LOCHSA ENGINEERING

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March 25, 2005

FEMA Map Coordination Contractor
3601 Eisenhower Avenue, Suite 600
Alexandria, VA 22304

Subject: **CLOMR for a portion of the Tropicana Wash-Central Branch traversing the proposed Adam and Eve Night Club Site (APN 162-30-501-043)**
Subject CLOMR is for the Existing Arch Culvert traversing the above parcel located at the northwest corner of Reno Avenue and Valley View Boulevard

ATTN: FEMA Map Coordinator Contractor

Lochsa Engineering has been retained by JMD Development LTD to complete a Conditional Letter of Map Revision (CLOMR) Application for a portion of the Tropicana Wash (hereinafter referred to as the Wash) traversing the parcel for the proposed Adam and Eve Night Club (APN 162-30-501-043) in Clark County, Nevada. The purpose of this CLOMR is to revise the Effective Flood Insurance Rate Map (FIRM) Community Panel number 32003C2552E to reflect the already constructed flood control improvements of the Tropicana Wash within the subject property. The affected Community Panel is dated September 27, 2002 and revised to reflect LOMR dated June 19, 2003. The current FIRM panel indicates the subject segment of the Tropicana Wash as Zone AE, a Special Flood Hazard Area (SFHA) with floodway. Zone AE is defined by FEMA as a SFHA area subject to inundation by the 1% annual chance flood event with base flood elevations determined. The subject site is located at the northwest corner of Valley View Boulevard and Reno Avenue intersection, in Clark County, Nevada. The attached Vicinity Map (Figure 1) indicates the location of the site in relation to surrounding major streets.

This request is based on the constructed flood control improvements within the property. These improvements consist of an existing 20' wide by 5'-9" high Concrete Arch Culvert, which connects to two of the existing triple 10-foot by 5-foot Reinforced Concrete Box Culvert (RCBC) in Valley View Boulevard through a 10-foot long transition structure, and another 30-foot long transition structure to a double 16'x5'-9" RCBC at the arch culvert entrance. These storm drain improvements are already in place and their hydraulic design was provided in the "*Update to the Technical Drainage study for Reno-Valley View*" by Kimley-Horn Associates, dated February 22, 2000 and approved by Clark County Public Works on April 25, 2000. Pertinent Hydraulic Calculations provided for these improvements (HEC-RAS model of the Arch Culvert) and construction documents for Plans, Profiles and Details, as approved by the Clark County have been attached for your review. The most current electronic file of the HEC-RAS model for the Arch

Culvert as prepared by Kimley Horn and Associates could not be obtained, therefore a WSPG Model is being provided in place by Lochsa Engineering. The WSPG Model being provided should represent a better tool for modeling the storm drain and associated inlet and outlet losses. The storm drain improvements were designed to intercept and convey the entire flows in the Wash across the site, generated from a 100-year, 6-hour storm event, while maintaining open channel conditions. The 100-year flows impacting this segment of the Tropicana Wash across the site is approximately 750 cfs. This runoff is determined as the culvert capacity of the existing 114" Corrugated Metal Pipe (CMP) underneath the Union Pacific Rail Road (UPRR) upstream of the site, and is modeled as a flow diversion operation in the 2002 Tropicana Wash Flood Insurance Study (FIS)-Final Hydrology by JE Fuller/Hydrology and Geomorphology Inc.
The following information is enclosed supporting this request for a CLOMR.

- A review fee check in the amount of $4000.00, payable to the National Flood Insurance Program.
- Effective FIRM Panel 32003C2552E (Figure 2)
- Annotated FIRM with proposed revisions (Figure 6)
- FEMA Forms
- Hydrologic Summary
- Hydraulic Modeling
- References-Construction Documents (Plans, Profiles and Details for the existing facility)
- Electronic Files on disk
- As-Built Plans based on current survey

1. Hydrologic Modeling

The hydrologic analysis which established the 100-year storm flow rate utilized in the design of the flood control facilities mentioned above is referenced from the HEC-1 model, LTW100.IH1 of the 2002 Tropicana Wash Flood Insurance Study (FIS) as prepared by JE Fuller Hydrology and Geomorphology, Inc. This study was subsequently adopted for the current effective LOMR (Case No. 02-09-718P) in the vicinity of the subject site. The 2002 Tropicana Wash FIS determined that the runoff flows impacting the site through the 114" CMP culvert crossing at the Union Pacific Rail Road is approximately 750 cfs. This flow rate is in conformance with the results of the 1993 FIS by CH2M HILL, since runoff conveyed east across the rail road is dependent upon the limited capacity of the existing culvert (114" CMP). The culvert overflow at the Rail Road (1,068 cfs) is conveyed north along the Rail Road embankment, and constitutes the Break Out Flows from the Tropicana Wash. Flows conveyed east across the Rail Road impacts the site in the subject portion of the Tropicana Wash and is intercepted and conveyed across the site by the existing 20' x 5'-9" Arch Culverts, that was designed by Kimley-Horn and Associates, and approved by Clark County Public Works Department on April 25, 2002. Relevant Materials are included with this CLOMR application.

2. Hydraulic Modeling

2.1 Existing Condition

2.1.1. Existing Wash through traversing the site

The U.S. Army Corps of Engineers HEC-RAS computer program was used for the hydraulic analysis of the existing conditions of the Tropicana Wash Central Branch across the site. This analysis was modeled in the 2002 Tropicana Wash Flood Insurance Study (FIS) as prepared by JE Fuller Hydrology and Geomorphology, Inc. Per our communication with Mr. Kevin Eubanks, P.E. of the Clark County Regional Flood Control District (CCRFCD), it is our understanding the that the LOMR for Case No. 04-09-0462P is expected to be issued shortly. Therefore, the hydraulic analysis being provided for the subject CLOMR application is illustrated to tie into the hydraulic model from the LOMR application for Case No. 04-09-0462P. The work maps (including Figure 6 labeled as the "Annotated FIRM Map for the subject CLOMR") are also illustrated to tie into the SFHA boundary delineation from the LOMR for Case No. 04-09-0462P. The hydraulic model from the LOMR for Case No. 04-09-0462P has therefore been adopted as the 'Effective Model' for the existing condition of the Wash across the site. The HEC-RAS output file from this model is provided in the appendix. A review of this 'Effective Model' indicates that the 100-year flow rate of 750 cfs is modeled for cross section 63.389 at the outlet of the 114" CMP culvert, while the remainder cross-sections through the site (63.379 through 63.113) were modeled with a flow rate of 1,031 cfs. The hydrologic analysis from the 2002 Tropicana Wash FIS indicates that the flow rate of 1,031 cfs is obtained at downstream concentration point C107 located at the intersection of the wash and Industrial Road, approximately 3,000-feet downstream of the site. The concentration point C107 (Q_{100}=1,031 cfs) combines flows (750 cfs) conveyed by the 114" CMP with other flows generated by basin TW2 (Q_{100}=306 cfs). There is an existing 60" RCP in Valley View Boulevard, which conveys approximately 200 cfs and connects to the existing culverts in Valley View Boulevard downstream of the site. Flows conveyed in the 60" RCP in Valley View Boulevard consist mainly of the runoff generated by the upstream portions of basin TW2 located mainly west of Valley View Boulevard and south of Reno Avenue. Copies of the HEC-1 output file and Watershed Map (Drainage Basin Map) from the Tropicana Wash FIS as prepared by JE Fuller Hydrology and Geomorphology, Inc., are attached in the appendix. In order to present a more accurate hydraulic condition of the flows in the Tropicana Wash across the site, the 'Duplicate Effective Model' is revised to a flowrate of 800 cfs in place of the 1,031 cfs. The 800 cfs represents a conservative addition of 50 cfs to account for the small area (≈10.0 acres) located between the subject site and the 114" CMP. This revised model shall be referred to as the 'Revised Effective Model', and it is a more accurate representation of the existing hydraulic conditions of the Wash across the site. A comparison of the resulting water surface elevations between the Effective Model and the Revised Effective Model indicates a consistent decrease with a maximum of 0.40' occurring at cross-section 63.379, while the waster surface elevation at cross-section 63.119 increased by approximately 0.11' over the result of the 'Duplicate Effective Model'.

2.2 Proposed Condition

2.2.1. Existing 20' wide by 5'-9" high Concrete Arch Culvert and Transition Structures

The Post Developed hydraulic analysis is a WSPG model for the existing 20' wide by 5'-9" high Concrete Arch Culvert. The model includes a 30-foot long transition structure from a double barrel box (16.0'x5'-9" RCB) to the arch culvert at the culvert entrance, and a 10-foot long transition structure from the arch culvert to two of the triple 10'x5' RCBs in Valley View Boulevard. The hydraulic design of the existing storm drain facilities mentioned above was originally provided with the HEC-RAS modeled by Kimley-Horn and Associates, in the "*Update to the Technical Drainage Study for Reno-Valley View*". This study was reviewed and approved by the Clark County Department of Public Works on April 25, 2000, and a District Concurrence Letter issued by the Clark County Flood Control District on June 02, 2000. The HEC-RAS model previously provided to the Clark County Public Works for these facilities analyzed the culvert sections with a lid cover. Copies of the output file from the analysis are also provided in the appendix.

For the purpose of this CLOMR application, a WSPG analysis is being provided for a better representation of losses at the inlet, transition structures and through the entire storm drain system. The WSPG analysis adopted the water surface elevations (WSE) at the downstream and upstream tie-in stations across the site from the 'Revised Effective Model' described above. The downstream tie-in station at Valley View Boulevard is identified as 63.113 (Cross-Section J) and has a WSE of 2183.52' (NGVD 29) which results to 2185.82' in NAVD 88. The upstream tie-in station is identified as 63.245 (Cross-Section M) and has a WSE of 2198.40' (NGVD 29) which also results to 2200.70' in NAVD 88. These water surface elevations were adopted as the upstream and downstream boundary conditions for the WSPG model. The cross-section geometric parameters (stations and elevations) for the natural wash upstream of the culvert entrance at cross-sections 63.186 (Cross-Section L) and 63.245 (Cross-Section M) were also adopted from the input data of the Tropicana Wash LOMR Case No. 04-09-0462P HEC-RAS model. However, these elevations are based on the NGVD 29 vertical datum, while the site survey and As-Built plans for the arch culvert and transition structure were based on the NAVD 88 datum. Therefore, a factor of ≈2.30' is added to the adopted elevations to convert them to the NAVD 88 datum. The results of the WSPG analysis indicate that the WSE at cross-section 63.186 (WSPG STA: 1798) which is located between the culvert entrance and the upstream tie-in station is approximately 2190.04'. The 'Revised Effective Model' indicates an elevation of 2191.47' (ie. 2189.17+2.30') at the same location. A comparison of these results indicates that the water surface elevation within the wash upstream of the culvert entrance has been improved (reduced) by approximately 1.43'. Table 1 below illustrates the summary of the results from the revised effective HEC-RAS model and the WSPG analysis. An exhibit (Figure 4) showing the WSPG Stations and resulting water surface elevations overlaid on the design plan and profiles for the arch culvert is attached in the appendix to help your review. The results of the WSPG analysis at the respective cross-sections in relation to the upstream and downstream tie-in stations (M and J respectively), are also shown on the work map from the 2002 Tropicana Wash LOMR for Case No. 04-09-0462P (Figure 5). A referenced copy of the previously approved plan and profile indicating the HEC-RAS stations and water surface elevations as prepared by Kimley-Horn and Associates is also attached for your review.

TABLE 1

REVISED EFFECTIVE HEC-RAS STATION	POST PROJECT (EQUIVALENT) WSPG STATION	REVISED EFFECTIVE WSE (NAVD88)	POST PROJECT (EQUIVALENT) WSPG WSE (NAVD88)
63.245 (Upstream Tie-In Station)	2107.07	2200.70	2200.70
63.186	1798.00	2191.47	2190.04
63.113 (Downstream Tie-in Station)	1408.00	2185.82	2185.82

2.3 Mapping

The Effective Flood Insurance Rate Map (FIRM) is provided with this report. The proposed revisions to the Effective FIRM take into account the existing storm drain facilities within the project site along the Tropicana Wash floodplain. The annotated portion of the subject FIRM with the proposed revisions is shown in Figure 6.

Based on the comparison of the water surface elevations from the Revised Effective Model and the WSPG hydraulic calculations provided, Lochsa Engineering believes that the project is in conformance with FEMA flood zone regulations. We therefore request that the subject site be removed from the special flood hazard areas shown on the Flood Insurance Rate Map (FIRM) community panel 32003C2552E.

Please do not hesitate to contact our office at (702) 365-9312 at your convenience if you have any questions.

Sincerely,

LOCHSA ENGINEERING

Stanley Okey Amadi
Civil Designer

PROFESSIONAL ENGINEER-STATE OF NEVADA
HANI M. NOSHI
Exp: 12/31/05
CIVIL
No. 15741

03/25/05

Hani M. Noshi, PhD., P.E.
Director of Flood Control and Drainage

FEDERAL EMERGENCY MANAGEMENT AGENCY

OVERVIEW & CONCURRENCE FORM

O.M.B No. 3067-0148
Expires September 30, 2005

PAPERWORK BURDEN DISCLOSURE NOTICE

Public reporting burden for this form is estimated to average 1 hour per response. The burden estimate includes the time for reviewing instructions, searching existing data sources, gathering and maintaining the needed data, and completing, reviewing, and submitting the form. You are not required to respond to this collection of information unless a valid OMB control number appears in the upper right corner of this form. Send comments regarding the accuracy of the burden estimate and any suggestions for reducing this burden to: Information Collections Management, Federal Emergency Management Agency, 500 C Street, SW, Washington DC 20472, Paperwork Reduction Project (3067-0148). Submission of the form is required to obtain or retain benefits under the National Flood Insurance Program. **Please do not send your completed survey to the above address.**

A. REQUESTED RESPONSE FROM FEMA

This request is for a (check one):

☑ CLOMR: A letter from FEMA commenting on whether a proposed project, if built as proposed, would justify a map revision, or proposed hydrology changes (See 44 CFR Ch. 1, Parts 60, 65 & 72).

☐ LOMR: A letter from FEMA officially revising the current NFIP map to show the changes to floodplains, regulatory floodway or flood elevations. (See Parts 60 & 65 of the NFIP Regulations.)

B. OVERVIEW

1. The NFIP map panel(s) affected for all impacted communities is (are):

Community No.	Community Name	State	Map No.	Panel No.	Effective Date
Ex: 480301 480287	City of Katy Harris County	TX TX	480301 48201C	0005D 0220G	02/08/83 09/28/90
32003	CLARK COUNTY	NV	32003C	2552E	09/27/02

2. Flooding Source: TROPICANA WASH-CENTRAL BRANCH

3. Project Name/Identifier: ADAM AND EVE NIGHT CLUB

4. FEMA zone designations affected: AE WITH FLOODWAY (choices: A, AH, AO, A1-A30, A99, AE, AR, V, V1-V30, VE, B, C, D, X)

5. Basis for Request and Type of Revision:

a. The basis for this revision request is (check all that apply)

☑ Physical Change ☐ Improved Methodology/Data

☐ Regulatory Floodway Revision ☐ Other (Attach Description)

Note: A photograph and narrative description of the area of concern is not required, but is very helpful during review.

b. The area of revision encompasses the following types of flooding and structures (check all that apply)

Types of Flooding:	☑ Riverine	☐ Coastal	☐ Shallow Flooding (e.g., Zones AO and AH)
	☐ Alluvial fan	☐ Lakes	☐ Other (Attach Description)
Structures:	☐ Channelization	☐ Levee/Floodwall	☑ Bridge/Culvert
	☐ Dam	☐ Fill	☐ Other, Attach Description

C. REVIEW FEE

Has the review fee for the appropriate request category been included? ☑ Yes Fee amount: $4,000.00

☐ No, *Attach Explanation*

Please see the FEMA Web site at http://www.fema.gov/fhm/frm_fees.shtm **for Fee Amounts and Exemptions.**

D. SIGNATURE

All documents submitted in support of this request are correct to the best of my knowledge. I understand that any false statement may be punishable by fine or imprisonment under Title 18 of the United States Code, Section 1001.

Name: Daljit Sihota	Company: JMD Development LTD	
Mailing Address: 935 Silverstar Way, Anaheim, CA 92808	Daytime Telephone No.: 714-281-4514	Fax No.: 714-242-9749
	E-Mail Address:	
Signature of Requester (required):		Date: 3-16-05

As the community official responsible for floodplain management, I hereby acknowledge that we have received and reviewed this Letter of Map Revision (LOMR) or conditional LOMR request. Based upon the community's review, we find the completed or proposed project meets or is designed to meet all of the community floodplain management requirements, including the requirement that no fill be placed in the regulatory floodway, and that all necessary Federal, State, and local permits have been, or in the case of a conditional LOMR, will be obtained. In addition, we have determined that the land and any existing or proposed structures to be removed from the SFHA are or will be reasonably safe from flooding as defined in 44CFR 65.2(c), and that we have available upon request by FEMA, all analyses and documentation used to make this determination.

Community Official's Name and Title: TODD L. MYERS SENIOR CIVIL ENGINEER		Telephone No.: (702) 455-4856
Community Name: CLARK COUNTY - Unincorporated	Community Official's Signature (required):	Date: 3/21/05

CERTIFICATION BY REGISTERED PROFESSIONAL ENGINEER AND/OR LAND SURVEYOR

This certification is to be signed and sealed by a licensed land surveyor, registered professional engineer, or architect authorized by law to certify elevation information. All documents submitted in support of this request are correct to the best of my knowledge. I understand that any false statement may be punishable by fine or imprisonment under Title 18 of the United States Code, Section 1001.

Certifier's Name: HANI M. NOSHI, Ph.D. P.E.	License No.: 15747 NV	Expiration Date: 12/31/05
Company Name: LOCHSA ENGINEERING	Telephone No.: (702) 365-9312	Fax No.: (702) 365-9317
Signature:		Date: 03/17/05

Ensure the forms that are appropriate to your revision request are included in your submittal.

Form Name and (Number)	Required if ...
☑ Riverine Hydrology and Hydraulics Form (Form 2)	New or revised discharges or water-surface elevations
☑ Riverine Structures Form (Form 3)	Channel is modified, addition/revision of bridge/culverts, addition/revision of levee/floodwall, addition/revision of dam
☐ Coastal Analysis Form (Form 4)	New or revised coastal elevations
☐ Coastal Structures Form (Form 5)	*Addition/revision of coastal structure*
☐ Alluvial Fan Flooding Form (Form 6)	Flood control measures on alluvial fans

HANI M. NOSHI — No. 15747 — 12/31/05 — Seal (Optional) — 03/17/05

FEDERAL EMERGENCY MANAGEMENT AGENCY

RIVERINE HYDROLOGY & HYDRAULICS FORM

O.M.B No. 3067-0148
Expires September 30, 2005

PAPERWORK REDUCTION ACT

Public reporting burden for this form is estimated to average 3 hours per response. The burden estimate includes the time for reviewing instructions, searching existing data sources, gathering and maintaining the needed data, and completing, reviewing, and submitting the form. You are not required to respond to this collection of information unless a valid OMB control number appears in the upper right corner of this form. Send comments regarding the accuracy of the burden estimate and any suggestions for reducing this burden to: Information Collections Management, Federal Emergency Management Agency, 500 C Street, SW, Washington DC 20472, Paperwork Reduction Project (3067-0148). Submission of the form is required to obtain or retain benefits under the National Flood Insurance Program. **Please do not send your completed survey to the above address.**

Flooding Source: TROPICANA WASH-CENTRAL BRANCH
Note: Fill out one form for each flooding source studied

A. HYDROLOGY

1. Reason for New Hydrologic Analysis (check all that apply)

☑ Not revised (skip to section 2) ☐ No existing analysis ☐ Improved data
☐ Alternative methodology ☐ Proposed Conditions (CLOMR) ☐ Changed physical condition of watershed

2. Comparison of Representative 1%-Annual-Chance Discharges

Location	Drainage Area (Sq. Mi.)	FIS (cfs)	Revised (cfs)

3. Methodology for New Hydrologic Analysis (check all that apply)

☐ Statistical Analysis of Gage Records ☐ Precipitation/Runoff Model [TR-20, HEC-1, HEC-HMS etc.]
☐ Regional Regression Equations ☐ Other (please attach description)

Please enclose all relevant models in digital format, maps, computations (including computation of parameters) and documentation to support the new analysis. The document, "Numerical Models Accepted by FEMA for NFIP Usage" lists the models accepted by FEMA. This document can be found at: http://www.fema.gov/fhm/en_modl.shtm.

4. Review/Approval of Analysis

If your community requires a regional, state, or federal agency to review the hydrologic analysis, please attach evidence of approval/review.

5. Impacts of Sediment Transport on Hydrology

Was sediment transport considered? ☐ Yes ☑ No If yes, then fill out Section F (Sediment Transport) of Form 3. If No, then attach your explanation for why sediment transport was not considered.

B. HYDRAULICS

1. Reach to be Revised

	Description	Cross Section	Water-Surface Elevations (ft.) Effective	Proposed/Revised
Downstream Limit	VALLEY VIEW BOULEVARD	J	2185.82	2185.82
Upstream Limit	WESTERN BNDRY OF SITE (350' west of PL)	M	2200.70	2200.70

2. Hydraulic Method Used

Hydraulic Analysis WSPG [HEC-2 , HEC-RAS, Other (Attach description)]

B. HYDRAULICS (CONTINUED)

3 Pre-Submittal Review of Hydraulic Models

FEMA has developed two review programs, CHECK-2 and CHECK-RAS, to aid in the review of HEC-2 and HEC-RAS hydraulic models, respectively. These review programs verify that the hydraulic estimates and assumptions in the model data are in accordance with NFIP requirements, and that the data are comparable with the assumptions and limitations of HEC-2/HEC-RAS. CHECK-2 and CHECK-RAS identify areas of potential error or concern. These tools do not replace engineering judgment. CHECK-2 and CHECK-RAS can be downloaded from http://www.fema.gov/fhm/frm_soft.shtm. We recommend that you review your HEC-2 and HEC-RAS models with CHECK-2 and CHECK-RAS. If you disagree with a message, please attach an explanation of why the message is not valid in this case. Review of your submittal and resolution of valid modeling discrepancies will result in reduced review time.

HEC-2/HEC-RAS models reviewed with CHECK-2/CHECK-RAS? ☐ Yes ☑ No

4. Models Submitted

Duplicate Effective Model*	Natural File Name: WEST.PRJ	Floodway File Name:
Corrected Effective Model*	Natural File Name: WEST.PRJ	Floodway File Name:
Existing or Pre-Project Conditions Model	Natural File Name: WEST.PRJ	Floodway File Name:
Revised or Post-Project Conditions Model	Natural File Name: ARCH.OUT (WSPG)	Floodway File Name:
Other - (attach description)	Natural File Name:	Floodway File Name:

*Not required for revisions to approximate 1%-annual-chance floodplains (Zone A) – for details, refer to the corresponding section of the instructions.

The document "Numerical Models Accepted by FEMA for NFIP Usage" lists the models accepted by FEMA. This document can be found at: http://www.fema.gov/fhm/en_modl.shtm.

C. MAPPING REQUIREMENTS

A **certified topographic map** must be submitted showing the following information (where applicable): the boundaries of the effective, existing, and proposed conditions 1%-annual-chance floodplain (for approximate Zone A revisions) or the boundaries of the 1%- and 0.2%-annual-chance floodplains and regulatory floodway (for detailed Zone AE, AO, and AH revisions); location and alignment of all cross sections with stationing control indicated; stream, road, and other alignments (e.g., dams, levees, etc.); current community easements and boundaries; boundaries of the requester's property; certification of a registered professional engineer registered in the subject State; location and description of reference marks; and the referenced vertical datum (NGVD, NAVD, etc.).

Note that the boundaries of the existing or proposed conditions floodplains and regulatory floodway to be shown on the revised FIRM and/or FBFM must tie-in with the effective floodplain and regulatory floodway boundaries. Please attach **a copy of the effective FIRM and/or FBFM,** annotated to show the boundaries of the revised 1%- and 0.2%-annual-chance floodplains and regulatory floodway that tie-in with the boundaries of the effective 1%- and 0.2%-annual-chance floodplain and regulatory floodway at the upstream and downstream limits of the area of revision.

D. COMMON REGULATORY REQUIREMENTS

1. For CLOMR requests, do Base Flood Elevations (BFEs) increase? ☐ Yes ☑ No

For CLOMR requests, if either of the following is true, please submit evidence of compliance with Section 65.12 of the NFIP regulations:

- The proposed project encroaches upon a regulatory floodway and would result in increases above 0.00 foot.
- The proposed project encroaches upon a SFHA with BFEs established and would result in increases above 1.00 foot.

2. Does the request involve the placement or proposed placement of fill? ☐ Yes ☑ No

If Yes, the community must be able to certify that the area to be removed from the special flood hazard area, to include any structures or proposed structures, meets all of the standards of the local floodplain ordinances, and is reasonably safe from flooding in accordance with the NFIP regulations set forth at 44 CFR 60.3(a)(3), 65.5(a)(4), and 65.6(a)(14). Please see the MT-2 instructions for more information.

3. For LOMR requests, is the regulatory floodway being revised? ☐ Yes ☐ No

If Yes, attach evidence of regulatory floodway revision notification. As per Paragraph 65.7(b)(1) of the NFIP Regulations, notification is required for requests involving revisions to the regulatory floodway. (Not required for revisions to approximate 1%-annual-chance floodplains [studied Zone A designation] unless a regulatory floodway is being added. Elements and examples of regulatory floodway revision notification can be found in the MT-2 Form 2 Instructions.)

4. For LOMR requests, does this request require property owner notification and acceptance of BFE increases? ☐ Yes ☐ No

If Yes, please attach proof of property owner notification and acceptance (if available). Elements of and examples of property owner notification can be found in the MT-2 Form 2 Instructions.

FEDERAL EMERGENCY MANAGEMENT AGENCY

RIVERINE STRUCTURES FORM

O.M.B. No. 3067-0148
Expires September 30, 2005

PAPERWORK REDUCTION ACT

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Flooding Source: TROPICANA WASH-CENTRAL BRANCH
Note: Fill out one form for each flooding source studied

A. GENERAL

Complete the appropriate section(s) for each Structure listed below:

Channelization ..... complete Section B
Bridge/Culvert ..... complete Section C
Dam..... complete Section D
Levee/Floodwall ..... complete Section E
Sediment Transport..... complete Section F (if required)

Description Of Structure

1. **Name of Structure:** 10-foot Long TRANSITION STRUCTURE (DOWNSTREAM)

   Type (check one): ☐ Channelization ☑ Bridge/Culvert ☐ Levee/Floodwall ☐ Dam

   Location of Structure: WEST OF VALLEY VIEW BOULEVARD

   Downstream Limit/Cross Section: WSPG STA:1408.00 (TROP FIS HEC-RAS STA: 63.113)

   Upstream Limit/Cross Section: WSPG STA: 1418.00

2. **Name of Structure:** 20'X5'-9" CONCRETE ARCH CULVERT

   Type (check one): ☐ Channelization ☑ Bridge/Culvert ☐ Levee/Floodwall ☐ Dam

   Location of Structure: WEST OF VALLEY VIEW BOULEVARD BETWEEN THE UPRR AND VALLEY VIEW BOULEVARD

   Downstream Limit/Cross Section: WSPG STA: 1418.00

   Upstream Limit/Cross Section: WSPG STA: 1732.00 (66' D/S OF TROP FIS HEC-RAS STA: 63.186-WSPG STA 1798)

3. **Name of Structure:**

   Type (check one) ☐ Channelization ☑ Bridge/Culvert ☐ Levee/Floodwall ☐ Dam

   Location of Structure: 30-foot long TRANSITION STRUCTURE (UPSTREAM-ENTRANCE STRUCTURE FOR THE ARCH CULVERT)

   Downstream Limit/Cross Section: WSPG STA: 1702.00

   Upstream Limit/Cross Section WSPG STA: 1732.00 (66' D/S OF TROP FIS HEC-RAS STA: 63.186-WSPG STA 1798)

NOTE: For more structures, attach additional pages as needed.

B. CHANNELIZATION

Flooding Source: TROPICANA WASH-CENTRAL BRANCH

Name of Structure:

1. Accessory Structures

The channelization includes (check one):

- ☐ Levees [Attach Section E (Levee/Floodwall)]
- ☐ Superelevated sections
- ☐ Debris basin/detention basin
- ☐ Other (Describe):
- ☐ Drop structures
- ☑ Transitions in cross sectional geometry
- ☐ Energy dissipator

2. Drawing Checklist

Attach the plans of the channelization certified by a registered professional engineer, as described in the instructions.

3. Hydraulic Considerations

The channel was designed to carry 800 cfs (cfs) and/or the 100 -year flood.

The design elevation in the channel is based on (check one):

☐ Subcritical flow ☐ Critical flow ☐ Supercritical flow ☑ Energy grade line

If there is the potential for a hydraulic jump at the following locations, check all that apply and attach an explanation of how the hydraulic jump is controlled without affecting the stability of the channel.

☐ Inlet to channel ☐ Outlet of channel ☐ At Drop Structures ☐ At Transitions
☐ Other locations (specify):

4. Sediment Transport Considerations

Was sediment transport considered? ☐ Yes ☑ No If Yes, then fill out Section F (Sediment Transport).
If No, then attach your explanation for why sediment transport was not considered.

C. BRIDGE/CULVERT

Flooding Source: TROPICANA WASH-CENTRAL BRANCH

Name of Structure: 20'x5'-9" Concrete Arch Culvert

1. This revision reflects (check one):

- ☑ New bridge/culvert not modeled in the FIS
- ☐ Modified bridge/culvert previously modeled in the FIS
- ☐ New analysis of bridge/culvert previously modeled in the FIS

2. Hydraulic model used to analyze the structure (e.g., HEC-2 with special bridge routine, WSPRO, HY8): WSPG MODEL
If different than hydraulic analysis for the flooding source, justify why the hydraulic analysis used for the flooding source could not analyze the structures. Attach justification.

3. Attach plans of the structures certified by a registered professional engineer. The plan detail and information should include the following (check the information that has been provided):

- ☑ Dimensions (height, width, span, radius, length)
- ☑ Shape (culverts only)
- ☑ Material
- ☐ Beveling or Rounding
- ☑ Wing Wall Angle
- ☑ Skew Angle
- ☑ Distances Between Cross Sections
- ☐ Erosion Protection
- ☐ Low Chord Elevations – Upstream and Downstream
- ☑ Top of Road Elevations – Upstream and Downstream
- ☑ Structure Invert Elevations – Upstream and Downstream
- ☑ Stream Invert Elevations – Upstream and Downstream
- ☑ Cross-Section Locations

4. Sediment Transport Considerations

Was sediment transport considered? ☐ Yes ☑ No If yes, then fill out Section F (Sediment Transport).
If No, then attach your explanation for why sediment transport was not considered.

D. DAM

Flooding Source: TROPICANA WASH-CENTRAL BRANCH

Name of Structure:

1. This request is for (check one): ☐ Existing dam ☐ New dam ☐ Modification of existing dam

2. The dam was designed by (check one): ☐ Federal agency ☐ State agency ☒ Local government agency

   ☐ Private organization Name of the agency or organization:

3. Does the project involve revised hydrology? ☐ Yes ☒ No

   If Yes, complete the Riverine Hydrology & Hydraulics Form (Form 2).

4. Does the submittal include debris/sediment yield analysis? ☐ Yes ☒ No

   If yes, then fill out Section F (Sediment Transport).
   If No, then attach your explanation for why debris/sediment analysis was not considered.

5. Does the Base Flood Elevation behind the dam or downstream of the dam change?

   ☐ Yes ☐ No If Yes, complete the Riverine Hydrology & Hydraulics Form (Form 2) and complete the table below.

Stillwater Elevation Behind the Dam

FREQUENCY (% annual chance)	FIS	REVISED
10-year (10%)		
50-year (2%)		
100-year (1%)		
500-year (0.2%)		
Normal Pool Elevation		

6. Please attach a copy of the formal Operation and Maintenance Plan

E. LEVEE/FLOODWALL

1. System Elements

a. This Levee/Floodwall analysis is based on (check one):

- [x] upgrading of an existing levee/floodwall system
- [ ] a newly constructed levee/floodwall system
- [ ] reanalysis of an existing levee/floodwall system

b. Levee elements and locations are (check one):

[ ]	earthen embankment, dike, berm, etc.	Station	to
[ ]	structural floodwall	Station	to
[x]	Other (describe):	Station	to

c. Structural Type (check one):

- [ ] monolithic cast-in place reinforced concrete
- [ ] reinforced concrete masonry block
- [ ] sheet piling
- [x] Other (describe):

d. Has this levee/floodwall system been certified by a Federal agency to provide protection from the base flood?

[ ] Yes [ ] No

If Yes, by which agency?

e. Attach certified drawings containing the following information (indicate drawing sheet numbers):

1. Plan of the levee embankment and floodwall structures. Sheet Numbers:
2. A profile of the levee/floodwall system showing the Base Flood Elevation (BFE), levee and/or wall crest and foundation, and closure locations for the total levee system. Sheet Numbers:
3. A profile of the BFE, closure opening outlet and inlet invert elevations, type and size of opening, and kind of closure. Sheet Numbers:
4. A layout detail for the embankment protection measures. Sheet Numbers:
5. Location, layout, and size and shape of the levee embankment features, foundation treatment, floodwall structure, closure structures, and pump stations. Sheet Numbers:

2. Freeboard

a. The minimum freeboard provided above the BFE is:

Riverine

3.0 feet or more at the downstream end and throughout	[ ] Yes	[ ] No
3.5 feet or more at the upstream end	[ ] Yes	[x] No
4.0 feet within 100 feet upstream of all structures and/or constrictions	[ ] Yes	[ ] No

Coastal

1.0 foot above the height of the one percent wave associated with the 1%-annual-chance stillwater surge elevation or maximum wave runup (whichever is greater).	[ ] Yes	[ ] No
2.0 feet above the 1%-annual-chance stillwater surge elevation	[ ] Yes	[ ] No

2. Freeboard (continued)

Please note, occasionally exceptions are made to the minimum freeboard requirement. If an exception is requested, attach documentation addressing Paragraph 65.10(b)(1)(ii) of the NFIP Regulations

If No is answered to any of the above, please attach an explanation.

b. Is there an indication from historical records that ice-jamming can affect the BFE? ☐ Yes ☐ No

If Yes, provide ice-jam analysis profile and evidence that the minimum freeboard discussed above still exists.

3. Closures

a. Openings through the levee system (check one): ☐ exists ☐ does not exist

If opening exists, list all closures:

Channel Station	Left or Right Bank	Opening Type	Highest Elevation for Opening Invert	Type of Closure Device

(Extend table on an added sheet as needed and reference)

Note: Geotechnical and geologic data

In addition to the required detailed analysis reports, data obtained during field and laboratory investigations and used in the design analysis for the following system features should be submitted in a tabulated summary form. (Reference U.S. Army Corps of Engineers [USACE] EM-1110-2-1906 Form 2086.)

4. Embankment Protection

a. The maximum levee slope landside is:

b. The maximum levee slope floodside is:

c. The range of velocities along the levee during the base flood is: (min.) to (max.)

d. Embankment material is protected by (describe what kind):

e. Riprap Design Parameters (check one): ☐ Velocity ☐ Tractive stress
Attach references

Reach	Sideslope	Flow Depth	Velocity	Curve or Straight	Stone Riprap			Depth of Toedown
					D_{100}	D_{50}	Thickness	
Sta to								
Sta to								
Sta to								
Sta to								
Sta to								
Sta to								

(Extend table on an added sheet as needed and reference each entry)

E. LEVEE/FLOODWALL (CONTINUED)

4. Embankment Protection (continued)

f. Is a bedding/filter analysis and design attached? ☐ Yes ☐ No

g. Describe the analysis used for other kinds of protection used (include copies of the design analysis):

Attach engineering analysis to support construction plans.

5. Embankment And Foundation Stability

a. Identify locations and describe the basis for selection of critical location for analysis:

☐ Overall height: Sta. ; height ft

☐ Limiting foundation soil strength:

Sta. depth to

strength ϕ = degrees, c = psf

slope SS = (h) to (v)

(Repeat as needed on an added sheet for additional locations)

b. Specify the embankment stability analysis methodology used (e.g., circular arc, sliding block, infinite slope, etc.):

c. Summary of stability analysis results:

Case	Loading Conditions	Critical Safety Factor	Criteria (Min.)
I	End of construction		1.3
II	Sudden drawdown		1.0
III	Critical flood stage		1.4
IV	Steady seepage at flood stage		1.4
VI	Earthquake (Case I)		1.0

(Reference: USACE EM-1110-2-1913 Table 6-1)

d. Was a seepage analysis for the embankment performed? ☐ Yes ☐ No

If Yes, describe methodology used.

e. Was a seepage analysis for the foundation performed? ☐ Yes ☐ No

f. Were uplift pressures at the embankment landside toe checked? ☐ Yes ☐ No

g. Were seepage exit gradients checked for piping potential? ☐ Yes ☐ No

h. The duration of the base flood hydrograph against the embankment is hours.

Attach engineering analysis to support construction plans.

E. LEVEE/FLOODWALL (CONTINUED)

6. Floodwall And Foundation Stability

a. Describe analysis submittal based on Code (check one):

☐ UBC (1988) or ☐ Other (specify)

b *Foundation scour protection is provided check box*

☐ Overturning ☐ Sliding If not, explain:

c. Loading included in the analyses were:

☐ Lateral earth @ P_A = psf; P_p = psf

☐ Surcharge-Slope @ ☐ surface psf

☐ Wind @ P_w = psf

☐ Seepage (Uplift); ☐ Earthquake @ P_{eq} = %g

☐ 1%-annual-chance significant wave height: ft.

☐ 1%-annual-chance significant wave period: sec.

d. Summary of Stability Analysis Results: Factors of Safety.

Itemize for each range in site layout dimension and loading condition limitation for each respective reach.

Loading Condition	Criteria (Min)		Sta	To	Sta	To
	Overturn	Sliding	Overturn	Sliding	Overturn	Sliding
Dead & Wind	1.5	1.5				
Dead & Soil	1.5	1.5				
Dead, Soil, Flood, & Impact	1.5	1.5				
Dead, Soil, & Seismic	1.3	1.3				

(Ref: FEMA 114 Sept 1986; USACE EM 1110-2-2502)

(Note: Extend table on an added sheet as needed and reference)

e Foundation bearing strength for each soil type:

Bearing Pressure	Sustained Load (psf)	Short Term Load (psf)
Computed design maximum		
Maximum allowable		

f. Foundation scour protection ☐ is, ☐ is not provided. If provided, attach explanation and supporting documentation:

Attach engineering analysis to support construction plans.

E. LEVEE/FLOODWALL (CONTINUED)

7. Settlement

a. Has anticipated potential settlement been determined and incorporated into the specified construction elevations to maintain the established freeboard margin? ☐ Yes ☐ No

b. The computed range of settlement is ft. to ft.

c. Settlement of the levee crest is determined to be primarily from :

☐ Foundation consolidation
☐ Embankment compression
☐ Other (Describe):

d. Differential settlement of floodwalls ☐ has ☐ has not been accommodated in the structural design and construction.

Attach engineering analysis to support construction plans.

8 Interior Drainage

a. Specify size of each interior watershed:

Draining to pressure conduit: acres
Draining to ponding area: acres

b. Relationships Established

Ponding elevation vs. storage	☐ Yes	☐ No
Ponding elevation vs. gravity flow	☐ Yes	☐ No
Differential head vs. gravity flow	☐ Yes	☐ No

c. The river flow duration curve is enclosed: ☐ Yes ☐ No

d. Specify the discharge capacity of the head pressure conduit: cfs

e. Which flooding conditions were analyzed?

• Gravity flow (Interior Watershed)	☐ Yes	☐ No
• Common storm (River Watershed)	☐ Yes	☐ No
• Historical ponding probability	☐ Yes	☐ No
• Coastal wave overtopping	☐ Yes	☐ No

If No for any of the above, attach explanation.

f. Interior drainage has been analyzed based on joint probability of interior and exterior flooding and the capacities of pumping and outlet facilities to provide the established level of flood protection. ☐ Yes ☐ No

If No, attach explanation.

g. The rate of seepage through the levee system for the base flood is cfs

h. The length of levee system used to drive this seepage rate in item g: ft.

E. LEVEE/FLOODWALL (CONTINUED)

8. *Interior Drainage (continued)*

i. Will pumping plants be used for interior drainage? ☐ Yes ☐ No

If Yes, include the number of pumping plants.
For each pumping plant, list:

	Plant #1	Plant #2
The number of pumps		
The ponding storage capacity		
The maximum pumping rate		
The maximum pumping head		
The pumping starting elevation		
The pumping stopping elevation		
Is the discharge facility protected?		
Is there a flood warning plan?		
How much time is available between warning and flooding?		

Will the operation be automatic? ☐ Yes ☐ No

If the pumps are electric, are there backup power sources? ☐ Yes ☐ No

(Reference: USACE EM-1110-2-3101, 3102, 3103, 3104, and 3105)

Include a copy of supporting documentation of data and analysis. *Provide a map showing the flooded area and maximum ponding elevations for all* interior watersheds that result in flooding.

9. Other Design Criteria

a. The following items have been addressed as stated

Liquefaction ☐ is ☐ is not a problem
Hydrocompaction ☐ is ☐ is not a problem
Heave differential movement due to soils of high shrink/swell ☐ is ☐ is not a problem

b. For each of these problems, state the basic facts and corrective action taken:

Attach supporting documentation

c. If the levee/floodwall is new or enlarged, will the structure adversely impact flood levels and/or flow velocities floodside of the structure?
☐ Yes ☐ No

Attach supporting documentation

d. Sediment Transport Considerations:

Was sediment transport considered? ☐ Yes ☐ No If Yes, then fill out Section F (Sediment Transport).
If No, then attach your explanation for why sediment transport was not considered.

E. LEVEE/FLOODWALL (CONTINUED)

10. Operational Plan And Criteria

a. Are the planned/installed works in full compliance with Part 65.10 of the NFIP Regulations? ☐ Yes ☐ No

b. Does the operation plan incorporate all the provisions for closure devices as required in Paragraph 65.10(c)(1) of the NFIP regulations?
☐ Yes ☒ No

c. Does the operation plan incorporate all the provisions for interior drainage as required in Paragraph 65.10(c)(2) of the NFIP regulations?
☐ Yes ☐ No

If the answer is No to any of the above, please attach supporting documentation.

11. Maintenance Plan

a. Are the planned/installed works in full compliance with Part 65.10 of the NFIP Regulations? ☒ Yes ☐ No
If No, please attach supporting documentation.

12. Operations and Maintenance Plan

Please attach a copy of the formal Operations and Maintenance Plan for the levee/floodwall.

F. SEDIMENT TRANSPORT

Flooding Source:

Name of Structure:

If there is any indication from historical records that sediment transport (including scour and deposition) can affect the Base Flood Elevation (BFE); and/or based on the stream morphology, vegetative cover, development of the watershed and bank conditions, there is a potential for debris and sediment transport (including scour and deposition) to affect the BFEs, then provide the following information along with the supporting documentation:

Sediment load associated with the base flood discharge: Volume acre-feet

Debris load associated with the base flood discharge: Volume acre-feet

Sediment transport rate (percent concentration by volume)

Method used to estimate sediment transport:

Most sediment transport formulas are intended for a range of hydraulic conditions and sediment sizes; attach a detailed explanation for using the selected method.

Method used to estimate scour and/or deposition:

Method used to revise hydraulic or hydrologic analysis (model) to account for sediment transport:
Please note that bulked flows are used to evaluate the performance of a structure during the base flood; however, FEMA does not map BFEs based on bulked flows.

If a sediment analysis has not been performed, an explanation as to why sediment transport (including scour and deposition) will not affect the BFEs or structures must be provided.

FEDERAL EMERGENCY MANAGEMENT AGENCY

PAYMENT INFORMATION FORM

Community Name: CLARK COUNTY (COMMUNITY PANEL #32003)

Project Identifier: ADAM AND EVE NIGHT CLUB

THIS FORM MUST BE MAILED, ALONG WITH THE APPROPRIATE FEE, TO ONE OF TWO POST OFFICE BOXES (SEE BELOW) OR FAXED TO THE FAX NUMBER BELOW.

Type of Request:

MT-1 application fee
MT-2 application fee } (Insert **3173** as the P.O. Box number in the address below)

External Data Requests (EDRs) (Insert **398** as the P.O. Box number in the address below)

Federal Emergency Management Agency
Revisions Fee-Collection System Administrator
P.O. Box 3173
Merrifield, Virginia 22116
Fax: (703) 849-0282
Phone: (703) 849-0432

Request No.: (if known) Amount: $4,000.00

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

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

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

COMPLETE THIS SECTION ONLY IF PAYING BY CREDIT CARD

EXP. DATE

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

CARD NUMBER

Date Signature

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

ADDRESS:
(for your credit card receipt-please print or type)

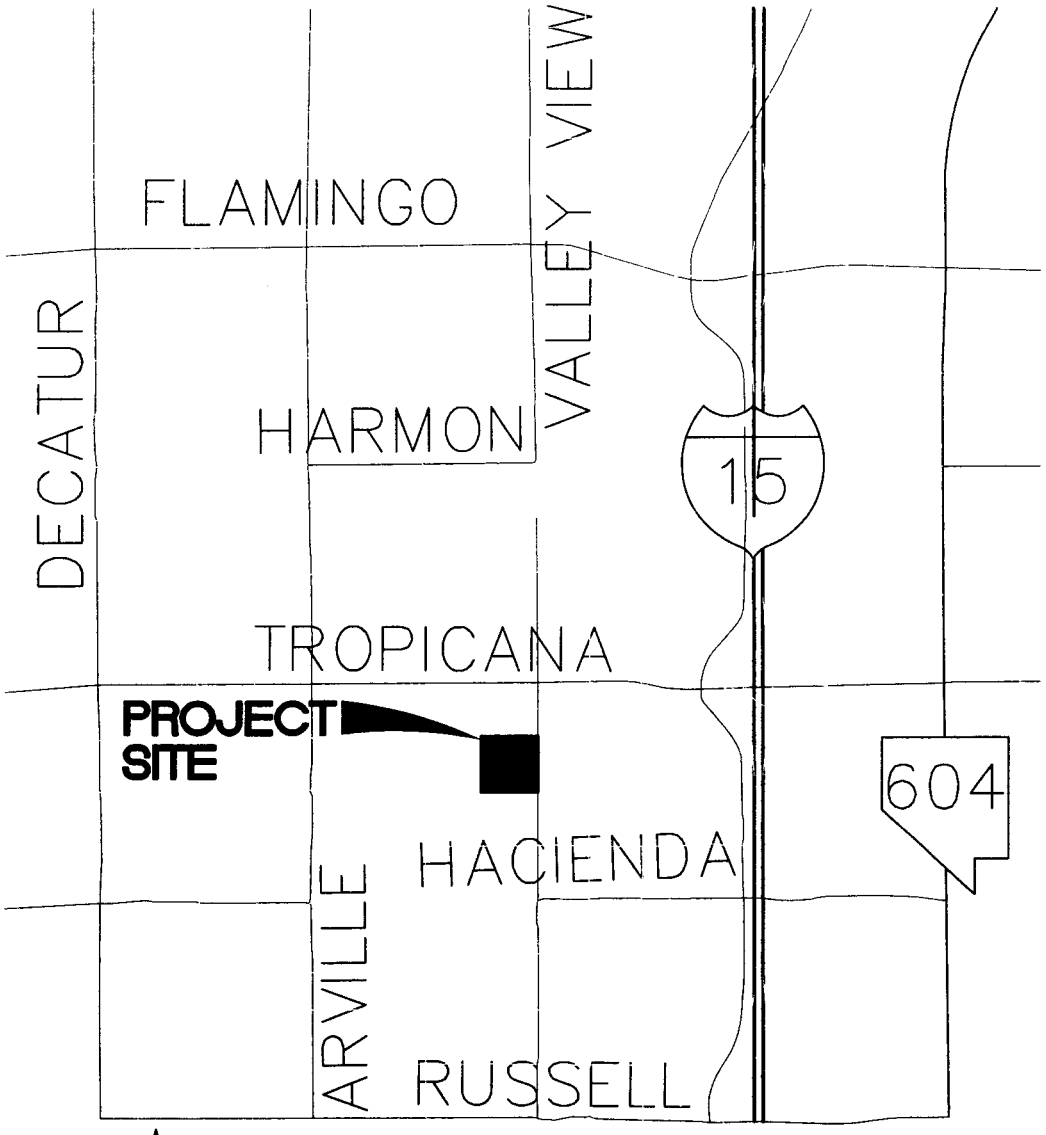
DAYTIME PHONE:

FORM 3 ATTACHMENT

Form 3 - (B.4. and C.4.)

Maintenance agreements pertaining to the facilities require persistent and immediate removal of any accumulated sediment and debris.

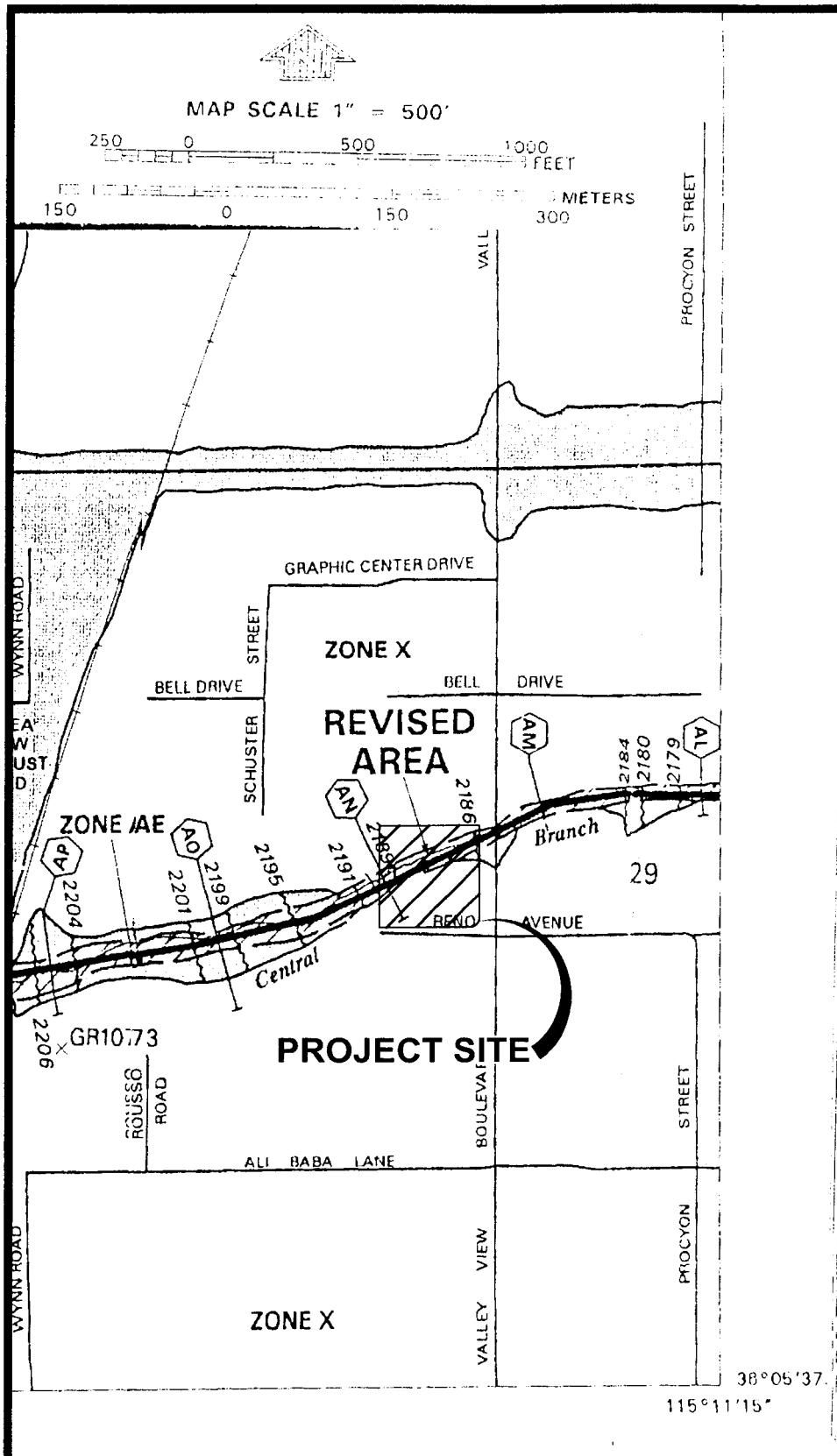
FIGURES



VICINITY MAP

NOT TO SCALE

DRAWN BY: SOA	SCALE: N.T.S.	**Vicinity Map (Figure 1)**	PROJECT No.: 7162
CHECKED BY:	DATE: 04/07/04		SHEET No. **1**
LOCHSA ENGINEERING 5828 SPRING MTN. RD. SUITE 308 LAS VEGAS, NV 89146 P: 702 365-9312, F: 702 365-9317		**ADAM AND EVE NIGHT CLUB**	SHEET 1 OF 1





PANEL 2552E

FIRM

FLOOD INSURANCE RATE MAP

CLARK COUNTY, NEVADA AND INCORPORATED AREAS

PANEL 2552 OF 4090

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
CLARK COUNTY, UNINCORPORATED AREAS	320003	2552	E

REVISED TO REFLECT LOMR DATED JUN 19 2003

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

MAP NUMBER
32003C2552E

MAP REVISED:
SEPTEMBER 27, 2002

Federal Emergency Management Agency

DRAWN BY:	WSB	SCALE:	1" = 500'
CHECKED BY:	HMN	DATE:	3-9-05

FLOOD INSURANCE RATE MAP (FIGURE 2)

PROJECT No.: 7162.17

SHEET No. **2**

SHEET 1 OF 1

LOCHSA ENGINEERING
6345 S. JONES BLVD. STE 100
LAS VEGAS, NV 89118
P: 702 365-9312, F: 702 365-9317

ADAM & EVE NIGHT CLUB

WSPG ANALYSIS OF THE EXISTING 20'x5'-9" CONCRETE ARCH CULVERT WITH THE UPSTREAM AND DOWNSTREAM TRANSITION STRUCTURES

```
0
T1 ADAM AND EVE NIGHT CLUB - FEMA CLOMR APPLICATION
T2 EXISTING ONSITE 20'x 5.75' ARCH CULVERT
T3 TROPICANA WASH-CENTRAL BRANCH (ACROSS PARCEL APN 162-30-501-043)
SO   1408.002180.30  1                              2185.82
R    1408.002180.30  1       .013
TS   1418.002180.38  2       .013
R    1428.002180.45  2       .013
R    1574.002181.55  2       .013
R    1652.002182.15  2       .013
R    1667.002183.09  2       .013
R    1682.002184.00  2       .013
R    1702.002185.21  2       .013
TS   1732.002187.00  4       .013
R    1734.002187.18  4       .013
TS   1735.002187.19  3       .028
R    1798.002188.30  3       .028
R    2107.072198.93  5       .045
SH   2107.072198.93  5                              2200.70
CD   1  3   1   2.00   5.00   22.00
CD   2  6   0   0.00
CD   3  5
CD   4  3   1   0.67   5.00   32.50
CD   5  5
PTS  223  0.00  0.00 20.00  0.00 20.00  1.33 19.00  3.66 18.00  4.34
PTS      17.00  4.75 16.00  5.02 15.00  5.24 14.00  5.42 13.00  5.57
PTS      12.00  5.67 11.00  5.72 10.00  5.74  9.00  5.72  8.00  5.67
PTS       7.00  5.57  6.00  5.42  5.00  5.24  4.00  5.02  3.00  4.75
PTS       2.00  4.34  1.00  3.66  0.00  1.33
PTS  396  0.00202.45  1.18199.28  6.17199.26  7.42199.29 24.66198.80
PTS     25.95198.80 27.44198.81 29.05198.78 76.39198.68 91.81198.77
PTS     93.30200.50 97.10200.61103.90201.16108.33201.42118.34202.03
PTS    130.21202.30136.42202.30148.91202.30177.19201.59196.98201.99
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PTS    397.65191.45400.28190.30404.79189.78416.78189.26420.45189.01
PTS    422.88188.86427.40188.30437.85189.37444.67190.30450.00192.30
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PTS    488.11196.60490.41196.65492.47196.78522.27198.30533.82198.30
PTS    536.51198.30539.85198.30549.91198.30584.99198.30595.48198.75
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PTS     149.12204.30162.92204.64164.20204.67167.57204.30171.58204.30
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PTS     184.25202.30186.06201.60188.03201.07189.99200.30191.99200.30
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PTS     333.01200.30334.24200.90341.11202.30342.39202.35350.83202.67
PTS     351.82202.70352.97202.74361.28203.00365.63203.09368.70203.18
PTS     403.69204.30404.69204.39406.47204.50408.54204.69414.01205.25
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PTS       479.47208.12
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DATE: 3/24/2005
TIME: 16:42

F0515P

WATER SURFACE PROFILE - CHANNEL DEFINITION LISTING

CHAN CODE	SECT NO	CHN TYPE	NO OF PIERS	AVE PIER WIDTH	HEIGHT 1 DIAMETER	BASE WIDTH	SL	ZR	INV DROP	Y(1)	Y(2)	Y(3)	Y(4)	Y(5)	Y(6)	Y(7)	Y(8)	Y(9)	Y(10)
01	1	3	1	2.00	5.00	22.00	0.00	0.00	0.00										
02	2	6	0	0.00															
03	3	5	0	0.00															
04	4	3	1	0.67	5.00	32.00	0.00	0.00	0.00										
05	5	5	0	0.00															

F0515P

WATER SURFACE PROFILE - CROSS SECTION POINT LISTING

CARD CODE	SECT NO	NO OF POINTS	X(1) , Y(1) X(8) , Y(8)	X(2) , Y(2) X(9) , Y(9)	X(3) , Y(3) X(10) ,Y(10)	X(4) , Y(4) X(11) ,Y(11)	X(5) , Y(5) X(N) , Y(N)	X(6) , Y(6) X(N+1),Y(N+1)	X(7) , Y(7) X(99) ,Y(99)
PTS	2	23	0.00 0.00	20.00 0.00	20.00 1.33	14.00 3.66	18.00 4.34	17.00 4.75	16.00 5.02
PTS			15.00 5.24	14.00 5.42	13.00 5.57	12.00 5.67	11.00 5.72	10.00 5.74	9.00 5.72
PTS			8.00 5.67	7.00 5.57	6.00 5.42	5.00 5.24	4.00 5.02	3.00 4.75	2.00 4.34
PTS			1.00 3.66	0.00 1.33					
PTS	3	96	0.00 202.46	1.18 199.28	6.17 199.26	7.42 199.29	24.66 198.80	25.95 198.80	27.44 198.81
PTS			29.01 198.78	76.39 198.68	91.81 198.77	95.30 200.50	97.10 200.61	103.90 201.16	108.34 201.42
PTS			116.34 202.03	130.21 202.30	136.42 202.30	144.91 202.83	177.19 201.59	196.98 201.99	216.82 202.30
PTS			225.51 202.02	227.72 201.94	273.46 200.30	284.75 199.31	296.08 198.30	299.99 197.80	311.71 196.30
PTS			311.80 196.30	312.38 196.30	312.47 196.30	314.62 196.30	334.86 196.30	341.38 196.30	347.58 196.09
PTS			352.24 196.20	352.99 196.30	362.54 196.30	364.98 196.30	365.12 196.30	384.92 196.30	390.21 194.50
PTS			390.94 194.30	392.01 193.91	395.69 192.30	397.65 191.46	400.28 190.30	404.79 189.78	416.78 189.26
PTS			420.45 189.01	422.88 188.86	427.40 188.30	437.85 189.87	444.67 190.30	450.00 192.30	455.16 194.30
PTS			456.1 194.66	460.31 196.30	462.75 197.32	463.02 197.40	463.17 197.79	464.92 197.72	467.08 197.29
PTS			468.84 196.94	469.77 196.94	479.65 196.90	482.59 196.69	484.45 196.62	485.31 196.57	487.22 196.53
PTS			488.11 196.60	490.41 196.65	492.47 196.78	525.27 198.80	529.82 198.30	536.51 198.30	539.85 198.30
PTS			548.91 198.30	584.99 198.30	595.46 198.75	614.98 199.30	621.75 199.28	629.20 199.15	630.46 199.13
PTS			630.91 199.16	631.53 199.20	632.75 199.14	633.67 199.11	635.53 199.13	644.93 199.20	656.64 199.70
PTS			660.03 201.44	674.18 202.45	686.08 202.36	710.86 201.24	734.54 201.20		
PTS	5	96	3.00 202.30	3.55 202.36	3.71 202.36	4.14 202.37	4.66 202.37	4.89 202.40	5.37 202.38
PTS			9.46 202.47	12.38 202.55	21.44 202.78	44.45 203.30	60.69 203.15	64.76 203.44	65.06 203.48
PTS			65.19 203.46	65.55 203.50	72.98 203.47	74.21 203.45	80.16 203.47	95.38 203.73	103.92 203.80
PTS			107.43 204.10	118.06 204.11	120.97 204.14	121.74 204.12	122.51 204.10	123.25 204.13	127.84 204.07
PTS			129.31 203.95	138.80 203.91	149.12 204.30	162.92 204.43	164.20 204.67	167.57 204.30	171.58 204.30
PTS			175.16 204.30	177.05 204.30	180.60 204.30	183.69 204.03	183.63 202.53	184.25 202.50	186.06 201.60
PTS			186.05 201.07	189.99 200.30	191.99 200.30	196.91 200.30	204.27 200.30	207.02 200.30	214.25 200.32
PTS			218.33 200.31	220.27 200.30	223.17 200.30	226.57 200.15	236.24 199.73	242.35 199.67	246.32 199.65
PTS			250.55 199.60	250.60 199.54	262.14 199.26	262.15 199.25	263.95 199.20	264.93 199.10	266.41 199.02
PTS			275.66 198.93	275.91 198.94	281.54 199.02	287.00 199.10	290.41 199.10	296.01 199.35	314.72 199.76
PTS			333.01 200.30	334.24 200.90	341.11 202.30	342.39 202.35	350.83 202.67	351.82 202.70	352.97 202.74
PTS			361.26 203.00	365.63 203.09	368.70 203.18	405.69 204.30	404.69 204.39	406.47 204.50	408.54 204.69
PTS			414.01 205.25	419.74 205.87	422.08 206.15	425.99 206.10	427.36 206.30	460.14 207.56	469.39 208.01
PTS			469.73 208.02	469.81 208.00	470.49 208.04	472.93 208.08	476.47 208.12		

WATER SURFACE PROFILE - TITLE CARD LISTING

HEADING LINE NO 1 IS -

ADAM AND EVE NIGHT CLUB - FEMA CLOMR APPLICATION

HEADING LINE NO 2 IS -

EXISTING ONSITE 30'x 5.75' ARCH CULVERT

HEADING LINE NO 3 IS -

TROPICANA WASH-CENTRAL BRANCH (ACROSS PARCEL APN 162-30-501-043)

WATER SURFACE PROFILE - ELEMENT CARD LISTING

ELEMENT NO 1 IS A SYSTEM OUTLET
U/S DATA STATION 1408.00 INVERT 2180.30 SECT 1
W S ELEV 2185.82

ELEMENT NO 2 IS A REACH
U/S DATA STATION 1408.00 INVERT 2180.30 SECT 1
N 0.013
RADIUS 0.00 ANGLE 0.00 ANG PT 0.00 MAN H 0

ELEMENT NO 3 IS A TRANSITION
U/S DATA STATION 1418.00 INVERT 2180.38 SECT 2
N 0.013

ELEMENT NO 4 IS A REACH
U/S DATA STATION 1428.00 INVERT 2180.45 SECT 2
N 0.013
RADIUS 0.00 ANGLE 0.00 ANG PT 0.00 MAN H 0

ELEMENT NO 5 IS A REACH
U/S DATA STATION 1574.00 INVERT 2181.55 SECT 2
N 0.013
RADIUS 0.00 ANGLE 0.00 ANG PT 0.00 MAN H 0

ELEMENT NO 6 IS A REACH
U/S DATA STATION 1652.00 INVERT 2182.15 SECT 2
N 0.013
RADIUS 0.00 ANGLE 0.00 ANG PT 0.00 MAN H 0

ELEMENT NO 7 IS A REACH
U/S DATA STATION 1667.00 INVERT 2183.09 SECT 2
N 0.013
RADIUS 0.00 ANGLE 0.00 ANG PT 0.00 MAN H 0

ELEMENT NO 8 IS A REACH
U/S DATA STATION 1682.00 INVERT 2184.00 SECT 2
N 0.013
RADIUS 0.00 ANGLE 0.00 ANG PT 0.00 MAN H 0

ELEMENT NO 9 IS A REACH
U/S DATA STATION 1702.00 INVERT 2185.21 SECT 2
N 0.013
RADIUS 0.00 ANGLE 0.00 ANG PT 0.00 MAN H 0

ELEMENT NO 10 IS A TRANSITION
U/S DATA STATION 1732.00 INVERT 2187.00 SECT 4
N 0.013

ELEMENT NO 11 IS A REACH
U/S DATA STATION 1734.00 INVERT 2187.18 SECT 4
N 0.013
RADIUS 0.00 ANGLE 0.00 ANG PT 0.00 MAN H 0

ELEMENT NO 12 IS A TRANSITION
U/S DATA STATION 1735.00 INVERT 2187.19 SECT 3
N 0.028

ELEMENT NO 13 IS A REACH
U/S DATA STATION 1798.00 INVERT 2188.30 SECT 3
N 0.028
RADIUS 0.00 ANGLE 0.00 ANG PT 0.00 MAN H 0

WATER SURFACE PROFILE - ELEMENT CARD LISTING

WARNING - ADJACENT SECTIONS ARE NOT IDENTICAL - SEE SECTION NUMBERS AND CHANNEL DEFINITIONS

ELEMENT NO 14 IS A REACH

	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
U/S DATA	10.07	195.93	5	0.045	0.00	0.00	0.00	0

ELEMENT NO 15 IS A SYSTEM HEADWORKS

	STATION	INVERT	SECT	W S ELEV
U/S DATA	10.07	195.93	5	200.70

NO EDIT ERRORS ENCOUNTERED-COMPUTATION IS NOW BEGINNING

FQ015P
WATER SURFACE PROFILE LISTING
ADAM AND EVE NIGHT CLUB - FEMA CLOMR APPLICATION
EXISTING ONSITE 20'x 5.75' ARCH CULVERT
TROPICANA WASH-CENTRAL BRANCH (ACROSS PARCEL APN 162-30-501-043)

STATION	INVERT ELEV	DEPTH OF FLOW	W.S. ELEV	Q	VEL	VEL HEAD	ENERGY GRD.EL.	SUPER ELEV	CRITICAL DEPTH		HGT/ DIA	BASE/ ID NO.	ZL	LC	AVE WTR
L/ELEM	SO					SF AVE	HF			NORM DEPTH			ZR		
1408.00	2180.30	5.520	2185.820	800.0	8.04	1.004	2186.824	0.00	3.677		5.00	22.00	0.	1	0.00
TRANSITION	0.00500												0.00		
1118.00	2174.71	2.235	2182.615	800.0	18.04	5.052	2187.667		3.666			2		0	0.00
10.00	0.00700					.011465	0.11			2.637					
1428.00	2180.40	2.222	2182.672	800.0	18.14	5.110	2187.782		3.666			2		0	0.00
78.50	0.00755					.012427	0.98			2.571					
1506.50	2181.01	2.120	2183.162	800.0	18.98	5.504	2188.666		3.666			2		0	0.00
67.41	0.00753					.014334	0.97			2.571					
1574.00	2181.51	2.020	2183.570	800.0	19.91	6.154	2189.724		3.666			2		0	0.00
22.47	0.00764					.015822	0.36			2.553					
1596.47	2181.68	1.988	2183.709	800.0	20.26	6.377	2190.085		3.666			2		0	0.00
51.13	0.00769					.017546	0.87			2.553					
1658.00	2182.19	1.889	2184.039	800.0	21.25	7.013	2191.052		3.666			2		0	0.00
3.54	0.06267					.018467	0.07			1.283					
1655.54	2182.37	1.914	2184.285	800.0	20.98	6.834	2191.119		3.666			2		0	0.00
11.47	0.06267					.016856	0.19			1.283					
1667.00	2183.09	2.010	2185.100	800.0	20.00	6.212	2191.312		3.666			2		0	0.00
5.87	0.06067					.015001	0.09			1.296					
1672.87	2183.45	2.065	2185.511	800.0	19.48	5.890	2191.401		3.666			2		0	0.00
9.13	0.06067					.013405	0.12			1.296					
1682.00	2184.00	2.169	2186.169	800.0	18.57	5.355	2191.524		3.666			2		0	0.00
0.67	0.06050					.012353	0.01			1.297					

WATER SURFACE PROFILE LISTING

AVAN AND EVE NIGHT CLUB - FEMA CLOMR APPLICATION
EXISTING ONSITE 20'x 5.75' ARCH CULVERT
TR PICANA WASH-CENTRAL BRANCH (ACROSS PARCEL APN 162-30-[illegible]-045)

STATION	INVERT ELEV	DEPTH OF FLOW	W.S. ELEV	Q	VEL	VEL HEAD	ENERGY GRD.EL.	SUPER ELEV	CRITICAL DEPTH		HGT/ DIA	BASE/ ID NO.	ZL	NO PIER	AVBPR
L/ELEM	SO					SF AVE	HF			NORM DEPTH			ZR		
1682.67	2184.04	2.1[illegible]	2186.21[illegible]	800.0	18.50	5.315	2191.532		3.66[illegible]			2		0	0.00
7.60	0.06050					.011449	0.09			1.79[illegible]					
1690.27	2184.50	2.2[illegible]	2186.788	800.0	17.64	4.831	2191.619		3.66[illegible]			2		0	0.00
6.39	0.06050					.009897	0.06			1.7[illegible]					
1696.66	2184.89	2.403	2187.290	800.0	16.82	4.392	2191.682		3.66[illegible]			2		0	0.00
5.34	0.06050					.008560	0.05			1.7[illegible]					
1702.00	2185.11	2.525	2187.63[illegible]	800.0	16.04	3.993	2191.728		3.66[illegible]			2		0	0.00
TRANS STR	0.05967					.009230	0.25								
1732.00	2187.09	1.708	2188.79[illegible]	800.0	14.72	3.362	2192.070	0.00	2.66[illegible]		5.00	22.50	0.00	1	0.67
2.00	0.09000					.010006	0.02			2.49[illegible]			0.00		
1734.00	2187.27	1.7[illegible]	2188.9[illegible]	800.0	14.53	3.146	2192.092	0.00	2.6[illegible]		4.00	22.50	0.00	1	0.67
TRANS STR	0.01000					.042672	0.04						0.00		
1735.00	2187.19	2.3[illegible]	2189.[illegible]	800.0	12.99	2.619	2192.189		3.17[illegible]			3		0	0.00
7.35	0.01762					.044593	0.33			2.79[illegible]					
1742.35	2187.32	2.319	2189.63[illegible]	800.0	13.61	2.878	2192.515		3.17[illegible]			3		0	0.00
6.67	0.01762					.051741	0.35			2.79[illegible]					
1749.02	2187.44	2.258	2189.695	800.0	14.28	3.166	2192.861		3.17[illegible]			3		0	0.00
6.11	0.01762					.060103	0.37			2.79[illegible]					
1755.13	2187.55	2.201	2189.746	800.0	14.98	3.482	2193.228		3.17[illegible]			3		0	0.00
5.62	0.01762					.069837	0.39			2.79[illegible]					
1760.75	2187.64	2.146	2189.790	800.0	15.71	3.830	2193.620		3.17[illegible]			3		0	0.00
5.19	0.01762					.081171	0.42			2.79[illegible]					

FQ515P

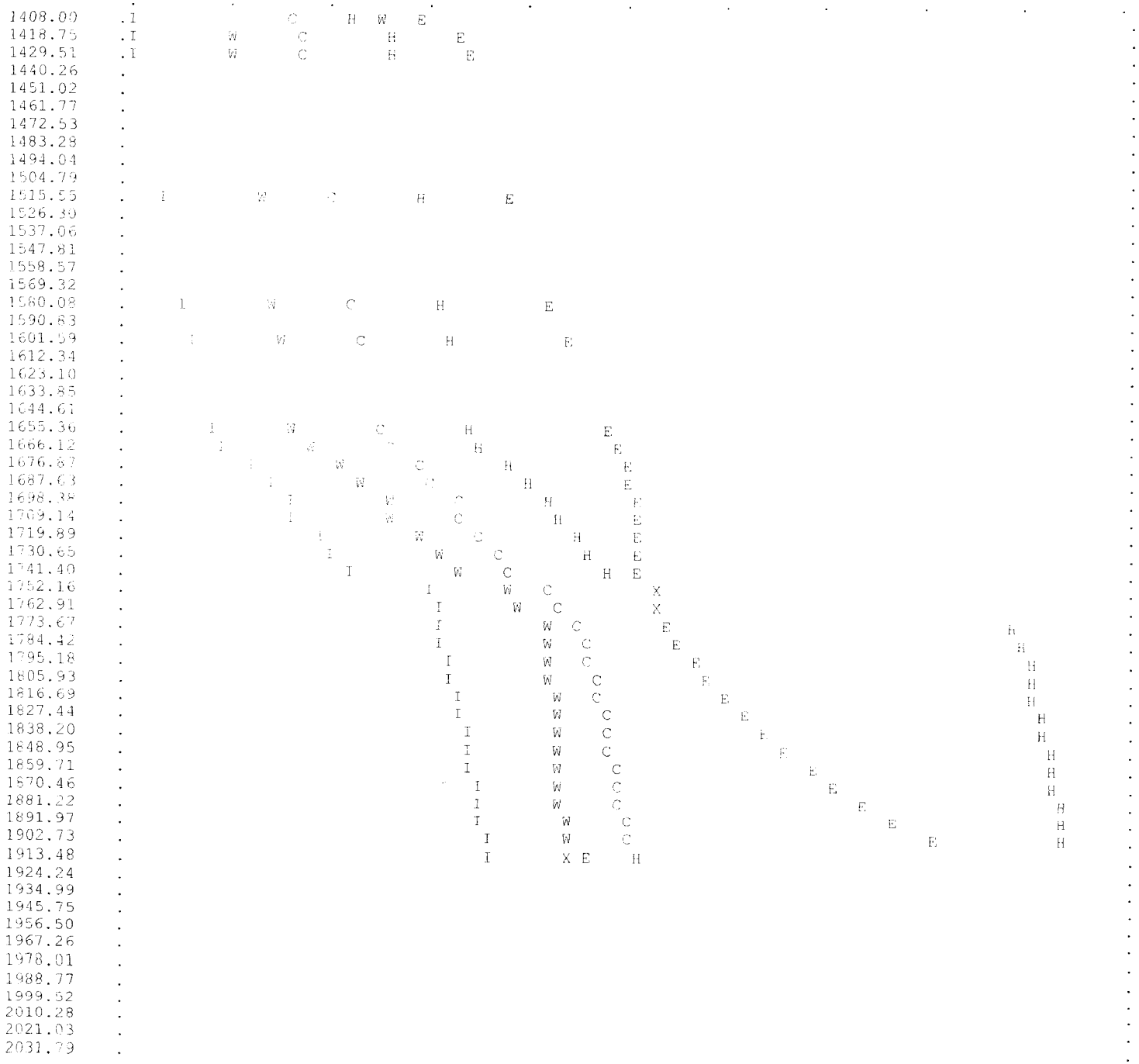
LICENSEE: LOCHSA ENGINEERING

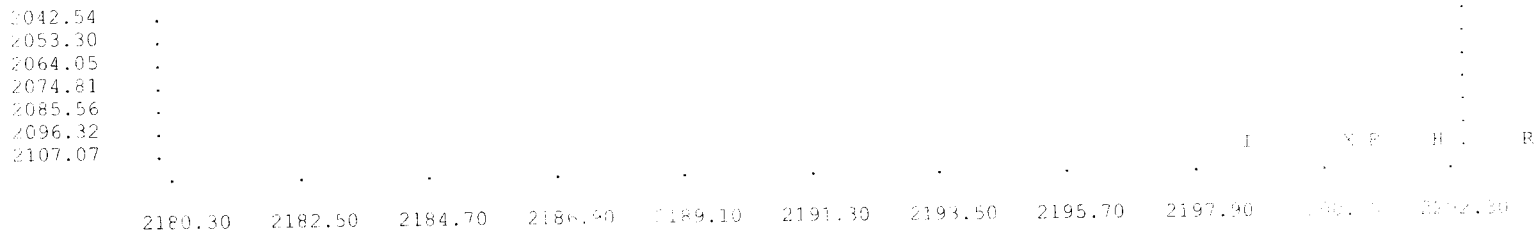
WATER SURFACE PROFILE LISTING

ADAM AND EVE NIGHT CLUB - FEMA CLOMR APPLICATION
EXISTING ONSITE 20'x 5.75' ARCH CULVERT
TROPICANA WASH-CENTRAL BRANCH (ACROSS PARCEL APN 162-30-501-043)

STATION	INVERT ELEV	DEPTH OF FLOW	W.S. ELEV	Q	VEL	VEL HEAD	ENERGY GRD.EL.	SUPER ELEV	CRITICAL DEPTH	HGT/ DIA	NORM DEPTH	ZL	NO PIER	AVBAR
						SF AVE	HF						SF	
L/ELEM	SO													
1165.44	2187.74	2.093	2189.828	800.0	16.47	1.213	2194.041			3.175		0	0.00	
4.84	0.01762					.043877	0.46				2.791			
1226.28	2187.82	2.043	2189.863	800.0	17.09	1.635	2194.498			3.175		0	0.00	
4.50	0.01762					.046446	0.49				2.791			
1285.24	2187.90	1.994	2189.894	800.0	18.12	1.528	2194.492			3.175		0	0.00	
4.42	0.01762					.043677	0.54				2.791			
1349.66	2187.98	1.948	2189.923	800.0	18.88	1.658	2195.531			3.175		0	0.00	
4.04	0.01762					.040660	0.59				2.791			
1393.69	2188.05	1.902	2189.948	800.0	19.64	1.794	2196.117			3.175		0	0.00	
3.84	0.01762					.037654	0.64				2.791			
1437.53	2188.13	1.856	2189.972	800.0	20.43	1.940	2196.852			3.175		0	0.00	
3.68	0.01762					.034416	0.70				2.791			
1481.21	2188.18	1.816	2189.995	800.0	21.23	2.084	2197.459			3.175		0	0.00	
3.51	0.01762					.031465	0.77				2.791			
1524.65	2188.24	1.775	2190.016	800.0	22.00	2.211	2198.227			3.175		0	0.00	
3.35	0.01762					.029684	0.84				2.791			
1568.00	2188.30	1.735	2190.035	800.0	5.88	0.536	2190.571			1.778		0	0.00	
307.63	0.03439					.034411	10.59				1.735			
2105.63	2196.88	1.735	2200.615	800.0	5.68	0.536	2201.151			1.778		0	0.00	
1.44	0.03439					.032462	0.05				1.735			
2107.07	2196.93	1.770	2200.700	800.0	5.66	0.498	2201.198			1.778				

ADAM AND EVE NIGHT CLUB - FEMA CLOMR APPLICATION
EXISTING ONSITE 20'x 5.75' ARCH CULVERT
TWO FICANA WASH-CENTRAL BRANCH (ACROSS PARCEL APN 1[illegible]-50[illegible]-043)


1408.00
1418.75
1429.51
1440.26
1451.02
1461.77
1472.53
1483.28
1494.04
1504.79
1515.55
1526.30
1537.06
1547.81
1558.57
1569.32
1580.08
1590.83
1601.59
1612.34
1623.10
1633.85
1644.61
1655.36
1666.12
1676.87
1687.63
1698.38
1709.14
1719.89
1730.65
1741.40
1752.16
1762.91
1773.67
1784.42
1795.18
1805.93
1816.69
1827.44
1838.20
1848.95
1859.71
1870.46
1881.22
1891.97
1902.73
1913.48
1924.24
1934.99
1945.75
1956.50
1967.26
1978.01
1988.77
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N O T E S

1. GLOSSARY
   I = INVERT ELEVATION
   C = CRITICAL DEPTH
   W = WATER SURFACE ELEVATION
   H = HEIGHT OF CHANNEL
   E = ENERGY GRADE LINE
   X = CURVES CROSSING OVER
   B = BRIDGE ENTRANCE OR EXIT
   * = WALL ENTRANCE OR EXIT
2. STATIONS FOR POINTS AT A JUMP MAY NOT BE PLOTTED EXACTLY

REVISED HEC-RAS ANALYSIS (REVISED EFFECTIVE MODEL) OF THE TROPICANA WASH BASED ON THE 100-YEAR FLOW RATE OF 800 CFS

HEC-RAS Plan: Upper River: Tropicana Wash Reach: Tropicana Wash

Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
Tropicana Wash	63.711	PF 1	1818.00	2222.00	2229.87	2226.38	2230.52	0.000530	6.47	281.10	62.19	0.41
Tropicana Wash	63.711	PF 2	1818.00	2222.00	2229.87	2226.38	2230.52	0.000530	6.47	281.10	62.19	0.41
Tropicana Wash	63.703		Culvert									
Tropicana Wash	63.691	PF 1	1818.00	2221.35	2227.32		2228.43	0.002685	8.46	214.82	55.00	0.61
Tropicana Wash	63.691	PF 2	1818.00	2221.35	2227.32		2228.43	0.002685	8.46	214.82	55.00	0.61
Tropicana Wash	63.631	PF 1	1818.00	2217.65	2224.75	2224.75	2226.69	0.010010	11.18	163.09	177.36	0.99
Tropicana Wash	63.631	PF 2	1818.00	2217.65	2224.75	2224.75	2226.69	0.010010	11.18	163.09	177.36	0.99
Tropicana Wash	63.569	PF 1	1818.00	2214.00	2218.15	2218.15	2219.22	0.013219	8.32	218.48	101.85	1.00
Tropicana Wash	63.569	PF 2	1818.00	2214.08	2219.15	2219.15	2221.00	0.013722	10.90	166.75	45.90	1.01
Tropicana Wash	63.552	PF 1	1818.00	2214.00	2217.84		2218.11	0.002205	4.20	434.86	168.57	0.45
Tropicana Wash	63.552	PF 2	1818.00	2214.00	2218.76		2218.91	0.000805	3.09	613.18	224.41	0.29
Tropicana Wash	63.505	PF 1	1818.00	2210.00	2217.72	2215.31	2217.80	0.000585	2.34	776.97	247.09	0.23
Tropicana Wash	63.505	PF 2	1818.00	2210.00	2218.72	2215.31	2218.77	0.000267	1.75	1051.53	304.32	0.16
Tropicana Wash	63.488	PF 1	1818.00	2209.75	2216.83	2216.83	2217.59	0.011605	7.55	290.90	192.29	0.84
Tropicana Wash	63.488	PF 2	1818.00	2209.75	2217.03	2217.03	2218.55	0.015255	9.89	184.55	65.34	0.99
Tropicana Wash	63.456	PF 1	1818.00	2208.00	2214.58	2213.75	2214.69	0.001685	3.81	793.10	486.75	0.33
Tropicana Wash	63.456	PF 2	1818.00	2208.00	2214.58	2213.75	2214.69	0.001685	3.81	793.10	486.75	0.33
Tropicana Wash	63.410	PF 1	1818.00	2200.00	2214.62	2206.52	2214.63	0.000034	0.83	2788.58	711.49	0.05
Tropicana Wash	63.410	PF 2	1818.00	2200.00	2214.62	2206.52	2214.63	0.000034	0.83	2788.58	711.49	0.05
Tropicana Wash	63.397		Culvert									
Tropicana Wash	63.389	PF 1	750.00	2200.00	2205.69	2205.69	2208.50	0.023664	13.46	55.72	20.16	1.01
Tropicana Wash	63.389	PF 2	750.00	2200.00	2205.69	2205.69	2208.50	0.023643	13.46	55.73	20.17	1.00
Tropicana Wash	63.379	PF 1	800.00	2202.00	2205.65		2206.03	0.005922	4.97	160.85	241.96	0.49
Tropicana Wash	63.379	PF 2	800.00	2202.00	2206.45		2206.69	0.002827	3.98	200.80	278.74	0.35
Tropicana Wash	63.339	PF 1	800.00	2200.69	2203.92	2203.46	2204.29	0.012642	4.91	162.98	107.27	0.65
Tropicana Wash	63.339	PF 2	800.00	2200.94	2204.64		2205.42	0.018648	7.10	112.67	43.10	0.77
Tropicana Wash	63.286	PF 1	800.00	2198.30	2201.47		2201.66	0.006834	3.51	228.17	156.41	0.51
Tropicana Wash	63.286	PF 2	800.00	2198.30	2202.23		2202.63	0.005698	5.06	157.99	50.00	0.50
Tropicana Wash	63.245	PF 1	800.00	2196.63	2198.40	2198.40	2198.90	0.031036	5.69	140.52	144.86	1.02
Tropicana Wash	63.245	PF 2	800.00	2196.63	2199.19	2199.19	2200.27	0.026264	8.36	95.66	44.80	1.01
Tropicana Wash	63.186	PF 1	800.00	2186.00	2189.17	2189.17	2190.17	0.009363	8.04	99.53	50.17	1.01
Tropicana Wash	63.186	PF 2	800.00	2186.00	2189.94	2189.94	2191.63	0.010625	10.41	76.86	23.20	1.01
Tropicana Wash	63.119	PF 1	800.00	2180.28	2183.36		2184.02	0.006086	6.57	121.84	49.53	0.74
Tropicana Wash	63.119	PF 2	800.00	2180.30	2183.64	2183.64	2185.32	0.010871	10.43	76.74	23.00	1.01
Tropicana Wash	63.113	PF 1	800.00	2178.45	2183.52	2181.06	2183.87	0.000909	4.72	169.39	55.25	0.37
Tropicana Wash	63.113	PF 2	800.00	2178.45	2183.52	2181.06	2183.87	0.000909	4.72	169.39	55.25	0.37

HEC-RAS Version 3.1.2 April 2004
U.S. Army Corp of Engineers
Hydrologic Engineering Center
609 Second Street
Davis, California

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

PROJECT DATA
Project Title: West
Project File : West.prj
Run Date and Time: 3/9/2005 4:39:42 PM

Project in English units

Project Description:
FIS - Tropicana Wash

PLAN DATA

Plan Title: Upper
Plan File : g:\DRAINAGE\7162.17\HECRAS\Revised west\West.p01

Geometry Title: Upper
Geometry File : g:\DRAINAGE\7162.17\HECRAS\Revised west\West.g04

Flow Title : 100 Year Flow Event - Upper
Flow File : g:\DRAINAGE\7162.17\HECRAS\Revised west\West.f01

Plan Summary Information:

Number of:	Cross Sections	= 17	Multiple Openings	=	0
	Culverts	= 2	Inline Structures	=	0
	Bridges	= 0	Lateral Structures	=	0

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

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

Encroachment Data
Equal Conveyance = True

Left Offset = 0
Right Offset = 0

River = Tropicana Wash Reach = Tropicana Wash

RS	Profile	Method	Value1	Value2
63.569	PF 2	1	405	450.9
63.488	PF 2	1	187	254.5
63.339	PF 2	1	213.6	256.7
63.286	PF 2	1	156	206
63.245	PF 2	1	235.2	280
63.186	PF 2	1	410.8	434
63.119	PF 2	1	240	263

FLOW DATA

Flow Title: 100 Year Flow Event - Upper
Flow File : g:\DRAINAGE\7162.17\HECRAS\Revised west\West.f01

Flow Data (cfs)

River	Reach	RS	PF 1	PF 2
Tropicana Wash	Tropicana Wash	63.711	1818	1818
Tropicana Wash	Tropicana Wash	63.389	750	750
Tropicana Wash	Tropicana Wash	63.379	800	800
Tropicana Wash	Tropicana Wash	63.113	800	800

Boundary Conditions

River	Reach	Profile	Upstream	Downstream
Tropicana Wash	Tropicana Wash	PF 1	Critical	Known WS = 2183.52

GEOMETRY DATA

Geometry Title: Upper
Geometry File : g:\DRAINAGE\7162.17\HECRAS\Revised west\West.g04

CROSS SECTION

RIVER: Tropicana Wash
REACH: Tropicana Wash RS: 63.711

INPUT
Description: Upstream X-Section from culvert crossing at Arville
Station Elevation Data num= 22

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2229	11.7	2228	86	2228	105	2229	127	2229.5
193.7	2229.5	275.7	2230	319	2230	331.7	2229	335.7	2227
338.75	2225	340.75	2222	359	2222	376.75	2222	377.75	2225
379	2226	380	2227	381	2228	382	2229	383	2230
409	2231	438	2232						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.035	335.7	.02	382	.035

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
335.7	382	106.55	106.14	105.07	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
0	341.99		F
378.01	438		F

Left Levee Station= 300 Elevation=

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	2230.52	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.65	Wt. n-Val.		0.020	
W.S. Elev (ft)	2229.87	Reach Len. (ft)	106.55	106.14	105.07
Crit W.S. (ft)	2226.38	Flow Area (sq ft)		281.10	
E.G. Slope (ft/ft)	0.000530	Area (sq ft)	12.26	326.72	0.38
Q Total (cfs)	1818.00	Flow (cfs)		1818.00	
Top Width (ft)	62.19	Top Width (ft)	15.03	46.30	0.87
Vel Total (ft/s)	6.47	Avg. Vel. (ft/s)		6.47	
Max Chl Dpth (ft)	7.87	Hydr. Depth (ft)		7.80	
Conv. Total (cfs)	78937.6	Conv. (cfs)		78937.6	
Length Wtd. (ft)	106.14	Wetted Per. (ft)		38.26	
Min Ch El (ft)	2222.00	Shear (lb/sq ft)		0.24	
Alpha	1.00	Stream Power (lb/ft s)		1.57	
Frctn Loss (ft)		Cum Volume (acre-ft)	6.12	22.92	3.33
C & E Loss (ft)		Cum SA (acres)	3.13	7.67	2.94

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

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	2230.52	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.65	Wt. n-Val.		0.020	
W.S. Elev (ft)	2229.87	Reach Len. (ft)	106.55	106.14	105.07
Crit W.S. (ft)	2226.38	Flow Area (sq ft)		281.10	
E.G. Slope (ft/ft)	0.000530	Area (sq ft)	12.26	326.72	0.38
Q Total (cfs)	1818.00	Flow (cfs)		1818.00	
Top Width (ft)	62.19	Top Width (ft)	15.03	46.30	0.87
Vel Total (ft/s)	6.47	Avg. Vel. (ft/s)		6.47	
Max Chl Dpth (ft)	7.87	Hydr. Depth (ft)		7.80	
Conv. Total (cfs)	78937.6	Conv. (cfs)		78937.6	
Length Wtd. (ft)	106.14	Wetted Per. (ft)		38.26	
Min Ch El (ft)	2222.00	Shear (lb/sq ft)		0.24	
Alpha	1.00	Stream Power (lb/ft s)		1.57	
Frctn Loss (ft)		Cum Volume (acre-ft)	6.27	23.44	3.03
C & E Loss (ft)		Cum SA (acres)	3.49	5.59	2.57

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

CULVERT

RIVER: Tropicana Wash
REACH: Tropicana Wash RS: 63.703

INPUT
Description: Culvert Crossing at Arville
Distance from Upstream XS = 9
Deck/Roadway Width = 70
Weir Coefficient = 2.6
Upstream Deck/Roadway Coordinates

num= 7

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
0	2228	2220	81	2228	2220	129	2229	2220
277	2230	2220	382	2230	2220	409	2231	2220
438	2232	2220						

Upstream Bridge Cross Section Data

Station Elevation Data num= 22

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2229	11.7	2228	86	2228	105	2229	127	2229.5
193.7	2229.5	275.7	2230	319	2230	331.7	2229	335.7	2227
338.75	2225	340.75	2222	359	2222	376.75	2222	377.75	2225
379	2226	380	2227	381	2228	382	2229	383	2230
409	2231	438	2232						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.035	335.7	.02	382	.035

Bank Sta: Left Right Coeff Contr. Expan.

335.7 382 .3 .5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
0	341.99		F
378.01	438		F

Left Levee Station= 300 Elevation=

Downstream Deck/Roadway Coordinates

num= 7

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
0	2227	2220	50	2228	2220	148	2229	2220
261	2230	2220	433	2231	2220	491	2232	2220
596	2232	2220						

Downstream Bridge Cross Section Data

Station Elevation Data num= 29

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2227	25	2228	144	2229	197	2230	261	2230
279	2229	295	2228	296	2227	298	2226	299	2225
301	2224	302.5	2221.35	307	2221.35	314	2221.35	317	2221.35
320	2221.35	322	2221.35	328	2221.35	335	2221.35	338	2221.35
338	2225	340	2226	342	2227	344	2228	345	2229
348	2230	543	2230	576	2231	596	2232		

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.035	295	.02	302.5	.028	338	.02	348	.035

Bank Sta: Left Right Coeff Contr. Expan.

295 348 .3 .5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
0	301.99		F
338.01	596		F

Upstream Embankment side slope = 0 horiz. to 1.0 vertical
Downstream Embankment side slope = 0 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow = .95
Elevation at which weir flow begins =
Energy head used in spillway design =
Spillway height used in design =
Weir crest shape = Broad Crested

Number of Culverts = 1

Culvert Name	Shape	Rise	Span
Culvert #1	Box	5.8	10

FHWA Chart # 8 - flared wingwalls
FHWA Scale # 1 - Wingwall flared 30 to 75 deg.
Solution Criteria = Highest U.S. EG

Culvert Upstrm Dist	Length	Top n	Bottom n	Depth Blocked	Entrance Loss Coef	Exit Loss Coef
9	85.4	.013	.013	0	.2	1

Number of Barrels = 3
Upstream Elevation = 2221.885
Centerline Stations

Sta.	Sta.	Sta.
347.8	360	372.5

Downstream Elevation = 2221.885
Centerline Stations

Sta.	Sta.	Sta.
307.8	320	332.5

CULVERT OUTPUT Profile #PF 1 Culv Group: Culvert #1

Q Culv Group (cfs)	1783.30	Culv Full Len (ft)	26.85
# Barrels	3	Culv Vel US (ft/s)	10.25
Q Barrel (cfs)	594.43	Culv Vel DS (ft/s)	10.93
E.G. US. (ft)	2230.52	Culv Inv El Up (ft)	2221.89
W.S. US. (ft)	2229.87	Culv Inv El Dn (ft)	2221.89
E.G. DS (ft)	2228.43	Culv Frctn Ls (ft)	1.01
W.S. DS (ft)	2227.32	Culv Exit Loss (ft)	0.74
Delta EG (ft)	2.08	Culv Entr Loss (ft)	0.33
Delta WS (ft)	2.55	Q Weir (cfs)	34.70
E.G. IC (ft)	2230.52	Weir Sta Lft (ft)	341.99
E.G. OC (ft)	2229.84	Weir Sta Rgt (ft)	378.01
Culvert Control	Inlet	Weir Submerg	0.00
Culv WS Inlet (ft)	2227.69	Weir Max Depth (ft)	0.52
Culv WS Outlet (ft)	2227.32	Weir Avg Depth (ft)	0.52
Culv Nml Depth (ft)		Weir Flow Area (sq ft)	18.58
Culv Crt Depth (ft)	4.79	Min El Weir Flow (ft)	2230.25

Warning: During the culvert outlet computations, the program could not balance the culvert/weir flow. The reported outlet energy grade answer may not be valid.

CULVERT OUTPUT Profile #PF 2 Culv Group: Culvert #1

Q Culv Group (cfs)	1783.30	Culv Full Len (ft)	26.85
# Barrels	3	Culv Vel US (ft/s)	10.25
Q Barrel (cfs)	594.43	Culv Vel DS (ft/s)	10.93
E.G. US. (ft)	2230.52	Culv Inv El Up (ft)	2221.89
W.S. US. (ft)	2229.87	Culv Inv El Dn (ft)	2221.89
E.G. DS (ft)	2228.43	Culv Frctn Ls (ft)	1.01
W.S. DS (ft)	2227.32	Culv Exit Loss (ft)	0.74
Delta EG (ft)	2.08	Culv Entr Loss (ft)	0.33
Delta WS (ft)	2.55	Q Weir (cfs)	34.70
E.G. IC (ft)	2230.52	Weir Sta Lft (ft)	341.99
E.G. OC (ft)	2229.84	Weir Sta Rgt (ft)	378.01
Culvert Control	Inlet	Weir Submerg	0.00
Culv WS Inlet (ft)	2227.69	Weir Max Depth (ft)	0.52
Culv WS Outlet (ft)	2227.32	Weir Avg Depth (ft)	0.52
Culv Nml Depth (ft)		Weir Flow Area (sq ft)	18.58
Culv Crt Depth (ft)	4.79	Min El Weir Flow (ft)	2230.25

Warning: During the culvert outlet computations, the program could not balance the culvert/weir flow. The reported outlet energy grade answer may not be valid.

CROSS SECTION

RIVER: Tropicana Wash
REACH: Tropicana Wash RS: 63.691

INPUT
Description: Downstream X-Section from culvert crossing at Arville
Station Elevation Data num= 29

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2227	25	2228	144	2229	197	2230	261	2230
279	2229	295	2228	296	2227	298	2226	299	2225
301	2224	302.5	2221.35	307	2221.35	314	2221.35	317	2221.35
320	2221.35	322	2221.35	328	2221.35	335	2221.35	338	2221.35
338	2225	340	2226	342	2227	344	2228	345	2229
348	2230	543	2230	576	2231	596	2232		

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.035	295	.02	302.5	.028	338	.02	348	.035

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
295	348	320.78	320.81	320.88	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
0	301.99		F
338.01	596		F

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	2228.43	Element	Left OB	Channel	Right OB	
Vel Head (ft)	1.11	Wt. n-Val.		0.028		
W.S. Elev (ft)	2227.32	Reach Len. (ft)	320.78	320.81	320.88	
Crit W.S. (ft)		Flow Area (sq ft)		214.82		
E.G. Slope (ft/ft)	0.002685	Area (sq ft)	1.29	233.49		
Q Total (cfs)	1818.00	Flow (cfs)		1818.00		
Top Width (ft)	55.00	Top Width (ft)	8.03	46.96		
Vel Total (ft/s)	8.46	Avg. Vel. (ft/s)		8.46		
Max Chl Dpth (ft)	5.97	Hydr. Depth (ft)		5.96		
Conv. Total (cfs)	35088.2	Conv. (cfs)		35088.2		
Length Wtd. (ft)	320.81	Wetted Per. (ft)		40.20		
Min Ch El (ft)	2221.35	Shear (lb/sq ft)		0.90		
Alpha	1.00	Stream Power (lb/ft s)		7.58		
Frctn Loss (ft)	1.50	Cum Volume (acre-ft)	6.11	22.24	3.33	
C & E Loss (ft)	0.25	Cum SA (acres)	3.10	7.56	2.94	

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	2228.43	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.11	Wt. n-Val.		0.028	
W.S. Elev (ft)	2227.32	Reach Len. (ft)	320.78	320.81	320.88
Crit W.S. (ft)		Flow Area (sq ft)		214.82	
E.G. Slope (ft/ft)	0.002685	Area (sq ft)	1.29	233.49	
Q Total (cfs)	1818.00	Flow (cfs)		1818.00	
Top Width (ft)	55.00	Top Width (ft)	8.03	46.96	

Vel Total (ft/s)	8.46	Avg. Vel. (ft/s)		8.46	
Max Chl Dpth (ft)	5.97	Hydr. Depth (ft)		5.96	
Conv. Total (cfs)	35088.2	Conv. (cfs)		35088.2	
Length Wtd. (ft)	320.81	Wetted Per. (ft)		40.20	
Min Ch El (ft)	2221.35	Shear (lb/sq ft)		0.90	
Alpha	1.00	Stream Power (lb/ft s)		7.58	
Frctn Loss (ft)	1.50	Cum Volume (acre-ft)	6.25	22.75	3.03
C & E Loss (ft)	0.25	Cum SA (acres)	3.46	5.48	2.57

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Tropicana Wash
REACH: Tropicana Wash RS: 63.631

INPUT
Description: 21
Station Elevation Data num= 111

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2222.6	17.76	2222.74	28.31	2222.79	30.88	2222.82	33.91	2222.87
50.8	2222.8	51.5	2222.84	52.8	2222.85	67.74	2222.86	78.74	2222.93
84.08	2223	85.77	2222.97	97.12	2223.11	99.72	2223.1	112.12	2223.26
120.94	2223.3	128.55	2223.43	129.64	2223.43	148.15	2223.34	149.06	2223.35
149.45	2223.3	158.51	2223.35	158.83	2223.35	186.52	2224	237.58	2223.06
238.05	2223.1	238.52	2223.05	258.48	2222.91	268.51	2222.95	279.08	2223.02
279.44	2223	279.63	2223.03	280	2223.03	281.16	2223.03	294.96	2222.98
297.15	2222.9	297.44	2222.88	298.1	2222.87	309.28	2222.82	312.89	2222.87
323.01	2222.8	323.38	2222.78	323.84	2222.79	323.98	2222.8	324.21	2222.82
325.65	2222.9	326.61	2222.91	334.36	2222.98	355.26	2223.94	356.6	2224
359.3	2224.46	363.25	2225	364.43	2225.42	365	2225.4	365.15	2225.39
367.01	2225.03	370.24	2224.31	370.89	2224.2	373.05	2224	373.75	2223.95
373.83	2223.95	377.4	2222	378.36	2221.4	380.46	2220	386.54	2218.91
390.98	2218	392.36	2217.65	394.21	2218	399.66	2219.41	402.8	2220
405.34	2223.14	405.45	2223.25	406.06	2223.9	406.21	2224	406.49	2224.07
406.63	2224.09	409.27	2224.39	413.44	2224.85	413.68	2224.9	413.73	2224.84
414.15	2224.82	415.21	2224.83	432.45	2224.42	435.47	2224.4	436.12	2224.41
445.29	2224	460.64	2223.56	478.42	2223.43	494.9	2223.7	509.72	2224
510.79	2224.04	511.39	2224.04	529.93	2224.38	535.67	2224.4	554.56	2224.81
557.4	2224.87	558.38	2224.9	561.09	2224.93	569.62	2225.2	589.63	2225.13
591.13	2224.8	628.2	2225.74	647.79	2226	666.14	2226.3	691.71	2226.9
693.13	2226.9	697.14	2226.99	718.32	2227.44	730.87	2227.8	735.61	2227.86
738.78	2227.93								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.035	380.46	.028	402.8	.035

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
365	409.27	318.34	326.31	347.37	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
0	360		T
415	738.78		T

Left Levee Station= 364.43 Elevation= 2225.42

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	2226.69	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.94	Wt. n-Val.		0.032	0.035
W.S. Elev (ft)	2224.75	Reach Len. (ft)	318.34	326.31	347.37
Crit W.S. (ft)	2224.75	Flow Area (sq ft)		162.51	0.58
E.G. Slope (ft/ft)	0.010010	Area (sq ft)		162.51	95.14
Q Total (cfs)	1818.00	Flow (cfs)		1817.22	0.79
Top Width (ft)	177.36	Top Width (ft)		41.00	136.36
Vel Total (ft/s)	11.15	Avg. Vel. (ft/s)		11.18	1.35
Max Chl Dpth (ft)	7.10	Hydr. Depth (ft)		3.96	0.18
Conv. Total (cfs)	18170.8	Conv. (cfs)		18162.9	7.8
Length Wtd. (ft)	326.31	Wetted Per. (ft)		44.54	3.27
Min Ch El (ft)	2217.65	Shear (lb/sq ft)		2.28	0.11
Alpha	1.01	Stream Power (lb/ft s)		25.49	0.15
Frctn Loss (ft)	3.74	Cum Volume (acre-ft)	6.10	20.78	2.98
C & E Loss (ft)	0.26	Cum SA (acres)	3.07	7.23	2.43

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Manning's n values were composited to a single value in the main channel.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	2226.69	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.94	Wt. n-Val.		0.032	0.035
W.S. Elev (ft)	2224.75	Reach Len. (ft)	318.34	326.31	347.37
Crit W.S. (ft)	2224.75	Flow Area (sq ft)		162.51	0.58
E.G. Slope (ft/ft)	0.010010	Area (sq ft)		162.51	95.14
Q Total (cfs)	1818.00	Flow (cfs)		1817.22	0.79
Top Width (ft)	177.36	Top Width (ft)		41.00	136.36
Vel Total (ft/s)	11.15	Avg. Vel. (ft/s)		11.18	1.35
Max Chl Dpth (ft)	7.10	Hydr. Depth (ft)		3.96	0.18
Conv. Total (cfs)	18170.8	Conv. (cfs)		18162.9	7.8
Length Wtd. (ft)	326.31	Wetted Per. (ft)		44.54	3.27
Min Ch El (ft)	2217.65	Shear (lb/sq ft)		2.28	0.11
Alpha	1.01	Stream Power (lb/ft s)		25.49	0.15
Frctn Loss (ft)	3.80	Cum Volume (acre-ft)	6.25	21.30	2.68
C & E Loss (ft)	0.03	Cum SA (acres)	3.43	5.16	2.07

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Manning's n values were composited to a single value in the main channel.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water

surface was used.

CROSS SECTION

RIVER: Tropicana Wash
REACH: Tropicana Wash RS: 63.569

INPUT
Description: 20
Station Elevation Data num= 118

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2220.3	31.61	2220.65	48.71	2220.61	51.66	2220.11	52.76	2220
55.53	2220	112.87	2220.84	174.09	2221.62	174.52	2221.65	184.03	2221.82
185.48	2221.8	189.39	2221.86	191.36	2221.86	194.19	2221.83	195.57	2221.82
197.38	2221.8	201.67	2221.92	202.51	2221.9	203.23	2221.89	207.42	2221.89
207.72	2221.9	229.14	2221.73	232.55	2221.69	243.54	2221.48	249.91	2221.45
262.19	2221.1	272.46	2221	277.82	2220.96	281.45	2221.14	281.88	2221.19
300.27	2220.9	302.55	2220.92	303.11	2220.86	303.13	2220.83	304.27	2220.7
305.2	2220.7	305.27	2220.7	305.29	2220.7	309.03	2220.75	314.36	2220.78
333.49	2220.7	337.01	2220.72	338.64	2220.75	348.62	2220.95	349.22	2221.09
350.99	2221.1	351.03	2221.07	355.83	2220.85	356.21	2220.82	359	2220.69
359.03	2220.69	360.02	2220.6	360.28	2220.6	366.78	2220.19	367.34	2220.15
370.12	2220	370.2	2220	370.78	2219.88	372.38	2219.52	379.22	2218
380.8	2217.75	390.78	2216	400.57	2214.3	402.79	2214	415.03	2214.42
421.21	2214.65	422.03	2214.69	422.59	2214.7	422.71	2214.71	423.04	2214.73
426.13	2214.93	426.88	2215.25	430.7	2216	433.74	2216.5	435.82	2216.5
436.48	2216.55	440.76	2216.84	442	2216.81	446.99	2216.7	451.1	2216.68
451.25	2216.66	451.55	2216.64	453.16	2216.59	455.27	2216.52	455.31	2216.5
456.27	2216.48	457.68	2216.43	465.29	2216.51	472.14	2217.1	474.93	2217.4
475.61	2217.52	476.83	2217.73	479.69	2218	481.05	2218.28	483.26	2218.5
485.56	2218.74	487.31	2218.84	487.73	2218.94	489.34	2219.2	490	2219.23
493.53	2219.4	495.42	2219.69	497.86	2220	504.15	2220.25	511.54	2220.51
512.7	2220.7	540.86	2221.39	541.26	2221.4	541.3	2221.36	551.69	2221.51
555.33	2221.6	557.22	2221.85	559.14	2221.72	564.65	2222	572.3	2222
578.18	2222	581.13	2222	591.7	2222				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.04	359	.034	490	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
359	490	94.38	87.55	78.15	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

			Left OB	Channel	Right OB
E.G. Elev (ft)	2219.22	Element			
Vel Head (ft)	1.08	Wt. n-Val.		0.034	
W.S. Elev (ft)	2218.15	Reach Len. (ft)	94.38	87.55	78.15
Crit W.S. (ft)	2218.15	Flow Area (sq ft)		218.48	
E.G. Slope (ft/ft)	0.013219	Area (sq ft)		218.48	
Q Total (cfs)	1818.00	Flow (cfs)		1818.00	
Top Width (ft)	101.85	Top Width (ft)		101.85	
Vel Total (ft/s)	8.32	Avg. Vel. (ft/s)		8.32	
Max Chl Dpth (ft)	4.15	Hydr. Depth (ft)		2.15	
Conv. Total (cfs)	15812.2	Conv. (cfs)		15812.2	
Length Wtd. (ft)	87.55	Wetted Per. (ft)		102.53	
Min Ch El (ft)	2214.00	Shear (lb/sq ft)		1.76	
Alpha	1.00	Stream Power (lb/ft s)		14.63	
Frctn Loss (ft)	0.39	Cum Volume (acre-ft)	6.10	19.35	2.60
C & E Loss (ft)	0.24	Cum SA (acres)	3.07	6.70	1.89

Warning: The energy equation could not be balanced within the specified number of iterations. The

program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION OUTPUT Profile #PF 2

			Left OB	Channel	Right OB
E.G. Elev (ft)	2221.00	Element			
Vel Head (ft)	1.85	Wt. n-Val.		0.034	
W.S. Elev (ft)	2219.15	Reach Len. (ft)	94.38	87.55	78.15
Crit W.S. (ft)	2219.15	Flow Area (sq ft)		166.75	
E.G. Slope (ft/ft)	0.013722	Area (sq ft)		166.75	
Q Total (cfs)	1818.00	Flow (cfs)		1818.00	
Top Width (ft)	45.90	Top Width (ft)		45.90	
Vel Total (ft/s)	10.90	Avg. Vel. (ft/s)		10.90	
Max Chl Dpth (ft)	5.07	Hydr. Depth (ft)		3.63	
Conv. Total (cfs)	15519.6	Conv. (cfs)		15519.6	
Length Wtd. (ft)	87.54	Wetted Per. (ft)		53.66	
Min Ch El (ft)	2214.08	Shear (lb/sq ft)		2.66	
Alpha	1.00	Stream Power (lb/ft s)		29.03	
Frctn Loss (ft)	0.18	Cum Volume (acre-ft)	6.25	20.06	2.30
C & E Loss (ft)	0.51	Cum SA (acres)	3.43	4.83	1.52

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION

RIVER: Tropicana Wash
REACH: Tropicana Wash RS: 63.552

INPUT
Description: 19
Station Elevation Data num= 66

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2220.8	2.41	2220.78	4.19	2220.81	16.93	2220.47	29.9	2220.12
30.19	2220.1	36.04	2220.01	36.12	2220.01	36.36	2220	62.02	2219.33
66.48	2219.2	71	2219.1	84.25	2218.83	90.54	2218.68	91.25	2218.66
100.3	2218.5	102.3	2218.48	108.94	2218.4	116.24	2218.21	130.76	2218
132	2217.82	134.59	2217.43	136.4	2217.2	142.95	2216.19	143.61	2216.09
144.14	2216	150.43	2215.82	156.54	2215.6	157.49	2215.58	162.28	2216
169	2215.78	179.03	2215.52	185.95	2215.5	205.47	2214.32	207.42	2214.29
209.6	2214.22	212.33	2214	234.65	2214	237.41	2214	244.5	2214
255.88	2214	255.99	2214.01	256.2	2214	256.78	2214.07	279.46	2216
293.82	2217.26	301.6	2217.94	301.87	2217.96	302.39	2218	305.83	2218.25
309.03	2218.58	330.05	2220	332.28	2220	333.55	2220	345.52	2220
349.75	2220	363.79	2220	365.19	2220	367.74	2219.9	382.72	2218.8

387.69 2219.04 398.64 2220 403.96 2220.28 408.09 2220.5 428.85 2220.62
431.61 2220.62

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.04	132	.032	293.82	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
132	293.82	208.29	247.98	217.5	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

			Left OB	Channel	Right OB
E.G. Elev (ft)	2218.11	Element			
Vel Head (ft)	0.27	Wt. n-Val.	0.000	0.032	0.040
W.S. Elev (ft)	2217.84	Reach Len. (ft)	208.29	247.98	217.50
Crit W.S. (ft)		Flow Area (sq ft)	0.00	432.94	1.92
E.G. Slope (ft/ft)	0.002205	Area (sq ft)	0.00	432.94	1.92
Q Total (cfs)	1818.00	Flow (cfs)	0.00	1816.54	1.46
Top Width (ft)	168.57	Top Width (ft)	0.13	161.82	6.62
Vel Total (ft/s)	4.18	Avg. Vel. (ft/s)	0.08	4.20	0.76
Max Chl Dpth (ft)	3.84	Hydr. Depth (ft)	0.01	2.68	0.29
Conv. Total (cfs)	38718.6	Conv. (cfs)	0.0	38687.5	31.1
Length Wtd. (ft)	247.97	Wetted Per. (ft)	0.13	162.18	6.65
Min Ch El (ft)	2214.00	Shear (lb/sq ft)		0.37	0.04
Alpha	1.01	Stream Power (lb/ft s)		1.54	0.03
Frctn Loss (ft)	0.25	Cum Volume (acre-ft)	6.10	18.70	2.60
C & E Loss (ft)	0.06	Cum SA (acres)	3.07	6.43	1.88

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

CROSS SECTION OUTPUT Profile #PF 2

			Left OB	Channel	Right OB
E.G. Elev (ft)	2218.91	Element			
Vel Head (ft)	0.15	Wt. n-Val.	0.040	0.032	0.040
W.S. Elev (ft)	2218.76	Reach Len. (ft)	208.29	247.98	217.50
Crit W.S. (ft)		Flow Area (sq ft)	18.30	581.73	13.15
E.G. Slope (ft/ft)	0.000805	Area (sq ft)	18.30	581.73	13.15
Q Total (cfs)	1818.00	Flow (cfs)	10.63	1796.10	11.28
Top Width (ft)	224.41	Top Width (ft)	44.74	161.82	17.85
Vel Total (ft/s)	2.96	Avg. Vel. (ft/s)	0.58	3.09	0.86
Max Chl Dpth (ft)	4.76	Hydr. Depth (ft)	0.41	3.59	0.74
Conv. Total (cfs)	64069.1	Conv. (cfs)	374.6	63297.1	397.4
Length Wtd. (ft)	247.72	Wetted Per. (ft)	44.76	162.18	17.91
Min Ch El (ft)	2214.00	Shear (lb/sq ft)	0.02	0.18	0.04
Alpha	1.07	Stream Power (lb/ft s)	0.01	0.56	0.03
Frctn Loss (ft)	0.11	Cum Volume (acre-ft)	6.23	19.31	2.29
C & E Loss (ft)	0.03	Cum SA (acres)	3.38	4.62	1.51

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

CROSS SECTION

RIVER: Tropicana Wash
REACH: Tropicana Wash RS: 63.505

INPUT
Description: 18
Station Elevation Data num= 141

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev

0	2220	5.8	2220	6.79	2220	13.62	2220	19.2	2220
20.87	2220	49.24	2218.86	59	2218.54	59.26	2218.4	61.26	2218.35
66.16	2218.3	70.45	2218.29	71.29	2218.3	72.31	2218.3	72.77	2218.31
75.39	2218.4	76.69	2218.38	92	2218.13	95.47	2218.07	100.12	2218
104	2217.33	106.65	2216.87	111.72	2216	125.91	2215.52	140.67	2214.37
143.08	2214.24	145.71	2214	147.63	2213.6	157.62	2212	161.75	2210.73
164.55	2210	172.94	2210	173.66	2210	174.95	2210.45	179.03	2212
180.51	2212.14	192.99	2213.08	199.84	2213.2	212.7	2214	227.23	2214.81
227.29	2214.81	232.11	2214.81	236.31	2214.8	237.36	2214.77	241.5	2214.71
274.41	2215.08	283.06	2214.97	293.21	2215.3	298.84	2215.49	301.55	2215.6
322.73	2215.95	324.51	2216	329.2	2216.4	353.05	2218	360.61	2219.15
364.5	2219.42	365.76	2219.48	366.64	2219.5	367.82	2219.55	368.05	2219.54
369	2219.57	369.73	2219.6	370.14	2219.51	370.59	2219.5	374.07	2218.8
378.37	2218.18	379.41	2218	384.96	2217.01	391.84	2216	394.89	2215.87
417.34	2215.04	418.09	2215.06	419.49	2215.01	423.95	2214.9	426.16	2214.79
431.66	2214.76	433.45	2214.79	436.52	2214.89	445.34	2215.2	462.78	2215.97
464.58	2216	475.1	2216.18	477.9	2216.88	481.74	2217.4	484.56	2216.94
492.99	2216.47	494.97	2216.31	495.12	2216.31	495.13	2216.3	496.83	2216.35
500.4	2216.27	500.68	2216.27	501.22	2216.23	504.84	2216.3	509.3	2216.46
515.84	2216.73	520.38	2217.08	523.7	2217.23	524	2217.2	524.12	2217.19
524.56	2217.19	525.66	2217.25	533.74	2217.38	537.21	2217.5	542.73	2217.75
544.06	2217.78	544.5	2217.78	544.9	2217.78	545.72	2217.8	545.94	2217.8
546.1	2217.8	546.35	2217.8	547.43	2217.82	547.77	2217.8	557.8	2218
560.77	2218.1	567.58	2218.41	571.81	2218.63	574.6	2218.7	591.15	2220
591.92	2220	607.77	2220	610.76	2220	615.28	2220	616.27	2219.87
617.22	2219.84	631.11	2219.86	633.46	2220	635.61	2220	638.72	2220
643.25	2220	646.99	2220	658.67	2220	665.06	2220	671.14	2220
676.26	2220	678.14	2220	685.7	2220	694.89	2220	701.05	2220
701.82	2220								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.04	157.62	.028	179.03	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
92	369	124.56	89.12 150.96	.1	.3

Right Levee Station= 367 Elevation=

CROSS SECTION OUTPUT Profile #PF 1

			Left OB	Channel	Right OB
E.G. Elev (ft)	2217.80	Element			
Vel Head (ft)	0.09	Wt. n-Val.		0.035	
W.S. Elev (ft)	2217.72	Reach Len. (ft)	124.56	89.12	150.96
Crit W.S. (ft)	2215.31	Flow Area (sq ft)		776.97	
E.G. Slope (ft/ft)	0.000585	Area (sq ft)		776.97	
Q Total (cfs)	1818.00	Flow (cfs)		1818.00	
Top Width (ft)	247.09	Top Width (ft)		247.09	
Vel Total (ft/s)	2.34	Avg. Vel. (ft/s)		2.34	
Max Chl Dpth (ft)	7.72	Hydr. Depth (ft)		3.14	
Conv. Total (cfs)	75182.7	Conv. (cfs)		75182.7	
Length Wtd. (ft)	94.81	Wetted Per. (ft)		248.29	
Min Ch El (ft)	2210.00	Shear (lb/sq ft)		0.11	
Alpha	1.00	Stream Power (lb/ft s)		0.27	
Frctn Loss (ft)	0.15	Cum Volume (acre-ft)	6.10	15.25	2.59
C & E Loss (ft)	0.07	Cum SA (acres)	3.07	5.27	1.87

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.

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

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

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	2218.77	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.05	Wt. n-Val.	0.040	0.036	
W.S. Elev (ft)	2218.72	Reach Len. (ft)	124.56	89.12	150.96
Crit W.S. (ft)	2215.31	Flow Area (sq ft)	14.54	1037.00	
E.G. Slope (ft/ft)	0.000267	Area (sq ft)	14.54	1037.00	
Q Total (cfs)	1818.00	Flow (cfs)	4.60	1813.40	
Top Width (ft)	304.32	Top Width (ft)	38.52	265.79	
Vel Total (ft/s)	1.73	Avg. Vel. (ft/s)	0.32	1.75	
Max Chl Dpth (ft)	8.72	Hydr. Depth (ft)	0.38	3.90	
Conv. Total (cfs)	111340.2	Conv. (cfs)	281.7	111058.5	
Length Wtd. (ft)	89.17	Wetted Per. (ft)	38.57	267.08	
Min Ch El (ft)	2210.00	Shear (lb/sq ft)	0.01	0.06	
Alpha	1.02	Stream Power (lb/ft s)	0.00	0.11	
Frctn Loss (ft)	0.07	Cum Volume (acre-ft)	6.15	14.70	2.25
C & E Loss (ft)	0.15	Cum SA (acres)	3.18	3.41	1.46

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: Tropicana Wash
REACH: Tropicana Wash RS: 63.488

INPUT
Description: 17
Station Elevation Data num= 133

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2219.2	.44	2219.19	10.95	2219.24	31.29	2219.26	41.02	2219.34
49.43	2219.4	57.63	2219.3	66.45	2219.11	72.43	2218.96	85.5	2218.96
87.22	2218.9	90.06	2218.95	100.94	2218.95	102.79	2218.97	108.31	2218.96
109.55	2218.9	121.33	2218.38	126.8	2218.64	126.98	2218.67	127.42	2218.69
128.22	2218.7	133.7	2218	140.8	2217.67	143.87	2217.63	153.41	2217.54
154.88	2217.6	166.9	2218	187.92	2216.85	189.51	2217.02	189.59	2217.01
191.84	2217.1	193.03	2216.9	194.02	2216.83	194.82	2216.87	195.22	2216.7
196.81	2216	199.38	2215.2	201.94	2214	205.43	2212.35	206.16	2212
207.31	2211.46	210.06	2210	210.69	2209.75	211.23	2210	213.2	2210
214.31	2211.15	215.2	2212	217.02	2213.98	217.05	2214	217.27	2214.01
217.39	2214.01	217.64	2214	245.7	2214.94	274	2215.9	277.07	2216
282.43	2216	295.31	2216	304.14	2216	326.75	2216	333.76	2216
361.85	2215.66	372.25	2216	393.16	2217.16	407.96	2218	408.08	2217.99
408.1	2218	408.14	2218	408.24	2218	408.29	2218	416.25	2218.71
420.66	2218.95	421.78	2219	422.12	2219	424.79	2219	432.29	2219.44
432.91	2219.52	433.71	2219.53	435.96	2219.39	439.67	2219.1	441	2218.92
444.41	2218.68	449.45	2218	458.31	2217.44	461.2	2217.3	463.76	2217.09
466.91	2216.91	475.8	2216.86	510.1	2217.06	516.78	2217.8	517.43	2217.83
518.2	2217.88	520.09	2218	523.54	2218	544.57	2218	554.21	2218
556.01	2218	556.88	2218	578.84	2218	590.9	2218	594	2218
604.6	2218.34	616.42	2218.78	625.05	2219.12	628.28	2219.1	628.66	2219.05
630.38	2218.82	633.17	2218.67	634.41	2218.57	643.34	2218.6	648.28	2218.5
649.01	2218.51	658.23	2218.57	668.84	2218.55	674.53	2218.4	679.57	2218.29
679.81	2218.26	679.94	2218.25	681.85	2218.25	682.69	2218.3	683.74	2218.34
688.33	2218.4	695.15	2218.68	695.96	2218.76	699.48	2219	699.62	2219.02
703.89	2219.01	708.35	2219.01	711.49	2219.03	718.67	2219	721.72	2218.94
728.71	2218.86	731.44	2218.79	734.78	2218.82				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.04	201.94	.028	215.2	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
195.22	274	170.98	168.37	160.12	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

			Left OB	Channel	Right OB
E.G. Elev (ft)	2217.59	Element			
Vel Head (ft)	0.76	Wt. n-Val.	0.040	0.038	0.040
W.S. Elev (ft)	2216.83	Reach Len. (ft)	170.98	168.37	160.12
Crit W.S. (ft)	2216.83	Flow Area (sq ft)	0.02	196.48	94.41
E.G. Slope (ft/ft)	0.011605	Area (sq ft)	0.02	196.48	94.41
Q Total (cfs)	1818.00	Flow (cfs)	0.01	1483.32	334.67
Top Width (ft)	192.29	Top Width (ft)	0.30	78.78	113.21
Vel Total (ft/s)	6.25	Avg. Vel. (ft/s)	0.61	7.55	3.54
Max Chl Dpth (ft)	7.08	Hydr. Depth (ft)	0.06	2.49	0.83
Conv. Total (cfs)	16876.2	Conv. (cfs)	0.1	13769.4	3106.7
Length Wtd. (ft)	167.61	Wetted Per. (ft)	0.33	82.09	113.24
Min Ch El (ft)	2209.75	Shear (lb/sq ft)	0.04	1.73	0.60
Alpha	1.25	Stream Power (lb/ft s)	0.03	13.09	2.14
Frctn Loss (ft)	0.59	Cum Volume (acre-ft)	6.10	14.26	2.43
C & E Loss (ft)	0.19	Cum SA (acres)	3.07	4.94	1.67

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #PF 2

			Left OB	Channel	Right OB
E.G. Elev (ft)	2218.55	Element			
Vel Head (ft)	1.52	Wt. n-Val.	0.040	0.037	
W.S. Elev (ft)	2217.03	Reach Len. (ft)	170.98	168.37	160.12
Crit W.S. (ft)	2217.03	Flow Area (sq ft)	0.76	183.79	
E.G. Slope (ft/ft)	0.015255	Area (sq ft)	0.76	183.79	
Q Total (cfs)	1818.00	Flow (cfs)	0.88	1817.12	
Top Width (ft)	65.34	Top Width (ft)	6.06	59.28	
Vel Total (ft/s)	9.85	Avg. Vel. (ft/s)	1.16	9.89	
Max Chl Dpth (ft)	7.28	Hydr. Depth (ft)	0.12	3.10	
Conv. Total (cfs)	14719.5	Conv. (cfs)	7.1	14712.4	
Length Wtd. (ft)	168.37	Wetted Per. (ft)	6.25	64.37	
Min Ch El (ft)	2209.75	Shear (lb/sq ft)	0.12	2.72	
Alpha	1.01	Stream Power (lb/ft s)	0.13	26.88	
Frctn Loss (ft)	0.64	Cum Volume (acre-ft)	6.13	13.45	2.25
C & E Loss (ft)	0.42	Cum SA (acres)	3.12	3.07	1.46

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than

0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Tropicana Wash
REACH: Tropicana Wash RS: 63.456

INPUT
Description: 16
Station Elevation Data num= 132

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2217	16	2216	58	2216	104	2215	160	2214
213.75	2213	236.35	2212	244.14	2212.45	254.41	2212.36	279.47	2212.49
279.86	2212.48	287.12	2212.5	287.16	2212.45	287.29	2212.44	288.67	2212.45
290.84	2212.46	294.31	2212.5	311.94	2212.74	322.33	2212.75	330.86	2213.07
333.29	2213.11	333.37	2213.1	333.56	2213.11	337.1	2213.07	337.97	2213.06
338.59	2213.05	341.1	2213	352.17	2212.9	366.49	2212.74	371.11	2212.78
375.32	2212.73	390.54	2212.5	405.03	2212.76	407.12	2212.67	411.72	2212.56
413.07	2212.52	419.93	2213.6	420.7	2213.46	420.97	2213.4	422.82	2213.82
423.61	2214	424.44	2214	424.57	2213.8	425.73	2212.23	425.84	2212
425.88	2211.85	426.36	2210	426.7	2208.7	426.88	2208	431.59	2208
439.98	2208	441.64	2209.75	441.86	2210	442.4	2210.57	444.01	2212
444.09	2212	446.62	2212.14	446.94	2212.2	448.88	2212.28	449.82	2212.24
451.71	2212.24	451.88	2212.24	453.44	2212.2	453.59	2212.22	454.87	2212.2
455.33	2212.18	455.36	2212.18	455.74	2212.2	455.78	2212.2	463.07	2212.29
482.33	2212.68	493.48	2212.89	497.81	2212.97	536.09	2213.5	569.81	2214
576.49	2214	577.13	2214	584.66	2214	597.2	2214	597.78	2214.03
598	2214.04	605.56	2214.47	619.36	2214.64	620.69	2214.6	628.43	2214.66
636.45	2214.68	638.32	2214.68	642.74	2214.69	671.12	2216	674.4	2216
675.46	2216	688.37	2216	695.56	2216	701.55	2216	707.96	2216
719.82	2216	722.62	2216	732.11	2216	742.62	2216	751.14	2216
754.85	2216	767.15	2216.46	777.51	2216.11	786.52	2216	788.08	2216
788.52	2216	788.94	2216.04	789.22	2216.05	789.44	2216	789.83	2216.05
790	2216.05	862.87	2218	864.21	2218	887.59	2218	893.01	2218
899.89	2218	914.32	2218	916.25	2218	918.92	2218	919.02	2218
930.33	2218	932.41	2218	936.53	2218	944	2218	948.43	2218
951.65	2218	955.18	2218	975.81	2218	976.42	2218	976.68	2218
978.57	2218	983.77	2218						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.04	424.44	.025	426.88	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
422.82	455.78	351.75	244.62	156.19	.1	.3

Left Levee Station= 187.2 Elevation=

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	2214.69	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.11	Wt. n-Val.	0.040	0.038	0.040
W.S. Elev (ft)	2214.58	Reach Len. (ft)	351.75	244.62	156.19
Crit W.S. (ft)	2213.75	Flow Area (sq ft)	469.74	140.33	183.03
E.G. Slope (ft/ft)	0.001685	Area (sq ft)	469.74	140.33	183.03
Q Total (cfs)	1818.00	Flow (cfs)	975.63	535.35	307.02
Top Width (ft)	486.75	Top Width (ft)	295.21	32.96	158.58
Vel Total (ft/s)	2.29	Avg. Vel. (ft/s)	2.08	3.81	1.68

Max Chl Dpth (ft)	6.58	Hydr. Depth (ft)	1.59	4.26	1.15
Conv. Total (cfs)	44293.8	Conv. (cfs)	23770.3	13043.3	7480.3
Length Wtd. (ft)	269.71	Wetted Per. (ft)	295.45	38.79	158.61
Min Ch El (ft)	2208.00	Shear (lb/sq ft)	0.17	0.38	0.12
Alpha	1.35	Stream Power (lb/ft s)	0.35	1.45	0.20
Frctn Loss (ft)	0.03	Cum Volume (acre-ft)	5.18	13.60	1.92
C & E Loss (ft)	0.03	Cum SA (acres)	2.49	4.72	1.17

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	2214.69	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.11	Wt. n-Val.	0.040	0.038	0.040
W.S. Elev (ft)	2214.58	Reach Len. (ft)	351.75	244.62	156.19
Crit W.S. (ft)	2213.75	Flow Area (sq ft)	469.74	140.33	183.03
E.G. Slope (ft/ft)	0.001685	Area (sq ft)	469.74	140.33	183.03
Q Total (cfs)	1818.00	Flow (cfs)	975.63	535.35	307.02
Top Width (ft)	486.75	Top Width (ft)	295.21	32.96	158.58
Vel Total (ft/s)	2.29	Avg. Vel. (ft/s)	2.08	3.81	1.68
Max Chl Dpth (ft)	6.58	Hydr. Depth (ft)	1.59	4.26	1.15
Conv. Total (cfs)	44293.8	Conv. (cfs)	23770.3	13043.3	7480.3
Length Wtd. (ft)	269.71	Wetted Per. (ft)	295.45	38.79	158.61
Min Ch El (ft)	2208.00	Shear (lb/sq ft)	0.17	0.38	0.12
Alpha	1.35	Stream Power (lb/ft s)	0.35	1.45	0.20
Frctn Loss (ft)	0.03	Cum Volume (acre-ft)	5.20	12.83	1.92
C & E Loss (ft)	0.03	Cum SA (acres)	2.53	2.90	1.17

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Tropicana Wash
REACH: Tropicana Wash RS: 63.410

INPUT
Description: Upstream X-Section from UPRR culvert crossing
Station Elevation Data num= 268

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2210.9	36.48	2211.36	92.93	2212	96	2212.05	101.85	2212.16
105.47	2212	111.81	2212.85	134.1	2212.82	149.87	2212.52	159.18	2212.25
159.28	2212.2	162.39	2212.24	165.52	2212.27	172.05	2212.27	176.75	2212
192.12	2212.6	196.53	2212.56	201.84	2212.47	221	2212.1	221.91	2212.08
223.91	2212	234.34	2211.46	256.78	2210.3	258.15	2210.24	259.73	2210.26
261.35	2210.24	261.57	2210.3	262.27	2210.23	262.95	2210	264.76	2209.45
269.59	2208	274.08	2208	280.39	2208	284.55	2208	287.19	2208
294.58	2208	298.18	2208	306.6	2208	308.51	2208	308.77	2208
313.09	2207.48	315.61	2207.5	325	2206	329.71	2205.35	329.8	2205.34
329.84	2205.33	337.33	2205.5	337.68	2205.43	339.97	2205.02	341.12	2204
341.59	2204	344	2202	346	2200	348	2200	350.39	2200
354	2200	354.02	2200	354.03	2200	355.33	2204	356.19	2204
356.73	2204	357.27	2204	360.06	2204	363.07	2204	366.12	2204
367.32	2204	386.72	2204.06	387.13	2204.05	387.21	2204.05	393.12	2204.1
398	2205.12	401.43	2205.85	402.09	2205.91	403.32	2206	411.2	2206.6
412.73	2206.74	417.57	2206.95	420.99	2207.11	424.97	2207.49	431.1	2208
435.35	2208.2	444.45	2210	444.61	2210.01	444.76	2210.01	449.85	2210.2
450.63	2210.2	454.3	2210.41	454.83	2210.42	458.15	2210.41	460.14	2210.59

469.99	2211.5	473.35	2211.85	474.42	2211.92	474.48	2211.92	475.54	2212
476.08	2212	476.39	2212	476.71	2212	480.72	2212	485.5	2212
486.07	2212	486.67	2212	497.72	2212	498.77	2212	509.24	2212
511.21	2212	512.02	2212	517.74	2212	522.65	2212	528.06	2212
534.05	2212	538.74	2211.4	540.99	2212	560.14	2212	565.12	2212
565.49	2212	571.16	2212	572.18	2212.44	574.28	2213.2	579.45	2213.31
582.38	2213.3	582.69	2213.33	593.13	2213.37	593.53	2213.37	593.65	2213.37
593.7	2213.4	596.61	2213.39	608.65	2213.42	608.8	2213.42	614.28	2213.43
615.65	2213.5	631.67	2213.52	638.25	2213.54	649.99	2213.57	673.89	2213.7
687.3	2213.7	702.01	2214	702.63	2214.19	704.45	2214	704.75	2214
715.6	2215	721.95	2215.04	726.25	2214.89	731.3	2214.89	738.17	2214.79
741.55	2214.8	747.04	2214.88	754.33	2215.29	762.28	2215.37	764.67	2215.51
769.15	2215.6	772.39	2215.56	790.82	2215.58	809.25	2215.58	813.45	2215.57
823.25	2215.6	831.98	2216	833.02	2216	835.01	2216	839.28	2216
841.72	2216	851.58	2216	862	2216	866.37	2216	867.41	2216
884.46	2216	888.78	2216	904.53	2216	911.24	2216	913.2	2216.07
915.45	2216	927.61	2216	933.97	2216	938.51	2216	949.86	2216
960.06	2217.1	966.62	2217.12	971.64	2217.12	980.24	2217.14	983.79	2217.13
1016.09	2218	1016.75	2218	1046.09	2218	1048.69	2218	1052.05	2218
1059.33	2218	1062.04	2218	1065.76	2218	1065.82	2218	1081.41	2218
1084.23	2218	1086.6	2218	1096.82	2218	1099.55	2218	1101.55	2218
1106.59	2218	1121.05	2218	1125.66	2218	1133.07	2218	1140.25	2218
1141.48	2218	1141.85	2218	1145.4	2218	1145.69	2218	1145.76	2218
1154.33	2218	1154.8	2218	1160.08	2218	1164.28	2218	1164.95	2218
1169.27	2218	1170.83	2218	1178.71	2218	1205.31	2219.39	1216.92	2220
1217.3	2220	1219.13	2220.2	1220.65	2220.2	1221.56	2220.22	1222.9	2220.23
1223.46	2220.2	1232.69	2220.64	1258.28	2222	1267.76	2222.36	1270.47	2222.35
1275.45	2222.4	1282.05	2222.36	1287.3	2222.26	1288.39	2222.28	1301.94	2222.04
1302.07	2222	1303.82	2222	1306.35	2221.93	1318.41	2221.8	1324.52	2221.61
1324.89	2221.6	1330.93	2220.81	1337.25	2220.59	1340.56	2220.58	1341.05	2220.63
1344.76	2221	1344.94	2220.97	1350.62	2220.73	1350.65	2220.73	1350.93	2220.76
1355.87	2221	1356.06	2221	1360.23	2220.95	1365.92	2220.87	1371.43	2220.44
1372.78	2220.4	1375.01	2220.42	1382.29	2220.65	1384.01	2220.66	1387.39	2220.58
1389.55	2220.5	1391.16	2220.5	1392.62	2220.45	1396.39	2220.57	1402.08	2220.54
1409.63	2220.7	1435.23	2221.79	1436.55	2221.8	1438.71	2221.94	1439.32	2221.95
1439.98	2222	1440.41	2221.99	1441.15	2222				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.04	234.34	.04	460.14	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
234.34	460.14	112.33	111.64	151.37	.3	.5

CROSS SECTION OUTPUT Profile #PF 1

			Left OB	Channel	Right OB
E.G. Elev (ft)	2214.63	Element			
Vel Head (ft)	0.01	Wt. n-Val.	0.040	0.040	0.040
W.S. Elev (ft)	2214.62	Reach Len. (ft)	112.33	111.64	151.37
Crit W.S. (ft)	2206.52	Flow Area (sq ft)	610.91	1727.59	450.07
E.G. Slope (ft/ft)	0.000034	Area (sq ft)	610.91	1727.59	450.07
Q Total (cfs)	1818.00	Flow (cfs)	247.73	1426.83	143.44
Top Width (ft)	711.49	Top Width (ft)	234.34	225.80	251.35
Vel Total (ft/s)	0.65	Avg. Vel. (ft/s)	0.41	0.83	0.32
Max Chl Dpth (ft)	14.62	Hydr. Depth (ft)	2.61	7.65	1.79
Conv. Total (cfs)	312062.9	Conv. (cfs)	42522.8	244918.1	24622.0
Length Wtd. (ft)	111.64	Wetted Per. (ft)	238.19	231.73	251.84
Min Ch El (ft)	2200.00	Shear (lb/sq ft)	0.01	0.02	0.00
Alpha	1.33	Stream Power (lb/ft s)	0.00	0.01	0.00
Frctn Loss (ft)		Cum Volume (acre-ft)	0.82	8.36	0.78
C & E Loss (ft)		Cum SA (acres)	0.36	3.99	0.44

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	2214.63	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.01	Wt. n-Val.	0.040	0.040	0.040
W.S. Elev (ft)	2214.62	Reach Len. (ft)	112.33	111.64	151.37
Crit W.S. (ft)	2206.52	Flow Area (sq ft)	610.91	1727.59	450.07
E.G. Slope (ft/ft)	0.000034	Area (sq ft)	610.91	1727.59	450.07
Q Total (cfs)	1818.00	Flow (cfs)	247.73	1426.83	143.44
Top Width (ft)	711.49	Top Width (ft)	234.34	225.80	251.35
Vel Total (ft/s)	0.65	Avg. Vel. (ft/s)	0.41	0.83	0.32
Max Chl Dpth (ft)	14.62	Hydr. Depth (ft)	2.61	7.65	1.79
Conv. Total (cfs)	312062.9	Conv. (cfs)	42522.8	244918.1	24622.0
Length Wtd. (ft)	111.64	Wetted Per. (ft)	238.19	231.73	251.84
Min Ch El (ft)	2200.00	Shear (lb/sq ft)	0.01	0.02	0.00
Alpha	1.33	Stream Power (lb/ft s)	0.00	0.01	0.00
Frctn Loss (ft)		Cum Volume (acre-ft)	0.84	7.58	0.78
C & E Loss (ft)		Cum SA (acres)	0.39	2.17	0.44

CULVERT

RIVER: Tropicana Wash
REACH: Tropicana Wash RS: 63.397

INPUT
Description: Culvert Crossing at UPRR
Distance from Upstream XS = 46
Deck/Roadway Width = 46
Weir Coefficient = 2.6
Upstream Deck/Roadway Coordinates
num= 7

Sta Hi Cord	Lo Cord	Sta Hi Cord	Lo Cord	Sta Hi Cord	Lo Cord
0	2216	2197	303	2214	2197	343	2212	2197
348	2212	2197	353	2212	2197	408	2214	2197
1440	2216	2197						

Upstream Bridge Cross Section Data
Station Elevation Data num= 268

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2210.9	36.48	2211.36	92.93	2212	96	2212.05	101.85	2212.16
105.47	2212	111.81	2212.85	134.1	2212.82	149.87	2212.52	159.18	2212.25
159.28	2212.2	162.39	2212.24	165.52	2212.27	172.05	2212.27	176.75	2212
192.12	2212.6	196.53	2212.56	201.84	2212.47	221	2212.1	221.91	2212.08
223.91	2212	234.34	2211.46	256.78	2210.3	258.15	2210.24	259.73	2210.26
261.35	2210.24	261.57	2210.3	262.27	2210.23	262.95	2210	264.76	2209.45
269.59	2208	274.08	2208	280.39	2208	284.55	2208	287.19	2208
294.58	2208	298.18	2208	306.6	2208	308.51	2208	308.77	2208
313.09	2207.48	315.61	2207.5	325	2206	329.71	2205.35	329.8	2205.34
329.84	2205.33	337.33	2205.5	337.68	2205.43	339.97	2205.02	341.12	2204
341.59	2204	344	2202	346	2200	348	2200	350.39	2200
354	2200	354.02	2200	354.03	2200	355.33	2204	356.19	2204
356.73	2204	357.27	2204	360.06	2204	363.07	2204	366.12	2204
367.32	2204	386.72	2204.06	387.13	2204.05	387.21	2204.05	393.12	2204.1
398	2205.12	401.43	2205.85	402.09	2205.91	403.32	2206	411.2	2206.6
412.73	2206.74	417.57	2206.95	420.99	2207.11	424.97	2207.49	431.1	2208
435.35	2208.2	444.45	2210	444.61	2210.01	444.76	2210.01	449.85	2210.2
450.63	2210.2	454.3	2210.41	454.83	2210.42	458.15	2210.41	460.14	2210.59
469.99	2211.5	473.35	2211.85	474.42	2211.92	474.48	2211.92	475.54	2212
476.08	2212	476.39	2212	476.71	2212	480.72	2212	485.5	2212
486.07	2212	486.67	2212	497.72	2212	498.77	2212	509.24	2212
511.21	2212	512.02	2212	517.74	2212	522.65	2212	528.06	2212
534.05	2212	538.74	2211.4	540.99	2212	560.14	2212	565.12	2212
565.49	2212	571.16	2212	572.18	2212.44	574.28	2213.2	579.45	2213.31
582.38	2213.3	582.69	2213.33	593.13	2213.37	593.53	2213.37	593.65	2213.37

593.7	2213.4	596.61	2213.39	608.65	2213.42	608.8	2213.42	614.28	2213.43
615.65	2213.5	631.67	2213.52	638.25	2213.54	649.99	2213.57	673.89	2213.7
687.3	2213.7	702.01	2214	702.63	2214.19	704.45	2214	704.75	2214
715.6	2215	721.95	2215.04	726.25	2214.89	731.3	2214.89	738.17	2214.79
741.55	2214.8	747.04	2214.88	754.33	2215.29	762.28	2215.37	764.67	2215.51
769.15	2215.6	772.39	2215.56	790.82	2215.58	809.25	2215.58	813.45	2215.57
823.25	2215.6	831.98	2216	833.02	2216	835.01	2216	839.28	2216
841.72	2216	851.58	2216	862	2216	866.37	2216	867.41	2216
884.46	2216	888.78	2216	904.53	2216	911.24	2216	913.2	2216.07
915.45	2216	927.61	2216	933.97	2216	938.51	2216	949.86	2216
960.06	2217.1	966.62	2217.12	971.64	2217.12	980.24	2217.14	983.79	2217.13
1016.09	2218	1016.75	2218	1046.09	2218	1048.69	2218	1052.05	2218
1059.33	2218	1062.04	2218	1065.76	2218	1065.82	2218	1081.41	2218
1084.23	2218	1086.6	2218	1096.82	2218	1099.55	2218	1101.55	2218
1106.59	2218	1121.05	2218	1125.66	2218	1133.07	2218	1140.25	2218
1141.48	2218	1141.85	2218	1145.4	2218	1145.69	2218	1145.76	2218
1154.33	2218	1154.8	2218	1160.08	2218	1164.28	2218	1164.95	2218
1169.27	2218	1170.83	2218	1178.71	2218	1205.31	2219.39	1216.92	2220
1217.3	2220	1219.13	2220.2	1220.65	2220.2	1221.56	2220.22	1222.9	2220.23
1223.46	2220.2	1232.69	2220.64	1258.28	2222	1267.76	2222.36	1270.47	2222.35
1275.45	2222.4	1282.05	2222.36	1287.3	2222.26	1288.39	2222.28	1301.94	2222.04
1302.07	2222	1303.82	2222	1306.35	2221.93	1318.41	2221.8	1324.52	2221.61
1324.89	2221.6	1330.93	2220.81	1337.25	2220.59	1340.56	2220.58	1341.05	2220.63
1344.76	2221	1344.94	2220.97	1350.62	2220.73	1350.65	2220.73	1350.93	2220.76
1355.87	2221	1356.06	2221	1360.23	2220.95	1365.92	2220.87	1371.43	2220.44
1372.78	2220.4	1375.01	2220.42	1382.29	2220.65	1384.01	2220.66	1387.39	2220.58
1389.55	2220.5	1391.16	2220.5	1392.62	2220.45	1396.39	2220.57	1402.08	2220.54
1409.63	2220.7	1435.23	2221.79	1436.55	2221.8	1438.71	2221.94	1439.32	2221.95
1439.98	2222	1440.41	2221.99	1441.15	2222				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.04	234.34	.04	460.14	.04

Bank Sta: Left	Right	Coeff Contr.	Expan.
234.34	460.14	.3	.5

Downstream Deck/Roadway Coordinates

num= 7

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
0	2216	2197	202	2214	2197	242	2212	2197
247	2212	2197	252	2212	2197	307	2214	2197
641.86	2216	2197						

Downstream Bridge Cross Section Data

Station Elevation Data num= 162

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2212	3.13	2211.91	3.43	2211.9	13.74	2212	16.96	2212.03
17.17	2212	25.85	2210.73	33.32	2210.64	42.76	2210.53	60.46	2211.13
71.77	2211.5	73.47	2211.57	77.14	2211.67	79.49	2211.66	86.55	2211.62
90.85	2211.2	96.25	2210.74	100.44	2210.77	104.64	2210.81	110.29	2210.81
116.46	2210.8	121.02	2211.36	125.88	2211.94	126.12	2211.94	131.12	2211.89
131.58	2211.9	132.64	2211.89	141.15	2211.82	144.37	2211.99	144.4	2211.99
152.26	2211.59	155.94	2211.4	162.9	2211.33	166.82	2211.34	173.52	2211.44
183.02	2211.5	187.65	2211.5	192.47	2211.96	192.48	2211.96	192.53	2211.98
192.63	2212	200.84	2213.13	214.39	2213.96	214.64	2213.97	214.67	2213.96
214.86	2213.9	217.91	2213.44	220.42	2213.34	222	2213.39	224.04	2212
225.03	2211.3	226.97	2210	227.19	2209.84	227.58	2209.58	231.18	2208
231.77	2207.7	231.79	2207.73	232.31	2207.56	235.16	2206.46	239.7	2204.72
241	2200	242.32	2200	244.42	2200	250.76	2200	252.74	2203.03
255.77	2204	256.69	2204.8	257.56	2206	258.36	2210.44	258.65	2211.3
259.45	2211.48	259.52	2211.5	262	2211.15	264.8	2210.76	271.11	2210.55
275.62	2210.39	285.66	2211.6	289.13	2212	296.19	2212.84	301.38	2213.46
306.33	2212	312.36	2210.2	313.11	2210	314.09	2209.71	317.96	2209.67

```
  318.02 2209.66  318.13  2209.7  318.69 2209.74  319.81    2210  323.24 2210.79
  328.51    2212  330.31  2212.4  339.41 2212.33     342 2212.31  345.59 2212.43
  346.25 2212.45  347.02 2212.47  348.98  2212.6  355.21 2213.03  358.52 2213.02
  365.08 2213.01   368.3  2213.1  375.11  2213.2  379.23 2213.29  387.11 2213.56
  388.21  2213.6  390.12 2213.58  395.03  2213.5  396.38 2213.56  407.49 2213.81
  410.89 2213.65  423.62 2213.07  427.24  2213.2   431.7 2213.34  438.07 2213.42
  439.96 2213.49  453.19    2214  453.33    2214  453.36 2214.01  458.08 2214.43
  459.24 2214.53  462.71 2214.73  470.29  2215.7  474.22 2215.53  475.15 2215.61
  476.03 2215.65  476.85 2215.66  485.28  2215.7  487.04 2215.71  495.29 2215.74
  495.61 2215.74  506.52 2215.74  510.61  2215.7  516.02 2215.77  527.38 2215.84
  527.55 2215.84  527.84 2215.84  535.45  2215.4  537.11 2215.43  553.34 2215.86
  554.89 2215.86  555.72 2215.87  574.14  2215.9  574.55  2215.9  575.03  2215.9
   575.2 2215.81  575.53 2215.75  588.86  2215.9     589 2215.88  589.13 2215.92
  601.01 2215.91  601.23 2215.94  601.58  2215.9  601.84 2215.94  610.62 2215.84
  611.97 2215.84  621.06 2215.89  630.65  2215.9  630.88 2215.93  630.89 2215.93
   631.8 2215.82  641.86    2216

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .06  132.64     .05  345.59     .06

Bank Sta: Left   Right    Coeff Contr.   Expan.
        132.64  345.59            .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
       0     242               T
     252  641.86               T

Upstream Embankment side slope              =     3.6 horiz. to 1.0 vertical
Downstream Embankment side slope            =     3.7 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow =     .95
Elevation at which weir flow begins         =
Energy head used in spillway design         =
Spillway height used in design              =
Weir crest shape                            = Broad Crested

Number of Culverts =  1

Culvert Name     Shape      Rise    Span
Culvert #1      Circular      10
FHWA Chart # 2 - Corrugated Metal Pipe Culvert
FHWA Scale # 2 - Mitered to conform to slope
Solution Criteria = Inlet control
Culvert Upstrm Dist  Length    Top n  Bottom n  Depth Blocked  Entrance Loss Coef    Exit Loss Coef
                8.1    92.4     .031      .031        0                  .5                 1
Upstream   Elevation =  2199.99
           Centerline Station =  348
Downstream Elevation =  2200
           Centerline Station =  247

CULVERT OUTPUT  Profile #PF 1  Culv Group:  Culvert #1

  Q Culv Group (cfs)         985.24    Culv Full Len (ft)         29.46
  # Barrels                       1    Culv Vel US (ft/s)         12.54
  Q Barrel (cfs)             985.24    Culv Vel DS (ft/s)         15.46
  E.G. US. (ft)             2214.63    Culv Inv El Up (ft)      2199.99
  W.S. US. (ft)             2214.62    Culv Inv El Dn (ft)      2200.00
  E.G. DS (ft)              2208.50    Culv Frctn Ls (ft)          2.13
  W.S. DS (ft)              2205.69    Culv Exit Loss (ft)         2.77
  Delta EG (ft)                6.13    Culv Entr Loss (ft)         1.22
  Delta WS (ft)                8.93    Q Weir (cfs)              832.76
  E.G. IC (ft)              2214.63    Weir Sta Lft (ft)         206.46
  E.G. OC (ft)              2214.63    Weir Sta Rgt (ft)         711.67
  Culvert Control             Inlet    Weir Submerg                0.00
```

Culv WS Inlet (ft)	2209.99	Weir Max Depth (ft)	2.64
Culv WS Outlet (ft)	2207.56	Weir Avg Depth (ft)	0.63
Culv Nml Depth (ft)		Weir Flow Area (sq ft)	316.88
Culv Crt Depth (ft)	7.56	Min El Weir Flow (ft)	2212.01

Warning: The inlet is submerged and the outlet computations indicate that the culvert would flow full over all or part of its length. The program would normally default to the outlet answer. However, the user has requested that the inlet answer be used.

CULVERT OUTPUT Profile #PF 2 Culv Group: Culvert #1

Q Culv Group (cfs)	985.24	Culv Full Len (ft)	29.46
# Barrels	1	Culv Vel US (ft/s)	12.54
Q Barrel (cfs)	985.24	Culv Vel DS (ft/s)	15.46
E.G. US. (ft)	2214.63	Culv Inv El Up (ft)	2199.99
W.S. US. (ft)	2214.62	Culv Inv El Dn (ft)	2200.00
E.G. DS (ft)	2208.50	Culv Frctn Ls (ft)	2.13
W.S. DS (ft)	2205.69	Culv Exit Loss (ft)	2.77
Delta EG (ft)	6.13	Culv Entr Loss (ft)	1.22
Delta WS (ft)	8.93	Q Weir (cfs)	832.76
E.G. IC (ft)	2214.63	Weir Sta Lft (ft)	206.46
E.G. OC (ft)	2214.63	Weir Sta Rgt (ft)	711.67
Culvert Control	Inlet	Weir Submerg	0.00
Culv WS Inlet (ft)	2209.99	Weir Max Depth (ft)	2.64
Culv WS Outlet (ft)	2207.56	Weir Avg Depth (ft)	0.63
Culv Nml Depth (ft)		Weir Flow Area (sq ft)	316.88
Culv Crt Depth (ft)	7.56	Min El Weir Flow (ft)	2212.01

Warning: The inlet is submerged and the outlet computations indicate that the culvert would flow full over all or part of its length. The program would normally default to the outlet answer. However, the user has requested that the inlet answer be used.

CROSS SECTION

RIVER: Tropicana Wash
REACH: Tropicana Wash RS: 63.389

INPUT
Description: Downstream X-Section from UPRR Culvert Crossing
Station Elevation Data num= 162

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2212	3.13	2211.91	3.43	2211.9	13.74	2212	16.96	2212.03
17.17	2212	25.85	2210.73	33.32	2210.64	42.76	2210.53	60.46	2211.13
71.77	2211.5	73.47	2211.57	77.14	2211.67	79.49	2211.66	86.55	2211.62
90.85	2211.2	96.25	2210.74	100.44	2210.77	104.64	2210.81	110.29	2210.81
116.46	2210.8	121.02	2211.36	125.88	2211.94	126.12	2211.94	131.12	2211.89
131.58	2211.9	132.64	2211.89	141.15	2211.82	144.37	2211.99	144.4	2211.99
152.26	2211.59	155.94	2211.4	162.9	2211.33	166.82	2211.34	173.52	2211.44
183.02	2211.5	187.65	2211.5	192.47	2211.96	192.48	2211.96	192.53	2211.98
192.63	2212	200.84	2213.13	214.39	2213.96	214.64	2213.97	214.67	2213.96
214.86	2213.9	217.91	2213.44	220.42	2213.34	222	2213.39	224.04	2212
225.03	2211.3	226.97	2210	227.19	2209.84	227.58	2209.58	231.18	2208
231.77	2207.7	231.79	2207.73	232.31	2207.56	235.16	2206.46	239.7	2204.72
241	2200	242.32	2200	244.42	2200	250.76	2200	252.74	2203.03
255.77	2204	256.69	2204.8	257.56	2206	258.36	2210.44	258.65	2211.3
259.45	2211.48	259.52	2211.5	262	2211.15	264.8	2210.76	271.11	2210.55
275.62	2210.39	285.66	2211.6	289.13	2212	296.19	2212.84	301.38	2213.46
306.33	2212	312.36	2210.2	313.11	2210	314.09	2209.71	317.96	2209.67
318.02	2209.66	318.13	2209.7	318.69	2209.74	319.81	2210	323.24	2210.79
328.51	2212	330.31	2212.4	339.41	2212.33	342	2212.31	345.59	2212.43
346.25	2212.45	347.02	2212.47	348.98	2212.6	355.21	2213.03	358.52	2213.02

365.08	2213.01	368.3	2213.1	375.11	2213.2	379.23	2213.29	387.11	2213.56
388.21	2213.6	390.12	2213.58	395.03	2213.5	396.38	2213.56	407.49	2213.81
410.89	2213.65	423.62	2213.07	427.24	2213.2	431.7	2213.34	438.07	2213.42
439.96	2213.49	453.19	2214	453.33	2214	453.36	2214.01	458.08	2214.43
459.24	2214.53	462.71	2214.73	470.29	2215.7	474.22	2215.53	475.15	2215.61
476.03	2215.65	476.85	2215.66	485.28	2215.7	487.04	2215.71	495.29	2215.74
495.61	2215.74	506.52	2215.74	510.61	2215.7	516.02	2215.77	527.38	2215.84
527.55	2215.84	527.84	2215.84	535.45	2215.4	537.11	2215.43	553.34	2215.86
554.89	2215.86	555.72	2215.87	574.14	2215.9	574.55	2215.9	575.03	2215.9
575.2	2215.81	575.53	2215.75	588.86	2215.9	589	2215.88	589.13	2215.92
601.01	2215.91	601.23	2215.94	601.58	2215.9	601.84	2215.94	610.62	2215.84
611.97	2215.84	621.06	2215.89	630.65	2215.9	630.88	2215.93	630.89	2215.93
631.8	2215.82	641.86	2216						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.06	132.64	.05	345.59	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
132.64	345.59	69.13	54.14	142.71 .3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
0	242		T
252	641.86		T

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	2208.50	Element	Left OB	Channel	Right OB	
Vel Head (ft)	2.81	Wt. n-Val.		0.050		
W.S. Elev (ft)	2205.69	Reach Len. (ft)	69.13	54.14	142.71	
Crit W.S. (ft)	2205.69	Flow Area (sq ft)		55.72		
E.G. Slope (ft/ft)	0.023664	Area (sq ft)		77.41		
Q Total (cfs)	750.00	Flow (cfs)		750.00		
Top Width (ft)	20.16	Top Width (ft)		20.16		
Vel Total (ft/s)	13.46	Avg. Vel. (ft/s)		13.46		
Max Chl Dpth (ft)	5.69	Hydr. Depth (ft)		5.57		
Conv. Total (cfs)	4875.5	Conv. (cfs)		4875.5		
Length Wtd. (ft)	54.14	Wetted Per. (ft)		11.03		
Min Ch El (ft)	2200.00	Shear (lb/sq ft)		7.46		
Alpha	1.00	Stream Power (lb/ft s)		100.48		
Frctn Loss (ft)	0.56	Cum Volume (acre-ft)	0.03	6.05		
C & E Loss (ft)	1.21	Cum SA (acres)	0.05	3.68		

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

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.

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

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

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

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	2208.50	Element	Left OB	Channel	Right OB	
Vel Head (ft)	2.81	Wt. n-Val.		0.050		
W.S. Elev (ft)	2205.69	Reach Len. (ft)	69.13	54.14	142.71	
Crit W.S. (ft)	2205.69	Flow Area (sq ft)		55.73		
E.G. Slope (ft/ft)	0.023643	Area (sq ft)		77.44		
Q Total (cfs)	750.00	Flow (cfs)		750.00		

Top Width (ft)	20.17	Top Width (ft)			20.17
Vel Total (ft/s)	13.46	Avg. Vel. (ft/s)			13.46
Max Chl Dpth (ft)	5.69	Hydr. Depth (ft)			5.57
Conv. Total (cfs)	4877.6	Conv. (cfs)			4877.6
Length Wtd. (ft)	54.14	Wetted Per. (ft)			11.03
Min Ch El (ft)	2200.00	Shear (lb/sq ft)			7.46
Alpha	1.00	Stream Power (lb/ft s)			100.39
Frctn Loss (ft)	0.33	Cum Volume (acre-ft)		0.05	5.27
C & E Loss (ft)	1.28	Cum SA (acres)		0.09	1.85

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

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.

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

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

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

CROSS SECTION

RIVER: Tropicana Wash
REACH: Tropicana Wash RS: 63.379

INPUT
Description: 13
Station Elevation Data num= 102

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2209.7	3.33	2209.47	7.37	2209.09	10.79	2208.76	13.47	2208.6
14.72	2208.5	17.01	2208	21.2	2207.84	31.24	2206.88	37.74	2206.38
38.27	2206.4	39.01	2206.34	39.28	2206.3	40.58	2206.24	42.21	2206
48.28	2205.8	56.65	2205.71	68.46	2205.6	69	2205.52	79.4	2204
83.27	2204	87.56	2204	107.12	2203.48	109.27	2203.22	113.25	2203.12
123.99	2202.9	129.57	2202.84	131.1	2202.88	138.36	2202.72	138.48	2202.72
139.17	2202.7	142.65	2202.7	143.75	2202.69	146.02	2202.61	148.29	2202.61
153.61	2202.83	165	2203.5	175.45	2204	180.68	2204.32	182.52	2204.43
182.86	2204.45	187.16	2205	190.39	2205.46	190.52	2205.46	196.08	2205.41
196.51	2205.41	196.7	2205.4	196.84	2205.4	196.91	2205.4	204.21	2205.2
207.23	2204.92	209.76	2204.3	211.01	2204.29	212.92	2204	215.94	2203.48
223.36	2202.72	230.34	2202	232.57	2202	249.29	2202	251.83	2202
258.61	2202.52	262.6	2202.6	273.17	2203.11	288.12	2204	293.34	2204.73
309.57	2205.96	310.06	2206	322.43	2206.99	333.26	2207.63	333.72	2207.64
343.1	2207.85	344.97	2207.9	347.04	2208	350.28	2208.44	353.33	2208.47
354.06	2208.56	355.01	2208.75	355.35	2208.8	358.26	2210	361.09	2210
361.48	2210	367.41	2210	371.19	2210	381.96	2210	385.76	2210
401.11	2210	402.01	2210	406.78	2210	409.98	2210	410.46	2210
425.53	2210	444.81	2209.87	449.71	2210	453.08	2210.33	457.71	2210.6
460.13	2210.73	471.59	2211.32	482.18	2212	493.25	2213.04	500.26	2213.55
505.35	2214	505.76	2214.01						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.06	69	.05	333.72	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
69	333.72	167.5	208.3 249.51	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent

0	212	F
262	505.76	F

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	2206.03	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.38	Wt. n-Val.		0.050	
W.S. Elev (ft)	2205.65	Reach Len. (ft)	167.50	208.30	249.51
Crit W.S. (ft)		Flow Area (sq ft)		160.85	
E.G. Slope (ft/ft)	0.005922	Area (sq ft)	0.16	499.65	
Q Total (cfs)	800.00	Flow (cfs)		800.00	
Top Width (ft)	241.96	Top Width (ft)	5.53	236.43	
Vel Total (ft/s)	4.97	Avg. Vel. (ft/s)		4.97	
Max Chl Dpth (ft)	3.65	Hydr. Depth (ft)		3.22	
Conv. Total (cfs)	10396.1	Conv. (cfs)		10396.1	
Length Wtd. (ft)	208.30	Wetted Per. (ft)		50.15	
Min Ch El (ft)	2202.00	Shear (lb/sq ft)		1.19	
Alpha	1.00	Stream Power (lb/ft s)		5.90	
Frctn Loss (ft)	1.74	Cum Volume (acre-ft)	0.03	5.69	
C & E Loss (ft)	0.00	Cum SA (acres)	0.05	3.52	

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

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	2206.69	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.25	Wt. n-Val.		0.050	
W.S. Elev (ft)	2206.45	Reach Len. (ft)	167.50	208.30	249.51
Crit W.S. (ft)		Flow Area (sq ft)		200.80	
E.G. Slope (ft/ft)	0.002827	Area (sq ft)	19.81	692.70	
Q Total (cfs)	800.00	Flow (cfs)		800.00	
Top Width (ft)	278.74	Top Width (ft)	32.11	246.63	
Vel Total (ft/s)	3.98	Avg. Vel. (ft/s)		3.98	
Max Chl Dpth (ft)	4.45	Hydr. Depth (ft)		4.02	
Conv. Total (cfs)	15047.1	Conv. (cfs)		15047.1	
Length Wtd. (ft)	208.30	Wetted Per. (ft)		50.15	
Min Ch El (ft)	2202.00	Shear (lb/sq ft)		0.71	
Alpha	1.00	Stream Power (lb/ft s)		2.81	
Frctn Loss (ft)	1.22	Cum Volume (acre-ft)	0.04	4.79	
C & E Loss (ft)	0.05	Cum SA (acres)	0.06	1.69	

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

CROSS SECTION

RIVER: Tropicana Wash
REACH: Tropicana Wash RS: 63.339

INPUT
Description: 12
Station Elevation Data num= 71

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2209.8	6.96	2209.76	16.98	2209.69	21.86	2209.73	45.95	2209.53

46.05	2209.3	52.23	2209.16	55.36	2209.14	60.49	2209.14	62.81	2209.14
66.55	2209.2	66.88	2209.18	67.33	2209.19	80.67	2209.47	100.84	2209.77
107.13	2209.8	113.45	2209.82	115.25	2209.91	117.58	2210	130.99	2210
151.73	2210	153.28	2210	155.2	2209.75	162.74	2208	165.23	2207.34
170.71	2206	174.99	2204.91	178.56	2204	180.75	2203.5	183.46	2202.66
185.8	2203.2	186.26	2203.21	192.98	2203.38	198.12	2203.27	211.19	2202.86
221.85	2202.53	239.57	2202	251.17	2201.28	252.54	2201.16	252.9	2201.14
258.27	2200.86	258.48	2200.8	265.07	2200.69	265.29	2200.71	266.18	2200.78
267.5	2200.94	268.28	2201	269.17	2201.23	269.63	2201.26	274.34	2201.71
275.78	2201.86	276.81	2202	279.21	2202.49	285.21	2203.71	286.57	2204
286.85	2204.06	296.06	2206	314.11	2206.71	343.55	2207.85	347.53	2208
348.61	2208	351.71	2208	362.21	2208	383.25	2208	412.22	2208
439.92	2208	444.18	2208	469.5	2209.4	476.88	2210	478.57	2210.28
478.58	2210.28								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.06	186.26	.05	343.55	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
186.26	343.55	285.98	283.46	275.22	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
0	195		F
365	478.58		F

CROSS SECTION OUTPUT Profile #PF 1

			Left OB	Channel	Right OB
E.G. Elev (ft)	2204.29	Element			
Vel Head (ft)	0.37	Wt. n-Val.		0.050	
W.S. Elev (ft)	2203.92	Reach Len. (ft)	285.98	283.46	275.22
Crit W.S. (ft)	2203.46	Flow Area (sq ft)		162.98	
E.G. Slope (ft/ft)	0.012642	Area (sq ft)	5.30	168.30	
Q Total (cfs)	800.00	Flow (cfs)		800.00	
Top Width (ft)	107.27	Top Width (ft)	7.34	99.93	
Vel Total (ft/s)	4.91	Avg. Vel. (ft/s)		4.91	
Max Chl Dpth (ft)	3.23	Hydr. Depth (ft)		1.79	
Conv. Total (cfs)	7115.2	Conv. (cfs)		7115.2	
Length Wtd. (ft)	283.46	Wetted Per. (ft)		91.53	
Min Ch El (ft)	2200.69	Shear (lb/sq ft)		1.41	
Alpha	1.00	Stream Power (lb/ft s)		6.90	
Frctn Loss (ft)	2.57	Cum Volume (acre-ft)	0.02	4.09	
C & E Loss (ft)	0.05	Cum SA (acres)	0.02	2.72	

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

CROSS SECTION OUTPUT Profile #PF 2

			Left OB	Channel	Right OB
E.G. Elev (ft)	2205.42	Element			
Vel Head (ft)	0.78	Wt. n-Val.		0.050	
W.S. Elev (ft)	2204.64	Reach Len. (ft)	285.98	283.46	275.22
Crit W.S. (ft)		Flow Area (sq ft)		112.67	
E.G. Slope (ft/ft)	0.018648	Area (sq ft)		112.67	
Q Total (cfs)	800.00	Flow (cfs)		800.00	
Top Width (ft)	43.10	Top Width (ft)		43.10	
Vel Total (ft/s)	7.10	Avg. Vel. (ft/s)		7.10	
Max Chl Dpth (ft)	3.69	Hydr. Depth (ft)		2.61	
Conv. Total (cfs)	5858.3	Conv. (cfs)		5858.3	
Length Wtd. (ft)	283.46	Wetted Per. (ft)		48.69	
Min Ch El (ft)	2200.94	Shear (lb/sq ft)		2.69	
Alpha	1.00	Stream Power (lb/ft s)		19.13	
Frctn Loss (ft)	2.68	Cum Volume (acre-ft)		2.86	

C & E Loss (ft)	0.12	Cum SA (acres)	0.99

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

CROSS SECTION

RIVER: Tropicana Wash
REACH: Tropicana Wash RS: 63.286

INPUT
Description: 11
Station Elevation Data num= 85

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2206.3	12.25	2206.09	12.67	2206	14.54	2206	18.28	2205.72
18.93	2205.8	27.84	2204	29.14	2203.74	29.47	2203.68	32.29	2203.4
32.47	2203.4	38.44	2202.21	39.01	2202.1	39.28	2202.08	40.46	2202
43.58	2202	43.95	2202	44.12	2202	47.02	2202.15	48.97	2202.7
51.3	2203.56	53.15	2203.63	53.78	2203.76	58.03	2203.96	58.12	2204
58.16	2203.97	58.31	2203.92	59.32	2204	61.15	2204.07	61.43	2204
62.13	2203.65	63.68	2203.61	64.65	2203.66	67.09	2203.07	67.23	2203.1
69.05	2202.59	71.09	2202.06	71.31	2202	86.67	2201.7	86.73	2201.7
89.74	2201.64	91.81	2201.6	97.91	2201.46	98.79	2201.43	99.56	2201.42
99.97	2201.4	106.72	2201.34	118.78	2201.56	118.82	2201.57	119.95	2201.6
125.53	2201.5	125.66	2201.49	131.23	2201.34	132.95	2201.2	136.17	2200.98
136.86	2201	136.99	2200.96	137.23	2200.96	149.85	2200.42	157.84	2200.08
159.61	2200	162.35	2199.73	169.02	2199.03	174.18	2198.47	176.51	2198.33
177.69	2198.3	186.15	2198.47	190.19	2198.87	197.76	2199.19	207.41	2200
209.98	2200	218.24	2200	231.59	2200	247.46	2199.71	254.14	2199.86
258.55	2200	266.07	2201.42	267.65	2202	275.65	2202.38	304.72	2203.78
309.55	2204	363.8	2205.8	369.32	2206	449.78	2207.07	467.6	2207.31

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.05	89.74	.045	275.65	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
89.74	275.65	228.57	215.51	180.73	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	2201.66	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.19	Wt. n-Val.		0.045	
W.S. Elev (ft)	2201.47	Reach Len. (ft)	228.57	215.51	180.73
Crit W.S. (ft)		Flow Area (sq ft)		228.17	
E.G. Slope (ft/ft)	0.006834	Area (sq ft)		228.17	
Q Total (cfs)	800.00	Flow (cfs)		800.00	
Top Width (ft)	156.41	Top Width (ft)		156.41	
Vel Total (ft/s)	3.51	Avg. Vel. (ft/s)		3.51	
Max Chl Dpth (ft)	3.17	Hydr. Depth (ft)		1.46	
Conv. Total (cfs)	9677.3	Conv. (cfs)		9677.3	
Length Wtd. (ft)	215.51	Wetted Per. (ft)		156.75	
Min Ch El (ft)	2198.30	Shear (lb/sq ft)		0.62	
Alpha	1.00	Stream Power (lb/ft s)		2.18	
Frctn Loss (ft)	2.73	Cum Volume (acre-ft)		2.80	
C & E Loss (ft)	0.03	Cum SA (acres)		1.88	

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

0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m), between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	2202.63	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.40	Wt. n-Val.		0.045	
W.S. Elev (ft)	2202.23	Reach Len. (ft)	228.57	215.51	180.73
Crit W.S. (ft)		Flow Area (sq ft)		157.99	
E.G. Slope (ft/ft)	0.005698	Area (sq ft)		157.99	
Q Total (cfs)	800.00	Flow (cfs)		800.00	
Top Width (ft)	50.00	Top Width (ft)		50.00	
Vel Total (ft/s)	5.06	Avg. Vel. (ft/s)		5.06	
Max Chl Dpth (ft)	3.93	Hydr. Depth (ft)		3.16	
Conv. Total (cfs)	10598.0	Conv. (cfs)		10598.0	
Length Wtd. (ft)	215.51	Wetted Per. (ft)		54.56	
Min Ch El (ft)	2198.30	Shear (lb/sq ft)		1.03	
Alpha	1.00	Stream Power (lb/ft s)		5.22	
Frctn Loss (ft)	2.29	Cum Volume (acre-ft)		1.98	
C & E Loss (ft)	0.07	Cum SA (acres)		0.69	

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

CROSS SECTION

RIVER: Tropicana Wash
REACH: Tropicana Wash RS: 63.245

INPUT
Description: 10
Station Elevation Data num= 96

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2200	3.55	2200.06	3.71	2200.06	4.14	2200.07	4.66	2200.07
4.89	2200.1	5.37	2200.08	9.46	2200.17	12.38	2200.25	21.44	2200.48
49.35	2201	60.69	2201.15	64.76	2201.14	65.06	2201.15	65.19	2201.16
65.55	2201.2	72.98	2201.17	74.21	2201.13	80.16	2201.17	95.38	2201.43
103.92	2201.6	117.44	2201.8	118.06	2201.81	120.97	2201.84	121.74	2201.82
122.51	2201.8	123.25	2201.8	127.83	2201.7	129.34	2201.65	138.8	2201.61
149.12	2202	162.92	2202.34	164.2	2202.37	167.57	2202	171.58	2202
175.18	2202	177.05	2202	180.6	2202	183.39	2200.31	183.63	2200.23
184.25	2200	186.06	2199.3	188.03	2198.77	189.99	2198	191.99	2198
198.91	2198	204.27	2198	207.02	2198	214.25	2198.02	219.33	2198.01
220.27	2198	223.17	2198	226.57	2197.85	236.23	2197.53	242.35	2197.37
246.32	2197.38	250.55	2197.3	250.6	2197.24	262.14	2196.96	262.15	2196.95
263.95	2196.9	264.93	2196.8	266.41	2196.72	275.66	2196.63	275.91	2196.64
281.54	2196.72	287	2196.8	290.41	2196.8	296.01	2197.05	314.72	2197.46
333.01	2198	334.24	2198.6	341.11	2200	342.39	2200.05	350.83	2200.37
351.82	2200.4	352.97	2200.44	361.28	2200.7	365.63	2200.79	368.7	2200.88
403.69	2202	404.69	2202.09	406.47	2202.2	408.54	2202.39	414.01	2202.95
419.74	2203.57	422.08	2203.85	425.99	2203.9	427.36	2204	460.14	2205.26
469.39	2205.71	469.73	2205.72	469.81	2205.7	470.49	2205.74	472.93	2205.78
479.47	2205.82								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.05	189.99	.045	333.01	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
162.92	342.39	296.17	309.07 321.59	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	2198.90	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.50	Wt. n-Val.		0.045	
W.S. Elev (ft)	2198.40	Reach Len. (ft)	296.17	309.07	321.59
Crit W.S. (ft)	2198.40	Flow Area (sq ft)		140.52	
E.G. Slope (ft/ft)	0.031036	Area (sq ft)		140.52	
Q Total (cfs)	800.00	Flow (cfs)		800.00	
Top Width (ft)	144.86	Top Width (ft)		144.86	
Vel Total (ft/s)	5.69	Avg. Vel. (ft/s)		5.69	
Max Chl Dpth (ft)	1.77	Hydr. Depth (ft)		0.97	
Conv. Total (cfs)	4541.1	Conv. (cfs)		4541.1	
Length Wtd. (ft)	309.07	Wetted Per. (ft)		145.10	
Min Ch El (ft)	2196.63	Shear (lb/sq ft)		1.88	
Alpha	1.00	Stream Power (lb/ft s)		10.68	
Frctn Loss (ft)	4.82	Cum Volume (acre-ft)		1.89	
C & E Loss (ft)	0.05	Cum SA (acres)		1.14	

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

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	2200.27	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.09	Wt. n-Val.		0.045	
W.S. Elev (ft)	2199.19	Reach Len. (ft)	296.17	309.07	321.59
Crit W.S. (ft)	2199.19	Flow Area (sq ft)		95.66	
E.G. Slope (ft/ft)	0.026264	Area (sq ft)		95.66	
Q Total (cfs)	800.00	Flow (cfs)		800.00	
Top Width (ft)	44.80	Top Width (ft)		44.80	
Vel Total (ft/s)	8.36	Avg. Vel. (ft/s)		8.36	
Max Chl Dpth (ft)	2.56	Hydr. Depth (ft)		2.14	
Conv. Total (cfs)	4936.4	Conv. (cfs)		4936.4	
Length Wtd. (ft)	309.07	Wetted Per. (ft)		48.96	
Min Ch El (ft)	2196.63	Shear (lb/sq ft)		3.20	
Alpha	1.00	Stream Power (lb/ft s)		26.79	
Frctn Loss (ft)	4.91	Cum Volume (acre-ft)		1.36	
C & E Loss (ft)	0.06	Cum SA (acres)		0.46	

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Tropicana Wash
REACH: Tropicana Wash RS: 63.186

INPUT
Description: 9
Station Elevation Data num= 96

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2197	1.18	2196.98	6.17	2196.96	7.42	2196.99	24.66	2196.5
25.95	2196.5	27.44	2196.51	29.05	2196.48	76.39	2196.38	91.81	2196.47
93.3	2198.2	97.1	2198.31	103.9	2198.86	108.33	2199.12	118.34	2199.73
130.21	2200	136.42	2200	148.91	2200	177.19	2199.29	196.98	2199.69
216.82	2200	225.31	2199.72	227.72	2199.64	273.46	2198	288.75	2196.74
296.08	2196	299.99	2195.5	311.71	2194	311.8	2194	312.38	2194
312.47	2194	313.62	2194	334.86	2194	341.38	2194	347.58	2193.79
352.24	2193.9	352.99	2194	362.54	2194	364.98	2194	365.12	2194
384.92	2194	390.21	2192.2	390.84	2192	392.01	2191.61	395.69	2190
397.65	2189.15	400.28	2188	404.79	2187.48	416.78	2186.96	420.45	2186.71
422.88	2186.56	427.4	2186	437.85	2187.07	444.67	2188	450	2190
455.16	2192	456.1	2192.36	460.31	2194	462.75	2195.02	463.02	2195.1
464.17	2195.49	464.92	2195.42	467.09	2194.99	468.86	2194.64	469.77	2194.64
479.65	2194.6	482.59	2194.39	484.45	2194.32	485.31	2194.27	487.22	2194.23
488.11	2194.3	490.41	2194.35	492.47	2194.48	522.27	2196	533.82	2196
536.51	2196	539.85	2196	549.91	2196	584.99	2196	595.48	2196.45
619.98	2197.4	621.75	2196.98	629.2	2196.85	630.46	2196.83	630.91	2196.86
631.53	2196.9	632.75	2196.82	633.57	2196.81	638.53	2196.83	644.93	2196.9
656.64	2197.4	666.03	2199.14	674.18	2200.15	686.08	2200.06	710.86	2199.54
734.54	2198.9								

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.03	216.82	.05	395.69	.028	450	.05

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
364.98	469.77	360.9	355.84	350.65	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	2190.17	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.00	Wt. n-Val.		0.028	
W.S. Elev (ft)	2189.17	Reach Len. (ft)	360.90	355.84	350.65
Crit W.S. (ft)	2189.17	Flow Area (sq ft)		99.53	
E.G. Slope (ft/ft)	0.009363	Area (sq ft)		99.53	
Q Total (cfs)	800.00	Flow (cfs)		800.00	
Top Width (ft)	50.17	Top Width (ft)		50.17	
Vel Total (ft/s)	8.04	Avg. Vel. (ft/s)		8.04	
Max Chl Dpth (ft)	3.17	Hydr. Depth (ft)		1.98	
Conv. Total (cfs)	8267.6	Conv. (cfs)		8267.6	
Length Wtd. (ft)	355.84	Wetted Per. (ft)		50.83	
Min Ch El (ft)	2186.00	Shear (lb/sq ft)		1.14	
Alpha	1.00	Stream Power (lb/ft s)		9.20	
Frctn Loss (ft)	2.66	Cum Volume (acre-ft)		1.04	
C & E Loss (ft)	0.10	Cum SA (acres)		0.44	

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

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	2191.63	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.68	Wt. n-Val.		0.028	
W.S. Elev (ft)	2189.94	Reach Len. (ft)	360.90	355.84	350.65
Crit W.S. (ft)	2189.94	Flow Area (sq ft)		76.86	
E.G. Slope (ft/ft)	0.010625	Area (sq ft)		76.86	
Q Total (cfs)	800.00	Flow (cfs)		800.00	
Top Width (ft)	23.20	Top Width (ft)		23.20	
Vel Total (ft/s)	10.41	Avg. Vel. (ft/s)		10.41	
Max Chl Dpth (ft)	3.94	Hydr. Depth (ft)		3.31	
Conv. Total (cfs)	7761.2	Conv. (cfs)		7761.2	
Length Wtd. (ft)	355.84	Wetted Per. (ft)		29.28	
Min Ch El (ft)	2186.00	Shear (lb/sq ft)		1.74	
Alpha	1.00	Stream Power (lb/ft s)		18.12	
Frctn Loss (ft)	3.82	Cum Volume (acre-ft)		0.74	
C & E Loss (ft)	0.00	Cum SA (acres)		0.22	

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Tropicana Wash
REACH: Tropicana Wash RS: 63.119

INPUT
Description: 8
Station Elevation Data num= 133

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2190.6	2.72	2190.58	12.12	2190.59	17.08	2190.58	23.64	2190.5
59.39	2190.1	60.09	2190.05	60.3	2190.05	60.45	2190.05	60.66	2190.05
79.75	2190.1	82.04	2190.13	84.32	2190.17	95.79	2190.24	104.16	2190.22
122.14	2190.6	122.79	2190	125.32	2190	136	2190	136.33	2190
138.45	2190	152.85	2190.3	160.85	2190.87	167.29	2191.18	169.61	2191.41
174.9	2191.8	176.13	2191.9	176.98	2192	177.91	2192.26	181.97	2194
185.55	2195.4	187.99	2195.95	188.04	2195.97	188.09	2195.98	188.19	2195.98
188.31	2196	188.35	2195.89	191.76	2194.9	193.97	2194	199.74	2193.42
203.7	2193.1	206.18	2192.77	211.96	2192	215.56	2190.41	216.5	2190
220.82	2188.1	221.03	2188	221.98	2187.58	225.29	2186	226.28	2184.95
228.68	2184.38	229.48	2184	230.72	2182.23	231.89	2182	233.81	2180.84
234.36	2180.8	234.81	2180.5	234.96	2180.28	235.29	2180.3	239.05	2180.3
242.99	2180.3	243	2180.3	243.85	2180.3	244.32	2180.3	244.78	2180.3
247.71	2180.3	248.73	2180.3	249.15	2180.3	251.94	2180.3	255.25	2180.3
262.06	2180.3	264.27	2180.3	264.91	2180.69	265.82	2180.59	266.04	2180.52
267.2	2180.8	267.32	2180.78	273.58	2182	276.18	2182.94	284.56	2184
289.05	2184.8	294.92	2186	301.25	2186.64	303.52	2186.43	304.21	2186.34
307.36	2186.3	308.57	2186.31	308.76	2186.34	309.7	2186.32	310.82	2186.25
312.63	2186.5	312.98	2187.23	313.91	2187.61	314.29	2187.71	315.1	2188
315.5	2188.1	316.01	2188.25	317.32	2188.54	322.25	2189.23	324.7	2189.57
324.93	2189.6	331.43	2189.92	331.84	2189.95	332.47	2190	337.71	2190.21
341.79	2190.3	342.71	2190.28	348.04	2190.3	349.22	2190.32	354.48	2190.48
356.09	2190.6	360.74	2190.85	368.27	2191.23	369.32	2191.24	370.87	2191.29
374.28	2191.5	378.86	2191.27	380.12	2191.23	384.85	2191.07	388.6	2191.16

