AGUA FRIA FREEWAY

INITIAL DRAINAGE REPORT

(30% DESIGN)

CAMELBACK ROAD

TO

NORTHERN AVENUE

VOLUME II

ON-SITE DRAINAGE DESIGN

OFF-SITE CHANNEL DESIGN

by

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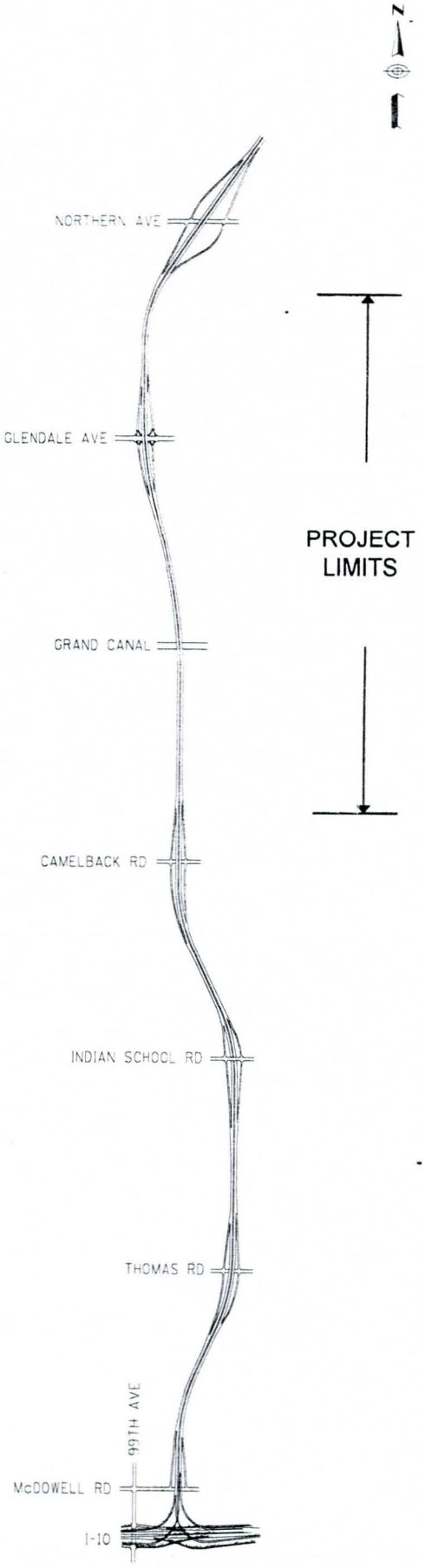

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EXECUTIVE SUMMARY

The Agua Fria Freeway, Camelback Road to Northern Avenue, is located in Maricopa County, Arizona, within Sections 4, 8, 9, and 16 of Township 2 North, Range 1 East of the Gila and Salt River Baseline & Meridian.

An off-site drainage system collects and routes the 100-year, 24-hour stormwater runoff generated by the contributing urban watershed along the east side of the freeway to the ultimate outfall. North of the Bethany Home Road Alignment/Grand Canal, a off-site drainage channel will collect the runoff and route the stormwater to the New River. South of Bethany Home Road, a channel will collect and route the off-site stormwater along the east side of the freeway where it will connect to the Interstate 10 channel and ultimately outfall to the Agua Fria River. This project ends north of Camelback Road.

The design discharges for the off-site channels were developed by Wood/Patel Associates (WPA). WPA revised and updated the Maryvale Area Drainage Master Study to include the Agua Fria Freeway. Using engineering judgment, the HEC-1 100-year, 24-hour peak discharges were distributed along the alignment. The off-site freeway drainage channels were then sized to convey these discharges. Details of the design peak flow distribution of the channel are provided in Volume I of this report.

HEC-RAS computer models were developed for all three channels as described below:

- The north-south (N-S) channel begins approximately 0.75 miles north of Glendale Road. The intercepted overland flow in the first half mile is collected and conveyed in a earthen trapezoidal channel. Approximately 0.25 miles north of Glendale Avenue the channel changes to a concrete lined trapezoidal section. At Glendale Avenue, the N-S channel drops into a 10'x5'x180' box culvert to convey off-site flows under the roadway. The N-S channel widens approximately 0.25 miles south of Glendale Avenue to increase the capacity of the channel for the combined off-site flows. The N-S channel outfalls to the Bethany Home Outfall Channel (BHOC) immediately north of the Grand Canal. A maintenance access road is constructed on the east side of the channel.

- The BHOC begins at the confluence with the N-S channel east of the freeway. The BHOC conveys the stormwater flows under the Agua Fria Freeway, curves to the north around USA Fee Land and flows under 99th Avenue where a new box culvert is proposed. The channel alignment avoids an existing SRP well site on the northwest corner of 99th Avenue and the Grand Canal. The proposed alignment continues west, paralleling the SRP right-of-way for the Grand Canal. The alignment curves south approximately

1400 feet west of 99th Avenue and continues paralleling the SRP Grand Canal right-of-way. The BHOC drops into a six barrel, 6'x7'x180' concrete box culvert under the Grand Canal Wasteway, RID Canal, and a private irrigation ditch. Maintenance road culverts are required at the Wasteway, RID, and private irrigation delivery ditch. The BHOC continues west to the confluence with the New River. The top of the BHOC channel bank is set to match the top of the new Camelback Ranch levee to preserve the integrity of the levees for the Standard Project flood in New River. Maintenance access roads are provided on both sides of the channel.

- The Camelback Channel (CBC) begins approximately 0.25 miles south of the Grand Canal. The overland flow is collected and conveyed in a concrete lined trapezoidal channel. The CBC parallels the east side of the Agua Fria Freeway and ultimately outfalls to the I-10 channel and the Agua Fria River.

ADOT and the Flood Control District of Maricopa County are currently negotiating an IGA to jointly fund the Bethany Home Outfall Channel (BHOC) to accommodate a future FCDMC channel east of the Agua Fria Freeway. It is anticipated that both parties will sign the IGA in early 1998.

Initial Design (30%) plans for the channels are found in Appendix D.

The on-site drainage for the section of the Agua Fria Freeway from Camelback Road to Northern Avenue consists of nine major systems, which discharge into the off-site drainage channel system installed on the east side of the freeway. The freeway is elevated as it crosses over Camelback Road, the Grand Canal, and Glendale Avenue and above grade through out the project length. Drainage design is based on a 10-year return frequency storm.

The goal of this Initial Drainage Report for the on-site drainage is to obtain ADOT approval of the design process rather than identifying actual inlet locations and sizes. Inlet design cannot proceed until the horizontal and vertical alignments for the mainline and ramps are approved by ADOT as small changes in alignment will effect pavement drainage. The designer for the PS & E will use the approved procedures to complete the drainage design.

The standard inlets used for the mainline and ramps is C-15.91. Slotted drains may be required to optimize the system. The location of inlets, storm drain manholes and trunk lines are shown in ADOT Standard Drawing C-13.65.

An initial design for the mainline storm drain system was developed using HYDRAIN (Version 6.0). The output from the Hydrain Model is provided in Appendix B. Pavement Basin Drainage Maps showing the limits of the drainage area used in the HYDRAIN analysis are included in Appendix C.

I. INTRODUCTION

A. Project Location

The Agua Fria Freeway, Camelback Road to Northern Avenue, is located in Maricopa County, Arizona, within Sections 4, 8, 9, and 16 of Township 2 North, Range 1 East of the Gila and Salt River Baseline & Meridian.

B. Description of Improvements

1. Existing Conditions

The design section of the Agua Fria Freeway is bounded on the north by the existing 101L; on the east by the 97th Avenue alignment; on the west by the 99th Avenue; and on the south by Camelback Road. The existing Grand Canal bisects the design segment at the Bethany Home Road Alignment. The land use is mostly agricultural with supporting houses and outbuildings. The freeway alignment will cross through an existing dairy which occupies land on both sides of the Grand Canal.

2. Proposed Roadway Improvements

The design segment of the Agua Fria Freeway lies partially within the incorporated limits of the City of Glendale and unincorporated Maricopa County. The freeway project will construct the eastbound and westbound mainline lanes providing three though lanes in each direction of travel. Auxiliary lanes will be provided between Glendale and Northern Avenues. Traffic interchanges will be constructed at Glendale Avenue and over the Grand Canal/Future Bethany Home Road. Major drainage facilities include on-site storm drain and off-site channels. One off-site channel will parallel the Grand Canal to convey stormwater flows west to the New River.

C. Concept Plans

Initial on-site and off-site drainage plans for the Agua Fria Freeway are provided in Appendix D.

II. BACKGROUND

A. Previous Hydrology Studies

The WLB Group, as a subconsultant to the DeLeuw, Cather and Company completed the Offsite Drainage Concept Study (ODCS) in December, 1987.

URS Consultants completed the Final Drainage Report, Final Design I , Outer Loop Highway, Encanto Boulevard to Camelback Road on September 10, 1989. Construction plans were developed for the Agua Fria Freeway to the Stage 4 level (Final Design I) from Encanto Boulevard to Camelback Road with the following off-site drainage elements:

- Concrete lined collector channel on the east side of the freeway from north of Camelback Road to a pair of detention basins. The peak discharge at Camelback Road was computed to be 1354 cfs. The designers assumed that a channel along the north bank of the Grand Canal would be extended to 83rd Avenue and half of the overland flow (1230 cfs) would be diverted into the channel and the remaining half would over top the Grand Canal and be intercepted by the collector channel north of Camelback Road.
- Twin concrete lined detention basins were proposed on each side of the freeway between Thomas Road and Indian School Road. Each basin was about 4,400 feet in length with a volume of about 1,113,100 cubic yards. The basins were to be interconnected by a reinforced concrete box culvert under the freeway.
- The basins would be drained by a culvert located in Thomas Road from the west detention basin to the Agua Fria River.

This hydrology and off-site drainage scheme has been superseded by a new hydrology and drainage system that will be explained in this report.

B. New River Impact Analysis

The WLB Group included an impact analysis on New River as part of the Addendum to the Offsite Drainage Concept Study (AODCS). The purpose of the analysis was to determine the effects on the New River flood stages from the discharge of the Grand Canal Channel. The analysis compared the hydrology developed by the US Army corps of Engineers (COE) as published in 1982 entitled Gila River Basin, New river and Phoenix Stream Hydrology, Design Memorandum No. 2, Part 2. The COE simulated the 100-year, 7-hour flood and the Standard Project Flood (SPF) for New River

This analysis has been superseded due to revisions in the area hydrology. A new analysis in included in this report.

III. OFF-SITE HYDROLOGY

See Volume I of this report prepared by Wood, Patel & Associates.

IV. ON-SITE DRAINAGE

A. General Discussion

The on-site drainage for the section of the Agua Fria Freeway from Camelback Road to Northern Avenue consists of nine major systems; as shown in Appendix C of this report.

- System #1: The on-site drainage sub-system from the crest at the Camelback Road Structure to Station 323+30
- System #2: The on-site drainage sub-system for the sag in the mainline profile located at Station 325+96.
- System #3: The on-site drainage sub-system from Station 329+60 to the crest in the structure over the Grand Canal.
- System #4: The on-site drainage sub-system from the crest of the structure at the Grand Canal to Station 374+60.
- System #5: The on-site drainage sub-system for the sag in the mainline profile located at Station 376+66.
- System #6: The on-site drainage sub-system from Station 379+25 to the crest in the structure over the Glendale Avenue.
- System #7: The on-site drainage sub-system from the crest of the structure at Glendale Avenue to Station 421+00 northbound and to Station 422+83.75 southbound.
- System #8: The on-site drainage sub-system for the sag in the mainline profile located at Station 424+36.
- System #9: The on-site drainage sub-system from Station 427+55 to the end of the project.

In addition to the on-site system there will be a new storm drain system in the improved portion of Glendale Avenue. Glendale Avenue will be improved to its ultimate width of 84 feet from 99th Avenue to 95th Avenue. Drainage improvements will consist of catch basins and laterals sized for the 10-year return storm.
Improvements to Camelback Road will be accomplished in the Encanto Boulevard to Camelback Road section of the Agua Fria Freeway.

The mainline drainage systems discharge into the off-site drainage channel system installed on the east side of the freeway to collect the overland flow. The freeway is elevated as it crosses over Camelback Road, the Grand Canal, and Glendale Avenue.

1. Design Criteria

The on-site hydrology will be analyzed in English units. The procedures found in the ADOT Highway Drainage Design Manual, Hydrology, (HDDM) December 1994 will be

used. The Rational Method will be used to develop the 10-year peak runoff for the elevated portion based on a site-specific Intensity-Duration Frequency (I-D-F) Graph.

$$Q = C\,i\,A$$

where Q = the peak discharge in cfs.

C = runoff coefficient

i = the average rainfall intensity, in inches/hour (in/hr) for the selected rainfall return period

A = the contributing drainage area in acres

The freeway uses retaining walls and maximum allowable side slopes to reduce right of way requirements. Side slopes are plated with decomposed granite and medians are left unpaved However, in anticipation of future additional lanes, roadway drainage analysis assumes that the medians are paved and slope in the same direction as the adjoining traveled way.

The following values of "C" are used based upon Figure 2-3 of the HDDM with a 10-year rainfall depth of 1.5 inches:

- Paved Surfaces - 0.95
- Highway slopes (heavy-urban, 70% impervious) - 0.74

The rainfall intensity is estimated based upon the time of concentration at the point being analyzed. A site-specific I-D-F Graph, developed from the procedures in the HDDM, is used to estimate the average rainfall intensity. The initial time of concentration is calculated from Equation 2-2 of the HDDM and is:

$$T_c = 18.3\ L^{0.5}\ K_b^{0.52}\ S^{-0.31}\ I^{-0.38}$$

where T_c = time of concentration in hours

L = the length of the longest flow path in miles

K_b = the watershed resistance coefficient from Table 2-1, HDDM

S = the slope of the longest flow path in ft/mile

i = the average rainfall intensity in in/hr, the same i as Equation 2-1, HDDM

The minimum T_c, and therefore the minimum rainfall duration, is ten (10) minutes.

Drainage areas, which include shoulders, median and side slopes, are found by a careful examination of the roadway plan and profile.

The following drainage design criteria will be applied to the on-site hydrology design and are found in Chapter 600, HIGHWAY DRAINAGE DESIGN (ENGLISH UNIT EQUIVALENCIES) of the ADOT Roadway Design Guidelines (RDG) of May 1996:

- Storm Drain Design Storm Frequency is 10 years for at grade/elevated main line, ramps and crossroads.
- Hydraulic grade line shall be at least 6 inches below top of the catch basin grate for the Storm Drainage System.
- For the 10 year storm, the allowable spread (ponding width) shall not exceed the width of the roadway gutter, shoulder, parking lane and/or distress lane and one-half of the adjacent lane. This equates to an allowable spread for the mainline of 16 feet. Ramps vary in width, therefore a minimum of one lane width (12 feet) shall remain open.
- Inlet Capture Ratios shall conform to Table 606.2 of RDG.
- Restriction on types of inlets are found in subsection 606.2.B of RDG.
- Minimum pipe size for storm drains shall be 24 inches except that pipes connecting catch basins to trunk lines may not be less than 18 inches.
- Desirable "self cleaning" velocity is 3 feet per sec (fps) flowing full. The absolute minimum velocity flowing full is 2 fps.

The following pipe design criteria will be used on this project and are found in the ADOT Pipe Selection Guidelines and Procedures dated February 1, 1996 with March 21, 1996 Revisions.

- Pipe roughness values of 0.012 shall be used for all pipe.
- Approved pipe types are reinforced concrete pipe (RCP), non-reinforced concrete pipe (NRCP), non-reinforced cast-in-place concrete pipe (NRCIPCP) and corrugated high density polyethylene plastic pipe (CHDPEPP) Class S up to 36 inches in diameter in fills less than 10 feet.

B. Inlet Design

Inlet design cannot proceed until the horizontal and vertical alignments for the mainline and ramps are approved by ADOT as small changes in alignment will effect pavement drainage. The goal of this Initial Drainage Report is to obtain ADOT approval of the design process rather than identifying actual inlet locations and sizes. The designer for the PS & E will use the approved procedures to complete the drainage design.

The standard inlets used for the mainline and ramps is C-15.91. Slotted drains may be required to optimize the system. The location of inlets, storm drain manholes and trunk lines are shown in ADOT Standard Drawing C-3.65.

Inlets for catch basins located on crossroads and crossroad interchanges shall be bicycle and pedestrian safe as detailed in ADOT Standard Drawing C-15.50, dated 5/97 In these locations, a MAG 6 inch curb with 18 inch gutter shall be used.

HEC-12 design procedures shall be used for inlet calculations and may be checked using ADOT's Pavement Drainage Analysis Program Version 3.40. Sample inlet calculations are found in Appendix B for the following inlet types:

- Mainline inlets on grade
- Flanking inlets before a sump
- Mainline inlets with slotted drain in a sump
- Median Inlets on grade

Median drainage is required for initial construction of the freeway. Procedures are found in Section 606.3 of the RDG.

1. Pavement Inlet Design Procedure

Using the on-site design criteria found in Section IV.C of this report, perform the following steps for the mainline drainage system using the provided Pavement Drainage Calculation Sheet:

1. Assume a length of pavement for the initial inlet based upon the ultimate pavement width and using the Rational Equation, calculate the 10-year peak discharge value (Q) in cfs.

2. Utilizing HEC - 12 design procedures, calculate the allowable peak discharge based upon the spread criteria for the 10-year return storm. Compare this value with the calculated peak discharge. Iterate until the location is optimized. Check spread and depth at curb against design criteria. it is

advisable to remove 80% to 85% of the runoff using slotted drain. This will reduce the number of inlets required in the system.

3. Check the calculated results using ADOT's Pavement Drainage Analysis Program.

4. Continue steps 1, 2, and 3 until all mainline inlets have been located. Be sure to include by-pass flow from previous inlet when analyzing the next inlet.

C. Storm Drain Design

Once the inlet locations have been determined, design of the storm drain trunk line and catch basin laterals can be conducted as follows:

1. Preliminarily size the storm drain trunk line. An initial design has been developed using HYDRAIN and is found in Appendix B and discussed further in the following section.

2. Define the hydraulic grade line (HGL) at the end of the pipe run.

3. Calculate the HGL for the pipe network using ADOT accepted design procedures.

4. Review the HGL to determine if pipe size reductions are possible.

5. Iterate steps 4 and 5 as necessary to optimize the pipe network.

D. Main Storm Drain

HYDRAIN (Version 6.0) was used to develop an initial design for the mainline storm drain system. The following procedures and assumptions were used in the analysis:

- Drainage area lengths (see Appendix C) were limited to the desirable distance between manholes.

  Pipes under 33 inches in diameter - 330 feet
  Pipes 36 inches and 39 inches in diameter - 440 feet
  Pipes from 42 inches in diameter to 69 inches in diameter - 660 feet
  Pipes 72 inches in diameter and larger - 1200 feet

- Drainage area limits were based on the proposed locations of retaining walls and proposed profiles of the entrance and exit ramps.

- All areas were calculated in acres.
- The proposed mainline profile grade at each manhole station was calculated.
- The analysis assumes no by-pass from one drainage area to another.

E. Outlet Design

Outlets into the off-site drainage channel shall be designed for the 10-year frequency storm in the outlet culvert with the 100-year frequency storm in the off-site channel.

V. OFF-SITE DRAINAGE

A. General Discussion

The purpose of the off-site drainage system is to collect and route the 100-year, 24-hour stormwater runoff generated by the contributing urban watershed along the east side of the freeway to the ultimate outfall. North of the Bethany Home Road Alignment (Grand Canal), a off-site drainage channel will collect the runoff and route the stormwater ultimately to the New River. South of Bethany Home Road, a channel will collect and route the off-site stormwater along the east side of the freeway where it will connect to the Interstate 10 channel and ultimately outfall to the Agua Fria River.

A new facility constructed with this project, the Bethany Home Outfall Channel (BHOC), will convey stormwater along the Grand Canal from the east side of the Agua Fria Freeway to the New River. The BHOC will combine with the N-S drainage channel on the east side of the freeway. A future channel will be constructed by the Flood Control District of Maricopa County (FCDMC) to convey off-site stormwater from the east along the north side of the Grand Canal to the confluence constructed with this project.

B. Coordination with Local Agencies and Adjacent Design Sections

ADOT and the FCDMC are currently negotiating an IGA to jointly fund the Bethany Home Outfall Channel (BHOC) to accommodate a future FCDMC channel east of the Agua Fria Freeway. It is anticipated that both parties will sign the IGA in early 1998. The BHOC construction bid items will be separated to identify the actual final cost sharing percentages between the two agencies. Coordination will also be required at the confluence of the BHOC with the New River. The Camelback Ranch levee project is currently under design by DMJM. The final design consultant will have to coordinate the connection of the BHOC with the Camelback Ranch Levee system.

Coordination will also be required with the FCDMC and the City of Glendale (COG) regarding the construction of the future 108" storm drain in Glendale Avenue. The project will be funded by the FCDMC and the storm drain will outfall to the Agua Fria Freeway N-S drainage channel. The final Agua Fria design will include plans for the 108" storm drain beyond ADOT access control to prevent pavement reconstruction within ADOT right-of-way.

The design of the Agua Fria off-site drainage channel south of the Bethany Home Road Alignment will require coordination with the adjacent section

designer to the south. The ultimate outfall for this channel will be developed by the designer of the Agua Fria Freeway segment from Camelback Road to Encanto Boulevard and HDR who is designing the Agua Fria/I-10 traffic interchange.

C. Design Criteria

The design criteria summarized below will be applied to the off-site channel design. Most of the channel design criteria outlined below is found in the ADOT "Roadway Design Guidelines" (RDG), May 1996.

Cross-Section:

Side Slopes (maximum):

Aggregate and unlined channels - 3:1 (H:V).
Channels adjacent to a roadway without barrier protection - 4:1 (H:V).
Concrete lined channels - 2:1 (H:V).

Bottom Width:

Channels adjacent to a roadway without barrier protection - 8' preferred minimum and 4' absolute minimum.
Concrete lined channels - 8' minimum with 4' absolute minimum.

Cross-Slope:

2% cross-slope to one side with a 1' maximum drop across the total channel bottom width. The channel profile grade line will be defined at the low edge of the channel bottom.

Profile:

Earth and grass lined channels - minimum grade of 0.20%.
Smooth paved channels (Concrete lined) - preferred minimum grade of 0.10%.

Alignment:

Horizontal and vertical alignment independent of the highway. The use of long curves were minimized to simplify the construction with channel pavers.

The final designer will have to check the channel location with respect to the edge of the traveled lane. Concrete barrier or channel realignment will be required if sufficient clear zone is not available.

Transitions:

Vertical wall transitions (ACDC Method) are proposed for transitions into and out of a box culverts between trapezoidal channel sections per Section 608.3 of the RDG.

Transitions between channel sections to accommodate increased peak discharges will be developed based on Table 608.3 in the RDG.

Hydraulic analyses:

Flow Regime:

All channels are preferred to be designed in the sub-critical flow regime with Froude numbers less than 0.86.

Steady uniform flow analyses - HEC-RAS (Version 2.0)

Manning's "n" value:

Earth channel - 0.020 to 0.025
Concrete lined channel - 0.013 to 0.018

The 30% hydraulic analyses assumed Manning's "n" values of 0.016 and 0.013 for the concrete lined channels and box culverts, respectively.

Energy Loss Coefficients:

Vertical wall transition at culverts:
Expansion - 0.40
Contraction - 0.20

Gradual channel section transitions:
Expansion - 0.30
Contraction - 0.10

Flow depth:

Channel depth shall be limited so as to preclude saturation of the roadway pavement structural section for 10-year frequency design storm.

Freeboard:

Water surface elevation below natural ground: Minimum 1'

For Froude Numbers >0.86:

$$F = 0.20(y + \frac{V^2}{2g})$$

Water surface elevation above natural ground: Below ground freeboard requirements plus an additional foot.

It is usually economical to vary concrete lining heights by 0.5 foot increments to facilitate construction of trapezoidal sections constructed by channel pavers. The 30% design presents concrete channel lining heights which vary in 0.25 foot increments. The final designer should review the economics of the 0.25 foot increments.

Superelevation:

Based on the equation: $y = \frac{Cv^2 W}{g r_c}$ $\frac{r_c}{W} \geq 3$ (RDG)

The RDG equation presented above allows computation of the total rise in water surface due to superelevation and standing waves. If the rise is less than 0.5 feet, the normally determined channel freeboard should be adequate. No special treatment such as increased wall heights or invert banking is required. The curves used in the 30% design all generate total rise depth less than 0.5 feet.

Energy Dissipaters:

Energy dissipaters will be designed in accordance with FHWA HEC No. 14 "Hydraulic Design of Energy Dissipaters for Culverts and Channels" or the USBR "Hydraulic Design of Stilling Basins and Energy Dissipaters."

Maintenance Access:

One continuous 12' wide maintenance access road, at a minimum, is proposed for the off-site drainage channel system.

Ten foot wide maintenance access ramps will be provided upstream and downstream of hydraulic structure transitions on the high side of the channel invert. The ramps will slope downward in the downstream direction.

Junctions:

The maximum junction angle of two channels and off-site storm drain outfalls will be 30 degrees.

The hydraulic design of channel junctions will be based on the worse case of the energy or momentum solutions calculated using the HEC-RAS computer program.

D. Hydraulic Analyses

1. N-S Channel Description

The north-south (N-S) channel begins approximately 0.75 miles north of Glendale Avenue. The intercepted overland flow in the first half mile is collected and conveyed in a earthen trapezoidal channel. Approximately 0.25 miles north of Glendale Avenue the channel changes to a concrete lined trapezoidal section. A drop will be constructed at this location to increase the capacity of the channel.

At Glendale Avenue, the N-S channel drops into a 10'x5'x180' box culvert to convey off-site flows under the roadway. The channel then drops at the outlet of the culvert to allow the connection of the 108" Glendale Avenue storm drain. The details of this design will be provided with the final design. The final design should include an energy dissipater to drop the water into the downstream channel. The culvert was sized and located to avoid a conflict with the existing 15" sanitary sewer in Glendale Avenue. The sewer should be pot holed prior to commencing the final design. A number of water, gas, and telephone lines will have to be relocated.

The N-S channel widens approximately 0.25 miles south of Glendale Avenue to increase the capacity of the channel for the combined off-site flows. The N-S channel ultimately outfalls to the BHOC immediately north of the Grand Canal.

2. BHOC Channel Description

Under this project, the BHOC begins at the confluence with the N-S channel. The details of the confluence will be provided with the final design. Staking

plans will be required for the final BHOC construction plans at the confluence with the N-S channel.

The BHOC conveys the stormwater flows under the Agua Fria Freeway. A bridge structure spans the BHOC, the Grand Canal, and the future Bethany Home Road. Details of the bridge structure are provided in a separate bridge selection report. Maintenance access roads are provided on both sides of the channel. The BHOC alignment curves to the north around USA Fee Land and flows under 99th Avenue.

A new 9-barrel, 10'x8'x102' reinforced concrete box culvert is proposed at 99th Avenue. The BHOC profile was set to avoid the existing 42" sanitary sewer in 99th Avenue. Water and telephone lines will have to be relocated for the new channel. The channel alignment avoids an existing SRP well site on the northwest corner of 99th Avenue and the Grand Canal. The proposed alignment continues west, paralleling SRP right-of-way for the Grand Canal. The BHOC alignment curves south approximately 1400 feet west of 99th Avenue and continues paralleling the SRP Grand Canal right-of-way.

The Grand Canal drains into the Grand Canal Wasteway approximately 0.5 miles west of 99th Avenue. The BHOC drops into a new 6-barrel 6'x7'x180' concrete box culvert under the Grand Canal Wasteway, RID Canal, and a private irrigation ditch. The final design will include details for the construction scheduling, culvert inlet/outlet details, and a maintenance road culvert over the Wasteway, RID, and private irrigation delivery ditch. The Wasteway maintenance road crossing is preliminarily sized as a new 3-barrel 10'x6'x30' concrete box culvert. The RID and private irrigation crossings were sized as 36" and 24" diameter RCP, respectively. The final design will have to be coordinated with SRP and RID.

The BHOC continues west to the confluence with the New River. The top of the BHOC channel is set to the top of the new Camelback Ranch levee. The final design will have to coordinate this connection in elevation and plan. ADOT and the FCDMC have a signed IGA to provide a blockout in the levee for the BHOC.

3. CBC Channel Description

The Camelback Channel (CBC) begins approximately 0.25 miles south of the Grand Canal. The overland flow is collected and conveyed in a concrete lined trapezoidal channel. The CBC parallels the east side of the Agua Fria Freeway and ultimately outfalls to the I-10 channel and the Agua Fria River. Design of the CBC will require coordination with the adjacent section designer to assure that backwater impacts from the Camelback Road crossing do not adversely impact the channel conveyance capacity. The CBC profile was originally sited to prevent relocating an existing 48" sanitary sewer in Camelback Road. Water,

telephone and other dry utilities will have to be relocated at the Camelback Road crossing.

4. Design Discharge

The design discharges for the off-site channels were developed by Wood/Patel Associates (WPA). WPA revised and updated the Maryvale Area Drainage Master Study to include the impact from the Agua Fria Freeway. Using engineering judgment, the HEC-1 100-year, 24-hour concentrated peak discharges were distributed along the freeway alignment. The off-site freeway drainage channels were then sized to convey the discharges. Details of the concentrated peak flow distribution for the channels are provided in Volume I of this report. The HEC-1 models are considered suitable for final design of the proposed off-site drainage channels.

5. Hydraulic Computer Model

HEC-RAS computer models were developed for all three channels. Summary outputs for the models are provided in Appendix E. Floppy disks containing input and output files are contained in the back pocket of this report. The HEC-RAS cross-section numbers correspond to the construction plan stationing. Revisions will be required to the HEC-RAS models to reflect the final design.

The N-S channel and the BHOC are combined into a single model to account for junction losses at the confluence. The junction is modeled using energy methods since the momentum solution calculates lower upstream energy elevations and defaults to the downstream energy elevation.

Two culverts are included in the BHOC HEC-RAS model. The Glendale Avenue culvert is modeled using a "lid" on the cross-section. The culvert at the Grand Canal Wasteway and RID Canal is modeled using culvert routines in HEC-RAS. The final HEC-RAS model will need to include any revisions to these culvert crossings.

The HEC-RAS model south of the Grand Canal defines the northern end of the proposed Agua Fria Freeway CBC channel which will ultimately outfall to the I-10 channel. Revisions will be required for the final design to reflect any changes in the downstream geometry and culvert crossing at Camelback Road.

Tables are presented at the end of Appendix E which illustrate the freeboard provided with the 30% design. The CBC table illustrates the impact of the interim condition without the extension of the BHOC on the freeboard. The final design will have to check to assure the freeboard design requirements are provided.

6. Channel Lining

The 30% design assumes all of the channels will be concrete lined except for the northern half-mile of the N-S channel above Glendale Avenue. The lining will be six inches thick for the entire project. Continuous tied reinforcement will be required to support maintenance vehicles. Cutoff walls will be required at the upstream end of the concrete lining, transition sections to widened channels, and breaks in the channel profile of more than 0.9 percent. Cutoff wall details will be developed for the final design. The final design will also have to review the depth of the cutoff walls at the top of the upstream side of the channel lining. Locally concentrated off-site runoff may require cutoff walls greater than two feet in depth.

7. Maintenance Access

Access roads (12 feet wide) are provided on at least one side of each channel to provide access for periodic maintenance work. Access ramps into the channels (10 feet wide) will be provided upstream and downstream of all hydraulic structures. The ramps will provide access to the high side of the channel invert. The final design will include details for these ramps.

E. Outfall Design

Because the New River can directly affect the operation of the BHOC system and any or all of its components, the frequency of flooding in the New River must be properly coordinated with the design flood of the BHOC.

Two possibly independent events are involved at the outfall. One, the storm event occurring on the smaller watershed (BHOC) and the other, the storm event applicable to the larger watershed (New River). Also, in a statistically rigid sense, the probability of the simultaneous occurrences of two independent events is the product of the probability of the occurrence of each of the individual events. In ordinary hydrologic circumstances, particularly with adjacent watersheds, flood events on different watersheds are not entirely independent. In order to address this gray area and still comply with the statistical principles involved, the following table, based on relative watershed sizes, is recommended as a guide to a more appropriate assignment of coincident event frequencies. Table 1 is empirical, somewhat arbitrary, and was originally devised by the U.S. Army Corps of Engineers.

Table 1 - 100-Year Design Frequencies for Coincidental Occurrence

Area Ratio	Main Stream	Tributary
1,000:1	10	100
	100	10
100:1	25	100
	100	20
10:1	50	100
	100	50
1:1	100	100
	100	100

The total BHOC contributing area is estimated to exceed 40 square miles. It is difficult to define the total contributing watershed for the BHOC since the watershed is urbanized and runoff is diverted throughout the hydrologic model. The most recent Corps estimate of the New River watershed area, including the ACDC and New River Dam, is 150 square miles. Therefore, with a contributing area ratio of less than 10:1, 50-year versus 100-year coincidence frequencies are recommended for the BHOC outfall. The 50-year water-surface profile using a preliminary FCDMC model is provided in Appendix F. The final design will have to coordinate the final 50-year water-surface profile developed for the Camelback Ranch Levee Project.

The BHOC will have channel banks which match the Standard Project Flood (SPF) levee height at the New River. In general, the channel banks will be two to three feet higher than the existing ground for approximately 2500 feet east of the confluence to prevent SPF backwater from inundating adjacent properties. Consequently, inlets will have to be provided to the channel for interior drainage to the BHOC. Some type of back flow prevention system will likely be required (i.e., flapgates) to prevent water from backing up on adjacent properties. Details for the interior drainage inlets will be developed for the final design.

F. New River Impacts

In a meeting between the FCDMC and DMJM, a procedure was developed to identify the impact of the BHOC diversion on the New River SPF. DMJM presented the procedure with ADOT's drainage reviewer and received concurrence on the procedure. The impact of the BHOC diversion on the New River is a significant concern for the FCDMC. The FCDMC is under agreement with the Corps of Engineers to provide SPF levee protection on the New River as a result of the construction of the ACDC. The agreed upon procedure is outlined below:

1. Start with the SPF peak discharge hydrograph on the New River below the confluence with Skunk Creek. The peak discharge for the SPF at this location is 68,000 cfs.

2. Develop the 100-year, 6-hour duration hydrograph for the BHOC including the area diverted by the future extension of the channel to 67th Avenue. The Corps used the reconstituted Queen Creek storm as the Standard Project Storm (7-hour distribution) to evaluate the SPF. The FCDMC also used the Queen Creek storm as the basis of the Maricopa County 6-hour local storm criteria. The FCDMC truncated the Corps' first hour of rainfall and normalized the remaining 6 hours of rainfall to a summation of 100 percent at 6-hours. Therefore, the 6-hour duration hydrograph will be transposed 1-hour forward in time to place the New River and BHOC SPF hydrographs on the same time basis.

3. The peak discharge to be used with the 6-hour unit hydrograph for the BHOC will be the lesser of the channel capacity based on backwater from the New River or available freeboard in the channel.

4. The resultant peak discharge from the combined hydrographs will be the new project SPF design discharge for the New River.

5. The FCDMC provided DMJM with a preliminary hydraulic model (HEC-2) of the New River that reflects the Glendale Airport runway extension to compare the impact of the BHOC with the preliminary SPF water-surface profile.

1. Hydrologic Modeling

A preliminary hydrologic model developed by WPA was used to define the 6-hour hydrograph for the BHOC. The preliminary HEC-1 model assumed a conservative contributing area to the N-S channel and BHOC and did not include any detention associated with the future extension of the BHOC. The preliminary model was modified using the FCDMC Drainage Design Menu System (DDMS) to adjust the hydrologic variables to reflect the 6-hour design storm. The hydrologic models and DDMS files are included on a floppy disk in the back pocket of this report. The preliminary 100-year, 24-hour and 6-hour hydrographs are presented with the design 100-year, 24-hour hydrograph in Appendix G. The plot indicates that the preliminary and design 100-year, 24-hour hydrographs are similar in shape even with detention facilities included in the design model. Therefore, the normalized 100-year, 6-hour hydrograph was considered representative of the BHOC during a Standard Project Flood.

Hydrographs for the New River and Agua Fria River were provided by the Corps excluding outflows from the New Waddell Dam. The Corps hydrographs are included in Appendix G. The Corps hydrographs were normalized and the Corps published peak discharges were applied to the hydrograph shapes.

2. BHOC Capacity

The capacity of the BHOC was determined using the current HEC-RAS model with the current SPF water-surface elevation in the New River. The model is provided on the floppy disk contained in the back pocket of this report. The maximum conveyance capacity of the BHOC during a SPF event was determined to be 4800 cfs. The hydraulic control at the downstream end of the BHOC is the culvert under the Grand Canal Wasteway and the RID Canal. Flows in excess of 4800 cfs will break out of the channel and flow south of the BHOC channel following the natural ground slope.

3. Hydrograph Combination

The hydrograph representing the BHOC capacity was added to the normalized upstream New River hydrograph. The combined hydrograph was then added to the Agua Fria River hydrograph upstream of the New River to define the Agua Fria hydrograph downstream of the confluence. The calculations were performed using a spreadsheet and are provided in Appendix G. Table 2 presents the results of the hydrograph combination.

Table 2. Agua Fria River Hydrograph Combination Peak Discharge Summary

Location	Original Discharge(cfs)	Combination Discharge(cfs)
Agua Fria below the Confluence	142,000	107,300
New River above the Confluence	69,000	71,300
New River above the BHOC	69,000	68,000

Alternatively, it was assumed that it is not possible to combine the hydrographs provided by the Corps since they represent present conditions without the New Waddell Dam impacts. Therefore, the increase in the New River peak discharge downstream of the BHOC (2300 cfs) was added to the Agua Fria River peak discharge downstream of the conflunece for both with and without the New Waddell Dam. The results of adding the increase in peak discharge to the Agua Fria River peak discharges is presented in Table 3.

Table 3. Agua Fria River Additive Peak Discharge Summary

Location	Original Discharge	w/ New Waddell Dam	w/o New Waddell Dam
Agua Fria below the Confluence	142,000	96,300	144,300
New River above the Confluence	69,000	71,300	71,300
New River above the BHOC	69,000	68,000	68,000

A preliminary HEC-2 model of the New River and Agua Fria River was provided by the FCDMC. The revised HEC-2 model summary output file is provided in Appendix H. The input and output files are provided in floppy disk at the back of this report. The results indicate that the New River water-surface profile at the BHOC is controlled by the backwater from the Agua Fria River. Including the impact of the New Waddell Dam actually results in a lowering of the water-surface profile at the BHOC outfall. Revisions of the hydraulic analyses may be required to reflect the final design of the Camelback Ranch Levee at the BHOC outfall. A comparison of the profiles is provided at the end of Appendix H.

4. Hydraulic Modeling

The preliminary HEC-2 model of the New River and Agua Fria River was provided by the FCDMC. The revised HEC-2 model summary output is provided in Appendix H. The input and output files are provided in floppy disk contained in the back pocket of this report. The results indicate that the New River water-surface profile at the BHOC is controlled by the backwater from the Agua Fria River. Including the impact of the New Waddell Dam actually results in a lowering of the water surface profile at the BHOC outfall. Revisions of the hydraulic analyses will be required to reflect the final design of the Camelback Ranch Levee at the BHOC outfall. The worse case hydrologic analysis indicates a maximum water surface elevation increase of 0.2 feet above the current design profile. Construction of the Agua Fria Freeway and associated facilities do not appear to cause significant impacts to the New River SPF. The Agua Fria Freeway channels only concentrate the stormwater flows which contribute to the New River under existing conditions. A comparison of the water-surface profiles is provided in Appendix H.

VI. REFERENCES

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APPENDIX A

SAMPLE PAVEMENT DESIGN CALCULATIONS

SAMPLE CALCULATIONS

MAINLINE GRATE INLET ON GRADE

PAVEMENT DRAINAGE CALCULATION SHEET

CONSULTANT: DANIEL, MANN, JOHNSON , & MENDENHALL

PROJECT: AGUA FRIA FREEWAY, CAMELBACK RD. TO NORTHERN AVE. TRACS H 4578 01D

DESIGNED: JWG **CHECKED:** JRM **DATE:** 11/18/97

CATCH BASIN # 1 LOCATION MAINLINE STATION: 335+20

HYDROLOGIC/HYDRAULIC PARAMETERS

Roadway Grade at Basin	0.4	%	Pavement "C"	0.95	
Roadway Cross Slope	0.02	ft/ft	Landscape "C"	0.74	
Shoulder Cross Slope	0.02	ft/ft	10-year "i"	4.3	in/hr
Shoulder Width	7.5	ft/ft	50-year "i"	n/a	in/hr
Gutter Cross Slope	0.067	ft/ft	10- year Spread	6.67	ft
Gutter Width	2.5	ft/ft	50- year Spread	n/a	ft
Curb/Gutter Type	C		Local Depression	0	in
Curb Height	3	in	Mannings "n"	0.016	

CONTRIBUTING AREA CALCULATIONS

Pavment Length (ft)	128	Pavement Width (ft)	77	AREA	0.23	acres
Gore Length (ft)		Gore Width (avg.) (ft)		AREA		acres
Ramp Length (ft)		Ramp Width (avg.) (ft)		AREA		acres

PA = PAVEMENT AREA 0.23 acres

Landscape Length (ft) _____ Landscape Width (ft) _____

LA = LANDSCAPE AREA _____ acres

Combined "C" = (PA x " Cpa" + LA x "Cla") / (PA + LA)

(0.778*0.95+0*0.74)/(.778+0.0) Combined "C" = 0.95

RATIONAL METHOD CALCULATIONS

Bypass flow from upstream calculations

0 cfs - 10 yr.

0 cfs - 50 yr.

10-year Event Q = CiA + Bypass

Q10 = .924 cfs

50-year Event Q = CiA + Bypass

0 **Q50 =** n/a cfs

SUMMARY OF RESULTS

Inlet Std. =	15.91	
Condition =	grade	
Grate Type =	15.91	
Slotted Drain =	0	ft

10 year

Q =	.924	cfs
Spread=	6.67	ft
Depth/ Curb =	3	in
Bypass =	0.12	cfs
% Captured =	87	

50 year

Q =	0	cfs
Spread=	0	m
Depth/ Curb =	0	in
Bypass =	0	cfs
% Captured =	0	

DMJM	PROJECT: Agua Fria Freeway	JOB NO. 6508.07	SHEET 1 of 5
		DESIGNED BY JNG	DATE 11/97
SUBJECT: Sample Mainline Inlet on Grade		CHECKED BY JRM	DATE 11/97

1 Sta 335+20 Right

$S = .004$ 1/1 $\quad n = .016$, $Q_{10} = .924$ cfs

- FROM TABLE 1, $T = 6.60'$ w/ 3" CURB

CHART 4 find E_o $\qquad \frac{W}{T} = \frac{2.5}{6.67} = .37$

$E_o = .84$ $\qquad S_w/S_x = \frac{.067}{.020} = 3.44$

- Determine Q in Shoulder Q_s

$$Q_s = \frac{.56}{n}(S_x)^{1.67} S^{1/2} T_s^{2.67} \qquad T_s = T - 2.5 = 6.67 - 2.5 = 4.17$$

$$Q_s = \frac{.56}{.016}(.02)^{1.67}(.004)^{1/2}(4.17)^{2.67}$$

$Q_s = .146$ cfs

- $Q_s = Q_t(1 - E_o) = .924(1 - .84) = .148$ cfs

$$T_s = \left[\frac{Q_s n}{.56(S_x)^{1.67}(S)^{1/2}}\right]^{.375} = \left[\frac{.148\,(.016)}{.56(.02)^{1.67}(.004)^{1/2}}\right]^{.375}$$

$T_s = 4.20$, $\quad T = 4.2 + 2.5 = 6.7$ ✓

$d_s = 4.2 \times .02 = .084'$

d at CURB $= 2.5(.067) + d_s = .25'$ OK

- Compute Velocities

$V_g = \frac{Q_w}{A_w} \qquad Q_w = Q_T - Q_s = .924 - .148 = .776$ cfs

$A_w = \left(\frac{d_T + d_s}{2}\right)w = \left(\frac{.25 + .08}{2}\right)2.5 = .41$ ft

$V_g = \frac{.776}{.41} = 1.89$ fps

DMJM	PROJECT: Agua Fria Freeway	JOB NO. 6508.07	SHEET 2 of 5
		DESIGNED BY JWG	DATE 11/97
SUBJECT: Sample - Mainline Inlet on Grade		CHECKED BY JRM	DATE 11/97

Average Velocity, $V_a = \frac{Q_T}{A}$

$A = A_w + A_s$

$A_s = \frac{T_s \times d_s}{2}$

$= \frac{4.2 \times .08}{2} = .17$ ft

$A = \frac{+.41}{.58}$ ft

$V_a = \frac{.924}{.58} = 1.59$ fps

• Ratio of Front Flow $R_f = 1 - .09(V_g - V_o)$

$R_f = 1 - .09(1.89 - 7.35) = 1.49$ (MAX Value = 1)

• Ratio of Side Flow $R_s = \frac{1}{1 + \frac{.15\, V_a^{1.8}}{S_x\, L^{2.3}}}$

$R_s = \frac{1}{1 + \frac{.15(1.59)^{1.8}}{.02(1.68)^{2.3}}}$

$L = \frac{3.354}{2} = 1.68$

$R = \frac{1}{6.24} = .160$

Efficiency $= R_f E_o + R_s(1 - E_o)$

$E = 1(.84) + .16(1 - .84) = .84 + .03 = .87$

$Q_i = Q_T \times E = .924 \times .87 = .803$ cfs

$Q_b = .924 - .803 = .120$ cfs

TABLE I

Conveyance Spread Curves when S= 0.004 ft/ft

Type 15.91 Grate

W = 2.5 ft — d1= depth at lip of gutter

a = 2 inches — d2 = depth at curb

Sw = .0667 fpf — K for Q = 0.56

T ft	Sx fpf	d1 ft	d2 ft	Conveyance Outside	Conveyance in Gutter	Total Q cfs	Avg. V fps	Gutter V fps
11.20	0.02	0.174	0.341	1.038	1.566	2.605	1.860	2.433
11.00	0.02	0.170	0.337	0.976	1.527	2.503	1.845	2.409
10.80	0.02	0.166	0.333	0.916	1.488	2.403	1.831	2.385
10.60	0.02	0.162	0.329	0.858	1.449	2.307	1.817	2.361
10.40	0.02	0.158	0.325	0.803	1.411	2.213	1.803	2.337
10.20	0.02	0.154	0.321	0.749	1.373	2.122	1.789	2.312
10.00	0.02	0.150	0.317	0.699	1.336	2.034	1.775	2.288
9.80	0.02	0.146	0.313	0.650	1.299	1.949	1.761	2.264
9.60	0.02	0.142	0.309	0.604	1.262	1.866	1.747	2.239
9.40	0.02	0.138	0.305	0.559	1.226	1.785	1.734	2.214
9.20	0.02	0.134	0.301	0.517	1.191	1.708	1.720	2.190
9.00	0.02	0.130	0.297	0.477	1.155	1.632	1.707	2.165
8.80	0.02	0.126	0.293	0.439	1.121	1.559	1.694	2.140
8.60	0.02	0.122	0.289	0.402	1.086	1.489	1.681	2.115
8.40	0.02	0.118	0.285	0.368	1.053	1.421	1.668	2.090
8.20	0.02	0.114	0.281	0.336	1.019	1.355	1.655	2.064
8.00	0.02	0.110	0.277	0.305	0.986	1.292	1.643	2.039
7.80	0.02	0.106	0.273	0.276	0.954	1.230	1.630	2.014
7.60	0.02	0.102	0.269	0.249	0.922	1.171	1.618	1.988
7.40	0.02	0.098	0.265	0.224	0.890	1.115	1.606	1.962
7.20	0.02	0.094	0.261	0.201	0.859	1.060	1.595	1.937
7.00	0.02	0.090	0.257	0.179	0.829	1.007	1.583	1.911
6.80	0.02	0.086	0.253	0.158	0.799	0.957	1.572	1.885
6.67	0.02	0.083	0.250	0.146	0.780	0.925	1.565	1.868
6.60	0.02	0.082	0.249	0.139	0.769	0.909	1.561	1.859
6.40	0.02	0.078	0.245	0.122	0.740	0.862	1.551	1.833
6.20	0.02	0.074	0.241	0.106	0.712	0.817	1.540	1.807
6.00	0.02	0.070	0.237	0.091	0.683	0.775	1.530	1.781
5.80	0.02	0.066	0.233	0.078	0.656	0.734	1.520	1.755
5.60	0.02	0.062	0.229	0.066	0.629	0.695	1.511	1.728
5.40	0.02	0.058	0.225	0.055	0.602	0.657	1.501	1.702
5.20	0.02	0.054	0.221	0.046	0.576	0.622	1.492	1.676
5.00	0.02	0.050	0.217	0.037	0.551	0.588	1.483	1.650
4.80	0.02	0.046	0.213	0.030	0.526	0.555	1.474	1.623
4.60	0.02	0.042	0.209	0.023	0.501	0.524	1.466	1.597
4.40	0.02	0.038	0.205	0.018	0.477	0.495	1.457	1.571
4.20	0.02	0.034	0.201	0.013	0.454	0.467	1.448	1.545
4.00	0.02	0.030	0.197	0.010	0.431	0.441	1.439	1.519
3.80	0.02	0.026	0.193	0.006	0.409	0.415	1.429	1.493
3.60	0.02	0.022	0.189	0.004	0.387	0.391	1.419	1.468

Q_{10} = .924 cfs

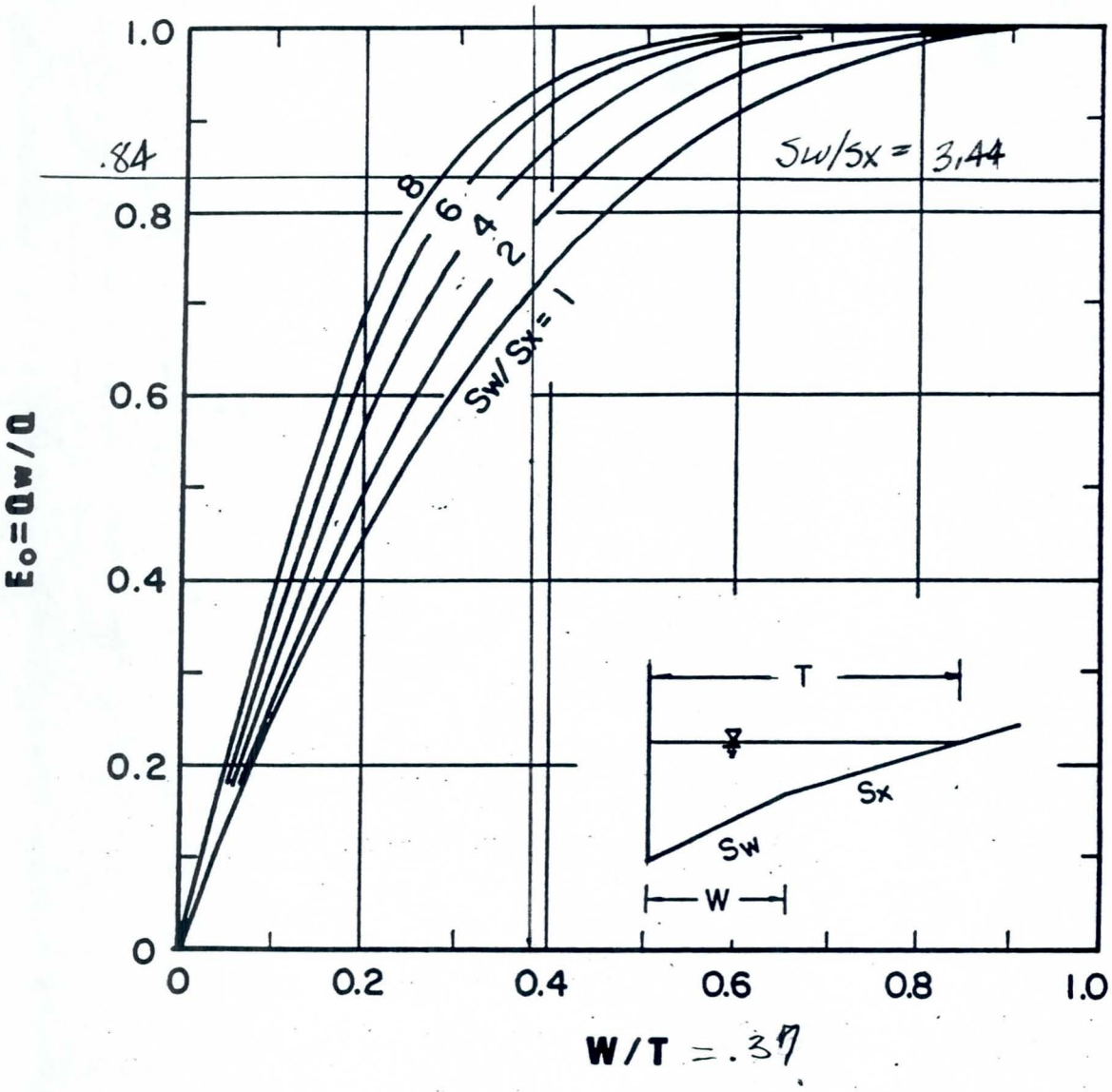


CHART 4. Ratio of frontal flow to total gutter flow.

ARIZONA DEPARTMENT OF TRANSPORTATION
DRAINAGE DESIGN SECTION

11-19-1997

PROJECT NAME- Camelback Rd to Northern Ave TRACS NO.- H 4578-01D
HIGHWAY NAME- AGUA FRIA FREEWAY DESIGNER - JWG
LOCATION - 335+20 RT CHECKER - JRM PAGE 5 of 5
Ver 3.40: December 1995

GRATE INLET DESIGN -- ON GRADE

GUTTER FLOW HYDRAULICS
GUTTER DESCRIPTION

Roadway Grade-% Per cent--G	=	0.400
Roadway Cross-Slope-Ft./Ft.--Sx	=	0.020
Shoulder Width-Ft.--	=	7.500
Shoulder Slope-Ft./Ft.--Ss	=	0.020
Gutter Width-Ft.--W	=	2.500
Gutter Slope-Ft./Ft.--Sw	=	0.067
Gutter Depression-Inches--	=	2.000
Manning's 'N	=	0.016
Flow-CFS--Q	=	0.927
SPREAD-Ft.--T	=	6.670
Average Velocity-V-fps	=	1.569
FLOW in Gutter-CFS--Q	=	0.780
% Flow in Gutter-CFS	=	84.149
Velocity of Flow in Gutter-fps	=	1.872
Depth at Curb Line-Inches--d	=	3.001

GRATE TYPE: ADOT STD.--C15.91

Grate Length--Ft.	=	3.354
Grate Width---Ft.	=	2.000
Grate Area--Sq. Ft.	=	5.171
Capture Ratio -- GRATE	=	0.500
Effective Perimeter--Ft.	=	7.354
Splash-Over Velocity--FPS	=	7.354
Local Gutter Depression-Inches	=	0.000
Flow-CFS--Q	=	0.927
GUTTER FLOW at INLET-CFS--Q	=	0.780
Gutter Velocity at INLET-fps	=	1.871
Depth at INLET Curb Line-Inches--d	=	3.000
Frontal Flow Intercepted by GRATE--CFS	=	0.716
Lateral Flow Intercepted by GRATE--CFS	=	0.096
TOTAL Flow Intercepted by GRATE--CFS	=	0.812
% FLOW Intercepted	=	87.566
By-pass Flow--CFS	=	0.115

SAMPLE CALCULATIONS

MEDIAN INLET ON GRADE

@ STA. 346+10

MEDIAN DRAINAGE CALCULATION SHEET

CONSULTANT: DANIEL, MANN, JOHNSON , & MENDENHALL

PROJECT: AGUA FRIA FREEWAY, CAMELBACK RD. TO NORTHERN AVE. TRACS H 4578 01D

DESIGNED: JWG CHECKED: JRM DATE: 11/19/97

CATCH BASIN # 4 LOCATION MAINLINE STATION: 346+10

HYDROLOGIC/HYDRAULIC PARAMETERS

Roadway Grade at Basin	2.397	%	Pavement "C"	0.95	
Roadway Cross Slope	0.02	ft/ft	Landscape "C"	0.74	
Shoulder Cross Slope	0.02	ft/ft	10-year "i"	4.3	in/hr
Shoulder Width	7.5	ft/ft	50-year "i"	n/a	in/hr
Median Cross Slope	0.125	ft/ft	10- year Spread	n/a	ft
Median Width	38	ft/ft	50- year Spread	n/a	ft
			Local Depression	0	in
Dike Height	8.72	in	Mannings "n"	0.025	

CONTRIBUTING AREA CALCULATIONS

Paved Median Length (ft)		Paved Median Width (ft)		AREA	0.000 acres
				AREA	0.000 acres
				AREA	0.000 acres

PA = PAVEMENT AREA 0.000 acres

Landsc. Median Lgth (ft) 660 Landsc. Median Width (ft) 38

LA = LANDSCAPE AREA 0.576 acres

RATIONAL METHOD CALCULATIONS

Bypass flow from upstream calculations

0 cfs - 10 yr.

0 cfs - 50 yr.

10-year Event Q = CiA + Bypass

Q10 = 1.832 cfs

50-year Event Q = CiA + Bypass

Q50 = n/a cfs

SUMMARY OF RESULTS

Inlet Std. = 15.80

Condition = grade

Grate Type = 15.80

Slotted Drain = 0 ft

10 year

Q = 1.832 cfs

Spread= n/a ft

Depth/ Dike = 2.64 in

Bypass = 0 cfs

% Captured = 100

50 year

Q = 0 cfs

Spread= n/a m

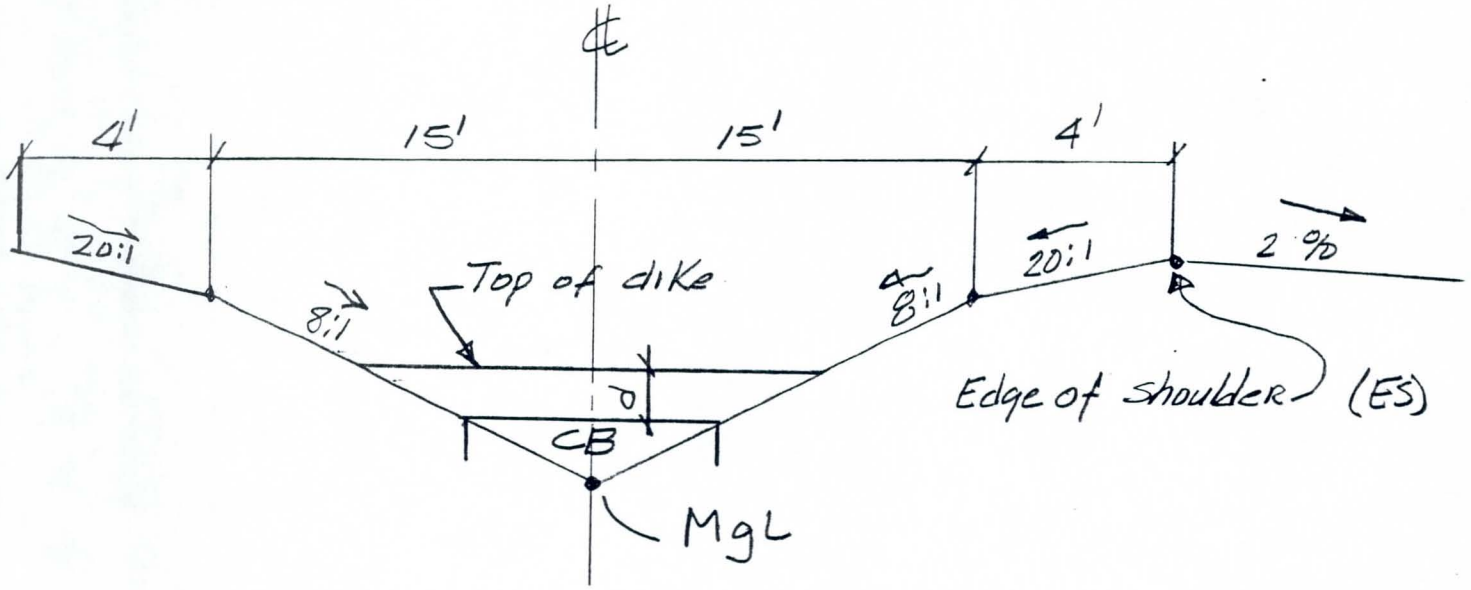
Depth/ Dike = 0 in

Bypass = 0 cfs

% Captured = 0

DMJM	PROJECT: Agua Fria Freeway	JOB NO. 6508.07	SHEET 1 of
		DESIGNED BY JWG	DATE 11/97
SUBJECT: Sample Median Inlet on Grade		CHECKED BY JRM	DATE 11-97

1 Typical Median Cross Section (NTS)



Median depth = 4.0(.05) + 15.0(.125) = 2.075'

Travel lane is 8' x .02 = .16' Lower than ES

Top of dike is 1.0' below TRAVEL Lane

Top of dike is 2.075 − .16 − 1.0 = .915' above MgL

Catch basin takes up $\frac{\left(\frac{2}{2} + .5\right)}{8} = .188'$

d max = .915 − .188 = .727' ≈ 8.72"

2. Median Inlet on grade at STA 346+10

Q10 = 1.832 cfs

- Check depth required for Complete Interception

$$d_{10} = \left[\frac{Q_i}{C_w P}\right]^{2/3} \qquad P = 2\left(2 + \frac{3}{2}\right) = 6' \ (50\%)$$

$$d_{10} = \left[\frac{1.832}{3 \times 6}\right]^{2/3} = .22' < .727' \quad OK$$

Agua Fria Freeway, Camelback to Northern
Worksheet for Triangular Channel

Project Description	
Project File	c:\haestad\fmw\affonlin.fm2
Worksheet	Median Ditch Upstream of CB at 346+10
Flow Element	Triangular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Mannings Coefficient	0.025	
Channel Slope	0.023970	ft/ft
Left Side Slope	8.000000	H : V
Right Side Slope	8.000000	H : V
Discharge	1.83	cfs

Results		
Depth	0.30	ft
Flow Area	0.71	ft^2
Wetted Perimeter	4.81	ft
Top Width	4.77	ft
Critical Depth	0.32	ft
Critical Slope	0.016984	ft/ft
Velocity	2.57	ft/s
Velocity Head	0.10	ft
Specific Energy	0.40	ft
Froude Number	1.18	
Flow is supercritical.		

Agua Fria Freeway, Camelback to Northern
Worksheet for Trapezoidal Channel

Project Description	
Project File	c:\haestad\fmw\affonlin.fm2
Worksheet	Median Ditch at CB at 346+10
Flow Element	Trapezoidal Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Mannings Coefficient	0.016	
Channel Slope	0.023970	ft/ft
Left Side Slope	8.000000	H : V
Right Side Slope	8.000000	H : V
Bottom Width	3.00	ft
Discharge	1.83	cfs

Results		
Depth	0.14	ft
Flow Area	0.56	ft^2
Wetted Perimeter	5.21	ft
Top Width	5.20	ft
Critical Depth	0.19	ft
Critical Slope	0.007188	ft/ft
Velocity	3.26	ft/s
Velocity Head	0.16	ft
Specific Energy	0.30	ft
Froude Number	1.75	
Flow is supercritical.		

SAMPLE CALCULATIONS

FLANKING INLET @ 325+26 & 326+66

PAVEMENT DRAINAGE CALCULATION SHEET

CONSULTANT: DANIEL, MANN, JOHNSON , & MENDENHALL

PROJECT: AGUA FRIA FREEWAY, CAMELBACK RD. TO NORTHERN AVE. TRACS H 4578 01D

DESIGNED: JWG CHECKED: JRM DATE: 11/19/97

CATCH BASIN # 2 LOCATION MAINLINE STATION: 325+26R

HYDROLOGIC/HYDRAULIC PARAMETERS

Roadway Grade at Basin	0.145	%	Pavement "C"	0.95	
Roadway Cross Slope	0.02	ft/ft	Landscape "C"	0.74	
Shoulder Cross Slope	0.02	ft/ft	10-year "i"	4.3	in/hr
Shoulder Width	7.5	ft/ft	50-year "i"	n/a	in/hr
Gutter Cross Slope	0.067	ft/ft	10- year Spread	6.67	ft
Gutter Width	2.5	ft/ft	50- year Spread	n/a	ft
Curb/Gutter Type	C		Local Depression	0	in
Curb Height	3	in	Mannings "n"	0.016	

CONTRIBUTING AREA CALCULATIONS

Pavment Length (ft)	85	Pavement Width (ft)	69	AREA	0.135	acres
Gore Length (ft)		Gore Width (avg.) (ft)		AREA		acres
Ramp Length (ft)		Ramp Width (avg.) (ft)		AREA		acres

PA = PAVEMENT AREA 0.135 acres

Landscape Length (ft) 0 Landscape Width (ft) 0

LA = LANDSCAPE AREA 0 acres

Combined "C" = (PA x " Cpa" + LA x "Cla") / (PA + LA)

(0.778*0.95+0*0.74)/(.778+0.0) Combined "C" = 0.95

RATIONAL METHOD CALCULATIONS

Bypass flow from upstream calculations 0 cfs - 10 yr.

0 cfs - 50 yr.

10-year Event Q = CiA + Bypass

Q10 = .550 cfs

50-year Event Q = CiA + Bypass

0 **Q50 =** n/a cfs

SUMMARY OF RESULTS

Inlet Std. = 15.91

Condition = flanking

Grate Type = 15.91

Slotted Drain = 0 ft

10 year

Q = .550 cfs

Spread= 6.67 ft

Depth/ Curb = 3 in

Bypass = 0.07 cfs

% Captured = 84

50 year

Q = 0 cfs

Spread= 0 m

Depth/ Curb = 0 in

Bypass = 0 cfs

% Captured = 0

DMJM	PROJECT: Agua Fria Freeway	JOB NO. 6508.07	SHEET 1 of 5
		DESIGNED BY VNG	DATE 11/97
SUBJECT: Sample: Flanking Inlets		CHECKED BY VRM	DATE 11-97

1. Determine location of Flanking Inlet when Sag is at Sta 325+96

$X = \sqrt{CdK}$ where $C = 200$

d = depth at curb at design speed − 0.1'

$d_{MAX} = .25'$

$T = 6.67'$

$S_x = .02\ ft/ft$

$S_w = .067\ ft/ft$

$d = .25' - .1 = .15$

$K = \frac{L}{A} = \frac{\text{Length of VC}}{\text{algebraic diff}}$

$K = \frac{800}{(-1.442 + .4)} = \frac{800}{1.842}$

$K = 434 > 167$ (MAX)

$K = 167$

$X = \sqrt{200 \times .15 \times 167}$

$X = 70.8'$ use $70'$

Flanking Inlets at 325+26 and 326+66

2. Check Spread for 10 year @ 325+26 $g = .00145$

Last upstream inlet is @ 324+41, $Q_b = 0$,

when $t_c = 10$ $Q = CLA = .95(4.3)\left(\frac{325+26 - 324+41}{43560}\right)(69)$

$Q_{10} = .55$ cfs

FROM TABLE 1, $T = 6.67$ (limit by 3" curb)

3. Compute Q_i & Q_b for 10 year at 325+26

$Q_{10} = .55$ cfs $T = 6.67'$ CHART 4, $E_o = .84$

$Q_s = (1 - E_o)Q_t = (1 - .84)(.55) = .088$ cfs

DMJM	PROJECT: Agua Fria Freeway	JOB NO. 6508.07	SHEET 2 of 5
		DESIGNED BY JWG	DATE 11/97
SUBJECT: Sample - Flanking inlet		CHECKED BY JRM	DATE 11-97

3. (Continued)

$$T_s = \left[\frac{Q_s n}{K S_x^{5/3} S^{1/2}}\right]^{.375} = \left[\frac{.088(.016)}{.56(.02)^{5/3}(.0045)^{1/2}}\right]^{.375}$$

$T_s = 4.2$, $T = 4.2 + 2.5 = 6.7 \approx 6.67'$

$d = 4.2 \times .02 + 2.5 \times .067 = .25'$

$A = \frac{4.2 \times .084}{2} + \frac{2.5 \times .167}{2} = .385$

$V_a = \frac{Q}{A} = \frac{.55}{.385} = 1.42$ fps

$R_f = 1$

$$R_s = \frac{1}{\left(1 + \frac{.15 V_a^{1.8}}{S_x L^{2.3}}\right)}$$

$L = 3.354 \times @50\% = 1.68'$

$S_x = .02$

$$R_s = \frac{1}{5.32} = .19$$

Efficiency $= R_f E_o + R_s (1 - E_o)$

$E = 1(.84) + .19(1 - .84) = .87$

$Q_i = E Q_t = .87 \times .55 = .48$ cfs

$Q_b = Q_t - Q_i = .55 - .48 = .07$ cfs

TABLE I

Conveyance Spread Curves when S= 0.00145 ft/ft

Type 15.91 Grate

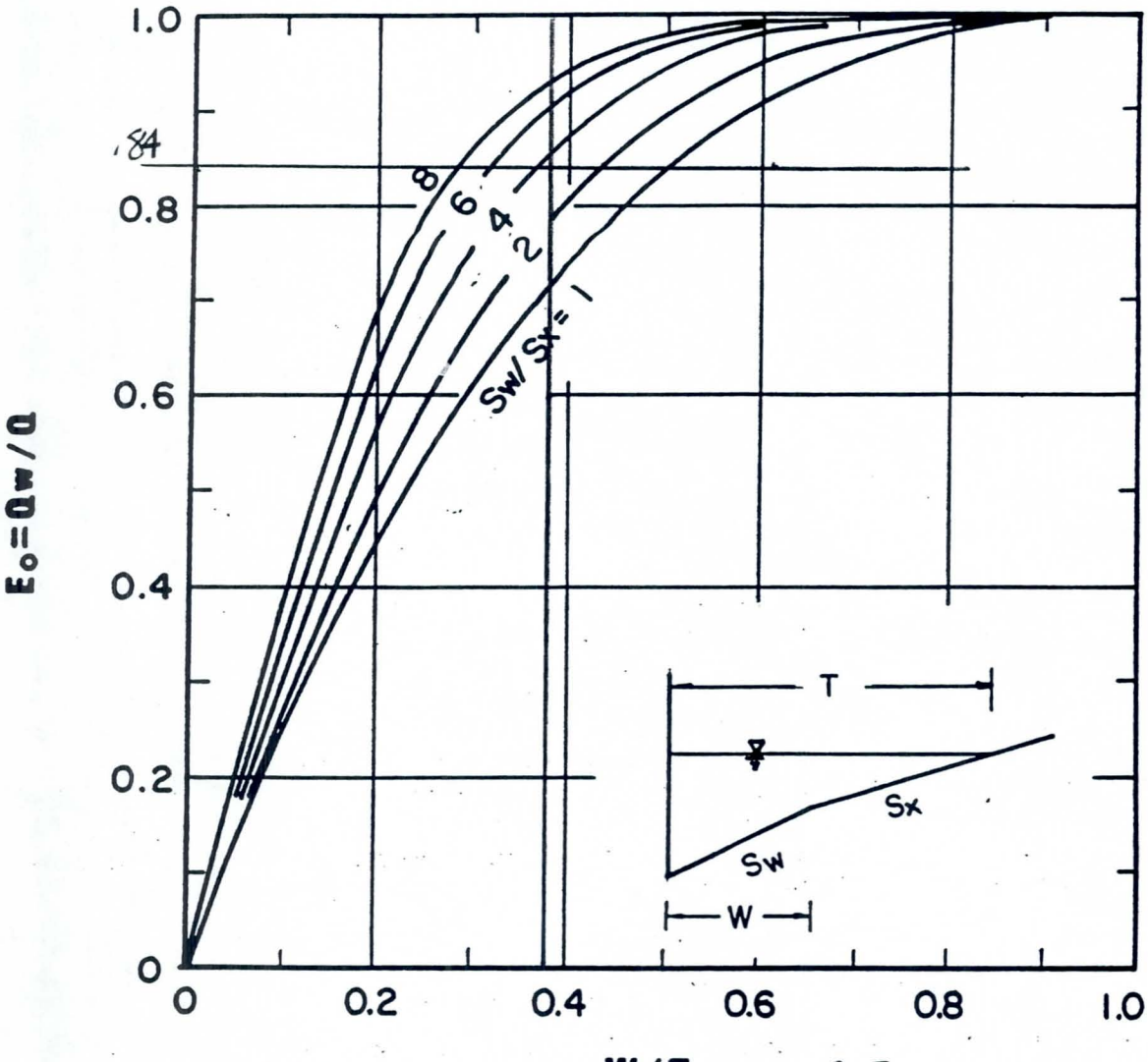
W = 2.5 ft d1= depth at lip of gutter

a = 2 inches d2 = depth at curb

Sw = .0667 fpf K for Q = 0.56

T ft	Sx fpf	d1 ft	d2 ft	Conveyance Outside	Conveyance in Gutter	Total Q cfs	Avg. V fps	Gutter V fps
11.40	0.02	0.178	0.345	0.664	0.967	1.631	1.128	1.479
11.20	0.02	0.174	0.341	0.625	0.943	1.568	1.120	1.465
11.00	0.02	0.170	0.337	0.588	0.919	1.507	1.111	1.450
10.80	0.02	0.166	0.333	0.551	0.896	1.447	1.102	1.436
10.60	0.02	0.162	0.329	0.517	0.872	1.389	1.094	1.421
10.40	0.02	0.158	0.325	0.483	0.849	1.333	1.085	1.407
10.20	0.02	0.154	0.321	0.451	0.827	1.278	1.077	1.392
10.00	0.02	0.150	0.317	0.421	0.804	1.225	1.069	1.378
9.80	0.02	0.146	0.313	0.391	0.782	1.173	1.060	1.363
9.60	0.02	0.142	0.309	0.363	0.760	1.123	1.052	1.348
9.40	0.02	0.138	0.305	0.337	0.738	1.075	1.044	1.333
9.20	0.02	0.134	0.301	0.311	0.717	1.028	1.036	1.318
9.00	0.02	0.130	0.297	0.287	0.696	0.983	1.028	1.303
8.80	0.02	0.126	0.293	0.264	0.675	0.939	1.020	1.288
8.60	0.02	0.122	0.289	0.242	0.654	0.896	1.012	1.273
8.40	0.02	0.118	0.285	0.222	0.634	0.855	1.004	1.258
8.20	0.02	0.114	0.281	0.202	0.614	0.816	0.997	1.243
8.00	0.02	0.110	0.277	0.184	0.594	0.778	0.989	1.228
7.80	0.02	0.106	0.273	0.166	0.574	0.741	0.982	1.212
7.60	0.02	0.102	0.269	0.150	0.555	0.705	0.974	1.197
7.40	0.02	0.098	0.265	0.135	0.536	0.671	0.967	1.182
7.20	0.02	0.094	0.261	0.121	0.517	0.638	0.960	1.166
7.00	0.02	0.090	0.257	0.108	0.499	0.607	0.953	1.151
6.80	0.02	0.086	0.253	0.095	0.481	0.576	0.947	1.135
6.67	0.02	0.083	0.250	0.088	0.469	0.557	0.942	1.125
6.60	0.02	0.082	0.249	0.084	0.463	0.547	0.940	1.119
6.40	0.02	0.078	0.245	0.073	0.446	0.519	0.934	1.104
6.20	0.02	0.074	0.241	0.064	0.428	0.492	0.927	1.088
6.00	0.02	0.070	0.237	0.055	0.411	0.466	0.921	1.072
5.80	0.02	0.066	0.233	0.047	0.395	0.442	0.915	1.056
5.60	0.02	0.062	0.229	0.040	0.379	0.418	0.910	1.041
5.40	0.02	0.058	0.225	0.033	0.363	0.396	0.904	1.025
5.20	0.02	0.054	0.221	0.027	0.347	0.374	0.898	1.009
5.00	0.02	0.050	0.217	0.022	0.331	0.354	0.893	0.993
4.80	0.02	0.046	0.213	0.018	0.316	0.334	0.888	0.977
4.60	0.02	0.042	0.209	0.014	0.302	0.316	0.882	0.962
4.40	0.02	0.038	0.205	0.011	0.287	0.298	0.877	0.946
4.20	0.02	0.034	0.201	0.008	0.273	0.281	0.872	0.930
4.00	0.02	0.030	0.197	0.006	0.260	0.265	0.866	0.915
3.80	0.02	0.026	0.193	0.004	0.246	0.250	0.860	0.899

$Q_{10} = .55$ cfs



$\frac{Sw}{Sx} = \frac{.067}{.02}$ 3.35

$\frac{2.5}{6.67} = .375$

CHART 4. Ratio of frontal flow to total gutter flow.

ARIZONA DEPARTMENT OF TRANSPORTATION
DRAINAGE DESIGN SECTION

11-19-1997

PROJECT NAME- Camelback Rd to Northern Ave TRACS NO.- H4578 01D
HIGHWAY NAME- Agua Fria Freeway DESIGNER - JNG
LOCATION - 325+26 R CHECKER - JRM PAGE 5 of 5
Ver 3.40: December 1995

GRATE INLET DESIGN -- ON GRADE

GUTTER FLOW HYDRAULICS
GUTTER DESCRIPTION

Roadway Grade-% Per cent--G	=	0.145
Roadway Cross-Slope-Ft./Ft.--Sx	=	0.020
Shoulder Width-Ft.--	=	7.500
Shoulder Slope-Ft./Ft.--Ss	=	0.020
Gutter Width-Ft.--W	=	2.500
Gutter Slope-Ft./Ft.--Sw	=	0.067
Gutter Depression-Inches--	=	2.000
Manning's 'N	=	0.016
Flow-CFS--Q	=	0.558
SPREAD-Ft.--T	=	6.670
Average Velocity-V-fps	=	0.945
FLOW in Gutter-CFS--Q	=	0.470
% Flow in Gutter-CFS	=	84.149
Velocity of Flow in Gutter-fps	=	1.127
Depth at Curb Line-Inches--d	=	3.001

GRATE TYPE: ADOT STD.--C15.91

Grate Length--Ft.	=	3.354
Grate Width---Ft.	=	2.000
Grate Area--Sq. Ft.	=	5.171
Capture Ratio -- GRATE	=	0.500
Effective Perimeter--Ft.	=	7.354
Splash-Over Velocity--FPS	=	7.354
Local Gutter Depression-Inches	=	0.000
Flow-CFS--Q	=	0.558
GUTTER FLOW at INLET-CFS--Q	=	0.470
Gutter Velocity at INLET-fps	=	1.127
Depth at INLET Curb Line-Inches--d	=	3.000
Frontal Flow Intercepted by GRATE--CFS	=	0.431
Lateral Flow Intercepted by GRATE--CFS	=	0.086
TOTAL Flow Intercepted by GRATE--CFS	=	0.517
% FLOW Intercepted	=	92.587
By-pass Flow--CFS	=	0.041

SAMPLE CALCULATIONS

MAINLINE GRATE INLET IN SUMP WITH SLOTTED DRAIN

PAVEMENT DRAINAGE CALCULATION SHEET

CONSULTANT: DANIEL, MANN, JOHNSON , & MENDENHALL

PROJECT: AGUA FRIA FREEWAY, CAMELBACK RD. TO NORTHERN AVE. TRACS H 4578 01D

DESIGNED: JWG **CHECKED:** _____ **DATE:** 11/19/97

CATCH BASIN # 3 LOCATION MAINLINE STATION: 325+96

HYDROLOGIC/HYDRAULIC PARAMETERS

Roadway Grade at Basin	sump	%	Pavement "C"	0.95	
Roadway Cross Slope	0.02	ft/ft	Landscape "C"	0.74	
Shoulder Cross Slope	0.02	ft/ft	10-year "i"	4.3	in/hr
Shoulder Width	7.5	ft/ft	50-year "i"	n/a	in/hr
Gutter Cross Slope	0.067	ft/ft	10- year Spread	6.67	ft
Gutter Width	2.5	ft/ft	50- year Spread	n/a	ft
Curb/Gutter Type	C		Local Depression	0	in
Curb Height	3	in	Mannings "n"	0.016	

CONTRIBUTING AREA CALCULATIONS

Pavment Length (ft)	126	Pavement Width (ft)	79	AREA	0.229	acres
Gore Length (ft)		Gore Width (avg.) (ft)		AREA	0.000	acres
Ramp Length (ft)		Ramp Width (avg.) (ft)		AREA	0.000	acres

PA = PAVEMENT AREA 0.229 acres

Landscape Length (ft) 0 Landscape Width (ft) 0

LA = LANDSCAPE AREA 0 acres

Combined "C" = (PA x " Cpa" + LA x "Cla") / (PA + LA)

(0.1.161*0.95+0*0.74)/(.1.161+0.0) Combined "C" = 0.95

RATIONAL METHOD CALCULATIONS

Bypass flow from upstream calculations 0.14 cfs - 10 yr.

0 cfs - 50 yr.

10-year Event Q = CiA + Bypass

Q10 = 1.073 cfs

50-year Event Q = CiA + Bypass

0 **Q50 =** n/a cfs

SUMMARY OF RESULTS

Inlet Std. = 15.91

Condition = sump

Grate Type = 15.91

Slotted Drain = 10 ft

10 year

Q = 1.073 cfs

Spread= 6.67 ft

Depth/ Curb = 3 in

Bypass = 0 cfs

% Captured = 100

50 year

Q = 0 cfs

Spread= 0 m

Depth/ Curb = 0 in

Bypass = 0 cfs

% Captured = 0

DMJM	PROJECT: Agua Fria Freeway	JOB NO. 6508.07	SHEET 1 of 4
		DESIGNED BY VWG	DATE 11/97
SUBJECT: Sample – Mainline Inlet · SUMP		CHECKED BY JRM	DATE 11-97

1 Sample Mainline inlet in sump at 325+96

$Q_{10} = 1.073$ cfs

MAXIMUM ALLOWABLE SPREAD = 6.67 = T

$S_x = .02$

$S_w = .067$

GUTTER width = 2.5'

shoulder width = 7.5'

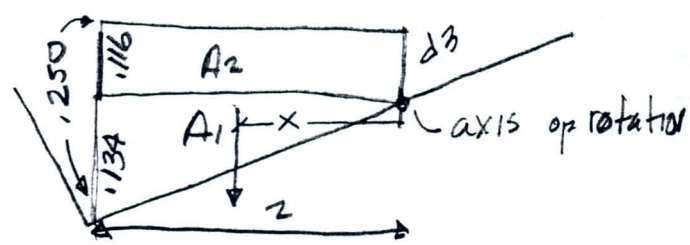
Compute Grate Capacity when Weir flow

$Q_w = C_w P d^{1.5} = Q_1 + Q_2 + Q_3$

$Q_1 = 3.0(2)\, d_1^{1.5}$

$Q_2 = 3.0(2)\, d_2^{1.5}$

$Q_3 = 3.0(3.354)\, d_3^{1.5}$



to find d_1, d_2 & d_3

$d_3 = .116$

$A_1 \left(\frac{.134 \times 2}{2}\right) = .134$

$A_2 = .116 \times 2 = .232$

$(A + A_2)x = A_1 \times \frac{2}{3} + A_2 \times 1$

$.366x = .134\left(\frac{2}{3}\right) + .232 \times 1$

centroid of composite section $x = .878'$

$d_1 \& d_2 = .25' - .878(.067)$

$= .191'$

DMJM	PROJECT: Agua Fria Freeway	JOB NO. 6508.07	SHEET 2 of 4
		DESIGNED BY JWG	DATE 11/97
SUBJECT: Sample - Mainline Inlet in Sump		CHECKED BY JRM	DATE 11-97

$Q_1 = 3.0 \times 2 \times .191^{1.5} = .500$

$Q_2 = 3.0 \times 2 \times .191^{1.5} = .500$

$Q_3 = 3.0 \times 3.354 \times .116^{1.5} = .398$

$Q_W = 1.398$ cfs.

50% capture Ratio = .699 cfs

Check Orifice $Q_o = CA(2gd)^{.5}$

$= (.67)(5.171)\sqrt{64.4(.191)}$

$Q_o = 12.2$ cfs

50% Clogging = 6.08 cfs, Use Weir flow $Q_W = .6994$

$Q_T - Q_W = Q_b$

$1.073 - .699 = .374$ cfs

Check Slotted Drain Orifice $Q_i = .91 L d^{.5}$

$Q_i = .94(10)(.25)^{.5} = 4.7$ cfs, 50% Clogging = 2.35

Slotted drain working as a weir, see Chart 15

$Q_i = 3.2$ cfs, at 50% Clogging, $Q_i = 1.6$ cfs, Use

Combination 15.91 inlet w/ 10' slotted drain

$.699 + 1.6 = 2.3$ cfs > 1.073 OK

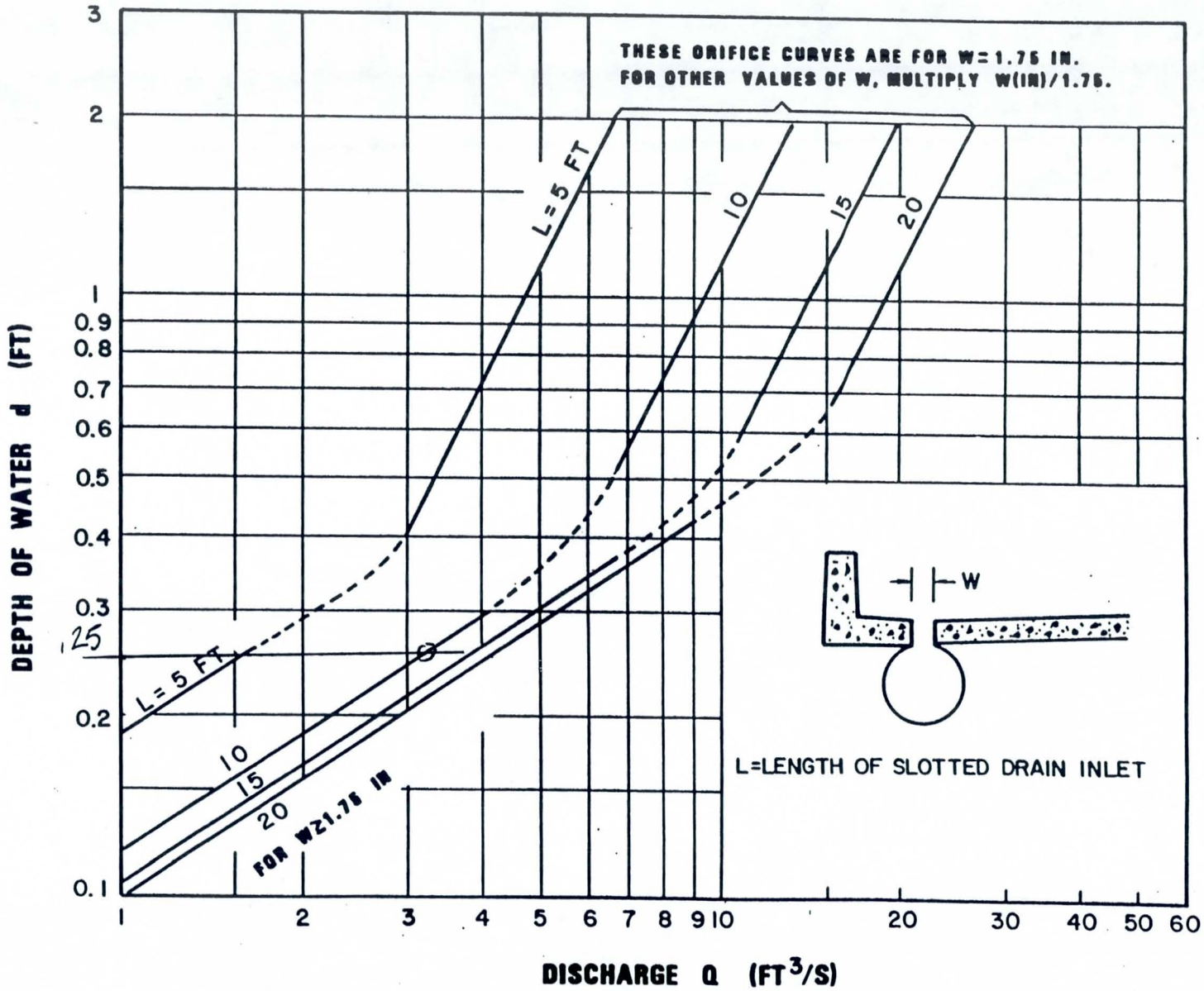


CHART 15. Slotted drain inlet capacity in sump locations.

ARIZONA DEPARTMENT OF TRANSPORTATION
DRAINAGE DESIGN SECTION

11-14-1997

PROJECT NAME- Camelback to Northern TRACS NO.- H 4578 01 D
HIGHWAY NAME- Agua Fria Freeway DESIGNER - JWG
LOCATION - 325+96 R CHECKER - PAGE 4 of 4
Ver 3.40: December 1995

SLOTTED DRAIN W/ GRATE--IN SUMP

GUTTER FLOW HYDRAULICS

GUTTER DESCRIPTION

Roadway Cross-Slope-Ft./Ft.--Sx	=	0.020
Shoulder Width-Ft.--	=	10.000
Shoulder Slope-Ft./Ft.--Ss	=	0.020
Gutter Width-Ft.--W	=	2.500
Gutter Slope-Ft./Ft.--Sw	=	0.067
Gutter Depression-Inches--	=	2.000

GRATE TYPE: ADOT STD.--C15.91

Grate Length--Ft.	=	3.354
Grate Width---Ft.	=	2.000
Grate Area--Sq. Ft.	=	5.171
Effective Perimeter--Ft.	=	7.354
Capture Ratio -- GRATE	=	0.500
Capture Ratio -- SLOTTED DRAIN	=	0.500
Local Gutter Depression-Inches	=	0.000
Depth at C.G. of Grate Flow--In.	=	2.282
Depth at INLET Curb Line-Inches--d	=	2.984
SPREAD-Ft.--T	=	6.600

	---- SLOTTED DRAIN ----		------ GRATE ------		
LENGTH	Q(weir)	Q(orifice)	Q(weir)	Q(orifice)	Q(INLET)
5.000	0.713	1.167	0.695	6.032	1.408
10.000	1.426	2.334	0.695	6.032	2.121

*** Q(INLET) is SUM of WEIR FLOW in Slotted Drain and Grate ***

APPENDIX B

ON-SITE HYDRAULIC MODELING

AGUA FRIA FREEWAY	ENCANTO TO NORTHERN	SECTION 03

RAINFALL DEPTH-DURATION-FREQUENCY (D-D-F) WORKSHEET

PART A

Determine rainfall depths from the isopluval maps.

		Rainfall depth, inches
2-year, 6-hour	$P_{2,6'}$	1.2
2-year, 24-hour	$P_{2,24'}$	1.4
100-year, 6-hour	$P_{100,6'}$	3.0
100-year, 24-hour	$P_{100,24'}$	3.8

PART B

Compute the following:

2 year, 1-hour	$P_{2,1'}$	1.0
100-year, 1-hour	$P_{100,1'}$	2.3
2-year, 2-hour	$P_{2,2'}$	1.0
2-year, 3-hour	$P_{2,3'}$	1.1
2-year, 12-hour	$P_{2,12'}$	1.3
100-year, 2-hour	$P_{100,2'}$	2.5
100-year, 3-hour	$P_{100,3'}$	2.7
100-year, 12-hour	$P_{100,12'}$	2.6

PART C

Compute the short duration rainfall zone Zone = 8

Determine the Short Duration Rainfall Ratios (Table 1-1)

Duration (minutes)	Ratio 2-year		Ratio 100 -year	
5	A =	0.34	E =	0.3
10	B =	0.51	F =	0.46
15	C =	0.62	G =	0.59
30	D =	0.82	H =	0.8

Compute the following:

2-year, 5-minute	$P_{2,5''}$	0.3
2-year, 10-minute	$P_{2,10''}$	0.5
2-year, 15-minute	$P_{2,15''}$	0.6
2-year, 30-minute	$P_{2,30''}$	0.8
100-year, 5-minute	$P_{100,5''}$	0.7
100-year, 10-minute	$P_{100,10''}$	1.0
100-year, 15-minute	$P_{100,15''}$	1.3
100-year, 30-minute	$P_{100,30''}$	1.8

PART D

For any flood frequency (T-year) other than the 2-year or the 100-year, calculate the rainfall depth for each rainfall duration (t) by the following equation:

$$P_{T,t} = (X)P_{2T,t} + (Y)P_{100,t}$$

where X and Y for a selected frequency (T-year) are

Frequency (T-year)	X	Y
5-year	0.674	0.278
10-year	0.496	0.449
25-year	0.293	0.669
50-year	0.146	0.835
500-year	-0.337	1.381

Selected frequency = 5 year		X = .674	Y = .278
5-min	$P_{5,5''}$	0.4	
10-min	$P_{5,5''}$	0.6	
15-min	$P_{5,15''}$	0.8	
30-min	$P_{5,30''}$	1.0	
1-hour	$P_{5,1'}$	1.3	
2-hour	$P_{5,2'}$	1.4	
3-hour	$P_{5,3'}$	1.5	
6-hour	$P_{5,6'}$	1.6	
12-hour	$P_{5,12'}$	1.6	
24-hour	$P_{5,24'}$	2.0	

Selected frequency = 10 year		X = .496	Y = .449
5-min	$P_{10,5''}$	0.5	
10-min	$P_{10,10''}$	0.7	
15-min	$P_{10,15''}$	0.9	
30-min	$P_{10,30''}$	1.2	
1-hour	$P_{10,1'}$	1.5	
2-hour	$P_{10,2'}$	1.7	
3-hour	$P_{10,3'}$	1.8	
6-hour	$P_{10,6'}$	1.9	
12-hour	$P_{10,12'}$	1.8	
24-hour	$P_{10,24'}$	2.4	

Selected frequency = 25 year		X = .293	Y = .669				
5-min	$P_{25,5''}$	0.6					
10-min	$P_{25,10''}$	0.8					
15-min	$P_{25,15''}$	1.1					
30-min	$P_{25,30''}$	1.5					
1-hour	$P_{25,1'}$	1.8					
2-hour	$P_{25,2'}$	2.0					
3-hour	$P_{25,3'}$	2.1					
6-hour	$P_{25,6'}$	2.4					
12-hour	$P_{25,12'}$	2.1					
24-hour	$P_{25,24'}$	3.0					
Selected frequency = 50 year		X = .146	Y = .835				
5-min	$P_{50,5''}$	0.6					
10-min	$P_{50,10''}$	0.9					
15-min	$P_{50,15''}$	1.2					
30-min	$P_{50,30''}$	1.6					
1-hour	$P_{50,1'}$	2.0					
2-hour	$P_{50,2'}$	2.3					
3-hour	$P_{50,3'}$	2.4					
6-hour	$P_{50,6'}$	2.7					
12-hour	$P_{50,12'}$	2.4					
24-hour	$P_{50,24'}$	3.4					
Selected frequency = 500 year		X = -.337	Y = 1.381				
5-min	$P_{500,5''}$	0.8					
10-min	$P_{500,10''}$	1.3					
15-min	$P_{500,15''}$	1.7					
30-min	$P_{500,30''}$	2.3					
1-hour	$P_{500,1'}$	2.8					
2-hour	$P_{500,2'}$	3.1					
3-hour	$P_{500,3'}$	3.3					
6-hour	$P_{500,6'}$	3.7					
12-hour	$P_{500,12'}$	3.2					
24-hour	$P_{500,24'}$	4.8					

PART E

Tabulate the rainfall Depth-Duration-Frequency statistics below:

Duration	Rainfall depth, in inches						
	Frequency, in years						
	2	5	10	25	50	100	500
5-min	0.3	0.4	0.5	0.6	0.6	0.7	0.8
10-min *	0.5	0.6	0.7	0.8	0.9	1.0	1.3
15-min	0.6	0.8	0.9	1.1	1.2	1.3	1.7
30-min *	0.8	1.0	1.2	1.5	1.6	1.8	2.3
1-hour	1.0	1.3	1.5	1.8	2.0	2.3	2.8
2-hour	1.0	1.4	1.7	2.0	2.3	2.5	3.1
3-hour	1.1	1.5	1.8	2.1	2.4	2.7	3.3
6-hour	1.2	1.6	1.9	2.4	2.7	3.0	3.7
12-hour	1.3	1.6	1.8	2.1	2.4	2.6	3.2
24-hour	1.4	2.0	2.4	3.0	3.4	3.8	4.8

* Note: 10-min and 30-min values are not coded into the PH record for HEC-1

Rainfall Intensity-Duration-Frequency worksheet:

Duration	Rainfall Intensity, in inches/hour						
	Frequency, in years						
	2	5	10	25	50	100	500
5-min	3.9	4.9	5.6	6.7	7.5	8.2	10.1
10-min	2.9	3.7	4.3	5.1	5.7	6.3	7.7
15-min	2.4	3.1	3.6	4.3	4.8	5.4	6.6
30-min	1.6	2.1	2.4	2.9	3.3	3.7	4.5
1-hour	1.0	1.3	1.5	1.8	2.0	2.3	2.8
2-hour	0.5	0.7	0.8	1.0	1.1	1.3	1.6
3-hour	0.4	0.5	0.6	0.7	0.8	0.9	1.1
6-hour	0.2	0.3	0.3	0.4	0.4	0.5	0.6
12-hour	0.1	0.1	0.2	0.2	0.2	0.2	0.3
24-hour	0.1	0.1	0.1	0.1	0.1	0.2	0.2

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Camelback Road to Northern Avenue

MAINLINE - PROFILE GRADE						MAINLINE - GUTTER DESIGN						
LABEL	BEGIN	END	LENGTH	GRADE	ELEV.	GUTTER	SB GUT.	MEDIAN	MEDIAN	GUTTER	NB GUT.	MH RIM
POINT @ EN	STA	STA	ft	%	ft	DROP SB	GRADE	DROP	GRADE	DROP NB	GRADE	ELEV
BEGIN	28000.000	28300.000	300	2.240	1038.000	0.68	1037.32	1.21	1036.79	0.68	1037.32	
PVC	28300.000	29170.000	870	2.240	1057.485	0.68	1056.80	1.21	1056.28	0.68	1056.80	
PVI	29170.000	30220.000	1050	VC	1071.339	0.68	1070.66	1.21	1070.13	0.68	1070.66	
CREST	30220.000	30447.477	227.477	VC	1071.790	0.68	1071.11	1.21	1070.58	0.68	1071.11	
MH (FUT)	30447.477	31057.000	609.523	VC	1068.538	0.68	1067.86	1.21	1067.33	0.68	1067.86	1068.11
PVT	31057.000	31270.000	213	VC	1065.860	0.68	1065.18	1.21	1064.65	0.68	1065.18	
MH (FUT)	31270.000	31387.000	117	-1.442	1064.173	0.68	1063.49	1.21	1062.96	0.68	1063.49	1063.74
MH (FUT)	31387.000	31660.000	273	-1.442	1060.236	0.68	1059.56	1.21	1059.03	0.68	1059.56	1059.81
	31660.000	31800.000	140	-1.442	1058.217	0.68	1057.54	1.21	1057.01	0.68	1057.54	
PVC	31800.000	31970.000	170	-1.442	1055.766	0.68	1055.09	1.21	1054.56	0.68	1055.09	
MH #1	31970.000	31990.000	20	VC	1055.482	1.08	1054.40	1.21	1054.27	0.92	1054.56	1054.65
MH #2	31990.000	32320.000	330	VC	1052.129	0.68	1051.45	1.21	1050.92	0.88	1051.25	1051.70
PVI	32320.000	32370.000	50	VC	1051.840	0.68	1051.16	1.21	1050.63	0.88	1050.96	
	32370.000	32377.000	7		1051.804	0.68	1051.12	1.21	1050.60	0.88	1050.92	
SAG	32377.000	32596.276	219.276	VC	1051.250	0.68	1050.57	1.21	1050.04	0.88	1050.37	
PVT	32596.276	32770.000	173.724	VC	1051.598	0.68	1050.92	1.21	1050.39	0.88	1050.72	
MH #3	32770.000	32960.000	190	0.400	1052.358	0.68	1051.68	1.21	1051.15	0.88	1051.48	1051.93
MH #4	32960.000	33400.000	440	0.400	1054.118	0.68	1053.44	1.21	1052.91	0.88	1053.24	1053.69
PVC	33400.000	33810.000	410	0.400	1055.758	0.68	1055.08	1.21	1054.55	0.88	1054.88	
MH #5	33810.000	33840.000	30	VC	1055.889	0.68	1055.21	1.21	1054.68	0.80	1055.09	1055.46
PVI	33840.000	34210.000	370	VC	1059.355	0.68	1058.68	1.21	1058.15	0.68	1058.68	
MH #6	34210.000	34280.000	70	VC	1060.395	0.68	1059.72	1.21	1059.19	0.68	1059.72	1059.97
PVT, MH #7	34280.000	34610.000	330	VC	1066.946	0.68	1066.27	1.21	1065.74	0.68	1066.27	1066.52
PVC	34610.000	34780.000	170	2.397	1071.021	0.68	1070.34	1.21	1069.81	0.68	1070.34	
MH #8	34780.000	34940.000	160		1074.575	0.68	1073.90	1.21	1073.37	0.68	1073.90	1074.15
MH #9	34940.000	35270.000	330		1080.127	0.68	1079.45	1.21	1078.92	0.68	1079.45	1079.70
PVI	35270.000	35780.000	510	VC	1083.999	0.68	1083.32	1.21	1082.79	0.68	1083.32	
CREST	35780.000	35870.229	90.229	VC	1084.088	0.68	1083.41	1.21	1082.88	0.68	1083.41	

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Camelback Road to Northern Avenue

MAINLINE - PROFILE GRADE						MAINLINE - GUTTER DESIGN						
LABEL POINT @ EN	BEGIN STA	END STA	LENGTH ft	GRADE %	ELEV. ft	GUTTER DROP SB	SB GUT. GRADE	MEDIAN DROP	MEDIAN GRADE	GUTTER DROP NB	NB GUT. GRADE	MH RIM ELEV
MH #10	35870.229	36470.000	599.771	VC	1080.134	0.68	1079.45	1.21	1078.93	0.68	1079.45	1079.70
PVT	36470.000	36780.000	310	VC	1074.991	0.68	1074.31	1.21	1073.78	0.68	1074.31	
MH #11	36780.000	36800.000	20	-2.000	1074.591	0.68	1073.91	1.21	1073.38	0.68	1073.91	1074.16
PVC	36800.000	37000.000	200	-2.000	1070.591	0.68	1069.91	1.21	1069.38	0.68	1069.91	
MH #12	37000.000	37130.000	130	VC	1068.245	0.74	1067.51	1.21	1067.04	0.68	1067.57	1067.76
PVI	37130.000	37400.000	270	VC	1064.991	0.68	1064.31	1.21	1063.78	0.68	1064.31	
MH #13	37400.000	37460.000	60	VC	1064.565	0.88	1063.69	1.21	1063.36	0.68	1063.89	1063.94
SAG	37460.000	37666.337	206.337	VC	1063.924	0.88	1063.04	1.21	1062.72	0.68	1063.24	
PVT	37666.337	37800.000	133.663	VC	1064.191	0.88	1063.31	1.21	1062.98	0.68	1063.51	
MH #14	37800.000	37925.000	125	0.400	1064.691	0.88	1063.81	1.21	1063.48	0.68	1064.01	1064.06
MH #15	37925.000	38365.000	440	0.400	1066.451	0.88	1065.57	1.21	1065.24	0.68	1065.77	1065.82
MH #16	38365.000	38693.000	328	0.400	1067.763	0.88	1066.88	1.21	1066.56	0.68	1067.08	1067.13
PVC	38693.000	38740.000	47	0.400	1067.951	0.68	1067.27	1.21	1066.74	0.68	1067.27	
MH #17	38740.000	39021.000	281	VC	1070.048	0.96	1069.09	1.21	1068.84	1.04	1069.01	1069.34
	39021.000	39135.000	114	VC	1071.436	0.68	1070.76	1.21	1070.23	0.68	1070.76	
PVI	39135.000	39140.000	5	VC	1071.514	0.68	1070.83	1.21	1070.31	0.68	1070.83	
MH #18	39140.000	39348.000	208	VC	1074.907	0.68	1074.23	1.21	1073.70	0.68	1074.23	1074.48
PVT	39348.000	39540.000	192	VC	1078.976	0.68	1078.30	1.21	1077.77	0.68	1078.30	
PVC	39540.000	39590.000	50	2.354	1080.153	0.68	1079.47	1.21	1078.95	0.68	1079.47	
MH #19	39590.000	39678.000	88	VC	1082.144	0.68	1081.46	1.21	1080.94	0.68	1081.46	1081.71
MH #20	39678.000	40008.000	330	VC	1088.181	0.68	1087.50	1.21	1086.97	0.68	1087.50	1087.75
MH #21	40008.000	40338.000	330	VC	1091.961	0.68	1091.28	1.21	1090.75	0.68	1091.28	1091.53
PVI	40338.000	40640.000	302	VC	1093.441	0.68	1092.76	1.21	1092.23	0.68	1092.76	
CREST	40640.000	40725.370	85.37	VC	1093.516	0.68	1092.84	1.21	1092.31	0.68	1092.84	
MH #22	40725.370	41150.000	424.63	VC	1091.647	1.632	1090.02	1.21	1090.44	-1.29	1092.94	1090.27
MH #23	41150.000	41480.000	330	VC	1087.613	1.802	1085.81	1.21	1086.41	-1.802	1089.42	1086.06
PVT	41480.000	41690.000	210	VC	1083.870	1.802	1082.07	1.21	1082.66	-1.802	1085.67	
PVC	41690.000	41740.000	50	-2.000	1082.870	1.802	1081.07	1.21	1081.66	-1.802	1084.67	

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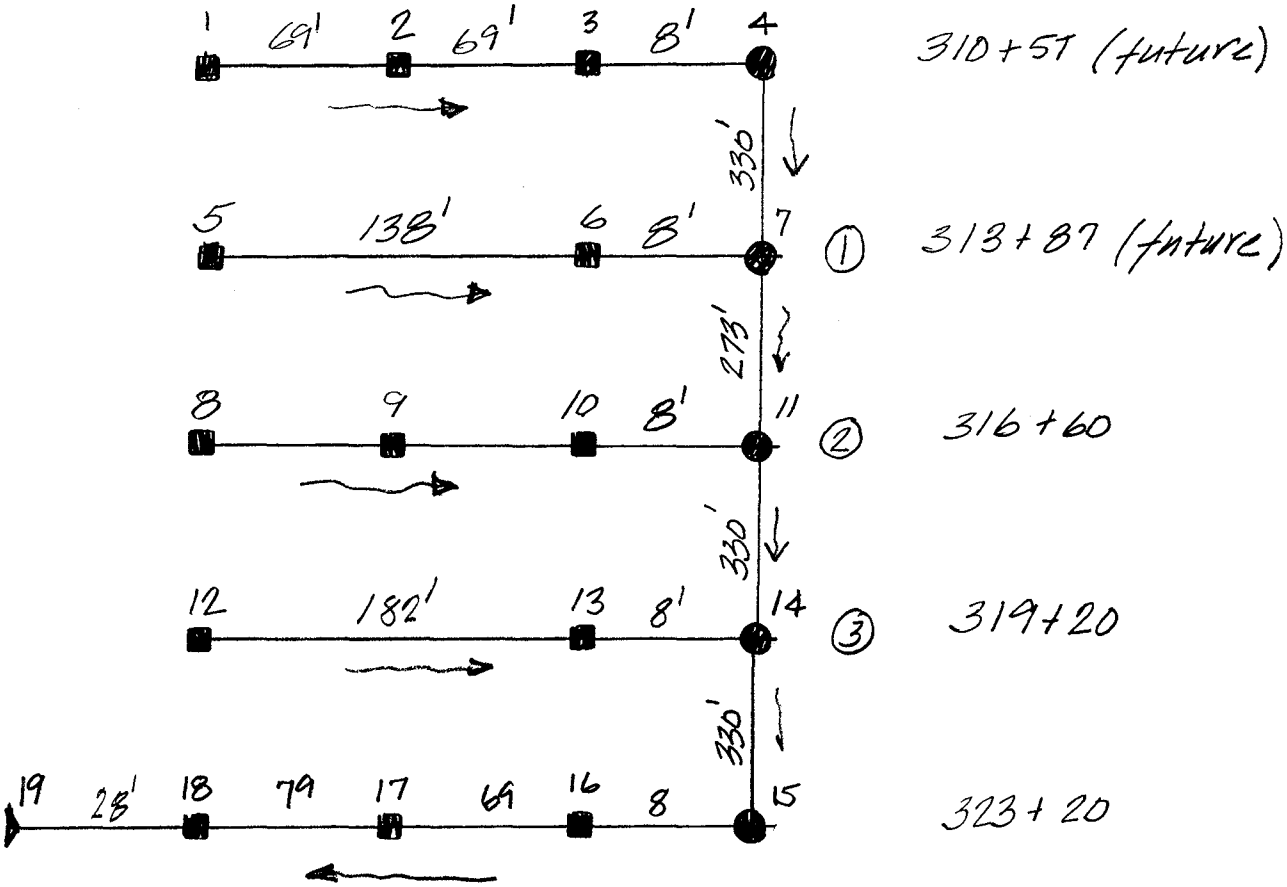
Camelback Road to Northern Avenue

MAINLINE - PROFILE GRADE						MAINLINE - GUTTER DESIGN						
LABEL	BEGIN	END	LENGTH	GRADE	ELEV.	GUTTER	SB GUT.	MEDIAN	MEDIAN	GUTTER	NB GUT.	MH RIM
POINT @ EN	STA	STA	ft	%	ft	DROP SB	GRADE	DROP	GRADE	DROP NB	GRADE	ELEV
MH #24	41740.000	41810.000	70	VC	1081.544	1.802	1079.74	1.21	1080.34	-1.802	1083.35	1079.99
MH #25	41810.000	42100.000	290	VC	1077.614	1.561	1076.05	1.21	1076.41	-1.561	1079.17	1076.05
PVI	42100.000	42140.000	40	VC	1077.270	1.208	1076.06	1.21	1076.06	-1.208	1078.48	
SAG	42140.000	42406.670	266.67	VC	1076.203	-1.330	1077.53	1.21	1075.00	1.690	1074.51	
PVT	42406.670	42540.000	133.33	VC	1076.470	-2.438	1078.91	1.21	1075.26	2.438	1074.03	
MH # 26	42540.000	42765.000	225	0.400	1077.370	-2.438	1079.81	1.21	1076.16	2.65	1074.72	1074.97
MH # 27	42765.000	43095.000	330	0.400	1078.690	-2.438	1081.13	1.21	1077.48	2.438	1076.25	1076.50
MH # 28	43095.000	43425.000	330	0.400	1080.010	-2.438	1082.45	1.21	1078.80	2.438	1077.57	1077.82
PVC	43425.000	44894.220	1469.22	0.400	1085.887	-2.438	1088.32	1.21	1084.68	2.438	1083.45	

DMJM	PROJECT: Agua Fria Fwy	JOB NO. 6508.01	SHEET 1 of 1
		DESIGNED BY VWG	DATE 10-3-97
SUBJECT: HYDRA Models		CHECKED BY	DATE

SYSTEM #1 Camelback to STA 323+30



DRAINAGE AREAS - See Attached

AGUA FRIA FREEWAY: CAMELBACK ROAD TO NORTHERN

DRAINAGE AREA CALCULATIONS

Revised :

System #1 - Camelback Road to STA 323+30 10/3/97

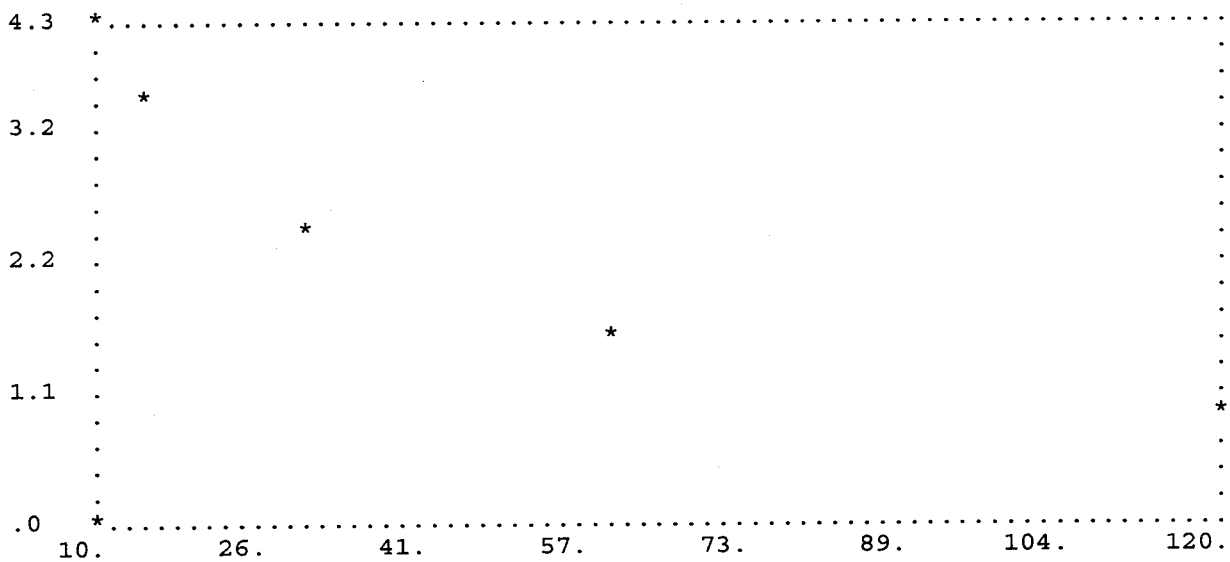
DA No.	LOC.	NOTE #	BEGIN STA.	ENDING STA.	WIDTH	SUB AREAS LENGTH	SUB AREAS WIDTH	AREA sf	AREA Ac.	C	CA
1	NB	1	30447.48	31057	69			42057	0.965	0.950	0.917
2	SB	1	30447.48	31057	69			42057	0.965	0.950	0.917
3	NB	1	31057	31387	69			22770	0.523	0.950	0.497
4	SB	1	31057	31387	69			22770	0.523	0.950	0.497
5	NB	1	31387	31656	69			18561	0.426	0.950	0.405
6	SB	1	31387	31662	69			18975	0.436	0.950	0.414
7	NB	2	31656	31990	99			33066	0.759	0.950	0.721
8	SB	2	31662	31990	103			33784	0.776	0.950	0.737
9	NB	3	31990	32320	85			28050	0.644	0.950	0.612
10	SB	4	31990	32320	80			26400	0.606	0.950	0.576

NOTES:
1 Pavement width - 4 lanes at 12' + outside shoulder at 10' + inside shoulder at 11' = 69'.
2 Includes ramps and ramp tapers.
3 Includes Auxiliary lane NB and ramp taper.
4 Includes ramp tapers.

AF FREEWAY, SYSTEM #1 - CAMELBACK TO STA 323+30

```
+++ Commands Read From File C:\HYDRA\AFSYS#1.HDA
  JOB
  SWI2
  REM SITE SPECIFIC RDDF FOR 10 YEAR
  RAI10 4.3 15 3.6 30 2.4 60 1.5 120 .8
```

IDF CURVE



PLOT-DATA (TIME Vs.VALUE)

10.	4.30	120.	.80	0.	.00	0.	.00	0.	.00
15.	3.60	0.	.00	0.	.00	0.	.00	0.	.00
30.	2.40	0.	.00	0.	.00	0.	.00	0.	.00
60.	1.50	0.	.00	0.	.00	0.	.00	0.	.00

```
  REM ASSUMES A PAVEMENT SECTION OF 18 INCHES
  PDA.012 24 3.75 1.5 2 .0001
  HGL1
  REM DRAINAGE BEGINS 304+47.48
  NEW CBS AT 310+57 (FUT)
  STO0.965 .95 10
  PIP69 1067.86 1067.33
+++ Tc =  10.0 min
+++ CA =    .9
+++ Link #  1,  Flow depth =    .60 ft
```

AF FREEWAY, SYSTEM #1 - CAMELBACK TO STA 323+30

```
  PNC1 2 3 180 0
  PIP69 1067.33 1067.86
+++ Tc =  10.2 min
+++ CA =    .9
+++ Link #  2,  Flow depth =    .90 ft
  PNC2 3 3 180 0
  STO0.965 .95 10
  PIP8 1067.86 1068.11
+++ Tc =  10.6 min
+++ CA =   1.8
+++ Link #  3,  Flow depth =    .74 ft
  PNC3 4 3 90 0
  PIP330 1068.11 1063.74
+++ Tc =  10.6 min
+++ CA =   1.8
*** WARNING:  Pipe invert at D/S end dropped to meet minimum depth
    to invert criterion at D/S end
+++ Link #  4,  Flow depth =    .78 ft
  PNC4 7 3 180 0
  HOL1
  NEW CBS AT 313+87 (FUT)
  STO0.523 .95 10
  PIP138 1063.49 1063.49
+++ Tc =  10.0 min
+++ CA =    .5
+++ Link #  5,  Flow depth =    .76 ft
  PNC5 6 3 180 0
  STO0.523 .95 10
  PIP8 1063.49 1063.74
+++ Tc =  11.2 min
+++ CA =   1.0
+++ Link #  6,  Flow depth =    .54 ft
  PNC6 7 3 90 0
  REC1
  PIP273 1063.74 1059.66
+++ Tc =  11.4 min
+++ CA =   2.8
*** WARNING:  Pipe invert at D/S end dropped to meet minimum depth
    to invert criterion at D/S end
+++ Link #  7,  Flow depth =    .90 ft
  PNC7 11 3 180 0
  HOL2
  NEW CBS AT 316+60 (FUT)
  STO0.426 .95 10
  PIP69 1059.56 1059.03
+++ Tc =  10.0 min
+++ CA =    .4
+++ Link #  8,  Flow depth =    .40 ft
  PNC8 9 3 180 0
```

AF FREEWAY, SYSTEM #1 - CAMELBACK TO STA 323+30

```
  PIP69 1059.03 1059.56
+++ Tc =  10.3 min
+++ CA =    .4
+++ Link #  9,  Flow depth =    .58 ft
  PNC9 10 3 180 0
  STO0.436 .95 10
  PIP8 1059.56 1059.81
+++ Tc =  10.8 min
+++ CA =    .8
+++ Link # 10,  Flow depth =    .48 ft
  PNC10 11 3 90 0
  REC2
  PIP330 1059.81 1054.65
+++ Tc =  11.9 min
+++ CA =   3.6
*** WARNING:  Pipe invert at D/S end dropped to meet minimum depth
    to invert criterion at D/S end
+++ Link # 11,  Flow depth =   1.04 ft
  PNC11 14 3 180 0
  HOL3
  NEW CBS AT 319+90
  STO0.759 .95 10
  PIP182 1054.56 1054.40
+++ Tc =  10.0 min
+++ CA =    .7
+++ Link # 12,  Flow depth =    .92 ft
  PNC12 13 3 180 0
  STO0.776 .95 10
  PIP8 1054.40 1054.65
+++ Tc =  11.4 min
+++ CA =   1.5
+++ Link # 13,  Flow depth =    .64 ft
  PNC13 14 3 90 0
  REC3
  PIP330 1054.65 1051.70
+++ Tc =  12.6 min
+++ CA =   5.1
*** WARNING:  Pipe invert at D/S end dropped to meet minimum depth
    to invert criterion at D/S end
+++ Link # 14,  Flow depth =   1.52 ft
  PNC14 15 3 90 0
  REM CBS AT 323+20
  PIP8 1051.70 1051.45
+++ Tc =  13.3 min
+++ CA =   5.1
*** WARNING:  Pipe invert at D/S end dropped to meet minimum depth
    to invert criterion at D/S end
+++ Link # 15,  Flow depth =    .96 ft
  PNC15 16 3 180 0
```

AF FREEWAY, SYSTEM #1 - CAMELBACK TO STA 323+30

```
  STO0.606 .95 10
  PIP69 1051.45 1050.90 1046.82 1046.09 -24
+++ Tc =  13.3 min
+++ CA =   5.7
+++ Link # 16,  Flow depth =   1.44 ft
  PNC16 17 3 180 0
  PIP79 1050.90 1051.25 1046.09 1045.25 -24
+++ Tc =  13.4 min
+++ CA =   5.7
+++ Link # 17,  Flow depth =   1.44 ft
  PNC17 18 3 180 0
  STO0.644 .95 10
  PIP28 1051.25 1048 1045.25 1044.6 -24
+++ Tc =  13.5 min
+++ CA =   6.3
+++ Link # 18,  Flow depth =   1.18 ft
  PNC19 20 3 180 2
  END
 END OF INPUT DATA.
```

AF FREEWAY, SYSTEM #1 - CAMELBACK TO STA 323+30

*** CBS AT 310+57 (FUT) Pipe Design

Link	Length (ft)	Diam (in)	Invert Up/Dn (ft)	Slope (ft/ft)	Depth Up/Dn (ft)	Min. Cover (ft)	Velocity Act/Full (ft/s)	--Flow-- Act/Full (cfs)	Estimated Cost ($)
1	69	24	1064.11	.00768	3.8	1.6	5.2	3.94	0.
			1063.58		3.8		6.9	21.54	
2	69	24	1063.58	.00155	3.8	1.6	2.9	3.91	0.
			1063.47		4.4		3.1	9.67	
3	8	24	1063.47	.01260	4.4	2.2	7.5	7.73	0.
			1063.37		4.7		8.8	27.59	
4	330	24	1063.37	.01025	4.7	1.6	7.0	7.72	0.
			1059.99		3.8		7.9	24.88	

Length = 476. ft Total length = 476. ft
Cost = 0. Total Cost = 0.

*** CBS AT 313+87 (FUT) Pipe Design

Link	Length (ft)	Diam (in)	Invert Up/Dn (ft)	Slope (ft/ft)	Depth Up/Dn (ft)	Min. Cover (ft)	Velocity Act/Full (ft/s)	--Flow-- Act/Full (cfs)	Estimated Cost ($)
5	138	24	1059.74	.00082	3.8	1.6	2.0	2.14	0.
			1059.63		3.9		2.2	7.06	
6	8	24	1059.63	.01260	3.9	1.7	6.3	4.11	0.
			1059.53		4.2		8.8	27.59	
7	273	24	1059.53	.01324	4.2	1.6	8.6	11.60	0.
			1055.91		3.8		9.0	28.28	

Length = 419. ft Total length = 895. ft
Cost = 0. Total Cost = 0.

AF FREEWAY, SYSTEM #1 - CAMELBACK TO STA 323+30

*** CBS AT 316+60 (FUT)

Pipe Design

Link	Length (ft)	Diam (in)	Invert Up/Dn (ft)	Slope (ft/ft)	Depth Up/Dn (ft)	Min. Cover (ft)	Velocity Act/Full (ft/s)	--Flow-- Act/Full (cfs)	Estimated Cost ($)
8	69	24	1055.81	.00768	3.8	1.6	4.1	1.74	0.
			1055.28		3.8		6.9	21.54	
9	69	24	1055.28	.00155	3.8	1.6	2.3	1.72	0.
			1055.17		4.4		3.1	9.67	
10	8	24	1055.17	.01260	4.4	2.2	6.0	3.43	0.
			1055.07		4.7		8.8	27.59	
11	330	24	1055.07	.01264	4.7	1.6	8.9	14.68	0.
			1050.90		3.8		8.8	27.63	

Length = 476. ft Total length = 1371. ft
Cost = 0. Total Cost = 0.

*** CBS AT 319+90

Pipe Design

Link	Length (ft)	Diam (in)	Invert Up/Dn (ft)	Slope (ft/ft)	Depth Up/Dn (ft)	Min. Cover (ft)	Velocity Act/Full (ft/s)	--Flow-- Act/Full (cfs)	Estimated Cost ($)
12	182	24	1050.81	.00088	3.8	1.6	2.2	3.10	0.
			1050.65		3.8		2.3	7.29	
13	8	24	1050.65	.01260	3.8	1.6	7.0	5.99	0.
			1050.55		4.1		8.8	27.59	
14	330	24	1050.55	.00788	4.1	1.6	7.9	20.11	0.
			1047.95		3.8		6.9	21.81	
15	8	24	1047.95	.03123	3.8	1.6	13.4	19.62	0.
			1047.70		3.8		13.8	43.43	

Length = 528. ft Total length = 1899. ft
Cost = 0. Total Cost = 0.

Length = 528. ft Total length = 1899. ft
Cost = 0. Total Cost = 0.

AF FREEWAY, SYSTEM #1 - CAMELBACK TO STA 323+30

*** CBS AT 319+90

Analysis of Existing Pipes

Link	Length (ft)	Diam (in)	Invert Up/Dn (ft)	Slope (ft/ft)	Depth Up/Dn (ft)	Cover Up/Dn (ft)	Velocity Act/Full (ft/s)	--Flow-- Act/Full (cfs)	Load (%)	-Solutions- Remove (cfs)	Diam (in)
16	69	24	1046.82	.01058	4.6	2.5	9.0	21.82	86		
			1046.09		4.8	2.6	8.0	25.28			
17	79	24	1046.09	.01063	4.8	2.6	9.1	21.72	86		
			1045.25		6.0	3.8	8.1	25.34			
18	28	24	1045.25	.02322	6.0	3.8	12.6	23.93	64		
			1044.60		3.4	1.2	11.9	37.44			

Length = 704. ft Total length = 2075. ft

AF FREEWAY, SYSTEM #1 - CAMELBACK TO STA 323+30

Hydraulic Gradeline Computations

Link #	Down-stream Node #	Hydraulic Gradeline Elevation	Crown Elev.	Possible Surcharge	Ground Elev.	Super-crit.?	Manhole Depth	Loss Coef
1	2	1064.16	1065.58	N	1067.33	Y	.00	.00
2	3	1064.36	1065.47	N	1067.86	N	.00	.00
3	4	1064.10	1065.37	N	1068.11	Y	.00	.00
4	7	1060.75	1061.99	N	1063.74	Y	.00	.00
5	6	1060.38	1061.63	N	1063.49	N	.00	.00
6	7	1060.05	1061.53	N	1063.74	Y	.00	.00
7	11	1056.80	1057.91	N	1059.81	Y	.00	.00
8	9	1055.66	1057.28	N	1059.03	Y	.00	.00
9	10	1055.75	1057.17	N	1059.56	N	.00	.00
10	11	1055.55	1057.07	N	1059.81	Y	.00	.00
11	14	1051.94	1052.90	N	1054.65	Y	.00	.00
12	13	1051.56	1052.65	N	1054.40	N	.00	.00
13	14	1051.18	1052.55	N	1054.65	Y	.00	.00
14	15	1049.46	1049.95	N	1051.70	Y	.00	.00
15	16	1048.64	1049.70	N	1051.45	Y	.00	.00
16	17	1047.53	1048.09	N	1050.90	Y	.00	.00
17	18	1046.68	1047.25	N	1051.25	Y	.00	.00
18	20	1045.76	1046.60	N	1048.00	Y	.00	.00

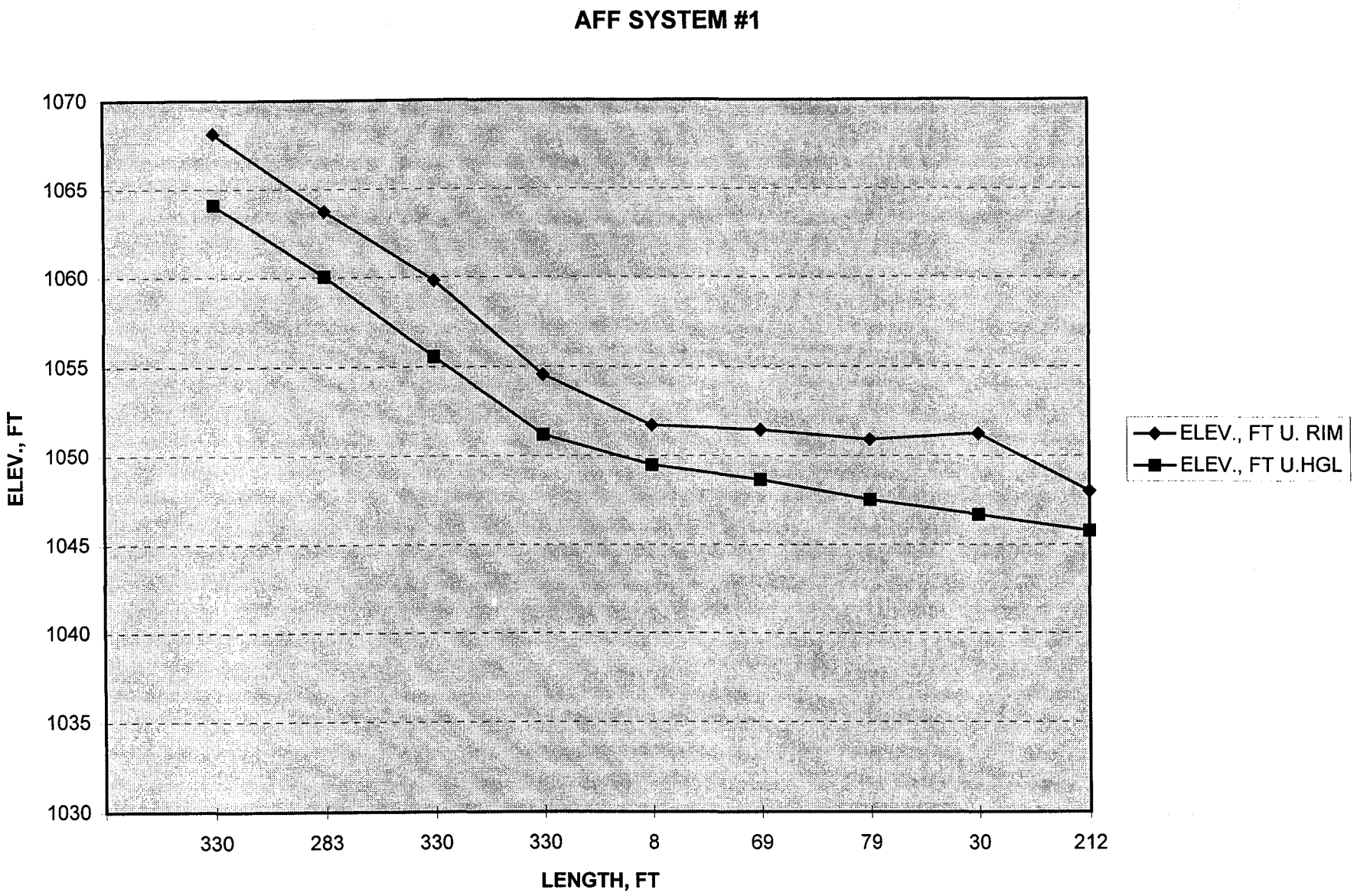
Link #	Terminal Node #	Hydraulic Gradeline Elevation	Ground Elevation	Loss Coef.
18	19	1050.12	1051.25	1.50

NORMAL END OF HYDRA

HGL SUMMARY: AGUA FRIA FREEWAY
CAMELBACK AVE TO NORTHERN AVENUE

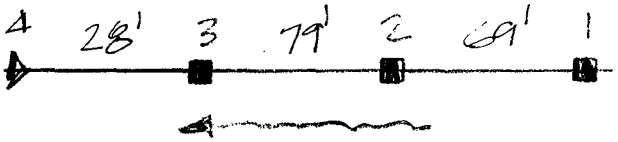
10/6/97

LINK	UPPER NODE	LOWER NODE	LENGTH ft	ELEV., FT U. RIM	ELEV., FT U.HGL	HGL SLOPE
SYSTEM #1, CAMELBACK TO STA 323+20						
3	4	7	330	1068.11	1064.10	.01227
6	7	11	283	1063.74	1060.05	.01590
10	11	14	330	1059.81	1055.55	.01324
13	14	15	330	1054.55	1051.18	.00518
14	15	16	8	1051.70	1049.47	.10375
15	16	17	69	1051.45	1048.64	.01623
16	17	18	79	1050.90	1047.52	.01063
17	18	19	30	1051.25	1046.68	.03067
18	19	END	212	1048.00	1045.76	


AFF SYSTEM #1
1070
1065
1060
1055
1050
1045
1040
1035
1030
ELEV., FT
330
283
330
330
8
69
79
30
212
LENGTH, FT
ELEV., FT U. RIM
ELEV., FT U.HGL

DMJM	PROJECT: Agua Fria Fwy	JOB NO. 6508.07	SHEET 1 of 1
		DESIGNED BY JWG	DATE 10-3-97
SUBJECT: HYDRA MODELS		CHECKED BY	DATE

SYSTEM #2 - STA 323+20 to 329+60
SAG at 325+96.28



DRAINAGE AREAS

Pavement width: 4 lanes @ 12' = 48'
+ OS @ 10'
+ IS @ 11
69'

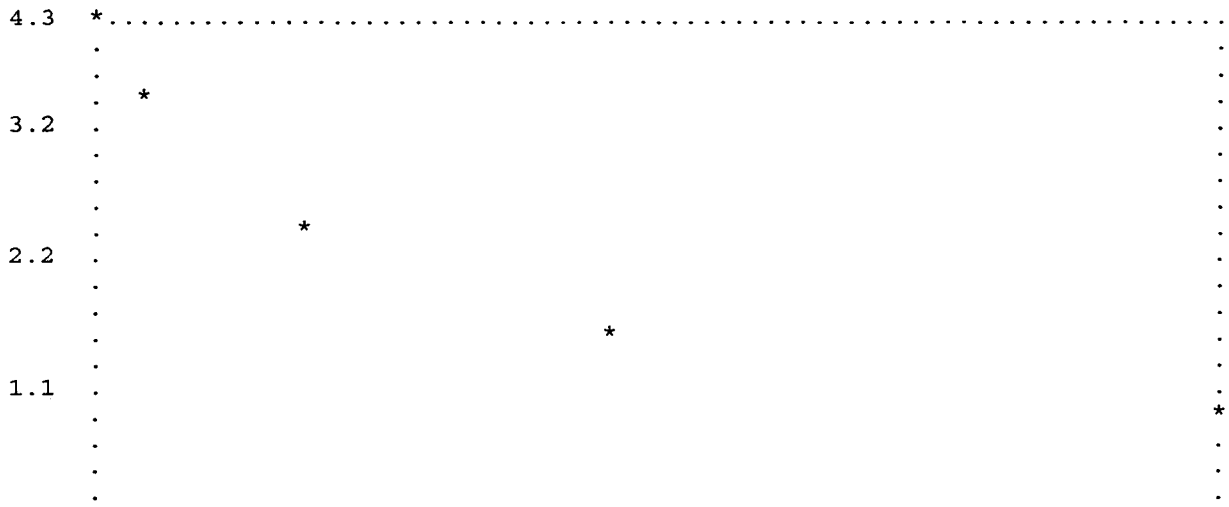
DA #11 NB = (323+20 − 329+60) x 79' (Auxiliary Lane)
= 50560/43560
= 1.161 Ac. CA = A x .95 = 1.103

DA #12 SB = (323+20 − 329+60) x 69'
= 44160/43560
= 1.014 Ac. CA = A x .95 = .963

AF FREEWAY, SYSTEM #2 SAG AT STA 325+96

```
+++ Commands Read From File C:\HYDRA\AFSYS#2.HDA
  JOB
  SWI2
  REM SITE SPECIFIC RDDF FOR 10 YEAR
  RAI10 4.3 15 3.6 30 2.4 60 1.5 120 .8
```

IDF CURVE



PLOT-DATA (TIME Vs.VALUE)

10.	4.30	120.	.80	0.	.00	0.	.00	0.	.00
15.	3.60	0.	.00	0.	.00	0.	.00	0.	.00
30.	2.40	0.	.00	0.	.00	0.	.00	0.	.00
60.	1.50	0.	.00	0.	.00	0.	.00	0.	.00

```
  REM ASSUMES A PAVEMENT SECTION OF 18 INCHES
  PDA.012 24 3.75 1.5 2 .0001
  HGL1
  NEW CBS AT SAG
  STO1.014 .95 10
  PIP69 1050.57 1050.04
+++ Tc =  10.0 min
+++ CA =   1.0
+++ Link #  1,  Flow depth =    .60 ft
  PNC1 2 3 180 0
```

AF FREEWAY, SYSTEM #2 SAG AT STA 325+96

```
  PIP79 1050.04 1050.37
+++ Tc =  10.2 min
+++ CA =   1.0
+++ Link #  2,  Flow depth =    .96 ft
  PNC2 3 3 180 0
  STO1.161 .95 10
  PIP18 1050.37 1048.3 1046.18 1045.0 -24
+++ Tc =  10.7 min
+++ CA =   2.1
+++ Link #  3,  Flow depth =    .52 ft
  PNC3 4 3 180 2
  END
 END OF INPUT DATA.
```

AF FREEWAY, SYSTEM #2 SAG AT STA 325+96

*** CBS AT SAG — Pipe Design

Link	Length (ft)	Diam (in)	Invert Up/Dn (ft)	Slope (ft/ft)	Depth Up/Dn (ft)	Min. Cover (ft)	Velocity Act/Full (ft/s)	--Flow-- Act/Full (cfs)	Estimated Cost ($)
1	69	24	1046.82	.00768	3.8	1.6	5.3	4.14	0.
			1046.29		3.8		6.9	21.53	
2	79	24	1046.29	.00137	3.8	1.6	2.8	4.11	0.
			1046.18		4.2		2.9	9.08	

Length = 148. ft Total length = 148. ft
Cost = 0. Total Cost = 0.

