Important Notice:

Not Yet Approved by FEMA

Subject to Change per FEMA Review

CHANDLER / GILBERT FLOODPLAIN DELINEATION STUDY

PHASE 1

Eastern Canal Watershed

CONTRACT FCD 2002C023

TECHNICAL DATA NOTEBOOK

Volume 3

(Sections 4S & 4N,
Appendix D)

September 2005
Revised December 2007

Prepared for:

Federal Emergency Management Agency
Risk Studies Division
Federal Insurance Administration
500 C Street, SW Room 422
Washington, DC 20472

Submitted by:

David Evans and Associates, Inc.
2141 E. Highland Avenue, Suite 200
Phoenix, Arizona 85016
(602) 678-5151

In association with:
Project Engineering Consultants, Ltd
2310 W. Mission Lane, #4
Phoenix, Arizona 85021
(602) 906-1901

on behalf of:
Flood Control District of Maricopa County
2801 West Durango Street
Phoenix, Arizona 85009
(602) 506-1501

CHANDLER / GILBERT
FLOODPLAIN DELINEATION STUDY

PHASE 1

Eastern Canal Watershed

CONTRACT FCD 2002C023

TECHNICAL DATA NOTEBOOK

Volume 3

(Sections 4S & 4N,
Appendix D)

September 2005
Revised December 2007

Prepared for:

Federal Emergency Management Agency
Risk Studies Division
Federal Insurance Administration
500 C Street, SW Room 422
Washington, DC 20472

Submitted by:

David Evans and Associates, Inc.
2141 E. Highland Avenue, Suite 200
Phoenix, Arizona 85016
(602) 678-5151

In association with:
Project Engineering Consultants, Ltd
2310 W. Mission Lane, #4
Phoenix, Arizona 85021
(602) 906-1901

on behalf of:
Flood Control District of Maricopa County
2801 West Durango Street
Phoenix, Arizona 85009
(602) 506-1501

Registered Professional Engineer (Civil)
CERTIFICATE NO.
23969
FRANK EDWARD
BROWN
Date Signed 12 Dec 2007
ARIZONA, U.S.A.

Registered Professional Engineer (Civil)
CERTIFICATE NO.
25972
MICHAEL D.
HEATON
Date Signed 12.13.07
ARIZONA, U.S.A.

TABLE OF CONTENTS

TECHNICAL DATA NOTEBOOK

Volume 1 of 5

SECTION 1: INTRODUCTION 1-1

1.1 PURPOSE OF STUDY 1-1
1.2 AUTHORITY FOR STUDY 1-1
1.3 LOCATION OF STUDY REACH 1-1
1.4 METHODOLOGY 1-4
1.4.1 Hydrology 1-4
1.4.2 Hydraulics 1-4
1.5 STUDY RESULTS 1-4
1.5.1 Final Hydrologic Results 1-4
1.5.2 Verification of Results 1-5

SECTION 2: ADWR/FEMA FORMS AND LOCAL GOVERNMENT/ADWR ABSTRACTS 2-1

2.1 STUDY DOCUMENTATION ABSTRACT FOR FEMA SUBMITTALS 2-1
2.2 FEMA FORMS 2-1

Volume 2 of 5

SECTION 3: SURVEY AND MAPPING INFORMATION 3-1

3.1 FIELD SURVEY INFORMATION 3-1

Volume 3 of 5

SECTION 4S: PHASE 1 – SOUTH, HYDROLOGIC ANALYSIS 4S-1

4S.1 METHOD DESCRIPTION 4S-1
4S.2 PARAMETER ESTIMATION 4S-1
4S.2.1 Drainage Area Boundaries 4S-1
4S.2.2 Watershed Workmaps 4S-1
4S.2.3 Gage Data 4S-2
4S.2.4 Statistical Parameters 4S-2
4S.2.5 Precipitation 4S-2
4S.2.6 Physical Parameters 4S-3
4S.3 HYDROGRAPH ROUTING 4S-3
4S.3.1 Normal Depth Routing 4S-3
4S.3.2 Storage Routing 4S-3
4S.4 DIVERSION HYDROGRAPHS 4S-4
4S.4.1 Intersection Diversions 4S-4
4S.4.2 Retention Diversions 4S-4
4S.4.3 Ponding Diversions 4S-4
4S.4.4 DSS File Diversions 4S-4
4S.5 SPECIAL PROBLEMS 4S-5
4S.5.1 Santan Freeway 4S-5
4S.5.2 Tailwater Ditch 4S-5
4S.5.3 100-yr, 6-hr vs. 100-yr, 24-hr Results 4S-6
4S.6 HYDROLOGIC RESULTS 4S-6

TABLE OF CONTENTS CONT..

SECTION 4N: PHASE 1 – NORTH, HYDROLOGIC ANALYSIS 4N-1

4N.1 METHOD DESCRIPTION 4N-1
4N.2 PARAMETER ESTIMATION 4N-1
4N.2.1 Drainage Area Boundaries 4N-1
4N.2.2 Watershed Workmaps 4N-1
4N.2.3 Gage Data 4N-2
4N.2.4 Statistical Parameters 4N-2
4N.2.5 Precipitation 4N-2
4N.2.6 Physical Parameters 4N-2
4N.3 HYDROGRAPH ROUTING 4N-3
4N.3.1 Normal Depth Routing 4N-3
4N.3.2 Storage Routing 4N-3
4N.4 DIVERSION HYDROGRAPHS 4N-3
4N.4.1 Intersection Diversions 4N-3
4N.4.2 Retention Diversions 4N-4
4N.4.3 Ponding Diversions 4N-4
4N.4.4 DSS File Diversions 4N-4
4N.5 SPECIAL PROBLEMS 4N-4
4N.5.1 Culvert/Ditch/Weir analysis 4N-4
4N.5.2 Non-contributing area south of Guadalupe 4N-4
4N.5.3 Water loss to the basin east of the water treatment plant 4N-5
4N.5.4 Iterative modeling for P105 and P108 using CulvertMaster and HEC-1 ..... 4N-5
4N.5.5 Iterative modeling for the conveyances analysis 4N-5
4N.5.6 Flow path determination for Sub-basin 118. ..... 4N-5
4N.6 HYDROLOGIC RESULTS 4N-5

Volume 4 of 5

SECTION 5S: PHASE 1 – SOUTH, HYDRAULIC ANALYSIS 5S-1

5S.1 METHOD DESCRIPTION 5S-1
5S.2 WORK STUDY MAPS 5S-1
5S.3 PARAMETER ESTIMATION 5S-7
5S.3.1 Roughness Coefficients 5S-7
5S.3.2 Cross-section descriptions 5S-7
5S.4 MODELING CONSIDERATIONS 5S-7
5S.4.1 Hydraulic Jump and drop analysis 5S-7
5S.4.2 Bridge or Culverts 5S-7
5S.4.3 Levees and Dikes 5S-7
5S.4.4 Islands and Flow Splits 5S-7
5S.4.5 Ineffective Flow Areas 5S-8
5S.4.6 Supercritical Flow 5S-8
5S.4.7 Floodway modeling 5S-8
5S.4.8 Special problems encountered during the study 5S-8
5S.4.8.1 100-yr,6-hr vs. 100-yr,24-hr Results 5S-8
5S.4.8.2 Eastern Canal Tailwater Ditch 5S-8
5S.4.9 Calibration 5S-9
5S.5 HYDRAULIC ANALYSIS RESULTS 5S-9
5S.6 REFERENCES 5S-9

Registered Professional Engineer (Civil) CERTIFICATE NO. 23969 FRANK EDWARD BROWN Date Signed 12 Dec 2007 ARIZONA, U.S.A.

Registered Professional Engineer (Civil) CERTIFICATE NO. 25972 MICHAEL D. HEATON Date Signed 12-12-07 ARIZONA, U.S.A.

TABLE OF CONTENTS CONT..

SECTION 5N: PHASE 1 – NORTH, HYDRAULIC ANALYSIS 5N-1

5N.1 METHOD DESCRIPTION 5N-1
5N.2 WORK STUDY MAPS 5N-1
5N.3 PARAMETER ESTIMATION 5N-7
5N.3.1 Roughness Coefficients 5N-7
5N.3.2 Cross-section descriptions 5N-7
5N.4 MODELING CONSIDERATIONS 5N-7
5N.4.1 Hydraulic Jump and drop analysis 5N-7
5N.4.2 Bridge or Culverts 5N-7
5N.4.3 Levees and Dikes 5N-7
5N.4.4 Islands and Flow Splits 5N-7
5N.4.5 Ineffective Flow Areas 5N-8
5N.4.6 Supercritical Flow 5N-8
5N.4.7 Floodway modeling 5N-8
5N.4.8 Special problems encountered during the study 5N-8
5N.4.9 Calibration 5N-9
5N.5 HYDRAULIC ANALYSIS RESULTS 5N-9
5N.6 REFERENCES 5N-9

Volume5 of 5

SECTION 6: EROSION AND SEDIMENT TRANSPORT 6-1

SECTION 7: DRAFT FIS REPORT DATA 7-1

7.1 SUMMARY OF DISCHARGES 7-1
7.2 FLOODWAY DATA 7-2
7.3 ANNOTATED FLOOD INSURANCE RATE MAPS 7-3
7.4 FLOOD PROFILES 7-4

LIST OF APPENDICES

APPENDIX A: REFERENCES ..... Vol 1
APPENDIX B: GENERAL DOCUMENTATION AND CORRESPONDENCE ..... Vol 1
APPENDIX C: SURVEY FIELD NOTES ..... Vol 2
APPENDIX D: HYDROLOGIC ANALYSES SUPPORTING DOCUMENTATION ..... Vol 3
APPENDIX E: HYDRAULIC ANALYSIS SUPPORTING DOCUMENTATION ..... Vol 4
APPENDIX F: TDN DATA CD ..... Vol 5

LIST OF FIGURES

Figure 1.3.1 Location Map 1-2
Figure 1.3.2 Vicinity Map 1-3
Figure 1.5.2 Verification of Results 1-5

Registered Professional Engineer (Civil) CERTIFICATE NO. 23969 FRANK EDWARD BROWN Date Signed 12 Dec 2007 ARIZONA, U.S.A.

Registered Professional Engineer (Civil) CERTIFICATE NO. 25972 MICHAEL D. HEATON Date Signed 12-12-07 ARIZONA, U.S.A.

TABLE OF CONTENTS CONT..

LIST OF TABLES

TABLE 4S2.5 DEPTH-AREA REDUCTION FACTORS 4S-2
TABLE 4S.6 SUMMARY OF DISCHARGE RATES 4S-6
TABLE 4N.2.5 DEPTH-AREA REDUCTION FACTORS 4N-2
TABLE 4N.6 SUMMARY OF DISCHARGE RATES 4N-6
TABLE 7.1 FLOODPLAIN DISCHARGE RATES 7-1

EXHIBITS

(Volume 5)

EXHIBIT A DRAINAGE AREA BOUNDARY MAP
EXHIBIT B DRAINAGE FLOW PATH MAP
EXHIBIT C SOILS MAP
EXHIBIT D LAND USE MAP
EXHIBIT E HEC-1 SCHEMATIC
EXHIBIT F FLOOPLAIN DELINEATION WORK MAP ANNOTATED WORKMAPS

Preface

This floodplain delineation study was conducted for the Flood Control District of Maricopa County (FCDMC) by David Evans and Associates, Inc. (DEA). The study area is divided into three (3) Phases. Phase 1 consists of the area between the East Maricopa Floodway and Eastern Canal, which results in floodplain delineation along the Eastern Canal. Phase 2 consists of the area between the Eastern Canal and the Consolidated Canal, which results in floodplain delineation along the Consolidated Canal. Phase 3 consists of the area between the Consolidated Canal and Union Pacific Railroad, which results in floodplain delineation along the Union Pacific Railroad and along Arizona Avenue (SR 87). Each Phase is further subdivided into north and south regions. This report addresses Phase 1 – South and North, Eastern Canal Watershed.

David Evans and Associates prepared the hydrologic and hydraulic analyses for Phase 1- South, and Project Engineering Consultants prepared the hydrologic and hydraulic analyses for Phase 1-North.

Registered Professional Engineer (Civil) CERTIFICATE NO. 23969 FRANK EDWARD BROWN Date Signed 12 Dec 2007 ARIZONA, U.S.A.

Registered Professional Engineer (Civil) CERTIFICATE NO. 25972 MICHAEL D. HEATON Date Signed 12-13-07 ARIZONA, U.S.A.

Section 4S: PHASE 1 – SOUTH, HYDROLOGIC ANALYSIS

4S.1 Method Description

David Evans and Associates prepared the hydrologic analysis for Phase 1- South. The U.S. Army Corp of Engineers computer program HEC-1, Version 4.1, is used to determine the peak flows at structures, major road crossings, confluences and control features along the canals and railroads within the study area. Phase 1 is divided into two (2) sections, Phase 1- North and South, Eastern Canal watershed, with the boundary between the two being the Union Pacific Railroad. Separate HEC-1 models were prepared for each section. This section addresses Phase 1 – South. Refer to Section 4N, in Volume 3, for information on Phase 1 – North.

The preparation of the input data necessary for the analysis included sub-basin delineation, determination of drainage path lengths, precipitation calculations, soil texture classification for the calculation of rainfall losses, and overland and channel flow lengths and slopes to generate the hydrographs. The District DDMSW software is used to develop sub-basin and routing parameters. The sub-basin delineation is based on 10-foot contour mapping provided by the district. Rainfall depths for the 100-year, 6-hour and 24-hour storms are determined from NOAA Atlas 2. The Clark Unit Hydrograph Method is utilized to develop the unit hydrographs. Soil classifications were utilized to determine rainfall losses using the Green and Ampt Loss procedures. Normal-Depth routing was applied for routing of flow and storage routing is applied for areas of ponding.

4S.2 Parameter Estimation

4S.2.1 Drainage Area Boundaries

The southern watershed encompasses approximately 22.7 square miles bounded by the East Maricopa Floodway to the east, the Eastern Canal/RWCD Extension Canal to the west, the Union Pacific Railroad to the north and Hunt Highway to the south. The watershed consists of urban and agricultural areas with no natural washes in the study area.

Sub-basin boundaries are drawn along mile streets where possible. This is done to facilitate locating concentration points at mile-street intersections per the project scope. This holds true even when there is a lower point near the mile-street intersection.

4S.2.2 Watershed Workmaps

Several workmap exhibits, located in Volume 5, were created to depict various watershed properties. Exhibits A through E were created for each section of the watershed. Exhibit A is a 1 in.= 1000 ft. scale map that depicts the sub-basins boundaries; Exhibit B is a 1 in. = 1000 ft. scale map that depicts the drainage flow paths; Exhibit C is a 1 in. = 2000 ft. scale map that depicts the soil types; and Exhibit D is a 1 in. = 2000 ft. scale map that depicts the land uses in the watershed. Exhibit E is a 1 in. = 2000 ft. scale map that depicts the HEC-1 schematic.

4S.2.3 Gage Data

Three gages operated by the FCDMC exist within or adjacent to the Chandler/Gilbert watershed; EMF @ Queen Creek Rd, Crossroads Park, and Freestone Basin. The EMF @ Queen Creek gage, installed in 1989, is a precipitation/water level gage. The Crossroads Park and Freestone Basin gages, both installed in 1995, are water level gages. Data from these gages were not used in developing the statistical parameters, historic precipitation or watershed runoff because of the short time period the gages have been operational.

4S.2.4 Statistical Parameters

No precipitation data for the Chandler/Gilbert watershed area was available; therefore, Bulletin 17B was not utilized for estimating peak discharge rates for this study, e.g. log-Pearson Type III analyses.

4S.2.5 Precipitation

The rainfall depths for the 100-year, 6-hour storm of 2.92, 2.82 and 2.83 inches for the regions described below were determined from Figure A.7, Drainage Design Manual for Maricopa County, Volume I, Hydrology. Similarly, the rainfall depths for the 100-year, 24-hour storm of 3.4, 3.27 and 3.32 inches were determined from Figure A.13, Drainage Design Manual for Maricopa County, Volume I, Hydrology. Copies of the 100-yr, 6-hour and 24-hour isopluvials are included in Appendix DS.1.

The PREFRE program incorporated into DDMSW is used to calculate the D-D-F statistics. The rainfall data printout is located in Appendix DS.1.

The Rainfall Pattern Number 3.2 was determined for the 6-hour storm from Figure 2.5 in the Drainage Design Manual for Maricopa County, Volume I, Hydrology. A copy is included in Appendix DS.1 for reference. The 24-hour storm used a 24-hour SCS Type II rainfall pattern.

Depth-area reduction factors, using the Basin Average Precipitation (PB) record, were used in the HEC-1 models to define the rainfall duration and the temporal distribution of the 6- and 24-hour storms. Each section was divided into regions based on connectivity of runoff. Phase 1 – South was divided into three (3) regions; north of Santan Freeway, Santan Freeway to Queen Creek Road, and Queen Creek Road to Hunt Highway. Table 4S.2.5 lists the drainage areas and associated depth-area reduction factors calculated by the DDMSW program for the 100-year, 6- and 24-hour storms.

Table 4S.2.5 Depth-area Reduction Factors

PHASE 1 – SOUTH			
Region	**Area (mi^2)**	**PB_6**	**PB_{24}**
North of Santan Freeway	3.15	2.917	3.400
Santan Freeway to Queen Creek Road	10.50	2.816	3.270
Queen Creek Road to Hunt Highway	8.99	2.832	3.320

4S.2.6 Physical Parameters

The Clark Method is used to generate the unit hydrographs. The percentages of ultimate discharge versus time in percentage of lag are encoded in DDMSW. The watercourse length and slope of each sub-basin are incorporated into the hydrograph generation. These values are listed in several tables (DDMSW prints) located in Appendix DS.2.1. Kb values are interpolated within the DDMSW computer program based on watershed classification and size.

The rainfall losses, using soil and land use data, are calculated based on the Green and Ampt Loss procedure and within the DDMSW program. The surface retention loss values (IA) used in the hydrologic analyses were also determined using DDMSW based on land use data. DDMSW data tables are located in Appendix DS.2.2 and DS.2.3.

4S.3 Hydrograph Routing

4S.3.1 Normal Depth Routing

Normal depth routing is used to route flow along street and through agricultural fields. Eight point cross-sections are derived from typical street sections and DTM surface data. N-steps are calculated using an average velocity of 3 ft/sec for all routing reaches, as per agreement with FCDMC. Routing data sheets are located in Appendix DS.3.

4S.3.2 Storage Routing

Reservoir routing is utilized in HEC-1 for this study. A storage-discharge relationship was developed for each sub-basin and the data was input directly into the SV, SE, and SQ records for each storage routing along the Eastern Canal.

Most of the storage volumes input into the HEC-1 models are calculated using Autodesk Land Development Desktop. An existing surface is created for the study area based on contour and breakline data. Then, a surface area is created for the top of the ponding area for each sub-basin. After these two surfaces are created, volumes for the ponding area were then calculated using a composite of the pond surface and the existing ground surface. Additional pond surfaces were created for a range of elevations in order to determine total volumes for each storage pond. Using the composite volume method creates a new surface, which is re-triangulated based on points from both the existing surface and for the surface created at each elevation for the pond. The resulting volume is determined using points from both surfaces, as well as any location where the triangle edges between the two surfaces cross. The new composite volume is created based on the difference between the elevations of the two surfaces, thus providing the most accurate and exact volumes between the two surface definitions possible.

Data tables for each ponding area are located in Appendix DS.4. There are five new subdivisions located near the Eastern Canal, which were constructed after the initial mapping and after submittal of the draft TDN in September 2005. If insufficient data was provided in the subdivision drainage report to determine the storage volume, per the above methodology, then the volume reported in the subdivision Final Drainage Report is utilized.

4S.4 Diversion Hydrographs

4S.4.1 Intersection Diversions

Sub-basin boundaries generally follow major and minor arterial streets. Flow concentrating at street intersection could split in up to three directions. Slope/area methods using the Manning's equation are used to calculate street capacity in each split direction to determine the percentage of flow diverted in each direction.

The street cross-section geometry is based on Town of Gilbert and City of Chandler Standard details for major and minor arterial roads. A table showing the summary of the intersection diversion results is located in Appendix DS.5.2. Street capacity calculation sheets and Standard Details are also located in Appendix DS.5.2.

4S.4.2 Retention Diversion

Much of the watershed consists of residential development. The storm water storage facilities within these residential developments are taken into consideration in the hydrologic modeling. Storage volume provided by the storage facilities was determined from Drainage Reports, and As-Built plans with visual observations in the field.

The total storage volume available within residential retention facilities in a given sub-basin is diverted from the sub-basin hydrographs, with the exception of retention basins located adjacent to the Eastern Canal. Any storage areas along the canal that are designed to retain floodplain waters and /or fall within the existing FEMA floodplain limits are not included in the retention diversion calculations. These areas are accounted for in the storage routing computations.

Appendix A-1 contains a list of References including drainage reports and as-built plans. Appendix DS.5.1 includes a summary table listing a breakdown of retention volume available within each sub-basin.

4S.4.3 Ponding Diversions

Rating tables are developed to determine how much flow is weir flow over roadways, canals or other structures, from ponded areas. Flow splits were modeled using diversion records located after the storage routing records in the HEC-1 model. Data tables for each ponding area are located in Appendix DS.4.

4S.4.4 DSS File Diversions

A common DSS file (file name CGFDS.dss) for the entire Chandler/Gilbert FDS was created to model hydrographs affecting separate HEC-1 models. Flow leaving Cross Roads Park, as part of the Phase 1, North HEC-1 model, enters the Phase 1, South watershed through a tailwater ditch parallel to the Eastern Canal, just south of the Union Pacific Railroad. See *Special Problems Section 4S.5.2* for additional information about the tailwater ditch.

Additionally, flow that overtops the Eastern Canal to the west is written to the DSS file for use in Phase 2 modeling. Flow overtopping the canal is taken from the HEC-1 output, maximum average flow, and is listed on the Exhibit F.

4S.5 Special Problems

4S.5.1 Santan Freeway

The Santan Freeway alignment transects the watershed north-south approximately along the Greenfield Road alignment, curving around east-west approximately along the Willis Road alignment (1/2 mile street between Pecos Road and Germann Road). This model incorporates the proposed Santan Freeway drainage structures outlined in *Santan Freeway Williams Field Road to Higley Road Initial Drainage Report (Stage II Design)* (see Appendix A-1, Drainage Reports and Horizontal Alignment Data for the Proposed Santan Freeway, Reference #3).

According to the Initial Drainage Report, Santan Freeway acts as a barrier to flow from the east and north. Runoff generated from the Union Pacific Railroad to Germann Road, and the East Maricopa Floodway to the east is intercepted by a channel paralleling east / south side of the Santan Freeway and convey southwest to proposed Basins P and O. The drainage facilities have been designed to accept off-site floodplain flows. A channel and storm drain that will convey flow south to Basin O will intercept floodplain waters collecting on the north side of the Santan at the Eastern Canal. Appendix DS.8 includes pertinent excerpts from the drainage report and the preliminary plan and profile sheet for the drainage structures from the Eastern Canal to the East Maricopa Floodway.

4S.5.2 Tailwater Ditch

A tailwater ditch parallels the east side of the Eastern Canal from the Union Pacific Railroad to Williams Field Road (Chandler Boulevard). A flow of 123 cfs (100-yr, 6-hr) from Cross Roads Park is conveyed under the Union Pacific Railroad into the tailwater ditch. The lateral weir option in HEC-RAS V.3.1.2 is used to develop rating tables for the ditch and determine how much flow, if any, is weir flow out of the ditch and the location of any weir flow.

Flow is contained within the tailwater ditch from Union Pacific Railroad to Williams Field Road. The ditch has the capacity for the total flow from the railroad to Ray Road. Block walls along the east side of the tailwater ditch from Ray Road to Williams Field Road prevent flows in the adjacent sub-basin and the tailwater ditch from combining. See supporting documentation in Appendix DS.6 Rating Tables, Lateral Weir Structures 8.164 through 8.850. The total flow leaving these weirs is modeled using a diversion record, KK To200, in the HEC-1 models. The rating tables correspond to the DI/DQ records.

Flow is conveyed under Williams Field Road through a culvert where it continues along the east side of the Eastern Canal to Pecos Rd.

The flow leaving P208N, about 347 cubic feet per second (cfs), flows into P208S. A rating table was developed to determine the capacity of the ditch from Chandler Blvd.to Pecos Road. The results show that the 123 cfs is contained within the ditch and flows flow to Pecos Road. At Pecos Road, the ditch is piped underground in a box culvert and returns to the Eastern Canal south of Pecos Road. See supporting documentation in Appendix D.6, Rating Tables, Lateral Weir Structure 6.600. The total flow leaving the weir is modeled using a diversion record, KK 208NTD, in the HEC-1 models. The rating tables correspond to the DI/DQ records.

See *Special Problems Section 5S.5*, Volume 4, for more additional information on the tailwater ditch.

4S.5.3 100-yr, 6-hr vs. 100-yr, 24-hr Results

Normally, the 100-yr, 6-hr and 24-hr modeling results are compared and the model that produces the higher results is considered the base model for other dependent modeling, i.e. floodplain modeling. The Phase 1 – South watershed produced mixed results in regard to dominant resulting discharge and high water surface elevations. Generally, sub-basins north and west (PB Region 1) of the Santan Freeway alignment produced higher results for the 100-yr, 6-hr model compared to the 24-hr model and the sub-basins south of the Santan Freeway Alignment (PB Regions 2 and 3) resulted in higher 24-hr results. Therefore, the 100-yr, 6-hr model is the base model for the floodplain mapping for PB Region 1 and the 100-yr, 24-hr model is the base model for PB Regions 2 and 3 of the Phase 1 – South watershed. See Section 5S in Volume 4 for more information about the floodplain modeling.

4S.6 Hydrologic Results

Table 4S.6 below gives the summary of discharges at the various concentration points. Appendix DS.7.1 and 7.2 contain the HEC-1, 100-yr, 6-hr and 24-hr models.

Table 4S.6 Summary of Discharge Rates

COMBINED					
HEC-1 ID	$Q_{100\text{-yr, 6-hr}}$	$Q_{100\text{-yr, 24-hr}}$	HEC1-ID	$Q_{100\text{-yr, 6-hr}}$	$Q_{100\text{-yr, 24-hr}}$
C200	61	50	CP221	87	98
C202	609	510	CP222	313	358
C203	632	503	CP223	330	385
C208S	354	198	CP224	238	236
			CP227	308	364
CP200	123	123	CP229	126	140
CP202	123	123	CP230	96	111
CP203	123	123	CP231	409	478
CP205	337	327	CP232	577	626
CP207	326	135	CP233	545	582
CP208	123	123	CP234	95	103
CP210	659	687	CP235	518	555
CP211	674	707	CP237	395	455
CP215	44	42	CP238	496	551
CP217	352	449	CPADOT	1578	1545
CP218	398	468	CPCANL	1578	1545
CP219	206	231			

Table 4S.6 Continued..

*SUB-BASIN HYDROGRAPHS**					
HEC-1 ID	$Q_{100\text{-yr, 6-hr}}$	$Q_{100\text{-yr, 24-hr}}$	HEC1-ID	$Q_{100\text{-yr, 6-hr}}$	$Q_{100\text{-yr, 24-hr}}$
200	61	50	220	226	260
201	271	232	221	139	164
202	500	419	222	187	207
203	76	67	223	94	135
204	238	236	224	180	191
205	337	327	225	147	177
206	302	292	226	96	130
207	365	311	227	87	116
208	78	73	228	181	195
209	538	560	229	95	124
210	659	687	230	135	155
211	674	707	231	249	302
212	103	95	232	337	359
213	68	62	233	327	363
214	53	77	234	95	103
215	16	18	235	9	9
216	497	546	236	216	266
217	210	289	237	187	213
218	387	427	238	86	95
219	61	61			
** For sub-basins with retention diversion, Q recorded equals hydrograph before retention diversion.*					
DIVERSION HYDROGRAPHS					
CANAL	123	123			
D206	91	88	EAS227	201	261
D207	268	107	EAS238	101	128
O207	268	107	TO200	123	123
D209	0	0	TO202	212	205
D212R	101	89	TO205	0	0
D216	149	164	TO219	45	42
D218	199	234	TO221	68	78
D220	158	182	TO224	62	52
D221	35	39	TO227	44	58
D227A	44	58	TO231	54	59
D228	126	137	TO232	38	42
D229	88	98	TO237	199	234
D237	37	43	TO238	52	59
D238	86	95	TOLG	136	131
DCBLVD	393	230	TOVVG	348	382
DLG	45	42	TP235N	20	20
DTD203	123	123	XRPKD	0	0
			DVVG	91	87
DVVOF	522	413			
EAS207	0	0			
EAS212	5	4			

Table 4S.6 Continued..

RETENTION DIVERSIONS					
HEC-1 ID	$Q_{100\text{-yr, 6-hr}}$	$Q_{100\text{-yr, 24-hr}}$	HEC1-ID	$Q_{100\text{-yr, 6-hr}}$	$Q_{100\text{-yr, 24-hr}}$
201RET	271	232	210RET	101	76
202RET	466	415	216RET	285	259
204RET	238	236	219RET	25	14
205RET	205	151	221RET	139	164
207RET	365	311	230RET	135	155
208RET	59	53	232RET	323	359
209RET	538	560	233RET	327	363
NORMAL DEPTH ROUTED					
200202	123	123	221238	22	27
203208	123	123	222223	251	280
206202	194	181	223227	299	353
206203	89	85	228229	82	84
208207	123	123	228231	33	33
209205	0	0	229230	72	82
209210	0	0	229232	32	36
216210	83	79	231232	369	423
216VVG	226	218	232233	484	521
217218	270	337	233235	514	551
218219	191	222	237238	107	92
218237	191	222	LG215	44	41
220217	144	161	LG219	31	29
220221	38	41	VVG211	71	67
221218	26	31	VVGLG	90	84
STORAGE ROUTING					
P200	53	44	P224	0	0
P202	522	413	P227	202	261
P203	393	230	P230	0	0
P207	0	0	P234	0	0
P208N	347	194	P235N	0	0
P208S	268	107	P235S	512	549
P212	106	93	P237	387	449
P213	5	3	P238	107	156
P215	0	0			

Section 4N: PHASE 1 – NORTH, HYDROLOGIC ANALYSIS

4N.1 Method Description

Project Engineering Consultants prepared the hydrologic analysis for Phase 1- North. The U.S. Army Corp of Engineers computer program HEC-1, Version 4.1, was used to determine the peak flows at structures, major road crossings, confluences and control features along the canals and railroads within the study area. Phase 1 was divided into two (2) sections, Phase 1- North and South, Eastern Canal watershed, with the boundary between the two being the Union Pacific Railroad. Separate HEC-1 models were prepared for each section. This section addresses Phase 1 – North. Refer to Section 4S, in Volume 3, for information on Phase 1 – South.

The preparation of the input data necessary for the analysis included sub-basin delineation, determination of drainage path lengths, precipitation calculations, soil texture classification for the calculation of rainfall losses, and overland and channel flow lengths and slopes to generate the hydrographs. The District DDMSW software was used to develop sub-basin and routing parameters. The sub-basin delineation was based on 10-foot contour mapping provided by the District. Rainfall depths for the 100-year, 6-hour and 24-hour storm were determined from NOAA Atlas 2. The Clark Unit Hydrograph Method was utilized to develop the unit hydrographs. Soil classifications were utilized to determine rainfall losses using the Green and Ampt Loss procedures. Normal-Depth routing was applied for routing of flow and storage routing was applied for areas of ponding.

4N.2 Parameter Estimation

4N.2.1 Drainage Area Boundaries

The northern watershed encompasses approximately 14.2 square miles bounded by Baseline Road to the north, the Union Pacific Railroad to the south, the East Maricopa Floodway to the east and the Eastern Canal/RWCD Extension Canal to the west. The northern watershed consists of predominately urban areas with some agricultural areas in the southeast.

Sub-basin boundaries were drawn along mile streets where possible. This was done to facilitate locating concentration points at mile-street intersections per the project scope. This holds true even when there is a lower point near the mile-street intersection.

4N.2.2 Watershed Workmaps

Several workmap exhibits, located in Volume 5, were created to depict various watershed properties. Exhibits A through D were created for each section of the watershed. Exhibit A is a 1 in.= 1000 ft. scale map that depicts the sub-basins boundaries; Exhibit B is a 1 in. = 1000 ft. scale map that depicts the drainage flow paths; Exhibit C is a 1 in. = 2000 ft. scale map that depicts the soil types; and Exhibit D is a 1 in. = 2000 ft. scale map that depicts the land uses in the watershed. Exhibit E is a 1 in. = 2000 ft. scale map that depicts the HEC-1 schematic.

4N.2.3 Gage Data

Three gages operated by the FCDMC exist within or adjacent to the Chandler/Gilbert watershed; EMF @ Queen Creek Rd, Crossroads Park, and Freestone Basin. The EMF @ Queen Creek gage, installed in 1989, is a precipitation/water level gage. The Crossroads Park and Freestone Basin gages, both installed in 1995, are water level gages. Data from these gages were not used in developing the statistical parameters, historic precipitation or watershed runoff because of the short time period the gages have been operational.

4N.2.4 Statistical Parameters

No precipitation data for the Chandler / Gilbert watershed area was available; therefore, Bulletin 17B was not utilized for estimating peak discharge rates for this study, e.g. log-Pearson Type III analyses.

4N.2.5 Precipitation

Rainfall depth for the 100-year, 6-hour storm of 2.782 and 2.895 inches for the regions described below were determined from Figure A.7, Drainage Design Manual for Maricopa County, Volume I, Hydrology. Rainfall depth for the 100-year, 24-hour storm of 3.20 and 3.38 were determined from Figure A.13, Drainage Design Manual for Maricopa County, Volume I, Hydrology. Copies of the 100-yr, 6 and 24 hour isopluvials is included in Appendix DN.1.

The PREFRE program incorporated into DDMSW was used to calculate the D-D-F statistics. The rainfall data printout is located in Appendix DN.1.

The rainfall pattern number 2.9 was determined for the 6-hour storm from Figure 2.5 in the Drainage Design Manual for Maricopa County, Volume I, Hydrology. A copy is included in Appendix DN.1 for reference. The 24-hour storm used a 24-hour SCS Type II rainfall pattern.

Depth-area reduction factors, using the Basin Average Precipitation (PB) record, were used in the HEC-1 models to define the rainfall duration and the temporal distribution of the general storm. Each section was divided into regions based on connectivity of runoff. Phase 1 – North was divided into two (2) regions; north of the Santan Freeway and south of the Santan Freeway. Table 4N2.5 lists the drainage areas and associated depth-area reduction factors calculated by the DDMSW program for the 100-year, 6-hour and 24-hour storms.

Table 4N.2.5 Depth-area Reduction Factors

PHASE 1 – NORTH			
Region	**Area (mi^2)**	**PB_6**	**PB_{24}**
North of Santan Freeway	9.92	2.821	3.20
South of Santan Freeway	4.25	2.895	3.38

4N.2.6 Physical Parameters

The Clark Method was used to generate the unit hydrographs. The percentages of ultimate discharge versus time in percentage of lag are encoded in DDMSW. The watercourse length and slope of each sub-basin were incorporated into the hydrograph generation. These values are listed

in several tables (DDMSW prints) in Appendix DN.2.1. Kb values were interpolated within the DDMSW computer program based on watershed classification and size.

The rainfall losses, using soil and land use data, were calculated based on the Green and Ampt Loss procedure within the DDMSW program. The surface retention loss values (IA) used in the hydrologic analyses were also determined within DDMSW based off land use. DDMSW data tables are located in Appendix DN.2.2 and DN.2.3.

4N.3 Hydrograph Routing

4N.3.1 Normal Depth Routing

Normal depth routing was used to route flow along street and through agricultural fields. Eight point cross-sections were derived from typical street sections and DTM surface data. N-steps were calculated using an average velocity of 3 ft/sec for all routing reaches, as per agreement with FCDMC. Routing data sheets are located in Appendix DN.3.

4N.3.2 Storage Routing

Reservoir routing was utilized in HEC-1 for this study. A storage-discharge relationship was developed for each sub-basin and the data was input directly into the SV, SE, and SQ records for each sub-basin along the Eastern Canal.

The storage volumes input into the HEC-1 models were calculated using Autodesk Land Development Desktop. An existing surface is created for the study area based on contour and breakline data. Then, a surface area is created for the top of the ponding area for each sub-basin. After these two surfaces are created, volumes for the ponding area were then calculated using a composite of the pond surface and the existing ground surface. Additional pond surfaces were created for a range of elevations in order to determine total volumes for each storage pond. Using the composite volume method creates a new surface, which is re-triangulated based on points from both the existing surface and for the surface created at each elevation for the pond. The resulting volume is determined using points from both surfaces, as well as any location where the triangle edges between the two surfaces cross. The new composite volume is created based on the difference between the elevations of the two surfaces, thus providing the most accurate and exact volumes between the two surface definitions possible.

Data tables for each ponding area are located in Appendix DN.4.

4N.4 Diversion Hydrographs

4N.4.1 Intersection Diversions

Sub-basin boundaries generally follow major and minor arterial streets. Flow concentrating at street intersection can split in up to three directions. Manning's equation was used to calculate street capacity in each split direction to determine the percentage of flow diverted in each direction.

The street cross-section geometry is based on Town of Gilbert and City of Chandler Standard details for major and minor arterial roads. A table showing the summary of the intersection

diversion results is located in Appendix DN.5.2. Street capacity calculation sheets and Standard Details are also located in Appendix DN.5.2.

4N.4.2 Retention Diversions

Much of the watershed consists of residential development. The storm water storage facilities within these residential developments are taken into consideration in the hydrologic modeling. Storage volume provided by the storage facilities was determined from Drainage Reports, As-Built plans and field verification.

The total storage volume available within residential retention facilities in a given sub-basin was diverted from the sub-basin hydrographs, with the exception of retention basins located adjacent to the Eastern Canal. Any storage areas along the canal that are designed to retain floodplain waters and /or fall within the existing FEMA floodplain limits were not included in the retention diversion calculations. These areas are accounted for in the storage routing computations.

Appendix A-1 contains a list of References including drainage reports and as-built plans. Appendix DN.5.1 includes a summary table listing a breakdown of retention volume available within each sub-basin.

4N.4.3 Ponding Diversions

Rating tables were developed to determine how much flow is weir flow over roadways, canals or other structures, from ponded areas. Flow splits were modeled using diversion records located after the storage routing records in the HEC-1 model. Data tables for each ponding area are located in Appendix DN.5.

4N.4.4 DSS File Diversions

A common DSS file (file name CGFDS.dss) for the entire Chandler/Gilbert FDS was created to model hydrographs impacting separate HEC-1 models. There are two locations in Phase 1 North modeling area with inflow hydrographs. The 6-hr and 24-hr HEC-1 models retrieve these hydrographs and incorporate them into the model. The HEC-1 output hydrographs discharging to the Phase 1 South and the Eastern Canal are written to the same DSS file.

Additionally, flow that overtops the Eastern Canal to the west is written to the DSS file for use in Phase 2 modeling. Flow overtopping the canal was taken from the HEC-1 output, maximum average flow, and is listed on the Exhibit F.

4N.5 Special Problems

4N.5.1 Culvert/Ditch/Weir analyses

Culvert analysis was conducted using CulvertMaster. Tail water conditions were generally dictated by the configuration of the downstream tail water ditch (except for P105). Spreadsheets were used to conduct weir analysis per Hydraulic Design Series HDS-5.

4N.5.2 Non-contributing area south of Guadalupe.

This area contains the water treatment plant and a large retention basin to the east. This plant is well bermed along its west and south sides. Storm water is not likely to flow into or out of the bermed area.

4N.5.3 Water loss to the basin east of the water treatment plant

The basin east of the water treatment plant has significant storage capability. A channel at the south side of the water treatment plant conveys excess water from the tail water ditch to the basin. HEC-RAS modeling and normal depth analysis were conducted to analyze the conveyance capacity. The results show that the maximum flow rate in this channel to the basin is around 10 cfs and there would be about 4 ac-ft of storm water conveyed to the basin during a 100-year 6-hr storm event. This is far less than the basin's capacity of approximately 90 ac-ft. However, this basin is mapped as Zone A (see Exhibit F, Sheet 6) to account for the flood hazard in the basin.

4N.5.4 Iterative modeling for P105 and P108 using CulvertMaster and HEC-1

Ponds 105 and 108 are interconnected with 2 × 54 in. concrete pipes. To determine the relationship between the ponds, a iterative process using CulvertMaster and HEC-1 was performed. The HEC-1 time-discharge output for P105 and time-stage output for P108 were compared, and the discharge(P105)-stage(P108) table was used as the tail water rating table for the CulvertMaster model. CulvertMaster then developed a new stage-discharge table. Data taken from this table was put into the HEC-1 model replacing the old SE and SQ records. The HEC-1 output gave a slightly elevated peak stage for P105 and the time to peak postponed a little. This process was repeated several times, and the peak stages and times to peak for P105 and 108 grew closer. The trend indicates that the peak stages and times to peak may converge after sufficient iteration. The HEC-1 models do not show the convergence, and the peak stage for P105 is still slightly lower than that for P108. However, the peak stages for P105 and P108 are very close in the final model output.

4N.5.5 Iterative modeling for the conveyances analyses

Lateral weirs have been designated in the HEC-RAS conveyance analysis models for the reaches between P111 and P114, and between P114 and P115. Downstream peak ponding elevations are used as the boundary conditions in the HEC-RAS models. The steady flow HEC-RAS models were run using various inflow rates. The flow amount leaving each reach via the lateral weir for each flow rate was used to develop a rating table. This rating table was taken into the HEC-1 model as the DQ and DI records to calculate the flow diversion and new peak stages for P105 and P108. This process was repeated several times until modeling results converged. The final HEC-1 and HEC-RAS models represent the "converged" models.

4N.5.6 Flow path determination for Sub-basin 118

The flow path for basin 118 (used for T_c calculation) appears to be circuitous. The storm water runoff follows the natural grade until reaching Greenfield Road. Development on the west side of the road is elevated sufficiently, and the roadway is constructed such that the storm water will be conveyed to the north. A sag point occurring just south of Warner Road is where the flow will turn to the west and join flows discharging from the north along the Eastern Canal. The flows are then conveyed along the canal to the concentration point at the Eastern Canal and the Union Pacific Railroad (Cross Roads Park).

4N.6 Hydrologic Results

Table 4N.6 below gives the summary of discharges at the various concentration points. Appendix DN.7.1 and 7.2 contain the HEC-1, 100-yr, 6-hr and 24-hr models.

Table 4N.6 Summary of Discharge Rates

COMBINED					
HEC-1 ID	$Q_{100\text{-yr, 6-hr}}$	$Q_{100\text{-yr, 24-hr}}$	HEC1-ID	$Q_{100\text{-yr, 6-hr}}$	$Q_{100\text{-yr, 24-hr}}$
CP102	278	311	CP115	473	419
CP104	280	292	CP117	350	307
CP105	291	287	CP118	527	485
CP106	172	204	CP119	673	556
CP107	536	528	CP120	338	294
CP108	588	559	CP121	494	337
CP110	1016	887	CP123	513	481
CP111	1341	1131	CPSAN	1454	1171
CP112	957	1008	OVERBK	680	466
CP114	894	752			

Table 4N.6 Continued.

*SUB-BASIN HYDROGRAPHS**					
HEC-1 ID	$Q_{100\text{-yr, 6-hr}}$	$Q_{100\text{-yr, 24-hr}}$	HEC1-ID	$Q_{100\text{-yr, 6-hr}}$	$Q_{100\text{-yr, 24-hr}}$
102	257	299	114	237	219
103	462	606	115	362	344
104	617	717	116	330	313
105	223	257	117	315	300
106	258	321	118	597	551
107	428	485	119	392	367
108	128	149	120	300	281
109	310	361	121	633	665
110	429	457	122	601	545
111	256	297	123	512	481
112	954	1006	124	194	220
113	632	583			
** For sub-basins with retention diversion, Q recorded equals hydrograph before retention diversion.*					
DIVERSION HYDROGRAPHS					
D103	277	363	EAS114	166	104
D104	140	146	EAS115	0	0
D116	66	63	EAS118	0	0
D122	361	317	NOR102	169	171
D123	205	193	NOR104	126	66
DSS102	0	0	TO106	185	242
DSS111	0	0	TO107	140	146
DSS114	166	104	TO117	264	250
EAS102	0	0	TO121	308	289
EAS105	0	0	TO123	240	211
EAS108	1	0	XRDPK	125	123
EAS111	0	0			
RETENTION DIVERSIONS					
HEC-1 ID	$Q_{100\text{-yr, 6-hr}}$	$Q_{100\text{-yr, 24-hr}}$	HEC1-ID	$Q_{100\text{-yr, 6-hr}}$	$Q_{100\text{-yr, 24-hr}}$
102RET	144	80	111RET	223	239
103RET	394	469	114RET	54	33
104RET	617	717	115RET	246	184
105RET	223	257	118RET	597	551
106RET	258	321	119RET	267	188
107RET	334	380	120RET	288	281
108RET	128	149	121RET	633	665
110RET	429	457	122RET	569	545

Table 4N.6 Continued.

NORMAL DEPTH ROUTED					
102105	136	126	114115	365	352
103104	251	292	115118	276	271
103106	172	204	116112	38	31
104105	137	141	116117	183	155
104107	135	129	117118	287	247
105108	145	144	122119	328	271
106107	155	174	122123	144	111
107108	522	510	123120	164	133
108111	377	302	123121	249	202
109110	209	205	124123	45	44
110111	985	848	OFF102	167	168
111114	875	737	OFF104	109	44
112113	576	495			
STORAGE ROUTING					
P102	141	130	P114	821	676
P105	145	144	P115	276	271
P108	398	318	P118	125	123
P111	1294	1065	P124	111	115

APPENDIX D: HYDROLOGIC ANALYSES SUPPORTING DOCUMENTATION

Appendix D: Table of Contents

DS & DN.1 PRECIPITATION
DS & DN.2 PARAMETERS
DS & DN.2.1 Sub-basin/Hydrograph Parameters
DS & DN.2.2 Soils Data
DS & DN.2.3 Landuse Data
DS & DN.3 ROUTING DATA
DS & DN.4 STORAGE ROUTING DATA
DS & DN.5 DIVERSION DATA
DS & DN.5.1 Retention
DS & DN.5.2 Intersections
DS & DN.6 RATING TABLES
DS & DN.7 HARD COPY MODELS
DS & DN.7.1 100-yr, 6-hr Model
DS & DN.7.2 100-yr, 24-hr Model
DS & DN.8 PERTINENT EXCEPRTS

DS & DN.1 Precipitation

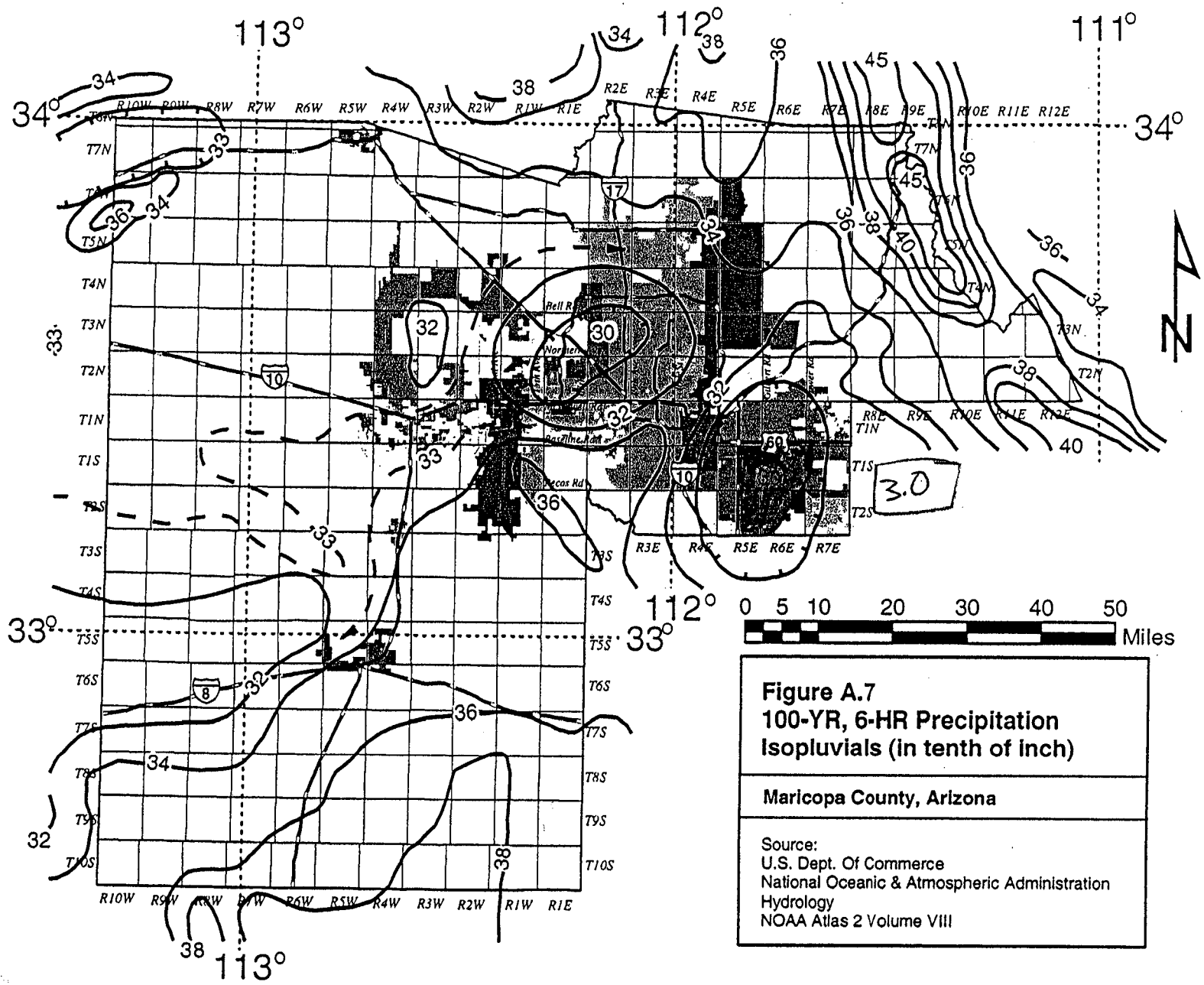


Figure A.7
100-YR, 6-HR Precipitation Isopluvials (in tenth of inch)

Maricopa County, Arizona

Source:
U.S. Dept. Of Commerce
National Oceanic & Atmospheric Administration
Hydrology
NOAA Atlas 2 Volume VIII

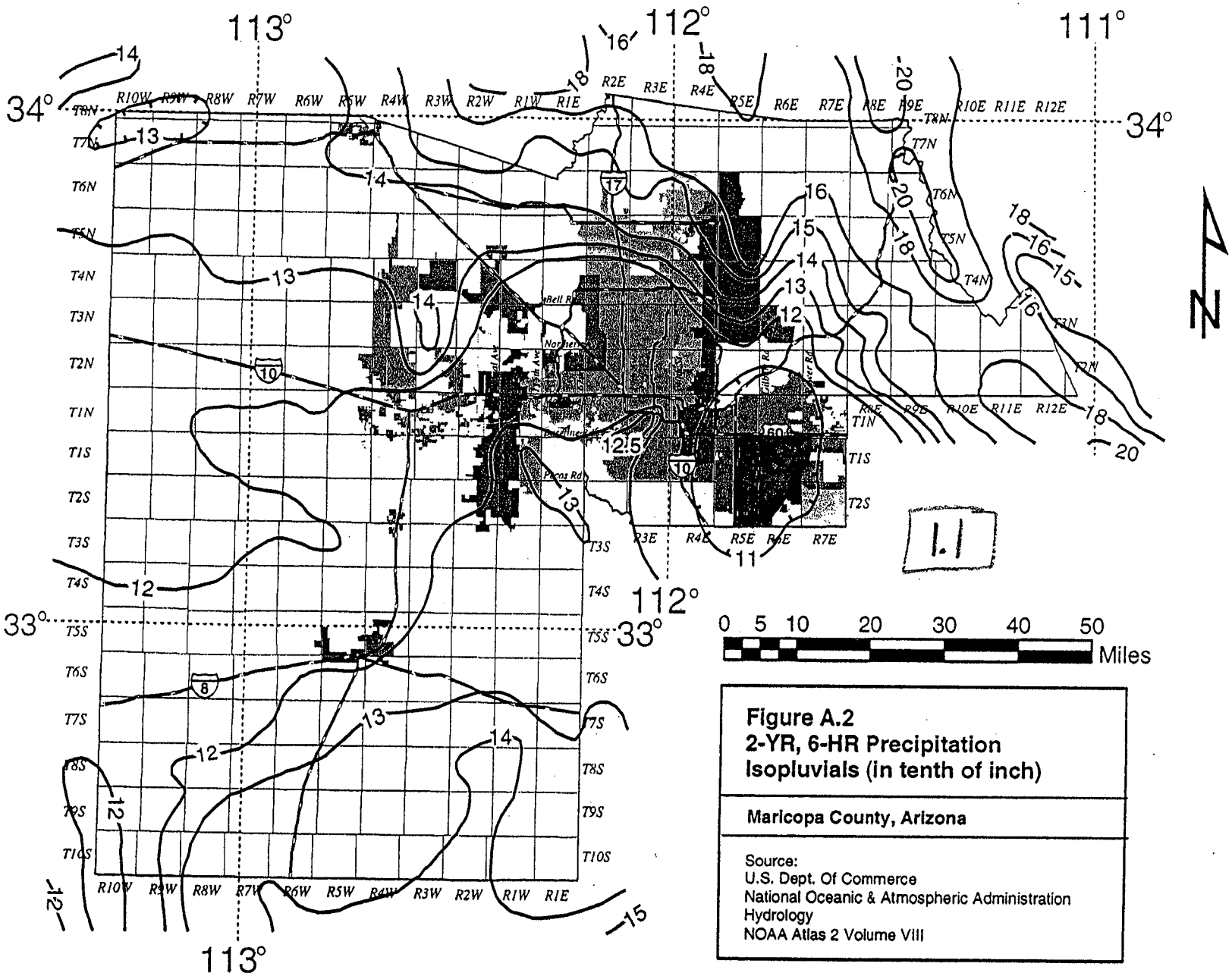


Figure A.2
2-YR, 6-HR Precipitation Isopluvials (in tenth of inch)

Maricopa County, Arizona

Source:
U.S. Dept. Of Commerce
National Oceanic & Atmospheric Administration
Hydrology
NOAA Atlas 2 Volume VIII

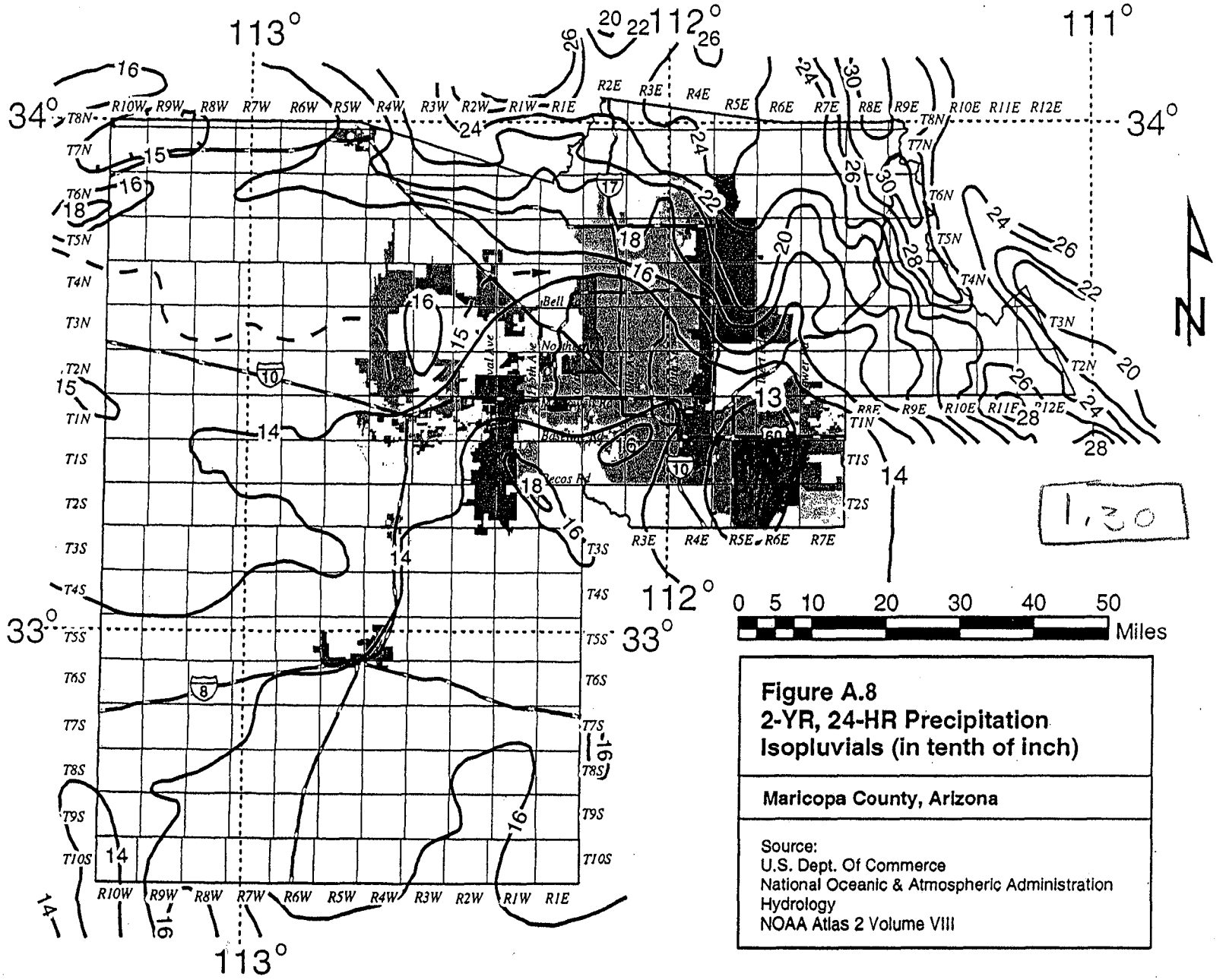


Figure A.8
2-YR, 24-HR Precipitation Isopluvials (in tenth of inch)

Maricopa County, Arizona

Source:
U.S. Dept. Of Commerce
National Oceanic & Atmospheric Administration
Hydrology
NOAA Atlas 2 Volume VIII

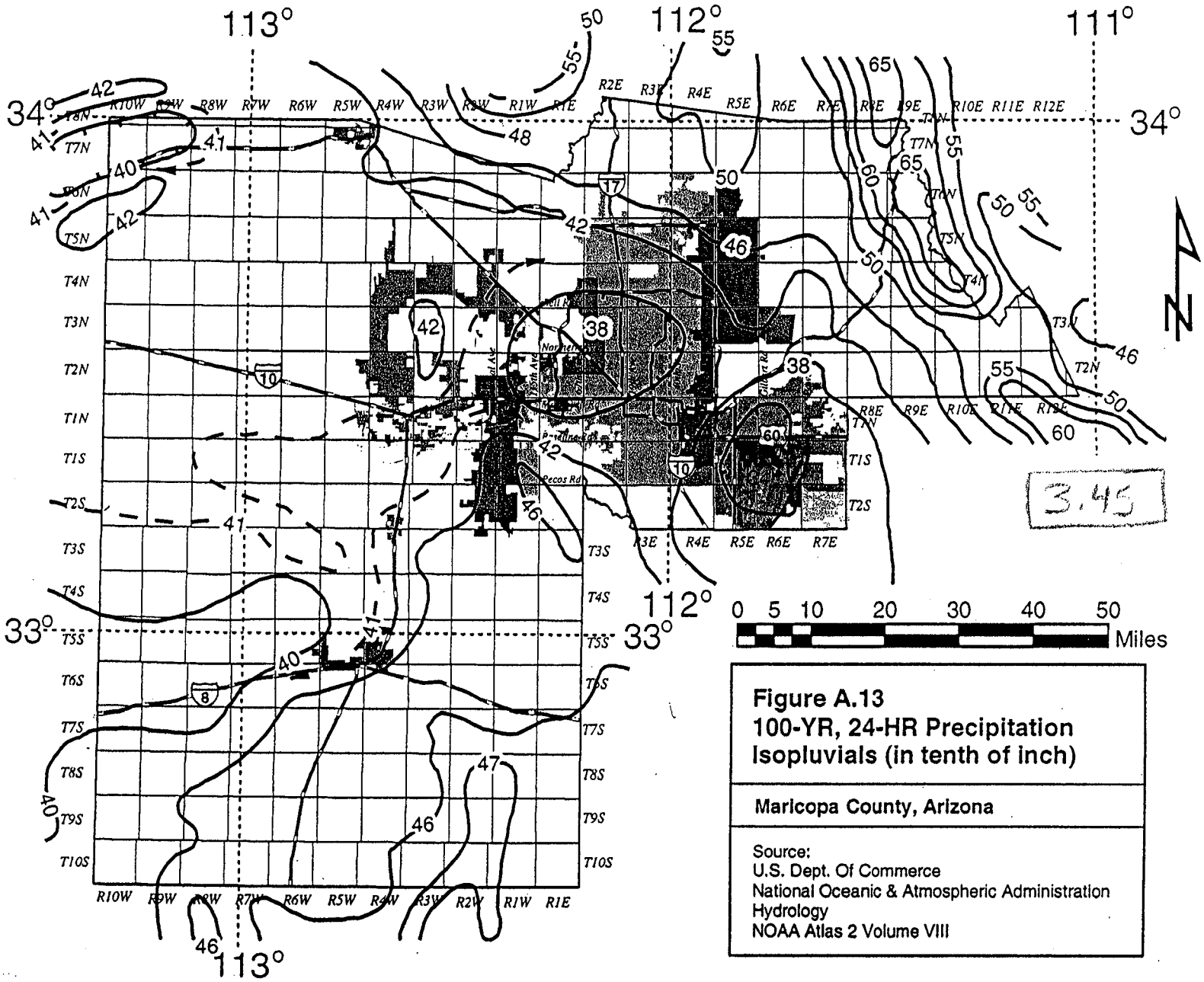
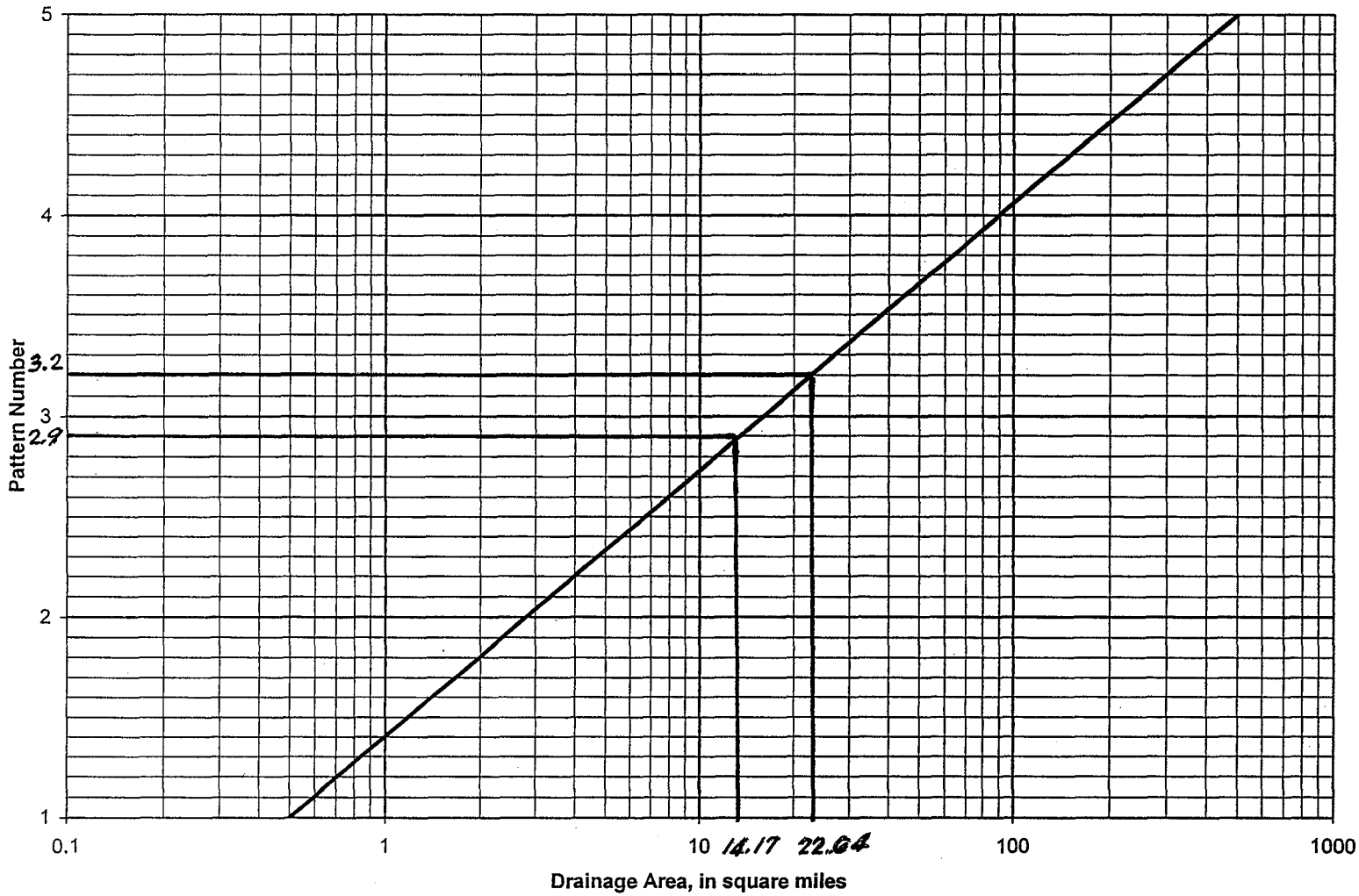


Figure A.13
100-YR, 24-HR Precipitation Isopluvials (in tenth of inch)

Maricopa County, Arizona

Source:
U.S. Dept. Of Commerce
National Oceanic & Atmospheric Administration
Hydrology
NOAA Atlas 2 Volume VIII

Figure 2.5
AREA VERSUS PATTERN NUMBER FOR MARICOPA COUNTY



NOTE
NORTH DRAINAGE AREA = 14.17 SM
SOUTH DRAINAGE AREA = 22.64 SM

Flood Control District of Maricopa County
MARI0040_SE6HR - Chandler/Gilbert Floodplain Deliniation Study

Rainfall Data

Primary Zone Number: **7** Latitude: **0.0** Elevation: **0**

Short Duration Zone Number: **8** Longitude: **0.0**

	Point Values (in)					
Duration	2-Yr	5-Yr	10-Yr	25-Yr	50-Yr	100-Yr
5 MIN	0.29	0.40	0.48	0.58	0.66	0.74
10 MIN	0.44	0.61	0.73	0.89	1.01	1.13
15 MIN	0.54	0.77	0.92	1.13	1.29	1.45
30 MIN	0.71	1.03	1.24	1.53	1.75	1.97
1 HOUR	0.87	1.27	1.54	1.90	2.18	2.46
2 HOUR	0.95	1.37	1.66	2.05	2.35	2.65
3 HOUR	1.00	1.44	1.74	2.14	2.46	2.77
6 HOUR	1.10	1.58	1.89	2.33	2.67	3.00
12 HOUR	1.20	1.71	2.04	2.51	2.87	3.22
24 HOUR	1.30	1.84	2.20	2.69	3.07	3.45

Project Engineering Consultants, Ltd.
GILBERT1_6HR - Chandler/Gilbert Flood Plain Delineation Study

Rainfall Data

Primary Zone Number: 7 Latitude: 0.0 Elevation: 0

Short Duration Zone Number: 8 Longitude: 0.0

	Point Values (in)					
Duration	2-Yr	5-Yr	10-Yr	25-Yr	50-Yr	100-Yr
5 MIN	0.29	0.40	0.48	0.58	0.66	0.74
10 MIN	0.44	0.61	0.73	0.89	1.01	1.13
15 MIN	0.54	0.77	0.92	1.13	1.29	1.45
30 MIN	0.71	1.03	1.24	1.53	1.75	1.97
1 HOUR	0.87	1.27	1.54	1.90	2.18	2.46
2 HOUR	0.95	1.37	1.66	2.05	2.35	2.65
3 HOUR	1.00	1.44	1.74	2.14	2.46	2.77
6 HOUR	1.10	1.58	1.89	2.33	2.67	3.00
12 HOUR	1.20	1.71	2.04	2.51	2.87	3.22
24 HOUR	1.30	1.84	2.20	2.69	3.07	3.45

DS & DN.2 Parameters

DS & DN.2.1 Sub-basin/Hydrograph Parameters

DS & DN.2.2 Soils Data

DS & DN.2.3 Landuse Data

Sub Basin Data

 4/26/2005

Basin: 01 | Storms: Single | Duration: 6 Hour | Loss Method: Green-Ampt | Unit Hydrograph: Clark

Sub Basin ID	Sub Basin Parameters: Area (sq mi)	Length (mi)	Slope (ft/mi)	Adj Slope	Time-Area	Kb	Rainfall Losses: IA (in)	DTHETA	PSIF (in)	XKSAT (in/hr)	RTIMP (%)		Return Period (Years): 2	5	10	25	50	100
200	0.16	1.98	6.1	6.1	Urban	0.029	0.29	0.10	11.20	0.03	16	Tc (hrs)	1.50	1.50	1.50	1.50	1.46	1.36
												Vel (f/s)	1.94	1.94	1.94	1.94	1.98	2.13
												R (hrs)	2.87	2.87	2.87	2.87	2.79	2.58
201	0.63	2.55	9.0	9.0	Urban	0.030	0.27	0.15	7.60	0.12	28	Tc (hrs)	1.50	1.50	1.50	1.50	1.50	1.50
												Vel (f/s)	2.49	2.49	2.49	2.49	2.49	2.49
												R (hrs)	1.59	1.59	1.59	1.59	1.59	1.59
202	0.85	1.77	9.0	9.0	Urban	0.040	0.39	0.16	8.80	0.08	11	Tc (hrs)	0.08	1.50	1.50	1.50	1.50	1.47
												Vel (f/s)	31.28	1.73	1.73	1.73	1.73	1.76
												R (hrs)	0.04	1.01	1.01	1.01	1.01	0.99
203	0.11	0.76	8.1	8.1	Urban	0.038	0.23	0.22	6.60	0.16	24	Tc (hrs)	1.50	1.50	1.33	1.07	0.95	0.88
												Vel (f/s)	0.74	0.74	0.84	1.04	1.17	1.27
												R (hrs)	1.68	1.68	1.47	1.15	1.01	0.93
204	0.82	2.17	12.6	12.6	Urban	0.038	0.34	0.26	4.70	0.40	18	Tc (hrs)	1.50	1.50	1.50	1.50	1.50	1.50
												Vel (f/s)	2.12	2.12	2.12	2.12	2.12	2.12
												R (hrs)	1.21	1.21	1.21	1.21	1.21	1.21
205	1.15	2.93	12.0	12.0	Urban	0.032	0.32	0.25	5.00	0.32	11	Tc (hrs)	1.00	1.50	1.50	1.50	1.50	1.50
												Vel (f/s)	4.30	2.86	2.86	2.86	2.86	2.86
												R (hrs)	0.81	1.27	1.27	1.27	1.27	1.27
206	0.76	1.18	8.1	8.1	Natural	0.045	0.45	0.27	5.30	0.33		Tc (hrs)	1.00	1.00	0.08	1.50	1.50	1.50
												Vel (f/s)	1.73	1.73	20.85	1.15	1.15	1.15
												R (hrs)	0.49	0.49	0.03	0.78	0.78	0.78
207	0.68	1.70	6.3	6.3	Urban	0.027	0.27	0.25	5.20	0.30	28	Tc (hrs)	1.50	1.50	1.50	1.50	1.50	1.45
												Vel (f/s)	1.66	1.66	1.66	1.66	1.66	1.72
												R (hrs)	1.11	1.11	1.11	1.11	1.11	1.07
208	0.11	0.83	10.5	10.5	Urban	0.039	0.32	0.25	4.80	0.38	23	Tc (hrs)	1.50	1.50	1.50	1.36	1.15	1.00
												Vel (f/s)	0.81	0.81	0.81	0.89	1.06	1.21

* Non default value

Sub Basin Data

4/26/2005

Basin: 01 | Storms: Single | Duration: 6 Hour | Loss Method: Green-Ampt | Unit Hydrograph: Clark

Sub Basin ID	Sub Basin Parameters: Area (sq mi)	Length (mi)	Slope (ft/mi)	Adj Slope	Time-Area	Kb	Rainfall Losses: IA (in)	DTHETA	PSIF (in)	XKSAT (in/hr)	RTIMP (%)		Return Period (Years): 2	5	10	25	50	100
												R (hrs)	1.76	1.76	1.76	1.58	1.31	1.13
209	0.87	1.51	9.1	9.1	Urban	0.026	0.24	0.26	5.00	0.32	29	Tc (hrs)	1.50	1.50	1.50	1.44	1.25	1.11
												Vel (f/s)	1.48	1.48	1.48	1.54	1.78	1.99
												R (hrs)	0.88	0.88	0.88	0.83	0.71	0.63
210	1.02	1.51	14.2	14.2	Natural	0.041	0.43	0.16	7.60	0.13	5	Tc (hrs)	1.00	1.50	1.50	1.50	1.33	1.18
												Vel (f/s)	2.21	1.48	1.48	1.48	1.67	1.87
												R (hrs)	0.51	0.80	0.80	0.80	0.70	0.61
211	0.93	1.34	14.7	14.7	Urban	0.037	0.38	0.15	7.00	0.14	4	Tc (hrs)	0.08	1.50	1.50	1.27	1.09	0.99
												Vel (f/s)	23.68	1.31	1.31	1.55	1.80	1.98
												R (hrs)	0.03	0.77	0.77	0.64	0.54	0.48
212	0.37	1.62	9.9	9.9	Natural	0.046	0.47	0.25	5.60	0.31	1	Tc (hrs)	1.00	1.00	0.08	1.50	1.50	1.50
												Vel (f/s)	2.38	2.38	28.63	1.58	1.58	1.58
												R (hrs)	0.96	0.96	0.06	1.50	1.50	1.50
213	0.13	0.67	8.0	8.0	Urban	0.045	0.39	0.23	6.20	0.21	4	Tc (hrs)	1.50	0.08	1.50	1.50	1.20	1.03
												Vel (f/s)	0.66	11.84	0.66	0.66	0.82	0.95
												R (hrs)	1.38	0.06	1.38	1.38	1.08	0.91
214	0.41	1.54	10.9	10.9	Natural	0.047	0.50	0.25	4.35	0.59		Tc (hrs)	1.00	1.00	1.00	0.08	0.18	1.50
												Vel (f/s)	2.26	2.26	2.26	27.21	12.91	1.51
												R (hrs)	0.87	0.87	0.87	0.06	0.13	1.37
215	0.04	0.37	8.3	8.3	Urban	0.057	0.23	0.31	4.25	0.37	5	Tc (hrs)	1.50	1.50	1.50	1.45	1.10	0.91
												Vel (f/s)	0.36	0.36	0.36	0.37	0.49	0.59
												R (hrs)	1.64	1.64	1.64	1.59	1.17	0.95
216	1.03	1.37	11.8	11.8	Natural	0.039	0.41	0.25	5.70	0.27	7	Tc (hrs)	1.50	1.50	1.50	1.50	1.50	1.43
												Vel (f/s)	1.34	1.34	1.34	1.34	1.34	1.40
												R (hrs)	0.74	0.74	0.74	0.74	0.74	0.70

* Non default value

Sub Basin Data

4/26/2005

Basin: 01 | Storms: Single | Duration: 6 Hour | Loss Method: Green-Ampt | Unit Hydrograph: Clark

Sub Basin ID	Sub Basin Parameters: Area (sq mi)	Length (mi)	Slope (ft/mi)	Adj Slope	Time-Area	Kb	Rainfall Losses: IA (in)	DTHETA	PSIF (in)	XKSAT (in/hr)	RTIMP (%)		Return Period (Years): 2	5	10	25	50	100
217	1.01	1.52	11.7	11.7	Natural	0.044	0.48	0.25	4.35	0.56	1	Tc (hrs)	1.00	1.00	1.00	0.08	0.25	1.50
												Vel (f/s)	2.23	2.23	2.23	26.86	8.92	1.49
												R (hrs)	0.52	0.52	0.52	0.03	0.11	0.81
218	1.01	1.50	12.1	12.1	Natural	0.040	0.43	0.25	5.30	0.34	8	Tc (hrs)	1.50	1.50	1.50	1.50	1.50	1.50
												Vel (f/s)	1.47	1.47	1.47	1.47	1.47	1.47
												R (hrs)	0.80	0.80	0.80	0.80	0.80	0.80
219	0.08	0.68	7.6	7.6	Natural	0.056	0.48	0.14	8.40	0.11	4	Tc (hrs)	1.00	1.50	1.50	1.43	1.22	1.10
												Vel (f/s)	1.00	0.66	0.66	0.70	0.82	0.91
												R (hrs)	1.12	1.76	1.76	1.67	1.40	1.24
237	0.22	0.74	7.9	7.9	Natural	0.055	0.49	0.25	5.10	0.39		Tc (hrs)	1.00	1.00	1.00	0.24	1.50	1.50
												Vel (f/s)	1.09	1.09	1.09	4.48	0.72	0.72
												R (hrs)	0.68	0.68	0.68	0.14	1.07	1.07
220	0.79	1.60	16.0	16.0	Urban	0.036	0.39	0.25	4.30	0.50	6	Tc (hrs)	1.50	1.50	1.50	1.50	1.50	1.50
												Vel (f/s)	1.56	1.56	1.56	1.56	1.56	1.56
												R (hrs)	0.97	0.97	0.97	0.97	0.97	0.97
221	0.50	1.46	15.9	15.9	Natural	0.042	0.44	0.25	4.50	0.51	11	Tc (hrs)	1.50	1.50	1.50	1.50	1.50	1.50
												Vel (f/s)	1.43	1.43	1.43	1.43	1.43	1.43
												R (hrs)	1.16	1.16	1.16	1.16	1.16	1.16
222	0.75	1.78	12.4	12.4	Urban	0.033	0.36	0.25	4.30	0.48	4	Tc (hrs)	1.00	1.00	0.08	1.50	1.50	1.50
												Vel (f/s)	2.61	2.61	31.45	1.74	1.74	1.74
												R (hrs)	0.69	0.69	0.04	1.08	1.08	1.08
223	0.50	1.22	14.9	14.9	Natural	0.045	0.45	0.26	4.15	0.61	1	Tc (hrs)	1.00	1.00	1.00	0.08	1.50	1.50
												Vel (f/s)	1.79	1.79	1.79	21.56	1.19	1.19
												R (hrs)	0.64	0.64	0.64	0.04	1.01	1.01
238	0.34	1.11	7.4	7.4	Natural	0.048	0.50	0.25	4.80	0.45	1	Tc (hrs)	1.00	1.00	1.00	0.11	1.50	1.50
												Vel (f/s)	1.63	1.63	1.63	14.41	1.09	1.09

* Non default value

Sub Basin Data

4/26/2005

Basin: 01 | Storms: Single | Duration: 6 Hour | Loss Method: Green-Ampt | Unit Hydrograph: Clark