```
  392.97  2191.2  398.55 2191.34  402.28  2190.6  404.52 2190.44   405.5 2190.44
  409.16  2190.5  417.97 2190.61  439.52 2191.09  441.34 2191.14     442 2191.16
  442.83  2191.2  458.58 2191.62  468.69 2191.94

Manning's n Values         num=        4
     Sta   n Val      Sta   n Val      Sta   n Val      Sta   n Val
       0     .03   188.31     .04   230.72    .028    267.2     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        206.18  303.52             44.64   30.67   17.94             .1       .3
Ineffective Flow      num=        2
   Sta L   Sta R    Elev  Permanent
       0     188                T
     295  468.69                T
```

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	2184.02	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.67	Wt. n-Val.		0.031	
W.S. Elev (ft)	2183.36	Reach Len. (ft)	44.64	30.67	17.94
Crit W.S. (ft)		Flow Area (sq ft)		121.84	
E.G. Slope (ft/ft)	0.006086	Area (sq ft)		121.84	
Q Total (cfs)	800.00	Flow (cfs)		800.00	
Top Width (ft)	49.53	Top Width (ft)		49.53	
Vel Total (ft/s)	6.57	Avg. Vel. (ft/s)		6.57	
Max Chl Dpth (ft)	3.07	Hydr. Depth (ft)		2.46	
Conv. Total (cfs)	10254.8	Conv. (cfs)		10254.8	
Length Wtd. (ft)	30.67	Wetted Per. (ft)		51.14	
Min Ch El (ft)	2180.28	Shear (lb/sq ft)		0.91	
Alpha	1.00	Stream Power (lb/ft s)		5.94	
Frctn Loss (ft)	0.06	Cum Volume (acre-ft)		0.13	
C & E Loss (ft)	0.10	Cum SA (acres)		0.04	

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	2185.32	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.69	Wt. n-Val.		0.028	
W.S. Elev (ft)	2183.64	Reach Len. (ft)	44.64	30.67	17.94
Crit W.S. (ft)	2183.64	Flow Area (sq ft)		76.74	
E.G. Slope (ft/ft)	0.010871	Area (sq ft)		76.74	
Q Total (cfs)	800.00	Flow (cfs)		800.00	
Top Width (ft)	23.00	Top Width (ft)		23.00	
Vel Total (ft/s)	10.43	Avg. Vel. (ft/s)		10.43	
Max Chl Dpth (ft)	3.34	Hydr. Depth (ft)		3.34	
Conv. Total (cfs)	7672.7	Conv. (cfs)		7672.7	
Length Wtd. (ft)	30.67	Wetted Per. (ft)		29.67	
Min Ch El (ft)	2180.30	Shear (lb/sq ft)		1.76	
Alpha	1.00	Stream Power (lb/ft s)		18.30	
Frctn Loss (ft)	0.07	Cum Volume (acre-ft)		0.12	
C & E Loss (ft)	0.40	Cum SA (acres)		0.03	

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.

This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Tropicana Wash
REACH: Tropicana Wash RS: 63.113

INPUT
Description: Upstream X-Section before culvert crossing at Valley View
at
Valley View
Station Elevation Data num= 129

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2188.5	2.62	2188.48	19.25	2188.46	31.1	2188.43	34.19	2188.43
37.16	2188.4	39.08	2188.45	59.44	2188.42	62.11	2188.43	63.64	2188.44
81.44	2188.4	83.32	2188.39	101.9	2188.36	108.31	2188.32	111.92	2188.36
136.41	2188.3	138.14	2188.32	139.74	2188.33	145.25	2188.47	156.7	2188.56
159.74	2188.7	182.46	2188.72	183.75	2188.71	186.46	2188.85	194.7	2189.66
196.59	2189.4	199.16	2190	202.2	2190	206.38	2190.32	212.19	2190.16
215.99	2190.2	222.91	2190.09	224.27	2190	224.63	2189.98	224.75	2189.97
233.66	2189.7	233.93	2189.73	234.63	2189.74	234.88	2189.74	238.12	2189.41
240.02	2189.21	240.14	2189.2	243.02	2188.95	243.86	2188.91	244.48	2188.87
245.19	2188.86	245.81	2188.4	247.22	2188	250.68	2186.96	251.59	2186.82
252.69	2186.53	256.85	2186	261.12	2185.22	261.27	2185.09	261.32	2185.09
261.43	2185.05	261.56	2185.1	261.86	2185.04	262.82	2184	264.57	2182.41
265.14	2182	266.16	2181.4	268.45	2180	269.53	2180	270.67	2180
270.77	2178.45	271.13	2178.45	271.8	2178.45	272.41	2178.45	295.95	2178.45
303.2	2178.45	303.43	2178.45	304.39	2178.45	304.96	2178.45	305.31	2178.45
305.51	2178.45	305.58	2178.45	305.77	2178.45	306.13	2178.45	306.32	2178.45
306.64	2178.45	307.49	2178.45	308.17	2178.45	309.39	2178.45	310.08	2178.45
310.67	2178.45	311.1	2178.45	312.07	2178.45	313.93	2178.45	314.65	2178.45
316.52	2178.45	317.22	2178.45	319.12	2185.45	319.8	2186	328.57	2186.17
348.28	2187.2	351.69	2187.33	360.54	2188	361.94	2188.21	368.91	2188.21
370.73	2188.2	375.16	2188.21	381.95	2188.07	389.49	2188.06	391.28	2188
394.02	2188	397.85	2188	398.33	2188	400.69	2188	410.62	2188.12
418.22	2188.6	433.61	2190	436.58	2190	442.78	2190	449.81	2190.19
450.34	2190.1	450.66	2190.06	450.81	2190.06	451.35	2190.07	452.71	2190.09
456.39	2190.2	456.72	2190.18	456.84	2190.19	457	2190.19	460.13	2190.28
463.93	2190.4	467.41	2190.5	473.79	2190.71	515.36	2191.98		

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.03	215.99	.04	269.53	.028	319.12	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
240.02	348.28	3185.6	3138.79 3164.16	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
0	276.395		F
309.805	515.36		F

CROSS SECTION OUTPUT Profile #PF 1

			Left OB	Channel	Right OB
E.G. Elev (ft)	2183.87	Element			
Vel Head (ft)	0.35	Wt. n-Val.		0.028	
W.S. Elev (ft)	2183.52	Reach Len. (ft)			
Crit W.S. (ft)	2181.06	Flow Area (sq ft)		169.39	
E.G. Slope (ft/ft)	0.000909	Area (sq ft)		256.98	
Q Total (cfs)	800.00	Flow (cfs)		800.00	

Top Width (ft)	55.25	Top Width (ft)	55.25
Vel Total (ft/s)	4.72	Avg. Vel. (ft/s)	4.72
Max Chl Dpth (ft)	5.07	Hydr. Depth (ft)	5.07
Conv. Total (cfs)	26530.0	Conv. (cfs)	26530.0
Length Wtd. (ft)		Wetted Per. (ft)	33.41
Min Ch El (ft)	2178.45	Shear (lb/sq ft)	0.29
Alpha	1.00	Stream Power (lb/ft s)	1.36
Frctn Loss (ft)		Cum Volume (acre-ft)	
C & E Loss (ft)		Cum SA (acres)	

Warning: The composite Mannings n value for the channel was larger than the largest entered n value or smaller than the smallest entered n value.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	2183.87	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.35	Wt. n-Val.		0.028	
W.S. Elev (ft)	2183.52	Reach Len. (ft)			
Crit W.S. (ft)	2181.06	Flow Area (sq ft)		169.39	
E.G. Slope (ft/ft)	0.000909	Area (sq ft)		256.98	
Q Total (cfs)	800.00	Flow (cfs)		800.00	
Top Width (ft)	55.25	Top Width (ft)		55.25	
Vel Total (ft/s)	4.72	Avg. Vel. (ft/s)		4.72	
Max Chl Dpth (ft)	5.07	Hydr. Depth (ft)		5.07	
Conv. Total (cfs)	26530.0	Conv. (cfs)		26530.0	
Length Wtd. (ft)		Wetted Per. (ft)		33.41	
Min Ch El (ft)	2178.45	Shear (lb/sq ft)		0.29	
Alpha	1.00	Stream Power (lb/ft s)		1.36	
Frctn Loss (ft)		Cum Volume (acre-ft)			
C & E Loss (ft)		Cum SA (acres)			

Warning: The composite Mannings n value for the channel was larger than the largest entered n value or smaller than the smallest entered n value.
Note: Manning's n values were composited to a single value in the main channel.

SUMMARY OF MANNING'S N VALUES

River:Tropicana Wash

Reach	River Sta.	n1	n2	n3	n4	n5
Tropicana Wash	63.711	.035	.02	.035		
Tropicana Wash	63.703	Culvert				
Tropicana Wash	63.691	.035	.02	.028	.02	.035
Tropicana Wash	63.631	.035	.028	.035		
Tropicana Wash	63.569	.04	.034	.04		
Tropicana Wash	63.552	.04	.032	.04		
Tropicana Wash	63.505	.04	.028	.04		
Tropicana Wash	63.488	.04	.028	.04		
Tropicana Wash	63.456	.04	.025	.04		
Tropicana Wash	63.410	.04	.04	.04		
Tropicana Wash	63.397	Culvert				
Tropicana Wash	63.389	.06	.05	.06		
Tropicana Wash	63.379	.06	.05	.06		
Tropicana Wash	63.339	.06	.05	.06		
Tropicana Wash	63.286	.05	.045	.04		
Tropicana Wash	63.245	.05	.045	.04		
Tropicana Wash	63.186	.03	.05	.028	.05	
Tropicana Wash	63.119	.03	.04	.028	.04	

Tropicana Wash	63.113		.03	.04	.028	.04

SUMMARY OF REACH LENGTHS

River: Tropicana Wash

Reach	River Sta.	Left	Channel	Right
Tropicana Wash	63.711	106.55	106.14	105.07
Tropicana Wash	63.703	Culvert		
Tropicana Wash	63.691	320.78	320.81	320.88
Tropicana Wash	63.631	318.34	326.31	347.37
Tropicana Wash	63.569	94.38	87.55	78.15
Tropicana Wash	63.552	208.29	247.98	217.5
Tropicana Wash	63.505	124.56	89.12	150.96
Tropicana Wash	63.488	170.98	168.37	160.12
Tropicana Wash	63.456	351.75	244.62	156.19
Tropicana Wash	63.410	112.33	111.64	151.37
Tropicana Wash	63.397	Culvert		
Tropicana Wash	63.389	69.13	54.14	142.71
Tropicana Wash	63.379	167.5	208.3	249.51
Tropicana Wash	63.339	285.98	283.46	275.22
Tropicana Wash	63.286	228.57	215.51	180.73
Tropicana Wash	63.245	296.17	309.07	321.59
Tropicana Wash	63.186	360.9	355.84	350.65
Tropicana Wash	63.119	44.64	30.67	17.94
Tropicana Wash	63.113	3185.6	3138.79	3164.16

SUMMARY OF CONTRACTION AND EXPANSION COEFFICIENTS
River: Tropicana Wash

Reach	River Sta.	Contr.	Expan.
Tropicana Wash	63.711	.3	.5
Tropicana Wash	63.703	Culvert	
Tropicana Wash	63.691	.3	.5
Tropicana Wash	63.631	.1	.3
Tropicana Wash	63.569	.1	.3
Tropicana Wash	63.552	.1	.3
Tropicana Wash	63.505	.1	.3
Tropicana Wash	63.488	.1	.3
Tropicana Wash	63.456	.1	.3
Tropicana Wash	63.410	.3	.5
Tropicana Wash	63.397	Culvert	
Tropicana Wash	63.389	.3	.5
Tropicana Wash	63.379	.1	.3
Tropicana Wash	63.339	.1	.3
Tropicana Wash	63.286	.1	.3
Tropicana Wash	63.245	.1	.3
Tropicana Wash	63.186	.1	.3
Tropicana Wash	63.119	.1	.3
Tropicana Wash	63.113	.3	.5

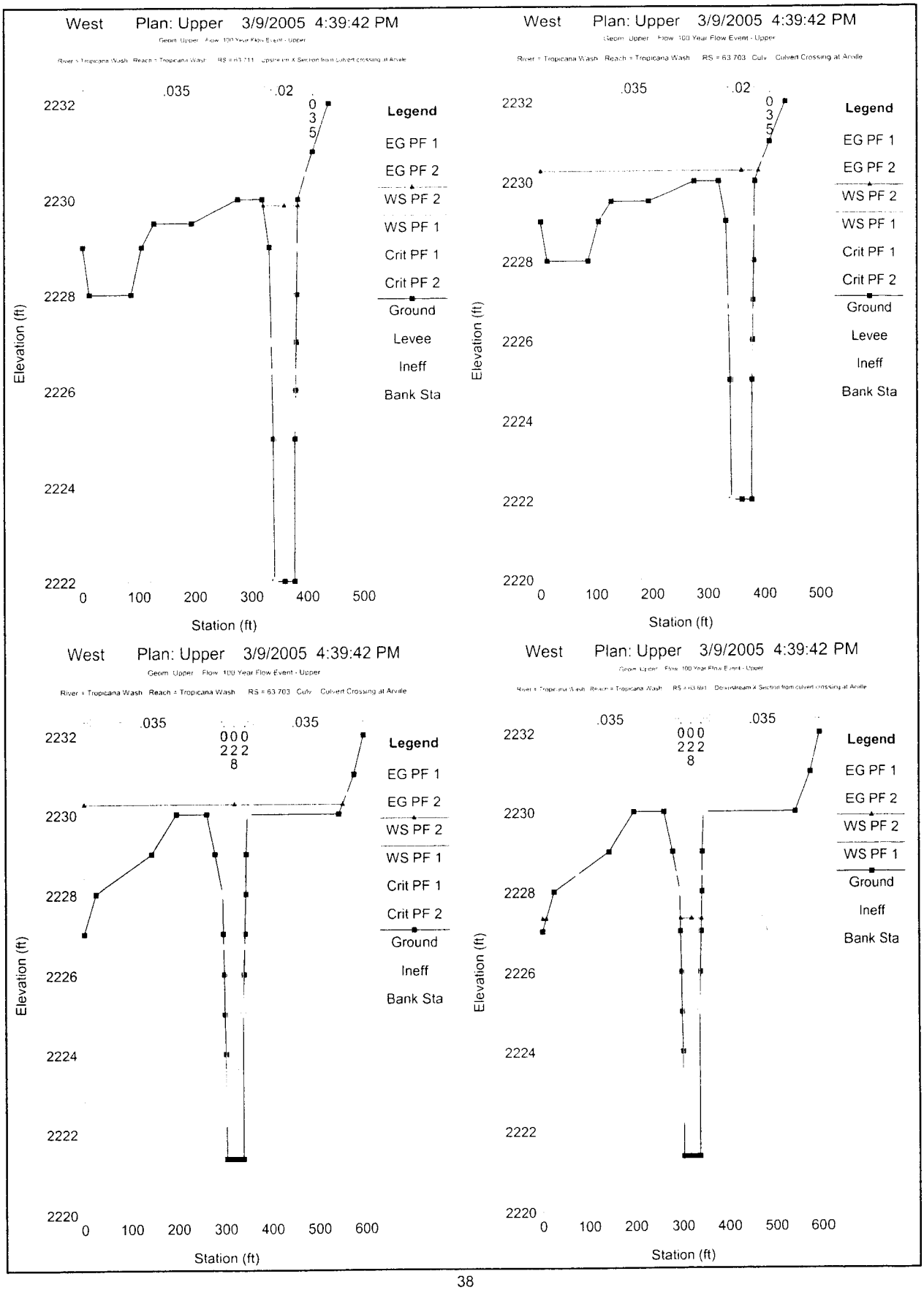
Profile Output Table - Standard Table 1

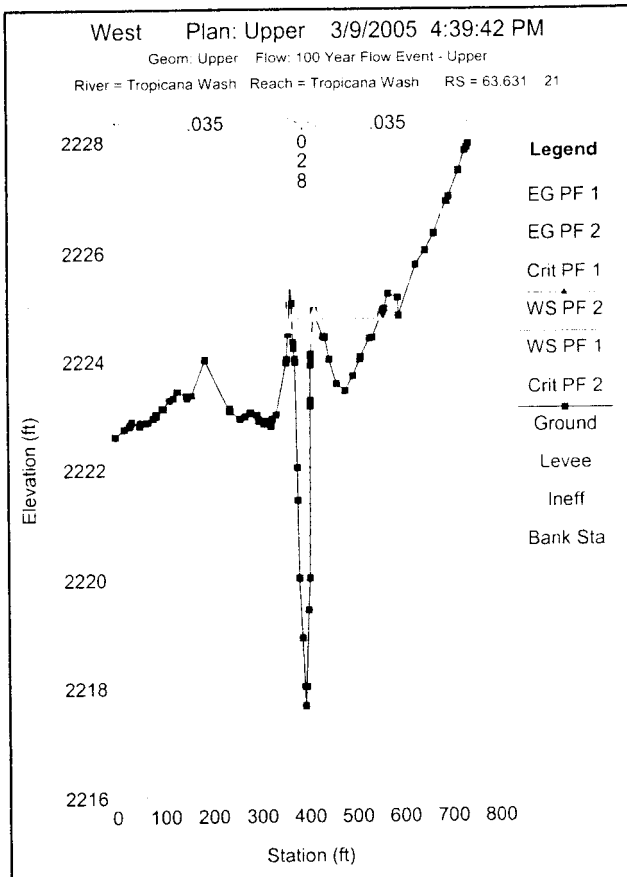
Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
Tropicana Wash	63.711	PF 1	1818.00	2222.00	2229.87	2226.38	2230.52	0.000530	6.47	281.10	62.19	0.41
Tropicana Wash	63.711	PF 2	1818.00	2222.00	2229.87	2226.38	2230.52	0.000530	6.47	281.10	62.19	0.41
Tropicana Wash	63.703		Culvert									
Tropicana Wash	63.691	PF 1	1818.00	2221.35	2227.32		2228.43	0.002685	8.46	214.82	55.00	0.61
Tropicana Wash	63.691	PF 2	1818.00	2221.35	2227.32		2228.43	0.002685	8.46	214.82	55.00	0.61
Tropicana Wash	63.631	PF 1	1818.00	2217.65	2224.75	2224.75	2226.69	0.010010	11.18	163.09	177.36	0.99
Tropicana Wash	63.631	PF 2	1818.00	2217.65	2224.75	2224.75	2226.69	0.010010	11.18	163.09	177.36	0.99
Tropicana Wash	63.569	PF 1	1818.00	2214.00	2218.15	2218.15	2219.22	0.013219	8.32	218.48	101.85	1.00
Tropicana Wash	63.569	PF 2	1818.00	2214.08	2219.15	2219.15	2221.00	0.013722	10.90	166.75	45.90	1.01
Tropicana Wash	63.552	PF 1	1818.00	2214.00	2217.84		2218.11	0.002205	4.20	434.86	168.57	0.45
Tropicana Wash	63.552	PF 2	1818.00	2214.00	2218.76		2218.91	0.000805	3.09	613.18	224.41	0.29
Tropicana Wash	63.505	PF 1	1818.00	2210.00	2217.72	2215.31	2217.80	0.000585	2.34	776.97	247.09	0.23
Tropicana Wash	63.505	PF 2	1818.00	2210.00	2218.72	2215.31	2218.77	0.000267	1.75	1051.53	304.32	0.16
Tropicana Wash	63.488	PF 1	1818.00	2209.75	2216.83	2216.83	2217.59	0.011605	7.55	290.90	192.29	0.84
Tropicana Wash	63.488	PF 2	1818.00	2209.75	2217.03	2217.03	2218.55	0.015255	9.89	184.55	65.34	0.99
Tropicana Wash	63.456	PF 1	1818.00	2208.00	2214.58	2213.75	2214.69	0.001685	3.81	793.10	486.75	0.33
Tropicana Wash	63.456	PF 2	1818.00	2208.00	2214.58	2213.75	2214.69	0.001685	3.81	793.10	486.75	0.33
Tropicana Wash	63.410	PF 1	1818.00	2200.00	2214.62	2206.52	2214.63	0.000034	0.83	2788.58	711.49	0.05
Tropicana Wash	63.410	PF 2	1818.00	2200.00	2214.62	2206.52	2214.63	0.000034	0.83	2788.58	711.49	0.05
Tropicana Wash	63.397		Culvert									
Tropicana Wash	63.389	PF 1	750.00	2200.00	2205.69	2205.69	2208.50	0.023664	13.46	55.72	20.16	1.01
Tropicana Wash	63.389	PF 2	750.00	2200.00	2205.69	2205.69	2208.50	0.023643	13.46	55.73	20.17	1.00
Tropicana Wash	63.379	PF 1	800.00	2202.00	2205.65		2206.03	0.005922	4.97	160.85	241.96	0.49
Tropicana Wash	63.379	PF 2	800.00	2202.00	2206.45		2206.69	0.002827	3.98	200.80	278.74	0.35
Tropicana Wash	63.339	PF 1	800.00	2200.69	2203.92	2203.46	2204.29	0.012642	4.91	162.98	107.27	0.65
Tropicana Wash	63.339	PF 2	800.00	2200.94	2204.64		2205.42	0.018648	7.10	112.67	43.10	0.77
Tropicana Wash	63.286	PF 1	800.00	2198.30	2201.47		2201.66	0.006834	3.51	228.17	156.41	0.51
Tropicana Wash	63.286	PF 2	800.00	2198.30	2202.23		2202.63	0.005698	5.06	157.99	50.00	0.50
Tropicana Wash	63.245	PF 1	800.00	2196.63	2198.40	2198.40	2198.90	0.031036	5.69	140.52	144.86	1.02

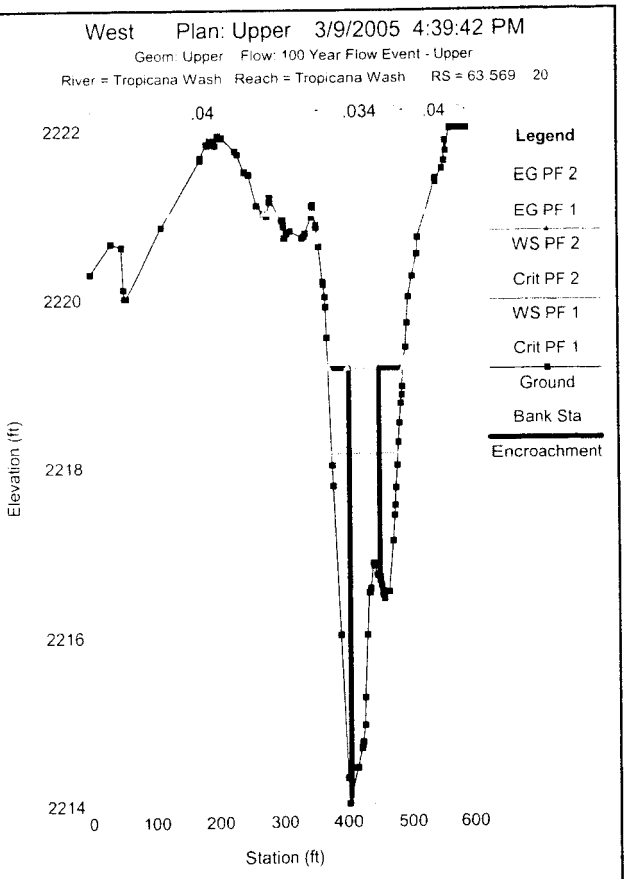
Tropicana Wash	63.245	PF 2	800.00	2196.63	2199.19	2199.19	2200.27	0.026264	8.36	95.66	44.80	1.01
Tropicana Wash	63.186	PF 1	800.00	2186.00	2189.17	2189.17	2190.17	0.009363	8.04	99.53	50.17	1.01
Tropicana Wash	63.186	PF 2	800.00	2186.00	2189.94	2189.94	2191.63	0.010625	10.41	76.86	23.20	1.01
Tropicana Wash	63.119	PF 1	800.00	2180.28	2183.36		2184.02	0.006086	6.57	121.84	49.53	0.74
Tropicana Wash	63.119	PF 2	800.00	2180.30	2183.64	2183.64	2185.32	0.010871	10.43	76.74	23.00	1.01
Tropicana Wash	63.113	PF 1	800.00	2178.45	2183.52	2181.06	2183.87	0.000909	4.72	169.39	55.25	0.37
Tropicana Wash	63.113	PF 2	800.00	2178.45	2183.52	2181.06	2183.87	0.000909	4.72	169.39	55.25	0.37

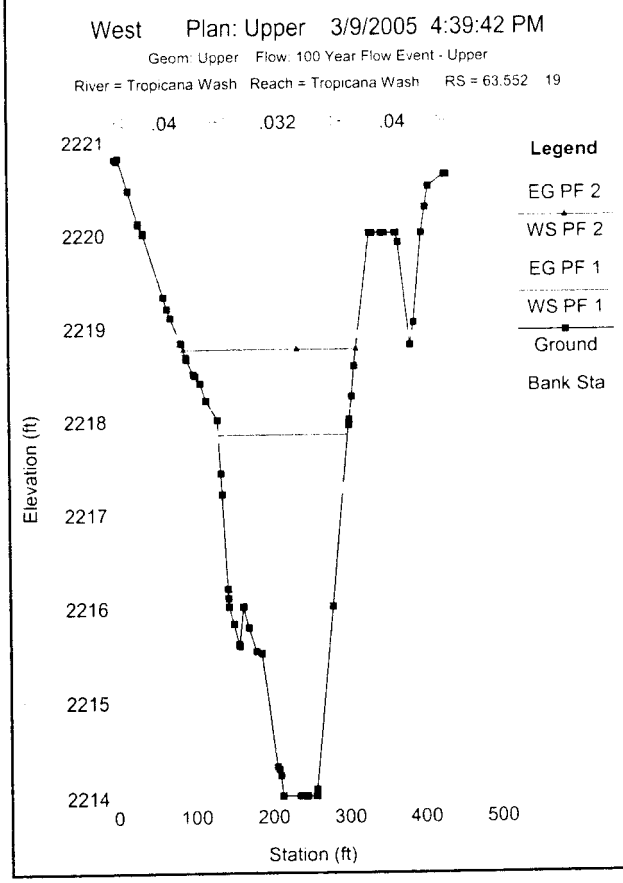
Profile Output Table - HEC-FDA

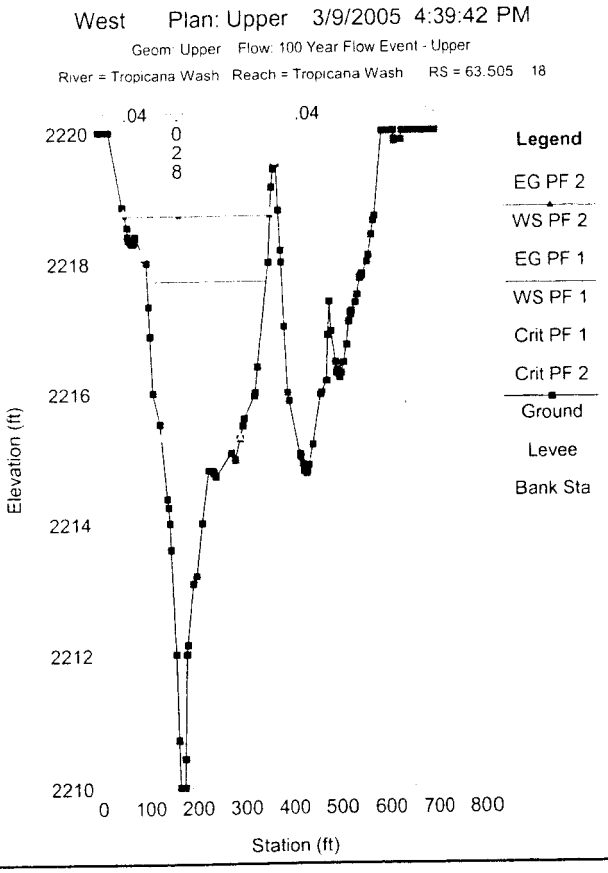
Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)
Tropicana Wash	63.711	PF 1	1818.00	2222.00	2229.87
Tropicana Wash	63.711	PF 2	1818.00	2222.00	2229.87
Tropicana Wash	63.703		Culvert		
Tropicana Wash	63.691	PF 1	1818.00	2221.35	2227.32
Tropicana Wash	63.691	PF 2	1818.00	2221.35	2227.32
Tropicana Wash	63.631	PF 1	1818.00	2217.65	2224.75
Tropicana Wash	63.631	PF 2	1818.00	2217.65	2224.75
Tropicana Wash	63.569	PF 1	1818.00	2214.00	2218.15
Tropicana Wash	63.569	PF 2	1818.00	2214.08	2219.15
Tropicana Wash	63.552	PF 1	1818.00	2214.00	2217.84
Tropicana Wash	63.552	PF 2	1818.00	2214.00	2218.76
Tropicana Wash	63.505	PF 1	1818.00	2210.00	2217.72
Tropicana Wash	63.505	PF 2	1818.00	2210.00	2218.72
Tropicana Wash	63.488	PF 1	1818.00	2209.75	2216.83
Tropicana Wash	63.488	PF 2	1818.00	2209.75	2217.03
Tropicana Wash	63.456	PF 1	1818.00	2208.00	2214.58
Tropicana Wash	63.456	PF 2	1818.00	2208.00	2214.58
Tropicana Wash	63.410	PF 1	1818.00	2200.00	2214.62
Tropicana Wash	63.410	PF 2	1818.00	2200.00	2214.62
Tropicana Wash	63.397		Culvert		
Tropicana Wash	63.389	PF 1	750.00	2200.00	2205.69
Tropicana Wash	63.389	PF 2	750.00	2200.00	2205.69
Tropicana Wash	63.379	PF 1	800.00	2202.00	2205.65
Tropicana Wash	63.379	PF 2	800.00	2202.00	2206.45
Tropicana Wash	63.339	PF 1	800.00	2200.69	2203.92
Tropicana Wash	63.339	PF 2	800.00	2200.94	2204.64
Tropicana Wash	63.286	PF 1	800.00	2198.30	2201.47
Tropicana Wash	63.286	PF 2	800.00	2198.30	2202.23
Tropicana Wash	63.245	PF 1	800.00	2196.63	2198.40
Tropicana Wash	63.245	PF 2	800.00	2196.63	2199.19
Tropicana Wash	63.186	PF 1	800.00	2186.00	2189.17
Tropicana Wash	63.186	PF 2	800.00	2186.00	2189.94
Tropicana Wash	63.119	PF 1	800.00	2180.28	2183.36
Tropicana Wash	63.119	PF 2	800.00	2180.30	2183.64
Tropicana Wash	63.113	PF 1	800.00	2178.45	2183.52
Tropicana Wash	63.113	PF 2	800.00	2178.45	2183.52

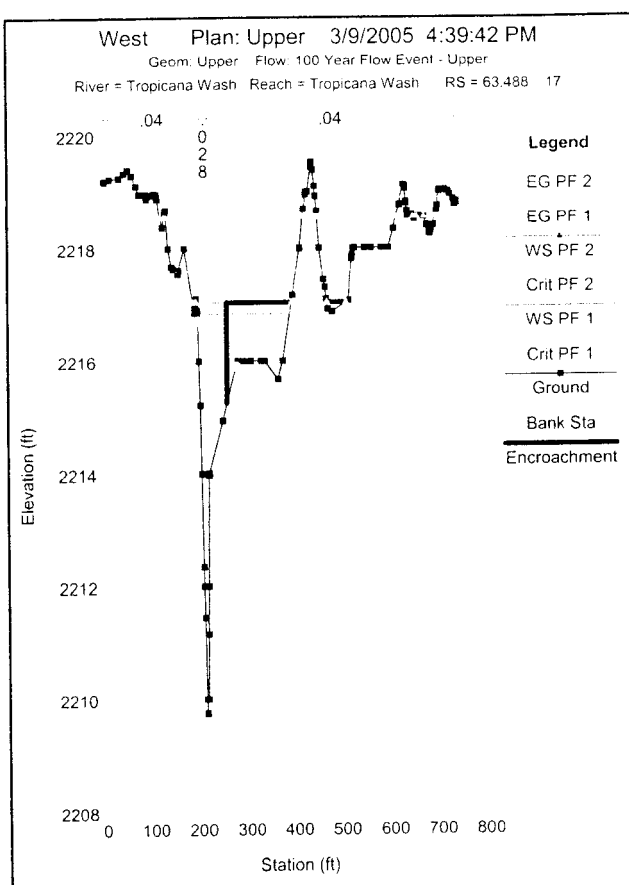

West Plan: Upper 3/9/2005 4:39:42 PM
Geom: Upper Flow: 100 Year Flow Event - Upper
River = Tropicana Wash Reach = Tropicana Wash RS = 63.711 Upstream X Section from Culvert crossing at Arville
.035
.02
0
3
5
Legend
EG PF 1
EG PF 2
WS PF 2
WS PF 1
Crit PF 1
Crit PF 2
Ground
Levee
Ineff
Bank Sta
Elevation (ft)
2232
2230
2228
2226
2224
2222
0
100
200
300
400
500
Station (ft)
West Plan: Upper 3/9/2005 4:39:42 PM
Geom: Upper Flow: 100 Year Flow Event - Upper
River = Tropicana Wash Reach = Tropicana Wash RS = 63.703 Culv Culvert Crossing at Arville
.035
.02
0
3
5
Legend
EG PF 1
EG PF 2
WS PF 2
WS PF 1
Crit PF 1
Crit PF 2
Ground
Levee
Ineff
Bank Sta
Elevation (ft)
2232
2230
2228
2226
2224
2222
2220
0
100
200
300
400
500
Station (ft)
West Plan: Upper 3/9/2005 4:39:42 PM
Geom: Upper Flow: 100 Year Flow Event - Upper
River = Tropicana Wash Reach = Tropicana Wash RS = 63.703 Culv Culvert Crossing at Arville
.035
.035
000
222
8
Legend
EG PF 1
EG PF 2
WS PF 2
WS PF 1
Crit PF 1
Crit PF 2
Ground
Ineff
Bank Sta
Elevation (ft)
2232
2230
2228
2226
2224
2222
2220
0
100
200
300
400
500
600
Station (ft)
West Plan: Upper 3/9/2005 4:39:42 PM
Geom: Upper Flow: 100 Year Flow Event - Upper
River = Tropicana Wash Reach = Tropicana Wash RS = 63.691 Downstream X Section from culvert crossing at Arville
.035
.035
000
222
8
Legend
EG PF 1
EG PF 2
WS PF 2
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
2232
2230
2228
2226
2224
2222
2220
0
100
200
300
400
500
600
Station (ft)

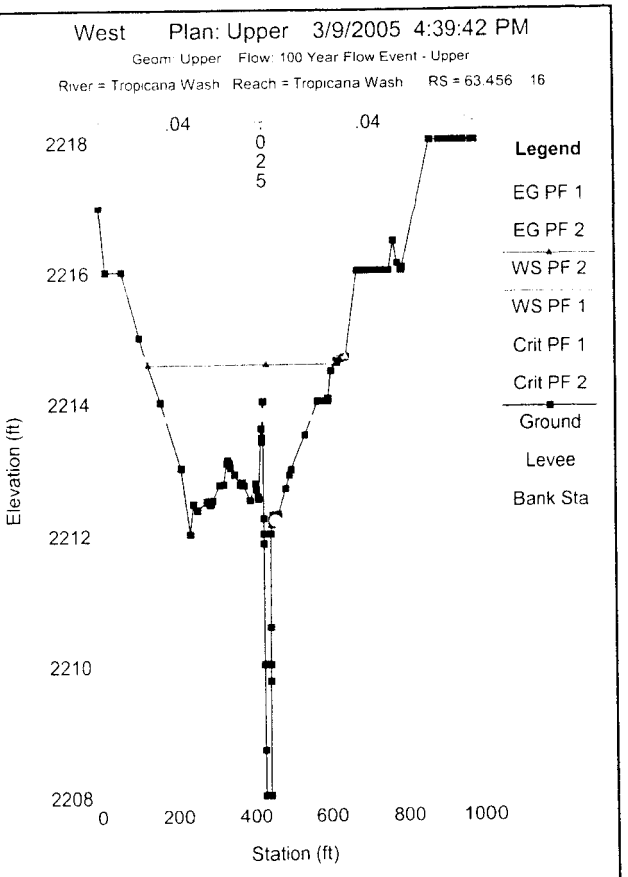

West Plan: Upper 3/9/2005 4:39:42 PM
Geom: Upper Flow: 100 Year Flow Event - Upper
River = Tropicana Wash Reach = Tropicana Wash RS = 63.631 21
.035
.035
0
2
8
Legend
EG PF 1
EG PF 2
Crit PF 1
WS PF 2
WS PF 1
Crit PF 2
Ground
Levee
Ineff
Bank Sta
Elevation (ft)
Station (ft)

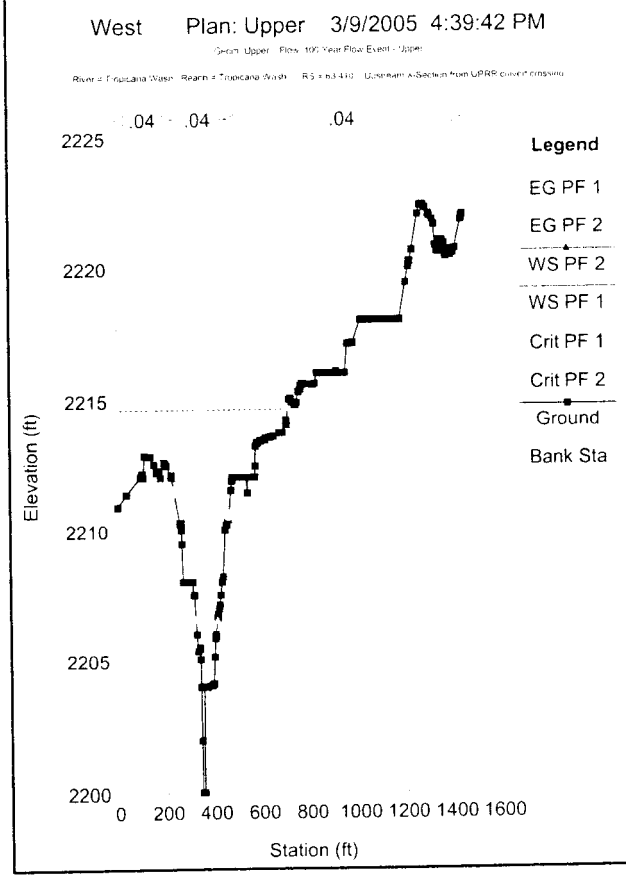

West Plan: Upper 3/9/2005 4:39:42 PM
Geom: Upper Flow: 100 Year Flow Event - Upper
River = Tropicana Wash Reach = Tropicana Wash RS = 63.569 20
.04
.034
.04
Legend
EG PF 2
EG PF 1
WS PF 2
Crit PF 2
WS PF 1
Crit PF 1
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)

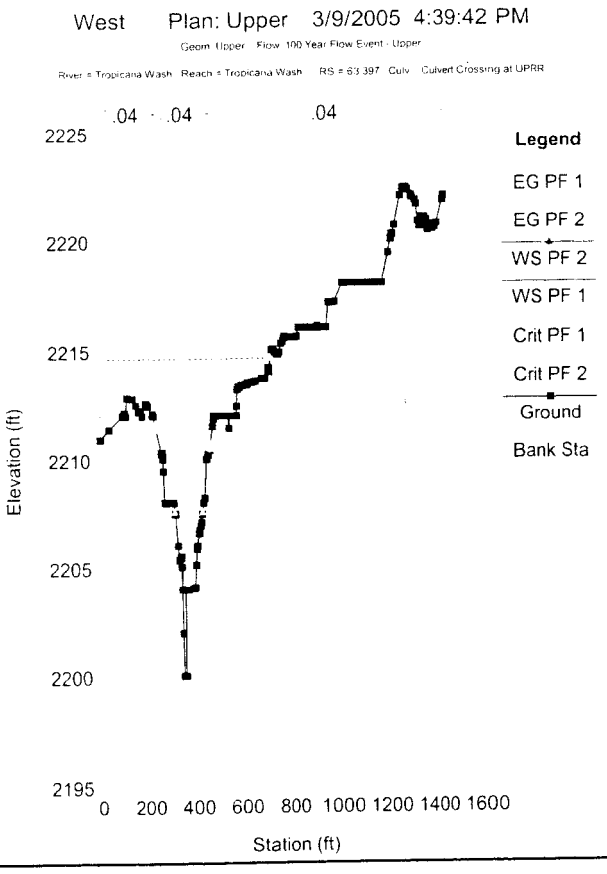

West Plan: Upper 3/9/2005 4:39:42 PM
Geom: Upper Flow: 100 Year Flow Event - Upper
River = Tropicana Wash Reach = Tropicana Wash RS = 63.552 19
.04
.032
.04
Legend
EG PF 2
WS PF 2
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

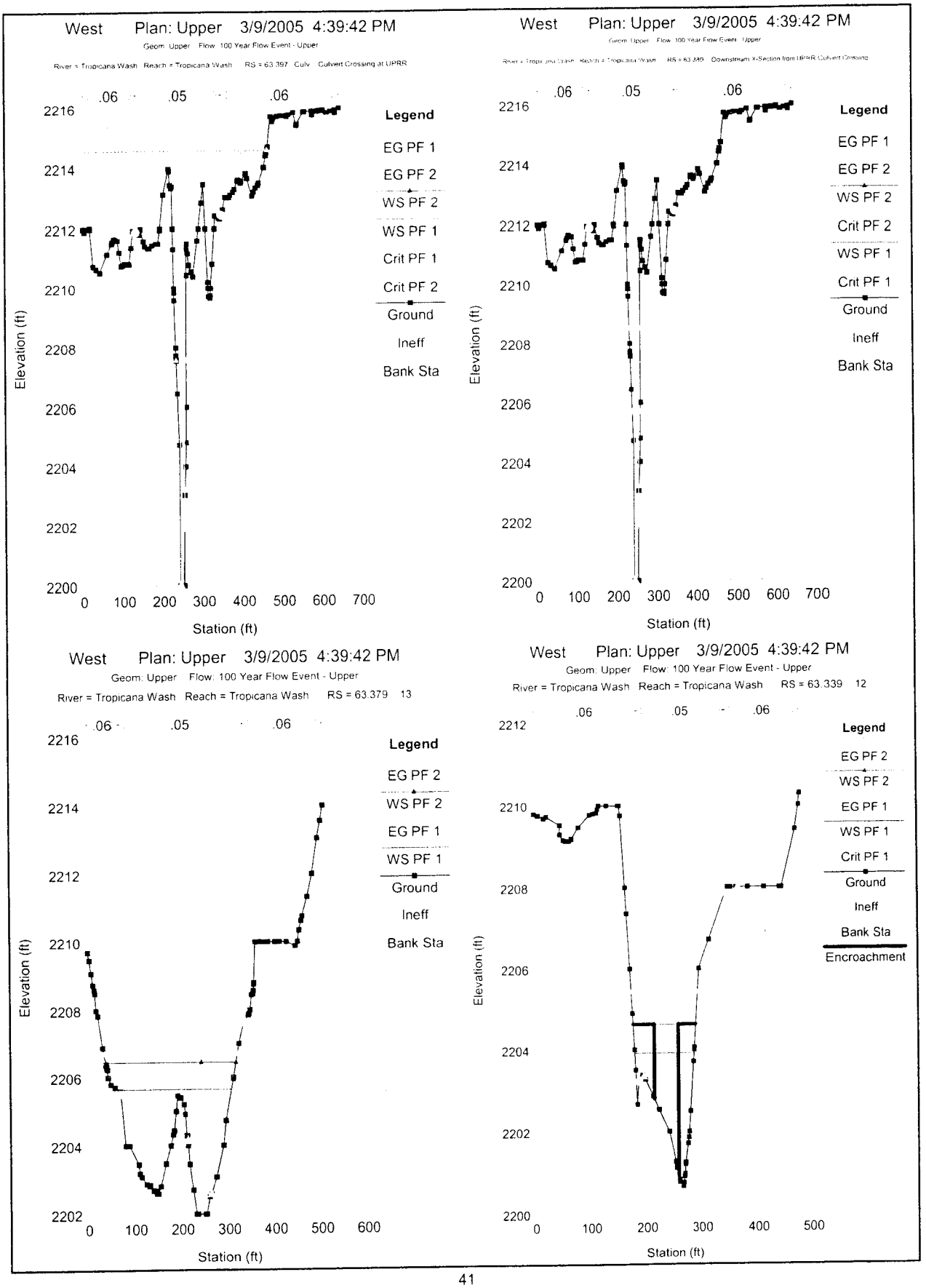

West Plan: Upper 3/9/2005 4:39:42 PM
Geom: Upper Flow: 100 Year Flow Event - Upper
River = Tropicana Wash Reach = Tropicana Wash RS = 63.505 18
.04
0
2
8
.04
Legend
EG PF 2
WS PF 2
EG PF 1
WS PF 1
Crit PF 1
Crit PF 2
Ground
Levee
Bank Sta
Elevation (ft)
Station (ft)

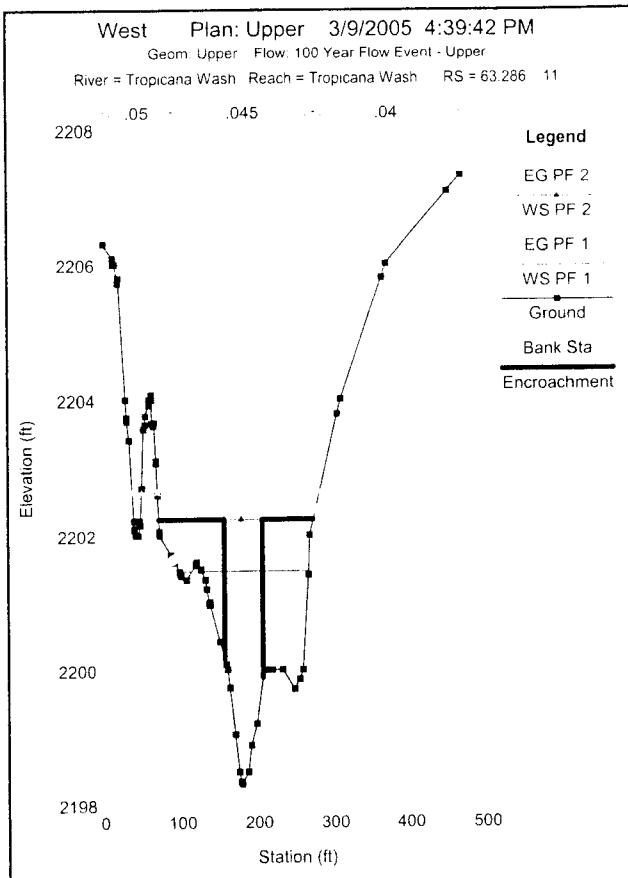

West Plan: Upper 3/9/2005 4:39:42 PM
Geom: Upper Flow: 100 Year Flow Event - Upper
River = Tropicana Wash Reach = Tropicana Wash RS = 63.488 17
.04 .028 .04
Legend
EG PF 2
EG PF 1
WS PF 2
Crit PF 2
WS PF 1
Crit PF 1
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)

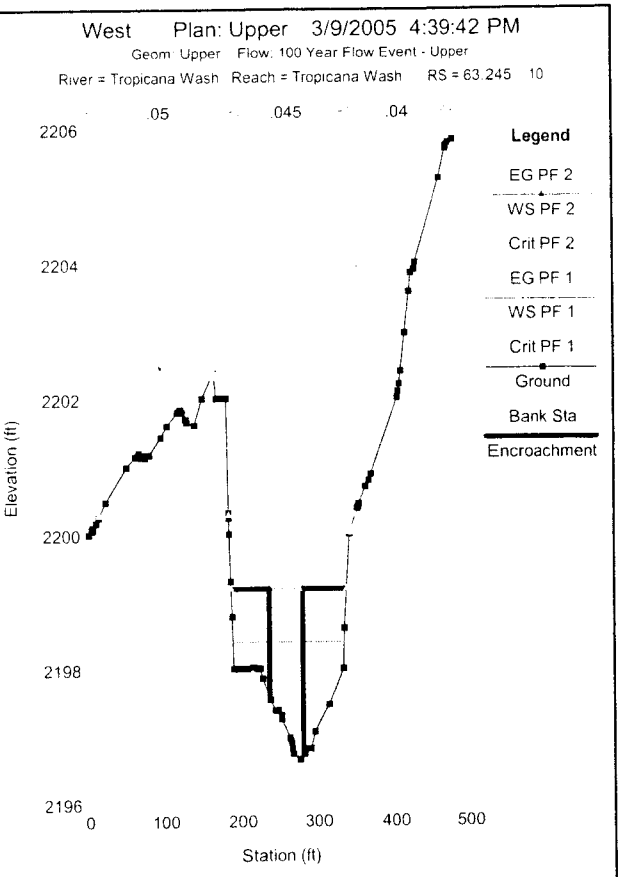

West Plan: Upper 3/9/2005 4:39:42 PM
Geom: Upper Flow: 100 Year Flow Event - Upper
River = Tropicana Wash Reach = Tropicana Wash RS = 63.456 16
.04 .025 .04
Legend
EG PF 1
EG PF 2
WS PF 2
WS PF 1
Crit PF 1
Crit PF 2
Ground
Levee
Bank Sta
Elevation (ft)
Station (ft)

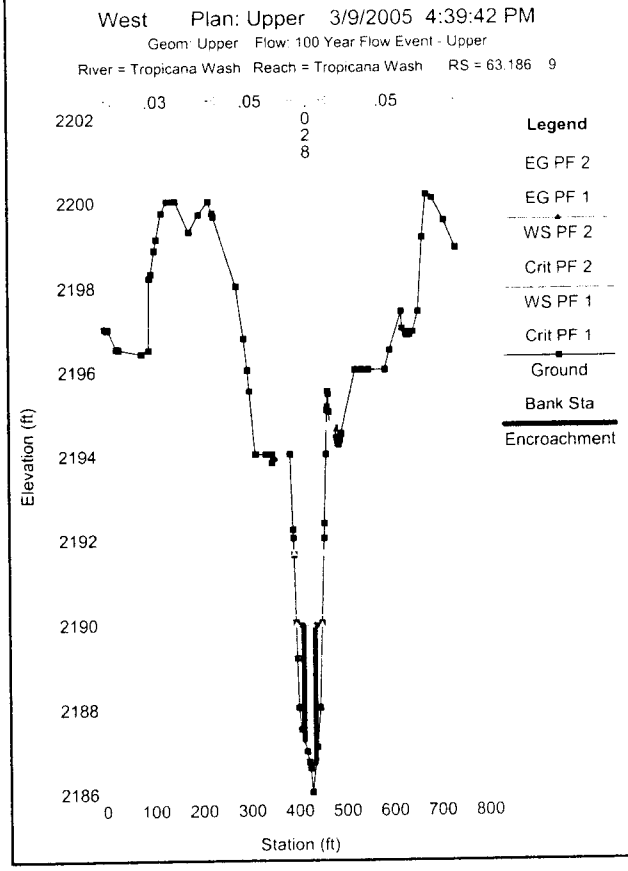

West Plan: Upper 3/9/2005 4:39:42 PM
.04 .04 .04
Legend
EG PF 1
EG PF 2
WS PF 2
WS PF 1
Crit PF 1
Crit PF 2
Ground
Bank Sta
Elevation (ft)
Station (ft)

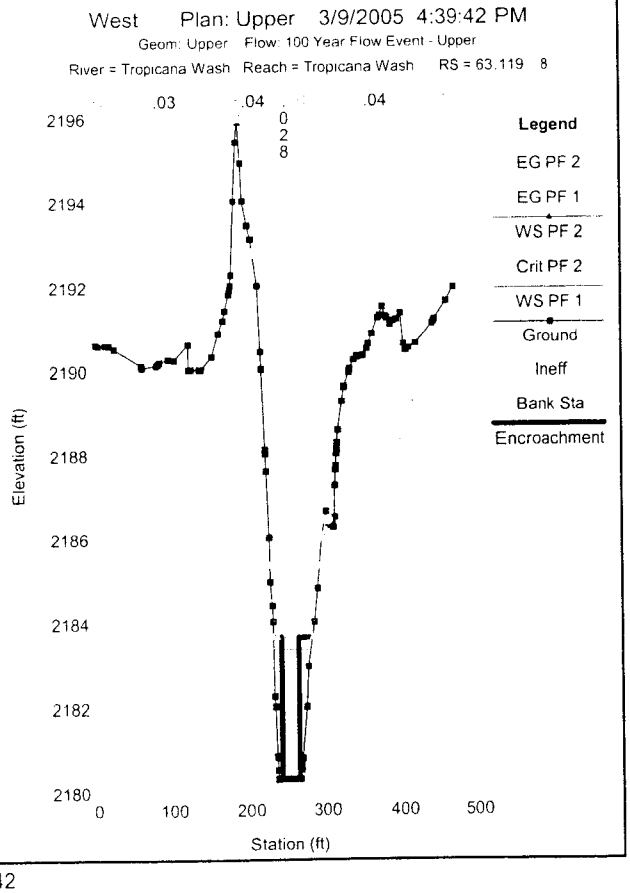

West Plan: Upper 3/9/2005 4:39:42 PM
.04 .04 .04
Legend
EG PF 1
EG PF 2
WS PF 2
WS PF 1
Crit PF 1
Crit PF 2
Ground
Bank Sta
Elevation (ft)
Station (ft)

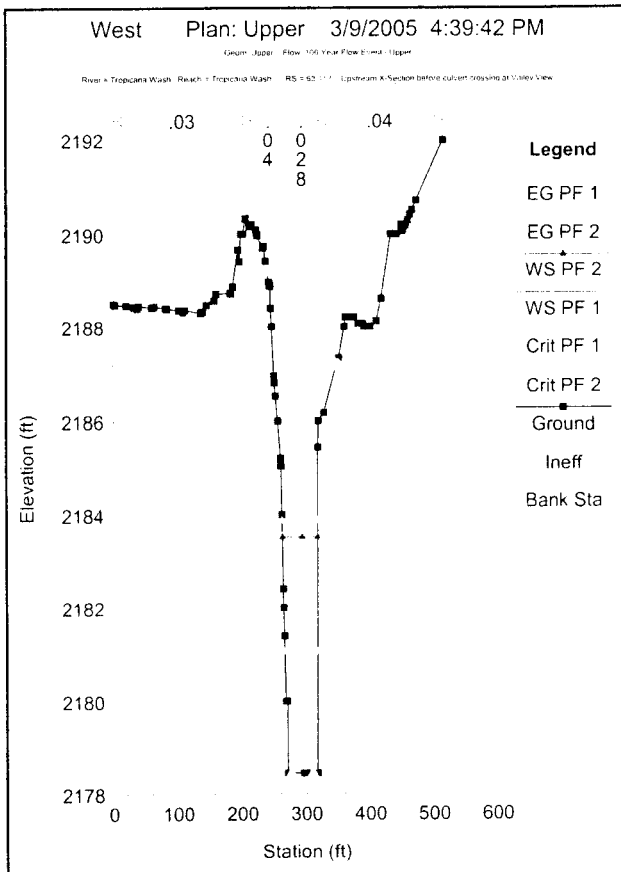

West Plan: Upper 3/9/2005 4:39:42 PM
Geom: Upper Flow: 100 Year Flow Event - Upper
River = Tropicana Wash Reach = Tropicana Wash RS = 63.397 Culv Culvert Crossing at UPRR
.06 .05 .06
Legend
EG PF 1
EG PF 2
WS PF 2
WS PF 1
Crit PF 1
Crit PF 2
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
West Plan: Upper 3/9/2005 4:39:42 PM
Geom: Upper Flow: 100 Year Flow Event - Upper
River = Tropicana Wash Reach = Tropicana Wash RS = 63.379 13
.06 .05 .06
Legend
EG PF 2
WS PF 2
EG PF 1
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
West Plan: Upper 3/9/2005 4:39:42 PM
Geom: Upper Flow: 100 Year Flow Event - Upper
River = Tropicana Wash Reach = Tropicana Wash RS = 63.339 12
.06 .05 .06
Legend
EG PF 2
WS PF 2
EG PF 1
WS PF 1
Crit PF 1
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


West Plan: Upper 3/9/2005 4:39:42 PM
Geom: Upper Flow: 100 Year Flow Event - Upper
River = Tropicana Wash Reach = Tropicana Wash RS = 63.286 11
.05 .045 .04
Legend
EG PF 2
WS PF 2
EG PF 1
WS PF 1
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


West Plan: Upper 3/9/2005 4:39:42 PM
Geom: Upper Flow: 100 Year Flow Event - Upper
River = Tropicana Wash Reach = Tropicana Wash RS = 63.245 10
.05 .045 .04
Legend
EG PF 2
WS PF 2
Crit PF 2
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


West Plan: Upper 3/9/2005 4:39:42 PM
Geom: Upper Flow: 100 Year Flow Event - Upper
River = Tropicana Wash Reach = Tropicana Wash RS = 63.186 9
.03 .05 .05
Legend
EG PF 2
EG PF 1
WS PF 2
Crit PF 2
WS PF 1
Crit PF 1
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


West Plan: Upper 3/9/2005 4:39:42 PM
Geom: Upper Flow: 100 Year Flow Event - Upper
River = Tropicana Wash Reach = Tropicana Wash RS = 63.119 8
.03 .04 .04
Legend
EG PF 2
EG PF 1
WS PF 2
Crit PF 2
WS PF 1
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


West Plan: Upper 3/9/2005 4:39:42 PM
.03
.04
0 0
4 2
8
2192
2190
2188
2186
2184
2182
2180
2178
Elevation (ft)
0
100
200
300
400
500
600
Station (ft)
Legend
EG PF 1
EG PF 2
WS PF 2
WS PF 1
Crit PF 1
Crit PF 2
Ground
Ineff
Bank Sta

EFFECTIVE HEC-RAS ANALYSIS (DUPLICATE EFFECTIVE MODEL) OF THE EXISTING TROPICANA WASH BASED ON A 100-YEAR FLOW RATE OF 750 & 1,031 CFS

HEC-RAS Plan: Upper River: Tropicana Wash Reach: Tropicana Wash

Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
Tropicana Wash	63.711	PF 1	1818.00	2222.00	2229.87	2226.38	2230.52	0.000530	6.47	281.10	62.19	0.41
Tropicana Wash	63.711	PF 2	1818.00	2222.00	2229.87	2226.38	2230.52	0.000530	6.47	281.10	62.19	0.41
Tropicana Wash	63.703		Culvert									
Tropicana Wash	63.691	PF 1	1818.00	2221.35	2227.32		2228.43	0.002685	8.46	214.82	55.00	0.61
Tropicana Wash	63.691	PF 2	1818.00	2221.35	2227.32		2228.43	0.002685	8.46	214.82	55.00	0.61
Tropicana Wash	63.631	PF 1	1818.00	2217.65	2224.75	2224.75	2226.69	0.010010	11.18	163.09	177.36	0.99
Tropicana Wash	63.631	PF 2	1818.00	2217.65	2224.75	2224.75	2226.69	0.010010	11.18	163.09	177.36	0.99
Tropicana Wash	63.569	PF 1	1818.00	2214.00	2218.15	2218.15	2219.22	0.013219	8.32	218.48	101.85	1.00
Tropicana Wash	63.569	PF 2	1818.00	2214.08	2219.15	2219.15	2221.00	0.013722	10.90	166.75	45.90	1.01
Tropicana Wash	63.552	PF 1	1818.00	2214.00	2217.84		2218.11	0.002205	4.20	434.86	168.57	0.45
Tropicana Wash	63.552	PF 2	1818.00	2214.00	2218.76		2218.91	0.000805	3.09	613.18	224.41	0.29
Tropicana Wash	63.505	PF 1	1818.00	2210.00	2217.72	2215.31	2217.80	0.000585	2.34	776.97	247.09	0.23
Tropicana Wash	63.505	PF 2	1818.00	2210.00	2218.72	2215.31	2218.77	0.000267	1.75	1051.53	304.32	0.16
Tropicana Wash	63.488	PF 1	1818.00	2209.75	2216.83	2216.83	2217.59	0.011605	7.55	290.90	192.29	0.84
Tropicana Wash	63.488	PF 2	1818.00	2209.75	2217.03	2217.03	2218.55	0.015255	9.89	184.55	65.34	0.99
Tropicana Wash	63.456	PF 1	1818.00	2208.00	2214.58	2213.75	2214.69	0.001685	3.81	793.10	486.75	0.33
Tropicana Wash	63.456	PF 2	1818.00	2208.00	2214.58	2213.75	2214.69	0.001685	3.81	793.10	486.75	0.33
Tropicana Wash	63.410	PF 1	1818.00	2200.00	2214.62	2206.52	2214.63	0.000034	0.83	2788.58	711.49	0.05
Tropicana Wash	63.410	PF 2	1818.00	2200.00	2214.62	2206.51	2214.63	0.000034	0.83	2788.58	711.49	0.05
Tropicana Wash	63.397		Culvert									
Tropicana Wash	63.389	PF 1	750.00	2200.00	2205.69	2205.69	2208.50	0.023664	13.46	55.72	20.16	1.01
Tropicana Wash	63.389	PF 2	750.00	2200.00	2206.36		2208.60	0.016229	12.02	62.39	22.19	0.85
Tropicana Wash	63.379	PF 1	1031.00	2202.00	2206.05		2206.55	0.006649	5.70	180.89	268.76	0.53
Tropicana Wash	63.379	PF 2	1031.00	2202.00	2207.05		2207.36	0.002952	4.47	230.80	293.86	0.37
Tropicana Wash	63.339	PF 1	1031.00	2200.69	2204.22	2203.71	2204.68	0.012633	5.40	191.02	109.94	0.66
Tropicana Wash	63.339	PF 2	1031.00	2200.94	2205.13		2206.05	0.017926	7.70	133.82	43.10	0.77

HEC-RAS Plan: Upper River: Tropicana Wash Reach: Tropicana Wash (Continued)

Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
Tropicana Wash	63.286	PF 1	1031.00	2198.30	2201.75		2201.97	0.007152	3.74	275.79	182.73	0.53
Tropicana Wash	63.286	PF 2	1031.00	2198.30	2202.75		2203.24	0.005832	5.60	184.07	50.00	0.51
Tropicana Wash	63.245	PF 1	1031.00	2196.63	2198.59	2198.59	2199.18	0.028988	6.16	167.44	145.71	1.01
Tropicana Wash	63.245	PF 2	1031.00	2196.63	2199.58	2199.58	2200.87	0.025314	9.10	113.34	44.80	1.01
Tropicana Wash	63.186	PF 1	1031.00	2186.00	2189.56	2189.56	2190.71	0.008863	8.61	119.77	52.13	1.00
Tropicana Wash	63.186	PF 2	1031.00	2186.00	2190.56	2190.56	2192.55	0.010552	11.31	91.17	23.20	1.01
Tropicana Wash	63.119	PF 1	1031.00	2180.28	2183.25	2183.25	2184.46	0.011247	8.83	116.73	48.63	1.00
Tropicana Wash	63.119	PF 2	1031.00	2180.30	2184.26	2184.26	2186.25	0.010811	11.33	90.98	23.00	1.00
Tropicana Wash	63.113	PF 1	1031.00	2178.45	2183.52	2181.55	2184.10	0.001510	6.09	169.39	55.25	0.48
Tropicana Wash	63.113	PF 2	1031.00	2178.45	2183.52	2181.55	2184.10	0.001510	6.09	169.39	55.25	0.48

HEC-RAS Version 3.1.2 April 2004
U.S. Army Corp of Engineers
Hydrologic Engineering Center
609 Second Street
Davis, California

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

PROJECT DATA
Project Title: West
Project File : West.prj
Run Date and Time: 3/9/2005 4:39:42 PM

Project in English units

Project Description:
FIS - Tropicana Wash

PLAN DATA

Plan Title: Upper
Plan File : g:\DRAINAGE\7162.17\HECRAS\Revised west\West.p01

Geometry Title: Upper
Geometry File : g:\DRAINAGE\7162.17\HECRAS\Revised west\West.g04

Flow Title : 100 Year Flow Event - Upper
Flow File : g:\DRAINAGE\7162.17\HECRAS\Revised west\West.f01

Plan Summary Information:

Number of:	Cross Sections	= 17	Multiple Openings	=	0
	Culverts	= 2	Inline Structures	=	0
	Bridges	= 0	Lateral Structures	=	0

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

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

Encroachment Data
Equal Conveyance = True

Left Offset = 0
Right Offset = 0

River = Tropicana Wash Reach = Tropicana Wash

RS	Profile	Method	Value1	Value2
63.569	PF 2	1	405	450.9
63.488	PF 2	1	187	254.5
63.339	PF 2	1	213.6	256.7
63.286	PF 2	1	156	206
63.245	PF 2	1	235.2	280
63.186	PF 2	1	410.8	434
63.119	PF 2	1	240	263

FLOW DATA

Flow Title: 100 Year Flow Event - Upper
Flow File : g:\DRAINAGE\7162.17\HECRAS\Revised west\West.f01

Flow Data (cfs)

River	Reach	RS	PF 1	PF 2
Tropicana Wash	Tropicana Wash	63.711	1818	1818
Tropicana Wash	Tropicana Wash	63.389	750	750
Tropicana Wash	Tropicana Wash	63.379	800	800
Tropicana Wash	Tropicana Wash	63.113	800	800

Boundary Conditions

River	Reach	Profile	Upstream	Downstream
Tropicana Wash	Tropicana Wash	PF 1	Critical	Known WS = 2183.52

GEOMETRY DATA

Geometry Title: Upper
Geometry File : g:\DRAINAGE\7162.17\HECRAS\Revised west\West.g04

CROSS SECTION

RIVER: Tropicana Wash
REACH: Tropicana Wash RS: 63.711

INPUT
Description: Upstream X-Section from culvert crossing at Arville
Station Elevation Data num= 22

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2229	11.7	2228	86	2228	105	2229	127	2229.5
193.7	2229.5	275.7	2230	319	2230	331.7	2229	335.7	2227
338.75	2225	340.75	2222	359	2222	376.75	2222	377.75	2225
379	2226	380	2227	381	2228	382	2229	383	2230
409	2231	438	2232						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.035	335.7	.02	382	.035

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
335.7 382 106.55 106.14 105.07 .3 .5
Ineffective Flow num= 2
Sta L Sta R Elev Permanent
0 341.99 F
378.01 438 F
Left Levee Station= 300 Elevation=

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	2230.52	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.65	Wt. n-Val.		0.020	
W.S. Elev (ft)	2229.87	Reach Len. (ft)	106.55	106.14	105.07
Crit W.S. (ft)	2226.38	Flow Area (sq ft)		281.10	
E.G. Slope (ft/ft)	0.000530	Area (sq ft)	12.26	326.72	0.38
Q Total (cfs)	1818.00	Flow (cfs)		1818.00	
Top Width (ft)	62.19	Top Width (ft)	15.03	46.30	0.87
Vel Total (ft/s)	6.47	Avg. Vel. (ft/s)		6.47	
Max Chl Dpth (ft)	7.87	Hydr. Depth (ft)		7.80	
Conv. Total (cfs)	78937.6	Conv. (cfs)		78937.6	
Length Wtd. (ft)	106.14	Wetted Per. (ft)		38.26	
Min Ch El (ft)	2222.00	Shear (lb/sq ft)		0.24	
Alpha	1.00	Stream Power (lb/ft s)		1.57	
Frctn Loss (ft)		Cum Volume (acre-ft)	6.12	22.92	3.33
C & E Loss (ft)		Cum SA (acres)	3.13	7.67	2.94

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

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	2230.52	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.65	Wt. n-Val.		0.020	
W.S. Elev (ft)	2229.87	Reach Len. (ft)	106.55	106.14	105.07
Crit W.S. (ft)	2226.38	Flow Area (sq ft)		281.10	
E.G. Slope (ft/ft)	0.000530	Area (sq ft)	12.26	326.72	0.38
Q Total (cfs)	1818.00	Flow (cfs)		1818.00	
Top Width (ft)	62.19	Top Width (ft)	15.03	46.30	0.87
Vel Total (ft/s)	6.47	Avg. Vel. (ft/s)		6.47	
Max Chl Dpth (ft)	7.87	Hydr. Depth (ft)		7.80	
Conv. Total (cfs)	78937.6	Conv. (cfs)		78937.6	
Length Wtd. (ft)	106.14	Wetted Per. (ft)		38.26	
Min Ch El (ft)	2222.00	Shear (lb/sq ft)		0.24	
Alpha	1.00	Stream Power (lb/ft s)		1.57	
Frctn Loss (ft)		Cum Volume (acre-ft)	6.27	23.44	3.03
C & E Loss (ft)		Cum SA (acres)	3.49	5.59	2.57

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

CULVERT

RIVER: Tropicana Wash
REACH: Tropicana Wash RS: 63.703

INPUT
Description: Culvert Crossing at Arville
Distance from Upstream XS = 9
Deck/Roadway Width = 70
Weir Coefficient = 2.6
Upstream Deck/Roadway Coordinates

num= 7

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
0	2228	2220	81	2228	2220	129	2229	2220
277	2230	2220	382	2230	2220	409	2231	2220
438	2232	2220						

Upstream Bridge Cross Section Data

Station Elevation Data num= 22

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2229	11.7	2228	86	2228	105	2229	127	2229.5
193.7	2229.5	275.7	2230	319	2230	331.7	2229	335.7	2227
338.75	2225	340.75	2222	359	2222	376.75	2222	377.75	2225
379	2226	380	2227	381	2228	382	2229	383	2230
409	2231	438	2232						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.035	335.7	.02	382	.035

Bank Sta: Left Right Coeff Contr. Expan.

335.7 382 .3 .5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
0	341.99		F
378.01	438		F

Left Levee Station= 300 Elevation=

Downstream Deck/Roadway Coordinates

num= 7

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
0	2227	2220	50	2228	2220	148	2229	2220
261	2230	2220	433	2231	2220	491	2232	2220
596	2232	2220						

Downstream Bridge Cross Section Data

Station Elevation Data num= 29

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2227	25	2228	144	2229	197	2230	261	2230
279	2229	295	2228	296	2227	298	2226	299	2225
301	2224	302.5	2221.35	307	2221.35	314	2221.35	317	2221.35
320	2221.35	322	2221.35	328	2221.35	335	2221.35	338	2221.35
338	2225	340	2226	342	2227	344	2228	345	2229
348	2230	543	2230	576	2231	596	2232		

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.035	295	.02	302.5	.028	338	.02	348	.035

Bank Sta: Left Right Coeff Contr. Expan.

295 348 .3 .5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
0	301.99		F
338.01	596		F

Upstream Embankment side slope = 0 horiz. to 1.0 vertical

Downstream Embankment side slope = 0 horiz. to 1.0 vertical

Maximum allowable submergence for weir flow = .95

Elevation at which weir flow begins =

Energy head used in spillway design =

Spillway height used in design =

Weir crest shape = Broad Crested

Number of Culverts = 1

Culvert Name	Shape	Rise	Span
Culvert #1	Box	5.8	10

FHWA Chart # 8 - flared wingwalls
FHWA Scale # 1 - Wingwall flared 30 to 75 deg.
Solution Criteria = Highest U.S. EG

Culvert	Upstrm Dist	Length	Top n	Bottom n	Depth Blocked	Entrance Loss Coef	Exit Loss Coef
	9	85.4	.013	.013	0	.2	1

Number of Barrels = 3
Upstream Elevation = 2221.885
Centerline Stations

Sta.	Sta.	Sta.
347.8	360	372.5

Downstream Elevation = 2221.885
Centerline Stations

Sta.	Sta.	Sta.
307.8	320	332.5

CULVERT OUTPUT Profile #PF 1 Culv Group: Culvert #1

Q Culv Group (cfs)	1783.30	Culv Full Len (ft)	26.85
# Barrels	3	Culv Vel US (ft/s)	10.25
Q Barrel (cfs)	594.43	Culv Vel DS (ft/s)	10.93
E.G. US. (ft)	2230.52	Culv Inv El Up (ft)	2221.89
W.S. US. (ft)	2229.87	Culv Inv El Dn (ft)	2221.89
E.G. DS (ft)	2228.43	Culv Frctn Ls (ft)	1.01
W.S. DS (ft)	2227.32	Culv Exit Loss (ft)	0.74
Delta EG (ft)	2.08	Culv Entr Loss (ft)	0.33
Delta WS (ft)	2.55	Q Weir (cfs)	34.70
E.G. IC (ft)	2230.52	Weir Sta Lft (ft)	341.99
E.G. OC (ft)	2229.84	Weir Sta Rgt (ft)	378.01
Culvert Control	Inlet	Weir Submerg	0.00
Culv WS Inlet (ft)	2227.69	Weir Max Depth (ft)	0.52
Culv WS Outlet (ft)	2227.32	Weir Avg Depth (ft)	0.52
Culv Nml Depth (ft)		Weir Flow Area (sq ft)	18.58
Culv Crt Depth (ft)	4.79	Min El Weir Flow (ft)	2230.25

Warning: During the culvert outlet computations, the program could not balance the culvert/weir flow. The reported outlet energy grade answer may not be valid.

CULVERT OUTPUT Profile #PF 2 Culv Group: Culvert #1

Q Culv Group (cfs)	1783.30	Culv Full Len (ft)	26.85
# Barrels	3	Culv Vel US (ft/s)	10.25
Q Barrel (cfs)	594.43	Culv Vel DS (ft/s)	10.93
E.G. US. (ft)	2230.52	Culv Inv El Up (ft)	2221.89
W.S. US. (ft)	2229.87	Culv Inv El Dn (ft)	2221.89
E.G. DS (ft)	2228.43	Culv Frctn Ls (ft)	1.01
W.S. DS (ft)	2227.32	Culv Exit Loss (ft)	0.74
Delta EG (ft)	2.08	Culv Entr Loss (ft)	0.33
Delta WS (ft)	2.55	Q Weir (cfs)	34.70
E.G. IC (ft)	2230.52	Weir Sta Lft (ft)	341.99
E.G. OC (ft)	2229.84	Weir Sta Rgt (ft)	378.01
Culvert Control	Inlet	Weir Submerg	0.00
Culv WS Inlet (ft)	2227.69	Weir Max Depth (ft)	0.52
Culv WS Outlet (ft)	2227.32	Weir Avg Depth (ft)	0.52
Culv Nml Depth (ft)		Weir Flow Area (sq ft)	18.58
Culv Crt Depth (ft)	4.79	Min El Weir Flow (ft)	2230.25

Warning: During the culvert outlet computations, the program could not balance the culvert/weir flow. The reported outlet energy grade answer may not be valid.

CROSS SECTION

RIVER: Tropicana Wash
REACH: Tropicana Wash RS: 63.691

INPUT
Description: Downstream X-Section from culvert crossing at Arville
Station Elevation Data num= 29

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2227	25	2228	144	2229	197	2230	261	2230
279	2229	295	2228	296	2227	298	2226	299	2225
301	2224	302.5	2221.35	307	2221.35	314	2221.35	317	2221.35
320	2221.35	322	2221.35	328	2221.35	335	2221.35	338	2221.35
338	2225	340	2226	342	2227	344	2228	345	2229
348	2230	543	2230	576	2231	596	2232		

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.035	295	.02	302.5	.028	338	.02	348	.035

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
295	348	320.78	320.81	320.88	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
0	301.99		F
338.01	596		F

CROSS SECTION OUTPUT Profile #PF 1

			Left OB	Channel	Right OB
E.G. Elev (ft)	2228.43	Element			
Vel Head (ft)	1.11	Wt. n-Val.		0.028	
W.S. Elev (ft)	2227.32	Reach Len. (ft)	320.78	320.81	320.88
Crit W.S. (ft)		Flow Area (sq ft)		214.82	
E.G. Slope (ft/ft)	0.002685	Area (sq ft)	1.29	233.49	
Q Total (cfs)	1818.00	Flow (cfs)		1818.00	
Top Width (ft)	55.00	Top Width (ft)	8.03	46.96	
Vel Total (ft/s)	8.46	Avg. Vel. (ft/s)		8.46	
Max Chl Dpth (ft)	5.97	Hydr. Depth (ft)		5.96	
Conv. Total (cfs)	35088.2	Conv. (cfs)		35088.2	
Length Wtd. (ft)	320.81	Wetted Per. (ft)		40.20	
Min Ch El (ft)	2221.35	Shear (lb/sq ft)		0.90	
Alpha	1.00	Stream Power (lb/ft s)		7.58	
Frctn Loss (ft)	1.50	Cum Volume (acre-ft)	6.11	22.24	3.33
C & E Loss (ft)	0.25	Cum SA (acres)	3.10	7.56	2.94

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #PF 2

			Left OB	Channel	Right OB
E.G. Elev (ft)	2228.43	Element			
Vel Head (ft)	1.11	Wt. n-Val.		0.028	
W.S. Elev (ft)	2227.32	Reach Len. (ft)	320.78	320.81	320.88
Crit W.S. (ft)		Flow Area (sq ft)		214.82	
E.G. Slope (ft/ft)	0.002685	Area (sq ft)	1.29	233.49	
Q Total (cfs)	1818.00	Flow (cfs)		1818.00	
Top Width (ft)	55.00	Top Width (ft)	8.03	46.96	

Vel Total (ft/s)	8.46	Avg. Vel. (ft/s)		8.46	
Max Chl Dpth (ft)	5.97	Hydr. Depth (ft)		5.96	
Conv. Total (cfs)	35088.2	Conv. (cfs)		35088.2	
Length Wtd. (ft)	320.81	Wetted Per. (ft)		40.20	
Min Ch El (ft)	2221.35	Shear (lb/sq ft)		0.90	
Alpha	1.00	Stream Power (lb/ft s)		7.58	
Frctn Loss (ft)	1.50	Cum Volume (acre-ft)	6.25	22.75	3.03
C & E Loss (ft)	0.25	Cum SA (acres)	3.46	5.48	2.57

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Tropicana Wash
REACH: Tropicana Wash RS: 63.631

INPUT
Description: 21
Station Elevation Data num= 111

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2222.6	17.76	2222.74	28.31	2222.79	30.88	2222.82	33.91	2222.87
50.8	2222.8	51.5	2222.84	52.8	2222.85	67.74	2222.86	78.74	2222.93
84.08	2223	85.77	2222.97	97.12	2223.11	99.72	2223.1	112.12	2223.26
120.94	2223.3	128.55	2223.43	129.64	2223.43	148.15	2223.34	149.06	2223.35
149.45	2223.3	158.51	2223.35	158.83	2223.35	186.52	2224	237.58	2223.06
238.05	2223.1	238.52	2223.05	258.48	2222.91	268.51	2222.95	279.08	2223.02
279.44	2223	279.63	2223.03	280	2223.03	281.16	2223.03	294.96	2222.98
297.15	2222.9	297.44	2222.88	298.1	2222.87	309.28	2222.82	312.89	2222.87
323.01	2222.8	323.38	2222.78	323.84	2222.79	323.98	2222.8	324.21	2222.82
325.65	2222.9	326.61	2222.91	334.36	2222.98	355.26	2223.94	356.6	2224
359.3	2224.46	363.25	2225	364.43	2225.42	365	2225.4	365.15	2225.39
367.01	2225.03	370.24	2224.31	370.89	2224.2	373.05	2224	373.75	2223.95
373.83	2223.95	377.4	2222	378.36	2221.4	380.46	2220	386.54	2218.91
390.98	2218	392.36	2217.65	394.21	2218	399.66	2219.41	402.8	2220
405.34	2223.14	405.45	2223.25	406.06	2223.9	406.21	2224	406.49	2224.07
406.63	2224.09	409.27	2224.39	413.44	2224.85	413.68	2224.9	413.73	2224.84
414.15	2224.82	415.21	2224.83	432.45	2224.42	435.47	2224.4	436.12	2224.41
445.29	2224	460.64	2223.56	478.42	2223.43	494.9	2223.7	509.72	2224
510.79	2224.04	511.39	2224.04	529.93	2224.38	535.67	2224.4	554.56	2224.81
557.4	2224.87	558.38	2224.9	561.09	2224.93	569.62	2225.2	589.63	2225.13
591.13	2224.8	628.2	2225.74	647.79	2226	666.14	2226.3	691.71	2226.9
693.13	2226.9	697.14	2226.99	718.32	2227.44	730.87	2227.8	735.61	2227.86
738.78	2227.93								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.035	380.46	.028	402.8	.035

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
365	409.27	318.34	326.31	347.37	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
0	360		T
415	738.78		T

Left Levee Station= 364.43 Elevation= 2225.42

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	2226.69	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.94	Wt. n-Val.		0.032	0.035
W.S. Elev (ft)	2224.75	Reach Len. (ft)	318.34	326.31	347.37
Crit W.S. (ft)	2224.75	Flow Area (sq ft)		162.51	0.58
E.G. Slope (ft/ft)	0.010010	Area (sq ft)		162.51	95.14
Q Total (cfs)	1818.00	Flow (cfs)		1817.22	0.79
Top Width (ft)	177.36	Top Width (ft)		41.00	136.36
Vel Total (ft/s)	11.15	Avg. Vel. (ft/s)		11.18	1.35
Max Chl Dpth (ft)	7.10	Hydr. Depth (ft)		3.96	0.18
Conv. Total (cfs)	18170.8	Conv. (cfs)		18162.9	7.8
Length Wtd. (ft)	326.31	Wetted Per. (ft)		44.54	3.27
Min Ch El (ft)	2217.65	Shear (lb/sq ft)		2.28	0.11
Alpha	1.01	Stream Power (lb/ft s)		25.49	0.15
Frctn Loss (ft)	3.74	Cum Volume (acre-ft)	6.10	20.78	2.98
C & E Loss (ft)	0.26	Cum SA (acres)	3.07	7.23	2.43

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Manning's n values were composited to a single value in the main channel.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	2226.69	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.94	Wt. n-Val.		0.032	0.035
W.S. Elev (ft)	2224.75	Reach Len. (ft)	318.34	326.31	347.37
Crit W.S. (ft)	2224.75	Flow Area (sq ft)		162.51	0.58
E.G. Slope (ft/ft)	0.010010	Area (sq ft)		162.51	95.14
Q Total (cfs)	1818.00	Flow (cfs)		1817.22	0.79
Top Width (ft)	177.36	Top Width (ft)		41.00	136.36
Vel Total (ft/s)	11.15	Avg. Vel. (ft/s)		11.18	1.35
Max Chl Dpth (ft)	7.10	Hydr. Depth (ft)		3.96	0.18
Conv. Total (cfs)	18170.8	Conv. (cfs)		18162.9	7.8
Length Wtd. (ft)	326.31	Wetted Per. (ft)		44.54	3.27
Min Ch El (ft)	2217.65	Shear (lb/sq ft)		2.28	0.11
Alpha	1.01	Stream Power (lb/ft s)		25.49	0.15
Frctn Loss (ft)	3.80	Cum Volume (acre-ft)	6.25	21.30	2.68
C & E Loss (ft)	0.03	Cum SA (acres)	3.43	5.16	2.07

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Manning's n values were composited to a single value in the main channel.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water

surface was used.

CROSS SECTION

RIVER: Tropicana Wash
REACH: Tropicana Wash RS: 63.569

INPUT
Description: 20
Station Elevation Data num= 118

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2220.3	31.61	2220.65	48.71	2220.61	51.66	2220.11	52.76	2220
55.53	2220	112.87	2220.84	174.09	2221.62	174.52	2221.65	184.03	2221.82
185.48	2221.8	189.39	2221.86	191.36	2221.86	194.19	2221.83	195.57	2221.82
197.38	2221.8	201.67	2221.92	202.51	2221.9	203.23	2221.89	207.42	2221.89
207.72	2221.9	229.14	2221.73	232.55	2221.69	243.54	2221.48	249.91	2221.45
262.19	2221.1	272.46	2221	277.82	2220.96	281.45	2221.14	281.88	2221.19
300.27	2220.9	302.55	2220.92	303.11	2220.86	303.13	2220.83	304.27	2220.7
305.2	2220.7	305.27	2220.7	305.29	2220.7	309.03	2220.75	314.36	2220.78
333.49	2220.7	337.01	2220.72	338.64	2220.75	348.62	2220.95	349.22	2221.09
350.99	2221.1	351.03	2221.07	355.83	2220.85	356.21	2220.82	359	2220.69
359.03	2220.69	360.02	2220.6	360.28	2220.6	366.78	2220.19	367.34	2220.15
370.12	2220	370.2	2220	370.78	2219.88	372.38	2219.52	379.22	2218
380.8	2217.75	390.78	2216	400.57	2214.3	402.79	2214	415.03	2214.42
421.21	2214.65	422.03	2214.69	422.59	2214.7	422.71	2214.71	423.04	2214.73
426.13	2214.93	426.88	2215.25	430.7	2216	433.74	2216.5	435.82	2216.5
436.48	2216.55	440.76	2216.84	442	2216.81	446.99	2216.7	451.1	2216.68
451.25	2216.66	451.55	2216.64	453.16	2216.59	455.27	2216.52	455.31	2216.5
456.27	2216.48	457.68	2216.43	465.29	2216.51	472.14	2217.1	474.93	2217.4
475.61	2217.52	476.83	2217.73	479.69	2218	481.05	2218.28	483.26	2218.5
485.56	2218.74	487.31	2218.84	487.73	2218.94	489.34	2219.2	490	2219.23
493.53	2219.4	495.42	2219.69	497.86	2220	504.15	2220.25	511.54	2220.51
512.7	2220.7	540.86	2221.39	541.26	2221.4	541.3	2221.36	551.69	2221.51
555.33	2221.6	557.22	2221.85	558.14	2221.72	564.65	2222	572.3	2222
578.18	2222	581.13	2222	591.7	2222				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.04	359	.034	490	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
359	490	94.38	87.55	78.15	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	2219.22	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.08	Wt. n-Val.		0.034	
W.S. Elev (ft)	2218.15	Reach Len. (ft)	94.38	87.55	78.15
Crit W.S. (ft)	2218.15	Flow Area (sq ft)		218.48	
E.G. Slope (ft/ft)	0.013219	Area (sq ft)		218.48	
Q Total (cfs)	1818.00	Flow (cfs)		1818.00	
Top Width (ft)	101.85	Top Width (ft)		101.85	
Vel Total (ft/s)	8.32	Avg. Vel. (ft/s)		8.32	
Max Chl Dpth (ft)	4.15	Hydr. Depth (ft)		2.15	
Conv. Total (cfs)	15812.2	Conv. (cfs)		15812.2	
Length Wtd. (ft)	87.55	Wetted Per. (ft)		102.53	
Min Ch El (ft)	2214.00	Shear (lb/sq ft)		1.76	
Alpha	1.00	Stream Power (lb/ft s)		14.63	
Frctn Loss (ft)	0.39	Cum Volume (acre-ft)	6.10	19.35	2.60
C & E Loss (ft)	0.24	Cum SA (acres)	3.07	6.70	1.89

Warning: The energy equation could not be balanced within the specified number of iterations. The

program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	2221.00	Element	Left OB	Channel	Right OB	
Vel Head (ft)	1.85	Wt. n-Val.		0.034		
W.S. Elev (ft)	2219.15	Reach Len. (ft)	94.38	87.55	78.15	
Crit W.S. (ft)	2219.15	Flow Area (sq ft)		166.75		
E.G. Slope (ft/ft)	0.013722	Area (sq ft)		166.75		
Q Total (cfs)	1818.00	Flow (cfs)		1818.00		
Top Width (ft)	45.90	Top Width (ft)		45.90		
Vel Total (ft/s)	10.90	Avg. Vel. (ft/s)		10.90		
Max Chl Dpth (ft)	5.07	Hydr. Depth (ft)		3.63		
Conv. Total (cfs)	15519.6	Conv. (cfs)		15519.6		
Length Wtd. (ft)	87.54	Wetted Per. (ft)		53.66		
Min Ch El (ft)	2214.08	Shear (lb/sq ft)		2.66		
Alpha	1.00	Stream Power (lb/ft s)		29.03		
Frctn Loss (ft)	0.18	Cum Volume (acre-ft)	6.25	20.06	2.30	
C & E Loss (ft)	0.51	Cum SA (acres)	3.43	4.83	1.52	

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION

RIVER: Tropicana Wash
REACH: Tropicana Wash RS: 63.552

INPUT
Description: 19
Station Elevation Data num= 66

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2220.8	2.41	2220.78	4.19	2220.81	16.93	2220.47	29.9	2220.12
30.19	2220.1	36.04	2220.01	36.12	2220.01	36.36	2220	62.02	2219.33
66.48	2219.2	71	2219.1	84.25	2218.83	90.54	2218.68	91.25	2218.66
100.3	2218.5	102.3	2218.48	108.94	2218.4	116.24	2218.21	130.76	2218
132	2217.82	134.59	2217.43	136.4	2217.2	142.95	2216.19	143.61	2216.09
144.14	2216	150.43	2215.82	156.54	2215.6	157.49	2215.58	162.28	2216
169	2215.78	179.03	2215.52	185.95	2215.5	205.47	2214.32	207.42	2214.29
209.6	2214.22	212.33	2214	234.65	2214	237.41	2214	244.5	2214
255.88	2214	255.99	2214.01	256.2	2214	256.78	2214.07	279.46	2216
293.82	2217.26	301.6	2217.94	301.87	2217.96	302.39	2218	305.83	2218.25
309.03	2218.58	330.05	2220	332.28	2220	333.55	2220	345.52	2220
349.75	2220	363.79	2220	365.19	2220	367.74	2219.9	382.72	2218.8

387.69 2219.04 398.64 2220 403.96 2220.28 408.09 2220.5 428.85 2220.62
431.61 2220.62

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.04	132	.032	293.82	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
132	293.82	208.29	247.98 217.5	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

			Left OB	Channel	Right OB
E.G. Elev (ft)	2218.11	Element			
Vel Head (ft)	0.27	Wt. n-Val.	0.000	0.032	0.040
W.S. Elev (ft)	2217.84	Reach Len. (ft)	208.29	247.98	217.50
Crit W.S. (ft)		Flow Area (sq ft)	0.00	432.94	1.92
E.G. Slope (ft/ft)	0.002205	Area (sq ft)	0.00	432.94	1.92
Q Total (cfs)	1818.00	Flow (cfs)	0.00	1816.54	1.46
Top Width (ft)	168.57	Top Width (ft)	0.13	161.82	6.62
Vel Total (ft/s)	4.18	Avg. Vel. (ft/s)	0.08	4.20	0.76
Max Chl Dpth (ft)	3.84	Hydr. Depth (ft)	0.01	2.68	0.29
Conv. Total (cfs)	38718.6	Conv. (cfs)	0.0	38687.5	31.1
Length Wtd. (ft)	247.97	Wetted Per. (ft)	0.13	162.18	6.65
Min Ch El (ft)	2214.00	Shear (lb/sq ft)		0.37	0.04
Alpha	1.01	Stream Power (lb/ft s)		1.54	0.03
Frctn Loss (ft)	0.25	Cum Volume (acre-ft)	6.10	18.70	2.60
C & E Loss (ft)	0.06	Cum SA (acres)	3.07	6.43	1.88

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

CROSS SECTION OUTPUT Profile #PF 2

			Left OB	Channel	Right OB
E.G. Elev (ft)	2218.91	Element			
Vel Head (ft)	0.15	Wt. n-Val.	0.040	0.032	0.040
W.S. Elev (ft)	2218.76	Reach Len. (ft)	208.29	247.98	217.50
Crit W.S. (ft)		Flow Area (sq ft)	18.30	581.73	13.15
E.G. Slope (ft/ft)	0.000805	Area (sq ft)	18.30	581.73	13.15
Q Total (cfs)	1818.00	Flow (cfs)	10.63	1796.10	11.28
Top Width (ft)	224.41	Top Width (ft)	44.74	161.82	17.85
Vel Total (ft/s)	2.96	Avg. Vel. (ft/s)	0.58	3.09	0.86
Max Chl Dpth (ft)	4.76	Hydr. Depth (ft)	0.41	3.59	0.74
Conv. Total (cfs)	64069.1	Conv. (cfs)	374.6	63297.1	397.4
Length Wtd. (ft)	247.72	Wetted Per. (ft)	44.76	162.18	17.91
Min Ch El (ft)	2214.00	Shear (lb/sq ft)	0.02	0.18	0.04
Alpha	1.07	Stream Power (lb/ft s)	0.01	0.56	0.03
Frctn Loss (ft)	0.11	Cum Volume (acre-ft)	6.23	19.31	2.29
C & E Loss (ft)	0.03	Cum SA (acres)	3.38	4.62	1.51

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

CROSS SECTION

RIVER: Tropicana Wash
REACH: Tropicana Wash RS: 63.505

INPUT
Description: 18
Station Elevation Data num= 141

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev

0	2220	5.8	2220	6.79	2220	13.62	2220	19.2	2220
20.87	2220	49.24	2218.86	59	2218.54	59.26	2218.4	61.26	2218.35
66.16	2218.3	70.45	2218.29	71.29	2218.3	72.31	2218.3	72.77	2218.31
75.39	2218.4	76.69	2218.38	92	2218.13	95.47	2218.07	100.12	2218
104	2217.33	106.65	2216.87	111.72	2216	125.91	2215.52	140.67	2214.37
143.08	2214.24	145.71	2214	147.63	2213.6	157.62	2212	161.75	2210.73
164.55	2210	172.94	2210	173.66	2210	174.95	2210.45	179.03	2212
180.51	2212.14	192.99	2213.08	199.84	2213.2	212.7	2214	227.23	2214.81
227.29	2214.81	232.11	2214.81	236.31	2214.8	237.36	2214.77	241.5	2214.71
274.41	2215.08	283.06	2214.97	293.21	2215.3	298.84	2215.49	301.55	2215.6
322.73	2215.95	324.51	2216	329.2	2216.4	353.05	2218	360.61	2219.15
364.5	2219.42	365.76	2219.48	366.64	2219.5	367.82	2219.55	368.05	2219.54
369	2219.57	369.73	2219.6	370.14	2219.51	370.59	2219.5	374.07	2218.8
378.37	2218.18	379.41	2218	384.96	2217.01	391.84	2216	394.89	2215.87
417.34	2215.04	418.09	2215.06	419.49	2215.01	423.95	2214.9	426.16	2214.79
431.66	2214.76	433.45	2214.79	436.52	2214.89	445.34	2215.2	462.78	2215.97
464.58	2216	475.1	2216.18	477.9	2216.88	481.74	2217.4	484.56	2216.94
492.99	2216.47	494.97	2216.31	495.12	2216.31	495.13	2216.3	496.83	2216.35
500.4	2216.27	500.68	2216.27	501.22	2216.23	504.84	2216.3	509.3	2216.46
515.84	2216.73	520.38	2217.08	523.7	2217.23	524	2217.2	524.12	2217.19
524.56	2217.19	525.66	2217.25	533.74	2217.38	537.21	2217.5	542.73	2217.75
544.06	2217.78	544.5	2217.78	544.9	2217.78	545.72	2217.8	545.94	2217.8
546.1	2217.8	546.35	2217.8	547.43	2217.82	547.77	2217.8	557.8	2218
560.77	2218.1	567.58	2218.41	571.81	2218.63	574.6	2218.7	591.15	2220
591.92	2220	607.77	2220	610.76	2220	615.28	2220	616.27	2219.87
617.22	2219.84	631.11	2219.86	633.46	2220	635.61	2220	638.72	2220
643.25	2220	646.99	2220	658.67	2220	665.06	2220	671.14	2220
676.26	2220	678.14	2220	685.7	2220	694.89	2220	701.05	2220
701.82	2220								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.04	157.62	.028	179.03	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
92	369	124.56	89.12 150.96	.1	.3

Right Levee Station= 367 Elevation=

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	2217.80	Element	Left OB	Channel	Right OB	
Vel Head (ft)	0.09	Wt. n-Val.		0.035		
W.S. Elev (ft)	2217.72	Reach Len. (ft)	124.56	89.12	150.96	
Crit W.S. (ft)	2215.31	Flow Area (sq ft)		776.97		
E.G. Slope (ft/ft)	0.000585	Area (sq ft)		776.97		
Q Total (cfs)	1818.00	Flow (cfs)		1818.00		
Top Width (ft)	247.09	Top Width (ft)		247.09		
Vel Total (ft/s)	2.34	Avg. Vel. (ft/s)		2.34		
Max Chl Dpth (ft)	7.72	Hydr. Depth (ft)		3.14		
Conv. Total (cfs)	75182.7	Conv. (cfs)		75182.7		
Length Wtd. (ft)	94.81	Wetted Per. (ft)		248.29		
Min Ch El (ft)	2210.00	Shear (lb/sq ft)		0.11		
Alpha	1.00	Stream Power (lb/ft s)		0.27		
Frctn Loss (ft)	0.15	Cum Volume (acre-ft)	6.10	15.25	2.59	
C & E Loss (ft)	0.07	Cum SA (acres)	3.07	5.27	1.87	

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.

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

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

CROSS SECTION OUTPUT Profile #PF 2

			Left OB	Channel	Right OB
E.G. Elev (ft)	2218.77	Element			
Vel Head (ft)	0.05	Wt. n-Val.	0.040	0.036	
W.S. Elev (ft)	2218.72	Reach Len. (ft)	124.56	89.12	150.96
Crit W.S. (ft)	2215.31	Flow Area (sq ft)	14.54	1037.00	
E.G. Slope (ft/ft)	0.000267	Area (sq ft)	14.54	1037.00	
Q Total (cfs)	1818.00	Flow (cfs)	4.60	1813.40	
Top Width (ft)	304.32	Top Width (ft)	38.52	265.79	
Vel Total (ft/s)	1.73	Avg. Vel. (ft/s)	0.32	1.75	
Max Chl Dpth (ft)	8.72	Hydr. Depth (ft)	0.38	3.90	
Conv. Total (cfs)	111340.2	Conv. (cfs)	281.7	111058.5	
Length Wtd. (ft)	89.17	Wetted Per. (ft)	38.57	267.08	
Min Ch El (ft)	2210.00	Shear (lb/sq ft)	0.01	0.06	
Alpha	1.02	Stream Power (lb/ft s)	0.00	0.11	
Frctn Loss (ft)	0.07	Cum Volume (acre-ft)	6.15	14.70	2.25
C & E Loss (ft)	0.15	Cum SA (acres)	3.18	3.41	1.46

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: Tropicana Wash
REACH: Tropicana Wash RS: 63.488

INPUT
Description: 17
Station Elevation Data num= 133

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2219.2	.44	2219.19	10.95	2219.24	31.29	2219.26	41.02	2219.34
49.43	2219.4	57.63	2219.3	66.45	2219.11	72.43	2218.96	85.5	2218.96
87.22	2218.9	90.06	2218.95	100.94	2218.95	102.79	2218.97	108.31	2218.96
109.55	2218.9	121.33	2218.38	126.8	2218.64	126.98	2218.67	127.42	2218.69
128.22	2218.7	133.7	2218	140.8	2217.67	143.87	2217.63	153.41	2217.54
154.88	2217.6	166.9	2218	187.92	2216.85	189.51	2217.02	189.59	2217.01
191.84	2217.1	193.03	2216.9	194.02	2216.83	194.82	2216.87	195.22	2216.7
196.81	2216	199.38	2215.2	201.94	2214	205.43	2212.35	206.16	2212
207.31	2211.46	210.06	2210	210.69	2209.75	211.23	2210	213.2	2210
214.31	2211.15	215.2	2212	217.02	2213.98	217.05	2214	217.27	2214.01
217.39	2214.01	217.64	2214	245.7	2214.94	274	2215.9	277.07	2216
282.43	2216	295.31	2216	304.14	2216	326.75	2216	333.76	2216
361.85	2215.66	372.25	2216	393.16	2217.16	407.96	2218	408.08	2217.99
408.1	2218	408.14	2218	408.24	2218	408.29	2218	416.25	2218.71
420.66	2218.95	421.78	2219	422.12	2219	424.79	2219	432.29	2219.44
432.91	2219.52	433.71	2219.53	435.96	2219.39	439.67	2219.1	441	2218.92
444.41	2218.68	449.45	2218	458.31	2217.44	461.2	2217.3	463.76	2217.09
466.91	2216.91	475.8	2216.86	510.1	2217.06	516.78	2217.8	517.43	2217.83
518.2	2217.88	520.09	2218	523.54	2218	544.57	2218	554.21	2218
556.01	2218	556.88	2218	578.84	2218	590.9	2218	594	2218
604.6	2218.34	616.42	2218.78	625.05	2219.12	628.28	2219.1	628.66	2219.05
630.38	2218.82	633.17	2218.67	634.41	2218.57	643.34	2218.6	648.28	2218.5
649.01	2218.51	658.23	2218.57	668.84	2218.55	674.53	2218.4	679.57	2218.29
679.81	2218.26	679.94	2218.25	681.85	2218.25	682.69	2218.3	683.74	2218.34
688.33	2218.4	695.15	2218.68	695.96	2218.76	699.48	2219	699.62	2219.02
703.89	2219.01	708.35	2219.01	711.49	2219.03	718.67	2219	721.72	2218.94
728.71	2218.86	731.44	2218.79	734.78	2218.82				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.04	201.94	.028	215.2	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
195.22	274	170.98	168.37 160.12	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

			Left OB	Channel	Right OB
E.G. Elev (ft)	2217.59	Element			
Vel Head (ft)	0.76	Wt. n-Val.	0.040	0.038	0.040
W.S. Elev (ft)	2216.83	Reach Len. (ft)	170.98	168.37	160.12
Crit W.S. (ft)	2216.83	Flow Area (sq ft)	0.02	196.48	94.41
E.G. Slope (ft/ft)	0.011605	Area (sq ft)	0.02	196.48	94.41
Q Total (cfs)	1818.00	Flow (cfs)	0.01	1483.32	334.67
Top Width (ft)	192.29	Top Width (ft)	0.30	78.78	113.21
Vel Total (ft/s)	6.25	Avg. Vel. (ft/s)	0.61	7.55	3.54
Max Chl Dpth (ft)	7.08	Hydr. Depth (ft)	0.06	2.49	0.83
Conv. Total (cfs)	16876.2	Conv. (cfs)	0.1	13769.4	3106.7
Length Wtd. (ft)	167.61	Wetted Per. (ft)	0.33	82.09	113.24
Min Ch El (ft)	2209.75	Shear (lb/sq ft)	0.04	1.73	0.60
Alpha	1.25	Stream Power (lb/ft s)	0.03	13.09	2.14
Frctn Loss (ft)	0.59	Cum Volume (acre-ft)	6.10	14.26	2.43
C & E Loss (ft)	0.19	Cum SA (acres)	3.07	4.94	1.67

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #PF 2

			Left OB	Channel	Right OB
E.G. Elev (ft)	2218.55	Element			
Vel Head (ft)	1.52	Wt. n-Val.	0.040	0.037	
W.S. Elev (ft)	2217.03	Reach Len. (ft)	170.98	168.37	160.12
Crit W.S. (ft)	2217.03	Flow Area (sq ft)	0.76	183.79	
E.G. Slope (ft/ft)	0.015255	Area (sq ft)	0.76	183.79	
Q Total (cfs)	1818.00	Flow (cfs)	0.88	1817.12	
Top Width (ft)	65.34	Top Width (ft)	6.06	59.28	
Vel Total (ft/s)	9.85	Avg. Vel. (ft/s)	1.16	9.89	
Max Chl Dpth (ft)	7.28	Hydr. Depth (ft)	0.12	3.10	
Conv. Total (cfs)	14719.5	Conv. (cfs)	7.1	14712.4	
Length Wtd. (ft)	168.37	Wetted Per. (ft)	6.25	64.37	
Min Ch El (ft)	2209.75	Shear (lb/sq ft)	0.12	2.72	
Alpha	1.01	Stream Power (lb/ft s)	0.13	26.88	
Frctn Loss (ft)	0.64	Cum Volume (acre-ft)	6.13	13.45	2.25
C & E Loss (ft)	0.42	Cum SA (acres)	3.12	3.07	1.46

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than

0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Tropicana Wash
REACH: Tropicana Wash RS: 63.456

INPUT
Description: 16
Station Elevation Data num= 132

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2217	16	2216	58	2216	104	2215	160	2214
213.75	2213	236.35	2212	244.14	2212.45	254.41	2212.36	279.47	2212.49
279.86	2212.48	287.12	2212.5	287.16	2212.45	287.29	2212.44	288.67	2212.45
290.84	2212.46	294.31	2212.5	311.94	2212.74	322.33	2212.75	330.86	2213.07
333.29	2213.11	333.37	2213.1	333.56	2213.11	337.1	2213.07	337.97	2213.06
338.59	2213.05	341.1	2213	352.17	2212.9	366.49	2212.74	371.11	2212.78
375.32	2212.73	390.54	2212.5	405.03	2212.76	407.12	2212.67	411.72	2212.56
413.07	2212.52	419.93	2213.6	420.7	2213.46	420.97	2213.4	422.82	2213.82
423.61	2214	424.44	2214	424.57	2213.8	425.73	2212.23	425.84	2212
425.88	2211.85	426.36	2210	426.7	2208.7	426.88	2208	431.59	2208
439.98	2208	441.64	2209.75	441.86	2210	442.4	2210.57	444.01	2212
444.09	2212	446.62	2212.14	446.94	2212.2	448.88	2212.28	449.82	2212.24
451.71	2212.24	451.88	2212.24	453.44	2212.2	453.59	2212.22	454.87	2212.2
455.33	2212.18	455.36	2212.18	455.74	2212.2	455.78	2212.2	463.07	2212.29
482.33	2212.68	493.48	2212.89	497.81	2212.97	536.09	2213.5	569.81	2214
576.49	2214	577.13	2214	584.66	2214	597.2	2214	597.78	2214.03
598	2214.04	605.56	2214.47	619.36	2214.64	620.69	2214.6	628.43	2214.66
636.45	2214.68	638.32	2214.68	642.74	2214.69	671.12	2216	674.4	2216
675.46	2216	688.37	2216	695.56	2216	701.55	2216	707.96	2216
719.82	2216	722.62	2216	732.11	2216	742.62	2216	751.14	2216
754.85	2216	767.15	2216.46	777.51	2216.11	786.52	2216	788.08	2216
788.52	2216	788.94	2216.04	789.22	2216.05	789.44	2216	789.83	2216.05
790	2216.05	862.87	2218	864.21	2218	887.59	2218	893.01	2218
899.89	2218	914.32	2218	916.25	2218	918.92	2218	919.02	2218
930.33	2218	932.41	2218	936.53	2218	944	2218	948.43	2218
951.65	2218	955.18	2218	975.81	2218	976.42	2218	976.68	2218
978.57	2218	983.77	2218						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.04	424.44	.025	426.88	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
422.82	455.78	351.75	244.62	156.19	.1	.3

Left Levee Station= 187.2 Elevation=

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	2214.69	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.11	Wt. n-Val.	0.040	0.038	0.040
W.S. Elev (ft)	2214.58	Reach Len. (ft)	351.75	244.62	156.19
Crit W.S. (ft)	2213.75	Flow Area (sq ft)	469.74	140.33	183.03
E.G. Slope (ft/ft)	0.001685	Area (sq ft)	469.74	140.33	183.03
Q Total (cfs)	1818.00	Flow (cfs)	975.63	535.35	307.02
Top Width (ft)	486.75	Top Width (ft)	295.21	32.96	158.58
Vel Total (ft/s)	2.29	Avg. Vel. (ft/s)	2.08	3.81	1.68

Max Chl Dpth (ft)	6.58	Hydr. Depth (ft)	1.59	4.26	1.15
Conv. Total (cfs)	44293.8	Conv. (cfs)	23770.3	13043.3	7480.3
Length Wtd. (ft)	269.71	Wetted Per. (ft)	295.45	38.79	158.61
Min Ch El (ft)	2208.00	Shear (lb/sq ft)	0.17	0.38	0.12
Alpha	1.35	Stream Power (lb/ft s)	0.35	1.45	0.20
Frctn Loss (ft)	0.03	Cum Volume (acre-ft)	5.18	13.60	1.92
C & E Loss (ft)	0.03	Cum SA (acres)	2.49	4.72	1.17

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	2214.69	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.11	Wt. n-Val.	0.040	0.038	0.040
W.S. Elev (ft)	2214.58	Reach Len. (ft)	351.75	244.62	156.19
Crit W.S. (ft)	2213.75	Flow Area (sq ft)	469.74	140.33	183.03
E.G. Slope (ft/ft)	0.001685	Area (sq ft)	469.74	140.33	183.03
Q Total (cfs)	1818.00	Flow (cfs)	975.63	535.35	307.02
Top Width (ft)	486.75	Top Width (ft)	295.21	32.96	158.58
Vel Total (ft/s)	2.29	Avg. Vel. (ft/s)	2.08	3.81	1.68
Max Chl Dpth (ft)	6.58	Hydr. Depth (ft)	1.59	4.26	1.15
Conv. Total (cfs)	44293.8	Conv. (cfs)	23770.3	13043.3	7480.3
Length Wtd. (ft)	269.71	Wetted Per. (ft)	295.45	38.79	158.61
Min Ch El (ft)	2208.00	Shear (lb/sq ft)	0.17	0.38	0.12
Alpha	1.35	Stream Power (lb/ft s)	0.35	1.45	0.20
Frctn Loss (ft)	0.03	Cum Volume (acre-ft)	5.20	12.83	1.92
C & E Loss (ft)	0.03	Cum SA (acres)	2.53	2.90	1.17

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Tropicana Wash
REACH: Tropicana Wash RS: 63.410

INPUT
Description: Upstream X-Section from UPRR culvert crossing
Station Elevation Data num= 268

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2210.9	36.48	2211.36	92.93	2212	96	2212.05	101.85	2212.16
105.47	2212	111.81	2212.85	134.1	2212.82	149.87	2212.52	159.18	2212.25
159.28	2212.2	162.39	2212.24	165.52	2212.27	172.05	2212.27	176.75	2212
192.12	2212.6	196.53	2212.56	201.84	2212.47	221	2212.1	221.91	2212.08
223.91	2212	234.34	2211.46	256.78	2210.3	258.15	2210.24	259.73	2210.26
261.35	2210.24	261.57	2210.3	262.27	2210.23	262.95	2210	264.76	2209.45
269.59	2208	274.08	2208	280.39	2208	284.55	2208	287.19	2208
294.58	2208	298.18	2208	306.6	2208	308.51	2208	308.77	2208
313.09	2207.48	315.61	2207.5	325	2206	329.71	2205.35	329.8	2205.34
329.84	2205.33	337.33	2205.5	337.68	2205.43	339.97	2205.02	341.12	2204
341.59	2204	344	2202	346	2200	348	2200	350.39	2200
354	2200	354.02	2200	354.03	2200	355.33	2204	356.19	2204
356.73	2204	357.27	2204	360.06	2204	363.07	2204	366.12	2204
367.32	2204	386.72	2204.06	387.13	2204.05	387.21	2204.05	393.12	2204.1
398	2205.12	401.43	2205.85	402.09	2205.91	403.32	2206	411.2	2206.6
412.73	2206.74	417.57	2206.95	420.99	2207.11	424.97	2207.49	431.1	2208
435.35	2208.2	444.45	2210	444.61	2210.01	444.76	2210.01	449.85	2210.2
450.63	2210.2	454.3	2210.41	454.83	2210.42	458.15	2210.41	460.14	2210.59

469.99	2211.5	473.35	2211.85	474.42	2211.92	474.48	2211.92	475.54	2212
476.08	2212	476.39	2212	476.71	2212	480.72	2212	485.5	2212
486.07	2212	486.67	2212	497.72	2212	498.77	2212	509.24	2212
511.21	2212	512.02	2212	517.74	2212	522.65	2212	528.06	2212
534.05	2212	538.74	2211.4	540.99	2212	560.14	2212	565.12	2212
565.49	2212	571.16	2212	572.18	2212.44	574.28	2213.2	579.45	2213.31
582.38	2213.3	582.69	2213.33	593.13	2213.37	593.53	2213.37	593.65	2213.37
593.7	2213.4	596.61	2213.39	608.65	2213.42	608.8	2213.42	614.28	2213.43
615.65	2213.5	631.67	2213.52	638.25	2213.54	649.99	2213.57	673.89	2213.7
687.3	2213.7	702.01	2214	702.63	2214.19	704.45	2214	704.75	2214
715.6	2215	721.95	2215.04	726.25	2214.89	731.3	2214.89	738.17	2214.79
741.55	2214.8	747.04	2214.88	754.33	2215.29	762.28	2215.37	764.67	2215.51
769.15	2215.6	772.39	2215.56	790.82	2215.58	809.25	2215.58	813.45	2215.57
823.25	2215.6	831.98	2216	833.02	2216	835.01	2216	839.28	2216
841.72	2216	851.58	2216	862	2216	866.37	2216	867.41	2216
884.46	2216	888.78	2216	904.53	2216	911.24	2216	913.2	2216.07
915.45	2216	927.61	2216	933.97	2216	938.51	2216	949.86	2216
960.06	2217.1	966.62	2217.12	971.64	2217.12	980.24	2217.14	983.79	2217.13
1016.09	2218	1016.75	2218	1046.09	2218	1048.69	2218	1052.05	2218
1059.33	2218	1062.04	2218	1065.76	2218	1065.82	2218	1081.41	2218
1084.23	2218	1086.6	2218	1096.82	2218	1099.55	2218	1101.55	2218
1106.59	2218	1121.05	2218	1125.66	2218	1133.07	2218	1140.25	2218
1141.48	2218	1141.85	2218	1145.4	2218	1145.69	2218	1145.76	2218
1154.33	2218	1154.8	2218	1160.08	2218	1164.28	2218	1164.95	2218
1169.27	2218	1170.83	2218	1178.71	2218	1205.31	2219.39	1216.92	2220
1217.3	2220	1219.13	2220.2	1220.65	2220.2	1221.56	2220.22	1222.9	2220.23
1223.46	2220.2	1232.69	2220.64	1258.28	2222	1267.76	2222.36	1270.47	2222.35
1275.45	2222.4	1282.05	2222.36	1287.3	2222.26	1288.39	2222.28	1301.94	2222.04
1302.07	2222	1303.82	2222	1306.35	2221.93	1318.41	2221.8	1324.52	2221.61
1324.89	2221.6	1330.93	2220.81	1337.25	2220.59	1340.56	2220.58	1341.05	2220.63
1344.76	2221	1344.94	2220.97	1350.62	2220.73	1350.65	2220.73	1350.93	2220.76
1355.87	2221	1356.06	2221	1360.23	2220.95	1365.92	2220.87	1371.43	2220.44
1372.78	2220.4	1375.01	2220.42	1382.29	2220.65	1384.01	2220.66	1387.39	2220.58
1389.55	2220.5	1391.16	2220.5	1392.62	2220.45	1396.39	2220.57	1402.08	2220.54
1409.63	2220.7	1435.23	2221.79	1436.55	2221.8	1438.71	2221.94	1439.32	2221.95
1439.98	2222	1440.41	2221.99	1441.15	2222				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.04	234.34	.04	460.14	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
234.34	460.14	112.33	111.64	151.37	.3	.5

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	2214.63	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.01	Wt. n-Val.	0.040	0.040	0.040
W.S. Elev (ft)	2214.62	Reach Len. (ft)	112.33	111.64	151.37
Crit W.S. (ft)	2206.52	Flow Area (sq ft)	610.91	1727.59	450.07
E.G. Slope (ft/ft)	0.000034	Area (sq ft)	610.91	1727.59	450.07
Q Total (cfs)	1818.00	Flow (cfs)	247.73	1426.83	143.44
Top Width (ft)	711.49	Top Width (ft)	234.34	225.80	251.35
Vel Total (ft/s)	0.65	Avg. Vel. (ft/s)	0.41	0.83	0.32
Max Chl Dpth (ft)	14.62	Hydr. Depth (ft)	2.61	7.65	1.79
Conv. Total (cfs)	312062.9	Conv. (cfs)	42522.8	244918.1	24622.0
Length Wtd. (ft)	111.64	Wetted Per. (ft)	238.19	231.73	251.84
Min Ch El (ft)	2200.00	Shear (lb/sq ft)	0.01	0.02	0.00
Alpha	1.33	Stream Power (lb/ft s)	0.00	0.01	0.00
Frctn Loss (ft)		Cum Volume (acre-ft)	0.82	8.36	0.78
C & E Loss (ft)		Cum SA (acres)	0.36	3.99	0.44

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	2214.63	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.01	Wt. n-Val.	0.040	0.040	0.040
W.S. Elev (ft)	2214.62	Reach Len. (ft)	112.33	111.64	151.37
Crit W.S. (ft)	2206.52	Flow Area (sq ft)	610.91	1727.59	450.07
E.G. Slope (ft/ft)	0.000034	Area (sq ft)	610.91	1727.59	450.07
Q Total (cfs)	1818.00	Flow (cfs)	247.73	1426.83	143.44
Top Width (ft)	711.49	Top Width (ft)	234.34	225.80	251.35
Vel Total (ft/s)	0.65	Avg. Vel. (ft/s)	0.41	0.83	0.32
Max Chl Dpth (ft)	14.62	Hydr. Depth (ft)	2.61	7.65	1.79
Conv. Total (cfs)	312062.9	Conv. (cfs)	42522.8	244918.1	24622.0
Length Wtd. (ft)	111.64	Wetted Per. (ft)	238.19	231.73	251.84
Min Ch El (ft)	2200.00	Shear (lb/sq ft)	0.01	0.02	0.00
Alpha	1.33	Stream Power (lb/ft s)	0.00	0.01	0.00
Frctn Loss (ft)		Cum Volume (acre-ft)	0.84	7.58	0.78
C & E Loss (ft)		Cum SA (acres)	0.39	2.17	0.44

CULVERT

RIVER: Tropicana Wash
REACH: Tropicana Wash RS: 63.397

INPUT
Description: Culvert Crossing at UPRR
Distance from Upstream XS = 46
Deck/Roadway Width = 46
Weir Coefficient = 2.6
Upstream Deck/Roadway Coordinates
num= 7

Sta Hi Cord	Lo Cord	Sta Hi Cord	Lo Cord	Sta Hi Cord	Lo Cord
0	2216	2197	303	2214	2197	343	2212	2197
348	2212	2197	353	2212	2197	408	2214	2197
1440	2216	2197						

Upstream Bridge Cross Section Data
Station Elevation Data num= 268

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2210.9	36.48	2211.36	92.93	2212	96	2212.05	101.85	2212.16
105.47	2212	111.81	2212.85	134.1	2212.82	149.87	2212.52	159.18	2212.25
159.28	2212.2	162.39	2212.24	165.52	2212.27	172.05	2212.27	176.75	2212
192.12	2212.6	196.53	2212.56	201.84	2212.47	221	2212.1	221.91	2212.08
223.91	2212	234.34	2211.46	256.78	2210.3	258.15	2210.24	259.73	2210.26
261.35	2210.24	261.57	2210.3	262.27	2210.23	262.95	2210	264.76	2209.45
269.59	2208	274.08	2208	280.39	2208	284.55	2208	287.19	2208
294.58	2208	298.18	2208	306.6	2208	308.51	2208	308.77	2208
313.09	2207.48	315.61	2207.5	325	2206	329.71	2205.35	329.8	2205.34
329.84	2205.33	337.33	2205.5	337.68	2205.43	339.97	2205.02	341.12	2204
341.59	2204	344	2202	346	2200	348	2200	350.39	2200
354	2200	354.02	2200	354.03	2200	355.33	2204	356.19	2204
356.73	2204	357.27	2204	360.06	2204	363.07	2204	366.12	2204
367.32	2204	386.72	2204.06	387.13	2204.05	387.21	2204.05	393.12	2204.1
398	2205.12	401.43	2205.85	402.09	2205.91	403.32	2206	411.2	2206.6
412.73	2206.74	417.57	2206.95	420.99	2207.11	424.97	2207.49	431.1	2208
435.35	2208.2	444.45	2210	444.61	2210.01	444.76	2210.01	449.85	2210.2
450.63	2210.2	454.3	2210.41	454.83	2210.42	458.15	2210.41	460.14	2210.59
469.99	2211.5	473.35	2211.85	474.42	2211.92	474.48	2211.92	475.54	2212
476.08	2212	476.39	2212	476.71	2212	480.72	2212	485.5	2212
486.07	2212	486.67	2212	497.72	2212	498.77	2212	509.24	2212
511.21	2212	512.02	2212	517.74	2212	522.65	2212	528.06	2212
534.05	2212	538.74	2211.4	540.99	2212	560.14	2212	565.12	2212
565.49	2212	571.16	2212	572.18	2212.44	574.28	2213.2	579.45	2213.31
582.38	2213.3	582.69	2213.33	593.13	2213.37	593.53	2213.37	593.65	2213.37

593.7	2213.4	596.61	2213.39	608.65	2213.42	608.8	2213.42	614.28	2213.43
615.65	2213.5	631.67	2213.52	638.25	2213.54	649.99	2213.57	673.89	2213.7
687.3	2213.7	702.01	2214	702.63	2214.19	704.45	2214	704.75	2214
715.6	2215	721.95	2215.04	726.25	2214.89	731.3	2214.89	738.17	2214.79
741.55	2214.8	747.04	2214.88	754.33	2215.29	762.28	2215.37	764.67	2215.51
769.15	2215.6	772.39	2215.56	790.82	2215.58	809.25	2215.58	813.45	2215.57
823.25	2215.6	831.98	2216	833.02	2216	835.01	2216	839.28	2216
841.72	2216	851.58	2216	862	2216	866.37	2216	867.41	2216
884.46	2216	888.78	2216	904.53	2216	911.24	2216	913.2	2216.07
915.45	2216	927.61	2216	933.97	2216	938.51	2216	949.86	2216
960.06	2217.1	966.62	2217.12	971.64	2217.12	980.24	2217.14	983.79	2217.13
1016.09	2218	1016.75	2218	1046.09	2218	1048.69	2218	1052.05	2218
1059.33	2218	1062.04	2218	1065.76	2218	1065.82	2218	1081.41	2218
1084.23	2218	1086.6	2218	1096.82	2218	1099.55	2218	1101.55	2218
1106.59	2218	1121.05	2218	1125.66	2218	1133.07	2218	1140.25	2218
1141.48	2218	1141.85	2218	1145.4	2218	1145.69	2218	1145.76	2218
1154.33	2218	1154.8	2218	1160.08	2218	1164.28	2218	1164.95	2218
1169.27	2218	1170.83	2218	1178.71	2218	1205.31	2219.39	1216.92	2220
1217.3	2220	1219.13	2220.2	1220.65	2220.2	1221.56	2220.22	1222.9	2220.23
1223.46	2220.2	1232.69	2220.64	1258.28	2222	1267.76	2222.36	1270.47	2222.35
1275.45	2222.4	1282.05	2222.36	1287.3	2222.26	1288.39	2222.28	1301.94	2222.04
1302.07	2222	1303.82	2222	1306.35	2221.93	1318.41	2221.8	1324.52	2221.61
1324.89	2221.6	1330.93	2220.81	1337.25	2220.59	1340.56	2220.58	1341.05	2220.63
1344.76	2221	1344.94	2220.97	1350.62	2220.73	1350.65	2220.73	1350.93	2220.76
1355.87	2221	1356.06	2221	1360.23	2220.95	1365.92	2220.87	1371.43	2220.44
1372.78	2220.4	1375.01	2220.42	1382.29	2220.65	1384.01	2220.66	1387.39	2220.58
1389.55	2220.5	1391.16	2220.5	1392.62	2220.45	1396.39	2220.57	1402.08	2220.54
1409.63	2220.7	1435.23	2221.79	1436.55	2221.8	1438.71	2221.94	1439.32	2221.95
1439.98	2222	1440.41	2221.99	1441.15	2222				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.04	234.34	.04	460.14	.04

Bank Sta: Left	Right	Coeff Contr.	Expan.
234.34	460.14	.3	.5

Downstream Deck/Roadway Coordinates

num= 7

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
0	2216	2197	202	2214	2197	242	2212	2197
247	2212	2197	252	2212	2197	307	2214	2197
641.86	2216	2197						

Downstream Bridge Cross Section Data

Station Elevation Data num= 162

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2212	3.13	2211.91	3.43	2211.9	13.74	2212	16.96	2212.03
17.17	2212	25.85	2210.73	33.32	2210.64	42.76	2210.53	60.46	2211.13
71.77	2211.5	73.47	2211.57	77.14	2211.67	79.49	2211.66	86.55	2211.62
90.85	2211.2	96.25	2210.74	100.44	2210.77	104.64	2210.81	110.29	2210.81
116.46	2210.8	121.02	2211.36	125.88	2211.94	126.12	2211.94	131.12	2211.89
131.58	2211.9	132.64	2211.89	141.15	2211.82	144.37	2211.99	144.4	2211.99
152.26	2211.59	155.94	2211.4	162.9	2211.33	166.82	2211.34	173.52	2211.44
183.02	2211.5	187.65	2211.5	192.47	2211.96	192.48	2211.96	192.53	2211.98
192.63	2212	200.84	2213.13	214.39	2213.96	214.64	2213.97	214.67	2213.96
214.86	2213.9	217.91	2213.44	220.42	2213.34	222	2213.39	224.04	2212
225.03	2211.3	226.97	2210	227.19	2209.84	227.58	2209.58	231.18	2208
231.77	2207.7	231.79	2207.73	232.31	2207.56	235.16	2206.46	239.7	2204.72
241	2200	242.32	2200	244.42	2200	250.76	2200	252.74	2203.03
255.77	2204	256.69	2204.8	257.56	2206	258.36	2210.44	258.65	2211.3
259.45	2211.48	259.52	2211.5	262	2211.15	264.8	2210.76	271.11	2210.55
275.62	2210.39	285.66	2211.6	289.13	2212	296.19	2212.84	301.38	2213.46
306.33	2212	312.36	2210.2	313.11	2210	314.09	2209.71	317.96	2209.67

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  318.02 2209.66  318.13  2209.7  318.69 2209.74  319.81    2210  323.24 2210.79
  328.51    2212  330.31  2212.4  339.41 2212.33     342 2212.31  345.59 2212.43
  346.25 2212.45  347.02 2212.47  348.98  2212.6  355.21 2213.03  358.52 2213.02
  365.08 2213.01   368.3  2213.1  375.11  2213.2  379.23 2213.29  387.11 2213.56
  388.21  2213.6  390.12 2213.58  395.03  2213.5  396.38 2213.56  407.49 2213.81
  410.89 2213.65  423.62 2213.07  427.24  2213.2   431.7 2213.34  438.07 2213.42
  439.96 2213.49  453.19    2214  453.33    2214  453.36 2214.01  458.08 2214.43
  459.24 2214.53  462.71 2214.73  470.29  2215.7  474.22 2215.53  475.15 2215.61
  476.03 2215.65  476.85 2215.66  485.28  2215.7  487.04 2215.71  495.29 2215.74
  495.61 2215.74  506.52 2215.74  510.61  2215.7  516.02 2215.77  527.38 2215.84
  527.55 2215.84  527.84 2215.84  535.45  2215.4  537.11 2215.43  553.34 2215.86
  554.89 2215.86  555.72 2215.87  574.14  2215.9  574.55  2215.9  575.03  2215.9
   575.2 2215.81  575.53 2215.75  588.86  2215.9     589 2215.88  589.13 2215.92
  601.01 2215.91  601.23 2215.94  601.58  2215.9  601.84 2215.94  610.62 2215.84
  611.97 2215.84  621.06 2215.89  630.65  2215.9  630.88 2215.93  630.89 2215.93
   631.8 2215.82  641.86    2216

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .06  132.64     .05  345.59     .06

Bank Sta: Left   Right    Coeff Contr.   Expan.
        132.64  345.59            .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
       0     242               T
     252  641.86               T

Upstream Embankment side slope              =     3.6 horiz. to 1.0 vertical
Downstream Embankment side slope            =     3.7 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow =     .95
Elevation at which weir flow begins         =
Energy head used in spillway design         =
Spillway height used in design              =
Weir crest shape                            = Broad Crested

Number of Culverts =  1

Culvert Name      Shape      Rise    Span
Culvert #1       Circular      10
FHWA Chart # 2 - Corrugated Metal Pipe Culvert
FHWA Scale # 2 - Mitered to conform to slope
Solution Criteria = Inlet control
Culvert Upstrm Dist  Length    Top n  Bottom n  Depth Blocked  Entrance Loss Coef    Exit Loss Coef
               8.1    92.4     .031     .031        0                  .5                 1
Upstream   Elevation =  2199.99
           Centerline Station =  348
Downstream Elevation =  2200
           Centerline Station =  247

CULVERT OUTPUT  Profile #PF 1  Culv Group:  Culvert #1

  Q Culv Group (cfs)        985.24    Culv Full Len (ft)        29.46
  # Barrels                      1    Culv Vel US (ft/s)        12.54
  Q Barrel (cfs)            985.24    Culv Vel DS (ft/s)        15.46
  E.G. US. (ft)            2214.63    Culv Inv El Up (ft)     2199.99
  W.S. US. (ft)            2214.62    Culv Inv El Dn (ft)     2200.00
  E.G. DS (ft)             2208.50    Culv Frctn Ls (ft)         2.13
  W.S. DS (ft)             2205.69    Culv Exit Loss (ft)        2.77
  Delta EG (ft)               6.13    Culv Entr Loss (ft)        1.22
  Delta WS (ft)               8.93    Q Weir (cfs)             832.76
  E.G. IC (ft)             2214.63    Weir Sta Lft (ft)        206.46
  E.G. OC (ft)             2214.63    Weir Sta Rgt (ft)        711.67
  Culvert Control            Inlet    Weir Submerg               0.00
```

Culv WS Inlet (ft)	2209.99	Weir Max Depth (ft)	2.64
Culv WS Outlet (ft)	2207.56	Weir Avg Depth (ft)	0.63
Culv Nml Depth (ft)		Weir Flow Area (sq ft)	316.88
Culv Crt Depth (ft)	7.56	Min El Weir Flow (ft)	2212.01

Warning: The inlet is submerged and the outlet computations indicate that the culvert would flow full over all or part of its length. The program would normally default to the outlet answer. However, the user has requested that the inlet answer be used.

CULVERT OUTPUT Profile #PF 2 Culv Group: Culvert #1

Q Culv Group (cfs)	985.24	Culv Full Len (ft)	29.46
# Barrels	1	Culv Vel US (ft/s)	12.54
Q Barrel (cfs)	985.24	Culv Vel DS (ft/s)	15.46
E.G. US. (ft)	2214.63	Culv Inv El Up (ft)	2199.99
W.S. US. (ft)	2214.62	Culv Inv El Dn (ft)	2200.00
E.G. DS (ft)	2208.50	Culv Frctn Ls (ft)	2.13
W.S. DS (ft)	2205.69	Culv Exit Loss (ft)	2.77
Delta EG (ft)	6.13	Culv Entr Loss (ft)	1.22
Delta WS (ft)	8.93	Q Weir (cfs)	832.76
E.G. IC (ft)	2214.63	Weir Sta Lft (ft)	206.46
E.G. OC (ft)	2214.63	Weir Sta Rgt (ft)	711.67
Culvert Control	Inlet	Weir Submerg	0.00
Culv WS Inlet (ft)	2209.99	Weir Max Depth (ft)	2.64
Culv WS Outlet (ft)	2207.56	Weir Avg Depth (ft)	0.63
Culv Nml Depth (ft)		Weir Flow Area (sq ft)	316.88
Culv Crt Depth (ft)	7.56	Min El Weir Flow (ft)	2212.01

Warning: The inlet is submerged and the outlet computations indicate that the culvert would flow full over all or part of its length. The program would normally default to the outlet answer. However, the user has requested that the inlet answer be used.

CROSS SECTION

RIVER: Tropicana Wash
REACH: Tropicana Wash RS: 63.389

INPUT
Description: Downstream X-Section from UPRR Culvert Crossing
Station Elevation Data num= 162

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2212	3.13	2211.91	3.43	2211.9	13.74	2212	16.96	2212.03
17.17	2212	25.85	2210.73	33.32	2210.64	42.76	2210.53	60.46	2211.13
71.77	2211.5	73.47	2211.57	77.14	2211.67	79.49	2211.66	86.55	2211.62
90.85	2211.2	96.25	2210.74	100.44	2210.77	104.64	2210.81	110.29	2210.81
116.46	2210.8	121.02	2211.36	125.88	2211.94	126.12	2211.94	131.12	2211.89
131.58	2211.9	132.64	2211.89	141.15	2211.82	144.37	2211.99	144.4	2211.99
152.26	2211.59	155.94	2211.4	162.9	2211.33	166.82	2211.34	173.52	2211.44
183.02	2211.5	187.65	2211.5	192.47	2211.96	192.48	2211.96	192.53	2211.98
192.63	2212	200.84	2213.13	214.39	2213.96	214.64	2213.97	214.67	2213.96
214.86	2213.9	217.91	2213.44	220.42	2213.34	222	2213.39	224.04	2212
225.03	2211.3	226.97	2210	227.19	2209.84	227.58	2209.58	231.18	2208
231.77	2207.7	231.79	2207.73	232.31	2207.56	235.16	2206.46	239.7	2204.72
241	2200	242.32	2200	244.42	2200	250.76	2200	252.74	2203.03
255.77	2204	256.69	2204.8	257.56	2206	258.36	2210.44	258.65	2211.3
259.45	2211.48	259.52	2211.5	262	2211.15	264.8	2210.76	271.11	2210.55
275.62	2210.39	285.66	2211.6	289.13	2212	296.19	2212.84	301.38	2213.46
306.33	2212	312.36	2210.2	313.11	2210	314.09	2209.71	317.96	2209.67
318.02	2209.66	318.13	2209.7	318.69	2209.74	319.81	2210	323.24	2210.79
328.51	2212	330.31	2212.4	339.41	2212.33	342	2212.31	345.59	2212.43
346.25	2212.45	347.02	2212.47	348.98	2212.6	355.21	2213.03	358.52	2213.02

365.08	2213.01	368.3	2213.1	375.11	2213.2	379.23	2213.29	387.11	2213.56
388.21	2213.6	390.12	2213.58	395.03	2213.5	396.38	2213.56	407.49	2213.81
410.89	2213.65	423.62	2213.07	427.24	2213.2	431.7	2213.34	438.07	2213.42
439.96	2213.49	453.19	2214	453.33	2214	453.36	2214.01	458.08	2214.43
459.24	2214.53	462.71	2214.73	470.29	2215.7	474.22	2215.53	475.15	2215.61
476.03	2215.65	476.85	2215.66	485.28	2215.7	487.04	2215.71	495.29	2215.74
495.61	2215.74	506.52	2215.74	510.61	2215.7	516.02	2215.77	527.38	2215.84
527.55	2215.84	527.84	2215.84	535.45	2215.4	537.11	2215.43	553.34	2215.86
554.89	2215.86	555.72	2215.87	574.14	2215.9	574.55	2215.9	575.03	2215.9
575.2	2215.81	575.53	2215.75	588.86	2215.9	589	2215.88	589.13	2215.92
601.01	2215.91	601.23	2215.94	601.58	2215.9	601.84	2215.94	610.62	2215.84
611.97	2215.84	621.06	2215.89	630.65	2215.9	630.88	2215.93	630.89	2215.93
631.8	2215.82	641.86	2216						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.06	132.64	.05	345.59	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
132.64	345.59	69.13	54.14	142.71	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
0	242		T
252	641.86		T

CROSS SECTION OUTPUT Profile #PF 1

			Left OB	Channel	Right OB
E.G. Elev (ft)	2208.50	Element			
Vel Head (ft)	2.81	Wt. n-Val.		0.050	
W.S. Elev (ft)	2205.69	Reach Len. (ft)	69.13	54.14	142.71
Crit W.S. (ft)	2205.69	Flow Area (sq ft)		55.72	
E.G. Slope (ft/ft)	0.023664	Area (sq ft)		77.41	
Q Total (cfs)	750.00	Flow (cfs)		750.00	
Top Width (ft)	20.16	Top Width (ft)		20.16	
Vel Total (ft/s)	13.46	Avg. Vel. (ft/s)		13.46	
Max Chl Dpth (ft)	5.69	Hydr. Depth (ft)		5.57	
Conv. Total (cfs)	4875.5	Conv. (cfs)		4875.5	
Length Wtd. (ft)	54.14	Wetted Per. (ft)		11.03	
Min Ch El (ft)	2200.00	Shear (lb/sq ft)		7.46	
Alpha	1.00	Stream Power (lb/ft s)		100.48	
Frctn Loss (ft)	0.56	Cum Volume (acre-ft)	0.03	6.05	
C & E Loss (ft)	1.21	Cum SA (acres)	0.05	3.68	

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION OUTPUT Profile #PF 2

			Left OB	Channel	Right OB
E.G. Elev (ft)	2208.50	Element			
Vel Head (ft)	2.81	Wt. n-Val.		0.050	
W.S. Elev (ft)	2205.69	Reach Len. (ft)	69.13	54.14	142.71
Crit W.S. (ft)	2205.69	Flow Area (sq ft)		55.73	
E.G. Slope (ft/ft)	0.023643	Area (sq ft)		77.44	
Q Total (cfs)	750.00	Flow (cfs)		750.00	

Top Width (ft)	20.17	Top Width (ft)			20.17
Vel Total (ft/s)	13.46	Avg. Vel. (ft/s)			13.46
Max Chl Dpth (ft)	5.69	Hydr. Depth (ft)			5.57
Conv. Total (cfs)	4877.6	Conv. (cfs)			4877.6
Length Wtd. (ft)	54.14	Wetted Per. (ft)			11.03
Min Ch El (ft)	2200.00	Shear (lb/sq ft)			7.46
Alpha	1.00	Stream Power (lb/ft s)			100.39
Frctn Loss (ft)	0.33	Cum Volume (acre-ft)		0.05	5.27
C & E Loss (ft)	1.28	Cum SA (acres)		0.09	1.85

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

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.

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

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

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

CROSS SECTION

RIVER: Tropicana Wash
REACH: Tropicana Wash RS: 63.379

INPUT
Description: 13
Station Elevation Data num= 102

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2209.7	3.33	2209.47	7.37	2209.09	10.79	2208.76	13.47	2208.6
14.72	2208.5	17.01	2208	21.2	2207.84	31.24	2206.88	37.74	2206.38
38.27	2206.4	39.01	2206.34	39.28	2206.3	40.58	2206.24	42.21	2206
48.28	2205.8	56.65	2205.71	68.46	2205.6	69	2205.52	79.4	2204
83.27	2204	87.56	2204	107.12	2203.48	109.27	2203.22	113.25	2203.12
123.99	2202.9	129.57	2202.84	131.1	2202.88	138.36	2202.72	138.48	2202.72
139.17	2202.7	142.65	2202.7	143.75	2202.69	146.02	2202.61	148.29	2202.61
153.61	2202.83	165	2203.5	175.45	2204	180.68	2204.32	182.52	2204.43
182.86	2204.45	187.16	2205	190.39	2205.46	190.52	2205.46	196.08	2205.41
196.51	2205.41	196.7	2205.4	196.84	2205.4	196.91	2205.4	204.21	2205.2
207.23	2204.92	209.76	2204.3	211.01	2204.29	212.92	2204	215.94	2203.48
223.36	2202.72	230.34	2202	232.57	2202	249.29	2202	251.83	2202
258.61	2202.52	262.6	2202.6	273.17	2203.11	288.12	2204	293.34	2204.73
309.57	2205.96	310.06	2206	322.43	2206.99	333.26	2207.63	333.72	2207.64
343.1	2207.85	344.97	2207.9	347.04	2208	350.28	2208.44	353.33	2208.47
354.06	2208.56	355.01	2208.75	355.35	2208.8	358.26	2210	361.09	2210
361.48	2210	367.41	2210	371.19	2210	381.96	2210	385.76	2210
401.11	2210	402.01	2210	406.78	2210	409.98	2210	410.46	2210
425.53	2210	444.81	2209.87	449.71	2210	453.08	2210.33	457.71	2210.6
460.13	2210.73	471.59	2211.32	482.18	2212	493.25	2213.04	500.26	2213.55
505.35	2214	505.76	2214.01						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.06	69	.05	333.72	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
69	333.72	167.5	208.3 249.51	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent

0	212	F
262	505.76	F

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	2206.03	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.38	Wt. n-Val.		0.050	
W.S. Elev (ft)	2205.65	Reach Len. (ft)	167.50	208.30	249.51
Crit W.S. (ft)		Flow Area (sq ft)		160.85	
E.G. Slope (ft/ft)	0.005922	Area (sq ft)	0.16	499.65	
Q Total (cfs)	800.00	Flow (cfs)		800.00	
Top Width (ft)	241.96	Top Width (ft)	5.53	236.43	
Vel Total (ft/s)	4.97	Avg. Vel. (ft/s)		4.97	
Max Chl Dpth (ft)	3.65	Hydr. Depth (ft)		3.22	
Conv. Total (cfs)	10396.1	Conv. (cfs)		10396.1	
Length Wtd. (ft)	208.30	Wetted Per. (ft)		50.15	
Min Ch El (ft)	2202.00	Shear (lb/sq ft)		1.19	
Alpha	1.00	Stream Power (lb/ft s)		5.90	
Frctn Loss (ft)	1.74	Cum Volume (acre-ft)	0.03	5.69	
C & E Loss (ft)	0.00	Cum SA (acres)	0.05	3.52	

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

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	2206.69	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.25	Wt. n-Val.		0.050	
W.S. Elev (ft)	2206.45	Reach Len. (ft)	167.50	208.30	249.51
Crit W.S. (ft)		Flow Area (sq ft)		200.80	
E.G. Slope (ft/ft)	0.002827	Area (sq ft)	19.81	692.70	
Q Total (cfs)	800.00	Flow (cfs)		800.00	
Top Width (ft)	278.74	Top Width (ft)	32.11	246.63	
Vel Total (ft/s)	3.98	Avg. Vel. (ft/s)		3.98	
Max Chl Dpth (ft)	4.45	Hydr. Depth (ft)		4.02	
Conv. Total (cfs)	15047.1	Conv. (cfs)		15047.1	
Length Wtd. (ft)	208.30	Wetted Per. (ft)		50.15	
Min Ch El (ft)	2202.00	Shear (lb/sq ft)		0.71	
Alpha	1.00	Stream Power (lb/ft s)		2.81	
Frctn Loss (ft)	1.22	Cum Volume (acre-ft)	0.04	4.79	
C & E Loss (ft)	0.05	Cum SA (acres)	0.06	1.69	

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

CROSS SECTION

RIVER: Tropicana Wash
REACH: Tropicana Wash RS: 63.339

INPUT
Description: 12
Station Elevation Data num= 71

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2209.8	6.96	2209.76	16.98	2209.69	21.86	2209.73	45.95	2209.53

46.05	2209.3	52.23	2209.16	55.36	2209.14	60.49	2209.14	62.81	2209.14
66.55	2209.2	66.88	2209.18	67.33	2209.19	80.67	2209.47	100.84	2209.77
107.13	2209.8	113.45	2209.82	115.25	2209.91	117.58	2210	130.99	2210
151.73	2210	153.28	2210	155.2	2209.75	162.74	2208	165.23	2207.34
170.71	2206	174.99	2204.91	178.56	2204	180.75	2203.5	183.46	2202.66
185.8	2203.2	186.26	2203.21	192.98	2203.38	198.12	2203.27	211.19	2202.86
221.85	2202.53	239.57	2202	251.17	2201.28	252.54	2201.16	252.9	2201.14
258.27	2200.86	258.48	2200.8	265.07	2200.69	265.29	2200.71	266.18	2200.78
267.5	2200.94	268.28	2201	269.17	2201.23	269.63	2201.26	274.34	2201.71
275.78	2201.86	276.81	2202	279.21	2202.49	285.21	2203.71	286.57	2204
286.85	2204.06	296.06	2206	314.11	2206.71	343.55	2207.85	347.53	2208
348.61	2208	351.71	2208	362.21	2208	383.25	2208	412.22	2208
439.92	2208	444.18	2208	469.5	2209.4	476.88	2210	478.57	2210.28
478.58	2210.28								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.06	186.26	.05	343.55	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
186.26	343.55	285.98	283.46	275.22	.1 .3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
0	195		F
365	478.58		F

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	2204.29	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.37	Wt. n-Val.		0.050	
W.S. Elev (ft)	2203.92	Reach Len. (ft)	285.98	283.46	275.22
Crit W.S. (ft)	2203.46	Flow Area (sq ft)		162.98	
E.G. Slope (ft/ft)	0.012642	Area (sq ft)	5.30	168.30	
Q Total (cfs)	800.00	Flow (cfs)		800.00	
Top Width (ft)	107.27	Top Width (ft)	7.34	99.93	
Vel Total (ft/s)	4.91	Avg. Vel. (ft/s)		4.91	
Max Chl Dpth (ft)	3.23	Hydr. Depth (ft)		1.79	
Conv. Total (cfs)	7115.2	Conv. (cfs)		7115.2	
Length Wtd. (ft)	283.46	Wetted Per. (ft)		91.53	
Min Ch El (ft)	2200.69	Shear (lb/sq ft)		1.41	
Alpha	1.00	Stream Power (lb/ft s)		6.90	
Frctn Loss (ft)	2.57	Cum Volume (acre-ft)	0.02	4.09	
C & E Loss (ft)	0.05	Cum SA (acres)	0.02	2.72	

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

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	2205.42	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.78	Wt. n-Val.		0.050	
W.S. Elev (ft)	2204.64	Reach Len. (ft)	285.98	283.46	275.22
Crit W.S. (ft)		Flow Area (sq ft)		112.67	
E.G. Slope (ft/ft)	0.018648	Area (sq ft)		112.67	
Q Total (cfs)	800.00	Flow (cfs)		800.00	
Top Width (ft)	43.10	Top Width (ft)		43.10	
Vel Total (ft/s)	7.10	Avg. Vel. (ft/s)		7.10	
Max Chl Dpth (ft)	3.69	Hydr. Depth (ft)		2.61	
Conv. Total (cfs)	5858.3	Conv. (cfs)		5858.3	
Length Wtd. (ft)	283.46	Wetted Per. (ft)		48.69	
Min Ch El (ft)	2200.94	Shear (lb/sq ft)		2.69	
Alpha	1.00	Stream Power (lb/ft s)		19.13	
Frctn Loss (ft)	2.68	Cum Volume (acre-ft)		2.86	

C & E Loss (ft)	0.12	Cum SA (acres)	0.99

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

CROSS SECTION

RIVER: Tropicana Wash
REACH: Tropicana Wash RS: 63.286

INPUT
Description: 11
Station Elevation Data num= 85

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2206.3	12.25	2206.09	12.67	2206	14.54	2206	18.28	2205.72
18.93	2205.8	27.84	2204	29.14	2203.74	29.47	2203.68	32.29	2203.4
32.47	2203.4	38.44	2202.21	39.01	2202.1	39.28	2202.08	40.46	2202
43.58	2202	43.95	2202	44.12	2202	47.02	2202.15	48.97	2202.7
51.3	2203.56	53.15	2203.63	53.78	2203.76	58.03	2203.96	58.12	2204
58.16	2203.97	58.31	2203.92	59.32	2204	61.15	2204.07	61.43	2204
62.13	2203.65	63.68	2203.61	64.65	2203.66	67.09	2203.07	67.23	2203.1
69.05	2202.59	71.09	2202.06	71.31	2202	86.67	2201.7	86.73	2201.7
89.74	2201.64	91.81	2201.6	97.91	2201.46	98.79	2201.43	99.56	2201.42
99.97	2201.4	106.72	2201.34	118.78	2201.56	118.82	2201.57	119.95	2201.6
125.53	2201.5	125.66	2201.49	131.23	2201.34	132.95	2201.2	136.17	2200.98
136.86	2201	136.99	2200.96	137.23	2200.96	149.85	2200.42	157.84	2200.08
159.61	2200	162.35	2199.73	169.02	2199.03	174.18	2198.47	176.51	2198.33
177.69	2198.3	186.15	2198.47	190.19	2198.87	197.76	2199.19	207.41	2200
209.98	2200	218.24	2200	231.59	2200	247.46	2199.71	254.14	2199.86
258.55	2200	266.07	2201.42	267.65	2202	275.65	2202.38	304.72	2203.78
309.55	2204	363.8	2205.8	369.32	2206	449.78	2207.07	467.6	2207.31

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.05	89.74	.045	275.65	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
89.74	275.65	228.57	215.51	180.73	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	2201.66	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.19	Wt. n-Val.		0.045	
W.S. Elev (ft)	2201.47	Reach Len. (ft)	228.57	215.51	180.73
Crit W.S. (ft)		Flow Area (sq ft)		228.17	
E.G. Slope (ft/ft)	0.006834	Area (sq ft)		228.17	
Q Total (cfs)	800.00	Flow (cfs)		800.00	
Top Width (ft)	156.41	Top Width (ft)		156.41	
Vel Total (ft/s)	3.51	Avg. Vel. (ft/s)		3.51	
Max Chl Dpth (ft)	3.17	Hydr. Depth (ft)		1.46	
Conv. Total (cfs)	9677.3	Conv. (cfs)		9677.3	
Length Wtd. (ft)	215.51	Wetted Per. (ft)		156.75	
Min Ch El (ft)	2198.30	Shear (lb/sq ft)		0.62	
Alpha	1.00	Stream Power (lb/ft s)		2.18	
Frctn Loss (ft)	2.73	Cum Volume (acre-ft)		2.80	
C & E Loss (ft)	0.03	Cum SA (acres)		1.88	

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

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

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	2202.63	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.40	Wt. n-Val.		0.045	
W.S. Elev (ft)	2202.23	Reach Len. (ft)	228.57	215.51	180.73
Crit W.S. (ft)		Flow Area (sq ft)		157.99	
E.G. Slope (ft/ft)	0.005698	Area (sq ft)		157.99	
Q Total (cfs)	800.00	Flow (cfs)		800.00	
Top Width (ft)	50.00	Top Width (ft)		50.00	
Vel Total (ft/s)	5.06	Avg. Vel. (ft/s)		5.06	
Max Chl Dpth (ft)	3.93	Hydr. Depth (ft)		3.16	
Conv. Total (cfs)	10598.0	Conv. (cfs)		10598.0	
Length Wtd. (ft)	215.51	Wetted Per. (ft)		54.56	
Min Ch El (ft)	2198.30	Shear (lb/sq ft)		1.03	
Alpha	1.00	Stream Power (lb/ft s)		5.22	
Frctn Loss (ft)	2.29	Cum Volume (acre-ft)		1.98	
C & E Loss (ft)	0.07	Cum SA (acres)		0.69	

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

CROSS SECTION

RIVER: Tropicana Wash
REACH: Tropicana Wash RS: 63.245

INPUT
Description: 10
Station Elevation Data num= 96

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2200	3.55	2200.06	3.71	2200.06	4.14	2200.07	4.66	2200.07
4.89	2200.1	5.37	2200.08	9.46	2200.17	12.38	2200.25	21.44	2200.48
49.35	2201	60.69	2201.15	64.76	2201.14	65.06	2201.15	65.19	2201.16
65.55	2201.2	72.98	2201.17	74.21	2201.13	80.16	2201.17	95.38	2201.43
103.92	2201.6	117.44	2201.8	118.06	2201.81	120.97	2201.84	121.74	2201.82
122.51	2201.8	123.25	2201.8	127.83	2201.7	129.34	2201.65	138.8	2201.61
149.12	2202	162.92	2202.34	164.2	2202.37	167.57	2202	171.58	2202
175.18	2202	177.05	2202	180.6	2202	183.39	2200.31	183.63	2200.23
184.25	2200	186.06	2199.3	188.03	2198.77	189.99	2198	191.99	2198
198.91	2198	204.27	2198	207.02	2198	214.25	2198.02	219.33	2198.01
220.27	2198	223.17	2198	226.57	2197.85	236.23	2197.53	242.35	2197.37
246.32	2197.38	250.55	2197.3	250.6	2197.24	262.14	2196.96	262.15	2196.95
263.95	2196.9	264.93	2196.8	266.41	2196.72	275.66	2196.63	275.91	2196.64
281.54	2196.72	287	2196.8	290.41	2196.8	296.01	2197.05	314.72	2197.46
333.01	2198	334.24	2198.6	341.11	2200	342.39	2200.05	350.83	2200.37
351.82	2200.4	352.97	2200.44	361.28	2200.7	365.63	2200.79	368.7	2200.88
403.69	2202	404.69	2202.09	406.47	2202.2	408.54	2202.39	414.01	2202.95
419.74	2203.57	422.08	2203.85	425.99	2203.9	427.36	2204	460.14	2205.26
469.39	2205.71	469.73	2205.72	469.81	2205.7	470.49	2205.74	472.93	2205.78
479.47	2205.82								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.05	189.99	.045	333.01	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
162.92	342.39	296.17	309.07 321.59	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	2198.90	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.50	Wt. n-Val.		0.045	
W.S. Elev (ft)	2198.40	Reach Len. (ft)	296.17	309.07	321.59
Crit W.S. (ft)	2198.40	Flow Area (sq ft)		140.52	
E.G. Slope (ft/ft)	0.031036	Area (sq ft)		140.52	
Q Total (cfs)	800.00	Flow (cfs)		800.00	
Top Width (ft)	144.86	Top Width (ft)		144.86	
Vel Total (ft/s)	5.69	Avg. Vel. (ft/s)		5.69	
Max Chl Dpth (ft)	1.77	Hydr. Depth (ft)		0.97	
Conv. Total (cfs)	4541.1	Conv. (cfs)		4541.1	
Length Wtd. (ft)	309.07	Wetted Per. (ft)		145.10	
Min Ch El (ft)	2196.63	Shear (lb/sq ft)		1.88	
Alpha	1.00	Stream Power (lb/ft s)		10.68	
Frctn Loss (ft)	4.82	Cum Volume (acre-ft)		1.89	
C & E Loss (ft)	0.05	Cum SA (acres)		1.14	

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

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	2200.27	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.09	Wt. n-Val.		0.045	
W.S. Elev (ft)	2199.19	Reach Len. (ft)	296.17	309.07	321.59
Crit W.S. (ft)	2199.19	Flow Area (sq ft)		95.66	
E.G. Slope (ft/ft)	0.026264	Area (sq ft)		95.66	
Q Total (cfs)	800.00	Flow (cfs)		800.00	
Top Width (ft)	44.80	Top Width (ft)		44.80	
Vel Total (ft/s)	8.36	Avg. Vel. (ft/s)		8.36	
Max Chl Dpth (ft)	2.56	Hydr. Depth (ft)		2.14	
Conv. Total (cfs)	4936.4	Conv. (cfs)		4936.4	
Length Wtd. (ft)	309.07	Wetted Per. (ft)		48.96	
Min Ch El (ft)	2196.63	Shear (lb/sq ft)		3.20	
Alpha	1.00	Stream Power (lb/ft s)		26.79	
Frctn Loss (ft)	4.91	Cum Volume (acre-ft)		1.36	
C & E Loss (ft)	0.06	Cum SA (acres)		0.46	

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Tropicana Wash
REACH: Tropicana Wash RS: 63.186

INPUT

Station Elevation Data num= 96

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2197	1.18	2196.98	6.17	2196.96	7.42	2196.99	24.66	2196.5
25.95	2196.5	27.44	2196.51	29.05	2196.48	76.39	2196.38	91.81	2196.47
93.3	2198.2	97.1	2198.31	103.9	2198.86	108.33	2199.12	118.34	2199.73
130.21	2200	136.42	2200	148.91	2200	177.19	2199.29	196.98	2199.69
216.82	2200	225.31	2199.72	227.72	2199.64	273.46	2198	288.75	2196.74
296.08	2196	299.99	2195.5	311.71	2194	311.8	2194	312.38	2194
312.47	2194	313.62	2194	334.86	2194	341.38	2194	347.58	2193.79
352.24	2193.9	352.99	2194	362.54	2194	364.98	2194	365.12	2194
384.92	2194	390.21	2192.2	390.84	2192	392.01	2191.61	395.69	2190
397.65	2189.15	400.28	2188	404.79	2187.48	416.78	2186.96	420.45	2186.71
422.88	2186.56	427.4	2186	437.85	2187.07	444.67	2188	450	2190
455.16	2192	456.1	2192.36	460.31	2194	462.75	2195.02	463.02	2195.1
464.17	2195.49	464.92	2195.42	467.09	2194.99	468.86	2194.64	469.77	2194.64
479.65	2194.6	482.59	2194.39	484.45	2194.32	485.31	2194.27	487.22	2194.23
488.11	2194.3	490.41	2194.35	492.47	2194.48	522.27	2196	533.82	2196
536.51	2196	539.85	2196	549.91	2196	584.99	2196	595.48	2196.45
619.98	2197.4	621.75	2196.98	629.2	2196.85	630.46	2196.83	630.91	2196.86
631.53	2196.9	632.75	2196.82	633.57	2196.81	638.53	2196.83	644.93	2196.9
656.64	2197.4	666.03	2199.14	674.18	2200.15	686.08	2200.06	710.86	2199.54
734.54	2198.9								

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.03	216.82	.05	395.69	.028	450	.05

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
364.98	469.77	360.9	355.84	350.65	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

			Left OB	Channel	Right OB
E.G. Elev (ft)	2190.17	Element			
Vel Head (ft)	1.00	Wt. n-Val.		0.028	
W.S. Elev (ft)	2189.17	Reach Len. (ft)	360.90	355.84	350.65
Crit W.S. (ft)	2189.17	Flow Area (sq ft)		99.53	
E.G. Slope (ft/ft)	0.009363	Area (sq ft)		99.53	
Q Total (cfs)	800.00	Flow (cfs)		800.00	
Top Width (ft)	50.17	Top Width (ft)		50.17	
Vel Total (ft/s)	8.04	Avg. Vel. (ft/s)		8.04	
Max Chl Dpth (ft)	3.17	Hydr. Depth (ft)		1.98	
Conv. Total (cfs)	8267.6	Conv. (cfs)		8267.6	
Length Wtd. (ft)	355.84	Wetted Per. (ft)		50.83	
Min Ch El (ft)	2186.00	Shear (lb/sq ft)		1.14	
Alpha	1.00	Stream Power (lb/ft s)		9.20	
Frctn Loss (ft)	2.66	Cum Volume (acre-ft)		1.04	
C & E Loss (ft)	0.10	Cum SA (acres)		0.44	

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

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	2191.63	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.68	Wt. n-Val.		0.028	
W.S. Elev (ft)	2189.94	Reach Len. (ft)	360.90	355.84	350.65
Crit W.S. (ft)	2189.94	Flow Area (sq ft)		76.86	
E.G. Slope (ft/ft)	0.010625	Area (sq ft)		76.86	
Q Total (cfs)	800.00	Flow (cfs)		800.00	
Top Width (ft)	23.20	Top Width (ft)		23.20	
Vel Total (ft/s)	10.41	Avg. Vel. (ft/s)		10.41	
Max Chl Dpth (ft)	3.94	Hydr. Depth (ft)		3.31	
Conv. Total (cfs)	7761.2	Conv. (cfs)		7761.2	
Length Wtd. (ft)	355.84	Wetted Per. (ft)		29.28	
Min Ch El (ft)	2186.00	Shear (lb/sq ft)		1.74	
Alpha	1.00	Stream Power (lb/ft s)		18.12	
Frctn Loss (ft)	3.82	Cum Volume (acre-ft)		0.74	
C & E Loss (ft)	0.00	Cum SA (acres)		0.22	

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Tropicana Wash
REACH: Tropicana Wash RS: 63.119

INPUT
Description: 8
Station Elevation Data num= 133

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2190.6	2.72	2190.58	12.12	2190.59	17.08	2190.58	23.64	2190.5
59.39	2190.1	60.09	2190.05	60.3	2190.05	60.45	2190.05	60.66	2190.05
79.75	2190.1	82.04	2190.13	84.32	2190.17	95.79	2190.24	104.16	2190.22
122.14	2190.6	122.79	2190	125.32	2190	136	2190	136.33	2190
138.45	2190	152.85	2190.3	160.85	2190.87	167.29	2191.18	169.61	2191.41
174.9	2191.8	176.13	2191.9	176.98	2192	177.91	2192.26	181.97	2194
185.55	2195.4	187.99	2195.95	188.04	2195.97	188.09	2195.98	188.19	2195.98
188.31	2196	188.35	2195.89	191.76	2194.9	193.97	2194	199.74	2193.42
203.7	2193.1	206.18	2192.77	211.96	2192	215.56	2190.41	216.5	2190
220.82	2188.1	221.03	2188	221.98	2187.58	225.29	2186	226.28	2184.95
228.68	2184.38	229.48	2184	230.72	2182.23	231.89	2182	233.81	2180.84
234.36	2180.8	234.81	2180.5	234.96	2180.28	235.29	2180.3	239.05	2180.3
242.99	2180.3	243	2180.3	243.85	2180.3	244.32	2180.3	244.78	2180.3
247.71	2180.3	248.73	2180.3	249.15	2180.3	251.94	2180.3	255.25	2180.3
262.06	2180.3	264.27	2180.3	264.91	2180.69	265.82	2180.59	266.04	2180.52
267.2	2180.8	267.32	2180.78	273.58	2182	276.18	2182.94	284.56	2184
289.05	2184.8	294.92	2186	301.25	2186.64	303.52	2186.43	304.21	2186.34
307.36	2186.3	308.57	2186.31	308.76	2186.34	309.7	2186.32	310.82	2186.25
312.63	2186.5	312.98	2187.23	313.91	2187.61	314.29	2187.71	315.1	2188
315.5	2188.1	316.01	2188.25	317.32	2188.54	322.25	2189.23	324.7	2189.57
324.93	2189.6	331.43	2189.92	331.84	2189.95	332.47	2190	337.71	2190.21
341.79	2190.3	342.71	2190.28	348.04	2190.3	349.22	2190.32	354.48	2190.48
356.09	2190.6	360.74	2190.85	368.27	2191.23	369.32	2191.24	370.87	2191.29
374.28	2191.5	378.86	2191.27	380.12	2191.23	384.85	2191.07	388.6	2191.16

```
  392.97  2191.2  398.55 2191.34  402.28  2190.6  404.52 2190.44   405.5 2190.44
  409.16  2190.5  417.97 2190.61  439.52 2191.09  441.34 2191.14     442 2191.16
  442.83  2191.2  458.58 2191.62  468.69 2191.94

Manning's n Values          num=       4
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
       0     .03  188.31     .04  230.72    .028   267.2     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        206.18  303.52             44.64   30.67   17.94             .1       .3
Ineffective Flow      num=       2
   Sta L   Sta R    Elev  Permanent
       0     188                T
     295  468.69                T
```

CROSS SECTION OUTPUT Profile #PF 1

			Left OB	Channel	Right OB
E.G. Elev (ft)	2184.02	Element			
Vel Head (ft)	0.67	Wt. n-Val.		0.031	
W.S. Elev (ft)	2183.36	Reach Len. (ft)	44.64	30.67	17.94
Crit W.S. (ft)		Flow Area (sq ft)		121.84	
E.G. Slope (ft/ft)	0.006086	Area (sq ft)		121.84	
Q Total (cfs)	800.00	Flow (cfs)		800.00	
Top Width (ft)	49.53	Top Width (ft)		49.53	
Vel Total (ft/s)	6.57	Avg. Vel. (ft/s)		6.57	
Max Chl Dpth (ft)	3.07	Hydr. Depth (ft)		2.46	
Conv. Total (cfs)	10254.8	Conv. (cfs)		10254.8	
Length Wtd. (ft)	30.67	Wetted Per. (ft)		51.14	
Min Ch El (ft)	2180.28	Shear (lb/sq ft)		0.91	
Alpha	1.00	Stream Power (lb/ft s)		5.94	
Frctn Loss (ft)	0.06	Cum Volume (acre-ft)		0.13	
C & E Loss (ft)	0.10	Cum SA (acres)		0.04	

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #PF 2

			Left OB	Channel	Right OB
E.G. Elev (ft)	2185.32	Element			
Vel Head (ft)	1.69	Wt. n-Val.		0.028	
W.S. Elev (ft)	2183.64	Reach Len. (ft)	44.64	30.67	17.94
Crit W.S. (ft)	2183.64	Flow Area (sq ft)		76.74	
E.G. Slope (ft/ft)	0.010871	Area (sq ft)		76.74	
Q Total (cfs)	800.00	Flow (cfs)		800.00	
Top Width (ft)	23.00	Top Width (ft)		23.00	
Vel Total (ft/s)	10.43	Avg. Vel. (ft/s)		10.43	
Max Chl Dpth (ft)	3.34	Hydr. Depth (ft)		3.34	
Conv. Total (cfs)	7672.7	Conv. (cfs)		7672.7	
Length Wtd. (ft)	30.67	Wetted Per. (ft)		29.67	
Min Ch El (ft)	2180.30	Shear (lb/sq ft)		1.76	
Alpha	1.00	Stream Power (lb/ft s)		18.30	
Frctn Loss (ft)	0.07	Cum Volume (acre-ft)		0.12	
C & E Loss (ft)	0.40	Cum SA (acres)		0.03	

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.

This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Tropicana Wash
REACH: Tropicana Wash RS: 63.113

INPUT
Description: Upstream X-Section before culvert crossing at Valley View
at
Valley View
Station Elevation Data num= 129

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2188.5	2.62	2188.48	19.25	2188.46	31.1	2188.43	34.19	2188.43
37.16	2188.4	39.08	2188.45	59.44	2188.42	62.11	2188.43	63.64	2188.44
81.44	2188.4	83.32	2188.39	101.9	2188.36	108.31	2188.32	111.92	2188.36
136.41	2188.3	138.14	2188.32	139.74	2188.33	145.25	2188.47	156.7	2188.56
159.74	2188.7	182.46	2188.72	183.75	2188.71	186.46	2188.85	194.7	2189.66
196.59	2189.4	199.16	2190	202.2	2190	206.38	2190.32	212.19	2190.16
215.99	2190.2	222.91	2190.09	224.27	2190	224.63	2189.98	224.75	2189.97
233.66	2189.7	233.93	2189.73	234.63	2189.74	234.88	2189.74	238.12	2189.41
240.02	2189.21	240.14	2189.2	243.02	2188.95	243.86	2188.91	244.48	2188.87
245.19	2188.86	245.81	2188.4	247.22	2188	250.68	2186.96	251.59	2186.82
252.69	2186.53	256.85	2186	261.12	2185.22	261.27	2185.09	261.32	2185.09
261.43	2185.05	261.56	2185.1	261.86	2185.04	262.82	2184	264.57	2182.41
265.14	2182	266.16	2181.4	268.45	2180	269.53	2180	270.67	2180
270.77	2178.45	271.13	2178.45	271.8	2178.45	272.41	2178.45	295.95	2178.45
303.2	2178.45	303.43	2178.45	304.39	2178.45	304.96	2178.45	305.31	2178.45
305.51	2178.45	305.58	2178.45	305.77	2178.45	306.13	2178.45	306.32	2178.45
306.64	2178.45	307.49	2178.45	308.17	2178.45	309.39	2178.45	310.08	2178.45
310.67	2178.45	311.1	2178.45	312.07	2178.45	313.93	2178.45	314.65	2178.45
316.52	2178.45	317.22	2178.45	319.12	2185.45	319.8	2186	328.57	2186.17
348.28	2187.2	351.69	2187.33	360.54	2188	361.94	2188.21	368.91	2188.21
370.73	2188.2	375.16	2188.21	381.95	2188.07	389.49	2188.06	391.28	2188
394.02	2188	397.85	2188	398.33	2188	400.69	2188	410.62	2188.12
418.22	2188.6	433.61	2190	436.58	2190	442.78	2190	449.81	2190.19
450.34	2190.1	450.66	2190.06	450.81	2190.06	451.35	2190.07	452.71	2190.09
456.39	2190.2	456.72	2190.18	456.84	2190.19	457	2190.19	460.13	2190.28
463.93	2190.4	467.41	2190.5	473.79	2190.71	515.36	2191.98		

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.03	215.99	.04	269.53	.028	319.12	.04

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
240.02 348.28 3185.6 3138.79 3164.16 .3 .5
Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
0	276.395		F
309.805	515.36		F

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	2183.87	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.35	Wt. n-Val.		0.028	
W.S. Elev (ft)	2183.52	Reach Len. (ft)			
Crit W.S. (ft)	2181.06	Flow Area (sq ft)		169.39	
E.G. Slope (ft/ft)	0.000909	Area (sq ft)		256.98	
Q Total (cfs)	800.00	Flow (cfs)		800.00	

Top Width (ft)	55.25	Top Width (ft)	55.25
Vel Total (ft/s)	4.72	Avg. Vel. (ft/s)	4.72
Max Chl Dpth (ft)	5.07	Hydr. Depth (ft)	5.07
Conv. Total (cfs)	26530.0	Conv. (cfs)	26530.0
Length Wtd. (ft)		Wetted Per. (ft)	33.41
Min Ch El (ft)	2178.45	Shear (lb/sq ft)	0.29
Alpha	1.00	Stream Power (lb/ft s)	1.36
Frctn Loss (ft)		Cum Volume (acre-ft)	
C & E Loss (ft)		Cum SA (acres)	

Warning: The composite Mannings n value for the channel was larger than the largest entered n value or smaller than the smallest entered n value.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	2183.87	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.35	Wt. n-Val.		0.028	
W.S. Elev (ft)	2183.52	Reach Len. (ft)			
Crit W.S. (ft)	2181.06	Flow Area (sq ft)		169.39	
E.G. Slope (ft/ft)	0.000909	Area (sq ft)		256.98	
Q Total (cfs)	800.00	Flow (cfs)		800.00	
Top Width (ft)	55.25	Top Width (ft)		55.25	
Vel Total (ft/s)	4.72	Avg. Vel. (ft/s)		4.72	
Max Chl Dpth (ft)	5.07	Hydr. Depth (ft)		5.07	
Conv. Total (cfs)	26530.0	Conv. (cfs)		26530.0	
Length Wtd. (ft)		Wetted Per. (ft)		33.41	
Min Ch El (ft)	2178.45	Shear (lb/sq ft)		0.29	
Alpha	1.00	Stream Power (lb/ft s)		1.36	
Frctn Loss (ft)		Cum Volume (acre-ft)			
C & E Loss (ft)		Cum SA (acres)			

Warning: The composite Mannings n value for the channel was larger than the largest entered n value or smaller than the smallest entered n value.
Note: Manning's n values were composited to a single value in the main channel.