*** CBS AT SAG — Analysis of Existing Pipes

Link	Length (ft)	Diam (in)	Invert Up/Dn (ft)	Slope (ft/ft)	Depth Up/Dn (ft)	Cover Up/Dn (ft)	Velocity Act/Full (ft/s)	--Flow-- Act/Full (cfs)	Load (%)	-Solutions- Remove (cfs)	Diam (in)
3	18	24	1046.18	.06555	4.2	2.0	14.0	8.69	14		
			1045.00		3.3	1.1	20.0	62.92			

Length = 166. ft Total length = 166. ft

AF FREEWAY, SYSTEM #2 SAG AT STA 325+96

Hydraulic Gradeline Computations

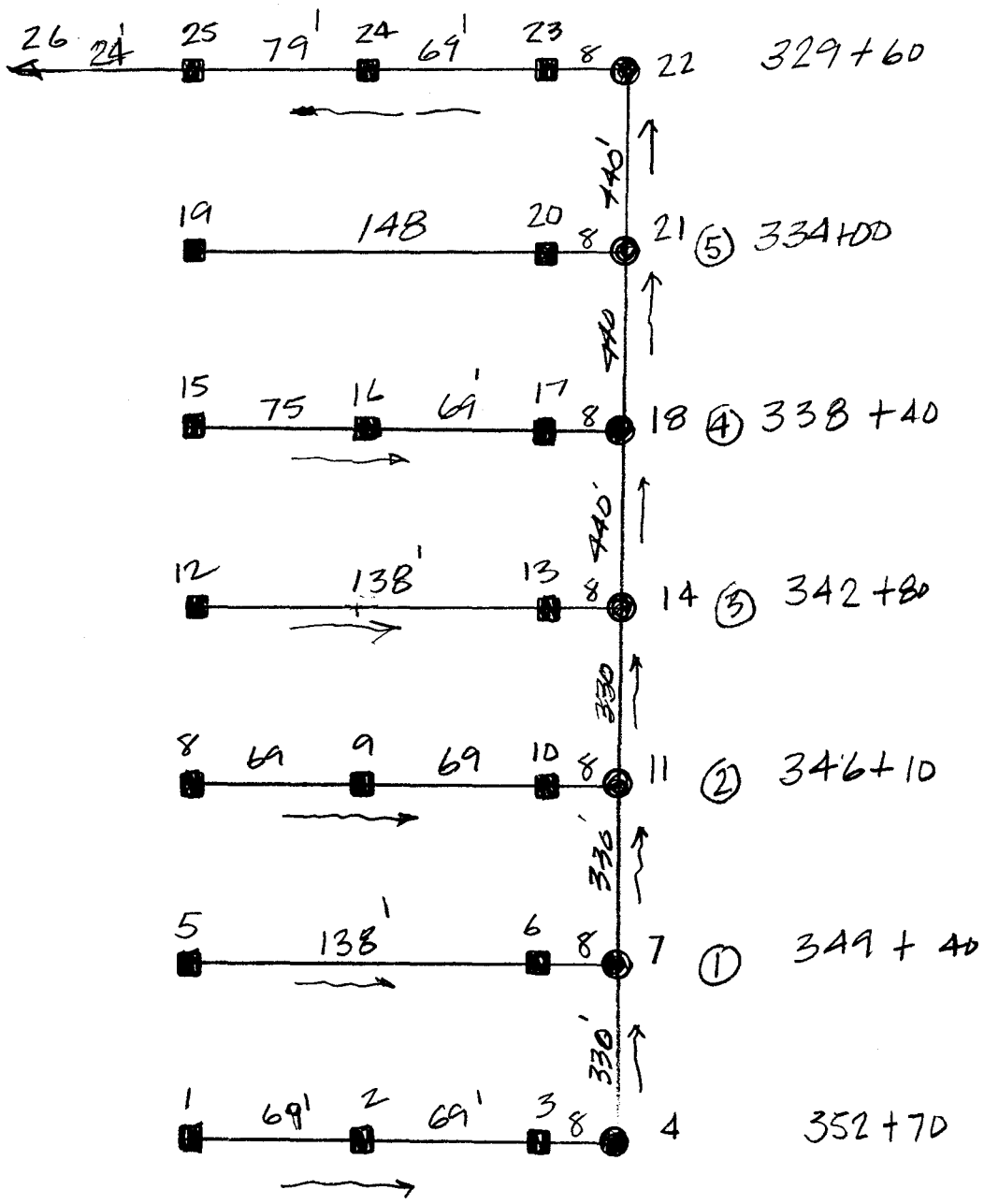
Link #	Down-stream Node #	Hydraulic Gradeline Elevation	Crown Elev.	Possible Surcharge	Ground Elev.	Super-crit.?	Manhole Depth	Loss Coef
1	2	1050.00	1048.29	Y	1050.04	Y	3.65	1.09
2	3	1049.85	1048.18	Y	1050.37	N	2.09	1.04
3	4	1045.50	1047.00	N	1048.30	Y	.00	.00

Link #	Terminal Node #	Hydraulic Gradeline Elevation	Ground Elevation	Loss Coef.
1	1	1050.70	1050.57	1.50

NORMAL END OF HYDRA

DMJM	PROJECT: Agua Fria Freeway	JOB NO. 6508.01	SHEET 1 of 1
		DESIGNED BY	DATE
SUBJECT: HYDRO MODELS		CHECKED BY	DATE

SYSTEM # 3 STA 329+60 to Grand Canal



Drainage Areas - see next sheet

AGUA FRIA FREEWAY: CAMELBACK ROAD TO NORTHERN

DRAINAGE AREA CALCULATIONS

Revised :

System #3 - STA 329+60 to Grand Canal 10/6/97

DA No.	LOC.	NOTE #	BEGIN STA.	ENDING STA.	WIDTH	SUB AREAS LENGTH	SUB AREAS WIDTH	AREA sf	AREA Ac.	C	CA
13	NB	2	32960	33400	79			34760	0.798	0.950	0.758
14	SB	1	32960	33400	69			30360	0.697	0.950	0.662
15	NB	3	33400	33840	77			33880	0.778	0.950	0.739
16	SB	1	33400	33840	69			30360	0.697	0.950	0.662
17	NB	3	33840	34280	72			31680	0.727	0.950	0.691
18	SB	1	33840	34280	69			30360	0.697	0.950	0.662
19	NB	1	34280	34610	69			22770	0.523	0.950	0.497
20	SB	1	34280	34610	69			22770	0.523	0.950	0.497
21	NB	1	34610	34940	69			22770	0.523	0.950	0.497
22	SB	1	34610	34940	69			22770	0.523	0.950	0.497
23	NB	1	34940	35270	69			22770	0.523	0.950	0.497
24	SB	1	34940	35270	69			22770	0.523	0.950	0.497
25	NB	1	35270	35870.23	69			41416	0.951	0.950	0.903
26	SB	1	35270	35870.23	69			41416	0.951	0.950	0.903

NOTES:

1 Pavement width - 4 lanes at 12' + outside shoulder at 10' + inside shoulder at 11' = 69'.

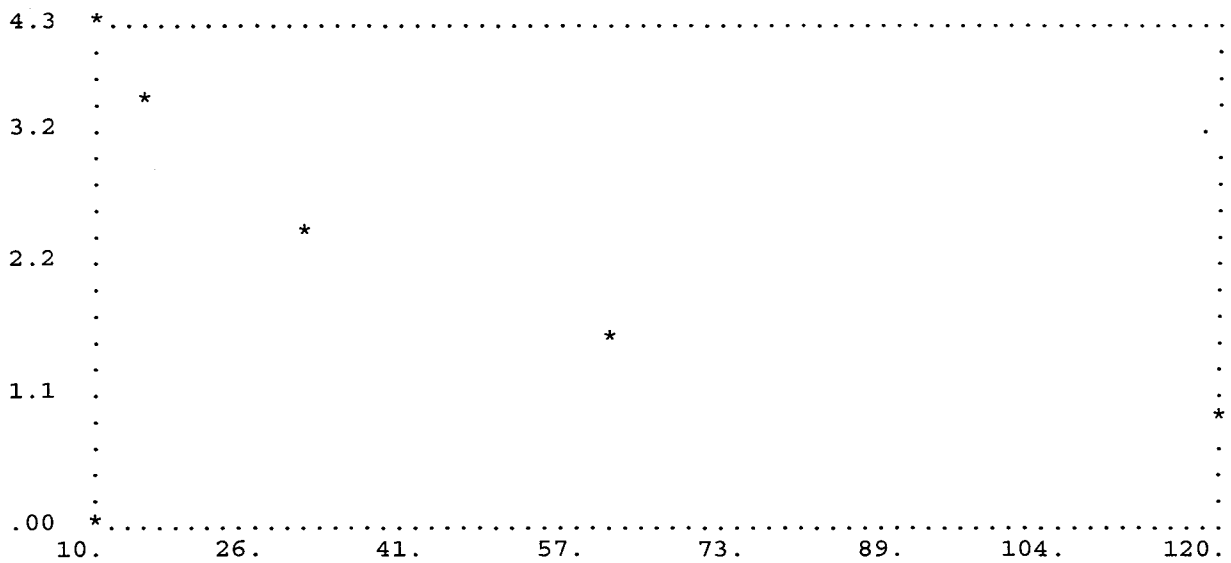
2 Includes Auxilary lane.

3 Includes Auxiliary lane taper to standard width.

AF FREEWAY, SYSTEM #3 - STA 329+60 TO GRAND CANAL

```
+++ Commands Read From File C:\HYDRA\AFSYS#3.HDA
  JOB
  SWI2
  REM SITE SPECIFIC RDDF FOR 10 YEAR
  RAI10 4.3 15 3.6 30 2.4 60 1.5 120 .8
```

IDF CURVE



PLOT-DATA (TIME Vs.VALUE)

10.	4.30	120.	.80	0.	.00	0.	.00	0.	.00
15.	3.60	0.	.00	0.	.00	0.	.00	0.	.00
30.	2.40	0.	.00	0.	.00	0.	.00	0.	.00
60.	1.50	0.	.00	0.	.00	0.	.00	0.	.00

```
  REM ASSUMES A PAVEMENT SECTION OF 18 INCHES
  PDA.012 24 3.75 1.5 2 .0001
  HGL1
  REM BEGIN AT CREST 358+70
  NEW CBS AT 352+70
  STO0.951 .95 10
  PIP69 1079.45 1078.92
+++ Tc =  10.0 min
+++ CA =    .9
+++ Link #  1,  Flow depth =    .58 ft
```

AF FREEWAY, SYSTEM #3 - STA 329+60 TO GRAND CANAL

```
  PNC1 2 3 180 0
  PIP69 1078.92 1079.45
+++ Tc =  10.2 min
+++ CA =    .9
+++ Link #  2,  Flow depth =    .88 ft
  PNC2 3 3 180 0
  STO0.951 .95 10
  PIP8 1079.45 1079.70
+++ Tc =  10.6 min
+++ CA =   1.8
+++ Link #  3,  Flow depth =    .72 ft
  PNC3 4 3 90 0
  PIP330 1079.70 1074.15
+++ Tc =  10.6 min
+++ CA =   1.8
*** WARNING:  Pipe invert at D/S end dropped to meet minimum depth
    to invert criterion at D/S end
+++ Link #  4,  Flow depth =    .72 ft
  PNC4 7 3 180 0
  HOL1
  NEW CBS AT 349+40
  STO0.523 .95 10
  PIP138 1073.90 1073.90
+++ Tc =  10.0 min
+++ CA =    .5
+++ Link #  5,  Flow depth =    .76 ft
  PNC5 6 3 180 0
  STO0.523 .95 10
  PIP8 1073.90 1074.15
+++ Tc =  11.2 min
+++ CA =   1.0
+++ Link #  6,  Flow depth =    .54 ft
  PNC6 7 3 90 0
  REC1
  PIP330 1074.15 1066.52
+++ Tc =  11.3 min
+++ CA =   2.8
*** WARNING:  Pipe invert at D/S end dropped to meet minimum depth
    to invert criterion at D/S end
+++ Link #  7,  Flow depth =    .78 ft
  PNC7 11 3 180 0
  HOL2
  NEW CBS AT 346+10
  STO0.523 .95 10
  PIP69 1066.27 1065.74
+++ Tc =  10.0 min
+++ CA =    .5
+++ Link #  8,  Flow depth =    .44 ft
  PNC8 9 3 180 0
```

AF FREEWAY, SYSTEM #3 - STA 329+60 TO GRAND CANAL

```
  PIP69 1065.74 1066.27
+++ Tc =  10.3 min
+++ CA =     .5
+++ Link #  9,  Flow depth =     .64 ft
  PNC9 10 3 180 0
  STO0.523 .95 10
  PIP8 1066.27 1066.52
+++ Tc =  10.7 min
+++ CA =   1.0
+++ Link # 10,  Flow depth =     .54 ft
  PNC10 11 3 90 0
  REC2
  PIP330 1066.52 1059.97
+++ Tc =  11.9 min
+++ CA =   3.8
*** WARNING:  Pipe invert at D/S end dropped to meet minimum depth
    to invert criterion at D/S end
+++ Link # 11,  Flow depth =     .98 ft
  PNC11 14 3 180 0
  HOL3
  NEW CBS AT 342+80
  STO0.523 .95 10
  PIP138 1059.72 1059.72
+++ Tc =  10.0 min
+++ CA =     .5
+++ Link # 12,  Flow depth =     .76 ft
  PNC12 13 3 180 0
  STO0.523 .95 10
  PIP8 1059.72 1059.97
+++ Tc =  11.2 min
+++ CA =   1.0
+++ Link # 13,  Flow depth =     .54 ft
  PNC13 14 3 90 0
  REC3
  PIP440 1059.97 1055.46 1054.76 1050.71 -36
+++ Tc =  12.4 min
+++ CA =   4.8
+++ Link # 14,  Flow depth =    1.08 ft
  PNC14 18 3 180 0
  HOL4
  NEW CBS AT 338+40
  STO0.727 .95 10
  PIP75 1055.09 1054.68
+++ Tc =  10.0 min
+++ CA =     .7
+++ Link # 15,  Flow depth =     .56 ft
  PNC15 16 3 180 0
  PIP69 1054.68 1055.21
+++ Tc =  10.3 min
+++ CA =     .7
```

AF FREEWAY, SYSTEM #3 - STA 329+60 TO GRAND CANAL

```
+++ Link # 16,  Flow depth =    .76 ft
  PNC16 17 3 180 0
  STO0.697 .95 10
  PIP8 1055.21 1055.46
+++ Tc =  10.7 min
+++ CA =   1.4
+++ Link # 17,  Flow depth =    .62 ft
  PNC17 18 3 90 0
  REC4
  PIP440 1055.46 1053.69 1049.75 1048.98 -36
+++ Tc =  13.3 min
+++ CA =   6.1
+++ Link # 18,  Flow depth =   2.01 ft
  PNC18 21 3 180 0
  HOL5
  NEW CBS AT 334+00
  STO0.777 .95 10
  PIP148 1053.24 1053.44
+++ Tc =  10.0 min
+++ CA =    .7
+++ Link # 19,  Flow depth =    .96 ft
  PNC19 20 3 180 0
  STO0.697 .95 10
  PIP8 1053.44 1053.69
+++ Tc =  11.2 min
+++ CA =   1.4
+++ Link # 20,  Flow depth =    .64 ft
  PNC20 21 3 90 0
  REC5
  PIP440 1053.69 1051.93 1048.23 1047.20 -36
+++ Tc =  14.9 min
+++ CA =   7.5
+++ Link # 21,  Flow depth =   2.01 ft
  PNC21 22 3 180 0
  REM CBS AT 329+60
  PIP8 1051.93 1051.68 1045.90 1045.86 -36
+++ Tc =  16.2 min
+++ CA =   7.5
+++ Link # 22,  Flow depth =   1.53 ft
  PNC22 23 3 180 0
  STO0.697 .95 10
  PIP69 1051.68 1051.15 1045.86 1045.72 -36
+++ Tc =  16.2 min
+++ CA =   8.2
+++ Link # 23,  Flow depth =   2.19 ft
  PNC23 24 3 180 0
  PIP79 1051.15 1051.48 1045.72 1045.56 -36
+++ Tc =  16.4 min
+++ CA =   8.2
```

AF FREEWAY, SYSTEM #3 - STA 329+60 TO GRAND CANAL

```
+++ Link # 24,  Flow depth =   2.19 ft
  PNC24 25 3 180 0
  STO0.798 .95 10
  PIP24 1051.48 1049 1045.56 1045.50 -36
+++ Tc =  16.7 min
+++ CA =   9.0
+++ Link # 25,  Flow depth =   2.16 ft
  PNC25 26 3 180 2
  END
 END OF INPUT DATA.
```

AF FREEWAY, SYSTEM #3 - STA 329+60 TO GRAND CANAL

*** CBS AT 352+70 Pipe Design

Link	Length (ft)	Diam (in)	Invert Up/Dn (ft)	Slope (ft/ft)	Depth Up/Dn (ft)	Min. Cover (ft)	Velocity Act/Full (ft/s)	--Flow-- Act/Full (cfs)	Estimated Cost ($)
1	69	24	1075.70	.00768	3.8	1.6	5.2	3.88	0.
			1075.17		3.8		6.9	21.54	
2	69	24	1075.17	.00155	3.8	1.6	2.9	3.86	0.
			1075.06		4.4		3.1	9.67	
3	8	24	1075.06	.01260	4.4	2.2	7.5	7.61	0.
			1074.96		4.7		8.8	27.59	
4	330	24	1074.96	.01383	4.7	1.6	7.7	7.61	0.
			1070.40		3.8		9.2	28.89	

Length = 476. ft Total length = 476. ft
Cost = 0. Total Cost = 0.

*** CBS AT 349+40 Pipe Design

Link	Length (ft)	Diam (in)	Invert Up/Dn (ft)	Slope (ft/ft)	Depth Up/Dn (ft)	Min. Cover (ft)	Velocity Act/Full (ft/s)	--Flow-- Act/Full (cfs)	Estimated Cost ($)
5	138	24	1070.15	.00082	3.8	1.6	2.0	2.14	0.
			1070.04		3.9		2.2	7.06	
6	8	24	1070.04	.01260	3.9	1.7	6.3	4.11	0.
			1069.94		4.2		8.8	27.59	
7	330	24	1069.94	.02171	4.2	1.6	10.2	11.52	0.
			1062.77		3.8		11.5	36.21	

Length = 476. ft Total length = 952. ft
Cost = 0. Total Cost = 0.

AF FREEWAY, SYSTEM #3 - STA 329+60 TO GRAND CANAL

*** CBS AT 346+10 Pipe Design

Link	Length (ft)	Diam (in)	Invert Up/Dn (ft)	Slope (ft/ft)	Depth Up/Dn (ft)	Min. Cover (ft)	Velocity Act/Full (ft/s)	--Flow-- Act/Full (cfs)	Estimated Cost ($)
8	69	24	1062.52	.00768	3.8	1.6	4.4	2.14	0.
			1061.99		3.8		6.9	21.53	
9	69	24	1061.99	.00155	3.8	1.6	2.5	2.12	0.
			1061.88		4.4		3.1	9.67	
10	8	24	1061.88	.01260	4.4	2.2	6.3	4.17	0.
			1061.78		4.7		8.8	27.59	
11	330	24	1061.78	.01686	4.7	1.6	10.0	15.32	0.
			1056.22		3.8		10.2	31.90	

Length = 476. ft Total length = 1428. ft
Cost = 0. Total Cost = 0.

*** CBS AT 342+80 Pipe Design

Link	Length (ft)	Diam (in)	Invert Up/Dn (ft)	Slope (ft/ft)	Depth Up/Dn (ft)	Min. Cover (ft)	Velocity Act/Full (ft/s)	--Flow-- Act/Full (cfs)	Estimated Cost ($)
12	138	24	1055.97	.00082	3.8	1.6	2.0	2.14	0.
			1055.86		3.9		2.2	7.06	
13	8	24	1055.86	.01260	3.9	1.7	6.3	4.11	0.
			1055.76		4.2		8.8	27.59	

Length = 146. ft Total length = 146. ft
Cost = 0. Total Cost = 0.

AF FREEWAY, SYSTEM #3 - STA 329+60 TO GRAND CANAL

*** CBS AT 342+80 Analysis of Existing Pipes

Link	Length (ft)	Diam (in)	Invert Up/Dn (ft)	Slope (ft/ft)	Depth Up/Dn (ft)	Cover Up/Dn (ft)	Velocity Act/Full (ft/s)	--Flow-- Act/Full (cfs)	Load (%)	-Solutions- Remove (cfs)	Diam (in)
14	440	36	1054.76	.00920	5.2	2.0	8.4	18.96	27		
			1050.71		4.8	1.5	9.8	69.51			

Length = 586. ft Total length = 2014. ft

*** CBS AT 338+40 Pipe Design

Link	Length (ft)	Diam (in)	Invert Up/Dn (ft)	Slope (ft/ft)	Depth Up/Dn (ft)	Min. Cover (ft)	Velocity Act/Full (ft/s)	--Flow-- Act/Full (cfs)	Estimated Cost ($)
15	75	24	1051.34	.00547	3.8	1.6	4.3	2.97	0.
			1050.93		3.8		5.8	18.17	
16	69	24	1050.93	.00155	3.8	1.6	2.7	2.94	0.
			1050.82		4.4		3.1	9.67	
17	8	24	1050.82	.01260	4.4	2.2	6.9	5.68	0.
			1050.72		4.7		8.8	27.59	

Length = 152. ft Total length = 152. ft
Cost = 0. Total Cost = 0.

AF FREEWAY, SYSTEM #3 - STA 329+60 TO GRAND CANAL

*** CBS AT 338+40 Analysis of Existing Pipes

Link	Length (ft)	Diam (in)	Invert Up/Dn (ft)	Slope (ft/ft)	Depth Up/Dn (ft)	Cover Up/Dn (ft)	Velocity Act/Full (ft/s)	--Flow-- Act/Full (cfs)	Load (%)	-Solutions- Remove (cfs)	Diam (in)
18	440	36	1049.75	.00175	5.7	2.5	4.7	23.56	78		
			1048.98		4.7	1.5	4.3	30.31			

Length = 592. ft Total length = 2606. ft

*** CBS AT 334+00 Pipe Design

Link	Length (ft)	Diam (in)	Invert Up/Dn (ft)	Slope (ft/ft)	Depth Up/Dn (ft)	Min. Cover (ft)	Velocity Act/Full (ft/s)	--Flow-- Act/Full (cfs)	Estimated Cost ($)
19	148	24	1049.49	.00078	3.8	1.6	2.1	3.17	0.
			1049.38		4.1		2.2	6.84	
20	8	24	1049.38	.01260	4.1	1.9	6.9	5.79	0.
			1049.27		4.4		8.8	27.59	

Length = 156. ft Total length = 156. ft
Cost = 0. Total Cost = 0.

*** CBS AT 334+00 Analysis of Existing Pipes

Link	Length (ft)	Diam (in)	Invert Up/Dn (ft)	Slope (ft/ft)	Depth Up/Dn (ft)	Cover Up/Dn (ft)	Velocity Act/Full (ft/s)	--Flow-- Act/Full (cfs)	Load (%)	-Solutions- Remove (cfs)	Diam (in)
21	440	36	1048.23	.00234	5.5	2.2	5.5	27.30	78		
			1047.20		4.7	1.5	5.0	35.05			

Length = 596. ft Total length = 3202. ft

AF FREEWAY, SYSTEM #3 - STA 329+60 TO GRAND CANAL

*** CBS AT 334+00 Analysis of Existing Pipes

Link	Length (ft)	Diam (in)	Invert Up/Dn (ft)	Slope (ft/ft)	Depth Up/Dn (ft)	Cover Up/Dn (ft)	Velocity Act/Full (ft/s)	--Flow-- Act/Full (cfs)	Load (%)	-Solutions- Remove (cfs)	Diam (in)
22	8	36	1045.90	.00499	6.0	2.8	7.3	26.43	52		
			1045.86		5.8	2.6	7.2	51.18			
23	69	36	1045.86	.00203	5.8	2.6	5.2	28.74	88		
			1045.72		5.4	2.2	4.6	32.65			
24	79	36	1045.72	.00202	5.4	2.2	5.2	28.59	88		
			1045.56		5.9	2.7	4.6	32.60			
25	24	36	1045.56	.00250	5.9	2.7	5.8	31.05	86		
			1045.50		3.5	.3	5.1	36.24			

Length = 776. ft Total length = 3382. ft

AF FREEWAY, SYSTEM #3 - STA 329+60 TO GRAND CANAL

Hydraulic Gradeline Computations

Link #	Down-stream Node #	Hydraulic Gradeline Elevation	Crown Elev.	Possible Surcharge	Ground Elev.	Super-crit.?	Manhole Depth	Loss Coef
1	2	1077.70	1077.17	Y	1078.92	Y	2.46	1.09
2	3	1077.55	1077.06	Y	1079.45	N	2.02	1.05
3	4	1076.61	1076.96	N	1079.70	Y	1.18	1.02
4	7	1072.35	1072.40	N	1074.15	Y	1.59	1.01
5	6	1073.04	1072.04	Y	1073.90	N	2.66	1.10
6	7	1072.35	1071.94	Y	1074.15	Y	1.59	1.01
7	11	1063.55	1064.77	N	1066.52	Y	1.76	1.00
8	9	1062.42	1063.99	N	1065.74	Y	.00	.00
9	10	1065.03	1063.88	Y	1066.27	N	2.80	1.11
10	11	1064.33	1063.78	Y	1066.52	Y	1.76	1.00
11	14	1057.20	1058.22	N	1059.97	Y	1.92	1.57
12	13	1057.32	1057.86	N	1059.72	N	1.15	1.02
13	14	1056.68	1057.76	N	1059.97	Y	1.92	1.57
14	18	1051.91	1053.71	N	1055.46	Y	2.16	1.01
15	16	1051.48	1052.93	N	1054.68	Y	.00	.00
16	17	1052.69	1052.82	N	1055.21	N	1.49	1.04
17	18	1051.91	1052.72	N	1055.46	Y	2.16	1.01
18	21	1050.97	1051.98	N	1053.69	N	2.23	1.01
19	20	1051.25	1051.38	N	1053.44	N	1.48	1.05
20	21	1050.46	1051.27	N	1053.69	Y	2.23	1.01
21	22	1049.58	1050.20	N	1051.93	N	3.68	1.03
22	23	1049.14	1048.86	Y	1051.68	Y	3.07	1.03
23	24	1048.68	1048.72	N	1051.15	N	2.75	1.02
24	25	1048.22	1048.56	N	1051.48	N	2.40	1.02
25	26	1047.64	1048.50	N	1049.00	N	.00	.00

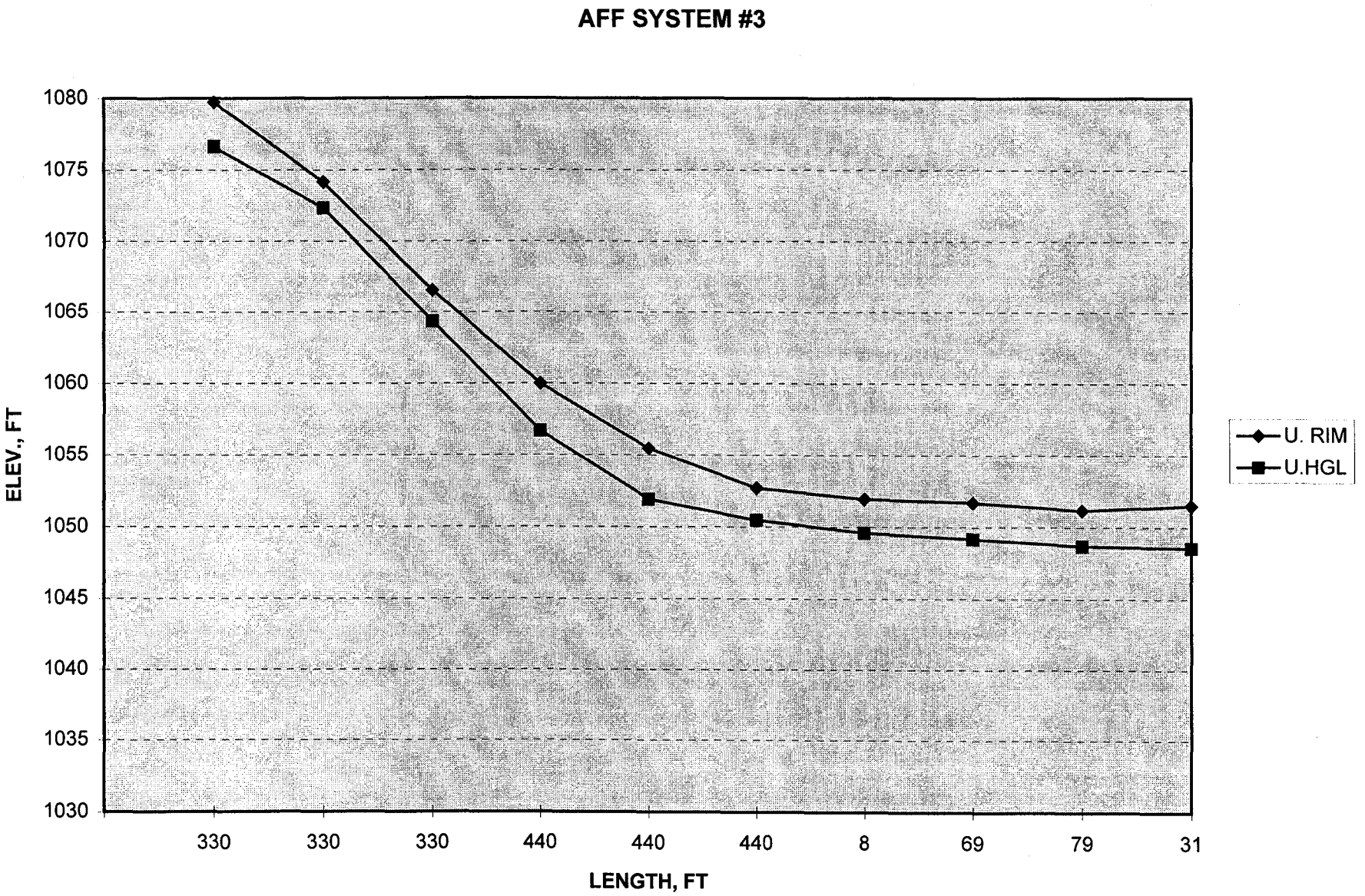
Link #	Terminal Node #	Hydraulic Gradeline Elevation	Ground Elevation	Loss Coef.
1	1	1078.38	1079.45	1.50

NORMAL END OF HYDRA

HGL SUMMARY: AGUA FRIA FREEWAY
CAMELBACK AVE TO NORTHERN AVENUE

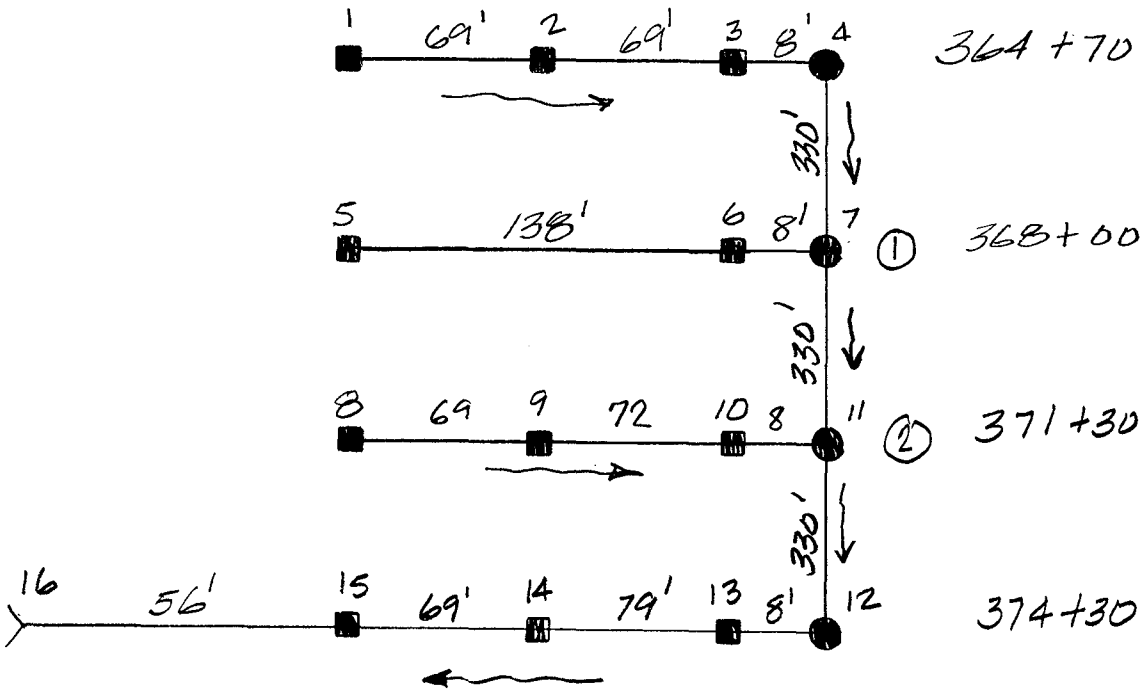
10/6/97

LINK	UPPER NODE	LOWER NODE	LENGTH ft	ELEV., FT U. RIM	ELEV., FT U.HGL	HGL SLOPE
SYSTEM #3, STA 329+60 TO GRAND CANAL						
3	4	7	330	1079.70	1076.61	.01291
6	7	11	330	1074.15	1072.35	.02430
10	11	14	330	1066.52	1064.33	.02318
13	14	18	440	1059.97	1056.68	.01084
17	18	21	440	1055.46	1051.91	.00330
20	21	22	440	1052.69	1050.46	.00200
21	22	23	8	1051.93	1049.58	.05500
22	23	24	69	1051.68	1049.14	.00667
23	24	25	79	1051.15	1048.68	.00165
24	25	26	31	1051.48	1048.55	.02935
25	26	END		1049.00	1047.64	


AFF SYSTEM #3
ELEV., FT
1080
1075
1070
1065
1060
1055
1050
1045
1040
1035
1030
330
330
330
440
440
440
8
69
79
31
LENGTH, FT
U. RIM
U.HGL

DMJM	PROJECT: Agua Fria Freeway	JOB NO. 6508.01	SHEET 1 of
		DESIGNED BY JWE	DATE 10/6/97
SUBJECT: HYDRA MODELS		CHECKED BY	DATE

SYSTEM # 4 GRAND CANAL to STA 374+60



Drainage Areas - See next sheet

AGUA FRIA FREEWAY: CAMELBACK ROAD TO NORTHERN

DRAINAGE AREA CALCULATIONS

Revised :

System #4 - Grand Canal to STA 374+60 10/6/97

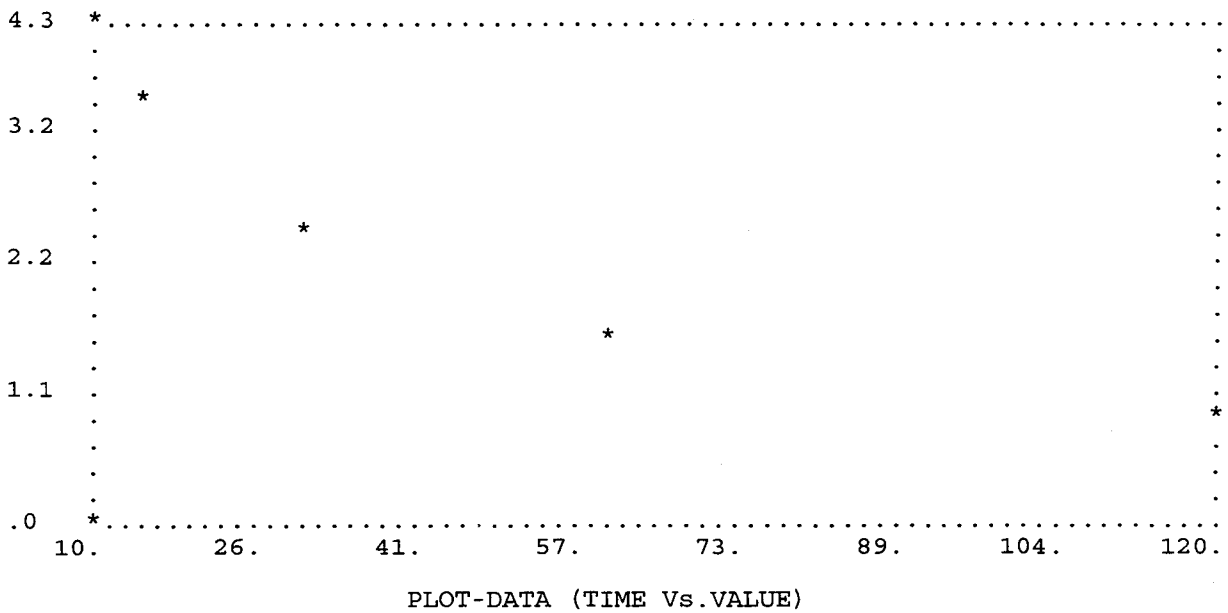
DA No.	LOC.	NOTE	BEGIN	ENDING	WIDTH	SUB AREAS		AREA	AREA	C	CA
		#	STA.	STA.		LENGTH	WIDTH	sf	Ac.		
27	NB	1	35870.23	36470	69			41384	0.950	0.950	0.903
28	SB	1	35870.23	36470	69			41384	0.950	0.950	0.903
29	NB	1	36470	36800	69			22770	0.523	0.950	0.497
30	SB	1	36470	36800	69			22770	0.523	0.950	0.497
31	NB	1	36800	37130	69			22770	0.523	0.950	0.497
32	SB	2	36800	37130	70.5			23265	0.534	0.950	0.507
33	NB	1	37130	37460	69			22770	0.523	0.950	0.497
34	SB	2	37130	37460	75.5			24915	0.572	0.950	0.543
										0.950	0.000
										0.950	0.000

NOTES:
1 Pavement width - 4 lanes at 12' + outside shoulder at 10' + inside shoulder at 11' = 69'.
2 Includes ramps and ramp tapers.

AF FREEWAY, SYSTEM #4 GRAND CANAL TO STA 374+60

```
+++ Commands Read From File C:\HYDRA\AFSYS#4.HDA
  JOB
  SWI2
  REM SITE SPECIFIC RDDF FOR 10 YEAR
  RAI10 4.3 15 3.6 30 2.4 60 1.5 120 .8
```

IDF CURVE



PLOT-DATA (TIME Vs.VALUE)

10.	4.30	120.	.80	0.	.00	0.	.00	0.	.00
15.	3.60	0.	.00	0.	.00	0.	.00	0.	.00
30.	2.40	0.	.00	0.	.00	0.	.00	0.	.00
60.	1.50	0.	.00	0.	.00	0.	.00	0.	.00

```
  REM ASSUMES A PAVEMENT SECTION OF 18 INCHES
  PDA.012 24 3.75 1.5 2 .0001
  HGL1
  REM DRAINAGE BEGINS 358+70.23 CREST
  NEW CBS AT 364+70
  STO0.950 .95 10
  PIP69 1079.45 1078.93
+++ Tc =  10.0 min
+++ CA =    .9
+++ Link #  1,  Flow depth =    .58 ft
```

AF FREEWAY, SYSTEM #4 GRAND CANAL TO STA 374+60

```
  PNC1 2 3 180 0
  PIP69 1078.93 1079.45
+++ Tc =  10.2 min
+++ CA =    .9
+++ Link #  2,  Flow depth =    .88 ft
  PNC2 3 3 180 0
  STO0.950 .95 10
  PIP8 1079.45 1079.70
+++ Tc =  10.6 min
+++ CA =   1.8
+++ Link #  3,  Flow depth =    .72 ft
  PNC3 4 3 90 0
  PIP330 1079.70 1074.16
+++ Tc =  10.6 min
+++ CA =   1.8
*** WARNING:  Pipe invert at D/S end dropped to meet minimum depth
    to invert criterion at D/S end
+++ Link #  4,  Flow depth =    .72 ft
  PNC4 7 3 180 0
  HOL1
  NEW CBS AT 368+00
  STO0.523 .95 10
  PIP138 1073.91 1073.91
+++ Tc =  10.0 min
+++ CA =    .5
+++ Link #  5,  Flow depth =    .76 ft
  PNC5 6 3 180 0
  STO0.523 .95 10
  PIP8 1073.91 1074.16
+++ Tc =  11.2 min
+++ CA =   1.0
+++ Link #  6,  Flow depth =    .54 ft
  PNC6 7 3 90 0
  REC1
  PIP330 1074.16 1067.76
+++ Tc =  11.3 min
+++ CA =   2.8
*** WARNING:  Pipe invert at D/S end dropped to meet minimum depth
    to invert criterion at D/S end
+++ Link #  7,  Flow depth =    .82 ft
  PNC7 11 3 180 0
  HOL2
  NEW CBS AT 371+30
  STO0.523 .95 10
  PIP69 1067.57 1067.04
+++ Tc =  10.0 min
+++ CA =    .5
+++ Link #  8,  Flow depth =    .44 ft
  PNC8 9 3 180 0
```

AF FREEWAY, SYSTEM #4 GRAND CANAL TO STA 374+60

```
  PIP72 1067.04 1067.51
+++ Tc =  10.3 min
+++ CA =    .5
+++ Link #  9,  Flow depth =    .66 ft
  PNC9 10 3 180 0
  STO0.534 .95 10
  PIP8 1067.51 1067.76
+++ Tc =  10.8 min
+++ CA =   1.0
+++ Link # 10,  Flow depth =    .54 ft
  PNC10 11 3 90 0
  REC2
  PIP330 1067.76 1063.94
+++ Tc =  11.9 min
+++ CA =   3.8
*** WARNING:  Pipe invert at D/S end dropped to meet minimum depth
    to invert criterion at D/S end
+++ Link # 11,  Flow depth =   1.20 ft
  PNC11 12 3 90 0
  REM CBS AT 374+60
  PIP8 1063.94 1063.69 1051.15 1051.05 -30
+++ Tc =  12.6 min
+++ CA =   3.8
+++ Link # 12,  Flow depth =    .95 ft
  PNC12 13 3 180 0
  STO0.572 .95 10
  PIP79 1063.69 1063.36 1051.05 1050.89 -30
+++ Tc =  12.6 min
+++ CA =   4.3
+++ Link # 13,  Flow depth =   1.77 ft
  PNC13 14 3 180 0
  PIP69 1063.36 1063.89 1050.89 1050.75 -30
+++ Tc =  12.9 min
+++ CA =   4.3
+++ Link # 14,  Flow depth =   1.77 ft
  PNC14 15 3 180 0
  STO0.523 .95 10
  PIP56 1063.89 1061.1 1050.75 1050.50 -30
+++ Tc =  13.2 min
+++ CA =   4.8
+++ Link # 15,  Flow depth =   1.45 ft
  PNC15 16 3 180 2
  END
 END OF INPUT DATA.
```

AF FREEWAY, SYSTEM #4 GRAND CANAL TO STA 374+60

*** CBS AT 364+70 Pipe Design

Link	Length (ft)	Diam (in)	Invert Up/Dn (ft)	Slope (ft/ft)	Depth Up/Dn (ft)	Min. Cover (ft)	Velocity Act/Full (ft/s)	--Flow-- Act/Full (cfs)	Estimated Cost ($)
1	69	24	1075.70	.00754	3.8	1.6	5.2	3.88	0.
			1075.18		3.8		6.8	21.33	
2	69	24	1075.18	.00155	3.8	1.6	2.9	3.85	0.
			1075.07		4.4		3.1	9.67	
3	8	24	1075.07	.01260	4.4	2.2	7.5	7.61	0.
			1074.97		4.7		8.8	27.59	
4	330	24	1074.97	.01383	4.7	1.6	7.7	7.60	0.
			1070.41		3.8		9.2	28.89	

Length = 476. ft Total length = 476. ft
Cost = 0. Total Cost = 0.

*** CBS AT 368+00 Pipe Design

Link	Length (ft)	Diam (in)	Invert Up/Dn (ft)	Slope (ft/ft)	Depth Up/Dn (ft)	Min. Cover (ft)	Velocity Act/Full (ft/s)	--Flow-- Act/Full (cfs)	Estimated Cost ($)
5	138	24	1070.16	.00082	3.8	1.6	2.0	2.14	0.
			1070.05		3.9		2.2	7.06	
6	8	24	1070.05	.01260	3.9	1.7	6.3	4.11	0.
			1069.95		4.2		8.8	27.59	
7	330	24	1069.95	.01799	4.2	1.6	9.6	11.51	0.
			1064.01		3.8		10.5	32.96	

Length = 476. ft Total length = 952. ft
Cost = 0. Total Cost = 0.

AF FREEWAY, SYSTEM #4 GRAND CANAL TO STA 374+60

*** CBS AT 371+30 Pipe Design

Link	Length (ft)	Diam (in)	Invert Up/Dn (ft)	Slope (ft/ft)	Depth Up/Dn (ft)	Min. Cover (ft)	Velocity Act/Full (ft/s)	--Flow-- Act/Full (cfs)	Estimated Cost ($)
8	69	24	1063.82	.00768	3.8	1.6	4.4	2.14	0.
			1063.29		3.8		6.9	21.53	
9	72	24	1063.29	.00149	3.8	1.6	2.4	2.12	0.
			1063.18		4.3		3.0	9.48	
10	8	24	1063.18	.01260	4.3	2.2	6.3	4.21	0.
			1063.08		4.7		8.8	27.59	
11	330	24	1063.08	.00876	4.7	1.6	7.8	15.33	0.
			1060.19		3.8		7.3	23.00	

Length = 479. ft Total length = 1431. ft
Cost = 0. Total Cost = 0.

*** CBS AT 371+30 Analysis of Existing Pipes

Link	Length (ft)	Diam (in)	Invert Up/Dn (ft)	Slope (ft/ft)	Depth Up/Dn (ft)	Cover Up/Dn (ft)	Velocity Act/Full (ft/s)	--Flow-- Act/Full (cfs)	Load (%)	-Solutions- Remove (cfs)	Diam (in)
12	8	30	1051.15	.01250	12.8	10.1	8.9	14.96	30		
			1051.05		12.6	9.9	10.1	49.81			
13	79	30	1051.05	.00203	12.6	9.9	4.6	17.08	85		
			1050.89		12.5	9.8	4.1	20.05			
14	69	30	1050.89	.00203	12.5	9.8	4.6	16.91	84		
			1050.75		13.1	10.4	4.1	20.07			
15	56	30	1050.75	.00446	13.1	10.4	6.4	18.67	63		
			1050.50		10.6	7.9	6.1	29.77			

Length = 691. ft Total length = 1643. ft

AF FREEWAY, SYSTEM #4 GRAND CANAL TO STA 374+60

Hydraulic Gradeline Computations

Link #	Down-stream Node #	Hydraulic Gradeline Elevation	Crown Elev.	Possible Surcharge	Ground Elev.	Super-crit.?	Manhole Depth	Loss Coef
1	2	1077.71	1077.18	Y	1078.93	Y	2.46	1.09
2	3	1077.55	1077.07	Y	1079.45	N	2.02	1.05
3	4	1076.62	1076.97	N	1079.70	Y	1.18	1.02
4	7	1072.19	1072.41	N	1074.16	Y	1.53	1.00
5	6	1072.87	1072.05	Y	1073.91	N	2.49	1.09
6	7	1072.19	1071.95	Y	1074.16	Y	1.53	1.00
7	11	1064.82	1066.01	N	1067.76	Y	1.67	1.00
8	9	1063.72	1065.29	N	1067.04	Y	.00	.00
9	10	1065.92	1065.18	Y	1067.51	N	2.40	1.09
10	11	1065.23	1065.08	Y	1067.76	Y	1.67	1.00
11	12	1061.38	1062.19	N	1063.94	Y	2.63	.35
12	13	1053.56	1053.55	Y	1063.69	Y	2.34	1.03
13	14	1053.19	1053.39	N	1063.36	N	2.14	1.02
14	15	1052.83	1053.25	N	1063.89	N	1.76	1.02
15	16	1051.94	1053.00	N	1061.10	Y	.00	.00

Link #	Terminal Node #	Hydraulic Gradeline Elevation	Ground Elevation	Loss Coef.
1	1	1078.38	1079.45	1.50

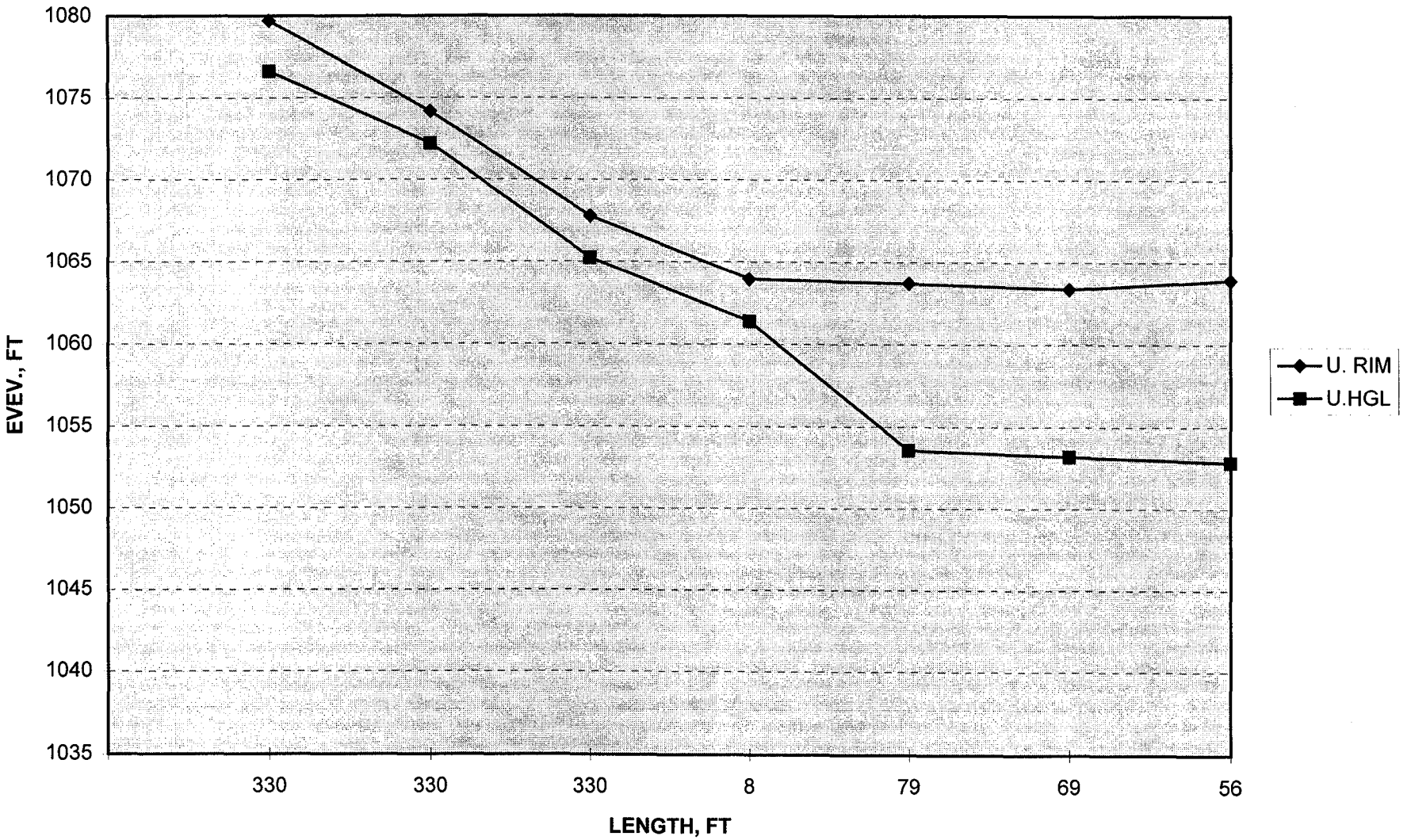
NORMAL END OF HYDRA

HGL SUMMARY: AGUA FRIA FREEWAY
CAMELBACK AVE TO NORTHERN AVENUE

11/11/97

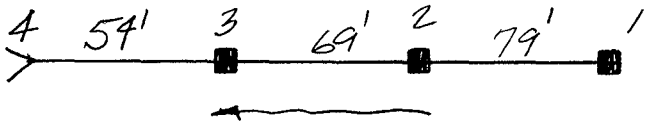
LINK	UPPER NODE	LOWER NODE	LENGTH ft	ELEV., FT U. RIM	ELEV., FT U.HGL	HGL SLOPE
SYSTEM #4, GRAND CANAL TO STA 374+60						
3	4	7	330	1079.70	1076.62	.01342
6	7	11	330	1074.16	1072.19	.02109
10	11	12	330	1067.76	1065.23	.01167
11	12	13	8	1063.94	1061.38	.97750
12	13	14	79	1063.69	1053.56	.00468
13	14	15	69	1063.36	1053.19	.00522
14	15	16	56	1063.89	1052.83	.01589
15	16	END		1061.10	1051.94	

AFF SYSTEM #4


1080
1075
1070
1065
1060
1055
1050
1045
1040
1035
EVEV., FT
330
330
330
8
79
69
56
LENGTH, FT
U. RIM
U.HGL

DMJM	PROJECT: Agua Fria Freeway	JOB NO. 6508.07	SHEET 1 of
		DESIGNED BY JNG	DATE 10/6/97
SUBJECT: HYDRA MODELS		CHECKED BY	DATE

SYSTEM #5 STA 374+60 to STA 379+25
Sag at STA 376+66



Drainage Area

DA #35

$A = (37925 - 37460) \times 69$

$= 32085$ SF / 43560 SF/AC

DA = 0.737 Ac

Pavement Width NB

4 lanes @ 12' = 48'
OS Shoulder = 10'
IS Shoulder = 11'
69'

CA = DA x .95 = .700

DA #36

Pavement Width SB
Include Auxiliary Lane

DA = (37925 - 37460) x 79

DA = 36735/43560 =

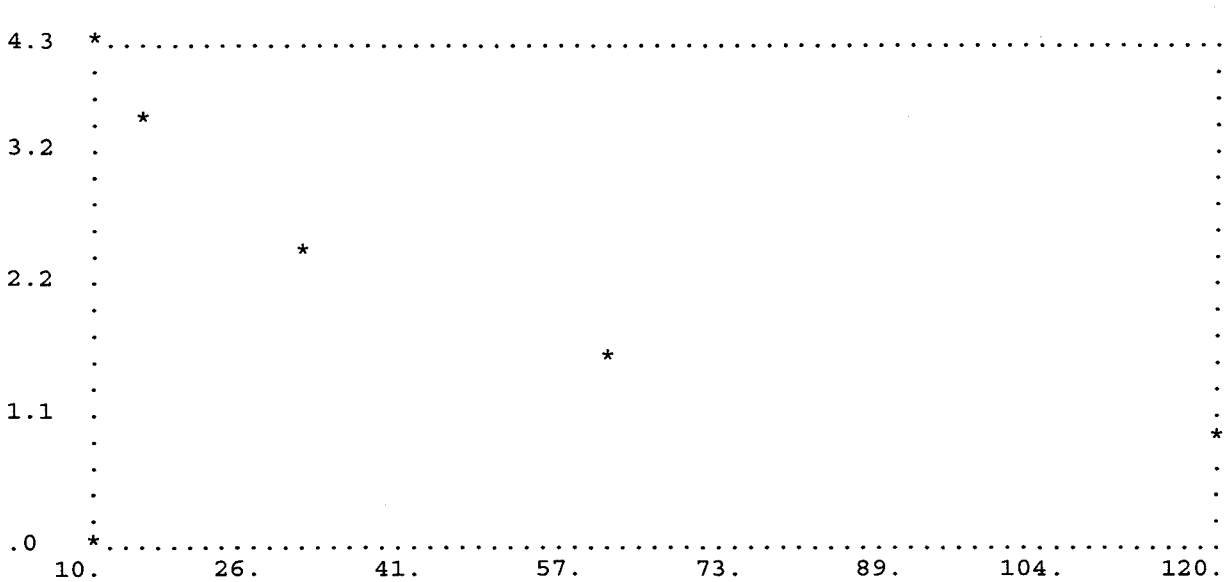
DA = 0.843 Ac

CA = DA x .95 = .801

AF FREEWAY, SYSTEM #5 SAG AT 376+66

```
+++ Commands Read From File C:\HYDRA\AFSYS#5.HDA
  JOB
  SWI2
  REM SITE SPECIFIC RDDF FOR 10 YEAR
  RAI10 4.3 15 3.6 30 2.4 60 1.5 120 .8
```

IDF CURVE



PLOT-DATA (TIME Vs.VALUE)

10.	4.30	120.	.80	0.	.00	0.	.00	0.	.00
15.	3.60	0.	.00	0.	.00	0.	.00	0.	.00
30.	2.40	0.	.00	0.	.00	0.	.00	0.	.00
60.	1.50	0.	.00	0.	.00	0.	.00	0.	.00

```
  REM ASSUMES A PAVEMENT SECTION OF 18 INCHES
  PDA.012 24 3.75 1.5 2 .0001
  HGL1
  NEW CBS AT SAG
  STO0.843 .95 10
  PIP79 1063.04 1062.72
+++ Tc =  10.0 min
+++ CA =    .8
+++ Link #  1,  Flow depth =    .64 ft
  PNC1 2 3 180 0
```

AF FREEWAY, SYSTEM #5 SAG AT 376+66

```
  PIP69 1062.72 1063.24
+++ Tc =  10.3 min
+++ CA =     .8
+++ Link #  2,  Flow depth =     .84 ft
  PNC2 3 3 180 0
  STO0.737 .95 10
  PIP54 1063.24 1060 1050.5 1049.7 -24
+++ Tc =  10.7 min
+++ CA =   1.5
+++ Link #  3,  Flow depth =     .64 ft
  PNC3 4 3 180 2
  END
 END OF INPUT DATA.
```

AF FREEWAY, SYSTEM #5 SAG AT 376+66

*** CBS AT SAG

Pipe Design

Link	Length (ft)	Diam (in)	Invert Up/Dn (ft)	Slope (ft/ft)	Depth Up/Dn (ft)	Min. Cover (ft)	Velocity Act/Full (ft/s)	--Flow-- Act/Full (cfs)	Estimated Cost ($)
1	79	24	1059.29	.00405	3.8	1.6	4.0	3.44	0.
			1058.97		3.8		5.0	15.64	
2	69	24	1058.97	.00155	3.8	1.6	2.8	3.41	0.
			1058.86		4.4		3.1	9.67	

Length = 148. ft Total length = 148. ft
Cost = 0. Total Cost = 0.

*** CBS AT SAG

Analysis of Existing Pipes

Link	Length (ft)	Diam (in)	Invert Up/Dn (ft)	Slope (ft/ft)	Depth Up/Dn (ft)	Cover Up/Dn (ft)	Velocity Act/Full (ft/s)	--Flow-- Act/Full (cfs)	Load (%)	-Solutions- Remove (cfs)	Diam (in)
3	54	24	1050.50	.01482	12.7	10.6	7.5	6.30	21		
			1049.70		10.3	8.1	9.5	29.91			

Length = 202. ft Total length = 202. ft

AF FREEWAY, SYSTEM #5 SAG AT 376+66

Hydraulic Gradeline Computations

Link #	Down-stream Node #	Hydraulic Gradeline Elevation	Crown Elev.	Possible Surcharge	Ground Elev.	Super-crit.?	Manhole Depth	Loss Coef
1	2	1059.91	1060.97	N	1062.72	Y	.88	1.01
2	3	1059.68	1060.86	N	1063.24	N	1.07	1.01
3	4	1050.32	1051.70	N	1060.00	Y	.00	.00

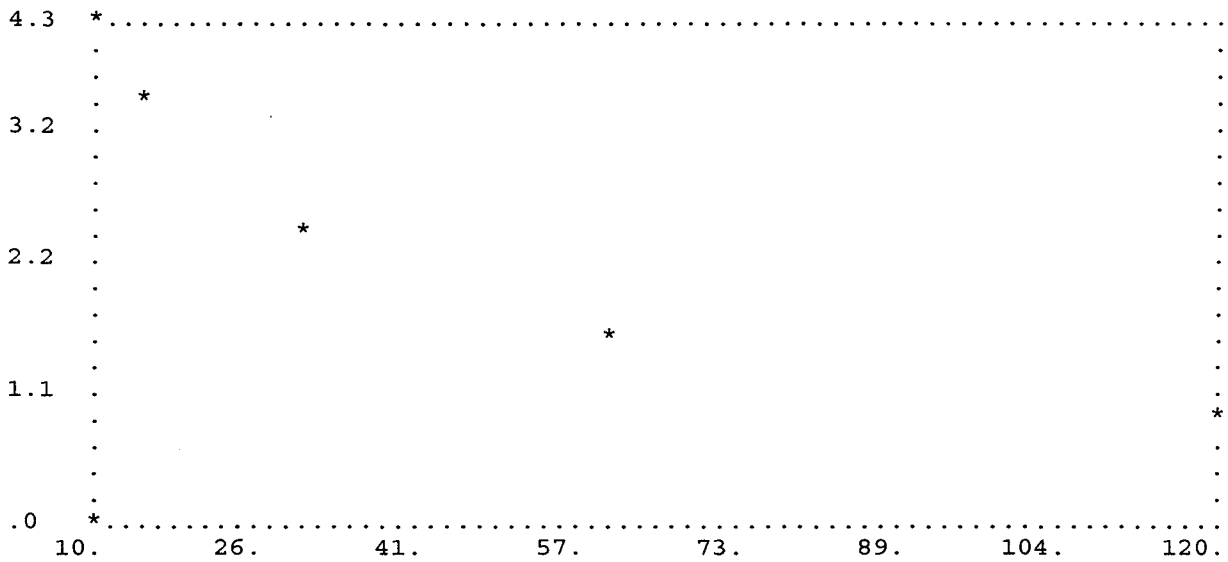
Link #	Terminal Node #	Hydraulic Gradeline Elevation	Ground Elevation	Loss Coef.
1	1	1060.30	1063.04	1.50

NORMAL END OF HYDRA

AF FREEWAY, SYSTEM #5 SAG AT 376+66

```
+++ Commands Read From File C:\HYDRA\AFSYS#5.HDA
  JOB
  SWI2
  REM SITE SPECIFIC RDDF FOR 10 YEAR
  RAI10 4.3 15 3.6 30 2.4 60 1.5 120 .8
```

IDF CURVE



PLOT-DATA (TIME Vs.VALUE)

10.	4.30	120.	.80	0.	.00	0.	.00	0.	.00
15.	3.60	0.	.00	0.	.00	0.	.00	0.	.00
30.	2.40	0.	.00	0.	.00	0.	.00	0.	.00
60.	1.50	0.	.00	0.	.00	0.	.00	0.	.00

```
  REM ASSUMES A PAVEMENT SECTION OF 18 INCHES
  PDA.012 24 3.75 1.5 2 .0001
  HGL1
  NEW CBS AT SAG
  STO0.843 .95 10
  PIP79 1063.04 1062.72
+++ Tc =  10.0 min
+++ CA =    .8
+++ Link #  1,  Flow depth =    .64 ft
  PNC1 2 3 180 0
```

AF FREEWAY, SYSTEM #5 SAG AT 376+66

```
  PIP69 1062.72 1063.24
+++ Tc =  10.3 min
+++ CA =    .8
+++ Link #  2,  Flow depth =    .84 ft
  PNC2 3 3 180 0
  STO0.737 .95 10
  PIP54 1063.24 1060 1051.5 1050.7 -24
+++ Tc =  10.7 min
+++ CA =   1.5
+++ Link #  3,  Flow depth =    .64 ft
  PNC3 4 3 180 2
  END
 END OF INPUT DATA.
```

AF FREEWAY, SYSTEM #5 SAG AT 376+66

*** CBS AT SAG

Pipe Design

Link	Length (ft)	Diam (in)	Invert Up/Dn (ft)	Slope (ft/ft)	Depth Up/Dn (ft)	Min. Cover (ft)	Velocity Act/Full (ft/s)	--Flow-- Act/Full (cfs)	Estimated Cost ($)
1	79	24	1059.29	.00405	3.8	1.6	4.0	3.44	0.
			1058.97		3.8		5.0	15.64	
2	69	24	1058.97	.00155	3.8	1.6	2.8	3.41	0.
			1058.86		4.4		3.1	9.67	

Length = 148. ft Total length = 148. ft
Cost = 0. Total Cost = 0.

*** CBS AT SAG

Analysis of Existing Pipes

Link	Length (ft)	Diam (in)	Invert Up/Dn (ft)	Slope (ft/ft)	Depth Up/Dn (ft)	Cover Up/Dn (ft)	Velocity Act/Full (ft/s)	--Flow-- Act/Full (cfs)	Load (%)	-Solutions- Remove (cfs)	Diam (in)
3	54	24	1051.50	.01482	11.7	9.6	7.5	6.30	21		
			1050.70		9.3	7.1	9.5	29.91			

Length = 202. ft Total length = 202. ft

AF FREEWAY, SYSTEM #5 SAG AT 376+66

Hydraulic Gradeline Computations

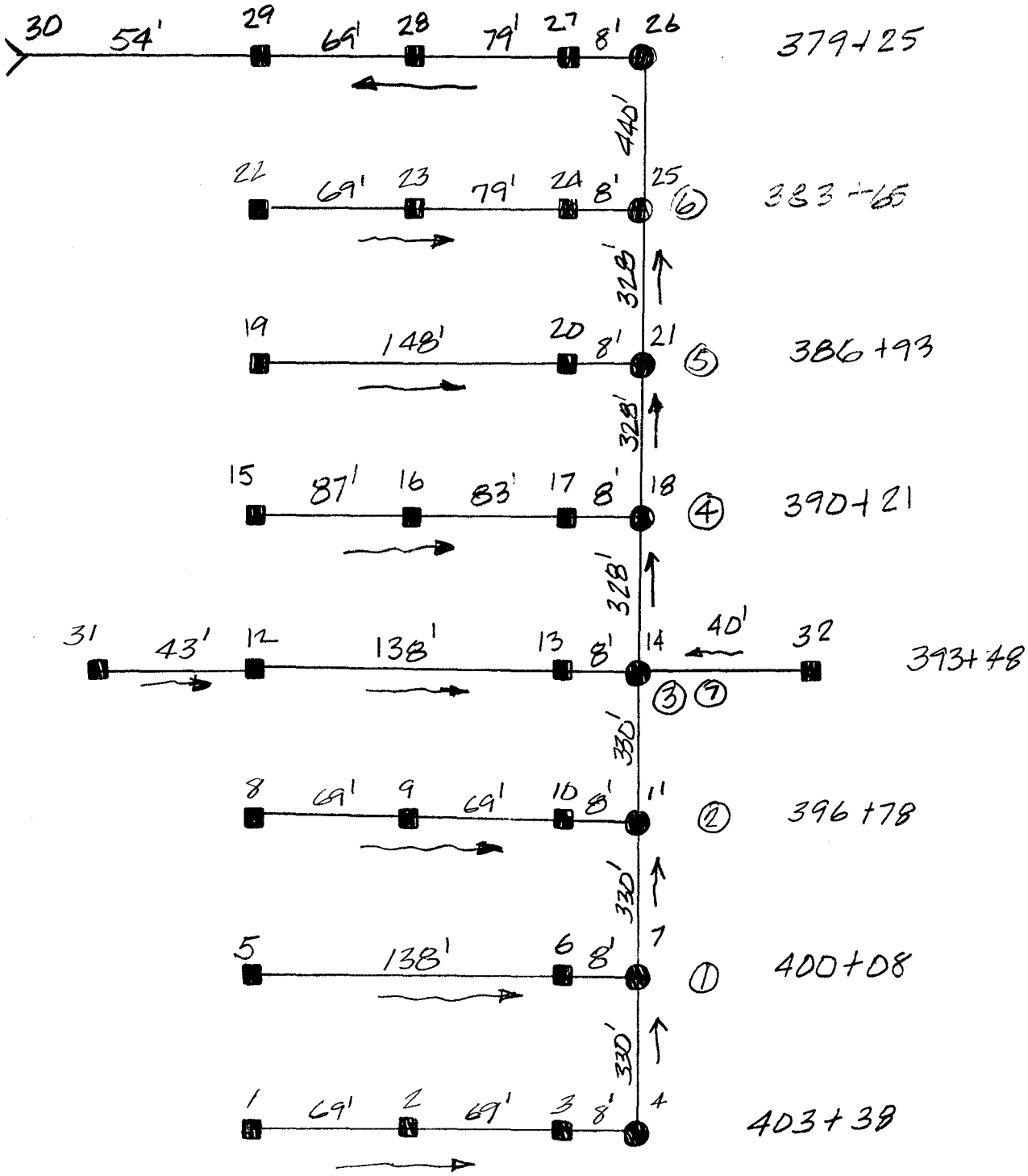
Link #	Down-stream Node #	Hydraulic Gradeline Elevation	Crown Elev.	Possible Surcharge	Ground Elev.	Super-crit.?	Manhole Depth	Loss Coef
1	2	1059.91	1060.97	N	1062.72	Y	.88	1.01
2	3	1059.68	1060.86	N	1063.24	N	1.07	1.01
3	4	1051.32	1052.70	N	1060.00	Y	.00	.00

Link #	Terminal Node #	Hydraulic Gradeline Elevation	Ground Elevation	Loss Coef.
1	1	1060.30	1063.04	1.50

NORMAL END OF HYDRA

DMJM	PROJECT: Agua Fria Freeway	JOB NO. 6508.07	SHEET 1 of
		DESIGNED BY JWB	DATE 10/6/97
SUBJECT: HYDRA MODELS		CHECKED BY	DATE

SYSTEM #6 - STA 379+25 to Glendale Ave



Drainage Area Calculations - see next sheet

AGUA FRIA FREEWAY: CAMELBACK ROAD TO NORTHERN

DRAINAGE AREA CALCULATIONS

Revised :

System #6 - STA 379+25 to Glendale Avenue 10/6/97

DA No.	LOC.	NOTE #	BEGIN STA.	ENDING STA.	WIDTH	SUB AREAS LENGTH	SUB AREAS WIDTH	AREA sf	AREA Ac.	C	CA
37	NB	1	37925	38365	69			30360	0.697	0.950	0.662
38	SB	2	37925	38365	79			34760	0.798	0.950	0.758
39	NB	1	38365	38693	69			22632	0.520	0.950	0.494
40	SB	2	38365	38693	79			25912	0.595	0.950	0.565
41	NB	3	38693	39021	78			25584	0.587	0.950	0.558
42	SB	3	38693	39021	81			26568	0.610	0.950	0.579
43	NB	3	39021	39348	78			25506	0.586	0.950	0.556
44	SB	3	39021	39348	81			26487	0.608	0.950	0.578
45	NB	1	39348	39678	69			22770	0.523	0.950	0.497
45A	NB	4	Ramp B	378.26	22	378.26	35.5	21750	0.499	0.820	0.409
46	SB	1	39348	39678	69			22770	0.523	0.950	0.497
46A	SB	4	Ramp A	378.26	28	378.26	24	19670	0.452	0.853	0.385
47	NB	1	39678	40008	69			22770	0.523	0.950	0.497
48	SB	1	39678	40008	69			22770	0.523	0.950	0.497
49	NB	1	40008	40338	69			22770	0.523	0.950	0.497
50	SB	1	40008	40338	69			22770	0.523	0.950	0.497
51	NB	1	40338	40725.37	69			26729	0.614	0.950	0.583
52	SB	1	40338	40725.37	69			26729	0.614	0.950	0.583

NOTES:

1 Pavement width - 4 lanes at 12' + outside shoulder at 10' + inside shoulder at 11' = 69'.

2 Includes Auxilary lane.

3 Includes Auxiliary lane taper to Ramp

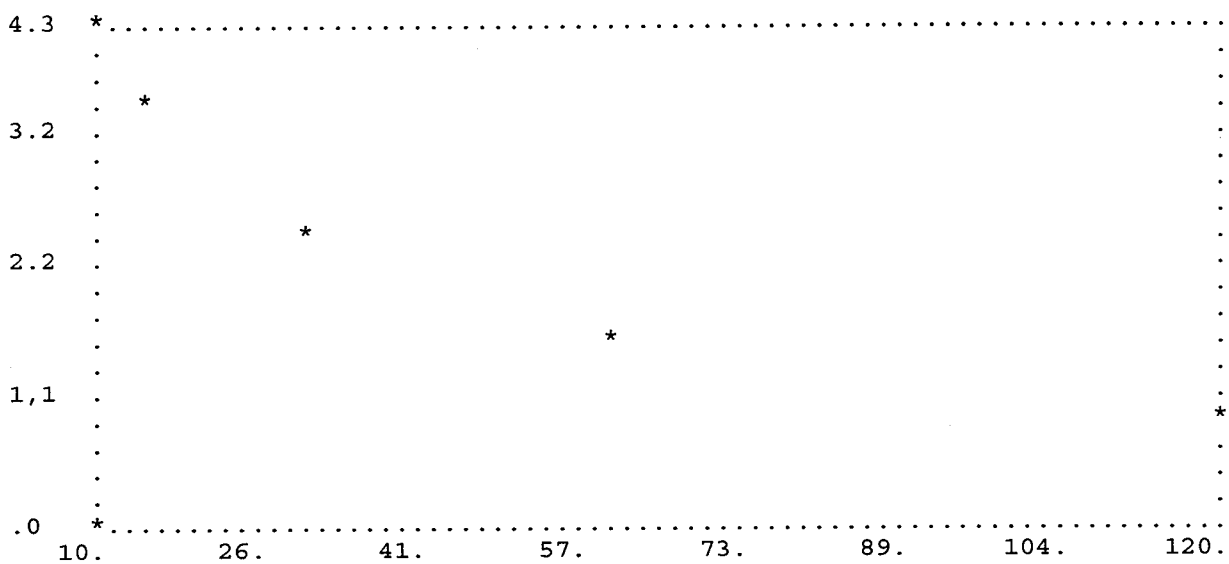
4 Ramp, Includes paved and unpaved areas

Ramp B Combined	378.26 x 22/43560	0.191	Ac. paved
	378.26 x 35.5/4356	0.308	Ac. unpaved
	(.191 x.95) + (308*.	0.820	Combined C
	0.499		
Ramp A Combined	378.26x28/43560 =	0.243	Ac. paved
	378.26x24/43560	0.208	Ac. unpaved
	(.243x.95) + (.248x.	0.853	Combined C
	0.452		

AF FREEWAY, SYSTEM #6 - STA 379+25 TO GLENDALE

```
+++ Commands Read From File C:\HYDRA\AFSYS#6.HDA
  JOB
  SWI2
  REM SITE SPECIFIC RDDF FOR 10 YEAR
  RAI10 4.3 15 3.6 30 2.4 60 1.5 120 .8
```

IDF CURVE



PLOT-DATA (TIME Vs.VALUE)

10.	4.30	120.	.80	0.	.00	0.	.00	0.	.00
15.	3.60	0.	.00	0.	.00	0.	.00	0.	.00
30.	2.40	0.	.00	0.	.00	0.	.00	0.	.00
60.	1.50	0.	.00	0.	.00	0.	.00	0.	.00

```
  REM ASSUMES A PAVEMENT SECTION OF 18 INCHES
  PDA.012 24 3.75 1.5 2 .0001
  HGL1
  REM BEGIN AT CREST 407+25.37
  NEW CBS AT 403+38
  STO.614 .95 10
  PIP69 1091.27 1090.74
+++ Tc =  10.0 min
+++ CA =    .6
+++ Link #  1,  Flow depth =    .48 ft
```

AF FREEWAY, SYSTEM #6 - STA 379+25 TO GLENDALE

```
  PNC1 2 3 180 0
  PIP69 1090.74 1091.27
+++ Tc =  10.3 min
+++ CA =    .6
+++ Link #  2,  Flow depth =    .70 ft
  PNC2 3 3 180 0
  STO.614 .95 10
  PIP8 1091.27 1091.52
+++ Tc =  10.7 min
+++ CA =   1.2
+++ Link #  3,  Flow depth =    .58 ft
  PNC3 4 3 90 0
  PIP330 1091.52 1087.74
+++ Tc =  10.7 min
+++ CA =   1.2
*** WARNING:  Pipe invert at D/S end dropped to meet minimum depth
    to invert criterion at D/S end
+++ Link #  4,  Flow depth =    .64 ft
  PNC4 7 3 180 0
  HOL1
  NEW CBS AT 400+08
  STO0.523 .95 10
  PIP138 1087.49 1087.49
+++ Tc =  10.0 min
+++ CA =    .5
+++ Link #  5,  Flow depth =    .76 ft
  PNC5 6 3 180 0
  STO0.523 .95 10
  PIP8 1087.49 1087.74
+++ Tc =  11.2 min
+++ CA =   1.0
+++ Link #  6,  Flow depth =    .54 ft
  PNC6 7 3 90 0
  REC1
  PIP330 1087.74 1081.71
+++ Tc =  11.7 min
+++ CA =   2.2
*** WARNING:  Pipe invert at D/S end dropped to meet minimum depth
    to invert criterion at D/S end
+++ Link #  7,  Flow depth =    .72 ft
  PNC7 11 3 180 0
  HOL2
  NEW CBS AT 396+78
  STO0.523 .95 10
  PIP69 1081.46 1080.93
+++ Tc =  10.0 min
+++ CA =    .5
+++ Link #  8,  Flow depth =    .44 ft
  PNC8 9 3 180 0
```

AF FREEWAY, SYSTEM #6 - STA 379+25 TO GLENDALE

```
  PIP69 1080.93 1081.46
+++ Tc =  10.3 min
+++ CA =    .5
+++ Link #  9,  Flow depth =    .64 ft
  PNC9 10 3 180 0
  STO0.523 .95 10
  PIP8 1081.46 1081.71
+++ Tc =  10.7 min
+++ CA =   1.0
+++ Link # 10,  Flow depth =    .54 ft
  PNC10 11 3 90 0
  REC2
  PIP330 1081.71 1074.47
+++ Tc =  12.3 min
+++ CA =   3.2
*** WARNING:  Pipe invert at D/S end dropped to meet minimum depth
    to invert criterion at D/S end
+++ Link # 11,  Flow depth =    .86 ft
  PNC11 14 3 180 0
  HOL3
  NEW CBS AT 393+48
  STO0.499 .82 10
  PIP43 1073.39 1074.22
+++ Tc =  10.0 min
+++ CA =    .4
+++ Link # 12,  Flow depth =    .52 ft
  PNC31 12 3 180 0
  STO0.523 .95 10
  PIP138 1074.22 1074.22
+++ Tc =  10.3 min
+++ CA =    .9
+++ Link # 13,  Flow depth =   1.06 ft
  PNC12 13 3 180 0
  STO0.523 .95 10
  PIP8 1074.22 1074.47
+++ Tc =  11.3 min
+++ CA =   1.4
+++ Link # 14,  Flow depth =    .64 ft
  PNC13 14 3 90 0
  HOL7
  NEW RAMP A
  STO0.452 .853 10
  PIP40 1073.35 1074.47
+++ Tc =  10.0 min
+++ CA =    .4
+++ Link # 15,  Flow depth =    .50 ft
  PNC32 14 3 90 0
  REC7
  REC3
```

AF FREEWAY, SYSTEM #6 - STA 379+25 TO GLENDALE

```
  PIP328 1074.47 1069.33
+++ Tc =  12.9 min
+++ CA =   4.9
*** WARNING:  Pipe invert at D/S end dropped to meet minimum depth
    to invert criterion at D/S end
+++ Link # 16,  Flow depth =   1.28 ft
  PNC14 18 3 180 0
  HOL4
  NEW CBS AT 390+21
  STO0.588 .95 10
  PIP87 1069.00 1068.83
+++ Tc =  10.0 min
+++ CA =    .6
+++ Link # 17,  Flow depth =    .64 ft
  PNC15 16 3 180 0
  PIP83 1068.83 1069.08
+++ Tc =  10.5 min
+++ CA =    .6
+++ Link # 18,  Flow depth =    .72 ft
  PNC16 17 3 180 0
  STO.610 .95 10
  PIP8 1069.08 1069.33
+++ Tc =  11.1 min
+++ CA =   1.1
+++ Link # 19,  Flow depth =    .58 ft
  PNC17 18 3 90 0
  REC4
  PIP328 1069.33 1067.13 1064.30 1062.60 -30
+++ Tc =  13.5 min
+++ CA =   6.1
+++ Link # 20,  Flow depth =   1.60 ft
  PNC18 21 3 180 0
  HOL5
  NEW CBS AT 386+93
  STO0.588 .95 10
  PIP148 1067.08 1066.88
+++ Tc =  10.0 min
+++ CA =    .6
+++ Link # 21,  Flow depth =    .72 ft
  PNC19 20 3 180 0
  STO0.610 .95 10
  PIP8 1066.88 1067.13
+++ Tc =  11.0 min
+++ CA =   1.1
+++ Link # 22,  Flow depth =    .58 ft
  PNC20 21 3 90 0
  REC5
  PIP328 1067.13 1065.82 1061.90 1060.95 -30
+++ Tc =  14.2 min
+++ CA =   7.2
```

AF FREEWAY, SYSTEM #6 - STA 379+25 TO GLENDALE

```
+++ Link # 23,  Flow depth =   2.50 ft
  PNC21 25 3 180 0
  HOL6
  NEW CBS AT 383+65
  STO0.520 .95 10
  PIP69 1065.77 1065.24
+++ Tc =  10.0 min
+++ CA =    .5
+++ Link # 24,  Flow depth =    .44 ft
  PNC22 23 3 180 0
  PIP79 1065.24 1065.57
+++ Tc =  10.3 min
+++ CA =    .5
+++ Link # 25,  Flow depth =    .66 ft
  PNC23 24 3 180 0
  STO0.595 .95 10
  PIP8 1065.57 1065.82
+++ Tc =  10.8 min
+++ CA =   1.1
+++ Link # 26,  Flow depth =    .56 ft
  PNC24 25 3 90 0
  REC6
  PIP440 1065.82 1064.06 1060.45 1058.58 -36
+++ Tc =  15.2 min
+++ CA =   8.3
+++ Link # 27,  Flow depth =   1.74 ft
  PNC25 26 3 90 0
  REM CBS AT 379+25
  PIP8 1064.06 1063.81 1052.27 1052.17 -36
+++ Tc =  16.3 min
+++ CA =   8.3
+++ Link # 28,  Flow depth =   1.26 ft
  PNC26 27 3 180 0
  STO0.798 .95 10
  PIP79 1063.81 1063.48 1052.17 1051.77 -36
+++ Tc =  16.3 min
+++ CA =   9.0
+++ Link # 29,  Flow depth =   1.71 ft
  PNC27 28 3 180 0
  PIP69 1063.48 1064.01 1051.77 1051.43 -36
+++ Tc =  16.5 min
+++ CA =   9.0
+++ Link # 30,  Flow depth =   1.71 ft
  PNC28 29 3 180 0
  STO0.697 .95 10
  PIP54 1064.01 1055.36 1051.43 1050.9 -36
+++ Tc =  16.6 min
+++ CA =   9.7
+++ Link # 31,  Flow depth =   1.47 ft
```

AF FREEWAY, SYSTEM #6 - STA 379+25 TO GLENDALE

```
 PNC29 30 3 180 2
 END
END OF INPUT DATA.
```

AF FREEWAY, SYSTEM #6 - STA 379+25 TO GLENDALE

*** CBS AT 403+38 Pipe Design

Link	Length (ft)	Diam (in)	Invert Up/Dn (ft)	Slope (ft/ft)	Depth Up/Dn (ft)	Min. Cover (ft)	Velocity Act/Full (ft/s)	--Flow-- Act/Full (cfs)	Estimated Cost ($)
1	69	24	1087.52	.00768	3.8	1.6	4.6	2.51	0.
			1086.99		3.8		6.9	21.53	
2	69	24	1086.99	.00155	3.8	1.6	2.6	2.49	0.
			1086.88		4.4		3.1	9.67	
3	8	24	1086.88	.01260	4.4	2.2	6.6	4.90	0.
			1086.78		4.7		8.8	27.59	
4	330	24	1086.78	.00846	4.7	1.6	5.7	4.90	0.
			1083.99		3.8		7.2	22.60	

Length = 476. ft Total length = 476. ft
Cost = 0. Total Cost = 0.

*** CBS AT 400+08 Pipe Design

Link	Length (ft)	Diam (in)	Invert Up/Dn (ft)	Slope (ft/ft)	Depth Up/Dn (ft)	Min. Cover (ft)	Velocity Act/Full (ft/s)	--Flow-- Act/Full (cfs)	Estimated Cost ($)
5	138	24	1083.74	.00082	3.8	1.6	2.0	2.14	0.
			1083.63		3.9		2.2	7.06	
6	8	24	1083.63	.01260	3.9	1.7	6.3	4.11	0.
			1083.53		4.2		8.8	27.59	
7	330	24	1083.53	.01686	4.2	1.6	8.7	8.78	0.
			1077.96		3.8		10.2	31.91	

Length = 476. ft Total length = 952. ft
Cost = 0. Total Cost = 0.

AF FREEWAY, SYSTEM #6 - STA 379+25 TO GLENDALE

*** CBS AT 396+78 Pipe Design

Link	Length (ft)	Diam (in)	Invert Up/Dn (ft)	Slope (ft/ft)	Depth Up/Dn (ft)	Min. Cover (ft)	Velocity Act/Full (ft/s)	--Flow-- Act/Full (cfs)	Estimated Cost ($)
8	69	24	1077.71	.00768	3.8	1.6	4.4	2.14	0.
			1077.18		3.8		6.9	21.54	
9	69	24	1077.18	.00155	3.8	1.6	2.5	2.12	0.
			1077.07		4.4		3.1	9.67	
10	8	24	1077.07	.01260	4.4	2.2	6.3	4.17	0.
			1076.97		4.7		8.8	27.59	
11	330	24	1076.97	.01895	4.7	1.6	10.0	12.54	0.
			1070.72		3.8		10.8	33.82	

Length = 476. ft Total length = 1428. ft
Cost = 0. Total Cost = 0.

*** CBS AT 393+48 Pipe Design

Link	Length (ft)	Diam (in)	Invert Up/Dn (ft)	Slope (ft/ft)	Depth Up/Dn (ft)	Min. Cover (ft)	Velocity Act/Full (ft/s)	--Flow-- Act/Full (cfs)	Estimated Cost ($)
12	43	24	1069.64	.00242	3.8	1.6	2.7	1.76	0.
			1069.54		4.7		3.9	12.10	
13	138	24	1069.54	.00082	4.7	2.5	2.3	3.86	0.
			1069.42		4.8		2.2	7.06	
14	8	24	1069.42	.01260	4.8	2.6	6.9	5.78	0.
			1069.32		5.1		8.8	27.59	

Length = 189. ft Total length = 189. ft
Cost = 0. Total Cost = 0.

AF FREEWAY, SYSTEM #6 - STA 379+25 TO GLENDALE

*** RAMP A

Pipe Design

Link	Length (ft)	Diam (in)	Invert Up/Dn (ft)	Slope (ft/ft)	Depth Up/Dn (ft)	Min. Cover (ft)	Velocity Act/Full (ft/s)	--Flow-- Act/Full (cfs)	Estimated Cost ($)
15	40	24	1069.60	.00260	3.8	1.6	2.8	1.66	0.
			1069.50		5.0		4.0	12.53	
16	328	24	1069.32	.01141	5.1	1.6	9.1	19.27	0.
			1065.58		3.8		8.4	26.24	

Length = 368. ft Total length = 1985. ft
Cost = 0. Total Cost = 0.

*** CBS AT 390+21

Pipe Design

Link	Length (ft)	Diam (in)	Invert Up/Dn (ft)	Slope (ft/ft)	Depth Up/Dn (ft)	Min. Cover (ft)	Velocity Act/Full (ft/s)	--Flow-- Act/Full (cfs)	Estimated Cost ($)
17	87	24	1065.25	.00195	3.8	1.6	2.8	2.40	0.
			1065.08		3.8		3.5	10.86	
18	83	24	1065.08	.00130	3.8	1.6	2.4	2.36	0.
			1064.97		4.1		2.8	8.88	
19	8	24	1064.97	.01260	4.1	1.9	6.5	4.72	0.
			1064.87		4.5		8.8	27.59	

Length = 178. ft Total length = 178. ft
Cost = 0. Total Cost = 0.

AF FREEWAY, SYSTEM #6 - STA 379+25 TO GLENDALE

*** CBS AT 390+21 Analysis of Existing Pipes

Link	Length (ft)	Diam (in)	Invert Up/Dn (ft)	Slope (ft/ft)	Depth Up/Dn (ft)	Cover Up/Dn (ft)	Velocity Act/Full (ft/s)	--Flow-- Act/Full (cfs)	Load (%)	-Solutions- Remove (cfs)	Diam (in)
20	328	30	1064.30	.00518	5.0	2.3	7.1	23.20	72		
			1062.60		4.5	1.8	6.5	32.08			

Length = 506. ft Total length = 2491. ft

*** CBS AT 386+93 Pipe Design

Link	Length (ft)	Diam (in)	Invert Up/Dn (ft)	Slope (ft/ft)	Depth Up/Dn (ft)	Min. Cover (ft)	Velocity Act/Full (ft/s)	--Flow-- Act/Full (cfs)	Estimated Cost ($)
21	148	24	1063.33	.00135	3.8	1.6	2.4	2.40	0.
			1063.13		3.8		2.9	9.03	
22	8	24	1063.13	.01260	3.8	1.6	6.5	4.73	0.
			1063.03		4.1		8.8	27.59	

Length = 156. ft Total length = 156. ft
Cost = 0. Total Cost = 0.

*** CBS AT 386+93 Analysis of Existing Pipes

Link	Length (ft)	Diam (in)	Invert Up/Dn (ft)	Slope (ft/ft)	Depth Up/Dn (ft)	Cover Up/Dn (ft)	Velocity Act/Full (ft/s)	--Flow-- Act/Full (cfs)	Load (%)	-Solutions- Remove (cfs)	Diam (in)
23	328	30	1061.90	.00290	5.2	2.5	5.5	26.76	112	2.79	24
			1060.95		4.9	2.2	4.9	23.98			

Length = 484. ft Total length = 2975. ft

Length = 484. ft Total length = 2975. ft

AF FREEWAY, SYSTEM #6 - STA 379+25 TO GLENDALE

*** CBS AT 383+65 Pipe Design

Link	Length (ft)	Diam (in)	Invert Up/Dn (ft)	Slope (ft/ft)	Depth Up/Dn (ft)	Min. Cover (ft)	Velocity Act/Full (ft/s)	--Flow-- Act/Full (cfs)	Estimated Cost ($)
24	69	24	1062.02	.00768	3.8	1.6	4.4	2.12	0.
			1061.49		3.8		6.9	21.53	
25	79	24	1061.49	.00137	3.8	1.6	2.4	2.11	0.
			1061.38		4.2		2.9	9.08	
26	8	24	1061.38	.01260	4.2	2.0	6.4	4.43	0.
			1061.28		4.5		8.8	27.59	

Length = 156. ft Total length = 156. ft
Cost = 0. Total Cost = 0.

*** CBS AT 383+65 Analysis of Existing Pipes

Link	Length (ft)	Diam (in)	Invert Up/Dn (ft)	Slope (ft/ft)	Depth Up/Dn (ft)	Cover Up/Dn (ft)	Velocity Act/Full (ft/s)	--Flow-- Act/Full (cfs)	Load (%)	-Solutions- Remove (cfs)	Diam (in)
27	440	36	1060.45	.00425	5.4	2.1	7.0	29.65	63		
			1058.58		5.5	2.2	6.7	47.23			
28	8	36	1052.27	.01250	11.8	8.5	10.5	28.96	36		
			1052.17		11.6	8.4	11.5	80.99			
29	79	36	1052.17	.00506	11.6	8.4	7.6	31.60	61		
			1051.77		11.7	8.5	7.3	51.56			
30	69	36	1051.77	.00493	11.7	8.5	7.6	31.47	62		
			1051.43		12.6	9.3	7.2	50.85			
31	54	36	1051.43	.00982	12.6	9.3	10.0	33.66	47		
			1050.90		4.5	1.2	10.2	71.78			

Length = 806. ft Total length = 3781. ft

AF FREEWAY, SYSTEM #6 - STA 379+25 TO GLENDALE

Hydraulic Gradeline Computations

Link #	Down-stream Node #	Hydraulic Gradeline Elevation	Crown Elev.	Possible Surcharge	Ground Elev.	Super-crit.?	Manhole Depth	Loss Coef
1	2	1088.78	1088.99	N	1090.74	Y	1.73	1.08
2	3	1088.65	1088.88	N	1091.27	N	1.42	1.04
3	4	1087.94	1088.78	N	1091.52	Y	.89	1.02
4	7	1085.42	1085.99	N	1087.74	Y	1.31	1.01
5	6	1086.11	1085.63	Y	1087.49	N	2.14	1.09
6	7	1085.42	1085.53	N	1087.74	Y	1.31	1.01
7	11	1078.68	1079.96	N	1081.71	Y	1.62	1.01
8	9	1077.61	1079.18	N	1080.93	Y	.00	.00
9	10	1080.09	1079.07	Y	1081.46	N	2.66	1.13
10	11	1079.38	1078.97	Y	1081.71	Y	1.62	1.01
11	14	1071.56	1072.72	N	1074.47	Y	1.90	.97
12	12	1070.05	1071.54	N	1074.22	N	.00	.00
13	13	1072.71	1071.42	Y	1074.22	N	2.86	1.13
14	14	1071.85	1071.32	Y	1074.47	Y	1.90	.97
15	14	1071.85	1071.50	Y	1074.47	N	1.90	.97
16	18	1066.85	1067.58	N	1069.33	Y	1.70	.32
17	16	1065.72	1067.08	N	1068.83	N	.00	.00
18	17	1066.71	1066.97	N	1069.08	N	1.39	1.04
19	18	1066.00	1066.87	N	1069.33	Y	1.70	.32
20	21	1064.64	1065.10	N	1067.13	Y	2.74	1.02
21	20	1065.35	1065.13	Y	1066.88	N	1.87	1.06
22	21	1064.64	1065.03	N	1067.13	Y	2.74	1.02
23	25	1063.45	1063.45	N	1065.82	N/A	1.80	.19
24	23	1061.92	1063.49	N	1065.24	Y	.00	.00
25	24	1062.93	1063.38	N	1065.57	N	1.21	1.03
26	25	1062.25	1063.28	N	1065.82	Y	1.80	.19
27	26	1060.31	1061.58	N	1064.06	Y	5.08	1.06
28	27	1056.43	1055.17	Y	1063.81	Y	3.79	1.04
29	28	1055.42	1054.77	Y	1063.48	Y	3.20	1.03
30	29	1054.45	1054.43	Y	1064.01	Y	2.23	1.01
31	30	1052.34	1053.90	N	1055.36	Y	.00	.00

Link #	Terminal Node #	Hydraulic Gradeline Elevation	Ground Elevation	Loss Coef.
1	1	1089.28	1091.27	1.50
15	32	1072.04	1073.35	1.50

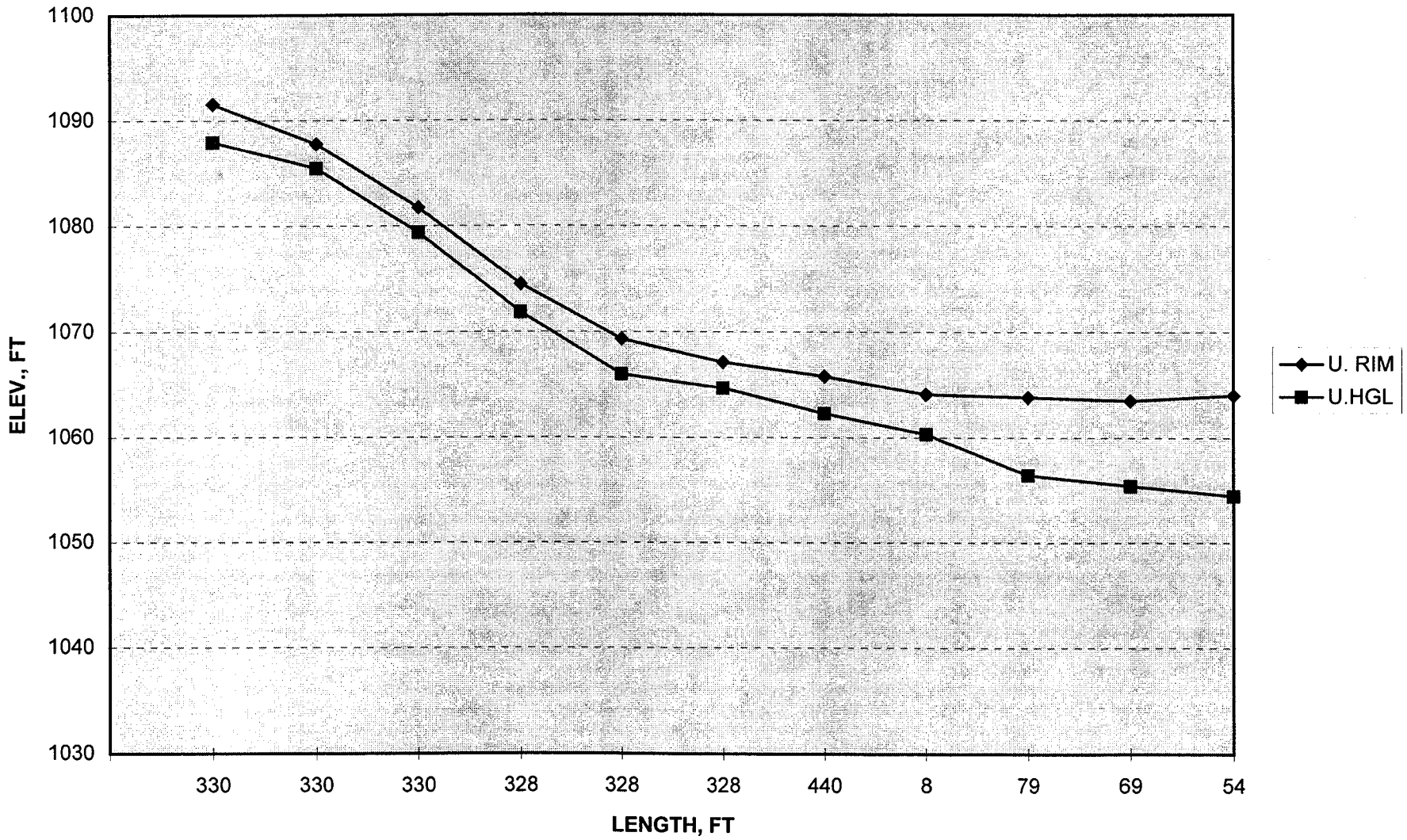
NORMAL END OF HYDRA

HGL SUMMARY: AGUA FRIA FREEWAY
CAMELBACK AVE TO NORTHERN AVENUE

11/11/97

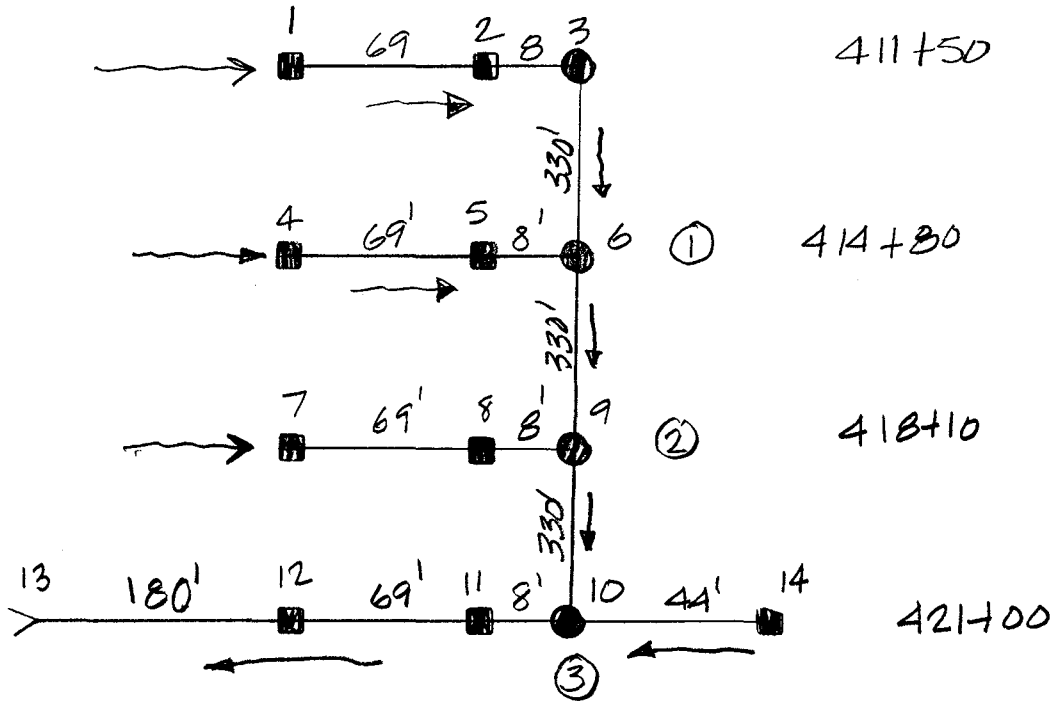
LINK	UPPER NODE	LOWER NODE	LENGTH ft	ELEV., FT U. RIM	ELEV., FT U.HGL	HGL SLOPE
SYSTEM #6, STA 379+25 TO GLENDALE AVE.						
3	4	7	330	1091.52	1087.94	.00764
6	7	11	330	1087.74	1085.42	.01830
10	11	14	330	1081.71	1079.38	.02282
13	14	18	328	1074.47	1071.85	.01784
19	18	21	328	1069.33	1066.00	.00415
22	21	25	328	1067.13	1064.64	.00729
26	25	26	440	1065.82	1062.25	.00441
27	26	27	8	1064.06	1060.31	.48500
28	27	28	79	1063.81	1056.43	.01278
29	28	29	69	1063.48	1055.42	.01406
30	29	30	54	1064.01	1054.45	.03907
31	30	END		1051.36	1052.34	

AFF SYSTEM #6


1100
1090
1080
1070
1060
1050
1040
1030
ELEV., FT
330
330
330
328
328
328
440
8
79
69
54
LENGTH, FT
U. RIM
U.HGL

DMJM	PROJECT: Agua Fria Freeway	JOB NO. 6508.07	SHEET of
		DESIGNED BY JWG	DATE 10/6/97
SUBJECT: HYDRA MODELS		CHECKED BY	DATE

SYSTEM #7 - Glendale Ave to STA 421+40



Drainage Areas - see next sheet

AGUA FRIA FREEWAY: CAMELBACK ROAD TO NORTHERN

DRAINAGE AREA CALCULATIONS

Revised :

System #7 - Glendale Avenue to STA 421+40 10/6/97

DA No.	LOC.	NOTE #	BEGIN STA.	ENDING STA.	WIDTH	SUB AREAS LENGTH	SUB AREAS WIDTH	AREA sf	AREA Ac.	C	CA
53	NB	1	40725.37	41150	69			29299	0.673	0.950	0.639
54	SB	1	40725.37	41150	69			29299	0.673	0.950	0.639
55	NB	1	41150	41480	69			22770	0.523	0.950	0.497
56	SB	1	41150	41480	69			22770	0.523	0.950	0.497
57	NB	1	41480	41810	69			22770	0.523	0.950	0.497
58	SB	1	41480	41810	69			22770	0.523	0.950	0.497
59	NB	1	41810	42100	69			20010	0.459	0.950	0.436
60	SB	1	41810	42100	69			20010	0.459	0.950	0.436
60A	SB	2	Ramp C	184	105.25			19366	0.445	0.950	0.422

NOTES:

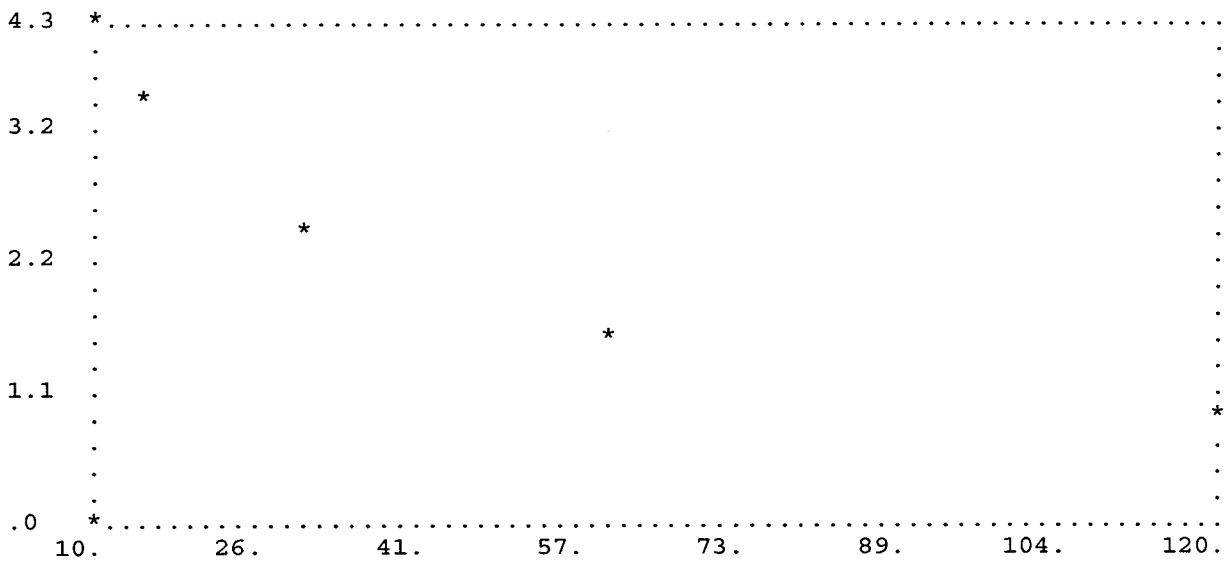
1 Pavement width - 4 lanes at 12' + outside shoulder at 10' + inside shoulder at 11' = 69'.

2 Includes ramps and ramp tapers.

AF FREEWAY, SYSTEM #7 GLENDALE TO STA 421+40

```
+++ Commands Read From File C:\HYDRA\AFSYS#7.HDA
  JOB
  SWI2
  REM SITE SPECIFIC RDDF FOR 10 YEAR
  RAI10 4.3 15 3.6 30 2.4 60 1.5 120 .8
```

IDF CURVE



PLOT-DATA (TIME Vs.VALUE)

10.	4.30	120.	.80	0.	.00	0.	.00	0.	.00
15.	3.60	0.	.00	0.	.00	0.	.00	0.	.00
30.	2.40	0.	.00	0.	.00	0.	.00	0.	.00
60.	1.50	0.	.00	0.	.00	0.	.00	0.	.00

```
  REM ASSUMES A PAVEMENT SECTION OF 18 INCHES
  PDA.012 24 3.75 1.5 2 .0001
  HGL1
  REM CREST AT 407+25.37
  NEW CBS AT 411+50
  STO0.673 .95 10
  PIP69 1090.44 1090.02
+++ Tc =  10.0 min
+++ CA =    .6
+++ Link #  1,  Flow depth =    .52 ft
```

AF FREEWAY, SYSTEM #7 GLENDALE TO STA 421+40

```
  PNC1 2 3 180 0
  STO0.673 .95 10
  PIP8 1090.02 1090.27
+++ Tc =  10.3 min
+++ CA =   1.3
+++ Link #  2,  Flow depth =    .62 ft
  PNC2 3 3 90 0
  PIP330 1090.27 1086.05
+++ Tc =  10.3 min
+++ CA =   1.3
*** WARNING:  Pipe invert at D/S end dropped to meet minimum depth
    to invert criterion at D/S end
+++ Link #  3,  Flow depth =    .62 ft
  PNC3 6 3 180 0
  HOL1
  NEW CBS AT 414+80
  STO0.523 .95 10
  PIP69 1086.40 1085.80
+++ Tc =  10.0 min
+++ CA =    .5
+++ Link #  4,  Flow depth =    .42 ft
  PNC4 5 3 180 0
  STO0.523 .95 10
  PIP8 1085.80 1086.05
+++ Tc =  10.3 min
+++ CA =   1.0
+++ Link #  5,  Flow depth =    .54 ft
  PNC5 6 3 90 0
  REC1
  PIP330 1086.05 1079.98
+++ Tc =  11.1 min
+++ CA =   2.3
*** WARNING:  Pipe invert at D/S end dropped to meet minimum depth
    to invert criterion at D/S end
+++ Link #  6,  Flow depth =    .74 ft
  PNC6 9 3 180 0
  HOL2
  NEW CBS AT 418+10
  STO0.523 .95 10
  PIP69 1080.32 1079.73
+++ Tc =  10.0 min
+++ CA =    .5
+++ Link #  7,  Flow depth =    .42 ft
  PNC7 8 3 180 0
  STO0.523 .95 10
  PIP8 1079.73 1079.98
+++ Tc =  10.3 min
+++ CA =   1.0
+++ Link #  8,  Flow depth =    .54 ft
```

AF FREEWAY, SYSTEM #7 GLENDALE TO STA 421+40

```
  PNC8 9 3 90 0
  REC2
  PIP290 1079.98 1076.95
+++ Tc =  11.7 min
+++ CA =   3.3
*** WARNING:  Pipe invert at D/S end dropped to meet minimum depth
    to invert criterion at D/S end
+++ Link #  9,  Flow depth =   1.08 ft
  PNC9 10 3 90 0
  HOL3
  NEW CBS AT 421+00
  STO0.445 .95 10
  PIP36 1075.28 1076.90
+++ Tc =  10.0 min
+++ CA =    .4
+++ Link # 10,  Flow depth =    .52 ft
  PNC14 10 3 180 0
  REC3
  PIP8 1076.90 1076.65 1070.67 1070.61 -30
+++ Tc =  12.4 min
+++ CA =   3.7
+++ Link # 11,  Flow depth =   1.08 ft
  PNC10 11 3 180 0
  STO0.459 .95 10
  PIP69 1076.65 1075.95 1070.61 1070.47 -30
+++ Tc =  12.4 min
+++ CA =   4.1
+++ Link # 12,  Flow depth =   1.72 ft
  PNC11 12 3 180 0
  STO0.459 .95 10
  PIP180 1075.95 1075 1070.47 1068.5 -30
+++ Tc =  12.6 min
+++ CA =   4.6
+++ Link # 13,  Flow depth =   1.10 ft
  PNC12 13 3 180 2
  END
 END OF INPUT DATA.
```

AF FREEWAY, SYSTEM #7 GLENDALE TO STA 421+40

*** CBS AT 411+50 Pipe Design

Link	Length (ft)	Diam (in)	Invert Up/Dn (ft)	Slope (ft/ft)	Depth Up/Dn (ft)	Min. Cover (ft)	Velocity Act/Full (ft/s)	--Flow-- Act/Full (cfs)	Estimated Cost ($)
1	69	24	1086.69	.00609	3.8	1.6	4.3	2.75	0.
			1086.27		3.8		6.1	19.17	
2	8	24	1086.27	.01260	3.8	1.6	6.8	5.45	0.
			1086.17		4.1		8.8	27.59	
3	330	24	1086.17	.01172	4.1	1.6	6.7	5.45	0.
			1082.30		3.8		8.5	26.61	

Length = 407. ft Total length = 407. ft
Cost = 0. Total Cost = 0.

*** CBS AT 414+80 Pipe Design

Link	Length (ft)	Diam (in)	Invert Up/Dn (ft)	Slope (ft/ft)	Depth Up/Dn (ft)	Min. Cover (ft)	Velocity Act/Full (ft/s)	--Flow-- Act/Full (cfs)	Estimated Cost ($)
4	69	24	1082.65	.00870	3.8	1.6	4.6	2.14	0.
			1082.05		3.8		7.3	22.91	
5	8	24	1082.05	.01260	3.8	1.6	6.4	4.24	0.
			1081.95		4.1		8.8	27.59	
6	330	24	1081.95	.01733	4.1	1.6	8.9	9.42	0.
			1076.23		3.8		10.3	32.35	

Length = 407. ft Total length = 814. ft
Cost = 0. Total Cost = 0.

AF FREEWAY, SYSTEM #7 GLENDALE TO STA 421+40

*** CBS AT 418+10 Pipe Design

Link	Length (ft)	Diam (in)	Invert Up/Dn (ft)	Slope (ft/ft)	Depth Up/Dn (ft)	Min. Cover (ft)	Velocity Act/Full (ft/s)	--Flow-- Act/Full (cfs)	Estimated Cost ($)
7	69	24	1076.57	.00855	3.8	1.6	4.6	2.14	0.
			1075.98		3.8		7.2	22.72	
8	8	24	1075.98	.01260	3.8	1.6	6.4	4.24	0.
			1075.88		4.1		8.8	27.59	
9	290	24	1075.88	.00924	4.1	1.6	7.7	13.25	0.
			1073.20		3.8		7.5	23.62	

Length = 367. ft Total length = 1181. ft
Cost = 0. Total Cost = 0.

*** CBS AT 421+00 Pipe Design

Link	Length (ft)	Diam (in)	Invert Up/Dn (ft)	Slope (ft/ft)	Depth Up/Dn (ft)	Min. Cover (ft)	Velocity Act/Full (ft/s)	--Flow-- Act/Full (cfs)	Estimated Cost ($)
10	36	24	1071.53	.00288	3.8	1.6	2.9	1.82	0.
			1071.43		5.5		4.2	13.18	

Length = 36. ft Total length = 36. ft
Cost = 0. Total Cost = 0.

AF FREEWAY, SYSTEM #7 GLENDALE TO STA 421+40

*** CBS AT 421+00 Analysis of Existing Pipes

Link	Length (ft)	Diam (in)	Invert Up/Dn (ft)	Slope (ft/ft)	Depth Up/Dn (ft)	Cover Up/Dn (ft)	Velocity Act/Full (ft/s)	--Flow-- Act/Full (cfs)	Load (%)	-Solutions- Remove (cfs)	Diam (in)
11	8	30	1070.67	.00749	6.2	3.5	7.3	14.65	38		
			1070.61		6.0	3.3	7.9	38.57			
12	69	30	1070.61	.00203	6.0	3.3	4.6	16.37	82		
			1070.47		5.5	2.8	4.1	20.07			
13	180	30	1070.47	.01094	5.5	2.8	8.9	17.94	38		
			1068.50		6.5	3.8	9.5	46.61			

Length = 293. ft Total length = 1474. ft

AF FREEWAY, SYSTEM #7 GLENDALE TO STA 421+40

Hydraulic Gradeline Computations

Link #	Down-stream Node #	Hydraulic Gradeline Elevation	Crown Elev.	Possible Surcharge	Ground Elev.	Super-crit.?	Manhole Depth	Loss Coef
1	2	1088.24	1088.27	N	1090.02	Y	1.60	1.04
2	3	1087.48	1088.17	N	1090.27	Y	.96	1.02
3	6	1083.93	1084.30	N	1086.05	Y	1.36	1.01
4	5	1084.62	1084.05	Y	1085.80	Y	2.23	1.08
5	6	1083.93	1083.95	N	1086.05	Y	1.36	1.01
6	9	1077.88	1078.23	N	1079.98	Y	1.54	1.00
7	8	1078.57	1077.98	Y	1079.73	Y	2.25	1.08
8	9	1077.88	1077.88	Y	1079.98	Y	1.54	1.00
9	10	1074.27	1075.20	N	1076.90	Y	2.61	.31
10	10	1073.28	1073.43	N	1076.90	Y	2.61	.31
11	11	1073.15	1073.11	Y	1076.65	Y	2.37	1.03
12	12	1072.79	1072.97	N	1075.95	N	1.70	1.01
13	13	1069.58	1071.00	N	1075.00	Y	.00	.00

Link #	Terminal Node #	Hydraulic Gradeline Elevation	Ground Elevation	Loss Coef.
1	1	1088.69	1090.44	1.50
10	14	1073.93	1075.28	1.50

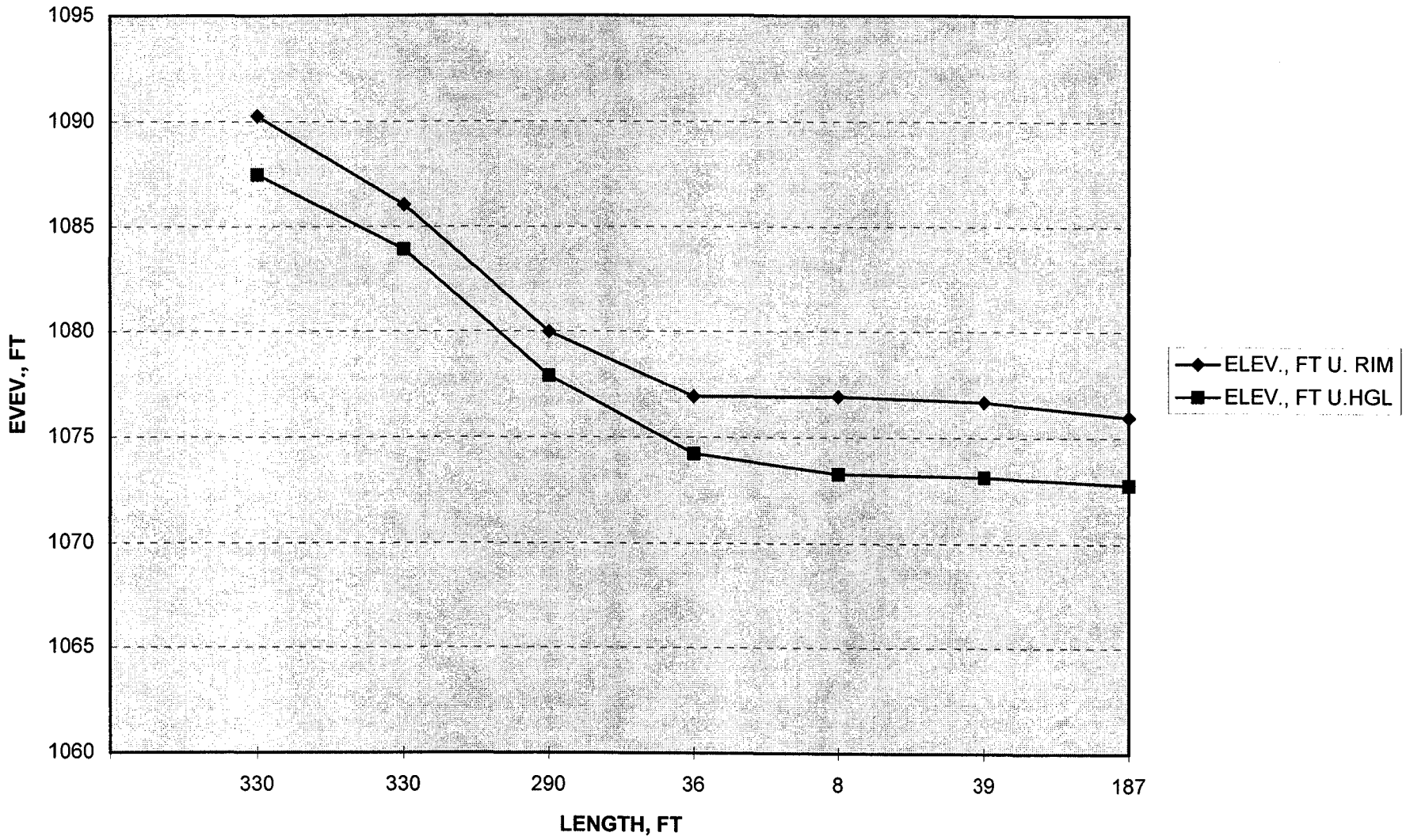
NORMAL END OF HYDRA

HGL SUMMARY: AGUA FRIA FREEWAY
CAMELBACK AVE TO NORTHERN AVENUE

11/11/97

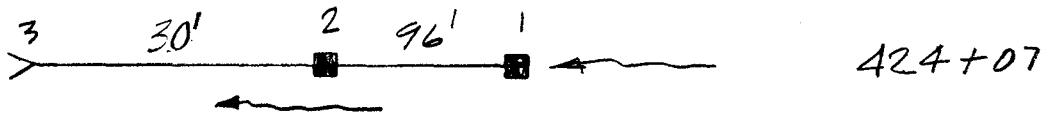
LINK	UPPER NODE	LOWER NODE	LENGTH ft	ELEV., FT U. RIM	ELEV., FT U.HGL	HGL SLOPE
SYSTEM #7, GLENDALE AVE TO STA 421+40						
2	3	6	330	1090.26	1087.47	.01073
5	6	9	330	1086.05	1083.93	.01830
8	9	10	290	1079.98	1077.89	.01266
9	14	10	36	1076.90	1074.22	.02611
10	10	11	8	1076.90	1073.28	.01625
11	11	12	39	1076.65	1073.15	.00923
12	12	13	187	1075.95	1072.79	.01717
13	13	END		1075.00	1069.58	

AFF SYSTEM #7


1095
1090
1085
1080
1075
1070
1065
1060
EVEV., FT
330
330
290
36
8
39
187
LENGTH, FT
ELEV., FT U. RIM
ELEV., FT U.HGL

DMJM	PROJECT: Agua Fria Freeway	JOB NO. 6508.07	SHEET of
		DESIGNED BY JWG	DATE 10/6/97
SUBJECT: HYDRA MODELS		CHECKED BY	DATE

SYSTEM #8 STA 421+00 to STA 427+65
Sag at STA 424+07



DRAINAGE AREAS

#61 NB $= (42765 - 42100) \times 69 + \left(\frac{12' + 425}{2}\right) \times 475' + 28' \times 161$

$= 63337 / 43560$

$= 1.454$ Ac Pavement

$+ \dfrac{\left(\frac{35+17}{2}\right) \times 163}{43560} = .097$ Ac Unpaved

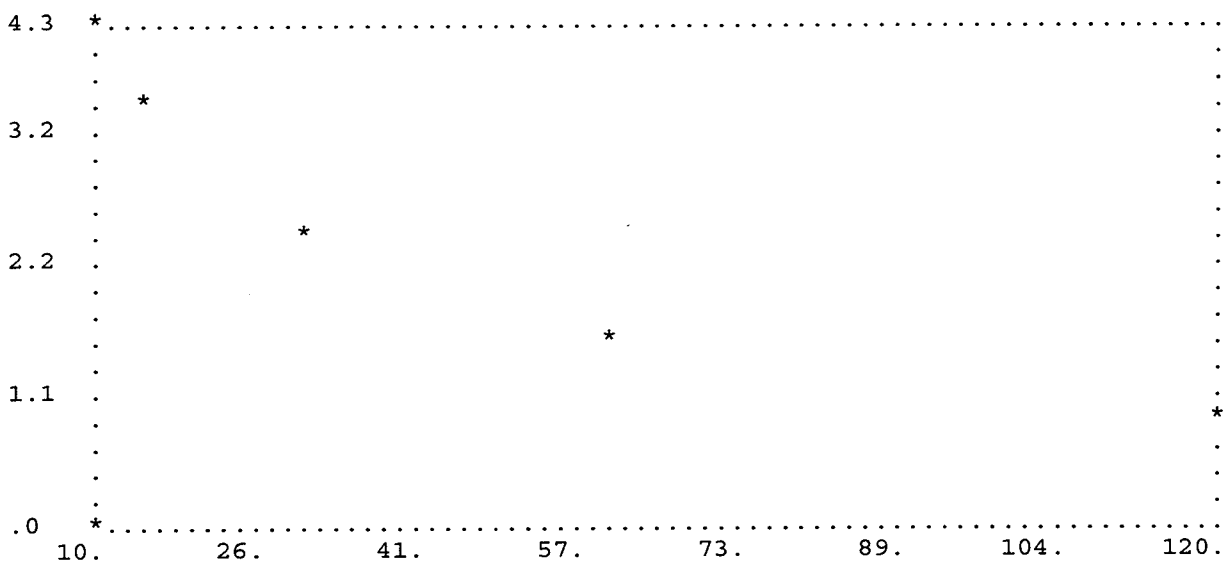
Combined C $= \dfrac{(1.454 \times .95) + (.097 \times .74)}{(1.459 + .097)} = .937$

DA #62 $= \dfrac{\left(\frac{97+83}{2}\right) \times 481}{43560} = .994$ Ac

AF FREEWAY, SYSTEM #8 SAG AT 424+07

```
+++ Commands Read From File C:\HYDRA\AFSYS#8.HDA
  JOB
  SWI2
  REM SITE SPECIFIC RDDF FOR 10 YEAR
  RAI10 4.3 15 3.6 30 2.4 60 1.5 120 .8
```

IDF CURVE



PLOT-DATA (TIME Vs.VALUE)

10.	4.30	120.	.80	0.	.00	0.	.00	0.	.00
15.	3.60	0.	.00	0.	.00	0.	.00	0.	.00
30.	2.40	0.	.00	0.	.00	0.	.00	0.	.00
60.	1.50	0.	.00	0.	.00	0.	.00	0.	.00

```
  REM ASSUMES A PAVEMENT SECTION OF 18 INCHES
  PDA.012 24 3.75 1.5 2 .0001
  HGL1
  NEW CBS AT SAG
  STO0.994 .95 10
  PIP96 1075.00 1074.51
+++ Tc =  10.0 min
+++ CA =    .9
+++ Link #  1,  Flow depth =    .66 ft
  PNC1 2 3 180 0
```

```
 AF FREEWAY, SYSTEM #8 SAG AT 424+076


  STO1.551 .937 10
  PIP30 1074.51 1073.2 1070.76 1069.45 -24
+++ Tc =  10.4 min
+++ CA =   2.4
+++ Link #  2,  Flow depth =    .62 ft
  PNC2 3 3 180 2
  END
 END OF INPUT DATA.
```

AF FREEWAY, SYSTEM #8 SAG AT 424+076

*** CBS AT SAG

Pipe Design

Link	Length (ft)	Diam (in)	Invert Up/Dn (ft)	Slope (ft/ft)	Depth Up/Dn (ft)	Min. Cover (ft)	Velocity Act/Full (ft/s)	--Flow-- Act/Full (cfs)	Estimated Cost ($)
1	96	24	1071.25	.00510	3.8	1.6	4.5	4.06	0.
			1070.76		3.8		5.6	17.56	

Length = 96. ft Total length = 96. ft
Cost = 0. Total Cost = 0.

*** CBS AT SAG

Analysis of Existing Pipes

Link	Length (ft)	Diam (in)	Invert Up/Dn (ft)	Slope (ft/ft)	Depth Up/Dn (ft)	Cover Up/Dn (ft)	Velocity Act/Full (ft/s)	--Flow-- Act/Full (cfs)	Load (%)	-Solutions- Remove (cfs)	Diam (in)
2	30	24	1070.76	.04366	3.8	1.6	12.7	10.19	20		
			1069.45		3.7	1.6	16.3	51.35			

Length = 126. ft Total length = 126. ft

AF FREEWAY, SYSTEM #8 SAG AT 424+076

Hydraulic Gradeline Computations

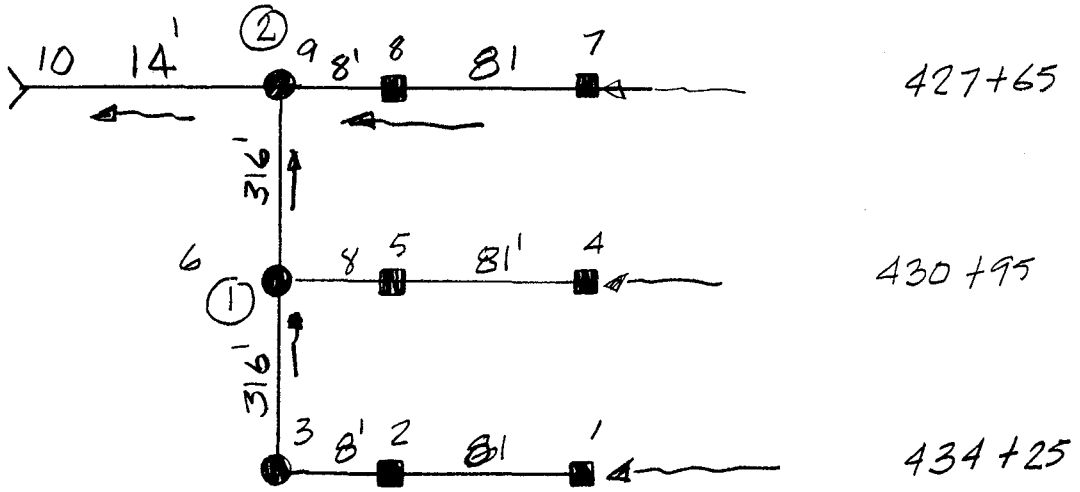
Link #	Down-stream Node #	Hydraulic Gradeline Elevation	Crown Elev.	Possible Surcharge	Ground Elev.	Super-crit.?	Manhole Depth	Loss Coef
1	2	1073.95	1072.76	Y	1074.51	Y	1.90	1.03
2	3	1070.06	1071.45	N	1073.20	Y	.00	.00

Link #	Terminal Node #	Hydraulic Gradeline Elevation	Ground Elevation	Loss Coef.
1	1	1074.48	1075.00	1.50

NORMAL END OF HYDRA

DMJM	PROJECT: Agua Fria Freeway	JOB NO. 6508.07	SHEET 1 of
		DESIGNED BY JWG	DATE
SUBJECT: HYDRA MODELING		CHECKED BY	DATE

SYSTEM #9 ~ STA 427+65 to End



AGUA FRIA FREEWAY: CAMELBACK ROAD TO NORTHERN

DRAINAGE AREA CALCULATIONS

Revised :

System #9 - STA 427+65 to STA 434+25 10/6/97

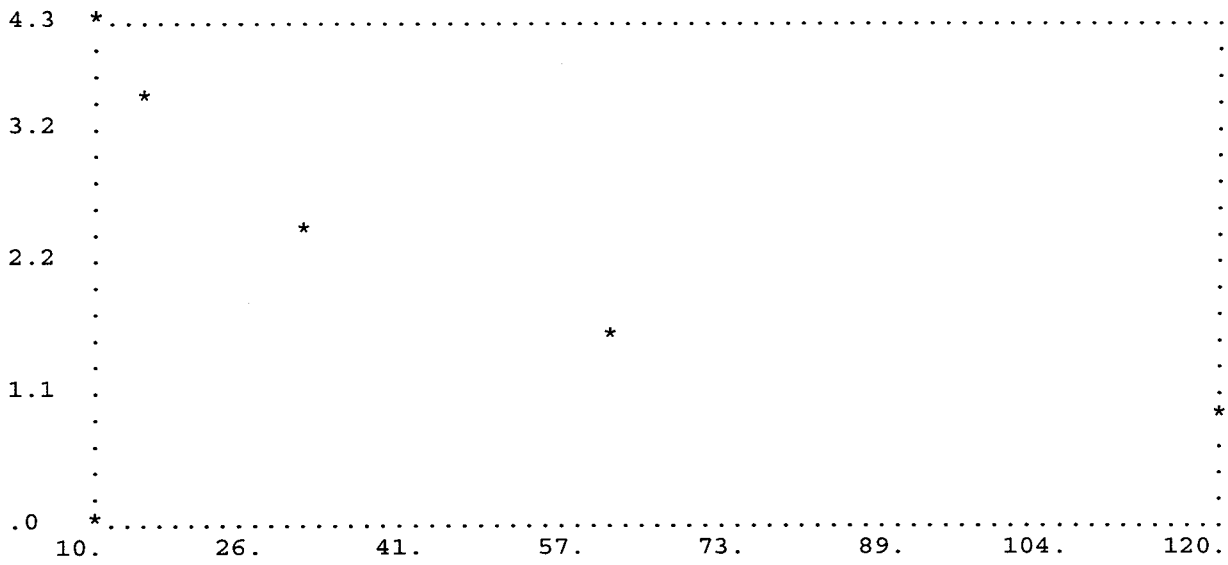
DA No.	LOC.	NOTE #	BEGIN STA.	ENDING STA.	WIDTH	SUB AREAS LENGTH	SUB AREAS WIDTH	AREA sf	AREA Ac.	C	CA
63	NB	1	42765	43095	81			26730	0.614	0.950	0.583
64	SB	1	42765	43095	81			26730	0.614	0.950	0.583
65	NB	1	43095	43425	81			26730	0.614	0.950	0.583
66	SB	1	43095	43425	81			26730	0.614	0.950	0.583
67	NB	1	43425	43655	81			18630	0.428	0.950	0.406
68	SB	1	43425	43655	81			18630	0.428	0.950	0.406

NOTES: 1 Pavement width - 4 lanes at 12' + outside shoulder at 10' + inside shoulder at 11' plus auxiliary lane.

AF FREEWAY, SYSTEM #9 STA 427+65 TO STA 434+25

```
+++ Commands Read From File C:\HYDRA\AFSYS#9.HDA
  JOB
  SWI2
  REM SITE SPECIFIC RDDF FOR 10 YEAR
  RAI10 4.3 15 3.6 30 2.4 60 1.5 120 .8
```

IDF CURVE



PLOT-DATA (TIME Vs.VALUE)

10.	4.30	120.	.80	0.	.00	0.	.00	0.	.00
15.	3.60	0.	.00	0.	.00	0.	.00	0.	.00
30.	2.40	0.	.00	0.	.00	0.	.00	0.	.00
60.	1.50	0.	.00	0.	.00	0.	.00	0.	.00

```
  REM ASSUMES A PAVEMENT SECTION OF 18 INCHES
  PDA.012 24 3.75 1.5 2 .0001
  HGL1
  REM START AT 436+55
  NEW CBS AT 434+25
  STO0.428 .95 10
  PIP81 1078.80 1077.57
+++ Tc =  10.0 min
+++ CA =    .4
+++ Link #  1,  Flow depth =    .34 ft
```

AF FREEWAY, SYSTEM #9 STA 427+65 TO STA 434+25

```
  PNC1 2 3 180 0
  STO0.428 .95 10
  PIP8 1077.57 1077.82
+++ Tc =  10.3 min
+++ CA =    .8
+++ Link #  2,  Flow depth =    .48 ft
  PNC2 3 3 90 0
  PIP316 1077.82 1076.50
+++ Tc =  10.3 min
+++ CA =    .8
*** WARNING:  Pipe invert at D/S end dropped to meet minimum depth
    to invert criterion at D/S end
+++ Link #  3,  Flow depth =    .70 ft
  PNC3 6 3 180 0
  HOL1
  NEW CBS AT 430+95
  STO0.614 .95 10
  PIP81 1077.48 1076.25
+++ Tc =  10.0 min
+++ CA =    .6
+++ Link #  4,  Flow depth =    .40 ft
  PNC4 5 3 180 0
  STO0.614 .95 10
  PIP8 1076.25 1076.50
+++ Tc =  10.2 min
+++ CA =   1.2
+++ Link #  5,  Flow depth =    .58 ft
  PNC5 6 3 90 0
  REC1
  PIP316 1076.50 1074.97
+++ Tc =  11.7 min
+++ CA =   2.0
*** WARNING:  Pipe invert at D/S end dropped to meet minimum depth
    to invert criterion at D/S end
+++ Link #  6,  Flow depth =   1.06 ft
  PNC6 9 3 180 0
  HOL2
  NEW CBS AT 427+65
  STO0.614 .95 10
  PIP81 1076.16 1074.72
+++ Tc =  10.0 min
+++ CA =    .6
+++ Link #  7,  Flow depth =    .38 ft
  PNC7 8 3 180 0
  STO0.614 .95 10
  PIP8 1074.72 1074.97
+++ Tc =  10.2 min
+++ CA =   1.2
+++ Link #  8,  Flow depth =    .58 ft
```

```
 AF FREEWAY, SYSTEM #9 STA 427+65 TO STA 434+25


  PNC8 9 3 180 0
  REC2
  PIP14 1075.18 1074.1 1070.20 1070.10 -30
+++ Tc =  12.8 min
+++ CA =   3.1
+++ Link #  9,  Flow depth =   1.00 ft
  PNC9 10 3 180 2
  END
 END OF INPUT DATA.
```

AF FREEWAY, SYSTEM #9 STA 427+65 TO STA 434+25

*** CBS AT 434+25 Pipe Design

Link	Length (ft)	Diam (in)	Invert Up/Dn (ft)	Slope (ft/ft)	Depth Up/Dn (ft)	Min. Cover (ft)	Velocity Act/Full (ft/s)	--Flow-- Act/Full (cfs)	Estimated Cost ($)
1	81	24	1075.05	.01519	3.8	1.6	5.3	1.75	0.
			1073.82		3.8		9.6	30.28	
2	8	24	1073.82	.01260	3.8	1.6	6.0	3.47	0.
			1073.72		4.1		8.8	27.59	
3	316	24	1073.72	.00307	4.1	1.6	3.6	3.46	0.
			1072.75		3.8		4.3	13.61	

Length = 405. ft Total length = 405. ft
Cost = 0. Total Cost = 0.

*** CBS AT 430+95 Pipe Design

Link	Length (ft)	Diam (in)	Invert Up/Dn (ft)	Slope (ft/ft)	Depth Up/Dn (ft)	Min. Cover (ft)	Velocity Act/Full (ft/s)	--Flow-- Act/Full (cfs)	Estimated Cost ($)
4	81	24	1073.73	.01518	3.8	1.6	5.8	2.51	0.
			1072.50		3.8		9.6	30.28	
5	8	24	1072.50	.01260	3.8	1.6	6.6	4.98	0.
			1072.40		4.1		8.8	27.59	
6	316	24	1072.40	.00373	4.1	1.6	4.8	8.03	0.
			1071.22		3.8		4.8	15.01	

Length = 405. ft Total length = 810. ft
Cost = 0. Total Cost = 0.

AF FREEWAY, SYSTEM #9 STA 427+65 TO STA 434+25

*** CBS AT 427+65 Pipe Design

Link	Length (ft)	Diam (in)	Invert Up/Dn (ft)	Slope (ft/ft)	Depth Up/Dn (ft)	Min. Cover (ft)	Velocity Act/Full (ft/s)	--Flow-- Act/Full (cfs)	Estimated Cost ($)
7	81	24	1072.41	.01778	3.8	1.6	6.2	2.51	0.
			1070.97		3.8		10.4	32.77	
8	8	24	1070.97	.01260	3.8	1.6	6.6	4.98	0.
			1070.87		4.1		8.8	27.59	

Length = 89. ft Total length = 89. ft
Cost = 0. Total Cost = 0.

