0
GR    360.0       804.5      362.0      810.2       364.0      815.3       366.0       823.4       368.0       890.1
GR    368.0       914.0      366.0      923.1       366.0      959.7       368.0       969.4       368.0      1056.9
GR    366.0      1071.8      364.0     1084.5       362.0     1096.9       360.0      1103.2       350.0      1127.8
GR    348.0      1147.5      346.0     1173.3       346.0     1268.3       348.0      1275.2       350.0      1281.2
GR    360.0      1298.3      362.0     1301.8       362.0     1341.2       360.0      1381.5       350.0      1415.1
GR    348.0      1422.9      346.0     1430.3       346.0     1494.6       348.0      1515.3       348.0      1717.0
GR    348.0      1760.2      350.0     1832.6       360.0     1856.7       364.0      1860.6       362.0      1866.9
GR    366.0      1891.5      368.0     2520.0       370.0     2620.0       372.0      2740.0       374.0      2780.0

NC    0.075      0.065      0.125
ET                 6.1        8.1                          250.0       750.0         330       730.0
X1      620          63      299.2      732.0       395.0      395.0       395.0
GR    380.0       210.5      370.0      228.8       368.0      230.7       366.0       234.4       366.0       239.9
GR    366.0       246.0      364.0      299.2       362.0      302.7       360.0       309.4       358.0       335.2
GR    356.0       341.1      354.0      343.7       352.0      348.6       350.0       415.7       348.0       421.2
GR    346.0       429.7      344.0      515.8       344.0      685.5       346.0       691.3       348.0       701.4
GR    350.0       709.6      360.0      726.0       362.0      729.1       364.0       732.0       364.0       767.8
GR    362.0       771.4      360.0      775.6       350.0      819.3       348.0       824.3       346.0       827.8
GR    346.0       846.3      346.0      966.4       344.0      971.4       344.0      1009.4       346.0      1063.6
GR    348.0      1115.1      350.0     1124.6       360.0     1185.8       362.0      1195.8       364.0      1205.6
GR    366.0      1211.1      368.0     1236.4       370.0     1308.2       370.0      1503.3       368.0      1552.5
GR    366.0      1558.4      364.0     1562.0       362.0     1567.8       360.0      1584.3       360.0      1684.8
GR    362.0      1691.5      364.0     1713.1       366.0     1722.9       366.0      1770.0       366.0      1862.4
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GR    368.0    1960.0     368.0    2490.0     370.0    2518.0     372.0    2536.0     374.0    2730.0
GR    376.0    2800.0     378.0    2840.0     380.0    2875.0

NC    0.075     0.065     0.125
ET                6.1       8.1                        300.0     804.6       380     750.0
X1      630         60     445.6     718.0     235.0     295.0     265.0
GR    380.0     231.4     370.0     248.4     368.0     254.6     366.0     328.7     364.0     337.7
GR    362.0     344.0     360.0     347.8     358.0     353.4     358.0     362.4     358.0     382.2
GR    356.0     395.2     354.0     426.7     352.0     433.1     350.0     438.4     348.0     445.6
GR    346.0     466.8     344.0     561.4     344.0     632.7     346.0     679.5     348.0     718.0
GR    350.0     730.2     360.0     748.4     362.0     751.9     366.0     753.5     364.0     754.7
GR    368.0     804.6     368.0     835.1     366.0     840.2     364.0     844.7     362.0     850.5
GR    360.0     855.9     356.0     865.8     350.0     881.5     348.0     901.3     346.0     918.7
GR    344.0     927.5     344.0     986.7     346.0     996.7     348.0    1015.4     348.0    1070.6
GR    348.0    1129.5     350.0    1141.8     352.0    1146.3     354.0    1258.4     356.0    1275.1
GR    358.0    1514.9     360.0    1522.3     370.0    1544.4     372.0    1576.1     372.0    1650.2
GR    370.0    1676.7     368.0    1685.7     368.0    1855.0     370.0    1966.0     370.0    2470.0
GR    372.0    2510.0     374.0    2657.0     376.0    2695.0     378.0    2745.0     380.0    2785.0

NC    0.075     0.065     0.125
ET                  0       8.1                                              401     600.0
        FINAL CROSS SECTION - APPROX. 200 FT. DOWNSTREAM OF RIVERFORD BRIDGE
X1      640         27     433.9     577.6     345.0     355.0     350.0
GR    376.0       30.0     374.0      40.0     372.0      50.0     370.0      65.0     368.0     177.8
GR    370.0     224.7      370.0     392.0     360.0     410.6     350.0     433.9     348.0     447.6
GR    346.0     450.9      346.0     550.9     348.0     564.9     350.0     577.6     360.0     601.2
GR    362.0     621.0      364.0     656.5     366.0     694.7     368.0     731.7     370.0     757.0
GR    372.0     802.2      372.0    1053.1     370.0    1410.8     370.0    1725.0     372.0    2340.0
GR    374.0    2370.0      376.0    2490.0
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| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

*PROF 1

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS
0

CCHV= .100 CEHV= .300
*SECNO 100.000
3720 CRITICAL DEPTH ASSUMED
MISSION DAM - DOWNSTREAM LIMIT OF STUDY (SUB-CRITICAL FLOW ASSUMED)

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 100.00 | 12.55 | 282.55 | 282.55 | 282.53 | 287.42 | 4.87 | .00 | .00 | 280.00 |
| 50000. | 440. | 49530. | 30. | 40. | 2787. | 4. | 0. | 0. | 280.00 |
| .00 | 10.96 | 17.77 | 8.08 | .080 | .180 | .080 | .000 | 270.00 | 313.45 |
| .198391 | 0. | 0. | 0. | 0 | 4 | 0 | .00 | 290.21 | 603.66 |

FLOW DISTRIBUTION FOR SECNO= 100.00 CWSEL= 282.55

| | | | | |
|---|---|---|---|---|
| STA= | 313. | 341. | 601. | 604. |
| PER Q= | .9 | 99.1 | .1 | |
| AREA= | 40.1 | 2787.5 | 3.8 | |
| VEL= | 11.0 | 17.8 | 8.1 | |
| DEPTH= | 1.5 | 10.7 | 1.3 | |

*SECNO 110.000

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 110.00 | 15.82 | 289.82 | 285.87 | .00 | 292.22 | 2.40 | 4.55 | .25 | 280.00 |
| 50000. | 4747. | 44045. | 1208. | 285. | 3706. | 98. | 4. | 0. | 280.00 |
| .00 | 16.65 | 11.88 | 12.34 | .080 | .180 | .080 | .000 | 274.00 | 282.28 |
| .061120 | 45. | 45. | 45. | 3 | 11 | 0 | .00 | 337.95 | 620.24 |

FLOW DISTRIBUTION FOR SECNO= 110.00 CWSEL= 289.82

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| STA= | 282. | 299. | 308. | 314. | 319. | 340. | 600. | 620. |
| PER Q= | .1 | .4 | .7 | 1.1 | 7.1 | 88.1 | 2.4 | |
| AREA= | 15.6 | 24.5 | 28.4 | 34.8 | 181.7 | 3706.0 | 97.9 | |
| VEL= | 4.3 | 9.0 | 12.6 | 15.7 | 19.5 | 11.9 | 12.3 | |
| DEPTH= | .9 | 2.8 | 4.8 | 6.8 | 8.8 | 14.2 | 4.9 | |

| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

*SECNO 120.000

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 120.00 | 18.90 | 292.90 | 286.24 | .00 | 294.45 | 1.55 | 2.15 | .08 | 280.00 |
| 50000. | 5984. | 39075. | 4941. | 462. | 4301. | 396. | 9. | 1. | 280.00 |
| .00 | 12.95 | 9.09 | 12.48 | .080 | .180 | .080 | .000 | 274.00 | 286.51 |
| .027154 | 55. | 55. | 55. | 3 | 15 | 0 | .00 | 368.62 | 655.13 |

FLOW DISTRIBUTION FOR SECNO= 120.00 CWSEL= 292.90

| STA= | 287. | 304. | 312. | 319. | 327. | 341. | 355. | 603. | 644. | 649. | 655. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| PER Q= | .3 | .4 | .9 | 1.5 | 3.9 | 5.0 | 78.2 | 9.5 | .3 | .1 | |
| AREA= | 28.3 | 28.5 | 44.3 | 64.0 | 138.6 | 158.3 | 4301.0 | 366.8 | 19.9 | 9.2 | |
| VEL= | 4.5 | 7.4 | 9.8 | 11.9 | 14.0 | 15.8 | 9.1 | 13.0 | 7.2 | 3.7 | |
| DEPTH= | 1.6 | 3.9 | 5.9 | 7.9 | 9.9 | 11.9 | 17.3 | 8.9 | 3.9 | 1.5 | |

*SECNO 130.000

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 130.00 | 24.44 | 300.44 | 289.33 | .00 | 301.19 | .76 | 6.66 | .08 | 280.00 |
| 50000. | 9040. | 28781. | 12179. | 1277. | 5128. | 1296. | 86. | 6. | 280.00 |
| .02 | 7.08 | 5.61 | 9.40 | .080 | .180 | .080 | .000 | 276.00 | 137.82 |
| .007426 | 520. | 520. | 520. | 5 | 19 | 0 | .00 | 552.47 | 690.29 |

FLOW DISTRIBUTION FOR SECNO= 130.00 CWSEL= 300.44

| STA= | 138. | 290. | 325. | 341. | 353. | 584. | 600. | 612. | 628. | 644. | 683. | 690. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PER Q= | 3.7 | 6.6 | 3.9 | 3.9 | 57.6 | 7.2 | 4.5 | 4.8 | 4.1 | 3.7 | .0 | |
| AREA= | 456.7 | 406.0 | 215.0 | 199.2 | 5127.6 | 312.9 | 211.0 | 243.9 | 225.7 | 295.8 | 6.4 | |
| VEL= | 4.0 | 8.1 | 9.0 | 9.8 | 5.6 | 11.5 | 10.7 | 9.9 | 9.0 | 6.3 | 1.8 | |
| DEPTH= | 3.0 | 11.4 | 13.4 | 17.2 | 22.2 | 19.4 | 17.4 | 15.4 | 13.4 | 7.6 | .9 | |

```
   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


CCHV=     .030 CEHV=     .050
*SECNO 140.000
   140.00    28.49   304.49   290.26      .00   305.19      .70     3.99      .00   284.00
   50000.    6255.   35399.    8346.     834.    6017.     929.     185.      12.    284.00
      .05     7.50     5.88     8.98     .080     .180     .080     .000   276.00   157.25
  .006965     555.     555.     555.        3       14        0      .00   409.05   566.30


FLOW DISTRIBUTION FOR SECNO=    140.00          CWSEL=    304.49

STA=     157.     209.     230.     243.     482.     498.     508.     547.     566.
  PER Q=      4.3      3.8      4.4     70.8      6.6      3.6      6.2       .2
   AREA=    369.1    245.1    220.1   6016.5    296.2    176.6    415.2     41.1
    VEL=      5.8      7.8     10.0      5.9     11.2     10.3      7.5      3.0
  DEPTH=      7.1     11.7     17.9     25.1     19.5     17.5     10.6      2.1

*SECNO 150.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE

3470 ENCROACHMENT STATIONS=      108.5    1200.0  TYPE=      1  TARGET=     1091.500
   150.00    25.95   305.95   288.36      .00   306.20      .25     1.00      .01   290.00
   50000.    1440.   25150.   23410.     674.   11447.    4324.     344.      22.    290.00
      .09     2.14     2.20     5.41     .080     .160     .035     .000   280.00   186.86
  .000786     555.     580.     555.        3       14        0      .00  1013.14  1200.00


FLOW DISTRIBUTION FOR SECNO=    150.00          CWSEL=    305.95

STA=     187.     274.     738.     759.     870.    1042.    1081.    1153.    1200.
  PER Q=      2.9     50.3      4.0     14.4     18.9      3.5      4.4      1.7
   AREA=    674.4  11447.4    290.5   1223.2   1712.6    341.0    506.7    249.9
    VEL=      2.1      2.2      6.9      5.9      5.5      5.1      4.3      3.4
  DEPTH=      7.8     24.6     14.2     11.0     10.0      9.0      7.0      5.4

1490 NH CARD USED
*SECNO 160.000

3265 DIVIDED FLOW
```

```
   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE

   160.00    24.49   306.49   292.18      .00   306.59      .10      .38      .00   292.00
   50000.   42430.    4574.    2995.   16347.    1768.    1798.     669.      44.    290.00
      .17     2.60     2.59     1.67     .072     .080     .047     .000   282.00   354.58
  .000340     900.     670.     670.        2       22        0      .00  1591.84  1987.88


FLOW DISTRIBUTION FOR SECNO=    160.00          CWSEL=    306.49

STA=     355.     497.     524.     590.     638.    1193.    1263.    1331.    1412.    1779.    1988.
  PER Q=     16.6      3.6      9.3      5.6     45.0      3.1      1.9      9.1      5.4       .5
   AREA=   1890.2    634.1   1603.7   1044.7   9731.7    838.1    604.6   1768.4   1536.3    262.2
    VEL=      4.4      2.8      2.9      2.7      2.3      1.8      1.6      2.6      1.8      1.0
  DEPTH=     13.2     23.5     24.5     21.8     17.5     11.9      8.9     21.8      4.2      1.3

CCHV=     .100 CEHV=     .300
1490 NH CARD USED
*SECNO 170.000
3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE

   170.00    24.61   306.61   293.99      .00   306.66      .05      .07      .00   292.00
   50000.   33635.    2047.   14318.   17542.    1253.    8204.     842.      58.    290.00
      .22     1.92     1.63     1.75     .060     .080     .051     .000   282.00   329.19
  .000145     325.     320.     315.        2        9        0      .00  2144.81  2474.00


FLOW DISTRIBUTION FOR SECNO=    170.00          CWSEL=    306.61

STA=     329.     490.     536.     570.     744.     814.     868.     978.    1483.    1544.    1725.    1820.    1884.
  PER Q=      4.0      3.3      3.6     22.3      6.1      3.4      4.8     19.8      4.1      7.9      6.6      3.4
   AREA=   1077.1    638.6    595.2   3423.7   1651.5   1050.8   1718.5   7386.2   1252.7   2829.9   1284.7    741.8
    VEL=      1.9      2.6      3.0      3.3      1.8      1.6      1.4      1.3      1.6      1.4      2.6      2.3
  DEPTH=      6.7     13.9     17.6     19.6     23.7     19.6     15.6     14.6     20.6     15.6     13.6     11.6

STA=    1884.    1989.    2200.    2474.
  PER Q=      4.1      4.7      1.9
   AREA=   1008.0   1458.5    881.3
    VEL=      2.0      1.6      1.1
  DEPTH=      9.6      6.9      3.2
```

| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

1490 NH CARD USED
*SECNO 180.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 180.00 | 20.65 | 306.65 | 293.03 | .00 | 306.72 | .06 | .05 | .00 | 292.00 |
| 50000. | 38997. | 4717. | 6286. | 17509. | 4246. | 5219. | 1178. | 85. | 290.00 |
| .30 | 2.23 | 1.11 | 1.20 | .038 | .080 | .040 | .000 | 286.00 | 453.80 |
| .000073 | 529. | 550. | 570. | 2 | 14 | 0 | .00 | 2069.37 | 2523.17 |

FLOW DISTRIBUTION FOR SECNO= 180.00 CWSEL= 306.65

| STA= | 454. | 608. | 647. | 703. | 1032. | 1109. | 1308. | 1530. | 1759. | 1884. | 2380. | 2523. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PER Q= | 3.3 | 4.0 | 6.8 | 43.4 | 8.2 | 6.2 | 6.2 | 9.4 | 4.0 | 7.7 | .8 | |
| AREA= | 1154.3 | 688.5 | 1100.7 | 6795.5 | 1401.4 | 3115.3 | 3253.4 | 4246.0 | 1315.9 | 3384.9 | 517.8 | |
| VEL= | 1.4 | 2.9 | 3.1 | 3.2 | 2.9 | 1.0 | 1.0 | 1.1 | 1.5 | 1.1 | .8 | |
| DEPTH= | 7.5 | 17.7 | 19.7 | 20.7 | 18.2 | 15.7 | 14.7 | 18.5 | 10.5 | 6.8 | 3.6 | |

1490 NH CARD USED
*SECNO 190.000

3265 DIVIDED FLOW

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 190.00 | 20.68 | 306.68 | 290.51 | .00 | 306.75 | .07 | .03 | .00 | 296.00 |
| 50000. | 45964. | 3763. | 274. | 20883. | 4466. | 525. | 1484. | 106. | 290.00 |
| .36 | 2.20 | .84 | .52 | .031 | .080 | .057 | .000 | 286.00 | 433.75 |
| .000041 | 505. | 505. | 505. | 2 | 17 | 0 | .00 | 1540.45 | 1985.74 |

FLOW DISTRIBUTION FOR SECNO= 190.00 CWSEL= 306.68

| STA= | 434. | 541. | 978. | 1037. | 1375. | 1414. | 1576. | 1810. | 1986. |
|---|---|---|---|---|---|---|---|---|---|
| PER Q= | 3.2 | 43.0 | 5.7 | 33.2 | 3.2 | 3.6 | 7.5 | .5 | |
| AREA= | 1051.6 | 9046.7 | 1203.5 | 6993.4 | 718.5 | 1869.4 | 4465.6 | 525.4 | |
| VEL= | 1.5 | 2.4 | 2.4 | 2.4 | 2.2 | 1.0 | .8 | .5 | |
| DEPTH= | 9.8 | 20.7 | 20.7 | 20.7 | 18.5 | 11.5 | 19.1 | 3.0 | |

1490 NH CARD USED
*SECNO 200.000

| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 200.00 | 20.74 | 306.74 | 290.78 | .00 | 306.81 | .07 | .06 | .00 | 296.00 |
| 50000. | 32505. | 2923. | 14572. | 20541. | 2140. | 4680. | 1927. | 134. | 294.00 |
| .46 | 1.58 | 1.37 | 3.11 | .118 | .125 | .042 | .000 | 286.00 | 298.78 |
| .000305 | 720. | 740. | 750. | 2 | 17 | 0 | .00 | 1805.67 | 2104.45 |

FLOW DISTRIBUTION FOR SECNO= 200.00 CWSEL= 306.74

| STA= | 299. | 459. | 976. | 1203. | 1407. | 1440. | 1563. | 1637. | 1696. | 1771. | 1908. | 2104. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PER Q= | 5.4 | 30.2 | 14.8 | 13.2 | 1.4 | 5.8 | 4.0 | 5.2 | 6.0 | 12.1 | 1.8 | |
| AREA= | 1017.4 | 10036.0 | 4726.8 | 4220.8 | 540.1 | 2140.1 | 814.1 | 740.2 | 890.0 | 1722.8 | 512.7 | |
| VEL= | 2.6 | 1.5 | 1.6 | 1.6 | 1.3 | 1.4 | 2.5 | 3.5 | 3.4 | 3.5 | 1.8 | |
| DEPTH= | 6.3 | 19.4 | 20.7 | 20.7 | 16.5 | 17.4 | 10.9 | 12.7 | 11.7 | 12.6 | 2.6 | |

1490 NH CARD USED
*SECNO 209.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 209.00 | 20.86 | 306.86 | 292.00 | .00 | 306.94 | .08 | .13 | .00 | 298.00 |
| 50000. | 22775. | 6120. | 21104. | 14771. | 4267. | 7191. | 2180. | 151. | 294.00 |
| .52 | 1.54 | 1.43 | 2.93 | .122 | .125 | .040 | .000 | 286.00 | 335.50 |
| .000328 | 430. | 390. | 365. | 2 | 14 | 0 | .00 | 2058.47 | 2393.96 |

FLOW DISTRIBUTION FOR SECNO= 209.00 CWSEL= 306.86

| STA= | 335. | 515. | 673. | 779. | 1081. | 1151. | 1233. | 1479. | 1655. | 1934. | 2100. | 2325. | 2394. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PER Q= | 3.0 | 8.0 | 6.7 | 20.6 | 4.4 | 3.0 | 12.2 | 14.6 | 17.0 | 6.9 | 3.5 | .1 | |
| AREA= | 1054.4 | 2755.2 | 2107.6 | 6298.8 | 1386.5 | 1168.0 | 4266.6 | 2090.4 | 2752.0 | 1302.3 | 981.9 | 64.3 | |
| VEL= | 1.4 | 1.4 | 1.6 | 1.6 | 1.6 | 1.3 | 1.4 | 3.5 | 3.1 | 2.7 | 1.8 | .6 | |
| DEPTH= | 5.9 | 17.4 | 19.9 | 20.9 | 19.9 | 14.2 | 17.4 | 11.9 | 9.9 | 7.9 | 4.4 | .9 | |

1490 NH CARD USED
*SECNO 210.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 210.00 | 20.78 | 306.78 | 299.60 | .00 | 306.98 | .20 | .00 | .04 | 298.00 |
| 50000. | 10285. | 8978. | 30737. | 7180. | 4247. | 7118. | 2185. | 152. | 294.00 |
| .52 | 1.43 | 2.11 | 4.32 | .116 | .125 | .040 | .000 | 286.00 | 337.53 |
| .000717 | 10. | 10. | 10. | 2 | 14 | 0 | .00 | 2053.50 | 2391.03 |

```
   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


FLOW DISTRIBUTION FOR SECNO=    210.00          CWSEL=    306.78

STA=     338.    1233.    1479.    1655.    1934.    2100.    2325.    2391.
  PER Q=     20.6     18.0     21.4     24.8     10.1      5.1       .1
   AREA=   7180.1   4247.2   2076.5   2729.9   1289.1    964.1     58.9
    VEL=      1.4      2.1      5.2      4.6      3.9      2.6       .9
  DEPTH=      8.0     17.3     11.8      9.8      7.8      4.3       .9

1490 NH CARD USED
*SECNO 211.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE

   211.00    20.92   306.92   292.00      .00   307.00      .08      .00      .01   298.00
   50000.   22727.    6106.   21166.   14822.    4281.    7244.    2190.     152.    294.00
      .52     1.53     1.43     2.92     .122     .125     .040     .000   286.00   334.01
  .000323      10.      10.      10.        2       14        0      .00  2062.09  2396.10


FLOW DISTRIBUTION FOR SECNO=    211.00          CWSEL=    306.92

STA=     334.     515.     673.     779.    1081.    1151.    1233.    1479.    1655.    1934.    2100.    2325.    2396.
  PER Q=      3.0      7.9      6.6     20.5      4.4      3.0     12.2     14.6     17.1      7.0      3.6       .1
   AREA=   1064.8   2764.4   2113.7   6316.3   1390.5   1172.8   4280.9   2100.6   2768.2   1311.8    994.9     68.3
    VEL=      1.4      1.4      1.6      1.6      1.6      1.3      1.4      3.5      3.1      2.7      1.8       .6
  DEPTH=      5.9     17.4     19.9     20.9     19.9     14.2     17.4     11.9      9.9      7.9      4.4      1.0

*SECNO 220.000
   220.00    19.13   307.13   298.96      .00   307.27      .14      .25      .02   292.00
   50000.    8658.    5215.   36127.    2821.    5740.   11141.    2614.     187.    292.00
      .59     3.07      .91     3.24     .040     .200     .040     .000   288.00   413.80
  .000318      830.     810.     770.        2       12        0      .00  1768.46  2182.26


FLOW DISTRIBUTION FOR SECNO=    220.00          CWSEL=    307.13
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```
   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


STA=     414.     574.     652.     736.     746.    1065.    1378.    1420.    1494.    1563.    1687.    1757.    1873.
  PER Q=      4.4      4.7      7.2      1.0     10.4     34.2      3.0      3.9      3.6      6.6      3.7      6.1
   AREA=    887.2    771.4   1028.5    134.2   5740.2   4419.3    461.8    671.8    630.8   1135.5    639.0   1056.1
    VEL=      2.5      3.1      3.5      3.8       .9      3.9      3.3      2.9      2.9      2.9      2.9      2.9
  DEPTH=      5.5     10.0     12.1     14.1     18.0     14.1     10.9      9.1      9.1      9.1      9.1      9.1

STA=    1873.    1965.    2086.    2182.
  PER Q=      4.8      5.3      1.0
   AREA=    836.1    985.9    304.4
    VEL=      2.9      2.7      1.7
  DEPTH=      9.1      8.1      3.2

*SECNO 230.000

3470 ENCROACHMENT STATIONS=      825.0    2050.0  TYPE=      1  TARGET=     1225.000
   230.00    19.25   307.25   299.47      .00   307.49      .24      .19      .03   292.00
   50000.    3842.    4012.   42146.    1055.    3617.   10200.    2811.     204.    292.00
      .63     3.64     1.11     4.13     .040     .200     .040     .000   288.00   825.00
  .000475     465.     490.     505.        2       20        0      .00  1225.00  2050.00

FLOW DISTRIBUTION FOR SECNO=    230.00          CWSEL=    307.25

STA=     825.     902.     940.     941.    1143.    1280.    1427.    1544.    1826.    2021.    2050.
  PER Q=      3.6      4.0       .2      8.0     18.7     17.7     14.0     19.5     12.9      1.6
   AREA=    573.0    459.5     22.8   3617.0   1961.2   1945.5   1542.6   2682.2   1803.3    265.5
    VEL=      3.1      4.3      3.5      1.1      4.8      4.5      4.5      3.6      3.6      3.0
  DEPTH=      7.4     12.3     14.3     17.9     14.3     13.3     13.3      9.5      9.3      9.3

*SECNO 239.000

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE


3470 ENCROACHMENT STATIONS=     2370.0    3040.0  TYPE=      1  TARGET=      670.000
   239.00    17.10   307.10   298.48      .00   308.18     1.09      .44      .25   294.00
   50000.    2952.   15410.   31637.     317.    5474.    3187.    2929.     214.    294.00
      .65     9.33     2.82     9.93     .040     .200     .040     .000   290.00  2370.00
  .003357     400.     420.     440.        2       13        0      .00   670.00  3040.00
```

```
   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


FLOW DISTRIBUTION FOR SECNO=    239.00          CWSEL=    307.10

STA=    2370.    2385.    2399.    2724.    2732.    2742.    2758.    2827.    2869.    3000.    3040.
  PER Q=      2.3      3.6     30.8      1.9      2.1      2.7     14.0     10.1     26.4      6.0
   AREA=    156.8    159.7   5474.1     85.9    108.0    144.6    695.6    469.4   1314.6    368.4
    VEL=      7.4     11.3      2.8     11.1      9.9      9.4     10.1     10.7     10.1      8.2
  DEPTH=     10.3     12.1     16.8     12.1     10.1      9.1     10.1     11.1     10.1      9.1

*SECNO 240.000

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE

   240.00    19.17   309.17   298.36      .00   309.70      .54     1.47      .05   306.00
   50000.      72.   49928.       0.      11.    8491.       0.    2976.     217.    310.00
      .66     6.36     5.88      .00     .040     .200     .000     .000   290.00  2511.46
  .015003     195.     230.     255.        2       11        0      .00   514.77  3026.24


FLOW DISTRIBUTION FOR SECNO=    240.00          CWSEL=    309.17

STA=    2511.    2515.    2519.    3032.
  PER Q=       .0       .1     99.9
   AREA=      2.1      9.1   8491.4
    VEL=      3.1      7.1      5.9
  DEPTH=       .6      2.2     16.8

CCHV=     .300 CEHV=     .500
*SECNO 242.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE


3370 NORMAL BRIDGE, NRD=  31 MIN ELTRD=   312.00 MAX ELLC=   311.50

        MAST BLVD BRIDGE  (NORMAL BRIDGE ROUTINE)
   242.00    19.14   309.14   298.80      .00   309.78      .64      .03      .05   306.00
   50000.      25.   49975.       0.      11.    7786.       0.    2978.     217.    310.00
      .66     2.27     6.42      .00     .030     .040     .000     .000   290.00  2511.56
  .001091      10.      10.      10.        2       15        0  -689.77   514.46  3026.02
```

```
   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


FLOW DISTRIBUTION FOR SECNO=    242.00          CWSEL=    309.14

STA=    2512.    2519.    3032.
  PER Q=       .1     99.9
   AREA=     11.0   7785.8
    VEL=      2.3      6.4
  DEPTH=      1.4     15.4

*SECNO 243.000

3370 NORMAL BRIDGE, NRD=  31 MIN ELTRD=   312.00 MAX ELLC=   311.50

   243.00    19.22   309.22   298.80      .00   309.85      .63      .07      .00   313.00
   50000.       0.   49963.      37.       0.    7816.      16.    2989.     218.    300.00
      .66      .00     6.39     2.27     .000     .040     .030     .000   290.00  2511.32
  .001075      65.      65.      65.        2       15        0  -694.21   515.24  3026.56


FLOW DISTRIBUTION FOR SECNO=    243.00          CWSEL=    309.22

STA=    2511.    3002.    3005.
  PER Q=     99.9       .1
   AREA=   7816.5     16.2
    VEL=      6.4      2.3
  DEPTH=     15.9      6.2

*SECNO 244.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE

   244.00    19.37   309.37   298.90      .00   309.91      .54      .02      .03   310.00
   50000.       0.   50000.       0.       0.    8511.       0.    2991.     218.    310.00
      .66      .00     5.87      .00     .000     .140     .000     .000   290.00  2552.74
  .007522      10.      10.      10.        2       14        0      .00   521.75  3074.49


FLOW DISTRIBUTION FOR SECNO=    244.00          CWSEL=    309.37

STA=    2553.    3076.
  PER Q=    100.0
   AREA=   8510.7
    VEL=      5.9
  DEPTH=     16.3
```

| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

*SECNO 245.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3470 ENCROACHMENT STATIONS= | 100.0 | 1515.0 | TYPE= | 1 | TARGET= | 1415.000 | | | |
| 245.00 | 19.96 | 309.96 | 297.46 | .00 | 310.32 | .36 | .36 | .05 | 292.00 |
| 50000. | 20710. | 21639. | 7652. | 3207. | 9180. | 1648. | 3036. | 221. | 292.00 |
| .67 | 6.46 | 2.36 | 4.64 | .040 | .140 | .055 | .000 | 290.00 | 593.34 |
| .000932 | 210. | 165. | 200. | 2 | 17 | 0 | .00 | 921.66 | 1515.00 |

FLOW DISTRIBUTION FOR SECNO= 245.00 CWSEL= 309.96

| STA= | 593. | 760. | 786. | 817. | 928. | 1396. | 1452. | 1493. | 1515. |
|---|---|---|---|---|---|---|---|---|---|
| PER Q= | 3.5 | 3.2 | 6.3 | 28.4 | 43.3 | 8.7 | 4.4 | 2.2 | |
| AREA= | 568.2 | 287.1 | 454.9 | 1896.5 | 9179.7 | 850.9 | 502.7 | 294.3 | |
| VEL= | 3.1 | 5.6 | 6.9 | 7.5 | 2.4 | 5.1 | 4.4 | 3.8 | |
| DEPTH= | 3.4 | 11.1 | 15.0 | 17.0 | 19.6 | 15.4 | 12.2 | 13.3 | |

CCHV= .100 CEHV= .300
1490 NH CARD USED
*SECNO 250.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 250.00 | 20.76 | 310.76 | 299.80 | .00 | 310.93 | .17 | .59 | .02 | 294.00 |
| 50000. | 8419. | 6929. | 34652. | 2076. | 3455. | 10608. | 3297. | 240. | 294.00 |
| .74 | 4.05 | 2.01 | 3.27 | .045 | .140 | .067 | .000 | 290.00 | 2268.53 |
| .000668 | 705. | 740. | 790. | 2 | 8 | 0 | .00 | 1275.38 | 3543.91 |

FLOW DISTRIBUTION FOR SECNO= 250.00 CWSEL= 310.76

| STA= | 2269. | 2461. | 2551. | 2567. | 2741. | 2947. | 2973. | 3001. | 3023. | 3054. | 3089. | 3130. | 3185. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PER Q= | 3.3 | 12.7 | .9 | 13.9 | 10.2 | 3.2 | 3.8 | 3.4 | 4.3 | 3.9 | 3.5 | 4.5 | |
| AREA= | 642.5 | 1183.1 | 250.5 | 3455.3 | 3070.0 | 377.7 | 434.8 | 375.3 | 490.0 | 481.4 | 486.6 | 629.0 | |
| VEL= | 2.6 | 5.4 | 1.7 | 2.0 | 1.7 | 4.2 | 4.4 | 4.6 | 4.4 | 4.0 | 3.6 | 3.6 | |
| DEPTH= | 3.3 | 13.1 | 15.8 | 19.9 | 14.9 | 14.8 | 15.8 | 16.8 | 15.8 | 13.8 | 11.8 | 11.5 | |

| STA= | 3185. | 3222. | 3249. | 3439. | 3495. | 3544. |
|---|---|---|---|---|---|---|
| PER Q= | 4.4 | 3.0 | 20.9 | 3.4 | .8 | |
| AREA= | 533.9 | 378.2 | 2610.6 | 531.5 | 208.9 | |
| VEL= | 4.1 | 4.0 | 4.0 | 3.2 | 2.0 | |
| DEPTH= | 14.5 | 13.8 | 13.8 | 9.5 | 4.3 | |

| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

1490 NH CARD USED
*SECNO 260.000

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 260.00 | 17.65 | 311.65 | 306.19 | .00 | 312.56 | .90 | 1.41 | .22 | 300.00 |
| 50000. | 909. | 10884. | 38207. | 363. | 2561. | 4538. | 3575. | 264. | 300.00 |
| .77 | 2.50 | 4.25 | 8.42 | .136 | .140 | .055 | .000 | 294.00 | 2282.62 |
| .004312 | 1035. | 1025. | 1020. | 2 | 14 | 0 | .00 | 752.46 | 3035.08 |

FLOW DISTRIBUTION FOR SECNO= 260.00 CWSEL= 311.65

| STA= | 2283. | 2375. | 2545. | 2601. | 2635. | 2685. | 2743. | 2775. | 2796. | 2809. | 2825. | 2856. | 2906. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PER Q= | 1.8 | 21.8 | 10.3 | 5.2 | 7.7 | 9.1 | 5.8 | 5.1 | 3.8 | 4.4 | 8.6 | 9.6 | |
| AREA= | 363.5 | 2561.1 | 600.7 | 326.2 | 481.6 | 562.7 | 336.6 | 266.9 | 185.7 | 217.1 | 421.8 | 546.8 | |
| VEL= | 2.5 | 4.2 | 8.6 | 8.0 | 8.0 | 8.0 | 8.6 | 9.6 | 10.1 | 10.1 | 10.1 | 8.8 | |
| DEPTH= | 3.9 | 15.1 | 10.7 | 9.7 | 9.7 | 9.7 | 10.7 | 12.7 | 13.7 | 13.7 | 13.7 | 11.1 | |

| STA= | 2906. | 2962. | 3035. |
|---|---|---|---|
| PER Q= | 5.4 | 1.4 | |
| AREA= | 409.0 | 182.6 | |
| VEL= | 6.7 | 3.7 | |
| DEPTH= | 7.2 | 2.5 | |

1490 NH CARD USED
*SECNO 270.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 270.00 | 16.82 | 314.82 | 307.73 | .00 | 315.36 | .55 | 2.77 | .04 | 300.00 |
| 49000. | 6620. | 7842. | 34538. | 2678. | 2596. | 5052. | 3768. | 286. | 304.00 |
| .82 | 2.47 | 3.02 | 6.84 | .095 | .140 | .055 | .000 | 298.00 | 1867.70 |
| .002129 | 985. | 965. | 930. | 2 | 11 | 0 | .00 | 1283.88 | 3151.57 |

FLOW DISTRIBUTION FOR SECNO= 270.00 CWSEL= 314.82

| STA= | 1868. | 2394. | 2510. | 2679. | 2721. | 2802. | 2883. | 2900. | 2961. | 2995. | 3072. | 3152. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PER Q= | 8.1 | 5.4 | 16.0 | 5.7 | 15.6 | 18.4 | 3.9 | 16.9 | 5.5 | 3.7 | .9 | |
| AREA= | 1546.3 | 1131.8 | 2595.8 | 454.2 | 1089.0 | 1199.9 | 251.8 | 1018.0 | 408.8 | 449.4 | 180.5 | |
| VEL= | 2.6 | 2.3 | 3.0 | 6.1 | 7.0 | 7.5 | 7.5 | 8.1 | 6.5 | 4.0 | 2.4 | |
| DEPTH= | 2.9 | 9.8 | 15.4 | 10.8 | 13.4 | 14.8 | 14.8 | 16.7 | 12.2 | 5.8 | 2.3 | |

| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

1490 NH CARD USED
*SECNO 280.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 280.00 | 16.53 | 316.53 | 308.55 | .00 | 316.70 | .17 | 1.30 | .04 | 306.00 |
| 49000. | 6210. | 2786. | 40004. | 4250. | 1521. | 11258. | 4093. | 320. | 306.00 |
| .91 | 1.46 | 1.83 | 3.55 | .129 | .140 | .063 | .000 | 300.00 | 482.86 |
| .000829 | 1045. | 1040. | 1030. | 3 | 11 | 0 | .00 | 1549.27 | 2032.13 |

FLOW DISTRIBUTION FOR SECNO= 280.00 CWSEL= 316.53

| STA= | 483. | 950. | 958. | 1060. | 1242. | 1340. | 1370. | 1408. | 1502. | 1570. | 1635. | 1690. | 1800. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PER Q= | 12.4 | .3 | 5.7 | 5.7 | 7.1 | 3.7 | 4.0 | 8.5 | 7.3 | 6.1 | 4.7 | 13.4 | |
| AREA= | 4165.5 | 84.3 | 1521.4 | 1917.1 | 1180.3 | 406.0 | 468.3 | 1060.1 | 852.3 | 749.7 | 604.3 | 1488.7 | |
| VEL= | 1.5 | 1.5 | 1.8 | 1.5 | 3.0 | 4.4 | 4.1 | 3.9 | 4.2 | 4.0 | 3.8 | 4.4 | |
| DEPTH= | 8.9 | 10.5 | 14.9 | 10.5 | 12.0 | 13.5 | 12.3 | 11.3 | 12.5 | 11.5 | 11.0 | 13.5 | |

| STA= | 1800. | 1830. | 1850. | 1933. | 1995. | 2032. |
|---|---|---|---|---|---|---|
| PER Q= | 4.6 | 3.4 | 8.2 | 4.2 | .7 | |
| AREA= | 466.0 | 330.7 | 991.3 | 591.1 | 152.2 | |
| VEL= | 4.8 | 5.0 | 4.1 | 3.5 | 2.4 | |
| DEPTH= | 15.5 | 16.5 | 11.9 | 9.5 | 4.1 | |

*SECNO 285.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 285.00 | 15.04 | 317.04 | 309.79 | .00 | 317.20 | .15 | .50 | .00 | 306.00 |
| 49000. | 4435. | 1793. | 42771. | 1924. | 1174. | 13069. | 4351. | 346. | 310.00 |
| .97 | 2.31 | 1.53 | 3.27 | .060 | .140 | .055 | .000 | 302.00 | 341.11 |
| .000650 | 665. | 670. | 680. | 2 | 14 | 0 | .00 | 1805.85 | 2146.96 |

FLOW DISTRIBUTION FOR SECNO= 285.00 CWSEL= 317.04

| STA= | 341. | 626. | 707. | 792. | 910. | 1063. | 1232. | 1288. | 1337. | 1513. | 1601. | 1786. | 1842. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PER Q= | 4.2 | 4.9 | 3.7 | 8.6 | 13.6 | 13.0 | 4.3 | 3.2 | 6.8 | 4.9 | 12.0 | 5.3 | |
| AREA= | 1109.2 | 814.5 | 1174.1 | 1240.1 | 1842.6 | 1869.6 | 621.7 | 493.1 | 1268.3 | 798.5 | 1836.8 | 701.9 | |
| VEL= | 1.8 | 2.9 | 1.5 | 3.4 | 3.6 | 3.4 | 3.4 | 3.2 | 2.6 | 3.0 | 3.2 | 3.7 | |
| DEPTH= | 3.9 | 10.0 | 13.7 | 10.6 | 12.0 | 11.0 | 11.0 | 10.0 | 7.2 | 9.0 | 10.0 | 12.5 | |

| STA= | 1842. | 1982. | 2136. | 2147. |
|---|---|---|---|---|
| PER Q= | 12.5 | 3.1 | .0 | |
| AREA= | 1693.3 | 697.4 | 5.8 | |
| VEL= | 3.6 | 2.2 | .4 | |
| DEPTH= | 12.0 | 4.5 | .5 | |

```
   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


*SECNO 290.000

3265 DIVIDED FLOW

   290.00    15.51   317.51   311.73      .00   317.69      .18      .48      .01   308.00
   49000.    8388.    2341.   38271.    2156.    1361.   11343.    4581.     373.    310.00
     1.02     3.89     1.72     3.37     .040     .140     .055     .000   302.00  2223.99
  .000872     645.     645.     645.        1       20        0      .00  1848.62  4166.36


FLOW DISTRIBUTION FOR SECNO=    290.00          CWSEL=    317.51

STA=    2224.    2460.    2545.    2655.    2759.    2834.    2932.    3041.    3091.    3243.    3411.    3646.    3701.
  PER Q=      4.3      4.1      8.8      4.8      4.3      6.0      5.9      3.5      9.9      4.8     19.3      3.2
   AREA=    681.8    535.2    939.1   1360.5    639.4    865.8    888.7    480.4   1385.9    788.7   2468.7    464.9
    VEL=      3.1      3.8      4.6      1.7      3.3      3.4      3.2      3.6      3.5      3.0      3.8      3.3
  DEPTH=      2.9      6.3      8.5     13.1      8.5      8.8      8.2      9.5      9.1      4.7     10.5      8.5

STA=    3701.    3811.    4078.    4166.
  PER Q=      3.5     15.4      2.3
   AREA=    648.5   2275.8    436.7
    VEL=      2.7      3.3      2.6
  DEPTH=      5.9      8.5      4.9

1490 NH CARD USED
*SECNO 300.000

3265 DIVIDED FLOW


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE


3470 ENCROACHMENT STATIONS=     2340.0    4140.0  TYPE=      1  TARGET=     1800.000
   300.00    12.24   318.24   314.09      .00   318.55      .31      .83      .04   312.00
   49000.    3664.    3237.   42099.     830.    1596.    9134.    4783.     400.    314.00
     1.07     4.41     2.03     4.61     .040     .140     .055     .000   306.00  2340.00
  .001892     655.     660.     670.        2       11        0      .00  1645.29  4023.24


FLOW DISTRIBUTION FOR SECNO=    300.00          CWSEL=    318.24
```

```
   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


STA=    2340.    2536.    2709.    2823.    2917.    2990.    3029.    3091.    3151.    3255.    3416.    3537.    3737.
  PER Q=      7.5      6.6      5.4     10.9      8.4      4.6      7.1      6.0      6.7      8.2      3.0      6.7
   AREA=    830.1   1595.9    712.2    960.8    741.6    408.7    627.9    565.1    750.4   1004.5    467.6    861.4
    VEL=      4.4      2.0      3.7      5.5      5.5      5.5      5.5      5.2      4.4      4.0      3.2      3.8
  DEPTH=      4.2      9.3      6.2     10.2     10.2     10.2     10.2      9.3      7.2      6.2      3.9      4.3

STA=    3737.    3852.    3908.    3967.    4007.    4023.
  PER Q=      5.9      3.0      6.8      3.0       .1
   AREA=    722.9    364.4    602.3    315.9     27.9
    VEL=      4.0      4.1      5.5      4.7      1.8
  DEPTH=      6.2      6.6     10.2      7.9      1.7

*SECNO 310.000

3470 ENCROACHMENT STATIONS=     2460.0    4230.0  TYPE=      1  TARGET=     1770.000
        CONFLUENCE WITH SYCAMORE CREEK
   310.00    11.19   319.19   313.84      .00   319.41      .22      .85      .01   314.00
   49000.    2135.    1304.   45561.     764.     959.   11907.    4957.     423.    316.00
     1.11     2.79     1.36     3.83     .040     .140     .055     .000   308.00  2460.00
  .001086     620.     610.     600.        2       14        0      .00  1766.44  4226.44

FLOW DISTRIBUTION FOR SECNO=    310.00          CWSEL=    319.19

STA=    2460.    2698.    2822.    2944.    3016.    3085.    3160.    3297.    3422.    3550.    3687.    4070.    4130.
  PER Q=      4.4      2.7      6.2      5.3      4.4      3.7      6.7      7.0      6.7      5.3     38.4      5.2
   AREA=    764.0    958.9    886.5    659.9    581.7    539.3    985.2    980.3    955.2    854.7   4246.5    611.5
    VEL=      2.8      1.4      3.4      3.9      3.7      3.3      3.3      3.5      3.4      3.0      4.4      4.2
  DEPTH=      3.2      7.7      7.3      9.2      8.4      7.2      7.2      7.8      7.5      6.2     11.1     10.2

STA=    4130.    4191.    4226.
  PER Q=      3.7       .5
   AREA=    501.3    105.4
    VEL=      3.6      2.3
  DEPTH=      8.2      3.0

*SECNO 320.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE
```

```
   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


3470 ENCROACHMENT STATIONS=      950.0    2300.0  TYPE=      1  TARGET=     1350.000
       CONFLUENCE WITH FORRESTER CREEK
   320.00    10.71   320.71   317.84      .00   321.33      .62     1.80      .12   316.00
   49000.     804.   11393.   36803.     125.    2969.    5342.    5164.     452.    312.00
     1.15     6.41     3.84     6.89     .040     .140     .055     .000   310.00   950.00
  .006472     665.     750.     840.        2       16        0      .00  1329.07  2279.07


FLOW DISTRIBUTION FOR SECNO=    320.00          CWSEL=    320.71

STA=     950.     989.    1300.    1478.    1670.    1786.    1961.    2203.    2279.
  PER Q=      1.6     23.3     18.8     19.4      9.4     10.3     14.2      2.9
   AREA=    125.4   2968.7   1194.1   1251.5    663.2    824.2   1142.8    266.5
    VEL=      6.4      3.8      7.7      7.6      6.9      6.1      6.1      5.3
  DEPTH=      3.2      9.5      6.7      6.5      5.7      4.7      4.7      3.5

*SECNO 330.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE

3470 ENCROACHMENT STATIONS=     1280.0    2300.0  TYPE=      1  TARGET=     1020.000
   330.00    11.86   323.86   318.57      .00   324.31      .45     2.96      .02   314.00
   48000.   23228.    8457.   16315.    4076.    1844.    3082.    5317.     472.    314.00
     1.19     5.70     4.59     5.29     .060     .085     .060     .000   312.00  1326.43
  .002586     870.     780.     700.        2       14        0      .00   956.22  2282.65


FLOW DISTRIBUTION FOR SECNO=    330.00          CWSEL=    323.86

STA=    1326.    1393.    1760.    1917.    2113.    2240.    2283.
  PER Q=      4.8     43.6     17.6     19.4     12.6      2.0
   AREA=    459.4   3617.0   1844.3   1734.4   1120.2    227.8
    VEL=      5.0      5.8      4.6      5.4      5.4      4.2
  DEPTH=      6.9      9.9     11.7      8.8      8.9      5.3

*SECNO 340.000

3470 ENCROACHMENT STATIONS=     1200.0    2180.0  TYPE=      1  TARGET=      980.000
   340.00    15.21   325.21   319.00      .00   325.58      .38     1.27      .01   320.00
   48000.    8121.   21991.   17888.    1597.    5023.    3278.    5428.     483.    318.00
     1.22     5.08     4.38     5.46     .060     .085     .060     .000   310.00  1203.68
  .002399     520.     505.     505.        2       19        0      .00   976.32  2180.00
```

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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


FLOW DISTRIBUTION FOR SECNO=    340.00          CWSEL=    325.21

STA=    1204.    1391.    1410.    1843.    1891.    2180.
  PER Q=     15.7      1.2     45.8      3.2     34.0
   AREA=   1463.4    133.9   5023.5    342.1   2935.7
    VEL=      5.1      4.4      4.4      4.5      5.6
  DEPTH=      7.8      7.0     11.6      7.2     10.1

*SECNO 345.000

3470 ENCROACHMENT STATIONS=     1210.0    2270.0  TYPE=      1  TARGET=     1060.000
   345.00    13.96   325.96   320.63      .00   326.39      .43      .79      .02   322.00
   48000.   12602.   25559.    9839.    2210.    5215.    1765.    5489.     490.    324.00
     1.23     5.70     4.90     5.57     .060     .085     .060     .000   312.00  1210.00
  .003338     320.     280.     250.        2       11        0      .00  1060.00  2270.00


FLOW DISTRIBUTION FOR SECNO=    345.00          CWSEL=    325.96

STA=    1210.    1312.    1445.    1490.    1510.    1996.    2266.    2270.
  PER Q=      4.3     17.6      3.7       .7     53.2     20.3       .2
   AREA=    503.0   1294.1    327.7     85.4   5214.9   1733.9     31.4
    VEL=      4.1      6.5      5.4      3.8      4.9      5.6      2.8
  DEPTH=      4.9      9.7      7.3      4.3     10.7      6.4      7.7

CCHV=     .300 CEHV=     .500
*SECNO 355.000

3470 ENCROACHMENT STATIONS=     1370.0    2370.0  TYPE=      1  TARGET=     1000.000
   355.00    13.04   327.04   322.71      .00   327.55      .51     1.12      .04   322.00
   48000.   11842.   30686.    5473.    2099.    5385.     868.    5546.     496.    322.00
     1.25     5.64     5.70     6.31     .060     .085     .060     .000   314.00  1370.00
  .004759     275.     285.     295.        2       14        0      .00  1000.00  2370.00


FLOW DISTRIBUTION FOR SECNO=    355.00          CWSEL=    327.04

STA=    1370.    1492.    1531.    1695.    1702.    1731.    2254.    2287.    2303.    2306.    2370.
  PER Q=      4.7      2.8     15.1       .5      1.5     63.9      1.7      1.1       .3      8.2
   AREA=    517.2    234.8   1156.7     44.7    146.0   5385.1    166.2     94.8     24.1    582.8
    VEL=      4.4      5.7      6.3      5.5      5.0      5.7      5.0      5.6      6.1      6.8
  DEPTH=      4.2      6.0      7.0      6.0      5.0     10.3      5.0      6.0      8.0      9.0
```

| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

*SECNO 356.000

3470 ENCROACHMENT STATIONS= 1340.0 2290.0 TYPE= 1 TARGET= 950.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 356.00 | 12.43 | 328.43 | 325.38 | .00 | 329.29 | .86 | 1.57 | .17 | 316.00 |
| 48000. | 11547. | 35451. | 1002. | 1918. | 4505. | 136. | 5589. | 502. | 320.00 |
| 1.25 | 6.02 | 7.87 | 7.36 | .060 | .085 | .060 | .000 | 316.00 | 1340.00 |
| .008642 | 250. | 250. | 250. | 2 | 15 | 0 | .00 | 950.00 | 2290.00 |

FLOW DISTRIBUTION FOR SECNO= 356.00 CWSEL= 328.43

| STA= | 1340. | 1497. | 1678. | 1813. | 1836. | 2258. | 2290. |
|---|---|---|---|---|---|---|---|
| PER Q= | 8.8 | 6.8 | 4.1 | 4.4 | 73.9 | 2.1 | |
| AREA= | 694.3 | 623.4 | 391.3 | 208.7 | 4505.1 | 136.2 | |
| VEL= | 6.1 | 5.2 | 5.0 | 10.1 | 7.9 | 7.4 | |
| DEPTH= | 4.4 | 3.4 | 2.9 | 9.2 | 10.7 | 4.3 | |

SPECIAL BRIDGE

| SB | XK | XKOR | COFQ | RDLEN | BWC | BWP | BAREA | SS | ELCHU | ELCHD |
|---|---|---|---|---|---|---|---|---|---|---|
| | .90 | 1.60 | 2.75 | .00 | 450.00 | 77.00 | 3112.00 | 2.00 | 318.00 | 318.00 |

*SECNO 358.000
BTCARD BRIDGE STENCL= 1340.00 STENCR= 2300.00
6870 D.S. ENERGY OF 329.29 IS HIGHER THAN COMPUTED ENERGY OF 328.59

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE

PRESSURE AND WEIR FLOW

| EGPRS | EGLWC | H3 | QWEIR | QPR | BAREA | TRAPEZOID AREA | ELLC | ELTRD | WEIRLN |
|---|---|---|---|---|---|---|---|---|---|
| 328.59 | 328.57 | .01 | 40063. | 7911. | 3112. | 3112. | 326.00 | 324.00 | 442. |

3470 ENCROACHMENT STATIONS= 1340.0 2300.0 TYPE= 1 TARGET= 960.000
CARLTON HILLS BLVD BRIDGE (SPECIAL BRIDGE ROUTINE)

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 358.00 | 12.06 | 328.06 | .00 | .00 | 329.29 | 1.23 | .00 | .00 | 316.00 |
| 48000. | 6928. | 41055. | 17. | 1891. | 4321. | 7. | 5598. | 503. | 326.00 |
| 1.26 | 3.66 | 9.50 | 2.40 | .060 | .040 | .030 | .000 | 316.00 | 1340.00 |
| .003023 | 65. | 65. | 65. | 3 | 0 | 8 | .00 | 960.00 | 2300.00 |

```
   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


FLOW DISTRIBUTION FOR SECNO=    358.00          CWSEL=    328.06

STA=    1340.    1497.    1678.    1788.    1795.    1813.    1822.    1829.    1850.    2278.    2284.    2300.
  PER Q=      4.5      3.3      1.0       .1       .8       .6       .8      3.2     85.5       .0       .0
   AREA=    636.8    556.7    225.4     21.8     94.7     62.9     63.4    229.0   4320.5      6.1      1.0
    VEL=      3.4      2.9      2.2      2.8      4.0      4.9      5.8      6.7      9.5      2.7       .4
  DEPTH=      4.1      3.1      2.1      3.1      5.1      7.1      9.1     11.1     10.1      1.1       .1

*SECNO 360.000

3301 HV CHANGED MORE THAN HVINS


3470 ENCROACHMENT STATIONS=     1530.0    2600.0  TYPE=      1  TARGET=     1070.000
   360.00    13.95   329.95   323.27      .00   330.30      .35      .75      .26   320.00
   48000.   37141.    8473.    2386.    7283.    2302.    1068.    5664.     511.    320.00
     1.28     5.10     3.68     2.23     .060     .085     .085     .000   316.00  1530.00
  .001662     335.     345.     355.        2       14        0      .00  1070.00  2600.00


FLOW DISTRIBUTION FOR SECNO=    360.00          CWSEL=    329.95

STA=    1530.    1879.    1920.    2012.    2113.    2187.    2383.    2600.
  PER Q=     36.2      5.4     15.4     13.2      7.2     17.7      5.0
   AREA=   3580.7    489.9   1270.0   1204.5    738.2   2301.8   1068.0
    VEL=      4.9      5.3      5.8      5.3      4.7      3.7      2.2
  DEPTH=     10.3     11.9     13.8     11.9      9.9     11.7      4.9

CCHV=     .100 CEHV=     .300
*SECNO 370.000

3470 ENCROACHMENT STATIONS=     1470.0    2820.0  TYPE=      1  TARGET=     1350.000
   370.00    12.57   330.57   324.06      .00   330.80      .23      .49      .01   320.00
   48000.   35160.    3677.    9164.    8329.    1138.    3760.    5759.     521.    320.00
     1.30     4.22     3.23     2.44     .060     .085     .085     .000   318.00  1470.00
  .001206     345.     345.     350.        2       18        0      .00  1344.56  2814.56


FLOW DISTRIBUTION FOR SECNO=    370.00          CWSEL=    330.57
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


STA=    1470.    1542.    1590.    1630.    1725.    1835.    2155.    2204.    2234.    2326.    2642.    2740.    2815.
  PER Q=      5.0      4.4      4.2     11.6     11.7     29.1      4.5      2.8      7.7     14.4      3.6      1.0
   AREA=    674.2    510.4    460.4   1194.0   1272.5   3377.6    518.9    321.3   1137.7   2718.3    741.7    299.6
    VEL=      3.6      4.1      4.4      4.6      4.4      4.1      4.1      4.1      3.2      2.6      2.3      1.6
  DEPTH=      9.4     10.6     11.6     12.6     11.6     10.6     10.6     10.6     12.3      8.6      7.6      4.0

*SECNO 380.000

3470 ENCROACHMENT STATIONS=     1540.0    2960.0  TYPE=      1  TARGET=     1420.000
   380.00    12.97   330.97   324.77      .00   331.20      .23      .40      .00   320.00
   48000.   33764.    2402.   11834.    8047.     704.    4449.    5856.     531.    320.00
     1.33     4.20     3.41     2.66     .060     .085     .085     .000   318.00  1540.00
  .001305     320.     320.     320.        2       11        0      .00  1420.00  2960.00


FLOW DISTRIBUTION FOR SECNO=    380.00          CWSEL=    330.97

STA=    1540.    1758.    1793.    1860.    1931.    1968.    2064.    2199.    2262.    2381.    2436.    2585.    2817.
  PER Q=     17.4      4.5      6.9      7.2      3.7      8.3      3.9      6.4     12.0      5.0      7.8     11.8
   AREA=   2054.6    441.0    746.4    784.7    399.5    959.5    660.1    700.2   1301.5    703.7   1355.1   2083.8
    VEL=      4.1      4.9      4.5      4.4      4.4      4.1      2.9      4.4      4.4      3.4      2.8      2.7
  DEPTH=      9.4     12.8     11.2     11.0     11.0     10.0      4.9     11.0     11.0     12.7      9.1      9.0

STA=    2817.    2918.    2960.
  PER Q=      4.2       .8
   AREA=    803.0    207.0
    VEL=      2.5      1.9
  DEPTH=      8.0      4.9

*SECNO 390.000

3470 ENCROACHMENT STATIONS=     1680.0    2740.0  TYPE=      1  TARGET=     1060.000
   390.00    13.74   331.74   326.44      .00   332.14      .40      .89      .05   324.00
   48000.   32610.    6858.    8531.    5801.    1658.    2617.    5995.     546.    324.00
     1.35     5.62     4.14     3.26     .060     .085     .085     .000   318.00  1680.00
  .002339     520.     520.     520.        2       23        0      .00  1060.00  2740.00


FLOW DISTRIBUTION FOR SECNO=    390.00          CWSEL=    331.74
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


STA=    1680.    1728.    1775.    1781.    1822.    1859.    1862.    1908.    2195.    2220.    2250.    2402.    2740.
  PER Q=      4.7      5.2       .8      7.1      7.3       .5      6.0     31.8      2.3      2.3     14.3     17.8
   AREA=    467.7    457.9     64.5    522.5    508.5     38.2    494.2   2796.2    218.6    232.3   1657.9   2617.1
    VEL=      4.8      5.5      5.6      6.5      6.9      5.8      5.8      5.5      5.1      4.7      4.1      3.3
  DEPTH=      9.7      9.7     10.7     12.7     13.7     12.7     10.7      9.7      8.7      7.7     10.9      7.7

*SECNO 400.000

3470 ENCROACHMENT STATIONS=     1749.0    2605.0  TYPE=      1  TARGET=      856.000
        DOWNSTREAM END MISSION CREEK DEVELOPMENT
   400.00    14.86   332.86   323.70      .00   333.16      .30     1.00      .01   320.00
   48000.    5050.   40249.    2701.     987.    9576.     504.    6137.     559.    320.00
     1.39     5.12     4.20     5.36     .040     .075     .040     .000   318.00  1749.00
  .001257     705.     540.     495.        2       14        0      .00   856.00  2605.00


FLOW DISTRIBUTION FOR SECNO=    400.00          CWSEL=    332.86

STA=    1749.    1793.    1858.    1878.    2532.    2557.    2605.
  PER Q=      4.2      3.6      2.7     83.9      3.8      1.8
   AREA=    384.0    394.0    208.6   9575.7    282.0    221.7
    VEL=      5.2      4.4      6.3      4.2      6.5      3.9
  DEPTH=      8.8      6.0     10.6     14.6     11.1      4.6

1490 NH CARD USED
*SECNO 410.000

3470 ENCROACHMENT STATIONS=     2970.0    3720.0  TYPE=      1  TARGET=      750.000
   410.00    15.65   333.65   324.11      .00   334.00      .35      .83      .02   320.00
   48000.    2801.   42632.    2568.     578.    8982.     501.    6307.     572.    320.00
     1.43     4.84     4.75     5.12     .040     .065     .040     .000   318.00  2970.00
  .001118     672.     700.     726.        2       18        0      .00   750.00  3720.00


FLOW DISTRIBUTION FOR SECNO=    410.00          CWSEL=    333.65

STA=    2970.    3054.    3065.    3646.    3668.    3720.
  PER Q=      3.8      2.1     88.8      3.4      2.0
   AREA=    429.2    149.2   8982.0    254.1    247.0
    VEL=      4.2      6.7      4.7      6.3      3.9
  DEPTH=      5.1     12.6     15.5     11.7      4.7
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


1490 NH CARD USED
*SECNO 415.000

3470 ENCROACHMENT STATIONS=     3200.0    3945.0  TYPE=      1  TARGET=      745.000
   415.00    16.47   334.47   324.08      .00   334.77      .30      .76      .01   320.00
   48000.    2283.   42196.    3521.     465.    9877.     705.    6496.     585.    320.00
     1.48     4.91     4.27     4.99     .040     .065     .040     .000   318.00  3200.00
  .000859     765.     780.     800.        2       18        0      .00   745.00  3945.00


FLOW DISTRIBUTION FOR SECNO=    415.00          CWSEL=    334.47

STA=    3200.    3245.    3252.    3865.    3895.    3945.
  PER Q=      3.5      1.3     87.9      4.6      2.7
   AREA=    365.4     99.7   9877.0    378.8    326.5
    VEL=      4.6      6.0      4.3      5.9      4.0
  DEPTH=      8.1     13.5     16.1     12.6      6.5

1490 NH CARD USED
*SECNO 420.000

3470 ENCROACHMENT STATIONS=     3378.9    4065.0  TYPE=      1  TARGET=      686.100
   420.00    16.92   334.92   325.37      .00   335.34      .42      .53      .04   320.00
   48000.    3536.   39702.    4762.     525.    8251.     694.    6609.     593.    320.00
     1.51     6.74     4.81     6.86     .040     .075     .040     .000   318.00  3404.69
  .001490     480.     480.     480.        2       14        0      .00   660.31  4065.00


FLOW DISTRIBUTION FOR SECNO=    420.00          CWSEL=    334.92

STA=    3405.    3455.    3467.    3989.    4009.    4032.    4065.
  PER Q=      4.4      3.0     82.7      4.8      3.6      1.5
   AREA=    351.0    174.0   8250.5    278.4    247.9    167.6
    VEL=      6.0      8.2      4.8      8.3      7.0      4.4
  DEPTH=      7.0     13.9     15.8     13.9     10.8      5.1

*SECNO 421.000

3301 HV CHANGED MORE THAN HVINS
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| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 421.00 | 10.98 | 334.98 | 331.64 | .00 | 336.66 | 1.69 | .95 | .38 | 325.00 |
| 48000. | 2496. | 45230. | 273. | 245. | 4329. | 41. | 6670. | 598. | 328.00 |
| 1.52 | 10.19 | 10.45 | 6.69 | .040 | .050 | .040 | .000 | 324.00 | 2612.20 |
| .005157 | 375. | 375. | 375. | 2 | 14 | 0 | .00 | 448.16 | 3060.37 |

FLOW DISTRIBUTION FOR SECNO= 421.00 CWSEL= 334.98

| STA= | 2612. | 2618. | 2625. | 2628. | 2640. | 2650. | 3049. | 3053. | 3056. | 3059. | 3060. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| PER Q= | .0 | .4 | .3 | 2.2 | 2.3 | 94.2 | .3 | .2 | .0 | .0 | |
| AREA= | 6.9 | 27.9 | 18.5 | 100.6 | 91.0 | 4328.8 | 20.9 | 14.3 | 4.8 | .9 | |
| VEL= | 3.3 | 6.5 | 7.8 | 10.6 | 11.9 | 10.4 | 8.0 | 6.1 | 3.5 | 1.5 | |
| DEPTH= | 1.2 | 4.0 | 6.0 | 8.0 | 9.5 | 10.8 | 6.0 | 4.0 | 2.0 | .5 | |

CCHV= .300 CEHV= .500
*SECNO 422.000

3301 HV CHANGED MORE THAN HVINS

3370 NORMAL BRIDGE, NRD= 53 MIN ELTRD= 344.00 MAX ELLC= 342.00

CUYAMACA BRIDGE - UPSTREAM END OF MISSION CREEK DEVELOPMENT
(NORMAL BRIDGE ROUTINE)

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 422.00 | 10.44 | 334.44 | 332.77 | .00 | 337.32 | 2.88 | .06 | .60 | 326.00 |
| 48000. | 1541. | 46032. | 427. | 149. | 3347. | 68. | 6671. | 598. | 326.00 |
| 1.52 | 10.32 | 13.75 | 6.28 | .040 | .030 | .040 | .000 | 324.00 | 2613.66 |
| .006428 | 10. | 10. | 10. | 2 | 12 | 0 | -800.78 | 445.74 | 3059.41 |

FLOW DISTRIBUTION FOR SECNO= 422.00 CWSEL= 334.44

| STA= | 2614. | 2618. | 2628. | 2645. | 3045. | 3049. | 3053. | 3056. | 3059. | 3059. |
|---|---|---|---|---|---|---|---|---|---|---|
| PER Q= | .0 | .2 | 3.0 | 95.9 | .4 | .3 | .2 | .0 | .0 | |
| AREA= | 4.3 | 16.9 | 128.1 | 3346.9 | 32.8 | 19.1 | 12.4 | 3.5 | .2 | |
| VEL= | 2.2 | 4.8 | 11.3 | 13.8 | 5.4 | 8.4 | 6.2 | 3.2 | 1.0 | |
| DEPTH= | 1.1 | 1.7 | 7.4 | 8.4 | 7.4 | 5.4 | 3.4 | 1.4 | .2 | |

| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

*SECNO 423.000

3301 HV CHANGED MORE THAN HVINS

3370 NORMAL BRIDGE, NRD= 53 MIN ELTRD= 344.00 MAX ELLC= 342.00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 423.00 | 11.48 | 335.48 | 332.76 | .00 | 337.84 | 2.35 | .36 | .16 | 326.00 |
| 48000. | 1678. | 45821. | 501. | 176. | 3681. | 84. | 6676. | 598. | 326.00 |
| 1.52 | 9.54 | 12.45 | 5.96 | .040 | .030 | .040 | .000 | 324.00 | 4610.83 |
| .004874 | 65. | 65. | 65. | 3 | 9 | 0 | -886.37 | 450.44 | 5061.26 |

FLOW DISTRIBUTION FOR SECNO= 423.00 CWSEL= 335.48

| STA= | 4611. | 4615. | 4618. | 4628. | 4645. | 5045. | 5049. | 5053. | 5056. | 5059. | 5061. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| PER Q= | .0 | .0 | .2 | 3.3 | 95.5 | .4 | .4 | .2 | .0 | .0 | |
| AREA= | 3.0 | 6.9 | 20.1 | 145.9 | 3680.7 | 37.3 | 22.7 | 16.1 | 6.0 | 2.0 | |
| VEL= | 2.0 | 2.6 | 4.4 | 10.7 | 12.4 | 4.9 | 8.2 | 6.4 | 4.0 | 1.9 | |
| DEPTH= | .7 | 2.5 | 2.0 | 8.5 | 9.2 | 8.5 | 6.5 | 4.5 | 2.5 | .7 | |

1490 NH CARD USED
*SECNO 424.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 424.00 | 10.18 | 336.18 | 333.45 | .00 | 338.04 | 1.86 | .06 | .15 | 326.00 |
| 48000. | 1281. | 44712. | 2007. | 164. | 4032. | 221. | 6677. | 599. | 326.00 |
| 1.52 | 7.81 | 11.09 | 9.10 | .050 | .050 | .050 | .000 | 326.00 | 4627.73 |
| .006311 | 10. | 10. | 10. | 3 | 14 | 0 | .00 | 462.23 | 5089.96 |

FLOW DISTRIBUTION FOR SECNO= 424.00 CWSEL= 336.18

| STA= | 4628. | 4659. | 5055. | 5070. | 5090. |
|---|---|---|---|---|---|
| PER Q= | 2.7 | 93.1 | 3.0 | 1.2 | |
| AREA= | 163.9 | 4031.7 | 140.1 | 80.4 | |
| VEL= | 7.8 | 11.1 | 10.3 | 7.0 | |
| DEPTH= | 5.3 | 10.2 | 9.2 | 4.1 | |

1490 NH CARD USED
*SECNO 425.000

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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE


3470 ENCROACHMENT STATIONS=     4365.0    5270.0  TYPE=      1  TARGET=      905.000
   425.00    12.72   338.72   333.13      .00   339.19      .48      .74      .41   328.00
   48000.   20635.   17356.   10009.    3531.    3806.    1574.    6714.     602.    328.00
     1.53     5.84     4.56     6.36     .045     .075     .045     .000   326.00  4365.00
  .001849     285.     225.     215.        2       19        0      .00   905.00  5270.00


FLOW DISTRIBUTION FOR SECNO=    425.00          CWSEL=    338.72

STA=    4365.    4372.    4382.    4456.    4627.    4806.    5113.    5270.
  PER Q=       .0       .3      4.0     15.2     23.5     36.2     20.9
   AREA=      9.9     37.5    427.7   1314.3   1741.4   3805.9   1574.2
    VEL=      1.8      3.4      4.5      5.5      6.5      4.6      6.4
  DEPTH=      1.5      3.7      5.7      7.7      9.7     12.4     10.0

CCHV=     .100 CEHV=     .300
1490 NH CARD USED
*SECNO 430.000

3470 ENCROACHMENT STATIONS=     4540.0    6200.0  TYPE=      1  TARGET=     1660.000
   430.00    13.61   339.61   334.34      .00   339.97      .36      .77      .01   328.00
   48000.   11260.   10256.   26483.    3462.    2454.    4772.    6821.     617.    328.00
     1.56     3.25     4.18     5.55     .045     .075     .045     .000   326.00  4540.00
  .001412     495.     470.     465.        2       14        0      .00  1660.00  6200.00


FLOW DISTRIBUTION FOR SECNO=    430.00          CWSEL=    339.61

STA=    4540.    5036.    5323.    5505.    5521.    5705.    5850.    6200.
  PER Q=      5.7      6.3      9.7      1.8     21.4     16.5     38.6
   AREA=   1163.1   1034.7   1112.0    152.5   2453.5   1406.6   3365.4
    VEL=      2.3      2.9      4.2      5.6      4.2      5.6      5.5
  DEPTH=      2.3      3.6      6.1      9.8     13.3      9.7      9.6
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


1490 NH CARD USED
*SECNO 440.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE


3470 ENCROACHMENT STATIONS=     4030.0    5760.0  TYPE=      1  TARGET=     1730.000
   440.00    12.57   340.57   337.09      .00   341.14      .56     1.10      .06   330.00
   46000.   27332.   12914.    5754.    4372.    2140.    1248.    6936.     638.    330.00
     1.59     6.25     6.03     4.61     .045     .075     .045     .000   328.00  4030.00
  .003251     535.     545.     550.        2       23        0      .00  1730.00  5760.00


FLOW DISTRIBUTION FOR SECNO=    440.00          CWSEL=    340.57

STA=    4030.    4525.    4719.    5052.    5085.    5107.    5119.    5292.    5311.    5369.    5443.    5760.
  PER Q=      4.6      3.8     39.3      6.9      3.3      1.6     28.1      3.0      3.5      3.5      2.6
   AREA=    736.1    499.3   2499.9    347.9    192.1     96.6   2140.1    172.0    289.1    317.6    469.6
    VEL=      2.8      3.5      7.2      9.1      7.8      7.6      6.0      8.1      5.5      5.0      2.5
  DEPTH=      1.5      2.6      7.5     10.6      8.6      8.5     12.4      9.0      5.0      4.3      1.5
1490 NH CARD USED
*SECNO 450.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE


3470 ENCROACHMENT STATIONS=     4030.0    5680.0  TYPE=      1  TARGET=     1650.000
   450.00    13.22   341.22   334.54      .00   341.65      .43      .50      .01   330.00
   46000.    7100.   38473.     428.    3569.    6768.     466.    7054.     658.    330.00
     1.62     1.99     5.68      .92     .055     .030     .055     .000   328.00  4193.38
  .000423     575.     530.     545.        2       11        0      .00  1486.62  5680.00


FLOW DISTRIBUTION FOR SECNO=    450.00          CWSEL=    341.22

STA=    4193.    4641.    4820.    4865.    5378.    5680.
  PER Q=      7.0      7.3      1.1     83.6       .9
   AREA=   1808.6   1481.8    278.5   6768.3    465.6
    VEL=      1.8      2.3      1.9      5.7       .9
  DEPTH=      4.0      8.3      6.3     13.2      1.5
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


1490 NH CARD USED
*SECNO 460.000

3470 ENCROACHMENT STATIONS=     4025.0    5620.0  TYPE=      1  TARGET=     1595.000
   460.00    13.51   341.51   333.19      .00   341.81      .29      .15      .01   330.00
   46000.    3030.   42547.     422.    2359.    9446.     510.    7173.     674.    330.00
     1.65     1.28     4.50      .83     .055     .030     .055     .000   328.00  4032.84
  .000260     480.     440.     425.        2       18        0      .00  1587.16  5620.00


FLOW DISTRIBUTION FOR SECNO=    460.00          CWSEL=    341.51

STA=    4033.    4582.    4626.    5331.    5620.
  PER Q=      5.6      1.0     92.5       .9
   AREA=   2069.2    289.6   9446.0    510.0
    VEL=      1.2      1.5      4.5       .8
  DEPTH=      3.8      6.6     13.4      1.8

1490 NH CARD USED
*SECNO 470.000

3265 DIVIDED FLOW


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE


3470 ENCROACHMENT STATIONS=     3700.0    5310.0  TYPE=      1  TARGET=     1610.000
   470.00    13.70   341.70   337.47      .00   342.25      .56      .36      .08   330.00
   46000.   34104.   11301.     595.    5703.    1873.     113.    7311.     697.    330.00
     1.67     5.98     6.03     5.24     .045     .070     .045     .000   328.00  3710.36
  .002639     790.     480.     430.        1       15        0      .00  1361.61  5167.89


FLOW DISTRIBUTION FOR SECNO=    470.00          CWSEL=    341.70

STA=    3710.    4279.    4346.    4372.    4424.    4459.    4698.    4837.    4914.    5002.    5146.    5168.
  PER Q=      9.8      9.1      4.4     11.0      3.1      8.5      5.4      6.1     16.8     24.6      1.3
   AREA=   1419.4    575.0    260.0    587.3    239.9    649.5    563.1    468.4    940.7   1873.0    113.5
    VEL=      3.2      7.3      7.7      8.6      5.9      6.0      4.4      6.0      8.2      6.0      5.2
  DEPTH=      2.5      8.7      9.7     11.5      6.7      2.7      4.0      6.1     10.7     13.0      5.2
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


1490 NH CARD USED
*SECNO 480.000

3265 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=     2870.0    4250.0  TYPE=      1  TARGET=     1380.000
   480.00    13.90   343.90   343.90      .00   345.96     2.06     1.40      .45   340.00
   46000.    6049.   39621.     330.    1220.    3233.      74.    7353.     705.    340.00
     1.68     4.96    12.25     4.48     .045     .070     .045     .000   330.00  2870.00
  .011345     305.     280.     280.        0        5        0      .00  1096.92  4186.74


FLOW DISTRIBUTION FOR SECNO=    480.00          CWSEL=    343.90

STA=    2870.    3362.    3873.    4125.    4187.
  PER Q=     10.9      2.3     86.1       .7
   AREA=    932.0    288.1   3233.1     73.6
    VEL=      5.4      3.6     12.3      4.5
  DEPTH=      1.9       .6     12.8      1.2

1490 NH CARD USED
*SECNO 483.000

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE


3470 ENCROACHMENT STATIONS=     2900.0    4240.0  TYPE=      1  TARGET=     1340.000
   483.00    15.96   345.96   344.09      .00   346.74      .78      .66      .13   340.00
   46000.   14528.   28589.    2883.    2996.    3512.     528.    7366.     708.    340.00
     1.68     4.85     8.14     5.46     .045     .070     .045     .000   330.00  2900.00
  .004254     100.     100.     105.        3        5        0      .00  1340.00  4240.00
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


FLOW DISTRIBUTION FOR SECNO=    483.00          CWSEL=    345.96

STA=    2900.    3360.    3450.    3817.    3855.    4098.    4163.    4240.
  PER Q=     21.1      3.5      5.2      1.8     62.1      4.1      2.2
   AREA=   1815.1    319.4    713.9    147.7   3511.7    305.8    222.2
    VEL=      5.4      5.0      3.4      5.5      8.1      6.1      4.5
  DEPTH=      4.0      3.5      2.0      3.8     14.4      4.7      2.9

*SECNO 484.000

3470 ENCROACHMENT STATIONS=     2920.0    4190.0  TYPE=      1  TARGET=     1270.000
   484.00    16.57   346.57   344.90      .00   347.31      .74      .57      .00   342.00
   46000.   21120.   21442.    3437.    3391.    2816.     542.    7384.     711.    342.00
     1.69     6.23     7.61     6.34     .045     .070     .045     .000   330.00  2920.00
  .005626     110.     115.     160.        2       10        0      .00  1270.00  4190.00


FLOW DISTRIBUTION FOR SECNO=    484.00          CWSEL=    346.57

STA=    2920.    2965.    3370.    3473.    3651.    3795.    4061.    4190.
  PER Q=      2.7     27.4      4.6      4.6      6.5     46.6      7.5
   AREA=    200.1   1848.9    367.3    458.8    516.0   2816.2    542.3
    VEL=      6.3      6.8      5.8      4.7      5.8      7.6      6.3
  DEPTH=      4.4      4.6      3.6      2.6      3.6     10.6      4.2

*SECNO 485.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE


3470 ENCROACHMENT STATIONS=     2920.0    4180.0  TYPE=      1  TARGET=     1260.000
        CHUBB LANE CROSSING
   485.00     6.34   346.34   345.55      .00   347.52     1.18      .08      .13   342.00
   46000.   28647.   12983.    4370.    3194.    1631.     477.    7386.     712.    342.00
     1.69     8.97     7.96     9.17     .045     .070     .045     .000   340.00  2920.00
  .012562      10.      10.      10.        2       22        0      .00  1260.00  4180.00


FLOW DISTRIBUTION FOR SECNO=    485.00          CWSEL=    346.34
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


STA=    2920.    2965.    3370.    3473.    3651.    3795.    4061.    4180.
  PER Q=      3.7     37.7      6.2      5.9      8.7     28.2      9.5
   AREA=    189.9   1757.8    344.1    418.6    483.4   1630.6    476.7
    VEL=      9.1      9.9      8.3      6.5      8.3      8.0      9.2
  DEPTH=      4.2      4.3      3.3      2.3      3.3      6.1      4.0

*SECNO 486.000

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE


3470 ENCROACHMENT STATIONS=     2920.0    4180.0  TYPE=      1  TARGET=     1260.000
   486.00    17.01   347.01   344.97      .00   347.65      .63      .07      .05   342.00
   46000.   22302.   20363.    3336.    3774.    2933.     555.    7387.     712.    342.00
     1.69     5.91     6.94     6.01     .045     .070     .045     .000   330.00  2920.00
  .004433      10.      10.      10.        3       19        0      .00  1260.00  4180.00


FLOW DISTRIBUTION FOR SECNO=    486.00          CWSEL=    347.01

STA=    2920.    2965.    3370.    3473.    3651.    3795.    4061.    4180.
  PER Q=      2.8     28.4      5.0      5.3      7.0     44.3      7.3
   AREA=    220.0   2025.8    412.3    536.8    579.1   2932.6    555.3
    VEL=      5.9      6.4      5.5      4.6      5.5      6.9      6.0
  DEPTH=      4.8      5.0      4.0      3.0      4.0     11.0      4.7

1490 NH CARD USED
*SECNO 490.000

3470 ENCROACHMENT STATIONS=     3060.0    4120.0  TYPE=      1  TARGET=     1060.000
   490.00    17.60   347.60   344.97      .00   348.30      .71      .63      .02   336.00
   46000.   29673.   12939.    3388.    4390.    1746.    1215.    7417.     717.    336.00
     1.70     6.76     7.41     2.79     .040     .070     .093     .000   330.00  3060.00
  .003018     175.     175.     175.        3       13        0      .00  1060.00  4120.00


FLOW DISTRIBUTION FOR SECNO=    490.00          CWSEL=    347.60
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