SUMMARY OF MANNING'S N VALUES

River:Tropicana Wash

Reach	River Sta.	n1	n2	n3	n4	n5
Tropicana Wash	63.711	.035	.02	.035		
Tropicana Wash	63.703	Culvert				
Tropicana Wash	63.691	.035	.02	.028	.02	.035
Tropicana Wash	63.631	.035	.028	.035		
Tropicana Wash	63.569	.04	.034	.04		
Tropicana Wash	63.552	.04	.032	.04		
Tropicana Wash	63.505	.04	.028	.04		
Tropicana Wash	63.488	.04	.028	.04		
Tropicana Wash	63.456	.04	.025	.04		
Tropicana Wash	63.410	.04	.04	.04		
Tropicana Wash	63.397	Culvert				
Tropicana Wash	63.389	.06	.05	.06		
Tropicana Wash	63.379	.06	.05	.06		
Tropicana Wash	63.339	.06	.05	.06		
Tropicana Wash	63.286	.05	.045	.04		
Tropicana Wash	63.245	.05	.045	.04		
Tropicana Wash	63.186	.03	.05	.028	.05	
Tropicana Wash	63.119	.03	.04	.028	.04	

Tropicana Wash	63.113	.03	.04	.028	.04

SUMMARY OF REACH LENGTHS

River: Tropicana Wash

Reach	River Sta.	Left	Channel	Right
Tropicana Wash	63.711	106.55	106.14	105.07
Tropicana Wash	63.703	Culvert		
Tropicana Wash	63.691	320.78	320.81	320.88
Tropicana Wash	63.631	318.34	326.31	347.37
Tropicana Wash	63.569	94.38	87.55	78.15
Tropicana Wash	63.552	208.29	247.98	217.5
Tropicana Wash	63.505	124.56	89.12	150.96
Tropicana Wash	63.488	170.98	168.37	160.12
Tropicana Wash	63.456	351.75	244.62	156.19
Tropicana Wash	63.410	112.33	111.64	151.37
Tropicana Wash	63.397	Culvert		
Tropicana Wash	63.389	69.13	54.14	142.71
Tropicana Wash	63.379	167.5	208.3	249.51
Tropicana Wash	63.339	285.98	283.46	275.22
Tropicana Wash	63.286	228.57	215.51	180.73
Tropicana Wash	63.245	296.17	309.07	321.59
Tropicana Wash	63.186	360.9	355.84	350.65
Tropicana Wash	63.119	44.64	30.67	17.94
Tropicana Wash	63.113	3185.6	3138.79	3164.16

SUMMARY OF CONTRACTION AND EXPANSION COEFFICIENTS
River: Tropicana Wash

Reach	River Sta.	Contr.	Expan.
Tropicana Wash	63.711	.3	.5
Tropicana Wash	63.703	Culvert	
Tropicana Wash	63.691	.3	.5
Tropicana Wash	63.631	.1	.3
Tropicana Wash	63.569	.1	.3
Tropicana Wash	63.552	.1	.3
Tropicana Wash	63.505	.1	.3
Tropicana Wash	63.488	.1	.3
Tropicana Wash	63.456	.1	.3
Tropicana Wash	63.410	.3	.5
Tropicana Wash	63.397	Culvert	
Tropicana Wash	63.389	.3	.5
Tropicana Wash	63.379	.1	.3
Tropicana Wash	63.339	.1	.3
Tropicana Wash	63.286	.1	.3
Tropicana Wash	63.245	.1	.3
Tropicana Wash	63.186	.1	.3
Tropicana Wash	63.119	.1	.3
Tropicana Wash	63.113	.3	.5

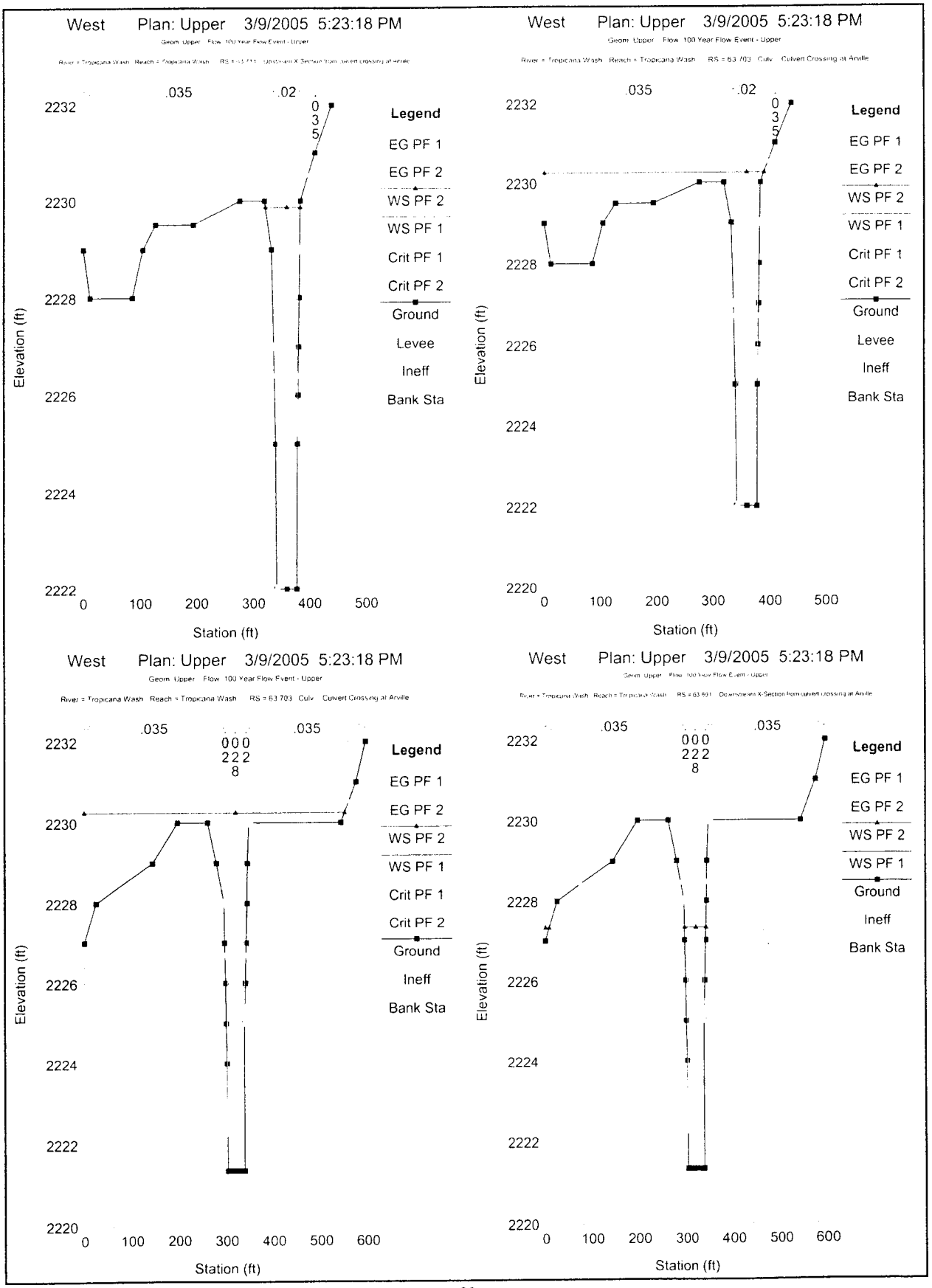
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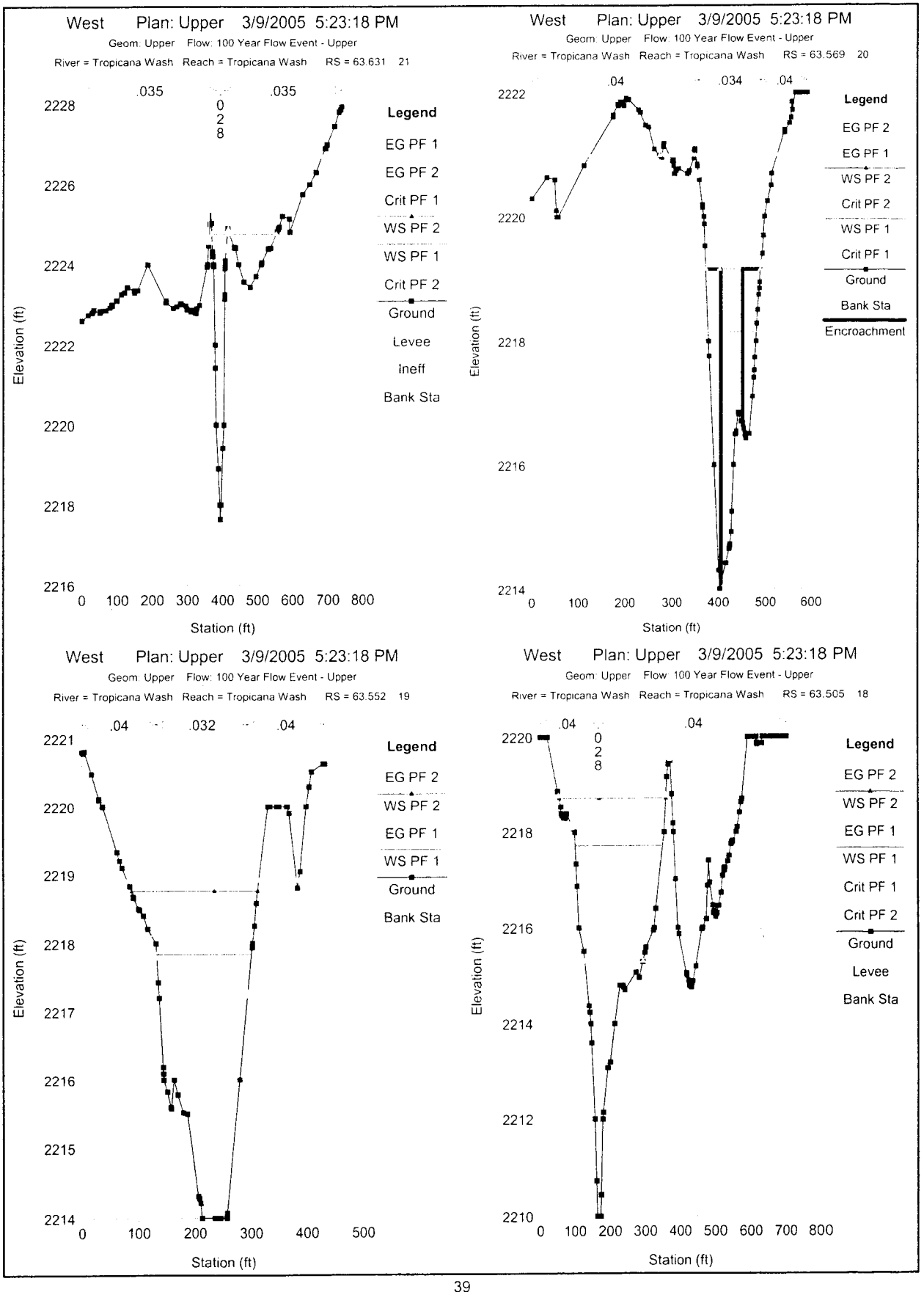
Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
Tropicana Wash	63.711	PF 1	1818.00	2222.00	2229.87	2226.38	2230.52	0.000530	6.47	281.10	62.19	0.41
Tropicana Wash	63.711	PF 2	1818.00	2222.00	2229.87	2226.38	2230.52	0.000530	6.47	281.10	62.19	0.41
Tropicana Wash	63.703		Culvert									
Tropicana Wash	63.691	PF 1	1818.00	2221.35	2227.32		2228.43	0.002685	8.46	214.82	55.00	0.61
Tropicana Wash	63.691	PF 2	1818.00	2221.35	2227.32		2228.43	0.002685	8.46	214.82	55.00	0.61
Tropicana Wash	63.631	PF 1	1818.00	2217.65	2224.75	2224.75	2226.69	0.010010	11.18	163.09	177.36	0.99
Tropicana Wash	63.631	PF 2	1818.00	2217.65	2224.75	2224.75	2226.69	0.010010	11.18	163.09	177.36	0.99
Tropicana Wash	63.569	PF 1	1818.00	2214.00	2218.15	2218.15	2219.22	0.013219	8.32	218.48	101.85	1.00
Tropicana Wash	63.569	PF 2	1818.00	2214.08	2219.15	2219.15	2221.00	0.013722	10.90	166.75	45.90	1.01
Tropicana Wash	63.552	PF 1	1818.00	2214.00	2217.84		2218.11	0.002205	4.20	434.86	168.57	0.45
Tropicana Wash	63.552	PF 2	1818.00	2214.00	2218.76		2218.91	0.000805	3.09	613.18	224.41	0.29
Tropicana Wash	63.505	PF 1	1818.00	2210.00	2217.72	2215.31	2217.80	0.000585	2.34	776.97	247.09	0.23
Tropicana Wash	63.505	PF 2	1818.00	2210.00	2218.72	2215.31	2218.77	0.000267	1.75	1051.53	304.32	0.16
Tropicana Wash	63.488	PF 1	1818.00	2209.75	2216.83	2216.83	2217.59	0.011605	7.55	290.90	192.29	0.84
Tropicana Wash	63.488	PF 2	1818.00	2209.75	2217.03	2217.03	2218.55	0.015255	9.89	184.55	65.34	0.99
Tropicana Wash	63.456	PF 1	1818.00	2208.00	2214.58	2213.75	2214.69	0.001685	3.81	793.10	486.75	0.33
Tropicana Wash	63.456	PF 2	1818.00	2208.00	2214.58	2213.75	2214.69	0.001685	3.81	793.10	486.75	0.33
Tropicana Wash	63.410	PF 1	1818.00	2200.00	2214.62	2206.52	2214.63	0.000034	0.83	2788.58	711.49	0.05
Tropicana Wash	63.410	PF 2	1818.00	2200.00	2214.62	2206.52	2214.63	0.000034	0.83	2788.58	711.49	0.05
Tropicana Wash	63.397		Culvert									
Tropicana Wash	63.389	PF 1	750.00	2200.00	2205.69	2205.69	2208.50	0.023664	13.46	55.72	20.16	1.01
Tropicana Wash	63.389	PF 2	750.00	2200.00	2205.69	2205.69	2208.50	0.023643	13.46	55.73	20.17	1.00
Tropicana Wash	63.379	PF 1	800.00	2202.00	2205.65		2206.03	0.005922	4.97	160.85	241.96	0.49
Tropicana Wash	63.379	PF 2	800.00	2202.00	2206.45		2206.69	0.002827	3.98	200.80	278.74	0.35
Tropicana Wash	63.339	PF 1	800.00	2200.69	2203.92	2203.46	2204.29	0.012642	4.91	162.98	107.27	0.65
Tropicana Wash	63.339	PF 2	800.00	2200.94	2204.64		2205.42	0.018648	7.10	112.67	43.10	0.77
Tropicana Wash	63.286	PF 1	800.00	2198.30	2201.47		2201.66	0.006834	3.51	228.17	156.41	0.51
Tropicana Wash	63.286	PF 2	800.00	2198.30	2202.23		2202.63	0.005698	5.06	157.99	50.00	0.50
Tropicana Wash	63.245	PF 1	800.00	2196.63	2198.40	2198.40	2198.90	0.031036	5.69	140.52	144.86	1.02

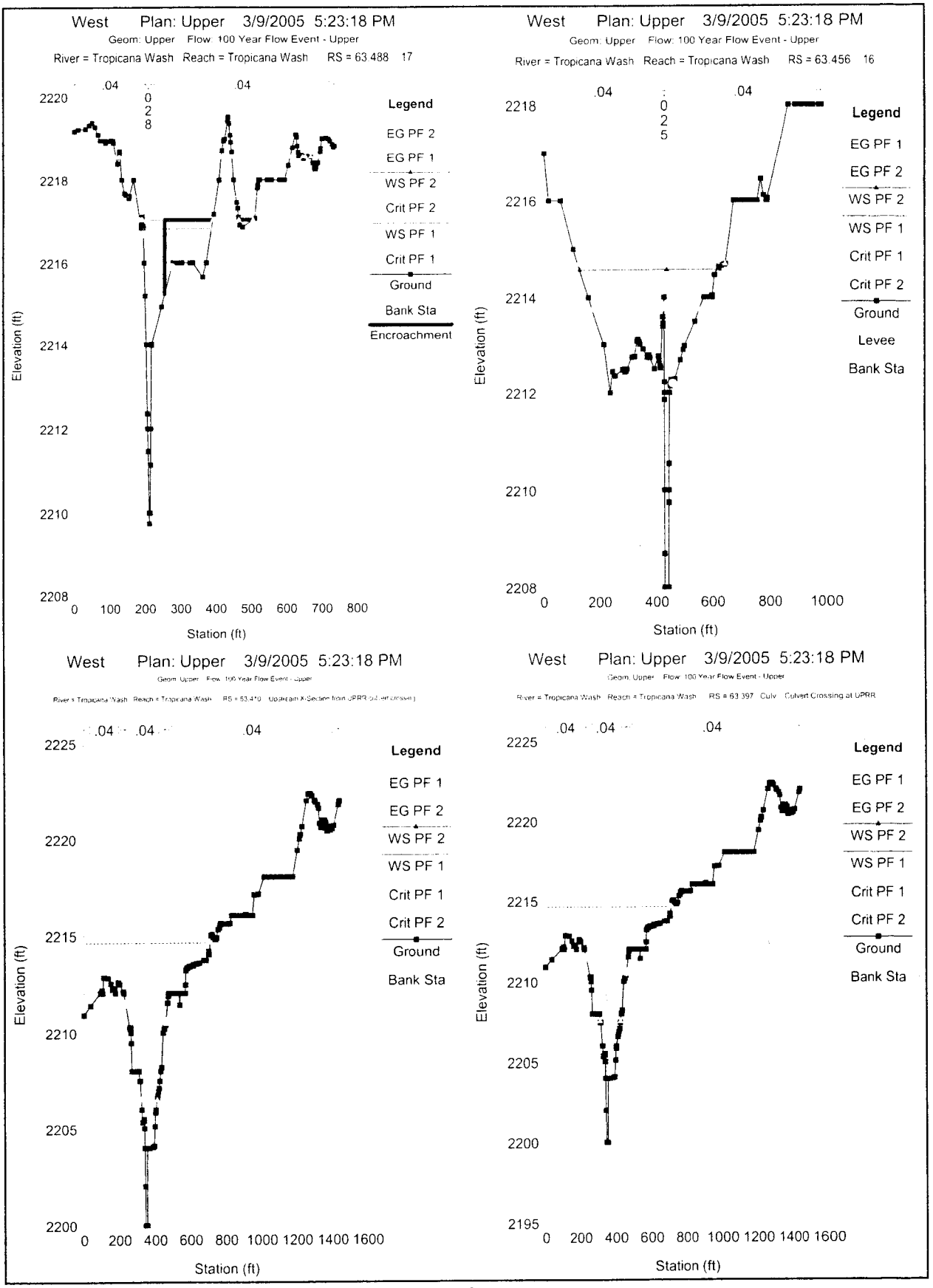
Tropicana Wash	63.245	PF 2	800.00	2196.63	2199.19	2199.19	2200.27	0.026264	8.36	95.66	44.80	1.01
Tropicana Wash	63.186	PF 1	800.00	2186.00	2189.17	2189.17	2190.17	0.009363	8.04	99.53	50.17	1.01
Tropicana Wash	63.186	PF 2	800.00	2186.00	2189.94	2189.94	2191.63	0.010625	10.41	76.86	23.20	1.01
Tropicana Wash	63.119	PF 1	800.00	2180.28	2183.36		2184.02	0.006086	6.57	121.84	49.53	0.74
Tropicana Wash	63.119	PF 2	800.00	2180.30	2183.64	2183.64	2185.32	0.010871	10.43	76.74	23.00	1.01
Tropicana Wash	63.113	PF 1	800.00	2178.45	2183.52	2181.06	2183.87	0.000909	4.72	169.39	55.25	0.37
Tropicana Wash	63.113	PF 2	800.00	2178.45	2183.52	2181.06	2183.87	0.000909	4.72	169.39	55.25	0.37

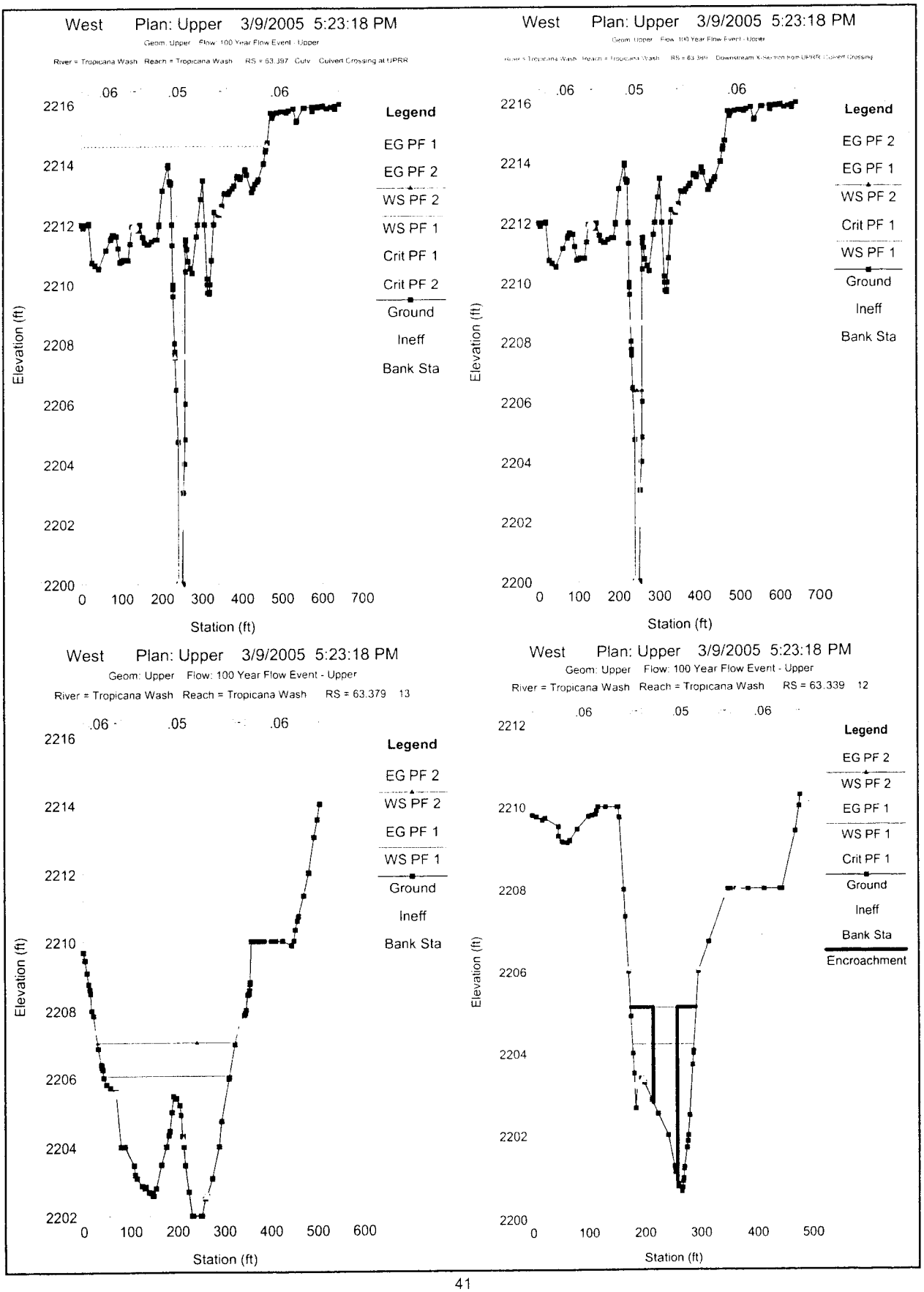
Profile Output Table - HEC-FDA

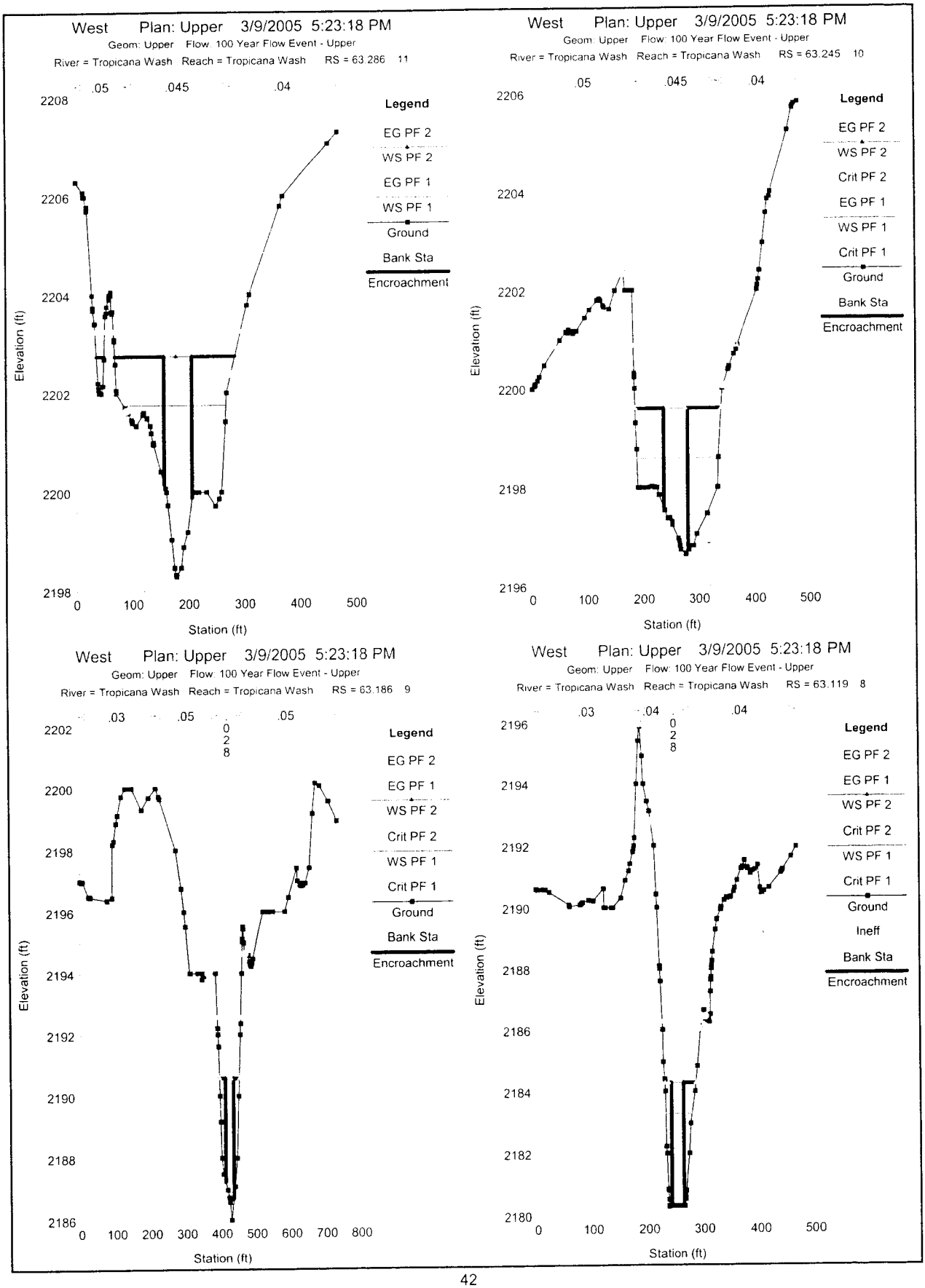
Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)
Tropicana Wash	63.711	PF 1	1818.00	2222.00	2229.87
Tropicana Wash	63.711	PF 2	1818.00	2222.00	2229.87
Tropicana Wash	63.703		Culvert		
Tropicana Wash	63.691	PF 1	1818.00	2221.35	2227.32
Tropicana Wash	63.691	PF 2	1818.00	2221.35	2227.32
Tropicana Wash	63.631	PF 1	1818.00	2217.65	2224.75
Tropicana Wash	63.631	PF 2	1818.00	2217.65	2224.75
Tropicana Wash	63.569	PF 1	1818.00	2214.00	2218.15
Tropicana Wash	63.569	PF 2	1818.00	2214.08	2219.15
Tropicana Wash	63.552	PF 1	1818.00	2214.00	2217.84
Tropicana Wash	63.552	PF 2	1818.00	2214.00	2218.76
Tropicana Wash	63.505	PF 1	1818.00	2210.00	2217.72
Tropicana Wash	63.505	PF 2	1818.00	2210.00	2218.72
Tropicana Wash	63.488	PF 1	1818.00	2209.75	2216.83
Tropicana Wash	63.488	PF 2	1818.00	2209.75	2217.03
Tropicana Wash	63.456	PF 1	1818.00	2208.00	2214.58
Tropicana Wash	63.456	PF 2	1818.00	2208.00	2214.58
Tropicana Wash	63.410	PF 1	1818.00	2200.00	2214.62
Tropicana Wash	63.410	PF 2	1818.00	2200.00	2214.62
Tropicana Wash	63.397		Culvert		
Tropicana Wash	63.389	PF 1	750.00	2200.00	2205.69
Tropicana Wash	63.389	PF 2	750.00	2200.00	2205.69
Tropicana Wash	63.379	PF 1	800.00	2202.00	2205.65
Tropicana Wash	63.379	PF 2	800.00	2202.00	2206.45
Tropicana Wash	63.339	PF 1	800.00	2200.69	2203.92
Tropicana Wash	63.339	PF 2	800.00	2200.94	2204.64
Tropicana Wash	63.286	PF 1	800.00	2198.30	2201.47
Tropicana Wash	63.286	PF 2	800.00	2198.30	2202.23
Tropicana Wash	63.245	PF 1	800.00	2196.63	2198.40
Tropicana Wash	63.245	PF 2	800.00	2196.63	2199.19
Tropicana Wash	63.186	PF 1	800.00	2186.00	2189.17
Tropicana Wash	63.186	PF 2	800.00	2186.00	2189.94
Tropicana Wash	63.119	PF 1	800.00	2180.28	2183.36
Tropicana Wash	63.119	PF 2	800.00	2180.30	2183.64
Tropicana Wash	63.113	PF 1	800.00	2178.45	2183.52
Tropicana Wash	63.113	PF 2	800.00	2178.45	2183.52

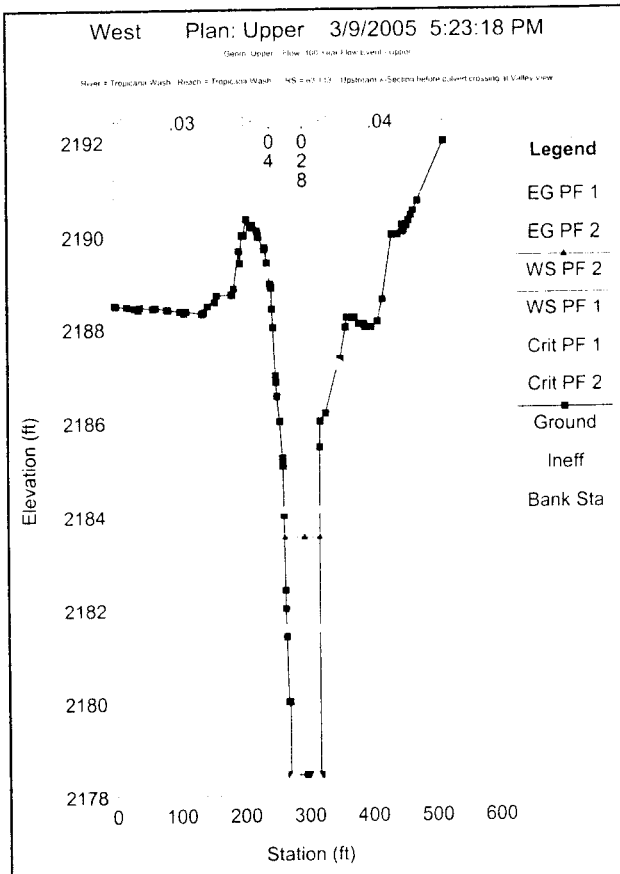

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Geom: Upper Flow: 100 Year Flow Event - Upper
River = Tropicana Wash Reach = Tropicana Wash RS = 63.703 Culv Culvert Crossing at Arville
.035
.02
0
3
5
Legend
EG PF 1
EG PF 2
WS PF 2
WS PF 1
Crit PF 1
Crit PF 2
Ground
Levee
Ineff
Bank Sta
Elevation (ft)
Station (ft)
2232
2230
2228
2226
2224
2222
2220
0
100
200
300
400
500
600
West Plan: Upper 3/9/2005 5:23:18 PM
Geom: Upper Flow: 100 Year Flow Event - Upper
River = Tropicana Wash Reach = Tropicana Wash RS = 63.703 Culv Culvert Crossing at Arville
.035
.02
0
3
5
Legend
EG PF 1
EG PF 2
WS PF 2
WS PF 1
Crit PF 1
Crit PF 2
Ground
Levee
Ineff
Bank Sta
Elevation (ft)
Station (ft)
2232
2230
2228
2226
2224
2222
2220
0
100
200
300
400
500
West Plan: Upper 3/9/2005 5:23:18 PM
Geom: Upper Flow: 100 Year Flow Event - Upper
River = Tropicana Wash Reach = Tropicana Wash RS = 63.703 Culv Culvert Crossing at Arville
.035
.035
0
0
0
2
2
2
8
Legend
EG PF 1
EG PF 2
WS PF 2
WS PF 1
Crit PF 1
Crit PF 2
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
2232
2230
2228
2226
2224
2222
2220
0
100
200
300
400
500
600
West Plan: Upper 3/9/2005 5:23:18 PM
Geom: Upper Flow: 100 Year Flow Event - Upper
River = Tropicana Wash Reach = Tropicana Wash RS = 63.691 Downstream X-Section from culvert crossing at Arville
.035
.035
0
0
0
2
2
2
8
Legend
EG PF 1
EG PF 2
WS PF 2
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
2232
2230
2228
2226
2224
2222
2220
0
100
200
300
400
500
600


West Plan: Upper 3/9/2005 5:23:18 PM
Geom: Upper Flow: 100 Year Flow Event - Upper
River = Tropicana Wash Reach = Tropicana Wash RS = 63.631 21
.035
.035
0
2
8
Legend
EG PF 1
EG PF 2
Crit PF 1
WS PF 2
WS PF 1
Crit PF 2
Ground
Levee
Ineff
Bank Sta
Elevation (ft)
Station (ft)
West Plan: Upper 3/9/2005 5:23:18 PM
Geom: Upper Flow: 100 Year Flow Event - Upper
River = Tropicana Wash Reach = Tropicana Wash RS = 63.569 20
.04
.034
.04
Legend
EG PF 2
EG PF 1
WS PF 2
Crit PF 2
WS PF 1
Crit PF 1
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)
West Plan: Upper 3/9/2005 5:23:18 PM
Geom: Upper Flow: 100 Year Flow Event - Upper
River = Tropicana Wash Reach = Tropicana Wash RS = 63.552 19
.04
.032
.04
Legend
EG PF 2
WS PF 2
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
West Plan: Upper 3/9/2005 5:23:18 PM
Geom: Upper Flow: 100 Year Flow Event - Upper
River = Tropicana Wash Reach = Tropicana Wash RS = 63.505 18
.04
.04
0
2
8
Legend
EG PF 2
WS PF 2
EG PF 1
WS PF 1
Crit PF 1
Crit PF 2
Ground
Levee
Bank Sta
Elevation (ft)
Station (ft)


West Plan: Upper 3/9/2005 5:23:18 PM
Geom: Upper Flow: 100 Year Flow Event - Upper
River = Tropicana Wash Reach = Tropicana Wash RS = 63.488 17
.04 .04
Legend
EG PF 2
EG PF 1
WS PF 2
Crit PF 2
WS PF 1
Crit PF 1
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)
West Plan: Upper 3/9/2005 5:23:18 PM
Geom: Upper Flow: 100 Year Flow Event - Upper
River = Tropicana Wash Reach = Tropicana Wash RS = 63.456 16
.04 .04
Legend
EG PF 1
EG PF 2
WS PF 2
WS PF 1
Crit PF 1
Crit PF 2
Ground
Levee
Bank Sta
Elevation (ft)
Station (ft)
West Plan: Upper 3/9/2005 5:23:18 PM
Geom: Upper Flow: 100 Year Flow Event - Upper
River = Tropicana Wash Reach = Tropicana Wash RS = 63.410 Upstream X-Section from UPRR (at crossing)
.04 .04 .04
Legend
EG PF 1
EG PF 2
WS PF 2
WS PF 1
Crit PF 1
Crit PF 2
Ground
Bank Sta
Elevation (ft)
Station (ft)
West Plan: Upper 3/9/2005 5:23:18 PM
Geom: Upper Flow: 100 Year Flow Event - Upper
River = Tropicana Wash Reach = Tropicana Wash RS = 63.397 Culv Culvert Crossing at UPRR
.04 .04 .04
Legend
EG PF 1
EG PF 2
WS PF 2
WS PF 1
Crit PF 1
Crit PF 2
Ground
Bank Sta
Elevation (ft)
Station (ft)


West Plan: Upper 3/9/2005 5:23:18 PM
Geom: Upper Flow: 100 Year Flow Event - Upper
River = Tropicana Wash Reach = Tropicana Wash RS = 63.397 Culv Culvert Crossing at UPRR
.06 .05 .06
Legend
EG PF 1
EG PF 2
WS PF 2
WS PF 1
Crit PF 1
Crit PF 2
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
2216
2214
2212
2210
2208
2206
2204
2202
2200
0 100 200 300 400 500 600 700
West Plan: Upper 3/9/2005 5:23:18 PM
Geom: Upper Flow: 100 Year Flow Event - Upper
.06 .05 .06
Legend
EG PF 2
EG PF 1
WS PF 2
Crit PF 1
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
2216
2214
2212
2210
2208
2206
2204
2202
2200
0 100 200 300 400 500 600 700
West Plan: Upper 3/9/2005 5:23:18 PM
Geom: Upper Flow: 100 Year Flow Event - Upper
River = Tropicana Wash Reach = Tropicana Wash RS = 63.379 13
.06 .05 .06
Legend
EG PF 2
WS PF 2
EG PF 1
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
2216
2214
2212
2210
2208
2206
2204
2202
0 100 200 300 400 500 600
West Plan: Upper 3/9/2005 5:23:18 PM
Geom: Upper Flow: 100 Year Flow Event - Upper
River = Tropicana Wash Reach = Tropicana Wash RS = 63.339 12
.06 .05 .06
Legend
EG PF 2
WS PF 2
EG PF 1
WS PF 1
Crit PF 1
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)
2212
2210
2208
2206
2204
2202
2200
0 100 200 300 400 500


West Plan: Upper 3/9/2005 5:23:18 PM
Geom: Upper Flow: 100 Year Flow Event - Upper
River = Tropicana Wash Reach = Tropicana Wash RS = 63.286 11
.05 .045 .04
Legend
EG PF 2
WS PF 2
EG PF 1
WS PF 1
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)
West Plan: Upper 3/9/2005 5:23:18 PM
Geom: Upper Flow: 100 Year Flow Event - Upper
River = Tropicana Wash Reach = Tropicana Wash RS = 63.245 10
.05 .045 .04
Legend
EG PF 2
WS PF 2
Crit PF 2
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)
West Plan: Upper 3/9/2005 5:23:18 PM
Geom: Upper Flow: 100 Year Flow Event - Upper
River = Tropicana Wash Reach = Tropicana Wash RS = 63.186 9
.03 .05 .05
Legend
EG PF 2
EG PF 1
WS PF 2
Crit PF 2
WS PF 1
Crit PF 1
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)
West Plan: Upper 3/9/2005 5:23:18 PM
Geom: Upper Flow: 100 Year Flow Event - Upper
River = Tropicana Wash Reach = Tropicana Wash RS = 63.119 8
.03 .04 .04
Legend
EG PF 2
EG PF 1
WS PF 2
Crit PF 2
WS PF 1
Crit PF 1
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


West Plan: Upper 3/9/2005 5:23:18 PM
.03
.04
0 0
4 2
8
2192
2190
2188
2186
2184
2182
2180
2178
Elevation (ft)
0
100
200
300
400
500
600
Station (ft)
Legend
EG PF 1
EG PF 2
WS PF 2
WS PF 1
Crit PF 1
Crit PF 2
Ground
Ineff
Bank Sta

MATERIALS FROM THE "UPDATE TO THE TECHNICAL DRAINAGE STUDY FOR RENO-VALLEY VIEW" BY KIMLEY-HORN & ASSOCIATES

*HEC-RAS MODEL OF THE 20'x5'-9" ARCH CULVERT

*APPROVAL LETTER FROM CLARK COUNTY PUBLIC WORKS

*CONCURRENCE LETTER FROM CLARK COUNTY REGIONAL FLOOD CONTROL DISTRICT

DRAINAGE STUDY

HTE 00-54161

PROJECT NAME

Reno / Valley View

SECTION-TOWNSHIP-RANGE

30-21-61

CROSS STREETS

Reno / Valley View

NEW ASSESSOR'S PARCEL NUMBER

162-30-501-032

AGREAGE:

2

SUBMITTAL DATE:

2/24/00

DRAWER # D190

C L A R K C O U N T Y
REGIONAL FLOOD CONTROL DISTRICT



Gale Wm. Fraser, II, P.E.
General Manager/Chief Engineer

BOARD OF DIRECTORS

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City of Las Vegas

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John K. Rhodes
City of North Las Vegas

Mayor James Gibson
City of Henderson

Bruce L. Woodbury
Clark County

June 2, 2000

Robert Thompson, P. E.
Clark County Department of Public Works
500 S. Grand Central Parkway
Las Vegas, NV 89155

DISTRICT CONCURRENCE: RENO-VALLEY VIEW (3149) UPDATE (HTE #00-5461)

Dear Mr. Thompson:

The District has reviewed the Technical Drainage Study dated February 22, 2000, and Addendum No. 1 dated April 14, 2000, for the above-captioned project as submitted by Kimley-Horn & Associates. In addition, the District is in receipt of the Conditional Letter of Acceptance from the Clark County Department of Public Works dated April 25, 2000.

The District concurs with the acceptance of this Technical Drainage Study by the Clark County Department of Public Works.

The District's review of this project was limited to issues of Regional Flood Control Significance as defined in the Uniform Regulations for the Control of Drainage. As noted in the study, the site resides in a Special Flood Hazard Area (SFHA) designated as "Zone A" and Zone AE" per the effective Flood Insurance Rate Map (FIRM). Therefore, the consultant should be advised that this acceptance does not serve to amend the FIRM or remove the SFHA designation.

Please be aware that as additional information becomes available and/or restudies of Flood Insurance Studies are performed, the information submitted by Kimley-Horn & Associates may be superseded. Compliance with the regulatory elements and design standards specified in the Uniform Regulations for the Control of Drainage does not imply a guarantee that properties will be free from flooding or flood damage. No liability is assumed by the District, its officials, or employees for the information, data or conclusions presented by the consulting engineer. We therefore make no warranties, either expressed or implied, in conducting this review.

GALE WM. FRASER II, P.E.
General Manager/Chief Engineer

BY: Jon H. Haysing, P.E.
Senior Engineer

cc: Kimley-Horn & Associates

JHH:jms

File: 21-61-30.kim

RECEIVED
JUN 2 2000
Public Works
Community Development

600 S. Grand Central Parkway, Suite 300 • Las Vegas, Nevada 89106-4511
(702) 455-3139 • FAX: (702) 455-3870
Website: http://www.ccrfcd.org

Department of Public Works

500 S Grand Central Pky • PO Box 554000 • Las Vegas NV 89155-4000
(702) 455-6000 • Fax (702) 455-6040

M.J. Manning, Director • E-Mail: mjm@co.clark.nv.us

April 25, 2000

Kimley-Horn & Associates
1050 E. Flamingo Road, Suite S-210
Las Vegas, NV 89119

RE: WILLDAN/Clark County Public Works Plan Review Contract
Update to the Technical Drainage Study for Reno-Valley View **(3149)**
Study Dated: February 23, 2000
Addendum Dated: April 14, 2000
Location: Southeast corner of Reno and Valley View
(Sec. 30, T. 21 S., R. 61 E.)
HTE # 00-5461

We have completed our final review of the above-referenced update to the **Technical Drainage Study**. As set forth in the study and its addenda, the following revisions are accepted:

1. The purpose of this study was to replace the previously approved 20 foot by 5 foot RCB culvert with a 20 foot by 5 foot, 9 inch arch culvert with a 10 foot long transition section upstream of the existing triple, 10 foot by 5 foot RCB's in Valley View Boulevard;

   This study updates the "Reno-Valley View Boulevard Drainage Study", approved on November 30, 1998;

2. The arch culvert shall be constructed as shown on "Reno Avenue/Valley View," sheets 1 and 2 of 2, signed and sealed by Thomas A. Sacra, III , P.E., on April 7, 2000;

BOARD OF COUNTY COMMISSIONERS
BRUCE L. WOODBURY, Chairman • ERIN KENNY, Vice-Chair
YVONNE ATKINSON GATES • DARIO HERRERA • MARY J. KINCAID • LANCE M. MALONE • MYRNA WILLIAMS
DALE W. ASKEW, County Manager

3. The following drainage facilities shall be constructed:

   a. A 56.5-foot long by 9-foot high by 1-foot wide concrete headwall/wingwall structure at the inlet to the proposed arch culverts;

   b. Approximately 29.5-feet of transition structure from a double barrel box section to the 20-foot wide by 5.75-foot high arch culvert;

   c. Approximately 284 LF of 20-foot wide by 5.75-foot high arch culvert;

   d. Approximately 10 LF of transition structure from the arch culvert mentioned in 2(c) above to the downstream existing 3 barrel, 10' X 5' RCBC;

   e. An 8-inch thick reinforced concrete plug to be placed in the unused barrel of the existing 3 barrel, 10' X 5' RCBC under Valley View Boulevard;

4. The approved bond estimate for the project must be revised to delete the previously approved facilities and include the facilities listed in item 3 above;

5. The subject site is located within Zone X, Zone A, and Zone AE as shown on FIRM Community Panel Number 32003C 2556D and 2552D, revised August 16, 1995. Zone X is determined to be outside the 500-year flood plain. Zone A is a special flood hazard area determined to be within the 100-year flood plain. No base flood elevations have been determined by FEMA. Zone AE is a special flood hazard area inundated by the 100-year flood. Base flood elevations have been determined by FEMA;

6. Clark County Regional Flood Control District (CCRFCD) concurrence is required because the site is adjacent to a regional facility and in a FEMA designated special flood hazard area. As a condition of final approval, the applicant must submit a copy of the drainage study and any addenda to the CCRFCD. Permits will not be issued until concurrence is obtained from the CCRFCD;

7. Mylars of the grading plan must be submitted to the Clark County Plan Check department for approval signatures prior to permit issuance;

8. The grading plan from the original plan set must be revised/replaced to include the plan and profile of the new proposed arch culvert and associated facilities. The plans referenced in item 2 above must be included in the plan set;

9. All other conditions and facilities, as stipulated on the original letter, still apply;

10. At the request of Clark County Public Works, drainage/grading plans for the proposed development have been reviewed for compliance to the requirements set forth in the "Minimum Drainage Study Criteria Checklist," "Drainage Plan Information," dated July 15, 1997. **The drainage/grading plan submitted for this project appears to meet the minimum standards outlined in the above-referenced regulation;**

No liability is assumed by the County for information, data, and conclusions of the consulting engineer.

M.J. MANNING
DIRECTOR OF PUBLIC WORKS

BY: Steve Parrish

Steve Parrish, P.E.
Senior Engineer
Community Development Division

SP:cn

cc: EJM Development
Development File

A:\00-5461.wpd

WILLDAN
Serving Public Agencies

2725 East Desert Inn Road, Suite 100
Las Vegas, Nevada 89121
702/734-3001 fax 702 734-0888
www.willdan.com

MEMORANDUM

TO: Chris O. Stone, P.E. TOCV

FROM: Glenn S. Hale GSH

OFFICE: Las Vegas

DATE: March 6, 2000

SUBJECT: WILLDAN/Clark County Public Works Plan Review Contract
Technical Drainage Study for Reno-Valley View **(3149)**
Study Dated: February 23, 2000
Location: Southeast corner of Reno and Valley View
(Sec. 30, T. 21 S., R. 61 E.)
HTE # 00-5461
Prepared by Kimley-Horn and Associates, Inc.

We have completed our initial review of the above-referenced **Technical Drainage Study**, and have the following comments:

1. The study must provide a HEC-RAS cross section map which shows the stationing locations associated with the proposed facility. In addition, the HEC-RAS output must include a cross sectional diagram of each station for further review;

2. The Manning's n value used to model the Arch culvert must be verified based on the type of concrete finish proposed for the Arch culvert construction;

3. The study must provide a summary table showing the revised hydraulic water surface elevations verses the FIS study values;

4. The following comments are associated with the structural plans and calculations:

   The structural review is not completed at this time. The designer must submit the Geotechnical Report. Also provide calculations for the retaining walls (wingwalls and plug panel) and the two Transition Structures;

   a. Provide Geotechnical Report information in General Notes providing name of the Company, Project number; Date and soil design parameters as allowable bearing and lateral pressures;

   b. Specify Cement Type V for all concrete in contact with soil on General Notes;

c. Check development length of wall vertical bars shown on Typical Section B;

d. Verify if an edge beam is required at the connection of arch and transition structure located at East side. If edge beam is not used, provide detail showing continuity of bars between these two structures;

e. Indicate orientation of reinforcing bars for transition structure at East side;

The grading plan has been red-lined and is being returned to the engineer. The red-lined grading plan must be resubmitted with the revised drawings. Failure to resubmit the re-lined grading plan will prevent further review of the project.

All addenda must be submitted directly to Clark County. Any drainage studies or addenda submitted directly to WILLDAN will be returned to Clark County for the necessary log-in procedures.

The items listed herein must be thoroughly addressed and submitted for review prior to acceptance of this study.

A study review workshop with WILLDAN may be scheduled if there are questions concerning the above listed comments.

CONCURRENCE BY CLARK COUNTY PUBLIC WORKS:

Steve Parnell — Signature

03/15/00 — Date

COMMENTS:

cc: Kurt Schaake, P.E.
EJM Development

Kimley-Horn
and Associates, Inc.

February 22, 2000

Mr. Steve Parrish, P.E.
Clark County Community Development
Flood Control
500 S. Grand Central Pkwy.
Las Vegas, Nevada 89155

Project No. 092034008

Suite S210
1050 East Flamingo Road
Las Vegas, Nevada
89119

Subject: Reno-Valley View Drainage Study Update
HTE # 98-21112

Dear Steve:

This drainage study update is being submitted to allow our client to use an equivalent culvert for the site located at the Northwest corner of Reno and Valley View (HTE #98-21112). A 20' Con-Arch elliptically arched culvert is being requested as a less expensive substitute to the 20'x5' Reinforced Concrete Box culvert approved with the original study.

The approved drainage study for this site included using a 20'x5'RCB to convey flows of the North branch of the Tropicana Wash. This conduit was designed to convey the 100-year storm, while not increasing the water surface upstream or downstream. The original HEC-RAS hydraulic calculation used the cross section locations shown on the attached figure 1 in Appendix "A". This original HEC-RAS calculation was modeled again and accepted in this report.

The 20' Con-Arch elliptically arched culvert was substituted for the 20'x5' RCB and the reach was re-modeled using the HEC-RAS hydraulic program. An Hydraulic Analyses Table comparing the velocity and water surface elevation differences between the two models and results of the HEC-RAS Proposed model are shown in Appendix "B." The 20' Con-Arch does not create adverse effects of drainage either upstream or downstream of the project site.

Structural calculations and drawings are included. These calculations illustrate the ability of the 20'Con-Arch to withstand AASHTO loading.

Thank you for your consideration and contact me for further information.

Respectfully,

KIMLEY-HORN AND ASSOCIATES, INC.

Daniel LaRubio, Jr., P.E.

Project Engineer

Attachments

TEL 702 734 5666
FAX 702 735 4949

HYDROLOGIC CRITERIA AND DRAINAGE MANUAL

DRAINAGE STUDY INFORMATION FORM

Name of Development: **Reno-Valley View** Date: **Feb-22-2000**

Location of Development: a) Descriptive **Southeast corner of Reno and Valley View**
b) Sect. **30** Tns. **21S** Rng. **61E**

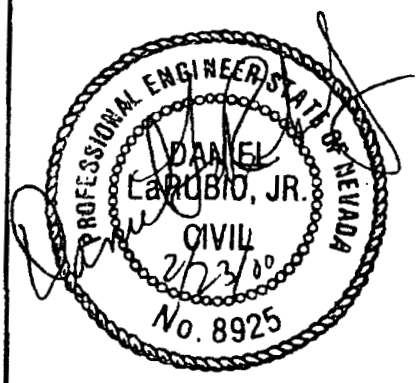
Name of Owner: **EJM Development Company** Assessors Parcel No: **162-30-501-032**

Contact Person- Name: **Daniel LaRubio, Jr.** Telephone No: **(702) 734-5666**
Firm: **Kimley-Horn & Associates**
Address: **1050 East Flamingo Road, Suite S-210, Las Vegas, Nevada 89119**

Type of Land Development/Land Disturbance Process:

- ☐ Rezoning
- ☐ Parcel Map
- ☐ Large Parcel Map
- ☐ Subdivision Map
- ☐ Planned Unit Development
- ☒ Building Permit
- ☐ Clearing and Grading Only
- ☐ Other (Please Specify Below) **For Culver Construction and grading of site**

1. Total owned Land Area: At Site: **2 Ac.** Being Developed/Disturbed: **2 Ac.**
2. Is a Portion or all of the subject property in a designated FEMA Flood Hazard Area? (YES*) NO
3. Is the Property bordered or crossed by an existing of proposed Clark County Regional Flood Control District Master Planned Facility? (YES*) NO
4. Proposed type of development (Residential, Commercial, Etc.)? **Commercial**
5. Approximate upstream land area which drains to the subject site? **>1000 acres**
6. Has the site drainage been evaluated in the past? (YES) NO If Yes, please identify documentation: **FIS restudy by CH2Mhill and Ace Cab Company Site by KJE**
7. If known, please briefly identify the proposed discharge point(s) of runoff from the site: **East Side of the site, ultimately to be conveyed within Tropicana Wash North Branch**
8. Briefly describe your proposed schedule for the subject project: **Begin Construction A.S.A.P.**



Engineer's Seal

Submit this form as part of the required drainage study to the local entity which has jurisdiction over the subject property. This form may provide sufficient information to serve as the Conceptual Drainage Study.

*Review and concurrence of the Clark County Regional Flood Control District is required

Local Entity file No.

revision	date

REFERENCE:
GENERAL STORE
Job No. 092005.82

STANDARD FORM 1

APPENDIX "B"

PROPOSED HEC-RAS DATA

HYDRAULIC ANALYSES

HEC-RAS DATA
20' CON-ARCH

		Approved Culvert		Proposed Culvert		Difference	
ID	Station	Vel.	WSEL	Vel.	WSEL	Vel.	WSEL
Upstream	63.353	2.91	2205.09	2.93	2205.08	+0.02	-0.01
Upstream	63.260	5.40	2201.15	5.35	2201.16	-0.05	+0.01
Upstream	63.163	4.34	2192.00	4.23	2192.06	-0.11	+0.06
Upstream	63.160	6.89	2190.90	7.98	2190.60	+1.09	-0.30
Beg. New Culvert	63.157	7.58	2190.55	7.85	2190.20	+0.27	-0.35
New Cul.	63.152*	10.91	2189.25	11.16	2188.86	+0.25	-0.39
New Cul.	63.145*	10.91	2188.18	11.17	2187.65	+0.26	-0.53
New Cul.	63.143*	10.91	2187.37	11.20	2186.78	+0.29	-0.59
New Cul.	63.140*	10.91	2186.56	11.21	2185.83	+0.30	-0.73
New Cul.	63.130*	10.91	2185.74	11.18	2185.23	+0.27	-0.51
New Cul.	63.110*	8.55	2184.20	8.89	2185.11	+0.34	+0.91
Beg. Exist. Culvert	63.098	11.29	2184.24	11.31	2184.23	+0.02	-0.01
Exist. Cul.	63.077	11.30	2183.74	11.31	2183.74	+0.01	0.00
Exist. Cul.	63.068	11.40	2183.25	11.41	2183.25	+0.01	0.00
Exist. Cul.	63.058	10.92	2182.33	10.91	2182.34	-0.01	+0.01
Exist. Cul.	63.020	10.92	2180.53	10.91	2180.54	-0.01	+0.01
Exist. Cul.	62.982	10.92	2178.73	10.91	2178.74	-0.01	+0.01
Exist. Cul.	62.949	10.91	2177.17	10.91	2177.16	0.00	-0.01
Exist. Cul.	62.916	10.92	2175.58	10.91	2175.59	-0.01	+0.01
Exist. Cul.	62.892	10.91	2174.47	10.91	2174.47	0.00	0.00
Exist. Cul.	62.888	8.69	2174.05	8.68	2174.06	-0.01	+0.01
Exist. Cul.	62.882	6.97	2173.91	6.91	2173.93	-0.06	+0.02
Exist. Cul.	62.859	8.92	2171.70	8.98	2171.69	+0.06	-0.01
Exist. Cul.	62.763	6.41	2163.35	6.41	2163.35	0.00	0.00
Exist. Cul.	62.668	6.78	2156.89	6.78	2156.89	0.00	0.00
Exist. Cul.	62.566	0.11	2157.00	0.11	2157.00	0.00	0.00

HEC-RAS September 1998 Version 2.2
U.S. Army Corp of Engineers
Hydrologic Engineering Center
609 Second Street, Suite D
Davis, California 95616-4687
(916) 756-1104

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

PROJECT DATA
Project Title: Conarch Revision new slope
Project File : conarch2.prj
Run Date and Time: 02/18/2000 12:19:10 PM

Project in English units

Project Description:
Revised Culvert Hydraulic Flow Calculations

PLAN DATA

Plan Title: shorter entrance transition
Plan File : C:\HEC\RAS\conarch2.p22

Geometry Title: shorter entrance transition
Geometry File : C:\HEC\RAS\conarch2.g22

Flow Title : 800 cfs
Flow File : C:\HEC\RAS\conarch2.f03

Plan Summary Information:

Number of:	Cross Sections	= 26	Mulitple Openings	=	0
	Culverts	= 0	Inline Weirs	=	0
	Bridges	= 0			

Computational Information

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

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

FLOW DATA

Flow Title: 800 cfs

Flow File : C:\HEC\RAS\conarch2.f03

Flow Data (cfs)

River	Reach	RS	PF#1
1	1	63.353	800
1	1	63.157	800
1	1	62.566	800

Boundary Conditions

River	Reach	Profile	Upstream	Downstream
1	1	PF#1	Known WS = 2204.94	Known WS = 2157

GEOMETRY DATA

Geometry Title: shorter entrance transition
Geometry File : C:\HEC\RAS\conarch2.g22

CROSS SECTION RIVER: 1
REACH: 1 RS: 63.353

INPUT
Description: 63.353

Station Elevation Data num= 21

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9587.2	2210.9	9684.5	2211.7	9756.6	2211.3	9784	2208.6	9827.6	2205.4
9864.5	2204.1	9865.4	2203.8	9940.5	2203.8	9955.1	2206.2	9989.6	2201.5
10000	2201.5	10012.2	2201.5	10045	2203.8	10093.2	2206.5	10132.2	2208.4
10193.5	2212	10221.9	2211.1	10282.1	2209.5	10346.3	2209.3	10371.2	2211.7
10550.7	2213.4								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9587.2	.058	9955.1	.053	10045	.043

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9955.1	10045	490	490	.1	.3

CROSS SECTION RIVER: 1
REACH: 1 RS: 63.26

INPUT
Description: 63.26
Station Elevation Data num= 13

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9709.9	2204.6	9748.6	2203.2	9904	2202.1	9986.3	2200.1	10000	2199.2
10025.7	2201.4	10085.8	2199.2	10144.1	2202.5	10173.4	2202.3	10317	2202.3
10344	2203.3	10386.2	2205.2	10450.2	2208.6				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9709.9	.058	9986.3	.053	10025.7	.043

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9986.3	10025.7	412	428	.1	.3

CROSS SECTION RIVER: 1

REACH: 1 RS: 63.163

INPUT
Description:
Station Elevation Data num= 10

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9968	2194.97	9980	2189.97	9985	2188.97	9995	2190.44	10005	2189.39
10015	2188.97	10025	2188.97	10035	2189.3	10047	2189.97	10065	2194.97

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9968	.058	9968	.053	10065	.043

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9968	10065	30	50	.1	.3

CROSS SECTION RIVER: 1
REACH: 1 RS: 63.160

INPUT
Description:
Station Elevation Data num= 10

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9987	2194.97	9995	2189.97	100052188.245		10015	2188.15	10020	2187.97
10025	2187.97	10035	2188.7	10037	2188.97	10045	2189.97	10048	2194.97

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9987	.058	9987	.053	10048	.043

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9987	10048	50	50	.1	.3

CROSS SECTION RIVER: 1

REACH: 1 RS: 63.157

INPUT
Description:
Station Elevation Data num= 8

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
10008.75	219210008.75		218710024.67		218710024.67		219210025.33		2192
10025.33	218710041.25		218710041.25		2192				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
10008.75	.01310008.75		.01310041.25		.013

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
10008.75	10041.25	30	30	.3	.5

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
10008.75	10005	2192.2	1004510041.25		2192.2

Cross Section Lid
num= 2

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
10008.75	2193.2	219210041.25		2193.2	2192

08.75 - 024.67
= 15.92 15.92
= 32' Bore, at upstream end

CROSS SECTION RIVER: 1
REACH: 1 RS: 63.152

INPUT
Description:
Station Elevation Data num= 4

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
10015	2186.51	10015	2185.18	10035	2185.18	10035	2186.51

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val

10015	.013	10015	.013	10035	.013

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
10015	10035	20	20	.1	.3

Cross Section Lid

num= 21

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
10015	2187.9	2186.51	10016	2190.2	2188.84	10017	2190.9	2189.52
10018	2191.3	2189.93	10019	2191.6	2190.2	10020	2191.8	2190.42
10021	2192	2190.6	10022	2192.2	2190.75	10023	2192.3	2190.85
10024	2192.3	2190.9	10025	2192.3	2190.92	10026	2192.3	2190.9
10027	2192.3	2190.85	10028	2192.2	2190.75	10029	2192	2190.6
10030	2191.8	2190.42	10031	2191.6	2190.2	10032	2191.3	2189.93
10033	2190.9	2189.52	10034	2190.2	2188.84	10035	2187.9	2186.51

Highest low chord = 90.92

Fc = 85.18

5.74' highest

CROSS SECTION RIVER: 1

REACH: 1 RS: 63.145

INPUT

Description:

Station Elevation Data num= 4

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
10015	2185.3	10015	2183.97	10035	2183.97	10035	2185.3

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
10015	.013	10015	.013	10035	.013

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
10015	10035	15	15	.1	.3

Cross Section Lid

num= 21

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
10015	2186.8	2185.3	10016	2189.2	2187.63	10017	2189.8	2188.31

10018	2190.3	2188.72	10019	2190.5	2188.99	10020	2190.7	2189.21
10021	2190.9	2189.39	10022	2191.1	2189.54	10023	2191.2	2189.64
10024	2191.2	2189.69	10025	2191.2	2189.71	10026	2191.2	2189.69
10027	2191.2	2189.64	10028	2191.1	2189.54	10029	2190.9	2189.39
10030	2190.7	2189.21	10031	2190.5	2188.99	10032	2190.3	2188.72
10033	2189.8	2188.31	10034	2189.2	2187.63	10035	2186.8	2185.3

CROSS SECTION RIVER: 1
REACH: 1 RS: 63.143

INPUT
Description:
Station Elevation Data num= 4

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
10011	2184.43	10011	2183.1	10031	2183.1	10031	2184.43

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
10011	.013	10011	.013	10031	.013

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
10011	10031	15	15	.1	.3

Cross Section Lid
num= 21

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
10011	2186	2184.43	10012	2188.4	2186.76	10013	2189	2187.44
10014	2189.4	2187.85	10015	2189.7	2188.12	10016	2189.9	2188.34
10017	2190.1	2188.52	10018	2190.3	2188.67	10019	2190.4	2188.77
10020	2190.4	2188.82	10021	2190.4	2188.84	10022	2190.4	2188.82
10023	2190.4	2188.77	10024	2190.3	2188.67	10025	2190.1	2188.52
10026	2189.9	2188.34	10027	2189.7	2188.12	10028	2189.5	2187.85
10029	2189	2187.44	10030	2188.4	2186.76	10031	2186	2184.43

CROSS SECTION RIVER: 1

REACH: 1 RS: 63.140

INPUT
Description:
Station Elevation Data num= 4

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
10007	2183.48	10007	2182.15	10027	2182.15	10027	2183.48

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
10007	.013	10007	.013	10027	.013

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
10007	10027	78	78	.1	.3

Cross Section Lid
num= 21

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
10007	2185.2	2183.48	10008	2187.5	2185.81	10009	2188.2	2186.49
10010	2188.6	2186.9	10011	2188.9	2187.17	10012	2189.1	2187.39
10013	2189.3	2187.57	10014	2189.5	2187.72	10015	2189.6	2187.82
10016	2189.6	2187.87	10017	2189.6	2187.89	10018	2189.6	2187.87
10019	2189.6	2187.82	10020	2189.5	2187.72	10021	2189.3	2187.57
10022	2189.1	2187.39	10023	2188.9	2187.17	10024	2188.6	2186.9
10025	2188.2	2186.49	10026	2187.5	2185.81	10027	2185.2	2183.48

CROSS SECTION RIVER: 1
REACH: 1 RS: 63.130

INPUT
Description:
Station Elevation Data num= 4

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
10007	2182.88	10007	2181.55	10027	2181.55	10027	2182.88

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
10007	.013	10007	.013	10027	.013

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
10007	10027	146	146	.1	.3

Cross Section Lid

num= 21

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
10007	2184.5	2182.88	10008	2186.7	2185.21	10009	2187.4	2185.89
10010	2187.8	2186.3	10011	2188.1	2186.57	10012	2188.3	2186.79
10013	2188.5	2186.97	10014	2188.6	2187.12	10015	2188.7	2187.22
10016	2188.8	2187.27	10017	2188.8	2187.29	10018	2188.8	2187.27
10019	2188.7	2187.22	10020	2188.6	2187.12	10021	2188.5	2186.97
10022	2188.3	2186.79	10023	2188.1	2186.57	10024	2187.8	2186.3
10025	2187.4	2185.89	10026	2186.7	2185.21	10027	2184.4	2182.88

CROSS SECTION RIVER: 1

REACH: 1 RS: 63.110

INPUT

Description:

Station Elevation Data num= 4

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
99952	181.752	99952	180.422	100152	180.422	100152	181.752

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9995	.013	9995	.013	10015	.013

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9995	10015	20	20	.1	.3

Cross Section Lid

num= 21

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
9995	2182.82	181.752	9996	2185.22	184.082	9997	2185.92	184.762
9998	2186.32	185.172	9999	2186.52	185.442	10000	2186.82	185.662
10001	2186.92	185.842	10002	2187.12	185.992	10003	2187.22	186.092
10004	2187.22	186.142	10005	2187.32	186.162	10006	2187.22	186.142
10007	2187.22	186.092	10008	2187.12	185.992	10009	2186.92	185.842
10010	2186.82	185.662	10011	2186.52	185.442	10012	2186.32	185.172
10013	2185.92	184.762	10014	2185.22	184.082	10015	2182.82	181.752

CROSS SECTION RIVER: 1
REACH: 1 RS: 63.098

INPUT
Description:
Station Elevation Data num= 8

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9985	2185.27	9985	2180.31	9994	2180.31	9994	2185.31	9995.5	2185.31
9995.5	2180.27	10004.5	2180.31	10004.5	2185.31				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9985	.013	9985	.013	10004.5	.013

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9985	10004.5	108	108	.1	.3

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
9985	9985	2185.31	10006	10004.5	2185.31

CROSS SECTION RIVER: 1
REACH: 1 RS: 63.077

INPUT
Description:

Station Elevation Data num= 12

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9985	2184.77	9985	2179.82	9994	2179.82	9994	2184.82	9995.5	2184.82
9995.5	2179.77	10004.5	2179.82	10004.5	2184.82	10006	2184.82	10006	2179.82
10015	2179.47	10015	2184.82						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9985	.013	9985	.013	10015	.013

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9985	10015	50	50	.1	.3

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
9985	9985	2184.82	10006	10015	2184.82

CROSS SECTION RIVER: 1
REACH: 1 RS: 63.068

INPUT
Description:
Station Elevation Data num= 9

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9985	2183.97	9985	2179.24	10002	2179.24	10002.5	2179.24	10002.5	2183.99
10004	2183.99	10004	2179.27	10014.5	2179.24	10014.5	2183.99		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9985	.013	9985	.013	10014.5	.013

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9985	10014.5	50	50	.1	.3

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev

```
    9985    9985 2183.99   10004 10014.5 2183.99

CROSS SECTION          RIVER: 1
REACH: 1                  RS: 63.058

INPUT
Description:
Station Elevation Data    num=       4
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    9990 2183.17    9990 2178.67   10010 2178.67   10010 2183.17

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    9990    .013    9990    .013   10010    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          9990   10010              200     200     200             .1      .3

CROSS SECTION          RIVER: 1
REACH: 1                  RS: 63.020

INPUT
Description:
Station Elevation Data    num=       4
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    9990 2181.37    9990 2176.87   10010 2176.87   10010 2181.37

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    9990    .013    9990    .013   10010    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          9990   10010              200     200     200             .1      .3
```

CROSS SECTION RIVER: 1
REACH: 1 RS: 62.982

INPUT
Description:
Station Elevation Data num= 4

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9990	2179.57	9990	2175.07	10010	2175.07	10010	2179.57

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9990	.013	9990	.013	10010	.013

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9990	10010	175	175	.1	.3

CROSS SECTION RIVER: 1
REACH: 1 RS: 62.949

INPUT
Description:
Station Elevation Data num= 4

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9990	2177.97	9990	2173.5	10010	2173.5	10010	2178

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9990	.013	9990	.013	10010	.013

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9990	10010	162	175	.1	.3

CROSS SECTION RIVER: 1
REACH: 1 RS: 62.916

INPUT
Description:
Station Elevation Data num= 4

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9990	2176.47	9990	2171.92	10010	2171.92	10010	2176.42

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9990	.013	9990	.013	10010	.013

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9990	10010	125	125	.1	.3

CROSS SECTION RIVER: 1
REACH: 1 RS: 62.892

INPUT
Description:
Station Elevation Data num= 4

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9990	2175.27	9990	2170.8	10010	2170.8	10010	2175.3

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9990	.013	9990	.013	10010	.013

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9990	10010	20	20	.1	.3

CROSS SECTION RIVER: 1
REACH: 1 RS: 62.888

INPUT

Description:
Station Elevation Data num= 4

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9980	2175.67	9990	2170.62	10010	2170.62	10020	2175.62

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9980	.02	9980	.032	10020	.07

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9980	10020	35	30	.3	.5

CROSS SECTION RIVER: 1
REACH: 1 RS: 62.882

INPUT
Description:
Station Elevation Data num= 9

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9975	2177.17	9981	2176.37	9991	2170.37	10007	2170.37	10010	2172.37
10022	2173.37	10055	2173.37	10055	2170.87	10064	2175.17		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9975	.02	9975	.032	10064	.07

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9975	10064	113	123	75	.3	.5

CROSS SECTION RIVER: 1
REACH: 1 RS: 62.859

INPUT
Description: 62.859

Station Elevation Data num= 9

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9820.3	2176.2	9967.1	2174.9	10000	2166.8	10027.2	2174.8	10064	2174.6
10087.5	2182.3	10114.5	2183.5	10533	2183.4	10551.2	2183.1		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9820.3	.02	9967.1	.032	10027.2	.07

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9967.1	10027.2	500	505	505	.3 .5

CROSS SECTION RIVER: 1
REACH: 1 RS: 62.763

INPUT
Description: 62.763

Station Elevation Data num= 9

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9750.3	2168.7	9943.5	2169.6	9968	2161.3	10000	2160.6	10016	2161.4
10033.7	2169.4	10075	2169.4	10102	2181.8	10555	2182.9		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9750.3	.025	9943.5	.046	10033.7	.025

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9943.5	10033.7	505	500	495	.1 .3

CROSS SECTION RIVER: 1
REACH: 1 RS: 62.668

INPUT
Description: 62.668

Station Elevation Data num= 20

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9430.3	2158.3	9503.6	2158.1	9515.8	2157.5	9541.5	2157.3	9575.7	2157.3
9685.6	2157.5	9735.4	2157.5	9891.8	2156.6	9982	2156.2	9992.4	2153.3
10000	2153.3	10006.4	2153.3	10029.7	2158.9	10092	2159.9	10144.1	2159.2
10166.4	2156.8	10184.5	2156.4	10261.9	2157	10348.3	2162.9	10419.7	2162.4

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9430.3	.025	9982	.043	10029.7	.025

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9982	10029.7	470	540	550	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
9430.3	9982	2156.2	10029.7	10419.7	2158.9

Blocked Obstructions num= 1

Sta L	Sta R	Elev
9430.3	9932	2162.9

CROSS SECTION RIVER: 1
REACH: 1 RS: 62.566

INPUT
Description: 62.566
Station Elevation Data num= 11

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9634.7	2149.9	9704.9	2150.1	9792	2148.9	9845.7	2149.2	9933.3	2144.7
9987	2142.1	10000	2141.4	10020.3	2140.4	10136.1	2149.6	10300.6	2151.4
10580.2	2156.3								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9634.7	.025	9845.7	.043	10136.1	.025

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff	Contr.	Expan.
9845.7	10136.1	0	0	0		.1	.3

SUMMARY OF MANNING'S N VALUES

River:1

Reach	River Sta.	n1	n2	n3
1	63.353	.058	.053	.043
1	63.26	.058	.053	.043
1	63.163	.058	.053	.043
1	63.160	.058	.053	.043
1	63.157	.013	.013	.013
1	63.152	.013	.013	.013
1	63.145	.013	.013	.013
1	63.143	.013	.013	.013
1	63.140	.013	.013	.013
1	63.130	.013	.013	.013
1	63.110	.013	.013	.013
1	63.098	.013	.013	.013
1	63.077	.013	.013	.013
1	63.068	.013	.013	.013
1	63.058	.013	.013	.013
1	63.020	.013	.013	.013
1	62.982	.013	.013	.013
1	62.949	.013	.013	.013
1	62.916	.013	.013	.013
1	62.892	.013	.013	.013
1	62.888	.02	.032	.07
1	62.882	.02	.032	.07

1	62.859	.02	.032	.07
1	62.763	.025	.046	.025
1	62.668	.025	.043	.025
1	62.566	.025	.043	.025

SUMMARY OF REACH LENGTHS

River: 1

Reach	River Sta.	Left	Channel	Right
1	63.353	490	490	510
1	63.26	412	428	460
1	63.163	30	50	70
1	63.160	50	50	50
1	63.157	30	30	30
1	63.152	20	20	20
1	63.145	15	15	15
1	63.143	15	15	15
1	63.140	78	78	78
1	63.130	146	146	146
1	63.110	20	20	20
1	63.098	108	108	108
1	63.077	50	50	50
1	63.068	50	50	50
1	63.058	200	200	200
1	63.020	200	200	200
1	62.982	175	175	175
1	62.949	162	175	185
1	62.916	125	125	125
1	62.892	20	20	20

1	62.888	35	30	28
1	62.882	113	123	75
1	62.859	500	505	505
1	62.763	505	500	495
1	62.668	470	540	550
1	62.566	0	0	0

SUMMARY OF CONTRACTION AND EXPANSION COEFFICIENTS
River: 1

Reach	River Sta.	Contr.	Expan.
1	63.353	.1	.3
1	63.26	.1	.3
1	63.163	.1	.3
1	63.160	.1	.3
1	63.157	.3	.5
1	63.152	.1	.3
1	63.145	.1	.3
1	63.143	.1	.3
1	63.140	.1	.3
1	63.130	.1	.3
1	63.110	.1	.3
1	63.098	.1	.3
1	63.077	.1	.3
1	63.068	.1	.3
1	63.058	.1	.3
1	63.020	.1	.3
1	62.982	.1	.3
1	62.949	.1	.3

1	62.916	.1	.3
1	62.892	.1	.3
1	62.888	.3	.5
1	62.882	.3	.5
1	62.859	.3	.5
1	62.763	.1	.3
1	62.668	.1	.3
1	62.566	.1	.3

Profile Output Table - Standard Table 1

Reach	River Sta	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slo
pe Vel Chnl	Flow Area	Top Width	Froude # Chl				
	(cfs)		(ft)	(ft)	(ft)	(ft)	(ft/f
t) (ft/s)	(sq ft)	(ft)					
1	63.353	800.00	2201.50	2205.08		2205.19	0.0031
52 2.93	338.47	216.26	0.32				
1	63.26	800.00	2199.20	2201.16	2201.16	2201.63	0.0294
14 5.35	152.31	168.19	0.87				
1	63.163	800.00	2188.97	2192.06		2192.34	0.0073
04 4.23	189.03	79.53	0.48				
1	63.160	800.00	2187.97	2190.60	2190.60	2191.58	0.0339
53 7.98	100.21	51.38	1.01				
1	63.157	800.00	2187.00	2190.20	2189.69	2191.16	0.0015
67 7.85	101.96	31.84	0.77				
1	63.152	800.00	2185.18	2188.86	2188.86	2190.80	0.0029
72 11.16	A=71.69	Tw=18.77	Fr=1.02				
1	63.145	800.00	2183.97	2187.65	2187.65	2189.59	0.0029
52 11.17	71.60	18.64	1.03				
1	63.143	800.00	2183.10	2186.78	2186.78	2188.73	0.0029

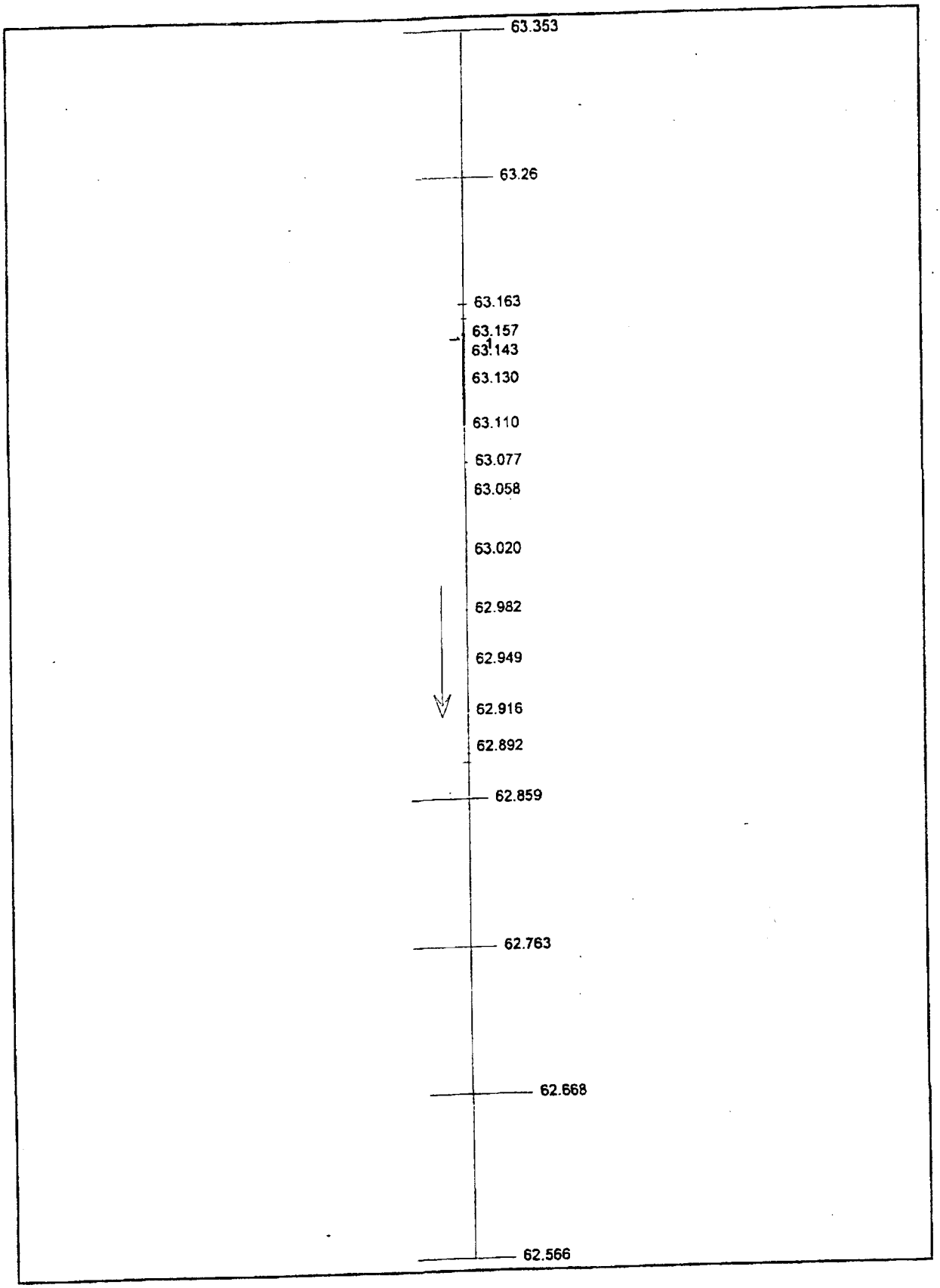
47	11.20	71.46	18.59	1.03				
1		63.140	800.00	2182.15	2185.83	2185.83	2187.78	0.0029
18	11.21	71.35	18.50	1.03				
1		63.130	800.00	2181.55	2185.23	2185.23	2187.17	0.0029
42	11.18	71.53	18.63	1.03				
1		63.110	800.00	2180.42	2185.11	2184.10	2186.34	0.0018
51	8.89	89.98	16.21	0.72				
1		63.098	800.00	2180.27	2184.23	2184.23	2186.22	0.0036
45	11.31	70.74	18.00	1.01				
1		63.077	800.00	2179.77	2183.74	2183.74	2185.72	0.0036
42	11.31	70.76	18.00	1.00				
1		63.068	800.00	2179.24	2183.25	2183.25	2185.27	0.0025
86	11.41	70.14	17.50	1.00				
1		63.058	800.00	2178.67	2182.34	2182.34	2184.18	0.0024
46	10.91	73.31	20.00	1.00				
1		63.020	800.00	2176.87	2180.54	2180.54	2182.38	0.0024
46	10.91	73.31	20.00	1.00				
1		62.982	800.00	2175.07	2178.74	2178.74	2180.58	0.0024
46	10.91	73.31	20.00	1.00				
1		62.949	800.00	2173.50	2177.16	2177.16	2179.01	0.0024
47	10.91	73.30	20.00	1.00				
1		62.916	800.00	2171.92	2175.59	2175.59	2177.43	0.0024
46	10.91	73.31	20.00	1.00				
1		62.892	800.00	2170.80	2174.47	2174.47	2176.31	0.0024
46	10.91	73.31	20.00	1.00				
1		62.888	800.00	2170.62	2174.06		2175.22	0.0097
13	8.68	92.18	33.67	0.92				
1		62.882	800.00	2170.37	2173.93	2173.92	2174.67	0.0137
71	6.91	115.81	76.32	0.99				
1		62.859	800.00	2166.80	2171.69	2171.69	2172.94	0.0118
98	8.98	89.11	36.47	1.01				
1		62.763	800.00	2160.60	2163.35		2163.99	0.0145
17	6.41	124.90	58.37	0.77				
1		62.668	800.00	2153.30	2156.89	2156.89	2157.54	0.0115

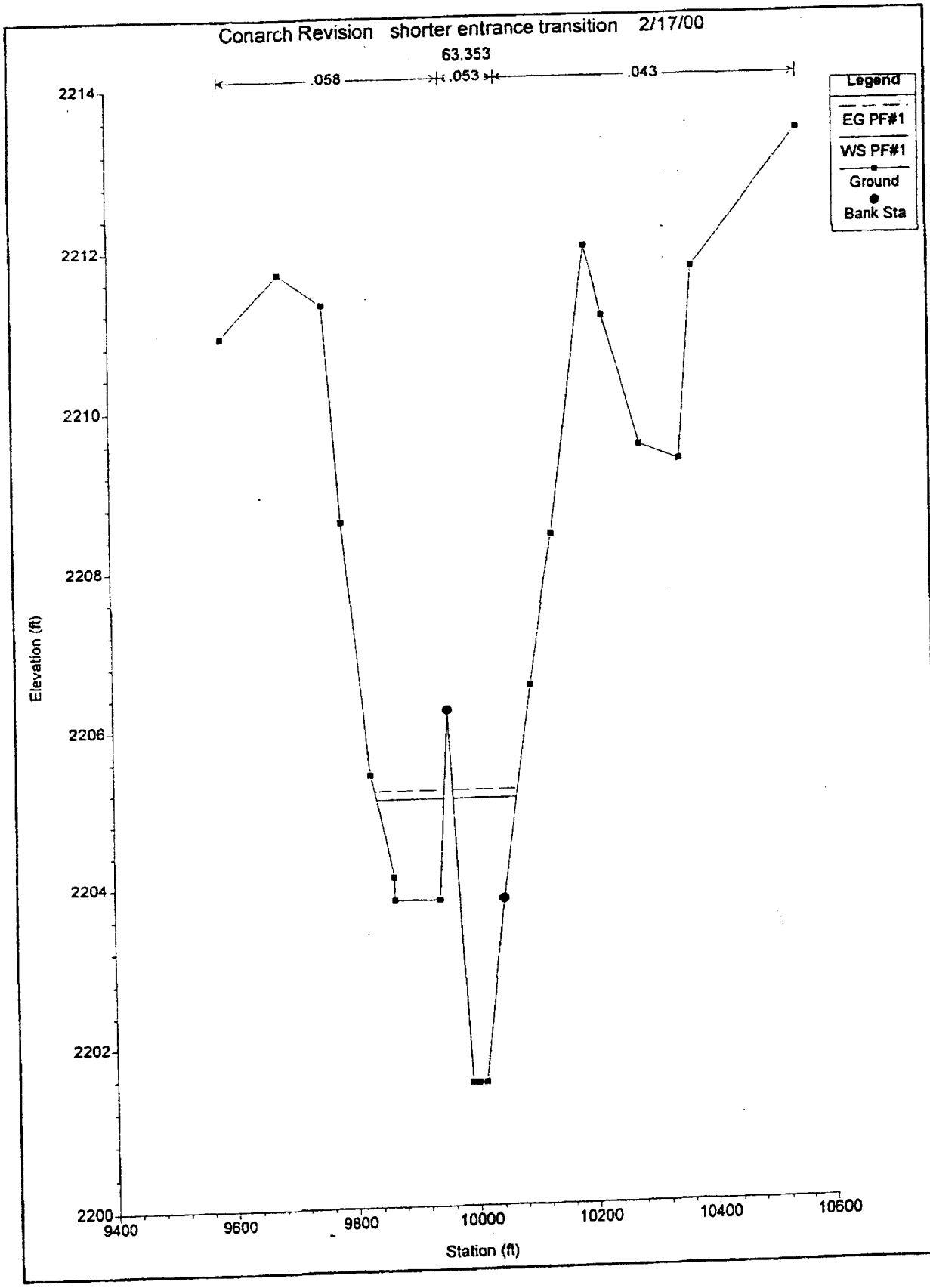
28	6.78	128.10	171.19	0.75				
1		62.566	800.00	2140.40	2157.00	2143.13	2157.00	0.0000
00	0.11	7046.95	945.50	0.01				

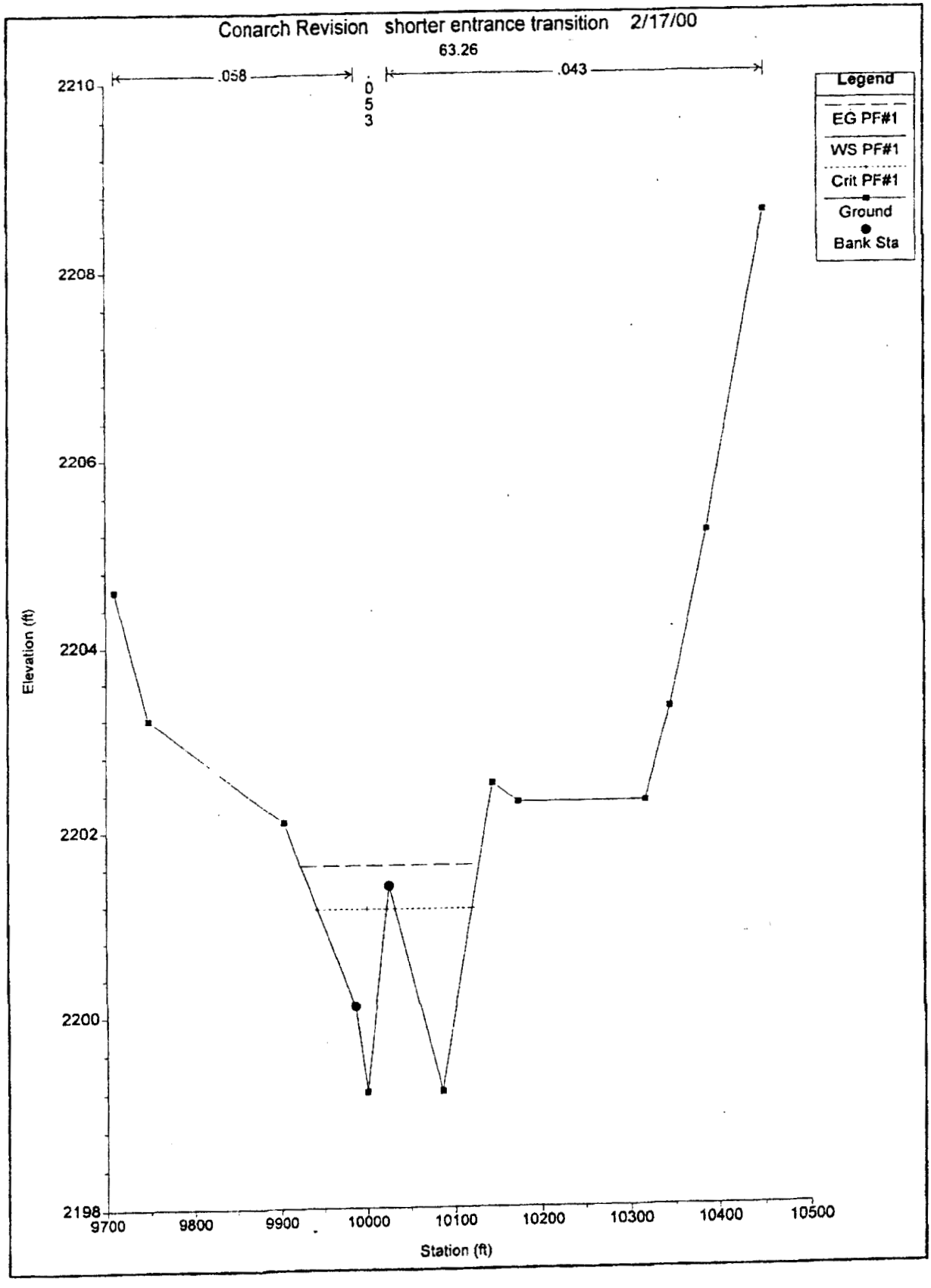
Profile Output Table - Standard Table 2

Reach	River Sta	E.G. Elev	W.S. Elev	Vel Head	Frctn Loss	C & E Loss	Q L
eft Q Channel	Q Right	Top Width (ft)	(ft)	(ft)	(ft)	(ft)	(c
fs) (cfs)	(cfs)	(ft)					
1	63.353	2205.19	2205.08	0.11	3.52	0.04	170
.90 607.96	21.14	216.26					
1	63.26	2201.63	2201.16	0.47	5.69	0.06	66
.15 230.31	503.53	168.19					
1	63.163	2192.34	2192.06	0.28	0.68	0.07	
800.00		79.53					
1	63.160	2191.58	2190.60	0.99	0.21	0.01	
800.00		51.38					
1	63.157	2191.16	2190.20	0.96	0.06	0.29	
800.00		31.84					
1	63.152	2190.80	2188.86	1.93	0.06	0.00	
800.00		18.77					
1	63.145	2189.59	2187.65	1.94	0.04	0.00	
800.00		18.64					
1	63.143	2188.73	2186.78	1.95	0.04	0.00	
800.00		18.59					
1	63.140	2187.78	2185.83	1.95	0.23	0.00	
800.00		18.50					
1	63.130	2187.17	2185.23	1.94	0.34	0.21	

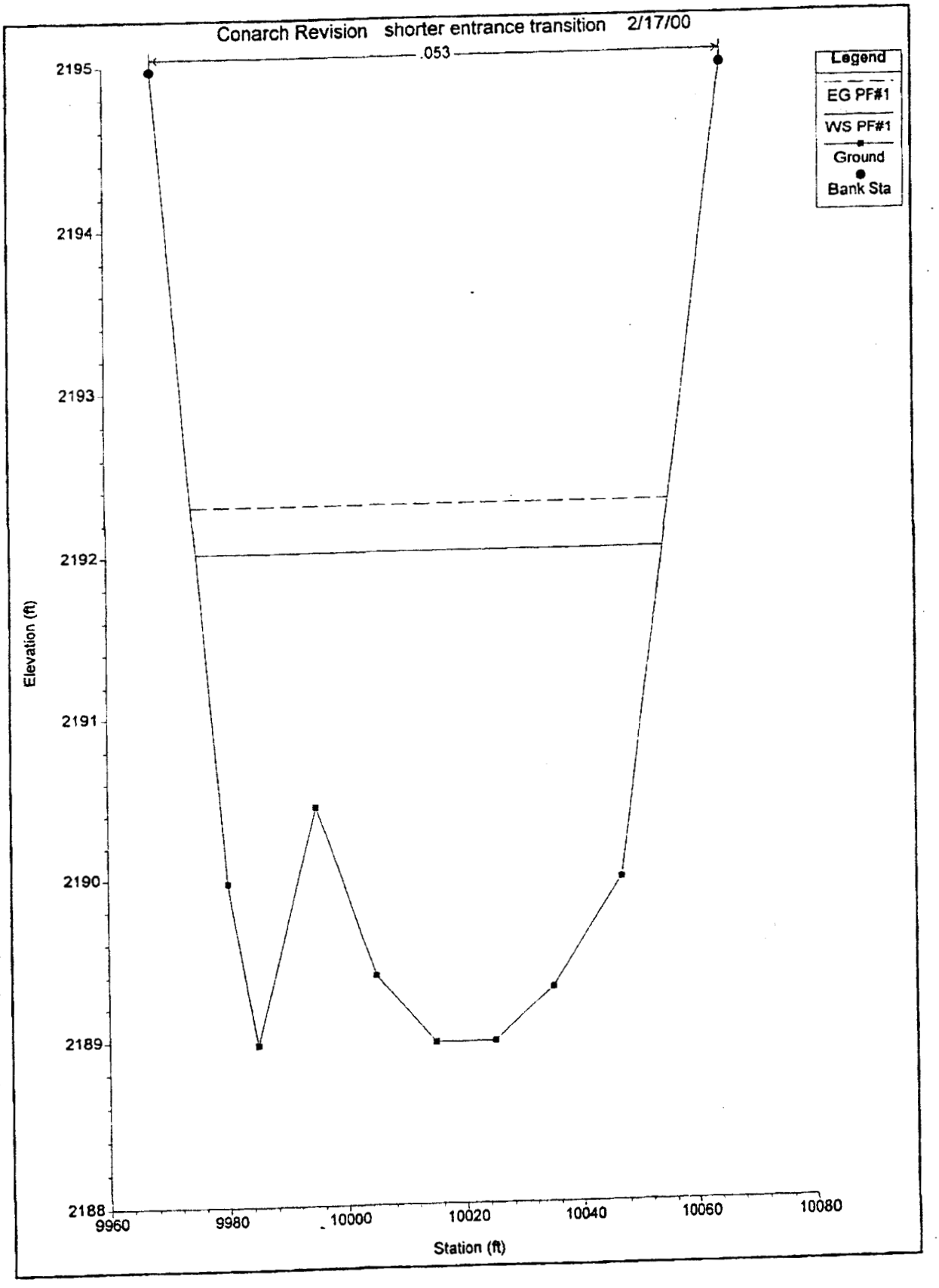
	800.00		18.63					
1		63.110	2186.34	2185.11	1.23	0.05	0.08	
	800.00		16.21					
1		63.098	2186.22	2184.23	1.99	0.39	0.00	
	800.00		18.00					
1		63.077	2185.72	2183.74	1.98	0.15	0.00	
	800.00		18.00					
1		63.068	2185.27	2183.25	2.02	0.13	0.05	
	800.00		17.50					
1		63.058	2184.18	2182.34	1.85	0.49	0.00	
	800.00		20.00					
1		63.020	2182.38	2180.54	1.85	0.49	0.00	
	800.00		20.00					
1		62.982	2180.58	2178.74	1.85	0.43	0.00	
	800.00		20.00					
1		62.949	2179.01	2177.16	1.85	0.43	0.00	
	800.00		20.00					
1		62.916	2177.43	2175.59	1.85	0.31	0.00	
	800.00		20.00					
1		62.892	2176.31	2174.47	1.85	0.09	0.20	
	800.00		20.00					
1		62.888	2175.22	2174.06	1.17	0.34	0.21	
	800.00		33.67					
1		62.882	2174.67	2173.93	0.74	1.58	0.15	
	800.00		76.32					
1		62.859	2172.94	2171.69	1.25	6.62	0.31	
	800.00		36.47					
1		62.763	2163.99	2163.35	0.64	6.45	0.00	
	800.00		58.37					
1		62.668	2157.54	2156.89	0.65	0.00	0.19	126
.82	673.18		171.19					
1		62.566	2157.00	2157.00	0.00			214
.19	395.00	190.81	945.50					


63.353
63.26
63.163
63.157
63.143
63.130
63.110
63.077
63.058
63.020
62.982
62.949
62.916
62.892
62.859
62.763
62.668
62.566

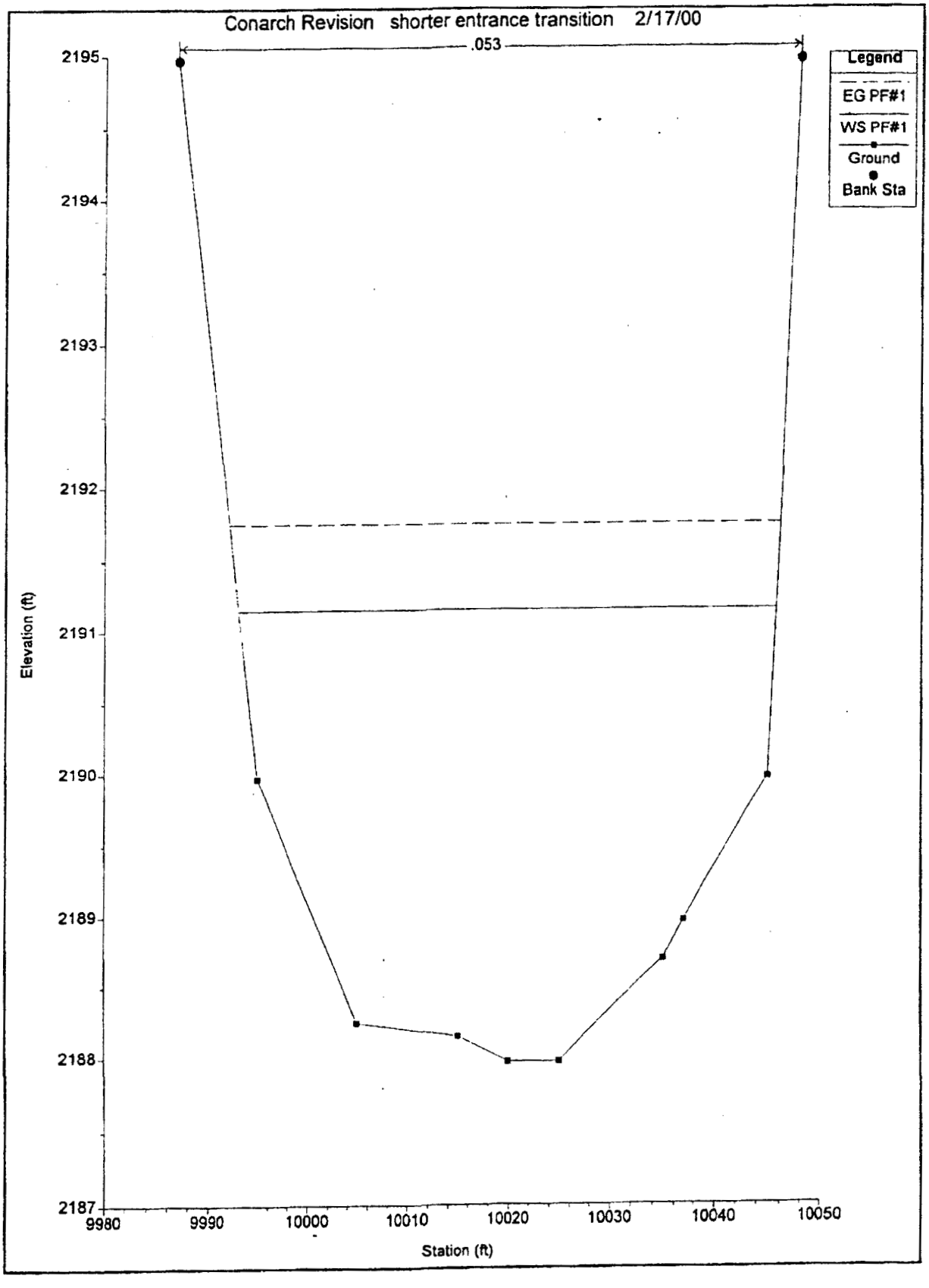

Conarch Revision shorter entrance transition 2/17/00
63.353
.058
.053
.043
Legend
EG PF#1
WS PF#1
Ground
Bank Sta
2214
2212
2210
2208
2206
2204
2202
2200
Elevation (ft)
9400
9600
9800
10000
10200
10400
10600
Station (ft)


Conarch Revision shorter entrance transition 2/17/00
63.26
.058
.053
.043
Legend
EG PF#1
WS PF#1
Crit PF#1
Ground
Bank Sta
2210
2208
2206
2204
2202
2200
2198
Elevation (ft)
9700
9800
9900
10000
10100
10200
10300
10400
10500
Station (ft)

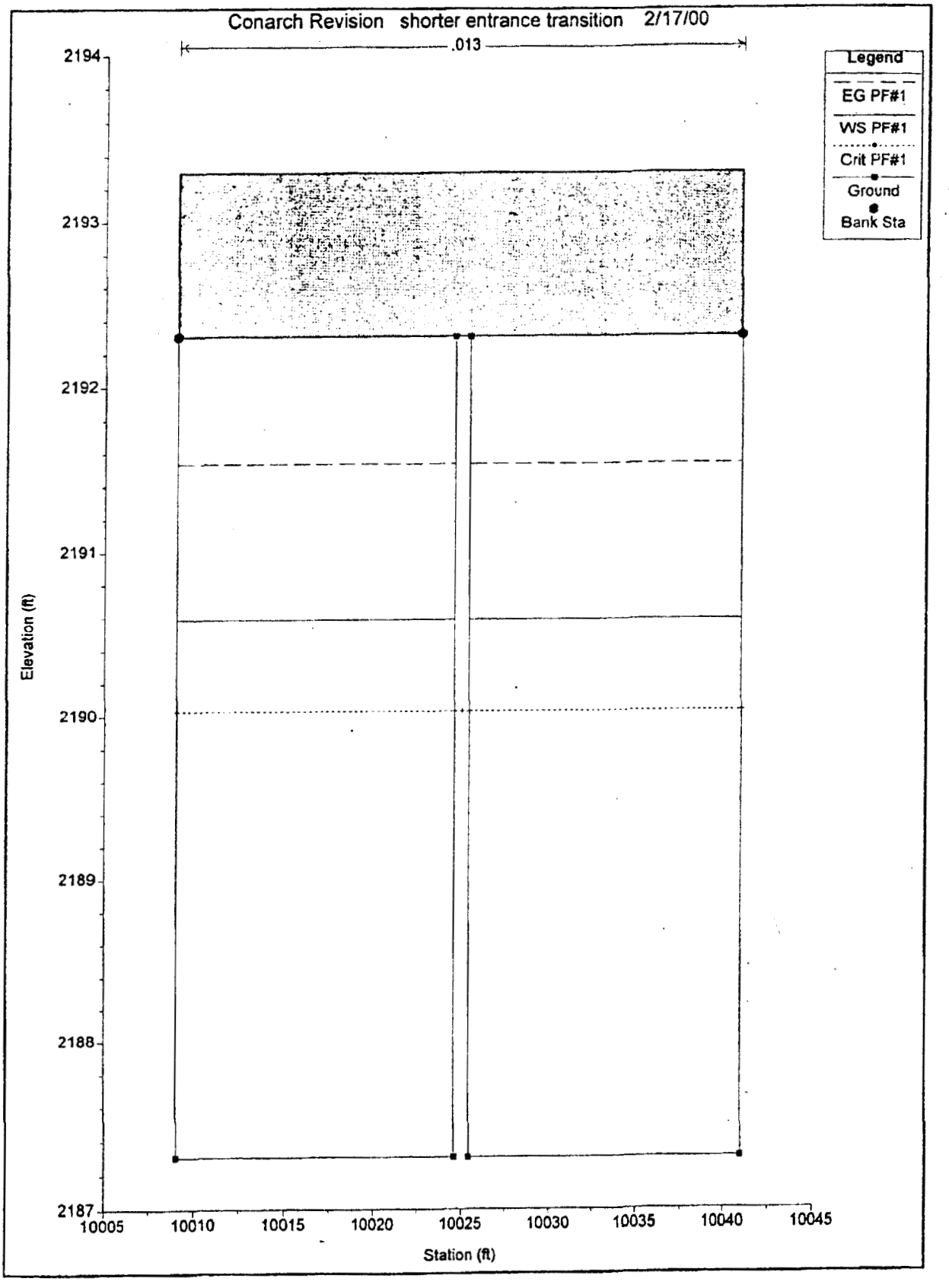
63.163


Conarch Revision shorter entrance transition 2/17/00
.053
Legend
EG PF#1
WS PF#1
Ground
Bank Sta
2195
2194
2193
2192
2191
2190
2189
2188
Elevation (ft)
9960
9980
10000
10020
10040
10060
10080
Station (ft)

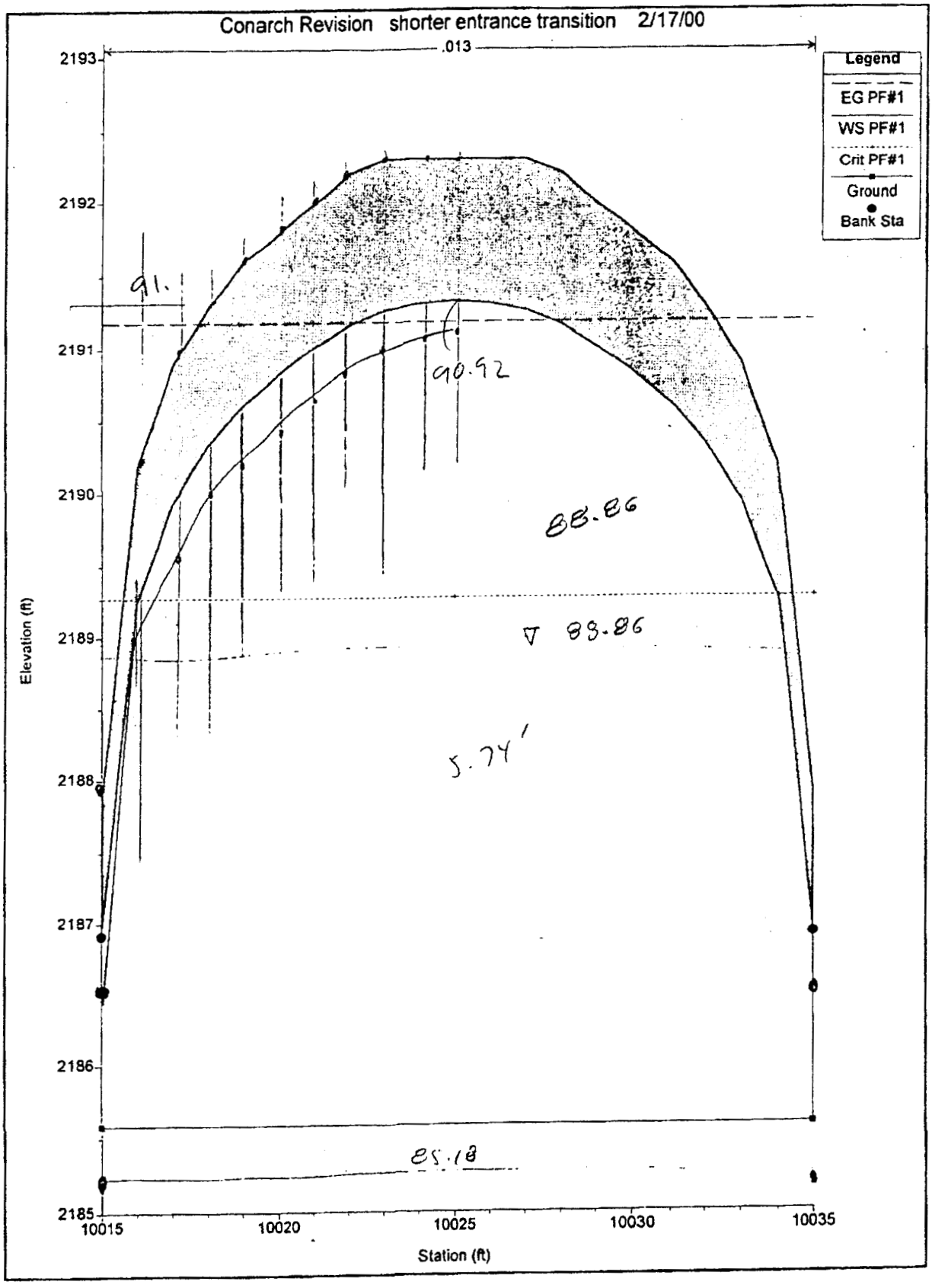
03.(60


Conarch Revision shorter entrance transition 2/17/00
.053
Legend
EG PF#1
WS PF#1
Ground
Bank Sta
Elevation (ft)
2195
2194
2193
2192
2191
2190
2189
2188
2187
9980
9990
10000
10010
10020
10030
10040
10050
Station (ft)

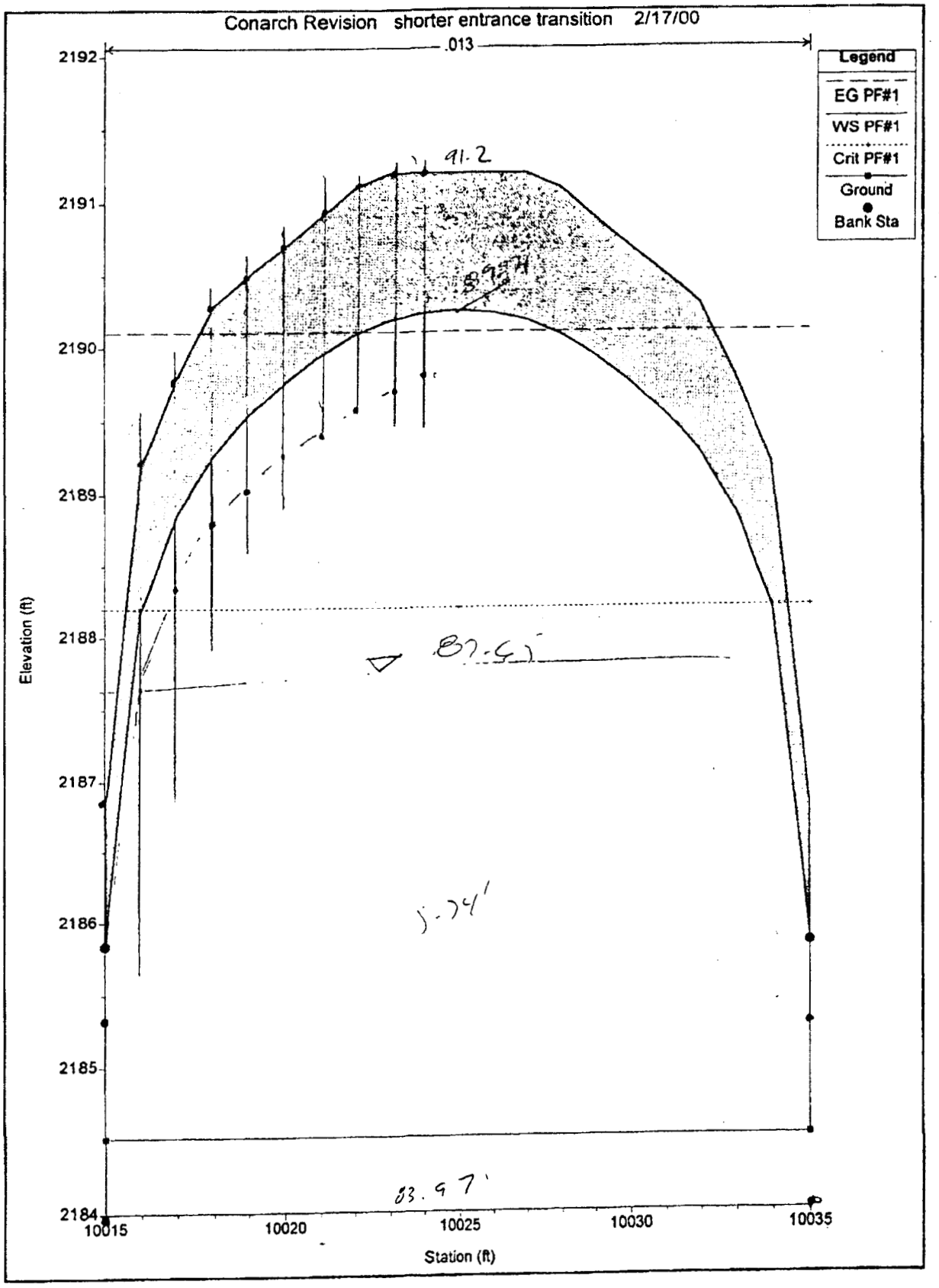
6.3-057


Conarch Revision shorter entrance transition 2/17/00
.013
Legend
EG PF#1
WS PF#1
Crit PF#1
Ground
Bank Sta
2194
2193
2192
2191
2190
2189
2188
2187
Elevation (ft)
10005
10010
10015
10020
10025
10030
10035
10040
10045
Station (ft)

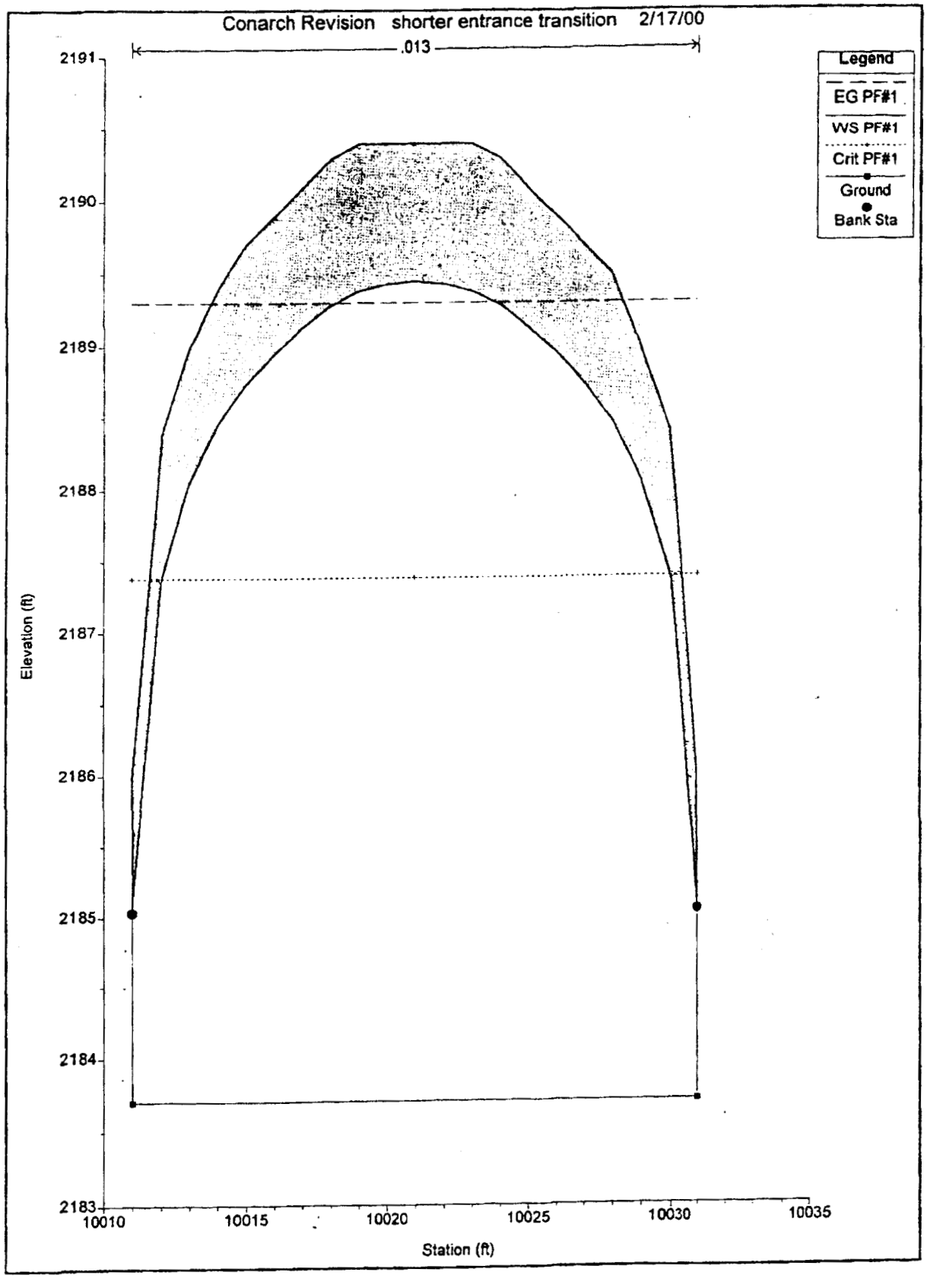
G3-152


Conarch Revision shorter entrance transition 2/17/00
.013
Legend
EG PF#1
WS PF#1
Crit PF#1
Ground
Bank Sta
91.
90.92
88.86
89.86
5.74'
85.18
Elevation (ft)
Station (ft)
2193
2192
2191
2190
2189
2188
2187
2186
2185
10015
10020
10025
10030
10035

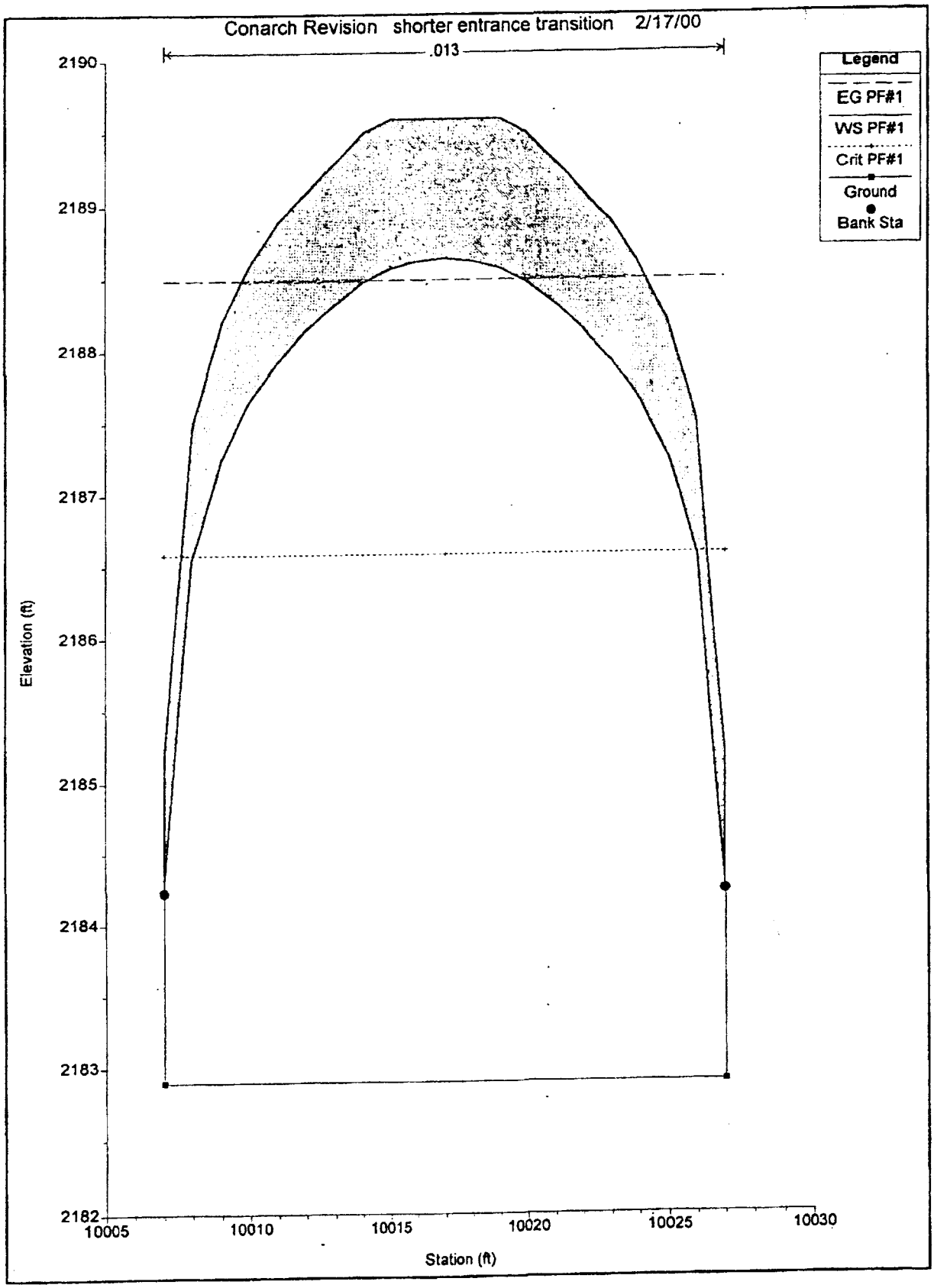
G3.145


Conarch Revision shorter entrance transition 2/17/00
.013
Legend
EG PF#1
WS PF#1
Crit PF#1
Ground
Bank Sta
91.2
89.71
87.61
3.74'
83.97'
2192
2191
2190
2189
2188
2187
2186
2185
2184
Elevation (ft)
10015
10020
10025
10030
10035
Station (ft)

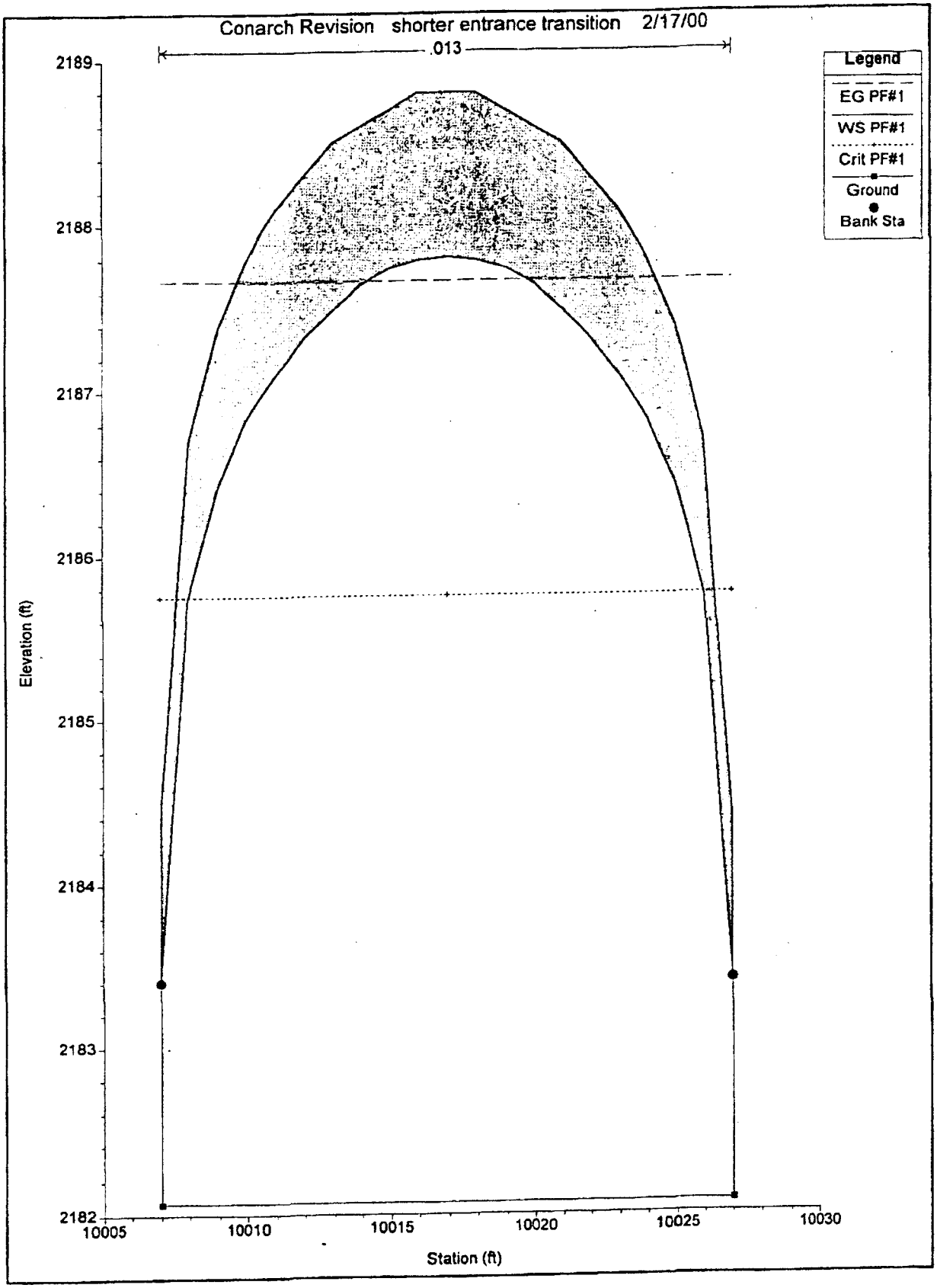
63.103

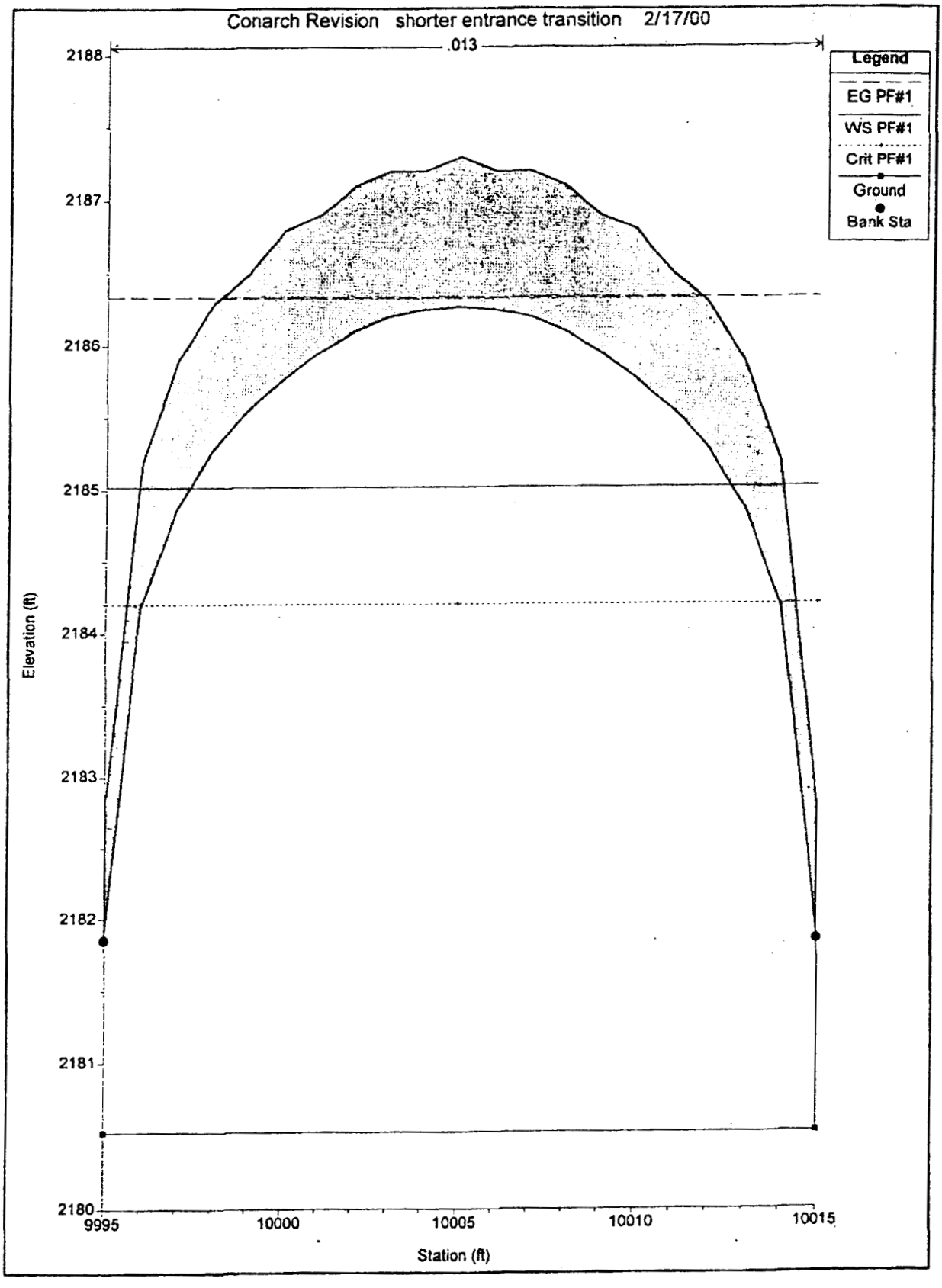

Conarch Revision shorter entrance transition 2/17/00
.013
Legend
EG PF#1
WS PF#1
Crit PF#1
Ground
Bank Sta
2191
2190
2189
2188
2187
2186
2185
2184
2183
Elevation (ft)
10010
10015
10020
10025
10030
10035
Station (ft)

63.140

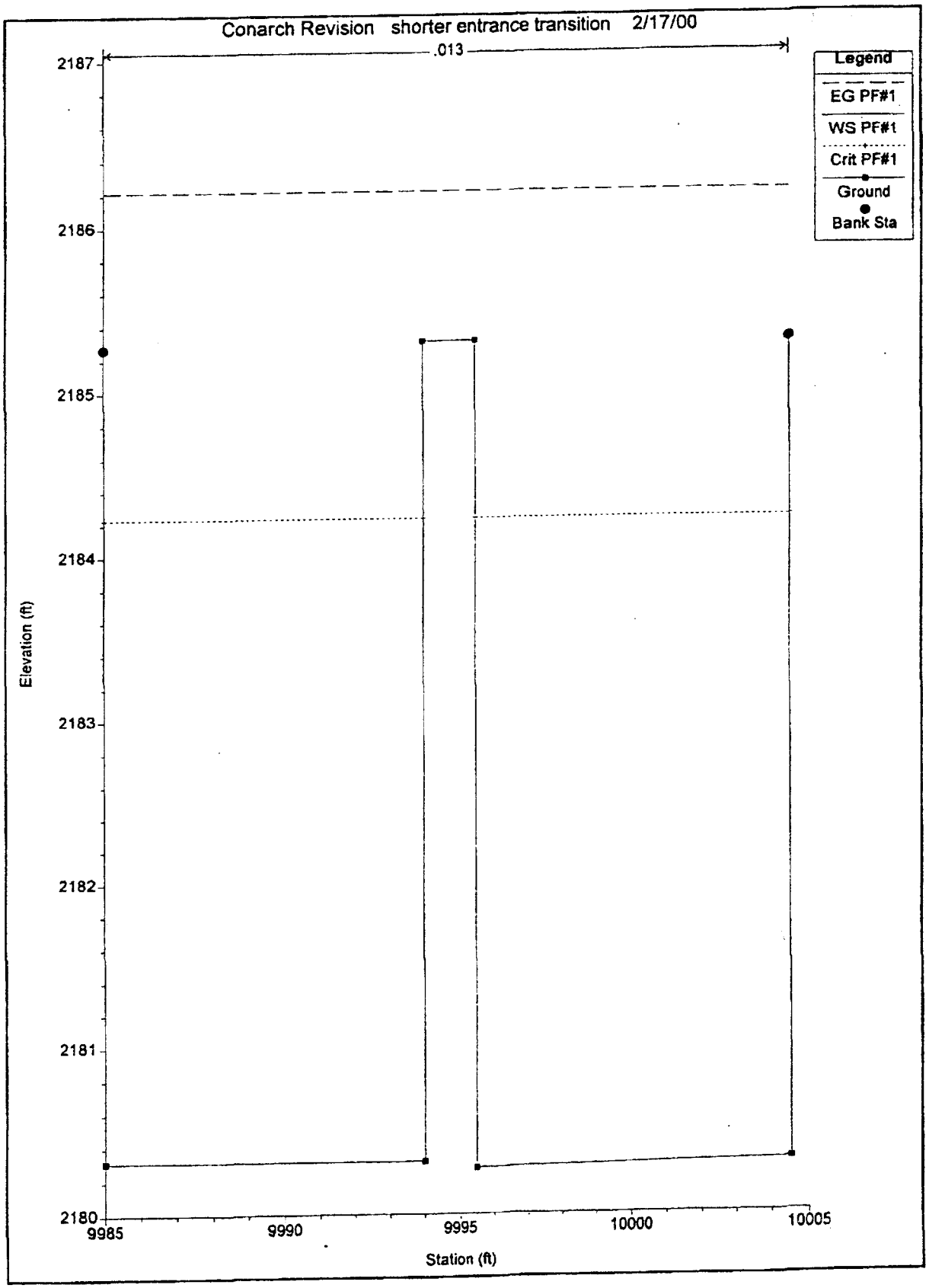

Conarch Revision shorter entrance transition 2/17/00
.013
Legend
EG PF#1
WS PF#1
Crit PF#1
Ground
Bank Sta
2190
2189
2188
2187
2186
2185
2184
2183
2182
Elevation (ft)
10005
10010
10015
10020
10025
10030
Station (ft)

C3-130

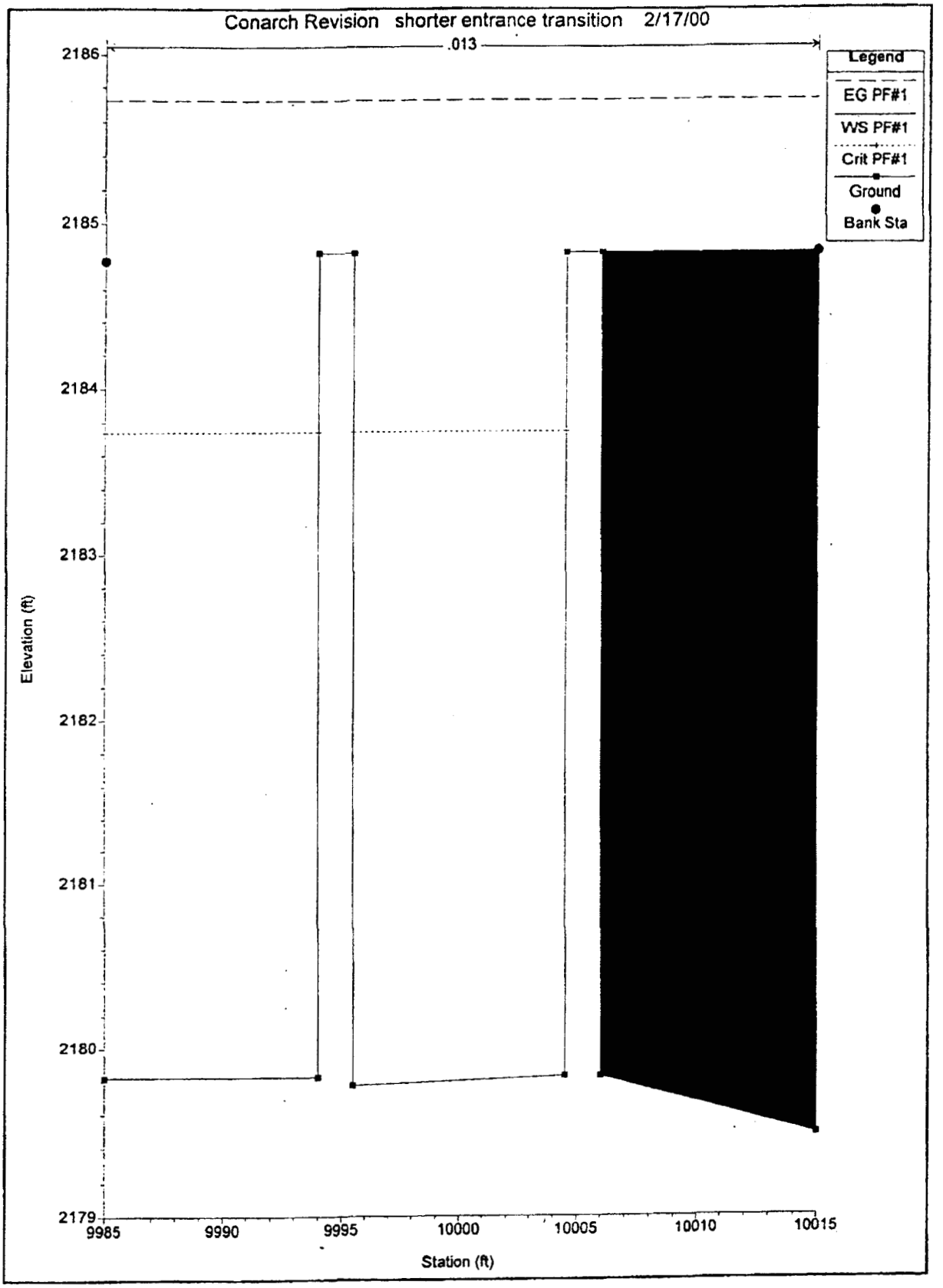

Conarch Revision shorter entrance transition 2/17/00
.013
Legend
EG PF#1
WS PF#1
Crit PF#1
Ground
Bank Sta
2189
2188
2187
2186
2185
2184
2183
2182
Elevation (ft)
10005
10010
10015
10020
10025
10030
Station (ft)

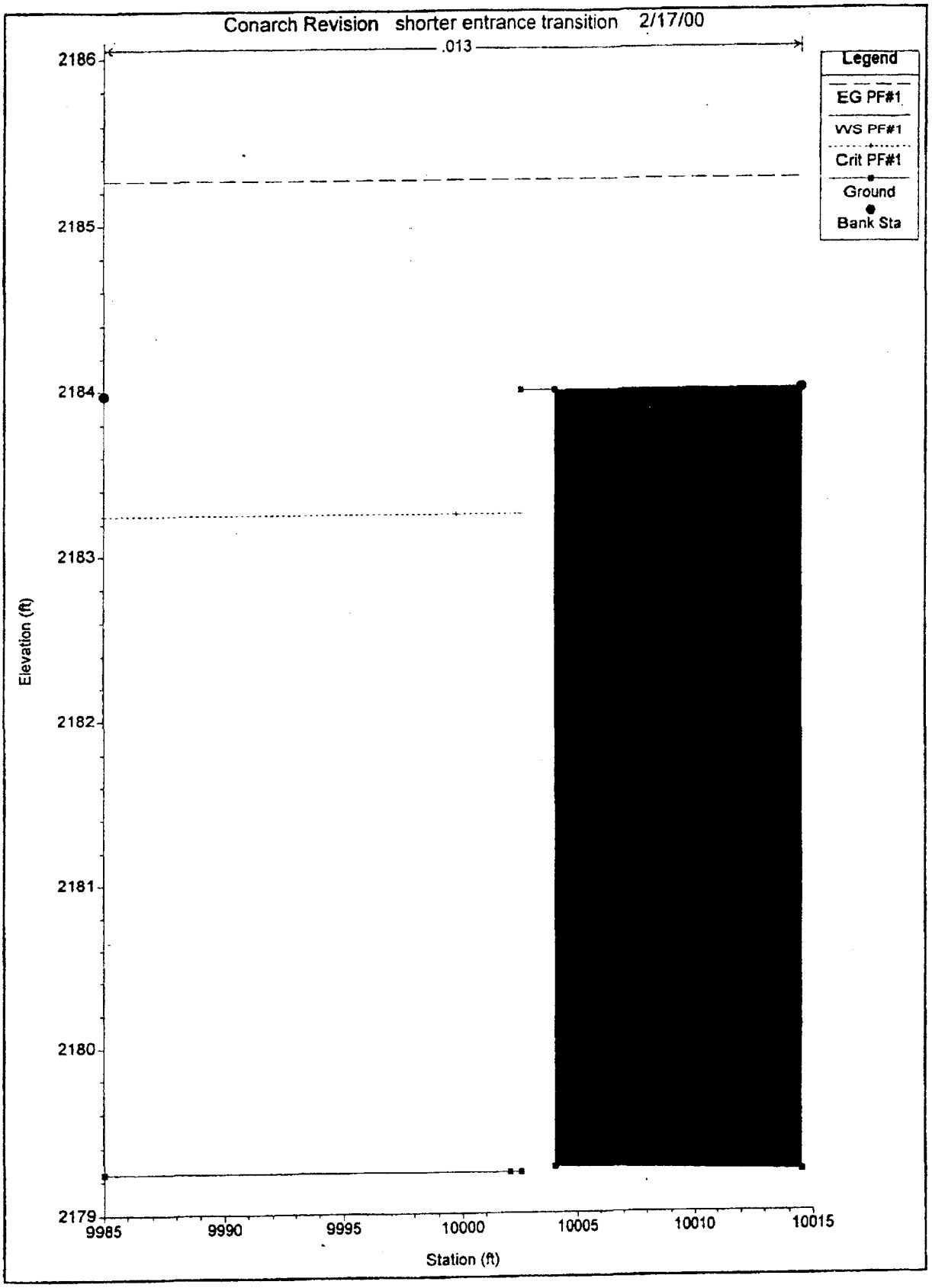

Conarch Revision shorter entrance transition 2/17/00
.013
Legend
EG PF#1
WS PF#1
Crit PF#1
Ground
Bank Sta
2188
2187
2186
2185
2184
2183
2182
2181
2180
Elevation (ft)
9995
10000
10005
10010
10015
Station (ft)

63.098
~~63.077~~

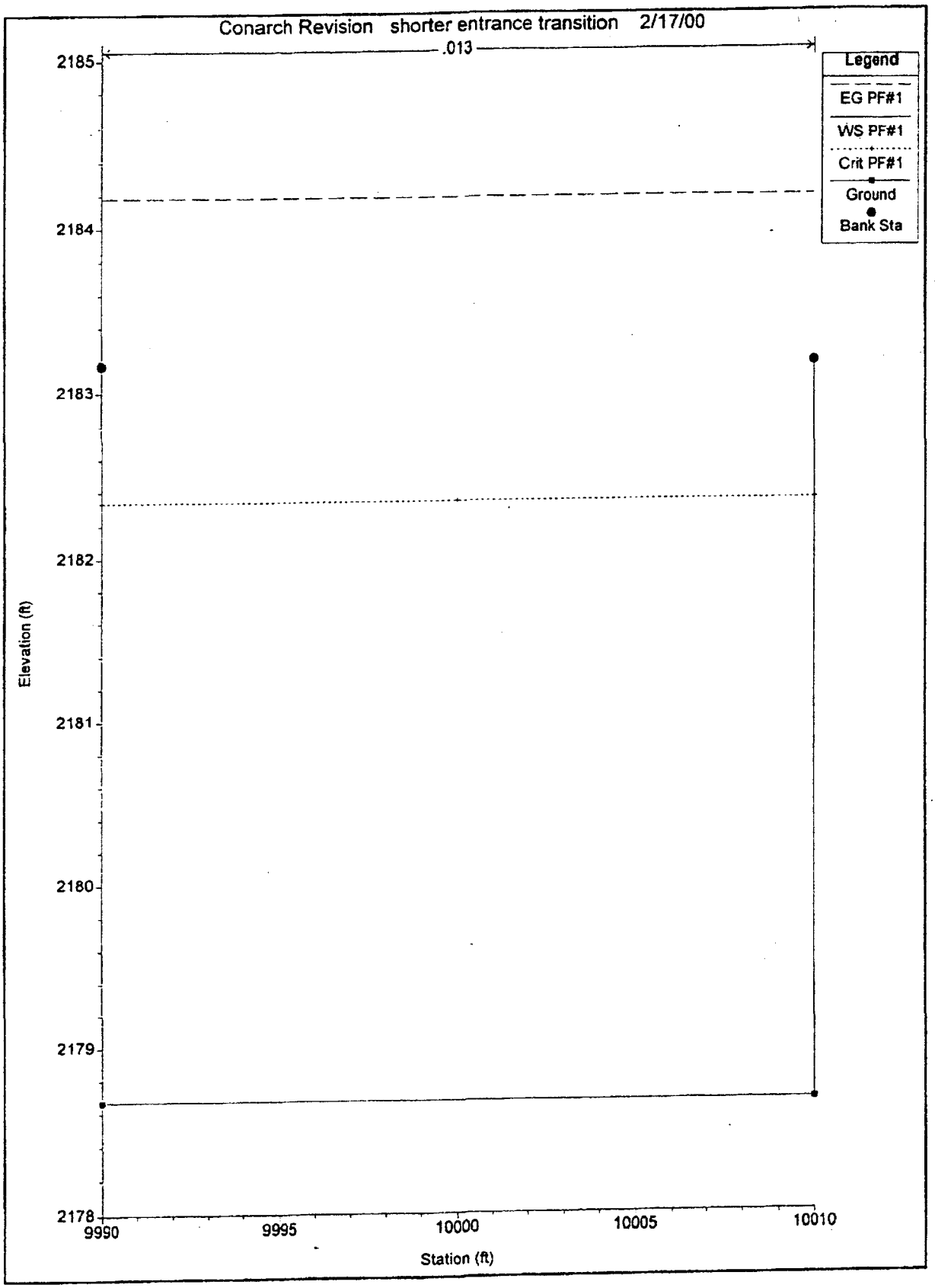

Conarch Revision shorter entrance transition 2/17/00
.013
Legend
EG PF#1
WS PF#1
Crit PF#1
Ground
Bank Sta
2187
2186
2185
2184
2183
2182
2181
2180
Elevation (ft)
9985
9990
9995
10000
10005
Station (ft)

G3-0607

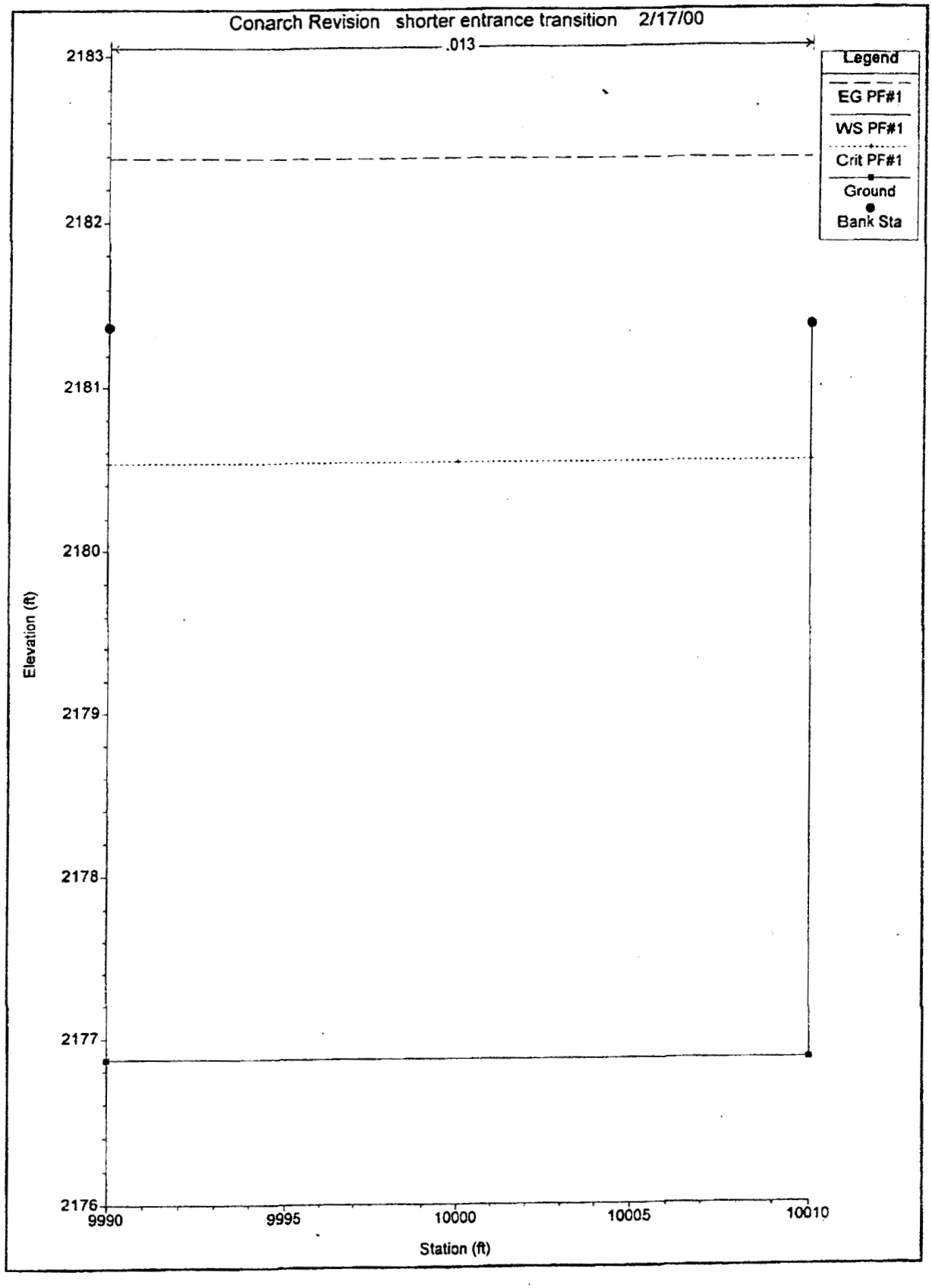

Conarch Revision shorter entrance transition 2/17/00
.013
Legend
EG PF#1
WS PF#1
Crit PF#1
Ground
Bank Sta
Elevation (ft)
2186
2185
2184
2183
2182
2181
2180
2179
9985
9990
9995
10000
10005
10010
10015
Station (ft)

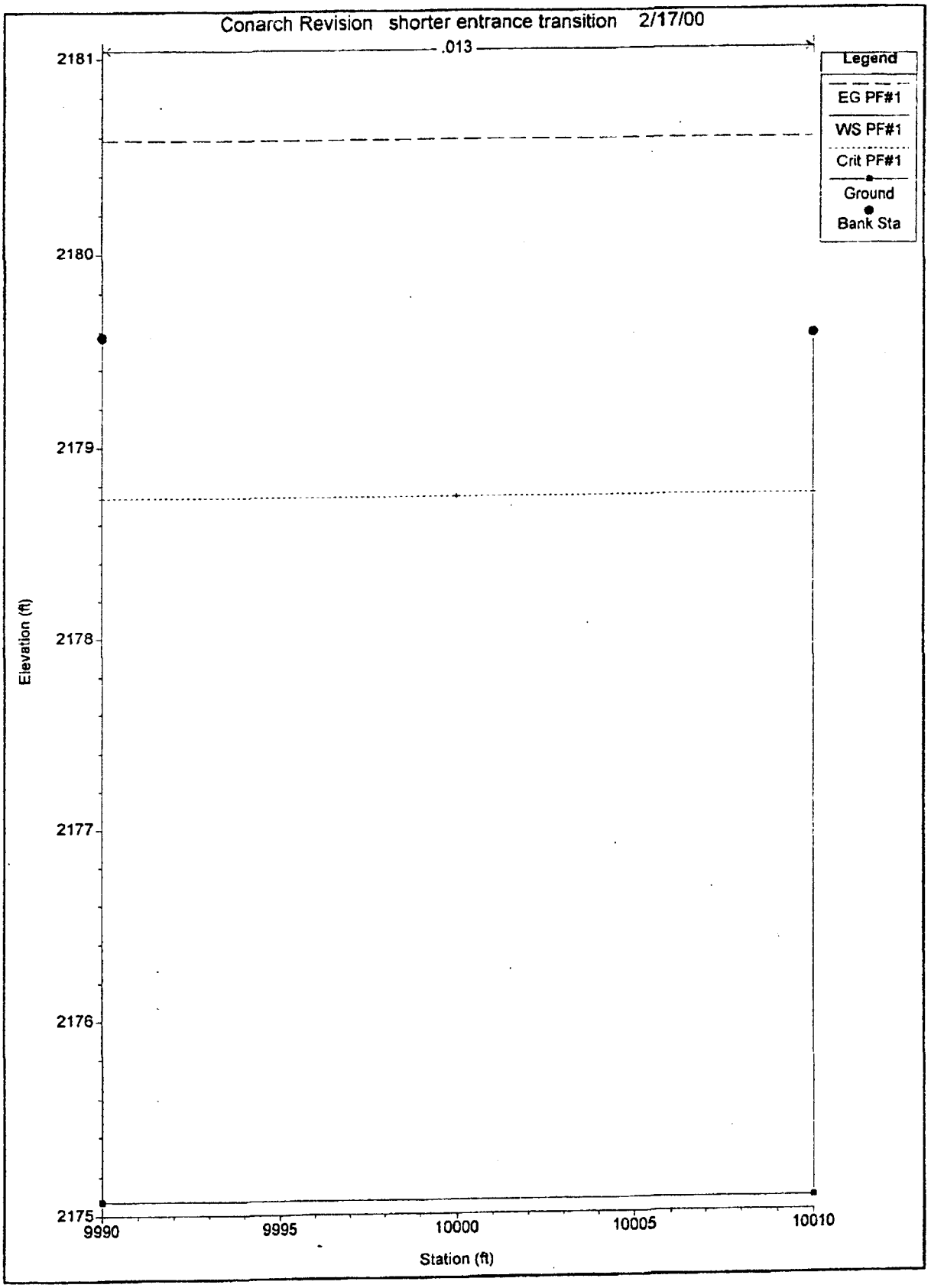

Conarch Revision shorter entrance transition 2/17/00
.013
Legend
EG PF#1
WS PF#1
Crit PF#1
Ground
Bank Sta
2186
2185
2184
2183
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2180
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9990
9995
10000
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10010
10015
Station (ft)

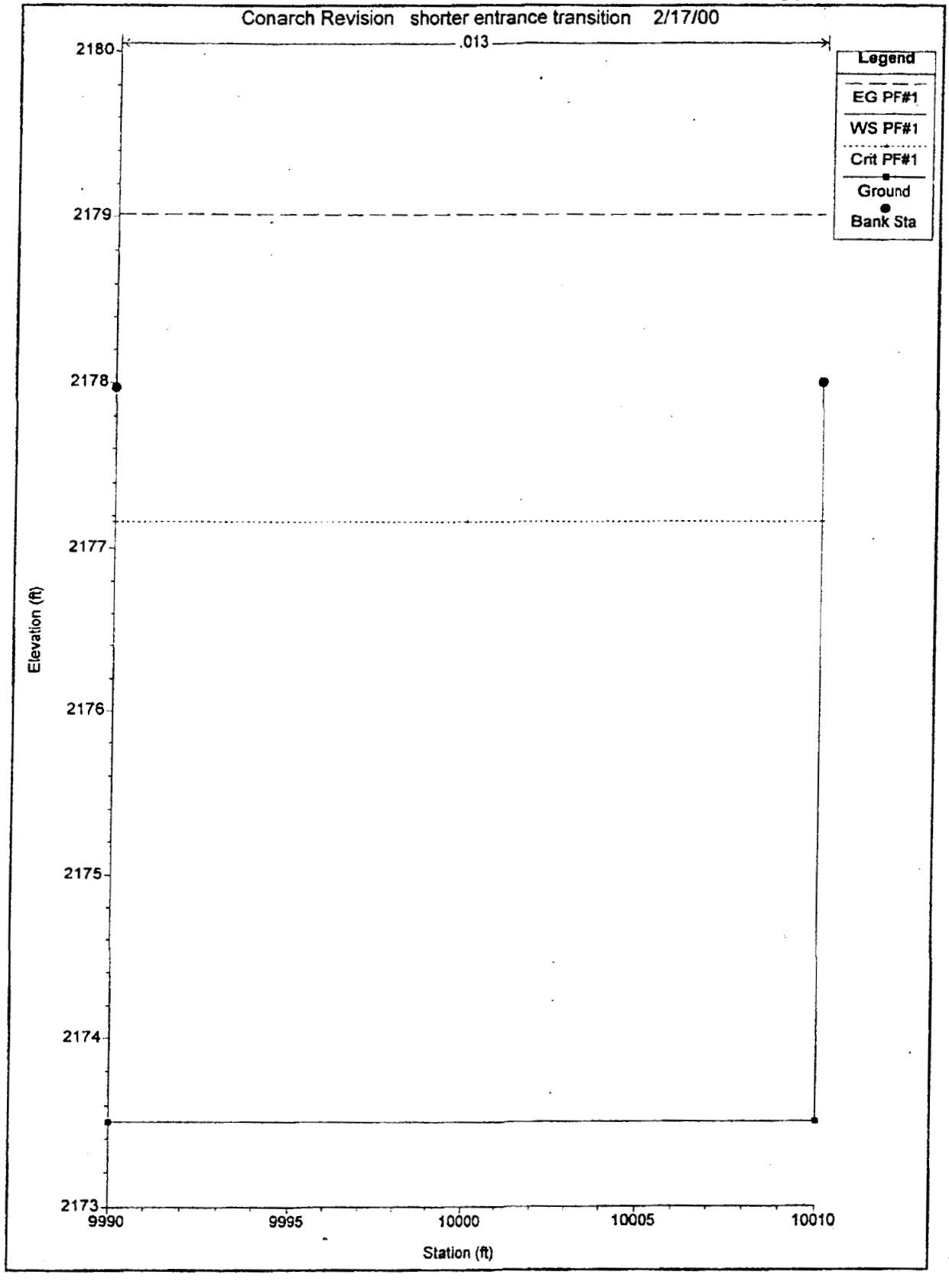
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Conarch Revision shorter entrance transition 2/17/00
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Ground
Bank Sta
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Station (ft)

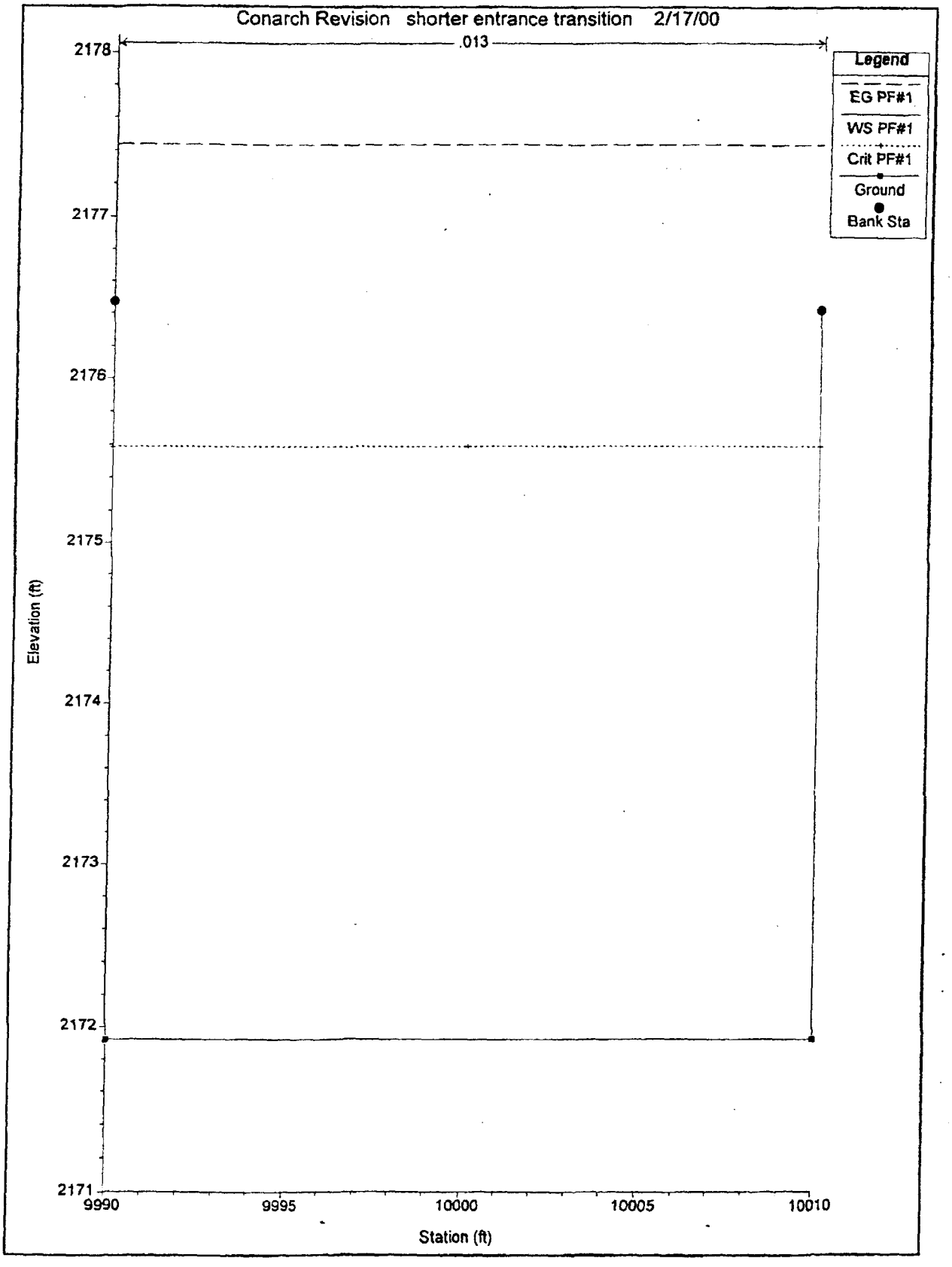
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Station (ft)

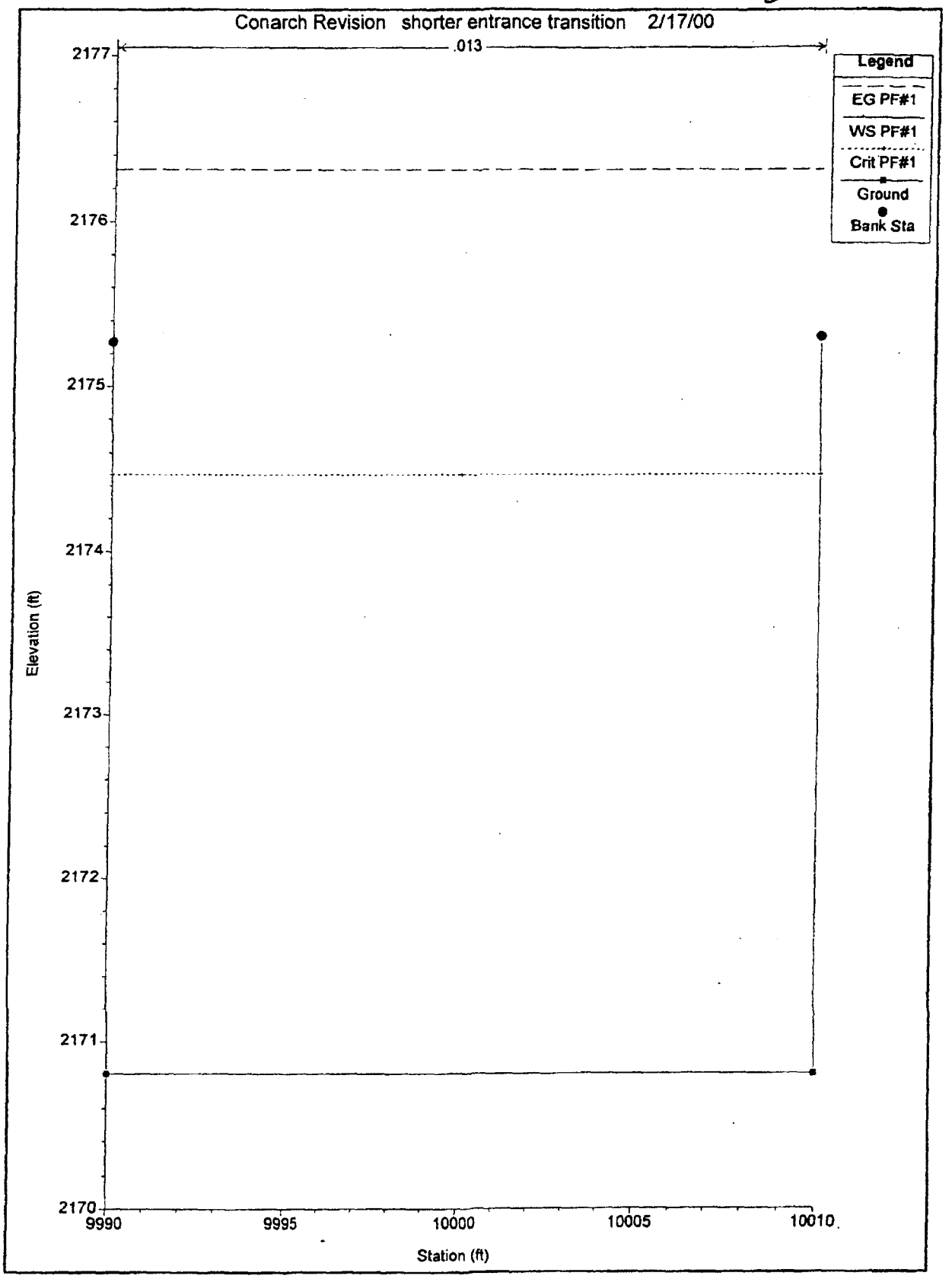

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Elevation (ft)
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9995
10000
10005
10010
Station (ft)


Conarch Revision shorter entrance transition 2/17/00
.013
Legend
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Crit PF#1
Ground
Bank Sta
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Station (ft)

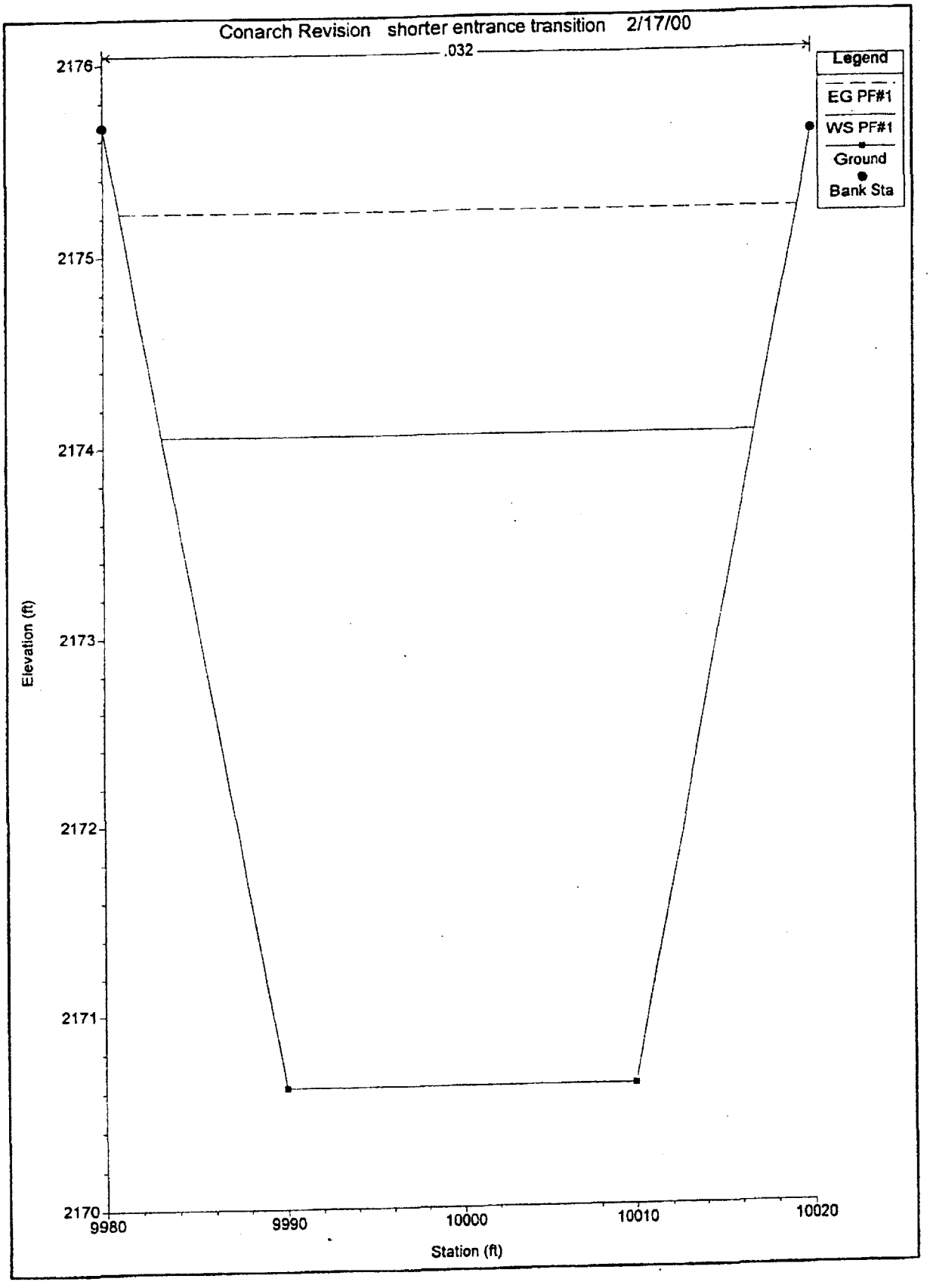
6 2-8 ~~8~~ a16


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Elevation (ft)
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Station (ft)

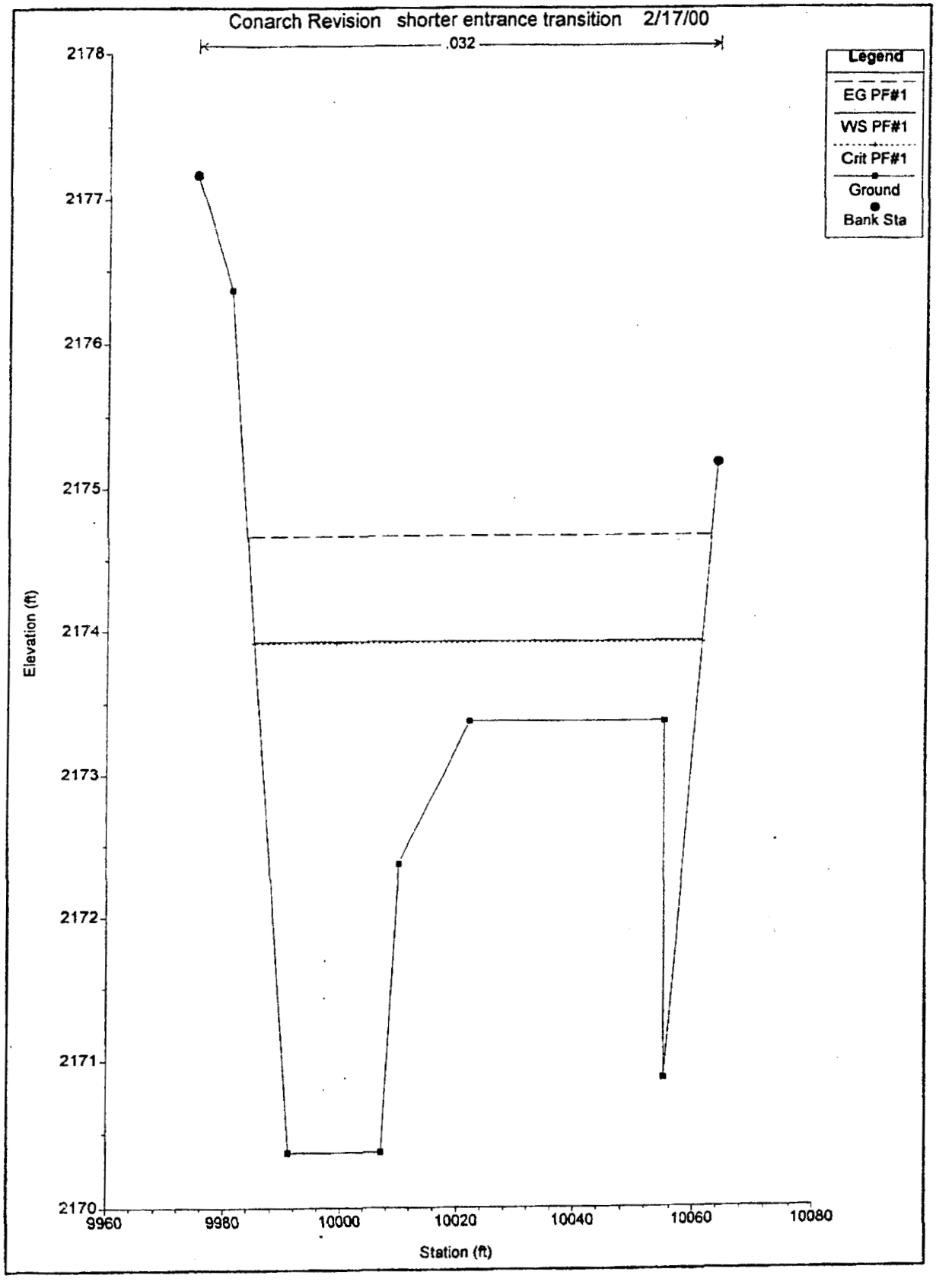
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Ground
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9995
10000
10005
10010
Station (ft)

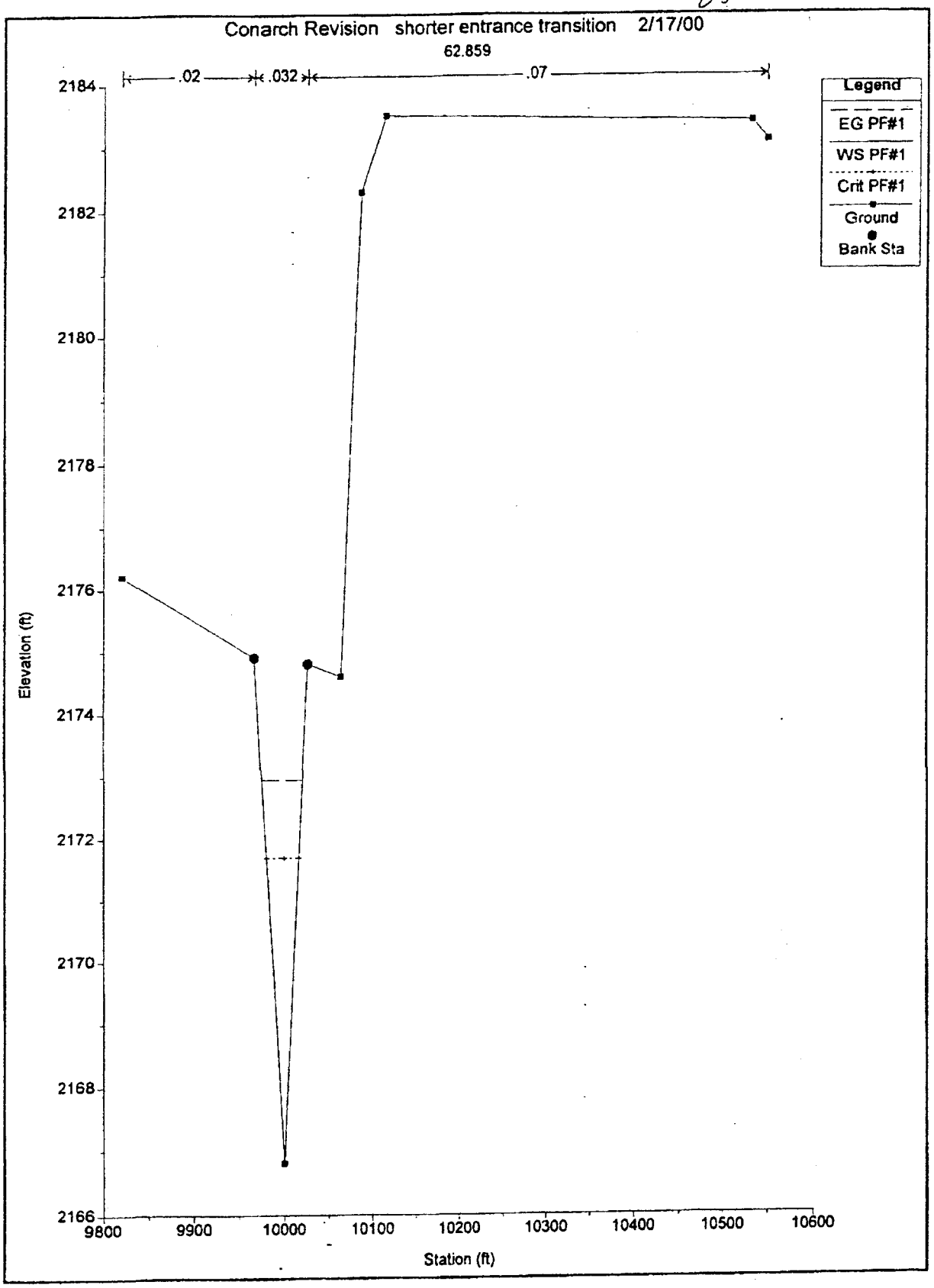
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Bank Sta
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2171
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Elevation (ft)
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9990
10000
10010
10020
Station (ft)

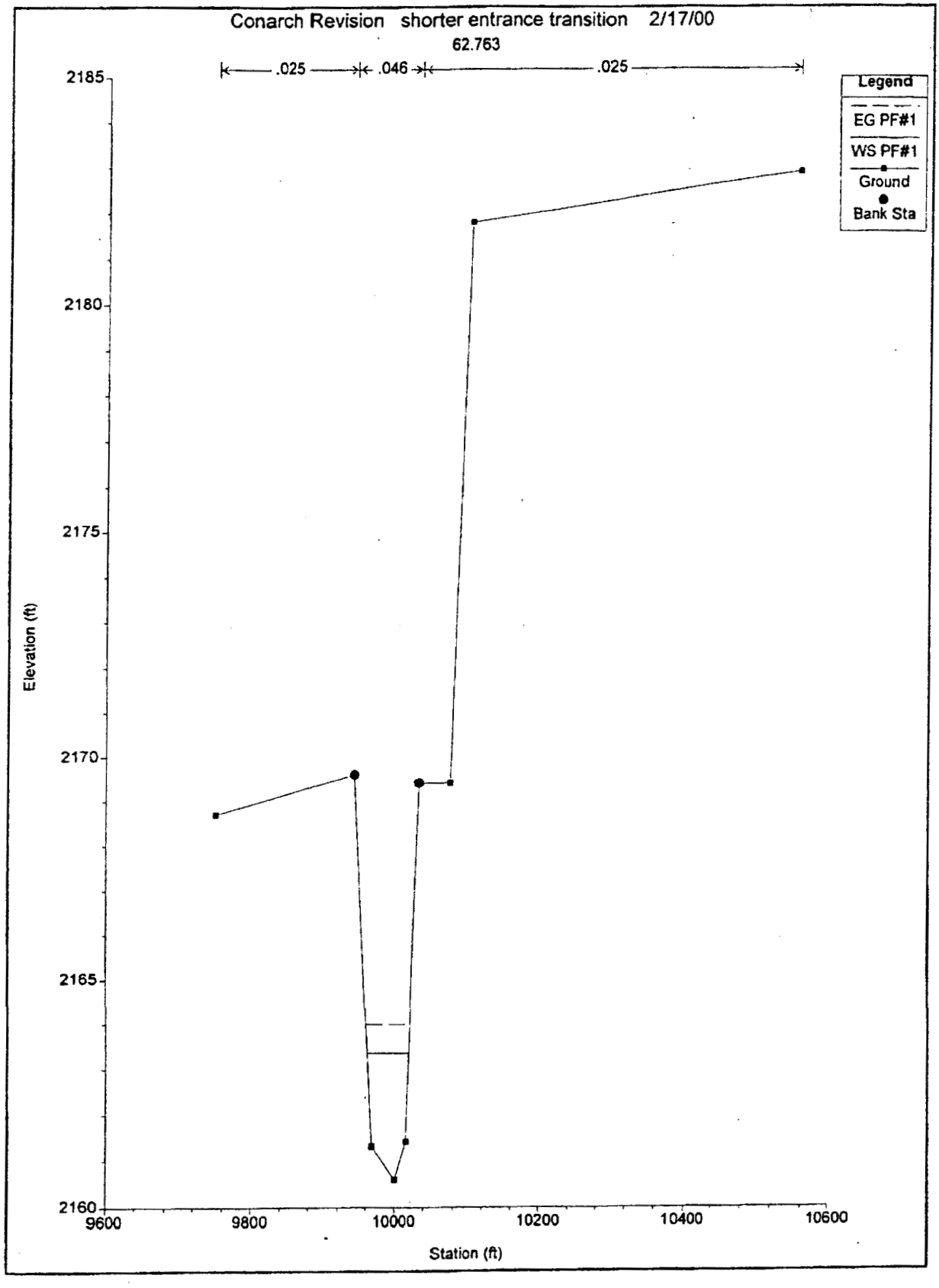
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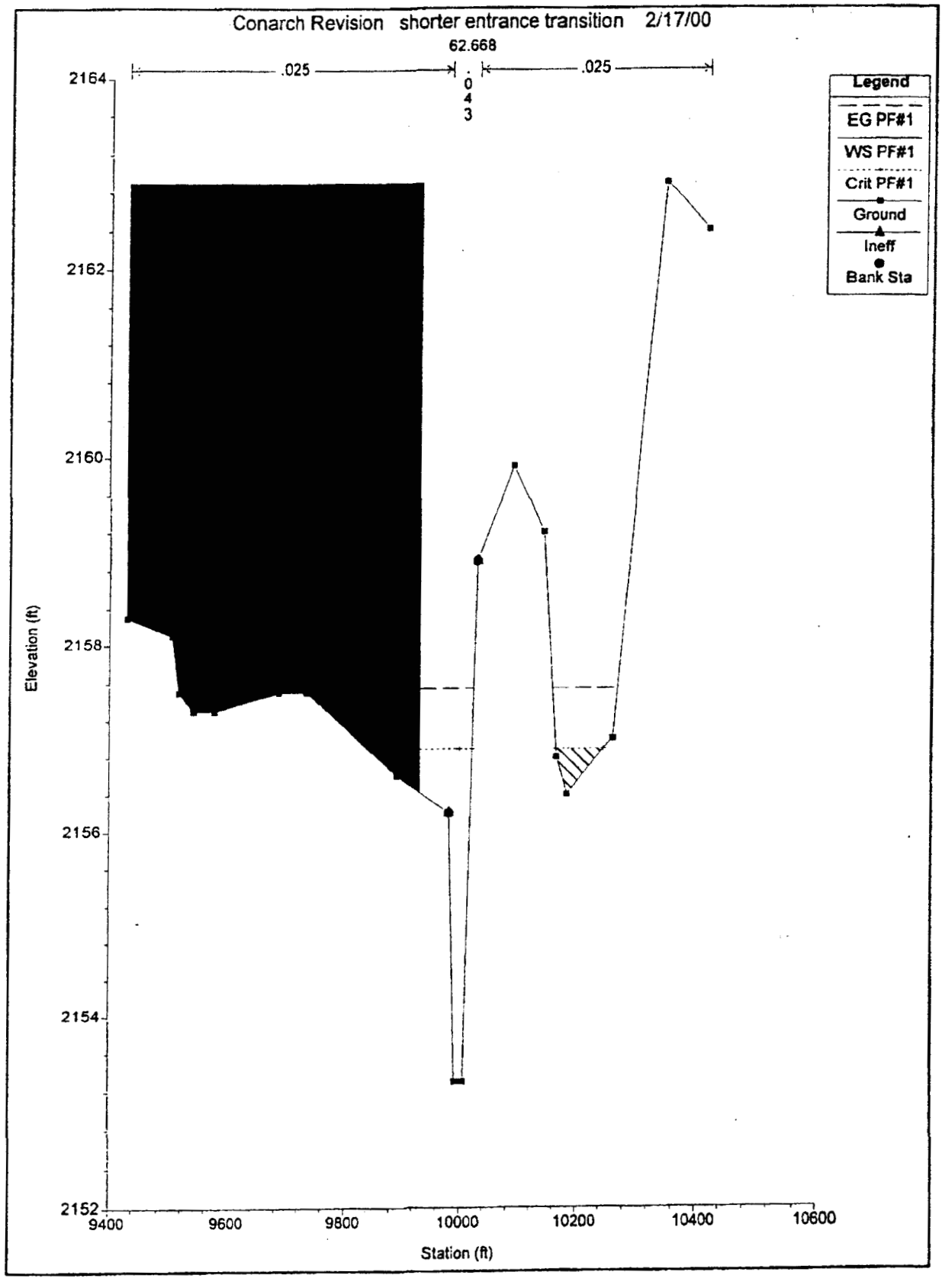

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Ground
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Elevation (ft)
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Station (ft)

62.163
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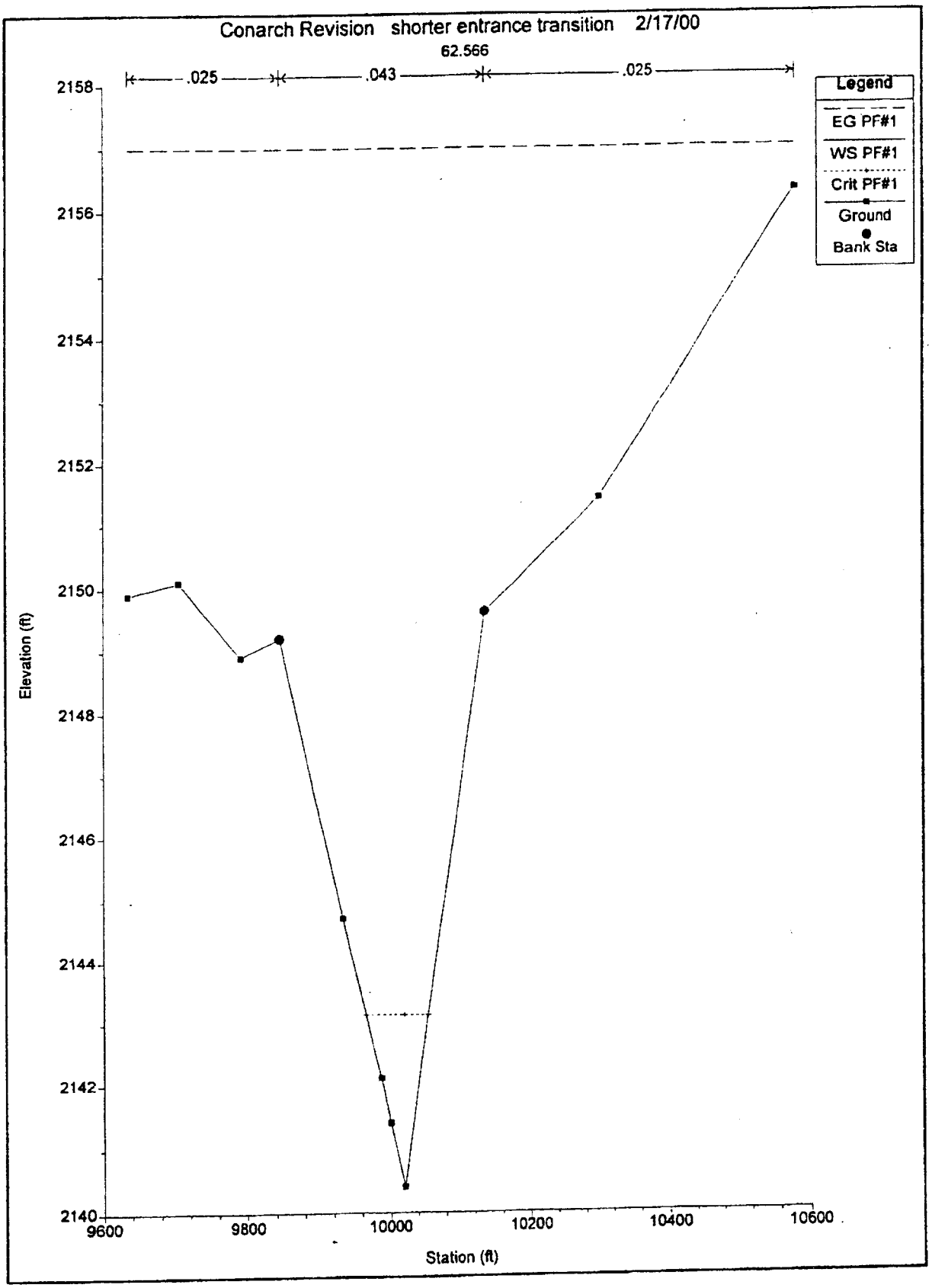

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.07
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Crit PF#1
Ground
Bank Sta
Elevation (ft)
Station (ft)
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2180
2178
2176
2174
2172
2170
2168
2166
9800
9900
10000
10100
10200
10300
10400
10500
10600

62-668 263


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62.763
.025
.046
.025
Legend
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WS PF#1
Ground
Bank Sta
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2180
2175
2170
2165
2160
Elevation (ft)
9600
9800
10000
10200
10400
10600
Station (ft)


Conarch Revision shorter entrance transition 2/17/00
62.668
.025
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.025
Legend
EG PF#1
WS PF#1
Crit PF#1
Ground
Ineff
Bank Sta
Elevation (ft)
2164
2162
2160
2158
2156
2154
2152
9400
9600
9800
10000
10200
10400
10600
Station (ft)

62.566


Conarch Revision shorter entrance transition 2/17/00
62.566
.025
.043
.025
Legend
EG PF#1
WS PF#1
Crit PF#1
Ground
Bank Sta
Elevation (ft)
2158
2156
2154
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2142
2140
9600
9800
10000
10200
10400
10600
Station (ft)

REFERENCE MATERIAL FROM THE
"TECHNICAL DRAINAGE REPORT VALLEY VIEW PRE-DESIGN"
BY HEFNER ENGINEERING
(Reference 6)

MATERIALS FROM THE "TECHNICAL DRAINAGE REPORT
VALLEY VIEW PRE-DESIGN"

TECHNICAL DRAINAGE REPORT
VALLEY VIEW PRE-DESIGN

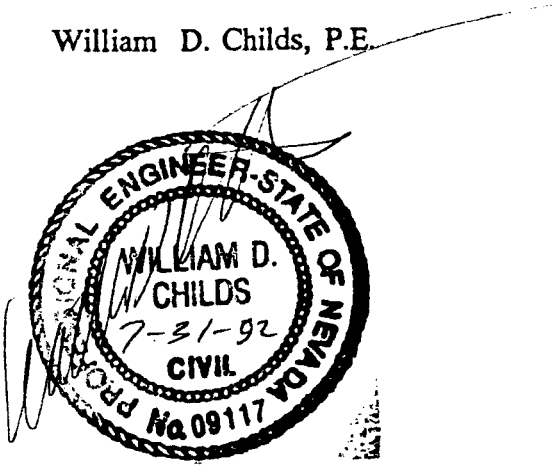
Prepared for

CLARK COUNTY PUBLIC WORKS

Prepared By

HEFNER ENGINEERING

William D. Childs, P.E.