*** CBS AT 427+65 Analysis of Existing Pipes

Link	Length (ft)	Diam (in)	Invert Up/Dn (ft)	Slope (ft/ft)	Depth Up/Dn (ft)	Cover Up/Dn (ft)	Velocity Act/Full (ft/s)	--Flow-- Act/Full (cfs)	Load (%)	-Solutions- Remove (cfs)	Diam (in)
9	14	30	1070.20	.00714	5.0	2.3	6.8	12.29	33		
			1070.10		4.0	1.3	7.7	37.65			

Length = 103. ft Total length = 913. ft

AF FREEWAY, SYSTEM #9 STA 427+65 TO STA 434+25

Hydraulic Gradeline Computations

Link #	Down-stream Node #	Hydraulic Gradeline Elevation	Crown Elev.	Possible Surcharge	Ground Elev.	Super-crit.?	Manhole Depth	Loss Coef
1	2	1075.19	1075.82	N	1077.57	Y	1.09	1.03
2	3	1074.61	1075.72	N	1077.82	Y	.79	1.02
3	6	1073.67	1074.75	N	1076.50	Y	1.23	1.00
4	5	1074.54	1074.50	Y	1076.25	Y	1.68	1.05
5	6	1073.81	1074.40	N	1076.50	Y	1.23	1.00
6	9	1072.26	1073.22	N	1075.18	Y	1.10	.32
7	8	1072.24	1072.97	N	1074.72	Y	.93	1.02
8	9	1071.45	1072.87	N	1075.18	Y	1.10	.32
9	10	1071.08	1072.60	N	1074.10	Y	.00	.00

Link #	Terminal Node #	Hydraulic Gradeline Elevation	Ground Elevation	Loss Coef.
1	1	1076.02	1078.80	1.50

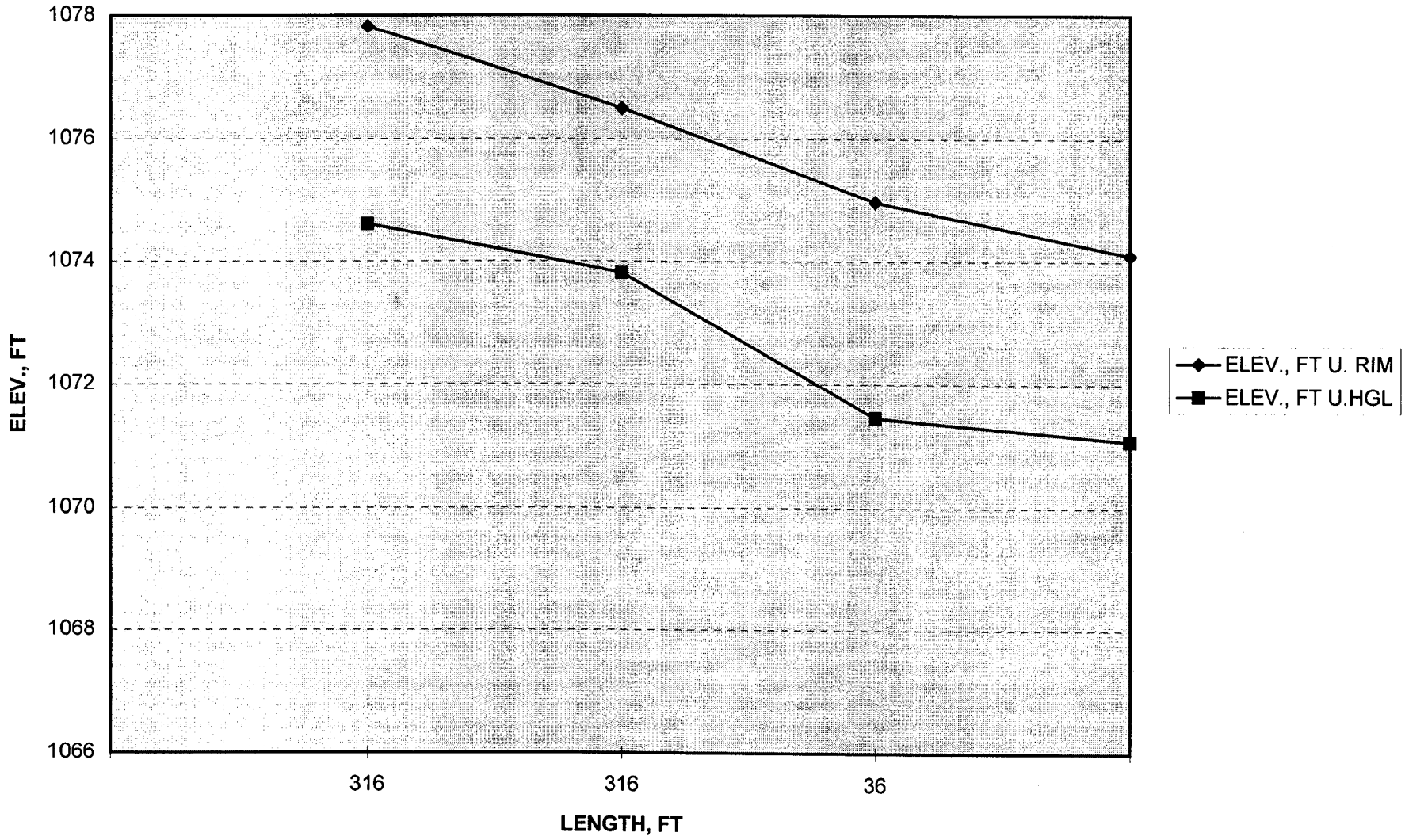
NORMAL END OF HYDRA

HGL SUMMARY: AGUA FRIA FREEWAY
CAMELBACK AVE TO NORTHERN AVENUE

11/6/97

LINK	UPPER NODE	LOWER NODE	LENGTH ft	ELEV., FT U. RIM	ELEV., FT U.HGL	HGL SLOPE
SYSTEM #9, STA 427+65 AVE TO STA 434+25						
2	3	6	316	1077.82	1074.61	.00253
5	6	9	316	1076.50	1073.81	.00747
8	9	10	36	1074.97	1071.45	.01028
9	10	END		1074.10	1071.08	

AFF SYSTEM #9


1078
1076
1074
1072
1070
1068
1066
ELEV., FT
316
316
36
LENGTH, FT
ELEV., FT U. RIM
ELEV., FT U.HGL

APPENDIX C

PAVEMENT BASIN DRAINAGE AREA

MAPS

APPENDIX C

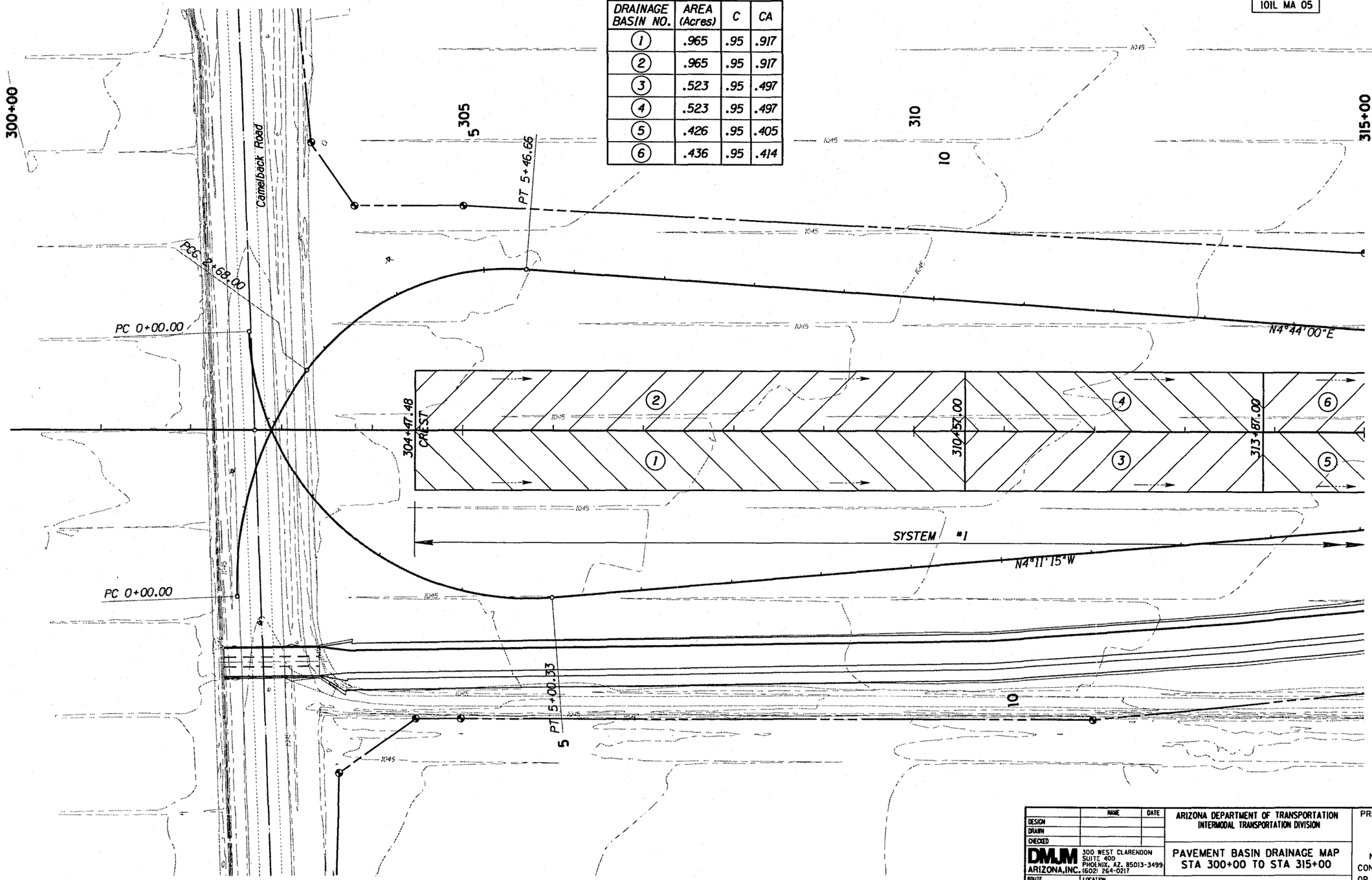
PAVEMENT BASIN DRAINAGE AREA

MAPS

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	RAM 600-0-524			
		101L MA 05			

DRAINAGE SYSTEM #1

DRAINAGE BASIN NO.	AREA (Acres)	C	CA
1	.965	.95	.917
2	.965	.95	.917
3	.523	.95	.497
4	.523	.95	.497
5	.426	.95	.405
6	.436	.95	.414



	NAME	DATE
DESIGN		
DRAWN		
CHECKED		

DMJM ARIZONA, INC. 300 WEST CLARENDON SUITE 400 PHOENIX, AZ. 85013-3499 (602) 264-0217

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION

PAVEMENT BASIN DRAINAGE MAP
STA 300+00 TO STA 315+00

ROUTE: 101L
LOCATION: AGUA FRIA, CAMELBACK - NORTHERN

PRELIMINARY
30%
Review
NOT FOR CONSTRUCTION OR RECORDING
DWG. NO. D- 1.1

SURVEY NO.	FINISHED PLANS	REVISIONS	LOCATION	DATE

cccccDGNcSPECIFICATIONcccccc
cccccSYSTIMEcccccc
VIEW NAME:

TRACS NO. H4578 01 D | 600-0-524 | 1 OF 10

j:/af03/civ/drainage/af03da01.dgn Nov. 24, 1997 13:35:11 DMJM Arizona,Inc.

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	RAM 600-0-524			

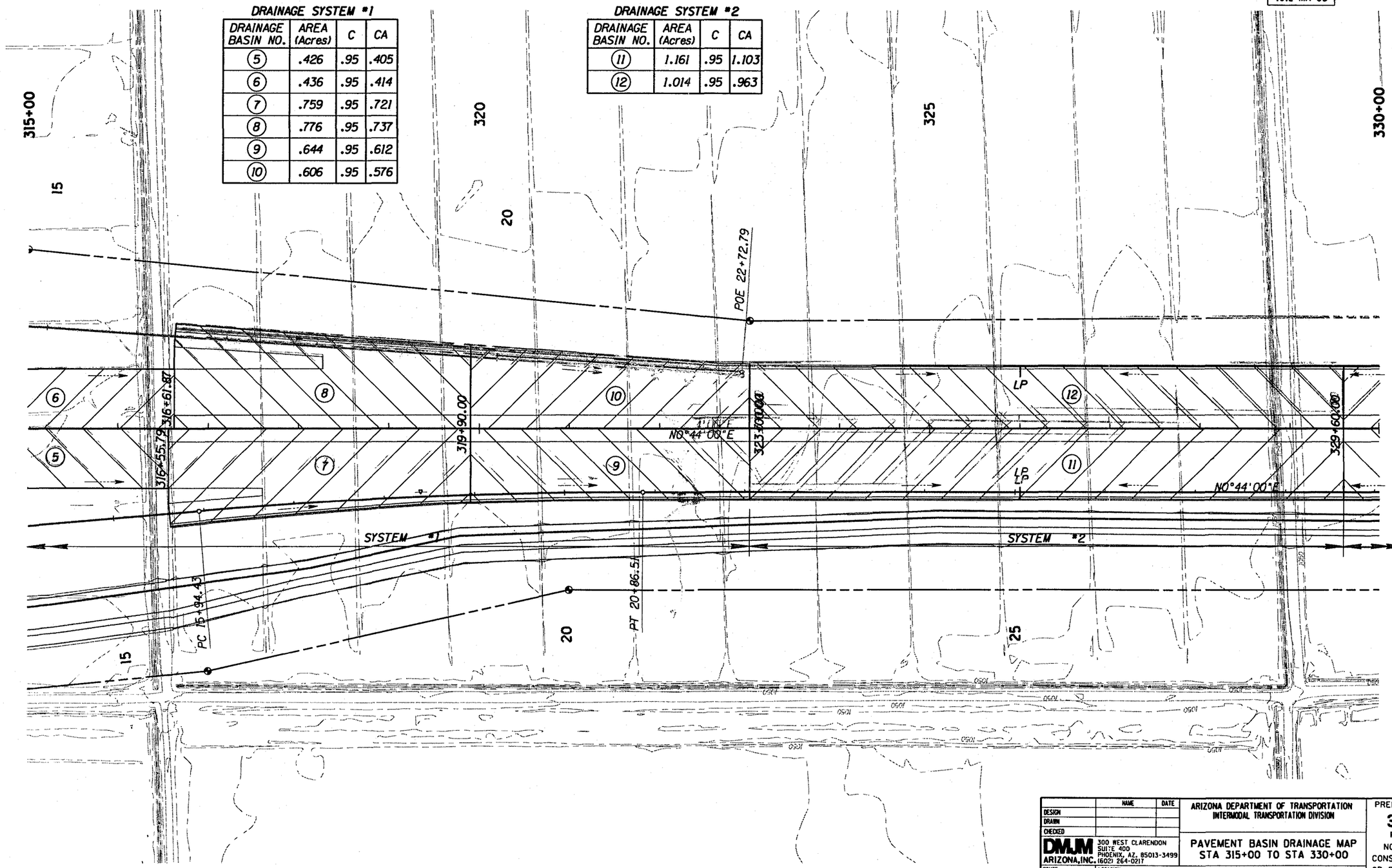
101L MA 05

DRAINAGE SYSTEM #1

DRAINAGE BASIN NO.	AREA (Acres)	C	CA
5	.426	.95	.405
6	.436	.95	.414
7	.759	.95	.721
8	.776	.95	.737
9	.644	.95	.612
10	.606	.95	.576

DRAINAGE SYSTEM #2

DRAINAGE BASIN NO.	AREA (Acres)	C	CA
11	1.161	.95	1.103
12	1.014	.95	.963



	NAME	DATE
DESIGN		
DRAWN		
CHECKED		

DMJM ARIZONA, INC. — 300 WEST CLARENDON SUITE 400, PHOENIX, AZ. 85013-3499, (602) 264-0217

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION

PAVEMENT BASIN DRAINAGE MAP
STA 315+00 TO STA 330+00

ROUTE: 101L
LOCATION: AGUA FRIA, CAMELBACK - NORTHERN

PRELIMINARY
30%
Review
NOT FOR CONSTRUCTION OR RECORDING
DWG. NO. D- 1.2

SURVEY NO.	FINISHED PLANS	REVISIONS	LOCATION	DATE

cccccDGNcSPECIFICATIONcccccc VIEW NAME:
cccccSYSTIMEcccccc

TRACS NO. H4578 01 D | 600-0-524 | 2 OF 10

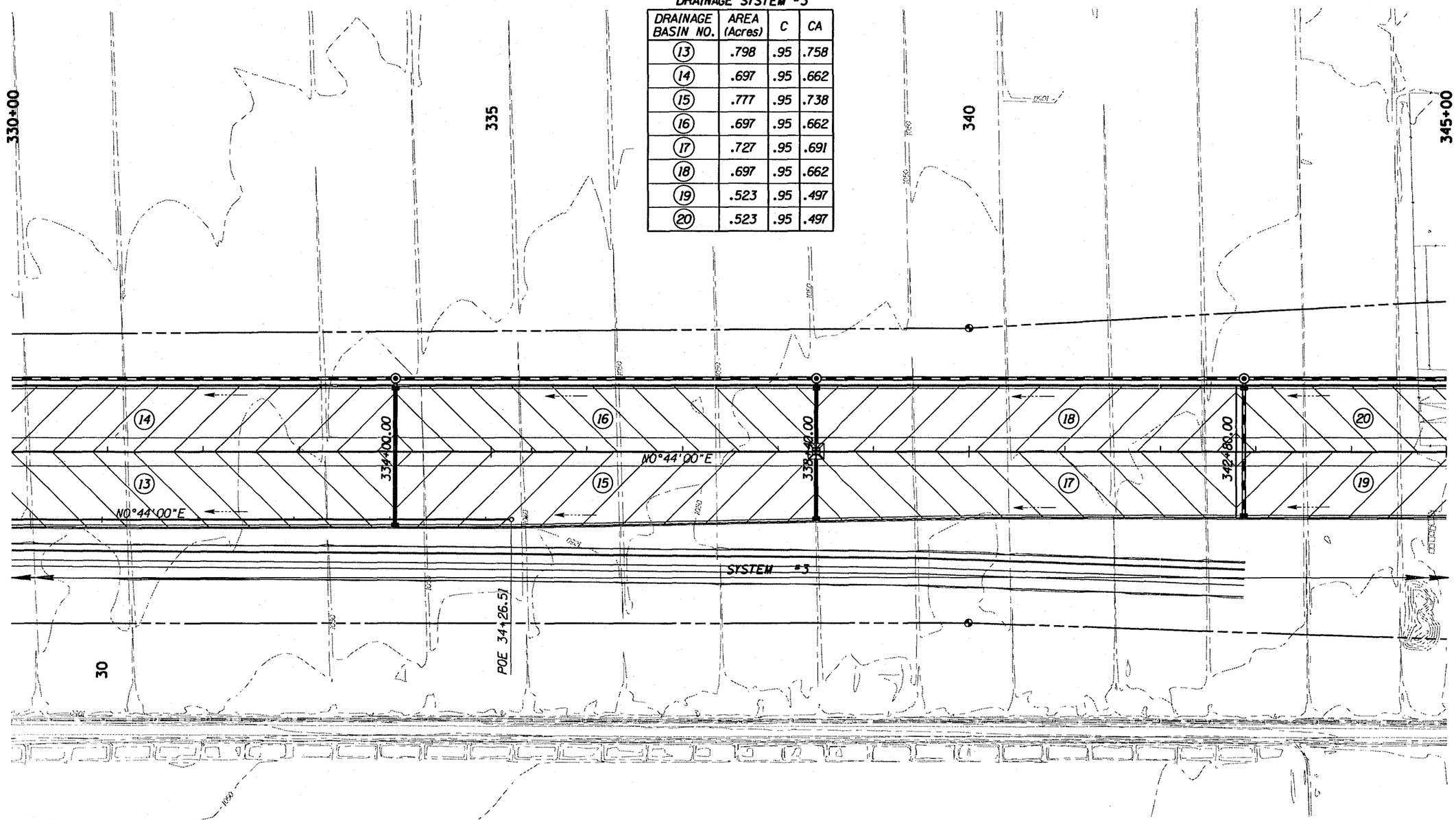
j:/af03/civ/drainage/af03da02.dgn Nov. 24, 1997 13:36:09 DMJM Arizona,Inc.

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	RAM 600-0-524			

101L MA 05

DRAINAGE SYSTEM #3

DRAINAGE BASIN NO.	AREA (Acres)	C	CA
13	.798	.95	.758
14	.697	.95	.662
15	.777	.95	.738
16	.697	.95	.662
17	.727	.95	.691
18	.697	.95	.662
19	.523	.95	.497
20	.523	.95	.497



	NAME	DATE
DESIGN		
DRAWN		
CHECKED		

DMJM ARIZONA, INC. 300 WEST CLARENDON SUITE 400 PHOENIX, AZ. 85013-3499 (602) 264-0217

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION

PAVEMENT BASIN DRAINAGE MAP
STA 330+00 TO STA 345+00

ROUTE 101L LOCATION AGUA FRIA, CAMELBACK - NORTHERN

PRELIMINARY
30%
Review
NOT FOR CONSTRUCTION OR RECORDING

DWG. NO. D- 1.3

SURVEY NO.	FINISHED PLANS	REVISIONS	LOCATION	DATE

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cccccSYSTIMEcccccc
VIEW NAME:

TRACS NO. H4578 01 D | 600-0-524 | 3 OF 10

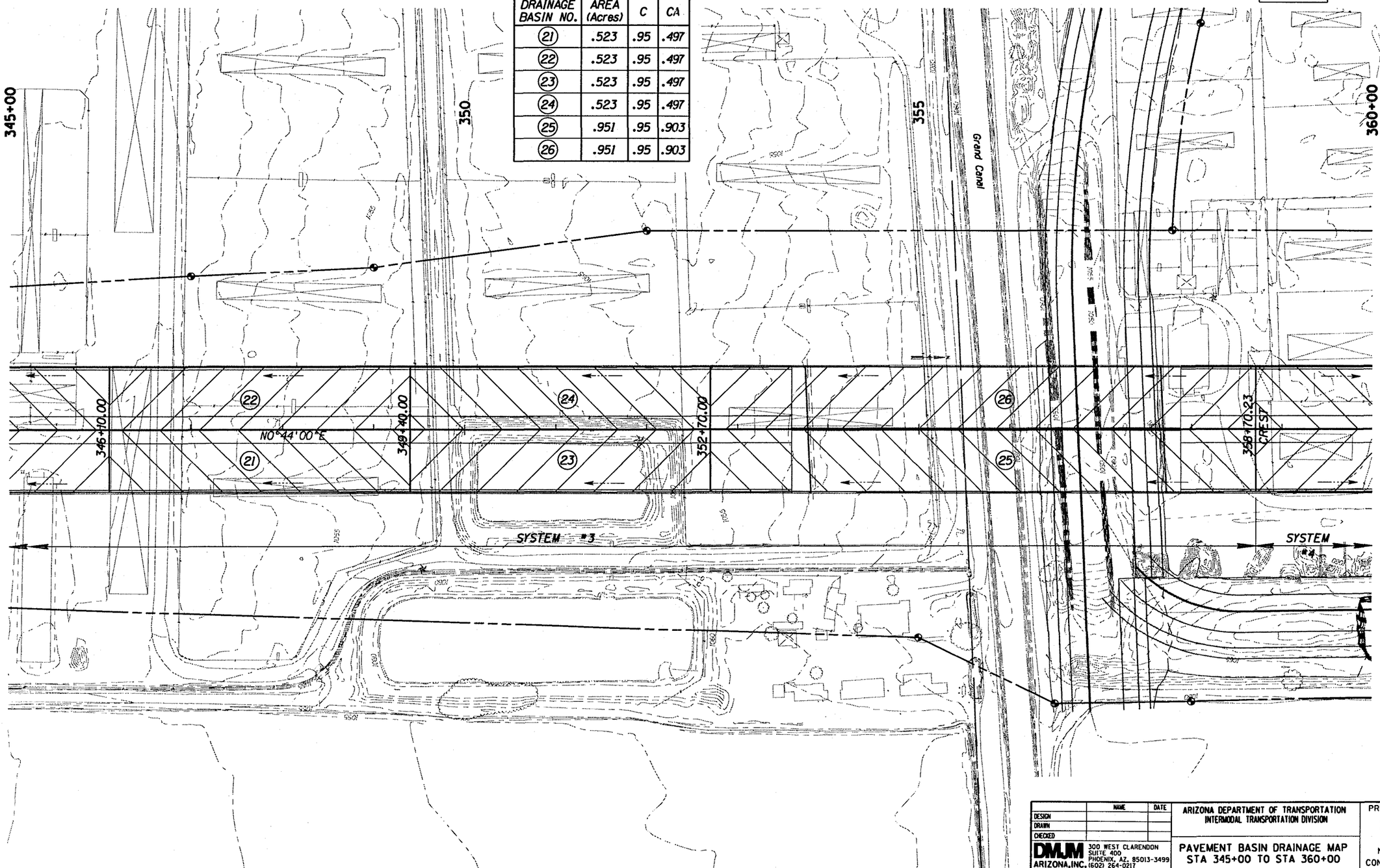
j:/af03/civ/drainage/af03da03.dgn Nov. 24, 1997 13:37:15 DMJM Arizona,Inc.

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	RAM 600-0-524			

101L MA 05

DRAINAGE SYSTEM #3

DRAINAGE BASIN NO.	AREA (Acres)	C	CA
21	.523	.95	.497
22	.523	.95	.497
23	.523	.95	.497
24	.523	.95	.497
25	.951	.95	.903
26	.951	.95	.903



	NAME	DATE
DESIGN		
DRAWN		
CHECKED		

DMJM ARIZONA, INC. 300 WEST CLARENDON SUITE 400 PHOENIX, AZ. 85013-3499 (602) 264-0217

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION

PAVEMENT BASIN DRAINAGE MAP
STA 345+00 TO STA 360+00

ROUTE 101L — LOCATION AGUA FRIA, CAMELBACK - NORTHERN

PRELIMINARY
30%
Review
NOT FOR CONSTRUCTION OR RECORDING

DWG. NO. D- 1.4

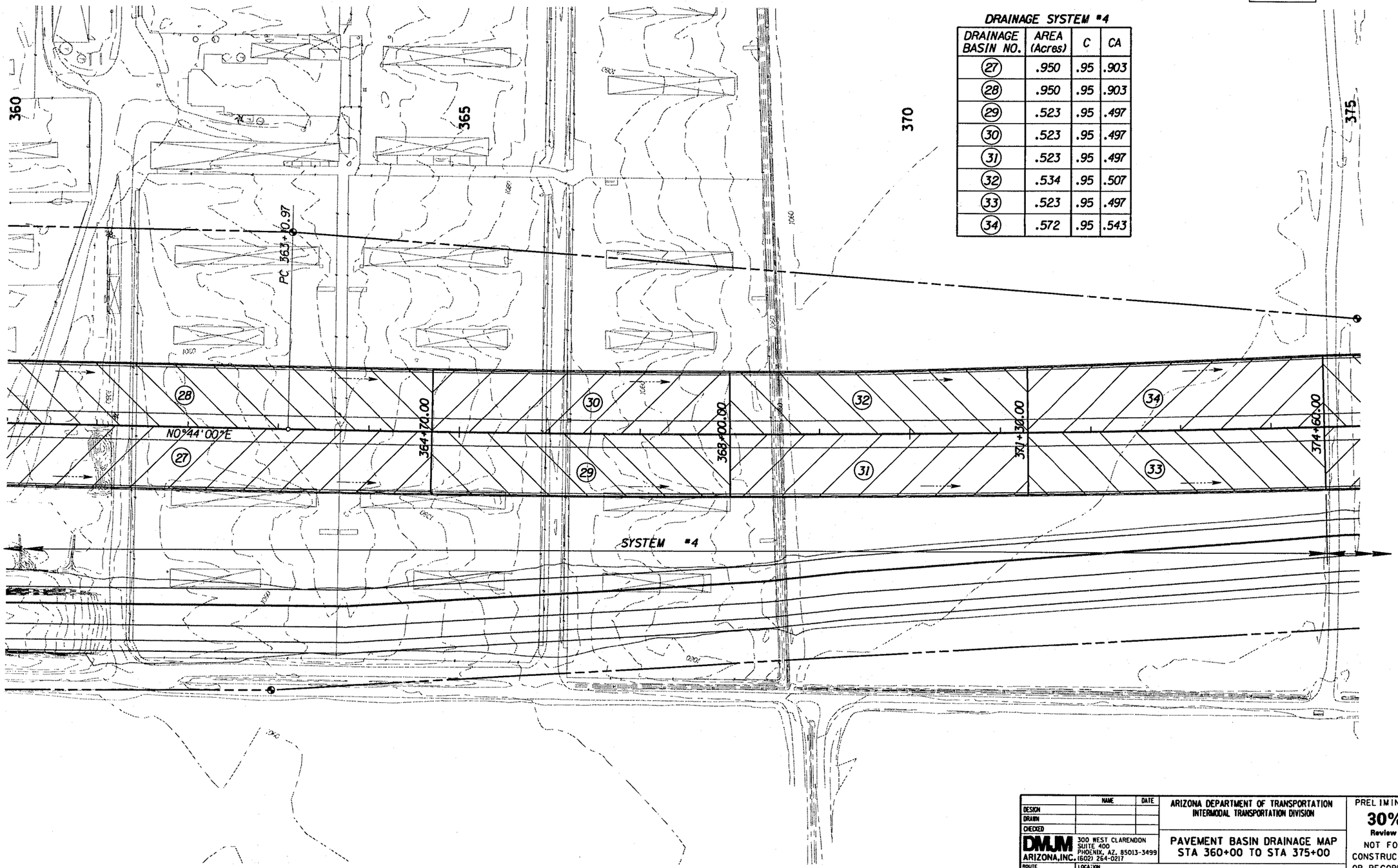
SURVEY NO.	FINISHED PLANS	REVISIONS	LOCATION	DATE

cccccDGNcSPECIFICATIONccccc VIEW NAME:
cccccSYSTIMEccccc

TRACS NO. H4578 01 D | 600-0-524 | 4 OF 10

j:/af03/civ/drainage/af03da04.dgn Nov. 24, 1997 13:38:27 DMJM Arizona,Inc.

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	RAM 600-0-524			
		101L MA 05			



DRAINAGE SYSTEM #4

DRAINAGE BASIN NO.	AREA (Acres)	C	CA
27	.950	.95	.903
28	.950	.95	.903
29	.523	.95	.497
30	.523	.95	.497
31	.523	.95	.497
32	.534	.95	.507
33	.523	.95	.497
34	.572	.95	.543

	NAME	DATE
DESIGN		
DRAWN		
CHECKED		

DMJM ARIZONA, INC. 300 WEST CLARENDON SUITE 400 PHOENIX, AZ. 85013-3499 (602) 264-0217

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION

PAVEMENT BASIN DRAINAGE MAP
STA 360+00 TO STA 375+00

ROUTE 101L

LOCATION AGUA FRIA, CAMELBACK - NORTHERN

PRELIMINARY
30%
Review
NOT FOR CONSTRUCTION OR RECORDING

DWG. NO. D- 1.5

SURVEY NO.	FINISHED PLANS	REVISIONS	LOCATION	DATE

ccccccDGNcSPECIFICATIONcccccc VIEW NAME:
ccccccSYSTIMEcccccc

TRACS NO. H4578 01 D | 600-0-524 | 5 OF 10

j:/af03/civ/drainage/af03da05.dgn Nov. 24, 1997 13:39:16 DMJM Arizona,Inc.

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	RAM 600-0-524			

101L MA 05

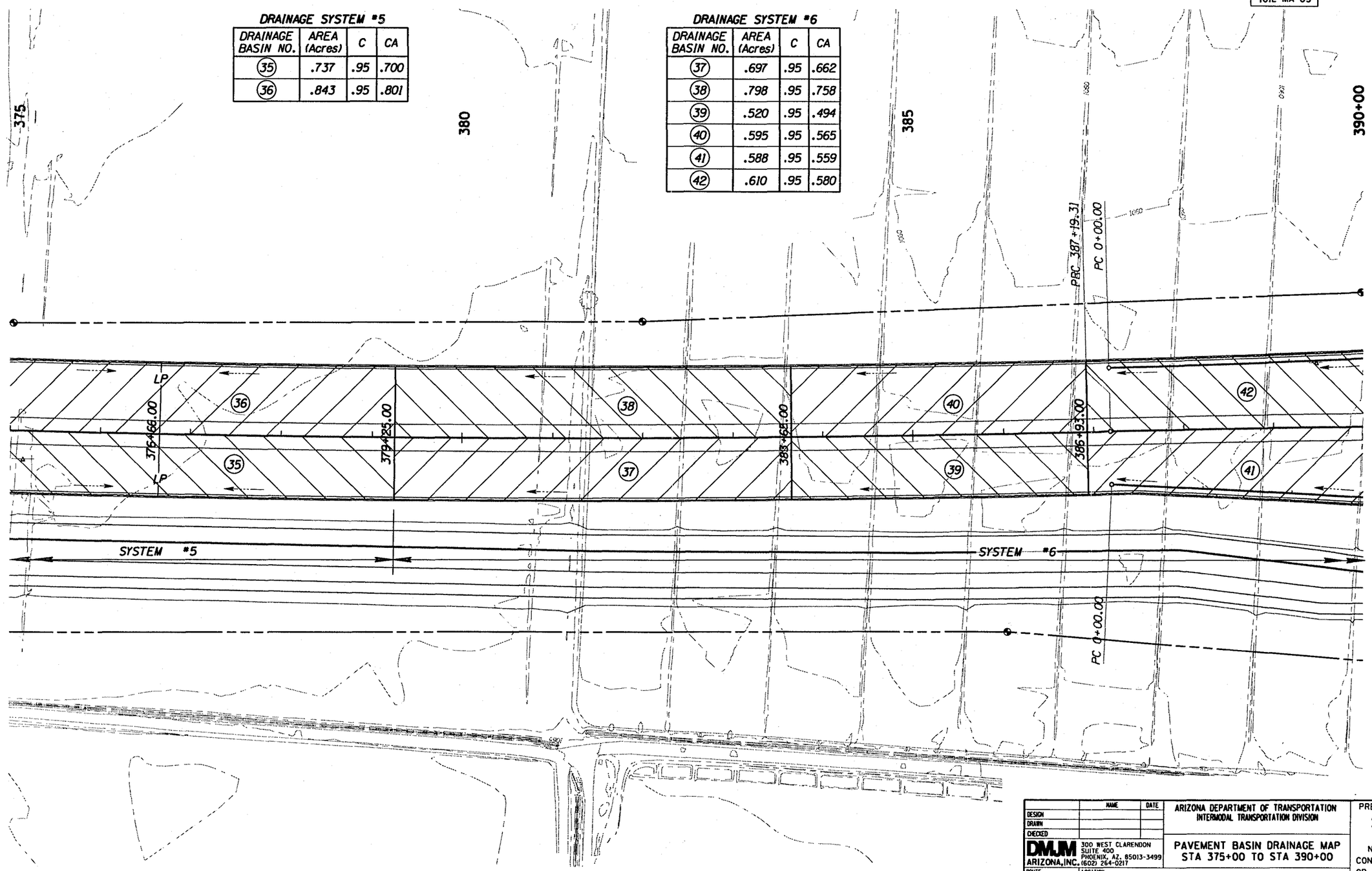
N

DRAINAGE SYSTEM #5

DRAINAGE BASIN NO.	AREA (Acres)	C	CA
35	.737	.95	.700
36	.843	.95	.801

DRAINAGE SYSTEM #6

DRAINAGE BASIN NO.	AREA (Acres)	C	CA
37	.697	.95	.662
38	.798	.95	.758
39	.520	.95	.494
40	.595	.95	.565
41	.588	.95	.559
42	.610	.95	.580



SURVEY NO.	FINISHED PLANS	REVISIONS	LOCATION	DATE

	NAME	DATE
DESIGN		
DRAWN		
CHECKED		

DMJM ARIZONA, INC. 300 WEST CLARENDON SUITE 400 PHOENIX, AZ. 85013-3499 (602) 264-0217

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION

PAVEMENT BASIN DRAINAGE MAP
STA 375+00 TO STA 390+00

ROUTE 101L | LOCATION AGUA FRIA, CAMELBACK - NORTHERN

PRELIMINARY
30%
Review
NOT FOR CONSTRUCTION OR RECORDING

DWG. NO. D- 1.6

TRACS NO. H4578 01 D | 600-0-524 | 6 OF 10

ccccccDGNcSPECIFICATIONcccccc
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VIEW NAME:

j:/af03/civ/drainage/af03da06.dgn Nov. 24, 1997 13:43:00 DMJM Arizona,Inc.

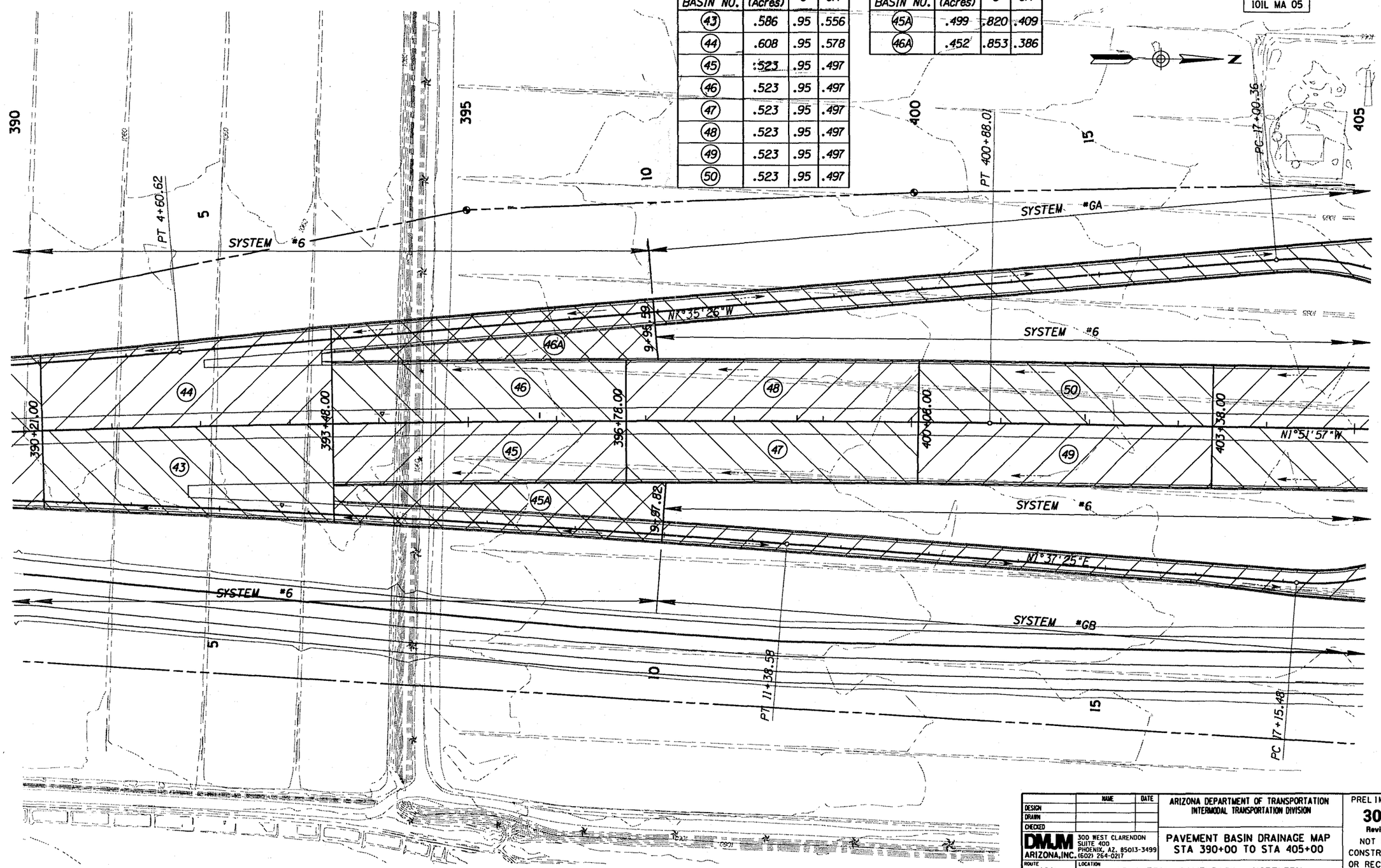
FEDERAL REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	RAM 600-0-524			
		101L MA 05			

DRAINAGE SYSTEM #6

DRAINAGE BASIN NO.	AREA (Acres)	C	CA
43	.586	.95	.556
44	.608	.95	.578
45	.523	.95	.497
46	.523	.95	.497
47	.523	.95	.497
48	.523	.95	.497
49	.523	.95	.497
50	.523	.95	.497

DRAINAGE SYSTEM #6

DRAINAGE BASIN NO.	AREA (Acres)	C	CA
45A	.499	.820	.409
46A	.452	.853	.386



	NAME	DATE
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DRAWN		
CHECKED		

DMJM ARIZONA, INC.
300 WEST CLARENDON
SUITE 400
PHOENIX, AZ. 85013-3499
(602) 264-0217

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION

PAVEMENT BASIN DRAINAGE MAP
STA 390+00 TO STA 405+00

ROUTE: 101L
LOCATION: AGUA FRIA, CAMELBACK - NORTHERN

PRELIMINARY
30%
Review
NOT FOR CONSTRUCTION OR RECORDING
DWG. NO. D- 1.7

SURVEY NO.	FINISHED PLANS	REVISIONS	LOCATION	DATE

cccccDGNcSPECIFICATIONccccc VIEW NAME:
ccccccSYSTIMEcccccc

TRACS NO. H4578 01 D | 600-0-524 | 7 OF 10

j:/af03/civ/drainage/af03da07.dgn Nov. 24, 1997 13:44:20 DMJM Arizona,Inc.

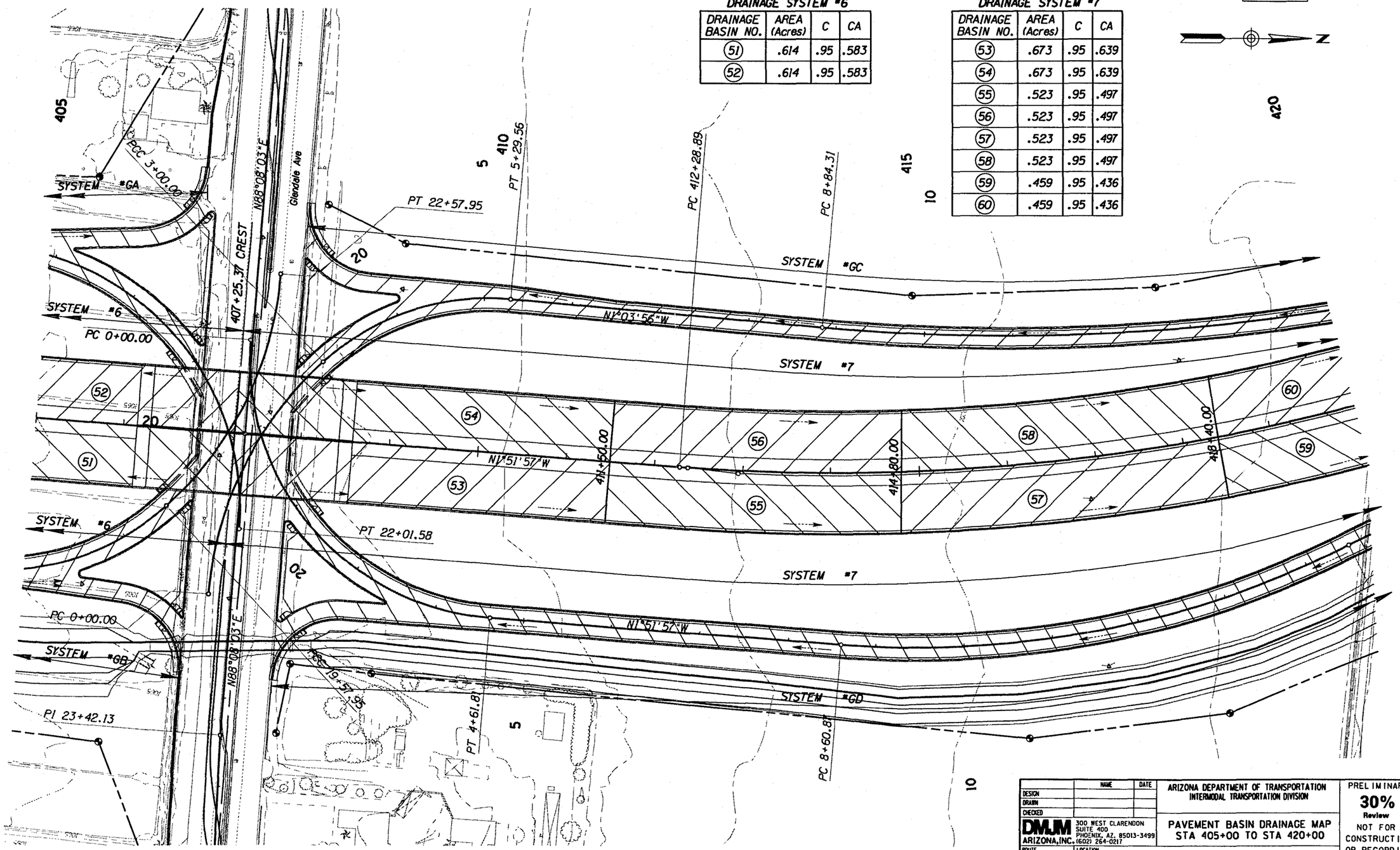
F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	RAM 600-0-524			
		101L MA 05			

DRAINAGE SYSTEM #6

DRAINAGE BASIN NO.	AREA (Acres)	C	CA
51	.614	.95	.583
52	.614	.95	.583

DRAINAGE SYSTEM #7

DRAINAGE BASIN NO.	AREA (Acres)	C	CA
53	.673	.95	.639
54	.673	.95	.639
55	.523	.95	.497
56	.523	.95	.497
57	.523	.95	.497
58	.523	.95	.497
59	.459	.95	.436
60	.459	.95	.436



	NAME	DATE
DESIGN		
DRAWN		
CHECKED		

DMJM ARIZONA, INC. 300 WEST CLARENDON SUITE 400 PHOENIX, AZ. 85013-3499 (602) 264-0217

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION

PAVEMENT BASIN DRAINAGE MAP
STA 405+00 TO STA 420+00

ROUTE 101L — LOCATION AGUA FRIA, CAMELBACK - NORTHERN

PRELIMINARY
30%
Review
NOT FOR CONSTRUCTION OR RECORDING

DWG. NO. D- 1.8

SURVEY NO.	FINISHED PLANS	REVISIONS	LOCATION	DATE

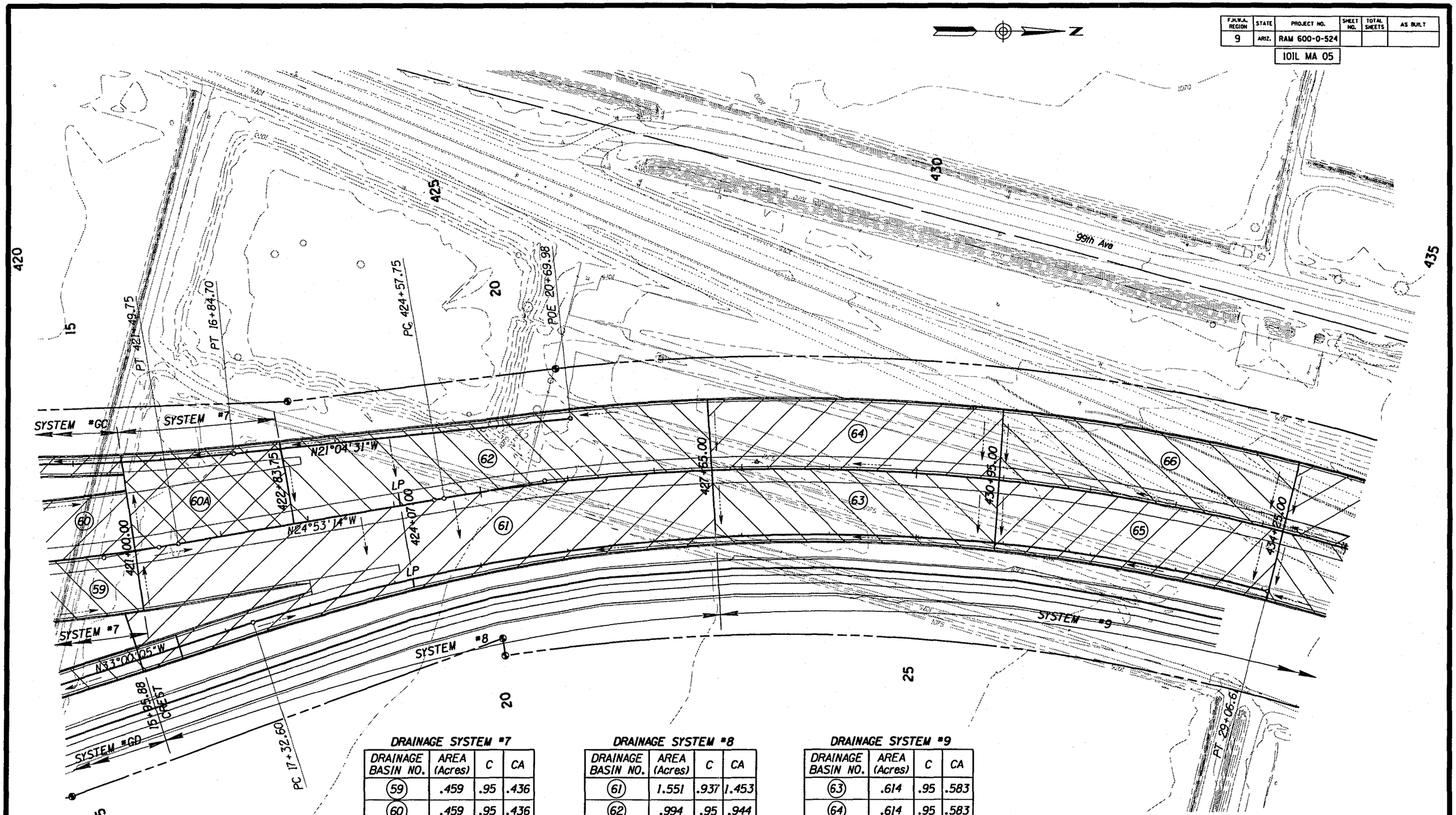
ccccccDGNcSPECIFICATIONcccccc
ccccccSYSTIMEcccccc
VIEW NAME:

TRACS NO. H4578 01 D | 600-0-524 | 8 OF 10

j:/af03/civ/drainage/af03da08.dgn Nov. 24, 1997 13:46:30 DMJM Arizona,Inc.

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	RAM 600-0-524			

101L MA 05



DRAINAGE SYSTEM #7

DRAINAGE BASIN NO.	AREA (Acres)	C	CA
59	.459	.95	.436
60	.459	.95	.436
60A	.445	.95	.422

DRAINAGE SYSTEM #8

DRAINAGE BASIN NO.	AREA (Acres)	C	CA
61	1.551	.937	1.453
62	.994	.95	.944

DRAINAGE SYSTEM #9

DRAINAGE BASIN NO.	AREA (Acres)	C	CA
63	.614	.95	.583
64	.614	.95	.583
65	.614	.95	.583
66	.614	.95	.583

	NAME	DATE
DESIGN		
DRAWN		
CHECKED		

DMJM ARIZONA, INC. 300 WEST CLARENDON SUITE 400 PHOENIX, AZ. 85013-3499 (602) 264-0217

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION

PAVEMENT BASIN DRAINAGE MAP
STA 420+00 TO STA 435+00

ROUTE 101L — LOCATION AGUA FRIA, CAMELBACK - NORTHERN

PRELIMINARY
30%
Review
NOT FOR CONSTRUCTION OR RECORDING

DWG. NO. D- 1.9

TRACS NO. H4578 01 D | 600-0-524 | 9 OF 10

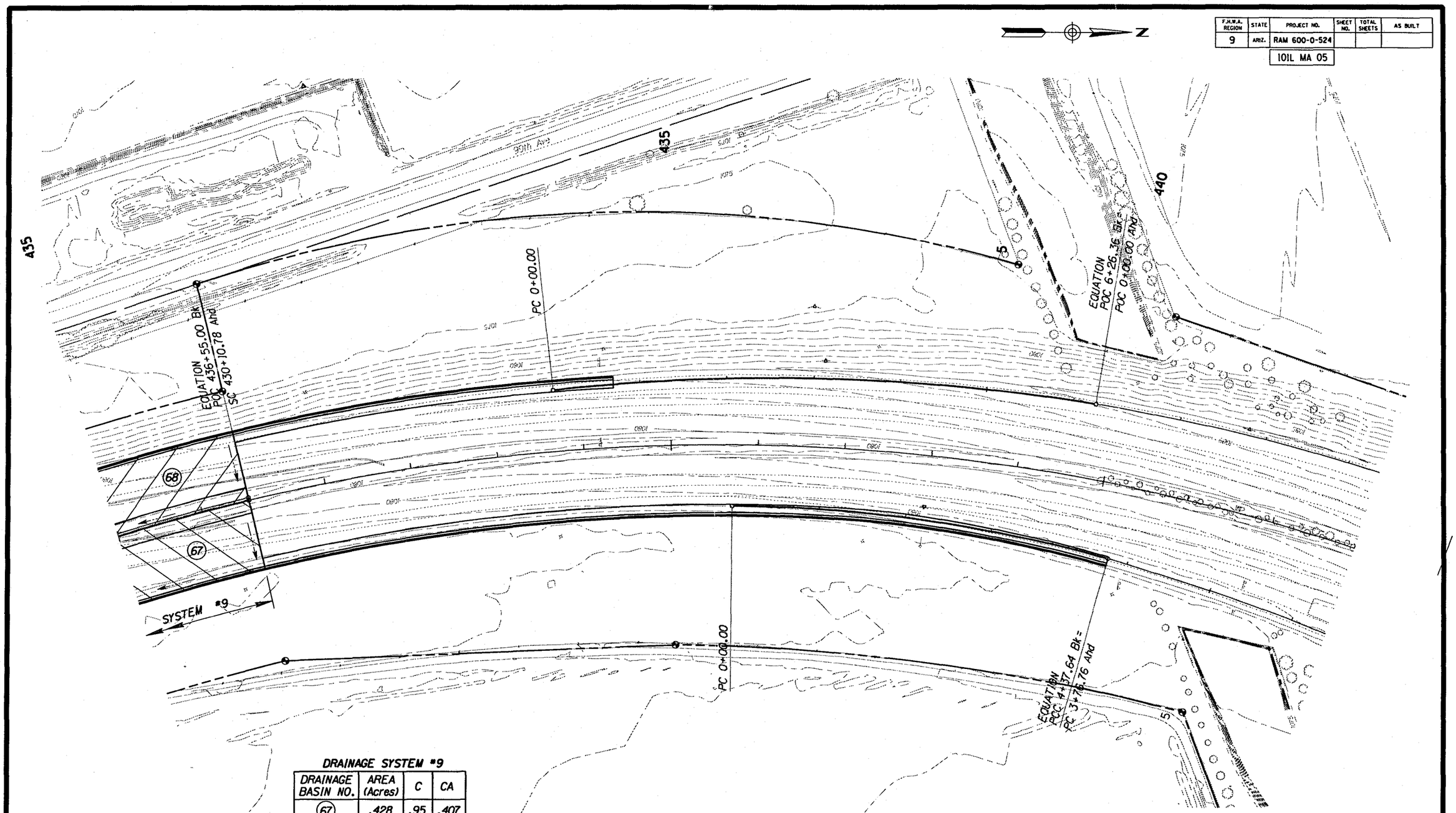
SURVEY NO. | FINISHED PLANS | REVISIONS | LOCATION | DATE

ccccc DGNcSPECIFICATIONcccccc VIEW NAME:
ccccc SYSTIMEcccccc

j:/af03/civ/drainage/af03da09.dgn Nov. 24, 1997 13:47:51 DMJM Arizona,Inc.

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	RAM 600-0-524			

101L MA 05



DRAINAGE SYSTEM #9

DRAINAGE BASIN NO.	AREA (Acres)	C	CA
67	.428	.95	.407
68	.428	.95	.407

	NAME	DATE
DESIGN		
DRAWN		
CHECKED		

DMJM ARIZONA, INC. 300 WEST CLARENDON SUITE 400 PHOENIX, AZ. 85013-3499 (602) 264-0217

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION

PAVEMENT BASIN DRAINAGE MAP
STA 435+00 TO STA 443+00

ROUTE: 101L
LOCATION: AGUA FRIA, CAMELBACK - NORTHERN

PRELIMINARY
30%
Review
NOT FOR CONSTRUCTION OR RECORDING
DWG. NO. D- 1.10

TRACS NO. H4578 01 D | 600-0-524 | 10 OF 10

SURVEY NO.	FINISHED PLANS	REVISIONS	LOCATION	DATE

cccccDGNcSPECIFICATIONcccccc VIEW NAME:
cccccSYSTIMEcccccc

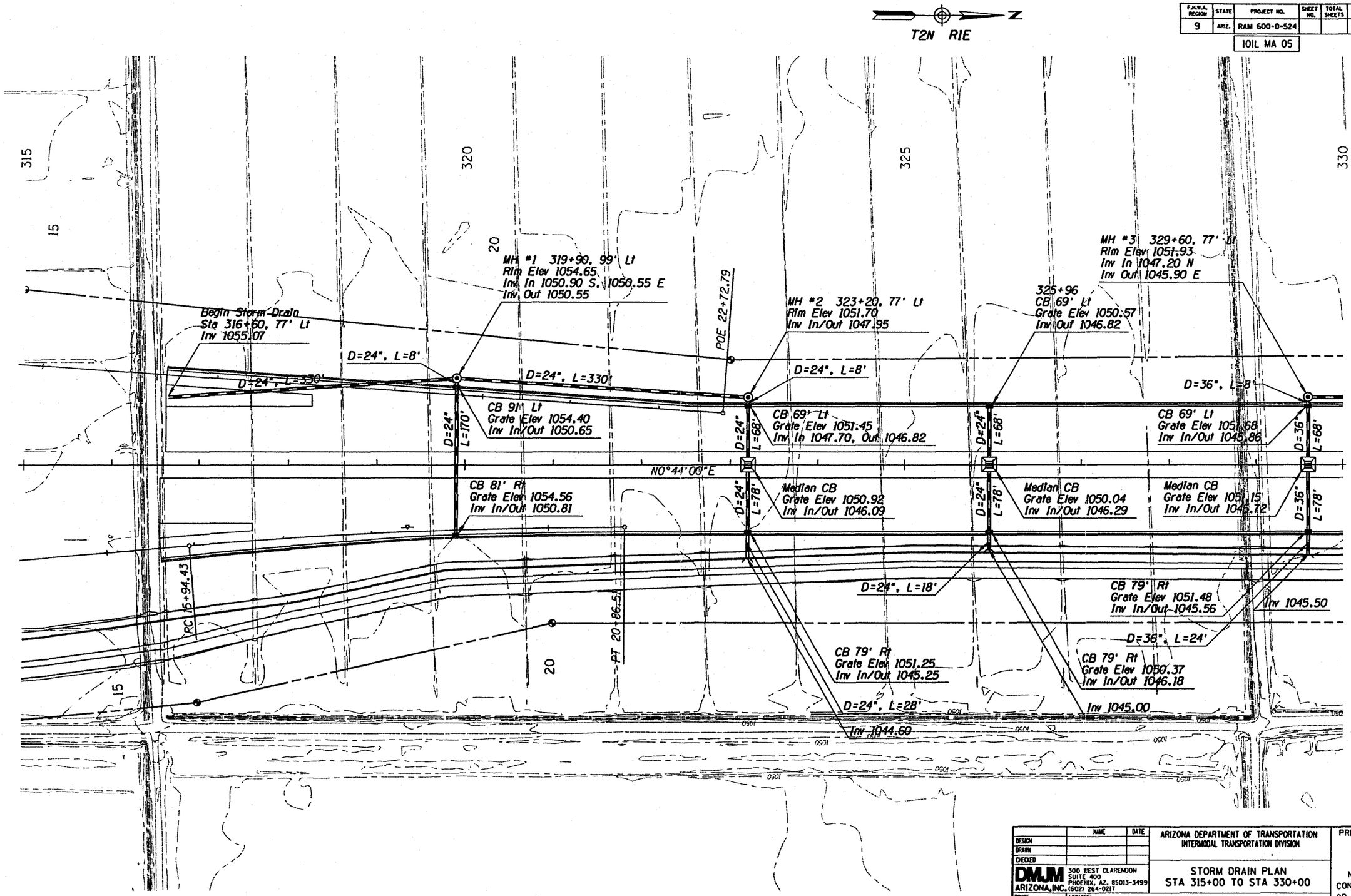
j:/af03/civ/drainage/af03da10.dgn Nov. 24, 1997 13:48:50 DMJM Arizona,Inc.

APPENDIX D

30% DRAINAGE PLANS

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	RAM 600-0-524			

101L MA 05



	NAME	DATE
DESIGN		
DRAWN		
CHECKED		

DMJM ARIZONA, INC. 300 WEST CLARENDON SUITE 400 PHOENIX, AZ. 85013-3499 (602) 264-0217

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION

STORM DRAIN PLAN
STA 315+00 TO STA 330+00

PRELIMINARY
30%
Review
NOT FOR CONSTRUCTION OR RECORDING

DWG. NO. D- 1.2

ROUTE: 101L
LOCATION: AGUA FRIA, CAMELBACK - NORTHERN

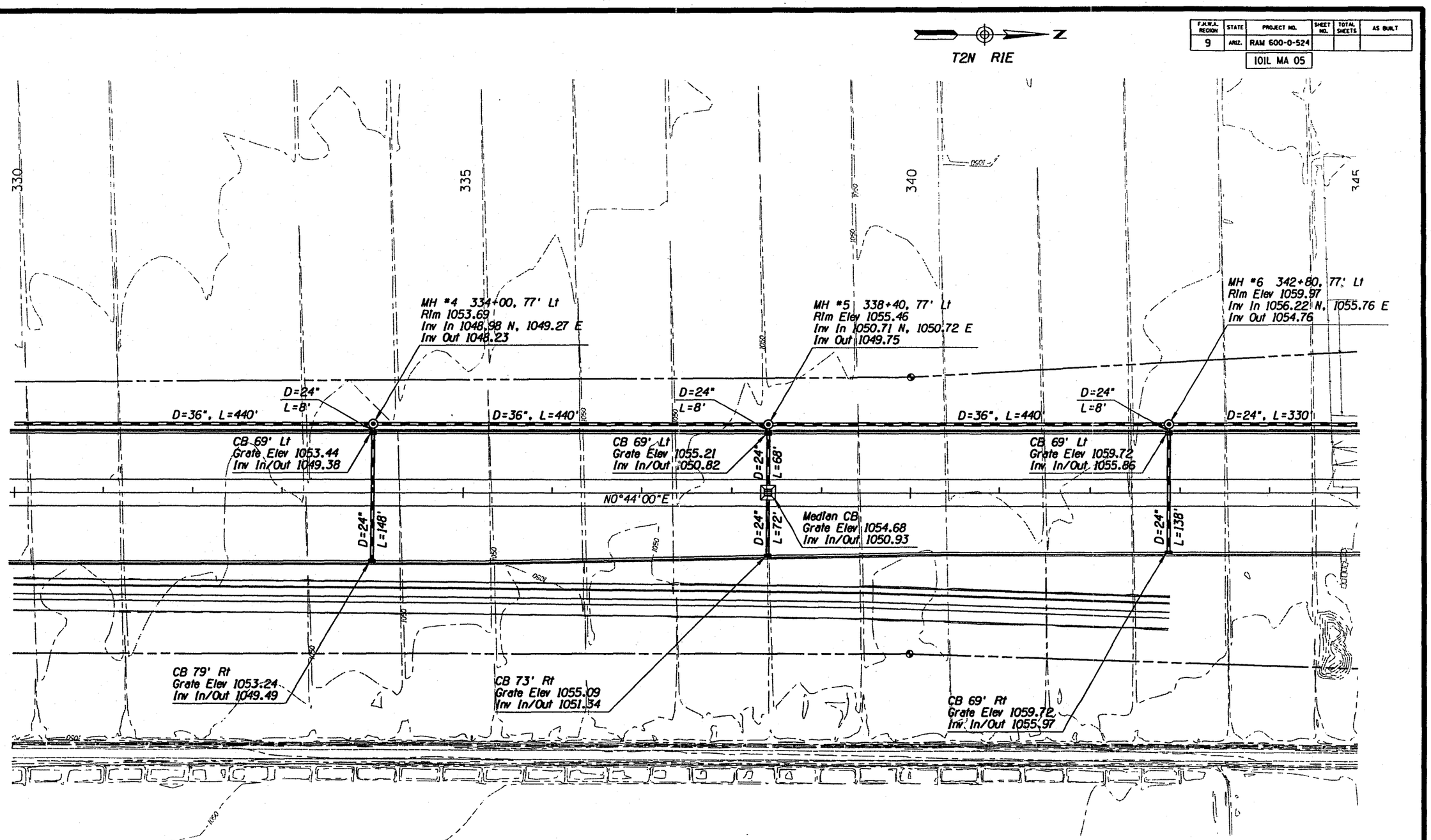
TRACS NO. H4578 01 D | 600-0-524 | ___ OF ___

SURVEY NO.	FINDING PLANS	REVISIONS	LOCATION	DATE

ccccc DGNcSPECIFICATIONccccc
ccccc SYSTIMEccccc
VIEW NAME:

j:/af03/civ/drainage/af03sd2.dgn Nov. 24, 1997 08:02:55 DMJM Arizona, Inc.

F.A.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	RAM 600-0-524			
		101L MA 05			



	NAME	DATE	ARIZONA DEPARTMENT OF TRANSPORTATION INTERMODAL TRANSPORTATION DIVISION	PRELIMINARY 30% Review NOT FOR CONSTRUCTION OR RECORDING
DESIGN				
DRAWN				
CHECKED			STORM DRAIN PLAN STA 330+00 TO STA 345+00	
DMJM ARIZONA, INC. 300 WEST CLARENDON SUITE 400 PHOENIX, AZ. 85013-3499 (602) 264-0217				
ROUTE 101L	LOCATION AGUA FRIA, CAMELBACK - NORTHERN			DWG. NO. D- 1.3

SURVEY NO. | UNIFIED PLANS | REVISIONS | LOCATION | DATE

ccccccDGNcSPECIFICATIONcccccc VIEW NAME:
ccccccSYSTIMEcccccc

TRACS NO. H4578 01 D | 600-0-524 | ___ OF ___

j:/af03/civ/drainage/af03sd3.dgn Nov. 24, 1997 07:47:28 DMJM Arizona, Inc.

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	RAM 600-0-524			

101L MA 05

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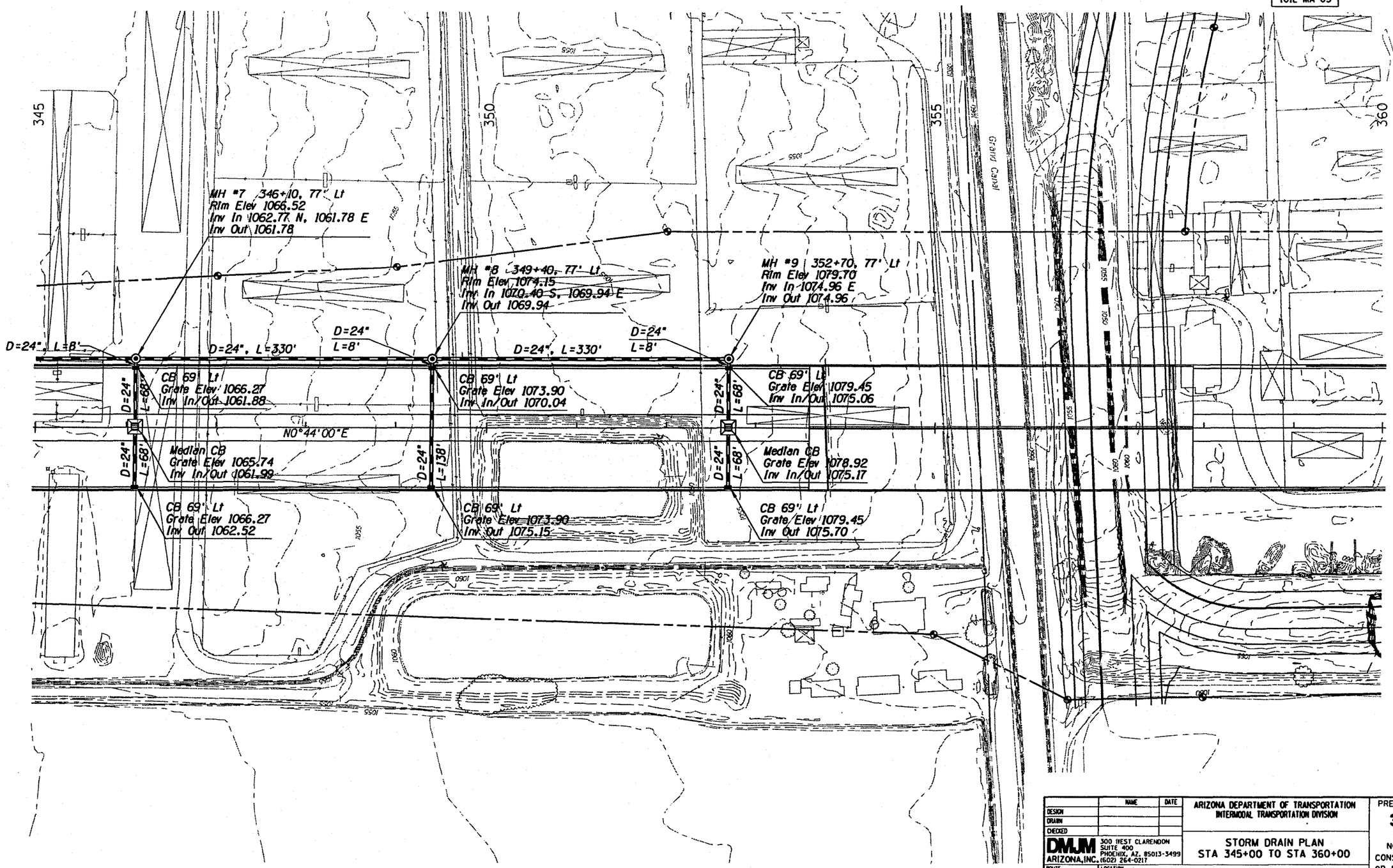

	NAME	DATE
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DMJM ARIZONA, INC. 300 WEST CLARENDON SUITE 400 PHOENIX, AZ. 85013-3499 (602) 264-0217

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION

STORM DRAIN PLAN
STA 345+00 TO STA 360+00

ROUTE: 101L
LOCATION: AGUA FRIA, CAMELBACK - NORTHERN

PRELIMINARY
30%
Review
NOT FOR CONSTRUCTION OR RECORDING

DWG. NO. D- 1.4

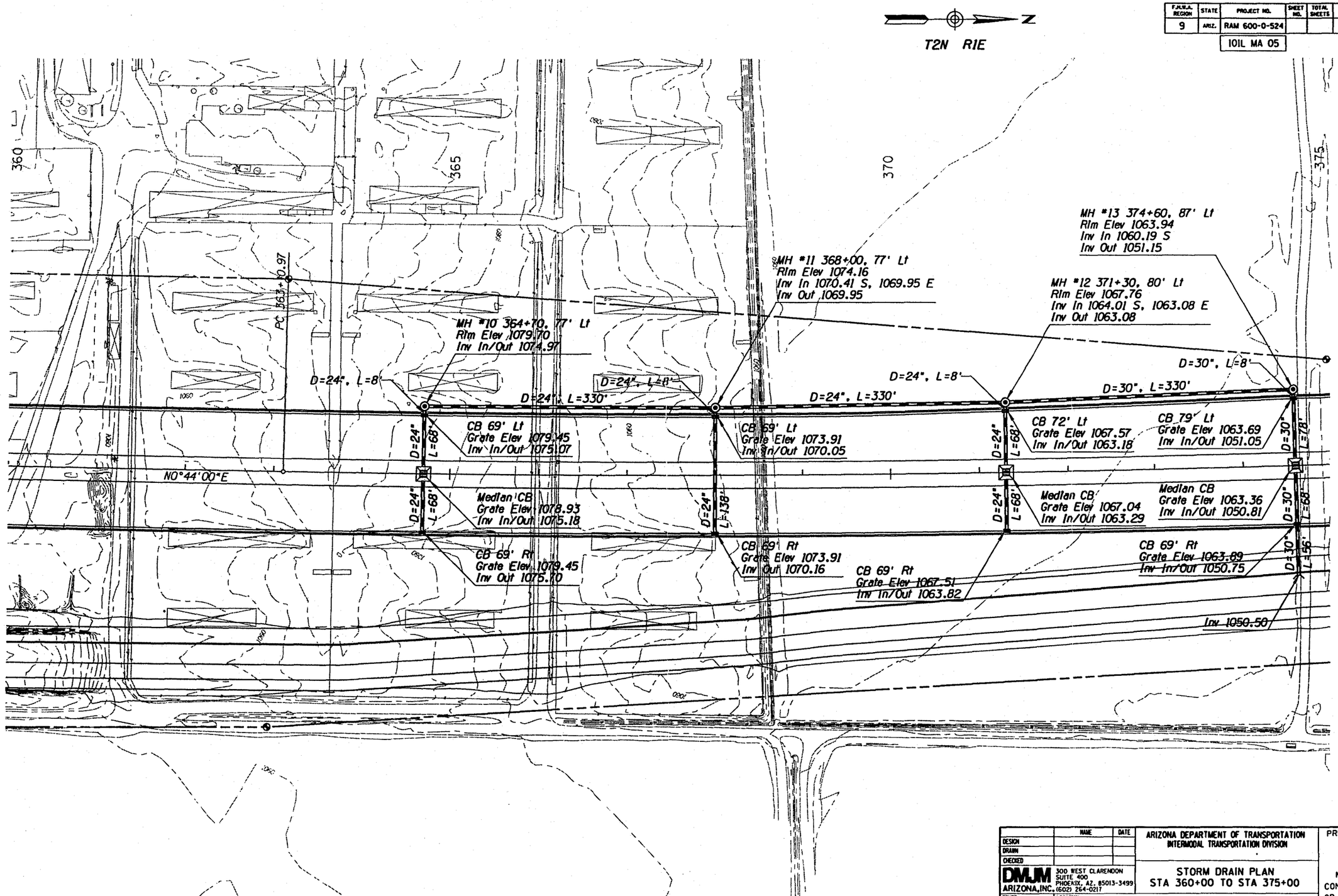
TRACS NO. H4578 01 D | 600-0-524 | ___ OF ___

SURVEY NO. | PROFILE PLAN | REVISIONS | LOCATION | DATE

cccccDGNcSPECIFICATIONcccccc
ccccccSYSTIMEcccccc
VIEW NAME:

j:/af03/civ/drainage/af03sd4.dgn Nov. 24, 1997 13:24:50 DMJM Arizona,Inc.

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	RAM 600-0-524			
		101L MA 05			



	NAME	DATE
DESIGN		
DRAWN		
CHECKED		

DMJM ARIZONA, INC. 300 WEST CLARENDON SUITE 400 PHOENIX, AZ. 85013-3499 (602) 264-0217

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION

STORM DRAIN PLAN
STA 360+00 TO STA 375+00

ROUTE: 101L
LOCATION: AGUA FRIA, CAMELBACK - NORTHERN

PRELIMINARY
30%
Review
NOT FOR CONSTRUCTION OR RECORDING
DWG. NO. D- 1.5

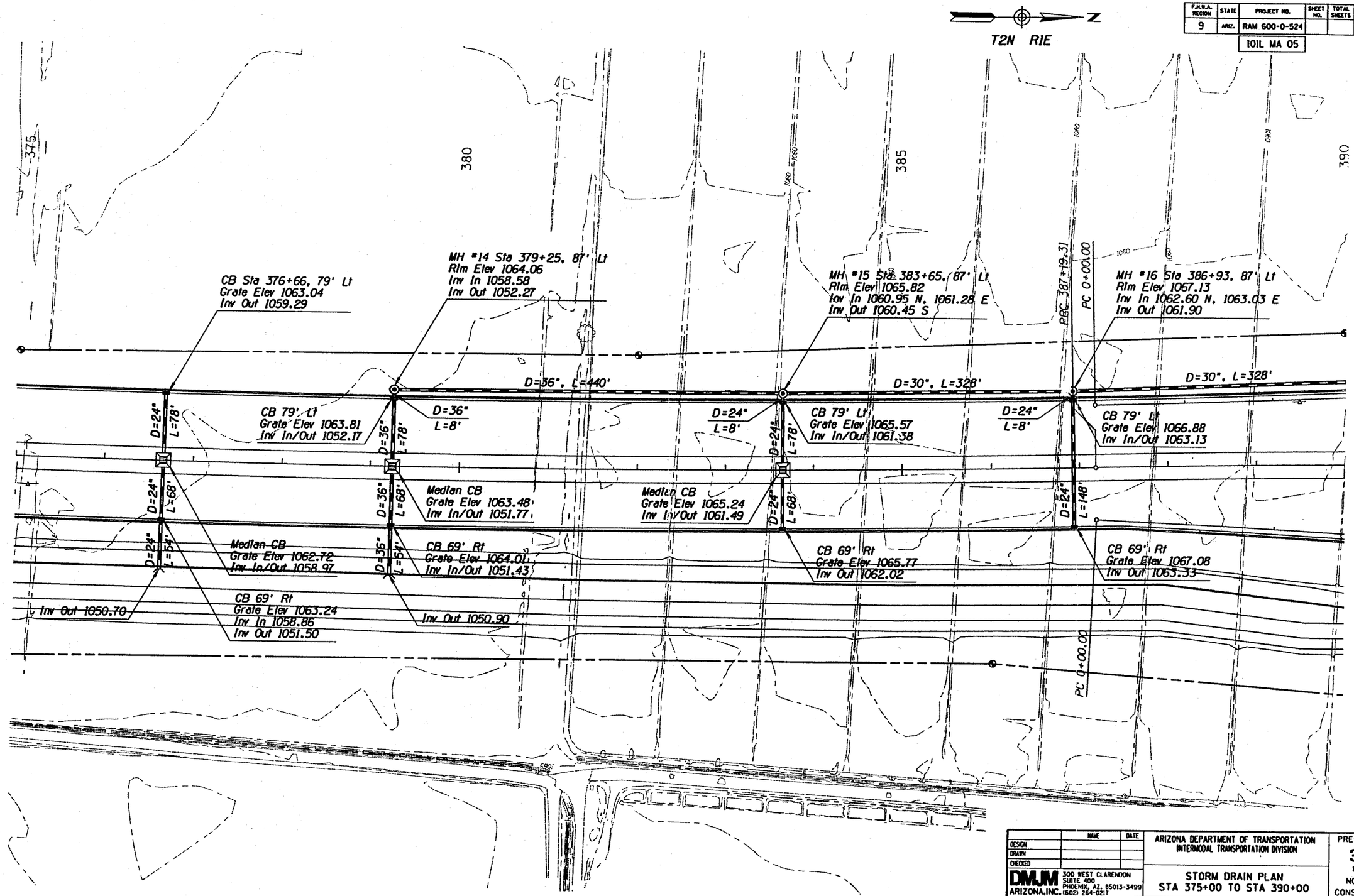
TRACS NO. H4578 01 D | 600-0-524 | ___ OF ___

cccccDGNcSPECIFICATIONccccc VIEW NAME:
ccccccSYSTIMEcccccc

I:/af03/civ/drainage/af03sd5.dgn Nov. 24, 1997 13:26:19 DMJM Arizona,Inc.

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	RAM 600-0-524			

101L MA 05



	NAME	DATE
DESIGN		
DRAWN		
CHECKED		

DMJM ARIZONA, INC. 300 WEST CLARENDON SUITE 400 PHOENIX, AZ. 85013-3499 (602) 264-0217

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION

STORM DRAIN PLAN
STA 375+00 TO STA 390+00

ROUTE: 101L
LOCATION: AGUA FRIA, CAMELBACK - NORTHERN

PRELIMINARY
30%
Review
NOT FOR CONSTRUCTION OR RECORDING

DWG. NO. D- 1.6

TRACS NO. H4578 01 D | 600-0-524 | ___ OF ___

SURVEY NO. | PLOTTED PLAN | REVISIONS | LOCATION | DATE

ccccccDGNcSPECIFICATIONcccccc
ccccccSYSTIMEcccccc
VIEW NAME:

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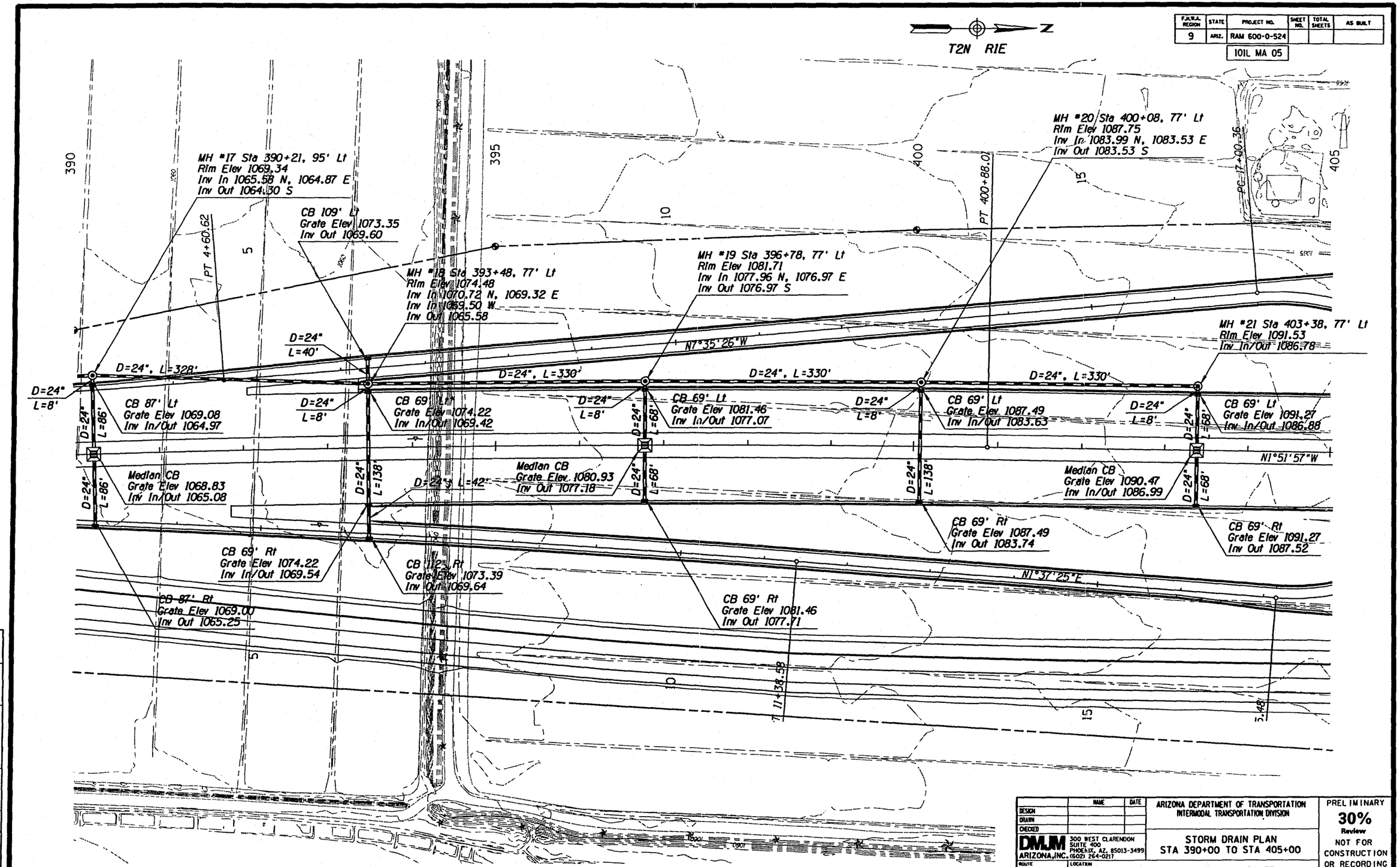
F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	RAM 600-0-524			
		101L MA 05			



	NAME	DATE
DESIGN		
DRAWN		
CHECKED		

DMJM ARIZONA, INC. 300 WEST CLARENDON SUITE 400 PHOENIX, AZ. 85013-3499 (602) 264-0217

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION

STORM DRAIN PLAN
STA 390+00 TO STA 405+00

ROUTE: 101L
LOCATION: AGUA FRIA, CAMELBACK - NORTHERN

PRELIMINARY
30%
Review
NOT FOR CONSTRUCTION OR RECORDING
DWG. NO. D- 1.7

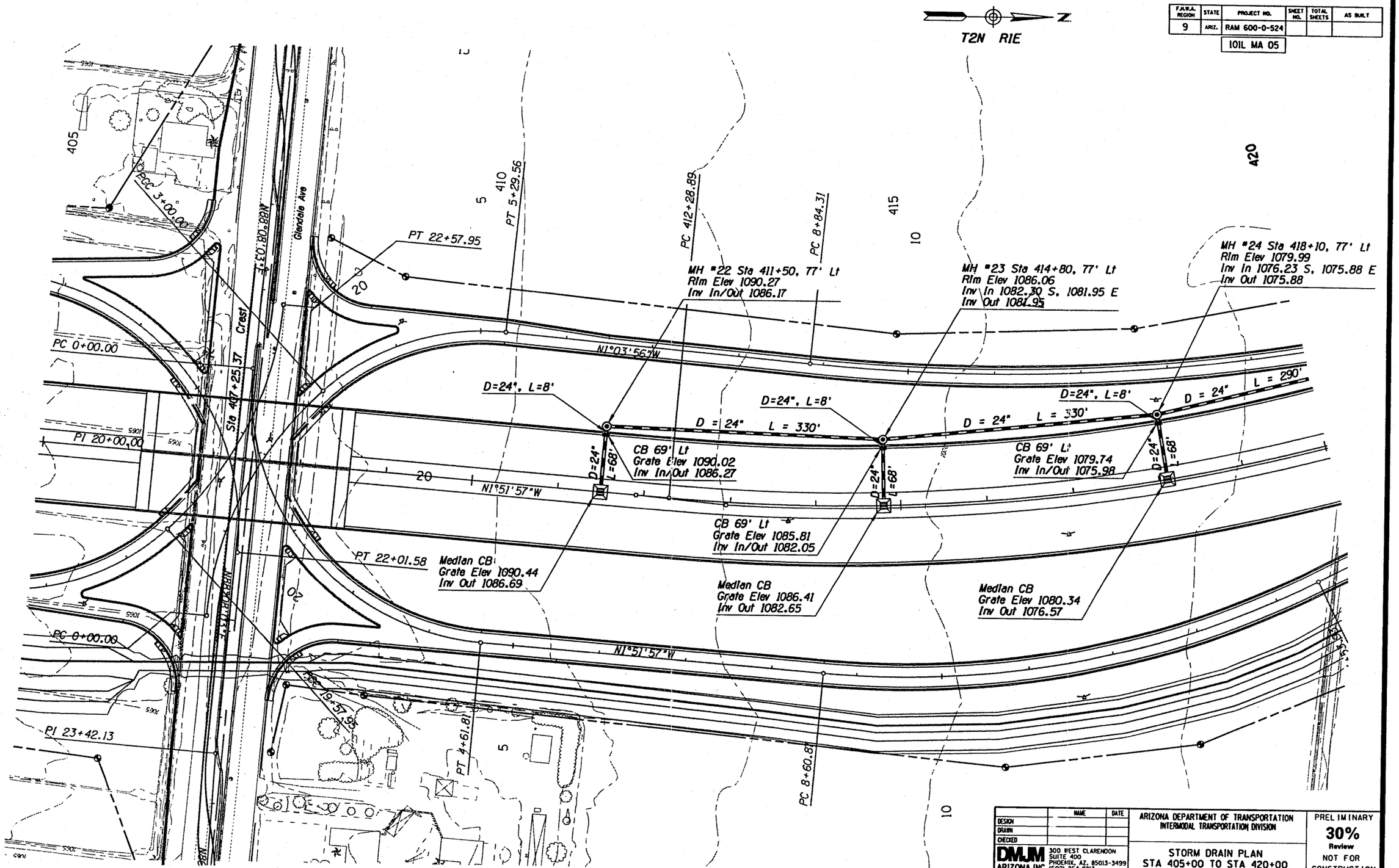
SURVEY NO.	REVISIONS	LOCATION	DATE

cccccDGNcSPECIFICATIONccccc
ccccccSYSTIMEcccccc
VIEW NAME:

TRACS NO. H4578 01 D | 600-0-524 | ___ OF ___

:/af03/civ/drainage/af03sd7.dgn Nov. 24, 1997 13:28:57 DMJM Arizona,Inc.

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	RAM 600-0-524			
		101L MA 05			



	NAME	DATE
DESIGN		
DRAWN		
CHECKED		

DMJM ARIZONA, INC.
300 WEST CLARENDON
SUITE 400
PHOENIX, AZ. 85013-3499
(602) 264-0217

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION

STORM DRAIN PLAN
STA 405+00 TO STA 420+00

PRELIMINARY
30%
Review
NOT FOR CONSTRUCTION OR RECORDING

ROUTE: 101L
LOCATION: AGUA FRIA, CAMELBACK - NORTHERN

DWG. NO. D- 1.8

TRACS NO. H4578 01 D | 600-0-524 | ___ OF ___

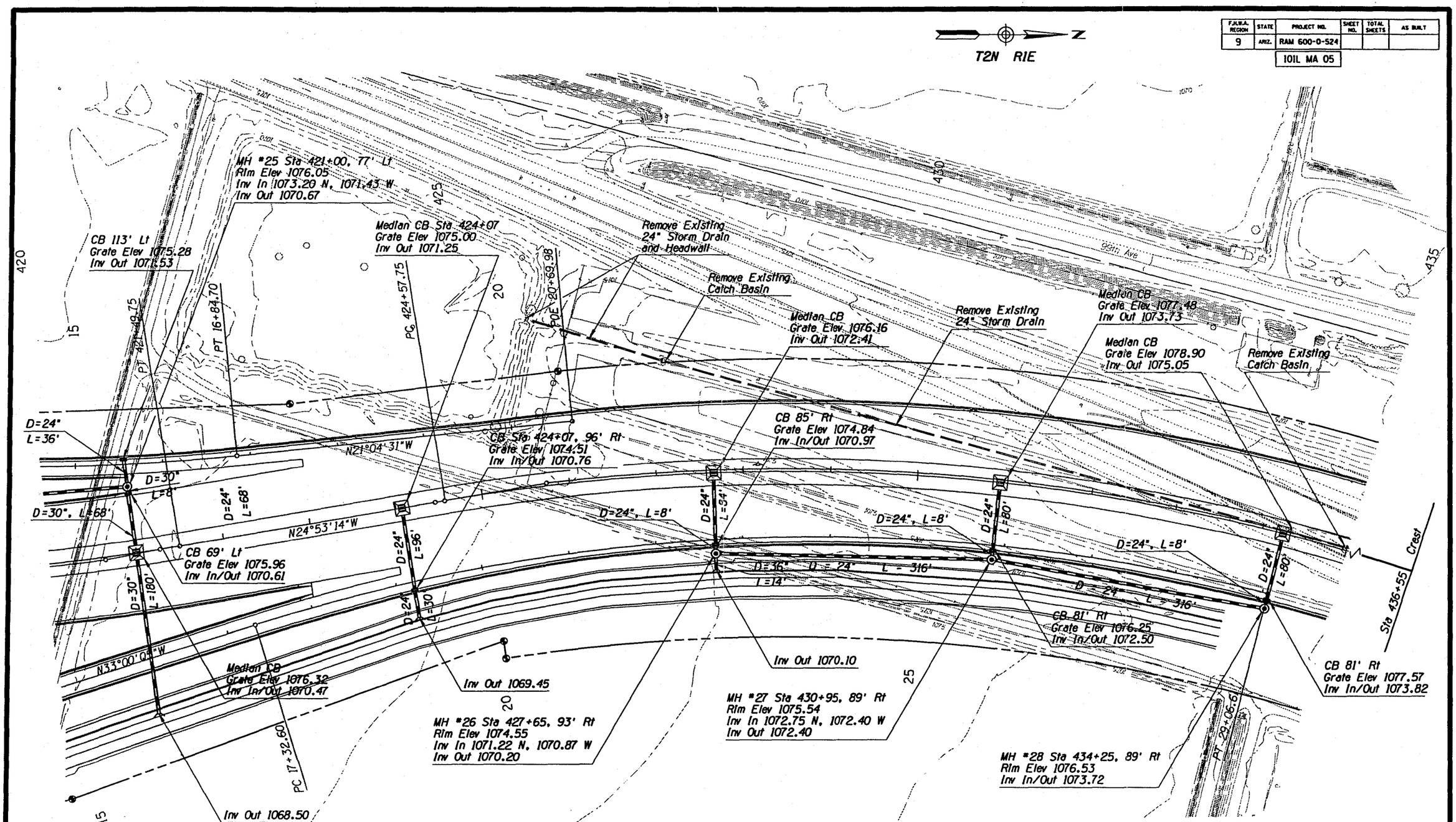
SURVEY NO.	PROPOSED PLANS	REVISIONS	LOCATION	DATE

cccccDGNcSPECIFICATIONccccc VIEW NAME:
ccccccSYSTIMEcccccc

i:/af03/civ/drainage/af03sd8.dgn Nov. 24, 1997 13:30:07 DMJM Arizona, Inc.

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	RAM 600-0-524			

101L MA 05



	NAME	DATE
DESIGN		
DRAWN		
CHECKED		

DMJM ARIZONA, INC. 300 WEST CLARENDON SUITE 400 PHOENIX, AZ. 85013-3499 (602) 264-0217

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION

STORM DRAIN PLAN
STA 420+00 TO STA 435+00

ROUTE 101L | LOCATION AGUA FRIA, CAMELBACK - NORTHERN

PRELIMINARY
30%
Review
NOT FOR CONSTRUCTION OR RECORDING

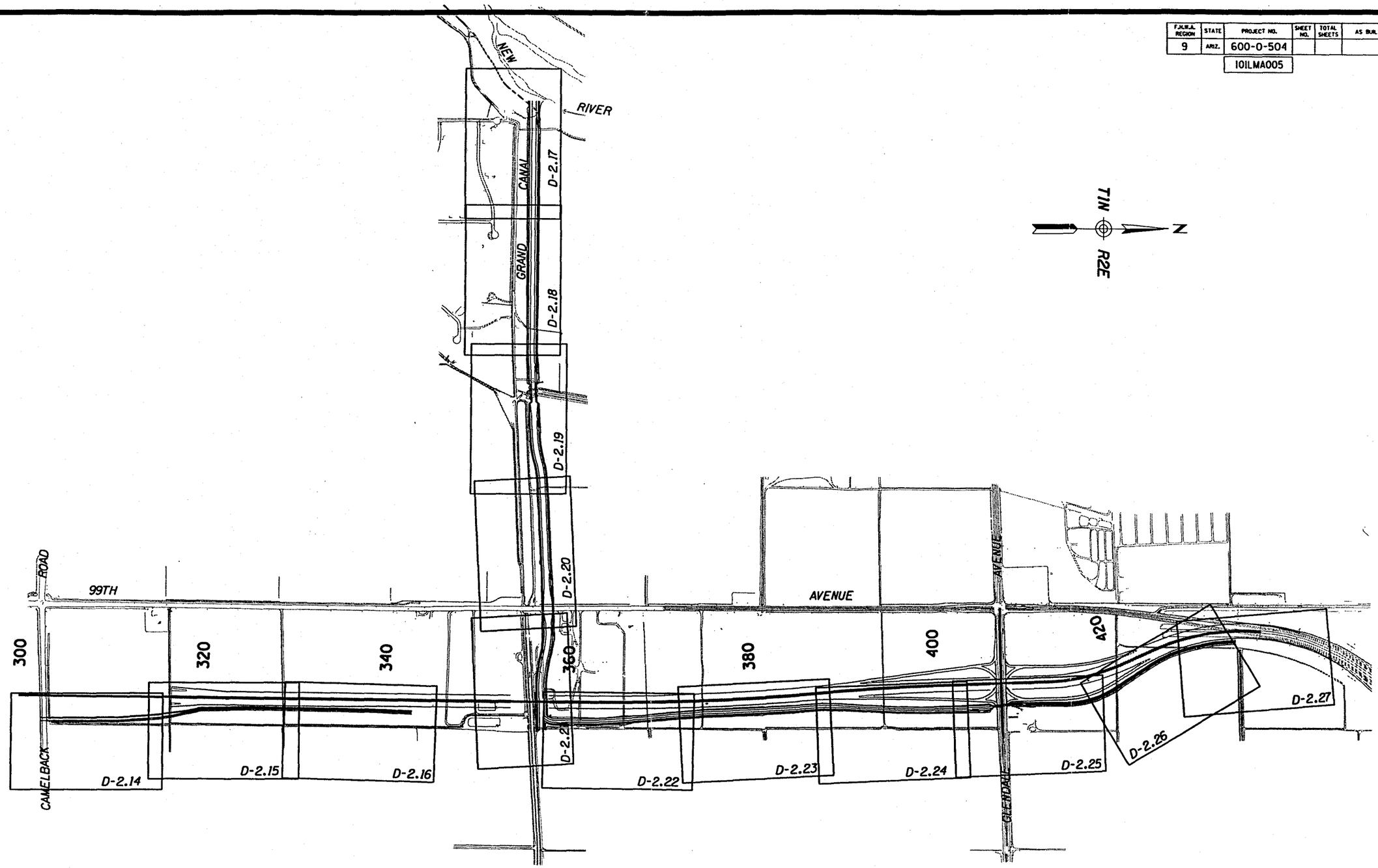
DWG. NO. D- 1.9

TRACS NO. H4578 01 D | 600-0-524 | ___ OF ___

cccccDGNcSPECIFICATIONcccccc VIEW NAME:
cccccSYSTIMEcccccc

j:/af03/civ/drainage/af03sd9.dgn Nov. 24, 1997 13:31:30 DMJM Arizona, Inc.

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	600-0-504			
		101LMA005			



	NAME	DATE
DESIGN		
DRAWN		
CHECKED		

DMJM ARIZONA, INC. 300 WEST CLARENDON SUITE 400 PHOENIX, AZ. 85013-3499 (602) 264-0217

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SECTION

CHANNEL DRAWING LAYOUT

PRELIMINARY
30%
Review
NOT FOR CONSTRUCTION OR RECORDING

ROUTE: 101L
LOCATION: AGUA FRIA - CAMELBACK - NORTHERN
DWG. NO. D-2.1

TRACS NO. H457801D | 600-0-524 | ___ OF ___

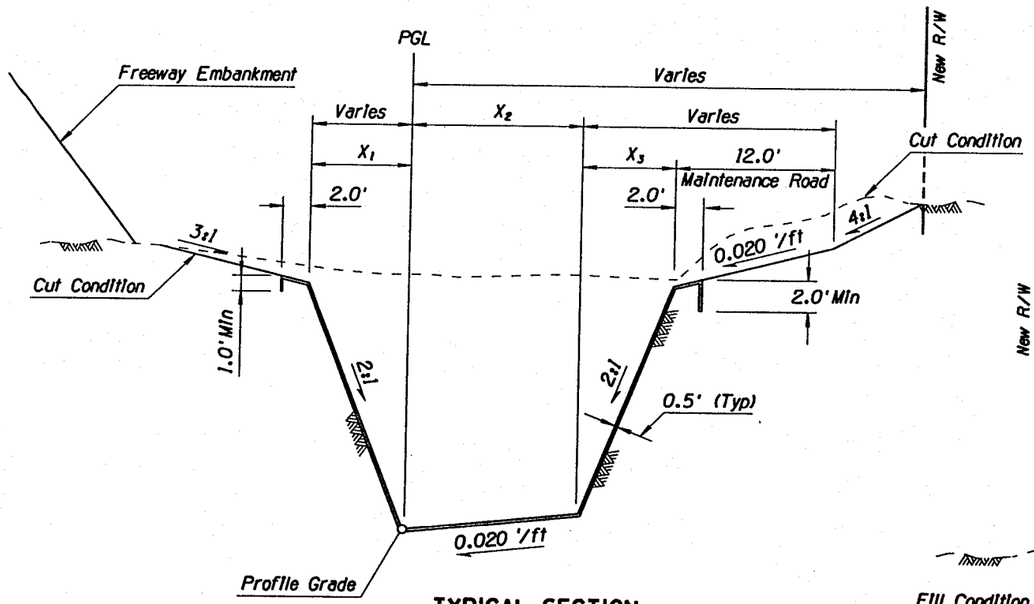
SURVEY NO. | REVISED & WAS | REVISIONS | LOCATION | DATE

ccccccDGNcSPECIFICATIONcccccc
cccccSYSTIMEccccc
VIEW NAME:

:/af03/civ/drainage/af03d21.dgn Nov. 24, 1997 10:01:32 DMJM Arizona, Inc.

CONSTRUCTION DISPLAY ON

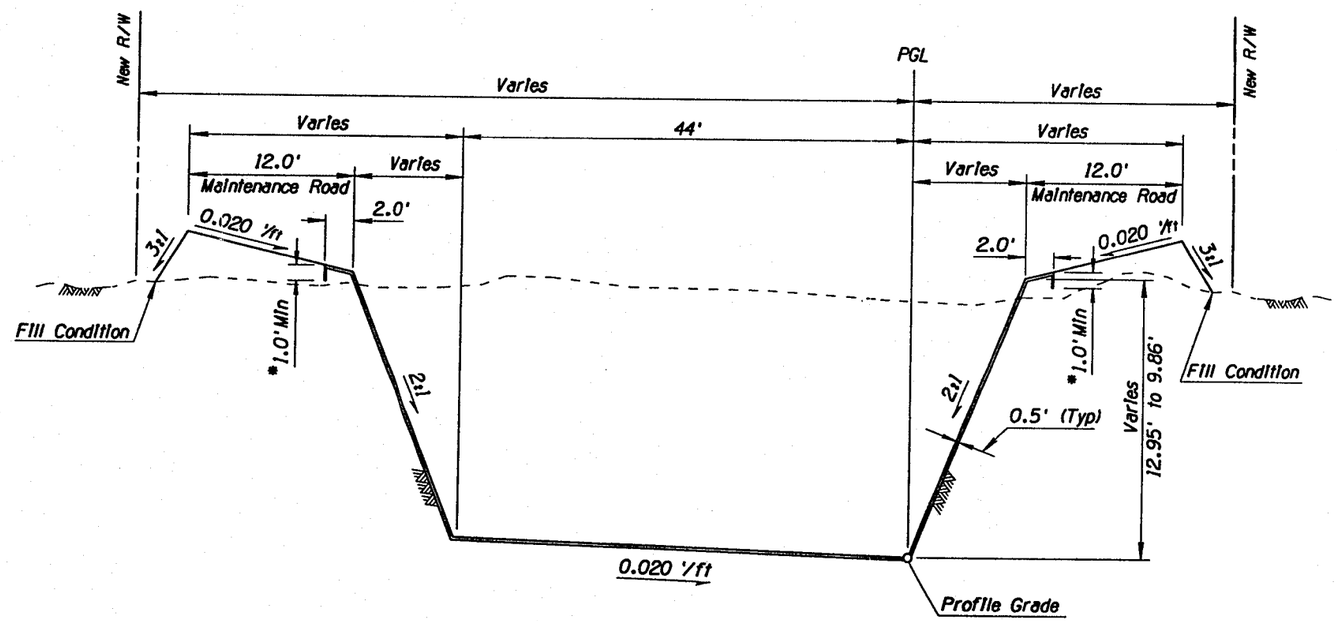
F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	600-0-504			
		101LMA005			



TYPICAL SECTION

NTS

Station			X_1	X_2	X_3
25 + 90.00	to	28 + 00.00	8.8	10	8.4
28 + 00.00	to	30 + 00.00	8.3	10	7.9
30 + 00.00	to	32 + 00.00	7.8	10	7.4
32 + 00.00	to	36 + 00.00	7.3	10	6.9
36 + 00.00	to	50 + 80.00	6.8	10	6.4
201 + 13.51	to	233 + 61.00	18.0	23	17.10
234 + 11.00	to	250 + 01.20	18.0	17	17.30
252 + 51.00	to	264 + 86.00	10.0	8	9.7



TYPICAL SECTION

NTS

Sta 72 + 00.00 to 102 + 96.55

* 1' Min Channel Lining Cutoff Only
Required From Sta 97 + 00.00 to Sta 102 + 96.55

	NAME	DATE
DESIGN		
DRAWN		
CHECKED		

DMJM ARIZONA, INC. 300 WEST CLARENDON SUITE 400 PHOENIX, AZ. 85013-3499 (602) 264-0217

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SECTION

CHANNEL TYPICAL SECTIONS

PRELIMINARY
30%
Review
NOT FOR CONSTRUCTION OR RECORDING

ROUTE 101L
LOCATION AGUA FRIA - CAMELBACK - NORTHERN

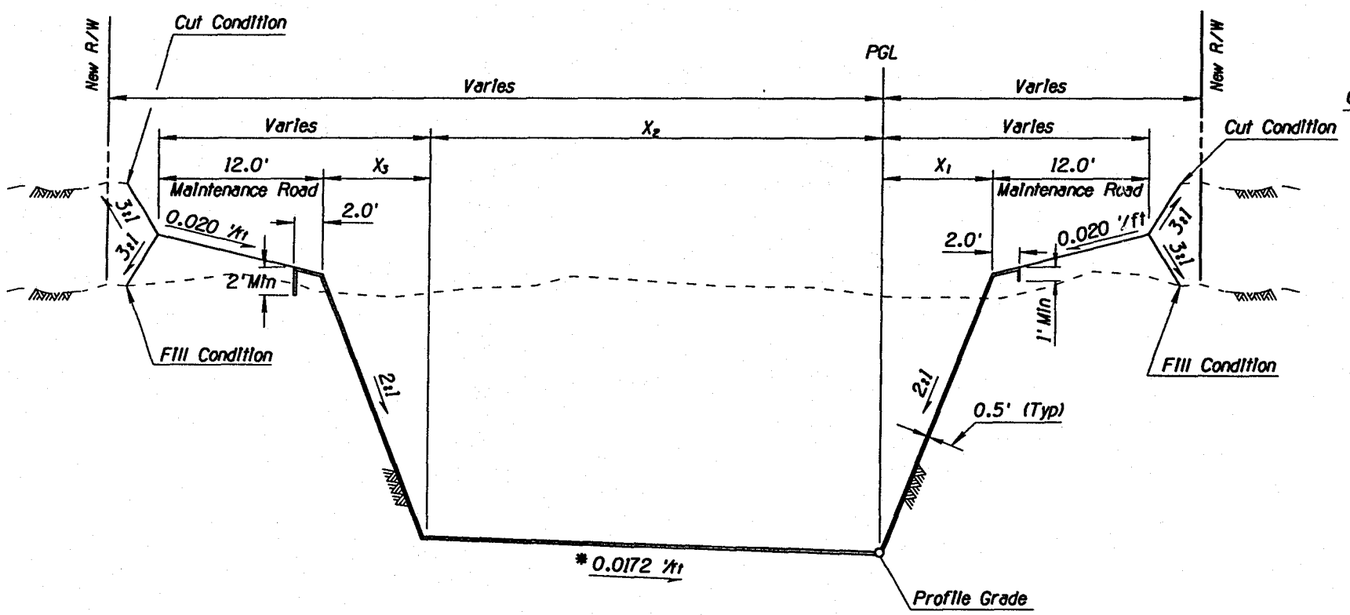
DWG. NO. D- 2.2

TRACS NO. H457801D | 600-0-524 | ___ OF ___

cccccDGNcSPECIFICATIONccccc
ccccSYSTIMEccccc
VIEW NAME:

:/af03/civ/drainage/typsec01.dgn Nov. 24, 1997 08:02:10 DMJM Arizona, Inc.

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	600-0-504			
		101LMA005			

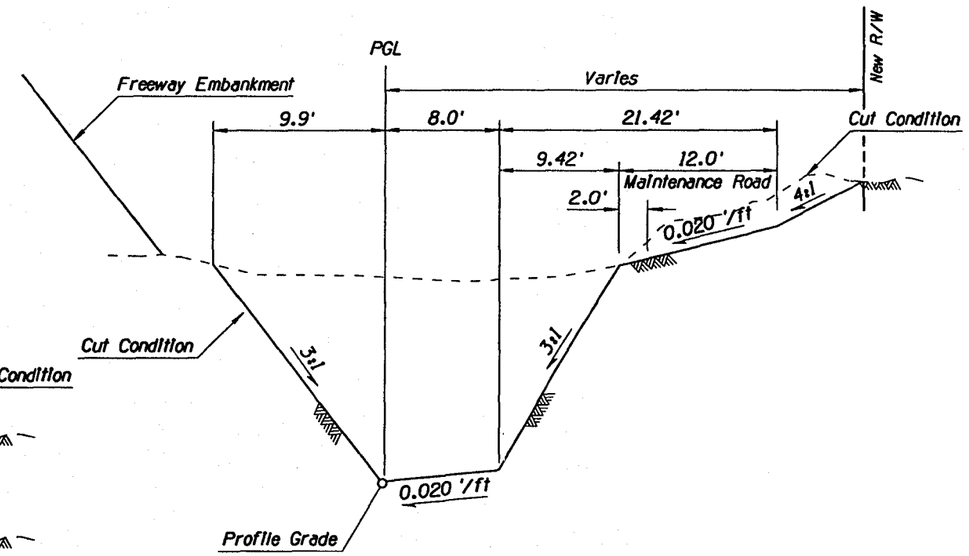


TYPICAL SECTION

NTS

Station			X_1	X_2	X_3
106 + 68.87	to	108 + 00.00	17.8	58	15.8
108 + 00.00	to	125 + 37.00	16.8	58	14.8
125 + 37.00	to	125 + 47.95	18.8	58	16.8
129 + 68.01	to	132 + 00.00	18.3	58	16.3
132 + 00.00	to	139 + 75.00	18.3	58	16.3
139 + 75.00	to	141 + 00.00	18.3	38	17.0

* Cross-Slope Varies From 0.4138% to 1.7241% Between Sta 129+68.01 and Sta 133+48.01



TYPICAL SECTION

NTS

Sta 264 + 41.75 to 277 + 50.00

	NAME	DATE
DESIGN		
DRAWN		
CHECKED		

DMJM ARIZONA, INC. 300 WEST CLARENDON SUITE 400 PHOENIX, AZ. 85013-3499 (602) 264-0217

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SECTION

CHANNEL TYPICAL SECTIONS

ROUTE 101L LOCATION AGUA FRIA - CAMELBACK - NORTHERN

PRELIMINARY 30% Review NOT FOR CONSTRUCTION OR RECORDING

DWG. NO. 0- 2.3

TRACS NO. H457801D | 600-0-524 | ___ OF ___

CONSTRUCTION DISPLAY ON

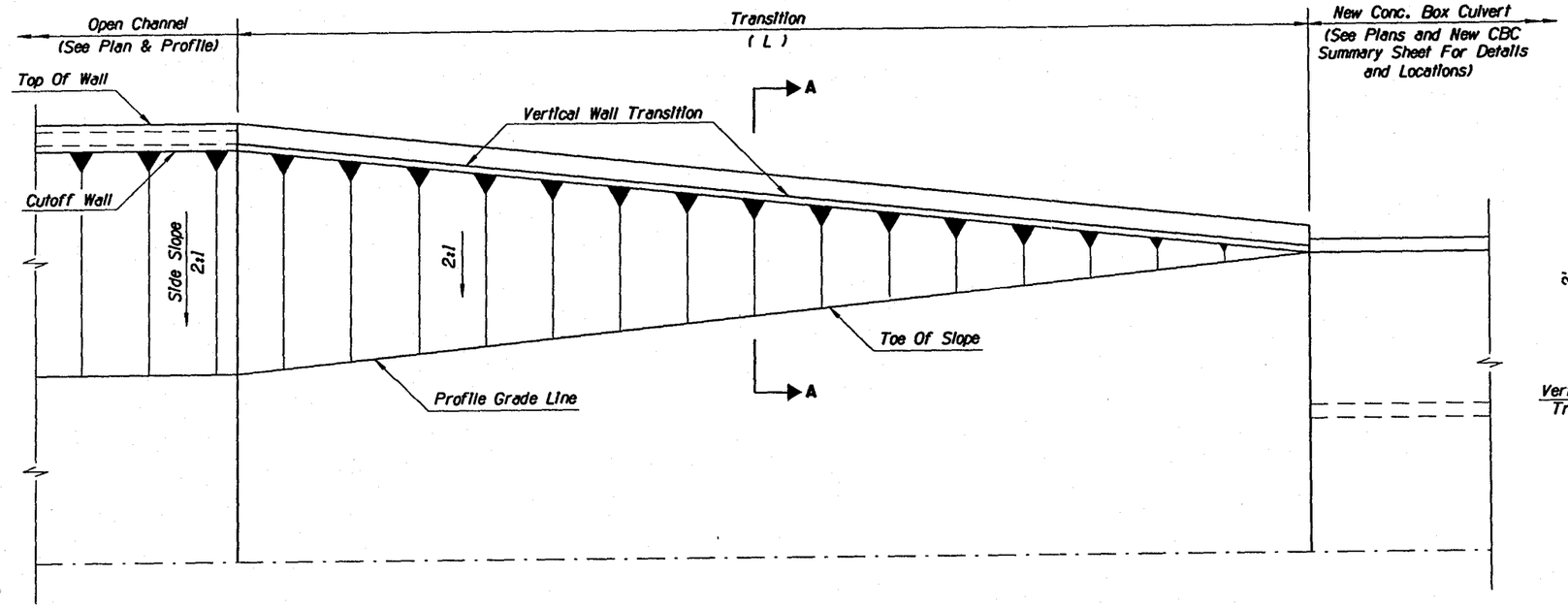
SURVEY NO.	REVISED PLANS	LOCATION	DATE

ccccc DGNcSPECIFICATIONccccc
ccccc SYSTIMEccccc
VIEW NAME:

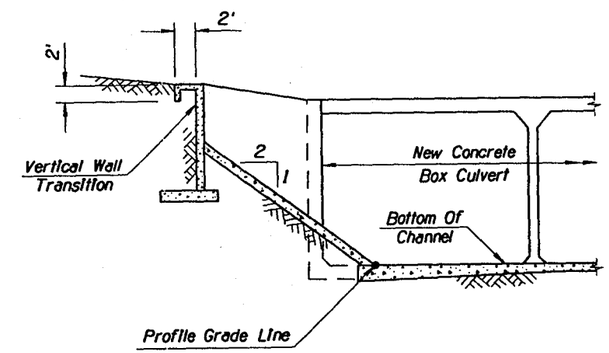
:/af03/civ/drainage/typsec02.dgn Nov. 24, 1997 09:32:33 DMJM Arizona,Inc.

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	RAM 600-0-524			

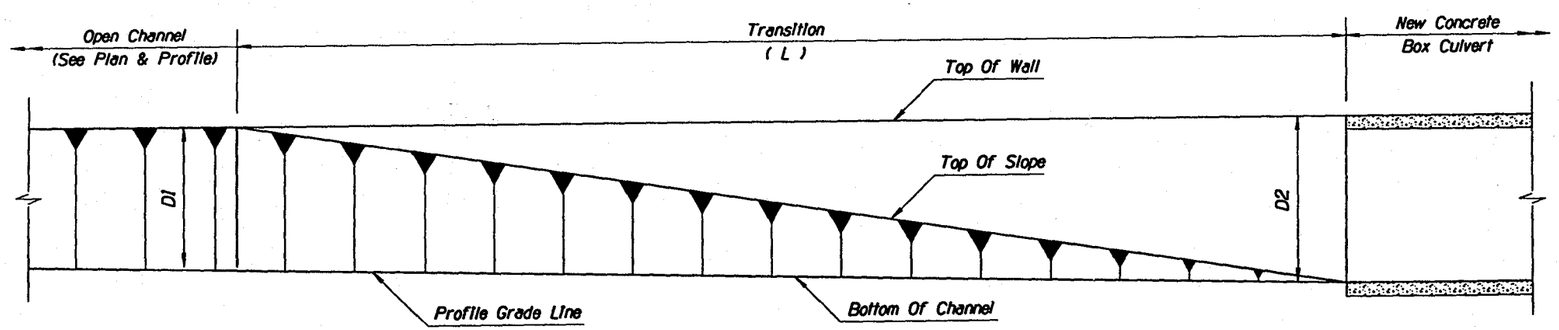
101L MA 05



PLAN



SECTION A-A



ELEVATION

STATION FROM	STATION TO	TRANSITION LENGTH (ft) L	TOTAL DEEP (ft) D1	TOTAL DEEP (ft) D2
102+96.55	103+20.00	23.33	10.30	10.30
105+33.20	106+68.87	135.00	8.90	8.90
125+47.95	127+44.89	197.00	9.41	9.41
128+46.89	129+68.01	119.51	9.41	9.41
252+31.00	252+51.00	20.00	5.00	5.83

DETAIL D1

OPEN CHANNEL
VERTICAL WALL TRANSITION

	NAME	DATE
DESIGN		
DRAWN		
CHECKED		

DMJM ARIZONA, INC. 300 WEST CLARENDON SUITE 400 PHOENIX, AZ. 85013-3499 (602) 264-0217

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION

STORM DRAIN PLAN
DETAIL A

PRELIMINARY
30%
Review
NOT FOR CONSTRUCTION OR RECORDING

ROUTE 101L | LOCATION AGUA FRIA, CAMELBACK - NORTHERN | DWG. NO. D- 2.4

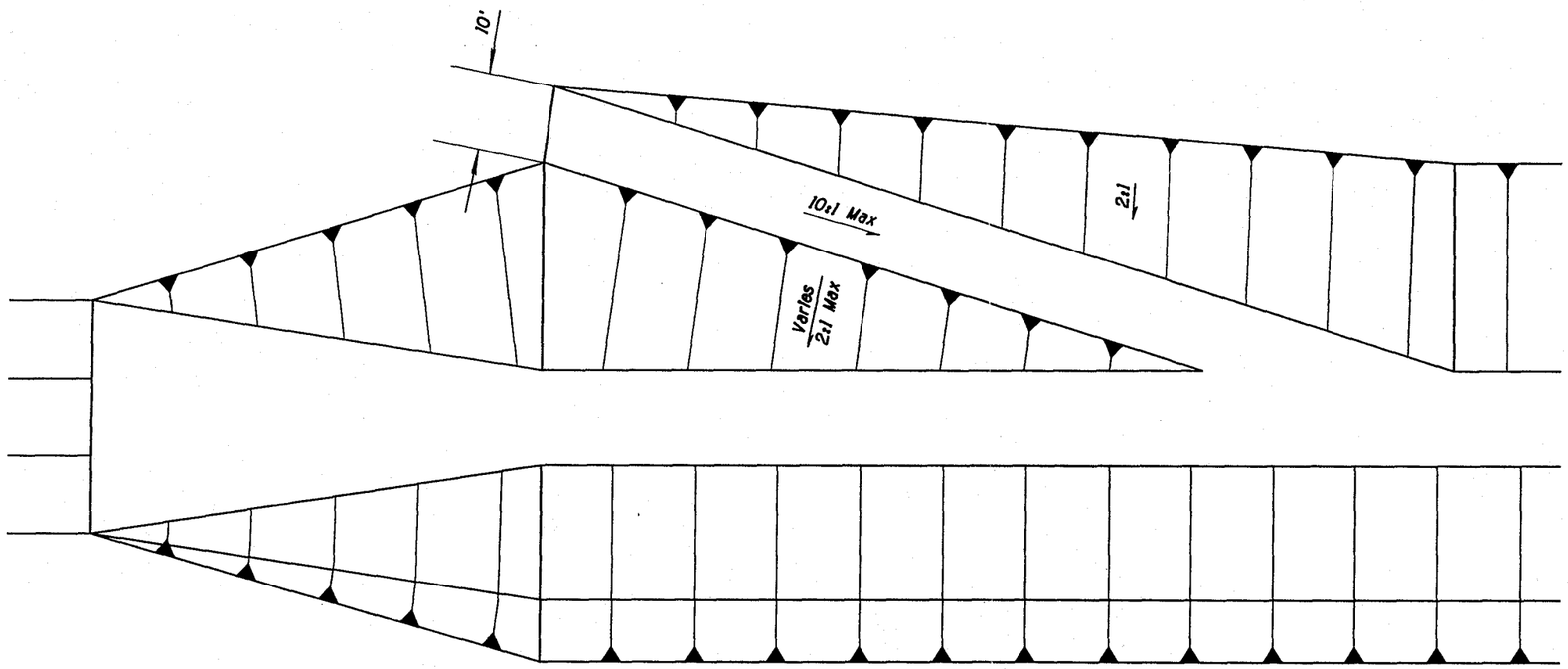
TRACS NO. H4578 01 D | 600-0-524 | ___ OF ___

SURVEY NO. | PROJECT PLANS | REVISIONS | LOCATION | DATE

ccccccDGNcSPECIFICATIONcccccc VIEW NAME:
ccccccSYSTIMEcccccc

j:/af03/civ/drainage/af03cdt1.dgn Nov. 24, 1997 08:49:47 DMJM Arizona, Inc.

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	RAM 600-0-524			
		101L MA 05			



PLAN

Note:
See Typical Sections and Plan Sheets for additional notes and dimensions not shown.

DETAIL D2

TYPICAL CHANNEL ACCESS RAMP

	NAME	DATE
DESIGN		
DRAWN		
CHECKED		

DMJM ARIZONA, INC. 300 WEST CLARENDON SUITE 400 PHOENIX, AZ. 85013-3499 (602) 264-0217

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION

STORM DRAIN PLAN
DETAIL D2

PRELIMINARY
30%
Review
NOT FOR CONSTRUCTION OR RECORDING

ROUTE: 101L
LOCATION: AGUA FRIA, CAMELBACK - NORTHERN
DWG. NO. D- 2.5

TRACS NO. H4578 01 D | 600-0-524 | ___ OF ___

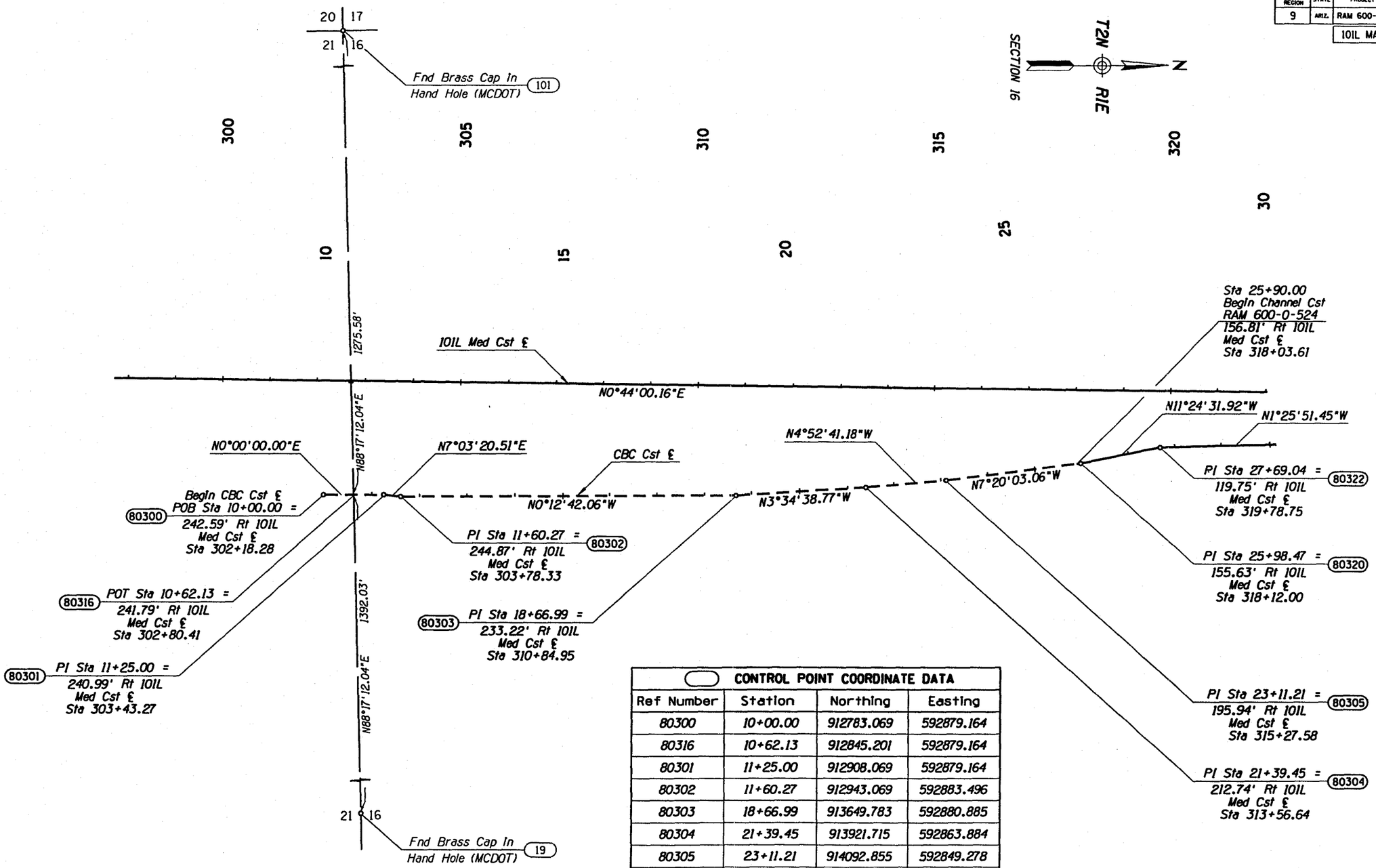
SURVEY NO.	PROJECT PLANS	REVISIONS	LOCATION	DATE

cccccDGNcSPECIFICATIONcccccc
ccccccSYSTIMEcccccc
VIEW NAME:

I:/af03/civ/drainage/af03cdt2.dgn Nov. 24, 1997 08:03:50 DMJM Arizona,Inc.

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	RAM 600-0-524			

101L MA 05



CONTROL POINT COORDINATE DATA

Ref Number	Station	Northing	Easting
80300	10+00.00	912783.069	592879.164
80316	10+62.13	912845.201	592879.164
80301	11+25.00	912908.069	592879.164
80302	11+60.27	912943.069	592883.496
80303	18+66.99	913649.783	592880.885
80304	21+39.45	913921.715	592863.884
80305	23+11.21	914092.855	592849.278
80320	25+98.47	914377.768	592812.607
80322	27+69.04	914544.966	592778.867
101		912807.063	591604.150
19		912886.821	594270.570

	NAME	DATE
DESIGN		
DRAWN		
CHECKED		

DMJM ARIZONA, INC. 300 WEST CLARENDON SUITE 400 PHOENIX, AZ. 85013-3499 (602) 264-0217

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION

CHANNEL GEOMETRICS
Sta 10+00 to Sta 30+00

ROUTE: 101L
LOCATION: AGUA FRIA, CAMELBACK - NORTHERN

PRELIMINARY
30%
Review
NOT FOR CONSTRUCTION OR RECORDING
DWG. NO. D- 2.6

cccccDGNcSPECIFICATIONcccccc
cccccSYSTIMEcccccc
VIEW NAME:

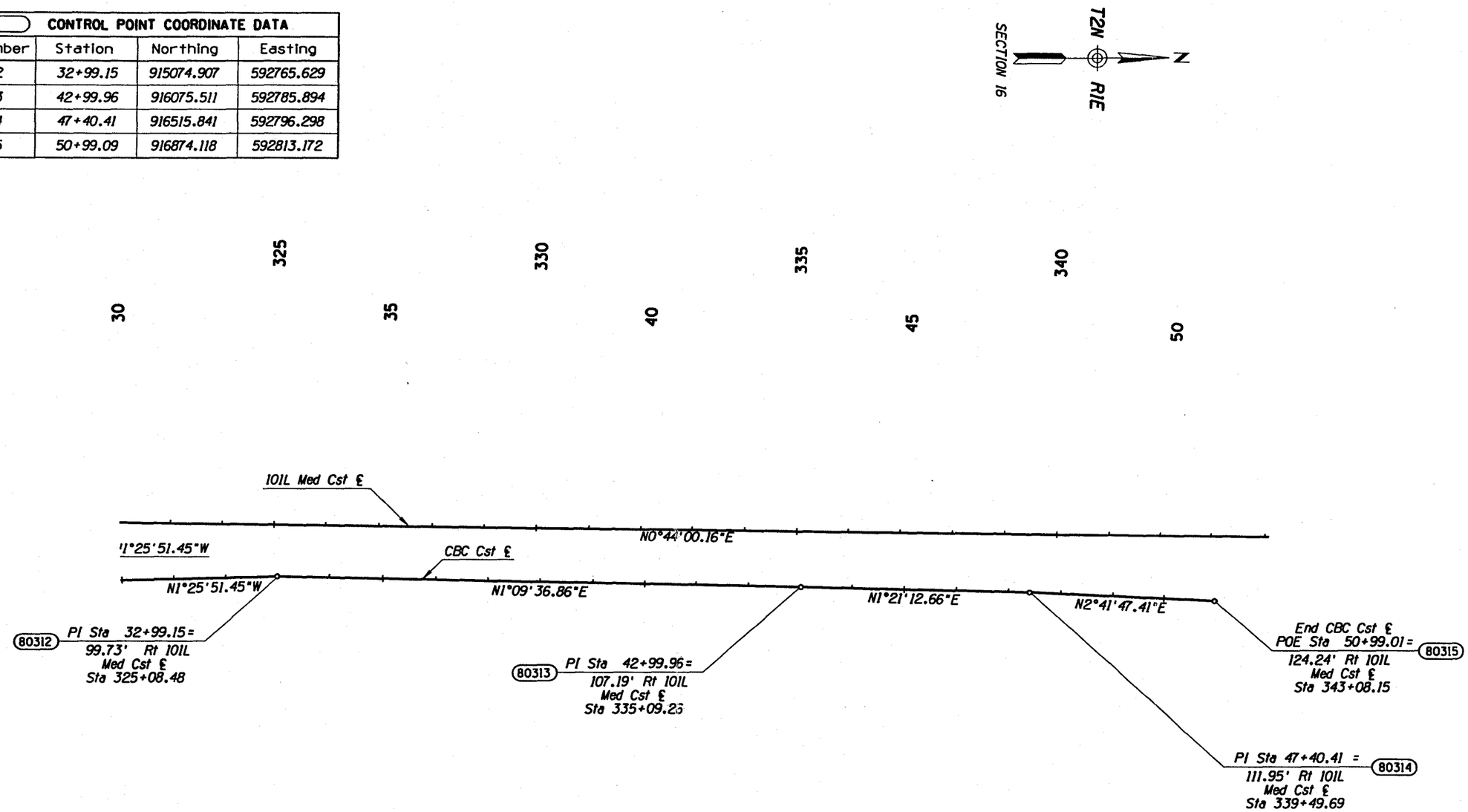
TRACS NO. H4578 01 D | 600-0-524 | ___ OF ___

j:/af03/civ/drainage/af03drng7.dgn Nov. 23, 1997 18:50:12 DMJM Arizona,Inc.

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	RAM 600-0-524			

101L MA 05

CONTROL POINT COORDINATE DATA			
Ref Number	Station	Northing	Easting
80312	32+99.15	915074.907	592765.629
80313	42+99.96	916075.511	592785.894
80314	47+40.41	916515.841	592796.298
80315	50+99.09	916874.118	592813.172



	NAME	DATE
DESIGN		
DRAWN		
CHECKED		

DMJM ARIZONA, INC. 300 WEST CLARENDON SUITE 400 PHOENIX, AZ. 85013-3499 (602) 264-0217

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION

CHANNEL GEOMETRICS
Sta 30+00 to Sta 51+00

ROUTE 101L | LOCATION AGUA FRIA, CAMELBACK - NORTHERN

PRELIMINARY
30%
Review
NOT FOR CONSTRUCTION OR RECORDING

DWG. NO. D- 2.7

SURVEY NO.	PLANS	REVISIONS	LOCATION	DATE

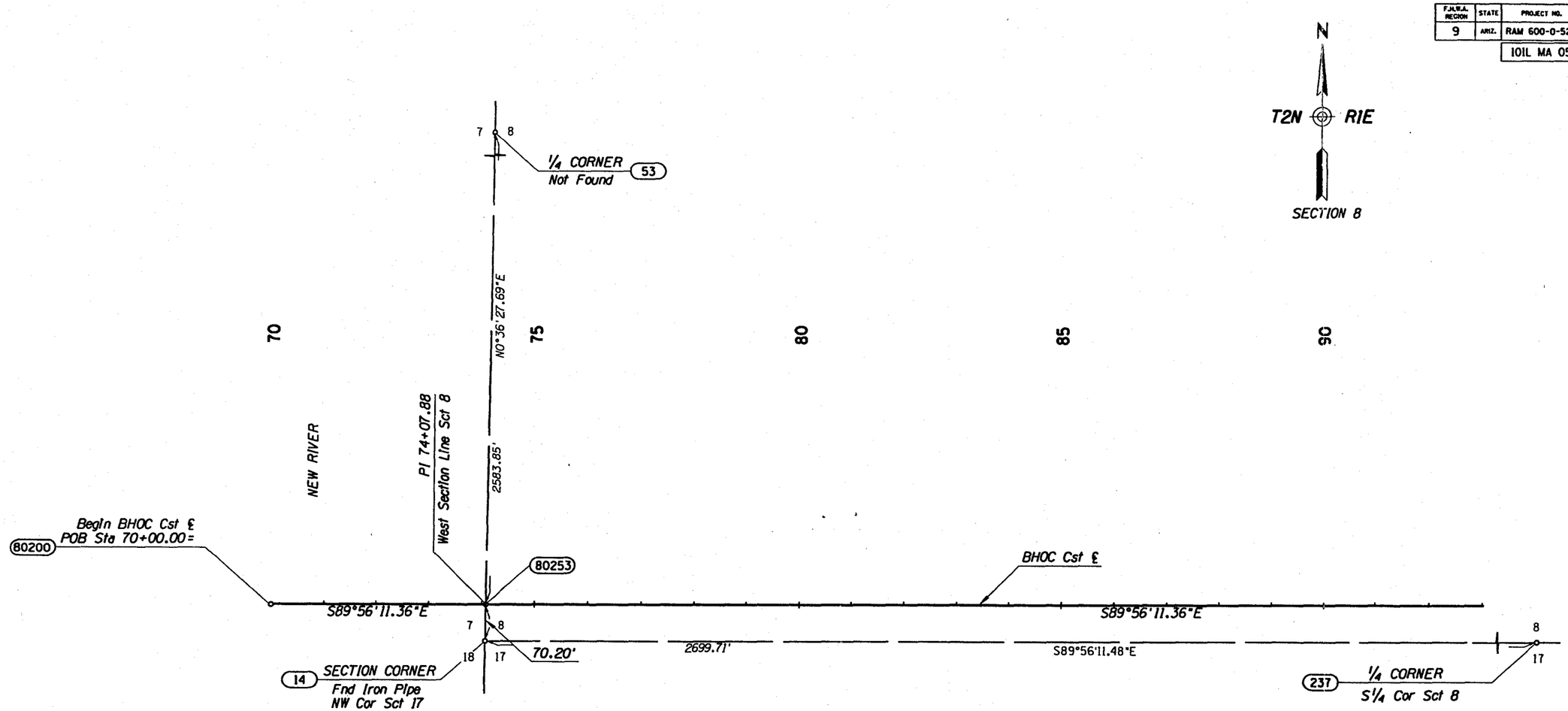
cccccDGNcSPECIFICATIONcccccc
cccccSYSTIMEcccccc
VIEW NAME:

TRACS NO. H4578 01 D | 600-0-524 | ___ OF ___

j:/af03/civ/drainage/af03drng8.dgn Nov. 23, 1997 19:15:15 DMJM Arizona, Inc.