Sub Basin ID	Sub Basin Parameters: Area (sq mi)	Length (mi)	Slope (ft/mi)	Adj Slope	Time-Area	Kb	Rainfall Losses: IA (in)	DTHETA	PSIF (in)	XKSAT (in/hr)	RTIMP (%)		Return Period (Years): 2	5	10	25	50	100
												R (hrs)	0.75	0.75	0.75	0.07	1.17	1.17
224	0.43	1.20	11.5	11.5	Natural	0.039	0.38	0.25	4.80	0.36	3	Tc (hrs)	1.00	1.00	0.08	1.50	1.50	1.47
												Vel (f/s)	1.76	1.76	21.20	1.17	1.17	1.20
												R (hrs)	0.70	0.70	0.04	1.09	1.09	1.07
225	0.66	1.57	11.5	11.5	Natural	0.041	0.43	0.25	4.45	0.50	2	Tc (hrs)	1.00	1.00	1.00	0.17	1.50	1.50
												Vel (f/s)	2.30	2.30	2.30	13.79	1.54	1.54
												R (hrs)	0.67	0.67	0.67	0.09	1.06	1.06
226	0.50	1.23	14.0	14.0	Natural	0.046	0.50	0.25	4.50	0.54		Tc (hrs)	1.00	1.00	1.00	0.08	1.50	1.50
												Vel (f/s)	1.80	1.80	1.80	21.73	1.20	1.20
												R (hrs)	0.65	0.65	0.65	0.04	1.01	1.01
227	0.47	1.21	12.7	12.7	Natural	0.046	0.50	0.25	4.45	0.55		Tc (hrs)	1.00	1.00	1.00	0.08	0.25	1.50
												Vel (f/s)	1.77	1.77	1.77	21.38	7.10	1.18
												R (hrs)	0.67	0.67	0.67	0.04	0.14	1.04
228	0.57	1.37	11.5	11.5	Urban	0.037	0.39	0.25	4.70	0.38	3	Tc (hrs)	1.00	1.00	0.08	1.50	1.50	1.50
												Vel (f/s)	2.01	2.01	24.21	1.34	1.34	1.34
												R (hrs)	0.66	0.66	0.04	1.03	1.03	1.03
229	0.51	1.33	12.0	12.0	Natural	0.050	0.50	0.25	4.55	0.52		Tc (hrs)	1.00	1.00	1.00	0.08	0.25	1.50
												Vel (f/s)	1.95	1.95	1.95	23.50	7.80	1.30
												R (hrs)	0.69	0.69	0.69	0.04	0.15	1.07
230	0.57	1.49	13.4	13.4	Natural	0.050	0.39	0.28	4.65	0.41		Tc (hrs)	1.00	1.00	0.08	0.25	1.50	1.50
												Vel (f/s)	2.19	2.19	26.33	8.74	1.46	1.46
												R (hrs)	0.71	0.71	0.05	0.15	1.11	1.11
231	1.00	1.70	13.0	13.0	Natural	0.042	0.49	0.25	4.70	0.46	2	Tc (hrs)	1.00	1.00	1.00	0.16	1.50	1.50
												Vel (f/s)	2.49	2.49	2.49	15.30	1.66	1.66
												R (hrs)	0.57	0.57	0.57	0.08	0.89	0.89

* Non default value

Sub Basin Data

Basin: 01 | Storms: Single | Duration: 6 Hour | Loss Method: Green-Ampt | Unit Hydrograph: Clark

	Sub Basin Parameters						Rainfall Losses						Return Period (Years)					
Sub Basin ID	Area (sq mi)	Length (mi)	Slope (ft/mi)	Adj Slope	Time-Area	Kb	IA (in)	DTHETA	PSIF (in)	XKSAT (in/hr)	RTIMP (%)		2	5	10	25	50	100
232	1.01	1.68	12.9	12.9	Urban	0.038	0.33	0.27	4.70	0.36	4	**Tc (hrs)**	1.00	1.00	0.08	1.50	1.50	1.50
												Vel (f/s)	2.46	2.46	29.69	1.64	1.64	1.64
												R (hrs)	0.56	0.56	0.04	0.88	0.88	0.88
233	0.96	1.53	13.7	13.7	Urban	0.039	0.41	0.25	4.65	0.44	9	**Tc (hrs)**	1.50	1.50	1.50	1.50	1.50	1.50
												Vel (f/s)	1.50	1.50	1.50	1.50	1.50	1.50
												R (hrs)	0.83	0.83	0.83	0.83	0.83	0.83
234	0.17	0.84	8.3	8.3	Urban	0.030	0.26	0.25	4.45	0.44	29	**Tc (hrs)**	1.50	1.50	1.50	1.20	1.50	0.91
												Vel (f/s)	0.82	0.82	0.82	1.02	0.80	1.35
												R (hrs)	1.39	1.39	1.39	1.09	1.43	0.80
235	0.04	0.55	7.3	7.3	Natural	0.061	0.20	0.35	4.80	0.25		**Tc (hrs)**	1.00	0.08	1.50	1.50	1.50	1.27
												Vel (f/s)	0.81	9.72	0.54	0.54	0.54	0.63
												R (hrs)	1.53	0.10	2.39	2.39	2.39	1.99
236	0.52	1.05	15.0	15.0	Natural	0.040	0.34	0.27	4.35	0.45	4	**Tc (hrs)**	1.50	1.50	1.50	1.50	1.50	1.33
												Vel (f/s)	1.03	1.03	1.03	1.03	1.03	1.16
												R (hrs)	0.87	0.87	0.87	0.87	0.87	0.76

Sub Basin Data

Basin: 01 Storms: Single Duration: 6 Hour Loss Method: Green-Ampt Unit Hydrograph: Clark

	Sub Basin Parameters						Rainfall Losses						Return Period (Years)					
Sub Basin ID	Area (sq mi)	Length (mi)	Slope (ft/mi)	Adj Slope	Time-Area	Kb	IA (in)	DTHETA	PSIF (in)	XKSAT (in/hr)	RTIMP (%)		2	5	10	25	50	100
102	0.29	1.05	14.0	14.0	Urban	0.029	0.22	0.16	9.70	0.06	28	**Tc (hrs)**	1.50	0.98	0.86	0.75	0.70	0.66
												Vel (f/s)	1.02	1.57	1.78	2.04	2.19	2.32
												R (hrs)	1.22	0.76	0.66	0.57	0.53	0.49
103	0.71	1.42	18.3	18.3	Urban	0.025	0.26	0.25	4.70	0.35	23	**Tc (hrs)**	1.50	1.50	1.31	1.00	0.85	0.75
												Vel (f/s)	1.39	1.39	1.59	2.09	2.45	2.76
												R (hrs)	0.93	0.93	0.80	0.59	0.50	0.43
104	0.98	1.67	18.2	18.2	Urban	0.032	0.32	0.23	6.20	0.21	19	**Tc (hrs)**	1.50	1.50	1.50	1.23	1.06	0.95
												Vel (f/s)	1.63	1.63	1.63	1.99	2.30	2.58
												R (hrs)	0.88	0.88	0.88	0.71	0.60	0.53
105	0.28	1.07	12.2	12.2	Urban	0.027	0.28	0.15	7.60	0.10	16	**Tc (hrs)**	1.50	1.15	1.50	0.80	0.74	0.69
												Vel (f/s)	1.05	1.37	1.01	1.95	2.13	2.27
												R (hrs)	1.26	0.94	1.31	0.63	0.57	0.53
106	0.43	1.39	20.9	20.9	Urban	0.028	0.26	0.26	5.20	0.28	21	**Tc (hrs)**	1.50	1.50	1.28	0.97	0.83	0.75
												Vel (f/s)	1.36	1.36	1.60	2.10	2.45	2.73
												R (hrs)	1.23	1.23	1.02	0.76	0.64	0.56
107	0.49	1.43	16.5	16.5	Urban	0.026	0.27	0.15	9.70	0.05	18	**Tc (hrs)**	1.50	1.06	0.92	0.80	0.74	0.70
												Vel (f/s)	1.40	1.97	2.28	2.61	2.83	3.00
												R (hrs)	1.16	0.79	0.67	0.58	0.53	0.50
108	0.13	0.78	15.5	15.5	Urban	0.028	0.30	0.10	11.20	0.02	6	**Tc (hrs)**	0.97	0.72	0.65	0.59	0.55	0.52
												Vel (f/s)	1.18	1.60	1.75	1.95	2.08	2.20
												R (hrs)	0.92	0.66	0.60	0.53	0.49	0.46
109	0.71	1.45	20.1	20.1	Natural	0.043	0.50	0.21	6.40	0.23		**Tc (hrs)**	1.00	0.08	1.50	1.50	1.42	1.18
												Vel (f/s)	2.13	25.62	1.42	1.42	1.50	1.81
												R (hrs)	0.60	0.04	0.95	0.95	0.89	0.72
110	0.49	1.43	12.0	12.0	Urban	0.026	0.24	0.10	11.20	0.03	29	**Tc (hrs)**	1.47	1.10	0.98	0.88	0.81	0.77
												Vel (f/s)	1.43	1.91	2.13	2.40	2.58	2.73

* Non default value

Sub Basin Data

Basin: 01 Storms: Single Duration: 6 Hour Loss Method: Green-Ampt Unit Hydrograph: Clark

	Sub Basin Parameters						Rainfall Losses						Return Period (Years)					
Sub Basin ID	Area (sq mi)	Length (mi)	Slope (ft/mi)	Adj Slope	Time-Area	Kb	IA (in)	DTHETA	PSIF (in)	XKSAT (in/hr)	RTIMP (%)		2	5	10	25	50	100
												R (hrs)	1.14	0.83	0.73	0.64	0.59	0.55
111	0.29	1.01	10.2	10.2	Urban	0.026	0.25	0.15	9.70	0.06	30	**Tc (hrs)**	1.46	1.01	0.88	0.78	0.72	0.68
												Vel (f/s)	1.02	1.46	1.68	1.91	2.05	2.18
												R (hrs)	1.15	0.76	0.66	0.57	0.52	0.49
112	1.28	1.72	15.5	15.5	Natural	0.040	0.50	0.13	10.10	0.05		**Tc (hrs)**	0.08	1.50	1.50	1.50	1.20	1.10
												Vel (f/s)	30.39	1.68	1.68	1.66	2.11	2.30
												R (hrs)	0.03	0.78	0.78	0.79	0.61	0.55
113	0.99	1.95	8.6	8.6	Natural	0.040	0.45	0.06	12.40	0.02	1	**Tc (hrs)**	1.50	1.50	1.50	1.50	1.50	1.42
												Vel (f/s)	1.91	1.91	1.91	1.91	1.91	2.02
												R (hrs)	1.00	1.00	1.00	1.00	1.00	0.94
114	0.39	1.40	8.2	8.2	Urban	0.037	0.38	0.10	11.20	0.03	3	**Tc (hrs)**	1.50	1.50	1.50	1.50	1.20	1.13
												Vel (f/s)	1.37	1.37	1.37	1.35	1.71	1.83
												R (hrs)	1.31	1.31	1.31	1.33	1.02	0.95
115	0.47	1.24	8.8	8.8	Urban	0.040	0.37	0.04	12.40	0.02	10	**Tc (hrs)**	1.50	1.50	1.35	1.18	1.10	1.04
												Vel (f/s)	1.21	1.21	1.35	1.54	1.65	1.75
												R (hrs)	1.06	1.06	0.95	0.82	0.76	0.71
116	0.60	1.65	12.9	12.9	Urban	0.042	0.43	0.15	9.70	0.07	7	**Tc (hrs)**	0.08	1.50	1.50	1.50	1.33	1.20
												Vel (f/s)	29.16	1.61	1.61	1.61	1.83	2.01
												R (hrs)	0.05	1.16	1.16	1.16	1.01	0.91
117	0.48	1.46	10.3	10.3	Natural	0.046	0.50	0.05	12.40	0.02		**Tc (hrs)**	1.50	1.50	1.50	1.41	1.28	1.20
												Vel (f/s)	1.43	1.43	1.43	1.52	1.67	1.79
												R (hrs)	1.19	1.19	1.19	1.11	1.00	0.93
118	0.90	2.22	10.0	10.0	Urban	0.030	0.29	0.08	11.20	0.03	19	**Tc (hrs)**	1.50	1.50	1.50	1.37	1.26	1.19
												Vel (f/s)	2.17	2.17	2.17	2.37	2.58	2.74
												R (hrs)	1.17	1.17	1.17	1.06	0.96	0.90

Sub Basin Data

Basin: 01 Storms: Single Duration: 6 Hour Loss Method: Green-Ampt Unit Hydrograph: Clark

Sub Basin ID	Sub Basin Parameters: Area (sq mi)	Length (mi)	Slope (ft/mi)	Adj Slope	Time-Area	Kb	Rainfall Losses: IA (in)	DTHETA	PSIF (in)	XKSAT (in/hr)	RTIMP (%)		Return Period (Years): 2	5	10	25	50	100
119	0.49	1.58	13.1	13.1	Natural	0.039	0.39	0.05	12.40	0.02	13	**Tc (hrs)**	1.50	1.50	1.33	1.17	1.08	1.02
												Vel (f/s)	1.54	1.54	1.74	1.99	2.14	2.27
												R (hrs)	1.26	1.26	1.10	0.95	0.88	0.82
120	0.41	1.33	10.7	10.7	Natural	0.043	0.42	0.11	11.20	0.03	4	**Tc (hrs)**	1.50	1.50	1.50	1.28	1.16	1.09
												Vel (f/s)	1.30	1.30	1.30	1.53	1.68	1.79
												R (hrs)	1.21	1.21	1.21	1.01	0.91	0.85
121	0.67	1.16	15.3	15.3	Natural	0.042	0.45	0.13	10.10	0.05	5	**Tc (hrs)**	1.50	1.50	1.26	1.03	0.94	0.88
												Vel (f/s)	1.13	1.13	1.35	1.65	1.81	1.94
												R (hrs)	0.82	0.82	0.68	0.54	0.49	0.45
122	1.07	1.87	9.6	9.6	Urban	0.036	0.38	0.15	7.30	0.15	14	**Tc (hrs)**	1.50	1.50	1.50	1.50	1.50	1.40
												Vel (f/s)	1.83	1.83	1.83	1.83	1.83	1.96
												R (hrs)	0.92	0.92	0.92	0.92	0.92	0.86
123	0.96	1.63	9.7	9.7	Natural	0.041	0.46	0.15	7.30	0.16	4	**Tc (hrs)**	1.00	1.50	1.50	1.50	1.50	1.48
												Vel (f/s)	2.39	1.59	1.59	1.59	1.59	1.61
												R (hrs)	0.56	0.88	0.88	0.88	0.88	0.87
124	0.66	1.32	13.7	13.7	Natural	0.044	0.49	0.25	4.80	0.45	2	**Tc (hrs)**	1.00	1.00	0.08	1.50	1.50	1.50
												Vel (f/s)	1.94	1.94	23.33	1.29	1.29	1.29
												R (hrs)	0.59	0.59	0.04	0.92	0.92	0.92

Soil Data

	Sub Basin ID	Soil Survey	Map Unit	Area	Area Pct (%)	XKSAT	Rock Outcrop (%)	Effective (%)
Major Basin 01								
	200	Eastern County	VE	0.072	45.2	0.01 *		
		Eastern County	CO	0.087	54.8	0.04 *	*	
	201	Eastern County	VE	0.049	7.7	0.01 *		
		Eastern County	MV	0.289	45.6	0.25 *		
		Eastern County	CO	0.296	46.7	0.04 *	*	
	202	Eastern County	MV	0.016	1.9	0.25 *		
		Eastern County	MV	0.032	3.8	0.25 *		
		Eastern County	VE	0.146	17.3	0.01 *		
		Eastern County	MV	0.164	19.4	0.25 *		
		Eastern County	CO	0.487	57.6	0.04 *	*	
	203	Eastern County	CO	0.042	39.2	0.04 *	*	
		Eastern County	MV	0.065	60.8	0.25 *		
	204	Eastern County	ANA	0.000		0.40		
		Eastern County	ANA	0.010	1.2	0.40		
		Eastern County	MO	0.017	2.1	0.40 *		
		Eastern County	ANA	0.024	2.9	0.40		
		Eastern County	GM	0.224	27.4	0.25 *		
		Eastern County	MV	0.541	66.3	0.25 *		
	205	Eastern County	GM	0.003	0.3	0.25 *		
		Eastern County	ANA	0.004	0.4	0.40		
		Eastern County	MO	0.007	0.6	0.40 *		
		Eastern County	MO	0.009	0.8	0.40 *		
		Eastern County	MO	0.016	1.4	0.40 *		
		Eastern County	GM	0.047	4.1	0.25 *		
		Eastern County	TX	0.069	6.0	0.04		
		Eastern County	ES	0.101	8.7	0.25		
		Eastern County	MV	0.895	77.8	0.25 *		
	206	Eastern County	MO	0.004	0.5	0.40 *		
		Eastern County	MO	0.005	0.7	0.40 *		
		Eastern County	MO	0.006	0.7	0.40 *		
		Eastern County	MO	0.021	2.8	0.40 *		
		Eastern County	TX	0.108	14.2	0.04		
		Eastern County	MV	0.615	81.0	0.25 *		
	207	Eastern County	GM	0.020	2.9	0.25 *		
		Eastern County	MV	0.024	3.6	0.25 *		
		Eastern County	MO	0.081	11.9	0.40 *		
		Eastern County	TX	0.092	13.6	0.04		
		Eastern County	MV	0.462	68.0	0.25 *		
	208	Eastern County	GM	0.023	20.5	0.25 *		
		Eastern County	MV	0.088	79.5	0.25 *		
	209	Eastern County	TX	0.046	5.3	0.04		
		Eastern County	MV	0.113	13.0	0.25 *		

* Custom Value (not default value)

Sub Basin ID	Soil Survey	Map Unit	Area	Area Pct (%)	XKSAT	Rock Outcrop (%)	Effective (%)
209	Eastern County	GM	0.220	25.4	0.25 *		
	Eastern County	ES	0.489	56.3	0.25		
210	Eastern County	MV	0.096	9.4	0.25 *		
	Eastern County	ES	0.127	12.4	0.25		
	Eastern County	MV	0.130	12.7	0.25 *		
	Eastern County	TX	0.666	65.4	0.04		
211	Eastern County	ES	0.000		0.25		
	Eastern County	MO	0.003	0.3	0.40 *		
	Eastern County	MO	0.008	0.9	0.40 *		
	Eastern County	ES	0.011	1.2	0.25		
	Eastern County	ANA	0.088	9.5	0.40		
	Eastern County	MV	0.139	15.1	0.25 *		
	Eastern County	MV	0.186	20.1	0.25 *		
	Eastern County	TX	0.489	52.9	0.04		
212	Eastern County	MO	0.000	0.1	0.40 *		
	Eastern County	TX	0.001	0.1	0.04		
	Eastern County	ANA	0.007	2.0	0.40		
	Eastern County	TX	0.075	20.1	0.04		
	Eastern County	MV	0.105	28.2	0.25 *		
	Eastern County	MV	0.184	49.5	0.25 *		
213	Eastern County	ANA	0.007	5.2	0.40		
	Eastern County	TX	0.042	33.6	0.04		
	Eastern County	MV	0.077	61.2	0.25 *		
214	Eastern County	ES	0.011	2.8	0.25		
	Eastern County	MV	0.014	3.3	0.25 *		
	Eastern County	MO	0.015	3.6	0.40 *		
	Eastern County	MV	0.045	11.1	0.25 *		
	Eastern County	MV	0.091	22.4	0.25 *		
	Eastern County	ANA	0.231	56.8	0.40		
215	Eastern County	MV	0.013	28.8	0.25 *		
	Eastern County	ANA	0.032	71.2	0.40		
216	Eastern County	GM	0.012	1.2	0.25 *		
	Eastern County	GF	0.044	4.3	0.25 *		
	Eastern County	VF	0.049	4.8	1.20 *		
	Eastern County	ES	0.183	17.8	0.25		
	Eastern County	TX	0.271	26.4	0.04		
	Eastern County	GM	0.469	45.7	0.25 *		
217	Eastern County	TX	0.013	1.3	0.04		
	Eastern County	ES	0.014	1.4	0.25		
	Eastern County	GF	0.115	11.4	0.25 *		
	Eastern County	VF	0.145	14.4	1.20 *		
	Eastern County	ANA	0.147	14.5	0.40		
	Eastern County	GM	0.236	23.4	0.25 *		

* Custom Value (not default value)

Soil Data

Sub Basin ID	Soil Survey	Map Unit	Area	Area Pct (%)	XKSAT	Rock Outcrop (%)	Effective (%)
217	Eastern County	ES	0.338	33.5	0.25		
218	Eastern County	VF	0.000		1.20 *		
	Eastern County	ES	0.006	0.6	0.25		
	Eastern County	ES	0.182	18.1	0.25		
	Eastern County	TX	0.187	18.5	0.04		
	Eastern County	ANA	0.263	26.1	0.40		
	Eastern County	GM	0.369	36.6	0.25 *		
219	Eastern County	ES	0.001	1.0	0.25		
	Eastern County	ANA	0.011	12.9	0.40		
	Eastern County	TX	0.072	86.1	0.04		
237	Eastern County	TX	0.017	7.8	0.04		
	Eastern County	GM	0.197	88.1	0.25 *		
	Eastern County	ANA	0.009	4.1	0.40		
220	Eastern County	VF	0.002	0.2	1.20 *		
	Eastern County	GF	0.005	0.6	0.25 *		
	Eastern County	VF	0.005	0.6	1.20 *		
	Eastern County	VF	0.009	1.1	1.20 *		
	Eastern County	GF	0.014	1.7	0.25 *		
	Eastern County	GF	0.015	1.9	0.25 *		
	Eastern County	VF	0.015	1.9	1.20 *		
	Eastern County	VF	0.022	2.7	1.20 *		
	Eastern County	ES	0.025	3.2	0.25		
	Eastern County	VF	0.098	12.5	1.20 *		
	Eastern County	GF	0.178	22.6	0.25 *		
	Eastern County	GM	0.400	50.9	0.25 *		
221	Eastern County	GF	0.012	2.4	0.25 *		
	Eastern County	GF	0.028	5.6	0.25 *		
	Eastern County	VF	0.058	11.4	1.20 *		
	Eastern County	GM	0.405	80.6	0.25 *		
222	Eastern County	VF	0.057	7.5	1.20 *		
	Eastern County	GF	0.085	11.3	0.25 *		
	Eastern County	VF	0.089	11.8	1.20 *		
	Eastern County	GM	0.522	69.4	0.25 *		
223	Eastern County	GF	0.003	0.6	0.25 *		
	Eastern County	VF	0.128	25.5	1.20 *		
	Eastern County	GM	0.372	73.9	0.25 *		
238	Eastern County	GM	0.326	96.9	0.25 *		
	Eastern County	ANA	0.006	1.6	0.40		
	Eastern County	ES	0.005	1.5	0.25		
224	Eastern County	VF	0.000	0.1	1.20 *		
	Eastern County	GF	0.018	4.2	0.25 *		
	Eastern County	GM	0.409	95.7	0.25 *		
225	Eastern County	MV	0.007	1.0	0.25 *		

* Custom Value (not default value)

Sub Basin ID	Soil Survey	Map Unit	Area	Area Pct (%)	XKSAT	Rock Outcrop (%)	Effective (%)
225	Eastern County	ES	0.015	2.3	0.25		
	Eastern County	VF	0.017	2.6	1.20 *		
	Eastern County	ES	0.022	3.3	0.25		
	Eastern County	VF	0.027	4.1	1.20 *		
	Eastern County	ANA	0.036	5.5	0.40		
	Eastern County	MO	0.092	14.0	0.40 *		
	Eastern County	GM	0.443	67.1	0.25 *		
226	Eastern County	MO	0.008	1.6	0.40 *		
	Eastern County	GF	0.017	3.3	0.25 *		
	Eastern County	VF	0.019	3.8	1.20 *		
	Eastern County	VF	0.030	6.0	1.20 *		
	Eastern County	MV	0.106	20.9	0.25 *		
	Eastern County	GM	0.324	64.3	0.25 *		
227	Eastern County	MO	0.008	1.8	0.40 *		
	Eastern County	MO	0.012	2.6	0.40 *		
	Eastern County	MO	0.018	3.9	0.40 *		
	Eastern County	VF	0.048	10.3	1.20 *		
	Eastern County	MV	0.162	34.6	0.25 *		
	Eastern County	GM	0.218	46.7	0.25 *		
228	Eastern County	ANA	0.013	2.2	0.40		
	Eastern County	MV	0.036	6.3	0.25 *		
	Eastern County	MO	0.037	6.4	0.40 *		
	Eastern County	MV	0.162	28.5	0.25 *		
	Eastern County	ES	0.323	56.5	0.25		
229	Eastern County	ANA	0.011	2.2	0.40		
	Eastern County	ES	0.041	8.1	0.25		
	Eastern County	MO	0.144	28.5	0.40 *		
	Eastern County	MV	0.310	61.2	0.25 *		
230	Eastern County	MO	0.003	0.5	0.40 *		
	Eastern County	VF	0.003	0.6	1.20 *		
	Eastern County	MO	0.004	0.6	0.40 *		
	Eastern County	ANA	0.004	0.7	0.40		
	Eastern County	MO	0.006	1.0	0.40 *		
	Eastern County	GM	0.007	1.2	0.25 *		
	Eastern County	MO	0.016	2.8	0.40 *		
	Eastern County	MO	0.020	3.5	0.40 *		
	Eastern County	MO	0.038	6.7	0.40 *		
	Eastern County	MV	0.464	82.3	0.25 *		
231	Eastern County	ES	0.013	1.3	0.25		
	Eastern County	MO	0.055	5.5	0.40 *		
	Eastern County	MV	0.928	93.2	0.25 *		
232	Eastern County	MO	0.022	2.2	0.40 *		
	Eastern County	ANA	0.022	2.2	0.40		

* Custom Value (not default value)

Sub Basin ID	Soil Survey	Map Unit	Area	Area Pct (%)	XKSAT	Rock Outcrop (%)	Effective (%)
232	Eastern County	MO	0.031	3.0	0.40 *		
	Eastern County	ANA	0.038	3.8	0.40		
	Eastern County	MV	0.896	88.9	0.25 *		
233	Eastern County	MO	0.003	0.3	0.40 *		
	Eastern County	ANA	0.013	1.4	0.40		
	Eastern County	ANA	0.017	1.7	0.40		
	Eastern County	MO	0.025	2.6	0.40 *		
	Eastern County	MO	0.029	3.1	0.40 *		
	Eastern County	MO	0.040	4.1	0.40 *		
	Eastern County	MV	0.837	86.8	0.25 *		
234	Eastern County	MO	0.076	44.7	0.40 *		
	Eastern County	MV	0.094	55.3	0.25 *		
235	Eastern County	MO	0.000		0.40 *		
	Eastern County	MV	0.036	100.0	0.25 *		
236	Eastern County	GM	0.007	1.4	0.25 *		
	Eastern County	MO	0.125	23.9	0.40 *		
	Eastern County	ANA	0.179	34.1	0.40		
	Eastern County	MV	0.213	40.6	0.25 *		

* Custom Value (not default value)

Soil Data

	Sub Basin ID	Soil Survey	Map Unit	Area	Area Pct (%)	XKSAT	Rock Outcrop (%)	Effective (%)
Major Basin 01								
	102	Eastern County	CO	0.286	97.4	0.04 *	*	
		Eastern County	MV	0.008	2.6	0.25 *		
	103	Eastern County	ES	0.034	4.8	0.25		
		Eastern County	GM	0.231	32.5	0.25 *		
		Eastern County	ANA	0.056	7.8	0.40		
		Eastern County	MV	0.391	54.9	0.25 *		
	104	Eastern County	MV	0.479	48.7	0.25 *		
		Eastern County	ES	0.035	3.5	0.25		
		Eastern County	GM	0.170	17.3	0.25 *		
		Eastern County	CO	0.300	30.5	0.04 *	*	
	105	Eastern County	CO	0.180	63.6	0.04 *	*	
		Eastern County	MV	0.103	36.4	0.25 *		
	106	Eastern County	MV	0.318	74.4	0.25 *		
		Eastern County	GM	0.050	11.6	0.25 *		
		Eastern County	CO	0.047	11.0	0.04 *	*	
		Eastern County	ES	0.013	3.0	0.25		
	107	Eastern County	CO	0.363	73.4	0.04 *	*	
		Eastern County	MV	0.062	12.5	0.25 *		
		Eastern County	VE	0.069	14.1	0.01 *		
	108	Eastern County	CO	0.047	35.6	0.04 *	*	
		Eastern County	VE	0.085	64.4	0.01 *		
	109	Eastern County	MV	0.158	22.1	0.25 *		
		Eastern County	GM	0.177	24.8	0.25 *		
		Eastern County	ES	0.109	15.2	0.25		
		Eastern County	CO	0.270	37.8	0.04 *	*	
	110	Eastern County	CO	0.251	51.5	0.04 *	*	
		Eastern County	VE	0.236	48.5	0.01 *		
	111	Eastern County	CO	0.291	100.0	0.04 *	*	
	112	Eastern County	CO	0.807	63.0	0.04 *	*	
		Eastern County	VE	0.388	30.3	0.01 *		
		Eastern County	MV	0.054	4.2	0.25 *		
		Eastern County	ES	0.031	2.4	0.25		
	113	Eastern County	VE	0.927	94.1	0.01 *		
		Eastern County	CO	0.058	5.9	0.04 *	*	
	114	Eastern County	CO	0.152	39.5	0.04 *	*	
		Eastern County	VE	0.233	60.5	0.01 *		
	115	Eastern County	CO	0.110	23.6	0.04 *	*	
		Eastern County	VE	0.358	76.4	0.01 *		
	116	Eastern County	CO	0.168	27.9	0.04 *	*	
		Eastern County	MV	0.173	28.7	0.25 *		
		Eastern County	VE	0.262	43.5	0.01 *		

* Custom Value (not default value)

Soil Data

Sub Basin ID	Soil Survey	Map Unit	Area	Area Pct (%)	XKSAT	Rock Outcrop (%)	Effective (%)
117	Eastern County	VE	0.483	100.0	0.01 *		
118	Eastern County	VE	0.684	76.1	0.01 *		
	Eastern County	CO	0.165	18.4	0.04 *	*	
	Eastern County	MO	0.050	5.5	0.40 *		
119	Eastern County	VE	0.488	99.9	0.01 *		
	Eastern County	CO	0.001	0.1	0.04 *	*	
120	Eastern County	VE	0.250	60.7	0.01 *		
	Eastern County	CO	0.138	33.5	0.04 *	*	
	Eastern County	MV	0.019	4.6	0.25 *		
	Eastern County	MO	0.005	1.2	0.40 *		
121	Eastern County	CO	0.300	44.6	0.04 *	*	
	Eastern County	MO	0.029	4.3	0.40 *		
	Eastern County	MV	0.075	11.2	0.25 *		
	Eastern County	VE	0.268	39.9	0.01 *		
122	Eastern County	VE	0.100	9.4	0.01 *		
	Eastern County	GM	0.051	4.8	0.25 *		
	Eastern County	MO	0.021	1.9	0.40 *		
	Eastern County	MV	0.470	44.1	0.25 *		
	Eastern County	CO	0.424	39.8	0.04 *	*	
123	Eastern County	CO	0.547	57.2	0.04 *	*	
	Eastern County	MV	0.309	32.3	0.25 *		
	Eastern County	MO	0.100	10.5	0.40 *		
124	Eastern County	MV	0.546	83.2	0.25 *		
	Eastern County	ES	0.110	16.8	0.25		

* Custom Value (not default value)

Land Use Data

Sub Basin ID	Land Use Code	Area	Area Pct (%)	DTHETA Condition	Vegetation Cover (%)	RTIMP (%)	IA (in)	Kn	Kb Type	Kb
Major Basin: 01										
200	PARK	0.000	0.3	Normal	90.0		0.20	0.100	Min	0.044
	LDR	0.149	94.3	Normal	50.0	15	0.30	0.050	Min	0.028
	RR	0.005	3.0	Normal		5	0.10		Min	0.037
	WATER2	0.003	1.6	Wet		100			Min	0.039
	ROWCROP	0.001	0.6	Normal	85.0		0.50	0.100	Low	0.083
	ROWCROP	0.001	0.3	Normal	85.0		0.50	0.100	Low	0.087
201	ROWCROP	0.000	0.1	Normal	85.0		0.50	0.100	Low	0.088
	MDR	0.463	72.9	Normal	50.0	30	0.25	0.050	Min	0.025
	ROWCROP	0.065	10.3	Normal	85.0		0.50	0.100	Low	0.058
	IND	0.038	6.0	Normal	60.0	55	0.15	0.030	Min	0.031
	IND	0.031	4.8	Normal	60.0	55	0.15	0.030	Min	0.032
	ROWCROP	0.013	2.1	Normal	85.0		0.50	0.100	Low	0.067
	RR	0.010	1.6	Normal		5	0.10		Min	0.035
	PARK	0.005	0.7	Normal	90.0		0.20	0.100	Min	0.037
	PARK	0.004	0.6	Normal	90.0		0.20	0.100	Min	0.037
	PARK	0.003	0.5	Normal	90.0		0.20	0.100	Min	0.038
	COMM	0.003	0.4	Normal	75.0	80	0.10	0.020	Min	0.039
202	MDR	0.000		Normal	50.0	30	0.25	0.050	Min	0.047
	RR	0.000		Normal		5	0.10		Min	0.046
	LDR	0.000		Normal	50.0	15	0.30	0.050	Min	0.046
	ROWCROP	0.478	56.6	Normal	85.0		0.50	0.100	Low	0.046
	MDR	0.298	35.2	Normal	50.0	30	0.25	0.050	Min	0.026
	OPEN	0.036	4.3	Dry	10.0		0.20	0.020	Low	0.061
	OPEN	0.019	2.2	Dry	10.0		0.20	0.020	Low	0.065
	PARK	0.008	0.9	Normal	90.0		0.20	0.100	Min	0.036
	PARK	0.005	0.6	Normal	90.0		0.20	0.100	Min	0.037
	WATER2	0.002	0.2	Wet		100			Min	0.040
203	MDR	0.071	66.7	Normal	50.0	30	0.25	0.050	Min	0.030
	OPEN	0.021	19.5	Dry	10.0		0.20	0.020	Low	0.065

Land Use Data

Sub Basin ID	Land Use Code	Area	Area Pct (%)	DTHETA Condition	Vegetation Cover (%)	RTIMP (%)	IA (in)	Kn	Kb Type	Kb
Major Basin: 01										
203	PARK	0.006	5.4	Normal	90.0		0.20	0.100	Min	0.036
	COMM	0.004	4.0	Normal	75.0	80	0.10	0.020	Min	0.037
	PARK	0.004	3.4	Normal	90.0		0.20	0.100	Min	0.038
	WATER2	0.001	1.0	Wet		100			Min	0.041
204	COMM	0.000		Normal	75.0	80	0.10	0.020	Min	0.047
	IND	0.000		Normal	60.0	55	0.15	0.030	Min	0.044
	MDR	0.403	49.4	Normal	50.0	30	0.25	0.050	Min	0.025
	ROWCROP	0.249	30.5	Normal	85.0		0.50	0.100	Low	0.050
	ROWCROP	0.082	10.0	Normal	85.0		0.50	0.100	Low	0.056
	COMM	0.032	3.9	Normal	75.0	80	0.10	0.020	Min	0.032
	OPEN	0.029	3.5	Dry	10.0		0.20	0.020	Low	0.063
	OPEN	0.019	2.3	Dry	10.0		0.20	0.020	Low	0.065
	RR	0.002	0.3	Normal		5	0.10		Min	0.039
	LDR	0.001	0.1	Normal	50.0	15	0.30	0.050	Min	0.041
	IND	0.001	0.1	Normal	60.0	55	0.15	0.030	Min	0.042
205	OPEN	0.000		Dry	10.0		0.20	0.020	Low	0.096
	SCHOOL	0.000		Normal	75.0	15	0.30		Min	0.047
	VLDR	0.466	40.6	Normal	30.0	5	0.30	0.050	Min	0.025
	MDR	0.252	21.9	Normal	50.0	30	0.25	0.050	Min	0.026
	ROWCROP	0.188	16.4	Normal	85.0		0.50	0.100	Low	0.051
	SCHOOL	0.111	9.7	Normal	50.0*	25 *	0.20*		Min	0.028
	ROWCROP	0.065	5.6	Normal	85.0		0.50	0.100	Low	0.058
	VLDR	0.065	5.6	Normal	30.0	5	0.30	0.050	Min	0.030
	RR	0.002	0.2	Normal		5	0.10		Min	0.040
	WATER2	0.002	0.1	Wet		100			Min	0.040
206	OPEN	0.000		Dry	10.0		0.20	0.020	Low	0.096
	MDR	0.000		Normal	50.0	30	0.25	0.050	Min	0.046
	ROWCROP	0.616	81.2	Normal	85.0		0.50	0.100	Low	0.044
	OPEN	0.127	16.7	Dry	10.0		0.20	0.020	Low	0.054

* Custom Value (not default value)

Land Use Data

Sub Basin ID	Land Use Code	Area	Area Pct (%)	DTHETA Condition	Vegetation Cover (%)	RTIMP (%)	IA (in)	Kn	Kb Type	Kb
Major Basin: 01										
206	LDR	0.016	2.1	Normal	50.0	15	0.30	0.050	Min	0.034
207	LDR	0.000		Normal	50.0	15	0.30	0.050	Min	0.047
	MDR	0.000		Normal	50.0	30	0.25	0.050	Min	0.046
	OPEN	0.000		Dry	10.0		0.20	0.020	Low	0.090
	OPEN	0.000	0.1	Dry	10.0		0.20	0.020	Low	0.088
	MDR	0.628	92.4	Normal	50.0	30	0.25	0.050	Min	0.024
	ROWCROP	0.049	7.1	Normal	85.0		0.50	0.100	Low	0.059
	WATER2	0.002	0.3	Wet		100			Min	0.039
208	MDR	0.000	0.3	Normal	50.0	30	0.25	0.050	Min	0.044
	MDR	0.077	69.4	Normal	50.0	30	0.25	0.050	Min	0.029
	ROWCROP	0.031	28.2	Normal	85.0		0.50	0.100	Low	0.062
	WATER2	0.002	1.7	Wet		100			Min	0.039
	ROWCROP	0.001	0.5	Normal	85.0		0.50	0.100	Low	0.087
209	OPEN	0.000		Dry	10.0		0.20	0.020	Low	0.090
	MDR	0.762	87.7	Normal	50.0	30	0.25	0.050	Min	0.023
	OPEN	0.042	4.8	Dry	10.0		0.20	0.020	Low	0.060
	SCHOOL	0.030	3.5	Normal	70.0*	35 *	0.20*		Min	0.032
	OPEN	0.023	2.6	Dry	10.0		0.20	0.020	Low	0.064
	WATER2	0.010	1.2	Wet		100			Min	0.035
	MDR	0.002	0.2	Normal	50.0	30	0.25	0.050	Min	0.040
210	VLDR	0.000		Normal	30.0	5	0.30	0.050	Min	0.047
	VLDR	0.000		Normal	30.0	5	0.30	0.050	Min	0.044
	ROWCROP	0.722	71.0	Normal	85.0		0.50	0.100	Low	0.043
	MDR	0.129	12.7	Normal	50.0	30	0.25	0.050	Min	0.028
	VLDR	0.093	9.1	Normal	30.0	5	0.30	0.050	Min	0.029
	OPEN	0.058	5.7	Dry	5.0*	5 *	0.20	0.020	Low	0.058
	VLDR	0.008	0.8	Normal	30.0	5	0.30	0.050	Min	0.035
	VLDR	0.008	0.7	Normal	30.0	5	0.30	0.050	Min	0.036

* Custom Value (not default value)

Land Use Data

Sub Basin ID	Land Use Code	Area	Area Pct (%)	DTHETA Condition	Vegetation Cover (%)	RTIMP (%)	IA (in)	Kn	Kb Type	Kb
Major Basin: 01										
211	VLDR	0.348	37.6	Normal	30.0	5	0.30	0.050	Min	0.025
	ROWCROP	0.269	29.0	Normal	85.0		0.50	0.100	Low	0.049
	VLDR	0.139	15.0	Normal	30.0	5	0.30	0.050	Min	0.028
	ROWCROP	0.076	8.2	Normal	85.0	10 *	0.50	0.100	Low	0.057
	VLDR	0.040	4.3	Normal	30.0	5	0.30	0.050	Min	0.031
	ROWCROP	0.019	2.1	Normal	85.0		0.50	0.100	Low	0.065
	VLDR	0.013	1.4	Normal	30.0	5	0.30	0.050	Min	0.034
	VLDR	0.010	1.1	Normal	30.0	5	0.30	0.050	Min	0.035
	VLDR	0.008	0.8	Normal	30.0	5	0.30	0.050	Min	0.036
	VLDR	0.003	0.3	Normal	30.0	5	0.30	0.050	Min	0.038
	VLDR	0.002	0.2	Normal	30.0	5	0.30	0.050	Min	0.040
212	ROWCROP	0.316	84.9	Normal	85.0		0.50	0.100	Low	0.048
	VLDR	0.033	8.8	Normal	30.0	5	0.30	0.050	Min	0.032
	VLDR	0.008	2.0	Normal	30.0	5	0.30	0.050	Min	0.036
	VLDR	0.005	1.3	Normal	30.0	5	0.30	0.050	Min	0.037
	VLDR	0.004	1.1	Normal	30.0	5	0.30	0.050	Min	0.037
	OPEN	0.003	0.9	Dry	10.0		0.20	0.020	Low	0.075
	VLDR	0.002	0.5	Normal	30.0	5	0.30	0.050	Min	0.040
	WATER2	0.001	0.3	Wet		100			Min	0.040
	VLDR	0.001	0.1	Normal	30.0	5	0.30	0.050	Min	0.043
213	VLDR	0.000	0.1	Normal	30.0	5	0.30	0.050	Min	0.047
	ROWCROP	0.056	45.0	Normal	85.0		0.50	0.100	Low	0.059
	VLDR	0.031	24.9	Normal	30.0	5	0.30	0.050	Min	0.032
	VLDR	0.018	14.2	Normal	30.0	5	0.30	0.050	Min	0.033
	VLDR	0.009	7.2	Normal	30.0	5	0.30	0.050	Min	0.035
	VLDR	0.009	7.0	Normal	30.0	5	0.30	0.050	Min	0.035
	WATER2	0.001	0.9	Wet		100			Min	0.041
	VLDR	0.001	0.8	Normal	30.0	5	0.30	0.050	Min	0.041
214	OPEN	0.000		Dry	10.0		0.20	0.020	Low	0.096

* Custom Value (not default value)

Land Use Data

Sub Basin ID	Land Use Code	Area	Area Pct (%)	DTHETA Condition	Vegetation Cover (%)	RTIMP (%)	IA (in)	Kn	Kb Type	Kb
Major Basin: 01										
214	ROWCROP	0.406	100.0	Normal	85.0		0.50	0.100	Low	0.047
215	ROWCROP	0.000	0.2	Normal	85.0		0.50	0.100	Low	0.096
	VLDR	0.015	32.8	Normal	30.0	5	0.30	0.050	Min	0.034
	OPEN	0.013	28.3	Dry	10.0		0.20	0.020	Low	0.068
	OPEN	0.009	20.4	Dry	10.0		0.20	0.020	Low	0.069
	OPEN	0.007	15.1	Dry	10.0		0.20	0.020	Low	0.071
	WATER2	0.001	3.1	Wet		100			Min	0.040
216	LDR	0.000		Normal	50.0	15	0.30	0.050	Min	0.047
	VLDR	0.000		Normal	30.0	5	0.30	0.050	Min	0.046
	ROWCROP	0.622	60.6	Normal	85.0		0.50	0.100	Low	0.044
	VLDR	0.129	12.6	Normal	30.0	5	0.30	0.050	Min	0.028
	LDR	0.000		Normal	50.0	15	0.30	0.050	Min	0.047
	MDR	0.093	9.0	Normal	50.0	30	0.25	0.050	Min	0.029
	IND	0.011	1.1	Normal	60.0	55	0.15	0.030	Min	0.035
	WATER2	0.011	1.1	Wet		100			Min	0.035
	OPEN	0.011	1.0	Dry	10.0		0.20	0.020	Low	0.069
	VLDR	0.007	0.7	Normal	30.0	5	0.30	0.050	Min	0.036
	ROWCROP	0.006	0.6	Normal	85.0		0.50	0.100	Low	0.072
	LDR	0.008	0.8	Normal	50.0	15	0.30	0.050	Min	0.036
	OPEN	0.002	0.2	Dry	10.0		0.20	0.020	Low	0.077
	VLDR	0.002	0.2	Normal	30.0	5	0.30	0.050	Min	0.039
	VLDR	0.002	0.2	Normal	30.0	5	0.30	0.050	Min	0.040
	LDR	0.122	11.9	Normal	50.0	15	0.30	0.050	Min	0.028
	VLDR	0.000		Normal	30.0	5	0.30	0.050	Min	0.046
217	IND	0.000		Normal	60.0	55	0.15	0.030	Min	0.047
	OPEN	0.000		Dry	10.0		0.20	0.020	Low	0.096
	OPEN	0.000		Dry	10.0		0.20	0.020	Low	0.096
	VLDR	0.000		Normal	30.0	5	0.30	0.050	Min	0.047
	OPEN	0.000		Dry	10.0		0.20	0.020	Low	0.096

* Custom Value (not default value)

Land Use Data

Sub Basin ID	Land Use Code	Area	Area Pct (%)	DTHETA Condition	Vegetation Cover (%)	RTIMP (%)	IA (in)	Kn	Kb Type	Kb
Major Basin: 01										
217	OPEN	0.000		Dry	10.0		0.20	0.020	Low	0.096
	IND	0.000		Normal	60.0	55	0.15	0.030	Min	0.046
	LDR	0.000		Normal	50.0	15	0.30	0.050	Min	0.046
	LDR	0.000		Normal	50.0	15	0.30	0.050	Min	0.044
	ROWCROP	0.873	86.5	Normal	85.0		0.50	0.100	Low	0.042
	VLDR	0.000		Normal	30.0	5	0.30	0.050	Min	0.044
	IND	0.125	12.4	Normal	10.0*	5 *	0.35*	0.030	Low*	0.054
	ROWCROP	0.009	0.9	Normal	85.0		0.50	0.100	Low	0.070
	VLDR	0.001	0.1	Normal	30.0	5	0.30	0.050	Min	0.042
218	IND	0.000		Normal	60.0	55	0.15	0.030	Min	0.047
	ROWCROP	0.628	62.4	Normal	85.0		0.50	0.100	Low	0.044
	MDR	0.256	25.4	Normal	50.0	30	0.25	0.050	Min	0.026
	ROWCROP	0.085	8.5	Normal	85.0		0.50	0.100	Low	0.056
	VLDR	0.037	3.7	Normal	30.0	5	0.30	0.050	Min	0.031
219	ROWCROP	0.075	96.4	Normal	85.0		0.50	0.100	Low	0.057
	WATER2	0.003	3.6	Wet		100			Min	0.038
220	VLDR	0.391	49.7	Normal	30.0	5	0.30	0.050	Min	0.025
	ROWCROP	0.361	45.9	Normal	85.0	5 *	0.50	0.100	Low	0.048
	WATER2	0.005	0.6	Wet		100			Min	0.037
	LDR	0.030	3.8	Normal	50.0	15	0.30	0.050	Min	0.032
221	ROWCROP	0.373	74.2	Normal	85.0	5 *	0.50	0.100	Low	0.047
	MDR	0.130	25.8	Normal	50.0	30	0.25	0.050	Min	0.028
222	VLDR	0.484	64.4	Normal	30.0	5	0.30	0.050	Min	0.024
	ROWCROP	0.243	32.3	Normal	85.0		0.50	0.100	Low	0.050
	SCHOOL	0.024	3.2	Normal	75.0	15	0.20*		Min	0.033
	VLDR	0.001	0.1	Normal	30.0	5	0.30	0.050	Min	0.043
223	ROWCROP	0.388	77.1	Normal	85.0		0.50	0.100	Low	0.047
	ROWCROP	0.000		Normal	85.0		0.50	0.100	Low	0.096

* Custom Value (not default value)

Land Use Data

Sub Basin ID	Land Use Code	Area	Area Pct (%)	DTHETA Condition	Vegetation Cover (%)	RTIMP (%)	IA (in)	Kn	Kb Type	Kb
Major Basin: 01										
223	VLDR	0.087	17.3	Normal	30.0	5	0.30	0.050	Min	0.029
	OPEN	0.028	5.6	Dry	10.0		0.20	0.020	Low	0.063
224	ROWCROP	0.000		Normal	85.0		0.50	0.100	Low	0.096
	~~ROWCROP~~ MDR	0.175	41.0	Normal	50 ~~85.0~~	30	0.50	0.100	Low	0.052
	VLDR	0.219	51.3	Normal	30.0	5	0.30	0.050	Min	0.027
	VLDR	0.019	4.4	Normal	30.0	5	0.30	0.050	Min	0.033
	~~OPEN~~ MDR	0.012	2.9	Dry	50 ~~10.0~~	30	0.20	0.020	Low	0.068
	WATER2	0.002	0.5	Wet		100			Min	0.039
225	VLDR	0.000		Normal	30.0	5	0.30	0.050	Min	0.047
	ROWCROP	0.442	67.1	Normal	85.0		0.50	0.100	Low	0.046
	VLDR	0.131	19.9	Normal	30.0	5	0.30	0.050	Min	0.028
	VLDR	0.032	4.8	Normal	30.0	5	0.30	0.050	Min	0.032
	VLDR	0.026	4.0	Normal	30.0	5	0.30	0.050	Min	0.032
	VLDR	0.017	2.6	Normal	30.0	5	0.30	0.050	Min	0.033
	VLDR	0.008	1.1	Normal	30.0	5	0.30	0.050	Min	0.036
	VLDR	0.002	0.3	Normal	30.0	5	0.30	0.050	Min	0.039
	WATER2	0.001	0.2	Wet		100			Min	0.040
226	ROWCROP	0.497	98.5	Normal	85.0		0.50	0.100	Low	0.046
	VLDR	0.007	1.5	Normal	30.0	5	0.30	0.050	Min	0.036
227	VLDR	0.000	0.1	Normal	30.0	5	0.30	0.050	Min	0.044
	ROWCROP	0.458	98.1	Normal	85.0		0.50	0.100	Low	0.046
	VLDR	0.007	1.6	Normal	30.0	5	0.30	0.050	Min	0.036
	WATER2	0.001	0.3	Wet		100			Min	0.041
228	VLDR	0.314	55.0	Normal	30.0	5	0.30	0.050	Min	0.026
	ROWCROP	0.254	44.5	Normal	85.0		0.50	0.100	Low	0.050
	OPEN	0.002	0.3	Dry	10.0		0.20	0.020	Low	0.079
	WATER2	0.001	0.1	Wet		100			Min	0.042
229	ROWCROP	0.255	50.2	Normal	85.0		0.50	0.100	Low	0.050

Land Use Data

Sub Basin ID	Land Use Code	Area	Area Pct (%)	DTHETA Condition	Vegetation Cover (%)	RTIMP (%)	IA (in)	Kn	Kb Type	Kb
Major Basin: 01										
229	ROWCROP	0.243	48.0	Normal	85.0		0.50	0.100	Low	0.050
	VLDR	0.009	1.8	Normal	30.0	5	0.30	0.050	Min	0.035
230	ROWCROP	0.361	63.9	Normal	85.0		0.50	0.100	Low	0.048
	OPEN	0.128	22.6	Dry	10.0		0.20	0.020	Low	0.054
	OPEN	0.072	12.8	Dry	10.0		0.20	0.020	Low	0.057
	WATER2	0.002	0.3	Wet		100			Min	0.040
	IND	0.002	0.4	Normal	60.0	5 *	0.20*	0.030	Min	0.039
231	OPEN	0.000		Dry	10.0		0.20	0.020	Low	0.096
	OPEN	0.000		Dry	10.0		0.20	0.020	Low	0.092
	ROWCROP	0.978	98.2	Normal	85.0		0.50	0.100	Low	0.042
	WATER2	0.016	1.6	Wet		100			Min	0.034
	OPEN	0.001	0.1	Dry	10.0		0.20	0.020	Low	0.084
	LDR	0.001	0.1	Normal	50.0	15	0.30	0.050	Min	0.042
232	VLDR	0.404	40.1	Normal	30.0	5	0.30	0.050	Min	0.025
	ROWCROP	0.316	31.4	Normal	85.0		0.50	0.100	Low	0.048
	OPEN	0.182	18.0	Dry	10.0		0.20	0.020	Low	0.052
	SCHOOL	0.099	9.8	Normal	50.0*	15	0.20*		Min	0.029
	VLDR	0.004	0.3	Normal	30.0	5	0.30	0.050	Min	0.038
	VLDR	0.003	0.3	Normal	30.0	5	0.30	0.050	Min	0.038
	ROWCROP	0.001		Normal	85.0		0.50	0.100	Low	0.087
233	OPEN	0.000		Dry	10.0		0.20	0.020	Low	0.092
	VLDR	0.000		Normal	30.0	5	0.30	0.050	Min	0.044
	ROWCROP	0.589	61.2	Normal	85.0		0.50	0.100	Low	0.045
	MDR	0.137	14.2	Normal	50.0	30	0.25	0.050	Min	0.028
	MDR	0.125	12.9	Normal	50.0	30	0.25	0.050	Min	0.028
	VLDR	0.032	3.4	Normal	30.0	5	0.30	0.050	Min	0.032
	OPEN	0.019	2.0	Dry	10.0		0.20	0.020	Low	0.065
	LDR	0.060	6.2	Normal	50.0	15	0.30	0.050	Min	0.030

* Custom Value (not default value)

Land Use Data

Sub Basin ID	Land Use Code	Area	Area Pct (%)	DTHETA Condition	Vegetation Cover (%)	RTIMP (%)	IA (in)	Kn	Kb Type	Kb
Major Basin: 01										
234	MDR	0.158	92.8	Normal	50.0	30	0.25	0.050	Min	0.027
	ROWCROP	0.011	6.3	Normal	85.0		0.50	0.100	Low	0.068
	WATER2	0.001	0.8	Wet		100			Min	0.040
235	OPEN	0.000	0.3	Dry	10.0		0.20	0.020	Low	0.096
	OPEN	0.036	99.7	Dry	10.0		0.20	0.020	Low	0.061
236	OPEN	0.000	0.1	Dry	10.0		0.20	0.020	Low	0.090
	VLDR	0.249	47.6	Normal	30.0	5	0.30	0.050	Min	0.026
	ROWCROP	0.170	32.5	Normal	85.0		0.50	0.100	Low	0.052
	OPEN	0.094	17.9	Dry	10.0		0.20	0.020	Low	0.056
	WATER2	0.007	1.3	Wet		100			Min	0.036
	ROWCROP	0.002	0.3	Normal	85.0		0.50	0.100	Low	0.079
	OPEN	0.001	0.3	Dry	10.0		0.20	0.020	Low	0.081
237	~~VLDR~~ WATER	~~0.006~~ .001	7.4 0.8	Normal	30.0	100 ~~5~~	0.30	0.050	Min	0.036
	~~ROWCROP~~ MDR	0.075	92.6	Normal	50 ~~85.0~~	30	0.50	0.100	Low	0.057
238	WATER2	0.003	0.8	Wet		100			Min	0.039
	~~ROWCROP~~ MDR	0.334	99.2	Normal	50 ~~85.0~~	30	0.50	0.100	Low	0.048

Land Use Data

Sub Basin ID	Land Use Code	Area	Area Pct (%)	DTHETA Condition	Vegetation Cover (%)	RTIMP (%)	IA (in)	Kn	Kb Type	Kb
Major Basin: 01										
102	M.D.R.	0.194	66.9	Normal	50.0	30	0.25	0.050	Min	0.027
	OPEN	0.028	9.5	Dry	10.0		0.10	0.020	Min	0.032
	PARK	0.007	2.3	Normal	90.0		0.20	0.100	Min	0.036
	IND	0.040	13.8	Normal	60.0	55	0.15	0.030	Min	0.031
	V.L.D.R.	0.022	7.4	Normal	30.0	5	0.30	0.050	Min	0.033
103	COMM	0.006	0.8	Normal	75.0	80	0.10	0.020	Min	0.037
	IND	0.003	0.4	Normal	60.0	55	0.15	0.030	Min	0.039
	M.D.R.	0.502	70.9	Normal	50.0	30	0.25	0.050	Min	0.024
	OPEN	0.017	2.4	Dry	10.0		0.10	0.020	Min	0.034
	PARK	0.011	1.6	Normal	90.0		0.20	0.100	Min	0.035
	SCHOOL	0.012	1.7	Normal	30.0	5	0.30		Min	0.035
	V.L.D.R.	0.158	22.3	Normal	30.0	5	0.30	0.050	Min	0.027
104	COMM	0.030	3.0	Normal	75.0	80	0.10	0.020	Min	0.032
	M.D.R.	0.502	51.2	Normal	50.0	30	0.25	0.050	Min	0.024
	PARK	0.021	2.1	Normal	90.0		0.20	0.100	Min	0.033
	ROWCROP	0.278	28.4	Normal	85.0		0.50	0.100	Low	0.049
	V.L.D.R.	0.147	14.9	Normal	30.0	5	0.30	0.050	Min	0.028
	OPEN	0.003	0.3	Dry	10.0		0.10	0.020	Min	0.038
105	M.D.R.	0.124	44.1	Normal	50.0	30	0.25	0.050	Min	0.028
	V.L.D.R.	0.158	55.9	Normal	30.0	5	0.30	0.050	Min	0.027
106	COMM	0.003	0.7	Normal	75.0	80	0.10	0.020	Min	0.038
	M.D.R.	0.267	62.5	Normal	50.0	30	0.25	0.050	Min	0.026
	OPEN	0.025	5.8	Dry	10.0		0.10	0.020	Min	0.033
	PARK	0.008	1.8	Normal	90.0		0.20	0.100	Min	0.036
	ROWCROP	0.006	1.4	Normal	85.0		0.50	0.100	Low	0.072
	SCHOOL	0.120	28.0	Normal	30.0	5	0.30		Min	0.028
107	COMM	0.010	2.0	Normal	75.0	80	0.10	0.020	Min	0.035
	M.D.R.	0.235	47.6	Normal	50.0	30	0.25	0.050	Min	0.026

Land Use Data

Sub Basin ID	Land Use Code	Area	Area Pct (%)	DTHETA Condition	Vegetation Cover (%)	RTIMP (%)	IA (in)	Kn	Kb Type	Kb
Major Basin: 01										
107	PARK	0.008	1.5	Normal	90.0		0.20	0.100	Min	0.036
	V.L.D.R.	0.241	48.9	Normal	30.0	5	0.30	0.050	Min	0.026
108	V.L.D.R.	0.132	98.9	Normal	30.0	5	0.30	0.050	Min	0.028
	WATER2	0.002	1.1	Wet		100			Min	0.040
109	M.D.R.	0.000		Normal	50.0	30	0.25	0.050	Min	0.047
	ROWCROP	0.707	100.0	Normal	85.0		0.50	0.100	Low	0.043
110	IND	0.015	3.1	Normal	60.0	55	0.15	0.030	Min	0.034
	M.D.R.	0.450	92.3	Normal	50.0	30	0.25	0.050	Min	0.025
	OPEN	0.020	4.2	Normal *	90.0*		0.10	0.020	Min	0.033
	ROWCROP	0.002	0.4	Normal	85.0		0.50	0.100	Low	0.078
111	L.D.R.	0.000	0.1	Normal	50.0	15	0.30	0.050	Min	0.044
	M.D.R.	0.289	99.0	Normal	50.0	30	0.25	0.050	Min	0.026
	ROWCROP	0.001	0.2	Normal	85.0		0.50	0.100	Low	0.087
	WATER2	0.002	0.7	Wet		100			Min	0.039
112	IND	0.000		Normal	60.0	55	0.15	0.030	Min	0.047
	OPEN	0.000		Dry	10.0		0.10	0.020	Min	0.046
	ROWCROP	1.267	99.5	Normal	85.0		0.50	0.100	Low	0.040
	V.L.D.R.	0.006	0.5	Normal	30.0	5	0.30	0.050	Min	0.036
113	IND	0.014	1.4	Normal	60.0	55	0.15	0.030	Min	0.034
	OPEN	0.107	10.9	Dry	10.0	5 *	0.10	0.020	Min	0.029
	ROWCROP	0.864	87.7	Normal	85.0		0.50	0.100	Low	0.042
114	ROWCROP	0.154	40.0	Normal	85.0		0.50	0.100	Low	0.053
	V.L.D.R.	0.231	59.8	Normal	30.0	5	0.30	0.050	Min	0.026
	WATER2	0.001	0.2	Wet		100			Min	0.042
115	IND	0.007	1.4	Normal	60.0	55	0.15	0.030	Min	0.036
	L.D.R.	0.017	3.7	Normal	50.0	15	0.30	0.050	Min	0.033
	M.D.R.	0.104	22.3	Normal	50.0	30	0.25	0.050	Min	0.029

* Custom Value (not default value)

Land Use Data

Sub Basin ID	Land Use Code	Area	Area Pct (%)	DTHETA Condition	Vegetation Cover (%)	RTIMP (%)	IA (in)	Kn	Kb Type	Kb
Major Basin: 01										
115	PARK	0.103	21.9	Wet *	80.0*	10 *	0.20	0.100	Min	0.029
	ROWCROP	0.237	50.5	Normal	85.0		0.50	0.100	Low	0.050
	WATER2	0.000	0.1	Wet		100			Min	0.044
116	IND	0.052	8.6	Normal	60.0	55	0.15	0.030	Min	0.031
	L.D.R.	0.093	15.5	Normal	50.0	15	0.30	0.050	Min	0.029
	OPEN	0.003	0.5	Dry	10.0		0.10	0.020	Min	0.039
	ROWCROP	0.433	72.1	Normal	85.0		0.50	0.100	Low	0.046
	V.L.D.R.	0.020	3.3	Normal	30.0	5	0.30	0.050	Min	0.033
117	M.D.R.	0.002	0.4	Normal	50.0	30	0.25	0.050	Min	0.039
	OPEN	0.000	0.1	Dry	10.0		0.10	0.020	Min	0.044
	ROWCROP	0.481	99.5	Normal	85.0		0.50	0.100	Low	0.046
118	M.D.R.	0.500	55.7	Normal	50.0	30	0.25	0.050	Min	0.024
	PARK	0.206	22.9	Wet *	80.0*	10 *	0.20	0.100	Min	0.027
	ROWCROP	0.186	20.7	Normal	85.0		0.50	0.100	Low	0.051
	V.L.D.R.	0.004	0.4	Normal	30.0	5	0.30	0.050	Min	0.038
	WATER2	0.002	0.2	Wet		100			Min	0.039
119	M.D.R.	0.210	43.3	Normal	50.0	30	0.25	0.050	Min	0.027
	ROWCROP	0.275	56.7	Normal	85.0		0.50	0.100	Low	0.049
120	IND	0.003	0.6	Normal	60.0	55	0.15	0.030	Min	0.039
	L.D.R.	0.083	20.1	Normal	50.0	15	0.30	0.050	Min	0.029
	M.D.R.	0.000		Normal	50.0	30	0.25	0.050	Min	0.046
	OPEN	0.025	6.1	Dry	10.0		0.10	0.020	Min	0.032
	ROWCROP	0.271	65.8	Normal	85.0		0.50	0.100	Low	0.049
	V.L.D.R.	0.030	7.4	Normal	30.0	5	0.30	0.050	Min	0.032
121	IND	0.007	1.1	Normal	60.0	55	0.15	0.030	Min	0.036
	M.D.R.	0.086	12.8	Normal	50.0	30	0.25	0.050	Min	0.029
	ROWCROP	0.541	80.6	Normal	85.0		0.50	0.100	Low	0.045
	V.L.D.R.	0.037	5.5	Normal	30.0	5	0.30	0.050	Min	0.031

* Custom Value (not default value)

Land Use Data

Sub Basin ID	Land Use Code	Area	Area Pct (%)	DTHETA Condition	Vegetation Cover (%)	RTIMP (%)	IA (in)	Kn	Kb Type	Kb
Major Basin: 01										
122	IND	0.040	3.8	Normal	60.0	55	0.15	0.030	Min	0.031
	L.D.R.	0.074	7.0	Normal	50.0	15	0.30	0.050	Min	0.030
	M.D.R.	0.369	35.0	Normal	50.0	30	0.25	0.050	Min	0.025
	OPEN	0.000		Dry	10.0		0.10	0.020	Min	0.046
	ROWCROP	0.563	53.3	Normal	85.0		0.50	0.100	Low	0.045
	V.L.D.R.	0.009	0.8	Normal	30.0	5	0.30	0.050	Min	0.035
123	L.D.R.	0.000		Normal	50.0	15	0.30	0.050	Min	0.046
	M.D.R.	0.129	13.5	Normal	50.0	30	0.25	0.050	Min	0.028
	ROWCROP	0.797	83.5	Normal	85.0		0.50	0.100	Low	0.043
	SCHOOL	0.028	2.9	Normal	30.0	5	0.30		Min	0.032
124	IND	0.022	3.3	Normal	60.0	55	0.15	0.030	Min	0.033
	ROWCROP	0.631	96.7	Normal	85.0		0.50	0.100	Low	0.044

DS & DN.3 Routing Data

Intersection data located in Section DS & DN.5.2

CHANDLER/GILBERT
PHASE 1 - SOUTH, EASTERN CANAL WATERSHED
ROUTE DATA

CP FROM	CP TO	Route Length (ft)	Upstream Elevation (ft)	Downstream Elevation (ft)	SLOPE (ft/ft)	Velocity fps	NSTPS time step (5min)	n_1	n_2	n_3
200	202	4012	1273.1	1266.0	0.0018	3.50	4	0.035	0.035	0.035
202	203	3033	1272.9	1265.8	0.0023	3.50	3	0.035	0.035	0.035
203	208	3079	1273.4	1268.0	0.0018	3.50	3	0.035	0.035	0.035
206	202	1725	1273.5	1266.0	0.0043	3.50	2	0.035	0.015	0.035
206	203	2765	1273.5	1265.8	0.0028	3.50	3	0.035	0.015	0.035
207	213	1316	1270.3	1266.0	0.0033	3.50	2	0.035	0.035	0.035
208	207	3324	1269.0	1265.0	0.0012	3.50	4	0.035	0.035	0.035
209	205	9491	1303.0	1275.0	0.0030	3.50	10	0.03	0.015	0.035
209	210	5297	1303.0	1288.3	0.0028	3.50	6	0.03	0.015	0.03
213	212	1719	1266.0	1263.0	0.0017	3.50	2	0.035	0.035	0.035
215	219	3387	1265.9	1261.0	0.0014	3.50	4	0.035	0.035	0.035
216	210	5347	1296.9	1288.3	0.0016	3.50	6	0.03	0.015	0.035
216	VVG	5280	1296.9	1282.2	0.0028	3.50	6	0.035	0.015	0.03
217	218	5315	1283.5	1268.2	0.0029	3.50	6	0.035	0.035	0.035
218	219	1992	1268.2	1261.0	0.0036	3.50	2	0.035	0.035	0.035
218	237	1992	1268.2	1261.0	0.0036	3.50	2	0.035	0.035	0.035
220	217	2671	1286.4	1283.5	0.0011	3.50	3	0.035	0.015	0.03
220	221	5278	1286.4	1270.6	0.0030	3.50	6	0.035	0.015	0.035
221	218	2655	1270.6	1268.2	0.0009	3.50	3	0.035	0.015	0.035
221	238	5883	1268.4	1260.2	0.0014	3.50	6	0.035	0.015	0.035
222	223	5255	1287.9	1273.4	0.0028	3.50	6	0.035	0.015	0.035
223	227	6381	1273.4	1261.0	0.0019	3.50	7	0.035	0.015	0.035
228	229	5308	1289.3	1274.5	0.0028	3.50	6	0.035	0.015	0.035
228	231	5302	1289.3	1279.9	0.0018	3.50	6	0.035	0.015	0.03
229	230	6413	1274.5	1256.8	0.0028	3.50	7	0.035	0.015	0.035
229	232	5276	1274.5	1264.3	0.0019	3.50	6	0.035	0.015	0.035
231	232	5280	1279.9	1264.3	0.0030	3.50	6	0.035	0.015	0.03
232	233	5065	1264.3	1253.6	0.0021	3.50	5	0.035	0.015	0.035
233	235	863	1253.6	1250.9	0.0031	3.50	1	0.035	0.015	0.035
LG	215	623	1266.3	1262	0.0069	3.50	1	0.035	0.015	0.03
LG	219	3421	1266.3	1261	0.0015	3.50	4	0.035	0.035	0.035
VVG	211	3522	1282.2	1273.0	0.0026	3.50	4	0.03	0.015	0.035
VVG	LG	5354	1282.2	1266.3	0.0030	3.50	6	0.035	0.015	0.03

Routing Data - Normal Depth

		RS Card	RC Card						RX and RY Cards								
Basin	Reach ID	NSTPS	ANL	ANCH	ANR	RLNTH (ft)	SEL (ft/ft)	ELMAX		1	2	LB	4	5	RB	7	8
01	206202	2	0.035	0.015	0.035	1721	0.0044	2.00	Sta	0.0	0.0	45.0	45.0	128.0	128.0	173.0	173.0
									Elev	2.0	0.8	0.5	0.0	0.0	0.5	0.8	2.0
01	206203	3	0.035	0.015	0.035	2765	0.0028	2.00	Sta	0.0	0.0	60.0	60.0	140.0	140.0	200.0	200.0
									Elev	2.0	0.8	0.5	0.0	0.0	0.5	0.8	2.0
01	207213	2	0.035	0.035	0.035	1316	0.0033	1.00	Sta	0.0	710.0	850.0	1250.0	1600.0	1850.0	2050.0	2120.0
									Elev	5.0	3.0	1.0	1.0	0.0	1.0	1.0	1.0
01	209205	10	0.030	0.015	0.035	9491	0.0030	4.60	Sta	0.0	541.0	552.0	566.0	600.0	600.0	631.0	631.0
									Elev	4.6	0.0	1.8	2.0	1.2	1.7	2.2	4.6
01	209210	6	0.030	0.015	0.030	5297	0.0028	10.00	Sta	0.0	10.0	21.0	25.0	25.0	49.0	58.0	68.0
									Elev	10.0	0.0	1.8	2.1	2.1	1.8	0.0	10.0
01	216210	6	0.030	0.015	0.035	5347	0.0016	2.10	Sta	0.0	10.0	21.0	25.0	25.0	49.0	58.0	1010.0
									Elev	2.1	2.1	2.1	2.1	2.1	1.8	0.0	3.2
01	217218	6	0.035	0.035	0.035	5315	0.0029	1.40	Sta	0.0	160.0	374.0	450.0	640.0	979.0	1266.0	1517.0
									Elev	1.4	0.9	0.1	0.0	0.0	0.4	1.0	1.4
01	218219	2	0.035	0.035	0.035	1992	0.0036	1.20	Sta	0.0	652.0	1317.0	1443.0	1538.0	1648.0	1754.0	1863.0
									Elev	2.6	1.3	0.6	0.0	0.6	0.0	0.6	1.2
01	218237	2	0.035	0.035	0.035	1992	0.0036	1.20	Sta	0.0	652.0	1317.0	1443.0	1538.0	1648.0	1754.0	1863.0
									Elev	2.6	1.3	0.6	0.0	0.6	0.0	0.6	1.2
01	220217	3	0.035	0.015	0.030	2671	0.0011	2.10	Sta	0.0	10.0	21.0	35.0	35.0	49.0	58.0	170.0
									Elev	2.1	2.1	2.1	2.1	2.1	1.8	0.0	2.1
01	220221	6	0.035	0.015	0.035	5278	0.0030	0.60	Sta	0.0	500.0	511.0	525.0	525.0	539.0	550.0	1050.0
									Elev	0.6	0.0	1.8	2.1	2.1	1.8	0.0	0.6
01	221218	3	0.035	0.015	0.035	2655	0.0009	2.10	Sta	0.0	10.0	21.0	35.0	35.0	49.0	58.0	170.0
									Elev	2.1	2.1	2.1	2.1	2.1	1.8	0.0	3.0
01	221238	6	0.035	0.015	0.035	5883	0.0014	0.50	Sta	0.0	700.0	711.0	725.0	725.0	739.0	750.0	760.0
									Elev	0.5	0.0	1.8	2.1	2.1	2.1	2.1	2.1

Routing Data - Normal Depth

		RS Card	RC Card						RX and RY Cards								
Basin	Reach ID	NSTPS	ANL	ANCH	ANR	RLNTH (ft)	SEL (ft/ft)	ELMAX		1	2	LB	4	5	RB	7	8
01	222223	6	0.035	0.015	0.035	5255	0.0028	0.80	Sta	0.0	500.0	511.0	525.0	525.0	539.0	550.0	1050.0
									Elev	0.8	0.0	1.8	2.1	2.1	1.8	0.0	0.8
01	223227	7	0.035	0.015	0.035	6381	0.0019	1.90	Sta	0.0	439.5	447.0	469.5	469.5	492.0	499.5	680.0
									Elev	1.9	0.0	1.3	1.7	1.7	1.3	0.0	1.9
01	228229	6	0.035	0.015	0.035	5308	0.0028	0.80	Sta	0.0	510.0	517.5	540.0	540.0	562.5	570.0	1080.0
									Elev	0.8	0.0	1.3	1.7	1.7	1.3	0.0	0.8
01	228231	6	0.035	0.015	0.030	5302	0.0018	1.70	Sta	0.0	780.0	787.5	810.0	810.0	832.5	840.0	850.0
									Elev	1.7	0.0	1.3	1.7	1.7	1.7	1.7	1.7
01	229230	7	0.035	0.015	0.035	6413	0.0028	0.80	Sta	0.0	500.0	507.5	530.0	530.0	552.5	560.0	1060.0
									Elev	0.8	0.0	1.3	1.7	1.7	1.3	0.0	0.8
01	229232	6	0.035	0.015	0.035	5276	0.0019	1.70	Sta	0.0	530.0	537.5	560.0	560.0	582.5	590.0	600.0
									Elev	1.7	0.0	1.3	1.7	1.7	1.7	1.7	1.7
01	231232	6	0.035	0.015	0.030	5280	0.0030	1.60	Sta	0.0	20.0	35.0	35.0	76.5	99.0	106.5	350.0
									Elev	1.6	1.4	1.2	0.7	1.7	1.3	0.0	1.7
01	232233	5	0.035	0.015	0.035	5065	0.0021	1.85	Sta	0.0	0.0	23.5	23.5	106.5	106.5	130.0	130.0
									Elev	1.9	0.9	0.5	0.0	0.0	0.5	0.9	1.9
01	233235	1	0.035	0.015	0.035	863	0.0031	1.85	Sta	0.0	0.0	23.5	23.5	106.5	106.5	130.0	130.0
									Elev	1.9	0.9	0.5	0.0	0.0	0.5	0.9	1.9
01	VVG211	4	0.015	0.030	0.035	3522	0.0026	2.10	Sta	0.0	10.0	21.0	35.0	35.0	49.0	58.0	1065.0
									Elev	2.1	2.1	2.1	2.1	2.1	1.8	0.0	2.6
01	VVGLG	6	0.035	0.015	0.030	5354	0.0030	0.70	Sta	0.0	500.0	511.0	525.0	525.0	539.0	550.0	1050.0
									Elev	0.7	0.0	1.8	2.1	2.1	1.8	0.0	0.7
01	LG215	1	0.035	0.015	0.030	623	0.0069	0.80	Sta	0.0	500.0	511.0	525.0	525.0	539.0	550.0	1050.0
									Elev	0.7	0.0	1.8	2.1	2.1	1.8	0.0	0.7
01	LG219	4	0.035	0.035	0.035	3421	0.0015	1.30	Sta	0.0	11.0	320.0	437.0	940.0	1047.0	1286.0	1301.0
									Elev	1.3	0.8	0.2	0.8	0.0	0.8	0.8	2.8

Routing Data - Normal Depth

		RS Card	RC Card						RX and RY Cards								
Basin	Reach ID	NSTPS	ANL	ANCH	ANR	RLNTH (ft)	SEL (ft/ft)	ELMAX		1	2	LB	4	5	RB	7	8
01	216VVG	6	0.035	0.015	0.030	5280	0.0028	1.40	**Sta**	0.0	975.0	986.0	1000.0	1000.0	1014.0	1025.0	1035.0
									Elev	1.4	0.0	1.8	2.1	2.1	2.1	2.1	2.1
ELIMINATED																	
~~01~~	~~237238~~	~~2~~	~~0.035~~	~~0.035~~	~~0.035~~	~~1109~~	~~0.0009~~	~~60.80~~	~~**Sta**~~	~~0.0~~	~~40.0~~	~~572.0~~	~~599.0~~	~~657.0~~	~~685.0~~	~~700.0~~	~~705.0~~
									~~**Elev**~~	~~61.5~~	~~60.5~~	~~60.4~~	~~60.4~~	~~60.3~~	~~60.7~~	~~60.7~~	~~62.8~~
ELIMINATED																	
~~01~~	~~227230~~	~~2~~	~~0.035~~	~~0.035~~	~~0.035~~	~~1409~~	~~0.0014~~	~~58.15~~	~~**Sta**~~	~~0.0~~	~~8.4~~	~~55.8~~	~~121.0~~	~~215.0~~	~~232.3~~	~~256.0~~	~~267.7~~
									~~**Elev**~~	~~59.3~~	~~57.8~~	~~57.3~~	~~57.1~~	~~57.0~~	~~57.0~~	~~57.1~~	~~58.2~~

Routing Data - Normal Depth

		RS Card	RC Card						RX and RY Cards								
Basin	Reach ID	NSTPS	ANL	ANCH	ANR	RLNTH (ft)	SEL (ft/ft)	ELMAX		1	2	LB	4	5	RB	7	8
01	OFF102	3	0.035	0.035	0.035	2650	0.0004	80.50	Sta	112.0	120.0	129.0	150.0	166.0	205.0	270.0	430.0
									Elev	80.5	76.7	80.8	79.0	78.7	79.2	79.0	80.5
01	OFF104	6	0.035	0.015	0.035	5280	0.0013	2.00	Sta	0.0	0.0	60.0	60.0	128.0	128.0	188.0	188.0
									Elev	2.0	1.0	0.5	0.0	0.0	0.5	1.0	2.0
01	102105	3	0.035	0.035	0.035	2650	0.0004	80.50	Sta	112.0	120.0	129.0	150.0	166.0	205.0	270.0	430.0
									Elev	80.5	76.7	80.8	79.0	78.7	79.2	79.0	80.5
01	103104	6	0.035	0.015	0.035	5280	0.0038	2.00	Sta	0.0	0.0	60.0	60.0	128.0	128.0	188.0	188.0
									Elev	2.0	1.0	0.5	0.0	0.0	0.5	1.0	2.0
01	103106	3	0.035	0.015	0.035	2640	0.0026	2.00	Sta	0.0	0.0	60.0	60.0	128.0	128.0	188.0	188.0
									Elev	2.0	1.0	0.5	0.0	0.0	0.5	1.0	2.0
01	104105	3	0.035	0.015	0.035	2640	0.0052	2.00	Sta	0.0	0.0	45.0	45.0	125.0	125.0	170.0	170.0
									Elev	2.0	0.8	0.5	0.0	0.0	0.5	0.8	2.0
01	104107	3	0.035	0.015	0.035	2620	0.0018	2.00	Sta	0.0	0.0	45.0	45.0	125.0	125.0	170.0	170.0
									Elev	2.0	0.8	0.5	0.0	0.0	0.5	0.8	2.0
01	105108	3	0.035	0.035	0.035	2650	0.0006	79.50	Sta	100.0	120.0	130.0	140.0	165.0	224.0	261.0	269.0
									Elev	79.5	74.3	79.3	78.6	79.5	78.0	78.0	79.5
01	106107	5	0.035	0.015	0.035	5186	0.0034	2.00	Sta	0.0	0.0	60.0	60.0	140.0	140.0	200.0	200.0
									Elev	2.0	1.0	0.5	0.0	0.0	0.5	1.0	2.0
01	107108	3	0.035	0.015	0.035	2867	0.0035	2.00	Sta	0.0	0.0	60.0	60.0	140.0	140.0	200.0	200.0
									Elev	2.0	160.0	0.5	0.0	0.0	0.5	1.0	2.0
01	108111	3	0.035	0.035	0.035	2680	0.0005	82.50	Sta	100.0	111.0	121.0	130.0	142.0	160.0	381.0	410.0
									Elev	83.7	83.3	76.5	82.6	82.7	76.1	76.5	82.5
01	109110	5	0.035	0.015	0.035	5200	0.0033	1.00	Sta	0.0	700.0	711.0	711.0	751.0	765.0	776.0	1526.0
									Elev	1.0	0.0	0.5	0.0	1.0	0.7	0.0	1.1
01	110111	4	0.035	0.015	0.035	3375	0.0037	1.00	Sta	0.0	1500.0	1511.0	1511.0	1545.0	1559.0	1570.0	2370.0
									Elev	1.4	0.0	0.5	0.0	0.9	0.6	0.0	1.0

Routing Data - Normal Depth

		RS Card	RC Card						RX and RY Cards								
Basin	Reach ID	NSTPS	ANL	ANCH	ANR	RLNTH (ft)	SEL (ft/ft)	ELMAX		1	2	LB	4	5	RB	7	8
01	111114	3	0.035	0.035	0.035	2920	0.0007	77.00	Sta	1005.0	1043.0	1047.0	1070.0	1075.0	1230.0	1261.0	1530.0
									Elev	77.0	70.7	70.7	75.7	75.2	75.5	75.2	77.0
01	112113	8	0.035	0.015	0.035	7825	0.0021	1.00	Sta	0.0	1500.0	1511.0	1524.9	1525.0	1539.0	1550.0	2550.0
									Elev	1.0	0.0	1.8	2.1	2.1	1.8	0.0	1.0
01	114115	5	0.035	0.035	0.035	2125	0.0009	73.00	Sta	100.0	118.0	140.0	172.0	210.0	251.0	270.0	440.0
									Elev	75.5	68.5	74.2	75.5	70.5	68.5	68.5	73.0
01	115118	5	0.035	0.035	0.035	4800	0.0009	71.60	Sta	100.0	132.0	150.0	161.0	165.0	182.0	400.0	426.0
									Elev	71.6	71.3	66.5	69.5	71.2	68.8	69.2	72.8
01	116117	5	0.035	0.015	0.035	5230	0.0032	0.50	Sta	0.0	875.0	886.0	900.0	900.0	914.0	925.0	1625.0
									Elev	0.5	0.0	1.8	2.1	2.1	1.8	0.0	0.5
01	116112	3	0.035	0.015	0.035	2650	0.0004	1.20	Sta	0.0	550.0	561.0	575.0	575.0	589.0	600.0	1150.0
									Elev	2.0	0.0	1.8	2.1	2.1	1.8	0.0	1.2
01	117118	10	0.035	0.015	0.035	9920	0.0021	0.90	Sta	0.0	1050.0	1061.0	1075.0	1075.0	1089.0	1100.0	1650.0
									Elev	0.9	0.0	1.8	2.1	2.1	1.8	0.0	0.9
01	122119	3	0.035	0.015	0.035	2190	0.0008	2.00	Sta	0.0	0.0	60.0	60.0	128.0	128.0	188.0	188.0
									Elev	2.0	1.0	0.5	0.0	0.0	0.5	1.0	2.0
01	122123	5	0.035	0.015	0.035	5250	0.0026	1.00	Sta	0.0	300.0	311.0	325.0	325.0	339.0	350.0	750.0
									Elev	1.0	0.0	1.8	2.1	2.1	1.8	0.0	1.3
01	123120	2	0.035	0.015	0.035	2010	0.0010	1.00	Sta	0.0	450.0	461.0	475.0	475.0	489.0	500.0	1700.0
									Elev	2.0	0.0	1.8	2.1	2.1	1.8	0.0	1.0
01	123121	5	0.035	0.015	0.035	4910	0.0030	0.75	Sta	0.0	1050.0	1061.0	1075.0	1075.0	1089.0	1100.0	1388.0
									Elev	0.8	0.0	1.8	2.1	2.1	1.8	0.0	1.0
01	124123	6	0.035	0.015	0.035	6100	0.0016	0.80	Sta	0.0	550.0	561.0	575.0	575.0	589.0	600.0	1150.0
									Elev	1.3	0.0	1.8	2.1	2.1	1.8	0.0	0.8

DS & DN.4 Storage Routing Data

Chandler/Gilbe[illegible]S Phase 1 - South

Summary of HEC-1 Ponding Results

Ponding Area	Peak Inflow (cfs)		Time to Peak Inflow (hrs)		Maximum Stage (ft)		Time of Maximum Stage (hrs)		Minimum Storage Elevation (ft)	Maximum Inundation Depth* (ft)		Peak Storage Volume (ac-ft)		Peak Outflow (cfs)		Time to Peak Outflow (hrs)	
	6-hr	*24-hr*	*6-hr*	*24-hr*	*6-hr*	*24-hr*	*6-hr*	*24-hr*		*6-hr*	*24-hr*	*6-hr*	*24-hr*	*6-hr*	*24-hr*	*6-hr*	*24-hr*
P200	61	50	5.08	13.00	1268.73	1268.67	5.67	13.67	1266.50	2.23	2.17	3	3	53	44	5.67	13.67
[1] *P202*	609	510	5.17	13.17	1268.38	1268.28	5.58	13.58	1262.00	6.38	6.28	29	28	522	413	5.58	13.58
P203	632	503	5.50	13.58	1268.98	1268.78	6.17	14.58	1262.00	6.98	6.78	46	44	393	230	6.17	14.58
P208N	393	230	6.17	14.58	1266.13	1265.70	6.42	14.92	1262.70	3.43	3.00	10	8	347	194	6.42	14.92
P208S	354	198	6.42	14.92	1266.72	1266.42	6.92	15.83	1260.00	6.72	6.42	22	20	268	107	6.92	15.83
P207	326	135	6.92	15.83	1260.56	1259.42	73.92	144.25	1255.00	5.56	4.42	59	43	0	0	0.00	0.00
P213	68	62	4.58	12.42	1266.20	1266.13	6.83	15.00	1264.00	2.20	2.13	8	7	5	3	6.83	15.00
P212	103	95	5.25	13.17	1266.26	1266.24	5.33	13.33	1262.00	4.26	4.24	5	5	106	93	5.33	13.33
P215	44	42	7.83	15.75	1262.89	1262.89	35.83	50.50	1261.00	1.89	1.89	12	12	0	0	0.00	0.00
[4]P219/237	395	455	6.25	14.25	1262.23	1262.29	6.42	14.42	1258.70	3.57	3.63	34	35	390	449	6.42	14.42
P238	496	551	6.25	14.25	1260.58	1260.62	10.00	17.25	1256.50	4.08	4.12	102	103	107	156	10.08	17.25
P224	238	236	4.83	12.75	1257.31	1257.63	10.83	27.92	1255.20	2.11	2.43	29	34	0	0	0.00	0.00
P227	308	364	7.08	15.00	1259.44	1259.49	8.25	15.92	1257.00	2.44	2.49	39	42	201	261	8.25	15.92
[2]P230	96	111	5.75	13.58	1245.55	1245.69	49.58	53.75	1244.00	1.55	1.69	31	36	0	0	0.00	0.00
P234	95	103	4.42	12.33	1251.83	1252.03	9.00	24.83	1248.00	3.83	4.03	12	14	0	0	0.00	24.75
[3]P235N	532	569	6.50	14.50	1244.92	1245.53	61.17	88.75	1240.00	4.92	5.53	115	130	0	0	0.00	0.00
P235S	518	555	6.42	14.42	1251.22	1251.25	6.50	14.50	1247.00	4.22	4.25	9	9	512	549	6.50	14.50

Notes:

Shaded Ponding areas indicate the 6-hour storm results were used to map floodplain.