PROJECT NO. 91060.00

JULY 31, 1992

INTRODUCTION

SITE LOCATION AND DESCRIPTION

The purpose of this hydrologic study is to determine the conditions which will govern the hydraulic design of Valley View Boulevard from Oquendo Road to Tropicana Avenue, and Russell Road from Valley View Boulevard to Polaris Avenue. The local alignment of Valley View Boulevard is that common north/south line between Sections 31 and 32 north of the north 1/16th and between Sections 29 and 30. The local alignment of Russell Road is that common east/west line between Sections 29 and 32 from the corner common to Sections 29, 30, 31, and 32, easterly to the west 1/16th. These sections are in Township 21 South, Range 61 East, M.D.M., and an unincorporated area of Clark County.

The Clark County Regional Flood Control District's (CCRFCD) Master Plan Update, Volume II, (MPU) Figure S-4, Exhibit **A.1** places the project area within the southwest basin. Figure F-18, Exhibit **A.2** indicates that there are no existing regional flood control facilities within, or immediately adjacent to, the subject drainage area.

Clark County Public Works (CCPW) proposes to improve Valley View Boulevard and Russell Road, on the alignments stated above, with all the necessary facilities and appurtenances required to make a good and complete roadways with 100 foot wide rights-of-way. The surrounding land uses are, and will, remain industrial (See **MPU** Figure H-18, Exhibit **A.4**).

PROJECT WATERSHED

The Valley View Boulevard project area lays at the bottom of a 20+ square mile watershed which forms the Tropicana Wash. When viewed from the project area, the Union Pacific Railroad tracks to the west is the controlling physical feature of the watershed. The tracks act as a dam which severs the watershed into east and west basins. All offsite flows affecting the project area originate in the western basin. All onsite flows originate within the eastern basin.

The western basin contains 19.5 square miles or 98% of the watershed. Runoff from this basin consolidates into three channels of the Tropicana Wash just west of the tracks. All three channels cross under the tracks at existing facilities. CCRFCD has adopted flows for each of these channels: see attached the Las Vegas Valley Flood Insurance Study Hydrology Report, September 1991, Table 6.5 prepared by James M. Montgomery, Consulting Engineers, Exhibit **A.4**.

The Tropicana Wash South Branch (TRLB in the MPU) is the southern most of the three channels. The wash crosses under the tracks at Boulder Junction with an adopted 100-year storm flow of 5,300 cfs. The North Branch of the Tropicana Wash (TRWA in the MPU) crosses under the tracks approximately one mile north of Boulder Junction. The North Branch's adopted 100-year storm flow is 1,700 cfs. One tenth of a mile south of the North Branch a small feeder channel crosses under the tracks with an adopted 100-year storm flow of 750 cfs. The feeder channel joins the North Branch before crossing Valley View Boulevard. Hence, the North Branch existing adopted flow at the Valley View Boulevard crossing is 2,450 cfs. ≈ 1700 cfs + 750 = 2450 cfs

The eastern basin area contains one-half square mile. The area is bounded on the south and west by the Union Pacific Railroad tracks, on the north by Tropicana Avenue, and on the east by Valley View Boulevard. There are several existing drainage areas within the eastern basin. Runoff generated in the area south of the Tropicana Wash South Branch sheet flows into the wash, into the cross streets which drain into Valley View Boulevard, or directly into Valley View Boulevard. Runoff from the area south of Oquendo Road sheet flows across Valley View Boulevard, then continues northeasterly through the existing storage yards towards I-15. Valley gutters at Quail Avenue direct the southern area runoff east towards I-15. Runoff generated in the area between the Tropicana Wash South Branch and the North Branch sheet flows into one of the channels or into Valley View Boulevard. The valley gutter at Hacienda Avenue directs the area's runoff east to I-15. Runoff generated in the area above the North Branch sheet flows into the channel, into Tropicana Avenue, or into Valley View Boulevard. Valley View Boulevard directs the collected runoff into Tropicana Avenue.

The current MPU (1991) calls for the construction of facilities which will significantly impact the project area. The Tropicana detention basin is to be constructed astride the Tropicana Wash South Branch, west of the Union Pacific Railroad tracks at Boulder Junction. The Flamingo-Tropicana diversion channel will be constructed to drain the Flamingo detention basin into the Tropicana detention basin. The Tropicana Wash is to be improved and the flow redirected northward along the west bank of the tracks to the existing North Branch under-crossing. The channel improvements then continue northeasterly through the local eastern basin and crosses Valley View Boulevard between Reno Avenue and Bell Drive.

The MPU improvements will substantially reduce the flows in the eastern basin that are generated in the western basin. The existing Tropicana Wash South Branch and the small feeder channel flows (5,300 and 750 cfs respectively) will be eliminated. The North Branch flow will be reduced from 2,450 cfs to 1,000 cfs.

The Federal Emergency Management Agency's Flood Insurance Rate Map (Panel 320003 1216 B) designates the entire eastern basin area between the Tropicana Wash and the North Branch to be in Zone A, a "special flood hazard area", Exhibit A.5.

North Branch HEC-2 Models

The North Branch of the Tropicana Wash under-crosses the Union Pacific Railroad tracks with an adopted flow of 1,700 cfs. A small feeder channel under-crosses the tracks about one tenth of a mile south of the North Branch with an adopted flow of 750 cfs. Approximately 850 feet west of Valley View Boulevard the small feeder channel joins the North Branch. This study assumes that the two channel's peak flows coincide and combine to produce a flow of 2,450 cfs, and crosses Valley View Boulevard about half way between Reno Avenue and Bell Drive. The existing channels west of Valley View Boulevard are unimproved. East of Valley View Boulevard an improved channel carries the flows northeasterly to I-15.

The planned MPU improvements of the Tropicana Wash will eliminate the 750 cfs in the small feeder channel at the Union Pacific Railroad under-crossing. The North Branch will be improved and the flows reduced to 1,000 cfs at the Valley View Boulevard crossing.

Three HEC-2 models were developed to analyze the North Branch crossing at Valley View Boulevard. The first model was developed to size a structure with the capacity to carry the entire currently adopted flow of 2,450 cfs within the CCRFCD's design manual's guide lines. The second model used the same design manual guide lines but with the flow reduced to 1,000 cfs. The third model analyzed the effects of passing the 2,450 cfs through the 1,000 cfs structure.

The first model's HEC-2 is attached as Exhibit **C.1.0**. Water surface profiles from selected sections are a part of Exhibit **C.1.1**. The second model's HEC-2 is attached as Exhibit **C.2.0**. Water surface profiles for selected sections are a part of Exhibit **C.2.1**. The third model's HEC-2 is attached as Exhibit **C.3.0**. Water surface profiles for selected sections are a part of Exhibit **C.3.1**. The topography from which the North Branch models were developed is presented in the Project Area Map, Exhibit **B.1.0**. All three of the North Branch HEC-2 models incorporated the existing improved channel east of Valley View: the map used to model this channel is presented in Exhibit **C.4.0**. The water surface profiles from each of the HEC-2 models are combined in Exhibit **C.5.0**.

The first model indicates that a structure with the capacity to pass 2,450 cfs would require construction of a six barrel (each barrel 6' high by 10' wide) box culvert. The second model only required a two barrel (each barrel 5' high by 10' wide) box culvert.

The third model shows that the immediate construction of a 1,000 cfs capacity structure could not pass 2,450 cfs without generating significant negative impacts. Recall that the area is developing rapidly: the problems now existing due to the undersized box culvert at the South Branch would be replicated by the construction of a 1,000 cfs structure on the North Branch. Additionally, approximately 1,000 cfs would weir flow over the structure at a depth of flow of 5 feet plus and a velocity of 11 fps ±. There could be significant damage done to the structure caused by scour. Finally, the 1,000 cfs structure fails to comply with any accepted design standard.

This study recommends that the six barrel box culvert with the capacity of 2,450 cfs and appropriate transition channels be constructed. While this structure would be 50% oversized when the MPU facilities are in place, it would carry the existing adopted flows and retain sufficient extra capacity to allow for future upward adjustments to the MPU flows. Construction of this facility will have no negative impacts either upstream or downstream.

Local Watershed HEC-1 models

Two HEC-1 models were developed to analyze the runoff and flows generated within the eastern basin, the local watershed, in accordance with the CCRFCD's "Hydrologic Criteria and Drainage Design Manual." The first HEC-1 model considered that part of the local watershed which drains into the South Branch of the Tropicana Wash. This model is attached as Exhibit **D.1.0**. The second HEC-1 model considered that part of the local watershed which drains into the North Branch of the Tropicana Wash. This model is attached as Exhibit **D.2.0**.

Because of the continuous and rapid development within the project area, the models assume development at 100%. The models, therefore, used an SCS curve number of 93 (urban district, industrial area, soil type D). A 6 hour, SDN 3 (model area of .5 square mile) is used. Since the project is entirely within the McCarran Airport area, the depth-duration-frequency value for a 100-year storm of 2.77 inches is reduced per the factors given in the CCRFCD's Table 502. The design storm distribution was calculated per the CCRFCD's Table 504.

The HEC-1 models, based on the SCS Unit Hydrograph and Muskingum methods, used the factors required by the CCRFCD's Design Manual listed below. Tlag was calculated for each subarea per equation 602 and the results compared to those calculated per equation 604, See Exhibit **D.3.1**. K, the flow resistance coefficient, was developed per equation 603, see exhibit **D.3.2**. K, the Muskingum storage factor, was calculated per equation 621 using an X factor of .13. To assure the computational stability the above storage factor was evaluated per equation 622, See Exhibit **D.3.3**.

The HEC-1 models assume that the drainage patterns created by the existing development will continue. Each of the cross streets in the study area accepts the runoff from adjacent properties. The cross streets then convey the runoff to Valley View Boulevard. There are two exceptions to the above: the existing 4' x 10' box culvert with it's entry at Russell Road, and the North Branch of the Tropicana Wash. The box culvert entry is in a sump and will capture the runoff generated above it within the Russell Road subarea. The model also assumes that the North Branch will continue to accept runoff from 100 foot wide areas on either side of the channel. A local watershed map depicting the HEC-1 models' areas is included as Exhibit **D.3.4**. The runoff generated within the subareas, as reported by the HEC-1 models is shown on the map.

The runoff reported by the HEC-1 models was analyzed for their impacts on Valley View Boulevard. Two design conditions drove this analysis. First, during 10-year storms, the

drainage system needs the capacity to allow dry 12 foot travel lanes in each direction and a 14 foot center lane, while at the same time the product V*d does not exceed 6. Second, during 100-year storms, the drainage system needs the capacity to keep the depth of flow in the gutters to less than 2 feet, while at the same time the product of V*d does not exceed 8.

The first condition could not be met at several intersections. Since the project area does not extend beyond the cross street curb returns, runoff entering Valley View Boulevard from the cross streets cannot be drained off until that runoff is actually in the intersection. Since the HEC-1 models assumed 100% development, even though the current developed area is at about 40%, the problem will not become apparent for some time. And, even with 100% development, only on the west side of Valley View Boulevard and only at the intersections, will the problem occur.

Given the above conditions, the analysis determined the depth of flows for both 10-year and 100-year storms at each intersection. The maximum depth of flows at the intersections was determined by means of Manning's equation and the proposed cross section of Valley View Boulevard. Those depths were then used with CCRFCD's Drainage Design Manual Figures 804 and 806 to size the various drop inlets required. The drop inlets are to be placed at the returns of the intersections along the west side of Valley View Boulevard.

The drop inlets empty into three storm drains. These storm drains were designed to conform with the requirements set forth in Section 800 of the CCRFCD's "Hydrologic Criteria and Drainage Design Manual." The first storm drain begins at Oquendo Road with a 42" RCP and drains north terminating with a 48" by 72" HECP at the South Branch of the Tropicana Wash. The second storm drain is a 30" RCP draining south from Diablo again to the South Branch of the Tropicana Wash. The third storm drain begins at Mesa Vista with a 21" RCP and drains north terminating with a 60" RCP at the North Branch of the Tropicana Wash.

The various calculations and drawings, etc., supporting the design of the Valley View Boulevard drainage system are attached in Appendix E. The Valley View Boulevard cross section analyses are included in Exhibit E.1. The drop inlet's design capacities are included in Exhibit E.2. The three storm drains analysis are included in Exhibit E.3. The placement of the drop inlets and the storm drain are shown in Exhibit E.4.

None of the HEC models discussed above, analyzed the Russell Road part of the project area. The HEC-1 model assumptions extend to the Russell Road drainage analysis. Those are: the adjacent areas drain to Russell Road, development is at 100% which requires a CN of 93. Additionally, because of the proposed storm drain system, Valley View Boulevard diverts all runoff from the west. Russell Road drains the adjacent area to the east.

Since the Russell Road area contains only 9.6 acres, the SCS, TR-55, tabular hydrograph method of drainage analysis is used. The model also uses a 24 hour type II rainfall per CCRFCD's Drainage Design Manual's Table 505 and Figure 513. Hydrographs were computed for 10-year, 25-year, and 100-year storms. These Hydrographs are included as Exhibit F.1.

The runoff reported by the TR-55 model was then analyzed in order to assure that the design of Russell Road conformed to the requirements of the RTC and CCRFCD. The street section calculations indicate that the runoff is well below the maximum allowed. The street sections are attached in Exhibit F.2. Since the Russell Road improvements terminate at the natural channel which normally accepts runoff from the subject area, and that all runoff for both 10-year and 100-year storms can be contained with in the roadway, no special drainage design is recommended for Russell Road.

DROP INLET CAPACITIES

EXHIBIT E.2

Y represents the depth of flow at the gutter line in feet. C represents the length in feet of grate required for the inlet. A represents the length in feet of curb opening required for the inlet. The Y value was used in conjunction with CCRFCD's Drainage Design Manual's, Figures 804 and 806. CFS, or cubic feet per second, is the flow accepted at the designated drop inlet during a 10 year storm.

DI	Y (Flow depth)	C (Grate)	A (Curb opening)	CFS (Q-Intercepted)
1	.88	12	12	52.2
2	.63	3	8	13.8
3	1.03	12	12	53
4	.65	3	8	13.1
5	.59	0	8	5.8
6	.60	3	10	22.2
7	.59	3	8	11.5
8	.93	15	16	50.5
9	.70	3	8	9.1
10	.82	9	12	42.9
11	.93	9	10	40.9
12	.77	6	8	28.1
13	.91	9	10	44.5
14	.49	3	8	8.5
15	.77	6	8	26.8
16	.57	3	8	13.2
17	.48	3	8	12

200.6 cfs 60" SD Flow Q100

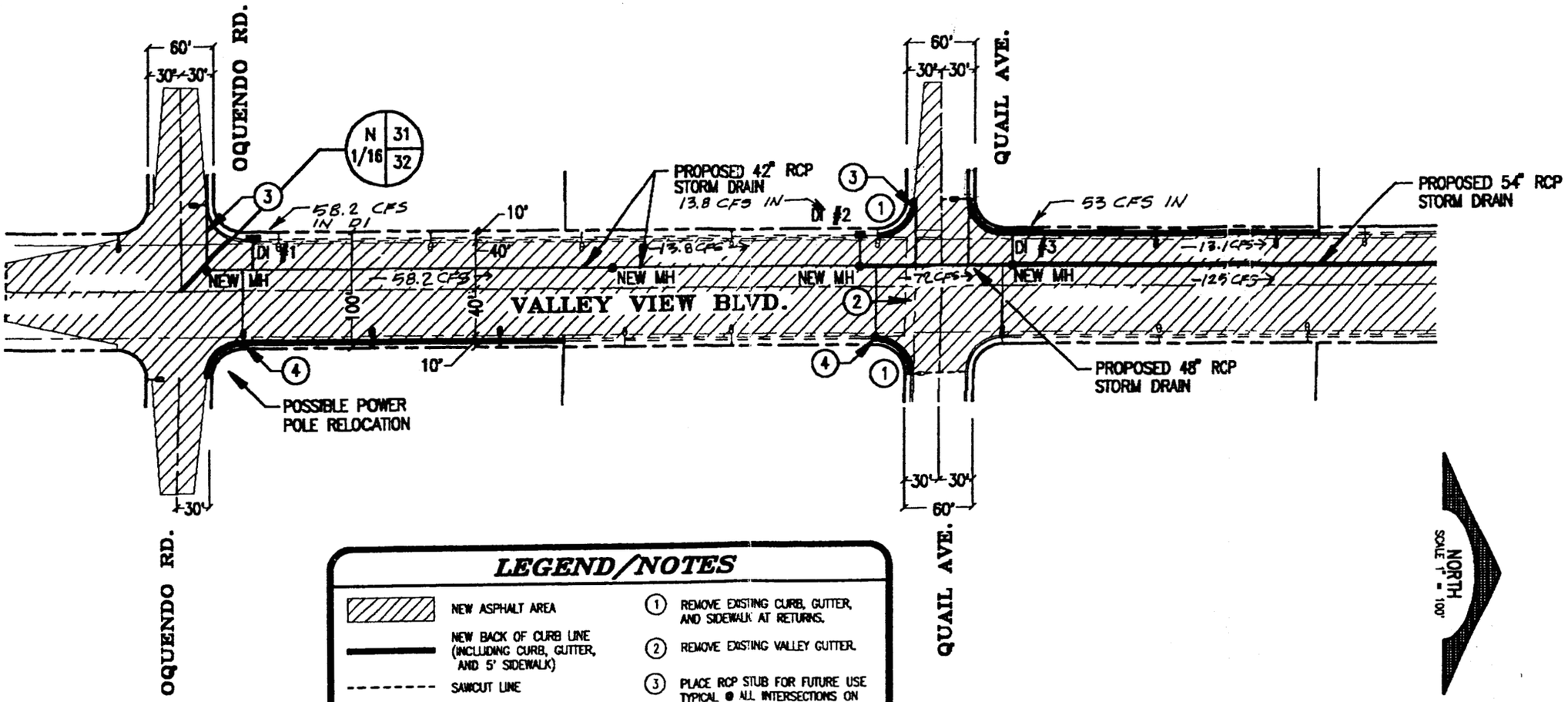
STORM SEWER HYDRAULIC CALCULATIONS

CONDUIT DATA						FLOW DATA							ENERGY LOSS DATA									ENERGY AND HYDRAULIC DATA				COMMENTS	
STATION		SIZE/	INVERTS			A		Q	V	Hv=			PIPE	TRANSITIONS								PIPE		TRANSITION			
FROM	TO	TYPE (INCHES)	D/S ELEV	U/S ELEV	LENGTH	(SF)	n= 0.013	(CFS)	(FPS)	V**2/2g (FT)	Sf (FT/FT)	AVE. Sf (FT/FT)	Hf (FT)	Hf (FT)	Kj	Hj (FT)	Ke	He (FT)	Kx	Hx (FT)	TOTAL (FT)	U/S EGL ELEV	U/S HGL ELEV	U/S EGL ELEV	U/S HGL ELEV	PRESS FLOW?	OTHER
																					Enter Starting EGL and HGL Here			186.92	185.30		
5464	5713	60	185.30	182.37	249.0	19.63	0.00492	200.8	10.2	1.62	0.0059	0.0059	1.47									188.39	186.77				
5348	5464	60	182.37	183.35	116.0	19.63	0.00492	174.0	8.9	1.23	0.0045	0.0045	0.53		0.25	0.81					0.81	186.92	187.69	189.73	188.50		
4802	5348	54	183.35	187.56	544.0	15.90	0.00492	165.5	10.4	1.68	0.0071	0.0071	3.86		0.25	1.32	1.08	0.09	0.02	0.03	1.44	193.59	191.91	191.17	189.49		
4683	4802	48	187.86	188.85	119.0	12.57	0.00492	121.0	9.6	1.43	0.0070	0.0070	0.83		0.25	1.22	1.08	0.12	0.02	0.03	1.37	194.42	192.98	195.78	194.35		
4149	4683	48	188.85	193.28	534.0	12.57	0.00492	92.9	7.4	0.85	0.0042	0.0042	2.24		0.25	0.64					0.64	196.02	197.17	196.42	195.57		
4008	4149	36	193.28	194.45	141.0	7.07	0.00492	52.0	7.4	0.85	0.0081	0.0081	0.86		0.25	0.79	1.08	0.56	0.02	0.02	1.37	196.88	198.03	200.25	199.40		
3474	4008	21	194.45	196.60	534.0	2.41	0.00492	9.1	3.8	0.22	0.0033	0.0033	1.76		0.25	0.22	1.08	2.16	0.02	0.00	2.41	202.01	201.78	202.66	202.43		
3474			196.60																0.40	1.06	1.06			203.72	203.72		

Q100 CONVEYED IN 60" RCP IN VALLEY VIEW BOULEVARD ADJACENT TO THIS SITE. THIS FLOW IS DIVERTED OUT OF THE HEC-1 FLOW THAT CONSIDERED OFFSITE FLOWS AT THE INTERSECTION OF VALLEY VIEW BOULEVARD AND ROYO AVENUE.

EXHIBIT E.3.3
STORM SEWER CALCULATIONS, MESA VISTA TO NORTH BRANCH

PRELIMINARY PLAN



LEGEND/NOTES

- NEW ASPHALT AREA
- NEW BACK OF CURB LINE (INCLUDING CURB, GUTTER, AND 5' SIDEWALK)
- SAWCUT LINE
- EXISTING CENTERLINE
- PROPERTY LINE
- 50' R/W LINE
- 40' R/W LINE
- EXISTING BACK OF CURB LINE
- EXISTING LIP OF CURB LINE
- EXISTING STREETLIGHT
- NEW STREETLIGHT

1. REMOVE EXISTING CURB, GUTTER, AND SIDEWALK AT RETURNS.
2. REMOVE EXISTING VALLEY GUTTER.
3. PLACE RCP STUB FOR FUTURE USE TYPICAL @ ALL INTERSECTIONS ON EAST SIDE OF VALLEY VIEW
4. 4' TYPE "A" DROP INLET WITH 18" RCP TYPICAL @ ALL INTERSECTIONS ON WEST SIDE OF VALLEY VIEW

NOTE:
STREETLIGHTS SHALL BE INSTALLED PER CLARK COUNTY PUBLIC WORKS STANDARDS DRAWING #201, AND TABLE 2.

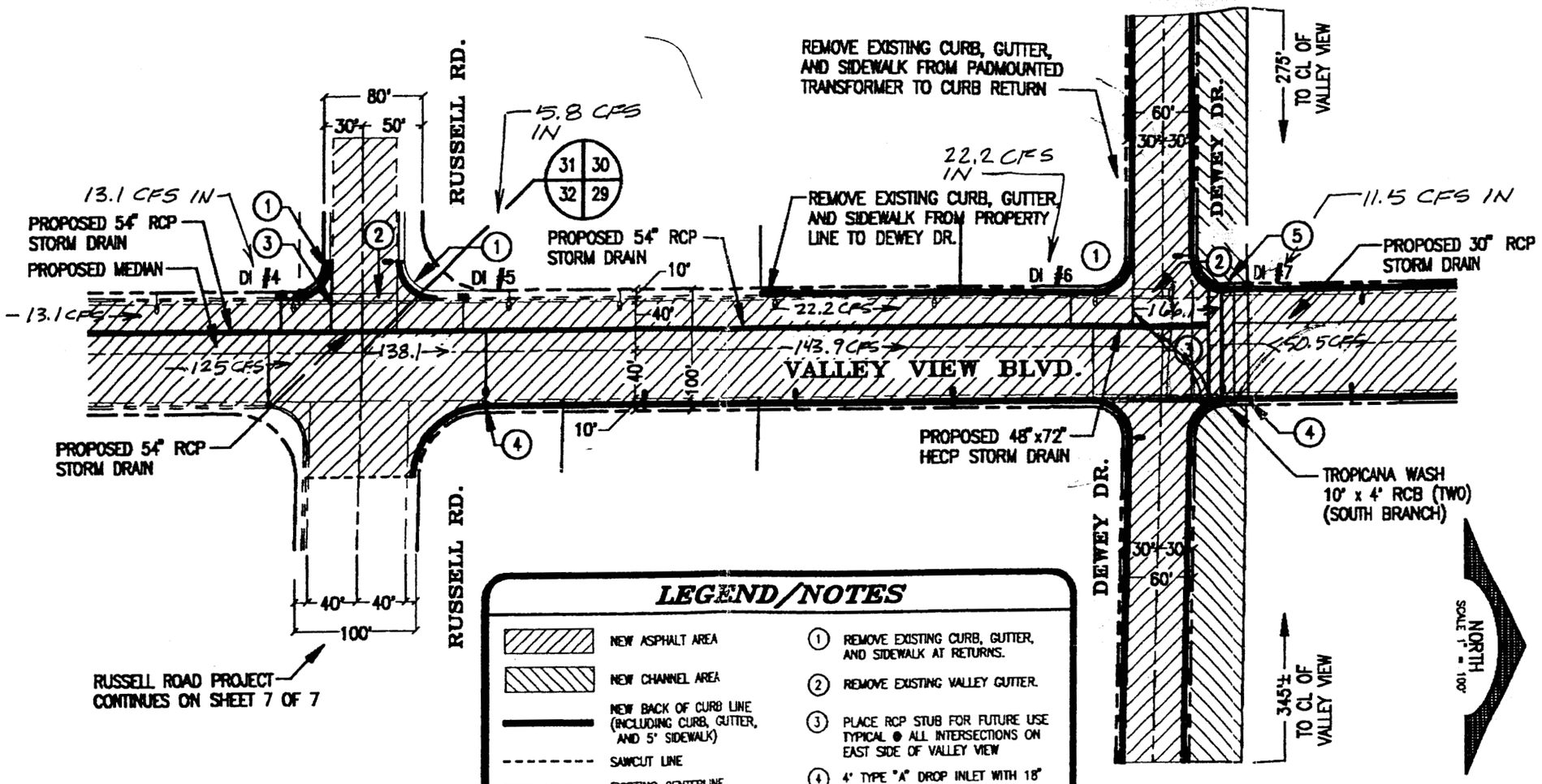
NORTH
SCALE 1" = 100'

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EXHIBIT E.4.0
STORM DRAINAGE PLAN

PRELIMINARY PLAN



LEGEND/NOTES

- NEW ASPHALT AREA
- NEW CHANNEL AREA
- NEW BACK OF CURB LINE (INCLUDING CURB, GUTTER, AND 5' SIDEWALK)
- SAWCUT LINE
- EXISTING CENTERLINE
- PROPERTY LINE
- 50' R/W LINE
- 40' R/W LINE
- EXISTING BACK OF CURB LINE
- EXISTING LIP OF CURB LINE
- EXISTING STREETLIGHT
- NEW STREETLIGHT
- PROPOSED TRAFFIC SIGNAL

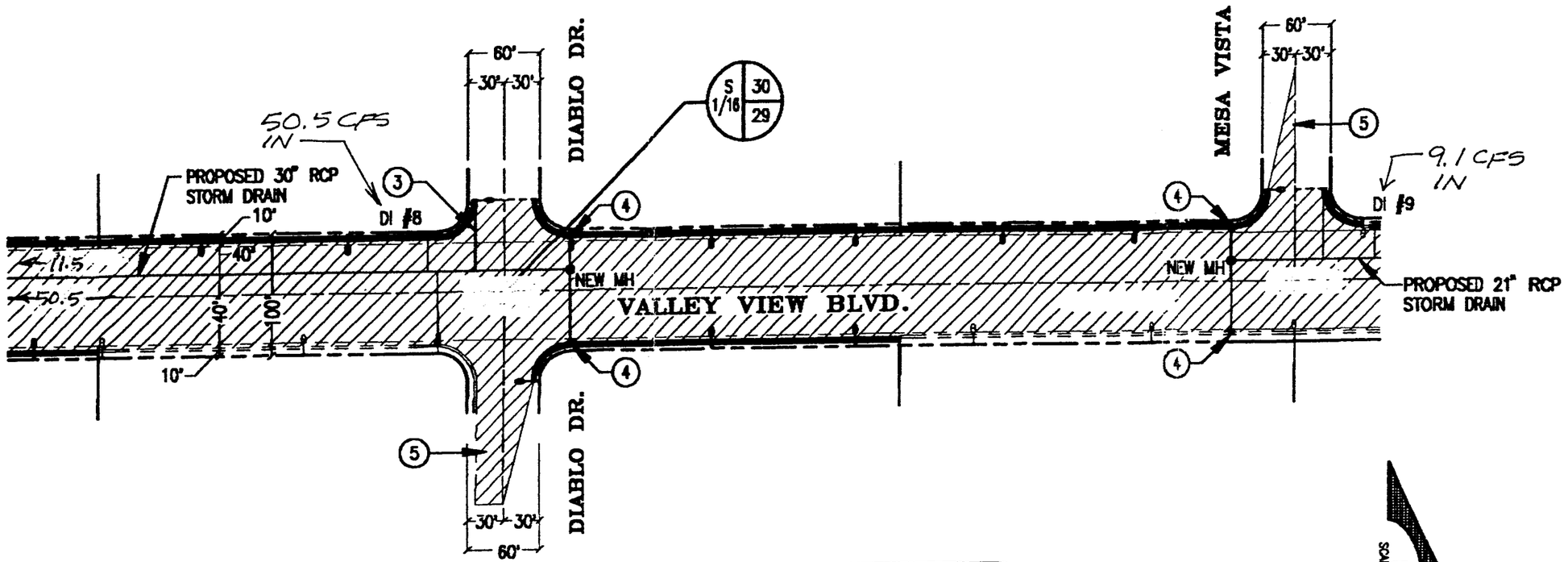
1. REMOVE EXISTING CURB, GUTTER, AND SIDEWALK AT RETURNS.
2. REMOVE EXISTING VALLEY GUTTER.
3. PLACE RCP STUB FOR FUTURE USE TYPICAL @ ALL INTERSECTIONS ON EAST SIDE OF VALLEY VIEW
4. 4' TYPE "A" DROP INLET WITH 18" RCP TYPICAL @ ALL INTERSECTIONS ON WEST SIDE OF VALLEY VIEW
5. UTILITY CONFLICTS AT FLOOD CONTROL STRUCTURE. RELOCATE CALNEV PIPELINES.

NOTE:
STREETLIGHTS SHALL BE INSTALLED PER CLARK COUNTY PUBLIC WORKS STANDARDS DRAWING #201, AND TABLE 2.

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PRELIMINARY PLAN



LEGEND/NOTES

- NEW ASPHALT AREA
- NEW BACK OF CURB LINE (INCLUDING CURB, GUTTER, AND 5' SIDEWALK)
- SAWCUT LINE
- EXISTING CENTERLINE
- PROPERTY LINE
- 50' R/W LINE
- 40' R/W LINE
- EXISTING BACK OF CURB LINE
- EXISTING LIP OF CURB LINE
- EXISTING STREETLIGHT
- NEW STREETLIGHT

1. REMOVE EXISTING CURB, GUTTER, AND SIDEWALK AT RETURNS.
2. REMOVE EXISTING VALLEY GUTTER.
3. PLACE RCP STUB FOR FUTURE USE TYPICAL @ ALL INTERSECTIONS ON EAST SIDE OF VALLEY VIEW
4. 4' TYPE "A" DROP INLET WITH 18" RCP TYPICAL @ ALL INTERSECTIONS ON WEST SIDE OF VALLEY VIEW
5. 100' ASPHALT TRANSITION FROM CURB RETURN.

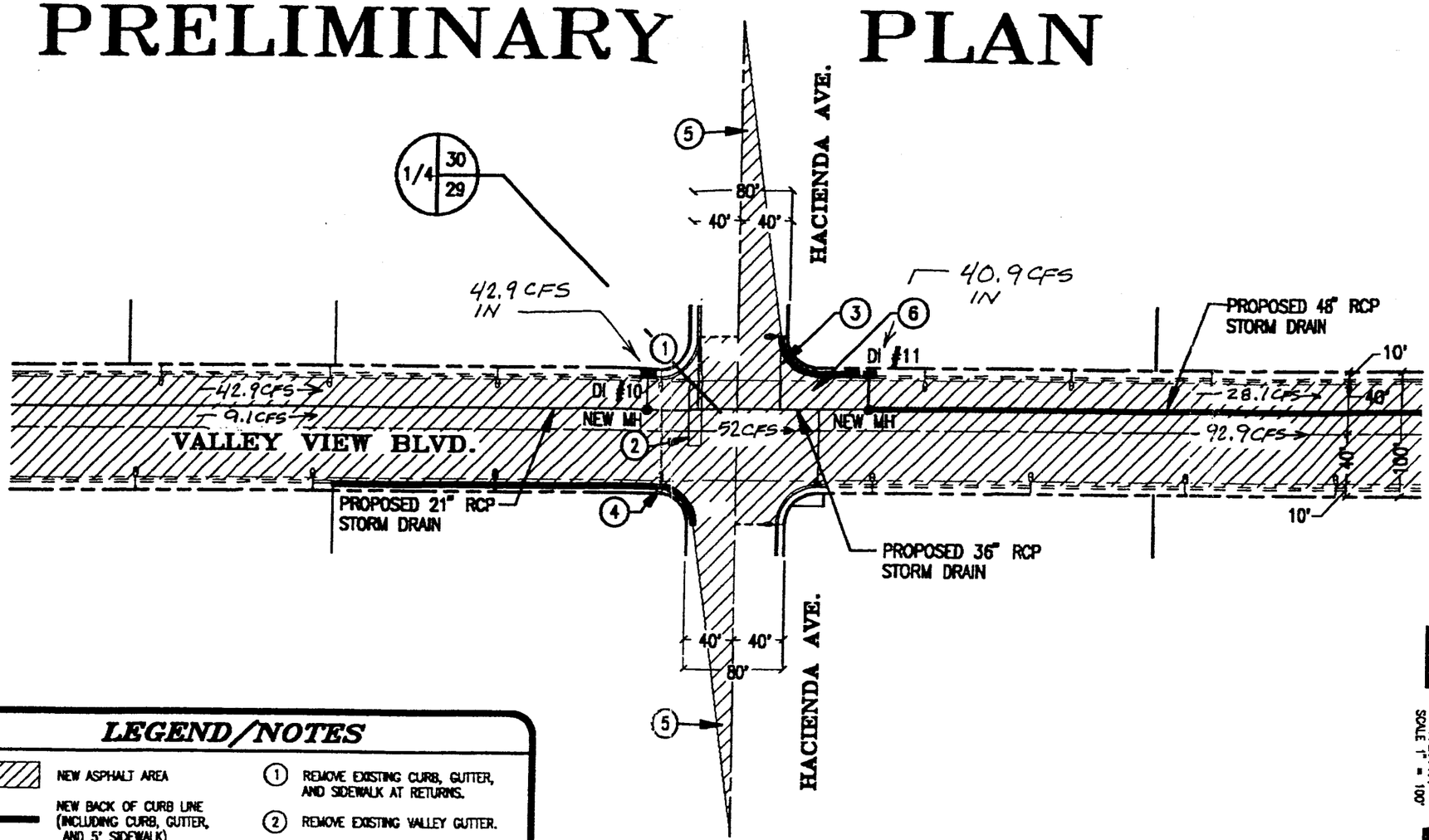
NORTH
SCALE 1" = 100'

NOTE:
STREETLIGHTS SHALL BE INSTALLED PER CLARK COUNTY PUBLIC WORKS STANDARDS DRAWING #201, AND TABLE 2.

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PRELIMINARY PLAN



LEGEND/NOTES

- NEW ASPHALT AREA
- NEW BACK OF CURB LINE (INCLUDING CURB, GUTTER, AND 5' SIDEWALK)
- SAWCUT LINE
- EXISTING CENTERLINE
- PROPERTY LINE
- 50' R/W LINE
- 40' R/W LINE
- EXISTING BACK OF CURB LINE
- EXISTING LIP OF CURB LINE
- EXISTING STREETLIGHT
- NEW STREETLIGHT

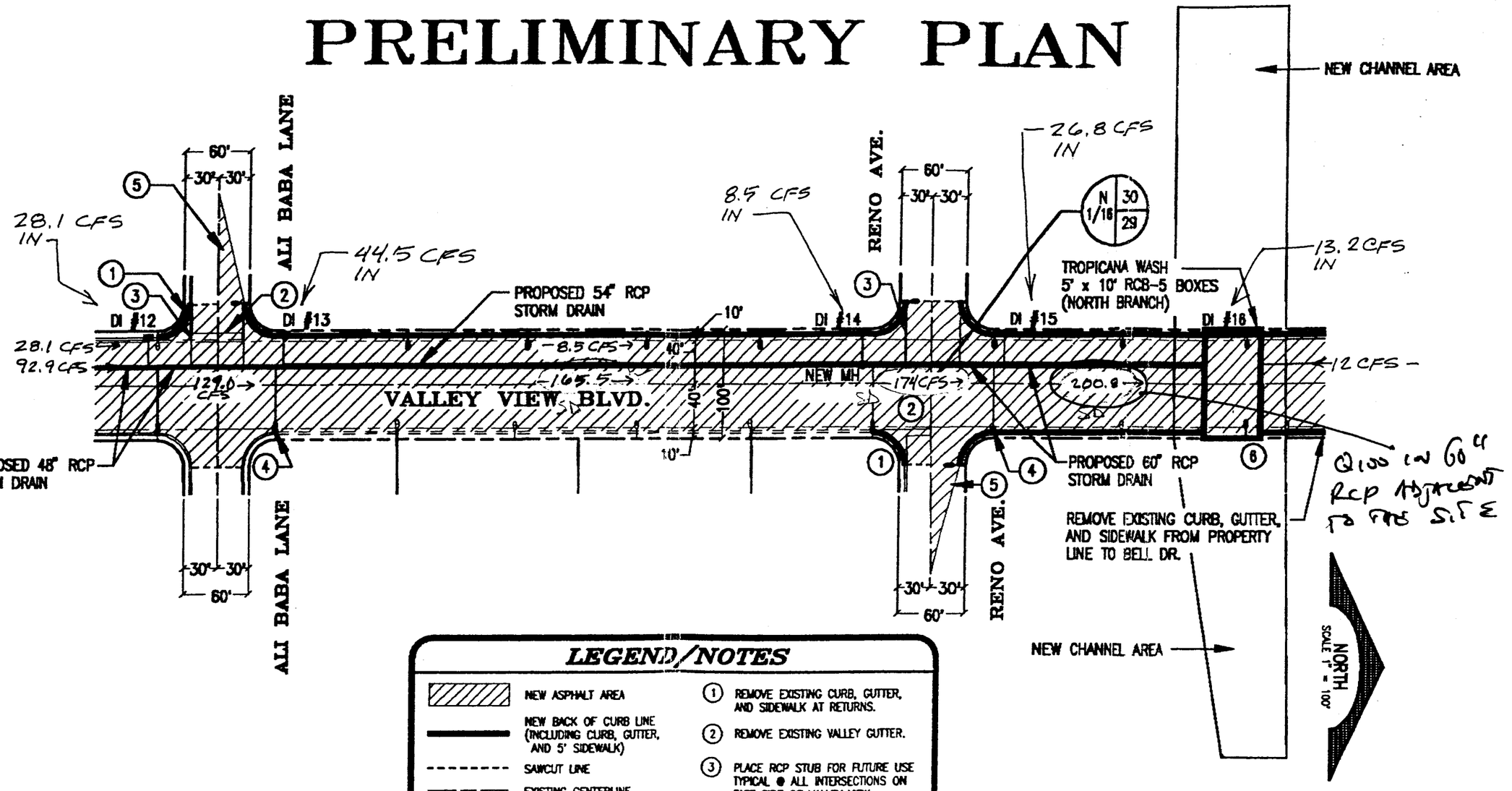
1. REMOVE EXISTING CURB, GUTTER, AND SIDEWALK AT RETURNS.
2. REMOVE EXISTING VALLEY GUTTER.
3. PLACE RCP STUB FOR FUTURE USE TYPICAL @ ALL INTERSECTIONS ON EAST SIDE OF VALLEY VIEW
4. 4' TYPE "A" DROP INLET WITH 18" RCP TYPICAL @ ALL INTERSECTIONS ON WEST SIDE OF VALLEY VIEW
5. 250' ASPHALT TRANSITION FROM CURB RETURN.
6. POSSIBLE UTILITY CONFLICT. CALNEV PIPELINE CROSSING STORM DRAIN IN THIS AREA.

NOTE:
STREETLIGHTS SHALL BE INSTALLED PER CLARK COUNTY PUBLIC WORKS STANDARDS DRAWING #201, AND TABLE 2.

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PRELIMINARY PLAN



LEGEND/NOTES

- NEW ASPHALT AREA
- NEW BACK OF CURB LINE (INCLUDING CURB, GUTTER, AND 5' SIDEWALK)
- SAWCUT LINE
- EXISTING CENTERLINE
- PROPERTY LINE
- 50' R/W LINE
- 40' R/W LINE
- EXISTING BACK OF CURB LINE
- EXISTING LIP OF CURB LINE
- EXISTING STREETLIGHT
- NEW STREETLIGHT

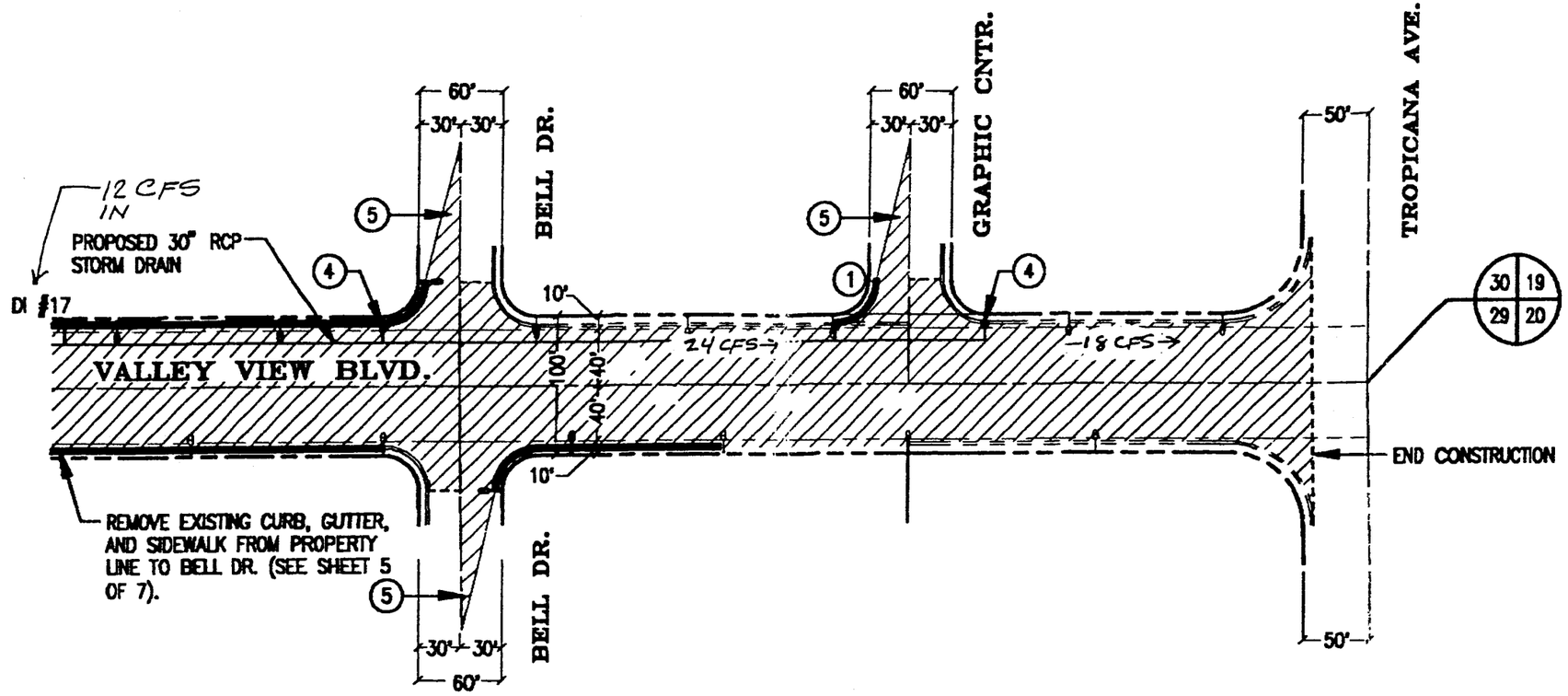
1. REMOVE EXISTING CURB, GUTTER, AND SIDEWALK AT RETURNS.
2. REMOVE EXISTING VALLEY GUTTER.
3. PLACE RCP STUB FOR FUTURE USE TYPICAL @ ALL INTERSECTIONS ON EAST SIDE OF VALLEY VIEW
4. 4' TYPE "A" DROP INLET WITH 18" RCP TYPICAL @ ALL INTERSECTIONS ON WEST SIDE OF VALLEY VIEW
5. 100' ASPHALT TRANSITION FROM CURB RETURN.
6. UTILITY CONFLICT. POWER POLE AND CALNEV PIPELINES TO BE RELOCATED.

NOTE:
STREETLIGHTS SHALL BE INSTALLED PER CLARK COUNTY PUBLIC WORKS STANDARDS DRAWING #201, AND TABLE 2.

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PRELIMINARY PLAN



LEGEND/NOTES

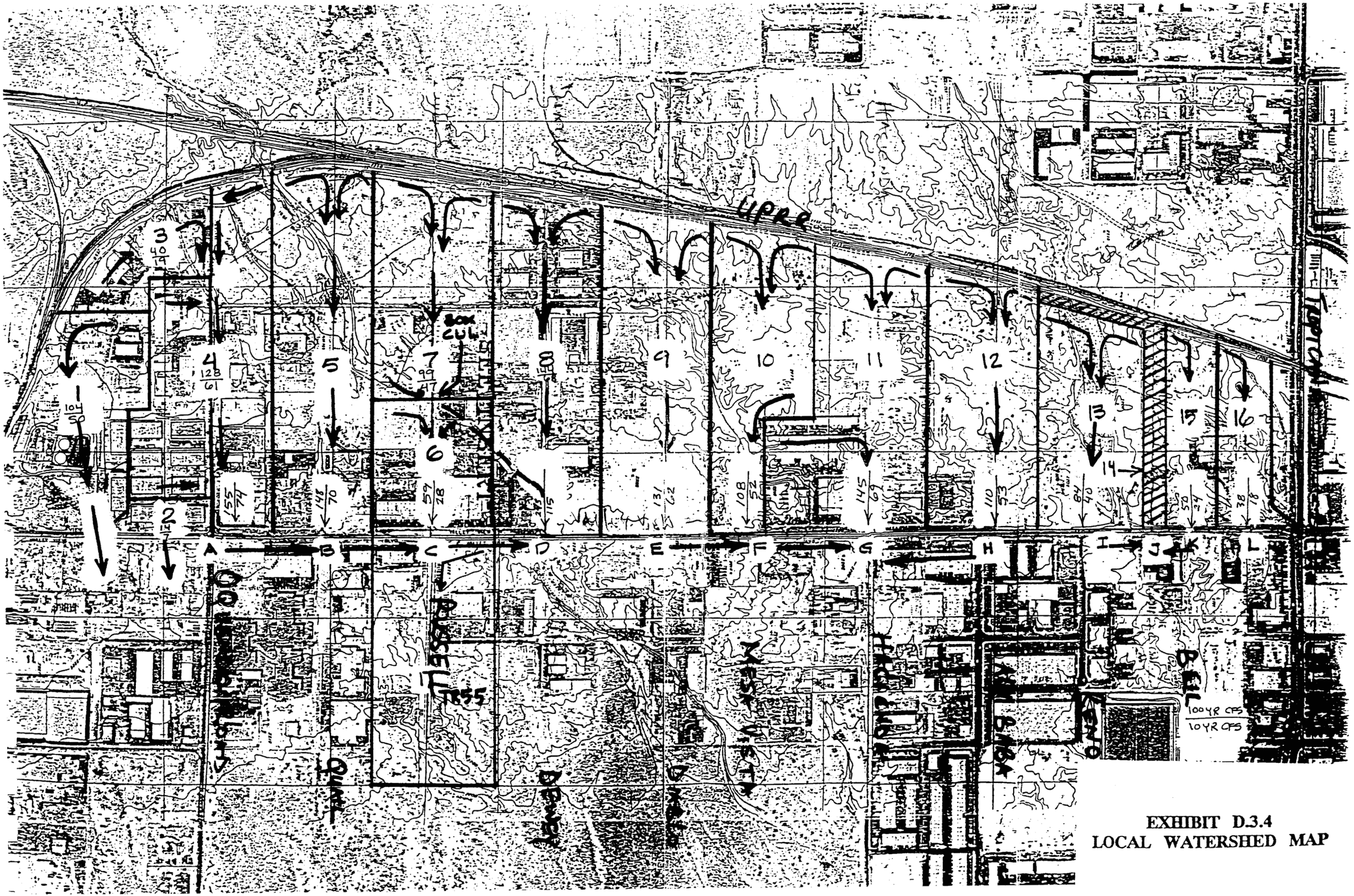
- NEW ASPHALT AREA
- NEW BACK OF CURB LINE (INCLUDING CURB, GUTTER, AND 5' SIDEWALK)
- SAWCUT LINE
- EXISTING CENTERLINE
- PROPERTY LINE
- 50' R/W LINE
- 40' R/W LINE
- EXISTING BACK OF CURB LINE
- EXISTING LIP OF CURB LINE
- EXISTING STREETLIGHT
- NEW STREETLIGHT

1. REMOVE EXISTING CURB, GUTTER, AND SIDEWALK AT RETURNS.
2. REMOVE EXISTING VALLEY GUTTER.
3. PLACE RCP STUB FOR FUTURE USE TYPICAL @ ALL INTERSECTIONS ON EAST SIDE OF VALLEY VIEW
4. 4' TYPE "A" DROP INLET WITH 18" RCP TYPICAL @ ALL INTERSECTIONS ON WEST SIDE OF VALLEY VIEW
5. 100' ASPHALT TRANSITION FROM CURB RETURN.

NOTE:
STREETLIGHTS SHALL BE INSTALLED PER CLARK COUNTY PUBLIC WORKS STANDARDS DRAWING #201, AND TABLE 2.

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UPRR
Box Culv
Pacific
Pacific
Pacific

REFERENCE MATERIAL FROM THE
"2002 TROPICANA FLOOD INSURANCE STUDY-FINAL HYDROLOGY"
BY JE FULLER/HYDROLOGY & GEOMORPHOLOGY, Inc.
(Reference 7)

MATERIALS FROM THE 2002 TROPICANA WASH FIS
BY JE FULLER HYDROLOGY AND GEOMORPHOLOGY Inc.
***HEC-1 ANALYSIS AND WATERSHED MAP**

Memorandum JE Fuller/ Hydrology & Geomorphology, Inc.

DATE: August 7, 2001

TO: Dan Goodin, P.E. – HDR
Kevin Eubanks, P.E. - CCRFCD

FROM: W. Scott Ogden, ~~P.E.~~ WSO

RE: Tropicana Flood Insurance Study – Final Hydrology

CC: Jon Fuller, P.E. – JE Fuller

CCRFCD
2001 AUG 15 PM 12:43

We have completed the hydrologic analysis for the project and are submitting the following package to you for your review and comment. The results provided with this memo will eventually be incorporated into the Technical Support Data Notebook (TSDN). The following are brief summaries of the analyses performed to estimate the peak discharges for the project area. Please note that many of the tables referenced herein are not specifically named as yet. They are, however, included in each appendix as noted in the text. We will finalize the naming/numbering of these tables upon completion of the TSDN.

INTRODUCTION

This memorandum documents the hydrologic analyses performed for this study and establishes new peak discharge estimates for re-mapping the floodplain of Tropicana Wash and Tributaries upstream of the confluence with Flamingo Wash. The purpose of the project is to obtain a CLOMR for Tropicana Wash and Tributaries, upstream of the confluence with Flamingo Wash, and especially in the area upstream of I-15. The effective FIS special flood hazard areas are based on a previous 1993 flood insurance study [1]. The basis for the proposed CLOMR application is the completion (or near completion) of several key regional flood control facilities that were developed since the 1993 study. The study was contracted by Clark County Regional Flood Control District and the prime study contractor is HDR Engineering, Inc.

WATERSHED DESCRIPTION

Much of the watershed has been significantly altered when compared to the 1993 analyses that are currently documented in the effective FIS. The most pronounced changes include the construction of several regional flood control facilities and increased development of the watershed.

All of the flood control facilities were designed and constructed either directly by, or in association with, the LA District of the U.S. Army Corp of Engineers (USACE) project entitled *Las Vegas Wash and Tributaries (Tropicana and Flamingo Washes) Project.*

---

[1] CH2M Hill, Inc., 1993, *Flood Insurance Study Restudy of Tropicana Wash and Tributaries*, as contracted by CCRFCD.

- Channel routing parameters and check calculations are summarized in Table E-2 of Appendix E.

Diversion Parameters

- Three diversions are modeled with this study. The first (HEC-1 operation D106R) is a culvert on Tropicana Wash that crosses under the Union Pacific Railroad (UPRR) approximately 1,300 feet south of Tropicana Avenue. The second (HEC-1 operation D108R) is a flow split that will occur at the intersection of Industrial Boulevard and Tropicana Avenue. The third (HEC-1 operation D114L) is a diversion at a culvert along Interstate 15 south of the interchange with Interstate 215 (Las Vegas Beltway).
- The diversion data at each of the culverts (D106R and D114L) are incorporated to the model without change from the effective FIS HEC-1 model (LTR100.*). See notes in the HEC-1 model output.
- The diversion rating table for the Industrial/Tropicana flow-split was developed using data presented in the hydrology section of the effective FIS technical study data notebook [CH2M Hill,1993]. Summary calculations are provided in Appendix F.

Tropicana Detention Basin Outflow

- Tropicana Detention Basin (TDB) outflow is input to the model as a runoff hydrograph.
- Discharges at 30-minute intervals were extracted from the outflow hydrograph[1] published in the design memorandum for TDB. A copy of the TDB hydrograph (Plate 6) is provided in Appendix F.
- A basin area of one square mile is arbitrarily assigned to insure a reasonable interpolation of the index hydrographs for the estimate of peak discharges downstream of the TDB.

HEC-1 Modeling Results

- The entire area modeled, including concentration points and routing flowpaths, is depicted on Exhibit 1 in Appendix B.
- The results of both HEC-1 models are presented in Tables 1 and 2, in Appendix A. Table 1 is a comparison of the new values to the effective FIS values at the key locations summarized in the FIS report. Table 2 is a complete listing of the results for all HEC-1 operations including peak discharge, time to peak, volume of excess runoff, and unit discharge. Table 2 is also arranged both in HEC-1 model run order and alpha-numerically sorted by HEC-1 operation identification name.

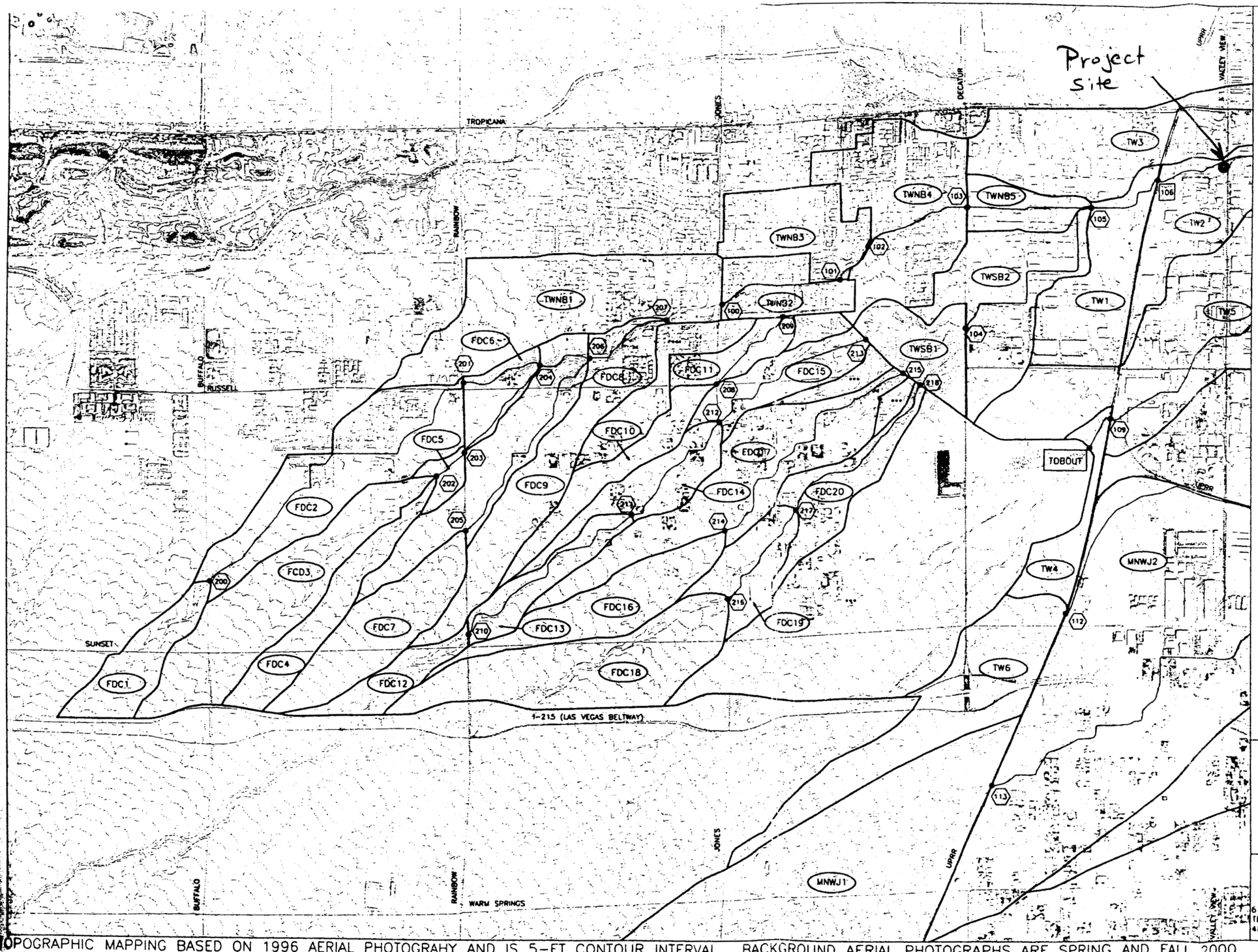
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[1] USACOE, 1996, *Design Memorandum for Tropicana Detention Basin and Outlet Channel*, Las Vegas Wash and Tributaries (Tropicana and Flamingo Washes), Nevada Project, Plate 6, Los Angeles District.

Table 1

Comparison of effective FIS and New Peak 100-year discharges

Location Description per Effective FIS (CH2MHill Study)	Effective FIS (CH2MHill, 1993)			New 100-Year Estimates (JE Fuller, 2001)			
	Concentration Point ID	Tributary Area sq. miles	Peak Discharge cfs	HEC-1 Model	HEC-1 Operation ID	Tributary Area sq. miles	Peak Discharge cfs
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
North Branch of TW at Confluence #2	T1A	1.10	850	FDC100.OH1	C204	0.92	821
North Branch of TW at Jones Blvd	T1	1.60	1200	LTW100.OH1	TWNB1	0.36	489
North TW at Confluence with Central	T3	2.60	1450	LTW100.OH1	C105L	0.99	1302
Central TW at Jones Blvd	T5A	0.90	530	FDC100.OH1	C212	0.27	189
South TW above Jones Blvd	T5B	2.40	1500	FDC100.OH1	FDC18	0.30	340
Central TW at Confluence with North TW	T6	5.50	3300	LTW100.OH1	C105R	0.35	424
Confluence of South & Central TW at Decatur	T6C	2.90	1800	LTW100.OH1	TWSB1	0.11	121
TW at UPRR	T6+T3	8.10	4100	LTW100.OH1	C106	1.54	1818
TW at I-15 Culvert Inlet	T10	11.00	5100	LTW100.OH1	C110	3.86	2723
TW at Koval Rd	T11	12.10	5100	LTW100.OH1	C111	4.99	3995
TW at Confluence with Flamingo Wash	T12	20.10	5300	LTW100.OH1	C122	12.10	4980



CLARK COUNTY REGIONAL FLOOD CONTROL DISTRICT

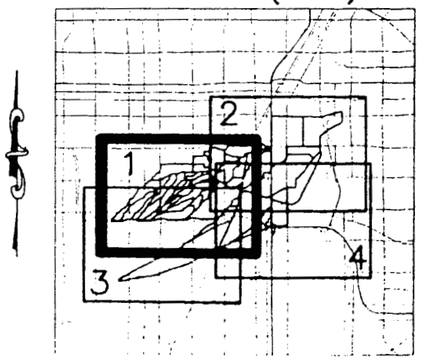
TROPICANA FLOOD INSURANCE STUDY
TROPICANA WASH AND TRIBUTARIES

MAY, 2001

LEGEND

- SUBBASIN BOUNDARY
- TWNB1 — SUBBASIN ID
- CONCENTRATION POINT
- 101 — SUBBASIN OR HYDROGRAPH COMBINE OPERATION
- 106 — DIVERSION OPERATION
- ROUTING FLOWPATH
- *** — SUBBASIN NOT MODELED

KEY MAP (NTS)



GRAPHIC SCALE

1000 0 500 1000 2000 4000

(IN FEET)
1 inch = 2000 ft.

EXHIBIT 1
WATERSHED MAP

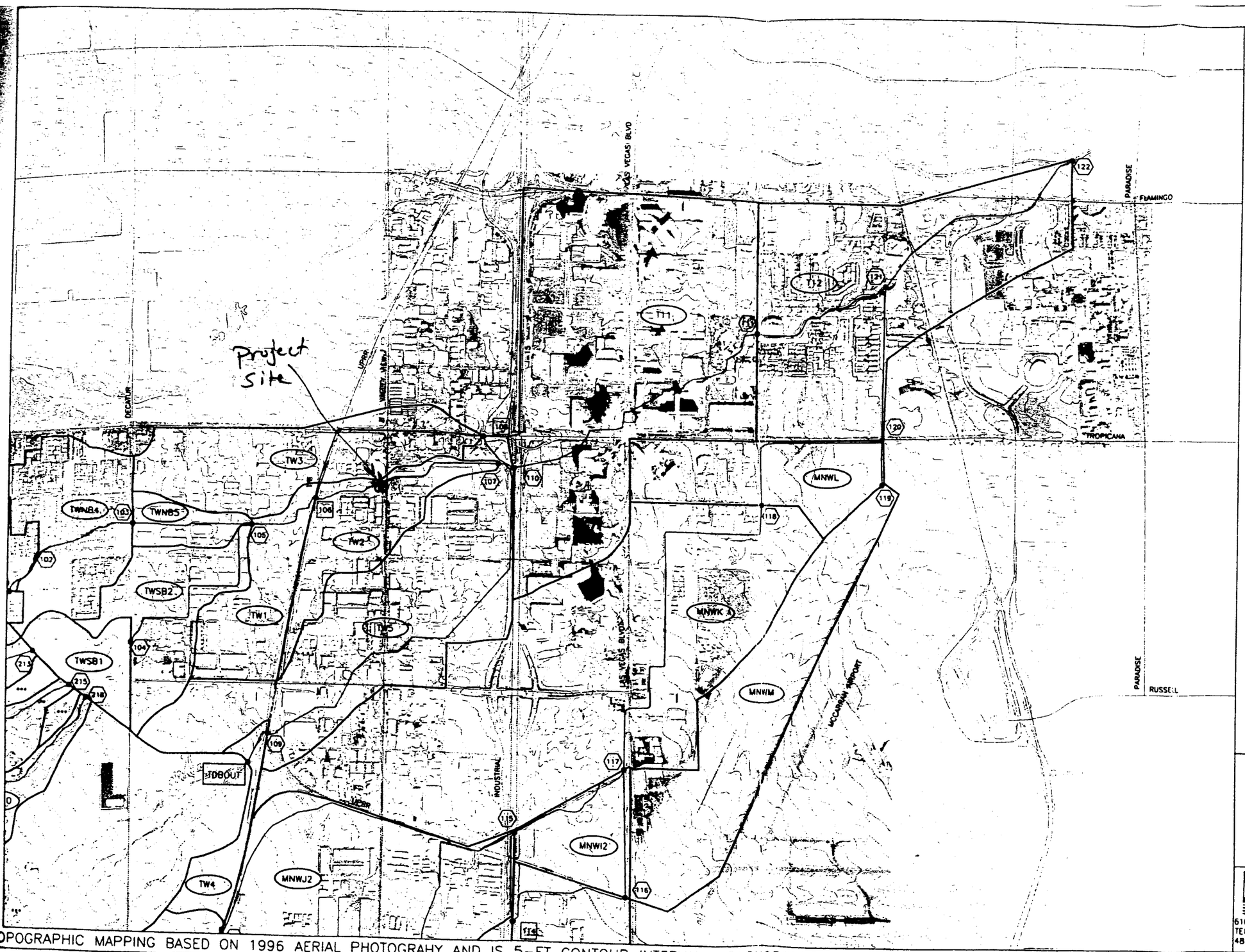
SHEET 1 OF 4

JE FULLER
HYDROLOGY & GEOMORPHOLOGY, INC.

6101 S. RURAL ROAD, STE 110
TEMPE, ARIZONA 85283
480-752-2124

2881 N. SILVER SPUR DRIVE
TUCSON, ARIZONA 85745
520-623-3112

TOPOGRAPHIC MAPPING BASED ON 1996 AERIAL PHOTOGRAHY AND IS 5-FT CONTOUR INTERVAL. BACKGROUND AERIAL PHOTOGRAPHS ARE SPRING AND FALL 2000.



TOPOGRAPHIC MAPPING BASED ON 1996 AERIAL PHOTOGRAHY AND IS 5-FT CONTOUR INTERVAL. BACKGROUND AERIAL PHOTOGRAPHS ARE SPRING AND FALL 2000.

CLARK COUNTY REGIONAL
FLOOD CONTROL DISTRICT

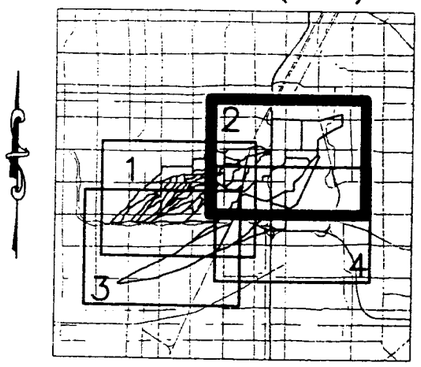
TROPICANA FLOOD INSURANCE STUDY
TROPICANA WASH AND TRIBUTARIES

MAY, 2001

LEGEND

- SUBBASIN BOUNDARY
- TWNB1 — SUBBASIN ID
- CONCENTRATION POINT
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- ROUTING FLOWPATH
- *** — SUBBASIN NOT MODELED

KEY MAP (NTS)



GRAPHIC SCALE

1000 0 500 1000 2000 4000

(IN FEET)
1 inch = 2000 ft.

EXHIBIT 1
WATERSHED MAP

SHEET 2 OF 4

JE FULLER
HYDROLOGY & GEOMORPHOLOGY, INC

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TEMPE, ARIZONA 85283
480-752-2124

2881 N. SILVER SPUR DRIVE
TUCSON, ARIZONA 85745
520-623-3112

```
1*************************************
*                                   *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
*             JUN   1998            *
*           VERSION 4.1             *
*                                   *
*  RUN DATE   27FEB02  TIME  07:05:00   *
*                                   *
*************************************
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*************************************
*                                   *
*    U.S. ARMY CORPS OF ENGINEERS     *
*    HYDROLOGIC ENGINEERING CENTER    *
*         609 SECOND STREET           *
*       DAVIS, CALIFORNIA 95616       *
*           (916) 756-1104            *
*                                   *
*************************************
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X     X  XXXXXXX   XXXXX           X
X     X  X         X     X        XX
X     X  X         X              X
XXXXXXX  XXXX      X        XXXXX X
X     X  X         X              X
X     X  X         X     X        X
X     X  XXXXXXX    XXXXX         XXX
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THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE.
THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION
NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,
DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL LOSS RATE:GREEN AND AMPT INFILTRATION
KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM

1 HEC-1 INPUT PAGE 1

```
LINE          ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  1           ID    TROPICANA FLOOD INURANCE STUDY                                DATE: 2/26/02
  2           ID    PREPARED FOR:  CLARK COUNTY REGIONAL FLOOD CONTROL DISTRICT
  3           ID    ENGINEER:  J.E. FULLER HYDROLOGY & GEOMORPHOLOGY, INC.          BY: WSO
  4           ID    FILE NAME: LTW100.IH1
  5           ID
  6           ID    - 100-YEAR, 6-HOUR MODEL
  7           ID    - LOCAL AND BASIN WIDE STORMS BOTH MODELED HEREIN
  8           ID    - STORM RAINFALL DISTRIBUTION SDN#3 FOR AREAS UP TO 8 SQ MILES
  9           ID    - STORM RAINFALL DISTRIBUTION SDN#4 FOR AREAS 8 TO 12 SQ MILES
 10           ID    - STORM RAINFALL DISTRIBUTION SDN#5 FOR AREAS GREATER THAN 12 SQ MILES
 11           ID    - JD RECORDS USED TO SIMULATE AREAL REDUCTION FACTORS FOLLOWING
 12           ID      TABLE 502 OF THE CCRFCD HYDROLOGIC CRITERIA AND DRNG DSGN MANUAL AND
 13           ID      THE 6-HOUR STORM DISTRIBUTIONS FOLLOWING TABLE 503
 14           ID    - TROPICANA WASH WATERSHED WITH THE FOLLOWING DRAINAGE STRUCTURES IN PLACE:
 15           ID      ** BLUE DIAMOND DETENTION BASIN - (EXISTING)
 16           ID      ** LAS VEGAS BELTWAY CHANNEL, SECTIONS 7A AND 7B - (EXISTING)
 17           ID      ** LOWER BLUE DIAMOND CHANNEL - (EXISTING)
 18           ID      ** TROPICANA OUTLET CHANNEL - (EXISTING)
 19           ID      ** TROPICANA DETENTION BASIN - (EXISTING)
 20           ID      ** LOWER FLAMINGO DIVERSION CHANNEL, PH I - (TO BE COMPLETE IN 12-18MOS)
 21           ID    - EFFECTIVE MODEL IS LTROP100.DAT FROM CH2MHILL 1993 FIS STUDY
 22           ID    - NEW SUBBASINS TWNB1-TWNB14, TWSB1, TWSB2, AND TW1-TW6 REPLACE OLD T1-T10
 23           ID    - SUBBASINS T11,T12,MNWFG,MNW11,MNW12,MNWJ1,MNWJ2,MNWK,MNWL, AND MNWM ARE
 24           ID      UPDATED TO REFLECT RECENT DEVELOPMENT AND REGIONAL DRAINAGE FACILITIES
 25           ID    - OUTLET DISCHARGE FROM TROPICANA DETENTION BASIN IS DISCRETIZED FROM DM
 26           ID      PLATE 6 AT 0.5 HOUR INCREMENTS.  MAX DESIGN Q100 = 500 CFS.
 27           ID    - CASCADING DIVERSIONS FROM SUBBASINS MNWB,MNWC,MNWD,AND MNWE IN BASE MODEL
 28           ID      ARE INCONSEQUENTIAL TO TROPICANA WASH FLOWS AND ARE REMOVED FROM MODEL
 29           ID      TO PROVIDE NUMERICAL STABILITY.  THIS WAS ALSO DONE IN THE 1997 LAS
 30           ID      VEGAS VALLEY FLOOD CONTROL MASTER PLAN UPDATE.  RECORDS ARE PRESERVED
 31           ID      AS COMMENT RECORDS.
 32           ID    - LOWER FLAMINGO WASH SUBBASIN F16 FROM THE 1996 LAS VEGAS VALLEY MASTER
 33           ID      PLAN UPDATE HEC-1 MODELING IS ADDED TO ASSESS INDUSTRIAL ROAD OVERFLOW
 34           ID      AND THE ZONE A EXTENDING EAST OF I-15.
 35           ID
 36           ID    THE FOLLOWING IS THE HEADER INFORMATION FROM THE BASE FIS MODELS
              *  ************************************************************************
              *  ************************************************************************
              *    INPUT FILE = LTR100.DAT
              *    CLARK COUNTY FLOOD CONTROL DISTRICT MASTER PLAN UPDATE
              *    RED ROCK/FLAMINGO/TROPICANA WATERSHED
              *    EXISTING DRAINAGE SYSTEM WITH PRESENT DEVELOPMENT
              *    FLAMINGO/TROPICANA STORM (NO UPPER BLUE DIAMOND)- LOCAL TROPICANA AREA RUN
              *        100-YEAR 6-HR STORM (SDN #3)
              *        CH2M JUNE, 1992 FROM JMM OCTOBER 1990 FILE SUPPLIED BY CCRFCD
              *           FULLER (10785)
              *
              *        BASIC DATA FILE BASED ON COE FILE S10P40X.
              *        MODIFICATIONS ADDED FROM B&V RED ROCK BASIN AND UPPER FLAMINGO
              *        BASIN HEC-1 RUNS; NIMBUS NORTHWEST MCCARRAN AIRPORT HEC-1 RUNS;
              *        AND SUBBASIN MODIFICATIONS DUE TO RECENT DEVELOPMENT.
              *
              *        COE MUSKINGUM ROUTING CONVERTED TO KINEMATIC FOR EXISTING
              *        IMPROVED CHANNELS FROM FACILITY INVENTORY.
              *
              *    PB CARDS CONTAIN POINT PRECIPITATION.  DARF'S FROM CCRFCD MANUAL
              *    BASED ON STORM AREAS FOR CONCENTRATION POINTS AS FOLLOWS:
              *
              *        SUBBASIN          AREA (SQMI)         DARF
              *        --------          -----------         ----
              *         T1,T8             1.0,1.2           0.95
              *         T3,T9             2.6,2.1           0.93
```

```
*          T5,T6,J2          4.2,5.5,5.4          0.90
*           MNW-M               8.0                0.88
*  ************************************************************************
*  ************************************************************************
*   INPUT FILE = BDTROP100.DAT
*    CLARK COUNTY FLOOD CONTROL DISTRICT MASTER PLAN UPDATE
*    RED ROCK/FLAMINGO/TROPICANA WATERSHED
*    EXISTING DRAINAGE SYSTEM WITH PRESENT DEVELOPMENT
*    BASIN-WIDE STORM - TROPICANA AREA ONLY
*        100-YEAR 6-HR STORM (SDN #5)
*        JMM    OCTOBER 1990
*        CH2M HILL JUNE 1992 MODIFY FOR TROPICANA STUDY - FULLER & ALLEN
*
*        BASIC DATA FILE BASED ON COE FILE S10P40X.
*        MODIFICATIONS ADDED FROM B&V RED ROCK BASIN AND UPPER FLAMINGO
*        BASIN HEC-1 RUNS; NIMBUS NORTHWEST MCCARRAN AIRPORT HEC-1 RUNS;
*        AND SUBBASIN MODIFICATIONS DUE TO RECENT DEVELOPMENT.
*
*        COE MUSKINGUM ROUTING CONVERTED TO KINEMATIC FOR EXISTING
*        IMPROVED CHANNELS FROM FACILITY INVENTORY.
*
*   PB CARDS CONTAIN POINT PRECIPITATION.  DARF'S FROM CCRFCD MANUAL
*    BASED ON STORM AREAS FOR CONCENTRATION POINTS AS FOLLOWS:
*
*        SUBBASIN          AREA (SQMI)          DARF
*        --------          -----------          ----
*        B504,T8,T9      69.5,70.8,71.6         0.65
*        T10,T11,T12     80.5,81.6,90.4         0.63
*  ************************************************************************
*  ************************************************************************
*
*DIAGRAM
```

1 HEC-1 INPUT PAGE 2

```
LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  37      IT       1       0       0    1000
  38      IO       5
          *  *** NO CONTRIBUTION FROM UPPER BLUE DIAMOND FOR FLAMINGO/RED ROCK STORM ***
          *  *** NO CONTRIBUTION FROM AREAS INTERCEPTED BY THE LV BELTWAY CHANNEL ***
          *
          *  ************************************************
          *  *** BEGIN TROPICANA WASH MODELING BY JE FULLER ***
          *  ************************************************
  39      IN       5
  40      JD    2.77   0.001
          *  ******************
          *  ***INSERT SDN#3***
          *  ******************
  41      PC    0.00    0.02   0.057   0.07   0.087   0.108   0.124   0.130   0.130   0.130
  42      PC   0.130   0.130   0.130   0.133   0.140   0.142   0.148   0.158   0.172   0.181
  43      PC   0.190   0.197   0.199   0.200   0.201   0.204   0.214   0.229   0.241   0.249
  44      PC   0.251   0.256   0.270   0.278   0.281   0.283   0.295   0.322   0.352   0.409
  45      PC   0.499   0.590   0.710   0.744   0.781   0.812   0.819   0.835   0.851   0.856
  46      PC   0.860   0.868   0.876   0.888   0.910   0.926   0.937   0.950   0.970   0.976
  47      PC   0.982   0.985   0.987   0.989   0.990   0.993   0.993   0.994   0.995   0.998
  48      PC   0.998   0.999   1.000
  49      JD    2.76     0.1
  50      JD    2.72     0.5
  51      JD    2.69     1.0
  52      JD    2.58     2.0
  53      JD    2.44     8.0
          *  ******************
          *  ***INSERT SDN#4***
          *  ******************
  54      PC    .000    .020    .058    .075    .099    .126    .137    .145    .149    .151
  55      PC    .155    .156    .159    .162    .169    .172    .179    .189    .201    .211
  56      PC    .220    .228    .232    .240    .246    .252    .260    .269    .276    .283
  57      PC    .286    .292    .302    .312    .321    .332    .352    .376    .415    .462
  58      PC    .530    .610    .710    .732    .756    .782    .799    .813    .823    .830
  59      PC    .835    .844    .851    .864    .885    .908    .924    .944    .968    .973
  60      PC    .978    .982    .984    .986    .988    .991    .992    .993    .994    .997
  61      PC    .998    .999   1.00
  62      JD    2.44    8.01
  63      JD    2.34    12.0
          *  ******************
          *  ***INSERT SDN#5***
          *  ******************
  64      PC    .000    .020    .059    .080    .110    .144    .150    .160    .168    .171
  65      PC    .180    .182    .187    .190    .197    .202    .210    .220    .230    .241
  66      PC    .250    .259    .265    .280    .290    .300    .305    .309    .310    .317
  67      PC    .321    .327    .333    .346    .361    .381    .408    .430    .477    .514
  68      PC    .561    .630    .710    .720    .731    .752    .779    .790    .795    .804
  69      PC    .810    .820    .826    .840    .859    .889    .910    .938    .966    .970
  70      PC    .974    .979    .981    .983    .985    .989    .990    .992    .993    .996
  71      PC    .997    .999   1.00
  72      JD    2.34   12.01
  73      JD    2.19    20.0
          *  ***
```

1 HEC-1 INPUT PAGE 3

```
LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  74      KK   TWNB1  CONCENTRATION POINT C100
  75      KM    RUNOFF FROM SUBBASIN TWNB1
  76      BA   0.364
  77      LS       0    87.9
  78      UK     200   0.010    0.10     100
  79      RX     800   0.010   0.018    0.05    TRAP      30       4
```

```
 80          RK    4400   0.015   0.035            TRAP      40       4
             *  ***

 81          KK  100101
 82          KM    ROUTE RUNOFF FROM C100 TO C101
 83          RK    2600   0.013   0.018            TRAP      20     0.5
             *  ***

 84          KK   TWNB2  CONCENTRATION POINT C101
 85          KM    RUNOFF FROM SUBBASIN TWNB2
 86          BA   0.106
 87          LS       0    85.1
 88          UK     200   0.010    0.10     100
 89          RK    1300   0.014   0.018    0.03    TRAP      30       4
 90          RK    2600   0.013   0.018            TRAP      20     0.5
             *  ***

 91          KK    C101
 92          KM    COMBINE HYDROGRAPHS: SUBBASIN TWNB2 AND ROUTED FLOW FROM C100
 93          HC       2
             *  ***

 94          KK  101102
 95          KM    ROUTE RUNOFF FROM C101 TO C102
 96          RK     900   0.011   0.035            TRAP      25       8
             *  ***

 97          KK   TWNB3  CONCENTRATION POINT C102
 98          KM    RUNOFF FROM SUBBASIN TWNB3
 99          BA   0.156
100          LS       0    90.2
101          UK     200   0.008    0.10     100
102          RK    1300   0.005   0.018    0.05    TRAP      30       4
103          RK    2500   0.015   0.018            TRAP      40       4
             *  ***

104          KK    C102
105          KM    COMBINE HYDROGRAPHS: SUBBASIN TWNB3 AND ROUTED FLOW FROM C101
106          HC       2
             *  ***

107          KK  102103
108          KM    ROUTE RUNOFF FROM C102 TO C103
109          RK    2250   0.013   0.018            TRAP      25     0.5
             *  ***
1                                      HEC-1 INPUT                                    PAGE  4

LINE         ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

110          KK   TWNB4  CONCENTRATION POINT C103
111          KM    RUNOFF FROM SUBBASIN TWNB4
112          BA   0.295
113          LS       0    89.7
114          UK     200   0.010    0.10     100
115          RK    1300   0.015   0.018    0.05    TRAP      30       4
116          RK    2000   0.005   0.018    0.15    TRAP      40       4
117          RK    1900   0.013   0.018            TRAP      25     0.5
             *  ***

118          KK    C103
119          KM    COMBINE HYDROGRAPHS: SUBBASIN TWNB4 AND ROUTED FLOW FROM C102
120          HC       2
             *  ***

121          KK  103105
122          KM    ROUTE RUNOFF FROM C103 TO C105
123          RK    2600   0.013   0.035            TRAP      25     0.5
             *  ***

124          KK   TWNB5  CONCENTRATION POINT C105
125          KM    RUNOFF FROM SUBBASIN TWNB5
126          BA   0.072
127          LS       0    87.9
128          UK     300   0.010    0.10     100
129          RK    1000   0.015   0.018   0.002
130          RK     400   0.008   0.015    0.01    TRAP      30       4
131          RK    2200   0.013   0.035            TRAP      25     0.5
             *  ***

132          KK   C105L
133          KM    COMBINE HYDROGRAPHS: SUBBASIN TWNB5 AND ROUTED FLOW FROM C103
134          HC       2
             *  ***

135          KK   TWSB1  CONCENTRATION POINT C104
136          KM    RUNOFF FROM SUBBASIN TWSB1 AT C104
137          BA   0.112
138          LS       0    81.3
139          UK     200   0.015    0.10     100
140          RK     300   0.025   0.050    0.01    TRAP      10       8
141          RK    1000    0.02   0.035    0.05    TRAP      20       8
142          RK    1000   0.015   0.035            TRAP      40       6
             *  ***

143          KK  104105
144          KM    ROUTE RUNOFF FROM C104 TO C105
145          RK    4700   0.010   0.030            TRAP      25     0.5
             *  ***
1                                      HEC-1 INPUT                                    PAGE  5
```

```
LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

 146      KK   TWSB2  CONCENTRATION POINT C105
 147      KM    RUNOFF FROM SUBBASIN TWSB2
 148      BA   0.237
 149      LS      0    91.3
 150      UK    300   0.010    0.10     100
 151      RK   1000   0.015   0.015    0.01    TRAP      30       4
 152      RK   1300   0.005   0.015    0.06    TRAP      40       4
 153      RK   4400   0.010   0.030            TRAP      25     0.5
          *  ***

 154      KK   C105R
 155      KM    COMBINE HYDROGRAPHS: TWSBB2 AND ROUTED FLOWS FROM C104
 156      HC      2
          *  ***

 157      KK    C105
 158      KM    COMBINE HYDROGRAPHS: RIGHT (C105R) AND LEFT (C105L) BRANCHES
 159      HC      2
          *  ***

 160      KK  105106
 161      KM    ROUTE RUNOFF FROM C105 TO C106
 162      RK   1700  0.0088   0.045            TRAP      30      10
          *  ***

 163      KK     TW1  CONCENTRATION POINT C106
 164      KM    RUNOFF FROM SUBBASIN TW1
 165      BA   0.194
 166      LS      0    92.4
 167      UK    300   0.010    0.10     100
 168      RK   1200   0.015   0.018    0.03    TRAP      30       4
 169      RK   4000   0.008   0.018    0.09    TRAP      40       4
 170      RK   1400  0.0088   0.045            TRAP      30      10
          *  ***

 171      KK    C106
 172      KM    COMBINE HYDROGRAPHS: TW1 AND ROUTED FLOWS FROM C105
 173      HC      2
          *  ***
          *  ********************************************************************
          *  *** DIVERSION OPERATION AND RATING IS INCORPORATED UNCHANGED FROM THE ***
          *  *** CH2MHILL 1993 FIS MODEL.                                        ***
          *  ********************************************************************
          *  ***

 174      KK   D106R
 175      KM    DIVERT CULVERT OVERFLOW NORTH ALONG UPRR TO SUBBASIN TW3 AND C108
          *  KK   T6 DIVERT OVERFLOW ALONG UPRR
          *  KM       UPRR 114" CMP CULVERT - 750 CFS CAPACITY
 176      DT   D106L
 177      DI      0     750    1500   10000
 178      DQ      0       0     750    9250
          *  ***

1                                  HEC-1 INPUT                          PAGE  6

LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

 179      KK  106107
 180      KM    ROUTE RUNOFF FROM D106R TO C107
 181      RK   4100   0.013   0.040            TRAP      20       2
          *  ***

 182      KK     TW2  CONCENTRATION PONT C107
 183      KM    RUNOFF FROM SUBBASIN TW2
 184      BA   0.207
 185      LS      0    92.1
 186      UK    300   0.010    0.10     100
 187      RK   1200   0.015   0.018    0.03    TRAP      30       4
 188      RK   2000   0.008   0.018    0.10    TRAP      40       4
 189      RK   3800   0.013   0.040            TRAP      20       2
          *  ***

 190      KK    C107
 191      KM    COMBINE HYDROGRAPHS: TW2 AND ROUTED FLOWS FROM D106R
 192      HC      2    1.74
          *  ***
          *  ********************************************************************
          *  *** NO ROUTE OPERATION FOR C107 TO C110.  TOO SHORT TO ROUTE  ***********
          *  ********************************************************************
          *  ***

 193      KK     TW3  CONCENTRATION POINT C108
 194      KM    RUNOFF FROM SUBBASIN TW3
 195      BA   0.351
 196      LS      0    91.9
 197      UK    300   0.010    0.10     100
 198      RK   1000   0.015   0.015    0.03    TRAP      30       4
 199      RK   1600   0.008   0.015    0.07    TRAP      40       4
 200      RK   6900   0.012   0.015            TRAP      60       4
          *  ***

 201      KK   D106L
 202      KM    RETREIVE DIVERTED FLOW FROM D106L
 203      DR   D106L
          *  ***
```

Runoff within Tropicana Wash near the site as determined in Both 1992 & 2002 FIS. ≈750 cfs

```
 204          KK  106108
 205          KM    ROUTE DIVERTED FLOW FROM D106L TO C108
 206          RK    4500   0.015   0.018            TRAP      80       4
              *  ***

 207          KK    C108
 208          KM    COMBINE HYDROGRAPHS: TW3 AND ROUTED DIVERSION FLOW FROM D106L
 209          HC       2    1.88
              *  ***
1                                        HEC-1 INPUT                                                    PAGE  7

LINE          ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

 210          KK   D108R
 211          KM    DIVERT FLOWS AT TROPICANA AVE & INDUSTRIAL
 212          KM    D108L CONTINUES NORTHEASTERLY AND REJOINS FLAMNINGO WASH NEAR PARADISE RD
 213          DT   D108L
 214          DI       0     200     400     800    1433    2000
 215          DQ       0     100     200     400     726    1025
              *  ***

 216          KK  108110
 217          KM    ROUTE RUNOFF FROM D108R TO C110
 218          RK    1000   0.011   0.018            TRAP      40       4
              *  ***

 219          KK   C110L
 220          KM    COMBINE HYDROGRAPHS AT LEFT BRANCH OF C110: ROUTED D108L AND C107
 221          HC       2    3.62
              *  ***

 222          KK     TW4  CONCENTRATION POINT C109
 223          KM    RUNOFF FROM SUBBASIN TW4 AT C109
 224          BA   0.080
 225          LS       0    82.6
 226          UK     600   0.012    0.10     100
 227          RK    4000   0.010   0.035   0.015    TRAP      30      10
              *  ***

 228          KK  TDBOUT
 229          KM    OUTFLOW HYDROGRAPH FOR TROPICANA DETENTION BASIN
 230          KM    DISCRETIZED DATA FROM USACE DM FOR TROPICANA DET BASIN & OUTLET CHANNEL
 231          KM    TOTAL AREA TRIBUTARY TO TROP DB IS 185 SQMILES.  AREA ON BA RECORD IS SET
 232          KM     TO 1.0 SQMILE TO KEEP THE TDBOUT RECORD FROM CONTROLLING JD INTERPOLATION
 233          IN      30
 234          BA       1
 235          QI       0      36     247     323     349     377     395     416     430     447
 236          QI     468     481     488     492     494     495     495     496     496     496
 237          QI     496     495     495     495     495     494     494     494     493     493
 238          QI     493     492     492     492     491
              *

 239          KK    C109
 240          KM     COMBINE HYDROGRAPHS: TDBOUT AND ROUTED FLOW FROM TW4
 241          HC       2
              *

 242          KK  109110
 243          KM    ROUTE RUNOFF FROM C109 TO C110R
 244          RK    8800   0.012   0.018            TRAP      10     0.1
              *  ***
1                                        HEC-1 INPUT                                                    PAGE  8

LINE          ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

 245          KK     TW5  CONCENTRATION POINT C110R
 246          KM    RUNOFF FROM SUBBASIN TW5 AT C110R
 247          BA   0.690
 248          LS       0    91.7
 249          UK     300   0.010    0.10     100
 250          RK    2600   0.015   0.018     0.1    TRAP      30       4
 251          RK    9200   0.010   0.018            TRAP      40       4
              *  ***

 252          KK   C110R
 253          KM    COMBINE HYDROGRAPHS TO FORM RIGHT BRANCH OF C110: ROUTED C109 AND TW5
 254          HC       2   0.690
              *  ***

 255          KK    C110
 256          KM    COMBINE HYDROGRAPHS: C110L AND C110R
 257          KM    ***NOTE***  JE FULLER C110 IS THE SAME POINT AS EFFECTIVE FIS T10
 258          HC       2    3.86
              *  ***

 259          KK  110111
 260          KM    ROUTE RUNOFF FROM C110 TO C111
 261          RK    1160    .010    .018            TRAP      32       0
              *  ***

 262          KK     T11  CONCENTRATION POINT C111
 263          KM    RUNOFF FROM SUBBASIN T11 AT C111
 264          BA   1.129
 265          LS       0    92.4
 266          UK     300    .010    0.10     100
 267          RK    1200    0.01   0.018    0.12    TRAP      35       1
 268          RK    4000   0.005   0.018    0.50    TRAP      70       1
```

```
269          RK    6500    0.01    0.018            TRAP      80       1      NO
             *  ***

270          KK    C111
271          KM    COMBINE HYDROGRAPHS: SUBBASIN T11 AND ROUTED FLOW FROM C110
272          HC       2    4.99
             *  ***

273          KK  111121
274          KM    ROUTE RUNOFF FROM C111 TO C121
275          RK    3090   .0088    .018            TRAP    50.0       0
             *  ********************************************************************************
             *  ********************************************************************************
             *  ** ORIGINAL DELINEATION OF SUBAREAS MNW-B THRU MNW-M PER NIMBUS HEC-1      **
             *  ** ANALYSIS FOR NORTHWEST MCCARRAN AIRPORT DRAINAGE STUDY.  DIVERTED FLOWS**
             *  ** FROM SUBBASINS MNW-B THRU MNW-E ARE INCONSEQUENTIAL TO TROPICANA WASH   **
             *  ** FLOWS, AND THE HEC-1 OPERATIONS FOR THESE SUBBASINS ARE REMOVED FROM    **
             *  ** THIS MODEL TO PRESERVE NUMERICAL STABILITY.  RECORDS ARE COMMENTED OUT **
             *  ** IN THE FOLLOWING TO PROVIDE AN ARCHIVE OF THE ORIGINAL MODELING INTENT.**
             *  ********************************************************************************
             *  ********************************************************************************
             *   KK MNW-B RUNOFF FROM B
             *   BA  0.68
             *   LS              65      10
             *   UD   2.4
             *   KK  DIVB FLOW SPLIT AT I-15; BCULV IS FLOW CONVEYED BY CULVERT
             *   DT BCULV
             *   DI      0       22     100      500
             *   DQ      0       22      22       22
             *   KK RDIVB ROUTE DIVB TO CULVERT AT I15 AND C
             *   RK   600    .004     .05               0       5
             *   KK MNW-C RUNOFF AT C
             *   BA  0.69
             *   LS              65      17
             *   UD   2.0
             *   KK MNW-C COMBINE DIVB+C
             *   HC      2
             *   KK MNW-C PONDING STORAGE ROUTING AT I-15
             *   RS      1    STOR       0
             *   SA      0     .28      .92     2.02     3.19     3.44     5.37     9.09
             *   SQ      0       8       25       35       40       78      360     1342
             *   SE     54      55       56       57    57.43       58       59       60
             *   KK  DIVC FLOW SPLIT AT C THRU AND AROUND CULVERT
             *   DT CCULV
             *   DI      0       8       25       35       40       78      360     1342
             *   DQ      0       8       25       35       40       45       55       65
             *   KK RDIVC ROUTE DIVC NORTH TO D
             *   RK   650    .004     .05               0       0       20
             *   KK MNW-D RUNOFF FROM D
             *   BA   .05
             *   LS              66      10
             *   UD   .40
             *   KK MNW-D COMBINE DIVC AND D
             *   HC      2
             *   KK  DIVD DIVERT FLOW TO NORTH; DCULV CROSSES I-15
             *   DT DCULV
             *   DI      0       28     100      500
             *   DQ      0       28      28       28
             *   KK RDIVD ROUTE DIVERTED FLOW NORTH TO E
             *   RK   800    .004     .05                0       0       20
             *   KK MNW-E RUNOFF FROM E
             *   BA  0.05
             *   LS              65      18
             *   UD  0.38
             *   KK MNW-E COMBINE DIVD + E
             *   HC      2
             *   KK ECULV DIV* E FLOW AT I-15 CULVERT; ECULV CROSSES I-15 INTO MNW-I
             *   DT ECULV
             *   DI      0       28     100      500
             *   DQ      0       28      28       28
             *   KK RDIVE ROUTE FLOW FROM DIVE NORTH ALONG I-15
             *   RK  1200    .007     .05               0       0       4
             *  ********************************************************************************
             *  ********************************************************************************
             *  ** SUBBASINS MNW-FG THRU MNW-L ARE UPDATED TO REFLECT CURRENT DEVELOPMENT **
             *  ** DENSITIES AND FLOW PATTERNS.  ROUTE REACHES ARE UPDATED TO REFLECT     **
             *  ** CURRENT FLOOD CONTROL FACILITES.
             *  ********************************************************************************
             *  ********************************************************************************
```



```
LINE         ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

276          KK   MNWFG  CONCENTRATION POINT C114
277          KM    RUNOFF FROM SUBBASIN MNWFG AT C114
278          BA   0.365
279          LS            77.1
280          UK     400   0.010    0.15     100
281          RK    1000   0.010   0.018    0.03    TRAP      30       1
282          RK    4100   0.012   0.030            TRAP       6       8      NO
             *  ***

283          KK   D114L
284          KM    DIVERT FLOW NORTH TO MODEL CULVERT THAT CROSSES I-15 INTO SUBAREA MNWI1
285          KM    DIVERSION RATING TAKEN FROM EFFECTIVE FIS MODEL WITHOUT CHANGE
286          DT   D114R
287          DI       0       50       60      100      150      250
288          DQ       0       50       60     60.1     60.2     60.3
             *  ***
```

```
                *  **********************************************************************
                *  *** ROUTE OPERATION REMOVED BY JE FULLER TO STABILIZE MODEL. ROUTING      ***
                *  *** REACH IS TOO SHORT OR ZERO FLOW CONDITION EXISTS FOR STORMS WITH      ***
                *  *** GREATER DEPTH-AREA REDUCTION VALUES (I.E. - ALL RUNOFF IS DIVERTED   ***
                *  *** WITH NO FLOWS REMAINING IN STACK. DATA IS RETAINED FOR REFERENCE     ***
                *  **********************************************************************
                *  ***
                *  KK RDIVG ROUTE DIVG NORTH TO AIRPORT CHANNEL
                *  RK  2200     .009     .040               0       0      10
                *  **

  289           KK   MNWJ1  CONCENTRATION POINT C113
  290           KM    RUNOFF FROM SUBBASIN MNWJ1 AT C113
  291           BA   1.698
  292           LS            64.0
  293           UK     400   0.015    0.10     100
  294           RK   10000   0.016   0.035    0.25    TRAP       10        6
  295           RK    4500   0.006   0.035            TRAP       10        8
                *  ***

  296           KK  113115
  297           KM    ROUTE RUNOFF FROM C113 TO C115C
  298           RK   10100   0.012   0.035       0    TRAP       20        4
                *  ***

  299           KK   MNWJ2  CONCENTRATION POINT C115
  300           KM    RUNOFF FROM SUBBASIN MNWJ2
  301           BA   1.296
  302           LS            79.0
  303           UK     400   0.015    0.10     100
  304           RK    2100   0.012   0.018    0.08    TRAP       30        1
  305           RK    8800    0.01   0.035            TRAP       10        4
                *  ***
1                                        HEC-1 INPUT                                                    PAGE 10

 LINE           ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  306           KK     TW6  CONCENTRATION POINT C112
  307           KM    RUNOFF FROM SUBBASIN TW6 AT C112
  308           BA   0.291
  309           LS            65.7
  310           UK     400   0.015    0.10     100
  311           RK    4000   0.015   0.035    0.10    TRAP        5        8
  312           RK    1500   0.012   0.035            TRAP       10        6       NO
                *  ***

  313           KK  112115
  314           KM    ROUTE RUNOFF FROM C112 TO C115L
  315           RK    6400    0.01   0.040       0    TRAP       10        4
                *  ***

  316           KK    C115
  317           KM    COMBINE HYDROGRAPHS: SUBBASIN MNWJ2 AND ROUTED FLOW FROM D114L,C113,AND C112
  318           HC       4    3.66
                *  ***

  319           KK  115117
  320           KM    ROUTE RUNOFF FROM C115 TO C117L
  321           RK    2800   0.011   0.040       0       0      10        6
                *  ***

  322           KK   D114R
  323           KM    RETREIVE DIVERTED HYDROGRAPH (RIGHT BRANCH) FROM C114
  324           DR   D114R
                *  ***

  325           KK  114116
  326           KM    ROUTE RUNOFF FROM D114R TO C116
  327           RK    2200   0.013   0.035            TRAP       6       10
                *  ***

  328           KK   MNWI1  CONCENTRATION POINT C116
  329           KM    RUNOFF FROM SUBBASIN MNWI1
  330           BA   0.352
  331           LS            91.9
  332           UK     500   0.010    0.15     100
  333           RK    2500   0.015   0.018    0.10    TRAP        5        6
  334           RK    2200   0.013   0.035            TRAP       6       10
                *  ***

  335           KK    C116
  336           KM    COMBINE HYDROGRAPHS: SUBBASIN MNWI1 AND ROUTED FLOW FROM D114R
  337           HC       2    0.72
                *  ***

  338           KK  116117
  339           KM    ROUTE RUNOFF FROM C116 TO C117R
  340           RK    2600    .008   0.035       0       0      10        6
                *  ***
1                                        HEC-1 INPUT                                                    PAGE 11

 LINE           ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  341           KK   MNWI2  CONCENTRATION POINT C117
  342           KM    RUNOFF FROM SUBBASIN MNWI2
  343           BA   0.142
  344           LS            80.1
  345           UK     300   0.010    0.20     100
```

```
 346          RK     500    0.01    0.030     0.02     TRAP        4        8
 347          RK    2500    0.01    0.035              TRAP        8        8
              *  ***

 348          KK    C117
 349          KM    COMBINE HYDROGRAPHS: SUBBASIN MNWI2 AND ROUTED FLOW FROM C115 AND C116
 350          HC       3    4.15
              *  ***

 351          KK  117118
 352          KM    ROUTE RUNOFF FROM C117 TO C118
 353          RK    8220    0.01    0.018              TRAP       12      1.5
              *  ***

 354          KK    MNWK  CONCENTRATION POINT C118
 355          KM    RUNOFF FROM SUBBASIN MNWK
 356          BA   1.385
 357          LS            88.9
 358          UK     500   0.012     0.10      100
 359          RK    1200   0.015    0.018     0.02     TRAP       35        1
 360          RK    2500   0.008    0.018     0.25     TRAP       70        1
 361          RK    7800    0.01    0.018              TRAP       12      1.5
              *  ***

 362          KK    C118
 363          KM    COMBINE HYDROGRAPHS: SUBBASIN MNWK AND ROUTED FLOW FROM C117
 364          HC       2    5.53
              *  ***

 365          KK  118120
 366          KM    ROUTE RUNOFF FROM C118 TO C120
 367          RK    3800   0.009    0.018        0     TRAP       16        0
              *  ***

 368          KK    MNWM  CONCENTRATION POINT C119
 369          KM    RUNOFF FROM SUBBASIN MNWM AT C119
 370          BA   0.509
 371          LS            90.7
 372          UK     500    0.01     0.10      100
 373          RK    1500    0.01    0.018     0.05     TRAP        5       10
 374          RK    7500    0.01    0.018              TRAP       10       10       NO
              *  ***

 375          KK  119120
 376          KM    ROUTE RUNOFF FROM C119 TO C120
 377          RK     930    0.01    0.018        0     TRAP        8        0
              *  ***
1                                        HEC-1 INPUT                                                    PAGE 12

LINE         ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

 378          KK    MNWL  CONCENTRATION POINT C120
 379          KM    RUNOFF FROM SUBBASIN MNWL AT C120
 380          BA   0.265
 381          LS            90.4
 382          UK     500   0.010     0.10      100
 383          RK    1200   0.006    0.018     0.02     TRAP       35        1
 384          RK    5200    0.01    0.018              TRAP       80        1       NO
              *  ***

 385          KK    C120
 386          KM    COMBINE HYDROGRAPHS: SUBBASIN MNWL AND ROUTED FLOW FROM C118 AND C119
 387          HC       3    6.30
              *  ***

 388          KK  120121
 389          KM    ROUTE RUNOFF FROM C120 TO C121
 390          RK    3200  0.0045    0.018        0     TRAP       20        1
              *  ***
              *  ********************************************************************************
              *  *** CONCENTRATION POINT C121 IS AN INTERIM COMBINE OPERATION TO ESTIMATE ***
              *  *** THE PEAK DISCHARGE AT THE CONFLUENCE OF TROPICANA WASH AND THE       ***
              *  *** MCCARRAN AIRPORT CHANNEL IMPROVEMENTS.                               ***
              *  ********************************************************************************
              *  ***

 391          KK    C121
 392          KM    COMBINE HYDROGRAPHS: ROUTED FLOW FROM C111 AND C120
 393          HC       2   11.29
              *  ***

 394          KK  121122
 395          KM    ROUTE RUNOFF FROM C121 TO C122
 396          RK    2600    0.01    0.018        0     TRAP       70        1
              *  ***

 397          KK     T12  CONCENTRATION POINT C122
 398          KM    RUNOFF FROM SUBBASIN T12 AT C122
 399          BA   0.807
 400          LS            82.5
 401          UK     300   0.010     0.10      100
 402          RK    1200   0.010    0.018     0.05     TRAP       35        1
 403          RK    2600   0.005    0.018     0.25     TRAP       70        1
 404          RK    4500    0.01    0.018              TRAP       80        1
              *  ***

 405          KK    C122
 406          KM    COMBINE HYDROGRAPHS: SUBBASIN T12 AND ROUTED FLOW FROM C121
 407          HC       2   12.10
```

```
LINE          ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

                  *  ***
 408              KK   D108L
 409              DR   D108L
                  *  ***

 410              KK  108123
 411              KM    ROUTE RUNOFF FROM D108L TO C123
 412              RK    3680   0.015   0.025            TRAP      50      50
                  *  ***
                  *  ********************************************************************************
                  *  *** ADD IN LOWER FLAMINGO SUBBASIN F16 FROM 1996 LAS VEGAS VALLEY MP      ***
                  *  *** UPDATE.                                                               ***
                  *  ********************************************************************************
                  *  ***

 413              KK     F16
 414              BA   0.546
 415              LS       0    75.5       0       0      98       0
 416              UK     600    0.01    0.15      20
 417              UK     400   0.015     0.1      80
 418              RK    1000    0.01   0.025    0.03       0       0       1
 419              RK    2400   0.015   0.025     0.1       0       0       1
 420              RK    6000   0.004    0.02       0    TRAP      40       3
                  *  ***

 421              KK   C123
 422              KM    COMBINE HYDROGRAPHS: ROUTED FLOW FROM D108L AND F16
 423              HC       2    2.426
                  *  ***
 424              ZZ
```

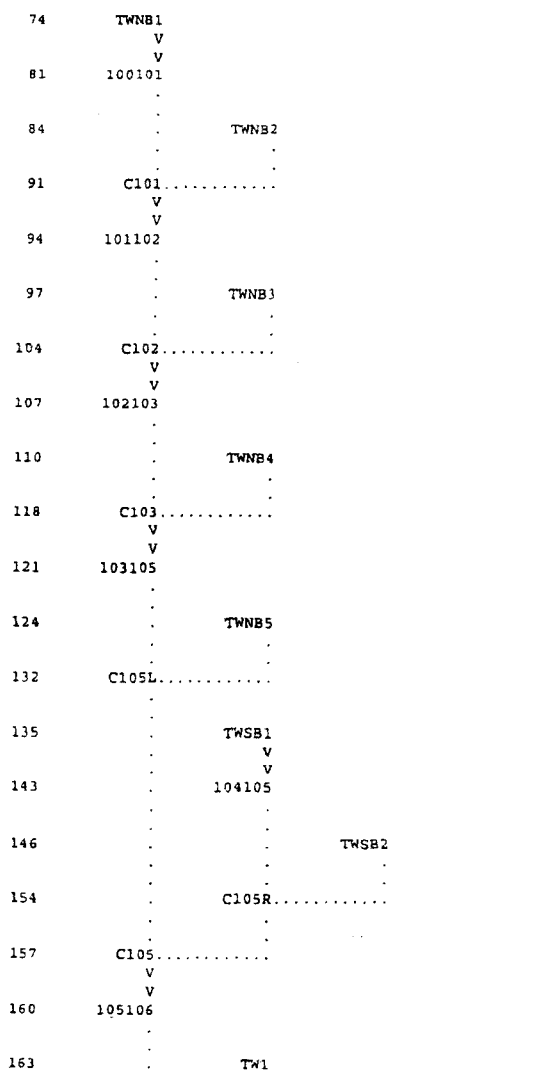
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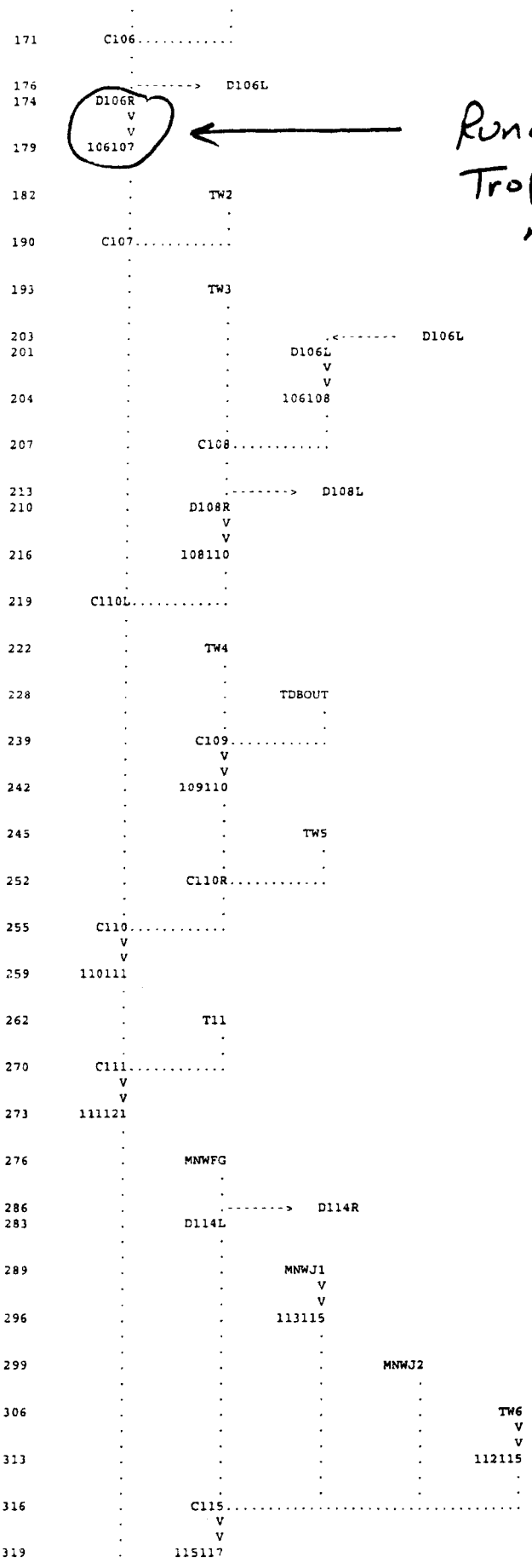
SCHEMATIC DIAGRAM OF STREAM NETWORK

INPUT LINE NO.

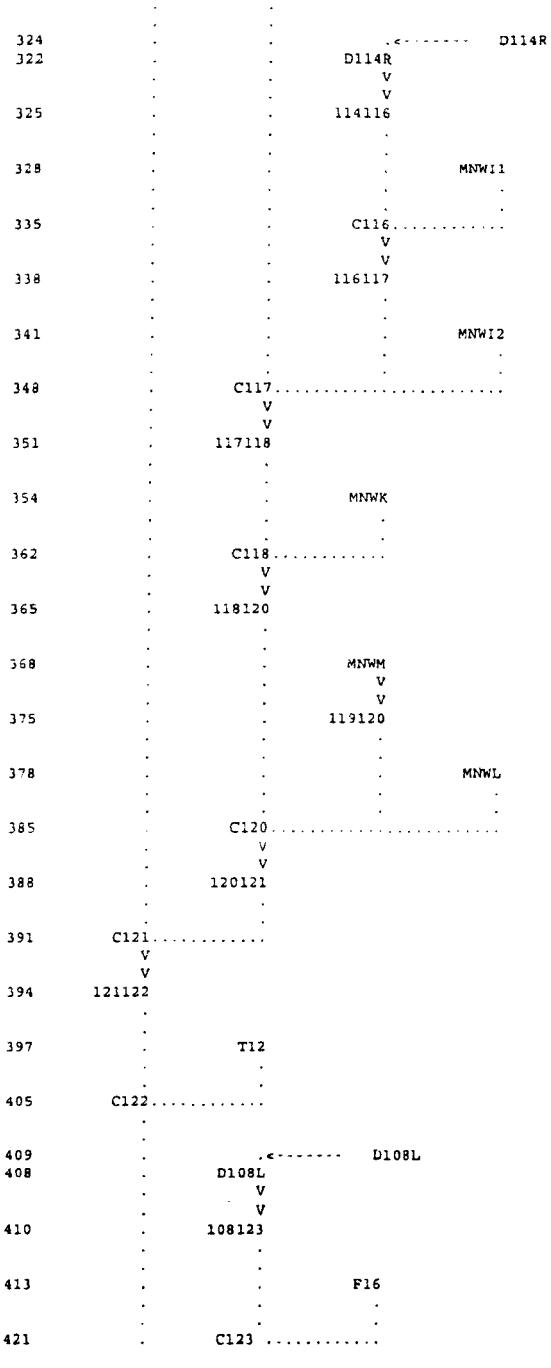
(V) ROUTING (---->) DIVERSION OR PUMP FLOW

(.) CONNECTOR (<----) RETURN OF DIVERTED OR PUMPED FLOW





Runoff within Tropicana Wash near the project site



(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

```
1*****************************************
*                                       *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
*             JUN  1998                 *
*          VERSION 4.1                  *
*                                       *
*  RUN DATE  27FEB02  TIME  07:05:00    *
*                                       *
*****************************************
```

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

TROPICANA FLOOD INURANCE STUDY DATE: 2/26/02
PREPARED FOR: CLARK COUNTY REGIONAL FLOOD CONTROL DISTRICT
ENGINEER: J.E. FULLER HYDROLOGY & GEOMORPHOLOGY, INC. BY: WSO
FILE NAME: LTW100.IH1

- 100-YEAR, 6-HOUR MODEL
- LOCAL AND BASIN WIDE STORMS BOTH MODELED HEREIN
- STORM RAINFALL DISTRIBUTION SDN#3 FOR AREAS UP TO 8 SQ MILES
- STORM RAINFALL DISTRIBUTION SDN#4 FOR AREAS 8 TO 12 SQ MILES
- STORM RAINFALL DISTRIBUTION SDN#5 FOR AREAS GREATER THAN 12 SQ MILES

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION= 1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION= 1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION= 1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION= 1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION= 1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION= 1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION= 1

1

RUNOFF SUMMARY
FLOW IN CUBIC FEET PER SECOND
TIME IN HOURS, AREA IN SQUARE MILES

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
HYDROGRAPH AT	TWNB1	489.	3.60	61.	22.	22.	.36		
ROUTED TO	100101	487.	3.63	61.	22.	22.	.36		
HYDROGRAPH AT	TWNB2	135.	3.58	16.	6.	6.	.11		
2 COMBINED AT	C101	608.	3.62	76.	28.	28.	.47		
ROUTED TO	101102	607.	3.65	76.	28.	28.	.47		
HYDROGRAPH AT	TWNB3	244.	3.58	29.	11.	11.	.16		
2 COMBINED AT	C102	820.	3.63	104.	38.	38.	.63		
ROUTED TO	102103	818.	3.65	104.	38.	38.	.63		
HYDROGRAPH AT	TWNB4	456.	3.58	54.	20.	20.	.29		
2 COMBINED AT	C103	1222.	3.63	156.	57.	57.	.92		
ROUTED TO	103105	1216.	3.65	156.	57.	57.	.92		
HYDROGRAPH AT	TWNB5	93.	3.63	12.	4.	4.	.07		
2 COMBINED AT	C105L	1302.	3.65	168.	61.	61.	.99		
HYDROGRAPH AT	TWSB1	121.	3.58	14.	5.	5.	.11		
ROUTED TO	104105	120.	3.75	14.	5.	5.	.11		
HYDROGRAPH AT	TWSB2	340.	3.67	47.	17.	17.	.24		
2 COMBINED AT	C105R	424.	3.73	60.	22.	22.	.35		
2 COMBINED AT	C105	1582.	3.67	221.	80.	80.	1.34		
ROUTED TO	105106	1577.	3.72	221.	80.	80.	1.34		

HYDROGRAPH AT

+	TW1	282.	3.70	40.	15.	15.	.19
2 COMBINED AT +	C106	1818.	3.72	256.	93.	93.	1.54
DIVERSION TO +	D106L	1068.	3.72	55.	20.	20.	1.54
HYDROGRAPH AT +	D106R	750.	3.58	201.	73.	73.	1.54
ROUTED TO +	106107	750.	3.70	201.	73.	73.	1.54
HYDROGRAPH AT +	TW2	306.	3.67	42.	15.	15.	.21
2 COMBINED AT +	C107	1031.	3.68	238.	87.	87.	1.74
HYDROGRAPH AT +	TW3	507.	3.67	71.	26.	26.	.35
HYDROGRAPH AT +	D106L	1068.	3.72	55.	20.	20.	1.54
ROUTED TO +	106108	1061.	3.78	57.	21.	21.	1.54
2 COMBINED AT +	C108	1433.	3.77	121.	44.	44.	1.88
DIVERSION TO +	D108L	726.	3.77	61.	22.	22.	1.88
HYDROGRAPH AT +	D108R	707.	3.77	60.	22.	22.	1.88
ROUTED TO +	108110	705.	3.78	60.	22.	22.	1.88
2 COMBINED AT +	C110L	1545.	3.78	290.	106.	106.	3.62
HYDROGRAPH AT +	TW4	55.	3.88	10.	4.	4.	.08
HYDROGRAPH AT +	TDBOUT	496.	8.50	495.	443.	443.	1.00
2 COMBINED AT +	C109	497.	8.50	496.	446.	446.	1.08
ROUTED TO +	109110	497.	8.62	496.	442.	442.	1.08
HYDROGRAPH AT +	TW5	956.	3.68	136.	50.	50.	.69
2 COMBINED AT +	C110R	1390.	3.68	611.	491.	491.	.69
2 COMBINED AT +	C110	2675.	3.77	880.	592.	592.	3.86
ROUTED TO +	110111	2668.	3.78	880.	592.	592.	3.86
HYDROGRAPH AT +	T11	1625.	3.67	225.	82.	82.	1.13
2 COMBINED AT +	C111	3708.	3.77	1073.	665.	665.	4.99
ROUTED TO +	111121	3699.	3.78	1073.	663.	663.	4.99
HYDROGRAPH AT +	MNWFG	160.	3.98	34.	13.	13.	.37
DIVERSION TO +	D114R	60.	3.95	25.	9.	9.	.37
HYDROGRAPH AT +	D114L	100.	3.98	9.	3.	3.	.37
HYDROGRAPH AT +	MNWJ1	157.	4.75	54.	20.	20.	1.70
ROUTED TO +	113115	157.	5.17	54.	20.	20.	1.70
HYDROGRAPH AT +	MNWJ2	778.	3.85	129.	47.	47.	1.30
HYDROGRAPH AT +	TW6	50.	4.13	13.	5.	5.	.29
ROUTED TO +	112115	50.	4.53	13.	5.	5.	.29

← Runoff within Tropicana Wash near Project Site

4 COMBINED AT							
C115	778.	3.87	190.	70.	70.	3.66	
ROUTED TO							
115117	679.	3.95	178.	66.	66.	3.66	
HYDROGRAPH AT							
D114R	60.	3.95	25.	9.	9.	.37	
ROUTED TO							
114116	60.	4.07	25.	9.	9.	.37	
HYDROGRAPH AT							
MNWI1	382.	3.77	70.	26.	26.	.35	
2 COMBINED AT							
C116	436.	3.78	94.	35.	35.	.72	
ROUTED TO							
116117	434.	3.87	94.	35.	35.	.72	
HYDROGRAPH AT							
MNWI2	83.	3.87	16.	6.	6.	.14	
3 COMBINED AT							
C117	1063.	3.95	272.	102.	102.	4.15	
ROUTED TO							
117118	1059.	4.03	272.	102.	102.	4.15	
HYDROGRAPH AT							
MNWK	1475.	3.73	230.	84.	84.	1.38	
2 COMBINED AT							
C118	1778.	3.98	471.	176.	176.	5.53	
ROUTED TO							
118120	1775.	4.00	471.	176.	176.	5.53	
HYDROGRAPH AT							
MNWM	598.	3.73	96.	35.	35.	.51	
ROUTED TO							
119120	598.	3.73	96.	35.	35.	.51	
HYDROGRAPH AT							
MNWL	306.	3.75	50.	18.	18.	.26	
3 COMBINED AT							
C120	2202.	3.98	590.	220.	220.	6.30	
ROUTED TO							
120121	2200.	4.00	590.	220.	220.	6.30	
2 COMBINED AT							
C121	4255.	3.78	1568.	852.	852.	11.29	
ROUTED TO							
121122	4254.	3.80	1568.	850.	850.	11.29	
HYDROGRAPH AT							
T12	701.	3.75	101.	37.	37.	.81	
2 COMBINED AT							
C122	4431.	3.78	1633.	875.	875.	12.10	
HYDROGRAPH AT							
D108L	726.	3.77	61.	22.	22.	1.88	
ROUTED TO							
108123	725.	3.88	61.	22.	22.	1.88	
HYDROGRAPH AT							
F16	747.	3.67	122.	45.	45.	.55	
2 COMBINED AT							
C123	1119.	3.88	171.	63.	63.	2.42	

1

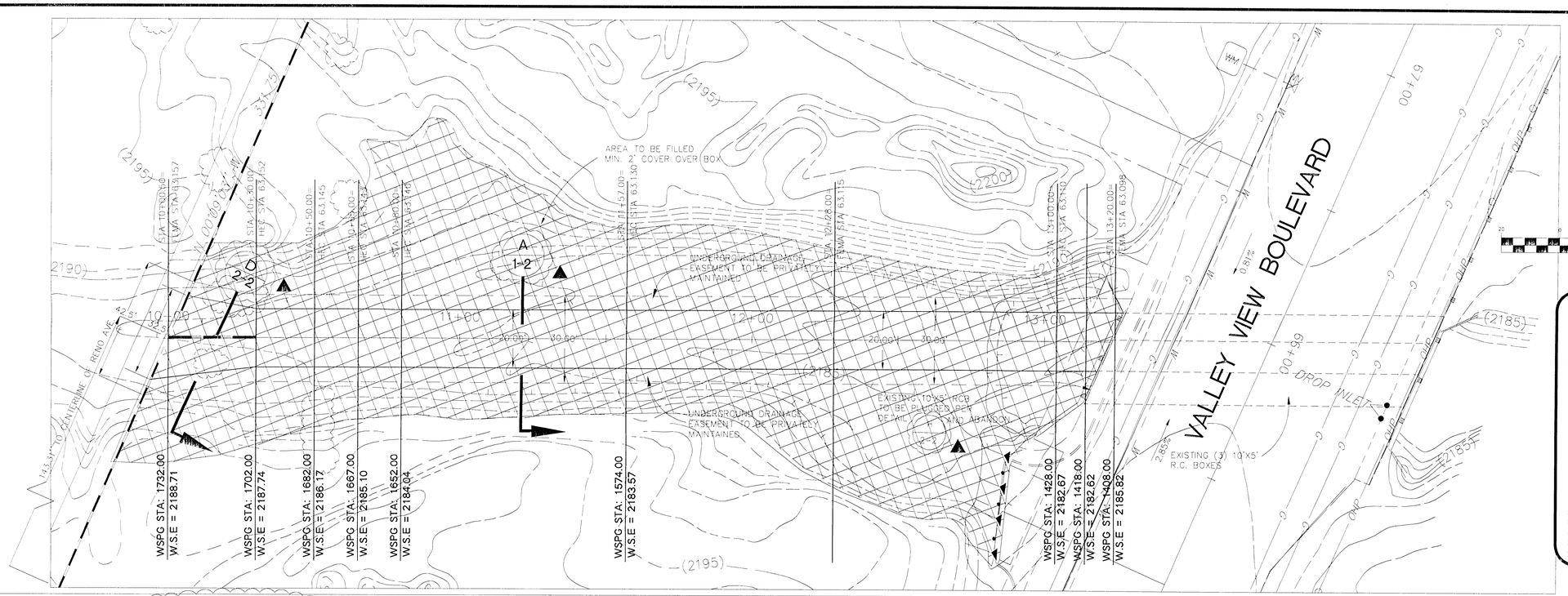
SUMMARY OF KINEMATIC WAVE - MUSKINGUM-CUNGE ROUTING
(FLOW IS DIRECT RUNOFF WITHOUT BASE FLOW)

ISTAQ	ELEMENT	DT	PEAK	TIME TO PEAK	VOLUME	INTERPOLATED TO COMPUTATION INTERVAL DT	PEAK	TIME TO PEAK	VOLUME
		(MIN)	(CFS)	(MIN)	(IN)	(MIN)	(CFS)	(MIN)	(IN)
FOR STORM = 1 STORM AREA (SQ MI) =				2.19					
TWNB1	MANE	1.00	502.92	216.23	1.61	1.00	501.80	216.00	1.60

CONTINUITY SUMMARY (AC-FT) - INFLOW= .0000E+00 EXCESS= .3121E+02 OUTFLOW= .3116E+02 BASIN STORAGE= .1031E-01 PERCENT ERROR= .1

FOR STORM = 2 STORM AREA (SQ MI) =				.10					
TWNB1	MANE	1.00	499.74	216.09	1.60	1.00	499.15	216.00	1.60

CONTINUITY SUMMARY (AC-FT) - INFLOW= .0000E+00 EXCESS= .3104E+02 OUTFLOW= .3100E+02 BASIN STORAGE= .1040E-01 PERCENT ERROR= .1



CLARK COUNTY
DEPARTMENT OF PUBLIC WORKS
ENGINEERING DIVISION

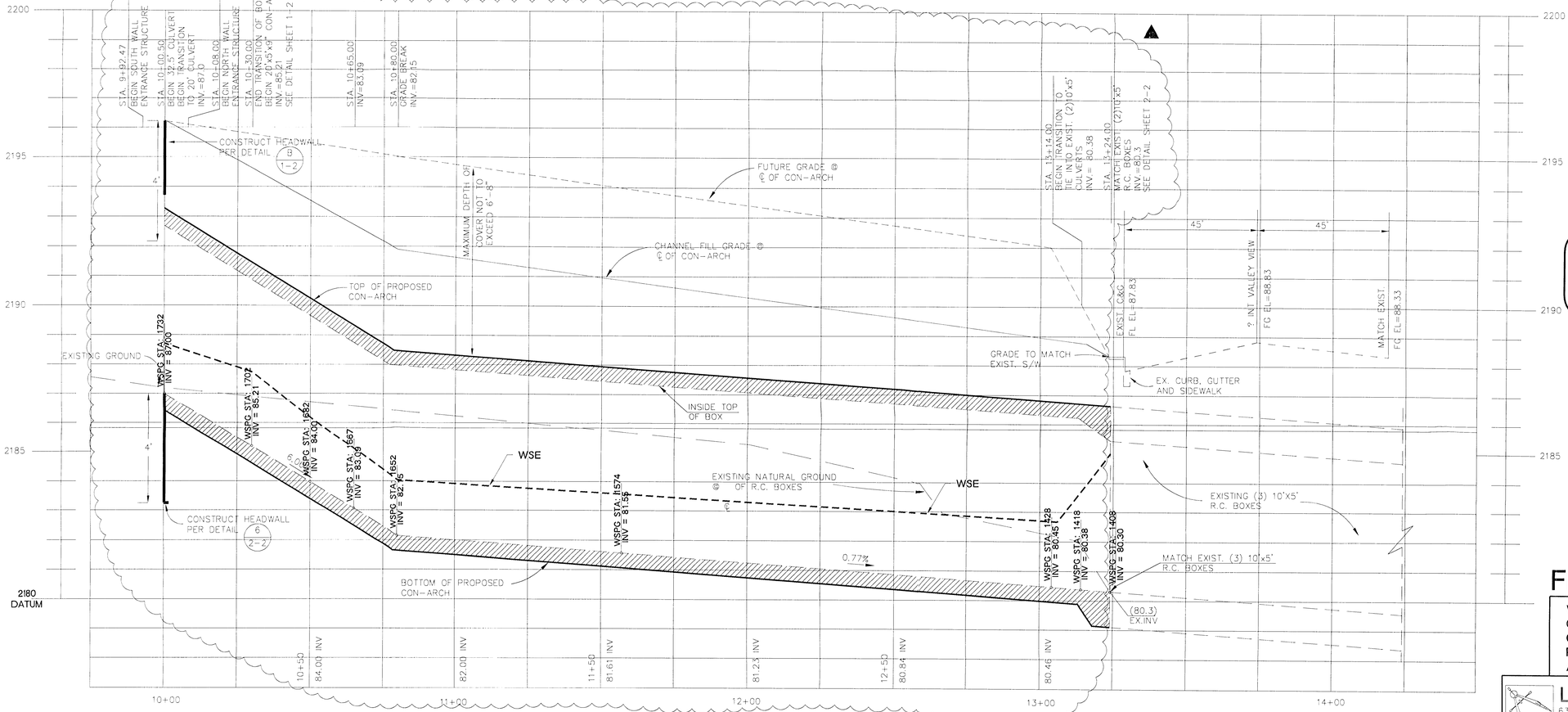
ACCEPTANCE OF PLANS FOR FILING

BY: _____

ACCEPTANCE OF THESE PLANS FOR FILING SHALL NOT BE CONSTRUED TO BE A PERMIT FOR OR AN APPROVAL OF ANY VIOLATION OF ANY OF THE PROVISIONS OF THE STATE OR COUNTY LAWS AND / OR SPECIFICATIONS. CLARK COUNTY SHALL BE HELD FREE FROM DAMAGES WHICH MAY RESULT FROM THE CONSTRUCTION OF THE IMPROVEMENTS FROM THE ENGINEERING DESIGN DEPICTED HEREIN.

NOTE: POWER POLES AND / OR OTHER EXISTING FACILITIES NOT IN PROPER LOCATION BASED ON PROPOSED IMPROVEMENTS SHOWN HEREON WILL BE RELOCATED AT NO EXPENSE TO CLARK COUNTY.

SCALE: HORIZ. 1"=20'
VERT. 1"=2'



BENCHMARK

CLARK COUNTY BENCHMARK
NO. 6C11-29NWW6
RIVET AND SQUARE ALUMINUM PLATE IN TOP OF CURB, SOUTHEAST CORNER OF VALLEY VIEW BOULEVARD AND RENO AVENUE NEAR THE P.C. OF VALLEY VIEW BOULEVARD.

ELEVATION = 668.537 METERS (2193.358 U.S. FEET) NAVD 88.

Call before you Overhead
1-702-593-6111
NEVADA POWER ENVIRONMENT AND SAFETY SERVICES DEPARTMENT

Call before you Dig
1-800-227-2600

HANI M. NOSHI
Exp. 12/31/05
CIVIL
STATE OF NEVADA
No. 15747
PROFESSIONAL ENGINEER
3/25/05

DAVID D. WILSON
CIVIL
STATE OF NEVADA
No. 8417
PROFESSIONAL ENGINEER
ENGINEER'S SEAL

FIGURE (4)

WSPG CROSS-SECTION MAP OVERLAID ON THE APPROVED CULVERT PLAN AND PROFILE PREPARED BY KIMLEY-HORN AND ASSOCIATES

LOCHSA ENGINEERING
6345 SOUTH JONES BOULEVARD SUITE 100
LAS VEGAS, NV 89118
PHONE: (702) 365-9312, FAX: (702) 365-9317

SHEET	DRWG. NO.
C3 OF C3	2765

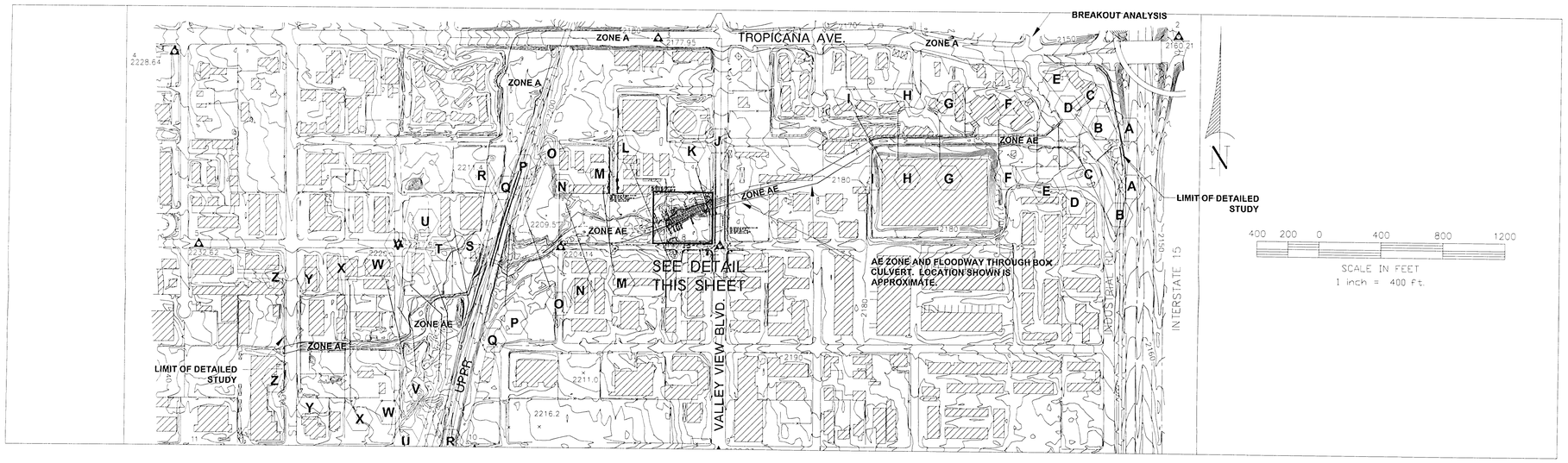
PLAN AND PROFILE FOR RENO AVE./VALLEY VIEW BLVD. CULVERT

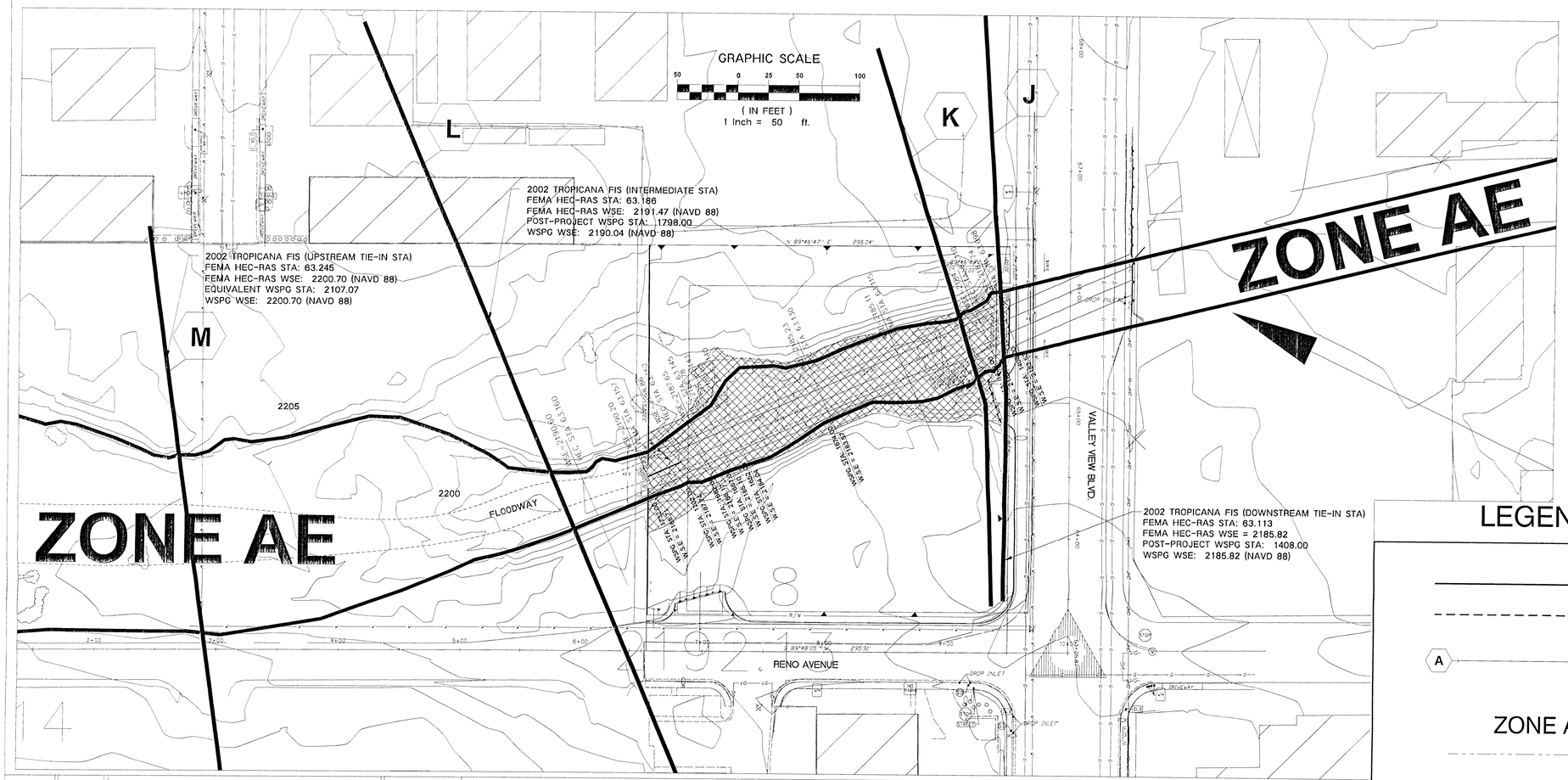
DESCRIPTION	BY	DATE
APPROVED		
DDW 5/9/05 CHANGE CULVERT TO BE 20'x5'x9' CON-ARCH		

SCALE: 1"= 20'
ACCT. NO. 30-22765
F.B. NO.
DESIGN: K.K.
DRAWN: RTM
CHECKED: DDW
DATE: 9/9/98

Kimley-Horn and Associates, Inc.
Engineering, Planning, and Environmental Consultants
1050 East Flamingo Road, Suite 120 Las Vegas, Nevada 89119
Tel. No. (702) 734-5600 Fax. No. (702) 735-4949

© 2000





WESCO SURVEYS, INC.
3471 WEST OQUENDO ROAD SUITE 101
LAS VEGAS, NEVADA 89118
(702) 367-0588

ELEVATION REFERENCE MONUMENTS (ERM)

	NGVD 29 FEET	NAVD 88 METERS
CLARK COUNTY BENCHMARK 6C11 29W4 RIVET AND ALUMINUM PLATE IN TOP OF CURB NORTHEAST CORNER OF HACIENDA AVENUE AND VALLEY VIEW BLVD. NEAR THE PC OF VALLEY VIEW BLVD.	2198.15	670.706
CLARK COUNTY BENCHMARK 0C11 30S4 RIVET AND ALUMINUM PLATE IN TOP OF CURB AT THE NORTHEAST CORNER OF RUSSELL RD. AND ARVILLE ST.	2243.75	684.604
CLARK COUNTY BENCHMARK 7C11 19SSW6 RIVET AND ALUMINUM PLATE IN TOP OF CURB NORTHWEST CORNER TROPICANA AVE. AND CAMERON ST. NEAR THE PC ON TROPICANA	2239.54	683.318
CLARK COUNTY BENCHMARK 7C11 19S4 RIVET AND ALUMINUM PLATE IN TOP OF CURB NORTHEAST CORNER OF TROPICANA AVE. AND ARVILLE ST.	2215.59	676.016
CLARK COUNTY BENCHMARK 6C11 31NE6 RIVET AND ALUMINUM PLATE IN TOP OF CURB NORTHEAST CORNER OF WYNN RD. AND OQUENDO RD.	2244.34	684.794
CLARK COUNTY BENCHMARK 6C11 30SE6 RIVET AND ALUMINUM PLATE IN TOP OF CURB NORTHWEST CORNER OF WYNN RD. AND DEWEY DR.	2230.90	680.696

NOTE

COORDINATES ARE NORTH AMERICAN DATUM (NAD83) NEVADA STATE PLANE EAST ZONE (2701), EPOCH 1994, BASED ON CLARK COUNTY GIS CONTROL AS SHOWN ON RECORD OF SURVEY, FILE 88, PAGE 53 ON FILE WITH THE CLARK COUNTY RECORDER.

ELEVATIONS ARE NATIONAL GEODETIC VERTICLE DATUM OF 1929 (NGVD 29) BASED ON CLARK COUNTY VERTICLE CONTROL REVISED IN 1987. TO OBTAIN APPROXIMATE NORTH AMERICAN VERTICLE DATUM OF 1988 (NAVD 88) VALUES ADD 2.3 FEET TO THE ELEVATIONS SHOWN.

PROFESSIONAL ENGINEER — HANI M. NOSHI — Exp: 12/31/05 — CIVIL — No. 15747 — STATE OF NEVADA
02/25/02

FIGURE (5)

OVERLAY OF 2002 FIS WORKMAP WITH THE APPROVED PLAN INFORMATION FROM KIMLEY HORN AND ASSOCIATES AND SUBJECT WSPG RESULTS

LOCHSA ENGINEERING
6345 SOUTH JONES BOULEVARD SUITE 100
LAS VEGAS, NV 89118
PHONE: (702) 365-9312, FAX: (702) 365-9317

LEGEND

- 100-YEAR FLOODPLAIN BOUNDARY
- FLOODWAY BOUNDARY
- A — A : CROSS SECTION
- BASE FLOOD ELEVATIONS
- ZONE AE : ZONE DESIGNATIONS
- CHANNEL CENTERLINE

REV. NO.	DATE	DESCRIPTION	APPROVED

S:\CLIENTS\CCRFCD\rfedlogo.jpg

FLOOD INSURANCE STUDY
TROPICANA WASH AND TRIBUTARIES

CLARK COUNTY, NEVADA, REGIONAL FLOOD CONTROL DISTRICT

FINAL SUBMITTAL 02/28/02

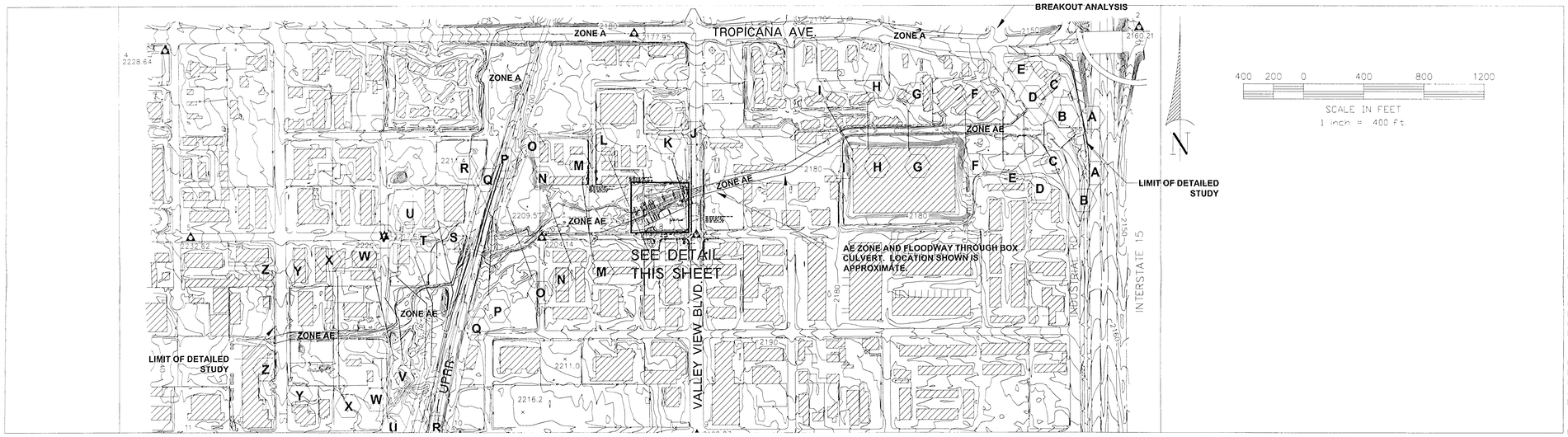
PROJECT No: 1078500144 DRAWN BY: ADE
DESIGNED BY: ADE CHECKED BY: DWB
APPROVED BY: JDG

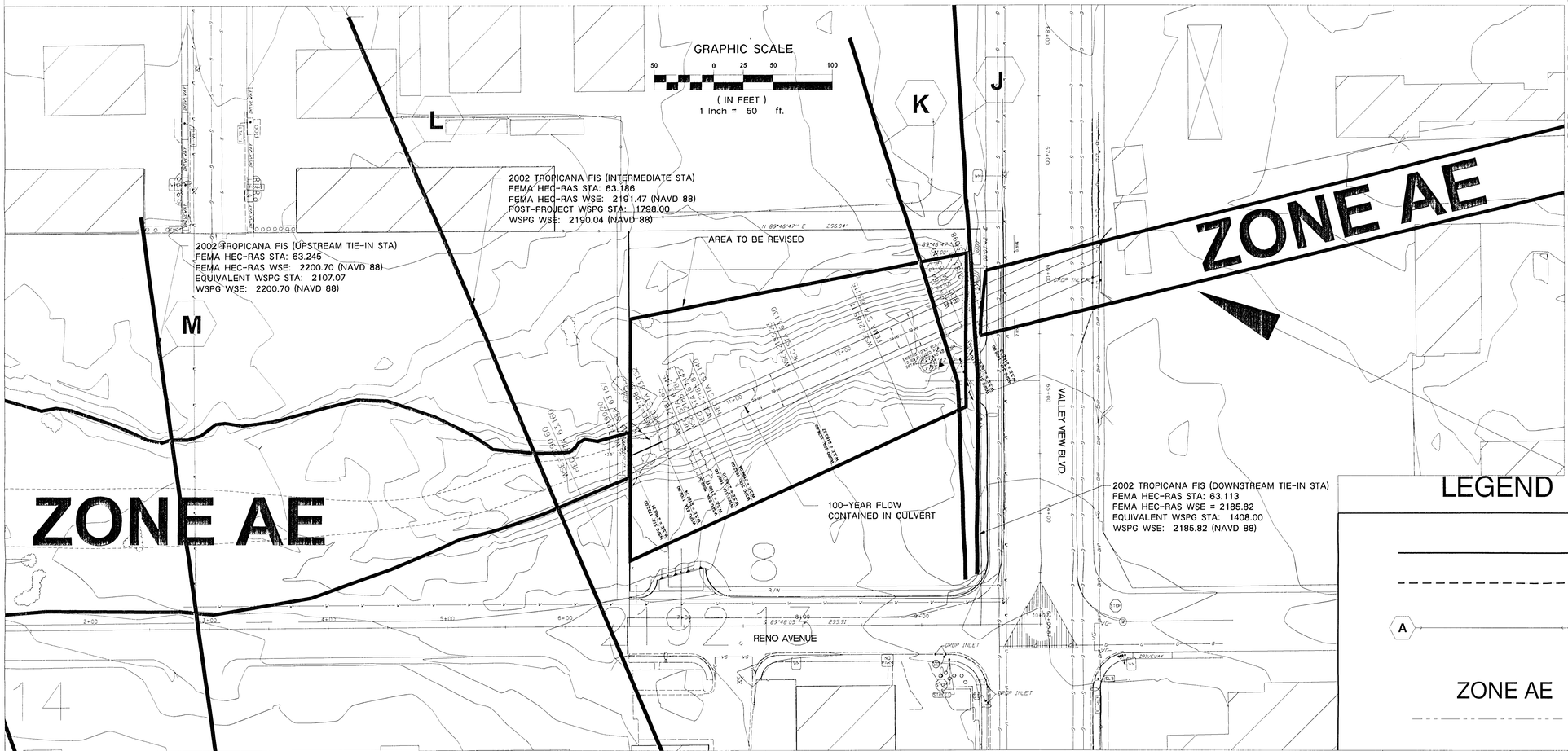
HDR Engineering, Inc.

SCALE
HORIZ: 1" = 400'
CONTOUR INTERVAL = 2'

DRAWING NO.

SHT. 1 OF 1





WESCO SURVEYS, INC.
3471 WEST OQUENDO ROAD SUITE 101
LAS VEGAS, NEVADA 89118
(702) 367-0588

ELEVATION REFERENCE MONUMENTS (ERM)

	NGVD 29 FEET	NAVD 88 METERS
CLARK COUNTY BENCHMARK 6C11 29W4 RIVET AND ALUMINUM PLATE IN TOP OF CURB NORTHEAST CORNER OF HACIENDA AVENUE AND VALLEY VIEW BLVD. NEAR THE PC OF VALLEY VIEW BLVD.	2198.15	670.706
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CLARK COUNTY BENCHMARK 6C11 30SE6 RIVET AND ALUMINUM PLATE IN TOP OF CURB NORTHWEST CORNER OF WYNN RD. AND DEWEY DR	2230.90	680.696

NOTE

COORDINATES ARE NORTH AMERICAN DATUM (NAD83) NEVADA STATE PLANE EAST ZONE (2701), EPOCH 1994, BASED ON CLARK COUNTY GIS CONTROL AS SHOWN ON RECORD OF SURVEY, FILE 88, PAGE 53 ON FILE WITH THE CLARK COUNTY RECORDER.

ELEVATIONS ARE NATIONAL GEODETIC VERTICLE DATUM OF 1929 (NGVD 29) BASED ON CLARK COUNTY VERTICLE CONTROL REVISED IN 1987. TO OBTAIN APPROXIMATE NORTH AMERICAN VERTICLE DATUM OF 1988 (NAVD 88) VALUES ADD 2.3 FEET TO THE ELEVATIONS SHOWN.

PROFESSIONAL ENGINEER — HANI M. NOSHI — Exp. 12/1/05 — CIVIL — No. 15747 — STATE OF NEVADA
03/01/05

FIGURE (6)

ANNOTATED FLOOD INSURANCE RATE MAP

LOCHSA ENGINEERING
6345 SOUTH JONES BOULEVARD SUITE 100
LAS VEGAS, NV 89118
PHONE: (702) 365-9312, FAX: (702) 365-9317

LEGEND

- 100-YEAR FLOODPLAIN BOUNDARY
- FLOODWAY BOUNDARY
- A — A : CROSS SECTION
- ZONE AE : BASE FLOOD ELEVATIONS
- ZONE DESIGNATIONS
- CHANNEL CENTERLINE

REV. NO.	DATE	DESCRIPTION	APPROVED

S:\CLIENTS\CCRFCD\rfcdlogo.jpg

FLOOD INSURANCE STUDY
TROPICANA WASH AND TRIBUTARIES

CLARK COUNTY, NEVADA, REGIONAL FLOOD CONTROL DISTRICT

FINAL SUBMITTAL 02/28/02

PROJECT No: 1078500144 DRAWN BY: ADE
DESIGNED BY: ADE CHECKED BY: DWB
APPROVED BY: JDG

P:\Trop\FIS\CAD\logos\HDR-NEW.TIF

HDR Engineering, Inc.

SCALE
HORIZ: 1" = 400'
CONTOUR INTERVAL = 2'

DRAWING NO.
SHT. 1 OF 1

EXISTING (3) 10' x 5' RCB
INV = 2180.38

EXISTING HEADWALL

EXISTING 20' x 5'-9" ARCH CULVERT

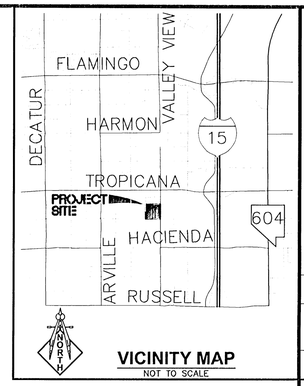
EXISTING 30' DRAINAGE EASEMENT

EXISTING (2) 16' x 5'-9" RCB
INV = 2187.00

VALLEY VIEW BOULEVARD

RENO AVENUE

10+00 11+00 12+00 13+00



VICINITY MAP
NOT TO SCALE

GRAPHIC SCALE
20 0 10 20 40
(IN FEET)
1 inch = 20 ft.

NORTH

NOTE:

LOCHSA ENGINEERING ASSUMES NO RESPONSIBILITY FOR EXISTING UTILITY LOCATIONS AND ELEVATIONS. THE UTILITIES SHOWN ON THIS PLAN ARE FROM THE BEST AVAILABLE INFORMATION. IT IS THE CONTRACTOR'S RESPONSIBILITY TO FIELD VERIFY THE LOCATION AND ELEVATION OF ALL UTILITIES, INCLUDING BUT NOT LIMITED TO, THE WATER, FIRE, SANITARY SEWER, STORM SEWER, TELEPHONE, POWER, GAS, AND IRRIGATION LINES PRIOR TO THE COMMENCEMENT OF CONSTRUCTION. IF CONFLICT EXISTS IN THE FIELD, THE CONTRACTOR IS TO NOTIFY THE PROJECT ARCHITECT, OWNER'S REPRESENTATIVE AND THE PROJECT ENGINEER IMMEDIATELY.

A.P.N.:

162-30-501-043

BASIS OF BEARINGS:

NORTH 00°07'14" WEST, BEING THE BEARING OF THE EAST LINE OF THE SOUTHEAST QUARTER (SE 1/4) OF THE NORTHEAST QUARTER (NE 1/4) OF THE NORTHEAST QUARTER (NE 1/4) OF SECTION 30, TOWNSHIP 21 SOUTH, RANGE 61 EAST, M.D.M., AS SHOWN IN FILE 122 OF SURVEYS, AT PAGE 25, OFFICIAL RECORDS OF CLARK COUNTY, NEVADA.

BENCHMARK:

CLARK COUNTY VERTICAL CONTROL POINT "6C11 29NW6 2000", BEING A RIVET AND ROUND ALUMINUM PLATE IN TOP OF CURB, SOUTHEAST CORNER OF VALLEY VIEW BLVD. AND RENO AVE. NEAR THE PC OF VALLEY VIEW BLVD.

ELEVATION: 2193.23 (FEET)
668.497 (METERS)
CLARK COUNTY VERTICAL CONTROL v.2003 BASED ON NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88).

Avoid cutting underground utility lines. It's costly.

Call before you Dig
1-800-227-2600

SAFETY ALERT
Call Before You Overhead
1-702-227-2929

REV.:	DATE:	BY:	DESCRIPTION:

LOCHSA ENGINEERING
5828 SPRING MTN. RD. SUITE 308
LAS VEGAS, NV 89146
PHONE: (702) 365-9312, FAX: (702) 365-9317

SHEET: AS BUILT PLAN FOR EXISTING 20' x 5'-9" ARCH CULVERT

TITLE: ADAM & EVE NIGHT CLUB

DRAWN BY:	DESIGNED BY:	CHECKED BY:	PROJECT No.:	SCALE:
WSB	SOA	HMN	7162	1" = 20'
DATE: 03-25-05	DATE: 03-25-05	DATE: 03-25-05		

SEAL
NOTICE TO PROFESSIONAL ENGINEER
HANI M. NOSHI
Exp. 12/31/05
CIVIL
15747
STATE OF NEVADA
03/25/05

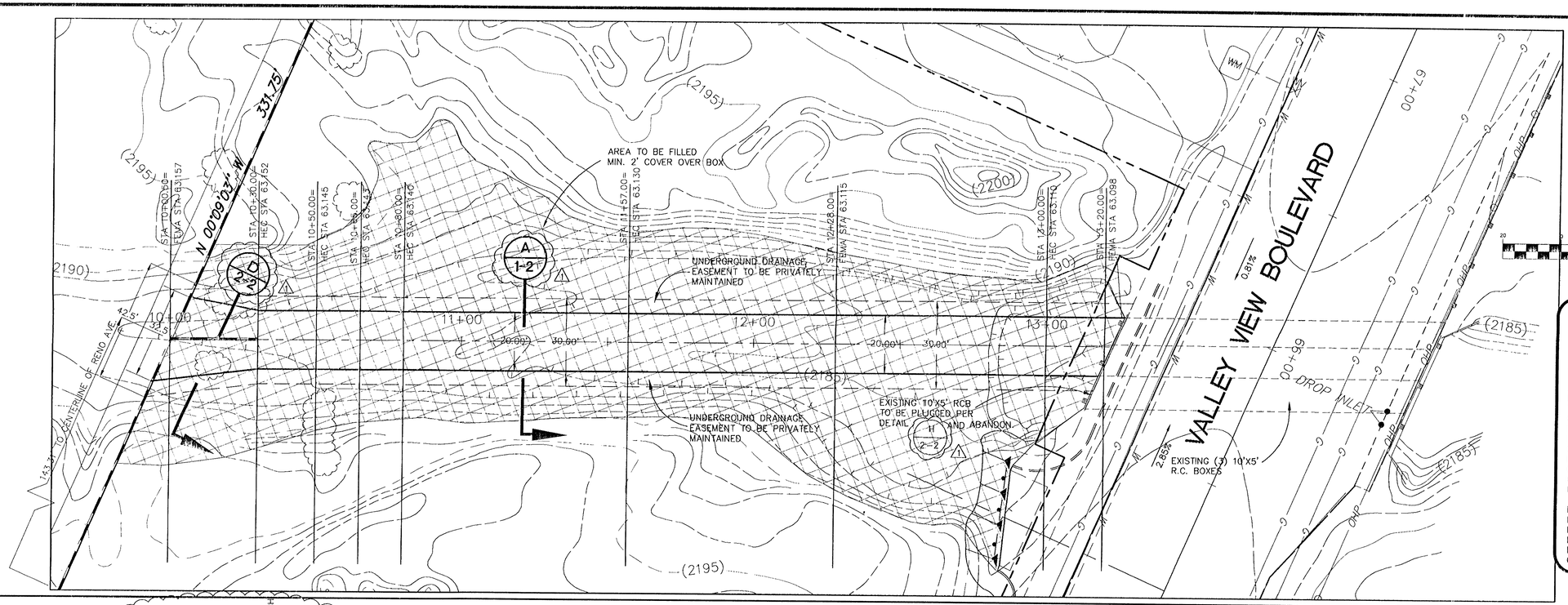
SHEET No. 1
SHEET 1 OF 3
DRAWING No.

LEGEND

CL OR SURVEY LINE	EASEMENT LINE	HEAVY AC PVMT.	
PROPERTY LINE	SAWCUT LINE	LIGHT AC PVMT.	
ROW LINE	SCARP LINE	CONCRETE PVMT.	

DESCRIPTION:	CONTOUR LINES	EDGE OF PAVEMENT	"A" TYPE CURBS	"L" TYPE CURBS	WALLS	FENCES	AC PAVEMENT	CONCRETE	SPOT ELEVATIONS	SIGNS	MANHOLE W/ DESCRIPTION
EXISTING:	(2210)								(12.34) BC		(S)
PROPOSED:	2210								12.34 BC		(S)

MANHOLE DESCRIPTIONS	FIRE HYDRANTS	GATE VALVES	REDUCERS	CLEAN OUTS	UTILITY BOX OR VAULT	100w HPS STREETLIGHTS	150w HPS STREETLIGHTS	200w HPS STREETLIGHTS	250w HPS STREETLIGHTS
(S) = SANITARY SEWER									
(D) = STORM DRAIN									
(E) = ELECTRICAL									
(T) = TELEPHONE									



GRAPHIC SCALE

(IN FEET)
1 inch = 20 ft.

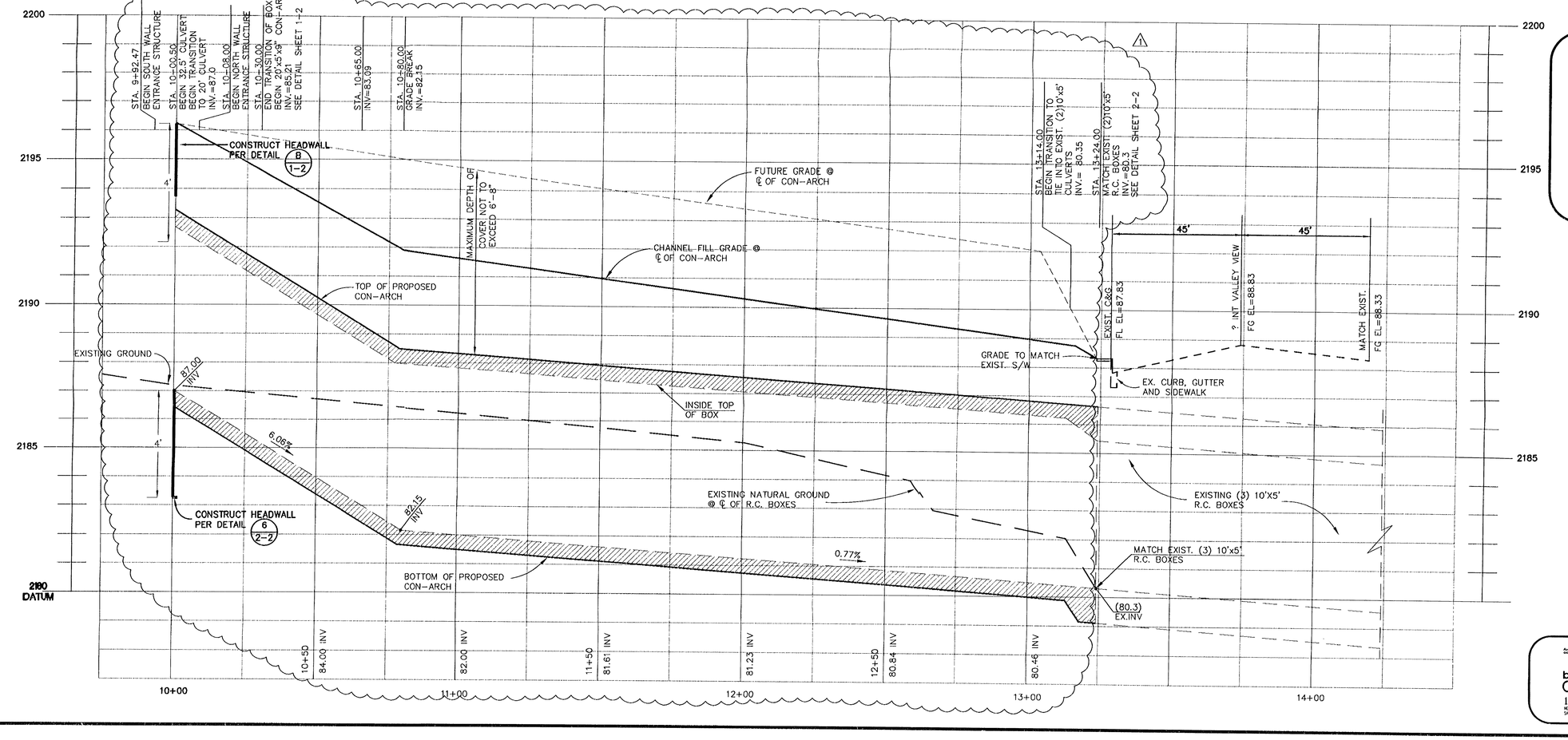
CLARK COUNTY
DEPARTMENT OF PUBLIC WORKS
ENGINEERING DIVISION

ACCEPTANCE OF PLANS FOR FILING
BY: Jack Gilmour 6/12/00

ACCEPTANCE OF THESE PLANS FOR FILING SHALL NOT BE CONSTRUED TO BE A PERMIT FOR OR AN APPROVAL OF ANY VIOLATION OF ANY OF THE PROVISIONS OF THE STATE OR COUNTY LAWS AND / OR SPECIFICATIONS. CLARK COUNTY SHALL BE HELD FREE FROM DAMAGES WHICH MAY RESULT FROM THE CONSTRUCTION OF THE IMPROVEMENTS FROM THE ENGINEERING DESIGN DEPICTED HEREIN.

NOTE: POWER POLES AND / OR OTHER EXISTING FACILITIES NOT IN PROPER LOCATION BASED ON PROPOSED IMPROVEMENTS SHOWN HEREON WILL BE RE-LOCATED AT NO EXPENSE TO CLARK COUNTY.

SCALE: HORIZ. 1"=20'
VERT. 1"=2'



BENCHMARK

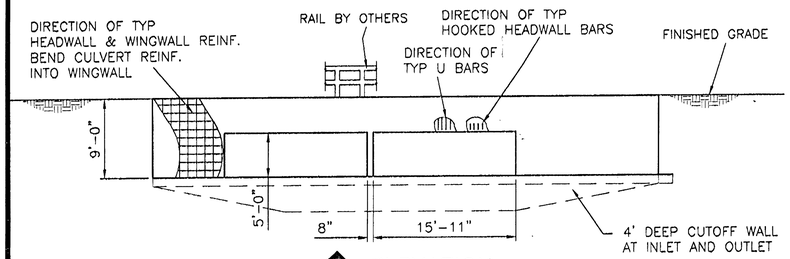
CLARK COUNTY BENCHMARK
NO. 6C11-29NWW6
RIVET AND SQUARE ALUMINUM PLATE IN TOP OF CURB, SOUTHEAST CORNER OF VALLEY VIEW BOULEVARD AND RENO AVENUE NEAR THE PC OF VALLEY VIEW BOULEVARD.

ELEVATION = 668.537 METERS
(2193.358 U.S. FEET)
NAVD 88.

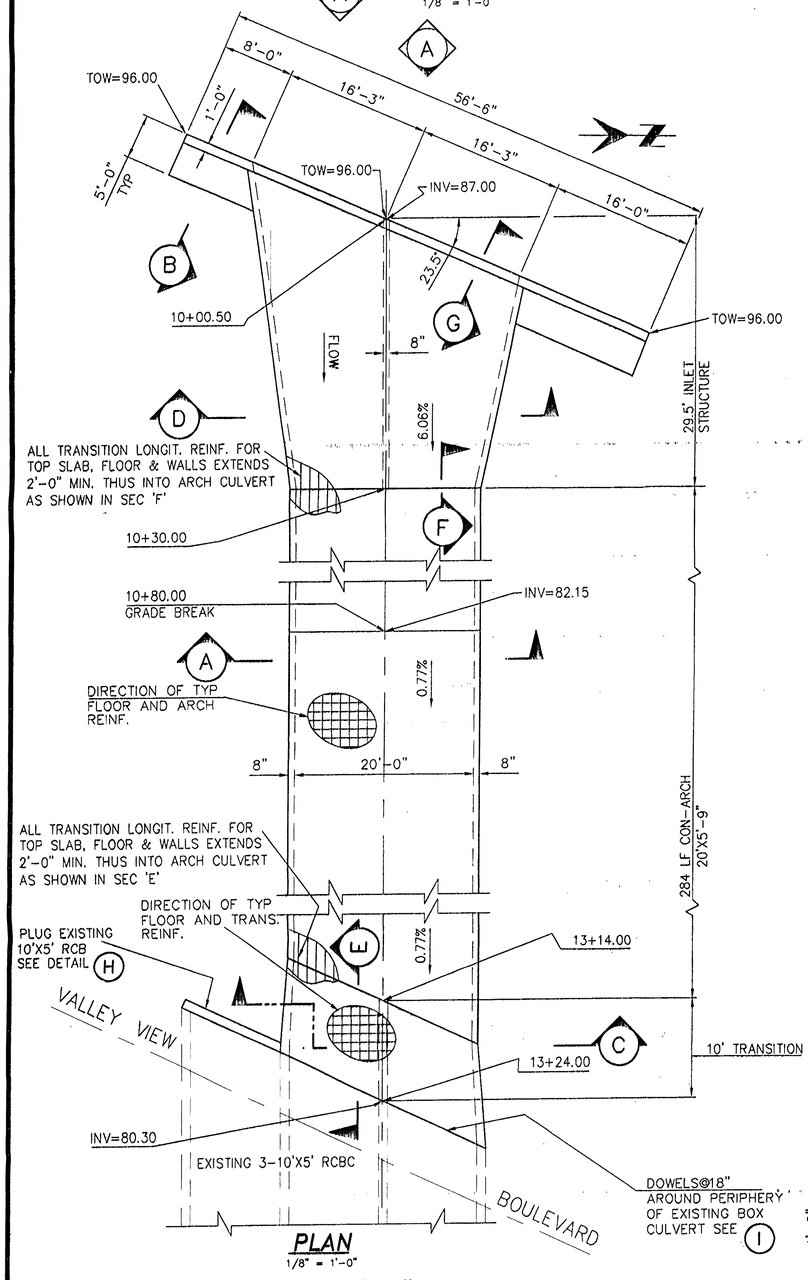
Avoid overhead power line contact. It's deadly.
Call before you Overhead
1-702-593-8111
NEVADA POWER OVERHEAD AND SAFETY SERVICES ADVISORY

Avoid cutting underground utility lines. It's costly.
Call before you Dig
1-800-227-2600

									APPROVED
									DESCRIPTION
									DATE
									BY
									REV.

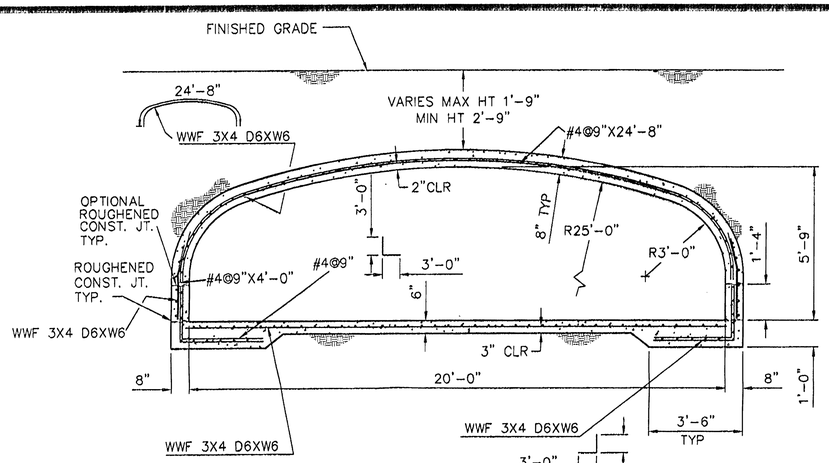


A ELEVATION
1/8" = 1'-0"

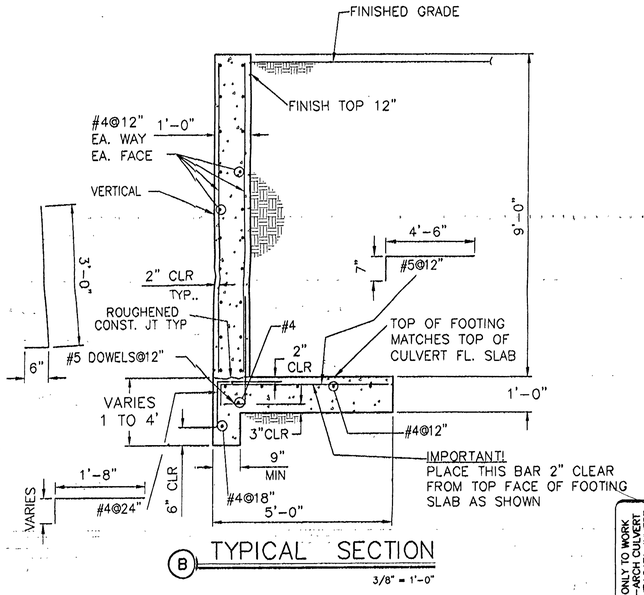


PLAN
1/8" = 1'-0"

CON-ARCH 20'X5'-9" CULVERT

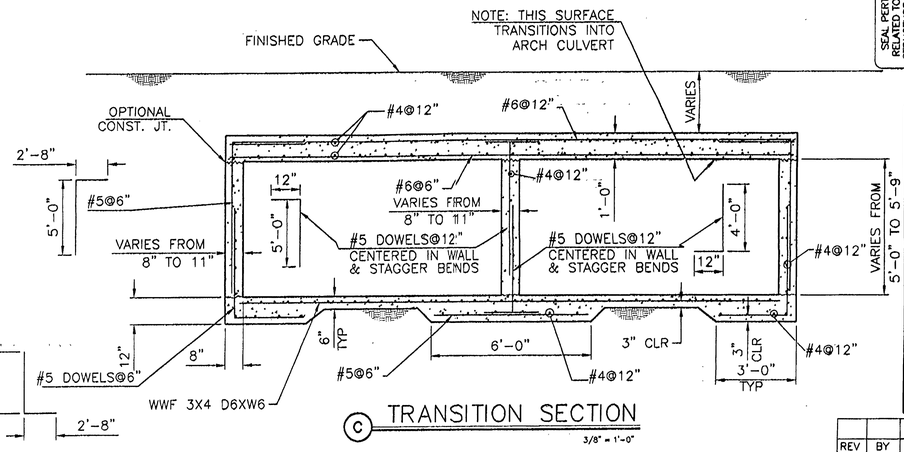


A TYPICAL SECTION
3/8" = 1'-0"



B TYPICAL SECTION
3/8" = 1'-0"

SEAL PERTAINS ONLY TO WORK RELATED TO CON-ARCH CULVERT STRUCTURE SHOWN ON THESE ELEVATIONS & HYDRAULIC ANALYSIS PROVIDED BY OTHERS.



C TRANSITION SECTION
3/8" = 1'-0"

GENERAL NOTES

1.) DESIGN SPECIFICATIONS: AASHTO "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES," 1996 ED. AND REVISIONS THERETO EXCEPT WHERE NOTED OTHERWISE.

2.) CONSTRUCTION SPECIFICATIONS: NDOT STANDARD SPECIFICATIONS, CURRENT EDITION, EXCEPT WHERE NOTED OTHERWISE.

3.) LOADING CLASS: HS20-44

4.) DEAD LOADS: FOR SELF WEIGHT OF STRUCTURE, REINF. CONCRETE = 150 POUNDS PER CUBIC FOOT (PCF), BACKFILL AROUND STRUCTURE = 120 PCF.

5.) DESIGN METHODOLOGY:

A.) CONCRETE ARCH: DESIGN BASED ON FINITE ELEMENT SOIL-STRUCTURE INTERACTION COMPUTER PROGRAM STUDIES UTILIZING SERVICE LOAD STRESSES. PROGRAM CALCULATES DESIGN MOMENTS FOR ARCH, WALLS, AND SLAB ACTING AS A UNIT WITH SURROUNDING SOIL.

B.) CONCRETE REINFORCING REQUIREMENTS COMPUTED BY THE ULTIMATE STRENGTH DESIGN METHOD.

6.) REINFORCING STEEL:

AT C.L. RIDGEWAY'S OPTION CONVENTIONAL REINFORCING OR WELDED WIRE FABRIC MAY BE USED IN ANY COMBINATION AS LONG AS REINFORCEMENT END AREAS ARE EQUAL. ALL STRUCTURAL CALCULATIONS ARE BASED ON GRADE 60 REINFORCEMENT U.N.O.

A.) CONVENTIONAL REINFORCEMENT: ASTM A615 GRADE 60 EXCEPT #3 BARS WHICH MAY BE GRADE 40 OR GRADE 60. MINIMUM COVER 3 INCHES WHERE CONCRETE CAST AGAINST EARTH, 2 INCHES FOR #6 THROUGH #11 OR 1 1/2 INCHES FOR #5 AND SMALLER BARS WHERE CONCRETE SURFACE IS EXPOSED TO EARTH BACKFILL OR WEATHER U. N O. (UNLESS NOTED OTHERWISE).

B.) WELDED WIRE FABRIC REINFORCEMENT: WELDED DEFORMED WIRE FABRIC, FY =75,000 PSI MIN., CONFORMING TO AASHTO M 55 OR M 221.

7.) REINFORCING BENDS AND LAPS: BENDS AND HOOKS SHALL CONFORM TO A. C. I. STD. 315-80 U. N. O. BEND DIMENSIONS ARE FROM OUT TO OUT AND LAPS SHALL BE 40 BAR DIAMETERS MINIMUM U. N. O. WELDED WIRE FABRIC LAPS 1'-0" MIN. U. N. O.

8.) CONCRETE AND SHOTCRETE:

A.) SHOTCRETE: FC' = 3,000 PSI @ 28 DAYS MIXED FOR AND PLACED BY THE WET MIX PLACEMENT PROCESS.

B.) FLOOR CONCRETE: FC' = 4,000 PSI @ 28 DAYS & SHALL BE MODIFIED AA CLASS PURSUANT TO CLARK COUNTY BLUE BOOK STANDARDS.

C.) ALL OTHER CONCRETE: FC' = 4,000 PSI @28 DAYS & SHALL BE MODIFIED DA CLASS PURSUANT TO CLARK COUNTY BLUE BOOK STANDARDS.

D.)ALL CONCRETE AND SHOTCRETE SHALL BE MIXED WITH TYPE V CEMENT.

9.) ALL WORK SHALL CONFORM TO RECOMMENDATIONS IN PROJECT GEOTECHNICAL EXPLORATION REPORT COMMERCIAL DEVELOPMENT "NWC VALLEY VIEW BLVD. AND RENO. AVE., CLARK COUNTY, NV." DATED JUNE 11, 1998 BY TERRACON (PROJECT NO. 64985181) (PHONE: 702-597-9393) AND ADDENDUMS THERETO. MAXIMUM SOIL BEARING PRESSURE ALLOWABLE 3,000 PSF. LATERAL EARTH PRESSURES: ACTIVE 35 PCF AND PASSIVE 250 PCF.

10.) WORKMANSHIP: CHAMFER EXPOSED CORNERS 3/4 INCHES U. N. O. FINISH EXPOSED CONCRETE SURFACES PER STANDARD SPECIFICATIONS.

11.) SCALE: DO NOT SCALE DIMENSIONS FROM THE DRAWINGS.

12.) STRIPPING: FORMS MAY BE STRIPPED AFTER A TWELVE HOUR INITIAL SET OR WHEN, IN THE OPINION OF THE ENGINEER, THE SHOTCRETE HAS TAKEN ADEQUATE SET TO ALLOW STRIPPING TO TAKE PLACE. BACKFILLING MAY PROCEED WHEN ARCH SHOTCRETE CYLINDER STRENGTH HAS REACHED F'c=1,500 PSI OR WHEN, IN THE OPINION OF THE ENGINEER, THE ARCH SHOTCRETE HAS TAKEN ADEQUATE SET TO ALLOW BACKFILLING TO PROCEED.

13.) BACKFILLING:

A.) BACKFILL SHALL BE PLACED IN NO GREATER THAN ONE FOOT LIFTS WITH NO GREATER THAN A ONE FOOT DIFFERENTIAL IN BACKFILL HEIGHT TO EACH SIDE OF ANY INDIVIDUAL ARCH. NO EQUIPMENT HEAVIER THAN A RUBBER TIRED THREE YARD CAPACITY FRONT END LOADER IS PERMITTED TO PASS OVER THE STRUCTURE UNTIL THE BACKFILL, AS SPECIFIED, IS COMPLETE IN PLACE. SCRAPERS AND OTHER SUCH HEAVY EQUIPMENT SHALL NOT BE ALLOWED TO PASS OVER THE STRUCTURE UNLESS SPECIFIC PERMISSION IN WRITING IS ISSUED BY THE ENGINEER.

B.) DENSITY: 95% OF STD. PROCTOR MAXIMUM DENSITY AS DETERMINED BY ASTM D-698.

C.) BACKFILL ZONE: THE BACKFILL ZONE SHALL EXTEND OUT TO THE LESSOR OF 1.5 TIMES THE ARCH SPAN FROM THE OUTSIDE EDGE OF THE ARCH OR THE DISTANCE TO THE ADJACENT SLOPED NATIVE MATERIAL. THIS ZONE SHALL EXTEND UPWARD TO THE HEIGHT OF THE PAVEMENT SUBGRADE.

D.) MATERIALS: NATIVE AND IMPORTED GRANULAR SOILS WITH MAXIMUM EXPANSIVE POTENTIALS OF 1.8% AND A MAXIMUM PARTICLE SIZE OF 3".

E.) PROVIDE POSITIVE DRAINAGE (DAYLIGHT) AWAY FROM SITE. REMOVE WATER SOFTENED MATERIAL FROM BENEATH SLABS OR FOOTINGS.

14.) SHOTCRETE REQUIREMENTS

SHOTCRETE SHALL COMPLY WITH THE RECOMMENDATIONS OF ACI "GUIDE TO SHOTCRETE." AND THE REQUIREMENTS OF ACI 506.2 "SPECIFICATION FOR MATERIALS, PROPORTIONING, AND APPLICATION OF SHOTCRETE." PARTICULAR ATTENTION SHALL BE PAID TO THE FOLLOWING PARTS OF THE SHOTCRETE REQUIREMENTS.

A.) WORKER QUALIFICATIONS: WORKERS, INCLUDING FOREMAN, NOZZLEMEN, AND SHOTCRETE PUMP OPERATOR, SHALL BE FULLY QUALIFIED TO PERFORM THE WORK. THE NOZZLEMEN SHALL HAVE HAD A MINIMUM OF TWO YEARS CONTINUOS EXPERIENCE ON SIMILAR STRUCTURAL SHOTCRETE WORK AND SHALL DEMONSTRATE THEIR ABILITY TO SATISFACTORILY PLACE SHOTCRETE IN ACCORDANCE WITH THE RECOMMENDATIONS OF ACI 506.3R "GUIDE TO CERTIFICATION OF SHOTCRETE NOZZLEMEN."

B.) THE CONTRACTOR SHALL SUPPLY FOR REVIEW DOCUMENTATION INCLUDING, BUT NOT LIMITED TO, MATERIAL SPECIFICATIONS, MIX DESIGN, PLACEMENT PROCEDURES, AND FIELD QUALITY CONTROL PROGRAM. A TENTATIVE SHOTCRETE MIX SHALL BE DESIGNED AND TESTED FOR EACH TYPE, SIZE, AND GRADATION OF AGGREGATES; AND FOR EACH CONSISTENCY INTENDED FOR THE USE OF THE PROJECT. BEFORE STARTING SHOTCRETE WORK, AT LEAST ONE TEST PANEL FOR EACH PROPOSED MIX SHALL BE MADE BY EACH SHOTCRETE CREW, USING THE 30 INCH SQUARE PANEL METHOD AND THE PROPOSED EQUIPMENT FOR THE PROJECT. THE PANEL SHALL BE ORIENTED SIMILARLY TO THE STRUCTURE, SHALL CONTAIN THE SAME REINFORCING AS THE STRUCTURE AND SHALL HAVE THE SAME THICKNESS AS THE STRUCTURE. THE PANEL SHALL BE CORED FOR ABSORPTION AND COMPRESSION TESTING AT 14 AND 28 DAYS.

REV	BY	DATE	COMMENT

WATSON ENGINEERING LLC
CONSULTING ENGINEERS
2450 WEST POPPY AVENUE
TUCSON, ARIZONA 85705
PH: (520) 888-6468
FAX: (520) 292-6974

CON-ARCH

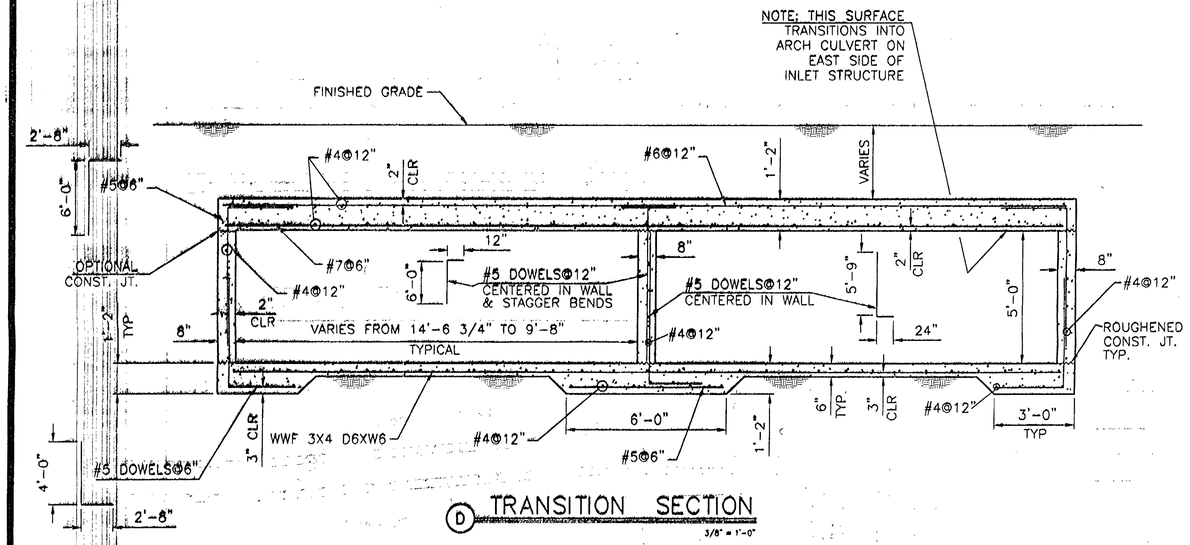
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RENO AVE./ VALLEY VIEW
ARCH-CULVERT DETAILS
CLARK COUNTY, NEVADA

Dsgn:	TAS
Drwn:	ATS
Rvsd:	-
Chk:	TAS
Date:	4-7-00
SCALE:	AS NOTED
SHEET NO.	Proj. No.
1 OF 2	99019

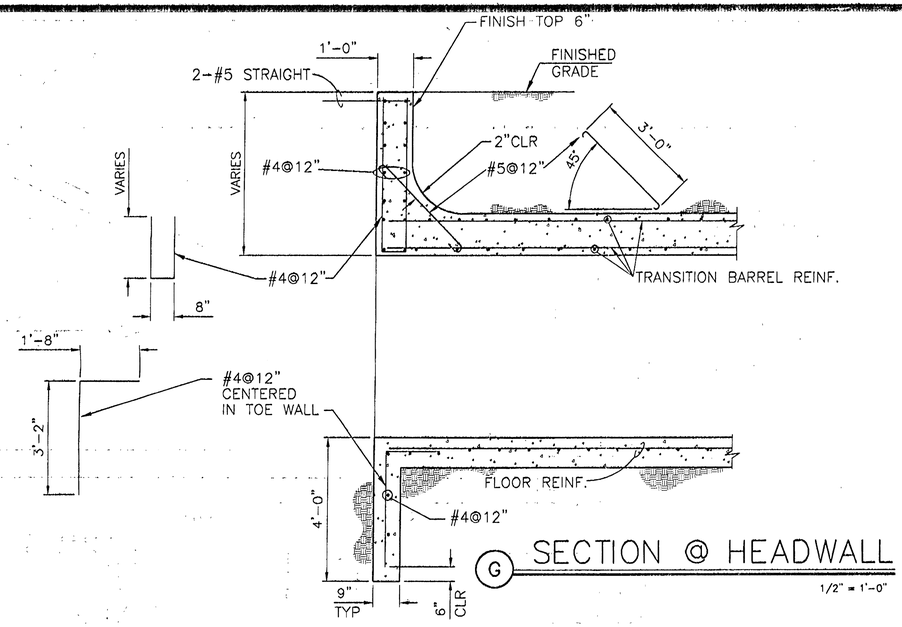
Closed 00-5461

00-5461



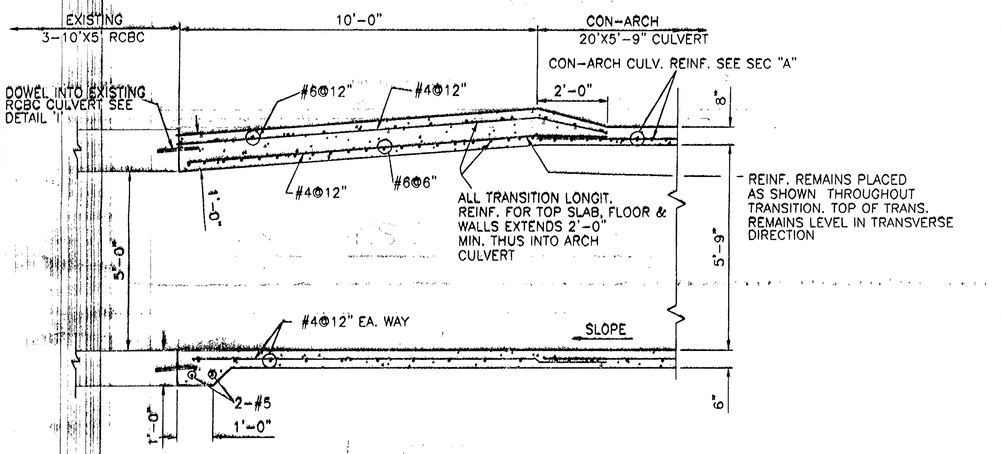
D TRANSITION SECTION

3/8" = 1'-0"



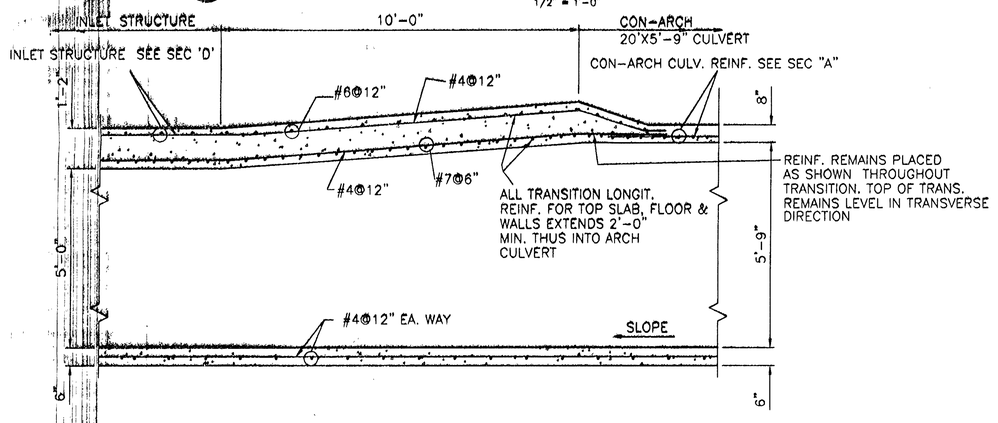
G SECTION @ HEADWALL

1/2" = 1'-0"



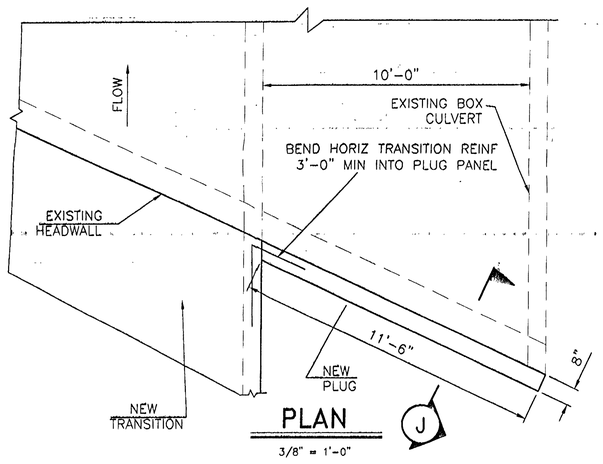
E TRANSITION SECTION

1/2" = 1'-0"



F TRANSITION SECTION

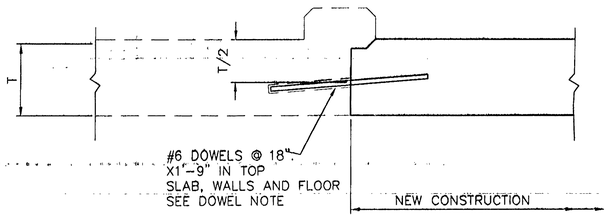
1/2" = 1'-0"



PLAN

3/8" = 1'-0"

J

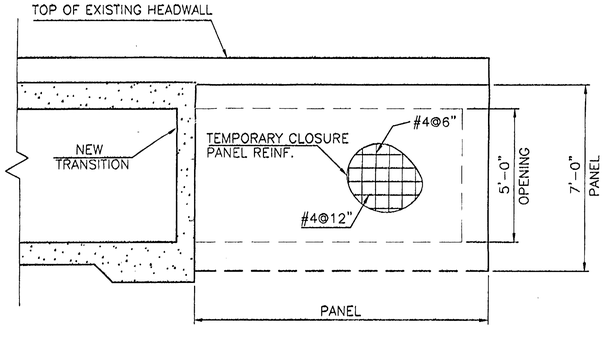


I DOWEL DETAIL

1" = 1'-0"

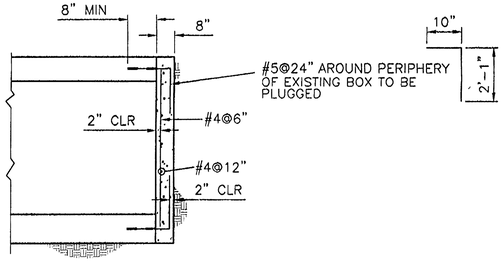
DOWEL NOTE:

DRILL 1 DIA HOLE, 8" DEEP FOR #6 DOWEL. EPOXY DOWEL IN HOLE WITH AN APPROVED EPOXY ADHESIVE. EPOXY ANCHORAGE SHALL DEVELOP A TENSILE PULLOUT STRENGTH OF 13 KIPS. DETAILS OF THE ANCHORAGE SYSTEM SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PRIOR TO INSTALLATION.



H PLUG PANEL DETAIL

3/8" = 1'-0"



J PLUG PANEL SECTION

3/8" = 1'-0"

SEAL PERTAINS ONLY TO WORK RELATED TO CON-ARCH CULVERT STRUCTURE. SURVEY DATA, INVERT ELEVATIONS & HYDRAULIC ANALYSIS PROVIDED BY OTHERS.

WATSON ENGINEERING LLC
CONSULTING ENGINEERS
2450 WEST POPPY AVENUE
TUCSON, ARIZONA 85705
PH: (520) 888-6468
FAX: (520) 292-6974

CON-ARCH

NOTICE: These drawings and the information contained herein are the property of CLL Agency, Construction Company, Tucson, Arizona and Watson Engineering, Tucson, Arizona. Con-Arch and Watson Engineering retain all rights to these drawings and the design and construct. The unauthorized use of these drawings is strictly prohibited.

RENO AVE./ VALLEY VIEW ARCH-CULVERT DETAILS

CLARK COUNTY, NEVADA

THOMAS A. SACRA III 5/18/00 CIVIL

Dsgn:	TAS
Drwn:	ATS
Rvsd:	-
Chk:	TAS
Date:	4/7/00
SCALE:	AS NOTED
SHEET NO.	Proj. No.
2 OF 2	99019

00-5461

LOCHSA ENGINEERING

JESS. S HALDEMAN, S.E.
MARK L. HEDGE, P.E.
KENNETH W. (BILL) KARREN, JR., S.E.
DAVID S. PETERSON, S.E.
TED T. EGERTON, P.E.

May 19, 2005

Sheila M. Norlin, CFM
National LOMC Manager
Michael Baker Jr., Inc.
3601 Eisenhower Avenue,
Alexandria, Virginia 22304-6425

Case No.: **05-09-0758R**
Community: Clark County, NV
Community No.: 320003
Identifier: Adam and Eve Night Club
Flooding Source: Tropicana Wash - Central Branch
FIRM Panel Affected: 3200C2552E

Subject: Response to inventory comments
Lochsa Engineering Job No. 7162.17

Dear Ms. Sheila,

The following are responses to the additional data request dated April 15, 2005, regarding the CLOMR application listed above. Your additional requirements/comments and our respective responses are stated below.

Comment #1: Please submit a hydrologic analysis and all applicable backup information to support the discharges used in the submitted proposed conditions hydraulic analyses along the Tropicana Wash Central Branch.

Response #1: The previous submittal included reference copies of the hydrologic analysis from the 2002 Tropicana Wash FIS by JE Fuller Hydrology and Geomorphology Inc. As shown in the referenced Watershed Map (Exhibit 1), the site falls within basin TW2. In order to estimate the flows impacting the site, the upstream portion of basin TW2 located west of Valley View Boulevard and east of the Union Pacific Rail Road (UPRR) has been subdivided and re-analyzed as subbasins TW2A and TW2B. Subbasin TW2A generates a 100-year flow of approximately 192 cfs, and consists of the flows intercepted and conveyed north in the existing 60" storm drain in Valley View Boulevard. Subasin TW2B generates a 100-year flow of approximately 50 cfs, and is combined with the 750 cfs conveyed across the UPRR 114" CMP culvert to

impact the site in the Tropicana Wash Central Branch. The algebraic combination of flows from the UPRR culvert and subbasin TW2B (ie 750+50=800 cfs) was used to provide the hydraulic analyses for the existing arch culvert in the Tropicana Wash Central Branch traversing the subject site as previously submitted. The Offsite Basin Map (Figure 7) indicating the location of subbasins TW2A and TW2B is attached. Electronic copies of the data for the hydrologic analysis (HEC-1) have also been attached for your use and verification.

Comment #2: The submitted annotated FIRM shows that a regulatory floodway exist at both ends of the project reach of the Tropicana Wash Central Branch. A hydraulic analysis of encroached conditions must be provided to demonstrate the effect of the proposed project on the regulatory floodway upstream and downstream of the project reach. Please provide a hydraulic analysis that shows how the proposed project would affect the regulatory floodway and how the modified floodway will tie into the effective floodway upstream and downstream of the project reach along the Tropicana Wash Central Branch.

Response #2: It has been noted that a regulatory floodway exists upstream and downstream of the project reach of the Tropicana Wash Central Branch. The hydraulic analysis previously submitted for the existing arch culvert through the site was modeled with the WSPG software. In order to demonstrate the effect of the culvert on the regulatory floodway, a HEC-RAS model with the encroached condition for the reach of the Tropicana Wash Central Branch upstream of the site has been provided. This model consists of the same geometry data for all upstream cross-sections as modeled in the referenced 2002 FIS by HDR Engineering Inc. However, an additional cross-section (63.111) which represents the area of natural wash near the entrance of the arch culvert has been included in the WSPG model (Sta: 1752.00), and the new HEC-RAS model with encroached condition to verify the hydraulic conditions in this area. The station and elevation data for this additional cross-section were determined from a current topographic map of the site in NAVD 88 datum, therefore the elevations have been adjusted (less 2.30') to NGVD 29 datum to be consistent with the other section parameters in the 2002 FIS HEC-RAS model. The WSE {2188.77' (NAVD 88) or 2186.47' (NGVD 29)} at the culvert entrance as determined in the WSPG analysis is used as the downstream boundary condition for the HEC-RAS model with encroached condition. A comparison of the results from the Revised Effective HEC-RAS model to the attached model with encroached condition, indicates that the existing arch culvert within the project site, does not have any adverse impact to the Base Flood Elevations and the regulatory floodway in the reach of the Tropicana Wash Central Branch

upstream of the site. Please compare the results at HEC-RAS cross-sections 63.186 and 63.245 (FIRM Sections L and M). The previously submitted Annotated FIRM (Figure 6) has been revised to show how the arch culverts through the project site ties into the effective Floodway delineation. An exhibit (Figure 8) of the topographic map for the site showing the location of the additional HEC-RAS cross-section 63.111 is also attached for your review.

On the other hand, the downstream reach of the Tropicana Wash Central Branch consists of an existing 20'x4.5' Reinforced Concrete Box (RCB), which spans approximately 1,000-feet east of Valley View Boulevard. The base flood of the Tropicana Wash within this downstream reach is contained within the 20'x4.5' RCB, and therefore any floodway encroachment will assume the width of the RCB (20'). The area of the subject CLOMR will therefore not have any impact on the downstream floodway. As shown in the hydraulic analysis presented in the 2002 Tropicana Wash FIS by HDR Engineering Inc., the cross-sections within the downstream reach of the wash began near the outlet of the 20'x4.5' RCB. This implies that the floodway analysis was not provided for the segment of the wash already replaced by the 20'x4.5' RCB and therefore there are no immediate downstream cross-sections to tie into. Per our telephone conversation of May 18, 2005, with Ms. Erin Cummings of Michael Baker Corporation, the encroachment analysis will not be required for this segment of the Wash downstream of the site. Copies of the reference plan and profile drawings for the 20'x4.5' RCB have been attached for your verification.

Please feel free to contact our office at your convenience if you have any questions or further comments.

Sincerely,

LOCHSA ENGINEERING

Stanley Okey Amadi
Civil Designer

Hani M. Noshi, Ph.D., P.E.
Director of Flood Control and Drainage

NATIONAL FLOOD INSURANCE PROGRAM
FEMA MAP COORDINATION CONTRACTOR

April 15, 2005

Hani M. Noshi, Ph.D., P.E.
Director Flood Control and Drainage
Lochsa Engineering.
6345 South Jones Boulevad, Suite 100
Las Vegas, NV 89118

IN REPLY REFER TO:
Case No.: 05-09-0758R
Community: Clark County, NV
Community No.: 320003

316-AD

Dear Dr. Noshi:

This responds to your request dated March 24, 2005, that the Department of Homeland Security's Federal Emergency Management Agency (FEMA) issue a conditional revision to the Flood Insurance Rate Map (FIRM) for Clark County, Nevada and Incorporated Areas. Pertinent information about the request is listed below.

Identifier:	Adam and Eve Night Club
Flooding Source:	Tropicana Wash Central Branch
FIRM Panel(s) Affected:	32003C2552 E

The data required to complete our review, which must be submitted within 90 days of the date of this letter, are listed on the enclosed summary.

If we do not receive the required data within 90 days, we will suspend our processing of your request. Any data submitted after 90 days will be treated as an original submittal and will be subject to all submittal/payment procedures, including the flat review and processing fee for requests of this type established by the current fee schedule. A copy of the notice summarizing the current fee schedule, which was published in the *Federal Register,* is enclosed for your information.

If you are unable to meet the 90-day deadline for submittal of required items, and would like us to continue processing your request, you must request an extension of the deadline. This request must be submitted to us in writing and must provide (1) the reason why the data cannot be submitted within the requested timeframe, and (2) a new date for the submittal of the data. FEMA receives a very large volume of requests and cannot maintain inactive requests for an indefinite period of time. Therefore, the fees will be forfeited for any request for which neither the requested data nor a written extension request is received within 90 days.

If you have general questions about your request, FEMA policy, or the National Flood Insurance Program, please call the FEMA Map Assistance Center, toll free, at 1-877-FEMA MAP (1-877-336-2627). If you have specific questions concerning your request, please call the Revisions Coordinator for your State, Mr. Sacha Tohme, CFM, who may be reached at (703) 960-8800, ext. 3028.

Sincerely,

Sheila M. Norlin, CFM
National LOMC Manager
Michael Baker Jr., Inc.

Enclosures

cc: Mr. Dave Betley, P.E.
Principal Engineer
Clark County Department of Development Services
Civil Engineering Division

Mr. Todd Myers, P.E.
Senior Civil Engineer
Clark County Department of Development Services
Civil Engineering Division

Mr. Kevin L. Eubanks, P.E., CFM
Assistant General Manager
Clark County Regional Flood Control District

bcc: Regional Director R9-MT
State Coordinator
FCSA (C. Bury)
MBJ Case File/ST/EeC/05-09-0758R
MBJ Project File

NATIONAL FLOOD INSURANCE PROGRAM
FEMA MAP COORDINATION CONTRACTOR

Summary of Additional Data Required to Support a
Conditional Letter of Map Revision (CLOMR)

Case No.: 05-09-0758R

Requester: Hani M. Noshi, Ph.D., P.E.

Community: Clark County, NV

Community No.: 320003

The issues listed below must be addressed before we can continue the review of your request.

1. Please submit a hydrologic analysis and all applicable backup information to support the discharges used in the submitted proposed conditions hydraulic analyses along the Tropicana Wash Central Branch.

2. The submitted annotated FIRM shows that a regulatory floodway exists at both ends of the project reach of the Tropicana Wash Central Branch. A hydraulic analysis of encroached conditions must be provided to demonstrate the effect of the proposed project on the regulatory floodway upstream and downstream of the project reach. Please provide a hydraulic analysis that shows how the proposed project would affect the regulatory floodway and how the modified floodway will tie into the effective floodway upstream and downstream of the project reach along of the Tropicana Wash Central Branch.

Please send the required data directly to us at the address shown at the bottom of this page. For identification purposes, please include the case number referenced above on all correspondence.

3601 Eisenhower Avenue, Alexandria, Virginia 22304-6425 PH: 703.960.8800 FX: 703.960.9125

Michael Baker Jr., Inc., under contract with the FEDERAL EMERGENCY MANAGEMENT AGENCY, is a Map Coordination Contractor for the National Flood Insurance Program

***STANDARD FORM 4**
***HEC-1 OUTPUT FILES**
(FOR SUBBASINS TW2A AND TW2B)

DEVELOPMENT: ADAM AND EVE NIGHT CLUB
CALCULATED BY: SOA
PROJECT NUMBER: 7162.17

DATE: May 2005

SUB-BASIN DATA				INITIAL/OVERLAND TIME (ti)			TRAVEL TIME (tt)				tc CHECK (URBANIZED BASINS)		FINAL tc	REMARKS			
DESIGN (1)	K (2)	AREA Ac (3)	AREA Square Miles (4)	LENGTH Ft (5)	SLOPE % (6)	ti Min (7)	LENGTH Ft (8)	SLOPE % (9)	VELOCITY FPS (10)	tt Min (11)	TOTAL LENGTH Ft (12)	tc =(L/180)+10 Min (13)	Min (14)	CN (15)	tL Hrs (16)	Urbanized?	Soil Type
TW2A	0.8152	105.51	0.164856	500	1.0	11.5	5,030	1.0	4.6	18.3	5,530	40.7	29.8	91.3	0.298	YES	C/D
TW2B	0.8112	23.52	0.036751	400	1.4	9.2	1,337	1.4	1.9	11.7	1,737	19.7	19.7	91.0	0.197	YES	C

ti = 1.8 (1.1 - K) L^(0.5) / S^(1/3)

K = 0.0132 CN - 0.39

tt = L / (60 V)

tc = ti + tt

tL= tLAG = 0.6 tc

LOCATION: Onsite and Offsite

HYDROLOGIC CONDITION: Existing and Developed

TRIAL: Final Iteration

Curve Number Calculations

Sub-Basin: **TW2A**
Total Area: 105.51 Acres

Land Use/Cover type	Area [A] (acres)	Soil Type	Percentage, P [P]	Cruve Number [CN]	Product {CN x P}
Industrial	89.68	C	85%	91	77.4
Industrial	15.83	D	15%	93	14.0
Total:	105.51	-------	100%	----------	91.3

Curve Number Calculations

Sub-Basin: **TW2B**
Total Area: 23.52 Acres

Land Use/Cover type	Area [A] (acres)	Soil Type	Percentage, P [P]	Cruve Number [CN]	Product {CN x P}
Industrial	23.52	C	100%	91	91.0
Total:	23.52	-------	100%	----------	91.0

AVERAGE VELOCITY

Input Variables					Basin TW2A	Basin TW2B										
Bottom Width, B, (ft):					60.0	10.0										
Right Side Slope, Zr:					0	100										
Left Side Slope, Zl:					0	100										
Manning's n:					0.016	0.030										
Geometric Slope, So (ft/ft):					0.010	0.014										
Flowrate, Q (cfs):					96	25										
Output Variables																
Normal Depth, Yn (ft):					0.35	0.32										
Area of Flow, A, (sf):					20.95	13.17										
Velocity, V (fps):					4.58	1.90										
Wetted Perimeter, p (ft):					60.70	73.26										
Hydraulic Radius, Rh (ft):					0.35	0.18										
Free SurfaceTop Width, T (ft):					60.00	73.26										
Centroid, Y*, (ft):					0.17	0.12										

* NOTE : HALF OF THE 100-YEAR STORM RUNOFF FLOWS IS USED TO DETERMINE THE BASIN TRAVEL VELOCITY REQUIRED FOR THE LAG TIME CALCULATIONS