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	RAM 600-0-524			

101L MA 05



CONTROL POINT COORDINATE DATA			
Ref Number	Station	Northing	Easting
14		918050.039	586319.993
237		918047.048	589019.701
53		920703.944	586348.142
80200	70+00.00	918120.688	585912.862
80253	74+07.88	918120.236	586320.738

	NAME	DATE
DESIGN		
DRAWN		
CHECKED		

DMJM ARIZONA, INC. 300 WEST CLARENDON SUITE 400 PHOENIX, AZ. 85013-3499 (602) 264-0217

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION

CHANNEL GEOMETRICS
Sta 70+00 to Sta 93+00

ROUTE 101L — LOCATION: AGUA FRIA, CAMELBACK - NORTHERN

PRELIMINARY
30%
Review
NOT FOR CONSTRUCTION OR RECORDING

DWG. NO. D- 2.8

TRACS NO. H4578 01 D | 600-0-524 | ___ OF ___

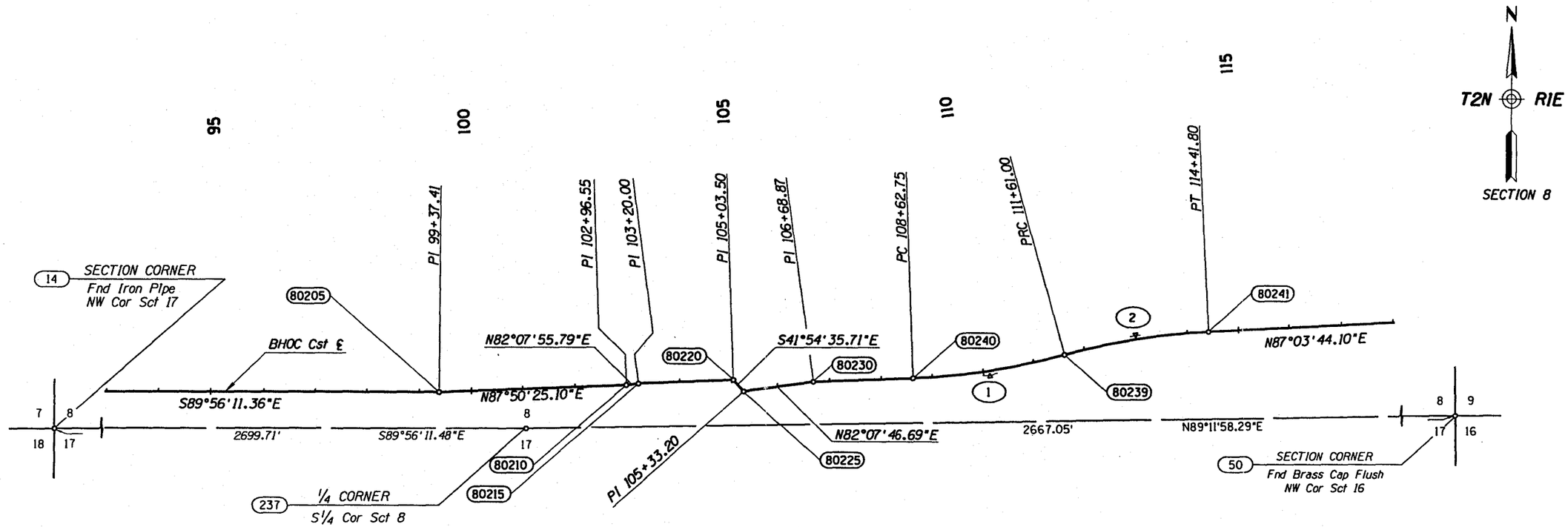
SURVEY NO.	FINISHED PLANS	REVISIONS	LOCATION	DATE

cccccDGNcSPECIFICATIONcccccc VIEW NAME:
cccccSYSTIMEcccccc

:/af03/civ/drainage/af03drng1.dgn Nov. 23, 1997 18:47:48 DMJM Arizona,Inc.

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	RAM 600-0-524			

101L MA 05



CONTROL POINT COORDINATE DATA

Ref Number	Station	Northing	Easting
80205	99+37.41	918117.432	588850.272
80210	102+96.55	918130.966	589209.153
80215	103+20.00	918134.176	589232.382
80220	105+03.50	918141.091	589415.752
80225	105+33.20	918118.990	589435.589
80230	106+68.87	918137.568	589569.984
80240	108+62.75	918144.874	589763.724
80239	111+61.00	918190.446	590057.799
80241	114+41.80	918235.243	590334.441
14		918050.039	586319.993
237		918047.048	589019.701
50		918084.308	591686.492

1 CURVE DATA

PI Sta 110+ 11.87
N 918150.519
E 589913.418

Main Curve
Δ=13°17'55.08"
R=1285.00
L=289.26
T=149.80
D=04°27'31.74"

2 CURVE DATA

PI Sta 113+ 01.40
N 918228.018
E 590193.663

Main Curve
Δ=12°31'13.80"
R=1285.00
L=280.80
T=140.96
D=04°27'31.74"

	NAME	DATE
DESIGN		
DRAWN		
CHECKED		

DMJM ARIZONA, INC. 300 WEST CLARENDON SUITE 400 PHOENIX, AZ. 85013-3499 (602) 264-0217

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION

CHANNEL GEOMETRICS
Sta 93+00 to Sta 118+00

ROUTE 101L LOCATION AGUA FRIA, CAMELBACK - NORTHERN

PRELIMINARY
30%
Review
NOT FOR CONSTRUCTION OR RECORDING

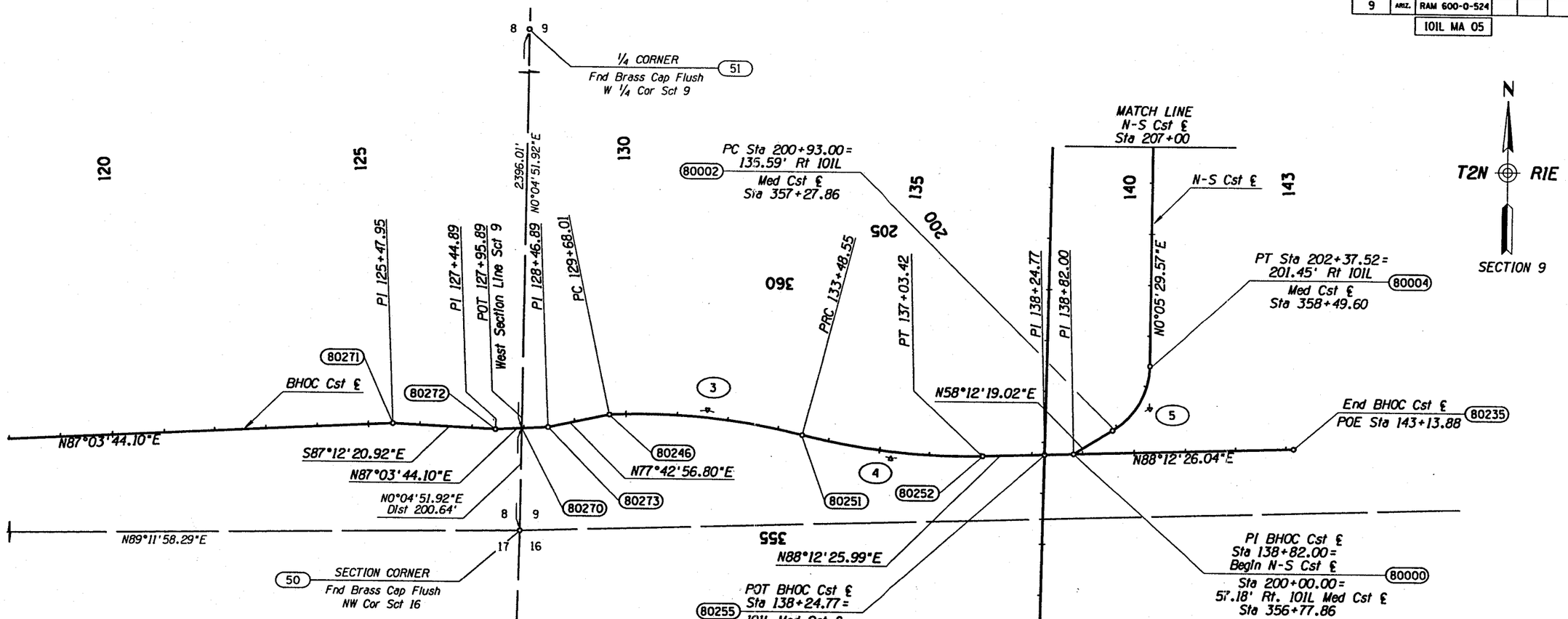
DWG. NO. D- 2.9

TRACS NO. H4578 01 D | 600-0-524 | ___ OF ___

cccccDGNoSPECIFICATIONcccccc VIEW NAME:
ccccccSYSTIMEcccccc

|:/af03/civ/drainage/af03drng2.dgn Nov. 23, 1997 18:47:02 DMJM Arizona,Inc.

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	RAM 600-0-524			
		101L MA 05			



CONTROL POINT COORDINATE DATA			
Ref Number	Station	Northing	Easting
80271	125+47.95	918291.933	591439.130
80272	127+44.89	918282.332	591635.843
80270	127+95.89	918284.946	591686.776
80273	128+46.89	918287.560	591737.709
80246	129+68.01	918313.329	591856.053
50		918084.308	591686.492
51		920680.951	592909.982
80251	133+48.55	918276.686	592233.431
80252	137+09.42	918238.982	592585.152
80255	138+24.77	918242.778	592706.443
80000	138+82.00	918244.569	592763.650
80235	143+13.88	918258.080	593195.313
80002	200+88.83	918291.369	592839.147
80004	202+40.97	918418.621	592910.115

3 CURVE DATA

PI Sta 131+ 59.59
N 918323.153
E 592047.475

Main Curve
Δ=16°58'03.57"
R=1285.00
L=354.86
T=178.57
D=04°27'31.74"

4 CURVE DATA

PI Sta 135+ 27.12
N 918233.396
E 592406.692

Main Curve
Δ=15°49'21.61"
R=1285.00
L=354.86
T=178.57
D=04°27'31.74"

5 CURVE DATA

PI Sta 201+ 64.90
N 918335.280
E 592909.982

Main Curve
Δ=58°06'49.45"
R=150.00
L=152.14
T=83.34
D=38°11'49.87"

	NAME	DATE
DESIGN		
DRAWN		
CHECKED		

DMJM ARIZONA, INC. 300 WEST CLARENDON SUITE 400 PHOENIX, AZ. 85013-3499 (602) 264-0217

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION

CHANNEL GEOMETRICS
Sta 118+00 to Sta 145+00

ROUTE 101L
LOCATION AGUA FRIA, CAMELBACK - NORTHERN

PRELIMINARY
30%
Review
NOT FOR CONSTRUCTION OR RECORDING

DWG. NO. D- 2.10

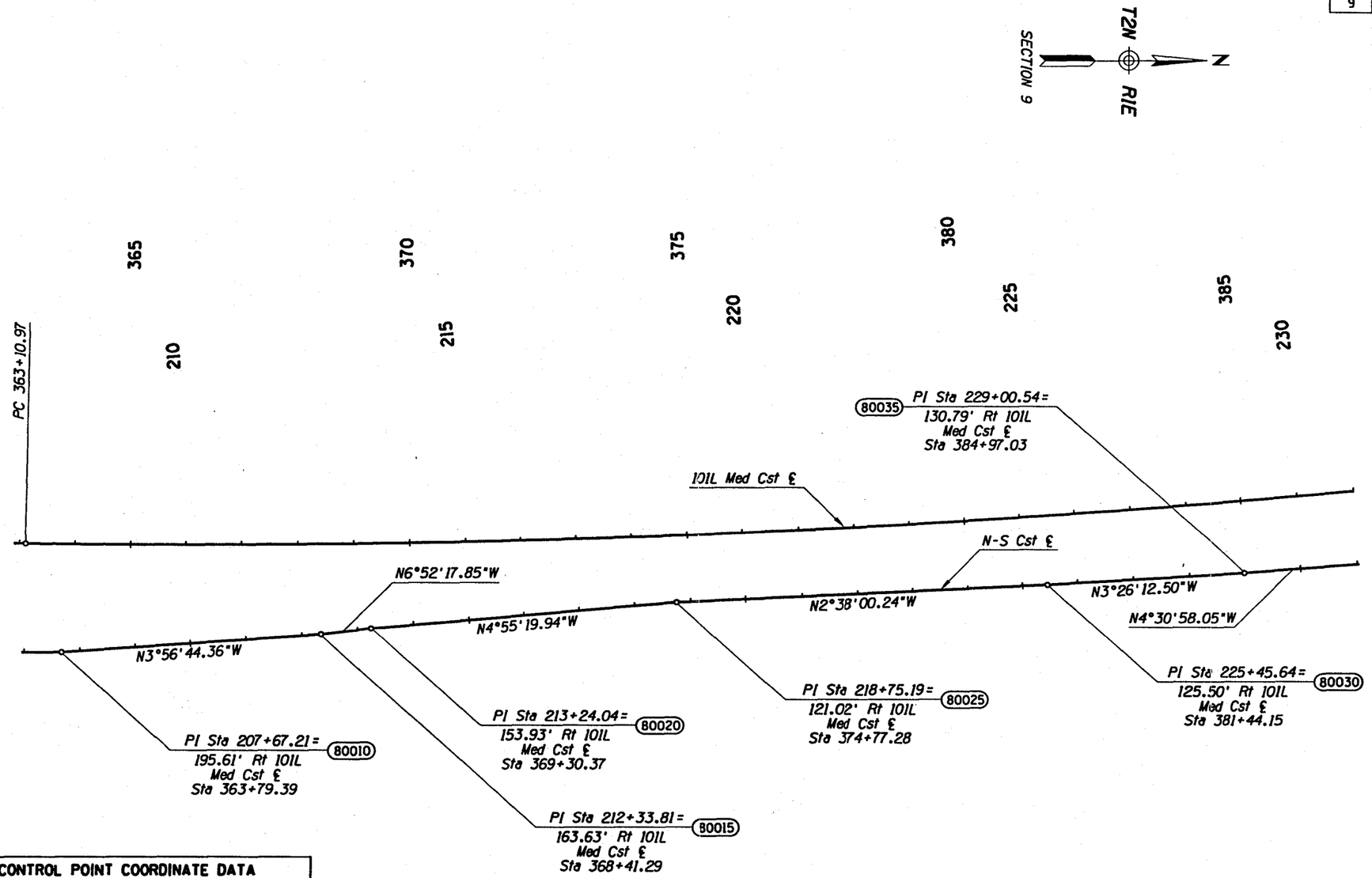
TRACS NO. H4578 01 D | 600-0-524 | ___ OF ___

cccccDGNcSPECIFICATIONcccccc VIEW NAME:
ccccccSYSTIMEcccccc

j:/af03/civ/drainage/af03drng3.dgn Nov. 23, 1997 18:44:13 DMJM Arizona, Inc.

F.A.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	RAM 600-0-524			

101L MA 05



CONTROL POINT COORDINATE DATA			
Ref Number	Station	Northing	Easting
80010	207+67.21	918944.861	592910.956
80015	212+33.81	919410.357	592878.849
80020	213+24.04	919499.934	592868.054
80025	218+75.19	920049.059	592820.763
80030	225+45.64	920718.800	592789.959
80035	229+00.54	921073.055	592768.684

	NAME	DATE
DESIGN		
DRAWN		
CHECKED		

DMJM ARIZONA, INC. 300 WEST CLARENDON SUITE 400 PHOENIX, AZ. 85013-3499 (602) 264-0217

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION

CHANNEL GEOMETRICS
Sta 207+00 to Sta 231+00

ROUTE 101L

LOCATION AGUA FRIA, CAMELBACK - NORTHERN

PRELIMINARY
30%
Review
NOT FOR CONSTRUCTION OR RECORDING

DWG. NO. D- 2.11

TRACS NO. H4578 01 D

600-0-524

___ OF ___

cccccDGNcSPECIFICATIONcccccc
cccccSYSTIMEcccccc

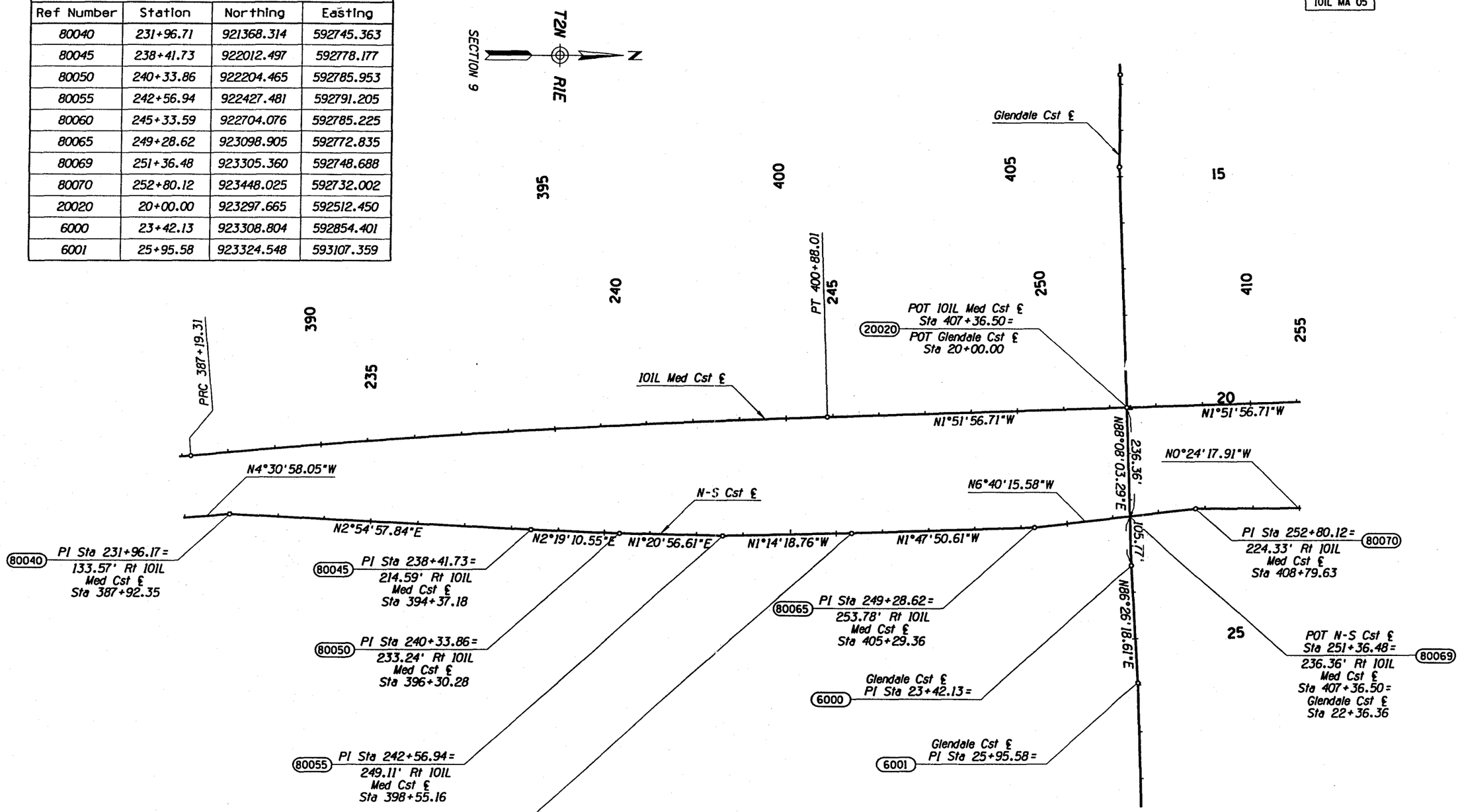
VIEW NAME:

I:/af03/civ/drainage/af03drng4.dgn Nov. 23, 1997 18:48:47 DMJM Arizona Inc.

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	RAM 600-0-524			

101L MA 05

CONTROL POINT COORDINATE DATA			
Ref Number	Station	Northing	Easting
80040	231+96.71	921368.314	592745.363
80045	238+41.73	922012.497	592778.177
80050	240+33.86	922204.465	592785.953
80055	242+56.94	922427.481	592791.205
80060	245+33.59	922704.076	592785.225
80065	249+28.62	923098.905	592772.835
80069	251+36.48	923305.360	592748.688
80070	252+80.12	923448.025	592732.002
20020	20+00.00	923297.665	592512.450
6000	23+42.13	923308.804	592854.401
6001	25+95.58	923324.548	593107.359



	NAME	DATE
DESIGN		
DRAWN		
CHECKED		

DMJM ARIZONA, INC. 300 WEST CLARENDON SUITE 400 PHOENIX, AZ. 85013-3499 (602) 264-0217

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION

CHANNEL GEOMETRICS
Sta 231+00 to Sta 255+00

ROUTE: 101L
LOCATION: AGUA FRIA, CAMELBACK - NORTHERN

PRELIMINARY
30%
Review
NOT FOR CONSTRUCTION OR RECORDING
DWG. NO. D- 2.12

DATE	LOCATION	REVISIONS	AS BUILT PLANS	SURVEY NO.

ccccccDGNcSPECIFICATIONcccccc
ccccccSYSTIMEcccccc
VIEW NAME:

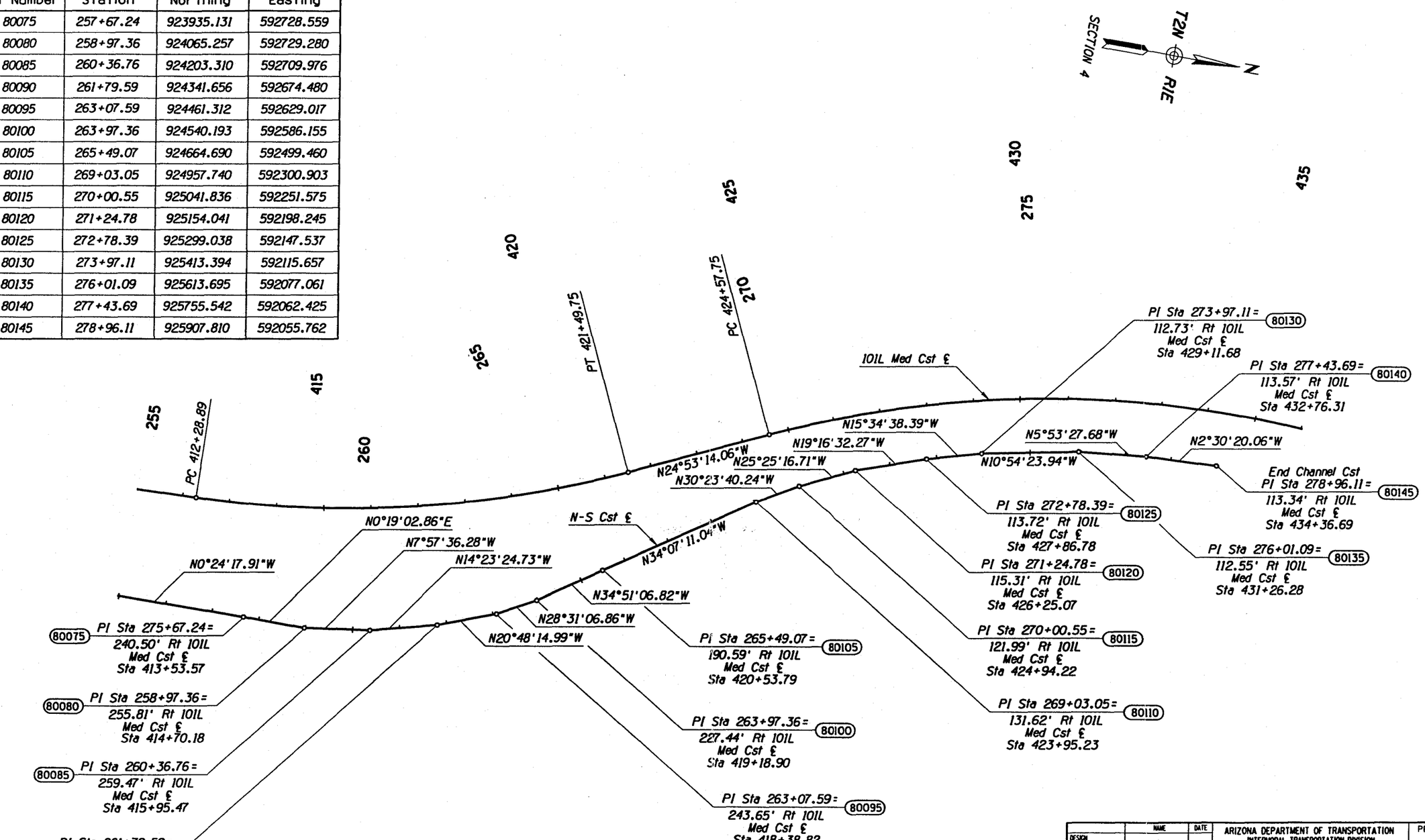
TRACS NO. H4578 01 D | 600-0-524 | ___ OF ___

j:/af03/civ/drainage/af03drng5.dgn Nov. 23, 1997 18:49:18 DMJM Arizona, Inc.

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	RAM 600-0-524			

101L MA 05

CONTROL POINT COORDINATE DATA			
Ref Number	Station	Northing	Easting
80075	257+67.24	923935.131	592728.559
80080	258+97.36	924065.257	592729.280
80085	260+36.76	924203.310	592709.976
80090	261+79.59	924341.656	592674.480
80095	263+07.59	924461.312	592629.017
80100	263+97.36	924540.193	592586.155
80105	265+49.07	924664.690	592499.460
80110	269+03.05	924957.740	592300.903
80115	270+00.55	925041.836	592251.575
80120	271+24.78	925154.041	592198.245
80125	272+78.39	925299.038	592147.537
80130	273+97.11	925413.394	592115.657
80135	276+01.09	925613.695	592077.061
80140	277+43.69	925755.542	592062.425
80145	278+96.11	925907.810	592055.762



	NAME	DATE
DESIGN		
DRAWN		
CHECKED		

DMJM ARIZONA, INC. 300 WEST CLARENDON SUITE 400 PHOENIX, AZ. 85013-3499 (602) 264-0217

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION

CHANNEL GEOMETRICS
Sta 255+00 to Sta 280+00

ROUTE 101L — LOCATION AGUA FRIA, CAMELBACK - NORTHERN

PRELIMINARY
30%
Review
NOT FOR CONSTRUCTION OR RECORDING

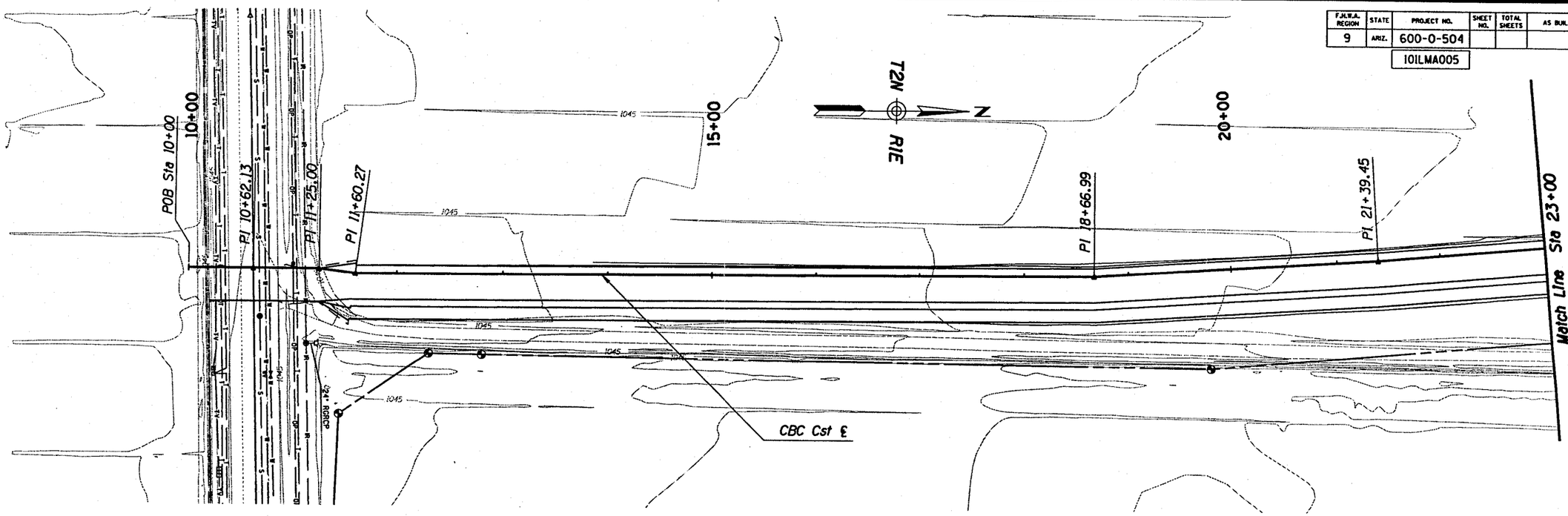
DWG. NO. D- 2.13

TRACS NO. H4578 01 D | 600-0-524 | ___ OF ___

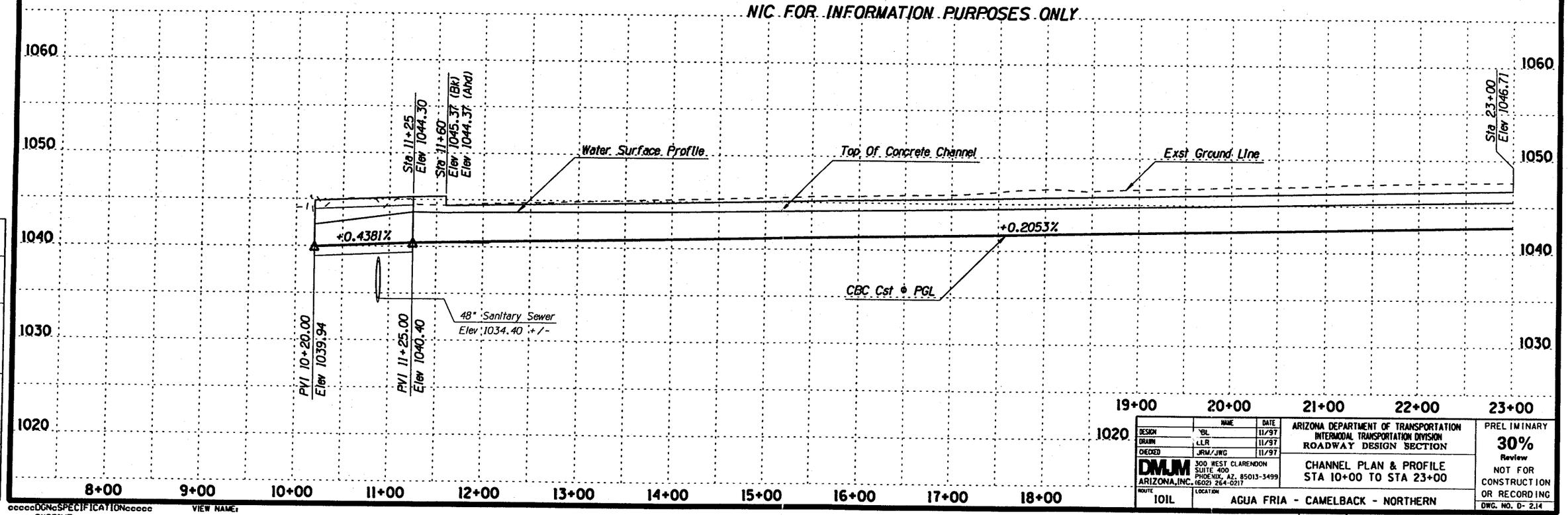
cccccDGNcSPECIFICATIONccccc
ccccccSYSTIMEcccccc
VIEW NAME:

j:/af03/civ/drainage/af03drng6.dgn Nov. 23, 1997 18:49:39 DMJM Arizona,Inc.

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	600-0-504			
		101LMA005			



NIC FOR INFORMATION PURPOSES ONLY



	NAME	DATE	
DESIGN	BL	11/97	ARIZONA DEPARTMENT OF TRANSPORTATION INTERMODAL TRANSPORTATION DIVISION ROADWAY DESIGN SECTION
DRAWN	LLR	11/97	
CHECKED	JRM/JWG	11/97	

DMJM ARIZONA, INC. 300 WEST CLARENDON SUITE 400 PHOENIX, AZ. 85013-3499 (602) 264-0217

CHANNEL PLAN & PROFILE STA 10+00 TO STA 23+00

ROUTE 101L LOCATION AGUA FRIA - CAMELBACK - NORTHERN

PRELIMINARY 30% Review NOT FOR CONSTRUCTION OR RECORDING

DWG. NO. D- 2.14

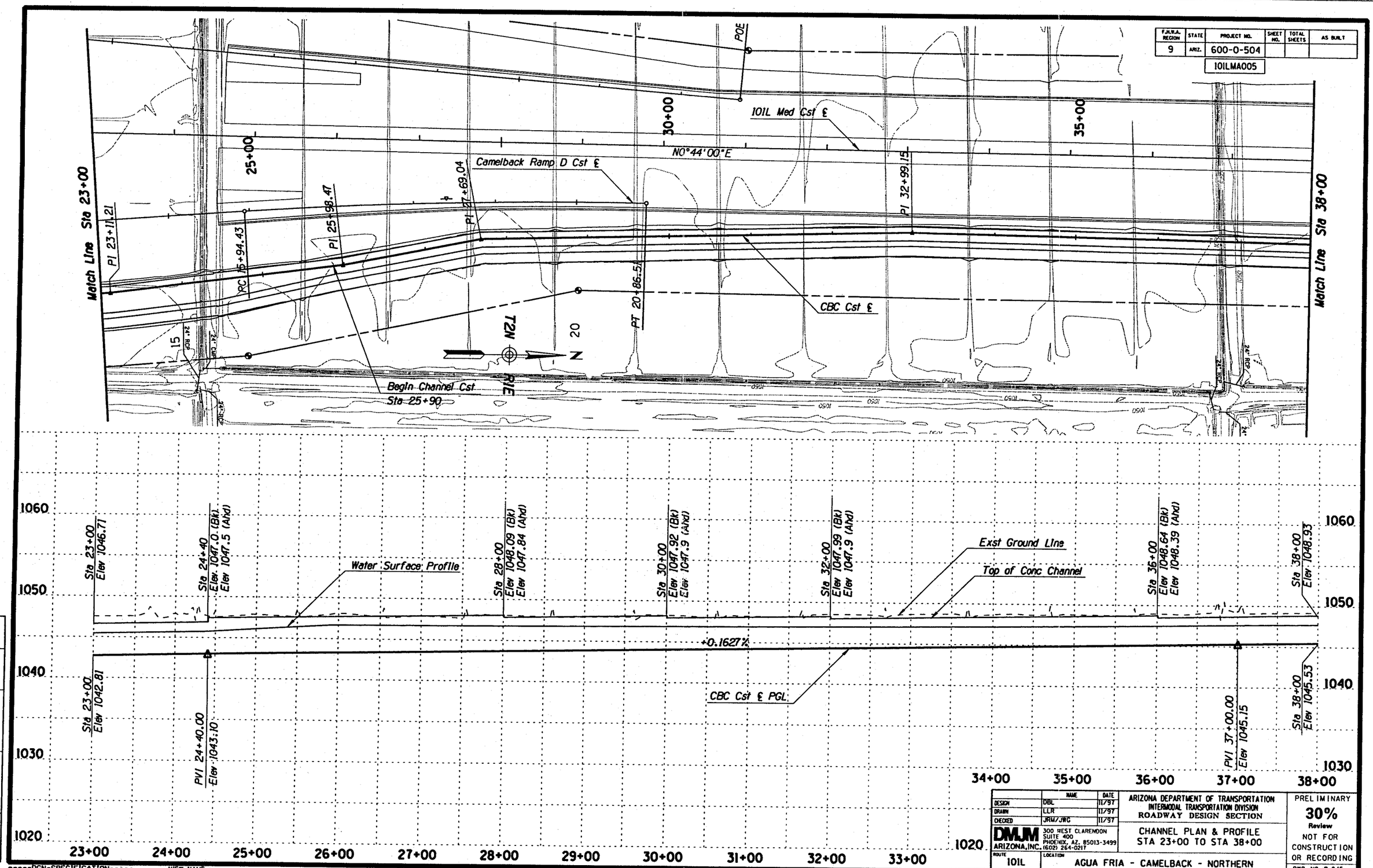
TRACS NO. H457801D | 600-0-524 | ___ OF ___

SURVEY NO. | REVISED PLANS | REVISIONS | LOCATION | DATE

ccccc DGNcSPECIFICATIONccccc
ccccc SYSTIMEccccc
VIEW NAME:

j:/af03/civ/drainage/af03d214.dgn Nov. 24, 1997 09:28:20 DMJM Arizona, Inc.

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	600-0-504			
		101LMA005			



	NAME	DATE
DESIGN	DBL	11/97
DRAWN	LLR	11/97
CHECKED	JRM/JWG	11/97

DMJM ARIZONA, INC. 300 WEST CLARENDON SUITE 400 PHOENIX, AZ. 85013-3499 (602) 264-0217

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SECTION

CHANNEL PLAN & PROFILE
STA 23+00 TO STA 38+00

ROUTE 101L LOCATION AGUA FRIA - CAMELBACK - NORTHERN

PRELIMINARY 30% Review NOT FOR CONSTRUCTION OR RECORDING

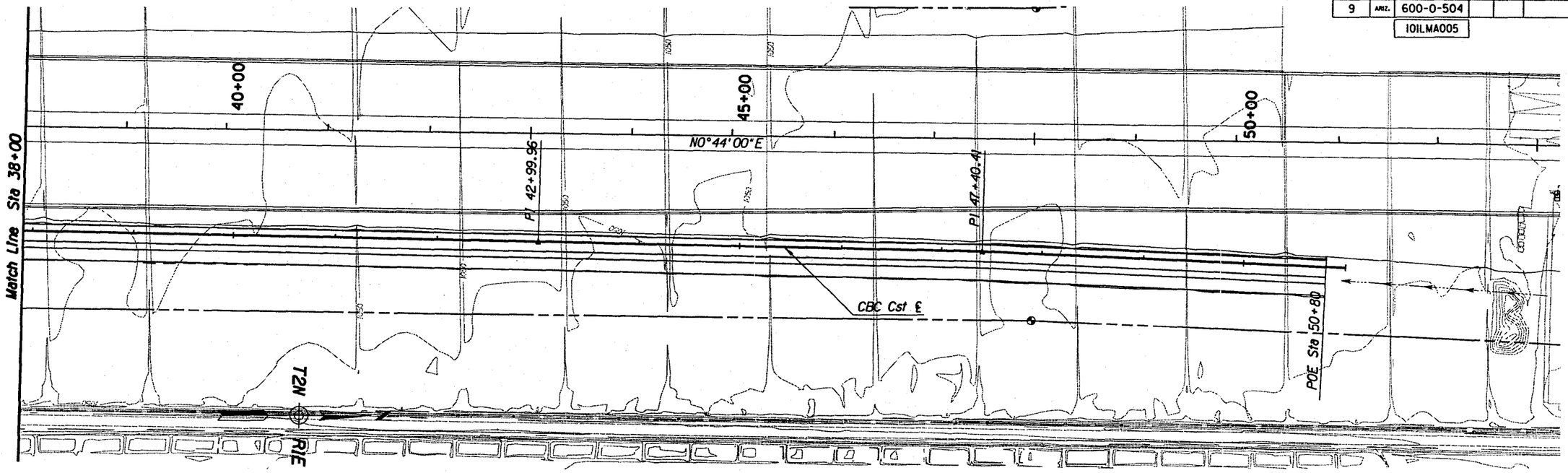
DWG. NO. D-2.15

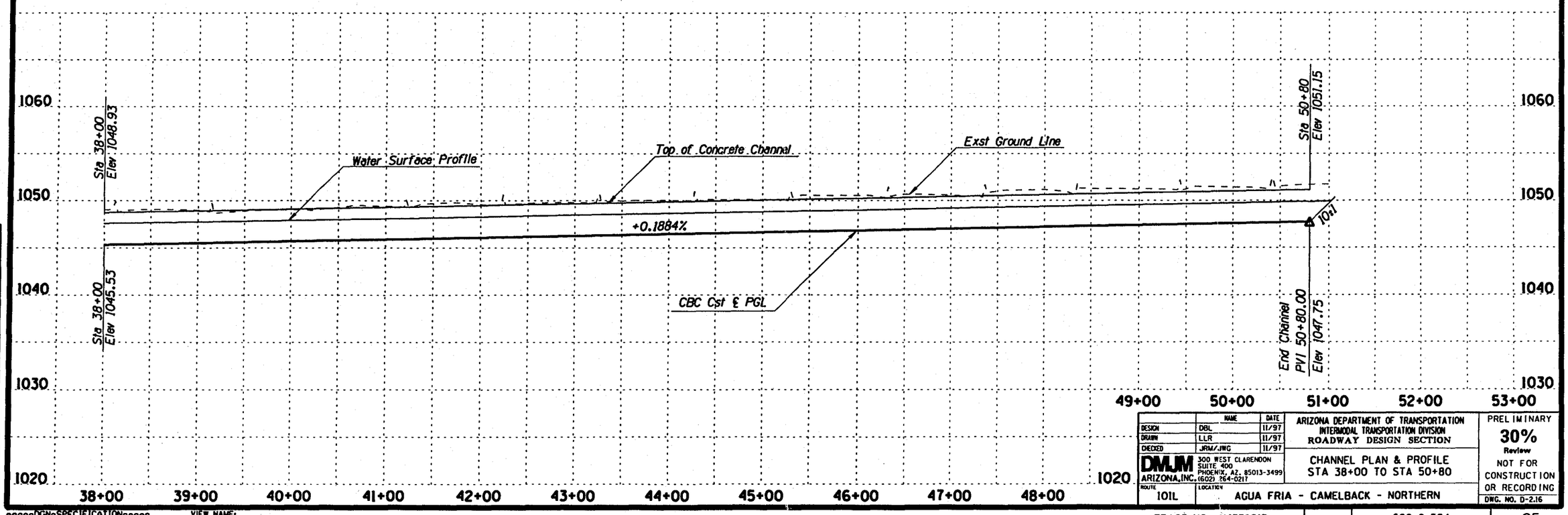
TRACS NO. H457801D | 600-0-524 | ___ OF ___

cccccDGNcSPECIFICATIONcccccc VIEW NAME:
cccccSYSTIMEcccccc

j:/af03/civ/drainage/af03d215.dgn Nov. 23, 1997 19:17:15 DMJM Arizona, Inc.

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	600-0-504			
		101LMA005			





	NAME	DATE
DESIGN	DBL	11/97
DRAWN	LLR	11/97
CHECKED	JRM/JWG	11/97

DMJM ARIZONA, INC. 300 WEST CLARENDON SUITE 400 PHOENIX, AZ. 85013-3499 (602) 264-0217

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SECTION

CHANNEL PLAN & PROFILE
STA 38+00 TO STA 50+80

PRELIMINARY
30%
Review
NOT FOR CONSTRUCTION OR RECORDING

ROUTE 101L | LOCATION AGUA FRIA - CAMELBACK - NORTHERN | DWG. NO. D-2.16

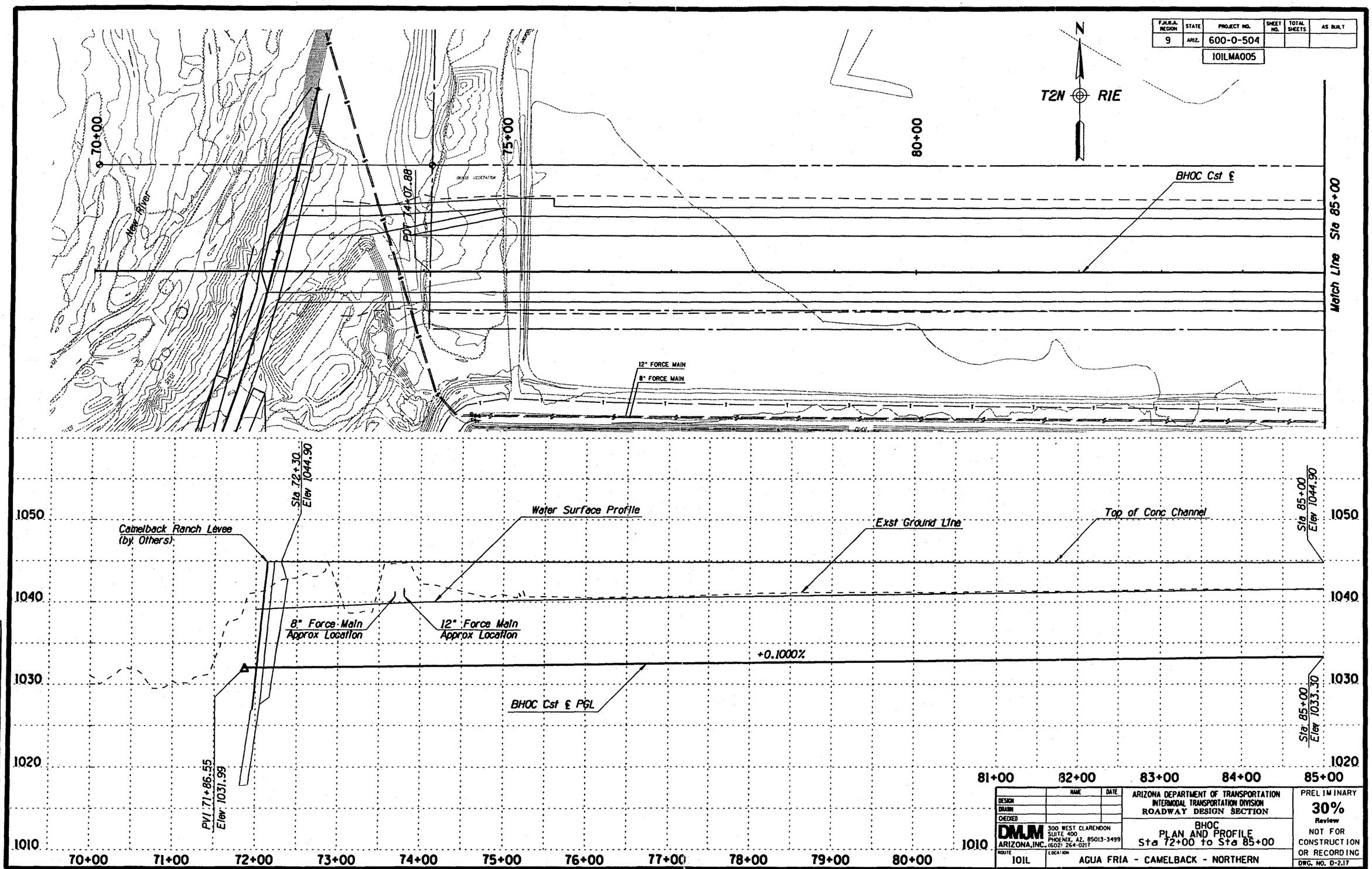
TRACS NO. H457801D | 600-0-524 | ___ OF ___

SURVEY NO. | FINISHED PLANS | REVISIONS | LOCATION | DATE

cccccDGNcSPECIFICATIONcccccc
cccccSYSTIMEcccccc
VIEW NAME:

I:/af03/civ/drainage/af03d216.dgn Nov. 23, 1997 19:21:19 DMJM Arizona, Inc.

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	600-0-504			
		101LMA005			



	NAME	DATE
DESIGN		
DRAWN		
CHECKED		

DMJM ARIZONA, INC. 300 WEST CLARENDON SUITE 400 PHOENIX, AZ. 85013-3499 (602) 264-0217

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SECTION

BHOC
PLAN AND PROFILE
Sta 72+00 to Sta 85+00

ROUTE 101L LOCATION AGUA FRIA - CAMELBACK - NORTHERN

PRELIMINARY
30%
Review
NOT FOR CONSTRUCTION OR RECORDING

DWG. NO. D-2.17

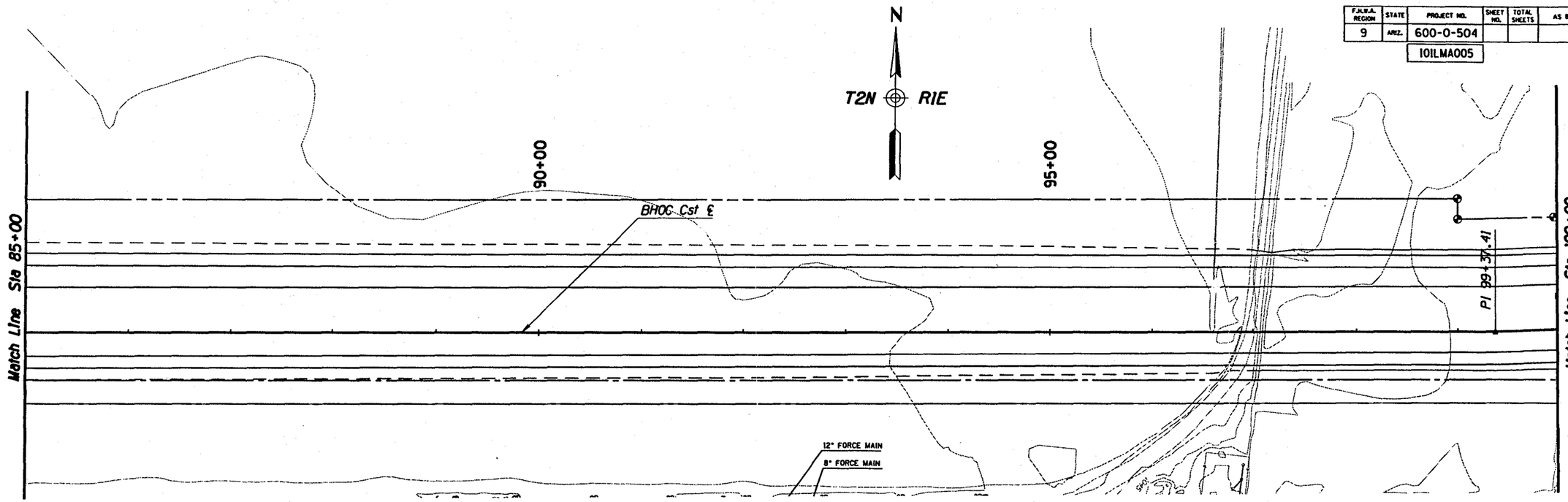
TRACS NO. H457801D | 600-0-524 | ___ OF ___

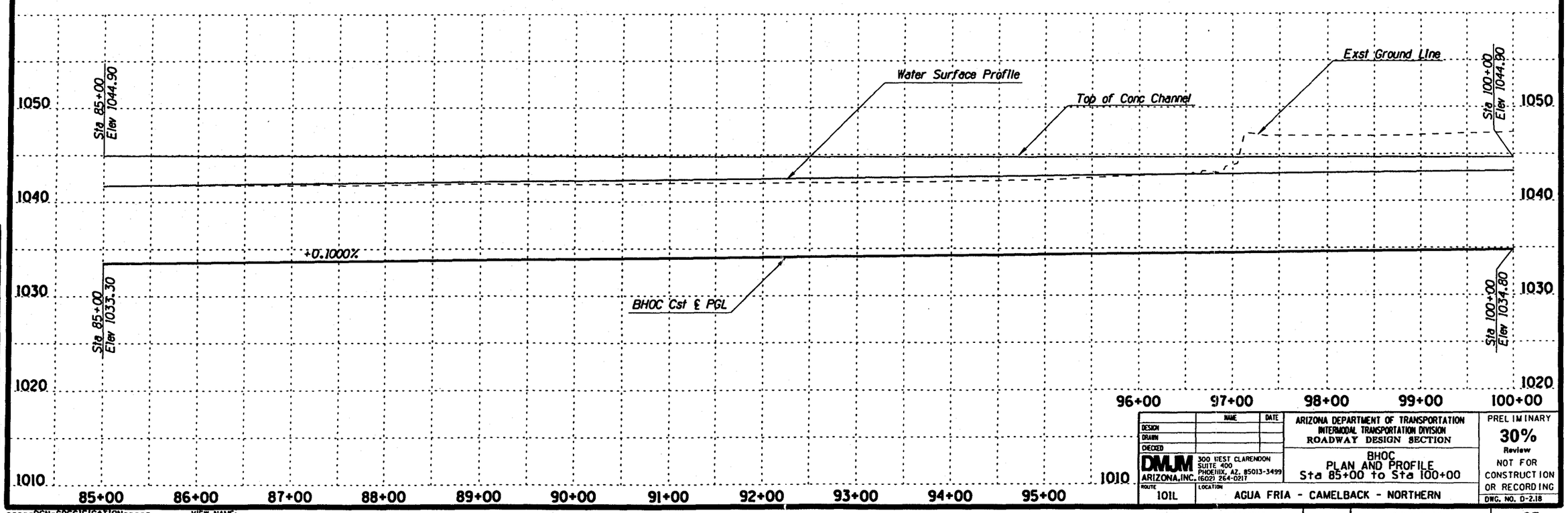
SURVEY NO. | FINISHED PLANS | REVISIONS | LOCATION | DATE

cccccDGNcSPECIFICATIONcccccc
cccccSYSTIMEcccccc
VIEW NAME:

j:/af03/civ/drainage/af03d217.dgn Nov. 24, 1997 09:41:51 DMJM Arizona, Inc.

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	600-0-504			
		101LMA005			





	NAME	DATE
DESIGN		
DRAWN		
CHECKED		

DMJM ARIZONA, INC. 300 WEST CLARENDON SUITE 400 PHOENIX, AZ. 85013-3499 (602) 264-0217

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SECTION

BHOC
PLAN AND PROFILE
Sta 85+00 to Sta 100+00

PRELIMINARY
30%
Review
NOT FOR CONSTRUCTION OR RECORDING

DWG. NO. D-2.18

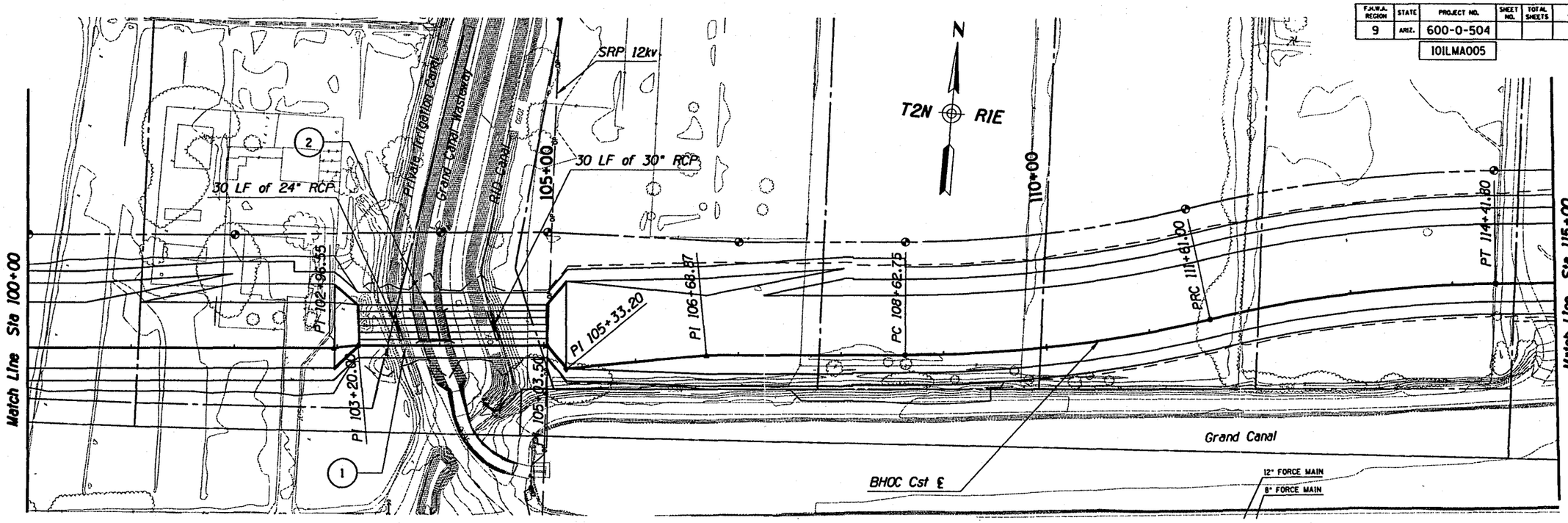
ROUTE 101L LOCATION AGUA FRIA - CAMELBACK - NORTHERN

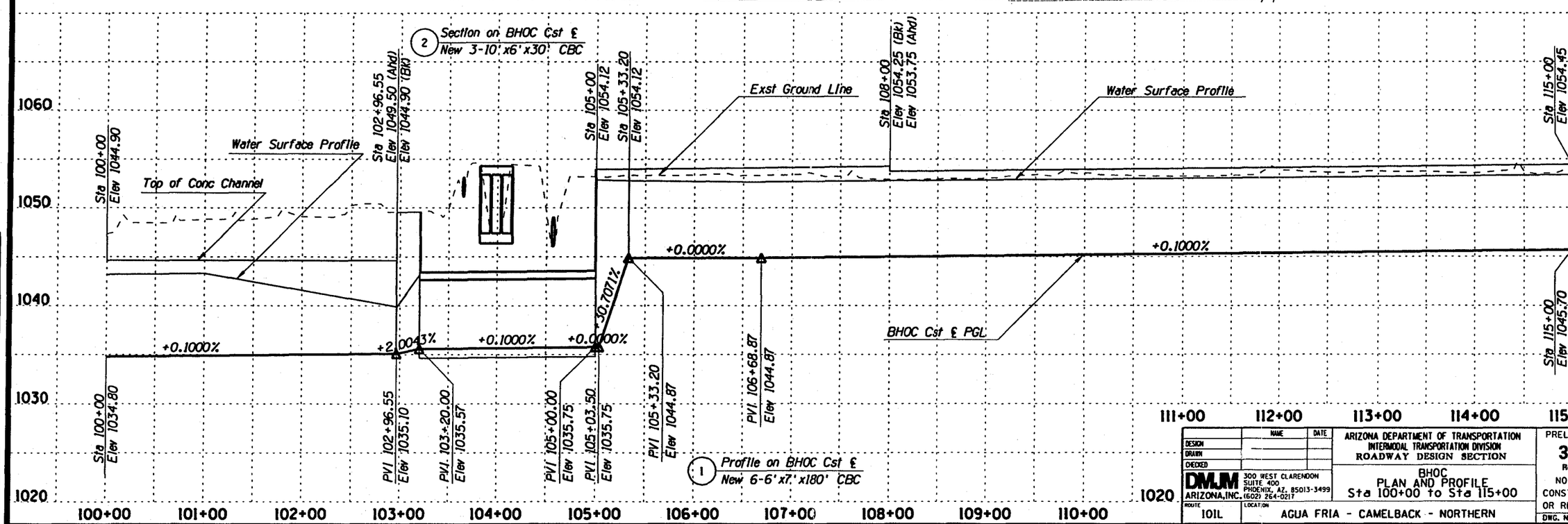
TRACS NO. H457801D | 600-0-524 | ___ OF ___

cccccDGNcSPECIFICATIONccccc
ccccccSYSTIMEcccccc
VIEW NAME:

j:/af03/civ/drainage/af03d218.dgn Nov. 24, 1997 09:47:25 DMJM Arizona, Inc.

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	600-0-504			
		101LMA005			





	NAME	DATE
DESIGN		
DRAWN		
CHECKED		

DMJM ARIZONA, INC. 300 WEST CLARENDON SUITE 400 PHOENIX, AZ. 85013-3499 (602) 264-0217

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SECTION

BHOC
PLAN AND PROFILE
Sta 100+00 to Sta 115+00

ROUTE: 101L LOCATION: AGUA FRIA - CAMELBACK - NORTHERN

PRELIMINARY
30%
Review
NOT FOR CONSTRUCTION OR RECORDING

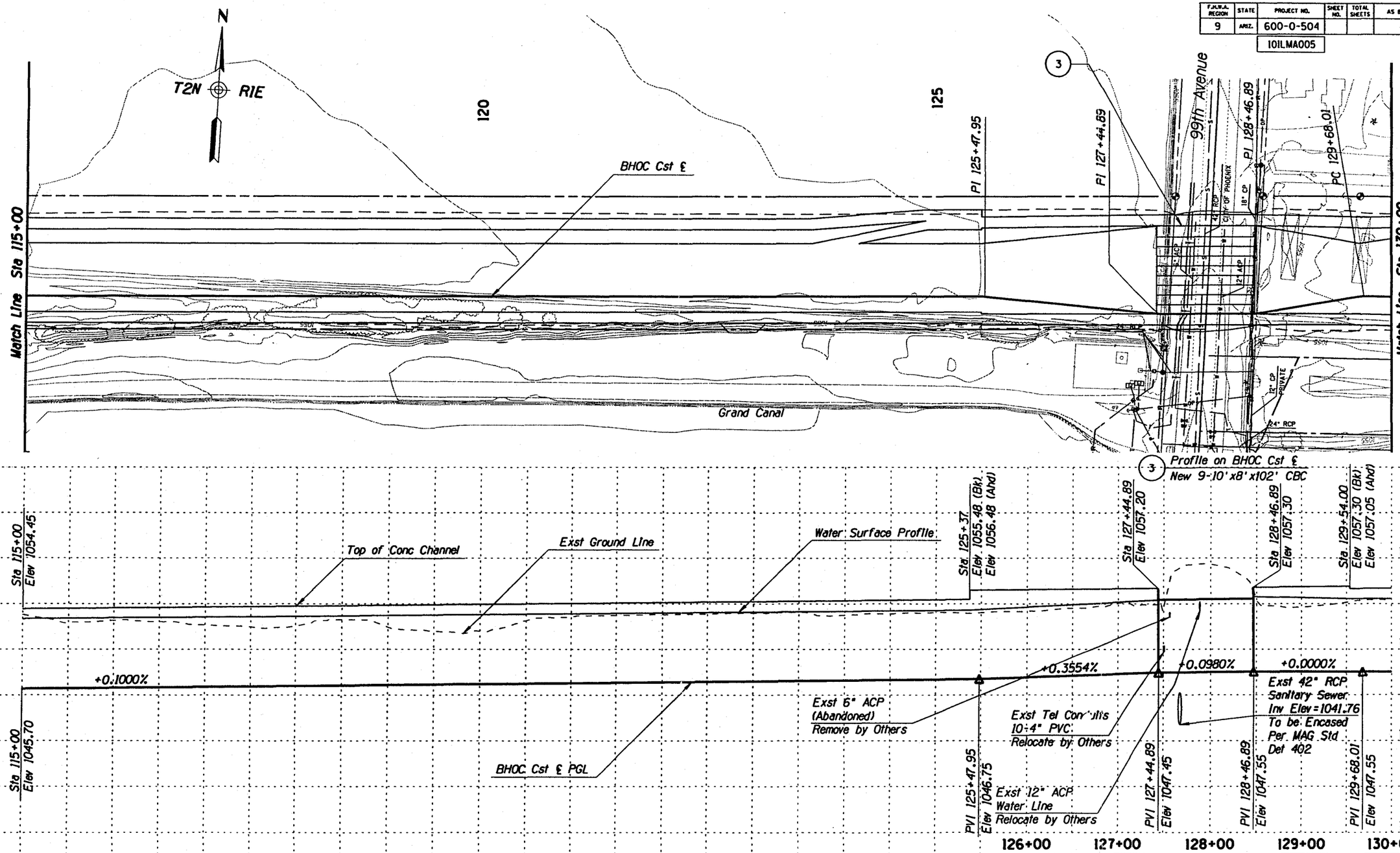
DWG. NO. D-2.19

TRACS NO. H457801D | 600-0-524 | ___ OF ___

cccccDGNcSPECIFICATIONcccccc
cccccSYSTIMEcccccc
VIEW NAME:

j:/af03/civ/drainage/af03d219.dgn Nov. 24, 1997 10:49:37 DMJM Arizona, Inc.

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	600-0-504			
		101LMA005			



	NAME	DATE
DESIGN		
DRAWN		
CHECKED		

DMJM ARIZONA, INC. 300 WEST CLARENDON SUITE 400 PHOENIX, AZ. 85013-3499 (602) 264-0217

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SECTION

BHOC
PLAN AND PROFILE
Sta 115+00 to Sta 130+00

ROUTE 101L — LOCATION AGUA FRIA - CAMELBACK - NORTHERN

PRELIMINARY
30%
Review
NOT FOR CONSTRUCTION OR RECORDING

DWG. NO. D-2.20

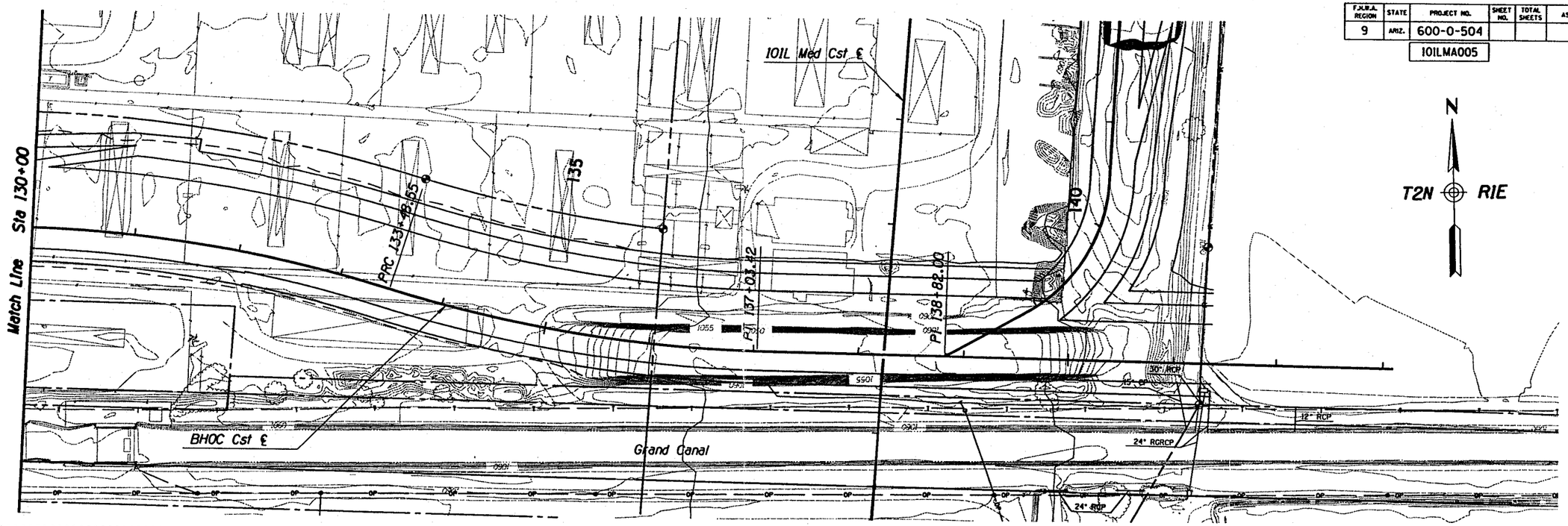
TRACS NO. H457801D | 600-0-524 | ___ OF ___

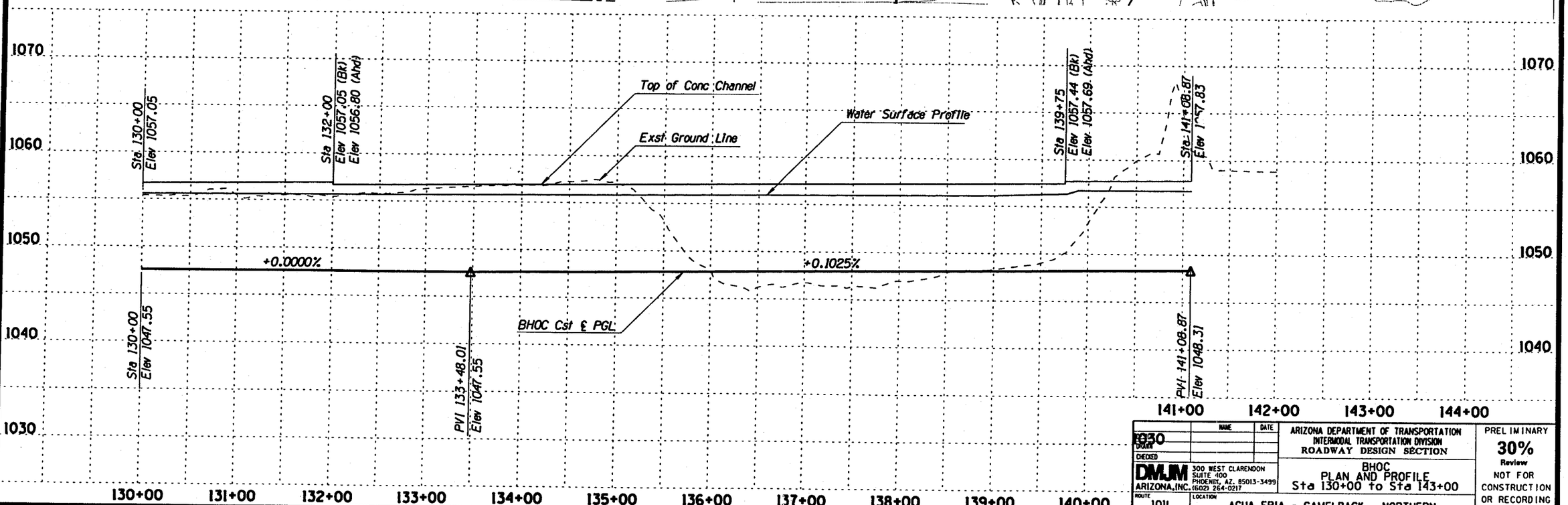
SURVEY NO. | FINISHED PLANS | REVISIONS | LOCATION | DATE

ccccccDGNcSPECIFICATIONcccccc
ccccccSYSTIMEcccccc
VIEW NAME:

j:/af03/civ/drainage/af03d220.dgn Nov. 24, 1997 11:28:45 DMJM Arizona,Inc.

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	600-0-504			
		101LMA005			





	NAME	DATE
DRAWN		
CHECKED		

DMJM ARIZONA, INC. 300 WEST CLARENDON SUITE 400 PHOENIX, AZ. 85013-3499 (602) 264-0217

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SECTION

BHOC
PLAN AND PROFILE
Sta 130+00 to Sta 143+00

ROUTE 101L LOCATION AGUA FRIA - CAMELBACK - NORTHERN

PRELIMINARY
30%
Review
NOT FOR CONSTRUCTION OR RECORDING

DWG. NO. D-2.21

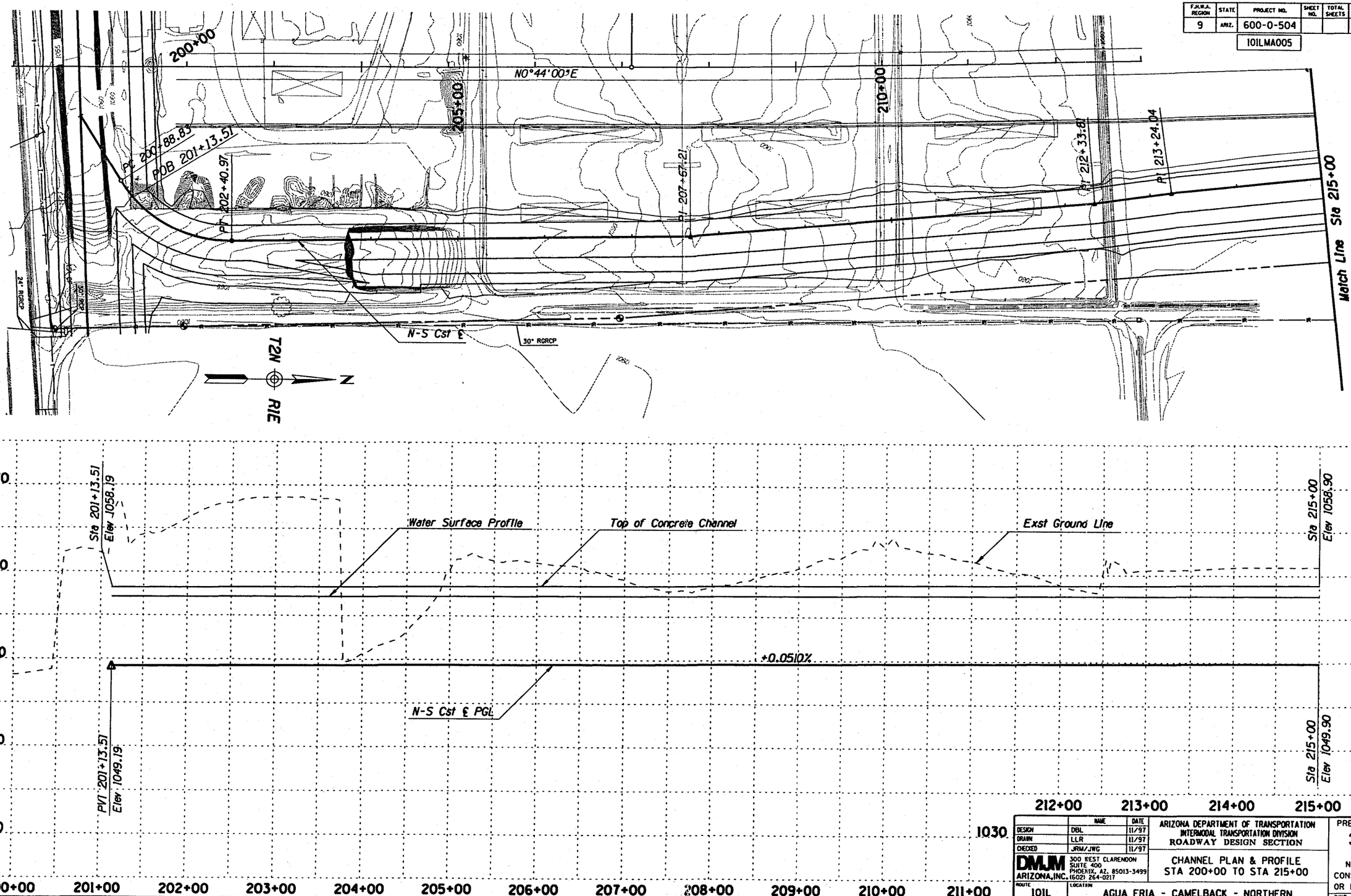
TRACS NO. H457801D | 600-0-524 | ___ OF ___

SURVEY NO.	FINISHED PLANS	REVISIONS	LOCATION	DATE

cccccDGNcSPECIFICATIONcccccc
ccccccSYSTIMEcccccc
VIEW NAME:

:/af03/civ/drainage/af03d221.dgn Nov. 24, 1997 11:31:06 DMJM Arizona, Inc.

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	600-0-504			
		101LMA005			



	NAME	DATE
DESIGN	DBL	11/97
DRAWN	LLR	11/97
CHECKED	JRM/JWG	11/97

DMJM ARIZONA, INC. 300 WEST CLARENDON SUITE 400 PHOENIX, AZ. 85013-3499 (602) 264-0217

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SECTION

CHANNEL PLAN & PROFILE
STA 200+00 TO STA 215+00

ROUTE 101L — LOCATION AGUA FRIA - CAMELBACK - NORTHERN

PRELIMINARY
30%
Review
NOT FOR CONSTRUCTION OR RECORDING

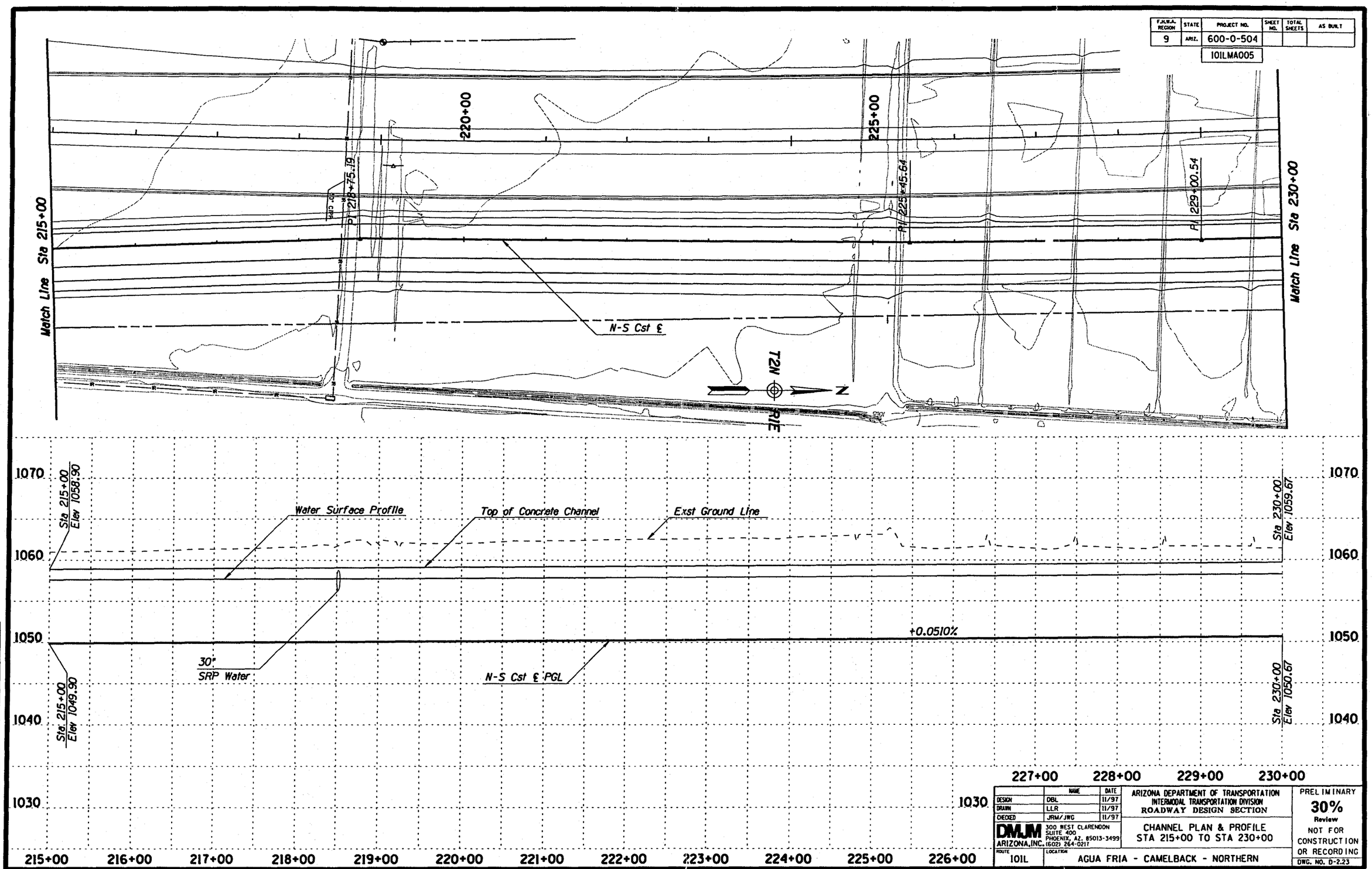
DWG. NO. D-2.22

TRACS NO. H457801D | 600-0-524 | ___ OF ___

cccccDGNcSPECIFICATIONcccccc
ccccccSYSTIMEcccccc
VIEW NAME:

j:/af03/civ/drainage/af03d222.dgn Nov. 23, 1997 20:27:52 DMJM Arizona,Inc.

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	600-0-504			
		101LMA005			



	NAME	DATE
DESIGN	DBL	11/97
DRAWN	LLR	11/97
CHECKED	JRM/JWG	11/97

DMJM ARIZONA, INC. 300 WEST CLARENDON SUITE 400 PHOENIX, AZ. 85013-3499 (602) 264-0217

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SECTION

CHANNEL PLAN & PROFILE
STA 215+00 TO STA 230+00

PRELIMINARY
30%
Review
NOT FOR CONSTRUCTION OR RECORDING

ROUTE: 101L
LOCATION: AGUA FRIA - CAMELBACK - NORTHERN

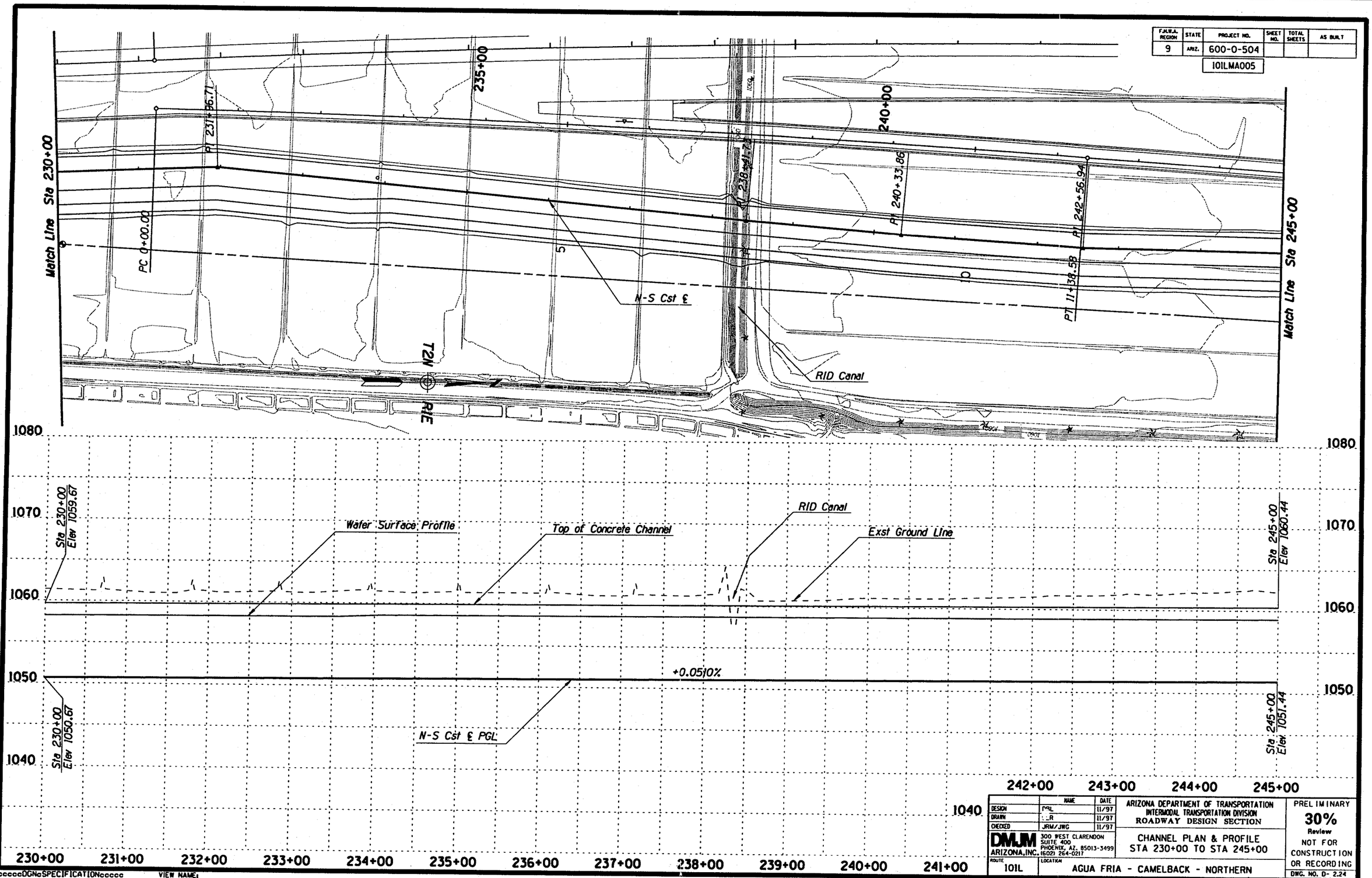
DWG. NO. D-2.23

TRACS NO. H457801D | 600-0-524 | ___ OF ___

cccccDGNoSPECIFICATIONcccccc
ccccccSYSTIMEcccccc
VIEW NAME:

]:/af03/civ/drainage/af03d223.dgn Nov. 23, 1997 20:37:04 DMJM Arizona,Inc.

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	600-0-504			
		101LMA005			



	NAME	DATE
DESIGN	DGL	11/97
DRAWN	[illegible]R	11/97
CHECKED	JRM/JWG	11/97

DMJM ARIZONA, INC. 300 WEST CLARENDON SUITE 400 PHOENIX, AZ. 85013-3499 (602) 264-0217

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SECTION

CHANNEL PLAN & PROFILE
STA 230+00 TO STA 245+00

ROUTE: 101L
LOCATION: AGUA FRIA - CAMELBACK - NORTHERN

PRELIMINARY
30%
Review
NOT FOR CONSTRUCTION OR RECORDING

DWG. NO. D- 2.24

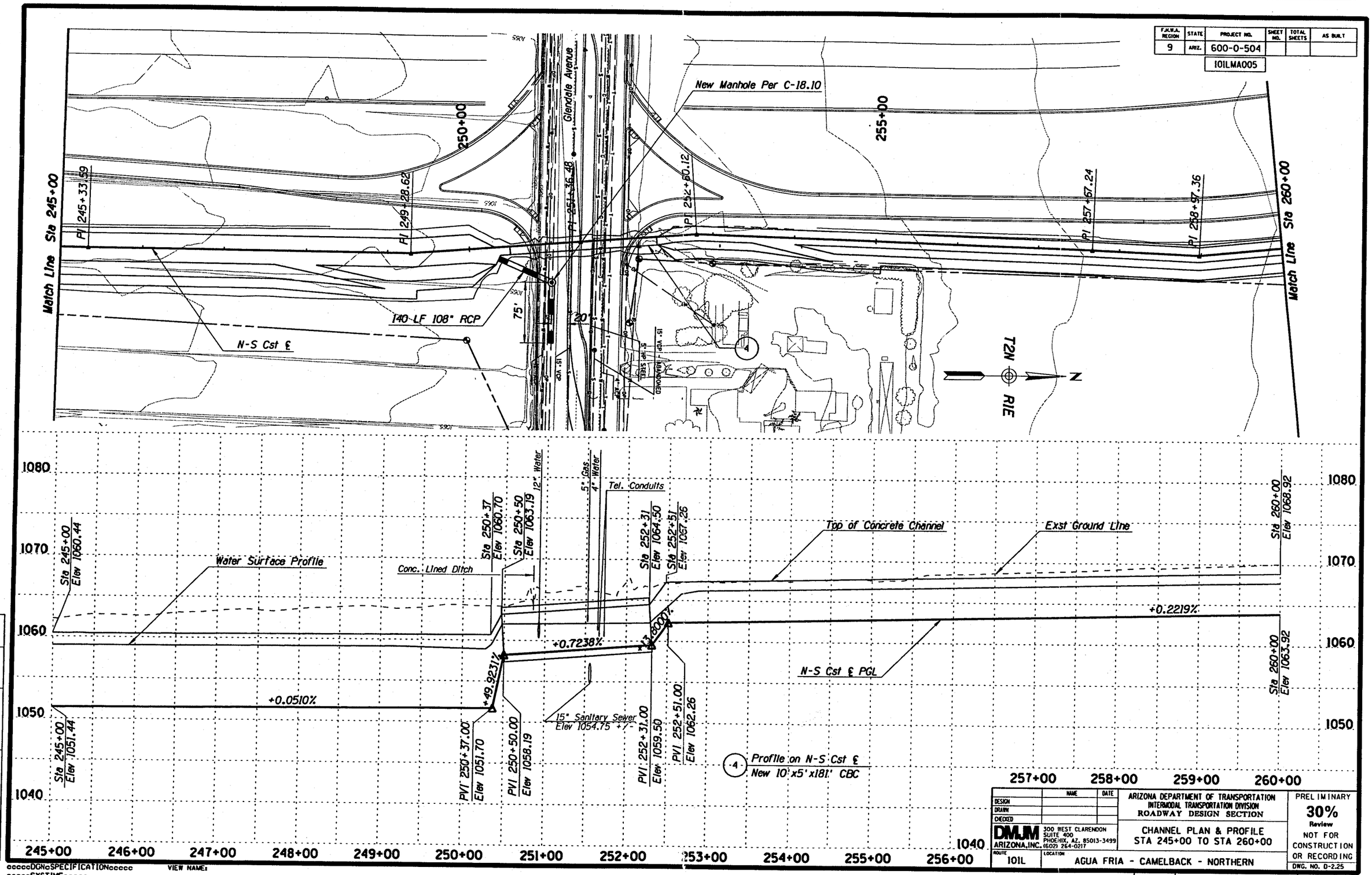
TRACS NO. H457801D | 600-0-524 | ___ OF ___

cccccDGNcSPECIFICATIONcccccc VIEW NAME:
cccccSYSTIMEcccccc

j:/af03/civ/drainage/af03d224.dgn Nov. 23, 1997 20:52:56 DMJM Arizona, Inc.

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	600-0-504			

101LMA005



	NAME	DATE
DESIGN		
DRAWN		
CHECKED		

DMJM ARIZONA, INC. 300 WEST CLARENDON SUITE 400 PHOENIX, AZ. 85013-3499 (602) 264-0217

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SECTION

CHANNEL PLAN & PROFILE
STA 245+00 TO STA 260+00

ROUTE 101L | LOCATION AGUA FRIA - CAMELBACK - NORTHERN

PRELIMINARY
30%
Review
NOT FOR CONSTRUCTION OR RECORDING

DWG. NO. D-2.25

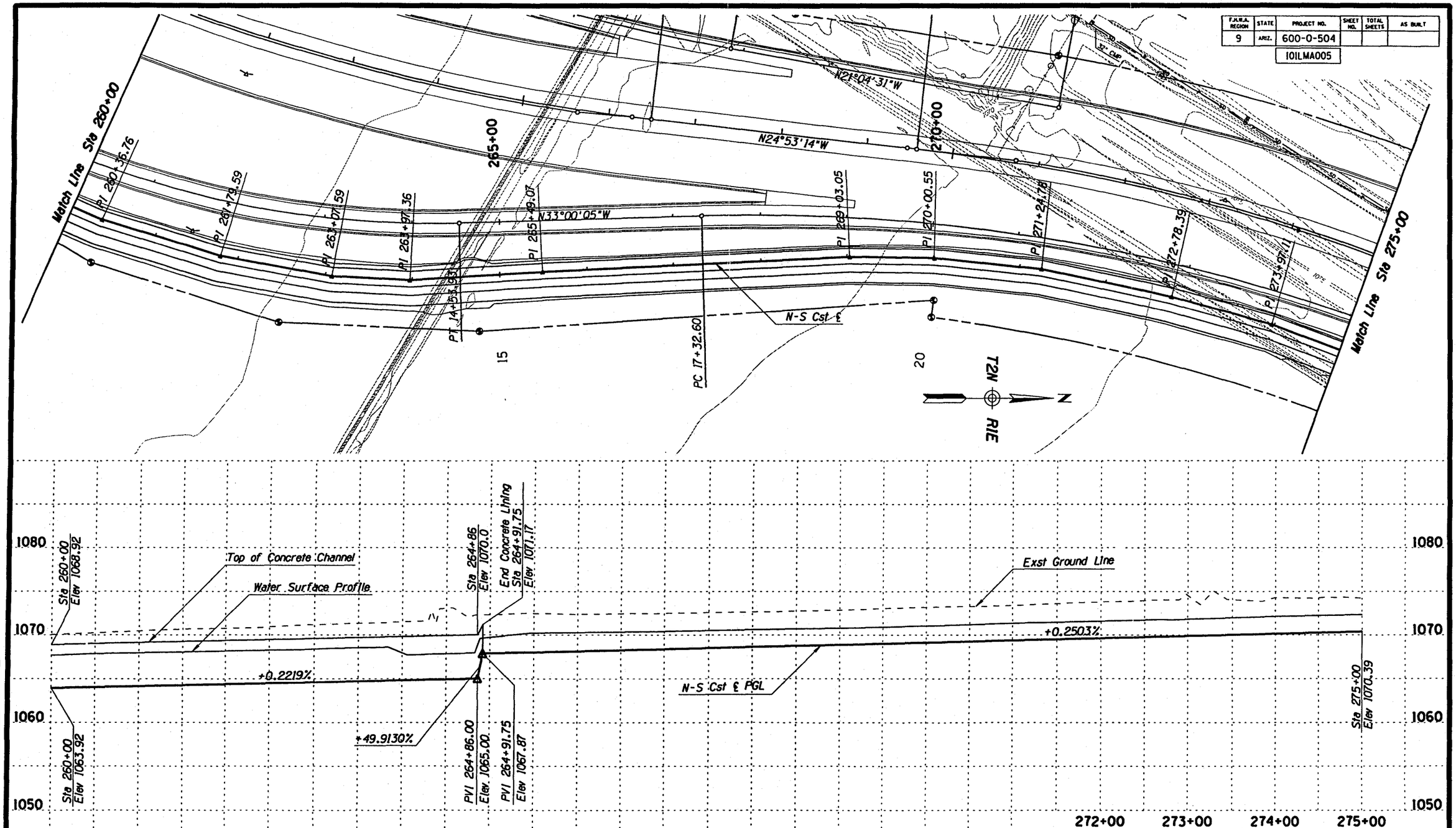
TRACS NO. H457801D | 600-0-524 | ___ OF ___

REVISIONS | DATE | LOCATION | FINISHED PLANS | SURVEY NO.

ccccccDGNcSPECIFICATIONcccccc
cccccSYSTIMEcccccc
VIEW NAME:

d:/af03/civ/drainage/af03d225.dgn Nov. 24, 1997 11:08:38 DMJM Arizona,Inc.

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	600-0-504			
		101LMA005			



	NAME	DATE
DESIGN	DBL	10/97
DRAWN	LLR	11/97
CHECKED	JRM/JWG	10/97

DMJM ARIZONA, INC. 300 WEST CLARENDON SUITE 400 PHOENIX, AZ. 85013-3499 (602) 264-0217

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SECTION

CHANNEL PLAN & PROFILE
STA 260+00 TO STA 275+00

ROUTE 101L LOCATION AGUA FRIA - CAMELBACK - NORTHERN

PRELIMINARY
30%
Review
NOT FOR CONSTRUCTION OR RECORDING

DWG. NO. D-2.26

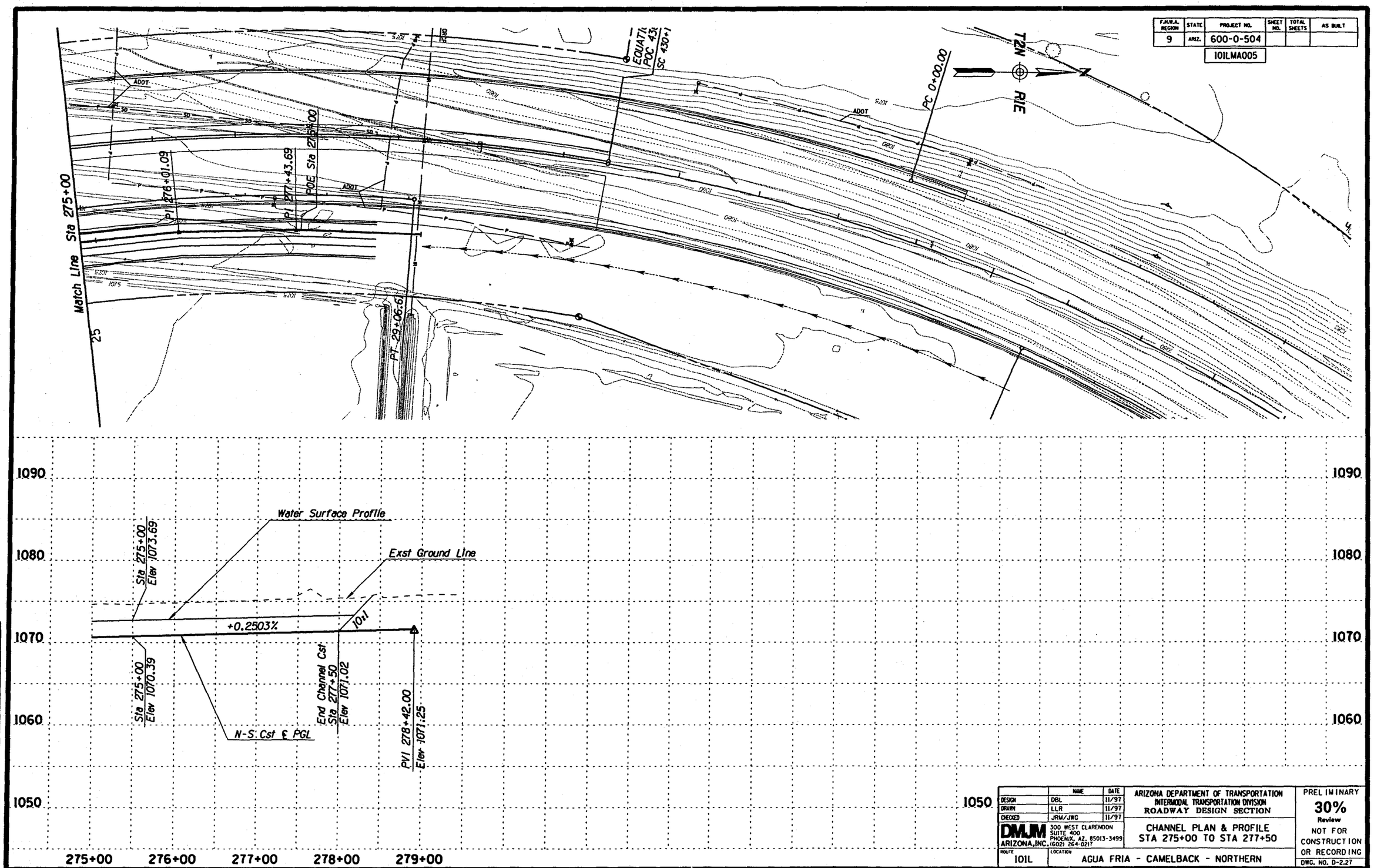
TRACS NO. H457801D | 600-0-524 | ___ OF ___

cccccDGNcSPECIFICATIONccccc VIEW NAME:
ccccccSYSTIMEcccccc

:/af03/civ/drainage/af03d226.dgn Nov. 24, 1997 11:13:03 DMJM Arizona, Inc.

SURVEY NO.	FINISHED PLANS	REVISIONS	LOCATION	DATE

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	600-0-504			
		101LMA005			



	NAME	DATE
DESIGN	DBL	11/97
DRAWN	LLR	11/97
CHECKED	JRM/JWG	11/97

DMJM ARIZONA, INC. 300 WEST CLARENDON SUITE 400 PHOENIX, AZ. 85013-3499 (602) 264-0217

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SECTION

CHANNEL PLAN & PROFILE
STA 275+00 TO STA 277+50

ROUTE: 101L
LOCATION: AGUA FRIA - CAMELBACK - NORTHERN

PRELIMINARY
30%
Review
NOT FOR CONSTRUCTION OR RECORDING

DWG. NO. D-2.27

TRACS NO. H457801D | 600-0-524 | ___ OF ___

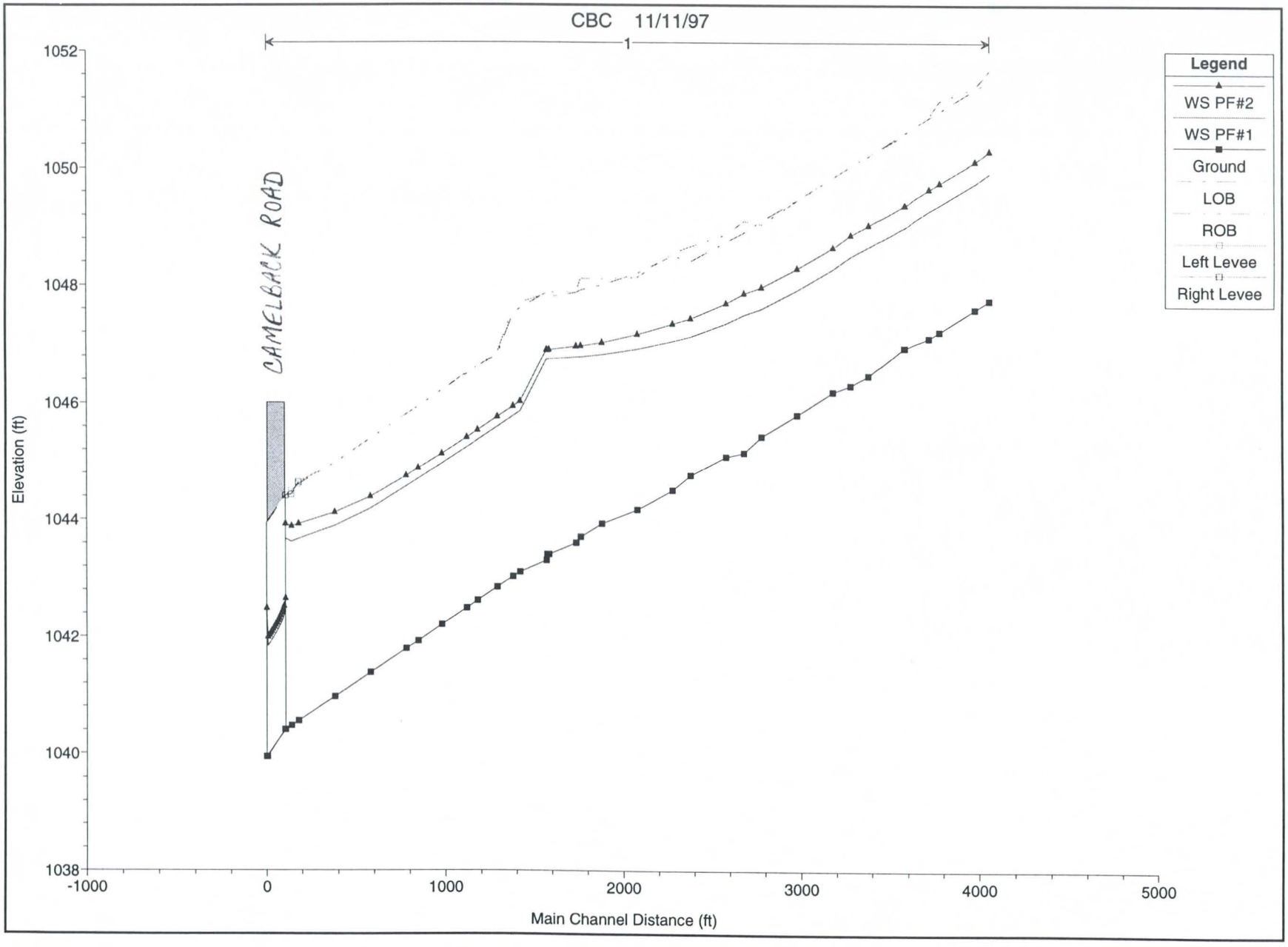
SURVEY NO. | FINISHED PLANS | REVISIONS | LOCATION | DATE

cccccDGNcSPECIFICATIONccccc VIEW NAME:
ccccccSYSTIMEcccccc

:/af03/civ/drainage/af03d227.dgn Nov. 24, 1997 11:13:40 DMJM Arizona, Inc.

APPENDIX E

HEC-RAS SUMMARY OUTPUTS


CBC 11/11/97
1
CAMELBACK ROAD
Legend
WS PF#2
WS PF#1
Ground
LOB
ROB
Left Levee
Right Levee
Elevation (ft)
1052
1050
1048
1046
1044
1042
1040
1038
-1000
0
1000
2000
3000
4000
5000
Main Channel Distance (ft)

HEC-RAS Plan: CBC River: CBC Reach: 1

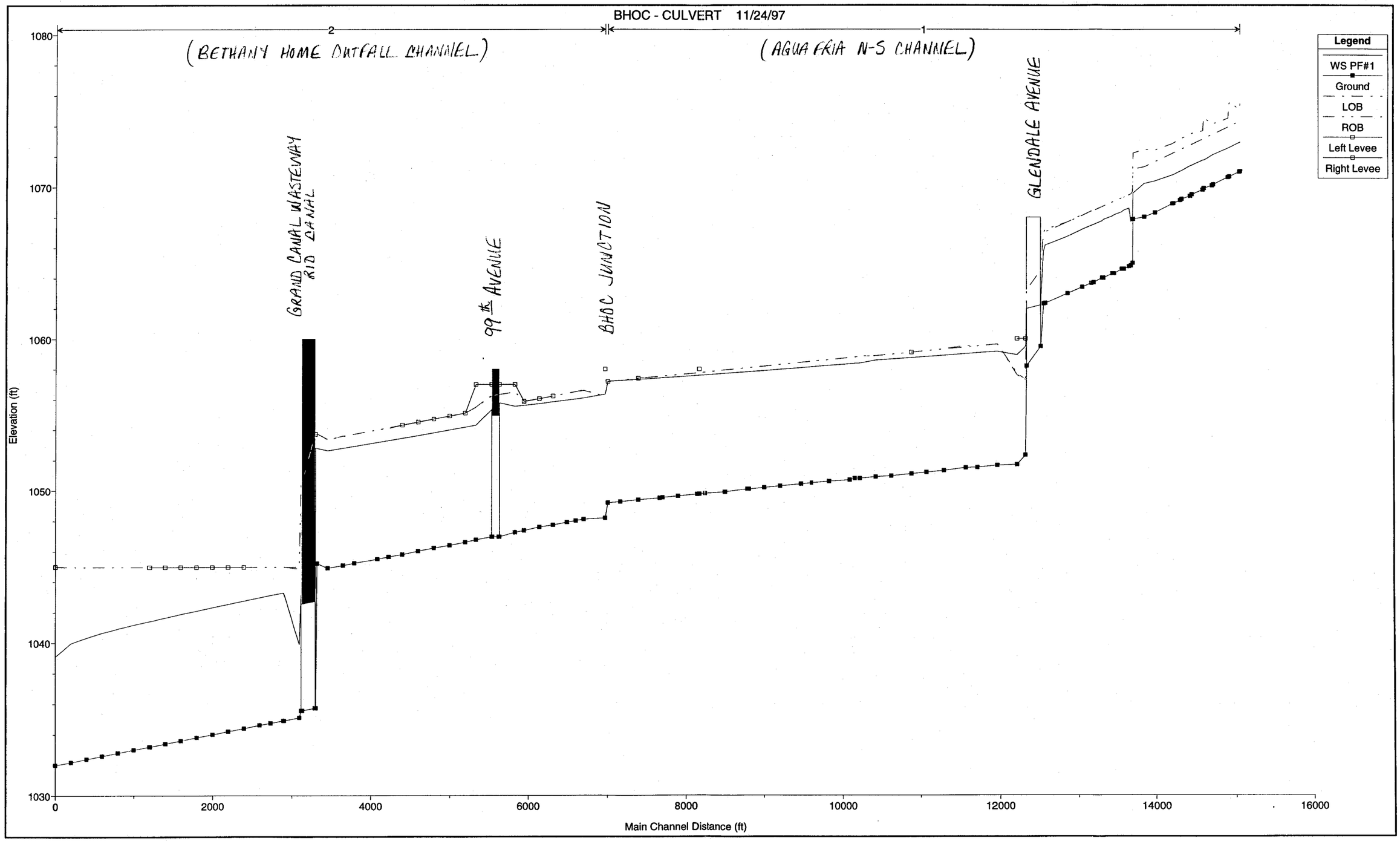
Reach	River Sta	Q Total	Min Ch El	Max Chl Dpth	W.S. Elev	Crit W.S.	E.G. Elev	Vel Chnl	Flow Area	Top Width	Froude # Chl	Shear Chan
		(cfs)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft/s)	(sq ft)	(ft)		(lb/sq ft)
1	1020	511.00	1039.94	2.36	1042.30	1041.93	1043.02	6.80	75.15	31.84	0.78	0.26
1	1020	571.00	1039.94	2.53	1042.47	1042.09	1043.25	7.08	80.63	31.84	0.78	0.28
1	1020.1	511.00	1039.94	2.36	1042.30		1043.02	6.80	75.16	31.84	0.78	0.26
1	1020.1	571.00	1039.94	2.53	1042.47		1043.25	7.08	80.64	31.84	0.78	0.28
1	1072.5 Culvert #1	511.00										
1	1072.5 Culvert #1	571.00										
1	1125	511.00	1040.40	3.27	1043.67	1042.39	1044.04	4.91	104.00	31.84	0.48	0.13
1	1125	571.00	1040.40	3.52	1043.92	1042.55	1044.32	5.10	111.99	31.84	0.48	0.13
1	1160	511.00	1040.47	3.14	1043.61	1042.94	1044.13	5.77	88.56	36.54	0.65	0.18
1	1160	571.00	1040.47	3.41	1043.88	1043.10	1044.40	5.81	98.30	37.61	0.63	0.18
1	1200	511.00	1040.55	3.11	1043.66	1042.99	1044.18	5.80	88.16	36.48	0.66	0.18
1	1200	571.00	1040.55	3.37	1043.92	1043.15	1044.45	5.86	97.52	37.49	0.64	0.18
1	1400	511.00	1040.96	2.92	1043.88		1044.50	6.29	81.21	35.69	0.74	0.22
1	1400	571.00	1040.96	3.15	1044.11		1044.74	6.38	89.50	36.61	0.72	0.22
1	1600	511.00	1041.38	2.80	1044.18		1044.87	6.68	76.51	35.18	0.80	0.25
1	1600	571.00	1041.38	3.00	1044.38		1045.10	6.82	83.69	35.99	0.79	0.26
1	1800	511.00	1041.79	2.77	1044.56		1045.26	6.75	75.74	35.07	0.81	0.26
1	1800	571.00	1041.79	2.95	1044.74		1045.49	6.95	82.12	35.79	0.81	0.27
1	1867	511.00	1041.92	2.77	1044.69		1045.40	6.74	75.82	35.08	0.81	0.26
1	1867	571.00	1041.92	2.95	1044.87		1045.62	6.95	82.12	35.79	0.81	0.27
1	2000	511.00	1042.20	2.75	1044.95		1045.67	6.81	75.08	34.99	0.82	0.26
1	2000	571.00	1042.20	2.92	1045.12		1045.89	7.05	81.01	35.67	0.82	0.28
1	2139	511.00	1042.48	2.75	1045.23		1045.95	6.80	75.13	34.98	0.82	0.26
1	2139	571.00	1042.48	2.92	1045.40		1046.17	7.05	81.01	35.64	0.82	0.28
1	2200	511.00	1042.61	2.74	1045.35		1046.08	6.82	74.93	34.98	0.82	0.26
1	2200	571.00	1042.61	2.91	1045.52		1046.30	7.07	80.81	35.64	0.83	0.28
1	2311	511.00	1042.84	2.74	1045.58		1046.30	6.82	74.92	35.02	0.82	0.26
1	2311	571.00	1042.84	2.91	1045.75		1046.52	7.07	80.80	35.69	0.83	0.28
1	2400	511.00	1043.02	2.74	1045.76		1046.48	6.81	75.03	35.05	0.82	0.26

HEC-RAS Plan: CBC River: CBC Reach: 1 (Continued)

Reach	River Sta	Q Total	Min Ch El	Max Chl Dpth	W.S. Elev	Crit W.S.	E.G. Elev	Vel Chnl	Flow Area	Top Width	Froude # Chl	Shear Chan
		(cfs)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft/s)	(sq ft)	(ft)		(lb/sq ft)
1	2400	571.00	1043.02	2.91	1045.93		1046.70	7.06	80.90	35.72	0.83	0.28
1	2440	511.00	1043.10	2.75	1045.85		1046.56	6.78	75.32	35.18	0.82	0.26
1	2440	571.00	1043.10	2.92	1046.02		1046.78	7.03	81.22	35.86	0.82	0.28
1	2590	151.00	1043.30	3.43	1046.73		1046.85	2.75	54.92	23.18	0.31	0.04
1	2590	205.00	1043.30	3.59	1046.89		1047.08	3.49	58.73	23.82	0.39	0.07
1	2593	151.00	1043.40	3.33	1046.73		1046.85	2.82	53.63	23.06	0.33	0.04
1	2593	205.00	1043.40	3.49	1046.89		1047.08	3.57	57.38	23.71	0.40	0.07
1	2604	151.00	1043.40	3.33	1046.73		1046.85	2.81	53.77	23.05	0.32	0.04
1	2604	205.00	1043.40	3.49	1046.89		1047.09	3.56	57.57	23.70	0.40	0.07
1	2757	151.00	1043.60	3.17	1046.77		1046.91	3.06	49.32	22.23	0.36	0.05
1	2757	205.00	1043.60	3.35	1046.95		1047.18	3.83	53.49	22.97	0.44	0.08
1	2781	151.00	1043.70	3.07	1046.77		1046.93	3.13	48.27	22.22	0.37	0.06
1	2781	205.00	1043.70	3.26	1046.96		1047.20	3.90	52.50	22.98	0.46	0.09
1	2900	151.00	1043.93	2.88	1046.81		1046.99	3.40	44.46	21.46	0.42	0.07
1	2900	205.00	1043.93	3.09	1047.02		1047.29	4.18	48.99	22.30	0.50	0.10
1	3100	151.00	1044.17	2.74	1046.91		1047.13	3.75	40.29	20.66	0.47	0.08
1	3100	205.00	1044.17	2.99	1047.16		1047.48	4.50	45.58	21.68	0.55	0.12
1	3299	151.00	1044.50	2.54	1047.04		1047.31	4.13	36.52	19.87	0.54	0.10
1	3299	205.00	1044.50	2.83	1047.33		1047.70	4.82	42.50	21.05	0.60	0.14
1	3400	151.00	1044.76	2.36	1047.12		1047.43	4.44	34.02	19.52	0.59	0.12
1	3400	205.00	1044.76	2.67	1047.43		1047.83	5.09	40.27	20.81	0.64	0.15
1	3600	151.00	1045.08	2.27	1047.35		1047.69	4.71	32.07	19.13	0.64	0.14
1	3600	205.00	1045.08	2.61	1047.69		1048.12	5.27	38.91	20.57	0.67	0.17
1	3700	151.00	1045.15	2.35	1047.50		1047.82	4.61	32.78	19.17	0.62	0.13
1	3700	205.00	1045.15	2.71	1047.86		1048.26	5.13	39.96	20.64	0.65	0.16
1	3800	151.00	1045.43	2.17	1047.60		1047.98	4.97	30.35	18.70	0.69	0.16
1	3800	205.00	1045.43	2.53	1047.96		1048.43	5.47	37.44	20.21	0.71	0.18
1	4000	151.00	1045.80	2.12	1047.92		1048.33	5.18	29.15	18.35	0.72	0.17
1	4000	205.00	1045.80	2.48	1048.28		1048.78	5.67	36.18	19.85	0.74	0.19

HEC-RAS Plan: CBC River: CBC Reach: 1 (Continued)

Reach	River Sta	Q Total	Min Ch El	Max Chl Dpth	W.S. Elev	Crit W.S.	E.G. Elev	Vel Chnl	Flow Area	Top Width	Froude # Chl	Shear Chan
		(cfs)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft/s)	(sq ft)	(ft)		(lb/sq ft)
1	4200	151.00	1046.19	2.08	1048.27		1048.71	5.29	28.56	18.21	0.74	0.18
1	4200	205.00	1046.19	2.45	1048.64		1049.16	5.77	35.51	19.71	0.76	0.20
1	4300	151.00	1046.30	2.19	1048.49		1048.89	5.05	29.90	18.43	0.70	0.16
1	4300	205.00	1046.30	2.56	1048.86		1049.34	5.55	36.97	19.91	0.72	0.18
1	4400	151.00	1046.47	2.19	1048.66		1049.06	5.09	29.64	18.39	0.71	0.16
1	4400	205.00	1046.47	2.56	1049.03		1049.51	5.58	36.73	19.88	0.72	0.19
1	4600	151.00	1046.94	2.06	1049.00		1049.43	5.29	28.53	18.33	0.75	0.18
1	4600	205.00	1046.94	2.43	1049.37		1049.88	5.76	35.60	19.83	0.76	0.20
1	4740	151.00	1047.11	2.17	1049.28		1049.69	5.16	29.28	18.32	0.72	0.17
1	4740	205.00	1047.11	2.53	1049.64		1050.14	5.66	36.25	19.79	0.74	0.19
1	4800	151.00	1047.22	2.16	1049.38		1049.80	5.21	28.97	18.26	0.73	0.17
1	4800	205.00	1047.22	2.53	1049.75		1050.25	5.70	35.95	19.78	0.75	0.20
1	5000	151.00	1047.60	2.14	1049.74		1050.18	5.28	28.60	18.18	0.74	0.18
1	5000	205.00	1047.60	2.51	1050.11		1050.63	5.77	35.56	19.70	0.76	0.20
1	5078	151.00	1047.75	2.16	1049.91		1050.31	5.09	29.68	18.42	0.71	0.16
1	5078	205.00	1047.75	2.54	1050.29		1050.77	5.57	36.83	19.92	0.72	0.19


BHOC - CULVERT 11/24/97
2
1
(BETHANY HOME OUTFALL CHANNEL)
(AGUA FRIA N-S CHANNEL)
GRAND CANAL WASTEWAY
RID CANAL
99th AVENUE
BHOC JUNCTION
GLENDALE AVENUE
Legend
WS PF#1
Ground
LOB
ROB
Left Levee
Right Levee
Elevation (ft)
1080
1070
1060
1050
1040
1030
0
2000
4000
6000
8000
10000
12000
14000
16000
Main Channel Distance (ft)

HEC-RAS

River	Reach	River Sta	Plan	Q Total	Min Ch El	Max Chl Dpth	W.S. Elev	Crit W.S.	E.G. Elev	Vel Chnl	Flow Area	Top Width	Froude # Chl	Shear Chan
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft/s)	(sq ft)	(ft)		(lb/sq ft)
BHOC	2	7200	CULVERT	4650.00	1032.01	7.80	1039.10	1038.77	1041.41	12.20	381.29	70.56	0.92	0.62
BHOC	2	7200	Box	4650.00	1032.01	7.80	1039.10	1038.77	1041.41	12.20	381.29	70.56	0.92	0.62
BHOC	2	7200	Slab	4650.00	1032.01	7.80	1039.10	1038.77	1041.41	12.20	381.29	70.56	0.92	0.62
BHOC	2	7400	CULVERT	4650.00	1032.20	7.77	1039.97		1041.79	10.82	429.87	73.29	0.79	0.48
BHOC	2	7400	Box	4650.00	1032.20	7.77	1039.97		1041.79	10.82	429.87	73.29	0.79	0.48
BHOC	2	7400	Slab	4650.00	1032.20	7.77	1039.97		1041.79	10.82	429.87	73.29	0.79	0.48
BHOC	2	7600	CULVERT	4650.00	1032.41	7.93	1040.34		1042.06	10.53	441.67	73.95	0.76	0.45
BHOC	2	7600	Box	4650.00	1032.41	7.93	1040.34		1042.06	10.53	441.67	73.95	0.76	0.45
BHOC	2	7600	Slab	4650.00	1032.41	7.93	1040.34		1042.06	10.53	441.67	73.95	0.76	0.45
BHOC	2	7800	CULVERT	4650.00	1032.61	8.05	1040.66		1042.31	10.32	450.59	74.43	0.74	0.43
BHOC	2	7800	Box	4650.00	1032.61	8.05	1040.66		1042.31	10.32	450.59	74.43	0.74	0.43
BHOC	2	7800	Slab	4650.00	1032.61	8.05	1040.66		1042.31	10.32	450.59	74.43	0.74	0.43
BHOC	2	8000	CULVERT	4650.00	1032.81	8.13	1040.94		1042.55	10.18	456.93	74.78	0.73	0.42
BHOC	2	8000	Box	4650.00	1032.81	8.13	1040.94		1042.55	10.18	456.93	74.78	0.73	0.42
BHOC	2	8000	Slab	4650.00	1032.81	8.13	1040.94		1042.55	10.18	456.93	74.78	0.73	0.42
BHOC	2	8200	CULVERT	4650.00	1033.01	8.18	1041.19		1042.78	10.09	460.68	74.98	0.72	0.41
BHOC	2	8200	Box	4650.00	1033.01	8.18	1041.19		1042.78	10.09	460.68	74.98	0.72	0.41
BHOC	2	8200	Slab	4650.00	1033.01	8.18	1041.19		1042.78	10.09	460.68	74.98	0.72	0.41
BHOC	2	8400	CULVERT	4650.00	1033.21	8.22	1041.43	1039.99	1043.00	10.03	463.80	75.14	0.71	0.40
BHOC	2	8400	Box	4650.00	1033.21	8.22	1041.43	1039.99	1043.00	10.03	463.80	75.14	0.71	0.40
BHOC	2	8400	Slab	4650.00	1033.21	8.22	1041.43	1039.99	1043.00	10.03	463.80	75.14	0.71	0.40
BHOC	2	8600	CULVERT	4650.00	1033.41	8.26	1041.67	1040.18	1043.21	9.97	466.18	75.27	0.71	0.40
BHOC	2	8600	Box	4650.00	1033.41	8.26	1041.67	1040.18	1043.21	9.97	466.18	75.27	0.71	0.40
BHOC	2	8600	Slab	4650.00	1033.41	8.26	1041.67	1040.18	1043.21	9.97	466.18	75.27	0.71	0.40
BHOC	2	8800	CULVERT	4650.00	1033.61	8.28	1041.89	1040.37	1043.42	9.93	468.10	75.37	0.70	0.39
BHOC	2	8800	Box	4650.00	1033.61	8.28	1041.89	1040.37	1043.42	9.93	468.10	75.37	0.70	0.39
BHOC	2	8800	Slab	4650.00	1033.61	8.28	1041.89	1040.37	1043.42	9.93	468.10	75.37	0.70	0.39
BHOC	2	9000	CULVERT	4650.00	1033.81	8.30	1042.11	1040.58	1043.63	9.90	469.50	75.45	0.70	0.39
BHOC	2	9000	Box	4650.00	1033.81	8.30	1042.11	1040.58	1043.63	9.90	469.50	75.45	0.70	0.39
BHOC	2	9000	Slab	4650.00	1033.81	8.30	1042.11	1040.58	1043.63	9.90	469.50	75.45	0.70	0.39
BHOC	2	9200	CULVERT	4650.00	1034.01	8.32	1042.33	1040.77	1043.84	9.88	470.71	75.51	0.70	0.39
BHOC	2	9200	Box	4650.00	1034.01	8.32	1042.33	1040.77	1043.84	9.88	470.71	75.51	0.70	0.39
BHOC	2	9200	Slab	4650.00	1034.01	8.32	1042.33	1040.77	1043.84	9.88	470.71	75.51	0.70	0.39
BHOC	2	9400	CULVERT	4650.00	1034.21	8.33	1042.54	1040.98	1044.05	9.86	471.77	75.57	0.70	0.39
BHOC	2	9400	Box	4650.00	1034.21	8.33	1042.54	1040.98	1044.05	9.86	471.77	75.57	0.70	0.39
BHOC	2	9400	Slab	4650.00	1034.21	8.33	1042.54	1040.98	1044.05	9.86	471.77	75.57	0.70	0.39
BHOC	2	9600	CULVERT	4650.00	1034.40	8.36	1042.76	1041.17	1044.25	9.81	473.84	75.66	0.69	0.38
BHOC	2	9600	Box	4650.00	1034.40	8.36	1042.76	1041.17	1044.25	9.81	473.84	75.66	0.69	0.38
BHOC	2	9600	Slab	4650.00	1034.40	8.36	1042.76	1041.17	1044.25	9.81	473.84	75.66	0.69	0.38
BHOC	2	9800	CULVERT	4650.00	1034.61	8.36	1042.97		1044.46	9.82	473.75	75.68	0.69	0.38
BHOC	2	9800	Box	4650.00	1034.61	8.36	1042.97		1044.46	9.82	473.75	75.68	0.69	0.38
BHOC	2	9800	Slab	4650.00	1034.61	8.36	1042.97		1044.46	9.82	473.75	75.68	0.69	0.38
BHOC	2	9938	CULVERT	4650.00	1034.74	8.38	1043.12		1044.60	9.75	476.84	75.79	0.69	0.38
BHOC	2	9938	Box	4650.00	1034.74	8.38	1043.12		1044.60	9.75	476.84	75.79	0.69	0.38
BHOC	2	9938	Slab	4650.00	1034.74	8.38	1043.12		1044.60	9.75	476.84	75.79	0.69	0.38
BHOC	2	10100	CULVERT	4650.00	1034.91	8.37	1043.28		1044.77	9.79	475.13	75.74	0.69	0.38
BHOC	2	10100	Box	4650.00	1034.91	8.37	1043.28		1044.77	9.79	475.13	75.74	0.69	0.38
BHOC	2	10100	Slab	4650.00	1034.91	8.37	1043.28		1044.77	9.79	475.13	75.74	0.69	0.38
BHOC	2	10297	CULVERT	4650.00	1035.10	4.79	1039.89	1041.88	1046.29	20.31	229.01	61.16	1.85	1.94
BHOC	2	10297	Box	4650.00	1035.10	4.79	1039.89	1041.88	1046.29	20.31	229.01	61.16	1.85	1.94
BHOC	2	10297	Slab	4650.00	1035.10	4.79	1039.89	1041.88	1046.29	20.31	229.01	61.16	1.85	1.94
BHOC	2	10320	CULVERT	4650.00	1035.55	7.57	1043.12	1043.12	1046.92	15.66	296.97	39.34	1.00	1.01
BHOC	2	10320	Box	4650.00	1035.55	7.57	1043.12	1043.12	1046.92	15.66	296.97	39.34	1.00	1.01
BHOC	2	10320	Slab	4650.00	1035.55	7.57	1043.12	1043.12	1046.92	15.66	296.97	39.34	1.00	1.01
BHOC	2	10410 Culvert #1	CULVERT	4650.00										
BHOC	2	10410 Culvert #1	Box	4650.00										
BHOC	2	10410 Culvert #1	Slab	4650.00										
BHOC	2	10503	CULVERT	4650.00	1035.73	17.09	1052.82	1043.32	1053.56	6.93	670.66	39.34	0.30	0.17
BHOC	2	10503	Box	4650.00	1035.73	17.09	1052.82	1043.32	1053.56	6.93	670.66	39.34	0.30	0.17
BHOC	2	10503	Slab	4650.00	1035.73	17.09	1052.82	1043.32	1053.56	6.93	670.66	39.34	0.30	0.17
BHOC	2	10522	CULVERT	4650.00	1045.20	7.59	1052.79		1053.60	7.24	642.54	84.95	0.46	0.20
BHOC	2	10522	Box	4650.00	1045.20	7.59	1052.79		1053.60	7.24	642.54	84.95	0.46	0.20
BHOC	2	10522	Slab	4650.00	1045.20	7.59	1052.79		1053.60	7.24	642.54	84.95	0.46	0.20
BHOC	2	10657	CULVERT	4650.00	1044.90	7.74	1052.64		1053.85	8.84	525.95	87.03	0.63	0.31
BHOC	2	10657	Box	4650.00	1044.90	7.74	1052.64		1053.85	8.84	525.95	87.03	0.63	0.31
BHOC	2	10657	Slab	4650.00	1044.90	7.74	1052.64		1053.85	8.84	525.95	87.03	0.63	0.31
BHOC	2	10851	CULVERT	4650.00	1045.07	7.73	1052.80		1054.02	8.87	524.25	86.87	0.64	0.32
BHOC	2	10851	Box	4650.00	1045.07	7.73	1052.80		1054.02	8.87	524.25	86.87	0.64	0.32
BHOC	2	10851	Slab	4650.00	1045.07	7.73	1052.80		1054.02	8.87	524.25	86.87	0.64	0.32
BHOC	2	10997	CULVERT	4650.00	1045.22	7.70	1052.92		1054.15	8.91	521.90	86.81	0.64	0.32
BHOC	2	10997	Box	4650.00	1045.22	7.70	1052.92		1054.15	8.91	521.90	86.81	0.64	0.32
BHOC	2	10997	Slab	4650.00	1045.22	7.70	1052.92		1054.15	8.91	521.90	86.81	0.64	0.32
BHOC	2	11287	CULVERT	4650.00	1045.50	7.67	1053.17		1054.42	8.95	519.31	86.69	0.64	0.32
BHOC	2	11287	Box	4650.00	1045.50	7.67	1053.17		1054.42	8.95	519.31	86.69	0.64	0.32
BHOC	2	11287	Slab	4650.00	1045.50	7.67	1053.17		1054.42	8.95	519.31	86.69	0.64	0.32
BHOC	2	11431	CULVERT	4650.00	1045.65	7.65	1053.30		1054.55	8.98	517.76	86.70	0.65	0.33
BHOC	2	11431	Box	4650.00	1045.65	7.65	1053.30		1054.55	8.98	517.76	86.70	0.65	0.33
BHOC	2	11431	Slab	4650.00	1045.65	7.65	1053.30		1054.55	8.98	517.76	86.70	0.65	0.33
BHOC	2	11600	CULVERT	4650.00	1045.80	7.65	1053.45	1051.76	1054.71	9.01	516.18	86.51	0.65	0.33
BHOC	2	11600	Box	4650.00	1045.80	7.65	1053.45	1051.76	1054.71	9.01	516.18	86.51	0.65	0.33
BHOC	2	11600	Slab	4650.00	1045.80	7.65	1053.45	1051.76	1054.71	9.01	516.18	86.51	0.65	0.33
BHOC	2	11800	CULVERT	4650.00	1046.02	7.60	1053.62	1051.97	1054.90	9.06	513.23	86.42	0.66	0.33
BHOC	2	11800	Box	4650.00	1046.02	7.60	1053.62	1051.97	1054.90	9.06	513.23	86.42	0.66	0.33
BHOC	2	11800	Slab	4650.00	1046.02	7.60	1053.62	1051.97	1054.90	9.06	513.23	86.42	0.66	0.33
BHOC	2	12000	CULVERT	4650.00	1046.22	7.59	1053.81	1052.16	1055.09	9.09	511.80	86.35	0.66	0.33
BHOC	2	12000	Box	4650.00	1046.22	7.59	1053.81	1052.16	1055.09	9.09	511.80	86.35	0.66	0.33
BHOC	2	12000	Slab	4650.00	1046.22	7.59	1053.81	1052.16	1055.09	9.09	511.80	86.35	0.66	0.33
BHOC	2	12200	CULVERT	4650.00	1046.40	7.59	1053.99	1052.35	1055.27	9.09	511.42	86.30	0.66	0.33
BHOC	2	12200	Box	4650.00	1046.40	7.59	1053.99	1052.35	1055.27	9.09	511.42	86.30	0.66	0.33
BHOC	2	12200	Slab	4650.00	1046.40	7.59	1053.99	1052.35	1055.27	9.09	511.42	86.30	0.66	0.33

HEC-RAS (Continued)

River	Reach	River Sta	Plan	Q Total	Min Ch El	Max Chl Dpth	W.S. Elev	Crit W.S.	E.G. Elev	Vel Chnl	Flow Area	Top Width	Froude # Chl	Shear Chan
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft/s)	(sq ft)	(ft)		(lb/sq ft)
BHOC	2	12400	CULVERT	4650.00	1046.60	7.58	1054.18	1052.56	1055.47	9.12	510.06	86.24	0.66	0.34
BHOC	2	12400	Box	4650.00	1046.60	7.58	1054.18	1052.56	1055.47	9.12	510.06	86.24	0.66	0.34
BHOC	2	12400	Slab	4650.00	1046.60	7.58	1054.18	1052.56	1055.47	9.12	510.06	86.24	0.66	0.34
BHOC	2	12537	CULVERT	4650.00	1046.76	7.54	1054.30	1052.71	1055.60	9.14	508.69	86.20	0.66	0.34
BHOC	2	12600	Box	4650.00	1046.82	7.54	1054.36	1052.77	1055.66	9.16	507.84	86.19	0.66	0.34
BHOC	2	12600	Slab	4650.00	1046.82	7.54	1054.36	1052.77	1055.66	9.16	507.84	86.19	0.66	0.34
BHOC	2	12734	CULVERT	4650.00	1046.95	8.40	1055.35	1051.10	1055.85	5.69	817.37	97.34	0.35	0.12
BHOC	2	12785 Culvert #1	CULVERT	4650.00										
BHOC	2	12800	Box	4650.00	1047.02	8.14	1055.16	1052.97	1056.23	8.28	561.33	88.58	0.58	0.27
BHOC	2	12800	Slab	4650.00	1047.02	8.33	1055.35	1052.97	1056.35	8.05	577.59	89.32	0.56	0.26
BHOC	2	12836	CULVERT	4650.00	1046.96	8.82	1055.78	1051.09	1056.24	5.42	858.71	97.34	0.32	0.07
BHOC	2	12954	CULVERT	4650.00	1047.24	8.32	1055.56	1053.17	1056.57	8.04	578.48	89.32	0.56	0.25
BHOC	2	12954	Box	4650.00	1047.17	8.09	1055.26	1053.13	1056.35	8.37	555.81	88.39	0.59	0.28
BHOC	2	12954	Slab	4650.00	1047.17	8.26	1055.43	1053.13	1056.46	8.14	571.16	89.08	0.57	0.26
BHOC	2	13148	CULVERT	4650.00	1047.37	8.25	1055.62	1053.32	1056.65	8.16	569.74	88.94	0.57	0.26
BHOC	2	13148	Box	4650.00	1047.37	8.02	1055.39	1053.32	1056.50	8.46	549.41	88.02	0.60	0.29
BHOC	2	13148	Slab	4650.00	1047.37	8.18	1055.55	1053.33	1056.61	8.25	563.58	88.66	0.58	0.27
BHOC	2	13343	CULVERT	4650.00	1047.60	8.13	1055.73	1053.54	1056.80	8.28	561.80	88.69	0.58	0.27
BHOC	2	13343	Box	4650.00	1047.60	7.92	1055.52		1056.66	8.56	542.98	87.83	0.61	0.29
BHOC	2	13343	Slab	4650.00	1047.60	8.07	1055.67		1056.75	8.36	556.55	99.42	0.59	0.28
BHOC	2	13517	CULVERT	4650.00	1047.73	8.12	1055.85	1053.68	1056.93	8.32	558.69	88.48	0.58	0.27
BHOC	2	13517	Box	4650.00	1047.73	7.92	1055.65	1053.67	1056.80	8.59	541.16	87.69	0.61	0.30
BHOC	2	13517	Slab	4650.00	1047.73	8.06	1055.79	1053.68	1056.89	8.40	553.42	88.25	0.59	0.28
BHOC	2	13691	CULVERT	4650.00	1047.91	8.05	1055.96		1057.06	8.42	552.52	88.25	0.59	0.28
BHOC	2	13691	Box	4650.00	1047.91	7.87	1055.78		1056.95	8.67	536.31	87.51	0.62	0.30
BHOC	2	13691	Slab	4650.00	1047.91	8.00	1055.91		1057.03	8.49	547.62	88.03	0.60	0.29
BHOC	2	13800	CULVERT	4650.00	1048.02	8.02	1056.04		1057.15	8.46	549.66	88.11	0.60	0.29
BHOC	2	13800	Box	4650.00	1048.02	7.85	1055.87		1057.04	8.70	534.56	87.42	0.62	0.30
BHOC	2	13800	Slab	4650.00	1048.02	7.96	1055.98		1057.11	8.53	544.99	87.89	0.60	0.29
BHOC	2	13900	CULVERT	4650.00	1048.12	7.99	1056.11		1057.23	8.50	546.93	87.98	0.60	0.29
BHOC	2	13900	Box	4650.00	1048.12	7.82	1055.94		1057.13	8.73	532.78	87.34	0.62	0.31
BHOC	2	13900	Slab	4650.00	1048.12	7.94	1056.06		1057.20	8.57	542.46	87.78	0.61	0.29
BHOC	2	13977	CULVERT	4650.00	1048.20	8.15	1056.35	1054.14	1057.44	8.39	554.03	88.01	0.59	0.28
BHOC	2	13977	Box	4650.00	1048.20	8.02	1056.22	1054.13	1057.36	8.57	542.63	88.01	0.61	0.29
BHOC	2	13977	Slab	4650.00	1048.20	8.11	1056.31	1054.14	1057.42	8.45	550.41	88.01	0.60	0.28
BHOC	1	13989	CULVERT	3200.00	1048.21	8.60	1056.81	1053.75	1057.53	6.81	470.14	70.80	0.47	0.18
BHOC	1	13989	Box	3200.00	1048.21	8.50	1056.71	1053.75	1057.45	6.91	463.12	70.80	0.48	0.19
BHOC	1	13989	Slab	3200.00	1048.21	8.57	1056.78	1053.75	1057.50	6.84	467.89	70.80	0.47	0.18
BHOC	1	14109	CULVERT	3200.00	1048.33	8.50	1056.83	1053.96	1057.60	7.04	454.57	69.28	0.48	0.20
BHOC	1	14109	Box	3200.00	1048.33	8.41	1056.73	1053.96	1057.53	7.15	447.83	69.28	0.50	0.20
BHOC	1	14109	Slab	3200.00	1048.33	8.47	1056.80	1053.96	1057.58	7.07	452.41	69.28	0.49	0.20
N-S	1	20114	CULVERT	1546.00	1049.19	8.01	1057.20	1053.94	1057.60	5.10	321.54	75.40	0.38	0.11
N-S	1	20114	Box	1546.00	1049.19	7.91	1057.10	1053.94	1057.53	5.25	294.57	53.70	0.39	0.12
N-S	1	20114	Slab	1546.00	1049.19	7.97	1057.16	1053.94	1057.58	5.19	297.82	53.94	0.39	0.11
N-S	1	20249	CULVERT	1546.00	1049.26	7.99	1057.25		1057.66	5.17	299.26	54.03	0.39	0.11
N-S	1	20249	Box	1546.00	1049.26	7.89	1057.15		1057.58	5.25	294.25	53.66	0.40	0.12
N-S	1	20249	Slab	1546.00	1049.26	7.95	1057.21		1057.63	5.20	297.39	53.89	0.39	0.11
N-S	1	20481	CULVERT	1546.00	1049.38	7.94	1057.32	1054.13	1057.75	5.22	296.33	53.81	0.39	0.11
N-S	1	20481	Box	1546.00	1049.38	7.85	1057.23	1054.13	1057.67	5.30	291.55	53.46	0.40	0.12
N-S	1	20481	Slab	1546.00	1049.38	7.91	1057.29	1054.13	1057.72	5.25	294.53	53.68	0.39	0.12
N-S	1	20750	CULVERT	1546.00	1049.50	7.92	1057.42		1057.84	5.25	294.57	53.68	0.39	0.12
N-S	1	20750	Box	1546.00	1049.50	7.83	1057.33		1057.77	5.33	290.05	53.35	0.40	0.12
N-S	1	20750	Slab	1546.00	1049.50	7.88	1057.38		1057.82	5.28	292.87	53.56	0.40	0.12
N-S	1	20786	CULVERT	1546.00	1049.53	7.90	1057.43		1057.86	5.26	293.89	53.67	0.40	0.12
N-S	1	20786	Box	1546.00	1049.53	7.81	1057.34		1057.79	5.34	289.39	53.34	0.40	0.12
N-S	1	20786	Slab	1546.00	1049.53	7.87	1057.40		1057.83	5.29	292.19	53.55	0.40	0.12
N-S	1	20981	CULVERT	1546.00	1049.63	7.87	1057.50		1057.93	5.29	292.18	53.54	0.40	0.12
N-S	1	20981	Box	1546.00	1049.63	7.79	1057.42		1057.86	5.37	287.92	53.23	0.41	0.12
N-S	1	20981	Slab	1546.00	1049.63	7.84	1057.47		1057.91	5.32	290.55	53.42	0.40	0.12
N-S	1	21222	CULVERT	1546.00	1049.76	7.82	1057.58		1058.02	5.33	290.33	53.41	0.40	0.12
N-S	1	21222	Box	1546.00	1049.76	7.75	1057.51		1057.96	5.40	286.30	53.10	0.41	0.12
N-S	1	21222	Slab	1546.00	1049.76	7.79	1057.55		1058.00	5.35	288.78	53.29	0.41	0.12
N-S	1	21247	CULVERT	1546.00	1049.77	7.82	1057.59	1054.51	1058.03	5.32	290.58	53.37	0.40	0.12
N-S	1	21247	Box	1546.00	1049.77	7.75	1057.52	1054.51	1057.97	5.39	286.57	53.07	0.41	0.12
N-S	1	21247	Slab	1546.00	1049.77	7.79	1057.56	1054.51	1058.01	5.35	289.04	53.25	0.40	0.12
N-S	1	21325	CULVERT	1546.00	1049.81	7.81	1057.62		1058.06	5.34	289.39	53.34	0.40	0.12
N-S	1	21325	Box	1546.00	1049.81	7.73	1057.55		1058.00	5.42	285.44	53.04	0.41	0.12
N-S	1	21325	Slab	1546.00	1049.81	7.78	1057.59		1058.04	5.37	287.87	53.22	0.41	0.12
N-S	1	21581	CULVERT	1546.00	1049.90	7.81	1057.71		1058.16	5.36	288.21	53.18	0.41	0.12
N-S	1	21581	Box	1546.00	1049.90	7.74	1057.64		1058.10	5.43	284.47	52.90	0.41	0.12
N-S	1	21581	Slab	1546.00	1049.90	7.79	1057.69		1058.14	5.39	286.77	53.07	0.41	0.12
N-S	1	21866	CULVERT	1546.00	1050.10	7.72	1057.82		1058.27	5.42	285.11	53.03	0.41	0.12
N-S	1	21866	Box	1546.00	1050.10	7.65	1057.75		1058.22	5.49	281.60	52.76	0.42	0.13
N-S	1	21866	Slab	1546.00	1050.10	7.69	1057.79		1058.25	5.45	283.76	52.93	0.41	0.13
N-S	1	21886	CULVERT	1546.00	1050.10	7.72	1057.82		1058.28	5.42	285.15	53.02	0.41	0.12
N-S	1	21886	Box	1546.00	1050.10	7.66	1057.76		1058.23	5.49	281.66	52.75	0.42	0.13
N-S	1	21886	Slab	1546.00	1050.10	7.70	1057.80		1058.26	5.45	283.81	52.92	0.41	0.13
N-S	1	22081	CULVERT	1546.00	1050.20	7.70	1057.90		1058.36	5.45	283.85	52.92	0.41	0.13
N-S	1	22081	Box	1546.00	1050.20	7.64	1057.84		1058.31	5.51	280.52	52.67	0.42	0.13
N-S	1	22081	Slab	1546.00	1050.20	7.68	1057.88		1058.34	5.47	282.56	52.82	0.42	0.13
N-S	1	22281	CULVERT	1546.00	1050.30	7.68	1057.98		1058.44	5.48	282.34	52.79	0.42	0.13
N-S	1	22281	Box	1546.00	1050.30	7.62	1057.92		1058.39	5.54	279.15	52.55	0.42	0.13
N-S	1	22281	Slab	1546.00	1050.30	7.65	1057.95		1058.42	5.50	281.11	52.70	0.42	0.13
N-S	1	22546	CULVERT	1546.00	1050.43	7.65	1058.08		1058.55	5.50	280.86	52.69	0.42	0.13
N-S	1	22546	Box	1546.00	1050.43	7.60	1058.03		1058.51	5.56	277.87	52.46	0.43	0.13
N-S	1	22546	Slab	1546.00	1050.43	7.63	1058.06		1058.54	5.53	279.70	52.60	0.42	0.13