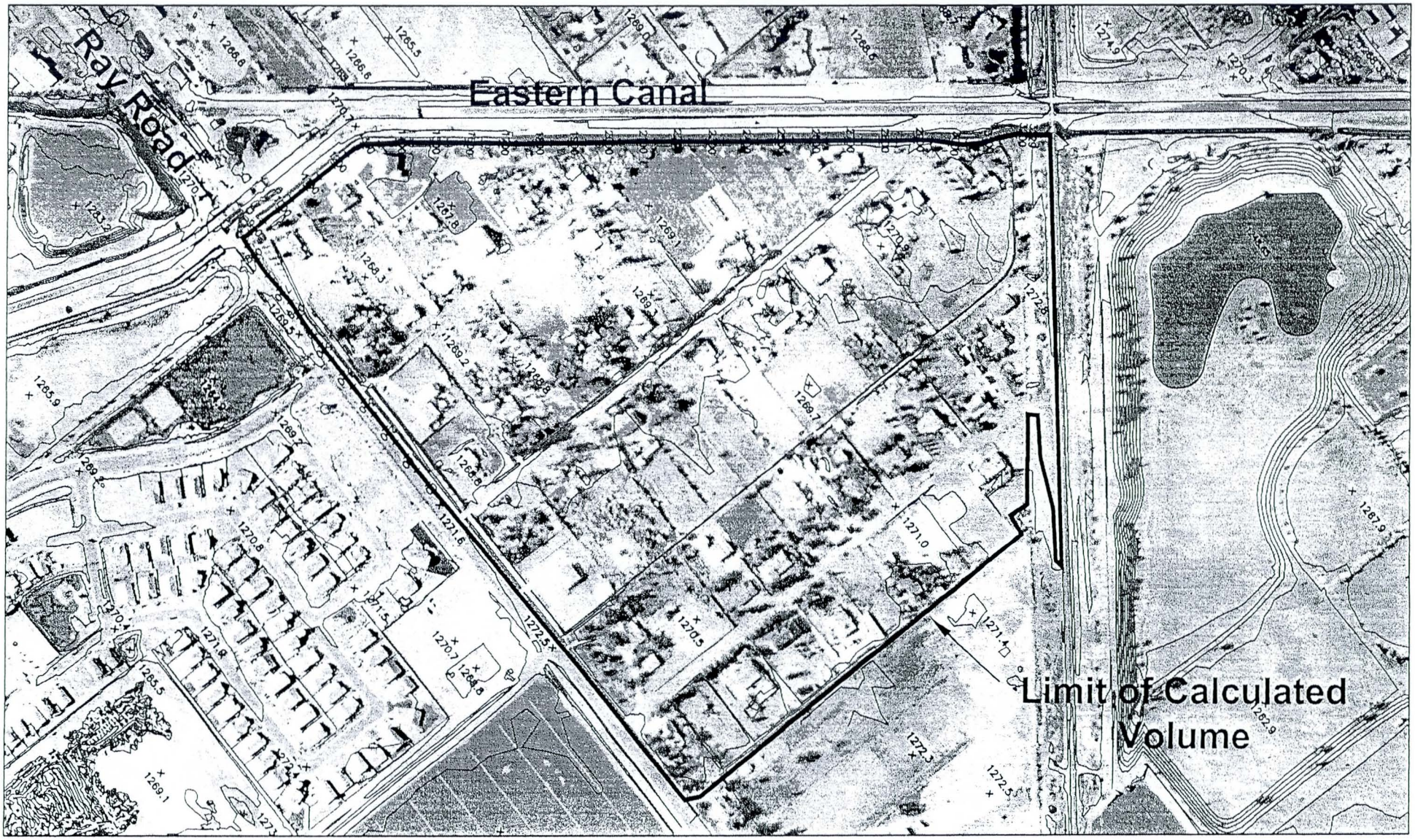
* Maximum Inundation Depth was calculated as the difference between the Maximum Stage Elevation and the Lowest storage elevation of the basin.

[1] The Maximum Stage in P203 was used to delineate floodplain for Basin 202.

[2, 3] P230 & P235N are RWCD storage ponds. The data for the basins were derived from the DTM, which accounts for the water level in the basins at the time of mapping. Therefore, the Maximum Inundation Depth is not the depth to the bottom of the basin. It is the difference between the maximum stage elevation and the preexisting water level elevation.

[4] P219/237 is listed in HEC-1 as P237

Chandler/Gilbert S Phase 1- South
Ponding Area 200



0 200' 400' 800'

SCALE: 1" = 400'

P:\Mari0000-0040\MARI0040-SE\dwg\Sheets\MARI0040-SEhyPa200.dwg rlo Jul 14, 2004 4:11:07pm

Chandler/Gilbert FDS Phase 1- South

P200 Data Table

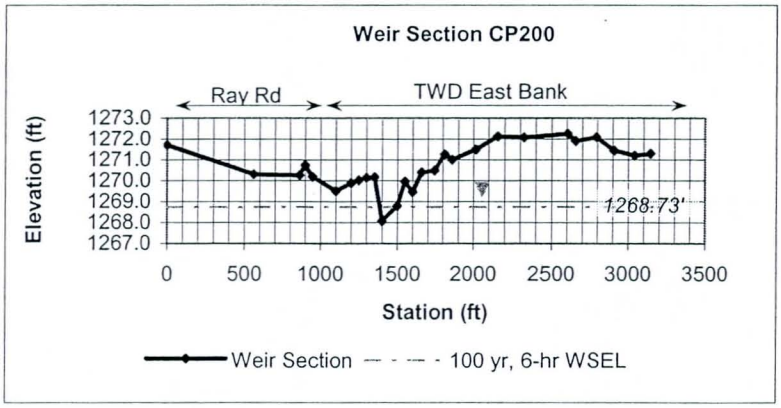
Ponding Area	SE Record	SV Record	SQ Record	$Q_{culvert}$	$Q_{roadway}$	Q_{TWD}
	Contour Elevation	Storage Volume	Total Q			
P200	1266.50	0.01	0	0	0	0
	1267.00	0.02	0	0	0	0
	1268.00	0.31	0	0	0	0
	1268.50	1.59	18	0	0	18
	1268.75	3.21	56	0	0	56
	1268.84	4.00	78	0	0	78
	1269.00	5.66	128	0	0	128
	1270.00	26.28	801	0	0	801
	1271.00	66.65	4321	0	0	4321
	1271.50	92.97	7964	0	0	7964

Hydraulic Component(s): Roadway

Discharge	49 cfs	Allowable HW Elevation	1,268.72 ft
Roadway Width	40 ft	Overtopping Coefficient	2.51 US
Low Point	1,268.07 ft	Headwater Elevation	1268.72 ft
Discharge Coefficient	2.51	Submergence Factor (Kt)	1
Tailwater Elevation	N/A ft		

	Sta (ft)	Elev. (ft)
Road	0.00	1271.70
	561.00	1270.30
	863.00	1270.26
	900.00	1270.75
Tailwater Ditch	948.27	1270.18
	1,100.00	1269.50
	1,200.00	1269.88
	1,250.00	1,270.01
	1,300.00	1270.14
	1,350.00	1270.17
	1400.00	1268.07
	1500.00	1268.78
	1550.00	1269.96
	1600.00	1269.45
	1659.31	1270.39
	1744.34	1270.49
	1812.91	1271.26
	1859.92	1271.00
	2013.83	1271.49
	2156.49	1272.12
	2326.07	1272.07
	2605.09	1272.26
	2655.47	1271.91
	2792.93	1272.08
	2907.24	1271.44
	3041.63	1271.2
	3145.07	1271.3
	3231.00	1271.45

Notes: Ponding east of the tailwater ditch before weiring into the tailwater ditch and out through culvert under Ray Road.



Culvert Designer/Analyzer Report
P200 - no culvert, TWD east bank weir

Comments: 100-yr, 6-hr

Weir profile of Ray Road and along Easten Canal east bank.

Analysis Component			
Storm Event	Design	Discharge	49 cfs

Peak Discharge Method: User-Specified			
Design Discharge	49 cfs	Check Discharge	0 cfs

Tailwater Conditions: Constant Tailwater	
Tailwater Elevation	0.00 ft

Name	Description	Discharge	HW Elev.	Velocity
Weir	Roadway	49 cfs	1,268.72 ft	N/A

Culvert Designer/Analyzer Report
P200 - no culvert, TWD east bank weir

Component:Weir

Hydraulic Component(s): Roadway					
Discharge	49	cfs	Allowable HW Elevation	1,268.72	ft
Roadway Width	40	ft	Overtopping Coefficient	2.51	US
Low Point	1,268.07	ft	Headwater Elevation	1,268.72	ft
Discharge Coefficient (Cr)	2.51		Submergence Factor (Kt)	1.00	
Tailwater Elevation	0.00	ft			

Sta (ft)	Elev. (ft)
0.00	1,271.70
561.00	1,270.30
863.00	1,270.26
900.00	1,270.75
948.27	1,270.18
1,100.00	1,269.50
1,200.00	1,269.88
1,250.00	1,270.01
1,300.00	1,270.14
1,350.00	1,270.17
1,400.00	1,268.07
1,500.00	1,268.78
1,550.00	1,269.96
1,600.00	1,269.45
1,659.31	1,270.39
1,744.34	1,270.49
1,812.91	1,271.26
2,013.83	1,271.49
2,156.49	1,272.12
2,326.07	1,272.07
2,605.09	1,272.26
2,655.47	1,271.91
2,792.93	1,272.08
2,907.24	1,271.44
3,041.63	1,271.20
3,145.07	1,271.30
3,231.00	1,271.45

Rating Table Report
P200 - no culvert, TWD east bank weir

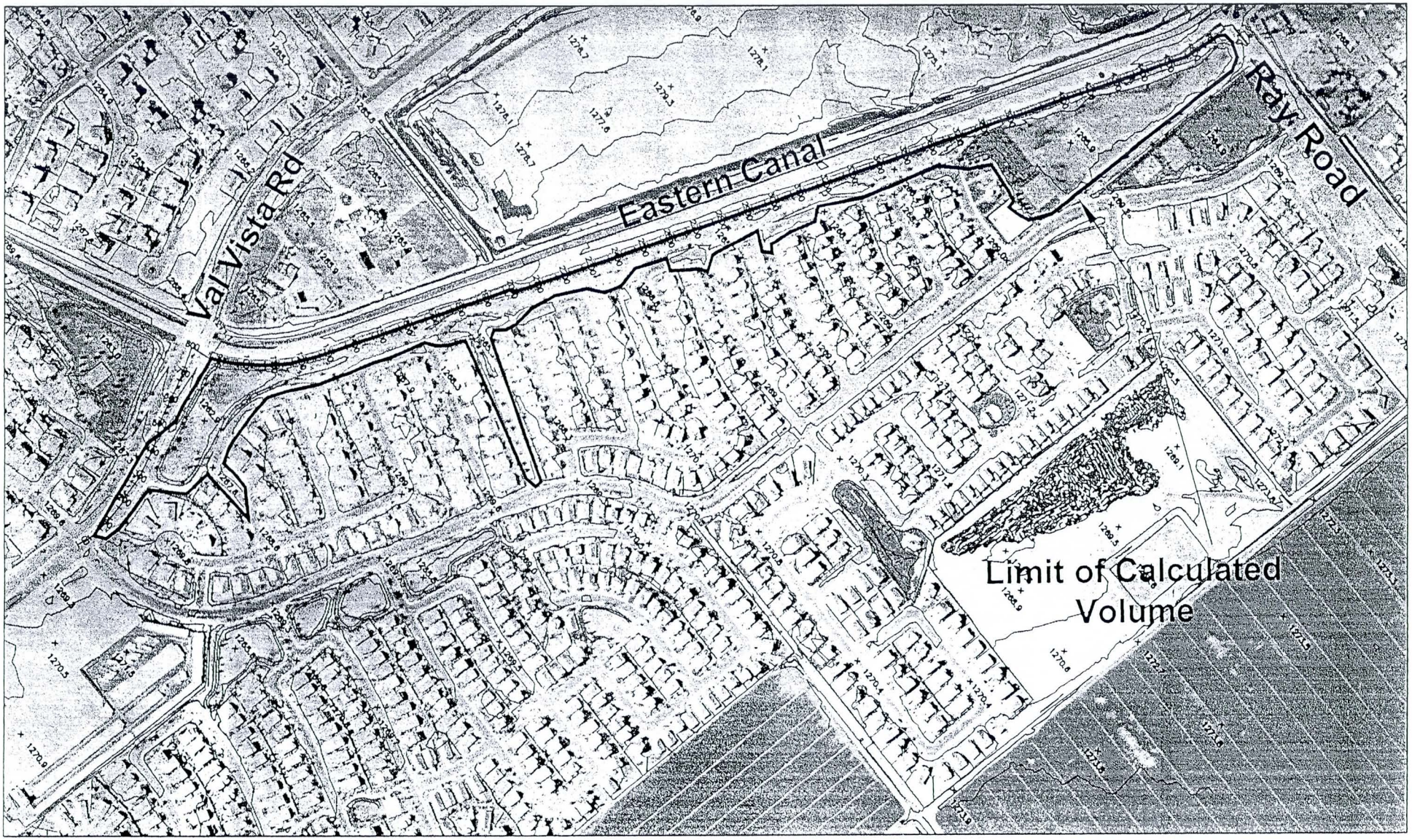
Range Data:

	Minimum	Maximum	Increment
Allowable HW E	1,268.00	1,271.50	0.25 ft

HW Elev. (ft)	Discharge (cfs)
1,268.00	0
1,268.25	2
1,268.50	18
1,268.75	56
1,269.00	128
1,269.25	228
1,269.50	352
1,269.75	525
1,270.00	801
1,270.25	1,239
1,270.50	1,953
1,270.75	2,987
1,271.00	4,321
1,271.25	5,940
1,271.50	7,964

1268.84, 78 cfs

Chandler/Gilbert [illegible]S Phase 1- South
Ponding Area 202



* Maximum Stage in P203 was used to delineate floodplain for P202.

0 250' 500' 1000'

SCALE: 1"=500'

P:\Mari0000-0040\MARI0040-SE\dwg\Sheets\MARI0040-SEhyPa202.dwg tjcl May 27, 2004 4:43:07pm

Chandler/Gilbert FDS Phase 1- South

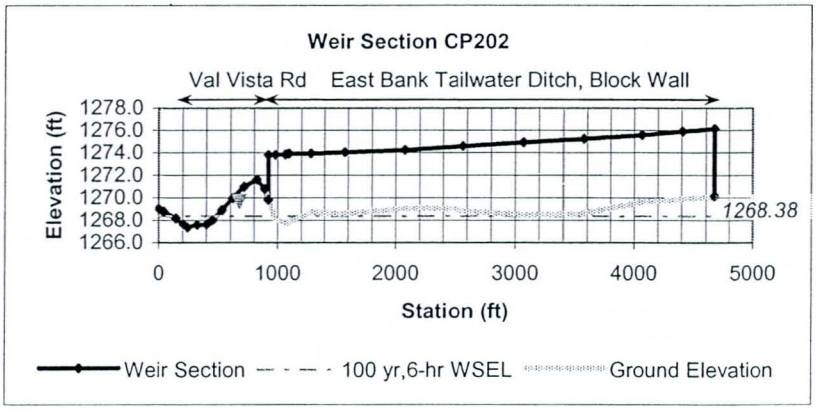
P202 Data Table

Ponding Area	SE Record Contour Elevation	SV Record Storage Volume	SQ Record Total Q	$Q_{culvert}$	$Q_{roadway}$	Q_{TWD}
P202	1262.00	0.00	0	0	0	0
	1263.00	0.15	0	0	0	0
	1265.00	2.60	0	0	0	0
	1267.00	13.24	0	0	0	0
	1267.60	19.58	14	0	14	0
	1267.70	20.73	40	0	40	0
	1267.80	21.92	78	0	78	0
	1268.00	24.40	186	0	186	0
	1268.10	25.70	257	0	257	0
	1268.20	27.00	340	0	340	0
	1268.30	27.77	436	0	436	0
	1268.40	29.61	544	0	544	0

Hydraulic Component(s): Roadway			
Discharge	446 cfs	Allowable HW Elevation	1,268.31 ft
Roadway Width	40.00 ft	Overtopping Coefficient	2.56 US
Low Point	1,267.35 ft	Headwater Elevation	1,268.31 ft
Discharge Coefficient	2.56	Submergence Factor (Kt)	1
Tailwater Elevation	N/A ft		

	Sta (ft)	Elev. (ft)
Road	0.00	1269.01
	43.09	1268.77
	145.88	1268.16
	209.69	1267.62
	244.78	1267.35
	325.61	1267.58
	401.65	1267.59
	451.62	1267.99
	532.16	1268.90
	619.62	1269.92
	717.39	1270.96
	824.09	1271.58
Tailwater Ditch	892.17	1270.75
	923.73	1269.80
	923.73	1273.79
	982.66	1273.81
	1065.23	1273.85
	1,095.59	1,273.91
	1,286.62	1,273.93
	1,572.96	1,274.05
	2,076.81	1,274.24
	2,567.08	1,274.58
	3,069.24	1,274.91
	3,569.53	1,275.24
	4,064.70	1,275.57
	4,407.98	1,275.90
	4,673.79	1,276.13
	4,673.79	1,270.13

Notes: Ponding volumes include retention basins east of tailwater ditch. A block wall separates the tailwater ditch from the retention basins preventing any overtopping into tailwater ditch.Weiring occurs over Val Vista Road to P203.



Culvert Designer/Analyzer Report
P202 - no culvert

Comments: 100-yr, 6-hr
Weir profile of Val Vista Road and east bank of tailwater ditch. Block wall on west side of retention basin prevents flow from going into tailwater ditch.

Analysis Component			
Storm Event	Design	Discharge	446 cfs

Peak Discharge Method: User-Specified			
Design Discharge	446 cfs	Check Discharge	0 cfs

Tailwater Conditions: Constant Tailwater	
Tailwater Elevation	0.00 ft

Name	Description	Discharge	HW Elev.	Velocity
Weir	Roadway	446 cfs	1,268.31 ft	N/A

Culvert Designer/Analyzer Report
P202 - no culvert

Component:Weir

Hydraulic Component(s): Roadway					
Discharge	446	cfs	Allowable HW Elevation	1,268.31	ft
Roadway Width	40	ft	Overtopping Coefficient	2.56	US
Low Point	1,267.35	ft	Headwater Elevation	1,268.31	ft
Discharge Coefficient (Cr)	2.56		Submergence Factor (Kt)	1.00	
Tailwater Elevation	0.00	ft			

Sta (ft)	Elev. (ft)
0.00	1,269.01
43.09	1,268.77
145.88	1,268.16
209.69	1,267.62
244.78	1,267.35
325.61	1,267.58
401.65	1,267.59
451.62	1,267.99
532.16	1,268.90
619.62	1,269.92
717.39	1,270.96
824.09	1,271.58
892.17	1,270.75
923.73	1,269.80
923.73	1,273.79
982.66	1,273.81
1,065.23	1,273.85
1,095.59	1,273.91
1,286.62	1,273.93
1,572.96	1,274.05
2,076.81	1,274.24
2,567.08	1,274.58
3,069.24	1,274.91
3,569.53	1,275.24
4,064.70	1,275.57
4,407.98	1,275.90
4,673.79	1,276.13
4,673.79	1,270.13

Rating Table Report
Overtopping

Range Data:				
	Minimum	Maximum	Increment	
Allowable HW E	1,267.00	1,268.40	0.10	ft

HW Elev. (ft)	Discharge (cfs)
1,267.00	0
1,267.10	0
1,267.20	0
1,267.30	0
1,267.40	0
1,267.50	4
1,267.60	14
1,267.70	40
1,267.80	78
1,267.90	127
1,268.00	186
1,268.10	257
1,268.20	340
1,268.30	436
1,268.40	544

Ponding Area 203

0 200' 400' 800'

SCALE: 1" = 400'

P:\Mari0000-0040\MARI0040-SE\dwg\Sheets\MARI0040-SEhyPa203.dwg tjcl May 27, 2004 5:04:38pm

Chandler/Gilbert FDS Phase 1- South

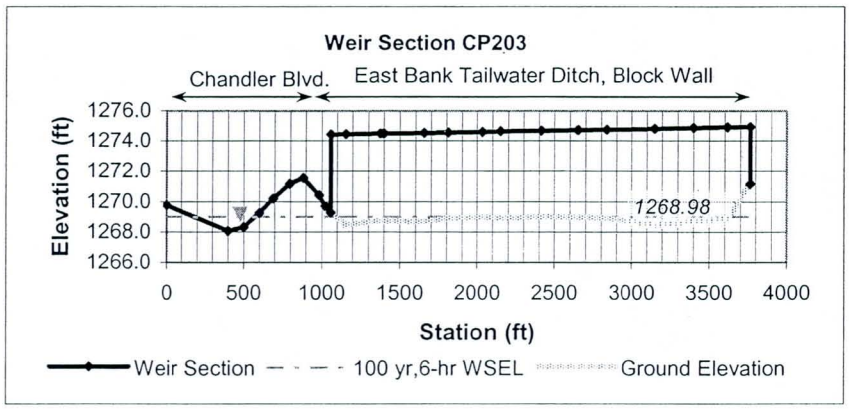
P203 Data Table

Ponding Area	SE Record Contour Elevation	SV Record Storage Volume	SQ Record Total Q	$Q_{culvert}$	$Q_{roadway}$	Q_{TWD}
P203	1262.00	0.00	0	0	0	0
	1264.00	3.85	0	0	0	0
	1268.00	35.30	0	0	0	0
	1268.20	37.46	5	0	5	0
	1268.40	39.65	41	0	41	0
	1268.60	41.80	120	0	120	0
	1268.70	42.90	175	0	175	0
	1268.80	44.00	241	0	241	0
	1269.00	46.20	410	0	410	0

Hydraulic Component(s): Roadway			
Discharge	281 cfs	Allowable HW Elevation	1,268.85 ft
Roadway Width	40.00 ft	Overtopping Coefficient	2.53 US
Low Point	1,268.05 ft	Headwater Elevation	1,268.85 ft
Discharge Coefficient	2.53	Submergence Factor (Kt)	1
Tailwater Elevation	N/A ft		

	Sta (ft)	Elev. (ft)
Road	0.00	1269.76
	400.00	1268.05
	500.00	1268.31
	600.00	1269.24
	692.27	1270.20
	796.90	1271.17
	883.02	1271.54
	984.10	1270.41
Tailwater Ditch	1022.33	1269.69
	1058.23	1269.25
	1058.23	1274.42
	1155.69	1274.44
	1375.78	1274.48
	1400.00	1274.49
	1654.84	1274.53
	1809.17	1274.56
	2035.83	1274.60
	2150.38	1274.63
	2414.60	1274.68
	2650.00	1274.72
	2835.48	1274.75
	3150.00	1274.81
	3400.00	1274.86
	3616.89	1274.90
	3763.76	1274.93
	3763.76	1271.17

Notes: Ponding volumes include retention basins east of tailwater ditch. A block wall separates the tailwater ditch from the retention basins preventing any overtopping into tailwater ditch.Weiring occurs over Chandler Blvd. to P208N.



Culvert Designer/Analyzer Report
P203 - no culvert

Comments: 100-yr, 6-hr
Weir Profile of Chandler Blvd. Block wall on west side of retention basin prevents flow from entering tailwater ditch.

Analysis Component			
Storm Event	Design	Discharge	281 cfs

Peak Discharge Method: User-Specified			
Design Discharge	281 cfs	Check Discharge	0 cfs

Tailwater Conditions: Constant Tailwater	
Tailwater Elevation	0.00 ft

Name	Description	Discharge	HW Elev.	Velocity
Weir	Roadway	281 cfs	1,268.85 ft	N/A

Culvert Designer/Analyzer Report
P203 - no culvert

Component:Weir

Hydraulic Component(s): Roadway					
Discharge	281	cfs	Allowable HW Elevation	1,268.85	ft
Roadway Width	40	ft	Overtopping Coefficient	2.53	US
Low Point	1,268.05	ft	Headwater Elevation	1,268.85	ft
Discharge Coefficient (Cr)	2.53		Submergence Factor (Kt)	1.00	
Tailwater Elevation	0.00	ft			

Sta (ft)	Elev. (ft)
0.00	1,269.76
400.00	1,268.05
500.00	1,268.31
600.00	1,269.24
692.27	1,270.20
796.90	1,271.17
883.02	1,271.54
984.10	1,270.41
1,022.33	1,269.69
1,058.23	1,269.25
1,058.23	1,274.42
1,155.69	1,274.44
1,375.78	1,274.48
1,400.00	1,274.49
1,654.84	1,274.53
1,809.17	1,274.56
2,035.83	1,274.60
2,150.38	1,274.63
2,414.60	1,274.68
2,650.00	1,274.72
2,835.48	1,274.75
3,150.00	1,274.81
3,400.00	1,274.86
3,616.89	1,274.90
3,616.89	1,268.90

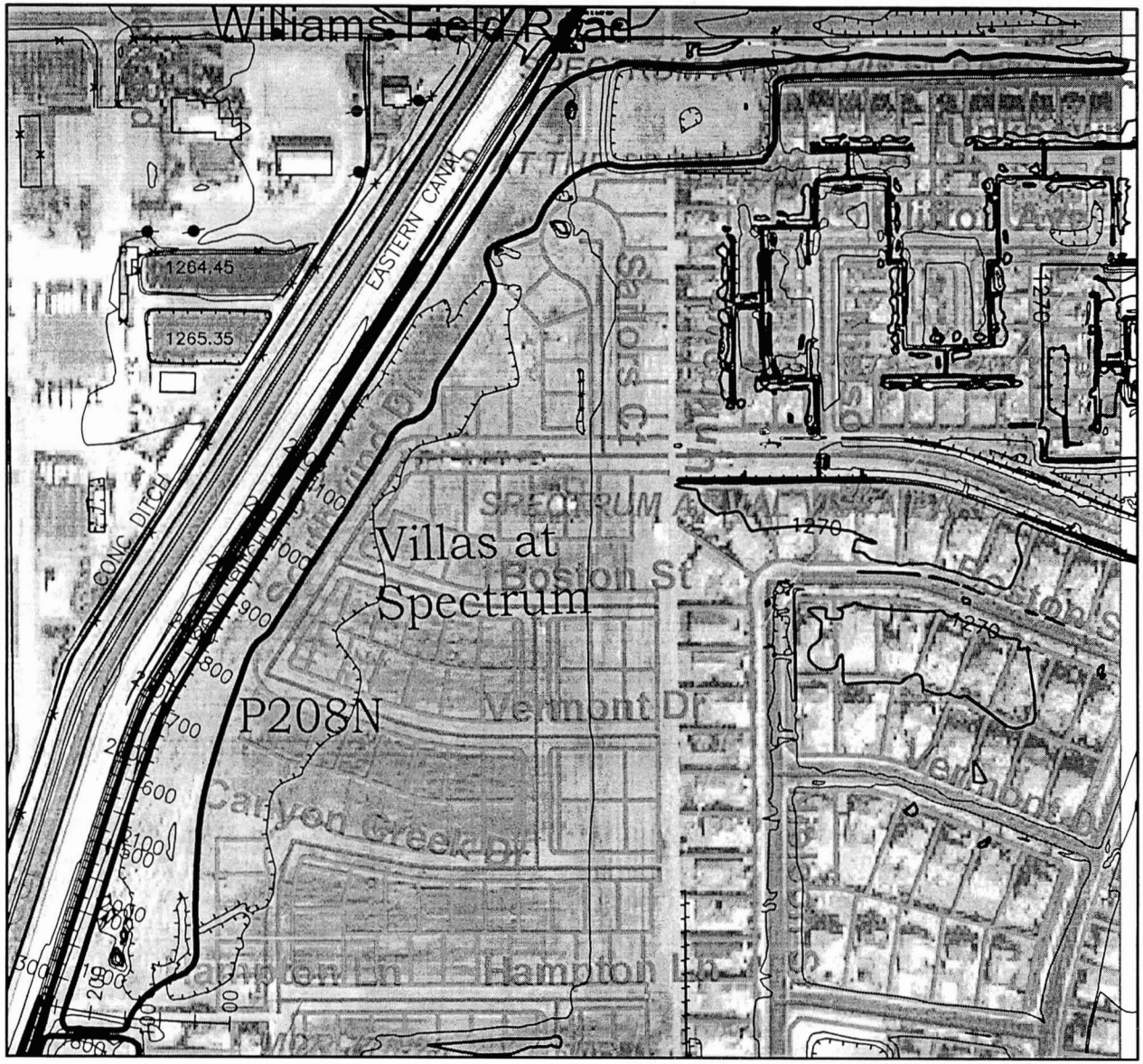
Rating Table Report
Overtopping

Range Data:

	Minimum	Maximum	Increment
Allowable HW E	1,268.00	1,269.00	0.10 ft

HW Elev. (ft)	Discharge (cfs)
1,268.00	0
1,268.10	0
1,268.20	5
1,268.30	17
1,268.40	41
1,268.50	75
1,268.60	120
1,268.70	175
1,268.80	241
1,268.90	319
1,269.00	410

Chandler/Gilbert FDS Phase 1-South
Ponding Area 208N



0' 75' 125' 250'

SCALE: 1"=250'

P:\Mari0000-0040\MARI0040-SE\dwg\fpznfcd-larryphotos.dwg lfsi Dec 05, 2007 2:36:27pm

Chandler/Gilbert FDS Phase 1- South

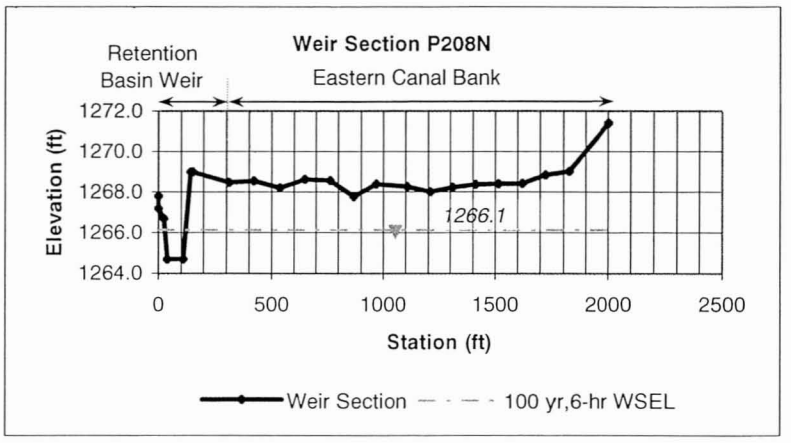
P208N Data Table

Ponding Area	SE Record Contour Elevation	SV Record Storage Volume	SQ Record Total Q		Qbasin weir	Q_{canal}
	1262.70	0	0		0	0
	1263.69	2.20	0		0	0
	1264.19	3.47	0		0	0
	1264.69	4.85	0		0	0
	1284.96		25		25	
	1265.11		50		50	0
	1265.55		150		150	0
P208N	1265.69	7.99				0
	1265.72		200		200	0
	1265.87		250		250	0
	1265.94		275		275	
	1266.01		300		300	0
	1266.27		400		400	0
	1266.50		500		500	0
	1266.69	11.64				

Hydraulic Component(s): Roadway			
Discharge	255 cfs	Allowable HW Elevation	1,265.88 ft
Roadway Width	20.00 ft	Overtopping Coefficient	2.55 US
Low Point	1,264.69 ft	Headwater Elevation	1,265.88 ft
Discharge Coefficient	2.55	Submergence Factor (Kt)	1
Tailwater Elevation	1,262.91 ft		

	Sta (ft)	Elev. (ft)
Retention Basin Weir	0.00	1267.79
	0.00	1267.19
	23.50	1266.69
	39.50	1264.69
	109.50	1264.69
	141.50	1268.99
	151.50	1268.99
East Canal Bank	312.30	1268.48
	421.95	1268.55
	536.57	1268.21
	649.09	1268.63
	764.22	1268.56
	866.58	1267.78
	967.89	1268.39
	1,107.22	1,268.26
	1,208.98	1,268.01
	1,310.94	1,268.23
	1,413.05	1,268.38
	1,516.25	1,268.41
	1,621.02	1,268.42
	1,724.81	1,268.85
	1,826.75	1,269.02
	2,001.61	1,271.42

Notes:



Culvert Designer/Analyzer Report
P208n - Total Weir - NEW 7/17/07

Comments: 100-yr, 6-hr
Tailwater elevation set to 1262.91', assuming 1' depth of flow in TWD.

Analysis Component			
Storm Event	Design	Discharge	255 cfs

Peak Discharge Method: User-Specified			
Design Discharge	255 cfs	Check Discharge	0 cfs

Tailwater Conditions: Constant Tailwater	
Tailwater Elevation	1,262.91 ft

Name	Description	Discharge	HW Elev.	Velocity
Weir	Roadway	255 cfs	1,265.89 ft	N/A

Culvert Designer/Analyzer Report
P208n - Total Weir - NEW 7/17/07

Component:Weir

Hydraulic Component(s): Roadway					
Discharge	255	cfs	Allowable HW Elevation	1,265.89	ft
Roadway Width	20	ft	Overtopping Coefficient	2.55	US
Low Point	1,264.69	ft	Headwater Elevation	1,265.89	ft
Discharge Coefficient (Cr)	2.55		Submergence Factor (Kt)	1.00	
Tailwater Elevation	1,262.91	ft			

Sta (ft)	Elev. (ft)
0.00	1,267.79
0.00	1,267.19
23.50	1,266.69
39.50	1,264.69
109.50	1,264.69
141.50	1,268.99
151.50	1,268.99
312.30	1,268.48
421.95	1,268.55
536.57	1,268.21
649.09	1,268.63
764.22	1,268.56
866.58	1,267.78
967.89	1,268.39
1,107.22	1,268.26
1,208.98	1,268.01
1,310.94	1,268.23
1,413.05	1,268.38
1,516.25	1,268.41
1,621.02	1,268.42
1,724.81	1,268.85
1,826.75	1,269.02
2,001.61	1,271.42

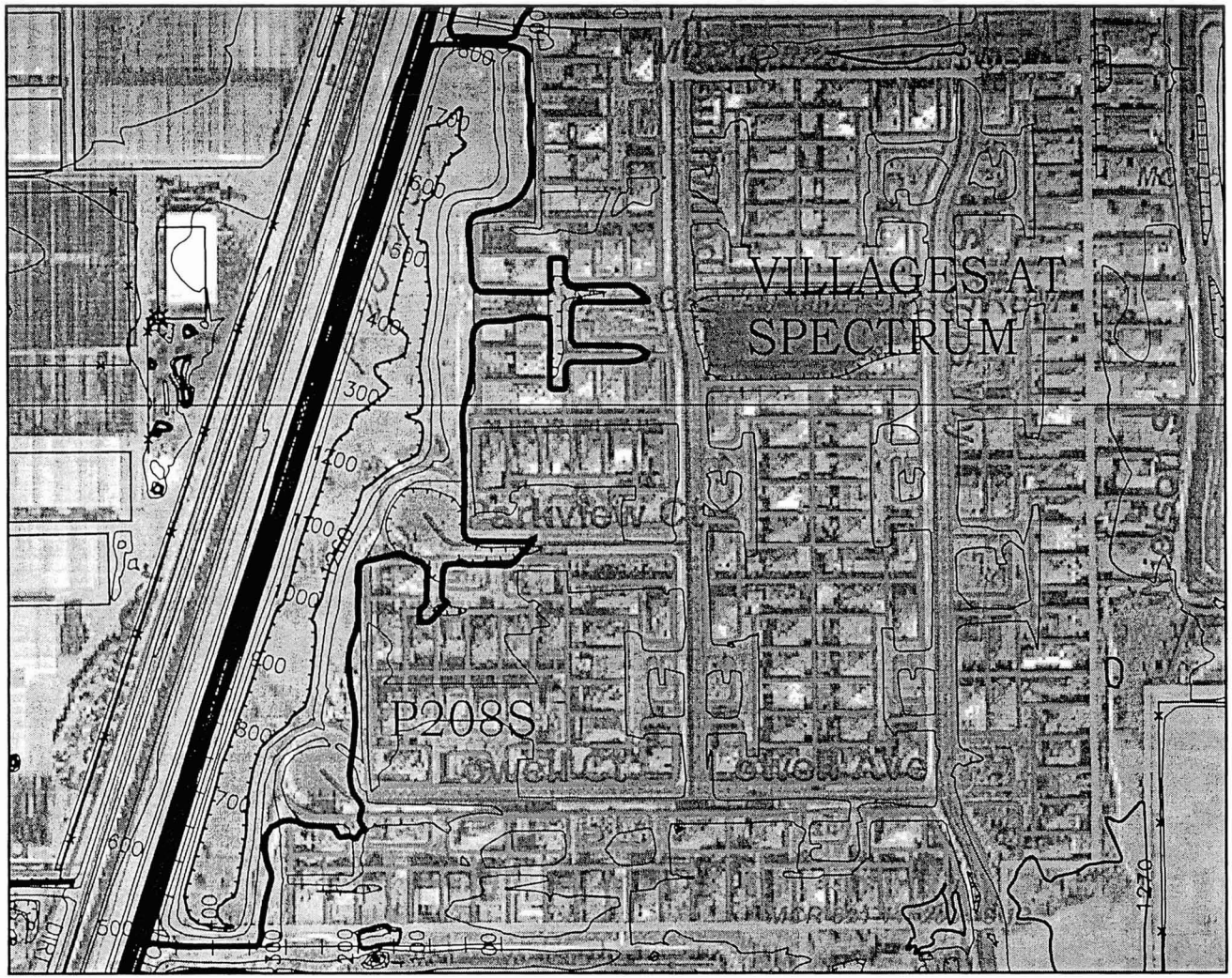
Rating Table Report
P208n - Total Weir - NEW 7/17/07

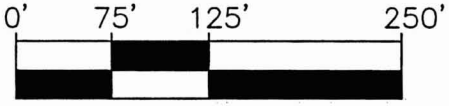
Range Data:

	Minimum	Maximum	Increment	
Discharge	0	500	25	cfs

Discharge (cfs)	HW Elev. (ft)
0	1,264.69
25	1,264.96
50	1,265.11
75	1,265.24
100	1,265.35
125	1,265.45
150	1,265.55
175	1,265.63
200	1,265.72
225	1,265.80
250	1,265.87
275	1,265.94
300	1,266.01
325	1,266.08
350	1,266.14
375	1,266.21
400	1,266.27
425	1,266.33
450	1,266.39
475	1,266.44
500	1,266.50

Chandler/Gilbert FDS Phase 1-South
Ponding Area 208S





SCALE: 1" = 250'

Chandler/Gilbert FDS Phase 1- South

P208S Data Table

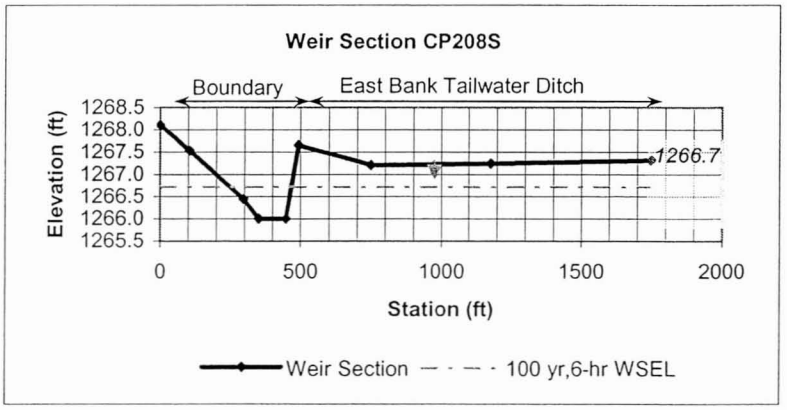
Ponding Area	SE Record Contour Elevation	SV Record Storage Volume	SQ Record Total Q	$Q_{culvert}$	$Q_{roadway}$	Q_{TWD}
P208S	1260.00	0.46	0	0	0	0
	1261.00	2.46	0	0	0	0
	1262.00	4.90	0	0	0	0
	1263.00	7.69	0	0	0	0
	1264.00	10.84	0	0	0	0
	1265.00	14.48	0	0	0	0
	1266.00	18.66	0	0	0	0
	1266.16	19.34	17	0	17	0
	1266.24	19.69	33	0	33	0
	1266.31	19.99	50	0	50	0
	1267.00	23.00	419	0	419	0

Hydraulic Component(s): Roadway

Discharge	0	cfs	Allowable HW Elevation	1,266.00	ft
Roadway Width	10.00	ft	Overtopping Coefficient	3.09	US
Low Point	1,266.00	ft	Headwater Elevation	N/A	ft
Discharge Coefficient	0.00		Submergence Factor (Kt)	0	
Tailwater Elevation	0.00	ft			

	Sta (ft)	Elev. (ft)
boundary P207	0.00	1268.11
	106.10	1267.53
	296.61	1266.44
	351.54	1266.00
	448.85	1266.00
	493.30	1267.65
TWD	749.13	1267.20
	1178.09	1267.24
	1749.49	1267.31

Notes: Ponding volumes include retention basins east of tailwater ditch.



Culvert Designer/Analyzer Report
P208s - no TWD

Comments: 100-yr, 6-hr
Weir profile of south rim of P208 and east bank of tailwater ditch. No block walls to prevent overtopping into tailwater ditch.

Analysis Component			
Storm Event	Design	Discharge	0 cfs

Peak Discharge Method: User-Specified			
Design Discharge	0 cfs	Check Discharge	0 cfs

Tailwater Conditions: Constant Tailwater	
Tailwater Elevation	0.00 ft

Name	Description	Discharge	HW Elev.	Velocity
Weir	Roadway	0 cfs	1,266.00 ft	N/A

Culvert Designer/Analyzer Report
P208s - no TWD

Component:Weir

Hydraulic Component(s): Roadway					
Discharge	0	cfs	Allowable HW Elevation	1,266.00	ft
Roadway Width	10	ft	Overtopping Coefficient	3.09	US
Low Point	1,266.00	ft	Headwater Elevation	N/A	ft
Discharge Coefficient (Cr)	0.00		Submergence Factor (Kt)	0.00	
Tailwater Elevation	0.00	ft			

Sta (ft)	Elev. (ft)
0.00	1,268.11
106.10	1,267.53
296.61	1,266.44
351.54	1,266.00
448.85	1,266.00
493.30	1,267.65
749.13	1,267.20
1,178.09	1,267.24
1,749.49	1,267.31

Rating Table Report
Overtopping

Range Data:

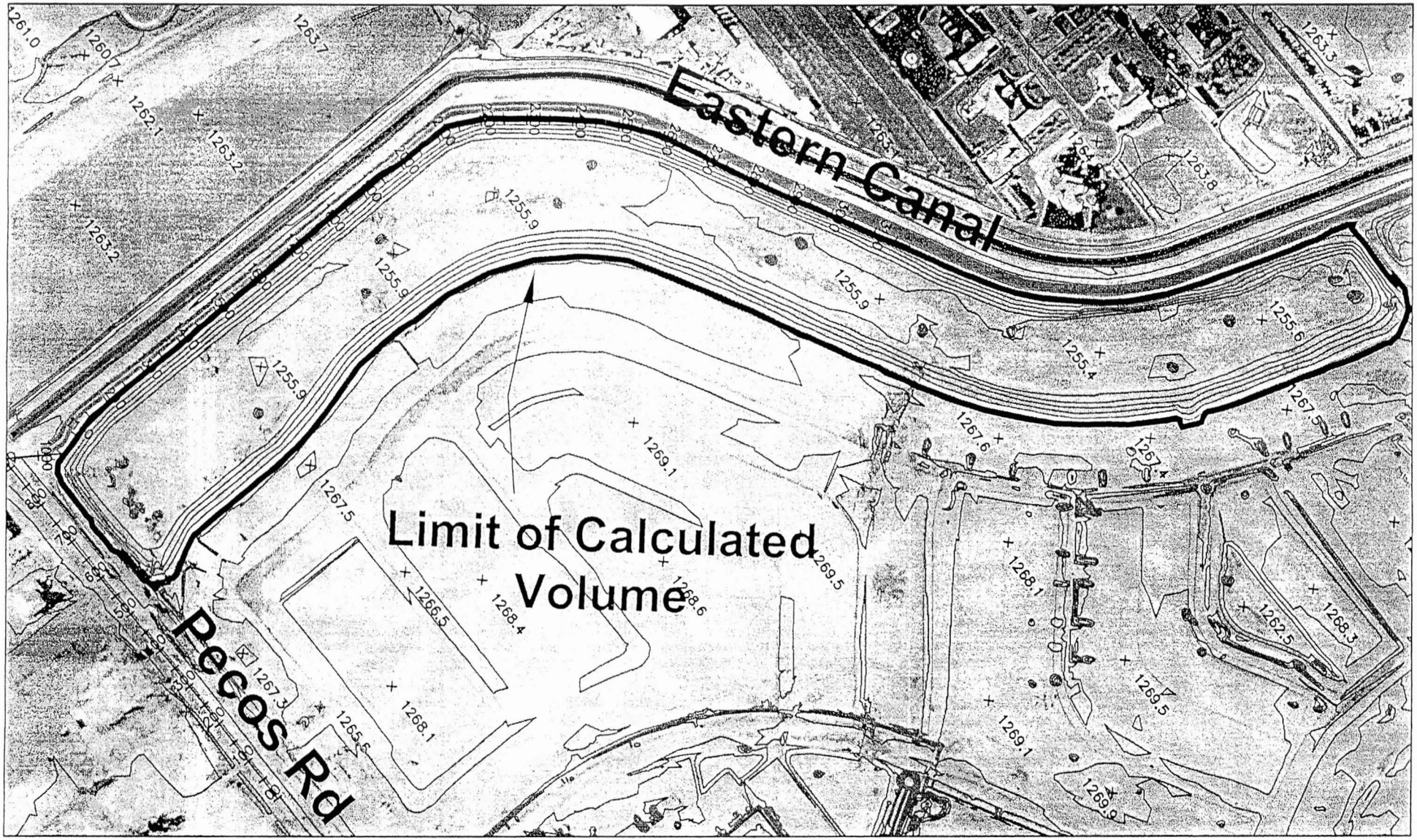
	Minimum	Maximum	Increment	
Allowable HW E	1,266.00	1,267.00	0.01	ft

HW Elev. (ft)	Discharge (cfs)
1,266.00	0
1,266.01	0
1,266.02	1
1,266.03	1
1,266.04	2
1,266.05	3
1,266.06	4
1,266.07	5
1,266.08	6
1,266.09	7
1,266.10	8
1,266.11	9
1,266.12	11
1,266.13	12
1,266.14	14
1,266.15	15
1,266.16	17
1,266.17	19
1,266.18	21
1,266.19	22
1,266.20	24
1,266.21	26
1,266.22	28
1,266.23	31
1,266.24	33
1,266.25	35
1,266.26	37
1,266.27	40
1,266.28	42
1,266.29	45
1,266.30	47
1,266.31	50
1,266.32	53
1,266.33	55
1,266.34	58
1,266.35	61
1,266.36	64
1,266.37	67
1,266.38	70
1,266.39	73
1,266.40	76
1,266.41	80
1,266.42	83
1,266.43	87
1,266.44	90
1,266.45	94
1,266.46	97
1,266.47	101
1,266.48	105

Rating Table Report
Overtopping

HW Elev. (ft)	Discharge (cfs)
1,266.49	109
1,266.50	113
1,266.51	117
1,266.52	122
1,266.53	126
1,266.54	130
1,266.55	135
1,266.56	139
1,266.57	144
1,266.58	148
1,266.59	153
1,266.60	158
1,266.61	163
1,266.62	168
1,266.63	173
1,266.64	178
1,266.65	183
1,266.66	189
1,266.67	194
1,266.68	199
1,266.69	205
1,266.70	210
1,266.71	216
1,266.72	222
1,266.73	228
1,266.74	234
1,266.75	240
1,266.76	246
1,266.77	252
1,266.78	258
1,266.79	265
1,266.80	271
1,266.81	278
1,266.82	284
1,266.83	291
1,266.84	298
1,266.85	305
1,266.86	312
1,266.87	319
1,266.88	326
1,266.89	333
1,266.90	340
1,266.91	348
1,266.92	355
1,266.93	363
1,266.94	371
1,266.95	379
1,266.96	386
1,266.97	394
1,266.98	402
1,266.99	411
1,267.00	419

Chandler/Gilbert [illegible]S Phase 1- South
Ponding Area 207



0 150' 300' 600'

SCALE: 1"=300'

P:\Mari0000-0040\MARI0040-SE\dwg\Sheets\MARI0040-SEhyPa207.dwg tjcl May 28, 2004 9:01:19am

Chandler/Gilbert FDS Phase 1- South

P207 Data Table

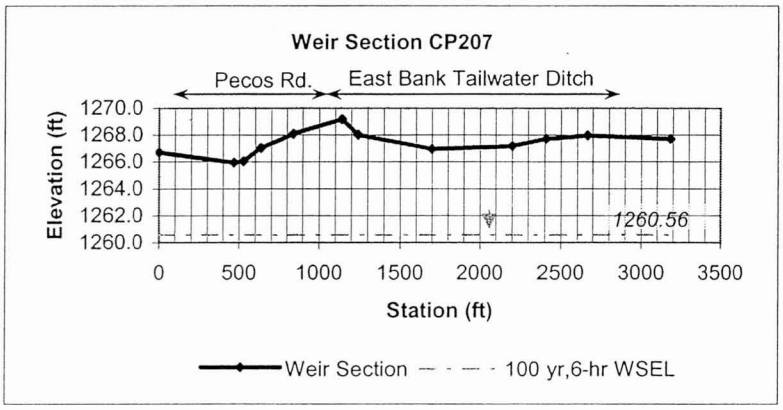
Ponding Area	SE Record	SV Record	SQ Record	$Q_{culvert}$	$Q_{roadway}$	Q_{TWD}
	Contour Elevation	Storage Volume	Total Q			
P207	1255.00	0.00	0	0	0	0
	1256.00	1.27	0	0	0	0
	1257.00	10.55	0	0	0	0
	1259.00	36.54	0	0	0	0
	1260.00	50.79	0	0	0	0
	1261.00	65.83	0	0	0	0
	1263.00	98.20	0	0	0	0
	1264.00	115.51	0	0	0	0
	1265.00	133.60	0	0	0	0
	1266.00	152.47	1	0	1	0
	1267.00	172.37	920	0	918	2
	1267.50	182.88	2716	0	2213	503
	1268.50	205.24	12171	0	6548	5623

Hydraulic Component(s): Roadway

Discharge	0 cfs	Allowable HW Elevation	1,265.95 ft
Roadway Width	40.00 ft	Overtopping Coefficient	3.09 US
Low Point	1,265.95 ft	Headwater Elevation	N/A ft
Discharge Coefficient	0.00	Submergence Factor (Kt)	0
Tailwater Elevation	1,266.10 ft		

	Sta (ft)	Elev. (ft)
Road	0.00	1266.70
	468.47	1265.95
	528.08	1266.04
	634.28	1267.01
	838.88	1268.08
	1141.23	1269.16
tailwater ditch	1242.56	1268.00
	1699.59	1266.94
	2200.14	1267.16
	2408.39	1267.70
	2668.69	1267.96
	3182.93	1267.70

Notes: Ponding volumes include retention basins east of tailwater ditch.Flow is contained in retention basins and no weiring occurs over Pecos Road.



Culvert Designer/Analyzer Report
P207- Total Weir

Comments: 100-yr, 6-hr
Weir profile of Pecos Road and east bank of tailwater ditch. No block walls to prevent overtopping into tailwater ditch

Analysis Component			
Storm Event	Design	Discharge	0 cfs

Peak Discharge Method: User-Specified			
Design Discharge	0 cfs	Check Discharge	0 cfs

Tailwater Conditions: Constant Tailwater	
Tailwater Elevation	0.00 ft

Name	Description	Discharge	HW Elev.	Velocity
Weir	Roadway	0 cfs	1,265.95 ft	N/A

Culvert Designer/Analyzer Report
P207- Total Weir

Component:Weir

Hydraulic Component(s): Roadway					
Discharge	0	cfs	Allowable HW Elevation	1,265.95	ft
Roadway Width	40	ft	Overtopping Coefficient	3.09	US
Low Point	1,265.95	ft	Headwater Elevation	N/A	ft
Discharge Coefficient (Cr)	0.00		Submergence Factor (Kt)	0.00	
Tailwater Elevation	0.00	ft			

Sta (ft)	Elev. (ft)
0.00	1,266.70
468.47	1,265.95
528.08	1,266.04
634.28	1,267.01
838.88	1,268.08
1,141.23	1,269.16
1,242.56	1,268.00
1,699.59	1,266.94
2,200.14	1,267.16
2,408.39	1,267.70
2,668.69	1,267.96
3,182.93	1,267.70

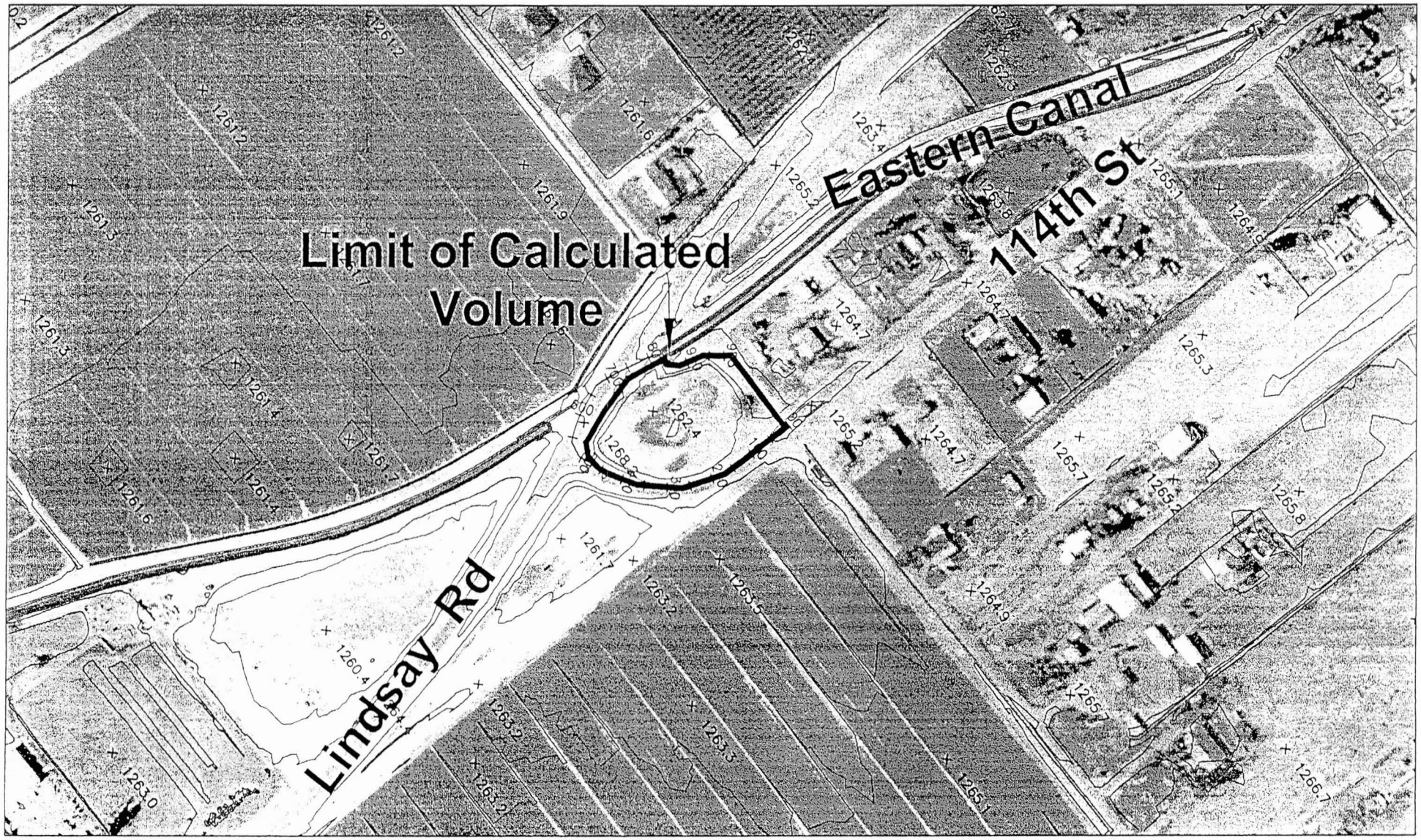
Rating Table Report
Overtopping

Range Data:

	Minimum	Maximum	Increment	
Allowable HW E	1,266.00	1,268.50	0.50	ft

HW Elev. (ft)	Discharge (cfs)
1,266.00	1
1,266.50	194
1,267.00	920
1,267.50	2,716
1,268.00	6,144
1,268.50	12,171

Chandler/Gilbert I S Phase 1- South
Ponding Area 212



0 150' 300' 600'

SCALE: 1"=300'

P:\Mari0000-0040\MARI0040-SE\dwg\Sheets\MARI0040-SEhyPa212.dwg tjcl Jun 10, 2004 1:50:12pm

Chandler/Gilbert FDS Phase 1- South

P212 Data Table

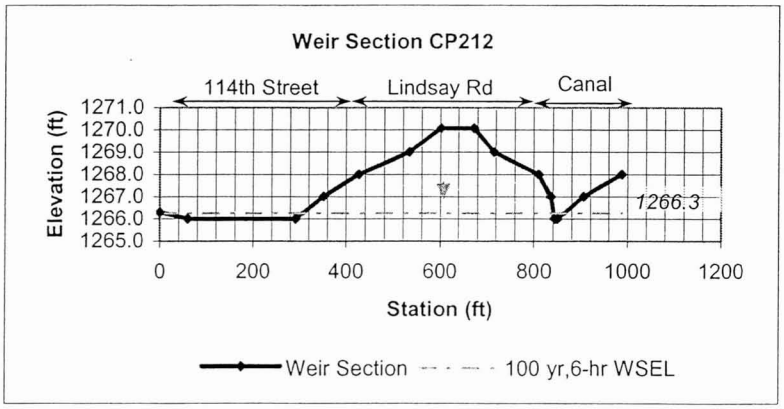
Ponding Area	SE Record	SV Record	SQ Record	$Q_{culvert}$	$Q_{roadway}$	Q_{canal}
	Contour Elevation	Storage Volume	Total Q			
P212	1262.00	0.00	0	0	0	0
	1262.50	0.17	0	0	0	0
	1263.00	0.57	0	0	0	0
	1264.00	1.66	0	0	0	0
	1265.00	2.98	0	0	0	0
	1266.00	4.41	0	0	0	0
	1266.20	4.70	68	0	66	2
	1266.25	4.77	98	0	93	5
	1266.31	4.85	139	0	132	7
	1266.38	4.96	195	0	185	10
	1266.40	5.03	212	0	201	11
	1266.50	5.13	308	0	290	18

Hydraulic Component(s): Roadway

Discharge	80 cfs	Allowable HW Elevation	1,266.22 ft
Roadway Width	20.00 ft	Overtopping Coefficient	2.92 US
Low Point	1,266.00 ft	Headwater Elevation	1,266.22 ft
Discharge Coefficient	2.92	Submergence Factor (Kt)	1
Tailwater Elevation	N/A ft		

	Sta (ft)	Elev. (ft)
114th St	0.00	1266.30
	59.60	1266.00
	291.99	1266.00
	351.71	1267.00
	426.98	1268.00
	533.15	1269.00
Lindsay	601.56	1270.08
	672.66	1270.07
	715.86	1269.00
Canal	810.26	1268.00
	835.88	1267.00
	843.02	1266.00
	849.28	1266.00
	905.93	1267.00
	987.63	1268.00

Notes: Ponding in existing basin (small culvert ignored) adjacent to the Santan Freeway alignment. Overtopping occurs over 114th Street and into the canal at the headwall of the culvert crossing under Lindsey Road. Flow overtopping 114th Street will be conveyed into the Proposed Santan Basin O.



Culvert Designer/Analyzer Report
P212

Comments: 100-yr, 6-hr

Analysis Component			
Storm Event	Design	Discharge	80 cfs

Peak Discharge Method: User-Specified			
Design Discharge	80 cfs	Check Discharge	0 cfs

Tailwater Conditions: Constant Tailwater	
Tailwater Elevation	0.00 ft

Name	Description	Discharge	HW Elev.	Velocity
Weir	Roadway	80 cfs	1,266.22 ft	N/A

Culvert Designer/Analyzer Report
P212

Component:Weir

Hydraulic Component(s): Roadway					
Discharge	80	cfs	Allowable HW Elevation	1,266.22	ft
Roadway Width	20	ft	Overtopping Coefficient	2.92	US
Low Point	1,266.00	ft	Headwater Elevation	1,266.22	ft
Discharge Coefficient (Cr)	2.92		Submergence Factor (Kt)	1.00	
Tailwater Elevation	0.00	ft			

Sta (ft)	Elev. (ft)
0.00	1,266.30
59.60	1,266.00
291.99	1,266.00
351.71	1,267.00
426.98	1,268.00
533.15	1,269.00
601.56	1,270.08
672.66	1,270.07
715.86	1,269.00
810.26	1,268.00
835.88	1,267.00
843.02	1,266.00
849.28	1,266.00
905.93	1,267.00
987.63	1,268.00

Rating Table Report
Overtopping

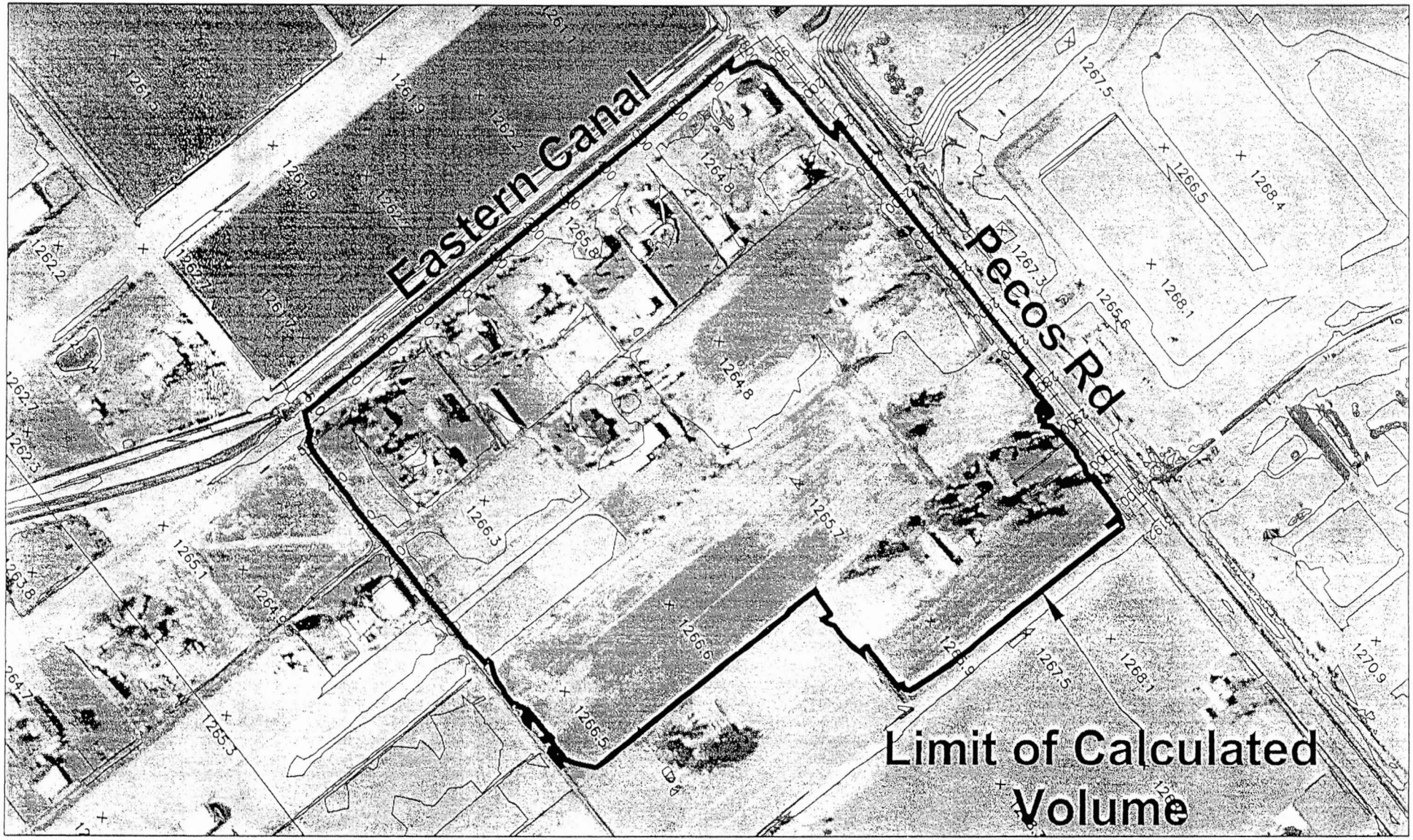
Range Data:			
	Minimum	Maximum	Increment
Allowable HW E	1,266.00	1,266.50	0.01 ft

HW Elev. (ft)	Discharge (cfs)
1,266.00	0
1,266.01	1
1,266.02	2
1,266.03	4
1,266.04	6
1,266.05	8
1,266.06	10
1,266.07	13
1,266.08	16
1,266.09	20
1,266.10	23
1,266.11	27
1,266.12	31
1,266.13	35
1,266.14	39
1,266.15	43
1,266.16	48
1,266.17	53
1,266.18	58
1,266.19	63
1,266.20	68
1,266.21	74
1,266.22	80
1,266.23	85
1,266.24	91
1,266.25	98
1,266.26	104
1,266.27	111
1,266.28	117
1,266.29	124
1,266.30	131
1,266.31	139
1,266.32	146
1,266.33	154
1,266.34	162
1,266.35	170
1,266.36	178
1,266.37	186
1,266.38	195
1,266.39	203
1,266.40	212
1,266.41	221
1,266.42	230
1,266.43	239
1,266.44	249
1,266.45	258
1,266.46	268
1,266.47	278
1,266.48	287

Rating Table Report
Overtopping

HW Elev. (ft)	Discharge (cfs)
1,266.49	297
1,266.50	308

Chandler/Gilbert [illegible]S Phase 1- South
Ponding Area 213



0 150' 300' 600'

SCALE: 1" = 300'

P:\Mari0000-0040\MARI0040-SE\dwg\Sheets\MARI0040-SEhyPa213.dwg tjcl Jun 01, 2004 1:35:55pm

Chandler/Gilbert FDS Phase 1- South

P213 Data Table

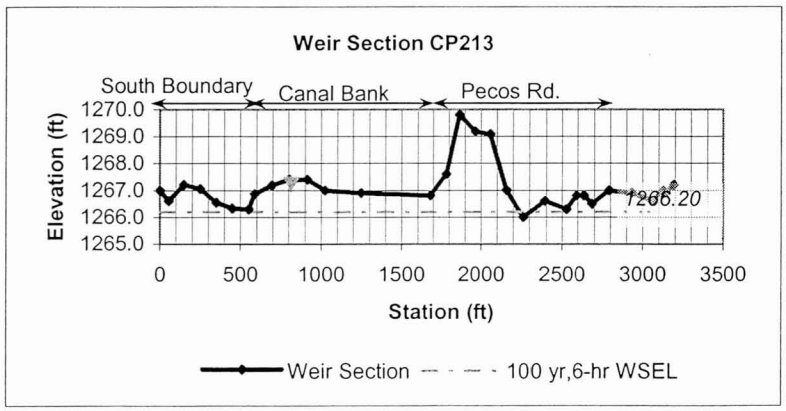
Ponding Area	SE Record Contour Elevation	SV Record Storage Volume	SQ Record Total Q	$Q_{South\ Boundary}$	Q_{Canal}	Q_{Pecos}
P213	1264.00	0.00	0	0	0	0
	1265.00	0.06	0	0	0	0
	1266.00	4.44	0	0	0	0
	1266.20	7.53	5	0	0	5
	1266.30	9.41	14	0	0	14
	1266.50	14.13	86	26	0	60
	1267.00	29.52	1029	342	74	613

Hydraulic Component(s): Roadway

Discharge	4 cfs	Allowable HW Elevation	1,266.18 ft
Roadway Width	40.00 ft	Overtopping Coefficient	2.5 US
Low Point	1,266.00 ft	Headwater Elevation	1,266.18 ft
Discharge Coefficient	2.50	Submergence Factor (Kt)	1
Tailwater Elevation	N/A ft		

	Sta (ft)	Elev. (ft)
south boundary	0.00	1267.00
	56.00	1266.60
	150.00	1267.21
	250.00	1267.05
	350.00	1266.54
	450.00	1266.33
	550.00	1266.30
	588.00	1266.87
canal	695.16	1267.18
	806.00	1267.40
	914.00	1267.40
	1025.00	1267.00
	1249.00	1266.90
	1683.00	1266.80
	1783.00	1267.60
	1866.00	1269.80
Pecos Road	1964.76	1269.18
	2059.22	1269.08
	2157.62	1267.01
	2264.00	1266.00
	2392.00	1266.60
	2528.00	1266.30
	2591.00	1266.80
	2636.00	1266.80
	2686.00	1266.50
	2794.00	1267.00
	2933.00	1266.90
	3062.00	1266.60
	3128.00	1267.00
	3142.00	1266.90
	3192.00	1267.20

Notes: Shallow ponding within Sub-basin 213.



Culvert Designer/Analyzer Report
P213 - Total Weir

Comments: 100-yr, 6-hr

Analysis Component			
Storm Event	Design	Discharge	4 cfs

Peak Discharge Method: User-Specified			
Design Discharge	4 cfs	Check Discharge	0 cfs

Tailwater Conditions: Constant Tailwater	
Tailwater Elevation	66.00 ft

Name	Description	Discharge	HW Elev.	Velocity
Weir	Roadway	4 cfs	1,266.18 ft	N/A

© Haestad Methods, Inc.