STA=    3060.    3464.    3544.    3616.    3687.    3749.    3774.    3798.    3905.    4001.    4120.
  PER Q=     31.3      6.3      5.6      5.5      7.6      3.3      4.9     28.1      4.8      2.6
   AREA=   2259.6    448.8    402.9    395.1    453.3    193.7    236.5   1746.2    590.2    624.6
    VEL=      6.4      6.4      6.4      6.4      7.7      7.9      9.4      7.4      3.7      1.9
  DEPTH=      5.6      5.6      5.6      5.6      7.3      7.6     10.0     16.2      6.2      5.3

1490 NH CARD USED
*SECNO 500.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE


3470 ENCROACHMENT STATIONS=     3430.0    4190.0  TYPE=      1  TARGET=      760.000
   500.00    18.41   348.41   340.90      .00   348.87      .47      .55      .02   334.00
   45000.    9276.   24936.   10789.    2206.    4232.    1949.    7508.     727.    334.00
     1.72     4.20     5.89     5.54     .030     .040     .030     .000   330.00  3430.00
  .000546     495.     510.     525.        2       14        0      .00   760.00  4190.00


FLOW DISTRIBUTION FOR SECNO=    500.00          CWSEL=    348.41
STA=    3430.    3696.    3742.    3767.    4005.    4024.    4113.    4140.    4175.    4190.
  PER Q=     12.1      4.1      4.4     55.4      3.1      9.6      3.4      6.1      1.8
   AREA=   1502.6    388.3    315.1   4231.8    226.6    840.9    280.6    439.2    161.9
    VEL=      3.6      4.8      6.2      5.9      6.2      5.2      5.5      6.2      4.9
  DEPTH=      5.7      8.4     12.6     17.7     12.5      9.4     10.4     12.4     11.0

1490 NH CARD USED
*SECNO 507.000

3265 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE

   507.00    14.46   348.46   342.94      .00   349.44      .97      .41      .15   342.00
   45000.     434.   43284.    1282.     330.    5399.     267.    7586.     739.    342.00
     1.74     1.31     8.02     4.80     .035     .040     .040     .000   334.00  1724.40
  .001599     510.     470.     450.        2       11        0      .00  1280.19  4340.90
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


FLOW DISTRIBUTION FOR SECNO=    507.00         CWSEL=    348.46

STA=    1724.    3861.    4290.    4341.
  PER Q=      1.0     96.2      2.8
   AREA=    330.4   5398.6    266.9
    VEL=      1.3      8.0      4.8
  DEPTH=       .2     12.6      5.2

CCHV=     .300 CEHV=     .500
*SECNO 508.000

3265 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE


3370 NORMAL BRIDGE, NRD=  49 MIN ELTRD=   352.00 MAX ELLC=   352.00
        MAGNOLIA AVE BRIDGE  (NORMAL BRIDGE ROUTINE)
   508.00    14.24   348.24   343.81      .00   349.71     1.47      .02      .25   342.00
   45000.     282.   43411.    1307.     149.    4402.     212.    7588.     739.    342.00
     1.74     1.89     9.86     6.18     .040     .030     .040     .000   334.00  2993.81
  .003368      10.      10.      10.        2       12        0  -941.96  1009.63  4340.11


FLOW DISTRIBUTION FOR SECNO=    508.00         CWSEL=    348.24

STA=    2994.    3861.    4290.    4340.
  PER Q=       .6     96.5      2.9
   AREA=    149.3   4401.9    211.5
    VEL=      1.9      9.9      6.2
  DEPTH=       .2     10.3      4.2

*SECNO 509.000

3265 DIVIDED FLOW
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


3370 NORMAL BRIDGE, NRD=  49 MIN ELTRD=   352.00 MAX ELLC=   352.00

   509.00    14.63   348.63   343.83      .00   349.96     1.33      .21      .04   336.00
   45000.    2157.   42568.     274.     613.    4489.      57.    7595.     741.    342.00
     1.74     3.52     9.48     4.79     .040     .030     .040     .000   334.00  2866.31
  .003023      65.      65.      65.        2       12        0  -974.52  1176.70  4341.46


FLOW DISTRIBUTION FOR SECNO=    509.00          CWSEL=    348.63

STA=    2866.    3889.    4322.    4341.
  PER Q=      4.8     94.6       .6
   AREA=    612.8   4488.9     57.3
    VEL=      3.5      9.5      4.8
  DEPTH=       .6     10.4      3.0

CCHV=     .100 CEHV=     .300
1490 NH CARD USED
*SECNO 510.000
3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE


3470 ENCROACHMENT STATIONS=     3864.3    4357.7  TYPE=      1  TARGET=      493.400
   510.00    17.14   349.14   342.66      .00   350.02      .88      .02      .05   342.00
   45000.     347.   44008.     645.      91.    5792.     166.    7596.     741.    341.00
     1.74     3.82     7.60     3.89     .040     .040     .040     .000   332.00  3864.30
  .001326      10.      10.      10.        2       19        0      .00   493.40  4357.70


FLOW DISTRIBUTION FOR SECNO=    510.00          CWSEL=    349.14

STA=    3864.    3885.    4317.    4358.
  PER Q=       .8     97.8      1.4
   AREA=     90.6   5791.7    165.7
    VEL=      3.8      7.6      3.9
  DEPTH=      4.3     13.4      4.1

1490 NH CARD USED
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


*SECNO 515.000

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE


3470 ENCROACHMENT STATIONS=     3640.0    4470.0  TYPE=      1  TARGET=      830.000
   515.00    18.03   350.03   337.92      .00   350.20      .17      .11      .07   334.00
   45000.   12449.   31700.     851.    4191.    9217.     306.    7658.     745.    334.00
     1.77     2.97     3.44     2.78     .040     .040     .040     .000   332.00  3640.00
  .000182     250.     275.     350.        2       22        0      .00   830.00  4470.00


FLOW DISTRIBUTION FOR SECNO=    515.00          CWSEL=    350.03

STA=    3640.    3935.    4448.    4470.
  PER Q=     27.7     70.4      1.9
   AREA=   4190.5   9217.5    305.7
    VEL=      3.0      3.4      2.8
  DEPTH=     14.2     18.0     13.8

1490 NH CARD USED
*SECNO 520.000

3470 ENCROACHMENT STATIONS=     4240.0    5000.0  TYPE=      1  TARGET=      760.000
   520.00    18.05   350.05   338.87      .00   350.34      .30      .11      .04   334.00
   45000.    3520.   39700.    1781.    1199.    8757.     756.    7812.     755.    334.00
     1.80     2.94     4.53     2.36     .040     .031     .040     .000   332.00  4240.00
  .000200     515.     560.     590.        2       18        0      .00   711.61  4951.61


FLOW DISTRIBUTION FOR SECNO=    520.00          CWSEL=    350.05

STA=    4240.    4348.    4855.    4920.    4952.
  PER Q=      7.8     88.2      3.7       .3
   AREA=   1198.6   8757.2    660.3     95.2
    VEL=      2.9      4.5      2.5      1.4
  DEPTH=     11.1     17.3     10.2      3.0
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


1490 NH CARD USED
*SECNO 530.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE


3470 ENCROACHMENT STATIONS=     4050.0    4691.0  TYPE=      1  TARGET=      641.000
   530.00    16.00   350.00   341.92      .00   350.63      .63      .18      .10   334.00
   45000.    2188.   35681.    7132.     637.    5217.    1702.    7943.     764.    334.00
     1.83     3.43     6.84     4.19     .040     .030     .040     .000   334.00  4089.90
  .000473     640.     620.     610.        2       14        0      .00   576.39  4666.30


FLOW DISTRIBUTION FOR SECNO=    530.00          CWSEL=    350.00

STA=    4090.    4183.    4190.    4590.    4648.    4666.
  PER Q=      3.7      1.2      9.8      5.6       .5
   AREA=    528.9    108.0    971.9    635.7     94.0
    VEL=      3.2      4.8      4.5      4.0      2.2
  DEPTH=      5.7     15.0      2.4     11.0      5.0
1490 NH CARD USED
*SECNO 535.000

3470 ENCROACHMENT STATIONS=     2070.0    2600.0  TYPE=      1  TARGET=      530.000
   535.00    15.94   349.94   342.92      .00   350.88      .93      .16      .09   336.00
   45000.     774.   38057.    6169.     218.    4632.    1361.    7987.     767.    336.00
     1.84     3.55     8.22     4.53     .040     .031     .040     .000   334.00  2070.00
  .000713     290.     280.     275.        2       11        0      .00   530.00  2600.00


FLOW DISTRIBUTION FOR SECNO=    535.00          CWSEL=    349.94

STA=    2070.    2120.    2411.    2445.    2479.    2515.    2600.
  PER Q=      1.7     84.6      5.4      4.0      3.1      1.3
   AREA=    218.4   4631.8    441.4    364.5    328.3    226.7
    VEL=      3.5      8.2      5.5      4.9      4.3      2.5
  DEPTH=      4.4     15.9     12.9     10.9      8.9      2.7

1490 NH CARD USED
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


*SECNO 540.000
   540.00    16.33   350.33   342.11      .00   351.11      .78      .22      .02   336.00
   45000.    2018.   40570.    2412.     489.    5527.     625.    8038.     771.    336.00
     1.85     4.13     7.34     3.86     .040     .030     .040     .000   334.00  1969.79
  .000550     365.     350.     335.        2        8        0      .00   508.34  2478.13


FLOW DISTRIBUTION FOR SECNO=    540.00          CWSEL=    350.33

STA=    1970.    2056.    2395.    2432.    2478.
  PER Q=      4.5     90.2      4.1      1.3
   AREA=    488.6   5527.4    418.0    206.7
    VEL=      4.1      7.3      4.4      2.7
  DEPTH=      5.7     16.3     11.3      4.5

1490 NH CARD USED
*SECNO 550.000
   550.00    16.75   350.75   343.27      .00   351.48      .73      .37      .00   336.00
   45000.    5901.   33087.    6013.    1371.    4331.    1617.    8142.     780.    336.00
     1.88     4.30     7.64     3.72     .040     .030     .040     .000   334.00  1735.96
  .000577     645.     650.     655.        0       11        0      .00   621.73  2357.69


FLOW DISTRIBUTION FOR SECNO=    550.00          CWSEL=    350.75

STA=    1736.    1832.    1894.    2153.    2199.    2281.    2348.    2358.
  PER Q=      3.4      9.8     73.5      5.6      4.6      3.1       .1
   AREA=    513.8    857.6   4331.1    548.4    601.9    441.7     25.6
    VEL=      2.9      5.1      7.6      4.6      3.4      3.1      1.8
  DEPTH=      5.4     13.7     16.7     11.9      7.4      6.5      2.8

1490 NH CARD USED
*SECNO 560.000
   560.00    17.34   351.34   342.52      .00   351.79      .45      .28      .03   336.00
   45000.    2817.   27770.   14412.     924.    4488.    3767.    8256.     789.    336.00
     1.91     3.05     6.19     3.83     .050     .031     .040     .000   334.00  1547.90
  .000374     605.     600.     595.        2        8        0      .00   675.47  2223.37


FLOW DISTRIBUTION FOR SECNO=    560.00          CWSEL=    351.34
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


STA=    1548.    1638.    1898.    2061.    2121.    2209.    2223.
  PER Q=      6.3     61.7     22.0      5.0      4.8       .3
   AREA=    924.0   4488.5   2332.7    647.4    727.0     59.5
    VEL=      3.0      6.2      4.2      3.5      3.0      2.0
  DEPTH=     10.2     17.3     14.3     10.7      8.3      4.0

1490 NH CARD USED
*SECNO 562.000
   562.00    17.53   351.53   342.29      .00   351.89      .36      .10      .01   336.00
   45000.    3716.   20926.   20358.    1291.    3561.    5314.    8318.     793.    336.00
     1.93     2.88     5.88     3.83     .050      .031     .040     .000   334.00  1065.06
  .000330     280.     280.     285.        2       11        0      .00   744.46  1809.52


FLOW DISTRIBUTION FOR SECNO=    562.00          CWSEL=    351.53

STA=    1065.    1181.    1385.    1453.    1485.    1556.    1601.    1698.    1780.    1810.
  PER Q=      8.3     46.5     11.0      5.6     10.3      4.6      8.6      4.7       .5
   AREA=   1290.7   3561.5   1125.7    554.0   1102.7    566.4   1123.1    727.7    114.6
    VEL=      2.9      5.9      4.4      4.6      4.2      3.6      3.4      2.9      2.0
  DEPTH=     11.1     17.5     16.5     17.5     15.5     12.5     11.5      8.9      3.9

1490 NH CARD USED
*SECNO 564.000
   564.00    17.65   351.65   341.96      .00   351.97      .32      .07      .00   336.00
   45000.    5324.   25250.   14427.    1818.    4871.    3978.    8371.     797.    336.00
     1.94     2.93     5.18     3.63     .050     .034     .040     .000   334.00   900.98
  .000314     220.     220.     220.        2       14        0      .00   771.13  1672.11


FLOW DISTRIBUTION FOR SECNO=    564.00          CWSEL=    351.65

STA=     901.    1053.    1332.    1507.    1540.    1592.    1672.
  PER Q=     11.8     56.1     22.4      3.3      3.9      2.4
   AREA=   1817.9   4871.4   2560.0    416.3    557.2    444.5
    VEL=      2.9      5.2      3.9      3.6      3.2      2.4
  DEPTH=     12.0     17.5     14.7     12.7     10.7      5.6

*SECNO 566.000
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


3301 HV CHANGED MORE THAN HVINS

   566.00    17.38   351.38   343.50      .00   352.25      .87      .12      .17   338.00
   45000.    2382.   38976.    3642.    1202.    4873.    1327.    8429.     802.    338.00
     1.95     1.98     8.00     2.74     .085     .030     .060     .000   334.00   840.86
  .000598     280.     280.     280.        2       11        0      .00   586.95  1427.82


FLOW DISTRIBUTION FOR SECNO=    566.00          CWSEL=    351.38

STA=     841.     928.     972.    1258.    1312.    1398.    1428.
  PER Q=      3.3      2.0     86.6      4.9      3.2       .1
   AREA=    750.9    451.1   4873.5    674.8    610.2     42.1
    VEL=      2.0      2.0      8.0      3.2      2.3       .9
  DEPTH=      8.6     10.3     17.1     12.4      7.1      1.4

*SECNO 570.000

3301 HV CHANGED MORE THAN HVINS

   570.00    17.05   351.05   345.56      .00   352.72     1.67      .23      .24   336.00
   45000.    2668.   38117.    4215.    1042.    3410.    1095.    8471.     805.    336.00
     1.96     2.56    11.18     3.85     .085     .030     .060     .000   334.00  1518.76
  .001171     285.     280.     280.        2       14        0      .00   454.01  1972.76


FLOW DISTRIBUTION FOR SECNO=    570.00          CWSEL=    351.05

STA=    1519.    1627.    1643.    1843.    1868.    1915.    1973.
  PER Q=      4.8      1.2     84.7      3.5      4.1      1.7
   AREA=    863.8    177.8   3409.8    331.3    471.5    292.1
    VEL=      2.5      2.9     11.2      4.8      3.9      2.7
  DEPTH=      8.0     11.6     17.0     13.5     10.1      5.0

*SECNO 572.000
   572.00    17.54   351.54   344.37      .00   352.94     1.40      .19      .03   336.00
   45000.    2595.   39473.    2932.     902.    3921.     869.    8495.     807.    336.00
     1.97     2.88    10.07     3.38     .085     .030     .060     .000   334.00   748.70
  .000913     200.     187.     178.        2       14        0      .00   429.57  1178.27
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


FLOW DISTRIBUTION FOR SECNO=    572.00          CWSEL=    351.54

STA=     749.     832.    1056.    1097.    1178.
  PER Q=      5.8     87.7      4.8      1.7
   AREA=    901.9   3920.8    530.6    338.0
    VEL=      2.9     10.1      4.1      2.2
  DEPTH=     10.8     17.5     12.9      4.2

*SECNO 574.000

3301 HV CHANGED MORE THAN HVINS

   574.00    18.23   352.23   342.95      .00   353.13      .90      .14      .05   336.00
   45000.     914.   42161.    1925.     458.    5392.     692.    8523.     809.    336.00
     1.97     2.00     7.82     2.78     .085     .030     .060     .000   334.00   699.73
  .000523     210.     200.     190.        2        8        0      .00   429.41  1129.14


FLOW DISTRIBUTION FOR SECNO=    574.00          CWSEL=    352.23

STA=     700.     748.    1044.    1081.    1129.
  PER Q=      2.0     93.7      3.6       .7
   AREA=    458.0   5392.5    506.6    185.7
    VEL=      2.0      7.8      3.2      1.7
  DEPTH=      9.6     18.2     13.5      3.9

*SECNO 576.000
   576.00    18.13   352.13   344.64      .00   353.33     1.20      .11      .09   338.00
   45000.     974.   38207.    5819.     433.    4056.    1601.    8548.     811.    338.00
     1.98     2.25     9.42     3.63     .085     .030     .060     .000   334.00   677.32
  .000778     190.     170.     165.        2       11        0      .00   422.28  1099.60


FLOW DISTRIBUTION FOR SECNO=    576.00          CWSEL=    352.13

STA=     677.     733.     959.    1049.    1100.
  PER Q=      2.2     84.9     10.0      2.9
   AREA=    432.6   4056.0   1175.0    426.2
    VEL=      2.3      9.4      3.8      3.1
  DEPTH=      7.7     18.0     13.1      8.4
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| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |
| *SECNO 582.000 | | | | | | | | | |
| 582.00 | 16.54 | 352.54 | 346.60 | .00 | 353.61 | 1.06 | .27 | .01 | 338.00 |
| 45000. | 2143. | 33447. | 9410. | 997. | 3560. | 2621. | 8597. | 814. | 338.00 |
| 1.99 | 2.15 | 9.39 | 3.59 | .085 | .030 | .060 | .000 | 336.00 | 577.65 |
| .000861 | 335. | 330. | 310. | 2 | 11 | 0 | .00 | 579.40 | 1157.06 |

FLOW DISTRIBUTION FOR SECNO= 582.00 CWSEL= 352.54

| STA= | 578. | 680. | 698. | 914. | 1044. | 1107. | 1145. | 1157. |
|---|---|---|---|---|---|---|---|---|
| PER Q= | 3.5 | 1.2 | 74.3 | 12.5 | 5.1 | 3.0 | .2 | |
| AREA= | 784.9 | 212.1 | 3560.2 | 1511.4 | 663.2 | 395.4 | 51.2 | |
| VEL= | 2.0 | 2.6 | 9.4 | 3.7 | 3.5 | 3.4 | 2.0 | |
| DEPTH= | 7.7 | 11.7 | 16.5 | 11.6 | 10.5 | 10.4 | 4.2 | |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| *SECNO 584.000 | | | | | | | | | |
| 584.00 | 16.84 | 352.84 | 345.92 | .00 | 353.78 | .94 | .16 | .01 | 338.00 |
| 45000. | 2602. | 33311. | 9087. | 1050. | 3774. | 2655. | 8631. | 817. | 338.00 |
| 2.00 | 2.48 | 8.83 | 3.42 | .085 | .030 | .060 | .000 | 336.00 | 529.15 |
| .000742 | 210. | 200. | 190. | 2 | 14 | 0 | .00 | 574.54 | 1103.68 |

FLOW DISTRIBUTION FOR SECNO= 584.00 CWSEL= 352.84

| STA= | 529. | 633. | 858. | 993. | 1067. | 1104. |
|---|---|---|---|---|---|---|
| PER Q= | 5.8 | 74.0 | 14.2 | 5.0 | 1.0 | |
| AREA= | 1050.4 | 3774.1 | 1730.8 | 728.2 | 196.0 | |
| VEL= | 2.5 | 8.8 | 3.7 | 3.1 | 2.2 | |
| DEPTH= | 10.1 | 16.8 | 12.8 | 9.8 | 5.3 | |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| *SECNO 586.000 | | | | | | | | | |
| 586.00 | 17.06 | 353.06 | 345.95 | .00 | 353.94 | .88 | .15 | .01 | 338.00 |
| 45000. | 3275. | 28997. | 12728. | 1321. | 3225. | 3355. | 8667. | 820. | 338.00 |
| 2.01 | 2.48 | 8.99 | 3.79 | .085 | .030 | .060 | .000 | 336.00 | 459.29 |
| .000758 | 205. | 205. | 205. | 2 | 14 | 0 | .00 | 576.58 | 1035.87 |

FLOW DISTRIBUTION FOR SECNO= 586.00 CWSEL= 353.06

| STA= | 459. | 583. | 773. | 930. | 1013. | 1036. |
|---|---|---|---|---|---|---|
| PER Q= | 7.3 | 64.4 | 19.5 | 8.0 | .8 | |
| AREA= | 1321.1 | 3224.7 | 2204.3 | 1003.2 | 147.2 | |
| VEL= | 2.5 | 9.0 | 4.0 | 3.6 | 2.5 | |
| DEPTH= | 10.7 | 17.0 | 14.1 | 12.1 | 6.4 | |

| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

*SECNO 592.000

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE

3470 ENCROACHMENT STATIONS= 344.8 800.0 TYPE= 1 TARGET= 455.200

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 592.00 | 16.79 | 352.79 | 347.93 | .00 | 354.63 | 1.84 | .40 | .29 | 338.00 |
| 45000. | 2800. | 31496. | 10704. | 794. | 2499. | 2085. | 8725. | 824. | 338.00 |
| 2.02 | 3.53 | 12.61 | 5.13 | .085 | .030 | .060 | .000 | 336.00 | 365.79 |
| .001577 | 375. | 380. | 385. | 2 | 19 | 0 | .00 | 422.69 | 788.48 |

FLOW DISTRIBUTION FOR SECNO= 592.00 CWSEL= 352.79

| STA= | 366. | 444. | 598. | 671. | 724. | 748. | 788. |
|---|---|---|---|---|---|---|---|
| PER Q= | 6.2 | 70.0 | 11.3 | 8.1 | 3.1 | 1.2 | |
| AREA= | 793.6 | 2498.5 | 946.0 | 679.4 | 278.3 | 181.5 | |
| VEL= | 3.5 | 12.6 | 5.4 | 5.4 | 5.1 | 3.0 | |
| DEPTH= | 10.2 | 16.3 | 12.9 | 12.8 | 11.8 | 4.5 | |

*SECNO 594.000

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 594.00 | 13.27 | 353.27 | 353.27 | .00 | 358.23 | 4.96 | 1.09 | .94 | 342.00 |
| 45000. | 5136. | 32643. | 7220. | 263. | 1937. | 345. | 8746. | 826. | 342.00 |
| 2.02 | 19.54 | 16.85 | 20.91 | .075 | .125 | .065 | .000 | 340.00 | 588.50 |
| .066048 | 230. | 230. | 230. | 0 | 11 | 0 | .00 | 260.06 | 848.56 |

FLOW DISTRIBUTION FOR SECNO= 594.00 CWSEL= 353.27

| STA= | 588. | 597. | 609. | 613. | 617. | 631. | 780. | 790. | 801. | 808. | 823. | 849. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PER Q= | .2 | 1.6 | .9 | 1.3 | 7.5 | 72.5 | 6.6 | 4.5 | 2.1 | 2.1 | .8 | |
| AREA= | 13.6 | 53.8 | 25.1 | 29.8 | 140.7 | 1937.2 | 107.8 | 86.0 | 47.6 | 61.9 | 41.9 | |
| VEL= | 6.7 | 13.3 | 16.1 | 19.0 | 23.9 | 16.9 | 27.4 | 23.7 | 19.5 | 15.4 | 8.1 | |
| DEPTH= | 1.6 | 4.3 | 6.3 | 8.3 | 10.3 | 13.0 | 10.3 | 8.3 | 6.3 | 4.3 | 1.6 | |

```
   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


*SECNO 600.000

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE


3470 ENCROACHMENT STATIONS=      600.0    1050.0  TYPE=      1  TARGET=      450.000
   600.00    18.55   360.55   353.32      .00   361.79     1.24     3.18      .37   346.00
   45000.   12812.   30205.    1983.    1274.    3626.     197.    8759.     827.    346.00
     2.02    10.06     8.33    10.07     .075     .125     .065     .000   342.00   651.54
  .010375     145.     150.     155.        3       15        0      .00   351.25  1002.79


FLOW DISTRIBUTION FOR SECNO=    600.00          CWSEL=    360.55

STA=     652.     694.     714.     757.     779.     979.     989.    1003.
  PER Q=      3.4      4.5     13.1      7.5     67.1      3.4      1.0
   AREA=    227.9    212.2    539.6    294.0   3625.9    125.5     71.4
    VEL=      6.8      9.5     10.9     11.4      8.3     12.3      6.2
  DEPTH=      5.4     10.3     12.5     13.5     18.1     13.1      5.1

*SECNO 610.000

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE


3470 ENCROACHMENT STATIONS=      200.0     652.3  TYPE=      1  TARGET=      452.300
   610.00    21.40   363.40   351.58      .00   364.03      .63     2.19      .06   346.00
   45000.    3732.   39442.    1826.     577.    6239.     249.    8803.     830.    346.00
     2.04     6.46     6.32     7.33     .075     .125     .065     .000   342.00   253.79
  .005019     295.     315.     355.        3       11        0      .00   397.29   651.09


FLOW DISTRIBUTION FOR SECNO=    610.00          CWSEL=    363.40

STA=     254.     302.     320.     623.     645.     651.
  PER Q=      3.8      4.5     87.6      4.0       .1
   AREA=    319.5    257.9   6239.3    239.5      9.7
    VEL=      5.3      7.8      6.3      7.5      2.3
  DEPTH=      6.7     14.0     20.6     10.8      1.6
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


*SECNO 620.000

3470 ENCROACHMENT STATIONS=      250.0     750.0  TYPE=      1  TARGET=      500.000
   620.00    21.57   365.57   353.73      .00   366.11      .53     2.06      .01   364.00
   45000.      41.   44898.      61.      33.    7645.      28.    8870.     834.    364.00
     2.06     1.24     5.87     2.15     .075     .125     .065     .000   344.00   257.43
  .005431     395.     395.     395.        2       14        0      .00   492.57   750.00


FLOW DISTRIBUTION FOR SECNO=    620.00          CWSEL=    365.57

STA=     257.     299.     732.     750.
  PER Q=       .1     99.8       .1
   AREA=     32.8   7644.8     28.3
    VEL=      1.2      5.9      2.2
  DEPTH=       .8     17.7      1.6

*SECNO 630.000

3470 ENCROACHMENT STATIONS=      300.0     804.6  TYPE=      1  TARGET=      504.600
   630.00    22.77   366.77   354.55      .00   367.33      .56     1.22      .01   348.00
   45000.    7138.   34115.    3747.    1166.    5882.     506.    8916.     836.    348.00
     2.07     6.12     5.80     7.41     .075     .125     .065     .000   344.00   300.15
  .003961     235.     265.     295.        2       11        0      .00   489.11   789.26


FLOW DISTRIBUTION FOR SECNO=    630.00          CWSEL=    366.77

STA=     300.     382.     427.     446.     718.     730.     748.     789.
  PER Q=      3.8      6.9      5.1     75.8      4.7      3.2       .4
   AREA=    368.7    497.8    299.7   5882.2    216.8    214.2     74.6
    VEL=      4.7      6.2      7.7      5.8      9.7      6.8      2.4
  DEPTH=      4.5     11.2     15.9     21.6     17.8     11.8      1.8

*SECNO 640.000

3265 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS
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| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE

FINAL CROSS SECTION - APPROX. 200 FT. DOWNSTREAM OF RIVERFORD BRIDGE

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 640.00 | 22.29 | 368.29 | 360.93 | .00 | 369.99 | 1.70 | 2.31 | .34 | 350.00 |
| 45000. | 4082. | 32759. | 8159. | 377. | 3106. | 819. | 8963. | 840. | 350.00 |
| 2.08 | 10.84 | 10.55 | 9.96 | .075 | .125 | .065 | .000 | 346.00 | 161.72 |
| .013194 | 345. | 350. | 355. | 2 | 14 | 0 | .00 | 362.89 | 735.31 |

FLOW DISTRIBUTION FOR SECNO= 640.00 CWSEL= 368.29

| STA= | 162. | 411. | 434. | 578. | 601. | 621. | 657. | 695. | 732. | 735. |
|---|---|---|---|---|---|---|---|---|---|---|
| PER Q= | .8 | 8.3 | 72.8 | 9.7 | 3.2 | 3.3 | 1.6 | .3 | .0 | |
| AREA= | 67.1 | 309.5 | 3105.9 | 313.5 | 144.2 | 187.6 | 125.5 | 47.6 | .5 | |
| VEL= | 5.2 | 12.1 | 10.5 | 13.9 | 9.8 | 8.0 | 5.8 | 3.1 | .7 | |
| DEPTH= | .3 | 13.3 | 21.6 | 13.3 | 7.3 | 5.3 | 3.3 | 1.3 | .1 | |

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T1      SAN DIEGO RIVER
T2      CITY OF SANTEE
T3      100 YEAR FLOODWAY (SANTEE)

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                3                                                           283.55

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     15         0        -1                                      -1                            0
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


 *PROF 2

 CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS
0

 CCHV=     .100 CEHV=     .300
 *SECNO 100.000

 3470 ENCROACHMENT STATIONS=      340.0     600.0  TYPE=      1  TARGET=      260.000
         MISSION DAM - DOWNSTREAM LIMIT OF STUDY (SUB-CRITICAL FLOW ASSUMED)
    100.00    13.55   283.55   282.25   282.55   287.73     4.18      .00      .00   280.00
    50000.      15.   49985.       0.       3.    3045.       0.       0.       0. 100000.00
       .00     5.48    16.41      .00     .080     .180     .000     .000   270.00   340.00
   .152867       0.       0.       0.        0       10        0      .00   260.00   600.00


 *SECNO 110.000

 3301 HV CHANGED MORE THAN HVINS

 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE


 3470 ENCROACHMENT STATIONS=      310.0     610.0  TYPE=      1  TARGET=      300.000
    110.00    15.63   289.63   285.82   289.82   292.23     2.59     4.33      .16   280.00
    50000.    4274.   44814.     913.     231.    3656.      70.       4.       0.    280.00
       .00    18.47    12.26    12.99     .080     .180     .080     .000   274.00   310.00
   .066182      45.      45.      45.        2       15        0      .00   300.00   610.00


 *SECNO 120.000

 3301 HV CHANGED MORE THAN HVINS


 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE


 3470 ENCROACHMENT STATIONS=      310.0     650.0  TYPE=      1  TARGET=      340.000
    120.00    18.95   292.95   286.24   292.90   294.55     1.60     2.22      .10   280.00
    50000.    5725.   39308.    4967.     415.    4312.     392.       9.       1.    280.00
       .00    13.80     9.12    12.67     .080     .180     .080     .000   274.00   310.00
   .027241      55.      55.      55.        3       15        0      .00   340.00   650.00
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


*SECNO 130.000

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE


3470 ENCROACHMENT STATIONS=      330.0     683.0  TYPE=      1  TARGET=      353.000
   130.00    25.07   301.07   289.06   300.44   302.01      .94     7.40      .07   280.00
   50000.    3244.   32665.   14091.     370.    5273.    1352.      82.       5.    280.00
      .02     8.76     6.20    10.42     .080     .180     .080     .000   276.00   330.00
  .008716     520.     520.     520.        5       19        0      .00   353.00   683.00


CCHV=     .030 CEHV=     .050
*SECNO 140.000

3470 ENCROACHMENT STATIONS=      215.0     545.0  TYPE=      1  TARGET=      330.000
   140.00    29.52   305.52   290.32   304.49   306.26      .74     4.25      .01   284.00
   50000.    3868.   37349.    8783.     434.    6264.     944.     175.       9.    284.00
      .04     8.92     5.96     9.31     .080     .180     .080     .000   276.00   215.00
  .006777     555.     555.     555.        3       11        0      .00   330.00   545.00


*SECNO 150.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE


3470 ENCROACHMENT STATIONS=      245.0    1200.0  TYPE=      1  TARGET=      955.000
   150.00    26.90   306.90   288.34   305.95   307.15      .24      .87      .01   290.00
   50000.     689.   24398.   24913.     325.   11889.    4763.     337.      18.    290.00
      .09     2.12     2.05     5.23     .080     .160     .035     .000   280.00   245.00
  .000652     555.     580.     555.        3       14        0      .00   955.00  1200.00


1490 NH CARD USED
*SECNO 160.000

3265 DIVIDED FLOW
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE


3470 ENCROACHMENT STATIONS=      415.0    1860.0  TYPE=      1  TARGET=     1445.000
   160.00    25.38   307.38   292.18   306.49   307.48      .09      .33      .00   292.00
   50000.   41862.    4575.    3562.   16793.    1841.    1998.     671.      38.    290.00
      .18     2.49     2.49     1.78     .073     .080     .047     .000   282.00   415.00
  .000297     900.     670.     670.        2       22        0      .00  1428.03  1860.00


CCHV=     .100 CEHV=     .300
1490 NH CARD USED
*SECNO 170.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE


3470 ENCROACHMENT STATIONS=      410.0    1990.0  TYPE=      1  TARGET=     1580.000
   170.00    25.48   307.48   293.93   306.61   307.54      .06      .06      .00   292.00
   50000.   35734.    2166.   12101.   18198.    1306.    6267.     843.      50.    290.00
      .22     1.96     1.66     1.93     .061     .080     .054     .000   282.00   410.00
  .000142     325.     320.     315.        2       13        0      .00  1580.00  1990.00


1490 NH CARD USED
*SECNO 180.000

3470 ENCROACHMENT STATIONS=      485.0    1940.0  TYPE=      1  TARGET=     1455.000
   180.00    21.53   307.53   293.01   306.65   307.60      .07      .05      .00   292.00
   50000.   42028.    5078.    2894.   18379.    4446.    1924.    1155.      68.    290.00
      .29     2.29     1.14     1.50     .039     .080     .040     .000   286.00   485.00
  .000073     529.     550.     570.        2       14        0      .00  1455.00  1940.00


1490 NH CARD USED
*SECNO 190.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE


3470 ENCROACHMENT STATIONS=      470.0    1920.0  TYPE=      1  TARGET=     1450.000
   190.00    21.56   307.56   290.51   306.68   307.63      .06      .02      .00   296.00
   50000.   45893.    3774.     333.   21732.    4672.     597.    1455.      85.    290.00
      .36     2.11      .81      .56     .031     .080     .054     .000   286.00   470.00
  .000035     505.     505.     505.        2       17        0      .00  1450.00  1920.00
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


1490 NH CARD USED
*SECNO 200.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE


3470 ENCROACHMENT STATIONS=      370.0    1975.0  TYPE=      1  TARGET=     1605.000
   200.00    21.61   307.61   290.78   306.74   307.68      .07      .05      .00   296.00
   50000.   32050.    2926.   15024.   21267.    2247.    4889.    1917.     111.    294.00
      .46     1.51     1.30     3.07     .118     .125     .042     .000   286.00   370.00
  .000260     720.     740.     750.        1       17        0      .00  1605.00  1975.00


1490 NH CARD USED
*SECNO 209.000

3470 ENCROACHMENT STATIONS=      400.0    2100.0  TYPE=      1  TARGET=     1700.000
   209.00    21.71   307.71   291.98   306.86   307.80      .08      .11      .00   298.00
   50000.   23059.    6243.   20699.   15369.    4476.    6673.    2176.     126.    294.00
      .52     1.50     1.39     3.10     .122     .125     .040     .000   286.00   400.00
  .000291     430.     390.     365.        2       14        0      .00  1700.00  2100.00


1490 NH CARD USED
*SECNO 210.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE


3470 ENCROACHMENT STATIONS=      400.0    2100.0  TYPE=      1  TARGET=     1700.000
   210.00    21.63   307.63   299.57   306.78   307.84      .21      .00      .04   298.00
   50000.   11055.    9060.   29885.    7780.    4455.    6620.    2181.     126.    294.00
      .52     1.42     2.03     4.51     .116     .125     .040     .000   286.00   400.00
  .000622      10.      10.      10.        2       14        0      .00  1700.00  2100.00


1490 NH CARD USED
*SECNO 211.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE


3470 ENCROACHMENT STATIONS=      400.0    2100.0  TYPE=      1  TARGET=     1700.000
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


   211.00    21.77   307.77   291.98   306.92   307.85      .08      .00      .01   298.00
   50000.   23024.    6234.   20743.   15418.    4490.    6709.    2186.     127.    294.00
      .52     1.49     1.39     3.09     .122     .125     .040     .000   286.00   400.00
  .000287      10.      10.      10.        2       14        0      .00  1700.00  2100.00


*SECNO 220.000

3470 ENCROACHMENT STATIONS=      515.0    2100.0  TYPE=      1  TARGET=     1585.000
   220.00    19.95   307.95   298.90   307.13   308.09      .14      .22      .02   292.00
   50000.    8150.    5111.   36739.    2659.    6003.   11782.    2620.     157.    292.00
      .60     3.06      .85     3.12     .040     .200     .040     .000   288.00   515.00
  .000263      830.     810.     770.        2        8        0      .00  1585.00  2100.00


*SECNO 230.000

3470 ENCROACHMENT STATIONS=      825.0    2000.0  TYPE=      1  TARGET=     1175.000
   230.00    20.05   308.05   299.28   307.25   308.28      .23      .16      .03   292.00
   50000.    4071.    4004.   41926.    1148.    3778.   10421.    2824.     173.    292.00
      .63     3.55     1.06     4.02     .040     .200     .040     .000   288.00   825.00
  .000410      465.     490.     505.        2       14        0      .00  1175.00  2000.00


*SECNO 239.000

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE


3470 ENCROACHMENT STATIONS=     2370.0    3040.0  TYPE=      1  TARGET=      670.000
   239.00    17.90   307.90   298.52   307.10   308.87      .97      .37      .22   294.00
   50000.    2940.   14920.   32140.     339.    5735.    3439.    2946.     182.    294.00
      .65     8.66     2.60     9.34     .040     .200     .040     .000   290.00  2370.00
  .002694      400.     420.     440.        2       16        0      .00   670.00  3040.00


*SECNO 240.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


3470 ENCROACHMENT STATIONS=     2517.0    3011.0  TYPE=      1  TARGET=      494.000
   240.00    19.62   309.62   298.34   309.17   310.13      .51     1.22      .05   306.00
   50000.      38.   49962.       0.       7.    8696.       0.    2995.     185. 100000.00
      .66     5.37     5.75      .00     .040     .200     .000     .000   290.00  2517.00
  .013421     195.     230.     255.        2       14        0      .00   494.00  3011.00


CCHV=     .300 CEHV=     .500
*SECNO 242.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE


3370 NORMAL BRIDGE, NRD=  31 MIN ELTRD=   312.00 MAX ELLC=   311.50


3470 ENCROACHMENT STATIONS=     2518.0    3010.0  TYPE=      1  TARGET=      492.000
        MAST BLVD BRIDGE  (NORMAL BRIDGE ROUTINE)
   242.00    19.60   309.60   298.80   309.14   310.21      .61      .02      .05   306.00
   50000.       7.   49993.       0.       4.    7991.       0.    2997.     185. 100000.00
      .66     1.54     6.26      .00     .030     .040     .000     .000   290.00  2518.00
  .001011      10.      10.      10.        2       15        0  -689.49   492.00  3010.00


*SECNO 243.000

3370 NORMAL BRIDGE, NRD=  31 MIN ELTRD=   312.00 MAX ELLC=   311.50


3470 ENCROACHMENT STATIONS=     2518.0    3010.0  TYPE=      1  TARGET=      492.000
   243.00    19.67   309.67   298.80   309.22   310.27      .60      .07      .00100000.00
   50000.       0.   49961.      39.       0.    8010.      17.    3009.     186.    300.00
      .66      .00     6.24     2.22     .000     .040     .030     .000   290.00  2518.00
  .000992      65.      65.      65.        2       15        0  -692.35   492.00  3010.00


*SECNO 244.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE


3470 ENCROACHMENT STATIONS=     2560.0    3070.0  TYPE=      1  TARGET=      510.000
```

| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |
| 244.00 | 19.81 | 309.81 | 298.90 | 309.37 | 310.32 | .51 | .02 | .03 | 100000.00 |
| 50000. | 0. | 50000. | 0. | 0. | 8722. | 0. | 3011. | 186. | 100000.00 |
| .66 | .00 | 5.73 | .00 | .000 | .140 | .000 | .000 | 290.00 | 2560.00 |
| .006810 | 10. | 10. | 10. | 2 | 14 | 0 | .00 | 510.00 | 3070.00 |

*SECNO 245.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE

3470 ENCROACHMENT STATIONS= 760.0 1410.0 TYPE= 1 TARGET= 650.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 245.00 | 20.21 | 310.21 | 297.39 | 309.96 | 310.80 | .59 | .44 | .04 | 292.00 |
| 50000. | 22773. | 25895. | 1331. | 2682. | 9295. | 234. | 3052. | 188. | 292.00 |
| .67 | 8.49 | 2.79 | 5.70 | .040 | .140 | .055 | .000 | 290.00 | 760.00 |
| .001280 | 210. | 165. | 200. | 2 | 18 | 0 | .00 | 650.00 | 1410.00 |

CCHV= .100 CEHV= .300
1490 NH CARD USED
*SECNO 250.000

3470 ENCROACHMENT STATIONS= 2400.0 3310.0 TYPE= 1 TARGET= 910.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 250.00 | 21.39 | 311.39 | 300.15 | 310.76 | 311.63 | .24 | .80 | .03 | 294.00 |
| 50000. | 10121. | 8574. | 31305. | 1896. | 3566. | 8412. | 3277. | 202. | 294.00 |
| .73 | 5.34 | 2.40 | 3.72 | .045 | .140 | .072 | .000 | 290.00 | 2400.00 |
| .000921 | 705. | 740. | 790. | 2 | 8 | 0 | .00 | 910.00 | 3310.00 |

1490 NH CARD USED
*SECNO 260.000

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE

3470 ENCROACHMENT STATIONS= 2340.0 2950.0 TYPE= 1 TARGET= 610.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 260.00 | 18.61 | 312.61 | 306.21 | 311.65 | 313.46 | .86 | 1.65 | .19 | 300.00 |
| 50000. | 823. | 10858. | 38318. | 313. | 2723. | 4670. | 3530. | 219. | 300.00 |
| .77 | 2.63 | 3.99 | 8.21 | .140 | .140 | .055 | .000 | 294.00 | 2340.00 |
| .003498 | 1035. | 1025. | 1020. | 2 | 11 | 0 | .00 | 610.00 | 2950.00 |

```
   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


1490 NH CARD USED
*SECNO 270.000

3470 ENCROACHMENT STATIONS=     2270.0    2990.0  TYPE=      1  TARGET=      720.000
   270.00    17.40   315.40   307.73   314.82   316.10      .70     2.62      .02   300.00
   49000.    5349.    8595.   35057.    1867.    2695.    4569.    3714.     234.    304.00
      .81     2.86     3.19     7.67     .105     .140     .055     .000   298.00  2270.00
  .002257     985.     965.     930.        2       11        0      .00   720.00  2990.00


1490 NH CARD USED
*SECNO 280.000

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE


3470 ENCROACHMENT STATIONS=      560.0    1890.0  TYPE=      1  TARGET=     1330.000
   280.00    17.32   317.32   308.67   316.53   317.51      .18     1.36      .05   306.00
   49000.    6007.    3089.   39904.    4125.    1601.   10684.    4017.     258.    306.00
      .89     1.46     1.93     3.74     .140     .140     .064     .000   300.00   560.00
  .000859    1045.    1040.    1030.        2        8        0      .00  1330.00  1890.00


*SECNO 285.000

3470 ENCROACHMENT STATIONS=      525.0    2015.0  TYPE=      1  TARGET=     1490.000
   285.00    15.82   317.82   309.79   317.04   317.97      .15      .46      .00   306.00
   49000.    3934.    1800.   43266.    1575.    1240.   13590.    4272.     280.    310.00
      .95     2.50     1.45     3.18     .060     .140     .055     .000   302.00   525.00
  .000545     665.     670.     680.        2       18        0      .00  1490.00  2015.00


*SECNO 290.000

3265 DIVIDED FLOW


3470 ENCROACHMENT STATIONS=     2560.0    4154.0  TYPE=      1  TARGET=     1594.000
   290.00    16.22   318.22   311.69   317.51   318.41      .19      .43      .01   308.00
   49000.    3993.    2491.   42516.     890.    1434.   12293.    4502.     303.    310.00
     1.01     4.49     1.74     3.46     .040     .140     .055     .000   302.00  2560.00
  .000829     645.     645.     645.        2       14        0      .00  1567.11  4154.00
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


1490 NH CARD USED
*SECNO 300.000

3265 DIVIDED FLOW


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE


3470 ENCROACHMENT STATIONS=     2540.0    4014.0  TYPE=      1  TARGET=     1474.000
   300.00    12.90   318.90   314.05   318.24   319.21      .31      .77      .04100000.00
   49000.       0.    3310.   45690.       0.    1683.    9965.    4703.     326.    314.00
     1.05      .00     1.97     4.58     .000     .140     .055     .000   306.00  2540.00
  .001699     655.     660.     670.        2        8        0      .00  1440.55  4014.00


*SECNO 310.000

3470 ENCROACHMENT STATIONS=     2650.0    4000.0  TYPE=      1  TARGET=     1350.000
        CONFLUENCE WITH SYCAMORE CREEK
   310.00    11.83   319.83   314.39   319.19   320.12      .28      .90      .00   314.00
   49000.    1031.    1652.   46318.     263.    1038.   10662.    4866.     345.    316.00
     1.09     3.92     1.59     4.34     .040     .140     .055     .000   308.00  2650.00
  .001336     620.     610.     600.        2        8        0      .00  1350.00  4000.00


*SECNO 320.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE


3470 ENCROACHMENT STATIONS=     1030.0    2150.0  TYPE=      1  TARGET=     1120.000
        CONFLUENCE WITH FORRESTER CREEK
   320.00    11.55   321.55   317.88   320.71   322.18      .63     1.96      .10100000.00
   49000.       0.   10706.   38294.       0.    2910.    5540.    5058.     368.    312.00
     1.13      .00     3.68     6.91     .000     .140     .055     .000   310.00  1030.00
  .005297     665.     750.     840.        2       23        0      .00  1120.00  2150.00


*SECNO 330.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


3470 ENCROACHMENT STATIONS=     1370.0    2250.0  TYPE=      1  TARGET=      880.000
   330.00    12.35   324.35   318.63   323.86   324.79      .45     2.60      .02   314.00
   48000.   22843.    8710.   16448.    4023.    1922.    3095.    5211.     386.    314.00
     1.16     5.68     4.53     5.32     .060     .085     .060     .000   312.00  1370.00
  .002392     870.     780.     700.        2       11        0      .00   880.00  2250.00


*SECNO 340.000

3470 ENCROACHMENT STATIONS=     1220.0    2180.0  TYPE=      1  TARGET=      960.000
   340.00    15.60   325.60   319.00   325.21   325.95      .35     1.15      .01   320.00
   48000.    8214.   21849.   17937.    1663.    5195.    3411.    5324.     396.    318.00
     1.19     4.94     4.21     5.26     .060     .085     .060     .000   310.00  1220.00
  .002117     520.     505.     505.        2       19        0      .00   960.00  2180.00


*SECNO 345.000

3470 ENCROACHMENT STATIONS=     1300.0    2270.0  TYPE=      1  TARGET=      970.000
   345.00    14.26   326.26   320.55   325.96   326.71      .45      .72      .03   322.00
   48000.   11242.   26405.   10353.    1839.    5357.    1846.    5386.     403.    324.00
     1.21     6.11     4.93     5.61     .060     .085     .060     .000   312.00  1300.00
  .003257     320.     280.     250.        1       11        0      .00   970.00  2270.00


CCHV=     .300 CEHV=     .500
*SECNO 355.000

3470 ENCROACHMENT STATIONS=     1500.0    2370.0  TYPE=      1  TARGET=      870.000
   355.00    13.32   327.32   322.64   327.04   327.87      .56     1.11      .05   322.00
   48000.    9926.   32247.    5827.    1604.    5532.     901.    5442.     409.    322.00
     1.22     6.19     5.83     6.47     .060     .085     .060     .000   314.00  1500.00
  .004804     275.     285.     295.        2       14        0      .00   870.00  2370.00


*SECNO 356.000

3470 ENCROACHMENT STATIONS=     1520.0    2290.0  TYPE=      1  TARGET=      770.000
   356.00    12.73   328.73   325.13   328.43   329.75     1.02     1.64      .23   316.00
   48000.    7884.   38970.    1146.    1217.    4631.     146.    5482.     413.    320.00
     1.23     6.48     8.42     7.87     .060     .085     .060     .000   316.00  1520.00
  .009529     250.     250.     250.        2       18        0      .00   770.00  2290.00
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| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

SPECIAL BRIDGE

| SB | XK | XKOR | COFQ | RDLEN | BWC | BWP | BAREA | SS | ELCHU | ELCHD |
|---|---|---|---|---|---|---|---|---|---|---|
| | .90 | 1.60 | 2.75 | .00 | 450.00 | 77.00 | 3112.00 | 2.00 | 318.00 | 318.00 |

*SECNO 358.000
BTCARD BRIDGE STENCL= 1510.00 STENCR= 2300.00
6870 D.S. ENERGY OF 329.75 IS HIGHER THAN COMPUTED ENERGY OF 328.83

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE

PRESSURE AND WEIR FLOW

| EGPRS | EGLWC | H3 | QWEIR | QPR | BAREA | TRAPEZOID AREA | ELLC | ELTRD | WEIRLN |
|---|---|---|---|---|---|---|---|---|---|
| 328.83 | 328.83 | .01 | 41494. | 6485. | 3112. | 3112. | 326.00 | 324.00 | 288. |

3470 ENCROACHMENT STATIONS= 1510.0 2300.0 TYPE= 1 TARGET= 790.000
CARLTON HILLS BLVD BRIDGE (SPECIAL BRIDGE ROUTINE)

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 358.00 | 12.47 | 328.47 | .00 | 328.06 | 329.75 | 1.28 | .00 | .00 | 316.00 |
| 48000. | 5160. | 42801. | 40. | 1341. | 4496. | 16. | 5491. | 415. | 326.00 |
| 1.23 | 3.85 | 9.52 | 2.49 | .060 | .040 | .030 | .000 | 316.00 | 1510.00 |
| .002876 | 65. | 65. | 65. | 2 | 0 | 6 | .00 | 790.00 | 2300.00 |

*SECNO 360.000

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS= 1565.0 2435.0 TYPE= 1 TARGET= 870.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 360.00 | 14.36 | 330.36 | 323.24 | 329.95 | 330.74 | .38 | .72 | .27 | 320.00 |
| 48000. | 38367. | 8873. | 761. | 7371. | 2383. | 309. | 5553. | 421. | 320.00 |
| 1.25 | 5.20 | 3.72 | 2.47 | .060 | .085 | .085 | .000 | 316.00 | 1565.00 |
| .001624 | 335. | 345. | 355. | 2 | 14 | 0 | .00 | 870.00 | 2435.00 |

CCHV= .100 CEHV= .300
*SECNO 370.000

3470 ENCROACHMENT STATIONS= 1470.0 2500.0 TYPE= 1 TARGET= 1030.000

```
   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


   370.00    12.97   330.97   324.06   330.57   331.26      .30      .51      .01   320.00
   48000.   39625.    4117.    4258.    8633.    1174.    1571.    5638.     429.    320.00
     1.27     4.59     3.51     2.71     .060     .085     .085     .000   318.00  1470.00
  .001361     345.     345.     350.        2       18        0      .00  1030.00  2500.00


*SECNO 380.000

3470 ENCROACHMENT STATIONS=     1540.0    2625.0  TYPE=      1  TARGET=     1085.000
   380.00    13.42   331.42   324.95   330.97   331.73      .32      .47      .01   320.00
   48000.   39772.    2789.    5439.    8421.     728.    1797.    5720.     436.    320.00
     1.29     4.72     3.83     3.03     .060     .085     .085     .000   318.00  1540.00
  .001568     320.     320.     320.        2       11        0      .00  1085.00  2625.00


*SECNO 390.000

3470 ENCROACHMENT STATIONS=     1730.0    2620.0  TYPE=      1  TARGET=      890.000
   390.00    14.32   332.32   326.71   331.74   332.80      .47     1.02      .05   324.00
   48000.   33910.    7734.    6357.    5615.    1746.    1815.    5840.     448.    324.00
     1.32     6.04     4.43     3.50     .060     .085     .085     .000   318.00  1730.00
  .002502     520.     520.     520.        2       14        0      .00   890.00  2620.00


*SECNO 400.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE


3470 ENCROACHMENT STATIONS=     1820.0    2585.0  TYPE=      1  TARGET=      765.000
        DOWNSTREAM END MISSION CREEK DEVELOPMENT
   400.00    15.52   333.52   323.70   332.86   333.83      .31     1.01      .02   320.00
   48000.    2552.   42647.    2800.     476.   10004.     481.    5975.     459.    320.00
     1.36     5.36     4.26     5.82     .040     .075     .040     .000   318.00  1820.00
  .001220     705.     540.     495.        1       18        0      .00   765.00  2585.00


1490 NH CARD USED
*SECNO 410.000

3470 ENCROACHMENT STATIONS=     2970.5    3710.0  TYPE=      1  TARGET=      739.500
   410.00    16.27   334.27   324.11   333.65   334.59      .33      .76      .01   320.00
   48000.    2972.   42390.    2639.     636.    9340.     522.    6147.     471.    320.00
     1.40     4.67     4.54     5.05     .040     .065     .040     .000   318.00  2970.50
  .000971     672.     700.     726.        2       18        0      .00   739.50  3710.00
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


1490 NH CARD USED
*SECNO 415.000

3470 ENCROACHMENT STATIONS=     3200.0    3945.0  TYPE=      1  TARGET=      745.000
   415.00    16.99   334.99   324.08   334.47   335.27      .28      .67      .00   320.00
   48000.    2349.   42028.    3624.     492.   10194.     747.    6344.     485.    320.00
     1.45     4.77     4.12     4.85     .040     .065     .040     .000   318.00  3200.00
  .000767     765.     780.     800.        2       18        0      .00   745.00  3945.00


1490 NH CARD USED
*SECNO 420.000

3470 ENCROACHMENT STATIONS=     3411.5    4065.0  TYPE=      1  TARGET=      653.500
   420.00    17.38   335.38   325.39   334.92   335.78      .40      .48      .04   320.00
   48000.    3592.   39548.    4860.     543.    8494.     729.    6461.     492.    320.00
     1.48     6.61     4.66     6.66     .040     .075     .040     .000   318.00  3411.50
  .001342     480.     480.     480.        2       14        0      .00   653.50  4065.00


*SECNO 421.000

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE


3470 ENCROACHMENT STATIONS=     2617.0    3057.0  TYPE=      1  TARGET=      440.000
   421.00    11.42   335.42   331.65   334.98   336.97     1.56      .84      .35   325.00
   48000.    2538.   45184.     278.     254.    4503.      41.    6523.     497.    328.00
     1.49     9.98    10.04     6.82     .040     .050     .040     .000   324.00  2617.00
  .004514     375.     375.     375.        2       14        0      .00   440.00  3057.00


CCHV=     .300 CEHV=     .500
*SECNO 422.000

3301 HV CHANGED MORE THAN HVINS


3370 NORMAL BRIDGE, NRD=  53 MIN ELTRD=   344.00 MAX ELLC=   342.00
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


3470 ENCROACHMENT STATIONS=     2617.0    3057.0  TYPE=      1  TARGET=      440.000
       CUYAMACA BRIDGE - UPSTREAM END OF MISSION CREEK  DEVELOPMENT
       (NORMAL BRIDGE ROUTINE)
   422.00    10.94   334.94   332.77   334.44   337.55     2.61      .05      .53   326.00
   48000.    1595.   45957.     448.     157.    3507.      72.    6524.     497.    326.00
     1.49    10.16    13.10     6.22     .040     .030     .040     .000   324.00  2617.00
  .005616      10.      10.      10.        2       12        0  -841.78   440.00  3057.00


*SECNO 423.000

3370 NORMAL BRIDGE, NRD=  53 MIN ELTRD=   344.00 MAX ELLC=   342.00


3470 ENCROACHMENT STATIONS=     4616.0    5058.0  TYPE=      1  TARGET=      442.000
   423.00    11.74   335.74   332.77   335.48   337.99     2.25      .33      .11   326.00
   48000.    1694.   45804.     502.     176.    3763.      84.    6530.     498.    326.00
     1.49     9.60    12.17     5.95     .040     .030     .040     .000   324.00  4616.00
  .004578      65.      65.      65.        3       12        0  -907.51   442.00  5058.00


1490 NH CARD USED
*SECNO 424.000

3470 ENCROACHMENT STATIONS=     4633.0    5082.0  TYPE=      1  TARGET=      449.000
   424.00    10.38   336.38   333.45   336.18   338.18     1.79      .05      .14   326.00
   48000.    1262.   44749.    1989.     162.    4112.     216.    6531.     498.    326.00
     1.49     7.78    10.88     9.21     .050     .050     .050     .000   326.00  4633.00
  .005920      10.      10.      10.        3       14        0      .00   449.00  5082.00


1490 NH CARD USED
*SECNO 425.000

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE


3470 ENCROACHMENT STATIONS=     4420.0    5270.0  TYPE=      1  TARGET=      850.000
   425.00    12.80   338.80   333.12   338.72   339.30      .50      .73      .39   328.00
   48000.   20040.   17719.   10241.    3314.    3831.    1587.    6568.     502.    328.00
     1.50     6.05     4.63     6.45     .045     .075     .045     .000   326.00  4420.00
  .001886     285.     225.     215.        2       19        0      .00   850.00  5270.00
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


CCHV=     .100 CEHV=     .300
1490 NH CARD USED
*SECNO 430.000

3470 ENCROACHMENT STATIONS=     4860.0    5860.0  TYPE=      1  TARGET=     1000.000
   430.00    13.81   339.81   336.97   339.61   340.60      .79     1.21      .09   328.00
   48000.   17571.   16764.   13665.    3047.    2491.    1535.    6654.     512.    328.00
     1.52     5.77     6.73     8.90     .045     .075     .045     .000   326.00  4860.00
  .003589     495.     470.     465.        2       12        0      .00  1000.00  5860.00


1490 NH CARD USED
*SECNO 440.000

3470 ENCROACHMENT STATIONS=     4365.0    5420.0  TYPE=      1  TARGET=     1055.000
   440.00    13.64   341.64   337.08   340.57   342.16      .52     1.54      .03   330.00
   46000.   29010.   12410.    4579.    4846.    2324.     831.    6748.     525.    330.00
     1.55     5.99     5.34     5.51     .045     .075     .045     .000   328.00  4365.00
  .002280     535.     545.     550.        2       14        0      .00  1055.00  5420.00


1490 NH CARD USED
*SECNO 450.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE


3470 ENCROACHMENT STATIONS=     4375.0    5410.0  TYPE=      1  TARGET=     1035.000
   450.00    14.18   342.18   334.56   341.22   342.55      .37      .38      .01   330.00
   46000.    7483.   38260.     256.    3744.    7263.     167.    6869.     538.    330.00
     1.58     2.00     5.27     1.53     .055     .030     .055     .000   328.00  4375.00
  .000331     575.     530.     545.        2       11        0      .00  1035.00  5410.00


1490 NH CARD USED
*SECNO 460.000

3470 ENCROACHMENT STATIONS=     4380.0    5360.0  TYPE=      1  TARGET=      980.000
   460.00    14.41   342.41   333.20   341.51   342.68      .27      .12      .01   330.00
   46000.    2252.   43470.     279.    1623.   10074.     197.    6988.     548.    330.00
     1.61     1.39     4.32     1.41     .055     .030     .055     .000   328.00  4380.00
  .000219     480.     440.     425.        2       18        0      .00   980.00  5360.00
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


1490 NH CARD USED
*SECNO 470.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE


3470 ENCROACHMENT STATIONS=     4125.0    5130.0  TYPE=      1  TARGET=     1005.000
   470.00    14.47   342.47   338.64   341.70   343.11      .64      .32      .11   330.00
   46000.   36001.    9999.       0.    5444.    1769.       0.    7118.     563. 100000.00
     1.64     6.61     5.65      .00     .045     .070     .000     .000   328.00  4125.00
  .002464     790.     480.     430.        2       16        0      .00  1005.00  5130.00


1490 NH CARD USED
*SECNO 480.000

3265 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=     3105.0    4125.6  TYPE=      1  TARGET=     1020.600
   480.00    13.68   343.68   343.68   343.90   346.32     2.64     1.42      .60   340.00
   46000.    3213.   42780.       7.     657.    3178.       3.    7156.     569.    340.00
     1.64     4.89    13.46     2.76     .045     .070     .045     .000   330.00  3105.00
  .014013     305.     280.     280.        0        8        0      .00   767.61  4125.60


1490 NH CARD USED
*SECNO 483.000

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE


3470 ENCROACHMENT STATIONS=     3120.0    4140.0  TYPE=      1  TARGET=     1020.000
   483.00    16.25   346.25   343.93   345.96   347.27     1.02      .79      .16   340.00
   46000.   12548.   32331.    1120.    2348.    3585.      184.    7167.     571.    340.00
     1.65     5.34     9.02     6.07     .045     .070     .045     .000   330.00  3120.00
  .005080     100.     100.     105.        4        5        0      .00  1020.00  4140.00
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


*SECNO 484.000

3470 ENCROACHMENT STATIONS=     3080.0    4095.0  TYPE=      1  TARGET=     1015.000
   484.00    17.02   347.02   345.28   346.57   347.93      .91      .64      .01   342.00
   46000.   20588.   24264.    1148.    2993.    2938.     166.    7183.     574.    342.00
     1.65     6.88     8.26     6.92     .045     .070     .045     .000   330.00  3080.00
  .006259     110.     115.     160.        2       10        0      .00  1015.00  4095.00


*SECNO 485.000

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE


3470 ENCROACHMENT STATIONS=     3080.0    4095.0  TYPE=      1  TARGET=     1015.000
        CHUBB LANE CROSSING
   485.00     6.65   346.65   346.08   346.34   348.22     1.58      .10      .20   342.00
   46000.   28396.   15976.    1628.    2721.    1711.     153.    7184.     574.    342.00
     1.65    10.44     9.34    10.63     .045     .070     .045     .000   340.00  3080.00
  .016210      10.      10.      10.        3       22        0      .00  1015.00  4095.00


*SECNO 486.000

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE


3470 ENCROACHMENT STATIONS=     3080.0    4095.0  TYPE=      1  TARGET=     1015.000
   486.00    17.65   347.65   345.25   347.01   348.39      .74      .08      .08   342.00
   46000.   22062.   22754.    1184.    3435.    3102.     187.    7186.     575.    342.00
     1.65     6.42     7.34     6.35     .045     .070     .045     .000   330.00  3080.00
  .004590      10.      10.      10.        3       18        0      .00  1015.00  4095.00


1490 NH CARD USED
*SECNO 490.000
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE


3470 ENCROACHMENT STATIONS=     3030.0    4050.0  TYPE=      1  TARGET=     1020.000
   490.00    18.37   348.37   344.92   347.60   348.93      .56      .52      .02   336.00
   46000.   31295.   11636.    3069.    5151.    1830.     968.    7215.     579.    336.00
     1.66     6.08     6.36     3.17     .040     .070     .075     .000   330.00  3030.00
  .002089     175.     175.     175.        2       10        0      .00  1020.00  4050.00


1490 NH CARD USED
*SECNO 500.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE


3470 ENCROACHMENT STATIONS=     3280.0    4155.0  TYPE=      1  TARGET=      875.000
   500.00    18.98   348.98   341.12   348.41   349.38      .40      .44      .02   334.00
   45000.   12312.   24485.    8202.    3164.    4370.    1622.    7314.     590.    334.00
     1.69     3.89     5.60     5.06     .030     .040     .030     .000   330.00  3280.00
  .000473     495.     510.     525.        2       11        0      .00   875.00  4155.00


1490 NH CARD USED
*SECNO 507.000

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE


3470 ENCROACHMENT STATIONS=     3851.0    4335.0  TYPE=      1  TARGET=      484.000
   507.00    14.99   348.99   342.91   348.46   349.89      .91      .36      .15   342.00
   45000.     158.   43470.    1372.      44.    5623.     286.    7397.     597.    342.00
     1.70     3.60     7.73     4.80     .040     .040     .040     .000   334.00  3851.00
  .001408     510.     470.     450.        2       14        0      .00   484.00  4335.00


CCHV=     .300 CEHV=     .500
*SECNO 508.000
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE


3370 NORMAL BRIDGE, NRD=  49 MIN ELTRD=   352.00 MAX ELLC=   352.00


3470 ENCROACHMENT STATIONS=     3852.0    4334.0  TYPE=      1  TARGET=      482.000
        MAGNOLIA AVE BRIDGE  (NORMAL BRIDGE ROUTINE)
   508.00    14.78   348.78   343.78   348.24   350.14     1.35      .02      .22   342.00
   45000.     208.   43382.    1411.      40.    4595.     227.    7398.     597.    342.00
     1.70     5.24     9.44     6.22     .040     .030     .040     .000   334.00  3852.00
  .002979      10.      10.      10.        2       15        0  -987.46   482.00  4334.00


*SECNO 509.000

3370 NORMAL BRIDGE, NRD=  49 MIN ELTRD=   352.00 MAX ELLC=   352.00


3470 ENCROACHMENT STATIONS=     3851.0    4335.0  TYPE=      1  TARGET=      484.000
   509.00    15.04   349.04   343.78   348.63   350.34     1.30      .19      .02   336.00
   45000.    1723.   42989.     288.     276.    4637.      57.    7405.     598.    342.00
     1.71     6.24     9.27     5.10     .040     .030     .040     .000   334.00  3851.00
  .002811      65.      65.      65.        2       15        0 -1008.91   484.00  4335.00


CCHV=     .100 CEHV=     .300
1490 NH CARD USED
*SECNO 510.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE


3470 ENCROACHMENT STATIONS=     3867.0    4352.0  TYPE=      1  TARGET=      485.000
   510.00    17.58   349.58   342.66   349.14   350.41      .82      .02      .05   342.00
   45000.     365.   43952.     683.      95.    5982.     173.    7407.     598.    341.00
     1.71     3.85     7.35     3.95     .040     .040     .040     .000   332.00  3867.00
  .001188      10.      10.      10.        2       19        0      .00   485.00  4352.00


1490 NH CARD USED
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


*SECNO 515.000

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE


3470 ENCROACHMENT STATIONS=     3750.0    4440.0  TYPE=      1  TARGET=      690.000
   515.00    18.37   350.37   337.96   350.03   350.59      .21      .12      .06   334.00
   45000.    9669.   35331.       0.    2897.    9260.       0.    7464.     602. 100000.00
     1.73     3.34     3.82      .00     .040     .040     .000     .000   332.00  3750.00
  .000228     250.     275.     350.        2       17        0      .00   690.00  4440.00


1490 NH CARD USED
*SECNO 520.000

3470 ENCROACHMENT STATIONS=     4240.0    4865.0  TYPE=      1  TARGET=      625.000
   520.00    18.43   350.43   338.87   350.05   350.73      .31      .12      .03   334.00
   45000.    3670.   41015.     315.    1239.    8948.     141.    7607.     610.    334.00
     1.76     2.96     4.58     2.23     .040     .031     .040     .000   332.00  4240.00
  .000199     515.     560.     590.        2       18        0      .00   625.00  4865.00


1490 NH CARD USED
*SECNO 530.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE


3470 ENCROACHMENT STATIONS=     4170.0    4650.0  TYPE=      1  TARGET=      480.000
   530.00    16.37   350.37   341.92   350.00   351.02      .65      .18      .10   334.00
   45000.    1132.   36643.    7225.     279.    5337.    1680.    7732.     618.    334.00
     1.79     4.06     6.87     4.30     .040     .030     .040     .000   334.00  4170.00
  .000462     640.     620.     610.        2       14        0      .00   480.00  4650.00


1490 NH CARD USED
*SECNO 535.000

3470 ENCROACHMENT STATIONS=     2120.0    2530.0  TYPE=      1  TARGET=      410.000
   535.00    16.33   350.33   342.92   349.94   351.26      .94      .16      .09100000.00
   45000.       0.   38543.    6457.       0.    4740.    1282.    7775.     621.    336.00
     1.80      .00     8.13     5.03     .000     .031     .040     .000   334.00  2120.00
  .000744     290.     280.     275.        2       11        0      .00   410.00  2530.00
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


1490 NH CARD USED
*SECNO 540.000

3470 ENCROACHMENT STATIONS=     2055.0    2467.0  TYPE=      1  TARGET=      412.000
   540.00    16.65   350.65   342.17   350.33   351.50      .84      .22      .01   336.00
   45000.       9.   42422.    2570.      12.    5636.     638.    7824.     624.    336.00
     1.81      .73     7.53     4.03     .040     .030     .040     .000   334.00  2055.00
  .000564     365.     350.     335.        2        8        0      .00   412.00  2467.00


1490 NH CARD USED
*SECNO 550.000

3470 ENCROACHMENT STATIONS=     1830.0    2350.0  TYPE=      1  TARGET=      520.000
   550.00    17.10   351.10   343.21   350.75   351.87      .77      .37      .01   336.00
   45000.    4576.   34066.    6357.     900.    4424.    1670.    7923.     631.    336.00
     1.84     5.08     7.70     3.81     .040     .030     .040     .000   334.00  1830.00
  .000570     645.     650.     655.        2       11        0      .00   520.00  2350.00


1490 NH CARD USED
*SECNO 560.000

3470 ENCROACHMENT STATIONS=     1575.0    2200.0  TYPE=      1  TARGET=      625.000
   560.00    17.73   351.73   342.49   351.34   352.17      .44      .26      .03   336.00
   45000.    2702.   27988.   14310.     867.    4591.    3763.    8035.     639.    336.00
     1.87     3.12     6.10     3.80     .050     .031     .040     .000   334.00  1575.00
  .000352     605.     600.     595.        2        8        0      .00   625.00  2200.00


1490 NH CARD USED
*SECNO 562.000

3470 ENCROACHMENT STATIONS=     1080.0    1790.0  TYPE=      1  TARGET=      710.000
   562.00    17.93   351.93   342.25   351.53   352.27      .35      .09      .01   336.00
   45000.    3704.   20884.   20413.    1294.    3642.    5423.    8098.     643.    336.00
     1.89     2.86     5.73     3.76     .050     .031     .040     .000   334.00  1080.00
  .000305     280.     280.     285.        2       14        0      .00   710.00  1790.00


1490 NH CARD USED
*SECNO 564.000
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


3470 ENCROACHMENT STATIONS=      920.0    1650.0  TYPE=      1  TARGET=      730.000
   564.00    18.04   352.04   341.97   351.65   352.34      .30      .07      .00   336.00
   45000.    5243.   25208.   14549.    1802.    4979.    4069.    8152.     647.    336.00
     1.90     2.91     5.06     3.58     .050     .034     .040     .000   334.00   920.00
  .000291     220.     220.     220.        2       14        0      .00   730.00  1650.00


*SECNO 566.000

3301 HV CHANGED MORE THAN HVINS


3470 ENCROACHMENT STATIONS=      870.0    1405.0  TYPE=      1  TARGET=      535.000
   566.00    17.78   351.78   343.50   351.38   352.61      .83      .11      .16   338.00
   45000.    2291.   38979.    3729.    1131.    4986.    1364.    8210.     651.    338.00
     1.91     2.03     7.82     2.74     .085     .030     .060     .000   334.00   870.00
  .000554     280.     280.     280.        2       11        0      .00   535.00  1405.00


*SECNO 570.000

3301 HV CHANGED MORE THAN HVINS


3470 ENCROACHMENT STATIONS=     1525.0    1960.0  TYPE=      1  TARGET=      435.000
   570.00    17.47   351.47   345.56   351.05   353.05     1.58      .21      .22   336.00
   45000.    2747.   37994.    4259.    1084.    3493.    1116.    8253.     654.    336.00
     1.92     2.53    10.88     3.82     .085     .030     .060     .000   334.00  1525.00
  .001073     285.     280.     280.        2       14        0      .00   435.00  1960.00


*SECNO 572.000

3470 ENCROACHMENT STATIONS=      757.0    1150.0  TYPE=      1  TARGET=      393.000
   572.00    17.90   351.90   344.37   351.54   353.25     1.34      .18      .02   336.00
   45000.    2615.   39463.    2922.     919.    4002.     857.    8278.     656.    336.00
     1.93     2.85     9.86     3.41     .085     .030     .060     .000   334.00   757.00
  .000853     200.     187.     178.        2       14        0      .00   393.00  1150.00


*SECNO 574.000
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


3470 ENCROACHMENT STATIONS=      705.0    1090.0  TYPE=      1  TARGET=      385.000
   574.00    18.55   352.55   342.91   352.23   353.42      .87      .13      .05   336.00
   45000.     922.   42269.    1809.     463.    5486.     608.    8306.     658.    336.00
     1.93     1.99     7.70     2.97     .085     .030     .060     .000   334.00   705.00
  .000496     210.     200.     190.        2        8        0      .00   385.00  1090.00


*SECNO 576.000

3470 ENCROACHMENT STATIONS=      688.0    1060.0  TYPE=      1  TARGET=      372.000
   576.00    18.40   352.40   344.59   352.13   353.64     1.24      .10      .11   338.00
   45000.    1002.   39040.    4958.     433.    4117.    1333.    8330.     659.    338.00
     1.94     2.31     9.48     3.72     .085     .030     .060     .000   334.00   688.00
  .000773     190.     170.     165.        2       11        0      .00   372.00  1060.00


*SECNO 582.000

3470 ENCROACHMENT STATIONS=      615.0    1080.0  TYPE=      1  TARGET=      465.000
   582.00    16.65   352.65   346.64   352.54   353.93     1.29      .28      .02   338.00
   45000.    1788.   35939.    7273.     756.    3582.    1907.    8376.     662.    338.00
     1.95     2.37    10.03     3.81     .085     .030     .060     .000   336.00   615.00
  .000973     335.     330.     310.        2       11        0      .00   465.00  1080.00


*SECNO 584.000

3470 ENCROACHMENT STATIONS=      538.0    1085.0  TYPE=      1  TARGET=      547.000
   584.00    17.24   353.24   345.92   352.84   354.13      .90      .16      .04   338.00
   45000.    2630.   33306.    9064.    1075.    3864.    2674.    8407.     665.    338.00
     1.96     2.45     8.62     3.39     .085     .030     .060     .000   336.00   538.00
  .000686     210.     200.     190.        2       14        0      .00   547.00  1085.00


*SECNO 586.000

3470 ENCROACHMENT STATIONS=      465.0     960.0  TYPE=      1  TARGET=      495.000
   586.00    17.31   353.31   346.08   353.06   354.32     1.02      .15      .04   338.00
   45000.    3520.   30882.   10598.    1343.    3272.    2638.    8442.     667.    338.00
     1.97     2.62     9.44     4.02     .085     .030     .060     .000   336.00   465.00
  .000819     205.     205.     205.        2       11        0      .00   495.00   960.00
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


*SECNO 592.000

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE


3470 ENCROACHMENT STATIONS=      371.0     720.0  TYPE=      1  TARGET=      349.000
   592.00    16.96   352.96   348.14   352.79   355.10     2.13      .44      .34   338.00
   45000.    2993.   33504.    8503.     800.    2525.    1591.    8495.     671.    338.00
     1.97     3.74    13.27     5.34     .085     .030     .060     .000   336.00   371.00
  .001722     375.     380.     385.        2       19        0      .00   349.00   720.00


*SECNO 594.000

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
3470 ENCROACHMENT STATIONS=      595.0     830.0  TYPE=      1  TARGET=      235.000
   594.00    12.93   352.93   352.93   353.27   358.39     5.46     1.19     1.00   342.00
   45000.    5001.   33075.    6924.     243.    1887.     307.    8515.     672.    342.00
     1.98    20.62    17.53    22.59     .075     .125     .065     .000   340.00   595.00
  .073995     230.     230.     230.        0       15        0      .00   235.00   830.00


*SECNO 600.000

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE


3470 ENCROACHMENT STATIONS=      660.0     995.0  TYPE=      1  TARGET=      335.000
   600.00    18.78   360.78   353.34   360.55   362.00     1.22     3.19      .42   346.00
   45000.   12922.   30234.    1844.    1287.    3673.     180.    8528.     673.    346.00
     1.98    10.04     8.23    10.24     .075     .125     .065     .000   342.00   660.00
  .009960     145.     150.     155.        3       11        0      .00   335.00   995.00
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


*SECNO 610.000

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE


3470 ENCROACHMENT STATIONS=      280.0     645.0  TYPE=      1  TARGET=      365.000
   610.00    21.58   363.58   351.62   363.40   364.22      .65     2.16      .06   346.00
   45000.    3003.   40225.    1772.     451.    6293.     243.    8571.     676.    346.00
     2.00     6.66     6.39     7.28     .075     .125     .065     .000   342.00   280.00
  .005074     295.     315.     355.        3        8        0      .00   365.00   645.00


*SECNO 620.000

3470 ENCROACHMENT STATIONS=      330.0     730.0  TYPE=      1  TARGET=      400.000
   620.00    21.73   365.73   353.74   365.57   366.29      .55     2.05      .01100000.00
   45000.       0.   45000.       0.       0.    7534.       0.    8637.     679. 100000.00
     2.01      .00     5.97      .00     .000     .125     .000     .000   344.00   330.00
  .005322     395.     395.     395.        2       14        0      .00   400.00   730.00


*SECNO 630.000

3470 ENCROACHMENT STATIONS=      380.0     750.0  TYPE=      1  TARGET=      370.000
   630.00    22.93   366.93   354.56   366.77   367.55      .63     1.24      .02   348.00
   45000.    5714.   35532.    3754.     827.    5924.     446.    8682.     681.    348.00
     2.03     6.91     6.00     8.42     .075     .125     .065     .000   344.00   380.00
  .004196     235.     265.     295.        2       11        0      .00   370.00   750.00


*SECNO 640.000

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE


3470 ENCROACHMENT STATIONS=      401.0     600.0  TYPE=      1  TARGET=      199.000
        FINAL CROSS SECTION - APPROX. 200 FT. DOWNSTREAM OF RIVERFORD BRIDGE
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| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |
| 640.00 | 22.41 | 368.41 | 360.72 | 368.29 | 370.59 | 2.18 | 2.57 | .47 | 350.00 |
| 45000. | 4545. | 36553. | 3902. | 368. | 3124. | 306. | 8726. | 684. | 350.00 |
| 2.03 | 12.34 | 11.70 | 12.75 | .075 | .125 | .065 | .000 | 346.00 | 401.00 |
| .016116 | 345. | 350. | 355. | 2 | 14 | 0 | .00 | 199.00 | 600.00 |