HEC-RAS (Continued)

River	Reach	River Sta	Plan	Q Total	Min Ch El	Max Chl Dpth	W.S. Elev	Crit W.S.	E.G. Elev	Vel Chnl	Flow Area	Top Width	Froude # Chl	Shear Chan
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft/s)	(sq ft)	(ft)		(lb/sq ft)
N-S	1	22681	CULVERT	1546.00	1050.50	7.64	1058.14		1058.61	5.52	280.25	52.63	0.42	0.13
N-S	1	22681	Box	1546.00	1050.50	7.58	1058.08		1058.57	5.57	277.36	52.41	0.43	0.13
N-S	1	22681	Slab	1546.00	1050.50	7.62	1058.12		1058.59	5.54	279.13	52.55	0.42	0.13
N-S	1	22901	CULVERT	1546.00	1050.60	7.63	1058.23		1058.70	5.53	279.41	52.55	0.42	0.13
N-S	1	22901	Box	1546.00	1050.60	7.58	1058.18		1058.66	5.59	276.67	52.35	0.43	0.13
N-S	1	22901	Slab	1546.00	1050.60	7.61	1058.21		1058.69	5.55	278.35	52.47	0.42	0.13
N-S	1	23165	CULVERT	1546.00	1050.70	7.64	1058.34		1058.81	5.55	278.48	52.43	0.42	0.13
N-S	1	23165	Box	1546.00	1050.70	7.59	1058.29		1058.77	5.60	275.93	52.23	0.43	0.13
N-S	1	23165	Slab	1546.00	1050.70	7.62	1058.32		1058.80	5.57	277.48	52.35	0.43	0.13
N-S	1	23230	CULVERT	1546.00	1050.80	7.56	1058.36		1058.84	5.59	276.66	52.39	0.43	0.13
N-S	1	23230	Box	1546.00	1050.80	7.51	1058.31		1058.80	5.64	274.14	52.20	0.43	0.14
N-S	1	23230	Slab	1546.00	1050.80	7.54	1058.34		1058.83	5.61	275.68	52.32	0.43	0.13
N-S	1	23360	CULVERT	1546.00	1050.80	7.58	1058.38		1058.87	5.61	275.76	52.23	0.43	0.13
N-S	1	23360	Box	1546.00	1050.80	7.54	1058.34		1058.83	5.66	273.29	52.04	0.44	0.14
N-S	1	23360	Slab	1546.00	1050.80	7.56	1058.36		1058.86	5.63	274.80	52.15	0.43	0.13
N-S	1	23410	CULVERT	1227.00	1050.90	7.67	1058.57		1058.97	5.07	241.92	47.24	0.39	0.11
N-S	1	23410	Box	1227.00	1050.90	7.63	1058.53		1058.93	5.11	239.90	47.07	0.40	0.11
N-S	1	23410	Slab	1227.00	1050.90	7.65	1058.55		1058.96	5.09	241.14	47.17	0.40	0.11
N-S	1	23581	CULVERT	1227.00	1050.96	7.68	1058.64		1059.05	5.10	240.64	47.05	0.40	0.11
N-S	1	23581	Box	1227.00	1050.96	7.64	1058.60		1059.01	5.14	238.72	46.89	0.40	0.11
N-S	1	23581	Slab	1227.00	1050.96	7.67	1058.63		1059.03	5.11	239.90	46.99	0.40	0.11
N-S	1	23842	CULVERT	1227.00	1051.09	7.65	1058.74	1055.76	1059.15	5.12	239.55	46.92	0.40	0.11
N-S	1	23842	Box	1227.00	1051.09	7.61	1058.70	1055.76	1059.11	5.16	237.73	46.76	0.40	0.11
N-S	1	23842	Slab	1227.00	1051.09	7.63	1058.72	1055.76	1059.13	5.14	238.85	46.86	0.40	0.11
N-S	1	24034	CULVERT	1227.00	1051.19	7.62	1058.81		1059.22	5.15	238.21	46.80	0.40	0.11
N-S	1	24034	Box	1227.00	1051.19	7.58	1058.77		1059.19	5.19	236.48	46.66	0.41	0.12
N-S	1	24034	Slab	1227.00	1051.19	7.61	1058.80		1059.21	5.17	237.54	46.75	0.40	0.12
N-S	1	24258	CULVERT	1227.00	1051.30	7.59	1058.89		1059.31	5.19	236.50	46.70	0.41	0.12
N-S	1	24258	Box	1227.00	1051.30	7.56	1058.86		1059.28	5.22	234.86	46.56	0.41	0.12
N-S	1	24258	Slab	1227.00	1051.30	7.58	1058.88		1059.30	5.20	235.87	46.64	0.41	0.12
N-S	1	24534	CULVERT	1227.00	1051.50	7.50	1059.00		1059.42	5.23	234.48	46.66	0.41	0.12
N-S	1	24534	Box	1227.00	1051.50	7.47	1058.97		1059.40	5.27	232.94	46.52	0.41	0.12
N-S	1	24534	Slab	1227.00	1051.50	7.49	1058.99		1059.41	5.25	233.89	46.61	0.41	0.12
N-S	1	24682	CULVERT	1227.00	1051.52	7.54	1059.06		1059.49	5.26	233.18	46.46	0.41	0.12
N-S	1	24682	Box	1227.00	1051.52	7.50	1059.02		1059.46	5.30	231.71	46.33	0.42	0.12
N-S	1	24682	Slab	1227.00	1051.52	7.52	1059.04		1059.48	5.27	232.61	46.41	0.42	0.12
N-S	1	24929	CULVERT	1227.00	1051.65	7.51	1059.16		1059.59	5.28	232.26	46.34	0.42	0.12
N-S	1	24929	Box	1227.00	1051.65	7.48	1059.13		1059.57	5.31	230.93	46.23	0.42	0.12
N-S	1	24929	Slab	1227.00	1051.65	7.49	1059.14		1059.58	5.30	231.73	46.30	0.42	0.12
N-S	1	25031	CULVERT	1227.00	1051.70	7.23	1058.93	1056.42	1059.91	7.92	154.89	21.71	0.52	0.28
N-S	1	25031	Box	1227.00	1051.70	7.20	1058.90	1056.42	1059.88	7.95	154.27	21.71	0.53	0.28
N-S	1	25031	Slab	1227.00	1051.70	7.22	1058.92	1056.42	1059.90	7.93	154.64	21.71	0.52	0.28
N-S	1	25038	CULVERT	434.00	1052.32	7.17	1059.49	1056.20	1060.06	6.06	71.67	10.00	0.40	0.19
N-S	1	25038	Box	434.00	1052.32	7.14	1059.46	1056.20	1060.04	6.07	71.45	10.00	0.40	0.19
N-S	1	25038	Slab	434.00	1052.32	7.16	1059.48	1056.20	1060.05	6.06	71.58	10.00	0.40	0.19
N-S	1	25051	CULVERT	434.00	1058.20	3.79	1061.99	1062.08	1064.03	11.46	37.89	10.00	1.04	0.74
N-S	1	25051	Box	434.00	1058.20	3.79	1061.99	1062.08	1064.03	11.46	37.89	10.00	1.04	0.74
N-S	1	25051	Slab	434.00	1058.20	3.79	1061.99	1062.08	1064.03	11.46	37.89	10.00	1.04	0.74
N-S	1	25231	CULVERT	434.00	1059.50	2.72	1062.22	1063.37	1066.18	15.96	27.19	10.00	1.71	1.53
N-S	1	25231	Box	434.00	1059.50	2.72	1062.22	1063.37	1066.18	15.96	27.19	10.00	1.71	1.53
N-S	1	25231	Slab	434.00	1059.50	2.72	1062.22	1063.37	1066.18	15.96	27.19	10.00	1.71	1.53
N-S	1	25270	CULVERT	434.00	1062.31	3.48	1065.79	1065.79	1066.95	8.66	50.13	21.61	1.00	0.42
N-S	1	25270	Box	434.00	1062.31	3.48	1065.79	1065.79	1066.95	8.66	50.13	21.61	1.00	0.42
N-S	1	25270	Slab	434.00	1062.31	3.48	1065.79	1065.79	1066.95	8.66	50.13	21.61	1.00	0.42
N-S	1	25292	CULVERT	434.00	1062.35	3.83	1066.18		1067.03	7.40	58.63	23.20	0.82	0.30
N-S	1	25292	Box	434.00	1062.35	3.83	1066.18		1067.03	7.40	58.63	23.20	0.82	0.30
N-S	1	25292	Slab	434.00	1062.35	3.83	1066.18		1067.03	7.40	58.63	23.20	0.82	0.30
N-S	1	25581	CULVERT	434.00	1062.99	3.76	1066.75		1067.68	7.72	56.18	22.71	0.87	0.33
N-S	1	25581	Box	434.00	1062.99	3.76	1066.75		1067.68	7.72	56.18	22.71	0.87	0.33
N-S	1	25581	Slab	434.00	1062.99	3.76	1066.75		1067.68	7.72	56.18	22.71	0.87	0.33
N-S	1	25768	CULVERT	434.00	1063.40	3.80	1067.20		1068.09	7.58	57.26	22.87	0.84	0.31
N-S	1	25768	Box	434.00	1063.40	3.80	1067.20		1068.09	7.58	57.26	22.87	0.84	0.31
N-S	1	25768	Slab	434.00	1063.40	3.80	1067.20		1068.09	7.58	57.26	22.87	0.84	0.31
N-S	1	25883	CULVERT	434.00	1063.66	3.79	1067.45		1068.35	7.59	57.18	22.79	0.84	0.31
N-S	1	25883	Box	434.00	1063.66	3.79	1067.45		1068.35	7.59	57.18	22.79	0.84	0.31
N-S	1	25883	Slab	434.00	1063.66	3.79	1067.45		1068.35	7.59	57.18	22.79	0.84	0.31
N-S	1	25912	CULVERT	434.00	1063.70	3.82	1067.52		1068.41	7.55	57.46	22.85	0.84	0.31
N-S	1	25912	Box	434.00	1063.70	3.82	1067.52		1068.41	7.55	57.46	22.85	0.84	0.31
N-S	1	25912	Slab	434.00	1063.70	3.82	1067.52		1068.41	7.55	57.46	22.85	0.84	0.31
N-S	1	26026	CULVERT	434.00	1064.00	3.75	1067.75		1068.66	7.68	56.50	22.74	0.86	0.32
N-S	1	26026	Box	434.00	1064.00	3.75	1067.75		1068.66	7.68	56.50	22.74	0.86	0.32
N-S	1	26026	Slab	434.00	1064.00	3.75	1067.75		1068.66	7.68	56.50	22.74	0.86	0.32
N-S	1	26049	CULVERT	434.00	1064.00	3.85	1067.85		1068.72	7.45	58.23	22.98	0.83	0.30
N-S	1	26049	Box	434.00	1064.00	3.85	1067.85		1068.72	7.45	58.23	22.98	0.83	0.30
N-S	1	26049	Slab	434.00	1064.00	3.85	1067.85		1068.72	7.45	58.23	22.98	0.83	0.30
N-S	1	26169	CULVERT	434.00	1064.30	3.78	1068.08		1068.98	7.62	56.94	22.79	0.85	0.32
N-S	1	26169	Box	434.00	1064.30	3.78	1068.08		1068.98	7.62	56.94	22.79	0.85	0.32
N-S	1	26169	Slab	434.00	1064.30	3.78	1068.08		1068.98	7.62	56.94	22.79	0.85	0.32
N-S	1	26191	CULVERT	434.00	1064.30	3.85	1068.15		1069.02	7.49	57.94	22.91	0.83	0.31
N-S	1	26191	Box	434.00	1064.30	3.85	1068.15		1069.02	7.49	57.94	22.91	0.83	0.31
N-S	1	26191	Slab	434.00	1064.30	3.85	1068.15		1069.02	7.49	57.94	22.91	0.83	0.31
N-S	1	26295	CULVERT	434.00	1064.60	3.74	1068.34		1069.26	7.68	56.51	22.75	0.86	0.32
N-S	1	26295	Box	434.00	1064.60	3.74	1068.34		1069.26	7.68	56.51	22.75	0.86	0.32
N-S	1	26295	Slab	434.00	1064.60	3.74	1068.34		1069.26	7.68	56.51	22.75	0.86	0.32
N-S	1	26322	CULVERT	434.00	1064.60	3.87	1068.47		1069.32	7.42	58.49	23.03	0.82	0.30
N-S	1	26322	Box	434.00	1064.60	3.87	1068.47		1069.32	7.42	58.49	23.03	0.82	0.30
N-S	1	26322	Slab	434.00	1064.60	3.87	1068.47		1069.32	7.42	58.49	23.03	0.82	0.30
N-S	1	26387	CULVERT	434.00	1064.78	3.81	1068.59		1069.47	7.52	57.72	22.93	0.84	0.31
N-S	1	26387	Box	434.00	1064.78	3.81	1068.59		1069.47	7.52	57.72	22.93	0.84	0.31
N-S	1	26387	Slab	434.00	1064.78	3.81	1068.59		1069.47	7.52	57.72	22.93	0.84	0.31

HEC-RAS (Continued)

River	Reach	River Sta	Plan	Q Total	Min Ch El	Max Chl Dpth	W.S. Elev	Crit W.S.	E.G. Elev	Vel Chnl	Flow Area	Top Width	Froude # Chl	Shear Chan
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft/s)	(sq ft)	(ft)		(lb/sq ft)
N-S	1	26409	CULVERT	434.00	1064.83	2.88	1067.71	1068.30	1069.73	11.42	38.01	19.18	1.43	0.77
N-S	1	26409	Box	434.00	1064.83	2.88	1067.71	1068.30	1069.73	11.42	38.01	19.18	1.43	0.77
N-S	1	26409	Slab	434.00	1064.83	2.88	1067.71	1068.30	1069.73	11.42	38.01	19.18	1.43	0.77
N-S	1	26486	CULVERT	434.00	1065.00	2.92	1067.92	1068.48	1069.89	11.25	38.57	19.33	1.40	0.74
N-S	1	26486	Box	434.00	1065.00	2.92	1067.92	1068.48	1069.89	11.25	38.57	19.33	1.40	0.74
N-S	1	26486	Slab	434.00	1065.00	2.92	1067.92	1068.48	1069.89	11.25	38.57	19.33	1.40	0.74
N-S	1	26492	CULVERT	134.00	1067.87	1.72	1069.59	1069.59	1070.19	6.21	21.59	18.06	1.00	0.27
N-S	1	26492	Box	134.00	1067.87	1.72	1069.59	1069.59	1070.19	6.21	21.59	18.06	1.00	0.27
N-S	1	26492	Slab	134.00	1067.87	1.72	1069.59	1069.59	1070.19	6.21	21.59	18.06	1.00	0.27
N-S	1	26550	CULVERT	134.00	1068.01	2.21	1070.22		1070.52	4.41	30.40	20.75	0.64	0.13
N-S	1	26550	Box	134.00	1068.01	2.21	1070.22		1070.52	4.41	30.40	20.75	0.64	0.13
N-S	1	26550	Slab	134.00	1068.01	2.21	1070.22		1070.52	4.41	30.40	20.75	0.64	0.13
N-S	1	26681	CULVERT	134.00	1068.30	2.09	1070.39		1070.75	4.84	27.70	19.88	0.72	0.15
N-S	1	26681	Box	134.00	1068.30	2.09	1070.39		1070.75	4.84	27.70	19.88	0.72	0.15
N-S	1	26681	Slab	134.00	1068.30	2.09	1070.39		1070.75	4.84	27.70	19.88	0.72	0.15
N-S	1	26897	CULVERT	134.00	1068.88	1.90	1070.78		1071.23	5.40	24.79	18.98	0.83	0.20
N-S	1	26897	Box	134.00	1068.88	1.90	1070.78		1071.23	5.40	24.79	18.98	0.83	0.20
N-S	1	26897	Slab	134.00	1068.88	1.90	1070.78		1071.23	5.40	24.79	18.98	0.83	0.20
N-S	1	26910	CULVERT	134.00	1068.90	1.90	1070.80		1071.27	5.51	24.31	18.87	0.86	0.20
N-S	1	26910	Box	134.00	1068.90	1.90	1070.80		1071.27	5.51	24.31	18.87	0.86	0.20
N-S	1	26910	Slab	134.00	1068.90	1.90	1070.80		1071.27	5.51	24.31	18.87	0.86	0.20
N-S	1	26992	CULVERT	134.00	1069.12	1.89	1071.01		1071.49	5.52	24.27	18.88	0.86	0.21
N-S	1	26992	Box	134.00	1069.12	1.89	1071.01		1071.49	5.52	24.27	18.88	0.86	0.21
N-S	1	26992	Slab	134.00	1069.12	1.89	1071.01		1071.49	5.52	24.27	18.88	0.86	0.21
N-S	1	27010	CULVERT	134.00	1069.20	1.86	1071.06		1071.54	5.56	24.08	18.84	0.87	0.21
N-S	1	27010	Box	134.00	1069.20	1.86	1071.06		1071.54	5.56	24.08	18.84	0.87	0.21
N-S	1	27010	Slab	134.00	1069.20	1.86	1071.06		1071.54	5.56	24.08	18.84	0.87	0.21
N-S	1	27114	CULVERT	134.00	1069.40	1.98	1071.38		1071.80	5.22	25.68	19.27	0.80	0.18
N-S	1	27114	Box	134.00	1069.40	1.98	1071.38		1071.80	5.22	25.68	19.27	0.80	0.18
N-S	1	27114	Slab	134.00	1069.40	1.98	1071.38		1071.80	5.22	25.68	19.27	0.80	0.18
N-S	1	27136	CULVERT	134.00	1069.50	1.91	1071.41		1071.86	5.35	25.03	19.12	0.82	0.19
N-S	1	27136	Box	134.00	1069.50	1.91	1071.41		1071.86	5.35	25.03	19.12	0.82	0.19
N-S	1	27136	Slab	134.00	1069.50	1.91	1071.41		1071.86	5.35	25.03	19.12	0.82	0.19
N-S	1	27272	CULVERT	134.00	1069.80	1.95	1071.75		1072.18	5.30	25.27	19.17	0.81	0.19
N-S	1	27272	Box	134.00	1069.80	1.95	1071.75		1072.18	5.30	25.27	19.17	0.81	0.19
N-S	1	27272	Slab	134.00	1069.80	1.95	1071.75		1072.18	5.30	25.27	19.17	0.81	0.19
N-S	1	27285	CULVERT	134.00	1069.90	1.84	1071.74		1072.23	5.60	23.93	18.80	0.87	0.21
N-S	1	27285	Box	134.00	1069.90	1.84	1071.74		1072.23	5.60	23.93	18.80	0.87	0.21
N-S	1	27285	Slab	134.00	1069.90	1.84	1071.74		1072.23	5.60	23.93	18.80	0.87	0.21
N-S	1	27389	CULVERT	134.00	1070.10	1.97	1072.07		1072.49	5.22	25.66	19.28	0.80	0.18
N-S	1	27389	Box	134.00	1070.10	1.97	1072.07		1072.49	5.22	25.66	19.28	0.80	0.18
N-S	1	27389	Slab	134.00	1070.10	1.97	1072.07		1072.49	5.22	25.66	19.28	0.80	0.18
N-S	1	27406	CULVERT	134.00	1070.16	1.95	1072.11		1072.54	5.21	25.73	19.30	0.79	0.18
N-S	1	27406	Box	134.00	1070.16	1.95	1072.11		1072.54	5.21	25.73	19.30	0.79	0.18
N-S	1	27406	Slab	134.00	1070.16	1.95	1072.11		1072.54	5.21	25.73	19.30	0.79	0.18
N-S	1	27593	CULVERT	134.00	1070.63	1.90	1072.53		1072.99	5.46	24.55	18.95	0.84	0.20
N-S	1	27593	Box	134.00	1070.63	1.90	1072.53		1072.99	5.46	24.55	18.95	0.84	0.20
N-S	1	27593	Slab	134.00	1070.63	1.90	1072.53		1072.99	5.46	24.55	18.95	0.84	0.20
N-S	1	27610	CULVERT	134.00	1070.67	1.91	1072.58		1073.03	5.43	24.68	19.00	0.84	0.20
N-S	1	27610	Box	134.00	1070.67	1.91	1072.58		1073.03	5.43	24.68	19.00	0.84	0.20
N-S	1	27610	Slab	134.00	1070.67	1.91	1072.58		1073.03	5.43	24.68	19.00	0.84	0.20
N-S	1	27738	CULVERT	134.00	1070.99	1.90	1072.89		1073.37	5.53	24.25	18.91	0.86	0.21
N-S	1	27738	Box	134.00	1070.99	1.90	1072.89		1073.37	5.53	24.25	18.91	0.86	0.21
N-S	1	27738	Slab	134.00	1070.99	1.90	1072.89		1073.37	5.53	24.25	18.91	0.86	0.21
N-S	1	27750	CULVERT	134.00	1071.02	1.90	1072.92		1073.41	5.59	23.97	18.47	0.86	0.21
N-S	1	27750	Box	134.00	1071.02	1.90	1072.92		1073.41	5.59	23.97	18.47	0.86	0.21
N-S	1	27750	Slab	134.00	1071.02	1.90	1072.92		1073.41	5.59	23.97	18.47	0.86	0.21

CHANNEL FREEBOARD

Design By: JRM
Checked By: JMG

	30% Design		HEC-RAS MODEL					
	Invert	Lining	Invert	Profile 1	Profile 2	dInvert	Freeboard (ft)	
Station	Elevation	Elevation	Elevation	WSE (ft)	WSE (ft)	Elevation	Profile 1	Profile 2
25+90	1043.34	1047.75	1043.30	1046.73	1046.89	0.0	1.02	0.86
25+93	1043.35	1047.75	1043.40	1046.73	1046.89	-0.1	1.02	0.86
26+04	1043.37	1047.77	1043.40	1046.73	1046.89	0.0	1.04	0.88
27+57	1043.62	1048.02	1043.60	1046.77	1046.95	0.0	1.25	1.07
27+81	1043.65	1048.06	1043.70	1046.77	1046.96	0.0	1.29	1.10
29+00	1043.85	1048.00	1043.93	1046.81	1047.02	-0.1	1.19	0.98
31+00	1044.17	1048.08	1044.17	1046.91	1047.16	0.0	1.17	0.92
32+99	1044.50	1048.15	1044.50	1047.04	1047.33	0.0	1.11	0.82
34+00	1044.66	1048.31	1044.76	1047.12	1047.43	-0.1	1.19	0.88
36+00	1044.99	1048.64	1045.08	1047.35	1047.69	-0.1	1.29	0.95
37+00	1045.15	1048.58	1045.15	1047.50	1047.86	0.0	1.08	0.72
38+00	1045.34	1048.76	1045.43	1047.60	1047.96	-0.1	1.16	0.80
40+00	1045.72	1049.14	1045.80	1047.92	1048.28	-0.1	1.22	0.86
42+00	1046.09	1049.51	1046.19	1048.27	1048.64	-0.1	1.24	0.87
43+00	1046.28	1049.70	1046.30	1048.49	1048.86	0.0	1.21	0.84
44+00	1046.47	1049.88	1046.47	1048.66	1049.03	0.0	1.22	0.85
46+00	1046.85	1050.25	1046.94	1049.00	1049.37	-0.1	1.25	0.88
47+40	1047.11	1050.52	1047.11	1049.28	1049.64	0.0	1.24	0.88
48+00	1047.22	1050.63	1047.22	1049.38	1049.75	0.0	1.25	0.88
50+00	1047.60	1051.00	1047.60	1049.74	1050.11	0.0	1.26	0.89
50+78	1047.75	1051.15	1047.75	1049.91	1050.29	0.0	1.24	0.86

CHANNEL FREEBOARD

Design By: URM
Checked By: _____

Station	30% Design Invert Elevation	30% Design Lining Elevation	Culvert HEC-RAS MODEL Invert Elevation	WSE (ft)	dInvert Elevation	Freeboard (ft)
74+00	1032.20	1044.90	1032.20	1039.97	0.0	4.93
76+00	1032.40	1044.90	1032.41	1040.34	0.0	4.56
78+00	1032.60	1044.90	1032.61	1040.66	0.0	4.24
80+00	1032.80	1044.90	1032.81	1040.94	0.0	3.96
82+00	1033.00	1044.90	1033.01	1041.19	0.0	3.71
84+00	1033.20	1044.90	1033.21	1041.43	0.0	3.47
86+00	1033.40	1044.90	1033.41	1041.67	0.0	3.23
88+00	1033.60	1044.90	1033.61	1041.89	0.0	3.01
90+00	1033.80	1044.90	1033.81	1042.11	0.0	2.79
92+00	1034.00	1044.90	1034.01	1042.33	0.0	2.57
94+00	1034.20	1044.90	1034.21	1042.54	0.0	2.36
96+00	1034.40	1044.90	1034.40	1042.76	0.0	2.14
98+00	1034.60	1044.90	1034.61	1042.97	0.0	1.93
99+38	1034.74	1044.90	1034.74	1043.12	0.0	1.78
101+00	1034.90	1044.90	1034.91	1043.28	0.0	1.62
102+97	1035.11	1044.90	1035.10	1039.89	0.0	5.01
103+20	1035.57	1044.90	1035.55	1043.12	0.0	1.78
105+03	1035.75	1054.00	1035.73	1052.82	0.0	1.18
106+57	1044.87	1054.24	1044.90	1052.64	0.0	1.60
108+51	1045.05	1053.80	1045.07	1052.80	0.0	1.00
109+97	1045.20	1053.95	1045.22	1052.92	0.0	1.03
112+87	1045.49	1054.24	1045.50	1053.17	0.0	1.07
114+31	1045.63	1054.38	1045.65	1053.30	0.0	1.08
116+00	1045.80	1054.55	1045.80	1053.45	0.0	1.10
118+00	1046.00	1054.75	1046.02	1053.62	0.0	1.13
120+00	1046.20	1054.95	1046.22	1053.81	0.0	1.14
122+00	1046.40	1055.14	1046.40	1053.99	0.0	1.15
124+00	1046.60	1055.34	1046.60	1054.18	0.0	1.16
126+00	1046.94	1056.70	1046.82	1054.64	0.1	2.06
128+00	1047.50	1057.25	1046.96	1055.63	0.5	1.63
129+54	1047.55	1057.30	1047.24	1055.56	0.3	1.74
131+48	1047.55	1057.05	1047.37	1055.62	0.2	1.43
133+43	1047.55	1056.92	1047.60	1055.73	0.0	1.19
135+17	1047.72	1057.06	1047.73	1055.85	0.0	1.21
136+91	1047.90	1057.21	1047.91	1055.96	0.0	1.25
138+00	1048.01	1057.30	1048.02	1056.04	0.0	1.26
139+00	1048.12	1057.38	1048.12	1056.11	0.0	1.27
139+77	1048.19	1057.69	1048.20	1056.35	0.0	1.34
139+89	1048.21	1057.70	1048.21	1056.81	0.0	0.89

CHANNEL FREEBOARD

Design By: JRM
Checked By: JWG

	30% Design		HEC-RAS MODEL					
	Invert	Lining	Invert	Profile 1	Profile 2	dInvert	Freeboard (ft)	
Station	Elevation	Elevation	Elevation	WSE (ft)	WSE (ft)	Elevation	Profile 1	Profile 2
201+14	1049.19	1058.19	1049.19	1057.10	1057.16	0.0	1.09	1.03
202+49	1049.23	1058.26	1049.26	1057.15	1057.21	0.0	1.11	1.05
204+81	1049.30	1058.38	1049.38	1057.23	1057.29	-0.1	1.15	1.09
207+50	1049.39	1058.51	1049.50	1057.33	1057.38	-0.1	1.18	1.13
207+86	1049.40	1058.53	1049.53	1057.34	1057.40	-0.1	1.19	1.13
209+81	1049.46	1058.63	1049.63	1057.42	1057.47	-0.2	1.21	1.16
212+22	1049.53	1058.76	1049.76	1057.51	1057.55	-0.2	1.25	1.21
212+47	1049.54	1058.77	1049.77	1057.52	1057.56	-0.2	1.25	1.21
213+25	1049.56	1058.81	1049.81	1057.55	1057.59	-0.2	1.26	1.22
215+81	1049.64	1058.94	1049.90	1057.64	1057.69	-0.3	1.30	1.25
218+66	1049.73	1059.08	1050.10	1057.75	1057.79	-0.4	1.33	1.29
218+86	1049.73	1059.09	1050.10	1057.76	1057.80	-0.4	1.33	1.29
220+81	1049.79	1059.19	1050.20	1057.84	1057.88	-0.4	1.35	1.31
222+81	1049.85	1059.29	1050.30	1057.92	1057.95	-0.4	1.37	1.34
225+46	1049.94	1059.43	1050.43	1058.03	1058.06	-0.5	1.40	1.37
226+81	1049.98	1059.50	1050.50	1058.08	1058.12	-0.5	1.42	1.38
229+01	1050.04	1059.61	1050.60	1058.18	1058.21	-0.6	1.43	1.40
231+65	1050.13	1059.75	1050.70	1058.29	1058.32	-0.6	1.46	1.43
232+30	1050.15	1059.78	1050.80	1058.31	1058.34	-0.7	1.47	1.44
233+60	1050.19	1059.85	1050.80	1058.34	1058.36	-0.6	1.51	1.49
234+10	1050.20	1059.87	1050.90	1058.53	1058.55	-0.7	1.34	1.32
235+81	1050.25	1059.96	1050.96	1058.60	1058.63	-0.7	1.36	1.33
238+42	1050.33	1060.09	1051.09	1058.70	1058.72	-0.8	1.39	1.37
240+34	1050.39	1060.19	1051.19	1058.77	1058.80	-0.8	1.42	1.39
242+58	1050.46	1060.30	1051.30	1058.86	1058.88	-0.8	1.44	1.42
245+34	1050.55	1060.44	1051.50	1058.97	1058.99	-1.0	1.47	1.45
246+82	1050.59	1060.52	1051.52	1059.02	1059.04	-0.9	1.50	1.48
249+29	1050.67	1060.64	1051.65	1059.13	1059.14	-1.0	1.51	1.50
250+31	1050.70	1060.70	1051.70	1058.90	1058.92	-1.0	1.80	1.78
250+38	1051.28	1060.89	1052.32	1059.46	1059.48	-1.0	1.43	1.41
250+51	1058.20	1063.20	1058.20	1061.99	1061.99	0.0	1.21	1.21
252+31	1059.50	1064.50	1059.50	1062.22	1062.22	0.0	2.28	2.28
252+70	1062.30	1067.30	1062.31	1065.79	1065.79	0.0	1.51	1.51
252+92	1062.35	1067.35	1062.35	1066.18	1066.18	0.0	1.17	1.17
255+81	1062.99	1067.99	1062.99	1066.75	1066.75	0.0	1.24	1.24
257+68	1063.41	1068.41	1063.40	1067.20	1067.20	0.0	1.21	1.21
258+83	1063.66	1068.66	1063.66	1067.45	1067.45	0.0	1.21	1.21
259+12	1063.73	1068.73	1063.70	1067.52	1067.52	0.0	1.21	1.21
260+26	1063.98	1068.98	1064.00	1067.75	1067.75	0.0	1.23	1.23
260+49	1064.03	1069.03	1064.00	1067.85	1067.85	0.0	1.18	1.18
261+69	1064.30	1069.30	1064.30	1068.08	1068.08	0.0	1.22	1.22
261+91	1064.35	1069.35	1064.30	1068.15	1068.15	0.0	1.20	1.20
262+95	1064.58	1069.58	1064.60	1068.34	1068.34	0.0	1.24	1.24
263+22	1064.64	1069.64	1064.60	1068.47	1068.47	0.0	1.17	1.17
263+87	1064.78	1069.78	1064.78	1068.59	1068.59	0.0	1.19	1.19
264+09	1064.83	1069.83	1064.83	1067.71	1067.71	0.0	2.12	2.12
264+86	1065.00	1070.00	1065.00	1067.92	1067.92	0.0	2.08	2.08

APPENDIX F

NEW RIVER 50-YEAR HEC-2 OUTPUT

```
*********************************************
*  HEC-2 WATER SURFACE PROFILES             *
*                                           *
*  Version   4.6.2;  May 1991               *
*                                           *
*  RUN DATE    29OCT97    TIME    09:37:17  *
*********************************************
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****************************************
*  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
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THIS RUN EXECUTED 29OCT97 09:37:17

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

 Version   4.6.2;  May 1991
************************************
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AGUA FRIA RIVER - NEW RIVER
DATA WITH SPF LEVEE (PROPOSED CONDITIONS)

Modified by FDC to include Proposed City of Glendale Airport Extension
X-SEC 29 ENCROACHED AT STA 5450 FOR RUNWAY EXTENSION
CHANNELIZATION TO REDUCE WSE TO MEET FEMA REGULATED ELEVATION
1300 ft. Alternative FILENAME alt13nsf.dat

X-SEC	CCSLA	BOT ELEV.	SS	BW
*****	*****	*********	****	****
27	4496	1021.0	4:1	300
28	5700	1022.0	4:1	550
28.5	5000	1023.0	4:1	650
29	4900	1023.5	4:1	850
34	4800	1027.0	4:1	600
35	4500	1028.0	4:1	600
36	4600	1029.0	4:1	600

MODIFICATIONS BY DMJM ARIZONA, INC.
MODIFICATION DATE: 10/29/97
50-YEAR DISCHARGES

	W/O NEW WADDELL	W/ NEW WADDELL
AGUA FRIA BELOW CONFLUENCE	69,000	39,000
NEW RIVER ABOVE CONFLUENCE	29,000	29,000

```
T1
T2
T3

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                2                           0.00142

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     1                 -1                                                  -6


J3  VARIABLE CODES FOR SUMMARY PRINTOUT

    150        120        200

J5  LPRNT     NUMSEC                    ********REQUESTED SECTION NUMBERS********

    -10        -10
```

```
     2     69000     39000

   BEGIN STUDY

NC   0.04     0.04     0.025     0.1      0.3
X1   1        55       394.53    1422.94
X3   10
GR   1008     0        1010      5.99     1012      11.32     1014      20.14     1014      58.44
GR   1012     62.33    1010      66.27    1010      69.66     1012      76.36     1014      97.71
GR   1016     106.06   1016      131.32   1014      137.76    1014      156.6     1016      160.56
GR   1018     164.69   1020      169.72   1020      195.71    1018      201.38    1016      211.26
GR   1014     225.45   1012      237.04   1010      253.68    1008      257.33    1008      334.83
GR   1010     349.77   1010      394.53   1008      397.04    1006      399.59    1004      402.26
GR   1002     404.97   1000      407.7    998       410.47    996       1296.49   996       1316.28
GR   996      1376.84  996       1377.02  998       1385.11   1000      1393.98   1002      1402.74
GR   1004     1407.79  1006      1412.81  1008      1417.89   1010      1422.94   1010      1502.18
GR   1010     1604.84  1012      1610.44  1012      1611.09   1010      1614.78   1008      1618.3
GR   1006     1624.39  1004      1629.04  1004      1669.36   1004      1688.34   1004      1765.17

X1   2        33       383.84    1440.42  518.67    502.57    513.18
X3   10
GR   1008     0        1008      48.94    1008      106.63    1008      144.14    1008      182.01
GR   1008     191.43   1008      349.71   1010      357.82    1012      366.13    1012      383.84
GR   1010     386.22   1008      388.61   1006      391       1004      393.38    1002      395.77
GR   1000     398.16   998       573.8    998       588.41    998       1237.02   998       1393.66
GR   1000     1400.35  1002      1407.15  1004      1413.95   1006      1420.69   1008      1427.48
GR   1010     1434.27  1012      1440.42  1012      1479.39   1010      1494.08   1008      1587.23
GR   1008     2009.1   1008      2057.31  1000      2481.83

X1   3        51       482       1621.81  592.64    430.38    508.26
X3   10
GR   998      0        996       99.38    994       158.77    994       224.41    996       256.59
GR   998      279.78   998       304.23   998       312.08    1000      320.55    1002      328.82
GR   1004     335.57   1006      362.48   1008      370.73    1010      377.91    1012      384.94
GR   1014     458.6    1014      482      1012      484.81    1010      487.23    1008      489.68
GR   1006     492.55   1004      495.16   1002      497.64    1000      500.22    1000      732.75
GR   1000     733.88   1000      851.15   1000      990.51    1000      1034.93   1000      1069.24
GR   1000     1205.81  1000      1276.9   1000      1592.97   1002      1596.87   1004      1600.8
GR   1006     1604.76  1008      1608.76  1010      1612.89   1012      1617.12   1014      1621.81
GR   1014     1642.56  1012      1652.27  1008      1709.31   1006      1721.64   1006      1751.25
GR   1008     1758.94  1008      1827.41  1008      1982.96   1008      2058.85   1000      2948.45
GR   1006     2953.59

X1   4        70       817.46    2156.1   466.06    470.68    449.34
X3   10
GR   1012     0        1012      18.24    1010      25.95     1008      33.7      1008      203.76
GR   1010     212.44   1010      468.55   1010      497.7     1010      514.57    1008      661.83
GR   1006     666.5    1004      671.32   1004      694.71    1006      702.23    1008      709.58
GR   1010     716.97   1012      724.32   1014      731.59    1014      740.74    1014      757.82
GR   1014     817.46   1012      820.14   1010      822.8     1008      825.46    1006      828.11
GR   1004     843.28   1002      845.61   1000      1079.5    1000      1080.41   1002      2126.84
GR   1004     2129.85  1006      2143.5   1008      2149.08   1012      2153.7    1014      2156.1
GR   1014     2185.97  1012      2193.19  1010      2217.31   1008      2223.78   1008      2291.96
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GR	1010	2302.39	1012	2311.51	1014	2320	1016	2328.61	1018	2334.71
[illegible]	1018	2363.99	1016	2375.68	1014	2382.05	1012	2387.28	1010	2391.87
GR	1008	2816.54	1008	2852.79	1010	2920.78	1012	2927.54	1012	2991.87
GR	1010	3003.03	1008	3018.67	1006	3029.25	1004	3214.06	1002	3295.84
GR	1002	3347.97	1004	3354.28	1006	3368.34	1008	3396.73	1008	3928.26
GR	1008	4103.92	1010	4155.13	1012	4163.91	1014	4168.53	1016	4172.92
X1	5	69	796.49	2270.21	168.95	203.76	175.96			
X3	10									
GR	1012	0	1010	366.01	1012	594.51	1014	602.7	1014	642.27
GR	1012	657.98	1010	663.67	1010	752.17	1012	759.27	1014	766.35
GR	1016	773.02	1016	796.49	1014	844.46	1012	849.34	1010	853.67
GR	1008	858.07	1006	862.35	1004	866.84	1002	873.61	1002	1035.09
GR	1004	1045.46	1004	1056.3	1002	1060.57	1000	1064.55	1000	1107.18
GR	1002	1123.22	1002	1148.52	1000	1317.18	1000	1345.64	1000	1405.49
GR	1000	1442.87	1000	1494.32	1000	1518.15	1000	2104.75	1000	2187.6
GR	1000	2207.88	1000	2222.87	1002	2226.77	1004	2232.02	1006	2238.43
GR	1008	2244.83	1010	2251.17	1012	2257.6	1014	2263.89	1016	2270.21
GR	1016	2271.02	1016	2302.96	1018	2650.07	1018	2692.04	1018	2757.05
GR	1018	2771.16	1016	2779.68	1014	2791.73	1012	2842.19	1010	3122.72
GR	1010	3294.7	1010	3296.31	1010	3347.11	1012	3437.57	1012	3471.32
GR	1010	3498.09	1010	3504.71	1010	3512.56	1010	3899.89	1012	4099.55
GR	1012	4185.67	1012	4208.94	1014	4219.44	1016	4229.46		

INDIAN SCHOOL ROAD LOW CHORD = 1013.3

NC	0.022	0.022	0.022	0.3	0.5					
X1	6	90	972	2442.2	63.8	23.57	36.79			
X[illegible]	10									
BT	-70	971.9	1021.3	1021.3	972	1021.3	1013.3	972.1	1021.3	1013.3
BT		1007.8	1021.3	1013.3	1007.9	1021.3	1013.3	1021.9	1021.3	1013.3
BT		1022	1021.3	1013.3	1099.5	1021.3	1013.3	1099.6	1021.3	1002
BT		1113.6	1021.3	1002	1113.7	1021.3	1013.3	1189.5	1021.3	1013.3
BT		1189.6	1021.3	1002	1203.6	1021.3	1002	1203.7	1021.3	1013.3
BT		1279.5	1021.3	1013.3	1279.6	1021.3	1004	1293.6	1021.3	1004
BT		1293.7	1021.3	1013.3	1369.5	1021.3	1013.3	1369.6	1021.3	1001.5
BT		1383.6	1021.3	1001.3	1383.7	1021.3	1013.3	1459.5	1021.3	1013.3
BT		1459.6	1021.3	1000.5	1473.6	1021.3	1000	1473.7	1021.3	1013.3
BT		1549.5	1021.3	1013.3	1549.6	1021.3	1000	1563.6	1021.3	1000
BT		1563.7	1021.3	1013.3	1639.5	1021.3	1013.3	1639.6	1021.3	1000
BT		1653.6	1021.3	1000	1653.7	1021.3	1013.3	1729.5	1021.3	1013.3
BT		1729.6	1021.3	1000	1743.6	1021.3	1000	1743.7	1021.3	1013.3
BT		1819.5	1021.3	1013.3	1819.6	1021.3	1000	1833.6	1021.3	1000
BT		1833.7	1021.3	1013.3	1909.5	1021.3	1013.3	1909.6	1021.3	1000
BT		1923.6	1021.3	1000	1923.7	1021.3	1013.3	1999.5	1021.3	1013.3
BT		1999.6	1021.3	1000	2013.6	1021.3	1000	2013.7	1021.3	1013.3
BT		2089.4	1021.3	1013.3	2089.5	1021.3	1000	2103.5	1021.3	1000
BT		2103.6	1021.3	1013.3	2179.5	1021.3	1013.3	2179.6	1021.3	1000
BT		2193.6	1021.3	1000	2193.7	1021.3	1013.3	2269.5	1021.3	1013.3
BT		2269.6	1021.3	1000	2283.6	1021.3	1000	2283.7	1021.3	1013.3
BT		2359.5	1021.3	1013.3	2359.6	1021.3	1000	2373.6	1021.3	1000
BT		2373.7	1021.3	1013.3	2461.6	1021.3	1013.3	2461.7	1021.3	1013.3
BT		2461.71	1021.3	1021.3						

GR	1016	0	1018	517.07	1018	971.9	1018	972	1018	972.1
[illegible]	1007	1007.8	1007	1007.9	1002	1021.9	1002	1022	1002	1099.5
[illegible]	1002	1099.6	1002	1113.6	1002	1113.7	1002	1189.5	1002	1189.6
GR	1002	1203.6	1002	1203.7	1000	1263.16	1002	1272.35	1004	1279.5
GR	1004	1279.6	1004	1293.6	1004	1293.7	1002	1309.94	1001.5	1369.5
GR	1001.5	1369.6	1001.3	1383.6	1001.3	1383.7	1000.5	1459.5	1000.5	1459.6
GR	1000	1473.6	1000	1473.7	1000	1549.5	1000	1549.6	1000	1563.6
GR	1000	1563.7	1000	1639.5	1000	1639.6	1000	1653.6	1000	1653.7
GR	1000	1729.5	1000	1729.6	1000	1743.6	1000	1743.7	1000	1819.5
GR	1000	1819.6	1000	1833.6	1000	1833.7	1000	1909.5	1000	1909.6
GR	1000	1923.6	1000	1923.7	1000	1999.5	1000	1999.6	1000	2013.6
GR	1000	2013.7	1000	2089.4	1000	2089.5	1000	2103.5	1000	2103.6
GR	1000	2179.5	1000	2179.6	1000	2193.6	1000	2193.7	1000	2269.5
GR	1000	2269.6	1000	2283.6	1000	2283.7	1000	2359.5	1000	2359.6
GR	1000	2373.6	1000	2373.7	1002	2387.37	1004	2390.81	1006	2397.39
GR	1008	2403.97	1010	2410.56	1012	2417.17	1014	2423.98	1016	2438.32
GR	1018	2442.2	1018	2461.6	1018	2461.7	1018	2461.71	1018	2890.45
GR	1016	3090.24	1014	3545.43	1014	3588.88	1014	4053.92	1016	4384.87
X1	7	90	1031.85	2521.45	81.31	88.36	82.76			
X3	10							1018	1018	
BT	-70	1031.74	1021.3	1021.3	1031.75	1021.3	1013.3	1031.85	1021.3	1013.3
BT		1067.55	1021.3	1013.3	1067.6	1021.3	1013.3	1081.65	1021.3	1013.3
BT		1081.75	1021.3	1013.3	1159.25	1021.3	1013.3	1159.35	1021.3	1002
BT		1173.35	1021.3	1002	1173.45	1021.3	1013.3	1249.25	1021.3	1013.3
BT		1249.35	1021.3	1002	1263.35	1021.3	1002	1263.4	1021.3	1013.3
BT		1339.25	1021.3	1013.3	1339.35	1021.3	1002	1353.35	1021.3	1002
BT		1353.45	1021.3	1013.3	1429.25	1021.3	1013.3	1429.35	1021.3	1001.7
BT		1443.35	1021.3	1001	1443.45	1021.3	1013.3	1519.25	1021.3	1013.3
B[illegible]		1519.3	1021.3	1000.6	1533.35	1021.3	1000.4	1533.45	1021.3	1013.3
B[illegible]		1609.25	1021.3	1013.3	1609.35	1021.3	1000	1623.35	1021.3	1000
BT		1623.45	1021.3	1013.3	1699.25	1021.3	1013.3	1699.35	1021.3	1000.2
BT		1713.35	1021.3	1000.4	1713.4	1021.3	1013.3	1789.25	1021.3	1013.3
BT		1789.35	1021.3	1001.5	1803.35	1021.3	1001.7	1803.45	1021.3	1013.3
BT		1879.25	1021.3	1013.3	1879.35	1021.3	1002	1893.35	1021.3	1001.9
BT		1893.45	1021.3	1013.3	1969.25	1021.3	1013.3	1969.3	1021.3	1001.6
BT		1983.35	1021.3	1001.5	1983.45	1021.3	1013.3	2059.25	1021.3	1013.3
BT		2059.35	1021.3	1001.4	2073.35	1021.3	1001.2	2073.45	1021.3	1013.3
BT		2149.15	1021.3	1013.3	2149.25	1021.3	1001	2163.25	1021.3	1000.8
BT		2163.3	1021.3	1013.3	2239.25	1021.3	1013.3	2239.35	1021.3	1000.6
BT		2253.35	1021.3	1000.5	2253.45	1021.3	1013.3	2329.25	1021.3	1013.3
BT		2329.35	1021.3	1000.4	2343.35	1021.3	1000.4	2343.45	1021.3	1013.3
BT		2419.25	1021.3	1013.3	2419.3	1021.3	1000.2	2433.35	1021.3	1000.1
BT		2433.45	1021.3	1013.3	2521.35	1021.3	1013.3	2521.45	1021.3	1013.3
BT		2521.46	1021.3	1021.3						
GR	1014	0	1016	178.26	1018	548.86	1018	1031.74	1018	1031.75
GR	1018	1031.85	1007	1067.55	1007	1067.6	1002	1081.65	1002	1081.75
GR	1002	1159.25	1002	1159.35	1002	1173.35	1002	1173.45	1002	1249.25
GR	1002	1249.35	1002	1263.35	1002	1263.4	1000	1274.95	1000	1324.16
GR	1002	1339.25	1002	1339.35	1002	1353.35	1002	1353.45	1001.7	1429.25
GR	1001.7	1429.35	1001	1443.35	1001	1443.45	1000.6	1519.25	1000.6	1519.3
GR	1000.4	1533.35	1000.4	1533.45	1000	1609.25	1000	1609.35	1000	1623.35
GR	1000	1623.45	1000.2	1699.25	1000.2	1699.35	1000.4	1713.35	1000.4	1713.4
GR	1001.5	1789.25	1001.5	1789.35	1001.7	1803.35	1001.7	1803.45	1002	1879.25

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GR     1002    1879.35    1001.9    1893.35    1001.9    1893.45    1001.6    1969.25    1001.6    1969.3
GR   1001.5    1983.35    1001.5    1983.45    1001.4    2059.25    1001.4    2059.35    1001.2    2073.35
GR   1001.2    2073.45      1001    2149.15      1001    2149.25    1000.8    2163.25    1000.8    2163.3
GR   1000.6    2239.25    1000.6    2239.35    1000.5    2253.35    1000.5    2253.45    1000.4    2329.25
GR   1000.4    2329.35    1000.4    2343.35    1000.4    2343.45    1000.2    2419.25    1000.2    2419.3
GR   1000.1    2433.35    1000.1    2433.45      1002    2478.12      1006     2487.3      1010    2499.64
GR     1014    2511.77      1016    2521.35      1016    2521.45      1016    2521.46      1018    2534.42
GR     1018    2994.04      1016    3150.93      1014     3526.3      1014    3775.45      1014    4005.93
GR     1016    4447.65      1018    4589.05      1018    4805.16      1018    4893.58      1020    5072.48

NC     0.04       0.04     0.025        0.1       0.3
X1        8         68     61.72     1843.6     53.76      41.75     49.79
X3       10
GR     1012          0      1014          9      1016       17.3      1018      25.56      1018      61.72
GR     1016     124.12      1014     209.89      1012     221.36      1010      228.4      1008     234.07
GR     1006     239.63      1004     244.77      1002     248.85      1002     372.75      1004     400.71
GR     1004     410.19      1002     415.35      1000     423.21      1000     483.71      1002     493.65
GR     1004      500.2      1004     516.15      1002     579.28      1002     646.23      1002     655.17
GR     1002     666.21      1002     672.71      1000     754.82      1000      829.3      1002     920.05
GR     1002     933.38      1002     969.51      1002     1005.9      1002    1031.73      1002    1038.52
GR     1000    1639.55      1000    1647.62      1002     1660.8      1004    1663.42      1006    1669.98
GR     1008    1676.15      1010    1681.75      1012    1687.88      1014    1693.07      1016    1777.78
GR     1018     1781.8      1020     1843.6      1020    2086.73      1020    2117.39      1020    2189.48
GR     1018     2202.4      1018    2240.88      1018    2248.87      1016    2255.24      1014    2263.48
GR     1012    2274.12      1010    2287.91      1010    2449.93      1010     2476.5      1010    2778.81
GR     1010    2820.52      1012    3170.04      1014    3196.84      1016    3623.68      1018    3712.11
GR     1018    3991.77      1018    4071.08      1020    4206.31

       END EAST BANK LEVEE (EXISTING)

X1        9         66     449.8    1980.46    132.16     731.37    414.59
X3       10
GR     1014          0      1012      11.61      1012      11.61      1010      80.25      1010     249.36
GR     1012     324.83      1014     424.84      1014      449.8      1012     452.12      1010     454.51
GR     1008     456.71      1006     459.02      1004     461.14      1002     463.43      1002     537.72
GR     1002     559.21      1002     614.12      1004     621.97      1004     636.55      1002     669.02
GR     1002     688.42      1002     793.86      1002     813.36      1002      827.7      1002     855.53
GR     1002     874.19      1002    1176.81      1002    1731.08      1002    1832.03      1002    1870.72
GR     1002    1968.03      1004    1970.09      1006    1972.18      1008    1974.25      1010    1976.32
GR     1012    1978.37      1014    1980.46      1014    2003.48      1012    2008.59      1010     2013.8
GR     1008    2018.93      1006    2024.24      1004    2029.42      1004    2090.36      1006    2098.17
GR     1008    2106.02      1010    2116.63      1010    2192.33      1010    2361.53      1012    2720.37
GR     1012    2729.09      1010    3303.42      1010    3307.88      1012    3354.47      1014    3510.16
GR     1014    3587.35      1014    3638.91      1016    3794.17      1018     3946.5      1020    4047.28
GR     1022    4214.38      1024    4324.09      1026    4441.95      1028    4525.06      1030    4623.85
GR     1032    4705.42

X1        10         82    855.01    2377.24    541.12     725.02    611.26
X3        10                                    2377.24
GR     1008          0      1006      63.97      1006     141.07      1006     192.33      1004     467.37
GR     1004     799.12      1006     802.13      1008     805.15      1010     808.18      1012     811.23
GR     1014     814.36      1016     817.54      1016     855.01      1014     858.51      1012     861.55
GR     1010     864.53      1008     867.34      1006     870.84      1004     873.66      1004     934.87
```

GR	1004	938.18	1004	1018.64	1004	1068.74	1002	1130.38	1002	1155.17
GR	1002	1377.86	1002	1389.76	1002	1434.66	1002	1451.17	1004	1727.92
GR	1004	1730.48	1004	2366.11	1006	2368.35	1008	2370.58	1010	2372.8
GR	1012	2375.02	1014	2377.24	1014	2404.55	1012	2410.51	1010	2595
GR	1010	2619.95	1010	2743.3	1008	2758.11	1008	2791.62	1010	2817.7
GR	1012	2833.77	1014	2844.32	1014	2869.52	1014	2961.59	1014	2989.05
GR	1014	3232.72	1014	3352.62	1014	3369.18	1014	3372.78	1014	3454.11
GR	1014	3460.14	1014	3713.56	1016	3868.6	1018	3922.58	1018	3988.96
GR	1018	4131.29	1018	4159.73	1016	4173.39	1014	4188.25	1014	4283.59
GR	1016	4291.34	1018	4297.96	1020	4304.55	1022	4399.85	1022	4481.74
GR	1020	4487.21	1020	4501.74	1022	4615.54	1024	4769.23	1026	4896
GR	1028	4996.6	1030	5045.05	1032	5094.11	1032	5261.44	1032	5508.27
GR	1034	5605.22	1034	5731.11						

END WEST BANK LEVEE (EXISTING)

NC	0.032	0.032	0.028							
X1	11	64	2405.12	4118.42	627.28	587.52	614.13			
X3	10			2208	1016					
GR	1012	0	1012	84.23	1012	91.16	1012	151.05	1012	160.43
GR	1012	163.6	1012	187.03	1012	208.37	1012	250.91	1012	258.95
GR	1012	319.14	1012	789.21	1012	809.39	1010	830.93	1010	883.68
GR	1012	1284.52	1010	1634.91	1008	1717.18	1006	1858.62	1004	2029.29
GR	1004	2055.93	1004	2132.55	1004	2176.3	1006	2387.11	1008	2394.89
GR	1010	2398.27	1012	2404.14	1012	2405.12	1010	2408.45	1008	2412.29
GR	1006	2439.57	1006	2454.32	1006	2460.44	1006	2500.7	1006	2512.98
GR	1004	2541.45	1004	2736.15	1006	4024.69	1008	4029.72	1010	4035.02
GR	1012	4040.59	1014	4048.01	1016	4057.1	1018	4069.84	1020	4118.42
GR	1020	4502.27	1018	4554.73	1016	5027.27	1016	5402.77	1018	5413.36
GR	1020	5426.13	1022	5441.13	1022	5499.54	1020	5517.62	1020	5590.05
GR	1022	5615.58	1024	5680.17	1024	5762.17	1022	5966.34	1020	6127.6
GR	1020	6135.18	1022	6152.47	1024	6720.88	1026	7063.15		

BEGIN 1ST WEST PIT

X1	12	90	2020.24	5067.86	765	961	536.27			
X3	10	1006								
GR	1012	0	1012	346.79	1012	876.64	1014	1189.22	1014	1335.06
GR	1012	1621.47	1010	1698.42	1008	1789.37	1006	1925.5	1006	1960.12
GR	1008	1964.44	1020	1981.83	1020	2020.24	1008	2034.38	1006	2176.54
GR	1008	2231.82	1008	2607.19	1002	2627.05	1000	2637.97	1000	2645.15
GR	1002	2675.27	1004	2750.54	1006	2786.84	1006	2878.28	1008	2890.2
GR	1008	3104.07	1006	3161.88	1006	3400.65	1010	3426.52	1010	3486.14
GR	1008	3816.35	1008	3831.81	1010	4003.49	1010	4136.67	1012	4326.91
GR	1014	4622.82	1016	5067.86	1016	5106.54	1012	5116.73	1010	5126.87
GR	1008	5157.1	1008	5175.33	1010	5182.44	1014	5204.78	1020	5234.45
GR	1018	5256.85	1016	5297.38	1016	5327.31	1018	5502.04	1020	5554.08
GR	1022	5584.94	1024	5652.61	1024	5725.2	1022	5757.01	1010	5768.84
GR	1010	5789.31	1012	5808.48	1020	5825.7	1020	6270.87	1020	6296.44
GR	1022	6326.83	1016	6338.81	1016	6340.11	1020	6347.92	1020	6423.84
GR	1022	6435.21	1022	6441.14	1020	6532.06	1018	6570.41	998	6580.72
GR	990	6585.51	978	6594	974	6597.44	972	6602.19	970	6622.02

GR	968	6671.45	966	6838.98	966	6869.15	968	6932.28	976	6944.79
[illegible]	982	6948.71	994	6955.56	1006	6962.46	1012	6965.88	1020	6970.24
GR	1022	7028.6	1022	7093.22	1024	7110.95	1024	7263.61	1026	7521.34

BEGIN PROJECT
PHASE 1 LEVEE

X1	13	90	3445	6502.46	752	740	532.88			
X3	10	1006				6992	1006			
GR	1014	32.33	1016	48.53	1016	574.82	1016	883.1	1014	1065.33
GR	1012	1696.98	1008	1701.02	996	1735.71	994	1772.05	994	1843.15
GR	998	1859.93	998	1896.32	1002	1905.74	1006	1914.06	1012	1925.85
GR	1012	2185.92	1014	2205.2	1012	2228.3	1014	2240.81	1014	3122.35
GR	1016	3386.53	1019.65	3445	1012	3564.96	1008	3671.92	1008	3754.02
GR	1012	4035	1012	4115.08	1010	4127.67	1002	4144.06	1004	4282.87
GR	1004	4569.77	1004	4998.42	1010	5009.07	1012	5084.67	1012	5349.43
GR	1010	5562.25	1010	5655.91	1010	5974.79	1012	5984.03	1014	6052.17
GR	1014	6213.2	1012	6265.24	1014	6428.47	1014	6490.61	1018	6502.46
GR	1016	6560.79	1016	6924.54	1018	6949.9	1016	6983.01	996	7006.13
GR	986	7020.79	986	7065.73	992	7135.52	998	7187.44	1000	7222.81
GR	1006	7237.62	1010	7249.84	1016	7272.49	1018	7296.83	1016	7334.04
GR	1014	7461.95	1010	7484.17	1012	7511.37	1018	7524.84	1018	7545.57
GR	1014	7604.31	1014	7638.75	1018	7700.83	1010	7747.37	984	7787.69
GR	984	7883.94	982	7904.3	980	8175.06	980	8271.87	984	8278.21
GR	988	8284.78	992	8291.55	998	8301.5	1002	8308.22	1006	8314.99
GR	1010	8321.97	1016	8341.4	1016	8364.17	1006	8398.01	998	8440.97
GR	998	8460.43	1002	8469.12	1006	8477.62	1012	8490.05	1010.1	8500.27

X[illegible]	14	90	3100	6150.27	646.01	317	509.47			
X3	10	1006				6516	1006			
GR	1018	216.28	1018	580.83	1018	692.53	1012	718.12	1012	737.05
GR	1014	749.94	1016	795.69	1016	813.26	1014	1231.06	1014	1623.37
GR	1014	1643.52	1014	2052.08	1014	2140.29	1016	2654.94	1016	2778.46
GR	1021	3100	1016	3100.48	1016	3165.08	1014	3221.05	1010	3232.8
GR	1008	3243.33	1008	3263.84	1010	3403.46	1012	3535.84	1012	3619.09
GR	1010	3621.85	1004	3635.08	1002	3796.38	1002	3840.23	1004	3951.04
GR	1008	3960.52	1008	4160.55	1006	4272.48	1006	4343.88	1004	4353.49
GR	1004	4706.77	1012	4718.61	1012	5259.25	1012	5409.55	1010	5456.82
GR	1010	5664.15	1014	5678.54	1016	5698.22	1016	5735.28	1014	6063.44
GR	1014	6071.65	1016	6139.27	1020	6150.27	1020	6183.9	1016	6194.27
GR	1016	6342.22	1014	6359.09	1012	6388.89	1012	6410.04	1014	6425.78
GR	1016	6495.3	1016	6509.57	1002	6532.48	988	6555.18	986	6558.67
GR	986	6617.64	988	6656.14	990	6661.17	998	6677.11	1002	6684.95
GR	1010	6700.39	1014	6707.9	1016	6735.94	1018	6747.16	1020	6939.62
GR	1020	7218.58	1018	7233.32	1016	7290.1	1010	7295.29	1008	7297.86
GR	1006	7303.13	1004	7307.13	998	7315.51	994	7319.91	992	7330.28
GR	990	7353.85	988	7369.87	986	7386.91	984	7414.81	982	7445.98
GR	980	7510.53	978	7774.17	976	7798.87	976	7841.68	978	7854.61

	15	80	3180	6242.95	610	293	488.37			
X3	10	1006				7100	1006			
GR	1020	832.98	1020	971.02	1018	985.11	1016	1062.77	1018	1125.97
GR	1022	1144.19	1022	1180.93	1020	1188.16	1016	1228.08	1016	1352.05
GR	1016	1962.68	1016	2066.21	1014	2094.99	1016	2111.09	1016	2410.38
GR	1018	3037.38	1018	3046.43	1023.8	3180	1018	3204.32	1016	3280.61
GR	1012	3308.29	1012	3443.9	1014	3595.21	1014	3657.15	1012	3691.96
GR	1004	3705.77	1004	3914.05	1012	3931.43	1014	3954.12	1010	3994.53
GR	1008	4157.31	1006	4241.85	1004	4307.63	1004	4445.93	1010	4484.5
GR	1010	4584.46	1004	4599.71	1002	4634.06	1004	4847.52	1012	4856.77
GR	1014	4876.61	1014	5088.95	1012	5386.08	1010	5574.24	1010	5646.19
GR	1016	5669.38	1018	6233.44	1022	6242.95	1022	6266.91	1016	6283.38
GR	1014	6295.58	1014	6312.01	1016	6355.16	1016	6414.6	1010	6458.66
GR	1010	6527.18	1016	6551.83	1016	6575.09	1012	6602.98	1008	6663.42
GR	1004	6689.05	1006	6716.16	1012	6739.98	1018	6762.71	1020	6877.8
GR	1020	6920.33	1018	7067.06	1014	7088.31	1000	7100.86	988	7114.14
GR	982	7130.41	982	7238.24	986	7247.43	994	7265.08	996	7274.21
GR	998	7314.22	1002	7346.29	1000	7350.9	1000	7387.48	982	7412.7
X1	16	90	3310	6450.93	620	227	506.66			
X3	10	1006								
GR	1018.7	26.78	1020	531.61	1018	1212.55	1018	2581.93	1018	2591.92
GR	1018	2978.67	1020	3185.23	1020	3191.99	1018	3237.53	1025.02	3310
GR	1016	3466.68	1014	3506.03	1014	3568.44	1012	3635.04	1012	3684.19
GR	1014	3829.97	1014	3830.67	1012	3842.05	1008	3858.65	1008	3965.6
GR	1006	3987.15	1006	4049.31	1008	4084.62	1010	4121.29	1012	4131.63
GR	1014	4141.49	1016	4201.16	1016	4380.07	1016	4552.64	1014	4810.06
GR	1012	4826.86	1008	4838.22	1004	4850.9	1004	5040.39	1006	5043.96
GR	1008	5048.84	1010	5054.85	1012	5063.58	1012	5373.6	1012	5659.28
GR	1014	5669.57	1016	5680.12	1016	5897.42	1018	5946.35	1018	6053.2
GR	1016	6099.22	1016	6157.99	1018	6416.25	1022	6425.92	1022	6450.93
GR	1020	6456.57	1018	6460.36	1014	6467.48	1012	6470.87	1008	6478.64
GR	1006	6487.18	1004	6496.05	1002	6501.75	1000	6506.57	998	6532.28
GR	994	6546.58	992	6553.92	990	6562.89	988	6605.37	988	6677.63
GR	990	6703.2	992	6721.81	994	6725.59	1002	6740.23	1004	6743.73
GR	1006	6747.58	1006	6782.97	1004	6786.58	1002	6789.95	996	6800.43
GR	990	6810.76	988	6814.32	986	6822.44	984	6827.59	980	6836.39
GR	980	6922.62	984	6957.43	986	6990.94	988	6997.45	990	6999.45
GR	996	7007.44	998	7010.88	1002	7018.22	1004	7022.01	1002	7053.59
X1	17	90	8744.78	10774.9	600	600	550			
X3	10					11948.54	1022			
GR	1028	4000	1028	4167.26	1026	4181.52	1028	4223.16	1028	4300.36
GR	1021.1	4308.47	1026	4547.69	1024	4904.14	1022	5271.28	1021.1	5492.36
GR	1020	5841.18	1020	6063.01	1018	7055.62	1018	7334.73	1020	8109.32
GR	1020	8561.81	1023	8744.78	1016	8776.26	1016	8892.28	1010	8941.36
GR	1010	9156.14	1014	9173.97	1016	9328.14	1018	9419.57	1018	9559.29
GR	1018	9732.72	1016	10136.79	1014	10269.34	1010	10343.44	1004	10360.49
GR	1004	10585.21	1010	10601.18	1012	10620.32	1014	10756.95	1016	10774.9
GR	1018	10875.06	1018	11336.6	1016	11440.22	1018	11454.13	1018	11493.54
GR	1016	11646.12	1018	11710.83	1016	11777.4	1010	11867.02	1010	11911.39
GR	1012	11925.64	1022	11948.54	1022	11973.79	1016	11993.53	994	12026.33
GR	992	12080.86	984	12098.95	986	12127.83	980	12165.09	980	12415.82

GR	984	12551.31	984	12753.29	982	12895.1	982	12980.81	976	13304.53
[illegible]	976	13351.51	968	13364.66	968	13460.92	970	13641.18	972	13677.44
[illegible]	984	13702.48	986	13759.06	980	13769.01	978	13838.06	980	13860.36
GR	974	13893.14	978	13929.33	978	13949.57	970	13967.59	970	14022.43
GR	972	14191.85	974	14217.15	986	14228.4	994	14232.74	1002	14236.96
GR	1010	14241.01	1018	14244.79	1024	14247.55	1024	14353.3	1026	14478.37
GR	1026	14623.44	1022	14636.98	1022	14663.63	1026	14674.2	1028	14869.92

END 1ST WEST PIT

X1	18	90	4531.35	6388.38	500	489.73	431.16			
X3	10	1006				7834.1	1024			
GR	1020	3819.14	1022	4000	1022	4011.72	1020	4055.84	1020	4120.86
GR	1022	4444.72	1022	4457.64	1020	4484.2	1018	4516.44	1014	4526.58
GR	1023	4531.35	1010	4621.11	1010	4680.1	1012	4744.01	1014	4755.32
GR	1016	4880.94	1018	5188.02	1018	5382.51	1016	5410.98	1016	6162.3
GR	1016	6343.05	1016	6375.49	1018	6388.38	1018	6623.54	1018	6743.68
GR	1018	7052.61	1018	7261.63	1020	7278.27	1020	7293.94	1018	7312.55
GR	1018	7360.49	1016	7376.1	1010	7412.8	1008	7421.38	1004	7431.43
GR	1004	7633.5	1006	7661.28	1008	7674.66	1008	7784.84	1010	7808.75
GR	1022	7834.1	1024	7863.78	1024	7885.69	1022	7892.66	1018	7909.92
GR	1014	7932.91	1010	7954.71	1008	8037.56	1004	8046.85	1004	8068
GR	1008	8078.24	1018	8100.03	1018	8153.63	994	8167.54	992	8174.91
GR	990	8193.76	984	8208.36	982	8215.13	980	8239.74	978	8390.58
GR	978	8441.56	976	8475.81	976	8528.82	978	8554.84	980	8561.58
GR	980	8720.62	978	9061.24	978	9085.16	970	9099.34	968	9112.52
GR	968	9473.2	970	9867.28	972	9950	974	9964.07	984	9990.14
GR	986	9991.92	994	9995.1	1006	9999.89	1012	10002.32	1024	10007.09
[illegible]	1026	10026.94	1026	10030.27	1024	10034.79	1024	10061.74	1026	10366.32
[illegible]	1026	10511.84	1024	10519.94	1024	10550.36	1026	10558.31	1028	10909.23

END PHASE 1 LEVEE

X1	18.5	90	490	2242.02	470.75	492	470			
X3	10	1006								
GR	1022	33.68	1022	60.82	1020	190.67	1020	417.9	1018	427.26
GR	1018	450.7	1020	458.42	1022	466.71	1027.1	477.39	1024	490
GR	1022	499.5	1018	516.77	1016	545.46	1012	553.09	1012	680.32
GR	1014	689.64	1016	699.28	1016	816.02	1018	1504.15	1018	1613.95
GR	1018	1736.93	1018	1810.74	1016	2186.97	1016	2210.72	1022	2229.57
GR	1026	2242.02	1026	2299.25	1024	2341.44	1022	2543.38	1020	2672.57
GR	1020	2940.04	1020	3157.83	1020	3412.24	1022	3423.52	1022	3435.71
GR	1020	3455.58	1020	3756.18	1018	3836.26	1016	3852.22	1014	3860.52
GR	1014	3889.83	1012	3901.62	1010	3911.96	1008	3918.93	1004	3933.12
GR	1002	3949.6	1000	3978.62	1000	4014.58	1002	4084.94	1004	4095.65
GR	1006	4105.81	1008	4113.76	1012	4127	1016	4140.69	1018	4153.67
GR	1022	4160.43	1026	4167.24	1028	4171.19	1028	4188.53	1024	4199.05
GR	1022	4222.34	1020	4233.15	1018	4241.77	1014	4256.58	1010	4288.2
GR	1008	4303.46	1006	4323.69	1004	4346.41	1002	4424.81	1000	4587.79
GR	998	4659.43	998	5123.52	1000	5497.87	1000	5822.08	1002	5851.49
GR	1004	5868.65	1008	5893.18	1012	5917.37	1016	5936.8	1018	5949.09
GR	1020	5964.24	1022	5976.63	1022	6000.96	1024	6020.49	1024	6059.05

GR	1022	6082.61	1022	6193.48	1024	6421.46	1026	6485.23	1026	6538.38

CAMELBACK ROAD LOW CHORD = 1027.5

NC	0.022	0.022	0.022	0.3	0.5					
X1	19	90	2217.43	4008.82	207.77	177.82	198.13			
X3	10									
BT	-62	2261.43	1034.2	1034.2	2261.53	1037	1027.5	2296.63	1037.3	1027.8
BT		2373	1038.1	1028.6	2373.13	1038.1	1012	2379.13	1038.1	1012.2
BT		2379.23	1038.1	1028.6	2488.13	1039	1029.5	2488.23	1039	1012
BT		2494.23	1039	1012	2494.33	1039	1029.5	2603.13	1039.8	1030.3
BT		2603.23	1039.8	1016.1	2609.2	1039.8	1016.2	2609.33	1039.8	1030.3
BT		2718.13	1040.4	1030.9	2718.23	1040.4	1016.5	2724.23	1040.4	1016.5
BT		2724.33	1040.4	1030.9	2833.13	1040.8	1031.3	2833.23	1040.8	1016.85
BT		2839.23	1040.8	1016.9	2839.33	1040.8	1031.3	2948.1	1041.1	1031.6
BT		2948.23	1041.2	1017.1	2954.23	1041.1	1017.16	2954.33	1041.1	1031.6
BT		3063.13	1041.3	1031.8	3063.23	1041.3	1017.32	3069.23	1041.3	1017.34
BT		3069.33	1041.3	1031.8	3124.03	1041.3	1031.8	3177.93	1041.3	1031.8
BT		3178	1041.3	1017.62	3184.03	1041.3	1017.64	3184.13	1041.3	1031.8
BT		3293.43	1041.1	1031.6	3293.53	1041.1	1018	3299.53	1041.1	1018
BT		3299.63	1041.1	1031.6	3408.03	1040.8	1031.3	3408.13	1040.8	1018
BT		3413.93	1040.8	1018	3414	1040.8	1031.3	3523.43	1040.4	1030.9
BT		3523.53	1040.4	1018	3529.53	1040.4	1018	3529.63	1040.4	1030.9
BT		3637.93	1039.8	1030.3	3638.03	1039.8	1018	3644.03	1039.8	1018
BT		3644.13	1039.8	1030.3	3752.93	1039	1029.5	3753	1039	1018
BT		3759.03	1039	1018	3759.13	1039	1029.5	3868.43	1038.1	1028.6
BT		3868.53	1038.1	1018	3874.53	1038.1	1018	3874.63	1038.1	1028.6
BT		3984.03	1037	1027.5	3984.13	1034.2	1034.2			
GR	1028	0	1028	1099.28	1028	1404.76	1028	1784.7	1028	1978.88
GR	1032	2217.43	1027.5	2261.43	1027.5	2261.53	1019	2296.63	1012	2337.2
GR	1012	2373	1012	2373.13	1012.2	2379.13	1012.2	2379.23	1014	2456.93
GR	1012	2488.13	1012	2488.23	1012	2494.23	1012	2494.33	1016.1	2603.13
GR	1016.1	2603.23	1016.2	2609.2	1016.2	2609.33	1016.5	2718.13	1016.5	2718.23
GR	1016.5	2724.23	1016.55	2724.33	1016.85	2833.13	1016.85	2833.23	1016.9	2839.23
GR	1016.9	2839.33	1017.13	2948.1	1017.1	2948.23	1017.16	2954.23	1017.16	2954.33
GR	1017.3	3063.13	1017.32	3063.23	1017.34	3069.23	1017.3	3069.33	1017.45	3124.03
GR	1017.6	3177.93	1017.62	3178	1017.64	3184.03	1017.64	3184.13	1018	3293.43
GR	1018	3293.53	1018	3299.53	1018	3299.63	1018	3408.03	1018	3408.13
GR	1018	3413.93	1018	3414	1018	3523.43	1018	3523.53	1018	3529.53
GR	1018	3529.63	1018	3637.93	1018	3638.03	1018	3644.03	1018	3644.13
GR	1018	3752.93	1018	3753	1018	3759.03	1018	3759.13	1018	3868.43
GR	1018	3868.53	1018	3874.53	1018	3874.63	1018	3953.13	1022	3967.8
GR	1026	3981.88	1027.5	3984.03	1027.5	3984.13	1028	3987.32	1032	3998.23
GR	1034	4008.82	1030	4310.74	1028	4534.41	1026	4875.07	1024	5210.53
GR	1022	5558.06	1020	5741.22	1018	5778.32	1020	5895.56	1024	6084.21
GR	1024	6191.11	1024	7152.27	1024	7750.28	1024	7995.16	1026	8245.28
X1	20	90	2251.27	3994.32	86.69	67.28	77.93			
X3	10									
BT	-62	2261.43	1034.2	1034.2	2261.53	1037	1027.5	2296.63	1037.3	1027.8
BT		2373	1038.1	1028.6	2373.13	1038.1	1012	2379.13	1038.1	1012
BT		2379.23	1038.1	1028.6	2488.13	1039	1029.5	2488.23	1039	1014
BT		2494.23	1039	1014	2494.33	1039	1029.5	2603.13	1039.8	1030.3

BT		2603.23	1039.8	1014	2609.2	1039.8	1014	2609.33	1039.8	1030.3
BT		2718.13	1040.4	1030.9	2718.23	1040.4	1016.2	2724.23	1040.4	1016.4
BT		2724.33	1040.4	1030.9	2833.13	1040.8	1031.3	2833.23	1040.8	1016.8
BT		2839.23	1040.8	1016.9	2839.33	1040.8	1031.3	2948.1	1041.1	1031.6
BT		2948.23	1041.2	1017	2954.23	1041.1	1017.1	2954.33	1041.1	1031.6
BT		3063.13	1041.3	1031.8	3063.23	1041.3	1017.2	3069.23	1041.3	1017.2
BT		3069.33	1041.3	1031.8	3124.03	1041.3	1031.8	3177.93	1041.3	1031.8
BT		3178	1041.3	1017.4	3184.03	1041.3	1017.5	3184.13	1041.3	1031.8
BT		3293.43	1041.1	1031.6	3293.53	1041.1	1017.8	3299.53	1041.1	1017.9
BT		3299.63	1041.1	1031.6	3408.03	1040.8	1031.3	3408.13	1040.8	1018
BT		3413.93	1040.8	1018	3414	1040.8	1031.3	3523.43	1040.4	1030.9
BT		3523.53	1040.4	1018	3529.53	1040.4	1018	3529.63	1040.4	1030.9
BT		3637.93	1039.8	1030.3	3638.03	1039.8	1018	3644.03	1039.8	1018
BT		3644.13	1039.8	1030.3	3752.93	1039	1029.5	3753	1039	1018
BT		3759.03	1039	1018	3759.13	1039	1029.5	3868.43	1038.1	1028.6
BT		3868.53	1038.1	1018.6	3874.53	1038.1	1019.5	3874.63	1038.1	1028.6
BT		3984.03	1037	1027.5	3984.13	1034.2	1034.2			
GR	1032	0	1032	165.84	1032	492.42	1032	968.29	1032	1028.65
GR	1030	1835.11	1030	2021.46	1032	2197.16	1032	2251.27	1027.5	2261.43
GR	1027.5	2261.53	1019	2296.63	1012	2353.57	1012	2373	1012	2373.13
GR	1012	2379.13	1012	2379.23	1014	2422.26	1014	2488.13	1014	2488.23
GR	1014	2494.23	1014	2494.33	1014	2603.13	1014	2603.23	1014	2609.2
GR	1014	2609.33	1014	2636.7	1016	2663.11	1016.2	2718.13	1016.2	2718.23
GR	1016.4	2724.23	1016.4	2724.33	1016.6	2833.13	1016.8	2833.23	1016.9	2839.23
GR	1016.9	2839.33	1017	2948.1	1017	2948.23	1017.1	2954.23	1017.1	2954.33
GR	1017.2	3063.13	1017.2	3063.23	1017.2	3069.23	1017.2	3069.33	1017.3	3124.03
GR	1017.3	3177.93	1017.4	3178	1017.5	3184.03	1017.6	3184.13	1017.7	3293.43
GR	1017.8	3293.53	1017.9	3299.53	1017.9	3299.63	1018	3408.03	1018	3408.13
GR	1018	3413.93	1018	3414	1018	3523.43	1018	3523.53	1018	3529.53
GR	1018	3529.63	1018	3637.93	1018	3638.03	1018	3644.03	1018	3644.13
GR	1018	3752.93	1018	3753	1018	3759.03	1018	3759.13	1018	3854.87
GR	1018.6	3868.43	1018.6	3868.53	1019.5	3874.53	1019.5	3874.63	1018	3949.96
GR	1020	3957.68	1024	3973.13	1027.5	3984.03	1027.5	3984.13	1030	3994.32
GR	1030	4102.59	1028	4352.73	1026	4558.92	1026	4590.81	1026	5044.87
GR	1026	5149.16	1026	5720.14	1026	6002.35	1026	7321.63	1026	7343.76

BEGIN PHASE 2 LEVEE

NC	0.036	0.042	0.028	0.1	0.3					
X1	20.5	70	5348.41	7070.03	26.76	33.52	24.6			
X3	10									
GR	1028	4000	1026	4658.17	1026	4689.81	1026	4703.17	1026	4703.78
GR	1026	4711.3	1028.97	4838.1	1026	4895.29	1026	4897.03	1026	4991.27
GR	1026	5018.2	1026	5065.98	1026	5126.47	1028	5138.38	1030	5150.23
GR	1030	5249.26	1030	5271.29	1030	5348.41	1028	5353.61	1026	5358.6
GR	1024	5365.1	1022	5372.23	1020	5379.52	1018	5387.49	1016	5408.21
GR	1014	5426.4	1012	5441.07	1012	5470.8	1014	5510.63	1014	5635.6
GR	1014	5758.21	1016	5780.44	1018	6292.03	1018	6779.4	1018	6949.29
GR	1020	6966.64	1020	6986.06	1018	7000.3	1018	7015.29	1020	7045.36
GR	1022	7053.73	1024	7061.95	1026	7070.03	1026	7105.86	1024	7268.63
GR	1024	7378.68	1024	7420.24	1022	7549.56	1022	7686.59	1022	7776.59
GR	1022	7790.85	1022	7855.51	1022	8019.49	1022	8020.95	1022	8647.49
GR	1024	8759.49	1024	8769.17	1022	8840.14	1022	8844.11	1022	8987.54

GR	1022	9056.49	1024	9061.61	1024	9084.9	1022	9091.01	1022	9107.91
	1024	9216.98	1024	9421.4	1024	9434.18	1026	10458.89	1028	11732.77
X1	21	90	2271.01	3995.83	25.41	18.81	17.71			
X3	10									
GR	1028	0	1028	22.63	1026	488.07	1024	999.39	1024	1759.19
GR	1030.2	1761.01	1024	1813.55	1022	1821.09	1022	1830.76	1024	1839.65
GR	1024	1987.82	1022	2054.7	1022	2065.12	1024	2075.73	1026	2087.12
GR	1028	2099.34	1030	2112.38	1030	2271.01	1028	2277.72	1026	2284.56
GR	1024	2290.83	1022	2296.54	1020	2301.67	1018	2307.56	1016	2338.72
GR	1014	2349.09	1012	2363.94	1012	2393.21	1014	2432.24	1016	2487.78
GR	1016	2506.58	1014	2618.09	1014	2704.85	1016	2726.34	1018	3046.04
GR	1018	3207.66	1018	3698.24	1018	3875.91	1020	3890.08	1020	3911.68
GR	1018	3924.31	1018	3944.81	1020	3972.1	1022	3981.16	1024	3988.95
GR	1026	3995.83	1026	4017.6	1024	4029.61	1022	4208.97	1022	4354.29
GR	1020	5111.35	1020	5340.74	1018	5413.47	1018	5591.11	1020	5639.62
GR	1022	5644.42	1024	5680.21	1024	5681.34	1022	5687.48	1020	5693.57
GR	1018	5753.44	1018	5974.81	1020	5983.1	1022	5994.01	1022	6009.6
GR	1020	6013.9	1018	6017.01	1018	6021.2	1020	6354.15	1020	6657.61
GR	1020	6819.37	1020	6907.02	1022	6917.49	1022	6945.48	1020	6949.76
GR	1020	6982.26	1022	7572.8	1022	7578.86	1022	7717.12	1022	7735.5
GR	1022	7786.53	1022	7893.41	1022	7894.16	1022	7947.33	1022	8051.12
GR	1022	8215.36	1024	8215.58	1026	8215.85	1028	8577.66	1028	8635.58
X1	22	88	6613.78	8959.26	476	525	509.85			
X3	10					9130	1030			
GR	1024	4000	1030.51	6613.78	1024	6691.42	1024	6697.76	1024	6708.92
GR	1024	6715.84	1024	6723.28	1024	6769.89	1022	6865.44	1022	6886.31
GR	1022	6939.78	1020	6960.37	1018	7000.19	1016	7125.43	1016	7221.21
GR	1016	7305.62	1014	7344.5	1014	7349.58	1016	7358.58	1016	7448.19
GR	1016	7477.04	1016	7486.92	1016	7568.92	1016	7590.84	1016	7596.76
GR	1018	7613.04	1020	7781.03	1020	7987.7	1018	8080.24	1018	8091.54
GR	1022	8351.31	1022	8441.24	1020	8548.66	1018	8685.25	1018	8813.27
GR	1018	8959.26	1018	8974.61	1018	8989.79	1018	9091.42	1020	9505.09
GR	1022	9570.59	1022	9796.87	1020	9830.94	1020	9850.7	1022	9864.79
GR	1022	10172.54	1022	10226.24	1022	10274.55	1022	10277.01	1022	10368.3
GR	1020	10378.8	1020	10468.6	1022	10473.78	1022	10476.27	1020	10481.94
GR	1020	10506.9	1022	10519.14	1022	10528.11	1020	10544.41	1020	10584.17
GR	1020	10669.4	1020	10685.31	1020	10733.82	1020	10750.52	1022	10759.29
GR	1022	10767.21	1020	10791.39	1020	10804.88	1022	10892.34	1024	11792.39
GR	1024	11797.86	1024	11825.1	1024	11879.82	1024	12652.53	1024	12803.13
GR	1024	12848.79	1026	13083.69	1026	13086.88	1026	13098.35	1028	13155.96
GR	1028	13184.6	1028	13196.48	1028	13276.87	1028	13290.95	1030	13375.86
GR	1032	13454.81	1034	13571.31	1034	13683.11				
X1	23	71	6774.82	9632.83	488	697	484.56			
X3	10					9893	1030			
GR	1026	4000	1031.64	6774.82	1024	6852.72	1024	6858.12	1024	6957.88
GR	1024	6965.61	1024	7039.82	1022	7054.43	1020	7067.13	1020	7245.35
GR	1020	7264.74	1018	7385.87	1016	7391.26	1016	7517.62	1018	7654.24
GR	1020	7728.12	1020	7899.16	1020	7956.36	1020	8209.63	1020	8261.04
GR	1020	8504.86	1018	8528.37	1018	8540.7	1020	8634.25	1022	8649.55
GR	1024	8665.97	1024	8733.15	1022	8771.06	1022	8775.69	1022	8788.88
GR	1022	8793.74	1024	8815.77	1024	8895.97	1024	8934.48	1024	9113.86

GR	1022	9179.24	1022	9184.97	1024	9212.8	1024	9500.94	1024	9514.26
[illegible]	1026	9629.73	1026	9632.83	1026	9650.18	1026	9672.24	1024	9698.57
GR	1022	10473.45	1020	10523.55	1020	11047.41	1022	11078.67	1024	11226.52
GR	1024	11264.94	1024	11334.3	1024	11487.55	1024	11604.22	1024	11840.88
GR	1024	11907.16	1024	11942.12	1024	11949.93	1024	11959.19	1024	11971.7
GR	1024	12129.41	1024	12160.48	1026	13211.86	1028	13245.32	1028	13272.57
GR	1028	13309.53	1030	13328.22	1030	13345.13	1028	13359.77	1028	13366.59
GR	1032	13409.86								

BEGIN 2ND WEST PIT

X1	24	90	4631.58	8095.57	440	724.06	450.96			
X3	10	1018				8280	1030			
GR	1026	4000	1026	4099.86	1026	4507.95	1030	4631.58	1024	4696.45
GR	1026	4709.11	1024	4889.7	1020	4908.37	1020	5089.6	1018	5270.96
GR	1016	5280.23	1016	5349.28	1018	5379.73	1018	5547.47	1020	5563.04
GR	1022	5978.9	1022	6154.92	1020	6364.38	1024	6398.61	1024	6722.02
GR	1024	6747	1026	6902.84	1024	7106.14	1026	7120.18	1026	7192.15
GR	1024	7200.45	1024	7337.11	1026	7348.85	1026	7384.86	1024	7396.5
GR	1024	7414.98	1026	7432.37	1014	7451.25	1020	7478.64	1020	7511.51
GR	996	7526.41	996	7543.13	1000	7601.07	1000	7631.98	996	7652
GR	996	7735.9	1000	7744.39	1006	7749.18	1010	7752.13	1016	7757.19
GR	1018	7761.99	1002	7767.71	1002	7882.49	1004	7936.78	1008	7947.11
GR	1012	8017.25	1016	8022.54	1018	8053.01	1024	8095.57	1024	8160.09
GR	1026	8182.67	1026	8249.19	1024	8269.53	1024	8294.19	1026	8443.78
GR	1026	8530.27	1030	8538.98	1030	8560.13	1032	8576.62	1032	8709.95
GR	1028	8996.1	1020	9009.1	1012	9014.4	1010	9021.29	1008	9058.52
GR	1012	9061.18	1018	9065.1	1024	9068.34	1024	9092.97	1026	9097.87
[illegible]	1026	9281.67	1030	9297.64	1030	9343.92	1026	9364.6	1024	9587.05
GR	1022	9638.4	1022	10581.82	1024	11019.99	1030	11074.81	1030	11175.07
GR	1028	11201.33	1028	11362.37	1032	11427.57	1032	11457.26	1034	11478.79

X1	25	90	4405.5	8713.42	273	510	497.78			
X3	10	1018				8715	1032			
GR	1026	3693.32	1026	4000	1033.43	4405.5	1026	4592.87	1026	4601.88
GR	1028	4723.24	1028	4796.92	1026	4806.57	1024	4815.08	1022	4823.26
GR	1022	4995.47	1020	5153.59	1018	5289.6	1018	5297.22	1020	5330.04
GR	1022	5352.78	1022	5395.18	1020	5431.25	1018	5435.62	1018	5484.29
GR	1022	5543.74	1022	6173.67	1022	6257.55	1024	6270.29	1026	6298.88
GR	1026	6389.85	1026	6885.22	1026	7064.23	1028	7069.64	1028	7073.83
GR	1026	7079.95	1024	7086.1	1022	7183.38	1020	7184.71	1018	7186.53
GR	1016	7187.93	1014	7189.18	1012	7190.48	1010	7191.95	1008	7193.18
GR	1006	7194.54	1004	7195.91	1002	7197.27	1000	7198.65	998	7200
GR	996	7201.37	994	7202.69	992	7203.78	992	7227.59	994	7299.08
GR	996	7328.76	998	7363.35	1000	7406.52	1000	7507.96	1002	7563.43
GR	1002	7583.14	1000	7588	1000	7675.23	1002	7678.04	1004	7680.65
GR	1006	7683.27	1010	7688.49	1012	7743.19	1014	7769.34	1016	7774.57
GR	1018	7780.48	1020	7791.55	1022	7801.73	1024	7867.81	1026	7971.6
GR	1028	8067.01	1028	8312.93	1026	8713.42	1026	8754.73	1028	8814.61
GR	1028	8899.85	1026	9933.69	1026	10291.28	1028	10804.78	1030	10948.05
GR	1032	10952.56	1032	10969.71	1030	10974.32	1030	11085.21	1032	11097.93
GR	1032	11114.56	1032	11151.85	1034	11322.24	1036	11384.51	1038	11546.04

END 2ND WEST PIT

X1	26	90	4453.31	9333.07	180	510	493.04			
X3	10	1018				9598	1032			
GR	1026	3649.04	1026	4000	1033.76	4453.31	1028	4648.64	1028	5051.84
GR	1026	5114.73	1022	5141.78	1020	5226.5	1020	5332.46	1022	5342.15
GR	1022	5458.87	1020	5500.18	1020	5537.51	1022	5618.93	1024	5638.56
GR	1024	5863.22	1020	5873.94	1020	6016.97	1022	6039.1	1024	6416.75
GR	1024	6653.22	1028	6687.87	1028	7110.83	1028	7209.52	1026	7221.44
GR	1026	7234.78	1028	7405.88	1024	7414.84	1022	7487.62	1002	7512.55
GR	1002	7574.83	1004	7669.92	1008	7674.36	1014	7681	1018	7685.43
GR	1022	7689.85	1022	7804.32	1014	7820.34	1008	7837.3	1008	7851.39
GR	1012	7868.8	1012	7877.52	1008	7899.47	1006	7927.94	1006	7968.65
GR	1010	7980.43	1010	8001.33	1006	8013.01	1006	8064.94	1008	8188.19
GR	1010	8207.74	1008	8217.41	1008	8234.71	1010	8266.02	1012	8275.99
GR	1002	8284.09	1002	8291.07	1008	8301.09	1012	8305.89	1018	8312.51
GR	1024	8318.72	1026	8531.33	1026	8549.91	1024	8633.24	1020	8647.39
GR	1020	8676.06	1022	8687.5	1014	8706.49	1014	8713.83	1018	8752.26
GR	1022	8760.95	1028	8770.12	1030	8781.94	1028	8786.73	1028	8802.27
GR	1026	8922.25	1026	9023.81	1028	9277.09	1028	9333.07	1028	10047.74
GR	1028	10287.81	1028	10918.46	1030	11307.06	1034	11317.27	1034	11328.15
GR	1030	11335.98	1030	11427.49	1032	11438.1	1032	11563.61	1034	11668.35
NC	0.04	0.04	0.03							
X1	27	72	4096.2	11724.7	345	712.66	713			
CI	4496	1021.0		4	4	500				
X3	10									
GR	1026	3198.77	1026	3198.77	1028	4000	1034.64	4096.2	1028	4677.28
GR	1028	4728.58	1028	4743.82	1028	4784.2	1026	4791.26	1024	4797.91
GR	1022	4804.19	1020	4811.89	1020	4886.86	1022	5003.7	1024	5040.42
GR	1026	5126.29	1026	5149.18	1026	5199.72	1028	5208.98	1028	5241.98
GR	1028	5355	1028	5374.9	1026	5610.25	1024	5740.26	1024	5866.6
GR	1024	6008.62	1022	6046.24	1020	6051.11	1020	6108.15	1022	6121.37
GR	1022	6218.19	1022	6251.71	1024	6379.54	1026	6783.46	1028	6796.11
GR	1028	7281.28	1028	7341.9	1028	7345.81	1026	7747.82	1026	7768.69
GR	1026	7825.95	1026	7832.43	1028	8016.34	1030	8215.39	1030	8318.05
GR	1030	8332.86	1030	8367.1	1030	8643.13	1030	8691.41	1030	8694.48
GR	1030	8750.86	1028	8945.98	1028	8968.81	1028	10321.08	1028	10404.76
GR	1028	10470.53	1028	10578.64	1030	11146.54	1032	11181.25	1034	11217.84
GR	1034	11376.98	1032	11381.41	1030	11391.55	1030	11395.66	1030	11436.33
GR	1030	11449.17	1030	11461.66	1030	11469.45	1032	11476.14	1032	11501.91
GR	1032	11573.47	1034	11724.7						
X1	28	85	5066.4	13560.5	839	1494	750.56			
CI	5300	1022.0		4	4	550				
X3	10					5666	1050			
GR	1028	4000	1028	4022.53	1036.06	5066.4	1030	5403.56	1030	5446.31
GR	1030	5450.7	1030	5456.73	1030	5481.67	1030	5523	1030	5524.71
GR	1030	5552.37	1030	5771.4	1028	5817.46	1026	5825.87	1024	5839.64
GR	1024	5854.1	1024	5862.98	1022	5869.25	1020	5906.63	1020	5908.52
GR	1022	5959.09	1022	5980.42	1022	5985.91	1024	6002.83	1024	6015.33
GR	1024	6038.29	1024	6078.38	1024	6100.15	1024	6149.71	1024	6187.99
GR	1024	6254.53	1024	6258.38	1024	6278.34	1024	6311.96	1026	6402.36

GR	1028	6427.18	1028	6667.83	1028	6717.07	1028	7128.41	1028	7202.87
[illegible]	1028	7226.94	1028	7261.61	1028	7279.15	1028	7388.49	1028	7680.74
GR	1026	7696.3	1024	7727.37	1022	7850.29	1022	7933.71	1024	8022.66
GR	1026	8243.4	1028	8555.1	1028	8959.22	1028	8973.06	1028	9094.17
GR	1028	9115.69	1028	9233.71	1028	9239.66	1028	9256.88	1026	9272.2
GR	1026	9273.86	1028	9284.09	1030	9700.29	1032	10174.75	1032	10289.68
GR	1030	10333.89	1030	10415.85	1030	10678.87	1030	10688.81	1030	10803.99
GR	1030	10826.24	1030	10953.43	1030	10960.15	1030	10980.44	1030	10985.07
GR	1030	11049.53	1030	11568.9	1030	11773.71	1030	11815.49	1030	12281.16
GR	1032	13044.09	1034	13047.84	1034	13067.03	1032	13071.22	1032	13560.5

FIRST NEW RIVER SECTION U/S OF THE CONFLUENCE

NC	0.045	0.045	0.035	0.1	0.3					
QT	2	29000	29000							

Interpolate cross section between 28 and 29. Use 29 shifted downstrean

X1	28.5	25	4381.29	6011.8	388	1100	600		2.0	
CI	4700	1023.0		4	4	650				
X3	10			4300		5100	1050.0			
GR	1032	4000	1033.73	4014.92	1037.57	4381.29	1032	4755.99	1032	4869.54
GR	1032	4912.84	1030	4983.86	1030	4995.44	1030	5041.07	1028	5079.29
GR	1026	5092.07	1024	5130.2	1024	5263.8	1026	5443.57	1028	5549.29
GR	1030	5586.73	1030	5761.69	1028	5774.08	1028	5799.85	1032	5832.5
GR	1034	5840.24	1036	5848.13	1038	5863.9	1040	6011.8	1040	6017.51
X1	29	25	4381.29	6011.8	388	1100	600			
CI	4900	1024		4	4	850				
X3	10			4381.29		5431.	1050.0			
G[illegible]	1032	4000	1033.73	4014.92	1037.57	4381.29	1032	4755.99	1032	4869.54
GR	1032	4912.84	1030	4983.86	1030	4995.44	1030	5041.07	1028	5079.29
GR	1026	5092.07	1024	5130.2	1024	5263.8	1026	5443.57	1028	5549.29
GR	1030	5586.73	1030	5761.69	1028	5774.08	1028	5799.85	1032	5832.5
GR	1034	5840.24	1036	5848.13	1038	5863.9	1040	6011.8	1040	6017.51
X1	34	30	4332	5478.63	651	582.64	593.37			
CI	4800	1026.0		4	4	800				
X3	10			4332		5478.63				
GR	1034	4000	1039.36	4332	1033.73	4678.26	1036	4699.5	1036	4715.51
GR	1034	4724.89	1032	4770.14	1032	4774.06	1032	4863.48	1030	4904.42
GR	1028	4923.27	1026	4935.08	1026	5109.98	1028	5417.13	1030	5423.5
GR	1032	5429.41	1034	5434.28	1036	5439.06	1040.7	5443.87	1040.7	5478.63
GR	1038	5486.46	1036	5494.43	1034	5502.42	1032	5509.83	1030	5518.14
GR	1030	5645.86	1032	5671.63	1034	5690.2	1036	5708.14	1038	5723.74
X1	35	22	4000	5039.35	448	501.13	508.89			
CI	4500	1027.0		4	4	600				
X3	10					5039.35				
GR	1036	3999	1042.27	4000	1036	4361.25	1036	4376.52	1036	4387.35
GR	1036	4400.35	1034	4414.34	1032	4483.62	1030	4517.49	1028	4526.14
GR	1026	4542.46	1026	4571.26	1026	4593.09	1026	4688.54	1028	4794.93
GR	1030	5009.38	1032	5015.4	1034	5021.41	1036	5027.4	1038	5033.38
GR	1040.7	5039.35	1040.70	5063.07						

	36	28	4082	5095.86	430	670	660			
CI	4600	1028.0		4	4	600				
X3	10			4210		5095.86				
GR	1038	4000	1038	4082.00	1044.34	4210	1038	4305.72	1038	4339.4
GR	1038	4348.55	1038	4362.01	1038	4380.86	1038	4410.02	1036	4463.93
GR	1034	4515.92	1032	4551.79	1030	4580.46	1028	4630.46	1028	4722.21
GR	1028	4770.03	1028	4808.76	1028	4905.38	1028	4937.42	1030	4980.67
GR	1032	5074.38	1034	5079	1036	5083.63	1038	5089.07	1041.66	5095.86
GR	1041.7	5127.91	1041.66	5188.65	1041.66	5262.26				
X1	51.5	42	4000	5078.88	614	500.00	648.12			
CI						0.01				
X3	10									
GR	1045	4000	1038	4057.01	1040	4238.1	1040	4241.66	1040	4323.51
GR	1042	4330.74	1044	4338.07	1046	4345.38	1046	4355.98	1044	4375.4
GR	1042	4390.47	1040	4397.73	1038	4404.73	1036	4411.5	1034	4422.31
GR	1032	4449.85	1032	4464.81	1032	4478.77	1030	4502.78	1030	4779.59
GR	1030	4785.58	1030	4822.62	1032	4884.43	1034	5043.24	1036	5048.46
GR	1038	5055.6	1040	5063.47	1042.85	5072.89	1042.85	5078.88	1040	5101.01
GR	1038	5112.62	1038	5168.93	1040	5205.55	1042	5254.85	1042	5265.37
GR	1042	5265.44	1042	5282.11	1040	5325.67	1038	5363.92	1036	5392.89
GR	1034	5425.24	1034	5437.68						
X1	54	46	4218.21	5295.21	310.22	226.25	263.78			
X3	10									
GR	1038	4000	1038	4020.99	1038	4186.72	1038	4194.81	1038	4196.11
GR	1045	4218.21	1038	4349.31	1036	4356.97	1034	4370.59	1034	4424.53
GR	1036	4435.2	1038	4445.59	1040	4456.12	1042	4466.44	1042	4495.67
GR	1040	4503.32	1038	4510.75	1036	4518.12	1034	4525.48	1032	4532.12
GR	1032	4533.99	1032	4534.03	1030	4545.76	1030	4667.35	1032	4706.34
GR	1032	4710.78	1032	4776.26	1032	4820.96	1030	4920.98	1030	4958.8
GR	1032	5062.3	1034	5267.05	1036	5273.8	1038	5280.55	1040	5287.56
GR	1043.4	5295.21	1043.4	5317.33	1040	5331.95	1038	5344.49	1038	5412.97
GR	1040	5437.75	1042	5477.42	1042	5546.4	1040	5587.32	1038	5618.42
GR	1036	5643.85								
X1	60	38	4181.41	5043.16	928.4	653.57	633.78			
X3	10									
GR	1042	4000	1042	4026.44	1042	4065.27	1044	4084.07	1044	4166.3
GR	1042	4179.37	1045	4181.41	1040	4182.73	1038	4186.04	1036	4189.19
GR	1034	4192.18	1032	4210.69	1032	4291.02	1032	4378.29	1030	4405.74
GR	1030	4420.82	1032	4457.12	1032	4590.48	1032	4605.81	1032	4627.92
GR	1032	4750.53	1032	4754.55	1032	4759.21	1034	4921.68	1034	4981.19
GR	1034	5019.79	1036	5025.89	1038	5031.74	1040	5037.41	1044.80	5043.16
GR	1044.8	5081.2	1040	5091.07	1040	5241.22	1042	5271.5	1044	5328.58
GR	1044	5348.06	1042	5410.5	1040	5447.59				
X1	63	50	4256.1	5073.66	232.02	233.04	222.89			
X3	10			4256.1						
GR	1042	4000	1042	4002.46	1042	4005.07	1042	4046.91	1040	4112.3
GR	1040	4136.61	1042	4145.57	1042	4166.03	1040	4189.9	1038	4212.48
GR	1038	4224.99	1040	4229.5	1042	4234	1044	4238.33	1044	4256.1
GR	1042	4258.85	1040	4261.51	1038	4264.37	1038	4264.37	1036	4267.08

GR	1034	4269.75	1032	4272.47	1032	4329.99	1032	4526.45	1032	4531.07
[illegible]	1032	4639.46	1032	4696.72	1032	4713.6	1032	4725.84	1034	4794.08
[illegible]	1034	4846.28	1034	4871.63	1036	5021.17	1038	5027.07	1040	5032.89
GR	1042	5039.09	1045.23	5045.83	1045.23	5073.66	1042	5082.22	1040	5090.86
GR	1040	5127.69	1040	5139.2	1040	5182.37	1040	5239.7	1040	5261.06
GR	1042	5278.84	1044	5318.47	1044	5390.04	1042	5447.28	1040	5493.84
X1	70.5	42	4394.98	4955.42	735.13	696.73	725.14			
X3	10									
GR	1044	4000	1044	4126.49	1044	4132.05	1044	4133.94	1044	4145.53
GR	1042	4203.51	1042	4211.99	1044	4228.26	1044	4244.1	1042	4258.75
GR	1042	4383.84	1044	4389.43	1046	4394.98	1046	4417.4	1044	4420.11
GR	1042	4422.82	1040	4425.54	1038	4428.25	1036	4430.95	1034	4433.64
GR	1032	4438.88	1032	4583.34	1034	4594.35	1034	4764.14	1034	4812.46
GR	1034	4872.66	1034	4925.82	1036	4930.41	1038	4935	1040	4939.6
GR	1042	4944.37	1044	4949.74	1047.02	4955.42	1047.02	5024.87	1044	5062.67
GR	1042	5074.73	1042	5103.8	1042	5237.74	1042	5271.31	1044	5296.53
GR	1046	5330.91	1046	5404.97						
X1	77	26	4364.84	4793.57	568.51	689.77	636.54			
X3	10									
GR	1044	4000	1044	4327.43	1046	4334.5	1048	4339.83	1048	4364.84
GR	1046	4369.2	1044	4372.51	1042	4375.42	1040	4378.13	1038	4380.72
GR	1036	4383.31	1034	4385.9	1034	4538.55	1034	4671.05	1034	4775.75
GR	1036	4778.2	1038	4780.77	1040	4783.38	1042	4785.96	1044	4788.51
GR	1046	4791.04	1048	4793.57	1050	4914.55	1052	4935.95	1054	4978.18
GR	1054	5068.84								
X1	84	37	4276.52	4785.73	709.65	725.55	702.16			
X[illegible]	10									
GR	1048	4000	1048	4256.6	1050	4263.19	1052	4276.52	1052	4288.06
GR	1050	4292.15	1048	4294.92	1046	4298.08	1044	4300.82	1042	4303.55
GR	1040	4306.39	1038	4309.33	1036	4312.49	1034	4321.74	1034	4426.04
GR	1034	4503.74	1032	4613.12	1032	4672.11	1034	4716.22	1036	4764.89
GR	1038	4767.51	1040	4770.13	1042	4772.74	1044	4775.35	1046	4777.95
GR	1048	4780.54	1050	4783.14	1052	4785.73	1052	4858.98	1052	4912.41
GR	1054	4949.21	1056	4954.27	1056	4985.88	1054	4990.05	1052	4997.51
GR	1050	5022.92	1050	5091.52						
X1	88.8	38	4057.37	4563.57	516.3	423.21	478.14			
X3	10									
GR	1050	4000	1052	4022.47	1052	4057.37	1050	4059.79	1048	4062.22
GR	1046	4064.64	1044	4067.06	1042	4069.48	1040	4071.9	1038	4074.31
GR	1036	4076.71	1034	4205.43	1034	4211.06	1036	4219.98	1038	4247.29
GR	1038	4247.75	1036	4260.37	1036	4403.25	1038	4440.49	1038	4461.79
GR	1038	4496.22	1038	4514.86	1036	4537.4	1036	4543.5	1038	4546.61
GR	1040	4549.49	1042	4551.93	1044	4554.26	1046	4556.55	1048	4558.86
GR	1050	4561.16	1052	4563.57	1052	4912.11	1050	4947.86	1050	4983.89
GR	1052	5254.7	1054	5349.56	1056	5355.31				

T1

T3

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	-10	3			0.00142					

J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	2		-1					-6		

THIS RUN EXECUTED 29OCT97 09:37:19

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HEC-2 WATER SURFACE PROFILES

Version 4.6.2; May 1991
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NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

SUMMARY PRINTOUT TABLE 120

	SECNO	CWSEL	EG	VCH	10*KS	DEPTH	TOPWID	CLSTA	BW	STCHL	XLBEL	STCHR	RBEL
	1.000	1004.84	1006.04	8.79	14.24	8.84	1008.77	.00	.01	394.53	1010.00	1422.94	1010.00
	1.000	1002.55	1003.32	7.02	14.23	6.55	999.92	.00	.01	394.53	1010.00	1422.94	1010.00
	2.000	1005.56	1006.88	9.24	17.23	7.56	1027.70	.00	.01	383.84	1012.00	1440.42	1012.00
	2.000	1003.30	1004.19	7.58	18.78	5.30	1017.31	.00	.01	383.84	1012.00	1440.42	1012.00
	3.000	1006.46	1007.92	9.68	22.44	6.46	1113.79	.00	.01	482.00	1014.00	1621.81	1014.00
	3.000	1004.33	1005.37	8.18	27.10	4.33	1106.74	.00	.01	482.00	1014.00	1621.81	1014.00
	4.000	1007.80	1008.74	7.82	13.80	7.80	1322.80	.00	.01	817.46	1014.00	2156.10	1014.00
	4.000	1005.67	1006.32	6.48	15.62	5.67	1310.60	.00	.01	817.46	1014.00	2156.10	1014.00
	5.000	1008.31	1008.95	6.45	7.75	8.31	1388.42	.00	.01	796.49	1016.00	2270.21	1016.00
*	5.000	1006.13	1006.53	5.07	7.37	6.13	1376.76	.00	.01	796.49	1016.00	2270.21	1016.00
	6.000	1008.20	1009.13	7.72	11.24	8.20	1400.74	.00	.01	972.00	1018.00	2442.20	1018.00
	6.000	1006.07	1006.65	6.07	10.04	6.07	1387.13	.00	.01	972.00	1018.00	2442.20	1018.00
	7.000	1008.27	1009.26	7.97	12.70	8.27	1430.92	.00	.01	1031.85	1018.00	2521.45	1016.00
	7.000	1006.13	1006.77	6.43	12.34	6.13	1417.70	.00	.01	1031.85	1018.00	2521.45	1016.00
	8.000	1008.66	1009.34	6.60	8.86	8.66	1445.83	.00	.01	61.72	1018.00	1843.60	1020.00
	8.000	1006.38	1006.84	5.44	9.81	6.38	1432.61	.00	.01	61.72	1018.00	1843.60	1020.00
	9.000	1009.05	1009.71	6.51	9.05	7.05	1519.79	.00	.01	449.80	1014.00	1980.46	1014.00
	9.000	1006.81	1007.26	5.42	10.48	4.81	1514.93	.00	.01	449.80	1014.00	1980.46	1014.00
	10.000	1009.59	1010.44	7.36	13.47	7.59	1507.25	.00	.01	855.01	1016.00	2377.24	100000.00
	10.000	1007.50	1008.11	6.27	16.77	5.50	1501.81	.00	.01	855.01	1016.00	2377.24	100000.00
	11.000	1010.57	1011.47	7.60	20.74	6.57	1629.12	.00	.01	2405.12	1012.00	4118.42	1020.00
	11.000	1008.73	1009.36	6.41	25.01	4.73	1620.75	.00	.01	2405.12	1012.00	4118.42	1020.00

	SECNO	CWSEL	EG	VCH	10*KS	DEPTH	TOPWID	CLSTA	BW	STCHL	XLBEL	STCHR	RBEL
	12.000	1011.96	1012.89	7.74	34.79	5.96	2293.82	.00	.01	2020.24	1020.00	5067.86	1016.00
	12.000	1010.46	1011.22	6.99	48.63	4.46	2149.06	.00	.01	2020.24	1020.00	5067.86	1016.00
*	13.000	1013.66	1014.20	5.88	17.20	7.66	2680.09	.00	.01	3445.00	1019.65	6502.46	1018.00
*	13.000	1012.29	1012.64	4.75	16.10	6.29	2465.28	.00	.01	3445.00	1019.65	6502.46	1018.00
	14.000	1014.47	1014.89	5.20	10.84	8.47	2577.90	.00	.01	3100.00	1021.00	6150.27	1020.00
	14.000	1013.01	1013.27	4.05	9.44	7.01	2450.99	.00	.01	3100.00	1021.00	6150.27	1020.00
	15.000	1015.00	1015.53	5.83	14.26	9.00	2378.03	.00	.01	3180.00	1023.80	6242.95	1022.00
	15.000	1013.46	1013.79	4.67	11.08	7.46	1938.33	.00	.01	3180.00	1023.80	6242.95	1022.00
*	16.000	1015.65	1016.85	8.77	38.33	9.65	1798.08	.00	.01	3310.00	1025.02	6450.93	1022.00
*	16.000	1014.03	1014.91	7.52	38.52	8.03	1500.22	.00	.01	3310.00	1025.02	6450.93	1022.00
	17.000	1017.69	1018.57	7.70	25.11	13.69	2202.66	.00	.01	8744.78	1023.00	10774.90	1016.00
	17.000	1015.63	1016.50	7.48	22.45	11.63	1013.60	.00	.01	8744.78	1023.00	10774.90	1016.00
	18.000	1018.59	1019.51	4.21	16.86	8.59	3224.39	.00	.01	4531.35	1023.00	6388.38	1018.00
*	18.000	1018.02	1018.51	2.44	7.68	8.02	3209.49	.00	.01	4531.35	1023.00	6388.38	1018.00
*	18.500	1020.47	1022.23	10.66	68.92	8.47	1718.67	.00	.01	490.00	1024.00	2242.02	1026.00
*	18.500	1019.25	1020.48	8.90	80.27	7.25	1709.56	.00	.01	490.00	1024.00	2242.02	1026.00
*	19.000	1022.00	1023.10	8.39	19.60	10.00	1683.61	.00	.01	2217.43	1032.00	4008.82	1034.00
*	19.000	1020.64	1021.28	6.46	16.85	8.64	1672.93	.00	.01	2217.43	1032.00	4008.82	1034.00
	20.000	1022.29	1023.27	7.94	16.38	10.29	1683.51	.00	.01	2251.27	1032.00	3994.32	1030.00
	20.000	1020.85	1021.42	6.10	14.02	8.85	1671.95	.00	.01	2251.27	1032.00	3994.32	1030.00
	20.500	1022.52	1023.33	7.23	18.43	10.52	1685.49	.00	.01	5348.41	1030.00	7070.03	1026.00
	20.500	1020.98	1021.47	5.60	16.69	8.98	1673.54	.00	.01	5348.41	1030.00	7070.03	1026.00
	21.000	1022.51	1023.38	7.47	20.57	10.51	1688.09	.00	.01	2271.01	1030.00	3995.83	1026.00
	21.000	1020.98	1021.52	5.86	19.38	8.98	1677.40	.00	.01	2271.01	1030.00	3995.83	1026.00
	22.000	1023.76	1024.30	5.96	14.79	9.76	2348.79	.00	.01	6613.78	1030.51	8959.26	1018.00
	22.000	1022.08	1022.46	5.01	17.03	8.08	2268.31	.00	.01	6613.78	1030.51	8959.26	1018.00
*	23.000	1024.63	1025.44	7.22	34.44	8.63	2704.40	.00	.01	6774.82	1031.64	9632.83	1026.00
	23.000	1022.94	1023.60	6.50	28.12	6.94	1710.40	.00	.01	6774.82	1031.64	9632.83	1026.00
*	24.000	1025.91	1026.23	4.54	9.59	7.91	3400.65	.00	.01	4631.58	1030.00	8095.57	1024.00
*	24.000	1024.11	1024.36	4.01	10.36	6.11	2786.39	.00	.01	4631.58	1030.00	8095.57	1024.00
	25.000	1026.42	1026.81	5.01	13.28	8.42	3305.25	.00	.01	4405.50	1033.43	8713.42	1026.00
	25.000	1024.60	1024.88	4.26	10.15	6.60	2280.87	.00	.01	4405.50	1033.43	8713.42	1026.00
	26.000	1027.03	1027.31	4.20	7.60	9.03	3360.21	.00	.01	4453.31	1033.76	9333.07	1028.00
	26.000	1025.12	1025.33	3.67	7.89	7.12	2747.16	.00	.01	4453.31	1033.76	9333.07	1028.00

	SECNO	CWSEL	EG	VCH	10*KS	DEPTH	TOPWID	CLSTA	BW	STCHL	XLBEL	STCHR	RBEL
*	27.000	1027.74	1028.36	6.33	28.77	7.74	2958.11	4496.00	500.00	4096.20	1034.64	11724.70	1034.00
*	27.000	1025.88	1026.50	6.31	36.35	5.88	2011.50	4496.00	500.00	4096.20	1034.64	11724.70	1034.00
*	28.000	1029.71	1033.40	15.40	68.28	7.71	611.69	5300.00	550.00	4971.69	1035.33	13560.50	1050.00
	28.000	1028.09	1030.02	11.15	48.24	6.09	598.74	5300.00	550.00	4971.69	1035.33	13560.50	1050.00
*	28.500	1034.48	1034.67	3.55	3.05	11.48	770.88	4700.00	650.00	4311.64	1038.84	6011.80	1050.00
*	28.500	1031.07	1031.49	5.21	10.61	8.07	755.62	4700.00	650.00	4311.64	1038.84	6011.80	1050.00
	29.000	1034.70	1034.82	2.81	1.97	10.70	998.81	4900.00	850.00	4381.29	1037.57	6011.80	1050.00
	29.000	1031.73	1031.97	3.93	5.93	7.73	986.91	4900.00	850.00	4381.29	1037.57	6011.80	1050.00
	34.000	1034.82	1034.99	3.25	3.48	8.82	1071.55	4800.00	800.00	4332.00	1039.36	5478.63	100000.00
*	34.000	1032.14	1032.50	4.78	12.30	6.14	1054.32	4800.00	800.00	4332.00	1039.36	5478.63	100000.00
*	35.000	1034.97	1035.29	4.56	7.96	8.97	856.15	4500.00	600.00	4000.00	1042.27	5039.35	100000.00
	35.000	1032.80	1033.43	6.41	24.19	6.80	840.98	4500.00	600.00	4000.00	1042.27	5039.35	100000.00
	36.000	1035.53	1035.94	5.15	11.17	7.53	812.64	4600.00	600.00	4082.00	100000.00	5095.86	100000.00
	36.000	1034.31	1034.92	6.24	20.85	6.31	804.98	4600.00	600.00	4082.00	100000.00	5095.86	100000.00
*	51.500	1036.29	1037.54	9.00	52.03	6.29	638.96	.00	.01	4000.00	1045.00	5078.88	1042.85
*	51.500	1035.93	1037.39	9.67	65.82	5.93	636.45	.00	.01	4000.00	1045.00	5078.88	1042.85
*	54.000	1037.84	1038.36	5.75	17.54	7.84	863.58	.00	.01	4218.21	1045.00	5295.21	1043.40
*	54.000	1037.78	1038.30	5.82	18.23	7.78	862.45	.00	.01	4218.21	1045.00	5295.21	1043.40
	60.000	1038.89	1039.32	5.31	13.14	8.89	849.63	.00	.01	4181.41	1045.00	5043.16	1044.80
	60.000	1038.85	1039.29	5.33	13.30	8.85	849.53	.00	.01	4181.41	1045.00	5043.16	1044.80
	63.000	1039.13	1039.72	6.15	18.77	7.13	767.59	.00	.01	4256.10	1044.00	5073.66	1045.23
	63.000	1039.10	1039.69	6.18	19.07	7.10	767.46	.00	.01	4256.10	1044.00	5073.66	1045.23
	70.500	1040.47	1041.50	8.13	28.15	8.47	515.82	.00	.01	4394.98	1046.00	4955.42	1047.02
	70.500	1040.46	1041.49	8.14	28.28	8.46	515.78	.00	.01	4394.98	1046.00	4955.42	1047.02
	77.000	1042.13	1043.36	8.92	28.45	8.13	410.89	.00	.01	4364.84	1048.00	4793.57	1048.00
	77.000	1042.12	1043.36	8.92	28.49	8.12	410.88	.00	.01	4364.84	1048.00	4793.57	1048.00
*	84.000	1043.93	1044.49	6.05	9.44	11.93	474.33	.00	.01	4276.52	1052.00	4785.73	1052.00
*	84.000	1043.92	1044.49	6.05	9.45	11.92	474.33	.00	.01	4276.52	1052.00	4785.73	1052.00
*	88.800	1044.35	1045.21	7.45	19.70	10.35	488.03	.00	.01	4057.37	1052.00	4563.57	1052.00
*	88.800	1044.35	1045.21	7.46	19.71	10.35	488.03	.00	.01	4057.37	1052.00	4563.57	1052.00

SUMMARY PRINTOUT TABLE 150

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
	1.000	.00	.00	.00	996.00	69000.00	1004.84	.00	1006.04	14.24	8.79	7851.13	18286.86
	1.000	.00	.00	.00	996.00	39000.00	1002.55	.00	1003.32	14.23	7.02	5553.46	10337.26
	2.000	513.18	.00	.00	998.00	69000.00	1005.56	.00	1006.88	17.23	9.24	7468.15	16621.60
	2.000	513.18	.00	.00	998.00	39000.00	1003.30	.00	1004.19	18.78	7.58	5145.41	9000.58
	3.000	508.26	.00	.00	1000.00	69000.00	1006.46	.00	1007.92	22.44	9.68	7126.16	14566.46
	3.000	508.26	.00	.00	1000.00	39000.00	1004.33	.00	1005.37	27.10	8.18	4767.92	7492.36
	4.000	449.34	.00	.00	1000.00	69000.00	1007.80	.00	1008.74	13.80	7.82	8826.74	18573.21
	4.000	449.34	.00	.00	1000.00	39000.00	1005.67	.00	1006.32	15.62	6.48	6015.06	9866.70
	5.000	175.96	.00	.00	1000.00	69000.00	1008.31	.00	1008.95	7.75	6.45	10703.80	24783.48
*	5.000	175.96	.00	.00	1000.00	39000.00	1006.13	.00	1006.53	7.37	5.07	7687.91	14361.97
	6.000	36.79	1021.30	1013.30	1000.00	69000.00	1008.20	.00	1009.13	11.24	7.72	8938.61	20579.68
	6.000	36.79	1021.30	1013.30	1000.00	39000.00	1006.07	.00	1006.65	10.04	6.07	6420.09	12310.48
	7.000	82.76	1021.30	1013.30	1000.00	69000.00	1008.27	.00	1009.26	12.70	7.97	8661.38	19363.13
	7.000	82.76	1021.30	1013.30	1000.00	39000.00	1006.13	.00	1006.77	12.34	6.43	6067.34	11103.97
	8.000	49.79	.00	.00	1000.00	69000.00	1008.66	.00	1009.34	8.86	6.60	10451.12	23181.43
	8.000	49.79	.00	.00	1000.00	39000.00	1006.38	.00	1006.84	9.81	5.44	7169.71	12450.06
	9.000	414.59	.00	.00	1002.00	69000.00	1009.05	.00	1009.71	9.05	6.51	10598.78	22938.41
	9.000	414.59	.00	.00	1002.00	39000.00	1006.81	.00	1007.26	10.48	5.42	7189.13	12046.25
	10.000	611.26	.00	.00	1002.00	69000.00	1009.59	.00	1010.44	13.47	7.36	9370.31	18800.29
	10.000	611.26	.00	.00	1002.00	39000.00	1007.50	.00	1008.11	16.77	6.27	6218.78	9522.12
	11.000	614.13	.00	.00	1004.00	69000.00	1010.57	.00	1011.47	20.74	7.60	9084.52	15151.74
	11.000	614.13	.00	.00	1004.00	39000.00	1008.73	.00	1009.36	25.01	6.41	6084.83	7798.32
	12.000	536.27	.00	.00	1006.00	69000.00	1011.96	.00	1012.89	34.79	7.74	8919.92	11698.99
	12.000	536.27	.00	.00	1006.00	39000.00	1010.46	.00	1011.22	48.63	6.99	5580.58	5592.45
*	13.000	532.88	.00	.00	1006.00	69000.00	1013.66	.00	1014.20	17.20	5.88	11725.76	16636.81
*	13.000	532.88	.00	.00	1006.00	39000.00	1012.29	.00	1012.64	16.10	4.75	8214.39	9719.25
	14.000	509.47	.00	.00	1006.00	69000.00	1014.47	.00	1014.89	10.84	5.20	13264.50	20953.93
	14.000	509.47	.00	.00	1006.00	39000.00	1013.01	.00	1013.27	9.44	4.05	9623.33	12694.39
	15.000	488.37	.00	.00	1006.00	69000.00	1015.00	.00	1015.53	14.26	5.83	11835.10	18271.29
	15.000	488.37	.00	.00	1006.00	39000.00	1013.46	.00	1013.79	11.08	4.67	8355.08	11715.90
*	16.000	506.66	.00	.00	1006.00	69000.00	1015.65	.00	1016.85	38.33	8.77	7863.42	11145.24
*	16.000	506.66	.00	.00	1006.00	39000.00	1014.03	.00	1014.91	38.52	7.52	5186.47	6283.65

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
	17.000	550.00	.00	.00	1004.00	69000.00	1017.69	.00	1018.57	25.11	7.70	9236.71	13769.86
	17.000	550.00	.00	.00	1004.00	39000.00	1015.63	.00	1016.50	22.45	7.48	5215.15	8231.78
	18.000	431.16	.00	.00	1010.00	69000.00	1018.59	.00	1019.51	16.86	4.21	10408.69	16802.52
*	18.000	431.16	.00	.00	1010.00	39000.00	1018.02	1018.02	1018.51	7.68	2.44	8609.76	14072.51
*	18.500	470.00	.00	.00	1012.00	69000.00	1020.47	1020.47	1022.23	68.92	10.66	6474.43	8311.39
*	18.500	470.00	.00	.00	1012.00	39000.00	1019.25	1019.25	1020.48	80.27	8.90	4382.52	4353.09
*	19.000	198.13	1034.20	1034.20	1012.00	69000.00	1022.00	.00	1023.10	19.60	8.39	8223.79	15583.91
*	19.000	198.13	1034.20	1034.20	1012.00	39000.00	1020.64	.00	1021.28	16.85	6.46	6041.55	9500.60
	20.000	77.93	1034.20	1034.20	1012.00	69000.00	1022.29	.00	1023.27	16.38	7.94	8694.46	17047.06
	20.000	77.93	1034.20	1034.20	1012.00	39000.00	1020.85	.00	1021.42	14.02	6.10	6391.98	10416.57
	20.500	24.60	.00	.00	1012.00	69000.00	1022.52	.00	1023.33	18.43	7.23	9540.36	16071.35
	20.500	24.60	.00	.00	1012.00	39000.00	1020.98	.00	1021.47	16.69	5.60	6959.23	9546.30
	21.000	17.71	.00	.00	1012.00	69000.00	1022.51	.00	1023.38	20.57	7.47	9238.07	15213.85
	21.000	17.71	.00	.00	1012.00	39000.00	1020.98	.00	1021.52	19.38	5.86	6660.45	8858.37
	22.000	509.85	.00	.00	1014.00	69000.00	1023.76	.00	1024.30	14.79	5.96	11852.59	17941.67
	22.000	509.85	.00	.00	1014.00	39000.00	1022.08	.00	1022.46	17.03	5.01	7963.68	9451.87
*	23.000	484.56	.00	.00	1016.00	69000.00	1024.63	.00	1025.44	34.44	7.22	9554.25	11758.42
	23.000	484.56	.00	.00	1016.00	39000.00	1022.94	.00	1023.60	28.12	6.50	6002.99	7354.99
*	24.000	450.96	.00	.00	1018.00	69000.00	1025.91	.00	1026.23	9.59	4.54	15308.59	22284.77
*	24.000	450.96	.00	.00	1018.00	39000.00	1024.11	.00	1024.36	10.36	4.01	9745.77	12113.85
	25.000	497.78	.00	.00	1018.00	69000.00	1026.42	.00	1026.81	13.28	5.01	13781.15	18935.33
	25.000	497.78	.00	.00	1018.00	39000.00	1024.60	.00	1024.88	10.15	4.26	9146.45	12239.30
	26.000	493.04	.00	.00	1018.00	69000.00	1027.03	.00	1027.31	7.60	4.20	16415.68	25021.23
	26.000	493.04	.00	.00	1018.00	39000.00	1025.12	.00	1025.33	7.89	3.67	10638.46	13885.15
*	27.000	713.00	.00	.00	1020.00	69000.00	1027.74	.00	1028.36	28.77	6.33	10897.37	12864.76
*	27.000	713.00	.00	.00	1020.00	39000.00	1025.88	.00	1026.50	36.35	6.31	6182.91	6468.80
*	28.000	750.56	.00	.00	1022.00	69000.00	1029.71	1029.71	1033.40	68.28	15.40	4479.30	8350.06
	28.000	750.56	.00	.00	1022.00	39000.00	1028.09	.00	1030.02	48.24	11.15	3499.29	5614.88
*	28.500	600.00	.00	.00	1023.00	29000.00	1034.48	.00	1034.67	3.05	3.55	8167.27	16592.47
*	28.500	600.00	.00	.00	1023.00	29000.00	1031.07	.00	1031.49	10.61	5.21	5566.67	8904.47
	29.000	600.00	.00	.00	1024.00	29000.00	1034.70	.00	1034.82	1.97	2.81	10327.35	20670.59
	29.000	600.00	.00	.00	1024.00	29000.00	1031.73	.00	1031.97	5.93	3.93	7373.85	11910.50
	34.000	593.37	.00	.00	1026.00	29000.00	1034.82	.00	1034.99	3.48	3.25	8921.11	15536.99
*	34.000	593.37	.00	.00	1026.00	29000.00	1032.14	.00	1032.50	12.30	4.78	6069.23	8269.36

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
*	35.000	508.89	.00	.00	1026.00	29000.00	1034.97	.00	1035.29	7.96	4.56	6365.23	10279.23
	35.000	508.89	.00	.00	1026.00	29000.00	1032.80	.00	1033.43	24.19	6.41	4526.48	5896.26
	36.000	660.00	.00	.00	1028.00	29000.00	1035.53	.00	1035.94	11.17	5.15	5631.45	8678.95
	36.000	660.00	.00	.00	1028.00	29000.00	1034.31	.00	1034.92	20.85	6.24	4650.85	6351.30
*	51.500	648.12	.00	.00	1030.00	29000.00	1036.29	.00	1037.54	52.03	9.00	3222.45	4020.29
*	51.500	648.12	.00	.00	1030.00	29000.00	1035.93	.00	1037.39	65.82	9.67	2998.17	3574.58
*	54.000	263.78	.00	.00	1030.00	29000.00	1037.84	.00	1038.36	17.54	5.75	5039.93	6923.92
*	54.000	263.78	.00	.00	1030.00	29000.00	1037.78	.00	1038.30	18.23	5.82	4979.46	6792.09
	60.000	633.78	.00	.00	1030.00	29000.00	1038.89	.00	1039.32	13.14	5.31	5461.28	8000.84
	60.000	633.78	.00	.00	1030.00	29000.00	1038.85	.00	1039.29	13.30	5.33	5440.85	7951.76
	63.000	222.89	.00	.00	1032.00	29000.00	1039.13	.00	1039.72	18.77	6.15	4713.40	6694.05
	63.000	222.89	.00	.00	1032.00	29000.00	1039.10	.00	1039.69	19.07	6.18	4690.26	6640.19
	70.500	725.14	.00	.00	1032.00	29000.00	1040.47	.00	1041.50	28.15	8.13	3565.84	5465.92
	70.500	725.14	.00	.00	1032.00	29000.00	1040.46	.00	1041.49	28.28	8.14	3560.67	5453.04
	77.000	636.54	.00	.00	1034.00	29000.00	1042.13	.00	1043.36	28.45	8.92	3252.71	5436.98
	77.000	636.54	.00	.00	1034.00	29000.00	1042.12	.00	1043.36	28.49	8.92	3251.36	5433.31
*	84.000	702.16	.00	.00	1032.00	29000.00	1043.93	.00	1044.49	9.44	6.05	4792.34	9437.59
*	84.000	702.16	.00	.00	1032.00	29000.00	1043.92	.00	1044.49	9.45	6.05	4791.71	9435.57
*	88.800	478.14	.00	.00	1034.00	29000.00	1044.35	.00	1045.21	19.70	7.45	3890.16	6533.96
*	88.800	478.14	.00	.00	1034.00	29000.00	1044.35	.00	1045.21	19.71	7.46	3889.45	6532.00

SUMMARY PRINTOUT TABLE 150

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	1.000	69000.00	1004.84	.00	.00	.00	1008.77	.00
	1.000	39000.00	1002.55	-2.29	.00	.00	999.92	.00
	2.000	69000.00	1005.56	.00	.71	.00	1027.70	513.18
	2.000	39000.00	1003.30	-2.25	.75	.00	1017.31	513.18
	3.000	69000.00	1006.46	.00	.90	.00	1113.79	508.26
	3.000	39000.00	1004.33	-2.12	1.03	.00	1106.74	508.26
	4.000	69000.00	1007.80	.00	1.34	.00	1322.80	449.34
	4.000	39000.00	1005.67	-2.13	1.33	.00	1310.60	449.34
	5.000	69000.00	1008.31	.00	.51	.00	1388.42	175.96
*	5.000	39000.00	1006.13	-2.18	.46	.00	1376.76	175.96
	6.000	69000.00	1008.20	.00	-.11	.00	1400.74	36.79
	6.000	39000.00	1006.07	-2.13	-.06	.00	1387.13	36.79
	7.000	69000.00	1008.27	.00	.07	.00	1430.92	82.76
	7.000	39000.00	1006.13	-2.14	.06	.00	1417.70	82.76
	8.000	69000.00	1008.66	.00	.39	.00	1445.83	49.79
	8.000	39000.00	1006.38	-2.28	.25	.00	1432.61	49.79
	9.000	69000.00	1009.05	.00	.39	.00	1519.79	414.59
	9.000	39000.00	1006.81	-2.25	.42	.00	1514.93	414.59
	10.000	69000.00	1009.59	.00	.54	.00	1507.25	611.26
	10.000	39000.00	1007.50	-2.09	.69	.00	1501.81	611.26
	11.000	69000.00	1010.57	.00	.98	.00	1629.12	614.13
	11.000	39000.00	1008.73	-1.85	1.23	.00	1620.75	614.13
	12.000	69000.00	1011.96	.00	1.39	.00	2293.82	536.27
	12.000	39000.00	1010.46	-1.50	1.74	.00	2149.06	536.27
*	13.000	69000.00	1013.66	.00	1.69	.00	2680.09	532.88
*	13.000	39000.00	1012.29	-1.37	1.83	.00	2465.28	532.88
	14.000	69000.00	1014.47	.00	.82	.00	2577.90	509.47
	14.000	39000.00	1013.01	-1.46	.72	.00	2450.99	509.47
	15.000	69000.00	1015.00	.00	.53	.00	2378.03	488.37
	15.000	39000.00	1013.46	-1.55	.44	.00	1938.33	488.37
*	16.000	69000.00	1015.65	.00	.65	.00	1798.08	506.66
*	16.000	39000.00	1014.03	-1.62	.57	.00	1500.22	506.66

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	17.000	69000.00	1017.69	.00	2.04	.00	2202.66	550.00
	17.000	39000.00	1015.63	-2.07	1.60	.00	1013.60	550.00
	18.000	69000.00	1018.59	.00	.90	.00	3224.39	431.16
*	18.000	39000.00	1018.02	-.57	2.40	.00	3209.49	431.16
*	18.500	69000.00	1020.47	.00	1.88	.00	1718.67	470.00
*	18.500	39000.00	1019.25	-1.22	1.23	.00	1709.56	470.00
*	19.000	69000.00	1022.00	.00	1.53	.00	1683.61	198.13
*	19.000	39000.00	1020.64	-1.37	1.39	.00	1672.93	198.13
	20.000	69000.00	1022.29	.00	.29	.00	1683.51	77.93
	20.000	39000.00	1020.85	-1.45	.21	.00	1671.95	77.93
	20.500	69000.00	1022.52	.00	.22	.00	1685.49	24.60
	20.500	39000.00	1020.98	-1.54	.14	.00	1673.54	24.60
	21.000	69000.00	1022.51	.00	.00	.00	1688.09	17.71
	21.000	39000.00	1020.98	-1.53	.00	.00	1677.40	17.71
	22.000	69000.00	1023.76	.00	1.25	.00	2348.79	509.85
	22.000	39000.00	1022.08	-1.68	1.10	.00	2268.31	509.85
*	23.000	69000.00	1024.63	.00	.87	.00	2704.40	484.56
	23.000	39000.00	1022.94	-1.69	.86	.00	1710.40	484.56
*	24.000	69000.00	1025.91	.00	1.28	.00	3400.65	450.96
*	24.000	39000.00	1024.11	-1.80	1.17	.00	2786.39	450.96
	25.000	69000.00	1026.42	.00	.51	.00	3305.25	497.78
	25.000	39000.00	1024.60	-1.82	.49	.00	2280.87	497.78
	26.000	69000.00	1027.03	.00	.61	.00	3360.21	493.04
	26.000	39000.00	1025.12	-1.91	.52	.00	2747.16	493.04
*	27.000	69000.00	1027.74	.00	.70	.00	2958.11	713.00
*	27.000	39000.00	1025.88	-1.85	.76	.00	2011.50	713.00
*	28.000	69000.00	1029.71	.00	1.98	.00	611.69	750.56
	28.000	39000.00	1028.09	-1.62	2.21	.00	598.74	750.56
*	28.500	29000.00	1034.48	.00	4.76	.00	770.88	600.00
*	28.500	29000.00	1031.07	-3.41	2.97	.00	755.62	600.00
	29.000	29000.00	1034.70	.00	.23	.00	998.81	600.00
	29.000	29000.00	1031.73	-2.97	.67	.00	986.91	600.00
	34.000	29000.00	1034.82	.00	.12	.00	1071.55	593.37
*	34.000	29000.00	1032.14	-2.68	.41	.00	1054.32	593.37

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
*	35.000	29000.00	1034.97	.00	.15	.00	856.15	508.89
	35.000	29000.00	1032.80	-2.17	.66	.00	840.98	508.89
	36.000	29000.00	1035.53	.00	.56	.00	812.64	660.00
	36.000	29000.00	1034.31	-1.21	1.52	.00	804.98	660.00
*	51.500	29000.00	1036.29	.00	.76	.00	638.96	648.12
*	51.500	29000.00	1035.93	-.35	1.62	.00	636.45	648.12
*	54.000	29000.00	1037.84	.00	1.56	.00	863.58	263.78
*	54.000	29000.00	1037.78	-.07	1.84	.00	862.45	263.78
	60.000	29000.00	1038.89	.00	1.04	.00	849.63	633.78
	60.000	29000.00	1038.85	-.03	1.07	.00	849.53	633.78
	63.000	29000.00	1039.13	.00	.24	.00	767.59	222.89
	63.000	29000.00	1039.10	-.03	.25	.00	767.46	222.89
	70.500	29000.00	1040.47	.00	1.34	.00	515.82	725.14
	70.500	29000.00	1040.46	-.01	1.36	.00	515.78	725.14
	77.000	29000.00	1042.13	.00	1.66	.00	410.89	636.54
	77.000	29000.00	1042.12	.00	1.66	.00	410.88	636.54
*	84.000	29000.00	1043.93	.00	1.80	.00	474.33	702.16
*	84.000	29000.00	1043.92	.00	1.80	.00	474.33	702.16
*	88.800	29000.00	1044.35	.00	.42	.00	488.03	478.14
*	88.800	29000.00	1044.35	.00	.42	.00	488.03	478.14

SUMMARY OF ERRORS AND SPECIAL NOTES