```
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*                                       *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
*               JUN  1998               *
*            VERSION 4.1                *
*                                       *
*  RUN DATE  18MAY05  TIME  14:56:21    *
*                                       *
*****************************************
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*****************************************
*                                       *
*    U.S. ARMY CORPS OF ENGINEERS       *
*    HYDROLOGIC ENGINEERING CENTER      *
*          609 SECOND STREET            *
*       DAVIS, CALIFORNIA 95616         *
*           (916) 756-1104              *
*                                       *
*****************************************
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X     X  XXXXXXX   XXXXX           X
X     X  X        X     X         XX
X     X  X        X               X
XXXXXXX  XXXX     X        XXXXX  X
X     X  X        X               X
X     X  X        X     X         X
X     X  XXXXXXX  XXXXX           XXX
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THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE.
THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION
NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,
DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL LOSS RATE:GREEN AND AMPT INFILTRATION
KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM

```
LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

    1     ID        ADAM AND EVE NIGHTCLUB-CLOMR APPLICATION
    2     ID        EXISTING/DEVELOPED CONDITION - ONSITE AND OFFSITE
    3     ID        USING SCS METHODS AND KINEMATIC WAVE ROUTING
    4     ID        MASTER PLAN ADJUSTED 6-HOUR RAINFALL AND STORM DISTRIBUTION
    5     ID        LOCHSA JOB# 7162
    6     ID
    7     ID
    8     ID        INPUT FILE NAME:  7162.DAT
    9     ID
   10     ID    MAY 2005
   11     ID
   12     ID        ************************************************************************
   13     ID        ************************************************************************
   14     ID             OFFSITE BASIN IS INSIDE McCARRAN AIRPORT RAINFALL AREA
   15     ID
   16     ID             10 & 100 YEAR - 6 HOUR STORM EVENT
   17     ID             PRECIPITATION BASED ON TABLE 505
   18     ID             10-YEAR ADJUSTED RAINFALL DEPTH  = 1.58in
   19     ID             100-YEAR ADJUSTED RAINFALL DEPTH = 2.77in
   20     ID
   21     ID             10-YEAR RAINFALL DEPTH RATIO (JR CARD) = 1.58/2.77 = 0.570
   22     ID
   23     ID        ************************************************************************
   24     ID
   25     ID        ************************************************************************
          •DIAGRAM
   26     IT       5                    73
   27     IO       5       0
   28     IN       5
   29     JR    PREC   .5704    1.00

   30     KK    TW2A
   31     KM   OFFSITE BASIN TW2A IS A PORTION OF BASIN TW2 AS ANALYZED IN THE 2002
   32     KM   TROPICANA WASH FIS BY JE FULLER HYDROLOGY AND GEOMOPHORLOGY INC.
   33     KM   FLOWS FROM TW2A ARE GENERALLY CONVEYED IN THE 60" SD IN VALLEY VIEW BOULEVARD
   34     KM   AND COMBINES WITH OTHER FLOWS IN THE TROPICANA WASH CULVERT CROSSING
   35     PB    2.77
   36     PC     0.0     .02     .057     .07     .087     .108     .124     .13      .13      .13
   37     PC     .13     .13      .13     .133      .14     .142     .148     .158     .172     .181
   38     PC     .19     .197     .199      .2     .201     .204     .214     .229     .241     .249
   39     PC    .251     .256      .27     .278     .281     .283     .295     .322     .352     .409
   40     PC    .499      .59      .71     .744     .781     .812     .819     .835     .851     .856
   41     PC     .86     .868     .876     .888      .91     .926     .937      .95      .97     .976
   42     PC    .982     .985     .987     .989      .99     .993     .993     .994     .995     .998
   43     PC    .998     .999      1.0
   44     BA  .16486
   45     LS       0    91.3
   46     UD    .298

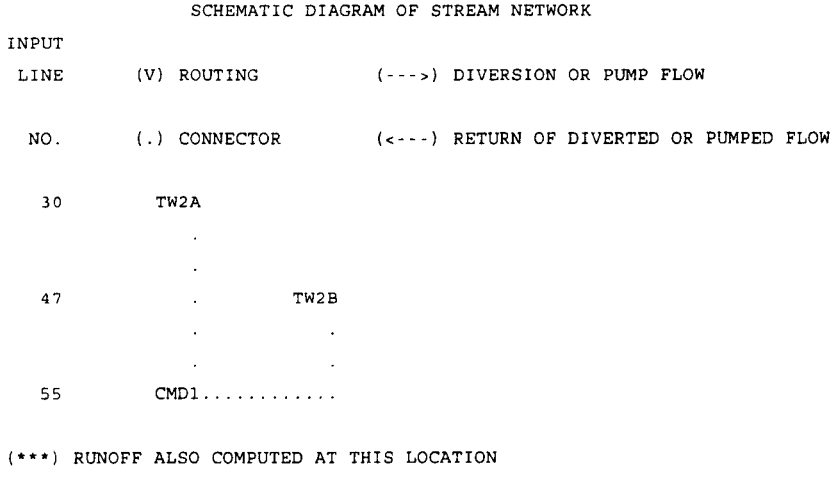
   47     KK    TW2B
   48     KM   OFFSITE BASIN TW2B IS ALSO THE PORTION OF BASIN TW2 AS AS ANALYZED IN THE
   49     KM   2002 TROPICANA WASH FIS BY JE FULLER HYDROLOGY AND GEOMOPHORLOGY INC.
   50     KM   FLOWS FROM BASIN TW2B COMBINES WITH THE 750 CFS FROM THE UPRR CMP CULVERT
   51     KM   AND ARE CONVEYED IN THE TROPICANA WASH THROUGH THE SITE
   52     BA  .03675
```

```
LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  53      LS       0    91.0
  54      UD    .197

  55      KK    CMD1
  56      KM   COMBINE SUBBASINS TW2A AND TW2B IN THE TROPICANA WASH CULVERT DOWNSTREAM
  57      KM   OF THE SITE ACROSS VALLEY VIEW BOULEVARD
  58      HC       2
  59      ZZ
```

SCHEMATIC DIAGRAM OF STREAM NETWORK



(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

```
**************************************          **************************************
*                                    *          *                                    *
*   FLOOD HYDROGRAPH PACKAGE (HEC-1) *          *  U.S. ARMY CORPS OF ENGINEERS      *
*         JUN  1998                  *          *  HYDROLOGIC ENGINEERING CENTER     *
*       VERSION 4.1                  *          *       609 SECOND STREET            *
*                                    *          *     DAVIS, CALIFORNIA 95616        *
* RUN DATE  18MAY05  TIME  14:56:21  *          *         (916) 756-1104             *
*                                    *          *                                    *
**************************************          **************************************
```

ADAM AND EVE NIGHTCLUB-CLOMR APPLICATION
EXISTING/DEVELOPED CONDITION - ONSITE AND OFFSITE
USING SCS METHODS AND KINEMATIC WAVE ROUTING
MASTER PLAN ADJUSTED 6-HOUR RAINFALL AND STORM DISTRIBUTION
LOCHSA JOB# 7162

INPUT FILE NAME: 7162.DAT

MAY 2005

****
****
OFFSITE BASIN IS INSIDE McCARRAN AIRPORT RAINFALL AREA

10 & 100 YEAR - 6 HOUR STORM EVENT
PRECIPITATION BASED ON TABLE 505
10-YEAR ADJUSTED RAINFALL DEPTH = 1.58in
100-YEAR ADJUSTED RAINFALL DEPTH = 2.77in

10-YEAR RAINFALL DEPTH RATIO (JR CARD) = 1.58/2.77 = 0.570

****

****

27 IO OUTPUT CONTROL VARIABLES

IPRNT	5	PRINT CONTROL
IPLOT	0	PLOT CONTROL
QSCAL	0.	HYDROGRAPH PLOT SCALE

IT HYDROGRAPH TIME DATA

NMIN	5	MINUTES IN COMPUTATION INTERVAL
IDATE	1 0	STARTING DATE
ITIME	0000	STARTING TIME
NQ	73	NUMBER OF HYDROGRAPH ORDINATES
NDDATE	1 0	ENDING DATE
NDTIME	0600	ENDING TIME
ICENT	19	CENTURY MARK

COMPUTATION INTERVAL .08 HOURS
TOTAL TIME BASE 6.00 HOURS

ENGLISH UNITS
DRAINAGE AREA SQUARE MILES
PRECIPITATION DEPTH INCHES

	LENGTH, ELEVATION	FEET
	FLOW	CUBIC FEET PER SECOND
	STORAGE VOLUME	ACRE-FEET
	SURFACE AREA	ACRES
	TEMPERATURE	DEGREES FAHRENHEIT

JP MULTI-PLAN OPTION

NPLAN 1 NUMBER OF PLANS

JR MULTI-RATIO OPTION

RATIOS OF PRECIPITATION

.57 1.00

PEAK FLOW AND STAGE (END-OF-PERIOD) SUMMARY FOR MULTIPLE PLAN-RATIO ECONOMIC COMPUTATIONS

FLOWS IN CUBIC FEET PER SECOND, AREA IN SQUARE MILES

TIME TO PEAK IN HOURS

OPERATION	STATION	AREA	PLAN		RATIOS APPLIED TO PRECIPITATION RATIO 1	RATIO 2
					.57	1.00
HYDROGRAPH AT	TW2A	.16	1	FLOW	88.	192.
				TIME	3.75	3.75
HYDROGRAPH AT	TW2B	.04	1	FLOW	22.	50.
				TIME	3.58	3.58
2 COMBINED AT	CMD1	.20	1	FLOW	107.	239.
				TIME	3.67	3.67

*** NORMAL END OF HEC-1 ***

REFERENCE MATERIALS FOR THE HYDROLOGIC ANALYSIS FROM THE CLARK COUNTY REGIONAL FLOOD CONTROL DISTRICTS (CCRFCD) HYDROLOGIC CRITERIA AND DRAINAGE DESIGN MANUAL (HCDDM)

NOTES

This map is for assessment use only and does NOT represent a survey.

No liability is assumed for the accuracy of the data delineated herein.

Information on roads and other non-assessed parcels may be obtained from the Road Document Listing in the Assessor's Office.

This map is compiled from official records, including surveys and deeds, but only contains the information required for assessment. See the recorded documents for more detailed legal information.

USE THIS SCALE(FEET) WHEN MAP REDUCED FROM 11X17 ORIGINAL

0 50 100 200 400 600 800

MAP LEGEND

- PARCEL BOUNDARY
- SUBD BOUNDARY
- ROAD EASEMENT
- PM/LD BOUNDARY
- NON-PARCEL LOT LINE
- MATCH LINE / LEADER LINE
- (000) ROAD ID NUMBER
- 001 PARCEL NUMBER
- 1.00 ACREAGE
- 202 PARCEL SUB/SEQ NUMBER
- PB PG PLAT RECORDING NUMBER
- BLOCK NUMBER
- LOT NUMBER
- GOV. LOT NUMBER

AVERAGE QA VALUE 45

ASSESSOR'S PARCELS - CLARK CO., NV.
M. W. Schofield, Assessor

T21S R61E | SEC 30 | N 2 NE 4 | 162-30-5

1305	R60E	R61E	R62E
1305	138	139	140
1315	163	162	161
1325	176	177	178

Scale 1" = 200'

Revised 7/15/92

TROPICANA AVE

ARVILLE ST

SCHIRELL ST

WYNN RD

BELL RD

UNION PACIFIC RAILROAD

SCHUSTER ST

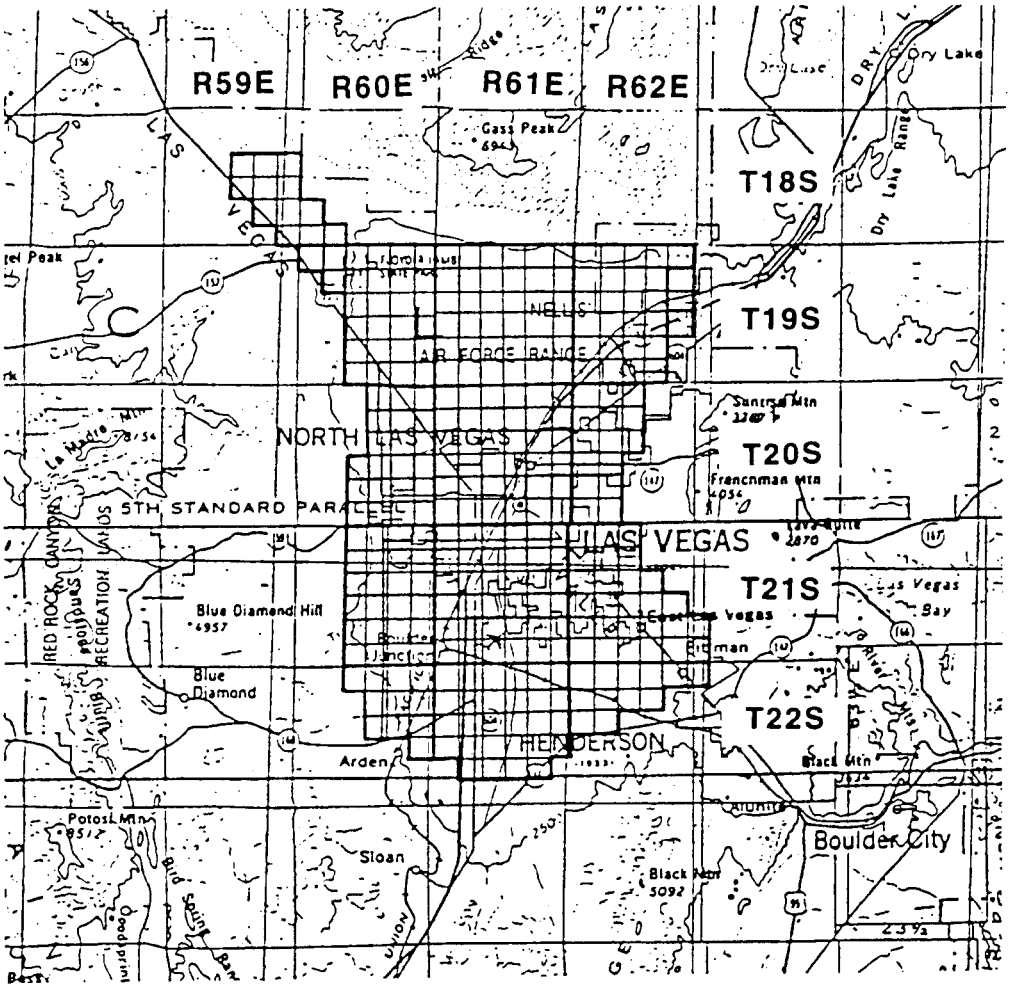
DEAN MARTIN VALLEY VIEW BLVD

RENO AVE

042 1.23
001 0.75
004 0.95
005 0.72
036 8.85
008 2.50
009 2.10
038 0.99
037 1.00
011 1.50
012 2.00
015 0.78
014 2.15
017 2.50
041 2.03
019 2.06
020 2.50
501
510
MASSO PARA CONDOMINIUMS PHASE 1
SEE CONDO DETAIL "A"
001 2.06
021 2.16
022 2.30
023 2.50
IDEAL PARK INDUSTRIAL SITE
001 0.44
002 0.46
003 0.26
004 0.27
005 0.72
511
TARRON PARK
001 0.37
002 0.27
003 0.57
004 0.56
003 0.69
512
045 2.26
502
002 2.11
003 2.06
011 0.59
007 0.30
012 0.26
008 0.21
013 0.26
009 0.21
014 0.38
010 0.31
RENO-SCHIRELL
004 1.59
513
029 2.50
030 2.50
031 2.50
PROJECT SITE
043 1.96
VALLEY VIEW AT MASSO PARA INDUSTRIAL PARK

TAX DIST 470

McCARRAN AIRPORT RAINFALL AREA



TOWNSHIP	RANGE	SECTIONS	TOWNSHIP	RANGE	SECTIONS
18 South	59 East	13-15,22-26,36	20 South	62 East	4-9,16-20,29-32
18 South	60 East	30-32	21 South	60 East	1-4,9-16,21-28,33-36
19 South	60 East	1-6,8-16,21-28,33-36	21 South	61 East	ALL SECTIONS
19 South	61 East	ALL SECTIONS	21 South	62 East	4-9,15-23, 25-36
19 South	62 East	2-11,14-23,27-34	22 South	60 East	1-4,10-15,24
20 South	60 East	1-3,10-15,21-28,33-36	22 South	61 East	1-24,26-29
20 South	61 East	ALL SECTIONS	22 South	62 East	1-10,17-18

PROJECT SITE IS WITHIN SECTION 30

Notes:
1. Refer to Table 505 and Figure 516 Depth-Duration- Frequency values in the McCarran Airport Rainfall Area.
2. Refer to Table 506 and Figure 517 for Time-Intensity-Frequency values on the McCarran Airport Rainfall Area.

Revision	Date

WRC ENGINEERING

REFERENCE:
USACE, Los Angeles District, 1988

FIGURE 513

SIX-HOUR STORM DISTRIBUTIONS

Storm Time (In Minutes)	Percent of Total Storm Depth SDN3	SDN4	SDN5
0	0.0	0.0	0.0
5	2.0	2.0	2.0
10	5.7	5.8	5.9
15	7.0	7.5	8.0
20	8.7	9.9	11.0
25	10.8	12.6	14.4
30	12.4	13.7	15.0
35	13.0	14.5	16.0
40	13.0	14.9	16.8
45	13.0	15.1	17.1
50	13.0	15.5	18.0
55	13.0	15.6	18.2
60	13.0	15.9	18.7
65	13.3	16.2	19.0
70	14.0	16.9	19.7
75	14.2	17.2	20.2
80	14.8	17.9	21.0
85	15.8	18.9	22.0
90	17.2	20.1	23.0
95	18.1	21.1	24.1
100	19.0	22.0	25.0
105	19.7	22.8	25.9
110	19.9	23.2	26.5
115	20.0	24.0	28.0
120	20.1	24.6	29.0
125	20.4	25.2	30.0
130	21.4	26.0	30.5
135	22.9	26.9	30.9
140	24.1	27.6	31.0
145	24.9	28.3	31.7
150	25.1	28.6	32.1
155	25.6	29.2	32.7
160	27.0	30.2	33.3
165	27.8	31.2	34.6
170	28.1	32.1	36.1
175	28.3	33.2	38.1
180	29.5	35.2	40.8
185	32.2	37.6	43.0
190	35.2	41.5	47.7
195	40.9	46.2	51.4
200	49.9	53.0	56.1
205	59.0	61.0	63.0
210	71.0	71.0	71.0
215	74.4	73.2	72.0
220	78.1	75.6	73.1
225	81.2	78.2	75.2
230	81.9	79.9	77.9
235	83.5	81.3	79.0
240	85.1	82.3	79.5
245	85.6	83.0	80.4
250	86.0	83.5	81.0
255	86.8	84.4	82.0
260	87.6	85.1	82.6
265	88.8	86.4	84.0
270	91.0	88.5	85.9
275	92.6	90.8	88.9
280	93.7	92.4	91.0
285	95.0	94.4	93.8
290	97.0	96.8	96.6
295	97.6	97.3	97.0
300	98.2	97.8	97.4
305	98.5	98.2	97.9
310	98.7	98.4	98.1
315	98.9	98.6	98.3
320	99.0	98.8	98.5
325	99.3	99.1	98.9
330	99.3	99.2	99.0
335	99.4	99.3	99.2
340	99.5	99.4	99.3
345	99.8	99.7	99.6
350	99.8	99.8	99.7
355	99.9	99.9	99.9
360	100.0	100.0	100.0

Notes:
1. For drainage areas less than 8 square miles in size, use SDN 3.
2. For drainage areas greater than or equal to 8 square miles and less than 12 square miles in size, use SDN 4.
3. For drainage areas greater than or equal to 12 square miles, use SDN 5.
4. A graphical representation of these values is presented on **Figure 515**.

Revision	Date

REFERENCE:

TABLE 503

DEPTH-DURATION-FREQUENCY VALUES FOR McCARRAN AIRPORT RAINFALL AREA

(IN INCHES)

	RECURRENCE INTERVAL					
TIME	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
5 min.	0.15	0.27	0.35	0.46	0.54	0.63
10 min.	0.25	0.44	0.57	0.74	0.89	1.02
15 min.	0.33	0.57	0.74	0.97	1.15	1.32
30 min.	0.44	0.78	1.01	1.31	1.55	1.79
1 hour	0.52	0.89	1.15	1.50	1.78	2.06
2 hour	0.59	1.01	1.30	1.70	2.01	2.30
3 hour	0.64	1.08	1.39	1.82	2.15	2.48
6 hour	0.72	1.22	1.58	2.05	2.41	2.77
24 hour (TR-55)	1.20	1.60	1.80	2.40	2.70	2.96

NOTE: 1. Refer to Figure 513 for a description and drawing of the area included in the McCarran Airport Rainfall Area.

2. The 24 hour values presented above are for use with TR-55 only.

3. Table 501 adjustments not required.

Revision	Date

WRC ENGINEERING	REFERENCE: USACE, Los Angeles District, 1988	TABLE 505

RUNOFF CURVE NUMBERS
(URBAN AREAS[1])

Cover description		Curve numbers for hydrologic soil group–			
Cover type and hydrologic condition	Average percent impervious area[2]	A	B	C	D
Fully developed urban areas (vegetation established)					
Open space (lawns, parks, golf courses, cemeteries, etc.)[3]:					
Poor condition (grass cover < 50%)		68	79	86	89
Fair condition (grass cover 50% to 75%)		49	69	79	84
Good condition (grass cover > 75%)		39	61	74	80
Impervious areas:					
Paved parking lots, roofs, driveways, etc. (excluding right-of-way)		98	98	98	98
Streets and roads:					
Paved: curbs and storm sewers (excluding right-of-way)		98	98	98	98
Paved: open ditches (including right-of-way)		83	89	92	93
Gravel (including right-of-way)		76	85	89	91
Dirt (including right-of-way)		72	82	87	89
Western desert urban areas:					
Natural desert landscaping (pervious areas only)[4]		63	77	85	88
Artificial desert landscaping (impervious weed barrier, desert shrub with 1- to 2-inch sand or gravel mulch and basin borders)		96	96	96	96
Urban districts:					
Commercial and business	85	89	92	94	95
Industrial	72	81	88	91	93
Residential districts by average lot size:					

See Table 602A

Developing urban areas					
Newly graded areas (pervious areas only, no vegetation)[5]		77	86	91	94

1 Average runoff condition, and $I_a = 0.2S$.

2 The average percent impervious area shown was used to develop the composite CN's. Other assumptions are as follows: impervious areas are directly connected to the drainage system. Impervious areas have a CN of 98, and pervious areas are considered equivalent to open space in good hydrologic condition. CN's for other combinations of conditions may be computed using Figure 603.

3 CN's shown are equivalent to those of pasture. Composite CN's may be computed for other combinations of open space cover type.

4 Composite CN's for natural desert landscaping should be computed using Figure 603 based on the impervious area percentage (CN #98) and the pervious area CN. The pervious area CN's are assumed equivalent to desert shrub in poor hydrologic condition.

5 Composite CN's to use for the design of temporary measures during grading and construction should be computed using Figure 603 based on the degree of development impervious area percentage) and the CN's for the newly graded pervious areas.

Revision	Date

CLARK COUNTY
REGIONAL FLOOD CONTROL DISTRICT

2002 LAS VEGAS VALLEY FLOOD CONTROL MASTER PLAN UPDATE

LEGEND

- Ultimate Development Boundary
- Watershed Boundary
- ID Subarea Boundary
- Flow Arrows

Flood Control Facilities

- Existing Facilities
- Proposed Facilities

Type Hydrologic Soil Groups

- A Low Runoff Potential
- B Moderately Low Runoff Potential
- C Moderately High Runoff Potential
- D High Runoff Potential

Typical Land Use

1. Undeveloped Land, Open Desert
2. Parks, Golf Courses
3. Rural
4. Low Density Residential
5. Medium Density Residential
6. High Density Residential
7. Public Facility, Multi Family
8. Commercial, Office, Retail, Casino
9. Light Industrial
10. Heavy Industrial
11. Schools
12. Lakes

N W E S

0 1,000 2,000 3,000 4,000 5,000 Feet

SCALE: 1 inch = 3000 feet

US95 I-15 I-215

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29

HYDROLOGIC SUBAREAS, LAND USE & SOILS

FIGURE H-16

PBS&J

G.C. WALLACE, INC.

POST DEVELOPED CONDITION WSPG ANALYSIS WITH THE ADDITIONAL CROSS-SECTION STA: 1752.00 (HEC-RAS STA: 63.111)

```
0
T1 ADAM AND EVE NIGHT CLUB - FEMA CLOMR APPLICATION
T2 EXISTING ONSITE 20'x 5.75' ARCH CULVERT
T3 TROPICANA WASH-CENTRAL BRANCH (ACROSS PARCEL APN 162-30-501-043)
SO   1408.002180.30  1                              2185.82
R    1408.002180.30  1       .013
TS   1418.002180.38  2       .013
R    1428.002180.45  2       .013
R    1574.002181.55  2       .013
R    1652.002182.15  2       .013
R    1667.002183.09  2       .013
R    1682.002184.00  2       .013
R    1702.002185.21  2       .013
TS   1732.002187.00  4       .013
R    1734.002187.18  4       .013
TS   1735.002187.19  6       .028
R    1752.002187.23  6       .028
TS   1755.002187.30  3       .028
R    1798.002188.30  3       .028
R    2107.072198.93  5       .045
SH   2107.072198.93  5                              2200.70
CD   1  3   1   2.00   5.00   22.00
CD   2  6   0   0.00
CD   3  5
CD   4  3   1   0.67   5.00   32.50
CD   5  5
CD   6  5
PTS  223  0.00  0.00 20.00  0.00 20.00  1.33 19.00  3.66 18.00  4.34
PTS      17.00  4.75 16.00  5.02 15.00  5.24 14.00  5.42 13.00  5.57
PTS      12.00  5.67 11.00  5.72 10.00  5.74  9.00  5.72  8.00  5.67
PTS       7.00  5.57  6.00  5.42  5.00  5.24  4.00  5.02  3.00  4.75
PTS       2.00  4.34  1.00  3.66  0.00  1.33
PTS  396  0.00202.45  1.18199.28  6.17199.26  7.42199.29 24.66198.80
PTS      25.95198.80 27.44198.81 29.05198.78 76.39198.68 91.81198.77
PTS      93.30200.50 97.10200.61103.90201.16108.33201.42118.34202.03
PTS     130.21202.30136.42202.30148.91202.30177.19201.59196.98201.99
PTS     216.82202.30225.31202.02227.72201.94273.46200.30288.75199.04
PTS     296.08198.30299.99197.80311.71196.30311.80196.30312.38196.30
PTS     312.47196.30313.62196.30334.86196.30341.38196.30347.58196.09
PTS     352.24196.20352.99196.30362.54196.30364.98196.30365.12196.30
PTS     384.92196.30390.21194.50390.84194.30392.01193.91395.69192.30
PTS     397.65191.45400.28190.30404.79189.78416.78189.26420.45189.01
PTS     422.88188.86427.40188.30437.85189.37444.67190.30450.00192.30
PTS     455.16194.30456.10194.66460.31196.30462.75197.32463.02197.40
PTS     464.17197.79464.92197.72467.09197.29468.86196.94469.77196.94
PTS     479.65196.90482.59196.69484.45196.62485.31196.57487.22196.53
PTS     488.11196.60490.41196.65492.47196.78522.27198.30533.82198.30
PTS     536.51198.30539.85198.30549.91198.30584.99198.30595.48198.75
PTS     619.98199.70621.75199.28629.20199.15630.46199.13630.91199.16
PTS     631.53199.20632.75199.14633.57199.11638.53199.13644.93199.20
PTS     656.64199.70666.03201.44674.18202.45686.08202.36710.86201.84
PTS     734.54201.20
PTS  596  0.00202.30  3.55202.36  3.71202.36  4.14202.37  4.66202.37
PTS       4.89202.40  5.37202.38  9.46202.47 12.38202.55 21.44202.78
PTS      49.35203.30 60.69203.15 64.76203.44 65.06203.45 65.19203.46
PTS      65.55203.50 72.98203.47 74.21203.43 80.16203.47 95.38203.73
PTS     103.92203.90117.44204.10118.06204.11120.97204.14121.74204.12
PTS     122.51204.10123.25204.10127.83204.00129.34203.95138.80203.91
PTS     149.12204.30162.92204.64164.20204.67167.57204.30171.58204.30
PTS     175.18204.30177.05204.30180.60204.30183.39202.61183.63202.53
PTS     184.25202.30186.06201.60188.03201.07189.99200.30191.99200.30
PTS     198.91200.30204.27200.30207.02200.30214.25200.32219.33200.31
PTS     220.27200.30223.17200.30226.57200.15236.23199.73242.35199.67
PTS     246.32199.68250.55199.60250.60199.54262.14199.26262.15199.25
PTS     263.95199.20264.93199.10266.41199.02275.66198.93275.91198.94
PTS     281.54199.02287.00199.10290.41199.10296.01199.35314.72199.76
PTS     333.01200.30334.24200.90341.11202.30342.39202.35350.83202.67
PTS     351.82202.70352.97202.74361.28203.00365.63203.09368.70203.18
```

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PTS     403.69204.30404.69204.39406.47204.50408.54204.69414.01205.25
PTS     419.74205.87422.08206.15425.99206.10427.36206.30460.14207.56
PTS     469.39208.01469.73208.02469.81208.00470.49208.04472.93208.08
PTS     479.47208.12
PTS  618  0.00195.00  1.60194.00  3.20193.00  4.80192.00  6.40191.00
PTS       8.00190.00  9.60189.00 11.20188.00 12.80187.23 44.80187.23
PTS      47.40188.00 50.00189.00 52.60190.00 55.20191.00 57.80192.00
PTS      60.40193.00 63.00194.00 65.60195.00
```

DATE: 5/16/2005
TIME: 16:43

F0515P

WATER SURFACE PROFILE - CHANNEL DEFINITION LISTING

CARD CODE	SECT NO	CHN TYPE	NO OF PIERS	AVE PIER WIDTH	HEIGHT 1 DIAMETER	BASE WIDTH	ZL	ZR	INV DROP	Y(1)	Y(2)	Y(3)	Y(4)	Y(5)	Y(6)	Y(7)	Y(8)	Y(9)	Y(10)
CD	1	3	1	2.00	5.00	22.00	0.00	0.00	0.00										
CD	2	6	0	0.00															
CD	3	5	0	0.00															
CD	4	3	1	0.67	5.00	32.50	0.00	0.00	0.00										
CD	5	5	0	0.00															
CD	6	5	0	0.00															

F0515P

WATER SURFACE PROFILE - CROSS SECTION POINT LISTING

CARD CODE	SECT NO	NO OF POINTS	X(1) , Y(1) X(8) , Y(8)	X(2) , Y(2) X(9) , Y(9)	X(3) , Y(3) X(10) ,Y(10)	X(4) , Y(4) X(11) ,Y(11)	X(5) , Y(5) X(N) , Y(N)	X(6) , Y(6) X(N+1),Y(N+1)	X(7) , Y(7) X(99) ,Y(99)
PTS	2	23	0.00 0.00	20.00 0.00	20.00 1.33	19.00 3.66	18.00 4.34	17.00 4.75	16.00 5.02
PTS			15.00 5.24	14.00 5.42	13.00 5.57	12.00 5.67	11.00 5.72	10.00 5.74	9.00 5.72
PTS			8.00 5.67	7.00 5.57	6.00 5.42	5.00 5.24	4.00 5.02	3.00 4.75	2.00 4.34
PTS			1.00 3.66	0.00 1.33					
PTS	3	96	0.00 202.45	1.18 199.28	6.17 199.26	7.42 199.29	24.66 198.80	25.95 198.80	27.44 198.81
PTS			29.05 198.78	76.39 198.68	91.81 198.77	93.30 200.50	97.10 200.61	103.90 201.16	108.33 201.42
PTS			118.34 202.03	130.21 202.30	136.42 202.30	148.91 202.30	177.19 201.59	196.98 201.99	216.82 202.30
PTS			225.31 202.02	227.72 201.94	273.46 200.30	288.75 199.04	296.08 198.30	299.99 197.80	311.71 196.30
PTS			311.80 196.30	312.38 196.30	312.47 196.30	313.62 196.30	334.86 196.30	341.38 196.30	347.58 196.09
PTS			352.24 196.20	352.99 196.30	362.54 196.30	364.98 196.30	365.12 196.30	384.92 196.30	390.21 194.50
PTS			390.84 194.30	392.01 193.91	395.69 192.30	397.65 191.45	400.28 190.30	404.79 189.78	416.78 189.26
PTS			420.45 189.01	422.88 188.86	427.40 188.30	437.85 189.37	444.67 190.30	450.00 192.30	455.16 194.30
PTS			456.10 194.66	460.31 196.30	462.75 197.32	463.02 197.40	464.17 197.79	464.92 197.72	467.09 197.29
PTS			468.86 196.94	469.77 196.94	479.65 196.90	482.59 196.69	484.45 196.62	485.31 196.57	487.22 196.53
PTS			488.11 196.60	490.41 196.65	492.47 196.78	522.27 198.30	533.82 198.30	536.51 198.30	539.85 198.30
PTS			549.91 198.30	584.99 198.30	595.48 198.75	619.98 199.70	621.75 199.28	629.20 199.15	630.46 199.13
PTS			630.91 199.16	631.53 199.20	632.75 199.14	633.57 199.11	638.53 199.13	644.93 199.20	656.64 199.70
PTS			666.03 201.44	674.18 202.45	686.08 202.36	710.86 201.84	734.54 201.20		
PTS	5	96	0.00 202.30	3.55 202.36	3.71 202.36	4.14 202.37	4.66 202.37	4.89 202.40	5.37 202.38
PTS			9.46 202.47	12.38 202.55	21.44 202.78	49.35 203.30	60.69 203.15	64.76 203.44	65.06 203.45
PTS			65.19 203.46	65.55 203.50	72.98 203.47	74.21 203.43	80.16 203.47	95.38 203.73	103.92 203.90
PTS			117.44 204.10	118.06 204.11	120.97 204.14	121.74 204.12	122.51 204.10	123.25 204.10	127.83 204.00
PTS			129.34 203.95	138.80 203.91	149.12 204.30	162.92 204.64	164.20 204.67	167.57 204.30	171.58 204.30
PTS			175.18 204.30	177.05 204.30	180.60 204.30	183.39 202.61	183.63 202.53	184.25 202.30	186.06 201.60
PTS			188.03 201.07	189.99 200.30	191.99 200.30	198.91 200.30	204.27 200.30	207.02 200.30	214.25 200.32
PTS			219.33 200.31	220.27 200.30	223.17 200.30	226.57 200.15	236.23 199.73	242.35 199.67	246.32 199.68
PTS			250.55 199.60	250.60 199.54	262.14 199.26	262.15 199.25	263.95 199.20	264.93 199.10	266.41 199.02
PTS			275.66 198.93	275.91 198.94	281.54 199.02	287.00 199.10	290.41 199.10	296.01 199.35	314.72 199.76
PTS			333.01 200.30	334.24 200.90	341.11 202.30	342.39 202.35	350.83 202.67	351.82 202.70	352.97 202.74
PTS			361.28 203.00	365.63 203.09	368.70 203.18	403.69 204.30	404.69 204.39	406.47 204.50	408.54 204.69
PTS			414.01 205.25	419.74 205.87	422.08 206.15	425.99 206.10	427.36 206.30	460.14 207.56	469.39 208.01
PTS			469.73 208.02	469.81 208.00	470.49 208.04	472.93 208.08	479.47 208.12		
PTS	6	18	0.00 195.00	1.60 194.00	3.20 193.00	4.80 192.00	6.40 191.00	8.00 190.00	9.60 189.00
PTS			11.20 188.00	12.80 187.23	44.80 187.23	47.40 188.00	50.00 189.00	52.60 190.00	55.20 191.00
PTS			57.80 192.00	60.40 193.00	63.00 194.00	65.60 195.00			

WATER SURFACE PROFILE - TITLE CARD LISTING

HEADING LINE NO 1 IS -

ADAM AND EVE NIGHT CLUB - FEMA CLOMR APPLICATION

HEADING LINE NO 2 IS -

EXISTING ONSITE 20'x 5.75' ARCH CULVERT

HEADING LINE NO 3 IS -

TROPICANA WASH-CENTRAL BRANCH (ACROSS PARCEL APN 162-30-501-043)

WATER SURFACE PROFILE - ELEMENT CARD LISTING

ELEMENT NO 1 IS A SYSTEM OUTLET * * *

U/S DATA	STATION	INVERT	SECT	W S ELEV
	1408.00	2180.30	1	2185.82

ELEMENT NO 2 IS A REACH * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	1408.00	2180.30	1	0.013	0.00	0.00	0.00	0

ELEMENT NO 3 IS A TRANSITION * * *

U/S DATA	STATION	INVERT	SECT	N
	1418.00	2180.38	2	0.013

ELEMENT NO 4 IS A REACH * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	1428.00	2180.45	2	0.013	0.00	0.00	0.00	0

ELEMENT NO 5 IS A REACH * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	1574.00	2181.55	2	0.013	0.00	0.00	0.00	0

ELEMENT NO 6 IS A REACH * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	1652.00	2182.15	2	0.013	0.00	0.00	0.00	0

ELEMENT NO 7 IS A REACH * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	1667.00	2183.09	2	0.013	0.00	0.00	0.00	0

ELEMENT NO 8 IS A REACH * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	1682.00	2184.00	2	0.013	0.00	0.00	0.00	0

ELEMENT NO 9 IS A REACH * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	1702.00	2185.21	2	0.013	0.00	0.00	0.00	0

ELEMENT NO 10 IS A TRANSITION * * *

U/S DATA	STATION	INVERT	SECT	N
	1732.00	2187.00	4	0.013

ELEMENT NO 11 IS A REACH * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	1734.00	2187.18	4	0.013	0.00	0.00	0.00	0

ELEMENT NO 12 IS A TRANSITION * * *

U/S DATA	STATION	INVERT	SECT	N
	1735.00	2187.19	6	0.028

ELEMENT NO 13 IS A REACH * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	1752.00	2187.23	6	0.028	0.00	0.00	0.00	0

ELEMENT NO 14 IS A TRANSITION * * *

U/S DATA	STATION	INVERT	SECT	N
	1755.00	2187.30	3	0.028

WATER SURFACE PROFILE - ELEMENT CARD LISTING

ELEMENT NO 15 IS A REACH * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	1798.00	2188.30	3	0.028	0.00	0.00	0.00	0

WARNING - ADJACENT SECTIONS ARE NOT IDENTICAL - SEE SECTION NUMBERS AND CHANNEL DEFINITIONS

ELEMENT NO 16 IS A REACH * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	2107.07	2198.93	5	0.045	0.00	0.00	0.00	0

ELEMENT NO 17 IS A SYSTEM HEADWORKS * *

U/S DATA	STATION	INVERT	SECT	W S ELEV
	2107.07	2198.93	5	2200.70

NO EDIT ERRORS ENCOUNTERED-COMPUTATION IS NOW BEGINNING

WATER SURFACE PROFILE LISTING

ADAM AND EVE NIGHT CLUB - FEMA CLOMR APPLICATION
EXISTING ONSITE 20'x 5.75' ARCH CULVERT
TROPICANA WASH-CENTRAL BRANCH (ACROSS PARCEL APN 162-30-501-043)

STATION	INVERT ELEV	DEPTH OF FLOW	W.S. ELEV	Q	VEL	VEL HEAD	ENERGY GRD.EL.	SUPER ELEV	CRITICAL DEPTH	HGT/ DIA	BASE/ ID NO.	ZL	NO PIER	AVBPR
L/ELEM	SO					SF AVE	HF		NORM DEPTH			ZR		
1408.00	2180.30	5.520	2185.820	800.0	8.04	1.004	2186.824	0.00	3.677	5.00	22.00	0.00	1	2.00
TRANS STR	0.00800											0.00		
1418.00	2180.38	2.262	2182.642	800.0	17.83	4.936	2187.578		3.666		2		0	0.00
10.00	0.00700					.011063	0.11		2.637					
1428.00	2180.45	2.249	2182.699	800.0	17.93	4.991	2187.690		3.666		2		0	0.00
73.81	0.00753					.011876	0.88		2.571					
1501.81	2181.01	2.159	2183.165	800.0	18.65	5.402	2188.567		3.666		2		0	0.00
72.19	0.00753					.013590	0.98		2.571					
1574.00	2181.55	2.056	2183.606	800.0	19.56	5.943	2189.549		3.666		2		0	0.00
18.98	0.00769					.014894	0.28		2.553					
1592.98	2181.70	2.027	2183.723	800.0	19.83	6.105	2189.828		3.666		2		0	0.00
59.02	0.00769					.016410	0.97		2.553					
1652.00	2182.15	1.931	2184.081	800.0	20.80	6.716	2190.797		3.666		2		0	0.00
4.63	0.06267					.017121	0.08		1.283					
1656.63	2182.44	1.968	2184.408	800.0	20.41	6.470	2190.878		3.666		2		0	0.00
10.37	0.06267					.015491	0.16		1.283					
1667.00	2183.09	2.067	2185.157	800.0	19.46	5.882	2191.039		3.666		2		0	0.00
6.99	0.06067					.013609	0.10		1.296					
1673.99	2183.51	2.144	2185.658	800.0	18.78	5.477	2191.135		3.666		2		0	0.00
8.01	0.06067					.011990	0.10		1.296					
1682.00	2184.00	2.252	2186.252	800.0	17.91	4.979	2191.231		3.666		2		0	0.00
5.08	0.06050					.010549	0.05		1.297					

WATER SURFACE PROFILE LISTING

ADAM AND EVE NIGHT CLUB - FEMA CLOMR APPLICATION
EXISTING ONSITE 20'x 5.75' ARCH CULVERT
TROPICANA WASH-CENTRAL BRANCH (ACROSS PARCEL APN 162-30-501-043)

STATION	INVERT ELEV	DEPTH OF FLOW	W.S. ELEV	Q	VEL	VEL HEAD	ENERGY GRD.EL.	SUPER ELEV	CRITICAL DEPTH		HGT/ DIA	BASE/ ID NO.	ZL	NO PIER	AVBPR
L/ELEM	SO					SF AVE	HF			NORM DEPTH			ZR		
1687.08	2184.31	2.335	2186.643	800.0	17.29	4.641	2191.284		3.666			2		0	0.00
5.94	0.06050					.009310	0.06			1.297					
1693.02	2184.67	2.453	2187.120	800.0	16.48	4.219	2191.339		3.666			2		0	0.00
4.93	0.06050					.008054	0.04			1.297					
1697.95	2184.97	2.578	2187.543	800.0	15.72	3.836	2191.379		3.666			2		0	0.00
4.05	0.06050					.006973	0.03			1.297					
1702.00	2185.21	2.710	2187.920	800.0	14.99	3.487	2191.407		3.666			2		0	0.00
TRANS STR	0.05967					.007267	0.22								
1732.00	2187.00	1.862	2188.862	800.0	13.50	2.830	2191.692	0.00	2.698		5.00	32.50	0.00	1	0.67
2.00	0.09000					.007517	0.02			0.865			0.00		
1734.00	2187.18	1.952	2189.132	800.0	12.88	2.575	2191.707	0.00	2.698		5.00	32.50	0.00	1	0.67
TRANS STR	0.01000					.038430	0.04						0.00		
1735.00	2187.19	1.576	2188.766	800.0	14.09	3.081	2191.847		2.502			6		0	0.00
1.73	0.00235					.045622	0.08			3.688					
1736.73	2187.19	1.553	2188.747	800.0	14.31	3.179	2191.926		2.502			6		0	0.00
5.24	0.00235					.050469	0.26			3.688					
1741.97	2187.21	1.487	2188.693	800.0	15.01	3.496	2192.189		2.502			6		0	0.00
5.10	0.00235					.058565	0.30			3.688					
1747.07	2187.22	1.424	2188.642	800.0	15.74	3.846	2192.488		2.502			6		0	0.00
4.93	0.00235					.067981	0.34			3.688					
1752.00	2187.23	1.363	2188.593	800.0	16.51	4.231	2192.824		2.502			6		0	0.00
TRANS STR	0.02333					.070849	0.21								

WATER SURFACE PROFILE LISTING

ADAM AND EVE NIGHT CLUB - FEMA CLOMR APPLICATION
EXISTING ONSITE 20'x 5.75' ARCH CULVERT
TROPICANA WASH-CENTRAL BRANCH (ACROSS PARCEL APN 162-30-501-043)

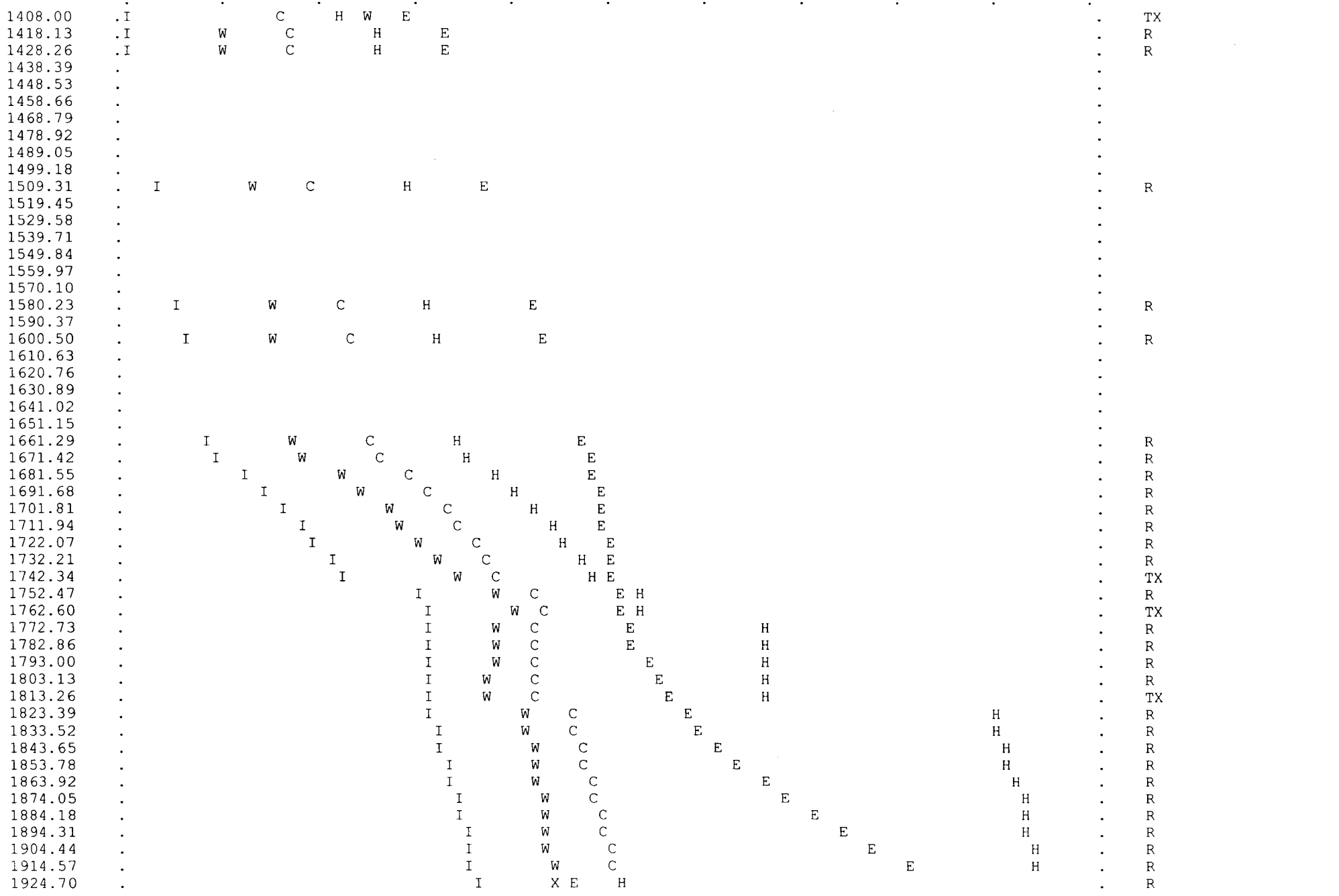
STATION	INVERT ELEV	DEPTH OF FLOW	W.S. ELEV	Q	VEL	VEL HEAD	ENERGY GRD.EL.	SUPER ELEV	CRITICAL DEPTH		HGT/ DIA	BASE/ ID NO.	ZL	NO PIER	AVBPR
L/ELEM	SO					SF AVE	HF			NORM DEPTH			ZR		
1755.00	2187.30	2.179	2189.479	800.0	15.27	3.619	2193.098		3.175			3		0	0.00
3.68	0.02326					.071864	0.26			2.646					
1758.68	2187.39	2.146	2189.532	800.0	15.71	3.830	2193.362		3.175			3		0	0.00
5.70	0.02326					.081171	0.46			2.646					
1764.38	2187.52	2.093	2189.611	800.0	16.47	4.213	2193.824		3.175			3		0	0.00
5.22	0.02326					.094377	0.49			2.646					
1769.60	2187.64	2.043	2189.683	800.0	17.28	4.635	2194.318		3.175			3		0	0.00
4.80	0.02326					.109646	0.53			2.646					
1774.40	2187.75	1.994	2189.745	800.0	18.12	5.098	2194.843		3.175			3		0	0.00
4.50	0.02326					.126417	0.57			2.646					
1778.90	2187.86	1.948	2189.804	800.0	19.00	5.608	2195.412		3.175			3		0	0.00
4.23	0.02326					.144867	0.61			2.646					
1783.13	2187.95	1.902	2189.856	800.0	19.93	6.169	2196.025		3.175			3		0	0.00
4.01	0.02326					.166034	0.67			2.646					
1787.14	2188.05	1.858	2189.906	800.0	20.90	6.786	2196.692		3.175			3		0	0.00
3.81	0.02326					.190416	0.73			2.646					
1790.95	2188.14	1.816	2189.952	800.0	21.93	7.464	2197.416		3.175			3		0	0.00
3.62	0.02326					.218465	0.79			2.646					
1794.57	2188.22	1.775	2189.995	800.0	23.00	8.211	2198.206		3.175			3		0	0.00
3.43	0.02326					.250684	0.86			2.646					
1798.00	2188.30	1.735	2190.035	800.0	5.88	0.536	2190.571		1.778			5		0	0.00
307.63	0.03439					.034411	10.59			1.735					

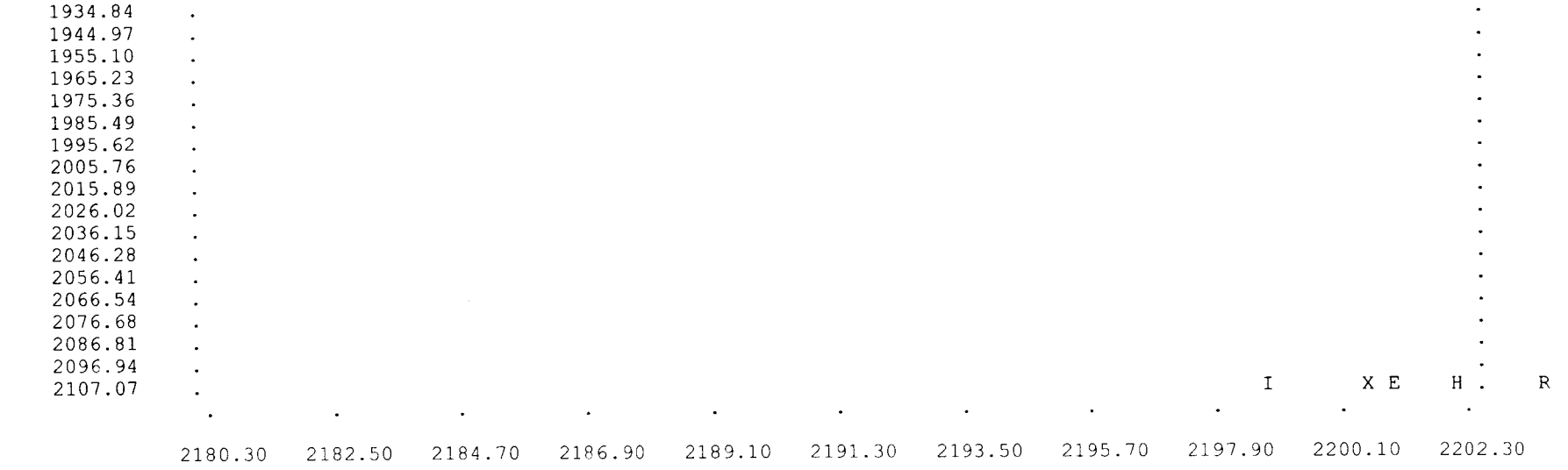
WATER SURFACE PROFILE LISTING

ADAM AND EVE NIGHT CLUB - FEMA CLOMR APPLICATION
EXISTING ONSITE 20'x 5.75' ARCH CULVERT
TROPICANA WASH-CENTRAL BRANCH (ACROSS PARCEL APN 162-30-501-043)

STATION	INVERT ELEV	DEPTH OF FLOW	W.S. ELEV	Q	VEL	VEL HEAD	ENERGY GRD.EL.	SUPER ELEV	CRITICAL DEPTH	HGT/ DIA	BASE/ ID NO.	ZL	NO PIER	AVBPR
L/ELEM	SO					SF AVE	HF		NORM DEPTH			ZR		
2105.63	2198.88	1.735	2200.615	800.0	5.88	0.536	2201.151		1.778		5		0	0.00
1.44	0.03439					.032462	0.05		1.735					
2107.07	2198.93	1.770	2200.700	800.0	5.66	0.498	2201.198		1.778		5		0	0.00

ADAM AND EVE NIGHT CLUB - FEMA CLOMR APPLICATION
EXISTING ONSITE 20'x 5.75' ARCH CULVERT
TROPICANA WASH-CENTRAL BRANCH (ACROSS PARCEL APN 162-30-501-043)





N O T E S

1. GLOSSARY
   - I = INVERT ELEVATION
   - C = CRITICAL DEPTH
   - W = WATER SURFACE ELEVATION
   - H = HEIGHT OF CHANNEL
   - E = ENERGY GRADE LINE
   - X = CURVES CROSSING OVER
   - B = BRIDGE ENTRANCE OR EXIT
   - Y = WALL ENTRANCE OR EXIT
2. STATIONS FOR POINTS AT A JUMP MAY NOT BE PLOTTED EXACTLY

POST DEVELOPED HEC-RAS ANALYSIS WITH ADDITIONAL CROSS-SECTION STA: 63.111 FOR THE ENCROACHED CONDITIONS (FLOODWAY ANALYSIS)

HEC-RAS Plan: UP-REV-FLDWY River: Tropicana Wash Reach: Tropicana Wash

Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
Tropicana Wash	63.711	PF 1	1818.00	2222.00	2229.87	2226.38	2230.52	0.000530	6.47	281.10	62.19	0.41
Tropicana Wash	63.711	PF 2	1818.00	2222.00	2229.87	2226.38	2230.52	0.000530	6.47	281.10	62.19	0.41
Tropicana Wash	63.703		Culvert									
Tropicana Wash	63.691	PF 1	1818.00	2221.35	2227.32		2228.43	0.002685	8.46	214.82	55.00	0.61
Tropicana Wash	63.691	PF 2	1818.00	2221.35	2227.32		2228.43	0.002685	8.46	214.82	55.00	0.61
Tropicana Wash	63.631	PF 1	1818.00	2217.65	2224.75	2224.75	2226.69	0.010010	11.18	163.09	177.36	0.99
Tropicana Wash	63.631	PF 2	1818.00	2217.65	2224.75	2224.75	2226.69	0.010010	11.18	163.09	177.36	0.99
Tropicana Wash	63.569	PF 1	1818.00	2214.00	2218.15	2218.15	2219.22	0.013219	8.32	218.48	101.85	1.00
Tropicana Wash	63.569	PF 2	1818.00	2214.08	2219.15	2219.15	2221.00	0.013722	10.90	166.75	45.90	1.01
Tropicana Wash	63.552	PF 1	1818.00	2214.00	2217.84		2218.11	0.002205	4.20	434.86	168.57	0.45
Tropicana Wash	63.552	PF 2	1818.00	2214.00	2218.76		2218.91	0.000805	3.09	613.18	224.41	0.29
Tropicana Wash	63.505	PF 1	1818.00	2210.00	2217.72	2215.31	2217.80	0.000585	2.34	776.97	247.09	0.23
Tropicana Wash	63.505	PF 2	1818.00	2210.00	2218.72	2215.31	2218.77	0.000267	1.75	1051.53	304.32	0.16
Tropicana Wash	63.488	PF 1	1818.00	2209.75	2216.83	2216.83	2217.59	0.011605	7.55	290.90	192.29	0.84
Tropicana Wash	63.488	PF 2	1818.00	2209.75	2217.03	2217.03	2218.55	0.015255	9.89	184.55	65.34	0.99
Tropicana Wash	63.456	PF 1	1818.00	2208.00	2214.58	2213.75	2214.69	0.001685	3.81	793.10	486.75	0.33
Tropicana Wash	63.456	PF 2	1818.00	2208.00	2214.58	2213.75	2214.69	0.001685	3.81	793.10	486.75	0.33
Tropicana Wash	63.410	PF 1	1818.00	2200.00	2214.62	2206.52	2214.63	0.000034	0.83	2788.58	711.49	0.05
Tropicana Wash	63.410	PF 2	1818.00	2200.00	2214.62	2206.52	2214.63	0.000034	0.83	2788.58	711.49	0.05
Tropicana Wash	63.397		Culvert									
Tropicana Wash	63.389	PF 1	750.00	2200.00	2205.69	2205.69	2208.50	0.023664	13.46	55.72	20.16	1.01
Tropicana Wash	63.389	PF 2	750.00	2200.00	2205.69	2205.69	2208.50	0.023643	13.46	55.73	20.17	1.00
Tropicana Wash	63.379	PF 1	800.00	2202.00	2205.65		2206.03	0.005920	4.97	160.86	241.99	0.49
Tropicana Wash	63.379	PF 2	800.00	2202.00	2206.45		2206.69	0.002827	3.98	200.80	278.74	0.35
Tropicana Wash	63.339	PF 1	800.00	2200.69	2203.92	2203.46	2204.29	0.012647	4.91	162.95	107.27	0.65
Tropicana Wash	63.339	PF 2	800.00	2200.94	2204.64		2205.42	0.018648	7.10	112.67	43.10	0.77

HEC-RAS Plan: UP-REV-FLDWY River: Tropicana Wash Reach: Tropicana Wash (Continued)

Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
Tropicana Wash	63.286	PF 1	800.00	2198.30	2201.47		2201.66	0.006832	3.51	228.21	156.44	0.51
Tropicana Wash	63.286	PF 2	800.00	2198.30	2202.23		2202.63	0.005698	5.06	157.99	50.00	0.50
Tropicana Wash	63.245	PF 1	800.00	2196.63	2198.40	2198.40	2198.90	0.031036	5.69	140.52	144.86	1.02
Tropicana Wash	63.245	PF 2	800.00	2196.63	2199.19	2199.19	2200.27	0.026264	8.36	95.66	44.80	1.01
Tropicana Wash	63.186	PF 1	800.00	2186.00	2189.17	2189.17	2190.17	0.009395	8.05	99.42	50.16	1.01
Tropicana Wash	63.186	PF 2	800.00	2186.00	2189.95	2189.95	2191.63	0.010582	10.40	76.96	23.20	1.01
Tropicana Wash	63.111	PF 1	800.00	2184.70	2187.34	2187.34	2188.49	0.008124	8.89	95.74	43.07	0.98
Tropicana Wash	63.111	PF 2	800.00	2184.72	2188.73	2188.73	2190.71	0.011840	11.30	70.80	18.00	1.00

HEC-RAS Version 3.1.2 April 2004
U.S. Army Corp of Engineers
Hydrologic Engineering Center
609 Second Street
Davis, California

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

PROJECT DATA
Project Title: West
Project File : West.prj
Run Date and Time: 5/18/2005 3:10:36 PM

Project in English units

Project Description:
FIS - Tropicana Wash

PLAN DATA

Plan Title: Upper-Revised-Floodway
Plan File : g:\DRAINAGE\7162.17\HECRAS\Revised west\West.p03

Geometry Title: Upper-Revised-Floodway
Geometry File : g:\DRAINAGE\7162.17\HECRAS\Revised west\West.g08

Flow Title : 100 Year Flow - Upper-Revised-Floodway
Flow File : g:\DRAINAGE\7162.17\HECRAS\Revised west\West.f06

Plan Summary Information:

Number of:	Cross Sections	= 16	Multiple Openings	=	0
	Culverts	= 2	Inline Structures	=	0
	Bridges	= 0	Lateral Structures	=	0

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

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

Encroachment Data
Equal Conveyance = True

Left Offset = 0
Right Offset = 0

River = Tropicana Wash Reach = Tropicana Wash

RS	Profile	Method	Value1	Value2
63.569	PF 2	1	405	450.9
63.488	PF 2	1	187	254.5
63.339	PF 2	1	213.6	256.7
63.286	PF 2	1	156	206
63.245	PF 2	1	235.2	280
63.186	PF 2	1	410.8	434
63.111	PF 2	1	19.9	37.9

FLOW DATA

Flow Title: 100 Year Flow - Upper-Revised-Floodway
Flow File : g:\DRAINAGE\7162.17\HECRAS\Revised west\West.f06

Flow Data (cfs)

River	Reach	RS	PF 1	PF 2
Tropicana Wash	Tropicana Wash	63.711	1818	1818
Tropicana Wash	Tropicana Wash	63.389	750	750
Tropicana Wash	Tropicana Wash	63.379	800	800
Tropicana Wash	Tropicana Wash	63.111	800	800

Boundary Conditions

River	Reach	Profile	Upstream	Downstream
Tropicana Wash	Tropicana Wash	PF 1	Critical	**Known WS = 2186.47**
Tropicana Wash	Tropicana Wash	PF 2	Critical	**Known WS = 2186.47**

GEOMETRY DATA

Geometry Title: Upper-Revised-Floodway
Geometry File : g:\DRAINAGE\7162.17\HECRAS\Revised west\West.g08

CROSS SECTION

RIVER: Tropicana Wash
REACH: Tropicana Wash RS: 63.711

INPUT
Description: Upstream X-Section from culvert crossing at Arville
Station Elevation Data num= 22

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2229	11.7	2228	86	2228	105	2229	127	2229.5
193.7	2229.5	275.7	2230	319	2230	331.7	2229	335.7	2227
338.75	2225	340.75	2222	359	2222	376.75	2222	377.75	2225
379	2226	380	2227	381	2228	382	2229	383	2230
409	2231	438	2232						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.035	335.7	.02	382	.035

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
335.7	382	106.55	106.14 105.07	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
0	341.99		F
378.01	438		F

Left Levee Station= 300 Elevation=

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	2230.52	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.65	Wt. n-Val.		0.020	
W.S. Elev (ft)	2229.87	Reach Len. (ft)	106.55	106.14	105.07
Crit W.S. (ft)	2226.38	Flow Area (sq ft)		281.10	
E.G. Slope (ft/ft)	0.000530	Area (sq ft)	12.26	326.72	0.38
Q Total (cfs)	1818.00	Flow (cfs)		1818.00	
Top Width (ft)	62.19	Top Width (ft)	15.03	46.30	0.87
Vel Total (ft/s)	6.47	Avg. Vel. (ft/s)		6.47	
Max Chl Dpth (ft)	7.87	Hydr. Depth (ft)		7.80	
Conv. Total (cfs)	78937.6	Conv. (cfs)		78937.6	
Length Wtd. (ft)	106.14	Wetted Per. (ft)		38.26	
Min Ch El (ft)	2222.00	Shear (lb/sq ft)		0.24	
Alpha	1.00	Stream Power (lb/ft s)		1.57	
Frctn Loss (ft)		Cum Volume (acre-ft)	6.13	22.01	3.33
C & E Loss (ft)		Cum SA (acres)	3.14	7.29	2.94

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

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	2230.52	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.65	Wt. n-Val.		0.020	
W.S. Elev (ft)	2229.87	Reach Len. (ft)	106.55	106.14	105.07
Crit W.S. (ft)	2226.38	Flow Area (sq ft)		281.10	
E.G. Slope (ft/ft)	0.000530	Area (sq ft)	12.26	326.72	0.38
Q Total (cfs)	1818.00	Flow (cfs)		1818.00	
Top Width (ft)	62.19	Top Width (ft)	15.03	46.30	0.87
Vel Total (ft/s)	6.47	Avg. Vel. (ft/s)		6.47	
Max Chl Dpth (ft)	7.87	Hydr. Depth (ft)		7.80	
Conv. Total (cfs)	78937.6	Conv. (cfs)		78937.6	
Length Wtd. (ft)	106.14	Wetted Per. (ft)		38.26	
Min Ch El (ft)	2222.00	Shear (lb/sq ft)		0.24	
Alpha	1.00	Stream Power (lb/ft s)		1.57	
Frctn Loss (ft)		Cum Volume (acre-ft)	6.27	22.80	3.03
C & E Loss (ft)		Cum SA (acres)	3.49	5.41	2.57

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

CULVERT

RIVER: Tropicana Wash
REACH: Tropicana Wash RS: 63.703

INPUT
Description: Culvert Crossing at Arville
Distance from Upstream XS = 9
Deck/Roadway Width = 70
Weir Coefficient = 2.6
Upstream Deck/Roadway Coordinates

num= 7

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
0	2228	2220	81	2228	2220	129	2229	2220
277	2230	2220	382	2230	2220	409	2231	2220
438	2232	2220						

Upstream Bridge Cross Section Data

Station Elevation Data num= 22

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2229	11.7	2228	86	2228	105	2229	127	2229.5
193.7	2229.5	275.7	2230	319	2230	331.7	2229	335.7	2227
338.75	2225	340.75	2222	359	2222	376.75	2222	377.75	2225
379	2226	380	2227	381	2228	382	2229	383	2230
409	2231	438	2232						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.035	335.7	.02	382	.035

Bank Sta: Left Right Coeff Contr. Expan.

335.7 382 .3 .5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
0	341.99		F
378.01	438		F

Left Levee Station= 300 Elevation=

Downstream Deck/Roadway Coordinates

num= 7

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
0	2227	2220	50	2228	2220	148	2229	2220
261	2230	2220	433	2231	2220	491	2232	2220
596	2232	2220						

Downstream Bridge Cross Section Data

Station Elevation Data num= 29

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2227	25	2228	144	2229	197	2230	261	2230
279	2229	295	2228	296	2227	298	2226	299	2225
301	2224	302.5	2221.35	307	2221.35	314	2221.35	317	2221.35
320	2221.35	322	2221.35	328	2221.35	335	2221.35	338	2221.35
338	2225	340	2226	342	2227	344	2228	345	2229
348	2230	543	2230	576	2231	596	2232		

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.035	295	.02	302.5	.028	338	.02	348	.035

Bank Sta: Left Right Coeff Contr. Expan.

295 348 .3 .5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
0	301.99		F
338.01	596		F

Upstream Embankment side slope = 0 horiz. to 1.0 vertical

Downstream Embankment side slope = 0 horiz. to 1.0 vertical

Maximum allowable submergence for weir flow = .95

Elevation at which weir flow begins =

Energy head used in spillway design =

Spillway height used in design =

Weir crest shape = Broad Crested

Number of Culverts = 1

Culvert Name	Shape	Rise	Span
Culvert #1	Box	5.8	10

FHWA Chart # 8 - flared wingwalls
FHWA Scale # 1 - Wingwall flared 30 to 75 deg.
Solution Criteria = Highest U.S. EG

Culvert	Upstrm Dist	Length	Top n	Bottom n	Depth Blocked	Entrance Loss Coef	Exit Loss Coef
	9	85.4	.013	.013	0	.2	1

Number of Barrels = 3
Upstream Elevation = 2221.885
Centerline Stations

Sta.	Sta.	Sta.
347.8	360	372.5

Downstream Elevation = 2221.885
Centerline Stations

Sta.	Sta.	Sta.
307.8	320	332.5

CULVERT OUTPUT Profile #PF 1 Culv Group: Culvert #1

Q Culv Group (cfs)	1783.30	Culv Full Len (ft)	26.85
# Barrels	3	Culv Vel US (ft/s)	10.25
Q Barrel (cfs)	594.43	Culv Vel DS (ft/s)	10.93
E.G. US. (ft)	2230.52	Culv Inv El Up (ft)	2221.89
W.S. US. (ft)	2229.87	Culv Inv El Dn (ft)	2221.89
E.G. DS (ft)	2228.43	Culv Frctn Ls (ft)	1.01
W.S. DS (ft)	2227.32	Culv Exit Loss (ft)	0.74
Delta EG (ft)	2.08	Culv Entr Loss (ft)	0.33
Delta WS (ft)	2.55	Q Weir (cfs)	34.70
E.G. IC (ft)	2230.52	Weir Sta Lft (ft)	341.99
E.G. OC (ft)	2229.84	Weir Sta Rgt (ft)	378.01
Culvert Control	Inlet	Weir Submerg	0.00
Culv WS Inlet (ft)	2227.69	Weir Max Depth (ft)	0.52
Culv WS Outlet (ft)	2227.32	Weir Avg Depth (ft)	0.52
Culv Nml Depth (ft)		Weir Flow Area (sq ft)	18.58
Culv Crt Depth (ft)	4.79	Min El Weir Flow (ft)	2230.25

Warning: During the culvert outlet computations, the program could not balance the culvert/weir flow. The reported outlet energy grade answer may not be valid.

CULVERT OUTPUT Profile #PF 2 Culv Group: Culvert #1

Q Culv Group (cfs)	1783.30	Culv Full Len (ft)	26.85
# Barrels	3	Culv Vel US (ft/s)	10.25
Q Barrel (cfs)	594.43	Culv Vel DS (ft/s)	10.93
E.G. US. (ft)	2230.52	Culv Inv El Up (ft)	2221.89
W.S. US. (ft)	2229.87	Culv Inv El Dn (ft)	2221.89
E.G. DS (ft)	2228.43	Culv Frctn Ls (ft)	1.01
W.S. DS (ft)	2227.32	Culv Exit Loss (ft)	0.74
Delta EG (ft)	2.08	Culv Entr Loss (ft)	0.33
Delta WS (ft)	2.55	Q Weir (cfs)	34.70
E.G. IC (ft)	2230.52	Weir Sta Lft (ft)	341.99
E.G. OC (ft)	2229.84	Weir Sta Rgt (ft)	378.01
Culvert Control	Inlet	Weir Submerg	0.00
Culv WS Inlet (ft)	2227.69	Weir Max Depth (ft)	0.52
Culv WS Outlet (ft)	2227.32	Weir Avg Depth (ft)	0.52
Culv Nml Depth (ft)		Weir Flow Area (sq ft)	18.58
Culv Crt Depth (ft)	4.79	Min El Weir Flow (ft)	2230.25

Warning: During the culvert outlet computations, the program could not balance the culvert/weir flow. The reported outlet energy grade answer may not be valid.

CROSS SECTION

RIVER: Tropicana Wash
REACH: Tropicana Wash RS: 63.691

INPUT
Description: Downstream X-Section from culvert crossing at Arville
Station Elevation Data num= 29

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2227	25	2228	144	2229	197	2230	261	2230
279	2229	295	2228	296	2227	298	2226	299	2225
301	2224	302.5	2221.35	307	2221.35	314	2221.35	317	2221.35
320	2221.35	322	2221.35	328	2221.35	335	2221.35	338	2221.35
338	2225	340	2226	342	2227	344	2228	345	2229
348	2230	543	2230	576	2231	596	2232		

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.035	295	.02	302.5	.028	338	.02	348	.035

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
295	348	320.78 320.81	320.88	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
0	301.99		F
338.01	596		F

CROSS SECTION OUTPUT Profile #PF 1

			Left OB	Channel	Right OB
E.G. Elev (ft)	2228.43	Element			
Vel Head (ft)	1.11	Wt. n-Val.		0.028	
W.S. Elev (ft)	2227.32	Reach Len. (ft)	320.78	320.81	320.88
Crit W.S. (ft)		Flow Area (sq ft)		214.82	
E.G. Slope (ft/ft)	0.002685	Area (sq ft)	1.29	233.49	
Q Total (cfs)	1818.00	Flow (cfs)		1818.00	
Top Width (ft)	55.00	Top Width (ft)	8.03	46.96	
Vel Total (ft/s)	8.46	Avg. Vel. (ft/s)		8.46	
Max Chl Dpth (ft)	5.97	Hydr. Depth (ft)		5.96	
Conv. Total (cfs)	35088.2	Conv. (cfs)		35088.2	
Length Wtd. (ft)	320.81	Wetted Per. (ft)		40.20	
Min Ch El (ft)	2221.35	Shear (lb/sq ft)		0.90	
Alpha	1.00	Stream Power (lb/ft s)		7.58	
Frctn Loss (ft)	1.50	Cum Volume (acre-ft)	6.11	21.33	3.33
C & E Loss (ft)	0.25	Cum SA (acres)	3.11	7.17	2.94

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #PF 2

			Left OB	Channel	Right OB
E.G. Elev (ft)	2228.43	Element			
Vel Head (ft)	1.11	Wt. n-Val.		0.028	
W.S. Elev (ft)	2227.32	Reach Len. (ft)	320.78	320.81	320.88
Crit W.S. (ft)		Flow Area (sq ft)		214.82	
E.G. Slope (ft/ft)	0.002685	Area (sq ft)	1.29	233.49	
Q Total (cfs)	1818.00	Flow (cfs)		1818.00	
Top Width (ft)	55.00	Top Width (ft)	8.03	46.96	

Vel Total (ft/s)	8.46	Avg. Vel. (ft/s)		8.46	
Max Chl Dpth (ft)	5.97	Hydr. Depth (ft)		5.96	
Conv. Total (cfs)	35088.2	Conv. (cfs)		35088.2	
Length Wtd. (ft)	320.81	Wetted Per. (ft)		40.20	
Min Ch El (ft)	2221.35	Shear (lb/sq ft)		0.90	
Alpha	1.00	Stream Power (lb/ft s)		7.58	
Frctn Loss (ft)	1.50	Cum Volume (acre-ft)	6.25	22.12	3.03
C & E Loss (ft)	0.25	Cum SA (acres)	3.46	5.29	2.57

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Tropicana Wash
REACH: Tropicana Wash RS: 63.631

INPUT
Description: 21
Station Elevation Data num= 111

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2222.6	17.76	2222.74	28.31	2222.79	30.88	2222.82	33.91	2222.87
50.8	2222.8	51.5	2222.84	52.8	2222.85	67.74	2222.86	78.74	2222.93
84.08	2223	85.77	2222.97	97.12	2223.11	99.72	2223.1	112.12	2223.26
120.94	2223.3	128.55	2223.43	129.64	2223.43	148.15	2223.34	149.06	2223.35
149.45	2223.3	158.51	2223.35	158.83	2223.35	186.52	2224	237.58	2223.06
238.05	2223.1	238.52	2223.05	258.48	2222.91	268.51	2222.95	279.08	2223.02
279.44	2223	279.63	2223.03	280	2223.03	281.16	2223.03	294.96	2222.98
297.15	2222.9	297.44	2222.88	298.1	2222.87	309.28	2222.82	312.89	2222.87
323.01	2222.8	323.38	2222.78	323.84	2222.79	323.98	2222.8	324.21	2222.82
325.65	2222.9	326.61	2222.91	334.36	2222.98	355.26	2223.94	356.6	2224
359.3	2224.46	363.25	2225	364.43	2225.42	365	2225.4	365.15	2225.39
367.01	2225.03	370.24	2224.31	370.89	2224.2	373.05	2224	373.75	2223.95
373.83	2223.95	377.4	2222	378.36	2221.4	380.46	2220	386.54	2218.91
390.98	2218	392.36	2217.65	394.21	2218	399.66	2219.41	402.8	2220
405.34	2223.14	405.45	2223.25	406.06	2223.9	406.21	2224	406.49	2224.07
406.63	2224.09	409.27	2224.39	413.44	2224.85	413.68	2224.9	413.73	2224.84
414.15	2224.82	415.21	2224.83	432.45	2224.42	435.47	2224.4	436.12	2224.41
445.29	2224	460.64	2223.56	478.42	2223.43	494.9	2223.7	509.72	2224
510.79	2224.04	511.39	2224.04	529.93	2224.38	535.67	2224.4	554.56	2224.81
557.4	2224.87	558.38	2224.9	561.09	2224.93	569.62	2225.2	589.63	2225.13
591.13	2224.8	628.2	2225.74	647.79	2226	666.14	2226.3	691.71	2226.9
693.13	2226.9	697.14	2226.99	718.32	2227.44	730.87	2227.8	735.61	2227.86
738.78	2227.93								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.035	380.46	.028	402.8	.035

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
365	409.27	318.34	326.31	347.37	.1 .3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
0	360		T
415	738.78		T

Left Levee Station= 364.43 Elevation= 2225.42

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	2226.69	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.94	Wt. n-Val.		0.032	0.035
W.S. Elev (ft)	2224.75	Reach Len. (ft)	318.34	326.31	347.37
Crit W.S. (ft)	2224.75	Flow Area (sq ft)		162.51	0.58
E.G. Slope (ft/ft)	0.010010	Area (sq ft)		162.51	95.14
Q Total (cfs)	1818.00	Flow (cfs)		1817.22	0.79
Top Width (ft)	177.36	Top Width (ft)		41.00	136.36
Vel Total (ft/s)	11.15	Avg. Vel. (ft/s)		11.18	1.35
Max Chl Dpth (ft)	7.10	Hydr. Depth (ft)		3.96	0.18
Conv. Total (cfs)	18170.8	Conv. (cfs)		18162.9	7.8
Length Wtd. (ft)	326.31	Wetted Per. (ft)		44.54	3.27
Min Ch El (ft)	2217.65	Shear (lb/sq ft)		2.28	0.11
Alpha	1.01	Stream Power (lb/ft s)		25.49	0.15
Frctn Loss (ft)	3.74	Cum Volume (acre-ft)	6.11	19.87	2.98
C & E Loss (ft)	0.26	Cum SA (acres)	3.08	6.85	2.44

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. , This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Manning's n values were composited to a single value in the main channel.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	2226.69	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.94	Wt. n-Val.		0.032	0.035
W.S. Elev (ft)	2224.75	Reach Len. (ft)	318.34	326.31	347.37
Crit W.S. (ft)	2224.75	Flow Area (sq ft)		162.51	0.58
E.G. Slope (ft/ft)	0.010010	Area (sq ft)		162.51	95.14
Q Total (cfs)	1818.00	Flow (cfs)		1817.22	0.79
Top Width (ft)	177.36	Top Width (ft)		41.00	136.36
Vel Total (ft/s)	11.15	Avg. Vel. (ft/s)		11.18	1.35
Max Chl Dpth (ft)	7.10	Hydr. Depth (ft)		3.96	0.18
Conv. Total (cfs)	18170.8	Conv. (cfs)		18162.9	7.8
Length Wtd. (ft)	326.31	Wetted Per. (ft)		44.54	3.27
Min Ch El (ft)	2217.65	Shear (lb/sq ft)		2.28	0.11
Alpha	1.01	Stream Power (lb/ft s)		25.49	0.15
Frctn Loss (ft)	3.80	Cum Volume (acre-ft)	6.25	20.66	2.68
C & E Loss (ft)	0.03	Cum SA (acres)	3.43	4.97	2.07

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Manning's n values were composited to a single value in the main channel.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water

surface was used.

CROSS SECTION

RIVER: Tropicana Wash
REACH: Tropicana Wash RS: 63.569

INPUT
Description: 20
Station Elevation Data num= 118

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2220.3	31.61	2220.65	48.71	2220.61	51.66	2220.11	52.76	2220
55.53	2220	112.87	2220.84	174.09	2221.62	174.52	2221.65	184.03	2221.82
185.48	2221.8	189.39	2221.86	191.36	2221.86	194.19	2221.83	195.57	2221.82
197.38	2221.8	201.67	2221.92	202.51	2221.9	203.23	2221.89	207.42	2221.89
207.72	2221.9	229.14	2221.73	232.55	2221.69	243.54	2221.48	249.91	2221.45
262.19	2221.1	272.46	2221	277.82	2220.96	281.45	2221.14	281.88	2221.19
300.27	2220.9	302.55	2220.92	303.11	2220.86	303.13	2220.83	304.27	2220.7
305.2	2220.7	305.27	2220.7	305.29	2220.7	309.03	2220.75	314.36	2220.78
333.49	2220.7	337.01	2220.72	338.64	2220.75	348.62	2220.95	349.22	2221.09
350.99	2221.1	351.03	2221.07	355.83	2220.85	356.21	2220.82	359	2220.69
359.03	2220.69	360.02	2220.6	360.28	2220.6	366.78	2220.19	367.34	2220.15
370.12	2220	370.2	2220	370.78	2219.88	372.38	2219.52	379.22	2218
380.8	2217.75	390.78	2216	400.57	2214.3	402.79	2214	415.03	2214.42
421.21	2214.65	422.03	2214.69	422.59	2214.7	422.71	2214.71	423.04	2214.73
426.13	2214.93	426.88	2215.25	430.7	2216	433.74	2216.5	435.82	2216.5
436.48	2216.55	440.76	2216.84	442	2216.81	446.99	2216.7	451.1	2216.68
451.25	2216.66	451.55	2216.64	453.16	2216.59	455.27	2216.52	455.31	2216.5
456.27	2216.48	457.68	2216.43	465.29	2216.51	472.14	2217.1	474.93	2217.4
475.61	2217.52	476.83	2217.73	479.69	2218	481.05	2218.28	483.26	2218.5
485.56	2218.74	487.31	2218.84	487.73	2218.94	489.34	2219.2	490	2219.23
493.53	2219.4	495.42	2219.69	497.86	2220	504.15	2220.25	511.54	2220.51
512.7	2220.7	540.86	2221.39	541.26	2221.4	541.3	2221.36	551.69	2221.51
555.33	2221.6	557.22	2221.85	558.14	2221.72	564.65	2222	572.3	2222
578.18	2222	581.13	2222	591.7	2222				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.04	359	.034	490	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
359	490	94.38	87.55	78.15	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

			Left OB	Channel	Right OB
E.G. Elev (ft)	2219.22	Element			
Vel Head (ft)	1.08	Wt. n-Val.		0.034	
W.S. Elev (ft)	2218.15	Reach Len. (ft)	94.38	87.55	78.15
Crit W.S. (ft)	2218.15	Flow Area (sq ft)		218.48	
E.G. Slope (ft/ft)	0.013219	Area (sq ft)		218.48	
Q Total (cfs)	1818.00	Flow (cfs)		1818.00	
Top Width (ft)	101.85	Top Width (ft)		101.85	
Vel Total (ft/s)	8.32	Avg. Vel. (ft/s)		8.32	
Max Chl Dpth (ft)	4.15	Hydr. Depth (ft)		2.15	
Conv. Total (cfs)	15812.2	Conv. (cfs)		15812.2	
Length Wtd. (ft)	87.55	Wetted Per. (ft)		102.53	
Min Ch El (ft)	2214.00	Shear (lb/sq ft)		1.76	
Alpha	1.00	Stream Power (lb/ft s)		14.63	
Frctn Loss (ft)	0.39	Cum Volume (acre-ft)	6.11	18.44	2.60
C & E Loss (ft)	0.24	Cum SA (acres)	3.08	6.31	1.89

Warning: The energy equation could not be balanced within the specified number of iterations. The

program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	2221.00	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.85	Wt. n-Val.		0.034	
W.S. Elev (ft)	2219.15	Reach Len. (ft)	94.38	87.55	78.15
Crit W.S. (ft)	2219.15	Flow Area (sq ft)		166.75	
E.G. Slope (ft/ft)	0.013722	Area (sq ft)		166.75	
Q Total (cfs)	1818.00	Flow (cfs)		1818.00	
Top Width (ft)	45.90	Top Width (ft)		45.90	
Vel Total (ft/s)	10.90	Avg. Vel. (ft/s)		10.90	
Max Chl Dpth (ft)	5.07	Hydr. Depth (ft)		3.63	
Conv. Total (cfs)	15519.6	Conv. (cfs)		15519.6	
Length Wtd. (ft)	87.54	Wetted Per. (ft)		53.66	
Min Ch El (ft)	2214.08	Shear (lb/sq ft)		2.66	
Alpha	1.00	Stream Power (lb/ft s)		29.03	
Frctn Loss (ft)	0.18	Cum Volume (acre-ft)	6.25	19.42	2.30
C & E Loss (ft)	0.51	Cum SA (acres)	3.43	4.65	1.52

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION

RIVER: Tropicana Wash
REACH: Tropicana Wash RS: 63.552

INPUT
Description: 19
Station Elevation Data num= 66

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2220.8	2.41	2220.78	4.19	2220.81	16.93	2220.47	29.9	2220.12
30.19	2220.1	36.04	2220.01	36.12	2220.01	36.36	2220	62.02	2219.33
66.48	2219.2	71	2219.1	84.25	2218.83	90.54	2218.68	91.25	2218.66
100.3	2218.5	102.3	2218.48	108.94	2218.4	116.24	2218.21	130.76	2218
132	2217.82	134.59	2217.43	136.4	2217.2	142.95	2216.19	143.61	2216.09
144.14	2216	150.43	2215.82	156.54	2215.6	157.49	2215.58	162.28	2216
169	2215.78	179.03	2215.52	185.95	2215.5	205.47	2214.32	207.42	2214.29
209.6	2214.22	212.33	2214	234.65	2214	237.41	2214	244.5	2214
255.88	2214	255.99	2214.01	256.2	2214	256.78	2214.07	279.46	2216
293.82	2217.26	301.6	2217.94	301.87	2217.96	302.39	2218	305.83	2218.25
309.03	2218.58	330.05	2220	332.28	2220	333.55	2220	345.52	2220
349.75	2220	363.79	2220	365.19	2220	367.74	2219.9	382.72	2218.8

387.69 2219.04 398.64 2220 403.96 2220.28 408.09 2220.5 428.85 2220.62
431.61 2220.62

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.04	132	.032	293.82	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
132	293.82	208.29	247.98	217.5	.1 .3

CROSS SECTION OUTPUT Profile #PF 1

			Left OB	Channel	Right OB
E.G. Elev (ft)	2218.11	Element			
Vel Head (ft)	0.27	Wt. n-Val.	0.000	0.032	0.040
W.S. Elev (ft)	2217.84	Reach Len. (ft)	208.29	247.98	217.50
Crit W.S. (ft)		Flow Area (sq ft)	0.00	432.94	1.92
E.G. Slope (ft/ft)	0.002205	Area (sq ft)	0.00	432.94	1.92
Q Total (cfs)	1818.00	Flow (cfs)	0.00	1816.54	1.46
Top Width (ft)	168.57	Top Width (ft)	0.13	161.82	6.62
Vel Total (ft/s)	4.18	Avg. Vel. (ft/s)	0.08	4.20	0.76
Max Chl Dpth (ft)	3.84	Hydr. Depth (ft)	0.01	2.68	0.29
Conv. Total (cfs)	38718.6	Conv. (cfs)	0.0	38687.5	31.1
Length Wtd. (ft)	247.97	Wetted Per. (ft)	0.13	162.18	6.65
Min Ch El (ft)	2214.00	Shear (lb/sq ft)		0.37	0.04
Alpha	1.01	Stream Power (lb/ft s)		1.54	0.03
Frctn Loss (ft)	0.25	Cum Volume (acre-ft)	6.11	17.79	2.60
C & E Loss (ft)	0.06	Cum SA (acres)	3.08	6.05	1.89

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

CROSS SECTION OUTPUT Profile #PF 2

			Left OB	Channel	Right OB
E.G. Elev (ft)	2218.91	Element			
Vel Head (ft)	0.15	Wt. n-Val.	0.040	0.032	0.040
W.S. Elev (ft)	2218.76	Reach Len. (ft)	208.29	247.98	217.50
Crit W.S. (ft)		Flow Area (sq ft)	18.30	581.73	13.15
E.G. Slope (ft/ft)	0.000805	Area (sq ft)	18.30	581.73	13.15
Q Total (cfs)	1818.00	Flow (cfs)	10.63	1796.10	11.28
Top Width (ft)	224.41	Top Width (ft)	44.74	161.82	17.85
Vel Total (ft/s)	2.96	Avg. Vel. (ft/s)	0.58	3.09	0.86
Max Chl Dpth (ft)	4.76	Hydr. Depth (ft)	0.41	3.59	0.74
Conv. Total (cfs)	64069.1	Conv. (cfs)	374.6	63297.1	397.4
Length Wtd. (ft)	247.72	Wetted Per. (ft)	44.76	162.18	17.91
Min Ch El (ft)	2214.00	Shear (lb/sq ft)	0.02	0.18	0.04
Alpha	1.07	Stream Power (lb/ft s)	0.01	0.56	0.03
Frctn Loss (ft)	0.11	Cum Volume (acre-ft)	6.23	18.67	2.29
C & E Loss (ft)	0.03	Cum SA (acres)	3.38	4.44	1.51

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

CROSS SECTION

RIVER: Tropicana Wash
REACH: Tropicana Wash RS: 63.505

INPUT
Description: 18
Station Elevation Data num= 141

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev

0	2220	5.8	2220	6.79	2220	13.62	2220	19.2	2220
20.87	2220	49.24	2218.86	59	2218.54	59.26	2218.4	61.26	2218.35
66.16	2218.3	70.45	2218.29	71.29	2218.3	72.31	2218.3	72.77	2218.31
75.39	2218.4	76.69	2218.38	92	2218.13	95.47	2218.07	100.12	2218
104	2217.33	106.65	2216.87	111.72	2216	125.91	2215.52	140.67	2214.37
143.08	2214.24	145.71	2214	147.63	2213.6	157.62	2212	161.75	2210.73
164.55	2210	172.94	2210	173.66	2210	174.95	2210.45	179.03	2212
180.51	2212.14	192.99	2213.08	199.84	2213.2	212.7	2214	227.23	2214.81
227.29	2214.81	232.11	2214.81	236.31	2214.8	237.36	2214.77	241.5	2214.71
274.41	2215.08	283.06	2214.97	293.21	2215.3	298.84	2215.49	301.55	2215.6
322.73	2215.95	324.51	2216	329.2	2216.4	353.05	2218	360.61	2219.15
364.5	2219.42	365.76	2219.48	366.64	2219.5	367.82	2219.55	368.05	2219.54
369	2219.57	369.73	2219.6	370.14	2219.51	370.59	2219.5	374.07	2218.8
378.37	2218.18	379.41	2218	384.96	2217.01	391.84	2216	394.89	2215.87
417.34	2215.04	418.09	2215.06	419.49	2215.01	423.95	2214.9	426.16	2214.79
431.66	2214.76	433.45	2214.79	436.52	2214.89	445.34	2215.2	462.78	2215.97
464.58	2216	475.1	2216.18	477.9	2216.88	481.74	2217.4	484.56	2216.94
492.99	2216.47	494.97	2216.31	495.12	2216.31	495.13	2216.3	496.83	2216.35
500.4	2216.27	500.68	2216.27	501.22	2216.23	504.84	2216.3	509.3	2216.46
515.84	2216.73	520.38	2217.08	523.7	2217.23	524	2217.2	524.12	2217.19
524.56	2217.19	525.66	2217.25	533.74	2217.38	537.21	2217.5	542.73	2217.75
544.06	2217.78	544.5	2217.78	544.9	2217.78	545.72	2217.8	545.94	2217.8
546.1	2217.8	546.35	2217.8	547.43	2217.82	547.77	2217.8	557.8	2218
560.77	2218.1	567.58	2218.41	571.81	2218.63	574.6	2218.7	591.15	2220
591.92	2220	607.77	2220	610.76	2220	615.28	2220	616.27	2219.87
617.22	2219.84	631.11	2219.86	633.46	2220	635.61	2220	638.72	2220
643.25	2220	646.99	2220	658.67	2220	665.06	2220	671.14	2220
676.26	2220	678.14	2220	685.7	2220	694.89	2220	701.05	2220
701.82	2220								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.04	157.62	.028	179.03	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
92	369	124.56 89.12	150.96	.1	.3

Right Levee Station= 367 Elevation=

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	2217.80	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.09	Wt. n-Val.		0.035	
W.S. Elev (ft)	2217.72	Reach Len. (ft)	124.56	89.12	150.96
Crit W.S. (ft)	2215.31	Flow Area (sq ft)		776.97	
E.G. Slope (ft/ft)	0.000585	Area (sq ft)		776.97	
Q Total (cfs)	1818.00	Flow (cfs)		1818.00	
Top Width (ft)	247.09	Top Width (ft)		247.09	
Vel Total (ft/s)	2.34	Avg. Vel. (ft/s)		2.34	
Max Chl Dpth (ft)	7.72	Hydr. Depth (ft)		3.14	
Conv. Total (cfs)	75182.7	Conv. (cfs)		75182.7	
Length Wtd. (ft)	94.81	Wetted Per. (ft)		248.29	
Min Ch El (ft)	2210.00	Shear (lb/sq ft)		0.11	
Alpha	1.00	Stream Power (lb/ft s)		0.27	
Frctn Loss (ft)	0.15	Cum Volume (acre-ft)	6.11	14.34	2.60
C & E Loss (ft)	0.07	Cum SA (acres)	3.08	4.89	1.87

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.

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

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

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	2218.77	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.05	Wt. n-Val.	0.040	0.036	
W.S. Elev (ft)	2218.72	Reach Len. (ft)	124.56	89.12	150.96
Crit W.S. (ft)	2215.31	Flow Area (sq ft)	14.54	1037.00	
E.G. Slope (ft/ft)	0.000267	Area (sq ft)	14.54	1037.00	
Q Total (cfs)	1818.00	Flow (cfs)	4.60	1813.40	
Top Width (ft)	304.32	Top Width (ft)	38.52	265.79	
Vel Total (ft/s)	1.73	Avg. Vel. (ft/s)	0.32	1.75	
Max Chl Dpth (ft)	8.72	Hydr. Depth (ft)	0.38	3.90	
Conv. Total (cfs)	111340.2	Conv. (cfs)	281.7	111058.5	
Length Wtd. (ft)	89.17	Wetted Per. (ft)	38.57	267.08	
Min Ch El (ft)	2210.00	Shear (lb/sq ft)	0.01	0.06	
Alpha	1.02	Stream Power (lb/ft s)	0.00	0.11	
Frctn Loss (ft)	0.07	Cum Volume (acre-ft)	6.15	14.06	2.25
C & E Loss (ft)	0.15	Cum SA (acres)	3.18	3.22	1.46

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.

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

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

CROSS SECTION

RIVER: Tropicana Wash
REACH: Tropicana Wash RS: 63.488

INPUT
Description: 17
Station Elevation Data num= 133

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2219.2	.44	2219.19	10.95	2219.24	31.29	2219.26	41.02	2219.34
49.43	2219.4	57.63	2219.3	66.45	2219.11	72.43	2218.96	85.5	2218.96
87.22	2218.9	90.06	2218.95	100.94	2218.95	102.79	2218.97	108.31	2218.96
109.55	2218.9	121.33	2218.38	126.8	2218.64	126.98	2218.67	127.42	2218.69
128.22	2218.7	133.7	2218	140.8	2217.67	143.87	2217.63	153.41	2217.54
154.88	2217.6	166.9	2218	187.92	2216.85	189.51	2217.02	189.59	2217.01
191.84	2217.1	193.03	2216.9	194.02	2216.83	194.82	2216.87	195.22	2216.7
196.81	2216	199.38	2215.2	201.94	2214	205.43	2212.35	206.16	2212
207.31	2211.46	210.06	2210	210.69	2209.75	211.23	2210	213.2	2210
214.31	2211.15	215.2	2212	217.02	2213.98	217.05	2214	217.27	2214.01
217.39	2214.01	217.64	2214	245.7	2214.94	274	2215.9	277.07	2216
282.43	2216	295.31	2216	304.14	2216	326.75	2216	333.76	2216
361.85	2215.66	372.25	2216	393.16	2217.16	407.96	2218	408.08	2217.99
408.1	2218	408.14	2218	408.24	2218	408.29	2218	416.25	2218.71
420.66	2218.95	421.78	2219	422.12	2219	424.79	2219	432.29	2219.44
432.91	2219.52	433.71	2219.53	435.96	2219.39	439.67	2219.1	441	2218.92
444.41	2218.68	449.45	2218	458.31	2217.44	461.2	2217.3	463.76	2217.09
466.91	2216.91	475.8	2216.86	510.1	2217.06	516.78	2217.8	517.43	2217.83
518.2	2217.88	520.09	2218	523.54	2218	544.57	2218	554.21	2218
556.01	2218	556.88	2218	578.84	2218	590.9	2218	594	2218
604.6	2218.34	616.42	2218.78	625.05	2219.12	628.28	2219.1	628.66	2219.05
630.38	2218.82	633.17	2218.67	634.41	2218.57	643.34	2218.6	648.28	2218.5
649.01	2218.51	658.23	2218.57	668.84	2218.55	674.53	2218.4	679.57	2218.29
679.81	2218.26	679.94	2218.25	681.85	2218.25	682.69	2218.3	683.74	2218.34
688.33	2218.4	695.15	2218.68	695.96	2218.76	699.48	2219	699.62	2219.02
703.89	2219.01	708.35	2219.01	711.49	2219.03	718.67	2219	721.72	2218.94
728.71	2218.86	731.44	2218.79	734.78	2218.82				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.04	201.94	.028	215.2	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
195.22	274	170.98 168.37	160.12	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

			Left OB	Channel	Right OB
E.G. Elev (ft)	2217.59	Element			
Vel Head (ft)	0.76	Wt. n-Val.	0.040	0.038	0.040
W.S. Elev (ft)	2216.83	Reach Len. (ft)	170.98	168.37	160.12
Crit W.S. (ft)	2216.83	Flow Area (sq ft)	0.02	196.48	94.41
E.G. Slope (ft/ft)	0.011605	Area (sq ft)	0.02	196.48	94.41
Q Total (cfs)	1818.00	Flow (cfs)	0.01	1483.32	334.67
Top Width (ft)	192.29	Top Width (ft)	0.30	78.78	113.21
Vel Total (ft/s)	6.25	Avg. Vel. (ft/s)	0.61	7.55	3.54
Max Chl Dpth (ft)	7.08	Hydr. Depth (ft)	0.06	2.49	0.83
Conv. Total (cfs)	16876.2	Conv. (cfs)	0.1	13769.4	3106.7
Length Wtd. (ft)	167.61	Wetted Per. (ft)	0.33	82.09	113.24
Min Ch El (ft)	2209.75	Shear (lb/sq ft)	0.04	1.73	0.60
Alpha	1.25	Stream Power (lb/ft s)	0.03	13.09	2.14
Frctn Loss (ft)	0.59	Cum Volume (acre-ft)	6.10	13.35	2.43
C & E Loss (ft)	0.19	Cum SA (acres)	3.08	4.55	1.68

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #PF 2

			Left OB	Channel	Right OB
E.G. Elev (ft)	2218.55	Element			
Vel Head (ft)	1.52	Wt. n-Val.	0.040	0.037	
W.S. Elev (ft)	2217.03	Reach Len. (ft)	170.98	168.37	160.12
Crit W.S. (ft)	2217.03	Flow Area (sq ft)	0.76	183.79	
E.G. Slope (ft/ft)	0.015255	Area (sq ft)	0.76	183.79	
Q Total (cfs)	1818.00	Flow (cfs)	0.88	1817.12	
Top Width (ft)	65.34	Top Width (ft)	6.06	59.28	
Vel Total (ft/s)	9.85	Avg. Vel. (ft/s)	1.16	9.89	
Max Chl Dpth (ft)	7.28	Hydr. Depth (ft)	0.12	3.10	
Conv. Total (cfs)	14719.5	Conv. (cfs)	7.1	14712.4	
Length Wtd. (ft)	168.37	Wetted Per. (ft)	6.25	64.37	
Min Ch El (ft)	2209.75	Shear (lb/sq ft)	0.12	2.72	
Alpha	1.01	Stream Power (lb/ft s)	0.13	26.88	
Frctn Loss (ft)	0.64	Cum Volume (acre-ft)	6.13	12.82	2.25
C & E Loss (ft)	0.42	Cum SA (acres)	3.12	2.89	1.46

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than

0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Tropicana Wash
REACH: Tropicana Wash RS: 63.456

INPUT
Description: 16
Station Elevation Data num= 132

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2217	16	2216	58	2216	104	2215	160	2214
213.75	2213	236.35	2212	244.14	2212.45	254.41	2212.36	279.47	2212.49
279.86	2212.48	287.12	2212.5	287.16	2212.45	287.29	2212.44	288.67	2212.45
290.84	2212.46	294.31	2212.5	311.94	2212.74	322.33	2212.75	330.86	2213.07
333.29	2213.11	333.37	2213.1	333.56	2213.11	337.1	2213.07	337.97	2213.06
338.59	2213.05	341.1	2213	352.17	2212.9	366.49	2212.74	371.11	2212.78
375.32	2212.73	390.54	2212.5	405.03	2212.76	407.12	2212.67	411.72	2212.56
413.07	2212.52	419.93	2213.6	420.7	2213.46	420.97	2213.4	422.82	2213.82
423.61	2214	424.44	2214	424.57	2213.8	425.73	2212.23	425.84	2212
425.88	2211.85	426.36	2210	426.7	2208.7	426.88	2208	431.59	2208
439.98	2208	441.64	2209.75	441.86	2210	442.4	2210.57	444.01	2212
444.09	2212	446.62	2212.14	446.94	2212.2	448.88	2212.28	449.82	2212.24
451.71	2212.24	451.88	2212.24	453.44	2212.2	453.59	2212.22	454.87	2212.2
455.33	2212.18	455.36	2212.18	455.74	2212.2	455.78	2212.2	463.07	2212.29
482.33	2212.68	493.48	2212.89	497.81	2212.97	536.09	2213.5	569.81	2214
576.49	2214	577.13	2214	584.66	2214	597.2	2214	597.78	2214.03
598	2214.04	605.56	2214.47	619.36	2214.64	620.69	2214.6	628.43	2214.66
636.45	2214.68	638.32	2214.68	642.74	2214.69	671.12	2216	674.4	2216
675.46	2216	688.37	2216	695.56	2216	701.55	2216	707.96	2216
719.82	2216	722.62	2216	732.11	2216	742.62	2216	751.14	2216
754.85	2216	767.15	2216.46	777.51	2216.11	786.52	2216	788.08	2216
788.52	2216	788.94	2216.04	789.22	2216.05	789.44	2216	789.83	2216.05
790	2216.05	862.87	2218	864.21	2218	887.59	2218	893.01	2218
899.89	2218	914.32	2218	916.25	2218	918.92	2218	919.02	2218
930.33	2218	932.41	2218	936.53	2218	944	2218	948.43	2218
951.65	2218	955.18	2218	975.81	2218	976.42	2218	976.68	2218
978.57	2218	983.77	2218						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.04	424.44	.025	426.88	.04

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
422.82 455.78 351.75 244.62 156.19 .1 .3
Left Levee Station= 187.2 Elevation=

CROSS SECTION OUTPUT Profile #PF 1

			Left OB	Channel	Right OB
E.G. Elev (ft)	2214.69	Element			
Vel Head (ft)	0.11	Wt. n-Val.	0.040	0.038	0.040
W.S. Elev (ft)	2214.58	Reach Len. (ft)	351.75	244.62	156.19
Crit W.S. (ft)	2213.75	Flow Area (sq ft)	469.74	140.33	183.03
E.G. Slope (ft/ft)	0.001685	Area (sq ft)	469.74	140.33	183.03
Q Total (cfs)	1818.00	Flow (cfs)	975.63	535.35	307.02
Top Width (ft)	486.75	Top Width (ft)	295.21	32.96	158.58
Vel Total (ft/s)	2.29	Avg. Vel. (ft/s)	2.08	3.81	1.68

Max Chl Dpth (ft)	6.58	Hydr. Depth (ft)	1.59	4.26	1.15
Conv. Total (cfs)	44293.8	Conv. (cfs)	23770.3	13043.3	7480.3
Length Wtd. (ft)	269.71	Wetted Per. (ft)	295.45	38.79	158.61
Min Ch El (ft)	2208.00	Shear (lb/sq ft)	0.17	0.38	0.12
Alpha	1.35	Stream Power (lb/ft s)	0.35	1.45	0.20
Frctn Loss (ft)	0.03	Cum Volume (acre-ft)	5.18	12.70	1.92
C & E Loss (ft)	0.03	Cum SA (acres)	2.50	4.34	1.18

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	2214.69	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.11	Wt. n-Val.	0.040	0.038	0.040
W.S. Elev (ft)	2214.58	Reach Len. (ft)	351.75	244.62	156.19
Crit W.S. (ft)	2213.75	Flow Area (sq ft)	469.74	140.33	183.03
E.G. Slope (ft/ft)	0.001685	Area (sq ft)	469.74	140.33	183.03
Q Total (cfs)	1818.00	Flow (cfs)	975.63	535.35	307.02
Top Width (ft)	486.75	Top Width (ft)	295.21	32.96	158.58
Vel Total (ft/s)	2.29	Avg. Vel. (ft/s)	2.08	3.81	1.68
Max Chl Dpth (ft)	6.58	Hydr. Depth (ft)	1.59	4.26	1.15
Conv. Total (cfs)	44293.8	Conv. (cfs)	23770.3	13043.3	7480.3
Length Wtd. (ft)	269.71	Wetted Per. (ft)	295.45	38.79	158.61
Min Ch El (ft)	2208.00	Shear (lb/sq ft)	0.17	0.38	0.12
Alpha	1.35	Stream Power (lb/ft s)	0.35	1.45	0.20
Frctn Loss (ft)	0.03	Cum Volume (acre-ft)	5.20	12.19	1.92
C & E Loss (ft)	0.03	Cum SA (acres)	2.53	2.71	1.17

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Tropicana Wash
REACH: Tropicana Wash RS: 63.410

INPUT
Description: Upstream X-Section from UPRR culvert crossing
Station Elevation Data num= 268

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2210.9	36.48	2211.36	92.93	2212	96	2212.05	101.85	2212.16
105.47	2212	111.81	2212.85	134.1	2212.82	149.87	2212.52	159.18	2212.25
159.28	2212.2	162.39	2212.24	165.52	2212.27	172.05	2212.27	176.75	2212
192.12	2212.6	196.53	2212.56	201.84	2212.47	221	2212.1	221.91	2212.08
223.91	2212	234.34	2211.46	256.78	2210.3	258.15	2210.24	259.73	2210.26
261.35	2210.24	261.57	2210.3	262.27	2210.23	262.95	2210	264.76	2209.45
269.59	2208	274.08	2208	280.39	2208	284.55	2208	287.19	2208
294.58	2208	298.18	2208	306.6	2208	308.51	2208	308.77	2208
313.09	2207.48	315.61	2207.5	325	2206	329.71	2205.35	329.8	2205.34
329.84	2205.33	337.33	2205.5	337.68	2205.43	339.97	2205.02	341.12	2204
341.59	2204	344	2202	346	2200	348	2200	350.39	2200
354	2200	354.02	2200	354.03	2200	355.33	2204	356.19	2204
356.73	2204	357.27	2204	360.06	2204	363.07	2204	366.12	2204
367.32	2204	386.72	2204.06	387.13	2204.05	387.21	2204.05	393.12	2204.1
398	2205.12	401.43	2205.85	402.09	2205.91	403.32	2206	411.2	2206.6
412.73	2206.74	417.57	2206.95	420.99	2207.11	424.97	2207.49	431.1	2208
435.35	2208.2	444.45	2210	444.61	2210.01	444.76	2210.01	449.85	2210.2
450.63	2210.2	454.3	2210.41	454.83	2210.42	458.15	2210.41	460.14	2210.59

469.99	2211.5	473.35	2211.85	474.42	2211.92	474.48	2211.92	475.54	2212
476.08	2212	476.39	2212	476.71	2212	480.72	2212	485.5	2212
486.07	2212	486.67	2212	497.72	2212	498.77	2212	509.24	2212
511.21	2212	512.02	2212	517.74	2212	522.65	2212	528.06	2212
534.05	2212	538.74	2211.4	540.99	2212	560.14	2212	565.12	2212
565.49	2212	571.16	2212	572.18	2212.44	574.28	2213.2	579.45	2213.31
582.38	2213.3	582.69	2213.33	593.13	2213.37	593.53	2213.37	593.65	2213.37
593.7	2213.4	596.61	2213.39	608.65	2213.42	608.8	2213.42	614.28	2213.43
615.65	2213.5	631.67	2213.52	638.25	2213.54	649.99	2213.57	673.89	2213.7
687.3	2213.7	702.01	2214	702.63	2214.19	704.45	2214	704.75	2214
715.6	2215	721.95	2215.04	726.25	2214.89	731.3	2214.89	738.17	2214.79
741.55	2214.8	747.04	2214.88	754.33	2215.29	762.28	2215.37	764.67	2215.51
769.15	2215.6	772.39	2215.56	790.82	2215.58	809.25	2215.58	813.45	2215.57
823.25	2215.6	831.98	2216	833.02	2216	835.01	2216	839.28	2216
841.72	2216	851.58	2216	862	2216	866.37	2216	867.41	2216
884.46	2216	888.78	2216	904.53	2216	911.24	2216	913.2	2216.07
915.45	2216	927.61	2216	933.97	2216	938.51	2216	949.86	2216
960.06	2217.1	966.62	2217.12	971.64	2217.12	980.24	2217.14	983.79	2217.13
1016.09	2218	1016.75	2218	1046.09	2218	1048.69	2218	1052.05	2218
1059.33	2218	1062.04	2218	1065.76	2218	1065.82	2218	1081.41	2218
1084.23	2218	1086.6	2218	1096.82	2218	1099.55	2218	1101.55	2218
1106.59	2218	1121.05	2218	1125.66	2218	1133.07	2218	1140.25	2218
1141.48	2218	1141.85	2218	1145.4	2218	1145.69	2218	1145.76	2218
1154.33	2218	1154.8	2218	1160.08	2218	1164.28	2218	1164.95	2218
1169.27	2218	1170.83	2218	1178.71	2218	1205.31	2219.39	1216.92	2220
1217.3	2220	1219.13	2220.2	1220.65	2220.2	1221.56	2220.22	1222.9	2220.23
1223.46	2220.2	1232.69	2220.64	1258.28	2222	1267.76	2222.36	1270.47	2222.35
1275.45	2222.4	1282.05	2222.36	1287.3	2222.26	1288.39	2222.28	1301.94	2222.04
1302.07	2222	1303.82	2222	1306.35	2221.93	1318.41	2221.8	1324.52	2221.61
1324.89	2221.6	1330.93	2220.81	1337.25	2220.59	1340.56	2220.58	1341.05	2220.63
1344.76	2221	1344.94	2220.97	1350.62	2220.73	1350.65	2220.73	1350.93	2220.76
1355.87	2221	1356.06	2221	1360.23	2220.95	1365.92	2220.87	1371.43	2220.44
1372.78	2220.4	1375.01	2220.42	1382.29	2220.65	1384.01	2220.66	1387.39	2220.58
1389.55	2220.5	1391.16	2220.5	1392.62	2220.45	1396.39	2220.57	1402.08	2220.54
1409.63	2220.7	1435.23	2221.79	1436.55	2221.8	1438.71	2221.94	1439.32	2221.95
1439.98	2222	1440.41	2221.99	1441.15	2222				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.04	234.34	.04	460.14	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
234.34	460.14	112.33	111.64	151.37	.3	.5

CROSS SECTION OUTPUT Profile #PF 1

			Left OB	Channel	Right OB
E.G. Elev (ft)	2214.63	Element			
Vel Head (ft)	0.01	Wt. n-Val.	0.040	0.040	0.040
W.S. Elev (ft)	2214.62	Reach Len. (ft)	112.33	111.64	151.37
Crit W.S. (ft)	2206.52	Flow Area (sq ft)	610.91	1727.59	450.07
E.G. Slope (ft/ft)	0.000034	Area (sq ft)	610.91	1727.59	450.07
Q Total (cfs)	1818.00	Flow (cfs)	247.73	1426.83	143.44
Top Width (ft)	711.49	Top Width (ft)	234.34	225.80	251.35
Vel Total (ft/s)	0.65	Avg. Vel. (ft/s)	0.41	0.83	0.32
Max Chl Dpth (ft)	14.62	Hydr. Depth (ft)	2.61	7.65	1.79
Conv. Total (cfs)	312062.9	Conv. (cfs)	42522.8	244918.1	24622.0
Length Wtd. (ft)	111.64	Wetted Per. (ft)	238.19	231.73	251.84
Min Ch El (ft)	2200.00	Shear (lb/sq ft)	0.01	0.02	0.00
Alpha	1.33	Stream Power (lb/ft s)	0.00	0.01	0.00
Frctn Loss (ft)		Cum Volume (acre-ft)	0.82	7.45	0.79
C & E Loss (ft)		Cum SA (acres)	0.36	3.61	0.44

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	2214.63	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.01	Wt. n-Val.	0.040	0.040	0.040
W.S. Elev (ft)	2214.62	Reach Len. (ft)	112.33	111.64	151.37
Crit W.S. (ft)	2206.52	Flow Area (sq ft)	610.91	1727.59	450.07
E.G. Slope (ft/ft)	0.000034	Area (sq ft)	610.91	1727.59	450.07
Q Total (cfs)	1818.00	Flow (cfs)	247.73	1426.83	143.44
Top Width (ft)	711.49	Top Width (ft)	234.34	225.80	251.35
Vel Total (ft/s)	0.65	Avg. Vel. (ft/s)	0.41	0.83	0.32
Max Chl Dpth (ft)	14.62	Hydr. Depth (ft)	2.61	7.65	1.79
Conv. Total (cfs)	312062.9	Conv. (cfs)	42522.8	244918.1	24622.0
Length Wtd. (ft)	111.64	Wetted Per. (ft)	238.19	231.73	251.84
Min Ch El (ft)	2200.00	Shear (lb/sq ft)	0.01	0.02	0.00
Alpha	1.33	Stream Power (lb/ft s)	0.00	0.01	0.00
Frctn Loss (ft)		Cum Volume (acre-ft)	0.84	6.94	0.78
C & E Loss (ft)		Cum SA (acres)	0.39	1.98	0.44

CULVERT

RIVER: Tropicana Wash
REACH: Tropicana Wash RS: 63.397

INPUT
Description: Culvert Crossing at UPRR
Distance from Upstream XS = 46
Deck/Roadway Width = 46
Weir Coefficient = 2.6
Upstream Deck/Roadway Coordinates
num= 7

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
0	2216	2197	303	2214	2197	343	2212	2197
348	2212	2197	353	2212	2197	408	2214	2197
1440	2216	2197						

Upstream Bridge Cross Section Data
Station Elevation Data num= 268

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2210.9	36.48	2211.36	92.93	2212	96	2212.05	101.85	2212.16
105.47	2212	111.81	2212.85	134.1	2212.82	149.87	2212.52	159.18	2212.25
159.28	2212.2	162.39	2212.24	165.52	2212.27	172.05	2212.27	176.75	2212
192.12	2212.6	196.53	2212.56	201.84	2212.47	221	2212.1	221.91	2212.08
223.91	2212	234.34	2211.46	256.78	2210.3	258.15	2210.24	259.73	2210.26
261.35	2210.24	261.57	2210.3	262.27	2210.23	262.95	2210	264.76	2209.45
269.59	2208	274.08	2208	280.39	2208	284.55	2208	287.19	2208
294.58	2208	298.18	2208	306.6	2208	308.51	2208	308.77	2208
313.09	2207.48	315.61	2207.5	325	2206	329.71	2205.35	329.8	2205.34
329.84	2205.33	337.33	2205.5	337.68	2205.43	339.97	2205.02	341.12	2204
341.59	2204	344	2202	346	2200	348	2200	350.39	2200
354	2200	354.02	2200	354.03	2200	355.33	2204	356.19	2204
356.73	2204	357.27	2204	360.06	2204	363.07	2204	366.12	2204
367.32	2204	386.72	2204.06	387.13	2204.05	387.21	2204.05	393.12	2204.1
398	2205.12	401.43	2205.85	402.09	2205.91	403.32	2206	411.2	2206.6
412.73	2206.74	417.57	2206.95	420.99	2207.11	424.97	2207.49	431.1	2208
435.35	2208.2	444.45	2210	444.61	2210.01	444.76	2210.01	449.85	2210.2
450.63	2210.2	454.3	2210.41	454.83	2210.42	458.15	2210.41	460.14	2210.59
469.99	2211.5	473.35	2211.85	474.42	2211.92	474.48	2211.92	475.54	2212
476.08	2212	476.39	2212	476.71	2212	480.72	2212	485.5	2212
486.07	2212	486.67	2212	497.72	2212	498.77	2212	509.24	2212
511.21	2212	512.02	2212	517.74	2212	522.65	2212	528.06	2212
534.05	2212	538.74	2211.4	540.99	2212	560.14	2212	565.12	2212
565.49	2212	571.16	2212	572.18	2212.44	574.28	2213.2	579.45	2213.31
582.38	2213.3	582.69	2213.33	593.13	2213.37	593.53	2213.37	593.65	2213.37

593.7	2213.4	596.61	2213.39	608.65	2213.42	608.8	2213.42	614.28	2213.43
615.65	2213.5	631.67	2213.52	638.25	2213.54	649.99	2213.57	673.89	2213.7
687.3	2213.7	702.01	2214	702.63	2214.19	704.45	2214	704.75	2214
715.6	2215	721.95	2215.04	726.25	2214.89	731.3	2214.89	738.17	2214.79
741.55	2214.8	747.04	2214.88	754.33	2215.29	762.28	2215.37	764.67	2215.51
769.15	2215.6	772.39	2215.56	790.82	2215.58	809.25	2215.58	813.45	2215.57
823.25	2215.6	831.98	2216	833.02	2216	835.01	2216	839.28	2216
841.72	2216	851.58	2216	862	2216	866.37	2216	867.41	2216
884.46	2216	888.78	2216	904.53	2216	911.24	2216	913.2	2216.07
915.45	2216	927.61	2216	933.97	2216	938.51	2216	949.86	2216
960.06	2217.1	966.62	2217.12	971.64	2217.12	980.24	2217.14	983.79	2217.13
1016.09	2218	1016.75	2218	1046.09	2218	1048.69	2218	1052.05	2218
1059.33	2218	1062.04	2218	1065.76	2218	1065.82	2218	1081.41	2218
1084.23	2218	1086.6	2218	1096.82	2218	1099.55	2218	1101.55	2218
1106.59	2218	1121.05	2218	1125.66	2218	1133.07	2218	1140.25	2218
1141.48	2218	1141.85	2218	1145.4	2218	1145.69	2218	1145.76	2218
1154.33	2218	1154.8	2218	1160.08	2218	1164.28	2218	1164.95	2218
1169.27	2218	1170.83	2218	1178.71	2218	1205.31	2219.39	1216.92	2220
1217.3	2220	1219.13	2220.2	1220.65	2220.2	1221.56	2220.22	1222.9	2220.23
1223.46	2220.2	1232.69	2220.64	1258.28	2222	1267.76	2222.36	1270.47	2222.35
1275.45	2222.4	1282.05	2222.36	1287.3	2222.26	1288.39	2222.28	1301.94	2222.04
1302.07	2222	1303.82	2222	1306.35	2221.93	1318.41	2221.8	1324.52	2221.61
1324.89	2221.6	1330.93	2220.81	1337.25	2220.59	1340.56	2220.58	1341.05	2220.63
1344.76	2221	1344.94	2220.97	1350.62	2220.73	1350.65	2220.73	1350.93	2220.76
1355.87	2221	1356.06	2221	1360.23	2220.95	1365.92	2220.87	1371.43	2220.44
1372.78	2220.4	1375.01	2220.42	1382.29	2220.65	1384.01	2220.66	1387.39	2220.58
1389.55	2220.5	1391.16	2220.5	1392.62	2220.45	1396.39	2220.57	1402.08	2220.54
1409.63	2220.7	1435.23	2221.79	1436.55	2221.8	1438.71	2221.94	1439.32	2221.95
1439.98	2222	1440.41	2221.99	1441.15	2222				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.04	234.34	.04	460.14	.04

Bank Sta: Left	Right	Coeff Contr.	Expan.
234.34	460.14	.3	.5

Downstream Deck/Roadway Coordinates

num= 7

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
0	2216	2197	202	2214	2197	242	2212	2197
247	2212	2197	252	2212	2197	307	2214	2197
641.86	2216	2197						

Downstream Bridge Cross Section Data

Station Elevation Data num= 162

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2212	3.13	2211.91	3.43	2211.9	13.74	2212	16.96	2212.03
17.17	2212	25.85	2210.73	33.32	2210.64	42.76	2210.53	60.46	2211.13
71.77	2211.5	73.47	2211.57	77.14	2211.67	79.49	2211.66	86.55	2211.62
90.85	2211.2	96.25	2210.74	100.44	2210.77	104.64	2210.81	110.29	2210.81
116.46	2210.8	121.02	2211.36	125.88	2211.94	126.12	2211.94	131.12	2211.89
131.58	2211.9	132.64	2211.89	141.15	2211.82	144.37	2211.99	144.4	2211.99
152.26	2211.59	155.94	2211.4	162.9	2211.33	166.82	2211.34	173.52	2211.44
183.02	2211.5	187.65	2211.5	192.47	2211.96	192.48	2211.96	192.53	2211.98
192.63	2212	200.84	2213.13	214.39	2213.96	214.64	2213.97	214.67	2213.96
214.86	2213.9	217.91	2213.44	220.42	2213.34	222	2213.39	224.04	2212
225.03	2211.3	226.97	2210	227.19	2209.84	227.58	2209.58	231.18	2208
231.77	2207.7	231.79	2207.73	232.31	2207.56	235.16	2206.46	239.7	2204.72
241	2200	242.32	2200	244.42	2200	250.76	2200	252.74	2203.03
255.77	2204	256.69	2204.8	257.56	2206	258.36	2210.44	258.65	2211.3
259.45	2211.48	259.52	2211.5	262	2211.15	264.8	2210.76	271.11	2210.55
275.62	2210.39	285.66	2211.6	289.13	2212	296.19	2212.84	301.38	2213.46
306.33	2212	312.36	2210.2	313.11	2210	314.09	2209.71	317.96	2209.67

```
  318.02 2209.66  318.13  2209.7  318.69 2209.74  319.81    2210  323.24 2210.79
  328.51    2212  330.31  2212.4  339.41 2212.33     342 2212.31  345.59 2212.43
  346.25 2212.45  347.02 2212.47  348.98  2212.6  355.21 2213.03  358.52 2213.02
  365.08 2213.01   368.3  2213.1  375.11  2213.2  379.23 2213.29  387.11 2213.56
  388.21  2213.6  390.12 2213.58  395.03  2213.5  396.38 2213.56  407.49 2213.81
  410.89 2213.65  423.62 2213.07  427.24  2213.2   431.7 2213.34  438.07 2213.42
  439.96 2213.49  453.19    2214  453.33    2214  453.36 2214.01  458.08 2214.43
  459.24 2214.53  462.71 2214.73  470.29  2215.7  474.22 2215.53  475.15 2215.61
  476.03 2215.65  476.85 2215.66  485.28  2215.7  487.04 2215.71  495.29 2215.74
  495.61 2215.74  506.52 2215.74  510.61  2215.7  516.02 2215.77  527.38 2215.84
  527.55 2215.84  527.84 2215.84  535.45  2215.4  537.11 2215.43  553.34 2215.86
  554.89 2215.86  555.72 2215.87  574.14  2215.9  574.55  2215.9  575.03  2215.9
   575.2 2215.81  575.53 2215.75  588.86  2215.9     589 2215.88  589.13 2215.92
  601.01 2215.91  601.23 2215.94  601.58  2215.9  601.84 2215.94  610.62 2215.84
  611.97 2215.84  621.06 2215.89  630.65  2215.9  630.88 2215.93  630.89 2215.93
   631.8 2215.82  641.86    2216

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .06  132.64     .05  345.59     .06

Bank Sta: Left   Right    Coeff Contr.   Expan.
        132.64  345.59             .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
       0     242               T
     252  641.86               T

Upstream Embankment side slope                =     3.6 horiz. to 1.0 vertical
Downstream Embankment side slope              =     3.7 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow =     .95
Elevation at which weir flow begins           =
Energy head used in spillway design           =
Spillway height used in design                =
Weir crest shape                              = Broad Crested

Number of Culverts =  1

Culvert Name     Shape      Rise    Span
Culvert #1      Circular      10
FHWA Chart # 2 - Corrugated Metal Pipe Culvert
FHWA Scale # 2 - Mitered to conform to slope
Solution Criteria = Inlet control
Culvert Upstrm Dist  Length    Top n  Bottom n  Depth Blocked  Entrance Loss Coef    Exit Loss Coef
               8.1    92.4     .031      .031        0                  .5                 1
Upstream   Elevation =  2199.99
           Centerline Station =  348
Downstream Elevation =  2200
           Centerline Station =  247