David Evans and Associates, Inc
37 Brookside Road Waterbury, CT 06708 USA +1-203-755-1666

Culvert Designer/Analyzer Report
P213 - Total Weir

Component:Weir

Hydraulic Component(s): Roadway					
Discharge	4	cfs	Allowable HW Elevation	1,266.18	ft
Roadway Width	40	ft	Overtopping Coefficient	2.50	US
Low Point	1,266.00	ft	Headwater Elevation	1,266.18	ft
Discharge Coefficient (Cr)	2.50		Submergence Factor (Kt)	1.00	
Tailwater Elevation	66.00	ft			

Sta (ft)	Elev. (ft)
0.00	1,267.00
56.00	1,266.60
150.00	1,267.21
250.00	1,267.05
350.00	1,266.54
450.00	1,266.33
550.00	1,266.30
588.00	1,266.87
695.16	1,267.18
806.00	1,267.40
914.00	1,267.40
1,025.00	1,267.00
1,249.00	1,266.90
1,683.00	1,266.80
1,783.00	1,267.60
1,866.00	1,269.80
1,964.76	1,269.18
2,059.22	1,269.08
2,157.62	1,267.01
2,264.00	1,266.00
2,392.00	1,266.60
2,528.00	1,266.30
2,591.00	1,266.80
2,636.00	1,266.80
2,686.00	1,266.50
2,794.00	1,267.00
2,933.00	1,266.90
3,062.00	1,266.60
3,128.00	1,267.00
3,142.00	1,266.90
3,192.00	1,267.20

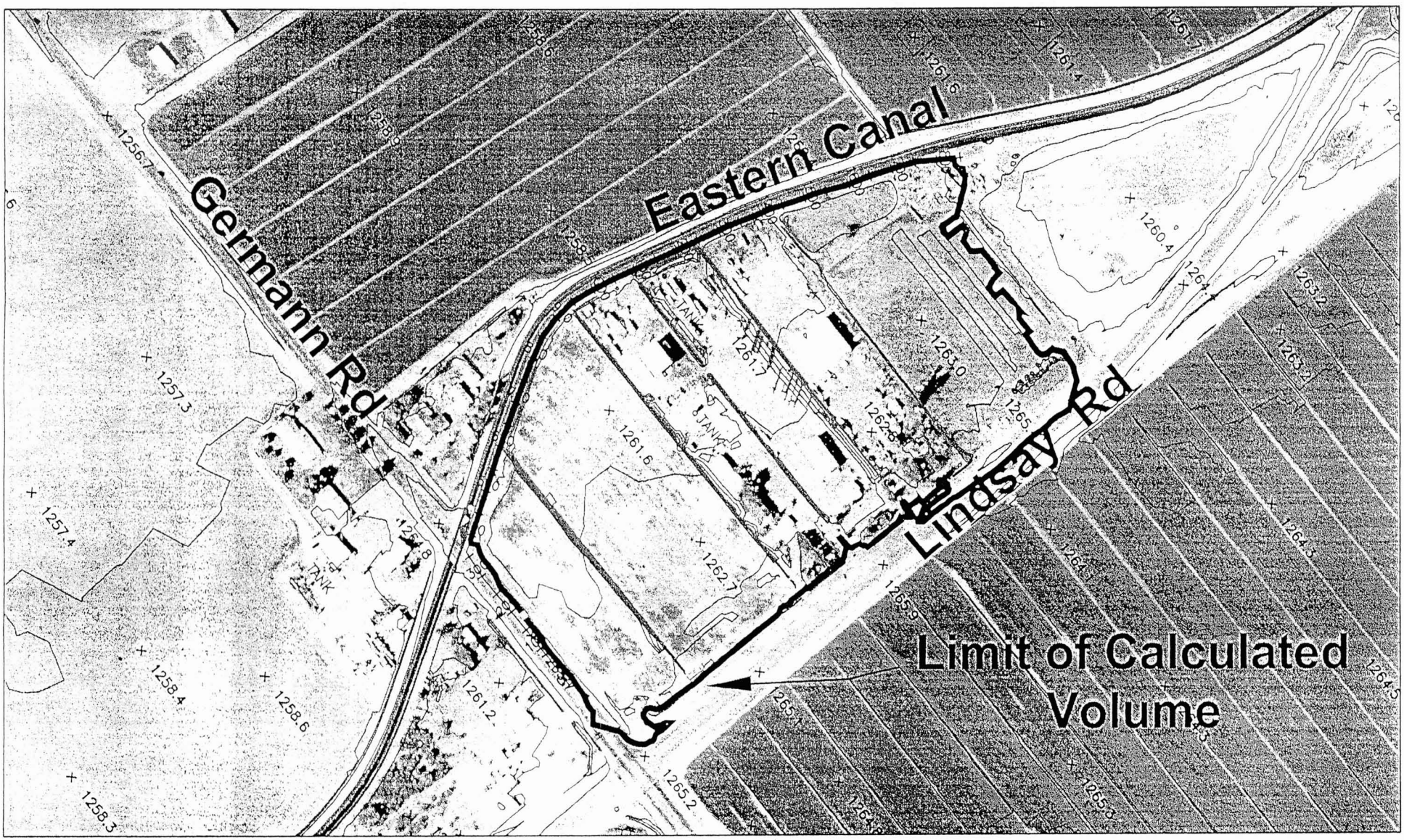
Rating Table Report
Overtopping

Range Data:

	Minimum	Maximum	Increment	
Allowable HW E	1,266.00	1,267.00	0.10	ft

HW Elev. (ft)	Discharge (cfs)
1,266.00	0
1,266.10	1
1,266.20	5
1,266.30	14
1,266.40	37
1,266.50	86
1,266.60	164
1,266.70	287
1,266.80	452
1,266.90	685
1,267.00	1,029

Chandler/Gilbert F S Phase 1- South
Ponding Area 215



0 150' 300' 600'

SCALE: 1" = 300'

P:\Mari0000-0040\MARI0040-SE\dwg\Sheets\MARI0040-SEhyPa215.dwg tjcl Jun 02, 2004 11:37:29am

Chandler/Gilbert FDS Phase 1- South

P215 Data Table

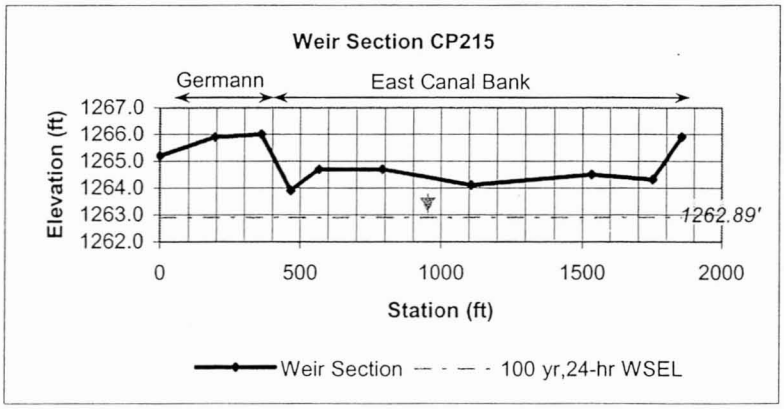
Ponding Area	SE Record	SV Record	SQ Record	$Q_{culvert}$	$Q_{roadway}$	Q_{canal}
	Contour Elevation	Storage Volume	Total Q			
P215	1261.00	0.25	0	0	0	0
	1261.50	1.43	0	0	0	0
	1262.00	3.82	0	0	0	0
	1262.50	7.63	0	0	0	0
	1263.00	12.72	0	0	0	0
	1264.00	26.37	0	0	0	0
	1265.00	44.62	1671	0	0	1671

Hydraulic Component(s): Roadway

Discharge	0 cfs	Allowable HW Elevation	1,263.90 ft
Roadway Width	40.00 ft	Overtopping Coefficient	2.53 US
Low Point	1,263.90 ft	Headwater Elevation	N/A ft
Discharge Coefficient	0.00	Submergence Factor (Kt)	0
Tailwater Elevation	0.00 ft		

	Sta (ft)	Elev. (ft)
road	0.00	1265.20
	194.00	1265.90
	361.00	1266.00
	467.00	1263.90
canal	569.00	1264.70
	791.00	1264.70
	1108.00	1264.10
	1534.00	1264.50
	1752.00	1264.30
	1855.00	1265.90

Notes: Ponding within Sub-basin 215.



Culvert Designer/Analyzer Report
P215

Comments: 100-yr, 24-hr

Analysis Component			
Storm Event	Design	Discharge	0 cfs

Peak Discharge Method: User-Specified			
Design Discharge	0 cfs	Check Discharge	0 cfs

Tailwater Conditions: Constant Tailwater	
Tailwater Elevation	0.00 ft

Name	Description	Discharge	HW Elev.	Velocity
Weir	Roadway	0 cfs	1,263.90 ft	N/A

Culvert Designer/Analyzer Report
P215

Component:Weir

Hydraulic Component(s): Roadway					
Discharge	0	cfs	Allowable HW Elevation	1,263.90	ft
Roadway Width	40	ft	Overtopping Coefficient	2.53	US
Low Point	1,263.90	ft	Headwater Elevation	N/A	ft
Discharge Coefficient (Cr)	0.00		Submergence Factor (Kt)	0.00	
Tailwater Elevation	0.00	ft			

Sta (ft)	Elev. (ft)
0.00	1,265.20
194.00	1,265.90
361.00	1,266.00
467.00	1,263.90
569.00	1,264.70
791.00	1,264.70
1,108.00	1,264.10
1,534.00	1,264.50
1,752.00	1,264.30
1,855.00	1,265.90

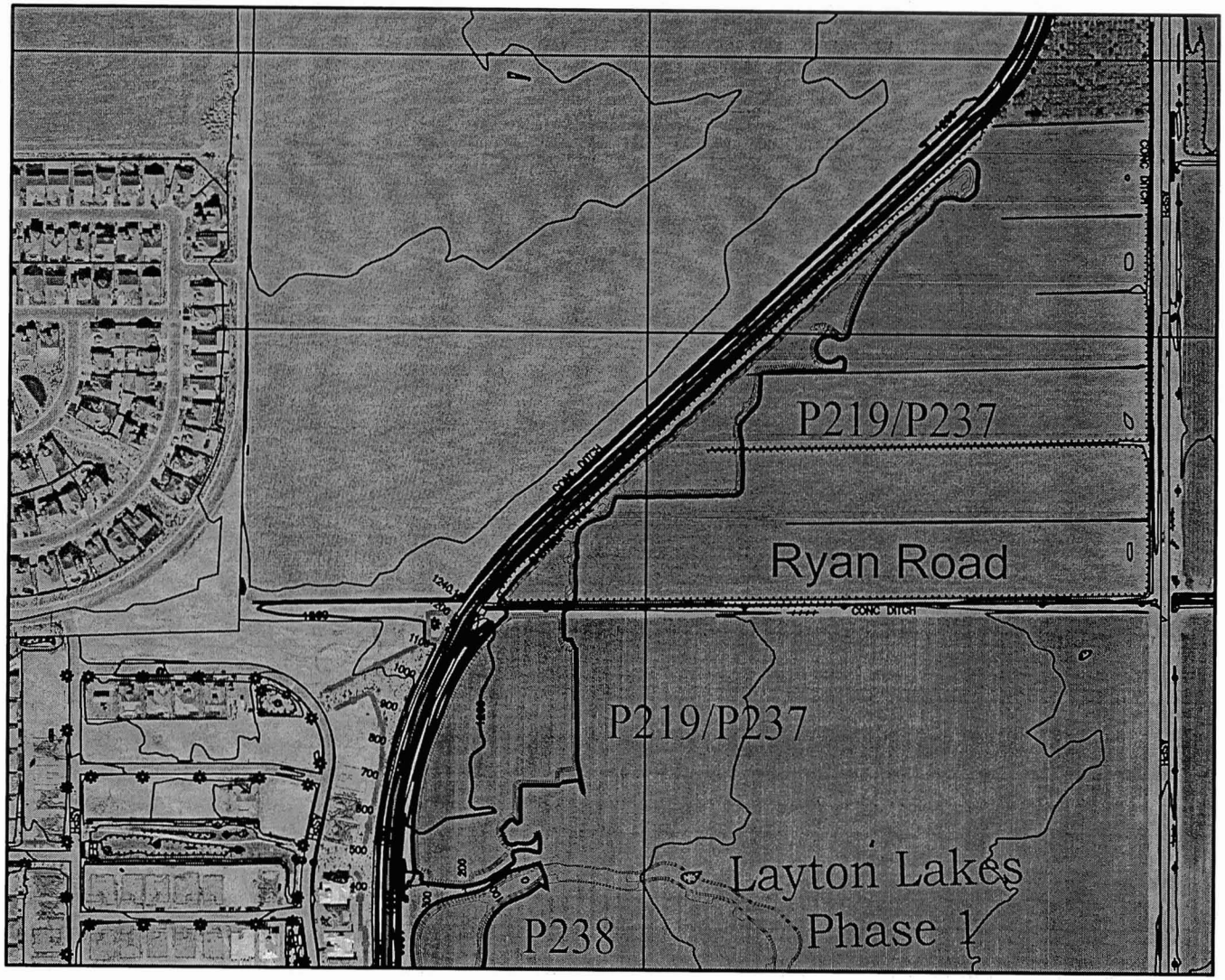
Rating Table Report
Overtopping

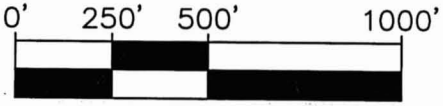
Range Data:

	Minimum	Maximum	Increment	
Allowable HW E	1,263.00	1,265.00	1.00	ft

HW Elev. (ft)	Discharge (cfs)
1,263.00	0
1,264.00	0
1,265.00	1,671

Chandler/Gilbert FDS Phase 1-South
Ponding Area 219/237





SCALE: 1"=500'

Chandler/Gilbert FDS Phase 1- South

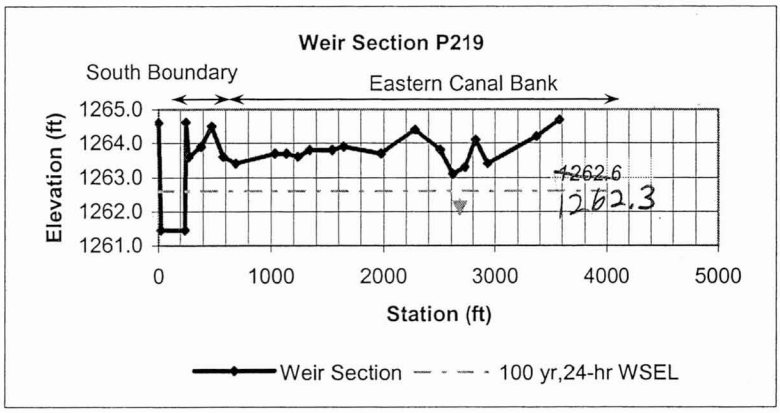
P219 Data Table - See P219/P237 for Combination Basin

Ponding Area	SE Record Contour Elevation	SV Record Storage Volume	SQ Record Total Q		Qsouth	Q_{canal}
P219	1258.70	0.00	0		0	0
	1259.46	2.60	0		0	0
	1260.46	5.65	0		0	0
	1261.40		0		0	0
	1261.46	9.17				
	1261.69		60		60	0
	1261.78		100		100	0
	1261.90		160		160	0
	1262.00		220		220	0
	1262.03		240		240	0
	1262.06		260		260	0
	1262.36	13.10				
	1263.36	16.55				
	1263.66	17.78			0	261

Hydraulic Component(s): Roadway			
Discharge	230 cfs	Allowable HW Elevation	1,261.31 ft
Roadway Width	40.00 ft	Overtopping Coefficient	2.52 US
Low Point	1,260.76 ft	Headwater Elevation	1,261.31 ft
Discharge Coefficient	2.52	Submergence Factor (Kt)	1
Tailwater Elevation	0.00 ft		

	Sta (ft)	Elev. (ft)
south boundary	0.00	1,264.60
	22.70	1,261.46
	240.70	1,261.46
	250.70	1264.62
	276.38	1263.59
canal	382.61	1263.90
	476.61	1264.50
	580.61	1263.60
	690.61	1263.40
	1034.61	1263.70
	1137.61	1263.70
	1240.61	1263.60
	1343.61	1263.80
	1546.61	1263.80
	1649.61	1263.90
	1979.61	1263.70
	2279.61	1264.40
	2505.61	1263.80
	2615.61	1263.10
	2725.61	1263.30
	2826.61	1264.10
	2933.61	1263.40
	3370.61	1264.20
	3575.61	1264.70

Notes: Ponding within Eagle Glenn II in Sub-basin 219. Flow overtops into P237. Elevations adjusted 0.7 for dfferences in Eagle Glen II datum, total adjustment is 1.66 +.7 = 2.36 feet



Culvert Designer/Analyzer Report
P219 - NEW 7/17/07

Comments: 100-yr, 24-hr

Analysis Component			
Storm Event	Design	Discharge	230 cfs

Peak Discharge Method: User-Specified			
Design Discharge	230 cfs	Check Discharge	0 cfs

Tailwater Conditions: Constant Tailwater	
Tailwater Elevation	0.00 ft

Name	Description	Discharge	HW Elev.	Velocity
Weir	Roadway	230 cfs	1,261.32 ft	N/A

Culvert Designer/Analyzer Report
P219 - NEW 7/17/07

Component:Weir

Hydraulic Component(s): Roadway					
Discharge	230	cfs	Allowable HW Elevation	1,261.32	ft
Roadway Width	40	ft	Overtopping Coefficient	2.52	US
Low Point	1,260.76	ft	Headwater Elevation	1,261.32	ft
Discharge Coefficient (Cr)	2.52		Submergence Factor (Kt)	1.00	
Tailwater Elevation	0.00	ft			

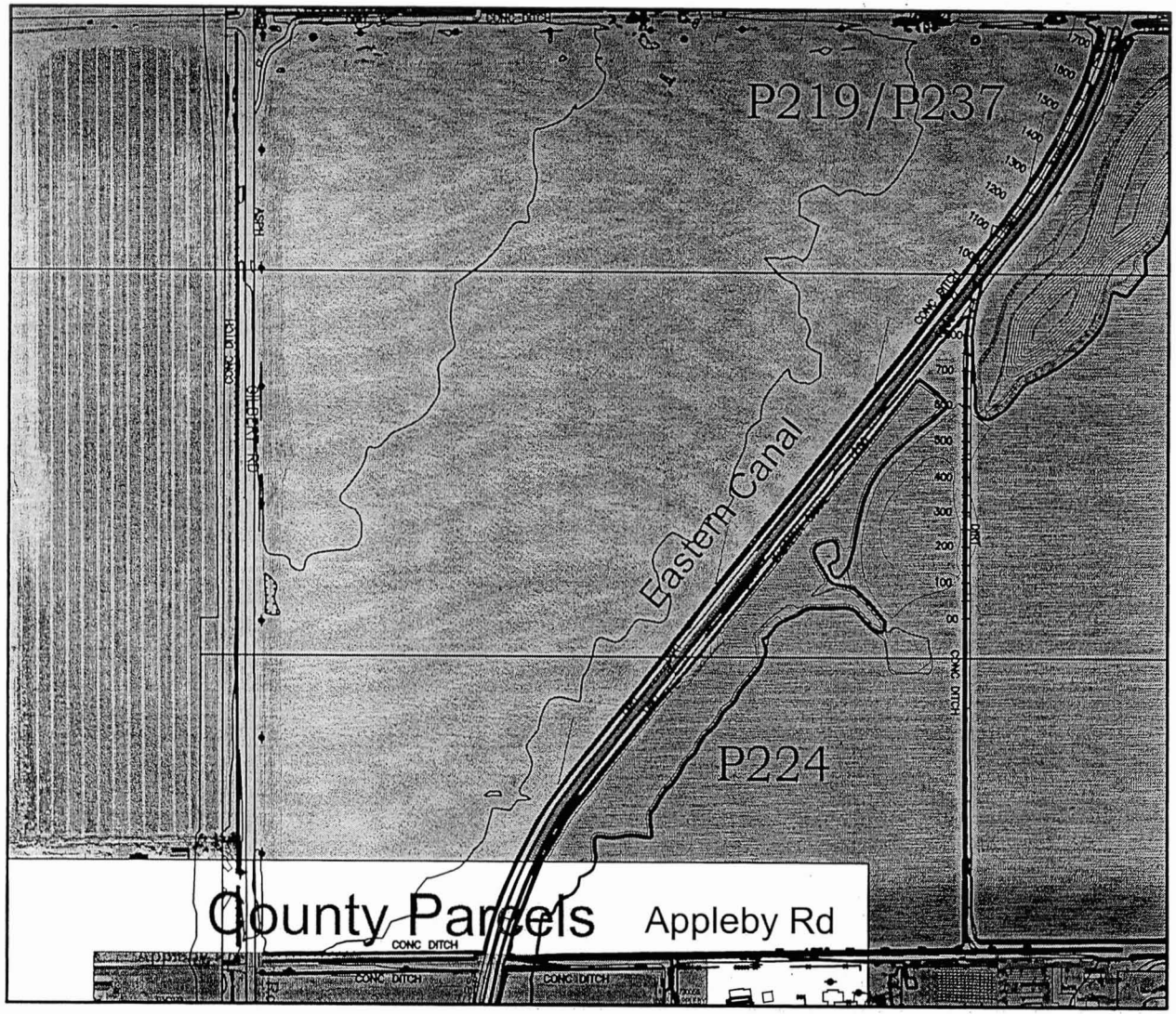
Sta (ft)	Elev. (ft)
0.00	1,263.90
22.70	1,260.76
240.70	1,260.76
250.21	1,263.92
276.38	1,262.89
382.61	1,263.20
476.61	1,263.80
580.61	1,262.90
690.61	1,262.70
1,034.61	1,263.00
1,137.61	1,263.00
1,240.61	1,262.90
1,343.61	1,263.10
1,546.61	1,263.10
1,649.61	1,263.20
1,979.61	1,263.00
2,279.61	1,263.70
2,505.61	1,263.10
2,615.61	1,262.40
2,725.61	1,262.60
2,826.61	1,263.40
2,933.61	1,262.70
3,370.61	1,263.50
3,575.61	1,264.00

Rating Table Report
Overtopping

Range Data:			
	Minimum	Maximum	Increment
Allowable HW E	1,262.00	1,263.00	0.10 ft

HW Elev. (ft)	Discharge (cfs)
1,262.00	0
1,262.10	0
1,262.20	0
1,262.30	0
1,262.40	0
1,262.50	2
1,262.60	11
1,262.70	32
1,262.80	68
1,262.90	139
1,263.00	261

Chandler/Gilbert FDS Pha 1-South
Ponding Area 224-North Portion

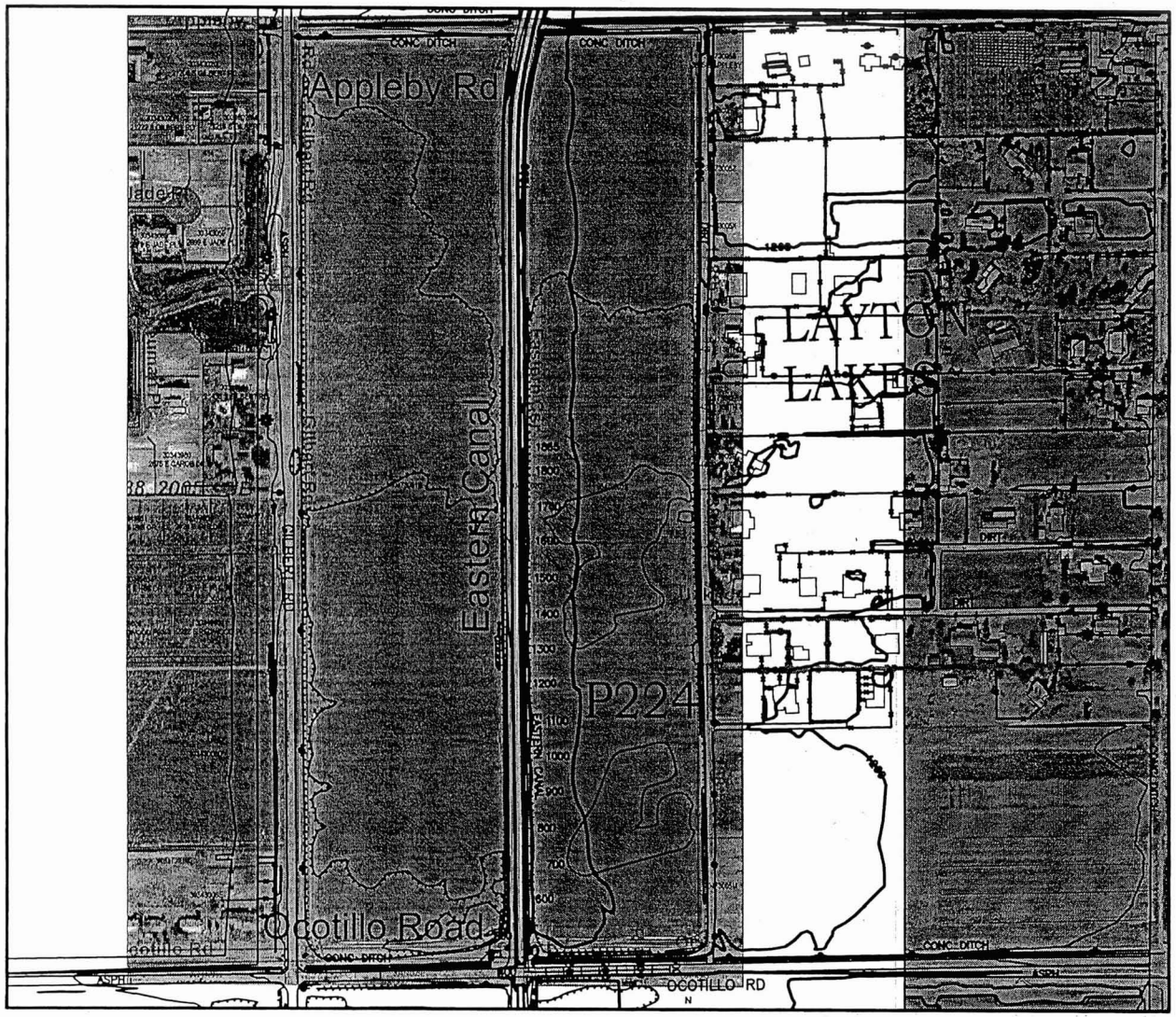


(See South Portion)

SCALE: 1"=500'

Chandler/Gilbert FDS Ph[illegible] 1-South
Ponding Area 224-South Portion

(See North Portion)



0' 250' 500' 1000'

SCALE: 1" = 500'

Chandler/Gilbert FDS Phase 1- South

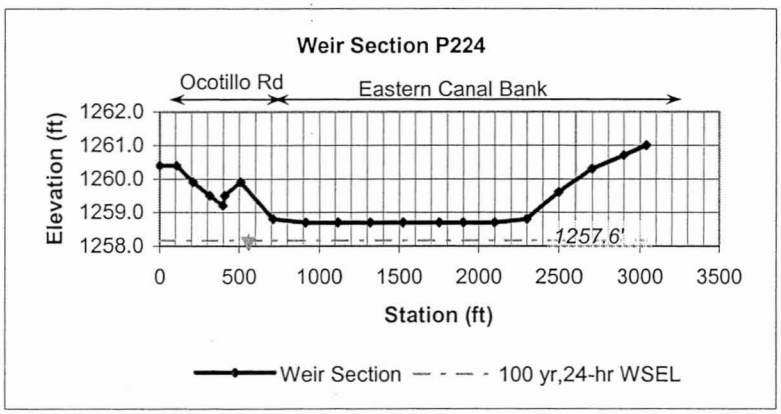
P224 Data Table

Ponding Area	SE Record Contour Elevation	SV Record Storage Volume	SQ Record Total Q	$Q_{culvert}$	$Q_{roadway}$	Q_{canal}
P224	1255.16	0	0	0	0	0
	1255.66	6.10	0	0	0	0
	1256.66	19.32	0	0	0	0
	1257.66	33.91	0	0	0	0
	1258.66	49.87	0	0	0	0
	1258.70		0	0	0	0
	1258.71		5	0	0	5
	1258.76		50	0	0	50
	1259.16	58.35				

Hydraulic Component(s): Roadway			
Discharge	0 cfs	Allowable HW Elevation	1,258.16 ft
Roadway Width	40.00 ft	Overtopping Coefficient	2.51 US
Low Point	1,258.70 ft	Headwater Elevation	N/A ft
Discharge Coefficient	0.00	Submergence Factor (Kt)	0
Tailwater Elevation	0.00 ft		

	Sta (ft)	Elev. (ft)
Road	0.00	1260.40
	107.00	1260.40
	211.00	1259.90
	316.00	1259.50
	398.00	1259.20
Canal	410.00	1259.50
	510.00	1259.90
	712.00	1258.80
	916.00	1258.70
	1118.00	1258.70
	1320.00	1258.70
	1525.00	1258.70
	1751.00	1258.70
	1900.00	1258.70
	2100.00	1258.70
	2300.00	1258.80
	2500.00	1259.60
	2700.00	1260.30
	2900.00	1260.70
	3040.00	1261.00

Notes: Ponding along Eastern Canal.



Culvert Analysis Report
Weir

P224

Hydraulic Component(s): Roadway

Discharge	0	cfs	Allowable HW Elevation	1,258.70	ft
Roadway Width	40	ft	Overtopping Coefficient	2.56	US
Low Point	1,258.70	ft	Headwater Elevation	N/A	ft
Discharge Coefficient (Cr)	0.00		Submergence Factor (Kt)	0.00	
Tailwater Elevation	0.00	ft			

Sta (ft)	Elev. (ft)
0.00	1,260.40
107.00	1,260.40
211.00	1,259.90
316.00	1,259.50
398.00	1,259.20
410.00	1,259.50
510.00	1,259.90
712.00	1,258.80
916.00	1,258.70
1,118.00	1,258.70
1,320.00	1,258.70
1,525.00	1,258.70
1,751.00	1,258.70
1,900.00	1,258.70
2,100.00	1,258.70
2,300.00	1,258.80
2,500.00	1,259.60
2,700.00	1,260.30
2,900.00	1,260.70
3,040.00	1,261.00

Rating Table Report
Overtopping

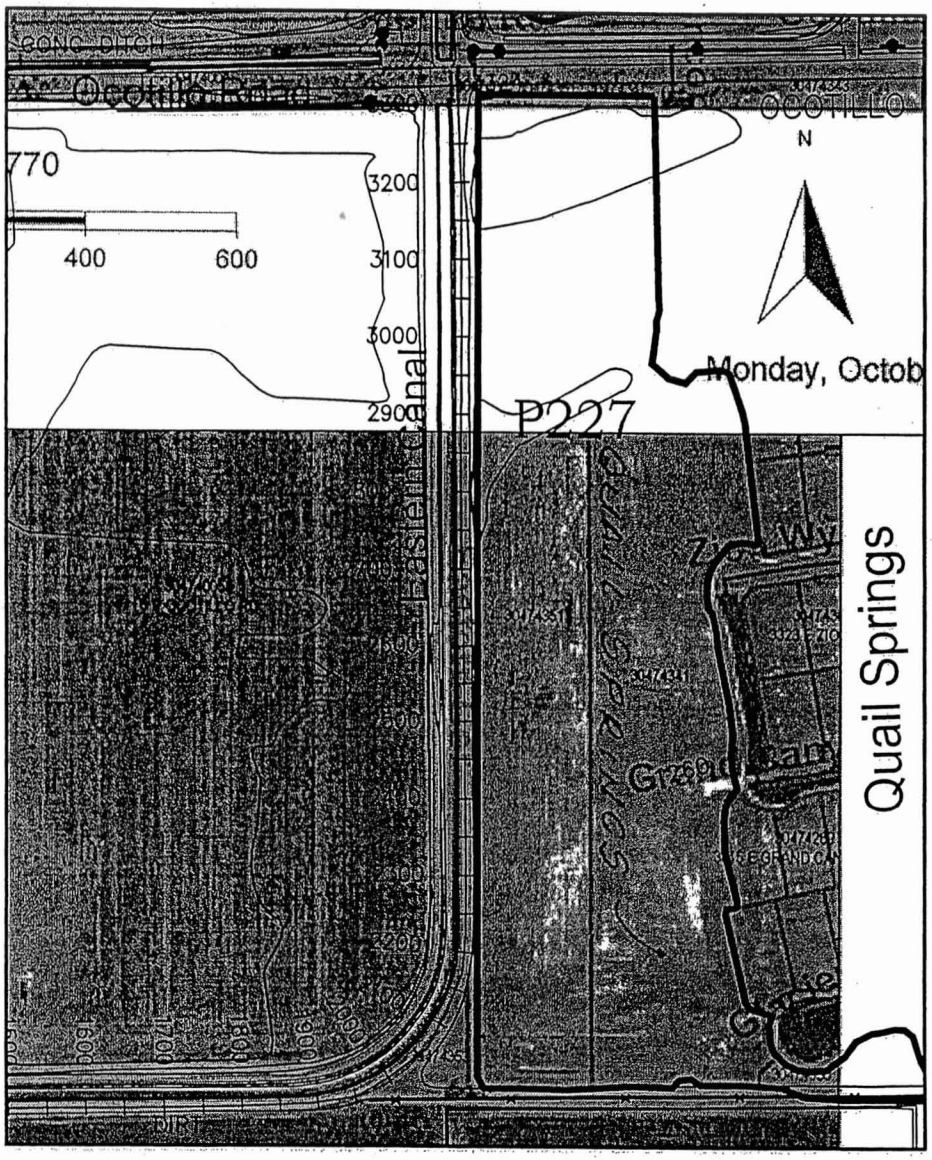
P224

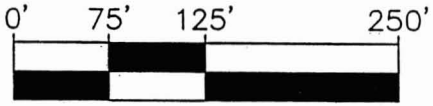
Range Data:

	Minimum	Maximum	Increment
Discharge	0	500	25 cfs

Discharge (cfs)	HW Elev. (ft)
0	1,258.70
25	1,258.74
50	1,258.76
75	1,258.78
100	1,258.80
125	1,258.81
150	1,258.82
175	1,258.84
200	1,258.85
225	1,258.86
250	1,258.87
275	1,258.88
300	1,258.89
325	1,258.90
350	1,258.91
375	1,258.92
400	1,258.93
425	1,258.93
450	1,258.94
475	1,258.95
500	1,258.96

Chandler/Gilbert FDS Phase 1-South
Ponding Area 227





SCALE: 1"=250'

Chandler/Gilbert FDS Phase 1- South

P227 Data Table

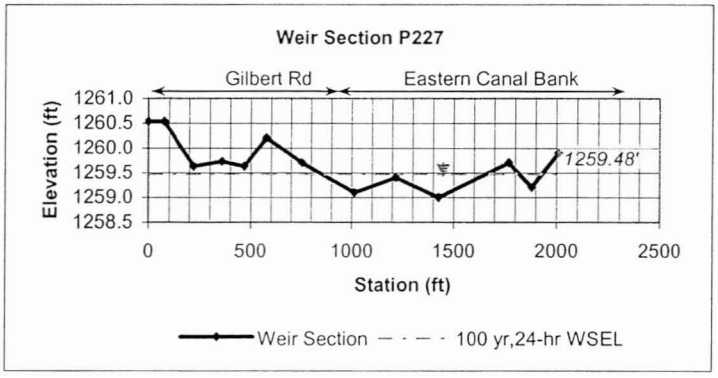
Ponding Area	SE Record	SV Record	SQ Record	$Q_{culvert}$	$Q_{roadway}$	Q_{canal}
	Contour Elevation	Storage Volume	Total Q			
P227	1257.63	7.94				
	1258.63	17.15				
	1259.00		0			0
	1259.03	21.19				
	1259.28		50			50
	1259.33	31.84				
	1259.35		100			100
	1259.4		150			150
	1259.44		200			200
	1259.48		250			250
	1259.51		300			300
	1259.54		350			350
	1259.56		400			400
	1259.59		450			450
	1259.61		500			500
	1259.63	50.37				

Hydraulic Component(s): Roadway

Discharge	261 cfs	Allowable HW Elevation	1,259.49 ft
Roadway Width	40.00 ft	Overtopping Coefficient	2.55 US
Low Point	1,259.00 ft	Headwater Elevation	1,259.46 ft
Discharge Coefficient	2.55	Submergence Factor (Kt)	1
Tailwater Elevation	0.00 ft		

	Sta (ft)	Elev. (ft)
road	0.00	1,260.53
	77.20	1,260.53
	221.50	1,259.63
canal	361.20	1,259.73
	469.10	1,259.63
	578.75	1,260.20
	753.75	1,259.70
	1013.75	1,259.10
	1217.75	1,259.40
	1426.75	1,259.00
	1768.75	1,259.70
	1879.75	1,259.20
	2010.75	1,259.90

Notes: Ponding along Eastern Canal and Gilbert Road.



Culvert Designer/Analyzer Report
P227-NEW 7/16/07

Comments: 100-yr, 24-hr

Analysis Component			
Storm Event	Design	Discharge	261 cfs

Peak Discharge Method: User-Specified			
Design Discharge	261 cfs	Check Discharge	391 cfs

Tailwater Conditions: Constant Tailwater	
Tailwater Elevation	0.00 ft

Name	Description	Discharge	HW Elev.	Velocity
Weir	Roadway	261 cfs	1,259.48 ft	N/A

Culvert Designer/Analyzer Report
P227-NEW 7/16/07

mponent:Weir

Hydraulic Component(s): Roadway

Discharge	261	cfs	Allowable HW Elevation	1,259.48	ft
Roadway Width	40	ft	Overtopping Coefficient	2.55	US
Low Point	1,259.00	ft	Headwater Elevation	1,259.48	ft
Discharge Coefficient (Cr)	2.55		Submergence Factor (Kt)	1.00	
Tailwater Elevation	0.00	ft			

Sta (ft)	Elev. (ft)
0.00	1,260.53
77.20	1,260.53
221.50	1,259.63
361.20	1,259.73
469.10	1,259.63
578.75	1,260.20
753.75	1,259.70
1,013.75	1,259.10
1,217.75	1,259.40
1,426.75	1,259.00
1,768.75	1,259.70
1,879.75	1,259.20
2,010.75	1,259.90

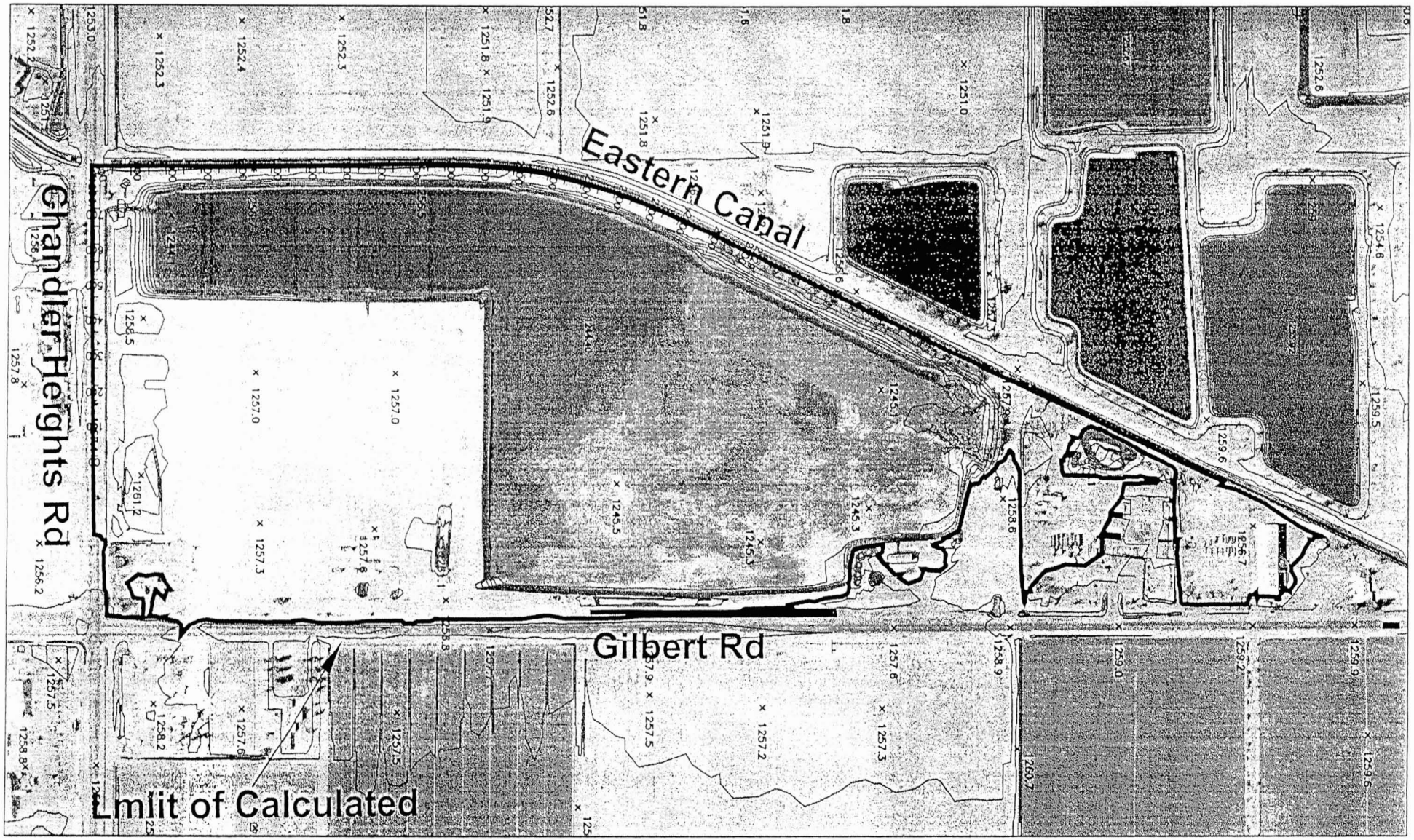
Rating Table Report
Overtopping – P227

Range Data:

	Minimum	Maximum	Increment	
Discharge	0	500	50	cfs

Discharge (cfs)	HW Elev. (ft)
0	1,259.00
50	1,259.28
100	1,259.35
150	1,259.40
200	1,259.44
250	1,259.48
300	1,259.51
350	1,259.54
400	1,259.56
450	1,259.59
500	1,259.61

Chandler/Gilbert F S Phase 1- South
Ponding Area 230



0 200' 400' 800'

SCALE: 1"=400'

P:\Mari0000-0040\MARI0040-SE\dwg\Sheets\MARI0040-SEhyPa230.dwg tjcl Jun 04, 2004 12:04:10pm

Chandler/Gilbert FDS Phase 1- South

P230 Data Table

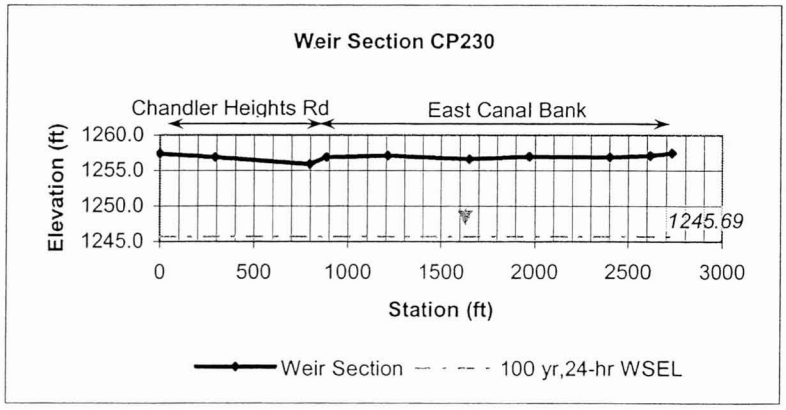
Ponding Area	SE Record	SV Record	SQ Record	$Q_{culvert}$	$Q_{roadway}$	Q_{canal}
	Contour Elevation	Storage Volume	Total Q			
P230	1244.00	0.00	0	0	0	0
	1245.00	14.75	0	0	0	0
	1246.00	44.82	0	0	0	0
	1247.00	78.21	0	0	0	0
	1248.00	112.26	0	0	0	0
	1249.00	146.78	0	0	0	0
	1250.00	181.70	0	0	0	0
	1251.00	216.98	0	0	0	0
	1252.00	252.68	0	0	0	0
	1253.00	288.81	0	0	0	0
	1524.00	325.39	0	0	0	0
	1255.00	362.46	0	0	0	0
	1256.00	400.20	2	0	2	0
	1257.00	441.98	890	0	721	169
	1257.50	467.50	4208	0	2062	2146

Hydraulic Component(s): Roadway

Discharge	0 cfs	Allowable HW Elevation	1,255.90 ft
Roadway Width	40.00 ft	Overtopping Coefficient	2.59 US
Low Point	1,255.90 ft	Headwater Elevation	N/A ft
Discharge Coefficient	0.00	Submergence Factor (Kt)	0
Tailwater Elevation	0.00 ft		

	Sta (ft)	Elev. (ft)
Road	0.00	1257.40
	292.00	1256.90
	797.00	1255.90
Canal	885.00	1256.90
	1209.00	1257.10
	1649.00	1256.60
	1970.00	1257.00
	2402.00	1256.90
	2617.00	1257.10
	2729.00	1257.50

Notes: Ponding in RWCD Chandler Heights storage basin. Basin data was derived from the DTM, which accounts for the water level in the basin at the time of mapping. Therefore, the minimum contour elevation is no the bottom of the basin, rather the water level elevation at the time of mapping.



Culvert Designer/Analyzer Report
P230 - RWCD North Storage Pond

Analysis Component			
Storm Event	Design	Discharge	0 cfs

Peak Discharge Method: User-Specified			
Design Discharge	0 cfs	Check Discharge	0 cfs

Tailwater Conditions: Constant Tailwater	
Tailwater Elevation	0.00 ft

Name	Description	Discharge	HW Elev.	Velocity
Weir	Roadway	0 cfs	1,255.90 ft	N/A

Culvert Designer/Analyzer Report
P230 - RWCD North Storage Pond

Component:Weir

Hydraulic Component(s): Roadway					
Discharge	0	cfs	Allowable HW Elevation	1,255.90	ft
Roadway Width	40	ft	Overtopping Coefficient	2.56	US
Low Point	1,255.90	ft	Headwater Elevation	N/A	ft
Discharge Coefficient (Cr)	0.00		Submergence Factor (Kt)	0.00	
Tailwater Elevation	0.00	ft			

Sta (ft)	Elev. (ft)
0.00	1,257.40
292.00	1,256.90
797.00	1,255.90
885.00	1,256.90
1,209.00	1,257.10
1,649.00	1,256.60
1,970.00	1,257.00
2,402.00	1,256.90
2,617.00	1,257.10
2,729.00	1,257.50

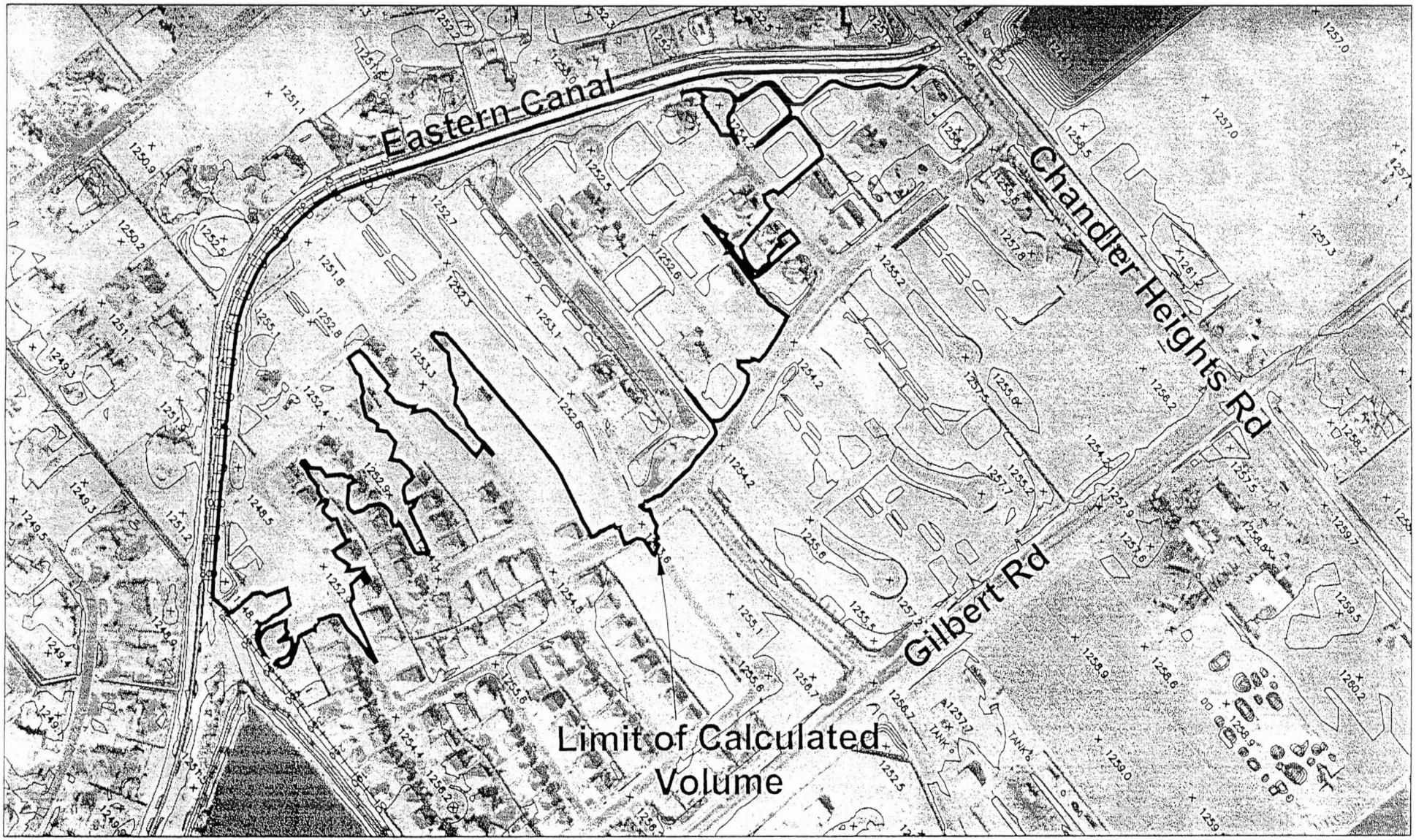
Rating Table Report
P230 - RWCD North Storage Pond

Range Data:

	Minimum	Maximum	Increment	
Allowable HW E	1,256.00	1,257.50	0.50	ft

HW Elev. (ft)	Discharge (cfs)
1,256.00	2
1,256.50	148
1,257.00	890
1,257.50	4,208

Chandler/Gilbert F[illegible] Phase 1- South
Ponding Area 234



0 200' 400' 800'

SCALE: 1"=400'

P:\Mari0000-0040\MARI0040-SE\dwg\Sheets\MARI0040-SEhyPa234.dwg tjcl Jun 08, 2004 7:28:58am

Chandler/Gilbert FDS Phase 1- South

P234 Data Table

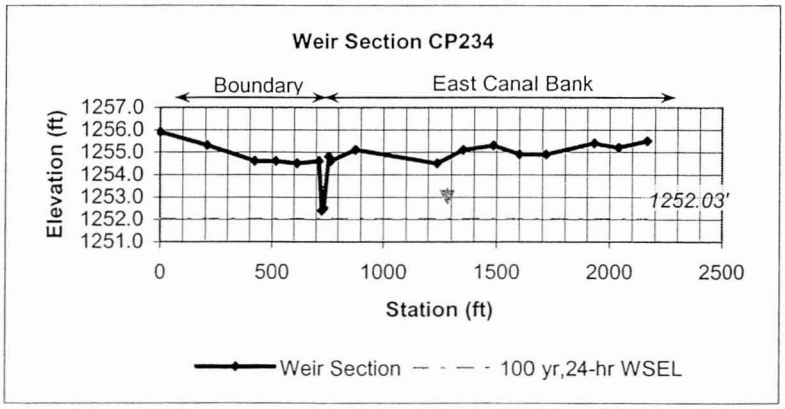
Ponding Area	SE Record	SV Record	SQ Record	$Q_{culvert}$	$Q_{boundary}$	Q_{canal}
	Contour Elevation	Storage Volume	Total Q			
P234	1248.50	0.38	0	0	0	0
	1249.00	1.34	0	0	0	0
	1250.00	3.99	0	0	0	0
	1251.00	7.61	0	0	0	0
	1252.00	13.11	0	0	0	0
	1253.00	26.39	13	0	13	0
	1254.00	54.88	89	0	89	0

Hydraulic Component(s): Roadway

Discharge	0 cfs	Allowable HW Elevation	1,252.40 ft
Roadway Width	40.00 ft	Overtopping Coefficient	2.55 US
Low Point	1,252.40 ft	Headwater Elevation	N/A ft
Discharge Coefficient	0.00	Submergence Factor (Kt)	0
Tailwater Elevation	0.00 ft		

	Sta (ft)	Elev. (ft)
boundary	0.00	1255.90
	209.00	1255.30
	422.00	1254.60
	517.00	1254.60
	614.00	1254.50
	714.00	1254.60
	726.00	1252.40
	736.00	1252.50
	757.00	1254.80
Canal	768.00	1254.60
	877.00	1255.10
	1239.00	1254.50
	1353.00	1255.10
	1485.00	1255.30
	1600.00	1254.90
	1716.00	1254.90
	1931.00	1255.40
	2039.00	1255.20
	2166.00	1255.50

Notes: Ponding in retention basin adjacent to canal.



Culvert Designer/Analyzer Report
P234 -Total Weir

Analysis Component			
Storm Event	Design	Discharge	0 cfs

Peak Discharge Method: User-Specified			
Design Discharge	0 cfs	Check Discharge	0 cfs

Tailwater Conditions: Constant Tailwater	
Tailwater Elevation	0.00 ft

Name	Description	Discharge	HW Elev.	Velocity
Weir	Roadway	0 cfs	1,252.40 ft	N/A

Culvert Designer/Analyzer Report
P234 -Total Weir

Component:Weir

Hydraulic Component(s): Roadway					
Discharge	0	cfs	Allowable HW Elevation	1,252.40	ft
Roadway Width	40	ft	Overtopping Coefficient	2.55	US
Low Point	1,252.40	ft	Headwater Elevation	N/A	ft
Discharge Coefficient (Cr)	0.00		Submergence Factor (Kt)	0.00	
Tailwater Elevation	0.00	ft			

Sta (ft)	Elev. (ft)
0.00	1,255.90
209.00	1,255.30
422.00	1,254.60
517.00	1,254.60
614.00	1,254.50
714.00	1,254.60
726.00	1,252.40
736.00	1,252.50
757.00	1,254.80
768.00	1,254.60
877.00	1,255.10
1,239.00	1,254.50
1,353.00	1,255.10
1,485.00	1,255.30
1,600.00	1,254.90
1,716.00	1,254.90
1,931.00	1,255.40
2,039.00	1,255.20
2,166.00	1,255.50

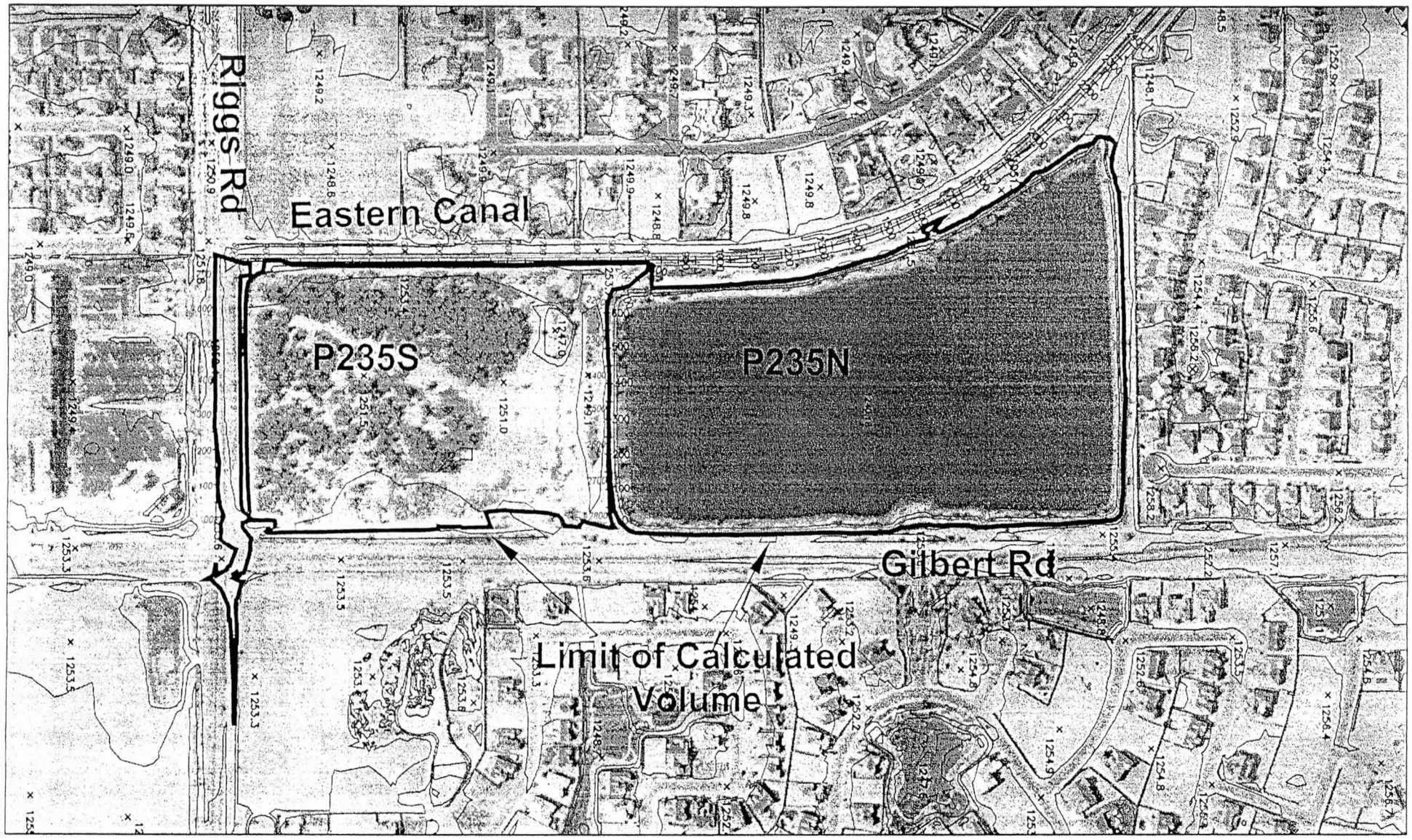
Rating Table Report
P234 -Total Weir

Range Data:

	Minimum	Maximum	Increment	
Allowable HW E	1,252.00	1,254.00	1.00	ft

HW Elev. (ft)	Discharge (cfs)
1,252.00	0
1,253.00	13
1,254.00	89

Chandler/Gilbert F S Phase 1- South
Ponding Area 235



0 200' 400' 800'

SCALE: 1" = 400'

P:\Mari0000-0040\MARI0040-SE\dwa\Sheets\MARI0040-SEhvPa235.dwa ticl Jun 09, 2004 2:50:09pm

Chandler/Gilbert FDS Phase 1- South

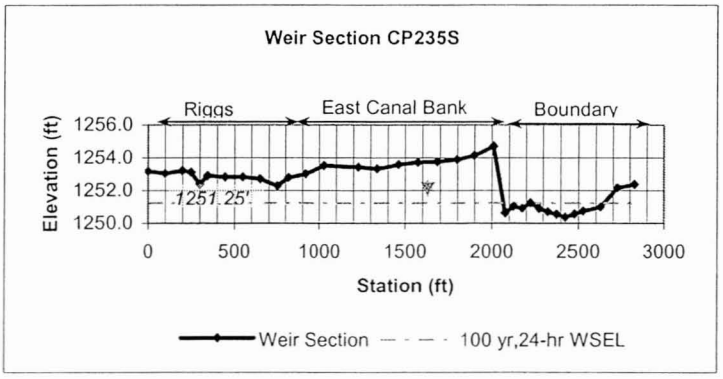
P235S Data Table

Ponding Area	SE Record	SV Record	SQ Record	Q_{Riggs}	Q_{canal}	Q_{P235S}
	Contour Elevation	Storage Volume	Total Q			
P235S	1247.00	0.00	0	0	0	0
	1248.00	0.15	0	0	0	0
	1249.00	0.42	0	0	0	0
	1250.00	1.55	0	0	0	0
	1250.50	3.13	3	0	0	3
	1251.00	6.43	191	0	0	191
	1251.50	12.34	909	0	0	909
	1252.00	20.14	2087	0	0	2087
	1252.50	28.96	3725	9	0	3716
	1253.00	38.40	6150	270	9	5871

Hydraulic Component(s): Roadway			
Discharge	549 cfs	Allowable HW Elevation	1,251.29 ft
Roadway Width	40.00 ft	Overtopping Coefficient	2.57 US
Low Point	1,250.37 ft	Headwater Elevation	1,251.29 ft
Discharge Coefficient	2.57	Submergence Factor (Kt)	1
Tailwater Elevation	0.00 ft		

	Sta (ft)	Elev. (ft)
Riggs Road	0.00	1253.16
	100.00	1253.02
	200.00	1253.21
	250.00	1253.11
	300.00	1252.37
	347.40	1252.90
	445.94	1252.81
	550.00	1252.81
	650.00	1252.69
	750.92	1252.27
	817.53	1252.78
Canal	918.59	1253.01
	1026.41	1253.52
	1229.13	1253.42
	1339.14	1253.32
	1463.29	1253.57
	1573.49	1253.70
	1686.12	1253.75
	1,799.24	1,253.89
	1,900.00	1,254.14
	2,011.15	1,254.69
Boundary	2,077.73	1,250.63
	2,127.44	1,251.03
	2,176.89	1,250.91
	2,226.89	1,251.25
	2,276.89	1,250.89
	2,326.89	1,250.70
	2,376.89	1,250.55
	2,426.89	1,250.37
	2,476.89	1,250.57
	2,526.89	1,250.73
	2,628.02	1,251.00
	2,726.81	1,252.16
	2,827.00	1,252.37

Notes: Ponding in RWCD Riggs storage basin. Basin data was derived from the DTM, which accounts for the water level in the basin at the time of mapping. Therefore, the minimum contour elevation is not the bottom of the basin, rather the water level elevation at the time of the mapping.



Culvert Designer/Analyzer Report
P235S - Total Weir

Comments: 100-yr, 24-hr

Analysis Component			
Storm Event	Design	Discharge	549 cfs

Peak Discharge Method: User-Specified			
Design Discharge	549 cfs	Check Discharge	0 cfs

Tailwater Conditions: Constant Tailwater	
Tailwater Elevation	0.00 ft

Name	Description	Discharge	HW Elev.	Velocity
Weir	Roadway	549 cfs	1,251.29 ft	N/A

Culvert Designer/Analyzer Report
P235S - Total Weir

Component:Weir

Hydraulic Component(s): Roadway					
Discharge	549	cfs	Allowable HW Elevation	1,251.29	ft
Roadway Width	40	ft	Overtopping Coefficient	2.57	US
Low Point	1,250.37	ft	Headwater Elevation	1,251.29	ft
Discharge Coefficient (Cr)	2.57		Submergence Factor (Kt)	1.00	
Tailwater Elevation	0.00	ft			

Sta (ft)	Elev. (ft)
0.00	1,253.16
100.00	1,253.02
200.00	1,253.21
250.00	1,253.11
300.00	1,252.37
347.40	1,252.90
445.94	1,252.81
550.00	1,252.81
650.00	1,252.69
750.92	1,252.27
817.53	1,252.78
918.59	1,253.01
1,026.41	1,253.52
1,229.13	1,253.42
1,339.14	1,253.32
1,463.29	1,253.57
1,573.49	1,253.70
1,686.12	1,253.75
1,799.24	1,253.89
1,900.00	1,254.14
2,011.15	1,254.69
2,077.73	1,250.63
2,127.44	1,251.03
2,176.89	1,250.91
2,226.89	1,251.25
2,276.89	1,250.89
2,326.89	1,250.70
2,376.89	1,250.55
2,426.89	1,250.37
2,476.89	1,250.57
2,526.89	1,250.73
2,628.02	1,251.00
2,726.81	1,252.16
2,827.00	1,252.37

Rating Table Report
P235S - Total Weir

Range Data:

	Minimum	Maximum	Increment	
Allowable HW E	1,250.00	1,253.00	0.50	ft

HW Elev. (ft)	Discharge (cfs)
1,250.00	0
1,250.50	3
1,251.00	191
1,251.50	909
1,252.00	2,087
1,252.50	3,725
1,253.00	6,150

Chandler/Gilbert FDS Phase 1- South

P235N Data Table

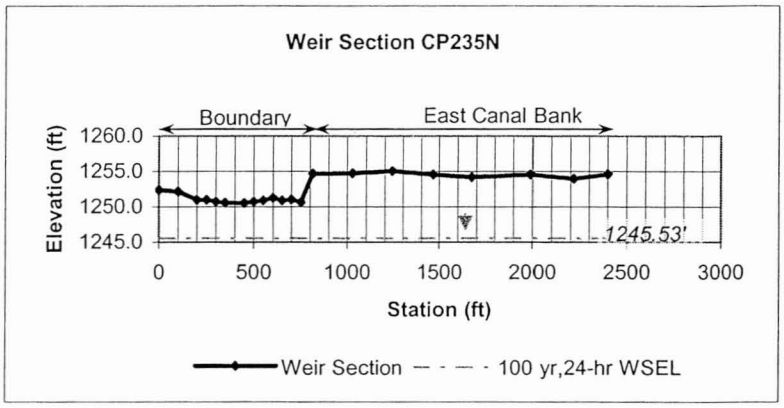
Ponding Area	SE Record	SV Record	SQ Record	$Q_{culvert}$	$Q_{boundary}$	Q_{canal}
	Contour Elevation	Storage Volume	Total Q			
P235N	1241.00	19.27	0	0	0	0
	1244.00	91.58	0	0	0	0
	1246.00	141.65	0	0	0	0
	1248.00	193.30	0	0	0	0
	1250.00	246.76	0	0	0	0
	1250.50	260.43	0	0	0	0
	1251.00	274.23	161	0	161	0

Hydraulic Component(s): Roadway

Discharge	0 cfs	Allowable HW Elevation	1,250.55 ft
Roadway Width	40.00 ft	Overtopping Coefficient	2.53 US
Low Point	1,250.55 ft	Headwater Elevation	N/A ft
Discharge Coefficient	0.00	Submergence Factor (Kt)	0
Tailwater Elevation	0.00 ft		

	Sta (ft)	Elev. (ft)
Boundary	0.00	1252.37
	100.00	1252.16
	200.00	1251.00
	250.00	1250.98
	300.00	1250.73
	350.00	1250.57
	450.00	1250.55
	500.00	1250.70
	550.00	1250.89
	600.00	1251.25
	650.00	1250.91
	700.00	1251.03
	750.00	1250.63
	815.74	1254.69
Canal	1026.36	1254.74
	1240.78	1255.05
	1467.39	1254.54
	1675.63	1254.17
	1,989.52	1,254.57
	2,216.52	1,253.96
	2,400.00	1,254.60

Notes: Ponding in RWCD Riggs storage basin. Basin data was derived from the DTM, which accounts for the water level in the basin at the time of mapping. Therefore, the minimum contour elevation is no the bottom of the basin, rather the water level elevation at t



Culvert Designer/Analyzer Report
P235N

Comments: 100-yr, 24-hr

Analysis Component			
Storm Event	Design	Discharge	0 cfs

Peak Discharge Method: User-Specified			
Design Discharge	0 cfs	Check Discharge	0 cfs

Tailwater Conditions: Constant Tailwater	
Tailwater Elevation	0.00 ft

Name	Description	Discharge	HW Elev.	Velocity
Weir	Roadway	0 cfs	1,250.55 ft	N/A

Culvert Designer/Analyzer Report
P235N

Component:Weir

Hydraulic Component(s): Roadway					
Discharge	0	cfs	Allowable HW Elevation	1,250.55	ft
Roadway Width	40	ft	Overtopping Coefficient	2.53	US
Low Point	1,250.55	ft	Headwater Elevation	N/A	ft
Discharge Coefficient (Cr)	0.00		Submergence Factor (Kt)	0.00	
Tailwater Elevation	0.00	ft			

Sta (ft)	Elev. (ft)
0.00	1,252.37
100.00	1,252.16
200.00	1,251.00
250.00	1,250.98
300.00	1,250.73
350.00	1,250.57
450.00	1,250.55
500.00	1,250.70
550.00	1,250.89
600.00	1,251.25
650.00	1,250.91
700.00	1,251.03
750.00	1,250.63
815.74	1,254.69
1,026.36	1,254.74
1,240.78	1,255.05
1,467.39	1,254.54
1,675.63	1,254.17
1,989.52	1,254.57
2,216.52	1,253.96
2,400.00	1,254.60

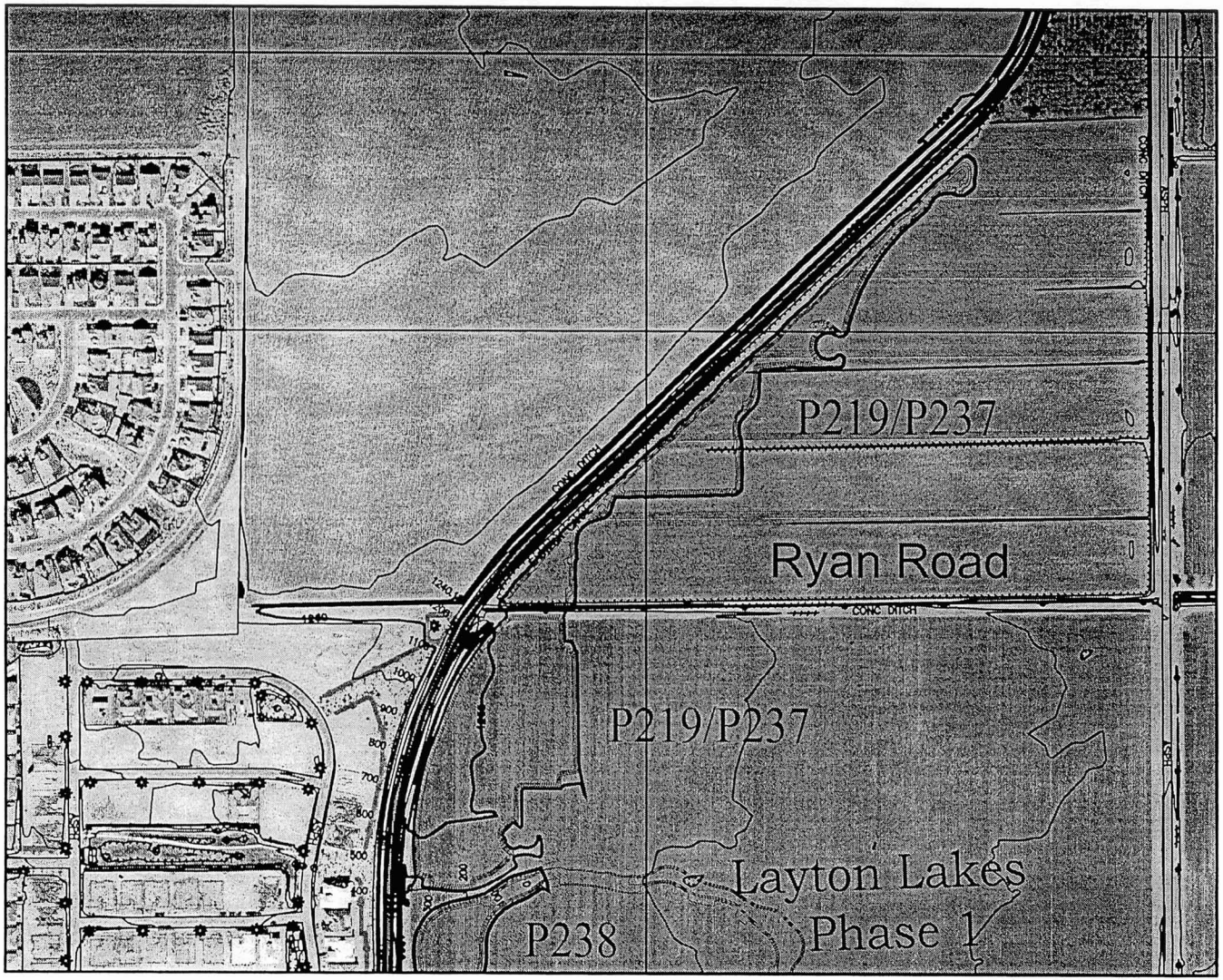
Rating Table Report
P235N

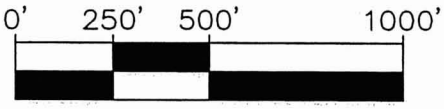
Range Data:

	Minimum	Maximum	Increment	
Allowable HW E	1,250.00	1,251.00	0.50	ft

HW Elev. (ft)	Discharge (cfs)
1,250.00	0
1,250.50	0
1,251.00	161

Chandler/Gilbert FDS Phase 1-South
Ponding Area 237





SCALE: 1"=500'

Chandler/Gilbert FDS Phase 1- South
P219/P237 Data Table

Calculations for Combining Basins

	P219			** P237			Combined		
	Elev	Volume	Q	Elev	Volume	Q	Elev	Volume	Q
*	1258.7	0		1258.66	0		1258.7	0	
*	1259.46	2.6					1259.46	2.6	
*	1260.46	5.65					1260.46	5.65	
*	1261.4	8.96					1261.4	8.96	
*	1261.46	9.17					1261.46	9.17	
*	1261.66	10.05		1261.66	18.33	0	1261.66	28.38	0
*	1261.89	11.06		1261.89	19.71	100	1261.89	30.77	100
*	1262.03	11.63		1262.03	20.55	200	1262.03	32.18	200
*	1262.14	12.16		1262.14	21.21	300	1262.14	33.37	300
*	1262.29	12.82		1262.29	22.1	400	1262.29	34.92	400
*	1262.33	13		1262.33	22.34	500	1262.33	35.34	500
	1262.66	14.45		1262.66	24.44		1262.66	38.89	
	1263.00	15.95		1263.00	26.52		1263.00	42.47	

* Adjusted for NAVD 88 and 0.7' additional difference in true datum (Add 2.36 feet to grading plans)

** Layton Lakes Datum was adjusted up using 1.67'

Chandler/Gilbert FDS Phase 1- South

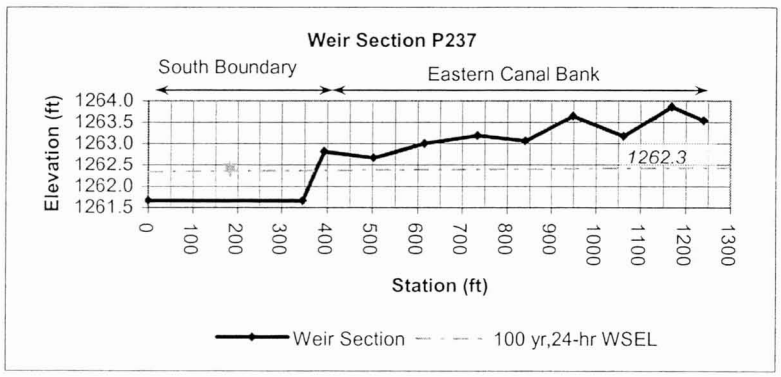
P219/P237 Combined Data Table

Ponding Area	SE Record Contour Elevation	SV Record Storage Volume	SQ Record Total Q		$Q_{roadway}$	Q_{canal}
P219/P237	1258.66	0.00	0	0	0	0
	1261.46	9.17	0	0	0	0
	1261.66	28.38	0	0	0	0
	1261.89	30.77	100	0	100	0
	1262.03	32.18	200	0	200	0
	1262.14	33.37	300	0	300	0
	1262.29	34.92	400	0	400	0
	1262.33	35.34	500	0	500	0
	1262.66	38.89				
	1263.00	42.47				

Hydraulic Component(s): Roadway					
Discharge	451	cfs	Allowable HW Elevation	1,262.30	ft
Roadway Width	40.00	ft	Overtopping Coefficient	2.54	US
Low Point	1,261.66	ft	Headwater Elevation	1,262.30	ft
Discharge Coefficient	2.54		Submergence Factor (Kt)	1	
Tailwater Elevation	0.00	ft			

	Sta (ft)	Elev. (ft)
S. Boundary	0	1,261.66
	345.81	1,261.66
	392.91	1,262.81
	502.97	1,262.67
	614.99	1,263.00
	734.01	1,263.19
Canal	840.18	1,263.06
	949.34	1,263.64
	1,062.31	1,263.17
	1,168.61	1,263.86
	1,240.18	1,263.54

Notes: P219/P237 is a combination of the 2 basins



Culvert Designer/Analyzer Report
P237 - NEW 7/17/07

Component:Weir

Hydraulic Component(s): Roadway

Discharge	451	cfs	Allowable HW Elevation	1,262.29	ft
Roadway Width	40	ft	Overtopping Coefficient	2.54	US
Low Point	1,261.66	ft	Headwater Elevation	1,262.29	ft
Discharge Coefficient (Cr)	2.54		Submergence Factor (Kt)	1.00	
Tailwater Elevation	0.00	ft			

Sta (ft)	Elev. (ft)
0.00	1,261.66
345.81	1,261.66
392.91	1,262.81
502.97	1,262.67
614.99	1,263.00
734.01	1,263.19
840.18	1,263.06
949.34	1,263.64
1,062.31	1,263.17
1,168.61	1,263.86
1,240.18	1,263.54

Culvert Designer/Analyzer Report
P237 - NEW 7/17/07

Comments: 100-yr, 24-hr

Analysis Component			
Storm Event	Design	Discharge	451 cfs

Peak Discharge Method: User-Specified			
Design Discharge	451 cfs	Check Discharge	170 cfs

Tailwater Conditions: Constant Tailwater	
Tailwater Elevation	0.00 ft

Name	Description	Discharge	HW Elev.	Velocity
Weir	Roadway	451 cfs	1,262.29 ft	N/A

Rating Table Report
Overtopping

Range Data:

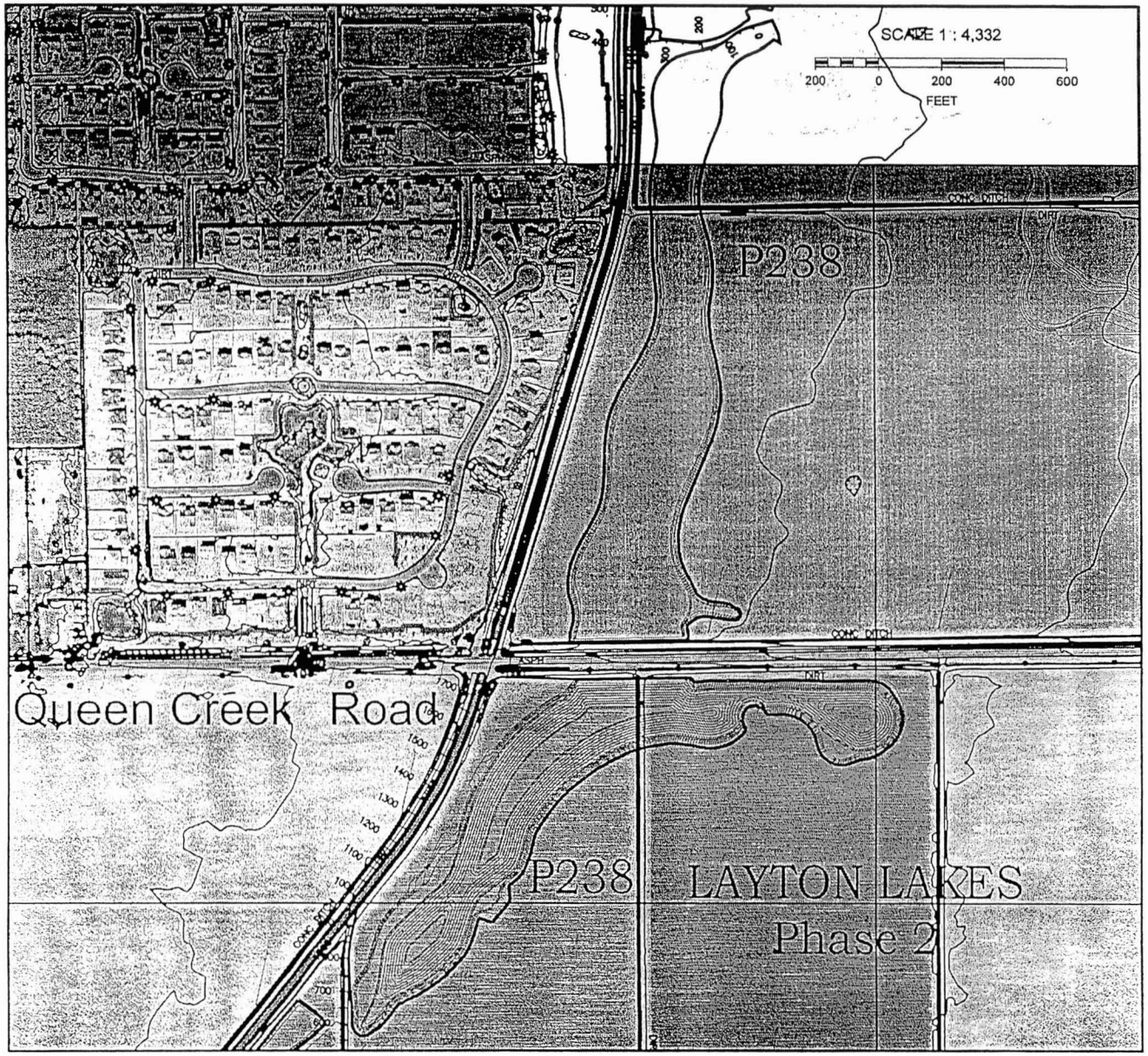
	Minimum	Maximum	Increment	
Discharge	0	500	10	cfs

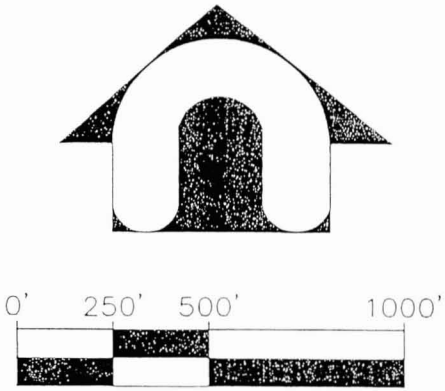
Discharge (cfs)	HW Elev. (ft)
0	1,261.66
10	1,261.71
20	1,261.74
30	1,261.77
40	1,261.79
50	1,261.81
60	1,261.83
70	1,261.85
80	1,261.86
90	1,261.88
100	1,261.89
110	1,261.91
120	1,261.92
130	1,261.94
140	1,261.95
150	1,261.97
160	1,261.98
170	1,261.99
180	1,262.01
190	1,262.02
200	1,262.03
210	1,262.04
220	1,262.05
230	1,262.07
240	1,262.08
250	1,262.09
260	1,262.10
270	1,262.11
280	1,262.12
290	1,262.13
300	1,262.14
310	1,262.15
320	1,262.16
330	1,262.17
340	1,262.18
350	1,262.19
360	1,262.20
370	1,262.21
380	1,262.22
390	1,262.23
400	1,262.24
410	1,262.25
420	1,262.26
430	1,262.27
440	1,262.28
450	1,262.29
460	1,262.30
470	1,262.31
480	1,262.32

Rating Table Report
Overtopping

Discharge (cfs)	HW Elev. (ft)
490	1,262.32
500	1,262.33

Chandler/Gilbert FDS Phase 1-South
Ponding Area 238





SCALE: 1" = 500'

Chandler/Gilbert FDS Phase 1- South

P238 Data Table

Ponding Area	SE Record Contour Elevation	SV Record Storage Volume	SQ Record Total Q	$Q_{culvert}$	$Q_{roadway}$	Q_{canal}
P238	1256.46	0	0	0	0	0
	1256.66	1.1	0	0	0	0
	1257.66	22.8	0	0	0	0
	1258.66	47.5	0	0	0	0
	1259.66	75.0	0	0	0	0
	1260.20	90.8	0	0	0	0
	1260.41	97.0	31	0	0	31
	1260.47	98.8	50	0	0	50
	1260.56	101.4	90	0	0	90
	1260.59	102.3	120	0	10	110
	1260.62	103.2	160	0	30	130
	1260.64	103.8	195	0	50	145

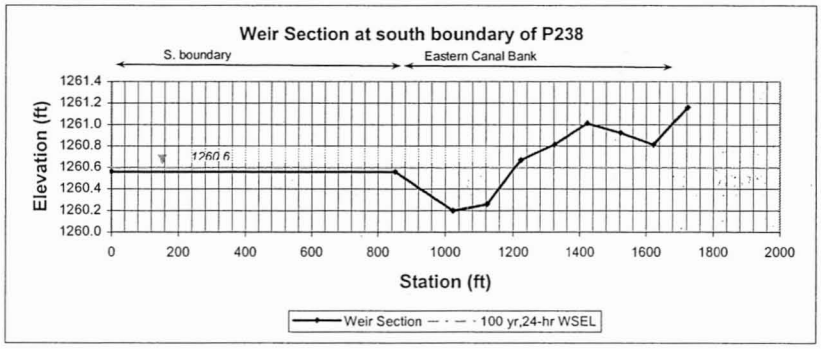
Note: Storage Values reported in SV Record above elevation 1260.28 extrapolated by HEC-1 program.