THIS RUN EXECUTED 6/24/92 13: 1:54

**********
HEC2 RELEASE DATED SEPT 88

**********

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

PROFILE 1 - 100 YEAR FLO

SUMMARY PRINTOUT

| | SECNO | CWSEL | CRIWS | DEPTH | Q | QLOB | QCH | QROB | EG | 10*KS | VLOB | VCH | VROB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| * | 100.000 | 282.55 | 282.55 | 12.55 | 50000.00 | 439.54 | 49530.04 | 30.42 | 287.42 | 1983.91 | 10.96 | 17.77 | 8.08 |
| | 100.000 | 283.55 | 282.25 | 13.55 | 50000.00 | 15.44 | 49984.56 | .00 | 287.73 | 1528.67 | 5.48 | 16.41 | .00 |
| * | 110.000 | 289.82 | 285.87 | 15.82 | 50000.00 | 4747.03 | 44044.85 | 1208.12 | 292.22 | 611.20 | 16.65 | 11.88 | 12.34 |
| * | 110.000 | 289.63 | 285.82 | 15.63 | 50000.00 | 4273.80 | 44813.60 | 912.60 | 292.23 | 661.82 | 18.47 | 12.26 | 12.99 |
| * | 120.000 | 292.90 | 286.24 | 18.90 | 50000.00 | 5983.88 | 39075.13 | 4941.00 | 294.45 | 271.54 | 12.95 | 9.09 | 12.48 |
| * | 120.000 | 292.95 | 286.24 | 18.95 | 50000.00 | 5724.87 | 39307.86 | 4967.27 | 294.55 | 272.41 | 13.80 | 9.12 | 12.67 |
| * | 130.000 | 300.44 | 289.33 | 24.44 | 50000.00 | 9040.13 | 28780.63 | 12179.24 | 301.19 | 74.26 | 7.08 | 5.61 | 9.40 |
| * | 130.000 | 301.07 | 289.06 | 25.07 | 50000.00 | 3243.99 | 32665.40 | 14090.61 | 302.01 | 87.16 | 8.76 | 6.20 | 10.42 |
| | 140.000 | 304.49 | 290.26 | 28.49 | 50000.00 | 6255.16 | 35398.74 | 8346.10 | 305.19 | 69.65 | 7.50 | 5.88 | 8.98 |
| | 140.000 | 305.52 | 290.32 | 29.52 | 50000.00 | 3868.47 | 37349.01 | 8782.52 | 306.26 | 67.77 | 8.92 | 5.96 | 9.31 |
| * | 150.000 | 305.95 | 288.36 | 25.95 | 50000.00 | 1439.87 | 25150.03 | 23410.09 | 306.20 | 7.86 | 2.14 | 2.20 | 5.41 |
| * | 150.000 | 306.90 | 288.34 | 26.90 | 50000.00 | 688.81 | 24398.49 | 24912.70 | 307.15 | 6.52 | 2.12 | 2.05 | 5.23 |
| * | 160.000 | 306.49 | 292.18 | 24.49 | 50000.00 | 42430.20 | 4574.35 | 2995.44 | 306.59 | 3.40 | 2.60 | 2.59 | 1.67 |
| * | 160.000 | 307.38 | 292.18 | 25.38 | 50000.00 | 41862.43 | 4575.37 | 3562.20 | 307.48 | 2.97 | 2.49 | 2.49 | 1.78 |
| * | 170.000 | 306.61 | 293.99 | 24.61 | 50000.00 | 33634.66 | 2046.90 | 14318.44 | 306.66 | 1.45 | 1.92 | 1.63 | 1.75 |
| * | 170.000 | 307.48 | 293.93 | 25.48 | 50000.00 | 35733.69 | 2165.61 | 12100.71 | 307.54 | 1.42 | 1.96 | 1.66 | 1.93 |
| * | 180.000 | 306.65 | 293.03 | 20.65 | 50000.00 | 38997.22 | 4716.69 | 6286.09 | 306.72 | .73 | 2.23 | 1.11 | 1.20 |
| | 180.000 | 307.53 | 293.01 | 21.53 | 50000.00 | 42028.15 | 5077.55 | 2894.29 | 307.60 | .73 | 2.29 | 1.14 | 1.50 |
| | 190.000 | 306.68 | 290.51 | 20.68 | 50000.00 | 45963.77 | 3762.62 | 273.61 | 306.75 | .41 | 2.20 | .84 | .52 |
| * | 190.000 | 307.56 | 290.51 | 21.56 | 50000.00 | 45892.87 | 3773.71 | 333.42 | 307.63 | .35 | 2.11 | .81 | .56 |
| * | 200.000 | 306.74 | 290.78 | 20.74 | 50000.00 | 32505.22 | 2922.58 | 14572.19 | 306.81 | 3.05 | 1.58 | 1.37 | 3.11 |
| * | 200.000 | 307.61 | 290.78 | 21.61 | 50000.00 | 32050.01 | 2925.98 | 15024.01 | 307.68 | 2.60 | 1.51 | 1.30 | 3.07 |

| | SECNO | CWSEL | CRIWS | DEPTH | Q | QLOB | QCH | QROB | EG | 10*KS | VLOB | VCH | VROB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 209.000 | 306.86 | 292.00 | 20.86 | 50000.00 | 22775.46 | 6120.35 | 21104.18 | 306.94 | 3.28 | 1.54 | 1.43 | 2.93 |
| | 209.000 | 307.71 | 291.98 | 21.71 | 50000.00 | 23058.53 | 6242.88 | 20698.60 | 307.80 | 2.91 | 1.50 | 1.39 | 3.10 |
| * | 210.000 | 306.78 | 299.60 | 20.78 | 50000.00 | 10284.65 | 8978.33 | 30737.02 | 306.98 | 7.17 | 1.43 | 2.11 | 4.32 |
| * | 210.000 | 307.63 | 299.57 | 21.63 | 50000.00 | 11055.12 | 9059.90 | 29884.99 | 307.84 | 6.22 | 1.42 | 2.03 | 4.51 |
| * | 211.000 | 306.92 | 292.00 | 20.92 | 50000.00 | 22727.08 | 6106.50 | 21166.43 | 307.00 | 3.23 | 1.53 | 1.43 | 2.92 |
| * | 211.000 | 307.77 | 291.98 | 21.77 | 50000.00 | 23023.59 | 6233.83 | 20742.58 | 307.85 | 2.87 | 1.49 | 1.39 | 3.09 |
| | 220.000 | 307.13 | 298.96 | 19.13 | 50000.00 | 8657.76 | 5215.09 | 36127.14 | 307.27 | 3.18 | 3.07 | .91 | 3.24 |
| | 220.000 | 307.95 | 298.90 | 19.95 | 50000.00 | 8150.04 | 5111.31 | 36738.65 | 308.09 | 2.63 | 3.06 | .85 | 3.12 |
| | 230.000 | 307.25 | 299.47 | 19.25 | 50000.00 | 3842.25 | 4011.86 | 42145.89 | 307.49 | 4.75 | 3.64 | 1.11 | 4.13 |
| | 230.000 | 308.05 | 299.28 | 20.05 | 50000.00 | 4070.61 | 4003.81 | 41925.57 | 308.28 | 4.10 | 3.55 | 1.06 | 4.02 |
| * | 239.000 | 307.10 | 298.48 | 17.10 | 50000.00 | 2952.22 | 15410.44 | 31637.33 | 308.18 | 33.57 | 9.33 | 2.82 | 9.93 |
| * | 239.000 | 307.90 | 298.52 | 17.90 | 50000.00 | 2940.00 | 14920.17 | 32139.83 | 308.87 | 26.94 | 8.66 | 2.60 | 9.34 |
| * | 240.000 | 309.17 | 298.36 | 19.17 | 50000.00 | 71.67 | 49928.34 | .00 | 309.70 | 150.03 | 6.36 | 5.88 | .00 |
| * | 240.000 | 309.62 | 298.34 | 19.62 | 50000.00 | 38.01 | 49961.99 | .00 | 310.13 | 134.21 | 5.37 | 5.75 | .00 |
| * | 242.000 | 309.14 | 298.80 | 19.14 | 50000.00 | 25.04 | 49974.96 | .00 | 309.78 | 10.91 | 2.27 | 6.42 | .00 |
| * | 242.000 | 309.60 | 298.80 | 19.60 | 50000.00 | 6.59 | 49993.41 | .00 | 310.21 | 10.11 | 1.54 | 6.26 | .00 |
| | 243.000 | 309.22 | 298.80 | 19.22 | 50000.00 | .00 | 49963.21 | 36.79 | 309.85 | 10.75 | .00 | 6.39 | 2.27 |
| | 243.000 | 309.67 | 298.80 | 19.67 | 50000.00 | .00 | 49961.50 | 38.51 | 310.27 | 9.92 | .00 | 6.24 | 2.22 |
| * | 244.000 | 309.37 | 298.90 | 19.37 | 50000.00 | .00 | 50000.00 | .00 | 309.91 | 75.22 | .00 | 5.87 | .00 |
| * | 244.000 | 309.81 | 298.90 | 19.81 | 50000.00 | .00 | 50000.00 | .00 | 310.32 | 68.10 | .00 | 5.73 | .00 |
| * | 245.000 | 309.96 | 297.46 | 19.96 | 50000.00 | 20709.59 | 21638.68 | 7651.73 | 310.32 | 9.32 | 6.46 | 2.36 | 4.64 |
| * | 245.000 | 310.21 | 297.39 | 20.21 | 50000.00 | 22773.35 | 25895.30 | 1331.34 | 310.80 | 12.80 | 8.49 | 2.79 | 5.70 |
| | 250.000 | 310.76 | 299.80 | 20.76 | 50000.00 | 8418.52 | 6928.99 | 34652.49 | 310.93 | 6.68 | 4.05 | 2.01 | 3.27 |
| | 250.000 | 311.39 | 300.15 | 21.39 | 50000.00 | 10121.22 | 8573.89 | 31304.88 | 311.63 | 9.21 | 5.34 | 2.40 | 3.72 |
| * | 260.000 | 311.65 | 306.19 | 17.65 | 50000.00 | 909.28 | 10883.84 | 38206.88 | 312.56 | 43.12 | 2.50 | 4.25 | 8.42 |
| * | 260.000 | 312.61 | 306.21 | 18.61 | 50000.00 | 823.34 | 10858.36 | 38318.30 | 313.46 | 34.98 | 2.63 | 3.99 | 8.21 |
| | 270.000 | 314.82 | 307.73 | 16.82 | 49000.00 | 6620.07 | 7842.30 | 34537.63 | 315.36 | 21.29 | 2.47 | 3.02 | 6.84 |
| | 270.000 | 315.40 | 307.73 | 17.40 | 49000.00 | 5348.92 | 8594.57 | 35056.51 | 316.10 | 22.57 | 2.86 | 3.19 | 7.67 |
| * | 280.000 | 316.53 | 308.55 | 16.53 | 49000.00 | 6209.83 | 2786.43 | 40003.74 | 316.70 | 8.29 | 1.46 | 1.83 | 3.55 |
| * | 280.000 | 317.32 | 308.67 | 17.32 | 49000.00 | 6006.91 | 3089.11 | 39903.98 | 317.51 | 8.59 | 1.46 | 1.93 | 3.74 |
| | 285.000 | 317.04 | 309.79 | 15.04 | 49000.00 | 4435.14 | 1793.47 | 42771.39 | 317.20 | 6.50 | 2.31 | 1.53 | 3.27 |
| | 285.000 | 317.82 | 309.79 | 15.82 | 49000.00 | 3934.17 | 1799.70 | 43266.13 | 317.97 | 5.45 | 2.50 | 1.45 | 3.18 |
| | 290.000 | 317.51 | 311.73 | 15.51 | 49000.00 | 8387.77 | 2340.77 | 38271.45 | 317.69 | 8.72 | 3.89 | 1.72 | 3.37 |
| | 290.000 | 318.22 | 311.69 | 16.22 | 49000.00 | 3992.56 | 2491.26 | 42516.18 | 318.41 | 8.29 | 4.49 | 1.74 | 3.46 |

| | SECNO | CWSEL | CRIWS | DEPTH | Q | QLOB | QCH | QROB | EG | 10*KS | VLOB | VCH | VROB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| * | 300.000 | 318.24 | 314.09 | 12.24 | 49000.00 | 3664.32 | 3237.14 | 42098.54 | 318.55 | 18.92 | 4.41 | 2.03 | 4.61 |
| * | 300.000 | 318.90 | 314.05 | 12.90 | 49000.00 | .00 | 3310.40 | 45689.60 | 319.21 | 16.99 | .00 | 1.97 | 4.58 |
| | 310.000 | 319.19 | 313.84 | 11.19 | 49000.00 | 2135.26 | 1304.05 | 45560.69 | 319.41 | 10.86 | 2.79 | 1.36 | 3.83 |
| | 310.000 | 319.83 | 314.39 | 11.83 | 49000.00 | 1030.52 | 1651.52 | 46317.95 | 320.12 | 13.36 | 3.92 | 1.59 | 4.34 |
| * | 320.000 | 320.71 | 317.84 | 10.71 | 49000.00 | 804.11 | 11393.19 | 36802.70 | 321.33 | 64.72 | 6.41 | 3.84 | 6.89 |
| * | 320.000 | 321.55 | 317.88 | 11.55 | 49000.00 | .00 | 10705.56 | 38294.45 | 322.18 | 52.97 | .00 | 3.68 | 6.91 |
| * | 330.000 | 323.86 | 318.57 | 11.86 | 48000.00 | 23228.34 | 8456.57 | 16315.09 | 324.31 | 25.86 | 5.70 | 4.59 | 5.29 |
| * | 330.000 | 324.35 | 318.63 | 12.35 | 48000.00 | 22842.52 | 8709.59 | 16447.88 | 324.79 | 23.92 | 5.68 | 4.53 | 5.32 |
| | 340.000 | 325.21 | 319.00 | 15.21 | 48000.00 | 8121.16 | 21990.63 | 17888.21 | 325.58 | 23.99 | 5.08 | 4.38 | 5.46 |
| | 340.000 | 325.60 | 319.00 | 15.60 | 48000.00 | 8213.52 | 21849.17 | 17937.31 | 325.95 | 21.17 | 4.94 | 4.21 | 5.26 |
| | 345.000 | 325.96 | 320.63 | 13.96 | 48000.00 | 12602.07 | 25559.24 | 9838.69 | 326.39 | 33.38 | 5.70 | 4.90 | 5.57 |
| | 345.000 | 326.26 | 320.55 | 14.26 | 48000.00 | 11242.15 | 26404.65 | 10353.21 | 326.71 | 32.57 | 6.11 | 4.93 | 5.61 |
| | 355.000 | 327.04 | 322.71 | 13.04 | 48000.00 | 11841.53 | 30685.59 | 5472.88 | 327.55 | 47.59 | 5.64 | 5.70 | 6.31 |
| | 355.000 | 327.32 | 322.64 | 13.32 | 48000.00 | 9926.16 | 32246.61 | 5827.23 | 327.87 | 48.04 | 6.19 | 5.83 | 6.47 |
| | 356.000 | 328.43 | 325.38 | 12.43 | 48000.00 | 11547.32 | 35450.64 | 1002.04 | 329.29 | 86.42 | 6.02 | 7.87 | 7.36 |
| | 356.000 | 328.73 | 325.13 | 12.73 | 48000.00 | 7883.78 | 38970.32 | 1145.89 | 329.75 | 95.29 | 6.48 | 8.42 | 7.87 |
| * | 358.000 | 328.06 | .00 | 12.06 | 48000.00 | 6927.53 | 41055.46 | 17.01 | 329.29 | 30.23 | 3.66 | 9.50 | 2.40 |
| * | 358.000 | 328.47 | .00 | 12.47 | 48000.00 | 5159.54 | 42800.66 | 39.80 | 329.75 | 28.76 | 3.85 | 9.52 | 2.49 |
| | 360.000 | 329.95 | 323.27 | 13.95 | 48000.00 | 37141.04 | 8472.66 | 2386.30 | 330.30 | 16.62 | 5.10 | 3.68 | 2.23 |
| | 360.000 | 330.36 | 323.24 | 14.36 | 48000.00 | 38366.72 | 8872.63 | 760.65 | 330.74 | 16.24 | 5.20 | 3.72 | 2.47 |
| | 370.000 | 330.57 | 324.06 | 12.57 | 48000.00 | 35159.80 | 3676.55 | 9163.64 | 330.80 | 12.06 | 4.22 | 3.23 | 2.44 |
| | 370.000 | 330.97 | 324.06 | 12.97 | 48000.00 | 39624.59 | 4117.46 | 4257.95 | 331.26 | 13.61 | 4.59 | 3.51 | 2.71 |
| | 380.000 | 330.97 | 324.77 | 12.97 | 48000.00 | 33764.25 | 2402.13 | 11833.62 | 331.20 | 13.05 | 4.20 | 3.41 | 2.66 |
| | 380.000 | 331.42 | 324.95 | 13.42 | 48000.00 | 39771.87 | 2788.83 | 5439.31 | 331.73 | 15.68 | 4.72 | 3.83 | 3.03 |
| | 390.000 | 331.74 | 326.44 | 13.74 | 48000.00 | 32610.24 | 6858.39 | 8531.37 | 332.14 | 23.39 | 5.62 | 4.14 | 3.26 |
| | 390.000 | 332.32 | 326.71 | 14.32 | 48000.00 | 33909.73 | 7733.60 | 6356.67 | 332.80 | 25.02 | 6.04 | 4.43 | 3.50 |
| | 400.000 | 332.86 | 323.70 | 14.86 | 48000.00 | 5050.22 | 40248.66 | 2701.12 | 333.16 | 12.57 | 5.12 | 4.20 | 5.36 |
| * | 400.000 | 333.52 | 323.70 | 15.52 | 48000.00 | 2552.38 | 42647.24 | 2800.37 | 333.83 | 12.20 | 5.36 | 4.26 | 5.82 |
| | 410.000 | 333.65 | 324.11 | 15.65 | 48000.00 | 2800.71 | 42631.76 | 2567.53 | 334.00 | 11.18 | 4.84 | 4.75 | 5.12 |
| | 410.000 | 334.27 | 324.11 | 16.27 | 48000.00 | 2971.53 | 42389.65 | 2638.82 | 334.59 | 9.71 | 4.67 | 4.54 | 5.05 |
| | 415.000 | 334.47 | 324.08 | 16.47 | 48000.00 | 2282.54 | 42196.28 | 3521.18 | 334.77 | 8.59 | 4.91 | 4.27 | 4.99 |
| | 415.000 | 334.99 | 324.08 | 16.99 | 48000.00 | 2348.61 | 42027.71 | 3623.68 | 335.27 | 7.67 | 4.77 | 4.12 | 4.85 |
| | 420.000 | 334.92 | 325.37 | 16.92 | 48000.00 | 3535.89 | 39702.05 | 4762.06 | 335.34 | 14.90 | 6.74 | 4.81 | 6.86 |
| | 420.000 | 335.38 | 325.39 | 17.38 | 48000.00 | 3592.24 | 39547.61 | 4860.15 | 335.78 | 13.42 | 6.61 | 4.66 | 6.66 |

| | SECNO | CWSEL | CRIWS | DEPTH | Q | QLOB | QCH | QROB | EG | 10*KS | VLOB | VCH | VROB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| * | 421.000 | 334.98 | 331.64 | 10.98 | 48000.00 | 2496.23 | 45230.37 | 273.41 | 336.66 | 51.57 | 10.19 | 10.45 | 6.69 |
| * | 421.000 | 335.42 | 331.65 | 11.42 | 48000.00 | 2538.04 | 45183.52 | 278.45 | 336.97 | 45.14 | 9.98 | 10.04 | 6.82 |
| | 422.000 | 334.44 | 332.77 | 10.44 | 48000.00 | 1540.73 | 46032.39 | 426.87 | 337.32 | 64.28 | 10.32 | 13.75 | 6.28 |
| | 422.000 | 334.94 | 332.77 | 10.94 | 48000.00 | 1594.96 | 45956.65 | 448.39 | 337.55 | 56.16 | 10.16 | 13.10 | 6.22 |
| | 423.000 | 335.48 | 332.76 | 11.48 | 48000.00 | 1678.35 | 45820.74 | 500.91 | 337.84 | 48.74 | 9.54 | 12.45 | 5.96 |
| | 423.000 | 335.74 | 332.77 | 11.74 | 48000.00 | 1693.80 | 45803.94 | 502.26 | 337.99 | 45.78 | 9.60 | 12.17 | 5.95 |
| | 424.000 | 336.18 | 333.45 | 10.18 | 48000.00 | 1280.97 | 44711.55 | 2007.48 | 338.04 | 63.11 | 7.81 | 11.09 | 9.10 |
| | 424.000 | 336.38 | 333.45 | 10.38 | 48000.00 | 1262.15 | 44749.20 | 1988.65 | 338.18 | 59.20 | 7.78 | 10.88 | 9.21 |
| * | 425.000 | 338.72 | 333.13 | 12.72 | 48000.00 | 20634.99 | 17355.63 | 10009.38 | 339.19 | 18.49 | 5.84 | 4.56 | 6.36 |
| * | 425.000 | 338.80 | 333.12 | 12.80 | 48000.00 | 20039.55 | 17718.98 | 10241.47 | 339.30 | 18.86 | 6.05 | 4.63 | 6.45 |
| | 430.000 | 339.61 | 334.34 | 13.61 | 48000.00 | 11260.05 | 10256.48 | 26483.47 | 339.97 | 14.12 | 3.25 | 4.18 | 5.55 |
| | 430.000 | 339.81 | 336.97 | 13.81 | 48000.00 | 17571.39 | 16763.61 | 13665.00 | 340.60 | 35.89 | 5.77 | 6.73 | 8.90 |
| * | 440.000 | 340.57 | 337.09 | 12.57 | 46000.00 | 27332.40 | 12913.81 | 5753.79 | 341.14 | 32.51 | 6.25 | 6.03 | 4.61 |
| | 440.000 | 341.64 | 337.08 | 13.64 | 46000.00 | 29010.05 | 12410.47 | 4579.49 | 342.16 | 22.80 | 5.99 | 5.34 | 5.51 |
| * | 450.000 | 341.22 | 334.54 | 13.22 | 46000.00 | 7099.60 | 38472.51 | 427.89 | 341.65 | 4.23 | 1.99 | 5.68 | .92 |
| * | 450.000 | 342.18 | 334.56 | 14.18 | 46000.00 | 7483.19 | 38260.44 | 256.36 | 342.55 | 3.31 | 2.00 | 5.27 | 1.53 |
| | 460.000 | 341.51 | 333.19 | 13.51 | 46000.00 | 3030.39 | 42547.37 | 422.24 | 341.81 | 2.60 | 1.28 | 4.50 | .83 |
| | 460.000 | 342.41 | 333.20 | 14.41 | 46000.00 | 2251.88 | 43469.58 | 278.54 | 342.68 | 2.19 | 1.39 | 4.32 | 1.41 |
| * | 470.000 | 341.70 | 337.47 | 13.70 | 46000.00 | 34103.78 | 11300.97 | 595.25 | 342.25 | 26.39 | 5.98 | 6.03 | 5.24 |
| * | 470.000 | 342.47 | 338.64 | 14.47 | 46000.00 | 36001.08 | 9998.92 | .00 | 343.11 | 24.64 | 6.61 | 5.65 | .00 |
| * | 480.000 | 343.90 | 343.90 | 13.90 | 46000.00 | 6049.24 | 39620.65 | 330.11 | 345.96 | 113.45 | 4.96 | 12.25 | 4.48 |
| * | 480.000 | 343.68 | 343.68 | 13.68 | 46000.00 | 3212.94 | 42780.13 | 6.93 | 346.32 | 140.13 | 4.89 | 13.46 | 2.76 |
| * | 483.000 | 345.96 | 344.09 | 15.96 | 46000.00 | 14527.80 | 28588.81 | 2883.39 | 346.74 | 42.54 | 4.85 | 8.14 | 5.46 |
| * | 483.000 | 346.25 | 343.93 | 16.25 | 46000.00 | 12548.46 | 32331.18 | 1120.36 | 347.27 | 50.80 | 5.34 | 9.02 | 6.07 |
| | 484.000 | 346.57 | 344.90 | 16.57 | 46000.00 | 21120.35 | 21442.27 | 3437.39 | 347.31 | 56.26 | 6.23 | 7.61 | 6.34 |
| | 484.000 | 347.02 | 345.28 | 17.02 | 46000.00 | 20587.64 | 24264.12 | 1148.25 | 347.93 | 62.59 | 6.88 | 8.26 | 6.92 |
| * | 485.000 | 346.34 | 345.55 | 6.34 | 46000.00 | 28646.99 | 12983.34 | 4369.67 | 347.52 | 125.62 | 8.97 | 7.96 | 9.17 |
| * | 485.000 | 346.65 | 346.08 | 6.65 | 46000.00 | 28396.00 | 15976.44 | 1627.57 | 348.22 | 162.10 | 10.44 | 9.34 | 10.63 |
| * | 486.000 | 347.01 | 344.97 | 17.01 | 46000.00 | 22301.78 | 20362.62 | 3335.60 | 347.65 | 44.33 | 5.91 | 6.94 | 6.01 |
| * | 486.000 | 347.65 | 345.25 | 17.65 | 46000.00 | 22061.97 | 22753.75 | 1184.27 | 348.39 | 45.90 | 6.42 | 7.34 | 6.35 |
| | 490.000 | 347.60 | 344.97 | 17.60 | 46000.00 | 29672.88 | 12938.82 | 3388.30 | 348.30 | 30.18 | 6.76 | 7.41 | 2.79 |
| * | 490.000 | 348.37 | 344.92 | 18.37 | 46000.00 | 31295.43 | 11635.80 | 3068.76 | 348.93 | 20.89 | 6.08 | 6.36 | 3.17 |
| * | 500.000 | 348.41 | 340.90 | 18.41 | 45000.00 | 9275.79 | 24935.60 | 10788.62 | 348.87 | 5.46 | 4.20 | 5.89 | 5.54 |
| * | 500.000 | 348.98 | 341.12 | 18.98 | 45000.00 | 12312.50 | 24485.27 | 8202.24 | 349.38 | 4.73 | 3.89 | 5.60 | 5.06 |

| | SECNO | CWSEL | CRIWS | DEPTH | Q | QLOB | QCH | QROB | EG | 10*KS | VLOB | VCH | VROB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| * | 507.000 | 348.46 | 342.94 | 14.46 | 45000.00 | 433.74 | 43284.47 | 1281.78 | 349.44 | 15.99 | 1.31 | 8.02 | 4.80 |
| * | 507.000 | 348.99 | 342.91 | 14.99 | 45000.00 | 157.96 | 43470.42 | 1371.62 | 349.89 | 14.08 | 3.60 | 7.73 | 4.80 |
| * | 508.000 | 348.24 | 343.81 | 14.24 | 45000.00 | 281.76 | 43411.40 | 1306.84 | 349.71 | 33.68 | 1.89 | 9.86 | 6.18 |
| * | 508.000 | 348.78 | 343.78 | 14.78 | 45000.00 | 207.94 | 43381.50 | 1410.56 | 350.14 | 29.79 | 5.24 | 9.44 | 6.22 |
| | 509.000 | 348.63 | 343.83 | 14.63 | 45000.00 | 2157.12 | 42568.43 | 274.46 | 349.96 | 30.23 | 3.52 | 9.48 | 4.79 |
| | 509.000 | 349.04 | 343.78 | 15.04 | 45000.00 | 1723.03 | 42988.84 | 288.13 | 350.34 | 28.11 | 6.24 | 9.27 | 5.10 |
| * | 510.000 | 349.14 | 342.66 | 17.14 | 45000.00 | 346.63 | 44007.95 | 645.42 | 350.02 | 13.26 | 3.82 | 7.60 | 3.89 |
| * | 510.000 | 349.58 | 342.66 | 17.58 | 45000.00 | 365.16 | 43952.22 | 682.62 | 350.41 | 11.88 | 3.85 | 7.35 | 3.95 |
| * | 515.000 | 350.03 | 337.92 | 18.03 | 45000.00 | 12448.68 | 31700.07 | 851.25 | 350.20 | 1.82 | 2.97 | 3.44 | 2.78 |
| * | 515.000 | 350.37 | 337.96 | 18.37 | 45000.00 | 9668.90 | 35331.10 | .00 | 350.59 | 2.28 | 3.34 | 3.82 | .00 |
| | 520.000 | 350.05 | 338.87 | 18.05 | 45000.00 | 3519.75 | 39699.54 | 1780.71 | 350.34 | 2.00 | 2.94 | 4.53 | 2.36 |
| | 520.000 | 350.43 | 338.87 | 18.43 | 45000.00 | 3670.36 | 41014.71 | 314.93 | 350.73 | 1.99 | 2.96 | 4.58 | 2.23 |
| * | 530.000 | 350.00 | 341.92 | 16.00 | 45000.00 | 2187.67 | 35680.74 | 7131.60 | 350.63 | 4.73 | 3.43 | 6.84 | 4.19 |
| * | 530.000 | 350.37 | 341.92 | 16.37 | 45000.00 | 1131.69 | 36643.10 | 7225.22 | 351.02 | 4.62 | 4.06 | 6.87 | 4.30 |
| | 535.000 | 349.94 | 342.92 | 15.94 | 45000.00 | 774.17 | 38056.98 | 6168.85 | 350.88 | 7.13 | 3.55 | 8.22 | 4.53 |
| | 535.000 | 350.33 | 342.92 | 16.33 | 45000.00 | .00 | 38543.30 | 6456.70 | 351.26 | 7.44 | .00 | 8.13 | 5.03 |
| | 540.000 | 350.33 | 342.11 | 16.33 | 45000.00 | 2018.31 | 40569.55 | 2412.15 | 351.11 | 5.50 | 4.13 | 7.34 | 3.86 |
| | 540.000 | 350.65 | 342.17 | 16.65 | 45000.00 | 8.59 | 42421.59 | 2569.82 | 351.50 | 5.64 | .73 | 7.53 | 4.03 |
| | 550.000 | 350.75 | 343.27 | 16.75 | 45000.00 | 5900.62 | 33086.71 | 6012.67 | 351.48 | 5.77 | 4.30 | 7.64 | 3.72 |
| | 550.000 | 351.10 | 343.21 | 17.10 | 45000.00 | 4576.40 | 34066.30 | 6357.30 | 351.87 | 5.70 | 5.08 | 7.70 | 3.81 |
| | 560.000 | 351.34 | 342.52 | 17.34 | 45000.00 | 2817.36 | 27770.23 | 14412.41 | 351.79 | 3.74 | 3.05 | 6.19 | 3.83 |
| | 560.000 | 351.73 | 342.49 | 17.73 | 45000.00 | 2702.19 | 27987.60 | 14310.21 | 352.17 | 3.52 | 3.12 | 6.10 | 3.80 |
| | 562.000 | 351.53 | 342.29 | 17.53 | 45000.00 | 3716.00 | 20926.40 | 20357.60 | 351.89 | 3.30 | 2.88 | 5.88 | 3.83 |
| | 562.000 | 351.93 | 342.25 | 17.93 | 45000.00 | 3703.88 | 20883.51 | 20412.61 | 352.27 | 3.05 | 2.86 | 5.73 | 3.76 |
| | 564.000 | 351.65 | 341.96 | 17.65 | 45000.00 | 5323.74 | 25249.68 | 14426.58 | 351.97 | 3.14 | 2.93 | 5.18 | 3.63 |
| | 564.000 | 352.04 | 341.97 | 18.04 | 45000.00 | 5242.91 | 25208.25 | 14548.84 | 352.34 | 2.91 | 2.91 | 5.06 | 3.58 |
| | 566.000 | 351.38 | 343.50 | 17.38 | 45000.00 | 2381.65 | 38975.88 | 3642.47 | 352.25 | 5.98 | 1.98 | 8.00 | 2.74 |
| | 566.000 | 351.78 | 343.50 | 17.78 | 45000.00 | 2291.27 | 38979.42 | 3729.32 | 352.61 | 5.54 | 2.03 | 7.82 | 2.74 |
| | 570.000 | 351.05 | 345.56 | 17.05 | 45000.00 | 2668.25 | 38116.58 | 4215.16 | 352.72 | 11.71 | 2.56 | 11.18 | 3.85 |
| | 570.000 | 351.47 | 345.56 | 17.47 | 45000.00 | 2746.69 | 37994.10 | 4259.21 | 353.05 | 10.73 | 2.53 | 10.88 | 3.82 |
| | 572.000 | 351.54 | 344.37 | 17.54 | 45000.00 | 2594.57 | 39473.14 | 2932.29 | 352.94 | 9.13 | 2.88 | 10.07 | 3.38 |
| | 572.000 | 351.90 | 344.37 | 17.90 | 45000.00 | 2615.14 | 39463.08 | 2921.78 | 353.25 | 8.53 | 2.85 | 9.86 | 3.41 |
| | 574.000 | 352.23 | 342.95 | 18.23 | 45000.00 | 913.89 | 42161.19 | 1924.92 | 353.13 | 5.23 | 2.00 | 7.82 | 2.78 |
| | 574.000 | 352.55 | 342.91 | 18.55 | 45000.00 | 922.34 | 42268.61 | 1809.05 | 353.42 | 4.96 | 1.99 | 7.70 | 2.97 |

| | SECNO | CWSEL | CRIWS | DEPTH | Q | QLOB | QCH | QROB | EG | 10*KS | VLOB | VCH | VROB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 576.000 | 352.13 | 344.64 | 18.13 | 45000.00 | 974.31 | 38207.11 | 5818.58 | 353.33 | 7.78 | 2.25 | 9.42 | 3.63 |
| | 576.000 | 352.40 | 344.59 | 18.40 | 45000.00 | 1001.86 | 39039.84 | 4958.31 | 353.64 | 7.73 | 2.31 | 9.48 | 3.72 |
| | 582.000 | 352.54 | 346.60 | 16.54 | 45000.00 | 2142.75 | 33447.15 | 9410.10 | 353.61 | 8.61 | 2.15 | 9.39 | 3.59 |
| | 582.000 | 352.65 | 346.64 | 16.65 | 45000.00 | 1788.25 | 35938.52 | 7273.23 | 353.93 | 9.73 | 2.37 | 10.03 | 3.81 |
| | 584.000 | 352.84 | 345.92 | 16.84 | 45000.00 | 2601.64 | 33311.14 | 9087.21 | 353.78 | 7.42 | 2.48 | 8.83 | 3.42 |
| | 584.000 | 353.24 | 345.92 | 17.24 | 45000.00 | 2629.92 | 33305.62 | 9064.46 | 354.13 | 6.86 | 2.45 | 8.62 | 3.39 |
| | 586.000 | 353.06 | 345.95 | 17.06 | 45000.00 | 3275.13 | 28996.77 | 12728.10 | 353.94 | 7.58 | 2.48 | 8.99 | 3.79 |
| | 586.000 | 353.31 | 346.08 | 17.31 | 45000.00 | 3520.21 | 30882.23 | 10597.57 | 354.32 | 8.19 | 2.62 | 9.44 | 4.02 |
| * | 592.000 | 352.79 | 347.93 | 16.79 | 45000.00 | 2800.17 | 31496.20 | 10703.63 | 354.63 | 15.77 | 3.53 | 12.61 | 5.13 |
| * | 592.000 | 352.96 | 348.14 | 16.96 | 45000.00 | 2993.29 | 33503.95 | 8502.76 | 355.10 | 17.22 | 3.74 | 13.27 | 5.34 |
| * | 594.000 | 353.27 | 353.27 | 13.27 | 45000.00 | 5136.37 | 32643.34 | 7220.29 | 358.23 | 660.48 | 19.54 | 16.85 | 20.91 |
| * | 594.000 | 352.93 | 352.93 | 12.93 | 45000.00 | 5001.11 | 33075.16 | 6923.72 | 358.39 | 739.95 | 20.62 | 17.53 | 22.59 |
| * | 600.000 | 360.55 | 353.32 | 18.55 | 45000.00 | 12812.21 | 30205.13 | 1982.66 | 361.79 | 103.75 | 10.06 | 8.33 | 10.07 |
| * | 600.000 | 360.78 | 353.34 | 18.78 | 45000.00 | 12922.07 | 30233.79 | 1844.14 | 362.00 | 99.60 | 10.04 | 8.23 | 10.24 |
| * | 610.000 | 363.40 | 351.58 | 21.40 | 45000.00 | 3731.79 | 39442.21 | 1826.00 | 364.03 | 50.19 | 6.46 | 6.32 | 7.33 |
| * | 610.000 | 363.58 | 351.62 | 21.58 | 45000.00 | 3002.62 | 40225.27 | 1772.11 | 364.22 | 50.74 | 6.66 | 6.39 | 7.28 |
| | 620.000 | 365.57 | 353.73 | 21.57 | 45000.00 | 40.75 | 44898.39 | 60.86 | 366.11 | 54.31 | 1.24 | 5.87 | 2.15 |
| | 620.000 | 365.73 | 353.74 | 21.73 | 45000.00 | .00 | 45000.00 | .00 | 366.29 | 53.22 | .00 | 5.97 | .00 |
| | 630.000 | 366.77 | 354.55 | 22.77 | 45000.00 | 7137.99 | 34115.39 | 3746.62 | 367.33 | 39.61 | 6.12 | 5.80 | 7.41 |
| | 630.000 | 366.93 | 354.56 | 22.93 | 45000.00 | 5714.01 | 35532.07 | 3753.93 | 367.55 | 41.96 | 6.91 | 6.00 | 8.42 |
| * | 640.000 | 368.29 | 360.93 | 22.29 | 45000.00 | 4081.82 | 32759.11 | 8159.07 | 369.99 | 131.94 | 10.84 | 10.55 | 9.96 |
| * | 640.000 | 368.41 | 360.72 | 22.41 | 45000.00 | 4545.05 | 36553.00 | 3901.95 | 370.59 | 161.16 | 12.34 | 11.70 | 12.75 |

PROFILE 1 - 100 YEAR FLO

SUMMARY PRINTOUT

| | SECNO | STCHL | XLBEL | STCHR | RBEL | K*XNL | K*XNCH | K*XNR | XLCH | K*CHSL | AREA | CASE | OLOSS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| * | 100.000 | 340.80 | 280.00 | 600.70 | 280.00 | 80.00 | 180.00 | 80.00 | .00 | .00 | 2831.33 | 1.00 | .00 |
| | 100.000 | 340.80 | 280.00 | 600.70 | 100000.00 | 80.00 | 180.00 | .00 | .00 | .00 | 3048.03 | .00 | .00 |
| * | 110.000 | 339.70 | 280.00 | 600.30 | 280.00 | 80.00 | 180.00 | 80.00 | 45.00 | 88.89 | 4089.00 | 16384.00 | .25 |
| * | 110.000 | 339.70 | 280.00 | 600.30 | 280.00 | 80.00 | 180.00 | 80.00 | 45.00 | 88.89 | 3958.02 | 16384.00 | .16 |
| * | 120.000 | 354.50 | 280.00 | 602.50 | 280.00 | 80.00 | 180.00 | 80.00 | 55.00 | .00 | 5158.88 | 16384.00 | .08 |
| * | 120.000 | 354.50 | 280.00 | 602.50 | 280.00 | 80.00 | 180.00 | 80.00 | 55.00 | .00 | 5118.94 | 16384.00 | .10 |
| * | 130.000 | 353.00 | 280.00 | 583.50 | 280.00 | 80.00 | 180.00 | 80.00 | 520.00 | 3.85 | 7700.22 | 16384.00 | .08 |
| * | 130.000 | 353.00 | 280.00 | 583.50 | 280.00 | 80.00 | 180.00 | 80.00 | 520.00 | 3.85 | 6994.77 | 16384.00 | .07 |
| | 140.000 | 242.60 | 284.00 | 482.40 | 284.00 | 80.00 | 180.00 | 80.00 | 555.00 | .00 | 7779.94 | .00 | .00 |
| | 140.000 | 242.60 | 284.00 | 482.40 | 284.00 | 80.00 | 180.00 | 80.00 | 555.00 | .00 | 7641.86 | .00 | .01 |
| * | 150.000 | 273.60 | 290.00 | 738.10 | 290.00 | 80.00 | 160.00 | 35.00 | 580.00 | 6.90 | 16445.68 | 16384.00 | .01 |
| * | 150.000 | 273.60 | 290.00 | 738.10 | 290.00 | 80.00 | 160.00 | 35.00 | 580.00 | 6.90 | 16976.65 | 16384.00 | .01 |
| * | 160.000 | 1331.10 | 292.00 | 1412.30 | 290.00 | 72.19 | 80.00 | 47.35 | 670.00 | 2.99 | 19913.96 | 16384.00 | .00 |
| * | 160.000 | 1331.10 | 292.00 | 1412.30 | 290.00 | 73.09 | 80.00 | 46.64 | 670.00 | 2.99 | 20632.64 | 16384.00 | .00 |
| * | 170.000 | 1483.20 | 292.00 | 1544.10 | 290.00 | 60.27 | 80.00 | 51.06 | 320.00 | .00 | 26998.31 | 16384.00 | .00 |
| * | 170.000 | 1483.20 | 292.00 | 1544.10 | 290.00 | 60.55 | 80.00 | 54.14 | 320.00 | .00 | 25770.28 | 16384.00 | .00 |
| * | 180.000 | 1530.00 | 292.00 | 1759.00 | 290.00 | 38.36 | 80.00 | 40.00 | 550.00 | 7.27 | 26973.68 | 16384.00 | .00 |
| | 180.000 | 1530.00 | 292.00 | 1759.00 | 290.00 | 38.51 | 80.00 | 40.00 | 550.00 | 7.27 | 24749.20 | .00 | .00 |
| | 190.000 | 1576.30 | 296.00 | 1809.70 | 290.00 | 30.92 | 80.00 | 56.67 | 505.00 | .00 | 25874.14 | .00 | .00 |
| * | 190.000 | 1576.30 | 296.00 | 1809.70 | 290.00 | 30.95 | 80.00 | 54.37 | 505.00 | .00 | 27001.29 | 16384.00 | .00 |
| * | 200.000 | 1439.70 | 296.00 | 1562.70 | 294.00 | 117.99 | 125.00 | 41.69 | 740.00 | .00 | 27361.06 | 16384.00 | .00 |
| * | 200.000 | 1439.70 | 296.00 | 1562.70 | 294.00 | 118.38 | 125.00 | 41.76 | 740.00 | .00 | 28402.78 | 16384.00 | .00 |
| | 209.000 | 1233.40 | 298.00 | 1479.20 | 294.00 | 122.04 | 125.00 | 40.00 | 390.00 | .00 | 26228.00 | .00 | .00 |
| | 209.000 | 1233.40 | 298.00 | 1479.20 | 294.00 | 122.11 | 125.00 | 40.00 | 390.00 | .00 | 26517.09 | .00 | .00 |
| * | 210.000 | 1233.40 | 298.00 | 1479.20 | 294.00 | 115.60 | 125.00 | 40.00 | 10.00 | .00 | 18545.81 | 16384.00 | .04 |
| * | 210.000 | 1233.40 | 298.00 | 1479.20 | 294.00 | 116.39 | 125.00 | 40.00 | 10.00 | .00 | 18855.02 | 16384.00 | .04 |
| * | 211.000 | 1233.40 | 298.00 | 1479.20 | 294.00 | 121.99 | 125.00 | 40.00 | 10.00 | .00 | 26347.21 | 16384.00 | .01 |
| * | 211.000 | 1233.40 | 298.00 | 1479.20 | 294.00 | 122.08 | 125.00 | 40.00 | 10.00 | .00 | 26617.63 | 16384.00 | .01 |
| | 220.000 | 745.80 | 292.00 | 1065.00 | 292.00 | 40.00 | 200.00 | 40.00 | 810.00 | 2.47 | 19702.38 | .00 | .02 |
| | 220.000 | 745.80 | 292.00 | 1065.00 | 292.00 | 40.00 | 200.00 | 40.00 | 810.00 | 2.47 | 20444.99 | .00 | .02 |
| | 230.000 | 941.10 | 292.00 | 1142.70 | 292.00 | 40.00 | 200.00 | 40.00 | 490.00 | .00 | 14872.59 | .00 | .03 |
| | 230.000 | 941.10 | 292.00 | 1142.70 | 292.00 | 40.00 | 200.00 | 40.00 | 490.00 | .00 | 15346.90 | .00 | .03 |

| | SECNO | STCHL | XLBEL | STCHR | RBEL | K*XNL | K*XNCH | K*XNR | XLCH | K*CHSL | AREA | CASE | OLOSS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| * | 239.000 | 2398.50 | 294.00 | 2724.40 | 294.00 | 40.00 | 200.00 | 40.00 | 420.00 | 4.76 | 8977.21 | 16384.00 | .25 |
| * | 239.000 | 2398.50 | 294.00 | 2724.40 | 294.00 | 40.00 | 200.00 | 40.00 | 420.00 | 4.76 | 9513.96 | 16384.00 | .22 |
| * | 240.000 | 2519.30 | 306.00 | 3031.90 | 310.00 | 40.00 | 200.00 | .00 | 230.00 | .00 | 8502.70 | 16384.00 | .05 |
| * | 240.000 | 2519.30 | 306.00 | 3031.90 | 100000.00 | 40.00 | 200.00 | .00 | 230.00 | .00 | 8703.58 | 16384.00 | .05 |
| * | 242.000 | 2519.30 | 306.00 | 3031.90 | 310.00 | 30.00 | 40.00 | .00 | 10.00 | .00 | 7796.83 | 16384.00 | .05 |
| * | 242.000 | 2519.30 | 306.00 | 3031.90 | 100000.00 | 30.00 | 40.00 | .00 | 10.00 | .00 | 7995.24 | 16384.00 | .05 |
| | 243.000 | 2480.00 | 313.00 | 3001.90 | 300.00 | .00 | 40.00 | 30.00 | 65.00 | .00 | 7832.66 | .00 | .00 |
| | 243.000 | 2480.00 | 100000.00 | 3001.90 | 300.00 | .00 | 40.00 | 30.00 | 65.00 | .00 | 8027.22 | .00 | .00 |
| * | 244.000 | 2550.50 | 310.00 | 3075.60 | 310.00 | .00 | 140.00 | .00 | 10.00 | .00 | 8510.74 | 16384.00 | .03 |
| * | 244.000 | 2550.50 | 100000.00 | 3075.60 | 100000.00 | .00 | 140.00 | .00 | 10.00 | .00 | 8721.88 | 16384.00 | .03 |
| * | 245.000 | 928.40 | 292.00 | 1396.30 | 292.00 | 40.00 | 140.00 | 55.00 | 165.00 | .00 | 14034.25 | 16384.00 | .05 |
| * | 245.000 | 928.40 | 292.00 | 1396.30 | 292.00 | 40.00 | 140.00 | 55.00 | 165.00 | .00 | 12211.34 | 16384.00 | .04 |
| | 250.000 | 2566.70 | 294.00 | 2740.60 | 294.00 | 45.10 | 140.00 | 67.48 | 740.00 | .00 | 16139.23 | .00 | .02 |
| | 250.000 | 2566.70 | 294.00 | 2740.60 | 294.00 | 45.32 | 140.00 | 72.40 | 740.00 | .00 | 13873.74 | .00 | .03 |
| * | 260.000 | 2375.20 | 300.00 | 2544.60 | 300.00 | 135.71 | 140.00 | 55.00 | 1025.00 | 3.90 | 7462.20 | 16384.00 | .22 |
| * | 260.000 | 2375.20 | 300.00 | 2544.60 | 300.00 | 140.00 | 140.00 | 55.00 | 1025.00 | 3.90 | 7705.79 | 16384.00 | .19 |
| | 270.000 | 2509.50 | 300.00 | 2678.60 | 304.00 | 94.85 | 140.00 | 55.00 | 965.00 | 4.15 | 10325.57 | .00 | .04 |
| | 270.000 | 2509.50 | 300.00 | 2678.60 | 304.00 | 104.87 | 140.00 | 55.00 | 965.00 | 4.15 | 9131.23 | .00 | .02 |
| * | 280.000 | 958.00 | 306.00 | 1060.00 | 306.00 | 129.42 | 140.00 | 62.81 | 1040.00 | 1.92 | 17029.18 | 16384.00 | .04 |
| * | 280.000 | 958.00 | 306.00 | 1060.00 | 306.00 | 140.00 | 140.00 | 63.97 | 1040.00 | 1.92 | 16409.44 | 16384.00 | .05 |
| | 285.000 | 706.60 | 306.00 | 792.20 | 310.00 | 60.00 | 140.00 | 55.00 | 670.00 | 2.99 | 16166.95 | .00 | .00 |
| | 285.000 | 706.60 | 306.00 | 792.20 | 310.00 | 60.00 | 140.00 | 55.00 | 670.00 | 2.99 | 16405.47 | .00 | .00 |
| | 290.000 | 2655.10 | 308.00 | 2758.90 | 310.00 | 40.00 | 140.00 | 55.00 | 645.00 | .00 | 14860.04 | .00 | .01 |
| | 290.000 | 2655.10 | 308.00 | 2758.90 | 310.00 | 40.00 | 140.00 | 55.00 | 645.00 | .00 | 14616.15 | .00 | .01 |
| * | 300.000 | 2536.20 | 312.00 | 2708.70 | 314.00 | 40.00 | 140.00 | 55.43 | 660.00 | 6.06 | 11559.65 | 16384.00 | .04 |
| * | 300.000 | 2536.20 | 100000.00 | 2708.70 | 314.00 | .00 | 140.00 | 55.47 | 660.00 | 6.06 | 11648.33 | 16384.00 | .04 |
| | 310.000 | 2698.40 | 314.00 | 2822.30 | 316.00 | 40.00 | 140.00 | 55.00 | 610.00 | 3.28 | 13630.36 | .00 | .01 |
| | 310.000 | 2698.40 | 314.00 | 2822.30 | 316.00 | 40.00 | 140.00 | 55.00 | 610.00 | 3.28 | 11963.49 | .00 | .00 |
| * | 320.000 | 988.70 | 316.00 | 1300.00 | 312.00 | 40.00 | 140.00 | 55.00 | 750.00 | 2.67 | 8436.39 | 16384.00 | .12 |
| * | 320.000 | 988.70 | 100000.00 | 1300.00 | 312.00 | .00 | 140.00 | 55.00 | 750.00 | 2.67 | 8449.59 | 16384.00 | .10 |
| * | 330.000 | 1760.00 | 314.00 | 1917.00 | 314.00 | 60.00 | 85.00 | 60.00 | 780.00 | 2.56 | 9003.17 | 16384.00 | .02 |
| * | 330.000 | 1760.00 | 314.00 | 1917.00 | 314.00 | 60.00 | 85.00 | 60.00 | 780.00 | 2.56 | 9038.96 | 16384.00 | .02 |
| | 340.000 | 1410.00 | 320.00 | 1843.20 | 318.00 | 60.00 | 85.00 | 60.00 | 505.00 | -3.96 | 9898.63 | .00 | .01 |
| | 340.000 | 1410.00 | 320.00 | 1843.20 | 318.00 | 60.00 | 85.00 | 60.00 | 505.00 | -3.96 | 10269.99 | .00 | .01 |

| | SECNO | STCHL | XLBEL | STCHR | RBEL | K*XNL | K*XNCH | K*XNR | XLCH | K*CHSL | AREA | CASE | OLOSS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 345.000 | 1509.80 | 322.00 | 1995.50 | 324.00 | 60.00 | 85.00 | 60.00 | 280.00 | 7.14 | 9190.36 | .00 | .02 |
| | 345.000 | 1509.80 | 322.00 | 1995.50 | 324.00 | 60.00 | 85.00 | 60.00 | 280.00 | 7.14 | 9041.44 | .00 | .03 |
| | 355.000 | 1731.40 | 322.00 | 2253.80 | 322.00 | 60.00 | 85.00 | 60.00 | 285.00 | 7.02 | 8352.46 | .00 | .04 |
| | 355.000 | 1731.40 | 322.00 | 2253.80 | 322.00 | 60.00 | 85.00 | 60.00 | 285.00 | 7.02 | 8036.36 | .00 | .05 |
| | 356.000 | 1836.00 | 316.00 | 2258.20 | 320.00 | 60.00 | 85.00 | 60.00 | 250.00 | 8.00 | 6559.01 | .00 | .17 |
| | 356.000 | 1836.00 | 316.00 | 2258.20 | 320.00 | 60.00 | 85.00 | 60.00 | 250.00 | 8.00 | 5993.35 | .00 | .23 |
| * | 358.000 | 1850.00 | 316.00 | 2278.40 | 326.00 | 60.00 | 40.00 | 30.00 | 65.00 | .00 | 6218.37 | 16384.00 | .00 |
| * | 358.000 | 1850.00 | 316.00 | 2278.40 | 326.00 | 60.00 | 40.00 | 30.00 | 65.00 | .00 | 5852.91 | 16384.00 | .00 |
| | 360.000 | 2187.00 | 320.00 | 2382.90 | 320.00 | 60.00 | 85.00 | 85.00 | 345.00 | .00 | 10653.09 | .00 | .26 |
| | 360.000 | 2187.00 | 320.00 | 2382.90 | 320.00 | 60.00 | 85.00 | 85.00 | 345.00 | .00 | 10063.01 | .00 | .27 |
| | 370.000 | 2234.10 | 320.00 | 2326.40 | 320.00 | 60.00 | 85.00 | 85.00 | 345.00 | 5.80 | 13226.70 | .00 | .01 |
| | 370.000 | 2234.10 | 320.00 | 2326.40 | 320.00 | 60.00 | 85.00 | 85.00 | 345.00 | 5.80 | 11377.75 | .00 | .01 |
| | 380.000 | 2380.90 | 320.00 | 2436.40 | 320.00 | 60.00 | 85.00 | 85.00 | 320.00 | .00 | 13199.97 | .00 | .00 |
| | 380.000 | 2380.90 | 320.00 | 2436.40 | 320.00 | 60.00 | 85.00 | 85.00 | 320.00 | .00 | 10946.16 | .00 | .01 |
| | 390.000 | 2250.00 | 324.00 | 2402.00 | 324.00 | 60.00 | 85.00 | 85.00 | 520.00 | .00 | 10075.58 | .00 | .05 |
| | 390.000 | 2250.00 | 324.00 | 2402.00 | 324.00 | 60.00 | 85.00 | 85.00 | 520.00 | .00 | 9176.22 | .00 | .05 |
| | 400.000 | 1877.60 | 320.00 | 2531.60 | 320.00 | 40.00 | 75.00 | 40.00 | 540.00 | .00 | 11066.16 | .00 | .01 |
| * | 400.000 | 1877.60 | 320.00 | 2531.60 | 320.00 | 40.00 | 75.00 | 40.00 | 540.00 | .00 | 10960.49 | 16384.00 | .02 |
| | 410.000 | 3065.30 | 320.00 | 3645.90 | 320.00 | 40.00 | 65.00 | 40.00 | 700.00 | .00 | 10061.53 | .00 | .02 |
| | 410.000 | 3065.30 | 320.00 | 3645.90 | 320.00 | 40.00 | 65.00 | 40.00 | 700.00 | .00 | 10498.23 | .00 | .01 |
| | 415.000 | 3252.30 | 320.00 | 3865.00 | 320.00 | 40.00 | 65.00 | 40.00 | 780.00 | .00 | 11047.47 | .00 | .01 |
| | 415.000 | 3252.30 | 320.00 | 3865.00 | 320.00 | 40.00 | 65.00 | 40.00 | 780.00 | .00 | 11433.24 | .00 | .00 |
| | 420.000 | 3467.10 | 320.00 | 3988.90 | 320.00 | 40.00 | 75.00 | 40.00 | 480.00 | .00 | 9469.37 | .00 | .04 |
| | 420.000 | 3467.10 | 320.00 | 3988.90 | 320.00 | 40.00 | 75.00 | 40.00 | 480.00 | .00 | 9766.35 | .00 | .04 |
| * | 421.000 | 2650.00 | 325.00 | 3049.10 | 328.00 | 40.00 | 50.00 | 40.00 | 375.00 | 16.00 | 4614.54 | 16384.00 | .38 |
| * | 421.000 | 2650.00 | 325.00 | 3049.10 | 328.00 | 40.00 | 50.00 | 40.00 | 375.00 | 16.00 | 4797.67 | 16384.00 | .35 |
| | 422.000 | 2645.00 | 326.00 | 3044.70 | 326.00 | 40.00 | 30.00 | 40.00 | 10.00 | .00 | 3564.22 | .00 | .60 |
| | 422.000 | 2645.00 | 326.00 | 3044.70 | 326.00 | 40.00 | 30.00 | 40.00 | 10.00 | .00 | 3735.82 | .00 | .53 |
| | 423.000 | 4645.00 | 326.00 | 5044.70 | 326.00 | 40.00 | 30.00 | 40.00 | 65.00 | .00 | 3940.70 | .00 | .16 |
| | 423.000 | 4645.00 | 326.00 | 5044.70 | 326.00 | 40.00 | 30.00 | 40.00 | 65.00 | .00 | 4024.06 | .00 | .11 |
| | 424.000 | 4658.90 | 326.00 | 5055.00 | 326.00 | 50.00 | 50.00 | 50.00 | 10.00 | 200.00 | 4416.20 | .00 | .15 |
| | 424.000 | 4658.90 | 326.00 | 5055.00 | 326.00 | 50.00 | 50.00 | 50.00 | 10.00 | 200.00 | 4489.92 | .00 | .14 |
| * | 425.000 | 4805.90 | 328.00 | 5113.20 | 328.00 | 45.00 | 75.00 | 45.00 | 225.00 | .00 | 8910.88 | 16384.00 | .41 |
| * | 425.000 | 4805.90 | 328.00 | 5113.20 | 328.00 | 45.00 | 75.00 | 45.00 | 225.00 | .00 | 8731.47 | 16384.00 | .39 |

| | SECNO | STCHL | XLBEL | STCHR | RBEL | K*XNL | K*XNCH | K*XNR | XLCH | K*CHSL | AREA | CASE | OLOSS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 430.000 | 5520.60 | 328.00 | 5704.90 | 328.00 | 45.00 | 75.00 | 45.00 | 470.00 | .00 | 10687.78 | .00 | .01 |
| | 430.000 | 5520.60 | 328.00 | 5704.90 | 328.00 | 45.00 | 75.00 | 45.00 | 470.00 | .00 | 7072.72 | .00 | .09 |
| * | 440.000 | 5118.70 | 330.00 | 5291.80 | 330.00 | 45.00 | 75.00 | 45.00 | 545.00 | 3.67 | 7760.31 | 16384.00 | .06 |
| | 440.000 | 5118.70 | 330.00 | 5291.80 | 330.00 | 45.00 | 75.00 | 45.00 | 545.00 | 3.67 | 8001.52 | .00 | .03 |
| * | 450.000 | 4864.80 | 330.00 | 5377.90 | 330.00 | 55.00 | 30.00 | 55.00 | 530.00 | .00 | 10802.82 | 16384.00 | .01 |
| * | 450.000 | 4864.80 | 330.00 | 5377.90 | 330.00 | 55.00 | 30.00 | 55.00 | 530.00 | .00 | 11174.35 | 16384.00 | .01 |
| | 460.000 | 4626.20 | 330.00 | 5331.20 | 330.00 | 55.00 | 30.00 | 55.00 | 440.00 | .00 | 12314.81 | .00 | .01 |
| | 460.000 | 4626.20 | 330.00 | 5331.20 | 330.00 | 55.00 | 30.00 | 55.00 | 440.00 | .00 | 11893.68 | .00 | .01 |
| * | 470.000 | 5002.10 | 330.00 | 5145.90 | 330.00 | 45.00 | 70.00 | 45.00 | 480.00 | .00 | 7689.89 | 16384.00 | .08 |
| * | 470.000 | 5002.10 | 330.00 | 5145.90 | 100000.00 | 45.00 | 70.00 | .00 | 480.00 | .00 | 7213.08 | 16384.00 | .11 |
| * | 480.000 | 3872.70 | 340.00 | 4124.90 | 340.00 | 45.00 | 70.00 | 45.00 | 280.00 | 7.14 | 4526.89 | 4097.00 | .45 |
| * | 480.000 | 3872.70 | 340.00 | 4124.90 | 340.00 | 45.00 | 70.00 | 45.00 | 280.00 | 7.14 | 3837.40 | 4097.00 | .60 |
| * | 483.000 | 3854.90 | 340.00 | 4098.10 | 340.00 | 45.00 | 70.00 | 45.00 | 100.00 | .00 | 7035.74 | 16384.00 | .13 |
| * | 483.000 | 3854.90 | 340.00 | 4098.10 | 340.00 | 45.00 | 70.00 | 45.00 | 100.00 | .00 | 6117.00 | 16384.00 | .16 |
| | 484.000 | 3795.20 | 342.00 | 4061.40 | 342.00 | 45.00 | 70.00 | 45.00 | 115.00 | .00 | 6749.59 | .00 | .00 |
| | 484.000 | 3795.20 | 342.00 | 4061.40 | 342.00 | 45.00 | 70.00 | 45.00 | 115.00 | .00 | 6096.42 | .00 | .01 |
| * | 485.000 | 3795.20 | 342.00 | 4061.40 | 342.00 | 45.00 | 70.00 | 45.00 | 10.00 | 1000.00 | 5301.06 | 16384.00 | .13 |
| * | 485.000 | 3795.20 | 342.00 | 4061.40 | 342.00 | 45.00 | 70.00 | 45.00 | 10.00 | 1000.00 | 4584.90 | 16384.00 | .20 |
| * | 486.000 | 3795.20 | 342.00 | 4061.40 | 342.00 | 45.00 | 70.00 | 45.00 | 10.00 | -1000.00 | 7261.88 | 16384.00 | .05 |
| * | 486.000 | 3795.20 | 342.00 | 4061.40 | 342.00 | 45.00 | 70.00 | 45.00 | 10.00 | -1000.00 | 6723.73 | 16384.00 | .08 |
| | 490.000 | 3797.70 | 336.00 | 3905.40 | 336.00 | 40.00 | 70.00 | 92.72 | 175.00 | .00 | 7350.79 | .00 | .02 |
| * | 490.000 | 3797.70 | 336.00 | 3905.40 | 336.00 | 40.00 | 70.00 | 75.00 | 175.00 | .00 | 7949.23 | 16384.00 | .02 |
| * | 500.000 | 3766.70 | 334.00 | 4005.40 | 334.00 | 30.00 | 40.00 | 30.00 | 510.00 | .00 | 8386.95 | 16384.00 | .02 |
| * | 500.000 | 3766.70 | 334.00 | 4005.40 | 334.00 | 30.00 | 40.00 | 30.00 | 510.00 | .00 | 9155.18 | 16384.00 | .02 |
| * | 507.000 | 3860.70 | 342.00 | 4289.50 | 342.00 | 35.01 | 40.00 | 40.00 | 470.00 | 8.51 | 5995.87 | 16384.00 | .15 |
| * | 507.000 | 3860.70 | 342.00 | 4289.50 | 342.00 | 40.00 | 40.00 | 40.00 | 470.00 | 8.51 | 5952.85 | 16384.00 | .15 |
| * | 508.000 | 3860.70 | 342.00 | 4289.50 | 342.00 | 40.00 | 30.00 | 40.00 | 10.00 | .00 | 4762.68 | 16384.00 | .25 |
| * | 508.000 | 3860.70 | 342.00 | 4289.50 | 342.00 | 40.00 | 30.00 | 40.00 | 10.00 | .00 | 4861.81 | 16384.00 | .22 |
| | 509.000 | 3889.40 | 336.00 | 4322.40 | 342.00 | 40.00 | 30.00 | 40.00 | 65.00 | .00 | 5158.98 | .00 | .04 |
| | 509.000 | 3889.40 | 336.00 | 4322.40 | 342.00 | 40.00 | 30.00 | 40.00 | 65.00 | .00 | 4969.71 | .00 | .02 |
| * | 510.000 | 3885.30 | 342.00 | 4317.20 | 341.00 | 40.00 | 40.00 | 40.00 | 10.00 | -200.00 | 6048.08 | 16384.00 | .05 |
| * | 510.000 | 3885.30 | 342.00 | 4317.20 | 341.00 | 40.00 | 40.00 | 40.00 | 10.00 | -200.00 | 6249.52 | 16384.00 | .05 |
| * | 515.000 | 3935.00 | 334.00 | 4447.80 | 334.00 | 40.00 | 40.00 | 40.00 | 275.00 | .00 | 13713.69 | 16384.00 | .07 |
| * | 515.000 | 3935.00 | 334.00 | 4447.80 | 100000.00 | 40.00 | 40.00 | .00 | 275.00 | .00 | 12157.49 | 16384.00 | .06 |

| | SECNO | STCHL | XLBEL | STCHR | RBEL | K*XNL | K*XNCH | K*XNR | XLCH | K*CHSL | AREA | CASE | OLOSS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 520.000 | 4347.80 | 334.00 | 4855.30 | 334.00 | 40.23 | 30.93 | 40.00 | 560.00 | .00 | 10711.41 | .00 | .04 |
| | 520.000 | 4347.80 | 334.00 | 4855.30 | 334.00 | 40.29 | 30.93 | 40.00 | 560.00 | .00 | 10328.90 | .00 | .03 |
| * | 530.000 | 4190.20 | 334.00 | 4516.30 | 334.00 | 40.00 | 30.00 | 40.00 | 620.00 | 3.23 | 7555.44 | 16384.00 | .10 |
| * | 530.000 | 4190.20 | 334.00 | 4516.30 | 334.00 | 40.00 | 30.00 | 40.00 | 620.00 | 3.23 | 7296.34 | 16384.00 | .10 |
| | 535.000 | 2119.80 | 336.00 | 2411.10 | 336.00 | 40.00 | 30.50 | 40.00 | 280.00 | .00 | 6211.02 | .00 | .09 |
| | 535.000 | 2119.80 | 100000.00 | 2411.10 | 336.00 | .00 | 30.97 | 40.00 | 280.00 | .00 | 6022.89 | .00 | .09 |
| | 540.000 | 2055.80 | 336.00 | 2395.10 | 336.00 | 40.00 | 30.48 | 40.00 | 350.00 | .00 | 6640.69 | .00 | .02 |
| | 540.000 | 2055.80 | 336.00 | 2395.10 | 336.00 | 40.00 | 30.48 | 40.00 | 350.00 | .00 | 6285.62 | .00 | .01 |
| | 550.000 | 1894.00 | 336.00 | 2153.30 | 336.00 | 40.00 | 30.47 | 40.00 | 650.00 | .00 | 7319.96 | .00 | .00 |
| | 550.000 | 1894.00 | 336.00 | 2153.30 | 336.00 | 40.00 | 30.47 | 40.00 | 650.00 | .00 | 6994.52 | .00 | .01 |
| | 560.000 | 1638.20 | 336.00 | 1898.10 | 336.00 | 50.00 | 30.98 | 40.00 | 600.00 | .00 | 9179.08 | .00 | .03 |
| | 560.000 | 1638.20 | 336.00 | 1898.10 | 336.00 | 50.00 | 30.98 | 40.00 | 600.00 | .00 | 9220.59 | .00 | .03 |
| | 562.000 | 1181.40 | 336.00 | 1385.00 | 336.00 | 50.00 | 30.85 | 40.00 | 280.00 | .00 | 10166.30 | .00 | .01 |
| | 562.000 | 1181.40 | 336.00 | 1385.00 | 336.00 | 50.00 | 30.85 | 40.00 | 280.00 | .00 | 10358.23 | .00 | .01 |
| | 564.000 | 1053.10 | 336.00 | 1332.20 | 336.00 | 50.00 | 34.17 | 40.00 | 220.00 | .00 | 10667.37 | .00 | .00 |
| | 564.000 | 1053.10 | 336.00 | 1332.20 | 336.00 | 50.00 | 34.17 | 40.00 | 220.00 | .00 | 10850.22 | .00 | .00 |
| | 566.000 | 971.90 | 338.00 | 1257.50 | 338.00 | 85.00 | 30.00 | 60.00 | 280.00 | .00 | 7402.64 | .00 | .17 |
| | 566.000 | 971.90 | 338.00 | 1257.50 | 338.00 | 85.00 | 30.00 | 60.00 | 280.00 | .00 | 7481.00 | .00 | .16 |
| | 570.000 | 1642.70 | 336.00 | 1843.30 | 336.00 | 85.00 | 30.00 | 60.00 | 280.00 | .00 | 5546.34 | .00 | .24 |
| | 570.000 | 1642.70 | 336.00 | 1843.30 | 336.00 | 85.00 | 30.00 | 60.00 | 280.00 | .00 | 5692.36 | .00 | .22 |
| | 572.000 | 832.00 | 336.00 | 1056.10 | 336.00 | 85.00 | 30.00 | 60.00 | 187.00 | .00 | 5691.44 | .00 | .03 |
| | 572.000 | 832.00 | 336.00 | 1056.10 | 336.00 | 85.00 | 30.00 | 60.00 | 187.00 | .00 | 5777.27 | .00 | .02 |
| | 574.000 | 747.50 | 336.00 | 1043.60 | 336.00 | 85.00 | 30.00 | 60.00 | 200.00 | .00 | 6542.80 | .00 | .05 |
| | 574.000 | 747.50 | 336.00 | 1043.60 | 336.00 | 85.00 | 30.00 | 60.00 | 200.00 | .00 | 6558.23 | .00 | .05 |
| | 576.000 | 733.40 | 338.00 | 959.30 | 338.00 | 85.00 | 30.00 | 60.00 | 170.00 | .00 | 6089.73 | .00 | .09 |
| | 576.000 | 733.40 | 338.00 | 959.30 | 338.00 | 85.00 | 30.00 | 60.00 | 170.00 | .00 | 5883.63 | .00 | .11 |
| | 582.000 | 698.20 | 338.00 | 914.10 | 338.00 | 85.00 | 30.00 | 60.00 | 330.00 | 6.06 | 7178.42 | .00 | .01 |
| | 582.000 | 698.20 | 338.00 | 914.10 | 338.00 | 85.00 | 30.00 | 60.00 | 330.00 | 6.06 | 6245.12 | .00 | .02 |
| | 584.000 | 632.70 | 338.00 | 857.90 | 338.00 | 85.00 | 30.00 | 60.00 | 200.00 | .00 | 7479.47 | .00 | .01 |
| | 584.000 | 632.70 | 338.00 | 857.90 | 338.00 | 85.00 | 30.00 | 60.00 | 200.00 | .00 | 7612.64 | .00 | .04 |
| | 586.000 | 582.70 | 338.00 | 772.70 | 338.00 | 85.00 | 30.00 | 60.00 | 205.00 | .00 | 7900.50 | .00 | .01 |
| | 586.000 | 582.70 | 338.00 | 772.70 | 338.00 | 85.00 | 30.00 | 60.00 | 205.00 | .00 | 7252.92 | .00 | .04 |
| * | 592.000 | 443.90 | 338.00 | 597.60 | 338.00 | 85.00 | 30.00 | 60.00 | 380.00 | .00 | 5377.41 | 16384.00 | .29 |
| * | 592.000 | 443.90 | 338.00 | 597.60 | 338.00 | 85.00 | 30.00 | 60.00 | 380.00 | .00 | 4916.13 | 16384.00 | .34 |

| | SECNO | STCHL | XLBEL | STCHR | RBEL | K*XNL | K*XNCH | K*XNR | XLCH | K*CHSL | AREA | CASE | OLOSS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| * | 594.000 | 630.70 | 342.00 | 779.90 | 342.00 | 75.00 | 125.00 | 65.00 | 230.00 | 17.39 | 2545.29 | 4097.00 | .94 |
| * | 594.000 | 630.70 | 342.00 | 779.90 | 342.00 | 75.00 | 125.00 | 65.00 | 230.00 | 17.39 | 2436.13 | 4097.00 | 1.00 |
| * | 600.000 | 778.90 | 346.00 | 979.10 | 346.00 | 75.00 | 125.00 | 65.00 | 150.00 | 13.33 | 5096.52 | 16384.00 | .37 |
| * | 600.000 | 778.90 | 346.00 | 979.10 | 346.00 | 75.00 | 125.00 | 65.00 | 150.00 | 13.33 | 5140.08 | 16384.00 | .42 |
| * | 610.000 | 319.90 | 346.00 | 622.80 | 346.00 | 75.00 | 125.00 | 65.00 | 315.00 | .00 | 7065.98 | 16384.00 | .06 |
| * | 610.000 | 319.90 | 346.00 | 622.80 | 346.00 | 75.00 | 125.00 | 65.00 | 315.00 | .00 | 6987.24 | 16384.00 | .06 |
| | 620.000 | 299.20 | 364.00 | 732.00 | 364.00 | 75.00 | 125.00 | 65.00 | 395.00 | 5.06 | 7705.87 | .00 | .01 |
| | 620.000 | 299.20 | 100000.00 | 732.00 | 100000.00 | .00 | 125.00 | .00 | 395.00 | 5.06 | 7533.58 | .00 | .01 |
| | 630.000 | 445.60 | 348.00 | 718.00 | 348.00 | 75.00 | 125.00 | 65.00 | 265.00 | .00 | 7554.07 | .00 | .01 |
| | 630.000 | 445.60 | 348.00 | 718.00 | 348.00 | 75.00 | 125.00 | 65.00 | 265.00 | .00 | 7197.39 | .00 | .02 |
| * | 640.000 | 433.90 | 350.00 | 577.60 | 350.00 | 75.00 | 125.00 | 65.00 | 350.00 | 5.71 | 4301.47 | 16384.00 | .34 |
| * | 640.000 | 433.90 | 350.00 | 577.60 | 350.00 | 75.00 | 125.00 | 65.00 | 350.00 | 5.71 | 3798.23 | 16384.00 | .47 |