```
WARNING SECNO=     5.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=    13.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=    13.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=    16.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=    16.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=    18.000  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=    18.000  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=    18.000  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO=    18.500  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=    18.500  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=    18.500  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=    18.500  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=    18.500  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=    18.500  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL

WARNING SECNO=    19.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=    19.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=    23.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=    24.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=    24.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=    27.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=    27.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=    28.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=    28.000  PROFILE=  1  MINIMUM SPECIFIC ENERGY

WARNING SECNO=    28.500  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=    28.500  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=    34.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=    35.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=    51.500  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=    51.500  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=    54.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=    54.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=    84.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=    84.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=    88.800  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=    88.800  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
```

FLOODWAY DATA,
PROFILE NO. 2

STATION	FLOODWAY WIDTH	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WITHOUT FLOODWAY	DIFFERENCE
1.000	1000.	5553.	7.0	1002.5	1004.8	-2.3
2.000	1017.	5145.	7.6	1003.3	1005.6	-2.3
3.000	1107.	4768.	8.2	1004.4	1006.5	-2.1
4.000	1311.	6015.	6.5	1005.7	1007.8	-2.1
5.000	1377.	7688.	5.1	1006.1	1008.3	-2.2
6.000	1387.	6420.	6.1	1006.1	1008.2	-2.1
7.000	1418.	6067.	6.4	1006.2	1008.3	-2.1
8.000	1433.	7170.	5.4	1006.4	1008.7	-2.3
9.000	1515.	7189.	5.4	1006.9	1009.1	-2.2
10.000	1502.	6219.	6.3	1007.5	1009.6	-2.1
11.000	1621.	6085.	6.4	1008.8	1010.6	-1.8
12.000	2149.	5581.	7.0	1010.5	1012.0	-1.5
13.000	2729.	8214.	4.7	1012.3	1013.7	-1.4
14.000	2451.	9623.	4.1	1013.0	1014.5	-1.5
15.000	2361.	8355.	4.7	1013.5	1015.0	-1.5
16.000	2164.	5186.	7.5	1014.1	1015.7	-1.6
17.000	1876.	5215.	7.5	1015.6	1017.7	-2.1
18.000	3260.	8610.	4.5	1018.0	1018.6	-.6
18.500	1710.	4383.	8.9	1019.3	1020.5	-1.2
19.000	1673.	6042.	6.5	1020.6	1022.0	-1.4
20.000	1672.	6392.	6.1	1020.9	1022.3	-1.4
20.500	1674.	6959.	5.6	1021.0	1022.5	-1.5
21.000	1677.	6660.	5.9	1021.0	1022.5	-1.5
22.000	2268.	7964.	4.9	1022.1	1023.8	-1.7
23.000	2151.	6003.	6.5	1022.9	1024.6	-1.7
24.000	3585.	9746.	4.0	1024.1	1025.9	-1.8
25.000	3086.	9146.	4.3	1024.6	1026.4	-1.8
26.000	3645.	10638.	3.7	1025.1	1027.0	-1.9
27.000	2534.	6183.	6.3	1025.8	1027.7	-1.9
28.000	599.	3499.	11.1	1028.1	1029.7	-1.6
28.500	757.	5567.	5.2	1031.1	1034.5	-3.4
29.000	987.	7374.	3.9	1031.7	1034.7	-3.0
34.000	1054.	6069.	4.8	1032.1	1034.8	-2.7
35.000	841.	4526.	6.4	1032.8	1035.0	-2.2
36.000	805.	4651.	6.2	1034.3	1035.5	-1.2
51.500	636.	2998.	9.7	1035.9	1036.3	-.4
54.000	930.	4979.	5.8	1037.7	1037.8	-.1
60.000	850.	5441.	5.3	1038.9	1038.9	.0
63.000	767.	4690.	6.2	1039.1	1039.1	.0
70.500	516.	3561.	8.1	1040.5	1040.5	.0
77.000	411.	3251.	8.9	1042.1	1042.1	.0
84.000	474.	4792.	6.1	1043.9	1043.9	.0

FLOODWAY DATA,
PROFILE NO. 2

STATION	------- FLOODWAY ------- WIDTH	SECTION AREA	MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WITHOUT FLOODWAY	DIFFERENCE
88.800	488.	3889.	7.5	1044.4	1044.4	.0

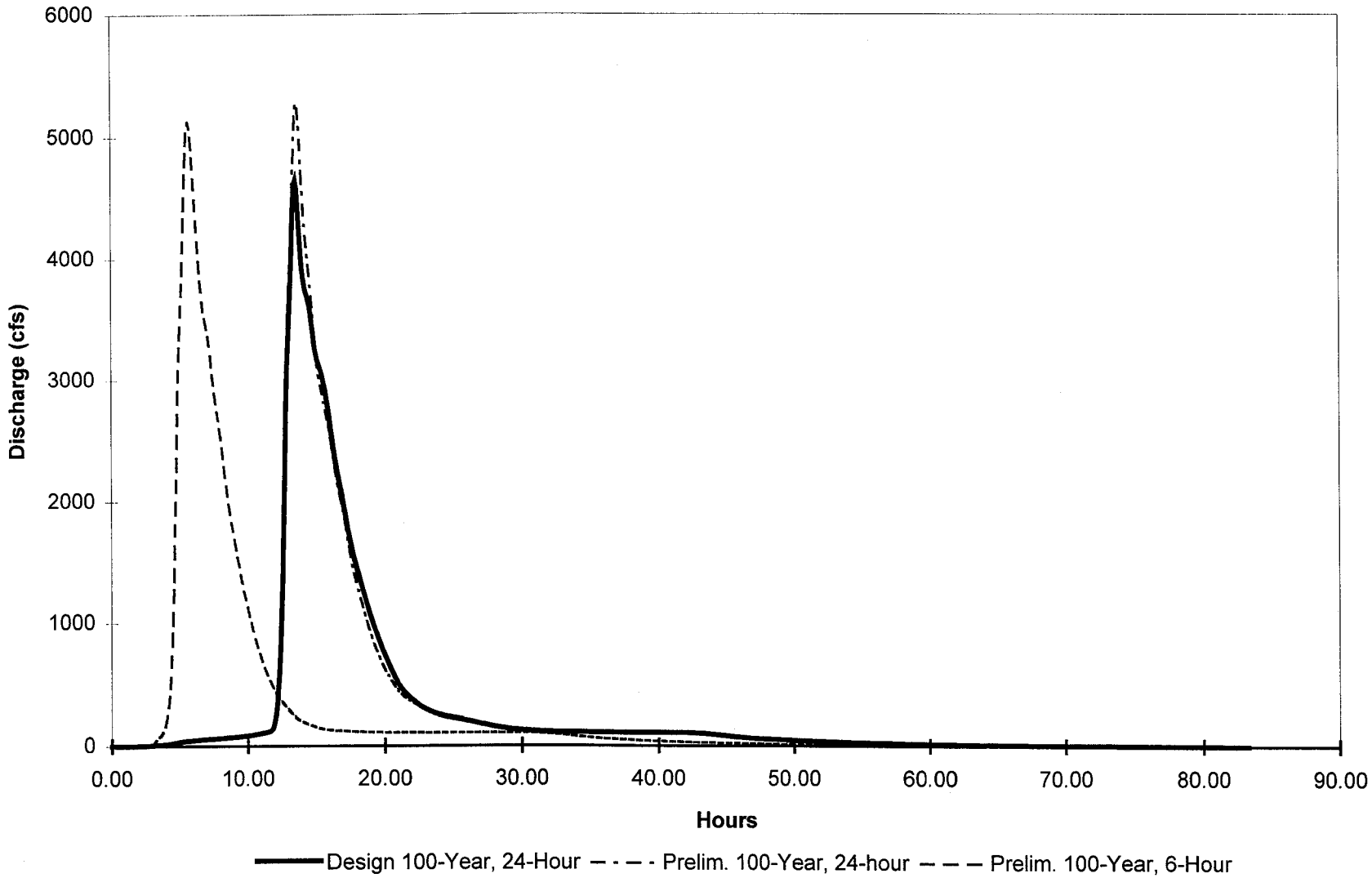
APPENDIX G

NEW RIVER STANDARD PROJECT FLOOD (SPF)

HYDROLOGIC ANALYSIS

Design by: JRM
Checked by: JWG

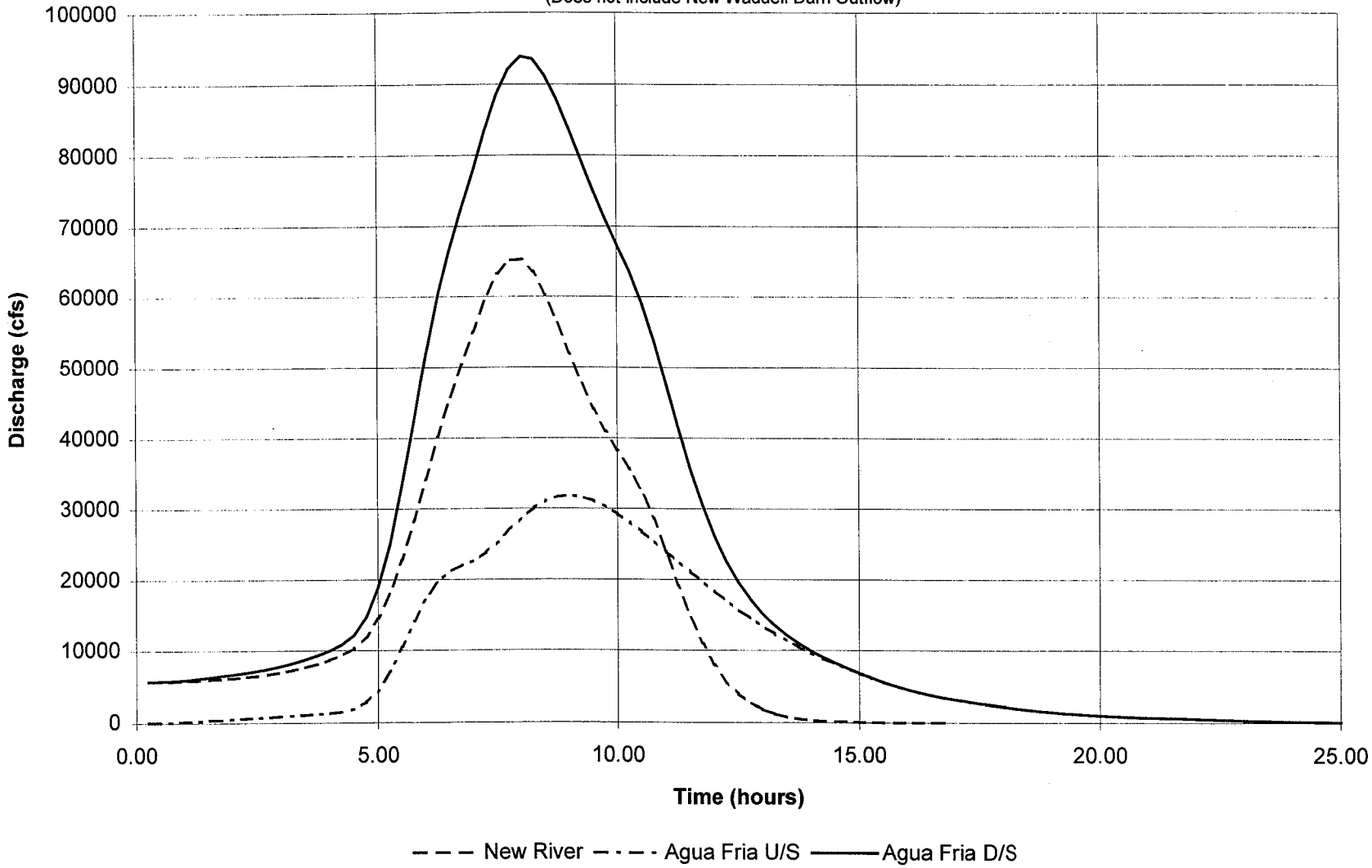
Bethany Home Outfall Channel Hydrograph
(FCDMC Hydrologic Methodology)

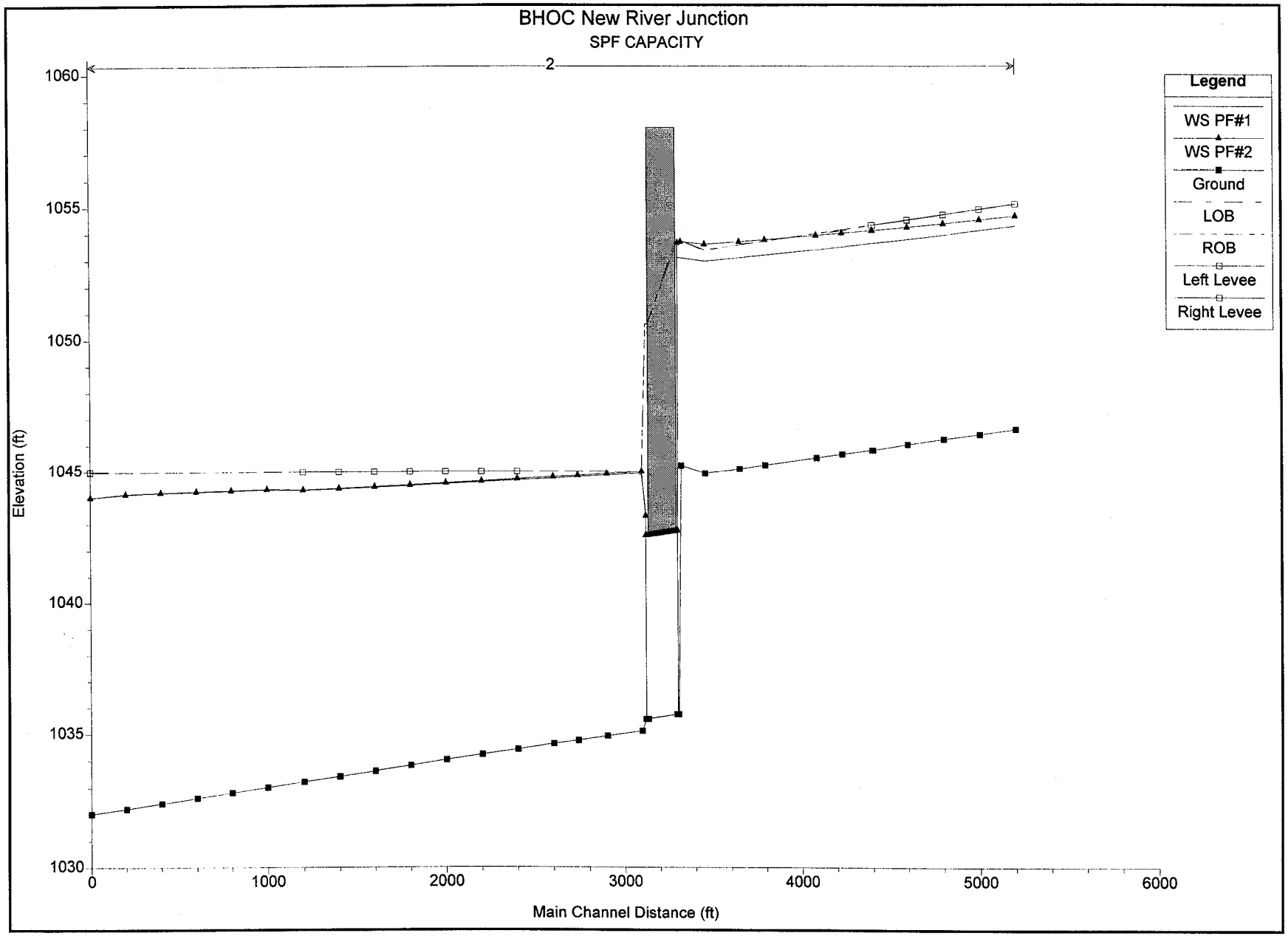


Design by: JRM
Checked by: JWG

New River and Agua Fria River
Standard Project Flood Hydrographs

Provide by: U. S. Army Corps of Engineers - 24 August 1997
(Does not include New Waddell Dam Outflow)




BHOC New River Junction
SPF CAPACITY
2
Legend
WS PF#1
WS PF#2
Ground
LOB
ROB
Left Levee
Right Levee
Elevation (ft)
1060
1055
1050
1045
1040
1035
1030
0
1000
2000
3000
4000
5000
6000
Main Channel Distance (ft)

HEC-RAS Plan: capacity River: BHOC Reach: 2

Reach	River Sta	Q Total	Min Ch El	Max Chl Dpth	W.S. Elev	Crit W.S.	E.G. Elev	Vel Chnl	Flow Area	Top Width	Froude # Chl	Shear Chan
		(cfs)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft/s)	(sq ft)	(ft)		(lb/sq ft)
2	7200	4650.00	1032.01	12.70	1044.00	1038.77	1044.56	6.00	775.00	90.14	0.36	0.13
2	7200	4800.00	1032.01	12.70	1044.00	1038.91	1044.60	6.19	775.00	90.14	0.37	0.14
2	7400	4650.00	1032.20	11.92	1044.12		1044.62	5.77	973.01	166.15	0.35	0.12
2	7400	4800.00	1032.20	11.93	1044.13		1044.66	5.95	974.59	166.25	0.36	0.13
2	7600	4650.00	1032.41	11.76	1044.17		1044.66	5.81	989.73	166.64	0.35	0.12
2	7600	4800.00	1032.41	11.77	1044.18		1044.71	5.98	991.93	166.77	0.36	0.13
2	7800	4650.00	1032.61	11.59	1044.20		1044.72	5.96	957.18	166.94	0.36	0.13
2	7800	4800.00	1032.61	11.61	1044.22		1044.77	6.14	959.72	167.09	0.37	0.14
2	8000	4650.00	1032.81	11.43	1044.24		1044.79	6.09	932.09	167.31	0.37	0.14
2	8000	4800.00	1032.81	11.44	1044.25		1044.84	6.28	935.05	167.48	0.38	0.14
2	8200	4650.00	1033.01	11.27	1044.28		1044.85	6.22	914.26	167.72	0.38	0.14
2	8200	4800.00	1033.01	11.29	1044.30		1044.90	6.40	917.70	167.93	0.39	0.15
2	8400	4650.00	1033.21	11.04	1044.25	1039.99	1044.95	6.73	691.30	86.42	0.42	0.17
2	8400	4800.00	1033.21	11.06	1044.27	1040.11	1045.01	6.93	692.84	86.49	0.43	0.18
2	8600	4650.00	1033.41	10.90	1044.31	1040.18	1045.03	6.85	678.80	85.84	0.43	0.17
2	8600	4800.00	1033.41	10.92	1044.33	1040.30	1045.10	7.05	680.65	85.92	0.44	0.18
2	8800	4650.00	1033.61	10.75	1044.36	1040.37	1045.12	6.98	666.61	85.27	0.44	0.18
2	8800	4800.00	1033.61	10.78	1044.39	1040.50	1045.19	7.18	668.78	85.37	0.45	0.19
2	9000	4650.00	1033.81	10.61	1044.42	1040.58	1045.21	7.10	654.80	84.71	0.45	0.19
2	9000	4800.00	1033.81	10.64	1044.45	1040.70	1045.28	7.30	657.29	84.83	0.46	0.20
2	9200	4650.00	1034.01	10.48	1044.49	1040.77	1045.30	7.23	643.38	84.17	0.46	0.20
2	9200	4800.00	1034.01	10.51	1044.52	1040.90	1045.38	7.43	646.21	84.31	0.47	0.21
2	9400	4650.00	1034.21	10.35	1044.56	1040.98	1045.40	7.35	632.37	83.65	0.47	0.20
2	9400	4800.00	1034.21	10.38	1044.59	1041.10	1045.48	7.55	635.54	83.80	0.48	0.21
2	9600	4650.00	1034.40	10.23	1044.63	1041.17	1045.50	7.47	622.57	83.15	0.48	0.21
2	9600	4800.00	1034.40	10.27	1044.67	1041.29	1045.59	7.67	626.09	83.32	0.49	0.22
2	9800	4650.00	1034.61	10.10	1044.71		1045.60	7.60	611.60	82.66	0.49	0.22
2	9800	4800.00	1034.61	10.14	1044.75		1045.70	7.80	615.47	82.84	0.50	0.23
2	9938	4650.00	1034.74	10.03	1044.77		1045.68	7.67	606.65	82.35	0.50	0.22

HEC-RAS Plan: capacity River: BHOC Reach: 2 (Continued)

Reach	River Sta	Q Total	Min Ch El	Max Chl Dpth	W.S. Elev	Crit W.S.	E.G. Elev	Vel Chnl	Flow Area	Top Width	Froude # Chl	Shear Chan
		(cfs)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft/s)	(sq ft)	(ft)		(lb/sq ft)
2	9938	4800.00	1034.74	10.08	1044.82		1045.77	7.86	610.78	82.55	0.51	0.23
2	10100	4650.00	1034.91	9.92	1044.83		1045.77	7.79	596.93	81.93	0.51	0.23
2	10100	4800.00	1034.91	9.97	1044.88		1045.87	7.98	601.32	82.14	0.52	0.24
2	10297	4650.00	1035.10	9.81	1044.91		1045.89	7.93	586.15	81.25	0.52	0.24
2	10297	4800.00	1035.10	9.87	1044.97		1046.00	8.12	590.86	82.21	0.53	0.25
2	10320	4650.00	1035.55	7.86	1043.41	1043.12	1046.94	15.08	308.38	39.34	0.95	0.93
2	10320	4800.00	1035.55	7.73	1043.28	1043.28	1047.17	15.81	303.56	39.34	1.00	1.02
2	10410 Culvert #1	4650.00										
2	10410 Culvert #1	4800.00										
2	10503	4650.00	1035.73	17.36	1053.09	1043.32	1053.81	6.82	682.13	44.18	0.29	0.16
2	10503	4800.00	1035.73	17.92	1053.65	1043.48	1054.37	6.80	741.77	132.92	0.28	0.16
2	10522	4650.00	1045.20	7.88	1053.08		1053.83	6.97	667.16	84.96	0.44	0.19
2	10522	4800.00	1045.20	8.50	1053.70		1054.39	6.66	740.28	131.37	0.40	0.17
2	10657	4650.00	1044.90	8.05	1052.95		1054.05	8.40	553.51	88.29	0.59	0.28
2	10657	4800.00	1044.90	8.70	1053.60		1054.55	7.83	629.49	156.82	0.53	0.24
2	10851	4650.00	1045.07	8.01	1053.08		1054.20	8.47	549.05	88.00	0.60	0.29
2	10851	4800.00	1045.07	8.63	1053.70		1054.68	7.94	617.66	145.86	0.54	0.25
2	10997	4650.00	1045.22	7.97	1053.19		1054.32	8.53	544.94	87.86	0.60	0.29
2	10997	4800.00	1045.22	8.55	1053.77		1054.78	8.03	599.74	113.60	0.55	0.25
2	11287	4650.00	1045.50	7.90	1053.40		1054.55	8.63	539.01	87.59	0.61	0.30
2	11287	4800.00	1045.50	8.44	1053.94		1054.97	8.17	600.82	130.82	0.56	0.26
2	11431	4650.00	1045.65	7.85	1053.50		1054.67	8.68	535.68	87.53	0.62	0.30
2	11431	4800.00	1045.65	8.37	1054.02		1055.08	8.26	584.78	132.52	0.57	0.27
2	11600	4650.00	1045.80	7.84	1053.64	1051.76	1054.82	8.73	532.58	87.27	0.62	0.31
2	11600	4800.00	1045.80	8.32	1054.12	1051.87	1055.20	8.34	575.48	89.21	0.58	0.27
2	11800	4650.00	1046.02	7.77	1053.79	1051.97	1055.00	8.81	527.88	87.10	0.63	0.31
2	11800	4800.00	1046.02	8.23	1054.25	1052.09	1055.36	8.45	568.07	88.93	0.59	0.28
2	12000	4650.00	1046.22	7.73	1053.95	1052.16	1055.17	8.86	524.57	86.94	0.64	0.32
2	12000	4800.00	1046.22	8.16	1054.38	1052.28	1055.51	8.54	562.09	88.65	0.60	0.29

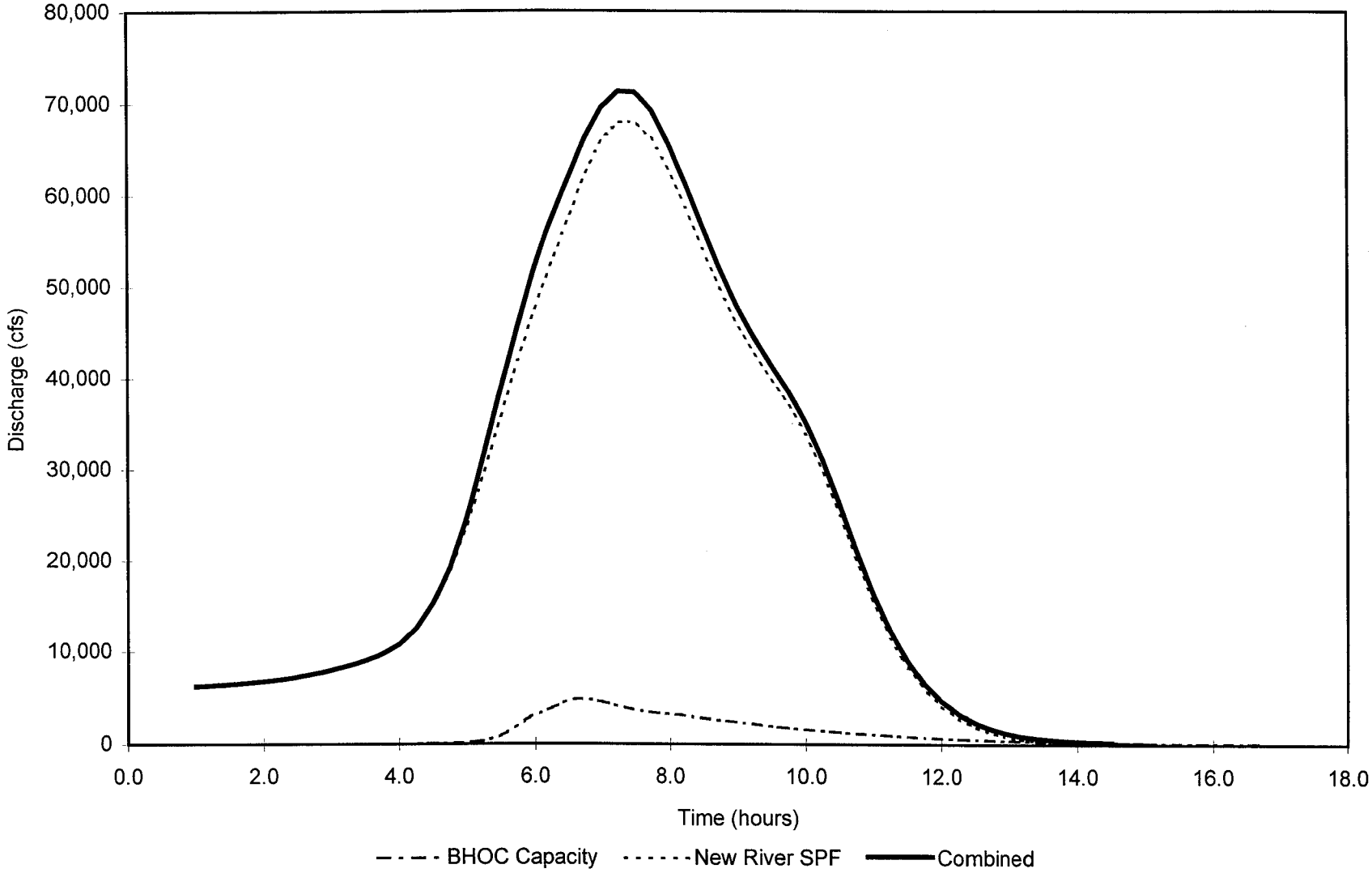
HEC-RAS Plan: capacity River: BHOC Reach: 2 (Continued)

Reach	River Sta	Q Total	Min Ch El	Max Chl Dpth	W.S. Elev	Crit W.S.	E.G. Elev	Vel Chnl	Flow Area	Top Width	Froude # Chl	Shear Chan
		(cfs)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft/s)	(sq ft)	(ft)		(lb/sq ft)
2	12200	4650.00	1046.40	7.73	1054.13	1052.35	1055.35	8.89	523.05	86.83	0.64	0.32
2	12200	4800.00	1046.40	8.12	1054.52	1052.46	1055.67	8.61	557.80	88.42	0.60	0.29
2	12400	4650.00	1046.60	7.69	1054.29	1052.56	1055.53	8.94	520.17	86.70	0.64	0.32
2	12400	4800.00	1046.60	8.06	1054.66	1052.67	1055.84	8.69	552.60	88.19	0.61	0.30

Design by: JRM
Checked by: JRG

New River Standard Project Flood

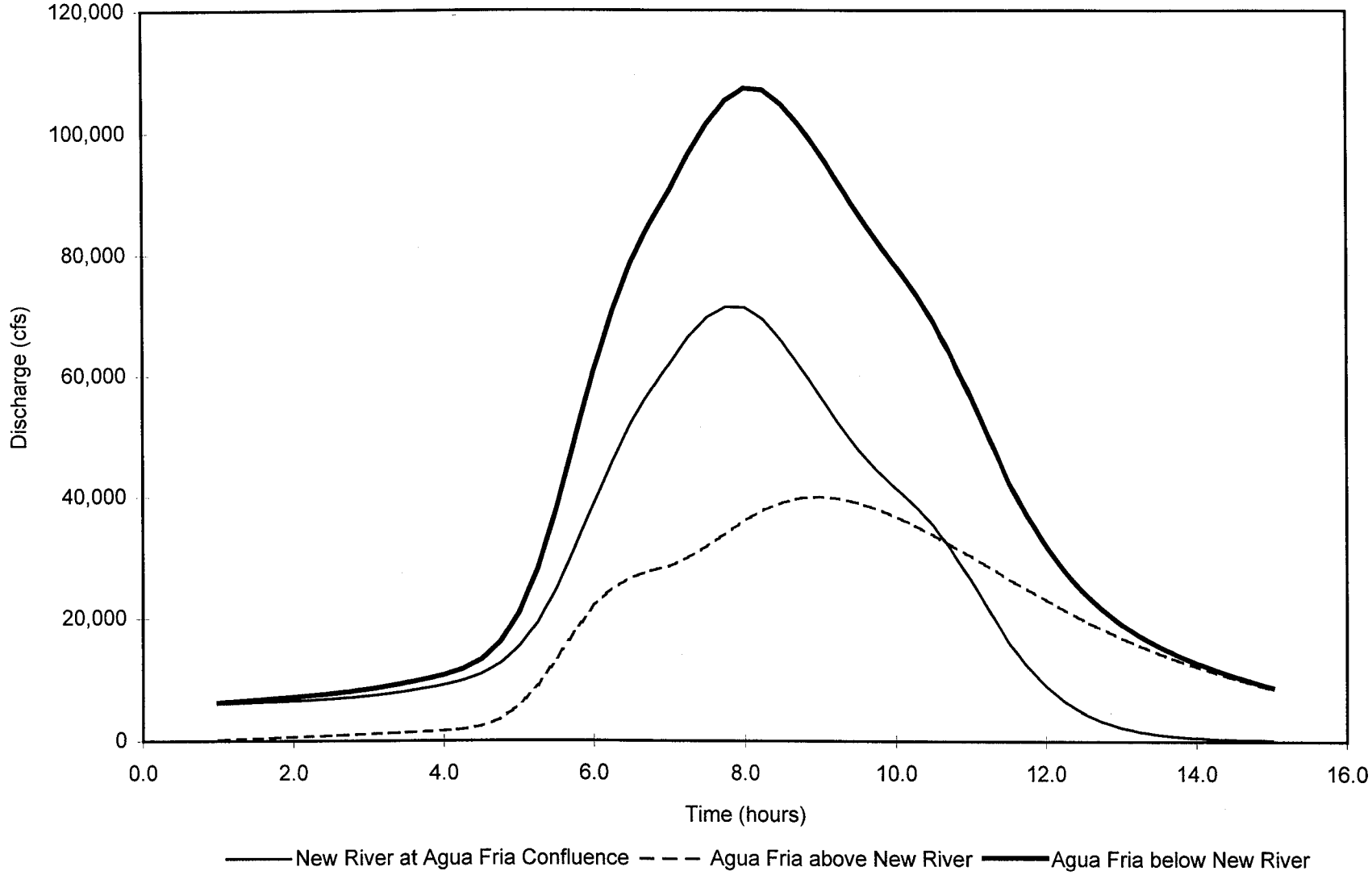
(With the Bethany Home Outfall Channel and the New Waddell Dam)



Design by: JRM
Checked by: _____

Agua Fria River Standard Project Flood

(With the Bethany Home Outfall Channel and the New Waddell Dam)



Peak Q	4,800	68,000	71,264	40,000	107,251
Increase			3,264		67,251

Total hours	BHOC Capacity	New River Corps SPF 7-hr	New River at Agua Fria Confluence	Agua Fria Above New River Corps SPF 7-hr	Agua Fria SPF Below New River Confluence
1.000	0	6007	6007	178	6186
1.083	0	6032	6032	212	6244
1.167	0	6057	6057	246	6303
1.250	0	6082	6082	279	6361
1.333	0	6121	6121	322	6443
1.417	1	6160	6161	365	6526
1.500	1	6199	6200	407	6607
1.583	1	6236	6237	445	6682
1.667	1	6274	6275	484	6759
1.750	1	6312	6312	522	6834
1.833	1	6350	6351	558	6909
1.917	2	6389	6391	595	6986
2.000	2	6427	6429	632	7061
2.083	2	6473	6475	670	7144
2.167	2	6519	6520	708	7228
2.250	2	6564	6566	745	7311
2.333	2	6620	6622	784	7406
2.417	3	6677	6680	823	7504
2.500	3	6734	6737	862	7599
2.583	3	6803	6806	902	7709
2.667	3	6874	6877	943	7819
2.750	3	6943	6946	983	7929
2.833	4	7033	7037	1025	8061
2.917	4	7124	7128	1067	8194
3.000	4	7214	7217	1109	8326
3.083	5	7325	7330	1152	8482
3.167	5	7439	7443	1195	8638
3.250	5	7550	7555	1238	8793
3.333	6	7686	7691	1282	8973
3.417	7	7823	7829	1326	9155
3.500	7	7958	7965	1370	9335
3.583	8	8118	8125	1415	9540
3.667	8	8279	8288	1461	9748
3.750	9	8439	8448	1506	9954
3.833	10	8620	8630	1552	10182
3.917	13	8804	8817	1599	10416
4.000	16	8985	9001	1645	10646
4.083	21	9214	9235	1723	10958
4.167	31	9446	9476	1802	11279
4.250	43	9674	9717	1880	11598

Peak Q	4,800	68,000	71,264	40,000	107,251
Increase			3,264		67,251

Total hours	BHOC Capacity	New River Corps SPF 7-hr	New River at Agua Fria Confluence	Agua Fria Above New River Corps SPF 7-hr	Agua Fria SPF Below New River Confluence
4.333	52	10018	10070	2043	12113
4.417	64	10367	10430	2208	12638
4.500	71	10711	10782	2370	13152
4.583	79	11273	11352	2738	14090
4.667	88	11842	11930	3111	15041
4.750	102	12404	12506	3479	15985
4.833	121	13295	13416	4176	17592
4.917	148	14196	14344	4881	19225
5.000	184	15087	15271	5578	20849
5.083	229	16333	16562	6664	23226
5.167	292	17595	17887	7762	25649
5.250	380	18841	19221	8848	28069
5.333	505	20482	20987	10282	31269
5.417	678	22143	22821	11734	34555
5.500	916	23783	24700	13168	37868
5.583	1234	25701	26935	14676	41611
5.667	1619	27642	29261	16202	45463
5.750	2042	29559	31601	17710	49311
5.833	2464	31588	34053	19128	53181
5.917	2831	33642	36473	20563	57036
6.000	3111	35671	38782	21981	60763
6.083	3330	37738	41067	22925	63993
6.167	3553	39828	43381	23882	67263
6.250	3825	41894	45719	24826	70545
6.333	4125	43767	47891	25404	73295
6.417	4403	45661	50064	25988	76052
6.500	4615	47533	52149	26566	78715
6.583	4749	49188	53937	26943	80880
6.667	4800	50863	55663	27326	82988
6.750	4773	52518	57290	27703	84994
6.833	4692	54124	58816	27962	86779
6.917	4579	55750	60329	28225	88553
7.000	4444	57356	61800	28484	90284
7.083	4298	58977	63275	28979	92254
7.167	4149	60617	64766	29481	94247
7.250	4003	62238	66241	29977	96217
7.333	3862	63461	67323	30598	97921
7.417	3732	64699	68431	31227	99658
7.500	3613	65922	69535	31848	101383
7.583	3505	66586	70091	32551	102642

Peak Q	4,800	68,000	71,264	40,000	107,251
Increase			3,264		67,251

Total hours	BHOC Capacity	New River Corps SPF 7-hr	New River at Agua Fria Confluence	Agua Fria Above New River Corps SPF 7-hr	Agua Fria SPF Below New River Confluence
7.667	3412	67259	70671	33262	103933
7.750	3341	67923	71264	33965	105229
7.833	3288	67948	71236	34657	105893
7.917	3246	67974	71220	35357	106577
8.000	3203	68000	71203	36049	107251
8.083	3148	67402	70551	36625	107175
8.167	3080	66798	69878	37208	107086
8.250	2999	66200	69199	37784	106984
8.333	2914	65071	67985	38196	106181
8.417	2831	63928	66759	38613	105372
8.500	2754	62799	65553	39025	104577
8.583	2683	61414	64098	39277	103375
8.667	2618	60013	62631	39533	102163
8.750	2557	58628	61185	39785	100970
8.833	2500	57147	59647	39856	99503
8.917	2440	55648	58087	39929	98016
9.000	2373	54166	56540	40000	96540
9.083	2302	52730	55032	39906	94938
9.167	2226	51277	53503	39810	93313
9.250	2148	49841	51989	39716	91704
9.333	2070	48544	50613	39480	90093
9.417	1994	47230	49224	39242	88466
9.500	1924	45933	47856	39006	86862
9.583	1858	44841	46699	38658	85357
9.667	1798	43735	45533	38306	83840
9.750	1746	42643	44389	37959	82348
9.833	1694	41709	43403	37533	80936
9.917	1644	40764	42408	37102	79510
10.000	1596	39830	41425	36676	78101
10.083	1544	38922	40466	36190	76656
10.167	1491	38003	39494	35698	75192
10.250	1441	37095	38536	35213	73749
10.333	1394	36021	37415	34683	72099
10.417	1346	34935	36281	34147	70429
10.500	1298	33861	35159	33618	68777
10.583	1252	32508	33760	33049	66808
10.667	1209	31138	32347	32473	64819
10.750	1169	29784	30954	31903	62857
10.833	1131	28184	29314	31314	60629
10.917	1093	26563	27656	30718	58374

Peak Q	4,800	68,000	71,264	40,000	107,251
Increase			3,264		67,251

Total hours	BHOC Capacity	New River Corps SPF 7-hr	New River at Agua Fria Confluence	Agua Fria Above New River Corps SPF 7-hr	Agua Fria SPF Below New River Confluence
11.000	1055	24963	26018	30129	56147
11.083	1018	23295	24312	29520	53832
11.167	981	21607	22588	28903	51491
11.250	945	19939	20884	28294	49178
11.333	911	18398	19308	27704	47013
11.417	874	16838	17712	27108	44820
11.500	839	15297	16135	26518	42653
11.583	806	13994	14800	25937	40737
11.667	774	12676	13450	25348	38798
11.750	744	11373	12117	24767	36884
11.833	716	10334	11050	24200	35250
11.917	689	9282	9971	23626	33597
12.000	663	8243	8906	23059	31965
12.083	637	7446	8083	22508	30592
12.167	613	6640	7253	21951	29204
12.250	588	5843	6432	21400	27832
12.333	566	5251	5817	20865	26683
12.417	546	4652	5199	20324	25522
12.500	527	4060	4587	19789	24376
12.583	507	3631	4138	19281	23419
12.667	487	3197	3685	18767	22452
12.750	469	2768	3237	18259	21496
12.833	450	2465	2915	17777	20692
12.917	431	2158	2589	17290	19878
13.000	414	1854	2268	16808	19076
13.083	398	1643	2042	16370	18411
13.167	384	1430	1815	15926	17741
13.250	370	1220	1590	15488	17078
13.333	358	1077	1435	15077	16511
13.417	346	932	1278	14660	15938
13.500	335	789	1125	14249	15373
13.583	324	694	1018	13871	14889
13.667	314	597	911	13488	14399
13.750	304	502	805	13110	13915
13.833	293	439	732	12762	13494
13.917	283	375	658	12409	13067
14.000	274	313	586	12061	12647
14.083	264	273	537	11738	12274
14.167	255	232	487	11411	11898
14.250	246	192	437	11088	11525

Peak Q	4,800	68,000	71,264	40,000	107,251
Increase			3,264		67,251

Total hours	BHOC Capacity	New River Corps SPF 7-hr	New River at Agua Fria Confluence	Agua Fria Above New River Corps SPF 7-hr	Agua Fria SPF Below New River Confluence
14.333	237	167	404	10785	11188
14.417	229	141	370	10478	10848
14.500	221	116	337	10175	10512
14.583	214	100	314	9888	10202
14.667	207	84	291	9598	9889
14.750	201	69	270	9311	9581
14.833	196	59	255	9032	9287
14.917	191	49	240	8750	8990
15.000	187	40	226	8471	8697
14.083	183	273	455	11738	12193
14.167	179	232	411	11411	11822
14.250	175	192	367	11088	11455
14.333	172	167	338	10785	11123
14.417	168	141	309	10478	10787
14.500	165	116	281	10175	10456
14.583	161	100	261	9888	10150
14.667	157	84	242	9598	9840
14.750	155	69	223	9311	9534
14.833	151	59	210	9032	9242
14.917	148	49	197	8750	8947
15.000	145	40	185	8471	8656
15.083	142	34	176	8207	8383
15.167	140	28	168	7939	8107
15.250	138	23	161	7674	7835
15.333	135	19	154	7428	7583
15.417	133	16	149	7180	7329
15.500	131	13	144	6934	7078
15.583	129	11	140	6707	6847
15.667	127	9	136	6477	6614
15.750	127	7	134	6250	6384
15.833	125	6	131	6052	6183
15.917	124	5	129	5852	5981
16.000	123	4	127	5654	5781
16.083	121	3	124	5478	5603
16.167	121	3	124	5300	5424
16.250	120	2	122	5124	5246
16.333	119	2	121	4970	5091
16.417	118	1	119	4814	4934
16.500	117	1	118	4660	4778
16.583	117	1	118	4526	4644

Peak Q	4,800	68,000	71,264	40,000	107,251
Increase			3,264		67,251

Total hours	BHOC Capacity	New River Corps SPF 7-hr	New River at Agua Fria Confluence	Agua Fria Above New River Corps SPF 7-hr	Agua Fria SPF Below New River Confluence
16.667	116	1	117	4389	4506
16.750	116	1	117	4254	4372

Bethany Home Outfall Channel v.s. New River
(Hydrograph Combinations)

Design By: JRM
Checked By: JMG

Downstream of the New River Confluence			Original	DMJM
Agua Fria River w/o New Waddell Dam =			142,000	144,300
Agua Fria River w/o New Waddell Dam =			94,000	96,300
Peak Q	4,800	68,000	71,264	
Increase above original		69,000	2,264	

Total hours	BHOC Capacity	New River Corps SPF 7-hr	New River at Agua Fria Confluence
1.000	0	6007	6007
1.083	0	6032	6032
1.167	0	6057	6057
1.250	0	6082	6082
1.333	0	6121	6121
1.417	1	6160	6161
1.500	1	6199	6200
1.583	1	6236	6237
1.667	1	6274	6275
1.750	1	6312	6312
1.833	1	6350	6351
1.917	2	6389	6391
2.000	2	6427	6429
2.083	2	6473	6475
2.167	2	6519	6520
2.250	2	6564	6566
2.333	2	6620	6622
2.417	3	6677	6680
2.500	3	6734	6737
2.583	3	6803	6806
2.667	3	6874	6877
2.750	3	6943	6946
2.833	4	7033	7037
2.917	4	7124	7128
3.000	4	7214	7217
3.083	5	7325	7330
3.167	5	7439	7443
3.250	5	7550	7555
3.333	6	7686	7691
3.417	7	7823	7829
3.500	7	7958	7965
3.583	8	8118	8125
3.667	8	8279	8288
3.750	9	8439	8448
3.833	10	8620	8630
3.917	13	8804	8817
4.000	16	8985	9001
4.083	21	9214	9235
4.167	31	9446	9476

Peak Q	4,800	68,000	71,264
Increase above original		69,000	2,264

Total hours	BHOC Capacity	New River Corps SPF 7-hr	New River at Agua Fria Confluence
4.250	43	9674	9717
4.333	52	10018	10070
4.417	64	10367	10430
4.500	71	10711	10782
4.583	79	11273	11352
4.667	88	11842	11930
4.750	102	12404	12506
4.833	121	13295	13416
4.917	148	14196	14344
5.000	184	15087	15271
5.083	229	16333	16562
5.167	292	17595	17887
5.250	380	18841	19221
5.333	505	20482	20987
5.417	678	22143	22821
5.500	916	23783	24700
5.583	1234	25701	26935
5.667	1619	27642	29261
5.750	2042	29559	31601
5.833	2464	31588	34053
5.917	2831	33642	36473
6.000	3111	35671	38782
6.083	3330	37738	41067
6.167	3553	39828	43381
6.250	3825	41894	45719
6.333	4125	43767	47891
6.417	4403	45661	50064
6.500	4615	47533	52149
6.583	4749	49188	53937
6.667	4800	50863	55663
6.750	4773	52518	57290
6.833	4692	54124	58816
6.917	4579	55750	60329
7.000	4444	57356	61800
7.083	4298	58977	63275
7.167	4149	60617	64766
7.250	4003	62238	66241
7.333	3862	63461	67323
7.417	3732	64699	68431
7.500	3613	65922	69535
7.583	3505	66586	70091
7.667	3412	67259	70671
7.750	3341	67923	71264

Peak Q	4,800	68,000	71,264
Increase above original		69,000	2,264

Total hours	BHOC Capacity	New River Corps SPF 7-hr	New River at Agua Fria Confluence
7.833	3288	67948	71236
7.917	3246	67974	71220
8.000	3203	68000	71203
8.083	3148	67402	70551
8.167	3080	66798	69878
8.250	2999	66200	69199
8.333	2914	65071	67985
8.417	2831	63928	66759
8.500	2754	62799	65553
8.583	2683	61414	64098
8.667	2618	60013	62631
8.750	2557	58628	61185
8.833	2500	57147	59647
8.917	2440	55648	58087
9.000	2373	54166	56540
9.083	2302	52730	55032
9.167	2226	51277	53503
9.250	2148	49841	51989
9.333	2070	48544	50613
9.417	1994	47230	49224
9.500	1924	45933	47856
9.583	1858	44841	46699
9.667	1798	43735	45533
9.750	1746	42643	44389
9.833	1694	41709	43403
9.917	1644	40764	42408
10.000	1596	39830	41425
10.083	1544	38922	40466
10.167	1491	38003	39494
10.250	1441	37095	38536
10.333	1394	36021	37415
10.417	1346	34935	36281
10.500	1298	33861	35159
10.583	1252	32508	33760
10.667	1209	31138	32347
10.750	1169	29784	30954
10.833	1131	28184	29314
10.917	1093	26563	27656
11.000	1055	24963	26018
11.083	1018	23295	24312
11.167	981	21607	22588
11.250	945	19939	20884
11.333	911	18398	19308

Bethany Home Outfall Channel v.s. New River
(Hydrograph Combinations)

Design By: JRM
Checked By: JHG

Peak Q	4,800	68,000	71,264
Increase above original		69,000	2,264

Total hours	BHOC Capacity	New River Corps SPF 7-hr	New River at Agua Fria Confluence
11.417	874	16838	17712
11.500	839	15297	16135
11.583	806	13994	14800
11.667	774	12676	13450
11.750	744	11373	12117
11.833	716	10334	11050
11.917	689	9282	9971
12.000	663	8243	8906
12.083	637	7446	8083
12.167	613	6640	7253
12.250	588	5843	6432
12.333	566	5251	5817
12.417	546	4652	5199
12.500	527	4060	4587
12.583	507	3631	4138
12.667	487	3197	3685
12.750	469	2768	3237
12.833	450	2465	2915
12.917	431	2158	2589
13.000	414	1854	2268
13.083	398	1643	2042
13.167	384	1430	1815
13.250	370	1220	1590
13.333	358	1077	1435
13.417	346	932	1278
13.500	335	789	1125
13.583	324	694	1018
13.667	314	597	911
13.750	304	502	805
13.833	293	439	732
13.917	283	375	658
14.000	274	313	586
14.083	264	273	537
14.167	255	232	487
14.250	246	192	437
14.333	237	167	404
14.417	229	141	370
14.500	221	116	337
14.583	214	100	314
14.667	207	84	291
14.750	201	69	270
14.833	196	59	255
14.917	191	49	240

Bethany Home Outfall Channel v.s. New River
(Hydrograph Combinations)

Design By: JRM
Checked By: JWY

Peak Q	4,800	68,000	71,264
Increase above original		69,000	2,264

Total hours	BHOC Capacity	New River Corps SPF 7-hr	New River at Agua Fria Confluence
15.000	187	40	226
14.083	183	273	455
14.167	179	232	411
14.250	175	192	367
14.333	172	167	338
14.417	168	141	309
14.500	165	116	281
14.583	161	100	261
14.667	157	84	242
14.750	155	69	223
14.833	151	59	210
14.917	148	49	197
15.000	145	40	185
15.083	142	34	176
15.167	140	28	168
15.250	138	23	161
15.333	135	19	154
15.417	133	16	149
15.500	131	13	144
15.583	129	11	140
15.667	127	9	136
15.750	127	7	134
15.833	125	6	131
15.917	124	5	129
16.000	123	4	127
16.083	121	3	124
16.167	121	3	124
16.250	120	2	122
16.333	119	2	121
16.417	118	1	119
16.500	117	1	118
16.583	117	1	118
16.667	116	1	117
16.750	116	1	117

FAX TRANSMISSION COVER SHEET

FOR IMMEDIATE DELIVERY

US Army Corps of Engineers
Los Angeles District

DEPARTMENT OF THE ARMY
LOS ANGELES DISTRICT, CORPS OF ENGINEERS
RESERVOIR REGULATION SECTION CESPL-ED-HR
P.O. BOX 2711
LOS ANGELES, CALIFORNIA 90053-2325

PHONE 213-452-3567

FAX (213) 452-4202

To: Amir Motamedi

Telephone Number: 602-506-1501

Firm: MCFCD

Fax Telephone Number: 602-506-4601

Date: Sept 24, 1997

From Jody Fischer

Comments: Attached are the SPF present conditions hydrographs at the New R./Agua Fria R. confluence. They do not include dam outflows.

NUMBER OF PAGES INCLUDING THIS COVER SHEET 3

If you do not recieve all of the pages or if your fax copies are illegible, please call as soon as possible

Present Cond. (re '95 rept.)

For use in comparing shape of hydrographs for future conditions.

File: D:\AFR\NWLAFSPF.OUT ASCII (no mask)

COMBINED HYDROGRAPH

VALUE OF OUTFLOW INTERVALS: 15 15

2 HYDROGRAPHS COMBINED AT 1038 NO. FLOWS= 100 INTERVAL= 15 MINUTES

5646.	5668.	5708.	5761.	5833.	5945.	6053.	6164.	6295.	6458.
6659.	6918.	7241.	7632.	8093.	8617.	9278.	10272.	11896.	14469.
18069.	22809.	28348.	34210.	40178.	45586.	50366.	55006.	59688.	63221.
65140.	65214.	63488.	60226.	56226.	51947.	47799.	44051.	40896.	38198.
35575.	32474.	28564.	23940.	19122.	14670.	10907.	7905.	5604.	3894.
2655.	1778.	1170.	757.	481.	300.	184.	111.	66.	38.
22.	12.	7.	4.	2.	1.	1.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.

New R. U/S Agua Fria R.
Does not include dam outflows.

END-OF-PERIOD

SHIFT
COMMANDS F2 F3 F4 F5 F6 scroll speed
auto scroll

File: D:\AFR\NWLAFSPF.OUT ASCII (no mask)

COMBINED HYDROGRAPH

VALUE OF OUTFLOW INTERVALS: 15 15 15

2 HYDROGRAPHS COMBINED AT 1039 NO. FLOWS= 100 INTERVAL= 15 MINUTES

18.	34.	79.	142.	222.	324.	415.	503.	593.	686.
782.	882.	985.	1090.	1198.	1309.	1496.	1886.	2768.	4438.
7040.	10477.	14091.	17489.	19753.	21137.	22042.	22663.	23851.	25340.
27024.	28682.	30063.	31050.	31655.	31826.	31600.	31035.	30202.	29181.
28017.	26748.	25384.	23972.	22512.	21099.	19706.	18347.	17027.	15745.
14528.	13373.	12323.	11337.	10431.	9596.	8822.	8096.	7408.	6740.
6106.	5517.	4973.	4499.	4077.	3708.	3385.	3100.	2839.	2600.
2373.	2155.	1950.	1760.	1586.	1429.	1290.	1168.	1060.	967.
886.	817.	758.	709.	667.	626.	582.	533.	478.	422.
366.	314.	268.	227.	192.	162.	137.	115.	97.	81.

Agua Fria U/S New R. Does not incl. dam outflows

END-OF-PERIOD

SHIFT
COMMANDS F2 F3 F4 F5 F6 scroll speed
auto scroll

File: D:\AFR\NWLAFSPF.OUT ASCII (no mask)

	PEAK	6-HOUR	24-HOUR	25-HOUR	CFS-PERIOD	ACRE-FEET
CFS	31826.	25954.	9298.	8922.	892243.	18435.

ITQR	ITQO	NRCHS	LOCO	TATMR	LAG	NSTRL	NPULS	STORA	RES
15	15	1	39	.00	0	0	0	0.	0.
AMSKK	X	QLOSS	CQLOS	NHGT	KPNCH	JPNCH	KOUT	NMERGE	LVAT
.000	.000	.0	.000	2	0	0	0	0	0

NO ROUTING PERFORMED

++

COMBINED HYDROGRAPH

++

VALUE OF OUTFLOW INTERVALS: 15 15

áááëáááá

SHIFT

COMMANDS F2 F3 F4 F5 F6 scroll speed

auto scroll

File: D:\AFR\NWLAFSPF.OUT ASCII (no mask)

áá

2 HYDROGRAPHS COMBINED AT 39 NO. FLOWS= 100 INTERVAL= 15 MINUTES

5664.	5702.	5787.	5904.	6056.	6270.	6468.	6668.	6888.	7144.
7442.	7801.	8226.	8722.	9291.	9927.	10773.	12157.	14664.	18907.
25108.	33286.	42440.	51699.	59931.	66723.	72408.	77669.	83539.	88561.
92164.	93896.	93551.	91276.	87881.	83774.	79399.	75086.	71098.	67378.
63592.	59222.	53949.	47912.	41634.	35769.	30614.	26252.	22630.	19639.
17183.	15151.	13493.	12094.	10911.	9896.	9006.	8207.	7473.	6779.
6128.	5529.	4980.	4503.	4079.	3709.	3386.	3100.	2840.	2600.
2373.	2155.	1950.	1760.	1586.	1429.	1290.	1168.	1060.	967.
886.	817.	758.	709.	667.	626.	582.	533.	478.	422.
366.	314.	268.	227.	192.	162.	137.	115.	97.	81.

A.F.R.
D/S of New R.
dam outflow
not incl.

END-OF-PERIOD

PEAK	6-HOUR	24-HOUR	25-HOUR	CFS-PERIOD	ACRE-FEET
93896.	70023.	22743.	21838.	2183761.	45119.

==

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SHIFT

COMMANDS F2 F3 F4 F5 F6 scroll speed

auto scroll

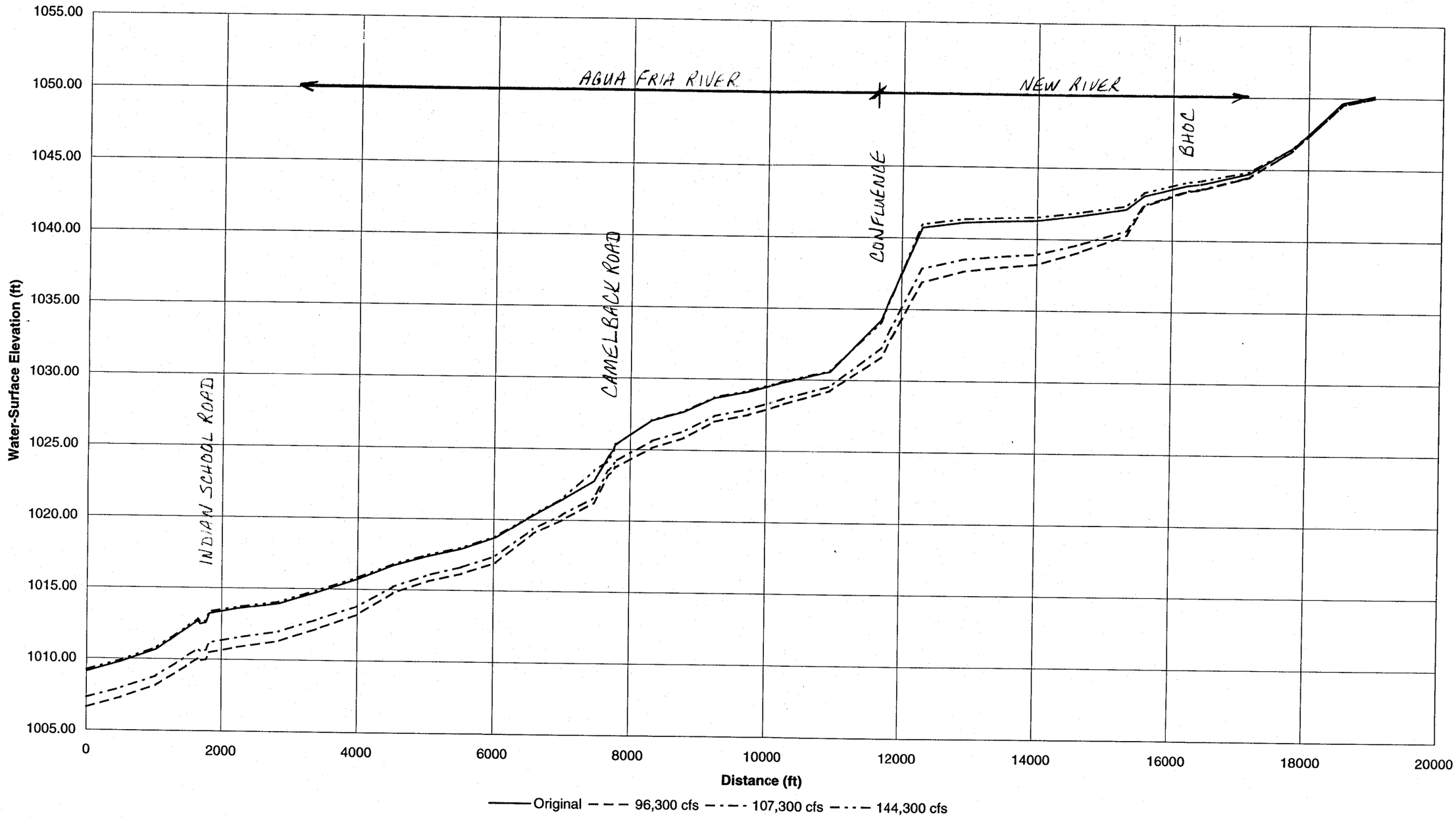
APPENDIX H

NEW RIVER STANDARD PROJECT FLOOD (SPF)

HYDRAULIC ANALYSIS

Design by: JRM
Checked by: JHG

New River and Agua Fria River SPF Water-Surface Profiles

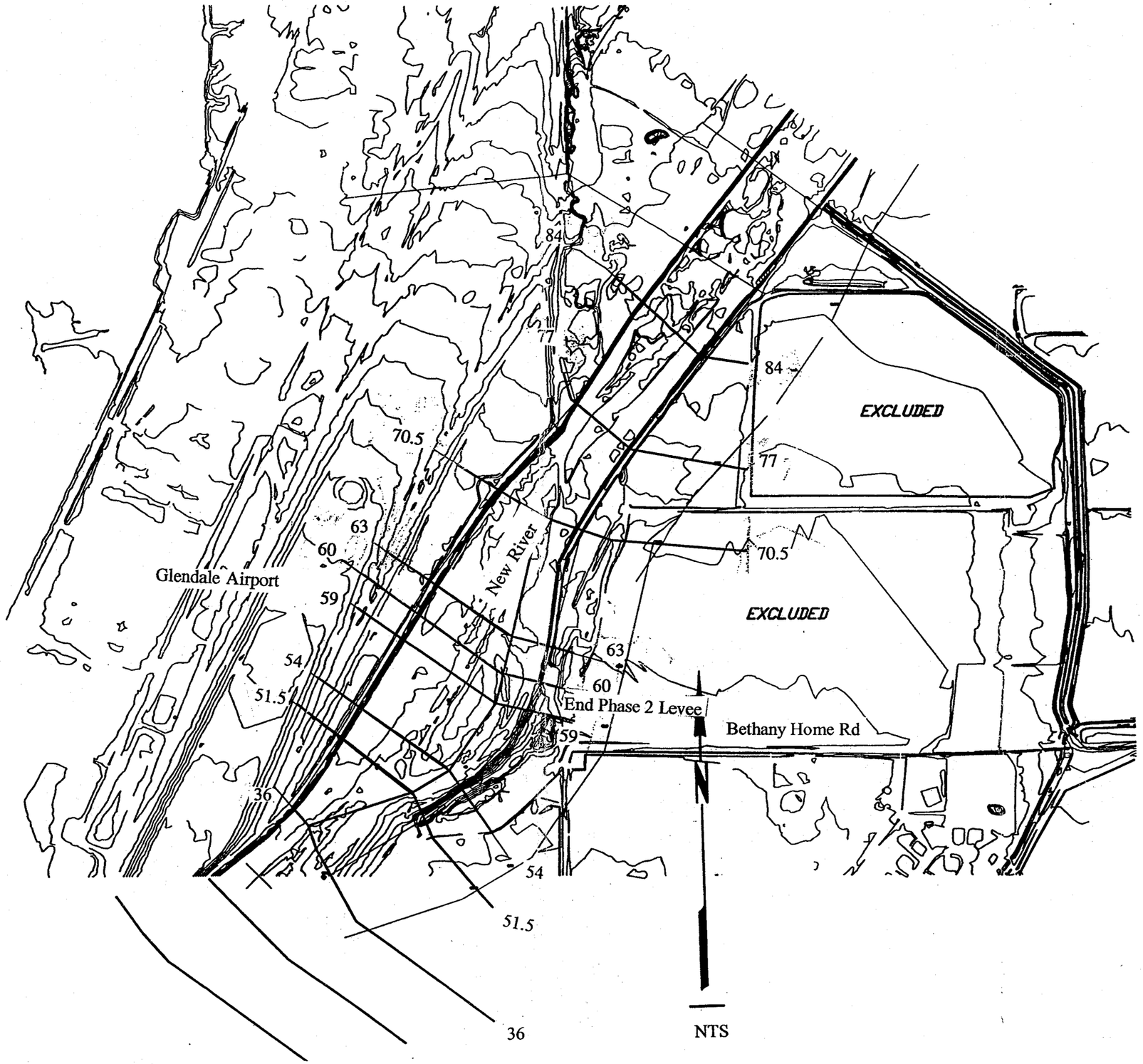


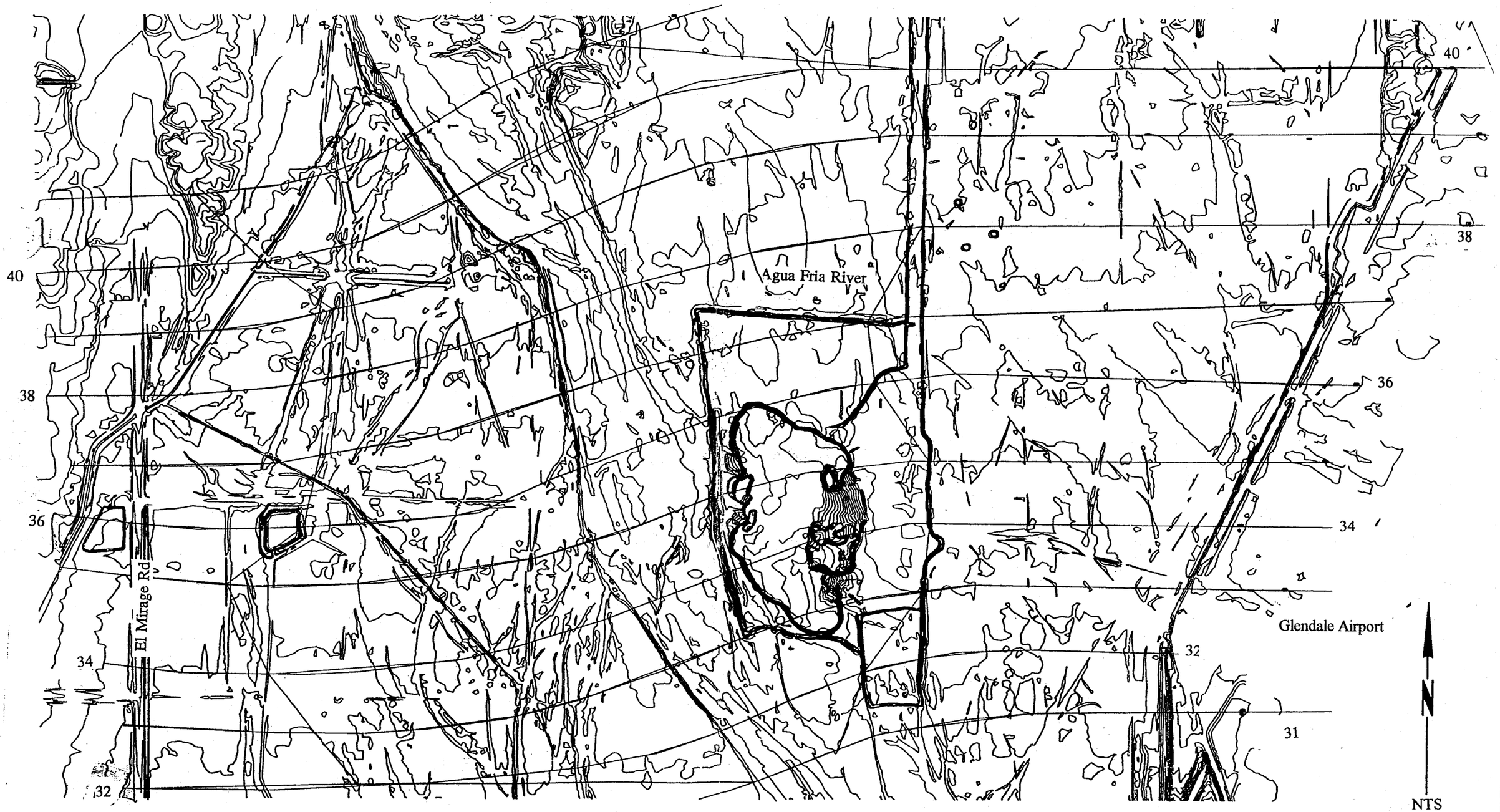
Bethany Home Outfall Channel v.s. New River

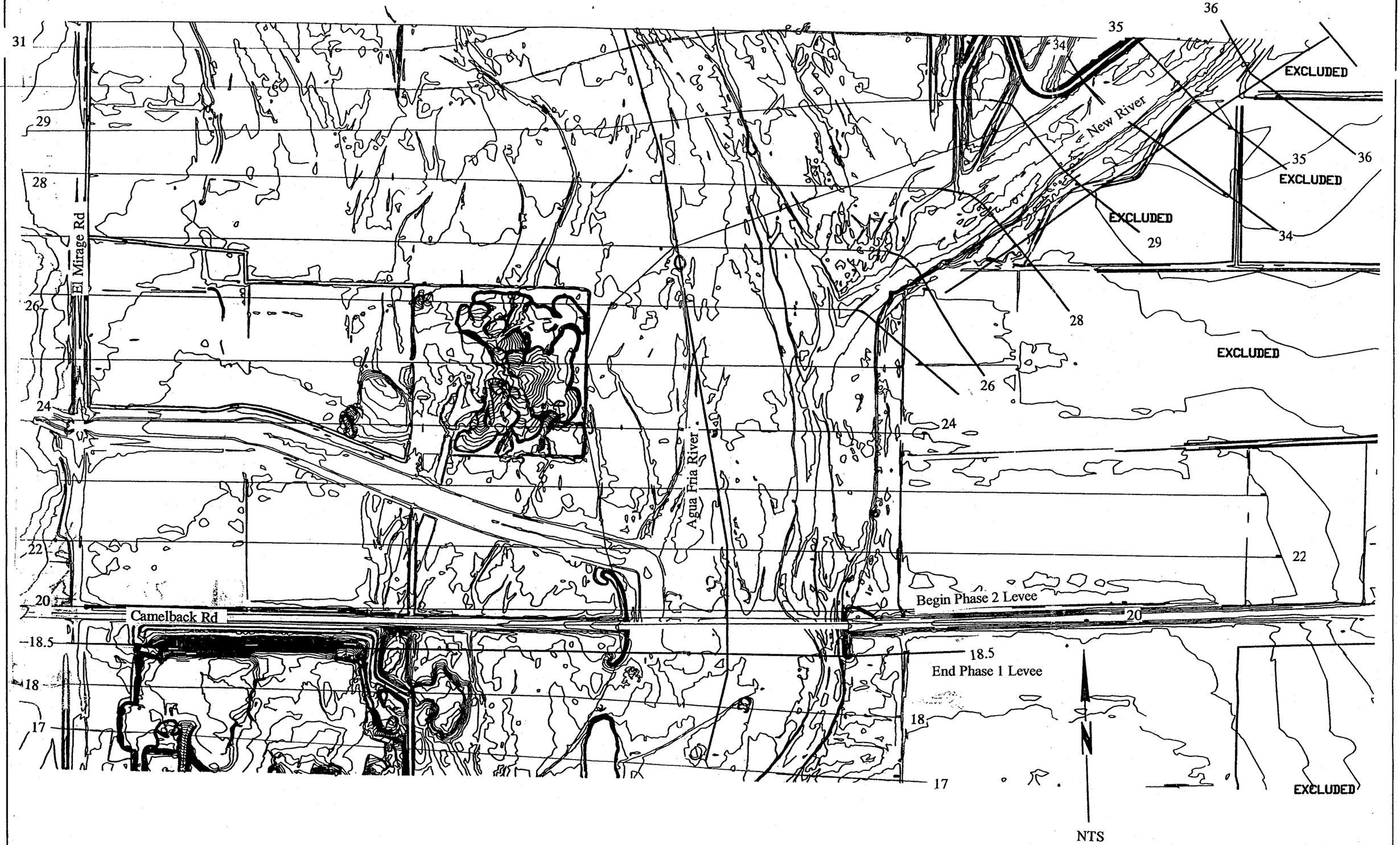
(Hydrograph Combinations)

Design By: JRM
Checked By: [illegible]

HEC-2 Cross Section	Original WSE (ft)	Revised WSE (ft)					
		Discharge (cfs)					
	142,000	96,300	107,300	144,300	Original - Revised		
1	1009.10	1006.60	1007.27	1009.22	-2.5	-1.8	0.1
2	1009.80	1007.30	1007.95	1009.92	-2.5	-1.8	0.1
3	1010.65	1008.16	1008.80	1010.77	-2.5	-1.9	0.1
4	1012.12	1009.53	1010.19	1012.24	-2.6	-1.9	0.1
5	1012.68	1010.06	1010.73	1012.81	-2.6	-1.9	0.1
6	1012.48	1009.91	1010.57	1012.60	-2.6	-1.9	0.1
7	1012.57	1009.99	1010.64	1012.69	-2.6	-1.9	0.1
8	1013.21	1010.48	1011.17	1013.34	-2.7	-2.0	0.1
9	1013.57	1010.86	1011.54	1013.69	-2.7	-2.0	0.1
10	1013.94	1011.31	1011.97	1014.06	-2.6	-2.0	0.1
11	1014.85	1012.29	1012.93	1014.98	-2.6	-1.9	0.1
12	1015.70	1013.21	1013.80	1015.82	-2.5	-1.9	0.1
13	1016.69	1014.78	1015.22	1016.79	-1.9	-1.5	0.1
14	1017.37	1015.62	1016.05	1017.46	-1.8	-1.3	0.1
15	1017.90	1016.16	1016.62	1017.99	-1.7	-1.3	0.1
16	1018.72	1016.95	1017.43	1018.80	-1.8	-1.3	0.1
17	1020.29	1019.02	1019.34	1020.35	-1.3	-0.9	0.1
18	1021.42	1020.00	1020.37	1021.49	-1.4	-1.0	0.1
18.5	1022.76	1021.24	1021.59	1023.50	-1.5	-1.2	0.7
19	1024.47	1023.15	1023.53	1024.18	-1.3	-0.9	-0.3
20	1024.99	1023.48	1023.89	1024.89	-1.5	-1.1	-0.1
20.5	1025.42	1023.77	1024.21	1025.37	-1.7	-1.2	-0.1
21	1025.41	1023.76	1024.20	1025.36	-1.7	-1.2	-0.1
22	1027.04	1025.12	1025.62	1027.07	-1.9	-1.4	0.0
23	1027.68	1025.85	1026.32	1027.72	-1.8	-1.4	0.0
24	1028.66	1027.02	1027.41	1028.72	-1.6	-1.3	0.1
25	1029.13	1027.52	1027.91	1029.19	-1.6	-1.2	0.1
26	1029.78	1028.24	1028.62	1029.84	-1.5	-1.2	0.1
27	1030.59	1029.24	1029.56	1030.65	-1.3	-1.0	0.1
28	1034.25	1031.66	1032.31	1034.11	-2.6	-1.9	-0.1
28.5	1040.73	1036.91	1037.87	1040.96	-3.8	-2.9	0.2
29	1041.10	1037.70	1038.53	1041.34	-3.4	-2.6	0.2
34	1041.23	1038.02	1038.78	1041.47	-3.2	-2.5	0.2
35	1041.30	1038.24	1038.94	1041.54	-3.1	-2.4	0.2
36	1041.69	1039.18	1039.70	1041.93	-2.5	-2.0	0.2
51.5	1042.16	1040.35	1040.66	1042.40	-1.8	-1.5	0.2
54	1043.11	1042.40	1042.47	1043.34	-0.7	-0.6	0.2
60	1043.84	1043.43	1043.48	1044.08	-0.4	-0.4	0.2
63	1043.96	1043.57	1043.61	1044.19	-0.4	-0.4	0.2
70.5	1044.73	1044.47	1044.49	1044.86	-0.3	-0.2	0.1
77	1046.52	1046.37	1046.38	1046.52	-0.2	-0.1	0.0
84	1049.65	1049.51	1049.51	1049.56	-0.1	-0.1	-0.1
88.8	1050.14	1050.00	1050.00	1050.05	-0.1	-0.1	-0.1


84
77
84
EXCLUDED
77
70.5
70.5
63
60
59
Glendale Airport
New River
EXCLUDED
63
60
54
51.5
End Phase 2 Levee
59
Bethany Home Rd
36
54
51.5
36
N
NTS


40
38
36
34
32
40
38
36
34
32
31
Agua Fria River
El Mirage Rd
Glendale Airport
N
NTS


31
29
28
26
24
22
20
18.5
18
17
El Mirage Rd
Camelback Rd
Agua Fria River
New River
36
35
34
29
28
26
24
22
20
18.5
18
17
EXCLUDED
EXCLUDED
EXCLUDED
EXCLUDED
EXCLUDED
Begin Phase 2 Levee
End Phase 1 Levee
N
NTS

EXCLUDED
Begin Phase 1 Levee
Agua Fria River
Indian School Rd
NTS
1
2
3
4
5
9
10
11
12
13
14
15
16

```
*********************************************
*  HEC-2 WATER SURFACE PROFILES             *
*                                           *
*  Version   4.6.2;  May 1991               *
*                                           *
*  RUN DATE    13NOV97    TIME    17:07:26  *
*********************************************
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****************************************
*  U.S. ARMY CORPS OF ENGINEERS        *
*  HYDROLOGIC ENGINEERING CENTER       *
*  609 SECOND STREET, SUITE D          *
*  DAVIS, CALIFORNIA 95616-4687        *
*          (916) 756-1104              *
****************************************
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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
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THIS RUN EXECUTED 13NOV97 17:07:26

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

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

AGUA FRIA RIVER - NEW RIVER
SPF DATA WITH LEVEE (PROPOSED CONDITIONS)

Modified by FDCMC to include Proposed City of Glendale Airport Extension
X-SEC 29 ENCROACHED AT STA 5450 FOR RUNWAY EXTENSION
CHANNELIZATION TO REDUCE WSE TO MEET FEMA REGULATED ELEVATION
1300 ft. Alternative FILENAME alt13nsf.dat

X-SEC	CCSLA	BOT ELEV.	SS	BW
*****	*****	*********	****	****
27	4496	1021.0	4:1	300
28	5700	1022.0	4:1	550
28.5	5000	1023.0	4:1	650
29	4900	1023.5	4:1	850
34	4800	1027.0	4:1	600
35	4500	1028.0	4:1	600
36	4600	1029.0	4:1	600

MODIFICATIONS BY DMJM ARIZONA, INC.
MODIFICATION DATE: 11/13/97

	ORIGINAL	REVISED
AGUA FRIA BELOW CONFLUENCE	142,000	96,300
NEW RIVER ABOVE CONFLUENCE	69,000	71,300
NEW RIVER ABOVE BHOC	69,000	68,000

ORIGINAL DISCHARGES BASED ON HYDROLOGY WITHOUT NEW WADDELL DAM FOR DESIGN OF THE CAMELBACK RANCH LEVEE SYSTEM.

REVISED HYDROLOGY ASSUMPTIONS:

1. BHOC DIVERSION BASED ON CHANNEL CAPACITY W/ SPF BACKWATER IMPACTS FROM THE NEW RIVER.
2. NEW RIVER ABOVE BHOC ASSUMES PEAK DISCHARGE BELOW SKUNK CREEK FOR HYDROGRAPH ROUTING (I.E. 68,000 CFS).
3. AGUA FRIA BELOW CONFLUENCE DEVELOPED BY ADDING CORPS PEAK DISCHARGE W/ NEW WADDELL DAM.

T1
T2
T3

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
		2			0.00142				1009.6	

NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
1		-1					-6		

J3 VARIABLE CODES FOR SUMMARY PRINTOUT

150	120	200

J5 LPRNT NUMSEC ********REQUESTED SECTION NUMBERS********

-10	-10

QT	2	142000	96300

BEGIN STUDY

NC	0.04	0.04	0.025	0.1	0.3					
X1	1	55	394.53	1422.94						
X3	10									
GR	1008	0	1010	5.99	1012	11.32	1014	20.14	1014	58.44
GR	1012	62.33	1010	66.27	1010	69.66	1012	76.36	1014	97.71
GR	1016	106.06	1016	131.32	1014	137.76	1014	156.6	1016	160.56
GR	1018	164.69	1020	169.72	1020	195.71	1018	201.38	1016	211.26
GR	1014	225.45	1012	237.04	1010	253.68	1008	257.33	1008	334.83
GR	1010	349.77	1010	394.53	1008	397.04	1006	399.59	1004	402.26
GR	1002	404.97	1000	407.7	998	410.47	996	1296.49	996	1316.28
GR	996	1376.84	996	1377.02	998	1385.11	1000	1393.98	1002	1402.74
GR	1004	1407.79	1006	1412.81	1008	1417.89	1010	1422.94	1010	1502.18
GR	1010	1604.84	1012	1610.44	1012	1611.09	1010	1614.78	1008	1618.3
GR	1006	1624.39	1004	1629.04	1004	1669.36	1004	1688.34	1004	1765.17
X1	2	33	383.84	1440.42	518.67	502.57	513.18			
X3	10									
GR	1008	0	1008	48.94	1008	106.63	1008	144.14	1008	182.01
GR	1008	191.43	1008	349.71	1010	357.82	1012	366.13	1012	383.84
GR	1010	386.22	1008	388.61	1006	391	1004	393.38	1002	395.77
GR	1000	398.16	998	573.8	998	588.41	998	1237.02	998	1393.66
GR	1000	1400.35	1002	1407.15	1004	1413.95	1006	1420.69	1008	1427.48
GR	1010	1434.27	1012	1440.42	1012	1479.39	1010	1494.08	1008	1587.23
GR	1008	2009.1	1008	2057.31	1000	2481.83				
X1	3	51	482	1621.81	592.64	430.38	508.26			
X3	10									
GR	998	0	996	99.38	994	158.77	994	224.41	996	256.59
GR	998	279.78	998	304.23	998	312.08	1000	320.55	1002	328.82
GR	1004	335.57	1006	362.48	1008	370.73	1010	377.91	1012	384.94
GR	1014	458.6	1014	482	1012	484.81	1010	487.23	1008	489.68
GR	1006	492.55	1004	495.16	1002	497.64	1000	500.22	1000	732.75
GR	1000	733.88	1000	851.15	1000	990.51	1000	1034.93	1000	1069.24
GR	1000	1205.81	1000	1276.9	1000	1592.97	1002	1596.87	1004	1600.8
GR	1006	1604.76	1008	1608.76	1010	1612.89	1012	1617.12	1014	1621.81
GR	1014	1642.56	1012	1652.27	1008	1709.31	1006	1721.64	1006	1751.25
GR	1008	1758.94	1008	1827.41	1008	1982.96	1008	2058.85	1000	2948.45

```
GR     1006    2953.59

X1        4       70    817.46    2156.1    466.06    470.68    449.34
X3       10
GR     1012        0      1012     18.24      1010     25.95      1008      33.7      1008    203.76
GR     1010   212.44      1010    468.55      1010     497.7      1010    514.57      1008    661.83
GR     1006    666.5      1004    671.32      1004    694.71      1006    702.23      1008    709.58
GR     1010   716.97      1012    724.32      1014    731.59      1014    740.74      1014    757.82
GR     1014   817.46      1012    820.14      1010     822.8      1008    825.46      1006    828.11
GR     1004   843.28      1002    845.61      1000    1079.5      1000   1080.41      1002   2126.84
GR     1004  2129.85      1006    2143.5      1008   2149.08      1012    2153.7      1014    2156.1
GR     1014  2185.97      1012   2193.19      1010   2217.31      1008   2223.78      1008   2291.96
GR     1010  2302.39      1012   2311.51      1014      2320      1016   2328.61      1018   2334.71
GR     1018  2363.99      1016   2375.68      1014   2382.05      1012   2387.28      1010   2391.87
GR     1008  2816.54      1008   2852.79      1010   2920.78      1012   2927.54      1012   2991.87
GR     1010  3003.03      1008   3018.67      1006   3029.25      1004   3214.06      1002   3295.84
GR     1002  3347.97      1004   3354.28      1006   3368.34      1008   3396.73      1008   3928.26
GR     1008  4103.92      1010   4155.13      1012   4163.91      1014   4168.53      1016   4172.92

X1        5       69    796.49    2270.21    168.95    203.76    175.96
X3       10
GR     1012        0      1010    366.01      1012    594.51      1014    602.7      1014    642.27
GR     1012   657.98      1010    663.67      1010    752.17      1012    759.27      1014    766.35
GR     1016   773.02      1016    796.49      1014    844.46      1012    849.34      1010    853.67
GR     1008   858.07      1006    862.35      1004    866.84      1002    873.61      1002   1035.09
GR     1004  1045.46      1004    1056.3      1002   1060.57      1000   1064.55      1000   1107.18
GR     1002  1123.22      1002   1148.52      1000   1317.18      1000   1345.64      1000   1405.49
GR     1000  1442.87      1000   1494.32      1000   1518.15      1000   2104.75      1000    2187.6
GR     1000  2207.88      1000   2222.87      1002   2226.77      1004   2232.02      1006   2238.43
GR     1008  2244.83      1010   2251.17      1012    2257.6      1014   2263.89      1016   2270.21
GR     1016  2271.02      1016   2302.96      1018   2650.07      1018   2692.04      1018   2757.05
GR     1018  2771.16      1016   2779.68      1014   2791.73      1012   2842.19      1010   3122.72
GR     1010   3294.7      1010   3296.31      1010   3347.11      1012   3437.57      1012   3471.32
GR     1010  3498.09      1010   3504.71      1010   3512.56      1010   3899.89      1012   4099.55
GR     1012  4185.67      1012   4208.94      1014   4219.44      1016   4229.46

       INDIAN SCHOOL ROAD LOW CHORD = 1013.3

NC    0.022    0.022    0.022       0.3       0.5
X1        6       90      972    2442.2      63.8     23.57     36.79
X3       10
BT      -70    971.9    1021.3    1021.3       972    1021.3    1013.3     972.1    1021.3    1013.3
BT           1007.8    1021.3    1013.3    1007.9    1021.3    1013.3    1021.9    1021.3    1013.3
BT             1022    1021.3    1013.3    1099.5    1021.3    1013.3    1099.6    1021.3      1002
BT           1113.6    1021.3      1002    1113.7    1021.3    1013.3    1189.5    1021.3    1013.3
BT           1189.6    1021.3      1002    1203.6    1021.3      1002    1203.7    1021.3    1013.3
BT           1279.5    1021.3    1013.3    1279.6    1021.3      1004    1293.6    1021.3      1004
BT           1293.7    1021.3    1013.3    1369.5    1021.3    1013.3    1369.6    1021.3    1001.5
BT           1383.6    1021.3    1001.3    1383.7    1021.3    1013.3    1459.5    1021.3    1013.3
BT           1459.6    1021.3    1000.5    1473.6    1021.3      1000    1473.7    1021.3    1013.3
BT           1549.5    1021.3    1013.3    1549.6    1021.3      1000    1563.6    1021.3      1000
BT           1563.7    1021.3    1013.3    1639.5    1021.3    1013.3    1639.6    1021.3      1000
BT           1653.6    1021.3      1000    1653.7    1021.3    1013.3    1729.5    1021.3    1013.3
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BT		1729.6	1021.3	1000	1743.6	1021.3	1000	1743.7	1021.3	1013.3
[illegible]		1819.5	1021.3	1013.3	1819.6	1021.3	1000	1833.6	1021.3	1000
BT		1833.7	1021.3	1013.3	1909.5	1021.3	1013.3	1909.6	1021.3	1000
BT		1923.6	1021.3	1000	1923.7	1021.3	1013.3	1999.5	1021.3	1013.3
BT		1999.6	1021.3	1000	2013.6	1021.3	1000	2013.7	1021.3	1013.3
BT		2089.4	1021.3	1013.3	2089.5	1021.3	1000	2103.5	1021.3	1000
BT		2103.6	1021.3	1013.3	2179.5	1021.3	1013.3	2179.6	1021.3	1000
BT		2193.6	1021.3	1000	2193.7	1021.3	1013.3	2269.5	1021.3	1013.3
BT		2269.6	1021.3	1000	2283.6	1021.3	1000	2283.7	1021.3	1013.3
BT		2359.5	1021.3	1013.3	2359.6	1021.3	1000	2373.6	1021.3	1000
BT		2373.7	1021.3	1013.3	2461.6	1021.3	1013.3	2461.7	1021.3	1013.3
BT		2461.71	1021.3	1021.3						
GR	1016	0	1018	517.07	1018	971.9	1018	972	1018	972.1
GR	1007	1007.8	1007	1007.9	1002	1021.9	1002	1022	1002	1099.5
GR	1002	1099.6	1002	1113.6	1002	1113.7	1002	1189.5	1002	1189.6
GR	1002	1203.6	1002	1203.7	1000	1263.16	1002	1272.35	1004	1279.5
GR	1004	1279.6	1004	1293.6	1004	1293.7	1002	1309.94	1001.5	1369.5
GR	1001.5	1369.6	1001.3	1383.6	1001.3	1383.7	1000.5	1459.5	1000.5	1459.6
GR	1000	1473.6	1000	1473.7	1000	1549.5	1000	1549.6	1000	1563.6
GR	1000	1563.7	1000	1639.5	1000	1639.6	1000	1653.6	1000	1653.7
GR	1000	1729.5	1000	1729.6	1000	1743.6	1000	1743.7	1000	1819.5
GR	1000	1819.6	1000	1833.6	1000	1833.7	1000	1909.5	1000	1909.6
GR	1000	1923.6	1000	1923.7	1000	1999.5	1000	1999.6	1000	2013.6
GR	1000	2013.7	1000	2089.4	1000	2089.5	1000	2103.5	1000	2103.6
GR	1000	2179.5	1000	2179.6	1000	2193.6	1000	2193.7	1000	2269.5
GR	1000	2269.6	1000	2283.6	1000	2283.7	1000	2359.5	1000	2359.6
GR	1000	2373.6	1000	2373.7	1002	2387.37	1004	2390.81	1006	2397.39
GR	1008	2403.97	1010	2410.56	1012	2417.17	1014	2423.98	1016	2438.32
GR	1018	2442.2	1018	2461.6	1018	2461.7	1018	2461.71	1018	2890.45
G[illegible]	1016	3090.24	1014	3545.43	1014	3588.88	1014	4053.92	1016	4384.87
X1	7	90	1031.85	2521.45	81.31	88.36	82.76			
X3	10							1018	1018	
BT	-70	1031.74	1021.3	1021.3	1031.75	1021.3	1013.3	1031.85	1021.3	1013.3
BT		1067.55	1021.3	1013.3	1067.6	1021.3	1013.3	1081.65	1021.3	1013.3
BT		1081.75	1021.3	1013.3	1159.25	1021.3	1013.3	1159.35	1021.3	1002
BT		1173.35	1021.3	1002	1173.45	1021.3	1013.3	1249.25	1021.3	1013.3
BT		1249.35	1021.3	1002	1263.35	1021.3	1002	1263.4	1021.3	1013.3
BT		1339.25	1021.3	1013.3	1339.35	1021.3	1002	1353.35	1021.3	1002
BT		1353.45	1021.3	1013.3	1429.25	1021.3	1013.3	1429.35	1021.3	1001.7
BT		1443.35	1021.3	1001	1443.45	1021.3	1013.3	1519.25	1021.3	1013.3
BT		1519.3	1021.3	1000.6	1533.35	1021.3	1000.4	1533.45	1021.3	1013.3
BT		1609.25	1021.3	1013.3	1609.35	1021.3	1000	1623.35	1021.3	1000
BT		1623.45	1021.3	1013.3	1699.25	1021.3	1013.3	1699.35	1021.3	1000.2
BT		1713.35	1021.3	1000.4	1713.4	1021.3	1013.3	1789.25	1021.3	1013.3
BT		1789.35	1021.3	1001.5	1803.35	1021.3	1001.7	1803.45	1021.3	1013.3
BT		1879.25	1021.3	1013.3	1879.35	1021.3	1002	1893.35	1021.3	1001.9
BT		1893.45	1021.3	1013.3	1969.25	1021.3	1013.3	1969.3	1021.3	1001.6
BT		1983.35	1021.3	1001.5	1983.45	1021.3	1013.3	2059.25	1021.3	1013.3
BT		2059.35	1021.3	1001.4	2073.35	1021.3	1001.2	2073.45	1021.3	1013.3
BT		2149.15	1021.3	1013.3	2149.25	1021.3	1001	2163.25	1021.3	1000.8
BT		2163.3	1021.3	1013.3	2239.25	1021.3	1013.3	2239.35	1021.3	1000.6
BT		2253.35	1021.3	1000.5	2253.45	1021.3	1013.3	2329.25	1021.3	1013.3
BT		2329.35	1021.3	1000.4	2343.35	1021.3	1000.4	2343.45	1021.3	1013.3

BT		2419.25	1021.3	1013.3	2419.3	1021.3	1000.2	2433.35	1021.3	1000.1
		2433.45	1021.3	1013.3	2521.35	1021.3	1013.3	2521.45	1021.3	1013.3
BT		2521.46	1021.3	1021.3						
GR	1014	0	1016	178.26	1018	548.86	1018	1031.74	1018	1031.75
GR	1018	1031.85	1007	1067.55	1007	1067.6	1002	1081.65	1002	1081.75
GR	1002	1159.25	1002	1159.35	1002	1173.35	1002	1173.45	1002	1249.25
GR	1002	1249.35	1002	1263.35	1002	1263.4	1000	1274.95	1000	1324.16
GR	1002	1339.25	1002	1339.35	1002	1353.35	1002	1353.45	1001.7	1429.25
GR	1001.7	1429.35	1001	1443.35	1001	1443.45	1000.6	1519.25	1000.6	1519.3
GR	1000.4	1533.35	1000.4	1533.45	1000	1609.25	1000	1609.35	1000	1623.35
GR	1000	1623.45	1000.2	1699.25	1000.2	1699.35	1000.4	1713.35	1000.4	1713.4
GR	1001.5	1789.25	1001.5	1789.35	1001.7	1803.35	1001.7	1803.45	1002	1879.25
GR	1002	1879.35	1001.9	1893.35	1001.9	1893.45	1001.6	1969.25	1001.6	1969.3
GR	1001.5	1983.35	1001.5	1983.45	1001.4	2059.25	1001.4	2059.35	1001.2	2073.35
GR	1001.2	2073.45	1001	2149.15	1001	2149.25	1000.8	2163.25	1000.8	2163.3
GR	1000.6	2239.25	1000.6	2239.35	1000.5	2253.35	1000.5	2253.45	1000.4	2329.25
GR	1000.4	2329.35	1000.4	2343.35	1000.4	2343.45	1000.2	2419.25	1000.2	2419.3
GR	1000.1	2433.35	1000.1	2433.45	1002	2478.12	1006	2487.3	1010	2499.64
GR	1014	2511.77	1016	2521.35	1016	2521.45	1016	2521.46	1018	2534.42
GR	1018	2994.04	1016	3150.93	1014	3526.3	1014	3775.45	1014	4005.93
GR	1016	4447.65	1018	4589.05	1018	4805.16	1018	4893.58	1020	5072.48
NC	0.04	0.04	0.025	0.1	0.3					
X1	8	68	61.72	1843.6	53.76	41.75	49.79			
X3	10									
GR	1012	0	1014	9	1016	17.3	1018	25.56	1018	61.72
GR	1016	124.12	1014	209.89	1012	221.36	1010	228.4	1008	234.07
GR	1006	239.63	1004	244.77	1002	248.85	1002	372.75	1004	400.71
GR	1004	410.19	1002	415.35	1000	423.21	1000	483.71	1002	493.65
GR	1004	500.2	1004	516.15	1002	579.28	1002	646.23	1002	655.17
GR	1002	666.21	1002	672.71	1000	754.82	1000	829.3	1002	920.05
GR	1002	933.38	1002	969.51	1002	1005.9	1002	1031.73	1002	1038.52
GR	1000	1639.55	1000	1647.62	1002	1660.8	1004	1663.42	1006	1669.98
GR	1008	1676.15	1010	1681.75	1012	1687.88	1014	1693.07	1016	1777.78
GR	1018	1781.8	1020	1843.6	1020	2086.73	1020	2117.39	1020	2189.48
GR	1018	2202.4	1018	2240.88	1018	2248.87	1016	2255.24	1014	2263.48
GR	1012	2274.12	1010	2287.91	1010	2449.93	1010	2476.5	1010	2778.81
GR	1010	2820.52	1012	3170.04	1014	3196.84	1016	3623.68	1018	3712.11
GR	1018	3991.77	1018	4071.08	1020	4206.31				

END EAST BANK LEVEE (EXISTING)

X1	9	66	449.8	1980.46	132.16	731.37	414.59			
X3	10									
GR	1014	0	1012	11.61	1012	11.61	1010	80.25	1010	249.36
GR	1012	324.83	1014	424.84	1014	449.8	1012	452.12	1010	454.51
GR	1008	456.71	1006	459.02	1004	461.14	1002	463.43	1002	537.72
GR	1002	559.21	1002	614.12	1004	621.97	1004	636.55	1002	669.02
GR	1002	688.42	1002	793.86	1002	813.36	1002	827.7	1002	855.53
GR	1002	874.19	1002	1176.81	1002	1731.08	1002	1832.03	1002	1870.72
GR	1002	1968.03	1004	1970.09	1006	1972.18	1008	1974.25	1010	1976.32
GR	1012	1978.37	1014	1980.46	1014	2003.48	1012	2008.59	1010	2013.8
GR	1008	2018.93	1006	2024.24	1004	2029.42	1004	2090.36	1006	2098.17

```
GR    1008   2106.02    1010   2116.63    1010   2192.33    1010   2361.53    1012   2720.37
GR    1012   2729.09    1010   3303.42    1010   3307.88    1012   3354.47    1014   3510.16
GR    1014   3587.35    1014   3638.91    1016   3794.17    1018    3946.5    1020   4047.28
GR    1022   4214.38    1024   4324.09    1026   4441.95    1028   4525.06    1030   4623.85
GR    1032   4705.42

X1      10        82  855.01   2377.24   541.12    725.02   611.26
X3      10                               2377.24
GR    1008         0    1006     63.97    1006    141.07    1006    192.33    1004    467.37
GR    1004    799.12    1006    802.13    1008    805.15    1010    808.18    1012    811.23
GR    1014    814.36    1016    817.54    1016    855.01    1014    858.51    1012    861.55
GR    1010    864.53    1008    867.34    1006    870.84    1004    873.66    1004    934.87
GR    1004    938.18    1004   1018.64    1004   1068.74    1002   1130.38    1002   1155.17
GR    1002   1377.86    1002   1389.76    1002   1434.66    1002   1451.17    1004   1727.92
GR    1004   1730.48    1004   2366.11    1006   2368.35    1008   2370.58    1010    2372.8
GR    1012   2375.02    1014   2377.24    1014   2404.55    1012   2410.51    1010      2595
GR    1010   2619.95    1010    2743.3    1008   2758.11    1008   2791.62    1010    2817.7
GR    1012   2833.77    1014   2844.32    1014   2869.52    1014   2961.59    1014   2989.05
GR    1014   3232.72    1014   3352.62    1014   3369.18    1014   3372.78    1014   3454.11
GR    1014   3460.14    1014   3713.56    1016    3868.6    1018   3922.58    1018   3988.96
GR    1018   4131.29    1018   4159.73    1016   4173.39    1014   4188.25    1014   4283.59
GR    1016   4291.34    1018   4297.96    1020   4304.55    1022   4399.85    1022   4481.74
GR    1020   4487.21    1020   4501.74    1022   4615.54    1024   4769.23    1026      4896
GR    1028    4996.6    1030   5045.05    1032   5094.11    1032   5261.44    1032   5508.27
GR    1034   5605.22    1034   5731.11

      END WEST BANK LEVEE (EXISTING)

N     0.032     0.032    0.028
X1       11        64  2405.12   4118.42   627.28    587.52   614.13
X3       10                        2208     1016
GR    1012         0    1012     84.23    1012     91.16    1012    151.05    1012    160.43
GR    1012     163.6    1012    187.03    1012    208.37    1012    250.91    1012    258.95
GR    1012    319.14    1012    789.21    1012    809.39    1010    830.93    1010    883.68
GR    1012   1284.52    1010   1634.91    1008   1717.18    1006   1858.62    1004   2029.29
GR    1004   2055.93    1004   2132.55    1004    2176.3    1006   2387.11    1008   2394.89
GR    1010   2398.27    1012   2404.14    1012   2405.12    1010   2408.45    1008   2412.29
GR    1006   2439.57    1006   2454.32    1006   2460.44    1006    2500.7    1006   2512.98
GR    1004   2541.45    1004   2736.15    1006   4024.69    1008   4029.72    1010   4035.02
GR    1012   4040.59    1014   4048.01    1016    4057.1    1018   4069.84    1020   4118.42
GR    1020   4502.27    1018   4554.73    1016   5027.27    1016   5402.77    1018   5413.36
GR    1020   5426.13    1022   5441.13    1022   5499.54    1020   5517.62    1020   5590.05
GR    1022   5615.58    1024   5680.17    1024   5762.17    1022   5966.34    1020    6127.6
GR    1020   6135.18    1022   6152.47    1024   6720.88    1026   7063.15

      BEGIN 1ST WEST PIT
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	12	90	2020.24	5067.86	765	961	536.27			
X3	10	1006								
GR	1012	0	1012	346.79	1012	876.64	1014	1189.22	1014	1335.06
GR	1012	1621.47	1010	1698.42	1008	1789.37	1006	1925.5	1006	1960.12
GR	1008	1964.44	1020	1981.83	1020	2020.24	1008	2034.38	1006	2176.54
GR	1008	2231.82	1008	2607.19	1002	2627.05	1000	2637.97	1000	2645.15
GR	1002	2675.27	1004	2750.54	1006	2786.84	1006	2878.28	1008	2890.2
GR	1008	3104.07	1006	3161.88	1006	3400.65	1010	3426.52	1010	3486.14
GR	1008	3816.35	1008	3831.81	1010	4003.49	1010	4136.67	1012	4326.91
GR	1014	4622.82	1016	5067.86	1016	5106.54	1012	5116.73	1010	5126.87
GR	1008	5157.1	1008	5175.33	1010	5182.44	1014	5204.78	1020	5234.45
GR	1018	5256.85	1016	5297.38	1016	5327.31	1018	5502.04	1020	5554.08
GR	1022	5584.94	1024	5652.61	1024	5725.2	1022	5757.01	1010	5768.84
GR	1010	5789.31	1012	5808.48	1020	5825.7	1020	6270.87	1020	6296.44
GR	1022	6326.83	1016	6338.81	1016	6340.11	1020	6347.92	1020	6423.84
GR	1022	6435.21	1022	6441.14	1020	6532.06	1018	6570.41	998	6580.72
GR	990	6585.51	978	6594	974	6597.44	972	6602.19	970	6622.02
GR	968	6671.45	966	6838.98	966	6869.15	968	6932.28	976	6944.79
GR	982	6948.71	994	6955.56	1006	6962.46	1012	6965.88	1020	6970.24
GR	1022	7028.6	1022	7093.22	1024	7110.95	1024	7263.61	1026	7521.34

BEGIN PROJECT
PHASE 1 LEVEE

X1	13	90	3445	6502.46	752	740	532.88			
X3	10	1006				6992	1006			
GR	1014	32.33	1016	48.53	1016	574.82	1016	883.1	1014	1065.33
GR	1012	1696.98	1008	1701.02	996	1735.71	994	1772.05	994	1843.15
GR	998	1859.93	998	1896.32	1002	1905.74	1006	1914.06	1012	1925.85
GR	1012	2185.92	1014	2205.2	1012	2228.3	1014	2240.81	1014	3122.35
GR	1016	3386.53	1019.65	3445	1012	3564.96	1008	3671.92	1008	3754.02
GR	1012	4035	1012	4115.08	1010	4127.67	1002	4144.06	1004	4282.87
GR	1004	4569.77	1004	4998.42	1010	5009.07	1012	5084.67	1012	5349.43
GR	1010	5562.25	1010	5655.91	1010	5974.79	1012	5984.03	1014	6052.17
GR	1014	6213.2	1012	6265.24	1014	6428.47	1014	6490.61	1018	6502.46
GR	1016	6560.79	1016	6924.54	1018	6949.9	1016	6983.01	996	7006.13
GR	986	7020.79	986	7065.73	992	7135.52	998	7187.44	1000	7222.81
GR	1006	7237.62	1010	7249.84	1016	7272.49	1018	7296.83	1016	7334.04
GR	1014	7461.95	1010	7484.17	1012	7511.37	1018	7524.84	1018	7545.57
GR	1014	7604.31	1014	7638.75	1018	7700.83	1010	7747.37	984	7787.69
GR	984	7883.94	982	7904.3	980	8175.06	980	8271.87	984	8278.21
GR	988	8284.78	992	8291.55	998	8301.5	1002	8308.22	1006	8314.99
GR	1010	8321.97	1016	8341.4	1016	8364.17	1006	8398.01	998	8440.97
GR	998	8460.43	1002	8469.12	1006	8477.62	1012	8490.05	1010.1	8500.27

X1	14	90	3100	6150.27	646.01	317	509.47			
X3	10	1006				6516	1006			
GR	1018	216.28	1018	580.83	1018	692.53	1012	718.12	1012	737.05
GR	1014	749.94	1016	795.69	1016	813.26	1014	1231.06	1014	1623.37
GR	1014	1643.52	1014	2052.08	1014	2140.29	1016	2654.94	1016	2778.46
GR	1021	3100	1016	3100.48	1016	3165.08	1014	3221.05	1010	3232.8
GR	1008	3243.33	1008	3263.84	1010	3403.46	1012	3535.84	1012	3619.09

GR	1010	3621.85	1004	3635.08	1002	3796.38	1002	3840.23	1004	3951.04
GR	1008	3960.52	1008	4160.55	1006	4272.48	1006	4343.88	1004	4353.49
GR	1004	4706.77	1012	4718.61	1012	5259.25	1012	5409.55	1010	5456.82
GR	1010	5664.15	1014	5678.54	1016	5698.22	1016	5735.28	1014	6063.44
GR	1014	6071.65	1016	6139.27	1020	6150.27	1020	6183.9	1016	6194.27
GR	1016	6342.22	1014	6359.09	1012	6388.89	1012	6410.04	1014	6425.78
GR	1016	6495.3	1016	6509.57	1002	6532.48	988	6555.18	986	6558.67
GR	986	6617.64	988	6656.14	990	6661.17	998	6677.11	1002	6684.95
GR	1010	6700.39	1014	6707.9	1016	6735.94	1018	6747.16	1020	6939.62
GR	1020	7218.58	1018	7233.32	1016	7290.1	1010	7295.29	1008	7297.86
GR	1006	7303.13	1004	7307.13	998	7315.51	994	7319.91	992	7330.28
GR	990	7353.85	988	7369.87	986	7386.91	984	7414.81	982	7445.98
GR	980	7510.53	978	7774.17	976	7798.87	976	7841.68	978	7854.61
X1	15	80	3180	6242.95	610	293	488.37			
X3	10	1006				7100	1006			
GR	1020	832.98	1020	971.02	1018	985.11	1016	1062.77	1018	1125.97
GR	1022	1144.19	1022	1180.93	1020	1188.16	1016	1228.08	1016	1352.05
GR	1016	1962.68	1016	2066.21	1014	2094.99	1016	2111.09	1016	2410.38
GR	1018	3037.38	1018	3046.43	1023.8	3180	1018	3204.32	1016	3280.61
GR	1012	3308.29	1012	3443.9	1014	3595.21	1014	3657.15	1012	3691.96
GR	1004	3705.77	1004	3914.05	1012	3931.43	1014	3954.12	1010	3994.53
GR	1008	4157.31	1006	4241.85	1004	4307.63	1004	4445.93	1010	4484.5
GR	1010	4584.46	1004	4599.71	1002	4634.06	1004	4847.52	1012	4856.77
GR	1014	4876.61	1014	5088.95	1012	5386.08	1010	5574.24	1010	5646.19
GR	1016	5669.38	1018	6233.44	1022	6242.95	1022	6266.91	1016	6283.38
GR	1014	6295.58	1014	6312.01	1016	6355.16	1016	6414.6	1010	6458.66
GR	1010	6527.18	1016	6551.83	1016	6575.09	1012	6602.98	1008	6663.42
GR	1004	6689.05	1006	6716.16	1012	6739.98	1018	6762.71	1020	6877.8
GR	1020	6920.33	1018	7067.06	1014	7088.31	1000	7100.86	988	7114.14
GR	982	7130.41	982	7238.24	986	7247.43	994	7265.08	996	7274.21
GR	998	7314.22	1002	7346.29	1000	7350.9	1000	7387.48	982	7412.7
X1	16	90	3310	6450.93	620	227	506.66			
X3	10	1006								
GR	1018.7	26.78	1020	531.61	1018	1212.55	1018	2581.93	1018	2591.92
GR	1018	2978.67	1020	3185.23	1020	3191.99	1018	3237.53	1025.02	3310
GR	1016	3466.68	1014	3506.03	1014	3568.44	1012	3635.04	1012	3684.19
GR	1014	3829.97	1014	3830.67	1012	3842.05	1008	3858.65	1008	3965.6
GR	1006	3987.15	1006	4049.31	1008	4084.62	1010	4121.29	1012	4131.63
GR	1014	4141.49	1016	4201.16	1016	4380.07	1016	4552.64	1014	4810.06
GR	1012	4826.86	1008	4838.22	1004	4850.9	1004	5040.39	1006	5043.96
GR	1008	5048.84	1010	5054.85	1012	5063.58	1012	5373.6	1012	5659.28
GR	1014	5669.57	1016	5680.12	1016	5897.42	1018	5946.35	1018	6053.2
GR	1016	6099.22	1016	6157.99	1018	6416.25	1022	6425.92	1022	6450.93
GR	1020	6456.57	1018	6460.36	1014	6467.48	1012	6470.87	1008	6478.64
GR	1006	6487.18	1004	6496.05	1002	6501.75	1000	6506.57	998	6532.28
GR	994	6546.58	992	6553.92	990	6562.89	988	6605.37	988	6677.63
GR	990	6703.2	992	6721.81	994	6725.59	1002	6740.23	1004	6743.73
GR	1006	6747.58	1006	6782.97	1004	6786.58	1002	6789.95	996	6800.43
GR	990	6810.76	988	6814.32	986	6822.44	984	6827.59	980	6836.39
GR	980	6922.62	984	6957.43	986	6990.94	988	6997.45	990	6999.45
GR	996	7007.44	998	7010.88	1002	7018.22	1004	7022.01	1002	7053.59

	17	90	8744.78	10774.9	600	600	550			
X3	10					11948.54	1022			
GR	1028	4000	1028	4167.26	1026	4181.52	1028	4223.16	1028	4300.36
GR	1021.1	4308.47	1026	4547.69	1024	4904.14	1022	5271.28	1021.1	5492.36
GR	1020	5841.18	1020	6063.01	1018	7055.62	1018	7334.73	1020	8109.32
GR	1020	8561.81	1023	8744.78	1016	8776.26	1016	8892.28	1010	8941.36
GR	1010	9156.14	1014	9173.97	1016	9328.14	1018	9419.57	1018	9559.29
GR	1018	9732.72	1016	10136.79	1014	10269.34	1010	10343.44	1004	10360.49
GR	1004	10585.21	1010	10601.18	1012	10620.32	1014	10756.95	1016	10774.9
GR	1018	10875.06	1018	11336.6	1016	11440.22	1018	11454.13	1018	11493.54
GR	1016	11646.12	1018	11710.83	1016	11777.4	1010	11867.02	1010	11911.39
GR	1012	11925.64	1022	11948.54	1022	11973.79	1016	11993.53	994	12026.33
GR	992	12080.86	984	12098.95	986	12127.83	980	12165.09	980	12415.82
GR	984	12551.31	984	12753.29	982	12895.1	982	12980.81	976	13304.53
GR	976	13351.51	968	13364.66	968	13460.92	970	13641.18	972	13677.44
GR	984	13702.48	986	13759.06	980	13769.01	978	13838.06	980	13860.36
GR	974	13893.14	978	13929.33	978	13949.57	970	13967.59	970	14022.43
GR	972	14191.85	974	14217.15	986	14228.4	994	14232.74	1002	14236.96
GR	1010	14241.01	1018	14244.79	1024	14247.55	1024	14353.3	1026	14478.37
GR	1026	14623.44	1022	14636.98	1022	14663.63	1026	14674.2	1028	14869.92

END 1ST WEST PIT

X1	18	90	4531.35	6388.38	500	489.73	431.16			
X3	10	1006				7834.1	1024			
GR	1020	3819.14	1022	4000	1022	4011.72	1020	4055.84	1020	4120.86
GR	1022	4444.72	1022	4457.64	1020	4484.2	1018	4516.44	1014	4526.58
GR	1023	4531.35	1010	4621.11	1010	4680.1	1012	4744.01	1014	4755.32
GR	1016	4880.94	1018	5188.02	1018	5382.51	1016	5410.98	1016	6162.3
GR	1016	6343.05	1016	6375.49	1018	6388.38	1018	6623.54	1018	6743.68
GR	1018	7052.61	1018	7261.63	1020	7278.27	1020	7293.94	1018	7312.55
GR	1018	7360.49	1016	7376.1	1010	7412.8	1008	7421.38	1004	7431.43
GR	1004	7633.5	1006	7661.28	1008	7674.66	1008	7784.84	1010	7808.75
GR	1022	7834.1	1024	7863.78	1024	7885.69	1022	7892.66	1018	7909.92
GR	1014	7932.91	1010	7954.71	1008	8037.56	1004	8046.85	1004	8068
GR	1008	8078.24	1018	8100.03	1018	8153.63	994	8167.54	992	8174.91
GR	990	8193.76	984	8208.36	982	8215.13	980	8239.74	978	8390.58
GR	978	8441.56	976	8475.81	976	8528.82	978	8554.84	980	8561.58
GR	980	8720.62	978	9061.24	978	9085.16	970	9099.34	968	9112.52
GR	968	9473.2	970	9867.28	972	9950	974	9964.07	984	9990.14
GR	986	9991.92	994	9995.1	1006	9999.89	1012	10002.32	1024	10007.09
GR	1026	10026.94	1026	10030.27	1024	10034.79	1024	10061.74	1026	10366.32
GR	1026	10511.84	1024	10519.94	1024	10550.36	1026	10558.31	1028	10909.23

END PHASE 1 LEVEE

	18.5	90	490	2242.02	470.75	492	470			
X3	10	1006								
GR	1022	33.68	1022	60.82	1020	190.67	1020	417.9	1018	427.26
GR	1018	450.7	1020	458.42	1022	466.71	1027.1	477.39	1024	490
GR	1022	499.5	1018	516.77	1016	545.46	1012	553.09	1012	680.32
GR	1014	689.64	1016	699.28	1016	816.02	1018	1504.15	1018	1613.95
GR	1018	1736.93	1018	1810.74	1016	2186.97	1016	2210.72	1022	2229.57
GR	1026	2242.02	1026	2299.25	1024	2341.44	1022	2543.38	1020	2672.57
GR	1020	2940.04	1020	3157.83	1020	3412.24	1022	3423.52	1022	3435.71
GR	1020	3455.58	1020	3756.18	1018	3836.26	1016	3852.22	1014	3860.52
GR	1014	3889.83	1012	3901.62	1010	3911.96	1008	3918.93	1004	3933.12
GR	1002	3949.6	1000	3978.62	1000	4014.58	1002	4084.94	1004	4095.65
GR	1006	4105.81	1008	4113.76	1012	4127	1016	4140.69	1018	4153.67
GR	1022	4160.43	1026	4167.24	1028	4171.19	1028	4188.53	1024	4199.05
GR	1022	4222.34	1020	4233.15	1018	4241.77	1014	4256.58	1010	4288.2
GR	1008	4303.46	1006	4323.69	1004	4346.41	1002	4424.81	1000	4587.79
GR	998	4659.43	998	5123.52	1000	5497.87	1000	5822.08	1002	5851.49
GR	1004	5868.65	1008	5893.18	1012	5917.37	1016	5936.8	1018	5949.09
GR	1020	5964.24	1022	5976.63	1022	6000.96	1024	6020.49	1024	6059.05
GR	1022	6082.61	1022	6193.48	1024	6421.46	1026	6485.23	1026	6538.38

CAMELBACK ROAD LOW CHORD = 1027.5

NC	0.022	0.022	0.022	0.3	0.5					
X1	19	90	2217.43	4008.82	207.77	177.82	198.13			
X3	10									
BT	-62	2261.43	1034.2	1034.2	2261.53	1037	1027.5	2296.63	1037.3	1027.8
BT		2373	1038.1	1028.6	2373.13	1038.1	1012	2379.13	1038.1	1012.2
BT		2379.23	1038.1	1028.6	2488.13	1039	1029.5	2488.23	1039	1012
BT		2494.23	1039	1012	2494.33	1039	1029.5	2603.13	1039.8	1030.3
BT		2603.23	1039.8	1016.1	2609.2	1039.8	1016.2	2609.33	1039.8	1030.3
BT		2718.13	1040.4	1030.9	2718.23	1040.4	1016.5	2724.23	1040.4	1016.5
BT		2724.33	1040.4	1030.9	2833.13	1040.8	1031.3	2833.23	1040.8	1016.85
BT		2839.23	1040.8	1016.9	2839.33	1040.8	1031.3	2948.1	1041.1	1031.6
BT		2948.23	1041.2	1017.1	2954.23	1041.1	1017.16	2954.33	1041.1	1031.6
BT		3063.13	1041.3	1031.8	3063.23	1041.3	1017.32	3069.23	1041.3	1017.34
BT		3069.33	1041.3	1031.8	3124.03	1041.3	1031.8	3177.93	1041.3	1031.8
BT		3178	1041.3	1017.62	3184.03	1041.3	1017.64	3184.13	1041.3	1031.8
BT		3293.43	1041.1	1031.6	3293.53	1041.1	1018	3299.53	1041.1	1018
BT		3299.63	1041.1	1031.6	3408.03	1040.8	1031.3	3408.13	1040.8	1018
BT		3413.93	1040.8	1018	3414	1040.8	1031.3	3523.43	1040.4	1030.9
BT		3523.53	1040.4	1018	3529.53	1040.4	1018	3529.63	1040.4	1030.9
BT		3637.93	1039.8	1030.3	3638.03	1039.8	1018	3644.03	1039.8	1018
BT		3644.13	1039.8	1030.3	3752.93	1039	1029.5	3753	1039	1018
BT		3759.03	1039	1018	3759.13	1039	1029.5	3868.43	1038.1	1028.6
BT		3868.53	1038.1	1018	3874.53	1038.1	1018	3874.63	1038.1	1028.6
BT		3984.03	1037	1027.5	3984.13	1034.2	1034.2			
GR	1028	0	1028	1099.28	1028	1404.76	1028	1784.7	1028	1978.88
GR	1032	2217.43	1027.5	2261.43	1027.5	2261.53	1019	2296.63	1012	2337.2
GR	1012	2373	1012	2373.13	1012.2	2379.13	1012.2	2379.23	1014	2456.93
GR	1012	2488.13	1012	2488.23	1012	2494.23	1012	2494.33	1016.1	2603.13
GR	1016.1	2603.23	1016.2	2609.2	1016.2	2609.33	1016.5	2718.13	1016.5	2718.23

GR	1016.5	2724.23	1016.55	2724.33	1016.85	2833.13	1016.85	2833.23	1016.9	2839.23
GR	1016.9	2839.33	1017.13	2948.1	1017.1	2948.23	1017.16	2954.23	1017.16	2954.33
GR	1017.3	3063.13	1017.32	3063.23	1017.34	3069.23	1017.3	3069.33	1017.45	3124.03
GR	1017.6	3177.93	1017.62	3178	1017.64	3184.03	1017.64	3184.13	1018	3293.43
GR	1018	3293.53	1018	3299.53	1018	3299.63	1018	3408.03	1018	3408.13
GR	1018	3413.93	1018	3414	1018	3523.43	1018	3523.53	1018	3529.53
GR	1018	3529.63	1018	3637.93	1018	3638.03	1018	3644.03	1018	3644.13
GR	1018	3752.93	1018	3753	1018	3759.03	1018	3759.13	1018	3868.43
GR	1018	3868.53	1018	3874.53	1018	3874.63	1018	3953.13	1022	3967.8
GR	1026	3981.88	1027.5	3984.03	1027.5	3984.13	1028	3987.32	1032	3998.23
GR	1034	4008.82	1030	4310.74	1028	4534.41	1026	4875.07	1024	5210.53
GR	1022	5558.06	1020	5741.22	1018	5778.32	1020	5895.56	1024	6084.21
GR	1024	6191.11	1024	7152.27	1024	7750.28	1024	7995.16	1026	8245.28
X1	20	90	2251.27	3994.32	86.69	67.28	77.93			
X3	10									
BT	-62	2261.43	1034.2	1034.2	2261.53	1037	1027.5	2296.63	1037.3	1027.8
BT		2373	1038.1	1028.6	2373.13	1038.1	1012	2379.13	1038.1	1012
BT		2379.23	1038.1	1028.6	2488.13	1039	1029.5	2488.23	1039	1014
BT		2494.23	1039	1014	2494.33	1039	1029.5	2603.13	1039.8	1030.3
BT		2603.23	1039.8	1014	2609.2	1039.8	1014	2609.33	1039.8	1030.3
BT		2718.13	1040.4	1030.9	2718.23	1040.4	1016.2	2724.23	1040.4	1016.4
BT		2724.33	1040.4	1030.9	2833.13	1040.8	1031.3	2833.23	1040.8	1016.8
BT		2839.23	1040.8	1016.9	2839.33	1040.8	1031.3	2948.1	1041.1	1031.6
BT		2948.23	1041.2	1017	2954.23	1041.1	1017.1	2954.33	1041.1	1031.6
BT		3063.13	1041.3	1031.8	3063.23	1041.3	1017.2	3069.23	1041.3	1017.2
BT		3069.33	1041.3	1031.8	3124.03	1041.3	1031.8	3177.93	1041.3	1031.8
BT		3178	1041.3	1017.4	3184.03	1041.3	1017.5	3184.13	1041.3	1031.8
BT		3293.43	1041.1	1031.6	3293.53	1041.1	1017.8	3299.53	1041.1	1017.9
BT		3299.63	1041.1	1031.6	3408.03	1040.8	1031.3	3408.13	1040.8	1018
BT		3413.93	1040.8	1018	3414	1040.8	1031.3	3523.43	1040.4	1030.9
BT		3523.53	1040.4	1018	3529.53	1040.4	1018	3529.63	1040.4	1030.9
BT		3637.93	1039.8	1030.3	3638.03	1039.8	1018	3644.03	1039.8	1018
BT		3644.13	1039.8	1030.3	3752.93	1039	1029.5	3753	1039	1018
BT		3759.03	1039	1018	3759.13	1039	1029.5	3868.43	1038.1	1028.6
BT		3868.53	1038.1	1018.6	3874.53	1038.1	1019.5	3874.63	1038.1	1028.6
BT		3984.03	1037	1027.5	3984.13	1034.2	1034.2			
GR	1032	0	1032	165.84	1032	492.42	1032	968.29	1032	1028.65
GR	1030	1835.11	1030	2021.46	1032	2197.16	1032	2251.27	1027.5	2261.43
GR	1027.5	2261.53	1019	2296.63	1012	2353.57	1012	2373	1012	2373.13
GR	1012	2379.13	1012	2379.23	1014	2422.26	1014	2488.13	1014	2488.23
GR	1014	2494.23	1014	2494.33	1014	2603.13	1014	2603.23	1014	2609.2
GR	1014	2609.33	1014	2636.7	1016	2663.11	1016.2	2718.13	1016.2	2718.23
GR	1016.4	2724.23	1016.4	2724.33	1016.6	2833.13	1016.8	2833.23	1016.9	2839.23
GR	1016.9	2839.33	1017	2948.1	1017	2948.23	1017.1	2954.23	1017.1	2954.33
GR	1017.2	3063.13	1017.2	3063.23	1017.2	3069.23	1017.2	3069.33	1017.3	3124.03
GR	1017.3	3177.93	1017.4	3178	1017.5	3184.03	1017.6	3184.13	1017.7	3293.43
GR	1017.8	3293.53	1017.9	3299.53	1017.9	3299.63	1018	3408.03	1018	3408.13
GR	1018	3413.93	1018	3414	1018	3523.43	1018	3523.53	1018	3529.53
GR	1018	3529.63	1018	3637.93	1018	3638.03	1018	3644.03	1018	3644.13
GR	1018	3752.93	1018	3753	1018	3759.03	1018	3759.13	1018	3854.87
GR	1018.6	3868.43	1018.6	3868.53	1019.5	3874.53	1019.5	3874.63	1018	3949.96
GR	1020	3957.68	1024	3973.13	1027.5	3984.03	1027.5	3984.13	1030	3994.32
GR	1030	4102.59	1028	4352.73	1026	4558.92	1026	4590.81	1026	5044.87

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GR    1026    5149.16    1026    5720.14    1026    6002.35    1026    7321.63    1026    7343.76

      BEGIN PHASE 2 LEVEE

NC    0.036     0.042    0.028       0.1       0.3
X1     20.5        70  5348.41   7070.03     26.76     33.52     24.6
X3       10
GR     1028      4000     1026   4658.17      1026   4689.81     1026   4703.17     1026   4703.78
GR     1026    4711.3  1028.97    4838.1      1026   4895.29     1026   4897.03     1026   4991.27
GR     1026    5018.2     1026   5065.98      1026   5126.47     1028   5138.38     1030   5150.23
GR     1030   5249.26     1030   5271.29      1030   5348.41     1028   5353.61     1026    5358.6
GR     1024    5365.1     1022   5372.23      1020   5379.52     1018   5387.49     1016   5408.21
GR     1014    5426.4     1012   5441.07      1012    5470.8     1014   5510.63     1014    5635.6
GR     1014   5758.21     1016   5780.44      1018   6292.03     1018    6779.4     1018   6949.29
GR     1020   6966.64     1020   6986.06      1018    7000.3     1018   7015.29     1020   7045.36
GR     1022   7053.73     1024   7061.95      1026   7070.03     1026   7105.86     1024   7268.63
GR     1024   7378.68     1024   7420.24      1022   7549.56     1022   7686.59     1022   7776.59
GR     1022   7790.85     1022   7855.51      1022   8019.49     1022   8020.95     1022   8647.49
GR     1024   8759.49     1024   8769.17      1022   8840.14     1022   8844.11     1022   8987.54
GR     1022   9056.49     1024   9061.61      1024    9084.9     1022   9091.01     1022   9107.91
GR     1024   9216.98     1024    9421.4      1024   9434.18     1026  10458.89     1028  11732.77

X1       21        90  2271.01   3995.83     25.41     18.81     17.71
X3       10
GR     1028         0     1028     22.63      1026    488.07     1024    999.39     1024   1759.19
GR   1030.2   1761.01     1024   1813.55      1022   1821.09     1022   1830.76     1024   1839.65
GR     1024   1987.82     1022    2054.7      1022   2065.12     1024   2075.73     1026   2087.12
GR     1028   2099.34     1030   2112.38      1030   2271.01     1028   2277.72     1026   2284.56
GR     1024   2290.83     1022   2296.54      1020   2301.67     1018   2307.56     1016   2338.72
GR     1014   2349.09     1012   2363.94      1012   2393.21     1014   2432.24     1016   2487.78
GR     1016   2506.58     1014   2618.09      1014   2704.85     1016   2726.34     1018   3046.04
GR     1018   3207.66     1018   3698.24      1018   3875.91     1020   3890.08     1020   3911.68
GR     1018   3924.31     1018   3944.81      1020    3972.1     1022   3981.16     1024   3988.95
GR     1026   3995.83     1026    4017.6      1024   4029.61     1022   4208.97     1022   4354.29
GR     1020   5111.35     1020   5340.74      1018   5413.47     1018   5591.11     1020   5639.62
GR     1022   5644.42     1024   5680.21      1024   5681.34     1022   5687.48     1020   5693.57
GR     1018   5753.44     1018   5974.81      1020    5983.1     1022   5994.01     1022    6009.6
GR     1020    6013.9     1018   6017.01      1018    6021.2     1020   6354.15     1020   6657.61
GR     1020   6819.37     1020   6907.02      1022   6917.49     1022   6945.48     1020   6949.76
GR     1020   6982.26     1022    7572.8      1022   7578.86     1022   7717.12     1022    7735.5
GR     1022   7786.53     1022   7893.41      1022   7894.16     1022   7947.33     1022   8051.12
GR     1022   8215.36     1024   8215.58      1026   8215.85     1028   8577.66     1028   8635.58

X1       22        88  6613.78   8959.26      476       525    509.85
X3       10                                            9130      1030
GR     1024      4000  1030.51   6613.78      1024   6691.42     1024   6697.76     1024   6708.92
GR     1024   6715.84     1024   6723.28      1024   6769.89     1022   6865.44     1022   6886.31
GR     1022   6939.78     1020   6960.37      1018   7000.19     1016   7125.43     1016   7221.21
GR     1016   7305.62     1014    7344.5      1014   7349.58     1016   7358.58     1016   7448.19
GR     1016   7477.04     1016   7486.92      1016   7568.92     1016   7590.84     1016   7596.76
GR     1018   7613.04     1020   7781.03      1020    7987.7     1018   8080.24     1018   8091.54
GR     1022   8351.31     1022   8441.24      1020   8548.66     1018   8685.25     1018   8813.27
GR     1018   8959.26     1018   8974.61      1018   8989.79     1018   9091.42     1020   9505.09
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GR	1022	9570.59	1022	9796.87	1020	9830.94	1020	9850.7	1022	9864.79
[illegible]	1022	10172.54	1022	10226.24	1022	10274.55	1022	10277.01	1022	10368.3
[illegible]	1020	10378.8	1020	10468.6	1022	10473.78	1022	10476.27	1020	10481.94
GR	1020	10506.9	1022	10519.14	1022	10528.11	1020	10544.41	1020	10584.17
GR	1020	10669.4	1020	10685.31	1020	10733.82	1020	10750.52	1022	10759.29
GR	1022	10767.21	1020	10791.39	1020	10804.88	1022	10892.34	1024	11792.39
GR	1024	11797.86	1024	11825.1	1024	11879.82	1024	12652.53	1024	12803.13
GR	1024	12848.79	1026	13083.69	1026	13086.88	1026	13098.35	1028	13155.96
GR	1028	13184.6	1028	13196.48	1028	13276.87	1028	13290.95	1030	13375.86
GR	1032	13454.81	1034	13571.31	1034	13683.11				
X1	23	71	6774.82	9632.83	488	697	484.56			
X3	10					9893	1030			
GR	1026	4000	1031.64	6774.82	1024	6852.72	1024	6858.12	1024	6957.88
GR	1024	6965.61	1024	7039.82	1022	7054.43	1020	7067.13	1020	7245.35
GR	1020	7264.74	1018	7385.87	1016	7391.26	1016	7517.62	1018	7654.24
GR	1020	7728.12	1020	7899.16	1020	7956.36	1020	8209.63	1020	8261.04
GR	1020	8504.86	1018	8528.37	1018	8540.7	1020	8634.25	1022	8649.55
GR	1024	8665.97	1024	8733.15	1022	8771.06	1022	8775.69	1022	8788.88
GR	1022	8793.74	1024	8815.77	1024	8895.97	1024	8934.48	1024	9113.86
GR	1022	9179.24	1022	9184.97	1024	9212.8	1024	9500.94	1024	9514.26
GR	1026	9629.73	1026	9632.83	1026	9650.18	1026	9672.24	1024	9698.57
GR	1022	10473.45	1020	10523.55	1020	11047.41	1022	11078.67	1024	11226.52
GR	1024	11264.94	1024	11334.3	1024	11487.55	1024	11604.22	1024	11840.88
GR	1024	11907.16	1024	11942.12	1024	11949.93	1024	11959.19	1024	11971.7
GR	1024	12129.41	1024	12160.48	1026	13211.86	1028	13245.32	1028	13272.57
GR	1028	13309.53	1030	13328.22	1030	13345.13	1028	13359.77	1028	13366.59
GR	1032	13409.86								

BEGIN 2ND WEST PIT

X1	24	90	4631.58	8095.57	440	724.06	450.96			
X3	10	1018				8280	1030			
GR	1026	4000	1026	4099.86	1026	4507.95	1030	4631.58	1024	4696.45
GR	1026	4709.11	1024	4889.7	1020	4908.37	1020	5089.6	1018	5270.96
GR	1016	5280.23	1016	5349.28	1018	5379.73	1018	5547.47	1020	5563.04
GR	1022	5978.9	1022	6154.92	1020	6364.38	1024	6398.61	1024	6722.02
GR	1024	6747	1026	6902.84	1024	7106.14	1026	7120.18	1026	7192.15
GR	1024	7200.45	1024	7337.11	1026	7348.85	1026	7384.86	1024	7396.5
GR	1024	7414.98	1026	7432.37	1014	7451.25	1020	7478.64	1020	7511.51
GR	996	7526.41	996	7543.13	1000	7601.07	1000	7631.98	996	7652
GR	996	7735.9	1000	7744.39	1006	7749.18	1010	7752.13	1016	7757.19
GR	1018	7761.99	1002	7767.71	1002	7882.49	1004	7936.78	1008	7947.11
GR	1012	8017.25	1016	8022.54	1018	8053.01	1024	8095.57	1024	8160.09
GR	1026	8182.67	1026	8249.19	1024	8269.53	1024	8294.19	1026	8443.78
GR	1026	8530.27	1030	8538.98	1030	8560.13	1032	8576.62	1032	8709.95
GR	1028	8996.1	1020	9009.1	1012	9014.4	1010	9021.29	1008	9058.52
GR	1012	9061.18	1018	9065.1	1024	9068.34	1024	9092.97	1026	9097.87
GR	1026	9281.67	1030	9297.64	1030	9343.92	1026	9364.6	1024	9587.05
GR	1022	9638.4	1022	10581.82	1024	11019.99	1030	11074.81	1030	11175.07
GR	1028	11201.33	1028	11362.37	1032	11427.57	1032	11457.26	1034	11478.79