Hydraulic Component(s): Roadway

Discharge	157 cfs	Allowable HW Elevation	1,260.62 ft
Roadway Width	40.00 ft	Overtopping Coefficient	2.51 US
Low Point	1,260.20 ft	Headwater Elevation	1,260.62 ft
Discharge Coefficient	2.51	Submergence Factor (Kt)	1
Tailwater Elevation	0.00 ft		

	Sta (ft)	Elev. (ft)
S. bound.	0.00	1260.56
	851.00	1260.56
Canal	1023.30	1260.20
	1123.30	1260.26
	1223.30	1260.67
	1323.30	1260.81
	1423.30	1261.01
	1523.30	1260.92
	1623.30	1260.81
	1723.30	1261.16

Notes: Ponding along Eastern Canal.



P 238

Culvert Analysis Report

Weir - ROAD

Hydraulic Component(s): Roadway

Discharge	30	cfs	Allowable HW Elevation	1,260.62	ft
Roadway Width	40	ft	Overtopping Coefficient	2.53	US
Low Point	1,260.56	ft	Headwater Elevation	1,260.62	ft
Discharge Coefficient (Cr)	2.53		Submergence Factor (Kt)	1.00	
Tailwater Elevation	-9,999.00	ft			

Sta (ft)	Elev. (ft)
0.00	1,260.56
851.00	1,260.56

P 238

Rating Table Report

Overtopping: ROAD

Range Data:

	Minimum	Maximum	Increment	
Discharge	0	600	10	cfs

Discharge (cfs)	HW Elev. (ft)
0	1,260.56
10	1,260.59
20	1,260.60
30	1,260.62
40	1,260.63
50	1,260.64
60	1,260.65
70	1,260.66
80	1,260.67
90	1,260.68
100	1,260.69
110	1,260.70
120	1,260.70
130	1,260.71
140	1,260.72
150	1,260.73
160	1,260.73
170	1,260.74
180	1,260.75
190	1,260.76
200	1,260.76
210	1,260.77
220	1,260.77
230	1,260.78
240	1,260.79
250	1,260.79
260	1,260.80
270	1,260.81
280	1,260.81
290	1,260.82
300	1,260.82
310	1,260.83
320	1,260.83
330	1,260.84
340	1,260.85
350	1,260.85
360	1,260.86
370	1,260.86
380	1,260.87
390	1,260.87
400	1,260.88
410	1,260.88
420	1,260.89
430	1,260.89
440	1,260.90
450	1,260.90
460	1,260.91
470	1,260.91
480	1,260.92

P238

Rating Table Report

Overtopping - ROAD

Discharge (cfs)	HW Elev. (ft)
490	1,260.92
500	1,260.93
510	1,260.93
520	1,260.94
530	1,260.94
540	1,260.95
550	1,260.95
560	1,260.95
570	1,260.96
580	1,260.96
590	1,260.97
600	1,260.97

Chandler/Gilbert FDS Phase 1 - North

Summary of HEC-1 Ponding Results

Ponding Area	Peak Inflow (cfs)		Time to Peak Inflow (hrs)		Maximum Stage (ft)		Time of Maximum Stage (hrs)		Minimum Storage Elevation (ft)	Maximum Inundation Depth* (ft)		Peak Storage Volume (ac-ft)		Peak Outflow (cfs)		Time to Peak Outflow (hrs)	
	6-hr	*24-hr*	*6-hr*	*24-hr*	*6-hr*	*24-hr*	*6-hr*	*24-hr*		*6-hr*	*24-hr*	*6-hr*	*24-hr*	*6-hr*	*24-hr*	*6-hr*	*24-hr*
P102	278	311	4.42	12.25	1282.70	1282.64	8.08	16.33	1276.70	6.00	5.94	36	35	141	130	8.08	16.33
P105	291	287	4.92	12.75	1279.83	1279.38	6.08	13.25	1274.40	5.43	4.98	10	5	145	144	6.08	13.25
P108	588	559	5.17	13.00	1280.08	1279.96	6.00	13.83	1274.00	6.08	5.96	32	27	398	318	6.00	13.83
P111	1341	1131	6.75	14.92	1279.63	1279.55	7.08	15.33	1271.70	7.93	7.85	131	128	1294	1065	7.08	15.33
P114	894	752	7.67	15.92	1277.11	1277.04	8.08	16.50	1269.40	7.71	7.64	38	36	821	676	8.08	16.50
P115	473	419	4.83	12.83	1275.01	1274.91	13.50	21.83	1267.00	8.01	7.91	73	70	276	271	13.50	21.83
P118	527	485	8.17	16.25	1270.04	1269.93	24.33	33.08	1247.80	22.24	22.13	391	386	125	123	24.33	33.08
P124	194	220	5.17	13.00	1303.22	1303.22	5.92	13.75	1299.00	4.22	4.22	15	15	111	115	5.92	13.75

Notes:

Shaded Ponding areas indicate the 6-hour storm results were used to map floodplain.

* Maximum Inundation Depth was calculated as the difference between the Maximum Stage Elevation and the Lowest storage elevation of the basin.

Chandler/Gilbert F S Phase 1- North
Ponding Area 102

0 200' 400' 800'

SCALE: 1" = 400'

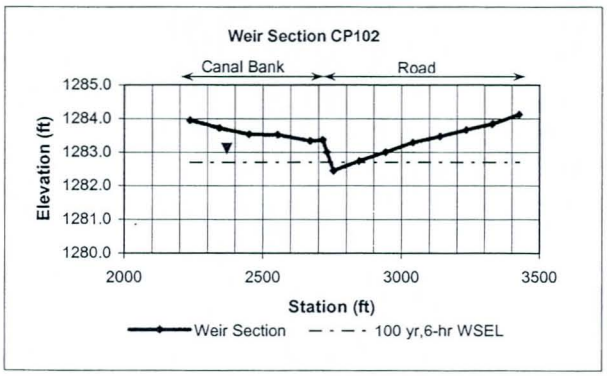
Ponding Area	SE Record	SV Record	SQ Record	Q_{ditch}	$Q_{roadway}$	Q_{canal_bank}
	Contour Elevation	Storage Volume	Total Q			
P102	1276.67	0.00	0.00	0.00	0.00	0.00
	1277.00	0.04	0.00	0.00	0.00	0.00
	1278.00	0.99	4.04	4.04	0.00	0.00
	1279.00	2.99	14.54	14.54	0.00	0.00
	1280.00	6.58	32.26	32.26	0.00	0.00
	1281.00	14.20	58.34	58.34	0.00	0.00
	1282.00	25.13	93.92	93.92	0.00	0.00
	1282.44	31.46	112.02	112.02	0.00	0.00
	1282.63	35.00	128.31	123.04	5.27	0.00
	1282.78	37.11	156.14	132.02	24.12	0.00

Hydraulic Component(s): Roadway

Discharge	11.59 cfs	Allowable HW Elevation	1,283.95 ft
Roadway Width	40.00 ft	Overtopping Coefficient	2.94 US
Low Point	1,282.44 ft	Headwater Elevation	1,282.70 ft
Discharge Coefficient	2.94	Submergence Factor (Kt)	1
Tailwater Elevation	1279.8 ft		

	Sta (ft)	Elev. (ft)
Canal Bank	2237.35	1283.95
	2345.25	1283.72
	2450.55	1283.53
	2554.82	1283.52
	2669.60	1283.33
	2715.14	1283.36
	2730.00	1283.00
Road	2753.69	1282.44
	2847.61	1282.73
	2943.23	1283.00
	3039.81	1283.29
	3138.81	1283.46
	3233.92	1283.66
	3328.20	1283.84
	3425.92	1284.12

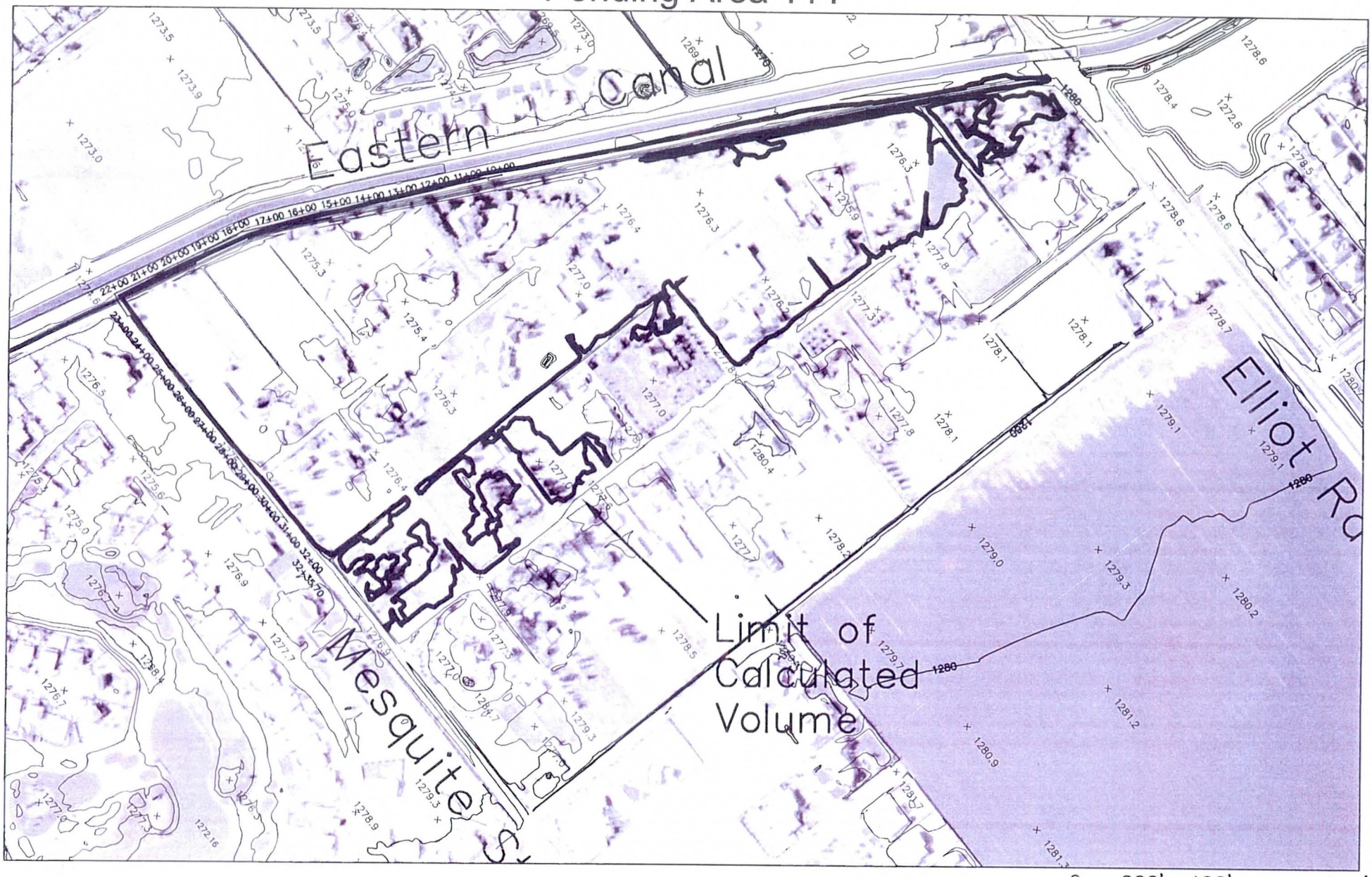
Notes: Ponding volumes include retention basins east of tailwater ditch. Weiring occurs over Houston Ave to P105.



Ditch and Weir Discharge Rating Table (P102)

Stage ft	Qtotal cfs	Qbank cfs	Qstreet cfs	Qditch cfs
1276.7	0.00	0.00	0.00	0.00
1278.0	4.04	0.00	0.00	4.04
1279.0	14.54	0.00	0.00	14.54
1280.0	32.26	0.00	0.00	32.26
1281.0	58.34	0.00	0.00	58.34
1282.0	93.92	0.00	0.00	93.92
1282.5	115.75	0.00	0.29	115.46
1282.6	124.69	0.00	3.42	121.27
1282.7	138.79	0.00	11.59	127.20
1282.8	161.45	0.00	28.21	133.24
1282.9	193.32	0.00	53.93	139.39
1283.0	234.97	0.00	89.32	145.65
1283.1	290.16	0.12	138.02	152.02
1283.2	357.62	0.66	198.45	158.50
1283.3	438.60	1.84	271.66	165.09
1283.4	539.51	6.15	361.58	171.79
1284.0	1950.42	405.10	1331.17	214.16

Chandler/Gilbert DS Phase 1- North
Ponding Area 114



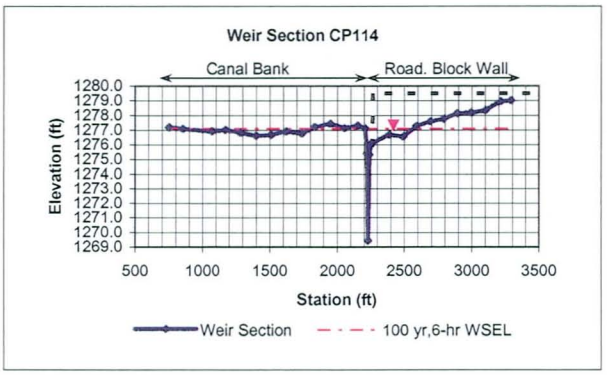
Ponding Area	SE Record	SV Record	SQ Record	Q_{ditch}	$Q_{roadway}$	Q_{canal_bank}
	Contour Elevation	Storage Volume	Total Q			
P114	1269.40	0.00	0.00	0.00	0.00	0.00
	1270.00	0.00	2.29	2.29	0.00	0.00
	1271.00	0.05	12.47	12.47	0.00	0.00
	1272.00	0.21	30.42	30.42	0.00	0.00
	1273.00	0.58	57.08	57.08	0.00	0.00
	1274.00	1.24	93.48	93.48	0.00	0.00
	1275.00	2.49	140.67	140.67	0.00	0.00
	1275.20	3.48	151.49	151.49	0.00	0.00
	1276.00	11.10	219.61	209.72	9.89	0.00
	1276.90	32.00	471.97	286.04	108.69	77.23
	1277.00	34.56	593.25	295.10	129.90	168.25
	1277.19	40.00	981.09	312.62	186.33	482.14

Hydraulic Component(s): Roadway

Discharge	155.95 cfs	Allowable HW Elevation	1,277.19 ft
Roadway Width	40.00 ft	Overtopping Coefficient	2.50~3.03 US
Low Point	1,269.40 ft	Headwater Elevation	1,277.10 ft
Discharge Coefficient	2.50~3.03	Submergence Factor (Kt)	1
Tailwater Elevation	1275 ft		

	Sta (ft)	Elev. (ft)
canal Bank	750.00	1277.19
	850.00	1277.09
	1070.12	1276.90
	1170.31	1277.02
	1283.10	1276.83
	1398.48	1276.61
	1511.07	1276.68
	1620.73	1276.90
	1735.83	1276.75
	1833.24	1277.20
	1946.27	1277.42
	2050.14	1277.13
	2150.81	1277.30
	2208.36	1277.10
	2222.00	1275.40
Road	2230.00	1269.40
	2238.00	1275.30
	2253.00	1276.06
	2387.43	1276.69
	2489.00	1276.54
	2587.09	1277.25
	2689.28	1277.58
	2788.13	1277.75
	2890.40	1278.12
	2994.82	1278.18
	3100.00	1278.34
	3212.21	1278.95
	3287.32	1279.00

Notes: Ponding volumes include retention basins east of tailwater ditch. Weiring occurs over Mesquite Street to P115. The block wall along the south side of Mesquite is taken as a weir.



Ditch and Weir Discharge Rating Table (P114)

Stage ft	Qtotal cfs	Qbank cfs	Qstreet cfs	Qditch cfs
1269.40	0.00	0.00	0.00	0.00
1270.00	2.29	0.00	0.00	2.29
1271.00	12.47	0.00	0.00	12.47
1272.00	30.42	0.00	0.00	30.42
1273.00	57.08	0.00	0.00	57.08
1274.00	93.48	0.00	0.00	93.48
1275.00	140.67	0.00	0.00	140.67
1276.00	219.61	0.00	9.89	209.72
1276.50	301.97	0.00	51.01	250.96
1277.00	593.25	168.25	129.90	295.10
1277.19	981.09	482.14	186.33	312.62

Chandler/Gilbert PDS Phase 1- North
Ponding Area 115

0 200' 400' 800'

SCALE: 1" = 400'

Culvert Analysis (CulvertMaster Output, P115)

$Q_{100,\ 6\text{-}hr}$ = 261 cfs (from HEC-1 output)

Culvert Summary			
Analysis Component			
Storm Event	Design	Discharge	261 cfs

Peak Discharge Method: User-Specified			
Design Discharge	261 cfs	Check Discharge	261 cfs

Tailwater properties: Trapezoidal Channel

Tailwater conditions for Design Storm.			
Discharge	261 cfs	Bottom Elevation	1,267.48 ft
Depth	3.52 ft	Velocity	4.78 ft/s

Name	Description		HW Elev.	Velocity
Culvert-1	2-48 inch Circular	261.0	1,275.00 ft	10.97 ft/s
Weir	Not Considered	N/A	N/A	N/A

Component:Culvert-1

Culvert Summary			
Computed Headwater Elevation	1,275.00 ft	Discharge	261 cfs
Inlet Control HW Elev.	1,274.46 ft	Tailwater Elevation	1,271.00 ft
Outlet Control HW Elev.	1,275.00 ft	Control Type	Outlet
Headwater Depth/Height	1.88		

Grades			
Upstream Invert	1,267.49 ft	Downstream Invert	1,267.40 ft
Length	160 ft	Constructed Slope	0.000562 ft/ft

Hydraulic Profile			
Profile	CompositeM2PressureProfile	Depth, Downstream	3.6 ft
Slope Type	Mild	Normal Depth	N/A ft
Flow Regime	Subcritical	Critical Depth	3.42 ft
Velocity Downstream	10.97 ft/s	Critical Slope	0.007717 ft/ft

Section			
Section Shape	Circular	Mannings Coefficient	0.013
Section Material	Concrete	Span	4 ft
Section Size	48 inch	Rise	4 ft
Number Sections	2		

Outlet Control Properties			
Outlet Control HW Elev.	1,275.00 ft	Upstream Velocity Head	1.68 ft
Ke	0.5	Entrance Loss	0.84 ft

Inlet Control Properties			
Inlet Control HW Elev.	1,274.46 ft	Flow Control	Submerged
Inlet Type	Square edge w/headwall	Area Full	25.1 ft^2
K	0.0098	HDS 5 Chart	1
M	2	HDS 5 Scale	1
C	0.0398	Equation Form	1
Y	0.67		

Culvert Rating Table (P115)

Range Data:

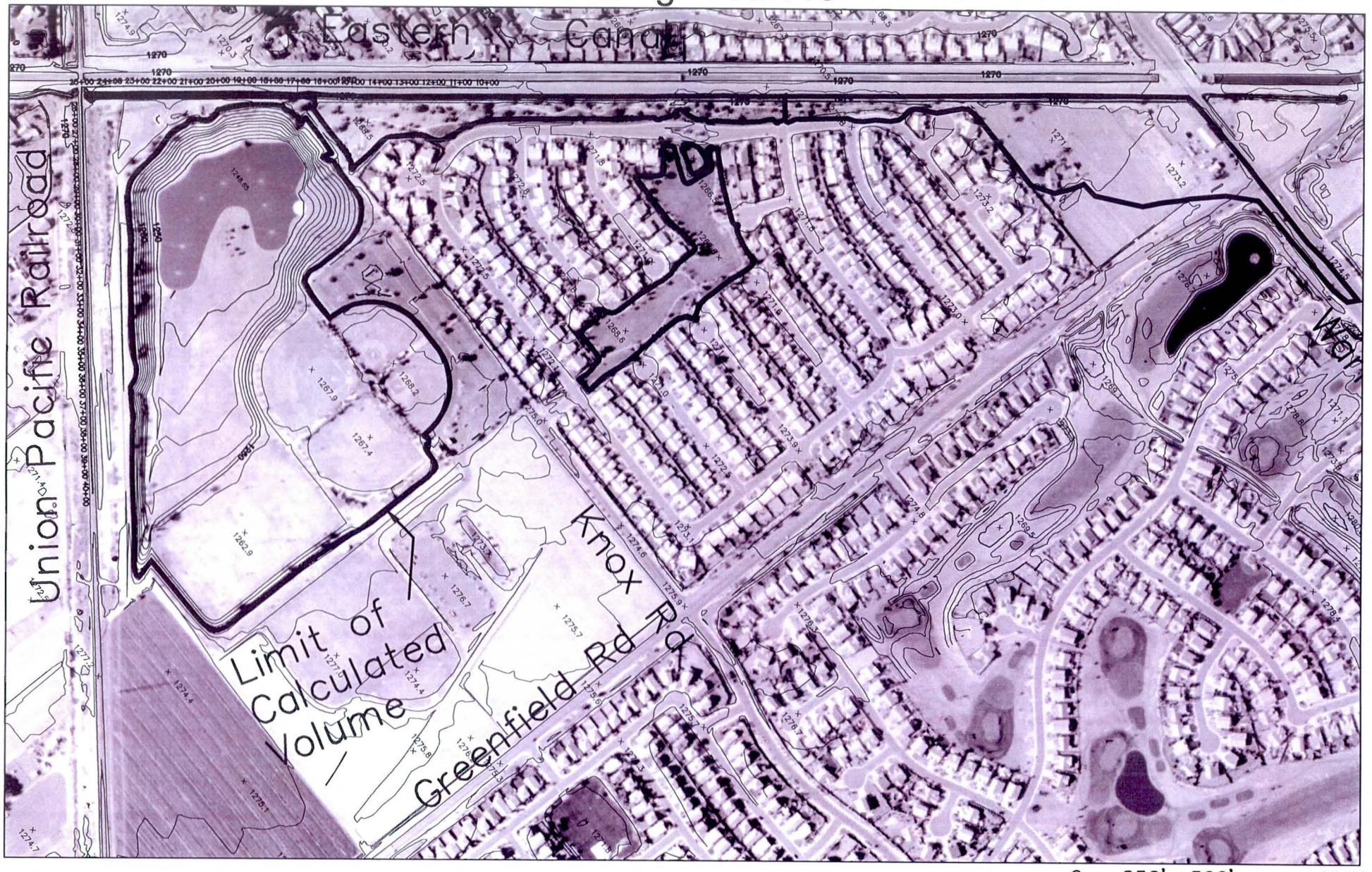
	Minimum	Maximum	Increment
Discharge	0	265	5 cfs

Discharge (cfs)	HW Elev.	TW Elev.	(D) Dn. V
0	1,267.49	1,267.48	0
5	1,268.24	1,267.96	2.31
10	1,268.54	1,268.19	2.84
15	1,268.77	1,268.36	3.22
20	1,268.96	1,268.51	3.53
25	1,269.14	1,268.63	3.81
30	1,269.30	1,268.74	4.05
35	1,269.45	1,268.84	4.28
40	1,269.59	1,268.94	4.49
45	1,269.73	1,269.03	4.69
50	1,269.85	1,269.11	4.88
55	1,269.98	1,269.19	5.07
60	1,270.10	1,269.26	5.24
65	1,270.21	1,269.33	5.41
70	1,270.33	1,269.40	5.58
75	1,270.45	1,269.46	5.74
80	1,270.55	1,269.52	5.9
85	1,270.66	1,269.58	6.06
90	1,270.76	1,269.64	6.21
95	1,270.86	1,269.70	6.37
100	1,270.96	1,269.75	6.51
105	1,271.07	1,269.80	6.66
110	1,271.17	1,269.85	6.81
115	1,271.27	1,269.90	6.95
120	1,271.37	1,269.95	7.09
125	1,271.47	1,270.00	7.23
130	1,271.57	1,270.04	7.37
135	1,271.67	1,270.09	7.51
140	1,271.77	1,270.13	7.65
145	1,271.87	1,270.18	7.79
150	1,271.97	1,270.22	7.92
155	1,272.07	1,270.26	8.06
160	1,272.18	1,270.30	8.2
165	1,272.28	1,270.34	8.33
170	1,272.39	1,270.38	8.47
175	1,272.51	1,270.42	8.6
180	1,272.62	1,270.46	8.74
185	1,272.75	1,270.49	8.87
190	1,272.88	1,270.53	9.01
195	1,273.02	1,270.57	9.14
200	1,273.16	1,270.60	9.28
205	1,273.30	1,270.64	9.41
210	1,273.44	1,270.67	9.55
215	1,273.58	1,270.70	9.68
220	1,273.73	1,270.74	9.82
225	1,273.87	1,270.77	9.96
230	1,274.02	1,270.80	10.09
235	1,274.17	1,270.83	10.23
240	1,274.33	1,270.87	10.37
245	1,274.48	1,270.90	10.51
250	1,274.64	1,270.93	10.65
255	1,274.80	1,270.96	10.79
260	1,274.96	1,270.99	10.94
265	1,275.13	1,271.02	11.08

Weir Discharge Rating Table (P115)

Stage ft	Qtotal cfs	Qbank cfs	Qstreet cfs
1267.00	0.00	0.00	0.00
1268.00	3.00	0.00	0.00
1269.00	20.00	0.00	0.00
1270.00	55.00	0.00	0.00
1271.00	102.00	0.00	0.00
1272.00	152.00	0.00	0.00
1273.00	195.00	0.00	0.00
1274.00	230.00	0.00	0.00
1274.70	252.00	0.00	0.00
1274.80	255.88	0.00	0.88
1274.90	263.01	0.00	5.01
1275.00	275.26	0.00	14.26
1275.10	294.62	0.00	29.62
1275.20	318.23	0.00	50.23
1275.30	346.30	0.00	76.30
1275.40	410.10	0.00	136.10
1275.50	505.48	0.00	227.48

Chandler/Gilbert DS Phase 1- North
Ponding Area 118



0 250' 500' 1000

SCALE: 1"=500'

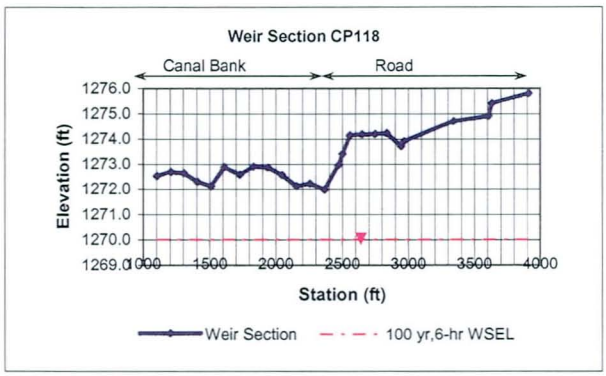
Ponding Area	SE Record Contour Elevation	SV Record Storage Volume	SQ Record Total Q	$Q_{culvert}$	$Q_{roadway}$	Q_{canal_bank}
P118	1247.80	0.00	0.00	0.00	0.00	0.00
	1263.00	177.30	0.00	0.00	0.00	0.00
	1264.00	200.10	4.00	4.00	0.00	0.00
	1265.00	223.80	15.00	15.00	0.00	0.00
	1266.00	248.60	35.00	35.00	0.00	0.00
	1267.00	276.10	59.00	59.00	0.00	0.00
	1268.00	307.50	85.00	85.00	0.00	0.00
	1270.00	389.10	124.00	124.00	0.00	0.00
	1270.60	418.00	134.00	134.00	0.00	0.00
	1271.25	450.15	143.00	143.00	0.00	0.00

Hydraulic Component(s): Roadway

Discharge	0 cfs	Allowable HW Elevation	1,272.52 ft
Roadway Width	40.00 ft	Overtopping Coefficient	2.94 US
Low Point	1,271.98 ft	Headwater Elevation	1,270.02 ft
Discharge Coefficient	N/A	Submergence Factor (Kt)	1
Tailwater Elevation	N/A ft		

	Sta (ft)	Elev. (ft)
Canal Bank	1102.09	1272.52
	1204.25	1272.68
	1305.38	1272.63
	1405.95	1272.29
	1510.05	1272.12
	1611.39	1272.87
	1730.27	1272.57
	1830.76	1272.89
	1940.00	1272.86
	2046.05	1272.56
	2153.76	1272.12
	2254.31	1272.22
	2364.04	1271.98
	2467.58	1272.95
	2500.26	1273.40
Road	2556.16	1274.13
	2648.10	1274.17
	2746.81	1274.19
	2836.60	1274.22
	2945.00	1273.70
	2965.00	1273.90
	3340.00	1274.70
	3605.00	1274.90
	3630.00	1275.40
	3910.00	1275.80

Notes: Ponding volumes include retention basins east of tailwater ditch.



Culvert Analysis (CulvertMaster Output, P118)

$Q_{100,\ 6\text{-}hr}$ = 124 cfs (from HEC-1 output)

Culvert Summary			
Analysis Component			
Storm Event	Design	Discharge	124 cfs

Peak Discharge Method: User-Specified			
Design Discharge	124 cfs	Check Discharge	124 cfs

Tailwater properties: Trapezoidal Channel

Tailwater conditions for Design Storm.			
Discharge	124 cfs	Bottom Elevation	1,263.16 ft
Depth	2.51 ft	Velocity	3.94 ft/s

Name	Description		HW Elev.	Velocity
Culvert-1	1-54 inch Circular	124.0	1,270.02 ft	9.99 ft/s
Weir	Not Considered	N/A	N/A	N/A

Component:Culvert-1

Culvert Summary			
Computed Headwater Elevation	1,270.02 ft	Discharge	124 cfs
Inlet Control HW Elev.	1,268.53 ft	Tailwater Elevation	1,265.67 ft
Outlet Control HW Elev.	1,270.02 ft	Control Type	Outlet Control
Headwater Depth/Height	1.52		

Grades			
Upstream Invert	1,263.17 ft	Downstream Invert	1,263.03 ft
Length	128 ft	Constructed Slope	0.001094 ft/ft

Hydraulic Profile			
Profile	CompositeM2PressureProfile	Depth, Downstream	3.28 ft
Slope Type	Mild	Normal Depth	N/A ft
Flow Regime	Subcritical	Critical Depth	3.28 ft
Velocity Downstream	9.99 ft/s	Critical Slope	0.017471 ft/ft

Section			
Section Shape	Circular	Mannings Coefficient	0.024
Section Material	CMP	Span	4.5 ft
Section Size	54 inch	Rise	4.5 ft
Number Sections	1		

Outlet Control Properties			
Outlet Control HW Elev.	1,270.02 ft	Upstream Velocity Head	0.94 ft
Ke	0.5	Entrance Loss	0.47 ft

Inlet Control Properties			
Inlet Control HW Elev.	1,268.53 ft	Flow Control	Transition
Inlet Type	Headwall	Area Full	15.9 ft^2
K	0.0078	HDS 5 Chart	2
M	2	HDS 5 Scale	1
C	0.0379	Equation Form	1
Y	0.69		

Culvert Rating Table (P118)

Range Data:

	Minimum	Maximum	Increment
Discharge	0	130	5 cfs

Discharge (cfs)	HW Elev.	TW Elev.	(D) Dn. V
0	1,263.17	1,263.16	0
5	1,264.27	1,263.64	3.72
10	1,264.70	1,263.87	4.48
15	1,265.04	1,264.04	5
20	1,265.33	1,264.19	5.42
25	1,265.58	1,264.31	5.77
30	1,265.82	1,264.42	6.08
35	1,266.05	1,264.52	6.37
40	1,266.28	1,264.62	6.63
45	1,266.48	1,264.71	6.87
50	1,266.68	1,264.79	7.11
55	1,266.86	1,264.87	7.33
60	1,267.05	1,264.94	7.54
65	1,267.24	1,265.01	7.75
70	1,267.43	1,265.08	7.95
75	1,267.61	1,265.14	8.14
80	1,267.80	1,265.20	8.34
85	1,268.00	1,265.26	8.53
90	1,268.20	1,265.32	8.72
95	1,268.42	1,265.38	8.9
100	1,268.68	1,265.43	9.09
105	1,268.94	1,265.48	9.28
110	1,269.21	1,265.53	9.46
115	1,269.49	1,265.58	9.65
120	1,269.78	1,265.63	9.84
125	1,270.08	1,265.68	10.03
130	1,270.39	1,265.72	10.22

Weir Discharge Rating Table (P118)

Stage ft	Qtotal cfs	Qbank cfs	Qstreet cfs
1247.80	0.00	0.00	0.00
1264.00	4.00	0.00	0.00
1265.00	15.00	0.00	0.00
1266.00	35.00	0.00	0.00
1267.00	59.00	0.00	0.00
1268.00	85.00	0.00	0.00
1269.00	107.00	0.00	0.00
1270.00	124.00	0.00	0.00
1271.00	140.00	0.00	0.00
1271.90	154.00	0.00	0.00
1272.00	155.03	0.03	0.00
1272.10	158.51	2.51	0.00
1272.20	171.74	14.74	0.00
1272.30	213.40	55.40	0.00
1272.40	285.49	125.49	0.00
1272.50	383.55	222.55	0.00

Chandler/Gilbert DS Phase 1- North
Ponding Area 124

0 150' 300' 600'

SCALE: 1" = 300'

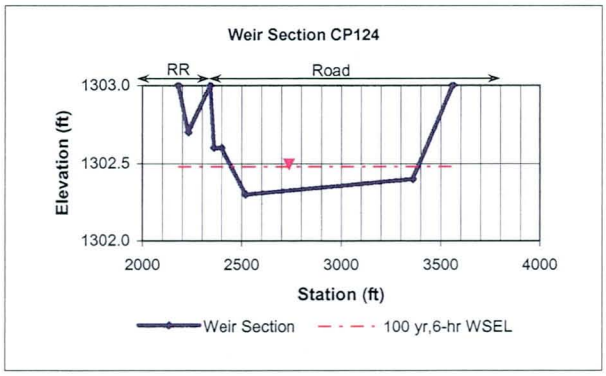
Ponding Area	SE Record	SV Record	SQ Record	$Q_{roadway}$	$Q_{railroad}$	
	Contour Elevation	Storage Volume	Total Q			
P124	1299.00	0.00	0.00	0.00	0.00	
	1300.00	0.11	0.00	0.00	0.00	
	1301.00	0.83	0.00	0.00	0.00	
	1302.00	4.09	0.00	0.00	0.00	
	1302.35	6.48	5.04	5.04	0.00	
	1302.53	8.00	202.00	202.00	0.00	
	1302.60	8.63	338.70	338.70	0.00	
	1302.66	9.18	480.35	478.82	1.52	
	1303.00	12.50	1631.94	1576.70	55.24	

Hydraulic Component(s): Roadway

Discharge	121.96 cfs	Allowable HW Elevation	1,303.00 ft
Roadway Width	40.00 ft	Overtopping Coefficient	2.92 US
Low Point	1,302.30 ft	Headwater Elevation	1,302.48 ft
Discharge Coefficient	2.92	Submergence Factor (Kt)	1
Tailwater Elevation	N/A ft		

	Sta (ft)	Elev. (ft)
Railroad	2180.00	1303.00
	2230.00	1302.70
	2340.00	1303.00
	2360.00	1302.60
Road	2400.00	1302.60
	2520.00	1302.30
	3360.00	1302.40
	3560.00	1303.00

Notes: Weiring occurs over Williams Field Road to Sub-basin 123.



Weir Discharge Rating Table (P124)

Stage ft	Qtotal cfs	Qrailroad cfs	Qstreet cfs
1299.00	0.00	0.00	0.00
1302.48	121.96	0.00	121.96
1302.40	28.61	0.00	28.61
1302.50	152.15	0.00	152.15
1302.60	338.69	0.00	338.69
1302.70	585.40	3.36	582.04
1303.00	1631.94	55.24	1576.70

Chandler/Gilbert DS Phase 1- North
Ponding Area 108

0 200' 400' 800'

SCALE: 1" = 400'

Chandler/Gilbert LOS Phase 1- North
Ponding Area 105

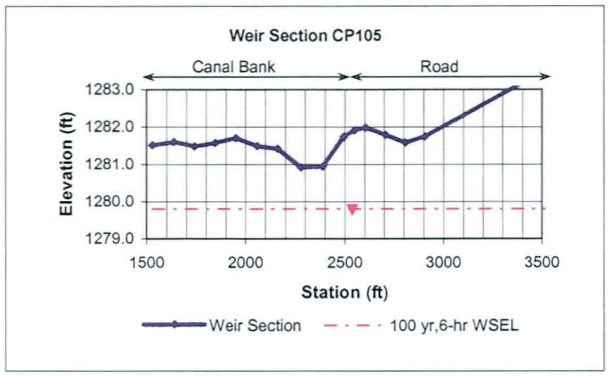
Ponding Area	SE Record	SV Record	SQ Record	$Q_{culvert}$	$Q_{roadway}$	Q_{canal_bank}
	Contour Elevation	Storage Volume	Total Q			
P105	1274.40	0.00	0.00	0.00	0.00	0.00
	1275.00	0.00	2.50	2.50	0.00	0.00
	1276.00	0.01	3.50	3.50	0.00	0.00
	1277.00	0.08	3.80	3.80	0.00	0.00
	1278.00	0.35	4.00	4.00	0.00	0.00
	1278.50	0.60	72.00	72.00	0.06	0.00
	1279.00	1.29	134.00	134.00	0.00	0.00
	1279.10	2.00	144.00	144.00	0.00	0.00
	1280.00	11.40	145.00	145.00	0.00	0.00
	1280.28	17.00	146.00	146.00	0.00	0.00

Hydraulic Component(s): Roadway

Discharge	0 cfs	Allowable HW Elevation	1,280.71 ft
Roadway Width	40.00 ft	Overtopping Coefficient	2.53~3.02 US
Low Point	1,281.57 ft	Headwater Elevation	1,279.80 ft
Discharge Coefficient	N/A	Submergence Factor (Kt)	1
Tailwater Elevation	1280.07 ft		

	Sta (ft)	Elev. (ft)
Canal Bank	1529.03	1281.51
	1636.59	1281.60
	1741.28	1281.48
	1845.35	1281.57
	1951.24	1281.70
	2057.97	1281.49
	2162.14	1281.41
	2279.05	1280.91
	2387.86	1280.94
	2492.85	1281.73
Road	2547.07	1281.90
	2603.98	1281.98
	2706.90	1281.78
	2807.29	1281.57
	2906.82	1281.74
	3650.82	1283.90

Notes: Ponding volumes include retention basins east of tailwater ditch.



Culvert Analysis (CulvertMaster Output, P105)

$Q_{100,\ 6\text{-}hr}$ = 145 cfs (from HEC-1 output)

Culvert Summary			
Analysis Component			
Storm Event	Design	Discharge	145 cfs

Peak Discharge Method: User-Specified			
Design Discharge	145 cfs	Check Discharge	145 cfs

Tailwater Conditions: Tailwater Rating	
Discharge (cfs)	TW Elev. (ft)
1	1,274.00
2	1,274.00
3	1,274.10
4	1,278.00
9	1,278.20
71	1,278.30
144	1,278.35
145	1,278.90
146	1,280.10

Name	Description	Discharge	HW Elev.	Velocity
Culvert-1	2-54 inch Circular	145.00 cfs	1,279.63 ft	4.56 ft/s
Weir	Not Considered	N/A	N/A	N/A

Component:Culvert-1

Culvert Summary			
Computed Headwater Elevation	1,279.63 ft	Discharge	145 cfs
Inlet Control HW Elev.	1,278.90 ft	Tailwater Elevation	1,278.90 ft
Outlet Control HW Elev.	1,279.63 ft	Control Type	Outlet Control
Headwater Depth/Height	1.15		

Grades			
Upstream Invert	1,274.46 ft	Downstream Invert	1,274.40 ft
Length	180 ft	Constructed Slope	0.000333 ft/ft

Hydraulic Profile			
Profile	PressureProfile	Depth, Downstream	4.5 ft
Slope Type	N/A	Normal Depth	N/A ft
Flow Regime	N/A	Critical Depth	2.49 ft
Velocity Downstream	4.56 ft/s	Critical Slope	0.00391 ft/ft

Section			
Section Shape	Circular	Mannings Coefficient	0.013
Section Material	Concrete	Span	4.5 ft
Section Size	54 inch	Rise	4.5 ft
Number Sections	2		

Outlet Control Properties			
Outlet Control HW Elev.	1,279.63 ft	Upstream Velocity Head	0.32 ft
Ke	0.5	Entrance Loss	0.16 ft

Inlet Control Properties			
Inlet Control HW Elev.	1,278.90 ft	Flow Control	Unsubmerged
Inlet Type	Square edge	Area Full	31.8 ft²
K	0.0098	HDS 5 Chart	1
M	2	HDS 5 Scale	1
C	0.0398	Equation Form	1
Y	0.67		

Culvert Rating Table (P105)

Range Data:

	Minimum	Maximum	Increment
Discharge	0	150	5 cfs

Discharge (cfs)	HW Elev.	TW Elev.	(D) Dn. V
0	1,274.46	0	0
5	1,278.04	1,278.04	0.18
10	1,278.21	1,278.20	0.35
15	1,278.22	1,278.21	0.52
20	1,278.23	1,278.22	0.7
25	1,278.25	1,278.23	0.87
30	1,278.27	1,278.23	1.04
35	1,278.29	1,278.24	1.21
40	1,278.31	1,278.25	1.38
45	1,278.34	1,278.26	1.55
50	1,278.36	1,278.27	1.72
55	1,278.39	1,278.27	1.89
60	1,278.42	1,278.28	2.06
65	1,278.45	1,278.29	2.22
70	1,278.48	1,278.30	2.39
75	1,278.52	1,278.30	2.56
80	1,278.55	1,278.31	2.73
85	1,278.58	1,278.31	2.9
90	1,278.62	1,278.31	3.06
95	1,278.65	1,278.32	3.23
100	1,278.69	1,278.32	3.4
105	1,278.73	1,278.32	3.57
110	1,278.78	1,278.33	3.74
115	1,278.82	1,278.33	3.9
120	1,278.86	1,278.33	4.07
125	1,278.91	1,278.34	4.24
130	1,278.96	1,278.34	4.4
135	1,279.01	1,278.34	4.57
140	1,279.06	1,278.35	4.73
145	1,279.63	1,278.90	4.56
150	1,285.68	1,284.90	4.72

Weir Discharge Rating Table (P105)

Stage ft	Qtotal cfs	Qbank cfs	Qstreet cfs
1274.40	0.00	0.00	0.00
1275.00	3.96	0.00	0.00
1276.00	30.96	0.00	0.00
1277.00	80.52	0.00	0.00
1278.00	140.61	0.00	0.00
1279.00	196.90	0.00	0.00
1280.00	253.36	0.00	0.00
1280.90	295.08	0.00	0.00
1281.00	305.62	6.27	0.00
1281.10	328.58	25.01	0.00
1281.20	362.37	54.64	0.00
1281.30	407.48	95.65	0.00
1281.40	464.63	148.75	0.00
1281.50	540.81	220.93	0.00
1281.60	666.30	342.30	0.17
1281.70	874.36	539.95	6.68
1281.80	1172.85	811.73	29.54
1281.90	1554.18	1144.88	73.90
1282.00	2018.83	1536.45	143.21

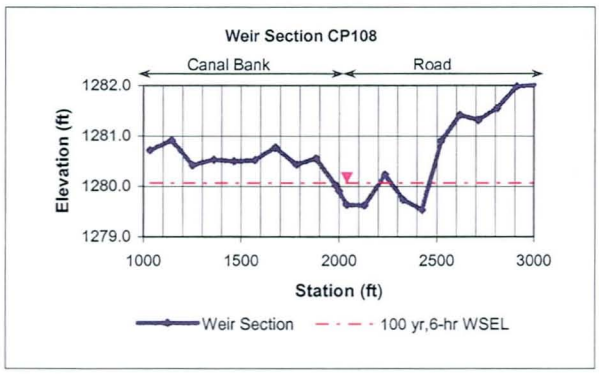
Ponding Area	SE Record	SV Record	SQ Record	Q_{ditch}	$Q_{roadway}$	Q_{canal_bank}	$Q_{ditch\text{-}to\text{-}basin}$
	Contour Elevation	Storage Volume	Total Q				
P108	1274.00	0.00	0.00	0.00	0.00	0.00	0.00
	1275.00	0.05	4.19	4.19	0.00	0.00	0.00
	1276.00	0.29	14.82	14.82	0.00	0.00	0.00
	1277.00	0.68	32.69	32.69	0.00	0.00	0.00
	1278.00	1.62	58.96	58.96	0.00	0.00	0.00
	1279.00	9.26	103.84	103.84	0.00	0.00	0.00
	1280.00	27.98	325.80	153.72	160.87	0.43	10.77
	1280.05	29.00	370.41	156.74	200.56	1.31	11.80
	1280.10	33.40	420.05	159.78	244.61	2.80	12.86
	1280.20	36.00	535.22	165.92	346.16	7.99	15.15

Hydraulic Component(s): Roadway

Discharge	217.65 cfs	Allowable HW Elevation	1,280.71 ft
Roadway Width	40.00 ft	Overtopping Coefficient	2.51~3.01 US
Low Point	1,279.53 ft	Headwater Elevation	1,280.07 ft
Discharge Coefficient	2.51~3.01	Submergence Factor (Kt)	1
Tailwater Elevation	1279.62 ft		

	Sta (ft)	Elev. (ft)
Canal Bank	1032.66	1280.71
	1144.03	1280.91
	1250.31	1280.42
	1357.23	1280.53
	1464.53	1280.50
	1570.27	1280.52
	1676.62	1280.77
	1782.08	1280.43
	1882.22	1280.55
	1983.84	1280.01
	2000.77	1279.90
Road	2040.04	1279.63
	2130.11	1279.62
	2236.40	1280.23
	2328.90	1279.73
	2423.99	1279.53
	2521.54	1280.90
	2619.15	1281.41
	2714.16	1281.31
	2810.81	1281.55
	2908.67	1281.98
	3003.60	1282.01

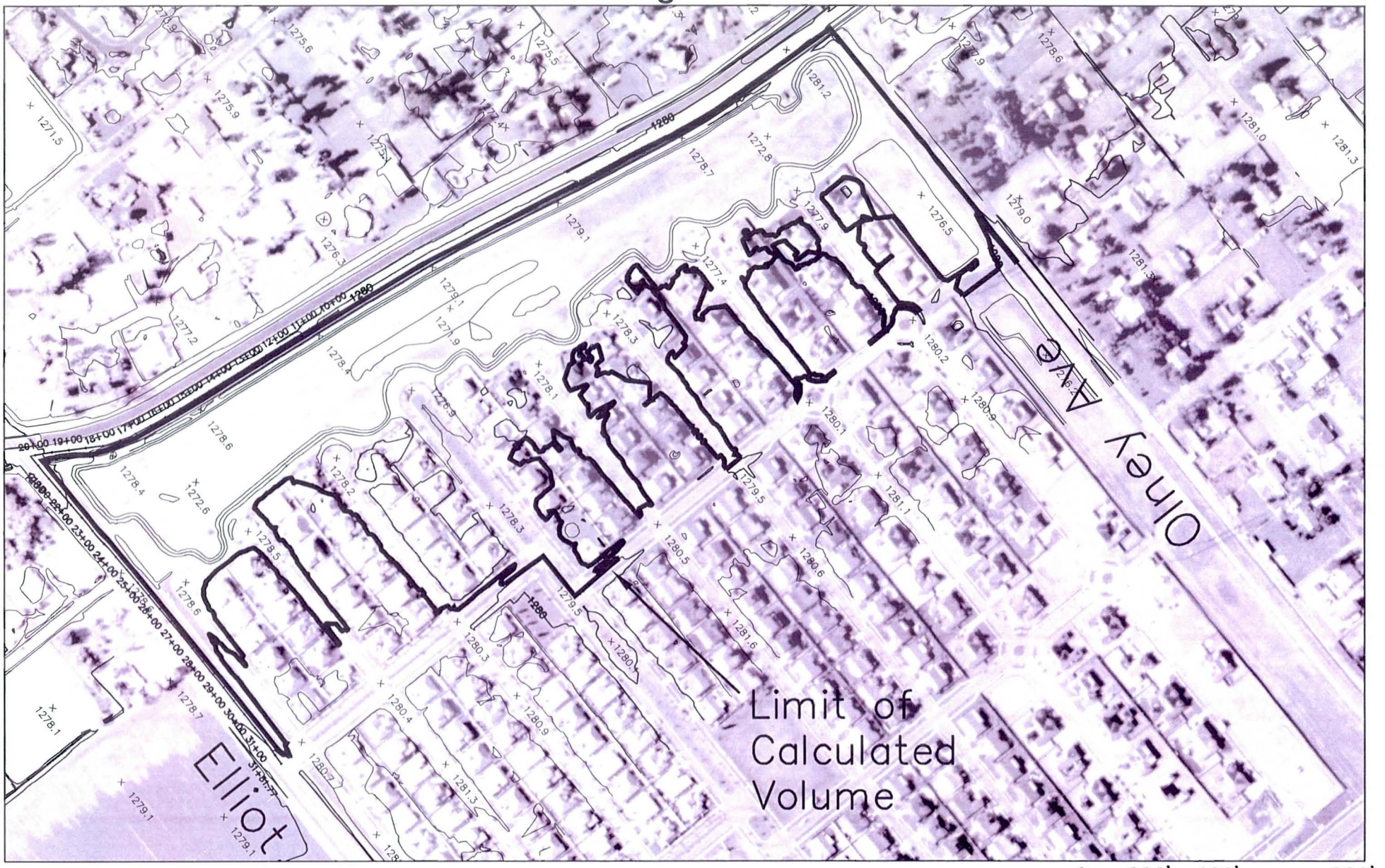
Notes: Ponding volumes include retention basins east of tailwater ditch. Weiring occurs over Olney Ave to P111. A small ditch connects the tailwater ditch to a retention basin east of the water treatment plant. This ditch is considered in the HEC1 model, but its cross section is not drawn below.



Ditch and Weir Discharge Rating Table (P108)

Stage ft	Qtotal cfs	Qbank cfs	Qstreet cfs	Qditch cfs	Qditch-to-basin
1274.00	0.00	0.00	0.00	0.00	0.00
1275.00	4.19	0.00	0.00	4.19	0.00
1276.00	14.82	0.00	0.00	14.82	0.00
1277.00	32.69	0.00	0.00	32.69	0.00
1278.00	58.96	0.00	0.00	58.96	0.00
1279.00	103.84	0.00	0.00	103.84	0.00
1279.50	127.98	0.00	0.00	124.88	3.10
1279.60	135.46	0.00	0.73	130.46	4.28
1279.70	154.21	0.00	12.45	136.13	5.63
1279.80	193.71	0.00	44.65	141.90	7.16
1279.90	251.00	0.00	94.36	147.76	8.87
1280.00	325.80	0.43	160.87	153.72	10.77
1280.10	420.05	2.80	244.61	159.78	12.86
1280.20	535.22	7.99	346.16	165.92	15.15
1280.30	677.75	16.74	471.23	172.16	17.63
1280.40	842.92	29.68	614.44	178.49	20.31

Chandler/Gilbert DS Phase 1- North
Ponding Area 111



0 200' 400' 800'

SCALE: 1" = 400'

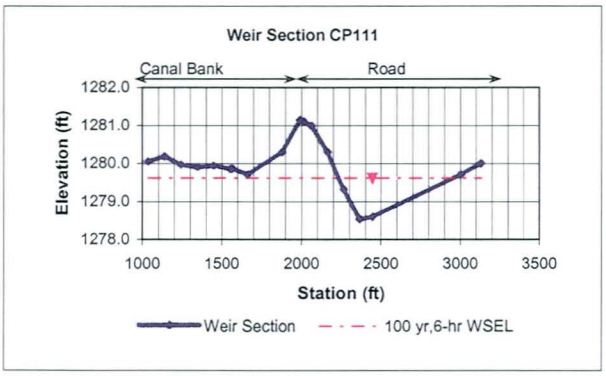
Ponding Area	SE Record	SV Record	SQ Record	$Q_{culvert}$	$Q_{roadway}$	Q_{canal_bank}
	Contour Elevation	Storage Volume	Total Q			
P111	1271.70	0.00	0.00	0.00	0.00	0.00
	1273.00	7.87	0.40	0.43	0.00	0.00
	1274.00	21.82	10.00	10.00	0.00	0.00
	1275.00	36.61	30.00	30.00	0.00	0.00
	1276.00	52.16	58.00	58.00	0.00	0.00
	1277.00	69.09	95.00	95.00	0.00	0.00
	1278.00	87.99	127.00	127.00	0.00	0.00
	1278.30	94.34	148.00	148.00	0.00	0.00
	1279.00	111.55	324.00	182.00	142.00	0.00
	1279.38	122.50	789.00	228.00	561.03	0.00
	1279.50	127.00	968.00	200.00	768.00	0.00
	1279.55	128.00	1066.00	200.00	866.00	0.00
	1280.00	143.50	2422.00	276.00	2146.00	0.00

Hydraulic Component(s): Roadway

Discharge	1013 cfs	Allowable HW Elevation	1,280.00 ft
Roadway Width	40.00 ft	Overtopping Coefficient	2.95~3.04 US
Low Point	1,278.54 ft	Headwater Elevation	1,279.62 ft
Discharge Coefficient	2.95~3.03	Submergence Factor (Kt)	1
Tailwater Elevation	1277.1 ft		

	Sta (ft)	Elev. (ft)
Canal Bank	1035.64	1280.05
	1139.14	1280.18
	1241.01	1279.97
	1346.85	1279.90
	1447.32	1279.94
	1552.99	1279.86
	1567.66	1279.86
	1664.95	1279.71
	1879.16	1280.30
	1989.53	1281.14
Road	2013.80	1281.10
	2062.96	1280.99
	2162.76	1280.29
	2263.60	1279.31
	2364.42	1278.54
	2446.47	1278.60
	3000.00	1279.70
	3130.00	1280.00

Notes: Ponding volumes include retention basins east of tailwater ditch. Weiring occurs over Elliot Road to P114.



Culvert Analysis (CulvertMaster Output, P111)

$Q_{100,\ 6\text{-}hr}$ = 203 cfs (from HEC-1 output)

Culvert Summary			
Analysis Component			
Storm Event	Design	Discharge	203 cfs

Peak Discharge Method: User-Specified			
Design Discharge	203 cfs	Check Discharge	203 cfs

Tailwater properties: Trapezoidal Channel

Tailwater conditions for Design Storm.			
Discharge	203 cfs	Bottom Elevation	1,272.75 ft
Depth	3.89 ft	Velocity	4.85 ft/s

Name	Description		HW Elev.	Velocity
Culvert-1	1-66 inch Circular	203.0	1,279.62 ft	8.54 ft/s
Weir	Not Considered	N/A	N/A	N/A

Component:Culvert-1

Culvert Summary			
Computed Headwater Elevation	1,279.62 ft	Discharge	203 cfs
Inlet Control HW Elev.	1,279.21 ft	Tailwater Elevation	1,276.64 ft
Outlet Control HW Elev.	1,279.62 ft	Control Type	Outlet
Headwater Depth/Height	1.25		

Grades			
Upstream Invert	1,272.76 ft	Downstream Invert	1,270.77 ft
Length	103 ft	Constructed Slope	0.01932 ft/ft

Hydraulic Profile			
Profile	CompositePressureProfileS1	Depth, Downstream	5.87 ft
Slope Type	N/A	Normal Depth	3.73 ft
Flow Regime	Subcritical	Critical Depth	3.99 ft
Velocity Downstream	8.54 ft/s	Critical Slope	0.016231 ft/ft

Section			
Section Shape	Circular	Mannings Coefficient	0.024
Section Material	CMP	Span	5.5 ft
Section Size	66 inch	Rise	5.5 ft
Number Sections	1		

Outlet Control Properties			
Outlet Control HW Elev.	1,279.62 ft	Upstream Velocity Head	1.25 ft
Ke	0.5	Entrance Loss	0.62 ft

Inlet Control Properties			
Inlet Control HW Elev.	1,279.21 ft	Flow Control	Transition
Inlet Type	Headwall	Area Full	23.8 ft²
K	0.0078	HDS 5 Chart	2
M	2	HDS 5 Scale	1
C	0.0379	Equation Form	1
Y	0.69		

Culvert Rating Table (P111)

Range Data:

	Minimum	Maximum	Increment
Discharge	0	205	5 cfs

Discharge (cfs)	HW Elev.	TW Elev.	(D) Dn. V
0	1,272.76	1,272.75	0
5	1,273.66	1,273.39	0.45
10	1,274.04	1,273.68	0.78
15	1,274.34	1,273.90	1.08
20	1,274.59	1,274.08	1.34
25	1,274.82	1,274.23	1.59
30	1,275.03	1,274.37	1.82
35	1,275.22	1,274.49	2.04
40	1,275.41	1,274.61	2.26
45	1,275.58	1,274.71	2.47
50	1,275.75	1,274.81	2.67
55	1,275.90	1,274.91	2.87
60	1,276.06	1,275.00	3.06
65	1,276.21	1,275.08	3.25
70	1,276.35	1,275.16	3.44
75	1,276.49	1,275.24	3.62
80	1,276.63	1,275.32	3.81
85	1,276.76	1,275.39	3.99
90	1,276.90	1,275.46	4.17
95	1,277.03	1,275.53	4.35
100	1,277.15	1,275.59	4.53
105	1,277.28	1,275.65	4.71
110	1,277.40	1,275.71	4.89
115	1,277.53	1,275.77	5.07
120	1,277.65	1,275.83	5.25
125	1,277.77	1,275.89	5.43
130	1,277.89	1,275.94	5.61
135	1,278.01	1,276.00	5.79
140	1,278.12	1,276.05	5.97
145	1,278.24	1,276.10	6.16
150	1,278.36	1,276.15	6.35
155	1,278.47	1,276.20	6.54
160	1,278.59	1,276.25	6.74
165	1,278.67	1,276.30	6.94
170	1,278.74	1,276.35	7.16
175	1,278.84	1,276.39	7.37
180	1,278.95	1,276.44	7.58
185	1,279.08	1,276.48	7.79
190	1,279.21	1,276.53	8
195	1,279.36	1,276.57	8.21
200	1,279.52	1,276.61	8.42
205	1,279.69	1,276.65	8.63

Weir Discharge Rating Table (P111)

Stage ft	Qtotal cfs	Qbank cfs	Qstreet cfs
1271.70	0.00	0.00	0.00
1273.00	0.43	0.00	0.00
1274.00	10.00	0.00	0.00
1275.00	30.00	0.00	0.00
1276.00	58.00	0.00	0.00
1277.00	95.00	0.00	0.00
1278.00	127.01	0.00	0.00
1278.50	156.00	0.00	0.00
1278.60	161.35	0.00	1.35
1278.70	181.32	0.00	14.32
1278.80	213.85	0.00	40.85
1278.90	259.93	0.00	82.93
1279.00	324.47	0.00	142.47
1279.10	407.26	0.00	221.26
1279.20	509.93	0.00	320.93
1279.30	635.99	0.00	442.99
1279.40	789.09	0.00	593.09
1279.50	967.50	0.00	768.50
1279.60	1171.94	0.00	969.94
1279.70	1403.54	0.00	1198.54

DS & DN.5 Diversion Data

DS & DN.5.1 Retention

DS & DN.5.2 Intersections

CHAND. /GILBERT
PHASE 1 - SOUTH, EASTERN CANAL WATERSHED
RETENTION DATA

Sub-Basin	Development	Method Aquired	Depth (ft)	Area (ac)	Retention (ac-ft)	Total Sub-basin Retention (ac-ft)	Number of Basins
201	Gateway Ranch	Report	-	-	17.81		4
201	The Crossing at the Crossroads - Unit 1	Report	-	-	11.54		5
201	The Crossing at the Crossroads - Unit 2	Report	-	-	15.62	**44.97**	6
202	Fincher Farms	Report	-	-	9.55		7
202	Gilbert Ranch Unit 1	Report	-	-	0.00		0
202	Gilbert Ranch Unit 2	Report	-	-	11.01	**20.56**	7
203	Gilbert Ranch Unit 3	Report	-	-	0.00	**0**	0
204	Chaparral Estates	Report	-	-	21.86		10
204	Chaparral Estates West	Report	-	-	23.69	**45.55**	10
205	Pecos Park	As-Built	2	0.25	0.50		1
205	Pecos Park	As-Built	3	1.12	3.36		1
205	Pecos Park	As-Built	3	0.27	0.81		1
205	Pecos Park III	As-Built	3	0.93	2.79	**7.46**	1
207	The Spectrum at Val Vista	Report	-	-	45.40		14
208N	The Villas at Spectrum - portions of Parcel 1	Report	4	2.94	11.74		1
208S	The Villages at Spectrum	Report	7	0.56	3.91	**61.05**	1
209	Santan Ranch	Report	-	-	86.27	**86.27**	21
210	Whitewing at Higley	Report	-	-	3.38	**3.38**	6
216	Windmill Ranch	Report	-	-	9.05	**9.05**	5
219	Eagle Glen II	Report	3.9	4.11	13.10	**13.10**	1
221	Vista Dorada	Report	-	-	15.92	**15.92**	11
227	Quail Springs	As-Built	-	-	31.84	**31.84**	1
230	Brooks Ranch	Report	-	-	10.77	**10.77**	6
232	Citrus Preserve	Report	-	-	13.67	**13.67**	10
233	Falcon Estates	Report	-	-	3.00		3
233	Shadow Ridge	Report	-	-	16.65		6
233	Mesquite Groves	Report	-	-	14.44	**34.09**	8
237	Layton Lakes Phase 1 (Ball Field)	Report	3.82	9.23	18.33		1
238	Layton Lakes Phase 2 N.of Queen Ck. Rd & Basin "L" S. of Queen Ck Rd	Report	3.82	15.2	57.93		2
224	Layton Lakes Phase 2 North and South of Appleby Road	Report	4	18.5	60.79	**137.05**	1
					Total	**534.73**	147

Bold-Volume adjacent to canal was not included in overall retention volume for the sub-basin.

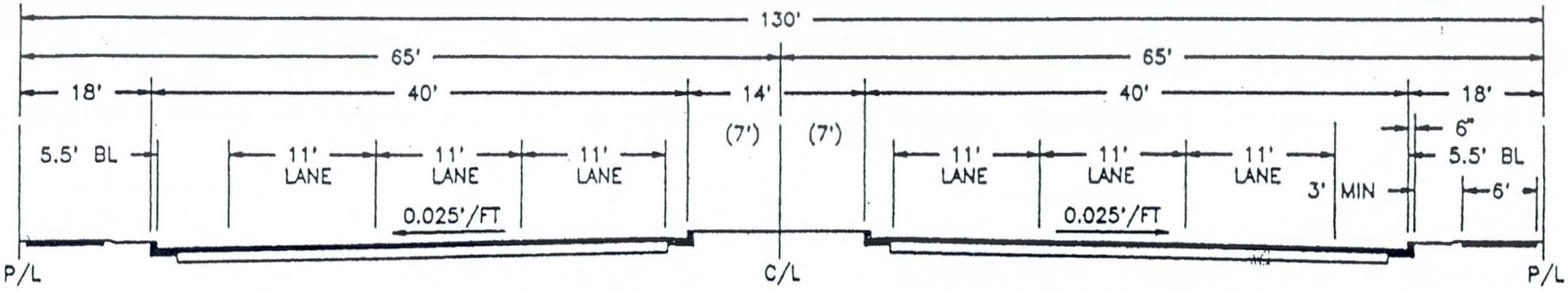
CHAN[illegible]/GILBERT
PHASE 1 - NORTH, EASTERN CANAL WATERSHED
RETENTION DATA

Sub-Basin	Development	Method Aquired	Depth (ft)	Area (ac)	Retention (ac-ft)	Total Sub-basin Retention (ac-ft)	Number of Basins
103	Groves at Superstition Ranch	Report	-	-	1.30		1
103	Highland Corner	Report	-	-	2.79		1
103	Towne Meadows	As-Built	2	4.28	8.56		1
103	Towne Meadows Patio Homes	As-Built	3.5	0.85	2.98		1
103	Superstition Subdivision	Report	-	-	0.97	16.60	1
104	Kristin Manor	Report	-	-	5.88		7
104	Carol Rae Ranch	Report	-	-	35.83		7
104	Dave Brown 172nd Street & Guadalupe Rd.	Report	-	-	16.86		6
104	Durango II	Report	-	-	7.58		2
104	High Groves	As-Built	4.2	0.36	1.51		1
104	High Groves	As-Built	4.1	0.35	1.44		1
104	High Groves	As-Built	3.8	0.37	1.41	70.50	3
105	Tone Ranch Estates	Report	-	-	14.68	14.68	10
106	Highland Ranch Phase II	As-Built	3	0.99	2.97		1
106	Superstition Highlands	Report	-	-	7.02		3
106	Highland Ranch at Superstition Springs	Report	-	-	4.97		1
106	Rancho Collene	Report	-	-	6.90		1
106	Highland Ranch III In The Town of Gilbert	Report	-	-	3.52	25.381	2
107	El Dorado at the Higlands	Report	-	-	12.26	12.26	5
108	Higley and Houston	Report	-	-	14.12	14.12	3
110	Higley Groves at Morrison Ranch	Report	-	-	34.12		15
110	Holiday Farms	Report	-	-	16.49	50.61	6
111	Higley Groves West	Report	-	-	9.29	**9.29**	4
114	Circle G @ Highlands West	As-Built	3	0.49	1.47	1.47	1
115	Greenfield Lakes (Parcel 2, Phase 1)	Report	-	-	2.43		1
115	Greenfield Lakes (Parcel 1, Phase 2 of Parcel 2 & Parcel 8)	Report	-	-	6.29	**8.72**	1

CHAN. R/GILBERT
PHASE 1 - NORTH, EASTERN CANAL WATERSHED
RETENTION DATA

Sub-Basin	Development	Method Aquired	Depth (ft)	Area (ac)	Retention (ac-ft)	Total Sub-basin Retention (ac-ft)	Number of Basins
118	Rancho Corona (RC-1)	As-Built	2	1.34	2.68		1
118	Rancho Corona (RC-2)	As-Built	3	0.91	2.73		1
118	Rancho Corona (RC-3)	As-Built	3	1.23	3.69		1
118	Rancho Corona (RC-4)	As-Built	3	0.58	1.74		1
118	Rancho Corona (RC-5)	As-Built	3	1.23	3.69		1
118	Rancho Corona (RC-6)	As-Built	3	0.69	2.07		1
118	Cottonwoods Crossing II	Report	-	-	19.64		1
118	Greenfield Lakes (Parcel 4, Unit 1/2)	Report	-	-	3.35		1
118	Greenfield Lakes (Parcel 5, Unit 1)	Report	-	-	2.56		1
118	Greenfield Lakes (Parcel 3, Unit 2, Unit 3)	Report	-	-	3.30		1
118	Greenfield Lakes (Parcel 3, Unit 1 & Parcel 4, Unit III)	Report	-	-	10.63	**56.08**	1
119	The Gardens, Parcel 1	As-Built	3	0.4	1.20		1
119	The Gardens, Parcel 1	As-Built	4	0.98	3.92		1
119	The Gardens, Parcel 2	As-Built	1	0.16	0.16		1
119	The Gardens, Parcel 2	As-Built	4	0.21	0.84		1
119	The Gardens, Parcel 4, Phase 1	As-Built	3.5	0.34	1.19		1
119	The Gardens, Parcel 4, Phase 1	As-Built	3.7	0.53	1.96	9.27	1
120	Ray Ranch, Unit I	Report	-	-	12.65	12.65	7
121	Agritopia	Report	-	-	39.05	39.05	29
122	Ashley Heights	Report	-	-	26.92	26.92	15
					Total	368	154

Bold- Volume adjacent to canal was not included in overall retention volume for the sub-basin.

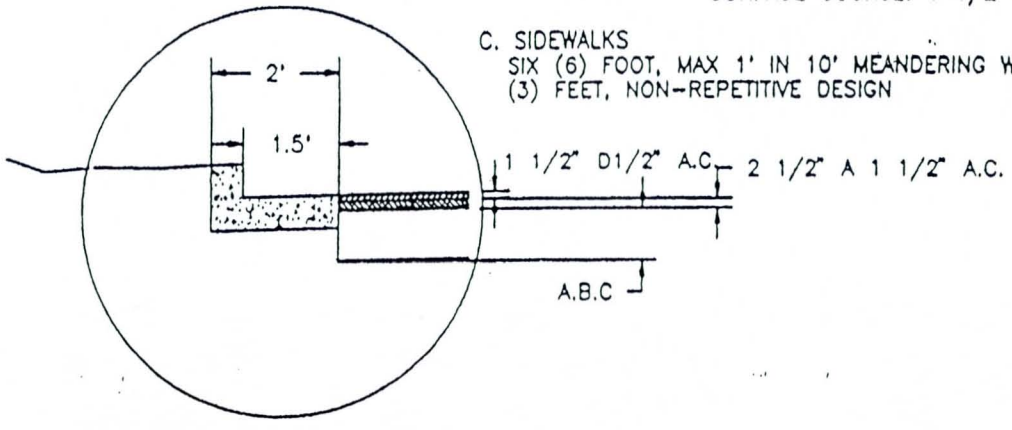


6 MOVING LANES

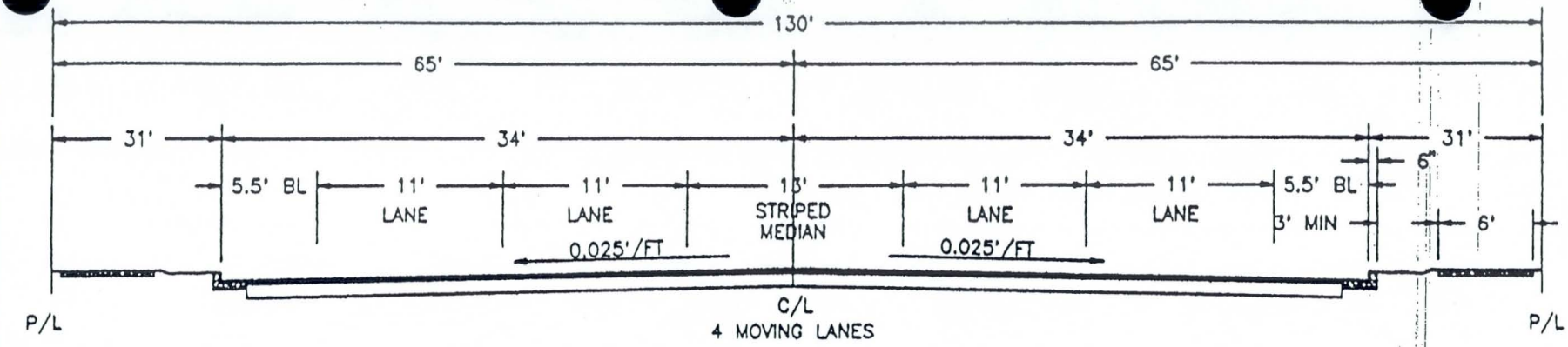
A. CONCRETE
1. CURB: M.A.G. STANDARD DETAIL 220 TYPE A. ALL CONCRETE M.A.G. STD.SPEC. CLASS "B"
2. SIDEWALK: M.A.G. STANDARD DETAIL 230 ALL CONCRETE M.A.G. STD. SPEC. CLASS "B"

B. PAVING
1. AGGREGATE BASE COURSE:
   A. THICKNESS: TOWN OF GILBERT STANDARD DETAIL 33
   B. MATERIAL: CONFORMING TO SECTION 702.2 M.A.G. STANDARD SPECIFICATIONS
2. ASPHALTIC CONCRETE:
   A. THICKNESS FOUR (4") INCH MINIMUM PLACED IN TWO LIFTS.
   B. MATERIAL: CONFORMING TO M.A.G. STANDARD SPECIFICATIONS 710 (WITHOUT LIME)
      BASE COURSE: 2 1/2"-A 1 1/2" MIX/5.0% OIL
      SURFACE COURSE: 1 1/2"-D 1/2"MIX/6.0% OIL

C. SIDEWALKS
SIX (6) FOOT, MAX 1' IN 10' MEANDERING WALKWAY, DETACHED FROM C&G NO LESS THAN THREE (3) FEET, NON-REPETITIVE DESIGN



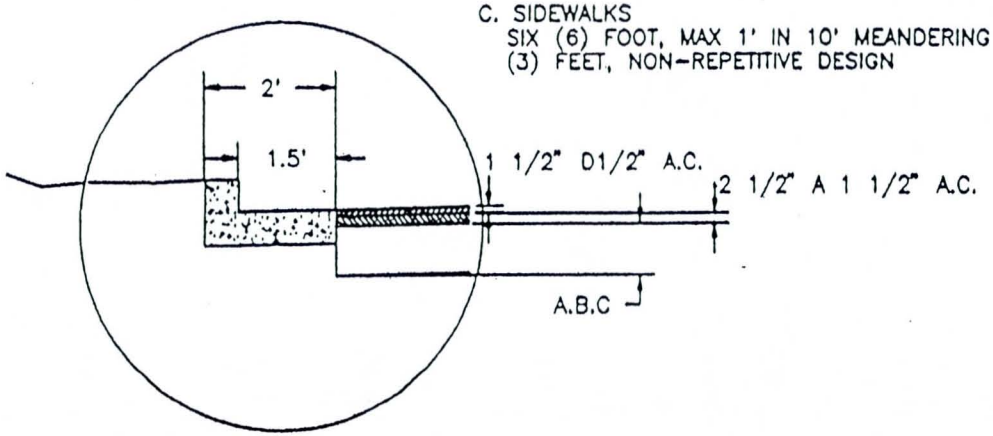
DETAIL NO. 21	TOWN OF GILBERT STANDARD DETAIL	MAJOR ARTERIAL STREET	REVISED 8/1/95	DETAIL NO. 21



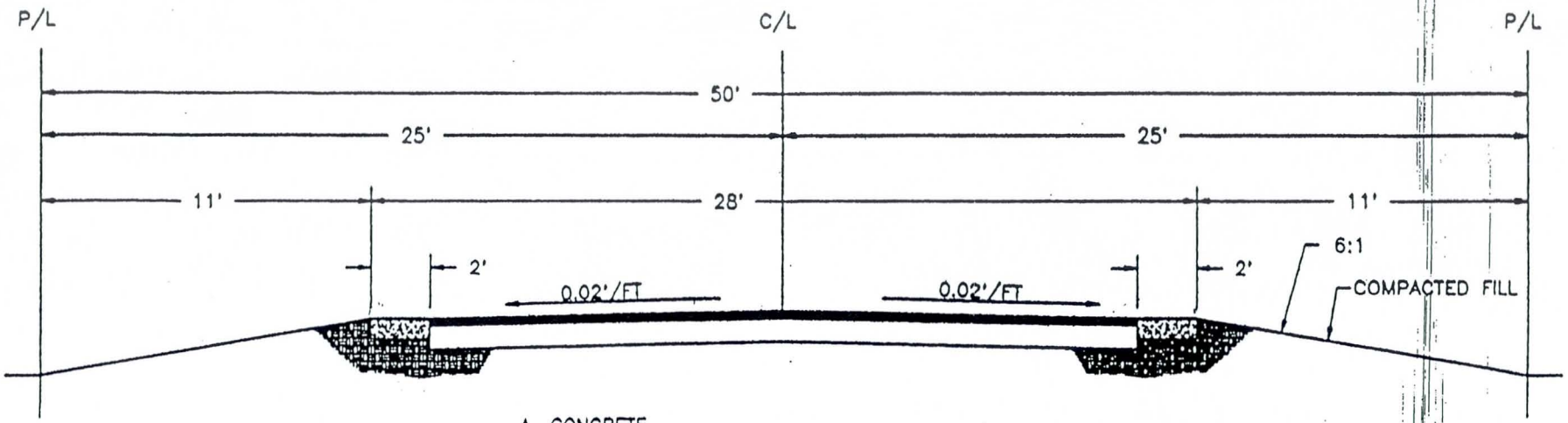
A. CONCRETE
1. CURB: M.A.G. STANDARD DETAIL 220 TYPE A. ALL CONCRETE M.A.G. STD.SPEC. CLASS "B"
2. SIDEWALK: M.A.G. STANDARD DETAIL 230 ALL CONCRETE M.A.G. STD. SPEC. CLASS "B"

B. PAVING
1. AGGREGATE BASE COURSE:
   A. THICKNESS: TOWN OF GILBERT STANDARD DETAIL 33
   B. MATERIAL: CONFORMING TO SECTION 702.2 M.A.G. STANDARD SPECIFICATIONS
2. ASPHALTIC CONCRETE:
   A. THICKNESS FOUR (4") INCH MINIMUM PLACED IN TWO LIFTS
   B. MATERIAL: CONFORMING TO M.A.G. STANDARD SPECIFICATIONS 710 (WITHOUT LIME)
      BASE COURSE: 2 1/2"-A 1 1/2" MIX/5.0% OIL
      SURFACE COURSE: 1 1/2"-D 1/2" MIX/6.0% OIL

C. SIDEWALKS
SIX (6) FOOT, MAX 1' IN 10' MEANDERING WALKWAY, DETACHED FROM C&G NO LESS THAN THREE (3) FEET, NON-REPETITIVE DESIGN

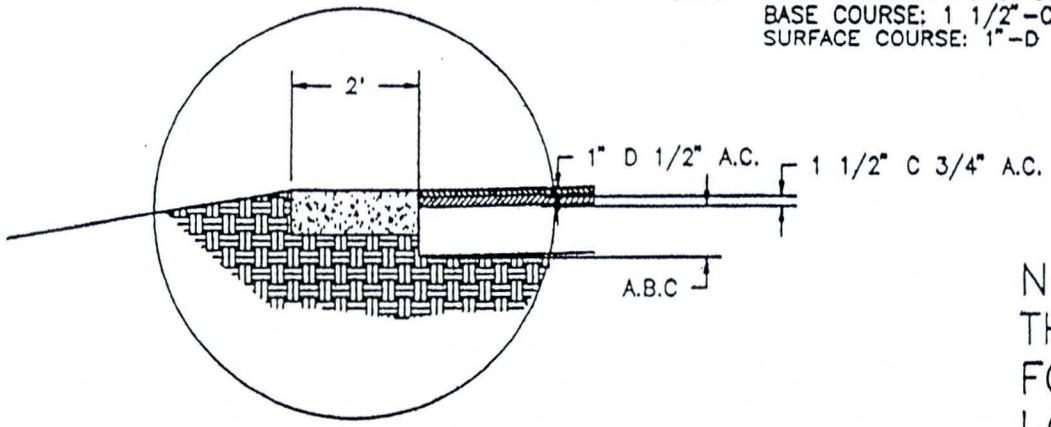


DETAIL NO. 22	TOWN OF GILBERT STANDARD DETAIL	MINOR ARTERIAL STREET	REVISED 8/1/95	DETAIL NO. 22



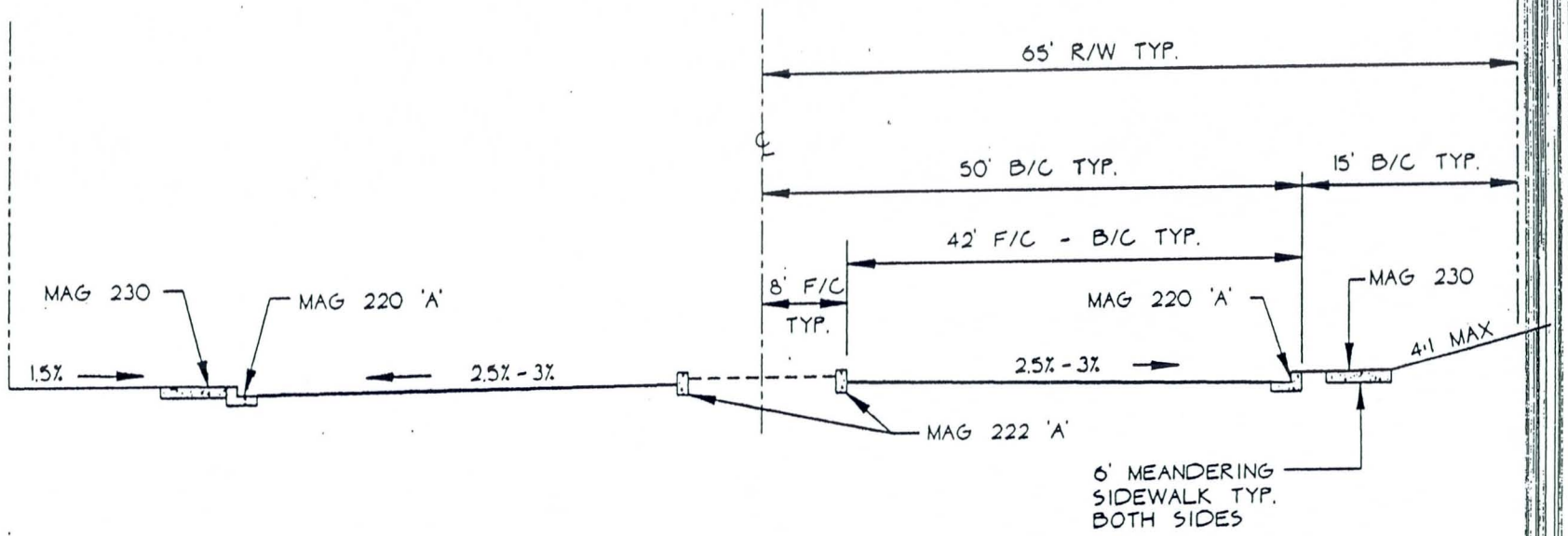
A. CONCRETE
1. CURB: M.A.G. STANDARD DETAIL 220 TYPE B. ALL CONCRETE M.A.G. STD.SPEC. CLASS "B"
ALL CONCRETE M.A.G. STD. SPEC. CLASS "B"

B. PAVING
1. AGGREGATE BASE COURSE:
A. THICKNESS: TOWN OF GILBERT STANDARD DETAIL 36
B. MATERIAL: CONFORMING TO SECTION 702.2 M.A.G. STANDARD SPECIFICATIONS
2. ASPHALTIC CONCRETE:
A. THICKNESS TWO AND A HALF (2 1/2") INCH MINIMUM PLACED IN TWO LIFTS
B. MATERIAL: CONFORMING TO M.A.G. STANDARD SPECIFICATIONS 710 (WITHOUT LIME)
BASE COURSE: 1 1/2"-C 3/4" MIX/5.5% OIL
SURFACE COURSE: 1"-D 1/2" MIX/6.0% OIL



NOTE:
THIS SECTION IS ONLY FOR LOTS 1 ACRE OR LARGER

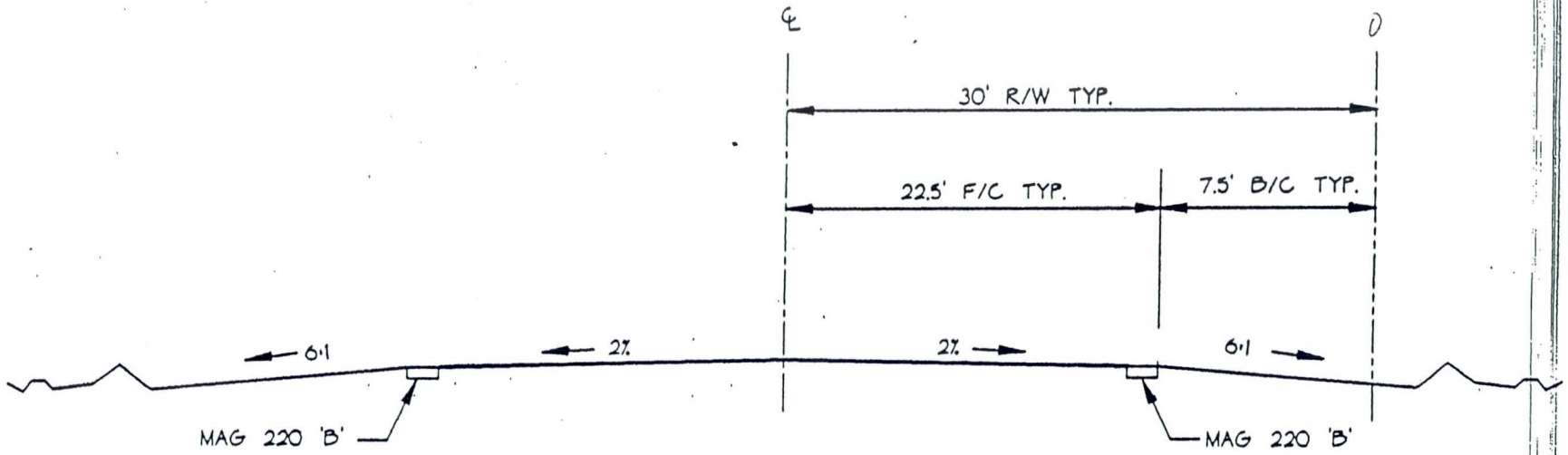
DETAIL NO. 28	TOWN OF GILBERT STANDARD DETAIL	AGRARIAN STREET	REVISED 8/1/95	DETAIL NO. 28



NOTES:

1. THE SUBGRADE SHALL BE PREPARED IN ACCORDANCE WITH MAG STANDARD SPECIFICATIONS, SEC. 301.
2. BASE COURSE:
   A. THE THICKNESS SHALL CONFORM TO CITY OF CHANDLER STANDARD DETAIL 33.
   B. ALL CONSTRUCTION AND MATERIALS SHALL CONFORM TO MAG STANDARD SPECIFICATIONS, SECS. 310 AND 702.
3. ASPHALTIC CONCRETE PAVEMENT:
   A. THE THICKNESS SHALL BE A MIN. OF 4 INCHES, 1" OF D1/2" MIX AND 3" OF C3/4" MIX OR A1-1/2" EVAC.
   B. ALL CONSTRUCTION AND MATERIALS SHALL CONFORM TO MAG STANDARD SPECIFICATIONS, SECS. 321 AND 710.
4. ADDITIONAL RIGHT-OF-WAY SHALL BE PROVIDED WHERE NECESSARY TO ACCOMMODATE DOUBLE LEFT TURN LANES OR RIGHT TURN LANES WARRANTED BY TRAFFIC DEMANDS.
5. MEDIAN END SHALL BE RAMP PER CITY OF CHANDLER STANDARD DETAIL 37.
6. MEDIAN LANDSCAPE AREA SHALL BE PER DETAIL NO. 24 OF CITY OF CHANDLER GUIDELINES FOR LANDSCAPING AND IRRIGATION OF RIGHTS-OF-WAY. (MOUNDING IN MEDIAN NOT PERMITTED).