PROFILE 1 - 100 YEAR FLO

SUMMARY PRINTOUT

| | SECNO | TOPWID | SSTA | ENDST | HV | HL | DIFWSX | DIFKWS | KRATIO |
|---|---|---|---|---|---|---|---|---|---|
| * | 100.000 | 290.21 | 313.45 | 603.66 | 4.87 | .00 | .00 | .02 | .00 |
| | 100.000 | 260.00 | 340.00 | 600.00 | 4.18 | .00 | .00 | 1.00 | .00 |
| * | 110.000 | 337.95 | 282.28 | 620.24 | 2.40 | 4.55 | 7.27 | .00 | 1.80 |
| * | 110.000 | 300.00 | 310.00 | 610.00 | 2.59 | 4.33 | 6.08 | -.19 | 1.52 |
| * | 120.000 | 368.62 | 286.51 | 655.13 | 1.55 | 2.15 | 3.08 | .00 | 1.50 |
| * | 120.000 | 340.00 | 310.00 | 650.00 | 1.60 | 2.22 | 3.31 | .05 | 1.56 |
| * | 130.000 | 552.47 | 137.82 | 690.29 | .76 | 6.66 | 7.54 | .00 | 1.91 |
| * | 130.000 | 353.00 | 330.00 | 683.00 | .94 | 7.40 | 8.12 | .63 | 1.77 |
| | 140.000 | 409.05 | 157.25 | 566.30 | .70 | 3.99 | 4.05 | .00 | 1.03 |
| | 140.000 | 330.00 | 215.00 | 545.00 | .74 | 4.25 | 4.45 | 1.03 | 1.13 |
| * | 150.000 | 1013.14 | 186.86 | 1200.00 | .25 | 1.00 | 1.46 | .00 | 2.98 |
| * | 150.000 | 955.00 | 245.00 | 1200.00 | .24 | .87 | 1.38 | .95 | 3.22 |
| * | 160.000 | 1591.84 | 354.58 | 1987.88 | .10 | .38 | .54 | .00 | 1.52 |
| * | 160.000 | 1428.03 | 415.00 | 1860.00 | .09 | .33 | .48 | .89 | 1.48 |
| * | 170.000 | 2144.81 | 329.19 | 2474.00 | .05 | .07 | .12 | .00 | 1.53 |
| * | 170.000 | 1580.00 | 410.00 | 1990.00 | .06 | .06 | .10 | .88 | 1.45 |
| * | 180.000 | 2069.37 | 453.80 | 2523.17 | .06 | .05 | .05 | .00 | 1.41 |
| | 180.000 | 1455.00 | 485.00 | 1940.00 | .07 | .05 | .04 | .87 | 1.39 |
| | 190.000 | 1540.45 | 433.75 | 1985.74 | .07 | .03 | .02 | .00 | 1.34 |
| * | 190.000 | 1450.00 | 470.00 | 1920.00 | .06 | .02 | .03 | .88 | 1.44 |
| * | 200.000 | 1805.67 | 298.78 | 2104.45 | .07 | .06 | .06 | .00 | .36 |
| * | 200.000 | 1605.00 | 370.00 | 1975.00 | .07 | .05 | .05 | .87 | .37 |
| | 209.000 | 2058.47 | 335.50 | 2393.96 | .08 | .13 | .12 | .00 | .96 |
| | 209.000 | 1700.00 | 400.00 | 2100.00 | .08 | .11 | .10 | .85 | .95 |
| * | 210.000 | 2053.50 | 337.53 | 2391.03 | .20 | .00 | -.08 | .00 | .68 |
| * | 210.000 | 1700.00 | 400.00 | 2100.00 | .21 | .00 | -.08 | .85 | .68 |
| * | 211.000 | 2062.09 | 334.01 | 2396.10 | .08 | .00 | .14 | .00 | 1.49 |
| * | 211.000 | 1700.00 | 400.00 | 2100.00 | .08 | .00 | .14 | .85 | 1.47 |
| | 220.000 | 1768.46 | 413.80 | 2182.26 | .14 | .25 | .21 | .00 | 1.01 |
| | 220.000 | 1585.00 | 515.00 | 2100.00 | .14 | .22 | .18 | .82 | 1.05 |
| | 230.000 | 1225.00 | 825.00 | 2050.00 | .24 | .19 | .12 | .00 | .82 |
| | 230.000 | 1175.00 | 825.00 | 2000.00 | .23 | .16 | .10 | .80 | .80 |

| | SECNO | TOPWID | SSTA | ENDST | HV | HL | DIFWSX | DIFKWS | KRATIO |
|---|---|---|---|---|---|---|---|---|---|
| * | 239.000 | 670.00 | 2370.00 | 3040.00 | 1.09 | .44 | -.16 | .00 | .38 |
| * | 239.000 | 670.00 | 2370.00 | 3040.00 | .97 | .37 | -.15 | .80 | .39 |
| * | 240.000 | 514.77 | 2511.46 | 3026.24 | .54 | 1.47 | 2.07 | .00 | .47 |
| * | 240.000 | 494.00 | 2517.00 | 3011.00 | .51 | 1.22 | 1.72 | .45 | .45 |
| * | 242.000 | 514.46 | 2511.56 | 3026.02 | .64 | .03 | -.02 | .00 | 3.71 |
| * | 242.000 | 492.00 | 2518.00 | 3010.00 | .61 | .02 | -.02 | .46 | 3.64 |
| | 243.000 | 515.24 | 2511.32 | 3026.56 | .63 | .07 | .08 | .00 | 1.01 |
| | 243.000 | 492.00 | 2518.00 | 3010.00 | .60 | .07 | .07 | .45 | 1.01 |
| * | 244.000 | 521.75 | 2552.74 | 3074.49 | .54 | .02 | .15 | .00 | .38 |
| * | 244.000 | 510.00 | 2560.00 | 3070.00 | .51 | .02 | .14 | .44 | .38 |
| * | 245.000 | 921.66 | 593.34 | 1515.00 | .36 | .36 | .59 | .00 | 2.84 |
| * | 245.000 | 650.00 | 760.00 | 1410.00 | .59 | .44 | .40 | .25 | 2.31 |
| | 250.000 | 1275.38 | 2268.53 | 3543.91 | .17 | .59 | .80 | .00 | 1.18 |
| | 250.000 | 910.00 | 2400.00 | 3310.00 | .24 | .80 | 1.18 | .63 | 1.18 |
| * | 260.000 | 752.46 | 2282.62 | 3035.08 | .90 | 1.41 | .89 | .00 | .39 |
| * | 260.000 | 610.00 | 2340.00 | 2950.00 | .86 | 1.65 | 1.21 | .96 | .51 |
| | 270.000 | 1283.88 | 1867.70 | 3151.57 | .55 | 2.77 | 3.17 | .00 | 1.39 |
| | 270.000 | 720.00 | 2270.00 | 2990.00 | .70 | 2.62 | 2.79 | .58 | 1.22 |
| * | 280.000 | 1549.27 | 482.86 | 2032.13 | .17 | 1.30 | 1.72 | .00 | 1.60 |
| * | 280.000 | 1330.00 | 560.00 | 1890.00 | .18 | 1.36 | 1.92 | .79 | 1.62 |
| | 285.000 | 1805.85 | 341.11 | 2146.96 | .15 | .50 | .51 | .00 | 1.13 |
| | 285.000 | 1490.00 | 525.00 | 2015.00 | .15 | .46 | .50 | .78 | 1.26 |
| | 290.000 | 1848.62 | 2223.99 | 4166.36 | .18 | .48 | .46 | .00 | .86 |
| | 290.000 | 1567.11 | 2560.00 | 4154.00 | .19 | .43 | .40 | .71 | .81 |
| * | 300.000 | 1645.29 | 2340.00 | 4023.24 | .31 | .83 | .74 | .00 | .68 |
| * | 300.000 | 1440.55 | 2540.00 | 4014.00 | .31 | .77 | .69 | .66 | .70 |
| | 310.000 | 1766.44 | 2460.00 | 4226.44 | .22 | .85 | .95 | .00 | 1.32 |
| | 310.000 | 1350.00 | 2650.00 | 4000.00 | .28 | .90 | .93 | .64 | 1.13 |
| * | 320.000 | 1329.07 | 950.00 | 2279.07 | .62 | 1.80 | 1.52 | .00 | .41 |
| * | 320.000 | 1120.00 | 1030.00 | 2150.00 | .63 | 1.96 | 1.72 | .84 | .50 |
| * | 330.000 | 956.22 | 1326.43 | 2282.65 | .45 | 2.96 | 3.15 | .00 | 1.55 |
| * | 330.000 | 880.00 | 1370.00 | 2250.00 | .45 | 2.60 | 2.80 | .49 | 1.46 |
| | 340.000 | 976.32 | 1203.68 | 2180.00 | .38 | 1.27 | 1.35 | .00 | 1.04 |
| | 340.000 | 960.00 | 1220.00 | 2180.00 | .35 | 1.15 | 1.25 | .39 | 1.06 |

| | SECNO | TOPWID | SSTA | ENDST | HV | HL | DIFWSX | DIFKWS | KRATIO |
|---|---|---|---|---|---|---|---|---|---|
| | 345.000 | 1060.00 | 1210.00 | 2270.00 | .43 | .79 | .75 | .00 | .85 |
| | 345.000 | 970.00 | 1300.00 | 2270.00 | .45 | .72 | .66 | .30 | .81 |
| | 355.000 | 1000.00 | 1370.00 | 2370.00 | .51 | 1.12 | 1.08 | .00 | .84 |
| | 355.000 | 870.00 | 1500.00 | 2370.00 | .56 | 1.11 | 1.06 | .28 | .82 |
| | 356.000 | 950.00 | 1340.00 | 2290.00 | .86 | 1.57 | 1.39 | .00 | .74 |
| | 356.000 | 770.00 | 1520.00 | 2290.00 | 1.02 | 1.64 | 1.41 | .30 | .71 |
| * | 358.000 | 960.00 | 1340.00 | 2300.00 | 1.23 | .00 | -.37 | .00 | 1.69 |
| * | 358.000 | 790.00 | 1510.00 | 2300.00 | 1.28 | .00 | -.26 | .41 | 1.82 |
| | 360.000 | 1070.00 | 1530.00 | 2600.00 | .35 | .75 | 1.89 | .00 | 1.35 |
| | 360.000 | 870.00 | 1565.00 | 2435.00 | .38 | .72 | 1.89 | .41 | 1.33 |
| | 370.000 | 1344.56 | 1470.00 | 2814.56 | .23 | .49 | .62 | .00 | 1.17 |
| | 370.000 | 1030.00 | 1470.00 | 2500.00 | .30 | .51 | .60 | .40 | 1.09 |
| | 380.000 | 1420.00 | 1540.00 | 2960.00 | .23 | .40 | .41 | .00 | .96 |
| | 380.000 | 1085.00 | 1540.00 | 2625.00 | .32 | .47 | .45 | .44 | .93 |
| | 390.000 | 1060.00 | 1680.00 | 2740.00 | .40 | .89 | .77 | .00 | .75 |
| | 390.000 | 890.00 | 1730.00 | 2620.00 | .47 | 1.02 | .91 | .58 | .79 |
| | 400.000 | 856.00 | 1749.00 | 2605.00 | .30 | 1.00 | 1.12 | .00 | 1.36 |
| * | 400.000 | 765.00 | 1820.00 | 2585.00 | .31 | 1.01 | 1.20 | .66 | 1.43 |
| | 410.000 | 750.00 | 2970.00 | 3720.00 | .35 | .83 | .79 | .00 | 1.06 |
| | 410.000 | 739.50 | 2970.50 | 3710.00 | .33 | .76 | .74 | .62 | 1.12 |
| | 415.000 | 745.00 | 3200.00 | 3945.00 | .30 | .76 | .83 | .00 | 1.14 |
| | 415.000 | 745.00 | 3200.00 | 3945.00 | .28 | .67 | .73 | .52 | 1.13 |
| | 420.000 | 660.31 | 3404.69 | 4065.00 | .42 | .53 | .44 | .00 | .76 |
| | 420.000 | 653.50 | 3411.50 | 4065.00 | .40 | .48 | .39 | .47 | .76 |
| * | 421.000 | 448.16 | 2612.20 | 3060.37 | 1.69 | .95 | .06 | .00 | .54 |
| * | 421.000 | 440.00 | 2617.00 | 3057.00 | 1.56 | .84 | .03 | .44 | .55 |
| | 422.000 | 445.74 | 2613.66 | 3059.41 | 2.88 | .06 | -.54 | .00 | .90 |
| | 422.000 | 440.00 | 2617.00 | 3057.00 | 2.61 | .05 | -.48 | .50 | .90 |
| | 423.000 | 450.44 | 4610.83 | 5061.26 | 2.35 | .36 | 1.04 | .00 | 1.15 |
| | 423.000 | 442.00 | 4616.00 | 5058.00 | 2.25 | .33 | .80 | .25 | 1.11 |
| | 424.000 | 462.23 | 4627.73 | 5089.96 | 1.86 | .06 | .70 | .00 | .88 |
| | 424.000 | 449.00 | 4633.00 | 5082.00 | 1.79 | .05 | .65 | .20 | .88 |
| * | 425.000 | 905.00 | 4365.00 | 5270.00 | .48 | .74 | 2.54 | .00 | 1.85 |
| * | 425.000 | 850.00 | 4420.00 | 5270.00 | .50 | .73 | 2.42 | .08 | 1.77 |

| | SECNO | TOPWID | SSTA | ENDST | HV | HL | DIFWSX | DIFKWS | KRATIO |
|---|---|---|---|---|---|---|---|---|---|
| | 430.000 | 1660.00 | 4540.00 | 6200.00 | .36 | .77 | .89 | .00 | 1.14 |
| | 430.000 | 1000.00 | 4860.00 | 5860.00 | .79 | 1.21 | 1.01 | .20 | .72 |
| * | 440.000 | 1730.00 | 4030.00 | 5760.00 | .56 | 1.10 | .96 | .00 | .63 |
| | 440.000 | 1055.00 | 4365.00 | 5420.00 | .52 | 1.54 | 1.83 | 1.07 | 1.20 |
| * | 450.000 | 1486.62 | 4193.38 | 5680.00 | .43 | .50 | .65 | .00 | 2.77 |
| * | 450.000 | 1035.00 | 4375.00 | 5410.00 | .37 | .38 | .54 | .96 | 2.63 |
| | 460.000 | 1587.16 | 4032.84 | 5620.00 | .29 | .15 | .29 | .00 | 1.28 |
| | 460.000 | 980.00 | 4380.00 | 5360.00 | .27 | .12 | .22 | .89 | 1.23 |
| * | 470.000 | 1361.61 | 3710.36 | 5167.89 | .56 | .36 | .18 | .00 | .31 |
| * | 470.000 | 1005.00 | 4125.00 | 5130.00 | .64 | .32 | .06 | .77 | .30 |
| * | 480.000 | 1096.92 | 2870.00 | 4186.74 | 2.06 | 1.40 | 2.20 | .00 | .48 |
| * | 480.000 | 767.61 | 3105.00 | 4125.60 | 2.64 | 1.42 | 1.21 | -.22 | .42 |
| * | 483.000 | 1340.00 | 2900.00 | 4240.00 | .78 | .66 | 2.06 | .00 | 1.63 |
| * | 483.000 | 1020.00 | 3120.00 | 4140.00 | 1.02 | .79 | 2.58 | .29 | 1.66 |
| | 484.000 | 1270.00 | 2920.00 | 4190.00 | .74 | .57 | .61 | .00 | .87 |
| | 484.000 | 1015.00 | 3080.00 | 4095.00 | .91 | .64 | .77 | .45 | .90 |
| * | 485.000 | 1260.00 | 2920.00 | 4180.00 | 1.18 | .08 | -.23 | .00 | .67 |
| * | 485.000 | 1015.00 | 3080.00 | 4095.00 | 1.58 | .10 | -.37 | .31 | .62 |
| * | 486.000 | 1260.00 | 2920.00 | 4180.00 | .63 | .07 | .67 | .00 | 1.68 |
| * | 486.000 | 1015.00 | 3080.00 | 4095.00 | .74 | .08 | 1.00 | .64 | 1.88 |
| | 490.000 | 1060.00 | 3060.00 | 4120.00 | .71 | .63 | .58 | .00 | 1.21 |
| * | 490.000 | 1020.00 | 3030.00 | 4050.00 | .56 | .52 | .72 | .77 | 1.48 |
| * | 500.000 | 760.00 | 3430.00 | 4190.00 | .47 | .55 | .81 | .00 | 2.30 |
| * | 500.000 | 875.00 | 3280.00 | 4155.00 | .40 | .44 | .61 | .58 | 2.06 |
| * | 507.000 | 1280.19 | 1724.40 | 4340.90 | .97 | .41 | .06 | .00 | .58 |
| * | 507.000 | 484.00 | 3851.00 | 4335.00 | .91 | .36 | .00 | .52 | .58 |
| * | 508.000 | 1009.63 | 2993.81 | 4340.11 | 1.47 | .02 | -.23 | .00 | .69 |
| * | 508.000 | 482.00 | 3852.00 | 4334.00 | 1.35 | .02 | -.20 | .55 | .69 |
| | 509.000 | 1176.70 | 2866.31 | 4341.46 | 1.33 | .21 | .39 | .00 | 1.06 |
| | 509.000 | 484.00 | 3851.00 | 4335.00 | 1.30 | .19 | .26 | .41 | 1.03 |
| * | 510.000 | 493.40 | 3864.30 | 4357.70 | .88 | .02 | .51 | .00 | 1.51 |
| * | 510.000 | 485.00 | 3867.00 | 4352.00 | .82 | .02 | .54 | .44 | 1.54 |
| * | 515.000 | 830.00 | 3640.00 | 4470.00 | .17 | .11 | .89 | .00 | 2.70 |
| * | 515.000 | 690.00 | 3750.00 | 4440.00 | .21 | .12 | .79 | .34 | 2.28 |

| | SECNO | TOPWID | SSTA | ENDST | HV | HL | DIFWSX | DIFKWS | KRATIO |
|---|---|---|---|---|---|---|---|---|---|
| | 520.000 | 711.61 | 4240.00 | 4951.61 | .30 | .11 | .02 | .00 | .95 |
| | 520.000 | 625.00 | 4240.00 | 4865.00 | .31 | .12 | .05 | .38 | 1.07 |
| * | 530.000 | 576.39 | 4089.90 | 4666.30 | .63 | .18 | -.05 | .00 | .65 |
| * | 530.000 | 480.00 | 4170.00 | 4650.00 | .65 | .18 | -.06 | .37 | .66 |
| | 535.000 | 530.00 | 2070.00 | 2600.00 | .93 | .16 | -.05 | .00 | .81 |
| | 535.000 | 410.00 | 2120.00 | 2530.00 | .94 | .16 | -.04 | .38 | .79 |
| | 540.000 | 508.34 | 1969.79 | 2478.13 | .78 | .22 | .39 | .00 | 1.14 |
| | 540.000 | 412.00 | 2055.00 | 2467.00 | .84 | .22 | .33 | .32 | 1.15 |
| | 550.000 | 621.73 | 1735.96 | 2357.69 | .73 | .37 | .42 | .00 | .98 |
| | 550.000 | 520.00 | 1830.00 | 2350.00 | .77 | .37 | .45 | .35 | .99 |
| | 560.000 | 675.47 | 1547.90 | 2223.37 | .45 | .28 | .59 | .00 | 1.24 |
| | 560.000 | 625.00 | 1575.00 | 2200.00 | .44 | .26 | .63 | .39 | 1.27 |
| | 562.000 | 744.46 | 1065.06 | 1809.52 | .36 | .10 | .19 | .00 | 1.06 |
| | 562.000 | 710.00 | 1080.00 | 1790.00 | .35 | .09 | .19 | .39 | 1.07 |
| | 564.000 | 771.13 | 900.98 | 1672.11 | .32 | .07 | .12 | .00 | 1.03 |
| | 564.000 | 730.00 | 920.00 | 1650.00 | .30 | .07 | .11 | .39 | 1.02 |
| | 566.000 | 586.95 | 840.86 | 1427.82 | .87 | .12 | -.27 | .00 | .72 |
| | 566.000 | 535.00 | 870.00 | 1405.00 | .83 | .11 | -.26 | .40 | .72 |
| | 570.000 | 454.01 | 1518.76 | 1972.76 | 1.67 | .23 | -.33 | .00 | .71 |
| | 570.000 | 435.00 | 1525.00 | 1960.00 | 1.58 | .21 | -.31 | .42 | .72 |
| | 572.000 | 429.57 | 748.70 | 1178.27 | 1.40 | .19 | .49 | .00 | 1.13 |
| | 572.000 | 393.00 | 757.00 | 1150.00 | 1.34 | .18 | .44 | .36 | 1.12 |
| | 574.000 | 429.41 | 699.73 | 1129.14 | .90 | .14 | .69 | .00 | 1.32 |
| | 574.000 | 385.00 | 705.00 | 1090.00 | .87 | .13 | .65 | .32 | 1.31 |
| | 576.000 | 422.28 | 677.32 | 1099.60 | 1.20 | .11 | -.10 | .00 | .82 |
| | 576.000 | 372.00 | 688.00 | 1060.00 | 1.24 | .10 | -.15 | .27 | .80 |
| | 582.000 | 579.40 | 577.65 | 1157.06 | 1.06 | .27 | .41 | .00 | .95 |
| | 582.000 | 465.00 | 615.00 | 1080.00 | 1.29 | .28 | .25 | .10 | .89 |
| | 584.000 | 574.54 | 529.15 | 1103.68 | .94 | .16 | .30 | .00 | 1.08 |
| | 584.000 | 547.00 | 538.00 | 1085.00 | .90 | .16 | .59 | .40 | 1.19 |
| | 586.000 | 576.58 | 459.29 | 1035.87 | .88 | .15 | .22 | .00 | .99 |
| | 586.000 | 495.00 | 465.00 | 960.00 | 1.02 | .15 | .07 | .25 | .92 |
| * | 592.000 | 422.69 | 365.79 | 788.48 | 1.84 | .40 | -.27 | .00 | .69 |
| * | 592.000 | 349.00 | 371.00 | 720.00 | 2.13 | .44 | -.34 | .17 | .69 |

| | SECNO | TOPWID | SSTA | ENDST | HV | HL | DIFWSX | DIFKWS | KRATIO |
|---|---|---|---|---|---|---|---|---|---|
| * | 594.000 | 260.06 | 588.50 | 848.56 | 4.96 | 1.09 | .48 | .00 | .15 |
| * | 594.000 | 235.00 | 595.00 | 830.00 | 5.46 | 1.19 | -.03 | -.34 | .15 |
| * | 600.000 | 351.25 | 651.54 | 1002.79 | 1.24 | 3.18 | 7.28 | .00 | 2.52 |
| * | 600.000 | 335.00 | 660.00 | 995.00 | 1.22 | 3.19 | 7.85 | .23 | 2.73 |
| * | 610.000 | 397.29 | 253.79 | 651.09 | .63 | 2.19 | 2.86 | .00 | 1.44 |
| * | 610.000 | 365.00 | 280.00 | 645.00 | .65 | 2.16 | 2.80 | .18 | 1.40 |
| | 620.000 | 492.57 | 257.43 | 750.00 | .53 | 2.06 | 2.17 | .00 | .96 |
| | 620.000 | 400.00 | 330.00 | 730.00 | .55 | 2.05 | 2.15 | .16 | .98 |
| | 630.000 | 489.11 | 300.15 | 789.26 | .56 | 1.22 | 1.20 | .00 | 1.17 |
| | 630.000 | 370.00 | 380.00 | 750.00 | .63 | 1.24 | 1.19 | .15 | 1.13 |
| * | 640.000 | 362.89 | 161.72 | 735.31 | 1.70 | 2.31 | 1.51 | .00 | .55 |
| * | 640.000 | 199.00 | 401.00 | 600.00 | 2.18 | 2.57 | 1.48 | .12 | .51 |

PROFILE 1 - 100 YEAR FLO

SUMMARY PRINTOUT TABLE 110

| | SECNO | CWSEL | DIFKWS | EG | TOPWID | QLOB | QCH | QROB | PERENC | STENCL | STCHL | STCHR | STENCR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| * | 100.000 | 282.55 | .02 | 287.42 | 290.21 | 439.54 | 49530.04 | 30.42 | .00 | .00 | 340.80 | 600.70 | .00 |
| | 100.000 | 283.55 | 1.00 | 287.73 | 260.00 | 15.44 | 49984.56 | .00 | 260.00 | 340.00 | 340.80 | 600.70 | 600.00 |
| * | 110.000 | 289.82 | .00 | 292.22 | 337.95 | 4747.03 | 44044.85 | 1208.12 | .00 | .00 | 339.70 | 600.30 | .00 |
| * | 110.000 | 289.63 | -.19 | 292.23 | 300.00 | 4273.80 | 44813.60 | 912.60 | 300.00 | 310.00 | 339.70 | 600.30 | 610.00 |
| * | 120.000 | 292.90 | .00 | 294.45 | 368.62 | 5983.88 | 39075.13 | 4941.00 | .00 | .00 | 354.50 | 602.50 | .00 |
| * | 120.000 | 292.95 | .05 | 294.55 | 340.00 | 5724.87 | 39307.86 | 4967.27 | 340.00 | 310.00 | 354.50 | 602.50 | 650.00 |
| * | 130.000 | 300.44 | .00 | 301.19 | 552.47 | 9040.13 | 28780.63 | 12179.24 | .00 | .00 | 353.00 | 583.50 | .00 |
| * | 130.000 | 301.07 | .63 | 302.01 | 353.00 | 3243.99 | 32665.40 | 14090.61 | 353.00 | 330.00 | 353.00 | 583.50 | 683.00 |
| | 140.000 | 304.49 | .00 | 305.19 | 409.05 | 6255.16 | 35398.74 | 8346.10 | .00 | .00 | 242.60 | 482.40 | .00 |
| | 140.000 | 305.52 | 1.03 | 306.26 | 330.00 | 3868.47 | 37349.01 | 8782.52 | 330.00 | 215.00 | 242.60 | 482.40 | 545.00 |
| * | 150.000 | 305.95 | .00 | 306.20 | 1013.14 | 1439.87 | 25150.03 | 23410.09 | 1091.50 | 108.50 | 273.60 | 738.10 | 1200.00 |
| * | 150.000 | 306.90 | .95 | 307.15 | 955.00 | 688.81 | 24398.49 | 24912.70 | 955.00 | 245.00 | 273.60 | 738.10 | 1200.00 |
| * | 160.000 | 306.49 | .00 | 306.59 | 1591.84 | 42430.20 | 4574.35 | 2995.44 | .00 | .00 | 1331.10 | 1412.30 | .00 |
| * | 160.000 | 307.38 | .89 | 307.48 | 1428.03 | 41862.43 | 4575.37 | 3562.20 | 1445.00 | 415.00 | 1331.10 | 1412.30 | 1860.00 |
| * | 170.000 | 306.61 | .00 | 306.66 | 2144.81 | 33634.66 | 2046.90 | 14318.44 | .00 | .00 | 1483.20 | 1544.10 | .00 |
| * | 170.000 | 307.48 | .88 | 307.54 | 1580.00 | 35733.69 | 2165.61 | 12100.71 | 1580.00 | 410.00 | 1483.20 | 1544.10 | 1990.00 |
| * | 180.000 | 306.65 | .00 | 306.72 | 2069.37 | 38997.22 | 4716.69 | 6286.09 | .00 | .00 | 1530.00 | 1759.00 | .00 |
| | 180.000 | 307.53 | .87 | 307.60 | 1455.00 | 42028.15 | 5077.55 | 2894.29 | 1455.00 | 485.00 | 1530.00 | 1759.00 | 1940.00 |
| | 190.000 | 306.68 | .00 | 306.75 | 1540.45 | 45963.77 | 3762.62 | 273.61 | .00 | .00 | 1576.30 | 1809.70 | .00 |
| * | 190.000 | 307.56 | .88 | 307.63 | 1450.00 | 45892.87 | 3773.71 | 333.42 | 1450.00 | 470.00 | 1576.30 | 1809.70 | 1920.00 |
| * | 200.000 | 306.74 | .00 | 306.81 | 1805.67 | 32505.22 | 2922.58 | 14572.19 | .00 | .00 | 1439.70 | 1562.70 | .00 |
| * | 200.000 | 307.61 | .87 | 307.68 | 1605.00 | 32050.01 | 2925.98 | 15024.01 | 1605.00 | 370.00 | 1439.70 | 1562.70 | 1975.00 |
| | 209.000 | 306.86 | .00 | 306.94 | 2058.47 | 22775.46 | 6120.35 | 21104.18 | .00 | .00 | 1233.40 | 1479.20 | .00 |
| | 209.000 | 307.71 | .85 | 307.80 | 1700.00 | 23058.53 | 6242.88 | 20698.60 | 1700.00 | 400.00 | 1233.40 | 1479.20 | 2100.00 |
| * | 210.000 | 306.78 | .00 | 306.98 | 2053.50 | 10284.65 | 8978.33 | 30737.02 | .00 | .00 | 1233.40 | 1479.20 | .00 |
| * | 210.000 | 307.63 | .85 | 307.84 | 1700.00 | 11055.12 | 9059.90 | 29884.99 | 1700.00 | 400.00 | 1233.40 | 1479.20 | 2100.00 |
| * | 211.000 | 306.92 | .00 | 307.00 | 2062.09 | 22727.08 | 6106.50 | 21166.43 | .00 | .00 | 1233.40 | 1479.20 | .00 |
| * | 211.000 | 307.77 | .85 | 307.85 | 1700.00 | 23023.59 | 6233.83 | 20742.58 | 1700.00 | 400.00 | 1233.40 | 1479.20 | 2100.00 |
| | 220.000 | 307.13 | .00 | 307.27 | 1768.46 | 8657.76 | 5215.09 | 36127.14 | .00 | .00 | 745.80 | 1065.00 | .00 |
| | 220.000 | 307.95 | .82 | 308.09 | 1585.00 | 8150.04 | 5111.31 | 36738.65 | 1585.00 | 515.00 | 745.80 | 1065.00 | 2100.00 |
| | 230.000 | 307.25 | .00 | 307.49 | 1225.00 | 3842.25 | 4011.86 | 42145.89 | 1225.00 | 825.00 | 941.10 | 1142.70 | 2050.00 |
| | 230.000 | 308.05 | .80 | 308.28 | 1175.00 | 4070.61 | 4003.81 | 41925.57 | 1175.00 | 825.00 | 941.10 | 1142.70 | 2000.00 |

| | SECNO | CWSEL | DIFKWS | EG | TOPWID | QLOB | QCH | QROB | PERENC | STENCL | STCHL | STCHR | STENCR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| * | 239.000 | 307.10 | .00 | 308.18 | 670.00 | 2952.22 | 15410.44 | 31637.33 | 670.00 | 2370.00 | 2398.50 | 2724.40 | 3040.00 |
| * | 239.000 | 307.90 | .80 | 308.87 | 670.00 | 2940.00 | 14920.17 | 32139.83 | 670.00 | 2370.00 | 2398.50 | 2724.40 | 3040.00 |
| * | 240.000 | 309.17 | .00 | 309.70 | 514.77 | 71.67 | 49928.34 | .00 | .00 | .00 | 2519.30 | 3031.90 | .00 |
| * | 240.000 | 309.62 | .45 | 310.13 | 494.00 | 38.01 | 49961.99 | .00 | 494.00 | 2517.00 | 2519.30 | 3031.90 | 3011.00 |
| * | 242.000 | 309.14 | .00 | 309.78 | 514.46 | 25.04 | 49974.96 | .00 | .00 | .00 | 2519.30 | 3031.90 | .00 |
| * | 242.000 | 309.60 | .46 | 310.21 | 492.00 | 6.59 | 49993.41 | .00 | 492.00 | 2518.00 | 2519.30 | 3031.90 | 3010.00 |
| | 243.000 | 309.22 | .00 | 309.85 | 515.24 | .00 | 49963.21 | 36.79 | .00 | .00 | 2480.00 | 3001.90 | .00 |
| | 243.000 | 309.67 | .45 | 310.27 | 492.00 | .00 | 49961.50 | 38.51 | 492.00 | 2518.00 | 2480.00 | 3001.90 | 3010.00 |
| * | 244.000 | 309.37 | .00 | 309.91 | 521.75 | .00 | 50000.00 | .00 | .00 | .00 | 2550.50 | 3075.60 | .00 |
| * | 244.000 | 309.81 | .44 | 310.32 | 510.00 | .00 | 50000.00 | .00 | 510.00 | 2560.00 | 2550.50 | 3075.60 | 3070.00 |
| * | 245.000 | 309.96 | .00 | 310.32 | 921.66 | 20709.59 | 21638.68 | 7651.73 | 1415.00 | 100.00 | 928.40 | 1396.30 | 1515.00 |
| * | 245.000 | 310.21 | .25 | 310.80 | 650.00 | 22773.35 | 25895.30 | 1331.34 | 650.00 | 760.00 | 928.40 | 1396.30 | 1410.00 |
| | 250.000 | 310.76 | .00 | 310.93 | 1275.38 | 8418.52 | 6928.99 | 34652.49 | .00 | .00 | 2566.70 | 2740.60 | .00 |
| | 250.000 | 311.39 | .63 | 311.63 | 910.00 | 10121.22 | 8573.89 | 31304.88 | 910.00 | 2400.00 | 2566.70 | 2740.60 | 3310.00 |
| * | 260.000 | 311.65 | .00 | 312.56 | 752.46 | 909.28 | 10883.84 | 38206.88 | .00 | .00 | 2375.20 | 2544.60 | .00 |
| * | 260.000 | 312.61 | .96 | 313.46 | 610.00 | 823.34 | 10858.36 | 38318.30 | 610.00 | 2340.00 | 2375.20 | 2544.60 | 2950.00 |
| | 270.000 | 314.82 | .00 | 315.36 | 1283.88 | 6620.07 | 7842.30 | 34537.63 | .00 | .00 | 2509.50 | 2678.60 | .00 |
| | 270.000 | 315.40 | .58 | 316.10 | 720.00 | 5348.92 | 8594.57 | 35056.51 | 720.00 | 2270.00 | 2509.50 | 2678.60 | 2990.00 |
| * | 280.000 | 316.53 | .00 | 316.70 | 1549.27 | 6209.83 | 2786.43 | 40003.74 | .00 | .00 | 958.00 | 1060.00 | .00 |
| * | 280.000 | 317.32 | .79 | 317.51 | 1330.00 | 6006.91 | 3089.11 | 39903.98 | 1330.00 | 560.00 | 958.00 | 1060.00 | 1890.00 |
| | 285.000 | 317.04 | .00 | 317.20 | 1805.85 | 4435.14 | 1793.47 | 42771.39 | .00 | .00 | 706.60 | 792.20 | .00 |
| | 285.000 | 317.82 | .78 | 317.97 | 1490.00 | 3934.17 | 1799.70 | 43266.13 | 1490.00 | 525.00 | 706.60 | 792.20 | 2015.00 |
| | 290.000 | 317.51 | .00 | 317.69 | 1848.62 | 8387.77 | 2340.77 | 38271.45 | .00 | .00 | 2655.10 | 2758.90 | .00 |
| | 290.000 | 318.22 | .71 | 318.41 | 1567.11 | 3992.56 | 2491.26 | 42516.18 | 1594.00 | 2560.00 | 2655.10 | 2758.90 | 4154.00 |
| * | 300.000 | 318.24 | .00 | 318.55 | 1645.29 | 3664.32 | 3237.14 | 42098.54 | 1800.00 | 2340.00 | 2536.20 | 2708.70 | 4140.00 |
| * | 300.000 | 318.90 | .66 | 319.21 | 1440.55 | .00 | 3310.40 | 45689.60 | 1474.00 | 2540.00 | 2536.20 | 2708.70 | 4014.00 |
| | 310.000 | 319.19 | .00 | 319.41 | 1766.44 | 2135.26 | 1304.05 | 45560.69 | 1770.00 | 2460.00 | 2698.40 | 2822.30 | 4230.00 |
| | 310.000 | 319.83 | .64 | 320.12 | 1350.00 | 1030.52 | 1651.52 | 46317.95 | 1350.00 | 2650.00 | 2698.40 | 2822.30 | 4000.00 |
| * | 320.000 | 320.71 | .00 | 321.33 | 1329.07 | 804.11 | 11393.19 | 36802.70 | 1350.00 | 950.00 | 988.70 | 1300.00 | 2300.00 |
| * | 320.000 | 321.55 | .84 | 322.18 | 1120.00 | .00 | 10705.56 | 38294.45 | 1120.00 | 1030.00 | 988.70 | 1300.00 | 2150.00 |
| * | 330.000 | 323.86 | .00 | 324.31 | 956.22 | 23228.34 | 8456.57 | 16315.09 | 1020.00 | 1280.00 | 1760.00 | 1917.00 | 2300.00 |
| * | 330.000 | 324.35 | .49 | 324.79 | 880.00 | 22842.52 | 8709.59 | 16447.88 | 880.00 | 1370.00 | 1760.00 | 1917.00 | 2250.00 |
| | 340.000 | 325.21 | .00 | 325.58 | 976.32 | 8121.16 | 21990.63 | 17888.21 | 980.00 | 1200.00 | 1410.00 | 1843.20 | 2180.00 |
| | 340.000 | 325.60 | .39 | 325.95 | 960.00 | 8213.52 | 21849.17 | 17937.31 | 960.00 | 1220.00 | 1410.00 | 1843.20 | 2180.00 |

| | SECNO | CWSEL | DIFKWS | EG | TOPWID | QLOB | QCH | QROB | PERENC | STENCL | STCHL | STCHR | STENCR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 345.000 | 325.96 | .00 | 326.39 | 1060.00 | 12602.07 | 25559.24 | 9838.69 | 1060.00 | 1210.00 | 1509.80 | 1995.50 | 2270.00 |
| | 345.000 | 326.26 | .30 | 326.71 | 970.00 | 11242.15 | 26404.65 | 10353.21 | 970.00 | 1300.00 | 1509.80 | 1995.50 | 2270.00 |
| | 355.000 | 327.04 | .00 | 327.55 | 1000.00 | 11841.53 | 30685.59 | 5472.88 | 1000.00 | 1370.00 | 1731.40 | 2253.80 | 2370.00 |
| | 355.000 | 327.32 | .28 | 327.87 | 870.00 | 9926.16 | 32246.61 | 5827.23 | 870.00 | 1500.00 | 1731.40 | 2253.80 | 2370.00 |
| | 356.000 | 328.43 | .00 | 329.29 | 950.00 | 11547.32 | 35450.64 | 1002.04 | 950.00 | 1340.00 | 1836.00 | 2258.20 | 2290.00 |
| | 356.000 | 328.73 | .30 | 329.75 | 770.00 | 7883.78 | 38970.32 | 1145.89 | 770.00 | 1520.00 | 1836.00 | 2258.20 | 2290.00 |
| * | 358.000 | 328.06 | .00 | 329.29 | 960.00 | 6927.53 | 41055.46 | 17.01 | 960.00 | 1340.00 | 1850.00 | 2278.40 | 2300.00 |
| * | 358.000 | 328.47 | .41 | 329.75 | 790.00 | 5159.54 | 42800.66 | 39.80 | 790.00 | 1510.00 | 1850.00 | 2278.40 | 2300.00 |
| | 360.000 | 329.95 | .00 | 330.30 | 1070.00 | 37141.04 | 8472.66 | 2386.30 | 1070.00 | 1530.00 | 2187.00 | 2382.90 | 2600.00 |
| | 360.000 | 330.36 | .41 | 330.74 | 870.00 | 38366.72 | 8872.63 | 760.65 | 870.00 | 1565.00 | 2187.00 | 2382.90 | 2435.00 |
| | 370.000 | 330.57 | .00 | 330.80 | 1344.56 | 35159.80 | 3676.55 | 9163.64 | 1350.00 | 1470.00 | 2234.10 | 2326.40 | 2820.00 |
| | 370.000 | 330.97 | .40 | 331.26 | 1030.00 | 39624.59 | 4117.46 | 4257.95 | 1030.00 | 1470.00 | 2234.10 | 2326.40 | 2500.00 |
| | 380.000 | 330.97 | .00 | 331.20 | 1420.00 | 33764.25 | 2402.13 | 11833.62 | 1420.00 | 1540.00 | 2380.90 | 2436.40 | 2960.00 |
| | 380.000 | 331.42 | .44 | 331.73 | 1085.00 | 39771.87 | 2788.83 | 5439.31 | 1085.00 | 1540.00 | 2380.90 | 2436.40 | 2625.00 |
| | 390.000 | 331.74 | .00 | 332.14 | 1060.00 | 32610.24 | 6858.39 | 8531.37 | 1060.00 | 1680.00 | 2250.00 | 2402.00 | 2740.00 |
| | 390.000 | 332.32 | .58 | 332.80 | 890.00 | 33909.73 | 7733.60 | 6356.67 | 890.00 | 1730.00 | 2250.00 | 2402.00 | 2620.00 |
| | 400.000 | 332.86 | .00 | 333.16 | 856.00 | 5050.22 | 40248.66 | 2701.12 | 856.00 | 1749.00 | 1877.60 | 2531.60 | 2605.00 |
| * | 400.000 | 333.52 | .66 | 333.83 | 765.00 | 2552.38 | 42647.24 | 2800.37 | 765.00 | 1820.00 | 1877.60 | 2531.60 | 2585.00 |
| | 410.000 | 333.65 | .00 | 334.00 | 750.00 | 2800.71 | 42631.76 | 2567.53 | 750.00 | 2970.00 | 3065.30 | 3645.90 | 3720.00 |
| | 410.000 | 334.27 | .62 | 334.59 | 739.50 | 2971.53 | 42389.65 | 2638.82 | 739.50 | 2970.50 | 3065.30 | 3645.90 | 3710.00 |
| | 415.000 | 334.47 | .00 | 334.77 | 745.00 | 2282.54 | 42196.28 | 3521.18 | 745.00 | 3200.00 | 3252.30 | 3865.00 | 3945.00 |
| | 415.000 | 334.99 | .52 | 335.27 | 745.00 | 2348.61 | 42027.71 | 3623.68 | 745.00 | 3200.00 | 3252.30 | 3865.00 | 3945.00 |
| | 420.000 | 334.92 | .00 | 335.34 | 660.31 | 3535.89 | 39702.05 | 4762.06 | 686.10 | 3378.90 | 3467.10 | 3988.90 | 4065.00 |
| | 420.000 | 335.38 | .47 | 335.78 | 653.50 | 3592.24 | 39547.61 | 4860.15 | 653.50 | 3411.50 | 3467.10 | 3988.90 | 4065.00 |
| * | 421.000 | 334.98 | .00 | 336.66 | 448.16 | 2496.23 | 45230.37 | 273.41 | .00 | .00 | 2650.00 | 3049.10 | .00 |
| * | 421.000 | 335.42 | .44 | 336.97 | 440.00 | 2538.04 | 45183.52 | 278.45 | 440.00 | 2617.00 | 2650.00 | 3049.10 | 3057.00 |
| | 422.000 | 334.44 | .00 | 337.32 | 445.74 | 1540.73 | 46032.39 | 426.87 | .00 | .00 | 2645.00 | 3044.70 | .00 |
| | 422.000 | 334.94 | .50 | 337.55 | 440.00 | 1594.96 | 45956.65 | 448.39 | 440.00 | 2617.00 | 2645.00 | 3044.70 | 3057.00 |
| | 423.000 | 335.48 | .00 | 337.84 | 450.44 | 1678.35 | 45820.74 | 500.91 | .00 | .00 | 4645.00 | 5044.70 | .00 |
| | 423.000 | 335.74 | .25 | 337.99 | 442.00 | 1693.80 | 45803.94 | 502.26 | 442.00 | 4616.00 | 4645.00 | 5044.70 | 5058.00 |
| | 424.000 | 336.18 | .00 | 338.04 | 462.23 | 1280.97 | 44711.55 | 2007.48 | .00 | .00 | 4658.90 | 5055.00 | .00 |
| | 424.000 | 336.38 | .20 | 338.18 | 449.00 | 1262.15 | 44749.20 | 1988.65 | 449.00 | 4633.00 | 4658.90 | 5055.00 | 5082.00 |
| * | 425.000 | 338.72 | .00 | 339.19 | 905.00 | 20634.99 | 17355.63 | 10009.38 | 905.00 | 4365.00 | 4805.90 | 5113.20 | 5270.00 |
| * | 425.000 | 338.80 | .08 | 339.30 | 850.00 | 20039.55 | 17718.98 | 10241.47 | 850.00 | 4420.00 | 4805.90 | 5113.20 | 5270.00 |

| | SECNO | CWSEL | DIFKWS | EG | TOPWID | QLOB | QCH | QROB | PERENC | STENCL | STCHL | STCHR | STENCR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 430.000 | 339.61 | .00 | 339.97 | 1660.00 | 11260.05 | 10256.48 | 26483.47 | 1660.00 | 4540.00 | 5520.60 | 5704.90 | 6200.00 |
| | 430.000 | 339.81 | .20 | 340.60 | 1000.00 | 17571.39 | 16763.61 | 13665.00 | 1000.00 | 4860.00 | 5520.60 | 5704.90 | 5860.00 |
| * | 440.000 | 340.57 | .00 | 341.14 | 1730.00 | 27332.40 | 12913.81 | 5753.79 | 1730.00 | 4030.00 | 5118.70 | 5291.80 | 5760.00 |
| | 440.000 | 341.64 | 1.07 | 342.16 | 1055.00 | 29010.05 | 12410.47 | 4579.49 | 1055.00 | 4365.00 | 5118.70 | 5291.80 | 5420.00 |
| * | 450.000 | 341.22 | .00 | 341.65 | 1486.62 | 7099.60 | 38472.51 | 427.89 | 1650.00 | 4030.00 | 4864.80 | 5377.90 | 5680.00 |
| * | 450.000 | 342.18 | .96 | 342.55 | 1035.00 | 7483.19 | 38260.44 | 256.36 | 1035.00 | 4375.00 | 4864.80 | 5377.90 | 5410.00 |
| | 460.000 | 341.51 | .00 | 341.81 | 1587.16 | 3030.39 | 42547.37 | 422.24 | 1595.00 | 4025.00 | 4626.20 | 5331.20 | 5620.00 |
| | 460.000 | 342.41 | .89 | 342.68 | 980.00 | 2251.88 | 43469.58 | 278.54 | 980.00 | 4380.00 | 4626.20 | 5331.20 | 5360.00 |
| * | 470.000 | 341.70 | .00 | 342.25 | 1361.61 | 34103.78 | 11300.97 | 595.25 | 1610.00 | 3700.00 | 5002.10 | 5145.90 | 5310.00 |
| * | 470.000 | 342.47 | .77 | 343.11 | 1005.00 | 36001.08 | 9998.92 | .00 | 1005.00 | 4125.00 | 5002.10 | 5145.90 | 5130.00 |
| * | 480.000 | 343.90 | .00 | 345.96 | 1096.92 | 6049.24 | 39620.65 | 330.11 | 1380.00 | 2870.00 | 3872.70 | 4124.90 | 4250.00 |
| * | 480.000 | 343.68 | -.22 | 346.32 | 767.61 | 3212.94 | 42780.13 | 6.93 | 1020.60 | 3105.00 | 3872.70 | 4124.90 | 4125.60 |
| * | 483.000 | 345.96 | .00 | 346.74 | 1340.00 | 14527.80 | 28588.81 | 2883.39 | 1340.00 | 2900.00 | 3854.90 | 4098.10 | 4240.00 |
| * | 483.000 | 346.25 | .29 | 347.27 | 1020.00 | 12548.46 | 32331.18 | 1120.36 | 1020.00 | 3120.00 | 3854.90 | 4098.10 | 4140.00 |
| | 484.000 | 346.57 | .00 | 347.31 | 1270.00 | 21120.35 | 21442.27 | 3437.39 | 1270.00 | 2920.00 | 3795.20 | 4061.40 | 4190.00 |
| | 484.000 | 347.02 | .45 | 347.93 | 1015.00 | 20587.64 | 24264.12 | 1148.25 | 1015.00 | 3080.00 | 3795.20 | 4061.40 | 4095.00 |
| * | 485.000 | 346.34 | .00 | 347.52 | 1260.00 | 28646.99 | 12983.34 | 4369.67 | 1260.00 | 2920.00 | 3795.20 | 4061.40 | 4180.00 |
| * | 485.000 | 346.65 | .31 | 348.22 | 1015.00 | 28396.00 | 15976.44 | 1627.57 | 1015.00 | 3080.00 | 3795.20 | 4061.40 | 4095.00 |
| * | 486.000 | 347.01 | .00 | 347.65 | 1260.00 | 22301.78 | 20362.62 | 3335.60 | 1260.00 | 2920.00 | 3795.20 | 4061.40 | 4180.00 |
| * | 486.000 | 347.65 | .64 | 348.39 | 1015.00 | 22061.97 | 22753.75 | 1184.27 | 1015.00 | 3080.00 | 3795.20 | 4061.40 | 4095.00 |
| | 490.000 | 347.60 | .00 | 348.30 | 1060.00 | 29672.88 | 12938.82 | 3388.30 | 1060.00 | 3060.00 | 3797.70 | 3905.40 | 4120.00 |
| * | 490.000 | 348.37 | .77 | 348.93 | 1020.00 | 31295.43 | 11635.80 | 3068.76 | 1020.00 | 3030.00 | 3797.70 | 3905.40 | 4050.00 |
| * | 500.000 | 348.41 | .00 | 348.87 | 760.00 | 9275.79 | 24935.60 | 10788.62 | 760.00 | 3430.00 | 3766.70 | 4005.40 | 4190.00 |
| * | 500.000 | 348.98 | .58 | 349.38 | 875.00 | 12312.50 | 24485.27 | 8202.24 | 875.00 | 3280.00 | 3766.70 | 4005.40 | 4155.00 |
| * | 507.000 | 348.46 | .00 | 349.44 | 1280.19 | 433.74 | 43284.47 | 1281.78 | .00 | .00 | 3860.70 | 4289.50 | .00 |
| * | 507.000 | 348.99 | .52 | 349.89 | 484.00 | 157.96 | 43470.42 | 1371.62 | 484.00 | 3851.00 | 3860.70 | 4289.50 | 4335.00 |
| * | 508.000 | 348.24 | .00 | 349.71 | 1009.63 | 281.76 | 43411.40 | 1306.84 | .00 | .00 | 3860.70 | 4289.50 | .00 |
| * | 508.000 | 348.78 | .55 | 350.14 | 482.00 | 207.94 | 43381.50 | 1410.56 | 482.00 | 3852.00 | 3860.70 | 4289.50 | 4334.00 |
| | 509.000 | 348.63 | .00 | 349.96 | 1176.70 | 2157.12 | 42568.43 | 274.46 | .00 | .00 | 3889.40 | 4322.40 | .00 |
| | 509.000 | 349.04 | .41 | 350.34 | 484.00 | 1723.03 | 42988.84 | 288.13 | 484.00 | 3851.00 | 3889.40 | 4322.40 | 4335.00 |
| * | 510.000 | 349.14 | .00 | 350.02 | 493.40 | 346.63 | 44007.95 | 645.42 | 493.40 | 3864.30 | 3885.30 | 4317.20 | 4357.70 |
| * | 510.000 | 349.58 | .44 | 350.41 | 485.00 | 365.16 | 43952.22 | 682.62 | 485.00 | 3867.00 | 3885.30 | 4317.20 | 4352.00 |
| * | 515.000 | 350.03 | .00 | 350.20 | 830.00 | 12448.68 | 31700.07 | 851.25 | 830.00 | 3640.00 | 3935.00 | 4447.80 | 4470.00 |
| * | 515.000 | 350.37 | .34 | 350.59 | 690.00 | 9668.90 | 35331.10 | .00 | 690.00 | 3750.00 | 3935.00 | 4447.80 | 4440.00 |

| | SECNO | CWSEL | DIFKWS | EG | TOPWID | QLOB | QCH | QROB | PERENC | STENCL | STCHL | STCHR | STENCR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 520.000 | 350.05 | .00 | 350.34 | 711.61 | 3519.75 | 39699.54 | 1780.71 | 760.00 | 4240.00 | 4347.80 | 4855.30 | 5000.00 |
| | 520.000 | 350.43 | .38 | 350.73 | 625.00 | 3670.36 | 41014.71 | 314.93 | 625.00 | 4240.00 | 4347.80 | 4855.30 | 4865.00 |
| * | 530.000 | 350.00 | .00 | 350.63 | 576.39 | 2187.67 | 35680.74 | 7131.60 | 641.00 | 4050.00 | 4190.20 | 4516.30 | 4691.00 |
| * | 530.000 | 350.37 | .37 | 351.02 | 480.00 | 1131.69 | 36643.10 | 7225.22 | 480.00 | 4170.00 | 4190.20 | 4516.30 | 4650.00 |
| | 535.000 | 349.94 | .00 | 350.88 | 530.00 | 774.17 | 38056.98 | 6168.85 | 530.00 | 2070.00 | 2119.80 | 2411.10 | 2600.00 |
| | 535.000 | 350.33 | .38 | 351.26 | 410.00 | .00 | 38543.30 | 6456.70 | 410.00 | 2120.00 | 2119.80 | 2411.10 | 2530.00 |
| | 540.000 | 350.33 | .00 | 351.11 | 508.34 | 2018.31 | 40569.55 | 2412.15 | .00 | .00 | 2055.80 | 2395.10 | .00 |
| | 540.000 | 350.65 | .32 | 351.50 | 412.00 | 8.59 | 42421.59 | 2569.82 | 412.00 | 2055.00 | 2055.80 | 2395.10 | 2467.00 |
| | 550.000 | 350.75 | .00 | 351.48 | 621.73 | 5900.62 | 33086.71 | 6012.67 | .00 | .00 | 1894.00 | 2153.30 | .00 |
| | 550.000 | 351.10 | .35 | 351.87 | 520.00 | 4576.40 | 34066.30 | 6357.30 | 520.00 | 1830.00 | 1894.00 | 2153.30 | 2350.00 |
| | 560.000 | 351.34 | .00 | 351.79 | 675.47 | 2817.36 | 27770.23 | 14412.41 | .00 | .00 | 1638.20 | 1898.10 | .00 |
| | 560.000 | 351.73 | .39 | 352.17 | 625.00 | 2702.19 | 27987.60 | 14310.21 | 625.00 | 1575.00 | 1638.20 | 1898.10 | 2200.00 |
| | 562.000 | 351.53 | .00 | 351.89 | 744.46 | 3716.00 | 20926.40 | 20357.60 | .00 | .00 | 1181.40 | 1385.00 | .00 |
| | 562.000 | 351.93 | .39 | 352.27 | 710.00 | 3703.88 | 20883.51 | 20412.61 | 710.00 | 1080.00 | 1181.40 | 1385.00 | 1790.00 |
| | 564.000 | 351.65 | .00 | 351.97 | 771.13 | 5323.74 | 25249.68 | 14426.58 | .00 | .00 | 1053.10 | 1332.20 | .00 |
| | 564.000 | 352.04 | .39 | 352.34 | 730.00 | 5242.91 | 25208.25 | 14548.84 | 730.00 | 920.00 | 1053.10 | 1332.20 | 1650.00 |
| | 566.000 | 351.38 | .00 | 352.25 | 586.95 | 2381.65 | 38975.88 | 3642.47 | .00 | .00 | 971.90 | 1257.50 | .00 |
| | 566.000 | 351.78 | .40 | 352.61 | 535.00 | 2291.27 | 38979.42 | 3729.32 | 535.00 | 870.00 | 971.90 | 1257.50 | 1405.00 |
| | 570.000 | 351.05 | .00 | 352.72 | 454.01 | 2668.25 | 38116.58 | 4215.16 | .00 | .00 | 1642.70 | 1843.30 | .00 |
| | 570.000 | 351.47 | .42 | 353.05 | 435.00 | 2746.69 | 37994.10 | 4259.21 | 435.00 | 1525.00 | 1642.70 | 1843.30 | 1960.00 |
| | 572.000 | 351.54 | .00 | 352.94 | 429.57 | 2594.57 | 39473.14 | 2932.29 | .00 | .00 | 832.00 | 1056.10 | .00 |
| | 572.000 | 351.90 | .36 | 353.25 | 393.00 | 2615.14 | 39463.08 | 2921.78 | 393.00 | 757.00 | 832.00 | 1056.10 | 1150.00 |
| | 574.000 | 352.23 | .00 | 353.13 | 429.41 | 913.89 | 42161.19 | 1924.92 | .00 | .00 | 747.50 | 1043.60 | .00 |
| | 574.000 | 352.55 | .32 | 353.42 | 385.00 | 922.34 | 42268.61 | 1809.05 | 385.00 | 705.00 | 747.50 | 1043.60 | 1090.00 |
| | 576.000 | 352.13 | .00 | 353.33 | 422.28 | 974.31 | 38207.11 | 5818.58 | .00 | .00 | 733.40 | 959.30 | .00 |
| | 576.000 | 352.40 | .27 | 353.64 | 372.00 | 1001.86 | 39039.84 | 4958.31 | 372.00 | 688.00 | 733.40 | 959.30 | 1060.00 |
| | 582.000 | 352.54 | .00 | 353.61 | 579.40 | 2142.75 | 33447.15 | 9410.10 | .00 | .00 | 698.20 | 914.10 | .00 |
| | 582.000 | 352.65 | .10 | 353.93 | 465.00 | 1788.25 | 35938.52 | 7273.23 | 465.00 | 615.00 | 698.20 | 914.10 | 1080.00 |
| | 584.000 | 352.84 | .00 | 353.78 | 574.54 | 2601.64 | 33311.14 | 9087.21 | .00 | .00 | 632.70 | 857.90 | .00 |
| | 584.000 | 353.24 | .40 | 354.13 | 547.00 | 2629.92 | 33305.62 | 9064.46 | 547.00 | 538.00 | 632.70 | 857.90 | 1085.00 |
| | 586.000 | 353.06 | .00 | 353.94 | 576.58 | 3275.13 | 28996.77 | 12728.10 | .00 | .00 | 582.70 | 772.70 | .00 |
| | 586.000 | 353.31 | .25 | 354.32 | 495.00 | 3520.21 | 30882.23 | 10597.57 | 495.00 | 465.00 | 582.70 | 772.70 | 960.00 |
| * | 592.000 | 352.79 | .00 | 354.63 | 422.69 | 2800.17 | 31496.20 | 10703.63 | 455.20 | 344.80 | 443.90 | 597.60 | 800.00 |
| * | 592.000 | 352.96 | .17 | 355.10 | 349.00 | 2993.29 | 33503.95 | 8502.76 | 349.00 | 371.00 | 443.90 | 597.60 | 720.00 |

| | SECNO | CWSEL | DIFKWS | EG | TOPWID | QLOB | QCH | QROB | PERENC | STENCL | STCHL | STCHR | STENCR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| * | 594.000 | 353.27 | .00 | 358.23 | 260.06 | 5136.37 | 32643.34 | 7220.29 | .00 | .00 | 630.70 | 779.90 | .00 |
| * | 594.000 | 352.93 | -.34 | 358.39 | 235.00 | 5001.11 | 33075.16 | 6923.72 | 235.00 | 595.00 | 630.70 | 779.90 | 830.00 |
| * | 600.000 | 360.55 | .00 | 361.79 | 351.25 | 12812.21 | 30205.13 | 1982.66 | 450.00 | 600.00 | 778.90 | 979.10 | 1050.00 |
| * | 600.000 | 360.78 | .23 | 362.00 | 335.00 | 12922.07 | 30233.79 | 1844.14 | 335.00 | 660.00 | 778.90 | 979.10 | 995.00 |
| * | 610.000 | 363.40 | .00 | 364.03 | 397.29 | 3731.79 | 39442.21 | 1826.00 | 452.30 | 200.00 | 319.90 | 622.80 | 652.30 |
| * | 610.000 | 363.58 | .18 | 364.22 | 365.00 | 3002.62 | 40225.27 | 1772.11 | 365.00 | 280.00 | 319.90 | 622.80 | 645.00 |
| | 620.000 | 365.57 | .00 | 366.11 | 492.57 | 40.75 | 44898.39 | 60.86 | 500.00 | 250.00 | 299.20 | 732.00 | 750.00 |
| | 620.000 | 365.73 | .16 | 366.29 | 400.00 | .00 | 45000.00 | .00 | 400.00 | 330.00 | 299.20 | 732.00 | 730.00 |
| | 630.000 | 366.77 | .00 | 367.33 | 489.11 | 7137.99 | 34115.39 | 3746.62 | 504.60 | 300.00 | 445.60 | 718.00 | 804.60 |
| | 630.000 | 366.93 | .15 | 367.55 | 370.00 | 5714.01 | 35532.07 | 3753.93 | 370.00 | 380.00 | 445.60 | 718.00 | 750.00 |
| * | 640.000 | 368.29 | .00 | 369.99 | 362.89 | 4081.82 | 32759.11 | 8159.07 | .00 | .00 | 433.90 | 577.60 | .00 |
| * | 640.000 | 368.41 | .12 | 370.59 | 199.00 | 4545.05 | 36553.00 | 3901.95 | 199.00 | 401.00 | 433.90 | 577.60 | 600.00 |