	25	90	4405.5	8713.42	273	510	497.78			
X3	10	1018				8715	1032			
GR	1026	3693.32	1026	4000	1033.43	4405.5	1026	4592.87	1026	4601.88
GR	1028	4723.24	1028	4796.92	1026	4806.57	1024	4815.08	1022	4823.26
GR	1022	4995.47	1020	5153.59	1018	5289.6	1018	5297.22	1020	5330.04
GR	1022	5352.78	1022	5395.18	1020	5431.25	1018	5435.62	1018	5484.29
GR	1022	5543.74	1022	6173.67	1022	6257.55	1024	6270.29	1026	6298.88
GR	1026	6389.85	1026	6885.22	1026	7064.23	1028	7069.64	1028	7073.83
GR	1026	7079.95	1024	7086.1	1022	7183.38	1020	7184.71	1018	7186.53
GR	1016	7187.93	1014	7189.18	1012	7190.48	1010	7191.95	1008	7193.18
GR	1006	7194.54	1004	7195.91	1002	7197.27	1000	7198.65	998	7200
GR	996	7201.37	994	7202.69	992	7203.78	992	7227.59	994	7299.08
GR	996	7328.76	998	7363.35	1000	7406.52	1000	7507.96	1002	7563.43
GR	1002	7583.14	1000	7588	1000	7675.23	1002	7678.04	1004	7680.65
GR	1006	7683.27	1010	7688.49	1012	7743.19	1014	7769.34	1016	7774.57
GR	1018	7780.48	1020	7791.55	1022	7801.73	1024	7867.81	1026	7971.6
GR	1028	8067.01	1028	8312.93	1026	8713.42	1026	8754.73	1028	8814.61
GR	1028	8899.85	1026	9933.69	1026	10291.28	1028	10804.78	1030	10948.05
GR	1032	10952.56	1032	10969.71	1030	10974.32	1030	11085.21	1032	11097.93
GR	1032	11114.56	1032	11151.85	1034	11322.24	1036	11384.51	1038	11546.04

END 2ND WEST PIT

X1	26	90	4453.31	9333.07	180	510	493.04			
X3	10	1018				9598	1032			
GR	1026	3649.04	1026	4000	1033.76	4453.31	1028	4648.64	1028	5051.84
GR	1026	5114.73	1022	5141.78	1020	5226.5	1020	5332.46	1022	5342.15
GR	1022	5458.87	1020	5500.18	1020	5537.51	1022	5618.93	1024	5638.56
GR	1024	5863.22	1020	5873.94	1020	6016.97	1022	6039.1	1024	6416.75
GR	1024	6653.22	1028	6687.87	1028	7110.83	1028	7209.52	1026	7221.44
GR	1026	7234.78	1028	7405.88	1024	7414.84	1022	7487.62	1002	7512.55
GR	1002	7574.83	1004	7669.92	1008	7674.36	1014	7681	1018	7685.43
GR	1022	7689.85	1022	7804.32	1014	7820.34	1008	7837.3	1008	7851.39
GR	1012	7868.8	1012	7877.52	1008	7899.47	1006	7927.94	1006	7968.65
GR	1010	7980.43	1010	8001.33	1006	8013.01	1006	8064.94	1008	8188.19
GR	1010	8207.74	1008	8217.41	1008	8234.71	1010	8266.02	1012	8275.99
GR	1002	8284.09	1002	8291.07	1008	8301.09	1012	8305.89	1018	8312.51
GR	1024	8318.72	1026	8531.33	1026	8549.91	1024	8633.24	1020	8647.39
GR	1020	8676.06	1022	8687.5	1014	8706.49	1014	8713.83	1018	8752.26
GR	1022	8760.95	1028	8770.12	1030	8781.94	1028	8786.73	1028	8802.27
GR	1026	8922.25	1026	9023.81	1028	9277.09	1028	9333.07	1028	10047.74
GR	1028	10287.81	1028	10918.46	1030	11307.06	1034	11317.27	1034	11328.15
GR	1030	11335.98	1030	11427.49	1032	11438.1	1032	11563.61	1034	11668.35

NC	0.04	0.04	0.03							
X1	27	72	4096.2	11724.7	345	712.66	713			
CI	4496	1021.0		4	4	500				
X3	10									
GR	1026	3198.77	1026	3198.77	1028	4000	1034.64	4096.2	1028	4677.28
GR	1028	4728.58	1028	4743.82	1028	4784.2	1026	4791.26	1024	4797.91
GR	1022	4804.19	1020	4811.89	1020	4886.86	1022	5003.7	1024	5040.42
GR	1026	5126.29	1026	5149.18	1026	5199.72	1028	5208.98	1028	5241.98

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GR    1028     5355     1028    5374.9     1026   5610.25     1024   5740.26     1024    5866.6
      1024  6008.62     1022   6046.24     1020   6051.11     1020   6108.15     1022   6121.37
GR    1022  6218.19     1022   6251.71     1024   6379.54     1026   6783.46     1028   6796.11
GR    1028  7281.28     1028    7341.9     1028   7345.81     1026   7747.82     1026   7768.69
GR    1026  7825.95     1026   7832.43     1028   8016.34     1030   8215.39     1030   8318.05
GR    1030  8332.86     1030    8367.1     1030   8643.13     1030   8691.41     1030   8694.48
GR    1030  8750.86     1028   8945.98     1028   8968.81     1028  10321.08     1028  10404.76
GR    1028 10470.53     1028  10578.64     1030  11146.54     1032  11181.25     1034  11217.84
GR    1034 11376.98     1032  11381.41     1030  11391.55     1030  11395.66     1030  11436.33
GR    1030 11449.17     1030  11461.66     1030  11469.45     1032  11476.14     1032  11501.91
GR    1032 11573.47     1034  11724.7

X1      28       85   5066.4   13560.5      839      1494   750.56
CI    5300   1022.0                4         4       550
X3      10                                    5666    1050
GR    1028     4000     1028   4022.53   1036.06   5066.4     1030   5403.56     1030   5446.31
GR    1030   5450.7     1030   5456.73     1030   5481.67     1030      5523     1030   5524.71
GR    1030  5552.37     1030    5771.4     1028   5817.46     1026   5825.87     1024   5839.64
GR    1024   5854.1     1024   5862.98     1022   5869.25     1020   5906.63     1020   5908.52
GR    1022  5959.09     1022   5980.42     1022   5985.91     1024   6002.83     1024   6015.33
GR    1024  6038.29     1024   6078.38     1024   6100.15     1024   6149.71     1024   6187.99
GR    1024  6254.53     1024   6258.38     1024   6278.34     1024   6311.96     1026   6402.36
GR    1028  6427.18     1028   6667.83     1028   6717.07     1028   7128.41     1028   7202.87
GR    1028  7226.94     1028   7261.61     1028   7279.15     1028   7388.49     1028   7680.74
GR    1026   7696.3     1024   7727.37     1022   7850.29     1022   7933.71     1024   8022.66
GR    1026   8243.4     1028    8555.1     1028   8959.22     1028   8973.06     1028   9094.17
GR    1028  9115.69     1028   9233.71     1028   9239.66     1028   9256.88     1026    9272.2
GR    1026  9273.86     1028   9284.09     1030   9700.29     1032  10174.75     1032  10289.68
GR    1030 10333.89     1030  10415.85     1030  10678.87     1030  10688.81     1030  10803.99
GR    1030 10826.24     1030  10953.43     1030  10960.15     1030  10980.44     1030  10985.07
GR    1030 11049.53     1030   11568.9     1030  11773.71     1030  11815.49     1030  12281.16
GR    1032 13044.09     1034  13047.84     1034  13067.03     1032  13071.22     1032   13560.5

      FIRST NEW RIVER SECTION U/S OF THE CONFLUENCE

NC   0.045    0.045    0.035       0.1       0.3
QT       2    69000    71300
   Interpolate cross section between 28 and 29. Use 29 shifted downstrean
X1    28.5       25  4381.29    6011.8       388      1100      600                2.0
CI    4700   1023.0                4         4       650
X3      10                       4300                5100   1050.0
GR    1032     4000  1033.73   4014.92   1037.57   4381.29     1032   4755.99     1032   4869.54
GR    1032  4912.84     1030   4983.86     1030   4995.44     1030   5041.07     1028   5079.29
GR    1026  5092.07     1024    5130.2     1024    5263.8     1026   5443.57     1028   5549.29
GR    1030  5586.73     1030   5761.69     1028   5774.08     1028   5799.85     1032    5832.5
GR    1034  5840.24     1036   5848.13     1038    5863.9     1040    6011.8     1040   6017.51

X1      29       25  4381.29    6011.8       388      1100      600
CI    4900     1024                4         4       850
X3      10                    4381.29                5431.   1050.0
GR    1032     4000  1033.73   4014.92   1037.57   4381.29     1032   4755.99     1032   4869.54
GR    1032  4912.84     1030   4983.86     1030   4995.44     1030   5041.07     1028   5079.29
GR    1026  5092.07     1024    5130.2     1024    5263.8     1026   5443.57     1028   5549.29
```

GR	1030	5586.73	1030	5761.69	1028	5774.08	1028	5799.85	1032	5832.5
	1034	5840.24	1036	5848.13	1038	5863.9	1040	6011.8	1040	6017.51
X1	34	30	4332	5478.63	651	582.64	593.37			
CI	4800	1026.0		4	4	800				
X3	10			4332		5478.63				
GR	1034	4000	1039.36	4332	1033.73	4678.26	1036	4699.5	1036	4715.51
GR	1034	4724.89	1032	4770.14	1032	4774.06	1032	4863.48	1030	4904.42
GR	1028	4923.27	1026	4935.08	1026	5109.98	1028	5417.13	1030	5423.5
GR	1032	5429.41	1034	5434.28	1036	5439.06	1040.7	5443.87	1040.7	5478.63
GR	1038	5486.46	1036	5494.43	1034	5502.42	1032	5509.83	1030	5518.14
GR	1030	5645.86	1032	5671.63	1034	5690.2	1036	5708.14	1038	5723.74
X1	35	22	4000	5039.35	448	501.13	508.89			
CI	4500	1027.0		4	4	600				
X3	10					5039.35				
GR	1036	3999	1042.27	4000	1036	4361.25	1036	4376.52	1036	4387.35
GR	1036	4400.35	1034	4414.34	1032	4483.62	1030	4517.49	1028	4526.14
GR	1026	4542.46	1026	4571.26	1026	4593.09	1026	4688.54	1028	4794.93
GR	1030	5009.38	1032	5015.4	1034	5021.41	1036	5027.4	1038	5033.38
GR	1040.7	5039.35	1040.70	5063.07						
X1	36	28	4082	5095.86	430	670	660			
CI	4600	1028.0		4	4	600				
X3	10			4210		5095.86				
GR	1038	4000	1038	4082.00	1044.34	4210	1038	4305.72	1038	4339.4
GR	1038	4348.55	1038	4362.01	1038	4380.86	1038	4410.02	1036	4463.93
GR	1034	4515.92	1032	4551.79	1030	4580.46	1028	4630.46	1028	4722.21
GR	1028	4770.03	1028	4808.76	1028	4905.38	1028	4937.42	1030	4980.67
GR	1032	5074.38	1034	5079	1036	5083.63	1038	5089.07	1041.66	5095.86
GR	1041.7	5127.91	1041.66	5188.65	1041.66	5262.26				
X1	51.5	42	4000	5078.88	614	500.00	648.12			
CI						0.01				
X3	10									
GR	1045	4000	1038	4057.01	1040	4238.1	1040	4241.66	1040	4323.51
GR	1042	4330.74	1044	4338.07	1046	4345.38	1046	4355.98	1044	4375.4
GR	1042	4390.47	1040	4397.73	1038	4404.73	1036	4411.5	1034	4422.31
GR	1032	4449.85	1032	4464.81	1032	4478.77	1030	4502.78	1030	4779.59
GR	1030	4785.58	1030	4822.62	1032	4884.43	1034	5043.24	1036	5048.46
GR	1038	5055.6	1040	5063.47	1042.85	5072.89	1042.85	5078.88	1040	5101.01
GR	1038	5112.62	1038	5168.93	1040	5205.55	1042	5254.85	1042	5265.37
GR	1042	5265.44	1042	5282.11	1040	5325.67	1038	5363.92	1036	5392.89
GR	1034	5425.24	1034	5437.68						
X1	54	46	4218.21	5295.21	310.22	226.25	263.78			
X3	10									
GR	1038	4000	1038	4020.99	1038	4186.72	1038	4194.81	1038	4196.11
GR	1045	4218.21	1038	4349.31	1036	4356.97	1034	4370.59	1034	4424.53
GR	1036	4435.2	1038	4445.59	1040	4456.12	1042	4466.44	1042	4495.67
GR	1040	4503.32	1038	4510.75	1036	4518.12	1034	4525.48	1032	4532.12
GR	1032	4533.99	1032	4534.03	1030	4545.76	1030	4667.35	1032	4706.34
GR	1032	4710.78	1032	4776.26	1032	4820.96	1030	4920.98	1030	4958.8
GR	1032	5062.3	1034	5267.05	1036	5273.8	1038	5280.55	1040	5287.56

GR	1043.4	5295.21	1043.4	5317.33	1040	5331.95	1038	5344.49	1038	5412.97
	1040	5437.75	1042	5477.42	1042	5546.4	1040	5587.32	1038	5618.42
GR	1036	5643.85								
QT	2	69000	68000							
X1	60	38	4181.41	5043.16	928.4	653.57	633.78			
X3	10									
GR	1042	4000	1042	4026.44	1042	4065.27	1044	4084.07	1044	4166.3
GR	1042	4179.37	1045	4181.41	1040	4182.73	1038	4186.04	1036	4189.19
GR	1034	4192.18	1032	4210.69	1032	4291.02	1032	4378.29	1030	4405.74
GR	1030	4420.82	1032	4457.12	1032	4590.48	1032	4605.81	1032	4627.92
GR	1032	4750.53	1032	4754.55	1032	4759.21	1034	4921.68	1034	4981.19
GR	1034	5019.79	1036	5025.89	1038	5031.74	1040	5037.41	1044.80	5043.16
GR	1044.8	5081.2	1040	5091.07	1040	5241.22	1042	5271.5	1044	5328.58
GR	1044	5348.06	1042	5410.5	1040	5447.59				
X1	63	50	4256.1	5073.66	232.02	233.04	222.89			
X3	10			4256.1						
GR	1042	4000	1042	4002.46	1042	4005.07	1042	4046.91	1040	4112.3
GR	1040	4136.61	1042	4145.57	1042	4166.03	1040	4189.9	1038	4212.48
GR	1038	4224.99	1040	4229.5	1042	4234	1044	4238.33	1044	4256.1
GR	1042	4258.85	1040	4261.51	1038	4264.37	1038	4264.37	1036	4267.08
GR	1034	4269.75	1032	4272.47	1032	4329.99	1032	4526.45	1032	4531.07
GR	1032	4639.46	1032	4696.72	1032	4713.6	1032	4725.84	1034	4794.08
GR	1034	4846.28	1034	4871.63	1036	5021.17	1038	5027.07	1040	5032.89
GR	1042	5039.09	1045.23	5045.83	1045.23	5073.66	1042	5082.22	1040	5090.86
GR	1040	5127.69	1040	5139.2	1040	5182.37	1040	5239.7	1040	5261.06
GR	1042	5278.84	1044	5318.47	1044	5390.04	1042	5447.28	1040	5493.84
X1	70.5	42	4394.98	4955.42	735.13	696.73	725.14			
X3	10									
GR	1044	4000	1044	4126.49	1044	4132.05	1044	4133.94	1044	4145.53
GR	1042	4203.51	1042	4211.99	1044	4228.26	1044	4244.1	1042	4258.75
GR	1042	4383.84	1044	4389.43	1046	4394.98	1046	4417.4	1044	4420.11
GR	1042	4422.82	1040	4425.54	1038	4428.25	1036	4430.95	1034	4433.64
GR	1032	4438.88	1032	4583.34	1034	4594.35	1034	4764.14	1034	4812.46
GR	1034	4872.66	1034	4925.82	1036	4930.41	1038	4935	1040	4939.6
GR	1042	4944.37	1044	4949.74	1047.02	4955.42	1047.02	5024.87	1044	5062.67
GR	1042	5074.73	1042	5103.8	1042	5237.74	1042	5271.31	1044	5296.53
GR	1046	5330.91	1046	5404.97						
X1	77	26	4364.84	4793.57	568.51	689.77	636.54			
X3	10									
GR	1044	4000	1044	4327.43	1046	4334.5	1048	4339.83	1048	4364.84
GR	1046	4369.2	1044	4372.51	1042	4375.42	1040	4378.13	1038	4380.72
GR	1036	4383.31	1034	4385.9	1034	4538.55	1034	4671.05	1034	4775.75
GR	1036	4778.2	1038	4780.77	1040	4783.38	1042	4785.96	1044	4788.51
GR	1046	4791.04	1048	4793.57	1050	4914.55	1052	4935.95	1054	4978.18
GR	1054	5068.84								

X1	84	37	4276.52	4785.73	709.65	725.55	702.16			
X3	10									
GR	1048	4000	1048	4256.6	1050	4263.19	1052	4276.52	1052	4288.06
GR	1050	4292.15	1048	4294.92	1046	4298.08	1044	4300.82	1042	4303.55
GR	1040	4306.39	1038	4309.33	1036	4312.49	1034	4321.74	1034	4426.04
GR	1034	4503.74	1032	4613.12	1032	4672.11	1034	4716.22	1036	4764.89
GR	1038	4767.51	1040	4770.13	1042	4772.74	1044	4775.35	1046	4777.95
GR	1048	4780.54	1050	4783.14	1052	4785.73	1052	4858.98	1052	4912.41
GR	1054	4949.21	1056	4954.27	1056	4985.88	1054	4990.05	1052	4997.51
GR	1050	5022.92	1050	5091.52						
X1	88.8	38	4057.37	4563.57	516.3	423.21	478.14			
X3	10									
GR	1050	4000	1052	4022.47	1052	4057.37	1050	4059.79	1048	4062.22
GR	1046	4064.64	1044	4067.06	1042	4069.48	1040	4071.9	1038	4074.31
GR	1036	4076.71	1034	4205.43	1034	4211.06	1036	4219.98	1038	4247.29
GR	1038	4247.75	1036	4260.37	1036	4403.25	1038	4440.49	1038	4461.79
GR	1038	4496.22	1038	4514.86	1036	4537.4	1036	4543.5	1038	4546.61
GR	1040	4549.49	1042	4551.93	1044	4554.26	1046	4556.55	1048	4558.86
GR	1050	4561.16	1052	4563.57	1052	4912.11	1050	4947.86	1050	4983.89
GR	1052	5254.7	1054	5349.56	1056	5355.31				

T2
T3

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	-10	3			0.00142				1009.6	
J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	2		-1					-6		

THIS RUN EXECUTED 13NOV97 17:07:28

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HEC-2 WATER SURFACE PROFILES

Version 4.6.2; May 1991
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NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

SUMMARY PRINTOUT TABLE 120

SECNO	CWSEL	EG	VCH	10*KS	DEPTH	TOPWID	CLSTA	BW	STCHL	XLBEL	STCHR	RBEL
1.000	1009.10	1011.21	11.66	14.28	13.10	1025.01	.00	.01	394.53	1010.00	1422.94	1010.00
1.000	1006.60	1008.15	10.00	14.19	10.60	1015.50	.00	.01	394.53	1010.00	1422.94	1010.00
2.000	1009.80	1012.02	11.97	16.06	11.80	1047.11	.00	.01	383.84	1012.00	1440.42	1012.00
2.000	1007.30	1008.98	10.40	16.61	9.30	1035.63	.00	.01	383.84	1012.00	1440.42	1012.00
3.000	1010.65	1012.89	12.01	17.94	10.65	1127.81	.00	.01	482.00	1014.00	1621.81	1014.00
3.000	1008.16	1009.93	10.67	20.05	8.16	1119.61	.00	.01	482.00	1014.00	1621.81	1014.00
4.000	1012.12	1013.59	9.75	11.18	12.12	1333.85	.00	.01	817.46	1014.00	2156.10	1014.00
4.000	1009.53	1010.69	8.66	12.51	9.53	1327.43	.00	.01	817.46	1014.00	2156.10	1014.00
5.000	1012.68	1013.79	8.44	7.44	12.68	1412.08	.00	.01	796.49	1016.00	2270.21	1016.00
5.000	1010.06	1010.89	7.33	7.69	10.06	1397.83	.00	.01	796.49	1016.00	2270.21	1016.00
6.000	1012.48	1014.06	10.08	12.04	12.48	1428.80	.00	.01	972.00	1018.00	2442.20	1018.00
6.000	1009.91	1011.11	8.77	11.68	9.91	1411.94	.00	.01	972.00	1018.00	2442.20	1018.00
7.000	1012.57	1014.18	10.18	12.63	12.57	1457.91	.00	.01	1031.85	1018.00	2521.45	1016.00
7.000	1009.99	1011.23	8.95	12.69	9.99	1441.80	.00	.01	1031.85	1018.00	2521.45	1016.00
8.000	1013.21	1014.28	8.31	7.50	13.21	1476.62	.00	.01	61.72	1018.00	1843.60	1020.00
8.000	1010.48	1011.32	7.35	8.22	10.48	1456.56	.00	.01	61.72	1018.00	1843.60	1020.00
9.000	1013.57	1014.59	8.13	7.32	11.57	1529.70	.00	.01	449.80	1014.00	1980.46	1014.00
9.000	1010.86	1011.67	7.22	8.22	8.86	1523.72	.00	.01	449.80	1014.00	1980.46	1014.00
10.000	1013.94	1015.17	8.91	9.83	11.94	1518.56	.00	.01	855.01	1016.00	2377.24	100000.00
10.000	1011.31	1012.32	8.05	11.67	9.31	1511.69	.00	.01	855.01	1016.00	2377.24	100000.00
11.000	1014.85	1015.83	8.06	11.04	10.85	1843.90	.00	.01	2405.12	1012.00	4118.42	1020.00
11.000	1012.29	1013.12	7.41	13.91	8.29	1833.64	.00	.01	2405.12	1012.00	4118.42	1020.00

	SECNO	CWSEL	EG	VCH	10*KS	DEPTH	TOPWID	CLSTA	BW	STCHL	XLBEL	STCHR	RBEL
	12.000	1015.70	1016.60	7.63	17.94	9.70	2974.83	.00	.01	2020.24	1020.00	5067.86	1016.00
*	12.000	1013.21	1014.23	8.09	28.73	7.21	2478.39	.00	.01	2020.24	1020.00	5067.86	1016.00
	13.000	1016.69	1017.42	6.88	12.90	10.69	3006.97	.00	.01	3445.00	1019.65	6502.46	1018.00
	13.000	1014.78	1015.43	6.43	17.01	8.78	2971.64	.00	.01	3445.00	1019.65	6502.46	1018.00
	14.000	1017.37	1018.04	6.56	11.22	11.37	3042.69	.00	.01	3100.00	1021.00	6150.27	1020.00
	14.000	1015.62	1016.16	5.88	11.96	9.62	2847.95	.00	.01	3100.00	1021.00	6150.27	1020.00
	15.000	1017.90	1018.74	7.35	16.01	11.90	2997.68	.00	.01	3180.00	1023.80	6242.95	1022.00
	15.000	1016.16	1016.84	6.60	14.29	10.16	2440.34	.00	.01	3180.00	1023.80	6242.95	1022.00
	16.000	1018.72	1019.94	8.87	29.95	12.72	2998.51	.00	.01	3310.00	1025.02	6450.93	1022.00
*	16.000	1016.95	1018.15	8.79	41.92	10.95	2673.97	.00	.01	3310.00	1025.02	6450.93	1022.00
	17.000	1020.29	1021.41	8.95	23.53	16.29	3187.64	.00	.01	8744.78	1023.00	10774.90	1016.00
	17.000	1019.02	1019.89	7.79	23.70	15.02	3179.06	.00	.01	8744.78	1023.00	10774.90	1016.00
	18.000	1021.42	1022.27	6.33	14.71	11.42	3290.66	.00	.01	4531.35	1023.00	6388.38	1018.00
	18.000	1020.00	1020.72	5.09	14.08	10.00	3262.07	.00	.01	4531.35	1023.00	6388.38	1018.00
*	18.500	1022.76	1025.64	13.61	60.36	10.76	1736.06	.00	.01	490.00	1024.00	2242.02	1026.00
*	18.500	1021.24	1023.61	12.34	72.42	9.24	1724.42	.00	.01	490.00	1024.00	2242.02	1026.00
*	19.000	1024.47	1026.58	11.66	23.93	12.47	1702.44	.00	.01	2217.43	1032.00	4008.82	1034.00
*	19.000	1023.15	1024.57	9.58	20.14	11.15	1692.35	.00	.01	2217.43	1032.00	4008.82	1034.00
	20.000	1024.99	1026.83	10.89	19.31	12.99	1704.34	.00	.01	2251.27	1032.00	3994.32	1030.00
	20.000	1023.48	1024.76	9.09	17.06	11.48	1692.97	.00	.01	2251.27	1032.00	3994.32	1030.00
	20.500	1025.42	1026.91	9.81	19.81	13.42	1707.25	.00	.01	5348.41	1030.00	7070.03	1026.00
	20.500	1023.77	1024.83	8.26	18.57	11.77	1695.08	.00	.01	5348.41	1030.00	7070.03	1026.00
	21.000	1025.41	1026.97	10.04	21.37	13.41	1707.38	.00	.01	2271.01	1030.00	3995.83	1026.00
	21.000	1023.76	1024.88	8.49	20.33	11.76	1696.50	.00	.01	2271.01	1030.00	3995.83	1026.00
	22.000	1027.04	1027.84	7.31	11.93	13.04	2474.87	.00	.01	6613.78	1030.51	8959.26	1018.00
	22.000	1025.12	1025.76	6.50	13.41	11.12	2452.00	.00	.01	6613.78	1030.51	8959.26	1018.00
	23.000	1027.68	1028.58	7.70	17.70	11.68	3077.81	.00	.01	6774.82	1031.64	9632.83	1026.00
	23.000	1025.85	1026.72	7.46	25.64	9.85	2787.28	.00	.01	6774.82	1031.64	9632.83	1026.00
*	24.000	1028.66	1029.16	5.71	8.48	10.66	3633.95	.00	.01	4631.58	1030.00	8095.57	1024.00
*	24.000	1027.02	1027.42	5.05	9.31	9.02	3616.25	.00	.01	4631.58	1030.00	8095.57	1024.00
	25.000	1029.13	1029.67	5.88	11.90	11.13	4201.16	.00	.01	4405.50	1033.43	8713.42	1026.00
	25.000	1027.52	1027.99	5.46	13.16	9.52	3684.54	.00	.01	4405.50	1033.43	8713.42	1026.00
	26.000	1029.78	1030.17	5.01	8.30	11.78	5008.04	.00	.01	4453.31	1033.76	9333.07	1028.00
	26.000	1028.24	1028.57	4.59	10.18	10.24	4943.07	.00	.01	4453.31	1033.76	9333.07	1028.00

	SECNO	CWSEL	EG	VCH	10*KS	DEPTH	TOPWID	CLSTA	BW	STCHL	XLBEL	STCHR	RBEL
*	27.000	1030.59	1031.00	5.13	17.23	10.59	7032.13	4496.00	500.00	4096.20	1034.64	11724.70	1034.00
*	27.000	1029.24	1029.65	5.12	23.47	9.24	6033.27	4496.00	500.00	4096.20	1034.64	11724.70	1034.00
*	28.000	1034.25	1039.74	18.79	59.97	12.25	690.02	5300.00	550.00	4971.69	1035.33	13560.50	1050.00
*	28.000	1031.66	1035.97	16.66	65.69	9.66	679.64	5300.00	550.00	4971.69	1035.33	13560.50	1050.00
*	28.500	1040.73	1041.16	5.28	3.77	17.73	800.00	4700.00	650.00	4311.64	1038.84	6011.80	1050.00
*	28.500	1036.91	1037.69	7.09	9.41	13.91	780.64	4700.00	650.00	4311.64	1038.84	6011.80	1050.00
	29.000	1041.10	1041.36	4.08	2.32	17.10	1049.71	4900.00	850.00	4381.29	1037.57	6011.80	1050.00
	29.000	1037.70	1038.15	5.34	5.40	13.70	1049.71	4900.00	850.00	4381.29	1037.57	6011.80	1050.00
	34.000	1041.23	1041.53	4.33	3.13	15.23	1146.63	4800.00	800.00	4332.00	1039.36	5478.63	100000.00
	34.000	1038.02	1038.54	5.76	7.24	12.02	1089.22	4800.00	800.00	4332.00	1039.36	5478.63	100000.00
*	35.000	1041.30	1041.82	5.75	6.57	15.30	983.59	4500.00	600.00	4000.00	1042.27	5039.35	100000.00
	35.000	1038.24	1039.17	7.75	14.59	12.24	878.85	4500.00	600.00	4000.00	1042.27	5039.35	100000.00
	36.000	1041.69	1042.32	6.41	7.79	13.69	850.60	4600.00	600.00	4082.00	100000.00	5095.86	100000.00
	36.000	1039.18	1040.24	8.25	16.82	11.18	835.99	4600.00	600.00	4082.00	100000.00	5095.86	100000.00
*	51.500	1042.16	1043.33	8.70	26.28	12.16	989.48	.00	.01	4000.00	1045.00	5078.88	1042.85
*	51.500	1040.35	1042.42	11.54	61.42	10.35	955.20	.00	.01	4000.00	1045.00	5078.88	1042.85
*	54.000	1043.11	1043.85	6.88	12.86	13.11	1041.04	.00	.01	4218.21	1045.00	5295.21	1043.40
*	54.000	1042.40	1043.32	7.68	17.41	12.40	1025.95	.00	.01	4218.21	1045.00	5295.21	1043.40
	60.000	1043.84	1044.62	7.11	11.19	13.84	860.29	.00	.01	4181.41	1045.00	5043.16	1044.80
	60.000	1043.43	1044.25	7.27	12.26	13.43	859.69	.00	.01	4181.41	1045.00	5043.16	1044.80
	63.000	1043.96	1044.99	8.15	15.63	11.96	787.02	.00	.01	4256.10	1044.00	5073.66	1045.23
	63.000	1043.57	1044.65	8.33	17.10	11.57	785.68	.00	.01	4256.10	1044.00	5073.66	1045.23
*	70.500	1044.73	1046.93	11.90	33.01	12.73	532.00	.00	.01	4394.98	1046.00	4955.42	1047.02
	70.500	1044.47	1046.71	12.02	34.70	12.47	531.14	.00	.01	4394.98	1046.00	4955.42	1047.02
	77.000	1046.52	1049.38	13.56	38.09	12.52	423.65	.00	.01	4364.84	1048.00	4793.57	1048.00
	77.000	1046.37	1049.22	13.54	38.54	12.37	423.12	.00	.01	4364.84	1048.00	4793.57	1048.00
*	84.000	1049.65	1050.95	9.14	12.37	17.65	490.05	.00	.01	4276.52	1052.00	4785.73	1052.00
*	84.000	1049.51	1050.79	9.09	12.38	17.51	489.67	.00	.01	4276.52	1052.00	4785.73	1052.00
	88.800	1050.14	1051.76	10.21	18.57	16.14	501.72	.00	.01	4057.37	1052.00	4563.57	1052.00
	88.800	1050.00	1051.61	10.17	18.66	16.00	501.38	.00	.01	4057.37	1052.00	4563.57	1052.00

SUMMARY PRINTOUT TABLE 150

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
	1.000	.00	.00	.00	996.00	142000.00	1009.10	.00	1011.21	14.28	11.66	12182.33	37574.52
	1.000	.00	.00	.00	996.00	96300.00	1006.60	.00	1008.15	14.19	10.00	9628.99	25568.51
	2.000	513.18	.00	.00	998.00	142000.00	1009.80	.00	1012.02	16.06	11.97	11859.43	35435.26
	2.000	513.18	.00	.00	998.00	96300.00	1007.30	.00	1008.98	16.61	10.40	9255.17	23631.71
	3.000	508.26	.00	.00	1000.00	142000.00	1010.65	.00	1012.89	17.94	12.01	11820.11	33528.51
	3.000	508.26	.00	.00	1000.00	96300.00	1008.16	.00	1009.93	20.05	10.67	9024.71	21506.75
	4.000	449.34	.00	.00	1000.00	142000.00	1012.12	.00	1013.59	11.18	9.75	14558.55	42465.38
	4.000	449.34	.00	.00	1000.00	96300.00	1009.53	.00	1010.69	12.51	8.66	11122.40	27224.08
	5.000	175.96	.00	.00	1000.00	142000.00	1012.68	.00	1013.79	7.44	8.44	16830.46	52066.34
	5.000	175.96	.00	.00	1000.00	96300.00	1010.06	.00	1010.89	7.69	7.33	13144.05	34732.34
	6.000	36.79	1021.30	1013.30	1000.00	142000.00	1012.48	.00	1014.06	12.04	10.08	14083.30	40928.18
	6.000	36.79	1021.30	1013.30	1000.00	96300.00	1009.91	.00	1011.11	11.68	8.77	10983.02	28180.67
	7.000	82.76	1021.30	1013.30	1000.00	142000.00	1012.57	.00	1014.18	12.63	10.18	13942.22	39956.31
	7.000	82.76	1021.30	1013.30	1000.00	96300.00	1009.99	.00	1011.23	12.69	8.95	10765.35	27038.25
	8.000	49.79	.00	.00	1000.00	142000.00	1013.21	.00	1014.28	7.50	8.31	17089.23	51847.16
	8.000	49.79	.00	.00	1000.00	96300.00	1010.48	.00	1011.32	8.22	7.35	13094.13	33579.86
	9.000	414.59	.00	.00	1002.00	142000.00	1013.57	.00	1014.59	7.32	8.13	17476.70	52485.88
	9.000	414.59	.00	.00	1002.00	96300.00	1010.86	.00	1011.67	8.22	7.22	13343.37	33592.23
	10.000	611.26	.00	.00	1002.00	142000.00	1013.94	.00	1015.17	9.83	8.91	15939.36	45287.05
	10.000	611.26	.00	.00	1002.00	96300.00	1011.31	.00	1012.32	11.67	8.05	11967.45	28194.93
	11.000	614.13	.00	.00	1004.00	142000.00	1014.85	.00	1015.83	11.04	8.06	17946.10	42734.08
	11.000	614.13	.00	.00	1004.00	96300.00	1012.29	.00	1013.12	13.91	7.41	13216.90	25821.14
	12.000	536.27	.00	.00	1006.00	142000.00	1015.70	.00	1016.60	17.94	7.63	18617.11	33527.77
*	12.000	536.27	.00	.00	1006.00	96300.00	1013.21	.00	1014.23	28.73	8.09	11901.99	17967.02
	13.000	532.88	.00	.00	1006.00	142000.00	1016.69	.00	1017.42	12.90	6.88	20641.14	39541.68
	13.000	532.88	.00	.00	1006.00	96300.00	1014.78	.00	1015.43	17.01	6.43	14975.62	23348.41
	14.000	509.47	.00	.00	1006.00	142000.00	1017.37	.00	1018.04	11.22	6.56	21634.39	42393.81
	14.000	509.47	.00	.00	1006.00	96300.00	1015.62	.00	1016.16	11.96	5.88	16372.51	27851.19
	15.000	488.37	.00	.00	1006.00	142000.00	1017.90	.00	1018.74	16.01	7.35	19330.99	35484.10
	15.000	488.37	.00	.00	1006.00	96300.00	1016.16	.00	1016.84	14.29	6.60	14597.95	25477.09
	16.000	506.66	.00	.00	1006.00	142000.00	1018.72	.00	1019.94	29.95	8.87	16014.84	25946.97
*	16.000	506.66	.00	.00	1006.00	96300.00	1016.95	.00	1018.15	41.92	8.79	10955.58	14873.57

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
	17.000	550.00	.00	.00	1004.00	142000.00	1020.29	.00	1021.41	23.53	8.95	17214.18	29276.73
	17.000	550.00	.00	.00	1004.00	96300.00	1019.02	.00	1019.89	23.70	7.79	13189.92	19779.46
	18.000	431.16	.00	.00	1010.00	142000.00	1021.42	.00	1022.27	14.71	6.33	19682.57	37027.68
	18.000	431.16	.00	.00	1010.00	96300.00	1020.00	.00	1020.72	14.08	5.09	14995.02	25663.36
*	18.500	470.00	.00	.00	1012.00	142000.00	1022.76	1022.76	1025.64	60.36	13.61	10431.72	18277.83
*	18.500	470.00	.00	.00	1012.00	96300.00	1021.24	1021.24	1023.61	72.42	12.34	7802.15	11316.11
*	19.000	198.13	1034.20	1034.20	1012.00	142000.00	1024.47	.00	1026.58	23.93	11.66	12182.44	29030.29
*	19.000	198.13	1034.20	1034.20	1012.00	96300.00	1023.15	.00	1024.57	20.14	9.58	10056.18	21457.02
	20.000	77.93	1034.20	1034.20	1012.00	142000.00	1024.99	.00	1026.83	19.31	10.89	13038.69	32314.99
	20.000	77.93	1034.20	1034.20	1012.00	96300.00	1023.48	.00	1024.76	17.06	9.09	10593.72	23317.23
	20.500	24.60	.00	.00	1012.00	142000.00	1025.42	.00	1026.91	19.81	9.81	14472.08	31902.74
	20.500	24.60	.00	.00	1012.00	96300.00	1023.77	.00	1024.83	18.57	8.26	11653.53	22344.95
	21.000	17.71	.00	.00	1012.00	142000.00	1025.41	.00	1026.97	21.37	10.04	14149.91	30721.07
	21.000	17.71	.00	.00	1012.00	96300.00	1023.76	.00	1024.88	20.33	8.49	11346.32	21356.59
	22.000	509.85	.00	.00	1014.00	142000.00	1027.04	.00	1027.84	11.93	7.31	19886.03	41109.99
	22.000	509.85	.00	.00	1014.00	96300.00	1025.12	.00	1025.76	13.41	6.50	15162.14	26300.33
	23.000	484.56	.00	.00	1016.00	142000.00	1027.68	.00	1028.58	17.70	7.70	18942.96	33752.45
	23.000	484.56	.00	.00	1016.00	96300.00	1025.85	.00	1026.72	25.64	7.46	12904.43	19018.66
*	24.000	450.96	.00	.00	1018.00	142000.00	1028.66	.00	1029.16	8.48	5.71	25243.14	48770.09
*	24.000	450.96	.00	.00	1018.00	96300.00	1027.02	.00	1027.42	9.31	5.05	19309.42	31559.66
	25.000	497.78	.00	.00	1018.00	142000.00	1029.13	.00	1029.67	11.90	5.88	24173.21	41160.92
	25.000	497.78	.00	.00	1018.00	96300.00	1027.52	.00	1027.99	13.16	5.46	17629.72	26547.16
	26.000	493.04	.00	.00	1018.00	142000.00	1029.78	.00	1030.17	8.30	5.01	28678.35	49285.86
	26.000	493.04	.00	.00	1018.00	96300.00	1028.24	.00	1028.57	10.18	4.59	21021.27	30175.90
*	27.000	713.00	.00	.00	1020.00	142000.00	1030.59	.00	1031.00	17.23	5.13	27698.60	34206.18
*	27.000	713.00	.00	.00	1020.00	96300.00	1029.24	.00	1029.65	23.47	5.12	18811.48	19878.54
*	28.000	750.56	.00	.00	1022.00	142000.00	1034.25	1034.25	1039.74	59.97	18.79	7555.57	18336.64
*	28.000	750.56	.00	.00	1022.00	96300.00	1031.66	1031.66	1035.97	65.69	16.66	5779.04	11881.55
*	28.500	600.00	.00	.00	1023.00	69000.00	1040.73	.00	1041.16	3.77	5.28	13080.00	35547.58
*	28.500	600.00	.00	.00	1023.00	71300.00	1036.91	.00	1037.69	9.41	7.09	10060.37	23238.42
	29.000	600.00	.00	.00	1024.00	69000.00	1041.10	.00	1041.36	2.32	4.08	16926.51	45286.31
	29.000	600.00	.00	.00	1024.00	71300.00	1037.70	.00	1038.15	5.40	5.34	13364.14	30673.38
	34.000	593.37	.00	.00	1026.00	69000.00	1041.23	.00	1041.53	3.13	4.33	15943.17	38975.30
	34.000	593.37	.00	.00	1026.00	71300.00	1038.02	.00	1038.54	7.24	5.76	12376.47	26498.79

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
*	35.000	508.89	.00	.00	1026.00	69000.00	1041.30	.00	1041.82	6.57	5.75	11998.07	26917.94
	35.000	508.89	.00	.00	1026.00	71300.00	1038.24	.00	1039.17	14.59	7.75	9205.02	18668.66
	36.000	660.00	.00	.00	1028.00	69000.00	1041.69	.00	1042.32	7.79	6.41	10757.71	24720.04
	36.000	660.00	.00	.00	1028.00	71300.00	1039.18	.00	1040.24	16.82	8.25	8646.52	17387.58
*	51.500	648.12	.00	.00	1030.00	69000.00	1042.16	.00	1043.33	26.28	8.70	7930.46	13458.46
*	51.500	648.12	.00	.00	1030.00	71300.00	1040.35	.00	1042.42	61.42	11.54	6180.24	9097.87
*	54.000	263.78	.00	.00	1030.00	69000.00	1043.11	.00	1043.85	12.86	6.88	10032.96	19237.77
*	54.000	263.78	.00	.00	1030.00	71300.00	1042.40	.00	1043.32	17.41	7.68	9289.26	17087.02
	60.000	633.78	.00	.00	1030.00	69000.00	1043.84	.00	1044.62	11.19	7.11	9709.12	20625.17
	60.000	633.78	.00	.00	1030.00	68000.00	1043.43	.00	1044.25	12.26	7.27	9359.22	19417.02
	63.000	222.89	.00	.00	1032.00	69000.00	1043.96	.00	1044.99	15.63	8.15	8470.22	17452.11
	63.000	222.89	.00	.00	1032.00	68000.00	1043.57	.00	1044.65	17.10	8.33	8166.70	16443.73
*	70.500	725.14	.00	.00	1032.00	69000.00	1044.73	.00	1046.93	33.01	11.90	5798.69	12009.70
	70.500	725.14	.00	.00	1032.00	68000.00	1044.47	.00	1046.71	34.70	12.02	5658.59	11544.39
	77.000	636.54	.00	.00	1034.00	69000.00	1046.52	.00	1049.38	38.09	13.56	5087.00	11180.20
	77.000	636.54	.00	.00	1034.00	68000.00	1046.37	.00	1049.22	38.54	13.54	5021.88	10953.11
*	84.000	702.16	.00	.00	1032.00	69000.00	1049.65	.00	1050.95	12.37	9.14	7553.11	19617.84
*	84.000	702.16	.00	.00	1032.00	68000.00	1049.51	.00	1050.79	12.38	9.09	7482.91	19327.26
	88.800	478.14	.00	.00	1034.00	69000.00	1050.14	.00	1051.76	18.57	10.21	6756.60	16012.86
	88.800	478.14	.00	.00	1034.00	68000.00	1050.00	.00	1051.61	18.66	10.17	6685.52	15742.18

SUMMARY PRINTOUT TABLE 150

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	1.000	142000.00	1009.10	.00	.00	-.50	1025.01	.00
	1.000	96300.00	1006.60	-2.50	.00	-3.00	1015.50	.00
	2.000	142000.00	1009.80	.00	.70	.00	1047.11	513.18
	2.000	96300.00	1007.30	-2.50	.70	.00	1035.63	513.18
	3.000	142000.00	1010.65	.00	.85	.00	1127.81	508.26
	3.000	96300.00	1008.16	-2.49	.86	.00	1119.61	508.26
	4.000	142000.00	1012.12	.00	1.47	.00	1333.85	449.34
	4.000	96300.00	1009.53	-2.59	1.37	.00	1327.43	449.34
	5.000	142000.00	1012.68	.00	.57	.00	1412.08	175.96
	5.000	96300.00	1010.06	-2.62	.53	.00	1397.83	175.96
	6.000	142000.00	1012.48	.00	-.20	.00	1428.80	36.79
	6.000	96300.00	1009.91	-2.57	-.15	.00	1411.94	36.79
	7.000	142000.00	1012.57	.00	.09	.00	1457.91	82.76
	7.000	96300.00	1009.99	-2.58	.08	.00	1441.80	82.76
	8.000	142000.00	1013.21	.00	.64	.00	1476.62	49.79
	8.000	96300.00	1010.48	-2.72	.49	.00	1456.56	49.79
	9.000	142000.00	1013.57	.00	.36	.00	1529.70	414.59
	9.000	96300.00	1010.86	-2.71	.38	.00	1523.72	414.59
	10.000	142000.00	1013.94	.00	.37	.00	1518.56	611.26
	10.000	96300.00	1011.31	-2.62	.46	.00	1511.69	611.26
	11.000	142000.00	1014.85	.00	.92	.00	1843.90	614.13
	11.000	96300.00	1012.29	-2.57	.97	.00	1833.64	614.13
	12.000	142000.00	1015.70	.00	.84	.00	2974.83	536.27
*	12.000	96300.00	1013.21	-2.48	.93	.00	2478.39	536.27
	13.000	142000.00	1016.69	.00	.99	.00	3006.97	532.88
	13.000	96300.00	1014.78	-1.90	1.57	.00	2971.64	532.88
	14.000	142000.00	1017.37	.00	.68	.00	3042.69	509.47
	14.000	96300.00	1015.62	-1.75	.84	.00	2847.95	509.47
	15.000	142000.00	1017.90	.00	.53	.00	2997.68	488.37
	15.000	96300.00	1016.16	-1.74	.54	.00	2440.34	488.37
	16.000	142000.00	1018.72	.00	.81	.00	2998.51	506.66
*	16.000	96300.00	1016.95	-1.77	.79	.00	2673.97	506.66

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	17.000	142000.00	1020.29	.00	1.57	.00	3187.64	550.00
	17.000	96300.00	1019.02	-1.27	2.07	.00	3179.06	550.00
	18.000	142000.00	1021.42	.00	1.13	.00	3290.66	431.16
	18.000	96300.00	1020.00	-1.43	.97	.00	3262.07	431.16
*	18.500	142000.00	1022.76	.00	1.34	.00	1736.06	470.00
*	18.500	96300.00	1021.24	-1.52	1.25	.00	1724.42	470.00
*	19.000	142000.00	1024.47	.00	1.71	.00	1702.44	198.13
*	19.000	96300.00	1023.15	-1.32	1.91	.00	1692.35	198.13
	20.000	142000.00	1024.99	.00	.52	.00	1704.34	77.93
	20.000	96300.00	1023.48	-1.51	.33	.00	1692.97	77.93
	20.500	142000.00	1025.42	.00	.43	.00	1707.25	24.60
	20.500	96300.00	1023.77	-1.65	.29	.00	1695.08	24.60
	21.000	142000.00	1025.41	.00	-.01	.00	1707.38	17.71
	21.000	96300.00	1023.76	-1.65	-.01	.00	1696.50	17.71
	22.000	142000.00	1027.04	.00	1.63	.00	2474.87	509.85
	22.000	96300.00	1025.12	-1.91	1.36	.00	2452.00	509.85
	23.000	142000.00	1027.68	.00	.64	.00	3077.81	484.56
	23.000	96300.00	1025.85	-1.83	.73	.00	2787.28	484.56
*	24.000	142000.00	1028.66	.00	.98	.00	3633.95	450.96
*	24.000	96300.00	1027.02	-1.64	1.17	.00	3616.25	450.96
	25.000	142000.00	1029.13	.00	.47	.00	4201.16	497.78
	25.000	96300.00	1027.52	-1.61	.50	.00	3684.54	497.78
	26.000	142000.00	1029.78	.00	.65	.00	5008.04	493.04
	26.000	96300.00	1028.24	-1.54	.72	.00	4943.07	493.04
*	27.000	142000.00	1030.59	.00	.81	.00	7032.13	713.00
*	27.000	96300.00	1029.24	-1.35	1.00	.00	6033.27	713.00
*	28.000	142000.00	1034.25	.00	3.66	.00	690.02	750.56
*	28.000	96300.00	1031.66	-2.59	2.42	.00	679.64	750.56
*	28.500	69000.00	1040.73	.00	6.48	.00	800.00	600.00
*	28.500	71300.00	1036.91	-3.82	5.25	.00	780.64	600.00
	29.000	69000.00	1041.10	.00	.37	.00	1049.71	600.00
	29.000	71300.00	1037.70	-3.40	.79	.00	1049.71	600.00
	34.000	69000.00	1041.23	.00	.14	.00	1146.63	593.37
	34.000	71300.00	1038.02	-3.21	.32	.00	1089.22	593.37

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
*	35.000	69000.00	1041.30	.00	.07	.00	983.59	508.89
	35.000	71300.00	1038.24	-3.07	.22	.00	878.85	508.89
	36.000	69000.00	1041.69	.00	.38	.00	850.60	660.00
	36.000	71300.00	1039.18	-2.50	.95	.00	835.99	660.00
*	51.500	69000.00	1042.16	.00	.47	.00	989.48	648.12
*	51.500	71300.00	1040.35	-1.80	1.17	.00	955.20	648.12
*	54.000	69000.00	1043.11	.00	.96	.00	1041.04	263.78
*	54.000	71300.00	1042.40	-.71	2.05	.00	1025.95	263.78
	60.000	69000.00	1043.84	.00	.72	.00	860.29	633.78
	60.000	68000.00	1043.43	-.41	1.03	.00	859.69	633.78
	63.000	69000.00	1043.96	.00	.12	.00	787.02	222.89
	63.000	68000.00	1043.57	-.39	.14	.00	785.68	222.89
*	70.500	69000.00	1044.73	.00	.77	.00	532.00	725.14
	70.500	68000.00	1044.47	-.26	.90	.00	531.14	725.14
	77.000	69000.00	1046.52	.00	1.79	.00	423.65	636.54
	77.000	68000.00	1046.37	-.15	1.90	.00	423.12	636.54
*	84.000	69000.00	1049.65	.00	3.13	.00	490.05	702.16
*	84.000	68000.00	1049.51	-.14	3.14	.00	489.67	702.16
	88.800	69000.00	1050.14	.00	.49	.00	501.72	478.14
	88.800	68000.00	1050.00	-.14	.49	.00	501.38	478.14

SUMMARY OF ERRORS AND SPECIAL NOTES

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WARNING SECNO=     12.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=     16.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=     18.500  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     18.500  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=     18.500  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=     18.500  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     18.500  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=     18.500  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL

WARNING SECNO=     19.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=     19.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=     24.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=     24.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=     27.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=     27.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=     28.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     28.000  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=     28.000  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=     28.000  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     28.000  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=     28.000  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL

WARNING SECNO=     28.500  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=     28.500  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=     35.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=     51.500  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=     51.500  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=     54.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=     54.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=     70.500  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=     84.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=     84.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
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FLOODWAY DATA,
PROFILE NO. 2

STATION	FLOODWAY WIDTH	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WATER SURFACE ELEVATION WITHOUT FLOODWAY	DIFFERENCE
1.000	1016.	9629.	10.0	1006.6	1009.1	-2.5
2.000	1036.	9255.	10.4	1007.3	1009.8	-2.5
3.000	1120.	9025.	10.7	1008.1	1010.6	-2.5
4.000	1327.	11122.	8.7	1009.5	1012.1	-2.6
5.000	1398.	13144.	7.3	1010.1	1012.7	-2.6
6.000	1412.	10983.	8.8	1009.9	1012.5	-2.6
7.000	1442.	10765.	8.9	1010.0	1012.6	-2.6
8.000	1457.	13094.	7.4	1010.5	1013.2	-2.7
9.000	1524.	13343.	7.2	1010.9	1013.6	-2.7
10.000	1512.	11967.	8.0	1011.3	1013.9	-2.6
11.000	1834.	13217.	7.3	1012.3	1014.9	-2.6
12.000	2478.	11902.	8.1	1013.2	1015.7	-2.5
13.000	2972.	14976.	6.4	1014.8	1016.7	-1.9
14.000	2951.	16373.	5.9	1015.7	1017.4	-1.7
15.000	2440.	14598.	6.6	1016.2	1017.9	-1.7
16.000	2831.	10956.	8.8	1016.9	1018.7	-1.8
17.000	3179.	13190.	7.3	1019.0	1020.3	-1.3
18.000	3278.	14995.	6.4	1020.0	1021.4	-1.4
18.500	1724.	7802.	12.3	1021.3	1022.8	-1.5
19.000	1692.	10056.	9.6	1023.2	1024.5	-1.3
20.000	1693.	10594.	9.1	1023.5	1025.0	-1.5
20.500	1695.	11654.	8.3	1023.7	1025.4	-1.7
21.000	1697.	11346.	8.5	1023.8	1025.4	-1.6
22.000	2452.	15162.	6.4	1025.1	1027.0	-1.9
23.000	2787.	12904.	7.5	1025.9	1027.7	-1.8
24.000	3616.	19309.	5.0	1027.1	1028.7	-1.6
25.000	4161.	17630.	5.5	1027.5	1029.1	-1.6
26.000	4958.	21021.	4.6	1028.3	1029.8	-1.5
27.000	6718.	18811.	5.1	1029.2	1030.6	-1.4
28.000	680.	5779.	16.7	1031.7	1034.3	-2.6
28.500	781.	10060.	7.1	1036.9	1040.7	-3.8
29.000	1050.	13364.	5.3	1037.7	1041.1	-3.4
34.000	1089.	12376.	5.8	1038.0	1041.2	-3.2
35.000	879.	9205.	7.7	1038.2	1041.3	-3.1
36.000	836.	8647.	8.2	1039.2	1041.7	-2.5
51.500	1027.	6180.	11.5	1040.4	1042.2	-1.8
54.000	1026.	9289.	7.7	1042.4	1043.1	-.7
60.000	860.	9359.	7.3	1043.4	1043.8	-.4
63.000	786.	8167.	8.3	1043.6	1044.0	-.4
70.500	531.	5659.	12.0	1044.4	1044.7	-.3
77.000	423.	5022.	13.5	1046.3	1046.5	-.2
84.000	490.	7483.	9.1	1049.6	1049.7	-.1

FLOODWAY DATA,
PROFILE NO. 2

STATION	FLOODWAY WIDTH	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WATER SURFACE ELEVATION WITHOUT FLOODWAY	DIFFERENCE
88.800	501.	6686.	10.2	1050.0	1050.1	-.1

```
*********************************************
*  HEC-2 WATER SURFACE PROFILES             *
*                                           *
*  Version   4.6.2;  May 1991               *
*                                           *
*  RUN DATE    13NOV97    TIME    17:07:38  *
*********************************************
```

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****************************************
*  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
```

THIS RUN EXECUTED 13NOV97 17:07:38

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

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

AGUA FRIA RIVER - NEW RIVER
SPF DATA WITH LEVEE (PROPOSED CONDITIONS)

Modified by FDCMC to include Proposed City of Glendale Airport Extension
X-SEC 29 ENCROACHED AT STA 5450 FOR RUNWAY EXTENSION
CHANNELIZATION TO REDUCE WSE TO MEET FEMA REGULATED ELEVATION
1300 ft. Alternative FILENAME alt13nsf.dat

X-SEC	CCSLA	BOT ELEV.	SS	BW
*****	*****	*********	****	****
27	4496	1021.0	4:1	300
28	5700	1022.0	4:1	550
28.5	5000	1023.0	4:1	650
29	4900	1023.5	4:1	850
34	4800	1027.0	4:1	600
35	4500	1028.0	4:1	600
36	4600	1029.0	4:1	600

MODIFICATIONS BY DMJM ARIZONA, INC.
MODIFICATION DATE: 11/13/97

	ORIGINAL	REVISED
AGUA FRIA BELOW CONFLUENCE	142,000	107,300
NEW RIVER ABOVE CONFLUENCE	69,000	71,300
NEW RIVER ABOVE BHOC	69,000	68,000

ORIGINAL DISCHARGES BASED ON HYDROLOGY WITHOUT NEW WADDELL DAM FOR DESIGN OF THE CAMELBACK RANCH LEVEE SYSTEM.

REVISED HYDROLOGY ASSUMPTIONS:

1. BHOC DIVERSION BASED ON CHANNEL CAPACITY W/ SPF BACKWATER IMPACTS FROM THE NEW RIVER.
2. NEW RIVER ABOVE BHOC ASSUMES PEAK DISCHARGE BELOW SKUNK CREEK FOR HYDROGRAPH ROUTING (I.E. 68,000 CFS).
3. AGUA FRIA BELOW CONFLUENCE DEVELOPED BY ADDING CORPS HYDROGRAPH UPSTREAM OF NEW RIVER W/ NEW WADDELL DAM.

```
T1
T2
T3

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

              2                             0.00142                                   1009.6
```

	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	1		-1					-6		

J3 VARIABLE CODES FOR SUMMARY PRINTOUT

150	120	200

J5	LPRNT	NUMSEC	********REQUESTED SECTION NUMBERS********
	-10	-10	

QT	2	142000	107300

BEGIN STUDY

NC	0.04	0.04	0.025	0.1	0.3					
X1	1	55	394.53	1422.94						
X3	10									
GR	1008	0	1010	5.99	1012	11.32	1014	20.14	1014	58.44
GR	1012	62.33	1010	66.27	1010	69.66	1012	76.36	1014	97.71
GR	1016	106.06	1016	131.32	1014	137.76	1014	156.6	1016	160.56
GR	1018	164.69	1020	169.72	1020	195.71	1018	201.38	1016	211.26
GR	1014	225.45	1012	237.04	1010	253.68	1008	257.33	1008	334.83
GR	1010	349.77	1010	394.53	1008	397.04	1006	399.59	1004	402.26
GR	1002	404.97	1000	407.7	998	410.47	996	1296.49	996	1316.28
GR	996	1376.84	996	1377.02	998	1385.11	1000	1393.98	1002	1402.74
GR	1004	1407.79	1006	1412.81	1008	1417.89	1010	1422.94	1010	1502.18
GR	1010	1604.84	1012	1610.44	1012	1611.09	1010	1614.78	1008	1618.3
GR	1006	1624.39	1004	1629.04	1004	1669.36	1004	1688.34	1004	1765.17
X1	2	33	383.84	1440.42	518.67	502.57	513.18			
X3	10									
GR	1008	0	1008	48.94	1008	106.63	1008	144.14	1008	182.01
GR	1008	191.43	1008	349.71	1010	357.82	1012	366.13	1012	383.84
GR	1010	386.22	1008	388.61	1006	391	1004	393.38	1002	395.77
GR	1000	398.16	998	573.8	998	588.41	998	1237.02	998	1393.66
GR	1000	1400.35	1002	1407.15	1004	1413.95	1006	1420.69	1008	1427.48
GR	1010	1434.27	1012	1440.42	1012	1479.39	1010	1494.08	1008	1587.23
GR	1008	2009.1	1008	2057.31	1000	2481.83				
X1	3	51	482	1621.81	592.64	430.38	508.26			
X3	10									
GR	998	0	996	99.38	994	158.77	994	224.41	996	256.59
GR	998	279.78	998	304.23	998	312.08	1000	320.55	1002	328.82
GR	1004	335.57	1006	362.48	1008	370.73	1010	377.91	1012	384.94
GR	1014	458.6	1014	482	1012	484.81	1010	487.23	1008	489.68
GR	1006	492.55	1004	495.16	1002	497.64	1000	500.22	1000	732.75
GR	1000	733.88	1000	851.15	1000	990.51	1000	1034.93	1000	1069.24
GR	1000	1205.81	1000	1276.9	1000	1592.97	1002	1596.87	1004	1600.8
GR	1006	1604.76	1008	1608.76	1010	1612.89	1012	1617.12	1014	1621.81
GR	1014	1642.56	1012	1652.27	1008	1709.31	1006	1721.64	1006	1751.25
GR	1008	1758.94	1008	1827.41	1008	1982.96	1008	2058.85	1000	2948.45

```
     1006    2953.59

X1      4       70   817.46   2156.1   466.06   470.68   449.34
X3     10
GR   1012        0     1012    18.24     1010    25.95     1008     33.7     1008   203.76
GR   1010   212.44     1010   468.55     1010    497.7     1010   514.57     1008   661.83
GR   1006    666.5     1004   671.32     1004   694.71     1006   702.23     1008   709.58
GR   1010   716.97     1012   724.32     1014   731.59     1014   740.74     1014   757.82
GR   1014   817.46     1012   820.14     1010    822.8     1008   825.46     1006   828.11
GR   1004   843.28     1002   845.61     1000   1079.5     1000  1080.41     1002  2126.84
GR   1004  2129.85     1006   2143.5     1008  2149.08     1012   2153.7     1014   2156.1
GR   1014  2185.97     1012  2193.19     1010  2217.31     1008  2223.78     1008  2291.96
GR   1010  2302.39     1012  2311.51     1014     2320     1016  2328.61     1018  2334.71
GR   1018  2363.99     1016  2375.68     1014  2382.05     1012  2387.28     1010  2391.87
GR   1008  2816.54     1008  2852.79     1010  2920.78     1012  2927.54     1012  2991.87
GR   1010  3003.03     1008  3018.67     1006  3029.25     1004  3214.06     1002  3295.84
GR   1002  3347.97     1004  3354.28     1006  3368.34     1008  3396.73     1008  3928.26
GR   1008  4103.92     1010  4155.13     1012  4163.91     1014  4168.53     1016  4172.92

X1      5       69   796.49   2270.21   168.95   203.76   175.96
X3     10
GR   1012        0     1010   366.01     1012   594.51     1014    602.7     1014   642.27
GR   1012   657.98     1010   663.67     1010   752.17     1012   759.27     1014   766.35
GR   1016   773.02     1016   796.49     1014   844.46     1012   849.34     1010   853.67
GR   1008   858.07     1006   862.35     1004   866.84     1002   873.61     1002  1035.09
GR   1004  1045.46     1004   1056.3     1002  1060.57     1000  1064.55     1000  1107.18
GR   1002  1123.22     1002  1148.52     1000  1317.18     1000  1345.64     1000  1405.49
GR   1000  1442.87     1000  1494.32     1000  1518.15     1000  2104.75     1000   2187.6
GR   1000  2207.88     1000  2222.87     1002  2226.77     1004  2232.02     1006  2238.43
GR   1008  2244.83     1010  2251.17     1012   2257.6     1014  2263.89     1016  2270.21
GR   1016  2271.02     1016  2302.96     1018  2650.07     1018  2692.04     1018  2757.05
GR   1018  2771.16     1016  2779.68     1014  2791.73     1012  2842.19     1010  3122.72
GR   1010   3294.7     1010  3296.31     1010  3347.11     1012  3437.57     1012  3471.32
GR   1010  3498.09     1010  3504.71     1010  3512.56     1010  3899.89     1012  4099.55
GR   1012  4185.67     1012  4208.94     1014  4219.44     1016  4229.46

        INDIAN SCHOOL ROAD LOW CHORD = 1013.3

NC  0.022   0.022   0.022     0.3     0.5
X1      6      90     972   2442.2    63.8   23.57   36.79
X3     10
BT    -70   971.9  1021.3   1021.3     972  1021.3  1013.3   972.1  1021.3  1013.3
BT         1007.8  1021.3   1013.3  1007.9  1021.3  1013.3  1021.9  1021.3  1013.3
BT           1022  1021.3   1013.3  1099.5  1021.3  1013.3  1099.6  1021.3    1002
BT         1113.6  1021.3     1002  1113.7  1021.3  1013.3  1189.5  1021.3  1013.3
BT         1189.6  1021.3     1002  1203.6  1021.3    1002  1203.7  1021.3  1013.3
BT         1279.5  1021.3   1013.3  1279.6  1021.3    1004  1293.6  1021.3    1004
BT         1293.7  1021.3   1013.3  1369.5  1021.3  1013.3  1369.6  1021.3  1001.5
BT         1383.6  1021.3   1001.3  1383.7  1021.3  1013.3  1459.5  1021.3  1013.3
BT         1459.6  1021.3   1000.5  1473.6  1021.3    1000  1473.7  1021.3  1013.3
BT         1549.5  1021.3   1013.3  1549.6  1021.3    1000  1563.6  1021.3    1000
BT         1563.7  1021.3   1013.3  1639.5  1021.3  1013.3  1639.6  1021.3    1000
BT         1653.6  1021.3     1000  1653.7  1021.3  1013.3  1729.5  1021.3  1013.3
```

		1729.6	1021.3	1000	1743.6	1021.3	1000	1743.7	1021.3	1013.3
BT		1819.5	1021.3	1013.3	1819.6	1021.3	1000	1833.6	1021.3	1000
BT		1833.7	1021.3	1013.3	1909.5	1021.3	1013.3	1909.6	1021.3	1000
BT		1923.6	1021.3	1000	1923.7	1021.3	1013.3	1999.5	1021.3	1013.3
BT		1999.6	1021.3	1000	2013.6	1021.3	1000	2013.7	1021.3	1013.3
BT		2089.4	1021.3	1013.3	2089.5	1021.3	1000	2103.5	1021.3	1000
BT		2103.6	1021.3	1013.3	2179.5	1021.3	1013.3	2179.6	1021.3	1000
BT		2193.6	1021.3	1000	2193.7	1021.3	1013.3	2269.5	1021.3	1013.3
BT		2269.6	1021.3	1000	2283.6	1021.3	1000	2283.7	1021.3	1013.3
BT		2359.5	1021.3	1013.3	2359.6	1021.3	1000	2373.6	1021.3	1000
BT		2373.7	1021.3	1013.3	2461.6	1021.3	1013.3	2461.7	1021.3	1013.3
BT		2461.71	1021.3	1021.3						
GR	1016	0	1018	517.07	1018	971.9	1018	972	1018	972.1
GR	1007	1007.8	1007	1007.9	1002	1021.9	1002	1022	1002	1099.5
GR	1002	1099.6	1002	1113.6	1002	1113.7	1002	1189.5	1002	1189.6
GR	1002	1203.6	1002	1203.7	1000	1263.16	1002	1272.35	1004	1279.5
GR	1004	1279.6	1004	1293.6	1004	1293.7	1002	1309.94	1001.5	1369.5
GR	1001.5	1369.6	1001.3	1383.6	1001.3	1383.7	1000.5	1459.5	1000.5	1459.6
GR	1000	1473.6	1000	1473.7	1000	1549.5	1000	1549.6	1000	1563.6
GR	1000	1563.7	1000	1639.5	1000	1639.6	1000	1653.6	1000	1653.7
GR	1000	1729.5	1000	1729.6	1000	1743.6	1000	1743.7	1000	1819.5
GR	1000	1819.6	1000	1833.6	1000	1833.7	1000	1909.5	1000	1909.6
GR	1000	1923.6	1000	1923.7	1000	1999.5	1000	1999.6	1000	2013.6
GR	1000	2013.7	1000	2089.4	1000	2089.5	1000	2103.5	1000	2103.6
GR	1000	2179.5	1000	2179.6	1000	2193.6	1000	2193.7	1000	2269.5
GR	1000	2269.6	1000	2283.6	1000	2283.7	1000	2359.5	1000	2359.6
GR	1000	2373.6	1000	2373.7	1002	2387.37	1004	2390.81	1006	2397.39
GR	1008	2403.97	1010	2410.56	1012	2417.17	1014	2423.98	1016	2438.32
GR	1018	2442.2	1018	2461.6	1018	2461.7	1018	2461.71	1018	2890.45
GR	1016	3090.24	1014	3545.43	1014	3588.88	1014	4053.92	1016	4384.87
X1	7	90	1031.85	2521.45	81.31	88.36	82.76			
X3	10							1018	1018	
BT	-70	1031.74	1021.3	1021.3	1031.75	1021.3	1013.3	1031.85	1021.3	1013.3
BT		1067.55	1021.3	1013.3	1067.6	1021.3	1013.3	1081.65	1021.3	1013.3
BT		1081.75	1021.3	1013.3	1159.25	1021.3	1013.3	1159.35	1021.3	1002
BT		1173.35	1021.3	1002	1173.45	1021.3	1013.3	1249.25	1021.3	1013.3
BT		1249.35	1021.3	1002	1263.35	1021.3	1002	1263.4	1021.3	1013.3
BT		1339.25	1021.3	1013.3	1339.35	1021.3	1002	1353.35	1021.3	1002
BT		1353.45	1021.3	1013.3	1429.25	1021.3	1013.3	1429.35	1021.3	1001.7
BT		1443.35	1021.3	1001	1443.45	1021.3	1013.3	1519.25	1021.3	1013.3
BT		1519.3	1021.3	1000.6	1533.35	1021.3	1000.4	1533.45	1021.3	1013.3
BT		1609.25	1021.3	1013.3	1609.35	1021.3	1000	1623.35	1021.3	1000
BT		1623.45	1021.3	1013.3	1699.25	1021.3	1013.3	1699.35	1021.3	1000.2
BT		1713.35	1021.3	1000.4	1713.4	1021.3	1013.3	1789.25	1021.3	1013.3
BT		1789.35	1021.3	1001.5	1803.35	1021.3	1001.7	1803.45	1021.3	1013.3
BT		1879.25	1021.3	1013.3	1879.35	1021.3	1002	1893.35	1021.3	1001.9
BT		1893.45	1021.3	1013.3	1969.25	1021.3	1013.3	1969.3	1021.3	1001.6
BT		1983.35	1021.3	1001.5	1983.45	1021.3	1013.3	2059.25	1021.3	1013.3
BT		2059.35	1021.3	1001.4	2073.35	1021.3	1001.2	2073.45	1021.3	1013.3
BT		2149.15	1021.3	1013.3	2149.25	1021.3	1001	2163.25	1021.3	1000.8
BT		2163.3	1021.3	1013.3	2239.25	1021.3	1013.3	2239.35	1021.3	1000.6
BT		2253.35	1021.3	1000.5	2253.45	1021.3	1013.3	2329.25	1021.3	1013.3
BT		2329.35	1021.3	1000.4	2343.35	1021.3	1000.4	2343.45	1021.3	1013.3

		2419.25	1021.3	1013.3	2419.3	1021.3	1000.2	2433.35	1021.3	1000.1
BT		2433.45	1021.3	1013.3	2521.35	1021.3	1013.3	2521.45	1021.3	1013.3
BT		2521.46	1021.3	1021.3						
GR	1014	0	1016	178.26	1018	548.86	1018	1031.74	1018	1031.75
GR	1018	1031.85	1007	1067.55	1007	1067.6	1002	1081.65	1002	1081.75
GR	1002	1159.25	1002	1159.35	1002	1173.35	1002	1173.45	1002	1249.25
GR	1002	1249.35	1002	1263.35	1002	1263.4	1000	1274.95	1000	1324.16
GR	1002	1339.25	1002	1339.35	1002	1353.35	1002	1353.45	1001.7	1429.25
GR	1001.7	1429.35	1001	1443.35	1001	1443.45	1000.6	1519.25	1000.6	1519.3
GR	1000.4	1533.35	1000.4	1533.45	1000	1609.25	1000	1609.35	1000	1623.35
GR	1000	1623.45	1000.2	1699.25	1000.2	1699.35	1000.4	1713.35	1000.4	1713.4
GR	1001.5	1789.25	1001.5	1789.35	1001.7	1803.35	1001.7	1803.45	1002	1879.25
GR	1002	1879.35	1001.9	1893.35	1001.9	1893.45	1001.6	1969.25	1001.6	1969.3
GR	1001.5	1983.35	1001.5	1983.45	1001.4	2059.25	1001.4	2059.35	1001.2	2073.35
GR	1001.2	2073.45	1001	2149.15	1001	2149.25	1000.8	2163.25	1000.8	2163.3
GR	1000.6	2239.25	1000.6	2239.35	1000.5	2253.35	1000.5	2253.45	1000.4	2329.25
GR	1000.4	2329.35	1000.4	2343.35	1000.4	2343.45	1000.2	2419.25	1000.2	2419.3
GR	1000.1	2433.35	1000.1	2433.45	1002	2478.12	1006	2487.3	1010	2499.64
GR	1014	2511.77	1016	2521.35	1016	2521.45	1016	2521.46	1018	2534.42
GR	1018	2994.04	1016	3150.93	1014	3526.3	1014	3775.45	1014	4005.93
GR	1016	4447.65	1018	4589.05	1018	4805.16	1018	4893.58	1020	5072.48
NC	0.04	0.04	0.025	0.1	0.3					
X1	8	68	61.72	1843.6	53.76	41.75	49.79			
X3	10									
GR	1012	0	1014	9	1016	17.3	1018	25.56	1018	61.72
GR	1016	124.12	1014	209.89	1012	221.36	1010	228.4	1008	234.07
GR	1006	239.63	1004	244.77	1002	248.85	1002	372.75	1004	400.71
GR	1004	410.19	1002	415.35	1000	423.21	1000	483.71	1002	493.65
GR	1004	500.2	1004	516.15	1002	579.28	1002	646.23	1002	655.17
GR	1002	666.21	1002	672.71	1000	754.82	1000	829.3	1002	920.05
GR	1002	933.38	1002	969.51	1002	1005.9	1002	1031.73	1002	1038.52
GR	1000	1639.55	1000	1647.62	1002	1660.8	1004	1663.42	1006	1669.98
GR	1008	1676.15	1010	1681.75	1012	1687.88	1014	1693.07	1016	1777.78
GR	1018	1781.8	1020	1843.6	1020	2086.73	1020	2117.39	1020	2189.48
GR	1018	2202.4	1018	2240.88	1018	2248.87	1016	2255.24	1014	2263.48
GR	1012	2274.12	1010	2287.91	1010	2449.93	1010	2476.5	1010	2778.81
GR	1010	2820.52	1012	3170.04	1014	3196.84	1016	3623.68	1018	3712.11
GR	1018	3991.77	1018	4071.08	1020	4206.31				

END EAST BANK LEVEE (EXISTING)

X1	9	66	449.8	1980.46	132.16	731.37	414.59			
X3	10									
GR	1014	0	1012	11.61	1012	11.61	1010	80.25	1010	249.36
GR	1012	324.83	1014	424.84	1014	449.8	1012	452.12	1010	454.51
GR	1008	456.71	1006	459.02	1004	461.14	1002	463.43	1002	537.72
GR	1002	559.21	1002	614.12	1004	621.97	1004	636.55	1002	669.02
GR	1002	688.42	1002	793.86	1002	813.36	1002	827.7	1002	855.53
GR	1002	874.19	1002	1176.81	1002	1731.08	1002	1832.03	1002	1870.72
GR	1002	1968.03	1004	1970.09	1006	1972.18	1008	1974.25	1010	1976.32
GR	1012	1978.37	1014	1980.46	1014	2003.48	1012	2008.59	1010	2013.8
GR	1008	2018.93	1006	2024.24	1004	2029.42	1004	2090.36	1006	2098.17

	1008	2106.02	1010	2116.63	1010	2192.33	1010	2361.53	1012	2720.37
	1012	2729.09	1010	3303.42	1010	3307.88	1012	3354.47	1014	3510.16
GR	1014	3587.35	1014	3638.91	1016	3794.17	1018	3946.5	1020	4047.28
GR	1022	4214.38	1024	4324.09	1026	4441.95	1028	4525.06	1030	4623.85
GR	1032	4705.42								
X1	10	82	855.01	2377.24	541.12	725.02	611.26			
X3	10					2377.24				
GR	1008	0	1006	63.97	1006	141.07	1006	192.33	1004	467.37
GR	1004	799.12	1006	802.13	1008	805.15	1010	808.18	1012	811.23
GR	1014	814.36	1016	817.54	1016	855.01	1014	858.51	1012	861.55
GR	1010	864.53	1008	867.34	1006	870.84	1004	873.66	1004	934.87
GR	1004	938.18	1004	1018.64	1004	1068.74	1002	1130.38	1002	1155.17
GR	1002	1377.86	1002	1389.76	1002	1434.66	1002	1451.17	1004	1727.92
GR	1004	1730.48	1004	2366.11	1006	2368.35	1008	2370.58	1010	2372.8
GR	1012	2375.02	1014	2377.24	1014	2404.55	1012	2410.51	1010	2595
GR	1010	2619.95	1010	2743.3	1008	2758.11	1008	2791.62	1010	2817.7
GR	1012	2833.77	1014	2844.32	1014	2869.52	1014	2961.59	1014	2989.05
GR	1014	3232.72	1014	3352.62	1014	3369.18	1014	3372.78	1014	3454.11
GR	1014	3460.14	1014	3713.56	1016	3868.6	1018	3922.58	1018	3988.96
GR	1018	4131.29	1018	4159.73	1016	4173.39	1014	4188.25	1014	4283.59
GR	1016	4291.34	1018	4297.96	1020	4304.55	1022	4399.85	1022	4481.74
GR	1020	4487.21	1020	4501.74	1022	4615.54	1024	4769.23	1026	4896
GR	1028	4996.6	1030	5045.05	1032	5094.11	1032	5261.44	1032	5508.27
GR	1034	5605.22	1034	5731.11						

END WEST BANK LEVEE (EXISTING)

NC	0.032	0.032	0.028							
X1	11	64	2405.12	4118.42	627.28	587.52	614.13			
X3	10			2208	1016					
GR	1012	0	1012	84.23	1012	91.16	1012	151.05	1012	160.43
GR	1012	163.6	1012	187.03	1012	208.37	1012	250.91	1012	258.95
GR	1012	319.14	1012	789.21	1012	809.39	1010	830.93	1010	883.68
GR	1012	1284.52	1010	1634.91	1008	1717.18	1006	1858.62	1004	2029.29
GR	1004	2055.93	1004	2132.55	1004	2176.3	1006	2387.11	1008	2394.89
GR	1010	2398.27	1012	2404.14	1012	2405.12	1010	2408.45	1008	2412.29
GR	1006	2439.57	1006	2454.32	1006	2460.44	1006	2500.7	1006	2512.98
GR	1004	2541.45	1004	2736.15	1006	4024.69	1008	4029.72	1010	4035.02
GR	1012	4040.59	1014	4048.01	1016	4057.1	1018	4069.84	1020	4118.42
GR	1020	4502.27	1018	4554.73	1016	5027.27	1016	5402.77	1018	5413.36
GR	1020	5426.13	1022	5441.13	1022	5499.54	1020	5517.62	1020	5590.05
GR	1022	5615.58	1024	5680.17	1024	5762.17	1022	5966.34	1020	6127.6
GR	1020	6135.18	1022	6152.47	1024	6720.88	1026	7063.15		

BEGIN 1ST WEST PIT

X1	12	90	2020.24	5067.86	765	961	536.27			
X3	10	1006								
GR	1012	0	1012	346.79	1012	876.64	1014	1189.22	1014	1335.06
GR	1012	1621.47	1010	1698.42	1008	1789.37	1006	1925.5	1006	1960.12
GR	1008	1964.44	1020	1981.83	1020	2020.24	1008	2034.38	1006	2176.54
GR	1008	2231.82	1008	2607.19	1002	2627.05	1000	2637.97	1000	2645.15
GR	1002	2675.27	1004	2750.54	1006	2786.84	1006	2878.28	1008	2890.2
GR	1008	3104.07	1006	3161.88	1006	3400.65	1010	3426.52	1010	3486.14
GR	1008	3816.35	1008	3831.81	1010	4003.49	1010	4136.67	1012	4326.91
GR	1014	4622.82	1016	5067.86	1016	5106.54	1012	5116.73	1010	5126.87
GR	1008	5157.1	1008	5175.33	1010	5182.44	1014	5204.78	1020	5234.45
GR	1018	5256.85	1016	5297.38	1016	5327.31	1018	5502.04	1020	5554.08
GR	1022	5584.94	1024	5652.61	1024	5725.2	1022	5757.01	1010	5768.84
GR	1010	5789.31	1012	5808.48	1020	5825.7	1020	6270.87	1020	6296.44
GR	1022	6326.83	1016	6338.81	1016	6340.11	1020	6347.92	1020	6423.84
GR	1022	6435.21	1022	6441.14	1020	6532.06	1018	6570.41	998	6580.72
GR	990	6585.51	978	6594	974	6597.44	972	6602.19	970	6622.02
GR	968	6671.45	966	6838.98	966	6869.15	968	6932.28	976	6944.79
GR	982	6948.71	994	6955.56	1006	6962.46	1012	6965.88	1020	6970.24
GR	1022	7028.6	1022	7093.22	1024	7110.95	1024	7263.61	1026	7521.34

BEGIN PROJECT
PHASE 1 LEVEE

X1	13	90	3445	6502.46	752	740	532.88			
X3	10	1006				6992	1006			
GR	1014	32.33	1016	48.53	1016	574.82	1016	883.1	1014	1065.33
GR	1012	1696.98	1008	1701.02	996	1735.71	994	1772.05	994	1843.15
GR	998	1859.93	998	1896.32	1002	1905.74	1006	1914.06	1012	1925.85
GR	1012	2185.92	1014	2205.2	1012	2228.3	1014	2240.81	1014	3122.35
GR	1016	3386.53	1019.65	3445	1012	3564.96	1008	3671.92	1008	3754.02
GR	1012	4035	1012	4115.08	1010	4127.67	1002	4144.06	1004	4282.87
GR	1004	4569.77	1004	4998.42	1010	5009.07	1012	5084.67	1012	5349.43
GR	1010	5562.25	1010	5655.91	1010	5974.79	1012	5984.03	1014	6052.17
GR	1014	6213.2	1012	6265.24	1014	6428.47	1014	6490.61	1018	6502.46
GR	1016	6560.79	1016	6924.54	1018	6949.9	1016	6983.01	996	7006.13
GR	986	7020.79	986	7065.73	992	7135.52	998	7187.44	1000	7222.81
GR	1006	7237.62	1010	7249.84	1016	7272.49	1018	7296.83	1016	7334.04
GR	1014	7461.95	1010	7484.17	1012	7511.37	1018	7524.84	1018	7545.57
GR	1014	7604.31	1014	7638.75	1018	7700.83	1010	7747.37	984	7787.69
GR	984	7883.94	982	7904.3	980	8175.06	980	8271.87	984	8278.21
GR	988	8284.78	992	8291.55	998	8301.5	1002	8308.22	1006	8314.99
GR	1010	8321.97	1016	8341.4	1016	8364.17	1006	8398.01	998	8440.97
GR	998	8460.43	1002	8469.12	1006	8477.62	1012	8490.05	1010.1	8500.27

X1	14	90	3100	6150.27	646.01	317	509.47			
X3	10	1006				6516	1006			
GR	1018	216.28	1018	580.83	1018	692.53	1012	718.12	1012	737.05
GR	1014	749.94	1016	795.69	1016	813.26	1014	1231.06	1014	1623.37
GR	1014	1643.52	1014	2052.08	1014	2140.29	1016	2654.94	1016	2778.46
GR	1021	3100	1016	3100.48	1016	3165.08	1014	3221.05	1010	3232.8
GR	1008	3243.33	1008	3263.84	1010	3403.46	1012	3535.84	1012	3619.09

	1010	3621.85	1004	3635.08	1002	3796.38	1002	3840.23	1004	3951.04
GR	1008	3960.52	1008	4160.55	1006	4272.48	1006	4343.88	1004	4353.49
GR	1004	4706.77	1012	4718.61	1012	5259.25	1012	5409.55	1010	5456.82
GR	1010	5664.15	1014	5678.54	1016	5698.22	1016	5735.28	1014	6063.44
GR	1014	6071.65	1016	6139.27	1020	6150.27	1020	6183.9	1016	6194.27
GR	1016	6342.22	1014	6359.09	1012	6388.89	1012	6410.04	1014	6425.78
GR	1016	6495.3	1016	6509.57	1002	6532.48	988	6555.18	986	6558.67
GR	986	6617.64	988	6656.14	990	6661.17	998	6677.11	1002	6684.95
GR	1010	6700.39	1014	6707.9	1016	6735.94	1018	6747.16	1020	6939.62
GR	1020	7218.58	1018	7233.32	1016	7290.1	1010	7295.29	1008	7297.86
GR	1006	7303.13	1004	7307.13	998	7315.51	994	7319.91	992	7330.28
GR	990	7353.85	988	7369.87	986	7386.91	984	7414.81	982	7445.98
GR	980	7510.53	978	7774.17	976	7798.87	976	7841.68	978	7854.61
X1	15	80	3180	6242.95	610	293	488.37			
X3	10	1006				7100	1006			
GR	1020	832.98	1020	971.02	1018	985.11	1016	1062.77	1018	1125.97
GR	1022	1144.19	1022	1180.93	1020	1188.16	1016	1228.08	1016	1352.05
GR	1016	1962.68	1016	2066.21	1014	2094.99	1016	2111.09	1016	2410.38
GR	1018	3037.38	1018	3046.43	1023.8	3180	1018	3204.32	1016	3280.61
GR	1012	3308.29	1012	3443.9	1014	3595.21	1014	3657.15	1012	3691.96
GR	1004	3705.77	1004	3914.05	1012	3931.43	1014	3954.12	1010	3994.53
GR	1008	4157.31	1006	4241.85	1004	4307.63	1004	4445.93	1010	4484.5
GR	1010	4584.46	1004	4599.71	1002	4634.06	1004	4847.52	1012	4856.77
GR	1014	4876.61	1014	5088.95	1012	5386.08	1010	5574.24	1010	5646.19
GR	1016	5669.38	1018	6233.44	1022	6242.95	1022	6266.91	1016	6283.38
GR	1014	6295.58	1014	6312.01	1016	6355.16	1016	6414.6	1010	6458.66
GR	1010	6527.18	1016	6551.83	1016	6575.09	1012	6602.98	1008	6663.42
GR	1004	6689.05	1006	6716.16	1012	6739.98	1018	6762.71	1020	6877.8
GR	1020	6920.33	1018	7067.06	1014	7088.31	1000	7100.86	988	7114.14
GR	982	7130.41	982	7238.24	986	7247.43	994	7265.08	996	7274.21
GR	998	7314.22	1002	7346.29	1000	7350.9	1000	7387.48	982	7412.7
X1	16	90	3310	6450.93	620	227	506.66			
X3	10	1006								
GR	1018.7	26.78	1020	531.61	1018	1212.55	1018	2581.93	1018	2591.92
GR	1018	2978.67	1020	3185.23	1020	3191.99	1018	3237.53	1025.02	3310
GR	1016	3466.68	1014	3506.03	1014	3568.44	1012	3635.04	1012	3684.19
GR	1014	3829.97	1014	3830.67	1012	3842.05	1008	3858.65	1008	3965.6
GR	1006	3987.15	1006	4049.31	1008	4084.62	1010	4121.29	1012	4131.63
GR	1014	4141.49	1016	4201.16	1016	4380.07	1016	4552.64	1014	4810.06
GR	1012	4826.86	1008	4838.22	1004	4850.9	1004	5040.39	1006	5043.96
GR	1008	5048.84	1010	5054.85	1012	5063.58	1012	5373.6	1012	5659.28
GR	1014	5669.57	1016	5680.12	1016	5897.42	1018	5946.35	1018	6053.2
GR	1016	6099.22	1016	6157.99	1018	6416.25	1022	6425.92	1022	6450.93
GR	1020	6456.57	1018	6460.36	1014	6467.48	1012	6470.87	1008	6478.64
GR	1006	6487.18	1004	6496.05	1002	6501.75	1000	6506.57	998	6532.28
GR	994	6546.58	992	6553.92	990	6562.89	988	6605.37	988	6677.63
GR	990	6703.2	992	6721.81	994	6725.59	1002	6740.23	1004	6743.73
GR	1006	6747.58	1006	6782.97	1004	6786.58	1002	6789.95	996	6800.43
GR	990	6810.76	988	6814.32	986	6822.44	984	6827.59	980	6836.39
GR	980	6922.62	984	6957.43	986	6990.94	988	6997.45	990	6999.45
GR	996	7007.44	998	7010.88	1002	7018.22	1004	7022.01	1002	7053.59

X1	17	90	8744.78	10774.9	600	600	550			
X3	10					11948.54	1022			
GR	1028	4000	1028	4167.26	1026	4181.52	1028	4223.16	1028	4300.36
GR	1021.1	4308.47	1026	4547.69	1024	4904.14	1022	5271.28	1021.1	5492.36
GR	1020	5841.18	1020	6063.01	1018	7055.62	1018	7334.73	1020	8109.32
GR	1020	8561.81	1023	8744.78	1016	8776.26	1016	8892.28	1010	8941.36
GR	1010	9156.14	1014	9173.97	1016	9328.14	1018	9419.57	1018	9559.29
GR	1018	9732.72	1016	10136.79	1014	10269.34	1010	10343.44	1004	10360.49
GR	1004	10585.21	1010	10601.18	1012	10620.32	1014	10756.95	1016	10774.9
GR	1018	10875.06	1018	11336.6	1016	11440.22	1018	11454.13	1018	11493.54
GR	1016	11646.12	1018	11710.83	1016	11777.4	1010	11867.02	1010	11911.39
GR	1012	11925.64	1022	11948.54	1022	11973.79	1016	11993.53	994	12026.33
GR	992	12080.86	984	12098.95	986	12127.83	980	12165.09	980	12415.82
GR	984	12551.31	984	12753.29	982	12895.1	982	12980.81	976	13304.53
GR	976	13351.51	968	13364.66	968	13460.92	970	13641.18	972	13677.44
GR	984	13702.48	986	13759.06	980	13769.01	978	13838.06	980	13860.36
GR	974	13893.14	978	13929.33	978	13949.57	970	13967.59	970	14022.43
GR	972	14191.85	974	14217.15	986	14228.4	994	14232.74	1002	14236.96
GR	1010	14241.01	1018	14244.79	1024	14247.55	1024	14353.3	1026	14478.37
GR	1026	14623.44	1022	14636.98	1022	14663.63	1026	14674.2	1028	14869.92

END 1ST WEST PIT

X1	18	90	4531.35	6388.38	500	489.73	431.16			
X3	10	1006				7834.1	1024			
GR	1020	3819.14	1022	4000	1022	4011.72	1020	4055.84	1020	4120.86
GR	1022	4444.72	1022	4457.64	1020	4484.2	1018	4516.44	1014	4526.58
GR	1023	4531.35	1010	4621.11	1010	4680.1	1012	4744.01	1014	4755.32
GR	1016	4880.94	1018	5188.02	1018	5382.51	1016	5410.98	1016	6162.3
GR	1016	6343.05	1016	6375.49	1018	6388.38	1018	6623.54	1018	6743.68
GR	1018	7052.61	1018	7261.63	1020	7278.27	1020	7293.94	1018	7312.55
GR	1018	7360.49	1016	7376.1	1010	7412.8	1008	7421.38	1004	7431.43
GR	1004	7633.5	1006	7661.28	1008	7674.66	1008	7784.84	1010	7808.75
GR	1022	7834.1	1024	7863.78	1024	7885.69	1022	7892.66	1018	7909.92
GR	1014	7932.91	1010	7954.71	1008	8037.56	1004	8046.85	1004	8068
GR	1008	8078.24	1018	8100.03	1018	8153.63	994	8167.54	992	8174.91
GR	990	8193.76	984	8208.36	982	8215.13	980	8239.74	978	8390.58
GR	978	8441.56	976	8475.81	976	8528.82	978	8554.84	980	8561.58
GR	980	8720.62	978	9061.24	978	9085.16	970	9099.34	968	9112.52
GR	968	9473.2	970	9867.28	972	9950	974	9964.07	984	9990.14
GR	986	9991.92	994	9995.1	1006	9999.89	1012	10002.32	1024	10007.09
GR	1026	10026.94	1026	10030.27	1024	10034.79	1024	10061.74	1026	10366.32
GR	1026	10511.84	1024	10519.94	1024	10550.36	1026	10558.31	1028	10909.23

END PHASE 1 LEVEE

X1	18.5	90	490	2242.02	470.75	492	470			
X3	10	1006								
GR	1022	33.68	1022	60.82	1020	190.67	1020	417.9	1018	427.26
GR	1018	450.7	1020	458.42	1022	466.71	1027.1	477.39	1024	490
GR	1022	499.5	1018	516.77	1016	545.46	1012	553.09	1012	680.32
GR	1014	689.64	1016	699.28	1016	816.02	1018	1504.15	1018	1613.95
GR	1018	1736.93	1018	1810.74	1016	2186.97	1016	2210.72	1022	2229.57
GR	1026	2242.02	1026	2299.25	1024	2341.44	1022	2543.38	1020	2672.57
GR	1020	2940.04	1020	3157.83	1020	3412.24	1022	3423.52	1022	3435.71
GR	1020	3455.58	1020	3756.18	1018	3836.26	1016	3852.22	1014	3860.52
GR	1014	3889.83	1012	3901.62	1010	3911.96	1008	3918.93	1004	3933.12
GR	1002	3949.6	1000	3978.62	1000	4014.58	1002	4084.94	1004	4095.65
GR	1006	4105.81	1008	4113.76	1012	4127	1016	4140.69	1018	4153.67
GR	1022	4160.43	1026	4167.24	1028	4171.19	1028	4188.53	1024	4199.05
GR	1022	4222.34	1020	4233.15	1018	4241.77	1014	4256.58	1010	4288.2
GR	1008	4303.46	1006	4323.69	1004	4346.41	1002	4424.81	1000	4587.79
GR	998	4659.43	998	5123.52	1000	5497.87	1000	5822.08	1002	5851.49
GR	1004	5868.65	1008	5893.18	1012	5917.37	1016	5936.8	1018	5949.09
GR	1020	5964.24	1022	5976.63	1022	6000.96	1024	6020.49	1024	6059.05
GR	1022	6082.61	1022	6193.48	1024	6421.46	1026	6485.23	1026	6538.38

CAMELBACK ROAD LOW CHORD = 1027.5

NC	0.022	0.022	0.022	0.3	0.5					
X1	19	90	2217.43	4008.82	207.77	177.82	198.13			
X3	10									
BT	-62	2261.43	1034.2	1034.2	2261.53	1037	1027.5	2296.63	1037.3	1027.8
BT		2373	1038.1	1028.6	2373.13	1038.1	1012	2379.13	1038.1	1012.2
BT		2379.23	1038.1	1028.6	2488.13	1039	1029.5	2488.23	1039	1012
BT		2494.23	1039	1012	2494.33	1039	1029.5	2603.13	1039.8	1030.3
BT		2603.23	1039.8	1016.1	2609.2	1039.8	1016.2	2609.33	1039.8	1030.3
BT		2718.13	1040.4	1030.9	2718.23	1040.4	1016.5	2724.23	1040.4	1016.5
BT		2724.33	1040.4	1030.9	2833.13	1040.8	1031.3	2833.23	1040.8	1016.85
BT		2839.23	1040.8	1016.9	2839.33	1040.8	1031.3	2948.1	1041.1	1031.6
BT		2948.23	1041.2	1017.1	2954.23	1041.1	1017.16	2954.33	1041.1	1031.6
BT		3063.13	1041.3	1031.8	3063.23	1041.3	1017.32	3069.23	1041.3	1017.34
BT		3069.33	1041.3	1031.8	3124.03	1041.3	1031.8	3177.93	1041.3	1031.8
BT		3178	1041.3	1017.62	3184.03	1041.3	1017.64	3184.13	1041.3	1031.8
BT		3293.43	1041.1	1031.6	3293.53	1041.1	1018	3299.53	1041.1	1018
BT		3299.63	1041.1	1031.6	3408.03	1040.8	1031.3	3408.13	1040.8	1018
BT		3413.93	1040.8	1018	3414	1040.8	1031.3	3523.43	1040.4	1030.9
BT		3523.53	1040.4	1018	3529.53	1040.4	1018	3529.63	1040.4	1030.9
BT		3637.93	1039.8	1030.3	3638.03	1039.8	1018	3644.03	1039.8	1018
BT		3644.13	1039.8	1030.3	3752.93	1039	1029.5	3753	1039	1018
BT		3759.03	1039	1018	3759.13	1039	1029.5	3868.43	1038.1	1028.6
BT		3868.53	1038.1	1018	3874.53	1038.1	1018	3874.63	1038.1	1028.6
BT		3984.03	1037	1027.5	3984.13	1034.2	1034.2			
GR	1028	0	1028	1099.28	1028	1404.76	1028	1784.7	1028	1978.88
GR	1032	2217.43	1027.5	2261.43	1027.5	2261.53	1019	2296.63	1012	2337.2
GR	1012	2373	1012	2373.13	1012.2	2379.13	1012.2	2379.23	1014	2456.93
GR	1012	2488.13	1012	2488.23	1012	2494.23	1012	2494.33	1016.1	2603.13
GR	1016.1	2603.23	1016.2	2609.2	1016.2	2609.33	1016.5	2718.13	1016.5	2718.23

	1016.5	2724.23	1016.55	2724.33	1016.85	2833.13	1016.85	2833.23	1016.9	2839.23
	1016.9	2839.33	1017.13	2948.1	1017.1	2948.23	1017.16	2954.23	1017.16	2954.33
GR	1017.3	3063.13	1017.32	3063.23	1017.34	3069.23	1017.3	3069.33	1017.45	3124.03
GR	1017.6	3177.93	1017.62	3178	1017.64	3184.03	1017.64	3184.13	1018	3293.43
GR	1018	3293.53	1018	3299.53	1018	3299.63	1018	3408.03	1018	3408.13
GR	1018	3413.93	1018	3414	1018	3523.43	1018	3523.53	1018	3529.53
GR	1018	3529.63	1018	3637.93	1018	3638.03	1018	3644.03	1018	3644.13
GR	1018	3752.93	1018	3753	1018	3759.03	1018	3759.13	1018	3868.43
GR	1018	3868.53	1018	3874.53	1018	3874.63	1018	3953.13	1022	3967.8
GR	1026	3981.88	1027.5	3984.03	1027.5	3984.13	1028	3987.32	1032	3998.23
GR	1034	4008.82	1030	4310.74	1028	4534.41	1026	4875.07	1024	5210.53
GR	1022	5558.06	1020	5741.22	1018	5778.32	1020	5895.56	1024	6084.21
GR	1024	6191.11	1024	7152.27	1024	7750.28	1024	7995.16	1026	8245.28
X1	20	90	2251.27	3994.32	86.69	67.28	77.93			
X3	10									
BT	-62	2261.43	1034.2	1034.2	2261.53	1037	1027.5	2296.63	1037.3	1027.8
BT		2373	1038.1	1028.6	2373.13	1038.1	1012	2379.13	1038.1	1012
BT		2379.23	1038.1	1028.6	2488.13	1039	1029.5	2488.23	1039	1014
BT		2494.23	1039	1014	2494.33	1039	1029.5	2603.13	1039.8	1030.3
BT		2603.23	1039.8	1014	2609.2	1039.8	1014	2609.33	1039.8	1030.3
BT		2718.13	1040.4	1030.9	2718.23	1040.4	1016.2	2724.23	1040.4	1016.4
BT		2724.33	1040.4	1030.9	2833.13	1040.8	1031.3	2833.23	1040.8	1016.8
BT		2839.23	1040.8	1016.9	2839.33	1040.8	1031.3	2948.1	1041.1	1031.6
BT		2948.23	1041.2	1017	2954.23	1041.1	1017.1	2954.33	1041.1	1031.6
BT		3063.13	1041.3	1031.8	3063.23	1041.3	1017.2	3069.23	1041.3	1017.2
BT		3069.33	1041.3	1031.8	3124.03	1041.3	1031.8	3177.93	1041.3	1031.8
BT		3178	1041.3	1017.4	3184.03	1041.3	1017.5	3184.13	1041.3	1031.8
BT		3293.43	1041.1	1031.6	3293.53	1041.1	1017.8	3299.53	1041.1	1017.9
BT		3299.63	1041.1	1031.6	3408.03	1040.8	1031.3	3408.13	1040.8	1018
BT		3413.93	1040.8	1018	3414	1040.8	1031.3	3523.43	1040.4	1030.9
BT		3523.53	1040.4	1018	3529.53	1040.4	1018	3529.63	1040.4	1030.9
BT		3637.93	1039.8	1030.3	3638.03	1039.8	1018	3644.03	1039.8	1018
BT		3644.13	1039.8	1030.3	3752.93	1039	1029.5	3753	1039	1018
BT		3759.03	1039	1018	3759.13	1039	1029.5	3868.43	1038.1	1028.6
BT		3868.53	1038.1	1018.6	3874.53	1038.1	1019.5	3874.63	1038.1	1028.6
BT		3984.03	1037	1027.5	3984.13	1034.2	1034.2			
GR	1032	0	1032	165.84	1032	492.42	1032	968.29	1032	1028.65
GR	1030	1835.11	1030	2021.46	1032	2197.16	1032	2251.27	1027.5	2261.43
GR	1027.5	2261.53	1019	2296.63	1012	2353.57	1012	2373	1012	2373.13
GR	1012	2379.13	1012	2379.23	1014	2422.26	1014	2488.13	1014	2488.23
GR	1014	2494.23	1014	2494.33	1014	2603.13	1014	2603.23	1014	2609.2
GR	1014	2609.33	1014	2636.7	1016	2663.11	1016.2	2718.13	1016.2	2718.23
GR	1016.4	2724.23	1016.4	2724.33	1016.6	2833.13	1016.8	2833.23	1016.9	2839.23
GR	1016.9	2839.33	1017	2948.1	1017	2948.23	1017.1	2954.23	1017.1	2954.33
GR	1017.2	3063.13	1017.2	3063.23	1017.2	3069.23	1017.2	3069.33	1017.3	3124.03
GR	1017.3	3177.93	1017.4	3178	1017.5	3184.03	1017.6	3184.13	1017.7	3293.43
GR	1017.8	3293.53	1017.9	3299.53	1017.9	3299.63	1018	3408.03	1018	3408.13
GR	1018	3413.93	1018	3414	1018	3523.43	1018	3523.53	1018	3529.53
GR	1018	3529.63	1018	3637.93	1018	3638.03	1018	3644.03	1018	3644.13
GR	1018	3752.93	1018	3753	1018	3759.03	1018	3759.13	1018	3854.87
GR	1018.6	3868.43	1018.6	3868.53	1019.5	3874.53	1019.5	3874.63	1018	3949.96
GR	1020	3957.68	1024	3973.13	1027.5	3984.03	1027.5	3984.13	1030	3994.32
GR	1030	4102.59	1028	4352.73	1026	4558.92	1026	4590.81	1026	5044.87

```
     1026    5149.16      1026    5720.14      1026    6002.35      1026    7321.63      1026    7343.76

     BEGIN PHASE 2 LEVEE

NC   0.036     0.042     0.028       0.1       0.3
X1    20.5        70   5348.41   7070.03     26.76     33.52      24.6
X3      10
GR    1028      4000      1026   4658.17      1026   4689.81      1026   4703.17      1026   4703.78
GR    1026    4711.3   1028.97    4838.1      1026   4895.29      1026   4897.03      1026   4991.27
GR    1026    5018.2      1026   5065.98      1026   5126.47      1028   5138.38      1030   5150.23
GR    1030   5249.26      1030   5271.29      1030   5348.41      1028   5353.61      1026    5358.6
GR    1024    5365.1      1022   5372.23      1020   5379.52      1018   5387.49      1016   5408.21
GR    1014    5426.4      1012   5441.07      1012    5470.8      1014   5510.63      1014    5635.6
GR    1014   5758.21      1016   5780.44      1018   6292.03      1018    6779.4      1018   6949.29
GR    1020   6966.64      1020   6986.06      1018    7000.3      1018   7015.29      1020   7045.36
GR    1022   7053.73      1024   7061.95      1026   7070.03      1026   7105.86      1024   7268.63
GR    1024   7378.68      1024   7420.24      1022   7549.56      1022   7686.59      1022   7776.59
GR    1022   7790.85      1022   7855.51      1022   8019.49      1022   8020.95      1022   8647.49
GR    1024   8759.49      1024   8769.17      1022   8840.14      1022   8844.11      1022   8987.54
GR    1022   9056.49      1024   9061.61      1024    9084.9      1022   9091.01      1022   9107.91
GR    1024   9216.98      1024    9421.4      1024   9434.18      1026  10458.89      1028  11732.77

X1      21        90   2271.01   3995.83     25.41     18.81     17.71
X3      10
GR    1028         0      1028     22.63      1026    488.07      1024    999.39      1024   1759.19
GR  1030.2   1761.01      1024   1813.55      1022   1821.09      1022   1830.76      1024   1839.65
GR    1024   1987.82      1022    2054.7      1022   2065.12      1024   2075.73      1026   2087.12
GR    1028   2099.34      1030   2112.38      1030   2271.01      1028   2277.72      1026   2284.56
GR    1024   2290.83      1022   2296.54      1020   2301.67      1018   2307.56      1016   2338.72
GR    1014   2349.09      1012   2363.94      1012   2393.21      1014   2432.24      1016   2487.78
GR    1016   2506.58      1014   2618.09      1014   2704.85      1016   2726.34      1018   3046.04
GR    1018   3207.66      1018   3698.24      1018   3875.91      1020   3890.08      1020   3911.68
GR    1018   3924.31      1018   3944.81      1020    3972.1      1022   3981.16      1024   3988.95
GR    1026   3995.83      1026    4017.6      1024   4029.61      1022   4208.97      1022   4354.29
GR    1020   5111.35      1020   5340.74      1018   5413.47      1018   5591.11      1020   5639.62
GR    1022   5644.42      1024   5680.21      1024   5681.34      1022   5687.48      1020   5693.57
GR    1018   5753.44      1018   5974.81      1020    5983.1      1022   5994.01      1022    6009.6
GR    1020    6013.9      1018   6017.01      1018    6021.2      1020   6354.15      1020   6657.61
GR    1020   6819.37      1020   6907.02      1022   6917.49      1022   6945.48      1020   6949.76
GR    1020   6982.26      1022    7572.8      1022   7578.86      1022   7717.12      1022    7735.5
GR    1022   7786.53      1022   7893.41      1022   7894.16      1022   7947.33      1022   8051.12
GR    1022   8215.36      1024   8215.58      1026   8215.85      1028   8577.66      1028   8635.58

X1      22        88   6613.78   8959.26      476       525    509.85
X3      10                                     9130      1030
GR    1024      4000   1030.51   6613.78      1024   6691.42      1024   6697.76      1024   6708.92
GR    1024   6715.84      1024   6723.28      1024   6769.89      1022   6865.44      1022   6886.31
GR    1022   6939.78      1020   6960.37      1018   7000.19      1016   7125.43      1016   7221.21
GR    1016   7305.62      1014    7344.5      1014   7349.58      1016   7358.58      1016   7448.19
GR    1016   7477.04      1016   7486.92      1016   7568.92      1016   7590.84      1016   7596.76
GR    1018   7613.04      1020   7781.03      1020    7987.7      1018   8080.24      1018   8091.54
GR    1022   8351.31      1022   8441.24      1020   8548.66      1018   8685.25      1018   8813.27
GR    1018   8959.26      1018   8974.61      1018   8989.79      1018   9091.42      1020   9505.09
```

	1022	9570.59	1022	9796.87	1020	9830.94	1020	9850.7	1022	9864.79
	1022	10172.54	1022	10226.24	1022	10274.55	1022	10277.01	1022	10368.3
GR	1020	10378.8	1020	10468.6	1022	10473.78	1022	10476.27	1020	10481.94
GR	1020	10506.9	1022	10519.14	1022	10528.11	1020	10544.41	1020	10584.17
GR	1020	10669.4	1020	10685.31	1020	10733.82	1020	10750.52	1022	10759.29
GR	1022	10767.21	1020	10791.39	1020	10804.88	1022	10892.34	1024	11792.39
GR	1024	11797.86	1024	11825.1	1024	11879.82	1024	12652.53	1024	12803.13
GR	1024	12848.79	1026	13083.69	1026	13086.88	1026	13098.35	1028	13155.96
GR	1028	13184.6	1028	13196.48	1028	13276.87	1028	13290.95	1030	13375.86
GR	1032	13454.81	1034	13571.31	1034	13683.11				
X1	23	71	6774.82	9632.83	488	697	484.56			
X3	10					9893	1030			
GR	1026	4000	1031.64	6774.82	1024	6852.72	1024	6858.12	1024	6957.88
GR	1024	6965.61	1024	7039.82	1022	7054.43	1020	7067.13	1020	7245.35
GR	1020	7264.74	1018	7385.87	1016	7391.26	1016	7517.62	1018	7654.24
GR	1020	7728.12	1020	7899.16	1020	7956.36	1020	8209.63	1020	8261.04
GR	1020	8504.86	1018	8528.37	1018	8540.7	1020	8634.25	1022	8649.55
GR	1024	8665.97	1024	8733.15	1022	8771.06	1022	8775.69	1022	8788.88
GR	1022	8793.74	1024	8815.77	1024	8895.97	1024	8934.48	1024	9113.86
GR	1022	9179.24	1022	9184.97	1024	9212.8	1024	9500.94	1024	9514.26
GR	1026	9629.73	1026	9632.83	1026	9650.18	1026	9672.24	1024	9698.57
GR	1022	10473.45	1020	10523.55	1020	11047.41	1022	11078.67	1024	11226.52
GR	1024	11264.94	1024	11334.3	1024	11487.55	1024	11604.22	1024	11840.88
GR	1024	11907.16	1024	11942.12	1024	11949.93	1024	11959.19	1024	11971.7
GR	1024	12129.41	1024	12160.48	1026	13211.86	1028	13245.32	1028	13272.57
GR	1028	13309.53	1030	13328.22	1030	13345.13	1028	13359.77	1028	13366.59
GR	1032	13409.86								

BEGIN 2ND WEST PIT

X1	24	90	4631.58	8095.57	440	724.06	450.96			
X3	10	1018				8280	1030			
GR	1026	4000	1026	4099.86	1026	4507.95	1030	4631.58	1024	4696.45
GR	1026	4709.11	1024	4889.7	1020	4908.37	1020	5089.6	1018	5270.96
GR	1016	5280.23	1016	5349.28	1018	5379.73	1018	5547.47	1020	5563.04
GR	1022	5978.9	1022	6154.92	1020	6364.38	1024	6398.61	1024	6722.02
GR	1024	6747	1026	6902.84	1024	7106.14	1026	7120.18	1026	7192.15
GR	1024	7200.45	1024	7337.11	1026	7348.85	1026	7384.86	1024	7396.5
GR	1024	7414.98	1026	7432.37	1014	7451.25	1020	7478.64	1020	7511.51
GR	996	7526.41	996	7543.13	1000	7601.07	1000	7631.98	996	7652
GR	996	7735.9	1000	7744.39	1006	7749.18	1010	7752.13	1016	7757.19
GR	1018	7761.99	1002	7767.71	1002	7882.49	1004	7936.78	1008	7947.11
GR	1012	8017.25	1016	8022.54	1018	8053.01	1024	8095.57	1024	8160.09
GR	1026	8182.67	1026	8249.19	1024	8269.53	1024	8294.19	1026	8443.78
GR	1026	8530.27	1030	8538.98	1030	8560.13	1032	8576.62	1032	8709.95
GR	1028	8996.1	1020	9009.1	1012	9014.4	1010	9021.29	1008	9058.52
GR	1012	9061.18	1018	9065.1	1024	9068.34	1024	9092.97	1026	9097.87
GR	1026	9281.67	1030	9297.64	1030	9343.92	1026	9364.6	1024	9587.05
GR	1022	9638.4	1022	10581.82	1024	11019.99	1030	11074.81	1030	11175.07
GR	1028	11201.33	1028	11362.37	1032	11427.57	1032	11457.26	1034	11478.79

X1	25	90	4405.5	8713.42	273	510	497.78			
X3	10	1018				8715	1032			
GR	1026	3693.32	1026	4000	1033.43	4405.5	1026	4592.87	1026	4601.88
GR	1028	4723.24	1028	4796.92	1026	4806.57	1024	4815.08	1022	4823.26
GR	1022	4995.47	1020	5153.59	1018	5289.6	1018	5297.22	1020	5330.04
GR	1022	5352.78	1022	5395.18	1020	5431.25	1018	5435.62	1018	5484.29
GR	1022	5543.74	1022	6173.67	1022	6257.55	1024	6270.29	1026	6298.88
GR	1026	6389.85	1026	6885.22	1026	7064.23	1028	7069.64	1028	7073.83
GR	1026	7079.95	1024	7086.1	1022	7183.38	1020	7184.71	1018	7186.53
GR	1016	7187.93	1014	7189.18	1012	7190.48	1010	7191.95	1008	7193.18
GR	1006	7194.54	1004	7195.91	1002	7197.27	1000	7198.65	998	7200
GR	996	7201.37	994	7202.69	992	7203.78	992	7227.59	994	7299.08
GR	996	7328.76	998	7363.35	1000	7406.52	1000	7507.96	1002	7563.43
GR	1002	7583.14	1000	7588	1000	7675.23	1002	7678.04	1004	7680.65
GR	1006	7683.27	1010	7688.49	1012	7743.19	1014	7769.34	1016	7774.57
GR	1018	7780.48	1020	7791.55	1022	7801.73	1024	7867.81	1026	7971.6
GR	1028	8067.01	1028	8312.93	1026	8713.42	1026	8754.73	1028	8814.61
GR	1028	8899.85	1026	9933.69	1026	10291.28	1028	10804.78	1030	10948.05
GR	1032	10952.56	1032	10969.71	1030	10974.32	1030	11085.21	1032	11097.93
GR	1032	11114.56	1032	11151.85	1034	11322.24	1036	11384.51	1038	11546.04

END 2ND WEST PIT

X1	26	90	4453.31	9333.07	180	510	493.04			
X3	10	1018				9598	1032			
GR	1026	3649.04	1026	4000	1033.76	4453.31	1028	4648.64	1028	5051.84
GR	1026	5114.73	1022	5141.78	1020	5226.5	1020	5332.46	1022	5342.15
GR	1022	5458.87	1020	5500.18	1020	5537.51	1022	5618.93	1024	5638.56
GR	1024	5863.22	1020	5873.94	1020	6016.97	1022	6039.1	1024	6416.75
GR	1024	6653.22	1028	6687.87	1028	7110.83	1028	7209.52	1026	7221.44
GR	1026	7234.78	1028	7405.88	1024	7414.84	1022	7487.62	1002	7512.55
GR	1002	7574.83	1004	7669.92	1008	7674.36	1014	7681	1018	7685.43
GR	1022	7689.85	1022	7804.32	1014	7820.34	1008	7837.3	1008	7851.39
GR	1012	7868.8	1012	7877.52	1008	7899.47	1006	7927.94	1006	7968.65
GR	1010	7980.43	1010	8001.33	1006	8013.01	1006	8064.94	1008	8188.19
GR	1010	8207.74	1008	8217.41	1008	8234.71	1010	8266.02	1012	8275.99
GR	1002	8284.09	1002	8291.07	1008	8301.09	1012	8305.89	1018	8312.51
GR	1024	8318.72	1026	8531.33	1026	8549.91	1024	8633.24	1020	8647.39
GR	1020	8676.06	1022	8687.5	1014	8706.49	1014	8713.83	1018	8752.26
GR	1022	8760.95	1028	8770.12	1030	8781.94	1028	8786.73	1028	8802.27
GR	1026	8922.25	1026	9023.81	1028	9277.09	1028	9333.07	1028	10047.74
GR	1028	10287.81	1028	10918.46	1030	11307.06	1034	11317.27	1034	11328.15
GR	1030	11335.98	1030	11427.49	1032	11438.1	1032	11563.61	1034	11668.35

NC	0.04	0.04	0.03							
X1	27	72	4096.2	11724.7	345	712.66	713			
CI	4496	1021.0		4	4	500				
X3	10									
GR	1026	3198.77	1026	3198.77	1028	4000	1034.64	4096.2	1028	4677.28
GR	1028	4728.58	1028	4743.82	1028	4784.2	1026	4791.26	1024	4797.91
GR	1022	4804.19	1020	4811.89	1020	4886.86	1022	5003.7	1024	5040.42
GR	1026	5126.29	1026	5149.18	1026	5199.72	1028	5208.98	1028	5241.98

```
     1028      5355      1028    5374.9      1026   5610.25      1024   5740.26      1024    5866.6
     1024   6008.62      1022   6046.24      1020   6051.11      1020   6108.15      1022   6121.37
GR   1022   6218.19      1022   6251.71      1024   6379.54      1026   6783.46      1028   6796.11
GR   1028   7281.28      1028    7341.9      1028   7345.81      1026   7747.82      1026   7768.69
GR   1026   7825.95      1026   7832.43      1028   8016.34      1030   8215.39      1030   8318.05
GR   1030   8332.86      1030    8367.1      1030   8643.13      1030   8691.41      1030   8694.48
GR   1030   8750.86      1028   8945.98      1028   8968.81      1028  10321.08      1028  10404.76
GR   1028  10470.53      1028  10578.64      1030  11146.54      1032  11181.25      1034  11217.84
GR   1034  11376.98      1032  11381.41      1030  11391.55      1030  11395.66      1030  11436.33
GR   1030  11449.17      1030  11461.66      1030  11469.45      1032  11476.14      1032  11501.91
GR   1032  11573.47      1034   11724.7

X1     28        85    5066.4   13560.5       839      1494    750.56
CI   5300    1022.0                 4         4       550
X3     10                                     5666      1050
GR   1028      4000      1028   4022.53   1036.06    5066.4      1030   5403.56      1030   5446.31
GR   1030    5450.7      1030   5456.73      1030   5481.67      1030      5523      1030   5524.71
GR   1030   5552.37      1030    5771.4      1028   5817.46      1026   5825.87      1024   5839.64
GR   1024    5854.1      1024   5862.98      1022   5869.25      1020   5906.63      1020   5908.52
GR   1022   5959.09      1022   5980.42      1022   5985.91      1024   6002.83      1024   6015.33
GR   1024   6038.29      1024   6078.38      1024   6100.15      1024   6149.71      1024   6187.99
GR   1024   6254.53      1024   6258.38      1024   6278.34      1024   6311.96      1026   6402.36
GR   1028   6427.18      1028   6667.83      1028   6717.07      1028   7128.41      1028   7202.87
GR   1028   7226.94      1028   7261.61      1028   7279.15      1028   7388.49      1028   7680.74
GR   1026    7696.3      1024   7727.37      1022   7850.29      1022   7933.71      1024   8022.66
GR   1026    8243.4      1028    8555.1      1028   8959.22      1028   8973.06      1028   9094.17
GR   1028   9115.69      1028   9233.71      1028   9239.66      1028   9256.88      1026    9272.2
GR   1026   9273.86      1028   9284.09      1030   9700.29      1032  10174.75      1032  10289.68
GR   1030  10333.89      1030  10415.85      1030  10678.87      1030  10688.81      1030  10803.99
GR   1030  10826.24      1030  10953.43      1030  10960.15      1030  10980.44      1030  10985.07
GR   1030  11049.53      1030   11568.9      1030  11773.71      1030  11815.49      1030  12281.16
GR   1032  13044.09      1034  13047.84      1034  13067.03      1032  13071.22      1032   13560.5

        FIRST NEW RIVER SECTION U/S OF THE CONFLUENCE

NC   0.045     0.045     0.035       0.1       0.3
QT       2     69000     71300
   Interpolate cross section between 28 and 29. Use 29 shifted downstrean
X1    28.5        25   4381.29    6011.8       388      1100       600                2.0
CI   4700    1023.0                 4         4       650
X3     10                          4300                5100    1050.0
GR   1032      4000   1033.73   4014.92   1037.57   4381.29      1032   4755.99      1032   4869.54
GR   1032   4912.84      1030   4983.86      1030   4995.44      1030   5041.07      1028   5079.29
GR   1026   5092.07      1024    5130.2      1024    5263.8      1026   5443.57      1028   5549.29
GR   1030   5586.73      1030   5761.69      1028   5774.08      1028   5799.85      1032    5832.5
GR   1034   5840.24      1036   5848.13      1038    5863.9      1040    6011.8      1040   6017.51

X1     29        25   4381.29    6011.8       388      1100       600
CI   4900      1024                 4         4       850
X3     10                       4381.29                5431.    1050.0
GR   1032      4000   1033.73   4014.92   1037.57   4381.29      1032   4755.99      1032   4869.54
GR   1032   4912.84      1030   4983.86      1030   4995.44      1030   5041.07      1028   5079.29
GR   1026   5092.07      1024    5130.2      1024    5263.8      1026   5443.57      1028   5549.29
```

	1030	5586.73	1030	5761.69	1028	5774.08	1028	5799.85	1032	5832.5
GR	1034	5840.24	1036	5848.13	1038	5863.9	1040	6011.8	1040	6017.51
X1	34	30	4332	5478.63	651	582.64	593.37			
CI	4800	1026.0		4	4	800				
X3	10			4332		5478.63				
GR	1034	4000	1039.36	4332	1033.73	4678.26	1036	4699.5	1036	4715.51
GR	1034	4724.89	1032	4770.14	1032	4774.06	1032	4863.48	1030	4904.42
GR	1028	4923.27	1026	4935.08	1026	5109.98	1028	5417.13	1030	5423.5
GR	1032	5429.41	1034	5434.28	1036	5439.06	1040.7	5443.87	1040.7	5478.63
GR	1038	5486.46	1036	5494.43	1034	5502.42	1032	5509.83	1030	5518.14
GR	1030	5645.86	1032	5671.63	1034	5690.2	1036	5708.14	1038	5723.74
X1	35	22	4000	5039.35	448	501.13	508.89			
CI	4500	1027.0		4	4	600				
X3	10					5039.35				
GR	1036	3999	1042.27	4000	1036	4361.25	1036	4376.52	1036	4387.35
GR	1036	4400.35	1034	4414.34	1032	4483.62	1030	4517.49	1028	4526.14
GR	1026	4542.46	1026	4571.26	1026	4593.09	1026	4688.54	1028	4794.93
GR	1030	5009.38	1032	5015.4	1034	5021.41	1036	5027.4	1038	5033.38
GR	1040.7	5039.35	1040.70	5063.07						
X1	36	28	4082	5095.86	430	670	660			
CI	4600	1028.0		4	4	600				
X3	10			4210		5095.86				
GR	1038	4000	1038	4082.00	1044.34	4210	1038	4305.72	1038	4339.4
GR	1038	4348.55	1038	4362.01	1038	4380.86	1038	4410.02	1036	4463.93
GR	1034	4515.92	1032	4551.79	1030	4580.46	1028	4630.46	1028	4722.21
GR	1028	4770.03	1028	4808.76	1028	4905.38	1028	4937.42	1030	4980.67
GR	1032	5074.38	1034	5079	1036	5083.63	1038	5089.07	1041.66	5095.86
GR	1041.7	5127.91	1041.66	5188.65	1041.66	5262.26				
X1	51.5	42	4000	5078.88	614	500.00	648.12			
CI						0.01				
X3	10									
GR	1045	4000	1038	4057.01	1040	4238.1	1040	4241.66	1040	4323.51
GR	1042	4330.74	1044	4338.07	1046	4345.38	1046	4355.98	1044	4375.4
GR	1042	4390.47	1040	4397.73	1038	4404.73	1036	4411.5	1034	4422.31
GR	1032	4449.85	1032	4464.81	1032	4478.77	1030	4502.78	1030	4779.59
GR	1030	4785.58	1030	4822.62	1032	4884.43	1034	5043.24	1036	5048.46
GR	1038	5055.6	1040	5063.47	1042.85	5072.89	1042.85	5078.88	1040	5101.01
GR	1038	5112.62	1038	5168.93	1040	5205.55	1042	5254.85	1042	5265.37
GR	1042	5265.44	1042	5282.11	1040	5325.67	1038	5363.92	1036	5392.89
GR	1034	5425.24	1034	5437.68						
X1	54	46	4218.21	5295.21	310.22	226.25	263.78			
X3	10									
GR	1038	4000	1038	4020.99	1038	4186.72	1038	4194.81	1038	4196.11
GR	1045	4218.21	1038	4349.31	1036	4356.97	1034	4370.59	1034	4424.53
GR	1036	4435.2	1038	4445.59	1040	4456.12	1042	4466.44	1042	4495.67
GR	1040	4503.32	1038	4510.75	1036	4518.12	1034	4525.48	1032	4532.12
GR	1032	4533.99	1032	4534.03	1030	4545.76	1030	4667.35	1032	4706.34
GR	1032	4710.78	1032	4776.26	1032	4820.96	1030	4920.98	1030	4958.8
GR	1032	5062.3	1034	5267.05	1036	5273.8	1038	5280.55	1040	5287.56

	1043.4	5295.21	1043.4	5317.33	1040	5331.95	1038	5344.49	1038	5412.97
	1040	5437.75	1042	5477.42	1042	5546.4	1040	5587.32	1038	5618.42
GR	1036	5643.85								
QT	2	69000	68000							
X1	60	38	4181.41	5043.16	928.4	653.57	633.78			
X3	10									
GR	1042	4000	1042	4026.44	1042	4065.27	1044	4084.07	1044	4166.3
GR	1042	4179.37	1045	4181.41	1040	4182.73	1038	4186.04	1036	4189.19
GR	1034	4192.18	1032	4210.69	1032	4291.02	1032	4378.29	1030	4405.74
GR	1030	4420.82	1032	4457.12	1032	4590.48	1032	4605.81	1032	4627.92
GR	1032	4750.53	1032	4754.55	1032	4759.21	1034	4921.68	1034	4981.19
GR	1034	5019.79	1036	5025.89	1038	5031.74	1040	5037.41	1044.80	5043.16
GR	1044.8	5081.2	1040	5091.07	1040	5241.22	1042	5271.5	1044	5328.58
GR	1044	5348.06	1042	5410.5	1040	5447.59				
X1	63	50	4256.1	5073.66	232.02	233.04	222.89			
X3	10			4256.1						
GR	1042	4000	1042	4002.46	1042	4005.07	1042	4046.91	1040	4112.3
GR	1040	4136.61	1042	4145.57	1042	4166.03	1040	4189.9	1038	4212.48
GR	1038	4224.99	1040	4229.5	1042	4234	1044	4238.33	1044	4256.1
GR	1042	4258.85	1040	4261.51	1038	4264.37	1038	4264.37	1036	4267.08
GR	1034	4269.75	1032	4272.47	1032	4329.99	1032	4526.45	1032	4531.07
GR	1032	4639.46	1032	4696.72	1032	4713.6	1032	4725.84	1034	4794.08
GR	1034	4846.28	1034	4871.63	1036	5021.17	1038	5027.07	1040	5032.89
GR	1042	5039.09	1045.23	5045.83	1045.23	5073.66	1042	5082.22	1040	5090.86
GR	1040	5127.69	1040	5139.2	1040	5182.37	1040	5239.7	1040	5261.06
GR	1042	5278.84	1044	5318.47	1044	5390.04	1042	5447.28	1040	5493.84
X1	70.5	42	4394.98	4955.42	735.13	696.73	725.14			
X3	10									
GR	1044	4000	1044	4126.49	1044	4132.05	1044	4133.94	1044	4145.53
GR	1042	4203.51	1042	4211.99	1044	4228.26	1044	4244.1	1042	4258.75
GR	1042	4383.84	1044	4389.43	1046	4394.98	1046	4417.4	1044	4420.11
GR	1042	4422.82	1040	4425.54	1038	4428.25	1036	4430.95	1034	4433.64
GR	1032	4438.88	1032	4583.34	1034	4594.35	1034	4764.14	1034	4812.46
GR	1034	4872.66	1034	4925.82	1036	4930.41	1038	4935	1040	4939.6
GR	1042	4944.37	1044	4949.74	1047.02	4955.42	1047.02	5024.87	1044	5062.67
GR	1042	5074.73	1042	5103.8	1042	5237.74	1042	5271.31	1044	5296.53
GR	1046	5330.91	1046	5404.97						
X1	77	26	4364.84	4793.57	568.51	689.77	636.54			
X3	10									
GR	1044	4000	1044	4327.43	1046	4334.5	1048	4339.83	1048	4364.84
GR	1046	4369.2	1044	4372.51	1042	4375.42	1040	4378.13	1038	4380.72
GR	1036	4383.31	1034	4385.9	1034	4538.55	1034	4671.05	1034	4775.75
GR	1036	4778.2	1038	4780.77	1040	4783.38	1042	4785.96	1044	4788.51
GR	1046	4791.04	1048	4793.57	1050	4914.55	1052	4935.95	1054	4978.18
GR	1054	5068.84								

X	84	37	4276.52	4785.73	709.65	725.55	702.16			
X3	10									
GR	1048	4000	1048	4256.6	1050	4263.19	1052	4276.52	1052	4288.06
GR	1050	4292.15	1048	4294.92	1046	4298.08	1044	4300.82	1042	4303.55
GR	1040	4306.39	1038	4309.33	1036	4312.49	1034	4321.74	1034	4426.04
GR	1034	4503.74	1032	4613.12	1032	4672.11	1034	4716.22	1036	4764.89
GR	1038	4767.51	1040	4770.13	1042	4772.74	1044	4775.35	1046	4777.95
GR	1048	4780.54	1050	4783.14	1052	4785.73	1052	4858.98	1052	4912.41
GR	1054	4949.21	1056	4954.27	1056	4985.88	1054	4990.05	1052	4997.51
GR	1050	5022.92	1050	5091.52						
X1	88.8	38	4057.37	4563.57	516.3	423.21	478.14			
X3	10									
GR	1050	4000	1052	4022.47	1052	4057.37	1050	4059.79	1048	4062.22
GR	1046	4064.64	1044	4067.06	1042	4069.48	1040	4071.9	1038	4074.31
GR	1036	4076.71	1034	4205.43	1034	4211.06	1036	4219.98	1038	4247.29
GR	1038	4247.75	1036	4260.37	1036	4403.25	1038	4440.49	1038	4461.79
GR	1038	4496.22	1038	4514.86	1036	4537.4	1036	4543.5	1038	4546.61
GR	1040	4549.49	1042	4551.93	1044	4554.26	1046	4556.55	1048	4558.86
GR	1050	4561.16	1052	4563.57	1052	4912.11	1050	4947.86	1050	4983.89
GR	1052	5254.7	1054	5349.56	1056	5355.31				

T3

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	-10	3			0.00142				1009.6	
J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	2		-1					-6		

THIS RUN EXECUTED 13NOV97 17:07:40

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HEC-2 WATER SURFACE PROFILES

Version 4.6.2; May 1991
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NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

SUMMARY PRINTOUT TABLE 120

SECNO	CWSEL	EG	VCH	10*KS	DEPTH	TOPWID	CLSTA	BW	STCHL	XLBEL	STCHR	RBEL
1.000	1009.10	1011.21	11.66	14.28	13.10	1025.01	.00	.01	394.53	1010.00	1422.94	1010.00
1.000	1007.27	1008.95	10.41	14.09	11.27	1018.05	.00	.01	394.53	1010.00	1422.94	1010.00
2.000	1009.80	1012.02	11.97	16.06	11.80	1047.11	.00	.01	383.84	1012.00	1440.42	1012.00
2.000	1007.95	1009.76	10.80	16.33	9.95	1038.66	.00	.01	383.84	1012.00	1440.42	1012.00
3.000	1010.65	1012.89	12.01	17.94	10.65	1127.81	.00	.01	482.00	1014.00	1621.81	1014.00
3.000	1008.80	1010.69	11.01	19.31	8.80	1121.73	.00	.01	482.00	1014.00	1621.81	1014.00
4.000	1012.12	1013.59	9.75	11.18	12.12	1333.85	.00	.01	817.46	1014.00	2156.10	1014.00
4.000	1010.19	1011.43	8.94	12.09	10.19	1329.07	.00	.01	817.46	1014.00	2156.10	1014.00
5.000	1012.68	1013.79	8.44	7.44	12.68	1412.08	.00	.01	796.49	1016.00	2270.21	1016.00
5.000	1010.73	1011.63	7.62	7.62	10.73	1401.41	.00	.01	796.49	1016.00	2270.21	1016.00
6.000	1012.48	1014.06	10.08	12.04	12.48	1428.80	.00	.01	972.00	1018.00	2442.20	1018.00
6.000	1010.57	1011.86	9.12	11.77	10.57	1416.20	.00	.01	972.00	1018.00	2442.20	1018.00
7.000	1012.57	1014.18	10.18	12.63	12.57	1457.91	.00	.01	1031.85	1018.00	2521.45	1016.00
7.000	1010.64	1011.98	9.28	12.65	10.64	1445.89	.00	.01	1031.85	1018.00	2521.45	1016.00
8.000	1013.21	1014.28	8.31	7.50	13.21	1476.62	.00	.01	61.72	1018.00	1843.60	1020.00
8.000	1011.17	1012.07	7.61	8.01	11.17	1461.11	.00	.01	61.72	1018.00	1843.60	1020.00
9.000	1013.57	1014.59	8.13	7.32	11.57	1529.70	.00	.01	449.80	1014.00	1980.46	1014.00
9.000	1011.54	1012.41	7.46	7.95	9.54	1525.24	.00	.01	449.80	1014.00	1980.46	1014.00
10.000	1013.94	1015.17	8.91	9.83	11.94	1518.56	.00	.01	855.01	1016.00	2377.24	100000.00
10.000	1011.97	1013.04	8.28	11.11	9.97	1513.40	.00	.01	855.01	1016.00	2377.24	100000.00
11.000	1014.85	1015.83	8.06	11.04	10.85	1843.90	.00	.01	2405.12	1012.00	4118.42	1020.00
11.000	1012.93	1013.80	7.58	13.01	8.93	1836.04	.00	.01	2405.12	1012.00	4118.42	1020.00

	SECNO	CWSEL	EG	VCH	10*KS	DEPTH	TOPWID	CLSTA	BW	STCHL	XLBEL	STCHR	RBEL
	12.000	1015.70	1016.60	7.63	17.94	9.70	2974.83	.00	.01	2020.24	1020.00	5067.86	1016.00
	12.000	1013.80	1014.80	8.02	25.30	7.80	2565.60	.00	.01	2020.24	1020.00	5067.86	1016.00
	13.000	1016.69	1017.42	6.88	12.90	10.69	3006.97	.00	.01	3445.00	1019.65	6502.46	1018.00
	13.000	1015.22	1015.89	6.60	16.10	9.22	2979.70	.00	.01	3445.00	1019.65	6502.46	1018.00
	14.000	1017.37	1018.04	6.56	11.22	11.37	3042.69	.00	.01	3100.00	1021.00	6150.27	1020.00
	14.000	1016.05	1016.63	6.09	12.65	10.05	3038.94	.00	.01	3100.00	1021.00	6150.27	1020.00
	15.000	1017.90	1018.74	7.35	16.01	11.90	2997.68	.00	.01	3180.00	1023.80	6242.95	1022.00
	15.000	1016.62	1017.34	6.81	14.88	10.62	2587.14	.00	.01	3180.00	1023.80	6242.95	1022.00
	16.000	1018.72	1019.94	8.87	29.95	12.72	2998.51	.00	.01	3310.00	1025.02	6450.93	1022.00
*	16.000	1017.43	1018.62	8.76	37.51	11.43	2766.38	.00	.01	3310.00	1025.02	6450.93	1022.00
	17.000	1020.29	1021.41	8.95	23.53	16.29	3187.64	.00	.01	8744.78	1023.00	10774.90	1016.00
	17.000	1019.34	1020.28	8.11	23.80	15.34	3181.22	.00	.01	8744.78	1023.00	10774.90	1016.00
	18.000	1021.42	1022.27	6.33	14.71	11.42	3290.66	.00	.01	4531.35	1023.00	6388.38	1018.00
	18.000	1020.37	1021.11	5.42	14.22	10.37	3281.20	.00	.01	4531.35	1023.00	6388.38	1018.00
*	18.500	1022.76	1025.64	13.61	60.36	10.76	1736.06	.00	.01	490.00	1024.00	2242.02	1026.00
*	18.500	1021.59	1024.12	12.78	70.50	9.59	1727.00	.00	.01	490.00	1024.00	2242.02	1026.00
*	19.000	1024.47	1026.58	11.66	23.93	12.47	1702.44	.00	.01	2217.43	1032.00	4008.82	1034.00
*	19.000	1023.53	1025.10	10.06	20.76	11.53	1695.25	.00	.01	2217.43	1032.00	4008.82	1034.00
	20.000	1024.99	1026.83	10.89	19.31	12.99	1704.34	.00	.01	2251.27	1032.00	3994.32	1030.00
	20.000	1023.89	1025.30	9.54	17.53	11.89	1696.22	.00	.01	2251.27	1032.00	3994.32	1030.00
	20.500	1025.42	1026.91	9.81	19.81	13.42	1707.25	.00	.01	5348.41	1030.00	7070.03	1026.00
	20.500	1024.21	1025.37	8.65	18.80	12.21	1698.38	.00	.01	5348.41	1030.00	7070.03	1026.00
	21.000	1025.41	1026.97	10.04	21.37	13.41	1707.38	.00	.01	2271.01	1030.00	3995.83	1026.00
	21.000	1024.20	1025.42	8.87	20.48	12.20	1699.43	.00	.01	2271.01	1030.00	3995.83	1026.00
	22.000	1027.04	1027.84	7.31	11.93	13.04	2474.87	.00	.01	6613.78	1030.51	8959.26	1018.00
	22.000	1025.62	1026.30	6.70	12.92	11.62	2457.89	.00	.01	6613.78	1030.51	8959.26	1018.00
	23.000	1027.68	1028.58	7.70	17.70	11.68	3077.81	.00	.01	6774.82	1031.64	9632.83	1026.00
	23.000	1026.32	1027.17	7.43	22.47	10.32	3063.97	.00	.01	6774.82	1031.64	9632.83	1026.00
*	24.000	1028.66	1029.16	5.71	8.48	10.66	3633.95	.00	.01	4631.58	1030.00	8095.57	1024.00
*	24.000	1027.41	1027.83	5.25	9.24	9.41	3620.39	.00	.01	4631.58	1030.00	8095.57	1024.00
	25.000	1029.13	1029.67	5.88	11.90	11.13	4201.16	.00	.01	4405.50	1033.43	8713.42	1026.00
	25.000	1027.91	1028.40	5.63	13.19	9.91	3816.44	.00	.01	4405.50	1033.43	8713.42	1026.00
	26.000	1029.78	1030.17	5.01	8.30	11.78	5008.04	.00	.01	4453.31	1033.76	9333.07	1028.00
	26.000	1028.62	1028.97	4.72	9.68	10.62	4959.00	.00	.01	4453.31	1033.76	9333.07	1028.00