CULVERT OUTPUT  Profile #PF 1  Culv Group:  Culvert #1

  Q Culv Group (cfs)        985.24    Culv Full Len (ft)        29.46
  # Barrels                      1    Culv Vel US (ft/s)        12.54
  Q Barrel (cfs)            985.24    Culv Vel DS (ft/s)        15.46
  E.G. US. (ft)            2214.63    Culv Inv El Up (ft)     2199.99
  W.S. US. (ft)            2214.62    Culv Inv El Dn (ft)     2200.00
  E.G. DS (ft)             2208.50    Culv Frctn Ls (ft)         2.13
  W.S. DS (ft)             2205.69    Culv Exit Loss (ft)        2.77
  Delta EG (ft)               6.13    Culv Entr Loss (ft)        1.22
  Delta WS (ft)               8.93    Q Weir (cfs)             832.76
  E.G. IC (ft)             2214.63    Weir Sta Lft (ft)        206.46
  E.G. OC (ft)             2214.63    Weir Sta Rgt (ft)        711.67
  Culvert Control            Inlet    Weir Submerg               0.00
```

Culv WS Inlet (ft)	2209.99	Weir Max Depth (ft)	2.64
Culv WS Outlet (ft)	2207.56	Weir Avg Depth (ft)	0.63
Culv Nml Depth (ft)		Weir Flow Area (sq ft)	316.88
Culv Crt Depth (ft)	7.56	Min El Weir Flow (ft)	2212.01

Warning: The inlet is submerged and the outlet computations indicate that the culvert would flow full over all or part of its length. The program would normally default to the outlet answer. However, the user has requested that the inlet answer be used.

CULVERT OUTPUT Profile #PF 2 Culv Group: Culvert #1

Q Culv Group (cfs)	985.24	Culv Full Len (ft)	29.46
# Barrels	1	Culv Vel US (ft/s)	12.54
Q Barrel (cfs)	985.24	Culv Vel DS (ft/s)	15.46
E.G. US. (ft)	2214.63	Culv Inv El Up (ft)	2199.99
W.S. US. (ft)	2214.62	Culv Inv El Dn (ft)	2200.00
E.G. DS (ft)	2208.50	Culv Frctn Ls (ft)	2.13
W.S. DS (ft)	2205.69	Culv Exit Loss (ft)	2.77
Delta EG (ft)	6.13	Culv Entr Loss (ft)	1.22
Delta WS (ft)	8.93	Q Weir (cfs)	832.76
E.G. IC (ft)	2214.63	Weir Sta Lft (ft)	206.46
E.G. OC (ft)	2214.63	Weir Sta Rgt (ft)	711.67
Culvert Control	Inlet	Weir Submerg	0.00
Culv WS Inlet (ft)	2209.99	Weir Max Depth (ft)	2.64
Culv WS Outlet (ft)	2207.56	Weir Avg Depth (ft)	0.63
Culv Nml Depth (ft)		Weir Flow Area (sq ft)	316.88
Culv Crt Depth (ft)	7.56	Min El Weir Flow (ft)	2212.01

Warning: The inlet is submerged and the outlet computations indicate that the culvert would flow full over all or part of its length. The program would normally default to the outlet answer. However, the user has requested that the inlet answer be used.

CROSS SECTION

RIVER: Tropicana Wash
REACH: Tropicana Wash RS: 63.389

INPUT
Description: Downstream X-Section from UPRR Culvert Crossing
Station Elevation Data num= 162

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2212	3.13	2211.91	3.43	2211.9	13.74	2212	16.96	2212.03
17.17	2212	25.85	2210.73	33.32	2210.64	42.76	2210.53	60.46	2211.13
71.77	2211.5	73.47	2211.57	77.14	2211.67	79.49	2211.66	86.55	2211.62
90.85	2211.2	96.25	2210.74	100.44	2210.77	104.64	2210.81	110.29	2210.81
116.46	2210.8	121.02	2211.36	125.88	2211.94	126.12	2211.94	131.12	2211.89
131.58	2211.9	132.64	2211.89	141.15	2211.82	144.37	2211.99	144.4	2211.99
152.26	2211.59	155.94	2211.4	162.9	2211.33	166.82	2211.34	173.52	2211.44
183.02	2211.5	187.65	2211.5	192.47	2211.96	192.48	2211.96	192.53	2211.98
192.63	2212	200.84	2213.13	214.39	2213.96	214.64	2213.97	214.67	2213.96
214.86	2213.9	217.91	2213.44	220.42	2213.34	222	2213.39	224.04	2212
225.03	2211.3	226.97	2210	227.19	2209.84	227.58	2209.58	231.18	2208
231.77	2207.7	231.79	2207.73	232.31	2207.56	235.16	2206.46	239.7	2204.72
241	2200	242.32	2200	244.42	2200	250.76	2200	252.74	2203.03
255.77	2204	256.69	2204.8	257.56	2206	258.36	2210.44	258.65	2211.3
259.45	2211.48	259.52	2211.5	262	2211.15	264.8	2210.76	271.11	2210.55
275.62	2210.39	285.66	2211.6	289.13	2212	296.19	2212.84	301.38	2213.46
306.33	2212	312.36	2210.2	313.11	2210	314.09	2209.71	317.96	2209.67
318.02	2209.66	318.13	2209.7	318.69	2209.74	319.81	2210	323.24	2210.79
328.51	2212	330.31	2212.4	339.41	2212.33	342	2212.31	345.59	2212.43
346.25	2212.45	347.02	2212.47	348.98	2212.6	355.21	2213.03	358.52	2213.02

365.08	2213.01	368.3	2213.1	375.11	2213.2	379.23	2213.29	387.11	2213.56
388.21	2213.6	390.12	2213.58	395.03	2213.5	396.38	2213.56	407.49	2213.81
410.89	2213.65	423.62	2213.07	427.24	2213.2	431.7	2213.34	438.07	2213.42
439.96	2213.49	453.19	2214	453.33	2214	453.36	2214.01	458.08	2214.43
459.24	2214.53	462.71	2214.73	470.29	2215.7	474.22	2215.53	475.15	2215.61
476.03	2215.65	476.85	2215.66	485.28	2215.7	487.04	2215.71	495.29	2215.74
495.61	2215.74	506.52	2215.74	510.61	2215.7	516.02	2215.77	527.38	2215.84
527.55	2215.84	527.84	2215.84	535.45	2215.4	537.11	2215.43	553.34	2215.86
554.89	2215.86	555.72	2215.87	574.14	2215.9	574.55	2215.9	575.03	2215.9
575.2	2215.81	575.53	2215.75	588.86	2215.9	589	2215.88	589.13	2215.92
601.01	2215.91	601.23	2215.94	601.58	2215.9	601.84	2215.94	610.62	2215.84
611.97	2215.84	621.06	2215.89	630.65	2215.9	630.88	2215.93	630.89	2215.93
631.8	2215.82	641.86	2216						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.06	132.64	.05	345.59	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
132.64	345.59	69.13	54.14	142.71 .3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
0	242		T
252	641.86		T

CROSS SECTION OUTPUT Profile #PF 1

			Left OB	Channel	Right OB
E.G. Elev (ft)	2208.50	Element			
Vel Head (ft)	2.81	Wt. n-Val.		0.050	
W.S. Elev (ft)	2205.69	Reach Len. (ft)	69.13	54.14	142.71
Crit W.S. (ft)	2205.69	Flow Area (sq ft)		55.72	
E.G. Slope (ft/ft)	0.023664	Area (sq ft)		77.41	
Q Total (cfs)	750.00	Flow (cfs)		750.00	
Top Width (ft)	20.16	Top Width (ft)		20.16	
Vel Total (ft/s)	13.46	Avg. Vel. (ft/s)		13.46	
Max Chl Dpth (ft)	5.69	Hydr. Depth (ft)		5.57	
Conv. Total (cfs)	4875.5	Conv. (cfs)		4875.5	
Length Wtd. (ft)	54.14	Wetted Per. (ft)		11.03	
Min Ch El (ft)	2200.00	Shear (lb/sq ft)		7.46	
Alpha	1.00	Stream Power (lb/ft s)		100.48	
Frctn Loss (ft)	0.56	Cum Volume (acre-ft)	0.03	5.14	0.01
C & E Loss (ft)	1.21	Cum SA (acres)	0.06	3.29	0.00

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION OUTPUT Profile #PF 2

			Left OB	Channel	Right OB
E.G. Elev (ft)	2208.50	Element			
Vel Head (ft)	2.81	Wt. n-Val.		0.050	
W.S. Elev (ft)	2205.69	Reach Len. (ft)	69.13	54.14	142.71
Crit W.S. (ft)	2205.69	Flow Area (sq ft)		55.73	
E.G. Slope (ft/ft)	0.023643	Area (sq ft)		77.44	
Q Total (cfs)	750.00	Flow (cfs)		750.00	

Top Width (ft)	20.17	Top Width (ft)		20.17
Vel Total (ft/s)	13.46	Avg. Vel. (ft/s)		13.46
Max Chl Dpth (ft)	5.69	Hydr. Depth (ft)		5.57
Conv. Total (cfs)	4877.6	Conv. (cfs)		4877.6
Length Wtd. (ft)	54.14	Wetted Per. (ft)		11.03
Min Ch El (ft)	2200.00	Shear (lb/sq ft)		7.46
Alpha	1.00	Stream Power (lb/ft s)		100.39
Frctn Loss (ft)	0.33	Cum Volume (acre-ft)	0.05	4.63
C & E Loss (ft)	1.28	Cum SA (acres)	0.09	1.67

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

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.

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

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

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

CROSS SECTION

RIVER: Tropicana Wash
REACH: Tropicana Wash RS: 63.379

INPUT
Description: 13
Station Elevation Data num= 102

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2209.7	3.33	2209.47	7.37	2209.09	10.79	2208.76	13.47	2208.6
14.72	2208.5	17.01	2208	21.2	2207.84	31.24	2206.88	37.74	2206.38
38.27	2206.4	39.01	2206.34	39.28	2206.3	40.58	2206.24	42.21	2206
48.28	2205.8	56.65	2205.71	68.46	2205.6	69	2205.52	79.4	2204
83.27	2204	87.56	2204	107.12	2203.48	109.27	2203.22	113.25	2203.12
123.99	2202.9	129.57	2202.84	131.1	2202.88	138.36	2202.72	138.48	2202.72
139.17	2202.7	142.65	2202.7	143.75	2202.69	146.02	2202.61	148.29	2202.61
153.61	2202.83	165	2203.5	175.45	2204	180.68	2204.32	182.52	2204.43
182.86	2204.45	187.16	2205	190.39	2205.46	190.52	2205.46	196.08	2205.41
196.51	2205.41	196.7	2205.4	196.84	2205.4	196.91	2205.4	204.21	2205.2
207.23	2204.92	209.76	2204.3	211.01	2204.29	212.92	2204	215.94	2203.48
223.36	2202.72	230.34	2202	232.57	2202	249.29	2202	251.83	2202
258.61	2202.52	262.6	2202.6	273.17	2203.11	288.12	2204	293.34	2204.73
309.57	2205.96	310.06	2206	322.43	2206.99	333.26	2207.63	333.72	2207.64
343.1	2207.85	344.97	2207.9	347.04	2208	350.28	2208.44	353.33	2208.47
354.06	2208.56	355.01	2208.75	355.35	2208.8	358.26	2210	361.09	2210
361.48	2210	367.41	2210	371.19	2210	381.96	2210	385.76	2210
401.11	2210	402.01	2210	406.78	2210	409.98	2210	410.46	2210
425.53	2210	444.81	2209.87	449.71	2210	453.08	2210.33	457.71	2210.6
460.13	2210.73	471.59	2211.32	482.18	2212	493.25	2213.04	500.26	2213.55
505.35	2214	505.76	2214.01						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.06	69	.05	333.72	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
69	333.72	167.5	208.3 249.51	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent

0	212	F
262	505.76	F

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	2206.03	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.38	Wt. n-Val.		0.050	
W.S. Elev (ft)	2205.65	Reach Len. (ft)	167.50	208.30	249.51
Crit W.S. (ft)		Flow Area (sq ft)		160.86	
E.G. Slope (ft/ft)	0.005920	Area (sq ft)	0.16	499.70	
Q Total (cfs)	800.00	Flow (cfs)		800.00	
Top Width (ft)	241.99	Top Width (ft)	5.55	236.44	
Vel Total (ft/s)	4.97	Avg. Vel. (ft/s)		4.97	
Max Chl Dpth (ft)	3.65	Hydr. Depth (ft)		3.22	
Conv. Total (cfs)	10397.4	Conv. (cfs)		10397.4	
Length Wtd. (ft)	208.30	Wetted Per. (ft)		50.15	
Min Ch El (ft)	2202.00	Shear (lb/sq ft)		1.19	
Alpha	1.00	Stream Power (lb/ft s)		5.90	
Frctn Loss (ft)	1.74	Cum Volume (acre-ft)	0.03	4.78	0.01
C & E Loss (ft)	0.00	Cum SA (acres)	0.05	3.13	0.00

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

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	2206.69	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.25	Wt. n-Val.		0.050	
W.S. Elev (ft)	2206.45	Reach Len. (ft)	167.50	208.30	249.51
Crit W.S. (ft)		Flow Area (sq ft)		200.80	
E.G. Slope (ft/ft)	0.002827	Area (sq ft)	19.81	692.70	
Q Total (cfs)	800.00	Flow (cfs)		800.00	
Top Width (ft)	278.74	Top Width (ft)	32.11	246.63	
Vel Total (ft/s)	3.98	Avg. Vel. (ft/s)		3.98	
Max Chl Dpth (ft)	4.45	Hydr. Depth (ft)		4.02	
Conv. Total (cfs)	15047.1	Conv. (cfs)		15047.1	
Length Wtd. (ft)	208.30	Wetted Per. (ft)		50.15	
Min Ch El (ft)	2202.00	Shear (lb/sq ft)		0.71	
Alpha	1.00	Stream Power (lb/ft s)		2.81	
Frctn Loss (ft)	1.22	Cum Volume (acre-ft)	0.04	4.15	
C & E Loss (ft)	0.05	Cum SA (acres)	0.06	1.50	

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

CROSS SECTION

RIVER: Tropicana Wash
REACH: Tropicana Wash RS: 63.339

INPUT
Description: 12
Station Elevation Data num= 71

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2209.8	6.96	2209.76	16.98	2209.69	21.86	2209.73	45.95	2209.53

46.05	2209.3	52.23	2209.16	55.36	2209.14	60.49	2209.14	62.81	2209.14
66.55	2209.2	66.88	2209.18	67.33	2209.19	80.67	2209.47	100.84	2209.77
107.13	2209.8	113.45	2209.82	115.25	2209.91	117.58	2210	130.99	2210
151.73	2210	153.28	2210	155.2	2209.75	162.74	2208	165.23	2207.34
170.71	2206	174.99	2204.91	178.56	2204	180.75	2203.5	183.46	2202.66
185.8	2203.2	186.26	2203.21	192.98	2203.38	198.12	2203.27	211.19	2202.86
221.85	2202.53	239.57	2202	251.17	2201.28	252.54	2201.16	252.9	2201.14
258.27	2200.86	258.48	2200.8	265.07	2200.69	265.29	2200.71	266.18	2200.78
267.5	2200.94	268.28	2201	269.17	2201.23	269.63	2201.26	274.34	2201.71
275.78	2201.86	276.81	2202	279.21	2202.49	285.21	2203.71	286.57	2204
286.85	2204.06	296.06	2206	314.11	2206.71	343.55	2207.85	347.53	2208
348.61	2208	351.71	2208	362.21	2208	383.25	2208	412.22	2208
439.92	2208	444.18	2208	469.5	2209.4	476.88	2210	478.57	2210.28
478.58	2210.28								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.06	186.26	.05	343.55	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
186.26	343.55	285.98	283.46 275.22	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
0	195		F
365	478.58		F

CROSS SECTION OUTPUT Profile #PF 1

			Left OB	Channel	Right OB
E.G. Elev (ft)	2204.29	Element			
Vel Head (ft)	0.37	Wt. n-Val.		0.050	
W.S. Elev (ft)	2203.92	Reach Len. (ft)	285.98	283.46	275.22
Crit W.S. (ft)	2203.46	Flow Area (sq ft)		162.95	
E.G. Slope (ft/ft)	0.012647	Area (sq ft)	5.30	168.27	
Q Total (cfs)	800.00	Flow (cfs)		800.00	
Top Width (ft)	107.27	Top Width (ft)	7.34	99.93	
Vel Total (ft/s)	4.91	Avg. Vel. (ft/s)		4.91	
Max Chl Dpth (ft)	3.23	Hydr. Depth (ft)		1.79	
Conv. Total (cfs)	7113.6	Conv. (cfs)		7113.6	
Length Wtd. (ft)	283.46	Wetted Per. (ft)		91.53	
Min Ch El (ft)	2200.69	Shear (lb/sq ft)		1.41	
Alpha	1.00	Stream Power (lb/ft s)		6.90	
Frctn Loss (ft)	2.57	Cum Volume (acre-ft)	0.02	3.18	0.01
C & E Loss (ft)	0.06	Cum SA (acres)	0.03	2.33	0.00

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

CROSS SECTION OUTPUT Profile #PF 2

			Left OB	Channel	Right OB
E.G. Elev (ft)	2205.42	Element			
Vel Head (ft)	0.78	Wt. n-Val.		0.050	
W.S. Elev (ft)	2204.64	Reach Len. (ft)	285.98	283.46	275.22
Crit W.S. (ft)		Flow Area (sq ft)		112.67	
E.G. Slope (ft/ft)	0.018648	Area (sq ft)		112.67	
Q Total (cfs)	800.00	Flow (cfs)		800.00	
Top Width (ft)	43.10	Top Width (ft)		43.10	
Vel Total (ft/s)	7.10	Avg. Vel. (ft/s)		7.10	
Max Chl Dpth (ft)	3.69	Hydr. Depth (ft)		2.61	
Conv. Total (cfs)	5858.3	Conv. (cfs)		5858.3	
Length Wtd. (ft)	283.46	Wetted Per. (ft)		48.69	
Min Ch El (ft)	2200.94	Shear (lb/sq ft)		2.69	
Alpha	1.00	Stream Power (lb/ft s)		19.13	
Frctn Loss (ft)	2.68	Cum Volume (acre-ft)		2.23	

C & E Loss (ft)	0.12	Cum SA (acres)	0.81

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

CROSS SECTION

RIVER: Tropicana Wash
REACH: Tropicana Wash RS: 63.286

INPUT
Description: 11
Station Elevation Data num= 85

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2206.3	12.25	2206.09	12.67	2206	14.54	2206	18.28	2205.72
18.93	2205.8	27.84	2204	29.14	2203.74	29.47	2203.68	32.29	2203.4
32.47	2203.4	38.44	2202.21	39.01	2202.1	39.28	2202.08	40.46	2202
43.58	2202	43.95	2202	44.12	2202	47.02	2202.15	48.97	2202.7
51.3	2203.56	53.15	2203.63	53.78	2203.76	58.03	2203.96	58.12	2204
58.16	2203.97	58.31	2203.92	59.32	2204	61.15	2204.07	61.43	2204
62.13	2203.65	63.68	2203.61	64.65	2203.66	67.09	2203.07	67.23	2203.1
69.05	2202.59	71.09	2202.06	71.31	2202	86.67	2201.7	86.73	2201.7
89.74	2201.64	91.81	2201.6	97.91	2201.46	98.79	2201.43	99.56	2201.42
99.97	2201.4	106.72	2201.34	118.78	2201.56	118.82	2201.57	119.95	2201.6
125.53	2201.5	125.66	2201.49	131.23	2201.34	132.95	2201.2	136.17	2200.98
136.86	2201	136.99	2200.96	137.23	2200.96	149.85	2200.42	157.84	2200.08
159.61	2200	162.35	2199.73	169.02	2199.03	174.18	2198.47	176.51	2198.33
177.69	2198.3	186.15	2198.47	190.19	2198.87	197.76	2199.19	207.41	2200
209.98	2200	218.24	2200	231.59	2200	247.46	2199.71	254.14	2199.86
258.55	2200	266.07	2201.42	267.65	2202	275.65	2202.38	304.72	2203.78
309.55	2204	363.8	2205.8	369.32	2206	449.78	2207.07	467.6	2207.31

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.05	89.74	.045	275.65	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
89.74	275.65	228.57	215.51 180.73	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	2201.66	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.19	Wt. n-Val.		0.045	
W.S. Elev (ft)	2201.47	Reach Len. (ft)	228.57	215.51	180.73
Crit W.S. (ft)		Flow Area (sq ft)		228.21	
E.G. Slope (ft/ft)	0.006832	Area (sq ft)		228.21	
Q Total (cfs)	800.00	Flow (cfs)		800.00	
Top Width (ft)	156.44	Top Width (ft)		156.44	
Vel Total (ft/s)	3.51	Avg. Vel. (ft/s)		3.51	
Max Chl Dpth (ft)	3.17	Hydr. Depth (ft)		1.46	
Conv. Total (cfs)	9678.6	Conv. (cfs)		9678.6	
Length Wtd. (ft)	215.51	Wetted Per. (ft)		156.78	
Min Ch El (ft)	2198.30	Shear (lb/sq ft)		0.62	
Alpha	1.00	Stream Power (lb/ft s)		2.18	
Frctn Loss (ft)	2.73	Cum Volume (acre-ft)	0.00	1.89	0.01
C & E Loss (ft)	0.03	Cum SA (acres)	0.00	1.50	0.00

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

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

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	2202.63	Element	Left OB	Channel	Right OB	
Vel Head (ft)	0.40	Wt. n-Val.		0.045		
W.S. Elev (ft)	2202.23	Reach Len. (ft)	228.57	215.51	180.73	
Crit W.S. (ft)		Flow Area (sq ft)		157.99		
E.G. Slope (ft/ft)	0.005698	Area (sq ft)		157.99		
Q Total (cfs)	800.00	Flow (cfs)		800.00		
Top Width (ft)	50.00	Top Width (ft)		50.00		
Vel Total (ft/s)	5.06	Avg. Vel. (ft/s)		5.06		
Max Chl Dpth (ft)	3.93	Hydr. Depth (ft)		3.16		
Conv. Total (cfs)	10598.0	Conv. (cfs)		10598.0		
Length Wtd. (ft)	215.51	Wetted Per. (ft)		54.56		
Min Ch El (ft)	2198.30	Shear (lb/sq ft)		1.03		
Alpha	1.00	Stream Power (lb/ft s)		5.22		
Frctn Loss (ft)	2.29	Cum Volume (acre-ft)		1.35		
C & E Loss (ft)	0.07	Cum SA (acres)		0.51		

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

CROSS SECTION

RIVER: Tropicana Wash
REACH: Tropicana Wash RS: 63.245

INPUT
Description: 10
Station Elevation Data num= 96

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2200	3.55	2200.06	3.71	2200.06	4.14	2200.07	4.66	2200.07
4.89	2200.1	5.37	2200.08	9.46	2200.17	12.38	2200.25	21.44	2200.48
49.35	2201	60.69	2201.15	64.76	2201.14	65.06	2201.15	65.19	2201.16
65.55	2201.2	72.98	2201.17	74.21	2201.13	80.16	2201.17	95.38	2201.43
103.92	2201.6	117.44	2201.8	118.06	2201.81	120.97	2201.84	121.74	2201.82
122.51	2201.8	123.25	2201.8	127.83	2201.7	129.34	2201.65	138.8	2201.61
149.12	2202	162.92	2202.34	164.2	2202.37	167.57	2202	171.58	2202
175.18	2202	177.05	2202	180.6	2202	183.39	2200.31	183.63	2200.23
184.25	2200	186.06	2199.3	188.03	2198.77	189.99	2198	191.99	2198
198.91	2198	204.27	2198	207.02	2198	214.25	2198.02	219.33	2198.01
220.27	2198	223.17	2198	226.57	2197.85	236.23	2197.53	242.35	2197.37
246.32	2197.38	250.55	2197.3	250.6	2197.24	262.14	2196.96	262.15	2196.95
263.95	2196.9	264.93	2196.8	266.41	2196.72	275.66	2196.63	275.91	2196.64
281.54	2196.72	287	2196.8	290.41	2196.8	296.01	2197.05	314.72	2197.46
333.01	2198	334.24	2198.6	341.11	2200	342.39	2200.05	350.83	2200.37
351.82	2200.4	352.97	2200.44	361.28	2200.7	365.63	2200.79	368.7	2200.88
403.69	2202	404.69	2202.09	406.47	2202.2	408.54	2202.39	414.01	2202.95
419.74	2203.57	422.08	2203.85	425.99	2203.9	427.36	2204	460.14	2205.26
469.39	2205.71	469.73	2205.72	469.81	2205.7	470.49	2205.74	472.93	2205.78
479.47	2205.82								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.05	189.99	.045	333.01	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
162.92	342.39	296.17	309.07 321.59	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	2198.90	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.50	Wt. n-Val.		0.045	
W.S. Elev (ft)	2198.40	Reach Len. (ft)	296.17	309.07	321.59
Crit W.S. (ft)	2198.40	Flow Area (sq ft)		140.52	
E.G. Slope (ft/ft)	0.031036	Area (sq ft)		140.52	
Q Total (cfs)	800.00	Flow (cfs)		800.00	
Top Width (ft)	144.86	Top Width (ft)		144.86	
Vel Total (ft/s)	5.69	Avg. Vel. (ft/s)		5.69	
Max Chl Dpth (ft)	1.77	Hydr. Depth (ft)		0.97	
Conv. Total (cfs)	4541.1	Conv. (cfs)		4541.1	
Length Wtd. (ft)	309.07	Wetted Per. (ft)		145.10	
Min Ch El (ft)	2196.63	Shear (lb/sq ft)		1.88	
Alpha	1.00	Stream Power (lb/ft s)		10.68	
Frctn Loss (ft)	4.83	Cum Volume (acre-ft)	0.00	0.98	0.01
C & E Loss (ft)	0.05	Cum SA (acres)	0.00	0.75	0.00

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	2200.27	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.09	Wt. n-Val.		0.045	
W.S. Elev (ft)	2199.19	Reach Len. (ft)	296.17	309.07	321.59
Crit W.S. (ft)	2199.19	Flow Area (sq ft)		95.66	
E.G. Slope (ft/ft)	0.026264	Area (sq ft)		95.66	
Q Total (cfs)	800.00	Flow (cfs)		800.00	
Top Width (ft)	44.80	Top Width (ft)		44.80	
Vel Total (ft/s)	8.36	Avg. Vel. (ft/s)		8.36	
Max Chl Dpth (ft)	2.56	Hydr. Depth (ft)		2.14	
Conv. Total (cfs)	4936.4	Conv. (cfs)		4936.4	
Length Wtd. (ft)	309.07	Wetted Per. (ft)		48.96	
Min Ch El (ft)	2196.63	Shear (lb/sq ft)		3.20	
Alpha	1.00	Stream Power (lb/ft s)		26.79	
Frctn Loss (ft)	4.90	Cum Volume (acre-ft)		0.72	
C & E Loss (ft)	0.06	Cum SA (acres)		0.27	

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is

not a valid subcritical answer. The program defaulted to critical depth.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Tropicana Wash
REACH: Tropicana Wash RS: 63.186

INPUT
Description: 9
Station Elevation Data num= 96

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2197	1.18	2196.98	6.17	2196.96	7.42	2196.99	24.66	2196.5
25.95	2196.5	27.44	2196.51	29.05	2196.48	76.39	2196.38	91.81	2196.47
93.3	2198.2	97.1	2198.31	103.9	2198.86	108.33	2199.12	118.34	2199.73
130.21	2200	136.42	2200	148.91	2200	177.19	2199.29	196.98	2199.69
216.82	2200	225.31	2199.72	227.72	2199.64	273.46	2198	288.75	2196.74
296.08	2196	299.99	2195.5	311.71	2194	311.8	2194	312.38	2194
312.47	2194	313.62	2194	334.86	2194	341.38	2194	347.58	2193.79
352.24	2193.9	352.99	2194	362.54	2194	364.98	2194	365.12	2194
384.92	2194	390.21	2192.2	390.84	2192	392.01	2191.61	395.69	2190
397.65	2189.15	400.28	2188	404.79	2187.48	416.78	2186.96	420.45	2186.71
422.88	2186.56	427.4	2186	437.85	2187.07	444.67	2188	450	2190
455.16	2192	456.1	2192.36	460.31	2194	462.75	2195.02	463.02	2195.1
464.17	2195.49	464.92	2195.42	467.09	2194.99	468.86	2194.64	469.77	2194.64
479.65	2194.6	482.59	2194.39	484.45	2194.32	485.31	2194.27	487.22	2194.23
488.11	2194.3	490.41	2194.35	492.47	2194.48	522.27	2196	533.82	2196
536.51	2196	539.85	2196	549.91	2196	584.99	2196	595.48	2196.45
619.98	2197.4	621.75	2196.98	629.2	2196.85	630.46	2196.83	630.91	2196.86
631.53	2196.9	632.75	2196.82	633.57	2196.81	638.53	2196.83	644.93	2196.9
656.64	2197.4	666.03	2199.14	674.18	2200.15	686.08	2200.06	710.86	2199.54
734.54	2198.9								

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.03	216.82	.05	395.69	.028	450	.05

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
364.98	469.77	63	63	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

			Left OB	Channel	Right OB
E.G. Elev (ft)	2190.17	Element			
Vel Head (ft)	1.01	Wt. n-Val.		0.028	
W.S. Elev (ft)	2189.17	Reach Len. (ft)	63.00	63.00	63.00
Crit W.S. (ft)	2189.17	Flow Area (sq ft)		99.42	
E.G. Slope (ft/ft)	0.009395	Area (sq ft)		99.42	
Q Total (cfs)	800.00	Flow (cfs)		800.00	
Top Width (ft)	50.16	Top Width (ft)		50.16	
Vel Total (ft/s)	8.05	Avg. Vel. (ft/s)		8.05	
Max Chl Dpth (ft)	3.16	Hydr. Depth (ft)		1.98	
Conv. Total (cfs)	8253.6	Conv. (cfs)		8253.6	
Length Wtd. (ft)	63.00	Wetted Per. (ft)		50.82	
Min Ch El (ft)	2186.00	Shear (lb/sq ft)		1.15	
Alpha	1.00	Stream Power (lb/ft s)		9.23	
Frctn Loss (ft)	0.55	Cum Volume (acre-ft)	0.00	0.13	0.01
C & E Loss (ft)	0.01	Cum SA (acres)	0.00	0.06	0.00

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #PF 2

			Left OB	Channel	Right OB
E.G. Elev (ft)	2191.63	Element			
Vel Head (ft)	1.68	Wt. n-Val.		0.028	
W.S. Elev (ft)	2189.95	Reach Len. (ft)	63.00	63.00	63.00
Crit W.S. (ft)	2189.95	Flow Area (sq ft)		76.96	
E.G. Slope (ft/ft)	0.010582	Area (sq ft)		76.96	
Q Total (cfs)	800.00	Flow (cfs)		800.00	
Top Width (ft)	23.20	Top Width (ft)		23.20	
Vel Total (ft/s)	10.40	Avg. Vel. (ft/s)		10.40	
Max Chl Dpth (ft)	3.95	Hydr. Depth (ft)		3.32	
Conv. Total (cfs)	7776.8	Conv. (cfs)		7776.8	
Length Wtd. (ft)	63.00	Wetted Per. (ft)		29.29	
Min Ch El (ft)	2186.00	Shear (lb/sq ft)		1.74	
Alpha	1.00	Stream Power (lb/ft s)		18.05	
Frctn Loss (ft)	0.70	Cum Volume (acre-ft)		0.11	
C & E Loss (ft)	0.03	Cum SA (acres)		0.03	

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Tropicana Wash
REACH: Tropicana Wash RS: 63.111

INPUT
Description: Natural Wash Section Just Upstream of the Arch Culvert (WSPG STA: 1735)
Station Elevation Data num= 19

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2192.7	1.6	2191.7	3.2	2190.7	4.8	2189.7	6.4	2188.7
8	2187.7	9.6	2186.7	11.2	2185.7	12.9	2184.7	17.3	2184.7
44.8	2184.93	47.8	2185.7	50	2186.7	52.6	2187.7	55.2	2188.7
57.8	2189.7	60.4	2190.7	63	2191.7	65.6	2192.7		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.028	12.9	.028	44.8	.028

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
12.9	44.8	0	0	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

			Left OB	Channel	Right OB
E.G. Elev (ft)	2188.49	Element			
Vel Head (ft)	1.15	Wt. n-Val.	0.028	0.028	0.028
W.S. Elev (ft)	2187.34	Reach Len. (ft)			
Crit W.S. (ft)	2187.34	Flow Area (sq ft)	5.77	80.89	9.08
E.G. Slope (ft/ft)	0.008124	Area (sq ft)	5.77	80.89	9.08
Q Total (cfs)	800.00	Flow (cfs)	30.12	719.56	50.32
Top Width (ft)	43.07	Top Width (ft)	4.32	31.90	6.85

Vel Total (ft/s)	8.36	Avg. Vel. (ft/s)	5.22	8.89	5.54
Max Chl Dpth (ft)	2.64	Hydr. Depth (ft)	1.34	2.54	1.33
Conv. Total (cfs)	8875.5	Conv. (cfs)	334.2	7983.0	558.3
Length Wtd. (ft)		Wetted Per. (ft)	5.06	31.90	7.28
Min Ch El (ft)	2184.70	Shear (lb/sq ft)	0.58	1.29	0.63
Alpha	1.06	Stream Power (lb/ft s)	3.02	11.44	3.50
Frctn Loss (ft)		Cum Volume (acre-ft)			
C & E Loss (ft)		Cum SA (acres)			

Warning: User specified water surface is not possible for the specified flow regime. The program used critical depth as the starting water surface.

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	2190.71	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.98	Wt. n-Val.		0.028	
W.S. Elev (ft)	2188.73	Reach Len. (ft)			
Crit W.S. (ft)	2188.73	Flow Area (sq ft)		70.80	
E.G. Slope (ft/ft)	0.011840	Area (sq ft)		70.80	
Q Total (cfs)	800.00	Flow (cfs)		800.00	
Top Width (ft)	18.00	Top Width (ft)		18.00	
Vel Total (ft/s)	11.30	Avg. Vel. (ft/s)		11.30	
Max Chl Dpth (ft)	4.01	Hydr. Depth (ft)		3.93	
Conv. Total (cfs)	7352.1	Conv. (cfs)		7352.1	
Length Wtd. (ft)		Wetted Per. (ft)		25.87	
Min Ch El (ft)	2184.72	Shear (lb/sq ft)		2.02	
Alpha	1.00	Stream Power (lb/ft s)		22.86	
Frctn Loss (ft)		Cum Volume (acre-ft)			
C & E Loss (ft)		Cum SA (acres)			

Warning: User specified water surface is not possible for the specified flow regime. The program used critical depth as the starting water surface.

SUMMARY OF MANNING'S N VALUES

River:Tropicana Wash

Reach	River Sta.	n1	n2	n3	n4	n5
Tropicana Wash	63.711	.035	.02	.035		
Tropicana Wash	63.703	Culvert				
Tropicana Wash	63.691	.035	.02	.028	.02	.035

Tropicana Wash	63.631	.035	.028	.035	
Tropicana Wash	63.569	.04	.034	.04	
Tropicana Wash	63.552	.04	.032	.04	
Tropicana Wash	63.505	.04	.028	.04	
Tropicana Wash	63.488	.04	.028	.04	
Tropicana Wash	63.456	.04	.025	.04	
Tropicana Wash	63.410	.04	.04	.04	
Tropicana Wash	63.397	Culvert			
Tropicana Wash	63.389	.06	.05	.06	
Tropicana Wash	63.379	.06	.05	.06	
Tropicana Wash	63.339	.06	.05	.06	
Tropicana Wash	63.286	.05	.045	.04	
Tropicana Wash	63.245	.05	.045	.04	
Tropicana Wash	63.186	.03	.05	.028	.05
Tropicana Wash	63.111	.028	.028	.028	

SUMMARY OF REACH LENGTHS

River: Tropicana Wash

Reach	River Sta.	Left	Channel	Right
Tropicana Wash	63.711	106.55	106.14	105.07
Tropicana Wash	63.703	Culvert		
Tropicana Wash	63.691	320.78	320.81	320.88
Tropicana Wash	63.631	318.34	326.31	347.37
Tropicana Wash	63.569	94.38	87.55	78.15
Tropicana Wash	63.552	208.29	247.98	217.5
Tropicana Wash	63.505	124.56	89.12	150.96
Tropicana Wash	63.488	170.98	168.37	160.12
Tropicana Wash	63.456	351.75	244.62	156.19
Tropicana Wash	63.410	112.33	111.64	151.37
Tropicana Wash	63.397	Culvert		
Tropicana Wash	63.389	69.13	54.14	142.71
Tropicana Wash	63.379	167.5	208.3	249.51
Tropicana Wash	63.339	285.98	283.46	275.22
Tropicana Wash	63.286	228.57	215.51	180.73
Tropicana Wash	63.245	296.17	309.07	321.59
Tropicana Wash	63.186	63	63	63
Tropicana Wash	63.111	0	0	0

SUMMARY OF CONTRACTION AND EXPANSION COEFFICIENTS
River: Tropicana Wash

Reach	River Sta.	Contr.	Expan.
Tropicana Wash	63.711	.3	.5
Tropicana Wash	63.703	Culvert	
Tropicana Wash	63.691	.3	.5
Tropicana Wash	63.631	.1	.3
Tropicana Wash	63.569	.1	.3
Tropicana Wash	63.552	.1	.3
Tropicana Wash	63.505	.1	.3
Tropicana Wash	63.488	.1	.3
Tropicana Wash	63.456	.1	.3
Tropicana Wash	63.410	.3	.5
Tropicana Wash	63.397	Culvert	
Tropicana Wash	63.389	.3	.5
Tropicana Wash	63.379	.1	.3
Tropicana Wash	63.339	.1	.3
Tropicana Wash	63.286	.1	.3
Tropicana Wash	63.245	.1	.3
Tropicana Wash	63.186	.1	.3
Tropicana Wash	63.111	.1	.3

Profile Output Table - Standard Table 1

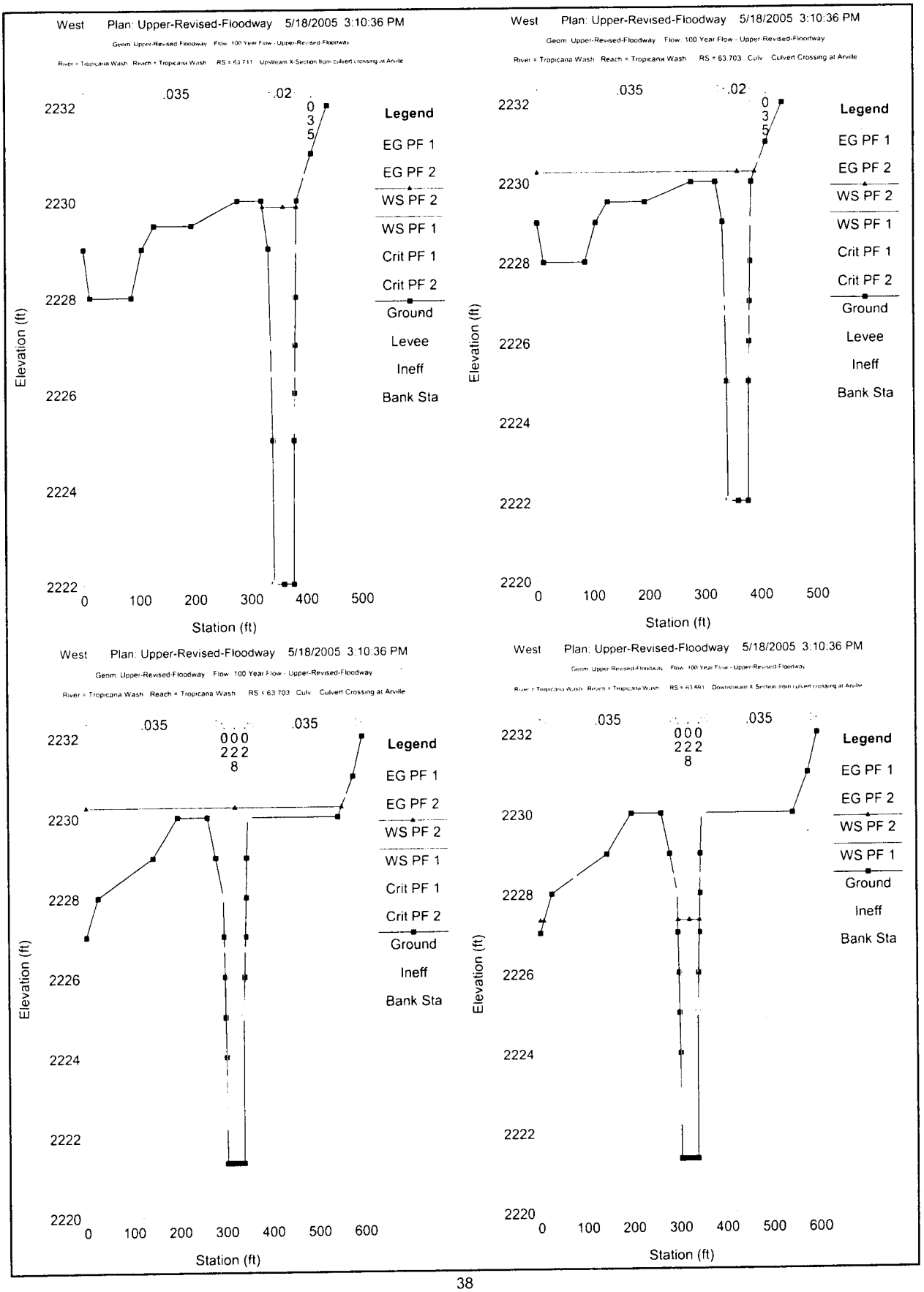
Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
Tropicana Wash	63.711	PF 1	1818.00	2222.00	2229.87	2226.38	2230.52	0.000530	6.47	281.10	62.19	0.41
Tropicana Wash	63.711	PF 2	1818.00	2222.00	2229.87	2226.38	2230.52	0.000530	6.47	281.10	62.19	0.41
Tropicana Wash	63.703		Culvert									
Tropicana Wash	63.691	PF 1	1818.00	2221.35	2227.32		2228.43	0.002685	8.46	214.82	55.00	0.61
Tropicana Wash	63.691	PF 2	1818.00	2221.35	2227.32		2228.43	0.002685	8.46	214.82	55.00	0.61
Tropicana Wash	63.631	PF 1	1818.00	2217.65	2224.75	2224.75	2226.69	0.010010	11.18	163.09	177.36	0.99
Tropicana Wash	63.631	PF 2	1818.00	2217.65	2224.75	2224.75	2226.69	0.010010	11.18	163.09	177.36	0.99
Tropicana Wash	63.569	PF 1	1818.00	2214.00	2218.15	2218.15	2219.22	0.013219	8.32	218.48	101.85	1.00
Tropicana Wash	63.569	PF 2	1818.00	2214.08	2219.15	2219.15	2221.00	0.013722	10.90	166.75	45.90	1.01
Tropicana Wash	63.552	PF 1	1818.00	2214.00	2217.84		2218.11	0.002205	4.20	434.86	168.57	0.45

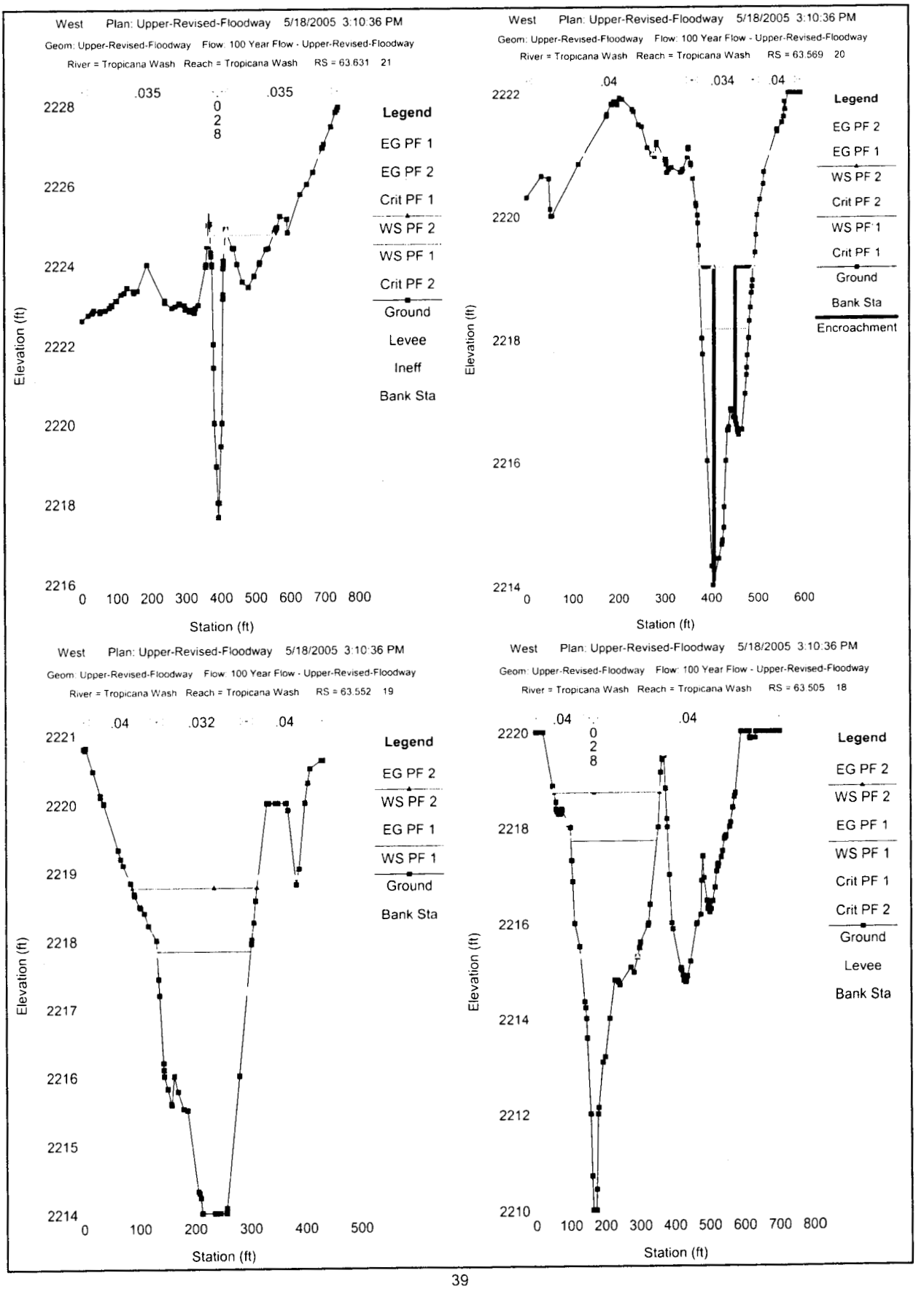
Tropicana Wash	63.552	PF 2	1818.00	2214.00	2218.76		2218.91	0.000805	3.09	613.18	224.41	0.29
Tropicana Wash	63.505	PF 1	1818.00	2210.00	2217.72	2215.31	2217.80	0.000585	2.34	776.97	247.09	0.23
Tropicana Wash	63.505	PF 2	1818.00	2210.00	2218.72	2215.31	2218.77	0.000267	1.75	1051.53	304.32	0.16
Tropicana Wash	63.488	PF 1	1818.00	2209.75	2216.83	2216.83	2217.59	0.011605	7.55	290.90	192.29	0.84
Tropicana Wash	63.488	PF 2	1818.00	2209.75	2217.03	2217.03	2218.55	0.015255	9.89	184.55	65.34	0.99
Tropicana Wash	63.456	PF 1	1818.00	2208.00	2214.58	2213.75	2214.69	0.001685	3.81	793.10	486.75	0.33
Tropicana Wash	63.456	PF 2	1818.00	2208.00	2214.58	2213.75	2214.69	0.001685	3.81	793.10	486.75	0.33
Tropicana Wash	63.410	PF 1	1818.00	2200.00	2214.62	2206.52	2214.63	0.000034	0.83	2788.58	711.49	0.05
Tropicana Wash	63.410	PF 2	1818.00	2200.00	2214.62	2206.52	2214.63	0.000034	0.83	2788.58	711.49	0.05
Tropicana Wash	63.397		Culvert									
Tropicana Wash	63.389	PF 1	750.00	2200.00	2205.69	2205.69	2208.50	0.023664	13.46	55.72	20.16	1.01
Tropicana Wash	63.389	PF 2	750.00	2200.00	2205.69	2205.69	2208.50	0.023643	13.46	55.73	20.17	1.00
Tropicana Wash	63.379	PF 1	800.00	2202.00	2205.65		2206.03	0.005920	4.97	160.86	241.99	0.49
Tropicana Wash	63.379	PF 2	800.00	2202.00	2206.45		2206.69	0.002827	3.98	200.80	278.74	0.35
Tropicana Wash	63.339	PF 1	800.00	2200.69	2203.92	2203.46	2204.29	0.012647	4.91	162.95	107.27	0.65
Tropicana Wash	63.339	PF 2	800.00	2200.94	2204.64		2205.42	0.018648	7.10	112.67	43.10	0.77
Tropicana Wash	63.286	PF 1	800.00	2198.30	2201.47		2201.66	0.006832	3.51	228.21	156.44	0.51
Tropicana Wash	63.286	PF 2	800.00	2198.30	2202.23		2202.63	0.005698	5.06	157.99	50.00	0.50
Tropicana Wash	63.245	PF 1	800.00	2196.63	2198.40	2198.40	2198.90	0.031036	5.69	140.52	144.86	1.02
Tropicana Wash	63.245	PF 2	800.00	2196.63	2199.19	2199.19	2200.27	0.026264	8.36	95.66	44.80	1.01
Tropicana Wash	63.186	PF 1	800.00	2186.00	2189.17	2189.17	2190.17	0.009395	8.05	99.42	50.16	1.01
Tropicana Wash	63.186	PF 2	800.00	2186.00	2189.95	2189.95	2191.63	0.010582	10.40	76.96	23.20	1.01
Tropicana Wash	63.111	PF 1	800.00	2184.70	2187.34	2187.34	2188.49	0.008124	8.89	95.74	43.07	0.98
Tropicana Wash	63.111	PF 2	800.00	2184.72	2188.73	2188.73	2190.71	0.011840	11.30	70.80	18.00	1.00

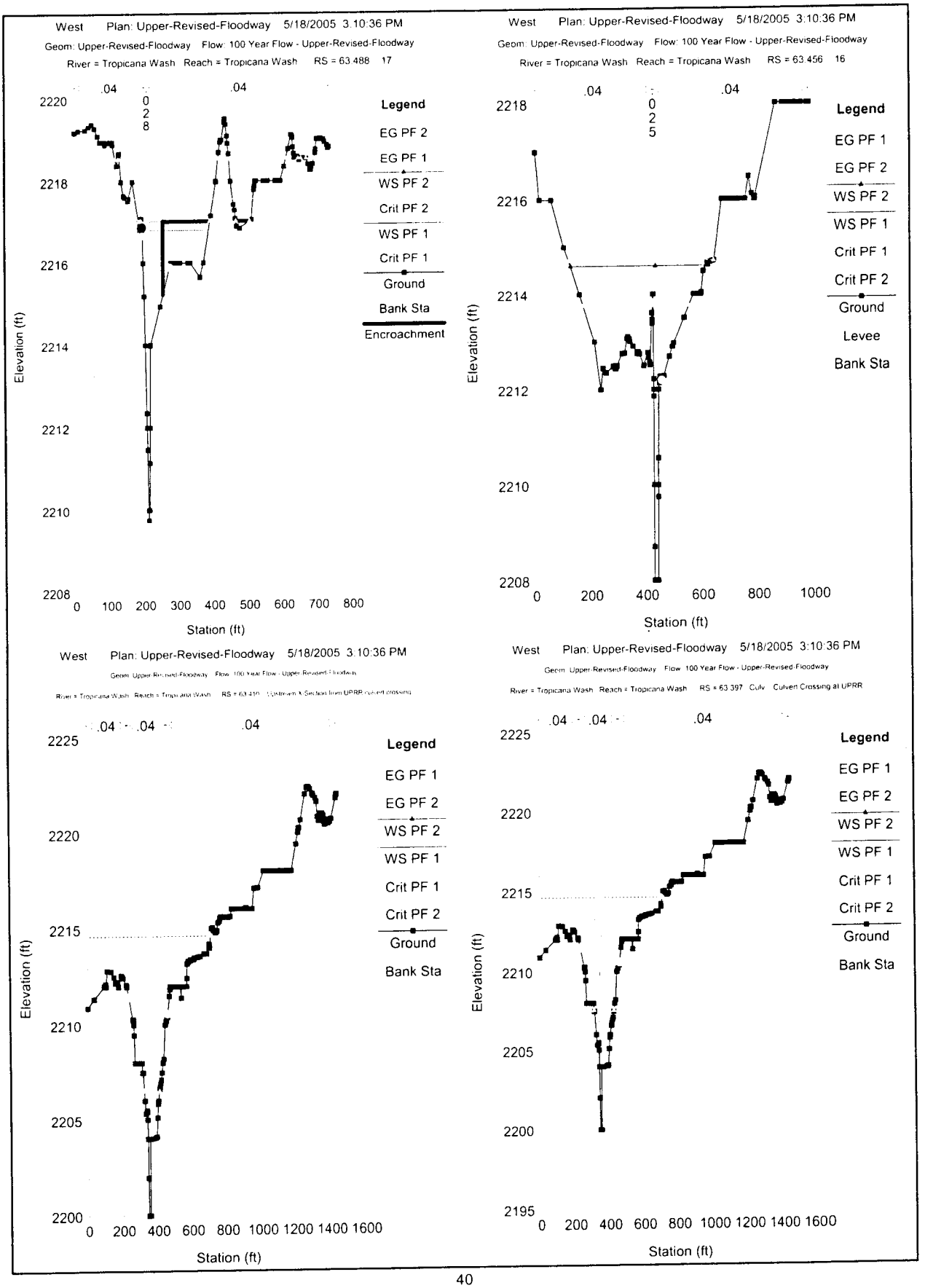
Profile Output Table - HEC-FDA

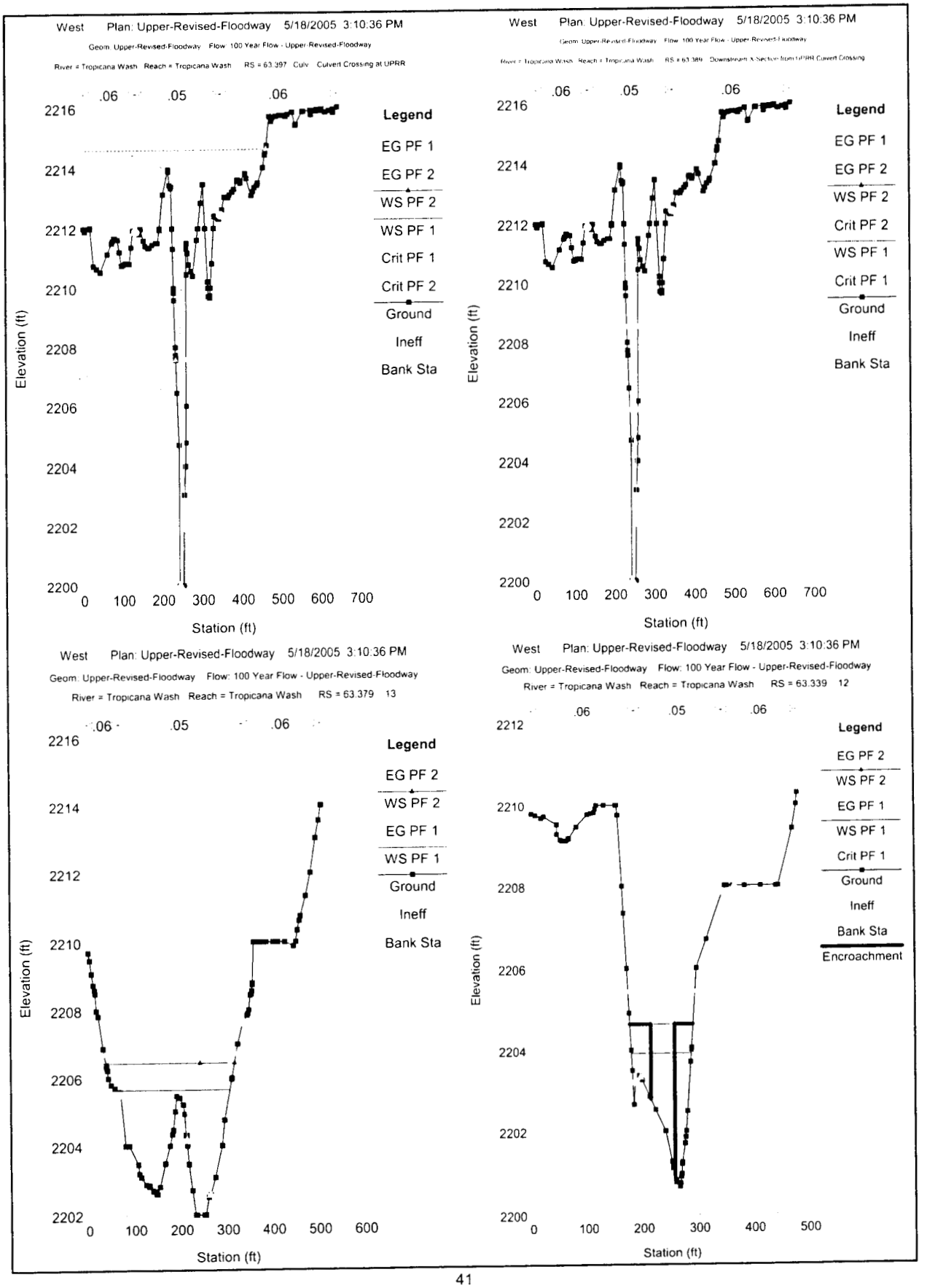
Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)
Tropicana Wash	63.711	PF 1	1818.00	2222.00	2229.87
Tropicana Wash	63.711	PF 2	1818.00	2222.00	2229.87
Tropicana Wash	63.703		Culvert		

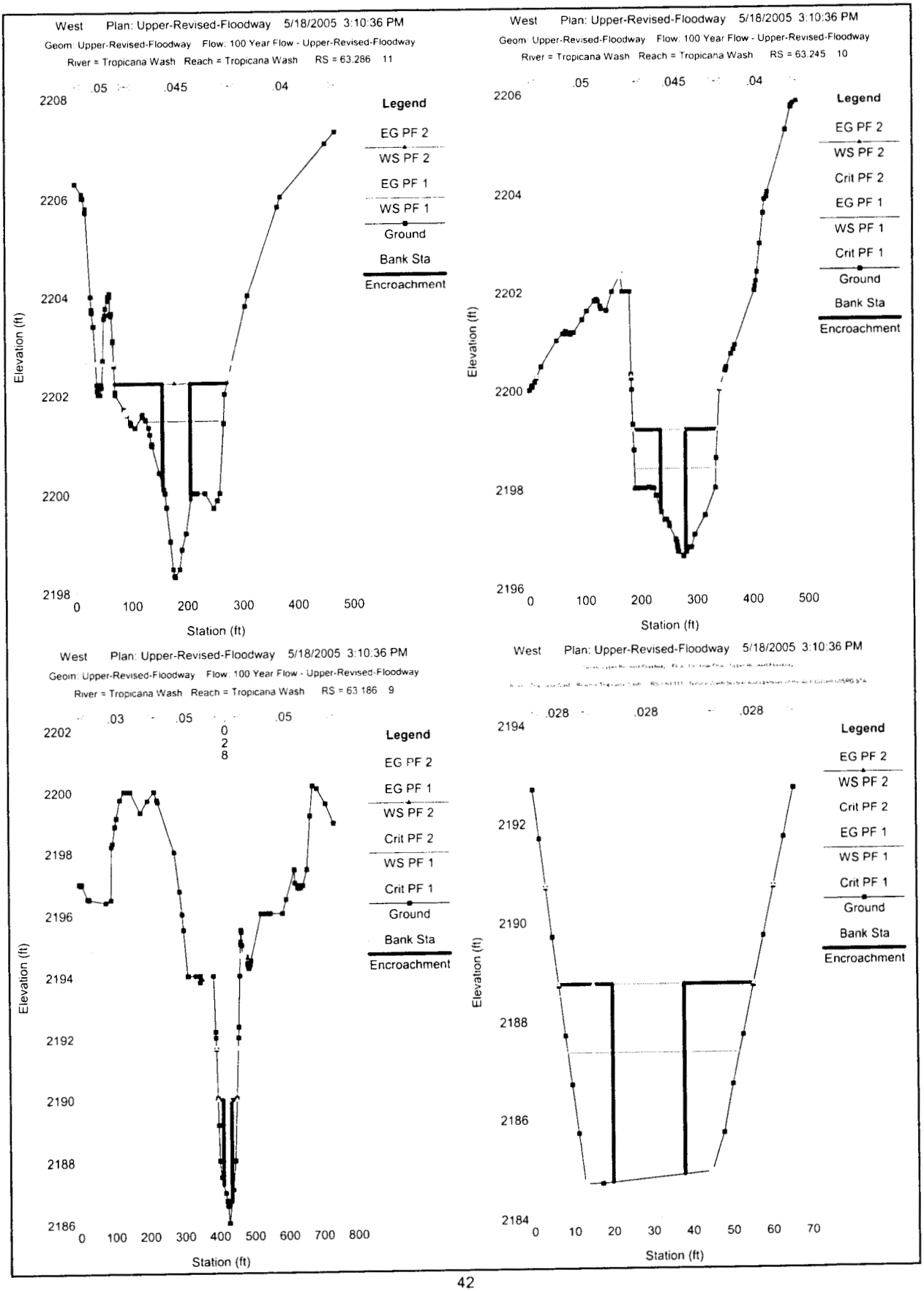
Tropicana Wash	63.691	PF 1	1818.00	2221.35	2227.32
Tropicana Wash	63.691	PF 2	1818.00	2221.35	2227.32
Tropicana Wash	63.631	PF 1	1818.00	2217.65	2224.75
Tropicana Wash	63.631	PF 2	1818.00	2217.65	2224.75
Tropicana Wash	63.569	PF 1	1818.00	2214.00	2218.15
Tropicana Wash	63.569	PF 2	1818.00	2214.08	2219.15
Tropicana Wash	63.552	PF 1	1818.00	2214.00	2217.84
Tropicana Wash	63.552	PF 2	1818.00	2214.00	2218.76
Tropicana Wash	63.505	PF 1	1818.00	2210.00	2217.72
Tropicana Wash	63.505	PF 2	1818.00	2210.00	2218.72
Tropicana Wash	63.488	PF 1	1818.00	2209.75	2216.83
Tropicana Wash	63.488	PF 2	1818.00	2209.75	2217.03
Tropicana Wash	63.456	PF 1	1818.00	2208.00	2214.58
Tropicana Wash	63.456	PF 2	1818.00	2208.00	2214.58
Tropicana Wash	63.410	PF 1	1818.00	2200.00	2214.62
Tropicana Wash	63.410	PF 2	1818.00	2200.00	2214.62
Tropicana Wash	63.397		Culvert		
Tropicana Wash	63.389	PF 1	750.00	2200.00	2205.69
Tropicana Wash	63.389	PF 2	750.00	2200.00	2205.69
Tropicana Wash	63.379	PF 1	800.00	2202.00	2205.65
Tropicana Wash	63.379	PF 2	800.00	2202.00	2206.45
Tropicana Wash	63.339	PF 1	800.00	2200.69	2203.92
Tropicana Wash	63.339	PF 2	800.00	2200.94	2204.64
Tropicana Wash	63.286	PF 1	800.00	2198.30	2201.47
Tropicana Wash	63.286	PF 2	800.00	2198.30	2202.23
Tropicana Wash	63.245	PF 1	800.00	2196.63	2198.40
Tropicana Wash	63.245	PF 2	800.00	2196.63	2199.19
Tropicana Wash	63.186	PF 1	800.00	2186.00	2189.17
Tropicana Wash	63.186	PF 2	800.00	2186.00	2189.95
Tropicana Wash	63.111	PF 1	800.00	2184.70	2187.34
Tropicana Wash	63.111	PF 2	800.00	2184.72	2188.73


West Plan: Upper-Revised-Floodway 5/18/2005 3:10:36 PM
Geom: Upper-Revised-Floodway Flow: 100 Year Flow - Upper-Revised-Floodway
River = Tropicana Wash Reach = Tropicana Wash RS = 63.711 Upstream X-Section from culvert crossing at Arville
.035
.02
035
Legend
EG PF 1
EG PF 2
WS PF 2
WS PF 1
Crit PF 1
Crit PF 2
Ground
Levee
Ineff
Bank Sta
Elevation (ft)
Station (ft)
2232
2230
2228
2226
2224
2222
0
100
200
300
400
500
West Plan: Upper-Revised-Floodway 5/18/2005 3:10:36 PM
Geom: Upper-Revised-Floodway Flow: 100 Year Flow - Upper-Revised-Floodway
River = Tropicana Wash Reach = Tropicana Wash RS = 63.703 Culv Culvert Crossing at Arville
.035
.02
035
Legend
EG PF 1
EG PF 2
WS PF 2
WS PF 1
Crit PF 1
Crit PF 2
Ground
Levee
Ineff
Bank Sta
Elevation (ft)
Station (ft)
2232
2230
2228
2226
2224
2222
2220
0
100
200
300
400
500
West Plan: Upper-Revised-Floodway 5/18/2005 3:10:36 PM
Geom: Upper-Revised-Floodway Flow: 100 Year Flow - Upper-Revised-Floodway
River = Tropicana Wash Reach = Tropicana Wash RS = 63.703 Culv Culvert Crossing at Arville
.035
.035
000
222
8
Legend
EG PF 1
EG PF 2
WS PF 2
WS PF 1
Crit PF 1
Crit PF 2
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
2232
2230
2228
2226
2224
2222
2220
0
100
200
300
400
500
600
West Plan: Upper-Revised-Floodway 5/18/2005 3:10:36 PM
Geom: Upper-Revised-Floodway Flow: 100 Year Flow - Upper-Revised-Floodway
River = Tropicana Wash Reach = Tropicana Wash RS = 63.661 Downstream X-Section from culvert crossing at Arville
.035
.035
000
222
8
Legend
EG PF 1
EG PF 2
WS PF 2
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
2232
2230
2228
2226
2224
2222
2220
0
100
200
300
400
500
600


West Plan: Upper-Revised-Floodway 5/18/2005 3:10:36 PM
Geom: Upper-Revised-Floodway Flow: 100 Year Flow - Upper-Revised-Floodway
River = Tropicana Wash Reach = Tropicana Wash RS = 63.631 21
.035
.035
0
2
8
Legend
EG PF 1
EG PF 2
Crit PF 1
WS PF 2
WS PF 1
Crit PF 2
Ground
Levee
Ineff
Bank Sta
Elevation (ft)
Station (ft)
West Plan: Upper-Revised-Floodway 5/18/2005 3:10:36 PM
Geom: Upper-Revised-Floodway Flow: 100 Year Flow - Upper-Revised-Floodway
River = Tropicana Wash Reach = Tropicana Wash RS = 63.569 20
.04
.034
.04
Legend
EG PF 2
EG PF 1
WS PF 2
Crit PF 2
WS PF 1
Crit PF 1
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)
West Plan: Upper-Revised-Floodway 5/18/2005 3:10:36 PM
Geom: Upper-Revised-Floodway Flow: 100 Year Flow - Upper-Revised-Floodway
River = Tropicana Wash Reach = Tropicana Wash RS = 63.552 19
.04
.032
.04
Legend
EG PF 2
WS PF 2
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
West Plan: Upper-Revised-Floodway 5/18/2005 3:10:36 PM
Geom: Upper-Revised-Floodway Flow: 100 Year Flow - Upper-Revised-Floodway
River = Tropicana Wash Reach = Tropicana Wash RS = 63.505 18
.04
.04
0
2
8
Legend
EG PF 2
WS PF 2
EG PF 1
WS PF 1
Crit PF 1
Crit PF 2
Ground
Levee
Bank Sta
Elevation (ft)
Station (ft)

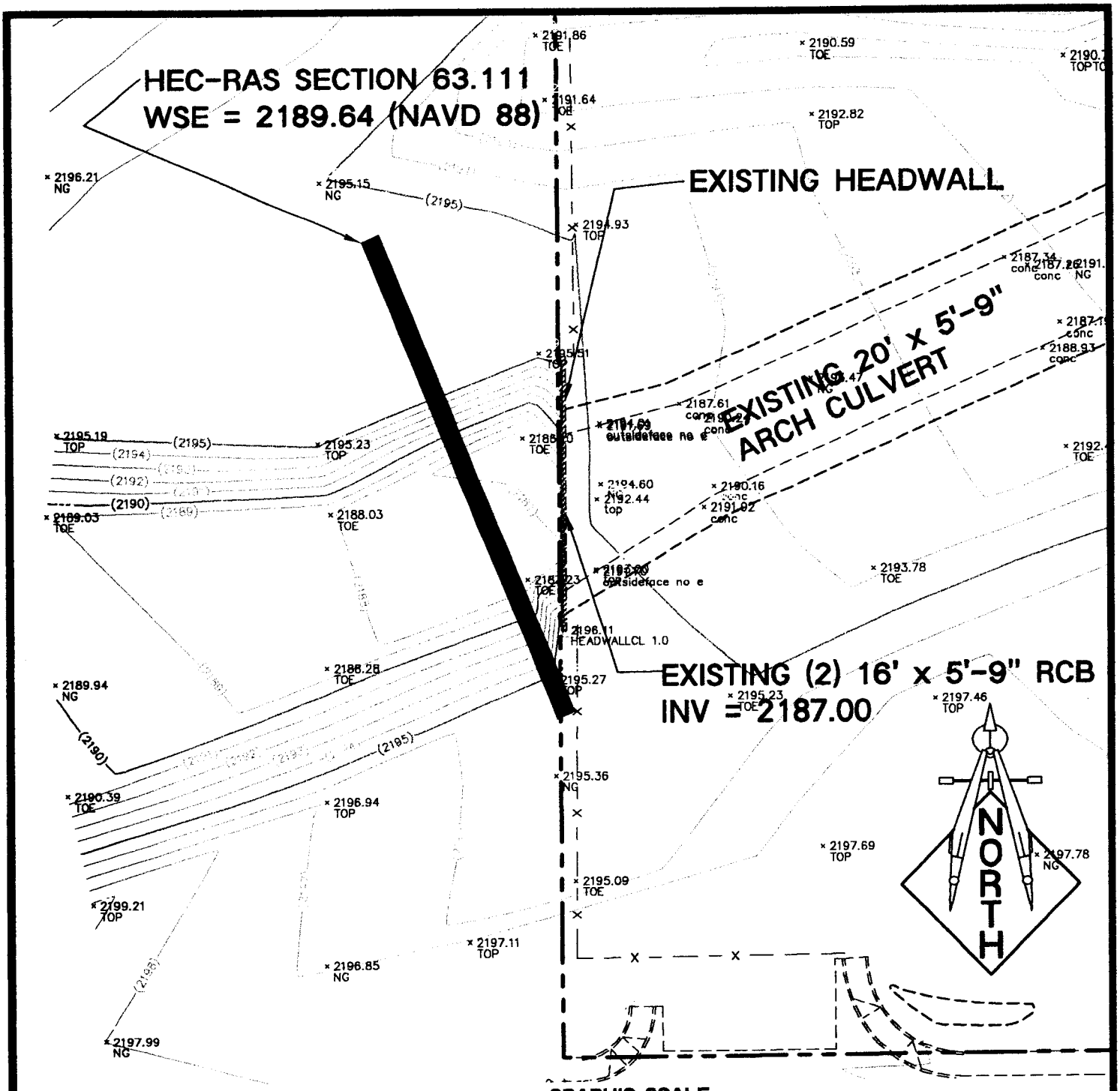

West Plan: Upper-Revised-Floodway 5/18/2005 3:10:36 PM
Geom: Upper-Revised-Floodway Flow: 100 Year Flow - Upper-Revised-Floodway
River = Tropicana Wash Reach = Tropicana Wash RS = 63.488 17
Legend
EG PF 2
EG PF 1
WS PF 2
Crit PF 2
WS PF 1
Crit PF 1
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)
West Plan: Upper-Revised-Floodway 5/18/2005 3:10:36 PM
Geom: Upper-Revised-Floodway Flow: 100 Year Flow - Upper-Revised-Floodway
River = Tropicana Wash Reach = Tropicana Wash RS = 63.456 16
Legend
EG PF 1
EG PF 2
WS PF 2
WS PF 1
Crit PF 1
Crit PF 2
Ground
Levee
Bank Sta
Elevation (ft)
Station (ft)
West Plan: Upper-Revised-Floodway 5/18/2005 3:10:36 PM
Legend
EG PF 1
EG PF 2
WS PF 2
WS PF 1
Crit PF 1
Crit PF 2
Ground
Bank Sta
Elevation (ft)
Station (ft)
West Plan: Upper-Revised-Floodway 5/18/2005 3:10:36 PM
Geom: Upper-Revised-Floodway Flow: 100 Year Flow - Upper-Revised-Floodway
River = Tropicana Wash Reach = Tropicana Wash RS = 63.397 Culv Culvert Crossing at UPRR
Legend
EG PF 1
EG PF 2
WS PF 2
WS PF 1
Crit PF 1
Crit PF 2
Ground
Bank Sta
Elevation (ft)
Station (ft)


West Plan: Upper-Revised-Floodway 5/18/2005 3:10:36 PM
Geom: Upper-Revised-Floodway Flow: 100 Year Flow - Upper-Revised-Floodway
River = Tropicana Wash Reach = Tropicana Wash RS = 63.397 Culv Culvert Crossing at UPRR
.06 .05 .06
Legend
EG PF 1
EG PF 2
WS PF 2
WS PF 1
Crit PF 1
Crit PF 2
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
West Plan: Upper-Revised-Floodway 5/18/2005 3:10:36 PM
Geom: Upper-Revised-Floodway Flow: 100 Year Flow - Upper-Revised-Floodway
River = Tropicana Wash Reach = Tropicana Wash RS = 63.389 Downstream X-Section from UPRR Culvert Crossing
.06 .05 .06
Legend
EG PF 1
EG PF 2
WS PF 2
Crit PF 2
WS PF 1
Crit PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
West Plan: Upper-Revised-Floodway 5/18/2005 3:10:36 PM
Geom: Upper-Revised-Floodway Flow: 100 Year Flow - Upper-Revised-Floodway
River = Tropicana Wash Reach = Tropicana Wash RS = 63.379 13
.06 .05 .06
Legend
EG PF 2
WS PF 2
EG PF 1
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
West Plan: Upper-Revised-Floodway 5/18/2005 3:10:36 PM
Geom: Upper-Revised-Floodway Flow: 100 Year Flow - Upper-Revised-Floodway
River = Tropicana Wash Reach = Tropicana Wash RS = 63.339 12
.06 .05 .06
Legend
EG PF 2
WS PF 2
EG PF 1
WS PF 1
Crit PF 1
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


West Plan: Upper-Revised-Floodway 5/18/2005 3:10:36 PM
Geom: Upper-Revised-Floodway Flow: 100 Year Flow - Upper-Revised-Floodway
River = Tropicana Wash Reach = Tropicana Wash RS = 63.286 11
.05 .045 .04
Legend
EG PF 2
WS PF 2
EG PF 1
WS PF 1
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)
West Plan: Upper-Revised-Floodway 5/18/2005 3:10:36 PM
Geom: Upper-Revised-Floodway Flow: 100 Year Flow - Upper-Revised-Floodway
River = Tropicana Wash Reach = Tropicana Wash RS = 63.245 10
.05 .045 .04
Legend
EG PF 2
WS PF 2
Crit PF 2
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)
West Plan: Upper-Revised-Floodway 5/18/2005 3:10:36 PM
Geom: Upper-Revised-Floodway Flow: 100 Year Flow - Upper-Revised-Floodway
River = Tropicana Wash Reach = Tropicana Wash RS = 63.186 9
.03 .05 .05
Legend
EG PF 2
EG PF 1
WS PF 2
Crit PF 2
WS PF 1
Crit PF 1
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)
West Plan: Upper-Revised-Floodway 5/18/2005 3:10:36 PM
.028 .028 .028
Legend
EG PF 2
WS PF 2
Crit PF 2
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)

FIGURES

***OFFSITE BASIN DELINEATION FOR SUBBASINS TW2A AND TW2B**
***CROSS-SECTION LOCATION EXHIBIT FOR THE ADDITIONAL HEC-RAS CROSS-SECTION 63.111 (WSPG STA: 1752.00)**



GRAPHIC SCALE

30 0 15 30

(IN FEET)
1 inch = 30 ft.

LEGEND

- SECTION LINE
- PROPERTY LINE
- ADJACENT PROPERTY LINE
- CENTER LINE
- ROW LINE
- EASEMENT LINE
- FOUND MONUMENTATION

BENCHMARK:

CLARK COUNTY VERTICAL CONTROL POINT "6C11 29NWW6 2000", BEING A RIVET AND ROUND ALUMINUM PLATE IN TOP OF CURB, SOUTHEAST CORNER OF VALLEY VIEW BLVD. AND RENO AVE. NEAR THE PC OF VALLEY VIEW BLVD.

ELEVATION: 2193.23 (FEET)
668.497 (METERS)
CLARK COUNTY VERTICAL CONTROL v.2003 BASED ON NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88).

A.P.N.: 162-30-501-043

DRAWN BY:	SOA	SCALE:	1"=30'
CHECKED BY:	HMN	DATE:	05/18/05

HEC-RAS CROSS-SECTION LOCATION EXHIBIT (63.111) (Figure 8)

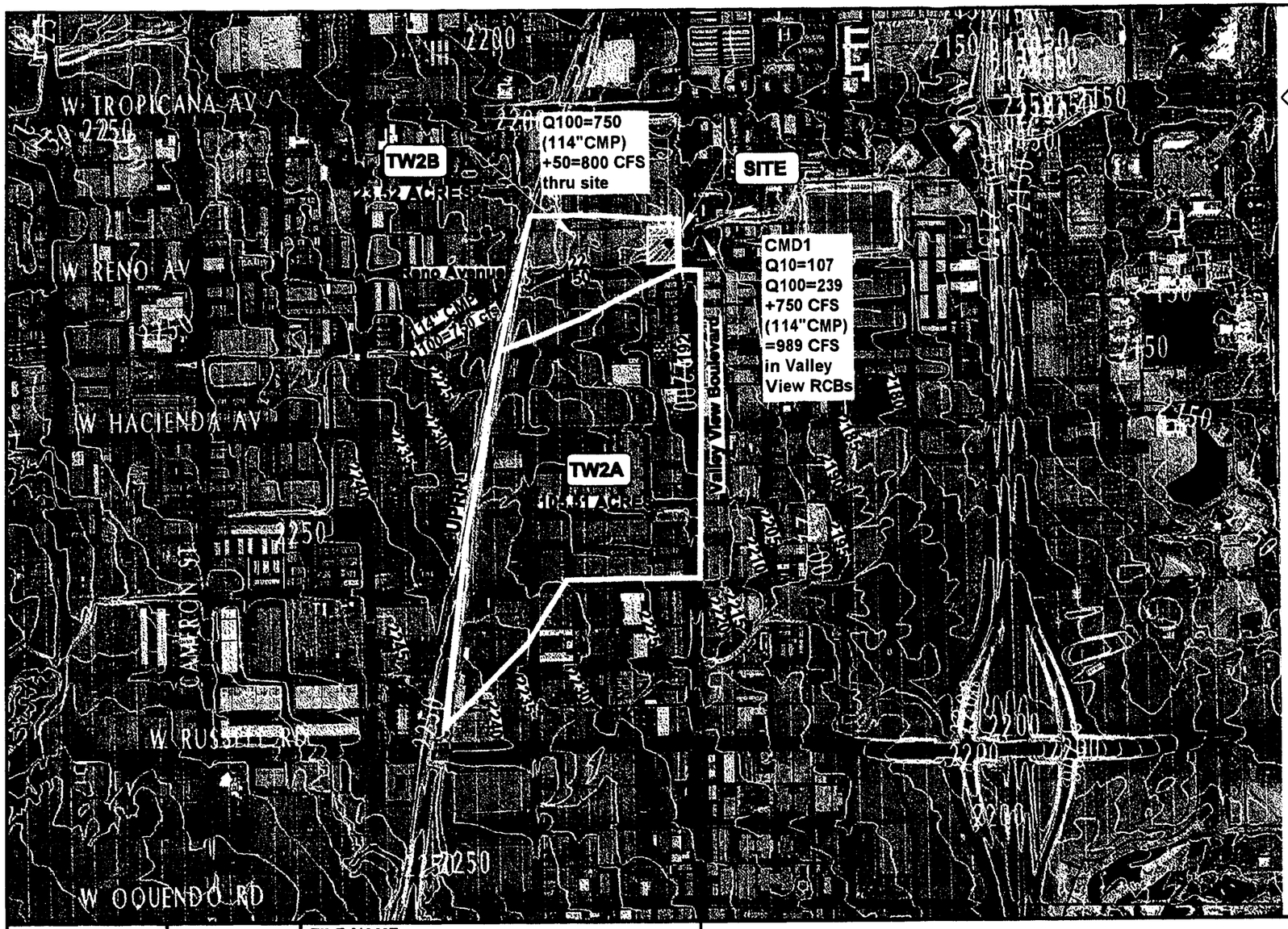
ADAM AND EVE NIGHT CLUB

PROJECT No.: 7162.17

SHEET No. 1

SHEET 1 OF 1

LOCHSA ENGINEERING
6345 SOUTH JONES BLVD., SUITE 100
LAS VEGAS, NV 89118
P: 702 365-9312, F: 702 365-9317



GRAPHIC SCALE

NORTH

1000 0 500 1000 2000

(IN FEET)

1 inch = 1000 ft.

DRAINAGE LEGEND

ND1	DRAINAGE BASIN LABEL
• CMD1	CONCENTRATION POINT / COMBINATION POINT
	BASIN BOUNDARY LINE
SUMP-1	STORAGE POINT
1 (1.0)(1.2) / 1 (1.0)(1.2)	Q10 (V10)(D10) / Q100 (V100)(D100)
2 / 3	Q10 FLOW IN CFS (10 YR.) / Q100 FLOW IN CFS (100 YR.)
	FLOW DIRECTION
1D	HYDRAULIC CROSS-SECTION

HEC-RAS

	HEC-RAS CONTROL LINE
	LIMITS OF FEMA ZONE "A"
100	HEC-RAS CROSS-SECTION AND STATION NUMBER
	100 YR. WATER SURFACE ELEV.

DRAWN BY: SOA	SCALE: 1"=1000'
CHECKED BY: HMN	DATE: 05-20-05

LOCHSA ENGINEERING
5828 SPRING MTN. RD. SUITE 308
LAS VEGAS, NV 89146
P: 702 365-9312, F: 702 365-9317

FILE NAME:

LEGEND

FOUND MONUMENTATION
CENTER LINE
ROW LINE
EASEMENT LINE
SECTION LINE
PROPERTY LINE
ADJACENT PROPERTY LINE

OFFSITE BASIN MAP (FIGURE 7)

ADAM AND EVE NIGHTCLUB

PROJECT No.: 7162

SHEET No. 1

SHEET 1 OF 1

REFERENCE PLAN, PROFILES AND STRUCTURAL DRAWINGS FOR THE EXISTING 20'X4.5' RCB IN TROPICANA WASH CENTRAL BRANCH DOWNSTREAM OF VALLEY VIEW BOULEVARD

KDATA AND EVIS PROJECT LOCATION WITHIN BASIN TW2

TROPICANA
JONES
DECATUR
VALLEY VIEW
RAINBOW
BUFFALO
RUSSELL
SUNSET
WARM SPRINGS
UPRR
I-215 (LAS VEGAS BELTWAY)

TWNB1 TWNB2 TWNB3 TWNB4 TWNB5
TWSB1 TWSB2
TW1 TW2 TW3 TW4 TW5 TW6
TDBOUT
MNWJ2
FDC1 FDC2 FDC3 FDC4 FDC5 FDC6 FDC7 FDC8 FDC9 FDC10 FDC11 FDC12 FDC13 FDC14 FDC15 FDC16 FDC17 FDC18 FDC19 FDC20
100 101 102 103 104 105 106 109 112 113 200 201 202 203 204 205 206 207 208 210 211 212 213 214 215 216 217

TOPOGRAPHIC MAPPING BASED ON 1996 AERIAL PHOTOGRAHY AND IS 5-FT CONTOUR INTERVAL. BACKGF

SPRING AND FALL 2000.

CLARK COUNTY REGIONAL
FLOOD CONTROL DISTRICT

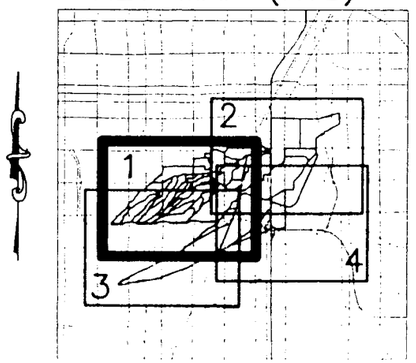
TROPICANA FLOOD INSURANCE STUDY
TROPICANA WASH AND TRIBUTARIES

MAY, 2001

LEGEND

- SUBBASIN BOUNDARY
- TWNB1 — SUBBASIN ID
- CONCENTRATION POINT
- 101 — SUBBASIN OR HYDROGRAPH COMBINE OPERATION
- 106 — DIVERSION OPERATION
- ROUTING FLOWPATH
- *** — SUBBASIN NOT MODELED

KEY MAP (NTS)



GRAPHIC SCALE

1000 0 500 1000 2000 4000

(IN FEET)
1 inch = 2000 ft.

EXHIBIT 1
WATERSHED MAP

SHEET 1 OF 4

JE FULLER
HYDROLOGY & GEOMORPHOLOGY, INC.
6101 S. RURAL ROAD, STE 110
TEMPE, ARIZONA 85283
480-752-2124
2881 N. SILVER SPUR DRIVE
TUCSON, ARIZONA 85745
520-623-3112

BOX CULVERT
TROPICANA WASH/ACE CAB

NORTH HALF (N 1/2) OF THE NORTHWEST QUARTER (NW 1/4), TOWNSHIP 21 SOUTH, RANGE 61 EAST, M.D.M., CLARK COUNTY, NEVADA

APN 162-29-101-021,022,023,028

CC GENERAL NOTES

1. ALL CONSTRUCTION AND MATERIALS SHALL BE IN ACCORDANCE WITH THE UNIFORM STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION. ALL OFF-SITE IMPROVEMENT CONSTRUCTION SHALL CONFORM TO THE UNIFORM STANDARD SPECIFICATIONS AND IMPROVEMENT DRAWINGS, CLARK COUNTY PUBLIC WORKS, LATEST REVISION, AND ANY OTHER APPLICABLE APPROVED STANDARDS ISSUED BY THE CONTROLLING AGENCY, THE UNIFORM BUILDING CODE, AND APPLICABLE CODES AND ORDINANCES.

2. EXACT LOCATION OF ALL SAWCUT LINES SHALL BE DETERMINED IN THE FIELD BY A CLARK COUNTY INSPECTOR.

3. PRIVATE STREETS AND/OR DRIVEWAYS REFLECTED ON THESE PLANS ARE TO BE INSPECTED BY THE CLARK COUNTY INSPECTION DIVISION.

4. CURB AND GUTTER WITH A GRADE OF LESS THAN FOUR TENTHS OF ONE PERCENT SHALL BE CONSTRUCTED BY FORMING EACH JOINT SHALL BE CHECKED FOR GRADE PRIOR TO CONSTRUCTION AND WATER TESTED AS SOON AS POSSIBLE AFTER CONSTRUCTION.

5. WHEELCHAIR RAMPS SHALL BE CONSTRUCTED IN EACH QUADRANT OF AN INTERSECTION PER STANDARD DRAWING NO. 235. EXACT LOCATIONS OF RAMPS SHALL BE DETERMINED IN THE FIELD BY A CLARK COUNTY INSPECTOR.

6. THE CONTRACTOR SHALL NOTIFY ALL UTILITY COMPANIES AT LEAST 48 HOURS PRIOR TO COMMENCING CONSTRUCTION.

7. LOCATION OF UNDERGROUND UTILITIES SHOWN ON THE DRAWINGS WERE OBTAINED BY A SEARCH OF AVAILABLE RECORDS. NEITHER THE OWNER NOR THE ENGINEER ASSUME ANY RESPONSIBILITY FOR UTILITIES OR STRUCTURES NOT SHOWN OR NOT IN THE LOCATION SHOWN ON THE DRAWINGS.

8. THE CONTRACTOR SHALL TAKE PRECAUTIONARY MEASURES NECESSARY TO PROTECT EXISTING IMPROVEMENTS, WHICH ARE TO REMAIN IN PLACE. SHOULD ANY DAMAGE OCCUR, THE CONTRACTOR SHALL BE LIABLE AND SHALL PROVIDE REPAIR AT HIS EXPENSE, AND TO THE APPROVAL OF THE ENGINEER AND THE APPROVAL OF THE DAMAGED PARTY.

9. ALL WORK DONE WITHIN THE PUBLIC RIGHT-OF-WAY AND OUTSIDE OF THE PROJECT BOUNDARIES REQUIRES A SEPARATE ENCROACHMENT PERMIT ISSUED BY THE CLARK COUNTY PUBLIC WORKS "TRENCH AND PAVEMENT REPLACEMENT CONDITIONS SHALL BE AS PER THE PERMIT.

10. FINAL A.C. PAVEMENT SURFACES SHALL BE ONE HALF INCH ABOVE THE LIP OF GUTTER (EXCLUDING OPEN GRADE).

11. ALL OFF-SITE IMPROVEMENT CONSTRUCTION SHALL CONFORM TO THE UNIFORM STANDARD SPECIFICATIONS AND IMPROVEMENT DRAWINGS, CLARK COUNTY PUBLIC WORKS "LATEST" REVISION.

CC GENERAL FIRE NOTES

1. ALL WORK WILL BE DONE IN STRICT ACCORDANCE WITH THE CLARK COUNTY ORDINANCE NO. 1167, NFPA NO. 24, 1987 EDITION, AND THE UNIFORM FIRE CODE, 1988 EDITION.

2. ON ANY BUILDING CONSTRUCTION SITE, ACCESSIBLE FIRE HYDRANTS SHALL BE INSTALLED BEFORE COMBUSTIBLE MATERIALS ARE DELIVERED TO THE SITE AND CONSTRUCTION COMMENCES. SAID FIRE HYDRANTS SHALL BE IN GOOD WORKING ORDER WITH REQUIRED WATER SUPPLY.

3. IF DURING CONSTRUCTION, IT BECOMES NECESSARY TO CLOSE ANY CONTROL VALVE OR PLACE A HYDRANT OUT OF SERVICE, THE CLARK COUNTY FIRE DEPARTMENT MUST BE CONTACTED.

4. PAINTING OF CURBS AND/OR STRIPING OF ASPHALT AREAS AND PROTECTION OF HYDRANTS FROM PHYSICAL INJURY SHALL BE PER CLARK COUNTY FIRE DEPARTMENT "FIRE HYDRANT INSTALLATION/SPECIFICATIONS HANDOUT.

5. NO FIRE HYDRANT SHALL BE LOCATED WITHIN 25 FEET OF ANY STRUCTURE, OR WITHIN 5 FEET OF ANY DRIVEWAY, POWER POLE, LIGHT STANDARD, OR ANY OTHER OBSTRUCTION (OR WALL, FENCE, AND PLANTER LOCATIONS). A PERIMETER AROUND THE HYDRANT MEASURING A MINIMUM OF 3 FEET FROM ITS CENTER SHALL BE MAINTAINED CLEAR OF OBSTRUCTIONS AT ALL TIMES.

6. AT ALL TIMES DURING CONSTRUCTION, SUITABLE EMERGENCY VEHICLE ACCESS ROADS MUST BE MAINTAINED. ROADWAYS MUST BE SMOOTH, COMPACTED, AND CAPABLE OF SUPPORTING THE IMPOSED LOADS OF ALL EMERGENCY VEHICLES.

7. PRIOR TO ACCEPTANCE OF ANY PRIVATE FIRE SERVICE MAIN, A SATISFACTORY HYDROSTATIC TEST WITH PIPING JOINTS UNCOVERED MUST BE CONDUCTED. APPROVED PLANS AND A CONTRACTOR'S MATERIALS AND TEST CERTIFICATE MUST BE PROVIDED AT THE TIME OF THE INSPECTION.

8. BLUE REFLECTIVE MARKERS, INSTALLED PER SECTION 13.04.1306(d) OF CLARK COUNTY ORDINANCE NO. 1167, MUST BE PROVIDED BEFORE FIRE HYDRANT ACCEPTANCE CAN BE ATTAINED.

COUNTY OF CLARK
FIRE DEPARTMENT APPROVAL

BY _____ DATE _____

APPROVAL OF THESE PLANS SHALL NOT BE CONSTRUED TO BE A PERMIT FOR OR AN APPROVAL OF ANY VIOLATION OF ANY THE PROVISIONS OF THE STATE OR COUNTY LAWS
FIRE FLOW _____ GPM AT 20 P.S.I. RESIDUAL

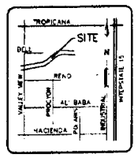
BENCHMARK

CLARK COUNTY BENCHMARK NO. 6CII-E94VV6

RIVET AND SQUARE ALUMINUM PLATE IN TOP OF CURB, SOUTHEAST CORNER OF VALLEY VIEW BOULEVARD AND RENO AVENUE NEAR THE PC OF VALLEY VIEW BOULEVARD

ELEVATION = 668.537 METERS (2192.358 U.S. FEET) NAVD 88.

⚠



VICINITY MAP
N.T.S.

CLARK COUNTY DEPARTMENT OF PUBLIC WORKS ENGINEERING DIVISION

ACCEPTANCE OF PLANS FOR FILING BY See Sheets 2 of 3

ACCEPTANCE OF THESE PLANS SHALL NOT BE CONSTRUED AS A PERMIT OR AN APPROVAL OF ANY VIOLATION OF ANY OF THESE PROVISIONS OF THE STATE OR COUNTY LAWS AND/OR SPECIFICATIONS. CLARK COUNTY SHALL BE HELD FREE FROM DAMAGES WHICH MAY RESULT FROM CONSTRUCTION OF THE IMPROVEMENTS FROM THE ENGINEERING DESIGN DEPICTED HEREIN.

NOTE: POWER POLES AND/OR OTHER EXISTING FACILITIES NOT PROPERLY LOCATED MASSED ON PROPOSED IMPROVEMENTS SHOWN HEREON WILL BE RELOCATED AT NO EXPENSE TO CLARK COUNTY.

TRAFFIC MANAGEMENT DIVISION
CLARK COUNTY PUBLIC WORKS

BY: _____ DATE _____
TRAFFIC MANAGER

APPROVAL OF THESE PLANS SHALL NOT BE CONSTRUED TO BE A PERMIT FOR OR AN APPROVAL OF ANY VIOLATION OF STATE OR COUNTY LAW, SPECIFICATIONS, OR THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES"

APPROVALS

NA	
CLARK COUNTY SANITATION DISTRICT	DATE
"SIGNATURE OF THESE PLANS WILL NOT BE CONSTRUED TO BE A PERMIT FOR, OR AN APPROVAL OF, ANY VIOLATION OF CLARK COUNTY SANITATION DISTRICT RULES, REGULATIONS, OR DESIGN AND CONSTRUCTION STANDARDS. THE APPROVAL OF THESE DRAWINGS DOES NOT GUARANTEE CAPACITY IN THE DISTRICTS COLLECTION OR "TREATMENT SYSTEM"	
CLARK COUNTY TRAFFIC MANAGEMENT DIVISION	DATE
NA	
LAS VEGAS VALLEY WATER DISTRICT	DATE
NA	
NEVADA POWER COMPANY	DATE
THIS APPROVAL IS ONLY FOR PLACEMENT AND CLEARANCE OF STREET LIGHTS	

BASIS OF BEARINGS

THE SOUTH LINE OF THE NORTHEAST ONE-QUARTER (NW 1/4) OF THE NORTHEAST ONE-QUARTER (NE 1/4) OF SECTION 29, TOWNSHIP 21 SOUTH, RANGE 61 EAST, M.D.M., CLARK COUNTY, NEVADA, N.89°48'05" E. BEING THE CENTERLINE OF RENO AVENUE, BEARS NORTH 89°48'05" EAST PER RECORD OF SURVEY FILE 76, PAGE 12, OFFICIAL RECORDS OF CLARK COUNTY, NEVADA.

LEGEND

	EXISTING CONTOURS
	PROPOSED CONTOURS
8" SEWER	PROPOSED SANITARY SEWER LINE
8" SEWER	EXISTING SANITARY SEWER LINE
8" WATER	PROPOSED WATER LINE
8" WATER	EXISTING WATER LINE
	EXISTING EDGE OF ASPHALT
	PROPERTY LINES
	BLOCK WALL
	EXISTING OVERHEAD POWER AND TELEPHONE
S	EXISTING SANITARY SEWER MANHOLE
S	EXISTING SEWER MANHOLE
	EXISTING/PROPOSED STREETLIGHT
	PROPOSED CONCRETE
AC	ASPHALTIC CONCRETE
BOW	BEGINNING OF CURB RETURN
COH	CITY OF HENDERSON
CL	CENTERLINE OF ROAD
CO	SEWER CLEANOUT
CONC	CONCRETE
EAC	EXISTING ASPHALTIC CONCRETE
ECR	END OF CURB RETURN
EP	EDGE OF PAVEMENT
ETC	EXISTING TOP OF CURB
EX	EXISTING
FF	FINISHED FLOOR
FL	FLOWLINE
GB	GRADE BREAK
LVVWD	LAS VEGAS VALLEY DISTRICT
OP	EXISTING OVERHEAD POWER
PE	PAC ELEVATION
PL	PROPERTY LINE
PP	POWER POLE
TC	TOP OF CURB
TYP	TYPICAL

SHEET INDEX

SHEET 1: COVER SHEET
SHEET 2: PLAN & PROFILE
SHEET 3: PLAN & PROFILE
SHEET 4: STRUCTURAL DETAILS
SHEET 5: STRUCTURAL DETAILS

STRUCTURAL ENGINEER

LOCHSA ENGINEERING
7081 E. VALLEY VIEW BOULEVARD
LAS VEGAS, NEVADA 89122

QUANTITIES

RIP RAP (c. 40.00 FEET)	150 CY
WINGWALLS	1 PAIR
DIRT QUANTITIES	
CUT	1500 CY
FILL (15% SHRINKAGE)	3870 CY
CAST-IN-PLACE BOX CULVERT:	
40'-30 FEET WIDE	50 LF
30'-20 FEET WIDE	35 LF
20 FEET WIDE	815 LF

CC GENERAL TRAFFIC NOTES

① ALL PERMANENT TRAFFIC CONTROL DEVICES CALLED FOR HEREON SHALL BE IN PLACE AND IN FINAL POSITION PRIOR TO ALLOWING ANY PUBLIC TRAFFIC ONTO THE PORTIONS OF THE ROADWAY BEING IMPROVED HEREUNDER REGARDLESS OF THE STATE OF COMPLETION OF PAVING OR OTHER OFF-SITE IMPROVEMENTS CALLED FOR BY THESE PLANS.

② BEFORE ANY WORK IS STARTED IN THE RIGHT-OF-WAY, THE CONTRACTOR SHALL INSTALL ALL ADVANCE WARNING SIGNS FOR THE CONSTRUCTION ZONE. THE CONTRACTOR SHALL INSTALL TEMPORARY GROUND MOUNTED STOP SIGNS AT ALL NEW STREET ENCROACHMENTS INTO EXISTING COUNTY STREETS IMMEDIATELY AFTER FIRST GRADING WORK IS ACCOMPLISHED, AND SHALL MAINTAIN SAID SIGNS UNTIL PERMANENT SIGNS ARE INSTALLED.

③ ALL CONSTRUCTION SIGNING, BARRICADING AND PAVEMENT MARKINGS SHALL CONFORM TO THE NEVADA WORK ZONE TRAFFIC CONTROL HANDBOOK, 1988 AND TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITION.

④ IF THE IMPROVEMENTS NECESSITATE THE OBLITERATION, TEMPORARY OBSTRUCTION, TEMPORARY REMOVAL, OR RELOCATION OF ANY EXISTING TRAFFIC PAVEMENT MARKING, SUCH PAVEMENT MARKING SHALL BE RESTORED OR REPLACED WITH LIKE MATERIALS TO THE SATISFACTION OF THE COUNTY TRAFFIC MANAGER.

⑤ THE DEVELOPER SHALL BE RESPONSIBLE TO PROVIDE AND INSTALL ALL PERMANENT SIGNS SHOWN ON THE PLANS. STREET NAME SIGNS SHALL CONFORM IN THEIR ENTIRETY TO CLARK COUNTY STANDARDS. ALL OTHER SIGNS SHALL BE STANDARD 3.2E UNLESS OTHERWISE SPECIFIED ON THE PLANS. ALL SIGN POSTS SHALL BE INSTALLED IN ACCORDANCE WITH CLARK COUNTY STANDARDS. ALL SIGNS SHALL USE TYPE III SHEETING.

⑥ IF A PROPOSED STREET LIGHT STANDARD IS FIELD LOCATED TO WITHIN FIVE (5) FEET OF ANY SIGN SHOWN HEREON TO BE MOUNTED ON A SIGN POST, THEN CHANGE SIGN MOUNTING TO ONE ON THE STREETLIGHT STANDARD.

⑦ PRIOR TO CONSTRUCTION, THE STREET SIGN CONTRACTOR SHALL OBTAIN STREET NAMES AND BLOCK NUMBERING FROM THE CURRENT PLANNING DIVISION OF THE DEPARTMENT OF COMPREHENSIVE PLANNING.

⑧ ALL TRAFFIC SIGNAL POLE ASSEMBLIES, STEEL PEDESTALS FOR CABINETS, AND STREET LIGHT POLES SHALL BE GALVANIZED PER ASTM A-123.

⑨ ALL STREET LIGHTING INSTALLATIONS EXCEPT AS NOTED ON THE STREET LIGHTING PLANS SHALL CONFORM TO THE IMPROVEMENT STANDARDS, DEPARTMENT OF PUBLIC WORKS, CLARK COUNTY, NEVADA, AND THE UNIFORM STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, OFF-SITE IMPROVEMENTS, CLARK COUNTY AREA, NEVADA, LATEST EDITION OF EACH.

⑩ THE FOLLOWING CLARK COUNTY UNDERGROUND FACILITIES MAY BE LOCATED IN YOUR PROJECT AREA: STREET LIGHTING, TRAFFIC SIGNALS, LAS VEGAS AREA COMPUTER TRAFFIC SYSTEM (LVACTS) INTERCONNECT CABLE. YOU MUST CONTACT CLARK COUNTY TRAFFIC MANAGEMENT DIVISION, OPERATIONS UNIT AT 455-7511 FOR LOCATIONS AT LEAST 48 HOURS PRIOR TO WORK IN THE AREA. CLARK COUNTY'S 800 A MEMBER OF "DIG" BEFORE YOU DIG (UNDERGROUND SERVICE ALERT) AND A CALL TO THAT ORGANIZATION DOES NOT RELIEVE YOU OF LIABILITY FOR CLARK COUNTY FACILITIES.

⑪ LVACTS INTERCONNECT CABLE POLICY IS, IN EFFECT, INTERCONNECT CABLE MUST BE MAINTAINED AT ALL TIMES. DEVELOPER/CONTRACTOR SHALL PROVIDE TEMPORARY OVERHEAD INTERCONNECT CABLE WHILE PERMANENT CABLE IS BEING RELOCATED. TEMPORARY AERIAL INSTALLATION MUST BE ACCEPTABLE TO THE COUNTY TRAFFIC MANAGER AND TO LVACTS. ANY DAMAGE TO THIS CABLE IS DEEMED AN EMERGENCY BY LVACTS, CITY OF LAS VEGAS, CLARK COUNTY AIR MOOT AND MUST BE REPAIRED IMMEDIATELY TO LVACTS' ACCEPTANCE. LIQUIDATED FEES AND DAMAGES MAY BE ASSESSED AFTER 24 HOURS HAS EXAPSED FROM THE TIME OF BREAK OR DAMAGE.

⑫ ALL NEW OR REPLACEMENT TRAFFIC SIGNAL LOOPS SHALL BE INSTALLED USING CABLE-IN-DUCT WIRING. SHALL HAVE INDEPENDENT LEAD-IN WIRES FOR EACH LOOP FROM THE CONTROLLER TO THE PULL-BOX, AND EACH LEAD-IN SHALL BE INDIVIDUALLY TAGGED.

⑬ TRAFFIC SIGNAL PEDESTRIAN HEADS SHALL BE THE INCANDESCENT TYPE.

⑭ ELECTRICAL POWER SERVICE POINT LOCATION(S) FOR STREET LIGHTING AND TRAFFIC SIGNALS MUST BE INDICATED ON THE PLANS. IF CONNECTING TO AN EXISTING CIRCUIT, INDICATE LOCATION OF EXISTING SERVICE POINT FOR EACH CIRCUIT.

⑮ WHEN STREET LIGHTS ARE TO BE CONNECTED TO AN EXISTING CIRCUIT, THE ENGINEER MUST CERTIFY THAT THE EXISTING CIRCUIT IS CAPABLE OF HANDLING THE ADDITIONAL CIRCUIT LOAD.

⑯ CLARK COUNTY RESERVES THE RIGHT TO RELOCATE STREET LIGHT AND TRAFFIC SIGNAL POLES AND ASSEMBLIES WHICH HAVE A "STRIPED" APPEARANCE.

⑰ PRIOR TO BEGINNING OF CONSTRUCTION, MODIFICATION, OR RELOCATION OF ANY TRAFFIC SIGNAL SYSTEM, WRITTEN NOTICE SHALL BE SUBMITTED TO THE CLARK COUNTY TRAFFIC MANAGEMENT DIVISION OF THE DATE THAT WORK WILL BEGIN.

⑱ THREE (3) NORMAL WORKING DAYS PRIOR TO TURN-ON OR COMPLETION OF MODIFICATION(S) TO A TRAFFIC SIGNAL SYSTEM, WRITTEN NOTICE SHALL BE SUBMITTED TO THE CLARK COUNTY TRAFFIC MANAGEMENT DIVISION THAT WORK IS BEING COMPLETED AND THE PROPOSED DATE OF COMPLETION.

⑲ "THIS SET OF PLANS IS CERTIFIED TO CONFORM TO THE REQUIREMENTS OF THE TRAFFIC STUDY ACCEPTANCE LETTER."

NA
SIGNATURE OF ENGINEER

DATE

PRINT NAME

CALL before you DIG
1-800-227-2600
(NEVADA ONE CALL)
(NOTIFICATION SERVICE FOR PERSONS DIGGING UNDERGROUND UTILITY LINES IN THIS AREA)

6-11-97

NO.	DATE	INITIAL	REVISIONS
1	6/11/97	K.E.	COUNTY REV.
2	7/7/97	K.E.	CLARK COUNTY REV. (VICINITY MAP)

KJE
CONSULTING ENGINEERS, INC.
1515 E. TROPICANA, SUITE 300
LAS VEGAS, NV 89119
PH. (702) 362-7888 FAX (702) 362-0909

RECEIVED
SEP 11 '97
LOCHSA ENGINEERING

BOX CULVERT
TROPICANA WASH/ACE CAB
COVER SHEET

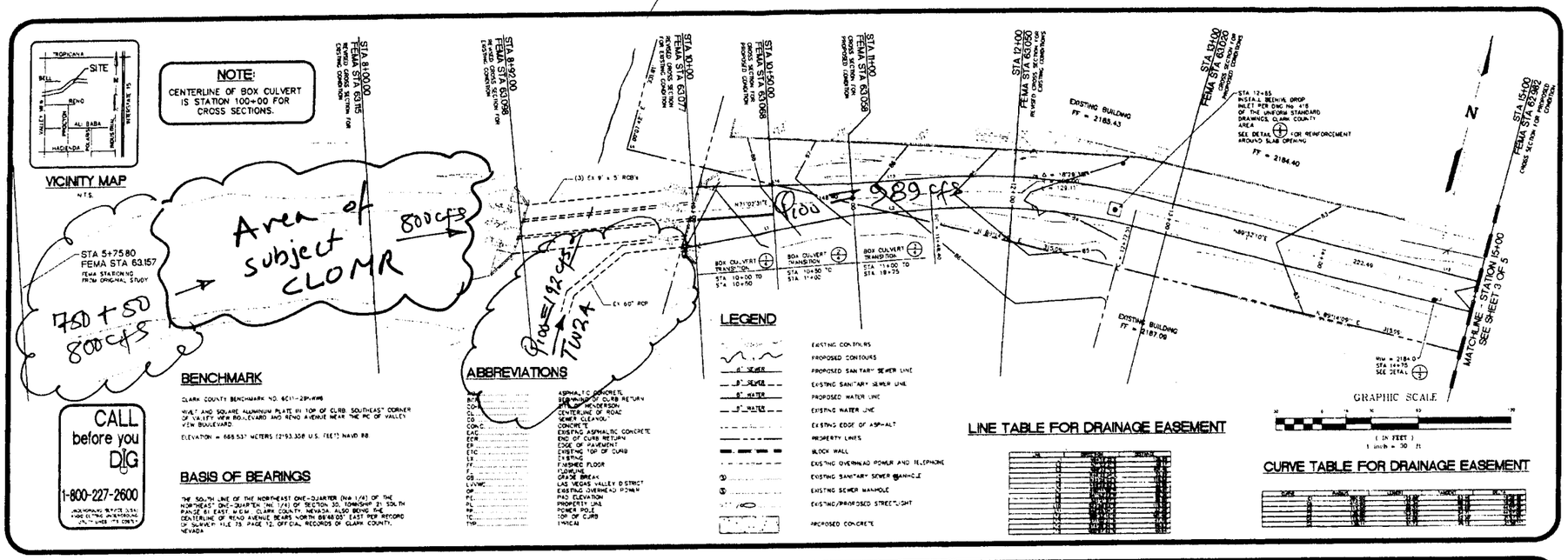
FILE NAME: CVR-1301
DESIGNED BY: NONE
DRAWN BY: GDE
CHECKED BY: KJE
DATE: 5/7/97
SCALE: NONE
JOB NUMBER: 130.1
SHEET 1 OF 5

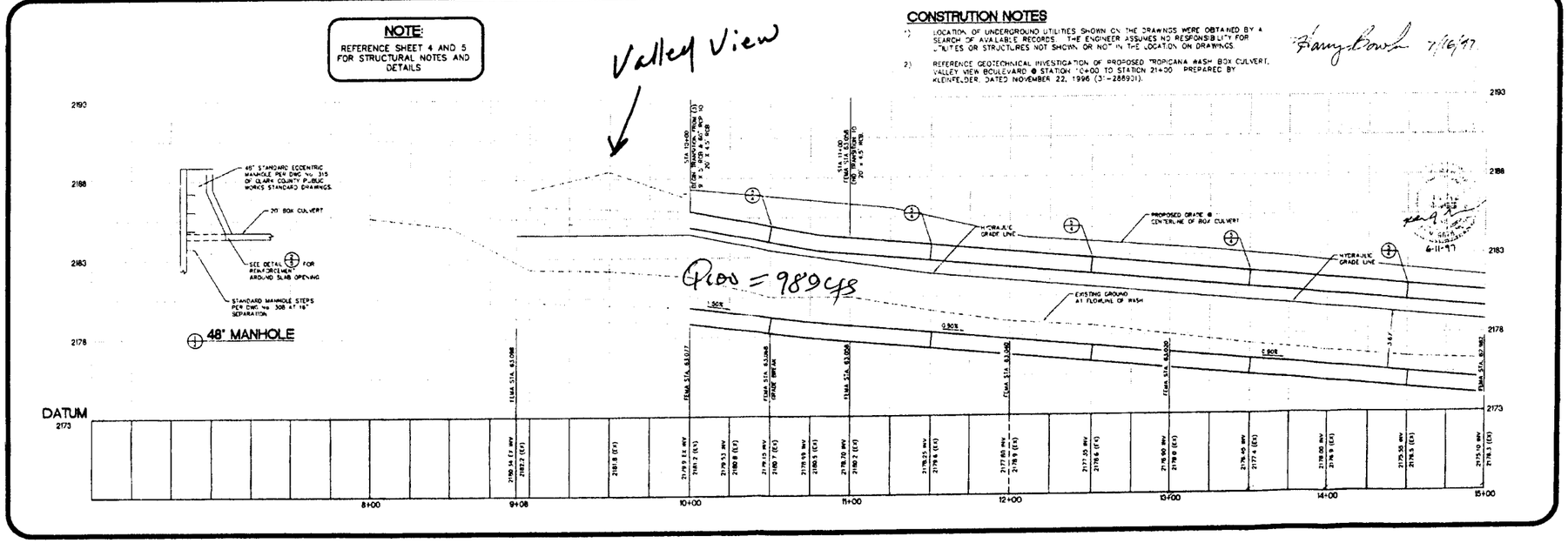
D/S H.T.E. 97-17697

AMD D/S 97-26400

000137

Valley View





CONSULTING ENGINEERS INC.
1515 E. TROPICANA, SUITE 320
LAS VEGAS, NV 89119
PH. (702) 597-0505 FAX (702) 597-0506

NO	DATE	INITIAL	REVISIONS
1			
2			

RECEIVED
SEP 23 1997
LCCDSA ENGINEERING

BOX CULVERT
TROPICANA WASH/ACE CAB
PLAN & PROFILE

FILE NAME: PP1-1030
DESIGNED BY: KJE
DRAWN BY: DCK
CHECKED BY: KJE
DATE: 4/28/97
SCALE: 1"=30'
JOB NUMBER: 130.1
SHEET: 2 OF 5

000138

BENCHMARK

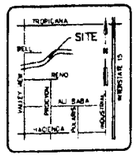
CLARK COUNTY BENCHMARK NO. BC11-26HWB

BRASS CAP IN CONCRETE MONUMENT AT THE INTERSECTION OF VALLEY VIEW BOULEVARD AND RENO AVENUE, 0.2 MILES NORTH OF THE CENTERLINE OF CHARLESTON BOULEVARD, 0.1 MILES EAST OF THE CENTERLINE OF VALLEY VIEW BOULEVARD, 0.1 MILES SOUTH OF THE CENTERLINE OF RENO AVENUE, 0.1 MILES WEST OF THE CENTERLINE OF INDUSTRIAL ROAD.

ELEVATION = 2185.39 FEET (666.139 METERS) NAVD 88.

BASIS OF BEARINGS

THE SOUTH LINE OF THE NORTHEAST ONE-QUARTER (NE 1/4) OF THE NORTHEAST ONE-QUARTER (NE 1/4) OF SECTION 30, TOWNSHIP 21 SOUTH, RANGE 61 EAST, M.D.M., CLARK COUNTY, NEVADA, ALSO BEING THE CENTERLINE OF RENO AVENUE, BEARS NORTH 89°48'03" EAST PER RECORD OF SURVEY FILE 70, PAGE 12, OFFICIAL RECORDS OF CLARK COUNTY, NEVADA.

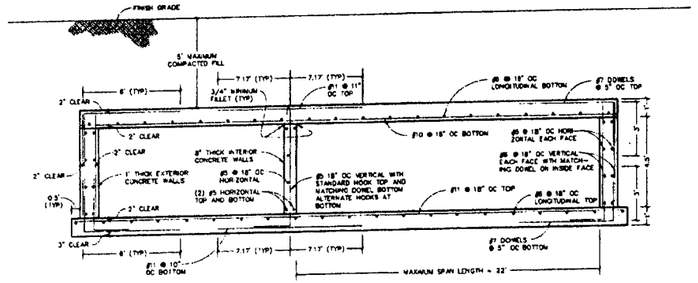


VICINITY MAP
N.T.S.

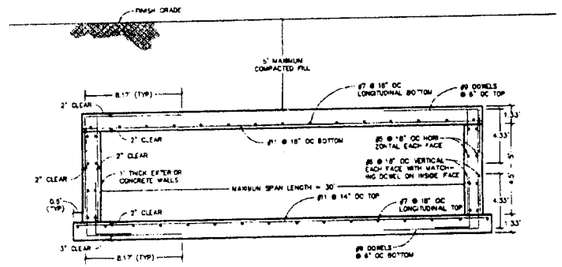
CALL before you DIG
1-800-227-2600

LINE TABLE FOR DRAINAGE EASEMENT

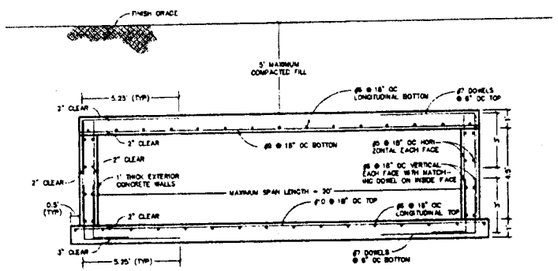
LINE	BEARING	DISTANCE
L1	N 89°48'03" E	314.99'
L2	N 89°48'03" E	315.09'
L3	N 89°48'03" E	315.09'
L4	N 89°48'03" E	315.09'
L5	N 89°48'03" E	315.09'



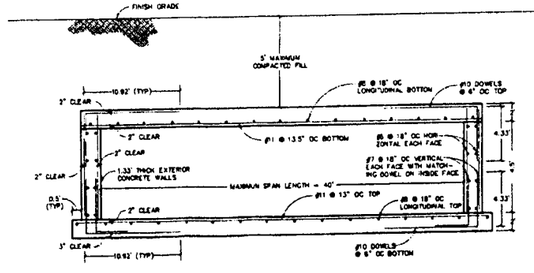
⊕ BOX CULVERT - DOUBLE 20' SECTION



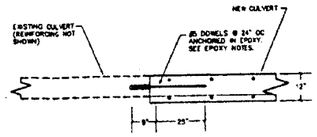
⊕ BOX CULVERT - 30' SECTION



⊕ BOX CULVERT - TYPICAL 20' SECTION

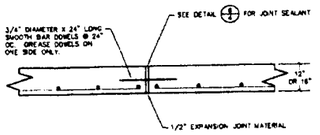


⊕ BOX CULVERT - 40' SECTION



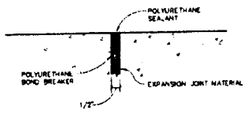
NOTE: PROVIDE DOWELS AS SHOWN IN SLAB ON-GRADE.

⊕ CONNECTION TO EXISTING CULVERT



NOTE: MAXIMUM JOINT SPACING SHALL BE 100'

⊕ EXPANSION JOINT DETAIL



⊕ JOINT SEALANT DETAIL

GENERAL

1. The Contractor shall verify all dimensions prior to starting construction. The Architect shall be notified of any discrepancies or inconsistencies.
2. Do not scale the drawings.
3. Notes and details on the drawings shall take precedence over these general notes and the typical details.
4. All work shall conform to the minimum standards of following codes:

   The 1994 edition of the Uniform Building Code, and other regulating agencies which have authority over any portion of the work, and those codes and standard listed in these notes and in the project specifications.
5. The contract Civil drawings and specifications represent the finished structure. They do not indicate the method of construction.
6. The Contractor shall provide all measures necessary to protect the structure during construction. Such measures shall include, but not be limited to: bracing and shoring for loads due to hydrostatic, earth, wind or seismic forces, construction equipment, etc. Observation visits to the site by the Civil Engineer shall not include inspection of the above items.
7. All specifications and codes noted shall be the latest approved editions and revisions by the governmental agency having jurisdiction over the project.
8. Contractor shall investigate the site during clearing and earth work operations for filled excavations or buried structures such as cesspools, cisterns, foundations, utilities, etc. If any such structures are found, the Civil Engineer shall be notified immediately.
9. Shop drawings submitted to the Civil Engineer for review shall consist of 1 blueline set and 1 bond set.
10. Design Live Loads:

DW	= 550 psf
Live Load	= 250 psf

FOUNDATION

1. The design of the foundation system is based on the geotechnical report prepared by the following company:

   Kleinfelder
   Report no. 31-288801
   Dated: November 22, 1996

   Copies are available for review at the Civil Engineer's office.
2. The foundation system is designed based on an allowable soil pressure of PSF for gravity loads.
3. The contractor shall provides for proper dewatering of excavations from surface water, ground water, seepage, etc.
4. The Contractor shall provide for the installation and design of all centering, sheathing and shoring required for safety and exacavatory retain line earth banks and support any existing structures.
5. All abandoned utilities, footings, etc., that interfere with the new construction shall be removed. Notify the Civil Engineer should any foundations for existing structures be encountered that are not shown on the civil drawings.
6. Box culvert shall be placed and estimated according to depths shown on the drawings. Excavations for the culvert shall be approved by the Geotechnical Engineer prior to placing the concrete and reinforcing. The Contractor shall notify the Geotechnical Engineer when the excavations are ready for inspection. The Geotechnical Engineer shall submit a letter of compliance to the Owner. Should soil encountered at these depths not be approved by the Geotechnical Engineer, the drawings will be altered by change order.
7. All excavations shall be properly backfilled. Backfill shall be mechanically compacted in layers, to the approval of the Geotechnical Engineer. See geotechnical report for requirements. Flooding will not be permitted.
8. The Contractor shall not backfill behind wall s before the concrete walls have reached full design strength. The Contractor shall brace or protect all walls below grade from lateral loads until adjoining framing slabs are connected in place and have reached full design strength. The Contractor shall provide for the design, any required permits and the installation of such bracing and protection.

EPOXY INSTRUCTIONS FOR ANCHORING REBAR AND BOLTS

1. Epoxy may not be used unless specifically detailed on the drawings or without prior approval of the Civil Engineer.
2. Bars must be deformed or threaded for the full embedment depth in epoxy.
3. Over-drill bar diameter by 1/4 in., unless indicated otherwise by the Epoxy Manufacturer, and to the depth indicated on the civil drawings.
4. Remove all dirt, dust, water, and ice by vacuum from the drilled holes.
5. Any dirt, rust, and oil on the bars shall be removed.
6. During the epoxy mixing and application process, follow the Epoxy Manufacturer's specifications exactly.
7. Fill the holes drilled for the bars partially with epoxy and then insert the bars. Work the bars in and out to compact the epoxy, then fill the remainder of the holes.
8. Vertical holes to be filled from the bottom are to use an epoxy gel.
9. The following epoxy systems are acceptable:

   RAWL POL-FAST BY RAWLA
   EPCON SYSTEM BY ITW RAMSET

   The use of any other epoxy system must be submitted for approval to the Civil Engineer.

CONCRETE

1. All aspects of work pertaining to the concrete construction shall be in accordance with ACI 318-89, 'Building Code Requirements for Reinforced Concrete' and the latest edition of 'Specifications for Structural Concrete for Buildings', ACI 301, with modifications as noted on the project drawings and/or specifications.
2. Concrete mix designs shall be submitted to the Civil Engineer for review. As mix designs shall be designed by a qualified testing laboratory and shall be wet stamped by a Civil Engineer licensed in the state of Nevada.
3. Portland cement shall conform to ASTM C150 type V where the concrete is in contact with soil. Type I cement shall be used at all other locations in the structure.
4. Fly ash may be used in concrete mixes. The fly ash shall conform to ASTM C618 class F. The loss of ignition shall be limited to 2%. The addition rate for fly ash shall be limited to 15% of the cement weight. The contractor shall submit all certificates showing the fly ash is in accordance with the above criteria.
5. Hard rock concrete aggregate shall conform to all requirements and tests of ASTM C33 and project specifications. Except one may be used only with approval of the Civil Engineer.
6. Structural concrete 28-day strengths & types are as follows:

LOCATION OF CONCRETE	STRENGTH, PSI	TYPE
BOX CULVERT	4000	HARD ROCK

7. The modulus of elasticity of concrete, when tested in accordance with ASTM C469, shall be at least the value given by the equation in section 8.5.1 of ACI-318 for the specified concrete 28-day strength.
8. Concrete mixing operations, etc., shall be in accordance with ASTM C94.
9. Concrete forms shall be set out and constructed to provide the specified cambers indicated on the civil drawings.
10. Concrete placement shall be in accordance with ACI standard 304 and project specifications. All concrete surfaces against which concrete is to be placed shall be sandblasted.
11. Clear coverage of concrete over reinforcing bars shall be as follows:

	MINIMUM COVER INCHES
A) CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH	3
B) CONCRETE EXPOSED TO EARTH OR WEATHER	
NO. 6 THROUGH NO. 18 BAR	2
NO. 5 BAR AND SMALLER	1 1/2
C) CONCRETE NOT EXPOSED TO WEATHER OR IN CONTACT WITH GROUND, JHO	
SLABS, WALLS, JOISTS:	
NO. 14 AND NO. 18 BAR	1 1/2
NO. 11 BAR AND SMALLER	3/4
BEAMS, COLUMNS PRIMARY REINFORCEMENT, TIES, STIRRUPS, SPIRALS	1 1/2
C) SLAB ON GRADE, 2 INCHES CLEAR FROM TOP	

12. Prior to concrete placement, all reinforcing bars, anchor bolts and other concrete inserts shall be well secured in position.

REINFORCING STEEL (FOR CONCRETE AND MASONRY)

1. All reinforcing steel shall be detailed and placed in accordance with the 'Building Code Requirements for Reinforced Concrete' (ACI 318-89) and the 'Manual of Standard Practice for Reinforced Concrete Construction' by CRSI and WDFSI as modified by the project drawings and specifications.
2. Deformed reinforcing bars shall conform to the requirements of ASTM A615 grade 60.
3. Welding of reinforcing is not permitted unless noted otherwise.
4. All reinforcing bar bends shall be made cold.
5. Lap splices shall be made only where shown on the civil drawings.
6. Reinforcing dowels between footings and walls or columns shall be the same number, size, spacing and grade as the specified vertical reinforcing, u.n.o.
7. All reinforcing bars shall be marked so their identification can be made when the final in-place inspection occurs.
8. In addition to all the reinforcing steel indicated on the drawings, the contractor shall provide for an allowance of ten tons of reinforcing bars to be furnished, fabricated and placed during the progression of work as may be directed by the Civil Engineer.

Special inspection shall be required for the following structural work:

1. Concrete
2. Bolts and embedded plates installed in concrete
3. Reinforcing, and mechanical reinforcing bar splices
   (a) During placement
4. Special cases
   (b) Epoxy and grout set bolts and reinforcing bars

KENNETH KARREN, JR. STRUCTURAL No 8778 PROFESSIONAL ENGINEER

9/23/97

NO.	DATE	DETAIL	REVISIONS
1	7/7/97	1,2,3	WORDING MINOR REVISIONS
2	9/23/97	1,2	ADDED DETAIL 1,2,3

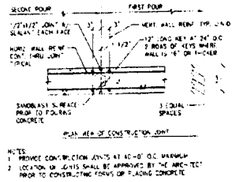
CONSULTING ENGINEERS INC.
1515 E. TROPICANA, SUITE 520
LAS VEGAS, NEVADA 89119
PH. (702) 367-2088 ◉ FAX. (702)367-0309

RECEIVED
SEP 29 1997
LOCHSA ENGINEERING

BOX CULVERT
TROPICANA WASH/ACE CAB
STRUCTURAL DETAILS

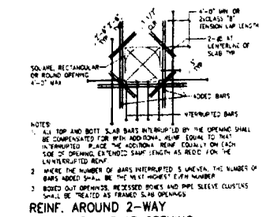
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DESIGNED BY: BK
DRAWN BY: DGE
CHECKED BY: BK
DATE: 5/7/97
SCALE: NONE
JOB NUMBER: 130-1
SHEET 4 OF 5

000139



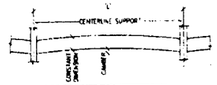
NOTES
1. PROVIDE CONSTRUCTION JOINTS AT 40'-0" O.C. MAXIMUM
2. LOCATION OF JOINTS SHALL BE APPROVED BY THE ARC-TECT PRIOR TO CONSTRUCTING FORMS OR PLACING CONCRETE

VERTICAL WALL JOINTS



NOTES
1. ALL TOP AND BOTT. SLAB BARS INTERRUPTED BY THE OPENING SHALL BE COMPENSATED FOR WITH ADDITIONAL REINF. EQUAL TO THAT INTERRUPTED. PLACE THE ADDITIONAL REINF. EQUALLY ON EACH SIDE OF OPENING EXTENDED SAME LENGTH AS ADDED FOR THE UNINTERRUPTED REINF.
2. WHERE THE NUMBER OF BARS INTERRUPTED IS UNEVEN, THE NUMBER OF BARS ADDED SHALL BE THE NEXT HIGHEST EVEN NUMBER
3. BOXED OUT OPENINGS, RECESSED BOXES AND PIPE SLEEVE CLUSTERS SHALL BE TREATED AS FRAMED SLAB OPENINGS

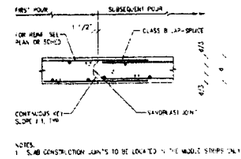
REINF. AROUND 2-WAY STRUCTURAL SLAB OPENING



BEAM AND SLAB CAMBER SCHEDULE	
SPAN	CAMBER
0' TO 5'	0"
5' TO 10'	1/8"
10' TO 15'	1/4"
15' TO 20'	1/2"
20' TO 30'	3/4"
30' TO 35'	1"

NOTE: WHERE ADJACENT SPAN IS 50% OR MORE LARGER THAN SPAN UNDER CONSIDERATION, THE CAMBER SHALL BE PROPORTIONATELY

BEAM AND SLAB CAMBER SCHEDULE



NOTES
1. SLAB CONSTRUCTION JOINTS TO BE LOCATED IN THE MIDDLE STRIPS ONLY

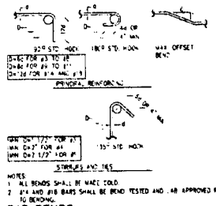
SLAB CONSTRUCTION JOINT

f'c = 4000 PSI, NORMAL WEIGHT CONCRETE

BAR SIZE	CLASS	TOP BARS Category 1					OTHER BARS Category 1				
		1	2	3	4	5	1	2	3	4	5
#3	A	14	16	18	20	24	11	12	14	15	18
	B	18	19	23	26	31	14	15	18	20	24
#4	A	19	21	24	27	32	15	16	19	21	25
	B	24	26	31	35	41	19	20	24	27	32
#5	A	24	27	30	34	40	19	21	23	26	31
	B	31	34	39	44	52	24	26	30	34	40
#6	A	29	32	36	41	48	23	25	28	32	38
	B	37	41	47	53	62	29	32	36	41	48
#7	A	41	45	51	58	68	32	35	40	45	53
	B	53	58	66	75	88	41	45	51	58	68
#8	A	47	52	58	67	78	37	41	46	52	61
	B	60	67	76	86	101	47	52	59	67	78
#9	A	53	59	66	76	89	42	46	52	59	69
	B	68	76	86	97	114	53	59	67	76	89
#10	A	60	67	75	86	101	47	52	59	67	78
	B	77	85	97	110	129	60	67	76	86	101
#11	A	67	75	84	96	113	53	59	66	76	88
	B	86	95	108	123	144	67	75	85	96	113

NOTES
1. TABLE FOR USE WITH NORMAL WEIGHT HARDROCK CONCRETE AND GRADE 60 UNCOATED REINFORCING BARS. FOR LIGHTWEIGHT AGGREGATE USE 1.3 Ld
2. CLASS A - HALF OR LESS OF THE BARS ARE SPLICED WITHIN A REQUIRED LAP LENGTH.
   CLASS B - MORE THAN HALF OF THE BARS ARE SPLICED WITHIN A REQUIRED LAP LENGTH.
3. FOR BARS ARE HORIZONTAL BARS WITH 12" OR MORE OF CONCRETE CAST IN THE MEMBER BELOW THE BAR
4. FOR BARS ENCLOSED IN STANDARD COLUMN SPIRALS USE 0.75 Ld OR 12" MIN
5. LAP SPLICES OF INDIVIDUAL BARS IN BUNDLE SHALL BE 1.2 Ld FOR THAT BAR IN A 2-BAR BUNDLE AND 1.3 Ld FOR A 3-BAR BUNDLE. LAP IN BUNDLES SHALL NOT BE LAP SPLICED AT THE SAME LOCATION. SPLICES FOR INDIVIDUAL BARS WITHIN A BUNDLE SHALL BE STAGGERED SUCH THAT THEY DO NOT OVERLAP
6. Ld = BASIC LAP LENGTH SHOWN AT LEFT
7. CATEGORY SELECTION
   -FOR FOUNDATION REINFORCEMENT USE CATEGORY 3 U.N.O.
   -FOR COLUMN REINFORCEMENT AND DOWELS USE CATEGORY 3 U.N.O.
   -FOR BEAM REINFORCEMENT USE CATEGORY 3 U.N.O.
   -FOR STRUCTURAL SLAB REINFORCEMENT USE CATEGORY 3 U.N.O.
   -FOR SLAB ON GRADE REINFORCEMENT USE CATEGORY 6 U.N.O.
   -FOR WALL REINFORCEMENT AND DOWELS USE CATEGORY 3 EXCEPT AS NOTED BELOW U.N.O.
   -FOR WALLS WITH A SINGLE MAT OF STEEL CENTERED IN THE WALL USE CATEGORY 5 FOR WALL REINFORCEMENT AND DOWELS U.N.O.
   -FOR CHORD STEEL REINFORCEMENT USE CATEGORY 1 U.N.O.

TENSION LAP SPLICE LENGTH (TENSION LAP SPLICE LENGTHS, Ø (IN INCHES) FOR GRADE 60 UNCOATED BARS)



NOTES
1. ALL BENDS SHALL BE MADE COLD.
2. #14 AND #18 BARS SHALL BE BEND TESTED AND AB APPROVED PRIOR TO BENDING.

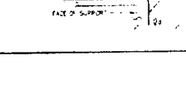
BAR BENDS

TENSION OF DEVELOPMENT LENGTHS, Ød (IN INCHES)
FOR GRADE 60 UNCOATED BARS
f'c = 4000 PSI, NORMAL WEIGHT CONCRETE

BAR SIZE	TOP BARS Category					OTHER BARS Category				
	1	2	3	4	5	1	2	3	4	5
#3	14	16	18	20	24	11	12	14	15	18
#4	19	21	24	27	32	15	16	19	21	25
#5	24	27	30	34	40	19	21	23	26	31
#6	29	32	36	41	48	23	25	28	32	38
#7	41	45	51	58	68	32	35	40	45	53
#8	47	52	58	67	78	37	41	46	52	61
#9	53	59	66	76	89	42	46	52	59	69
#10	60	67	75	86	101	47	52	59	67	78
#11	67	75	84	96	113	53	59	66	76	88

NOTES
1. THIS TABLE FOR USE WITH NORMAL WEIGHT HARDROCK CONCRETE AND GRADE 60 UNCOATED REINFORCING BARS. FOR LIGHTWEIGHT AGGREGATE USE 1.3 Ld
2. FOR BARS ARE HORIZONTAL BARS WITH 12" OR MORE OF CONCRETE CAST IN THE MEMBER BELOW THE BAR
3. FOR BARS ENCLOSED IN STANDARD COLUMN SPIRALS USE 0.75 Ld OR 12" MIN
4. DEVELOPMENT LENGTH OF NO. #11 OR SMALLER BARS WITHIN A BUNDLE SHALL BE 1.2 Ld FOR THAT BAR IN A 2-BAR BUNDLE AND 1.3 Ld FOR A 3-BAR BUNDLE
5. COMPRESSION DEVELOPMENT LENGTH (ONLY WHERE INDICATED ON DRAWINGS) FOR GRADE 60 BARS: USE 0.7 BAR DIAMETERS
6. CATEGORY SELECTION
   -FOR FOUNDATION REINFORCEMENT USE CATEGORY 3 U.N.O.
   -FOR COLUMN REINFORCEMENT AND DOWELS USE CATEGORY 3 U.N.O.
   -FOR BEAM REINFORCEMENT USE CATEGORY 3 U.N.O.
   -FOR STRUCTURAL SLAB REINFORCEMENT USE CATEGORY 3 U.N.O.
   -FOR SLAB ON GRADE REINFORCEMENT USE CATEGORY 6 U.N.O.
   -FOR WALL REINFORCEMENT AND DOWELS USE CATEGORY 3 EXCEPT AS NOTED BELOW U.N.O.
   -FOR WALLS WITH A SINGLE MAT OF STEEL CENTERED IN THE WALL USE CATEGORY 5 FOR WALL REINFORCEMENT AND DOWELS U.N.O.
   -FOR CHORD STEEL REINFORCEMENT USE CATEGORY 1 U.N.O.

EXTEND BAR AS FAR AS POSSIBLE AND BEND WITH 90° STANDARD HOOK WHERE Ød CANNOT BE ACHIEVED



BAR DEVELOPMENT LENGTH



RECEIVED
SEP 23 1997
LACDPW/ENGINEERING

NO	DATE	INITIAL	REVISIONS

KJE CONSULTING ENGINEERS INC
1515 E. TROPICANA, SUITE 270
LAS VEGAS, NEVADA 89119
PH (702) 597-2966 FAX (702)597-0509

BOX CULVERT
TROPICANA WASH/ACE CAB
STRUCTURAL DETAILS

FILE NAME	5TR21301
DESIGNED BY:	BK
DRAWN BY:	DDE
CHECKED BY:	BK
DATE	5/7/97
SCALE	NONE
JOB NUMBER	130-1
SHEET	5 OF 5

000140

EXISTING (3) 10' x 5' RCB
INV = 2180.38

HEC-RAS SECTION 63.111
WSE = 2189.64 (NAVD 88)

EXISTING HEADWALL

EXISTING 20' x 5'-9"
ARCH CULVERT

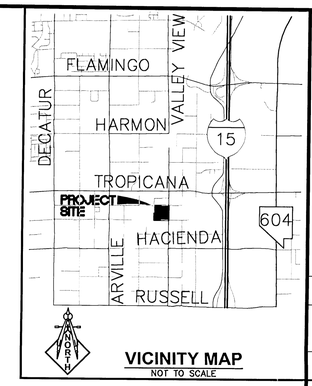
EXISTING 30' DRAINAGE EASEMENT

EXISTING (2) 16' x 5'-9" RCB
INV = 2187.00

VALLEY VIEW BOULEVARD

RENO AVENUE

10+00 11+00 12+00 13+00



VICINITY MAP
NOT TO SCALE

NOTE:

LOCHSA ENGINEERING ASSUMES NO RESPONSIBILITY FOR EXISTING UTILITY LOCATIONS AND ELEVATIONS. THE UTILITIES SHOWN ON THIS PLAN ARE FROM THE BEST AVAILABLE INFORMATION. IT IS THE CONTRACTOR'S RESPONSIBILITY TO FIELD VERIFY THE LOCATION AND ELEVATION OF ALL UTILITIES, INCLUDING BUT NOT LIMITED TO, THE WATER, FIRE, SANITARY SEWER, STORM SEWER, TELEPHONE, POWER, GAS, AND IRRIGATION LINES PRIOR TO THE COMMENCEMENT OF CONSTRUCTION. IF CONFLICT EXISTS IN THE FIELD, THE CONTRACTOR IS TO NOTIFY THE PROJECT ARCHITECT, OWNER'S REPRESENTATIVE AND THE PROJECT ENGINEER IMMEDIATELY.

A.P.N.:

162-30-501-043

BASIS OF BEARINGS:

NORTH 00°07'14" WEST, BEING THE BEARING OF THE EAST LINE OF THE SOUTHEAST QUARTER (SE 1/4) OF THE NORTHEAST QUARTER (NE 1/4) OF THE NORTHEAST QUARTER (NE 1/4) OF SECTION 30, TOWNSHIP 21 SOUTH, RANGE 61 EAST, M.D.M., AS SHOWN IN FILE 122 OF SURVEYS, AT PAGE 25, OFFICIAL RECORDS OF CLARK COUNTY, NEVADA.

BENCHMARK:

CLARK COUNTY VERTICAL CONTROL POINT "6C11 29NWW6 2000", BEING A RIVET AND ROUND ALUMINUM PLATE IN TOP OF CURB, SOUTHEAST CORNER OF VALLEY VIEW BLVD. AND RENO AVE. NEAR THE PC OF VALLEY VIEW BLVD.

ELEVATION: 2193.23 (FEET)
668.497 (METERS)
CLARK COUNTY VERTICAL CONTROL v.2003 BASED ON NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88).

Avoid cutting underground utility lines. It's costly.

Call before you Dig
1-800-227-2600

SAFETY ALERT
Call Before You Overhead
1-702-227-2929

LEGEND

CL OR SURVEY LINE	EASEMENT LINE	HEAVY AC PVMT.	
PROPERTY LINE	SAWCUT LINE	LIGHT AC PVMT.	
ROW LINE	SCARP LINE	CONCRETE PVMT.	

DESCRIPTION:	CONTOUR LINES	EDGE OF PAVEMENT	"A" TYPE CURBS	"L" TYPE CURBS	WALLS	FENCES	AC PAVEMENT	CONCRETE	SPOT ELEVATIONS	SIGNS	MANHOLE W/ DESCRIPTION
EXISTING:	(2210)								(12.34)		Ⓢ
PROPOSED:	2210								12.34 BC		Ⓢ

MANHOLE DESCRIPTIONS
Ⓢ = SANITARY SEWER
Ⓓ = STORM DRAIN
Ⓔ = ELECTRICAL
Ⓣ = TELEPHONE

FIRE HYDRANTS | GATE VALVES | REDUCERS | CLEAN OUTS | UTILITY BOX OR VAULT | 100w HPS STREETLIGHTS | 150w HPS STREETLIGHTS | 200w HPS STREETLIGHTS | 250w HPS STREETLIGHTS

REV.:	DATE:	BY:	DESCRIPTION:

LOCHSA ENGINEERING
5828 SPRING MTN. RD. SUITE 308
LAS VEGAS, NV 89146
PHONE: (702) 365-9312, FAX: (702) 365-9317

AS BUILT PLAN FOR EXISTING
20' x 5'-9" ARCH CULVERT

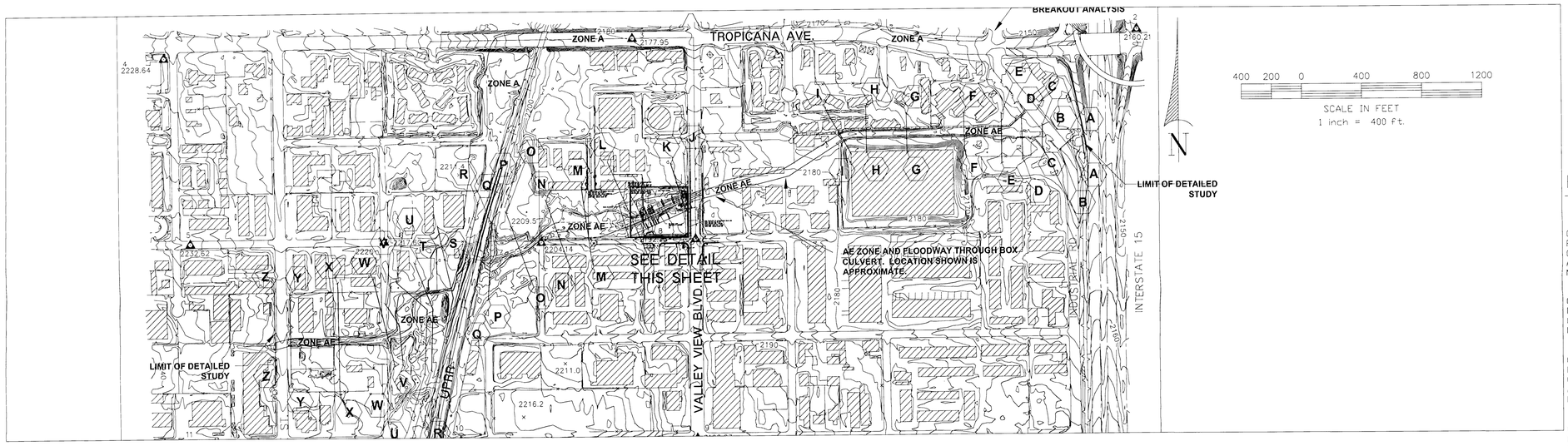
ADAM & EVE
NIGHT CLUB

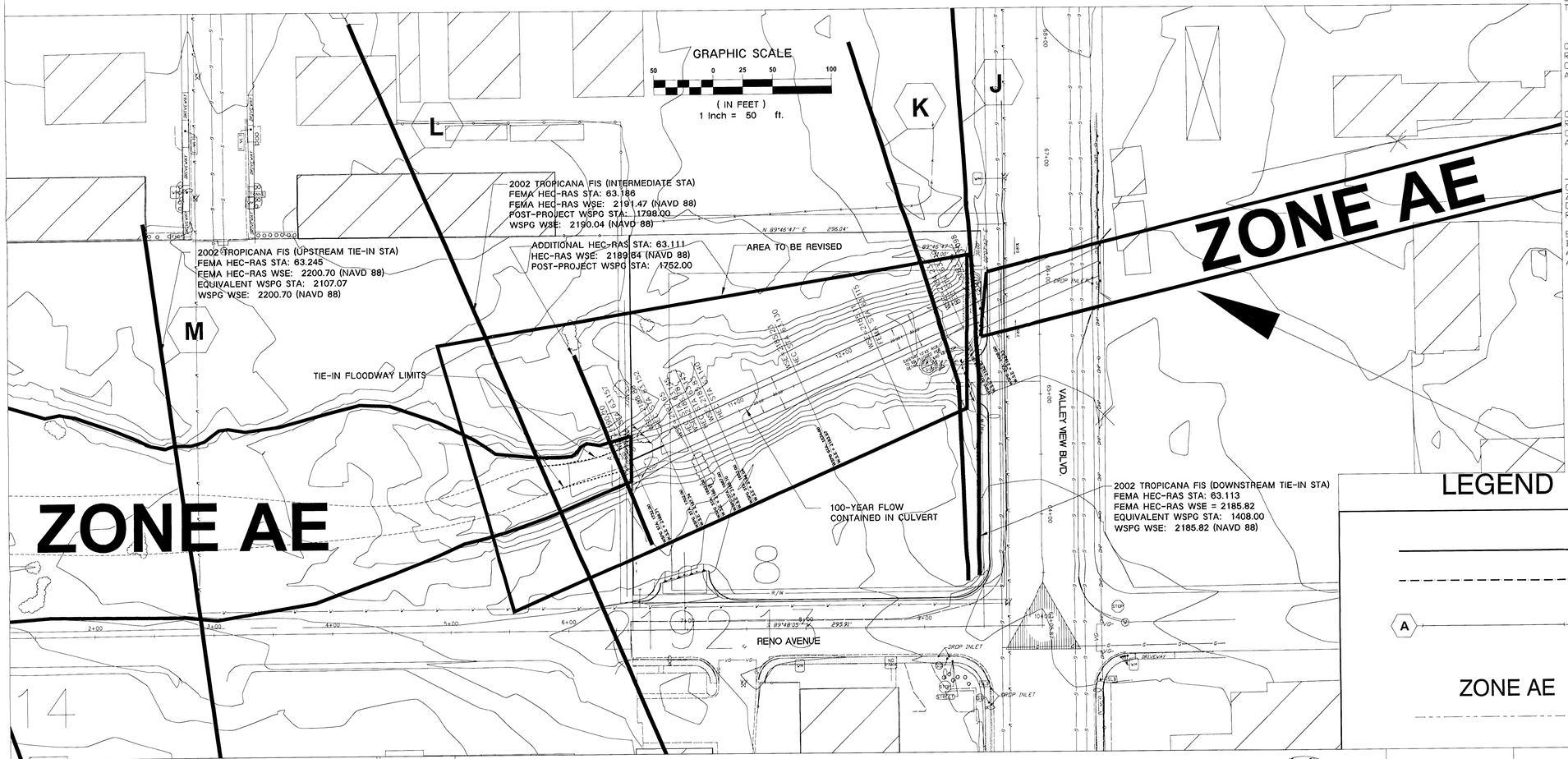
SHEET:	DATE:	TITLE	DATE:	SCALE:
	03-25-05		03-25-05	1" = 20'

DRAWN BY:	DESIGNED BY:	CHECKED BY:	PROJECT No.:
WSB	SOA	HMN	7162

SEAL OF PROFESSIONAL ENGINEER
HANI M. NOSHI
Exp: 12/31/05
CIVIL
No. 15747
STATE OF NEVADA
05/19/05

SHEET No.
1
SHEET 1 OF 3
DRAWING No.





WESCO SURVEYS, INC.
3471 WEST OQUENDO ROAD SUITE 101
LAS VEGAS, NEVADA 89118
(702) 367-0588

ELEVATION REFERENCE MONUMENTS (ERM)

	NGVD 29 FEET	NAVD 88 METERS
CLARK COUNTY BENCHMARK 6C11 29W4 RIVET AND ALUMINUM PLATE IN TOP OF CURB NORTHEAST CORNER OF HACIENDA AVENUE AND VALLEY VIEW BLVD. NEAR THE PC OF VALLEY VIEW BLVD.	2198.15	670.706
CLARK COUNTY BENCHMARK 0C11 30S4 RIVET AND ALUMINUM PLATE IN TOP OF CURB AT THE NORTHEAST CORNER OF RUSSELL RD. AND ARVILLE ST.	2243.75	684.604
CLARK COUNTY BENCHMARK 7C11 19SSW6 RIVET AND ALUMINUM PLATE IN TOP OF CURB NORTHWEST CORNER TROPICANA AVE. AND CAMERON ST. NEAR THE PC ON TROPICANA	2239.54	683.318
CLARK COUNTY BENCHMARK 7C11 19S4 RIVET AND ALUMINUM PLATE IN TOP OF CURB NORTHEAST CORNER OF TROPICANA AVE. AND ARVILLE ST.	2215.59	676.016
CLARK COUNTY BENCHMARK 6C11 31NE6 RIVET AND ALUMINUM PLATE IN TOP OF CURB NORTHEAST CORNER OF WYNN RD. AND OQUENDO RD.	2244.34	684.794
CLARK COUNTY BENCHMARK 6C11 30SE6 RIVET AND ALUMINUM PLATE IN TOP OF CURB NORTHWEST CORNER OF WYNN RD. AND DEWEY DR.	2230.90	680.696

NOTE

COORDINATES ARE NORTH AMERICAN DATUM (NAD83) NEVADA STATE PLANE EAST ZONE (2701), EPOCH 1994, BASED ON CLARK COUNTY GIS CONTROL AS SHOWN ON RECORD OF SURVEY, FILE 88, PAGE 53 ON FILE WITH THE CLARK COUNTY RECORDER.

ELEVATIONS ARE NATIONAL GEODETIC VERTICLE DATUM OF 1929 (NGVD 29) BASED ON CLARK COUNTY VERTICLE CONTROL REVISED IN 1987. TO OBTAIN APPROXIMATE NORTH AMERICAN VERTICLE DATUM OF 1988 (NAVD 88) VALUES ADD 2.3 FEET TO THE ELEVATIONS SHOWN.

FIGURE (6)

ANNOTATED FLOOD INSURANCE RATE MAP

LOCHSA ENGINEERING
6345 SOUTH JONES BOULEVARD SUITE 100
LAS VEGAS, NV 89118
PHONE: (702) 365-9312, FAX: (702) 365-9317

LEGEND

- 100-YEAR FLOODPLAIN BOUNDARY
- FLOODWAY BOUNDARY
- CROSS SECTION (A — A)
- BASE FLOOD ELEVATIONS
- ZONE DESIGNATIONS (ZONE AE)
- CHANNEL CENTERLINE

HANI M. NOSHI — Exp 12/31/03 — CIVIL — No. 15747 — PROFESSIONAL ENGINEER — STATE OF NEVADA — 05/19/02

REV. NO.	DATE	DESCRIPTION	APPROVED

S:\CLIENTS\CCRFCD\rfcdlogo.jpg

FLOOD INSURANCE STUDY
TROPICANA WASH AND TRIBUTARIES

CLARK COUNTY, NEVADA, REGIONAL FLOOD CONTROL DISTRICT

FINAL SUBMITTAL 02/28/02

PROJECT No: 1078500144 DRAWN BY: ADE
DESIGNED BY: ADE CHECKED BY: DWB
APPROVED BY: JDG

P:\Trop\FIS\CADD\logos\HDR-NEW.TIF

HDR Engineering, Inc.

SCALE
HORIZ: 1" = 400'
CONTOUR INTERVAL = 2'

DRAWING NO.

SHT. 1 OF 1

LOCHSA ENGINEERING

JESS. S HALDEMAN, S.E.
MARK L. HEDGE, P.E.
KENNETH W. (BILL) KARREN, JR., S.E.
DAVID S. PETERSON, S.E.
TED T. EGERTON, P.E.

KENDARD F. MIZE, P.E.
JOHN R. ZIELINSKI, S.E.

December 01, 2005

Sheila M. Norlin, CFM
National LOMC Manager
Michael Baker Jr., Inc.
3601 Eisenhower Avenue,
Alexandria, Virginia 22304-6425

Case No.: **05-09-0758R**
Community: Clark County, NV
Community No.: 320003
Identifier: Adam and Eve Night Club
Flooding Source: Tropicana Wash - Central Branch
FIRM Panel Affected: 3200C2552E

Subject: Response to Summary of Additional Data
Lochsa Engineering Job No. 7162.17

Dear Ms. Sheila,

The following are responses to the additional data request dated November 18, 2005, regarding the CLOMR application listed above. Your additional requirements/comments and our respective responses are stated below.

Comment #1: Our review revealed a surcharge of 1.40 feet between the natural (unencroached) and encroached profiles of the existing conditions HEC-RAS hydraulic model for Tropicana Wash Central Branch at Cross Section 63.111. Please revise the floodway analysis to produce maximum surcharges of no more than 1.00 foot throughout the revised reach of the Tropicana Wash Central Branch.

Response #1: The floodway analysis has been revised to match the encroachment method and stations to those of the 'Effective FEMA Model'. The floodway encroachment stations have also been revised for HEC-RAS Sta. 63.111. The revised analysis indicates surcharges of less than 1.00 foot within the revised reach of the Tropicana Wash Central Branch. It will be noted that the water surface elevations within the revised reach have remained unchanged from the previous submittal. Therefore, the Annoatated Flood Insurance Rate Map (Figure 6) have not been resubmitted.

Comment #2: Our detailed review revealed that the top widths of the regulatory floodway were wider than top widths of the flood plain at Cross Section 63.552, 63.505, and 63.397 in the existing conditions HEC-RAS model for Tropicana Wash Central Branch. Please revise the floodway analysis so that the floodway width is smaller than or equal to the flood plain width throughout the revised reach.

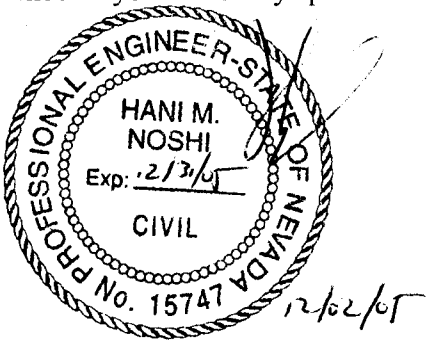
Response #2: The revised floodway analysis indicates that the floodway widths are less than or equal to the flood plain throughout the revised reach. Both the 'Effective FEMA Model' and the revised model have been attached to this submittal.

Please feel free to contact our office at your convenience if you have any questions or further comments.

Sincerely,

LOCHSA ENGINEERING

Stanley Okey Amadi
Civil Designer



Hani M. Noshi, Ph.D., P.E.
Director of Flood Control and Drainage

NATIONAL FLOOD INSURANCE PROGRAM

FEMA NATIONAL SERVICE PROVIDER

November 18, 2005

Hani M. Noshi, Ph.D., P.E.
Director
Flood Control and Drainage
Lochsa Engineering.
6345 South Jones Boulevard., Suite 100
Las Vegas, NV 89118

IN REPLY REFER TO:
Case No.: 05-09-0758R
Community: Clark County, NV
Community No.: 320003

316-AD

Dear Dr. Noshi:

This is in regard to your request dated March 24, 2005, that the Department of Homeland Security's Federal Emergency Management Agency (FEMA) issue a conditional revision to the Flood Insurance Rate Map (FIRM) for Clark County, Nevada and Incorporated Areas. Pertinent information about the request is listed below.

Identifier:	Adam and Eve Night Club
Flooding Source:	Tropicana Wash Central Branch
FIRM Panel(s) Affected:	32003C2552 E

The data required to complete our review, which must be submitted within 90 days of the date of this letter, are listed on the enclosed summary.

If we do not receive the required data within 90 days, we will suspend our processing of your request. Any data submitted after 90 days will be treated as an original submittal and will be subject to all submittal/payment procedures, including the flat review and processing fee for requests of this type established by the current fee schedule. A copy of the notice summarizing the current fee schedule, which was published in the *Federal Register,* is enclosed for your information.

FEMA receives a very large volume of requests and cannot maintain inactive requests for an indefinite period of time. In addition, as a result of the aftermath of recent hurricanes, many FEMA employees have been deployed to assist in disaster relief efforts. Therefore, we are unable to grant extensions for the submission of required data/fee for revision requests. If a requester is informed by letter that additional data are required to complete our review of a request, the data/fee **must** be submitted within 90 days of the date of the letter. Any fees already paid will be forfeited for any request for which the requested data are not received within 90 days.

We will continue to work expeditiously to review all submittals in accordance with National Flood Insurance Program (NFIP) regulations, and will aim to meet the regulatory timeframe for the review of all requests. However, requesters should be aware that delays may occur in the review process because of the current emergency situation. We appreciate the patience and cooperation of all requesters as FEMA assists in hurricane relief efforts.

If you have general questions about your request, FEMA policy, or the NFIP, please call the FEMA Map Assistance Center, toll free, at 1-877-FEMA MAP (1-877-336-2627). If you have specific questions concerning your request, please call the Revisions Coordinator for your State, Mr. Sacha Tohme, CFM, who may be reached at (703) 960-8800, ext. 3028.

Sincerely,

Sheila M. Norlin, CFM
National LOMC Manager
Michael Baker Jr., Inc.

Enclosures

cc: Mr. Todd Myers, P.E.
Principal Engineer
Civil Engineering Division
Department of Development Services
Clark County

Mr. Kevin L. Eubanks, P.E., CFM
Assistant General Manager
Clark County Regional Flood
Control District

NATIONAL FLOOD INSURANCE PROGRAM

FEMA NATIONAL SERVICE PROVIDER

Summary of Additional Data Required to Support a
Letter of Map Revision

Case No.: 05-09-0758R

Requester: Hani M. Noshi, Ph.D., P.E.

Community: Clark County, NV

Community No.: 320003

The issues listed below must be addressed before we can continue the review of your request.

1. Our review revealed a surcharge of 1.40 feet between the natural (unencroached) and encroached profiles of the existing conditions HEC-RAS hydraulic model for Tropicana Wash Central Branch at Cross Section 63.111. Please revise the floodway analysis to produce maximum surcharges of no more than 1.00 foot throughout the revised reach of Tropicana Wash Central Branch.

2. Our detailed review revealed that the topwidths of the regulatory floodway were wider than the topwidths of the floodplain at Cross Sections 63.552, 63.505, and 63.379 in the existing conditions HEC-RAS model for Tropicana Wash Central Branch. Please revise the floodway analysis so that the floodway width is smaller than or equal to the floodplain width throughout the revised reach.

Please send the required data directly to us at the address shown at the bottom of this page. For identification purposes, please include the case number referenced above on all correspondence.

POST DEVELOPED HEC-RAS ANALYSIS WITH ADDITIONAL CROSS-SECTION STA: 63.111 FOR THE ENCROACHED CONDITIONS (FLOODWAY ANALYSIS)

HEC-RAS Plan: UP-REV-FLDWY River: Tropicana Wash Reach: Tropicana Wash

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Tropicana Wash	63.711	PF 1	1818.00	2222.00	2229.87	2226.38	2230.52	0.000530	6.47	281.10	62.19	0.41
Tropicana Wash	63.711	PF 2	1818.00	2222.00	2229.87	2226.38	2230.52	0.000530	6.47	281.10	62.19	0.41
Tropicana Wash	63.703		Culvert									
Tropicana Wash	63.691	PF 1	1818.00	2221.35	2227.32		2228.43	0.002685	8.46	214.82	55.00	0.61
Tropicana Wash	63.691	PF 2	1818.00	2221.35	2227.32		2228.43	0.002685	8.46	214.82	55.00	0.61
Tropicana Wash	63.631	PF 1	1818.00	2217.65	2224.75	2224.75	2226.69	0.010010	11.18	163.09	177.36	0.99
Tropicana Wash	63.631	PF 2	1818.00	2217.65	2224.75	2224.75	2226.69	0.010010	11.18	163.09	177.36	0.99
Tropicana Wash	63.569	PF 1	1818.00	2214.00	2218.15	2218.15	2219.22	0.013219	8.32	218.48	101.85	1.00
Tropicana Wash	63.569	PF 2	1818.00	2214.06	2219.08	2219.08	2220.90	0.013743	10.82	168.06	47.10	1.01
Tropicana Wash	63.552	PF 1	1818.00	2214.00	2217.84		2218.11	0.002205	4.20	434.86	168.57	0.45
Tropicana Wash	63.552	PF 2	1818.00	2214.00	2218.73		2219.02	0.001403	4.30	422.75	102.00	0.37
Tropicana Wash	63.505	PF 1	1818.00	2210.00	2217.72	2215.31	2217.80	0.000585	2.34	776.97	247.09	0.23
Tropicana Wash	63.505	PF 2	1818.00	2210.00	2218.72	2215.34	2218.80	0.000357	2.31	787.34	159.00	0.18
Tropicana Wash	63.488	PF 1	1818.00	2209.75	2216.83	2216.83	2217.59	0.011605	7.55	290.90	192.29	0.84
Tropicana Wash	63.488	PF 2	1818.00	2214.26	2217.62	2217.62	2218.60	0.017368	8.72	234.83	117.00	0.96
Tropicana Wash	63.456	PF 1	1818.00	2208.00	2214.58	2213.75	2214.69	0.001685	3.81	793.10	486.75	0.33
Tropicana Wash	63.456	PF 2	1818.00	2208.00	2214.58	2213.75	2214.69	0.001685	3.81	793.10	486.75	0.33
Tropicana Wash	63.410	PF 1	1818.00	2200.00	2214.62	2206.52	2214.63	0.000034	0.83	2788.58	711.49	0.05
Tropicana Wash	63.410	PF 2	1818.00	2200.00	2214.62	2206.52	2214.63	0.000034	0.83	2788.58	711.49	0.05
Tropicana Wash	63.397		Culvert									
Tropicana Wash	63.389	PF 1	750.00	2200.00	2205.69	2205.69	2208.50	0.023664	13.46	55.72	20.16	1.01
Tropicana Wash	63.389	PF 2	750.00	2200.00	2205.69	2205.69	2208.50	0.023612	13.45	55.75	20.18	1.00
Tropicana Wash	63.379	PF 1	800.00	2202.00	2205.65		2206.03	0.005920	4.97	160.86	241.99	0.49
Tropicana Wash	63.379	PF 2	800.00	2202.00	2206.37		2206.63	0.003541	4.08	195.86	49.60	0.36
Tropicana Wash	63.339	PF 1	800.00	2200.69	2203.92	2203.46	2204.29	0.012647	4.91	162.95	107.27	0.65
Tropicana Wash	63.339	PF 2	800.00	2200.69	2204.53		2205.28	0.013982	6.93	115.40	37.29	0.69

HEC-RAS Plan: UP-REV-FLDWY River: Tropicana Wash Reach: Tropicana Wash (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Tropicana Wash	63.286	PF 1	800.00	2198.30	2201.47		2201.66	0.006832	3.51	228.21	156.44	0.51
Tropicana Wash	63.286	PF 2	800.00	2198.30	2202.25		2202.68	0.006091	5.30	150.82	46.31	0.52
Tropicana Wash	63.245	PF 1	800.00	2196.63	2198.40	2198.40	2198.90	0.031036	5.69	140.52	144.86	1.02
Tropicana Wash	63.245	PF 2	800.00	2196.63	2199.19	2199.19	2200.23	0.026394	8.16	98.05	48.27	1.01
Tropicana Wash	63.186	PF 1	800.00	2186.00	2189.17	2189.17	2190.17	0.009395	8.05	99.42	50.16	1.01
Tropicana Wash	63.186	PF 2	800.00	2186.00	2190.16	2190.16	2191.82	0.010791	10.36	77.22	23.19	1.00
Tropicana Wash	63.111	PF 1	800.00	2184.70	2187.34	2187.34	2188.49	0.008124	8.89	95.74	43.07	0.98
Tropicana Wash	63.111	PF 2	800.00	2184.70	2187.48	2187.48	2188.84	0.010214	9.34	85.62	31.90	1.01

HEC-RAS Version 3.1.2 April 2004
U.S. Army Corp of Engineers
Hydrologic Engineering Center
609 Second Street
Davis, California

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

PROJECT DATA
Project Title: West
Project File : West.prj
Run Date and Time: 11/29/2005 2:09:02 PM

Project in English units

Project Description:
FIS - Tropicana Wash

PLAN DATA

Plan Title: Upper-Revised-Floodway
Plan File : g:\DRAINAGE\7162.17\Addendum #2\HECRAS\Revised west\West.p03

Geometry Title: Upper-Revised-Floodway
Geometry File : g:\DRAINAGE\7162.17\Addendum #2\HECRAS\Revised west\West.g08

Flow Title : 100 Year Flow - Upper-Revised-Floodway
Flow File : g:\DRAINAGE\7162.17\Addendum #2\HECRAS\Revised west\West.f06

Plan Summary Information:

Number of:	Cross Sections	= 16	Multiple Openings	=	0
	Culverts	= 2	Inline Structures	=	0
	Bridges	= 0	Lateral Structures	=	0

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

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

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

River = Tropicana Wash Reach = Tropicana Wash

RS	Profile	Method	Value1	Value2
63.569	PF 2	1	404.4	451.5
63.552	PF 2	1	164	266
63.505	PF 2	1	143	302

63.488	PF 2	1	225.5	342.5
63.379	PF 2	1	212.2	261.8
63.339	PF 2	1	246.26	283.55
63.286	PF 2	1	159.54	205.85
63.245	PF 2	1	228.52	276.79
63.186	PF 2	1	405.78	428.97
63.111	PF 2	1	12.9	44.8

FLOW DATA

Flow Title: 100 Year Flow - Upper-Revised-Floodway
Flow File : g:\DRAINAGE\7162.17\Addendum #2\HECRAS\Revised west\West.f06

Flow Data (cfs)

River	Reach	RS	PF 1	PF 2
Tropicana Wash	Tropicana Wash	63.711	1818	1818
Tropicana Wash	Tropicana Wash	63.389	750	750
Tropicana Wash	Tropicana Wash	63.379	800	800
Tropicana Wash	Tropicana Wash	63.111	800	800

Boundary Conditions

River	Reach	Profile	Upstream	Downstream
Tropicana Wash	Tropicana Wash	PF 1	Critical	Known WS = 2186.47
Tropicana Wash	Tropicana Wash	PF 2	Critical	Known WS = 2186.47

GEOMETRY DATA

Geometry Title: Upper-Revised-Floodway
Geometry File : g:\DRAINAGE\7162.17\Addendum #2\HECRAS\Revised west\West.g08

CROSS SECTION

RIVER: Tropicana Wash
REACH: Tropicana Wash RS: 63.711

INPUT
Description: Upstream X-Section from culvert crossing at Arville
Station Elevation Data num= 22

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2229	11.7	2228	86	2228	105	2229	127	2229.5
193.7	2229.5	275.7	2230	319	2230	331.7	2229	335.7	2227
338.75	2225	340.75	2222	359	2222	376.75	2222	377.75	2225
379	2226	380	2227	381	2228	382	2229	383	2230
409	2231	438	2232						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.035	335.7	.02	382	.035

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
335.7 382 106.55 106.14 105.07 .3 .5
Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
0	341.99		F
378.01	438		F

Left Levee Station= 300 Elevation=

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	2230.52	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.65	Wt. n-Val.		0.020	

W.S. Elev (ft)	2229.87	Reach Len. (ft)	106.55	106.14	105.07
Crit W.S. (ft)	2226.38	Flow Area (sq ft)		281.10	
E.G. Slope (ft/ft)	0.000530	Area (sq ft)	12.26	326.72	0.38
Q Total (cfs)	1818.00	Flow (cfs)		1818.00	
Top Width (ft)	62.19	Top Width (ft)	15.03	46.30	0.87
Vel Total (ft/s)	6.47	Avg. Vel. (ft/s)		6.47	
Max Chl Dpth (ft)	7.87	Hydr. Depth (ft)		7.80	
Conv. Total (cfs)	78937.6	Conv. (cfs)		78937.6	
Length Wtd. (ft)	106.14	Wetted Per. (ft)		38.26	
Min Ch El (ft)	2222.00	Shear (lb/sq ft)		0.24	
Alpha	1.00	Stream Power (lb/ft s)		1.57	
Frctn Loss (ft)		Cum Volume (acre-ft)	6.13	22.01	3.33
C & E Loss (ft)		Cum SA (acres)	3.14	7.29	2.94

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

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	2230.52	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.65	Wt. n-Val.		0.020	
W.S. Elev (ft)	2229.87	Reach Len. (ft)	106.55	106.14	105.07
Crit W.S. (ft)	2226.38	Flow Area (sq ft)		281.10	
E.G. Slope (ft/ft)	0.000530	Area (sq ft)	12.26	326.72	0.38
Q Total (cfs)	1818.00	Flow (cfs)		1818.00	
Top Width (ft)	62.19	Top Width (ft)	15.03	46.30	0.87
Vel Total (ft/s)	6.47	Avg. Vel. (ft/s)		6.47	
Max Chl Dpth (ft)	7.87	Hydr. Depth (ft)		7.80	
Conv. Total (cfs)	78937.6	Conv. (cfs)		78937.6	
Length Wtd. (ft)	106.14	Wetted Per. (ft)		38.26	
Min Ch El (ft)	2222.00	Shear (lb/sq ft)		0.24	
Alpha	1.00	Stream Power (lb/ft s)		1.57	
Frctn Loss (ft)		Cum Volume (acre-ft)	6.09	19.55	3.38
C & E Loss (ft)		Cum SA (acres)	3.08	4.12	2.75

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

CULVERT

RIVER: Tropicana Wash
REACH: Tropicana Wash RS: 63.703

INPUT
Description: Culvert Crossing at Arville
Distance from Upstream XS = 9
Deck/Roadway Width = 70
Weir Coefficient = 2.6
Upstream Deck/Roadway Coordinates
num= 7

Sta Hi Cord	Lo Cord	Sta Hi Cord	Lo Cord	Sta Hi Cord	Lo Cord
0	2228 2220	81	2228 2220	129	2229 2220
277	2230 2220	382	2230 2220	409	2231 2220
438	2232 2220				

Upstream Bridge Cross Section Data
Station Elevation Data num= 22

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2229	11.7	2228	86	2228	105	2229	127	2229.5
193.7	2229.5	275.7	2230	319	2230	331.7	2229	335.7	2227
338.75	2225	340.75	2222	359	2222	376.75	2222	377.75	2225
379	2226	380	2227	381	2228	382	2229	383	2230
409	2231	438	2232						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.035	335.7	.02	382	.035

Bank Sta: Left Right Coeff Contr. Expan.