SUMMARY OF ERRORS AND SPECIAL NOTES

```
CAUTION SECNO=    100.000  PROFILE=  1  CRITICAL DEPTH ASSUMED

WARNING SECNO=    110.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=    110.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=    120.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=    120.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=    130.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=    130.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=    150.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=    150.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=    160.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=    160.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=    170.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=    170.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=    180.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=    190.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=    200.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=    200.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=    210.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=    210.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=    211.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=    211.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=    239.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=    239.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=    240.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=    240.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=    242.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=    242.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=    244.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=    244.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=    245.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=    245.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
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WARNING SECNO=    260.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=    260.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=    280.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=    280.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=    300.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=    300.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=    320.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=    320.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=    330.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=    330.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=    358.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=    358.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=    400.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=    421.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=    421.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=    425.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=    425.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=    440.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=    450.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=    450.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=    470.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=    470.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=    480.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=    480.000  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=    480.000  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=    480.000  PROFILE=  2  MINIMUM SPECIFIC ENERGY

WARNING SECNO=    483.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=    483.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=    485.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=    485.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=    486.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=    486.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=    490.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=    500.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
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WARNING SECNO=    500.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=    507.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=    507.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=    508.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=    508.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=    510.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=    510.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=    515.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=    515.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=    530.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=    530.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=    592.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=    592.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=    594.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=    594.000  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=    594.000  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=    594.000  PROFILE=  2  MINIMUM SPECIFIC ENERGY

WARNING SECNO=    600.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=    600.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=    610.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=    610.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=    640.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=    640.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
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FLOODWAY DATA, PROFILE 1 - 100 YEAR FLO
PROFILE NO. 2

| STATION | FLOODWAY WIDTH | FLOODWAY SECTION AREA | FLOODWAY MEAN VELOCITY | WATER SURFACE ELEVATION WITH FLOODWAY | WITHOUT FLOODWAY | DIFFERENCE |
|---|---|---|---|---|---|---|
| 100.000 | 260. | 3048. | 16.4 | 283.5 | 282.5 | 1.0 |
| 110.000 | 300. | 3958. | 12.6 | 289.6 | 289.8 | -.2 |
| 120.000 | 340. | 5119. | 9.8 | 292.9 | 292.9 | .0 |
| 130.000 | 353. | 6995. | 7.1 | 301.1 | 300.4 | .7 |
| 140.000 | 330. | 7642. | 6.5 | 305.5 | 304.5 | 1.0 |
| 150.000 | 955. | 16977. | 2.9 | 306.9 | 306.0 | .9 |
| 160.000 | 1445. | 20633. | 2.4 | 307.4 | 306.5 | .9 |
| 170.000 | 1580. | 25770. | 1.9 | 307.5 | 306.6 | .9 |
| 180.000 | 1455. | 24749. | 2.0 | 307.5 | 306.7 | .8 |
| 190.000 | 1450. | 27001. | 1.9 | 307.6 | 306.7 | .9 |
| 200.000 | 1605. | 28403. | 1.8 | 307.6 | 306.7 | .9 |
| 209.000 | 1700. | 26517. | 1.9 | 307.7 | 306.9 | .8 |
| 210.000 | 1700. | 18855. | 2.7 | 307.6 | 306.8 | .8 |
| 211.000 | 1700. | 26618. | 1.9 | 307.8 | 306.9 | .9 |
| 220.000 | 1585. | 20445. | 2.4 | 308.0 | 307.1 | .9 |
| 230.000 | 1175. | 15347. | 3.3 | 308.1 | 307.3 | .8 |
| 239.000 | 670. | 9514. | 5.3 | 307.9 | 307.1 | .8 |
| 240.000 | 494. | 8704. | 5.7 | 309.6 | 309.2 | .4 |
| 242.000 | 492. | 7995. | 6.3 | 309.6 | 309.1 | .5 |
| 243.000 | 492. | 8027. | 6.2 | 309.7 | 309.2 | .5 |
| 244.000 | 510. | 8722. | 5.7 | 309.8 | 309.4 | .4 |
| 245.000 | 650. | 12211. | 4.1 | 310.2 | 310.0 | .2 |
| 250.000 | 910. | 13874. | 3.6 | 311.4 | 310.8 | .6 |
| 260.000 | 610. | 7706. | 6.5 | 312.6 | 311.7 | .9 |
| 270.000 | 720. | 9131. | 5.4 | 315.4 | 314.8 | .6 |
| 280.000 | 1330. | 16409. | 3.0 | 317.3 | 316.5 | .8 |
| 285.000 | 1490. | 16405. | 3.0 | 317.8 | 317.0 | .8 |
| 290.000 | 1594. | 14616. | 3.4 | 318.2 | 317.5 | .7 |
| 300.000 | 1474. | 11648. | 4.2 | 318.9 | 318.2 | .7 |
| 310.000 | 1350. | 11963. | 4.1 | 319.8 | 319.2 | .6 |
| 320.000 | 1120. | 8450. | 5.8 | 321.6 | 320.7 | .9 |
| 330.000 | 880. | 9039. | 5.3 | 324.3 | 323.9 | .4 |
| 340.000 | 960. | 10270. | 4.7 | 325.6 | 325.2 | .4 |
| 345.000 | 970. | 9041. | 5.3 | 326.3 | 326.0 | .3 |
| 355.000 | 870. | 8036. | 6.0 | 327.3 | 327.0 | .3 |
| 356.000 | 770. | 5993. | 8.0 | 328.7 | 328.4 | .3 |
| 358.000 | 790. | 5853. | 8.2 | 328.5 | 328.1 | .4 |
| 360.000 | 870. | 10063. | 4.8 | 330.4 | 329.9 | .5 |
| 370.000 | 1030. | 11378. | 4.2 | 331.0 | 330.6 | .4 |
| 380.000 | 1085. | 10946. | 4.4 | 331.4 | 331.0 | .4 |
| 390.000 | 890. | 9176. | 5.2 | 332.3 | 331.7 | .6 |
| 400.000 | 765. | 10960. | 4.4 | 333.5 | 332.9 | .6 |

FLOODWAY DATA, PROFILE 1 - 100 YEAR FLO
PROFILE NO. 2

| STATION | FLOODWAY WIDTH | FLOODWAY SECTION AREA | FLOODWAY MEAN VELOCITY | WATER SURFACE ELEVATION WITH FLOODWAY | WITHOUT FLOODWAY | DIFFERENCE |
|---|---|---|---|---|---|---|
| 410.000 | 739. | 10498. | 4.6 | 334.3 | 333.6 | .7 |
| 415.000 | 745. | 11433. | 4.2 | 335.0 | 334.5 | .5 |
| 420.000 | 653. | 9766. | 4.9 | 335.4 | 334.9 | .5 |
| 421.000 | 440. | 4798. | 10.0 | 335.4 | 335.0 | .4 |
| 422.000 | 440. | 3736. | 12.8 | 334.9 | 334.4 | .5 |
| 423.000 | 442. | 4024. | 11.9 | 335.7 | 335.5 | .2 |
| 424.000 | 449. | 4490. | 10.7 | 336.4 | 336.2 | .2 |
| 425.000 | 850. | 8731. | 5.5 | 338.8 | 338.7 | .1 |
| 430.000 | 1000. | 7073. | 6.8 | 339.8 | 339.6 | .2 |
| 440.000 | 1055. | 8002. | 5.7 | 341.6 | 340.6 | 1.0 |
| 450.000 | 1035. | 11174. | 4.1 | 342.2 | 341.2 | 1.0 |
| 460.000 | 980. | 11894. | 3.9 | 342.4 | 341.5 | .9 |
| 470.000 | 1005. | 7213. | 6.4 | 342.5 | 341.7 | .8 |
| 480.000 | 1021. | 3837. | 12.0 | 343.7 | 343.9 | -.2 |
| 483.000 | 1020. | 6117. | 7.5 | 346.3 | 346.0 | .3 |
| 484.000 | 1015. | 6096. | 7.5 | 347.0 | 346.6 | .4 |
| 485.000 | 1015. | 4585. | 10.0 | 346.6 | 346.3 | .3 |
| 486.000 | 1015. | 6724. | 6.8 | 347.6 | 347.0 | .6 |
| 490.000 | 1020. | 7949. | 5.8 | 348.4 | 347.6 | .8 |
| 500.000 | 875. | 9155. | 4.9 | 349.0 | 348.4 | .6 |
| 507.000 | 484. | 5953. | 7.6 | 349.0 | 348.5 | .5 |
| 508.000 | 482. | 4862. | 9.3 | 348.8 | 348.2 | .6 |
| 509.000 | 484. | 4970. | 9.1 | 349.0 | 348.6 | .4 |
| 510.000 | 485. | 6250. | 7.2 | 349.6 | 349.1 | .5 |
| 515.000 | 690. | 12157. | 3.7 | 350.4 | 350.0 | .4 |
| 520.000 | 625. | 10329. | 4.4 | 350.4 | 350.0 | .4 |
| 530.000 | 480. | 7296. | 6.2 | 350.4 | 350.0 | .4 |
| 535.000 | 410. | 6023. | 7.5 | 350.3 | 349.9 | .4 |
| 540.000 | 412. | 6286. | 7.2 | 350.7 | 350.3 | .4 |
| 550.000 | 520. | 6995. | 6.4 | 351.1 | 350.7 | .4 |
| 560.000 | 625. | 9221. | 4.9 | 351.7 | 351.3 | .4 |
| 562.000 | 710. | 10358. | 4.3 | 351.9 | 351.5 | .4 |
| 564.000 | 730. | 10850. | 4.1 | 352.0 | 351.7 | .3 |
| 566.000 | 535. | 7481. | 6.0 | 351.8 | 351.4 | .4 |
| 570.000 | 435. | 5692. | 7.9 | 351.5 | 351.1 | .4 |
| 572.000 | 393. | 5777. | 7.8 | 351.9 | 351.5 | .4 |
| 574.000 | 385. | 6558. | 6.9 | 352.5 | 352.2 | .3 |
| 576.000 | 372. | 5884. | 7.6 | 352.4 | 352.1 | .3 |
| 582.000 | 465. | 6245. | 7.2 | 352.6 | 352.5 | .1 |
| 584.000 | 547. | 7613. | 5.9 | 353.2 | 352.8 | .4 |
| 586.000 | 495. | 7253. | 6.2 | 353.3 | 353.1 | .2 |
| 592.000 | 349. | 4916. | 9.2 | 353.0 | 352.8 | .2 |

FLOODWAY DATA, PROFILE 1 - 100 YEAR FLO
PROFILE NO. 2

| STATION | FLOODWAY WIDTH | FLOODWAY SECTION AREA | FLOODWAY MEAN VELOCITY | WATER SURFACE ELEVATION WITH FLOODWAY | WITHOUT FLOODWAY | DIFFERENCE |
|---|---|---|---|---|---|---|
| 594.000 | 235. | 2436. | 18.5 | 352.9 | 353.3 | -.4 |
| 600.000 | 335. | 5140. | 8.8 | 360.8 | 360.5 | .3 |
| 610.000 | 365. | 6987. | 6.4 | 363.6 | 363.4 | .2 |
| 620.000 | 400. | 7534. | 6.0 | 365.7 | 365.6 | .1 |
| 630.000 | 370. | 7197. | 6.3 | 366.9 | 366.8 | .1 |
| 640.000 | 199. | 3798. | 11.8 | 368.4 | 368.3 | .1 |

# Exhibit J

## Floodplain Analysis for Fanita Lake Excerpts (Sycamore Creek)

# FLOODPLAIN ANALYSIS
# FOR
# FANITA LAKE

**Job Number 14404-A**
**May 11, 2007**
**Revised: May 25, 2007**

RICK ENGINEERING COMPANY
ENGINEERING COMPANY
RICK ENGINEERING CO

RICK
ENGINEERING COMPANY

rickengineering.com

# FLOODPLAIN ANALYSIS

# FOR

# FANITA LAKE

## Job Number 14404-A

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R.C.E. #32838
Exp. 06/08

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**May 11, 2007**
**Revised: May 25, 2007**

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Appendix C: Hydrologic and Hydraulic Results for Scenario 2 – Lake Water Loss with No Storm Event

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Floodplain Analysis HEC-RAS Cross-Section Workmap, Sheets 1-8

## INTRODUCTION

### Fanita

The Fanita project is a 2,600-acre development proposed within the City of Santee, and is located northeast of the intersection of Mast Boulevard and Fanita Parkway, and east of Santee Lakes Regional Park. The northern and eastern boundaries of the project follow the corporate boundary line of the City of Santee and County of San Diego (see Vicinity Map). West of the project site, Sycamore Creek generally flows from north to south along the project boundary to the San Diego River. Several ridgelines through the project site separate the runoff flows into Sycamore Creek.

The Fanita project consists of approximately 1,190 acres of developed area, as well as approximately 1400 acres on site that will remain in a natural state. The developed area consists of the construction of single-family homes, and improvements to Cuyamaca Street and Fanita Parkway. There are also several pads proposed on site for commercial developments, several park sites, a lake, as well as the construction of a recreation center and a fire station.

There are four proposed villages within the Fanita project: Rock Point, Sycamore Glen, Oak View, and Sage Hill. Runoff from Rock Point, Sycamore Glen, Oak View, and portions of Sage Hill drain into Sycamore Creek. Flows from the remaining portions of Sage Hill Village drain to existing City storm drain systems and channel which ultimately flow to the San Diego River.

### The Lake Associated With Fanita

The Lake is proposed within the Oak View Village, bounded by Fanita Parkway to the east and Sycamore Creek to the west. The proposed lake will serve as the primary storm water treatment Best Management Practice (BMP) while attenuating the 2-, 10-, and 100-year storm events to pre-project levels for a portion of the Fanita project. The lake will also provide aesthetic value to the Fanita project by maintaining a permanent pool of

water and providing a recreation area for the residents of the proposed Project and City of Santee.

The proposed lake captures post-project flows from Rock Point, Sycamore Glen, and Oak View Villages. The total watershed area that is directed to the proposed lake is approximately 705 acres. As stated above, the proposed lake has been designed to provide water quality benefits and detention. The proposed lake will have a total capacity of approximately 200 acre-feet from the top of the lake (elev. 502.5') to the bottom (elev. 484'). The total height of the lake is measured from the outlet of the lake (elev. 476') to the top of the lake (elev. 502.5'), this elevation difference is 26.5 feet. Please refer to the lake detail on Page 5 for a cross-sectional view of the lake.

The State of California classifies a lake/basin/reservoir as a dam if it exceeds a height of 25 feet and/or contains a capacity of 50 acre-feet or more (please refer to Appendix E for the jurisdictional chart). The normal water level of the proposed lake will encompass approximately a 12 acre footprint with an average depth of 8 feet and will contain a volume of 65 acre-feet measured from the bottom of the lake (elev. 484') to the permanent pool of water within the lake (elev. 492'). Since the volume of the lake exceeds 50 acre-feet, the State of California has classified the Lake associated with Fanita as a dam and has requested that the lake be designed as such.

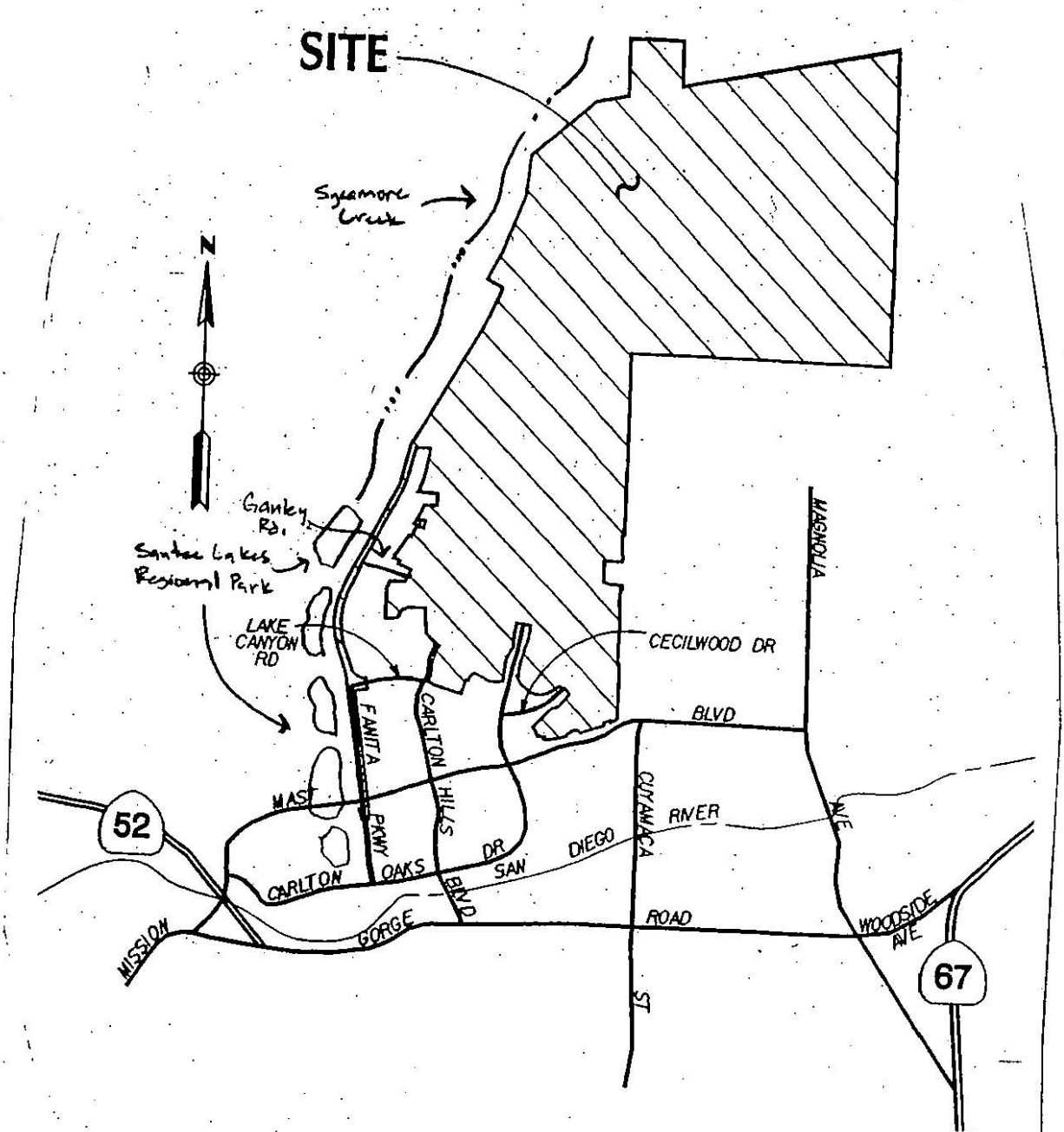
The purpose of this report is to determine the effects of water loss at the lake under two scenarios. The first scenario models a loss of lake water during the 100-year storm event. This scenario assumes water loss occurs coincident with the peak of the 100-year storm event. The lake will pond to the 100-year detained water surface elevation (elev. 497') before the loss of structural integrity. The second scenario models a loss of lake water under no storm event, where the lake will pond to the maintained permanent water surface elevation (elev. 492') before the loss of structural integrity. Hydrologic and Hydraulic analyses have been prepared to model both scenarios to determine the inundation limits in Sycamore Creek along with the post-project 100-year floodplain. The

following sections describe in more detail the parameters that were used to model both scenarios and the 100-year Sycamore Creek Watershed.

**Historic Reports**

Previously, a report titled "Sycamore Creek 100 Year Water Surface Determination," dated April 1994 by Black and Veatch was prepared for the Padre Dam Municipal Water District. This report quantified the 100-year peak discharge near Carlton Oaks Drive to be 8,745 cfs. Rick Engineering Company analysis yielded a 100-year peak discharge of 13,407 cfs. Upon review of the Black and Veatch report the following was compared: the drainage basin area, composite curve numbers, soil types, precipitation, and basin factor values. The above-described variables that were used in this report were similar to the values used in the Black and Veatch report. However, the Black and Veatch report was prepared in 1994. Consequently the criteria/methodology used was that of the 1993 County of San Diego Hydrology Manual. In 2003, a "new" County of San Diego Hydrology Manual was adopted in which the criteria/methodology in the "new" Hydrology Manual (2003) changed. The 1993 manual utilized a Type B distribution methodology, and the "new" manual utilizes a Nested Storm Distribution methodology. Consequently, the hydrologic analysis presented in this Floodplain Study for Sycamore Creek is following the current methodology described in the "new" Hydrology Manual. As a result, a larger flow rate was calculated, which accounts for the difference in the two analyses. For a more detailed discussion of the analysis please refer to Hydrologic Analyses of this report.

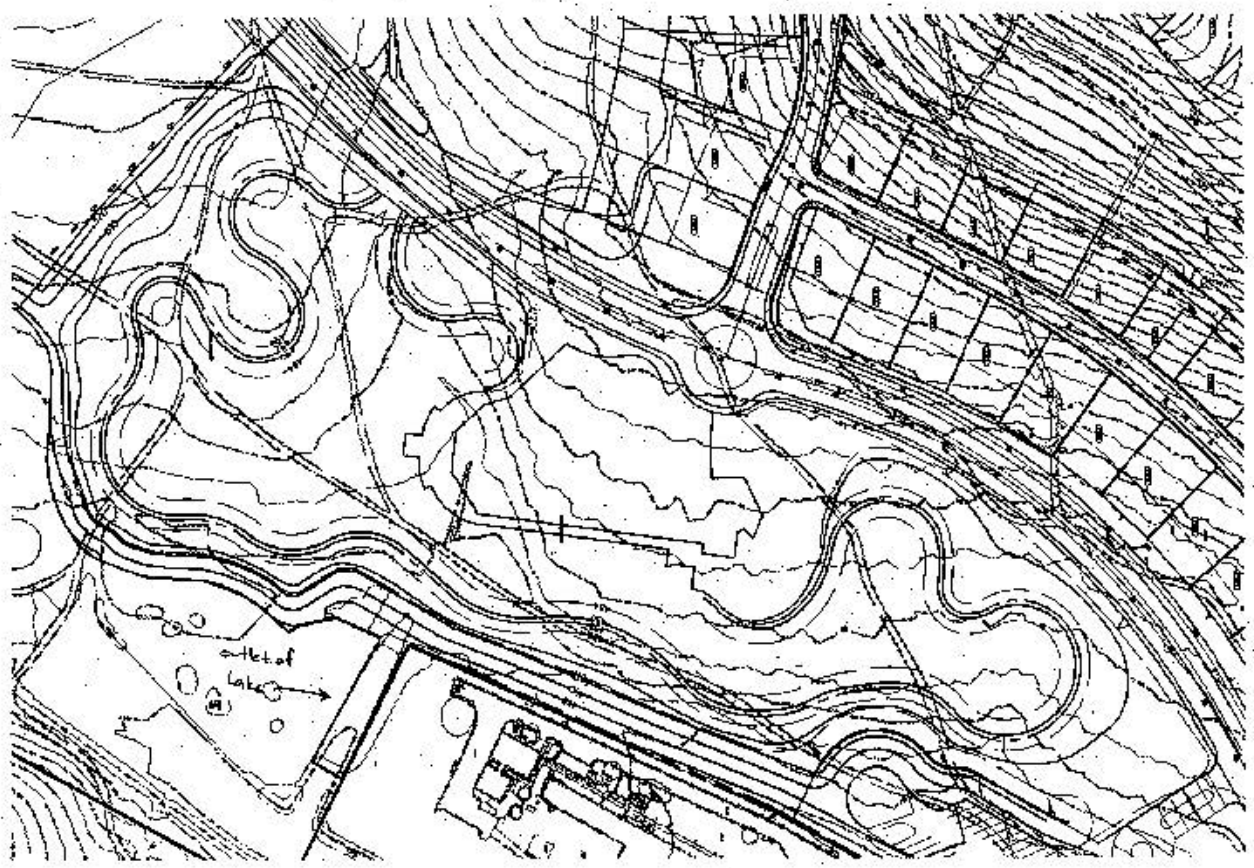
**Vicinity Map**



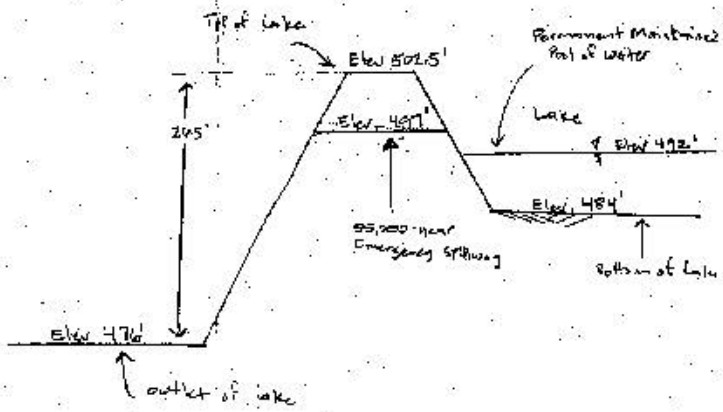

**FANITA**

**VICINITY MAP**

**NO SCALE**




Plan View of Lake
Scale: 1" = 200'




Detail of Lake Elevations
NTS

**The Lake Associated With Fanita**
**Plan and Detail**

## DSOD REQUIREMENTS

### 55,000-Year Storm Hydrologic Methodology and Criteria

The California Department of Water Resources Department of Safety of Dams (DSOD) has reviewed the proposed Fanita project and the lake associated with Fanita. Upon their review they concluded that due to the size and placement of the proposed lake, the emergency spillway for the lake shall be designed to convey the 55,000-year return frequency storm. In order to determine the magnitude of the 55,000-year storm, a hydrologic analysis was performed.

The Department of Water Resources Bulletin Number 195 was used to determine the precipitation for the 6-hour and 24-hour 55,000-year storm event. This is done by plotting known precipitation values on log-probability paper and extrapolating out values for the required storm. Bulletin 195 contains historic data for multiple storm events for multiple locations throughout California. The bulletin uses a Pearson Type III Distribution to determine the precipitation values for storm events ranging from the 2-year to the 10,000-year. Based on the location of Fanita, the Poway rain gauge was used and the historical data was plotted.

Once the values are plotted and the required storm precipitation is obtained, a hydrologic analysis is needed to determine the discharge produced from the given storm event. An HEC-1 model was produced using the extrapolated values for the 55,000-year storm along with the required input parameters to describe the characteristic of the watershed.

### 55,000-Year Storm Hydrologic Results

The watershed draining to the Lake associated with Fanita was analyzed using the Natural Resources Conservation Service (NRCS) hydrologic method, consistent with the methodology described in Section 4 of the *San Diego County Hydrology Manual* dated June 2003 (June 2003 Hydrology Manual).

The 6-hour and 24-hour rainfall amounts were obtained based on rainfall data published in Department of Water Resources Bulletin No. 195, *Rainfall Analysis for Drainage Design Volume I, Short Duration Precipitation Frequency Data*, dated October 1976. Data for the Poway County Road Station (Poway CRS) gage Z06 7110.10 (page 461) was used. The Poway CRS gage is located approximately 7 miles northwest of the project site and is the most representative gage available in Bulletin No. 195 for the watershed draining to Fanita Park Lake. The 20-, 50-, 100-, 200-, 1,000-, and 10,000-year 6-hour and 24-hour rainfall amounts for Poway CRS gage were plotted on log-probability paper and extended to determine the 55,000-year 6-hour and 24-hour rainfall amounts. Based on the analysis of the rainfall, the 55,000-year 6-hour and 24-hour rainfall amounts are approximately 4.4 inches and 7.1 inches, respectively.

The United States Army Corps of Engineers (USACE) HEC-1 computer model was used to compute the runoff. Based on the analysis, the undetained peak flow rate of runoff from the 1.08-square mile watershed is approximately 3,844 cubic feet per second (cfs). This discharge was used to size the emergency spillway for the proposed lake. Since the spillway is placed at elevation 497 feet the spillway will have an available head of 5.5 feet to pass the 55,000-year storm. Using the weir equation with the parameters listed above the spillway length should be 185 feet.

## HYDROLOGIC ANALYSES

### Hydrologic Methodology and Criteria

The total watershed tributary to Sycamore Creek is approximately 17 square miles. The June 2003 *San Diego County Hydrology Manual* recommends that the Natural Resources Conservation Service (NRCS) hydrologic method be used for watersheds that are approximately one square mile and greater in size. The NRCS hydrologic method was used to determine the 100-year post-project peak discharge rate for the Sycamore Creek watershed.

A 24-hour nested storm pattern with the 2/3, 1/3 rainfall distribution, based on the USACE, Hydrologic Engineering Center (HEC) Training Document Number 15 was utilized for these analyses. The NRCS's rainfall distribution is based on the Rational Method's 6-hour intensity-duration relationship and as a result, the NRCS method now closely mimics the results of the Rational Method. Therefore, it is appropriate to use the NRCS Hydrologic method to assess the impacts that the proposed project would have on the watershed. Rational Method analyses have been prepared to model the on-site storm drain systems for watersheds less than 1 square mile. Please refer to the following reports (or any revisions thereafter) prepared by Rick Engineering Company for the Rational Method Analyses associated with the Fanita development:

- "Drainage Study for Fanita: Rock Point Village", dated November 30, 2006
- "Drainage Study for Fanita: Sycamore Glen/Oak View Village", dated February 6, 2007
- "Drainage Study for Fanita: Sage Hill Village", dated May 24, 2006
- "Drainage Study for Fanita: Cuyamaca Street", dated September 11, 2006
- "Drainage Study for Fanita: Fanita Parkway", dated September 13, 2006

The USACE HEC-1 computer program was used to determine the 100-year peak discharge flow rates for post-project scenario. The HEC-1 program allows the engineer to simulate both natural and improved or developed watersheds. Program parameter include

basin area, lag time, rainfall distribution, and infiltration rates. These parameters were determined from soil and vegetative cover/land use maps, and USGS topographic maps. Refer to Appendix D for the corresponding HEC-1 back up. The HEC-1 program also has the capability to model the effects of detention and storage runoff within a watershed as it effects the peak discharge within the stream.

**Sycamore Creek Watershed Hydrology**

Rainfall rates and distributions were developed using the criteria, as outlined in the June 2003 *San Diego County Hydrology Manual*. The NRCS Synthetic unit hydrograph with curvilinear transformation was used to develop runoff hydrographs for the watershed. This unit hydrograph is dimensionless and is a function of the watershed area and lag time. Lag time for the watershed was calculated using criteria presented in the Hydrology Manual

Runoff was estimated using NRCS curve numbers for the watershed. Estimated curve numbers are a function of land use or vegetative cover and soil type. The land uses were based on the County of San Diego land use and vegetative cover maps and the Fanita Tentative Map. Soil types were obtained from the Soil Conservation Service (SCS) soil survey for San Diego County. Curve numbers were then calculated using the method as outlined in the San Diego County Hydrology Manual.

The 100-year storm event was analyzed for the post-project scenario. Refer to Appendix E for the corresponding workmaps and supporting materials. In addition, located in Appendix A is the 100-year HEC-1 analysis for the post-project Sycamore Creek watershed.

**Sycamore Creek Watershed Hydrology with Lake Water Loss**

A routine within HEC-1 computes the elevation-outflow rating curve resulting from sudden water loss in the lake by determining the flow over the crest of the spillway area of the lake and/or through the loss of structural integrity as well as through the reservoir outlet works.

The HEC-1 routine simulates a loss of water from the lake using various input parameters. These input parameters describe the reservoir elevation-storage relationship, structure, spillway information and breach geometry. The characteristics from the loss of structural integrity of the lake are modeled by assuming the following parameters: geometric shape and elevation for the loss of structural integrity of the spillway area of the lake, a ponded water surface elevation at which the breach will begin, and a time (duration) for development of the breach geometry.

The geometric shape and elevation parameters for the loss of structural integrity of the spillway area of the lake were determined from the adjacent natural topography and assumptions from the document titled, "The NWS Dam-Break Flood Forecasting Model" prepared by the USACE Hydrologic Engineering Center. The breach side slopes and failure time were estimated based on the suggested range of values from the USACE document. The design of the lake allows for a permanent ponded water surface elevation of 492' with the crest of the spillway of the lake to be placed at elevation 497', which corresponds with the 100-year ponded water surface elevation, and the top of lake at elevation 502.5'.

Table 1 shows the HEC-1 input parameters, the suggested range for the loss of structural integrity based on information from the USACE document, and the assumed values used in the HEC-1 analysis.

**Table 1: Parameters Utilized in HEC-1 Model**

| Input Parameters | Suggested Range | Assumed Value |
|---|---|---|
| Breach Width | Between ½ the height of the dam and 4 times the height of the dam | 100-feet wide |
| Breach Side Slope (z) | Between vertical and 1:1 side slopes | 0.5:1 (horiz:vert) |
| Failure Time | Between 0.5-hours and 4-hours | 0.5 hrs |
| WSEL at Breach | 1-5 feet above dam crest | 497 ft (zero feet above dam crest) |

WSEL = water surface elevation

Located in Appendix B is the 100-year HEC-1 analysis for the post-project Sycamore Creek watershed.

## Hydrologic Results

### 100-Year Storm Event

A 100-Year hydrologic analysis was performed on the Sycamore Creek watershed. Rational Method analyses from the Fanita Tentative Map were used within the HEC-1 analysis to evaluate the impacts of the proposed Fanita development. The proposed development from Fanita that discharge into Sycamore Creek include: Rock Point Village, Sycamore Glen Village, Oak View Village, Fanita Parkway, portions of Sage Hill Village, and undisturbed natural terrain. The total area analyzed within this HEC-1 is approximately 17-square miles. A total of 13 basins were delineated to make up the 17-square mile watershed. The HEC-1 analysis was based on County of San Diego land use and vegetative cover maps and the Tentative Map for Fanita.

The HEC-1 analysis was analyzed using a trapezoidal channel routing option, which does not take into account channel storage. This option does not allow the discharge to dissipate as it travels downstream. Table 2 below displays the 100-year post-project peak discharges within Sycamore Creek.

**Table 2: Hydrologic Results for 100-Year Storm Event**

| Location | Description | Peak Discharge (Q) |
|---|---|---|
| Cross Section 3600 | Upstream end of Analysis | 6,759 cfs |
| Cross Section 2500 | Approximately 1100 feet upstream of Birchcrest Blvd | 12,089 cfs |
| Cross Section 1900 | Approximately 900 feet downstream of Ganley Rd | 12,357 cfs |
| Cross Section 1000 | Approximately 800 feet upstream of Mast Blvd | 13,407 cfs |

The results listed in Table 2 above can be found in Appendix A.

**Scenario 1 – Lake Water Loss Coincident with 100-Year Storm Event**

A 100-year HEC-1 hydrologic analysis was performed for the entire Sycamore Creek watershed. Rational Method analyses from the Fanita Tentative Map were used within the HEC-1 analysis to evaluate the impacts of the proposed Fanita development. The areas from Fanita that discharge into Sycamore Creek include: Rock Point Village, Sycamore Glen Village, Oak View Village, Fanita Parkway, portions of Sage Hill Village, and some undisturbed natural terrain. The total area analyzed within this HEC-1 is approximately 17-square miles. A total of 13 basins were delineated to make up the 17-square mile watershed. The HEC-1 analysis was based on County of San Diego land use and vegetative cover maps and the Tentative Map for Fanita.

The HEC-1 analysis for Scenario 1 calculated a peak discharge of 12,461 cfs at the downstream end where Sycamore Creek and the San Diego River confluence. The peak discharge at the downstream end for this scenario is less than the 100-year storm analysis because of the channel storage routing that was used for this analysis. The channel storage routing was used to demonstrate the dissipation of the lake water loss. Table 2 below displays the peak discharge along Sycamore Creek.

**Table 3: Hydrologic Results for Scenario 1 – Lake Water Loss Coincident with 100-Year Storm Event**

| Location | Description | Peak Discharge (Q) |
|---|---|---|
| Cross Section 3600 | Upstream end of Analysis | 6,759 cfs |
| | Directly Downstream of Lake | 5,298 cfs |
| Cross Section 3300 | Confluence of Lake and Sycamore Creek | 10,104 cfs |
| Cross Section 2900 | Approximately 1200 feet downstream of the proposed lake | 9,881 cfs |
| Cross Section 2500 | Approximately 1100 feet upstream of Birchcrest Blvd | 8,933 cfs |
| Cross Section 2200 | Approximately 500 feet downstream of Birchcrest Blvd | 12,560 cfs |
| Cross Section 1900 | Approximately 900 feet downstream of Ganley Rd | 12,378 cfs |
| Cross Section 1400 | Approximately 300 feet upstream of Lake Canyon Road | 12,291 cfs |
| Cross Section 1000 | Approximately 800 feet upstream of Mast Blvd | 12,073 cfs |
| Cross Section 800 | Just upstream of Mast Blvd | 12,060 cfs |
| Cross Section 500 | Approximately 1000 feet upstream of Carlton Oaks Drive | 12,023 cfs |
| Cross Section 300 | Just upstream of Carlton Oaks Drive | 11,966 cfs |
| Cross Section 100 | San Diego River | 12,461 cfs |

As shown above, the discharge from a lake loss dissipates as it travels through Sycamore Creek. The HEC-1 results listed in Table 3 above can be found in Appendix B.

**Scenario 2 – Lake Water Loss with No Storm Event**

This scenario was analyzed to determine the impacts of a loss of structural integrity of the spillway area of the lake when there is no storm event. The same flow parameters are used as in Scenario 1 with the exception of the water surface elevation at the time of the loss of structural integrity at the spillway area. The lake is allowed to breach at elevation 492', the permanent pool elevation, rather than elevation 497'. Table 4 below displays the results for this scenario.

**Table 4: Hydrologic Results for Scenario 2 – Lake Water Loss with No Storm Event**

| Location | Description | Peak Discharge (Q) |
|---|---|---|
| | Directly Downstream of Lake | 3,411 cfs |
| Cross Section 3300 | Confluence of Lake and Sycamore Creek | 3,357 cfs |
| Cross Section 2900 | Approximately 1200 feet downstream of the proposed lake | 2,363 cfs |
| Cross Section 2500 | Approximately 1100 feet upstream of Birchcrest Blvd | 1,622 cfs |
| Cross Section 2200 | Approximately 500 feet downstream of Birchcrest Blvd | 1,435 cfs |
| Cross Section 1900 | Approximately 900 feet downstream of Ganley Rd | 1,201 cfs |
| Cross Section 1400 | Approximately 300 feet upstream of Lake Canyon Road | 870 cfs |
| Cross Section 1000 | Approximately 800 feet upstream of Mast Blvd | 729 cfs |
| Cross Section 800 | Just upstream of Mast Blvd | 720 cfs |
| Cross Section 500 | Approximately 1000 feet upstream of Carlton Oaks Drive | 670 cfs |
| Cross Section 300 | Just upstream of Carlton Oaks Drive | 627 cfs |
| Cross Section 100 | San Diego River | 625 cfs |

As shown above, the discharge from a lake loss dissipates as it travels through Sycamore Creek. The results listed in Table 4 above can be found in Appendix B.

## HYDRAULIC ANALYSIS

### Hydraulic Methodology

The USACE Hydrologic Engineering Center - River Analysis System (HEC-RAS) was used to determine the hydraulic impacts to Sycamore Creek under the scenarios previously mentioned. The HEC-RAS program has the capability to calculate water surface profiles based on the energy equation and the momentum equation. Geometric information, Manning's roughness, and discharge as well as any known boundary conditions are required to complete the hydraulic model.

The Sycamore Creek HEC-RAS model was analyzed under a subcritical flow regime. In order for the program to operate, a downstream boundary condition must be specified. Sycamore Creek confluences with the San Diego River at the downstream end of the analysis. Therefore, the 100- water surface elevation within the San Diego River at this confluence point (elevation 318') was obtained from the FEMA Flood Insurance Rate Map Panel 0673C1634 F dated, June 19, 1997 and used for the 100-Year Storm Event and Scenario 1. However, for Scenario 2 critical depth was assumed due to the non-occurrence of a storm event.

Sycamore Creek stretches 3.5 miles flowing from north to south. Within this stretch there are two bridges that span Sycamore Creek. The two bridges are located at Mast Blvd. and Carlton Oaks Blvd. Both bridges were modeled based on As-Built information obtained from the City of Santee. The channel roughness that is used for this analysis was obtained during a recent site visit. The channel roughness was compared to values within the County of San Diego Drainage Design Manual, dated May 2005. The following section displays the hydraulic results for the scenarios.

## Hydraulic Results

### 100-Year Storm Event

The 100-year hydraulic analysis for Sycamore Creek was created. The discharge that is used to model this scenario was obtained from the HEC-1 analysis for the 100-Year storm event located in Appendix A. As previously mentioned, the starting water surface elevation that is used for this analysis is elevation 318'. This information was obtained from the effective FEMA Flood Insurance Rate Map. Sycamore Creek flows adjacent to Padre Dam Waste Treatment Plant, Santee Recreational Lakes, and residential homes. During the 100-year storm event, Sycamore Creek does not have capacity to contain the 100-year storm within the channel banks. Therefore, flows inundate portions of the surrounding properties. Please refer to Map Pocket 1 for the 100-year floodplain for Sycamore Creek. Table 5 displays the hydraulic results for the 100-Year Analysis.

### Scenario 1 – Lake Water Loss Coincident with 100-Year Storm Event

The hydraulic analysis for this scenario analyzes Sycamore Creek during a 100-year storm event with a loss of structural integrity of the spillway area of the lake. The flood wave peak discharge from the HEC-1 for Scenario 1 dissipates as it travels the length of the creek. This is due to the channel storage routing that is used within the HEC-1. Therefore, the discharge that is used to model this scenario was obtained from the HEC-1 analysis for the 100-Year Event and Scenario 1 located in Appendix A and B, respectively. At cross-section 1800 this scenario coincides with the 100-year peak flow in Sycamore Creek. Therefore, the 100-year flow rate was used from the downstream boundary of the analysis to cross section 1800. Upstream of cross-section 1800 the flow rate information was obtained for the HEC-1 analysis.

As previously mentioned, the starting water surface elevation that is used for this scenario is elevation 318'. The same information was used as in the 100-Year Scenario, with the exception of the flow rate as mentioned above. Please refer to Map Pocket 1 for the 100-year floodplain for Sycamore Creek with a loss of lake water. Table 5 displays the hydraulic results for Scenario 1.

**Scenario 2 – Lake Water Loss with No Storm Event**

The analysis that was performed for this scenario included a HEC-RAS model that analyzed Sycamore Creek during a loss of structural integrity of the spillway area of the lake with a non-occurrence of a storm. Since this scenario models the lake ponded at an elevation of 492' (the permanent pool elevation) the volume of water within the lake is less than that of Scenario 1. Also, the 100-year Sycamore Creek discharge at the confluence point for the lake and Sycamore Creek is higher than that of the outfall from the hydrologic results determined from Scenario 2. Therefore, the floodplain for this scenario does not extend as wide as the two other scenarios. Please refer to the workmap in Map Pocket 1 for the limits of inundation for Scenario 2. Table 5 displays the hydraulic results for Scenario 2.

## Table 5: Hydraulic Results for Sycamore Creek

| Location | | Description | 100-Year Scenario | | Scenario 1 | | Scenario 2 | |
|---|---|---|---|---|---|---|---|---|
| | | | Discharge (Q) | WSEL (ft) | Discharge (Q) | WSEL (ft) | Discharge (Q) | WSEL (ft) |
| ↓ Direction of Flow ↓ | Cross Section 3600 | Upstream end of Analysis | 6,759 cfs | 492.4 ft | 6,759 cfs | 492.4 ft | -- | -- |
| | Cross Section 3300 | Confluence of Lake and Sycamore Creek | 6,759 cfs | 475.2 ft | 10,104 cfs | 476.6 ft | 3,357 cfs | 472.7 ft |
| | Cross Section 2900 | Approximately 1200 feet downstream of the proposed lake | 6,759 cfs | 454.5 ft | 9,881 cfs | 455.8 ft | 2,363 cfs | 450.1 ft |
| | Cross Section 2500 | Approximately 1100 feet upstream of Birchcrest Blvd | 12,089 cfs | 426.0 ft | 8,933 cfs | 426.0 ft | 1,622 cfs | 418.7 ft |
| | Cross Section 2200 | Approximately 500 feet downstream of Birchcrest Blvd | 12,089 cfs | 408.4 ft | 12,560 cfs | 410.1 ft | 1,435 cfs | 402.3 ft |
| | Cross Section 1900 | Approximately 900 feet downstream of Ganley Rd | 12,357 cfs | 391.5 ft | 12,378 cfs | 393.6 ft | 1,201 cfs | 386.2 ft |
| | Cross Section 1400 | Approximately 300 feet upstream of Lake Canyon Road | 12357 cfs | 363.7 ft | 12,291 cfs | 363.7 ft | 870 cfs | 358.1 ft |
| | Cross Section 1000 | Approximately 800 feet upstream of Mast Blvd | 13,407 cfs | 342.4 ft | 12,073 cfs | 342.4 ft | 729 cfs | 339.0 ft |
| | Cross Section 800 | Just upstream of Mast Blvd | 13,407 cfs | 335.1 ft | 12,060 cfs | 335.1 ft | 720 cfs | 329.7 ft |
| | Cross Section 500 | Approximately 1000 feet upstream of Carlton Oaks Drive | 13,407 cfs | 326.1 ft | 12,023 cfs | 326.1 ft | 670 cfs | 321.2 ft |
| | Cross Section 300 | Just upstream of Carlton Oaks Drive | 13,407 cfs | 325.1 ft | 11,966 cfs | 325.1 ft | 627 cfs | 315.9 ft |
| | Cross Section 100 | San Diego River | 13,407 cfs | 318.0 ft | 12,461 cfs | 318.0 ft | 625 cfs | 308.9 ft |

Note: cfs = cubic-feet-per-second; ft = feet, WSEL = water surface elevation

## CONCLUSION

Hydrologic and hydraulic analyses have been performed for two scenarios to determine the potential effects the proposed lake will have on Sycamore Creek. A model of the Sycamore Creek watershed during a 100-year storm event with the proposed Fanita development was created. This analysis generated a baseline model that was used to compare the results of potential lake water loss scenarios. The first scenario models a loss of structural integrity of the spillway area of the lake during the 100-year storm event, where the lake ponds to the 100-year detained water surface elevation (elev. 497') before the spillway area looses structural integrity. It also assumes that the Sycamore Creek watershed peak occurs coincident with the loss of structural integrity. The second scenario analyzes a loss of structural integrity of the spillway area of the lake under no storm event, where the lake breaches at the maintained permanent water surface elevation (elev. 492'). The hydrologic results show that the discharge from the lake water loss in both scenarios dissipates as the flow travels down Sycamore Creek. These flow rates produced from the hydrologic analyses are then modeled in the hydraulic analyses and the water surface elevations are compared to the 100-Year floodplain. Due to the dissipation of the lake water loss flow rates the water surface elevations for both lake water loss scenarios are less than or equal to the 100-year floodplain at the downstream end (San Diego River). In addition, the more extreme scenario, Scenario 1, coincides (ties in) with the 100-year floodplain approximately 8,300 feet upstream of the San Diego River/Sycamore Creek confluence. The floodplains for the 100-year analysis and the two scenarios are shown on the exhibits located in Map Pocket 1.

Appendices to this report are available at the Santee Department of Development Services. To ensure availability or to make an appointment, please call:

Kevin Mallory, Principal Planner,
619-258-4100, extension 167.

## Exhibit K

Site Plan and off-Site Improvements Exhibit

HUNSAKER & ASSOCIATES
SAN DIEGO, INC

PLANNING 9707 Waples Street
ENGINEERING San Diego, Ca 92121
SURVEYING PH(858)558-4500 · FX(858)558-1414

- Project Site
- Off-Site Improvements
- CEQA Study Area
- City of Santee/San Diego Municipal Boundary
- Residential North
- Residential West
- Golf Course Redesign
- Hotel and Clubhouse
- Emergency Vehicle Access Only
- Private Utility Maintenance Road
- Residential / Resort Circulation Roadway

# EXHIBIT- K

## SITE PLAN AND OFFSITE IMPROVEMNETS

## CARLTON OAKS COUNTRY CLUB AND RESORT

Source: Site Plan-Hunsaker & Associates (2024) & Graphic-ICF (2024)

N

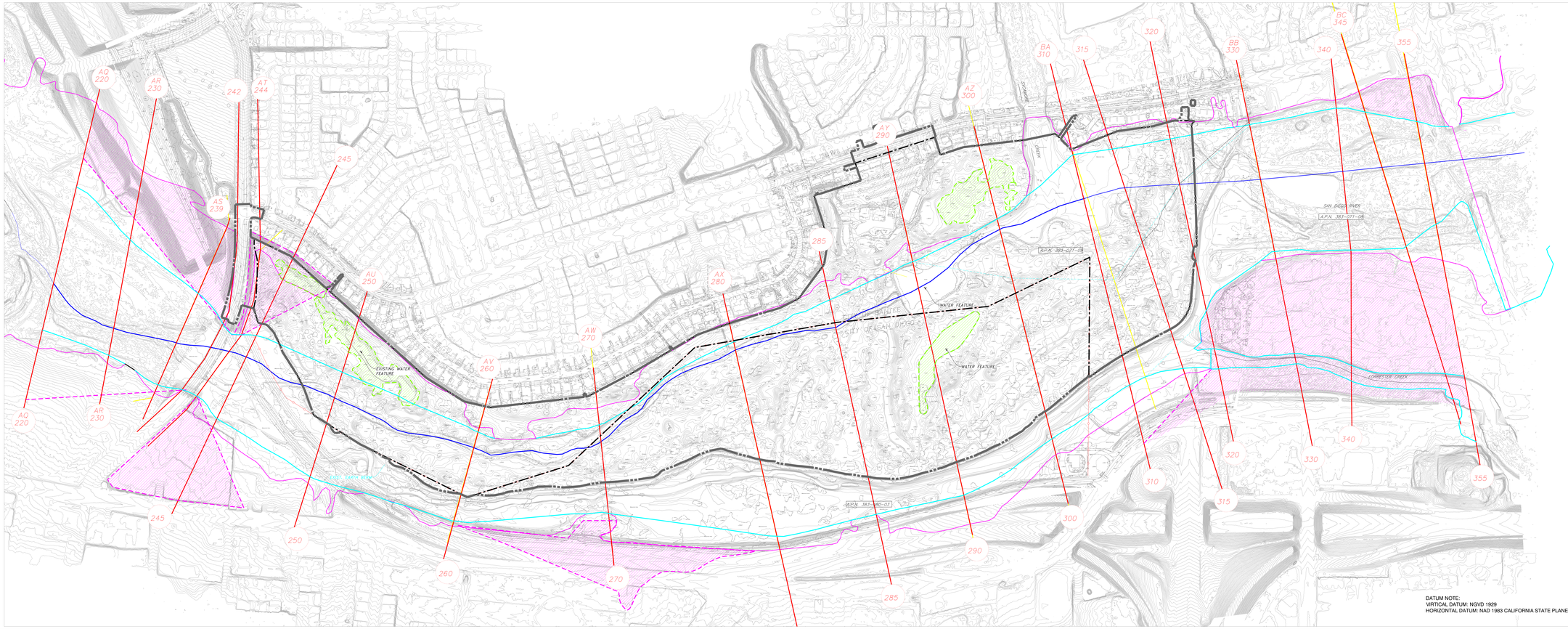
0 225 450 Feet

1:5,400

# WORKMAPS

# Map Pocket #1

# EXISTING CONDITIONS WORKMAP




## LEGEND

- 100-YEAR FLOOD PLAIN PER FEMA FIRM
- 100-YEAR FLOODWAY PER FEMA FIRM
- FEMA FIRM CROSS SECTION LOCATION
- HEC-RAS CROSS SECTION LOCATION
- INEFFECTIVE AREA (HORIZONTAL)
- INEFFECTIVE AREA (VERTICAL)
- RIVER CENTER LINE
- CITY BOUNDARY
- SUBDIVISION BOUNDARY
- CEQA STUDY BOUNDARY

DATUM NOTE:
VERTICAL DATUM: NGVD 1929
HORIZONTAL DATUM: NAD 1983 CALIFORNIA STATE PLANE ZONE VI

PREPARED BY:
HUNSAKER & ASSOCIATES
IRVINE, CA
SAN DIEGO, CA
RIVERSIDE, CA
619.235.6471
949.583.1010
760.294.9271
www.hunsaker.com

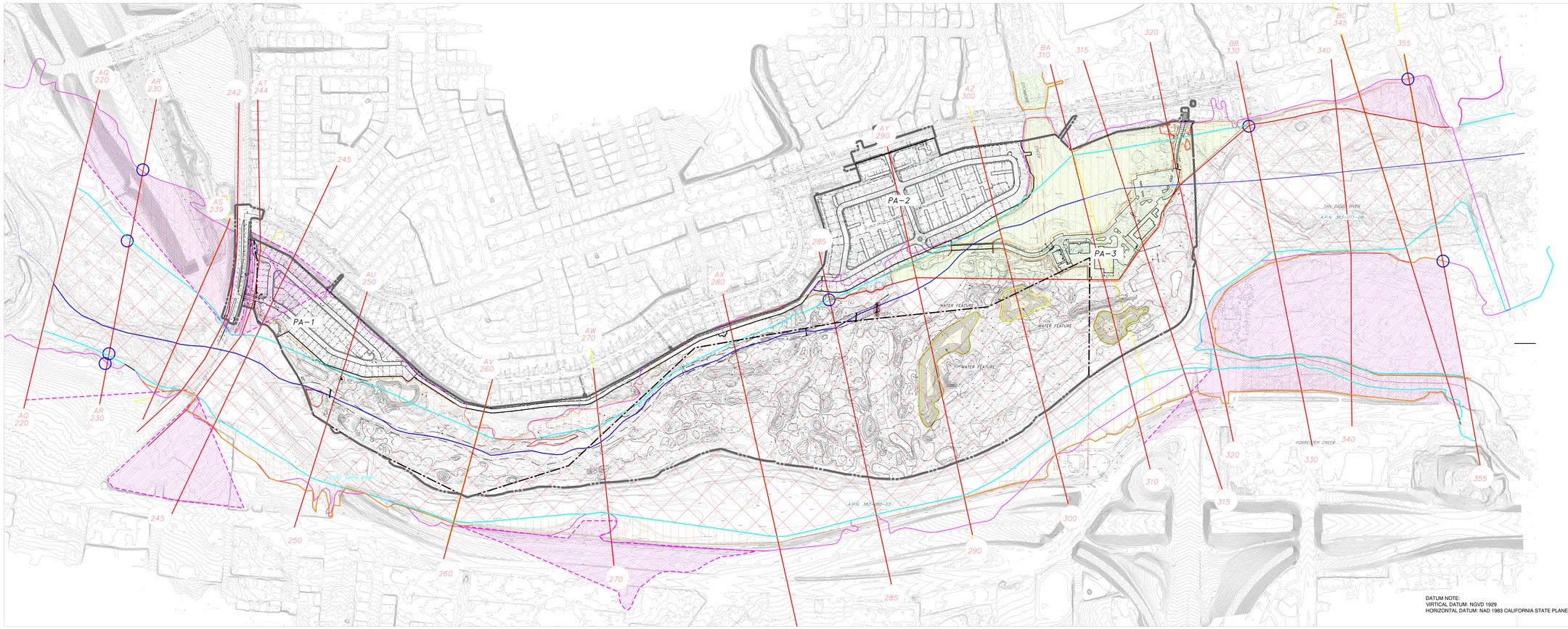
WORKMAP
EXISTING CONDITIONS
# CARLTON OAKS GOLF COURSE
CITY OF SANTEE, CALIFORNIA

SHEET 1 OF 2

C:\1738\Civil\Exhibits\1738 EX01.dwg, 10/5/2017 8:24:44 AM, Morgan, Brian, Brian Morgan

# Map Pocket #2

# PROPOSED CONDITIONS WORKMAP




## LEGEND

- 100-YEAR FLOOD PLAIN PER REVISED STUDY
- 100-YEAR FLOODWAY PER REVISED STUDY
- 100-YEAR FLOOD PLAIN PER FEMA FIRM
- 100-YEAR FLOODWAY PER FEMA FIRM
- HEC-RAS CROSS SECTION LOCATION
- FEMA FIRM CROSS SECTION LOCATION
- TIE IN LOCATIONS
- INEFFECTIVE AREA(HORIZONTAL)
- INEFFECTIVE AREA (PER PROPOSED PROJECT) (HORIZONTAL)
- PROPOSED INEFFECTIVE AREA (VERTICAL)
- RIVER CENTER LINE
- CITY BOUNDARY
- SUBDIVISION BOUNDARY
- CEQA STUDY BOUNDARY

SCALE 1"=100'

DATUM NOTE:
VERTICAL DATUM: NGVD 1929
HORIZONTAL DATUM: NAD 1983 CALIFORNIA STATE PLANE ZONE VI

PREPARED BY:
HUNSAKER & ASSOCIATES
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9707 Waples Street
San Diego, CA 92121
(858) 558-4500
www.hunsaker.com

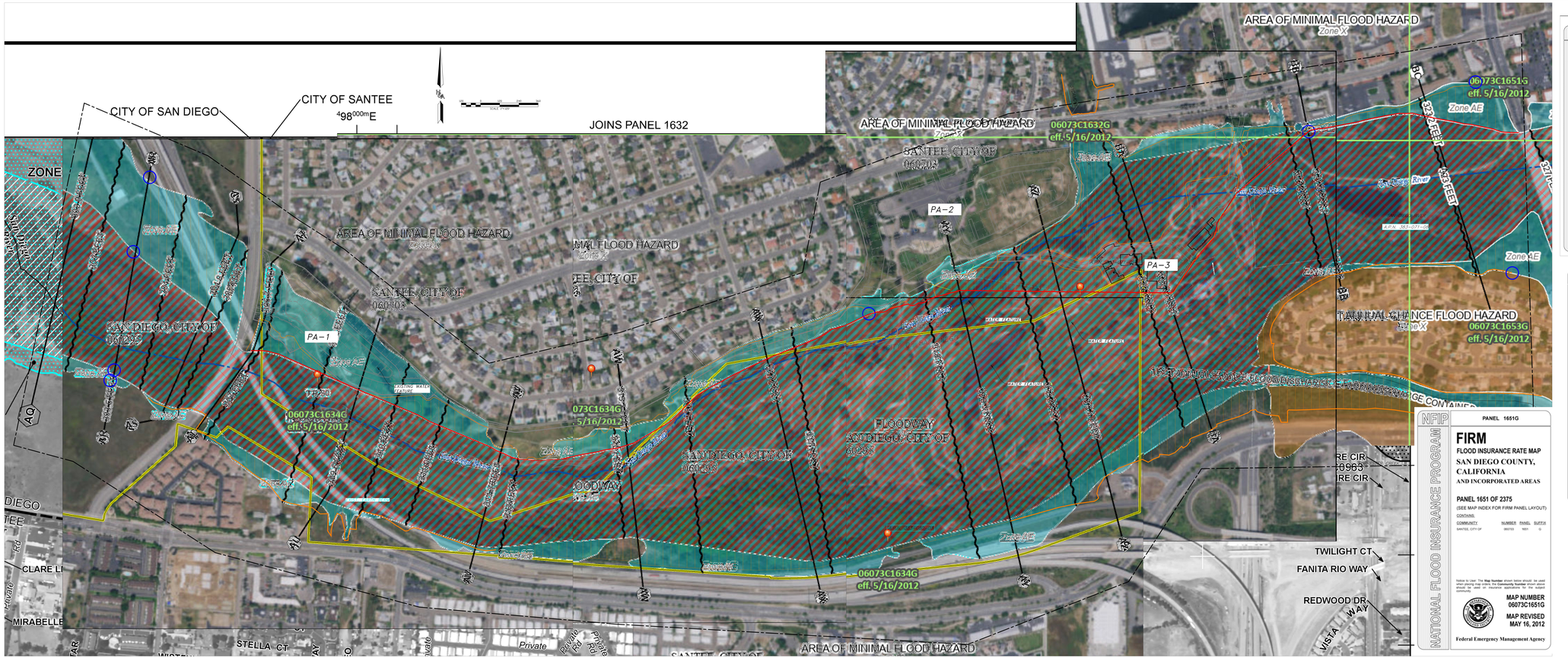
WORKMAP
PROPOSED CONDITIONS
# CARLTON OAKS GOLF COURSE
CITY OF SANTEE, CALIFORNIA

SHEET 1 OF 1 SHEETS

C:\CDS\Local\ACAD\{3AB1C6D5-3D1E-4D43-Sdm Design.ctb Date: Design, Brian Mag/Layout

# Map Pocket #3

# ANNOTATED FIRM




NFIP NATIONAL FLOOD INSURANCE PROGRAM

PANEL 1634G

# FIRM

FLOOD INSURANCE RATE MAP

SAN DIEGO COUNTY, CALIFORNIA AND INCORPORATED AREAS

PANEL 1634 OF 2375

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

| COMMUNITY | NUMBER | PANEL | SUFFIX |
|---|---|---|---|
| EL CAJON, CITY OF | 060298 | 1634 | G |
| SAN DIEGO, CITY OF | 060295 | 1634 | G |
| SANTEE, CITY OF | 060703 | 1634 | G |

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

MAP NUMBER
06073C1634G
MAP REVISED
MAY 16, 2012

Federal Emergency Management Agency

NFIP NATIONAL FLOOD INSURANCE PROGRAM

PANEL 1653G

# FIRM

FLOOD INSURANCE RATE MAP

SAN DIEGO COUNTY, CALIFORNIA AND INCORPORATED AREAS

PANEL 1653 OF 2375

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

| COMMUNITY | NUMBER | PANEL | SUFFIX |
|---|---|---|---|
| EL CAJON, CITY OF | 060298 | 1653 | G |
| SANTEE, CITY OF | 060703 | 1653 | G |

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

MAP NUMBER
06073C1653G
MAP REVISED
MAY 16, 2012

Federal Emergency Management Agency

NFIP NATIONAL FLOOD INSURANCE PROGRAM

PANEL 1651G

# FIRM

FLOOD INSURANCE RATE MAP

SAN DIEGO COUNTY, CALIFORNIA AND INCORPORATED AREAS

PANEL 1651 OF 2375

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

| COMMUNITY | NUMBER | PANEL | SUFFIX |
|---|---|---|---|
| SANTEE, CITY OF | 060703 | 1651 | G |

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

MAP NUMBER
06073C1651G
MAP REVISED
MAY 16, 2012

Federal Emergency Management Agency

## Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) Zone A, V, A99
- With BFE or Depth Zone AE, AO, AH, VE, AR
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X
- Future Conditions 1% Annual Chance Flood Hazard Zone X
- Area with Reduced Flood Risk due to Levee. See Notes. Zone X
- Area with Flood Risk due to Levee Zone D

OTHER AREAS
- NO SCREEN Area of Minimal Flood Hazard Zone X
- Effective LOMRs
- Area of Undetermined Flood Hazard Zone D

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 Cross Sections with 1% Annual Chance
- 17.5 Water Surface Elevation
- Coastal Transect
- Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 2/8/2024 at 4:55 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

## ANNOTATION LEGEND

100-YEAR FLOOD PLAIN PER REVISED STUDY

100-YEAR FLOODWAY PER REVISED STUDY

TIE IN LOCATIONS

STUDY AREA

PREPARED BY:

HUNSAKER & ASSOCIATES

ANNOTATED FIRM EXHIBIT

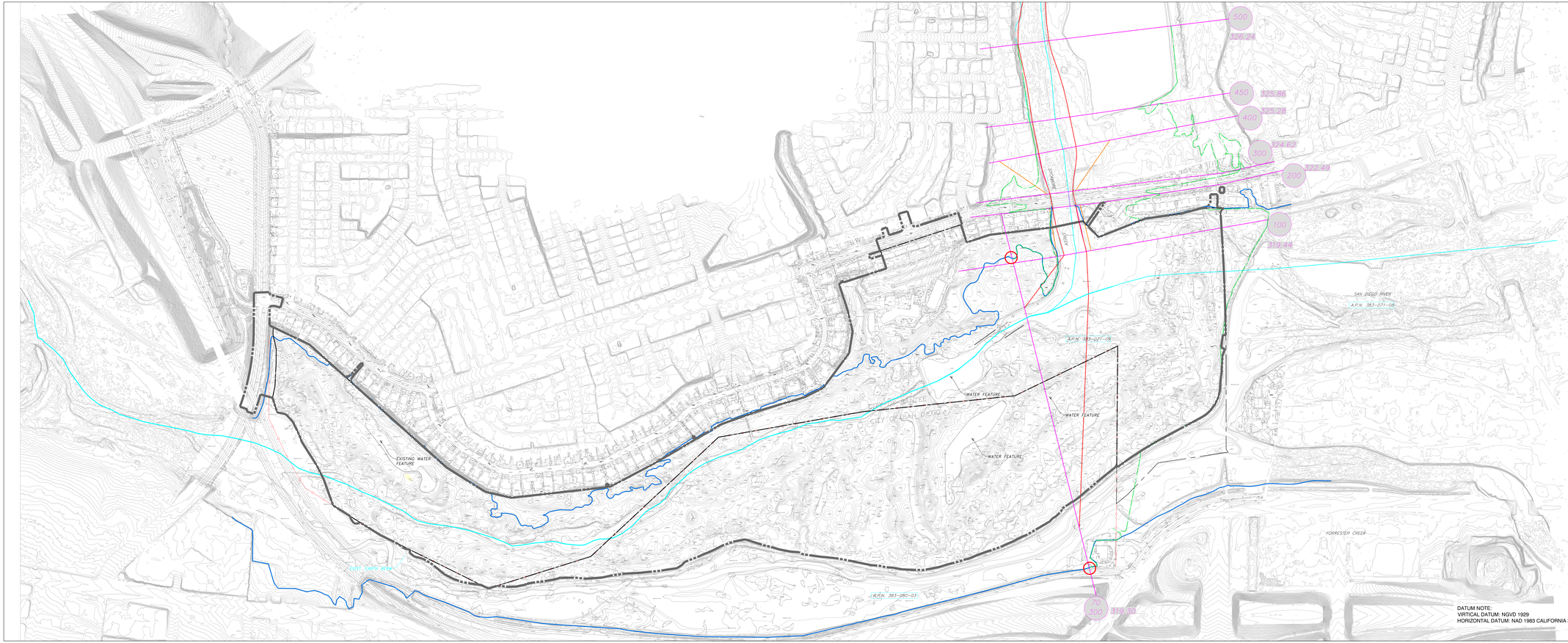
# CARLTON OAKS GOLF COURSE

CITY OF SANTEE, CALIFORNIA

SHEET 1 OF 1

# Map Pocket #4

# SYCAMORE CREEK




## LEGEND

- 100-YEAR FLOOD PLAIN FOR SAN DIEGO RIVER - EXISTING CONDITIONS WITH BSI FLOW RATES
- 100-YEAR SYCAMORE CREEK FLOOD PLAIN - EXISTING CONDITIONS
- TIE IN LOCATIONS
- RIVER CENTER LINE
- INEFFECTIVE AREA (PER EXISTING CONDITIONS) (HORIZONTAL)
- HEC-RAS CROSS SECTION LOCATION
- CITY BOUNDARY
- OVER BANK LINE
- SUBDIVISION BOUNDARY
- 100 YEAR WATER SURFACE ELEVATION PER SYCAMORE MODEL (XXX.XX)
- CEQA STUDY BOUNDARY

DATUM NOTE:
VRTICAL DATUM: NGVD 1929
HORIZONTAL DATUM: NAD 1983 CALIFORNIA STATE PLANE ZONE VI

PREPARED BY:
HUNSAKER & ASSOCIATES
SAN DIEGO, IRVINE, RIVERSIDE
619.814.4900 · www.hunsaker.com

WORKMAP
SYCAMORE CREEK
# CARLTON OAKS GOLF COURSE
EXISTING CONDITIONS