DETAIL NO. 20 NTS	CITY OF CHANDLER STANDARD DETAIL OCTOBER 1996	**MAJOR ARTERIAL STREETS** **TYPICAL CROSS SECTION**	APPROVED: Karen Burfoot for CITY ENGINEER DATE: October, 1996	DETAIL NO. 20 NTS



NOTES:

1. THE SUBGRADE SHALL BE PREPARED IN ACCORDANCE WITH MAG STANDARD SPECIFICATIONS, SEC. 301.

2. BASE COURSE:

   A. THE THICKNESS SHALL CONFORM TO CITY OF CHANDLER STANDARD DETAIL 35.

   B. ALL CONSTRUCTION AND MATERIALS SHALL CONFORM TO MAG STANDARD SPECIFICATIONS, SECS. 310 AND 702.

3. ASPHALTIC CONCRETE PAVEMENT:

   A. THE THICKNESS SHALL BE A MINIMUM OF 2" OF C3/4" MIX EVAC.

   B. A PRESERVATIVE SEAL COAT CONFORMING TO MAG STANDARD SPECIFICATIONS 334, AND SHALL BE EMULSIFIED ASPHALT GRADE SS-1H PER MAG STANDARD SPECIFICATIONS, SEC. 713.

   C. ALL CONSTRUCTION AND MATERIALS SHALL CONFORM TO MAG STANDARD SPECIFICATIONS, SECS. 321 AND 710.

4. 0.2% MINIMUM LONGITUDINAL GRADE ALLOWED.

DETAIL NO. 28 NTS	CITY OF CHANDLER STANDARD DETAIL OCTOBER 1996	**AGRARIAN COLLECTOR STREET** **TYPICAL CROSS SECTION**	APPROVED: Karen Burfoot Acting CITY ENGINEER DATE: October 1996	DETAIL NO. 28 NTS

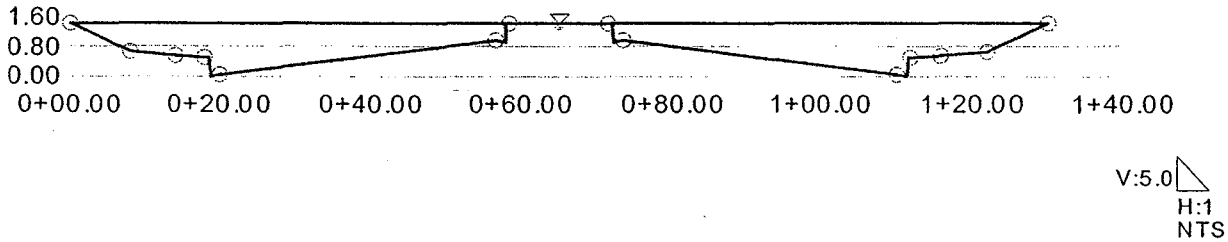
CHANDLER/GILBERT
PHASE 1 -SOUTH, EASTERN CANAL WATERSHED
INTERSECTION ANALYSIS

CP	Intersection Designation (north/south & east/west)	Typical Cross Section		Downstream Slope (ft/ft)			Cross Section Capacity (cfs)			Flow Split (%)			Notes
		N/S	E/W	N	S	W	N	S	W	N	S	W	
206	Val Vista & Chandler	Gil 21	Gil 21	0.0104	-	0.0019	823	-	351	70	-	30	Downstream slopes based on aerial strip mapping along Eastern Canal.
209	Higley & Pecos	Gil 22/ Gil 28	Gil 28	0.0025	-	0.0047	70	-	96	40	-	60	Slope to the north determined from one side of the street only. Slope to the west determined by averaging dtm slopes on either side of the road.
210	Greenfield & Pecos	-	-	-	-	-	-	-	-	-	-	-	No split. Flow intercepted by Santan Channel.
216	Greenfield & Germann	Gil 28	Gil 28	0.0015	-	0.0082	54	-	127	30	-	70	Slopes determined from one side of the street only.
220	Val Vista & Queen Creek	Gil 28	Gil 28	0.0047	-	0.0013	96	-	51	70	-	30	Slope to the north determined from one side of the street only. Slope to the west determined by averaging dtm slopes on either side of the road. Queen Creek west of intersection is unpaved.
221	Lindsay & Queen Creek	Gil 28	Gil 28	0.0023	-	0.0075	67	-	122	40	-	60	Slope to the north determined by averaging dtm slopes on either side of the road. Slope to the west determined from one side of the street only. Queen Creek east of intersection is unpaved. Lindsay unpaved.
222/225	Val Vista & Ocotillo	Gil 28	Gil 28	-	-	0.0064	-	-	112	-	-	100	No split. Downstream slope determined by averaging dtm slopes on either side of the road.
223/226	Lindsay & Ocotillo	Gil 28	Gil 28	-	-	0.0109	-	-	147	-	-	100	No split. Downstream slope determined by averaging dtm slopes on either side of the road.
228	Val Vista & Chandler Hts.	Gil 28	Gil 28	-	0.0027	0.0110	-	73	147	-	30	70	Slope to the south determined from one side of the street only. Slope to the west determined by averaging dtm slopes on either side of the road.
229	Lindsay & Chandler Hts.	Chan 28	Chan 28	-	0.0012	0.0086	-	100	268	-	30	70	Downstream slopes determined by averaging dtm slopes on either side of the road.
231/236	Val Vista & Riggs	Chan20/ Chan28	Chan20/ Chan28	-	-	0.0116	-	-	311	-	-	100	No split. Downstream slope determined by averaging dtm slopes on either side of the road.
232	Lindsay & Riggs	Chan20/ Chan28	Chan20/ Chan28	-	-	0.0110	-	-	303	-	-	100	No split. Downstream slope determined by averaging dtm slopes on either side of the road.
233	Gilbert & Riggs	Chan 28	Chan20/ Chan28	-	-	0.0110	-	-	303	-	-	100	No split. Downstream slope determined by averaging dtm slopes on either side of the road.
VVG	Val Vista & Germann	Gil 28	Gil 28	0.0022	-	0.0068	66	-	116	40	-	60	Downstream slopes determined by averaging dtm slopes on either side of the road.
LG	Lindsay & Germann	Gil 28	Gil 28	-	0.0053	0.0053	-	102	102	-	50	50	Downstream slopes determined by averaging dtm slopes on either side of the road. Slopes determined from 2' contour interval strip mapping.

CP 206 - Chandler Blvd (Gil 21)
Cross Section for Irregular Channel

Project Description	
Worksheet	CP 206 - Chanlder Blvd (Gilbert 21)
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Discharge

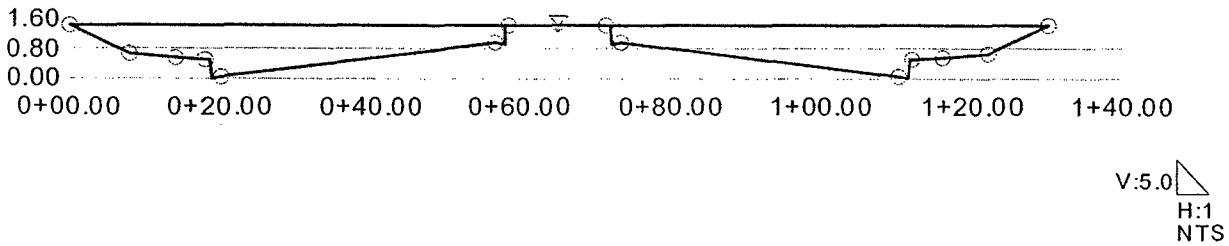
Section Data	
Mannings Coefficient	0.014
Slope	0.0019 ft/ft
Water Surface Elevation	1.41 ft
Elevation Range	0.00 to 1.41
Discharge	351.63 cfs



CP 206 - Val Vista Road (Gil 21)
Cross Section for Irregular Channel

Project Description	
Worksheet	CP 206 - Val Vista Road (Gilbert 21)
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Discharge

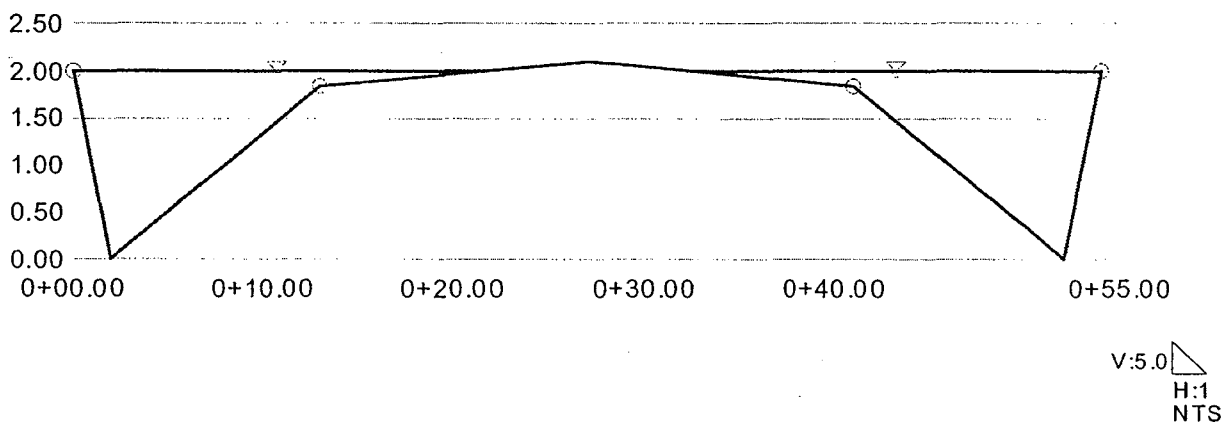
Section Data	
Mannings Coefficient	0.014
Slope	0.0104 ft/ft
Water Surface Elevation	1.41 ft
Elevation Range	0.00 to 1.41
Discharge	822.66 cfs



CP 209 - Higley Road (Gil 28)
Cross Section for Irregular Channel

Project Description	
Worksheet	CP 209 - Higley Road (Gil 28)
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Discharge

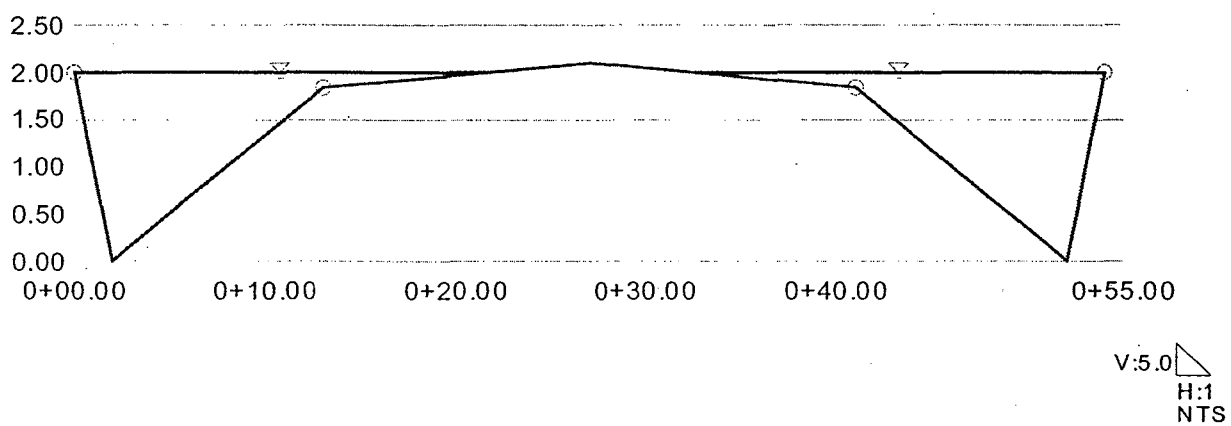
Section Data		
Mannings Coefficient	0.023	
Slope	0.0025	ft/ft
Water Surface Elevation	2.00	ft
Elevation Range	0.00 to 2.11	
Discharge	70.26	cfs



CP 209 - Pecos Road (Gil 28)
Cross Section for Irregular Channel

Project Description	
Worksheet	CP 209 - Pecos Road (Gil 28)
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Discharge

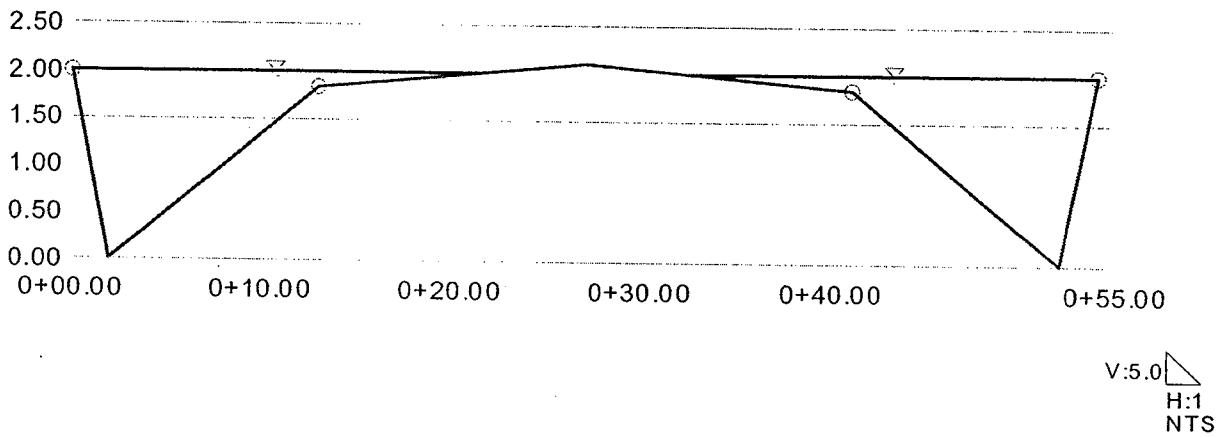
Section Data		
Mannings Coefficient	0.023	
Slope	0.0047	ft/ft
Water Surface Elevation	2.00	ft
Elevation Range	0.00 to 2.11	
Discharge	96.33	cfs



CP 216 - Greenfield Road (Gil 28)
Cross Section for Irregular Channel

Project Description	
Worksheet	CP 216 - Greenfield Road (Gil 28)
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Discharge

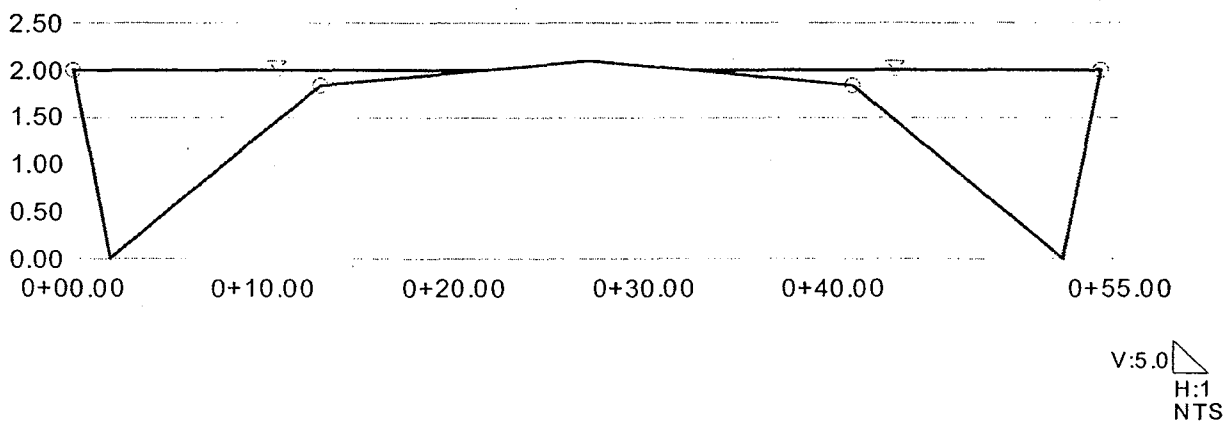
Section Data	
Mannings Coefficient	0.023
Slope	0.0015 ft/ft
Water Surface Elevation	2.00 ft
Elevation Range	0.00 to 2.11
Discharge	54.42 cfs



CP 216 - Germann Road (Gil 28)
Cross Section for Irregular Channel

Project Description	
Worksheet	CP 216 - Germann Road (Gil 28)
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Discharge

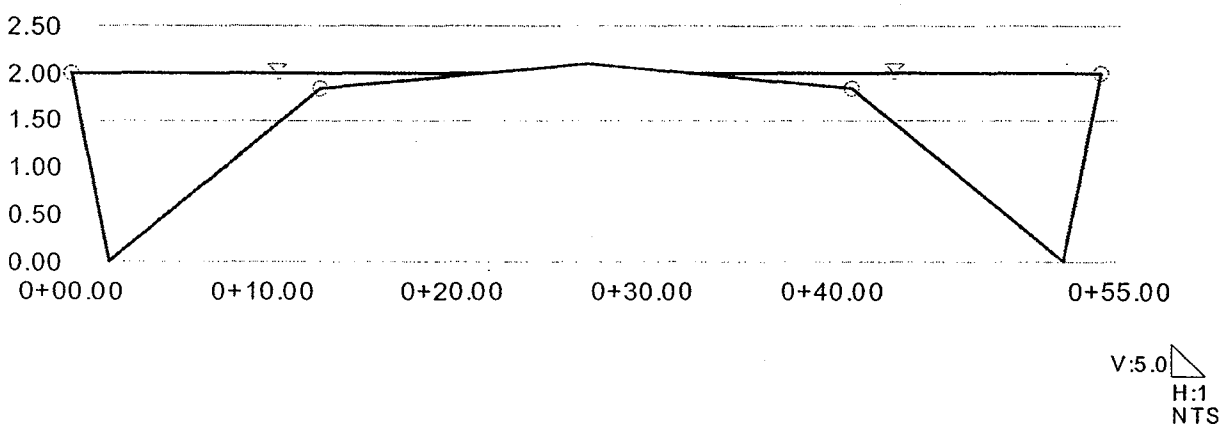
Section Data	
Mannings Coefficient	0.023
Slope	0.0082 ft/ft
Water Surface Elevation	2.00 ft
Elevation Range	0.00 to 2.11
Discharge	127.24 cfs



CP 220 - Queen Creek(Gil 28)
Cross Section for Irregular Channel

Project Description	
Worksheet	CP 220 - Queen Creek Road (Gil 28)
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Discharge

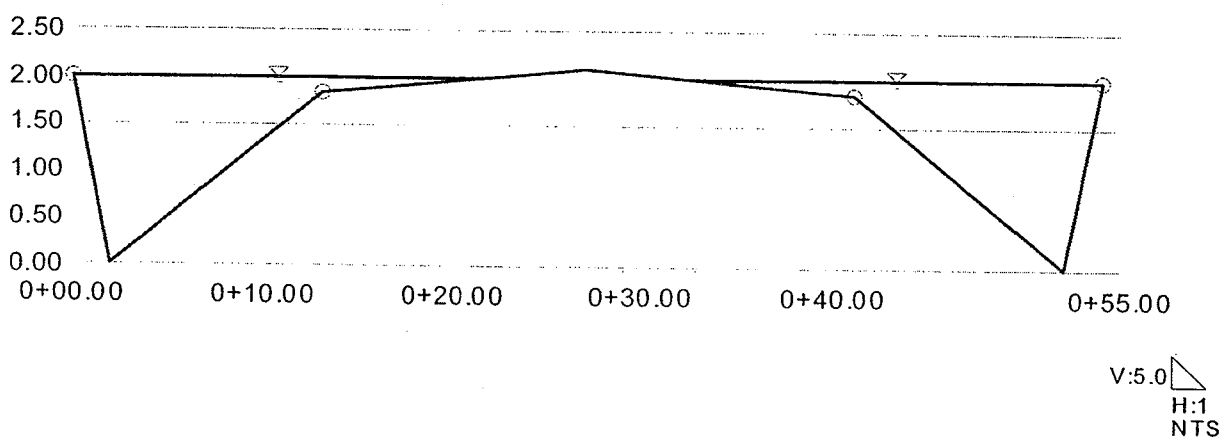
Section Data	
Mannings Coefficient	0.023
Slope	0.0013 ft/ft
Water Surface Elevation	2.00 ft
Elevation Range	0.00 to 2.11
Discharge	50.66 cfs



CP 220 - Val Vista Road (Gil 28)
Cross Section for Irregular Channel

Project Description	
Worksheet	CP 220 - Val Vista Road (Gil 28)
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Discharge

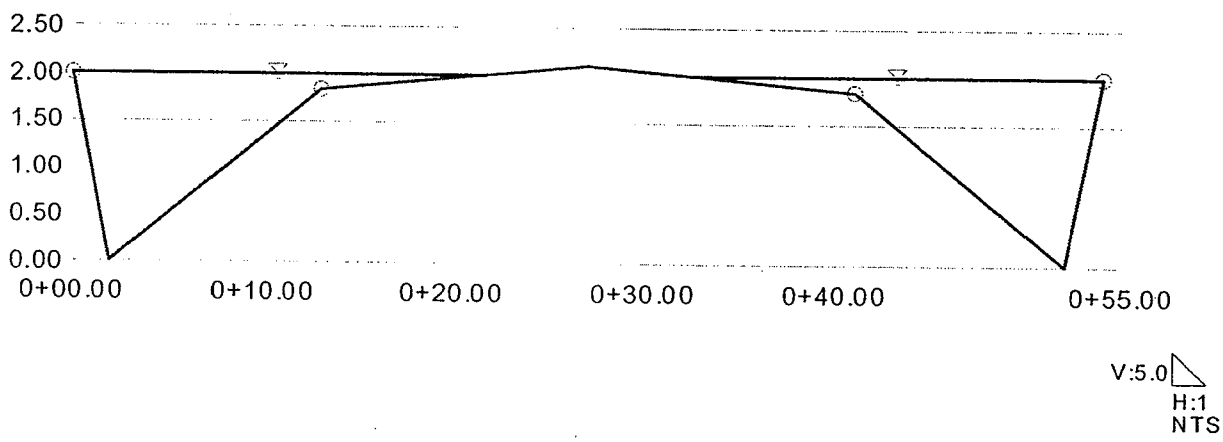
Section Data	
Mannings Coefficient	0.023
Slope	0.0047 ft/ft
Water Surface Elevation	2.00 ft
Elevation Range	0.00 to 2.11
Discharge	96.33 cfs



CP 221 - Lindsey Road (Gil 28)
Cross Section for Irregular Channel

Project Description	
Worksheet	CP 221 - Lindsay Road (Gil 28)
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Discharge

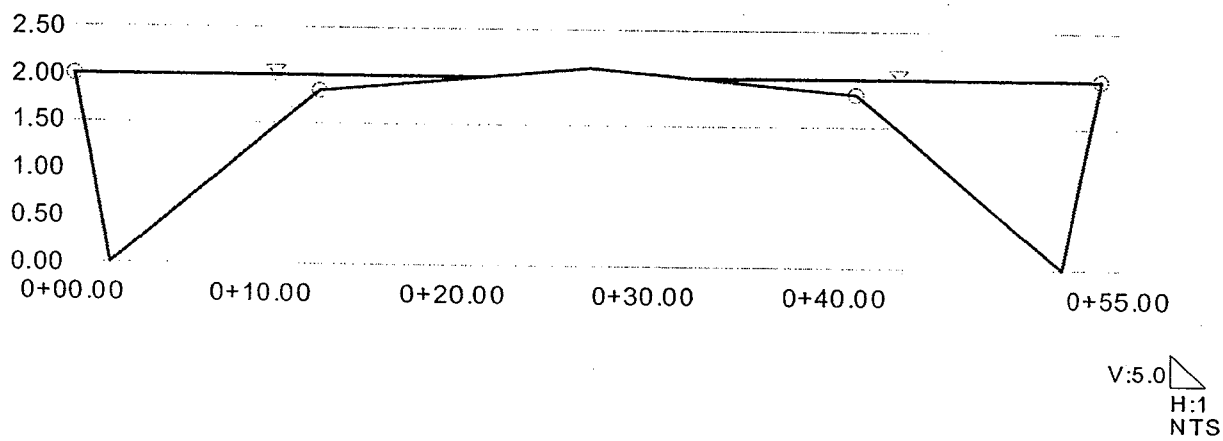
Section Data	
Mannings Coefficient	0.023
Slope	0.0023 ft/ft
Water Surface Elevation	2.00 ft
Elevation Range	0.00 to 2.11
Discharge	67.39 cfs



CP 221 - Queen Creek Road (Gil 28)
Cross Section for Irregular Channel

Project Description	
Worksheet	CP 221 - Queen Creek Road (Gil 28)
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Discharge

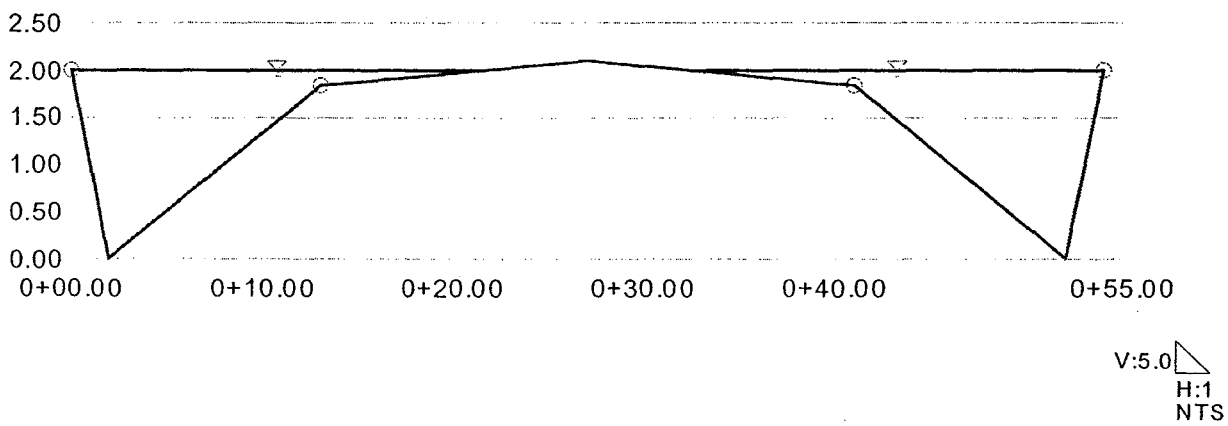
Section Data	
Mannings Coefficient	0.023
Slope	0.0075 ft/ft
Water Surface Elevation	2.00 ft
Elevation Range	0.00 to 2.11
Discharge	121.69 cfs



CP 228 - Chandler Hts. (Gil 28)
Cross Section for Irregular Channel

Project Description	
Worksheet	CP 228 - Chandler Hts. (Gil 28)
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Discharge

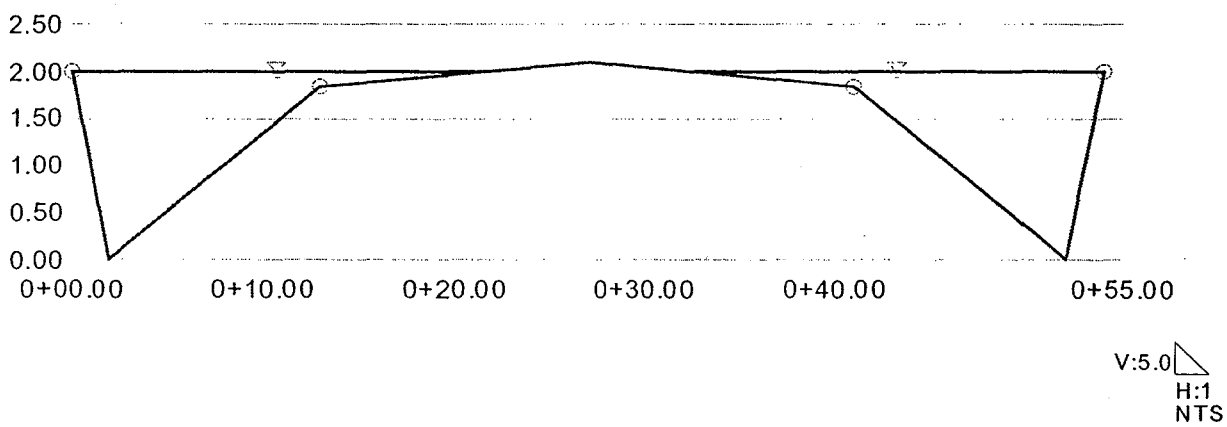
Section Data	
Mannings Coefficient	0.023
Slope	0.0110 ft/ft
Water Surface Elevation	2.00 ft
Elevation Range	0.00 to 2.11
Discharge	147.37 cfs



CP 228 - Val Vista Road (Gil 28)
Cross Section for Irregular Channel

Project Description	
Worksheet	CP 228 - Val Vista Road (Gil 28)
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Discharge

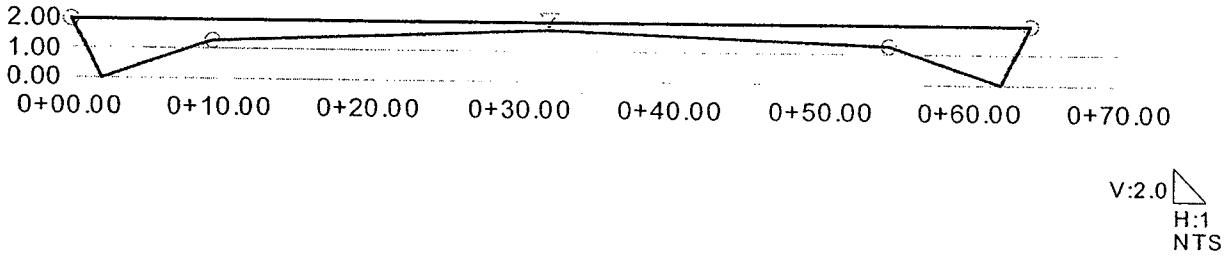
Section Data		
Mannings Coefficient	0.023	
Slope	0.0027	ft/ft
Water Surface Elevation	2.00	ft
Elevation Range	0.00 to 2.11	
Discharge	73.01	cfs



CP 229 - Chandler Hts. (Chan 28)
Cross Section for Irregular Channel

Project Description	
Worksheet	CP 229 - Chandler Hts. (Chan 28)
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Discharge

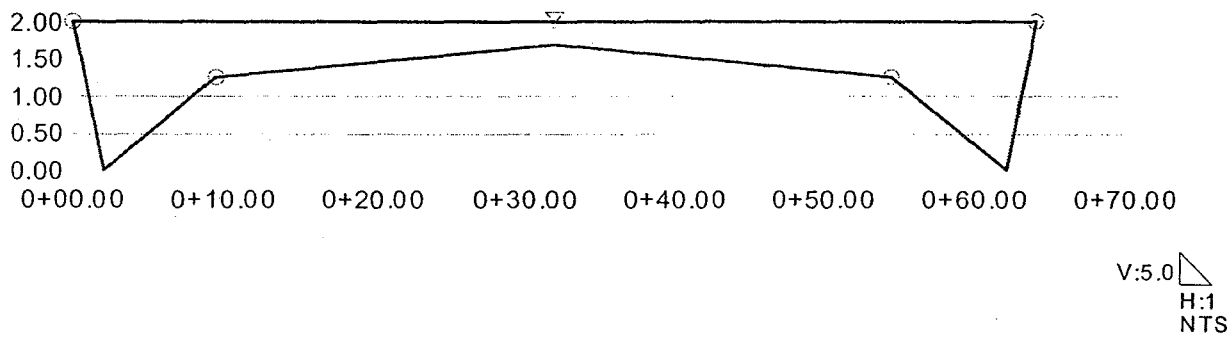
Section Data	
Mannings Coefficient	0.020
Slope	0.0086 ft/ft
Water Surface Elevation	2.00 ft
Elevation Range	0.00 to 2.00
Discharge	267.55 cfs



CP 229 - Chandler Hts. (Chan 28)
Cross Section for Irregular Channel

Project Description	
Worksheet	CP 229 - Chandler Hts. (Chan 28)
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Discharge

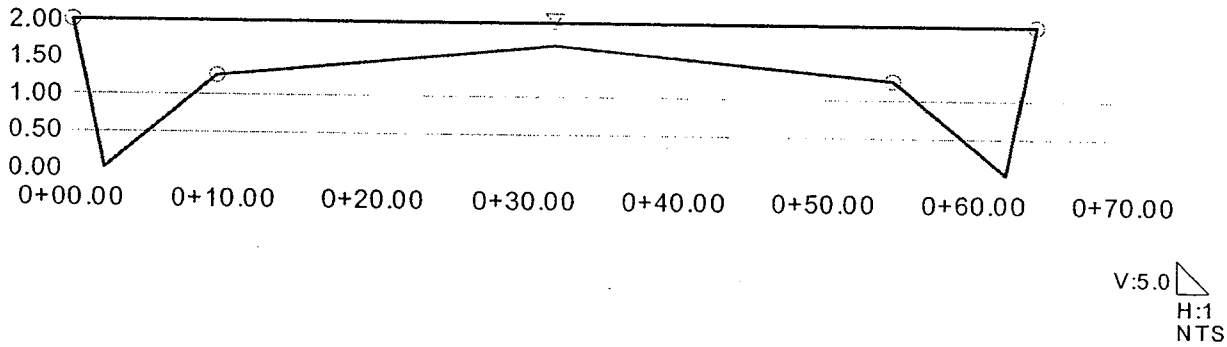
Section Data	
Mannings Coefficient	0.020
Slope	0.0086 ft/ft
Water Surface Elevation	2.00 ft
Elevation Range	0.00 to 2.00
Discharge	267.55 cfs



CP 229 - Lindsey Road (Chan 28)
Cross Section for Irregular Channel

Project Description	
Worksheet	CP 229 - Lindsay Road (Chan 28)
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Discharge

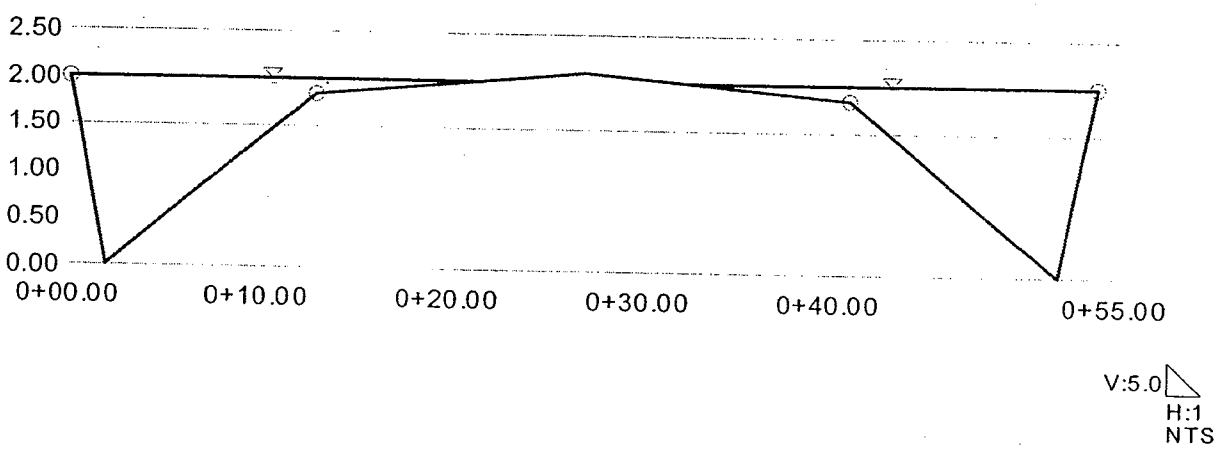
Section Data	
Mannings Coefficient	0.020
Slope	0.0012 ft/ft
Water Surface Elevation	2.00 ft
Elevation Range	0.00 to 2.00
Discharge	99.94 cfs



VVG - Germann Road (Gil 28)
Cross Section for Irregular Channel

Project Description	
Worksheet	VVG - Germann Road (Gil 28)
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Discharge

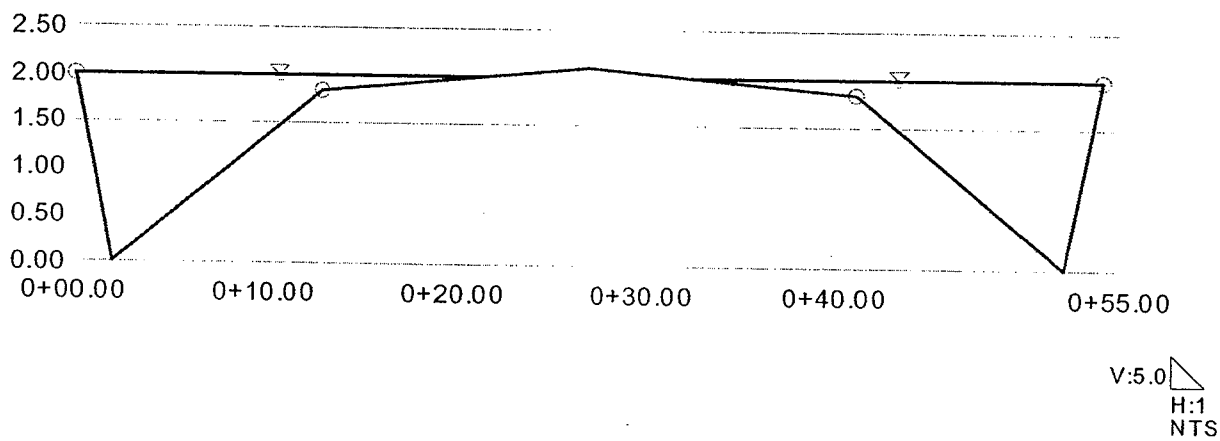
Section Data	
Mannings Coefficient	0.023
Slope	0.0068 ft/ft
Water Surface Elevation	2.00 ft
Elevation Range	0.00 to 2.11
Discharge	115.87 cfs



VVG - Val Vista (Gil 28)
Cross Section for Irregular Channel

Project Description	
Worksheet	VVG - Val Vista Road (Gil 28)
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Discharge

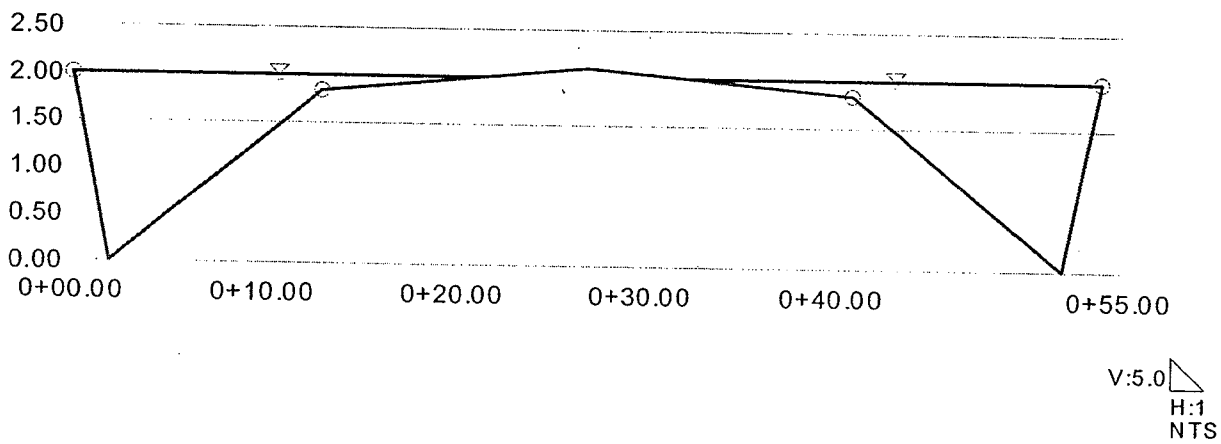
Section Data	
Mannings Coefficient	0.023
Slope	0.0022 ft/ft
Water Surface Elevation	2.00 ft
Elevation Range	0.00 to 2.11
Discharge	65.91 cfs



LG - Germann Road (Gil 28)
Cross Section for Irregular Channel

Project Description	
Worksheet	LG- Germann Road (Gil 28)
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Discharge

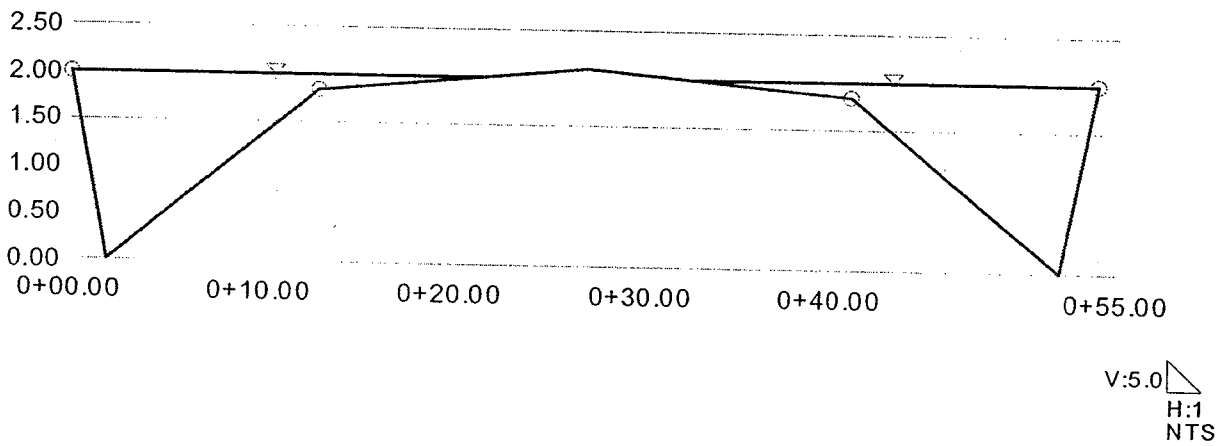
Section Data	
Mannings Coefficient	0.023
Slope	0.0053 ft/ft
Water Surface Elevation	2.00 ft
Elevation Range	0.00 to 2.11
Discharge	102.30 cfs



LG - Lindsey Road (Gil 28)
Cross Section for Irregular Channel

Project Description	
Worksheet	LG - Lindsay Road (Gil 28)
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Discharge

Section Data	
Mannings Coefficient	0.023
Slope	0.0053 ft/ft
Water Surface Elevation	2.00 ft
Elevation Range	0.00 to 2.11
Discharge	102.30 cfs



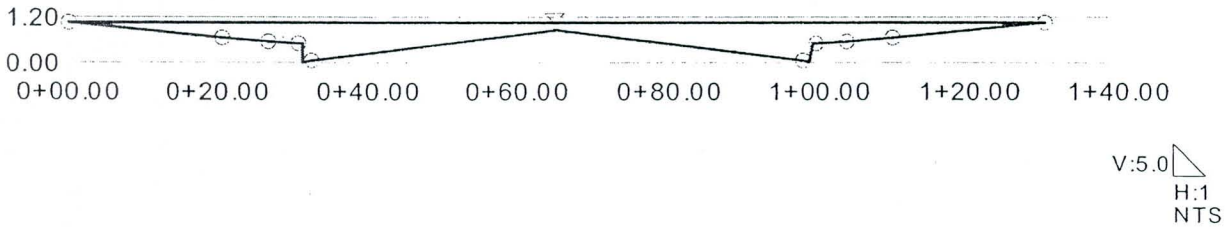
CHANDLER/GILBER
PHASE 1 - NORTH, EASTERN CANAL WATERSHED
INTERSECTION ANALYSIS

CP	Intersection Designation (north/south & east/west)	Typical Cross Section		Downstream Slope (ft/ft)			Cross Section Capacity (cfs)			Flow Split (%)			Notes
		N/S	E/W	N	S	W	N	S	W	N	S	W	
103	Recker & Guadalupe	Gil 22	Gil 22	-	0.0021	0.0070	-	169	309	-	40	60	Downstream slopes determined by averaging dtm slopes on either side of the road.
104	Higley & Guadalupe	Gil 21	Gil 21	-	0.0089	0.0077	-	761	708	-	50	50	Downstream slopes determined by averaging dtm slopes on either side of the road.
109	Recker & Elliot	Gil 22/Gil 21	Gil 22/Gil 21	-	-	0.0070	-	-	-	-	-	100	No split. Downstream slope determined by averaging dtm slopes on either side of the road.
110/113	Higley & Elliot	Gil 28/Gil 21	Gil 28/Gil 22	-	-	0.0031	-	-	-	-	-	100	No split. Downstream slope determined by averaging dtm slopes on either side of the road.
116	Recker & Warner	Gil 28	Gil 28	0.0013	-	0.0133	50	-	161	20	-	80	Downstream slopes determined by averaging dtm slopes on either side of the road.
117	Higley & Warner	Gil 22	Gil 22	-	-	0.0043	-	-	-	-	-	100	No split. Downstream slope determined by averaging dtm slopes on either side of the road.
122	Recker & Ray	Gil 22	Gil 22	0.0028	-	0.0073	195	-	120	60	-	40	Slope to the north was determined from one side of the street only. Slope to the west was determined by averaging dtm slopes on either side of the road.
123	Higley & Ray	Gil 28	Gil 22	0.0032	-	0.0012	79	-	128	40	-	60	Slope in each downstream direction was determined using only one side of the road.

CP 103-Guadalupe Road (Gil 22)
Cross Section for Irregular Channel

Project Description	
Worksheet	CP 103-Guadalupe Road (G
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Discharge

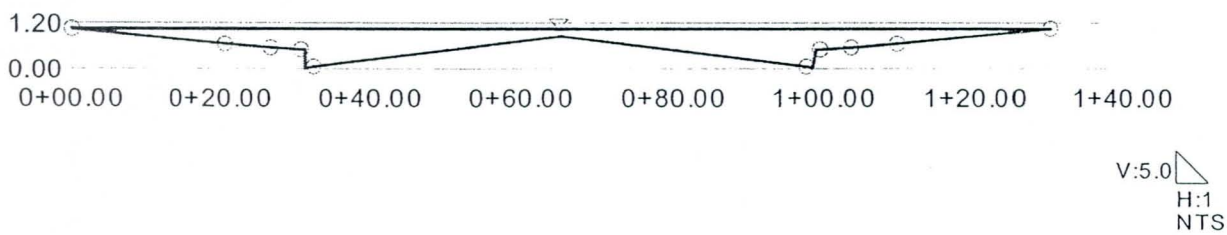
Section Data		
Mannings Coefficie	0.014	
Slope	0.0070	ft/ft
Water Surface Elev	1.06	ft
Elevation Range	.00 to 1.06	
Discharge	309.04	cfs



CP 103-Recker Road (Gil 22)
Cross Section for Irregular Channel

Project Description	
Worksheet	CP 103-Recker Road (Gill
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Discharge

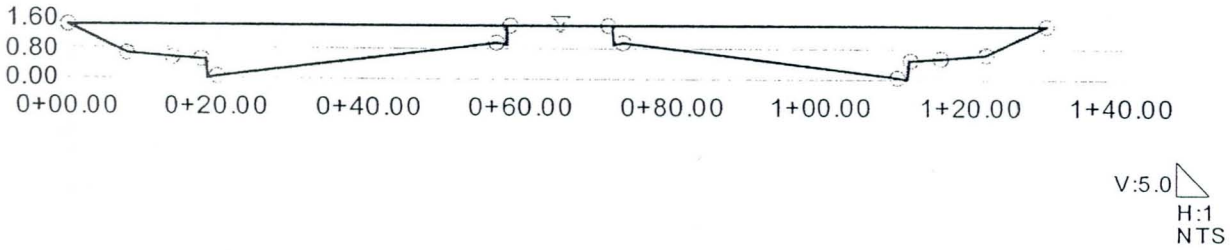
Section Data		
Mannings Coefficiei	0.014	
Slope	0.0021	ft/ft
Water Surface Elev	1.06	ft
Elevation Range	.00 to 1.06	
Discharge	169.27	cfs



CP 104-Guadalupe Road (Gil 21)
Cross Section for Irregular Channel

Project Description	
Worksheet	CP 104-Guadalupe Road
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Discharge

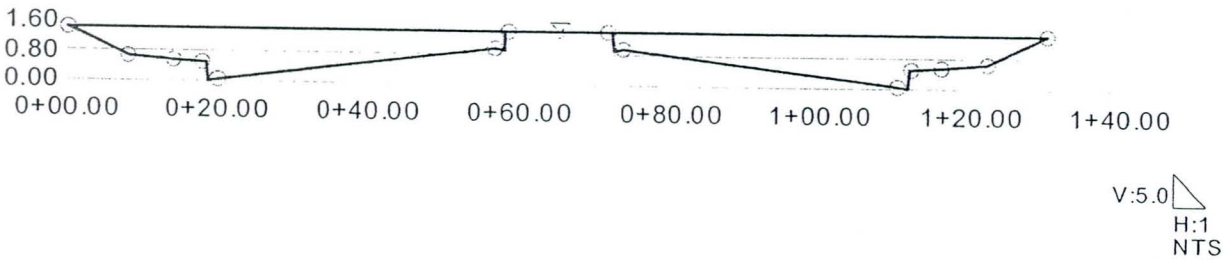
Section Data		
Mannings Coefficie	0.014	
Slope	0.0077	ft/ft
Water Surface Elev	1.41	ft
Elevation Range	.00 to 1.41	
Discharge	707.87	cfs



CP 104-Higley Road (Gil 21)
Cross Section for Irregular Channel

Project Description	
Worksheet	CP 104-Higley Road ((
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Discharge

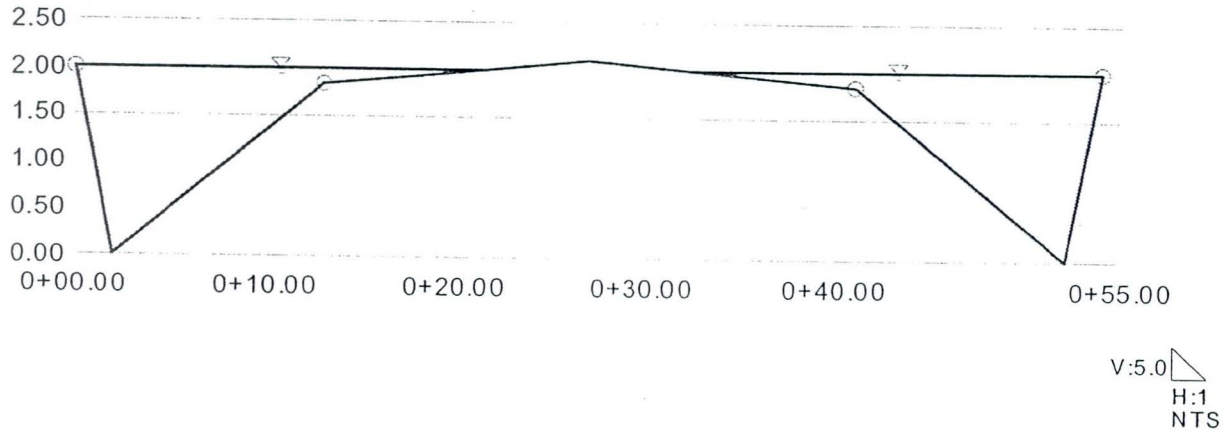
Section Data	
Mannings Coefficier	0.014
Slope	0.0089 ft/ft
Water Surface Elev	1.41 ft
Elevation Range	.00 to 1.41
Discharge	761.03 cfs



CP 116-Recker Road (Gil 28)
Cross Section for Irregular Channel

Project Description	
Worksheet	CP 116-Recker Road (
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Discharge

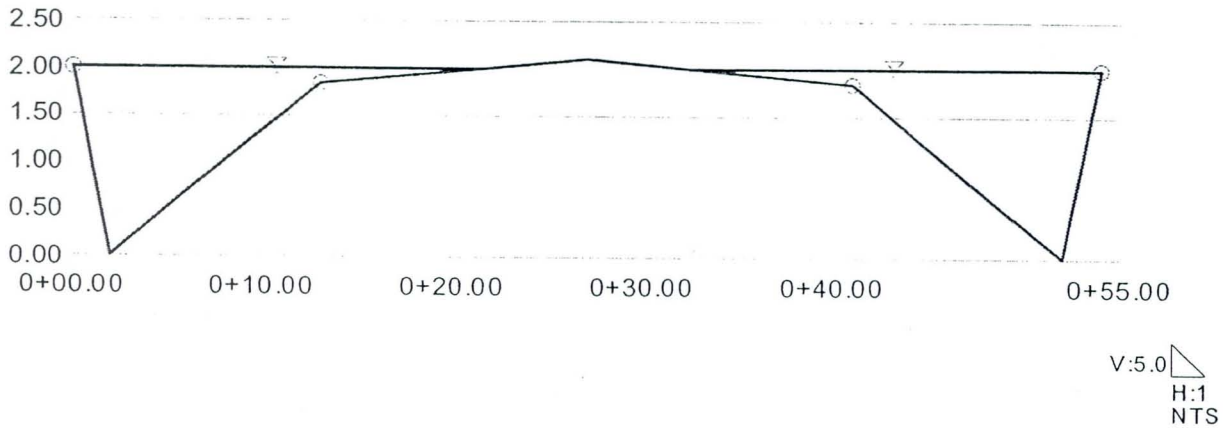
Section Data	
Mannings Coefficie	0.023
Slope	0.0013 ft/ft
Water Surface Elev	2.00 ft
Elevation Range	.00 to 2.11
Discharge	50.66 cfs



CP 116-Warner Road (Gil 28)
Cross Section for Irregular Channel

Project Description	
Worksheet	CP 116-Warner Road (
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Discharge

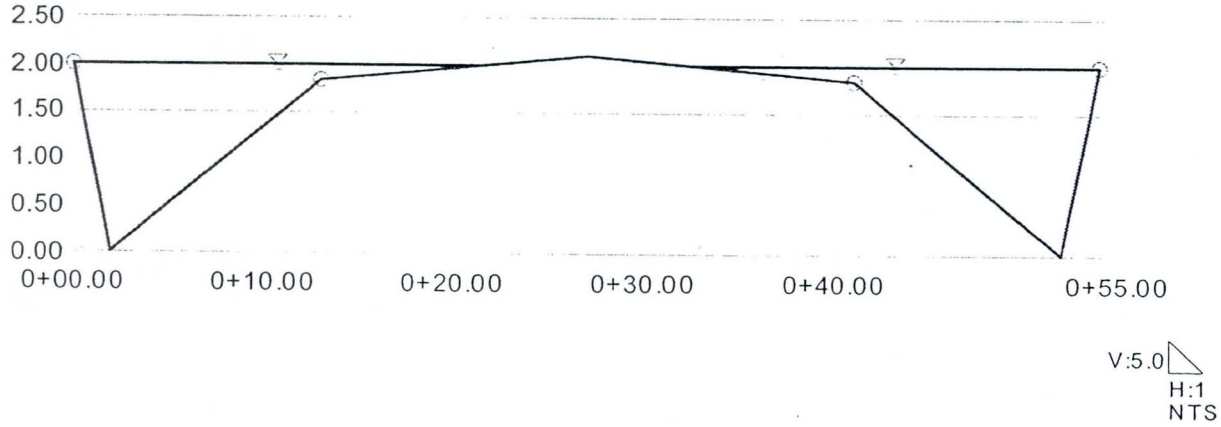
Section Data		
Mannings Coefficie	0.023	
Slope	0.0133	ft/ft
Water Surface Elev	2.00	ft
Elevation Range	.00 to 2.11	
Discharge	162.05	cfs



CP 122-Ray Road (Gil 28)
Cross Section for Irregular Channel

Project Description	
Worksheet	CP 122-Ray Road ((
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Discharge

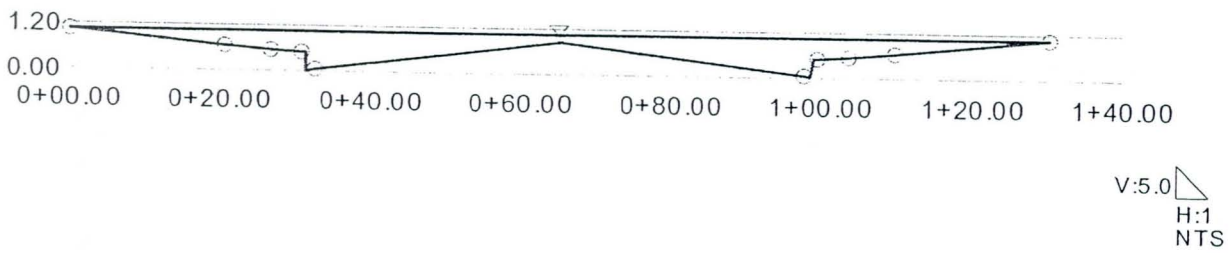
Section Data		
Mannings Coefficie	0.023	
Slope	0.0073	ft/ft
Water Surface Elev	2.00	ft
Elevation Range	.00 to 2.11	
Discharge	120.06	cfs



CP 122-Recker Road (Gil 22)
Cross Section for Irregular Channel

Project Description	
Worksheet	CP 122-Recker Road (Gill
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Discharge

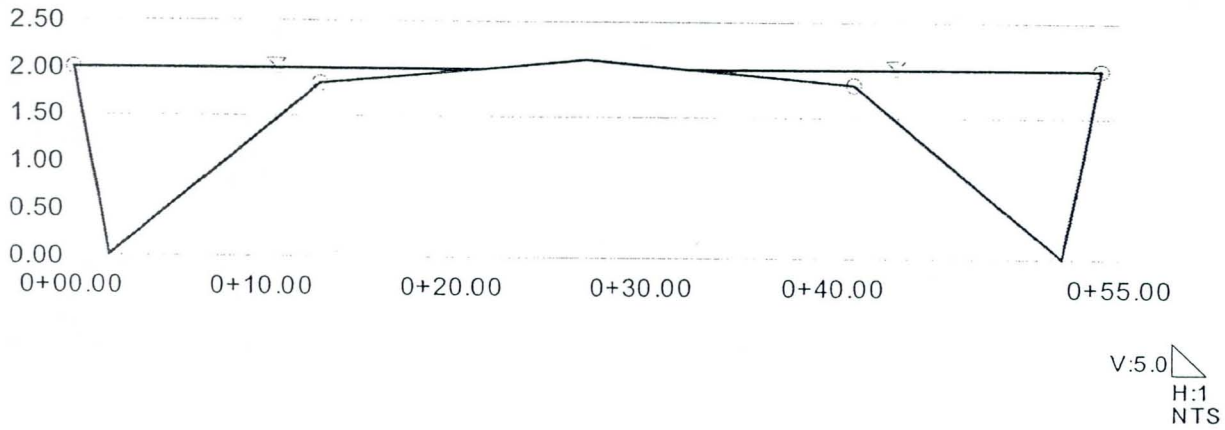
Section Data	
Mannings Coefficie	0.014
Slope	0.0028 ft/ft
Water Surface Elev	1.06 ft
Elevation Range	.00 to 1.06
Discharge	195.46 cfs



CP 123-Higley Road (Gil 28)
Cross Section for Irregular Channel

Project Description	
Worksheet	CP 123-Higley Road ((
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Discharge

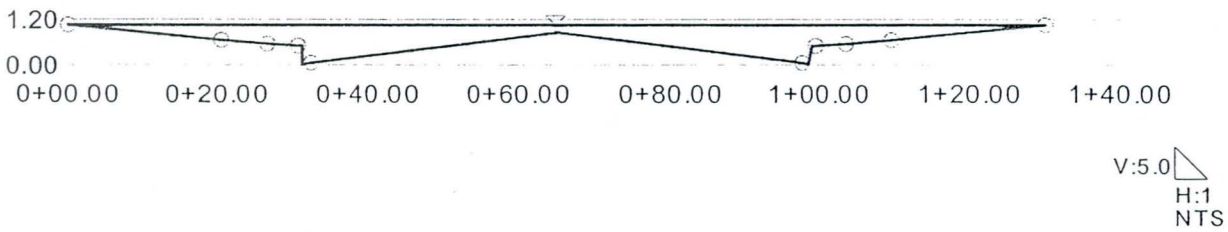
Section Data		
Mannings Coefficie	0.023	
Slope	0.0032	ft/ft
Water Surface Elev	2.00	ft
Elevation Range	.00 to 2.11	
Discharge	79.49	cfs

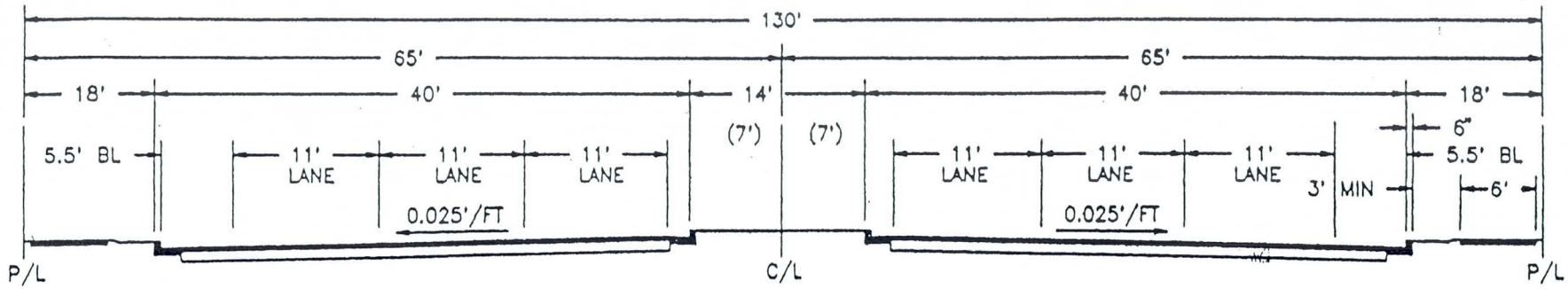


CP 123-Ray Road (Gil 22)
Cross Section for Irregular Channel

Project Description	
Worksheet	CP 123-Ray Road (Gilbert 22)
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Discharge

Section Data		
Mannings Coefficient	0.014	
Slope	0.0012	ft/ft
Water Surface Elevation	1.06	ft
Elevation Range	0.00 to 1.06	
Discharge	127.96	cfs



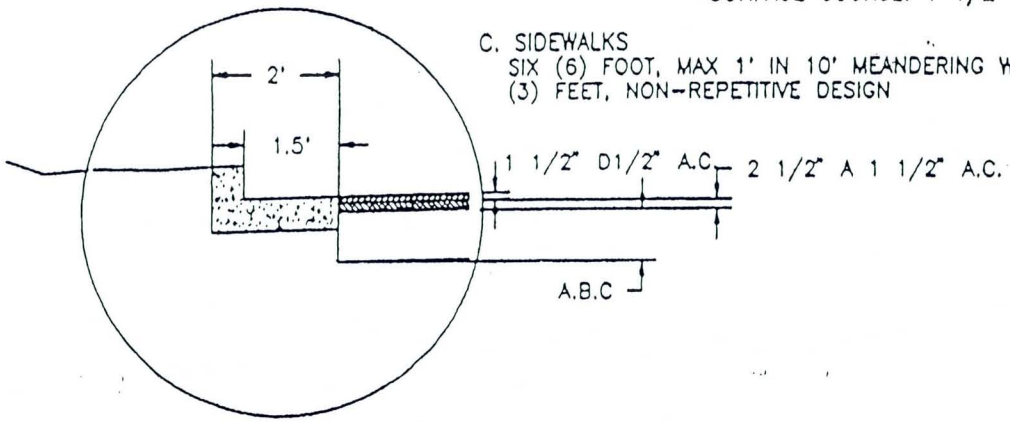


6 MOVING LANES

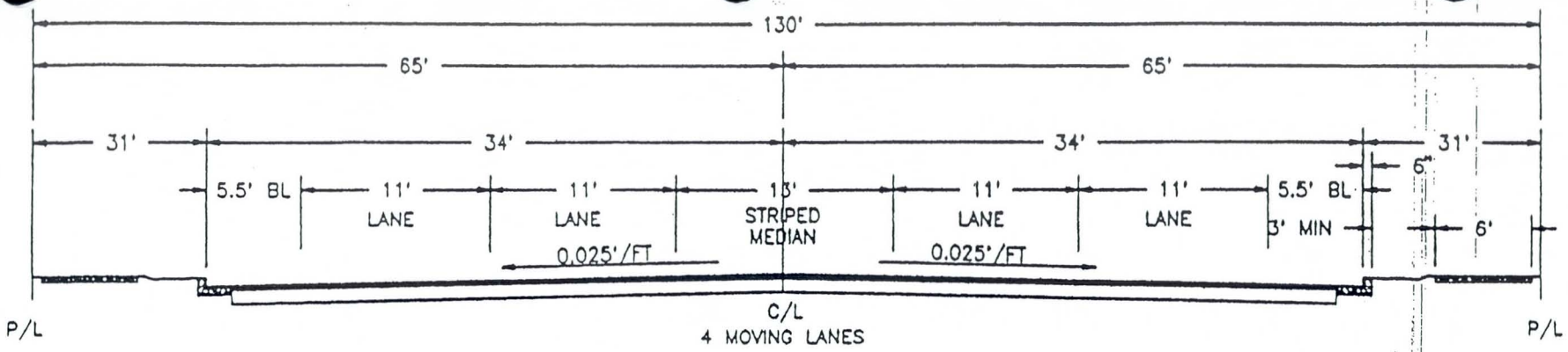
A. CONCRETE
1. CURB: M.A.G. STANDARD DETAIL 220 TYPE A. ALL CONCRETE M.A.G. STD.SPEC. CLASS "B"
2. SIDEWALK: M.A.G. STANDARD DETAIL 230 ALL CONCRETE M.A.G. STD. SPEC. CLASS "B"

B. PAVING
1. AGGREGATE BASE COURSE:
   A. THICKNESS: TOWN OF GILBERT STANDARD DETAIL 33
   B. MATERIAL: CONFORMING TO SECTION 702.2 M.A.G. STANDARD SPECIFICATIONS
2. ASPHALTIC CONCRETE:
   A. THICKNESS FOUR (4") INCH MINIMUM PLACED IN TWO LIFTS.
   B. MATERIAL: CONFORMING TO M.A.G. STANDARD SPECIFICATIONS 710 (WITHOUT LIME)
      BASE COURSE: 2 1/2"-A 1 1/2" MIX/5.0% OIL
      SURFACE COURSE: 1 1/2"-D 1/2"MIX/6.0% OIL

C. SIDEWALKS
SIX (6) FOOT, MAX 1' IN 10' MEANDERING WALKWAY, DETACHED FROM C&G NO LESS THAN THREE (3) FEET, NON-REPETITIVE DESIGN



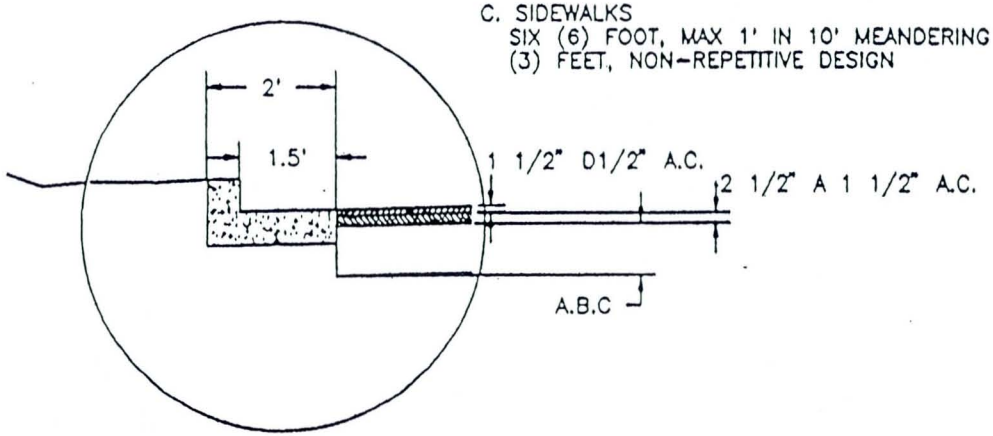
DETAIL NO. 21	TOWN OF GILBERT STANDARD DETAIL	MAJOR ARTERIAL STREET	REVISED 8/1/95	DETAIL NO. 21



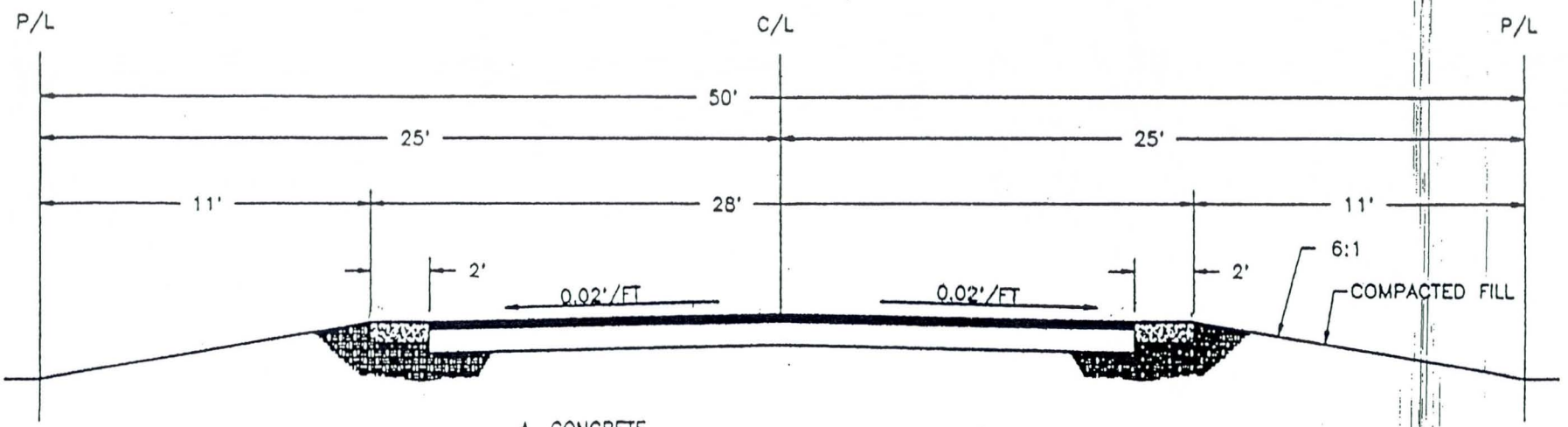
A. CONCRETE
1. CURB: M.A.G. STANDARD DETAIL 220 TYPE A. ALL CONCRETE M.A.G. STD.SPEC. CLASS "B"
2. SIDEWALK: M.A.G. STANDARD DETAIL 230 ALL CONCRETE M.A.G. STD. SPEC. CLASS "B"

B. PAVING
1. AGGREGATE BASE COURSE:
   A. THICKNESS: TOWN OF GILBERT STANDARD DETAIL 33
   B. MATERIAL: CONFORMING TO SECTION 702.2 M.A.G. STANDARD SPECIFICATIONS
2. ASPHALTIC CONCRETE:
   A. THICKNESS FOUR (4") INCH MINIMUM PLACED IN TWO LIFTS
   B. MATERIAL: CONFORMING TO M.A.G. STANDARD SPECIFICATIONS 710 (WITHOUT LIME)
      BASE COURSE: 2 1/2"-A 1 1/2" MIX/5.0% OIL
      SURFACE COURSE: 1 1/2"-D 1/2"MIX/6.0% OIL

C. SIDEWALKS
SIX (6) FOOT, MAX 1' IN 10' MEANDERING WALKWAY, DETACHED FROM C&G NO LESS THAN THREE (3) FEET, NON-REPETITIVE DESIGN

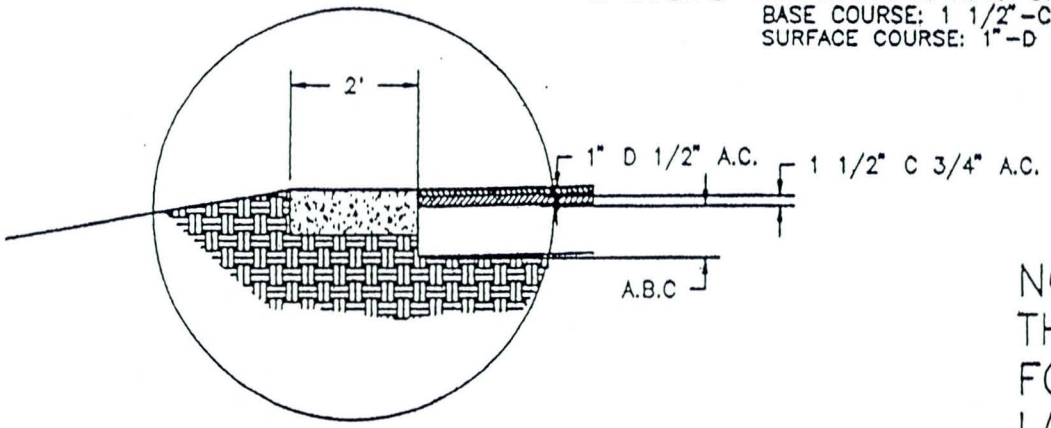


DETAIL NO. 22	TOWN OF GILBERT STANDARD DETAIL	MINOR ARTERIAL STREET	REVISED 8/1/95	DETAIL NO. 22



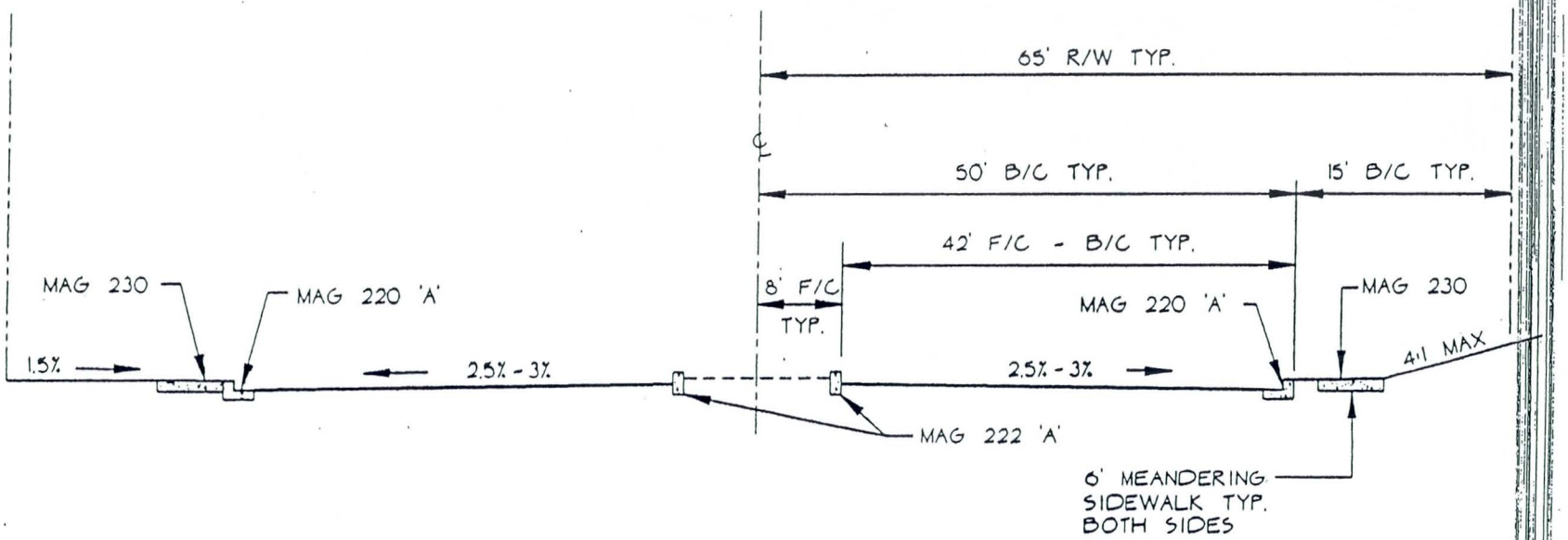
A. CONCRETE
1. CURB: M.A.G. STANDARD DETAIL 220 TYPE B. ALL CONCRETE M.A.G. STD.SPEC. CLASS "B"
ALL CONCRETE M.A.G. STD. SPEC. CLASS "B"

B. PAVING
1. AGGREGATE BASE COURSE:
A. THICKNESS: TOWN OF GILBERT STANDARD DETAIL 36
B. MATERIAL: CONFORMING TO SECTION 702.2 M.A.G. STANDARD SPECIFICATIONS
2. ASPHALTIC CONCRETE:
A. THICKNESS TWO AND A HALF (2 1/2") INCH MINIMUM PLACED IN TWO LIFTS
B. MATERIAL: CONFORMING TO M.A.G. STANDARD SPECIFICATIONS 710 (WITHOUT LIME)
BASE COURSE: 1 1/2"-C 3/4" MIX/5.5% OIL
SURFACE COURSE: 1"-D 1/2" MIX/6.0% OIL



NOTE:
THIS SECTION IS ONLY FOR LOTS 1 ACRE OR LARGER

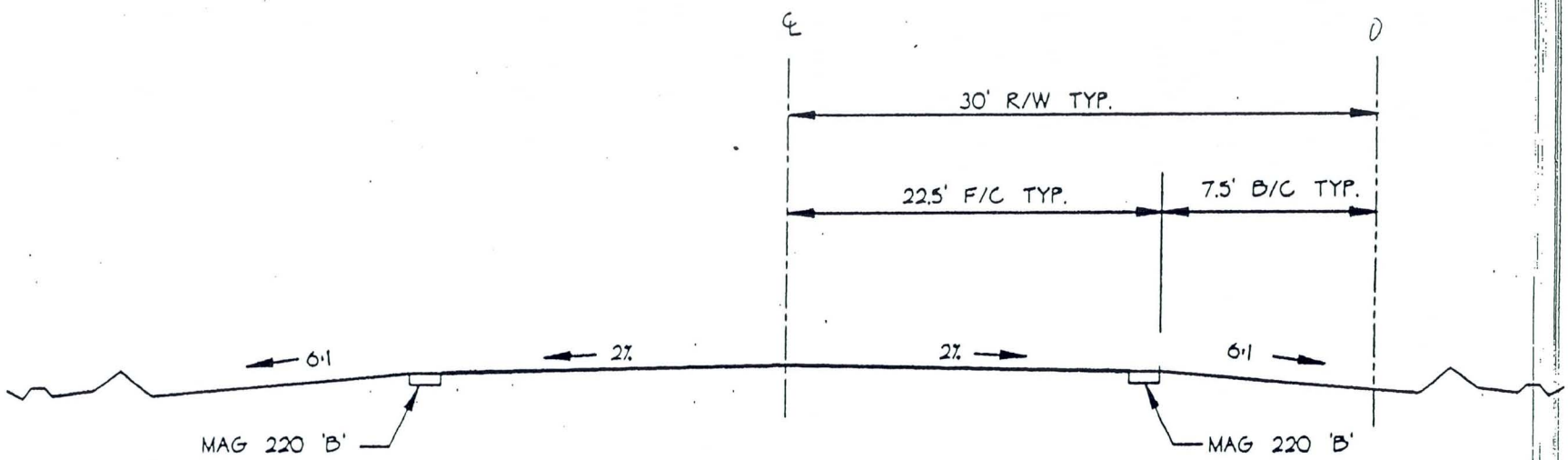
DETAIL NO. 28	TOWN OF GILBERT STANDARD DETAIL	AGRARIAN STREET	REVISED 8/1/95	DETAIL NO. 28



NOTES:

1. THE SUBGRADE SHALL BE PREPARED IN ACCORDANCE WITH MAG STANDARD SPECIFICATIONS, SEC. 301.
2. BASE COURSE:
   A. THE THICKNESS SHALL CONFORM TO CITY OF CHANDLER STANDARD DETAIL 33.
   B. ALL CONSTRUCTION AND MATERIALS SHALL CONFORM TO MAG STANDARD SPECIFICATIONS, SECS. 310 AND 702.
3. ASPHALTIC CONCRETE PAVEMENT:
   A. THE THICKNESS SHALL BE A MIN. OF 4 INCHES, 1" OF D1/2" MIX AND 3" OF C3/4" MIX OR A1-1/2" EVAC.
   B. ALL CONSTRUCTION AND MATERIALS SHALL CONFORM TO MAG STANDARD SPECIFICATIONS, SECS. 321 AND 710.
4. ADDITIONAL RIGHT-OF-WAY SHALL BE PROVIDED WHERE NECESSARY TO ACCOMMODATE DOUBLE LEFT TURN LANES OR RIGHT TURN LANES WARRANTED BY TRAFFIC DEMANDS.
5. MEDIAN END SHALL BE RAMP PER CITY OF CHANDLER STANDARD DETAIL 37.
6. MEDIAN LANDSCAPE AREA SHALL BE PER DETAIL NO. 24 OF CITY OF CHANDLER GUIDELINES FOR LANDSCAPING AND IRRIGATION OF RIGHTS-OF-WAY. (MOUNDING IN MEDIAN NOT PERMITTED).