	SECNO	CWSEL	EG	VCH	10*KS	DEPTH	TOPWID	CLSTA	BW	STCHL	XLBEL	STCHR	RBEL
*	27.000	1030.59	1031.00	5.13	17.23	10.59	7032.13	4496.00	500.00	4096.20	1034.64	11724.70	1034.00
*	27.000	1029.56	1029.98	5.16	21.62	9.56	6189.93	4496.00	500.00	4096.20	1034.64	11724.70	1034.00
*	28.000	1034.25	1039.74	18.79	59.97	12.25	690.02	5300.00	550.00	4971.69	1035.33	13560.50	1050.00
*	28.000	1032.31	1036.93	17.24	64.10	10.31	682.26	5300.00	550.00	4971.69	1035.33	13560.50	1050.00
*	28.500	1040.73	1041.16	5.28	3.77	17.73	800.00	4700.00	650.00	4311.64	1038.84	6011.80	1050.00
*	28.500	1037.87	1038.55	6.59	7.46	14.87	784.48	4700.00	650.00	4311.64	1038.84	6011.80	1050.00
	29.000	1041.10	1041.36	4.08	2.32	17.10	1049.71	4900.00	850.00	4381.29	1037.57	6011.80	1050.00
	29.000	1038.53	1038.92	5.01	4.40	14.53	1049.71	4900.00	850.00	4381.29	1037.57	6011.80	1050.00
	34.000	1041.23	1041.53	4.33	3.13	15.23	1146.63	4800.00	800.00	4332.00	1039.36	5478.63	100000.00
	34.000	1038.78	1039.23	5.40	5.86	12.78	1093.03	4800.00	800.00	4332.00	1039.36	5478.63	100000.00
*	35.000	1041.30	1041.82	5.75	6.57	15.30	983.59	4500.00	600.00	4000.00	1042.27	5039.35	100000.00
	35.000	1038.94	1039.76	7.26	11.83	12.94	883.20	4500.00	600.00	4000.00	1042.27	5039.35	100000.00
	36.000	1041.69	1042.32	6.41	7.79	13.69	850.60	4600.00	600.00	4082.00	100000.00	5095.86	100000.00
	36.000	1039.70	1040.66	7.85	14.37	11.70	839.01	4600.00	600.00	4082.00	100000.00	5095.86	100000.00
*	51.500	1042.16	1043.33	8.70	26.28	12.16	989.48	.00	.01	4000.00	1045.00	5078.88	1042.85
*	51.500	1040.66	1042.54	11.01	53.07	10.66	960.91	.00	.01	4000.00	1045.00	5078.88	1042.85
*	54.000	1043.11	1043.85	6.88	12.86	13.11	1041.04	.00	.01	4218.21	1045.00	5295.21	1043.40
*	54.000	1042.47	1043.37	7.62	16.99	12.47	1027.45	.00	.01	4218.21	1045.00	5295.21	1043.40
	60.000	1043.84	1044.62	7.11	11.19	13.84	860.29	.00	.01	4181.41	1045.00	5043.16	1044.80
	60.000	1043.48	1044.29	7.24	12.10	13.48	859.76	.00	.01	4181.41	1045.00	5043.16	1044.80
	63.000	1043.96	1044.99	8.15	15.63	11.96	787.02	.00	.01	4256.10	1044.00	5073.66	1045.23
	63.000	1043.61	1044.68	8.29	16.87	11.61	785.83	.00	.01	4256.10	1044.00	5073.66	1045.23
*	70.500	1044.73	1046.93	11.90	33.01	12.73	532.00	.00	.01	4394.98	1046.00	4955.42	1047.02
	70.500	1044.49	1046.72	11.99	34.43	12.49	531.23	.00	.01	4394.98	1046.00	4955.42	1047.02
	77.000	1046.52	1049.38	13.56	38.09	12.52	423.65	.00	.01	4364.84	1048.00	4793.57	1048.00
	77.000	1046.38	1049.22	13.53	38.45	12.38	423.15	.00	.01	4364.84	1048.00	4793.57	1048.00
*	84.000	1049.65	1050.95	9.14	12.37	17.65	490.05	.00	.01	4276.52	1052.00	4785.73	1052.00
*	84.000	1049.51	1050.79	9.09	12.37	17.51	489.68	.00	.01	4276.52	1052.00	4785.73	1052.00
	88.800	1050.14	1051.76	10.21	18.57	16.14	501.72	.00	.01	4057.37	1052.00	4563.57	1052.00
	88.800	1050.00	1051.61	10.17	18.65	16.00	501.38	.00	.01	4057.37	1052.00	4563.57	1052.00

SUMMARY PRINTOUT TABLE 150

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
1.000	.00	.00	.00	996.00	142000.00	1009.10	.00	1011.21	14.28	11.66	12182.33	37574.52
1.000	.00	.00	.00	996.00	107300.00	1007.27	.00	1008.95	14.09	10.41	10307.91	28589.05
2.000	513.18	.00	.00	998.00	142000.00	1009.80	.00	1012.02	16.06	11.97	11859.43	35435.26
2.000	513.18	.00	.00	998.00	107300.00	1007.95	.00	1009.76	16.33	10.80	9938.58	26553.93
3.000	508.26	.00	.00	1000.00	142000.00	1010.65	.00	1012.89	17.94	12.01	11820.11	33528.51
3.000	508.26	.00	.00	1000.00	107300.00	1008.80	.00	1010.69	19.31	11.01	9747.91	24419.06
4.000	449.34	.00	.00	1000.00	142000.00	1012.12	.00	1013.59	11.18	9.75	14558.55	42465.38
4.000	449.34	.00	.00	1000.00	107300.00	1010.19	.00	1011.43	12.09	8.94	12000.06	30865.34
5.000	175.96	.00	.00	1000.00	142000.00	1012.68	.00	1013.79	7.44	8.44	16830.46	52066.34
5.000	175.96	.00	.00	1000.00	107300.00	1010.73	.00	1011.63	7.62	7.62	14076.65	38865.25
6.000	36.79	1021.30	1013.30	1000.00	142000.00	1012.48	.00	1014.06	12.04	10.08	14083.30	40928.18
6.000	36.79	1021.30	1013.30	1000.00	107300.00	1010.57	.00	1011.86	11.77	9.12	11765.98	31271.49
7.000	82.76	1021.30	1013.30	1000.00	142000.00	1012.57	.00	1014.18	12.63	10.18	13942.22	39956.31
7.000	82.76	1021.30	1013.30	1000.00	107300.00	1010.64	.00	1011.98	12.65	9.28	11568.06	30162.77
8.000	49.79	.00	.00	1000.00	142000.00	1013.21	.00	1014.28	7.50	8.31	17089.23	51847.16
8.000	49.79	.00	.00	1000.00	107300.00	1011.17	.00	1012.07	8.01	7.61	14103.14	37920.14
9.000	414.59	.00	.00	1002.00	142000.00	1013.57	.00	1014.59	7.32	8.13	17476.70	52485.88
9.000	414.59	.00	.00	1002.00	107300.00	1011.54	.00	1012.41	7.95	7.46	14388.93	38059.02
10.000	611.26	.00	.00	1002.00	142000.00	1013.94	.00	1015.17	9.83	8.91	15939.36	45287.05
10.000	611.26	.00	.00	1002.00	107300.00	1011.97	.00	1013.04	11.11	8.28	12965.41	32190.88
11.000	614.13	.00	.00	1004.00	142000.00	1014.85	.00	1015.83	11.04	8.06	17946.10	42734.08
11.000	614.13	.00	.00	1004.00	107300.00	1012.93	.00	1013.80	13.01	7.58	14401.53	29745.86
12.000	536.27	.00	.00	1006.00	142000.00	1015.70	.00	1016.60	17.94	7.63	18617.11	33527.77
12.000	536.27	.00	.00	1006.00	107300.00	1013.80	.00	1014.80	25.30	8.02	13376.80	21330.72
13.000	532.88	.00	.00	1006.00	142000.00	1016.69	.00	1017.42	12.90	6.88	20641.14	39541.68
13.000	532.88	.00	.00	1006.00	107300.00	1015.22	.00	1015.89	16.10	6.60	16262.58	26738.74
14.000	509.47	.00	.00	1006.00	142000.00	1017.37	.00	1018.04	11.22	6.56	21634.39	42393.81
14.000	509.47	.00	.00	1006.00	107300.00	1016.05	.00	1016.63	12.65	6.09	17626.06	30163.13
15.000	488.37	.00	.00	1006.00	142000.00	1017.90	.00	1018.74	16.01	7.35	19330.99	35484.10
15.000	488.37	.00	.00	1006.00	107300.00	1016.62	.00	1017.34	14.88	6.81	15750.50	27815.85
16.000	506.66	.00	.00	1006.00	142000.00	1018.72	.00	1019.94	29.95	8.87	16014.84	25946.97
* 16.000	506.66	.00	.00	1006.00	107300.00	1017.43	.00	1018.62	37.51	8.76	12251.58	17519.31

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
	17.000	550.00	.00	.00	1004.00	142000.00	1020.29	.00	1021.41	23.53	8.95	17214.18	29276.73
	17.000	550.00	.00	.00	1004.00	107300.00	1019.34	.00	1020.28	23.80	8.11	14199.43	21996.52
	18.000	431.16	.00	.00	1010.00	142000.00	1021.42	.00	1022.27	14.71	6.33	19682.57	37027.68
	18.000	431.16	.00	.00	1010.00	107300.00	1020.37	.00	1021.11	14.22	5.42	16236.80	28455.42
*	18.500	470.00	.00	.00	1012.00	142000.00	1022.76	1022.76	1025.64	60.36	13.61	10431.72	18277.83
*	18.500	470.00	.00	.00	1012.00	107300.00	1021.59	1021.59	1024.12	70.50	12.78	8397.79	12779.15
*	19.000	198.13	1034.20	1034.20	1012.00	142000.00	1024.47	.00	1026.58	23.93	11.66	12182.44	29030.29
*	19.000	198.13	1034.20	1034.20	1012.00	107300.00	1023.53	.00	1025.10	20.76	10.06	10666.40	23551.45
	20.000	77.93	1034.20	1034.20	1012.00	142000.00	1024.99	.00	1026.83	19.31	10.89	13038.69	32314.99
	20.000	77.93	1034.20	1034.20	1012.00	107300.00	1023.89	.00	1025.30	17.53	9.54	11248.01	25627.00
	20.500	24.60	.00	.00	1012.00	142000.00	1025.42	.00	1026.91	19.81	9.81	14472.08	31902.74
	20.500	24.60	.00	.00	1012.00	107300.00	1024.21	.00	1025.37	18.80	8.65	12400.10	24748.30
	21.000	17.71	.00	.00	1012.00	142000.00	1025.41	.00	1026.97	21.37	10.04	14149.91	30721.07
	21.000	17.71	.00	.00	1012.00	107300.00	1024.20	.00	1025.42	20.48	8.87	12090.32	23712.89
	22.000	509.85	.00	.00	1014.00	142000.00	1027.04	.00	1027.84	11.93	7.31	19886.03	41109.99
	22.000	509.85	.00	.00	1014.00	107300.00	1025.62	.00	1026.30	12.92	6.70	16373.73	29855.66
	23.000	484.56	.00	.00	1016.00	142000.00	1027.68	.00	1028.58	17.70	7.70	18942.96	33752.45
	23.000	484.56	.00	.00	1016.00	107300.00	1026.32	.00	1027.17	22.47	7.43	14775.21	22635.74
*	24.000	450.96	.00	.00	1018.00	142000.00	1028.66	.00	1029.16	8.48	5.71	25243.14	48770.09
*	24.000	450.96	.00	.00	1018.00	107300.00	1027.41	.00	1027.83	9.24	5.25	20693.67	35307.10
	25.000	497.78	.00	.00	1018.00	142000.00	1029.13	.00	1029.67	11.90	5.88	24173.21	41160.92
	25.000	497.78	.00	.00	1018.00	107300.00	1027.91	.00	1028.40	13.19	5.63	19065.91	29546.38
	26.000	493.04	.00	.00	1018.00	142000.00	1029.78	.00	1030.17	8.30	5.01	28678.35	49285.86
	26.000	493.04	.00	.00	1018.00	107300.00	1028.62	.00	1028.97	9.68	4.72	22889.39	34491.29
*	27.000	713.00	.00	.00	1020.00	142000.00	1030.59	.00	1031.00	17.23	5.13	27698.60	34206.18
*	27.000	713.00	.00	.00	1020.00	107300.00	1029.56	.00	1029.98	21.62	5.16	20785.51	23077.89
*	28.000	750.56	.00	.00	1022.00	142000.00	1034.25	1034.25	1039.74	59.97	18.79	7555.57	18336.64
*	28.000	750.56	.00	.00	1022.00	107300.00	1032.31	1032.31	1036.93	64.10	17.24	6224.09	13401.67
*	28.500	600.00	.00	.00	1023.00	69000.00	1040.73	.00	1041.16	3.77	5.28	13080.00	35547.58
*	28.500	600.00	.00	.00	1023.00	71300.00	1037.87	.00	1038.55	7.46	6.59	10812.08	26096.05
	29.000	600.00	.00	.00	1024.00	69000.00	1041.10	.00	1041.36	2.32	4.08	16926.51	45286.31
	29.000	600.00	.00	.00	1024.00	71300.00	1038.53	.00	1038.92	4.40	5.01	14227.02	34009.77
	34.000	593.37	.00	.00	1026.00	69000.00	1041.23	.00	1041.53	3.13	4.33	15943.17	38975.30
	34.000	593.37	.00	.00	1026.00	71300.00	1038.78	.00	1039.23	5.86	5.40	13205.61	29447.39

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
*	35.000	508.89	.00	.00	1026.00	69000.00	1041.30	.00	1041.82	6.57	5.75	11998.07	26917.94
	35.000	508.89	.00	.00	1026.00	71300.00	1038.94	.00	1039.76	11.83	7.26	9821.38	20726.49
	36.000	660.00	.00	.00	1028.00	69000.00	1041.69	.00	1042.32	7.79	6.41	10757.71	24720.04
	36.000	660.00	.00	.00	1028.00	71300.00	1039.70	.00	1040.66	14.37	7.85	9078.05	18809.88
*	51.500	648.12	.00	.00	1030.00	69000.00	1042.16	.00	1043.33	26.28	8.70	7930.46	13458.46
*	51.500	648.12	.00	.00	1030.00	71300.00	1040.66	.00	1042.54	53.07	11.01	6473.08	9787.74
*	54.000	263.78	.00	.00	1030.00	69000.00	1043.11	.00	1043.85	12.86	6.88	10032.96	19237.77
*	54.000	263.78	.00	.00	1030.00	71300.00	1042.47	.00	1043.37	16.99	7.62	9362.57	17295.42
	60.000	633.78	.00	.00	1030.00	69000.00	1043.84	.00	1044.62	11.19	7.11	9709.12	20625.17
	60.000	633.78	.00	.00	1030.00	68000.00	1043.48	.00	1044.29	12.10	7.24	9398.47	19551.16
	63.000	222.89	.00	.00	1032.00	69000.00	1043.96	.00	1044.99	15.63	8.15	8470.22	17452.11
	63.000	222.89	.00	.00	1032.00	68000.00	1043.61	.00	1044.68	16.87	8.29	8200.18	16553.83
*	70.500	725.14	.00	.00	1032.00	69000.00	1044.73	.00	1046.93	33.01	11.90	5798.69	12009.70
	70.500	725.14	.00	.00	1032.00	68000.00	1044.49	.00	1046.72	34.43	11.99	5672.08	11588.89
	77.000	636.54	.00	.00	1034.00	69000.00	1046.52	.00	1049.38	38.09	13.56	5087.00	11180.20
	77.000	636.54	.00	.00	1034.00	68000.00	1046.38	.00	1049.22	38.45	13.53	5025.65	10966.21
*	84.000	702.16	.00	.00	1032.00	69000.00	1049.65	.00	1050.95	12.37	9.14	7553.11	19617.84
*	84.000	702.16	.00	.00	1032.00	68000.00	1049.51	.00	1050.79	12.37	9.09	7484.40	19333.43
	88.800	478.14	.00	.00	1034.00	69000.00	1050.14	.00	1051.76	18.57	10.21	6756.60	16012.86
	88.800	478.14	.00	.00	1034.00	68000.00	1050.00	.00	1051.61	18.65	10.17	6686.75	15746.83

SUMMARY PRINTOUT TABLE 150

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	1.000	142000.00	1009.10	.00	.00	-.50	1025.01	.00
	1.000	107300.00	1007.27	-1.83	.00	-2.33	1018.05	.00
	2.000	142000.00	1009.80	.00	.70	.00	1047.11	513.18
	2.000	107300.00	1007.95	-1.84	.69	.00	1038.66	513.18
	3.000	142000.00	1010.65	.00	.85	.00	1127.81	508.26
	3.000	107300.00	1008.80	-1.84	.85	.00	1121.73	508.26
	4.000	142000.00	1012.12	.00	1.47	.00	1333.85	449.34
	4.000	107300.00	1010.19	-1.93	1.38	.00	1329.07	449.34
	5.000	142000.00	1012.68	.00	.57	.00	1412.08	175.96
	5.000	107300.00	1010.73	-1.96	.54	.00	1401.41	175.96
	6.000	142000.00	1012.48	.00	-.20	.00	1428.80	36.79
	6.000	107300.00	1010.57	-1.92	-.16	.00	1416.20	36.79
	7.000	142000.00	1012.57	.00	.09	.00	1457.91	82.76
	7.000	107300.00	1010.64	-1.92	.08	.00	1445.89	82.76
	8.000	142000.00	1013.21	.00	.64	.00	1476.62	49.79
	8.000	107300.00	1011.17	-2.03	.53	.00	1461.11	49.79
	9.000	142000.00	1013.57	.00	.36	.00	1529.70	414.59
	9.000	107300.00	1011.54	-2.02	.37	.00	1525.24	414.59
	10.000	142000.00	1013.94	.00	.37	.00	1518.56	611.26
	10.000	107300.00	1011.97	-1.96	.43	.00	1513.40	611.26
	11.000	142000.00	1014.85	.00	.92	.00	1843.90	614.13
	11.000	107300.00	1012.93	-1.93	.95	.00	1836.04	614.13
	12.000	142000.00	1015.70	.00	.84	.00	2974.83	536.27
	12.000	107300.00	1013.80	-1.90	.87	.00	2565.60	536.27
	13.000	142000.00	1016.69	.00	.99	.00	3006.97	532.88
	13.000	107300.00	1015.22	-1.47	1.42	.00	2979.70	532.88
	14.000	142000.00	1017.37	.00	.68	.00	3042.69	509.47
	14.000	107300.00	1016.05	-1.32	.84	.00	3038.94	509.47
	15.000	142000.00	1017.90	.00	.53	.00	2997.68	488.37
	15.000	107300.00	1016.62	-1.28	.57	.00	2587.14	488.37
	16.000	142000.00	1018.72	.00	.81	.00	2998.51	506.66
*	16.000	107300.00	1017.43	-1.29	.81	.00	2766.38	506.66

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	17.000	142000.00	1020.29	.00	1.57	.00	3187.64	550.00
	17.000	107300.00	1019.34	-.95	1.91	.00	3181.22	550.00
	18.000	142000.00	1021.42	.00	1.13	.00	3290.66	431.16
	18.000	107300.00	1020.37	-1.06	1.03	.00	3281.20	431.16
*	18.500	142000.00	1022.76	.00	1.34	.00	1736.06	470.00
*	18.500	107300.00	1021.59	-1.17	1.22	.00	1727.00	470.00
*	19.000	142000.00	1024.47	.00	1.71	.00	1702.44	198.13
*	19.000	107300.00	1023.53	-.94	1.94	.00	1695.25	198.13
	20.000	142000.00	1024.99	.00	.52	.00	1704.34	77.93
	20.000	107300.00	1023.89	-1.10	.35	.00	1696.22	77.93
	20.500	142000.00	1025.42	.00	.43	.00	1707.25	24.60
	20.500	107300.00	1024.21	-1.21	.32	.00	1698.38	24.60
	21.000	142000.00	1025.41	.00	-.01	.00	1707.38	17.71
	21.000	107300.00	1024.20	-1.21	-.01	.00	1699.43	17.71
	22.000	142000.00	1027.04	.00	1.63	.00	2474.87	509.85
	22.000	107300.00	1025.62	-1.42	1.42	.00	2457.89	509.85
	23.000	142000.00	1027.68	.00	.64	.00	3077.81	484.56
	23.000	107300.00	1026.32	-1.36	.71	.00	3063.97	484.56
*	24.000	142000.00	1028.66	.00	.98	.00	3633.95	450.96
*	24.000	107300.00	1027.41	-1.25	1.08	.00	3620.39	450.96
	25.000	142000.00	1029.13	.00	.47	.00	4201.16	497.78
	25.000	107300.00	1027.91	-1.23	.50	.00	3816.44	497.78
	26.000	142000.00	1029.78	.00	.65	.00	5008.04	493.04
	26.000	107300.00	1028.62	-1.16	.72	.00	4959.00	493.04
*	27.000	142000.00	1030.59	.00	.81	.00	7032.13	713.00
*	27.000	107300.00	1029.56	-1.03	.94	.00	6189.93	713.00
*	28.000	142000.00	1034.25	.00	3.66	.00	690.02	750.56
*	28.000	107300.00	1032.31	-1.94	2.75	.00	682.26	750.56
*	28.500	69000.00	1040.73	.00	6.48	.00	800.00	600.00
*	28.500	71300.00	1037.87	-2.86	5.56	.00	784.48	600.00
	29.000	69000.00	1041.10	.00	.37	.00	1049.71	600.00
	29.000	71300.00	1038.53	-2.57	.65	.00	1049.71	600.00
	34.000	69000.00	1041.23	.00	.14	.00	1146.63	593.37
	34.000	71300.00	1038.78	-2.45	.26	.00	1093.03	593.37

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
*	35.000	69000.00	1041.30	.00	.07	.00	983.59	508.89
	35.000	71300.00	1038.94	-2.37	.16	.00	883.20	508.89
	36.000	69000.00	1041.69	.00	.38	.00	850.60	660.00
	36.000	71300.00	1039.70	-1.99	.76	.00	839.01	660.00
*	51.500	69000.00	1042.16	.00	.47	.00	989.48	648.12
*	51.500	71300.00	1040.66	-1.50	.96	.00	960.91	648.12
*	54.000	69000.00	1043.11	.00	.96	.00	1041.04	263.78
*	54.000	71300.00	1042.47	-.64	1.81	.00	1027.45	263.78
	60.000	69000.00	1043.84	.00	.72	.00	860.29	633.78
	60.000	68000.00	1043.48	-.36	1.00	.00	859.76	633.78
	63.000	69000.00	1043.96	.00	.12	.00	787.02	222.89
	63.000	68000.00	1043.61	-.34	.14	.00	785.83	222.89
*	70.500	69000.00	1044.73	.00	.77	.00	532.00	725.14
	70.500	68000.00	1044.49	-.24	.88	.00	531.23	725.14
	77.000	69000.00	1046.52	.00	1.79	.00	423.65	636.54
	77.000	68000.00	1046.38	-.15	1.89	.00	423.15	636.54
*	84.000	69000.00	1049.65	.00	3.13	.00	490.05	702.16
*	84.000	68000.00	1049.51	-.14	3.13	.00	489.68	702.16
	88.800	69000.00	1050.14	.00	.49	.00	501.72	478.14
	88.800	68000.00	1050.00	-.14	.49	.00	501.38	478.14

SUMMARY OF ERRORS AND SPECIAL NOTES

```
WARNING SECNO=     16.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=     18.500  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     18.500  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=     18.500  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=     18.500  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     18.500  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=     18.500  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL

WARNING SECNO=     19.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=     19.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=     24.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=     24.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=     27.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=     27.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=     28.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     28.000  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=     28.000  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=     28.000  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     28.000  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=     28.000  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL

WARNING SECNO=     28.500  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=     28.500  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=     35.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=     51.500  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=     51.500  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=     54.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=     54.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=     70.500  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=     84.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=     84.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
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FLOODWAY DATA,
PROFILE NO. 2

STATION	FLOODWAY WIDTH	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WATER SURFACE ELEVATION WITHOUT FLOODWAY	DIFFERENCE
1.000	1018.	10308.	10.4	1007.3	1009.1	-1.8
2.000	1039.	9939.	10.8	1008.0	1009.8	-1.8
3.000	1122.	9748.	11.0	1008.8	1010.6	-1.8
4.000	1329.	12000.	8.9	1010.2	1012.1	-1.9
5.000	1401.	14077.	7.6	1010.7	1012.7	-2.0
6.000	1416.	11766.	9.1	1010.6	1012.5	-1.9
7.000	1446.	11568.	9.3	1010.7	1012.6	-1.9
8.000	1461.	14103.	7.6	1011.2	1013.2	-2.0
9.000	1525.	14389.	7.5	1011.6	1013.6	-2.0
10.000	1513.	12965.	8.3	1011.9	1013.9	-2.0
11.000	1836.	14402.	7.5	1013.0	1014.9	-1.9
12.000	2566.	13377.	8.0	1013.8	1015.7	-1.9
13.000	2980.	16263.	6.6	1015.2	1016.7	-1.5
14.000	3039.	17626.	6.1	1016.1	1017.4	-1.3
15.000	2587.	15750.	6.8	1016.6	1017.9	-1.3
16.000	2900.	12252.	8.8	1017.4	1018.7	-1.3
17.000	3181.	14199.	7.6	1019.3	1020.3	-1.0
18.000	3281.	16237.	6.6	1020.3	1021.4	-1.1
18.500	1727.	8398.	12.8	1021.6	1022.8	-1.2
19.000	1695.	10666.	10.1	1023.6	1024.5	-.9
20.000	1696.	11248.	9.5	1023.9	1025.0	-1.1
20.500	1698.	12400.	8.7	1024.2	1025.4	-1.2
21.000	1699.	12090.	8.9	1024.2	1025.4	-1.2
22.000	2458.	16374.	6.6	1025.6	1027.0	-1.4
23.000	3064.	14775.	7.3	1026.3	1027.7	-1.4
24.000	3620.	20694.	5.2	1027.4	1028.7	-1.3
25.000	4170.	19066.	5.6	1027.9	1029.1	-1.2
26.000	4970.	22889.	4.7	1028.6	1029.8	-1.2
27.000	6811.	20786.	5.2	1029.6	1030.6	-1.0
28.000	682.	6224.	17.2	1032.4	1034.3	-1.9
28.500	784.	10812.	6.6	1037.8	1040.7	-2.9
29.000	1050.	14227.	5.0	1038.5	1041.1	-2.6
34.000	1093.	13206.	5.4	1038.7	1041.2	-2.5
35.000	883.	9821.	7.3	1038.9	1041.3	-2.4
36.000	839.	9078.	7.9	1039.7	1041.7	-2.0
51.500	1030.	6473.	11.0	1040.7	1042.2	-1.5
54.000	1027.	9363.	7.6	1042.5	1043.1	-.6
60.000	860.	9398.	7.2	1043.4	1043.8	-.4
63.000	786.	8200.	8.3	1043.7	1044.0	-.3
70.500	531.	5672.	12.0	1044.5	1044.7	-.2
77.000	423.	5026.	13.5	1046.4	1046.5	-.1
84.000	490.	7484.	9.1	1049.6	1049.7	-.1

FLOODWAY DATA,
PROFILE NO. 2

STATION	------- FLOODWAY ------- WIDTH	SECTION AREA	MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WITHOUT FLOODWAY	DIFFERENCE
88.800	501.	6687.	10.2	1050.0	1050.1	-.1

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*********************************************
*  HEC-2 WATER SURFACE PROFILES             *
*                                           *
*  Version   4.6.2;  May 1991               *
*                                           *
*  RUN DATE    13NOV97    TIME    17:07:50  *
*********************************************
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****************************************
*  U.S. ARMY CORPS OF ENGINEERS        *
*  HYDROLOGIC ENGINEERING CENTER       *
*  609 SECOND STREET, SUITE D          *
*  DAVIS, CALIFORNIA 95616-4687        *
*          (916) 756-1104              *
****************************************
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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
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THIS RUN EXECUTED 13NOV97 17:07:50

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

 Version   4.6.2;  May 1991
************************************
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AGUA FRIA RIVER - NEW RIVER
SPF DATA WITH LEVEE (PROPOSED CONDITIONS)

Modified by FDCMC to include Proposed City of Glendale Airport Extension
X-SEC 29 ENCROACHED AT STA 5450 FOR RUNWAY EXTENSION
CHANNELIZATION TO REDUCE WSE TO MEET FEMA REGULATED ELEVATION
1300 ft. Alternative FILENAME alt13nsf.dat

X-SEC	CCSLA	BOT ELEV.	SS	BW
*****	*****	*********	****	****
27	4496	1021.0	4:1	300
28	5700	1022.0	4:1	550
28.5	5000	1023.0	4:1	650
29	4900	1023.5	4:1	850
34	4800	1027.0	4:1	600
35	4500	1028.0	4:1	600
36	4600	1029.0	4:1	600

MODIFICATIONS BY DMJM ARIZONA, INC.
MODIFICATION DATE: 11/13/97

	ORIGINAL	REVISED
AGUA FRIA BELOW CONFLUENCE	142,000	144,300
NEW RIVER ABOVE CONFLUENCE	69,000	71,300
NEW RIVER ABOVE BHOC	69,000	68,000

ORIGINAL DISCHARGES BASED ON HYDROLOGY WITHOUT NEW WADDELL DAM FOR DESIGN OF THE CAMELBACK RANCH LEVEE SYSTEM.

REVISED HYDROLOGY ASSUMPTIONS:

1. BHOC DIVERSION BASED ON CHANNEL CAPACITY W/ SPF BACKWATER IMPACTS FROM THE NEW RIVER.
2. NEW RIVER ABOVE BHOC ASSUMES PEAK DISCHARGE BELOW SKUNK CREEK FOR HYDROGRAPH ROUTING (I.E. 68,000 CFS).
3. AGUA FRIA BELOW CONFLUENCE DEVELOPED BY ADDING CORPS PEAK DISCHARGE W/O NEW WADDELL DAM.

T1
T2
T3

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
		2			0.00142				1009.6	

NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
1		-1					-6		

J3 VARIABLE CODES FOR SUMMARY PRINTOUT

150 120 200

J5 LPRNT NUMSEC ********REQUESTED SECTION NUMBERS********

-10 -10

QT 2 142000 144300

BEGIN STUDY

NC	0.04	0.04	0.025	0.1	0.3					
X1	1	55	394.53	1422.94						
X3	10									
GR	1008	0	1010	5.99	1012	11.32	1014	20.14	1014	58.44
GR	1012	62.33	1010	66.27	1010	69.66	1012	76.36	1014	97.71
GR	1016	106.06	1016	131.32	1014	137.76	1014	156.6	1016	160.56
GR	1018	164.69	1020	169.72	1020	195.71	1018	201.38	1016	211.26
GR	1014	225.45	1012	237.04	1010	253.68	1008	257.33	1008	334.83
GR	1010	349.77	1010	394.53	1008	397.04	1006	399.59	1004	402.26
GR	1002	404.97	1000	407.7	998	410.47	996	1296.49	996	1316.28
GR	996	1376.84	996	1377.02	998	1385.11	1000	1393.98	1002	1402.74
GR	1004	1407.79	1006	1412.81	1008	1417.89	1010	1422.94	1010	1502.18
GR	1010	1604.84	1012	1610.44	1012	1611.09	1010	1614.78	1008	1618.3
GR	1006	1624.39	1004	1629.04	1004	1669.36	1004	1688.34	1004	1765.17
X1	2	33	383.84	1440.42	518.67	502.57	513.18			
X3	10									
GR	1008	0	1008	48.94	1008	106.63	1008	144.14	1008	182.01
GR	1008	191.43	1008	349.71	1010	357.82	1012	366.13	1012	383.84
GR	1010	386.22	1008	388.61	1006	391	1004	393.38	1002	395.77
GR	1000	398.16	998	573.8	998	588.41	998	1237.02	998	1393.66
GR	1000	1400.35	1002	1407.15	1004	1413.95	1006	1420.69	1008	1427.48
GR	1010	1434.27	1012	1440.42	1012	1479.39	1010	1494.08	1008	1587.23
GR	1008	2009.1	1008	2057.31	1000	2481.83				
X1	3	51	482	1621.81	592.64	430.38	508.26			
X3	10									
GR	998	0	996	99.38	994	158.77	994	224.41	996	256.59
GR	998	279.78	998	304.23	998	312.08	1000	320.55	1002	328.82
GR	1004	335.57	1006	362.48	1008	370.73	1010	377.91	1012	384.94
GR	1014	458.6	1014	482	1012	484.81	1010	487.23	1008	489.68
GR	1006	492.55	1004	495.16	1002	497.64	1000	500.22	1000	732.75
GR	1000	733.88	1000	851.15	1000	990.51	1000	1034.93	1000	1069.24
GR	1000	1205.81	1000	1276.9	1000	1592.97	1002	1596.87	1004	1600.8
GR	1006	1604.76	1008	1608.76	1010	1612.89	1012	1617.12	1014	1621.81
GR	1014	1642.56	1012	1652.27	1008	1709.31	1006	1721.64	1006	1751.25
GR	1008	1758.94	1008	1827.41	1008	1982.96	1008	2058.85	1000	2948.45

	1006	2953.59								
X1	4	70	817.46	2156.1	466.06	470.68	449.34			
X3	10									
GR	1012	0	1012	18.24	1010	25.95	1008	33.7	1008	203.76
GR	1010	212.44	1010	468.55	1010	497.7	1010	514.57	1008	661.83
GR	1006	666.5	1004	671.32	1004	694.71	1006	702.23	1008	709.58
GR	1010	716.97	1012	724.32	1014	731.59	1014	740.74	1014	757.82
GR	1014	817.46	1012	820.14	1010	822.8	1008	825.46	1006	828.11
GR	1004	843.28	1002	845.61	1000	1079.5	1000	1080.41	1002	2126.84
GR	1004	2129.85	1006	2143.5	1008	2149.08	1012	2153.7	1014	2156.1
GR	1014	2185.97	1012	2193.19	1010	2217.31	1008	2223.78	1008	2291.96
GR	1010	2302.39	1012	2311.51	1014	2320	1016	2328.61	1018	2334.71
GR	1018	2363.99	1016	2375.68	1014	2382.05	1012	2387.28	1010	2391.87
GR	1008	2816.54	1008	2852.79	1010	2920.78	1012	2927.54	1012	2991.87
GR	1010	3003.03	1008	3018.67	1006	3029.25	1004	3214.06	1002	3295.84
GR	1002	3347.97	1004	3354.28	1006	3368.34	1008	3396.73	1008	3928.26
GR	1008	4103.92	1010	4155.13	1012	4163.91	1014	4168.53	1016	4172.92
X1	5	69	796.49	2270.21	168.95	203.76	175.96			
X3	10									
GR	1012	0	1010	366.01	1012	594.51	1014	602.7	1014	642.27
GR	1012	657.98	1010	663.67	1010	752.17	1012	759.27	1014	766.35
GR	1016	773.02	1016	796.49	1014	844.46	1012	849.34	1010	853.67
GR	1008	858.07	1006	862.35	1004	866.84	1002	873.61	1002	1035.09
GR	1004	1045.46	1004	1056.3	1002	1060.57	1000	1064.55	1000	1107.18
GR	1002	1123.22	1002	1148.52	1000	1317.18	1000	1345.64	1000	1405.49
GR	1000	1442.87	1000	1494.32	1000	1518.15	1000	2104.75	1000	2187.6
GR	1000	2207.88	1000	2222.87	1002	2226.77	1004	2232.02	1006	2238.43
GR	1008	2244.83	1010	2251.17	1012	2257.6	1014	2263.89	1016	2270.21
GR	1016	2271.02	1016	2302.96	1018	2650.07	1018	2692.04	1018	2757.05
GR	1018	2771.16	1016	2779.68	1014	2791.73	1012	2842.19	1010	3122.72
GR	1010	3294.7	1010	3296.31	1010	3347.11	1012	3437.57	1012	3471.32
GR	1010	3498.09	1010	3504.71	1010	3512.56	1010	3899.89	1012	4099.55
GR	1012	4185.67	1012	4208.94	1014	4219.44	1016	4229.46		

INDIAN SCHOOL ROAD LOW CHORD = 1013.3

NC	0.022	0.022	0.022	0.3	0.5					
X1	6	90	972	2442.2	63.8	23.57	36.79			
X3	10									
BT	-70	971.9	1021.3	1021.3	972	1021.3	1013.3	972.1	1021.3	1013.3
BT		1007.8	1021.3	1013.3	1007.9	1021.3	1013.3	1021.9	1021.3	1013.3
BT		1022	1021.3	1013.3	1099.5	1021.3	1013.3	1099.6	1021.3	1002
BT		1113.6	1021.3	1002	1113.7	1021.3	1013.3	1189.5	1021.3	1013.3
BT		1189.6	1021.3	1002	1203.6	1021.3	1002	1203.7	1021.3	1013.3
BT		1279.5	1021.3	1013.3	1279.6	1021.3	1004	1293.6	1021.3	1004
BT		1293.7	1021.3	1013.3	1369.5	1021.3	1013.3	1369.6	1021.3	1001.5
BT		1383.6	1021.3	1001.3	1383.7	1021.3	1013.3	1459.5	1021.3	1013.3
BT		1459.6	1021.3	1000.5	1473.6	1021.3	1000	1473.7	1021.3	1013.3
BT		1549.5	1021.3	1013.3	1549.6	1021.3	1000	1563.6	1021.3	1000
BT		1563.7	1021.3	1013.3	1639.5	1021.3	1013.3	1639.6	1021.3	1000
BT		1653.6	1021.3	1000	1653.7	1021.3	1013.3	1729.5	1021.3	1013.3

		1729.6	1021.3	1000	1743.6	1021.3	1000	1743.7	1021.3	1013.3
BT		1819.5	1021.3	1013.3	1819.6	1021.3	1000	1833.6	1021.3	1000
BT		1833.7	1021.3	1013.3	1909.5	1021.3	1013.3	1909.6	1021.3	1000
BT		1923.6	1021.3	1000	1923.7	1021.3	1013.3	1999.5	1021.3	1013.3
BT		1999.6	1021.3	1000	2013.6	1021.3	1000	2013.7	1021.3	1013.3
BT		2089.4	1021.3	1013.3	2089.5	1021.3	1000	2103.5	1021.3	1000
BT		2103.6	1021.3	1013.3	2179.5	1021.3	1013.3	2179.6	1021.3	1000
BT		2193.6	1021.3	1000	2193.7	1021.3	1013.3	2269.5	1021.3	1013.3
BT		2269.6	1021.3	1000	2283.6	1021.3	1000	2283.7	1021.3	1013.3
BT		2359.5	1021.3	1013.3	2359.6	1021.3	1000	2373.6	1021.3	1000
BT		2373.7	1021.3	1013.3	2461.6	1021.3	1013.3	2461.7	1021.3	1013.3
BT		2461.71	1021.3	1021.3						
GR	1016	0	1018	517.07	1018	971.9	1018	972	1018	972.1
GR	1007	1007.8	1007	1007.9	1002	1021.9	1002	1022	1002	1099.5
GR	1002	1099.6	1002	1113.6	1002	1113.7	1002	1189.5	1002	1189.6
GR	1002	1203.6	1002	1203.7	1000	1263.16	1002	1272.35	1004	1279.5
GR	1004	1279.6	1004	1293.6	1004	1293.7	1002	1309.94	1001.5	1369.5
GR	1001.5	1369.6	1001.3	1383.6	1001.3	1383.7	1000.5	1459.5	1000.5	1459.6
GR	1000	1473.6	1000	1473.7	1000	1549.5	1000	1549.6	1000	1563.6
GR	1000	1563.7	1000	1639.5	1000	1639.6	1000	1653.6	1000	1653.7
GR	1000	1729.5	1000	1729.6	1000	1743.6	1000	1743.7	1000	1819.5
GR	1000	1819.6	1000	1833.6	1000	1833.7	1000	1909.5	1000	1909.6
GR	1000	1923.6	1000	1923.7	1000	1999.5	1000	1999.6	1000	2013.6
GR	1000	2013.7	1000	2089.4	1000	2089.5	1000	2103.5	1000	2103.6
GR	1000	2179.5	1000	2179.6	1000	2193.6	1000	2193.7	1000	2269.5
GR	1000	2269.6	1000	2283.6	1000	2283.7	1000	2359.5	1000	2359.6
GR	1000	2373.6	1000	2373.7	1002	2387.37	1004	2390.81	1006	2397.39
GR	1008	2403.97	1010	2410.56	1012	2417.17	1014	2423.98	1016	2438.32
GR	1018	2442.2	1018	2461.6	1018	2461.7	1018	2461.71	1018	2890.45
GR	1016	3090.24	1014	3545.43	1014	3588.88	1014	4053.92	1016	4384.87
X1	7	90	1031.85	2521.45	81.31	88.36	82.76			
X3	10							1018	1018	
BT	-70	1031.74	1021.3	1021.3	1031.75	1021.3	1013.3	1031.85	1021.3	1013.3
BT		1067.55	1021.3	1013.3	1067.6	1021.3	1013.3	1081.65	1021.3	1013.3
BT		1081.75	1021.3	1013.3	1159.25	1021.3	1013.3	1159.35	1021.3	1002
BT		1173.35	1021.3	1002	1173.45	1021.3	1013.3	1249.25	1021.3	1013.3
BT		1249.35	1021.3	1002	1263.35	1021.3	1002	1263.4	1021.3	1013.3
BT		1339.25	1021.3	1013.3	1339.35	1021.3	1002	1353.35	1021.3	1002
BT		1353.45	1021.3	1013.3	1429.25	1021.3	1013.3	1429.35	1021.3	1001.7
BT		1443.35	1021.3	1001	1443.45	1021.3	1013.3	1519.25	1021.3	1013.3
BT		1519.3	1021.3	1000.6	1533.35	1021.3	1000.4	1533.45	1021.3	1013.3
BT		1609.25	1021.3	1013.3	1609.35	1021.3	1000	1623.35	1021.3	1000
BT		1623.45	1021.3	1013.3	1699.25	1021.3	1013.3	1699.35	1021.3	1000.2
BT		1713.35	1021.3	1000.4	1713.4	1021.3	1013.3	1789.25	1021.3	1013.3
BT		1789.35	1021.3	1001.5	1803.35	1021.3	1001.7	1803.45	1021.3	1013.3
BT		1879.25	1021.3	1013.3	1879.35	1021.3	1002	1893.35	1021.3	1001.9
BT		1893.45	1021.3	1013.3	1969.25	1021.3	1013.3	1969.3	1021.3	1001.6
BT		1983.35	1021.3	1001.5	1983.45	1021.3	1013.3	2059.25	1021.3	1013.3
BT		2059.35	1021.3	1001.4	2073.35	1021.3	1001.2	2073.45	1021.3	1013.3
BT		2149.15	1021.3	1013.3	2149.25	1021.3	1001	2163.25	1021.3	1000.8
BT		2163.3	1021.3	1013.3	2239.25	1021.3	1013.3	2239.35	1021.3	1000.6
BT		2253.35	1021.3	1000.5	2253.45	1021.3	1013.3	2329.25	1021.3	1013.3
BT		2329.35	1021.3	1000.4	2343.35	1021.3	1000.4	2343.45	1021.3	1013.3

		2419.25	1021.3	1013.3	2419.3	1021.3	1000.2	2433.35	1021.3	1000.1
		2433.45	1021.3	1013.3	2521.35	1021.3	1013.3	2521.45	1021.3	1013.3
BT		2521.46	1021.3	1021.3						
GR	1014	0	1016	178.26	1018	548.86	1018	1031.74	1018	1031.75
GR	1018	1031.85	1007	1067.55	1007	1067.6	1002	1081.65	1002	1081.75
GR	1002	1159.25	1002	1159.35	1002	1173.35	1002	1173.45	1002	1249.25
GR	1002	1249.35	1002	1263.35	1002	1263.4	1000	1274.95	1000	1324.16
GR	1002	1339.25	1002	1339.35	1002	1353.35	1002	1353.45	1001.7	1429.25
GR	1001.7	1429.35	1001	1443.35	1001	1443.45	1000.6	1519.25	1000.6	1519.3
GR	1000.4	1533.35	1000.4	1533.45	1000	1609.25	1000	1609.35	1000	1623.35
GR	1000	1623.45	1000.2	1699.25	1000.2	1699.35	1000.4	1713.35	1000.4	1713.4
GR	1001.5	1789.25	1001.5	1789.35	1001.7	1803.35	1001.7	1803.45	1002	1879.25
GR	1002	1879.35	1001.9	1893.35	1001.9	1893.45	1001.6	1969.25	1001.6	1969.3
GR	1001.5	1983.35	1001.5	1983.45	1001.4	2059.25	1001.4	2059.35	1001.2	2073.35
GR	1001.2	2073.45	1001	2149.15	1001	2149.25	1000.8	2163.25	1000.8	2163.3
GR	1000.6	2239.25	1000.6	2239.35	1000.5	2253.35	1000.5	2253.45	1000.4	2329.25
GR	1000.4	2329.35	1000.4	2343.35	1000.4	2343.45	1000.2	2419.25	1000.2	2419.3
GR	1000.1	2433.35	1000.1	2433.45	1002	2478.12	1006	2487.3	1010	2499.64
GR	1014	2511.77	1016	2521.35	1016	2521.45	1016	2521.46	1018	2534.42
GR	1018	2994.04	1016	3150.93	1014	3526.3	1014	3775.45	1014	4005.93
GR	1016	4447.65	1018	4589.05	1018	4805.16	1018	4893.58	1020	5072.48
NC	0.04	0.04	0.025	0.1	0.3					
X1	8	68	61.72	1843.6	53.76	41.75	49.79			
X3	10									
GR	1012	0	1014	9	1016	17.3	1018	25.56	1018	61.72
GR	1016	124.12	1014	209.89	1012	221.36	1010	228.4	1008	234.07
GR	1006	239.63	1004	244.77	1002	248.85	1002	372.75	1004	400.71
GR	1004	410.19	1002	415.35	1000	423.21	1000	483.71	1002	493.65
GR	1004	500.2	1004	516.15	1002	579.28	1002	646.23	1002	655.17
GR	1002	666.21	1002	672.71	1000	754.82	1000	829.3	1002	920.05
GR	1002	933.38	1002	969.51	1002	1005.9	1002	1031.73	1002	1038.52
GR	1000	1639.55	1000	1647.62	1002	1660.8	1004	1663.42	1006	1669.98
GR	1008	1676.15	1010	1681.75	1012	1687.88	1014	1693.07	1016	1777.78
GR	1018	1781.8	1020	1843.6	1020	2086.73	1020	2117.39	1020	2189.48
GR	1018	2202.4	1018	2240.88	1018	2248.87	1016	2255.24	1014	2263.48
GR	1012	2274.12	1010	2287.91	1010	2449.93	1010	2476.5	1010	2778.81
GR	1010	2820.52	1012	3170.04	1014	3196.84	1016	3623.68	1018	3712.11
GR	1018	3991.77	1018	4071.08	1020	4206.31				

END EAST BANK LEVEE (EXISTING)

X1	9	66	449.8	1980.46	132.16	731.37	414.59			
X3	10									
GR	1014	0	1012	11.61	1012	11.61	1010	80.25	1010	249.36
GR	1012	324.83	1014	424.84	1014	449.8	1012	452.12	1010	454.51
GR	1008	456.71	1006	459.02	1004	461.14	1002	463.43	1002	537.72
GR	1002	559.21	1002	614.12	1004	621.97	1004	636.55	1002	669.02
GR	1002	688.42	1002	793.86	1002	813.36	1002	827.7	1002	855.53
GR	1002	874.19	1002	1176.81	1002	1731.08	1002	1832.03	1002	1870.72
GR	1002	1968.03	1004	1970.09	1006	1972.18	1008	1974.25	1010	1976.32
GR	1012	1978.37	1014	1980.46	1014	2003.48	1012	2008.59	1010	2013.8
GR	1008	2018.93	1006	2024.24	1004	2029.42	1004	2090.36	1006	2098.17

	1008	2106.02	1010	2116.63	1010	2192.33	1010	2361.53	1012	2720.37
	1012	2729.09	1010	3303.42	1010	3307.88	1012	3354.47	1014	3510.16
GR	1014	3587.35	1014	3638.91	1016	3794.17	1018	3946.5	1020	4047.28
GR	1022	4214.38	1024	4324.09	1026	4441.95	1028	4525.06	1030	4623.85
GR	1032	4705.42								
X1	10	82	855.01	2377.24	541.12	725.02	611.26			
X3	10					2377.24				
GR	1008	0	1006	63.97	1006	141.07	1006	192.33	1004	467.37
GR	1004	799.12	1006	802.13	1008	805.15	1010	808.18	1012	811.23
GR	1014	814.36	1016	817.54	1016	855.01	1014	858.51	1012	861.55
GR	1010	864.53	1008	867.34	1006	870.84	1004	873.66	1004	934.87
GR	1004	938.18	1004	1018.64	1004	1068.74	1002	1130.38	1002	1155.17
GR	1002	1377.86	1002	1389.76	1002	1434.66	1002	1451.17	1004	1727.92
GR	1004	1730.48	1004	2366.11	1006	2368.35	1008	2370.58	1010	2372.8
GR	1012	2375.02	1014	2377.24	1014	2404.55	1012	2410.51	1010	2595
GR	1010	2619.95	1010	2743.3	1008	2758.11	1008	2791.62	1010	2817.7
GR	1012	2833.77	1014	2844.32	1014	2869.52	1014	2961.59	1014	2989.05
GR	1014	3232.72	1014	3352.62	1014	3369.18	1014	3372.78	1014	3454.11
GR	1014	3460.14	1014	3713.56	1016	3868.6	1018	3922.58	1018	3988.96
GR	1018	4131.29	1018	4159.73	1016	4173.39	1014	4188.25	1014	4283.59
GR	1016	4291.34	1018	4297.96	1020	4304.55	1022	4399.85	1022	4481.74
GR	1020	4487.21	1020	4501.74	1022	4615.54	1024	4769.23	1026	4896
GR	1028	4996.6	1030	5045.05	1032	5094.11	1032	5261.44	1032	5508.27
GR	1034	5605.22	1034	5731.11						

END WEST BANK LEVEE (EXISTING)

N	0.032	0.032	0.028							
X1	11	64	2405.12	4118.42	627.28	587.52	614.13			
X3	10			2208	1016					
GR	1012	0	1012	84.23	1012	91.16	1012	151.05	1012	160.43
GR	1012	163.6	1012	187.03	1012	208.37	1012	250.91	1012	258.95
GR	1012	319.14	1012	789.21	1012	809.39	1010	830.93	1010	883.68
GR	1012	1284.52	1010	1634.91	1008	1717.18	1006	1858.62	1004	2029.29
GR	1004	2055.93	1004	2132.55	1004	2176.3	1006	2387.11	1008	2394.89
GR	1010	2398.27	1012	2404.14	1012	2405.12	1010	2408.45	1008	2412.29
GR	1006	2439.57	1006	2454.32	1006	2460.44	1006	2500.7	1006	2512.98
GR	1004	2541.45	1004	2736.15	1006	4024.69	1008	4029.72	1010	4035.02
GR	1012	4040.59	1014	4048.01	1016	4057.1	1018	4069.84	1020	4118.42
GR	1020	4502.27	1018	4554.73	1016	5027.27	1016	5402.77	1018	5413.36
GR	1020	5426.13	1022	5441.13	1022	5499.54	1020	5517.62	1020	5590.05
GR	1022	5615.58	1024	5680.17	1024	5762.17	1022	5966.34	1020	6127.6
GR	1020	6135.18	1022	6152.47	1024	6720.88	1026	7063.15		

BEGIN 1ST WEST PIT

X1	12	90	2020.24	5067.86	765	961	536.27			
X3	10	1006								
GR	1012	0	1012	346.79	1012	876.64	1014	1189.22	1014	1335.06
GR	1012	1621.47	1010	1698.42	1008	1789.37	1006	1925.5	1006	1960.12
GR	1008	1964.44	1020	1981.83	1020	2020.24	1008	2034.38	1006	2176.54
GR	1008	2231.82	1008	2607.19	1002	2627.05	1000	2637.97	1000	2645.15
GR	1002	2675.27	1004	2750.54	1006	2786.84	1006	2878.28	1008	2890.2
GR	1008	3104.07	1006	3161.88	1006	3400.65	1010	3426.52	1010	3486.14
GR	1008	3816.35	1008	3831.81	1010	4003.49	1010	4136.67	1012	4326.91
GR	1014	4622.82	1016	5067.86	1016	5106.54	1012	5116.73	1010	5126.87
GR	1008	5157.1	1008	5175.33	1010	5182.44	1014	5204.78	1020	5234.45
GR	1018	5256.85	1016	5297.38	1016	5327.31	1018	5502.04	1020	5554.08
GR	1022	5584.94	1024	5652.61	1024	5725.2	1022	5757.01	1010	5768.84
GR	1010	5789.31	1012	5808.48	1020	5825.7	1020	6270.87	1020	6296.44
GR	1022	6326.83	1016	6338.81	1016	6340.11	1020	6347.92	1020	6423.84
GR	1022	6435.21	1022	6441.14	1020	6532.06	1018	6570.41	998	6580.72
GR	990	6585.51	978	6594	974	6597.44	972	6602.19	970	6622.02
GR	968	6671.45	966	6838.98	966	6869.15	968	6932.28	976	6944.79
GR	982	6948.71	994	6955.56	1006	6962.46	1012	6965.88	1020	6970.24
GR	1022	7028.6	1022	7093.22	1024	7110.95	1024	7263.61	1026	7521.34

BEGIN PROJECT
PHASE 1 LEVEE

X1	13	90	3445	6502.46	752	740	532.88			
X3	10	1006				6992	1006			
GR	1014	32.33	1016	48.53	1016	574.82	1016	883.1	1014	1065.33
GR	1012	1696.98	1008	1701.02	996	1735.71	994	1772.05	994	1843.15
GR	998	1859.93	998	1896.32	1002	1905.74	1006	1914.06	1012	1925.85
GR	1012	2185.92	1014	2205.2	1012	2228.3	1014	2240.81	1014	3122.35
GR	1016	3386.53	1019.65	3445	1012	3564.96	1008	3671.92	1008	3754.02
GR	1012	4035	1012	4115.08	1010	4127.67	1002	4144.06	1004	4282.87
GR	1004	4569.77	1004	4998.42	1010	5009.07	1012	5084.67	1012	5349.43
GR	1010	5562.25	1010	5655.91	1010	5974.79	1012	5984.03	1014	6052.17
GR	1014	6213.2	1012	6265.24	1014	6428.47	1014	6490.61	1018	6502.46
GR	1016	6560.79	1016	6924.54	1018	6949.9	1016	6983.01	996	7006.13
GR	986	7020.79	986	7065.73	992	7135.52	998	7187.44	1000	7222.81
GR	1006	7237.62	1010	7249.84	1016	7272.49	1018	7296.83	1016	7334.04
GR	1014	7461.95	1010	7484.17	1012	7511.37	1018	7524.84	1018	7545.57
GR	1014	7604.31	1014	7638.75	1018	7700.83	1010	7747.37	984	7787.69
GR	984	7883.94	982	7904.3	980	8175.06	980	8271.87	984	8278.21
GR	988	8284.78	992	8291.55	998	8301.5	1002	8308.22	1006	8314.99
GR	1010	8321.97	1016	8341.4	1016	8364.17	1006	8398.01	998	8440.97
GR	998	8460.43	1002	8469.12	1006	8477.62	1012	8490.05	1010.1	8500.27

X1	14	90	3100	6150.27	646.01	317	509.47			
X3	10	1006				6516	1006			
GR	1018	216.28	1018	580.83	1018	692.53	1012	718.12	1012	737.05
GR	1014	749.94	1016	795.69	1016	813.26	1014	1231.06	1014	1623.37
GR	1014	1643.52	1014	2052.08	1014	2140.29	1016	2654.94	1016	2778.46
GR	1021	3100	1016	3100.48	1016	3165.08	1014	3221.05	1010	3232.8
GR	1008	3243.33	1008	3263.84	1010	3403.46	1012	3535.84	1012	3619.09

	1010	3621.85	1004	3635.08	1002	3796.38	1002	3840.23	1004	3951.04
	1008	3960.52	1008	4160.55	1006	4272.48	1006	4343.88	1004	4353.49
GR	1004	4706.77	1012	4718.61	1012	5259.25	1012	5409.55	1010	5456.82
GR	1010	5664.15	1014	5678.54	1016	5698.22	1016	5735.28	1014	6063.44
GR	1014	6071.65	1016	6139.27	1020	6150.27	1020	6183.9	1016	6194.27
GR	1016	6342.22	1014	6359.09	1012	6388.89	1012	6410.04	1014	6425.78
GR	1016	6495.3	1016	6509.57	1002	6532.48	988	6555.18	986	6558.67
GR	986	6617.64	988	6656.14	990	6661.17	998	6677.11	1002	6684.95
GR	1010	6700.39	1014	6707.9	1016	6735.94	1018	6747.16	1020	6939.62
GR	1020	7218.58	1018	7233.32	1016	7290.1	1010	7295.29	1008	7297.86
GR	1006	7303.13	1004	7307.13	998	7315.51	994	7319.91	992	7330.28
GR	990	7353.85	988	7369.87	986	7386.91	984	7414.81	982	7445.98
GR	980	7510.53	978	7774.17	976	7798.87	976	7841.68	978	7854.61
X1	15	80	3180	6242.95	610	293	488.37			
X3	10	1006				7100	1006			
GR	1020	832.98	1020	971.02	1018	985.11	1016	1062.77	1018	1125.97
GR	1022	1144.19	1022	1180.93	1020	1188.16	1016	1228.08	1016	1352.05
GR	1016	1962.68	1016	2066.21	1014	2094.99	1016	2111.09	1016	2410.38
GR	1018	3037.38	1018	3046.43	1023.8	3180	1018	3204.32	1016	3280.61
GR	1012	3308.29	1012	3443.9	1014	3595.21	1014	3657.15	1012	3691.96
GR	1004	3705.77	1004	3914.05	1012	3931.43	1014	3954.12	1010	3994.53
GR	1008	4157.31	1006	4241.85	1004	4307.63	1004	4445.93	1010	4484.5
GR	1010	4584.46	1004	4599.71	1002	4634.06	1004	4847.52	1012	4856.77
GR	1014	4876.61	1014	5088.95	1012	5386.08	1010	5574.24	1010	5646.19
GR	1016	5669.38	1018	6233.44	1022	6242.95	1022	6266.91	1016	6283.38
GR	1014	6295.58	1014	6312.01	1016	6355.16	1016	6414.6	1010	6458.66
GR	1010	6527.18	1016	6551.83	1016	6575.09	1012	6602.98	1008	6663.42
G	1004	6689.05	1006	6716.16	1012	6739.98	1018	6762.71	1020	6877.8
GR	1020	6920.33	1018	7067.06	1014	7088.31	1000	7100.86	988	7114.14
GR	982	7130.41	982	7238.24	986	7247.43	994	7265.08	996	7274.21
GR	998	7314.22	1002	7346.29	1000	7350.9	1000	7387.48	982	7412.7
X1	16	90	3310	6450.93	620	227	506.66			
X3	10	1006								
GR	1018.7	26.78	1020	531.61	1018	1212.55	1018	2581.93	1018	2591.92
GR	1018	2978.67	1020	3185.23	1020	3191.99	1018	3237.53	1025.02	3310
GR	1016	3466.68	1014	3506.03	1014	3568.44	1012	3635.04	1012	3684.19
GR	1014	3829.97	1014	3830.67	1012	3842.05	1008	3858.65	1008	3965.6
GR	1006	3987.15	1006	4049.31	1008	4084.62	1010	4121.29	1012	4131.63
GR	1014	4141.49	1016	4201.16	1016	4380.07	1016	4552.64	1014	4810.06
GR	1012	4826.86	1008	4838.22	1004	4850.9	1004	5040.39	1006	5043.96
GR	1008	5048.84	1010	5054.85	1012	5063.58	1012	5373.6	1012	5659.28
GR	1014	5669.57	1016	5680.12	1016	5897.42	1018	5946.35	1018	6053.2
GR	1016	6099.22	1016	6157.99	1018	6416.25	1022	6425.92	1022	6450.93
GR	1020	6456.57	1018	6460.36	1014	6467.48	1012	6470.87	1008	6478.64
GR	1006	6487.18	1004	6496.05	1002	6501.75	1000	6506.57	998	6532.28
GR	994	6546.58	992	6553.92	990	6562.89	988	6605.37	988	6677.63
GR	990	6703.2	992	6721.81	994	6725.59	1002	6740.23	1004	6743.73
GR	1006	6747.58	1006	6782.97	1004	6786.58	1002	6789.95	996	6800.43
GR	990	6810.76	988	6814.32	986	6822.44	984	6827.59	980	6836.39
GR	980	6922.62	984	6957.43	986	6990.94	988	6997.45	990	6999.45
GR	996	7007.44	998	7010.88	1002	7018.22	1004	7022.01	1002	7053.59

X1	17	90	8744.78	10774.9	600	600	550			
X3	10					11948.54	1022			
GR	1028	4000	1028	4167.26	1026	4181.52	1028	4223.16	1028	4300.36
GR	1021.1	4308.47	1026	4547.69	1024	4904.14	1022	5271.28	1021.1	5492.36
GR	1020	5841.18	1020	6063.01	1018	7055.62	1018	7334.73	1020	8109.32
GR	1020	8561.81	1023	8744.78	1016	8776.26	1016	8892.28	1010	8941.36
GR	1010	9156.14	1014	9173.97	1016	9328.14	1018	9419.57	1018	9559.29
GR	1018	9732.72	1016	10136.79	1014	10269.34	1010	10343.44	1004	10360.49
GR	1004	10585.21	1010	10601.18	1012	10620.32	1014	10756.95	1016	10774.9
GR	1018	10875.06	1018	11336.6	1016	11440.22	1018	11454.13	1018	11493.54
GR	1016	11646.12	1018	11710.83	1016	11777.4	1010	11867.02	1010	11911.39
GR	1012	11925.64	1022	11948.54	1022	11973.79	1016	11993.53	994	12026.33
GR	992	12080.86	984	12098.95	986	12127.83	980	12165.09	980	12415.82
GR	984	12551.31	984	12753.29	982	12895.1	982	12980.81	976	13304.53
GR	976	13351.51	968	13364.66	968	13460.92	970	13641.18	972	13677.44
GR	984	13702.48	986	13759.06	980	13769.01	978	13838.06	980	13860.36
GR	974	13893.14	978	13929.33	978	13949.57	970	13967.59	970	14022.43
GR	972	14191.85	974	14217.15	986	14228.4	994	14232.74	1002	14236.96
GR	1010	14241.01	1018	14244.79	1024	14247.55	1024	14353.3	1026	14478.37
GR	1026	14623.44	1022	14636.98	1022	14663.63	1026	14674.2	1028	14869.92

END 1ST WEST PIT

X1	18	90	4531.35	6388.38	500	489.73	431.16			
X3	10	1006				7834.1	1024			
GR	1020	3819.14	1022	4000	1022	4011.72	1020	4055.84	1020	4120.86
GR	1022	4444.72	1022	4457.64	1020	4484.2	1018	4516.44	1014	4526.58
GR	1023	4531.35	1010	4621.11	1010	4680.1	1012	4744.01	1014	4755.32
GR	1016	4880.94	1018	5188.02	1018	5382.51	1016	5410.98	1016	6162.3
GR	1016	6343.05	1016	6375.49	1018	6388.38	1018	6623.54	1018	6743.68
GR	1018	7052.61	1018	7261.63	1020	7278.27	1020	7293.94	1018	7312.55
GR	1018	7360.49	1016	7376.1	1010	7412.8	1008	7421.38	1004	7431.43
GR	1004	7633.5	1006	7661.28	1008	7674.66	1008	7784.84	1010	7808.75
GR	1022	7834.1	1024	7863.78	1024	7885.69	1022	7892.66	1018	7909.92
GR	1014	7932.91	1010	7954.71	1008	8037.56	1004	8046.85	1004	8068
GR	1008	8078.24	1018	8100.03	1018	8153.63	994	8167.54	992	8174.91
GR	990	8193.76	984	8208.36	982	8215.13	980	8239.74	978	8390.58
GR	978	8441.56	976	8475.81	976	8528.82	978	8554.84	980	8561.58
GR	980	8720.62	978	9061.24	978	9085.16	970	9099.34	968	9112.52
GR	968	9473.2	970	9867.28	972	9950	974	9964.07	984	9990.14
GR	986	9991.92	994	9995.1	1006	9999.89	1012	10002.32	1024	10007.09
GR	1026	10026.94	1026	10030.27	1024	10034.79	1024	10061.74	1026	10366.32
GR	1026	10511.84	1024	10519.94	1024	10550.36	1026	10558.31	1028	10909.23

END PHASE 1 LEVEE

X1	18.5	90	490	2242.02	470.75	492	470			
X3	10	1006								
GR	1022	33.68	1022	60.82	1020	190.67	1020	417.9	1018	427.26
GR	1018	450.7	1020	458.42	1022	466.71	1027.1	477.39	1024	490
GR	1022	499.5	1018	516.77	1016	545.46	1012	553.09	1012	680.32
GR	1014	689.64	1016	699.28	1016	816.02	1018	1504.15	1018	1613.95
GR	1018	1736.93	1018	1810.74	1016	2186.97	1016	2210.72	1022	2229.57
GR	1026	2242.02	1026	2299.25	1024	2341.44	1022	2543.38	1020	2672.57
GR	1020	2940.04	1020	3157.83	1020	3412.24	1022	3423.52	1022	3435.71
GR	1020	3455.58	1020	3756.18	1018	3836.26	1016	3852.22	1014	3860.52
GR	1014	3889.83	1012	3901.62	1010	3911.96	1008	3918.93	1004	3933.12
GR	1002	3949.6	1000	3978.62	1000	4014.58	1002	4084.94	1004	4095.65
GR	1006	4105.81	1008	4113.76	1012	4127	1016	4140.69	1018	4153.67
GR	1022	4160.43	1026	4167.24	1028	4171.19	1028	4188.53	1024	4199.05
GR	1022	4222.34	1020	4233.15	1018	4241.77	1014	4256.58	1010	4288.2
GR	1008	4303.46	1006	4323.69	1004	4346.41	1002	4424.81	1000	4587.79
GR	998	4659.43	998	5123.52	1000	5497.87	1000	5822.08	1002	5851.49
GR	1004	5868.65	1008	5893.18	1012	5917.37	1016	5936.8	1018	5949.09
GR	1020	5964.24	1022	5976.63	1022	6000.96	1024	6020.49	1024	6059.05
GR	1022	6082.61	1022	6193.48	1024	6421.46	1026	6485.23	1026	6538.38

CAMELBACK ROAD LOW CHORD = 1027.5

NC	0.022	0.022	0.022	0.3	0.5					
X1	19	90	2217.43	4008.82	207.77	177.82	198.13			
X3	10									
BT	-62	2261.43	1034.2	1034.2	2261.53	1037	1027.5	2296.63	1037.3	1027.8
BT		2373	1038.1	1028.6	2373.13	1038.1	1012	2379.13	1038.1	1012.2
BT		2379.23	1038.1	1028.6	2488.13	1039	1029.5	2488.23	1039	1012
BT		2494.23	1039	1012	2494.33	1039	1029.5	2603.13	1039.8	1030.3
BT		2603.23	1039.8	1016.1	2609.2	1039.8	1016.2	2609.33	1039.8	1030.3
BT		2718.13	1040.4	1030.9	2718.23	1040.4	1016.5	2724.23	1040.4	1016.5
BT		2724.33	1040.4	1030.9	2833.13	1040.8	1031.3	2833.23	1040.8	1016.85
BT		2839.23	1040.8	1016.9	2839.33	1040.8	1031.3	2948.1	1041.1	1031.6
BT		2948.23	1041.2	1017.1	2954.23	1041.1	1017.16	2954.33	1041.1	1031.6
BT		3063.13	1041.3	1031.8	3063.23	1041.3	1017.32	3069.23	1041.3	1017.34
BT		3069.33	1041.3	1031.8	3124.03	1041.3	1031.8	3177.93	1041.3	1031.8
BT		3178	1041.3	1017.62	3184.03	1041.3	1017.64	3184.13	1041.3	1031.8
BT		3293.43	1041.1	1031.6	3293.53	1041.1	1018	3299.53	1041.1	1018
BT		3299.63	1041.1	1031.6	3408.03	1040.8	1031.3	3408.13	1040.8	1018
BT		3413.93	1040.8	1018	3414	1040.8	1031.3	3523.43	1040.4	1030.9
BT		3523.53	1040.4	1018	3529.53	1040.4	1018	3529.63	1040.4	1030.9
BT		3637.93	1039.8	1030.3	3638.03	1039.8	1018	3644.03	1039.8	1018
BT		3644.13	1039.8	1030.3	3752.93	1039	1029.5	3753	1039	1018
BT		3759.03	1039	1018	3759.13	1039	1029.5	3868.43	1038.1	1028.6
BT		3868.53	1038.1	1018	3874.53	1038.1	1018	3874.63	1038.1	1028.6
BT		3984.03	1037	1027.5	3984.13	1034.2	1034.2			
GR	1028	0	1028	1099.28	1028	1404.76	1028	1784.7	1028	1978.88
GR	1032	2217.43	1027.5	2261.43	1027.5	2261.53	1019	2296.63	1012	2337.2
GR	1012	2373	1012	2373.13	1012.2	2379.13	1012.2	2379.23	1014	2456.93
GR	1012	2488.13	1012	2488.23	1012	2494.23	1012	2494.33	1016.1	2603.13
GR	1016.1	2603.23	1016.2	2609.2	1016.2	2609.33	1016.5	2718.13	1016.5	2718.23

	1016.5	2724.23	1016.55	2724.33	1016.85	2833.13	1016.85	2833.23	1016.9	2839.23
	1016.9	2839.33	1017.13	2948.1	1017.1	2948.23	1017.16	2954.23	1017.16	2954.33
GR	1017.3	3063.13	1017.32	3063.23	1017.34	3069.23	1017.3	3069.33	1017.45	3124.03
GR	1017.6	3177.93	1017.62	3178	1017.64	3184.03	1017.64	3184.13	1018	3293.43
GR	1018	3293.53	1018	3299.53	1018	3299.63	1018	3408.03	1018	3408.13
GR	1018	3413.93	1018	3414	1018	3523.43	1018	3523.53	1018	3529.53
GR	1018	3529.63	1018	3637.93	1018	3638.03	1018	3644.03	1018	3644.13
GR	1018	3752.93	1018	3753	1018	3759.03	1018	3759.13	1018	3868.43
GR	1018	3868.53	1018	3874.53	1018	3874.63	1018	3953.13	1022	3967.8
GR	1026	3981.88	1027.5	3984.03	1027.5	3984.13	1028	3987.32	1032	3998.23
GR	1034	4008.82	1030	4310.74	1028	4534.41	1026	4875.07	1024	5210.53
GR	1022	5558.06	1020	5741.22	1018	5778.32	1020	5895.56	1024	6084.21
GR	1024	6191.11	1024	7152.27	1024	7750.28	1024	7995.16	1026	8245.28
X1	20	90	2251.27	3994.32	86.69	67.28	77.93			
X3	10									
BT	-62	2261.43	1034.2	1034.2	2261.53	1037	1027.5	2296.63	1037.3	1027.8
BT		2373	1038.1	1028.6	2373.13	1038.1	1012	2379.13	1038.1	1012
BT		2379.23	1038.1	1028.6	2488.13	1039	1029.5	2488.23	1039	1014
BT		2494.23	1039	1014	2494.33	1039	1029.5	2603.13	1039.8	1030.3
BT		2603.23	1039.8	1014	2609.2	1039.8	1014	2609.33	1039.8	1030.3
BT		2718.13	1040.4	1030.9	2718.23	1040.4	1016.2	2724.23	1040.4	1016.4
BT		2724.33	1040.4	1030.9	2833.13	1040.8	1031.3	2833.23	1040.8	1016.8
BT		2839.23	1040.8	1016.9	2839.33	1040.8	1031.3	2948.1	1041.1	1031.6
BT		2948.23	1041.2	1017	2954.23	1041.1	1017.1	2954.33	1041.1	1031.6
BT		3063.13	1041.3	1031.8	3063.23	1041.3	1017.2	3069.23	1041.3	1017.2
BT		3069.33	1041.3	1031.8	3124.03	1041.3	1031.8	3177.93	1041.3	1031.8
BT		3178	1041.3	1017.4	3184.03	1041.3	1017.5	3184.13	1041.3	1031.8
BT		3293.43	1041.1	1031.6	3293.53	1041.1	1017.8	3299.53	1041.1	1017.9
BT		3299.63	1041.1	1031.6	3408.03	1040.8	1031.3	3408.13	1040.8	1018
BT		3413.93	1040.8	1018	3414	1040.8	1031.3	3523.43	1040.4	1030.9
BT		3523.53	1040.4	1018	3529.53	1040.4	1018	3529.63	1040.4	1030.9
BT		3637.93	1039.8	1030.3	3638.03	1039.8	1018	3644.03	1039.8	1018
BT		3644.13	1039.8	1030.3	3752.93	1039	1029.5	3753	1039	1018
BT		3759.03	1039	1018	3759.13	1039	1029.5	3868.43	1038.1	1028.6
BT		3868.53	1038.1	1018.6	3874.53	1038.1	1019.5	3874.63	1038.1	1028.6
BT		3984.03	1037	1027.5	3984.13	1034.2	1034.2			
GR	1032	0	1032	165.84	1032	492.42	1032	968.29	1032	1028.65
GR	1030	1835.11	1030	2021.46	1032	2197.16	1032	2251.27	1027.5	2261.43
GR	1027.5	2261.53	1019	2296.63	1012	2353.57	1012	2373	1012	2373.13
GR	1012	2379.13	1012	2379.23	1014	2422.26	1014	2488.13	1014	2488.23
GR	1014	2494.23	1014	2494.33	1014	2603.13	1014	2603.23	1014	2609.2
GR	1014	2609.33	1014	2636.7	1016	2663.11	1016.2	2718.13	1016.2	2718.23
GR	1016.4	2724.23	1016.4	2724.33	1016.6	2833.13	1016.8	2833.23	1016.9	2839.23
GR	1016.9	2839.33	1017	2948.1	1017	2948.23	1017.1	2954.23	1017.1	2954.33
GR	1017.2	3063.13	1017.2	3063.23	1017.2	3069.23	1017.2	3069.33	1017.3	3124.03
GR	1017.3	3177.93	1017.4	3178	1017.5	3184.03	1017.6	3184.13	1017.7	3293.43
GR	1017.8	3293.53	1017.9	3299.53	1017.9	3299.63	1018	3408.03	1018	3408.13
GR	1018	3413.93	1018	3414	1018	3523.43	1018	3523.53	1018	3529.53
GR	1018	3529.63	1018	3637.93	1018	3638.03	1018	3644.03	1018	3644.13
GR	1018	3752.93	1018	3753	1018	3759.03	1018	3759.13	1018	3854.87
GR	1018.6	3868.43	1018.6	3868.53	1019.5	3874.53	1019.5	3874.63	1018	3949.96
GR	1020	3957.68	1024	3973.13	1027.5	3984.03	1027.5	3984.13	1030	3994.32
GR	1030	4102.59	1028	4352.73	1026	4558.92	1026	4590.81	1026	5044.87

	1026	5149.16	1026	5720.14	1026	6002.35	1026	7321.63	1026	7343.76

BEGIN PHASE 2 LEVEE

NC	0.036	0.042	0.028	0.1	0.3					
X1	20.5	70	5348.41	7070.03	26.76	33.52	24.6			
X3	10									
GR	1028	4000	1026	4658.17	1026	4689.81	1026	4703.17	1026	4703.78
GR	1026	4711.3	1028.97	4838.1	1026	4895.29	1026	4897.03	1026	4991.27
GR	1026	5018.2	1026	5065.98	1026	5126.47	1028	5138.38	1030	5150.23
GR	1030	5249.26	1030	5271.29	1030	5348.41	1028	5353.61	1026	5358.6
GR	1024	5365.1	1022	5372.23	1020	5379.52	1018	5387.49	1016	5408.21
GR	1014	5426.4	1012	5441.07	1012	5470.8	1014	5510.63	1014	5635.6
GR	1014	5758.21	1016	5780.44	1018	6292.03	1018	6779.4	1018	6949.29
GR	1020	6966.64	1020	6986.06	1018	7000.3	1018	7015.29	1020	7045.36
GR	1022	7053.73	1024	7061.95	1026	7070.03	1026	7105.86	1024	7268.63
GR	1024	7378.68	1024	7420.24	1022	7549.56	1022	7686.59	1022	7776.59
GR	1022	7790.85	1022	7855.51	1022	8019.49	1022	8020.95	1022	8647.49
GR	1024	8759.49	1024	8769.17	1022	8840.14	1022	8844.11	1022	8987.54
GR	1022	9056.49	1024	9061.61	1024	9084.9	1022	9091.01	1022	9107.91
GR	1024	9216.98	1024	9421.4	1024	9434.18	1026	10458.89	1028	11732.77
X1	21	90	2271.01	3995.83	25.41	18.81	17.71			
X3	10									
GR	1028	0	1028	22.63	1026	488.07	1024	999.39	1024	1759.19
GR	1030.2	1761.01	1024	1813.55	1022	1821.09	1022	1830.76	1024	1839.65
GR	1024	1987.82	1022	2054.7	1022	2065.12	1024	2075.73	1026	2087.12
GR	1028	2099.34	1030	2112.38	1030	2271.01	1028	2277.72	1026	2284.56
GR	1024	2290.83	1022	2296.54	1020	2301.67	1018	2307.56	1016	2338.72
GR	1014	2349.09	1012	2363.94	1012	2393.21	1014	2432.24	1016	2487.78
GR	1016	2506.58	1014	2618.09	1014	2704.85	1016	2726.34	1018	3046.04
GR	1018	3207.66	1018	3698.24	1018	3875.91	1020	3890.08	1020	3911.68
GR	1018	3924.31	1018	3944.81	1020	3972.1	1022	3981.16	1024	3988.95
GR	1026	3995.83	1026	4017.6	1024	4029.61	1022	4208.97	1022	4354.29
GR	1020	5111.35	1020	5340.74	1018	5413.47	1018	5591.11	1020	5639.62
GR	1022	5644.42	1024	5680.21	1024	5681.34	1022	5687.48	1020	5693.57
GR	1018	5753.44	1018	5974.81	1020	5983.1	1022	5994.01	1022	6009.6
GR	1020	6013.9	1018	6017.01	1018	6021.2	1020	6354.15	1020	6657.61
GR	1020	6819.37	1020	6907.02	1022	6917.49	1022	6945.48	1020	6949.76
GR	1020	6982.26	1022	7572.8	1022	7578.86	1022	7717.12	1022	7735.5
GR	1022	7786.53	1022	7893.41	1022	7894.16	1022	7947.33	1022	8051.12
GR	1022	8215.36	1024	8215.58	1026	8215.85	1028	8577.66	1028	8635.58
X1	22	88	6613.78	8959.26	476	525	509.85			
X3	10					9130	1030			
GR	1024	4000	1030.51	6613.78	1024	6691.42	1024	6697.76	1024	6708.92
GR	1024	6715.84	1024	6723.28	1024	6769.89	1022	6865.44	1022	6886.31
GR	1022	6939.78	1020	6960.37	1018	7000.19	1016	7125.43	1016	7221.21
GR	1016	7305.62	1014	7344.5	1014	7349.58	1016	7358.58	1016	7448.19
GR	1016	7477.04	1016	7486.92	1016	7568.92	1016	7590.84	1016	7596.76
GR	1018	7613.04	1020	7781.03	1020	7987.7	1018	8080.24	1018	8091.54
GR	1022	8351.31	1022	8441.24	1020	8548.66	1018	8685.25	1018	8813.27
GR	1018	8959.26	1018	8974.61	1018	8989.79	1018	9091.42	1020	9505.09

	1022	9570.59	1022	9796.87	1020	9830.94	1020	9850.7	1022	9864.79
	1022	10172.54	1022	10226.24	1022	10274.55	1022	10277.01	1022	10368.3
GR	1020	10378.8	1020	10468.6	1022	10473.78	1022	10476.27	1020	10481.94
GR	1020	10506.9	1022	10519.14	1022	10528.11	1020	10544.41	1020	10584.17
GR	1020	10669.4	1020	10685.31	1020	10733.82	1020	10750.52	1022	10759.29
GR	1022	10767.21	1020	10791.39	1020	10804.88	1022	10892.34	1024	11792.39
GR	1024	11797.86	1024	11825.1	1024	11879.82	1024	12652.53	1024	12803.13
GR	1024	12848.79	1026	13083.69	1026	13086.88	1026	13098.35	1028	13155.96
GR	1028	13184.6	1028	13196.48	1028	13276.87	1028	13290.95	1030	13375.86
GR	1032	13454.81	1034	13571.31	1034	13683.11				
X1	23	71	6774.82	9632.83	488	697	484.56			
X3	10					9893	1030			
GR	1026	4000	1031.64	6774.82	1024	6852.72	1024	6858.12	1024	6957.88
GR	1024	6965.61	1024	7039.82	1022	7054.43	1020	7067.13	1020	7245.35
GR	1020	7264.74	1018	7385.87	1016	7391.26	1016	7517.62	1018	7654.24
GR	1020	7728.12	1020	7899.16	1020	7956.36	1020	8209.63	1020	8261.04
GR	1020	8504.86	1018	8528.37	1018	8540.7	1020	8634.25	1022	8649.55
GR	1024	8665.97	1024	8733.15	1022	8771.06	1022	8775.69	1022	8788.88
GR	1022	8793.74	1024	8815.77	1024	8895.97	1024	8934.48	1024	9113.86
GR	1022	9179.24	1022	9184.97	1024	9212.8	1024	9500.94	1024	9514.26
GR	1026	9629.73	1026	9632.83	1026	9650.18	1026	9672.24	1024	9698.57
GR	1022	10473.45	1020	10523.55	1020	11047.41	1022	11078.67	1024	11226.52
GR	1024	11264.94	1024	11334.3	1024	11487.55	1024	11604.22	1024	11840.88
GR	1024	11907.16	1024	11942.12	1024	11949.93	1024	11959.19	1024	11971.7
GR	1024	12129.41	1024	12160.48	1026	13211.86	1028	13245.32	1028	13272.57
GR	1028	13309.53	1030	13328.22	1030	13345.13	1028	13359.77	1028	13366.59
GR	1032	13409.86								

BEGIN 2ND WEST PIT

X1	24	90	4631.58	8095.57	440	724.06	450.96			
X3	10	1018				8280	1030			
GR	1026	4000	1026	4099.86	1026	4507.95	1030	4631.58	1024	4696.45
GR	1026	4709.11	1024	4889.7	1020	4908.37	1020	5089.6	1018	5270.96
GR	1016	5280.23	1016	5349.28	1018	5379.73	1018	5547.47	1020	5563.04
GR	1022	5978.9	1022	6154.92	1020	6364.38	1024	6398.61	1024	6722.02
GR	1024	6747	1026	6902.84	1024	7106.14	1026	7120.18	1026	7192.15
GR	1024	7200.45	1024	7337.11	1026	7348.85	1026	7384.86	1024	7396.5
GR	1024	7414.98	1026	7432.37	1014	7451.25	1020	7478.64	1020	7511.51
GR	996	7526.41	996	7543.13	1000	7601.07	1000	7631.98	996	7652
GR	996	7735.9	1000	7744.39	1006	7749.18	1010	7752.13	1016	7757.19
GR	1018	7761.99	1002	7767.71	1002	7882.49	1004	7936.78	1008	7947.11
GR	1012	8017.25	1016	8022.54	1018	8053.01	1024	8095.57	1024	8160.09
GR	1026	8182.67	1026	8249.19	1024	8269.53	1024	8294.19	1026	8443.78
GR	1026	8530.27	1030	8538.98	1030	8560.13	1032	8576.62	1032	8709.95
GR	1028	8996.1	1020	9009.1	1012	9014.4	1010	9021.29	1008	9058.52
GR	1012	9061.18	1018	9065.1	1024	9068.34	1024	9092.97	1026	9097.87
GR	1026	9281.67	1030	9297.64	1030	9343.92	1026	9364.6	1024	9587.05
GR	1022	9638.4	1022	10581.82	1024	11019.99	1030	11074.81	1030	11175.07
GR	1028	11201.33	1028	11362.37	1032	11427.57	1032	11457.26	1034	11478.79

X1	25	90	4405.5	8713.42	273	510	497.78			
X3	10	1018				8715	1032			
GR	1026	3693.32	1026	4000	1033.43	4405.5	1026	4592.87	1026	4601.88
GR	1028	4723.24	1028	4796.92	1026	4806.57	1024	4815.08	1022	4823.26
GR	1022	4995.47	1020	5153.59	1018	5289.6	1018	5297.22	1020	5330.04
GR	1022	5352.78	1022	5395.18	1020	5431.25	1018	5435.62	1018	5484.29
GR	1022	5543.74	1022	6173.67	1022	6257.55	1024	6270.29	1026	6298.88
GR	1026	6389.85	1026	6885.22	1026	7064.23	1028	7069.64	1028	7073.83
GR	1026	7079.95	1024	7086.1	1022	7183.38	1020	7184.71	1018	7186.53
GR	1016	7187.93	1014	7189.18	1012	7190.48	1010	7191.95	1008	7193.18
GR	1006	7194.54	1004	7195.91	1002	7197.27	1000	7198.65	998	7200
GR	996	7201.37	994	7202.69	992	7203.78	992	7227.59	994	7299.08
GR	996	7328.76	998	7363.35	1000	7406.52	1000	7507.96	1002	7563.43
GR	1002	7583.14	1000	7588	1000	7675.23	1002	7678.04	1004	7680.65
GR	1006	7683.27	1010	7688.49	1012	7743.19	1014	7769.34	1016	7774.57
GR	1018	7780.48	1020	7791.55	1022	7801.73	1024	7867.81	1026	7971.6
GR	1028	8067.01	1028	8312.93	1026	8713.42	1026	8754.73	1028	8814.61
GR	1028	8899.85	1026	9933.69	1026	10291.28	1028	10804.78	1030	10948.05
GR	1032	10952.56	1032	10969.71	1030	10974.32	1030	11085.21	1032	11097.93
GR	1032	11114.56	1032	11151.85	1034	11322.24	1036	11384.51	1038	11546.04

END 2ND WEST PIT

X1	26	90	4453.31	9333.07	180	510	493.04			
X3	10	1018				9598	1032			
GR	1026	3649.04	1026	4000	1033.76	4453.31	1028	4648.64	1028	5051.84
GR	1026	5114.73	1022	5141.78	1020	5226.5	1020	5332.46	1022	5342.15
GR	1022	5458.87	1020	5500.18	1020	5537.51	1022	5618.93	1024	5638.56
GR	1024	5863.22	1020	5873.94	1020	6016.97	1022	6039.1	1024	6416.75
GR	1024	6653.22	1028	6687.87	1028	7110.83	1028	7209.52	1026	7221.44
GR	1026	7234.78	1028	7405.88	1024	7414.84	1022	7487.62	1002	7512.55
GR	1002	7574.83	1004	7669.92	1008	7674.36	1014	7681	1018	7685.43
GR	1022	7689.85	1022	7804.32	1014	7820.34	1008	7837.3	1008	7851.39
GR	1012	7868.8	1012	7877.52	1008	7899.47	1006	7927.94	1006	7968.65
GR	1010	7980.43	1010	8001.33	1006	8013.01	1006	8064.94	1008	8188.19
GR	1010	8207.74	1008	8217.41	1008	8234.71	1010	8266.02	1012	8275.99
GR	1002	8284.09	1002	8291.07	1008	8301.09	1012	8305.89	1018	8312.51
GR	1024	8318.72	1026	8531.33	1026	8549.91	1024	8633.24	1020	8647.39
GR	1020	8676.06	1022	8687.5	1014	8706.49	1014	8713.83	1018	8752.26
GR	1022	8760.95	1028	8770.12	1030	8781.94	1028	8786.73	1028	8802.27
GR	1026	8922.25	1026	9023.81	1028	9277.09	1028	9333.07	1028	10047.74
GR	1028	10287.81	1028	10918.46	1030	11307.06	1034	11317.27	1034	11328.15
GR	1030	11335.98	1030	11427.49	1032	11438.1	1032	11563.61	1034	11668.35

NC	0.04	0.04	0.03							
X1	27	72	4096.2	11724.7	345	712.66	713			
CI	4496	1021.0		4	4	500				
X3	10									
GR	1026	3198.77	1026	3198.77	1028	4000	1034.64	4096.2	1028	4677.28
GR	1028	4728.58	1028	4743.82	1028	4784.2	1026	4791.26	1024	4797.91
GR	1022	4804.19	1020	4811.89	1020	4886.86	1022	5003.7	1024	5040.42
GR	1026	5126.29	1026	5149.18	1026	5199.72	1028	5208.98	1028	5241.98

	1028	5355	1028	5374.9	1026	5610.25	1024	5740.26	1024	5866.6
	1024	6008.62	1022	6046.24	1020	6051.11	1020	6108.15	1022	6121.37
GR	1022	6218.19	1022	6251.71	1024	6379.54	1026	6783.46	1028	6796.11
GR	1028	7281.28	1028	7341.9	1028	7345.81	1026	7747.82	1026	7768.69
GR	1026	7825.95	1026	7832.43	1028	8016.34	1030	8215.39	1030	8318.05
GR	1030	8332.86	1030	8367.1	1030	8643.13	1030	8691.41	1030	8694.48
GR	1030	8750.86	1028	8945.98	1028	8968.81	1028	10321.08	1028	10404.76
GR	1028	10470.53	1028	10578.64	1030	11146.54	1032	11181.25	1034	11217.84
GR	1034	11376.98	1032	11381.41	1030	11391.55	1030	11395.66	1030	11436.33
GR	1030	11449.17	1030	11461.66	1030	11469.45	1032	11476.14	1032	11501.91
GR	1032	11573.47	1034	11724.7						
X1	28	85	5066.4	13560.5	839	1494	750.56			
CI	5300	1022.0		4	4	550				
X3	10					5666	1050			
GR	1028	4000	1028	4022.53	1036.06	5066.4	1030	5403.56	1030	5446.31
GR	1030	5450.7	1030	5456.73	1030	5481.67	1030	5523	1030	5524.71
GR	1030	5552.37	1030	5771.4	1028	5817.46	1026	5825.87	1024	5839.64
GR	1024	5854.1	1024	5862.98	1022	5869.25	1020	5906.63	1020	5908.52
GR	1022	5959.09	1022	5980.42	1022	5985.91	1024	6002.83	1024	6015.33
GR	1024	6038.29	1024	6078.38	1024	6100.15	1024	6149.71	1024	6187.99
GR	1024	6254.53	1024	6258.38	1024	6278.34	1024	6311.96	1026	6402.36
GR	1028	6427.18	1028	6667.83	1028	6717.07	1028	7128.41	1028	7202.87
GR	1028	7226.94	1028	7261.61	1028	7279.15	1028	7388.49	1028	7680.74
GR	1026	7696.3	1024	7727.37	1022	7850.29	1022	7933.71	1024	8022.66
GR	1026	8243.4	1028	8555.1	1028	8959.22	1028	8973.06	1028	9094.17
GR	1028	9115.69	1028	9233.71	1028	9239.66	1028	9256.88	1026	9272.2
GR	1026	9273.86	1028	9284.09	1030	9700.29	1032	10174.75	1032	10289.68
	1030	10333.89	1030	10415.85	1030	10678.87	1030	10688.81	1030	10803.99
	1030	10826.24	1030	10953.43	1030	10960.15	1030	10980.44	1030	10985.07
GR	1030	11049.53	1030	11568.9	1030	11773.71	1030	11815.49	1030	12281.16
GR	1032	13044.09	1034	13047.84	1034	13067.03	1032	13071.22	1032	13560.5

FIRST NEW RIVER SECTION U/S OF THE CONFLUENCE

NC	0.045	0.045	0.035	0.1	0.3					
QT	2	69000	71300							

Interpolate cross section between 28 and 29. Use 29 shifted downstrean

X1	28.5	25	4381.29	6011.8	388	1100	600		2.0	
CI	4700	1023.0		4	4	650				
X3	10			4300		5100	1050.0			
GR	1032	4000	1033.73	4014.92	1037.57	4381.29	1032	4755.99	1032	4869.54
GR	1032	4912.84	1030	4983.86	1030	4995.44	1030	5041.07	1028	5079.29
GR	1026	5092.07	1024	5130.2	1024	5263.8	1026	5443.57	1028	5549.29
GR	1030	5586.73	1030	5761.69	1028	5774.08	1028	5799.85	1032	5832.5
GR	1034	5840.24	1036	5848.13	1038	5863.9	1040	6011.8	1040	6017.51
X1	29	25	4381.29	6011.8	388	1100	600			
CI	4900	1024		4	4	850				
X3	10			4381.29		5431.	1050.0			
GR	1032	4000	1033.73	4014.92	1037.57	4381.29	1032	4755.99	1032	4869.54
GR	1032	4912.84	1030	4983.86	1030	4995.44	1030	5041.07	1028	5079.29
GR	1026	5092.07	1024	5130.2	1024	5263.8	1026	5443.57	1028	5549.29

	1030	5586.73	1030	5761.69	1028	5774.08	1028	5799.85	1032	5832.5
	1034	5840.24	1036	5848.13	1038	5863.9	1040	6011.8	1040	6017.51
X1	34	30	4332	5478.63	651	582.64	593.37			
CI	4800	1026.0		4	4	800				
X3	10			4332		5478.63				
GR	1034	4000	1039.36	4332	1033.73	4678.26	1036	4699.5	1036	4715.51
GR	1034	4724.89	1032	4770.14	1032	4774.06	1032	4863.48	1030	4904.42
GR	1028	4923.27	1026	4935.08	1026	5109.98	1028	5417.13	1030	5423.5
GR	1032	5429.41	1034	5434.28	1036	5439.06	1040.7	5443.87	1040.7	5478.63
GR	1038	5486.46	1036	5494.43	1034	5502.42	1032	5509.83	1030	5518.14
GR	1030	5645.86	1032	5671.63	1034	5690.2	1036	5708.14	1038	5723.74
X1	35	22	4000	5039.35	448	501.13	508.89			
CI	4500	1027.0		4	4	600				
X3	10					5039.35				
GR	1036	3999	1042.27	4000	1036	4361.25	1036	4376.52	1036	4387.35
GR	1036	4400.35	1034	4414.34	1032	4483.62	1030	4517.49	1028	4526.14
GR	1026	4542.46	1026	4571.26	1026	4593.09	1026	4688.54	1028	4794.93
GR	1030	5009.38	1032	5015.4	1034	5021.41	1036	5027.4	1038	5033.38
GR	1040.7	5039.35	1040.70	5063.07						
X1	36	28	4082	5095.86	430	670	660			
CI	4600	1028.0		4	4	600				
X3	10			4210		5095.86				
GR	1038	4000	1038	4082.00	1044.34	4210	1038	4305.72	1038	4339.4
GR	1038	4348.55	1038	4362.01	1038	4380.86	1038	4410.02	1036	4463.93
GR	1034	4515.92	1032	4551.79	1030	4580.46	1028	4630.46	1028	4722.21
	1028	4770.03	1028	4808.76	1028	4905.38	1028	4937.42	1030	4980.67
	1032	5074.38	1034	5079	1036	5083.63	1038	5089.07	1041.66	5095.86
GR	1041.7	5127.91	1041.66	5188.65	1041.66	5262.26				
X1	51.5	42	4000	5078.88	614	500.00	648.12			
CI						0.01				
X3	10									
GR	1045	4000	1038	4057.01	1040	4238.1	1040	4241.66	1040	4323.51
GR	1042	4330.74	1044	4338.07	1046	4345.38	1046	4355.98	1044	4375.4
GR	1042	4390.47	1040	4397.73	1038	4404.73	1036	4411.5	1034	4422.31
GR	1032	4449.85	1032	4464.81	1032	4478.77	1030	4502.78	1030	4779.59
GR	1030	4785.58	1030	4822.62	1032	4884.43	1034	5043.24	1036	5048.46
GR	1038	5055.6	1040	5063.47	1042.85	5072.89	1042.85	5078.88	1040	5101.01
GR	1038	5112.62	1038	5168.93	1040	5205.55	1042	5254.85	1042	5265.37
GR	1042	5265.44	1042	5282.11	1040	5325.67	1038	5363.92	1036	5392.89
GR	1034	5425.24	1034	5437.68						
X1	54	46	4218.21	5295.21	310.22	226.25	263.78			
X3	10									
GR	1038	4000	1038	4020.99	1038	4186.72	1038	4194.81	1038	4196.11
GR	1045	4218.21	1038	4349.31	1036	4356.97	1034	4370.59	1034	4424.53
GR	1036	4435.2	1038	4445.59	1040	4456.12	1042	4466.44	1042	4495.67
GR	1040	4503.32	1038	4510.75	1036	4518.12	1034	4525.48	1032	4532.12
GR	1032	4533.99	1032	4534.03	1030	4545.76	1030	4667.35	1032	4706.34
GR	1032	4710.78	1032	4776.26	1032	4820.96	1030	4920.98	1030	4958.8
GR	1032	5062.3	1034	5267.05	1036	5273.8	1038	5280.55	1040	5287.56

	1043.4	5295.21	1043.4	5317.33	1040	5331.95	1038	5344.49	1038	5412.97
GR	1040	5437.75	1042	5477.42	1042	5546.4	1040	5587.32	1038	5618.42
GR	1036	5643.85								
QT	2	69000	68000							
X1	60	38	4181.41	5043.16	928.4	653.57	633.78			
X3	10									
GR	1042	4000	1042	4026.44	1042	4065.27	1044	4084.07	1044	4166.3
GR	1042	4179.37	1045	4181.41	1040	4182.73	1038	4186.04	1036	4189.19
GR	1034	4192.18	1032	4210.69	1032	4291.02	1032	4378.29	1030	4405.74
GR	1030	4420.82	1032	4457.12	1032	4590.48	1032	4605.81	1032	4627.92
GR	1032	4750.53	1032	4754.55	1032	4759.21	1034	4921.68	1034	4981.19
GR	1034	5019.79	1036	5025.89	1038	5031.74	1040	5037.41	1044.80	5043.16
GR	1044.8	5081.2	1040	5091.07	1040	5241.22	1042	5271.5	1044	5328.58
GR	1044	5348.06	1042	5410.5	1040	5447.59				
X1	63	50	4256.1	5073.66	232.02	233.04	222.89			
X3	10			4256.1						
GR	1042	4000	1042	4002.46	1042	4005.07	1042	4046.91	1040	4112.3
GR	1040	4136.61	1042	4145.57	1042	4166.03	1040	4189.9	1038	4212.48
GR	1038	4224.99	1040	4229.5	1042	4234	1044	4238.33	1044	4256.1
GR	1042	4258.85	1040	4261.51	1038	4264.37	1038	4264.37	1036	4267.08
GR	1034	4269.75	1032	4272.47	1032	4329.99	1032	4526.45	1032	4531.07
GR	1032	4639.46	1032	4696.72	1032	4713.6	1032	4725.84	1034	4794.08
GR	1034	4846.28	1034	4871.63	1036	5021.17	1038	5027.07	1040	5032.89
GR	1042	5039.09	1045.23	5045.83	1045.23	5073.66	1042	5082.22	1040	5090.86
GR	1040	5127.69	1040	5139.2	1040	5182.37	1040	5239.7	1040	5261.06
GR	1042	5278.84	1044	5318.47	1044	5390.04	1042	5447.28	1040	5493.84
X1	70.5	42	4394.98	4955.42	735.13	696.73	725.14			
X3	10									
GR	1044	4000	1044	4126.49	1044	4132.05	1044	4133.94	1044	4145.53
GR	1042	4203.51	1042	4211.99	1044	4228.26	1044	4244.1	1042	4258.75
GR	1042	4383.84	1044	4389.43	1046	4394.98	1046	4417.4	1044	4420.11
GR	1042	4422.82	1040	4425.54	1038	4428.25	1036	4430.95	1034	4433.64
GR	1032	4438.88	1032	4583.34	1034	4594.35	1034	4764.14	1034	4812.46
GR	1034	4872.66	1034	4925.82	1036	4930.41	1038	4935	1040	4939.6
GR	1042	4944.37	1044	4949.74	1047.02	4955.42	1047.02	5024.87	1044	5062.67
GR	1042	5074.73	1042	5103.8	1042	5237.74	1042	5271.31	1044	5296.53
GR	1046	5330.91	1046	5404.97						
X1	77	26	4364.84	4793.57	568.51	689.77	636.54			
X3	10									
GR	1044	4000	1044	4327.43	1046	4334.5	1048	4339.83	1048	4364.84
GR	1046	4369.2	1044	4372.51	1042	4375.42	1040	4378.13	1038	4380.72
GR	1036	4383.31	1034	4385.9	1034	4538.55	1034	4671.05	1034	4775.75
GR	1036	4778.2	1038	4780.77	1040	4783.38	1042	4785.96	1044	4788.51
GR	1046	4791.04	1048	4793.57	1050	4914.55	1052	4935.95	1054	4978.18
GR	1054	5068.84								

X1	84	37	4276.52	4785.73	709.65	725.55	702.16			
X3	10									
GR	1048	4000	1048	4256.6	1050	4263.19	1052	4276.52	1052	4288.06
GR	1050	4292.15	1048	4294.92	1046	4298.08	1044	4300.82	1042	4303.55
GR	1040	4306.39	1038	4309.33	1036	4312.49	1034	4321.74	1034	4426.04
GR	1034	4503.74	1032	4613.12	1032	4672.11	1034	4716.22	1036	4764.89
GR	1038	4767.51	1040	4770.13	1042	4772.74	1044	4775.35	1046	4777.95
GR	1048	4780.54	1050	4783.14	1052	4785.73	1052	4858.98	1052	4912.41
GR	1054	4949.21	1056	4954.27	1056	4985.88	1054	4990.05	1052	4997.51
GR	1050	5022.92	1050	5091.52						
X1	88.8	38	4057.37	4563.57	516.3	423.21	478.14			
X3	10									
GR	1050	4000	1052	4022.47	1052	4057.37	1050	4059.79	1048	4062.22
GR	1046	4064.64	1044	4067.06	1042	4069.48	1040	4071.9	1038	4074.31
GR	1036	4076.71	1034	4205.43	1034	4211.06	1036	4219.98	1038	4247.29
GR	1038	4247.75	1036	4260.37	1036	4403.25	1038	4440.49	1038	4461.79
GR	1038	4496.22	1038	4514.86	1036	4537.4	1036	4543.5	1038	4546.61
GR	1040	4549.49	1042	4551.93	1044	4554.26	1046	4556.55	1048	4558.86
GR	1050	4561.16	1052	4563.57	1052	4912.11	1050	4947.86	1050	4983.89
GR	1052	5254.7	1054	5349.56	1056	5355.31				

T3

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	-10	3			0.00142				1009.6	
J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	2		-1					-6		

THIS RUN EXECUTED 13NOV97 17:07:52

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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

SUMMARY PRINTOUT TABLE 120

SECNO	CWSEL	EG	VCH	10*KS	DEPTH	TOPWID	CLSTA	BW	STCHL	XLBEL	STCHR	RBEL
1.000	1009.10	1011.21	11.66	14.28	13.10	1025.01	.00	.01	394.53	1010.00	1422.94	1010.00
1.000	1009.22	1011.36	11.72	14.27	13.22	1025.47	.00	.01	394.53	1010.00	1422.94	1010.00
2.000	1009.80	1012.02	11.97	16.06	11.80	1047.11	.00	.01	383.84	1012.00	1440.42	1012.00
2.000	1009.92	1012.17	12.04	16.02	11.92	1047.67	.00	.01	383.84	1012.00	1440.42	1012.00
3.000	1010.65	1012.89	12.01	17.94	10.65	1127.81	.00	.01	482.00	1014.00	1621.81	1014.00
3.000	1010.77	1013.03	12.07	17.84	10.77	1128.21	.00	.01	482.00	1014.00	1621.81	1014.00
4.000	1012.12	1013.59	9.75	11.18	12.12	1333.85	.00	.01	817.46	1014.00	2156.10	1014.00
4.000	1012.24	1013.73	9.80	11.12	12.24	1334.17	.00	.01	817.46	1014.00	2156.10	1014.00
5.000	1012.68	1013.79	8.44	7.44	12.68	1412.08	.00	.01	796.49	1016.00	2270.21	1016.00
5.000	1012.81	1013.93	8.48	7.42	12.81	1412.78	.00	.01	796.49	1016.00	2270.21	1016.00
6.000	1012.48	1014.06	10.08	12.04	12.48	1428.80	.00	.01	972.00	1018.00	2442.20	1018.00
6.000	1012.60	1014.20	10.14	12.05	12.60	1429.62	.00	.01	972.00	1018.00	2442.20	1018.00
7.000	1012.57	1014.18	10.18	12.63	12.57	1457.91	.00	.01	1031.85	1018.00	2521.45	1016.00
7.000	1012.69	1014.32	10.24	12.62	12.69	1458.69	.00	.01	1031.85	1018.00	2521.45	1016.00
8.000	1013.21	1014.28	8.31	7.50	13.21	1476.62	.00	.01	61.72	1018.00	1843.60	1020.00
8.000	1013.34	1014.42	8.35	7.47	13.34	1477.71	.00	.01	61.72	1018.00	1843.60	1020.00
9.000	1013.57	1014.59	8.13	7.32	11.57	1529.70	.00	.01	449.80	1014.00	1980.46	1014.00
9.000	1013.69	1014.73	8.16	7.28	11.69	1529.99	.00	.01	449.80	1014.00	1980.46	1014.00
10.000	1013.94	1015.17	8.91	9.83	11.94	1518.56	.00	.01	855.01	1016.00	2377.24	100000.00
10.000	1014.06	1015.30	8.95	9.76	12.06	1518.84	.00	.01	855.01	1016.00	2377.24	100000.00
11.000	1014.85	1015.83	8.06	11.04	10.85	1843.90	.00	.01	2405.12	1012.00	4118.42	1020.00
11.000	1014.98	1015.96	8.08	10.93	10.98	1844.47	.00	.01	2405.12	1012.00	4118.42	1020.00

	SECNO	CWSEL	EG	VCH	10*KS	DEPTH	TOPWID	CLSTA	BW	STCHL	XLBEL	STCHR	RBEL
	12.000	1015.70	1016.60	7.63	17.94	9.70	2974.83	.00	.01	2020.24	1020.00	5067.86	1016.00
	12.000	1015.82	1016.72	7.59	17.53	9.82	3003.58	.00	.01	2020.24	1020.00	5067.86	1016.00
	13.000	1016.69	1017.42	6.88	12.90	10.69	3006.97	.00	.01	3445.00	1019.65	6502.46	1018.00
	13.000	1016.79	1017.52	6.89	12.67	10.79	3008.93	.00	.01	3445.00	1019.65	6502.46	1018.00
	14.000	1017.37	1018.04	6.56	11.22	11.37	3042.69	.00	.01	3100.00	1021.00	6150.27	1020.00
	14.000	1017.46	1018.13	6.59	11.11	11.46	3042.95	.00	.01	3100.00	1021.00	6150.27	1020.00
	15.000	1017.90	1018.74	7.35	16.01	11.90	2997.68	.00	.01	3180.00	1023.80	6242.95	1022.00
	15.000	1017.99	1018.83	7.36	16.00	11.99	3025.74	.00	.01	3180.00	1023.80	6242.95	1022.00
	16.000	1018.72	1019.94	8.87	29.95	12.72	2998.51	.00	.01	3310.00	1025.02	6450.93	1022.00
	16.000	1018.80	1020.02	8.88	29.46	12.80	3000.09	.00	.01	3310.00	1025.02	6450.93	1022.00
	17.000	1020.29	1021.41	8.95	23.53	16.29	3187.64	.00	.01	8744.78	1023.00	10774.90	1016.00
	17.000	1020.35	1021.48	9.00	23.55	16.35	3188.02	.00	.01	8744.78	1023.00	10774.90	1016.00
	18.000	1021.42	1022.27	6.33	14.71	11.42	3290.66	.00	.01	4531.35	1023.00	6388.38	1018.00
	18.000	1021.49	1022.34	6.38	14.73	11.49	3291.25	.00	.01	4531.35	1023.00	6388.38	1018.00
*	18.500	1022.76	1025.64	13.61	60.36	10.76	1736.06	.00	.01	490.00	1024.00	2242.02	1026.00
*	18.500	1023.50	1025.86	12.31	42.50	11.50	1741.88	.00	.01	490.00	1024.00	2242.02	1026.00
*	19.000	1024.47	1026.58	11.66	23.93	12.47	1702.44	.00	.01	2217.43	1032.00	4008.82	1034.00
	19.000	1024.18	1026.53	12.32	27.97	12.18	1700.21	.00	.01	2217.43	1032.00	4008.82	1034.00
	20.000	1024.99	1026.83	10.89	19.31	12.99	1704.34	.00	.01	2251.27	1032.00	3994.32	1030.00
	20.000	1024.89	1026.84	11.22	20.81	12.89	1703.55	.00	.01	2251.27	1032.00	3994.32	1030.00
	20.500	1025.42	1026.91	9.81	19.81	13.42	1707.25	.00	.01	5348.41	1030.00	7070.03	1026.00
	20.500	1025.37	1026.93	10.04	20.95	13.37	1706.80	.00	.01	5348.41	1030.00	7070.03	1026.00
	21.000	1025.41	1026.97	10.04	21.37	13.41	1707.38	.00	.01	2271.01	1030.00	3995.83	1026.00
	21.000	1025.36	1026.99	10.26	22.52	13.36	1707.04	.00	.01	2271.01	1030.00	3995.83	1026.00
	22.000	1027.04	1027.84	7.31	11.93	13.04	2474.87	.00	.01	6613.78	1030.51	8959.26	1018.00
	22.000	1027.07	1027.90	7.40	12.16	13.07	2475.26	.00	.01	6613.78	1030.51	8959.26	1018.00
	23.000	1027.68	1028.58	7.70	17.70	11.68	3077.81	.00	.01	6774.82	1031.64	9632.83	1026.00
	23.000	1027.72	1028.64	7.76	17.85	11.72	3078.27	.00	.01	6774.82	1031.64	9632.83	1026.00
*	24.000	1028.66	1029.16	5.71	8.48	10.66	3633.95	.00	.01	4631.58	1030.00	8095.57	1024.00
*	24.000	1028.72	1029.23	5.76	8.52	10.72	3634.57	.00	.01	4631.58	1030.00	8095.57	1024.00
	25.000	1029.13	1029.67	5.88	11.90	11.13	4201.16	.00	.01	4405.50	1033.43	8713.42	1026.00
	25.000	1029.19	1029.74	5.91	11.88	11.19	4202.68	.00	.01	4405.50	1033.43	8713.42	1026.00
	26.000	1029.78	1030.17	5.01	8.30	11.78	5008.04	.00	.01	4453.31	1033.76	9333.07	1028.00
	26.000	1029.84	1030.24	5.04	8.29	11.84	5010.62	.00	.01	4453.31	1033.76	9333.07	1028.00

	SECNO	CWSEL	EG	VCH	10*KS	DEPTH	TOPWID	CLSTA	BW	STCHL	XLBEL	STCHR	RBEL
*	27.000	1030.59	1031.00	5.13	17.23	10.59	7032.13	4496.00	500.00	4096.20	1034.64	11724.70	1034.00
*	27.000	1030.65	1031.06	5.14	16.97	10.65	7033.82	4496.00	500.00	4096.20	1034.64	11724.70	1034.00
*	28.000	1034.25	1039.74	18.79	59.97	12.25	690.02	5300.00	550.00	4971.69	1035.33	13560.50	1050.00
*	28.000	1034.11	1039.93	19.35	64.61	12.11	689.45	5300.00	550.00	4971.69	1035.33	13560.50	1050.00
*	28.500	1040.73	1041.16	5.28	3.77	17.73	800.00	4700.00	650.00	4311.64	1038.84	6011.80	1050.00
*	28.500	1040.96	1041.41	5.38	3.84	17.96	800.00	4700.00	650.00	4311.64	1038.84	6011.80	1050.00
	29.000	1041.10	1041.36	4.08	2.32	17.10	1049.71	4900.00	850.00	4381.29	1037.57	6011.80	1050.00
	29.000	1041.34	1041.60	4.15	2.36	17.34	1049.71	4900.00	850.00	4381.29	1037.57	6011.80	1050.00
	34.000	1041.23	1041.53	4.33	3.13	15.23	1146.63	4800.00	800.00	4332.00	1039.36	5478.63	100000.00
	34.000	1041.47	1041.77	4.40	3.16	15.47	1146.63	4800.00	800.00	4332.00	1039.36	5478.63	100000.00
*	35.000	1041.30	1041.82	5.75	6.57	15.30	983.59	4500.00	600.00	4000.00	1042.27	5039.35	100000.00
*	35.000	1041.54	1042.07	5.83	6.70	15.54	997.39	4500.00	600.00	4000.00	1042.27	5039.35	100000.00
	36.000	1041.69	1042.32	6.41	7.79	13.69	850.60	4600.00	600.00	4082.00	100000.00	5095.86	100000.00
	36.000	1041.93	1042.58	6.50	7.82	13.93	851.57	4600.00	600.00	4082.00	100000.00	5095.86	100000.00
*	51.500	1042.16	1043.33	8.70	26.28	12.16	989.48	.00	.01	4000.00	1045.00	5078.88	1042.85
*	51.500	1042.40	1043.58	8.72	25.58	12.40	995.01	.00	.01	4000.00	1045.00	5078.88	1042.85
*	54.000	1043.11	1043.85	6.88	12.86	13.11	1041.04	.00	.01	4218.21	1045.00	5295.21	1043.40
*	54.000	1043.34	1044.09	6.94	12.78	13.34	1045.85	.00	.01	4218.21	1045.00	5295.21	1043.40
	60.000	1043.84	1044.62	7.11	11.19	13.84	860.29	.00	.01	4181.41	1045.00	5043.16	1044.80
	60.000	1044.08	1044.81	6.85	10.12	14.08	860.65	.00	.01	4181.41	1045.00	5043.16	1044.80
	63.000	1043.96	1044.99	8.15	15.63	11.96	787.02	.00	.01	4256.10	1044.00	5073.66	1045.23
	63.000	1044.19	1045.15	7.86	14.17	12.19	787.55	.00	.01	4256.10	1044.00	5073.66	1045.23
*	70.500	1044.73	1046.93	11.90	33.01	12.73	532.00	.00	.01	4394.98	1046.00	4955.42	1047.02
*	70.500	1044.86	1046.94	11.59	30.88	12.86	532.41	.00	.01	4394.98	1046.00	4955.42	1047.02
	77.000	1046.52	1049.38	13.56	38.09	12.52	423.65	.00	.01	4364.84	1048.00	4793.57	1048.00
	77.000	1046.52	1049.30	13.37	37.00	12.52	423.64	.00	.01	4364.84	1048.00	4793.57	1048.00
*	84.000	1049.65	1050.95	9.14	12.37	17.65	490.05	.00	.01	4276.52	1052.00	4785.73	1052.00
*	84.000	1049.56	1050.83	9.06	12.24	17.56	489.81	.00	.01	4276.52	1052.00	4785.73	1052.00
	88.800	1050.14	1051.76	10.21	18.57	16.14	501.72	.00	.01	4057.37	1052.00	4563.57	1052.00
	88.800	1050.05	1051.64	10.14	18.45	16.05	501.49	.00	.01	4057.37	1052.00	4563.57	1052.00

SUMMARY PRINTOUT TABLE 150

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
1.000	.00	.00	.00	996.00	142000.00	1009.10	.00	1011.21	14.28	11.66	12182.33	37574.52
1.000	.00	.00	.00	996.00	144300.00	1009.22	.00	1011.36	14.27	11.72	12307.05	38204.83
2.000	513.18	.00	.00	998.00	142000.00	1009.80	.00	1012.02	16.06	11.97	11859.43	35435.26
2.000	513.18	.00	.00	998.00	144300.00	1009.92	.00	1012.17	16.02	12.04	11985.63	36051.89
3.000	508.26	.00	.00	1000.00	142000.00	1010.65	.00	1012.89	17.94	12.01	11820.11	33528.51
3.000	508.26	.00	.00	1000.00	144300.00	1010.77	.00	1013.03	17.84	12.07	11955.33	34160.81
4.000	449.34	.00	.00	1000.00	142000.00	1012.12	.00	1013.59	11.18	9.75	14558.55	42465.38
4.000	449.34	.00	.00	1000.00	144300.00	1012.24	.00	1013.73	11.12	9.80	14724.33	43265.70
5.000	175.96	.00	.00	1000.00	142000.00	1012.68	.00	1013.79	7.44	8.44	16830.46	52066.34
5.000	175.96	.00	.00	1000.00	144300.00	1012.81	.00	1013.93	7.42	8.48	17007.71	52964.88
6.000	36.79	1021.30	1013.30	1000.00	142000.00	1012.48	.00	1014.06	12.04	10.08	14083.30	40928.18
6.000	36.79	1021.30	1013.30	1000.00	144300.00	1012.60	.00	1014.20	12.05	10.14	14233.11	41576.52
7.000	82.76	1021.30	1013.30	1000.00	142000.00	1012.57	.00	1014.18	12.63	10.18	13942.22	39956.31
7.000	82.76	1021.30	1013.30	1000.00	144300.00	1012.69	.00	1014.32	12.62	10.24	14095.41	40614.38
8.000	49.79	.00	.00	1000.00	142000.00	1013.21	.00	1014.28	7.50	8.31	17089.23	51847.16
8.000	49.79	.00	.00	1000.00	144300.00	1013.34	.00	1014.42	7.47	8.35	17281.53	52796.63
9.000	414.59	.00	.00	1002.00	142000.00	1013.57	.00	1014.59	7.32	8.13	17476.70	52485.88
9.000	414.59	.00	.00	1002.00	144300.00	1013.69	.00	1014.73	7.28	8.16	17674.46	53470.61
10.000	611.26	.00	.00	1002.00	142000.00	1013.94	.00	1015.17	9.83	8.91	15939.36	45287.05
10.000	611.26	.00	.00	1002.00	144300.00	1014.06	.00	1015.30	9.76	8.95	16130.68	46188.61
11.000	614.13	.00	.00	1004.00	142000.00	1014.85	.00	1015.83	11.04	8.06	17946.10	42734.08
11.000	614.13	.00	.00	1004.00	144300.00	1014.98	.00	1015.96	10.93	8.08	18175.95	43637.55
12.000	536.27	.00	.00	1006.00	142000.00	1015.70	.00	1016.60	17.94	7.63	18617.11	33527.77
12.000	536.27	.00	.00	1006.00	144300.00	1015.82	.00	1016.72	17.53	7.59	19001.35	34467.14
13.000	532.88	.00	.00	1006.00	142000.00	1016.69	.00	1017.42	12.90	6.88	20641.14	39541.68
13.000	532.88	.00	.00	1006.00	144300.00	1016.79	.00	1017.52	12.67	6.89	20957.10	40537.86
14.000	509.47	.00	.00	1006.00	142000.00	1017.37	.00	1018.04	11.22	6.56	21634.39	42393.81
14.000	509.47	.00	.00	1006.00	144300.00	1017.46	.00	1018.13	11.11	6.59	21910.37	43295.61
15.000	488.37	.00	.00	1006.00	142000.00	1017.90	.00	1018.74	16.01	7.35	19330.99	35484.10
15.000	488.37	.00	.00	1006.00	144300.00	1017.99	.00	1018.83	16.00	7.36	19594.96	36071.16
16.000	506.66	.00	.00	1006.00	142000.00	1018.72	.00	1019.94	29.95	8.87	16014.84	25946.97
16.000	506.66	.00	.00	1006.00	144300.00	1018.80	.00	1020.02	29.46	8.88	16254.28	26587.35

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
	17.000	550.00	.00	.00	1004.00	142000.00	1020.29	.00	1021.41	23.53	8.95	17214.18	29276.73
	17.000	550.00	.00	.00	1004.00	144300.00	1020.35	.00	1021.48	23.55	9.00	17392.02	29735.69
	18.000	431.16	.00	.00	1010.00	142000.00	1021.42	.00	1022.27	14.71	6.33	19682.57	37027.68
	18.000	431.16	.00	.00	1010.00	144300.00	1021.49	.00	1022.34	14.73	6.38	19898.70	37603.94
*	18.500	470.00	.00	.00	1012.00	142000.00	1022.76	1022.76	1025.64	60.36	13.61	10431.72	18277.83
*	18.500	470.00	.00	.00	1012.00	144300.00	1023.50	1023.50	1025.86	42.50	12.31	11718.01	22135.59
*	19.000	198.13	1034.20	1034.20	1012.00	142000.00	1024.47	.00	1026.58	23.93	11.66	12182.44	29030.29
	19.000	198.13	1034.20	1034.20	1012.00	144300.00	1024.18	.00	1026.53	27.97	12.32	11710.60	27284.41
	20.000	77.93	1034.20	1034.20	1012.00	142000.00	1024.99	.00	1026.83	19.31	10.89	13038.69	32314.99
	20.000	77.93	1034.20	1034.20	1012.00	144300.00	1024.89	.00	1026.84	20.81	11.22	12861.67	31631.28
	20.500	24.60	.00	.00	1012.00	142000.00	1025.42	.00	1026.91	19.81	9.81	14472.08	31902.74
	20.500	24.60	.00	.00	1012.00	144300.00	1025.37	.00	1026.93	20.95	10.04	14367.06	31523.53
	21.000	17.71	.00	.00	1012.00	142000.00	1025.41	.00	1026.97	21.37	10.04	14149.91	30721.07
	21.000	17.71	.00	.00	1012.00	144300.00	1025.36	.00	1026.99	22.52	10.26	14061.76	30406.96
	22.000	509.85	.00	.00	1014.00	142000.00	1027.04	.00	1027.84	11.93	7.31	19886.03	41109.99
	22.000	509.85	.00	.00	1014.00	144300.00	1027.07	.00	1027.90	12.16	7.40	19966.10	41382.36
	23.000	484.56	.00	.00	1016.00	142000.00	1027.68	.00	1028.58	17.70	7.70	18942.96	33752.45
	23.000	484.56	.00	.00	1016.00	144300.00	1027.72	.00	1028.64	17.85	7.76	19082.35	34154.38
*	24.000	450.96	.00	.00	1018.00	142000.00	1028.66	.00	1029.16	8.48	5.71	25243.14	48770.09
*	24.000	450.96	.00	.00	1018.00	144300.00	1028.72	.00	1029.23	8.52	5.76	25452.53	49430.57
	25.000	497.78	.00	.00	1018.00	142000.00	1029.13	.00	1029.67	11.90	5.88	24173.21	41160.92
	25.000	497.78	.00	.00	1018.00	144300.00	1029.19	.00	1029.74	11.88	5.91	24426.09	41870.88
	26.000	493.04	.00	.00	1018.00	142000.00	1029.78	.00	1030.17	8.30	5.01	28678.35	49285.86
	26.000	493.04	.00	.00	1018.00	144300.00	1029.84	.00	1030.24	8.29	5.04	28984.10	50123.84
*	27.000	713.00	.00	.00	1020.00	142000.00	1030.59	.00	1031.00	17.23	5.13	27698.60	34206.18
*	27.000	713.00	.00	.00	1020.00	144300.00	1030.65	.00	1031.06	16.97	5.14	28097.81	35026.12
*	28.000	750.56	.00	.00	1022.00	142000.00	1034.25	1034.25	1039.74	59.97	18.79	7555.57	18336.64
*	28.000	750.56	.00	.00	1022.00	144300.00	1034.11	1034.11	1039.93	64.61	19.35	7456.89	17951.83
*	28.500	600.00	.00	.00	1023.00	69000.00	1040.73	.00	1041.16	3.77	5.28	13080.00	35547.58
*	28.500	600.00	.00	.00	1023.00	71300.00	1040.96	.00	1041.41	3.84	5.38	13268.86	36390.78
	29.000	600.00	.00	.00	1024.00	69000.00	1041.10	.00	1041.36	2.32	4.08	16926.51	45286.31
	29.000	600.00	.00	.00	1024.00	71300.00	1041.34	.00	1041.60	2.36	4.15	17175.74	46389.40
	34.000	593.37	.00	.00	1026.00	69000.00	1041.23	.00	1041.53	3.13	4.33	15943.17	38975.30
	34.000	593.37	.00	.00	1026.00	71300.00	1041.47	.00	1041.77	3.16	4.40	16217.37	40087.82

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
*	35.000	508.89	.00	.00	1026.00	69000.00	1041.30	.00	1041.82	6.57	5.75	11998.07	26917.94
*	35.000	508.89	.00	.00	1026.00	71300.00	1041.54	.00	1042.07	6.70	5.83	12235.29	27550.37
	36.000	660.00	.00	.00	1028.00	69000.00	1041.69	.00	1042.32	7.79	6.41	10757.71	24720.04
	36.000	660.00	.00	.00	1028.00	71300.00	1041.93	.00	1042.58	7.82	6.50	10963.62	25489.05
*	51.500	648.12	.00	.00	1030.00	69000.00	1042.16	.00	1043.33	26.28	8.70	7930.46	13458.46
*	51.500	648.12	.00	.00	1030.00	71300.00	1042.40	.00	1043.58	25.58	8.72	8172.83	14097.66
*	54.000	263.78	.00	.00	1030.00	69000.00	1043.11	.00	1043.85	12.86	6.88	10032.96	19237.77
*	54.000	263.78	.00	.00	1030.00	71300.00	1043.34	.00	1044.09	12.78	6.94	10272.05	19946.10
	60.000	633.78	.00	.00	1030.00	69000.00	1043.84	.00	1044.62	11.19	7.11	9709.12	20625.17
	60.000	633.78	.00	.00	1030.00	68000.00	1044.08	.00	1044.81	10.12	6.85	9921.82	21373.21
	63.000	222.89	.00	.00	1032.00	69000.00	1043.96	.00	1044.99	15.63	8.15	8470.22	17452.11
	63.000	222.89	.00	.00	1032.00	68000.00	1044.19	.00	1045.15	14.17	7.86	8650.52	18063.65
*	70.500	725.14	.00	.00	1032.00	69000.00	1044.73	.00	1046.93	33.01	11.90	5798.69	12009.70
*	70.500	725.14	.00	.00	1032.00	68000.00	1044.86	.00	1046.94	30.88	11.59	5866.64	12237.81
	77.000	636.54	.00	.00	1034.00	69000.00	1046.52	.00	1049.38	38.09	13.56	5087.00	11180.20
	77.000	636.54	.00	.00	1034.00	68000.00	1046.52	.00	1049.30	37.00	13.37	5086.58	11178.75
*	84.000	702.16	.00	.00	1032.00	69000.00	1049.65	.00	1050.95	12.37	9.14	7553.11	19617.84
*	84.000	702.16	.00	.00	1032.00	68000.00	1049.56	.00	1050.83	12.24	9.06	7508.97	19434.97
	88.800	478.14	.00	.00	1034.00	69000.00	1050.14	.00	1051.76	18.57	10.21	6756.60	16012.86
	88.800	478.14	.00	.00	1034.00	68000.00	1050.05	.00	1051.64	18.45	10.14	6708.78	15830.56

SUMMARY PRINTOUT TABLE 150

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
1.000	142000.00	1009.10	.00	.00	-.50	1025.01	.00
1.000	144300.00	1009.22	.12	.00	-.38	1025.47	.00
2.000	142000.00	1009.80	.00	.70	.00	1047.11	513.18
2.000	144300.00	1009.92	.12	.69	.00	1047.67	513.18
3.000	142000.00	1010.65	.00	.85	.00	1127.81	508.26
3.000	144300.00	1010.77	.12	.85	.00	1128.21	508.26
4.000	142000.00	1012.12	.00	1.47	.00	1333.85	449.34
4.000	144300.00	1012.24	.12	1.47	.00	1334.17	449.34
5.000	142000.00	1012.68	.00	.57	.00	1412.08	175.96
5.000	144300.00	1012.81	.13	.57	.00	1412.78	175.96
6.000	142000.00	1012.48	.00	-.20	.00	1428.80	36.79
6.000	144300.00	1012.60	.12	-.20	.00	1429.62	36.79
7.000	142000.00	1012.57	.00	.09	.00	1457.91	82.76
7.000	144300.00	1012.69	.12	.09	.00	1458.69	82.76
8.000	142000.00	1013.21	.00	.64	.00	1476.62	49.79
8.000	144300.00	1013.34	.13	.65	.00	1477.71	49.79
9.000	142000.00	1013.57	.00	.36	.00	1529.70	414.59
9.000	144300.00	1013.69	.13	.36	.00	1529.99	414.59
10.000	142000.00	1013.94	.00	.37	.00	1518.56	611.26
10.000	144300.00	1014.06	.13	.37	.00	1518.84	611.26
11.000	142000.00	1014.85	.00	.92	.00	1843.90	614.13
11.000	144300.00	1014.98	.12	.92	.00	1844.47	614.13
12.000	142000.00	1015.70	.00	.84	.00	2974.83	536.27
12.000	144300.00	1015.82	.13	.85	.00	3003.58	536.27
13.000	142000.00	1016.69	.00	.99	.00	3006.97	532.88
13.000	144300.00	1016.79	.10	.96	.00	3008.93	532.88
14.000	142000.00	1017.37	.00	.68	.00	3042.69	509.47
14.000	144300.00	1017.46	.09	.67	.00	3042.95	509.47
15.000	142000.00	1017.90	.00	.53	.00	2997.68	488.37
15.000	144300.00	1017.99	.09	.53	.00	3025.74	488.37
16.000	142000.00	1018.72	.00	.81	.00	2998.51	506.66
16.000	144300.00	1018.80	.08	.81	.00	3000.09	506.66

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	17.000	142000.00	1020.29	.00	1.57	.00	3187.64	550.00
	17.000	144300.00	1020.35	.06	1.55	.00	3188.02	550.00
	18.000	142000.00	1021.42	.00	1.13	.00	3290.66	431.16
	18.000	144300.00	1021.49	.07	1.14	.00	3291.25	431.16
*	18.500	142000.00	1022.76	.00	1.34	.00	1736.06	470.00
*	18.500	144300.00	1023.50	.74	2.01	.00	1741.88	470.00
*	19.000	142000.00	1024.47	.00	1.71	.00	1702.44	198.13
	19.000	144300.00	1024.18	-.30	.67	.00	1700.21	198.13
	20.000	142000.00	1024.99	.00	.52	.00	1704.34	77.93
	20.000	144300.00	1024.89	-.10	.71	.00	1703.55	77.93
	20.500	142000.00	1025.42	.00	.43	.00	1707.25	24.60
	20.500	144300.00	1025.37	-.05	.48	.00	1706.80	24.60
	21.000	142000.00	1025.41	.00	-.01	.00	1707.38	17.71
	21.000	144300.00	1025.36	-.05	-.01	.00	1707.04	17.71
	22.000	142000.00	1027.04	.00	1.63	.00	2474.87	509.85
	22.000	144300.00	1027.07	.03	1.72	.00	2475.26	509.85
	23.000	142000.00	1027.68	.00	.64	.00	3077.81	484.56
	23.000	144300.00	1027.72	.05	.65	.00	3078.27	484.56
*	24.000	142000.00	1028.66	.00	.98	.00	3633.95	450.96
*	24.000	144300.00	1028.72	.06	.99	.00	3634.57	450.96
	25.000	142000.00	1029.13	.00	.47	.00	4201.16	497.78
	25.000	144300.00	1029.19	.06	.47	.00	4202.68	497.78
	26.000	142000.00	1029.78	.00	.65	.00	5008.04	493.04
	26.000	144300.00	1029.84	.06	.65	.00	5010.62	493.04
*	27.000	142000.00	1030.59	.00	.81	.00	7032.13	713.00
*	27.000	144300.00	1030.65	.06	.81	.00	7033.82	713.00
*	28.000	142000.00	1034.25	.00	3.66	.00	690.02	750.56
*	28.000	144300.00	1034.11	-.14	3.46	.00	689.45	750.56
*	28.500	69000.00	1040.73	.00	6.48	.00	800.00	600.00
*	28.500	71300.00	1040.96	.23	6.85	.00	800.00	600.00
	29.000	69000.00	1041.10	.00	.37	.00	1049.71	600.00
	29.000	71300.00	1041.34	.24	.38	.00	1049.71	600.00
	34.000	69000.00	1041.23	.00	.14	.00	1146.63	593.37
	34.000	71300.00	1041.47	.24	.14	.00	1146.63	593.37

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
*	35.000	69000.00	1041.30	.00	.07	.00	983.59	508.89
*	35.000	71300.00	1041.54	.24	.07	.00	997.39	508.89
	36.000	69000.00	1041.69	.00	.38	.00	850.60	660.00
	36.000	71300.00	1041.93	.24	.39	.00	851.57	660.00
*	51.500	69000.00	1042.16	.00	.47	.00	989.48	648.12
*	51.500	71300.00	1042.40	.24	.47	.00	995.01	648.12
*	54.000	69000.00	1043.11	.00	.96	.00	1041.04	263.78
*	54.000	71300.00	1043.34	.23	.94	.00	1045.85	263.78
	60.000	69000.00	1043.84	.00	.72	.00	860.29	633.78
	60.000	68000.00	1044.08	.25	.74	.00	860.65	633.78
	63.000	69000.00	1043.96	.00	.12	.00	787.02	222.89
	63.000	68000.00	1044.19	.23	.10	.00	787.55	222.89
*	70.500	69000.00	1044.73	.00	.77	.00	532.00	725.14
*	70.500	68000.00	1044.86	.13	.67	.00	532.41	725.14
	77.000	69000.00	1046.52	.00	1.79	.00	423.65	636.54
	77.000	68000.00	1046.52	.00	1.66	.00	423.64	636.54
*	84.000	69000.00	1049.65	.00	3.13	.00	490.05	702.16
*	84.000	68000.00	1049.56	-.09	3.04	.00	489.81	702.16
	88.800	69000.00	1050.14	.00	.49	.00	501.72	478.14
	88.800	68000.00	1050.05	-.10	.49	.00	501.49	478.14

SUMMARY OF ERRORS AND SPECIAL NOTES

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CAUTION SECNO=     18.500  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     18.500  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=     18.500  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=     18.500  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     18.500  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=     18.500  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL

WARNING SECNO=     19.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=     24.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=     24.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=     27.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=     27.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=     28.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     28.000  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=     28.000  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=     28.000  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     28.000  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=     28.000  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL

WARNING SECNO=     28.500  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=     28.500  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=     35.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=     35.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=     51.500  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=     51.500  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=     54.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=     54.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=     70.500  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=     70.500  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=     84.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=     84.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
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FLOODWAY DATA,
PROFILE NO. 2

STATION	FLOODWAY WIDTH	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WATER SURFACE ELEVATION WITHOUT FLOODWAY	DIFFERENCE
1.000	1025.	12307.	11.7	1009.2	1009.1	.1
2.000	1048.	11986.	12.0	1009.9	1009.8	.1
3.000	1128.	11955.	12.1	1010.7	1010.6	.1
4.000	1334.	14724.	9.8	1012.2	1012.1	.1
5.000	1413.	17008.	8.5	1012.8	1012.7	.1
6.000	1430.	14233.	10.1	1012.6	1012.5	.1
7.000	1459.	14095.	10.2	1012.7	1012.6	.1
8.000	1478.	17282.	8.3	1013.3	1013.2	.1
9.000	1530.	17674.	8.2	1013.7	1013.6	.1
10.000	1519.	16131.	8.9	1014.0	1013.9	.1
11.000	1844.	18176.	7.9	1015.0	1014.9	.1
12.000	3004.	19001.	7.6	1015.8	1015.7	.1
13.000	3009.	20957.	6.9	1016.8	1016.7	.1
14.000	3043.	21910.	6.6	1017.5	1017.4	.1
15.000	3026.	19595.	7.4	1018.0	1017.9	.1
16.000	3000.	16254.	8.9	1018.8	1018.7	.1
17.000	3188.	17392.	8.3	1020.4	1020.3	.1
18.000	3291.	19899.	7.3	1021.5	1021.4	.1
18.500	1742.	11718.	12.3	1023.5	1022.8	.7
19.000	1700.	11711.	12.3	1024.2	1024.5	-.3
20.000	1704.	12862.	11.2	1024.9	1025.0	-.1
20.500	1707.	14367.	10.0	1025.3	1025.4	-.1
21.000	1707.	14062.	10.3	1025.3	1025.4	-.1
22.000	2475.	19966.	7.2	1027.0	1027.0	.0
23.000	3078.	19082.	7.6	1027.7	1027.7	.0
24.000	3635.	25453.	5.7	1028.8	1028.7	.1
25.000	4203.	24426.	5.9	1029.2	1029.1	.1
26.000	5012.	28984.	5.0	1029.9	1029.8	.1
27.000	7264.	28098.	5.1	1030.7	1030.6	.1
28.000	689.	7457.	19.4	1034.2	1034.3	-.1
28.500	800.	13269.	5.4	1040.9	1040.7	.2
29.000	1050.	17176.	4.2	1041.3	1041.1	.2
34.000	1147.	16217.	4.4	1041.4	1041.2	.2
35.000	997.	12235.	5.8	1041.5	1041.3	.2
36.000	852.	10964.	6.5	1041.9	1041.7	.2
51.500	1050.	8173.	8.7	1042.4	1042.2	.2
54.000	1046.	10272.	6.9	1043.3	1043.1	.2
60.000	861.	9922.	6.9	1044.0	1043.8	.2
63.000	788.	8651.	7.9	1044.2	1044.0	.2
70.500	532.	5867.	11.6	1044.8	1044.7	.1
77.000	424.	5087.	13.4	1046.5	1046.5	.0
84.000	490.	7509.	9.1	1049.6	1049.7	-.1

FLOODWAY DATA,
PROFILE NO. 2

STATION	------- FLOODWAY ------- WIDTH	SECTION AREA	MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WITHOUT FLOODWAY	DIFFERENCE
88.800	501.	6709.	10.1	1050.0	1050.1	-.1