CITY OF SANTEE, CALIFORNIA

SHEET 1 OF 1

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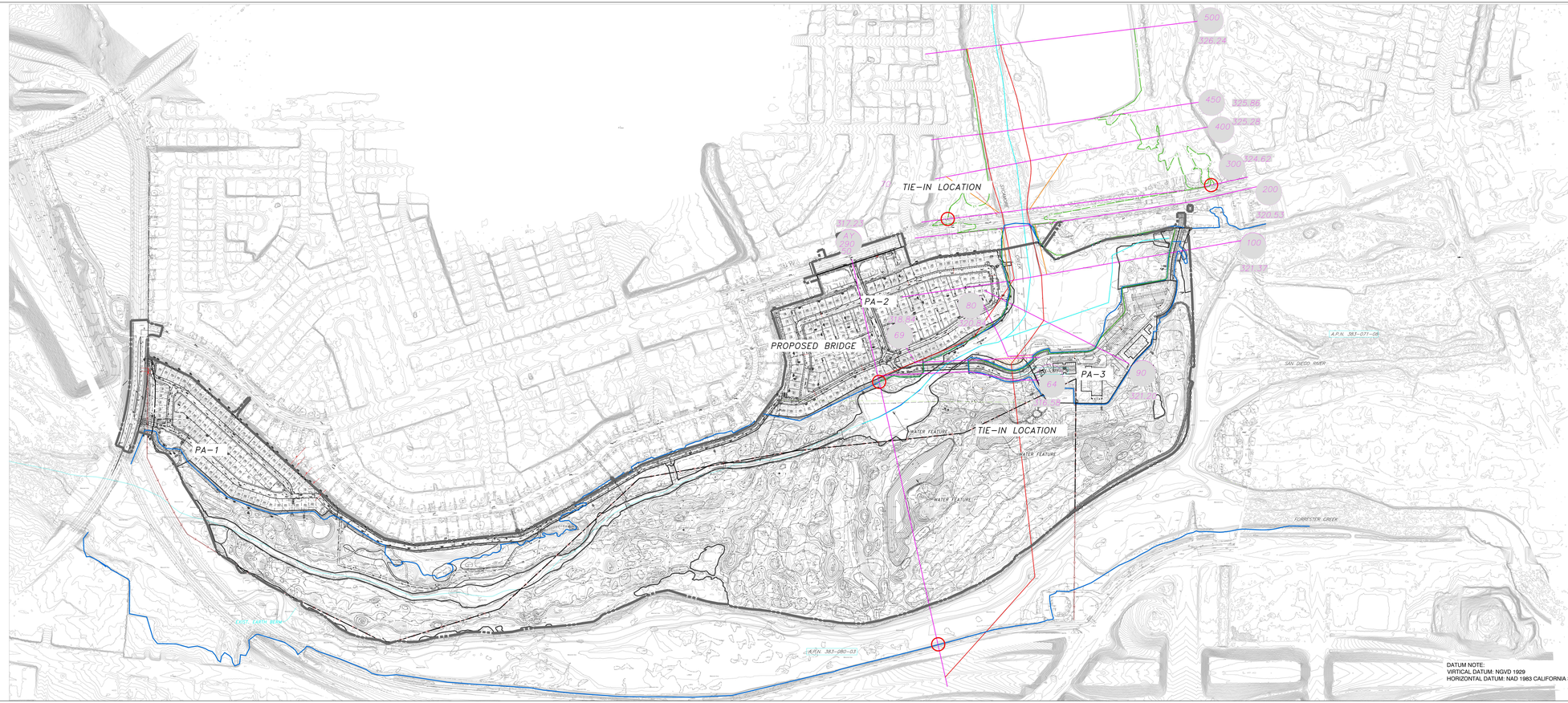


## LEGEND

- 100-YEAR FLOOD PLAIN FOR SAN DIEGO RIVER - PROPOSED CONDITIONS WITH BSI FLOW RATES
- 100-YEAR SYCAMORE CREEK FLOOD PLAIN - PROPOSED CONDITIONS
- TIE IN LOCATIONS
- RIVER CENTER LINE
- INEFFECTIVE AREA (PER PROPOPSED CONDITIONS) (HORIZONTAL)
- HEC-RAS CROSS SECTION LOCATION
- CITY BOUNDARY
- OVER BANK LINE
- SUBDIVISION BOUNDARY
- 100 YEAR WATER SURFACE ELEVATION PER SYCAMORE MODEL (XXX.XX)
- CEQA STUDY BOUNDARY

0 125 250 500 1000
SCALE: 1"=250'

DATUM NOTE:
VIRTICAL DATUM: NGVD 1929
HORIZONTAL DATUM: NAD 1983 CALIFORNIA STATE PLANE ZONE VI

PREPARED BY:
HUNSAKER & ASSOCIATES
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9707 Waples Street, San Diego, CA 92121
T (858) 558-4500 F (858) 291-7076 www.hunsaker.com

WORKMAP
SYCAMORE CREEK
# CARLTON OAKS GOLF COURSE
CITY OF SANTEE, CALIFORNIA

SHEET 1 OF 1

J:\7200\dwg\Exhibits\Workmap\7200 Workmap Sycamore.dwg, Sycamore, 8/14/2015 2:49:37 PM, Bridge

Map Pocket #4

BSI REPORT
FLOOD MAPS

112 206

Photogrammetry · Computer Graphics
AIRBORNE SYSTEMS, INC.

MAP COMPLETED JULY 8, 1992 BY BSI CONSULTANTS INC. W.O. No. S 92-01

| CONSTRUCTION RECORD | REFERENCES | Date | By | REVISIONS | Appd | BENCH MARK | SCALE | Office | Designed By | Drawn By | Checked By | Submitted 8-7-92 | Approved 8-12-92 | CITY OF SANTEE ENGINEERING DEPARTMENT | Drawing No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Contractor | | | | | | COMPILED BY PHOTOGRAMMETRIC METHODS FROM PHOTOGRAPHY DATED APRIL 22, 1989. | Horizontal 1"=200' | Field | N.B. | J.D. | R.C.S. | By Craig M. Steinmetz SENIOR CIVIL ENGINEER | By James A. Williamson III ASST. DIRECTOR OF PUBLIC WORKS | SAN DIEGO RIVER FLOOD STUDY SANTEE DISCHARGE RATES | 92-165 |
| Inspector | | | | | | HORIZONTAL & VERTICAL CONTROL IS BASED ON R.O.S. 11252 | Vertical | Traffic | Plans Prepared Under Supervision Of Date 8-4-92 | | | | | | Sheet 2 of 9 |
| Date Completed | | | | | | | | | R.C.E. No. 43212 Expires 3-31-96 | | | | R.C.E. No. 12725 Expires 3-31-93 | | |

117206

SYCAMORE CREEK
CARLTON OAKS DR.
CARLTON HILLS BLVD.
SEE SHEET 2
MATCHLINE
SEE SHEET 4
SEE SHEET 5
SEE SHEET 6
MATCHLINE
100 YR
50 YR
10 YR
5 YR
2 YR
A1
A2
A3
A4
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A39
A40

SEE SHEET 3

MAP COMPLETED JULY 8, 1992 BY BSI CONSULTANTS INC. W.O. No. S92-01

| CONSTRUCTION RECORD | REFERENCES | Date | By | REVISIONS | Appd | BENCH MARK |
|---|---|---|---|---|---|---|
| Contractor | | | | | | COMPILED BY PHOTOGRAMMETRIC METHODS FROM PHOTOGRAPHY DATED APRIL 22, 1989. |
| Inspector | | | | | | HORIZONTAL & VERTICAL CONTROL IS BASED ON R.O.S. 11252 |
| Date Completed | | | | | | |

| SCALE | |
|---|---|
| Horizontal | 1"=200' |
| Vertical | |

Office ____ Field ____ Traffic ____

| Designed By | Drawn By | Checked By |
|---|---|---|
| N.B. | J.D. | R.C.S. |

Plans Prepared Under Supervision Of
R.C.E. No. 43212 Date 8-4-92 Expires 3-31-96

Submitted 8-7-92
By _____ SENIOR CIVIL ENGINEER

Approved 8-10-92
By _____ ASST. DIRECTOR OF PUBLIC WORKS
R.C.E. No. 12725 Expires 3-31-93

CITY OF SANTEE ENGINEERING DEPARTMENT

SAN DIEGO RIVER FLOOD STUDY
SANTEE DISCHARGE RATES

Drawing No. 92-167
Sheet 4 of 9

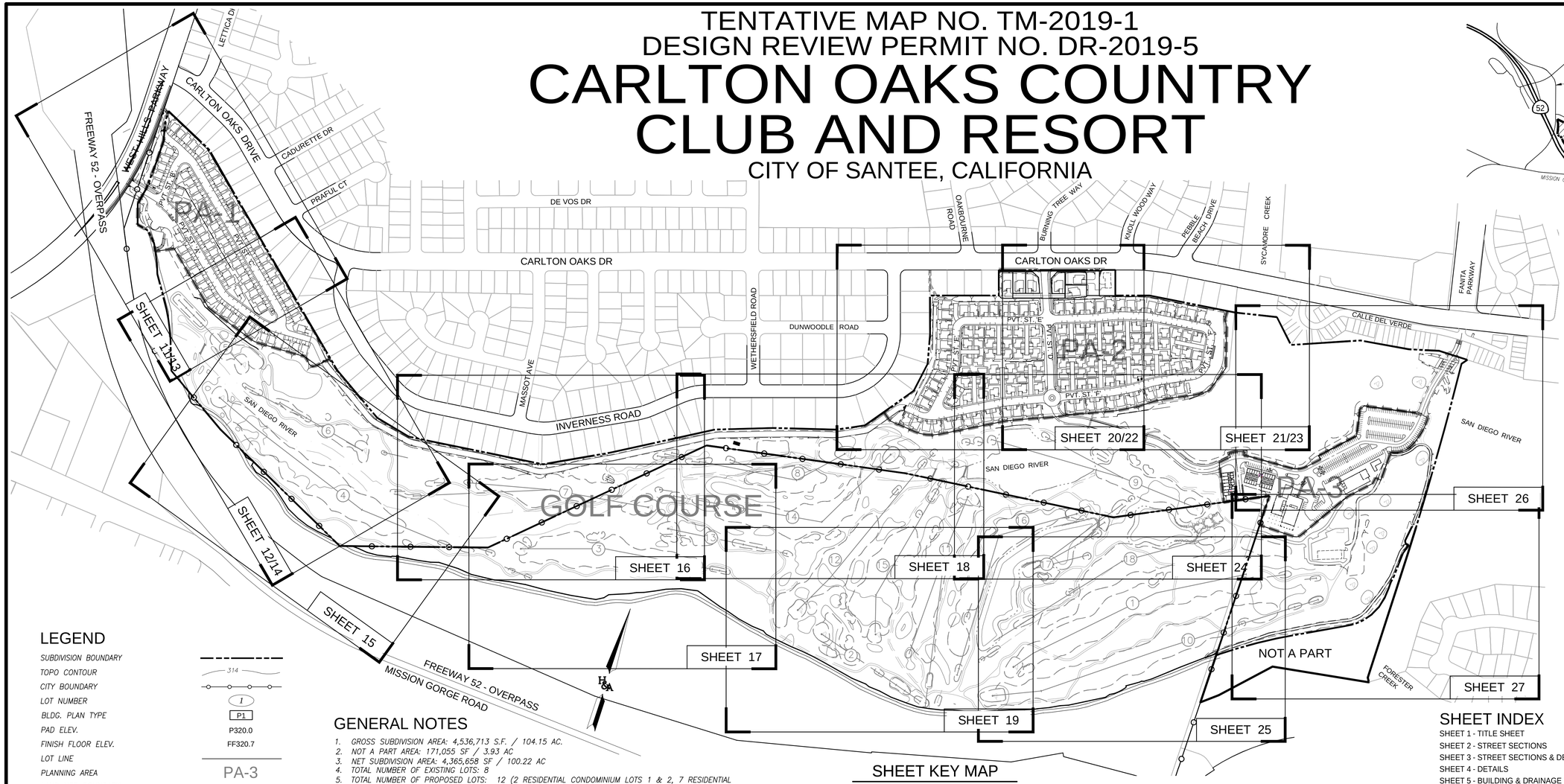
Map Pocket #5

Site Plan and
Preliminary
Grading Plan

TENTATIVE MAP NO. TM-2019-1
DESIGN REVIEW PERMIT NO. DR-2019-5

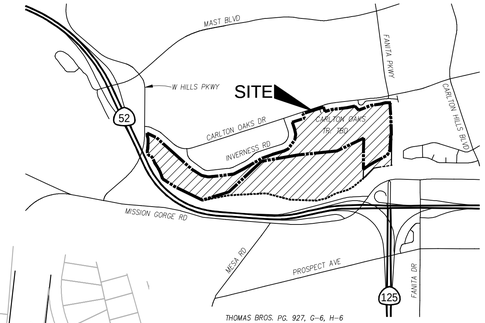
# CARLTON OAKS COUNTRY CLUB AND RESORT

CITY OF SANTEE, CALIFORNIA




SHEET KEY MAP

*NOT TO SCALE*




THOMAS BROS. PG. 927, G-6, H-6

VICINITY MAP

*NOT TO SCALE*

## LEGEND

- SUBDIVISION BOUNDARY
- TOPO CONTOUR — 314
- CITY BOUNDARY
- LOT NUMBER — 1
- BLDG. PLAN TYPE — P1
- PAD ELEV. — P320.0
- FINISH FLOOR ELEV. — FF320.7
- LOT LINE
- PLANNING AREA — PA-3
- LAND USE BOUNDARY
- PLANNING AREA BOUNDARY
- SLOPE (2:1)
- DAYLIGHT LINE
- CUT/FILL LINE — C / F
- BROW DITCH
- STREET ELEVATION — 314.6
- PERCENT OF GRADE — 2%
- SEWER MAIN
- SEWER FORCE MAIN — FM
- WATER MAIN — W
- FIRE WATER MAIN — FW
- RECLAIMED WATER MAIN — RW
- FIRE HYDRANT
- STORM DRAIN
- EASEMENT CALLOUT EXISTING — 1
- EASEMENT CALLOUT PROPOSED — 1
- EASEMENT LINE
- DESIGN NOTE CALLOUT — 1
- RETAINING WALL
- FUEL MODIFICATION ZONE
- FEMA BASE FLOOD ELEVATION — 314.2
- FEMA FLOOD PLAIN 100 YR.
- FEMA FLOOD PLAIN 100 YR. PROP.
- FENCE *
- WALL *
- CULTURAL AREA

* SEE LANDSCAPE PLAN FOR DETAILS

## GENERAL NOTES

1. GROSS SUBDIVISION AREA: 4,536,713 S.F. / 104.15 AC.
2. NOT A PART AREA: 171,055 SF / 3.93 AC
3. NET SUBDIVISION AREA: 4,365,658 SF / 100.22 AC
4. TOTAL NUMBER OF EXISTING LOTS: 8
5. TOTAL NUMBER OF PROPOSED LOTS: 12 (2 RESIDENTIAL CONDOMINIUM LOTS 1 & 2, 7 RESIDENTIAL SINGLE FAMILY LOTS 3–9, 1 PRIVATE DRIVE LOT 10, 1 GOLF COURSE LOTS 11, 1 HOTEL/RESORT LOT 12)
6. TOTAL NUMBER OF DWELLING UNITS: 243
7. MINIMUM LOT SIZE: 6,000 SF
8. ASSESSOR PARCEL NUMBER: 383–071–06, 383–071–09, 383–221–01, 383–221–02, 383–221–03, 383–221–04, 383–241–08 & 383–242–01
9. EXISTING/PROPSED GENERAL PLAN LAND USE: PD, P/OS, R2
10. EXISTING/PROPOSED ZONING: PD, P/OS, R2
11. FEMA PANEL 06073C1634G, ZONE AE
12. THOMAS BROTHERS COORDINATES: PAGE 927 G–6 & H–6
13. SOILS REPORT: GEOCON, INC. DATED FEBRUARY 4, 2022
14. ALL CUT AND FILL SLOPES SHALL BE CONSTRUCTED AT A RATIO OF 2:1 MAX.
15. FINISHED GRADES ARE APPROXIMATE AND SUBJECT TO CHANGE IN FINAL DESIGN CONSISTENT WITH THE CITY OF SANTEE SUBSTANTIAL CONFORMANCE GUIDELINES.
16. EVIDENCE SHALL BE PROVIDED OF HAVING OBTAINED GRADING AND ACCESS RIGHTS UPON ADJACENT PROPERTY WHERE REQUIRED.
17. ALL PROPOSED UTILITIES SHALL BE UNDERGROUNDED AND EASEMENTS PROVIDED, REMOVED OR RELOCATED AS REQUIRED BY THE DIRECTOR OF DEVELOPMENT SERVICES, PUBLIC UTILITIES AND THEIR APPROPRIATE DISTRICTS.
18. PUBLIC WATER AND SEWER TO BE INSTALLED IN ACCORDANCE WITH THE STANDARDS OF PDMWD.
19. SEWER, WATER AND STORM DRAIN SHOWN IS PRELIMINARY AND SUBJECT TO MODIFICATION IN FINAL DESIGN.
20. TEMPORARY AND PERMANENT STRUCTURAL BEST MANAGEMENT PRACTICES WILL BE INCORPORATED IN THE DESIGN AND IMPLEMENTATION OF THE DEVELOPMENT TO THE MAXIMUM EXTENT POSSIBLE.
21. MULTIPLE FINAL MAPS MAY BE FILED IN ACCORDANCE WITH THE PROVISIONS OF ARTICLE 4 OF SECTION 66456.1 OF THE SUBDIVISION MAP ACT.
22. GRADING IN ADVANCE OF FINAL MAP RECORDATION IS REQUESTED HEREON.
23. MODEL UNITS MAY BE BUILT PRIOR TO FINAL MAP RECORDATION PER THE MAP ACT SECTION 66499.30(A)(3).
24. FUEL MODIFICATION ZONES SHOWN ON THIS MAP ARE PER THE CURRENT FIRE PROTECTION PLAN BY DUDEK & ASSOCIATES. PLEASE REFER TO THE FPP FOR DETAILS.
25. STREET LIGHT LOCATIONS SHOWN ON PLAN ARE CONCEPTUAL AND ARE SUBJECT TO CHANGE IN FINAL DESIGN AND SHALL CONFORM TO RSD E–01.
26. PROPOSED LOT AREAS ARE PRELIMINARY AND MAY VARY AS ALLOWED BY SUBSTANTIAL CONFORMANCE.
27. THIS TENTATIVE MAP DESIGN COMPLIES WITH THE CARLTON OAKS COUNTRY CLUB AND RESORT PLANNED DEVELOPMENT DISTRICT STANDARDS.

## CONDOMINIUM NOTE

THIS IS A MAP OF A CONDOMINIUM PROJECT AS DEFINED IN SECTION 4125 OF THE CIVIL CODE OF THE STATE OF CALIFORNIA AND IS FILED PURSUANT TO THE SUBDIVISION MAP ACT. THE TOTAL NUMBER OF RESIDENTIAL CONDOMINIUM DWELLING UNITS IS 236 (86 UNITS LOT 1, 150 UNITS LOT 2).

## TOPOGRAPHY SOURCE

TOPOGRAPHY USED FOR THIS TENTATIVE MAP WAS FLOWN ON 6/12/2014 INLAND AERIAL CONTROL PROVIDED BY SB&O.

## BENCHMARK

STATION 2012 PER R.O.S. NO. 11252 – A STANDARD STREET SURVEY MONUMENT STAMPED RCE 9954, NO CENTERPUNCH AT THE CL OF MASSOT AVE. 5' N'LY OF CL OF INVERNESS ROAD. ELEV. 320.0 (NGVD '29)

## APPLICANT

ALIKA, LLC
9200 INWOOD DR.
SANTEE, CA 92071
(949)929–9123

## OWNER

APN: 383–071–06, 383–071–09
383–242–01, 383–221–01
THROUGH 383–221–04
ALIKA, LLC
A CALIFORNIA LIMITED LIABILITY CO.
9200 INWOOD DR.
SANTEE, CA 92071
(949)929–9123

APN: 383–241–08
9225 INWOOD DR.
SANTEE, CA 92071
(949)929–9123

LINA (MAYLING) CHEN — Oct 27, 2022 — DATE

JOHN CHEN — Oct 27, 2022 — DATE

KEVIN SHIGEO FUKUYAMA — Oct 27, 2022 — DATE

## EARTHWORK QUANTITIES

RAW CUT: 258,244 C.Y., RAW FILL: 512,445 C.Y.
BULK: 0 CY, SHRINK: 72,579 C.Y.
CONSTRUCTION SPOILS: 47,760 C.Y.
IMPORT: 279,020 C.Y.

## DISTRICTS / UTILITIES

| | |
|---|---|
| WATER | PADRE DAM MUNICIPAL WATER DISTRICT |
| SEWER | PADRE DAM MUNICIPAL WATER DISTRICT |
| RECLAIMED WATER | PADRE DAM MUNICIPAL WATER DISTRICT |
| GAS | SAN DIEGO GAS & ELECTRIC |
| ELECTRIC | SAN DIEGO GAS & ELECTRIC |
| TELEPHONE | AT&T |
| CABLE | COX CABLE |

## LEGAL DESCRIPTION

SEE SHEET 6

## EASEMENTS

SEE SHEET 6 & 7

## CIVIL ENGINEER

HUNSAKER & ASSOCIATES, SAN DIEGO, INC
9707 WAPLES STREET
SAN DIEGO, CA 92121
(858) 558–4500

REGISTERED PROFESSIONAL ENGINEER — ALISA S. VIALPANDO — No. 47945 — CIVIL — STATE OF CALIFORNIA

ALISA S. VIALPANDO R.C.E. 47945 — 5/16/25 — DATE

## CONSULTANTS

**ARCHITECT RESIDENTIAL**
BASSENIAN LAGONI ARCHITECTS
2031 ORCHARD DRIVE
NEWPORT BEACH, CA 92660
(949) 553–9100

KTGY ARCHITECTURE+PLANNING
17911 VON KARMAN AVENUE
SUITE 200
IRVINE, CA 92614
(949) 851–2133

**ARCHITECT HOTEL**
ATELIER 5 DESIGN
2333 KAPPIOLANI BLVD., #1420
HONOLULU, HI 96826
(808) 800–0888

**GOLF COURSE**
CARY BICKLER, INC GOLF COURSE DESIGN
1220 ROSECRANS STREET, SUITE 314
SAN DIEGO, CA 92106
(619) 223–3240

**LANDSCAPE ARCHITECT RESIDENTIAL**
SCHMIDT DESIGN GROUP, INC.
1310 ROSECRANS STREET, SUITE G
SAN DIEGO, CA 92106
(619) 236–1462

**LANDSCAPE ARCHITECT HOTEL/GOLF COURSE**
PROJECT LINKS
43955 PORT MARIA ROAD
BERMUDA DUNES, CA 92203
(760) 275–8700

**ENVIRONMENTAL**
ICF
525 B STREET, SUITE 1700
SAN DIEGO, CA 92101
(858) 578–8964

**FIRE PROTECTION PLAN**
DUDEK AND ASSOCIATES
605 THIRD STREET
ENCINITAS, CA 92024
(760) 942–5147

## SHEET INDEX


| | |
|---|---|
| SHEET 1 - TITLE SHEET | SHEET 21 - TENTATIVE MAP |
| SHEET 2 - STREET SECTIONS | SHEET 22 - PRELIMINARY GRADING PLAN |
| SHEET 3 - STREET SECTIONS & DETAILS | SHEET 23 - PRELIMINARY GRADING PLAN |
| SHEET 4 - DETAILS | SHEET 24 - TENTATIVE MAP |
| SHEET 5 - BUILDING & DRAINAGE DETAILS | SHEET 25 - TENTATIVE MAP |
| SHEET 6 - BOUNDARY & ENCUMBRANCES | SHEET 26 - TENTATIVE MAP |
| SHEET 7 - BOUNDARY & ENCUMBRANCES | SHEET 27 - TENTATIVE MAP |
| SHEET 8 - PROPOSED LOTS / SUMMARY TABLES | SHEET 28 - SITE SECTIONS |
| SHEET 9 - TRAIL PLAN | SHEET 29 - SITE SECTIONS |
| SHEET 10 - TRAIL OFFER OF DEDICATION | SHEET 30 - EXIT. BUILDINGS & SITE IMP. |
| SHEET 11 - TENTATIVE MAP | SHEET 31 - EXIT. BUILDINGS & SITE IMP. |
| SHEET 12 - TENTATIVE MAP | SHEET 32 - FLOOD MAP PROPOSED |
| SHEET 13 - PRELIMINARY GRADING PLAN | SHEET 33 - FLOOD MAP PROPOSED |
| SHEET 14 - PRELIMINARY GRADING PLAN | SHEET 34 - FIRE ACCESS PLAN |
| SHEET 15 - TENTATIVE MAP | SHEET 35 - FIRE HOSE PULL |
| SHEET 16 - TENTATIVE MAP | SHEET 36 - FIRE HOSE PULL |
| SHEET 17 - TENTATIVE MAP | SHEET 37 - FIRE TURN MOVEMENTS |
| SHEET 18 - TENTATIVE MAP | SHEET 38 - FIRE TURN MOVEMENTS |
| SHEET 19 - TENTATIVE MAP | SHEET 39 - FIRE TURN MOVEMENTS |
| SHEET 20 - TENTATIVE MAP | SHEET 40 - FIRE TURN MOVEMENTS |


PREPARED BY:

HUNSAKER & ASSOCIATES SAN DIEGO, INC

PLANNING 9707 Waples Street
ENGINEERING San Diego, Ca 92121
SURVEYING PH(858)558-4500- FX(858)558-1414

| REVISION | | |
|---|---|---|
| ORIGINAL – PRIOR ENGINEER | 9/09/20 | SB&O |
| PLAN REVISIONS – PRIOR ENGINEER | 2/01/21 | SB&O |
| PLAN REVISIONS – PRIOR ENGINEER | 1/27/22 | SB&O |
| PLAN REVISIONS | 10/28/22 | H&A |
| PLAN REVISIONS | 4/28/23 | H&A |
| PLAN REVISIONS | 2/12/24 | H&A |
| PLAN REVISIONS | 10/29/24 | H&A |
| PLAN REVISIONS | 2/03/25 | H&A |
| SHEETS 11&13 – REMOVE STORM DRAIN | 3/24/25 | H&A |
| ADJUST LOTS 6–10 | 5/16/25 | H&A |

TENTATIVE MAP / SITE PLAN
PRELIMINARY GRADING PLAN

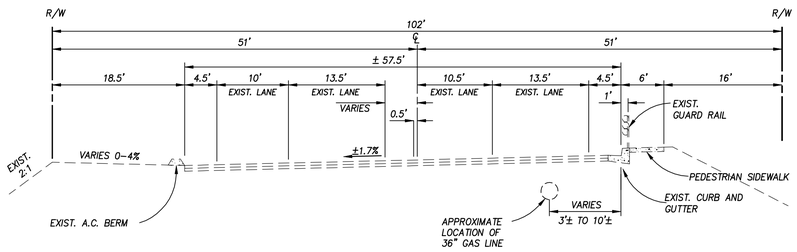
# CARLTON OAKS COUNTRY CLUB AND RESORT

CITY OF SANTEE, CALIFORNIA

SHEET 1 OF 40

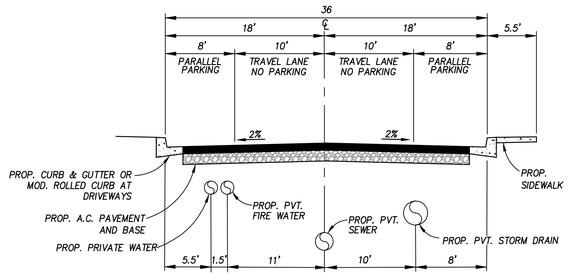
WO NO. 2167–0228

R:\1759\&Pln\Santee\1759 Site Plan Sht 1.dwg[]May–16–2025:08:30




## PUBLIC
## EXIST. WEST HILLS PARKWAY

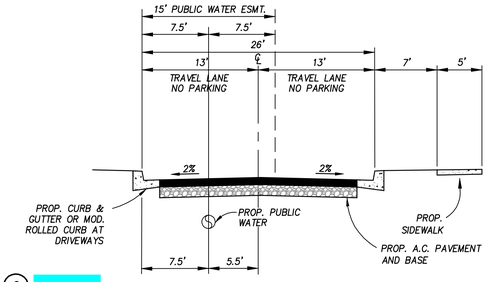
NOT TO SCALE
+22+50.00




1

## PORTION OF PVT. DRIVE "A"

NOT TO SCALE

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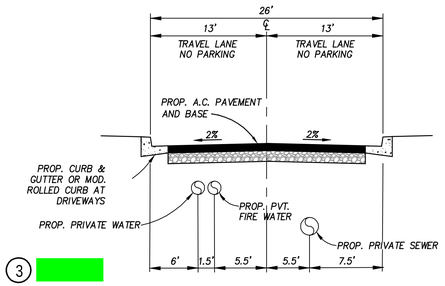
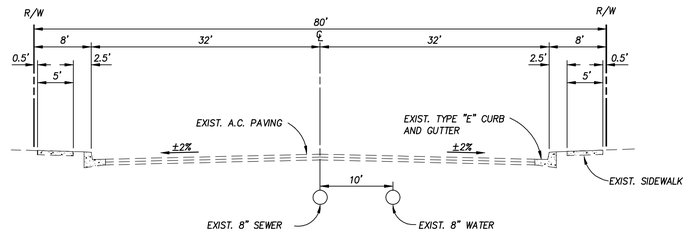



3

## PORTION OF PVT. DRIVE "A" & "C"

NOT TO SCALE



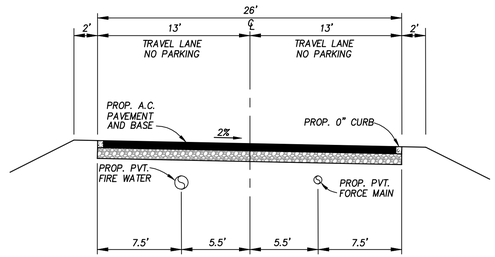

## PUBLIC
## EXIST. CARLTON OAKS DRIVE

NOT TO SCALE

## PUBLIC WORKS ALTERNATIVE STANDARDS FOR CARLTON OAKS COUNTRY CLUB AND RESORT

THE STREET DESIGN CRITERIA SET FORTH IN THE PUBLIC WORKS STANDARDS FOR LOCAL STREETS WILL APPLY TO DRIVES "A-F" AND 20 FOOT DRIVES WITHIN THE SITE, EXCEPT FOR THE FOLLOWING ALTERNATIVE STANDARDS LISTED BELOW:

1. DESIGN SPEED: 10 MPH
2. CURB-TO-CURB DISTANCE: 20-36 FEET LOCATIONS AS SHOWN ON PLANS
3. MIN. HORIZONTAL RADIUS: 41 FEET
4. HORIZONTAL ALIGNMENT: AS SHOWN ON PLANS
5. MIN. TANGENT BETWEEN REVERSING CURVES: AS SHOWN ON PLANS
6. MIN. CURB LINE RADIUS: 28 FEET
7. CURBS: 6" CURB, 4" CURB AND ROLLED CURB AS SHOWN ON PLANS
8. CROSS GUTTERS: 6 FEET MIN. WIDTH
9. SIDEWALKS: ONE SIDE OF THE STREET, NO SIDEWALKS FOR 20 FOOT DRIVES

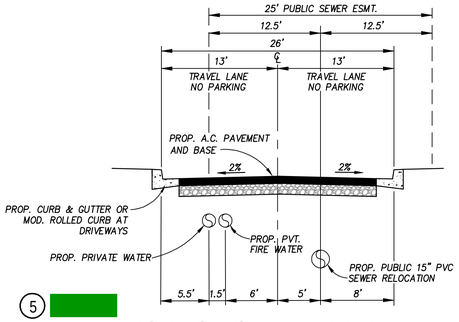



ACCESS ROADWAY FOR THE PURPOSES OF CONNECTIVITY VIA GOLF CARTS, PRIVATE/PUBLIC UTILITY MAINT., GOLF COURSE MAINT.

4

## PRIVATE UTILITY MAINTENANCE ROADWAY

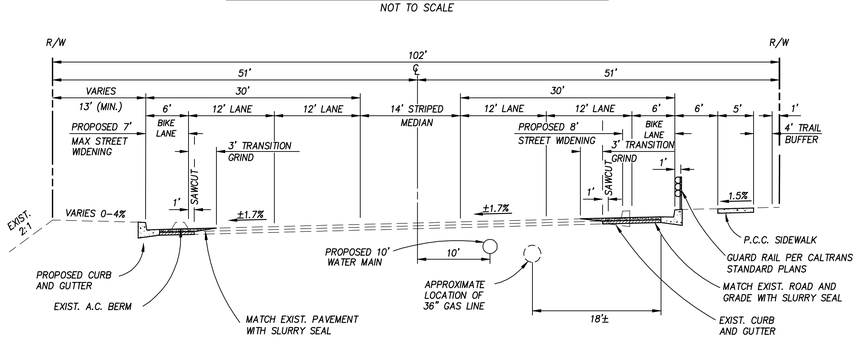
NOT TO SCALE




5

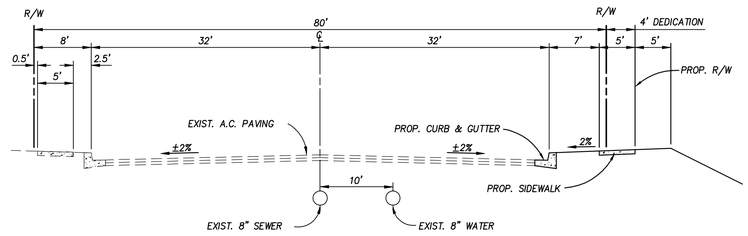
## PORTION OF PVT. DRIVE "A"

NOT TO SCALE



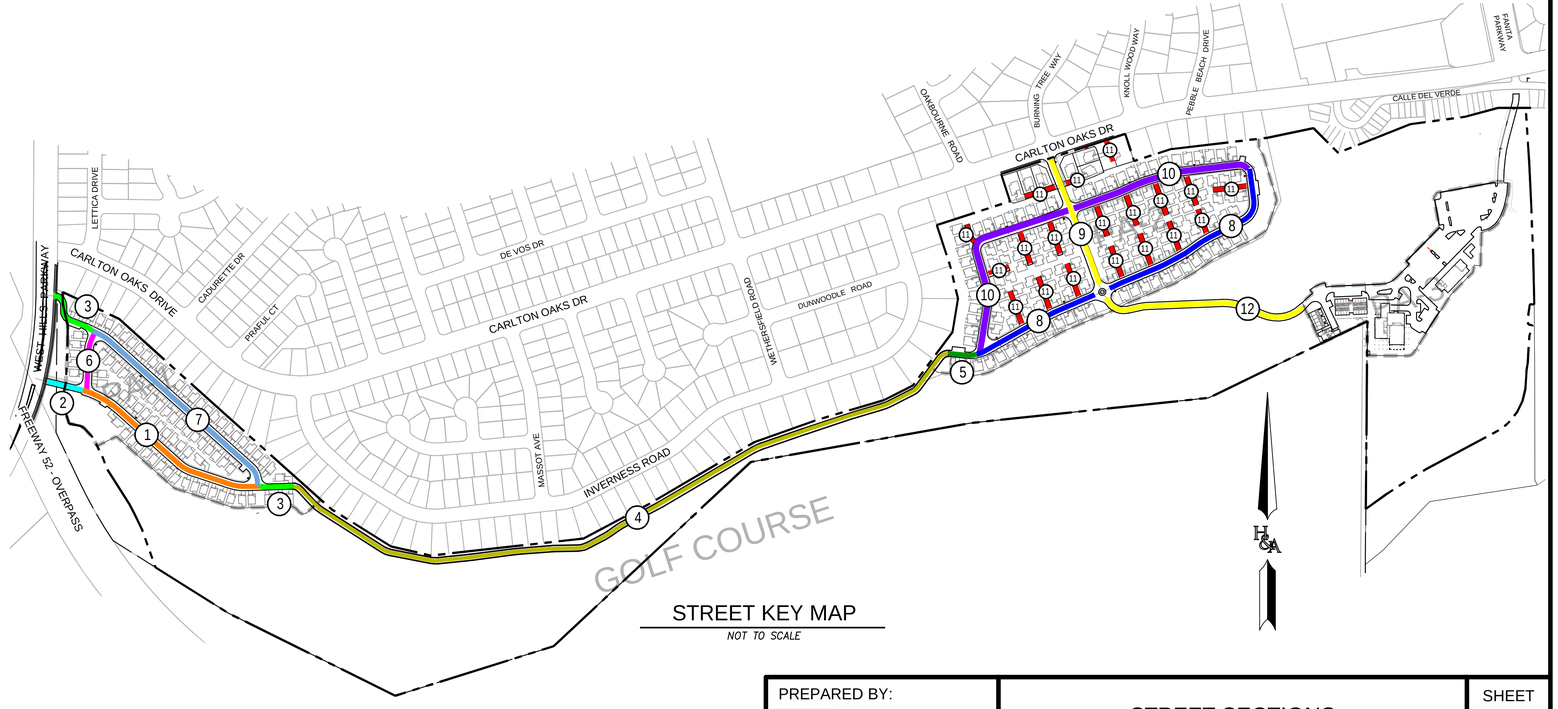

## PUBLIC
## PROP. WEST HILLS PARKWAY

NOT TO SCALE
±24+50.00




## PUBLIC
## PROP. CARLTON OAKS DRIVE

NOT TO SCALE




## STREET KEY MAP

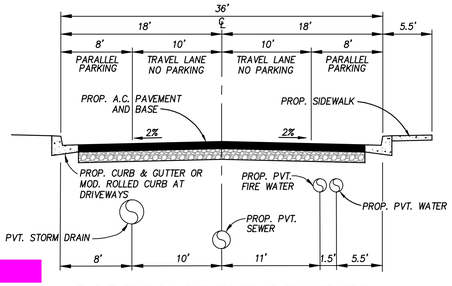
NOT TO SCALE

PREPARED BY:
HUNSAKER & ASSOCIATES
SAN DIEGO, INC
PLANNING 9707 Waples Street
ENGINEERING San Diego, Ca 92121
SURVEYING PH(858)558-4500- FX(858)558-1414

STREET SECTIONS
# CARLTON OAKS COUNTRY CLUB AND RESORT
CITY OF SANTEE, CALIFORNIA

SHEET 2 OF 40

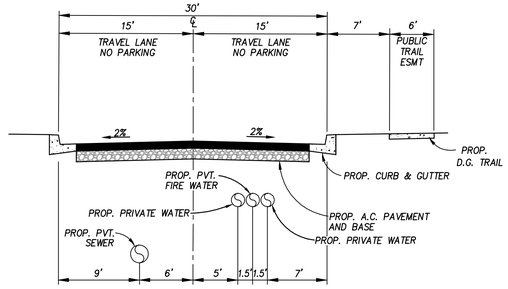
WO NO. 2167-0228




6

## PORTION OF PVT. DRIVE "B"

NOT TO SCALE




9

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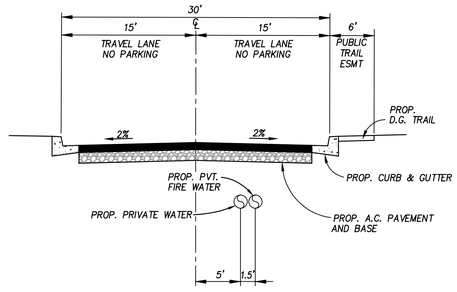


12

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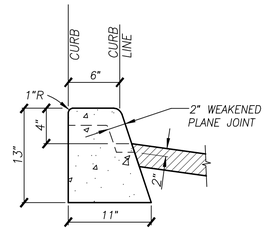
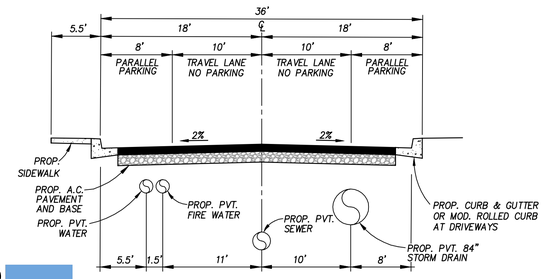



## 4" MOD. 'G-1' CURB

NOT TO SCALE




7

## PORTION OF PVT. DRIVE "C"

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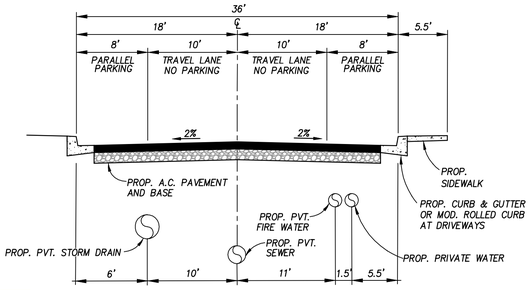
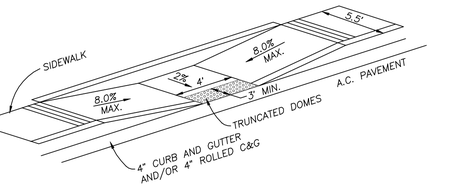



10

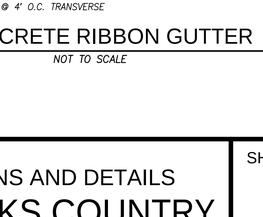
## PORTION OF PVT. DRIVE "E"

NOT TO SCALE



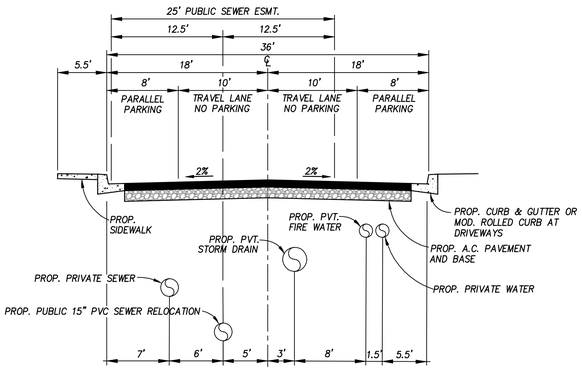

## 4" MOD. ROLLED 'G-4' CURB

NOT TO SCALE




## 0" MOD. CURB

NOT TO SCALE




8

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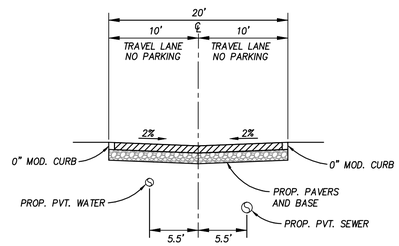



11

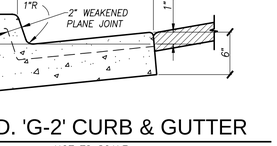
## PVT. 20' DRIVE

NOT TO SCALE




## MODIFIED CURB RAMP

NOT TO SCALE




## 4" MOD. 'G-2' CURB & GUTTER

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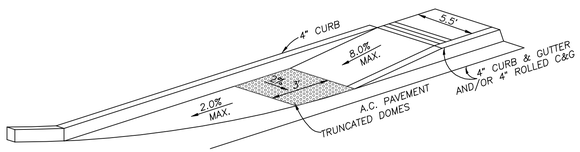
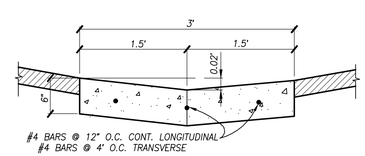



## MODIFIED CURB RAMP

NOT TO SCALE




## 3' CONCRETE RIBBON GUTTER

NOT TO SCALE

PREPARED BY:

HUNSAKER & ASSOCIATES SAN DIEGO, INC.

PLANNING 9707 Waples Street
ENGINEERING San Diego, Ca 92121
SURVEYING PH(858)558-4500 · FX(858)558-1414

STREET SECTIONS AND DETAILS

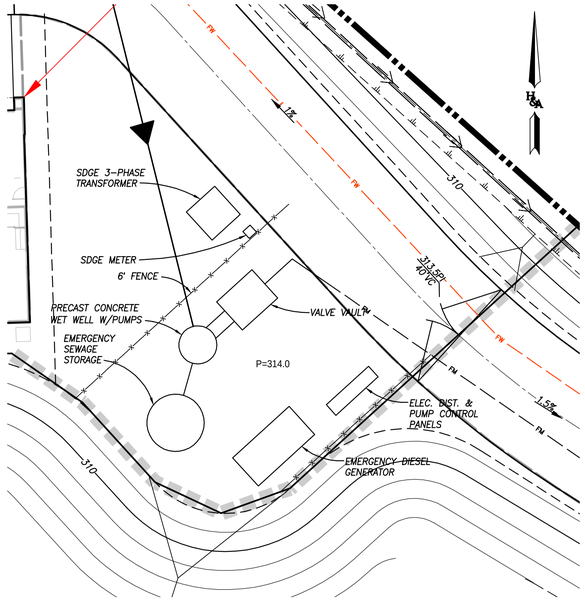
# CARLTON OAKS COUNTRY CLUB AND RESORT

CITY OF SANTEE, CALIFORNIA

SHEET 3 OF 40

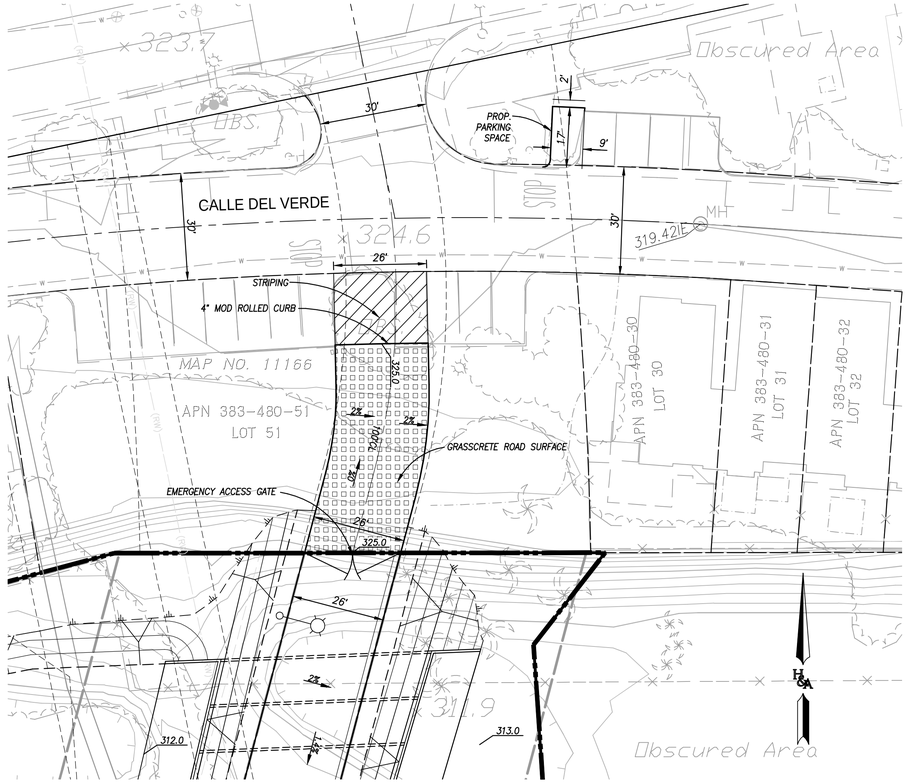
WO NO. 2167-0228

R:\1759\&Pln\Santee\1759 Site Plan Sht 3.dwg[]Oct-29-2024:12:40




## SEWER PUMP STATION DETAIL

SCALE: 1"=15'




## VISTA DEL VERDE EVA DETAIL

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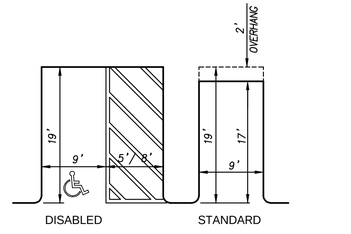
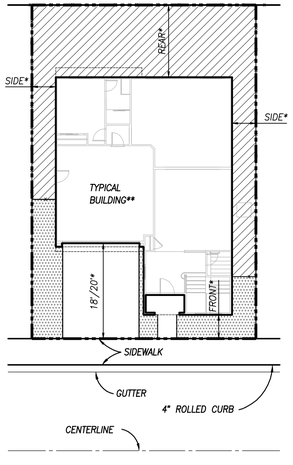



## TYPICAL PARKING DETAIL

NOT TO SCALE




REAR YARD USES REGULATED BY CC & R'S ARCHITECURAL REVIEW

### LEGEND

- CONDOMINIUM RESIDENTIAL UNIT BOUNDARY
- HOA MAINTENANCE
- REAR YARD USES REGULATED BY CC&R'S AND PD DEVELOPMENT DISTRICT STANDARDS

* BUILDING SETBACK PER PD DEVELOPMENT DISTRICT STANDARDS

** ARCHITECTURAL FLOOR PLANS AND ELEVATIONS PER PD DEVELOPMENT DISTRICT STANDARDS

## CONDOMINIUM UNIT BOUNDARY DETAIL

SCALE: 1"=15'

PREPARED BY:
HUNSAKER & ASSOCIATES SAN DIEGO, INC
PLANNING 9707 Waples Street
ENGINEERING San Diego, Ca 92121
SURVEYING PH(858)558-4500- FX(858)558-1414

DETAILS

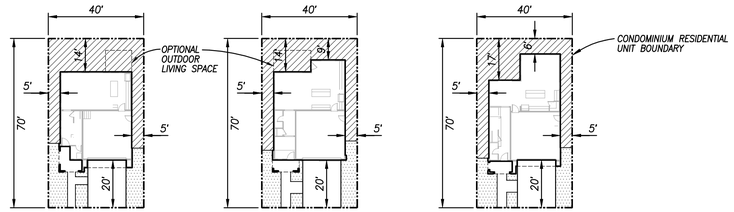
# CARLTON OAKS COUNTRY CLUB AND RESORT

CITY OF SANTEE, CALIFORNIA

SHEET 4 OF 40

WO NO. 2167-0228

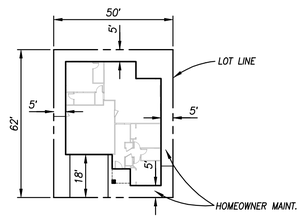
R:\1759\&Pln\Santee\1759 Site Plan Sht 4.dwg[]Feb-03-2025:20:19




PLAN 1 PLAN 2 PLAN 3

## PA-1 40x70 PRODUCT
## TYPICAL CONDIMINIUM UNIT SETBACKS

NOT TO SCALE

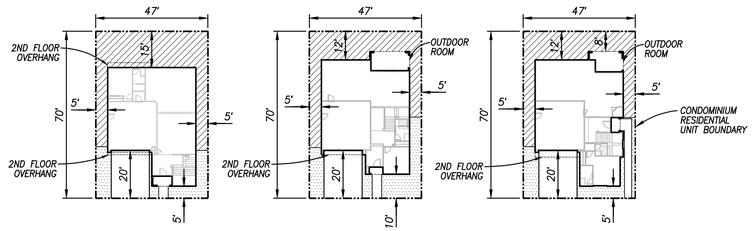



LEGEND

- LOT LINE
- CONDOMINIUM RESIDENTIAL UNIT BOUNDARY
- HOA MAINTENANCE
- REAR YARD USES REGULATED BY CC&R'S AND PD DEVELOPMENT DISTRICT STANDARDS

## PA-2 50x62 PRODUCT
## TYPICAL LOT SETBACKS

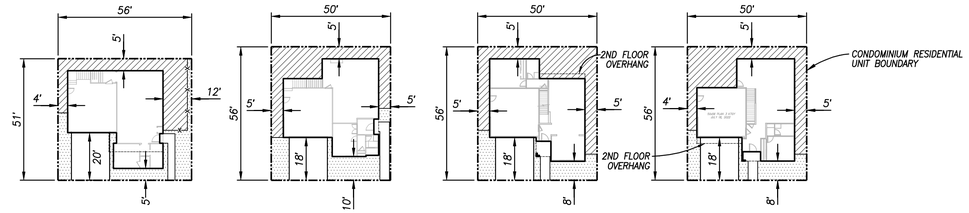
NOT TO SCALE




PLAN 1 PLAN 2 PLAN 3

## PA-2 47x70 PRODUCT
## TYPICAL CONDIMINIUM UNIT SETBACKS

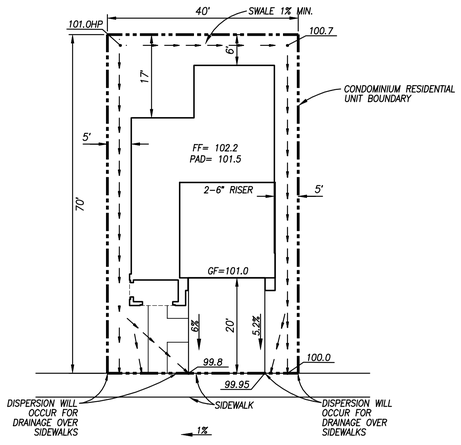
NOT TO SCALE




PLAN 1X PLAN 1 PLAN 2 PLAN 3

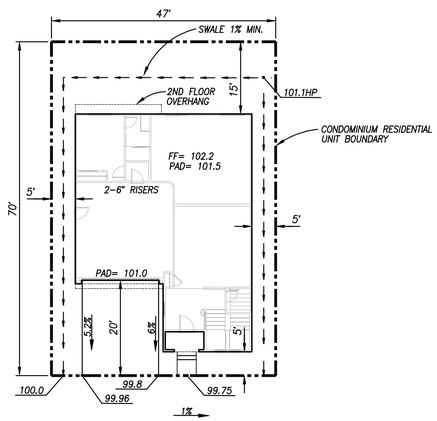
## PA-2 50x56 PRODUCT
## TYPICAL CONDIMINIUM UNIT SETBACKS

NOT TO SCALE



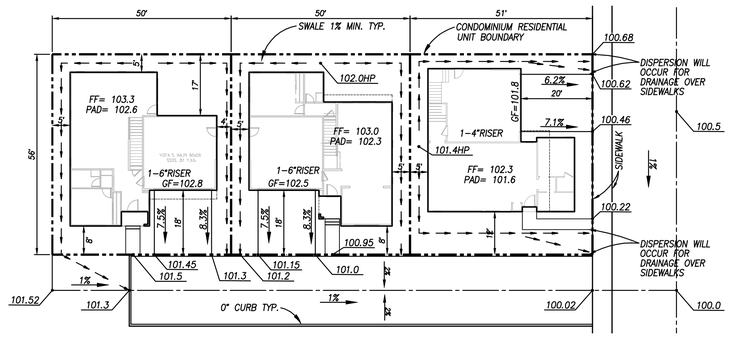

## PA-1 40x70
## TYPICAL DRAINAGE DETAIL

NOT TO SCALE



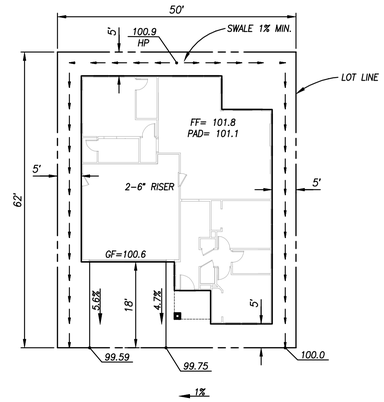

## PA-2 47x70
## TYPICAL DRAINAGE DETAIL

NOT TO SCALE




## PA-2 50x56
## TYPICAL DRAINAGE DETAIL

NOT TO SCALE




## PA-2 50x62
## TYPICAL DRAINAGE DETAIL

NOT TO SCALE

PREPARED BY:

HUNSAKER & ASSOCIATES SAN DIEGO, INC

PLANNING 9707 Waples Street
ENGINEERING San Diego, Ca 92121
SURVEYING PH(858)558-4500· FX(858)558-1414

BUILDING AND DRAINAGE DETAILS

# CARLTON OAKS COUNTRY CLUB AND RESORT

CITY OF SANTEE, CALIFORNIA

SHEET 5 OF 40

WO NO. 2167-0228

R:\1759\&Pln\Santee\1759 Site Plan Sht 5.dwg[]Feb-02-2025:17:07

## TITLE REFERENCE

THE DATA SHOWN HEREON IS BASED ON THE PRELIMINARY TITLE REPORT ISSUED BY CHICAGO TITLE INSURANCE COMPANY AS ORDER NO. 00115078-996-SD1-RT4 DATED SEPTEMBER 16, 2022.

## ASSESSOR'S PARCEL NUMBERS

383-071-06
383-071-09
383-221-01
383-221-02
383-221-03
383-221-04
383-241-08
383-242-01

## LEGAL DESCRIPTION

THE LAND REFERRED TO HEREIN BELOW IS SITUATED IN THE CITY OF SANTEE, IN THE COUNTY OF SAN DIEGO, STATE OF CALIFORNIA, AND IS DESCRIBED AS FOLLOWS:

PARCEL A: APN: 383-071-06-00 AND 383-071-09-00

PARCELS 1 AND 2 OF PARCEL MAP NO. 16978, IN THE CITY OF SANTEE, COUNTY OF SAN DIEGO, STATE OF CALIFORNIA, FILED IN THE OFFICE OF THE COUNTY RECORDER OF SAN DIEGO COUNTY, OCTOBER 19, 1992 AS INSTRUMENT NO. 92-0665040 OFFICIAL RECORDS.

EXCEPT THEREFROM THAT PORTION OF PARCEL 2 CONVEYED TO THE CITY OF SAN DIEGO BY GRANT DEED RECORDED OCTOBER 25, 2012 AS INSTRUMENT NO. 2012-0658044 OFFICIAL RECORDS.

PARCEL B: INTENTIONALLY OMITTED

PARCEL C: APNS: 383-221-01, 383-221-02, 383-221-03, 383-221-04, 383-242-01-00

LOTS 9 THROUGH 13 INCLUSIVE OF CARLTON COUNTY CLUB ESTATES, UNIT NO. 1, IN THE CITY OF SANTEE, COUNTY OF SAN DIEGO, STATE OF CALIFORNIA, ACCORDING TO MAP THEREOF NO. 4402, FILED IN THE OFFICE OF THE COUNTY RECORDER OF SAN DIEGO COUNTY, NOVEMBER 25, 1959.

PARCEL C1:

A NON-EXCLUSIVE EASEMENT FOR EMERGENCY INGRESS AND EGRESS OVER, UNDER, ALONG AND ACROSS THOSE PORTIONS OF LOT 51 AND LOT A OF CITY OF SANTEE TRACT NO. 83-11, IN THE CITY OF SANTEE, COUNTY OF SAN DIEGO, STATE OF CALIFORNIA, ACCORDING TO MAP THEREOF NO. 11166, FILED IN THE OFFICE OF THE COUNTY RECORDER OF SAN DIEGO COUNTY ON FEBRUARY 28, 1985, BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEING A STRIP OF LAND 28.00 FEET IN WIDTH, LYING 14.00 FEET ON EACH SIDE OF THE FOLLOWING DESCRIBED CENTERLINE:

COMMENCING AT THE NORTHEAST CORNER OF PARCEL 2 OF PARCEL MAP NO. 16978, IN SAID CITY, COUNTY AND STATE, FILED IN THE OFFICE OF SAID COUNTY RECORDER ON OCTOBER 19, 1992; THENCE ALONG THE NORTHERLY LINE THEREOF SOUTH 89°56'38" WEST (SOUTH 89°59'19" WEST PER SAID MAP 11166), 70.59 FEET TO THE TRUE POINT OF BEGINNING; THENCE LEAVING SAID NORTHERLY LINE NORTH 14°48'30" EAST, 22.33 FEET TO THE BEGINNING OF A 196.00 FOOT RADIUS CURVE CONCAVE WESTERLY; THENCE NORTHERLY ALONG THE ARC OF SAID CURVE THROUGH A CENTRAL ANGLE OF 26°29'43" A DISTANCE OF 90.64 FEET; THENCE NORTH 11°41'13" WEST, 20.48 FEET TO A POINT ON THE SOUTHEASTERLY SIDELINE OF CARLTON OAKS DRIVE, AND THE POINT OF TERMINUS.

THE SIDELINES OF THE AFOREMENTIONED STRIP OF LAND TO TERMINATE SOUTHERLY IN SAID NORTHERLY LINE OF PARCEL 2, AND NORTHERLY IN SAID SOUTHEASTERLY SIDELINE OF CARLTON OAKS DRIVE.

SAID EASEMENT GRANTED BY "GRANT OF EMERGENCY ACCESS EASEMENT" RECORDED JUNE 6, 2022 AS INSTRUMENT NO. 2022-0237599 OFFICIAL RECORDS.

PARCEL D: APN: 383-241-08-00

LOT 8 IN CARLTON CLUB ESTATES UNIT NO. 1, IN THE CITY OF SANTEE, COUNTY OF SAN DIEGO, STATE OF CALIFORNIA, ACCORDING TO MAP THEREOF NO. 4402, FILED IN THE OFFICE OF THE COUNTY RECORDER OF SAN DIEGO COUNTY, NOVEMBER 25, 1959.

EXCEPTING THEREFROM OIL, GAS AND OTHER HYDROCARBON SUBSTANCES IN AND UNDER OR THAT MAY BE PRODUCED FROM A DEPTH BELOW 500 FEET OF THE SURFACE OF SAID LAND WITHOUT RIGHT OF ENTRY UPON THE SURFACE OF SAID LAND FOR THE PURPOSES OF MINING, DRILLING, EXPLORING, OR EXTRACTING SUCH OIL, GAS AND OTHER HYDROCARBON SUBSTANCES OR OTHER USE OF OR RIGHTS IN OR TO ANY PORTION OF THE SURFACE OF SAID LAND TO A DEPTH OF 500 FEET BELOW THE SURFACE THEREOF.

TOGETHER WITH THOSE PORTIONS OF INWOOD DRIVE AS DEDICATED AND ACCEPTED ON MAP NO 4402, WHICH IF VACATED WOULD REVERT TO SAID LAND BY OPERATION OF LAW.

## FUTURE DISPOSITION

EASEMENTS AND RIGHT OF WAY THAT ARE QUITCLAIMED/VACATED WILL BENEFIT THE UNDERLYING FEE OWNER.

2 EASEMENT TO REMAIN
3 EASEMENT TO REMAIN
4 EASEMENT TO BE QUITCLAIMED
5 PORTION OF EASEMENT TO BE QUITCLAIMED AND REDEDICATED
6 EASEMENT TO REMAIN
7 EASEMENT TO REMAIN
8 EASEMENT TO BE QUITCLAIMED
9 EASEMENT TO REMAIN
9A EASEMENT TO REMAIN
10 EASEMENT TO REMAIN
10A EASEMENT TO REMAIN
11 EASEMENT TO REMAIN
12 IOD TO BE QUITCLAIMED
15 EASEMENT TO REMAIN
17 EASEMENT TO REMAIN
35 EASEMENT TO BE QUITCLAIMED
36 EASEMENT TO BE QUITCLAIMED
37 EASEMENT TO BE QUITCLAIMED
38 EASEMENT TO BE QUITCLAIMED
39 EASEMENT TO BE QUITCLAIMED
45 PUBLIC RIGHT OF WAY TO BE VACATED

## TITLE EXCEPTIONS

A. PROPERTY TAXES, WHICH ARE A LIEN DUE AND PAYABLE, INCLUDING ANY ASSESSMENTS COLLECTED WITH TAXES TO BE LEVIED FOR THE FISCAL YEAR 2022-2023.

B. THE LIEN OF SUPPLEMENTAL OR ESCAPED ASSESSMENTS OF PROPERTY TAXES, IF ANY, MADE PURSUANT TO THE PROVISIONS OF CHAPTER 3.5 (COMMENCING WITH SECTION 75) OR PART 2, CHAPTER 3, ARTICLES 3 AND 4, RESPECTIVELY, OF THE REVENUE AND TAXATION CODE OF THE STATE OF CALIFORNIA AS A RESULT OF THE TRANSFER OF TITLE TO THE VESTEE NAMED IN SCHEDULE A OR AS A RESULT OF CHANGES IN OWNERSHIP OR NEW CONSTRUCTION OCCURRING PRIOR TO DATE OF POLICY.

1. WATER RIGHTS, CLAIMS OR TITLE TO WATER, WHETHER OR NOT DISCLOSED BY THE PUBLIC RECORDS.

THE FOLLOWING MATTERS AFFECT PARCEL A:

2 EASEMENT(S) FOR THE PURPOSE(S) SHOWN BELOW AND RIGHTS INCIDENTAL THERETO, AS GRANTED IN A DOCUMENT:
GRANTED TO: SAN DIEGO GAS AND ELECTRIC COMPANY
PURPOSE: PUBLIC UTILITIES
RECORDING DATE: FEBRUARY 18, 1959
RECORDING NO: BOOK 7504, PAGE 247 OF OFFICIAL RECORDS
AFFECTS: THE EXACT LOCATION AND EXTENT OF SAID EASEMENT IS NOT DISCLOSED OF RECORD

3 ASEMENT(S) FOR THE PURPOSE(S) SHOWN BELOW AND RIGHTS INCIDENTAL THERETO, AS GRANTED IN A DOCUMENT:
GRANTED TO: SAN DIEGO GAS AND ELECTRIC COMPANY
PURPOSE: PUBLIC UTILITIES
RECORDING DATE: AUGUST 31, 1960
RECORDING NO: 176990 OF OFFICIAL RECORDS
AFFECTS: THE ROUTE THEREOF AFFECTS A PORTION OF SAID LAND AND IS MORE FULLY DESCRIBED IN SAID DOCUMENT.

4 EASEMENT(S) FOR THE PURPOSE(S) SHOWN BELOW AND RIGHTS INCIDENTAL THERETO, AS GRANTED IN A DOCUMENT:
GRANTED TO: SAN DIEGO GAS AND ELECTRIC COMPANY
PURPOSE: PUBLIC UTILITIES
RECORDING DATE: MARCH 4, 1963
RECORDING NO: 37204 OF OFFICIAL RECORDS
AFFECTS: THE ROUTE THEREOF AFFECTS A PORTION OF SAID LAND AND IS MORE FULLY DESCRIBED IN SAID DOCUMENT.

5 EASEMENT(S) FOR THE PURPOSE(S) SHOWN BELOW AND RIGHTS INCIDENTAL THERETO, AS GRANTED IN A DOCUMENT:
GRANTED TO: SANTEE COUNTY WATER DISTRICT
PURPOSE: PIPE LINES
RECORDING DATE: JULY 1, 1964
RECORDING NO: 118613 OFFICIAL RECORDS
AFFECTS: THE ROUTE THEREOF AFFECTS A PORTION OF SAID LAND AND IS MORE FULLY DESCRIBED IN SAID DOCUMENT.

6 EASEMENT(S) FOR THE PURPOSE(S) SHOWN BELOW AND RIGHTS INCIDENTAL THERETO, AS GRANTED IN A DOCUMENT:
GRANTED TO: COUNTY OF SAN DIEGO
PURPOSE: STORM DRAIN
RECORDING DATE: JULY 16, 1964
RECORDING NO: 128524 OF OFFICIAL RECORDS
AFFECTS: THE ROUTE THEREOF AFFECTS A PORTION OF SAID LAND AND IS MORE FULLY DESCRIBED IN SAID DOCUMENT.

7 EASEMENT(S) FOR THE PURPOSE(S) SHOWN BELOW AND RIGHTS INCIDENTAL THERETO, AS GRANTED IN A DOCUMENT:
GRANTED TO: SANTEE COUNTY WATER DISTRICT
PURPOSE: PIPE LINES
RECORDING DATE: JULY 16, 1964
RECORDING NO: 128602 OF OFFICIAL RECORDS
AFFECTS: THE ROUTE THEREOF AFFECTS A PORTION OF SAID LAND AND IS MORE FULLY DESCRIBED IN SAID DOCUMENT.

8 EASEMENT(S) FOR THE PURPOSE(S) SHOWN BELOW AND RIGHTS INCIDENTAL THERETO, AS GRANTED IN A DOCUMENT:
GRANTED TO: SAN DIEGO GAS AND ELECTRIC COMPANY
PURPOSE: PUBLIC UTILITIES
RECORDING DATE: MARCH 9, 1966
RECORDING NO: 40587 OF OFFICIAL RECORDS
AFFECTS: THE ROUTE THEREOF AFFECTS A PORTION OF SAID LAND AND IS MORE FULLY DESCRIBED IN SAID DOCUMENT.

9 EASEMENT(S) FOR THE PURPOSE(S) SHOWN BELOW AND RIGHTS INCIDENTAL THERETO, AS GRANTED IN A DOCUMENT:
GRANTED TO: SANTEE COUNTY WATER DISTRICT
PURPOSE: PUBLIC UTILITIES
RECORDING DATE: AUGUST 19, 1966
RECORDING NO: 135476 OF OFFICIAL RECORDS
AFFECTS: THE ROUTE THEREOF AFFECTS A PORTION OF SAID LAND AND IS MORE FULLY DESCRIBED IN SAID DOCUMENT.

9A EASEMENT(S) FOR THE PURPOSE(S) SHOWN BELOW AND RIGHTS INCIDENTAL THERETO, AS GRANTED IN A DOCUMENT:
GRANTED TO: SANTEE COUNTY WATER DISTRICT
PURPOSE: PUBLIC UTILITIES
RECORDING DATE: MARCH 2, 1967
RECORDING NO: 28755 OFFICIAL RECORDS
AFFECTS: THE ROUTE THEREOF AFFECTS A PORTION OF SAID LAND AND IS MORE FULLY DESCRIBED IN SAID DOCUMENT.

10 EASEMENT(S) FOR THE PURPOSE(S) SHOWN BELOW AND RIGHTS INCIDENTAL THERETO, AS GRANTED IN A DOCUMENT:
GRANTED TO: SANTEE COUNTY WATER DISTRICT
PURPOSE: PIPE LINES
RECORDING DATE: MAY 7, 1971
RECORDING NO: 95224 OF OFFICIAL RECORDS
AFFECTS: THE ROUTE THEREOF AFFECTS A PORTION OF SAID LAND AND IS MORE FULLY DESCRIBED IN SAID DOCUMENT.

10A EASEMENT(S) FOR THE PURPOSE(S) SHOWN BELOW AND RIGHTS INCIDENTAL THERETO, AS GRANTED IN A DOCUMENT:
GRANTED TO: SANTEE COUNTY WATER DISTRICT
PURPOSE: PUBLIC UTILITIES
RECORDING DATE: APRIL 21, 1975
RECORDING NO: 75-092314 OFFICIAL RECORDS
AFFECTS: THE ROUTE THEREOF AFFECTS A PORTION OF SAID LAND AND IS MORE FULLY DESCRIBED IN SAID DOCUMENT.

11 EASEMENT(S) FOR THE PURPOSE(S) SHOWN BELOW AND RIGHTS INCIDENTAL THERETO, AS GRANTED IN A DOCUMENT:
GRANTED TO: PACIFIC BELL, A CALIFORNIA CORPORATION
PURPOSE: PUBLIC UTILITIES, INGRESS, EGRESS
RECORDING DATE: MARCH 16, 1984
RECORDING NO: 84-97309 OF OFFICIAL RECORDS
AFFECTS: THE ROUTE THEREOF AFFECTS A PORTION OF SAID LAND AND IS MORE FULLY DESCRIBED IN SAID DOCUMENT.

12 THE RIGHT TO EXTEND AND MAINTAIN DRAINAGE FACILITIES, EXCAVATION AND EMBANKMENT SLOPES BEYOND THE LIMITS OF THE EXTENSION OF FANITA PARKWAY AS OFFERED DEDICATION AND REJECTED ON PARCEL MAP NO. 16978.

## TITLE EXCEPTIONS (CONT.)

13. THE OWNERSHIP OF SAID LAND DOES NOT INCLUDE RIGHTS OF ACCESS TO OR FROM THE STREET, HIGHWAY, OR FREEWAY ABUTTING SAID LAND, SUCH RIGHTS HAVING BEEN RELINQUISHED BY THE DOCUMENT, RECORDING DATE: APRIL 28, 1992
RECORDING NO: 92-249184 OF OFFICIAL RECORDS
AFFECTS: SAID LAND ABUTTING HIGHWAY 52

14. THE OWNERSHIP OF SAID LAND DOES NOT INCLUDE RIGHTS OF ACCESS TO OR FROM THE STREET, HIGHWAY, OR FREEWAY ABUTTING SAID LAND, SUCH RIGHTS HAVING BEEN RELINQUISHED BY THE DOCUMENT, RECORDING DATE: DECEMBER 9, 1996
RECORDING NO: 96-0613956 OF OFFICIAL RECORDS
AFFECTS: SAID LAND ABUTTING HIGHWAY 52

15 EASEMENT(S) FOR THE PURPOSE(S) SHOWN BELOW AND RIGHTS INCIDENTAL THERETO, AS GRANTED IN A DOCUMENT:
GRANTED TO: PADRE DAM MUNICIPAL WATER DISTRICT
PURPOSE: PUBLIC UTILITIES, INGRESS, EGRESS
RECORDING DATE: DECEMBER 10, 2008
RECORDING NO: 2008-0630934 OF OFFICIAL RECORDS
AFFECTS: THE ROUTE THEREOF AFFECTS A PORTION OF SAID LAND AND IS MORE FULLY DESCRIBED IN SAID DOCUMENT.

16. EASEMENT(S) FOR THE PURPOSE(S) SHOWN BELOW AND RIGHTS INCIDENTAL THERETO, AS GRANTED IN A DOCUMENT:
GRANTED TO: CITY OF SAN DIEGO
PURPOSE: ACCESS EASEMENT
RECORDING DATE: OCTOBER 25, 2012
RECORDING NO: 2012-0658045 OF OFFICIAL RECORDS
AFFECTS: THE ROUTE THEREOF AFFECTS A PORTION OF SAID LAND AND IS MORE FULLY DESCRIBED IN SAID DOCUMENT.

17 BERM MAINTENANCE EASEMENT
RECORDING DATE: OCTOBER 25, 2012
RECORDING NO.: 2012-0658046 OF OFFICIAL RECORDS

18. INTENTIONALLY OMITTED

19. INTENTIONALLY OMITTED

19A. A DEED OF TRUST GIVEN TO SECURE THE ORIGINAL AMOUNT SHOWN BELOW, AND ANY OTHER AMOUNT PAYABLE UNDER THE TERMS THEREOF.
AMOUNT: $400,000.00
DATED: DECEMBER 31, 2020
TRUSTOR/GRANTOR ALIKA LLC, A CALIFORNIA LIMITED LIABILITY COMPANY
TRUSTEE: FIRST AMERICAN TITLE COMPANY
BENEFICIARY: LENNAR HOMES OF CALIFORNIA, INC., A CALIFORNIA CORPORATION
RECORDING DATE: JANUARY 13, 2021
RECORDING NO: 2021-0027010, OF OFFICIAL RECORDS
AFFECTS: THE HEREIN DESCRIBED LAND AND OTHER LAND.

19B. A DEED OF TRUST TO SECURE AN INDEBTEDNESS IN THE AMOUNT SHOWN BELOW,
AMOUNT: $3,421,000.00
DATED: OCTOBER 6, 2021
TRUSTOR/GRANTOR ALIKA LLC, A CALIFORNIA LIMITED LIABILITY COMPANY
TRUSTEE: FIDELITY NATIONAL TITLE COMPANY
BENEFICIARY: CALIFORNIA INTERNATIONAL BANK
RECORDING DATE: NOVEMBER 4, 2021
RECORDING NO: 2021-0768936 OFFICIAL
AFFECTS: THE HEREIN DESCRIBED LAND AND OTHER LAND.

19C. ASSIGNMENT OF RENTS AND LEASES
ASSIGNED TO: CALIFORNIA INTERNATIONAL BANK
ASSIGNED BY: ALIKA LLC, A CALIFORNIA LIMITED LIABILITY COMPANY
RECORDING DATE: NOVEMBER 4, 2021
RECORDING NO: 2021-0768937 OFFICIAL RECORDS
AFFECTS: THE HEREIN DESCRIBED LAND AND OTHER LAND.

19D. AN UNRECORDED LEASE WITH CERTAIN TERMS, COVENANTS, CONDITIONS AND PROVISIONS SET FORTH THEREIN AS DISCLOSED BY THE DOCUMENT ENTITLED: SUBORDINATION, NON-DISTURBANCE AND ATTORNMENT AND ESTOPPEL AGREEMENT
LESSOR: ALIKA LLC, A CALIFORNIA LIMITED LIABILITY COMPANY
LESSEE: KEANU LLC
RECORDING DATE: NOVEMBER 4, 2021
RECORDING NO: 2021-0768938 OFFICIAL RECORDS

THE MATTERS AFFECT PARCEL B HAVE BEEN INTENTIONALLY OMITTED (ITEMS 20-34)

MATTERS AFFECTING PARCEL C AND D

34A. COVENANTS, CONDITIONS AND RESTRICTIONS ("BUT OMITTING, EXCEPT TO THE EXTENT THAT SAID COVENANT OR RESTRICTION IS CONTROLLED OR PERMITTED BY ANY APPLICABLE FEDERAL OR STATE LAW, ANY COVENANTS OR RESTRICTIONS, IF ANY, BASED UPON RACE, COLOR, RELIGION, SEX, SEXUAL ORIENTATION, FAMILIAL STATUS, MARITAL STATUS, DISABILITY, MEDICAL CONDITION, NATIONAL ORIGIN, SOURCE OF INCOME, OR ANCESTRY" AS SET FORTH IN THE DOCUMENT RECORDED: NOVEMBER 27, 1959 IN BOOK 8015, PAGE 230 OF OFFICIAL RECORDS

NOTE: SECTION 12956.1 OF THE GOVERNMENT CODE PROVIDES THE FOLLOWING: "IF THIS DOCUMENT CONTAINS ANY RESTRICTION BASED ON RACE, COLOR, RELIGION, SEX, SEXUAL ORIENTATION, FAMILIAL STATUS, MARITAL STATUS, DISABILITY, NATIONAL ORIGIN, SOURCE OF INCOME AS DEFINED IN SUBDIVISION (P) OF SECTION 12955, OR ANCESTRY, THAT RESTRICTION VIOLATES STATE AND FEDERAL FAIR HOUSING LAWS AND IS VOID, AND MAY BE REMOVED PURSUANT TO SECTION 12956.2 OF THE GOVERNMENT CODE. LAWFUL RESTRICTIONS UNDER STATE AND FEDERAL LAW ON THE AGE OF OCCUPANTS IN SENIOR HOUSING OR HOUSING FOR OLDER PERSONS SHALL NOT BE CONSTRUED AS RESTRICTIONS BASED ON FAMILIAL STATUS."

NOTE: IF YOU SHOULD REQUEST A COPY OF THE DOCUMENT REFERRED TO ABOVE, CALIFORNIA LAW REQUIRES THAT A COUNTY RECORDER, TITLE INSURANCE COMPANY, ESCROW COMPANY, REAL ESTATE BROKER, REAL ESTATE AGENT, OR ASSOCIATION THAT PROVIDES A COPY OF A DECLARATION, GOVERNING DOCUMENT, OR DEED TO ANY PERSON SHALL PLACE A COVER PAGE OVER, OR STAMP ON THE FIRST PAGE OF THE PREVIOUSLY RECORDED DOCUMENT OR DOCUMENTS A STATEMENT, IN AT LEAST 14-POINT BOLDFACE TYPE, RELATING TO UNLAWFUL RESTRICTIONS.

SAID COVENANTS, CONDITIONS AND RESTRICTIONS PROVIDE THAT A VIOLATION THEREOF SHALL NOT DEFEAT THE LIEN OF ANY MORTGAGE OR DEED OF TRUST MADE IN GOOD FAITH AND FOR VALUE.

35 EASEMENT(S) FOR THE PURPOSE(S) SHOWN BELOW AND RIGHTS INCIDENTAL THERETO, AS GRANTED IN A DOCUMENT:
GRANTED TO: THE PACIFIC TELEPHONE AND TELEGRAPH COMPANY
PURPOSE: PUBLIC UTILITIES, INGRESS, EGRESS
RECORDING DATE: JANUARY 18, 1960
RECORDING NO: 10227 OF OFFICIAL RECORDS
AFFECTS: THE ROUTE THEREOF AFFECTS A PORTION OF SAID LAND AND IS MORE FULLY DESCRIBED IN SAID DOCUMENT.

## TITLE EXCEPTIONS (CONT.)

36 EASEMENT(S) FOR THE PURPOSE(S) SHOWN BELOW AND RIGHTS INCIDENTAL THERETO, AS GRANTED IN A DOCUMENT:
GRANTED TO: SAN DIEGO GAS AND ELECTRIC COMPANY
PURPOSE: PUBLIC UTILITIES, INGRESS, EGRESS
RECORDING DATE: OCTOBER 4, 1960
RECORDING NO: 198406 OF OFFICIAL RECORDS
AFFECTS: THE ROUTE THEREOF AFFECTS A PORTION OF SAID LAND AND IS MORE FULLY DESCRIBED IN SAID DOCUMENT.

37 EASEMENT(S) FOR THE PURPOSE(S) SHOWN BELOW AND RIGHTS INCIDENTAL THERETO, AS GRANTED IN A DOCUMENT:
GRANTED TO: SAN DIEGO GAS AND ELECTRIC COMPANY
PURPOSE: PUBLIC UTILITIES, INGRESS, EGRESS
RECORDING DATE: MARCH 4, 1963
RECORDING NO: 37211 OF OFFICIAL RECORDS
AFFECTS: THE ROUTE THEREOF AFFECTS A PORTION OF SAID LAND AND IS MORE FULLY DESCRIBED IN SAID DOCUMENT.

38 EASEMENT(S) FOR THE PURPOSE(S) SHOWN BELOW AND RIGHTS INCIDENTAL THERETO, AS GRANTED IN A DOCUMENT:
GRANTED TO: THE PACIFIC TELEPHONE AND TELEGRAPH COMPANY
PURPOSE: PUBLIC UTILITIES, INGRESS, EGRESS
RECORDING DATE: MAY 3, 1963
RECORDING NO: 77398 OF OFFICIAL RECORDS
AFFECTS: THE ROUTE THEREOF AFFECTS A PORTION OF SAID LAND AND IS MORE FULLY DESCRIBED IN SAID DOCUMENT.

39 EASEMENT(S) FOR THE PURPOSE(S) SHOWN BELOW AND RIGHTS INCIDENTAL THERETO, AS GRANTED IN A DOCUMENT:
GRANTED TO: SAN DIEGO GAS AND ELECTRIC COMPANY
PURPOSE: PUBLIC UTILITIES, INGRESS, EGRESS
RECORDING DATE: MARCH 9, 1966
RECORDING NO: 40584 OF OFFICIAL RECORDS
AFFECTS: THE ROUTE THEREOF AFFECTS A PORTION OF SAID LAND AND IS MORE FULLY DESCRIBED IN SAID DOCUMENT.

40. A DEED OF TRUST GIVEN TO SECURE THE ORIGINAL AMOUNT SHOWN BELOW, AND ANY OTHER AMOUNT PAYABLE UNDER THE TERMS THEREOF.
AMOUNT: $400,000.00
DATED: DECEMBER 31, 2020
TRUSTOR/GRANTOR ALIKA LLC, A CALIFORNIA LIMITED LIABILITY COMPANY
TRUSTEE: FIRST AMERICAN TITLE COMPANY
BENEFICIARY: LENNAR HOMES OF CALIFORNIA, INC., A CALIFORNIA CORPORATION
RECORDING DATE: JANUARY 13, 2021
RECORDING NO: 2021-0027010, OF OFFICIAL RECORDS
AFFECTS: THE HEREIN DESCRIBED LAND AND OTHER LAND.

41. A DEED OF TRUST TO SECURE AN INDEBTEDNESS IN THE AMOUNT SHOWN BELOW,
AMOUNT: $3,421,000.00
DATED: OCTOBER 6, 2021
TRUSTOR/GRANTOR ALIKA LLC, A CALIFORNIA LIMITED LIABILITY COMPANY
TRUSTEE: FIDELITY NATIONAL TITLE COMPANY
BENEFICIARY: CALIFORNIA INTERNATIONAL BANK
RECORDING DATE: NOVEMBER 4, 2021
RECORDING NO: 2021-0768936 OFFICIAL
AFFECTS: THE HEREIN DESCRIBED LAND AND OTHER LAND.

42. ASSIGNMENT OF RENTS AND LEASES
ASSIGNED TO: CALIFORNIA INTERNATIONAL BANK
ASSIGNED BY: ALIKA LLC, A CALIFORNIA LIMITED LIABILITY COMPANY
RECORDING DATE: NOVEMBER 4, 2021
RECORDING NO: 2021-0768937 OFFICIAL RECORDS
AFFECTS: THE HEREIN DESCRIBED LAND AND OTHER LAND.

43. AN UNRECORDED LEASE WITH CERTAIN TERMS, COVENANTS, CONDITIONS AND PROVISIONS SET FORTH THEREIN AS DISCLOSED BY THE DOCUMENT ENTITLED: SUBORDINATION, NON-DISTURBANCE AND ATTORNMENT AND ESTOPPEL AGREEMENT
LESSOR: ALIKA LLC, A CALIFORNIA LIMITED LIABILITY COMPANY
LESSEE: KEANU LLC
RECORDING DATE: NOVEMBER 4, 2021
RECORDING NO: 2021-0768938 OFFICIAL RECORDS

44. A DEED OF TRUST TO SECURE AN INDEBTEDNESS IN THE AMOUNT SHOWN BELOW,
AMOUNT: $510,400.00
DATED: APRIL 28, 2020
TRUSTOR/GRANTOR LINA MAYLING CHEN AND KEVIN SHIGEO FUKUYAMA, WIFE AND HUSBAND AS COMMUNITY PROPERTY
TRUSTEE: FIRST AMERICAN TITLE COMPANY
BENEFICIARY: MORTGAGE ELECTRONIC REGISTRATION SYSTEMS, INC.
RECORDING DATE: APRIL 30, 2020
RECORDING NO: 2020-0221628 OFFICIAL RECORDS

45. THE RIGHTS OF THE PUBLIC IN AND TO THAT PORTION OF THE HEREIN DESCRIBED LAND LYING WITHIN INWOOD DRIVE.


PREPARED BY:
HUNSAKER & ASSOCIATES SAN DIEGO, INC
PLANNING 9707 Waples Street
ENGINEERING San Diego, Ca 92121
SURVEYING PH(858)558-4500 FX(858)558-1414


BOUNDARY AND ENCUMBRANCES
# CARLTON OAKS COUNTRY CLUB AND RESORT
CITY OF SANTEE, CALIFORNIA



WO NO. 2167-0228

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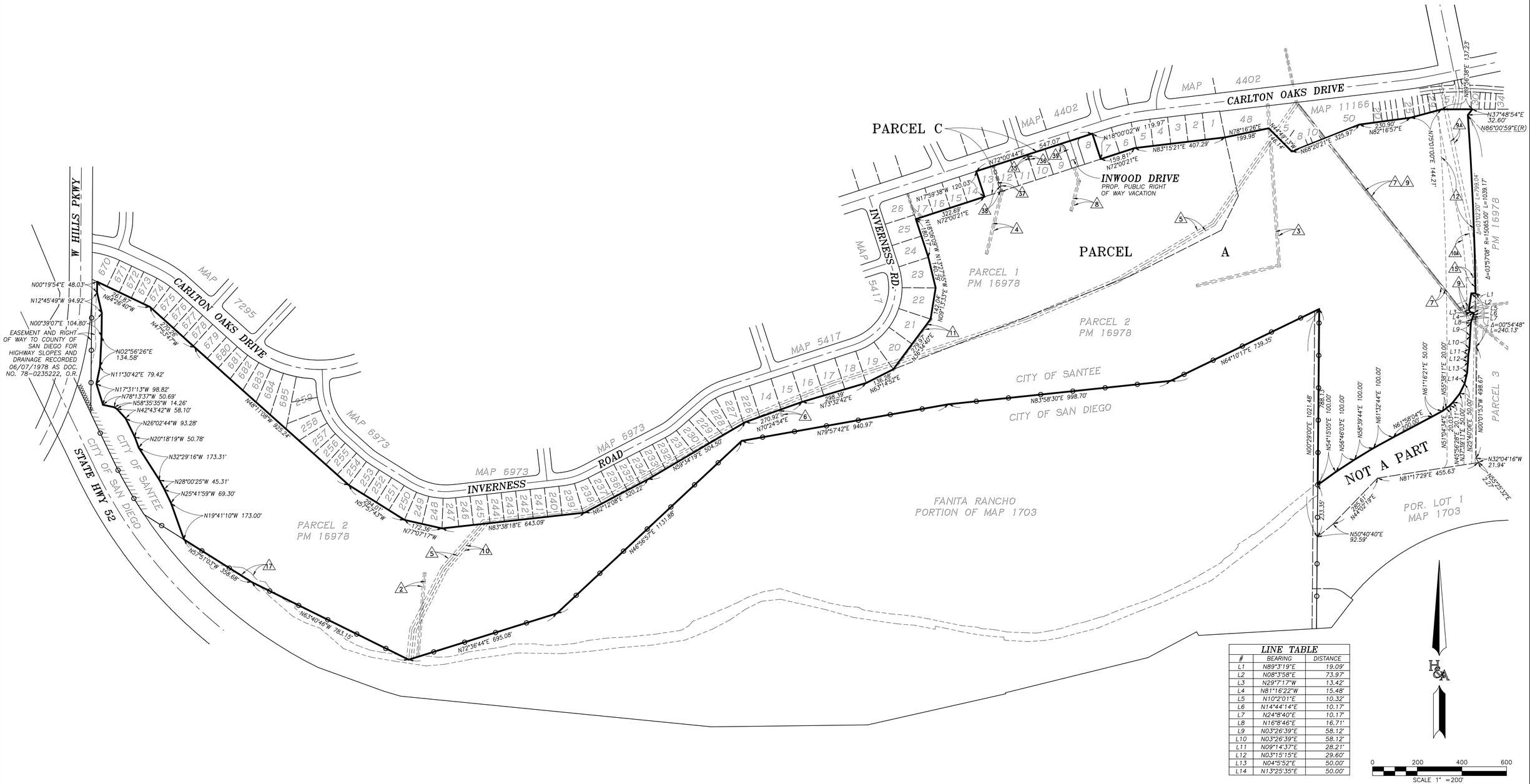


| LINE TABLE | | |
|---|---|---|
| # | BEARING | DISTANCE |
| L1 | N89°3'19"E | 19.09' |
| L2 | N08°3'58"E | 73.97' |
| L3 | N29°7'17"W | 13.42' |
| L4 | N81°16'22"W | 15.48' |
| L5 | N10°2'01"E | 10.32' |
| L6 | N14°44'14"E | 10.17' |
| L7 | N24°8'40"E | 10.17' |
| L8 | N16°8'46"E | 16.71' |
| L9 | N03°26'39"E | 58.12' |
| L10 | N03°26'39"E | 58.12' |
| L11 | N09°14'37"E | 28.21' |
| L12 | N03°15'15"E | 29.60' |
| L13 | N04°5'52"E | 50.00' |
| L14 | N13°25'35"E | 50.00' |

0 200 400 600
SCALE 1" = 200'

PREPARED BY:
HUNSAKER & ASSOCIATES
SAN DIEGO, INC
PLANNING 9707 Waples Street
ENGINEERING San Diego, Ca 92121
SURVEYING PH(858)558-4500 · FX(858)558-1414

BOUNDARY AND ENCUMBRANCES
# CARLTON OAKS COUNTRY CLUB AND RESORT
CITY OF SANTEE, CALIFORNIA

SHEET 7 OF 40

WO NO. 2167-0228

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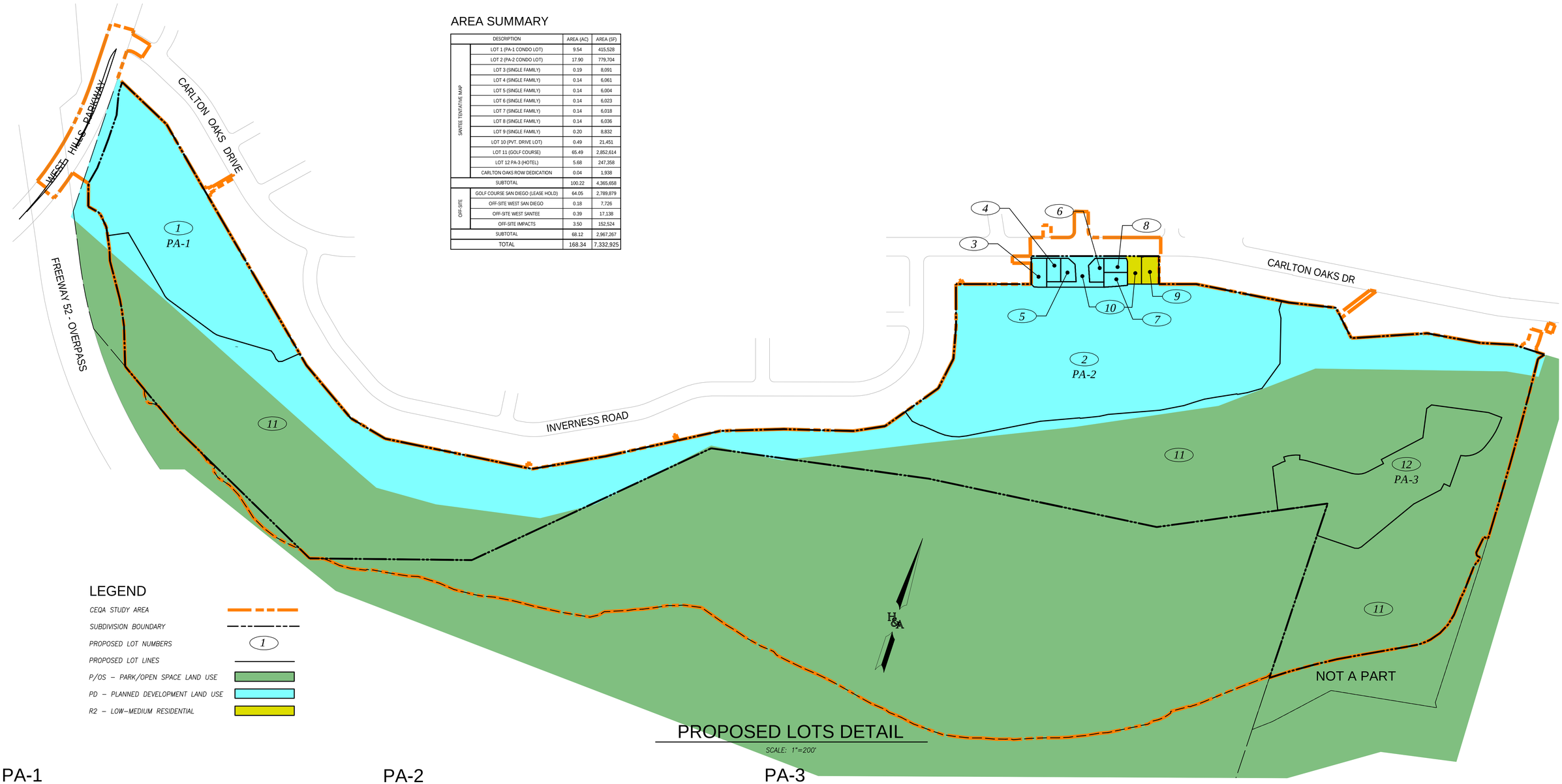
## AREA SUMMARY

| | DESCRIPTION | AREA (AC) | AREA (SF) |
|---|---|---|---|
| SANTEE TENTATIVE MAP | LOT 1 (PA-1 CONDO LOT) | 9.54 | 415,528 |
| | LOT 2 (PA-2 CONDO LOT) | 17.90 | 779,704 |
| | LOT 3 (SINGLE FAMILY) | 0.19 | 8,091 |
| | LOT 4 (SINGLE FAMILY) | 0.14 | 6,061 |
| | LOT 5 (SINGLE FAMILY) | 0.14 | 6,004 |
| | LOT 6 (SINGLE FAMILY) | 0.14 | 6,023 |
| | LOT 7 (SINGLE FAMILY) | 0.14 | 6,018 |
| | LOT 8 (SINGLE FAMILY) | 0.14 | 6,036 |
| | LOT 9 (SINGLE FAMILY) | 0.20 | 8,832 |
| | LOT 10 (PVT. DRIVE LOT) | 0.49 | 21,451 |
| | LOT 11 (GOLF COURSE) | 65.49 | 2,852,614 |
| | LOT 12 PA-3 (HOTEL) | 5.68 | 247,358 |
| | CARLTON OAKS ROW DEDICATION | 0.04 | 1,938 |
| SUBTOTAL | | 100.22 | 4,365,658 |
| OFF-SITE | GOLF COURSE SAN DIEGO (LEASE HOLD) | 64.05 | 2,789,879 |
| | OFF-SITE WEST SAN DIEGO | 0.18 | 7,726 |
| | OFF-SITE WEST SANTEE | 0.39 | 17,138 |
| | OFF-SITE IMPACTS | 3.50 | 152,524 |
| SUBTOTAL | | 68.12 | 2,967,267 |
| TOTAL | | 168.34 | 7,332,925 |




## LEGEND

- CEQA STUDY AREA
- SUBDIVISION BOUNDARY
- PROPOSED LOT NUMBERS (1)
- PROPOSED LOT LINES
- P/OS – PARK/OPEN SPACE LAND USE
- PD – PLANNED DEVELOPMENT LAND USE
- R2 – LOW–MEDIUM RESIDENTIAL

# PROPOSED LOTS DETAIL

SCALE: 1"=200'

## PA-1

### ARCHITECTURAL SUMMARY

| ARCHITECTURE | BUILDING COVERAGE (SF) | LIVING AREA (SF) | # OF UNITS | TOTAL BUILDING COVERAGE (SF) | TOTAL LIVING AREA (SF) |
|---|---|---|---|---|---|
| PLAN 1 | 1,153 | 1,647 | 29 | 33,437 | 47,763 |
| PLAN 2 | 1,235 | 1,814 | 29 | 35,815 | 52,606 |
| PLAN 3 | 1,257 | 2,019 | 28 | 35,196 | 56,532 |
| TOTAL | | | 86 | 104,448 | 156,901 |

### PARKING SUMMARY

| TYPE | SPACES |
|---|---|
| GARAGE | 172 |
| PARALLEL | 55 |
| DISABLED | 3 |
| TOTAL | 230 |

REQUIRED: 2.25 SPACE PER UNIT = 194 SPACES

### AREA SUMMARY

| DESCRIPTION | AREA (SF) | AREA (AC) | PERCENTAGE OF TOTAL AREA |
|---|---|---|---|
| BUILDING COVERAGE | 104,448 | 2.4 | 25.1% |
| STREETS/DRIVEWAYS | 117,635 | 2.70 | 28.3% |
| SIDEWALKS | 11,156 | 0.26 | 2.7% |
| PRIVATE YARDS | 68,616 | 1.58 | 16.5% |
| ACTIVE REC AREA | 11,173 | 0.26 | 2.7% |
| LANDSCAPE | 102,500 | 2.35 | 24.7% |
| TOTAL | 415,528 | 9.54 | 100.0% |

## PA-2

### ARCHITECTURAL SUMMARY

| ARCHITECTURE | BUILDING COVERAGE (SF) | LIVING AREA (SF) | # OF UNITS | TOTAL BUILDING COVERAGE (SF) | TOTAL LIVING AREA (SF) |
|---|---|---|---|---|---|
| PLAN 1 (47x70) | 1,537 | 2,494 | 20 | 30,740 | 49,880 |
| PLAN 2 (47x70) | 1,508 | 2,379 | 20 | 30,160 | 47,580 |
| PLAN 3 (47x70) | 1,578 | 2,614 | 20 | 31,560 | 52,280 |
| PLAN 1 (50x56) | 1,324 | 2,003 | 14 | 18,536 | 28,042 |
| PLAN 1X (50x56) | 1,340 | 2,063 | 14 | 18,760 | 28,882 |
| PLAN 2 (50x56) | 1,314 | 2,085 | 31 | 40,734 | 64,635 |
| PLAN 3 (50x56) | 1,343 | 2,275 | 31 | 41,633 | 70,525 |
| SINGLE FAMILY * | 2,134 | 2,000 | 7 | 14,938 | 14,000 |
| TOTAL | | | 157 | 227,061 | 355,824 |

* INCLUDES EXISTING HOME TO REMAIN LOT 9

### PARKING SUMMARY

| TYPE | SPACES |
|---|---|
| GARAGE | 314 |
| STANDARD | 6 |
| PARALLEL | 81 |
| DISABLED | 4 |
| TOTAL | 405 |

REQUIRED: 2.25 SPACE PER UNIT = 353 SPACES

### AREA SUMMARY

| DESCRIPTION | AREA (SF) | AREA (AC) | PERCENTAGE OF TOTAL AREA |
|---|---|---|---|
| BUILDING COVERAGE | 227,061 | 5.21 | 29.1% |
| STREETS/DRIVEWAYS | 232,311 | 5.33 | 29.8% |
| SIDEWALKS | 20,549 | 0.47 | 2.6% |
| PRIVATE YARDS | 114,847 | 2.64 | 14.7% |
| ACTIVE REC AREA | 21,349 | 0.49 | 2.7% |
| LANDSCAPE | 163,629 | 3.76 | 21.0% |
| TOTAL | 779,746 | 17.90 | 100.0% |

## PA-3

### ARCHITECTURAL SUMMARY

| ARCHITECTURE | AREA (SF) |
|---|---|
| CLUBHOUSE AND HOTEL | |
| ADMIN | 1,912 |
| CIRC | 1,761 |
| COTTAGE A | 6,204 |
| COTTAGE B | 2,135 |
| GOLF TOURNAMENT HALL | 4,800 |
| HOTEL | 16,720 |
| KIOSK | 150 |
| KITCHEN | 3,233 |
| RESTAURANT | 3,675 |
| RR | 683 |
| STOR | 260 |
| GOLF FACILITIES | |
| CART BARN | 6,012 |
| LEARNING CENTER | 1,258 |
| PRO SHOP | 1,200 |
| STOR | 1,258 |
| TOTAL | 51,926 |

### AREA SUMMARY

| DESCRIPTION | AREA (SF) | AREA (AC) | PERCENTAGE OF TOTAL AREA |
|---|---|---|---|
| BUILDING COVERAGE | 42,094 | 0.97 | 17.0% |
| STREETS/DRIVEWAYS | 124,704 | 2.86 | 50.4% |
| LANDSCAPE$_2$ | 80,560 | 1.85 | 32.6% |
| TOTAL | 247,358 | 5.68 | 100.0% |

*NOTES:*
*1 – BUILDING COVERAGE DOES NOT INCLUDE HOTEL SECOND FLOOR (8,360 SF)*
*2 – LANDSCAPE INCLUDES SIDEWALK/HARDSCAPE AREAS*

### PARKING SUMMARY

| TYPE | SPACES |
|---|---|
| STANDARD | 285 |
| DISABLED | 8 |
| TOTAL | 293 |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PROPOSED LOTS / SUMMARY TABLES

# CARLTON OAKS COUNTRY CLUB AND RESORT

CITY OF SANTEE, CALIFORNIA

SHEET 8 OF 40

WO NO. 2167-0228

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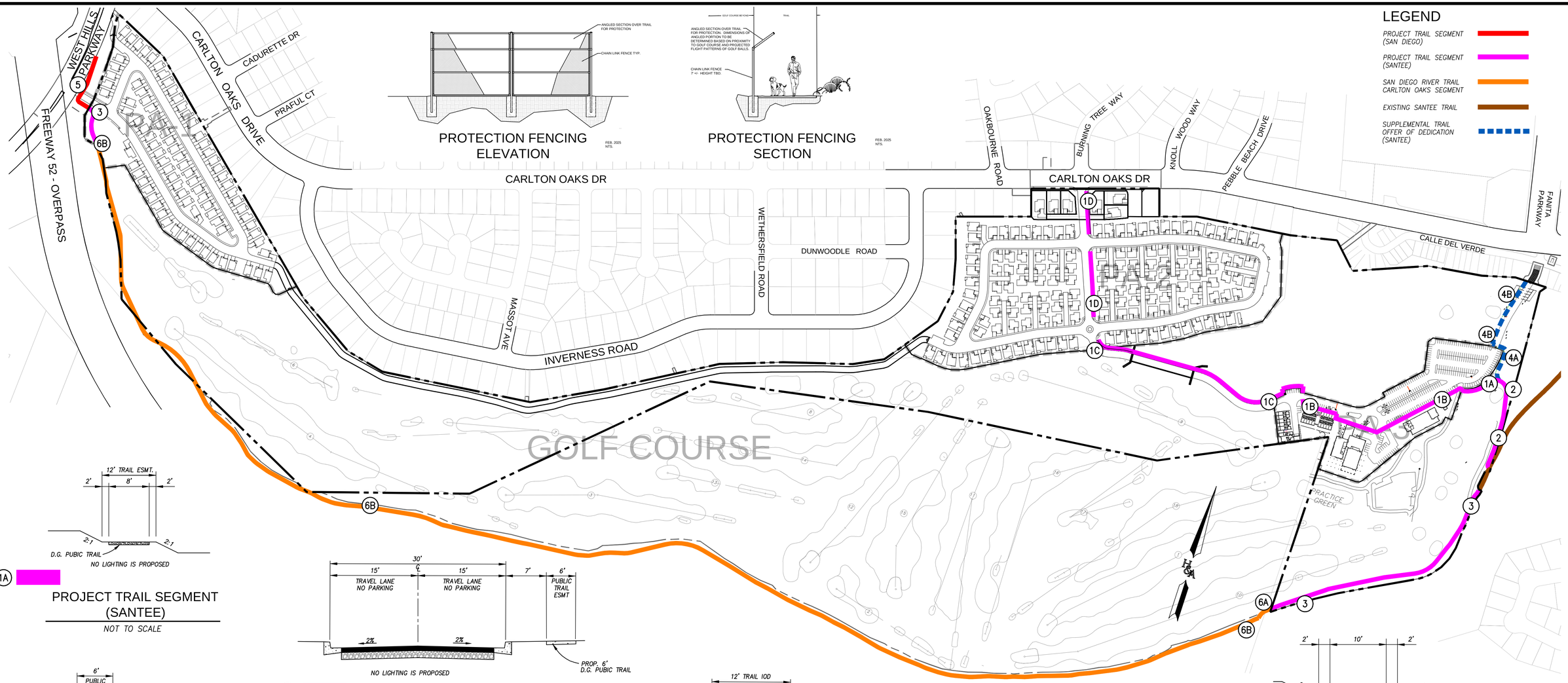






PROTECTION FENCING ELEVATION

FEB. 2025
NTS.




PROTECTION FENCING SECTION

FEB. 2025
NTS.

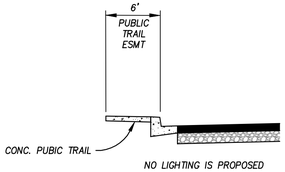
## LEGEND

- PROJECT TRAIL SEGMENT (SAN DIEGO)
- PROJECT TRAIL SEGMENT (SANTEE)
- SAN DIEGO RIVER TRAIL CARLTON OAKS SEGMENT
- EXISTING SANTEE TRAIL
- SUPPLEMENTAL TRAIL OFFER OF DEDICATION (SANTEE)

1A

PROJECT TRAIL SEGMENT (SANTEE)

NOT TO SCALE




1B

PROJECT TRAIL SEGMENT (SANTEE)

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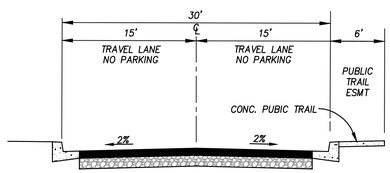



1C

PROJECT TRAIL SEGMENT (SANTEE)

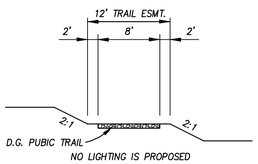
NOT TO SCALE




1D

PROJECT TRAIL SEGMENT (SANTEE)

NOT TO SCALE

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PROJECT TRAIL SEGMENT (SANTEE)

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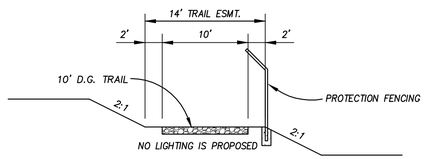


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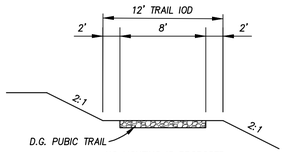
PROJECT TRAIL SEGMENT (SANTEE)

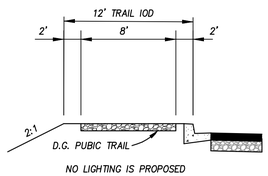
NOT TO SCALE




4A

SUPPLEMENTAL TRAIL OFFER OF DEDICATION (SANTEE)

NOT TO SCALE




4B

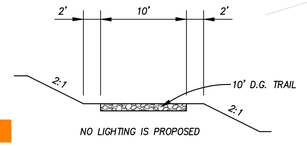
SUPPLEMENTAL TRAIL OFFER OF DEDICATION (SANTEE)

NOT TO SCALE

5

PROJECT TRAIL SEGMENT (SAN DIEGO)

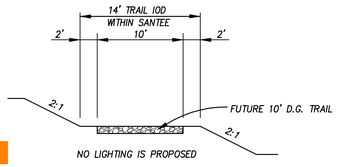
NOT TO SCALE




6A

SAN DIEGO RIVER TRAIL CARLTON OAKS SEGMENT

NOT TO SCALE




6B

FUTURE SAN DIEGO RIVER TRAIL CARLTON OAKS SEGMENT

NOT TO SCALE

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TRAIL PLAN

# CARLTON OAKS COUNTRY CLUB AND RESORT

CITY OF SANTEE, CALIFORNIA

SHEET 9 OF 40

WO NO. 2167-0228

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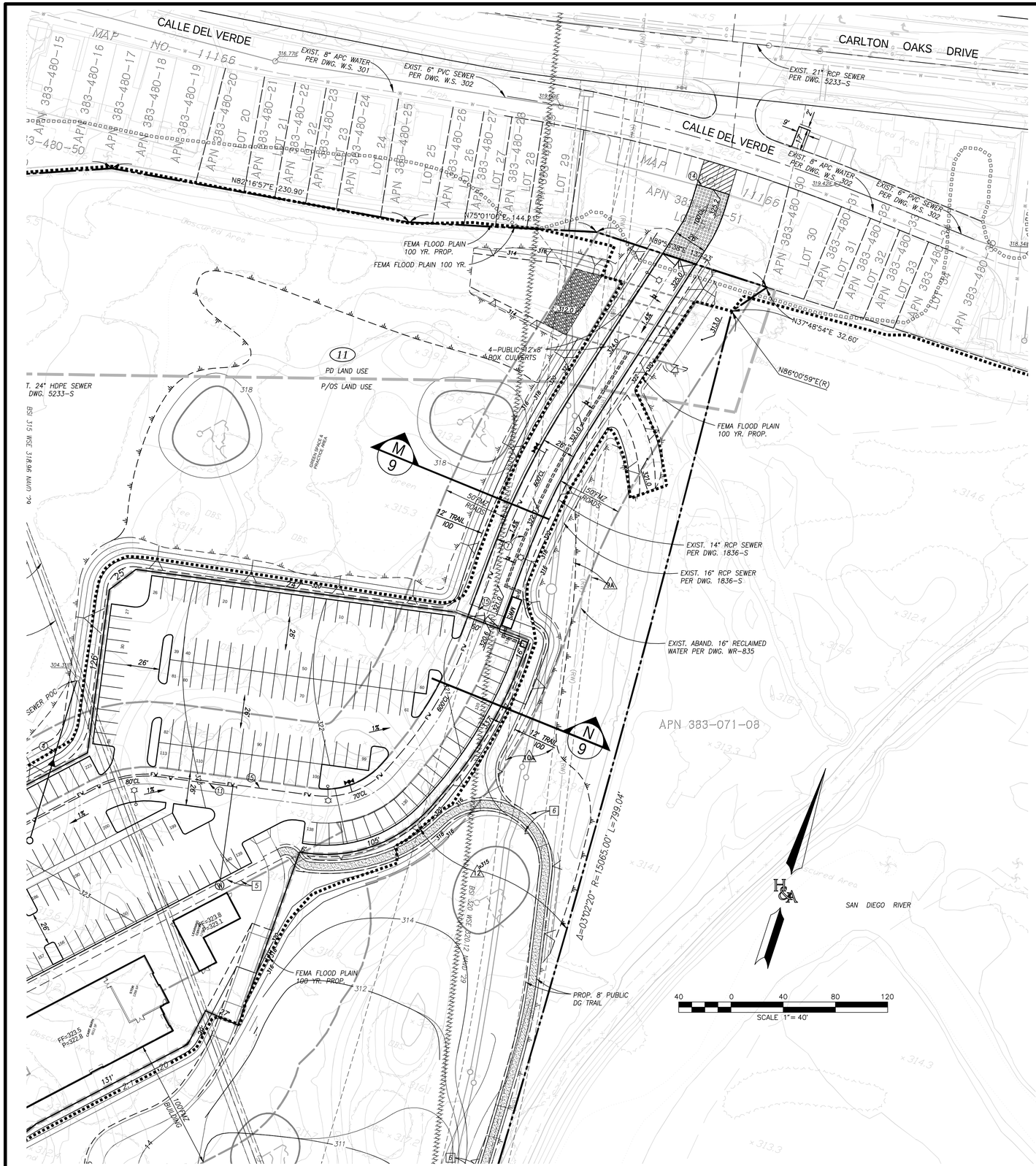


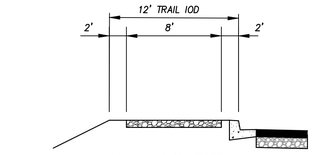


NO LIGHTING IS PROPOSED

SUPPLEMENTAL TRAIL
OFFER OF DEDICATION (SANTEE)

## SECTION "M"

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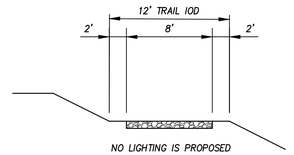


NO LIGHTING IS PROPOSED

SUPPLEMENTAL TRAIL
OFFER OF DEDICATION (SANTEE)

## SECTION "N"

NOT TO SCALE

## DESIGN NOTES

1. PROP. PRIVATE STORM DRAIN
2. PROP. PRIVATE 84" RCP STORM DRAIN
3. PROP. PUBLIC 15" PVC SEWER
4. PROP. PRIVATE 8" PVC SEWER
5. PROP. PRIVATE 4" PVC SEWER
6. PROP. PRIVATE 4" PVC SEWER FORCE MAIN
7. PROP. PUBLIC 10" PVC WATER
8. NOT USED
9. PROP. PRIVATE 8" PVC FIRE WATER
10. PROP. PRIVATE 6" PVC WATER
11. PROP. PRIVATE 4" PVC WATER
12. PROP. MASTER WATER METER
13. PROP. BACKFLOW
14. PROP. 4" MOD. ROLLED CURB
15. PROP. PRIVATE 10" PVC FIRE WATER
16. PROP. PRIVATE 12" PVC FIRE WATER
17. PROP. PRIVATE 90" RCP STORM DRAIN
18. PROP. PRIVATE 42" RCP STORM DRAIN
19. PROP. PRIVATE 43"x68" RCP STORM DRAIN
20. PROP. PRIVATE 18" RCP STORM DRAIN
21. PROP. PRIVATE 24"x38" RCP STORM DRAIN
22. PROP. PRIVATE 36" RCP STORM DRAIN
23. UNIMPROVED GRADED BENCH FUTURE TRAIL BY OTHERS
24. 14' GRADED TRAIL AND 10' D.G.
25. FUTURE TRAIL IMP. BY OTHERS
26. PROP. PRIVATE (3)-78" RCP STORM DRAIN

## PROPOSED EASEMENTS

1. PVT. 16' RECIPROCAL ACCESS
2. 25' PUBLIC SEWER
3. 51' PVT. ACCESS
4. 25' WATER TO P.D.M.W.D.
5. 6' PUBLIC TRAIL
6. 12' PUBLIC TRAIL
7. 14' PUBLIC TRAIL
8. PVT. ACCESS WIDTH VARIES

CARY BICKLER, INC.
GOLF COURSE DESIGN
AMERICAN SOCIETY OF GOLF COURSE ARCHITECTS
1220 Rosecrans Street, Suite 314
San Diego, California 92106
Phone: (619) 223-3240
E-mail: cb@bickler.com Web Site: www.bickler.com

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SUPPLEMENTAL TRAIL
OFFER OF DEDICATION (SANTEE)

# CARLTON OAKS COUNTRY CLUB AND RESORT

CITY OF SANTEE, CALIFORNIA

SHEET 10 OF 40

WO NO. 2167-0228

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## PROPOSED EASEMENTS

1. PVT. 16' RECIPROCAL ACCESS
2. 25' PUBLIC SEWER
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4. 25' WATER TO P.D.M.W.D.
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24. 14' GRADED TRAIL AND 10' D.G.
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26. PROP. PRIVATE (3)-78" RCP STORM DRAIN

H&A

40 0 40 80 120
SCALE 1"= 40'

CARY BICKLER, INC.
GOLF COURSE DESIGN
AMERICAN SOCIETY OF GOLF COURSE ARCHITECTS
1220 Rosecrans Street, Suite 314
San Diego, California 92106
Phone: (619) 223-3240
E-mail: cb@bickler.com Web Site: www.bickler.com

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PLANNING 9707 Waples Street
ENGINEERING San Diego, Ca 92121
SURVEYING PH(858)558-4500- FX(858)558-1414

TENTATIVE MAP / SITE PLAN
# CARLTON OAKS COUNTRY CLUB AND RESORT
CITY OF SANTEE, CALIFORNIA

SHEET 11 OF 40

WO NO. 2167-0228

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NO. 11

SHEET SEE

NO. 15

SHEET SEE

INVERNESS ROAD

EXIST. 10" ACP WATER PER DWG. 2929-5

EXIST. 8" VCP SEWER PER DWG. 2929-5

EXIST. ABAND. 8" SEWER FORCE MAIN S-17-A PER DWG. 2929-5

EXIST. 12" ACP WATER PER DWG. 2929-5

EXIST. ABAND. 15" VCP SEWER S-17-A PER DWG. 2929-5

APN 383-431-03 LOT 683

APN 383-431-05 LOT 684

APN 383-431-06 LOT 685

APN 383-381-28 LOT 259 MAP NO. 7295

APN 383-381-03 LOT 258 MAP NO. 6973

APN 383-381-04 LOT 257

APN 383-381-05 LOT 256

APN 383-381-06 LOT 255

APN 383-381-07 LOT 254

APN 383-381-08 LOT 253

APN 383-381-09 LOT 252

APN 383-381-10 LOT 251

APN 383-381-11 LOT 250

APN 383-381-12 LOT 249

APN 383-381-13 LOT 248

N48°11'08"W 925.24'

N57°57'43"W 284.01'

N77°07'17"W 172.36'

866'

59'

FEMA FLOOD PLAIN 100 YR.

FEMA FLOOD PLAIN 100 YR. PROP.

PVT. STREET 'C'

PVT. STREET 'A'

PVT. SEWER LIFT STA. P=314.0

SEE DETAIL SHT. 4

RETAIN. WALL

MSE RETAINING WALL

107'HT. BUILDING

PD LAND USE

P/OS LAND USE

SAN DIEGO RIVER (NORTH)

14' TRAIL 100

CITY OF SANTEE

CITY OF SAN DIEGO

N25°41'59"W 69.30'

N19°41'10"W 173.00'

N57°51'03"W 358.69'

N63°40'46"W 783.15'

SCALE 1"=40'

## PROPOSED EASEMENTS

1. PVT. 16' RECIPROCAL ACCESS
2. 25' PUBLIC SEWER
3. 51' PVT. ACCESS
4. 25' WATER TO P.D.M.W.D.
5. 6' PUBLIC TRAIL
6. 12' PUBLIC TRAIL
7. 14' PUBLIC TRAIL
8. PVT. ACCESS WIDTH VARIES