DETAIL NO.					DETAIL NO.
20		CITY OF CHANDLER STANDARD DETAIL OCTOBER 1996	**MAJOR ARTERIAL STREETS** **TYPICAL CROSS SECTION**	APPROVED: Karen Burfort CITY ENGINEER DATE: October, 1996	20
NTS					NTS



NOTES:

1. THE SUBGRADE SHALL BE PREPARED IN ACCORDANCE WITH MAG STANDARD SPECIFICATIONS, SEC. 301.

2. BASE COURSE:

   A. THE THICKNESS SHALL CONFORM TO CITY OF CHANDLER STANDARD DETAIL 35.

   B. ALL CONSTRUCTION AND MATERIALS SHALL CONFORM TO MAG STANDARD SPECIFICATIONS, SECS. 310 AND 702.

3. ASPHALTIC CONCRETE PAVEMENT:

   A. THE THICKNESS SHALL BE A MINIMUM OF 2" OF C3/4" MIX EVAC.

   B. A PRESERVATIVE SEAL COAT CONFORMING TO MAG STANDARD SPECIFICATIONS 334, AND SHALL BE EMULSIFIED ASPHALT GRADE SS-1H PER MAG STANDARD SPECIFICATIONS, SEC. 713.

   C. ALL CONSTRUCTION AND MATERIALS SHALL CONFORM TO MAG STANDARD SPECIFICATIONS, SECS. 321 AND 710.

4. 0.2% MINIMUM LONGITUDINAL GRADE ALLOWED.

DETAIL NO. **28** NTS	CITY OF CHANDLER STANDARD DETAIL OCTOBER 1996	**AGRARIAN COLLECTOR STREET** **TYPICAL CROSS SECTION**	APPROVED: Karen Burton Acting CITY ENGINEER DATE: October 1996	DETAIL NO. **28** NTS

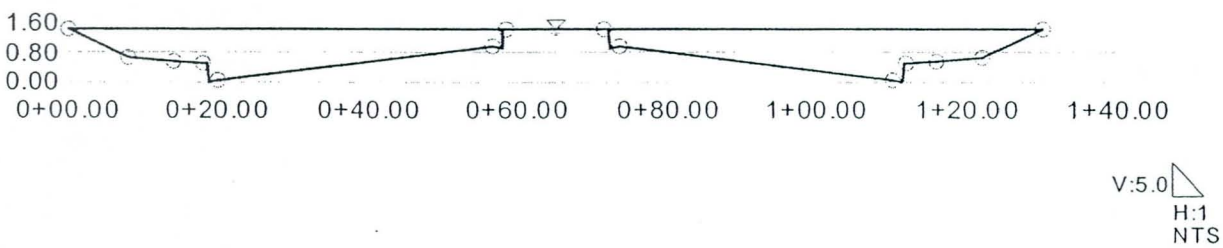
CHANDLER/GILBERT
PHASE 1 -SOUTH, EASTERN CANAL WATERSHED
INTERSECTION ANALYSIS

CP	Intersection Designation (north/south & east/west)	Typical Cross Section		Downstream Slope (ft/ft)			Cross Section Capacity (cfs)			Flow Split (%)			Notes
		N/S	E/W	N	S	W	N	S	W	N	S	W	
206	Val Vista & Chandler	Gil 21	Gil 21	0.0104	-	0.0019	823	-	351	70	-	30	Downstream slopes based on aerial strip mapping along Eastern Canal.
209	Higley & Pecos	Gil 22/ Gil 28	Gil 28	0.0025	-	0.0047	70	-	96	40	-	60	Slope to the north determined from one side of the street only. Slope to the west determined by averaging dtm slopes on either side of the road.
210	Greenfield & Pecos	-	-	-	-	-	-	-	-	-	-	-	No split. Flow intercepted by Santan Channel.
216	Greenfield & Germann	Gil 28	Gil 28	0.0015	-	0.0082	54	-	127	30	-	70	Slopes determined from one side of the street only.
220	Val Vista & Queen Creek	Gil 28	Gil 28	0.0047	-	0.0013	96	-	51	70	-	30	Slope to the north determined from one side of the street only. Slope to the west determined by averaging dtm slopes on either side of the road. Queen Creek west of intersection is unpaved.
221	Lindsay & Queen Creek	Gil 28	Gil 28	0.0023	-	0.0075	67	-	122	40	-	60	Slope to the north determined by averaging dtm slopes on either side of the road. Slope to the west determined from one side of the street only. Queen Creek east of intersection is unpaved. Lindsay unpaved.
222/225	Val Vista & Ocotillo	Gil 28	Gil 28	-	-	0.0064	-	-	112	-	-	100	No split. Downstream slope determined by averaging dtm slopes on either side of the road.
223/226	Lindsay & Ocotillo	Gil 28	Gil 28	-	-	0.0109	-	-	147	-	-	100	No split. Downstream slope determined by averaging dtm slopes on either side of the road.
228	Val Vista & Chandler Hts.	Gil 28	Gil 28	-	0.0027	0.0110	-	73	147	-	30	70	Slope to the south determined from one side of the street only. Slope to the west determined by averaging dtm slopes on either side of the road.
229	Lindsay & Chandler Hts.	Chan 28	Chan 28	-	0.0012	0.0086	-	100	268	-	30	70	Downstream slopes determined by averaging dtm slopes on either side of the road.
231/236	Val Vista & Riggs	Chan20/ Chan28	Chan20/ Chan28	-	-	0.0116	-	-	311	-	-	100	No split. Downstream slope determined by averaging dtm slopes on either side of the road.
232	Lindsay & Riggs	Chan20/ Chan28	Chan20/ Chan28	-	-	0.0110	-	-	303	-	-	100	No split. Downstream slope determined by averaging dtm slopes on either side of the road.
233	Gilbert & Riggs	Chan 28	Chan20/ Chan28	-	-	0.0110	-	-	303	-	-	100	No split. Downstream slope determined by averaging dtm slopes on either side of the road.
VVG	Val Vista & Germann	Gil 28	Gil 28	0.0022	-	0.0068	66	-	116	40	-	60	Downstream slopes determined by averaging dtm slopes on either side of the road.
LG	Lindsay & Germann	Gil 28	Gil 28	-	0.0053	0.0053	-	102	102	-	50	50	Downstream slopes determined by averaging dtm slopes on either side of the road. Slopes determined from 2' contour interval strip mapping.

CP 206 - Chandler Blvd (Gil 21)
Cross Section for Irregular Channel

Project Description	
Worksheet	CP 206 - Chanlder Blvd (Gilbert 21)
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Discharge

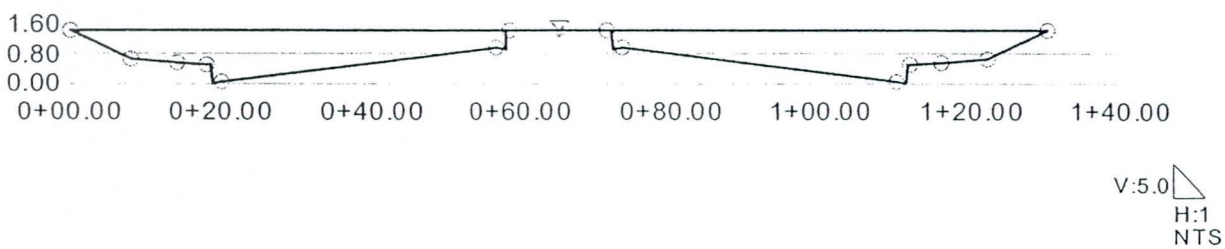
Section Data	
Mannings Coefficient	0.014
Slope	0.0019 ft/ft
Water Surface Elevation	1.41 ft
Elevation Range	0.00 to 1.41
Discharge	351.63 cfs



CP 206 - Val Vista Road (Gil 21)
Cross Section for Irregular Channel

Project Description	
Worksheet	CP 206 - Val Vista Road (Gilbert 21)
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Discharge

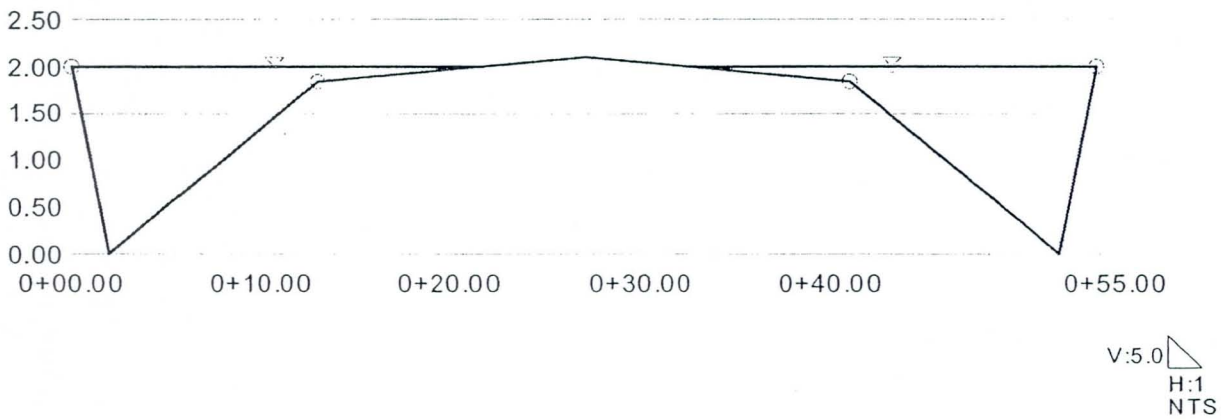
Section Data	
Mannings Coefficient	0.014
Slope	0.0104 ft/ft
Water Surface Elevation	1.41 ft
Elevation Range	0.00 to 1.41
Discharge	822.66 cfs



CP 209 - Higley Road (Gil 28)
Cross Section for Irregular Channel

Project Description	
Worksheet	CP 209 - Higley Road (Gil 28)
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Discharge

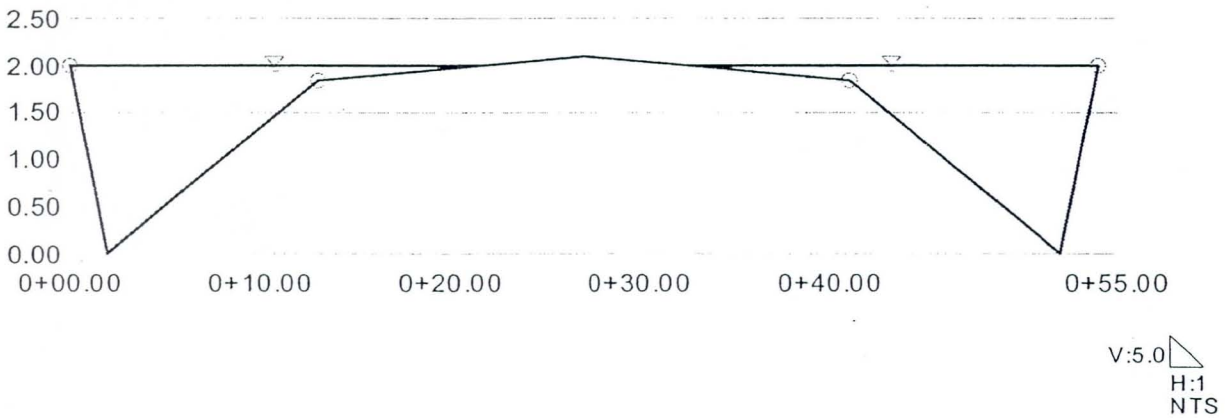
Section Data		
Mannings Coefficient	0.023	
Slope	0.0025	ft/ft
Water Surface Elevation	2.00	ft
Elevation Range	0.00 to 2.11	
Discharge	70.26	cfs



CP 209 - Pecos Road (Gil 28)
Cross Section for Irregular Channel

Project Description	
Worksheet	CP 209 - Pecos Road (Gil 28)
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Discharge

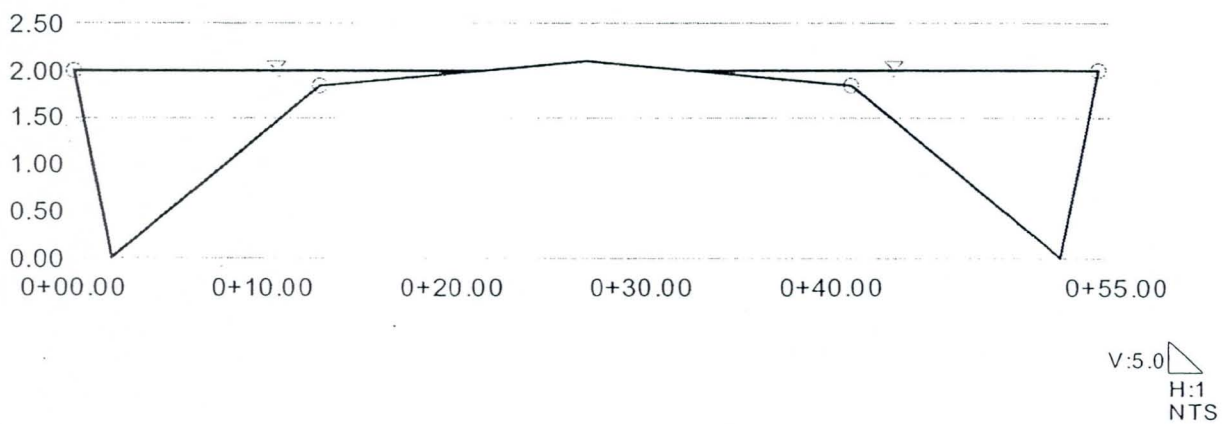
Section Data	
Mannings Coefficient	0.023
Slope	0.0047 ft/ft
Water Surface Elevation	2.00 ft
Elevation Range	0.00 to 2.11
Discharge	96.33 cfs



CP 216 - Greenfield Road (Gil 28)
Cross Section for Irregular Channel

Project Description	
Worksheet	CP 216 - Greenfield Road (Gil 28)
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Discharge

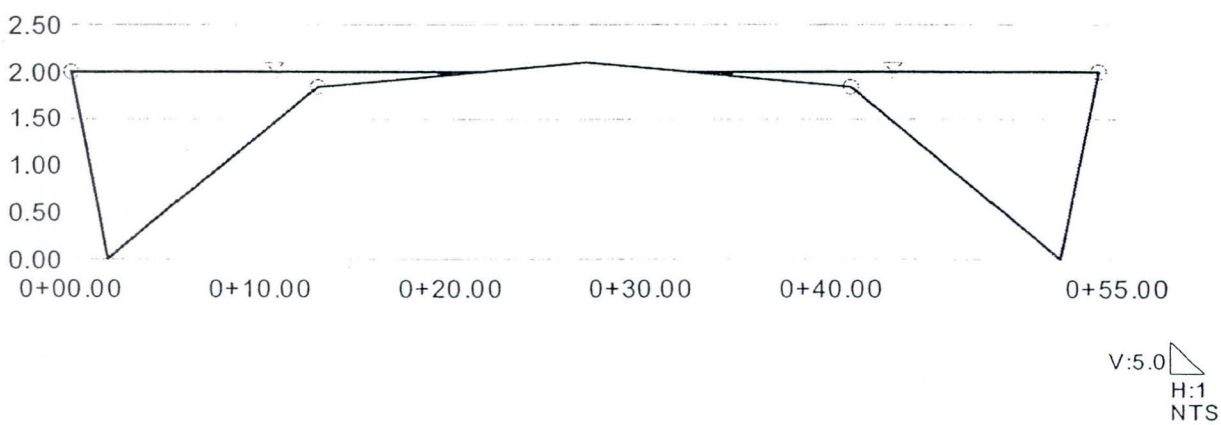
Section Data	
Mannings Coefficient	0.023
Slope	0.0015 ft/ft
Water Surface Elevation	2.00 ft
Elevation Range	0.00 to 2.11
Discharge	54.42 cfs



CP 216 - Germann Road (Gil 28)
Cross Section for Irregular Channel

Project Description	
Worksheet	CP 216 - Germann Road (Gil 28)
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Discharge

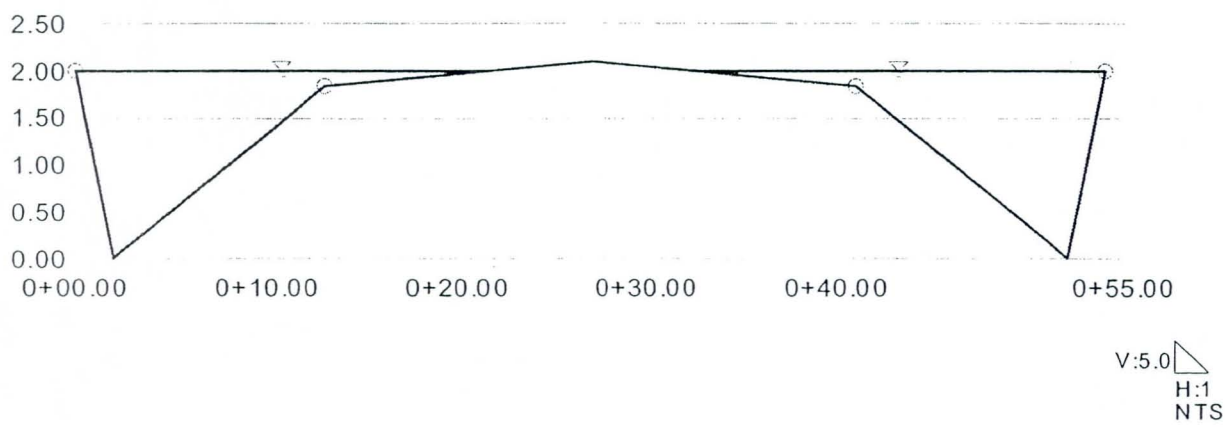
Section Data	
Mannings Coefficient	0.023
Slope	0.0082 ft/ft
Water Surface Elevation	2.00 ft
Elevation Range	0.00 to 2.11
Discharge	127.24 cfs



CP 220 - Queen Creek(Gil 28)
Cross Section for Irregular Channel

Project Description	
Worksheet	CP 220 - Queen Creek Road (Gil 28)
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Discharge

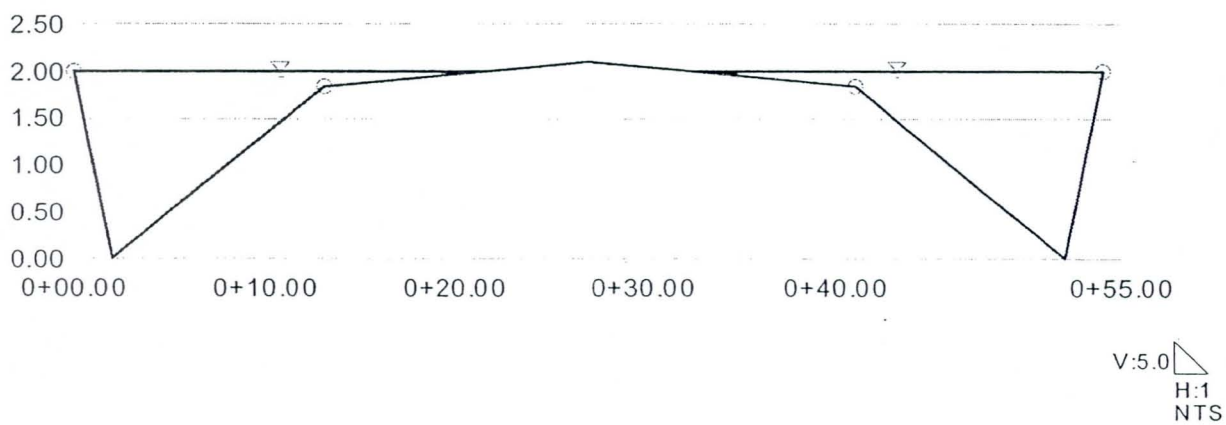
Section Data		
Mannings Coefficient	0.023	
Slope	0.0013	ft/ft
Water Surface Elevation	2.00	ft
Elevation Range	0.00 to 2.11	
Discharge	50.66	cfs



CP 220 - Val Vista Road (Gil 28)
Cross Section for Irregular Channel

Project Description	
Worksheet	CP 220 - Val Vista Road (Gil 28)
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Discharge

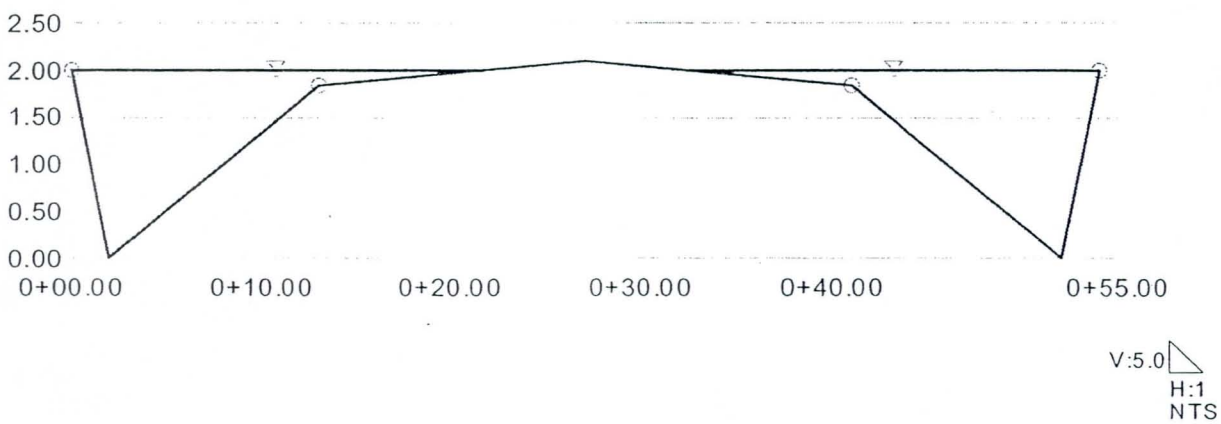
Section Data	
Mannings Coefficient	0.023
Slope	0.0047 ft/ft
Water Surface Elevation	2.00 ft
Elevation Range	0.00 to 2.11
Discharge	96.33 cfs



CP 221 - Lindsey Road (Gil 28)
Cross Section for Irregular Channel

Project Description	
Worksheet	CP 221 - Lindsay Road (Gil 28)
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Discharge

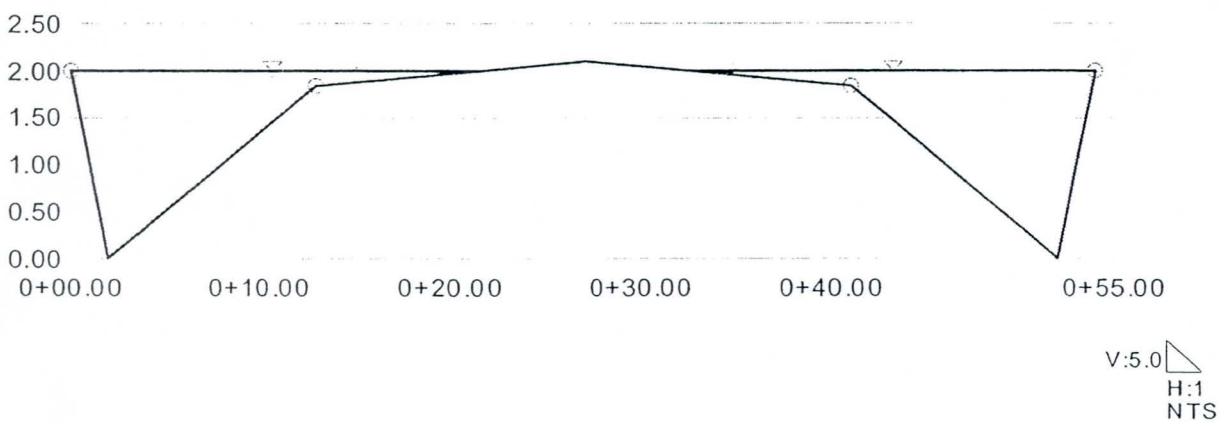
Section Data	
Mannings Coefficient	0.023
Slope	0.0023 ft/ft
Water Surface Elevation	2.00 ft
Elevation Range	0.00 to 2.11
Discharge	67.39 cfs



CP 221 - Queen Creek Road (Gil 28)
Cross Section for Irregular Channel

Project Description	
Worksheet	CP 221 - Queen Creek Road (Gil 28)
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Discharge

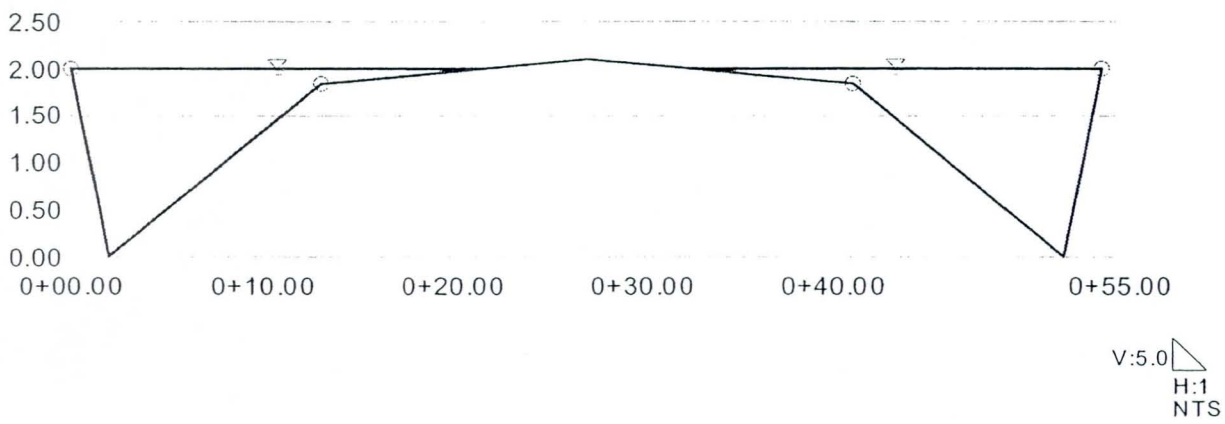
Section Data	
Mannings Coefficient	0.023
Slope	0.0075 ft/ft
Water Surface Elevation	2.00 ft
Elevation Range	0.00 to 2.11
Discharge	121.69 cfs



CP 228 - Chandler Hts. (Gil 28)
Cross Section for Irregular Channel

Project Description	
Worksheet	CP 228 - Chandler Hts. (Gil 28)
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Discharge

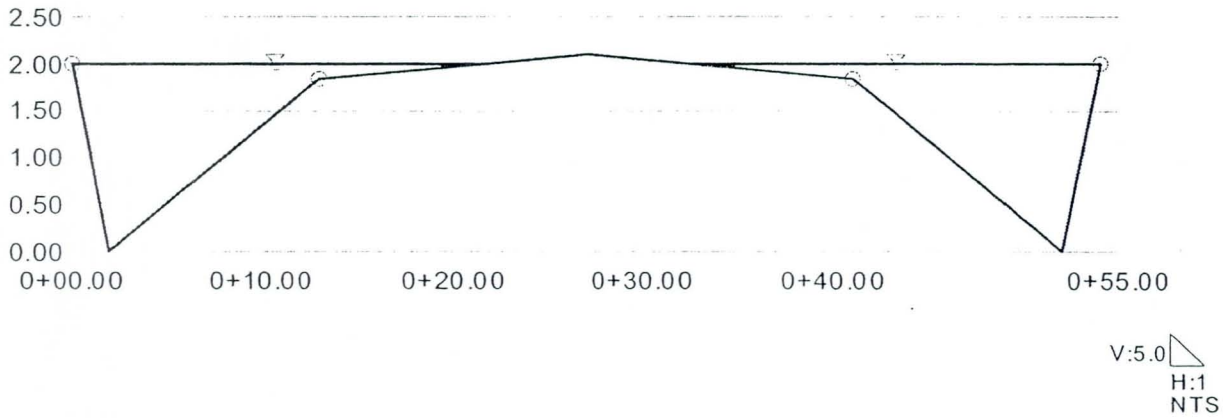
Section Data		
Mannings Coefficient	0.023	
Slope	0.0110	ft/ft
Water Surface Elevation	2.00	ft
Elevation Range	0.00 to 2.11	
Discharge	147.37	cfs



CP 228 - Val Vista Road (Gil 28)
Cross Section for Irregular Channel

Project Description	
Worksheet	CP 228 - Val Vista Road (Gil 28)
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Discharge

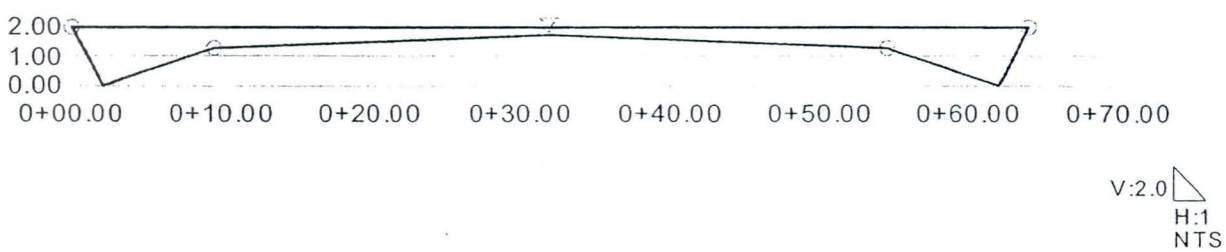
Section Data	
Mannings Coefficient	0.023
Slope	0.0027 ft/ft
Water Surface Elevation	2.00 ft
Elevation Range	0.00 to 2.11
Discharge	73.01 cfs



CP 229 - Chandler Hts. (Chan 28)
Cross Section for Irregular Channel

Project Description	
Worksheet	CP 229 - Chandler Hts. (Chan 28)
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Discharge

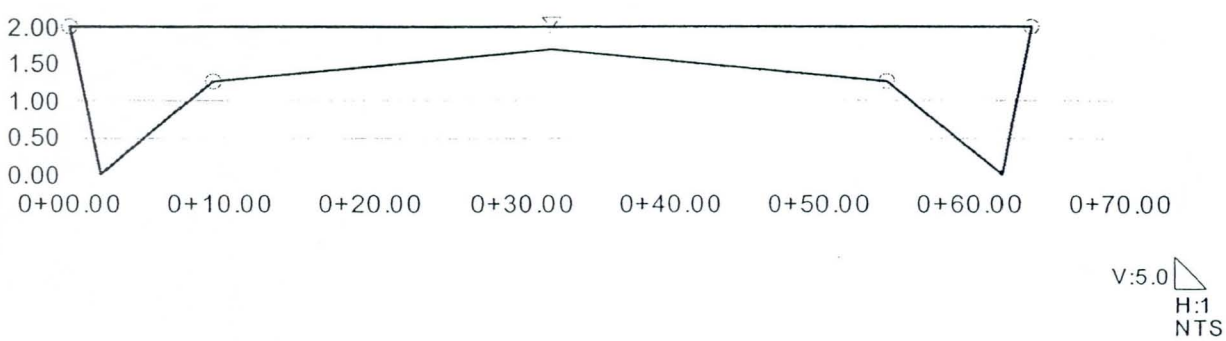
Section Data	
Mannings Coefficient	0.020
Slope	0.0086 ft/ft
Water Surface Elevation	2.00 ft
Elevation Range	0.00 to 2.00
Discharge	267.55 cfs



CP 229 - Chandler Hts. (Chan 28)
Cross Section for Irregular Channel

Project Description	
Worksheet	CP 229 - Chandler Hts. (Chan 28)
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Discharge

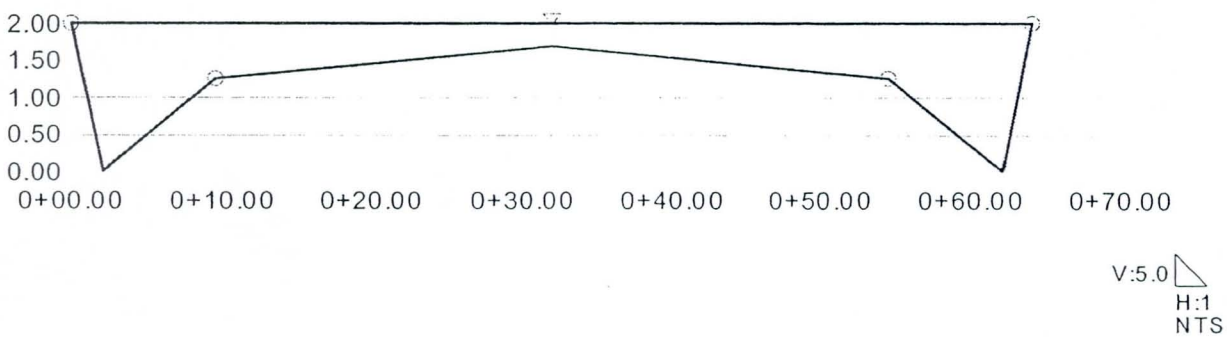
Section Data	
Mannings Coefficient	0.020
Slope	0.0086 ft/ft
Water Surface Elevation	2.00 ft
Elevation Range	0.00 to 2.00
Discharge	267.55 cfs



CP 229 - Lindsey Road (Chan 28)
Cross Section for Irregular Channel

Project Description	
Worksheet	CP 229 - Lindsay Road (Chan 28)
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Discharge

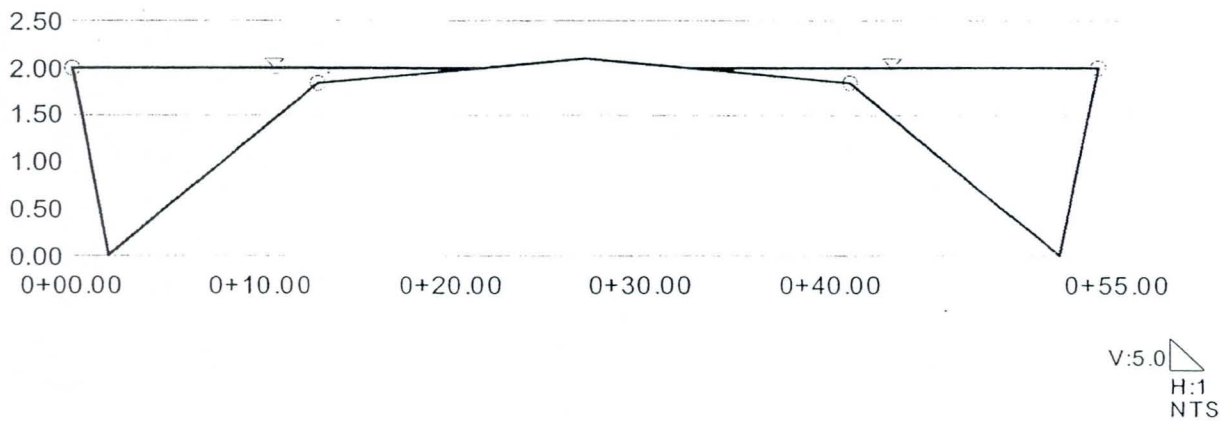
Section Data	
Mannings Coefficient	0.020
Slope	0.0012 ft/ft
Water Surface Elevation	2.00 ft
Elevation Range	0.00 to 2.00
Discharge	99.94 cfs



VVG - Germann Road (Gil 28)
Cross Section for Irregular Channel

Project Description	
Worksheet	VVG - Germann Road (Gil 28)
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Discharge

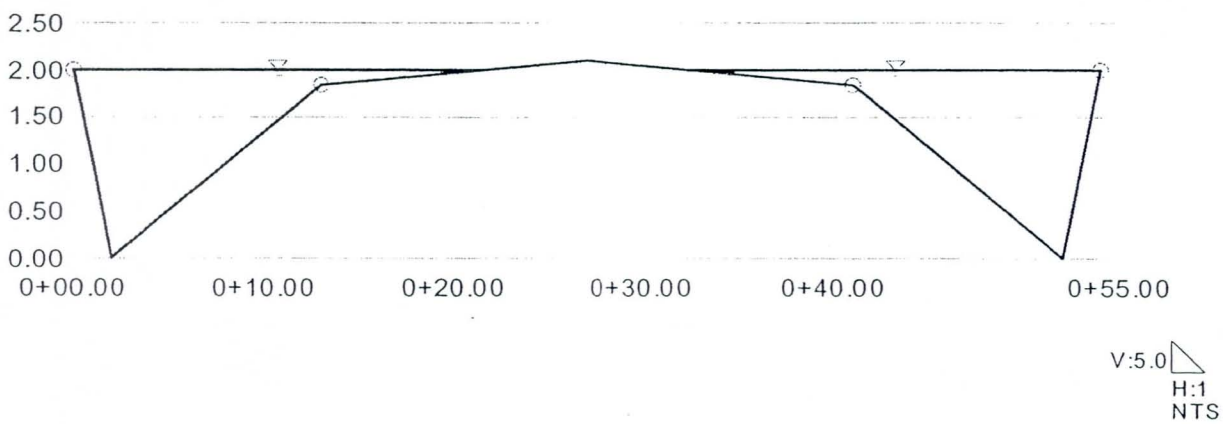
Section Data	
Mannings Coefficient	0.023
Slope	0.0068 ft/ft
Water Surface Elevation	2.00 ft
Elevation Range	0.00 to 2.11
Discharge	115.87 cfs



VVG - Val Vista (Gil 28)
Cross Section for Irregular Channel

Project Description	
Worksheet	VVG - Val Vista Road (Gil 28)
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Discharge

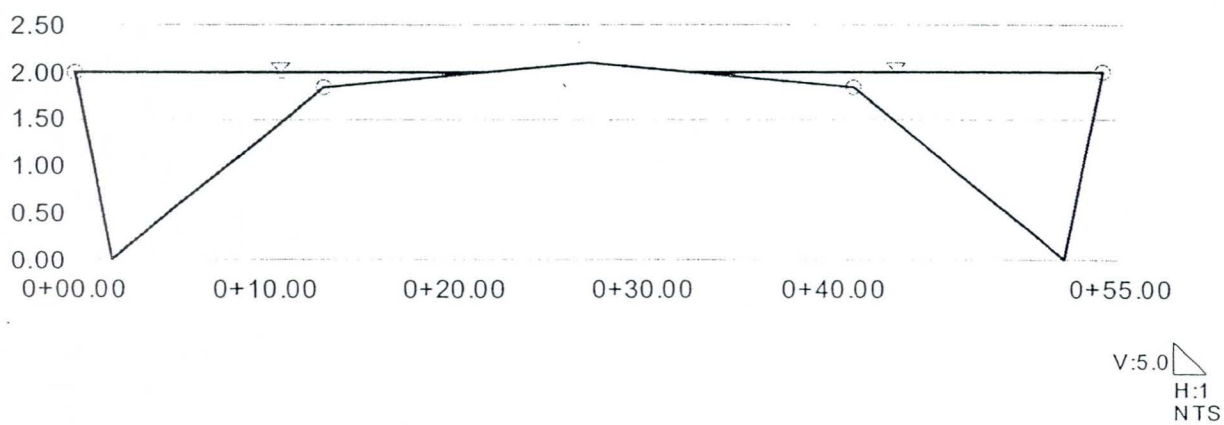
Section Data	
Mannings Coefficient	0.023
Slope	0.0022 ft/ft
Water Surface Elevation	2.00 ft
Elevation Range	0.00 to 2.11
Discharge	65.91 cfs



LG - Germann Road (Gil 28)
Cross Section for Irregular Channel

Project Description	
Worksheet	LG- Germann Road (Gil 28)
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Discharge

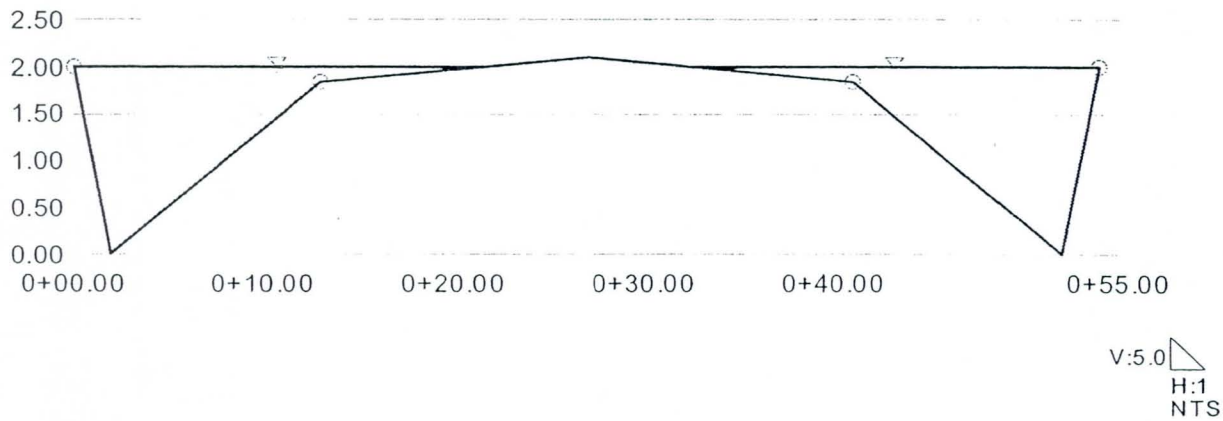
Section Data		
Mannings Coefficient	0.023	
Slope	0.0053	ft/ft
Water Surface Elevation	2.00	ft
Elevation Range	0.00 to 2.11	
Discharge	102.30	cfs



LG - Lindsey Road (Gil 28)
Cross Section for Irregular Channel

Project Description	
Worksheet	LG - Lindsay Road (Gil 28)
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Discharge

Section Data	
Mannings Coefficient	0.023
Slope	0.0053 ft/ft
Water Surface Elevation	2.00 ft
Elevation Range	0.00 to 2.11
Discharge	102.30 cfs

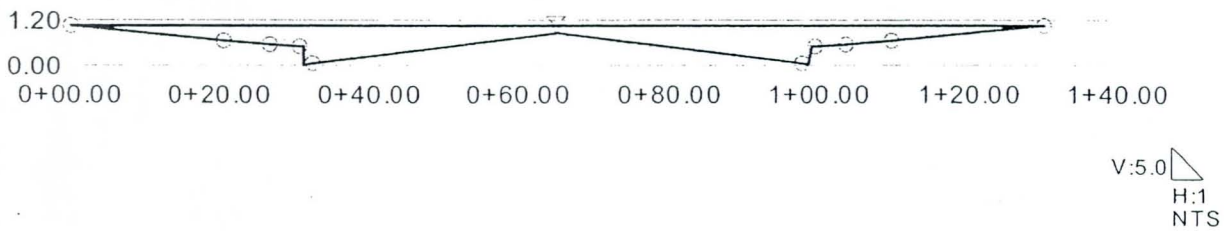


CP	Intersection Designation (north/south & east/west)	Typical Cross Section		
		N/S	E/W	
103	Recker & Guadalupe	Gil 22	Gil 22	on either
104	Higley & Guadalupe	Gil 21	Gil 21	on either
109	Recker & Elliot	Gil 22/Gil 21	Gil 22/Gil 21	slopes on
110/113	Higley & Elliot	Gil 28/Gil 21	Gil 28/Gil 22	slopes on
116	Recker & Warner	Gil 28	Gil 28	on either
117	Higley & Warner	Gil 22	Gil 22	slopes on
122	Recker & Ray	Gil 22	Gil 22	reet only. s on either
123	Higley & Ray	Gil 28	Gil 22	only one

CP 103-Guadalupe Road (Gil 22)
Cross Section for Irregular Channel

Project Description	
Worksheet	CP 103-Guadalupe Road (G
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Discharge

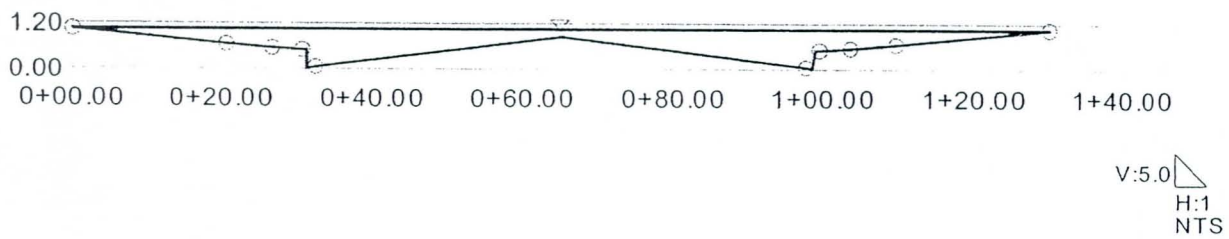
Section Data		
Mannings Coefficie	0.014	
Slope	0.0070	ft/ft
Water Surface Elev	1.06	ft
Elevation Range	.00 to 1.06	
Discharge	309.04	cfs



CP 103-Recker Road (Gil 22)
Cross Section for Irregular Channel

Project Description	
Worksheet	CP 103-Recker Road (Gill
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Discharge

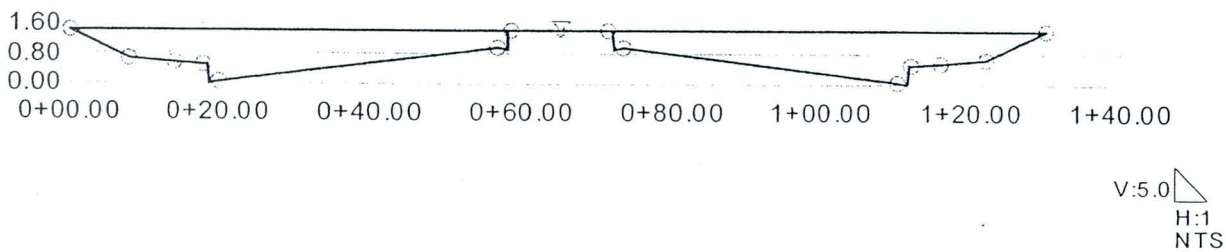
Section Data	
Mannings Coefficiei	0.014
Slope	0.0021 ft/ft
Water Surface Elev	1.06 ft
Elevation Range	.00 to 1.06
Discharge	169.27 cfs



CP 104-Guadalupe Road (Gil 21)
Cross Section for Irregular Channel

Project Description	
Worksheet	CP 104-Guadalupe Road
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Discharge

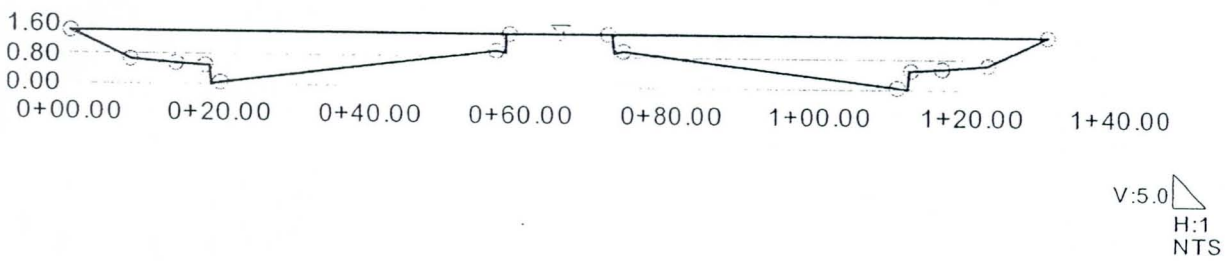
Section Data		
Mannings Coefficie	0.014	
Slope	0.0077	ft/ft
Water Surface Elev	1.41	ft
Elevation Range	.00 to 1.41	
Discharge	707.87	cfs



CP 104-Higley Road (Gil 21)
Cross Section for Irregular Channel

Project Description	
Worksheet	CP 104-Higley Road ((
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Discharge

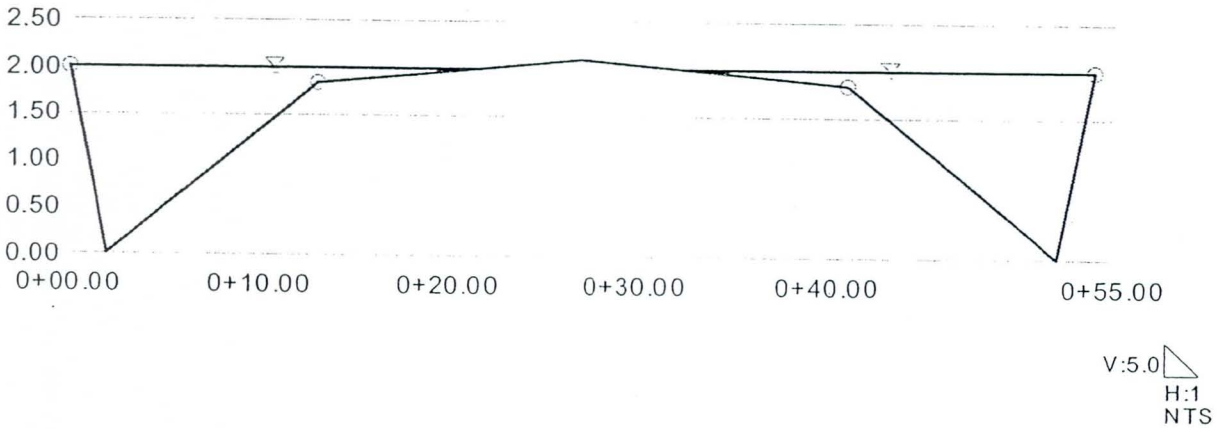
Section Data		
Mannings Coefficie	0.014	
Slope	0.0089	ft/ft
Water Surface Elev	1.41	ft
Elevation Range	.00 to 1.41	
Discharge	761.03	cfs



CP 116-Recker Road (Gil 28)
Cross Section for Irregular Channel

Project Description	
Worksheet	CP 116-Recker Road (
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Discharge

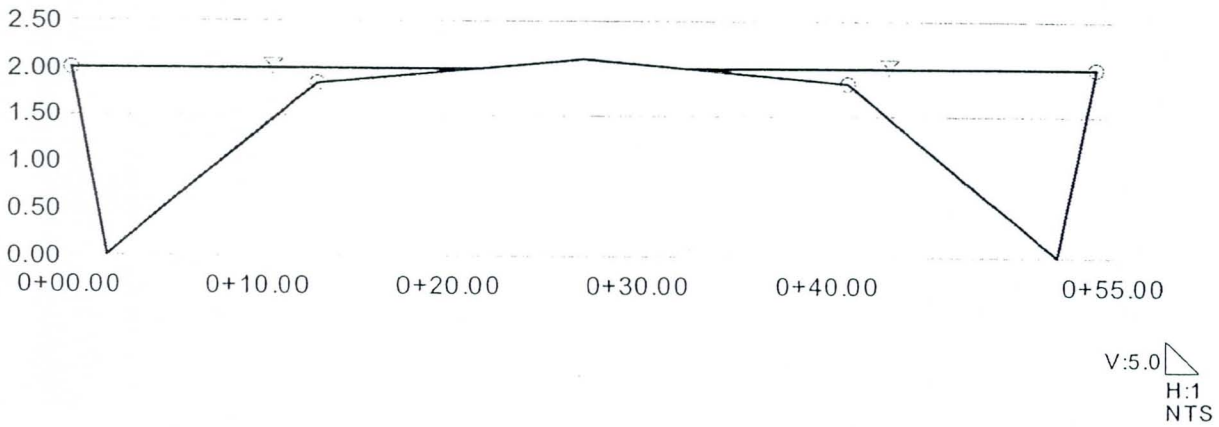
Section Data		
Mannings Coefficie	0.023	
Slope	0.0013	ft/ft
Water Surface Elev	2.00	ft
Elevation Range	.00 to 2.11	
Discharge	50.66	cfs



CP 116-Warner Road (Gil 28)
Cross Section for Irregular Channel

Project Description	
Worksheet	CP 116-Warner Road (
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Discharge

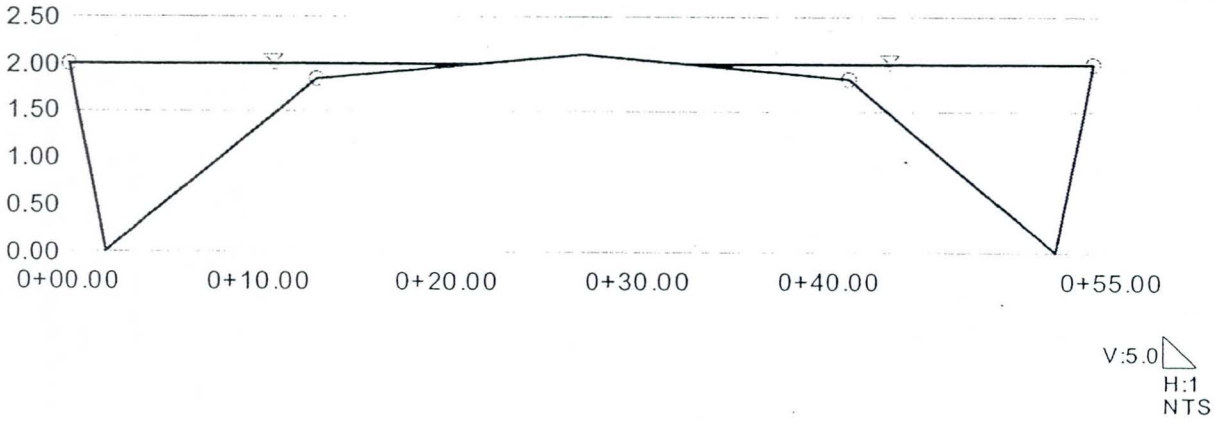
Section Data		
Mannings Coefficie	0.023	
Slope	0.0133	ft/ft
Water Surface Elev	2.00	ft
Elevation Range	.00 to 2.11	
Discharge	162.05	cfs



CP 122-Ray Road (Gil 28)
Cross Section for Irregular Channel

Project Description	
Worksheet	CP 122-Ray Road ((
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Discharge

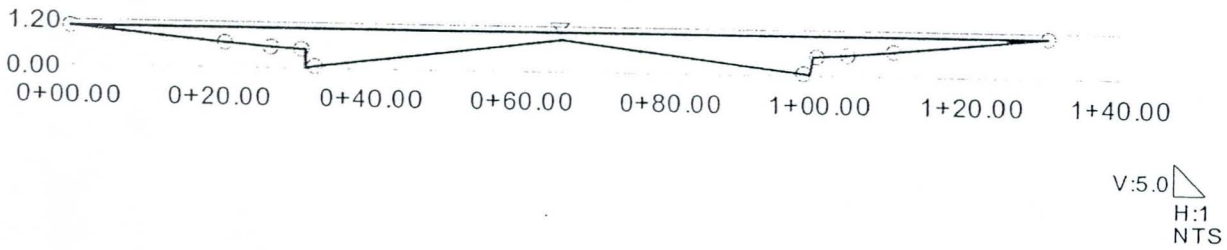
Section Data		
Mannings Coefficie	0.023	
Slope	0.0073	ft/ft
Water Surface Elev	2.00	ft
Elevation Range	.00 to 2.11	
Discharge	120.06	cfs



CP 122-Recker Road (Gil 22)
Cross Section for Irregular Channel

Project Description	
Worksheet	CP 122-Recker Road (Gill
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Discharge

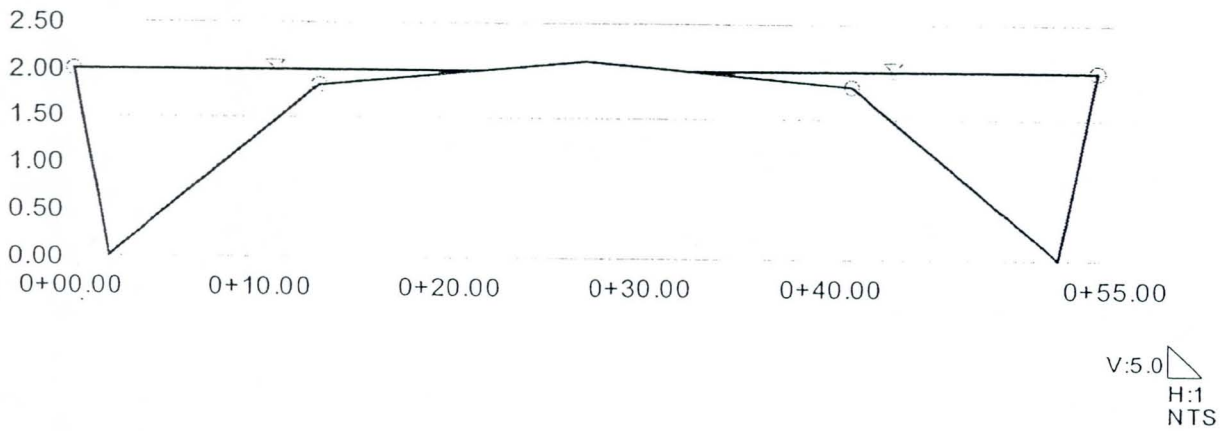
Section Data	
Mannings Coefficiei	0.014
Slope	0.0028 ft/ft
Water Surface Elev	1.06 ft
Elevation Range	.00 to 1.06
Discharge	195.46 cfs



CP 123-Higley Road (Gil 28)
Cross Section for Irregular Channel

Project Description	
Worksheet	CP 123-Higley Road ((
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Discharge

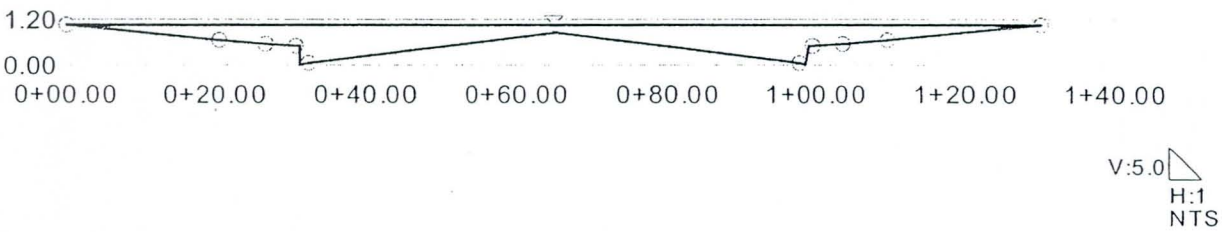
Section Data		
Mannings Coefficie	0.023	
Slope	0.0032	ft/ft
Water Surface Elev	2.00	ft
Elevation Range	.00 to 2.11	
Discharge	79.49	cfs



CP 123-Ray Road (Gil 22)
Cross Section for Irregular Channel

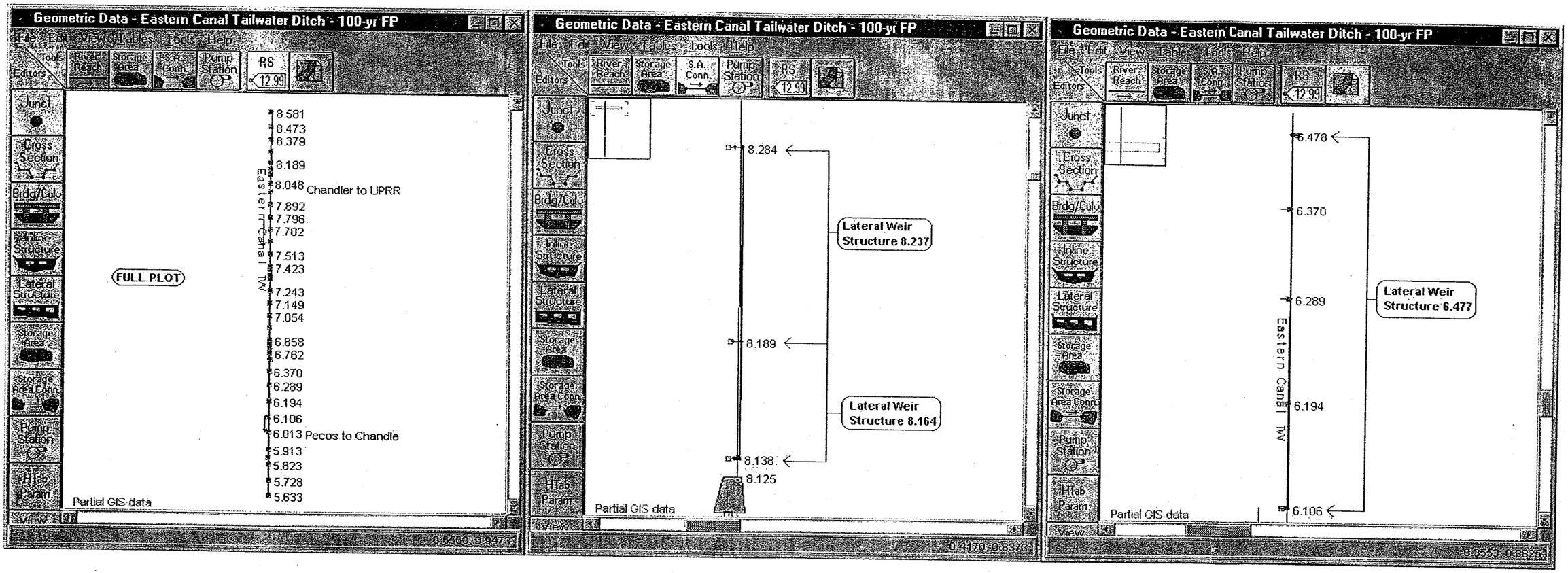
Project Description	
Worksheet	CP 123-Ray Road (Gilbert 22)
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Discharge

Section Data	
Mannings Coefficient	0.014
Slope	0.0012 ft/ft
Water Surface Elevation	1.06 ft
Elevation Range	0.00 to 1.06
Discharge	127.96 cfs



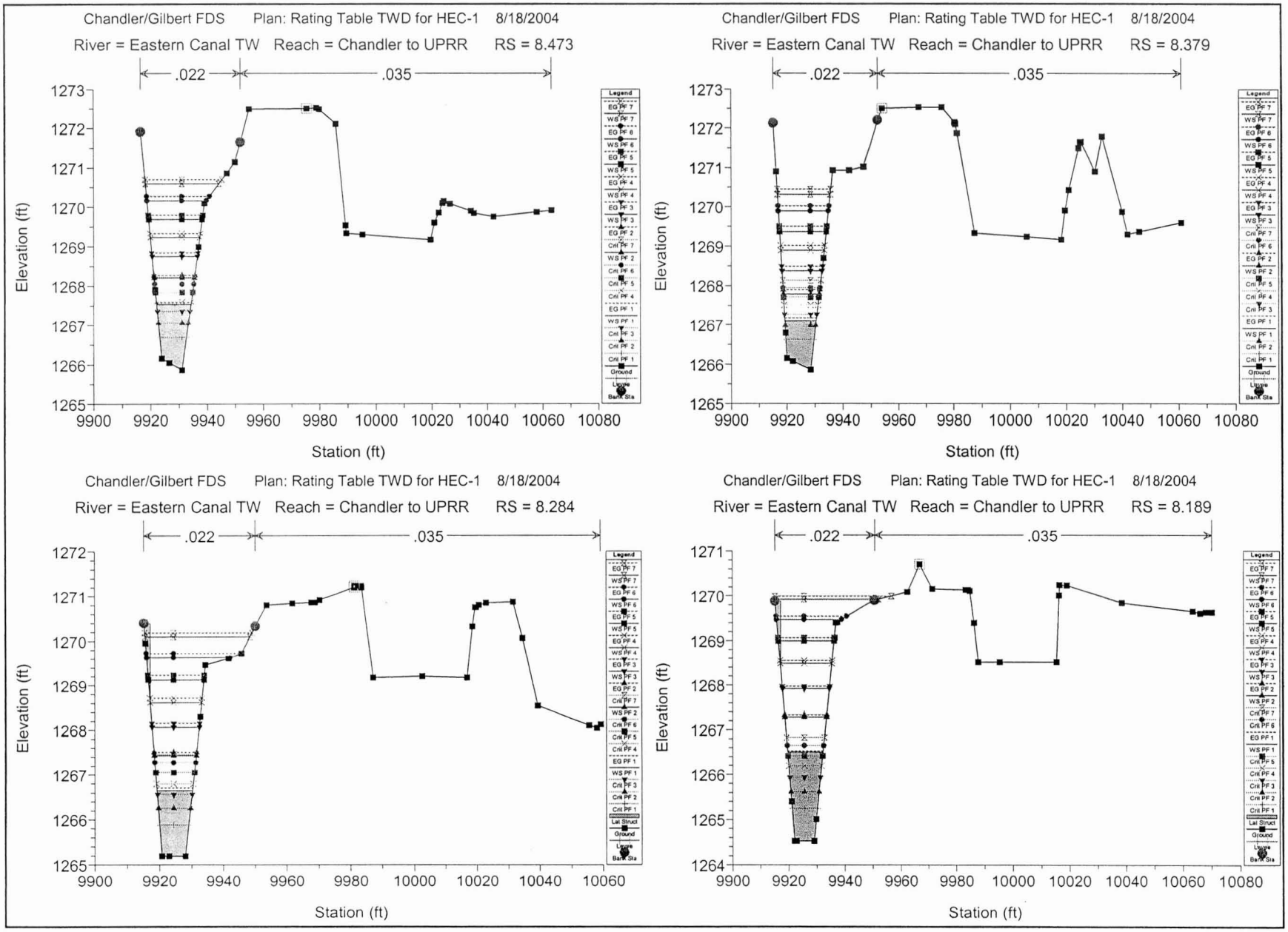
DS & DN.6 Rating Tables

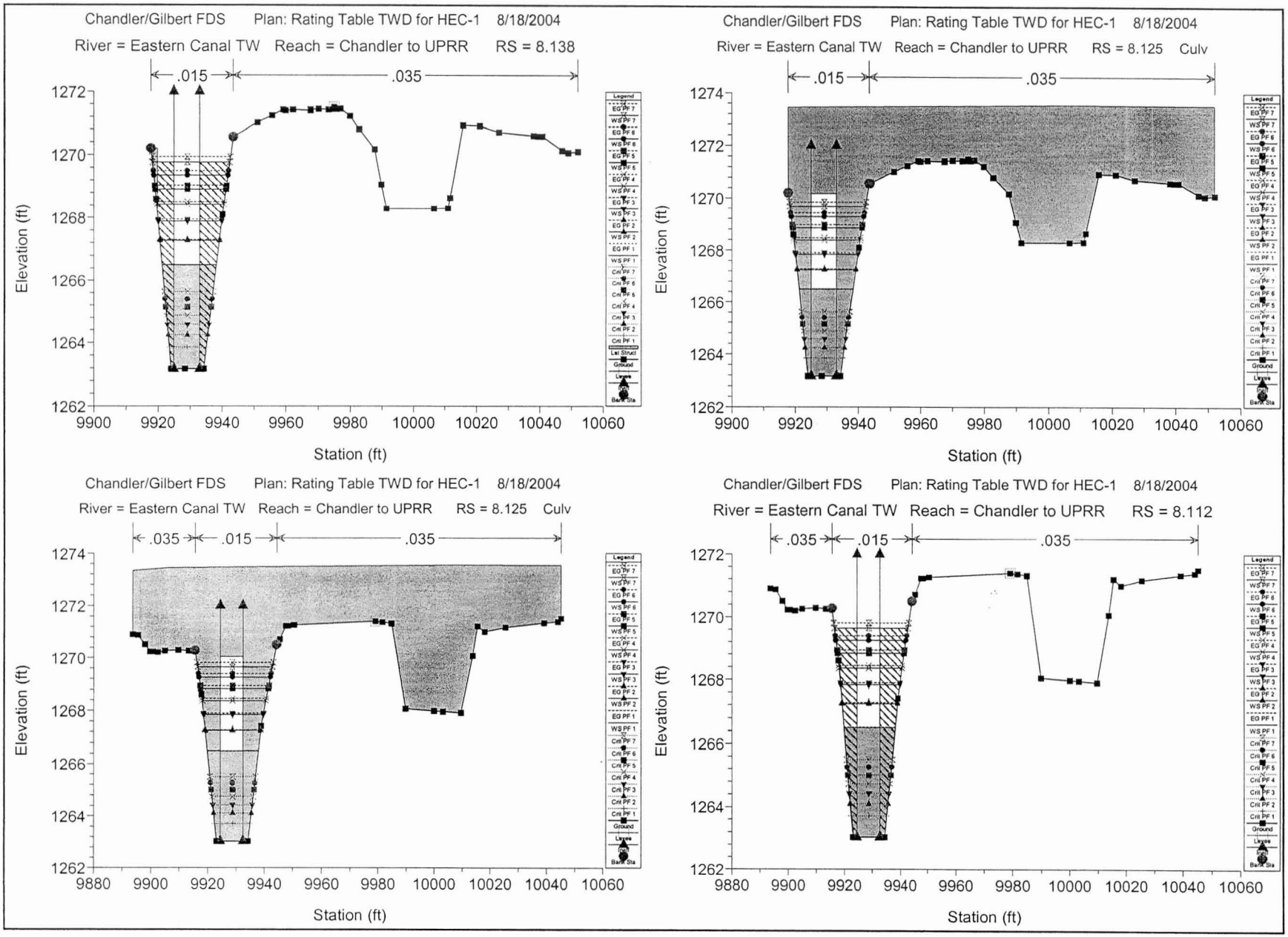
CHANDLER / GILBERT FLOOD DELINEATION STUDY
HEC-RAS GEOMETRY USED FOR HEC-1 RATING TABLES
LATERAL WEIR LOCATIONS

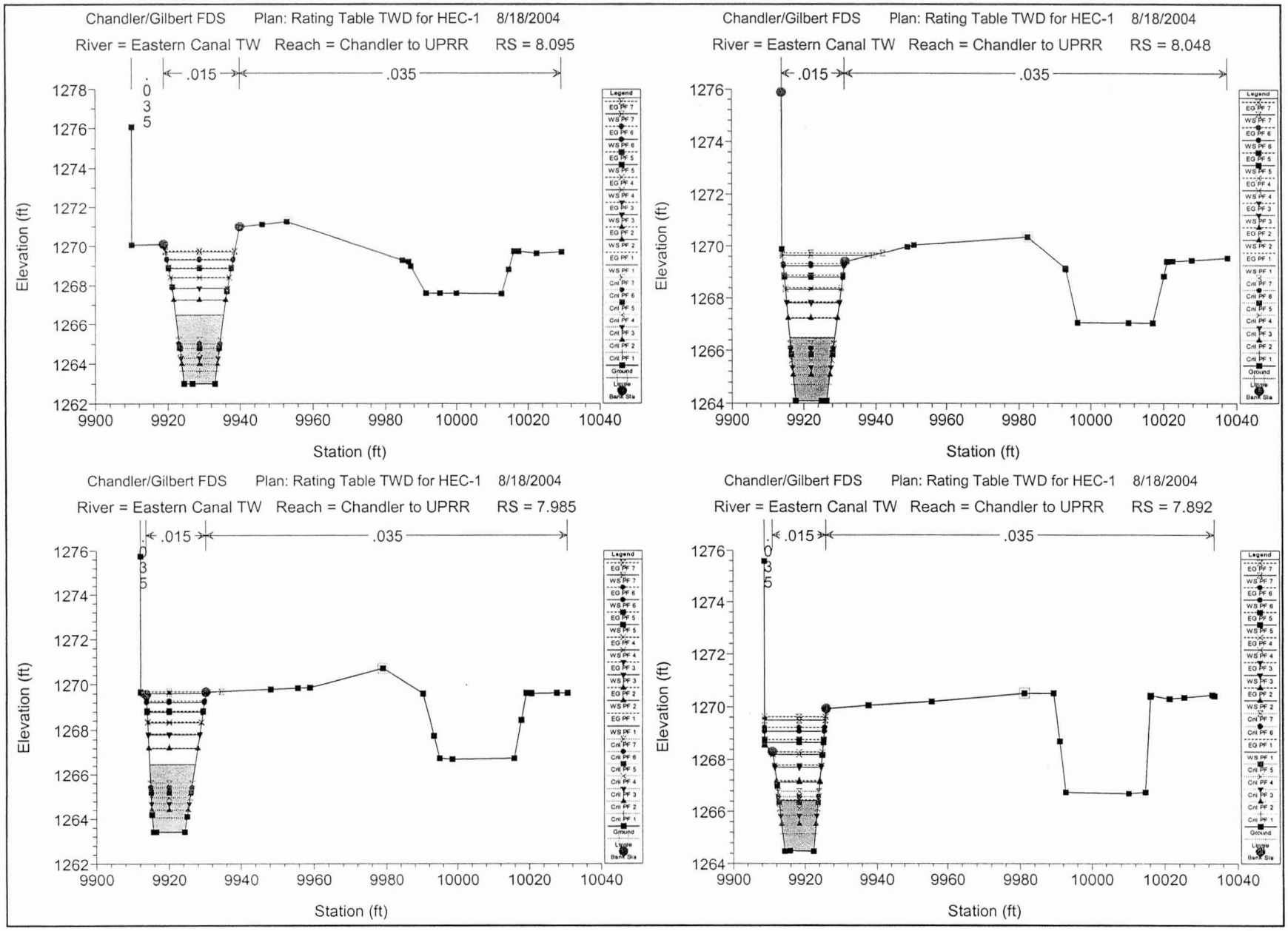


HEC-RAS Plan: Rating TWD

Reach	River Sta	Profile	Q US	Q Leaving Total	Q DS	Q Weir	Q Gates	Wr Top Wdth	Weir Max Depth	Weir Avg Depth	Min El Weir Flow	E.G. US.	W.S. US.	E.G. DS	W.S. DS
			(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)
Chandler to UPRR	8,237	PF 1	25.00	0.00	25.00						1269.88	1266.71	1266.65	1266.53	1266.50
Chandler to UPRR	8,237	PF 2	50.00	0.00	50.00						1269.88	1267.51	1267.43	1267.32	1267.28
Chandler to UPRR	8,237	PF 3	75.00	0.00	75.00						1269.88	1268.15	1268.06	1267.97	1267.92
Chandler to UPRR	8,237	PF 4	100.00	0.00	100.00						1269.88	1268.72	1268.62	1268.54	1268.48
Chandler to UPRR	8,237	PF 5	125.00	0.00	125.00						1269.88	1269.23	1269.12	1269.06	1269.00
Chandler to UPRR	8,237	PF 6	150.00	0.00	150.00						1269.88	1269.73	1269.62	1269.54	1269.47
Chandler to UPRR	8,237	PF 7	175.00	0.31	174.69	0.31		50.50	0.04	0.02	1269.88	1270.18	1270.09	1269.99	1269.92
Chandler to UPRR	8,164	PF 1	25.00	0.00	25.00						1269.88	1266.53	1266.50	1266.51	1266.50
Chandler to UPRR	8,164	PF 2	50.00	0.00	50.00						1269.88	1267.32	1267.28	1267.30	1267.27
Chandler to UPRR	8,164	PF 3	75.00	0.00	75.00						1269.88	1267.97	1267.92	1267.94	1267.88
Chandler to UPRR	8,164	PF 4	100.00	0.00	100.00						1269.88	1268.54	1268.48	1268.51	1268.42
Chandler to UPRR	8,164	PF 5	125.00	0.00	125.00						1269.88	1269.06	1269.00	1269.03	1268.91
Chandler to UPRR	8,164	PF 6	150.00	0.00	150.00						1269.88	1269.54	1269.47	1269.50	1269.35
Chandler to UPRR	8,164	PF 7	174.69	0.14	174.55	0.14		22.14	0.04	0.02	1269.88	1269.99	1269.92	1269.94	1269.77
Pecos to Chandle	6,477	PF 1	75.00	0.00	75.00						1267.20	1265.20	1265.12	1264.64	1264.47
Pecos to Chandle	6,477	PF 2	100.00	0.00	100.00						1267.20	1265.73	1265.63	1265.11	1264.91
Pecos to Chandle	6,477	PF 3	125.00	0.00	125.00						1267.20	1266.18	1266.07	1265.52	1265.28
Pecos to Chandle	6,477	PF 4	150.00	0.00	150.00						1267.20	1266.58	1266.46	1265.88	1265.61
Pecos to Chandle	6,477	PF 5	175.00	0.00	175.00						1267.20	1266.94	1266.80	1266.19	1265.90
Pecos to Chandle	6,477	PF 6	200.00	0.00	200.00						1267.20	1267.27	1267.11	1266.48	1266.16
Pecos to Chandle	6,477	PF 7	225.00	9.98	225.00	9.98		467.86	0.09	0.04	1267.20	1267.57	1267.40	1266.75	1266.41