```
        335.7     382              .3        .5
Ineffective Flow      num=        2
   Sta L    Sta R     Elev  Permanent
       0   341.99                F
  378.01      438                F
Left Levee       Station=     300       Elevation=

Downstream  Deck/Roadway Coordinates
    num=        7
     Sta Hi Cord Lo Cord      Sta Hi Cord Lo Cord      Sta Hi Cord Lo Cord
       0     2227    2220       50     2228    2220      148     2229    2220
     261     2230    2220      433     2231    2220      491     2232    2220
     596     2232    2220

Downstream Bridge Cross Section Data
Station Elevation Data     num=       29
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
       0     2227       25     2228      144     2229      197     2230      261     2230
     279     2229      295     2228      296     2227      298     2226      299     2225
     301     2224    302.5  2221.35      307  2221.35      314  2221.35      317  2221.35
     320  2221.35      322  2221.35      328  2221.35      335  2221.35      338  2221.35
     338     2225      340     2226      342     2227      344     2228      345     2229
     348     2230      543     2230      576     2231      596     2232

Manning's n Values         num=        5
     Sta    n Val      Sta    n Val      Sta    n Val      Sta    n Val      Sta    n Val
       0     .035      295      .02    302.5     .028      338      .02      348     .035

Bank Sta: Left    Right     Coeff Contr.    Expan.
          295       348              .3        .5
Ineffective Flow      num=        2
   Sta L    Sta R     Elev  Permanent
       0   301.99                F
  338.01      596                F

Upstream Embankment side slope                =       0 horiz. to 1.0 vertical
Downstream Embankment side slope              =       0 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow =      .95
Elevation at which weir flow begins           =
Energy head used in spillway design           =
Spillway height used in design                =
Weir crest shape                              = Broad Crested

Number of Culverts =  1

Culvert Name      Shape      Rise     Span
Culvert #1            Box      5.8       10
FHWA Chart # 8 - flared wingwalls
FHWA Scale # 1 - Wingwall flared 30 to 75 deg.
Solution Criteria = Highest U.S. EG
Culvert Upstrm Dist  Length     Top n  Bottom n  Depth Blocked  Entrance Loss Coef   Exit Loss Coef
                  9    85.4      .013      .013          0                   .2                 1
Number of Barrels =  3
Upstream   Elevation =  2221.885
Centerline Stations
    Sta.     Sta.     Sta.
   347.8      360    372.5
Downstream Elevation =  2221.885
Centerline Stations
    Sta.     Sta.     Sta.
   307.8      320    332.5

CULVERT OUTPUT  Profile #PF 1  Culv Group:  Culvert #1

  Q Culv Group (cfs)       1783.30    Culv Full Len (ft)         26.85
  # Barrels                      3    Culv Vel US (ft/s)         10.25
  Q Barrel (cfs)            594.43    Culv Vel DS (ft/s)         10.93
  E.G. US. (ft)            2230.52    Culv Inv El Up (ft)      2221.89
  W.S. US. (ft)            2229.87    Culv Inv El Dn (ft)      2221.89
  E.G. DS (ft)             2228.43    Culv Frctn Ls (ft)          1.01
  W.S. DS (ft)             2227.32    Culv Exit Loss (ft)         0.74
  Delta EG (ft)               2.08    Culv Entr Loss (ft)         0.33
```

Delta WS (ft)	2.55	Q Weir (cfs)	34.70
E.G. IC (ft)	2230.52	Weir Sta Lft (ft)	341.99
E.G. OC (ft)	2229.84	Weir Sta Rgt (ft)	378.01
Culvert Control	Inlet	Weir Submerg	0.00
Culv WS Inlet (ft)	2227.69	Weir Max Depth (ft)	0.52
Culv WS Outlet (ft)	2227.32	Weir Avg Depth (ft)	0.52
Culv Nml Depth (ft)		Weir Flow Area (sq ft)	18.58
Culv Crt Depth (ft)	4.79	Min El Weir Flow (ft)	2230.25

Warning: During the culvert outlet computations, the program could not balance the culvert/weir flow. The reported outlet energy grade answer may not be valid.

CULVERT OUTPUT Profile #PF 2 Culv Group: Culvert #1

Q Culv Group (cfs)	1783.30	Culv Full Len (ft)	26.85
# Barrels	3	Culv Vel US (ft/s)	10.25
Q Barrel (cfs)	594.43	Culv Vel DS (ft/s)	10.93
E.G. US. (ft)	2230.52	Culv Inv El Up (ft)	2221.89
W.S. US. (ft)	2229.87	Culv Inv El Dn (ft)	2221.89
E.G. DS (ft)	2228.43	Culv Frctn Ls (ft)	1.01
W.S. DS (ft)	2227.32	Culv Exit Loss (ft)	0.74
Delta EG (ft)	2.08	Culv Entr Loss (ft)	0.33
Delta WS (ft)	2.55	Q Weir (cfs)	34.70
E.G. IC (ft)	2230.52	Weir Sta Lft (ft)	341.99
E.G. OC (ft)	2229.84	Weir Sta Rgt (ft)	378.01
Culvert Control	Inlet	Weir Submerg	0.00
Culv WS Inlet (ft)	2227.69	Weir Max Depth (ft)	0.52
Culv WS Outlet (ft)	2227.32	Weir Avg Depth (ft)	0.52
Culv Nml Depth (ft)		Weir Flow Area (sq ft)	18.58
Culv Crt Depth (ft)	4.79	Min El Weir Flow (ft)	2230.25

Warning: During the culvert outlet computations, the program could not balance the culvert/weir flow. The reported outlet energy grade answer may not be valid.

CROSS SECTION

RIVER: Tropicana Wash
REACH: Tropicana Wash RS: 63.691

INPUT
Description: Downstream X-Section from culvert crossing at Arville
Station Elevation Data num= 29

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2227	25	2228	144	2229	197	2230	261	2230
279	2229	295	2228	296	2227	298	2226	299	2225
301	2224	302.5	2221.35	307	2221.35	314	2221.35	317	2221.35
320	2221.35	322	2221.35	328	2221.35	335	2221.35	338	2221.35
338	2225	340	2226	342	2227	344	2228	345	2229
348	2230	543	2230	576	2231	596	2232		

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.035	295	.02	302.5	.028	338	.02	348	.035

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
295	348	320.78	320.81	320.88	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
0	301.99		F
338.01	596		F

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	2228.43	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.11	Wt. n-Val.		0.028	
W.S. Elev (ft)	2227.32	Reach Len. (ft)	320.78	320.81	320.88
Crit W.S. (ft)		Flow Area (sq ft)		214.82	
E.G. Slope (ft/ft)	0.002685	Area (sq ft)	1.29	233.49	
Q Total (cfs)	1818.00	Flow (cfs)		1818.00	

Top Width (ft)	55.00	Top Width (ft)	8.03	46.96	
Vel Total (ft/s)	8.46	Avg. Vel. (ft/s)		8.46	
Max Chl Dpth (ft)	5.97	Hydr. Depth (ft)		5.96	
Conv. Total (cfs)	35088.2	Conv. (cfs)		35088.2	
Length Wtd. (ft)	320.81	Wetted Per. (ft)		40.20	
Min Ch El (ft)	2221.35	Shear (lb/sq ft)		0.90	
Alpha	1.00	Stream Power (lb/ft s)		7.58	
Frctn Loss (ft)	1.50	Cum Volume (acre-ft)	6.11	21.33	3.33
C & E Loss (ft)	0.25	Cum SA (acres)	3.11	7.17	2.94

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	2228.43	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.11	Wt. n-Val.		0.028	
W.S. Elev (ft)	2227.32	Reach Len. (ft)	320.78	320.81	320.88
Crit W.S. (ft)		Flow Area (sq ft)		214.82	
E.G. Slope (ft/ft)	0.002685	Area (sq ft)	1.29	233.49	
Q Total (cfs)	1818.00	Flow (cfs)		1818.00	
Top Width (ft)	55.00	Top Width (ft)	8.03	46.96	
Vel Total (ft/s)	8.46	Avg. Vel. (ft/s)		8.46	
Max Chl Dpth (ft)	5.97	Hydr. Depth (ft)		5.96	
Conv. Total (cfs)	35088.2	Conv. (cfs)		35088.2	
Length Wtd. (ft)	320.81	Wetted Per. (ft)		40.20	
Min Ch El (ft)	2221.35	Shear (lb/sq ft)		0.90	
Alpha	1.00	Stream Power (lb/ft s)		7.58	
Frctn Loss (ft)	1.50	Cum Volume (acre-ft)	6.08	18.87	3.38
C & E Loss (ft)	0.25	Cum SA (acres)	3.05	4.01	2.75

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Tropicana Wash
REACH: Tropicana Wash RS: 63.631

INPUT
Description: 21
Station Elevation Data num= 111

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2222.6	17.76	2222.74	28.31	2222.79	30.88	2222.82	33.91	2222.87
50.8	2222.8	51.5	2222.84	52.8	2222.85	67.74	2222.86	78.74	2222.93
84.08	2223	85.77	2222.97	97.12	2223.11	99.72	2223.1	112.12	2223.26
120.94	2223.3	128.55	2223.43	129.64	2223.43	148.15	2223.34	149.06	2223.35
149.45	2223.3	158.51	2223.35	158.83	2223.35	186.52	2224	237.58	2223.06
238.05	2223.1	238.52	2223.05	258.48	2222.91	268.51	2222.95	279.08	2223.02
279.44	2223	279.63	2223.03	280	2223.03	281.16	2223.03	294.96	2222.98
297.15	2222.9	297.44	2222.88	298.1	2222.87	309.28	2222.82	312.89	2222.87
323.01	2222.8	323.38	2222.78	323.84	2222.79	323.98	2222.8	324.21	2222.82
325.65	2222.9	326.61	2222.91	334.36	2222.98	355.26	2223.94	356.6	2224
359.3	2224.46	363.25	2225	364.43	2225.42	365	2225.4	365.15	2225.39
367.01	2225.03	370.24	2224.31	370.89	2224.2	373.05	2224	373.75	2223.95

373.83	2223.95	377.4	2222	378.36	2221.4	380.46	2220	386.54	2218.91
390.98	2218	392.36	2217.65	394.21	2218	399.66	2219.41	402.8	2220
405.34	2223.14	405.45	2223.25	406.06	2223.9	406.21	2224	406.49	2224.07
406.63	2224.09	409.27	2224.39	413.44	2224.85	413.68	2224.9	413.73	2224.84
414.15	2224.82	415.21	2224.83	432.45	2224.42	435.47	2224.4	436.12	2224.41
445.29	2224	460.64	2223.56	478.42	2223.43	494.9	2223.7	509.72	2224
510.79	2224.04	511.39	2224.04	529.93	2224.38	535.67	2224.4	554.56	2224.81
557.4	2224.87	558.38	2224.9	561.09	2224.93	569.62	2225.2	589.63	2225.13
591.13	2224.8	628.2	2225.74	647.79	2226	666.14	2226.3	691.71	2226.9
693.13	2226.9	697.14	2226.99	718.32	2227.44	730.87	2227.8	735.61	2227.86
738.78	2227.93								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.035	380.46	.028	402.8	.035

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
365	409.27	318.34	326.31 347.37	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
0	360		T
415	738.78		T

Left Levee Station= 364.43 Elevation= 2225.42

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	2226.69	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.94	Wt. n-Val.		0.032	0.035
W.S. Elev (ft)	2224.75	Reach Len. (ft)	318.34	326.31	347.37
Crit W.S. (ft)	2224.75	Flow Area (sq ft)		162.51	0.58
E.G. Slope (ft/ft)	0.010010	Area (sq ft)		162.51	95.14
Q Total (cfs)	1818.00	Flow (cfs)		1817.22	0.79
Top Width (ft)	177.36	Top Width (ft)		41.00	136.36
Vel Total (ft/s)	11.15	Avg. Vel. (ft/s)		11.18	1.35
Max Chl Dpth (ft)	7.10	Hydr. Depth (ft)		3.96	0.18
Conv. Total (cfs)	18170.8	Conv. (cfs)		18162.9	7.8
Length Wtd. (ft)	326.31	Wetted Per. (ft)		44.54	3.27
Min Ch El (ft)	2217.65	Shear (lb/sq ft)		2.28	0.11
Alpha	1.01	Stream Power (lb/ft s)		25.49	0.15
Frctn Loss (ft)	3.74	Cum Volume (acre-ft)	6.11	19.87	2.98
C & E Loss (ft)	0.26	Cum SA (acres)	3.08	6.85	2.44

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Manning's n values were composited to a single value in the main channel.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	2226.69	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.94	Wt. n-Val.		0.032	0.035
W.S. Elev (ft)	2224.75	Reach Len. (ft)	318.34	326.31	347.37
Crit W.S. (ft)	2224.75	Flow Area (sq ft)		162.51	0.58
E.G. Slope (ft/ft)	0.010010	Area (sq ft)		162.51	95.14
Q Total (cfs)	1818.00	Flow (cfs)		1817.22	0.79
Top Width (ft)	177.36	Top Width (ft)		41.00	136.36
Vel Total (ft/s)	11.15	Avg. Vel. (ft/s)		11.18	1.35
Max Chl Dpth (ft)	7.10	Hydr. Depth (ft)		3.96	0.18
Conv. Total (cfs)	18170.8	Conv. (cfs)		18162.9	7.8
Length Wtd. (ft)	326.31	Wetted Per. (ft)		44.54	3.27
Min Ch El (ft)	2217.65	Shear (lb/sq ft)		2.28	0.11
Alpha	1.01	Stream Power (lb/ft s)		25.49	0.15

Frctn Loss (ft)	3.80	Cum Volume (acre-ft)	6.07	17.41	3.03
C & E Loss (ft)	0.04	Cum SA (acres)	3.02	3.68	2.25

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Manning's n values were composited to a single value in the main channel.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: Tropicana Wash
REACH: Tropicana Wash RS: 63.569

INPUT
Description: 20
Station Elevation Data num= 118

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2220.3	31.61	2220.65	48.71	2220.61	51.66	2220.11	52.76	2220
55.53	2220	112.87	2220.84	174.09	2221.62	174.52	2221.65	184.03	2221.82
185.48	2221.8	189.39	2221.86	191.36	2221.86	194.19	2221.83	195.57	2221.82
197.38	2221.8	201.67	2221.92	202.51	2221.9	203.23	2221.89	207.42	2221.89
207.72	2221.9	229.14	2221.73	232.55	2221.69	243.54	2221.48	249.91	2221.45
262.19	2221.1	272.46	2221	277.82	2220.96	281.45	2221.14	281.88	2221.19
300.27	2220.9	302.55	2220.92	303.11	2220.86	303.13	2220.83	304.27	2220.7
305.2	2220.7	305.27	2220.7	305.29	2220.7	309.03	2220.75	314.36	2220.78
333.49	2220.7	337.01	2220.72	338.64	2220.75	348.62	2220.95	349.22	2221.09
350.99	2221.1	351.03	2221.07	355.83	2220.85	356.21	2220.82	359	2220.69
359.03	2220.69	360.02	2220.6	360.28	2220.6	366.78	2220.19	367.34	2220.15
370.12	2220	370.2	2220	370.78	2219.88	372.38	2219.52	379.22	2218
380.8	2217.75	390.78	2216	400.57	2214.3	402.79	2214	415.03	2214.42
421.21	2214.65	422.03	2214.69	422.59	2214.7	422.71	2214.71	423.04	2214.73
426.13	2214.93	426.88	2215.25	430.7	2216	433.74	2216.5	435.82	2216.5
436.48	2216.55	440.76	2216.84	442	2216.81	446.99	2216.7	451.1	2216.68
451.25	2216.66	451.55	2216.64	453.16	2216.59	455.27	2216.52	455.31	2216.5
456.27	2216.48	457.68	2216.43	465.29	2216.51	472.14	2217.1	474.93	2217.4
475.61	2217.52	476.83	2217.73	479.69	2218	481.05	2218.28	483.26	2218.5
485.56	2218.74	487.31	2218.84	487.73	2218.94	489.34	2219.2	490	2219.23
493.53	2219.4	495.42	2219.69	497.86	2220	504.15	2220.25	511.54	2220.51
512.7	2220.7	540.86	2221.39	541.26	2221.4	541.3	2221.36	551.69	2221.51
555.33	2221.6	557.22	2221.85	558.14	2221.72	564.65	2222	572.3	2222
578.18	2222	581.13	2222	591.7	2222				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.04	359	.034	490	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
359	490	94.38	87.55	78.15	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	2219.22	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.08	Wt. n-Val.		0.034	
W.S. Elev (ft)	2218.15	Reach Len. (ft)	94.38	87.55	78.15
Crit W.S. (ft)	2218.15	Flow Area (sq ft)		218.48	
E.G. Slope (ft/ft)	0.013219	Area (sq ft)		218.48	
Q Total (cfs)	1818.00	Flow (cfs)		1818.00	
Top Width (ft)	101.85	Top Width (ft)		101.85	
Vel Total (ft/s)	8.32	Avg. Vel. (ft/s)		8.32	
Max Chl Dpth (ft)	4.15	Hydr. Depth (ft)		2.15	
Conv. Total (cfs)	15812.2	Conv. (cfs)		15812.2	
Length Wtd. (ft)	87.55	Wetted Per. (ft)		102.53	
Min Ch El (ft)	2214.00	Shear (lb/sq ft)		1.76	

Alpha	1.00	Stream Power (lb/ft s)		14.63	
Frctn Loss (ft)	0.39	Cum Volume (acre-ft)	6.11	18.44	2.60
C & E Loss (ft)	0.24	Cum SA (acres)	3.08	6.31	1.89

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	2220.90	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.82	Wt. n-Val.		0.034	
W.S. Elev (ft)	2219.08	Reach Len. (ft)	94.38	87.55	78.15
Crit W.S. (ft)	2219.08	Flow Area (sq ft)		168.06	
E.G. Slope (ft/ft)	0.013743	Area (sq ft)		168.06	
Q Total (cfs)	1818.00	Flow (cfs)		1818.00	
Top Width (ft)	47.10	Top Width (ft)		47.10	
Vel Total (ft/s)	10.82	Avg. Vel. (ft/s)		10.82	
Max Chl Dpth (ft)	5.03	Hydr. Depth (ft)		3.57	
Conv. Total (cfs)	15507.8	Conv. (cfs)		15507.8	
Length Wtd. (ft)	87.55	Wetted Per. (ft)		54.78	
Min Ch El (ft)	2214.06	Shear (lb/sq ft)		2.63	
Alpha	1.00	Stream Power (lb/ft s)		28.48	
Frctn Loss (ft)	0.28	Cum Volume (acre-ft)	6.07	16.17	2.65
C & E Loss (ft)	0.46	Cum SA (acres)	3.02	3.35	1.71

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION

RIVER: Tropicana Wash
REACH: Tropicana Wash RS: 63.552

INPUT
Description: 19
Station Elevation Data num= 66

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2220.8	2.41	2220.78	4.19	2220.81	16.93	2220.47	29.9	2220.12
30.19	2220.1	36.04	2220.01	36.12	2220.01	36.36	2220	62.02	2219.33
66.48	2219.2	71	2219.1	84.25	2218.83	90.54	2218.68	91.25	2218.66
100.3	2218.5	102.3	2218.48	108.94	2218.4	116.24	2218.21	130.76	2218
132	2217.82	134.59	2217.43	136.4	2217.2	142.95	2216.19	143.61	2216.09
144.14	2216	150.43	2215.82	156.54	2215.6	157.49	2215.58	162.28	2216
169	2215.78	179.03	2215.52	185.95	2215.5	205.47	2214.32	207.42	2214.29
209.6	2214.22	212.33	2214	234.65	2214	237.41	2214	244.5	2214
255.88	2214	255.99	2214.01	256.2	2214	256.78	2214.07	279.46	2216
293.82	2217.26	301.6	2217.94	301.87	2217.96	302.39	2218	305.83	2218.25
309.03	2218.58	330.05	2220	332.28	2220	333.55	2220	345.52	2220
349.75	2220	363.79	2220	365.19	2220	367.74	2219.9	382.72	2218.8
387.69	2219.04	398.64	2220	403.96	2220.28	408.09	2220.5	428.85	2220.62
431.61	2220.62								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.04	132	.032	293.82	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
132	293.82	208.29	247.98	217.5	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

			Left OB	Channel	Right OB
E.G. Elev (ft)	2218.11	Element			
Vel Head (ft)	0.27	Wt. n-Val.	0.000	0.032	0.040
W.S. Elev (ft)	2217.84	Reach Len. (ft)	208.29	247.98	217.50
Crit W.S. (ft)		Flow Area (sq ft)	0.00	432.94	1.92
E.G. Slope (ft/ft)	0.002205	Area (sq ft)	0.00	432.94	1.92
Q Total (cfs)	1818.00	Flow (cfs)	0.00	1816.54	1.46
Top Width (ft)	168.57	Top Width (ft)	0.13	161.82	6.62
Vel Total (ft/s)	4.18	Avg. Vel. (ft/s)	0.08	4.20	0.76
Max Chl Dpth (ft)	3.84	Hydr. Depth (ft)	0.01	2.68	0.29
Conv. Total (cfs)	38718.6	Conv. (cfs)	0.0	38687.5	31.1
Length Wtd. (ft)	247.97	Wetted Per. (ft)	0.13	162.18	6.65
Min Ch El (ft)	2214.00	Shear (lb/sq ft)		0.37	0.04
Alpha	1.01	Stream Power (lb/ft s)		1.54	0.03
Frctn Loss (ft)	0.25	Cum Volume (acre-ft)	6.11	17.79	2.60
C & E Loss (ft)	0.06	Cum SA (acres)	3.08	6.05	1.89

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

CROSS SECTION OUTPUT Profile #PF 2

			Left OB	Channel	Right OB
E.G. Elev (ft)	2219.02	Element			
Vel Head (ft)	0.29	Wt. n-Val.		0.032	
W.S. Elev (ft)	2218.73	Reach Len. (ft)	208.29	247.98	217.50
Crit W.S. (ft)		Flow Area (sq ft)		422.75	
E.G. Slope (ft/ft)	0.001403	Area (sq ft)		422.75	
Q Total (cfs)	1818.00	Flow (cfs)		1818.00	
Top Width (ft)	102.00	Top Width (ft)		102.00	
Vel Total (ft/s)	4.30	Avg. Vel. (ft/s)		4.30	
Max Chl Dpth (ft)	4.73	Hydr. Depth (ft)		4.14	
Conv. Total (cfs)	48531.2	Conv. (cfs)		48531.2	
Length Wtd. (ft)	247.98	Wetted Per. (ft)		108.75	
Min Ch El (ft)	2214.00	Shear (lb/sq ft)		0.34	
Alpha	1.00	Stream Power (lb/ft s)		1.46	
Frctn Loss (ft)	0.16	Cum Volume (acre-ft)	6.07	15.58	2.65
C & E Loss (ft)	0.06	Cum SA (acres)	3.02	3.20	1.71

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

CROSS SECTION

RIVER: Tropicana Wash
REACH: Tropicana Wash RS: 63.505

INPUT
Description: 18
Station Elevation Data num= 141

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2220	5.8	2220	6.79	2220	13.62	2220	19.2	2220
20.87	2220	49.24	2218.86	59	2218.54	59.26	2218.4	61.26	2218.35
66.16	2218.3	70.45	2218.29	71.29	2218.3	72.31	2218.3	72.77	2218.31
75.39	2218.4	76.69	2218.38	92	2218.13	95.47	2218.07	100.12	2218
104	2217.33	106.65	2216.87	111.72	2216	125.91	2215.52	140.67	2214.37
143.08	2214.24	145.71	2214	147.63	2213.6	157.62	2212	161.75	2210.73
164.55	2210	172.94	2210	173.66	2210	174.95	2210.45	179.03	2212
180.51	2212.14	192.99	2213.08	199.84	2213.2	212.7	2214	227.23	2214.81
227.29	2214.81	232.11	2214.81	236.31	2214.8	237.36	2214.77	241.5	2214.71
274.41	2215.08	283.06	2214.97	293.21	2215.3	298.84	2215.49	301.55	2215.6
322.73	2215.95	324.51	2216	329.2	2216.4	353.05	2218	360.61	2219.15

364.5	2219.42	365.76	2219.48	366.64	2219.5	367.82	2219.55	368.05	2219.54
369	2219.57	369.73	2219.6	370.14	2219.51	370.59	2219.5	374.07	2218.8
378.37	2218.18	379.41	2218	384.96	2217.01	391.84	2216	394.89	2215.87
417.34	2215.04	418.09	2215.06	419.49	2215.01	423.95	2214.9	426.16	2214.79
431.66	2214.76	433.45	2214.79	436.52	2214.89	445.34	2215.2	462.78	2215.97
464.58	2216	475.1	2216.18	477.9	2216.88	481.74	2217.4	484.56	2216.94
492.99	2216.47	494.97	2216.31	495.12	2216.31	495.13	2216.3	496.83	2216.35
500.4	2216.27	500.68	2216.27	501.22	2216.23	504.84	2216.3	509.3	2216.46
515.84	2216.73	520.38	2217.08	523.7	2217.23	524	2217.2	524.12	2217.19
524.56	2217.19	525.66	2217.25	533.74	2217.38	537.21	2217.5	542.73	2217.75
544.06	2217.78	544.5	2217.78	544.9	2217.78	545.72	2217.8	545.94	2217.8
546.1	2217.8	546.35	2217.8	547.43	2217.82	547.77	2217.8	557.8	2218
560.77	2218.1	567.58	2218.41	571.81	2218.63	574.6	2218.7	591.15	2220
591.92	2220	607.77	2220	610.76	2220	615.28	2220	616.27	2219.87
617.22	2219.84	631.11	2219.86	633.46	2220	635.61	2220	638.72	2220
643.25	2220	646.99	2220	658.67	2220	665.06	2220	671.14	2220
676.26	2220	678.14	2220	685.7	2220	694.89	2220	701.05	2220
701.82	2220								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.04	157.62	.028	179.03	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
92	369	124.56	89.12 150.96	.1	.3

Right Levee Station= 367 Elevation=

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	2217.80	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.09	Wt. n-Val.		0.035	
W.S. Elev (ft)	2217.72	Reach Len. (ft)	124.56	89.12	150.96
Crit W.S. (ft)	2215.31	Flow Area (sq ft)		776.97	
E.G. Slope (ft/ft)	0.000585	Area (sq ft)		776.97	
Q Total (cfs)	1818.00	Flow (cfs)		1818.00	
Top Width (ft)	247.09	Top Width (ft)		247.09	
Vel Total (ft/s)	2.34	Avg. Vel. (ft/s)		2.34	
Max Chl Dpth (ft)	7.72	Hydr. Depth (ft)		3.14	
Conv. Total (cfs)	75182.7	Conv. (cfs)		75182.7	
Length Wtd. (ft)	94.81	Wetted Per. (ft)		248.29	
Min Ch El (ft)	2210.00	Shear (lb/sq ft)		0.11	
Alpha	1.00	Stream Power (lb/ft s)		0.27	
Frctn Loss (ft)	0.15	Cum Volume (acre-ft)	6.11	14.34	2.60
C & E Loss (ft)	0.07	Cum SA (acres)	3.08	4.89	1.87

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	2218.80	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.08	Wt. n-Val.		0.035	
W.S. Elev (ft)	2218.72	Reach Len. (ft)	124.56	89.12	150.96
Crit W.S. (ft)	2215.34	Flow Area (sq ft)		787.34	
E.G. Slope (ft/ft)	0.000357	Area (sq ft)		787.34	
Q Total (cfs)	1818.00	Flow (cfs)		1818.00	
Top Width (ft)	159.00	Top Width (ft)		159.00	
Vel Total (ft/s)	2.31	Avg. Vel. (ft/s)		2.31	
Max Chl Dpth (ft)	8.72	Hydr. Depth (ft)		4.95	
Conv. Total (cfs)	96193.8	Conv. (cfs)		96193.8	
Length Wtd. (ft)	101.77	Wetted Per. (ft)		167.51	
Min Ch El (ft)	2210.00	Shear (lb/sq ft)		0.10	
Alpha	1.00	Stream Power (lb/ft s)		0.24	
Frctn Loss (ft)	0.11	Cum Volume (acre-ft)	6.07	12.13	2.65
C & E Loss (ft)	0.09	Cum SA (acres)	3.02	2.46	1.71

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: Tropicana Wash
REACH: Tropicana Wash RS: 63.488

INPUT
Description: 17
Station Elevation Data num= 133

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2219.2	.44	2219.19	10.95	2219.24	31.29	2219.26	41.02	2219.34
49.43	2219.4	57.63	2219.3	66.45	2219.11	72.43	2218.96	85.5	2218.96
87.22	2218.9	90.06	2218.95	100.94	2218.95	102.79	2218.97	108.31	2218.96
109.55	2218.9	121.33	2218.38	126.8	2218.64	126.98	2218.67	127.42	2218.69
128.22	2218.7	133.7	2218	140.8	2217.67	143.87	2217.63	153.41	2217.54
154.88	2217.6	166.9	2218	187.92	2216.85	189.51	2217.02	189.59	2217.01
191.84	2217.1	193.03	2216.9	194.02	2216.83	194.82	2216.87	195.22	2216.7
196.81	2216	199.38	2215.2	201.94	2214	205.43	2212.35	206.16	2212
207.31	2211.46	210.06	2210	210.69	2209.75	211.23	2210	213.2	2210
214.31	2211.15	215.2	2212	217.02	2213.98	217.05	2214	217.27	2214.01
217.39	2214.01	217.64	2214	245.7	2214.94	274	2215.9	277.07	2216
282.43	2216	295.31	2216	304.14	2216	326.75	2216	333.76	2216
361.85	2215.66	372.25	2216	393.16	2217.16	407.96	2218	408.08	2217.99
408.1	2218	408.14	2218	408.24	2218	408.29	2218	416.25	2218.71
420.66	2218.95	421.78	2219	422.12	2219	424.79	2219	432.29	2219.44
432.91	2219.52	433.71	2219.53	435.96	2219.39	439.67	2219.1	441	2218.92
444.41	2218.68	449.45	2218	458.31	2217.44	461.2	2217.3	463.76	2217.09
466.91	2216.91	475.8	2216.86	510.1	2217.06	516.78	2217.8	517.43	2217.83
518.2	2217.88	520.09	2218	523.54	2218	544.57	2218	554.21	2218
556.01	2218	556.88	2218	578.84	2218	590.9	2218	594	2218
604.6	2218.34	616.42	2218.78	625.05	2219.12	628.28	2219.1	628.66	2219.05
630.38	2218.82	633.17	2218.67	634.41	2218.57	643.34	2218.6	648.28	2218.5
649.01	2218.51	658.23	2218.57	668.84	2218.55	674.53	2218.4	679.57	2218.29
679.81	2218.26	679.94	2218.25	681.85	2218.25	682.69	2218.3	683.74	2218.34
688.33	2218.4	695.15	2218.68	695.96	2218.76	699.48	2219	699.62	2219.02
703.89	2219.01	708.35	2219.01	711.49	2219.03	718.67	2219	721.72	2218.94
728.71	2218.86	731.44	2218.79	734.78	2218.82				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.04	201.94	.028	215.2	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
195.22	274	170.98	168.37	160.12	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

			Left OB	Channel	Right OB
E.G. Elev (ft)	2217.59	Element	0.040	0.038	0.040
Vel Head (ft)	0.76	Wt. n-Val.	170.98	168.37	160.12
W.S. Elev (ft)	2216.83	Reach Len. (ft)	0.02	196.48	94.41
Crit W.S. (ft)	2216.83	Flow Area (sq ft)	0.02	196.48	94.41
E.G. Slope (ft/ft)	0.011605	Area (sq ft)	0.01	1483.32	334.67
Q Total (cfs)	1818.00	Flow (cfs)	0.30	78.78	113.21
Top Width (ft)	192.29	Top Width (ft)	0.61	7.55	3.54
Vel Total (ft/s)	6.25	Avg. Vel. (ft/s)	0.06	2.49	0.83
Max Chl Dpth (ft)	7.08	Hydr. Depth (ft)	0.1	13769.4	3106.7
Conv. Total (cfs)	16876.2	Conv. (cfs)	0.33	82.09	113.24
Length Wtd. (ft)	167.61	Wetted Per. (ft)	0.04	1.73	0.60
Min Ch El (ft)	2209.75	Shear (lb/sq ft)	0.03	13.09	2.14
Alpha	1.25	Stream Power (lb/ft s)	6.10	13.35	2.43
Frctn Loss (ft)	0.59	Cum Volume (acre-ft)	3.08	4.55	1.68
C & E Loss (ft)	0.19	Cum SA (acres)			

Warning: The energy equation could not be balanced within the specified number of iterations. The

program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	2218.60	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.98	Wt. n-Val.		0.040	0.040
W.S. Elev (ft)	2217.62	Reach Len. (ft)	170.98	168.37	160.12
Crit W.S. (ft)	2217.62	Flow Area (sq ft)		123.24	111.59
E.G. Slope (ft/ft)	0.017368	Area (sq ft)		123.24	111.59
Q Total (cfs)	1818.00	Flow (cfs)		1074.07	743.93
Top Width (ft)	117.00	Top Width (ft)		48.50	68.50
Vel Total (ft/s)	7.74	Avg. Vel. (ft/s)		8.72	6.67
Max Chl Dpth (ft)	3.36	Hydr. Depth (ft)		2.54	1.63
Conv. Total (cfs)	13795.1	Conv. (cfs)		8150.1	5645.0
Length Wtd. (ft)	166.69	Wetted Per. (ft)		51.88	70.23
Min Ch El (ft)	2214.26	Shear (lb/sq ft)		2.58	1.72
Alpha	1.05	Stream Power (lb/ft s)		22.45	11.49
Frctn Loss (ft)	0.65	Cum Volume (acre-ft)	6.07	11.20	2.46
C & E Loss (ft)	0.26	Cum SA (acres)	3.02	2.25	1.59

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Tropicana Wash
REACH: Tropicana Wash RS: 63.456

INPUT
Description: 16
Station Elevation Data num= 132

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2217	16	2216	58	2216	104	2215	160	2214
213.75	2213	236.35	2212	244.14	2212.45	254.41	2212.36	279.47	2212.49
279.86	2212.48	287.12	2212.5	287.16	2212.45	287.29	2212.44	288.67	2212.45
290.84	2212.46	294.31	2212.5	311.94	2212.74	322.33	2212.75	330.86	2213.07
333.29	2213.11	333.37	2213.1	333.56	2213.11	337.1	2213.07	337.97	2213.06
338.59	2213.05	341.1	2213	352.17	2212.9	366.49	2212.74	371.11	2212.78
375.32	2212.73	390.54	2212.5	405.03	2212.76	407.12	2212.67	411.72	2212.56
413.07	2212.52	419.93	2213.6	420.7	2213.46	420.97	2213.4	422.82	2213.82
423.61	2214	424.44	2214	424.57	2213.8	425.73	2212.23	425.84	2212
425.88	2211.85	426.36	2210	426.7	2208.7	426.88	2208	431.59	2208
439.98	2208	441.64	2209.75	441.86	2210	442.4	2210.57	444.01	2212
444.09	2212	446.62	2212.14	446.94	2212.2	448.88	2212.28	449.82	2212.24
451.71	2212.24	451.88	2212.24	453.44	2212.2	453.59	2212.22	454.87	2212.2
455.33	2212.18	455.36	2212.18	455.74	2212.2	455.78	2212.2	463.07	2212.29
482.33	2212.68	493.48	2212.89	497.81	2212.97	536.09	2213.5	569.81	2214
576.49	2214	577.13	2214	584.66	2214	597.2	2214	597.78	2214.03
598	2214.04	605.56	2214.47	619.36	2214.64	620.69	2214.6	628.43	2214.66
636.45	2214.68	638.32	2214.68	642.74	2214.69	671.12	2216	674.4	2216

675.46	2216	688.37	2216	695.56	2216	701.55	2216	707.96	2216
719.82	2216	722.62	2216	732.11	2216	742.62	2216	751.14	2216
754.85	2216	767.15	2216.46	777.51	2216.11	786.52	2216	788.08	2216
788.52	2216	788.94	2216.04	789.22	2216.05	789.44	2216	789.83	2216.05
790	2216.05	862.87	2218	864.21	2218	887.59	2218	893.01	2218
899.89	2218	914.32	2218	916.25	2218	918.92	2218	919.02	2218
930.33	2218	932.41	2218	936.53	2218	944	2218	948.43	2218
951.65	2218	955.18	2218	975.81	2218	976.42	2218	976.68	2218
978.57	2218	983.77	2218						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.04	424.44	.025	426.88	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
422.82	455.78	351.75	244.62 156.19	.1	.3

Left Levee Station= 187.2 Elevation=

CROSS SECTION OUTPUT Profile #PF 1

			Left OB	Channel	Right OB
E.G. Elev (ft)	2214.69	Element			
Vel Head (ft)	0.11	Wt. n-Val.	0.040	0.038	0.040
W.S. Elev (ft)	2214.58	Reach Len. (ft)	351.75	244.62	156.19
Crit W.S. (ft)	2213.75	Flow Area (sq ft)	469.74	140.33	183.03
E.G. Slope (ft/ft)	0.001685	Area (sq ft)	469.74	140.33	183.03
Q Total (cfs)	1818.00	Flow (cfs)	975.63	535.35	307.02
Top Width (ft)	486.75	Top Width (ft)	295.21	32.96	158.58
Vel Total (ft/s)	2.29	Avg. Vel. (ft/s)	2.08	3.81	1.68
Max Chl Dpth (ft)	6.58	Hydr. Depth (ft)	1.59	4.26	1.15
Conv. Total (cfs)	44293.8	Conv. (cfs)	23770.3	13043.3	7480.3
Length Wtd. (ft)	269.71	Wetted Per. (ft)	295.45	38.79	158.61
Min Ch El (ft)	2208.00	Shear (lb/sq ft)	0.17	0.38	0.12
Alpha	1.35	Stream Power (lb/ft s)	0.35	1.45	0.20
Frctn Loss (ft)	0.03	Cum Volume (acre-ft)	5.18	12.70	1.92
C & E Loss (ft)	0.03	Cum SA (acres)	2.50	4.34	1.18

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #PF 2

			Left OB	Channel	Right OB
E.G. Elev (ft)	2214.69	Element			
Vel Head (ft)	0.11	Wt. n-Val.	0.040	0.038	0.040
W.S. Elev (ft)	2214.58	Reach Len. (ft)	351.75	244.62	156.19
Crit W.S. (ft)	2213.75	Flow Area (sq ft)	469.74	140.33	183.03
E.G. Slope (ft/ft)	0.001685	Area (sq ft)	469.74	140.33	183.03
Q Total (cfs)	1818.00	Flow (cfs)	975.63	535.35	307.02
Top Width (ft)	486.75	Top Width (ft)	295.21	32.96	158.58
Vel Total (ft/s)	2.29	Avg. Vel. (ft/s)	2.08	3.81	1.68
Max Chl Dpth (ft)	6.58	Hydr. Depth (ft)	1.59	4.26	1.15
Conv. Total (cfs)	44293.8	Conv. (cfs)	23770.3	13043.3	7480.3
Length Wtd. (ft)	269.71	Wetted Per. (ft)	295.45	38.79	158.61
Min Ch El (ft)	2208.00	Shear (lb/sq ft)	0.17	0.38	0.12
Alpha	1.35	Stream Power (lb/ft s)	0.35	1.45	0.20
Frctn Loss (ft)	0.03	Cum Volume (acre-ft)	5.15	10.69	1.92
C & E Loss (ft)	0.03	Cum SA (acres)	2.44	2.09	1.17

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Tropicana Wash
REACH: Tropicana Wash RS: 63.410

INPUT
Description: Upstream X-Section from UPRR culvert crossing

Station Elevation Data num= 268

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2210.9	36.48	2211.36	92.93	2212	96	2212.05	101.85	2212.16
105.47	2212	111.81	2212.85	134.1	2212.82	149.87	2212.52	159.18	2212.25
159.28	2212.2	162.39	2212.24	165.52	2212.27	172.05	2212.27	176.75	2212
192.12	2212.6	196.53	2212.56	201.84	2212.47	221	2212.1	221.91	2212.08
223.91	2212	234.34	2211.46	256.78	2210.3	258.15	2210.24	259.73	2210.26
261.35	2210.24	261.57	2210.3	262.27	2210.23	262.95	2210	264.76	2209.45
269.59	2208	274.08	2208	280.39	2208	284.55	2208	287.19	2208
294.58	2208	298.18	2208	306.6	2208	308.51	2208	308.77	2208
313.09	2207.48	315.61	2207.5	325	2206	329.71	2205.35	329.8	2205.34
329.84	2205.33	337.33	2205.5	337.68	2205.43	339.97	2205.02	341.12	2204
341.59	2204	344	2202	346	2200	348	2200	350.39	2200
354	2200	354.02	2200	354.03	2200	355.33	2204	356.19	2204
356.73	2204	357.27	2204	360.06	2204	363.07	2204	366.12	2204
367.32	2204	386.72	2204.06	387.13	2204.05	387.21	2204.05	393.12	2204.1
398	2205.12	401.43	2205.85	402.09	2205.91	403.32	2206	411.2	2206.6
412.73	2206.74	417.57	2206.95	420.99	2207.11	424.97	2207.49	431.1	2208
435.35	2208.2	444.45	2210	444.61	2210.01	444.76	2210.01	449.85	2210.2
450.63	2210.2	454.3	2210.41	454.83	2210.42	458.15	2210.41	460.14	2210.59
469.99	2211.5	473.35	2211.85	474.42	2211.92	474.48	2211.92	475.54	2212
476.08	2212	476.39	2212	476.71	2212	480.72	2212	485.5	2212
486.07	2212	486.67	2212	497.72	2212	498.77	2212	509.24	2212
511.21	2212	512.02	2212	517.74	2212	522.65	2212	528.06	2212
534.05	2212	538.74	2211.4	540.99	2212	560.14	2212	565.12	2212
565.49	2212	571.16	2212	572.18	2212.44	574.28	2213.2	579.45	2213.31
582.38	2213.3	582.69	2213.33	593.13	2213.37	593.53	2213.37	593.65	2213.37
593.7	2213.4	596.61	2213.39	608.65	2213.42	608.8	2213.42	614.28	2213.43
615.65	2213.5	631.67	2213.52	638.25	2213.54	649.99	2213.57	673.89	2213.7
687.3	2213.7	702.01	2214	702.63	2214.19	704.45	2214	704.75	2214
715.6	2215	721.95	2215.04	726.25	2214.89	731.3	2214.89	738.17	2214.79
741.55	2214.8	747.04	2214.88	754.33	2215.29	762.28	2215.37	764.67	2215.51
769.15	2215.6	772.39	2215.56	790.82	2215.58	809.25	2215.58	813.45	2215.57
823.25	2215.6	831.98	2216	833.02	2216	835.01	2216	839.28	2216
841.72	2216	851.58	2216	862	2216	866.37	2216	867.41	2216
884.46	2216	888.78	2216	904.53	2216	911.24	2216	913.2	2216.07
915.45	2216	927.61	2216	933.97	2216	938.51	2216	949.86	2216
960.06	2217.1	966.62	2217.12	971.64	2217.12	980.24	2217.14	983.79	2217.13
1016.09	2218	1016.75	2218	1046.09	2218	1048.69	2218	1052.05	2218
1059.33	2218	1062.04	2218	1065.76	2218	1065.82	2218	1081.41	2218
1084.23	2218	1086.6	2218	1096.82	2218	1099.55	2218	1101.55	2218
1106.59	2218	1121.05	2218	1125.66	2218	1133.07	2218	1140.25	2218
1141.48	2218	1141.85	2218	1145.4	2218	1145.69	2218	1145.76	2218
1154.33	2218	1154.8	2218	1160.08	2218	1164.28	2218	1164.95	2218
1169.27	2218	1170.83	2218	1178.71	2218	1205.31	2219.39	1216.92	2220
1217.3	2220	1219.13	2220.2	1220.65	2220.2	1221.56	2220.22	1222.9	2220.23
1223.46	2220.2	1232.69	2220.64	1258.28	2222	1267.76	2222.36	1270.47	2222.35
1275.45	2222.4	1282.05	2222.36	1287.3	2222.26	1288.39	2222.28	1301.94	2222.04
1302.07	2222	1303.82	2222	1306.35	2221.93	1318.41	2221.8	1324.52	2221.61
1324.89	2221.6	1330.93	2220.81	1337.25	2220.59	1340.56	2220.58	1341.05	2220.63
1344.76	2221	1344.94	2220.97	1350.62	2220.73	1350.65	2220.73	1350.93	2220.76
1355.87	2221	1356.06	2221	1360.23	2220.95	1365.92	2220.87	1371.43	2220.44
1372.78	2220.4	1375.01	2220.42	1382.29	2220.65	1384.01	2220.66	1387.39	2220.58
1389.55	2220.5	1391.16	2220.5	1392.62	2220.45	1396.39	2220.57	1402.08	2220.54
1409.63	2220.7	1435.23	2221.79	1436.55	2221.8	1438.71	2221.94	1439.32	2221.95
1439.98	2222	1440.41	2221.99	1441.15	2222				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.04	234.34	.04	460.14	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
234.34	460.14	112.33	111.64	151.37	.3	.5

CROSS SECTION OUTPUT Profile #PF 1

			Left OB	Channel	Right OB
E.G. Elev (ft)	2214.63	Element	0.040	0.040	0.040
Vel Head (ft)	0.01	Wt. n-Val.	112.33	111.64	151.37
W.S. Elev (ft)	2214.62	Reach Len. (ft)	610.91	1727.59	450.07
Crit W.S. (ft)	2206.52	Flow Area (sq ft)	610.91	1727.59	450.07
E.G. Slope (ft/ft)	0.000034	Area (sq ft)	247.73	1426.83	143.44
Q Total (cfs)	1818.00	Flow (cfs)			

Top Width (ft)	711.49	Top Width (ft)	234.34	225.80	251.35
Vel Total (ft/s)	0.65	Avg. Vel. (ft/s)	0.41	0.83	0.32
Max Chl Dpth (ft)	14.62	Hydr. Depth (ft)	2.61	7.65	1.79
Conv. Total (cfs)	312062.9	Conv. (cfs)	42522.8	244918.1	24622.0
Length Wtd. (ft)	111.64	Wetted Per. (ft)	238.19	231.73	251.84
Min Ch El (ft)	2200.00	Shear (lb/sq ft)	0.01	0.02	0.00
Alpha	1.33	Stream Power (lb/ft s)	0.00	0.01	0.00
Frctn Loss (ft)		Cum Volume (acre-ft)	0.82	7.45	0.79
C & E Loss (ft)		Cum SA (acres)	0.36	3.61	0.44

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	2214.63	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.01	Wt. n-Val.	0.040	0.040	0.040
W.S. Elev (ft)	2214.62	Reach Len. (ft)	112.33	111.64	151.37
Crit W.S. (ft)	2206.52	Flow Area (sq ft)	610.91	1727.59	450.07
E.G. Slope (ft/ft)	0.000034	Area (sq ft)	610.91	1727.59	450.07
Q Total (cfs)	1818.00	Flow (cfs)	247.73	1426.83	143.44
Top Width (ft)	711.49	Top Width (ft)	234.34	225.80	251.35
Vel Total (ft/s)	0.65	Avg. Vel. (ft/s)	0.41	0.83	0.32
Max Chl Dpth (ft)	14.62	Hydr. Depth (ft)	2.61	7.65	1.79
Conv. Total (cfs)	312062.9	Conv. (cfs)	42522.8	244918.1	24622.0
Length Wtd. (ft)	111.64	Wetted Per. (ft)	238.19	231.73	251.84
Min Ch El (ft)	2200.00	Shear (lb/sq ft)	0.01	0.02	0.00
Alpha	1.33	Stream Power (lb/ft s)	0.00	0.01	0.00
Frctn Loss (ft)		Cum Volume (acre-ft)	0.79	5.45	0.78
C & E Loss (ft)		Cum SA (acres)	0.30	1.37	0.44

CULVERT

RIVER: Tropicana Wash
REACH: Tropicana Wash RS: 63.397

INPUT
Description: Culvert Crossing at UPRR
Distance from Upstream XS = 46
Deck/Roadway Width = 46
Weir Coefficient = 2.6
Upstream Deck/Roadway Coordinates
num= 7

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
0	2216	2197	303	2214	2197	343	2212	2197
348	2212	2197	353	2212	2197	408	2214	2197
1440	2216	2197						

Upstream Bridge Cross Section Data
Station Elevation Data num= 268

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2210.9	36.48	2211.36	92.93	2212	96	2212.05	101.85	2212.16
105.47	2212	111.81	2212.85	134.1	2212.82	149.87	2212.52	159.18	2212.25
159.28	2212.2	162.39	2212.24	165.52	2212.27	172.05	2212.27	176.75	2212
192.12	2212.6	196.53	2212.56	201.84	2212.47	221	2212.1	221.91	2212.08
223.91	2212	234.34	2211.46	256.78	2210.3	258.15	2210.24	259.73	2210.26
261.35	2210.24	261.57	2210.3	262.27	2210.23	262.95	2210	264.76	2209.45
269.59	2208	274.08	2208	280.39	2208	284.55	2208	287.19	2208
294.58	2208	298.18	2208	306.6	2208	308.51	2208	308.77	2208
313.09	2207.48	315.61	2207.5	325	2206	329.71	2205.35	329.8	2205.34
329.84	2205.33	337.33	2205.5	337.68	2205.43	339.97	2205.02	341.12	2204
341.59	2204	344	2202	346	2200	348	2200	350.39	2200
354	2200	354.02	2200	354.03	2200	355.33	2204	356.19	2204
356.73	2204	357.27	2204	360.06	2204	363.07	2204	366.12	2204
367.32	2204	386.72	2204.06	387.13	2204.05	387.21	2204.05	393.12	2204.1
398	2205.12	401.43	2205.85	402.09	2205.91	403.32	2206	411.2	2206.6
412.73	2206.74	417.57	2206.95	420.99	2207.11	424.97	2207.49	431.1	2208
435.35	2208.2	444.45	2210	444.61	2210.01	444.76	2210.01	449.85	2210.2
450.63	2210.2	454.3	2210.41	454.83	2210.42	458.15	2210.41	460.14	2210.59
469.99	2211.5	473.35	2211.85	474.42	2211.92	474.48	2211.92	475.54	2212
476.08	2212	476.39	2212	476.71	2212	480.72	2212	485.5	2212
486.07	2212	486.67	2212	497.72	2212	498.77	2212	509.24	2212

511.21	2212	512.02	2212	517.74	2212	522.65	2212	528.06	2212
534.05	2212	538.74	2211.4	540.99	2212	560.14	2212	565.12	2212
565.49	2212	571.16	2212	572.18	2212.44	574.28	2213.2	579.45	2213.31
582.38	2213.3	582.69	2213.33	593.13	2213.37	593.53	2213.37	593.65	2213.37
593.7	2213.4	596.61	2213.39	608.65	2213.42	608.8	2213.42	614.28	2213.43
615.65	2213.5	631.67	2213.52	638.25	2213.54	649.99	2213.57	673.89	2213.7
687.3	2213.7	702.01	2214	702.63	2214.19	704.45	2214	704.75	2214
715.6	2215	721.95	2215.04	726.25	2214.89	731.3	2214.89	738.17	2214.79
741.55	2214.8	747.04	2214.88	754.33	2215.29	762.28	2215.37	764.67	2215.51
769.15	2215.6	772.39	2215.56	790.82	2215.58	809.25	2215.58	813.45	2215.57
823.25	2215.6	831.98	2216	833.02	2216	835.01	2216	839.28	2216
841.72	2216	851.58	2216	862	2216	866.37	2216	867.41	2216
884.46	2216	888.78	2216	904.53	2216	911.24	2216	913.2	2216.07
915.45	2216	927.61	2216	933.97	2216	938.51	2216	949.86	2216
960.06	2217.1	966.62	2217.12	971.64	2217.12	980.24	2217.14	983.79	2217.13
1016.09	2218	1016.75	2218	1046.09	2218	1048.69	2218	1052.05	2218
1059.33	2218	1062.04	2218	1065.76	2218	1065.82	2218	1081.41	2218
1084.23	2218	1086.6	2218	1096.82	2218	1099.55	2218	1101.55	2218
1106.59	2218	1121.05	2218	1125.66	2218	1133.07	2218	1140.25	2218
1141.48	2218	1141.85	2218	1145.4	2218	1145.69	2218	1145.76	2218
1154.33	2218	1154.8	2218	1160.08	2218	1164.28	2218	1164.95	2218
1169.27	2218	1170.83	2218	1178.71	2218	1205.31	2219.39	1216.92	2220
1217.3	2220	1219.13	2220.2	1220.65	2220.2	1221.56	2220.22	1222.9	2220.23
1223.46	2220.2	1232.69	2220.64	1258.28	2222	1267.76	2222.36	1270.47	2222.35
1275.45	2222.4	1282.05	2222.36	1287.3	2222.26	1288.39	2222.28	1301.94	2222.04
1302.07	2222	1303.82	2222	1306.35	2221.93	1318.41	2221.8	1324.52	2221.61
1324.89	2221.6	1330.93	2220.81	1337.25	2220.59	1340.56	2220.58	1341.05	2220.63
1344.76	2221	1344.94	2220.97	1350.62	2220.73	1350.65	2220.73	1350.93	2220.76
1355.87	2221	1356.06	2221	1360.23	2220.95	1365.92	2220.87	1371.43	2220.44
1372.78	2220.4	1375.01	2220.42	1382.29	2220.65	1384.01	2220.66	1387.39	2220.58
1389.55	2220.5	1391.16	2220.5	1392.62	2220.45	1396.39	2220.57	1402.08	2220.54
1409.63	2220.7	1435.23	2221.79	1436.55	2221.8	1438.71	2221.94	1439.32	2221.95
1439.98	2222	1440.41	2221.99	1441.15	2222				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.04	234.34	.04	460.14	.04

Bank Sta: Left	Right	Coeff Contr.	Expan.
234.34	460.14	.3	.5

Downstream Deck/Roadway Coordinates

num= 7

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
0	2216	2197	202	2214	2197	242	2212	2197
247	2212	2197	252	2212	2197	307	2214	2197
641.86	2216	2197						

Downstream Bridge Cross Section Data

Station Elevation Data num= 162

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2212	3.13	2211.91	3.43	2211.9	13.74	2212	16.96	2212.03
17.17	2212	25.85	2210.73	33.32	2210.64	42.76	2210.53	60.46	2211.13
71.77	2211.5	73.47	2211.57	77.14	2211.67	79.49	2211.66	86.55	2211.62
90.85	2211.2	96.25	2210.74	100.44	2210.77	104.64	2210.81	110.29	2210.81
116.46	2210.8	121.02	2211.36	125.88	2211.94	126.12	2211.94	131.12	2211.89
131.58	2211.9	132.64	2211.89	141.15	2211.82	144.37	2211.99	144.4	2211.99
152.26	2211.59	155.94	2211.4	162.9	2211.33	166.82	2211.34	173.52	2211.44
183.02	2211.5	187.65	2211.5	192.47	2211.96	192.48	2211.96	192.53	2211.98
192.63	2212	200.84	2213.13	214.39	2213.96	214.64	2213.97	214.67	2213.96
214.86	2213.9	217.91	2213.44	220.42	2213.34	222	2213.39	224.04	2212
225.03	2211.3	226.97	2210	227.19	2209.84	227.58	2209.58	231.18	2208
231.77	2207.7	231.79	2207.73	232.31	2207.56	235.16	2206.46	239.7	2204.72
241	2200	242.32	2200	244.42	2200	250.76	2200	252.74	2203.03
255.77	2204	256.69	2204.8	257.56	2206	258.36	2210.44	258.65	2211.3
259.45	2211.48	259.52	2211.5	262	2211.15	264.8	2210.76	271.11	2210.55
275.62	2210.39	285.66	2211.6	289.13	2212	296.19	2212.84	301.38	2213.46
306.33	2212	312.36	2210.2	313.11	2210	314.09	2209.71	317.96	2209.67
318.02	2209.66	318.13	2209.7	318.69	2209.74	319.81	2210	323.24	2210.79
328.51	2212	330.31	2212.4	339.41	2212.33	342	2212.31	345.59	2212.43
346.25	2212.45	347.02	2212.47	348.98	2212.6	355.21	2213.03	358.52	2213.02
365.08	2213.01	368.3	2213.1	375.11	2213.2	379.23	2213.29	387.11	2213.56

```
  388.21  2213.6  390.12 2213.58  395.03  2213.5  396.38 2213.56  407.49 2213.81
  410.89 2213.65  423.62 2213.07  427.24  2213.2   431.7 2213.34  438.07 2213.42
  439.96 2213.49  453.19    2214  453.33    2214  453.36 2214.01  458.08 2214.43
  459.24 2214.53  462.71 2214.73  470.29  2215.7  474.22 2215.53  475.15 2215.61
  476.03 2215.65  476.85 2215.66  485.28  2215.7  487.04 2215.71  495.29 2215.74
  495.61 2215.74  506.52 2215.74  510.61  2215.7  516.02 2215.77  527.38 2215.84
  527.55 2215.84  527.84 2215.84  535.45  2215.4  537.11 2215.43  553.34 2215.86
  554.89 2215.86  555.72 2215.87  574.14  2215.9  574.55  2215.9  575.03  2215.9
   575.2 2215.81  575.53 2215.75  588.86  2215.9     589 2215.88  589.13 2215.92
  601.01 2215.91  601.23 2215.94  601.58  2215.9  601.84 2215.94  610.62 2215.84
  611.97 2215.84  621.06 2215.89  630.65  2215.9  630.88 2215.93  630.89 2215.93
   631.8 2215.82  641.86    2216

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .06  132.64     .05  345.59     .06

Bank Sta: Left   Right    Coeff Contr.   Expan.
        132.64  345.59            .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
       0     242               T
     252  641.86               T

Upstream Embankment side slope              =     3.6 horiz. to 1.0 vertical
Downstream Embankment side slope            =     3.7 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow =     .95
Elevation at which weir flow begins         =
Energy head used in spillway design         =
Spillway height used in design              =
Weir crest shape                            = Broad Crested

Number of Culverts =  1

Culvert Name     Shape      Rise    Span
Culvert #1      Circular      10
FHWA Chart # 2 - Corrugated Metal Pipe Culvert
FHWA Scale # 2 - Mitered to conform to slope
Solution Criteria = Inlet control
Culvert Upstrm Dist  Length    Top n  Bottom n  Depth Blocked  Entrance Loss Coef   Exit Loss Coef
               8.1    92.4     .031      .031        0                  .5                1
Upstream   Elevation =  2199.99
           Centerline Station =  348
Downstream Elevation =  2200
           Centerline Station =  247

CULVERT OUTPUT  Profile #PF 1  Culv Group:  Culvert #1

  Q Culv Group (cfs)        985.24    Culv Full Len (ft)         29.46
  # Barrels                    1      Culv Vel US (ft/s)         12.54
  Q Barrel (cfs)            985.24    Culv Vel DS (ft/s)         15.46
  E.G. US. (ft)            2214.63    Culv Inv El Up (ft)      2199.99
  W.S. US. (ft)            2214.62    Culv Inv El Dn (ft)      2200.00
  E.G. DS (ft)             2208.50    Culv Frctn Ls (ft)          2.13
  W.S. DS (ft)             2205.69    Culv Exit Loss (ft)         2.77
  Delta EG (ft)               6.13    Culv Entr Loss (ft)         1.22
  Delta WS (ft)               8.93    Q Weir (cfs)              832.76
  E.G. IC (ft)             2214.63    Weir Sta Lft (ft)         206.46
  E.G. OC (ft)             2214.63    Weir Sta Rgt (ft)         711.67
  Culvert Control            Inlet    Weir Submerg                0.00
  Culv WS Inlet (ft)       2209.99    Weir Max Depth (ft)         2.64
  Culv WS Outlet (ft)      2207.56    Weir Avg Depth (ft)         0.63
  Culv Nml Depth (ft)                 Weir Flow Area (sq ft)    316.88
  Culv Crt Depth (ft)         7.56    Min El Weir Flow (ft)    2212.01


Warning: The inlet is submerged and the outlet computations indicate that the culvert would flow full over
         all or part of its length.   The program would normally default to the outlet answer.  However, the
         user has requested that the inlet answer be used.

CULVERT OUTPUT  Profile #PF 2  Culv Group:  Culvert #1
```

Q Culv Group (cfs)	985.24	Culv Full Len (ft)	29.46
# Barrels	1	Culv Vel US (ft/s)	12.54
Q Barrel (cfs)	985.24	Culv Vel DS (ft/s)	15.46
E.G. US. (ft)	2214.63	Culv Inv El Up (ft)	2199.99
W.S. US. (ft)	2214.62	Culv Inv El Dn (ft)	2200.00
E.G. DS (ft)	2208.50	Culv Frctn Ls (ft)	2.13
W.S. DS (ft)	2205.69	Culv Exit Loss (ft)	2.77
Delta EG (ft)	6.13	Culv Entr Loss (ft)	1.22
Delta WS (ft)	8.93	Q Weir (cfs)	832.76
E.G. IC (ft)	2214.63	Weir Sta Lft (ft)	206.46
E.G. OC (ft)	2214.63	Weir Sta Rgt (ft)	711.67
Culvert Control	Inlet	Weir Submerg	0.00
Culv WS Inlet (ft)	2209.99	Weir Max Depth (ft)	2.64
Culv WS Outlet (ft)	2207.56	Weir Avg Depth (ft)	0.63
Culv Nml Depth (ft)		Weir Flow Area (sq ft)	316.88
Culv Crt Depth (ft)	7.56	Min El Weir Flow (ft)	2212.01

Warning: The inlet is submerged and the outlet computations indicate that the culvert would flow full over all or part of its length. The program would normally default to the outlet answer. However, the user has requested that the inlet answer be used.

CROSS SECTION

RIVER: Tropicana Wash
REACH: Tropicana Wash RS: 63.389

INPUT
Description: Downstream X-Section from UPRR Culvert Crossing
Station Elevation Data num= 162

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2212	3.13	2211.91	3.43	2211.9	13.74	2212	16.96	2212.03
17.17	2212	25.85	2210.73	33.32	2210.64	42.76	2210.53	60.46	2211.13
71.77	2211.5	73.47	2211.57	77.14	2211.67	79.49	2211.66	86.55	2211.62
90.85	2211.2	96.25	2210.74	100.44	2210.77	104.64	2210.81	110.29	2210.81
116.46	2210.8	121.02	2211.36	125.88	2211.94	126.12	2211.94	131.12	2211.89
131.58	2211.9	132.64	2211.89	141.15	2211.82	144.37	2211.99	144.4	2211.99
152.26	2211.59	155.94	2211.4	162.9	2211.33	166.82	2211.34	173.52	2211.44
183.02	2211.5	187.65	2211.5	192.47	2211.96	192.48	2211.96	192.53	2211.98
192.63	2212	200.84	2213.13	214.39	2213.96	214.64	2213.97	214.67	2213.96
214.86	2213.9	217.91	2213.44	220.42	2213.34	222	2213.39	224.04	2212
225.03	2211.3	226.97	2210	227.19	2209.84	227.58	2209.58	231.18	2208
231.77	2207.7	231.79	2207.73	232.31	2207.56	235.16	2206.46	239.7	2204.72
241	2200	242.32	2200	244.42	2200	250.76	2200	252.74	2203.03
255.77	2204	256.69	2204.8	257.56	2206	258.36	2210.44	258.65	2211.3
259.45	2211.48	259.52	2211.5	262	2211.15	264.8	2210.76	271.11	2210.55
275.62	2210.39	285.66	2211.6	289.13	2212	296.19	2212.84	301.38	2213.46
306.33	2212	312.36	2210.2	313.11	2210	314.09	2209.71	317.96	2209.67
318.02	2209.66	318.13	2209.7	318.69	2209.74	319.81	2210	323.24	2210.79
328.51	2212	330.31	2212.4	339.41	2212.33	342	2212.31	345.59	2212.43
346.25	2212.45	347.02	2212.47	348.98	2212.6	355.21	2213.03	358.52	2213.02
365.08	2213.01	368.3	2213.1	375.11	2213.2	379.23	2213.29	387.11	2213.56
388.21	2213.6	390.12	2213.58	395.03	2213.5	396.38	2213.56	407.49	2213.81
410.89	2213.65	423.62	2213.07	427.24	2213.2	431.7	2213.34	438.07	2213.42
439.96	2213.49	453.19	2214	453.33	2214	453.36	2214.01	458.08	2214.43
459.24	2214.53	462.71	2214.73	470.29	2215.7	474.22	2215.53	475.15	2215.61
476.03	2215.65	476.85	2215.66	485.28	2215.7	487.04	2215.71	495.29	2215.74
495.61	2215.74	506.52	2215.74	510.61	2215.7	516.02	2215.77	527.38	2215.84
527.55	2215.84	527.84	2215.84	535.45	2215.4	537.11	2215.43	553.34	2215.86
554.89	2215.86	555.72	2215.87	574.14	2215.9	574.55	2215.9	575.03	2215.9
575.2	2215.81	575.53	2215.75	588.86	2215.9	589	2215.88	589.13	2215.92
601.01	2215.91	601.23	2215.94	601.58	2215.9	601.84	2215.94	610.62	2215.84
611.97	2215.84	621.06	2215.89	630.65	2215.9	630.88	2215.93	630.89	2215.93
631.8	2215.82	641.86	2216						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.06	132.64	.05	345.59	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
132.64	345.59	69.13	54.14	142.71	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
0	242		T
252	641.86		T

CROSS SECTION OUTPUT Profile #PF 1

			Left OB	Channel	Right OB
E.G. Elev (ft)	2208.50	Element			
Vel Head (ft)	2.81	Wt. n-Val.		0.050	
W.S. Elev (ft)	2205.69	Reach Len. (ft)	69.13	54.14	142.71
Crit W.S. (ft)	2205.69	Flow Area (sq ft)		55.72	
E.G. Slope (ft/ft)	0.023664	Area (sq ft)		77.41	
Q Total (cfs)	750.00	Flow (cfs)		750.00	
Top Width (ft)	20.16	Top Width (ft)		20.16	
Vel Total (ft/s)	13.46	Avg. Vel. (ft/s)		13.46	
Max Chl Dpth (ft)	5.69	Hydr. Depth (ft)		5.57	
Conv. Total (cfs)	4875.5	Conv. (cfs)		4875.5	
Length Wtd. (ft)	54.14	Wetted Per. (ft)		11.03	
Min Ch El (ft)	2200.00	Shear (lb/sq ft)		7.46	
Alpha	1.00	Stream Power (lb/ft s)		100.48	
Frctn Loss (ft)	0.56	Cum Volume (acre-ft)	0.03	5.14	0.01
C & E Loss (ft)	1.21	Cum SA (acres)	0.06	3.29	0.00

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION OUTPUT Profile #PF 2

			Left OB	Channel	Right OB
E.G. Elev (ft)	2208.50	Element			
Vel Head (ft)	2.81	Wt. n-Val.		0.050	
W.S. Elev (ft)	2205.69	Reach Len. (ft)	69.13	54.14	142.71
Crit W.S. (ft)	2205.69	Flow Area (sq ft)		55.75	
E.G. Slope (ft/ft)	0.023612	Area (sq ft)		77.48	
Q Total (cfs)	750.00	Flow (cfs)		750.00	
Top Width (ft)	20.18	Top Width (ft)		20.18	
Vel Total (ft/s)	13.45	Avg. Vel. (ft/s)		13.45	
Max Chl Dpth (ft)	5.69	Hydr. Depth (ft)		5.58	
Conv. Total (cfs)	4880.8	Conv. (cfs)		4880.8	
Length Wtd. (ft)	54.14	Wetted Per. (ft)		11.03	
Min Ch El (ft)	2200.00	Shear (lb/sq ft)		7.45	
Alpha	1.00	Stream Power (lb/ft s)		100.26	
Frctn Loss (ft)	0.39	Cum Volume (acre-ft)		3.14	
C & E Loss (ft)	1.28	Cum SA (acres)		1.05	

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION

RIVER: Tropicana Wash

REACH: Tropicana Wash RS: 63.379

INPUT
Description: 13
Station Elevation Data num= 102

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2209.7	3.33	2209.47	7.37	2209.09	10.79	2208.76	13.47	2208.6
14.72	2208.5	17.01	2208	21.2	2207.84	31.24	2206.88	37.74	2206.38
38.27	2206.4	39.01	2206.34	39.28	2206.3	40.58	2206.24	42.21	2206
48.28	2205.8	56.65	2205.71	68.46	2205.6	69	2205.52	79.4	2204
83.27	2204	87.56	2204	107.12	2203.48	109.27	2203.22	113.25	2203.12
123.99	2202.9	129.57	2202.84	131.1	2202.88	138.36	2202.72	138.48	2202.72
139.17	2202.7	142.65	2202.7	143.75	2202.69	146.02	2202.61	148.29	2202.61
153.61	2202.83	165	2203.5	175.45	2204	180.68	2204.32	182.52	2204.43
182.86	2204.45	187.16	2205	190.39	2205.46	190.52	2205.46	196.08	2205.41
196.51	2205.41	196.7	2205.4	196.84	2205.4	196.91	2205.4	204.21	2205.2
207.23	2204.92	209.76	2204.3	211.01	2204.29	212.92	2204	215.94	2203.48
223.36	2202.72	230.34	2202	232.57	2202	249.29	2202	251.83	2202
258.61	2202.52	262.6	2202.6	273.17	2203.11	288.12	2204	293.34	2204.73
309.57	2205.96	310.06	2206	322.43	2206.99	333.26	2207.63	333.72	2207.64
343.1	2207.85	344.97	2207.9	347.04	2208	350.28	2208.44	353.33	2208.47
354.06	2208.56	355.01	2208.75	355.35	2208.8	358.26	2210	361.09	2210
361.48	2210	367.41	2210	371.19	2210	381.96	2210	385.76	2210
401.11	2210	402.01	2210	406.78	2210	409.98	2210	410.46	2210
425.53	2210	444.81	2209.87	449.71	2210	453.08	2210.33	457.71	2210.6
460.13	2210.73	471.59	2211.32	482.18	2212	493.25	2213.04	500.26	2213.55
505.35	2214	505.76	2214.01						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.06	69	.05	333.72	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
69	333.72	167.5	208.3 249.51	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
0	212		F
262	505.76		F

CROSS SECTION OUTPUT Profile #PF 1

			Left OB	Channel	Right OB
E.G. Elev (ft)	2206.03	Element			
Vel Head (ft)	0.38	Wt. n-Val.		0.050	
W.S. Elev (ft)	2205.65	Reach Len. (ft)	167.50	208.30	249.51
Crit W.S. (ft)		Flow Area (sq ft)		160.86	
E.G. Slope (ft/ft)	0.005920	Area (sq ft)	0.16	499.70	
Q Total (cfs)	800.00	Flow (cfs)		800.00	
Top Width (ft)	241.99	Top Width (ft)	5.55	236.44	
Vel Total (ft/s)	4.97	Avg. Vel. (ft/s)		4.97	
Max Chl Dpth (ft)	3.65	Hydr. Depth (ft)		3.22	
Conv. Total (cfs)	10397.4	Conv. (cfs)		10397.4	
Length Wtd. (ft)	208.30	Wetted Per. (ft)		50.15	
Min Ch El (ft)	2202.00	Shear (lb/sq ft)		1.19	
Alpha	1.00	Stream Power (lb/ft s)		5.90	
Frctn Loss (ft)	1.74	Cum Volume (acre-ft)	0.03	4.78	0.01
C & E Loss (ft)	0.00	Cum SA (acres)	0.05	3.13	0.00

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

CROSS SECTION OUTPUT Profile #PF 2

			Left OB	Channel	Right OB
E.G. Elev (ft)	2206.63	Element			
Vel Head (ft)	0.26	Wt. n-Val.		0.050	
W.S. Elev (ft)	2206.37	Reach Len. (ft)	167.50	208.30	249.51
Crit W.S. (ft)		Flow Area (sq ft)		195.86	
E.G. Slope (ft/ft)	0.003541	Area (sq ft)		195.86	
Q Total (cfs)	800.00	Flow (cfs)		800.00	
Top Width (ft)	49.60	Top Width (ft)		49.60	

Vel Total (ft/s)	4.08	Avg. Vel. (ft/s)	4.08
Max Chl Dpth (ft)	4.37	Hydr. Depth (ft)	3.95
Conv. Total (cfs)	13444.1	Conv. (cfs)	13444.1
Length Wtd. (ft)	208.30	Wetted Per. (ft)	55.80
Min Ch El (ft)	2202.00	Shear (lb/sq ft)	0.78
Alpha	1.00	Stream Power (lb/ft s)	3.17
Frctn Loss (ft)	1.31	Cum Volume (acre-ft)	2.97
C & E Loss (ft)	0.05	Cum SA (acres)	1.01

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

CROSS SECTION

RIVER: Tropicana Wash
REACH: Tropicana Wash RS: 63.339

INPUT
Description: 12
Station Elevation Data num= 71

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2209.8	6.96	2209.76	16.98	2209.69	21.86	2209.73	45.95	2209.53
46.05	2209.3	52.23	2209.16	55.36	2209.14	60.49	2209.14	62.81	2209.14
66.55	2209.2	66.88	2209.18	67.33	2209.19	80.67	2209.47	100.84	2209.77
107.13	2209.8	113.45	2209.82	115.25	2209.91	117.58	2210	130.99	2210
151.73	2210	153.28	2210	155.2	2209.75	162.74	2208	165.23	2207.34
170.71	2206	174.99	2204.91	178.56	2204	180.75	2203.5	183.46	2202.66
185.8	2203.2	186.26	2203.21	192.98	2203.38	198.12	2203.27	211.19	2202.86
221.85	2202.53	239.57	2202	251.17	2201.28	252.54	2201.16	252.9	2201.14
258.27	2200.86	258.48	2200.8	265.07	2200.69	265.29	2200.71	266.18	2200.78
267.5	2200.94	268.28	2201	269.17	2201.23	269.63	2201.26	274.34	2201.71
275.78	2201.86	276.81	2202	279.21	2202.49	285.21	2203.71	286.57	2204
286.85	2204.06	296.06	2206	314.11	2206.71	343.55	2207.85	347.53	2208
348.61	2208	351.71	2208	362.21	2208	383.25	2208	412.22	2208
439.92	2208	444.18	2208	469.5	2209.4	476.88	2210	478.57	2210.28
478.58	2210.28								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.06	186.26	.05	343.55	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
186.26	343.55	285.98	283.46	275.22	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
0	195		F
365	478.58		F

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	2204.29	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.37	Wt. n-Val.		0.050	
W.S. Elev (ft)	2203.92	Reach Len. (ft)	285.98	283.46	275.22
Crit W.S. (ft)	2203.46	Flow Area (sq ft)		162.95	
E.G. Slope (ft/ft)	0.012647	Area (sq ft)	5.30	168.27	
Q Total (cfs)	800.00	Flow (cfs)		800.00	
Top Width (ft)	107.27	Top Width (ft)	7.34	99.93	
Vel Total (ft/s)	4.91	Avg. Vel. (ft/s)		4.91	
Max Chl Dpth (ft)	3.23	Hydr. Depth (ft)		1.79	
Conv. Total (cfs)	7113.6	Conv. (cfs)		7113.6	
Length Wtd. (ft)	283.46	Wetted Per. (ft)		91.53	
Min Ch El (ft)	2200.69	Shear (lb/sq ft)		1.41	
Alpha	1.00	Stream Power (lb/ft s)		6.90	
Frctn Loss (ft)	2.57	Cum Volume (acre-ft)	0.02	3.18	0.01
C & E Loss (ft)	0.06	Cum SA (acres)	0.03	2.33	0.00

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.

This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	2205.28	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.75	Wt. n-Val.		0.050	
W.S. Elev (ft)	2204.53	Reach Len. (ft)	285.98	283.46	275.22
Crit W.S. (ft)		Flow Area (sq ft)		115.40	
E.G. Slope (ft/ft)	0.013982	Area (sq ft)		115.40	
Q Total (cfs)	800.00	Flow (cfs)		800.00	
Top Width (ft)	37.29	Top Width (ft)		37.29	
Vel Total (ft/s)	6.93	Avg. Vel. (ft/s)		6.93	
Max Chl Dpth (ft)	3.84	Hydr. Depth (ft)		3.09	
Conv. Total (cfs)	6765.6	Conv. (cfs)		6765.6	
Length Wtd. (ft)	283.46	Wetted Per. (ft)		41.65	
Min Ch El (ft)	2200.69	Shear (lb/sq ft)		2.42	
Alpha	1.00	Stream Power (lb/ft s)		16.77	
Frctn Loss (ft)	2.51	Cum Volume (acre-ft)		2.22	
C & E Loss (ft)	0.09	Cum SA (acres)		0.80	

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

CROSS SECTION

RIVER: Tropicana Wash
REACH: Tropicana Wash RS: 63.286

INPUT
Description: 11
Station Elevation Data num= 85

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2206.3	12.25	2206.09	12.67	2206	14.54	2206	18.28	2205.72
18.93	2205.8	27.84	2204	29.14	2203.74	29.47	2203.68	32.29	2203.4
32.47	2203.4	38.44	2202.21	39.01	2202.1	39.28	2202.08	40.46	2202
43.58	2202	43.95	2202	44.12	2202	47.02	2202.15	48.97	2202.7
51.3	2203.56	53.15	2203.63	53.78	2203.76	58.03	2203.96	58.12	2204
58.16	2203.97	58.31	2203.92	59.32	2204	61.15	2204.07	61.43	2204
62.13	2203.65	63.68	2203.61	64.65	2203.66	67.09	2203.07	67.23	2203.1
69.05	2202.59	71.09	2202.06	71.31	2202	86.67	2201.7	86.73	2201.7
89.74	2201.64	91.81	2201.6	97.91	2201.46	98.79	2201.43	99.56	2201.42
99.97	2201.4	106.72	2201.34	118.78	2201.56	118.82	2201.57	119.95	2201.6
125.53	2201.5	125.66	2201.49	131.23	2201.34	132.95	2201.2	136.17	2200.98
136.86	2201	136.99	2200.96	137.23	2200.96	149.85	2200.42	157.84	2200.08
159.61	2200	162.35	2199.73	169.02	2199.03	174.18	2198.47	176.51	2198.33
177.69	2198.3	186.15	2198.47	190.19	2198.87	197.76	2199.19	207.41	2200
209.98	2200	218.24	2200	231.59	2200	247.46	2199.71	254.14	2199.86
258.55	2200	266.07	2201.42	267.65	2202	275.65	2202.38	304.72	2203.78
309.55	2204	363.8	2205.8	369.32	2206	449.78	2207.07	467.6	2207.31

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.05	89.74	.045	275.65	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
89.74	275.65	228.57	215.51	180.73	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	2201.66	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.19	Wt. n-Val.		0.045	
W.S. Elev (ft)	2201.47	Reach Len. (ft)	228.57	215.51	180.73
Crit W.S. (ft)		Flow Area (sq ft)		228.21	
E.G. Slope (ft/ft)	0.006832	Area (sq ft)		228.21	
Q Total (cfs)	800.00	Flow (cfs)		800.00	
Top Width (ft)	156.44	Top Width (ft)		156.44	
Vel Total (ft/s)	3.51	Avg. Vel. (ft/s)		3.51	
Max Chl Dpth (ft)	3.17	Hydr. Depth (ft)		1.46	

Conv. Total (cfs)	9678.6	Conv. (cfs)		9678.6	
Length Wtd. (ft)	215.51	Wetted Per. (ft)		156.78	
Min Ch El (ft)	2198.30	Shear (lb/sq ft)		0.62	
Alpha	1.00	Stream Power (lb/ft s)		2.18	
Frctn Loss (ft)	2.73	Cum Volume (acre-ft)	0.00	1.89	0.01
C & E Loss (ft)	0.03	Cum SA (acres)	0.00	1.50	0.00

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

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	2202.68	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.44	Wt. n-Val.		0.045	
W.S. Elev (ft)	2202.25	Reach Len. (ft)	228.57	215.51	180.73
Crit W.S. (ft)		Flow Area (sq ft)		150.82	
E.G. Slope (ft/ft)	0.006091	Area (sq ft)		150.82	
Q Total (cfs)	800.00	Flow (cfs)		800.00	
Top Width (ft)	46.31	Top Width (ft)		46.31	
Vel Total (ft/s)	5.30	Avg. Vel. (ft/s)		5.30	
Max Chl Dpth (ft)	3.94	Hydr. Depth (ft)		3.26	
Conv. Total (cfs)	10250.8	Conv. (cfs)		10250.8	
Length Wtd. (ft)	215.51	Wetted Per. (ft)		51.07	
Min Ch El (ft)	2198.30	Shear (lb/sq ft)		1.12	
Alpha	1.00	Stream Power (lb/ft s)		5.96	
Frctn Loss (ft)	2.40	Cum Volume (acre-ft)		1.36	
C & E Loss (ft)	0.06	Cum SA (acres)		0.53	

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

CROSS SECTION

RIVER: Tropicana Wash
REACH: Tropicana Wash RS: 63.245

INPUT
Description: 10
Station Elevation Data num= 96

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2200	3.55	2200.06	3.71	2200.06	4.14	2200.07	4.66	2200.07
4.89	2200.1	5.37	2200.08	9.46	2200.17	12.38	2200.25	21.44	2200.48
49.35	2201	60.69	2201.15	64.76	2201.14	65.06	2201.15	65.19	2201.16
65.55	2201.2	72.98	2201.17	74.21	2201.13	80.16	2201.17	95.38	2201.43
103.92	2201.6	117.44	2201.8	118.06	2201.81	120.97	2201.84	121.74	2201.82
122.51	2201.8	123.25	2201.8	127.83	2201.7	129.34	2201.65	138.8	2201.61
149.12	2202	162.92	2202.34	164.2	2202.37	167.57	2202	171.58	2202
175.18	2202	177.05	2202	180.6	2202	183.39	2200.31	183.63	2200.23
184.25	2200	186.06	2199.3	188.03	2198.77	189.99	2198	191.99	2198
198.91	2198	204.27	2198	207.02	2198	214.25	2198.02	219.33	2198.01
220.27	2198	223.17	2198	226.57	2197.85	236.23	2197.53	242.35	2197.37
246.32	2197.38	250.55	2197.3	250.6	2197.24	262.14	2196.96	262.15	2196.95
263.95	2196.9	264.93	2196.8	266.41	2196.72	275.66	2196.63	275.91	2196.64
281.54	2196.72	287	2196.8	290.41	2196.8	296.01	2197.05	314.72	2197.46
333.01	2198	334.24	2198.6	341.11	2200	342.39	2200.05	350.83	2200.37
351.82	2200.4	352.97	2200.44	361.28	2200.7	365.63	2200.79	368.7	2200.88
403.69	2202	404.69	2202.09	406.47	2202.2	408.54	2202.39	414.01	2202.95
419.74	2203.57	422.08	2203.85	425.99	2203.9	427.36	2204	460.14	2205.26
469.39	2205.71	469.73	2205.72	469.81	2205.7	470.49	2205.74	472.93	2205.78
479.47	2205.82								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.05	189.99	.045	333.01	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
162.92	342.39	296.17	309.07 321.59	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	2198.90	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.50	Wt. n-Val.		0.045	
W.S. Elev (ft)	2198.40	Reach Len. (ft)	296.17	309.07	321.59
Crit W.S. (ft)	2198.40	Flow Area (sq ft)		140.52	
E.G. Slope (ft/ft)	0.031036	Area (sq ft)		140.52	
Q Total (cfs)	800.00	Flow (cfs)		800.00	
Top Width (ft)	144.86	Top Width (ft)		144.86	
Vel Total (ft/s)	5.69	Avg. Vel. (ft/s)		5.69	
Max Chl Dpth (ft)	1.77	Hydr. Depth (ft)		0.97	
Conv. Total (cfs)	4541.1	Conv. (cfs)		4541.1	
Length Wtd. (ft)	309.07	Wetted Per. (ft)		145.10	
Min Ch El (ft)	2196.63	Shear (lb/sq ft)		1.88	
Alpha	1.00	Stream Power (lb/ft s)		10.68	
Frctn Loss (ft)	4.83	Cum Volume (acre-ft)	0.00	0.98	0.01
C & E Loss (ft)	0.05	Cum SA (acres)	0.00	0.75	0.00

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	2200.23	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.03	Wt. n-Val.		0.045	
W.S. Elev (ft)	2199.19	Reach Len. (ft)	296.17	309.07	321.59
Crit W.S. (ft)	2199.19	Flow Area (sq ft)		98.05	
E.G. Slope (ft/ft)	0.026394	Area (sq ft)		98.05	
Q Total (cfs)	800.00	Flow (cfs)		800.00	
Top Width (ft)	48.27	Top Width (ft)		48.27	
Vel Total (ft/s)	8.16	Avg. Vel. (ft/s)		8.16	
Max Chl Dpth (ft)	2.56	Hydr. Depth (ft)		2.03	
Conv. Total (cfs)	4924.2	Conv. (cfs)		4924.2	
Length Wtd. (ft)	309.07	Wetted Per. (ft)		52.27	
Min Ch El (ft)	2196.63	Shear (lb/sq ft)		3.09	
Alpha	1.00	Stream Power (lb/ft s)		25.22	
Frctn Loss (ft)	4.96	Cum Volume (acre-ft)		0.74	
C & E Loss (ft)	0.06	Cum SA (acres)		0.29	

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Tropicana Wash
REACH: Tropicana Wash RS: 63.186

INPUT
Description: 9
Station Elevation Data num= 96

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2197	1.18	2196.98	6.17	2196.96	7.42	2196.99	24.66	2196.5
25.95	2196.5	27.44	2196.51	29.05	2196.48	76.39	2196.38	91.81	2196.47
93.3	2198.2	97.1	2198.31	103.9	2198.86	108.33	2199.12	118.34	2199.73
130.21	2200	136.42	2200	148.91	2200	177.19	2199.29	196.98	2199.69
216.82	2200	225.31	2199.72	227.72	2199.64	273.46	2198	288.75	2196.74
296.08	2196	299.99	2195.5	311.71	2194	311.8	2194	312.38	2194
312.47	2194	313.62	2194	334.86	2194	341.38	2194	347.58	2193.79
352.24	2193.9	352.99	2194	362.54	2194	364.98	2194	365.12	2194
384.92	2194	390.21	2192.2	390.84	2192	392.01	2191.61	395.69	2190
397.65	2189.15	400.28	2188	404.79	2187.48	416.78	2186.96	420.45	2186.71
422.88	2186.56	427.4	2186	437.85	2187.07	444.67	2188	450	2190
455.16	2192	456.1	2192.36	460.31	2194	462.75	2195.02	463.02	2195.1
464.17	2195.49	464.92	2195.42	467.09	2194.99	468.86	2194.64	469.77	2194.64
479.65	2194.6	482.59	2194.39	484.45	2194.32	485.31	2194.27	487.22	2194.23
488.11	2194.3	490.41	2194.35	492.47	2194.48	522.27	2196	533.82	2196
536.51	2196	539.85	2196	549.91	2196	584.99	2196	595.48	2196.45
619.98	2197.4	621.75	2196.98	629.2	2196.85	630.46	2196.83	630.91	2196.86
631.53	2196.9	632.75	2196.82	633.57	2196.81	638.53	2196.83	644.93	2196.9
656.64	2197.4	666.03	2199.14	674.18	2200.15	686.08	2200.06	710.86	2199.54
734.54	2198.9								

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.03	216.82	.05	395.69	.028	450	.05

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
364.98	469.77	63	63	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

			Left OB	Channel	Right OB
E.G. Elev (ft)	2190.17	Element			
Vel Head (ft)	1.01	Wt. n-Val.		0.028	
W.S. Elev (ft)	2189.17	Reach Len. (ft)	63.00	63.00	63.00
Crit W.S. (ft)	2189.17	Flow Area (sq ft)		99.42	
E.G. Slope (ft/ft)	0.009395	Area (sq ft)		99.42	
Q Total (cfs)	800.00	Flow (cfs)		800.00	
Top Width (ft)	50.16	Top Width (ft)		50.16	
Vel Total (ft/s)	8.05	Avg. Vel. (ft/s)		8.05	
Max Chl Dpth (ft)	3.16	Hydr. Depth (ft)		1.98	
Conv. Total (cfs)	8253.6	Conv. (cfs)		8253.6	
Length Wtd. (ft)	63.00	Wetted Per. (ft)		50.82	
Min Ch El (ft)	2186.00	Shear (lb/sq ft)		1.15	
Alpha	1.00	Stream Power (lb/ft s)		9.23	
Frctn Loss (ft)	0.55	Cum Volume (acre-ft)	0.00	0.13	0.01
C & E Loss (ft)	0.01	Cum SA (acres)	0.00	0.06	0.00

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #PF 2

			Left OB	Channel	Right OB
E.G. Elev (ft)	2191.82	Element			
Vel Head (ft)	1.67	Wt. n-Val.		0.028	
W.S. Elev (ft)	2190.16	Reach Len. (ft)	63.00	63.00	63.00
Crit W.S. (ft)	2190.16	Flow Area (sq ft)		77.22	
E.G. Slope (ft/ft)	0.010791	Area (sq ft)		77.22	
Q Total (cfs)	800.00	Flow (cfs)		800.00	
Top Width (ft)	23.19	Top Width (ft)		23.19	

Vel Total (ft/s)	10.36	Avg. Vel. (ft/s)	10.36
Max Chl Dpth (ft)	4.16	Hydr. Depth (ft)	3.33
Conv. Total (cfs)	7701.1	Conv. (cfs)	7701.1
Length Wtd. (ft)	63.00	Wetted Per. (ft)	29.97
Min Ch El (ft)	2186.00	Shear (lb/sq ft)	1.74
Alpha	1.00	Stream Power (lb/ft s)	17.98
Frctn Loss (ft)	0.66	Cum Volume (acre-ft)	0.12
C & E Loss (ft)	0.09	Cum SA (acres)	0.04

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Tropicana Wash
REACH: Tropicana Wash RS: 63.111

INPUT
Description: Natural Wash Section Just Upstream of the Arch Culvert (WSPG STA: 1735)

Station Elevation Data num= 19

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2192.7	1.6	2191.7	3.2	2190.7	4.8	2189.7	6.4	2188.7
8	2187.7	9.6	2186.7	11.2	2185.7	12.9	2184.7	17.3	2184.7
44.8	2184.93	47.8	2185.7	50	2186.7	52.6	2187.7	55.2	2188.7
57.8	2189.7	60.4	2190.7	63	2191.7	65.6	2192.7		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.028	12.9	.028	44.8	.028

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
12.9	44.8	0	0	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

			Left OB	Channel	Right OB
E.G. Elev (ft)	2188.49	Element			
Vel Head (ft)	1.15	Wt. n-Val.	0.028	0.028	0.028
W.S. Elev (ft)	2187.34	Reach Len. (ft)			
Crit W.S. (ft)	2187.34	Flow Area (sq ft)	5.77	80.89	9.08
E.G. Slope (ft/ft)	0.008124	Area (sq ft)	5.77	80.89	9.08
Q Total (cfs)	800.00	Flow (cfs)	30.12	719.56	50.32
Top Width (ft)	43.07	Top Width (ft)	4.32	31.90	6.85
Vel Total (ft/s)	8.36	Avg. Vel. (ft/s)	5.22	8.89	5.54
Max Chl Dpth (ft)	2.64	Hydr. Depth (ft)	1.34	2.54	1.33
Conv. Total (cfs)	8875.5	Conv. (cfs)	334.2	7983.0	558.3
Length Wtd. (ft)		Wetted Per. (ft)	5.06	31.90	7.28
Min Ch El (ft)	2184.70	Shear (lb/sq ft)	0.58	1.29	0.63
Alpha	1.06	Stream Power (lb/ft s)	3.02	11.44	3.50
Frctn Loss (ft)		Cum Volume (acre-ft)			
C & E Loss (ft)		Cum SA (acres)			

Warning: User specified water surface is not possible for the specified flow regime. The program used critical depth as the starting water surface.

CROSS SECTION OUTPUT Profile #PF 2

			Left OB	Channel	Right OB
E.G. Elev (ft)	2188.84	Element			
Vel Head (ft)	1.36	Wt. n-Val.		0.028	
W.S. Elev (ft)	2187.48	Reach Len. (ft)			
Crit W.S. (ft)	2187.48	Flow Area (sq ft)		85.62	
E.G. Slope (ft/ft)	0.010214	Area (sq ft)		85.62	
Q Total (cfs)	800.00	Flow (cfs)		800.00	

Top Width (ft)	31.90	Top Width (ft)	31.90
Vel Total (ft/s)	9.34	Avg. Vel. (ft/s)	9.34
Max Chl Dpth (ft)	2.78	Hydr. Depth (ft)	2.68
Conv. Total (cfs)	7915.8	Conv. (cfs)	7915.8
Length Wtd. (ft)		Wetted Per. (ft)	37.24
Min Ch El (ft)	2184.70	Shear (lb/sq ft)	1.47
Alpha	1.00	Stream Power (lb/ft s)	13.70
Frctn Loss (ft)		Cum Volume (acre-ft)	
C & E Loss (ft)		Cum SA (acres)	

Warning: User specified water surface is not possible for the specified flow regime. The program used critical depth as the starting water surface.

SUMMARY OF MANNING'S N VALUES

River:Tropicana Wash

Reach	River Sta.	n1	n2	n3	n4	n5
Tropicana Wash	63.711	.035	.02	.035		
Tropicana Wash	63.703	Culvert				
Tropicana Wash	63.691	.035	.02	.028	.02	.035
Tropicana Wash	63.631	.035	.028	.035		
Tropicana Wash	63.569	.04	.034	.04		
Tropicana Wash	63.552	.04	.032	.04		
Tropicana Wash	63.505	.04	.028	.04		
Tropicana Wash	63.488	.04	.028	.04		
Tropicana Wash	63.456	.04	.025	.04		
Tropicana Wash	63.410	.04	.04	.04		
Tropicana Wash	63.397	Culvert				
Tropicana Wash	63.389	.06	.05	.06		
Tropicana Wash	63.379	.06	.05	.06		
Tropicana Wash	63.339	.06	.05	.06		
Tropicana Wash	63.286	.05	.045	.04		
Tropicana Wash	63.245	.05	.045	.04		
Tropicana Wash	63.186	.03	.05	.028	.05	
Tropicana Wash	63.111	.028	.028	.028		

SUMMARY OF REACH LENGTHS

River: Tropicana Wash

Reach	River Sta.	Left	Channel	Right
Tropicana Wash	63.711	106.55	106.14	105.07
Tropicana Wash	63.703	Culvert		
Tropicana Wash	63.691	320.78	320.81	320.88
Tropicana Wash	63.631	318.34	326.31	347.37
Tropicana Wash	63.569	94.38	87.55	78.15
Tropicana Wash	63.552	208.29	247.98	217.5
Tropicana Wash	63.505	124.56	89.12	150.96
Tropicana Wash	63.488	170.98	168.37	160.12
Tropicana Wash	63.456	351.75	244.62	156.19
Tropicana Wash	63.410	112.33	111.64	151.37
Tropicana Wash	63.397	Culvert		
Tropicana Wash	63.389	69.13	54.14	142.71
Tropicana Wash	63.379	167.5	208.3	249.51
Tropicana Wash	63.339	285.98	283.46	275.22
Tropicana Wash	63.286	228.57	215.51	180.73
Tropicana Wash	63.245	296.17	309.07	321.59
Tropicana Wash	63.186	63	63	63
Tropicana Wash	63.111	0	0	0

SUMMARY OF CONTRACTION AND EXPANSION COEFFICIENTS
River: Tropicana Wash

Reach	River Sta.	Contr.	Expan.
Tropicana Wash	63.711	.3	.5
Tropicana Wash	63.703	Culvert	
Tropicana Wash	63.691	.3	.5
Tropicana Wash	63.631	.1	.3
Tropicana Wash	63.569	.1	.3
Tropicana Wash	63.552	.1	.3
Tropicana Wash	63.505	.1	.3
Tropicana Wash	63.488	.1	.3
Tropicana Wash	63.456	.1	.3
Tropicana Wash	63.410	.3	.5
Tropicana Wash	63.397	Culvert	
Tropicana Wash	63.389	.3	.5
Tropicana Wash	63.379	.1	.3
Tropicana Wash	63.339	.1	.3
Tropicana Wash	63.286	.1	.3
Tropicana Wash	63.245	.1	.3
Tropicana Wash	63.186	.1	.3
Tropicana Wash	63.111	.1	.3

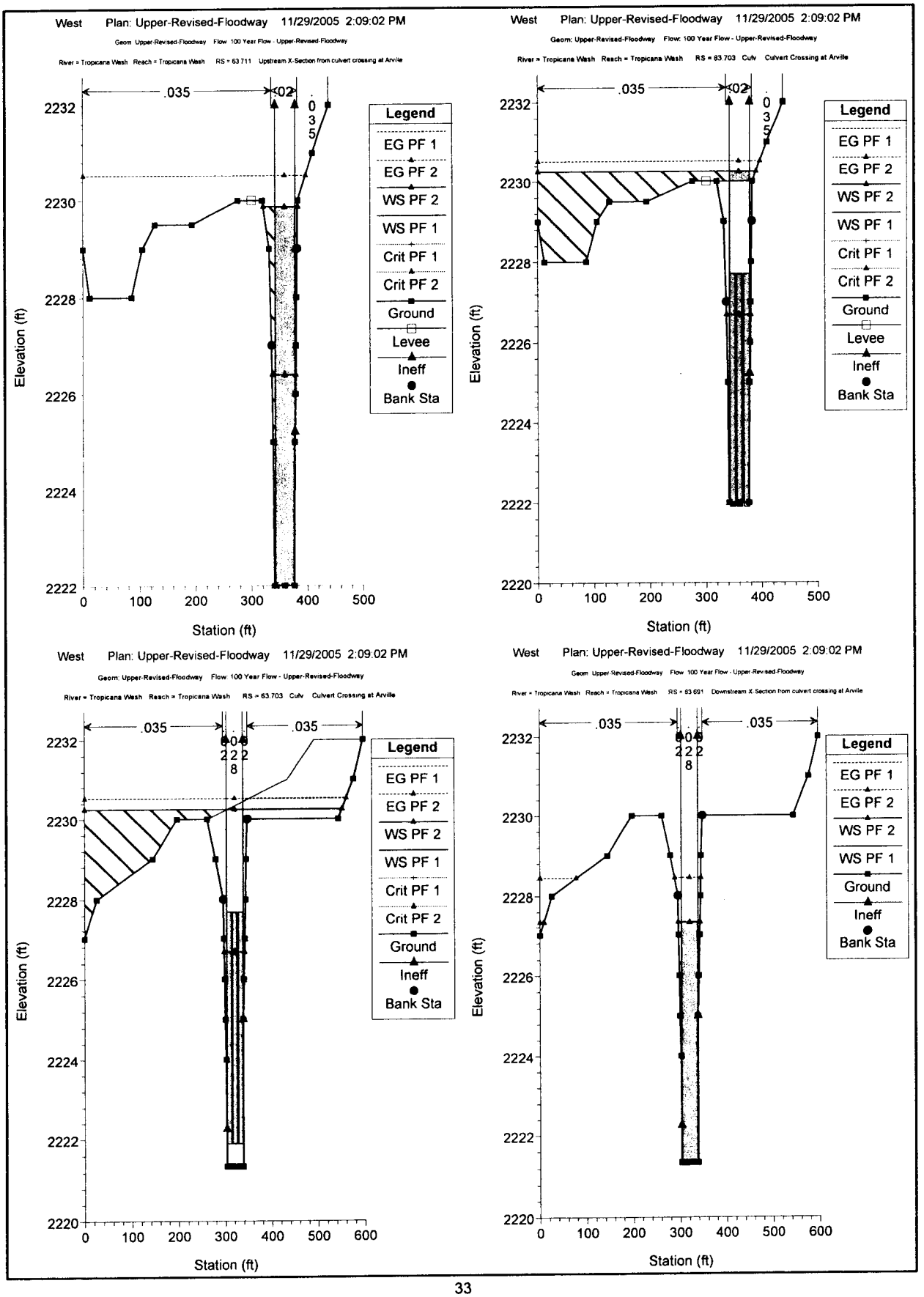
Profile Output Table - Standard Table 1

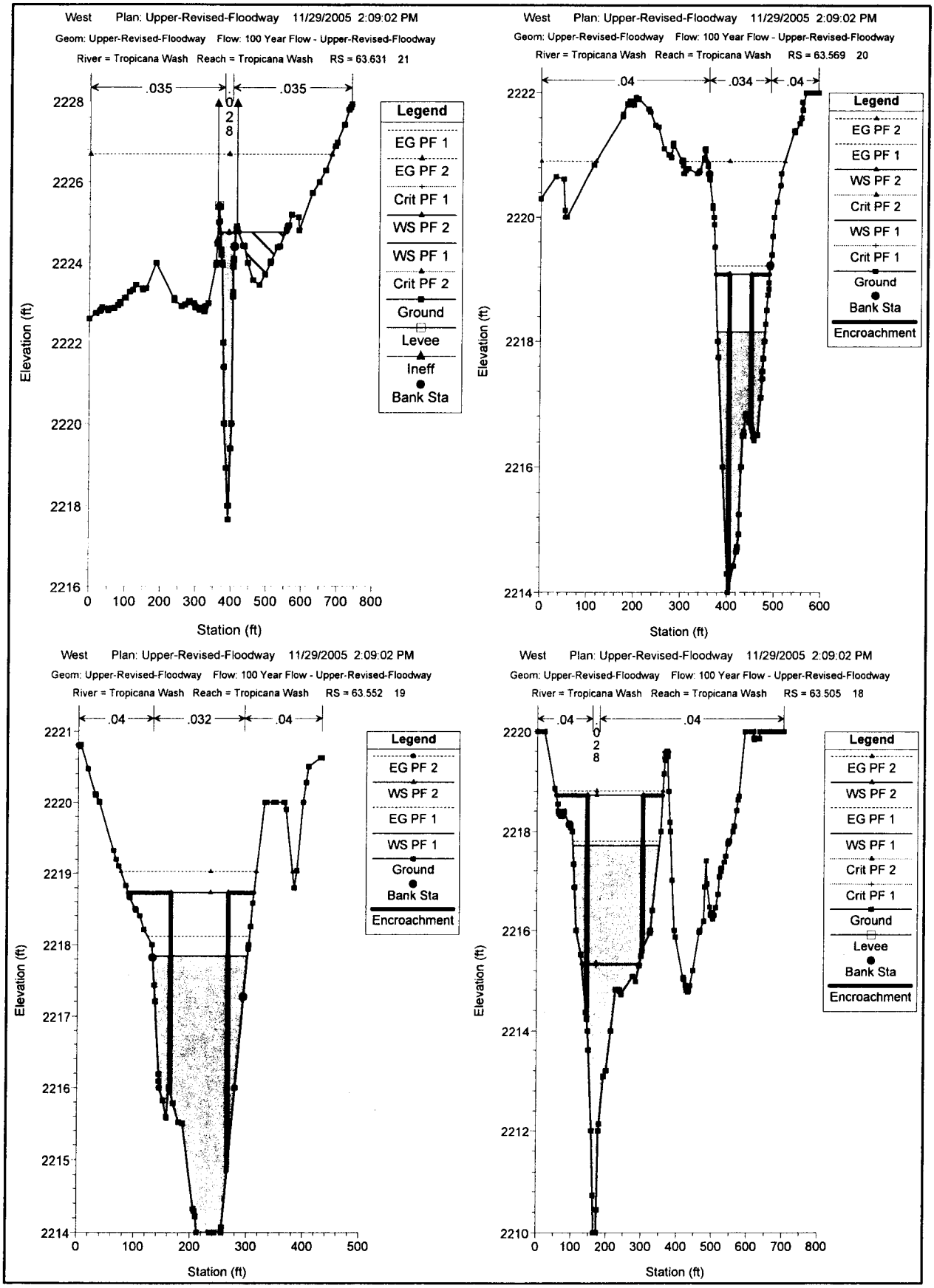
Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
Tropicana Wash	63.711	PF 1	1818.00	2222.00	2229.87	2226.38	2230.52	0.000530	6.47	281.10	62.19	0.41
Tropicana Wash	63.711	PF 2	1818.00	2222.00	2229.87	2226.38	2230.52	0.000530	6.47	281.10	62.19	0.41
Tropicana Wash	63.703		Culvert									
Tropicana Wash	63.691	PF 1	1818.00	2221.35	2227.32		2228.43	0.002685	8.46	214.82	55.00	0.61
Tropicana Wash	63.691	PF 2	1818.00	2221.35	2227.32		2228.43	0.002685	8.46	214.82	55.00	0.61
Tropicana Wash	63.631	PF 1	1818.00	2217.65	2224.75	2224.75	2226.69	0.010010	11.18	163.09	177.36	0.99
Tropicana Wash	63.631	PF 2	1818.00	2217.65	2224.75	2224.75	2226.69	0.010010	11.18	163.09	177.36	0.99
Tropicana Wash	63.569	PF 1	1818.00	2214.00	2218.15	2218.15	2219.22	0.013219	8.32	218.48	101.85	1.00
Tropicana Wash	63.569	PF 2	1818.00	2214.06	2219.08	2219.08	2220.90	0.013743	10.82	168.06	47.10	1.01
Tropicana Wash	63.552	PF 1	1818.00	2214.00	2217.84		2218.11	0.002205	4.20	434.86	168.57	0.45
Tropicana Wash	63.552	PF 2	1818.00	2214.00	2218.73		2219.02	0.001403	4.30	422.75	102.00	0.37
Tropicana Wash	63.505	PF 1	1818.00	2210.00	2217.72	2215.31	2217.80	0.000585	2.34	776.97	247.09	0.23
Tropicana Wash	63.505	PF 2	1818.00	2210.00	2218.72	2215.34	2218.80	0.000357	2.31	787.34	159.00	0.18
Tropicana Wash	63.488	PF 1	1818.00	2209.75	2216.83	2216.83	2217.59	0.011605	7.55	290.90	192.29	0.84
Tropicana Wash	63.488	PF 2	1818.00	2214.26	2217.62	2217.62	2218.60	0.017368	8.72	234.83	117.00	0.96
Tropicana Wash	63.456	PF 1	1818.00	2208.00	2214.58	2213.75	2214.69	0.001685	3.81	793.10	486.75	0.33
Tropicana Wash	63.456	PF 2	1818.00	2208.00	2214.58	2213.75	2214.69	0.001685	3.81	793.10	486.75	0.33
Tropicana Wash	63.410	PF 1	1818.00	2200.00	2214.62	2206.52	2214.63	0.000034	0.83	2788.58	711.49	0.05

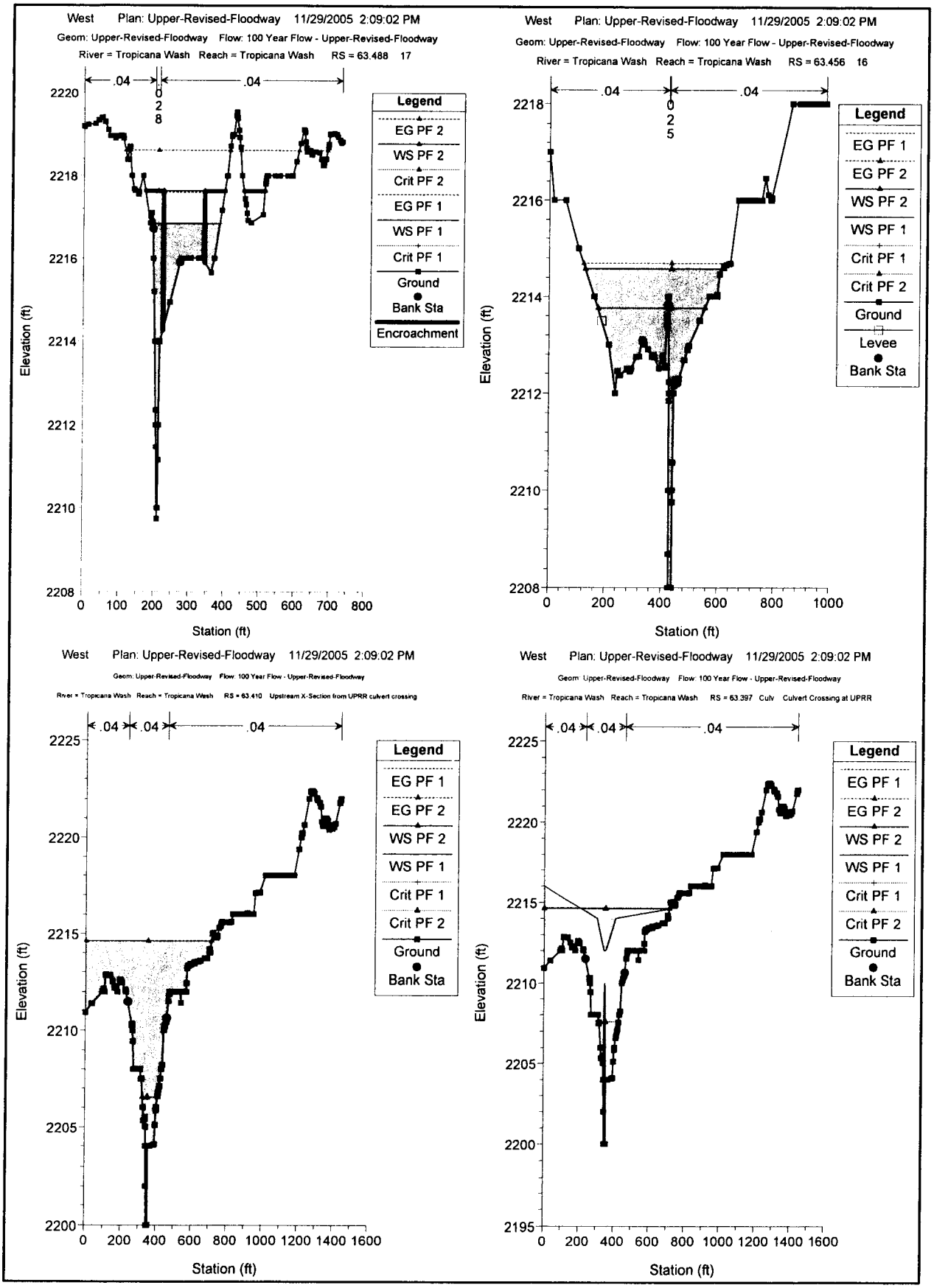
Tropicana Wash	63.410	PF 2	1818.00	2200.00	2214.62	2206.52	2214.63	0.000034	0.83	2788.58	711.49	0.05
Tropicana Wash	63.397		Culvert									
Tropicana Wash	63.389	PF 1	750.00	2200.00	2205.69	2205.69	2208.50	0.023664	13.46	55.72	20.16	1.01
Tropicana Wash	63.389	PF 2	750.00	2200.00	2205.69	2205.69	2208.50	0.023612	13.45	55.75	20.18	1.00
Tropicana Wash	63.379	PF 1	800.00	2202.00	2205.65		2206.03	0.005920	4.97	160.86	241.99	0.49
Tropicana Wash	63.379	PF 2	800.00	2202.00	2206.37		2206.63	0.003541	4.08	195.86	49.60	0.36
Tropicana Wash	63.339	PF 1	800.00	2200.69	2203.92	2203.46	2204.29	0.012647	4.91	162.95	107.27	0.65
Tropicana Wash	63.339	PF 2	800.00	2200.69	2204.53		2205.28	0.013982	6.93	115.40	37.29	0.69
Tropicana Wash	63.286	PF 1	800.00	2198.30	2201.47		2201.66	0.006832	3.51	228.21	156.44	0.51
Tropicana Wash	63.286	PF 2	800.00	2198.30	2202.25		2202.68	0.006091	5.30	150.82	46.31	0.52
Tropicana Wash	63.245	PF 1	800.00	2196.63	2198.40	2198.40	2198.90	0.031036	5.69	140.52	144.86	1.02
Tropicana Wash	63.245	PF 2	800.00	2196.63	2199.19	2199.19	2200.23	0.026394	8.16	98.05	48.27	1.01
Tropicana Wash	63.186	PF 1	800.00	2186.00	2189.17	2189.17	2190.17	0.009395	8.05	99.42	50.16	1.01
Tropicana Wash	63.186	PF 2	800.00	2186.00	2190.16	2190.16	2191.82	0.010791	10.36	77.22	23.19	1.00
Tropicana Wash	63.111	PF 1	800.00	2184.70	2187.34	2187.34	2188.49	0.008124	8.89	95.74	43.07	0.98
Tropicana Wash	63.111	PF 2	800.00	2184.70	2187.48	2187.48	2188.84	0.010214	9.34	85.62	31.90	1.01

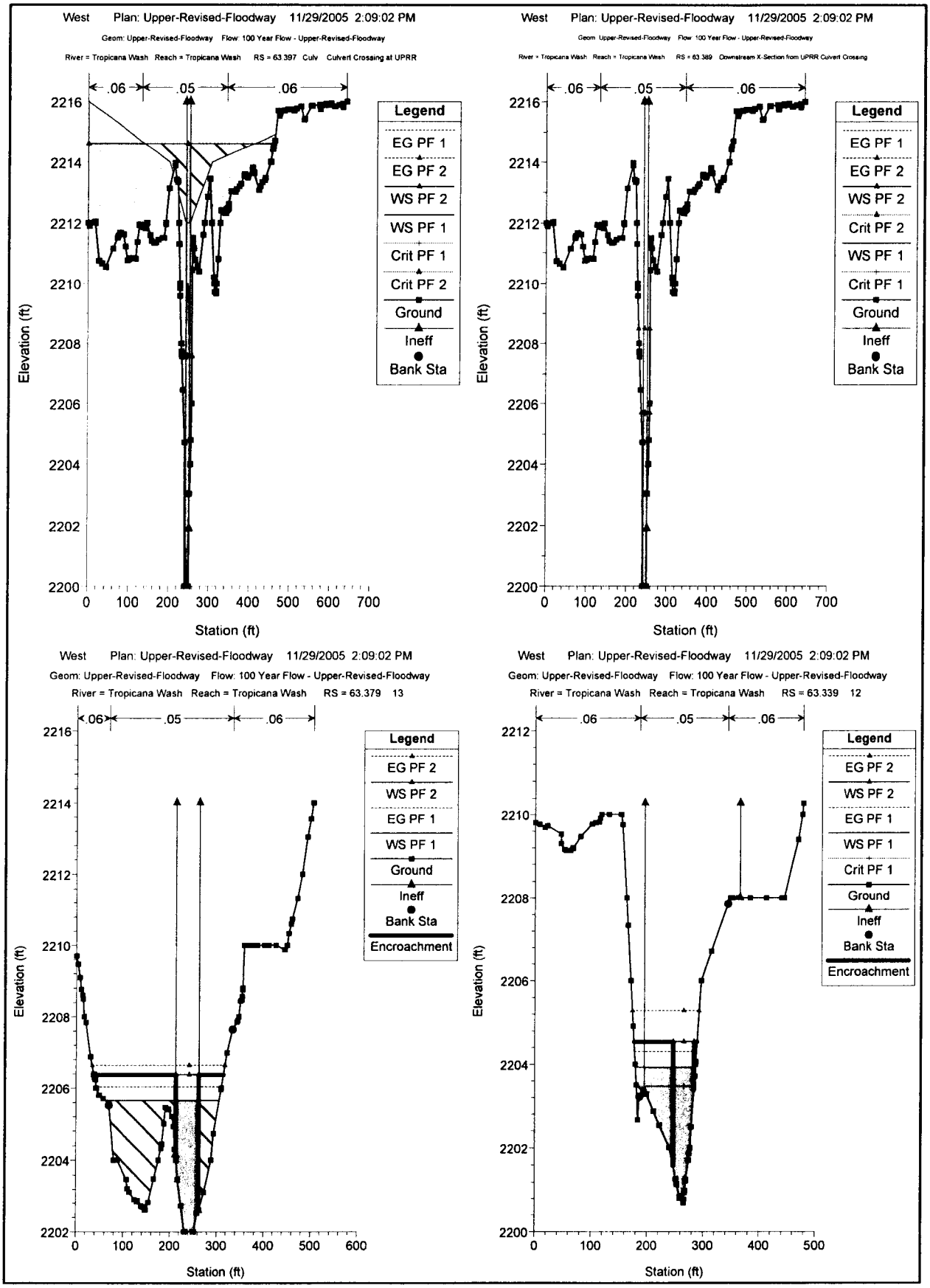
Profile Output Table - HEC-FDA

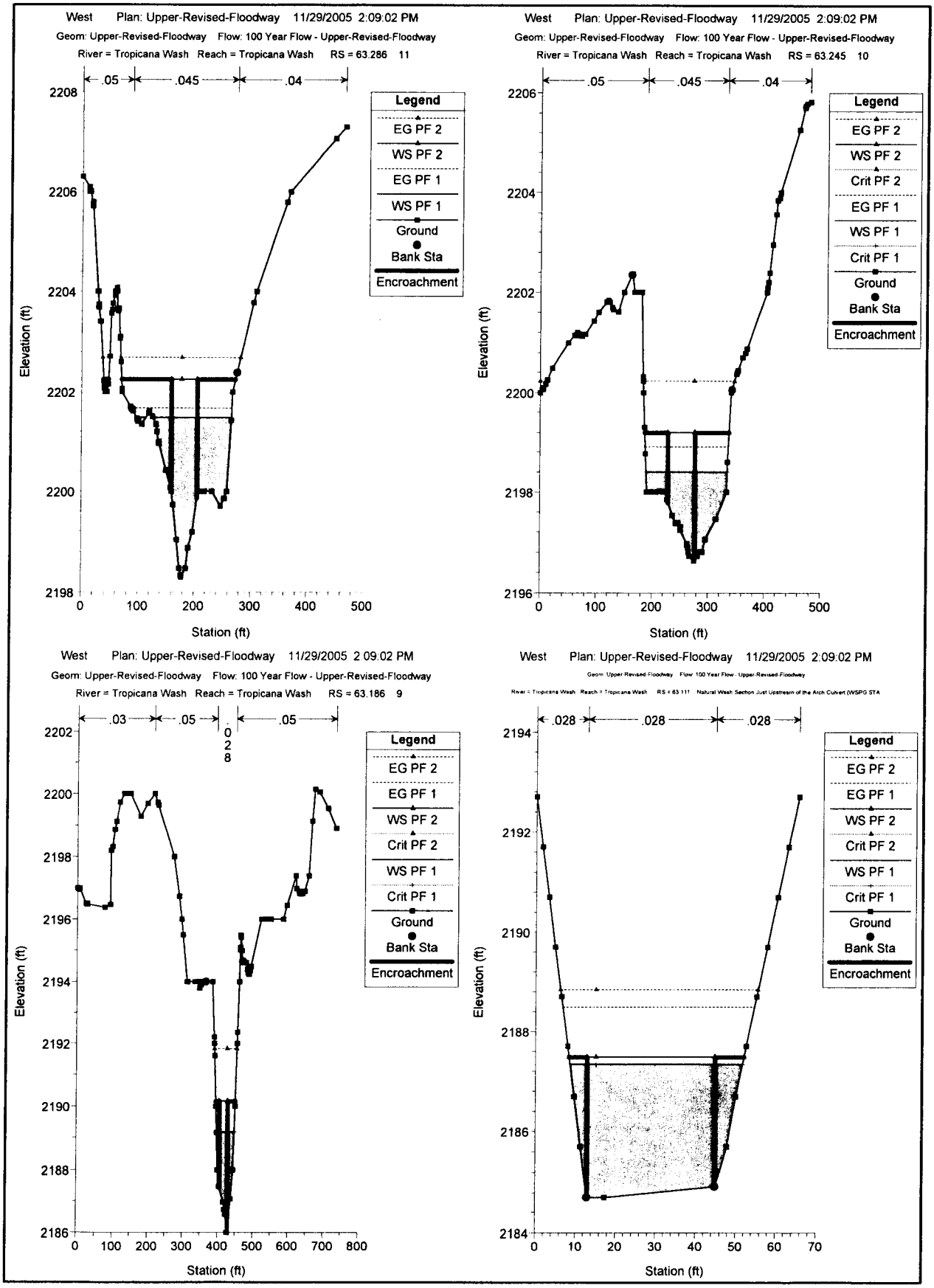
Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)
Tropicana Wash	63.711	PF 1	1818.00	2222.00	2229.87
Tropicana Wash	63.711	PF 2	1818.00	2222.00	2229.87
Tropicana Wash	63.703		Culvert		
Tropicana Wash	63.691	PF 1	1818.00	2221.35	2227.32
Tropicana Wash	63.691	PF 2	1818.00	2221.35	2227.32
Tropicana Wash	63.631	PF 1	1818.00	2217.65	2224.75
Tropicana Wash	63.631	PF 2	1818.00	2217.65	2224.75
Tropicana Wash	63.569	PF 1	1818.00	2214.00	2218.15
Tropicana Wash	63.569	PF 2	1818.00	2214.06	2219.08
Tropicana Wash	63.552	PF 1	1818.00	2214.00	2217.84
Tropicana Wash	63.552	PF 2	1818.00	2214.00	2218.73
Tropicana Wash	63.505	PF 1	1818.00	2210.00	2217.72
Tropicana Wash	63.505	PF 2	1818.00	2210.00	2218.72
Tropicana Wash	63.488	PF 1	1818.00	2209.75	2216.83
Tropicana Wash	63.488	PF 2	1818.00	2214.26	2217.62
Tropicana Wash	63.456	PF 1	1818.00	2208.00	2214.58
Tropicana Wash	63.456	PF 2	1818.00	2208.00	2214.58
Tropicana Wash	63.410	PF 1	1818.00	2200.00	2214.62
Tropicana Wash	63.410	PF 2	1818.00	2200.00	2214.62
Tropicana Wash	63.397		Culvert		
Tropicana Wash	63.389	PF 1	750.00	2200.00	2205.69
Tropicana Wash	63.389	PF 2	750.00	2200.00	2205.69
Tropicana Wash	63.379	PF 1	800.00	2202.00	2205.65
Tropicana Wash	63.379	PF 2	800.00	2202.00	2206.37
Tropicana Wash	63.339	PF 1	800.00	2200.69	2203.92
Tropicana Wash	63.339	PF 2	800.00	2200.69	2204.53
Tropicana Wash	63.286	PF 1	800.00	2198.30	2201.47
Tropicana Wash	63.286	PF 2	800.00	2198.30	2202.25
Tropicana Wash	63.245	PF 1	800.00	2196.63	2198.40
Tropicana Wash	63.245	PF 2	800.00	2196.63	2199.19
Tropicana Wash	63.186	PF 1	800.00	2186.00	2189.17
Tropicana Wash	63.186	PF 2	800.00	2186.00	2190.16
Tropicana Wash	63.111	PF 1	800.00	2184.70	2187.34
Tropicana Wash	63.111	PF 2	800.00	2184.70	2187.48


West Plan: Upper-Revised-Floodway 11/29/2005 2:09:02 PM
Geom: Upper-Revised-Floodway Flow: 100 Year Flow - Upper-Revised-Floodway
River = Tropicana Wash Reach = Tropicana Wash RS = 63.711 Upstream X-Section from culvert crossing at Arville
.035
.02
.035
Legend
EG PF 1
EG PF 2
WS PF 2
WS PF 1
Crit PF 1
Crit PF 2
Ground
Levee
Ineff
Bank Sta
Elevation (ft)
Station (ft)
West Plan: Upper-Revised-Floodway 11/29/2005 2:09:02 PM
Geom: Upper-Revised-Floodway Flow: 100 Year Flow - Upper-Revised-Floodway
River = Tropicana Wash Reach = Tropicana Wash RS = 63.703 Culv Culvert Crossing at Arville
.035
.02
.035
Legend
EG PF 1
EG PF 2
WS PF 2
WS PF 1
Crit PF 1
Crit PF 2
Ground
Levee
Ineff
Bank Sta
Elevation (ft)
Station (ft)
West Plan: Upper-Revised-Floodway 11/29/2005 2:09:02 PM
Geom: Upper-Revised-Floodway Flow: 100 Year Flow - Upper-Revised-Floodway
River = Tropicana Wash Reach = Tropicana Wash RS = 63.703 Culv Culvert Crossing at Arville
.035
.035
Legend
EG PF 1
EG PF 2
WS PF 2
WS PF 1
Crit PF 1
Crit PF 2
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
West Plan: Upper-Revised-Floodway 11/29/2005 2:09:02 PM
Geom: Upper-Revised-Floodway Flow: 100 Year Flow - Upper-Revised-Floodway
River = Tropicana Wash Reach = Tropicana Wash RS = 63.691 Downstream X-Section from culvert crossing at Arville
.035
.035
Legend
EG PF 1
EG PF 2
WS PF 2
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)


West Plan: Upper-Revised-Floodway 11/29/2005 2:09:02 PM
Geom: Upper-Revised-Floodway Flow: 100 Year Flow - Upper-Revised-Floodway
River = Tropicana Wash Reach = Tropicana Wash RS = 63.631 21
.035
.035
Legend
EG PF 1
EG PF 2
Crit PF 1
WS PF 2
WS PF 1
Crit PF 2
Ground
Levee
Ineff
Bank Sta
Elevation (ft)
Station (ft)
West Plan: Upper-Revised-Floodway 11/29/2005 2:09:02 PM
Geom: Upper-Revised-Floodway Flow: 100 Year Flow - Upper-Revised-Floodway
River = Tropicana Wash Reach = Tropicana Wash RS = 63.569 20
.04
.034
.04
Legend
EG PF 2
EG PF 1
WS PF 2
Crit PF 2
WS PF 1
Crit PF 1
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)
West Plan: Upper-Revised-Floodway 11/29/2005 2:09:02 PM
Geom: Upper-Revised-Floodway Flow: 100 Year Flow - Upper-Revised-Floodway
River = Tropicana Wash Reach = Tropicana Wash RS = 63.552 19
.04
.032
.04
Legend
EG PF 2
WS PF 2
EG PF 1
WS PF 1
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)
West Plan: Upper-Revised-Floodway 11/29/2005 2:09:02 PM
Geom: Upper-Revised-Floodway Flow: 100 Year Flow - Upper-Revised-Floodway
River = Tropicana Wash Reach = Tropicana Wash RS = 63.505 18
.04
.04
Legend
EG PF 2
WS PF 2
EG PF 1
WS PF 1
Crit PF 2
Crit PF 1
Ground
Levee
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


West Plan: Upper-Revised-Floodway 11/29/2005 2:09:02 PM
Geom: Upper-Revised-Floodway Flow: 100 Year Flow - Upper-Revised-Floodway
River = Tropicana Wash Reach = Tropicana Wash RS = 63.488 17
.04
.04
028
Legend
EG PF 2
WS PF 2
Crit PF 2
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)
West Plan: Upper-Revised-Floodway 11/29/2005 2:09:02 PM
Geom: Upper-Revised-Floodway Flow: 100 Year Flow - Upper-Revised-Floodway
River = Tropicana Wash Reach = Tropicana Wash RS = 63.456 16
025
Legend
EG PF 1
EG PF 2
WS PF 2
WS PF 1
Crit PF 1
Crit PF 2
Ground
Levee
Bank Sta
Elevation (ft)
Station (ft)
West Plan: Upper-Revised-Floodway 11/29/2005 2:09:02 PM
Geom: Upper-Revised-Floodway Flow: 100 Year Flow - Upper-Revised-Floodway
River = Tropicana Wash Reach = Tropicana Wash RS = 63.410 Upstream X-Section from UPRR culvert crossing
.04
.04
.04
Legend
EG PF 1
EG PF 2
WS PF 2
WS PF 1
Crit PF 1
Crit PF 2
Ground
Bank Sta
Elevation (ft)
Station (ft)
West Plan: Upper-Revised-Floodway 11/29/2005 2:09:02 PM
Geom: Upper-Revised-Floodway Flow: 100 Year Flow - Upper-Revised-Floodway
River = Tropicana Wash Reach = Tropicana Wash RS = 63.397 Culv Culvert Crossing at UPRR
.04
.04
.04
Legend
EG PF 1
EG PF 2
WS PF 2
WS PF 1
Crit PF 1
Crit PF 2
Ground
Bank Sta
Elevation (ft)
Station (ft)


West Plan: Upper-Revised-Floodway 11/29/2005 2:09:02 PM
Geom: Upper-Revised-Floodway Flow: 100 Year Flow - Upper-Revised-Floodway
River = Tropicana Wash Reach = Tropicana Wash RS = 63.397 Culv Culvert Crossing at UPRR
.06
.05
.06
Legend
EG PF 1
EG PF 2
WS PF 2
WS PF 1
Crit PF 1
Crit PF 2
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
West Plan: Upper-Revised-Floodway 11/29/2005 2:09:02 PM
Geom: Upper-Revised-Floodway Flow: 100 Year Flow - Upper-Revised-Floodway
River = Tropicana Wash Reach = Tropicana Wash RS = 63.389 Downstream X-Section from UPRR Culvert Crossing
.06
.05
.06
Legend
EG PF 1
EG PF 2
WS PF 2
Crit PF 2
WS PF 1
Crit PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
West Plan: Upper-Revised-Floodway 11/29/2005 2:09:02 PM
Geom: Upper-Revised-Floodway Flow: 100 Year Flow - Upper-Revised-Floodway
River = Tropicana Wash Reach = Tropicana Wash RS = 63.379 13
.06
.05
.06
Legend
EG PF 2
WS PF 2
EG PF 1
WS PF 1
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)
West Plan: Upper-Revised-Floodway 11/29/2005 2:09:02 PM
Geom: Upper-Revised-Floodway Flow: 100 Year Flow - Upper-Revised-Floodway
River = Tropicana Wash Reach = Tropicana Wash RS = 63.339 12
.06
.05
.06
Legend
EG PF 2
WS PF 2
EG PF 1
WS PF 1
Crit PF 1
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


West Plan: Upper-Revised-Floodway 11/29/2005 2:09:02 PM
Geom: Upper-Revised-Floodway Flow: 100 Year Flow - Upper-Revised-Floodway
River = Tropicana Wash Reach = Tropicana Wash RS = 63.286 11
.05
.045
.04
Legend
EG PF 2
WS PF 2
EG PF 1
WS PF 1
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)
West Plan: Upper-Revised-Floodway 11/29/2005 2:09:02 PM
Geom: Upper-Revised-Floodway Flow: 100 Year Flow - Upper-Revised-Floodway
River = Tropicana Wash Reach = Tropicana Wash RS = 63.245 10
.05
.045
.04
Legend
EG PF 2
WS PF 2
Crit PF 2
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)
West Plan: Upper-Revised-Floodway 11/29/2005 2:09:02 PM
Geom: Upper-Revised-Floodway Flow: 100 Year Flow - Upper-Revised-Floodway
River = Tropicana Wash Reach = Tropicana Wash RS = 63.186 9
.03
.05
.05
Legend
EG PF 2
EG PF 1
WS PF 2
Crit PF 2
WS PF 1
Crit PF 1
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)
West Plan: Upper-Revised-Floodway 11/29/2005 2:09:02 PM
.028
.028
.028
Legend
EG PF 2
EG PF 1
WS PF 2
Crit PF 2
WS PF 1
Crit PF 1
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)

EFFECTIVE HEC-RAS ANALYSIS (DUPLICATE EFFECTIVE MODEL) OF THE EXISTING TROPICANA WASH BASED ON A 100-YEAR FLOW RATE OF 750 & 1,031 CFS

HEC-RAS Plan: Upper River: Tropicana Wash Reach: Tropicana Wash

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Tropicana Wash	63.711	PF 1	1818.00	2222.00	2229.87	2226.38	2230.52	0.000530	6.47	281.10	62.19	0.41
Tropicana Wash	63.711	PF 2	1818.00	2222.00	2229.87	2226.38	2230.52	0.000530	6.47	281.10	62.19	0.41
Tropicana Wash	63.703		Culvert									
Tropicana Wash	63.691	PF 1	1818.00	2221.35	2227.32		2228.43	0.002685	8.46	214.82	55.00	0.61
Tropicana Wash	63.691	PF 2	1818.00	2221.35	2227.32		2228.43	0.002685	8.46	214.82	55.00	0.61
Tropicana Wash	63.631	PF 1	1818.00	2217.65	2224.75	2224.75	2226.69	0.010010	11.18	163.09	177.36	0.99
Tropicana Wash	63.631	PF 2	1818.00	2217.65	2224.75	2224.75	2226.69	0.010010	11.18	163.09	177.36	0.99
Tropicana Wash	63.569	PF 1	1818.00	2214.00	2218.15	2218.15	2219.22	0.013219	8.32	218.48	101.85	1.00
Tropicana Wash	63.569	PF 2	1818.00	2214.06	2219.08	2219.08	2220.90	0.013743	10.82	168.06	47.10	1.01
Tropicana Wash	63.552	PF 1	1818.00	2214.00	2217.84		2218.11	0.002205	4.20	434.86	168.57	0.45
Tropicana Wash	63.552	PF 2	1818.00	2214.00	2218.73		2219.02	0.001403	4.30	422.75	102.00	0.37
Tropicana Wash	63.505	PF 1	1818.00	2210.00	2217.72	2215.31	2217.80	0.000585	2.34	776.97	247.09	0.23
Tropicana Wash	63.505	PF 2	1818.00	2210.00	2218.72	2215.34	2218.80	0.000357	2.31	787.34	159.00	0.18
Tropicana Wash	63.488	PF 1	1818.00	2209.75	2216.83	2216.83	2217.59	0.011605	7.55	290.90	192.29	0.84
Tropicana Wash	63.488	PF 2	1818.00	2214.26	2217.62	2217.62	2218.60	0.017368	8.72	234.83	117.00	0.96
Tropicana Wash	63.456	PF 1	1818.00	2208.00	2214.58	2213.75	2214.69	0.001685	3.81	793.10	486.75	0.33
Tropicana Wash	63.456	PF 2	1818.00	2208.00	2214.58	2213.75	2214.69	0.001685	3.81	793.10	486.75	0.33
Tropicana Wash	63.410	PF 1	1818.00	2200.00	2214.62	2206.52	2214.63	0.000034	0.83	2788.58	711.49	0.05
Tropicana Wash	63.410	PF 2	1818.00	2200.00	2214.62	2206.51	2214.63	0.000034	0.83	2788.58	711.49	0.05
Tropicana Wash	63.397		Culvert									
Tropicana Wash	63.389	PF 1	750.00	2200.00	2205.69	2205.69	2208.50	0.023664	13.46	55.72	20.16	1.01
Tropicana Wash	63.389	PF 2	750.00	2200.00	2206.41		2208.62	0.015743	11.91	62.96	22.35	0.84
Tropicana Wash	63.379	PF 1	1031.00	2202.00	2206.05		2206.55	0.006649	5.70	180.89	268.76	0.53
Tropicana Wash	63.379	PF 2	1031.00	2202.00	2207.04		2207.35	0.003610	4.50	228.90	49.60	0.37
Tropicana Wash	63.339	PF 1	1031.00	2200.69	2204.22	2203.71	2204.68	0.012633	5.40	191.02	109.94	0.66
Tropicana Wash	63.339	PF 2	1031.00	2200.69	2205.08		2205.98	0.013891	7.58	136.06	37.29	0.70

HEC-RAS Plan: Upper River: Tropicana Wash Reach: Tropicana Wash (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Tropicana Wash	63.286	PF 1	1031.00	2198.30	2201.75		2201.97	0.007152	3.74	275.79	182.73	0.53
Tropicana Wash	63.286	PF 2	1031.00	2198.30	2202.75		2203.30	0.006400	5.91	174.39	46.31	0.54
Tropicana Wash	63.245	PF 1	1031.00	2196.63	2198.59	2198.59	2199.18	0.028988	6.16	167.44	145.71	1.01
Tropicana Wash	63.245	PF 2	1031.00	2196.63	2199.57	2199.57	2200.79	0.025326	8.87	116.26	48.27	1.01
Tropicana Wash	63.186	PF 1	1031.00	2186.00	2189.56	2189.56	2190.71	0.008863	8.61	119.77	52.13	1.00
Tropicana Wash	63.186	PF 2	1031.00	2186.00	2190.76	2190.76	2192.74	0.010873	11.31	91.13	23.19	1.01
Tropicana Wash	63.119	PF 1	1031.00	2180.28	2183.25	2183.25	2184.46	0.011247	8.83	116.73	48.63	1.00
Tropicana Wash	63.119	PF 2	1031.00	2180.30	2184.36	2184.36	2186.39	0.010888	11.44	90.12	22.34	1.00
Tropicana Wash	63.113	PF 1	1031.00	2178.45	2183.52	2181.55	2184.10	0.001510	6.09	169.39	55.25	0.48
Tropicana Wash	63.113	PF 2	1031.00	2178.45	2183.52	2181.55	2184.10	0.001510	6.09	169.39	55.25	0.48

HEC-RAS Version 3.1.2 April 2004
U.S. Army Corp of Engineers
Hydrologic Engineering Center
609 Second Street
Davis, California

```
X     X  XXXXXX    XXXX        XXXX        XX      XXXX
X     X  X        X    X      X   X      X  X    X
X     X  X        X           X   X     X    X   X
XXXXXXX  XXXX     X      XXX  XXXX      XXXXXX    XXXX
X     X  X        X           X  X      X    X       X
X     X  X        X    X      X   X     X    X       X
X     X  XXXXXX    XXXX       X    X    X    X   XXXXX
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PROJECT DATA
Project Title: West
Project File : West.prj
Run Date and Time: 11/29/2005 1:55:12 PM

Project in English units

Project Description:
FIS - Tropicana Wash

PLAN DATA

Plan Title: Upper
Plan File : g:\DRAINAGE\Drainage Files\FIS-Tropicana-1993 and 2002\TROPFIS\2001\hec ras\West.p01

Geometry Title: Upper
Geometry File : g:\DRAINAGE\Drainage Files\FIS-Tropicana-1993 and 2002\TROPFIS\2001\hec ras\West.g04

Flow Title : 100 Year Flow Event - Upper
Flow File : g:\DRAINAGE\Drainage Files\FIS-Tropicana-1993 and 2002\TROPFIS\2001\hec ras\West.f01

Plan Summary Information:
Number of: Cross Sections = 17 Multiple Openings = 0
Culverts = 2 Inline Structures = 0
Bridges = 0 Lateral Structures = 0

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

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

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

River = Tropicana Wash Reach = Tropicana Wash

RS	Profile	Method	Value1	Value2
63.569	PF 2	1	404.4	451.5
63.552	PF 2	1	164	266
63.505	PF 2	1	143	302

63.488	PF 2	1	225.5	342.5
63.379	PF 2	1	212.2	261.8
63.339	PF 2	1	246.26	283.55
63.286	PF 2	1	159.54	205.85
63.245	PF 2	1	228.52	276.79
63.186	PF 2	1	405.78	428.97
63.119	PF 2	1	243.68	266.02

FLOW DATA

Flow Title: 100 Year Flow Event - Upper
Flow File : g:\DRAINAGE\Drainage Files\FIS-Tropicana-1993 and 2002\TROPFIS\2001\hec ras\West.f01

Flow Data (cfs)

River	Reach	RS	PF 1	PF 2
Tropicana Wash	Tropicana Wash	63.711	1818	1818
Tropicana Wash	Tropicana Wash	63.389	750	750
Tropicana Wash	Tropicana Wash	63.379	1031	1031
Tropicana Wash	Tropicana Wash	63.113	1031	1031

Boundary Conditions

River	Reach	Profile	Upstream	Downstream
Tropicana Wash	Tropicana Wash	PF 1	Critical	Known WS = 2183.52

GEOMETRY DATA

Geometry Title: Upper
Geometry File : g:\DRAINAGE\Drainage Files\FIS-Tropicana-1993 and 2002\TROPFIS\2001\hec ras\West.g04

CROSS SECTION

RIVER: Tropicana Wash
REACH: Tropicana Wash RS: 63.711

INPUT
Description: Upstream X-Section from culvert crossing at Arville
Station Elevation Data num= 22

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2229	11.7	2228	86	2228	105	2229	127	2229.5
193.7	2229.5	275.7	2230	319	2230	331.7	2229	335.7	2227
338.75	2225	340.75	2222	359	2222	376.75	2222	377.75	2225
379	2226	380	2227	381	2228	382	2229	383	2230
409	2231	438	2232						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.035	335.7	.02	382	.035

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
335.7 382 106.55 106.14 105.07 .3 .5
Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
0	341.99		F
378.01	438		F

Left Levee Station= 300 Elevation=

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	2230.52	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.65	Wt. n-Val.		0.020	
W.S. Elev (ft)	2229.87	Reach Len. (ft)	106.55	106.14	105.07

Crit W.S. (ft)	2226.38	Flow Area (sq ft)		281.10	
E.G. Slope (ft/ft)	0.000530	Area (sq ft)	12.26	326.72	0.38
Q Total (cfs)	1818.00	Flow (cfs)		1818.00	
Top Width (ft)	62.19	Top Width (ft)	15.03	46.30	0.87
Vel Total (ft/s)	6.47	Avg. Vel. (ft/s)		6.47	
Max Chl Dpth (ft)	7.87	Hydr. Depth (ft)		7.80	
Conv. Total (cfs)	78937.6	Conv. (cfs)		78937.6	
Length Wtd. (ft)	106.14	Wetted Per. (ft)		38.26	
Min Ch El (ft)	2222.00	Shear (lb/sq ft)		0.24	
Alpha	1.00	Stream Power (lb/ft s)		1.57	
Frctn Loss (ft)		Cum Volume (acre-ft)	6.16	23.94	3.33
C & E Loss (ft)		Cum SA (acres)	3.23	7.83	2.94

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

CROSS SECTION OUTPUT Profile #PF 2

			Left OB	Channel	Right OB
E.G. Elev (ft)	2230.52	Element			
Vel Head (ft)	0.65	Wt. n-Val.		0.020	
W.S. Elev (ft)	2229.87	Reach Len. (ft)	106.55	106.14	105.07
Crit W.S. (ft)	2226.38	Flow Area (sq ft)		281.10	
E.G. Slope (ft/ft)	0.000530	Area (sq ft)	12.26	326.72	0.38
Q Total (cfs)	1818.00	Flow (cfs)		1818.00	
Top Width (ft)	62.19	Top Width (ft)	15.03	46.30	0.87
Vel Total (ft/s)	6.47	Avg. Vel. (ft/s)		6.47	
Max Chl Dpth (ft)	7.87	Hydr. Depth (ft)		7.80	
Conv. Total (cfs)	78937.6	Conv. (cfs)		78937.6	
Length Wtd. (ft)	106.14	Wetted Per. (ft)		38.26	
Min Ch El (ft)	2222.00	Shear (lb/sq ft)		0.24	
Alpha	1.00	Stream Power (lb/ft s)		1.57	
Frctn Loss (ft)		Cum Volume (acre-ft)	6.09	20.84	3.38
C & E Loss (ft)		Cum SA (acres)	3.08	4.30	2.75

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

CULVERT

RIVER: Tropicana Wash
REACH: Tropicana Wash RS: 63.703

INPUT
Description: Culvert Crossing at Arville
Distance from Upstream XS = 9
Deck/Roadway Width = 70
Weir Coefficient = 2.6
Upstream Deck/Roadway Coordinates
num= 7

Sta Hi Cord	Lo Cord	Sta Hi Cord	Lo Cord	Sta Hi Cord	Lo Cord
0	2220	81	2220	129	2220
277	2220	382	2220	409	2220
438	2220				
2228		2228		2229	
2230		2230		2231	
2232					

Upstream Bridge Cross Section Data
Station Elevation Data num= 22

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2229	11.7	2228	86	2228	105	2229	127	2229.5
193.7	2229.5	275.7	2230	319	2230	331.7	2229	335.7	2227
338.75	2225	340.75	2222	359	2222	376.75	2222	377.75	2225
379	2226	380	2227	381	2228	382	2229	383	2230
409	2231	438	2232						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.035	335.7	.02	382	.035

Bank Sta: Left	Right	Coeff Contr.	Expan.
335.7	382	.3	.5

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Ineffective Flow      num=        2
   Sta L   Sta R     Elev  Permanent
       0  341.99                F
  378.01     438                F
Left Levee       Station=     300       Elevation=

Downstream  Deck/Roadway Coordinates
    num=        7
     Sta Hi Cord Lo Cord      Sta Hi Cord Lo Cord      Sta Hi Cord Lo Cord
       0    2227    2220       50    2228    2220      148    2229    2220
     261    2230    2220      433    2231    2220      491    2232    2220
     596    2232    2220

Downstream Bridge Cross Section Data
Station Elevation Data    num=       29
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
       0     2227       25     2228      144     2229      197     2230      261     2230
     279     2229      295     2228      296     2227      298     2226      299     2225
     301     2224    302.5  2221.35      307  2221.35      314  2221.35      317  2221.35
     320  2221.35      322  2221.35      328  2221.35      335  2221.35      338  2221.35
     338     2225      340     2226      342     2227      344     2228      345     2229
     348     2230      543     2230      576     2231      596     2232

Manning's n Values          num=        5
     Sta   n Val      Sta   n Val      Sta   n Val      Sta   n Val      Sta   n Val
       0    .035      295     .02    302.5    .028      338     .02      348    .035

Bank Sta: Left   Right    Coeff Contr.   Expan.
          295     348             .3        .5
Ineffective Flow      num=        2
   Sta L   Sta R     Elev  Permanent
       0  301.99                F
  338.01     596                F

Upstream Embankment side slope                =       0 horiz. to 1.0 vertical
Downstream Embankment side slope              =       0 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow =     .95
Elevation at which weir flow begins           =
Energy head used in spillway design           =
Spillway height used in design                =
Weir crest shape                              = Broad Crested

Number of Culverts =  1

Culvert Name      Shape      Rise     Span
Culvert #1            Box      5.8       10
FHWA Chart # 8 - flared wingwalls
FHWA Scale # 1 - Wingwall flared 30 to 75 deg.
Solution Criteria = Highest U.S. EG
Culvert Upstrm Dist  Length    Top n  Bottom n  Depth Blocked  Entrance Loss Coef   Exit Loss Coef
                  9    85.4     .013      .013          0                  .2                 1
Number of Barrels =  3
Upstream   Elevation =  2221.885
Centerline Stations
    Sta.     Sta.     Sta.
   347.8      360    372.5
Downstream Elevation =  2221.885
Centerline Stations
    Sta.     Sta.     Sta.
   307.8      320    332.5

CULVERT OUTPUT  Profile #PF 1  Culv Group:  Culvert #1

  Q Culv Group (cfs)       1783.30    Culv Full Len (ft)         26.85
  # Barrels                      3    Culv Vel US (ft/s)         10.25
  Q Barrel (cfs)            594.43    Culv Vel DS (ft/s)         10.93
  E.G. US. (ft)            2230.52    Culv Inv El Up (ft)      2221.89
  W.S. US. (ft)            2229.87    Culv Inv El Dn (ft)      2221.89
  E.G. DS (ft)             2228.43    Culv Frctn Ls (ft)          1.01
  W.S. DS (ft)             2227.32    Culv Exit Loss (ft)         0.74
  Delta EG (ft)               2.08    Culv Entr Loss (ft)         0.33
  Delta WS (ft)               2.55    Q Weir (cfs)               34.70
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E.G. IC (ft)	2230.52	Weir Sta Lft (ft)	341.99
E.G. OC (ft)	2229.84	Weir Sta Rgt (ft)	378.01
Culvert Control	Inlet	Weir Submerg	0.00
Culv WS Inlet (ft)	2227.69	Weir Max Depth (ft)	0.52
Culv WS Outlet (ft)	2227.32	Weir Avg Depth (ft)	0.52
Culv Nml Depth (ft)		Weir Flow Area (sq ft)	18.58
Culv Crt Depth (ft)	4.79	Min El Weir Flow (ft)	2230.25

Warning: During the culvert outlet computations, the program could not balance the culvert/weir flow. The reported outlet energy grade answer may not be valid.

CULVERT OUTPUT Profile #PF 2 Culv Group: Culvert #1

Q Culv Group (cfs)	1783.30	Culv Full Len (ft)	26.85
# Barrels	3	Culv Vel US (ft/s)	10.25
Q Barrel (cfs)	594.43	Culv Vel DS (ft/s)	10.93
E.G. US. (ft)	2230.52	Culv Inv El Up (ft)	2221.89
W.S. US. (ft)	2229.87	Culv Inv El Dn (ft)	2221.89
E.G. DS (ft)	2228.43	Culv Frctn Ls (ft)	1.01
W.S. DS (ft)	2227.32	Culv Exit Loss (ft)	0.74
Delta EG (ft)	2.08	Culv Entr Loss (ft)	0.33
Delta WS (ft)	2.55	Q Weir (cfs)	34.70
E.G. IC (ft)	2230.52	Weir Sta Lft (ft)	341.99
E.G. OC (ft)	2229.84	Weir Sta Rgt (ft)	378.01
Culvert Control	Inlet	Weir Submerg	0.00
Culv WS Inlet (ft)	2227.69	Weir Max Depth (ft)	0.52
Culv WS Outlet (ft)	2227.32	Weir Avg Depth (ft)	0.52
Culv Nml Depth (ft)		Weir Flow Area (sq ft)	18.58
Culv Crt Depth (ft)	4.79	Min El Weir Flow (ft)	2230.25

Warning: During the culvert outlet computations, the program could not balance the culvert/weir flow. The reported outlet energy grade answer may not be valid.

CROSS SECTION

RIVER: Tropicana Wash
REACH: Tropicana Wash RS: 63.691

INPUT
Description: Downstream X-Section from culvert crossing at Arville
Station Elevation Data num= 29

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2227	25	2228	144	2229	197	2230	261	2230
279	2229	295	2228	296	2227	298	2226	299	2225
301	2224	302.5	2221.35	307	2221.35	314	2221.35	317	2221.35
320	2221.35	322	2221.35	328	2221.35	335	2221.35	338	2221.35
338	2225	340	2226	342	2227	344	2228	345	2229
348	2230	543	2230	576	2231	596	2232		

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.035	295	.02	302.5	.028	338	.02	348	.035

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
295	348	320.78	320.81	320.88	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
0	301.99		F
338.01	596		F

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	2228.43	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.11	Wt. n-Val.		0.028	
W.S. Elev (ft)	2227.32	Reach Len. (ft)	320.78	320.81	320.88
Crit W.S. (ft)		Flow Area (sq ft)		214.82	
E.G. Slope (ft/ft)	0.002685	Area (sq ft)	1.29	233.49	
Q Total (cfs)	1818.00	Flow (cfs)		1818.00	
Top Width (ft)	55.00	Top Width (ft)	8.03	46.96	

Vel Total (ft/s)	8.46	Avg. Vel. (ft/s)		8.46	
Max Chl Dpth (ft)	5.97	Hydr. Depth (ft)		5.96	
Conv. Total (cfs)	35088.2	Conv. (cfs)		35088.2	
Length Wtd. (ft)	320.81	Wetted Per. (ft)		40.20	
Min Ch El (ft)	2221.35	Shear (lb/sq ft)		0.90	
Alpha	1.00	Stream Power (lb/ft s)		7.58	
Frctn Loss (ft)	1.50	Cum Volume (acre-ft)	6.14	23.26	3.33
C & E Loss (ft)	0.25	Cum SA (acres)	3.20	7.72	2.94

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	2228.43	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.11	Wt. n-Val.		0.028	
W.S. Elev (ft)	2227.32	Reach Len. (ft)	320.78	320.81	320.88
Crit W.S. (ft)		Flow Area (sq ft)		214.82	
E.G. Slope (ft/ft)	0.002685	Area (sq ft)	1.29	233.49	
Q Total (cfs)	1818.00	Flow (cfs)		1818.00	
Top Width (ft)	55.00	Top Width (ft)	8.03	46.96	
Vel Total (ft/s)	8.46	Avg. Vel. (ft/s)		8.46	
Max Chl Dpth (ft)	5.97	Hydr. Depth (ft)		5.96	
Conv. Total (cfs)	35088.2	Conv. (cfs)		35088.2	
Length Wtd. (ft)	320.81	Wetted Per. (ft)		40.20	
Min Ch El (ft)	2221.35	Shear (lb/sq ft)		0.90	
Alpha	1.00	Stream Power (lb/ft s)		7.58	
Frctn Loss (ft)	1.50	Cum Volume (acre-ft)	6.08	20.15	3.38
C & E Loss (ft)	0.25	Cum SA (acres)	3.05	4.19	2.75

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Tropicana Wash
REACH: Tropicana Wash RS: 63.631

INPUT
Description: 21
Station Elevation Data num= 111

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2222.6	17.76	2222.74	28.31	2222.79	30.88	2222.82	33.91	2222.87
50.8	2222.8	51.5	2222.84	52.8	2222.85	67.74	2222.86	78.74	2222.93
84.08	2223	85.77	2222.97	97.12	2223.11	99.72	2223.1	112.12	2223.26
120.94	2223.3	128.55	2223.43	129.64	2223.43	148.15	2223.34	149.06	2223.35
149.45	2223.3	158.51	2223.35	158.83	2223.35	186.52	2224	237.58	2223.06
238.05	2223.1	238.52	2223.05	258.48	2222.91	268.51	2222.95	279.08	2223.02
279.44	2223	279.63	2223.03	280	2223.03	281.16	2223.03	294.96	2222.98
297.15	2222.9	297.44	2222.88	298.1	2222.87	309.28	2222.82	312.89	2222.87
323.01	2222.8	323.38	2222.78	323.84	2222.79	323.98	2222.8	324.21	2222.82
325.65	2222.9	326.61	2222.91	334.36	2222.98	355.26	2223.94	356.6	2224
359.3	2224.46	363.25	2225	364.43	2225.42	365	2225.4	365.15	2225.39
367.01	2225.03	370.24	2224.31	370.89	2224.2	373.05	2224	373.75	2223.95
373.83	2223.95	377.4	2222	378.36	2221.4	380.46	2220	386.54	2218.91

390.98	2218	392.36	2217.65	394.21	2218	399.66	2219.41	402.8	2220
405.34	2223.14	405.45	2223.25	406.06	2223.9	406.21	2224	406.49	2224.07
406.63	2224.09	409.27	2224.39	413.44	2224.85	413.68	2224.9	413.73	2224.84
414.15	2224.82	415.21	2224.83	432.45	2224.42	435.47	2224.4	436.12	2224.41
445.29	2224	460.64	2223.56	478.42	2223.43	494.9	2223.7	509.72	2224
510.79	2224.04	511.39	2224.04	529.93	2224.38	535.67	2224.4	554.56	2224.81
557.4	2224.87	558.38	2224.9	561.09	2224.93	569.62	2225.2	589.63	2225.13
591.13	2224.8	628.2	2225.74	647.79	2226	666.14	2226.3	691.71	2226.9
693.13	2226.9	697.14	2226.99	718.32	2227.44	730.87	2227.8	735.61	2227.86
738.78	2227.93								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.035	380.46	.028	402.8	.035

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
365	409.27	318.34	326.31	347.37	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
0	360		T
415	738.78		T

Left Levee Station= 364.43 Elevation= 2225.42

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	2226.69	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.94	Wt. n-Val.		0.032	0.035
W.S. Elev (ft)	2224.75	Reach Len. (ft)	318.34	326.31	347.37
Crit W.S. (ft)	2224.75	Flow Area (sq ft)		162.51	0.58
E.G. Slope (ft/ft)	0.010010	Area (sq ft)		162.51	95.14
Q Total (cfs)	1818.00	Flow (cfs)		1817.22	0.79
Top Width (ft)	177.36	Top Width (ft)		41.00	136.36
Vel Total (ft/s)	11.15	Avg. Vel. (ft/s)		11.18	1.35
Max Chl Dpth (ft)	7.10	Hydr. Depth (ft)		3.96	0.18
Conv. Total (cfs)	18170.8	Conv. (cfs)		18162.9	7.8
Length Wtd. (ft)	326.31	Wetted Per. (ft)		44.54	3.27
Min Ch El (ft)	2217.65	Shear (lb/sq ft)		2.28	0.11
Alpha	1.01	Stream Power (lb/ft s)		25.49	0.15
Frctn Loss (ft)	3.74	Cum Volume (acre-ft)	6.14	21.80	2.98
C & E Loss (ft)	0.26	Cum SA (acres)	3.17	7.39	2.43

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Manning's n values were composited to a single value in the main channel.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	2226.69	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.94	Wt. n-Val.		0.032	0.035
W.S. Elev (ft)	2224.75	Reach Len. (ft)	318.34	326.31	347.37
Crit W.S. (ft)	2224.75	Flow Area (sq ft)		162.51	0.58
E.G. Slope (ft/ft)	0.010010	Area (sq ft)		162.51	95.14
Q Total (cfs)	1818.00	Flow (cfs)		1817.22	0.79
Top Width (ft)	177.36	Top Width (ft)		41.00	136.36
Vel Total (ft/s)	11.15	Avg. Vel. (ft/s)		11.18	1.35
Max Chl Dpth (ft)	7.10	Hydr. Depth (ft)		3.96	0.18
Conv. Total (cfs)	18170.8	Conv. (cfs)		18162.9	7.8
Length Wtd. (ft)	326.31	Wetted Per. (ft)		44.54	3.27
Min Ch El (ft)	2217.65	Shear (lb/sq ft)		2.28	0.11
Alpha	1.01	Stream Power (lb/ft s)		25.49	0.15
Frctn Loss (ft)	3.80	Cum Volume (acre-ft)	6.07	18.69	3.03

C & E Loss (ft)	0.04	Cum SA (acres)	3.02	3.86	2.25

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Manning's n values were composited to a single value in the main channel.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: Tropicana Wash
REACH: Tropicana Wash RS: 63.569

INPUT
Description: 20
Station Elevation Data num= 118

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2220.3	31.61	2220.65	48.71	2220.61	51.66	2220.11	52.76	2220
55.53	2220	112.87	2220.84	174.09	2221.62	174.52	2221.65	184.03	2221.82
185.48	2221.8	189.39	2221.86	191.36	2221.86	194.19	2221.83	195.57	2221.82
197.38	2221.8	201.67	2221.92	202.51	2221.9	203.23	2221.89	207.42	2221.89
207.72	2221.9	229.14	2221.73	232.55	2221.69	243.54	2221.48	249.91	2221.45
262.19	2221.1	272.46	2221	277.82	2220.96	281.45	2221.14	281.88	2221.19
300.27	2220.9	302.55	2220.92	303.11	2220.86	303.13	2220.83	304.27	2220.7
305.2	2220.7	305.27	2220.7	305.29	2220.7	309.03	2220.75	314.36	2220.78
333.49	2220.7	337.01	2220.72	338.64	2220.75	348.62	2220.95	349.22	2221.09
350.99	2221.1	351.03	2221.07	355.83	2220.85	356.21	2220.82	359	2220.69
359.03	2220.69	360.02	2220.6	360.28	2220.6	366.78	2220.19	367.34	2220.15
370.12	2220	370.2	2220	370.78	2219.88	372.38	2219.52	379.22	2218
380.8	2217.75	390.78	2216	400.57	2214.3	402.79	2214	415.03	2214.42
421.21	2214.65	422.03	2214.69	422.59	2214.7	422.71	2214.71	423.04	2214.73
426.13	2214.93	426.88	2215.25	430.7	2216	433.74	2216.5	435.82	2216.5
436.48	2216.55	440.76	2216.84	442	2216.81	446.99	2216.7	451.1	2216.68
451.25	2216.66	451.55	2216.64	453.16	2216.59	455.27	2216.52	455.31	2216.5
456.27	2216.48	457.68	2216.43	465.29	2216.51	472.14	2217.1	474.93	2217.4
475.61	2217.52	476.83	2217.73	479.69	2218	481.05	2218.28	483.26	2218.5
485.56	2218.74	487.31	2218.84	487.73	2218.94	489.34	2219.2	490	2219.23
493.53	2219.4	495.42	2219.69	497.86	2220	504.15	2220.25	511.54	2220.51
512.7	2220.7	540.86	2221.39	541.26	2221.4	541.3	2221.36	551.69	2221.51
555.33	2221.6	557.22	2221.85	558.14	2221.72	564.65	2222	572.3	2222
578.18	2222	581.13	2222	591.7	2222				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.04	359	.034	490	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
359	490	94.38	87.55	78.15	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

			Left OB	Channel	Right OB
E.G. Elev (ft)	2219.22	Element			
Vel Head (ft)	1.08	Wt. n-Val.		0.034	
W.S. Elev (ft)	2218.15	Reach Len. (ft)	94.38	87.55	78.15
Crit W.S. (ft)	2218.15	Flow Area (sq ft)		218.48	
E.G. Slope (ft/ft)	0.013219	Area (sq ft)		218.48	
Q Total (cfs)	1818.00	Flow (cfs)		1818.00	
Top Width (ft)	101.85	Top Width (ft)		101.85	
Vel Total (ft/s)	8.32	Avg. Vel. (ft/s)		8.32	
Max Chl Dpth (ft)	4.15	Hydr. Depth (ft)		2.15	
Conv. Total (cfs)	15812.2	Conv. (cfs)		15812.2	
Length Wtd. (ft)	87.55	Wetted Per. (ft)		102.53	
Min Ch El (ft)	2214.00	Shear (lb/sq ft)		1.76	
Alpha	1.00	Stream Power (lb/ft s)		14.63	

Frctn Loss (ft)	0.39	Cum Volume (acre-ft)	6.14	20.38	2.60
C & E Loss (ft)	0.24	Cum SA (acres)	3.17	6.86	1.89

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	2220.90	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.82	Wt. n-Val.		0.034	
W.S. Elev (ft)	2219.08	Reach Len. (ft)	94.38	87.55	78.15
Crit W.S. (ft)	2219.08	Flow Area (sq ft)		168.06	
E.G. Slope (ft/ft)	0.013743	Area (sq ft)		168.06	
Q Total (cfs)	1818.00	Flow (cfs)		1818.00	
Top Width (ft)	47.10	Top Width (ft)		47.10	
Vel Total (ft/s)	10.82	Avg. Vel. (ft/s)		10.82	
Max Chl Dpth (ft)	5.03	Hydr. Depth (ft)		3.57	
Conv. Total (cfs)	15507.8	Conv. (cfs)		15507.8	
Length Wtd. (ft)	87.55	Wetted Per. (ft)		54.78	
Min Ch El (ft)	2214.06	Shear (lb/sq ft)		2.63	
Alpha	1.00	Stream Power (lb/ft s)		28.48	
Frctn Loss (ft)	0.28	Cum Volume (acre-ft)	6.07	17.46	2.65
C & E Loss (ft)	0.46	Cum SA (acres)	3.02	3.53	1.71

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION

RIVER: Tropicana Wash
REACH: Tropicana Wash RS: 63.552

INPUT
Description: 19
Station Elevation Data num= 66

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2220.8	2.41	2220.78	4.19	2220.81	16.93	2220.47	29.9	2220.12
30.19	2220.1	36.04	2220.01	36.12	2220.01	36.36	2220	62.02	2219.33
66.48	2219.2	71	2219.1	84.25	2218.83	90.54	2218.68	91.25	2218.66
100.3	2218.5	102.3	2218.48	108.94	2218.4	116.24	2218.21	130.76	2218
132	2217.82	134.59	2217.43	136.4	2217.2	142.95	2216.19	143.61	2216.09
144.14	2216	150.43	2215.82	156.54	2215.6	157.49	2215.58	162.28	2216
169	2215.78	179.03	2215.52	185.95	2215.5	205.47	2214.32	207.42	2214.29
209.6	2214.22	212.33	2214	234.65	2214	237.41	2214	244.5	2214
255.88	2214	255.99	2214.01	256.2	2214	256.78	2214.07	279.46	2216
293.82	2217.26	301.6	2217.94	301.87	2217.96	302.39	2218	305.83	2218.25
309.03	2218.58	330.05	2220	332.28	2220	333.55	2220	345.52	2220
349.75	2220	363.79	2220	365.19	2220	367.74	2219.9	382.72	2218.8
387.69	2219.04	398.64	2220	403.96	2220.28	408.09	2220.5	428.85	2220.62
431.61	2220.62								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.04	132	.032	293.82	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
132	293.82	208.29	247.98	217.5	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

			Left OB	Channel	Right OB
E.G. Elev (ft)	2218.11	Element			
Vel Head (ft)	0.27	Wt. n-Val.	0.000	0.032	0.040
W.S. Elev (ft)	2217.84	Reach Len. (ft)	208.29	247.98	217.50
Crit W.S. (ft)		Flow Area (sq ft)	0.00	432.94	1.92
E.G. Slope (ft/ft)	0.002205	Area (sq ft)	0.00	432.94	1.92
Q Total (cfs)	1818.00	Flow (cfs)	0.00	1816.54	1.46
Top Width (ft)	168.57	Top Width (ft)	0.13	161.82	6.62
Vel Total (ft/s)	4.18	Avg. Vel. (ft/s)	0.08	4.20	0.76
Max Chl Dpth (ft)	3.84	Hydr. Depth (ft)	0.01	2.68	0.29
Conv. Total (cfs)	38718.6	Conv. (cfs)	0.0	38687.5	31.1
Length Wtd. (ft)	247.97	Wetted Per. (ft)	0.13	162.18	6.65
Min Ch El (ft)	2214.00	Shear (lb/sq ft)		0.37	0.04
Alpha	1.01	Stream Power (lb/ft s)		1.54	0.03
Frctn Loss (ft)	0.25	Cum Volume (acre-ft)	6.14	19.72	2.60
C & E Loss (ft)	0.06	Cum SA (acres)	3.17	6.59	1.88

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

CROSS SECTION OUTPUT Profile #PF 2

			Left OB	Channel	Right OB
E.G. Elev (ft)	2219.02	Element			
Vel Head (ft)	0.29	Wt. n-Val.		0.032	
W.S. Elev (ft)	2218.73	Reach Len. (ft)	208.29	247.98	217.50
Crit W.S. (ft)		Flow Area (sq ft)		422.75	
E.G. Slope (ft/ft)	0.001403	Area (sq ft)		422.75	
Q Total (cfs)	1818.00	Flow (cfs)		1818.00	
Top Width (ft)	102.00	Top Width (ft)		102.00	
Vel Total (ft/s)	4.30	Avg. Vel. (ft/s)		4.30	
Max Chl Dpth (ft)	4.73	Hydr. Depth (ft)		4.14	
Conv. Total (cfs)	48531.2	Conv. (cfs)		48531.2	
Length Wtd. (ft)	247.98	Wetted Per. (ft)		108.75	
Min Ch El (ft)	2214.00	Shear (lb/sq ft)		0.34	
Alpha	1.00	Stream Power (lb/ft s)		1.46	
Frctn Loss (ft)	0.16	Cum Volume (acre-ft)	6.07	16.86	2.65
C & E Loss (ft)	0.06	Cum SA (acres)	3.02	3.38	1.71

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

CROSS SECTION

RIVER: Tropicana Wash
REACH: Tropicana Wash RS: 63.505

INPUT
Description: 18
Station Elevation Data num= 141

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2220	5.8	2220	6.79	2220	13.62	2220	19.2	2220
20.87	2220	49.24	2218.86	59	2218.54	59.26	2218.4	61.26	2218.35
66.16	2218.3	70.45	2218.29	71.29	2218.3	72.31	2218.3	72.77	2218.31
75.39	2218.4	76.69	2218.38	92	2218.13	95.47	2218.07	100.12	2218
104	2217.33	106.65	2216.87	111.72	2216	125.91	2215.52	140.67	2214.37
143.08	2214.24	145.71	2214	147.63	2213.6	157.62	2212	161.75	2210.73
164.55	2210	172.94	2210	173.66	2210	174.95	2210.45	179.03	2212
180.51	2212.14	192.99	2213.08	199.84	2213.2	212.7	2214	227.23	2214.81
227.29	2214.81	232.11	2214.81	236.31	2214.8	237.36	2214.77	241.5	2214.71
274.41	2215.08	283.06	2214.97	293.21	2215.3	298.84	2215.49	301.55	2215.6
322.73	2215.95	324.51	2216	329.2	2216.4	353.05	2218	360.61	2219.15

364.5	2219.42	365.76	2219.48	366.64	2219.5	367.82	2219.55	368.05	2219.54
369	2219.57	369.73	2219.6	370.14	2219.51	370.59	2219.5	374.07	2218.8
378.37	2218.18	379.41	2218	384.96	2217.01	391.84	2216	394.89	2215.87
417.34	2215.04	418.09	2215.06	419.49	2215.01	423.95	2214.9	426.16	2214.79
431.66	2214.76	433.45	2214.79	436.52	2214.89	445.34	2215.2	462.78	2215.97
464.58	2216	475.1	2216.18	477.9	2216.88	481.74	2217.4	484.56	2216.94
492.99	2216.47	494.97	2216.31	495.12	2216.31	495.13	2216.3	496.83	2216.35
500.4	2216.27	500.68	2216.27	501.22	2216.23	504.84	2216.3	509.3	2216.46
515.84	2216.73	520.38	2217.08	523.7	2217.23	524	2217.2	524.12	2217.19
524.56	2217.19	525.66	2217.25	533.74	2217.38	537.21	2217.5	542.73	2217.75
544.06	2217.78	544.5	2217.78	544.9	2217.78	545.72	2217.8	545.94	2217.8
546.1	2217.8	546.35	2217.8	547.43	2217.82	547.77	2217.8	557.8	2218
560.77	2218.1	567.58	2218.41	571.81	2218.63	574.6	2218.7	591.15	2220
591.92	2220	607.77	2220	610.76	2220	615.28	2220	616.27	2219.87
617.22	2219.84	631.11	2219.86	633.46	2220	635.61	2220	638.72	2220
643.25	2220	646.99	2220	658.67	2220	665.06	2220	671.14	2220
676.26	2220	678.14	2220	685.7	2220	694.89	2220	701.05	2220
701.82	2220								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.04	157.62	.028	179.03	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
92	369	124.56	89.12 150.96	.1	.3

Right Levee Station= 367 Elevation=

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	2217.80	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.09	Wt. n-Val.		0.035	
W.S. Elev (ft)	2217.72	Reach Len. (ft)	124.56	89.12	150.96
Crit W.S. (ft)	2215.31	Flow Area (sq ft)		776.97	
E.G. Slope (ft/ft)	0.000585	Area (sq ft)		776.97	
Q Total (cfs)	1818.00	Flow (cfs)		1818.00	
Top Width (ft)	247.09	Top Width (ft)		247.09	
Vel Total (ft/s)	2.34	Avg. Vel. (ft/s)		2.34	
Max Chl Dpth (ft)	7.72	Hydr. Depth (ft)		3.14	
Conv. Total (cfs)	75182.7	Conv. (cfs)		75182.7	
Length Wtd. (ft)	94.81	Wetted Per. (ft)		248.29	
Min Ch El (ft)	2210.00	Shear (lb/sq ft)		0.11	
Alpha	1.00	Stream Power (lb/ft s)		0.27	
Frctn Loss (ft)	0.15	Cum Volume (acre-ft)	6.14	16.28	2.59
C & E Loss (ft)	0.07	Cum SA (acres)	3.17	5.43	1.87

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.

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

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

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	2218.80	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.08	Wt. n-Val.		0.035	
W.S. Elev (ft)	2218.72	Reach Len. (ft)	124.56	89.12	150.96
Crit W.S. (ft)	2215.34	Flow Area (sq ft)		787.34	
E.G. Slope (ft/ft)	0.000357	Area (sq ft)		787.34	
Q Total (cfs)	1818.00	Flow (cfs)		1818.00	
Top Width (ft)	159.00	Top Width (ft)		159.00	
Vel Total (ft/s)	2.31	Avg. Vel. (ft/s)		2.31	
Max Chl Dpth (ft)	8.72	Hydr. Depth (ft)		4.95	
Conv. Total (cfs)	96193.8	Conv. (cfs)		96193.8	
Length Wtd. (ft)	101.77	Wetted Per. (ft)		167.51	
Min Ch El (ft)	2210.00	Shear (lb/sq ft)		0.10	
Alpha	1.00	Stream Power (lb/ft s)		0.24	
Frctn Loss (ft)	0.11	Cum Volume (acre-ft)	6.07	13.42	2.65
C & E Loss (ft)	0.09	Cum SA (acres)	3.02	2.64	1.71

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: Tropicana Wash
REACH: Tropicana Wash RS: 63.488

INPUT
Description: 17
Station Elevation Data num= 133

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2219.2	.44	2219.19	10.95	2219.24	31.29	2219.26	41.02	2219.34
49.43	2219.4	57.63	2219.3	66.45	2219.11	72.43	2218.96	85.5	2218.96
87.22	2218.9	90.06	2218.95	100.94	2218.95	102.79	2218.97	108.31	2218.96
109.55	2218.9	121.33	2218.38	126.8	2218.64	126.98	2218.67	127.42	2218.69
128.22	2218.7	133.7	2218	140.8	2217.67	143.87	2217.63	153.41	2217.54
154.88	2217.6	166.9	2218	187.92	2216.85	189.51	2217.02	189.59	2217.01
191.84	2217.1	193.03	2216.9	194.02	2216.83	194.82	2216.87	195.22	2216.7
196.81	2216	199.38	2215.2	201.94	2214	205.43	2212.35	206.16	2212
207.31	2211.46	210.06	2210	210.69	2209.75	211.23	2210	213.2	2210
214.31	2211.15	215.2	2212	217.02	2213.98	217.05	2214	217.27	2214.01
217.39	2214.01	217.64	2214	245.7	2214.94	274	2215.9	277.07	2216
282.43	2216	295.31	2216	304.14	2216	326.75	2216	333.76	2216
361.85	2215.66	372.25	2216	393.16	2217.16	407.96	2218	408.08	2217.99
408.1	2218	408.14	2218	408.24	2218	408.29	2218	416.25	2218.71
420.66	2218.95	421.78	2219	422.12	2219	424.79	2219	432.29	2219.44
432.91	2219.52	433.71	2219.53	435.96	2219.39	439.67	2219.1	441	2218.92
444.41	2218.68	449.45	2218	458.31	2217.44	461.2	2217.3	463.76	2217.09
466.91	2216.91	475.8	2216.86	510.1	2217.06	516.78	2217.8	517.43	2217.83
518.2	2217.88	520.09	2218	523.54	2218	544.57	2218	554.21	2218
556.01	2218	556.88	2218	578.84	2218	590.9	2218	594	2218
604.6	2218.34	616.42	2218.78	625.05	2219.12	628.28	2219.1	628.66	2219.05
630.38	2218.82	633.17	2218.67	634.41	2218.57	643.34	2218.6	648.28	2218.5
649.01	2218.51	658.23	2218.57	668.84	2218.55	674.53	2218.4	679.57	2218.29
679.81	2218.26	679.94	2218.25	681.85	2218.25	682.69	2218.3	683.74	2218.34
688.33	2218.4	695.15	2218.68	695.96	2218.76	699.48	2219	699.62	2219.02
703.89	2219.01	708.35	2219.01	711.49	2219.03	718.67	2219	721.72	2218.94
728.71	2218.86	731.44	2218.79	734.78	2218.82				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.04	201.94	.028	215.2	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
195.22	274	170.98	168.37	160.12	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	2217.59	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.76	Wt. n-Val.	0.040	0.038	0.040
W.S. Elev (ft)	2216.83	Reach Len. (ft)	170.98	168.37	160.12
Crit W.S. (ft)	2216.83	Flow Area (sq ft)	0.02	196.48	94.41
E.G. Slope (ft/ft)	0.011605	Area (sq ft)	0.02	196.48	94.41
Q Total (cfs)	1818.00	Flow (cfs)	0.01	1483.32	334.67
Top Width (ft)	192.29	Top Width (ft)	0.30	78.78	113.21
Vel Total (ft/s)	6.25	Avg. Vel. (ft/s)	0.61	7.55	3.54
Max Chl Dpth (ft)	7.08	Hydr. Depth (ft)	0.06	2.49	0.83
Conv. Total (cfs)	16876.2	Conv. (cfs)	0.1	13769.4	3106.7
Length Wtd. (ft)	167.61	Wetted Per. (ft)	0.33	82.09	113.24
Min Ch El (ft)	2209.75	Shear (lb/sq ft)	0.04	1.73	0.60
Alpha	1.25	Stream Power (lb/ft s)	0.03	13.09	2.14
Frctn Loss (ft)	0.59	Cum Volume (acre-ft)	6.14	15.28	2.43
C & E Loss (ft)	0.19	Cum SA (acres)	3.17	5.10	1.67

Warning: The energy equation could not be balanced within the specified number of iterations. The

program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	2218.60	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.98	Wt. n-Val.		0.040	0.040
W.S. Elev (ft)	2217.62	Reach Len. (ft)	170.98	168.37	160.12
Crit W.S. (ft)	2217.62	Flow Area (sq ft)		123.24	111.59
E.G. Slope (ft/ft)	0.017368	Area (sq ft)		123.24	111.59
Q Total (cfs)	1818.00	Flow (cfs)		1074.07	743.93
Top Width (ft)	117.00	Top Width (ft)		48.50	68.50
Vel Total (ft/s)	7.74	Avg. Vel. (ft/s)		8.72	6.67
Max Chl Dpth (ft)	3.36	Hydr. Depth (ft)		2.54	1.63
Conv. Total (cfs)	13795.1	Conv. (cfs)		8150.1	5645.0
Length Wtd. (ft)	166.69	Wetted Per. (ft)		51.88	70.23
Min Ch El (ft)	2214.26	Shear (lb/sq ft)		2.58	1.72
Alpha	1.05	Stream Power (lb/ft s)		22.45	11.49
Frctn Loss (ft)	0.65	Cum Volume (acre-ft)	6.07	12.49	2.46
C & E Loss (ft)	0.26	Cum SA (acres)	3.02	2.43	1.59

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Tropicana Wash
REACH: Tropicana Wash RS: 63.456

INPUT
Description: 16
Station Elevation Data num= 132

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2217	16	2216	58	2216	104	2215	160	2214
213.75	2213	236.35	2212	244.14	2212.45	254.41	2212.36	279.47	2212.49
279.86	2212.48	287.12	2212.5	287.16	2212.45	287.29	2212.44	288.67	2212.45
290.84	2212.46	294.31	2212.5	311.94	2212.74	322.33	2212.75	330.86	2213.07
333.29	2213.11	333.37	2213.1	333.56	2213.11	337.1	2213.07	337.97	2213.06
338.59	2213.05	341.1	2213	352.17	2212.9	366.49	2212.74	371.11	2212.78
375.32	2212.73	390.54	2212.5	405.03	2212.76	407.12	2212.67	411.72	2212.56
413.07	2212.52	419.93	2213.6	420.7	2213.46	420.97	2213.4	422.82	2213.82
423.61	2214	424.44	2214	424.57	2213.8	425.73	2212.23	425.84	2212
425.88	2211.85	426.36	2210	426.7	2208.7	426.88	2208	431.59	2208
439.98	2208	441.64	2209.75	441.86	2210	442.4	2210.57	444.01	2212
444.09	2212	446.62	2212.14	446.94	2212.2	448.88	2212.28	449.82	2212.24
451.71	2212.24	451.88	2212.24	453.44	2212.2	453.59	2212.22	454.87	2212.2
455.33	2212.18	455.36	2212.18	455.74	2212.2	455.78	2212.2	463.07	2212.29
482.33	2212.68	493.48	2212.89	497.81	2212.97	536.09	2213.5	569.81	2214
576.49	2214	577.13	2214	584.66	2214	597.2	2214	597.78	2214.03
598	2214.04	605.56	2214.47	619.36	2214.64	620.69	2214.6	628.43	2214.66
636.45	2214.68	638.32	2214.68	642.74	2214.69	671.12	2216	674.4	2216

675.46	2216	688.37	2216	695.56	2216	701.55	2216	707.96	2216
719.82	2216	722.62	2216	732.11	2216	742.62	2216	751.14	2216
754.85	2216	767.15	2216.46	777.51	2216.11	786.52	2216	788.08	2216
788.52	2216	788.94	2216.04	789.22	2216.05	789.44	2216	789.83	2216.05
790	2216.05	862.87	2218	864.21	2218	887.59	2218	893.01	2218
899.89	2218	914.32	2218	916.25	2218	918.92	2218	919.02	2218
930.33	2218	932.41	2218	936.53	2218	944	2218	948.43	2218
951.65	2218	955.18	2218	975.81	2218	976.42	2218	976.68	2218
978.57	2218	983.77	2218						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.04	424.44	.025	426.88	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
422.82	455.78	351.75	244.62	156.19	.1	.3

Left Levee Station= 187.2 Elevation=

CROSS SECTION OUTPUT Profile #PF 1

			Left OB	Channel	Right OB
E.G. Elev (ft)	2214.69	Element			
Vel Head (ft)	0.11	Wt. n-Val.	0.040	0.038	0.040
W.S. Elev (ft)	2214.58	Reach Len. (ft)	351.75	244.62	156.19
Crit W.S. (ft)	2213.75	Flow Area (sq ft)	469.74	140.33	183.03
E.G. Slope (ft/ft)	0.001685	Area (sq ft)	469.74	140.33	183.03
Q Total (cfs)	1818.00	Flow (cfs)	975.63	535.35	307.02
Top Width (ft)	486.75	Top Width (ft)	295.21	32.96	158.58
Vel Total (ft/s)	2.29	Avg. Vel. (ft/s)	2.08	3.81	1.68
Max Chl Dpth (ft)	6.58	Hydr. Depth (ft)	1.59	4.26	1.15
Conv. Total (cfs)	44293.8	Conv. (cfs)	23770.3	13043.3	7480.3
Length Wtd. (ft)	269.71	Wetted Per. (ft)	295.45	38.79	158.61
Min Ch El (ft)	2208.00	Shear (lb/sq ft)	0.17	0.38	0.12
Alpha	1.35	Stream Power (lb/ft s)	0.35	1.45	0.20
Frctn Loss (ft)	0.03	Cum Volume (acre-ft)	5.22	14.63	1.92
C & E Loss (ft)	0.03	Cum SA (acres)	2.59	4.88	1.17

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #PF 2

			Left OB	Channel	Right OB
E.G. Elev (ft)	2214.69	Element			
Vel Head (ft)	0.11	Wt. n-Val.	0.040	0.038	0.040
W.S. Elev (ft)	2214.58	Reach Len. (ft)	351.75	244.62	156.19
Crit W.S. (ft)	2213.75	Flow Area (sq ft)	469.74	140.33	183.03
E.G. Slope (ft/ft)	0.001685	Area (sq ft)	469.74	140.33	183.03
Q Total (cfs)	1818.00	Flow (cfs)	975.63	535.35	307.02
Top Width (ft)	486.75	Top Width (ft)	295.21	32.96	158.58
Vel Total (ft/s)	2.29	Avg. Vel. (ft/s)	2.08	3.81	1.68
Max Chl Dpth (ft)	6.58	Hydr. Depth (ft)	1.59	4.26	1.15
Conv. Total (cfs)	44293.8	Conv. (cfs)	23770.3	13043.3	7480.3
Length Wtd. (ft)	269.71	Wetted Per. (ft)	295.45	38.79	158.61
Min Ch El (ft)	2208.00	Shear (lb/sq ft)	0.17	0.38	0.12
Alpha	1.35	Stream Power (lb/ft s)	0.35	1.45	0.20
Frctn Loss (ft)	0.03	Cum Volume (acre-ft)	5.15	11.98	1.92
C & E Loss (ft)	0.03	Cum SA (acres)	2.44	2.27	1.17

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Tropicana Wash
REACH: Tropicana Wash RS: 63.410

INPUT
Description: Upstream X-Section from UPRR culvert crossing

Station Elevation Data num= 268

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2210.9	36.48	2211.36	92.93	2212	96	2212.05	101.85	2212.16
105.47	2212	111.81	2212.85	134.1	2212.82	149.87	2212.52	159.18	2212.25
159.28	2212.2	162.39	2212.24	165.52	2212.27	172.05	2212.27	176.75	2212
192.12	2212.6	196.53	2212.56	201.84	2212.47	221	2212.1	221.91	2212.08
223.91	2212	234.34	2211.46	256.78	2210.3	258.15	2210.24	259.73	2210.26
261.35	2210.24	261.57	2210.3	262.27	2210.23	262.95	2210	264.76	2209.45
269.59	2208	274.08	2208	280.39	2208	284.55	2208	287.19	2208
294.58	2208	298.18	2208	306.6	2208	308.51	2208	308.77	2208
313.09	2207.48	315.61	2207.5	325	2206	329.71	2205.35	329.8	2205.34
329.84	2205.33	337.33	2205.5	337.68	2205.43	339.97	2205.02	341.12	2204
341.59	2204	344	2202	346	2200	348	2200	350.39	2200
354	2200	354.02	2200	354.03	2200	355.33	2204	356.19	2204
356.73	2204	357.27	2204	360.06	2204	363.07	2204	366.12	2204
367.32	2204	386.72	2204.06	387.13	2204.05	387.21	2204.05	393.12	2204.1
398	2205.12	401.43	2205.85	402.09	2205.91	403.32	2206	411.2	2206.6
412.73	2206.74	417.57	2206.95	420.99	2207.11	424.97	2207.49	431.1	2208
435.35	2208.2	444.45	2210	444.61	2210.01	444.76	2210.01	449.85	2210.2
450.63	2210.2	454.3	2210.41	454.83	2210.42	458.15	2210.41	460.14	2210.59
469.99	2211.5	473.35	2211.85	474.42	2211.92	474.48	2211.92	475.54	2212
476.08	2212	476.39	2212	476.71	2212	480.72	2212	485.5	2212
486.07	2212	486.67	2212	497.72	2212	498.77	2212	509.24	2212
511.21	2212	512.02	2212	517.74	2212	522.65	2212	528.06	2212
534.05	2212	538.74	2211.4	540.99	2212	560.14	2212	565.12	2212
565.49	2212	571.16	2212	572.18	2212.44	574.28	2213.2	579.45	2213.31
582.38	2213.3	582.69	2213.33	593.13	2213.37	593.53	2213.37	593.65	2213.37
593.7	2213.4	596.61	2213.39	608.65	2213.42	608.8	2213.42	614.28	2213.43
615.65	2213.5	631.67	2213.52	638.25	2213.54	649.99	2213.57	673.89	2213.7
687.3	2213.7	702.01	2214	702.63	2214.19	704.45	2214	704.75	2214
715.6	2215	721.95	2215.04	726.25	2214.89	731.3	2214.89	738.17	2214.79
741.55	2214.8	747.04	2214.88	754.33	2215.29	762.28	2215.37	764.67	2215.51
769.15	2215.6	772.39	2215.56	790.82	2215.58	809.25	2215.58	813.45	2215.57
823.25	2215.6	831.98	2216	833.02	2216	835.01	2216	839.28	2216
841.72	2216	851.58	2216	862	2216	866.37	2216	867.41	2216
884.46	2216	888.78	2216	904.53	2216	911.24	2216	913.2	2216.07
915.45	2216	927.61	2216	933.97	2216	938.51	2216	949.86	2216
960.06	2217.1	966.62	2217.12	971.64	2217.12	980.24	2217.14	983.79	2217.13
1016.09	2218	1016.75	2218	1046.09	2218	1048.69	2218	1052.05	2218
1059.33	2218	1062.04	2218	1065.76	2218	1065.82	2218	1081.41	2218
1084.23	2218	1086.6	2218	1096.82	2218	1099.55	2218	1101.55	2218
1106.59	2218	1121.05	2218	1125.66	2218	1133.07	2218	1140.25	2218
1141.48	2218	1141.85	2218	1145.4	2218	1145.69	2218	1145.76	2218
1154.33	2218	1154.8	2218	1160.08	2218	1164.28	2218	1164.95	2218
1169.27	2218	1170.83	2218	1178.71	2218	1205.31	2219.39	1216.92	2220
1217.3	2220	1219.13	2220.2	1220.65	2220.2	1221.56	2220.22	1222.9	2220.23
1223.46	2220.2	1232.69	2220.64	1258.28	2222	1267.76	2222.36	1270.47	2222.35
1275.45	2222.4	1282.05	2222.36	1287.3	2222.26	1288.39	2222.28	1301.94	2222.04
1302.07	2222	1303.82	2222	1306.35	2221.93	1318.41	2221.8	1324.52	2221.61
1324.89	2221.6	1330.93	2220.81	1337.25	2220.59	1340.56	2220.58	1341.05	2220.63
1344.76	2221	1344.94	2220.97	1350.62	2220.73	1350.65	2220.73	1350.93	2220.76
1355.87	2221	1356.06	2221	1360.23	2220.95	1365.92	2220.87	1371.43	2220.44
1372.78	2220.4	1375.01	2220.42	1382.29	2220.65	1384.01	2220.66	1387.39	2220.58
1389.55	2220.5	1391.16	2220.5	1392.62	2220.45	1396.39	2220.57	1402.08	2220.54
1409.63	2220.7	1435.23	2221.79	1436.55	2221.8	1438.71	2221.94	1439.32	2221.95
1439.98	2222	1440.41	2221.99	1441.15	2222				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.04	234.34	.04	460.14	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
234.34	460.14	112.33	111.64	151.37	.3	.5

CROSS SECTION OUTPUT Profile #PF 1

			Left OB	Channel	Right OB
E.G. Elev (ft)	2214.63	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.01	Wt. n-Val.	0.040	0.040	0.040
W.S. Elev (ft)	2214.62	Reach Len. (ft)	112.33	111.64	151.37
Crit W.S. (ft)	2206.52	Flow Area (sq ft)	610.91	1727.59	450.07
E.G. Slope (ft/ft)	0.000034	Area (sq ft)	610.91	1727.59	450.07
Q Total (cfs)	1818.00	Flow (cfs)	247.73	1426.83	143.44

Top Width (ft)	711.49	Top Width (ft)	234.34	225.80	251.35
Vel Total (ft/s)	0.65	Avg. Vel. (ft/s)	0.41	0.83	0.32
Max Chl Dpth (ft)	14.62	Hydr. Depth (ft)	2.61	7.65	1.79
Conv. Total (cfs)	312062.9	Conv. (cfs)	42522.8	244918.1	24622.0
Length Wtd. (ft)	111.64	Wetted Per. (ft)	238.19	231.73	251.84
Min Ch El (ft)	2200.00	Shear (lb/sq ft)	0.01	0.02	0.00
Alpha	1.33	Stream Power (lb/ft s)	0.00	0.01	0.00
Frctn Loss (ft)		Cum Volume (acre-ft)	0.85	9.39	0.78
C & E Loss (ft)		Cum SA (acres)	0.45	4.15	0.44

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	2214.63	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.01	Wt. n-Val.	0.040	0.040	0.040
W.S. Elev (ft)	2214.62	Reach Len. (ft)	112.33	111.64	151.37
Crit W.S. (ft)	2206.51	Flow Area (sq ft)	610.91	1727.59	450.07
E.G. Slope (ft/ft)	0.000034	Area (sq ft)	610.91	1727.59	450.07
Q Total (cfs)	1818.00	Flow (cfs)	247.73	1426.83	143.44
Top Width (ft)	711.49	Top Width (ft)	234.34	225.80	251.35
Vel Total (ft/s)	0.65	Avg. Vel. (ft/s)	0.41	0.83	0.32
Max Chl Dpth (ft)	14.62	Hydr. Depth (ft)	2.61	7.65	1.79
Conv. Total (cfs)	312062.9	Conv. (cfs)	42522.8	244918.1	24622.0
Length Wtd. (ft)	111.64	Wetted Per. (ft)	238.19	231.73	251.84
Min Ch El (ft)	2200.00	Shear (lb/sq ft)	0.01	0.02	0.00
Alpha	1.33	Stream Power (lb/ft s)	0.00	0.01	0.00
Frctn Loss (ft)		Cum Volume (acre-ft)	0.79	6.73	0.78
C & E Loss (ft)		Cum SA (acres)	0.30	1.54	0.44

CULVERT

RIVER: Tropicana Wash
REACH: Tropicana Wash RS: 63.397

INPUT
Description: Culvert Crossing at UPRR
Distance from Upstream XS = 46
Deck/Roadway Width = 46
Weir Coefficient = 2.6
Upstream Deck/Roadway Coordinates
num= 7

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
0	2216	2197	303	2214	2197	343	2212	2197
348	2212	2197	353	2212	2197	408	2214	2197
1440	2216	2197						

Upstream Bridge Cross Section Data
Station Elevation Data num= 268

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2210.9	36.48	2211.36	92.93	2212	96	2212.05	101.85	2212.16
105.47	2212	111.81	2212.85	134.1	2212.82	149.87	2212.52	159.18	2212.25
159.28	2212.2	162.39	2212.24	165.52	2212.27	172.05	2212.27	176.75	2212
192.12	2212.6	196.53	2212.56	201.84	2212.47	221	2212.1	221.91	2212.08
223.91	2212	234.34	2211.46	256.78	2210.3	258.15	2210.24	259.73	2210.26
261.35	2210.24	261.57	2210.3	262.27	2210.23	262.95	2210	264.76	2209.45
269.59	2208	274.08	2208	280.39	2208	284.55	2208	287.19	2208
294.58	2208	298.18	2208	306.6	2208	308.51	2208	308.77	2208
313.09	2207.48	315.61	2207.5	325	2206	329.71	2205.35	329.8	2205.34
329.84	2205.33	337.33	2205.5	337.68	2205.43	339.97	2205.02	341.12	2204
341.59	2204	344	2202	346	2200	348	2200	350.39	2200
354	2200	354.02	2200	354.03	2200	355.33	2204	356.19	2204
356.73	2204	357.27	2204	360.06	2204	363.07	2204	366.12	2204
367.32	2204	386.72	2204.06	387.13	2204.05	387.21	2204.05	393.12	2204.1
398	2205.12	401.43	2205.85	402.09	2205.91	403.32	2206	411.2	2206.6
412.73	2206.74	417.57	2206.95	420.99	2207.11	424.97	2207.49	431.1	2208
435.35	2208.2	444.45	2210	444.61	2210.01	444.76	2210.01	449.85	2210.2
450.63	2210.2	454.3	2210.41	454.83	2210.42	458.15	2210.41	460.14	2210.59
469.99	2211.5	473.35	2211.85	474.42	2211.92	474.48	2211.92	475.54	2212
476.08	2212	476.39	2212	476.71	2212	480.72	2212	485.5	2212
486.07	2212	486.67	2212	497.72	2212	498.77	2212	509.24	2212

511.21	2212	512.02	2212	517.74	2212	522.65	2212	528.06	2212
534.05	2212	538.74	2211.4	540.99	2212	560.14	2212	565.12	2212
565.49	2212	571.16	2212	572.18	2212.44	574.28	2213.2	579.45	2213.31
582.38	2213.3	582.69	2213.33	593.13	2213.37	593.53	2213.37	593.65	2213.37
593.7	2213.4	596.61	2213.39	608.65	2213.42	608.8	2213.42	614.28	2213.43
615.65	2213.5	631.67	2213.52	638.25	2213.54	649.99	2213.57	673.89	2213.7
687.3	2213.7	702.01	2214	702.63	2214.19	704.45	2214	704.75	2214
715.6	2215	721.95	2215.04	726.25	2214.89	731.3	2214.89	738.17	2214.79
741.55	2214.8	747.04	2214.88	754.33	2215.29	762.28	2215.37	764.67	2215.51
769.15	2215.6	772.39	2215.56	790.82	2215.58	809.25	2215.58	813.45	2215.57
823.25	2215.6	831.98	2216	833.02	2216	835.01	2216	839.28	2216
841.72	2216	851.58	2216	862	2216	866.37	2216	867.41	2216
884.46	2216	888.78	2216	904.53	2216	911.24	2216	913.2	2216.07
915.45	2216	927.61	2216	933.97	2216	938.51	2216	949.86	2216
960.06	2217.1	966.62	2217.12	971.64	2217.12	980.24	2217.14	983.79	2217.13
1016.09	2218	1016.75	2218	1046.09	2218	1048.69	2218	1052.05	2218
1059.33	2218	1062.04	2218	1065.76	2218	1065.82	2218	1081.41	2218
1084.23	2218	1086.6	2218	1096.82	2218	1099.55	2218	1101.55	2218
1106.59	2218	1121.05	2218	1125.66	2218	1133.07	2218	1140.25	2218
1141.48	2218	1141.85	2218	1145.4	2218	1145.69	2218	1145.76	2218
1154.33	2218	1154.8	2218	1160.08	2218	1164.28	2218	1164.95	2218
1169.27	2218	1170.83	2218	1178.71	2218	1205.31	2219.39	1216.92	2220
1217.3	2220	1219.13	2220.2	1220.65	2220.2	1221.56	2220.22	1222.9	2220.23
1223.46	2220.2	1232.69	2220.64	1258.28	2222	1267.76	2222.36	1270.47	2222.35
1275.45	2222.4	1282.05	2222.36	1287.3	2222.26	1288.39	2222.28	1301.94	2222.04
1302.07	2222	1303.82	2222	1306.35	2221.93	1318.41	2221.8	1324.52	2221.61
1324.89	2221.6	1330.93	2220.81	1337.25	2220.59	1340.56	2220.58	1341.05	2220.63
1344.76	2221	1344.94	2220.97	1350.62	2220.73	1350.65	2220.73	1350.93	2220.76
1355.87	2221	1356.06	2221	1360.23	2220.95	1365.92	2220.87	1371.43	2220.44
1372.78	2220.4	1375.01	2220.42	1382.29	2220.65	1384.01	2220.66	1387.39	2220.58
1389.55	2220.5	1391.16	2220.5	1392.62	2220.45	1396.39	2220.57	1402.08	2220.54
1409.63	2220.7	1435.23	2221.79	1436.55	2221.8	1438.71	2221.94	1439.32	2221.95
1439.98	2222	1440.41	2221.99	1441.15	2222				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.04	234.34	.04	460.14	.04

Bank Sta: Left	Right	Coeff Contr.	Expan.
234.34	460.14	.3	.5

Downstream Deck/Roadway Coordinates num= 7

Sta Hi Cord	Lo Cord	Sta Hi Cord	Lo Cord	Sta Hi Cord	Lo Cord
0	2216	2197	202	2214	2197	242	2212	2197
247	2212	2197	252	2212	2197	307	2214	2197
641.86	2216	2197						

Downstream Bridge Cross Section Data
Station Elevation Data num= 162

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2212	3.13	2211.91	3.43	2211.9	13.74	2212	16.96	2212.03
17.17	2212	25.85	2210.73	33.32	2210.64	42.76	2210.53	60.46	2211.13
71.77	2211.5	73.47	2211.57	77.14	2211.67	79.49	2211.66	86.55	2211.62
90.85	2211.2	96.25	2210.74	100.44	2210.77	104.64	2210.81	110.29	2210.81
116.46	2210.8	121.02	2211.36	125.88	2211.94	126.12	2211.94	131.12	2211.89
131.58	2211.9	132.64	2211.89	141.15	2211.82	144.37	2211.99	144.4	2211.99
152.26	2211.59	155.94	2211.4	162.9	2211.33	166.82	2211.34	173.52	2211.44
183.02	2211.5	187.65	2211.5	192.47	2211.96	192.48	2211.96	192.53	2211.98
192.63	2212	200.84	2213.13	214.39	2213.96	214.64	2213.97	214.67	2213.96
214.86	2213.9	217.91	2213.44	220.42	2213.34	222	2213.39	224.04	2212
225.03	2211.3	226.97	2210	227.19	2209.84	227.58	2209.58	231.18	2208
231.77	2207.7	231.79	2207.73	232.31	2207.56	235.16	2206.46	239.7	2204.72
241	2200	242.32	2200	244.42	2200	250.76	2200	252.74	2203.03
255.77	2204	256.69	2204.8	257.56	2206	258.36	2210.44	258.65	2211.3
259.45	2211.48	259.52	2211.5	262	2211.15	264.8	2210.76	271.11	2210.55
275.62	2210.39	285.66	2211.6	289.13	2212	296.19	2212.84	301.38	2213.46
306.33	2212	312.36	2210.2	313.11	2210	314.09	2209.71	317.96	2209.67
318.02	2209.66	318.13	2209.7	318.69	2209.74	319.81	2210	323.24	2210.79
328.51	2212	330.31	2212.4	339.41	2212.33	342	2212.31	345.59	2212.43
346.25	2212.45	347.02	2212.47	348.98	2212.6	355.21	2213.03	358.52	2213.02
365.08	2213.01	368.3	2213.1	375.11	2213.2	379.23	2213.29	387.11	2213.56

```
  388.21  2213.6  390.12 2213.58  395.03  2213.5  396.38 2213.56  407.49 2213.81
  410.89 2213.65  423.62 2213.07  427.24  2213.2   431.7 2213.34  438.07 2213.42
  439.96 2213.49  453.19    2214  453.33    2214  453.36 2214.01  458.08 2214.43
  459.24 2214.53  462.71 2214.73  470.29  2215.7  474.22 2215.53  475.15 2215.61
  476.03 2215.65  476.85 2215.66  485.28  2215.7  487.04 2215.71  495.29 2215.74
  495.61 2215.74  506.52 2215.74  510.61  2215.7  516.02 2215.77  527.38 2215.84
  527.55 2215.84  527.84 2215.84  535.45  2215.4  537.11 2215.43  553.34 2215.86
  554.89 2215.86  555.72 2215.87  574.14  2215.9  574.55  2215.9  575.03  2215.9
   575.2 2215.81  575.53 2215.75  588.86  2215.9     589 2215.88  589.13 2215.92
  601.01 2215.91  601.23 2215.94  601.58  2215.9  601.84 2215.94  610.62 2215.84
  611.97 2215.84  621.06 2215.89  630.65  2215.9  630.88 2215.93  630.89 2215.93
   631.8 2215.82  641.86    2216

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .06  132.64     .05  345.59     .06

Bank Sta: Left   Right    Coeff Contr.   Expan.
       132.64  345.59            .3        .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
       0     242               T
     252  641.86               T

Upstream Embankment side slope              =     3.6 horiz. to 1.0 vertical
Downstream Embankment side slope            =     3.7 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow =     .95
Elevation at which weir flow begins         =
Energy head used in spillway design         =
Spillway height used in design              =
Weir crest shape                            = Broad Crested

Number of Culverts = 1

Culvert Name     Shape      Rise    Span
Culvert #1      Circular      10
FHWA Chart # 2 - Corrugated Metal Pipe Culvert
FHWA Scale # 2 - Mitered to conform to slope
Solution Criteria = Inlet control
Culvert Upstrm Dist  Length    Top n  Bottom n  Depth Blocked  Entrance Loss Coef   Exit Loss Coef
               8.1    92.4     .031     .031        0                  .5                1
Upstream   Elevation =  2199.99
           Centerline Station =  348
Downstream Elevation =  2200
           Centerline Station =  247

CULVERT OUTPUT  Profile #PF 1  Culv Group:  Culvert #1

  Q Culv Group (cfs)        985.24    Culv Full Len (ft)         29.46
  # Barrels                      1    Culv Vel US (ft/s)         12.54
  Q Barrel (cfs)            985.24    Culv Vel DS (ft/s)         15.46
  E.G. US. (ft)            2214.63    Culv Inv El Up (ft)      2199.99
  W.S. US. (ft)            2214.62    Culv Inv El Dn (ft)      2200.00
  E.G. DS (ft)             2208.50    Culv Frctn Ls (ft)          2.13
  W.S. DS (ft)             2205.69    Culv Exit Loss (ft)         2.77
  Delta EG (ft)               6.13    Culv Entr Loss (ft)         1.22
  Delta WS (ft)               8.93    Q Weir (cfs)              832.76
  E.G. IC (ft)             2214.63    Weir Sta Lft (ft)         206.46
  E.G. OC (ft)             2214.63    Weir Sta Rgt (ft)         711.67
  Culvert Control            Inlet    Weir Submerg                0.00
  Culv WS Inlet (ft)       2209.99    Weir Max Depth (ft)         2.64
  Culv WS Outlet (ft)      2207.56    Weir Avg Depth (ft)         0.63
  Culv Nml Depth (ft)                 Weir Flow Area (sq ft)    316.88
  Culv Crt Depth (ft)         7.56    Min El Weir Flow (ft)    2212.01


Warning: The inlet is submerged and the outlet computations indicate that the culvert would flow full over
         all or part of its length.   The program would normally default to the outlet answer.  However, the
         user has requested that the inlet answer be used.

CULVERT OUTPUT  Profile #PF 2  Culv Group:  Culvert #1
```

Q Culv Group (cfs)	985.24	Culv Full Len (ft)	29.46
# Barrels	1	Culv Vel US (ft/s)	12.54
Q Barrel (cfs)	985.24	Culv Vel DS (ft/s)	15.46
E.G. US. (ft)	2214.63	Culv Inv El Up (ft)	2199.99
W.S. US. (ft)	2214.62	Culv Inv El Dn (ft)	2200.00
E.G. DS (ft)	2208.62	Culv Frctn Ls (ft)	2.13
W.S. DS (ft)	2206.41	Culv Exit Loss (ft)	2.66
Delta EG (ft)	6.01	Culv Entr Loss (ft)	1.22
Delta WS (ft)	8.21	Q Weir (cfs)	832.76
E.G. IC (ft)	2214.63	Weir Sta Lft (ft)	206.46
E.G. OC (ft)	2214.63	Weir Sta Rgt (ft)	711.67
Culvert Control	Inlet	Weir Submerg	0.00
Culv WS Inlet (ft)	2209.99	Weir Max Depth (ft)	2.64
Culv WS Outlet (ft)	2207.56	Weir Avg Depth (ft)	0.63
Culv Nml Depth (ft)		Weir Flow Area (sq ft)	316.88
Culv Crt Depth (ft)	7.56	Min El Weir Flow (ft)	2212.01

Warning: The inlet is submerged and the outlet computations indicate that the culvert would flow full over all or part of its length. The program would normally default to the outlet answer. However, the user has requested that the inlet answer be used.