## DESIGN NOTES

1. PROP. PRIVATE STORM DRAIN
2. PROP. PRIVATE 84" RCP STORM DRAIN
3. PROP. PUBLIC 15" PVC SEWER
4. PROP. PRIVATE 8" PVC SEWER
5. PROP. PRIVATE 4" PVC SEWER
6. PROP. PRIVATE 4" PVC SEWER FORCE MAIN
7. PROP. PUBLIC 10" PVC WATER
8. NOT USED
9. PROP. PRIVATE 8" PVC FIRE WATER
10. PROP. PRIVATE 6" PVC WATER
11. PROP. PRIVATE 4" PVC WATER
12. PROP. MASTER WATER METER
13. PROP. BACKFLOW
14. PROP. 4" MOD. ROLLED CURB
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16. PROP. PRIVATE 12" PVC FIRE WATER
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19. PROP. PRIVATE 43"x68" RCP STORM DRAIN
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21. PROP. PRIVATE 24"x38" RCP STORM DRAIN
22. PROP. PRIVATE 36" RCP STORM DRAIN
23. UNIMPROVED GRADED BENCH FUTURE TRAIL BY OTHERS
24. 14' GRADED TRAIL AND 10' D.G.
25. FUTURE TRAIL IMP. BY OTHERS
26. PROP. PRIVATE (3)-78" RCP STORM DRAIN

FA-1


CARY BICKLER, INC.
GOLF COURSE DESIGN
AMERICAN SOCIETY OF GOLF COURSE ARCHITECTS
1220 Rosecrans Street, Suite 314
San Diego, California 92106
Phone: (619) 223-3240
E-mail: cb@bickler.com Web Site: www.bickler.com

PREPARED BY:
HUNSAKER & ASSOCIATES SAN DIEGO, INC
PLANNING 9707 Waples Street
ENGINEERING San Diego, Ca 92121
SURVEYING PH(858)558-4500- FX(858)558-1414


TENTATIVE MAP / SITE PLAN

# CARLTON OAKS COUNTRY CLUB AND RESORT

CITY OF SANTEE, CALIFORNIA

SHEET 12 OF 40

WO NO. 2167-0228

R:\1759\&Pln\Santee\1759 Site Plan Sht 11,12,15-21,24-27.dwg[]Feb-03-2025:20:07

## PROPOSED EASEMENTS

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26. PROP. PRIVATE (3)-78" RCP STORM DRAIN

SCALE 1" = 40'

PREPARED BY:

HUNSAKER & ASSOCIATES SAN DIEGO, INC

PLANNING 9707 Waples Street
ENGINEERING San Diego, Ca 92121
SURVEYING PH(858)558-4500- FX(858)558-1414

# PRELIMINARY GRADING AND STORM DRAIN PLAN

# CARLTON OAKS COUNTRY CLUB AND RESORT

CITY OF SANTEE, CALIFORNIA

SHEET 13 OF 40

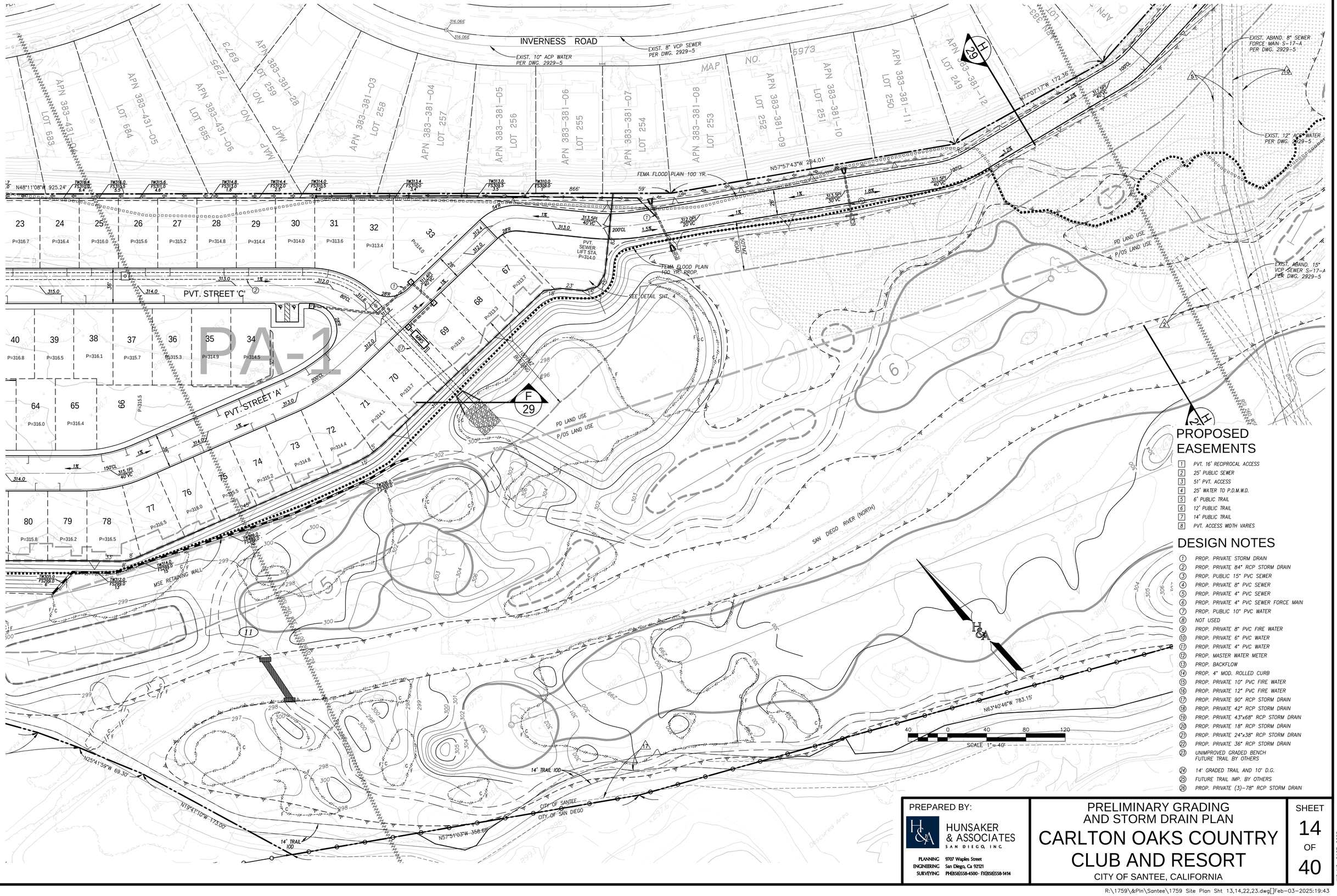
SHEET NO. 14

SEE

PA-1

WO NO. 2167-0228

R:\1759\&Pln\Santee\1759 Site Plan Sht 13,14,22,23.dwg[]Mar-25-2025:15:09




## PROPOSED EASEMENTS

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2. 25' PUBLIC SEWER
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PRELIMINARY GRADING AND STORM DRAIN PLAN

# CARLTON OAKS COUNTRY CLUB AND RESORT

CITY OF SANTEE, CALIFORNIA

SHEET 14 OF 40

WO NO. 2167-0228

R:\1759\&Pln\Santee\1759 Site Plan Sht 13,14,22,23.dwg[]Feb-03-2025:19:43

SEE SHEET NO. 16

SEE SHEET NO. 12

SEE SHEET NO. 16

## PROPOSED EASEMENTS

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SCALE 1"= 40'

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TENTATIVE MAP / SITE PLAN

# CARLTON OAKS COUNTRY CLUB AND RESORT

CITY OF SANTEE, CALIFORNIA

SHEET 15 OF 40

WO NO. 2167-0228

R:\1759\&Pln\Santee\1759 Site Plan Sht 11,12,15-21,24-27.dwg[]Feb-03-2025:20:08

INVERNESS ROAD

MASSOT AVENUE

APN 383-388-51
APN 383-388-50
APN 383-388-49
APN 383-388-48
APN 383-388-47
APN 383-388-46
APN 383-388-45
APN 383-382-26
APN 383-382-27
APN 383-382-28
APN 383-382-29
APN 383-382-30
APN 383-382-31
APN 383-382-32
APN 383-382-33
APN 383-382-34
APN 383-382-35
APN 383-381-13 LOT 248
APN 383-381-14 LOT 247
APN 383-381-15 LOT 246
APN 383-381-16 LOT 245
APN 383-381-17 LOT 244
APN 383-381-18 LOT 243
APN 383-381-19 LOT 242
APN 383-381-20 LOT 241
APN 383-381-21 LOT 240
APN 383-381-22 LOT 239
APN 383-381-23 LOT 238
APN 383-381-24 LOT 237
APN 383-381-25 LOT 236
APN 383-381-26 LOT 235
APN 383-381-27 LOT 234
APN 383-330-42 LOT 233
APN 383-330-41 LOT 232
APN 383-330-40 LOT 231
APN 383-330-39 LOT 230
APN 383-330-38 LOT 229
APN 383-330-37 LOT 228

MAP NO. 6973

EXIST. 8" VCP SEWER PER DWG. 2929-5
EXIST. 10" VCP SEWER PER DWG. 2929-5
EXIST. 10" ACP WATER PER DWG. 2929-5
EXIST. 15" STORM DRAIN ESMT.
EXIST. 47"x71" ARCH STORM DRAIN PER DWG. 2929-5
EXIST. ABAND. 15" VCP SEWER PER DWG. S-17-A
EXIST. 15" VCP SEWER PER DWG. S-17A
EXIST. 18" RCP STORM DRAIN PER DWG. 2929-5
EXIST. 15" VCP SEWER PER DWG. S-17A
STORM DRAIN POC
STORM DRAIN POC

N83°38'16"E 643.09'
N62°12'08"E 320.22'
N59°34'19"E 504.50'
N72°36'44"E 695.08'
N61°56'57"E 1131.88'

NOTE: 0.3% GRADING DISTURBANCE OVER EXISTING ARCHIVE FILL WILL MINIMUM 18" OVER IRRIGATION PIPING TO AVOID EXCAVATION

EXIST. ABAND. 8" SEWER FORCE MAIN PER DWG. 2929-5
EXIST. 8" WATER PER DWG. 2929-5

FEMA FLOOD PLAIN 100 YR.
FEMA FLOOD PLAIN 100 YR. PROP.

PD LAND USE
P/OS LAND USE

SAN DIEGO RIVER (NORTH)

CITY OF SANTEE
CITY OF SAN DIEGO

APN 383-080-03

50'PVT. ROAD

SCALE 1" = 40'

SEE SHEET NO. 12
SEE SHEET NO. 15
SEE SHEET NO. 18
SEE SHEET NO. 15
SEE SHEET NO. 17

## DESIGN NOTES

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## PROPOSED EASEMENTS

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8. PVT. ACCESS WIDTH VARIES

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TENTATIVE MAP / SITE PLAN
# CARLTON OAKS COUNTRY CLUB AND RESORT
CITY OF SANTEE, CALIFORNIA

SHEET 16 OF 40

WO NO. 2167-0228

R:\1759\&Pln\Santee\1759 Site Plan Sht 11,12,15-21,24-27.dwg[]Feb-02-2025:19:47

SEE SHEET NO. 16

SEE SHEET NO. 18

SEE SHEET NO. 16

SEE SHEET NO. 18

SEE SHEET NO. 19

FEMA FLOOD PLAIN 100 YR. PROP.

FEMA FLOOD PLAIN 100 YR.

FM

PD LAND USE

P/OS LAND USE

MAGNOLIA AVE. TIE 1131.88

SAN DIEGO RIVER (NORTH)

CITY OF SANTEE

CITY OF SAN DIEGO

APN 383-080-03

SAVE NATURE SYCAMORE

APN 383-080-03

SAN DIEGO RIVER (SOUTH)

Obscured Area

Sand

Grass

SCALE 1"= 40'

## DESIGN NOTES

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TENTATIVE MAP / SITE PLAN

# CARLTON OAKS COUNTRY CLUB AND RESORT

CITY OF SANTEE, CALIFORNIA

SHEET 17 OF 40

WO NO. 2167-0228

R:\1759\&Pln\Santee\1759 Site Plan Sht 11,12,15-21,24-27.dwg[]Feb-02-2025:19:49

SEE SHEET NO. 20

SEE SHEET NO. 16

SEE SHEET NO. 24

SEE SHEET NO. 19

## PROPOSED EASEMENTS

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TENTATIVE MAP / SITE PLAN

# CARLTON OAKS COUNTRY CLUB AND RESORT

CITY OF SANTEE, CALIFORNIA

SHEET 18 OF 40

WO NO. 2167-0228

R:\1759\&Pln\Santee\1759 Site Plan Sht 11,12,15-21,24-27.dwg[]Feb-02-2025:19:52

SEE SHEET NO. 18

SEE SHEET NO. 17

SEE SHEET NO. 24

SEE SHEET NO. 25

SEE SHEET NO. 25

SAN DIEGO RIVER (SOUTH)

APN 383-080-03

## DESIGN NOTES

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40 0 40 80 120
SCALE 1"= 40'


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## PROPOSED EASEMENTS

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2. 25' PUBLIC SEWER
3. 51' PVT. ACCESS
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SEE SHEET NO. 18

SEE SHEET NO. 24

SEE SHEET NO. 21

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PLANNING 9707 Waples Street
ENGINEERING San Diego, Ca 92121
SURVEYING PH(858)558-4500- FX(858)558-1414

TENTATIVE MAP / SITE PLAN

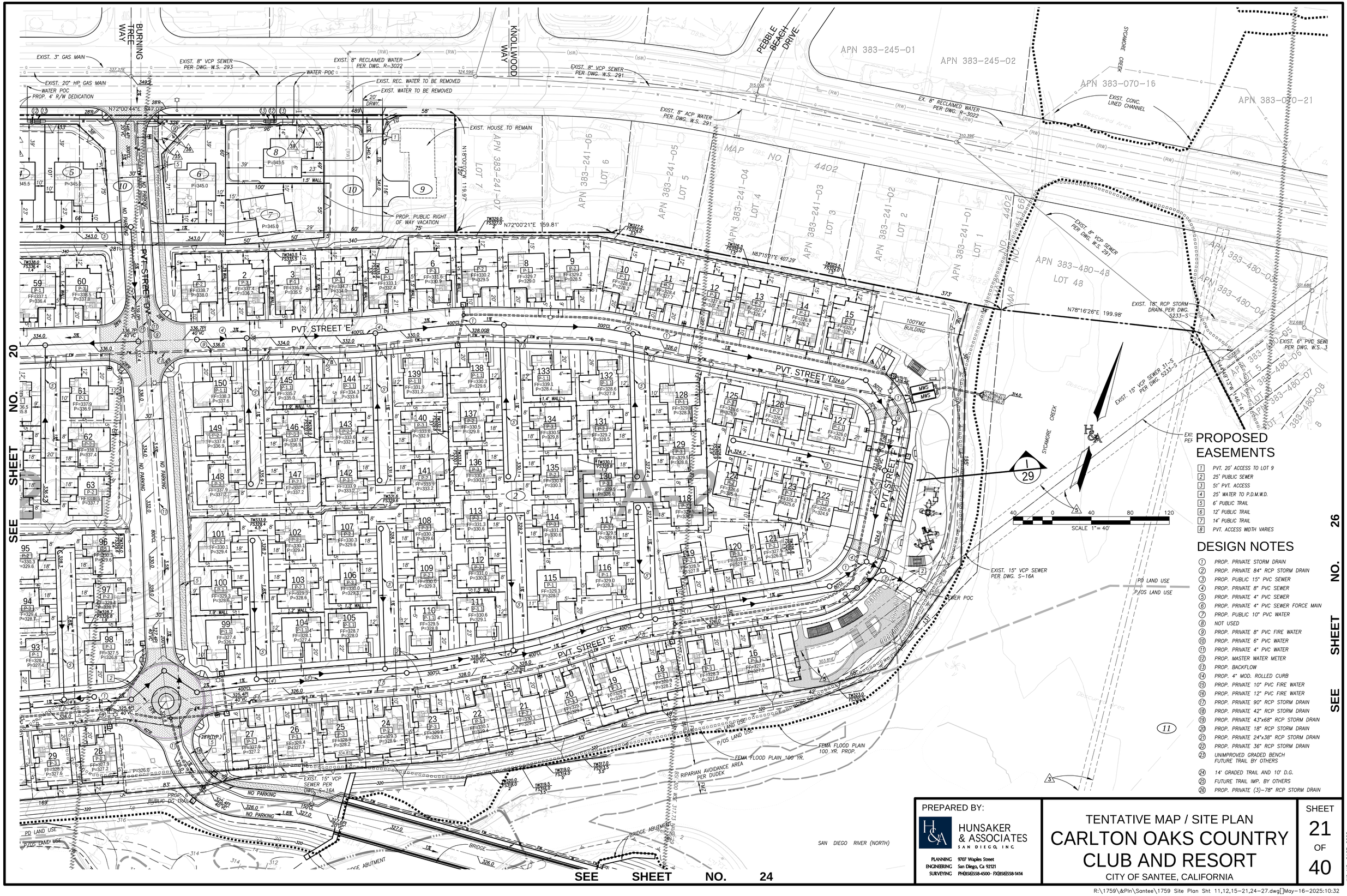
# CARLTON OAKS COUNTRY CLUB AND RESORT

CITY OF SANTEE, CALIFORNIA

SHEET 20 OF 40

WO NO. 2167-0228

R:\1759\&Pln\Santee\1759 Site Plan Sht 11,12,15-21,24-27.dwg[]May-16-2025:10:32




## PROPOSED EASEMENTS

1. PVT. 20' ACCESS TO LOT 9
2. 25' PUBLIC SEWER
3. 51' PVT. ACCESS
4. 25' WATER TO P.D.M.W.D.
5. 6' PUBLIC TRAIL
6. 12' PUBLIC TRAIL
7. 14' PUBLIC TRAIL
8. PVT. ACCESS WIDTH VARIES

## DESIGN NOTES

1. PROP. PRIVATE STORM DRAIN
2. PROP. PRIVATE 84" RCP STORM DRAIN
3. PROP. PUBLIC 15" PVC SEWER
4. PROP. PRIVATE 8" PVC SEWER
5. PROP. PRIVATE 4" PVC SEWER
6. PROP. PRIVATE 4" PVC SEWER FORCE MAIN
7. PROP. PUBLIC 10" PVC WATER
8. NOT USED
9. PROP. PRIVATE 8" PVC FIRE WATER
10. PROP. PRIVATE 6" PVC WATER
11. PROP. PRIVATE 4" PVC WATER
12. PROP. MASTER WATER METER
13. PROP. BACKFLOW
14. PROP. 4" MOD. ROLLED CURB
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22. PROP. PRIVATE 36" RCP STORM DRAIN
23. UNIMPROVED GRADED BENCH FUTURE TRAIL BY OTHERS
24. 14' GRADED TRAIL AND 10' D.G.
25. FUTURE TRAIL IMP. BY OTHERS
26. PROP. PRIVATE (3)-78" RCP STORM DRAIN


PREPARED BY:
HUNSAKER & ASSOCIATES SAN DIEGO, INC
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TENTATIVE MAP / SITE PLAN

# CARLTON OAKS COUNTRY CLUB AND RESORT

CITY OF SANTEE, CALIFORNIA

SHEET 21 OF 40

WO NO. 2167-0228

R:\1759\&Pln\Santee\1759 Site Plan Sht 11,12,15-21,24-27.dwg[]May-16-2025:10:32

## PROPOSED EASEMENTS

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3. 51' PVT. ACCESS
4. 25' WATER TO P.D.M.W.D.
5. 6' PUBLIC TRAIL
6. 12' PUBLIC TRAIL
7. 14' PUBLIC TRAIL
8. PVT. ACCESS WIDTH VARIES

## DESIGN NOTES

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2. PROP. PRIVATE 84" RCP STORM DRAIN
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8. NOT USED
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25. FUTURE TRAIL IMP. BY OTHERS
26. PROP. PRIVATE (3)-78" RCP STORM DRAIN

SCALE 1" = 40'

PA-2

PREPARED BY:

HUNSAKER & ASSOCIATES SAN DIEGO, INC

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PRELIMINARY GRADING AND STORM DRAIN PLAN

# CARLTON OAKS COUNTRY CLUB AND RESORT

CITY OF SANTEE, CALIFORNIA

SHEET 22 OF 40

WO NO. 2167-0228

SEE SHEET NO. 23

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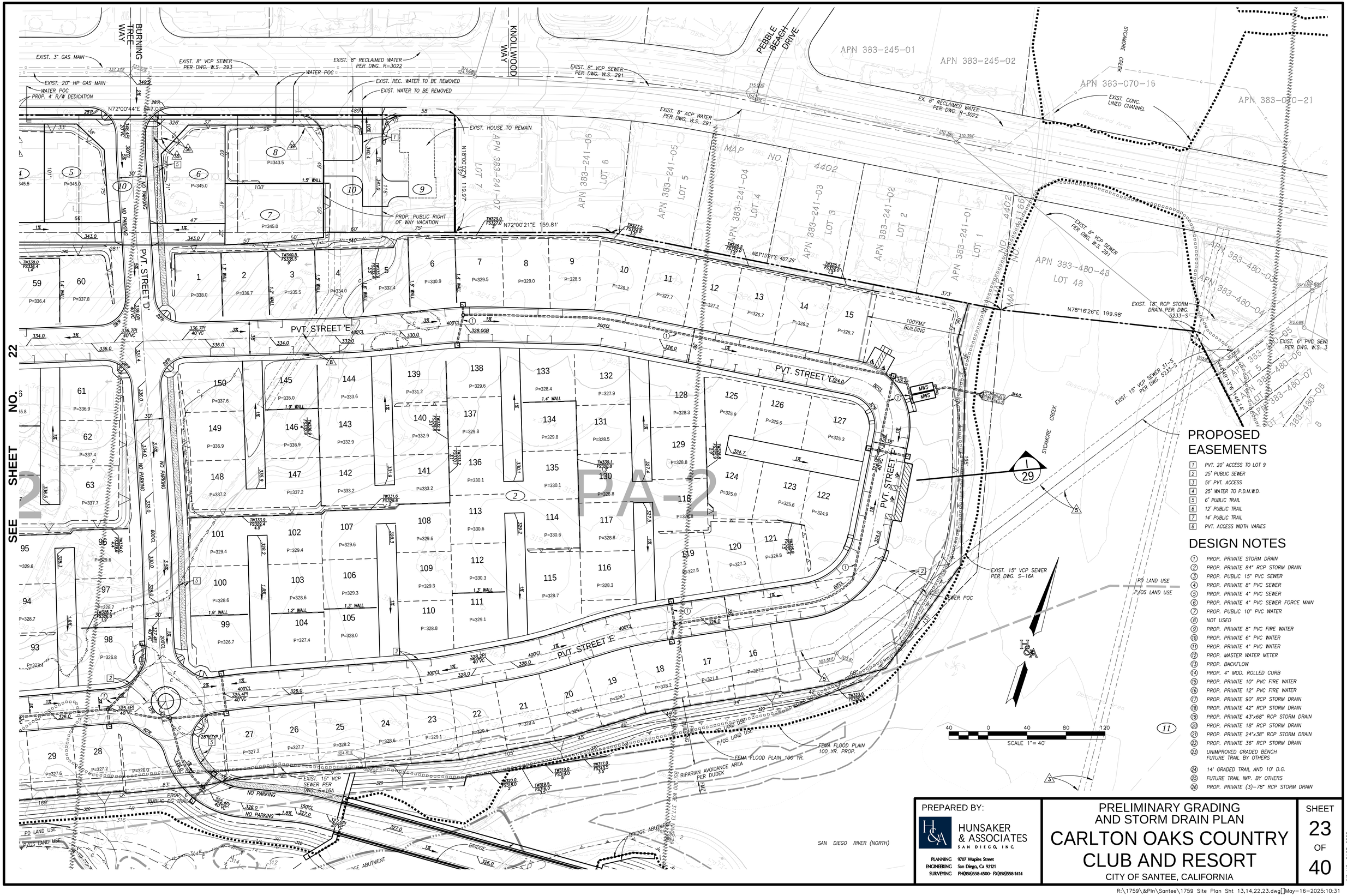


## PROPOSED EASEMENTS

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4. 25' WATER TO P.D.M.W.D.
5. 6' PUBLIC TRAIL
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8. PVT. ACCESS WIDTH VARIES

## DESIGN NOTES

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# PRELIMINARY GRADING AND STORM DRAIN PLAN
# CARLTON OAKS COUNTRY CLUB AND RESORT
CITY OF SANTEE, CALIFORNIA

SHEET 23 OF 40

WO NO. 2167-0228

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SEE SHEET NO. 20

SEE SHEET NO. 21

## PROPOSED EASEMENTS

1. PVT. 16' RECIPROCAL ACCESS
2. 25' PUBLIC SEWER
3. 51' PVT. ACCESS
4. 25' WATER TO P.D.M.W.D.
5. 6' PUBLIC TRAIL
6. 12' PUBLIC TRAIL
7. 14' PUBLIC TRAIL
8. PVT. ACCESS WIDTH VARIES

## DESIGN NOTES

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SEE SHEET NO. 18

SEE SHEET NO. 26

SEE SHEET NO. 27

SEE SHEET NO. 25

SCALE 1" = 40'

CARY BICKLER, INC.
GOLF COURSE DESIGN
AMERICAN SOCIETY OF GOLF COURSE ARCHITECTS
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San Diego, California 92106
Phone: (619) 223-3240
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TENTATIVE MAP / SITE PLAN

# CARLTON OAKS COUNTRY CLUB AND RESORT

CITY OF SANTEE, CALIFORNIA

SHEET 24 OF 40

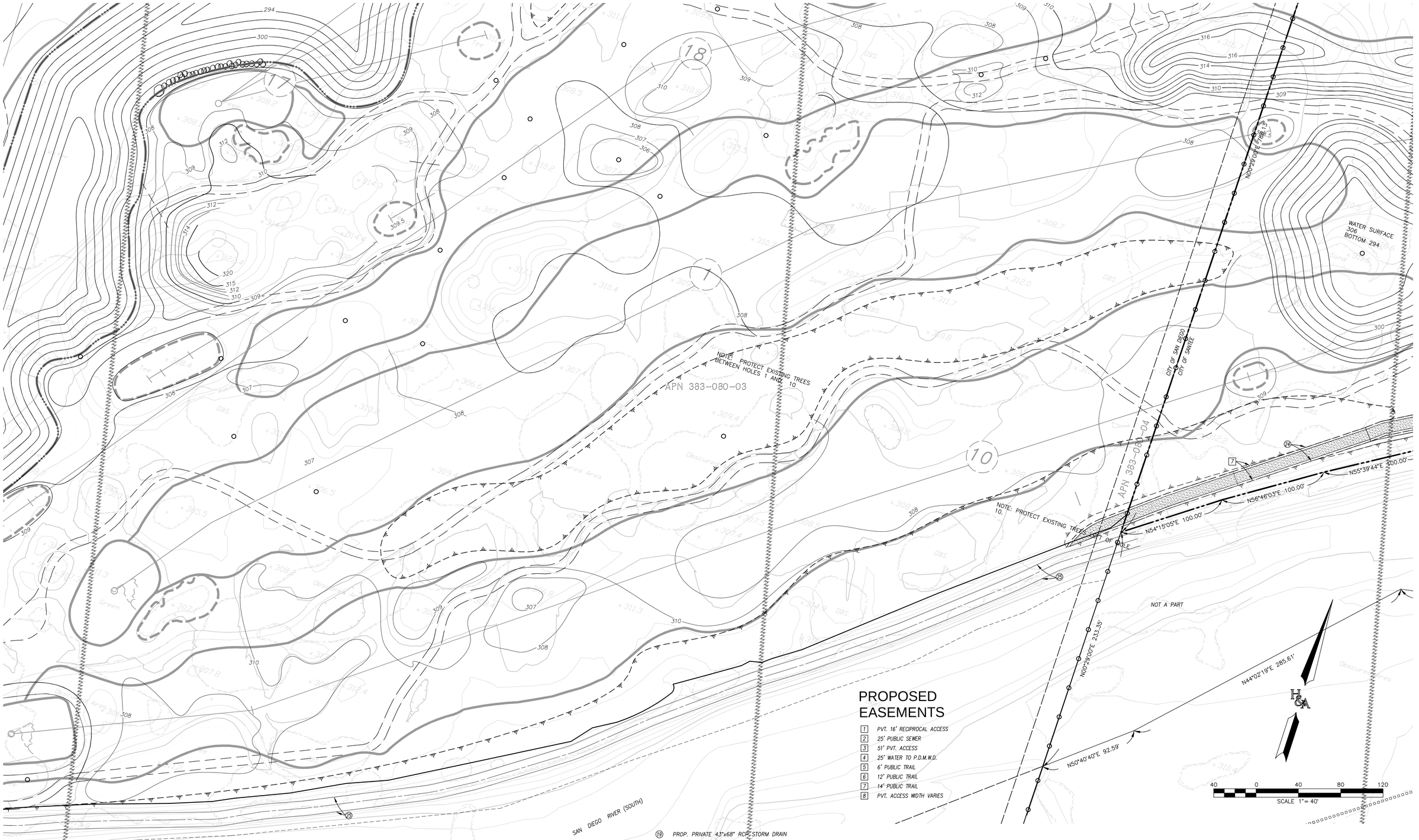
WO NO. 2167-0228

R:\1759\&Pln\Santee\1759 Site Plan Sht 11,12,15-21,24-27.dwg[]Feb-02-2025:20:06

SEE SHEET NO. 24

SEE SHEET NO. 19

SEE SHEET NO. 27




## PROPOSED EASEMENTS

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2. 25' PUBLIC SEWER
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4. 25' WATER TO P.D.M.W.D.
5. 6' PUBLIC TRAIL
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8. PVT. ACCESS WIDTH VARIES

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CARY BICKLER, INC.
GOLF COURSE DESIGN
AMERICAN SOCIETY OF GOLF COURSE ARCHITECTS
1220 Rosecrans Street, Suite 314
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TENTATIVE MAP / SITE PLAN

# CARLTON OAKS COUNTRY CLUB AND RESORT

CITY OF SANTEE, CALIFORNIA

SHEET 25 OF 40

WO NO. 2167-0228

R:\1759\&Pln\Santee\1759 Site Plan Sht 11,12,15-21,24-27.dwg[]Feb-02-2025:20:02

CALLE DEL VERDE

CARLTON OAKS DRIVE

EXIST. 15" VCP SEWER 31-S PER DWG. 5233-S

EXIST. 6" PVC SEWER PER DWG. W.S. 301

EXIST. 24" HDPE SEWER PER DWG. 5233-S

EXIST. 8" APC WATER PER DWG. W.S. 301

EXIST. 6" PVC SEWER PER DWG. W.S. 302

EXIST. 21" RCP SEWER PER DWG. 5233-S

EXIST. 15" VCP SEWER PER DWG. S-16A

N44°49'13"W 146.14'

N68°20'21"E 325.97'

N82°16'57"E 230.90'

N75°01'00"E 144.21'

FEMA FLOOD PLAIN 100 YR. PROP.

FEMA FLOOD PLAIN 100 YR.

N37°48'54"E 32.60'

N86°00'59"E(R)

4-PUBLIC 12'x8' BOX CULVERTS

PD LAND USE

P/OS LAND USE

SAN DIEGO RIVER (NORTH)

EXIST. 14" RCP SEWER PER DWG. 1836-S

EXIST. 16" RCP SEWER PER DWG. 1836-S

EXIST. ABAND. 16" RECLAIMED WATER PER DWG. WR-835

PROP. 8' PUBLIC DG TRAIL

Δ=03°02'20" R=15065.00' L=799.04'

SAN DIEGO RIVER

APN 383-071-08

SEWER POC

Well No. 3

HOTEL

POOL

DRIVEWAY

FIRE LANE

LOADING

DROP-OFF

TRASH ENCL.

CITY OF SANTEE
CITY OF SAN DIEGO

SEE SHEET NO. 21

SEE SHEET NO. 24

SEE SHEET NO. 27

PA-3

## PROPOSED EASEMENTS

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SCALE 1"= 40'

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TENTATIVE MAP / SITE PLAN

# CARLTON OAKS COUNTRY CLUB AND RESORT

CITY OF SANTEE, CALIFORNIA

SHEET 26 OF 40

WO NO. 2167-0228

R:\1759\&Pln\Santee\1759 Site Plan Sht 11,12,15-21,24-27.dwg[]Feb-02-2025:20:09

SEE SHEET NO. 26

SEE SHEET NO. 24

SEE SHEET NO. 25

CITY OF SAN DIEGO

FF=323.3
P=322.5

FEMA FLOOD PLAIN
100 YR. PROP.

EXIST. BLDG. TO REMAIN

TOYTMZ BUILDING

WATER SURFACE
306
BOTTOM 294

Well No. 2

SAN DIEGO RIVER (SOUTH)

NOT A PART

APN 383-071-02

PROP. 8' PUBLIC
DG TRAIL

EXIST. 24" HDPE SEWER
PER DWG. 5233-S

FORESTER CREEK

N61°58'04"E 200.00'
N61°32'44"E 100.00'
N55°39'44"E 200.00'
N46°03'E 100.00'
N81°17'29"E 455.63'
N32°04'16"W 21.94'
N55°25'32"E 2.27'
N55°38'17"E 20.00'
N51°04'34"E 20.03'
N45°58'28"E 20.11'
N37°39'17"E 50.00'
N25°40'08"E 50.00'
N00°01'57"W 498.67'
N63°16'21"E 50.00'
Δ=00°54'48" R=5065.00' L=240.13'

| LINE TABLE | | |
|---|---|---|
| # | BEARING | DISTANCE |
| L1 | N89°3'19"E | 19.09' |
| L2 | N08°3'58"E | 73.97' |
| L3 | N29°7'17"W | 13.42' |
| L4 | N81°16'22"W | 15.48' |
| L5 | N10°2'01"E | 10.32' |
| L6 | N14°44'14"E | 10.17' |
| L7 | N24°8'40"E | 10.17' |
| L8 | N16°8'46"E | 16.71' |
| L9 | N03°26'39"E | 58.12' |
| L10 | N03°26'39"E | 58.12' |
| L11 | N09°14'37"E | 28.21' |
| L12 | N03°15'15"E | 29.60' |
| L13 | N04°5'52"E | 50.00' |
| L14 | N13°25'35"E | 50.00' |

## PROPOSED EASEMENTS

1. PVT. 16' RECIPROCAL ACCESS
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40 0 40 80 120
SCALE 1" = 40'


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TENTATIVE MAP / SITE PLAN

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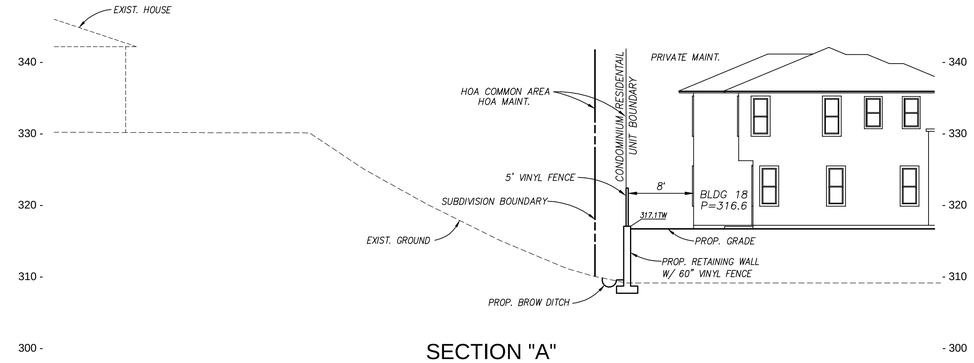
CITY OF SANTEE, CALIFORNIA

SHEET 27 OF 40

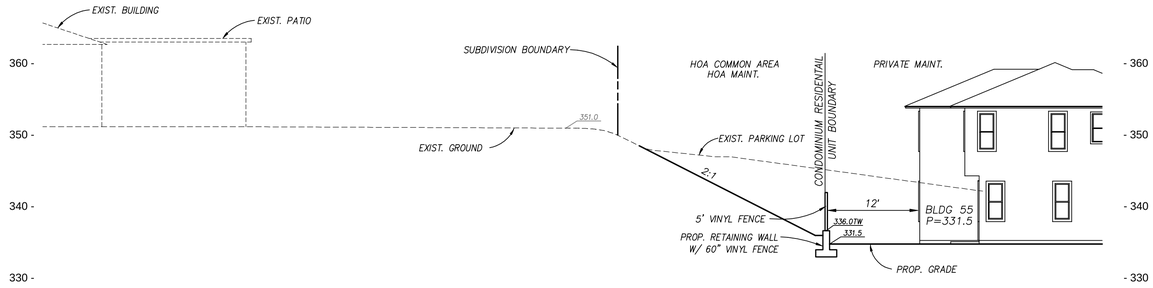
WO NO. 2167-0228

R:\1759\&Pln\Santee\1759 Site Plan Sht 11,12,15-21,24-27.dwg[]Feb-02-2025:20:09




## SECTION "A"

SCALE: HORIZ/VERT 1"=10'



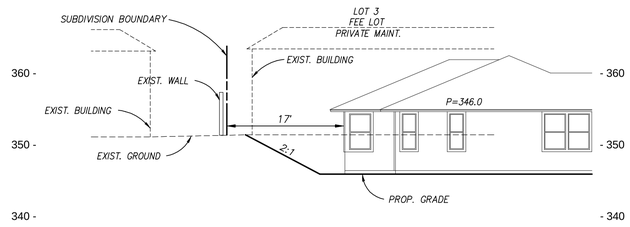

## SECTION "C"

SCALE: HORIZ/VERT 1"=10'



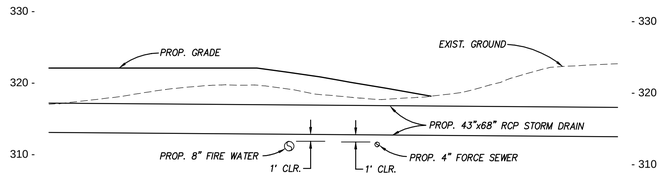

## SECTION "B"

SCALE: HORIZ/VERT 1"=10'




## SECTION "D"

SCALE: HORIZ/VERT 1"=10'




## SECTION "E"

SCALE: HORIZ/VERT 1"=10'

PREPARED BY:

HUNSAKER & ASSOCIATES
SAN DIEGO, INC

PLANNING
ENGINEERING
SURVEYING

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SITE SECTIONS

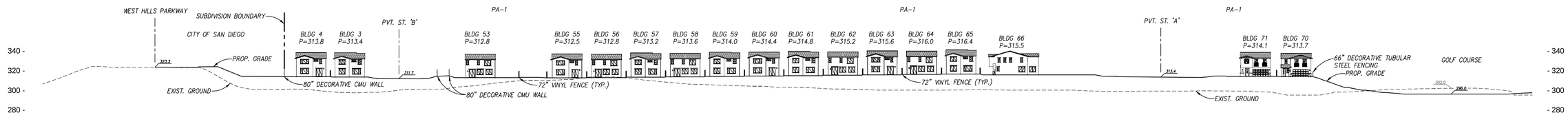
# CARLTON OAKS COUNTRY CLUB AND RESORT

CITY OF SANTEE, CALIFORNIA

SHEET 28 OF 40

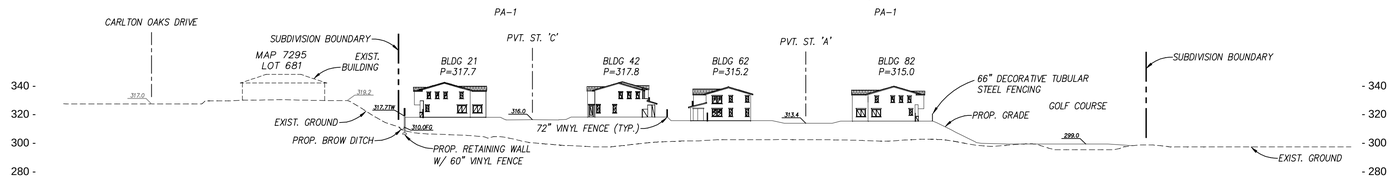
WO NO. 2167-0228

R:\1759\&Pln\Santee\1759 Site Plan Sht 28.dwg[]May-20-2024:22:39




## SECTION "F"

SCALE: HORIZ/VERT 1"=50'

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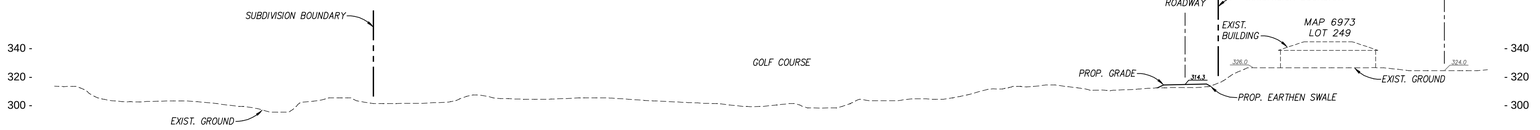


## SECTION "H"

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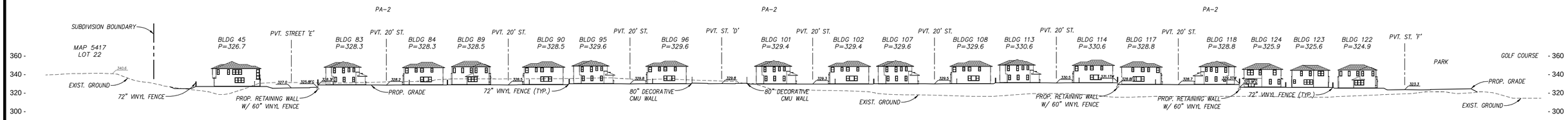


## SECTION "I"

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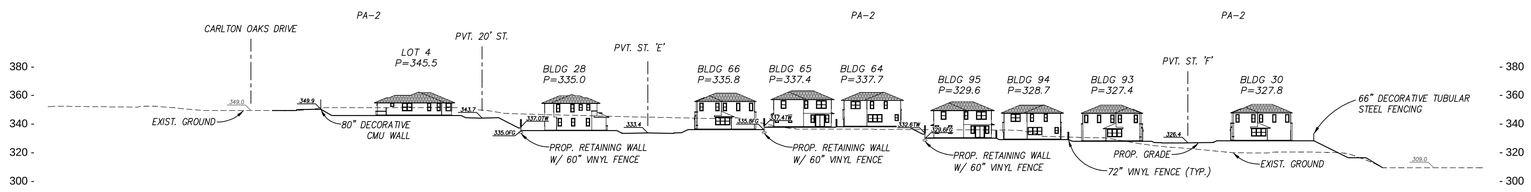


## SECTION "J"

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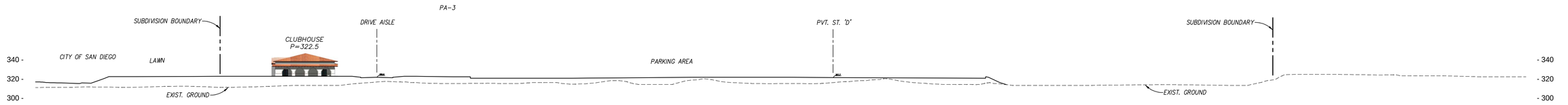


## SECTION "K"

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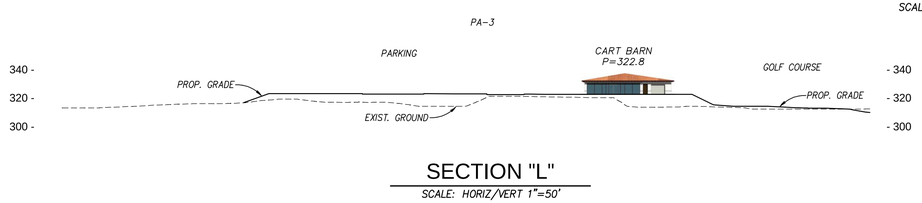


## SECTION "L"

SCALE: HORIZ/VERT 1"=50'


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SITE SECTIONS

# CARLTON OAKS COUNTRY CLUB AND RESORT

CITY OF SANTEE, CALIFORNIA

SHEET 29 OF 40

WO NO. 2167-0228

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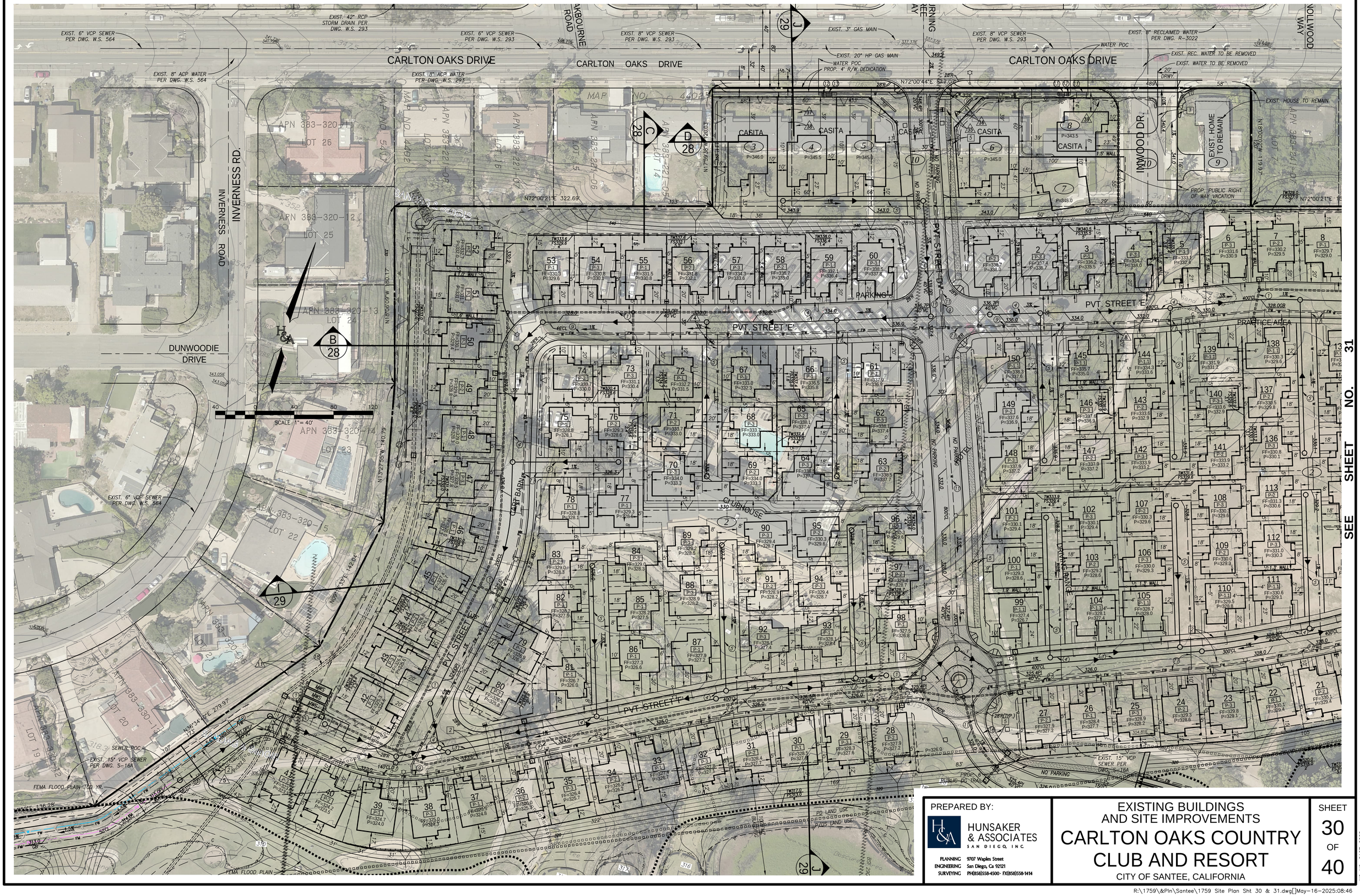


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EXISTING BUILDINGS AND SITE IMPROVEMENTS

# CARLTON OAKS COUNTRY CLUB AND RESORT

CITY OF SANTEE, CALIFORNIA

SHEET 30 OF 40

WO NO. 2167-0228

R:\1759\&Pln\Santee\1759 Site Plan Sht 30 & 31.dwg[]May-16-2025:08:46

SEE SHEET NO. 30

SEE SHEET NO. 32

CARLTON OAKS DRIVE

BURNING TREE WAY

KNOLLWOOD WAY

PEBBLE BEACH DRIVE

INWOOD DR.

PVT. STREET 'D'

PVT. STREET 'E'

PVT. STREET 'F'

PVT. STREET 'G'

PARKING

PRACTICE AREA

DRIVING RANGE

PROP. PUBLIC RIGHT OF WAY VACATION

EXIST. HOUSE TO REMAIN.

EXIST. HOME TO REMAIN

EXIST. 3" GAS MAIN

EXIST. 20" HP GAS MAIN

WATER POC

PROP. 4' R/W DEDICATION

EXIST. 8" VCP SEWER PER DWG. W.S. 293

EXIST. 8" RECLAIMED WATER PER DWG. R-3022

EXIST. REC. WATER TO BE REMOVED

EXIST. WATER TO BE REMOVED

EXIST. 8" VCP SEWER PER DWG. W.S. 291

EXIST. 8" ACP WATER PER DWG. W.S. 291

EX. 8" RECLAIMED WATER PER DWG. R-3022

EXIST. CONC. LINED CHANNEL

EXIST. 8" VCP SEWER PER DWG. W.S. 291

EXIST. 18" RCP STORM DRAIN PER DWG. 5233-S

EXIST. 6" PVC SEWER PER DWG. W.S. 301

EXIST. 15" VCP SEWER 31-S PER DWG. 5233-S

EXIST. 15" VCP SEWER PER DWG. S-16A

EXIST. 15" VCP SEWER PER DWG. S-16A

SEWER POC

FEMA FLOOD PLAIN 100 YR.

FEMA FLOOD PLAIN 100 YR. PROP.

RIPARIAN AVOIDANCE AREA PER DUDEK

PD LAND USE
P/OS LAND USE

PROP. PUBLIC DG TRAIL

BRIDGE

BRIDGE ABUTMENT

SAN DIEGO RIVER (NORTH)

SYCAMORE CREEK

APN 383-245-01

APN 383-245-02

APN 383-070-16

APN 383-070-21

APN 383-241-06 LOT 6

APN 383-241-05 LOT 5

APN 383-241-04 LOT 4

APN 383-241-03 LOT 3

APN 383-241-02 LOT 2

APN 383-241-01 LOT 1

MAP NO. 4402

APN 383-480-48 LOT 48

APN 383-480-05

APN 383-480-07 LOT 7

APN 383-480-03 LOT 8

APN 383-480-06

APN 383-480-04

APN 383-480-02

APN 383-480-01

N72°00'44"E 547.02'

N72°00'21"E 159.81'

N83°15'01"E 407.29'

N78°16'26"E 199.98'

N18°00'02"W 119.97'

SCALE 1" = 40'

40 0 40 80 120

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EXISTING BUILDINGS AND SITE IMPROVEMENTS

# CARLTON OAKS COUNTRY CLUB AND RESORT

CITY OF SANTEE, CALIFORNIA

SHEET 31 OF 40

WO NO. 2167-0228

R:\1759\&Pln\Santee\1759 Site Plan Sht 30 & 31.dwg[]May-16-2025:08:45

H&A

1" = 200'

LEGEND

- 100-YEAR FLOOD PLAIN PER REVISED STUDY
- 100-YEAR FLOODWAY PER REVISED STUDY
- 100-YEAR FLOOD PLAIN PER FEMA FIRM
- 100-YEAR FLOODWAY PER FEMA FIRM
- HEC-RAS CROSS SECTION LOCATION
- RIVER CENTER LINE
- CITY BOUNDARY
- TIE IN LOCATIONS

DATUM NOTE:
VIRTICAL DATUM: NGVD 1929
HORIZONTAL DATUM: NAD 1983 CALIFORNIA STATE PLANE ZONE VI

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FLOOD MAP PROPOSED CONDITIONS

# CARLTON OAKS COUNTRY CLUB AND RESORT

CITY OF SANTEE, CALIFORNIA

SHEET 32 OF 40

WO NO. 2167-0228

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NO. 32

SEE SHEET NO. 33

CARLTON OAKS DRIVE

CALLE DEL VERDE

SYCAMORE CREEK

FANITA PARKWAY

PEBBLE BEACH DRIVE

MAIN COURSE

OAKBOURNE ROAD

PVT. DRIVE 'D'

PVT. DRIVE 'E'

PVT. DRIVE 'F'

INVERNESS ROAD

DUNWOODIE DRIVE

NETHERSFIELD ROAD

AX 280

AY 290

AZ 300

BA 310

315

320

BB 330

340

BC 345

355

285

280

290

300

310

315

320

330

340

355

1" = 200'

## LEGEND

- 100-YEAR FLOOD PLAIN PER REVISED STUDY
- 100-YEAR FLOODWAY PER REVISED STUDY
- 100-YEAR FLOOD PLAIN PER FEMA FIRM
- 100-YEAR FLOODWAY PER FEMA FIRM
- HEC-RAS CROSS SECTION LOCATION
- RIVER CENTER LINE
- CITY BOUNDARY
- TIE IN LOCATIONS

DATUM NOTE:
VIRTICAL DATUM: NGVD 1929
HORIZONTAL DATUM: NAD 1983 CALIFORNIA STATE PLANE ZONE VI


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# FLOOD MAP PROPOSED CONDITIONS
# CARLTON OAKS COUNTRY CLUB AND RESORT
CITY OF SANTEE, CALIFORNIA

SHEET 33 OF 40

WO NO. 2167-0228

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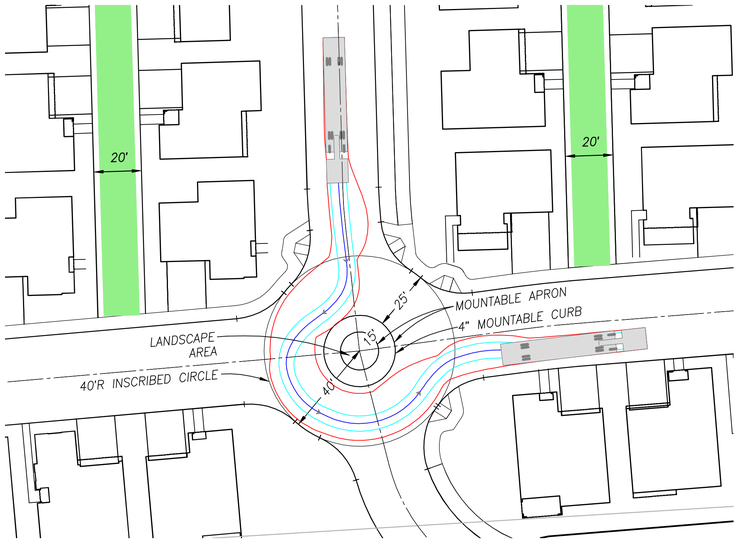



## AUTOTURN DETAILS
### 100' TRACTOR DRAWN AERIAL

TRACTOR:

| | |
|---|---|
| STEERING LOCK ANGLE: | 45.0° |
| LOCK TO LOCK TIME: | 6 SEC. |
| WIDTH: | 108 IN. |
| AXLE TRACK: | 82.92 IN. |
| WHEELBASE: | 164 IN. |
| FRONT OVERHANG: | 76.0 IN. |
| PIN LOCATION: | REAR AXLE |

TILLER (REAR STEERABLE):

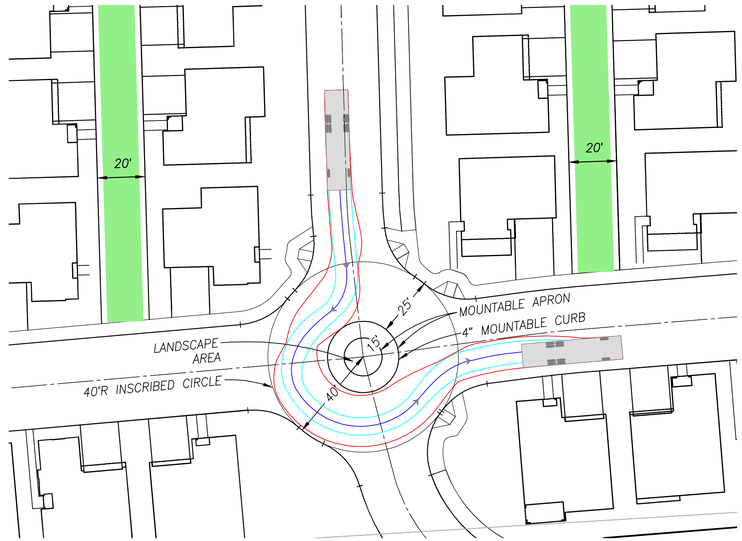
| | |
|---|---|
| STEERING LOCK ANGLE: | 45.0° |
| LOCK TO LOCK TIME: | 6 SEC. |
| WIDTH: | 108 IN. |
| AXLE TRACK: | 82.92 IN. |
| WHEELBASE (FROM PIN): | 372.0 IN. |
| REAR OVERHANG: | 120.0 IN. |
| PIN OVERHANG: | 60.0 IN. |

## 100' TRACTOR DRAWN AERIAL ROUNDABOUT TURN MOVEMENT

SCALE: 1"=30'

LEGEND

- PATH
- FRONT TIRES
- VEHICLE BODY

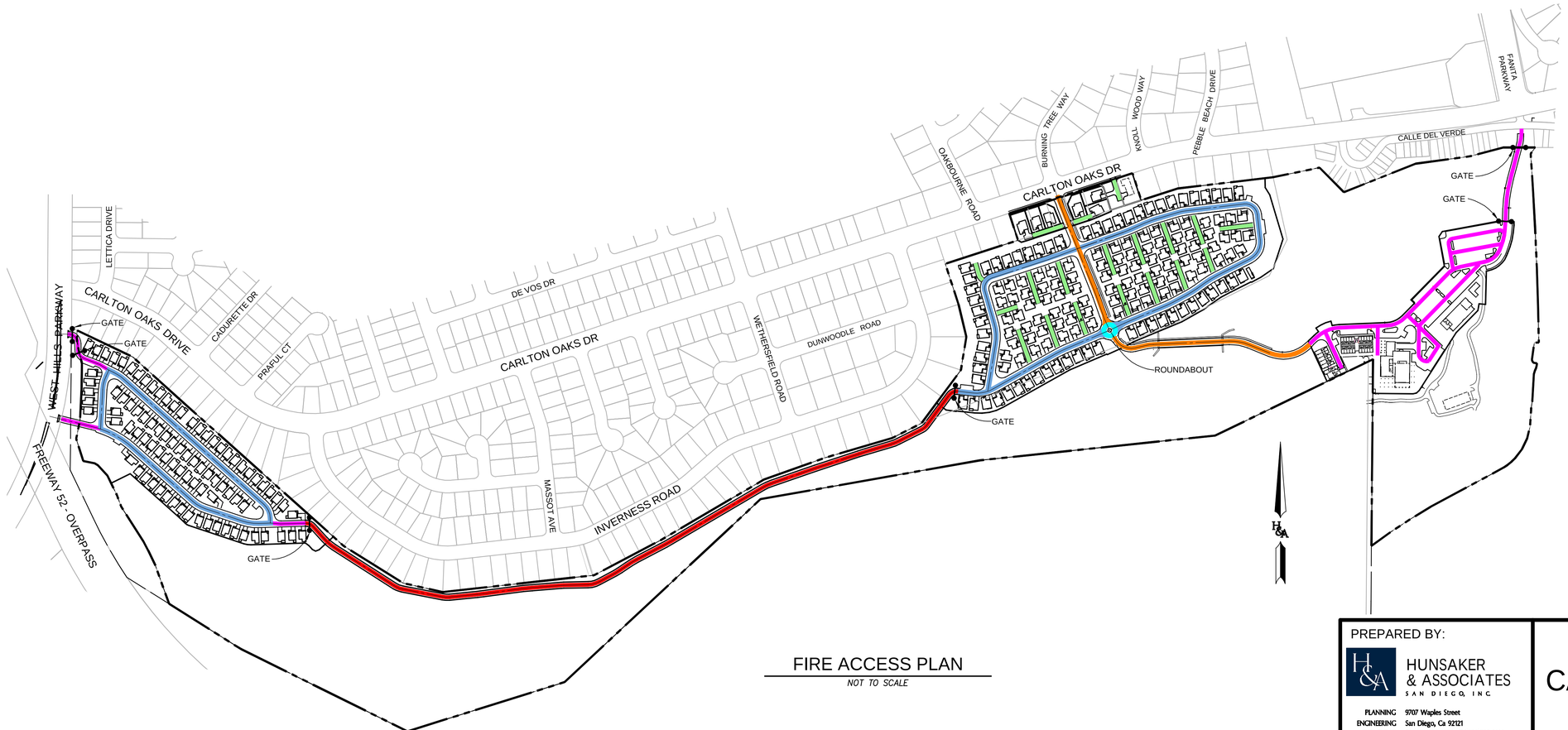



## AUTOTURN DETAILS
### 42' FIRE TRUCK

| | |
|---|---|
| STEERING LOCK ANGLE: | 45.0° |
| LOCK TO LOCK TIME: | 6 SEC. |
| WIDTH: | 118.0 IN. |
| AXLE TRACK: | 111.0 IN. |
| WHEELBASE: | 250.0 IN. |
| FRONT OVERHANG: | 85.0 IN. |

## 42' FIRE TRUCK ROUNDABOUT TURN MOVEMENT

SCALE: 1"=30'




## FIRE ACCESS PLAN

NOT TO SCALE

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# FIRE ACCESS PLAN
# CARLTON OAKS COUNTRY CLUB AND RESORT
CITY OF SANTEE, CALIFORNIA

SHEET 34 OF 40

WO NO. 2167-0228

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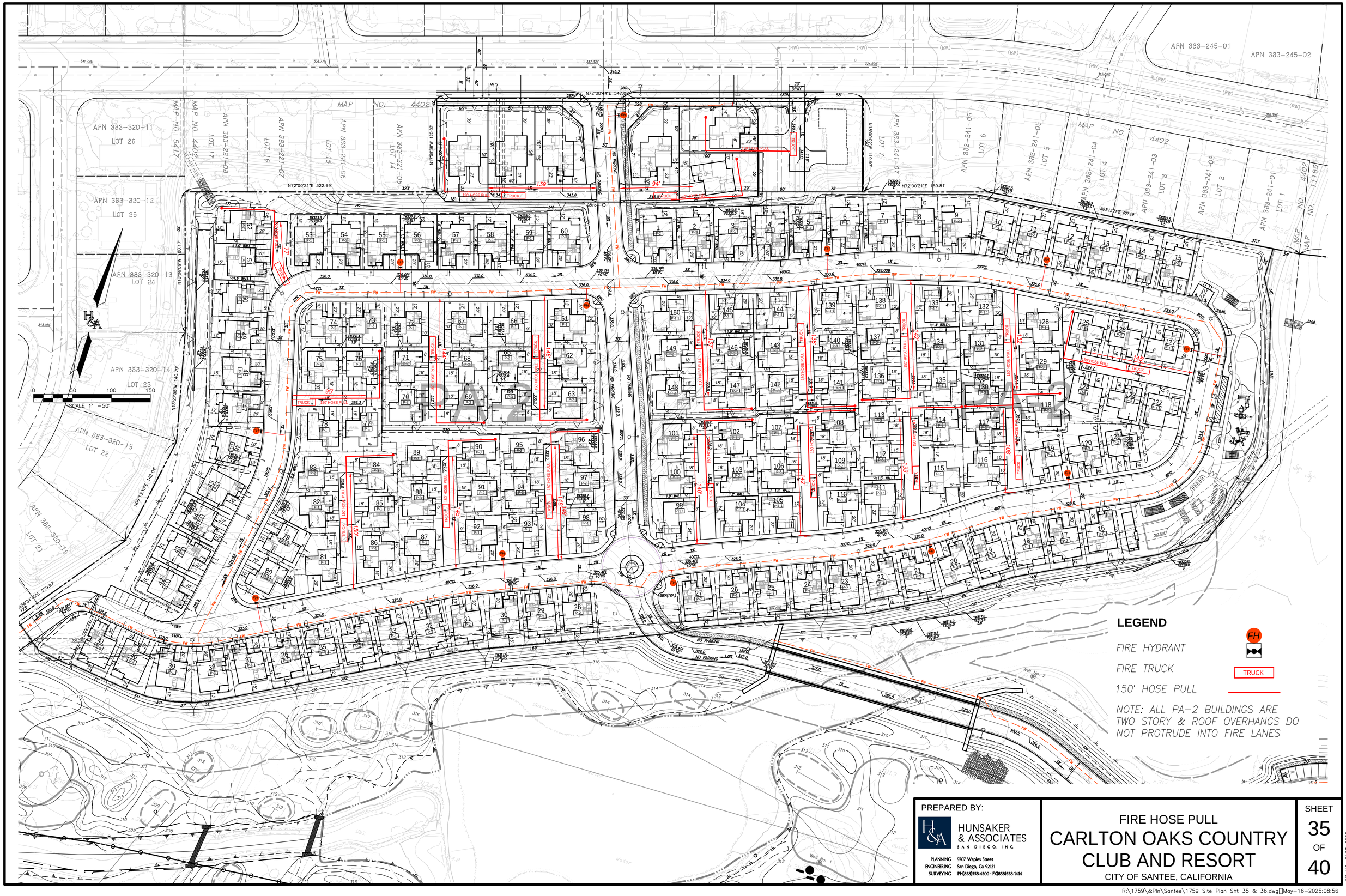


## LEGEND

FH — FIRE HYDRANT

TRUCK — FIRE TRUCK

150' HOSE PULL

NOTE: ALL PA-2 BUILDINGS ARE TWO STORY & ROOF OVERHANGS DO NOT PROTRUDE INTO FIRE LANES

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FIRE HOSE PULL

# CARLTON OAKS COUNTRY CLUB AND RESORT

CITY OF SANTEE, CALIFORNIA

SHEET 35 OF 40

WO NO. 2167-0228

R:\1759\&Pln\Santee\1759 Site Plan Sht 35 & 36.dwg[]May-16-2025:08:56

PA-3

APN 383-071-08

1 STORY

2 STORY

TRUCK

20' PAVED FIRE LANE

20' FIRE LANE

LIMITS OF ROOF OVERHANG DOES NOT PROTRUDE INTO FIRE LANE

150' HOSE PULL

143' HOSE PULL

46' HOSE PULL

SCALE 1"= 40'

## LEGEND

- FIRE HYDRANT
- FIRE TRUCK
- 150' HOSE PULL
- ROOF OVERHANG


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GOLF COURSE DESIGN
AMERICAN SOCIETY OF GOLF COURSE ARCHITECTS
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San Diego, California 92106
Phone: (619) 223-3240
E-mail: cb@bickler.com Web Site: www.bickler.com

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FIRE HOSE PULL

# CARLTON OAKS COUNTRY CLUB AND RESORT

CITY OF SANTEE, CALIFORNIA

SHEET 36 OF 40

WO NO. 2167-0228

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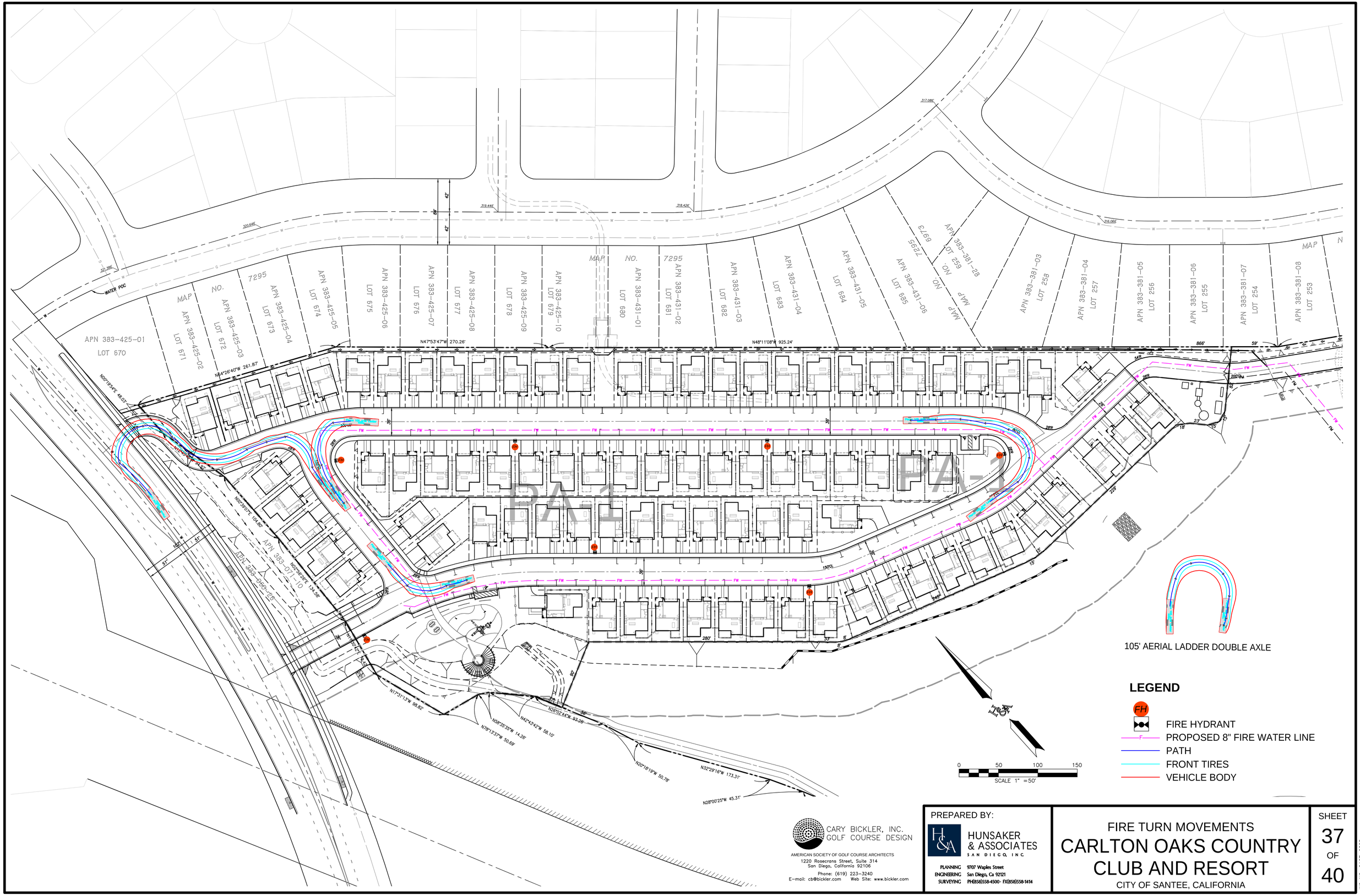
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LOT 670
APN 383-425-02
LOT 671
APN 383-425-03
LOT 672
APN 383-425-04
LOT 673
APN 383-425-05
LOT 674
APN 383-425-06
LOT 675
APN 383-425-07
LOT 676
APN 383-425-08
LOT 677
APN 383-425-09
LOT 678
APN 383-425-10
LOT 679
APN 383-431-01
LOT 680
APN 383-431-02
LOT 681
APN 383-431-03
LOT 682
APN 383-431-04
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APN 383-431-05
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APN 383-431-06
LOT 685
APN 383-381-28
LOT 259
APN 383-381-03
LOT 258
APN 383-381-04
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LOT 254
APN 383-381-08
LOT 253
APN 383-381-09
LOT 252
APN 383-381-10
LOT 251
APN 383-381-11
LOT 250
APN 383-381-12
LOT

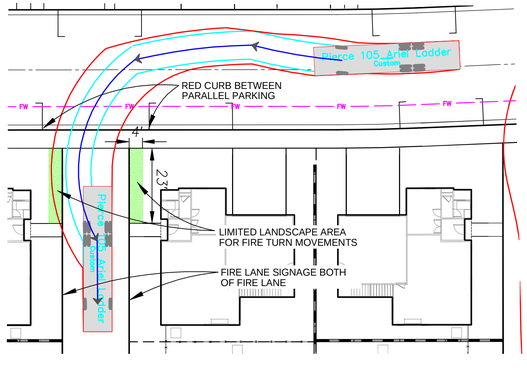
SEE DETAIL BELOW

DA 2

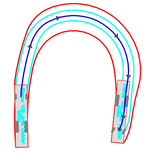
DA 2

SCALE 1" = 50'

0 50 100 150




TYPICAL 20' FIRE LANE DETAIL
NOT TO SCALE



105' AERIAL LADDER DOUBLE AXLE
NOT TO SCALE

## LEGEND

- FH — FIRE HYDRANT
- F — PROPOSED 8" FIRE WATER LINE
- PATH
- FRONT TIRES
- VEHICLE BODY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FIRE TURN MOVEMENTS

# CARLTON OAKS COUNTRY CLUB AND RESORT

CITY OF SANTEE, CALIFORNIA

SHEET 38 OF 40

WO NO. 2167-0228

R:\1759\&Pln\Santee\1759 Site Plan Sht 37,38,40.dwg[]May-16-2025:09:03

APN 383-320-11
LOT 26

APN 383-320-12
LOT 25

APN 383-320-13
LOT 24

APN 383-320-14
LOT 23

APN 383-320-15
LOT 22

APN 383-320-16
LOT 21

APN 383-245-01

APN 383-245-02

MAP NO. 4402

APN 383-221-08 LOT 17

APN 383-221-07 LOT 16

APN 383-221-06 LOT 15

APN 383-221-05 LOT 14

APN 383-241-07 LOT 7

APN 383-241-06 LOT 6

APN 383-241-05 LOT 5

APN 383-241-04 LOT 4

APN 383-241-03 LOT 3

APN 383-241-02 LOT 2

APN 383-241-01 LOT 1

MAP NO. 5417

MAP NO. 11166

N72°00'21"E 322.69'

N72°00'21"E 947.03'

N72°00'21"E 159.81'

N17°59'39"W 120.03'

N18°00'00"W 139.37'

N18°06'50"W 138.17'

N13°27'55"W 140.79'

N69°13'53"E 142.04'

S56°34'10"E 279.97'

N83°15'21"E 407.29'

SCALE 1" = 50'

0 50 100 150

PA-2

PA-2

Well No. 2

## LEGEND

FH — FIRE HYDRANT

F — PROPOSED 8" FIRE WATER LINE

PATH

FRONT TIRES

VEHICLE BODY

105' AERIAL LADDER DOUBLE AXLE

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FIRE TURN MOVEMENTS

# CARLTON OAKS COUNTRY CLUB AND RESORT

CITY OF SANTEE, CALIFORNIA

SHEET 39 OF 40

WO NO. 2167-0228

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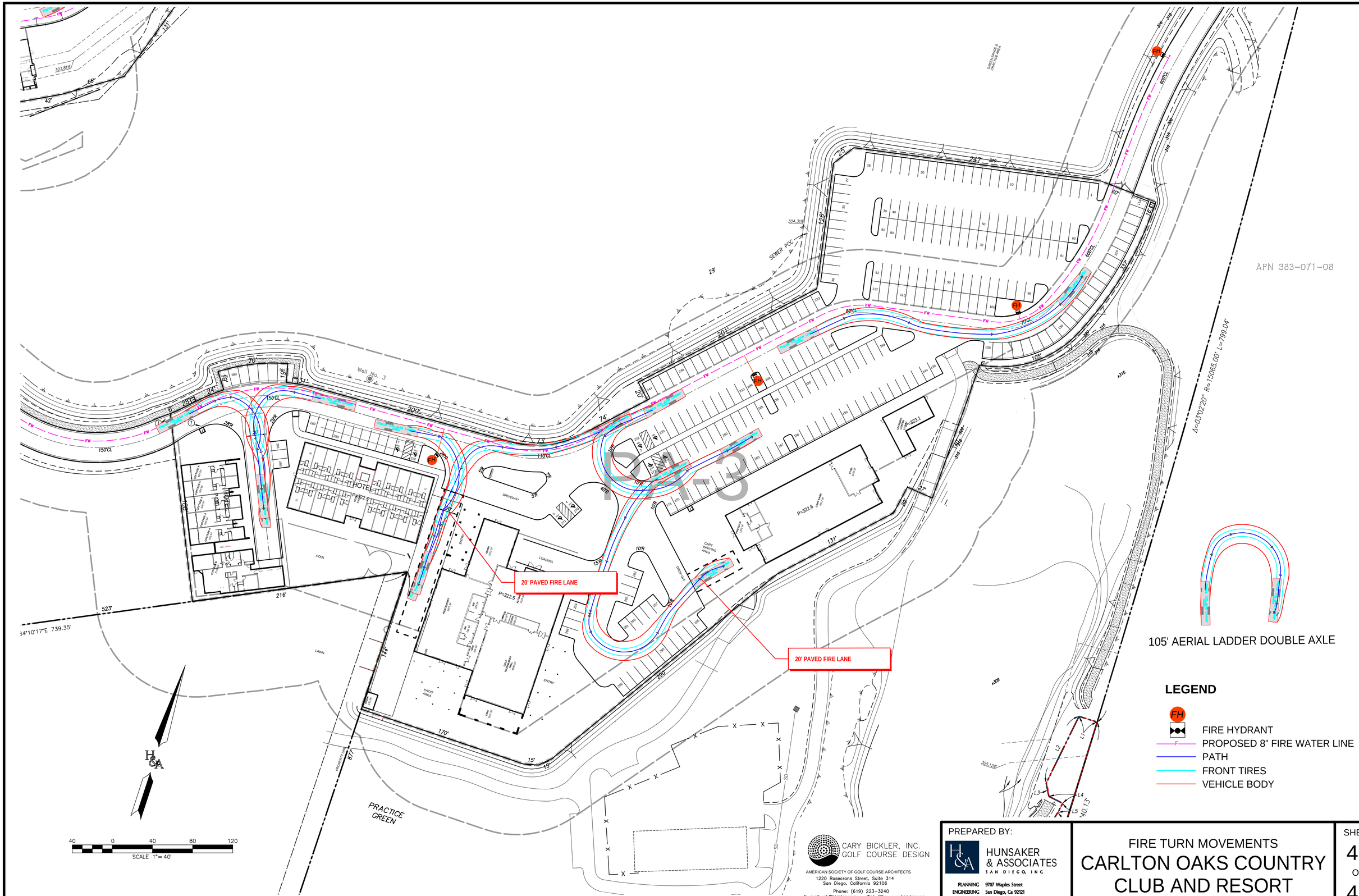


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GOLF COURSE DESIGN
AMERICAN SOCIETY OF GOLF COURSE ARCHITECTS
1220 Rosecrans Street, Suite 314
San Diego, California 92106
Phone: (619) 223-3240
E-mail: cb@bickler.com Web Site: www.bickler.com

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SURVEYING
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San Diego, Ca 92121
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FIRE TURN MOVEMENTS
# CARLTON OAKS COUNTRY CLUB AND RESORT
CITY OF SANTEE, CALIFORNIA

SHEET 40 OF 40

WO NO. 2167-0228

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# APPENDIX A

MT-2 Forms

DEPARTMENT OF HOMELAND SECURITY
Federal Emergency Management Agency

# OVERVIEW & CONCURRENCE FORM

OMB Control Number: 1660-0016
Expiration: 1/31/2024

## PAPERWORK BURDEN DISCLOSURE NOTICE

Public reporting burden for this form is estimated to average 1 hours per response. The burden estimate includes the time for reviewing instructions, searching existing data sources, gathering and maintaining the needed data, and completing, reviewing, and submitting the form. You are not required to respond to this collection of information unless it displays a valid OMB control number. Send comments regarding the accuracy of the burden estimate and any suggestions for reducing this burden to: Information Collections Management, Department of Homeland Security, Federal Emergency Management Agency, 500 C Street, SW, Washington, DC 20472 , Paperwork Reduction Project (1660-0016). Submission of the form is required to obtain or retain benefits under the National Flood Insurance Program. **Please do not send your completed survey to the above address.**

## PRIVACY ACT STATEMENT

**AUTHORITY:** The National Flood Insurance Act of 1968, Public Law 90-448, as amended by the Flood Disaster Protection Act of 1973, Public Law 93-234.
**PRINCIPAL PURPOSE(S):** This information is being collected for the purpose of determining an applicant's eligibility to request changes to National Flood Insurance Program (NFIP) Flood Insurance Rate Maps (FIRM).
**ROUTINE USE(S):** The information on this form may be disclosed as generally permitted under 5 U.S.C § 552a(b) of the Privacy Act of 1974, as amended. This includes using this information as necessary and authorized by the routine uses published in DHS/FEMA/NFIP/LOMA-1 National Flood Insurance Program (NFIP); Letter of Map Amendment (LOMA) February 15, 2006, 71 FR 7990.
**DISCLOSURE:** The disclosure of information on this form is voluntary; however, failure to provide the information requested may delay or prevent FEMA from processing a determination regarding a requested change to a (NFIP) Flood Insurance Rate Maps (FIRM).

## A. REQUESTED RESPONSE FROM DHS-FEMA

This request is for a (check one):

☒ CLOMR: A letter from DHS-FEMA commenting on whether a proposed project, if built as proposed, would justify a map revision, or proposed hydrology changes (See 44 CFR Ch. 1, Parts 60, 65 & 72). All CLOMRs require documentation of compliance with the Endangered Species Act. Refer to the Instructions for details.

☐ LOMR: A letter from DHS-FEMA officially revising the current NFIP map to show the changes to floodplains, regulatory floodway or flood elevations. (See 44 CFR Ch. 1, Parts 60, 65 & 72).

## B. OVERVIEW

1. The NFIP map panel(s) affected for all impacted communities is (are):

| Community No. | Community Name | State | Map No. | Panel No. | Effective Date |
|---|---|---|---|---|---|
| 060703 | City of Santee; San Diego County | CA; CA | 06073C | 1634G;1651G;1653G | 05/16/2012 |
| 060295 | City of San Diego; San Diego County | CA; CA | 06073C | 1634G | 05/16/2012 |
| | | | | | |

2. a. Flooding Source: San Diego River

b. Types of Flooding: ☒ Riverine ☐ Coastal ☐ Shallow Flooding (e.g., Zones AO and AH) ☐ Alluvial Fan ☐ Lakes ☐ Other (Attach Description)

3. Project Name/Identifier: Carlton Oaks Country Club and Resort/ TM 2019-1 & DR 2019-5

4. FEMA zone designations (choices: A, AH, AO, A1-A30, A99, AE, AR, V, V1-V30, VE, B, C, D, X)

a. Effective: AE, X

b. Revised: AE, X

5. Basis for Request and Type of Revision:

a. The basis for this revision request is (check all that apply)

| | | | |
|---|---|---|---|
| ☒ Physical Change | ☐ Improved Methodology/Data | ☒ Regulatory Floodway Revision | ☐ Base Map Changes |
| ☐ Coastal Analysis | ☒ Hydraulic Analysis | ☐ Hydrologic Analysis | ☐ Corrections |
| ☐ Weir-Dam Changes | ☐ Levee Certification | ☐ Alluvial Fan Analysis | ☐ Natural Changes |
| ☒ New Topographic Data | ☐ Other (Attach Description) | | |

Note: A photograph and narrative description of the area of concern is not required, but is very helpful during review.

b. The area of revision encompasses the following structures (check all that apply)

| | | | |
|---|---|---|---|
| Structures: | ☐ Channelization | ☐ Levee/Floodwall | ☒ Bridge/Culvert |
| | ☐ Dam | ☒ Fill | ☐ Other (Attach Description) |

6. ☒ Documentation of ESA compliance is submitted (required to initiate CLOMR review). Please refer to the instructions for more information.

## C. REVIEW FEE

Has the review fee for the appropriate request category been included? ☒ Yes Fee amount: $ 6500

☐ No, Attach Explanation

- **Please see the DHS-FEMA Web site at http://www.fema.gov/forms-documents-and-software/flood-map-related-fees for Fee Amounts and Exemptions.**

## D. SIGNATURES

### 1. REQUESTOR'S SIGNATURE

All documents submitted in support of this request are correct to the best of my knowledge. I understand that any false statement may be punishable by fine or imprisonment under Title 18 of the United States Code, Section 1001.

| | | |
|---|---|---|
| Name: Alisa S. Vialpando | Company: Hunsaker & Associates San Diego, Inc. | |
| Mailing Address:<br>9707 Waples Street, San Diego, CA 92121 | Daytime Telephone: (858) 558-4500 | Fax No.: (858) 558-1414 |
| | E-mail Address: AVialpando@HunsakerSD.com | |
| | Date: 02/06/2024 | |

Signature of Requestor (required): Alisa S. Vialpando

### 2. COMMUNITY CONCURRENCE

As the community official responsible for floodplain management, I hereby acknowledge that we have received and reviewed this Letter of Map Revision (LOMR) or conditional LOMR request. Based upon the community's review, we find the completed or proposed project meets or is designed to meet all of the community floodplain management requirements, including the requirements for when fill is placed in the regulatory floodway, and that all necessary Federal, State, and local permits have been, or in the case of a conditional LOMR, will be obtained. For Conditional LOMR requests, the applicant has documented Endangered Species Act (ESA) compliance to FEMA prior to FEMA's review of the Conditional LOMR application. For LOMR requests, I acknowledge that compliance with Sections 9 and 10 of the ESA has been achieved independently of FEMA's process. For actions authorized, funded, or being carried out by Federal or State agencies, documentation from the agency showing its compliance with Section 7(a)(2) of the ESA will be submitted. In addition, we have determined that the land and any existing or proposed structures to be removed from the SFHA are or will be reasonably safe from flooding as defined in 44CFR 65.2(c), and that we have available upon request by FEMA, all analyses and documentation used to make this determination.

Community Official's Name and Title: Carl Schmitz P.E., Director of Engineering / City Engineer

| | | |
|---|---|---|
| Mailing Address:<br>10601 N. Magnolia Avenue<br>Santee, CA 92071 | Community Name: City of Santee | |
| | Daytime Telephone: 619-258-4100X169 | Fax No.: |
| | E-mail Address: | |
| Community Official's Signature (required): | Date: 4/8/24 | |

5. Basis for Request and Type of Revision:

a. The basis for this revision request is (check all that apply)

| | | | |
|---|---|---|---|
| ☒ Physical Change | ☐ Improved Methodology/Data | ☒ Regulatory Floodway Revision | ☐ Base Map Changes |
| ☐ Coastal Analysis | ☒ Hydraulic Analysis | ☐ Hydrologic Analysis | ☐ Corrections |
| ☐ Weir-Dam Changes | ☐ Levee Certification | ☐ Alluvial Fan Analysis | ☐ Natural Changes |
| ☒ New Topographic Data | ☐ Other (Attach Description) | | |

Note: A photograph and narrative description of the area of concern is not required, but is very helpful during review.

b. The area of revision encompasses the following structures (check all that apply)

| | | | |
|---|---|---|---|
| Structures: | ☐ Channelization | ☐ Levee/Floodwall | ☒ Bridge/Culvert |
| | ☐ Dam | ☒ Fill | ☐ Other (Attach Description) |

6. ☒ Documentation of ESA compliance is submitted (required to initiate CLOMR review). Please refer to the instructions for more information.

## C. REVIEW FEE

Has the review fee for the appropriate request category been included? ☒ Yes Fee amount: $ 6500

☐ No, Attach Explanation

- **Please see the DHS-FEMA Web site at http://www.fema.gov/forms-documents-and-software/flood-map-related-fees for Fee Amounts and Exemptions.**

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| | |
|---|---|
| Name: Alisa S. Vialpando | Company: Hunsaker & Associates San Diego, Inc. |
| Mailing Address: 9707 Waples Street, San Diego, CA 92121 | Daytime Telephone: (858) 558-4500 Fax No.: (858) 558-1414 |
| | E-mail Address: AVialpando@HunsakerSD.com |
| | Date: 02/06/2024 |

Signature of Requestor (required): Alisa S. Vialpando

DSD Proj # 645381
Carlton Oaks Country Club & Resort

### 2. COMMUNITY CONCURRENCE

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Community Official's Name and Title: Emir Williams, Floodplain Management, Stormwater Department

| | |
|---|---|
| Mailing Address: 9370 Chesapeake Drive, Suite 100 San Diego, CA 92123 | Community Name: City of San Diego |
| | Daytime Telephone: 619-235-1000 Fax No.: N/A |
| | E-mail Address: Ewilliams@sandiego.gov |

Community Official's Signature (required): Emir Williams Date: 06/14/2024

## 3. CERTIFICATION BY REGISTERED PROFESSIONAL ENGINEER AND/OR LAND SURVEYOR

This certification is to be signed and sealed by a licensed land surveyor, registered professional engineer, or architect authorized by law to certify elevation information data, hydrologic and hydraulic analysis, and any other supporting information as per NFIP regulations paragraph 65.2(b) and as described in the MT-2 Forms Instructions. All documents submitted in support of this request are correct to the best of my knowledge. I understand that any false statement may be punishable by fine or imprisonment under Title 18 of the United States Code, Section 1001.

| | | | |
|---|---|---|---|
| Certifier's Name: Alisa S.Vialpando | | License No.: 47945 | Expiration Date: 12/31/2025 |
| Company Name: Hunsaker Associates SAn Diego, Inc. | | Mailing Address: 9707 Waples Street, San Diego, CA 92121 | |
| Telephone No.: (858) 558-4500 | Fax No.: (858) 558-1414 | | |
| E-mail Address: AVialpando@HunsakerSD.com | | | |
| Signature: Alisa S. Vialpando | | | Date: 02/06/2024 |

**Ensure the forms that are appropriate to your revision request are included in your submittal.**

| Form Name and (Number) | Required if ... |
|---|---|
| ☒ Riverine Hydrology and Hydraulics Form (Form 2) | New or revised discharges or water-surface elevations |
| ☒ Riverine Structures Form (Form 3) | Channel is modified, addition/revision of bridge/culverts, addition/revision of levee/floodwall, addition/revision of dam |
| ☐ Coastal Analysis Form (Form 4) | New or revised coastal elevations |
| ☐ Coastal Structures Form (Form 5) | Addition/revision of coastal structure |
| ☐ Alluvial Fan Flooding Form (Form 6) | Flood control measures on alluvial fans |

Seal (Optional)

5. Basis for Request and Type of Revision:

a. The basis for this revision request is (check all that apply)

| | | | |
|---|---|---|---|
| ☒ Physical Change | ☐ Improved Methodology/Data | ☒ Regulatory Floodway Revision | ☐ Base Map Changes |
| ☐ Coastal Analysis | ☒ Hydraulic Analysis | ☐ Hydrologic Analysis | ☐ Corrections |
| ☐ Weir-Dam Changes | ☐ Levee Certification | ☐ Alluvial Fan Analysis | ☐ Natural Changes |
| ☒ New Topographic Data | ☐ Other (Attach Description) | | |

Note: A photograph and narrative description of the area of concern is not required, but is very helpful during review.

b. The area of revision encompasses the following structures (check all that apply)

| | | | |
|---|---|---|---|
| Structures: ☐ Channelization | ☐ Levee/Floodwall | ☒ Bridge/Culvert | |
| ☐ Dam | ☒ Fill | ☐ Other (Attach Description) | |

6. ☒ Documentation of ESA compliance is submitted (required to initiate CLOMR review). Please refer to the instructions for more information.

## C. REVIEW FEE

Has the review fee for the appropriate request category been included? ☒ Yes Fee amount: $ 6500

☐ No, Attach Explanation

- **Please see the DHS-FEMA Web site at http://www.fema.gov/forms-documents-and-software/flood-map-related-fees for Fee Amounts and Exemptions.**

## D. SIGNATURES

### 1. REQUESTOR'S SIGNATURE

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| | E-mail Address: AVialpando@HunsakerSD.com | |
| | Date: 02/06/2024 | |

Signature of Requestor (required): Alisa S. Vialpando

### 2. COMMUNITY CONCURRENCE

As the community official responsible for floodplain management, I hereby acknowledge that we have received and reviewed this Letter of Map Revision (LOMR) or conditional LOMR request. Based upon the community's review, we find the completed or proposed project meets or is designed to meet all of the community floodplain management requirements, including the requirements for when fill is placed in the regulatory floodway, and that all necessary Federal, State, and local permits have been, or in the case of a conditional LOMR, will be obtained. For Conditional LOMR requests, the applicant has documented Endangered Species Act (ESA) compliance to FEMA prior to FEMA's review of the Conditional LOMR application. For LOMR requests, I acknowledge that compliance with Sections 9 and 10 of the ESA has been achieved independently of FEMA's process. For actions authorized, funded, or being carried out by Federal or State agencies, documentation from the agency showing its compliance with Section 7(a)(2) of the ESA will be submitted. In addition, we have determined that the land and any existing or proposed structures to be removed from the SFHA are or will be reasonably safe from flooding as defined in 44CFR 65.2(c), and that we have available upon request by FEMA, all analyses and documentation used to make this determination.

| | | |
|---|---|---|
| Community Official's Name and Title: | | |
| Mailing Address: | Community Name: | |
| | Daytime Telephone: | Fax No.: |
| | E-mail Address: | |
| Community Official's Signature (required): | Date: | |

## 3. CERTIFICATION BY REGISTERED PROFESSIONAL ENGINEER AND/OR LAND SURVEYOR

This certification is to be signed and sealed by a licensed land surveyor, registered professional engineer, or architect authorized by law to certify elevation information data, hydrologic and hydraulic analysis, and any other supporting information as per NFIP regulations paragraph 65.2(b) and as described in the MT-2 Forms Instructions. All documents submitted in support of this request are correct to the best of my knowledge. I understand that any false statement may be punishable by fine or imprisonment under Title 18 of the United States Code, Section 1001.

| | | | |
|---|---|---|---|
| Certifier's Name: Alisa S.Vialpando | | License No.: 47945 | Expiration Date: 12/31/2025 |
| Company Name: Hunsaker Associates SAn Diego, Inc. | | Mailing Address: 9707 Waples Street, San Diego, CA 92121 | |
| Telephone No.: (858) 558-4500 | Fax No.: (858) 558-1414 | | |
| E-mail Address: AVialpando@HunsakerSD.com | | | |
| Signature: Alisa S. Vialpando | | Date: 02/06/2024 | |

**Ensure the forms that are appropriate to your revision request are included in your submittal.**

| Form Name and (Number) | Required if … |
|---|---|
| ☒ Riverine Hydrology and Hydraulics Form (Form 2) | New or revised discharges or water-surface elevations |
| ☒ Riverine Structures Form (Form 3) | Channel is modified, addition/revision of bridge/culverts, addition/revision of levee/floodwall, addition/revision of dam |
| ☐ Coastal Analysis Form (Form 4) | New or revised coastal elevations |
| ☐ Coastal Structures Form (Form 5) | Addition/revision of coastal structure |
| ☐ Alluvial Fan Flooding Form (Form 6) | Flood control measures on alluvial fans |

Seal (Optional)

DEPARTMENT OF HOMELAND SECURITY

Federal Emergency Management Agency

# RIVERINE HYDROLOGY & HYDRAULICS FORM (FORM 2)

OMB Control Number: 1660-0016
Expiration: 1/31/2024

## PAPERWORK BURDEN DISCLOSURE NOTICE

Public reporting burden for this form is estimated to average 3.5 hours per response. The burden estimate includes the time for reviewing instructions, searching existing data sources, gathering and maintaining the needed data, and completing, reviewing, and submitting the form. You are not required to respond to this collection of information unless it displays a valid OMB control number. Send comments regarding the accuracy of the burden estimate and any suggestions for reducing this burden to: Information Collections Management, Department of Homeland Security, Federal Emergency Management Agency, 500 C Street, SW, Washington, DC 20472 , Paperwork Reduction Project (1660-0016). Submission of the form is required to obtain or retain benefits under the National Flood Insurance Program. **Please do not send your completed survey to the above address.**

## PRIVACY ACT STATEMENT

**AUTHORITY:** The National Flood Insurance Act of 1968, Public Law 90-448, as amended by the Flood Disaster Protection Act of 1973, Public Law 93-234.
**PRINCIPAL PURPOSE(S):** This information is being collected for the purpose of determining an applicant's eligibility to request changes to National Flood Insurance Program (NFIP) Flood Insurance Rate Maps (FIRM).
**ROUTINE USE(S):** The information on this form may be disclosed as generally permitted under 5 U.S.C § 552a(b) of the Privacy Act of 1974, as amended. This includes using this information as necessary and authorized by the routine uses published in DHS/FEMA/NFIP/LOMA-1 National Flood Insurance Program (NFIP); Letter of Map Amendment (LOMA) February 15, 2006, 71 FR 7990.
**DISCLOSURE:** The disclosure of information on this form is voluntary; however, failure to provide the information requested may delay or prevent FEMA from processing a determination regarding a requested change to a (NFIP) Flood Insurance Rate Maps (FIRM).

Flooding Source: San Diego River

**Note:** Fill out one form for each flooding source studied

## A. HYDROLOGY

1. Reason for New Hydrologic Analysis (check all that apply):

☒ Not revised (skip to section B) ☐ No existing analysis ☐ Improved data
☐ Alternative methodology ☐ Proposed Conditions (CLOMR) ☐ Changed physical condition of watershed

2. Comparison of Representative 1%-Annual-Chance Discharges

| Location | Drainage Area (Sq. Mi.) | Effective/FIS (cfs) | Revised (cfs) |
|---|---|---|---|

3. Methodology for New Hydrologic Analysis (check all that apply)

☐ Precipitation/Runoff Model → Specify Model: _____ Duration: _____ Rainfall Amount: _____

☐ Statistical Analysis of Gage Records

☐ Regional Regression Equations ☐ Other (please attach description)

Please enclose all relevant models in digital format, maps, computations (including computation of parameters), and documentation to support the new analysis.

4. Review/Approval of Analysis

If your community requires a regional, state, or federal agency to review the hydrologic analysis, please attach evidence of approval/review. 4. HEC-RAS File Description**:

5. Impacts of Sediment Transport on Hydrology

Is the hydrology for the revised flooding source(s) affected by sediment transport? ☐ Yes ☐ No

If yes, then fill out Section F (Sediment Transport) of Form 3. If No, then attach your explanation.

## B. HYDRAULICS

1. Reach to be Revised

| | Description | Cross Section | Water-Surface Elevation (ft.) | |
|---|---|---|---|---|
| | | | Effective | Proposed/Revised |
| Downstream Limit* | Downstream of West Hills Pkwy Bridge | 230 | 301.52 | 301.76 |
| Upstream Limit* | Downstream of Carlton Hills Blvd | 355 | 321.67 | 321.84 |

*Proposed/Revised elevations must tie-into the Effective elevations within 0.5 foot at the downstream and upstream limits of revision.

2. Hydraulic Method/Model Used: HEC-RAS 5.0.7 March 2019

☒ Steady State ☐ Unsteady State ☒ One-Dimensional ☐ Two-Dimentional

3. Pre-Submittal Review of Hydraulic Models*

DHS-FEMA has developed two review programs, CHECK-2 and CHECK-RAS, to aid in the review of HEC-2 and HEC-RAS hydraulic models, respectively. We recommend that you review your HEC-2 and HEC-RAS models with CHECK-2 and CHECK-RAS.

4. HEC-RAS File Description**:

| Models Submitted | Natural Run | | Floodway Run | | Datum |
|---|---|---|---|---|---|
| Duplicate Effective Model* | File Name: | Plan Name: | File Name: | Plan Name: | |
| | USDRFWY.DAT | Plan 01 | USDRFWY.DAT | Plan 01 | NGVD 29 |
| Corrected Effective Model* | File Name: | Plan Name: | File Name: | Plan Name: | |
| | CorrectedEffective | Plan 01 | CorrectedEffective | Plan 01 | NGVD 29 |
| Existing or Pre-Project Conditions Model | File Name: | Plan Name: | File Name: | Plan Name: | |
| | CarltonOaksExisti | Plan 01 | CarltonOaksExisti | Plan 01 | NGVD 29 |
| Revised or Post-Project Conditions Model | File Name: | Plan Name: | File Name: | Plan Name: | |
| | CarltonOaksPR | Plan 01 | CarltonOaksPR | Plan 04 | NGVD 29 |
| Other - (attach description) | File Name: | Plan Name: | File Name: | Plan Name: | |
| | | | | | |

* For details, refer to the corresponding section of the instructions.
**See instructions for information about modeling other then HEC-RAS. ☒ Digital Models Submitted? (Required)

## C. MAPPING REQUIREMENTS

A **certified topographic work map** must be submitted showing the following information (where applicable): the boundaries of the effective, existing, and proposed conditions 1%-annual-chance floodplain (for approximate Zone A revisions) or the boundaries of the 1%- and 0.2%-annual-chance floodplains and regulatory floodway (for detailed Zone AE, AO, and AH revisions); location and alignment of all cross sections with stationing control indicated; stream, road, and other alignments (e.g., dams, levees, etc.); current community easements and boundaries; boundaries of the requester's property; certification of a registered professional engineer registered in the subject State; location and description of reference marks; and the referenced vertical datum (NGVD, NAVD, etc.).

Topographic Information: ☒ Digital Mapping (GIS/CADD) Data Submitted (preferred)

Source: Aerial Survey and Proposed Plans | Date: 06-12-2014

Vertical Datum: NGVD 29 | Spatial Projection: NAD83 CCS '83 California, Zone 6

Accuracy: 1 foot (Note: For cross sections located out of the project area (XS# 330-355, and 242-220), cross sections from the corrected effective model were used to determine tie in locations.)

Note that the boundaries of the existing or proposed conditions floodplains and regulatory floodway to be shown on the revised FIRM and/or FBFM must tie-in with the effective floodplain and regulatory floodway boundaries. Please attach **a copy of the effective FIRM and/or FBFM**, at the same scale as the original, annotated to show the boundaries of the revised 1%-and 0.2%-annual-chance floodplains and regulatory floodway that tie-in with the boundaries of the effective 1%-and 0.2%-annual-chance floodplain and regulatory floodway at the upstream and downstream limits of the area on revision.