CROSS SECTION

RIVER: Tropicana Wash
REACH: Tropicana Wash RS: 63.389

INPUT
Description: Downstream X-Section from UPRR Culvert Crossing
Station Elevation Data num= 162

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2212	3.13	2211.91	3.43	2211.9	13.74	2212	16.96	2212.03
17.17	2212	25.85	2210.73	33.32	2210.64	42.76	2210.53	60.46	2211.13
71.77	2211.5	73.47	2211.57	77.14	2211.67	79.49	2211.66	86.55	2211.62
90.85	2211.2	96.25	2210.74	100.44	2210.77	104.64	2210.81	110.29	2210.81
116.46	2210.8	121.02	2211.36	125.88	2211.94	126.12	2211.94	131.12	2211.89
131.58	2211.9	132.64	2211.89	141.15	2211.82	144.37	2211.99	144.4	2211.99
152.26	2211.59	155.94	2211.4	162.9	2211.33	166.82	2211.34	173.52	2211.44
183.02	2211.5	187.65	2211.5	192.47	2211.96	192.48	2211.96	192.53	2211.98
192.63	2212	200.84	2213.13	214.39	2213.96	214.64	2213.97	214.67	2213.96
214.86	2213.9	217.91	2213.44	220.42	2213.34	222	2213.39	224.04	2212
225.03	2211.3	226.97	2210	227.19	2209.84	227.58	2209.58	231.18	2208
231.77	2207.7	231.79	2207.73	232.31	2207.56	235.16	2206.46	239.7	2204.72
241	2200	242.32	2200	244.42	2200	250.76	2200	252.74	2203.03
255.77	2204	256.69	2204.8	257.56	2206	258.36	2210.44	258.65	2211.3
259.45	2211.48	259.52	2211.5	262	2211.15	264.8	2210.76	271.11	2210.55
275.62	2210.39	285.66	2211.6	289.13	2212	296.19	2212.84	301.38	2213.46
306.33	2212	312.36	2210.2	313.11	2210	314.09	2209.71	317.96	2209.67
318.02	2209.66	318.13	2209.7	318.69	2209.74	319.81	2210	323.24	2210.79
328.51	2212	330.31	2212.4	339.41	2212.33	342	2212.31	345.59	2212.43
346.25	2212.45	347.02	2212.47	348.98	2212.6	355.21	2213.03	358.52	2213.02
365.08	2213.01	368.3	2213.1	375.11	2213.2	379.23	2213.29	387.11	2213.56
388.21	2213.6	390.12	2213.58	395.03	2213.5	396.38	2213.56	407.49	2213.81
410.89	2213.65	423.62	2213.07	427.24	2213.2	431.7	2213.34	438.07	2213.42
439.96	2213.49	453.19	2214	453.33	2214	453.36	2214.01	458.08	2214.43
459.24	2214.53	462.71	2214.73	470.29	2215.7	474.22	2215.53	475.15	2215.61
476.03	2215.65	476.85	2215.66	485.28	2215.7	487.04	2215.71	495.29	2215.74
495.61	2215.74	506.52	2215.74	510.61	2215.7	516.02	2215.77	527.38	2215.84
527.55	2215.84	527.84	2215.84	535.45	2215.4	537.11	2215.43	553.34	2215.86
554.89	2215.86	555.72	2215.87	574.14	2215.9	574.55	2215.9	575.03	2215.9
575.2	2215.81	575.53	2215.75	588.86	2215.9	589	2215.88	589.13	2215.92
601.01	2215.91	601.23	2215.94	601.58	2215.9	601.84	2215.94	610.62	2215.84
611.97	2215.84	621.06	2215.89	630.65	2215.9	630.88	2215.93	630.89	2215.93
631.8	2215.82	641.86	2216						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.06	132.64	.05	345.59	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
132.64	345.59	69.13	54.14	142.71	.3 .5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
0	242		T
252	641.86		T

CROSS SECTION OUTPUT Profile #PF 1

			Left OB	Channel	Right OB
E.G. Elev (ft)	2208.50	Element			
Vel Head (ft)	2.81	Wt. n-Val.		0.050	
W.S. Elev (ft)	2205.69	Reach Len. (ft)	69.13	54.14	142.71
Crit W.S. (ft)	2205.69	Flow Area (sq ft)		55.72	
E.G. Slope (ft/ft)	0.023664	Area (sq ft)		77.41	
Q Total (cfs)	750.00	Flow (cfs)		750.00	
Top Width (ft)	20.16	Top Width (ft)		20.16	
Vel Total (ft/s)	13.46	Avg. Vel. (ft/s)		13.46	
Max Chl Dpth (ft)	5.69	Hydr. Depth (ft)		5.57	
Conv. Total (cfs)	4875.5	Conv. (cfs)		4875.5	
Length Wtd. (ft)	54.14	Wetted Per. (ft)		11.03	
Min Ch El (ft)	2200.00	Shear (lb/sq ft)		7.46	
Alpha	1.00	Stream Power (lb/ft s)		100.48	
Frctn Loss (ft)	0.56	Cum Volume (acre-ft)	0.06	7.07	
C & E Loss (ft)	1.15	Cum SA (acres)	0.15	3.84	

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION OUTPUT Profile #PF 2

			Left OB	Channel	Right OB
E.G. Elev (ft)	2208.62	Element			
Vel Head (ft)	2.20	Wt. n-Val.		0.050	
W.S. Elev (ft)	2206.41	Reach Len. (ft)	69.13	54.14	142.71
Crit W.S. (ft)		Flow Area (sq ft)		62.96	
E.G. Slope (ft/ft)	0.015743	Area (sq ft)		92.84	
Q Total (cfs)	750.00	Flow (cfs)		750.00	
Top Width (ft)	22.35	Top Width (ft)		22.35	
Vel Total (ft/s)	11.91	Avg. Vel. (ft/s)		11.91	
Max Chl Dpth (ft)	6.41	Hydr. Depth (ft)		6.30	
Conv. Total (cfs)	5977.4	Conv. (cfs)		5977.4	
Length Wtd. (ft)	54.14	Wetted Per. (ft)		11.03	
Min Ch El (ft)	2200.00	Shear (lb/sq ft)		5.61	
Alpha	1.00	Stream Power (lb/ft s)		66.85	
Frctn Loss (ft)	0.32	Cum Volume (acre-ft)		4.40	
C & E Loss (ft)	0.94	Cum SA (acres)		1.23	

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

CROSS SECTION

RIVER: Tropicana Wash
REACH: Tropicana Wash RS: 63.379

INPUT
Description: 13
Station Elevation Data num= 102

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2209.7	3.33	2209.47	7.37	2209.09	10.79	2208.76	13.47	2208.6
14.72	2208.5	17.01	2208	21.2	2207.84	31.24	2206.88	37.74	2206.38
38.27	2206.4	39.01	2206.34	39.28	2206.3	40.58	2206.24	42.21	2206
48.28	2205.8	56.65	2205.71	68.46	2205.6	69	2205.52	79.4	2204
83.27	2204	87.56	2204	107.12	2203.48	109.27	2203.22	113.25	2203.12
123.99	2202.9	129.57	2202.84	131.1	2202.88	138.36	2202.72	138.48	2202.72
139.17	2202.7	142.65	2202.7	143.75	2202.69	146.02	2202.61	148.29	2202.61
153.61	2202.83	165	2203.5	175.45	2204	180.68	2204.32	182.52	2204.43
182.86	2204.45	187.16	2205	190.39	2205.46	190.52	2205.46	196.08	2205.41
196.51	2205.41	196.7	2205.4	196.84	2205.4	196.91	2205.4	204.21	2205.2
207.23	2204.92	209.76	2204.3	211.01	2204.29	212.92	2204	215.94	2203.48
223.36	2202.72	230.34	2202	232.57	2202	249.29	2202	251.83	2202
258.61	2202.52	262.6	2202.6	273.17	2203.11	288.12	2204	293.34	2204.73
309.57	2205.96	310.06	2206	322.43	2206.99	333.26	2207.63	333.72	2207.64
343.1	2207.85	344.97	2207.9	347.04	2208	350.28	2208.44	353.33	2208.47
354.06	2208.56	355.01	2208.75	355.35	2208.8	358.26	2210	361.09	2210
361.48	2210	367.41	2210	371.19	2210	381.96	2210	385.76	2210
401.11	2210	402.01	2210	406.78	2210	409.98	2210	410.46	2210
425.53	2210	444.81	2209.87	449.71	2210	453.08	2210.33	457.71	2210.6
460.13	2210.73	471.59	2211.32	482.18	2212	493.25	2213.04	500.26	2213.55
505.35	2214	505.76	2214.01						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.06	69	.05	333.72	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
69	333.72	167.5	208.3 249.51	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
0	212		F
262	505.76		F

CROSS SECTION OUTPUT Profile #PF 1

			Left OB	Channel	Right OB
E.G. Elev (ft)	2206.55	Element			
Vel Head (ft)	0.50	Wt. n-Val.		0.050	
W.S. Elev (ft)	2206.05	Reach Len. (ft)	167.50	208.30	249.51
Crit W.S. (ft)		Flow Area (sq ft)		180.89	
E.G. Slope (ft/ft)	0.006649	Area (sq ft)	8.25	595.48	
Q Total (cfs)	1031.00	Flow (cfs)		1031.00	
Top Width (ft)	268.76	Top Width (ft)	27.11	241.65	
Vel Total (ft/s)	5.70	Avg. Vel. (ft/s)		5.70	
Max Chl Dpth (ft)	4.05	Hydr. Depth (ft)		3.62	
Conv. Total (cfs)	12643.7	Conv. (cfs)		12643.7	
Length Wtd. (ft)	208.30	Wetted Per. (ft)		50.15	
Min Ch El (ft)	2202.00	Shear (lb/sq ft)		1.50	
Alpha	1.00	Stream Power (lb/ft s)		8.53	
Frctn Loss (ft)	1.86	Cum Volume (acre-ft)	0.06	6.66	
C & E Loss (ft)	0.02	Cum SA (acres)	0.13	3.68	

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

CROSS SECTION OUTPUT Profile #PF 2

			Left OB	Channel	Right OB
E.G. Elev (ft)	2207.35	Element			
Vel Head (ft)	0.32	Wt. n-Val.		0.050	
W.S. Elev (ft)	2207.04	Reach Len. (ft)	167.50	208.30	249.51
Crit W.S. (ft)		Flow Area (sq ft)		228.90	
E.G. Slope (ft/ft)	0.003610	Area (sq ft)		228.90	
Q Total (cfs)	1031.00	Flow (cfs)		1031.00	
Top Width (ft)	49.60	Top Width (ft)		49.60	
Vel Total (ft/s)	4.50	Avg. Vel. (ft/s)		4.50	
Max Chl Dpth (ft)	5.04	Hydr. Depth (ft)		4.61	
Conv. Total (cfs)	17159.9	Conv. (cfs)		17159.9	
Length Wtd. (ft)	208.30	Wetted Per. (ft)		57.13	
Min Ch El (ft)	2202.00	Shear (lb/sq ft)		0.90	
Alpha	1.00	Stream Power (lb/ft s)		4.07	
Frctn Loss (ft)	1.32	Cum Volume (acre-ft)		4.20	

C & E Loss (ft)	0.06	Cum SA (acres)	1.18

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

CROSS SECTION

RIVER: Tropicana Wash
REACH: Tropicana Wash RS: 63.339

INPUT
Description: 12
Station Elevation Data num= 71

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2209.8	6.96	2209.76	16.98	2209.69	21.86	2209.73	45.95	2209.53
46.05	2209.3	52.23	2209.16	55.36	2209.14	60.49	2209.14	62.81	2209.14
66.55	2209.2	66.88	2209.18	67.33	2209.19	80.67	2209.47	100.84	2209.77
107.13	2209.8	113.45	2209.82	115.25	2209.91	117.58	2210	130.99	2210
151.73	2210	153.28	2210	155.2	2209.75	162.74	2208	165.23	2207.34
170.71	2206	174.99	2204.91	178.56	2204	180.75	2203.5	183.46	2202.66
185.8	2203.2	186.26	2203.21	192.98	2203.38	198.12	2203.27	211.19	2202.86
221.85	2202.53	239.57	2202	251.17	2201.28	252.54	2201.16	252.9	2201.14
258.27	2200.86	258.48	2200.8	265.07	2200.69	265.29	2200.71	266.18	2200.78
267.5	2200.94	268.28	2201	269.17	2201.23	269.63	2201.26	274.34	2201.71
275.78	2201.86	276.81	2202	279.21	2202.49	285.21	2203.71	286.57	2204
286.85	2204.06	296.06	2206	314.11	2206.71	343.55	2207.85	347.53	2208
348.61	2208	351.71	2208	362.21	2208	383.25	2208	412.22	2208
439.92	2208	444.18	2208	469.5	2209.4	476.88	2210	478.57	2210.28
478.58	2210.28								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.06	186.26	.05	343.55	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
186.26	343.55	285.98	283.46	275.22	.1 .3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
0	195		F
365	478.58		F

CROSS SECTION OUTPUT Profile #PF 1

			Left OB	Channel	Right OB
E.G. Elev (ft)	2204.68	Element			
Vel Head (ft)	0.45	Wt. n-Val.		0.050	
W.S. Elev (ft)	2204.22	Reach Len. (ft)	285.98	283.46	275.22
Crit W.S. (ft)	2203.71	Flow Area (sq ft)		191.02	
E.G. Slope (ft/ft)	0.012633	Area (sq ft)	7.73	199.01	
Q Total (cfs)	1031.00	Flow (cfs)		1031.00	
Top Width (ft)	109.94	Top Width (ft)	8.58	101.37	
Vel Total (ft/s)	5.40	Avg. Vel. (ft/s)		5.40	
Max Chl Dpth (ft)	3.53	Hydr. Depth (ft)		2.06	
Conv. Total (cfs)	9172.9	Conv. (cfs)		9172.9	
Length Wtd. (ft)	283.46	Wetted Per. (ft)		93.00	
Min Ch El (ft)	2200.69	Shear (lb/sq ft)		1.62	
Alpha	1.00	Stream Power (lb/ft s)		8.74	
Frctn Loss (ft)	2.64	Cum Volume (acre-ft)	0.03	4.76	
C & E Loss (ft)	0.07	Cum SA (acres)	0.06	2.86	

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

CROSS SECTION OUTPUT Profile #PF 2

			Left OB	Channel	Right OB
E.G. Elev (ft)	2205.98	Element			

Vel Head (ft)	0.89	Wt. n-Val.			0.050	
W.S. Elev (ft)	2205.08	Reach Len. (ft)	285.98	283.46		275.22
Crit W.S. (ft)		Flow Area (sq ft)		136.06		
E.G. Slope (ft/ft)	0.013891	Area (sq ft)		136.06		
Q Total (cfs)	1031.00	Flow (cfs)		1031.00		
Top Width (ft)	37.29	Top Width (ft)		37.29		
Vel Total (ft/s)	7.58	Avg. Vel. (ft/s)		7.58		
Max Chl Dpth (ft)	4.39	Hydr. Depth (ft)		3.65		
Conv. Total (cfs)	8747.8	Conv. (cfs)		8747.8		
Length Wtd. (ft)	283.46	Wetted Per. (ft)		42.75		
Min Ch El (ft)	2200.69	Shear (lb/sq ft)		2.76		
Alpha	1.00	Stream Power (lb/ft s)		20.91		
Frctn Loss (ft)	2.57	Cum Volume (acre-ft)		3.33		
C & E Loss (ft)	0.10	Cum SA (acres)		0.97		

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

CROSS SECTION

RIVER: Tropicana Wash
REACH: Tropicana Wash RS: 63.286

INPUT
Description: 11
Station Elevation Data num= 85

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2206.3	12.25	2206.09	12.67	2206	14.54	2206	18.28	2205.72
18.93	2205.8	27.84	2204	29.14	2203.74	29.47	2203.68	32.29	2203.4
32.47	2203.4	38.44	2202.21	39.01	2202.1	39.28	2202.08	40.46	2202
43.58	2202	43.95	2202	44.12	2202	47.02	2202.15	48.97	2202.7
51.3	2203.56	53.15	2203.63	53.78	2203.76	58.03	2203.96	58.12	2204
58.16	2203.97	58.31	2203.92	59.32	2204	61.15	2204.07	61.43	2204
62.13	2203.65	63.68	2203.61	64.65	2203.66	67.09	2203.07	67.23	2203.1
69.05	2202.59	71.09	2202.06	71.31	2202	86.67	2201.7	86.73	2201.7
89.74	2201.64	91.81	2201.6	97.91	2201.46	98.79	2201.43	99.56	2201.42
99.97	2201.4	106.72	2201.34	118.78	2201.56	118.82	2201.57	119.95	2201.6
125.53	2201.5	125.66	2201.49	131.23	2201.34	132.95	2201.2	136.17	2200.98
136.86	2201	136.99	2200.96	137.23	2200.96	149.85	2200.42	157.84	2200.08
159.61	2200	162.35	2199.73	169.02	2199.03	174.18	2198.47	176.51	2198.33
177.69	2198.3	186.15	2198.47	190.19	2198.87	197.76	2199.19	207.41	2200
209.98	2200	218.24	2200	231.59	2200	247.46	2199.71	254.14	2199.86
258.55	2200	266.07	2201.42	267.65	2202	275.65	2202.38	304.72	2203.78
309.55	2204	363.8	2205.8	369.32	2206	449.78	2207.07	467.6	2207.31

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.05	89.74	.045	275.65	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
89.74	275.65	228.57	215.51 180.73	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	2201.97	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.22	Wt. n-Val.	0.050	0.045	
W.S. Elev (ft)	2201.75	Reach Len. (ft)	228.57	215.51	180.73
Crit W.S. (ft)		Flow Area (sq ft)	0.29	275.50	
E.G. Slope (ft/ft)	0.007152	Area (sq ft)	0.29	275.50	
Q Total (cfs)	1031.00	Flow (cfs)	0.11	1030.90	
Top Width (ft)	182.73	Top Width (ft)	5.51	177.22	
Vel Total (ft/s)	3.74	Avg. Vel. (ft/s)	0.36	3.74	
Max Chl Dpth (ft)	3.45	Hydr. Depth (ft)	0.05	1.55	
Conv. Total (cfs)	12191.0	Conv. (cfs)	1.2	12189.8	
Length Wtd. (ft)	215.51	Wetted Per. (ft)	5.51	177.62	
Min Ch El (ft)	2198.30	Shear (lb/sq ft)	0.02	0.69	
Alpha	1.00	Stream Power (lb/ft s)	0.01	2.59	
Frctn Loss (ft)	2.75	Cum Volume (acre-ft)	0.00	3.21	

C & E Loss (ft)	0.04	Cum SA (acres)	0.01	1.95

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

CROSS SECTION OUTPUT Profile #PF 2

			Left OB	Channel	Right OB
E.G. Elev (ft)	2203.30	Element			
Vel Head (ft)	0.54	Wt. n-Val.		0.045	
W.S. Elev (ft)	2202.75	Reach Len. (ft)	228.57	215.51	180.73
Crit W.S. (ft)		Flow Area (sq ft)		174.39	
E.G. Slope (ft/ft)	0.006400	Area (sq ft)		174.39	
Q Total (cfs)	1031.00	Flow (cfs)		1031.00	
Top Width (ft)	46.31	Top Width (ft)		46.31	
Vel Total (ft/s)	5.91	Avg. Vel. (ft/s)		5.91	
Max Chl Dpth (ft)	4.45	Hydr. Depth (ft)		3.77	
Conv. Total (cfs)	12887.3	Conv. (cfs)		12887.3	
Length Wtd. (ft)	215.51	Wetted Per. (ft)		52.09	
Min Ch El (ft)	2198.30	Shear (lb/sq ft)		1.34	
Alpha	1.00	Stream Power (lb/ft s)		7.91	
Frctn Loss (ft)	2.44	Cum Volume (acre-ft)		2.32	
C & E Loss (ft)	0.07	Cum SA (acres)		0.70	

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

CROSS SECTION

RIVER: Tropicana Wash
REACH: Tropicana Wash RS: 63.245

INPUT
Description: 10
Station Elevation Data num= 96

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2200	3.55	2200.06	3.71	2200.06	4.14	2200.07	4.66	2200.07
4.89	2200.1	5.37	2200.08	9.46	2200.17	12.38	2200.25	21.44	2200.48
49.35	2201	60.69	2201.15	64.76	2201.14	65.06	2201.15	65.19	2201.16
65.55	2201.2	72.98	2201.17	74.21	2201.13	80.16	2201.17	95.38	2201.43
103.92	2201.6	117.44	2201.8	118.06	2201.81	120.97	2201.84	121.74	2201.82
122.51	2201.8	123.25	2201.8	127.83	2201.7	129.34	2201.65	138.8	2201.61
149.12	2202	162.92	2202.34	164.2	2202.37	167.57	2202	171.58	2202
175.18	2202	177.05	2202	180.6	2202	183.39	2200.31	183.63	2200.23
184.25	2200	186.06	2199.3	188.03	2198.77	189.99	2198	191.99	2198
198.91	2198	204.27	2198	207.02	2198	214.25	2198.02	219.33	2198.01
220.27	2198	223.17	2198	226.57	2197.85	236.23	2197.53	242.35	2197.37
246.32	2197.38	250.55	2197.3	250.6	2197.24	262.14	2196.96	262.15	2196.95
263.95	2196.9	264.93	2196.8	266.41	2196.72	275.66	2196.63	275.91	2196.64
281.54	2196.72	287	2196.8	290.41	2196.8	296.01	2197.05	314.72	2197.46
333.01	2198	334.24	2198.6	341.11	2200	342.39	2200.05	350.83	2200.37
351.82	2200.4	352.97	2200.44	361.28	2200.7	365.63	2200.79	368.7	2200.88
403.69	2202	404.69	2202.09	406.47	2202.2	408.54	2202.39	414.01	2202.95
419.74	2203.57	422.08	2203.85	425.99	2203.9	427.36	2204	460.14	2205.26
469.39	2205.71	469.73	2205.72	469.81	2205.7	470.49	2205.74	472.93	2205.78
479.47	2205.82								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.05	189.99	.045	333.01	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
162.92	342.39	296.17	309.07	321.59	.1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	2199.18	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.59	Wt. n-Val.		0.045	
W.S. Elev (ft)	2198.59	Reach Len. (ft)	296.17	309.07	321.59
Crit W.S. (ft)	2198.59	Flow Area (sq ft)		167.44	
E.G. Slope (ft/ft)	0.028988	Area (sq ft)		167.44	
Q Total (cfs)	1031.00	Flow (cfs)		1031.00	
Top Width (ft)	145.71	Top Width (ft)		145.71	
Vel Total (ft/s)	6.16	Avg. Vel. (ft/s)		6.16	
Max Chl Dpth (ft)	1.96	Hydr. Depth (ft)		1.15	
Conv. Total (cfs)	6055.5	Conv. (cfs)		6055.5	
Length Wtd. (ft)	309.07	Wetted Per. (ft)		146.03	
Min Ch El (ft)	2196.63	Shear (lb/sq ft)		2.08	
Alpha	1.00	Stream Power (lb/ft s)		12.78	
Frctn Loss (ft)	4.54	Cum Volume (acre-ft)		2.12	
C & E Loss (ft)	0.06	Cum SA (acres)		1.15	

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	2200.79	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.22	Wt. n-Val.		0.045	
W.S. Elev (ft)	2199.57	Reach Len. (ft)	296.17	309.07	321.59
Crit W.S. (ft)	2199.57	Flow Area (sq ft)		116.26	
E.G. Slope (ft/ft)	0.025326	Area (sq ft)		116.26	
Q Total (cfs)	1031.00	Flow (cfs)		1031.00	
Top Width (ft)	48.27	Top Width (ft)		48.27	
Vel Total (ft/s)	8.87	Avg. Vel. (ft/s)		8.87	
Max Chl Dpth (ft)	2.94	Hydr. Depth (ft)		2.41	
Conv. Total (cfs)	6478.5	Conv. (cfs)		6478.5	
Length Wtd. (ft)	309.07	Wetted Per. (ft)		53.03	
Min Ch El (ft)	2196.63	Shear (lb/sq ft)		3.47	
Alpha	1.00	Stream Power (lb/ft s)		30.74	
Frctn Loss (ft)	4.91	Cum Volume (acre-ft)		1.60	
C & E Loss (ft)	0.08	Cum SA (acres)		0.47	

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Tropicana Wash
REACH: Tropicana Wash RS: 63.186

INPUT
Description: 9

Station Elevation Data num= 96

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2197	1.18	2196.98	6.17	2196.96	7.42	2196.99	24.66	2196.5
25.95	2196.5	27.44	2196.51	29.05	2196.48	76.39	2196.38	91.81	2196.47
93.3	2198.2	97.1	2198.31	103.9	2198.86	108.33	2199.12	118.34	2199.73
130.21	2200	136.42	2200	148.91	2200	177.19	2199.29	196.98	2199.69
216.82	2200	225.31	2199.72	227.72	2199.64	273.46	2198	288.75	2196.74
296.08	2196	299.99	2195.5	311.71	2194	311.8	2194	312.38	2194
312.47	2194	313.62	2194	334.86	2194	341.38	2194	347.58	2193.79
352.24	2193.9	352.99	2194	362.54	2194	364.98	2194	365.12	2194
384.92	2194	390.21	2192.2	390.84	2192	392.01	2191.61	395.69	2190
397.65	2189.15	400.28	2188	404.79	2187.48	416.78	2186.96	420.45	2186.71
422.88	2186.56	427.4	2186	437.85	2187.07	444.67	2188	450	2190
455.16	2192	456.1	2192.36	460.31	2194	462.75	2195.02	463.02	2195.1
464.17	2195.49	464.92	2195.42	467.09	2194.99	468.86	2194.64	469.77	2194.64
479.65	2194.6	482.59	2194.39	484.45	2194.32	485.31	2194.27	487.22	2194.23
488.11	2194.3	490.41	2194.35	492.47	2194.48	522.27	2196	533.82	2196
536.51	2196	539.85	2196	549.91	2196	584.99	2196	595.48	2196.45
619.98	2197.4	621.75	2196.98	629.2	2196.85	630.46	2196.83	630.91	2196.86
631.53	2196.9	632.75	2196.82	633.57	2196.81	638.53	2196.83	644.93	2196.9
656.64	2197.4	666.03	2199.14	674.18	2200.15	686.08	2200.06	710.86	2199.54
734.54	2198.9								

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.03	216.82	.05	395.69	.028	450	.05

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
364.98	469.77	360.9	355.84	350.65	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

			Left OB	Channel	Right OB
E.G. Elev (ft)	2190.71	Element			
Vel Head (ft)	1.15	Wt. n-Val.		0.028	
W.S. Elev (ft)	2189.56	Reach Len. (ft)	360.90	355.84	350.65
Crit W.S. (ft)	2189.56	Flow Area (sq ft)		119.77	
E.G. Slope (ft/ft)	0.008863	Area (sq ft)		119.77	
Q Total (cfs)	1031.00	Flow (cfs)		1031.00	
Top Width (ft)	52.13	Top Width (ft)		52.13	
Vel Total (ft/s)	8.61	Avg. Vel. (ft/s)		8.61	
Max Chl Dpth (ft)	3.56	Hydr. Depth (ft)		2.30	
Conv. Total (cfs)	10951.6	Conv. (cfs)		10951.6	
Length Wtd. (ft)	355.84	Wetted Per. (ft)		52.95	
Min Ch El (ft)	2186.00	Shear (lb/sq ft)		1.25	
Alpha	1.00	Stream Power (lb/ft s)		10.77	
Frctn Loss (ft)	3.54	Cum Volume (acre-ft)		1.10	
C & E Loss (ft)	0.01	Cum SA (acres)		0.45	

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #PF 2

			Left OB	Channel	Right OB
E.G. Elev (ft)	2192.74	Element			
Vel Head (ft)	1.99	Wt. n-Val.		0.028	
W.S. Elev (ft)	2190.76	Reach Len. (ft)	360.90	355.84	350.65
Crit W.S. (ft)	2190.76	Flow Area (sq ft)		91.13	
E.G. Slope (ft/ft)	0.010873	Area (sq ft)		91.13	
Q Total (cfs)	1031.00	Flow (cfs)		1031.00	
Top Width (ft)	23.19	Top Width (ft)		23.19	
Vel Total (ft/s)	11.31	Avg. Vel. (ft/s)		11.31	
Max Chl Dpth (ft)	4.76	Hydr. Depth (ft)		3.93	
Conv. Total (cfs)	9887.4	Conv. (cfs)		9887.4	
Length Wtd. (ft)	355.84	Wetted Per. (ft)		31.17	
Min Ch El (ft)	2186.00	Shear (lb/sq ft)		1.98	

Alpha	1.00	Stream Power (lb/ft s)	22.45
Frctn Loss (ft)	3.87	Cum Volume (acre-ft)	0.86
C & E Loss (ft)	0.00	Cum SA (acres)	0.21

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Tropicana Wash
REACH: Tropicana Wash RS: 63.119

INPUT
Description: 8
Station Elevation Data num= 133

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2190.6	2.72	2190.58	12.12	2190.59	17.08	2190.58	23.64	2190.5
59.39	2190.1	60.09	2190.05	60.3	2190.05	60.45	2190.05	60.66	2190.05
79.75	2190.1	82.04	2190.13	84.32	2190.17	95.79	2190.24	104.16	2190.22
122.14	2190.6	122.79	2190	125.32	2190	136	2190	136.33	2190
138.45	2190	152.85	2190.3	160.85	2190.87	167.29	2191.18	169.61	2191.41
174.9	2191.8	176.13	2191.9	176.98	2192	177.91	2192.26	181.97	2194
185.55	2195.4	187.99	2195.95	188.04	2195.97	188.09	2195.98	188.19	2195.98
188.31	2196	188.35	2195.89	191.76	2194.9	193.97	2194	199.74	2193.42
203.7	2193.1	206.18	2192.77	211.96	2192	215.56	2190.41	216.5	2190
220.82	2188.1	221.03	2188	221.98	2187.58	225.29	2186	226.28	2184.95
228.68	2184.38	229.48	2184	230.72	2182.23	231.89	2182	233.81	2180.84
234.36	2180.8	234.81	2180.5	234.96	2180.28	235.29	2180.3	239.05	2180.3
242.99	2180.3	243	2180.3	243.85	2180.3	244.32	2180.3	244.78	2180.3
247.71	2180.3	248.73	2180.3	249.15	2180.3	251.94	2180.3	255.25	2180.3
262.06	2180.3	264.27	2180.3	264.91	2180.69	265.82	2180.59	266.04	2180.52
267.2	2180.8	267.32	2180.78	273.58	2182	276.18	2182.94	284.56	2184
289.05	2184.8	294.92	2186	301.25	2186.64	303.52	2186.43	304.21	2186.34
307.36	2186.3	308.57	2186.31	308.76	2186.34	309.7	2186.32	310.82	2186.25
312.63	2186.5	312.98	2187.23	313.91	2187.61	314.29	2187.71	315.1	2188
315.5	2188.1	316.01	2188.25	317.32	2188.54	322.25	2189.23	324.7	2189.57
324.93	2189.6	331.43	2189.92	331.84	2189.95	332.47	2190	337.71	2190.21
341.79	2190.3	342.71	2190.28	348.04	2190.3	349.22	2190.32	354.48	2190.48
356.09	2190.6	360.74	2190.85	368.27	2191.23	369.32	2191.24	370.87	2191.29
374.28	2191.5	378.86	2191.27	380.12	2191.23	384.85	2191.07	388.6	2191.16
392.97	2191.2	398.55	2191.34	402.28	2190.6	404.52	2190.44	405.5	2190.44
409.16	2190.5	417.97	2190.61	439.52	2191.09	441.34	2191.14	442	2191.16
442.83	2191.2	458.58	2191.62	468.69	2191.94				

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.03	188.31	.04	230.72	.028	267.2	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
206.18	303.52	44.64	30.67	17.94	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
0	188		T
295	468.69		T

CROSS SECTION OUTPUT Profile #PF 1

			Left OB	Channel	Right OB
E.G. Elev (ft)	2184.46	Element			
Vel Head (ft)	1.21	Wt. n-Val.		0.031	
W.S. Elev (ft)	2183.25	Reach Len. (ft)	44.64	30.67	17.94
Crit W.S. (ft)	2183.25	Flow Area (sq ft)		116.73	
E.G. Slope (ft/ft)	0.011247	Area (sq ft)		116.73	
Q Total (cfs)	1031.00	Flow (cfs)		1031.00	
Top Width (ft)	48.63	Top Width (ft)		48.63	

Vel Total (ft/s)	8.83	Avg. Vel. (ft/s)	8.83
Max Chl Dpth (ft)	2.97	Hydr. Depth (ft)	2.40
Conv. Total (cfs)	9721.7	Conv. (cfs)	9721.7
Length Wtd. (ft)	30.67	Wetted Per. (ft)	50.18
Min Ch El (ft)	2180.28	Shear (lb/sq ft)	1.63
Alpha	1.00	Stream Power (lb/ft s)	14.43
Frctn Loss (ft)	0.10	Cum Volume (acre-ft)	0.13
C & E Loss (ft)	0.19	Cum SA (acres)	0.04

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	2186.39	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.03	Wt. n-Val.		0.028	
W.S. Elev (ft)	2184.36	Reach Len. (ft)	44.64	30.67	17.94
Crit W.S. (ft)	2184.36	Flow Area (sq ft)		90.12	
E.G. Slope (ft/ft)	0.010888	Area (sq ft)		90.12	
Q Total (cfs)	1031.00	Flow (cfs)		1031.00	
Top Width (ft)	22.34	Top Width (ft)		22.34	
Vel Total (ft/s)	11.44	Avg. Vel. (ft/s)		11.44	
Max Chl Dpth (ft)	4.06	Hydr. Depth (ft)		4.03	
Conv. Total (cfs)	9880.7	Conv. (cfs)		9880.7	
Length Wtd. (ft)	30.67	Wetted Per. (ft)		30.35	
Min Ch El (ft)	2180.30	Shear (lb/sq ft)		2.02	
Alpha	1.00	Stream Power (lb/ft s)		23.09	
Frctn Loss (ft)	0.10	Cum Volume (acre-ft)		0.12	
C & E Loss (ft)	0.44	Cum SA (acres)		0.03	

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Tropicana Wash
REACH: Tropicana Wash RS: 63.113

INPUT
Description: Upstream X-Section before culvert crossing at Valley View
at
Valley View
Station Elevation Data num= 129

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2188.5	2.62	2188.48	19.25	2188.46	31.1	2188.43	34.19	2188.43
37.16	2188.4	39.08	2188.45	59.44	2188.42	62.11	2188.43	63.64	2188.44
81.44	2188.4	83.32	2188.39	101.9	2188.36	108.31	2188.32	111.92	2188.36
136.41	2188.3	138.14	2188.32	139.74	2188.33	145.25	2188.47	156.7	2188.56
159.74	2188.7	182.46	2188.72	183.75	2188.71	186.46	2188.85	194.7	2189.66
196.59	2189.4	199.16	2190	202.2	2190	206.38	2190.32	212.19	2190.16

215.99	2190.2	222.91	2190.09	224.27	2190	224.63	2189.98	224.75	2189.97
233.66	2189.7	233.93	2189.73	234.63	2189.74	234.88	2189.74	238.12	2189.41
240.02	2189.21	240.14	2189.2	243.02	2188.95	243.86	2188.91	244.48	2188.87
245.19	2188.86	245.81	2188.4	247.22	2188	250.68	2186.96	251.59	2186.82
252.69	2186.53	256.85	2186	261.12	2185.22	261.27	2185.09	261.32	2185.09
261.43	2185.05	261.56	2185.1	261.86	2185.04	262.82	2184	264.57	2182.41
265.14	2182	266.16	2181.4	268.45	2180	269.53	2180	270.67	2180
270.77	2178.45	271.13	2178.45	271.8	2178.45	272.41	2178.45	295.95	2178.45
303.2	2178.45	303.43	2178.45	304.39	2178.45	304.96	2178.45	305.31	2178.45
305.51	2178.45	305.58	2178.45	305.77	2178.45	306.13	2178.45	306.32	2178.45
306.64	2178.45	307.49	2178.45	308.17	2178.45	309.39	2178.45	310.08	2178.45
310.67	2178.45	311.1	2178.45	312.07	2178.45	313.93	2178.45	314.65	2178.45
316.52	2178.45	317.22	2178.45	319.12	2185.45	319.8	2186	328.57	2186.17
348.28	2187.2	351.69	2187.33	360.54	2188	361.94	2188.21	368.91	2188.21
370.73	2188.2	375.16	2188.21	381.95	2188.07	389.49	2188.06	391.28	2188
394.02	2188	397.85	2188	398.33	2188	400.69	2188	410.62	2188.12
418.22	2188.6	433.61	2190	436.58	2190	442.78	2190	449.81	2190.19
450.34	2190.1	450.66	2190.06	450.81	2190.06	451.35	2190.07	452.71	2190.09
456.39	2190.2	456.72	2190.18	456.84	2190.19	457	2190.19	460.13	2190.28
463.93	2190.4	467.41	2190.5	473.79	2190.71	515.36	2191.98		

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.03	215.99	.04	269.53	.028	319.12	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
240.02	348.28	3185.6	3138.79 3164.16	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
0	276.395		F
309.805	515.36		F

CROSS SECTION OUTPUT Profile #PF 1

			Left OB	Channel	Right OB
E.G. Elev (ft)	2184.10	Element			
Vel Head (ft)	0.58	Wt. n-Val.		0.028	
W.S. Elev (ft)	2183.52	Reach Len. (ft)			
Crit W.S. (ft)	2181.55	Flow Area (sq ft)		169.39	
E.G. Slope (ft/ft)	0.001510	Area (sq ft)		256.98	
Q Total (cfs)	1031.00	Flow (cfs)		1031.00	
Top Width (ft)	55.25	Top Width (ft)		55.25	
Vel Total (ft/s)	6.09	Avg. Vel. (ft/s)		6.09	
Max Chl Dpth (ft)	5.07	Hydr. Depth (ft)		5.07	
Conv. Total (cfs)	26530.0	Conv. (cfs)		26530.0	
Length Wtd. (ft)		Wetted Per. (ft)		33.41	
Min Ch El (ft)	2178.45	Shear (lb/sq ft)		0.48	
Alpha	1.00	Stream Power (lb/ft s)		2.91	
Frctn Loss (ft)		Cum Volume (acre-ft)			
C & E Loss (ft)		Cum SA (acres)			

Warning: The composite Mannings n value for the channel was larger than the largest entered n value or smaller than the smallest entered n value.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #PF 2

			Left OB	Channel	Right OB
E.G. Elev (ft)	2184.10	Element			
Vel Head (ft)	0.58	Wt. n-Val.		0.028	
W.S. Elev (ft)	2183.52	Reach Len. (ft)			
Crit W.S. (ft)	2181.55	Flow Area (sq ft)		169.39	
E.G. Slope (ft/ft)	0.001510	Area (sq ft)		256.98	
Q Total (cfs)	1031.00	Flow (cfs)		1031.00	
Top Width (ft)	55.25	Top Width (ft)		55.25	
Vel Total (ft/s)	6.09	Avg. Vel. (ft/s)		6.09	
Max Chl Dpth (ft)	5.07	Hydr. Depth (ft)		5.07	
Conv. Total (cfs)	26530.0	Conv. (cfs)		26530.0	
Length Wtd. (ft)		Wetted Per. (ft)		33.41	
Min Ch El (ft)	2178.45	Shear (lb/sq ft)		0.48	
Alpha	1.00	Stream Power (lb/ft s)		2.91	
Frctn Loss (ft)		Cum Volume (acre-ft)			
C & E Loss (ft)		Cum SA (acres)			

Warning: The composite Mannings n value for the channel was larger than the largest entered n value or smaller than the smallest entered n value.
Note: Manning's n values were composited to a single value in the main channel.

SUMMARY OF MANNING'S N VALUES

River:Tropicana Wash

Reach	River Sta.	n1	n2	n3	n4	n5
Tropicana Wash	63.711	.035	.02	.035		
Tropicana Wash	63.703	Culvert				
Tropicana Wash	63.691	.035	.02	.028	.02	.035
Tropicana Wash	63.631	.035	.028	.035		
Tropicana Wash	63.569	.04	.034	.04		
Tropicana Wash	63.552	.04	.032	.04		
Tropicana Wash	63.505	.04	.028	.04		
Tropicana Wash	63.488	.04	.028	.04		
Tropicana Wash	63.456	.04	.025	.04		
Tropicana Wash	63.410	.04	.04	.04		
Tropicana Wash	63.397	Culvert				
Tropicana Wash	63.389	.06	.05	.06		
Tropicana Wash	63.379	.06	.05	.06		
Tropicana Wash	63.339	.06	.05	.06		
Tropicana Wash	63.286	.05	.045	.04		
Tropicana Wash	63.245	.05	.045	.04		
Tropicana Wash	63.186	.03	.05	.028	.05	
Tropicana Wash	63.119	.03	.04	.028	.04	
Tropicana Wash	63.113	.03	.04	.028	.04	

SUMMARY OF REACH LENGTHS

River: Tropicana Wash

Reach	River Sta.	Left	Channel	Right
Tropicana Wash	63.711	106.55	106.14	105.07
Tropicana Wash	63.703	Culvert		
Tropicana Wash	63.691	320.78	320.81	320.88
Tropicana Wash	63.631	318.34	326.31	347.37
Tropicana Wash	63.569	94.38	87.55	78.15
Tropicana Wash	63.552	208.29	247.98	217.5
Tropicana Wash	63.505	124.56	89.12	150.96
Tropicana Wash	63.488	170.98	168.37	160.12
Tropicana Wash	63.456	351.75	244.62	156.19
Tropicana Wash	63.410	112.33	111.64	151.37
Tropicana Wash	63.397	Culvert		
Tropicana Wash	63.389	69.13	54.14	142.71
Tropicana Wash	63.379	167.5	208.3	249.51
Tropicana Wash	63.339	285.98	283.46	275.22
Tropicana Wash	63.286	228.57	215.51	180.73
Tropicana Wash	63.245	296.17	309.07	321.59
Tropicana Wash	63.186	360.9	355.84	350.65
Tropicana Wash	63.119	44.64	30.67	17.94
Tropicana Wash	63.113	3185.6	3138.79	3164.16

SUMMARY OF CONTRACTION AND EXPANSION COEFFICIENTS
River: Tropicana Wash

Reach	River Sta.	Contr.	Expan.

Tropicana Wash	63.711		.3	.5
Tropicana Wash	63.703	Culvert		
Tropicana Wash	63.691		.3	.5
Tropicana Wash	63.631		.1	.3
Tropicana Wash	63.569		.1	.3
Tropicana Wash	63.552		.1	.3
Tropicana Wash	63.505		.1	.3
Tropicana Wash	63.488		.1	.3
Tropicana Wash	63.456		.1	.3
Tropicana Wash	63.410		.3	.5
Tropicana Wash	63.397	Culvert		
Tropicana Wash	63.389		.3	.5
Tropicana Wash	63.379		.1	.3
Tropicana Wash	63.339		.1	.3
Tropicana Wash	63.286		.1	.3
Tropicana Wash	63.245		.1	.3
Tropicana Wash	63.186		.1	.3
Tropicana Wash	63.119		.1	.3
Tropicana Wash	63.113		.3	.5

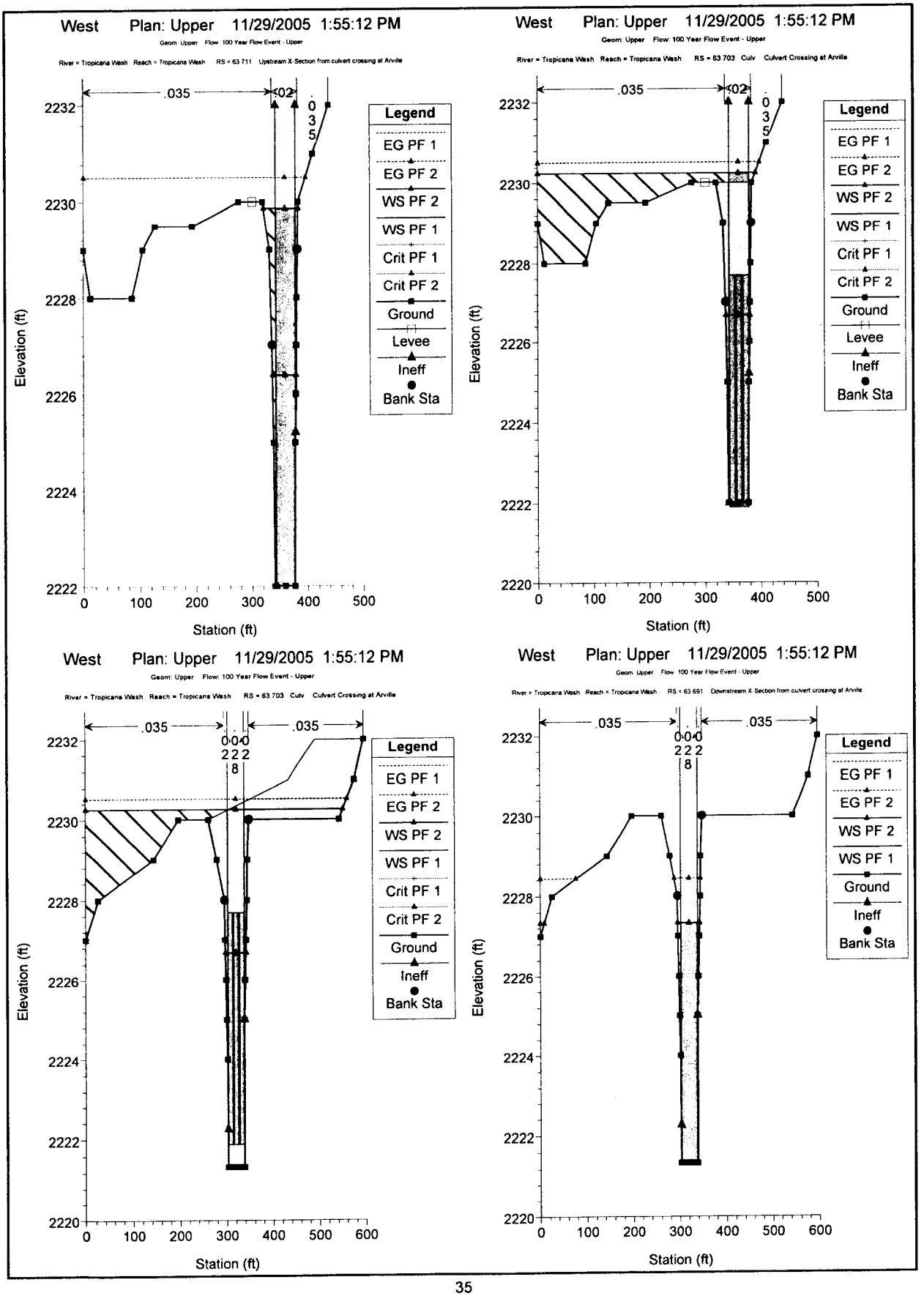
Profile Output Table - Standard Table 1

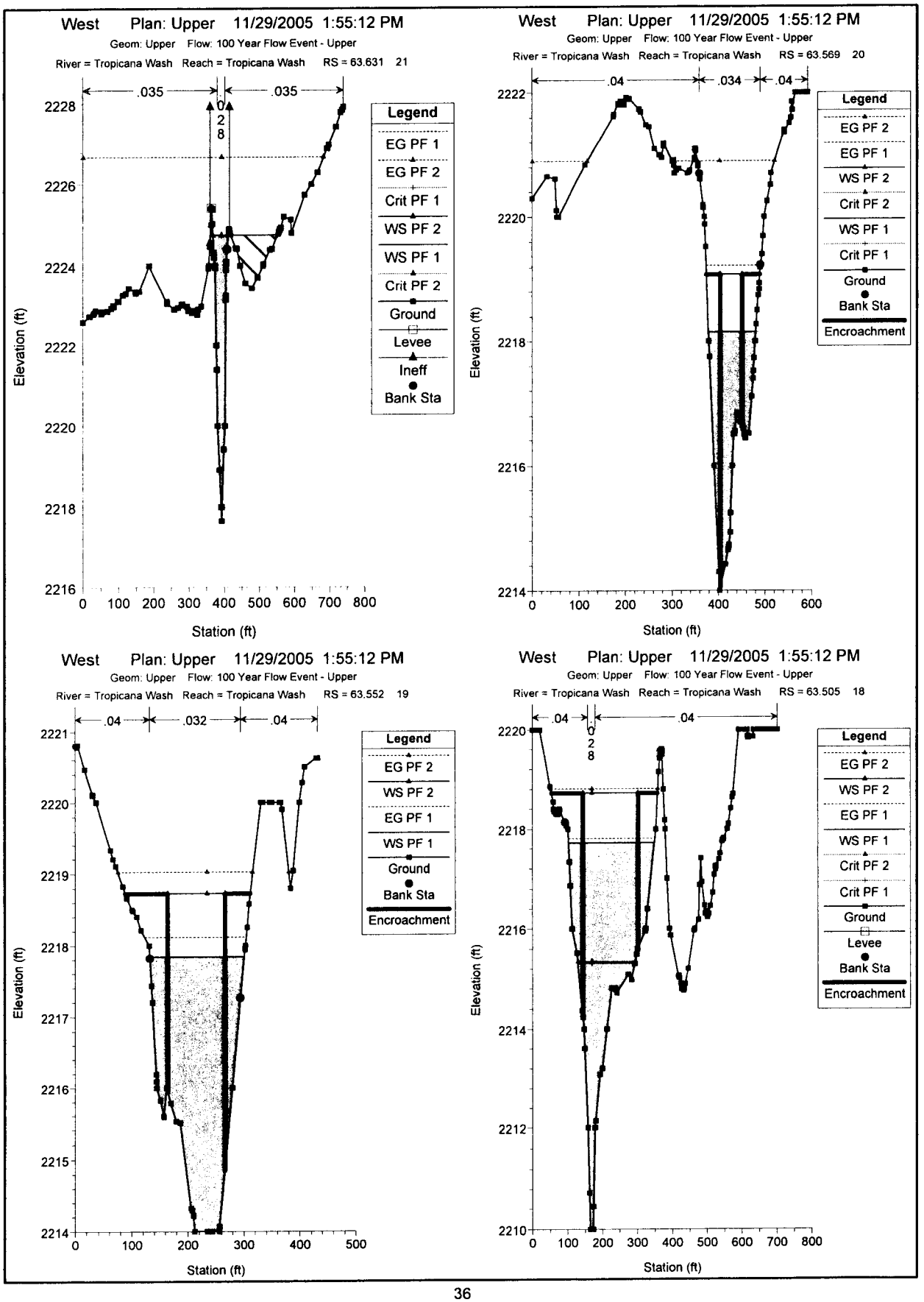
Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
Tropicana Wash	63.711	PF 1	1818.00	2222.00	2229.87	2226.38	2230.52	0.000530	6.47	281.10	62.19	0.41
Tropicana Wash	63.711	PF 2	1818.00	2222.00	2229.87	2226.38	2230.52	0.000530	6.47	281.10	62.19	0.41
Tropicana Wash	63.703		Culvert									
Tropicana Wash	63.691	PF 1	1818.00	2221.35	2227.32		2228.43	0.002685	8.46	214.82	55.00	0.61
Tropicana Wash	63.691	PF 2	1818.00	2221.35	2227.32		2228.43	0.002685	8.46	214.82	55.00	0.61
Tropicana Wash	63.631	PF 1	1818.00	2217.65	2224.75	2224.75	2226.69	0.010010	11.18	163.09	177.36	0.99
Tropicana Wash	63.631	PF 2	1818.00	2217.65	2224.75	2224.75	2226.69	0.010010	11.18	163.09	177.36	0.99
Tropicana Wash	63.569	PF 1	1818.00	2214.00	2218.15	2218.15	2219.22	0.013219	8.32	218.48	101.85	1.00
Tropicana Wash	63.569	PF 2	1818.00	2214.06	2219.08	2219.08	2220.90	0.013743	10.82	168.06	47.10	1.01
Tropicana Wash	63.552	PF 1	1818.00	2214.00	2217.84		2218.11	0.002205	4.20	434.86	168.57	0.45
Tropicana Wash	63.552	PF 2	1818.00	2214.00	2218.73		2219.02	0.001403	4.30	422.75	102.00	0.37
Tropicana Wash	63.505	PF 1	1818.00	2210.00	2217.72	2215.31	2217.80	0.000585	2.34	776.97	247.09	0.23
Tropicana Wash	63.505	PF 2	1818.00	2210.00	2218.72	2215.34	2218.80	0.000357	2.31	787.34	159.00	0.18
Tropicana Wash	63.488	PF 1	1818.00	2209.75	2216.83	2216.83	2217.59	0.011605	7.55	290.90	192.29	0.84
Tropicana Wash	63.488	PF 2	1818.00	2214.26	2217.62	2217.62	2218.60	0.017368	8.72	234.83	117.00	0.96
Tropicana Wash	63.456	PF 1	1818.00	2208.00	2214.58	2213.75	2214.69	0.001685	3.81	793.10	486.75	0.33
Tropicana Wash	63.456	PF 2	1818.00	2208.00	2214.58	2213.75	2214.69	0.001685	3.81	793.10	486.75	0.33
Tropicana Wash	63.410	PF 1	1818.00	2200.00	2214.62	2206.52	2214.63	0.000034	0.83	2788.58	711.49	0.05

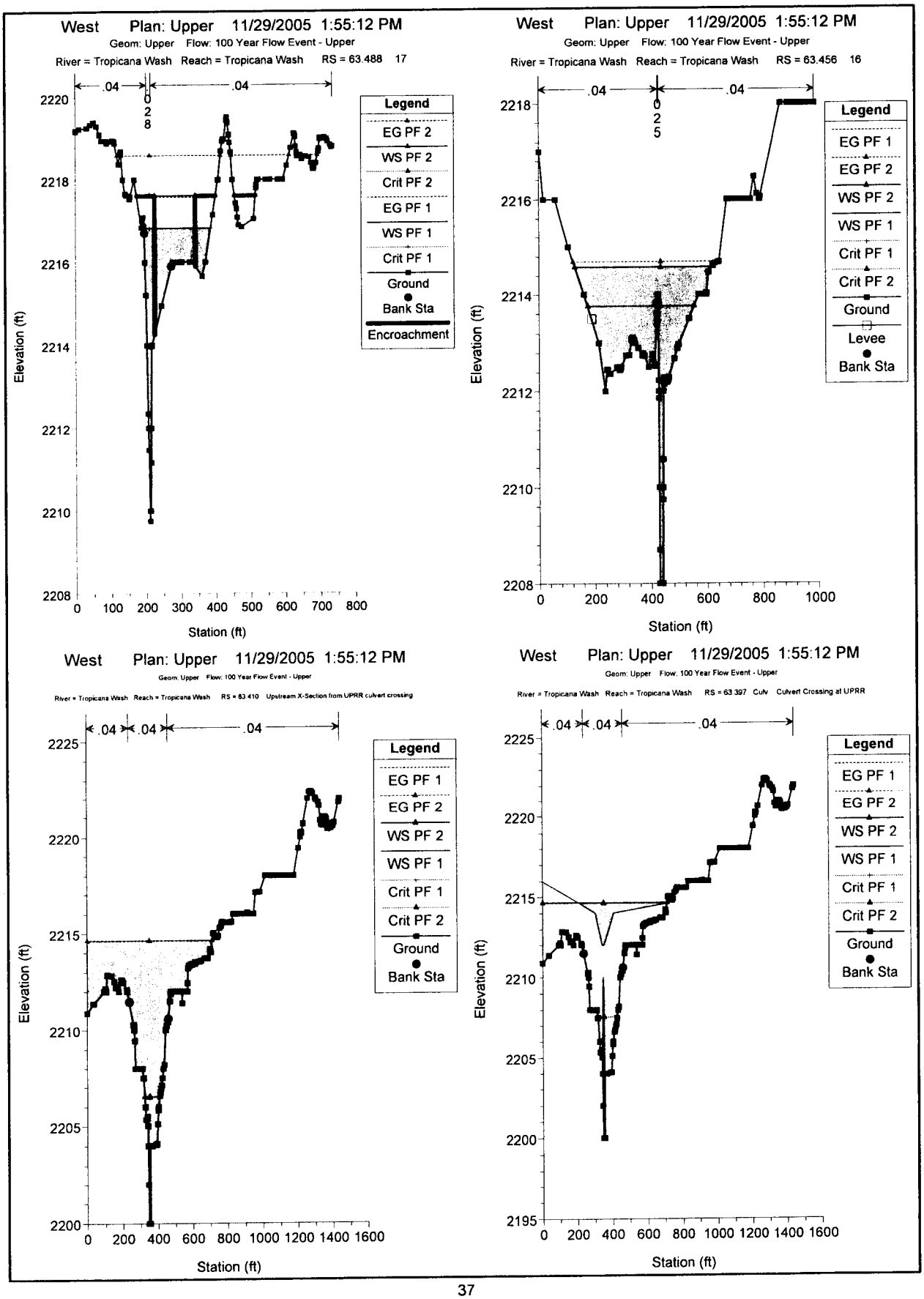
Tropicana Wash	63.410	PF 2	1818.00	2200.00	2214.62	2206.51	2214.63	0.000034	0.83	2788.58	711.49	0.05
Tropicana Wash	63.397		Culvert									
Tropicana Wash	63.389	PF 1	750.00	2200.00	2205.69	2205.69	2208.50	0.023664	13.46	55.72	20.16	1.01
Tropicana Wash	63.389	PF 2	750.00	2200.00	2206.41		2208.62	0.015743	11.91	62.96	22.35	0.84
Tropicana Wash	63.379	PF 1	1031.00	2202.00	2206.05		2206.55	0.006649	5.70	180.89	268.76	0.53
Tropicana Wash	63.379	PF 2	1031.00	2202.00	2207.04		2207.35	0.003610	4.50	228.90	49.60	0.37
Tropicana Wash	63.339	PF 1	1031.00	2200.69	2204.22	2203.71	2204.68	0.012633	5.40	191.02	109.94	0.66
Tropicana Wash	63.339	PF 2	1031.00	2200.69	2205.08		2205.98	0.013891	7.58	136.06	37.29	0.70
Tropicana Wash	63.286	PF 1	1031.00	2198.30	2201.75		2201.97	0.007152	3.74	275.79	182.73	0.53
Tropicana Wash	63.286	PF 2	1031.00	2198.30	2202.75		2203.30	0.006400	5.91	174.39	46.31	0.54
Tropicana Wash	63.245	PF 1	1031.00	2196.63	2198.59	2198.59	2199.18	0.028988	6.16	167.44	145.71	1.01
Tropicana Wash	63.245	PF 2	1031.00	2196.63	2199.57	2199.57	2200.79	0.025326	8.87	116.26	48.27	1.01
Tropicana Wash	63.186	PF 1	1031.00	2186.00	2189.56	2189.56	2190.71	0.008863	8.61	119.77	52.13	1.00
Tropicana Wash	63.186	PF 2	1031.00	2186.00	2190.76	2190.76	2192.74	0.010873	11.31	91.13	23.19	1.01
Tropicana Wash	63.119	PF 1	1031.00	2180.28	2183.25	2183.25	2184.46	0.011247	8.83	116.73	48.63	1.00
Tropicana Wash	63.119	PF 2	1031.00	2180.30	2184.36	2184.36	2186.39	0.010888	11.44	90.12	22.34	1.00
Tropicana Wash	63.113	PF 1	1031.00	2178.45	2183.52	2181.55	2184.10	0.001510	6.09	169.39	55.25	0.48
Tropicana Wash	63.113	PF 2	1031.00	2178.45	2183.52	2181.55	2184.10	0.001510	6.09	169.39	55.25	0.48

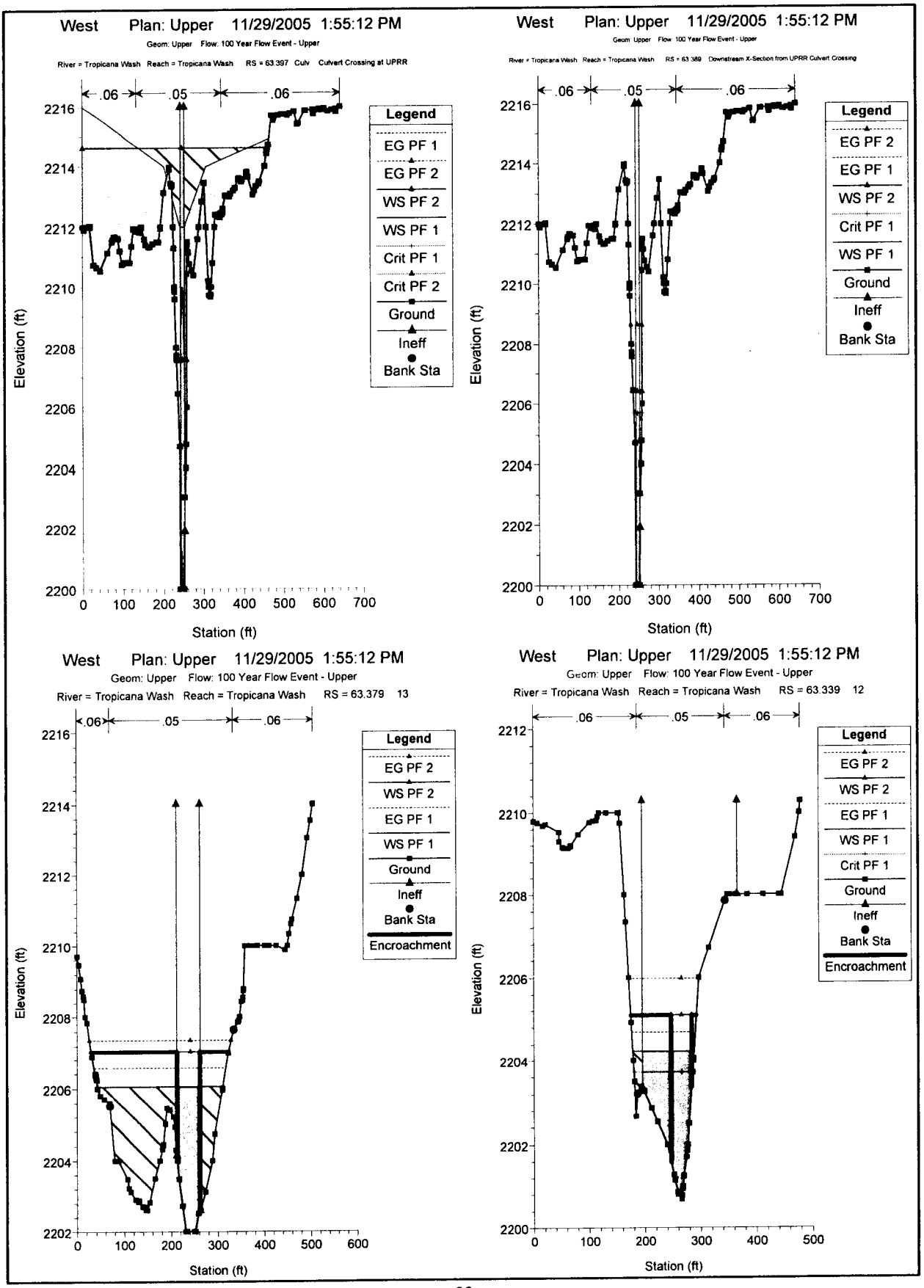
Profile Output Table - HEC-FDA

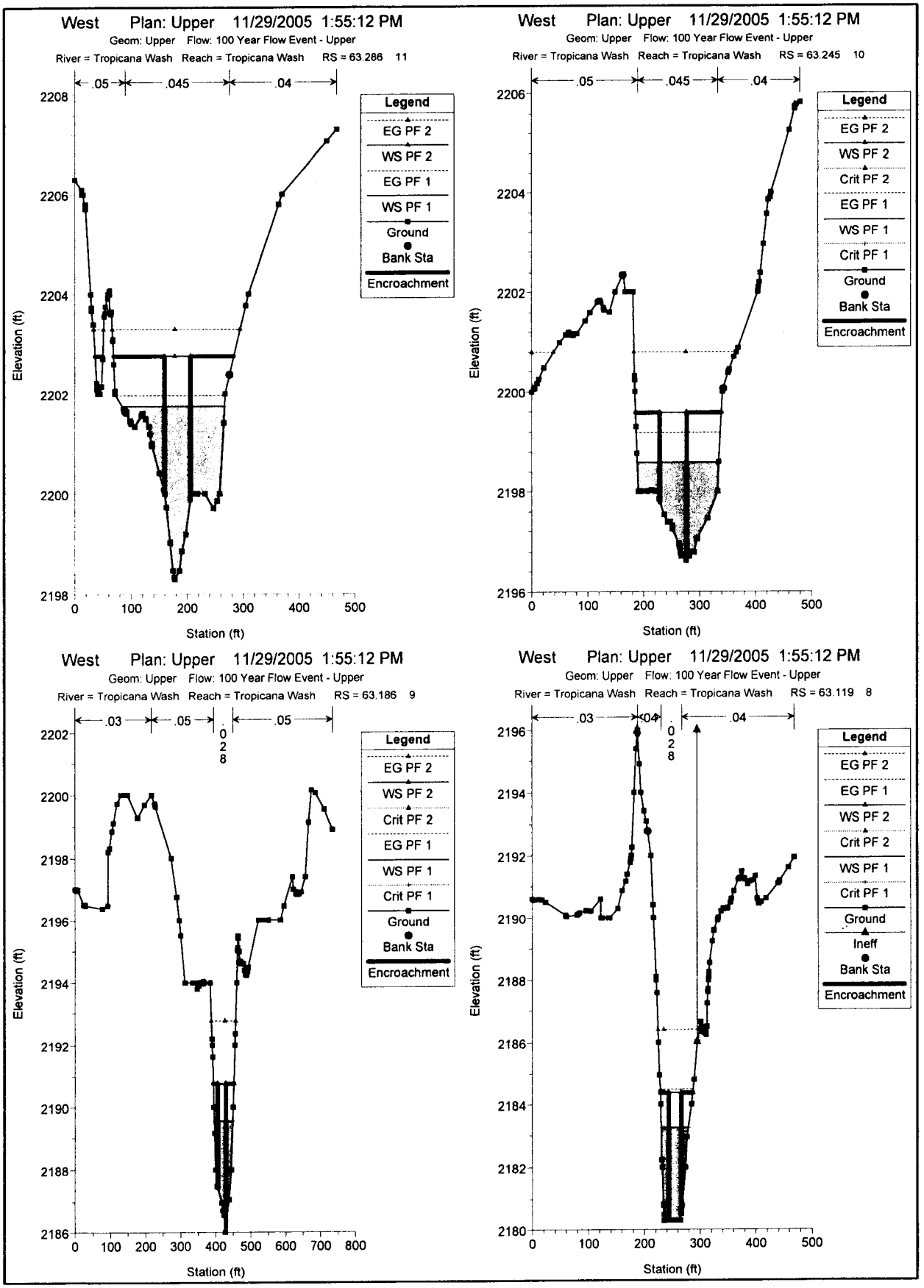
Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)
Tropicana Wash	63.711	PF 1	1818.00	2222.00	2229.87
Tropicana Wash	63.711	PF 2	1818.00	2222.00	2229.87
Tropicana Wash	63.703		Culvert		
Tropicana Wash	63.691	PF 1	1818.00	2221.35	2227.32
Tropicana Wash	63.691	PF 2	1818.00	2221.35	2227.32
Tropicana Wash	63.631	PF 1	1818.00	2217.65	2224.75
Tropicana Wash	63.631	PF 2	1818.00	2217.65	2224.75
Tropicana Wash	63.569	PF 1	1818.00	2214.00	2218.15
Tropicana Wash	63.569	PF 2	1818.00	2214.06	2219.08
Tropicana Wash	63.552	PF 1	1818.00	2214.00	2217.84
Tropicana Wash	63.552	PF 2	1818.00	2214.00	2218.73
Tropicana Wash	63.505	PF 1	1818.00	2210.00	2217.72
Tropicana Wash	63.505	PF 2	1818.00	2210.00	2218.72
Tropicana Wash	63.488	PF 1	1818.00	2209.75	2216.83
Tropicana Wash	63.488	PF 2	1818.00	2214.26	2217.62
Tropicana Wash	63.456	PF 1	1818.00	2208.00	2214.58
Tropicana Wash	63.456	PF 2	1818.00	2208.00	2214.58
Tropicana Wash	63.410	PF 1	1818.00	2200.00	2214.62
Tropicana Wash	63.410	PF 2	1818.00	2200.00	2214.62
Tropicana Wash	63.397		Culvert		
Tropicana Wash	63.389	PF 1	750.00	2200.00	2205.69
Tropicana Wash	63.389	PF 2	750.00	2200.00	2206.41
Tropicana Wash	63.379	PF 1	1031.00	2202.00	2206.05
Tropicana Wash	63.379	PF 2	1031.00	2202.00	2207.04
Tropicana Wash	63.339	PF 1	1031.00	2200.69	2204.22
Tropicana Wash	63.339	PF 2	1031.00	2200.69	2205.08
Tropicana Wash	63.286	PF 1	1031.00	2198.30	2201.75
Tropicana Wash	63.286	PF 2	1031.00	2198.30	2202.75
Tropicana Wash	63.245	PF 1	1031.00	2196.63	2198.59
Tropicana Wash	63.245	PF 2	1031.00	2196.63	2199.57
Tropicana Wash	63.186	PF 1	1031.00	2186.00	2189.56
Tropicana Wash	63.186	PF 2	1031.00	2186.00	2190.76
Tropicana Wash	63.119	PF 1	1031.00	2180.28	2183.25
Tropicana Wash	63.119	PF 2	1031.00	2180.30	2184.36
Tropicana Wash	63.113	PF 1	1031.00	2178.45	2183.52
Tropicana Wash	63.113	PF 2	1031.00	2178.45	2183.52

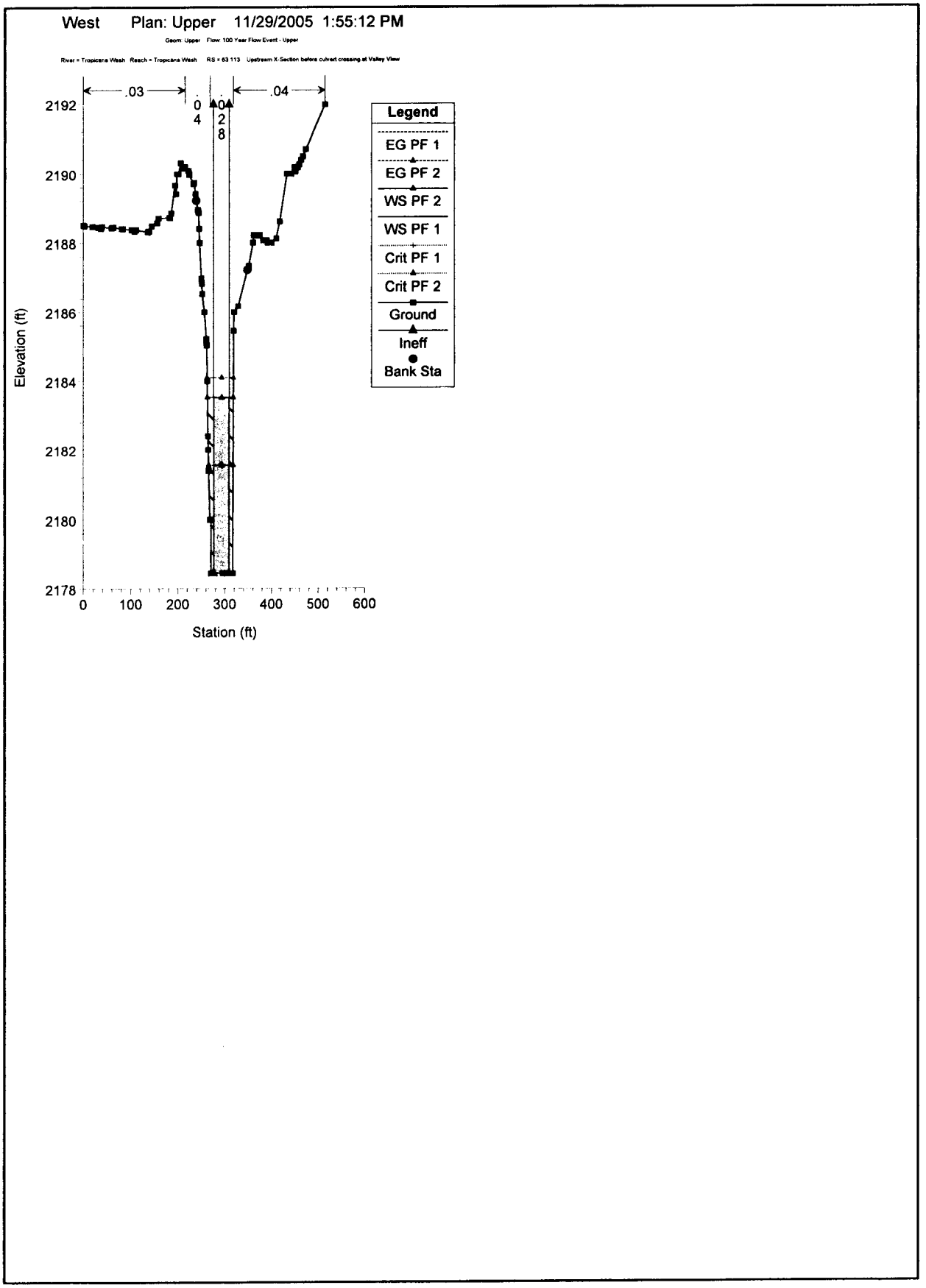

West Plan: Upper 11/29/2005 1:55:12 PM
Geom: Upper Flow: 100 Year Flow Event - Upper
River = Tropicana Wash Reach = Tropicana Wash RS = 63.711 Upstream X-Section from culvert crossing at Arville
.035
.02
.035
Legend
EG PF 1
EG PF 2
WS PF 2
WS PF 1
Crit PF 1
Crit PF 2
Ground
Levee
Ineff
Bank Sta
Elevation (ft)
Station (ft)
West Plan: Upper 11/29/2005 1:55:12 PM
Geom: Upper Flow: 100 Year Flow Event - Upper
River = Tropicana Wash Reach = Tropicana Wash RS = 63.703 Culv Culvert Crossing at Arville
.035
.02
.035
Legend
EG PF 1
EG PF 2
WS PF 2
WS PF 1
Crit PF 1
Crit PF 2
Ground
Levee
Ineff
Bank Sta
Elevation (ft)
Station (ft)
West Plan: Upper 11/29/2005 1:55:12 PM
Geom: Upper Flow: 100 Year Flow Event - Upper
River = Tropicana Wash Reach = Tropicana Wash RS = 63.703 Culv Culvert Crossing at Arville
.035
.035
Legend
EG PF 1
EG PF 2
WS PF 2
WS PF 1
Crit PF 1
Crit PF 2
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
West Plan: Upper 11/29/2005 1:55:12 PM
Geom: Upper Flow: 100 Year Flow Event - Upper
River = Tropicana Wash Reach = Tropicana Wash RS = 63.691 Downstream X-Section from culvert crossing at Arville
.035
.035
Legend
EG PF 1
EG PF 2
WS PF 2
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)


West Plan: Upper 11/29/2005 1:55:12 PM
Geom: Upper Flow: 100 Year Flow Event - Upper
River = Tropicana Wash Reach = Tropicana Wash RS = 63.631 21
.035
.035
0.028
Legend
EG PF 1
EG PF 2
Crit PF 1
WS PF 2
WS PF 1
Crit PF 2
Ground
Levee
Ineff
Bank Sta
Elevation (ft)
Station (ft)
West Plan: Upper 11/29/2005 1:55:12 PM
Geom: Upper Flow: 100 Year Flow Event - Upper
River = Tropicana Wash Reach = Tropicana Wash RS = 63.569 20
.04
.034
.04
Legend
EG PF 2
EG PF 1
WS PF 2
Crit PF 2
WS PF 1
Crit PF 1
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)
West Plan: Upper 11/29/2005 1:55:12 PM
Geom: Upper Flow: 100 Year Flow Event - Upper
River = Tropicana Wash Reach = Tropicana Wash RS = 63.552 19
.04
.032
.04
Legend
EG PF 2
WS PF 2
EG PF 1
WS PF 1
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)
West Plan: Upper 11/29/2005 1:55:12 PM
Geom: Upper Flow: 100 Year Flow Event - Upper
River = Tropicana Wash Reach = Tropicana Wash RS = 63.505 18
.04
0.028
.04
Legend
EG PF 2
WS PF 2
EG PF 1
WS PF 1
Crit PF 2
Crit PF 1
Ground
Levee
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


West Plan: Upper 11/29/2005 1:55:12 PM
Geom: Upper Flow: 100 Year Flow Event - Upper
River = Tropicana Wash Reach = Tropicana Wash RS = 63.488 17
.04
.04
028
Legend
EG PF 2
WS PF 2
Crit PF 2
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)
West Plan: Upper 11/29/2005 1:55:12 PM
Geom: Upper Flow: 100 Year Flow Event - Upper
River = Tropicana Wash Reach = Tropicana Wash RS = 63.456 16
025
Legend
EG PF 1
EG PF 2
WS PF 2
WS PF 1
Crit PF 1
Crit PF 2
Ground
Levee
Bank Sta
Elevation (ft)
Station (ft)
West Plan: Upper 11/29/2005 1:55:12 PM
Geom: Upper Flow: 100 Year Flow Event - Upper
River = Tropicana Wash Reach = Tropicana Wash RS = 63.410 Upstream X-Section from UPRR culvert crossing
.04
.04
.04
Legend
EG PF 1
EG PF 2
WS PF 2
WS PF 1
Crit PF 1
Crit PF 2
Ground
Bank Sta
Elevation (ft)
Station (ft)
West Plan: Upper 11/29/2005 1:55:12 PM
Geom: Upper Flow: 100 Year Flow Event - Upper
River = Tropicana Wash Reach = Tropicana Wash RS = 63.397 Culv Culvert Crossing at UPRR
.04
.04
.04
Legend
EG PF 1
EG PF 2
WS PF 2
WS PF 1
Crit PF 1
Crit PF 2
Ground
Bank Sta
Elevation (ft)
Station (ft)


West Plan: Upper 11/29/2005 1:55:12 PM
Geom: Upper Flow: 100 Year Flow Event - Upper
River = Tropicana Wash Reach = Tropicana Wash RS = 63.397 Culv Culvert Crossing at UPRR
.06
.05
.06
Legend
EG PF 1
EG PF 2
WS PF 2
WS PF 1
Crit PF 1
Crit PF 2
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
West Plan: Upper 11/29/2005 1:55:12 PM
Geom: Upper Flow: 100 Year Flow Event - Upper
River = Tropicana Wash Reach = Tropicana Wash RS = 63.389 Downstream X-Section from UPRR Culvert Crossing
Legend
EG PF 2
EG PF 1
WS PF 2
Crit PF 1
WS PF 1
Ground
Ineff
Bank Sta
Station (ft)
West Plan: Upper 11/29/2005 1:55:12 PM
Geom: Upper Flow: 100 Year Flow Event - Upper
River = Tropicana Wash Reach = Tropicana Wash RS = 63.379 13
Legend
EG PF 2
WS PF 2
EG PF 1
WS PF 1
Ground
Ineff
Bank Sta
Encroachment
Station (ft)
West Plan: Upper 11/29/2005 1:55:12 PM
Geom: Upper Flow: 100 Year Flow Event - Upper
River = Tropicana Wash Reach = Tropicana Wash RS = 63.339 12
Legend
EG PF 2
WS PF 2
EG PF 1
WS PF 1
Crit PF 1
Ground
Ineff
Bank Sta
Encroachment
Station (ft)


West Plan: Upper 11/29/2005 1:55:12 PM
Geom: Upper Flow: 100 Year Flow Event - Upper
River = Tropicana Wash Reach = Tropicana Wash RS = 63.286 11
.05
.045
.04
Legend
EG PF 2
WS PF 2
EG PF 1
WS PF 1
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)
West Plan: Upper 11/29/2005 1:55:12 PM
Geom: Upper Flow: 100 Year Flow Event - Upper
River = Tropicana Wash Reach = Tropicana Wash RS = 63.245 10
.05
.045
.04
Legend
EG PF 2
WS PF 2
Crit PF 2
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)
West Plan: Upper 11/29/2005 1:55:12 PM
Geom: Upper Flow: 100 Year Flow Event - Upper
River = Tropicana Wash Reach = Tropicana Wash RS = 63.186 9
.03
.05
.028
.05
Legend
EG PF 2
WS PF 2
Crit PF 2
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)
West Plan: Upper 11/29/2005 1:55:12 PM
Geom: Upper Flow: 100 Year Flow Event - Upper
River = Tropicana Wash Reach = Tropicana Wash RS = 63.119 8
.03
.04
.028
.04
Legend
EG PF 2
EG PF 1
WS PF 2
Crit PF 2
WS PF 1
Crit PF 1
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


West Plan: Upper 11/29/2005 1:55:12 PM
Geom: Upper Flow: 100 Year Flow Event - Upper
River = Tropicana Wash Reach = Tropicana Wash RS = 63.113 Upstream X-Section before culvert crossing at Valley View
.03
.04
.04
.028
2192
2190
2188
2186
2184
2182
2180
2178
Elevation (ft)
0
100
200
300
400
500
600
Station (ft)
Legend
EG PF 1
EG PF 2
WS PF 2
WS PF 1
Crit PF 1
Crit PF 2
Ground
Ineff
Bank Sta

LOCHSA ENGINEERING

JESS. S HALDEMAN, S.E.
MARK L. HEDGE, P.E.
KENNETH W. (BILL) KARREN, JR., S.E.
DAVID S. PETERSON, S.E.
TED T. EGERTON, P.E.

KENDARD F. MIZE, P.E.
JOHN R. ZIELINSKI, S.E.

December 14, 2005

Sacha Tohme, CFM
Revisions Coordinator
Michael Baker Jr., Inc.
3601 Eisenhower Avenue,
Alexandria, Virginia 22304-6425

Case No.: **05-09-0758R**
Community: Clark County, NV
Community No.: 320003
Identifier: Adam and Eve Night Club
Flooding Source: Tropicana Wash - Central Branch
FIRM Panel Affected: 3200C2552E

Subject: LOMR Application for Adam and Eve Night Club
Lochsa Engineering Job No. 7162.17

Dear Mr. Tohme,

Following our telephone conversation of December 07, 2005, the attached is a revised 'Overview and Concurrence' form with the appropriate signatures, and a check for the balance of $400.00 to change the current CLOMR application (**Case #05-09-0758R**) to a LOMR application. The As-Built plans for the existing culvert within the site have already been provided with the previous submittal. Please feel free to contact our office at your convenience if you have any questions or need additional information.

Sincerely,

LOCHSA ENGINEERING

Stanley Okey Amadi
Civil Designer

PROFESSIONAL ENGINEER - STATE OF NEVADA
HANI M. NOSHI
Exp: 12/31/05
CIVIL
No. 15747
12/14/05

Hani M. Noshi, Ph.D., P.E.
Director of Flood Control and Drainage

FEDERAL EMERGENCY MANAGEMENT AGENCY

OVERVIEW & CONCURRENCE FORM

O.M.B No. 3067-0148
Expires September 30, 2005

PAPERWORK BURDEN DISCLOSURE NOTICE

Public reporting burden for this form is estimated to average 1 hour per response. The burden estimate includes the time for reviewing instructions, searching existing data sources, gathering and maintaining the needed data, and completing, reviewing, and submitting the form. You are not required to respond to this collection of information unless a valid OMB control number appears in the upper right corner of this form. Send comments regarding the accuracy of the burden estimate and any suggestions for reducing this burden to: Information Collections Management, Federal Emergency Management Agency, 500 C Street, SW, Washington DC 20472, Paperwork Reduction Project (3067-0148). Submission of the form is required to obtain or retain benefits under the National Flood Insurance Program. **Please do not send your completed survey to the above address.**

A. REQUESTED RESPONSE FROM FEMA

This request is for a (check one):

☐ CLOMR: A letter from FEMA commenting on whether a proposed project, if built as proposed, would justify a map revision, or proposed hydrology changes (See 44 CFR Ch. 1, Parts 60, 65 & 72).

☑ LOMR: A letter from FEMA officially revising the current NFIP map to show the changes to floodplains, regulatory floodway or flood elevations. (See Parts 60 & 65 of the NFIP Regulations.)

B. OVERVIEW

1. The NFIP map panel(s) affected for all impacted communities is (are):

Community No.	Community Name	State	Map No.	Panel No.	Effective Date
Ex: 480301 480287	City of Katy Harris County	TX TX	480301 48201C	0005D 0220G	02/08/83 09/28/90
32003	CLARK COUNTY	NV	32003C	2552E	09/01/05

2. Flooding Source: TROPICANA WASH-CENTRAL BRANCH

3. *Project Name/Identifier:* ADAM AND EVE NIGHT CLUB

4. FEMA zone designations affected: AE WITH FLOODWAY (choices: A, AH, AO, A1-A30, A99, AE, AR, V, V1-V30, VE, B, C, D, X)

5. Basis for Request and Type of Revision:

a. The basis for this revision request is (check all that apply)

☑ Physical Change ☐ Improved Methodology/Data

☑ Regulatory Floodway Revision ☐ Other (Attach Description)

Note: A photograph and narrative description of the area of concern is not required, but is very helpful during review.

b. The area of revision encompasses the following types of flooding and structures (check all that apply)

Types of Flooding:	☑ Riverine	☐ Coastal	☐ Shallow Flooding (e.g., Zones AO and AH)
	☐ Alluvial fan	☐ Lakes	☐ Other (Attach Description)
Structures:	☐ Channelization	☐ Levee/Floodwall	☑ Bridge/Culvert
	☐ Dam	☐ Fill	☐ Other, Attach Description

C. REVIEW FEE

Has the review fee for the appropriate request category been included?	☑ Yes	Fee amount: $4,400.00
	☐ No, Attach Explanation	

Please see the FEMA Web site at http://www.fema.gov/fhm/frm_fees.shtm **for Fee Amounts and Exemptions.**

D. SIGNATURE

All documents submitted in support of this request are correct to the best of my knowledge. I understand that any false statement may be punishable by fine or imprisonment under Title 18 of the United States Code, Section 1001.

Name: Daljit Sihota	Company: JMD Development LTD	
Mailing Address: 935 Silverstar Way, Anaheim, CA 92808	Daytime Telephone No.: 714-281-4514	Fax No.: 714-242-9749
	E-Mail Address:	
Signature of Requester (required): Daljit Sihota (Manager)		Date: 12-12-05

As the community official responsible for floodplain management, I hereby acknowledge that we have received and reviewed this Letter of Map Revision (LOMR) or conditional LOMR request. Based upon the community's review, we find the completed or proposed project meets or is designed to meet all of the community floodplain management requirements, including the requirement that no fill be placed in the regulatory floodway, and that all necessary Federal, State, and local permits have been, or in the case of a conditional LOMR, will be obtained. In addition, we have determined that the land and any existing or proposed structures to be removed from the SFHA are or will be reasonably safe from flooding as defined in 44CFR 65.2(c), and that we have available upon request by FEMA, all analyses and documentation used to make this determination.

Community Official's Name and Title: Mr. Todd L. Myers, P.E., Principal Engineer, Clark County Development Services		Telephone No.: (702) 455-4856
Community Name: CLARK COUNTY UNINCORPORATED AREA	Community Official's Signature (required):	Date: 12/13/05

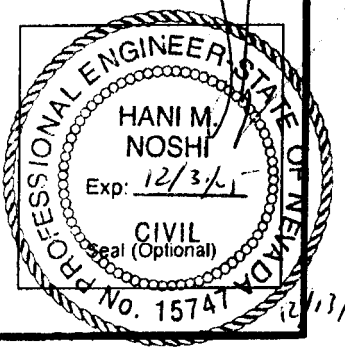
CERTIFICATION BY REGISTERED PROFESSIONAL ENGINEER AND/OR LAND SURVEYOR

This certification is to be signed and sealed by a licensed land surveyor, registered professional engineer, or architect authorized by law to certify elevation information. All documents submitted in support of this request are correct to the best of my knowledge. I understand that any false statement may be punishable by fine or imprisonment under Title 18 of the United States Code, Section 1001.

Certifier's Name: HANI M. NOSHI, Ph.D. P.E.	License No.: 15747 NV	Expiration Date: 12/31/05
Company Name: LOCHSA ENGINEERING	Telephone No.: (702) 365-9312	Fax No.: (702) 365-9317
Signature:		Date: 12/13/05

Ensure the forms that are appropriate to your revision request are included in your submittal.

Form Name and (Number)	Required if ...
☑ Riverine Hydrology and Hydraulics Form (Form 2)	New or revised discharges or water-surface elevations
☑ Riverine Structures Form (Form 3)	Channel is modified, addition/revision of bridge/culverts, addition/revision of levee/floodwall, addition/revision of dam
☐ Coastal Analysis Form (Form 4)	New or revised coastal elevations
☐ Coastal Structures Form (Form 5)	Addition/revision of coastal structure
☐ Alluvial Fan Flooding Form (Form 6)	Flood control measures on alluvial fans



12/13/05

LOCHSA ENGINEERING

JESS. S HALDEMAN, S.E.
MARK L. HEDGE, P.E.
KENNETH W. (BILL) KARREN, JR., S.E.
DAVID S. PETERSON, S.E.
TED T. EGERTON, P.E.

KENDARD F. MIZE, P.E.
JOHN R. ZIELINSKI, S.E.

February 17, 2006

Sheila M. Norlin, CFM
National LOMC Manager
Michael Baker Jr., Inc.
3601 Eisenhower Avenue,
Alexandria, Virginia 22304-6425

Case No.:	**06-09-B083P**
Community:	Clark County, NV
Community No.:	320003
Identifier:	Adam and Eve Night Club
Flooding Source:	Tropicana Wash - Central Branch
FIRM Panel Affected:	3200C2552E

Subject: Distribution of Public Notice - Revision to Regulatory Floodway
Lochsa Engineering Job No. 7162.17

Dear Ms. Sheila,

As requested in your last memorandum of January 27, 2006, this letter is being submitted as a confirmation for the distribution of Public Notice, to inform adjacent property owners of the proposed revision to the Regulatory Floodway of the Tropicana Wash - Central Branch. Copies of the newspaper pages (Las Vegas Review-Journal) indicating publication of the notice is attached. The notice is published for one consecutive week from February 17, 2006 to February 23, 2006 (five business days and two weekend days). In addition, a notification letter is also sent directly to the owners of the affected parcel. Copies of the notification letter and the confirmation of receipt are also attached for your verification.

Please feel free to contact our office at your convenience if you have any questions or further comments.

Sincerely,

LOCHSA ENGINEERING

Stanley Okey Amadi
Civil Designer

HANI M. NOSHI
Exp: 12/31/07
CIVIL
No. 15747
STATE OF NEVADA
PROFESSIONAL ENGINEER

02/21/06

Hani M. Noshi, Ph.D., P.E.
Director of Flood Control and Drainage

LOCHSA ENGINEERING

JESS. S HALDEMAN, S.E.
MARK L. HEDGE, P.E.
KENNETH W. (BILL) KARREN, JR., S.E.
DAVID S. PETERSON, S.E.
TED T. EGERTON, P.E.

KENDARD F. MIZE, P.E.
JOHN R. ZIELINSKI, S.E.

February 13, 2006

Stice Family Intervivos Rev Tr
and Donna R. Marie Trs,
APN: 162-30-501-031
909 Oriole Drive
Laguna Beach, CA. 92651-2161

Subject: **Notification of Revision to the Regulatory Floodway within the 100-year (1% annual-chance) floodplain-Zone AE**
Flooding Source: Tropicana Wash Central Branch

Dear Sir or Madam,

The Flood Insurance Rate Map (FIRM) for a community depicts land which has been determined to be subject to a 100-year (1% annual-chance) or greater chance of flooding in any given year. The FIRM is used to determine flood insurance rate and to help the community with floodplain management. The subject flood zone is identified by FEMA as Zone 'AE'. Zone "AE" is described as: *"A Special flood hazard area subject to innundation by the 1% annual chance flood event, with base flood elevations determined"*.

The floodway limits is the maximum permissible encroachment limit to a flood zone with a maximum surcharge or increase in base flood elevation 1.0 foot or less.

Lochsa Engineering is applying for a Letter of Map Revision (LOMR) from the Federal Emergency Management Agency (FEMA) on behalf of JMD Development LTD to revise a portion of the Clark County FIRM panel number 32003C2552E along the Tropicana Wash Central Branch in the area located approximately 270 feet west of Valley View Boulevard and directly north of Reno Avenue. Lochsa Engineering is proposing to revise the FIRM to reflect detailed topographic information and hydrologic/hydraulic analyses.

The revision to the FIRM will result in an increase in top width of the Regulatory Floodway of approximately 10-feet at the entrance of the existing 20'x5'-9" Arch Culvert west of Valley View Boulevard (at the eastern boundary of your property). The detailed topographic information provided also illustrates that the bottom width of the natural wash at the culvert entrance is wider than analyzed in the effective FIS model. However, the Water Surface Elevation or Base Flood

Elevations (BFE) for the floodplain are slightly reduced near the culvert entrance. Although, the existing floodplain boundaries will remain the same (unchanged).

This letter is to inform you of the proposed revision to the floodway width on your property with Assessors Parcel Numbers(APN) 162-30-501-031. An exhibit indicating the existing and proposed floodway revision within your property has been attached to this letter.

Please feel free to contact our office at your earliest convenience if you have any questions or concerns about the proposed changes to the FIRM or its effects on your property. You may contact me by phone at (702) 365-9312 or by e-mail at TED@lochsa.com.

Respectfully,

LOCHSA ENGINEERING

Ted Egerton, P.E.
Principal

NOTES

This map is for assessment use only and does NOT represent a survey.

No liability is assumed for the accuracy of the data delineated herein. information on roads and other non-assessed parcels may be obtained from the Road Document Listing in the Assessor's Office.

This map is compiled from official records, including surveys and deeds, but only contains the information required for assessment. See the recorded documents for more detailed legal information.

USE THIS SCALE(FEET) WHEN MAP REDUCED FROM 11X17 ORIGINAL

0 50 100 200 400 600 800

MAP LEGEND

AVERAGE DA VALUE 45

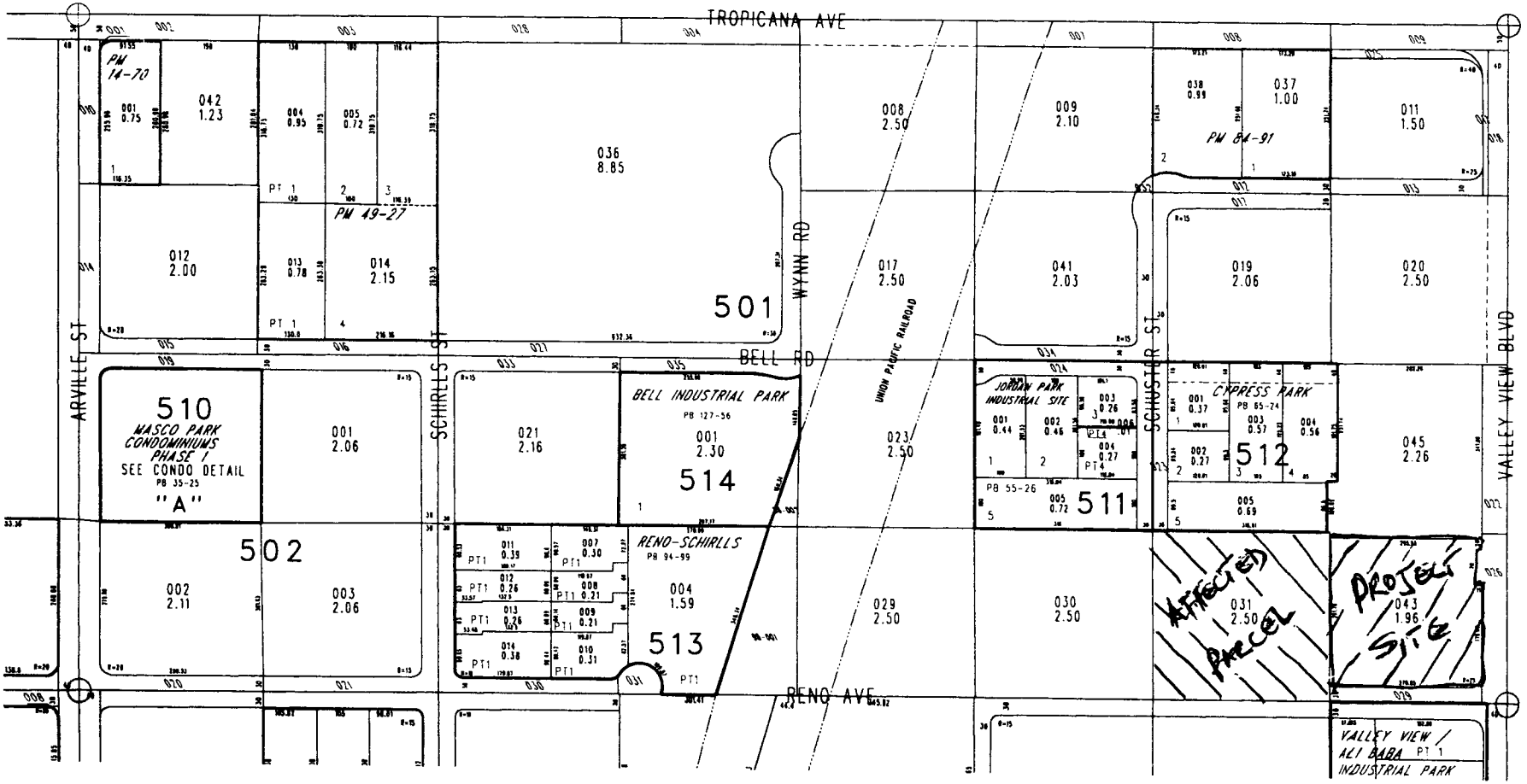
ASSESSOR'S PARCELS - CLARK CO., NV.
M. W. Schofield, Assessor

PARCEL BOUNDARY	001 1.00	PARCEL NUMBER ACREAGE
SUBD BOUNDARY	202	PARCEL SUB/SEQ NUMBER
ROAD EASEMENT	PB 25-43	PLAT RECORDING NUMBER
PM/LD BOUNDARY	5	BLOCK NUMBER
NON-PARCEL LOT LINE	5	LOT NUMBER
MATCH LINE / LEADER LINE	GLS	GOV. LOT NUMBER
001 ROAD ID NUMBER		

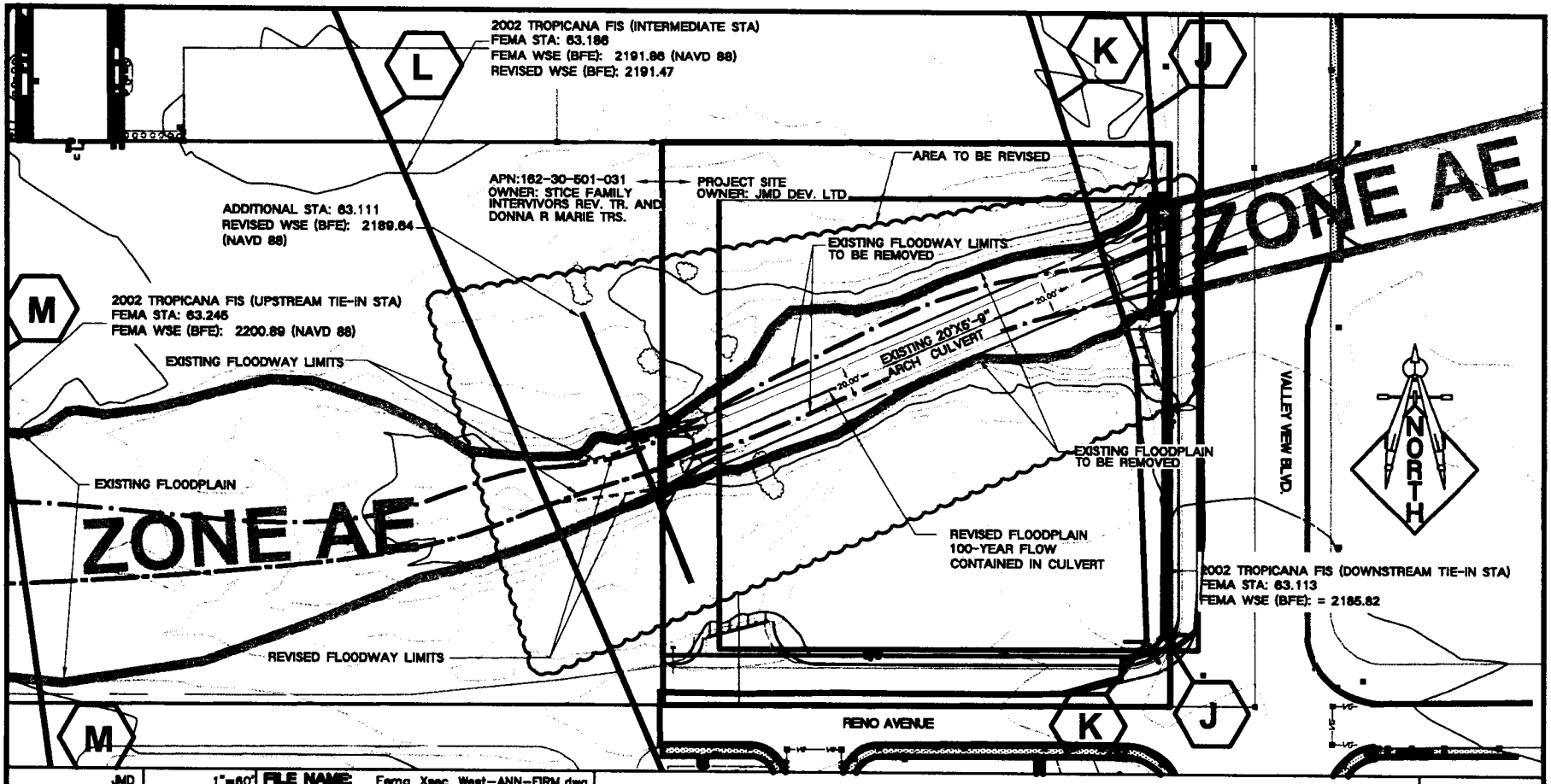
MAP T21S R61E | SEC 30 | MAP N 2 NE 4 | 162-30-5

	R60E	R61E	R62E
T20S	138	139	140
T21S	163	162	161
T22S	176	177	178

Scale:1"=200' Rev:12/15/05



TAX DIST 470



JMD	1"=60'
SOA	02-01-06

LOCHSA ENGINEERING
6345 SOUTH JONES BLVD., SUITE 100
LAS VEGAS, NV 89118
P: 702 365-9312, F: 702 365-9317

FILE NAME: Fema_Xsec_West-ANN-FIRM.dwg

LEGEND

- FOUND MONUMENTATION
- CENTER LINE
- ROW LINE
- EASEMENT LINE
- SECTION LINE
- PROPERTY LINE
- ADJACENT PROPERTY LINE

FLOODWAY REVISION EXHIBIT

7162.17

ADAM AND EVE NIGHT CLUB

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LEGAL NOTICES

NOTICE OF SALE BY AUCTION
Miracle Mile Partners
3642 Boulder Hwy, Las Vegas, NV 89121
Phone 702-457-2848

Debra K. Valcho

PLEASE TAKE NOTICE THAT your 1968 Hillcrest 12 x 52 manufactured home will be sold at auction at 3642 Boulder Hwy, Las Vegas NV 89121 on February 27, 2006 at 9:00 am to satisfy a lien in the amount $2,000.00 to cover lot rent and advertisement. Advertiser reserves the right to bid. The mobile must be removed from the park at auction.
PUB: Feb. 6,13,20, 2006
LV Review-Journal

NOTICE OF SALE BY AUCTION
Miracle Mile Partners
3642 Boulder Hwy, Las Vegas, NV 89121
Phone 702-457-2848

FRANK & RONDA FABIAN

PLEASE TAKE NOTICE THAT your 1969 CHAMP. 12 x 60 manufact. home will be sold at auction at 3642 Boulder Hwy. Las Vegas, NV 89121 at 10:00 am on Feb. 27, 2006 to cover lot rent, storage & advert. The Advertiser Reserves the right to bid. The mobile must be removed from the park.
PUB: Feb. 6,13,20, 2006
LV Review-Journal

Storage Lien Sale
CRAIG/NELLIS SELF STORAGE

NOTICE IS HEREBY GIVEN THAT CRAIG/NELLIS SELF STORAGE LOCATED AT **5250 E. CRAIG RD. LAS VEGAS, NV. 89115** WILL SELL ALL UNITS LISTED BELOW FOR UNPAID STORAGE RENT TO THE HIGHEST BIDDER ON **MONDAY, FEBRUARY 27, 2006 AT 10:00 AM.** PERSONAL PROPERTY AND HOUSEHOLD ITEMS TO BE SOLD ARE STORED FOR THE FOLLOWING PEOPLE. ALL ITEMS MUST BE REMOVED 24 HOURS AFTER SALE.

STORAGE UNITS
#880 NADIA ALEMAN
#496 JASON AYALA
#149 JOSE BIBRIESCA
#485 DEBORAH BOWER
#696 ANICE BUCHANAN
#702 GWENDOLYN BURKS
#619 MINDY COKER
#701 JESSICA COOPER
#165 DWAYNE DAY
#462 SCOTT DODSON
#030 MICHAELLE GAMBILL
#630 PATRICIA GRANDE
#796 JENNIFER HARDING
#791 SABRINA HAYES
#511 JADOSHI LEWIS
#783 KEITH LORAN
#219 ROBERT LOVE
#771 ROBERT LYNN
#678 AMBER MEYER
#330 DONALD O'CONNELL
#860 CHASTIDY PAULINO
#525 STEPHANIE PAVLICK
#066 WANDA PIERCE
#054 LENA & BOBBY PLUMLEE
#730 JEFFERY REED
#679 JAMES REID
#437 BILLIE SCARBOROUGH
#162 RAMI SCHROEDER
#133 JOSEPH SHELDON
#137 JUANITA SMITH
#594 PETER STENZ
#762 DAVID STEVENSON
#763 DAVID STEVENSON
#001 JOHN TAYLOR
#579 ROBERT TANNEBAUM
#680 CARL THOMPSON
#029 TERESA VERA
#758 DYMITRIA WANDS
#272 HELENA WANDS
#728 MICHAEL WHITE
#545 TIFFANY WHITE

CRAIG/ NELLIS SELF STORAGE RESERVES THE RIGHT TO ACCEPT OR REJECT ANY AND ALL BIDS IT DEEMS IS IN IT'S BEST INTEREST. CASH OR CERTIFIED CHECKS ONLY!! A **FIFTY DOLLAR ($50.00) CLEANING DEPOSIT** (REFUNDABLE) WILL BE COLLECTED ON ALL PURCHASED UNITS. **PLEASE BRING YOUR OWN PADLOCKS!!**
PUB: Feb. 13, 20, 2006
LV Review-Journal

Case A502182 Dept XV
DISTRICT COURT
CLARK COUNTY, NEVADA
WELLS FARGO BANK N.A., Plaintiff, -vs-
GARRY HART, an individual HARTCO CONSTRUCTION COMPANY, a business entity of unknown form, and DOES 1 through 100, inclusive, Defendants
SUMMONS - CIVIL
NOTICE: YOU HAVE BEEN SUED. THE COURT MAY DECIDE AGAINST YOU WITHOUT YOUR BEING HEARD UNLESS YOU RESPOND WITHIN 20 DAYS. READ THE INFORMATION BELOW.
TO THE DEFENDANT: A civil Complaint has been filed by the Plaintiff against you for the relief set forth in the Complaint.
Complaint for Breach of Contract
1. If you intend to defend this lawsuit, within 20 days after this Summons is served on you exclusive of the day of service, you must do the following: a) File with the Clerk of this Court, whose address is shown below, a formal written response to the

Case D347743 Dept H
DISTRICT COURT
CLARK COUNTY, NEVADA
REINA E. RIVAS, Plaintiff(s) -vs- EDWIN SANCHEZ, Defendant(s)
SUMMONS-DOMESTIC
NOTICE: YOU HAVE BEEN SUED. THE COURT MAY DECIDE AGAINST YOU WITHOUT YOUR BEING HEARD UNLESS YOU RESPOND WITHIN 20 DAYS. READ THE INFORMATION BELOW.
TO THE DEFENDANT(S): A civil Complaint has been filed by the Plaintiff(s) against you for the relief set forth in the Complaint.
Complaint for Divorce
1. If you intend to defend this lawsuit, within 20 days after this Summons is served on you exclusive of the day of service, you must do the following: a. File with the Clerk of this Court, whose address is shown below, a formal written response to the Complaint in accordance with the rules of the Court, with appropriate filing fee. b. Serve a copy of your response upon the attorney whose name and address is shown below. 2. Unless you respond, your default will be entered upon application of the Plaintiff(s) and this Court may enter a judgment against you for the relief demanded in the Complaint, which could result in the taking of money or property or other relief requested in the Complaint. 3. If you intend to seek the advice of an attorney in this matter, you should do so promptly so that your response may be filed on time. 4. The State of Nevada, its political subdivisions, agencies, officers, employees, board members, commission members and legislators, each have 45 days after service of this summons within which to file an answer or other responsive pleading to the complaint.
Submitted by: Reina Rivas, 31 Palisade Ave., Las Vegas, NV 89110
In Proper Person
Shirley B. Parraguirre, Clerk of Court
By: ELIZABETH MOORE
Deputy Clerk
Date DEC 05 2005
Family Court and Services Center, 601 N. Pecos Road, Las Vegas, NV 89101
PUB:Jan.30,Feb.6,13,20,27,-2006 LV Review-Journal

REQUEST FOR PUBLIC NOTICE

THE HOUSING AUTHORITY FOR THE CITY OF NORTH LAS VEGAS
will make available the following documents for public review and comment beginning February 21, 2006 and ending April 7, 2006.

These documents incorporate **revisions to the Housing Authority's polices.**

- Agency Annual Plan and Five-year Plan (Draft)
- Admissions and Continued Occupancy Policy for the Public Housing Program - Revised (Draft)
- Administrative Plan For the Section 8 Voucher - Revised (Draft)

The above documents may be viewed during normal business hours, Monday through Friday, 8:00 a.m. through 5:00 p.m. (closed between 12:00 p.m. and 1:00 p.m.) at the Housing Authority administrative offices located at 1632 Yale Street in North Las Vegas or they may be viewed on our website at:

www.hacnlv.com

Persons whose disability prevents them from visiting the Housing Authority offices or persons requiring additional information concerning making comments or attending the public hearing may call 649-2451 ext, 123 (TDD 649-0085) to arrange for an alternative method of reviewing these documents.

A public hearing, for the purpose of the Board of Commissioners receiving public comment relative to these documents will be held following the conclusion of the 45 - day public comment period.

Comments in writing will also be accepted and must be received no later than April 7, 2006 by 5:00 p.m. Written comments should be mailed or delivered to:

Don L. England
Chief Executive Officer
Housing Authority for the City of North Las Vegas
1632 Yale Street, North Las Vegas, NV. 89030
Attn: Public Comment
PUB: February 20, 2006
LV Review-Journal

PUBLIC NOTICE
Effective 5:00 p.m. on November 17, 2005

THE WESTWARD HO HOTEL & CASINO will remove from circulation all Westward Ho Hotel & Casino and "The HO" casino chips and tokens.

All Westward Ho Hotel & Casino and "The HO" casino chips and tokens may be redeemed 24 hours a day after 5 p.m. November 17, 2005, thru March 17, 2006, at the Riviera Casino.

Case No. 05CH454 Dept. II
JUSTICE COURT,
HENDERSON TOWNSHIP
CLARK COUNTY, NEVADA
TRIPLE BRAIDED CORD, LLC, A NEVADA LLC Plaintiff, -vs-
MARC UEHARA AND DOES I through X, inclusive, Defendants.
SUMMONS
NOTICE: YOU HAVE BEEN SUED. THE COURT MAY DECIDE AGAINST YOU WITHOUT YOUR BEING HEARD UNLESS YOU RESPOND WITHIN 20 DAYS. READ THE INFORMATION BELOW.
TO THE DEFENDANT: MARK UEHARA
A civil Complaint has been filed by the plaintiff against you for the relief set forth in the Complaint.
COMPLAINT FOR RECOVERY OF POSSESSION OF REAL PROPERTY LOCATED AT 1013 BOUNDARY LINE STREET, HENDERSON, NEVADA 89015
1. If you intend to defend this lawsuit, within 20 days after this Summons is served on you, exclusive of the day of service, you must do the following: a. File with the Clerk of this Court, whose address is shown below, a formal written response to the Complaint in accordance with the rules of the Court. A $30.00 FILING FEE IS REQUIRED. b. Serve a copy of your response upon the attorney whose name and address is shown below. 2. Unless you respond, your default will be entered upon application of the Plaintiff(s) and failure to so respond will result in a judgment of default against you for the relief demanded in the Complaint, which could result in the taking of money or property or other relief requested in the Complaint. 3. If you intend to seek the advice of an attorney in this matter, you should do so promptly so that your response may be filed on time. 4. The State of Nevada, its political subdivisions, agencies, officers, employees, board members, commission members and legislators each have 45 days after service of this Summons within which to file an Answer or other responsive pleading to the Complaint.
Issued at direction of:
EDGAR C. SMITH, ESQ., Attorney for Plaintiff, 850 E. Bonneville Avenue, Las Vegas, Nevada 89101, Telephone number (702) 388-0040
By Cheryl Averill, Deputy Clerk, Date 11-22-05
Justice Court, Henderson Township
243 Water St.
Henderson, NV 89015
PUB:Jan.30,Feb.6,13,20,27,-2006 LV Review-Journal

STATE OF NEVADA
DEPARTMENT OF EMPLOYMENT, TRAINING AND REHABILITATION
REHABILITATION DIVISION

NOTICE TO INVITE PUBLIC COMMENT

The Rehabilitation Division of the Department of Employment, Training and Rehabilitation and the Governor's Council on Rehabilitation and Employment of People with Disabilities invite comments about proposed revisions to the Division's State Plan, which addresses the vocational rehabilitation programs, services, and activities. Public input will be used to:

- Learn about satisfaction with programs and services;
- Assess program strengths and weaknesses;
- Make suggestions for improved access to and quality of programs and services;
- Develop and implement the vocational rehabilitation state and strategic plans.

Public comment is encouraged from employers, people with disabilities, advocacy organizations, consumers, family members, guardians, rehabilitation professionals, service providers, public agencies and the general public. Individuals with an interest in independent living or developmental disabilities issues also are encouraged to comment.

Copies may be requested by calling (775) 687-1900/voice. The sections may also be viewed on the Internet: http://www.nvdetr.org Click on Public Notices, then Vocational Rehabilitation State Plan.

If you have comments, please submit them by April 28, 2006 in one of the following ways: by fax, to the Administrator at (775) 687-1901; by mail, to the Administrator, Rehabilitation Division, 1370 South Curry Street, Carson City, NV 89703-5146; by e-mail, to whhamilton@nvdetr.org

Individuals with disabilities who require auxiliary aids or services to review the proposed changes should contact Bill Hamilton by April 25, 2006 at (775) 687-1922. Deaf or hearing-impaired individuals may call him through Relay Nevada by dialing 711.
PUB: Feb. 17, 20, 2006
LV Review-Journal

BEFORE THE TRANSPORTATION SERVICES AUTHORITY OF NEVADA

NOTICE OF APPLICATION

Fairway Express, LLC ("Applicant") has filed an application, designated as Docket No. 06-02014, with the Transportation Services Authority of Nevada ("Authority") for a Contract Carrier Permit to provide transportation services pursuant to a contract with Open Golf Tee Times.

The application was filed pursuant to Chapter 706 of the Nevada Revised Statutes ("NRS") and the Nevada Administrative Code ("NAC"). Under NRS 706.151, the Authority has legal jurisdiction and authority over this matter.

This application is on file and available for viewing at the office of the Authority, 2290 South Jones Blvd., Suite 110, Las Vegas, Nevada 89146.

Persons with a direct and substantial interest in the filing may file Petitions for Leave to Intervene at the Authority's office located at 2290 South Jones Blvd., Suite 110, Las Vegas, Nevada 89146. Such Petitions must conform to the Authority's regulations and must be filed on or before March 17, 2006.

Interested persons may submit Protests for filing at the Authority's office. Protests must conform to the Authority's regulations. Other written comments may also be submitted for filing.

By the Authority,
/s/ April Woodard
Deputy Commissioner
Dated: 2/16/06
Las Vegas, Nevada
PUB: February 20, 2006
LV Review-Journal

Storage Lien Sale
ALL STORAGE

PERSONAL PROPERTY & HOUSEHOLD ITEMS WILL BE SOLD AT PUBLIC AUCTION TO RECOVER CHARGES OWED FOR THE FOLLOWING ALL STORAGE PROPERTIES. SALE DATE FOR THE FOLLOWING, February 27, 2006 starting at 9:30 A.M.

LAKE MEAD MINI STORAGE/ ALL STORAGE ON EAST LAKE MEAD
7151 E. LAKE MEAD BLVD
LAS VEGAS, NV 89156
AT 9:30 AM
UNIT / NAME
2104.....Robert C. Bennett
2261....Jason Diekmann
2270....Jeremiah Potter
3243.....Musibau Akindipe
3270.....James Price
3310.....Rosey Wilsom

ALL STORAGE ON NORTH RANCHO / ACE-SELF STORAGE
3290 N. RANCHO DR, LAS VEGAS, NV 89130
AT 10:00 AM
UNIT / NAME
1B102...Jody Gensemer
2C234.....Lavuda Anderson
2D365...Tye Pomerantz
1D420..Wells McMillian
1D470.....Brenda Jean Geeck
1D479.....Ellis Davis
1F783.....Michael Norquist

Advertiser reserves the right to bid.
PUB: Feb. 13, 20, 2006
LV Review-Journal

NOTICE OF SALE AT PUBLIC AUCTION
Notice is hereby given, that on March 8, 2006 at 10:30 a.m. at 5220 S. Jones Blvd., In the City of Las Vegas, County of Clark, State of Nevada, AMERICAN MINI STORAGE will sell at public auction by competitive bidding for cash, pursuant to state law, the personal property here-to-fore stored with the undersigned by:
- 9022 Mike Burpee, 1021 Calcite Dr, Divide CO 80814 9116 Mary Ellen Belfiore, 5390 Boulder Hwy, Las Vegas NV 89122
- 9144 Candy Diaz, 1608 Aztec Way, Las Vegas, NV 89109 2030 Tammie Schmeider, 2724 Monrovia, Las Vegas NV 89117
- 9184 Christine Aldan, 6105 E Sahara, #140, Las Vegas NV 89142
- 8165 Krystal Nelson, 7413 W Russell Rd, #156, Las Vegas NV 89113
- 7065 Peter Rzeckoski, 1604 S Maat Blvd, Layton UT 84041
- 2008 Brian Hinkell, 6238 Island Palms Ave, Las Vegas NV 89118
- 2024 Tim Tieman, 9149 Severiano, Las Vegas NV 89139
- 4016 Liongate Network Assoc/David Disalvo, 5052 S Jones Blvd, #165, Las Vegas NV 89118
- 8168 Pete Perna, 7192 Parasol Ln, Las Vegas NV 89147
- 9219 Patrick Petrella, 1701 Rock Springs Dr, #2007, Las Vegas NV 89128
- 6005 Nancy Howe, 4640 Laguna Vista St, Las Vegas NV 89147

CNS-928283#
PUB: Feb. 20, 27, 2006
LV Review-Journal

LEGAL NOTICES

NOTICE TO CREDITORS AND OTHERS CONCERNED

Pursuant to Chapter 408, Nevada Revised Statutes, notice is hereby given that on February 7, 2006, Contract No. 3109 between Las Vegas Paving Corporation and the State of Nevada, for construction of a portion of the Interstate and Urban Highway System on I-515 Ramps at Interchanges from Russell Road to Casino Center Boulevard (except Boulder Highway and Las Vegas Boulevard); Multiple Locations in Las Vegas and Henderson; Multiple Intersections in Las Vegas; on SR 574, Cheyenne Avenue, at SR 610, Lamb Boulevard, on SR 610, Lamb Boulevard at Alexander Road; on I-515 Southbound Off Ramps at SR 593, Tropicana Avenue, and at SR 592 Flamingo Road, on SR 592, Flamingo Road at Cameron Street, Clark County, Project Nos. IM-515-1(026), STP-0003 (064), STP-0003 (065), STP-0170 (076), STP-0170 (077) was accepted.

All creditors having claims against this contract must file their claims within thirty (30) days after acceptance of said contract. Information relative to the manner of filing claims may be obtained from the Administrative Services Officer, telephone number (775) 888-7070

JEFFREY FONTAINE, P.E., DIRECTOR
Nevada Department of Transportation
Carson City, Nevada 89712
PUB: Feb.13-17, 20-24, 2006
incl. LV Review-Journal

NOTICE OF LIEN SALE OF ABANDONED PROPERTY

NOTICE IS HEREBY GIVEN THAT SELF STORAGE CITY, will conduct a PUBLIC SALE pursuant to the Revised Nevada Statutes (NRS 108.473 to 108.4783), of the following miscellaneous household and personal property to wit, identified by tenant name and storage unit number.

UNIT NO/NAME
G283.....Gloria Smith
H391.....Raul Cortes
H440...Faviola Delgado

This sale will be by Competitive Bidding on MARCH 6, 2006 AT 8:00 AM or thereafter on the premises where said property is stored, and which is located at SELF STORAGE CITY, 6740 W. FLAMINGO RD., CITY OF LAS VEGAS, COUNTY OF CLARK, STATE OF NEVADA. Sale is sold with limit and reserve. THE LANDLORD RESERVES THE RIGHT TO BID AT THE SALE. Purchases must be made with cash and paid for at the time of sale. All Purchased Goods are sold "AS IS" and must be removed by 5:00 PM of the day following the sale. SALE IS SUBJECT TO CANCELLATION.
AUCTIONEER
PATRICK SIEVWRIGHT
PUB: Feb. 20, 27, 2006
LV Review-Journal

Case D343537 Dept I
DISTRICT COURT
CLARK COUNTY, NEVADA
Jessie H. Tayo, Plaintiff(s) -vs- Harriet D. Rodriguez, Defendant(s)
SUMMONS-DOMESTIC
NOTICE: YOU HAVE BEEN SUED. THE COURT MAY DECIDE AGAINST YOU WITHOUT YOUR BEING HEARD UNLESS YOU RESPOND WITHIN 20 DAYS. READ THE INFORMATION BELOW.
TO THE DEFENDANT(S): A civil Complaint has been filed by the Plaintiff(s) against you for the relief set forth in the Complaint.
Complaint for Divorce
1. If you intend to defend this lawsuit, within 20 days after this Summons is served on you exclusive of the day of service, you must do the following: a. File with the Clerk of this Court, whose address is shown below, a formal written response to the Complaint in accordance with the rules of the Court, with appropriate filing fee. b. Serve a copy of your response upon the attorney whose name and address is shown below. 2. Unless you respond, your default will be entered upon application of the Plaintiff(s) and this Court may enter a judgment against you for the relief demanded in the Complaint, which could result in the taking of money or property or other relief requested in the Complaint. 3. If you intend to seek the advice of an attorney in this matter, you should do so promptly so that your response may be filed on time. 4. The State of Nevada, its political subdivisions, agencies, officers, employees, board members, commission members and legislators, each have 45 days after service of this summons within which to file an answer or other responsive pleading to the complaint.
Submitted by: Jessie Tayo, 446 E. Twain Ave. #57, Las Vegas, NV 89109
In Proper Person
Shirley B. Parraguirre, Clerk of Court
By: CARLOS SANCHEZ, Deputy Clerk
Date FEB 17 2006
Family Court and Services Center, 601 N. Pecos Road, Las Vegas, NV 89101
PUB:Feb.20,27, Mar.6,13,20,-2006 LV Review-Journal

NOTICE OF SALE BY AUCTION
Miracle Mile Partners
3642 Boulder Hwy, Las Vegas, NV 89121
Phone 702-457-2848

FRANK CLINGER

PLEASE TAKE NOTICE THAT your 1969 Viking manufac. home will be sold at auction at 3642 Boulder Hwy, Las Vegas NV 89121 on February 27, 2006 at 9:30 am to satisfy a lien in the amount $2,000.00 to cover lot rent, storage and advert. Advertiser reserves the right to bid. At the time of the auction, mobile must be removed from the park.
PUB: Feb. 6,13,20, 2006
LV Review-Journal

TOKEN REDEMPTION
GOLDEN PALM CASINO is redeeming $1 Slot Tokens from Feb. 13 - June 14, 2006 at Main Bar, 3111 W. Tropicana, LV, NV 89103. PUB: February 13, 15, 20, 22, 27, 2006 LV Review-Journal

NOTICE
TOKEN REDEMPTION
Effective January 20, 2006

Bighorn Casino
will remove from circulation the following:

$1 Silver Tokens

Outstanding silver tokens should be redeemed from **February 3, 2006 through June 5, 2006** at the **Bighorn Casino**, 3016 E. Lake Mead Blvd No. Las Vegas, NV.
PUB: Feb. 6, 7, 13, 14, 20, 21, 27, 28, 2006
LV Review-Journal

NOTICE TO CREDITORS AND OTHERS CONCERNED

Pursuant to Chapter 408, Nevada Revised Statutes, notice is hereby given that on February 7, 2006, Contract No. 3202 between Las Vegas Paving Corporation and the State of Nevada, for construction of a portion of the Urban Highway System on SR 589, Sahara Avenue, at Teddy Drive, Clark County, Project No. SPSR-0589(012) was accepted.

All creditors having claims against this contract must file their claims within thirty (30) days after acceptance of said contract. Information relative to the manner of filing claims may be obtained from the Administrative Services Officer, telephone number (775) 888-7070

JEFFREY FONTAINE, P.E., DIRECTOR
Nevada Department of Transportation
Carson City, Nevada 89712
Pub: Feb.13-17,20-24, 2006, incl. LV Review-Journal

LOCHSA ENGINEERING
has submitted a request to the Federal Emergency Management Agency (FEMA), on behalf JMD Development LTD, to

REVISE THE FLOODPLAIN
for the portion of the Tropicana Wash traversing their property (APN 162-30-501-043).

The revision is necessary to show the benefits of the already constructed storm drain facility across the subject parcel. The revision will also include an increase in top width of the Regulatory Floodway within the adjacent western parcel (APN 162-30-501-031) by approximately 10.0' at the entrance of the storm drain facility, and extending west into the adjacent parcel by approximately 65' to match existing. The Base Flood Elevations at the storm drain entrance have been slightly reduced. However, the Floodplain boundaries within the adjacent parcel will remain the same as existing (unchanged). Any questions may be directed to Mr. Ted Egerton of Lochsa Engineering at (702) 365-9312

PUB: Feb. 17 - 23, 2006, incl. LV Review-Journal

NOTICE TO CREDITORS AND OTHERS CONCERNED

Pursuant to Chapter 408, Nevada Revised Statutes, notice is hereby given that on February 15, 2006, Contract No. 3192 between Frehner Construction Co., Inc. and the State of Nevada, for construction of a portion of the Primary Highway System on US 95 from Craig Road (SR 573) to 0.76 miles north of Kyle Canyon Road (SR 157), including cross road and 3 ramps at the Craig Road Interchange and at Craig Road Structure (I-1219), Clark County, Project No. NH-095-2 (041) was accepted.

All creditors having claims against this contract must file their claims within thirty (30) days after acceptance of said contract. Information relative to the manner of filing claims may be obtained from the Administrative Services Officer, telephone number (775) 888-7070

JEFFREY FONTAINE, P.E., DIRECTOR
Nevada Department of Transportation
Carson City, Nevada 89712
PUB: Feb. 20 - 24, 27 - Mar. 3 2006, incl.
LV Review-Journal

Case No. 06 806 DO
STATE OF MICHIGAN
JUDICIAL DISTRICT
"16th" JUDICIAL CIRCUIT
COUNTY PROBATE
Court address: 40 N. Main, Mount Clemens, MI 48043, REBECCA CAMPOS, 45111 Deepwood Ct. Shelby Township, MI 48317, Plaintiff v. ANTHONY GAMBINO, Defendant, By Publication
SUMMONS AND COMPLAINT
NOTICE TO THE DEFENDANT: In the name of the people of the State of Michigan you are notified: 1. You are being sued. 2. YOU HAVE 21 DAYS after receiving this summons to file an answer with the court and serve a copy on the other party or to take other lawful action (28 days if you were served by mail or you were served outside this state). 3. If you do not answer or take other action within the time allowed, judgment may be entered against you, for the relief demanded in the complaint.
Issued FEB 08, 2006. This Summons expires MAY 10 2006, Court Clerk Carmela Babaugh.
COMPLAINT: There is no other pending or resolved action within the jurisdiction of the family division of circuit court involving the family or family members of the parties. The action remains pending.
General Civil Cases: There is no other pending or resolved civil action arising out of the same transaction or occurrence as alleged in the complaint.
VENUE: Plaintiff(s) residence: 45111 DEEPWOOD CT., SHELBY TOWNSHIP, MI 48317. Defendant(s) residence BY PUBLICATION. Date: Feb. 7, 2006. / s/ Rebecca Campos, Plaintiff. *If you require special accommodations to use the court because of a disability or if you require a foreign language interpreter to help you to fully participate in court proceedings, please contact the court immediately to make arrangements.*
PUB: Feb.20,27, Mar.6, 2006
LV Review-Journal

BEFORE THE TRANSPORTATION SERVICES AUTHORITY OF NEVADA

In Re the Order to Show Cause issued to Nevada Lines, Inc. dba Silver State Tours as to why Certificate of Public Convenience and Necessity 2071 should not be revoked.

Docket No. 05-05023

ORDER LIFTING TEMPORARY ORDER TO SUSPEND OPERATIONS

Under Nevada Revised Statutes ("NRS") 706.151, the Transportation Services Authority of Nevada ("Authority") has legal jurisdiction and authority over this matter.

On January 11, 2006, a Temporary Order to Suspend Operations authorized under Certificate of Public Convenience and Necessity ("CPCN") 2071 was issued to Nevada Lines, Inc. dba Silver State Tours.

Pursuant to said Temporary Order, the carrier filed with the Authority a Petition to Change Domicile and Authority Enforcement Staff conducted an initial inspection of Respondent's proposed domicile and found it to be appropriate for use as such.

THEREFORE, IT IS ORDERED AND DIRECTED that the Temporary Order to Suspend Operations issued January 11, 2006 is HEREBY LIFTED. Respondent may immediately RESUME OPERATIONS authorized under CPCN 2071.

The Authority retains jurisdiction for correcting any errors that may have occurred in the drafting or issuance of this Order.

By the Authority,
/s/ Kimberly Maxson-Rushton,
Commissioner
Attest: /s/ Monica Metz, Esquire
Dated: 2/17/06
Las Vegas, Nevada

PUB: February 20, 2006
LV Review-Journal

NEED TO MAKE IT LEGAL?

REVIEW-JOURNAL LEGAL ADVERTISING PUBLISHES HOLIDAYS & WEEKENDS!

CALL 383-0120

State Environmental Commission – Notice of Hearing for the Adoption of Regulations

The State Environmental Commission (SEC) will hold a public hearing at 10:00 a.m. on March 8, 2006 at the Washoe County Commission Chambers located at 1001 E. Ninth Street, Building A Reno, NV 89512. The purpose of the hearing is to receive comments from all interested persons regarding the adoption, amendment, or repeal of the following regulatory petitions. The petitions will be discussed and acted upon but may be taken in different order to accommodate the interest and time of the persons attending.

Regulation R175-05: Adoption of federal regulations by reference governing hazardous waste management. This proposed regulation is needed to incorporate changes to the federal hazardous waste regulations that are currently in conflict with Nevada's existing State regulations. The regulation will revise State regulations to be more consistent with federal regulations. The regulation will amend Chapter 444 of the Nevada Administrative Code (NAC).
The regulations addresses the federal regulatory changes adopted by the US EPA (between July 1, 2003 and July 1, 2005) which includes clarification of the used oil management standards, revisions to the National Performance Track Program, new listing of hazardous wastes from the dye and pigment industries, and revisions to related land disposal restrictions. The regulatory changes also include standardization of the Uniform Hazardous Waste Manifest and updates to the analytical and sampling methods approved for use in complying with Resource Conservation and Recovery Act (RCRA) regulations.

Regulation R176-05: Procedures for grants to enhance solid waste management systems and efficient use of resources. This regulation proposes adoption of several new sections in Chapter 444A of the Nevada Administrative Code (NAC). The new regulation would establish procedures for the Nevada Division of Environmental Protection (NDEP) to award grants to municipalities, educational institutions, and nonprofit organizations for projects that enhance solid waste management systems and promote the efficient use of resources. The regulation outlines grant application requirements, eligibility determination, evaluation criteria, grant agreements, and procedures for disbursement of funds. This new regulation would also broaden the range of qualifying projects from recycling public education and support, to projects that enhance solid waste management systems and promote the efficient use of resources.

Regulation R206-05: Adoption by reference of federal New Source Performance Standards (NSPS), and National Emission Standards for Hazardous Air Pollutants (NESHAPs): The Nevada Division of Environmental Protection (NDEP) is proposing to adopt into State regulation the federal New Source Performance Standards (NSPS), and National Emission Standards for Hazardous Air Pollutants (NESHAPs) that have been promulgated by the U.S. EPA since July 1, 2004. The NDEP is delegated the implementation of the federal NSPS and NESHAPs programs relevant in Nevada, however, it is necessary to keep the State's "adoption by reference" regulation (NAC 445B.221) up to date so that the US EPA can continue to delegate the implementation of new rules to the State.

The regulations referenced in this notice (R175-05, R176-05 and R206-05) will not have an immediate or long-term adverse effect on business or the public. There will be no additional cost to NDEP for enforcement of these proposed regulations and the regulations do not overlap or duplicate any regulations of other state, federal, or local agencies. The amended regulations are no more stringent than what is established by federal law and the will not increase fees.

Regulation R189-05: Mercury air emission permitting program for precious metal mining facilities: This proposed regulation will expand Chapter 445B of the Nevada Administrative Code (NAC). As way of background, between 2002 and 2005 the Nevada Voluntary Mercury Reduction Program, a joint effort of the NDEP, the U.S. EPA and four Nevada mining companies, achieved significant mercury emission reductions from thermal processes used in metal mining. Subsequent to this voluntary program, the NDEP has determined that it is appropriate to expand the coverage of the program to all metal mining operations in Nevada. Therefore, the NDEP is proposing new regulations to require mercury air emission controls at precious metal mining facilities through a new mercury permitting program, as an adjunct to the current Operating Permit to Construct Program. The new program will apply to precious metals mining facilities that process mercury-containing ore and use thermal treatment processes that have the potential for liberating mercury into the atmosphere.

This new regulation will have an economic impact on precious metals mining companies that process mercury-containing ore and use thermal treatment processes that have the potential for liberating mercury into the atmosphere. These companies will be subject to the Mercury Permitting Program and applicable fees. The proposed regulation will have no economic effect on the public. Additional cost to the agency for enforcement of

LEGAL NOTICES

OFFICIAL NOTICE OF PUBLIC HEARING
City of Mesquite

A. Consideration of a Zone Change and Master Plan Amendment for 80 acres from Land Reserve (LR) to RV/Motor Home (RV) and Multi-Family High Density (MF-4) located north of the Mesquite Technology and Commerce Center and west of the Mesa View Regional Hospital.

B. Consideration of a Zone Change and Master Plan Amendment for 45.7 acres from Commercial - General (CR-2) to Hotel Tourist (HT) and Multi-Family High Density (MF-4) located generally at the intersection of West Pioneer Boulevard and Falcon Ridge Parkway.

C. Consideration of a Zone Change, Master Plan Amendment and a Planned Unit Development Amendment of the Falcon Ridge PUD de-annexing 10.11 acres from Planned Unit Development - Light Industrial (PUD-IR-1) to Multi-Family High Density (MF-4), located on the north east corner of the intersection of West Pioneer Boulevard and Willis Carrier Avenue.

Additional Information:
Hearing Information:
February 28, 2006
@ 4:00pm
Mesquite City Hall Council Chambers, 2nd Floor
10 E. Mesquite Blvd,
Mesquite, NV 89027

Applicants:
Barcelona Partners LLC
9500 W Flamingo #205
Las Vegas, NV 89147
Kennedy Commercial
LLC, 9500 W Flamingo
#205, Las Vegas, NV 89147

Property Owners:
City of Mesquite
10 E Mesquite Blvd
Mesquite, NV 89027
Mesquite10 Partners
2545 S. Torrey Pines
Las Vegas, NV 89146
Property Description:
A. APN #002-13-101-003
B. APN #002-13-601-002
C. APN #002-13-701-002
Adopted Plan/Zoning:
Land Reserve (LR), Commercial - General (CR-2), Planned Unit Development - Light Industrial (PUD-IR-1)

The hearing is open to the public, and all interested parties are invited to attend. If you wish to comment but are unable to attend the hearing, you may send written comments to Catherine Lorbeer, Planning and Redevelopment Manager, prior to the hearing.

For further information, call (702) 346-2835, Fax (702) 346-5382, email clorbeer@ci.mesquite.nv.us or write to 10 East Mesquite Blvd., Mesquite, NV 89027
PUB: February 17, 2006
LV Review-Journal

APCO CONSTRUCTION
REQUESTS SUB BIDS and Material Quotations from ALL qualified subcontractors and suppliers including MBE, WBE, SBE, SBDE and SMBE on the following project:

Clark County, Nevada
McCarran Landscape Renovation and Vehicle Inspection Station
Project No. 2221-2
Bid Date: 02-23-06
@ 11:00 am
Please Contact
APCO Construction
Attn: Shawn Bowne
3432 N. 5th Street
NLV, NV 89032
702-734-0198
We are an equal opportunity employer.
NV Lic. 14563 AB
PUB: Feb. 16,17,18, 2006
LV Review-Journal

NOTICE OF PUBLIC HEARINGS
Wednesday, March 1, 2006

NOTICE IS HEREBY GIVEN THAT on Wednesday, March 1, at the hour of 1:00 p.m. in the Council Chambers, City Hall Complex, 400 Stewart Avenue, Las Vegas, Nevada, the City Council will consider the following:

ROR-11039 - REQUIRED ONE YEAR REVIEW - REVIEW OF CONDITION - PUBLIC HEARING - APPLICANT/OWNER: WEISS REVOCABLE LIVING TRUST - Required One Year Review of an approved Review of Condition (ROC-5988)THAT ALLOWED 58 HORSES WHERE A MAXIMUM OF 28 HORSES WERE ALLOWED and Five Year Review of an approved Special Use Permit (U-0096-00) for a commercial horse boarding and training facility at 5770 West Rosada Way (APN 125-36-301-010), R-E (Residence Estates) Zone, Ward 6 (Ross), LEGALLY DESCRIBED AS A PORTION OF THE NORTH HALF (N½) OF THE SOUTHWEST QUARTER (SW¼) OF SECTION 36, TOWNSHIP 19 SOUTH, RANGE 60 EAST, M.D.M.

Any and all interested persons may appear and be heard at said meeting, or may, prior thereto, file written objections thereto or approvals thereof with the City Clerk, 1st Floor, City Hall, 400 Stewart Avenue, Las Vegas, Nevada 89101, http://www.lasvegasnevada.gov

BARBARA JO RONEMUS
CITY CLERK

(The information contained above is considered to be accurate; however, there may be minor variations involved. A complete, detailed legal description is on file in the Office of the City Clerk.)
PUB: Feb. 17, 2006
LV Review-Journal

Avi RESORT • CASINO

Chip Redemption Notice

To accommodate a new series of gaming chips, all chips bearing the **Avi Hotel and Casino** name are being cancelled effective **December 13, 2005.** Redemption of outstanding chips can be made at the Avi Hotel and Casino at the casino cage, **24 hours daily through April 11, 2006.**

Chips being cancelled: $1 white gaming chips with purple and pink inserts, "Avi" and $1 on one side and $1 and a mountain on the other side. $5 red gaming chips with yellow and white inserts, "Avi" and $5 on one side and $5 and a green frog on the other side. $25 green gaming chips with dark green and yellow inserts, "Avi" and $25 on one side and $25 and an Indian mask with a mountain background on the other side. $100 black gaming chips with orange, green and white inserts, "Avi" and $100 on one side and $100 and green clay pot with mountain background on the other side. $500 purple gaming chips with pink inserts, "Avi" and $500 on one side and $500 and an eagle with mountain background on the other side.

AVI RESORT & CASINO
10000 AHA
MACAV PARKWAY
LAUGHLIN,
NEVADA 89028-7011

PUB: Feb. 1, 3, 8, 10, 15, 17, 22, 24, 2006
LV Review-Journal

ANNUAL STATEMENT OF HAMMAN INSURANCE SERVICES, INCORPORATED
For the Year Ending 2005

Location of Principal Office: 8300 Douglas Ave., #625 Dallas, TX 75225
Location(s) of business in Nevada: NONE

Assets.....$962,611
Liabilities.....$903,492

I, ROBERT DAVID HAMMAN, President, do hereby certify that the foregoing is a true and accurate statement of the business transacted by said corporation.
/s/ Robert David Hamman
Date: 2/14/2006
PUB: Feb. 16, 17, 2006
LV Review-Journal

FOR BETTER RESULTS
CHECK
thru the classified pages of the R-J!
We do it DAILY!

NOTICE OF REQUESTS FOR PROPOSALS
#2005-10

NOTICE IS HEREBY GIVEN THAT THE Board of County Commissioners of the County of Nye, State of Nevada is accepting sealed bids for the lighting at three ball fields located in Amargosa Valley, Nevada 89020.

A "proposal package" has been prepared by the County and includes the Information for Bidders, and other documents relating to this project. The proposal package may be examined and copies obtained by contacting the Nye County Purchasing Department, 101 Radar Road, Tonopah, Nevada 89049, or by calling 775-482-7256.

All proposals must be in a sealed envelope clearly marked

"Amargosa Valley Lighting,
Bid #2005-10"

No verbal, e-mailed or facsimile transmitted responses will be accepted or considered. The sealed responses will be accepted until 10:00 A.M., local time, on March 17, 2006 at the Nye County Purchasing Department, 101 Radar Road, Tonopah, Nevada 89049. Or they may be mailed to Nye County Purchasing Department, P.O. Box 1592, Tonopah, Nevada 89049. Opening of the bids will commence at 11:00 A.M. on March 17, 2006, in the Nye County Commissioners Chambers, 101 Radar Road, Tonopah, Nevada. The contract will be awarded upon approval of the Nye County Board of Commissioners.

The Board of Commissioners expressly reserves the right to waive any informality or to reject any and all proposals.

PUB: Feb. 17,22,24, Mar. 1, 2006 LV Review-Journal

Notc Case D351199 Dept. H
DISTRICT COURT
CLARK COUNTY, NEVADA
In the Matter of the application of Tralynn Dee Clapp for Change of Name
NOTICE OF PETITION FOR CHANGE OF NAME
NOTICE is hereby given that the undersigned has filed a Petition, addressed to the above-entitled Court, praying that said Court enter its Order to change the present legal name of Petitioner TRALYNN DEE CLAPP to the name of TRALYNN DEE GRAY which is the name Petitioner desires to have in the future.
NOTICE is hereby given that any person having objection to the changing of Petitioner's name as aforesaid shall file written objection with the above-entitled Court within ten (10) days after the date of last publication of this Notice.
By Tralynn Dee Clapp
In Proper Person
PUB: Feb. 17, 24, Mar. 3, 2006 LV Review-Journal

CITY OF MESQUITE NOTICE OF ADOPTION OF ORDINANCE #336

NOTICE IS HEREBY GIVEN that the Mesquite City Council did adopt Ordinance #336 at a regular meeting held February 14, 2006 at Mesquite City Hall. Title of Ordinance #336:

AN ORDINANCE OF THE CITY COUNCIL OF THE CITY OF MESQUITE, NEVADA, AMENDING AND ADOPTING THAT CERTAIN DEVELOPMENT AGREEMENT BETWEEN THE CITY OF MESQUITE AND MESQUITE INVESTORS, LLC AND PN II, INC. FOR THE DEVELOPMENT OF LAND AND PROVIDING OTHER MATTERS PROPERLY RELATING THERETO.

Ordinance #336, adopts the development agreement between the City of Mesquite and Mesquite Investors, LLC and PN II, Inc.

Councilmember Susan Holecheck made a motion to adopt Ordinance #336. The motion was seconded by Councilmember Robert "Bubba" Smith and passed unanimously. Those members voting "aye" were Councilmembers David Bennett, Susan Holecheck, Robert "Bubba" Smith, Bill Wells, and Donna Fairchild. There were no members voting "nay" and no members were absent.

Ordinance #336 will become effective March 9, 2006. Copies of Ordinance #336 are available in the office of the City Clerk.

Carol Woods, City Clerk
PUB: February 17, 2006
LV Review-Journal

NOTICE TO CREDITORS AND OTHERS CONCERNED

Pursuant to Chapter 408, Nevada Revised Statutes, notice is hereby given that on February 7, 2006, Contract No. 3109 between Las Vegas Paving Corporation and the State of Nevada, for construction of a portion of the Interstate and Urban Highway System on I-515 Ramps at Interchanges from Russell Road to Casino Center Boulevard (except Boulder Highway and Las Vegas Boulevard); Multiple Locations in Las Vegas and Henderson; Multiple Intersections in Las Vegas; on SR 574, Cheyenne Avenue, at SR 610, Lamb Boulevard, on SR 610, Lamb Boulevard at Alexander Road; on I-515 Southbound Off Ramps at SR 593, Tropicana Avenue, and at SR 592 Flamingo Road, on SR 592, Flamingo Road at Cameron Street, Clark County, Project Nos. IM-515-1(026), STP-0003 (064), STP-0003 (065), STP-0170 (076), STP-0170 (077) was accepted.

All creditors having claims against this contract must file their claims within thirty (30) days after acceptance of said contract. Information relative to the manner of filing claims may be obtained from the Administrative Services Officer, telephone number (775) 888-7070

JEFFREY FONTAINE, P.E., DIRECTOR
Nevada Department of Transportation
Carson City, Nevada 89712
PUB: Feb.13-17, 20-24, 2006
incl. LV Review-Journal

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OFFICIAL NOTICE OF PUBLIC HEARING
City of Mesquite

Consideration of a Zone Change and Master Plan amendment for 5.72 acres (Lot 3 of Powerside Parcel Map, File 107, Page 40) from Single Family Residential (SF) to PUD Single Family Residential (PUD-SF), and approval of the Palm Cove PUD Master Plan, located generally at the intersection of Agave Road and Cholla Court.

Additional Information:
Hearing Information:
February 28, 2006
@ 4:00pm
Mesquite City Hall Council Chambers, 2nd Floor
10 E. Mesquite Blvd,
Mesquite, NV 89027
Applicant:
DSR Nevada Investments, LLC
1235 Vista Del Monte Drive, Mesquite, NV 89027
Property Owner:
Same as Applicant
Property Description:
APN #001-08-501-012
Lot 3 of Powerside Parcel Map, File 107, Page 40
Adopted Plan/Zoning: Single Family Residential (SF)

The hearing is open to the public, and all interested parties are invited to attend. If you wish to comment but are unable to attend the hearing, you may send written comments to Catherine Lorbeer, Planning and Redevelopment Manager, prior to the hearing.
For further information, call (702) 346-2835, Fax (702) 346-5382, email clorbeer@ci.mesquite.nv.us or write to 10 East Mesquite Blvd., Mesquite, NV 89027
PUB: February 17, 2006
LV Review-Journal

NOTICE TO BIDDERS

The University of Nevada, Las Vegas will accept sealed BIDS for products or services listed until the date and time indicated for the following:

BID #4863-AN
UNLV Campus Electrical Power System Study-2006
Mandatory Pre-Bid and Site Visit: February 22, 2006 @ 10:00 AM
UNLV Main Campus, Campus Services Building, Purchasing Department #236
These bids are available on the Purchasing Department web site at:
http://www.univ.edu/depts/purchasing/available_bids

Or, to obtain a copy of a document, please telephone (702) 895-3521 or fax (702) 895-3859, attention BID DESK. Please reference the BID number and include your company name, full mailing address, telephone number and name of contact person.
Bids will be opened in the Purchasing Department, Campus Services Building, University of Nevada, Las Vegas, unless otherwise stated. For further information, contact the Purchasing Department, telephone (702) 895-3521.

PUB: February 17, 2006
LV Review-Journal

LOCHSA ENGINEERING

has submitted a request to the Federal Emergency Management Agency (FEMA), on behalf JMD Development LTD, to

REVISE THE FLOODPLAIN
for the portion of the Tropicana Wash traversing their property (APN 162-30-501-043).

The revision is necessary to show the benefits of the already constructed storm drain facility across the subject parcel. The revision will also include an increase in top width of the Regulatory Floodway within the adjacent western parcel (APN 162-30-501-031) by approximately 10.0' at the entrance of the storm drain facility, and extending west into the adjacent parcel by approximately 65' to match existing. The Base Flood Elevations at the storm drain entrance have been slightly reduced. However, the Floodplain boundaries within the adjacent parcel will remain the same as existing (unchanged). Any questions may be directed to Mr. Ted Egerton of Lochsa Engineering at (702) 365-9312

PUB: Feb. 17 - 23, 2006, incl. LV Review-Journal

ATTENTION ATTORNEYS!
OUR SPECIAL RATES SAVE YOU MONEY
CALL 383-0320

McCARRAN INTERNATIONAL AIRPORT, CLARK COUNTY, NEVADA
ADVERTISEMENT TO BID - CONTRACT NO. 2221-2
AIP NO. 3-32-0012-52 PWP NO. CL-2005-308
ANDSCAPE RENOVATION AND VEHICLE INSPECTION STATION
McCARRAN INTERNATIONAL AIRPORT, LAS VEGAS, NEVADA

DESCRIPTION OF WORK

assisted contract and therefore is subject to 49 CFR Part 26, Participation by Disadvantaged Department of Transportation Financial Assistance Programs.
Includes demolition of select existing improvements, traffic control, vehicle inspection roadway, three secondary inspection areas, associated curbs and gutters. Inspection area canopy, traffic director nopy, police area canopy. Pre-fabricated building. Lighting and electrical work associated with the ements including streetlights. Relocation of existing signage, cast-in-place concrete retaining wall e; audio-visual alarm system, relocation of drainage improvements to accommodate the proposed s, ramps and handrails, removal of existing turf, landscape planting and irrigation improvements.

RE-BID CONFERENCE: **February 09, 2006 at 10:00 AM**
OCATION: ***Room 2, North Mezzanine***
McCarran International Airport, Las Vegas, NV

ne Conference is to review and discuss the Bid Documents, including the Contract Drawings, County's Disadvantaged Business Enterprise policy.
eived in the Department of Aviation, 2nd Floor, McCarran International Airport, Office of ng, 5757 Wayne Newton Boulevard, Las Vegas, Nevada 89119 on February 23, 2006. Bids must be .m. or before. Bids time-stamped at 1:31 p.m. or after will be subject to rejection in their entirety.
stimate for this work is between $2,500,000.00 and $3,000,000.00
size sets of plans are available at the Office of Mercury LDO, located at 3325 Pepper Lane, Las veen 8:00 a.m. and 5:00 p.m., Monday through Friday, the Telephone Number is (702) 436-7272.
ents with full-size plans may be obtained for a non-refundable cost of $225.00 . Overnight shipping ndable $40.00.
ents with half-size plans may be obtained for a non-refundable cost of $175.00. Overnight shipping ndable $25.00.
accompany orders for sets of Bid Documents. Checks shall be made payable to Clark County

ntract is under and subject to Executive Order 11246, as amended, of September 24, 1965, and to Opportunity (EEO) and Federal Labor Provisions.
he Clark County Department of Aviation (OWNER) to promote the objectives of the United States ortation (DOT) with respect to the participation of Disadvantaged Business Enterprises (DBEs) in s. This policy has been formulated to comply with 49 CFR Part 26. OWNER has established a goal amount for the utilization of firms owned and controlled by socially and economically disadvantaged contract is conditioned on meeting the requirements for good faith efforts as defined in CFR 49 mains in effect throughout the term of the Contract.
oject shall be paid no less than the minimum wage rates established by the U.S. Secretary of Labor a.
supply all the information required by the bid documents and specifications.
ents, labor provisions and wage rates are included in the specifications and bid documents and are on at the Department of Aviation, 2nd Floor, McCarran International Airport, Office of ng, 5757 Wayne Newton Boulevard, Las Vegas, Nevada.
complete, sign and furnish prior to award of the Contract, the "Bidder's Statement on Previous EO Clause", a "Certification of Non-segregated Facilities", and the "Assurance of Disadvantaged rticipation" as contained in the Bid Proposal.
or more employees and its Subcontractors having 50 or more employees and who may be awarded 00 or more will be required to maintain an affirmative action program, the standards for which are cations.
ward, each Bidder must comply with the affirmative action requirements, which are contained in the

orded equal opportunity in all areas of employment. However, the employment of women shall not or requirements for the employment of minorities.
ply with the Preferential Employment Requirements of NRS 338.130 shall render the Contract void ontractor to criminal penalties.
lance with Title VI of the Civil Rights Act of 1964, hereby notifies all Bidders that they (Bidders) must at if any Contract entered into pursuant to this advertisement, Disadvantaged Business Enterprises portunity to submit Bids in response to this invitation and will not be discriminated against on the religion, or national origin in consideration for award.
e required to comply with the affirmative action plan for equal employment opportunity prescribed by ules Department of Labor, Regulations of the Secretary of Labor (41 CFR 60), or by other designated rformance of the Contract and other non-federally involved Contracts in the area geographically

Subcontractors may satisfy requirements of the EEO Contract clause by stating in all solicitations or loyees that:
ny qualified applicants will receive consideration for employment without regard to race, color, religion, sex, or national origin."
le advertisement in which appears in clearly distinguished type, the Phrase:

NOTICE OF HEARING ON A PROPOSED PROJECT AND ASSESSMENTS WITHIN THE PROPOSED CITY OF NORTH LAS VEGAS, NEVADA SPECIAL ASSESSMENT DISTRICT NO. 61 (ANN ROAD AND ANCILLARY STREETS)

NOTICE IS HEREBY GIVEN to the property owners within the proposed City of North Las Vegas, Nevada, Special Assessment District No. 61 (Ann Road and Ancillary Streets) (the "District") as so revised as set forth herein and to all interested persons that:

The City Council of the City of North Las Vegas, in the State of Nevada has provisionally ordered the acquisition, construction and improvement of street projects as defined in NRS 271.225 (the "Project"), more particularly described as:

Unit 1 (Ann Road from Decatur Boulevard to Camino Al Norte)
An approximately 100 foot wide street project generally located on Ann Road between Decatur Boulevard and Camino al Norte, in the City of North Las Vegas.
Unit 2 (Decatur Boulevard from Lone Mountain Road to La Madre Way)
An approximately 50 foot wide half-street project generally located on the east side of Decatur Boulevard, between Lone Mountain Road and La Madre Way, in the City of North Las Vegas.
Unit 3 (Decatur Boulevard from Hammer Lane to Ann Road)
An approximately 50 foot wide half-street project generally located on the east side of Decatur Boulevard, between Hammer Lane and Ann Road, in the City of North Las Vegas.
Unit 4 (Simmons Street from Hammer Lane to El Campo Grande Avenue)
An approximately 50 foot wide half-street project generally located on the east side of Simmons Street, between Hammer Lane and El Campo Grande Avenue, in the City of North Las Vegas.
Unit 5 (Coleman Street from Ann Road to El Campo Grande Avenue)
An approximately 30 foot wide half-street project generally located on the east side of Coleman Street, between Ann Road and El Campo Grande Avenue in the City of North Las Vegas.
Unit 6 (Clayton Street from Ann Road to Hawaiian Breeze Avenue)
An approximately 50 foot wide half-street project generally located on the west side of Clayton Street, between Ann Road and El Campo Grande Avenue, in the City of North Las Vegas.
The Project includes grades, regrades, surfacing, paving, crosswalks, sidewalks, driveway approaches, curb cuts, curbs, gutters, streetlights, utilities, drains, sewers, manholes, parkways, grade separators, traffic separators and traffic control equipment and all appurtenances and incidentals useful or desirable for the Project, including real and other property therefor. The Project is described in more detail on the Preliminary Plans and Specifications described herein. Except as shown in the preliminary plans, the character of the Street Project shall be as set forth above. A change in existing elevation or grades may result from the Project.

The Project described above is to be constructed and acquired by the City at an estimated cost of $16,826,431.24, of which $5,392,822.36 is estimated to be paid by the levy of assessments, and each unit is to be constructed and acquired by the City at an estimated cost as follows:

Unit 1 (Ann Road from Decatur Boulevard to Camino Al Norte) This Unit has an estimated total cost of $15,976,454.44 of which $4,542,845.56 of such costs is estimated to be paid by the levy of special assessments against property in the Unit as further described below. The remaining estimated costs of $11,433,608.88 will be paid by the City of North Las Vegas and the Regional Transportation Commission of Southern Nevada.

Unit 2 (Decatur Boulevard from Lone Mountain Road to La Madre Way) This Unit has an estimated total cost of $398,707.13, all of which is estimated to be paid by the levy of special assessments against property in the Unit as further described below.

Unit 3 (Decatur Boulevard from Hammer Lane to Ann Road) It is estimated that $28,028.10 of such costs will be paid by the levy of special assessments against property in the Unit as further described below.

Unit 4 (Simmons Street from Hammer Lane to El Campo Grande Avenue) It is estimated that $154,872.82 of such costs will be paid by the levy of special assessments against property in the Unit as further described below.

Unit 5 (Coleman Street from Ann Road to El Campo Grande Avenue) It is estimated that $73,341.02 of such costs will be paid by the levy of special assessments against property in the Unit as further described below.

Unit 6 (Clayton Street from Ann Road to Hawaiian Breeze Avenue) It is estimated that $195,027.73 of such costs will be paid by the levy of special assessments against property in the Unit as further described below.

The amount to be assessed for the Project will be levied upon all tracts in each Unit in the District, i.e., upon each piece, lot, tract or parcel in the District, in proportion to the special benefits derived on a front footage basis, provided that an equitable adjustment will be made for assessments levied against any tract or parcel of land not specially benefited so that the assessments according to the benefits are equal and uniform. The portion of the costs to be assessed against, and the maximum amount of benefits estimated to be conferred upon, each piece or parcel of property in the District is stated in the assessment plat.

The boundaries of each unit in the District consist of the Project to be constructed as described above and each of the following parcels, identified by Assessor's Parcel Number for each unit:

Unit 1 (Ann Road from Decatur Boulevard to Camino Al Norte); Assessor Parcel Numbers: 124-31-101-009, 124-31-101-013, 124-30-401-015, 124-30-401-016, 124-30-401-017, 124-30-401-018,124-30-802-021,124-29-401-007,124-32-501-019,124-29-802-011,124-29-802-013,124-33-501-006,12433-101-005, 124-32-501-021
Unit 2 (Decatur Boulevard from Lone Mountain Road to La Madre Way); Assessor Parcel Number: 124-31-401-003
Unit 3 (Decatur Boulevard from Hammer Lane to Ann Road); Assessor Parcel Number: 124-31-101-008
Unit 4 (Simmons Street from Hammer Lane to El Campo Grande Avenue); Assessor Parcel Number: 124-29-801-001
Unit 5 (Coleman Street from Ann Road to El Campo Grande Avenue); Assessor Parcel Number: 124-29-802-004
Unit 6 (Clayton Street from Ann Road to Hawaiian Breeze Avenue); Assessor Parcel Number: 124-29-802-006

Properties identified by parcel numbers in the description of the boundaries of each unit in the District refer to the properties listed with those parcel numbers in the records and maps of the Clark County Assessor and filed for record in the office of the County Recorder of Clark County. Such parcels are also shown on the maps and preliminary plans for the District filed with the City Council of the City of North Las Vegas, Nevada and available for inspection at the office of the City Clerk and the office of the Department of Public Works - Engineering Division (the "Engineer").

All persons interested are hereby advised that the preliminary plans and specifications (showing a typical section of the contemplated improvements) and the assessment plat including the preliminary assessment roll (i.e., tabulation of parcels); a preliminary estimate of the total cost of the Project; a description of the property and tracts to be assessed and the portion of the cost to be assessed against such parcels of property, and the amount of maximum benefits estimated to be conferred on each piece or parcel of property, the Engineer's report as to the method of determining benefits, and all proceedings in the premises, are on file in the office of the Engineer, 2266 Civic Center Drive, North Las Vegas, Nevada, and at the office of the City Clerk, 2200 Civic Center Drive, North Las Vegas, Nevada, and can be seen and examined by any property owner, or other interested persons, during regular business hours.

All persons interested are hereby referred to the preliminary plans and specifications which relate to the details of the Project.

Pursuant to NRS 271.357, the City Council has established a procedure to postpone assessments for a natural person whose principal residence will be included within the boundaries of the District, who meet the eligibility criteria of Clark County Social Services and who believe that the payment of the assessments will create a financial hardship. Persons who are interested in the eligibility criteria and completing an application for a hardship determination should contact Clark County Social Services, 1600 Pinto Lane, Las Vegas, Nevada 89106 (the "Department") to obtain an application. The City Council requests that any property owner or interested person wishing to complete an application for a hardship determination, complete such application in writing at the Department=s office on or before February 17, 2006. The City Council will consider all completed applications for hardship determination at the public hearing on March 1, 2006 at 6:15 p.m. at the City Council Chambers in the City Hall, 2200 Civic Center Drive, North Las Vegas, Nevada.

On March 1, 2006 at 6:15 p.m., at the City Council Chambers in the City Hall, 2200 Civic Center Drive, North Las Vegas, Nevada, the City Council of the City of North Las Vegas will consider the ordering of the proposed Project and will hear all complaints, protests and objections that may be made in writing and filed as hereafter provided, or made verbally at the hearing, concerning the same, by the owner of any tract or parcel to be assessed or any person interested. The owners of the property to be assessed or any other person interested therein may appear before the Council and be heard as to the propriety and advisability of acquiring and improving such Project, as to the estimated cost thereof, as to the manner of payment therefore, and as to the amount thereof to be assessed against each tract in the District. Any property owner or interested person wishing to make protest or objection should make such protest or objection in writing at the office of the City Clerk at least three (3) days before the time set for such hearing. All written objections to the Project must be filed with the Clerk of the City at least 3 days before the hearing. On the date and at the place fixed for such hearing, any and all property owners interested in the Project may, by written complaint, protest or objection, present their views to the Council, or present them orally, and the Council may adjourn the hearing from time to time. Any person filing a written protest or objection as hereinabove provided shall have the right within thirty (30) days after the Council has finally passed on such protest or objection to commence an action or suit in any court of competent jurisdiction to correct or set aside such