☒ Annotated FIRM and/or FBFM (Required)

## D. COMMON REGULATORY REQUIREMENTS*

1. For LOMR/CLOMR requests, do Base Flood Elevations (BFEs) or Special Flood Hazard Areas (SFHAs) increase compared to the effective BFEs? ☒ Yes ☐ No

   If Yes, please attach **proof of property owner notification**. Examples of property owner notifications can be found in the MT-2 Form 2 Instructions.

2. For CLOMR requests, if either of the following is true, please submit **evidence of compliance with Section 65.12 of the NFIP regulations**:

   - The proposed project encroaches upon a regulatory floodway and would result in increases above 0.00 foot compared to pre-project conditions.
   - The proposed project encroaches upon a SFHA with or without BFEs established and would result in increases above 1.00 foot compared to pre-project conditions.

3. Does the request involve the placement or proposed placement of fill? ☒ Yes ☐ No

   If Yes, the community must be able to certify that the area to be removed from the special flood hazard area, to include any structures or proposed structures, meets all of the standards of the local floodplain ordinances, and is reasonably safe from flooding in accordance with the NFIP regulations set forth at 44 CFR 60.3(A)(3), 65.5(a)(4), and 65.6(a)(14). Please see the MT-2 instructions for more information.

4. For LOMR requests, is the regulatory floodway being revised? ☐ Yes ☐ No

   If Yes, attach **evidence of regulatory floodway revision notification**. As per Paragraph 65.7(b)(1) of the NFIP Regulations, notification is required for requests involving revisions to the regulatory floodway Elements and examples of regulatory floodway revision notification can be found in the MT-2 Form 2 Instructions.

5. For CLOMR requests, please submit documentation to FEMA and the community to show that you have complied with Sections 9 and 10 of the Endangered Species Act (ESA). For actions authorized, funded, or being carried out by Federal or State agencies, please submit documentation from the agency showing its compliance with Section 7(a)(2) of the ESA. Please see the MT-2 instructions for more detail.

DEPARTMENT OF HOMELAND SECURITY

Federal Emergency Management Agency

# RIVERINE STRUCTURES FORM (FORM 3)

OMB Control Number: 1660-0016
Expiration: 1/31/2024

**PAPERWORK BURDEN DISCLOSURE NOTICE**

Public reporting burden for this form is estimated to average 3.5 hours per response. The burden estimate includes the time for reviewing instructions, searching existing data sources, gathering and maintaining the needed data, and completing, reviewing, and submitting the form. You are not required to respond to this collection of information unless it displays a valid OMB control number. Send comments regarding the accuracy of the burden estimate and any suggestions for reducing this burden to: Information Collections Management, Department of Homeland Security, Federal Emergency Management Agency, 500 C Street, SW, Washington, DC 20472 , Paperwork Reduction Project (1660-0016). Submission of the form is required to obtain or retain benefits under the National Flood Insurance Program. **Please do not send your completed survey to the above address.**

**PRIVACY ACT STATEMENT**

**AUTHORITY:** The National Flood Insurance Act of 1968, Public Law 90-448, as amended by the Flood Disaster Protection Act of 1973, Public Law 93-234.
**PRINCIPAL PURPOSE(S):** This information is being collected for the purpose of determining an applicant's eligibility to request changes to National Flood Insurance Program (NFIP) Flood Insurance Rate Maps (FIRM).
**ROUTINE USE(S):** The information on this form may be disclosed as generally permitted under 5 U.S.C § 552a(b) of the Privacy Act of 1974, as amended. This includes using this information as necessary and authorized by the routine uses published in DHS/FEMA/NFIP/LOMA-1 National Flood Insurance Program (NFIP); Letter of Map Amendment (LOMA) February 15, 2006, 71 FR 7990.
**DISCLOSURE:** The disclosure of information on this form is voluntary; however, failure to provide the information requested may delay or prevent FEMA from processing a determination regarding a requested change to a (NFIP) Flood Insurance Rate Maps (FIRM).

Flooding Source: San Diego River

**Note:** Fill out one form for each flooding source studied

## A. GENERAL

Complete the appropriate section(s) for each Structure listed below:

| | |
|---|---|
| Channelization: | complete Section B |
| Bridge/Culvert: | complete Section C |
| Dam: | complete Section D |
| Levee/Floodwall: | complete Section E |
| Sediment Transport: | complete Section F (if required) |

**Description Of Modeled Structure**

1. Name of Structure: Proposed Box Culvert under the Resort Entry Road

   Type (check one): ☐ Channelization ☒ Bridge/Culvert ☐ Levee/Floodwall ☐ Dam

   Location of Structure: 420 ft downstream of Cross section 320, crossing under the proposed entry road of the Resort Area

   Downstream Limit/Cross Section: 320

   Upstream Limit/Cross Section: 330

2. Name of Structure: Proposed Bridge Crossing from residential north to proposed Resort

   Type (check one): ☐ Channelization ☒ Bridge/Culvert ☐ Levee/Floodwall ☐ Dam

   Location of Structure: Bridge crossing from the proposed residential north to the resort. 180 ft downstream of cross section 290

   Downstream Limit/Cross Section: 290

   Upstream Limit/Cross Section: 300

3. Name of Structure: Existing West Hills Pkwy Bridge

   Type (check one): ☐ Channelization ☒ Bridge/Culvert ☐ Levee/Floodwall ☐ Dam

   Location of Structure: West of the project at West Hills Pkwy

   Downstream Limit/Cross Section: 242

   Upstream Limit/Cross Section: 244

**NOTE: FOR MORE STRUCTURES, ATTACH ADDITIONAL PAGES AS NEEDED.**

## B. CHANNELIZATION

Flooding Source: _____

Name of Structure: _____

**1. Hydraulic Considerations**

The channel was designated to carry _____(cfs) and/or the _____ - year flood

The design elevation in the channel is based on (check one):

☐ Subcritical flow ☐ Critical flow ☐ Supercritical flow ☐ Energy grade line

If there is the potential for a hydraulic jump at the following locations, check all that apply and attach an explanation of how the hydraulic jump is controlled without affecting the stability of the channel.

☐ Inlet to channel ☐ Outlet to channel ☐ At Drop Structures ☐ At Transitions

☐ Other locations (specify): _____

**2. Channel Design Plans**

Attach the plans of the channelization certified by a registered professional engineer, as described in the instructions.

**3. Accessory Structures**

The channelization includes (check one):

☐ Levees [Attach Section E (Levee/Floodwall)] ☐ Drop structures ☐ Superelevated sections ☐ Energy dissipater

☐ Transitions in cross sectional geometry ☐ Debris basin/detention basin [Attach Section D (Dam/Basin)] ☐ Weir

☐ Other (Describe): _____

**4. Sediment Transport Considerations**

Are the hydraulics of the channel affected by sediment transport? ☐ Yes ☐ No

If yes, then fill out Section F (Sediment Transport) of Form 3. If No, then attach your explanation for why sediment transport was not considered.

## C. BRIDGE/CULVERT

Flooding Source: San Diego River

Name of Structure: Proposed Box Culvert under the Resort Entry Road

1. This revision reflects (check one):

☒ Bridge/Culvert not modeled in the FIS Proposed culvert and bridge

☐ Modified Bridge/Culvert previously modeled in the FIS

☒ Revised analysis of Bridge/Culvert previously modeled in the FIS Existing West Hills Parkway Bridge in the duplicate effective model (HEC-2), was adjusted to reflect the current methodology for bridge modeling (using HEC-RAS 5.0.7).

2. Hydraulic model used to analyze the structure (e.g., HEC-2 with special bridge routine, WSPRO, HY8): HEC-RAS

If different than hydraulic analysis for the flooding source, justify why the hydraulic analysis used for the flooding source could not analyze the structures. Attach justification.

3. Attach plans of the structures certified by a registered professional engineer. The plan detail and information should include the following (check the information that has been provided):

☒ Dimensions (height, width, span, radius, length)
☒ Shape (culverts only)
☐ Material
☐ Beveling and Rounding
☐ Wink Wall Angle
☐ Skew Angle
☒ Distance between Cross Sections
☒ Erosion Protection
☒ Low Chord Elevations - Upstream and Downstream
☒ Top of Road Elevations - Upstream and Downstream
☒ Structure Invert Elevations - Upstream and Downstream
☐ Stream Invert Elevations - Upstream and Downstream
☒ Cross-Section Locations

4. Sediment Transport Considerations

Are the hydraulics of the channel affected by sediment transport? ☐ Yes ☒ No

If yes, then fill out Section F (Sediment Transport) of Form 3. If No, then attach your explanation for why sediment transport was not considered.

There is no indication from historical records that sediment transport can affect the BFE. Additionally,based on the stream morphology, vegetative cover, development of the watershed, and bank conditions, there is no potential for debris and sediment transport to affect the BFE or a structure

## D. DAM/BASIN

Flooding Source: _____

Name of Structure: _____

1. This request is for (check one): ☐ Existing Dam/Basin ☐ New Dam/Basin ☐ Modification of existing Dam/Basin

2. The Dam/Basin was designed by (check one): ☐ Federal Agency ☐ State Agency ☐ Private Organization

   ☐ Local Government Agency Name of the Agency or Organization: _____

3. The Dam was permitted as (check one): ☐ Federal Dam ☐ State Dam

   Provide the permit or identification number (ID) for the dam and the appropriate permitting agency or organization

   Permit or ID number _____ Permitting Agency or Organization _____

   a. ☐ Local Government Dam ☐ Private Dam

   Provided related drawings, specification and supporting design information.

4. Does the project involve revised hydrology? ☐ Yes ☐ No

   If Yes, complete the Riverine Hydrology & Hydraulics Form (Form 2).

   Was the dam/basin designed using critical duration storm? (must account for the maximum volume of runoff)

   ☐ Yes, provide supporting documentation with your completed Form 2.

   ☐ No, provide a written explanation and justification for not using the critical duration storm.

5. Does the submittal include debris/sediment yield analysis? ☐ Yes ☐ No

   If Yes, then fill out Section F (Sediment Transport). If No, then attach your explanation for why debris/sediment analysis was not considered?

6. Does the Base Flood Elevation behind the dam/basin or downstream of the dam/basin change? ☐ Yes ☐ No

   If Yes, complete the Riverine Hydrology & Hydraulics Form (Form 2) and complete the table below.

| | Stillwater Elevation Behind the Dam/Basin | |
|---|---|---|
| FREQUENCY (% annual chance) | FIS | REVISED |
| 10-year (10%) | | |
| 50-year (2%) | | |
| 100-year (1%) | | |
| 500-year (0.2%) | | |
| Normal Pool Elevation | | |

7. Please attach a copy of the formal Operation and Maintenance Plan

## E. LEVEE/FLOODWALL

1. System Elements

   a. This Levee/Floodwall analysis is based on (check one): ☐ Upgrading of an existing levee/floodwall system ☐ A newly constructed levee/floodwall system ☐ Reanalysis of an existing levee/floodwall system

   b. Levee elements and locations are (check one):

   ☐ Earthen embankment, dike, berm, etc Stationed _____ to _____

   ☐ Structured floodwall Stationed _____ to _____

   ☐ Other (describe): _____ Stationed _____ to _____

## E. LEVEE/FLOODWALL (CONTINUED)

c. Structural Type (check one): ☐ Monolithic cast-in place reinforced concrete ☐ Reinforced concrete masonry block ☐ Sheet piling ☐ Other (describe): _____

d. Has this levee/floodwall system been certified by a Federal agency to provide protection from the base flood?

☐ Yes ☐ No

If Yes, by which agency? _____

e. Attach certified drawings containing the following information (indicate drawing sheet numbers):

1. Plan of the levee embankment and floodwall structures. Sheet Numbers: _____
2. A profile of the levee/floodwall system showing the Base Flood Elevation (BFE), levee and/or wall crest and foundation, and closure locations for the total levee system. Sheet Numbers: _____
3. A profile of the levee/floodwall system showing the Base Flood Elevation (BFE), levee and/or wall crest and foundation, and closure locations for the total levee system. Sheet Numbers: _____
4. A layout detail for the embankment protection measures. Sheet Numbers: _____
5. Location, layout, and size and shape of the levee embankment features, foundation treatment, Floodwall structure, closure structures, and pump stations. Sheet Numbers: _____

2. Freeboard

a. The minimum freeboard provided above the BFE is:

_____

Riverine

| | | |
|---|---|---|
| 3.0 feet or more at the downstream end and throughout | ☐ Yes | ☐ No |
| 3.5 feet or more at the upstream end | ☐ Yes | ☐ No |
| 4.0 feet within 100 feet upstream of all structures and/or constrictions | ☐ Yes | ☐ No |

Coastal

| | | |
|---|---|---|
| 1.0 foot above the height of the one percent wave associated with the 1%-annual-chance stillwater surge elevation or maximum wave runup (whichever is greater). | ☐ Yes | ☐ No |
| 2.0 feet above the 1%-annual-chance stillwater surge elevation | ☐ Yes | ☐ No |

Please note, occasionally exceptions are made to the minimum freeboard requirement. If an exception is requested, attach documentation addressing Paragraph 65.10(b)(1)(ii) of the NFIP Regulations.

If No is answered to any of the above, please attach an explanation.

b. Is there an indication from historical records that ice-jamming can affect the BFE? ☐ Yes ☐ No

3. Closures

a. Openings through the levee system (check one): ☐ Exists ☐ Does not exist

If opening exists, list all closures:

| Channel Station | Left or Right Bank | Opening Type | Highest Elevation for Opening Invert | Type of Closure Device |
|---|---|---|---|---|
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

(Extend table on an added sheet as needed and reference)

Note: Geotechnical and geologic data
In addition to the required detailed analysis reports, data obtained during field and laboratory investigations and used in the design analysis for the following system features should be submitted in a tabulated summary form. (Reference U.S. Army Corps of Engineers [USACE] EM-1110-2-1906 Form 2086.)

## E. LEVEE/FLOODWALL (CONTINUED)

4. Embarkment Protection

a. The maximum levee slope land side is: _____

b. The maximum levee slope flood side is: _____

c. The range of velocities along the levee during the base flood is: _____ (min) to _____ (max)

d. Embankment material is protected by (describe what kind): _____

e. Riprap Design Parameters (check one): ☐ Velocity ☐ Tractive Stress
Attach referrences

| Reach | Sideslope | Flow Depth | Velocity | Curve or Straight | Stone Riprap | | | Depth of Toedown |
|---|---|---|---|---|---|---|---|---|
| | | | | | $D_{100}$ | $D_{50}$ | Thickness | |
| Sta _____ to _____ | | | | | | | | |
| Sta _____ to _____ | | | | | | | | |
| Sta _____ to _____ | | | | | | | | |
| Sta _____ to _____ | | | | | | | | |
| Sta _____ to _____ | | | | | | | | |
| Sta _____ to _____ | | | | | | | | |

(Extend table on an added sheet as needed and reference each entry)

f. Is a bedding/filter analysis and design attached? ☐ Yes ☐ No

g. Describe the analysis used for other kinds of protection used (include copies of the design analysis):

Attach engineering analysis to support construction plans.

5. Embarkment and Foundation Stability

a. Identify locations and describe the basis for selection of critical location for analysis:

☐ Overall height: STA:_____ , height _____ ft.

☐ Limiting foundation soil strength:

Strength $\phi$ = _____ degrees, c = _____ psf

Slope: SS = _____ (h) to _____ (v)

(Repeat as needed on an added sheet for additional locations)

b. Specify the embankment stability analysis methodology used (e.g., circular arc, sliding block, infinite slope, etc.):

c. Summary of stability analysis results: _____

## E. LEVEE/FLOODWALL (CONTINUED)

5. Embarkment and Foundation Stability (continued)

| Case | Loading Conditions | Critical Safety Factor | Criteria (Min.) |
|---|---|---|---|
| I | End of construction | | 1.3 |
| II | Sudden drawdown | | 1.0 |
| III | Critical flood stage | | 1.4 |
| IV | Steady seepage at flood stage | | 1.4 |
| VI | Earthquake (Case I) | | 1.0 |

(Reference: USACE EM-1110-2-1913 Table 6-1)

d. Was a seepage analysis for the embankment performed? ☐ Yes ☐ No
If Yes, describe methodology used:

e. Was a seepage analysis for the embankment performed? ☐ Yes ☐ No

f. Were uplift pressures at the embankment landside toe checked? ☐ Yes ☐ No

g. Were seepage exit gradients checked for piping potential? ☐ Yes ☐ No

h. The duration of the base flood hydrograph against the embankment is _____ hours.

Attach engineering analysis to support construction plans.

6. Floodwall and Foundation Stability

a. Describe analysis submittal based on Code (check one): ☐ UBC (1988) ☐ Other (specify): _____

b. Stability analysis submitted provides for: ☐ Overturning ☐ Sliding ☐ If not, explain: _____

c. Loading included in the analyses were: ☐ Lateral earth @ $P_A$ = _____ psf; $P_p$ = _____ psf

☐ Surcharge-Slope @ _____, ☐ surface _____ psf

☐ Wind @ $P_w$ = _____ psf

☐ Seepage (Uplift); _____ ☐ Earthquake @ $P_{eq}$ = _____ %g

☐ 1%-annual-chance significant wave height: _____ ft.

☐ 1%-annual-chance significant wave period: _____ sec.

d. Summary of Stability Analysis Results: Factors of Safety.
Itemize for each range in site layout dimension and loading condition limitation for each respective reach.

| Loading Condition | Criteria (Min) | | Sta | To | Sta | To |
|---|---|---|---|---|---|---|
| | Overturn | Sliding | Overturn | Sliding | Overturn | Sliding |
| Dead & Wind | 1.5 | 1.5 | | | | |
| Dead & Soil | 1.5 | 1.5 | | | | |
| Dead, Soil, Flood, & Impact | 1.5 | 1.5 | | | | |
| Dead, Soil, & Seismic | 1.3 | 1.3 | | | | |

(Ref: FEMA 114 Sept 1986; USACE EM 1110-2-2502)
Note: (Extend table on an added sheet as needed and reference)

## E. LEVEE/FLOODWALL (CONTINUED)

e. Foundation bearing strength for each soil type:

| Bearing Pressure | Sustained Load (psf) | Short Term Load (psf) |
|---|---|---|
| Computed design maximum | | |
| Maximum allowable | | |

f. Foundation scour protection ☐ is, ☐ is not provided. If provided, attach explanation and supporting documentation:

Attach engineering analysis to support construction plans.

7. Settlement

a. Has anticipated potential settlement been determined and incorporated into the specified construction elevations to maintain the established freeboard margin?

b. The computed settlement range is _____ ft. to _____ ft.

c. Settlement of the levee crest is determined to be primarily from : ☐ Foundation consolidation

☐ Embankment compression ☐ Other (Describe): _____

d. Differential settlement of floodwalls ☐ has ☐ has not been accommodated in the structural design and construction

Attach engineering analysis to support construction plans.

8. Interior Drainage

a. Specify size of each interior watershed:

Drainage to pressure conduit: _____ acres

Drainage to ponding area: _____ acres

b. Relationship Established:

| | | |
|---|---|---|
| Ponding elevation vs. storage | ☐ Yes | ☐ No |
| Ponding elevation vs. gravity flow | ☐ Yes | ☐ No |
| Differential head vs. gravity flow | ☐ Yes | ☐ No |

c. The river flow duration curve is enclosed: ☐ Yes ☐ No

d. Specify the discharge capacity of the head pressure conduit: _____ cfs

e. Which flooding conditions were analyzed?

| | | |
|---|---|---|
| Gravity flow (Interior Watershed) | ☐ Yes | ☐ No |
| Common storm (River Watershed) | ☐ Yes | ☐ No |
| Historical ponding probability | ☐ Yes | ☐ No |
| Coastal wave overtopping | ☐ Yes | ☐ No |

If No for any of the above, attach explanation.

f. Interior drainage has been analyzed based on joint probability of interior and exterior flooding and the capacities of pumping and outlet facilities to provide the established level of flood protection.
☐ Yes ☐ No If No, attach explanation.

g. The rate of seepage through the levee system for the base flood is : _____ cfs

h. The length of levee system used to drive this seepage rate in item g: _____ ft.

## E. LEVEE/FLOODWALL (CONTINUED)

8. Interior Drainage (continued)

i. Will pumping plants be used for interior drainage? ☐ Yes ☐ No

If Yes, include the number of pumping plants: _____ For each pumping plant, list:

| | Plant #1 | Plant #2 |
|---|---|---|
| The number of pumps | | |
| The ponding storage capacity | | |
| The maximum pumping rate | | |
| The maximum pumping head | | |
| The pumping starting elevation | | |
| The pumping stopping elevation | | |
| Is the discharge facility protected? | | |
| Is there a flood warning plan? | | |
| How much time is available between warning and flooding? | | |

Will the operation be automatic? ☐ Yes ☐ No

If the pumps are electric; are there backup power sources? ☐ Yes ☐ No

(Reference: USACE EM-1110-2-3101, 3102, 3103, 3104, and 3105)
Include a copy of supporting documentation of data and analysis. Provide a map showing the flooded area and maximum ponding elevations for all interior watersheds that result in flooding.

9. Other Design Criteria

a. The following items have been addressed as stated:

Liquefaction ☐ is ☐ is not a problem

Hydrocompaction ☐ is ☐ is not a problem

Heave differential movement due to soils of high shrink/swell ☐ is ☐ is not a problem

b. For each of these problems, state the basic facts and corrective action taken:

Attach supporting documentation

c. If the levee/floodwall is new or enlarged, will the structure adversely impact flood levels and/or flow velocities floodside of the structure? ☐ Yes ☐ No

d. Sediment Transport Considerations:

Was sediment transport considered? ☐ Yes ☐ No

If Yes, then fill out Section F (Sediment Transport). If No, then attach your explanation for why sediment transport was not considered.

10. Operational Plan and Criteria

a. Are the planned/installed works in full compliance with Part 65.10 of the NFIP Regulations? ☐ Yes ☐ No

b. Does the operation plan incorporate all the provisions for closure devices as required in Paragraph 65.10(c)(1) of the NFIP regulations? ☐ Yes ☐ No

c. Does the operation plan incorporate all the provisions for interior drainage as required in Paragraph 65.10(c)(2) of the NFIP regulations? ☐ Yes ☐ No

If the answer is No to any of the above, please attach supporting documentation.

## E. LEVEE/FLOODWALL (CONTINUED)

11. Maintenance Plan

Please attach a copy of the fomal maintenance plan for the levee/floodwall

12. Operational and Maintenance Plan

Please attach a copy of the formal Operations and Maintenance Plan for the levee/floodwall.

## CERTIFICATION OF THE LEVEE DOCUMENTATION

This certification is to be signed and sealed by a licensed registered professional engineer authorized by law to certify elevation information data, hydrologic and hydraulic analysis, and any other supporting information as per NFIP regulations paragraph 65.10(e) and as described in the MT-2 Forms Instructions. All documents submitted in support of this request are correct to the best of my knowledge. I understand that any false statement may be punishable by fine or imprisonment under Title 18 of the United States Code, Section 1001.

Certifier's Name: _____ License No.: _____ Expiration Date: _____

Company Name: Telephone No.: _____ Fax No.: _____

Signature: _____ Date: _____ E-mail Address: _____

## CERTIFICATION OF THE LEVEE DOCUMENTATION

Flooding Source: _____

Name of Structure: _____

If there is any indication from historical records that sediment transport (including scour and deposition) can affect the Base Flood Elevation (BFE); and/or based on the stream morphology, vegetative cover, development of the watershed and bank conditions, there is a potential for debris and sediment transport (including scour and deposition) to affect the BFEs, then provide the following information along with the supporting documentation:

Sediment load associated with the base flood discharge: Volume _____ acres-feet

Debris load associated with the base flood discharge: Volume _____ acres-feet

Sediment transport rate _____ (percent concentration by volume)

Method used to estimate sediment transport: _____

Most sediment transport formulas are intended for a range of hydraulic conditions and sediment sizes; attach a detailed explanation for using the selected method.

Method used to estimate scour and/or deposition: _____

Method used to revise hydraulic or hydrologic analysis (model) to account for sediment transport: _____

Please note that bulked flows are used to evaluate the performance of a structure during the base flood; however, FEMA does not map BFEs based on bulked flows.

If a sediment analysis has not been performed, an explanation as to why sediment transport (including scour and deposition) will not affect the BFEs or structures must be provided.

There is no indication from historical records that sediment transport can affect the BFE. Additionally,based on the stream morphology, vegetative cover, development of the watershed, and bank conditions, there is no potential for debris and sediment transport to affect the BFE or a structure.

## PROPOSED EASEMENTS

1. PVT. 16' RECIPROCAL ACCESS
2. 25' PUBLIC SEWER
3. 51' PVT. ACCESS
4. 25' WATER TO P.D.M.W.D.
5. 6' PUBLIC TRAIL
6. 10' PUBLIC TRAIL
7. 14' PUBLIC TRAIL
8. PVT. ACCESS WIDTH VARIES

## DESIGN NOTES

1. PROP. PRIVATE STORM DRAIN
2. PROP. PRIVATE 84" RCP STORM DRAIN
3. PROP. PUBLIC 15" PVC SEWER
4. PROP. PRIVATE 8" PVC SEWER
5. PROP. PRIVATE 4" PVC SEWER
6. PROP. PRIVATE 4" PVC SEWER FORCE MAIN
7. PROP. PUBLIC 10" PVC WATER
8. NOT USED
9. PROP. PRIVATE 8" PVC FIRE WATER
10. PROP. PRIVATE 6" PVC WATER
11. PROP. PRIVATE 4" PVC WATER
12. PROP. MASTER WATER METER
13. PROP. BACKFLOW
14. PROP. 4" MOD. ROLLED CURB
15. PROP. PRIVATE 10" PVC FIRE WATER
16. PROP. PRIVATE 12" PVC FIRE WATER
17. PROP. PRIVATE 90" RCP STORM DRAIN
18. PROP. PRIVATE 42" RCP STORM DRAIN
19. PROP. PRIVATE 43"x68" RCP STORM DRAIN
20. PROP. PRIVATE 18" RCP STORM DRAIN
21. PROP. PRIVATE 24"x38" RCP STORM DRAIN
22. PROP. PRIVATE 36" RCP STORM DRAIN
23. UNIMPROVED GRADED BENCH FUTURE TRAIL BY OTHERS

PVT. DRIVE

EXIST. 15" VCP SEWER PER DWG. 16A

PROP. 6' PUBLIC DG TRAIL

NO PARKING

PD LAND USE

BRIDGE

BRIDGE ABUTMENT

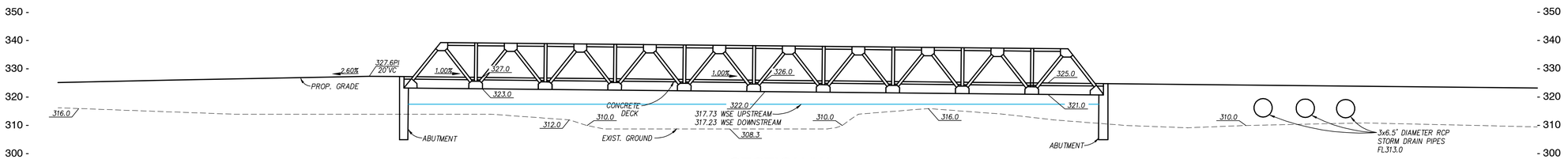
SAN DIEGO RIVER (NORTH)

FEMA FLOOD PLAIN 100 YR. PROP.

SAVE 2 MATURE SYCAMORES, WELL AND ELECTRICAL BOX

SCALE 1"= 40'

PLAN




SECTION "A"

SCALE: HORIZ/VERT 1"=20'


CARY BICKLER, INC.
GOLF COURSE DESIGN
AMERICAN SOCIETY OF GOLF COURSE ARCHITECTS
1220 Rosecrans Street, Suite 314
San Diego, California 92106
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E-mail: cb@bickler.com Web Site: www.bickler.com

PREPARED BY:
HUNSAKER & ASSOCIATES
SAN DIEGO, INC
PLANNING 9707 Waples Street
ENGINEERING San Diego, Ca 92121
SURVEYING PH(858)558-4500- FX(858)558-1414


BRIDGE & CULVERT SECTIONS EXHIBIT

# CARLTON OAKS COUNTRY CLUB AND RESORT

CITY OF SANTEE, CALIFORNIA

SHEET 1 OF 2

WO NO. 2167-0228

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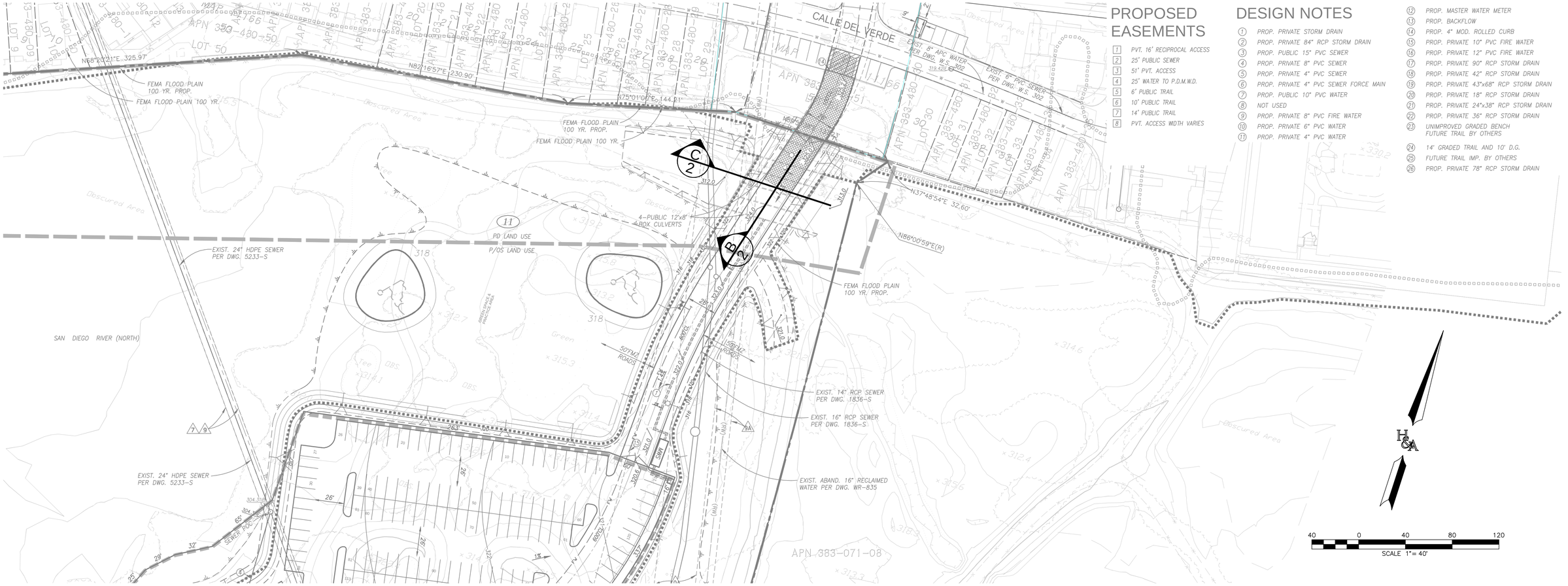


## PROPOSED EASEMENTS

1. PVT. 16' RECIPROCAL ACCESS
2. 25' PUBLIC SEWER
3. 51' PVT. ACCESS
4. 25' WATER TO P.D.M.W.D.
5. 6' PUBLIC TRAIL
6. 10' PUBLIC TRAIL
7. 14' PUBLIC TRAIL
8. PVT. ACCESS WIDTH VARIES

## DESIGN NOTES

1. PROP. PRIVATE STORM DRAIN
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5. PROP. PRIVATE 4" PVC SEWER
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11. PROP. PRIVATE 4" PVC WATER
12. PROP. MASTER WATER METER
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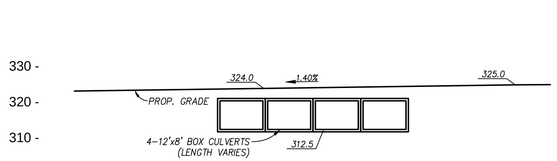
19. PROP. PRIVATE 43"x68" RCP STORM DRAIN
20. PROP. PRIVATE 18" RCP STORM DRAIN
21. PROP. PRIVATE 24"x38" RCP STORM DRAIN
22. PROP. PRIVATE 36" RCP STORM DRAIN
23. UNIMPROVED GRADED BENCH FUTURE TRAIL BY OTHERS
24. 14' GRADED TRAIL AND 10' D.G.
25. FUTURE TRAIL IMP. BY OTHERS
26. PROP. PRIVATE 78" RCP STORM DRAIN

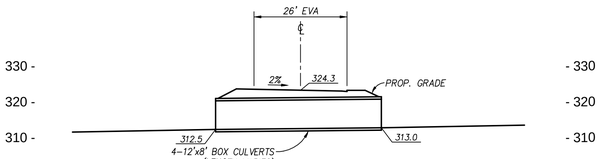
40 0 40 80 120
SCALE 1" = 40'

PLAN




SECTION "B"

SCALE: HORIZ/VERT 1"=20'




SECTION "C"

SCALE: HORIZ/VERT 1"=20'

CARY BICKLER, INC.
GOLF COURSE DESIGN
AMERICAN SOCIETY OF GOLF COURSE ARCHITECTS
1220 Rosecrans Street, Suite 314
San Diego, California 92106
Phone: (619) 223-3240
E-mail: cb@bickler.com Web Site: www.bickler.com

PREPARED BY:
HUNSAKER & ASSOCIATES
SAN DIEGO, INC
PLANNING
ENGINEERING
SURVEYING
9707 Waples Street
San Diego, Ca 92121
PH(858)558-4500 FX(858)558-1414

BRIDGE & CULVERT SECTIONS EXHIBIT

# CARLTON OAKS COUNTRY CLUB AND RESORT

CITY OF SANTEE, CALIFORNIA

SHEET 2 OF 2

WO NO. 2167-0228

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# APPENDIX B

Endangered Species Act Compliance

February 12, 2024

Federal Emergency Management Agency
LOMC Clearinghouse
Attn: LOMC Manager
847 South Pickett Street
Alexandria, VA 22304-4605

**Subject: Carlton Oaks Country Club and Resort – ESA Compliance**

Dear LOMC Manager:

The purpose of this letter is to demonstrate how the Carlton Oaks Country Club and Resort (proposed project) will obtain Endangered Species Act (ESA) compliance, in conjunction with the application for CLOMR for the subject property. The attached biological technical report indicates the following:

- The proposed 169-acre Carlton Oaks Country Club and Resort Project is located at 9200 Inwood Drive, which is on the south side of Carlton Oaks Drive and the east side of West Hills Parkway, along the boundary between the City of Santee and the City of San Diego. Lands within the City of San Diego are covered by the MSCP San Diego Subarea Plan (City of San Diego 1997). The draft Santee MSCP Subarea Plan is used as the guidance document for projects occurring within the City of Santee, but the proposed project will not utilize the Santee MSCP Subarea Plan for ESA coverage.
- Focused, protocol-level surveys were conducted for ESA-listed species least Bell's vireo, coastal California gnatcatcher, and southwestern willow flycatcher, and for proposed threatened southwestern pond turtle. Focused surveys in 2019 and 2022 revealed multiple breeding pairs of least Bell's vireo throughout the biological study area (BSA). Surveys for California gnatcatcher, southwestern willow flycatcher, and southwestern pond turtle were negative and determined to be absent from the BSA. Other ESA species were not expected or determined to have low potential to occur based on biological determination including factors such as of lack of suitable habitat or being outside of the species range.
- The entire project site and most of the BSA is within designated USFWS Critical Habitat for least Bell's vireo. The physical and biological factors that support the feeding, nesting, roosting, and sheltering of least Bell's vireo are present in riparian woodland vegetation which generally contains both canopy and shrub layers. All riparian woodland vegetation within the BSA was included in the survey area for least Bell's vireo. The remainder of the BSA within the USFWS Critical Habitat does not contain primary constituent elements for least Bells' vireo; golf course vegetation outside of the riparian areas are not suitable habitat. Riparian habitat, including southern cottonwood-willow riparian forest, along the San Diego River (South Channel) and the northeastern corner of the site, are considered occupied habitat. The USFWS Carlsbad Fish and

Wildlife Office species occurrence data (USFWS 2018) also showed that least Bell's vireo were observed along the San Diego River (South Channel) in the southwestern area near West Hills Parkway in 2016. All mule-fat scrub and southern cottonwood-willow riparian forest in the BSA, with the exception of the isolated 0.37-acre riparian patch to the west of the existing golf clubhouse (between golf course and existing housing), were determined to be occupied by least Bell's vireo. Vireo were confirmed absent in the isolated riparian patch through protocol surveys conducted in 2019 and 2022.

- Per Section 4.2.3.1, *Impact-BIO-5. Least Bell's Vireo Breeding Habitat*, the proposed project would have permanent direct impacts on occupied least Bell's vireo breeding habitat within designated critical habitat within the City of Santee. The project would have no direct impacts on least Bell's vireo habitat within the City of San Diego.
- The proposed project includes several mitigation measures to compensate for loss of breeding habitat and to avoid breeding season impacts on least Bell's vireo. The following mitigation measures are relevant for least Bell's vireo:
    - MM-BIO-3 *Mitigate Permanent and Certain Temporary Impacts within City of Santee on Sensitive Riparian and Wetland Vegetation Communities* in Section 5.1.1, the project would provide compensatory mitigation for loss of riparian habitat at the ratios described in the MSCP Santee Subarea Plan.
    - MM-BIO-5 specifies the requirements for the Habitat Mitigation and Monitoring Plan (HMMP) which details how riparian mitigation would occur within mitigation sites.
    - MM-BIO-6 specifies the requirement for an RMP which would detail the long-term management of mitigation sites.
    - MM-BIO-15 *Mitigation, Monitoring, and Reporting Conditions for Potential Impacts to Occupied Least Bell's Vireo Habitat* is based on City of San Diego standard practices. It provides avoidance of direct habitat removal during the breeding season and provides for noise buffers to protect least Bell's vireo breeding in adjacent off-site riparian habitat.
    - MM-BIO-14. *Compensatory Mitigation of Impacts on Occupied Least Bell's Vireo Habitat* memorializes the requirement to obtain ESA coverage prior to the implementation of project impacts. It describes "Mitigation for direct impacts on occupied least Bell's vireo riparian habitat, identified by the USFWS as critical habitat for least Bell's vireo, shall be addressed through Section 7 consultation as part of the Clean Water Act Section 404 permitting process and the Fish and Game Code Section 2080 Incidental Take Permit (if required). The results of the Section 7 consultation and conditions of the Incidental Take Permit (if required) would determine the need, if any, for special conditions or habitat mitigation beyond the mitigation identified for impacts on riparian habitat identified in MM-BIO-3 and MM-BIO-4, the minimization of temporary noise impacts and avoidance of direct impacts as described in MM-BIO-15."

The project would have impacts on USACE jurisdictional waterways and would result in 'take' of least Bell's vireo through loss of habitat. As described in MM-BIO-14, the project will need to obtain permits prior to project implementation. As least Bell's vireo is an ESA listed species which occurs within habitat within and adjacent to the jurisdiction of the USACE, the USACE can conduct ESA

Section 7 consultation with the USFWS for this species. The project proponent would have a Biological Assessment prepared, which would detail the effects of the project on least Bell's vireo and which would be based on the information in the attached biological technical report. The Biological Assessment would be submitted as part of the permit application to USACE for a Clean Water Act Section 404 permit. The USFWS will utilize the Biological Assessment to prepare a biological opinion with a "no jeopardy" determination and with reasonable and prudent measures applied.

The USACE permit application and subsequent ESA Section 7 consultation with USFWS will be initiated after the circulation of the draft EIR.

Sincerely,

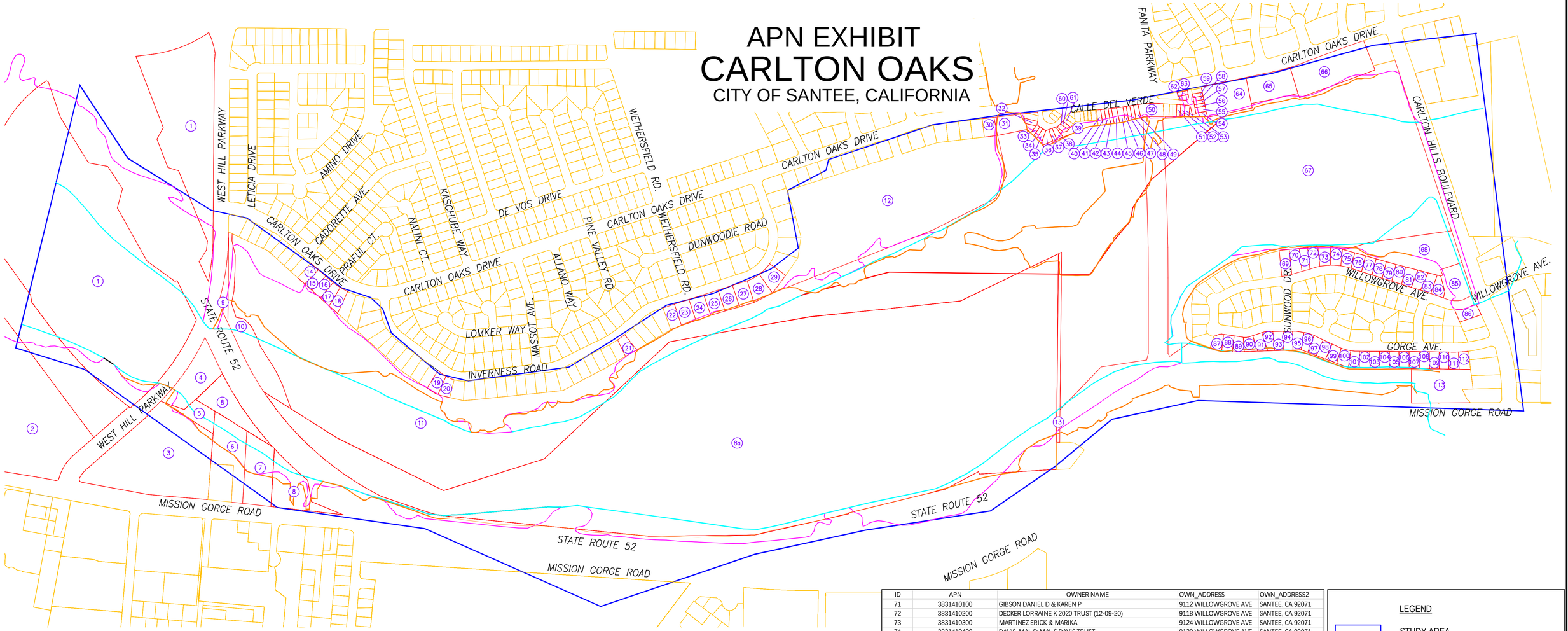
Dale Ritenour
Senior Biologist

Attachment: Biological Technical Report for the Carlton Oaks

# APPENDIX C

Notifications and Support Documentation

# APN EXHIBIT
# CARLTON OAKS
## CITY OF SANTEE, CALIFORNIA




| ID | APN | OWNER NAME | OWN_ADDRESS | OWN_ADDRESS2 |
|---|---|---|---|---|
| 1 | 3830602000 | OKTOGON MAST LLC | 8440 MAST BLVD | SAN DIEGO, CA 92124 |
| 2 | 3830501400 | MIDWEST TELEVISION INC | 0 MISSION GORGE RD | SAN DIEGO, CA 92171 |
| 3 | 3830611001 | AZIZIAN, SAM | 59 Via Sovana | SANTEE, CA 92071 |
| | 3830611002 | WAGNER, KARLI | 60 Via Sovana | SANTEE, CA 92072 |
| | 3830611022 | ODENBRETT MATTHEW & MARINA | 80 Via Sovana | SANTEE, CA 92073 |
| | 38306-1026 | SMITH BRIAN C | 84 Via Sovana | SANTEE, CA 92074 |
| | 3830611025 | ANCHETA MICHAEL B & CRYSTAL M | 83 Via Sovana | SANTEE, CA 92075 |
| | 3830610903 | NGUYEN LAM DUY & KHLOE TRAN REVOCABLE LIVING TRUST | 93 Via Sovana | SANTEE, CA 92076 |
| | 3830610901 | MILLER FAMILY 1996 TRUST (10-05-96) | 91 Via Sovana | SANTEE, CA 92077 |
| | 3830610902 | ORQUIA, AARON JOSEPH; ORQUIA, REBEKAH | 92 Via Sovana | SANTEE, CA 92078 |
| 4 | 3830602500 | COUNTY OF SAN DIEGO | 0 MAST BLVD | SAN DIEGO, CA |
| 5 | 3830610600 | LYON TREVISO L L C | 0 MISSION GORGE RD | SANTEE, CA 92071 |
| 6 | 3830610200 | PRESERVATION TRUST (08-28-00) | 7970 MISSION GORGE RD | SANTEE, CA 92071 |
| 7 | 3830610300 | PRESERVATION TRUST (08-28-00) | 7980 MISSION GORGE RD | SANTEE, CA 92071 |
| 8 | 3830800300 | EAST CNTY ADVANCED WATER PURIFICATION JO, | 0 MISSION GORGE RD | SAN DIEGO, CA 92171 |
| 8a | 7601430700 | ALIKA LLC | 9200 INWOOD DR | SANTEE, CA 92071 |
| 9 | 3830602600 | CITY OF SAN DIEGO | 0 INWOOD DR | SAN DIEGO, CA 92171 |
| 10 | 3830711000 | CITY OF SAN DIEGO | 0 MAST BLVD | SANTEE, CA 92071 |
| 11 | 3830710900 | ALIKA LLC | 9200 INWOOD DR | SANTEE, CA 92071 |
| 12 | 3830710600 | ALIKA LLC | 9200 INWOOD DR | SANTEE, CA 92071 |
| 13 | 3830800400 | EAST CNTY ADVANCED WATER PURIFICATION JO, | 0 MISSION GORGE RD | SAN DIEGO, CA 92171 |
| 13 | 3830800300 | EAST CNTY ADVANCED WATER PURIFICATION JO, | 0 MISSION GORGE RD | SANTEE, CA 92071 |
| 13 | 7601430700 | ALIKA LLC | 9200 INWOOD DR | SANTEE, CA 92071 |
| 14 | 3834251000 | NATALE MARCELLO J | 8335 CARLTON OAKS DR | SANTEE, CA 92071 |
| 15 | 383310100 | MACKIE JANINE | 8339 CARLTON OAKS DR | SANTEE, CA 92071 |
| 16 | 3834310200 | ROMEO DENNIS | 8343 CARLTON OAKS DR | SANTEE, CA 92071 |
| 17 | 3834310300 | KAROLEWICZ MICHELE;FERNANDES JOSEPH | 8347 CARLTON OAKS DR | SANTEE, CA 92071 |
| 18 | 3834310400 | BRYAN RAY D & VICKI K | 8351 CARLTON OAKS DR | SANTEE, CA 92071 |
| 19 | 3833811100 | NYANS JULIE M LIVING TRUST (03-28-12) | 9041 INVERNESS RD | SANTEE, CA 92071 |
| 20 | 3833811200 | GILBERT, MELISSA MARIE; MELISSA M GILBERT TRUST, | 9045 INVERNESS RD | SANTEE, CA 92071 |
| 21 | 3833304000 | KERSELL FAMILY REVOCABLE TRUST (10-05-09) | 9131 INVERNESS RD | SANTEE, CA 92071 |
| 22 | 3833303500 | SUMMY MARK & BARBARA TRUST (10-27-06) | 9141 INVERNESS RD | SANTEE, CA 92071 |
| 23 | 3833300700 | BAUER TRUST (12-01-17) | 9145 INVERNESS RD | SANTEE, CA 92071 |
| 24 | 3833300800 | SAWAYA IBRAHIM A SEPARATE PROPERTY TRUST (01-30-88) | 9203 INVERNESS RD | SANTEE, CA 92071 |
| 25 | 3833300900 | OLSEN AARON & CARA LIVING TRUST (03-11-19) | 9207 INVERNESS RD | SANTEE, CA 92071 |
| 26 | 3833301000 | GROSSO ERNEST J | 9211 INVERNESS RD | SANTEE, CA 92071 |
| 27 | 3833301100 | WOOD DAVID A & ROTTER SARAH K LIVING TRUST (02-10-22) | 9215 INVERNESS RD | SANTEE, CA 92071 |
| 28 | 3833301200 | MORABITO, LEANDRO; PEREIRA, NICOLE | 9219 INVERNESS RD | SANTEE, CA 92071 |
| 29 | 3833301300 | CHUBB EUGENE FAMILY TRUST (06-08-93) | 9223 INVERNESS RD | SANTEE, CA 92071 |
| 30 | 3832410100 | SUMMERS JOHN M & RACHEL M | 8929 CARLTON OAKS DR | SANTEE, CA 92071 |

| ID | APN | OWNER NAME | OWN_ADDRESS | OWN_ADDRESS2 |
|---|---|---|---|---|
| 31 | 3834804800 | VISTA DEL VERDE OF SANTEE | CALLE DEL VERDE | SANTEE, CA 92071 |
| 32 | 3834800400 | YORK, EVELYN M; EVELYN M YORK 2022 FAMILY TRUST, | 9003 CALLE DEL VERDE | SANTEE, CA 92071 |
| 33 | 3834800500 | SPENCER RICHARD & VALERIE FAMILY 2002 TRUST (10-08-02) | 9005 CALLE DEL VERDE | SANTEE, CA 92071 |
| 34 | 3834800600 | HARLING LINDA D TRUST | 9007 CALLE DEL VERDE | SANTEE, CA 92071 |
| 35 | 3834800700 | BENNETT-HAUSER NANCY M TR | 9009 CALLE DEL VERDE | SANTEE, CA 92071 |
| 36 | 3834800800 | CABANISS KYLE W & AMANDA S | 9011 CALLE DEL VERDE | SANTEE, CA 92071 |
| 37 | 3834800900 | JONES DALLAS W & SHANNON R | 9013 CALLE DEL VERDE | SANTEE, CA 92071 |
| 38 | 3834801000 | RABASCO TRACY B | 9015 CALLE DEL VERDE | SANTEE, CA 92071 |
| 39 | 3834805000 | VISTA DEL VERDE OF SANTEE | 0 CALLE DEL VERDE | SANTEE, CA 92071 |
| 40 | 3834802000 | LEU FAMILY TRUST (03-01-19) | 9035 CALLE DEL VERDE | SANTEE, CA 92071 |
| 41 | 3834802100 | ALAYZA, DIEGO IGNACIO; CHIHWARO, JULIE RAZKALLAH | 9037 CALLE DEL VERDE | SANTEE, CA 92071 |
| 42 | 3834802200 | WHISLER JOHN & CHRISTINA | 9039 CALLE DEL VERDE | SANTEE, CA 92071 |
| 43 | 3834802300 | MOONEY REBECCA L; MOONEY ROBERT N & PAMELA S | 9041 CALLE DEL VERDE | SANTEE, CA 92071 |
| 44 | 3834802400 | MARKSBURY KERRY SEPARATE PROPERTY TRUST (07-22-15) | 9043 CALLE DEL VERDE | SANTEE, CA 92071 |
| 45 | 3834802500 | GALLAGHER HELGA; GALLAGHER WILLIAM H | 9045 CALLE DEL VERDE | SANTEE, CA 92071 |
| 46 | 3834802600 | DANIELS NORMAN R & PATRICIA A | 9047 CALLE DEL VERDE | SANTEE, CA 92071 |
| 47 | 3834802700 | PREVES RUSSELL R | 9049 CALLE DEL VERDE | SANTEE, CA 92071 |
| 48 | 3834802800 | TEITELBAUM, JOSHUA E; TEITELBAUM, HANNA J | 9051 CALLE DEL VERDE | SANTEE, CA 92071 |
| 49 | 3834802900 | VANINA BRIAN & SANDOVAL NICOLE | 9053 CALLE DEL VERDE | SANTEE, CA 92071 |
| 50 | 3834805100 | VISTA DEL VERDE OF SANTEE | 0 CALLE DEL VERDE | SANTEE, CA 92071 |
| 51 | 3834803300 | BENEDICT MICHAEL W | 9061 CALLE DEL VERDE | SANTEE, CA 92071 |
| 52 | 3834803400 | POST LADD FAMILY TRUST (07-20-15) | 9063 CALLE DEL VERDE | SANTEE, CA 92071 |
| 53 | 3834803500 | BENEDICT MICHAEL W | 9065 CALLE DEL VERDE | SANTEE, CA 92071 |
| 54 | 3834805200 | VISTA DEL VERDE OF SANTEE | 0 CALLE DEL VERDE | SANTEE, CA 92071 |
| 55 | 3834803600 | ASHBAUGH MARY L FAMILY TRUST (09-11-21) | 9201 CAMINO DEL VERDE | SANTEE, CA 92071 |
| 56 | 3834803700 | WHITTAKER, CRISTIN | 9203 CAMINO DEL VERDE | SANTEE, CA 92071 |
| 57 | 3834803800 | KLOSTERMAN RYAN J & EMILY M | 9205 CAMINO DEL VERDE | SANTEE, CA 92071 |
| 58 | 3834803900 | PETTUS FAMILY TRUST (02-18-93) | 9207 CAMINO DEL VERDE | SANTEE, CA 92071 |
| 59 | 3834804000 | SEABOCH, TODD LYNN; SAUNDRA LEE PAPRITZ REVOCABLE TRU | 9209 CAMINO DEL VERDE | SANTEE, CA 92071 |
| 60 | 3834801100 | AWES FAMILY SURVIVORS TRUST (03-15-04); AWES FAMILY DEC | 9017 CALLE DEL VERDE | SANTEE, CA 92071 |
| 61 | 3834801200 | LOPEZ JEAN M 2020 FAMILY TRUST (02-21-20) | 9019 CALLE DEL VERDE | SANTEE, CA 92071 |
| 62 | 3834804300 | DODD MICHAEL R & LIU SU RONG; DODD DANILO J | 9210 CAMINO DEL VERDE | SANTEE, CA 92071 |
| 63 | 3834804200 | NUGENT SEAN M & KRISTIN N | 9212 CAMINO DEL VERDE | SANTEE, CA 92071 |
| 64 | 3832801600 | OAKS LTD THE | 9205 CARLTON OAKS DR | SANTEE, CA 92071 |
| 65 | 3832801300 | CARLTON HILLS SOUTHERN BAPTIST CHURCH | 9225 CARLTON OAKS DR | SANTEE, CA 92071 |
| 66 | 3832801700 | CARLTON OAKS INVESTMENTS LLC | 9249 CARLTON OAKS DR | SANTEE, CA 92071 |
| 67 | 3830710800 | CITY OF SANTEE | INWOOD DR | SANTEE, CA 92071 |
| 68 | 3830710400 | FARIS AL MAWLA | CARLTON HILLS BLVD | SANTEE, CA 92071 |
| 69 | 3831310200 | HILL FAMILY TRUST (05-05-08) | 9064 WILLOWGROVE AVE | SANTEE, CA 92071 |
| 70 | 3831310100 | BERNAL STEVEN & PATRICIA L | 9106 WILLOWGROVE AVE | SANTEE, CA 92071 |

| ID | APN | OWNER NAME | OWN_ADDRESS | OWN_ADDRESS2 |
|---|---|---|---|---|
| 71 | 3831410100 | GIBSON DANIEL D & KAREN P | 9112 WILLOWGROVE AVE | SANTEE, CA 92071 |
| 72 | 3831410200 | DECKER LORRAINE K 2020 TRUST (12-09-20) | 9118 WILLOWGROVE AVE | SANTEE, CA 92071 |
| 73 | 3831410300 | MARTINEZ ERICK & MARIKA | 9124 WILLOWGROVE AVE | SANTEE, CA 92071 |
| 74 | 3831410400 | DAVIS, MAL S; MAL S DAVIS TRUST, | 9130 WILLOWGROVE AVE | SANTEE, CA 92071 |
| 75 | 3831410500 | FRANCISCO THERON & KRISTINA | 9138 WILLOWGROVE AVE | SANTEE, CA 92071 |
| 76 | 3831410600 | SALSBERRY, MARK RAY; SALSBERRY, LINDA JOAN | 9144 WILLOWGROVE AVE | SANTEE, CA 92071 |
| 77 | 3831410700 | DEMARS FAMILY TRUST (12-05-17) | 9150 WILLOWGROVE AVE | SANTEE, CA 92071 |
| 78 | 3831410800 | SHEFFER HAZEL | 9156 WILLOWGROVE AVE | SANTEE, CA 92071 |
| 79 | 3831410900 | TRUONG, NAM; NGUYEN, TRINH | 9164 WILLOWGROVE AVE | SANTEE, CA 92071 |
| 80 | 3831411000 | CASTANEDA JAVIER JR & KELLY Y | 9170 WILLOWGROVE AVE | SANTEE, CA 92071 |
| 81 | 3831510100 | GENESTA MARCOS A & WALADANH | 9176 WILLOWGROVE AVE | SANTEE, CA 92071 |
| 82 | 3831510200 | STAFFORD PAUL N 2007 TRUST (10-17-07); JONES BARRY L & DC | 9184 WILLOWGROVE AVE | SANTEE, CA 92071 |
| 83 | 3831510300 | KOVAL JOHN & LAURA | 9212 WILLOWGROVE AVE | SANTEE, CA 92071 |
| 84 | 3831510400 | PENA, DENISE; MAK, JESSE | 9220 WILLOWGROVE AVE | SANTEE, CA 92071 |
| 85 | 3831510800 | RYS FRANK TR | 9016-20 CARLTON HILLS BLV | SANTEE, CA 92071 |
| 86 | 3831520400 | YARWICK TERRY J LIVING TRUST (05-18-11) | 980 CARLTON HILLS BLVD | SANTEE, CA 92071 |
| 87 | 3831311500 | SAGUN TRISTAN & DELISA | 9017 GORGE AVE | SANTEE, CA 92071 |
| 88 | 3831311600 | ADJEMIAN CRAIG A & KRISTINA N | 9023 GORGE AVE | SANTEE, CA 92071 |
| 89 | 3831311700 | BARROW FRANKIE G & M DELIA | 9031 GORGE AVE | SANTEE, CA 92071 |
| 90 | 3831311800 | CABALLERO FAMILY TRUST (03-25-15) | 9037 GORGE AVE | SANTEE, CA 92071 |
| 91 | 3831311900 | BAUDOUR JEFFREY R & VICKI A | 9043 GORGE AVE | SANTEE, CA 92071 |
| 92 | 3831312000 | ANDRUS DAVID | 9049 GORGE AVE | SANTEE, CA 92071 |
| 93 | 3831312100 | BUNCH CHESTER M TRUST (10-14-09) | 9055 GORGE AVE | SANTEE, CA 92071 |
| 94 | 3831312200 | PARKER RICKEY V JR & ERI | 9063 GORGE AVE | SANTEE, CA 92071 |
| 95 | 3831312300 | PALMER LYNDA L; PALMER RICHARD | 9105 GORGE AVE | SANTEE, CA 92071 |
| 96 | 3831430100 | POWELL, ERIC; POWELL, NADIA | 9111 GORGE AVE | SANTEE, CA 92071 |
| 97 | 3831430200 | ACOSTA, RAMON; THE JORGE E GUEVARA TRUST, | 9119 GORGE AVE | SANTEE, CA 92071 |
| 98 | 3831430300 | HUFF KEVIN B | 9127 GORGE AVE | SANTEE, CA 92071 |
| 99 | 3831430400 | TYNDALL MICHAEL C FAMILY REVOCABLE TRUST | 9133 GORGE AVE | SANTEE, CA 92071 |
| 100 | 3831430500 | NGUYEN TINH VAN | 9139 GORGE AVE | SANTEE, CA 92071 |
| 101 | 3831430600 | DEYOE DARAN & BARBARA J | 9145 GORGE AVE | SANTEE, CA 92071 |
| 102 | 3831430700 | DEYOE DARAN & BARBARA | 9151 GORGE AVE | SANTEE, CA 92071 |
| 103 | 3831430800 | HEDGREN SANDRA M 2019 TRUST (04-23-19) | 9157 GORGE AVE | SANTEE, CA 92071 |
| 104 | 3831430900 | LUNA RODNEY & KIMBERLY 2021 FAMILY TRUST (05-25-21) | 9165 GORGE AVE | SANTEE, CA 92071 |
| 105 | 3831431000 | STINDE FAMILY TRUST (05-02-07) | 9171 GORGE AVE | SANTEE, CA 92071 |
| 106 | 3831530100 | PISHNY KATHLEEN M REVOCABLE 2015 TRUST | 9177 GORGE AVE | SANTEE, CA 92071 |
| 107 | 3831530200 | HADDIX MARLO J & ALICIA M | 9185 GORGE AVE | SANTEE, CA 92071 |
| 108 | 3831530300 | SAUNDERS WILSON T & AMBROSE ELIZABETH D | 9203 GORGE AVE | SANTEE, CA 92071 |
| 109 | 3831530400 | LABERGE LAURA M | 9209 GORGE AVE | SANTEE, CA 92071 |
| 110 | 3831530500 | MILLER ANDRE F | 9217 GORGE AVE | SANTEE, CA 92071 |

| ID | APN | OWNER NAME | OWN_ADDRESS | OWN_ADDRESS2 |
|---|---|---|---|---|
| 111 | 3831530600 | MURILLO EILEEN R | 9223 GORGE AVE | SANTEE, CA 92071 |
| 112 | 3831530700 | GARCIA JUAN D | 9231 GORGE AVE | SANTEE, CA 92071 |
| 113 | 3831531200 | CITY OF SANTEE | 0 MISSION GORGE RD | SANTEE, CA 92071 |

LEGEND

- STUDY AREA
- PARCELS/LOTS
- AFFECTED PARCELS/LOTS
- ① ID NUMBER
- 100-YR FLOOD PLAIN PER FEMA FIRM
- 100-YR FLOODWAY PER FEMA FIRM
- 100-YR FLOOD PLAIN PER REVISED STUDY
- 100-YR FLOODWAY PER REVISED STUDY

H&A

300 0 300 600 900

SCALE 1"= 300'

W.O.# 0000-0000

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