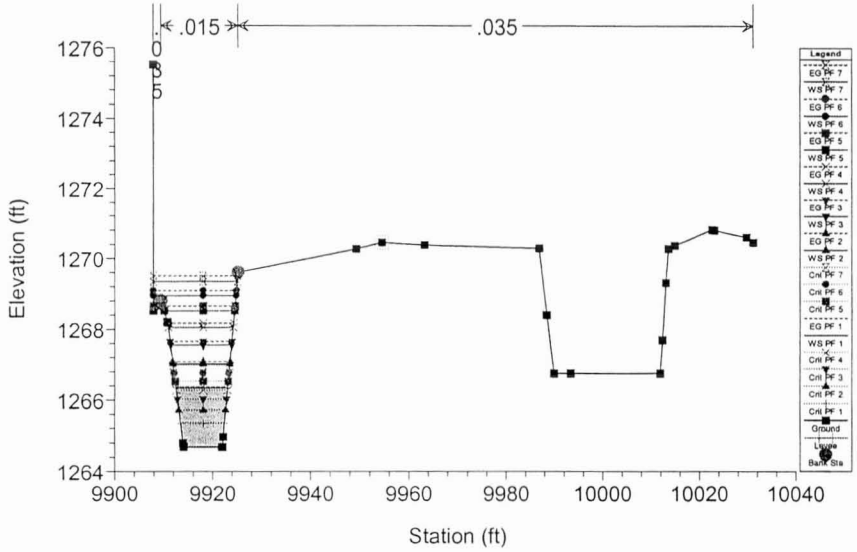

Chandler/Gilbert FDS Plan: Rating Table TWD for HEC-1 8/18/2004
River = Eastern Canal TW Reach = Chandler to UPRR RS = 8.473
.022
.035
Elevation (ft)
Station (ft)
Chandler/Gilbert FDS Plan: Rating Table TWD for HEC-1 8/18/2004
River = Eastern Canal TW Reach = Chandler to UPRR RS = 8.379
.022
.035
Elevation (ft)
Station (ft)
Chandler/Gilbert FDS Plan: Rating Table TWD for HEC-1 8/18/2004
River = Eastern Canal TW Reach = Chandler to UPRR RS = 8.284
.022
.035
Elevation (ft)
Station (ft)
Chandler/Gilbert FDS Plan: Rating Table TWD for HEC-1 8/18/2004
River = Eastern Canal TW Reach = Chandler to UPRR RS = 8.189
.022
.035
Elevation (ft)
Station (ft)
Legend


Chandler/Gilbert FDS Plan: Rating Table TWD for HEC-1 8/18/2004
River = Eastern Canal TW Reach = Chandler to UPRR RS = 8.138
.015
.035
Elevation (ft)
Station (ft)
Chandler/Gilbert FDS Plan: Rating Table TWD for HEC-1 8/18/2004
River = Eastern Canal TW Reach = Chandler to UPRR RS = 8.125 Culv
.015
.035
Elevation (ft)
Station (ft)
Chandler/Gilbert FDS Plan: Rating Table TWD for HEC-1 8/18/2004
River = Eastern Canal TW Reach = Chandler to UPRR RS = 8.125 Culv
.035
.015
.035
Elevation (ft)
Station (ft)
Chandler/Gilbert FDS Plan: Rating Table TWD for HEC-1 8/18/2004
River = Eastern Canal TW Reach = Chandler to UPRR RS = 8.112
.035
.015
.035
Elevation (ft)
Station (ft)


Chandler/Gilbert FDS Plan: Rating Table TWD for HEC-1 8/18/2004
River = Eastern Canal TW Reach = Chandler to UPRR RS = 8.095
.015
.035
Elevation (ft)
Station (ft)
Chandler/Gilbert FDS Plan: Rating Table TWD for HEC-1 8/18/2004
River = Eastern Canal TW Reach = Chandler to UPRR RS = 8.048
.015
.035
Elevation (ft)
Station (ft)
Chandler/Gilbert FDS Plan: Rating Table TWD for HEC-1 8/18/2004
River = Eastern Canal TW Reach = Chandler to UPRR RS = 7.985
.015
.035
Elevation (ft)
Station (ft)
Chandler/Gilbert FDS Plan: Rating Table TWD for HEC-1 8/18/2004
River = Eastern Canal TW Reach = Chandler to UPRR RS = 7.892
.015
.035
Elevation (ft)
Station (ft)

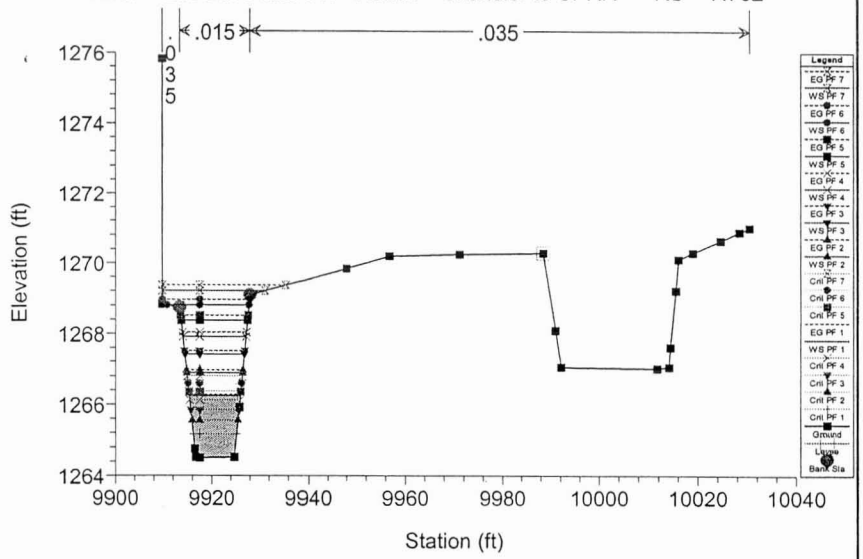
Chandler/Gilbert FDS Plan: Rating Table TWD for HEC-1 8/18/2004

River = Eastern Canal TW Reach = Chandler to UPRR RS = 7.796



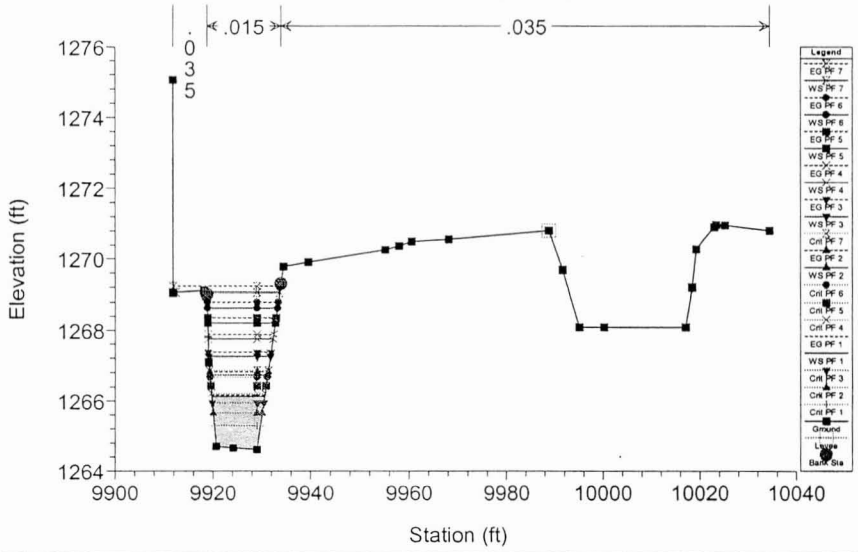
Chandler/Gilbert FDS Plan: Rating Table TWD for HEC-1 8/18/2004

River = Eastern Canal TW Reach = Chandler to UPRR RS = 7.702



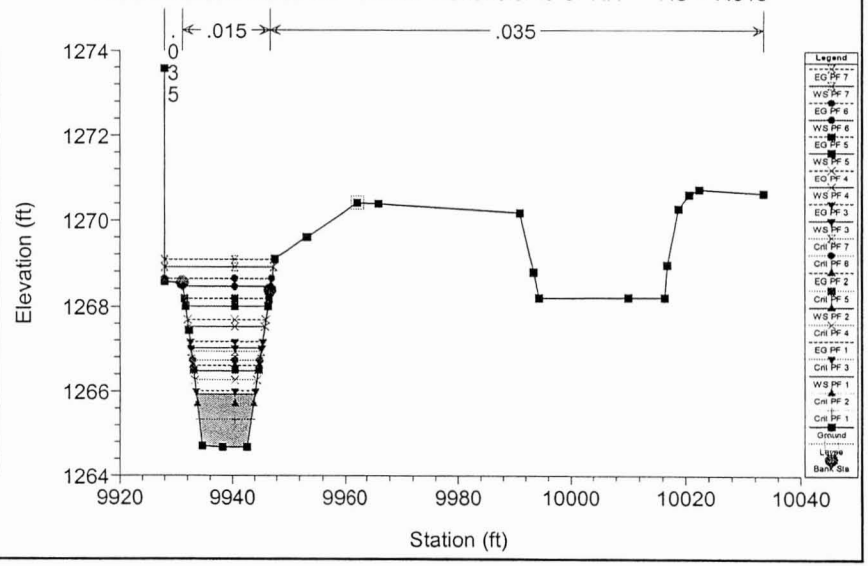
Chandler/Gilbert FDS Plan: Rating Table TWD for HEC-1 8/18/2004

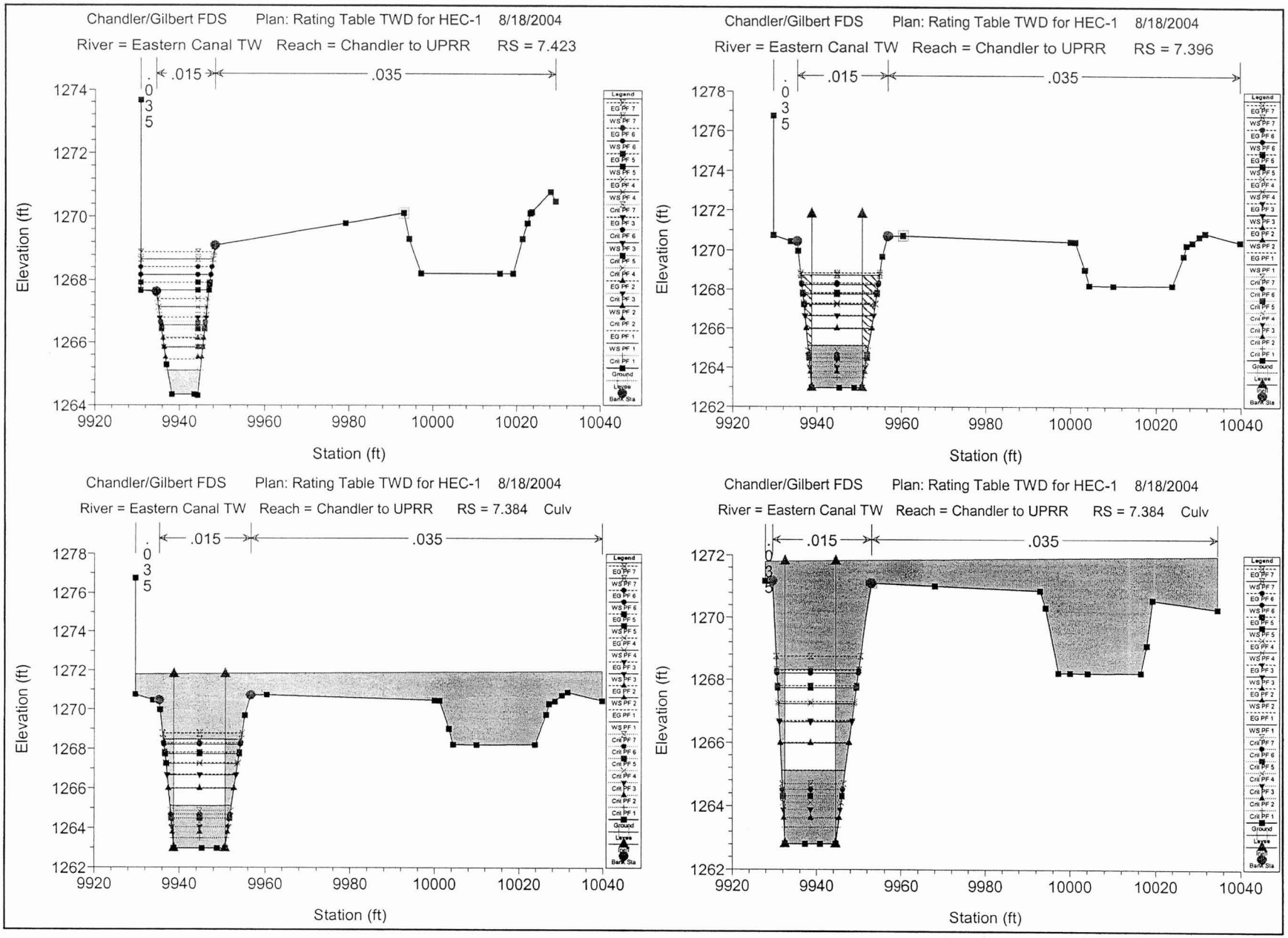
River = Eastern Canal TW Reach = Chandler to UPRR RS = 7.607

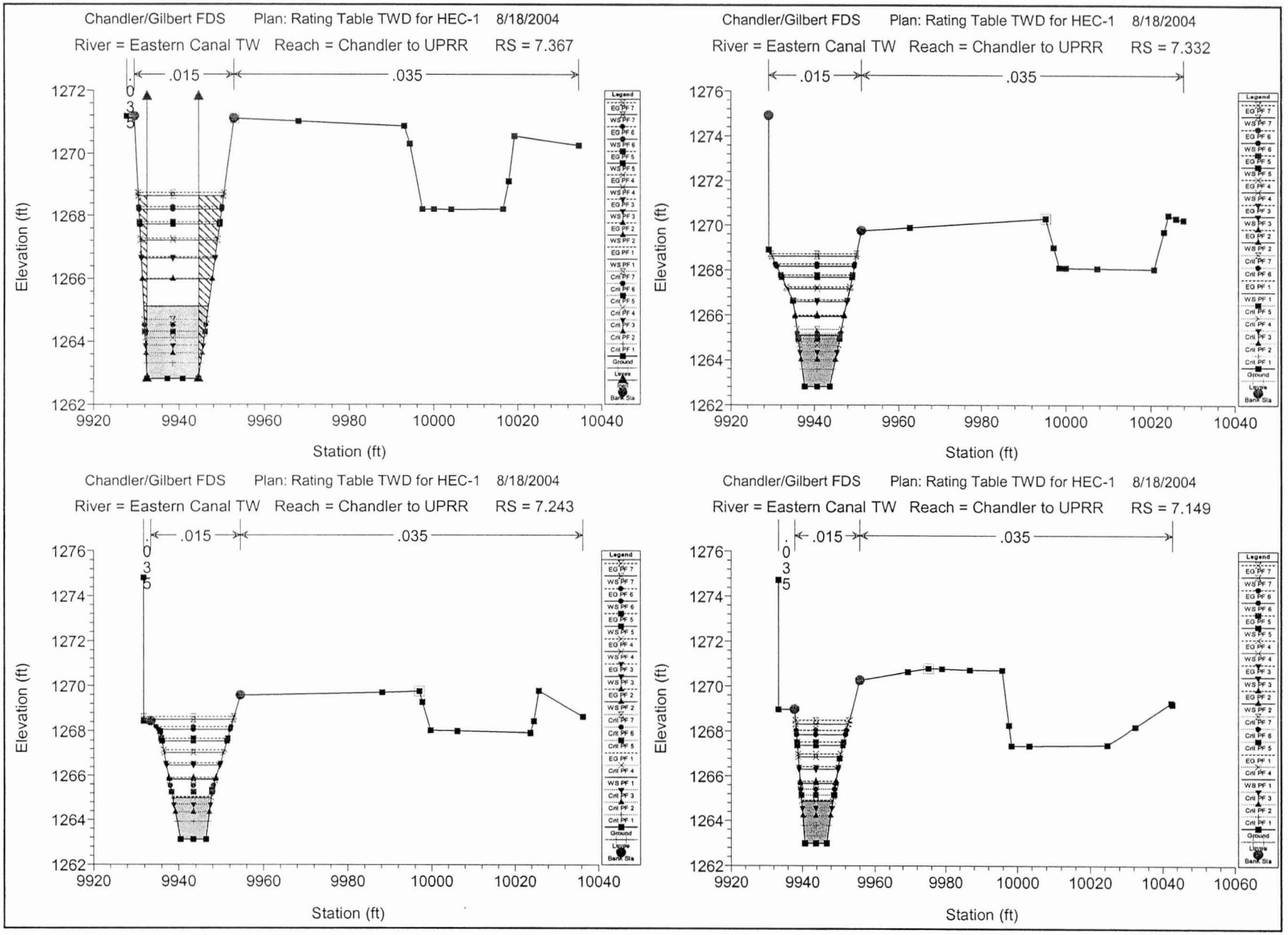


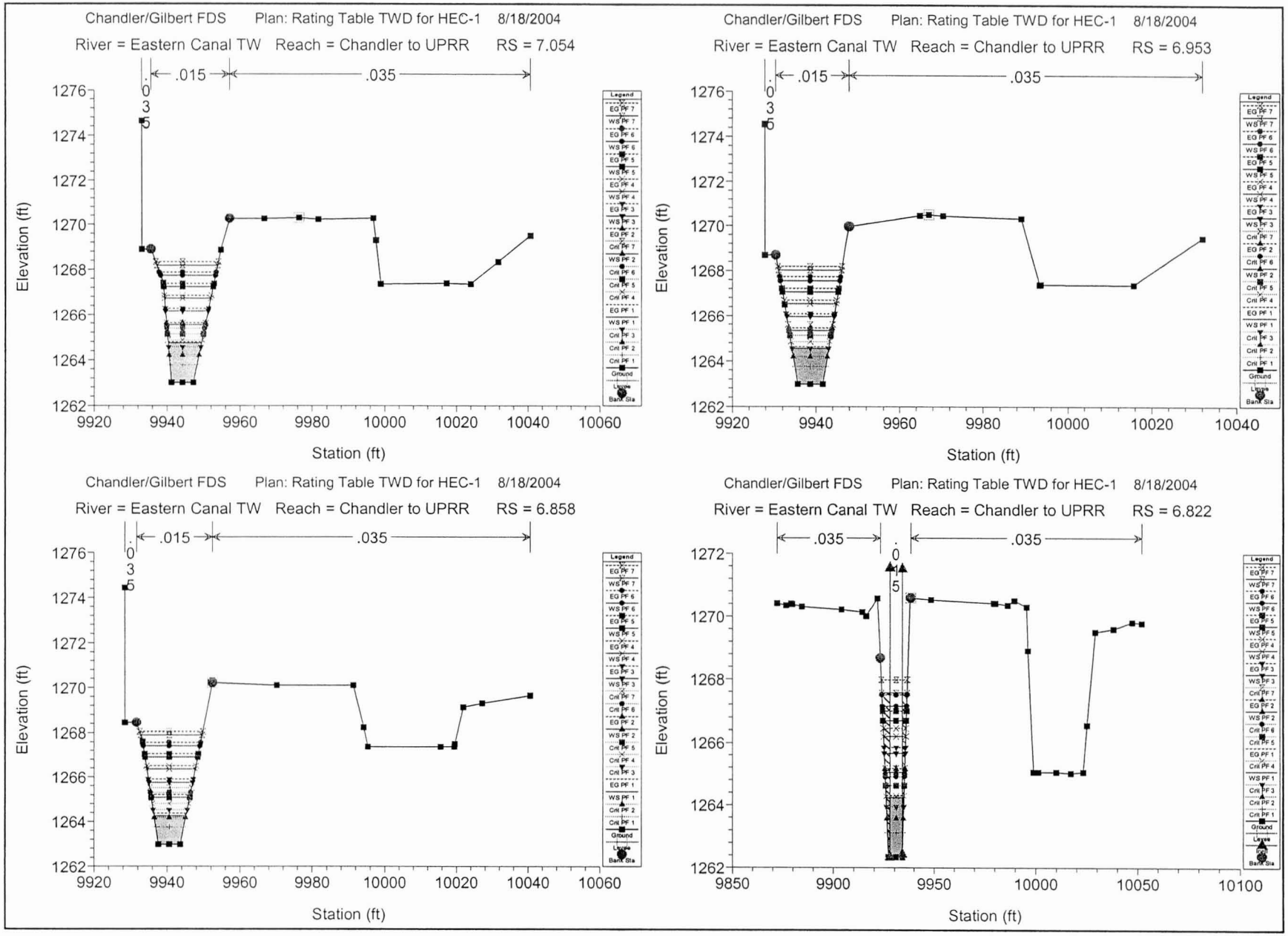
Chandler/Gilbert FDS Plan: Rating Table TWD for HEC-1 8/18/2004

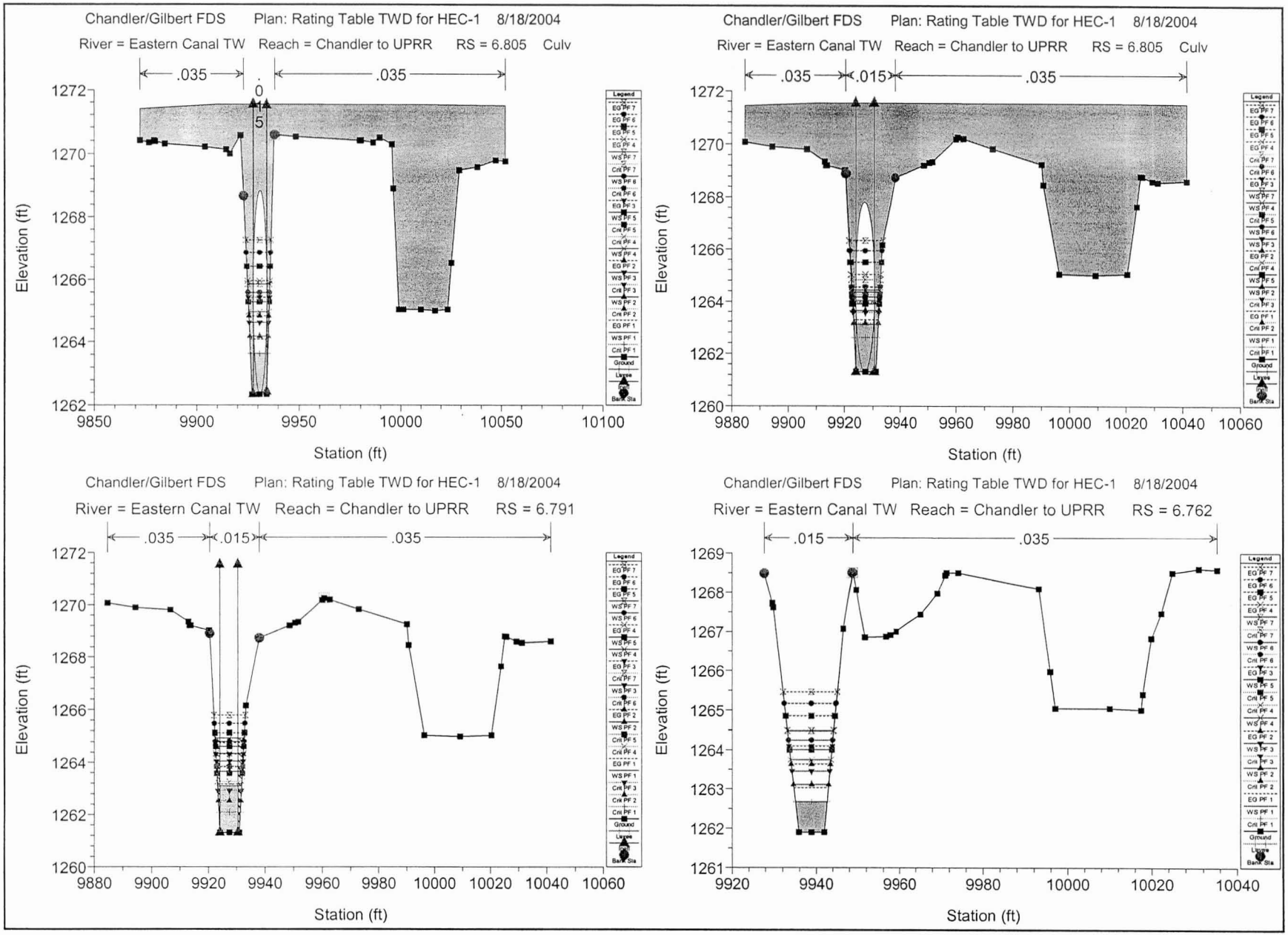
River = Eastern Canal TW Reach = Chandler to UPRR RS = 7.513

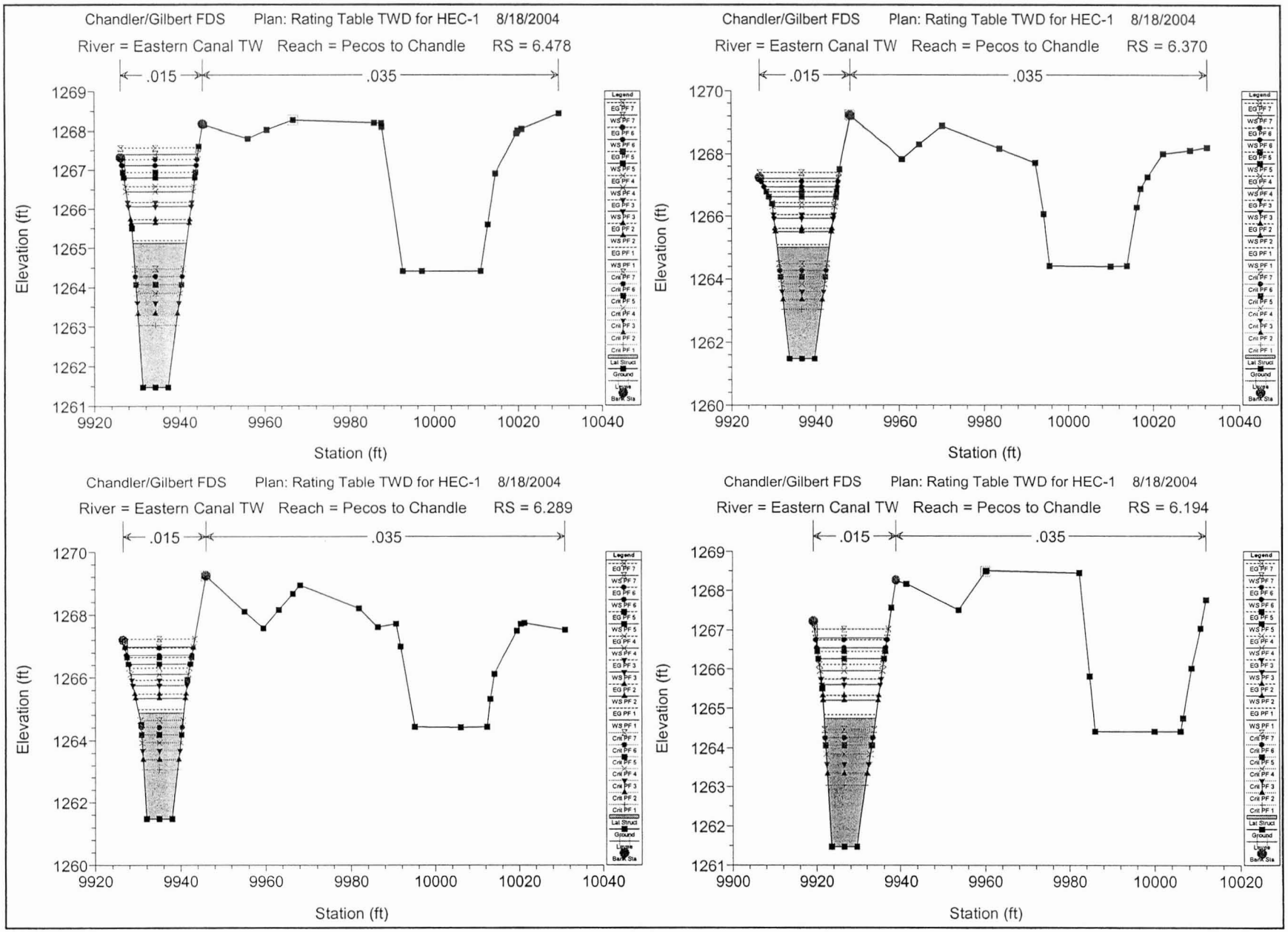


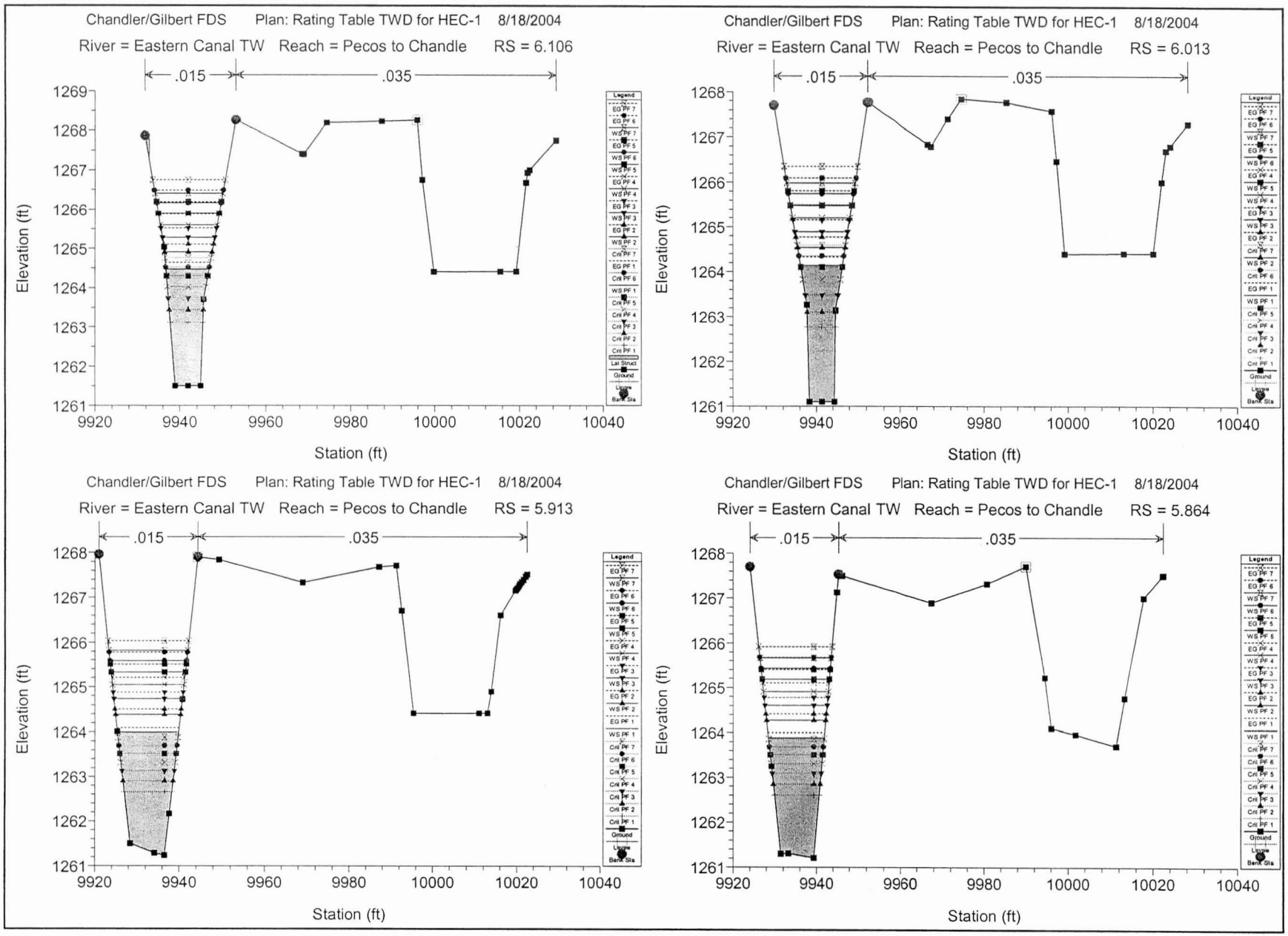

Chandler/Gilbert FDS Plan: Rating Table TWD for HEC-1 8/18/2004
River = Eastern Canal TW Reach = Chandler to UPRR RS = 7.423
.015
.035
.035
Elevation (ft)
Station (ft)
Chandler/Gilbert FDS Plan: Rating Table TWD for HEC-1 8/18/2004
River = Eastern Canal TW Reach = Chandler to UPRR RS = 7.396
.015
.035
.035
Elevation (ft)
Station (ft)
Chandler/Gilbert FDS Plan: Rating Table TWD for HEC-1 8/18/2004
River = Eastern Canal TW Reach = Chandler to UPRR RS = 7.384 Culv
.015
.035
.035
Elevation (ft)
Station (ft)
Chandler/Gilbert FDS Plan: Rating Table TWD for HEC-1 8/18/2004
River = Eastern Canal TW Reach = Chandler to UPRR RS = 7.384 Culv
.015
.035
.035
Elevation (ft)
Station (ft)
Legend
Ground
Levee
Bank Sta

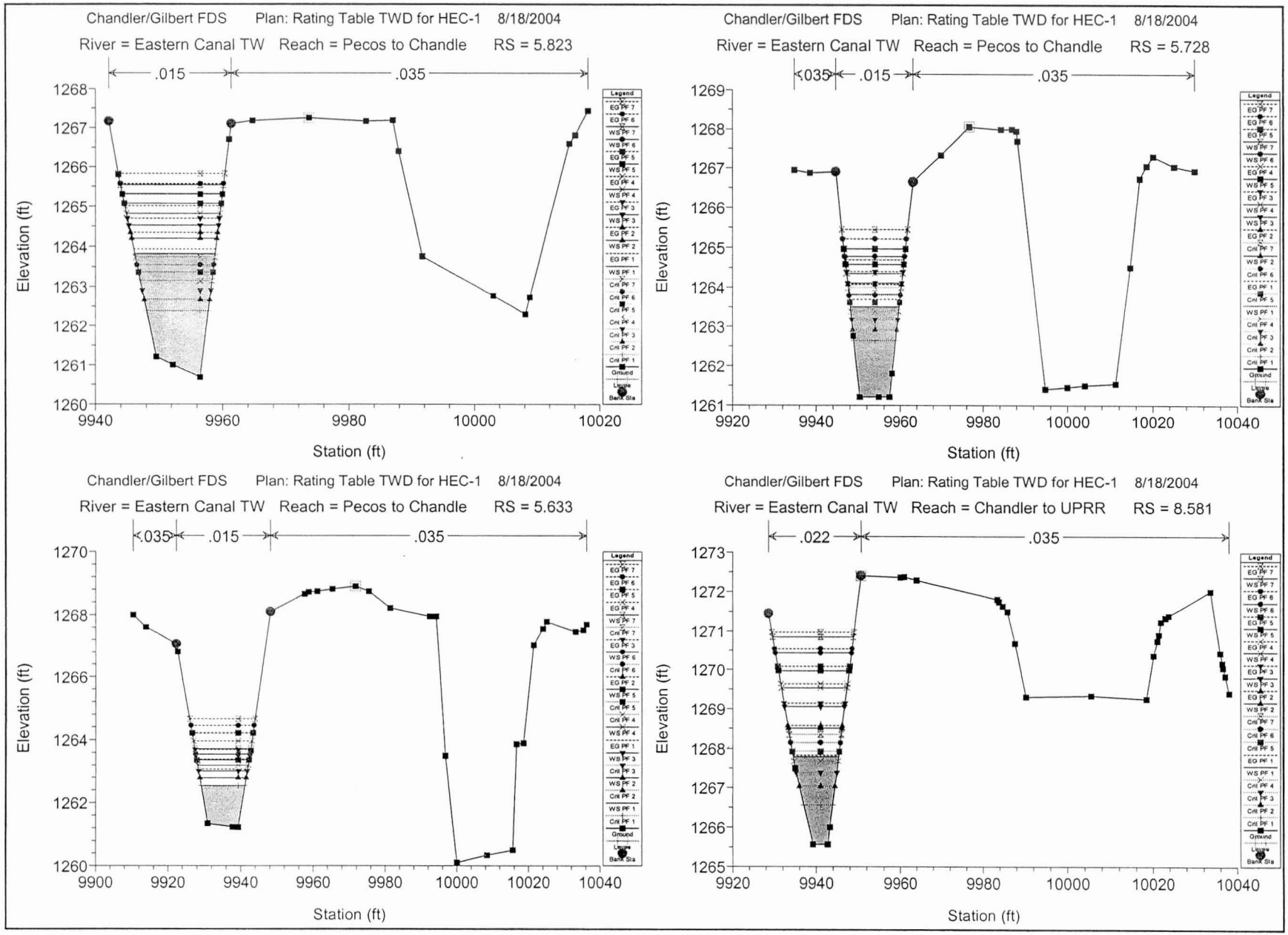

Chandler/Gilbert FDS Plan: Rating Table TWD for HEC-1 8/18/2004
River = Eastern Canal TW Reach = Chandler to UPRR RS = 7.367
.015
.035
Elevation (ft)
Station (ft)
Chandler/Gilbert FDS Plan: Rating Table TWD for HEC-1 8/18/2004
River = Eastern Canal TW Reach = Chandler to UPRR RS = 7.332
.015
.035
Elevation (ft)
Station (ft)
Chandler/Gilbert FDS Plan: Rating Table TWD for HEC-1 8/18/2004
River = Eastern Canal TW Reach = Chandler to UPRR RS = 7.243
.015
.035
Elevation (ft)
Station (ft)
Chandler/Gilbert FDS Plan: Rating Table TWD for HEC-1 8/18/2004
River = Eastern Canal TW Reach = Chandler to UPRR RS = 7.149
.015
.035
Elevation (ft)
Station (ft)
Legend
Ground
Levee
Bank Sta


Chandler/Gilbert FDS Plan: Rating Table TWD for HEC-1 8/18/2004
River = Eastern Canal TW Reach = Chandler to UPRR RS = 7.054
.015
.035
.035
Elevation (ft)
Station (ft)
Chandler/Gilbert FDS Plan: Rating Table TWD for HEC-1 8/18/2004
River = Eastern Canal TW Reach = Chandler to UPRR RS = 6.953
.015
.035
.035
Elevation (ft)
Station (ft)
Chandler/Gilbert FDS Plan: Rating Table TWD for HEC-1 8/18/2004
River = Eastern Canal TW Reach = Chandler to UPRR RS = 6.858
.015
.035
.035
Elevation (ft)
Station (ft)
Chandler/Gilbert FDS Plan: Rating Table TWD for HEC-1 8/18/2004
River = Eastern Canal TW Reach = Chandler to UPRR RS = 6.822
.035
.035
.015
Elevation (ft)
Station (ft)
Legend
EG PF 7
WS PF 7
EG PF 6
WS PF 6
EG PF 5
WS PF 5
EG PF 4
WS PF 4
EG PF 3
WS PF 3
Crit PF 7
EG PF 2
Crit PF 6
WS PF 2
Crit PF 5
Crit PF 4
EG PF 1
WS PF 1
Crit PF 3
Crit PF 2
Crit PF 1
Ground
Levee
Bank Sta


Chandler/Gilbert FDS Plan: Rating Table TWD for HEC-1 8/18/2004
River = Eastern Canal TW Reach = Chandler to UPRR RS = 6.805 Culv
.035
.035
Elevation (ft)
Station (ft)
Chandler/Gilbert FDS Plan: Rating Table TWD for HEC-1 8/18/2004
River = Eastern Canal TW Reach = Chandler to UPRR RS = 6.805 Culv
.035
.015
.035
Elevation (ft)
Station (ft)
Chandler/Gilbert FDS Plan: Rating Table TWD for HEC-1 8/18/2004
River = Eastern Canal TW Reach = Chandler to UPRR RS = 6.791
.035
.015
.035
Elevation (ft)
Station (ft)
Chandler/Gilbert FDS Plan: Rating Table TWD for HEC-1 8/18/2004
River = Eastern Canal TW Reach = Chandler to UPRR RS = 6.762
.015
.035
Elevation (ft)
Station (ft)
Legend
Ground
Levee
Bank Sta


Chandler/Gilbert FDS Plan: Rating Table TWD for HEC-1 8/18/2004
River = Eastern Canal TW Reach = Pecos to Chandle RS = 6.478
.015
.035
Elevation (ft)
Station (ft)
Chandler/Gilbert FDS Plan: Rating Table TWD for HEC-1 8/18/2004
River = Eastern Canal TW Reach = Pecos to Chandle RS = 6.370
.015
.035
Elevation (ft)
Station (ft)
Chandler/Gilbert FDS Plan: Rating Table TWD for HEC-1 8/18/2004
River = Eastern Canal TW Reach = Pecos to Chandle RS = 6.289
.015
.035
Elevation (ft)
Station (ft)
Chandler/Gilbert FDS Plan: Rating Table TWD for HEC-1 8/18/2004
River = Eastern Canal TW Reach = Pecos to Chandle RS = 6.194
.015
.035
Elevation (ft)
Station (ft)
Legend
Ground
Bank Sta


Chandler/Gilbert FDS Plan: Rating Table TWD for HEC-1 8/18/2004
River = Eastern Canal TW Reach = Pecos to Chandle RS = 6.106
.015
.035
Elevation (ft)
Station (ft)
Chandler/Gilbert FDS Plan: Rating Table TWD for HEC-1 8/18/2004
River = Eastern Canal TW Reach = Pecos to Chandle RS = 6.013
.015
.035
Elevation (ft)
Station (ft)
Chandler/Gilbert FDS Plan: Rating Table TWD for HEC-1 8/18/2004
River = Eastern Canal TW Reach = Pecos to Chandle RS = 5.913
.015
.035
Elevation (ft)
Station (ft)
Chandler/Gilbert FDS Plan: Rating Table TWD for HEC-1 8/18/2004
River = Eastern Canal TW Reach = Pecos to Chandle RS = 5.864
.015
.035
Elevation (ft)
Station (ft)


Chandler/Gilbert FDS Plan: Rating Table TWD for HEC-1 8/18/2004
River = Eastern Canal TW Reach = Pecos to Chandle RS = 5.823
.015
.035
Elevation (ft)
Station (ft)
Chandler/Gilbert FDS Plan: Rating Table TWD for HEC-1 8/18/2004
River = Eastern Canal TW Reach = Pecos to Chandle RS = 5.728
.035
.015
.035
Elevation (ft)
Station (ft)
Chandler/Gilbert FDS Plan: Rating Table TWD for HEC-1 8/18/2004
River = Eastern Canal TW Reach = Pecos to Chandle RS = 5.633
.035
.015
.035
Elevation (ft)
Station (ft)
Chandler/Gilbert FDS Plan: Rating Table TWD for HEC-1 8/18/2004
River = Eastern Canal TW Reach = Chandler to UPRR RS = 8.581
.022
.035
Elevation (ft)
Station (ft)
Legend
Ground
Levee
Bank Sta

```
                    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: Chandler/Gilbert FDS - Tail Water Ditch
Project File : CGFDSP1_TW.prj
Run Date and Time: 3/31/2005 12:46:46 PM

Project in English units

Project Description:
Chandler/Gilbert FDS, Phase 1 South - Eastern Canal Watershed
FCD
2002C023

Date: 4/2005
David Evan's and Associates, Inc.
Modelers: Tami
Norton, E.I.T., CFM

Project Consists of:
100-year Floodplain Delineation
for Eastern Canal Tailwater Ditch and areas of Conveyance
Rating Table for
HEC-1

Station 10,000 corresponds to the Easten Canal centerline
alignment.
Cross sections are labled based on the location along the
centerline of the Canal in River Miles.


*******************************************************************************

PLAN DATA

Plan Title: Rating Table TWD for HEC-1
Plan File : p:\Mari0000-0040\Engineering\MARI0040-SE\HEC-RAS\CGFDSP1_TW.p07

          Geometry Title: Eastern Canal Tailwater Ditch - 100-yr FP
          Geometry File : p:\Mari0000-0040\Engineering\MARI0040-SE\HEC-RAS\CGFDSP1_TW.g01

          Flow Title    : Rating Table TWD for HEC-1
          Flow File     : p:\Mari0000-0040\Engineering\MARI0040-SE\HEC-RAS\CGFDSP1_TW.f07

Plan Summary Information:
Number of:  Cross Sections =   38    Multiple Openings  =    0
            Culverts       =    3    Inline Structures  =    0
            Bridges        =    0    Lateral Structures =    3

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

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


*******************************************************************************

FLOW DATA

Flow Title: Rating Table TWD for HEC-1
Flow File : p:\Mari0000-0040\Engineering\MARI0040-SE\HEC-RAS\CGFDSP1_TW.f07

Flow Data (cfs)
*******************************************************************************************************************************
*****************
* River          Reach          RS       *        PF 1        PF 2        PF 3        PF 4        PF 5        PF 6
          PF 7
* Eastern Canal TWPecos to Chandle6.478   *         75         100         125         150         175         200
          225
* Eastern Canal TWChandler to UPRR8.581   *         25          50          75         100         125         150
*******************************************************************************************************************************
*****************

Boundary Conditions
*****************************************************************************************************************
* River          Reach          Profile        *          Upstream          Downstream    *
*****************************************************************************************************************
```

```
* Eastern Canal TWChandler to UPRRPF 1          *                                Known WS = 1261.2 *
* Eastern Canal TWChandler to UPRRPF 2          *                                Known WS = 1261.2 *
* Eastern Canal TWChandler to UPRRPF 3          *                                Known WS = 1261.2 *
* Eastern Canal TWChandler to UPRRPF 4          *                                Known WS = 1261.2 *
* Eastern Canal TWChandler to UPRRPF 5          *                                Known WS = 1261.2 *
* Eastern Canal TWChandler to UPRRPF 6          *                                Known WS = 1261.2 *
* Eastern Canal TWChandler to UPRRPF 7          *                                Known WS = 1261.2 *
* Eastern Canal TWPecos to ChandlePF 1          *                               Known WS = 1262.23 *
* Eastern Canal TWPecos to ChandlePF 2          *                               Known WS = 1262.23 *
* Eastern Canal TWPecos to ChandlePF 3          *                               Known WS = 1262.23 *
* Eastern Canal TWPecos to ChandlePF 4          *                               Known WS = 1262.23 *
* Eastern Canal TWPecos to ChandlePF 5          *                               Known WS = 1262.23 *
* Eastern Canal TWPecos to ChandlePF 6          *                               Known WS = 1262.23 *
* Eastern Canal TWPecos to ChandlePF 7          *                               Known WS = 1262.23 *
*****************************************************************************************************

*****************************************************************************

GEOMETRY DATA

Geometry Title: Eastern Canal Tailwater Ditch - 100-yr FP
Geometry File : p:\Mari0000-0040\Engineering\MARI0040-SE\HEC-RAS\CGFDSP1_TW.g01

CROSS SECTION


RIVER: Eastern Canal TW
REACH: Chandler to UPRR   RS: 8.581

INPUT
Description: UPRR
Station Elevation Data     num=      31
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************
 9928.58 1271.45 9934.93  1267.5 9939.23 1265.57 9942.64 1265.57 9942.75 1265.57
  9943.2    1266 9950.66  1272.4 9960.02 1272.36 9960.98 1272.37 9963.91 1272.29
 9983.37  1271.8 9983.77 1271.74 9984.65 1271.63 9985.81 1271.49 9987.61 1270.68
  9990.2  1269.310005.43 1269.3310018.41 1269.2510020.14 1270.3510020.99 1270.74
10021.33  1270.910021.84 1271.2310022.89 1271.3410022.96 1271.3310023.73 1271.39
10033.57    1272 10035.9 1270.42 10036.4 1270.1610036.59 1270.0410037.12 1269.83
10038.08  1269.4

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*************************************************
 9928.58    .035 9928.58    .022 9950.66    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9928.58 9950.66           574.67  574.67  574.67            .1       .3
Right Levee     Station= 9950.66      Elevation=  1272.4

CROSS SECTION


RIVER: Eastern Canal TW
REACH: Chandler to UPRR   RS: 8.473

INPUT
Description:
Station Elevation Data     num=      30
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************
 9916.54 1271.91  9921.6  1267.9 9923.89 1266.16 9926.46 1266.05 9930.99 1265.86
 9936.91 1268.99 9938.99  1270.1 9946.98 1270.86  9949.9 1271.14 9951.77 1271.64
 9951.811271.651 9954.96 1272.49 9975.39  1272.5 9978.88 1272.52 9979.92 1272.48
 9985.72  1272.1 9989.26 1269.53 9989.49 1269.33  9995.1  1269.310019.61 1269.17
10020.91  1269.610022.56 1269.8510023.91  1270.110024.27 1270.15 10026.6 1270.08
10034.13  1269.910035.23 1269.8410042.29 1269.7510057.94 1269.8710063.12 1269.91

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*************************************************
 9916.54    .035 9916.54    .022 9951.81    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9916.54 9951.81           498.84  498.84  498.84            .1       .3
Right Levee     Station= 9975.39      Elevation=  1272.5

CROSS SECTION


RIVER: Eastern Canal TW
REACH: Chandler to UPRR   RS: 8.379

INPUT
Description:
Station Elevation Data     num=      31
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************
  9915.2 1272.12 9916.15  1270.9  9919.5  1266.8 9919.94 1266.16 9922.06 1266.08
 9928.37 1265.86 9933.09  1268.7  9936.5 1270.93 9942.35 1270.93  9947.5 1271.02
 9952.43 1272.19 9954.03  1272.5  9967.5 1272.53 9975.87 1272.53 9980.44 1272.14
 9980.77  1272.1 9981.35 1271.87 9987.46 1269.3310005.95 1269.2410018.19 1269.17
10019.62  1269.910020.94 1270.4310024.45 1271.4910024.95 1271.6410025.34 1271.65
10030.25  1270.910032.84 1271.79   10040 1269.87 10041.9  1269.310046.14 1269.37
10060.97  1269.6

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*************************************************
  9915.2    .035  9915.2    .022 9952.43    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        9915.2 9952.43           497.99  497.99  497.99            .1       .3
Right Levee     Station= 9954.03      Elevation=  1272.5
```

CROSS SECTION

RIVER: Eastern Canal TW
REACH: Chandler to UPRR RS: 8.284

INPUT
Description:
Station Elevation Data num= 33

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9915.22	1270.4	9915.71	1269.95	9920.79	1265.19	9923.02	1265.19	9928.07	1265.19
9932.78	1268.3	9934.36	1269.46	9941.69	1269.61	9945.77	1269.72	9950.18	1270.33
9953.76	1270.8	9961.77	1270.84	9967.7	1270.86	9968.93	1270.86	9970.35	1270.91
9981.21	1271.2	9981.24	1271.23	9983.31	1271.23	9983.39	1271.19	9987.03	1269.17
10002.53	1269.2	10016.83	1269.17	10018.53	1270.32	10019.43	1270.75	10019.77	1270.75
10020.66	1270.8	10022.93	1270.85	10031.47	1270.87	10034.55	1270.06	10039.39	1268.54
10055.5	1268.1	10057.98	1268.04	10059.19	1268.12				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9915.22	.035	9915.22	.022	9950.18	.035

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
9915.22 9950.18 448.34 448.34 448.34 .1 .3
Right Levee Station= 9981.21 Elevation= 1271.23

LATERAL STRUCTURE

RIVER: Eastern Canal TW
REACH: Chandler to UPRR RS: 8.237

INPUT
Description: Weir along east bank TWD
Lateral structure position = Left overbank
Distance from Upstream XS = 0
Deck/Roadway Width = 2
Weir Coefficient = 2
Weir Flow Reference = Water Surface
Weir Embankment Coordinates num = 2

Sta	Elev	Sta	Elev
0	1270.4	448.34	1269.88

Weir crest shape = Broad Crested

LATERAL STRUCTURE OUTPUT Profile #PF 1 Lat Struct

E.G. US. (ft)	1266.71	Weir Sta US (ft)	
W.S. US. (ft)	1266.65	Weir Sta DS (ft)	
E.G. DS (ft)	1266.53	Weir Max Depth (ft)	
W.S. DS (ft)	1266.50	Weir Avg Depth (ft)	
Q US (cfs)	25.00	Weir Submerg	
Q Leaving Total (cfs)	0.00	Min El Weir Flow (ft)	1269.88
Q DS (cfs)	25.00	Wr Top Wdth (ft)	
Perc Q Leaving	0.00	Q Gate Group (cfs)	
Q Weir (cfs)		Gate Open Ht (ft)	
Q Gates (cfs)		Gate #Open	
Q Culv (cfs)		Gate Area (sq ft)	
Q Lat RC (cfs)		Gate Submerg	
Weir Flow Area (sq ft)		Gate Invert (ft)	

LATERAL STRUCTURE OUTPUT Profile #PF 2 Lat Struct

E.G. US. (ft)	1267.51	Weir Sta US (ft)	
W.S. US. (ft)	1267.43	Weir Sta DS (ft)	
E.G. DS (ft)	1267.32	Weir Max Depth (ft)	
W.S. DS (ft)	1267.28	Weir Avg Depth (ft)	
Q US (cfs)	50.00	Weir Submerg	
Q Leaving Total (cfs)	0.00	Min El Weir Flow (ft)	1269.88
Q DS (cfs)	50.00	Wr Top Wdth (ft)	
Perc Q Leaving	0.00	Q Gate Group (cfs)	
Q Weir (cfs)		Gate Open Ht (ft)	
Q Gates (cfs)		Gate #Open	
Q Culv (cfs)		Gate Area (sq ft)	
Q Lat RC (cfs)		Gate Submerg	
Weir Flow Area (sq ft)		Gate Invert (ft)	

LATERAL STRUCTURE OUTPUT Profile #PF 3 Lat Struct

E.G. US. (ft)	1268.15	Weir Sta US (ft)	
W.S. US. (ft)	1268.06	Weir Sta DS (ft)	
E.G. DS (ft)	1267.97	Weir Max Depth (ft)	
W.S. DS (ft)	1267.92	Weir Avg Depth (ft)	
Q US (cfs)	75.00	Weir Submerg	
Q Leaving Total (cfs)	0.00	Min El Weir Flow (ft)	1269.88
Q DS (cfs)	75.00	Wr Top Wdth (ft)	
Perc Q Leaving	0.00	Q Gate Group (cfs)	
Q Weir (cfs)		Gate Open Ht (ft)	
Q Gates (cfs)		Gate #Open	
Q Culv (cfs)		Gate Area (sq ft)	
Q Lat RC (cfs)		Gate Submerg	
Weir Flow Area (sq ft)		Gate Invert (ft)	

LATERAL STRUCTURE OUTPUT Profile #PF 4 Lat Struct

E.G. US. (ft)	1268.72	Weir Sta US (ft)	
W.S. US. (ft)	1268.62	Weir Sta DS (ft)	
E.G. DS (ft)	1268.54	Weir Max Depth (ft)	
W.S. DS (ft)	1268.48	Weir Avg Depth (ft)	

```
* Q US (cfs)              *  100.00  * Weir Submerg          *          *
* Q Leaving Total (cfs)   *    0.00  * Min El Weir Flow (ft) * 1269.88  *
* Q DS (cfs)              *  100.00  * Wr Top Wdth (ft)      *          *
* Perc Q Leaving          *    0.00  * Q Gate Group (cfs)     *          *
* Q Weir (cfs)            *          * Gate Open Ht (ft)      *          *
* Q Gates (cfs)           *          * Gate #Open             *          *
* Q Culv (cfs)            *          * Gate Area (sq ft)      *          *
* Q Lat RC (cfs)          *          * Gate Submerg           *          *
* Weir Flow Area (sq ft)  *          * Gate Invert (ft)       *          *
*************************************************************************

LATERAL STRUCTURE OUTPUT  Profile #PF 5  Lat Struct
*************************************************************************
* E.G. US. (ft)           * 1269.23  * Weir Sta US (ft)       *          *
* W.S. US. (ft)           * 1269.12  * Weir Sta DS (ft)       *          *
* E.G. DS (ft)            * 1269.06  * Weir Max Depth (ft)    *          *
* W.S. DS (ft)            * 1269.00  * Weir Avg Depth (ft)    *          *
* Q US (cfs)              *  125.00  * Weir Submerg           *          *
* Q Leaving Total (cfs)   *    0.00  * Min El Weir Flow (ft)  * 1269.88  *
* Q DS (cfs)              *  125.00  * Wr Top Wdth (ft)       *          *
* Perc Q Leaving          *    0.00  * Q Gate Group (cfs)     *          *
* Q Weir (cfs)            *          * Gate Open Ht (ft)      *          *
* Q Gates (cfs)           *          * Gate #Open             *          *
* Q Culv (cfs)            *          * Gate Area (sq ft)      *          *
* Q Lat RC (cfs)          *          * Gate Submerg           *          *
* Weir Flow Area (sq ft)  *          * Gate Invert (ft)       *          *
*************************************************************************

LATERAL STRUCTURE OUTPUT  Profile #PF 6  Lat Struct
*************************************************************************
* E.G. US. (ft)           * 1269.73  * Weir Sta US (ft)       *          *
* W.S. US. (ft)           * 1269.62  * Weir Sta DS (ft)       *          *
* E.G. DS (ft)            * 1269.54  * Weir Max Depth (ft)    *          *
* W.S. DS (ft)            * 1269.47  * Weir Avg Depth (ft)    *          *
* Q US (cfs)              *  150.00  * Weir Submerg           *          *
* Q Leaving Total (cfs)   *    0.00  * Min El Weir Flow (ft)  * 1269.88  *
* Q DS (cfs)              *  150.00  * Wr Top Wdth (ft)       *          *
* Perc Q Leaving          *    0.00  * Q Gate Group (cfs)     *          *
* Q Weir (cfs)            *          * Gate Open Ht (ft)      *          *
* Q Gates (cfs)           *          * Gate #Open             *          *
* Q Culv (cfs)            *          * Gate Area (sq ft)      *          *
* Q Lat RC (cfs)          *          * Gate Submerg           *          *
* Weir Flow Area (sq ft)  *          * Gate Invert (ft)       *          *
*************************************************************************

LATERAL STRUCTURE OUTPUT  Profile #PF 7  Lat Struct
*************************************************************************
* E.G. US. (ft)           * 1270.18  * Weir Sta US (ft)       *  397.84  *
* W.S. US. (ft)           * 1270.09  * Weir Sta DS (ft)       *  448.34  *
* E.G. DS (ft)            * 1269.99  * Weir Max Depth (ft)    *    0.04  *
* W.S. DS (ft)            * 1269.92  * Weir Avg Depth (ft)    *    0.02  *
* Q US (cfs)              *  175.00  * Weir Submerg           *    0.00  *
* Q Leaving Total (cfs)   *    0.31  * Min El Weir Flow (ft)  * 1269.88  *
* Q DS (cfs)              *  174.69  * Wr Top Wdth (ft)       *   50.50  *
* Perc Q Leaving          *    0.18  * Q Gate Group (cfs)     *          *
* Q Weir (cfs)            *    0.31  * Gate Open Ht (ft)      *          *
* Q Gates (cfs)           *          * Gate #Open             *          *
* Q Culv (cfs)            *          * Gate Area (sq ft)      *          *
* Q Lat RC (cfs)          *          * Gate Submerg           *          *
* Weir Flow Area (sq ft)  *    0.99  * Gate Invert (ft)       *          *
*************************************************************************

CROSS SECTION


RIVER: Eastern Canal TW
REACH: Chandler to UPRR   RS: 8.189

INPUT
Description:
Station Elevation Data     num=      27
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************
 9915.22 1269.88  9921.1  1265.4 9922.15 1264.53 9922.76 1264.53 9929.05 1264.53
 9929.83 1265.01 9936.93  1269.4 9937.32 1269.41 9950.66  1269.9 9962.56 1270.08
 9966.93  1270.7 9971.53 1270.15 9983.35 1270.13 9984.22 1270.13 9984.82  1270.1
 9986.34 1269.39 9987.86 1268.51 9995.48 1268.5110015.37 1268.51 10016.3    1270
10016.48 1270.2410019.05 1270.2310038.52 1269.8410063.59 1269.6510066.19  1269.6
10068.17 1269.6310070.23 1269.63

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*************************************************
 9915.22    .035 9915.22    .022 9950.66    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9915.22 9950.66           268.65  268.65  268.65            .1       .3
Right Levee     Station= 9966.93      Elevation=  1270.7

LATERAL STRUCTURE


RIVER: Eastern Canal TW
REACH: Chandler to UPRR   RS: 8.164

INPUT
Description: Weir along east bank TWD
Lateral structure position     = Left overbank
Distance from Upstream XS =       0
Deck/Roadway Width        =       2
Weir Coefficient          =       2
Weir Flow Reference       = Water Surface
 Weir Embankment Coordinates    num =        2
     Sta    Elev     Sta    Elev
*********************************
       0 1269.88  268.65  1270.2
```

Weir crest shape = Broad Crested

LATERAL STRUCTURE OUTPUT Profile #PF 1 Lat Struct

E.G. US. (ft)	1266.53	Weir Sta US (ft)	
W.S. US. (ft)	1266.50	Weir Sta DS (ft)	
E.G. DS (ft)	1266.51	Weir Max Depth (ft)	
W.S. DS (ft)	1266.50	Weir Avg Depth (ft)	
Q US (cfs)	25.00	Weir Submerg	
Q Leaving Total (cfs)	0.00	Min El Weir Flow (ft)	1269.88
Q DS (cfs)	25.00	Wr Top Wdth (ft)	
Perc Q Leaving	0.00	Q Gate Group (cfs)	
Q Weir (cfs)		Gate Open Ht (ft)	
Q Gates (cfs)		Gate #Open	
Q Culv (cfs)		Gate Area (sq ft)	
Q Lat RC (cfs)		Gate Submerg	
Weir Flow Area (sq ft)		Gate Invert (ft)	

LATERAL STRUCTURE OUTPUT Profile #PF 2 Lat Struct

E.G. US. (ft)	1267.32	Weir Sta US (ft)	
W.S. US. (ft)	1267.28	Weir Sta DS (ft)	
E.G. DS (ft)	1267.30	Weir Max Depth (ft)	
W.S. DS (ft)	1267.27	Weir Avg Depth (ft)	
Q US (cfs)	50.00	Weir Submerg	
Q Leaving Total (cfs)	0.00	Min El Weir Flow (ft)	1269.88
Q DS (cfs)	50.00	Wr Top Wdth (ft)	
Perc Q Leaving	0.00	Q Gate Group (cfs)	
Q Weir (cfs)		Gate Open Ht (ft)	
Q Gates (cfs)		Gate #Open	
Q Culv (cfs)		Gate Area (sq ft)	
Q Lat RC (cfs)		Gate Submerg	
Weir Flow Area (sq ft)		Gate Invert (ft)	

LATERAL STRUCTURE OUTPUT Profile #PF 3 Lat Struct

E.G. US. (ft)	1267.97	Weir Sta US (ft)	
W.S. US. (ft)	1267.92	Weir Sta DS (ft)	
E.G. DS (ft)	1267.94	Weir Max Depth (ft)	
W.S. DS (ft)	1267.88	Weir Avg Depth (ft)	
Q US (cfs)	75.00	Weir Submerg	
Q Leaving Total (cfs)	0.00	Min El Weir Flow (ft)	1269.88
Q DS (cfs)	75.00	Wr Top Wdth (ft)	
Perc Q Leaving	0.00	Q Gate Group (cfs)	
Q Weir (cfs)		Gate Open Ht (ft)	
Q Gates (cfs)		Gate #Open	
Q Culv (cfs)		Gate Area (sq ft)	
Q Lat RC (cfs)		Gate Submerg	
Weir Flow Area (sq ft)		Gate Invert (ft)	

LATERAL STRUCTURE OUTPUT Profile #PF 4 Lat Struct

E.G. US. (ft)	1268.54	Weir Sta US (ft)	
W.S. US. (ft)	1268.48	Weir Sta DS (ft)	
E.G. DS (ft)	1268.51	Weir Max Depth (ft)	
W.S. DS (ft)	1268.42	Weir Avg Depth (ft)	
Q US (cfs)	100.00	Weir Submerg	
Q Leaving Total (cfs)	0.00	Min El Weir Flow (ft)	1269.88
Q DS (cfs)	100.00	Wr Top Wdth (ft)	
Perc Q Leaving	0.00	Q Gate Group (cfs)	
Q Weir (cfs)		Gate Open Ht (ft)	
Q Gates (cfs)		Gate #Open	
Q Culv (cfs)		Gate Area (sq ft)	
Q Lat RC (cfs)		Gate Submerg	
Weir Flow Area (sq ft)		Gate Invert (ft)	

LATERAL STRUCTURE OUTPUT Profile #PF 5 Lat Struct

E.G. US. (ft)	1269.06	Weir Sta US (ft)	
W.S. US. (ft)	1269.00	Weir Sta DS (ft)	
E.G. DS (ft)	1269.03	Weir Max Depth (ft)	
W.S. DS (ft)	1268.91	Weir Avg Depth (ft)	
Q US (cfs)	125.00	Weir Submerg	
Q Leaving Total (cfs)	0.00	Min El Weir Flow (ft)	1269.88
Q DS (cfs)	125.00	Wr Top Wdth (ft)	
Perc Q Leaving	0.00	Q Gate Group (cfs)	
Q Weir (cfs)		Gate Open Ht (ft)	
Q Gates (cfs)		Gate #Open	
Q Culv (cfs)		Gate Area (sq ft)	
Q Lat RC (cfs)		Gate Submerg	
Weir Flow Area (sq ft)		Gate Invert (ft)	

LATERAL STRUCTURE OUTPUT Profile #PF 6 Lat Struct

E.G. US. (ft)	1269.54	Weir Sta US (ft)	
W.S. US. (ft)	1269.47	Weir Sta DS (ft)	
E.G. DS (ft)	1269.50	Weir Max Depth (ft)	
W.S. DS (ft)	1269.35	Weir Avg Depth (ft)	
Q US (cfs)	150.00	Weir Submerg	
Q Leaving Total (cfs)	0.00	Min El Weir Flow (ft)	1269.88
Q DS (cfs)	150.00	Wr Top Wdth (ft)	
Perc Q Leaving	0.00	Q Gate Group (cfs)	
Q Weir (cfs)		Gate Open Ht (ft)	
Q Gates (cfs)		Gate #Open	
Q Culv (cfs)		Gate Area (sq ft)	
Q Lat RC (cfs)		Gate Submerg	
Weir Flow Area (sq ft)		Gate Invert (ft)	

```
LATERAL STRUCTURE OUTPUT  Profile #PF 7  Lat Struct
*************************************************************************
* E.G. US. (ft)          * 1269.99  * Weir Sta US (ft)       *    0.00  *
* W.S. US. (ft)          * 1269.92  * Weir Sta DS (ft)       *   22.14  *
* E.G. DS (ft)           * 1269.94  * Weir Max Depth (ft)    *    0.04  *
* W.S. DS (ft)           * 1269.77  * Weir Avg Depth (ft)    *    0.02  *
* Q US (cfs)             *  174.69  * Weir Submerg           *    0.00  *
* Q Leaving Total (cfs)  *    0.14  * Min El Weir Flow (ft)  * 1269.88  *
* Q DS (cfs)             *  174.55  * Wr Top Wdth (ft)       *   22.14  *
* Perc Q Leaving         *    0.08  * Q Gate Group (cfs)     *          *
* Q Weir (cfs)           *    0.14  * Gate Open Ht (ft)      *          *
* Q Gates (cfs)          *          * Gate #Open             *          *
* Q Culv (cfs)           *          * Gate Area (sq ft)      *          *
* Q Lat RC (cfs)         *          * Gate Submerg           *          *
* Weir Flow Area (sq ft) *    0.43  * Gate Invert (ft)       *          *
*************************************************************************

CROSS SECTION


RIVER: Eastern Canal TW
REACH: Chandler to UPRR   RS: 8.138

INPUT
Description: U/S Ray Road
Station Elevation Data    num=      37
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
  9917.8  1270.2 9919.43  1268.6 9924.07 1263.17 9928.39 1263.17 9934.27 1263.17
 9940.18  1268.1 9943.46 1270.56 9951.13 1271.01 9955.72 1271.24 9959.21 1271.43
 9959.95  1271.4 9962.24 1271.43 9967.57  1271.4  9967.6 1271.43 9970.08 1271.45
 9973.22 1271.43 9974.94  1271.5 9975.05 1271.45 9975.68 1271.44 9976.91 1271.46
 9979.85 1271.22  9982.8  1270.8  9987.7 1270.17 9989.85 1269.06 9991.47 1268.29
10006.56 1268.2910010.99  1268.310011.69 1268.6410015.81 1270.9310021.12 1270.91
10027.13 1270.7110038.16  1270.610039.38 1270.5810040.79 1270.5810047.08 1270.13
10048.99 1270.0610052.02  1270.1

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*************************************************
  9917.8    .035  9917.8    .015 9943.46    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        9917.8 9943.46           139.52  139.52  139.52             .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
  9917.8 9924.98    1272        F
 9932.9810052.02    1272        F
Right Levee     Station= 9974.94      Elevation=  1271.5

CULVERT


RIVER: Eastern Canal TW
REACH: Chandler to UPRR   RS: 8.125

INPUT
Description: 8 x 7' Box Culvert Under Ray Road
Distance from Upstream XS =    40.8
Deck/Roadway Width        =   81.23
Weir Coefficient          =     2.6
Upstream  Deck/Roadway Coordinates
    num=       4
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
*************************************************************************
 9803.01  1272.6         9906.71 1273.45         10003.9 1273.55
 10051.9 1273.53

Upstream Bridge Cross Section Data
Station Elevation Data    num=      37
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
  9917.8  1270.2 9919.43  1268.6 9924.07 1263.17 9928.39 1263.17 9934.27 1263.17
 9940.18  1268.1 9943.46 1270.56 9951.13 1271.01 9955.72 1271.24 9959.21 1271.43
 9959.95  1271.4 9962.24 1271.43 9967.57  1271.4  9967.6 1271.43 9970.08 1271.45
 9973.22 1271.43 9974.94  1271.5 9975.05 1271.45 9975.68 1271.44 9976.91 1271.46
 9979.85 1271.22  9982.8  1270.8  9987.7 1270.17 9989.85 1269.06 9991.47 1268.29
10006.56 1268.2910010.99  1268.310011.69 1268.6410015.81 1270.9310021.12 1270.91
10027.13 1270.7110038.16  1270.610039.38 1270.5810040.79 1270.5810047.08 1270.13
10048.99 1270.0610052.02  1270.1

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*************************************************
  9917.8    .035  9917.8    .015 9943.46    .035

Bank Sta: Left   Right    Coeff Contr.   Expan.
        9917.8 9943.46             .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
  9917.8 9924.98    1272        F
 9932.9810052.02    1272        F
Right Levee     Station= 9974.94      Elevation=  1271.5

Downstream  Deck/Roadway Coordinates
    num=       4
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
*************************************************************************
 9803.01  1272.6         9906.71 1273.45         10003.9 1273.55
10045.16 1273.54

Downstream Bridge Cross Section Data
Station Elevation Data    num=      37
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
 9893.68  1270.9  9895.5 1270.87 9897.95 1270.51 9899.72 1270.23 9900.59 1270.23
```

```
 9902.41  1270.2 9904.97 1270.26 9909.73 1270.29  9913.3 1270.26 9915.56 1270.27
 9917.84  1268.6 9923.13 1263.03 9933.32 1263.03 9934.26 1263.03 9938.95  1267.4
 9944.42  1270.5 9945.47 1270.71 9947.68 1271.22 9948.33 1271.22 9950.48 1271.26
 9979.08  1271.4 9979.16  1271.4 9981.54 1271.37 9984.73 1271.32 9984.78 1271.32
 9984.82  1271.3  9989.8 1268.05   100001267.97410003.19 1267.9510009.61  1267.9
10013.82 1270.0610015.46  1271.210018.07 1270.9910025.39 1271.1610039.12 1271.33
10044.11 1271.3810045.16  1271.5

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
**********************************************
 9893.68    .035 9915.56    .015 9944.42    .035

Bank Sta: Left   Right    Coeff Contr.   Expan.
       9915.56 9944.42            .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
 9893.68 9924.43    1272       F
 9932.4310045.16    1272       F
Right Levee     Station= 9979.08      Elevation=  1271.4

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
8x7 Box               Box       7       8
FHWA Chart # 8 - flared wingwalls
FHWA Scale # 2 - Wingwall flared 90 or 15 deg.
Solution Criteria = Highest U.S. EG
Culvert Upstrm Dist  Length    Top n  Bottom n  Depth Blocked  Entrance Loss Coef   Exit Loss Coef
                 7.4     130     .015     .015        0                  .5                  1
Upstream   Elevation =  1263.17
           Centerline Station =  9928.98
Downstream Elevation =  1263.03
           Centerline Station =  9928.43

CROSS SECTION


RIVER: Eastern Canal TW
REACH: Chandler to UPRR   RS: 8.112

INPUT
Description: D/S Ray Road
Station Elevation Data    num=      37
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*******************************************************************************
 9893.68  1270.9  9895.5 1270.87 9897.95 1270.51 9899.72 1270.23 9900.59 1270.23
 9902.41  1270.2 9904.97 1270.26 9909.73 1270.29  9913.3 1270.26 9915.56 1270.27
 9917.84  1268.6 9923.13 1263.03 9933.32 1263.03 9934.26 1263.03 9938.95  1267.4
 9944.42  1270.5 9945.47 1270.71 9947.68 1271.22 9948.33 1271.22 9950.48 1271.26
 9979.08  1271.4 9979.16  1271.4 9981.54 1271.37 9984.73 1271.32 9984.78 1271.32
 9984.82  1271.3  9989.8 1268.05   100001267.97410003.19 1267.9510009.61  1267.9
10013.82 1270.0610015.46  1271.210018.07 1270.9910025.39 1271.1610039.12 1271.33
10044.11 1271.3810045.16  1271.5

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
**********************************************
 9893.68    .035 9915.56    .015 9944.42    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9915.56 9944.42            91.68   91.68   91.68            .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
 9893.68 9924.43    1272       F
 9932.4310045.16    1272       F
Right Levee     Station= 9979.08      Elevation=  1271.4

CROSS SECTION


RIVER: Eastern Canal TW
REACH: Chandler to UPRR   RS: 8.095

INPUT
Description: A block wall is modeled on the east side of the TWD. END Wall.
Station Elevation Data    num=      24
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*******************************************************************************
 9909.98 1276.06 9909.98 1270.06 9918.84  1270.1 9921.14 1267.93 9924.44    1263
 9926.74    1263 9933.04    1263 9936.35  1267.7 9939.89 1270.99 9946.12 1271.11
 9952.95 1271.26 9984.78 1269.27 9986.55  1269.2 9987.17 1268.97 9991.49 1267.59
 9995.43 1267.59   100001267.58210012.67 1267.5610014.62  1268.810016.17 1269.74
10017.06 1269.7310017.38 1269.7310022.44 1269.62 10029.4  1269.7

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
**********************************************
 9909.98    .035 9918.84    .015 9939.89    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9918.84 9939.89           342.25  342.25  342.25            .1       .3
Right Levee     Station= 9952.95      Elevation= 1271.26

CROSS SECTION


RIVER: Eastern Canal TW
```

```
REACH: Chandler to UPRR   RS: 8.048

INPUT
Description:
Station Elevation Data    num=      21
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*******************************************************************************
 9913.91 1275.88 9913.91 1269.88  9917.7 1264.09 9924.99 1264.09 9926.36 1264.09
 9928.08 1265.88 9931.56  1269.4 9949.24 1269.96 9951.05 1270.04 9982.55 1270.34
 9993.01 1269.16 9993.11  1269.1 9996.51 1267.0510010.49 1267.0410017.14 1267.03
10020.11 1268.8410020.99  1269.410021.14 1269.4210022.51 1269.4210027.72 1269.46
10037.56 1269.55

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*************************************************
 9913.91    .035 9913.91    .015 9931.56    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9913.91 9931.56           342.25  342.25  342.25            .1       .3
Right Levee     Station= 9982.55      Elevation= 1270.34

CROSS SECTION


RIVER: Eastern Canal TW
REACH: Chandler to UPRR   RS: 7.985

INPUT
Description:
Station Elevation Data    num=      24
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*******************************************************************************
 9912.05 1275.75 9912.05 1269.65 9913.62 1269.55 9915.22 1264.19 9915.69 1263.42
 9916.41 1263.42  9924.3 1263.42 9924.96  1264.1 9930.19 1269.66 9948.19 1269.78
 9955.66 1269.83 9958.91 1269.85 9979.05  1270.7 9990.31 1269.59 9993.34 1267.74
    9995 1266.74 9998.48  1266.710015.79 1266.7410017.75 1268.4210019.22 1269.62
10020.39 1269.6210020.67  1269.610027.65 1269.6210030.71 1269.62

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*************************************************
 9912.05    .035 9913.62    .015 9930.19    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9913.62 9930.19           495.35  495.35  495.35            .1       .3
Right Levee     Station= 9979.05      Elevation=  1270.7

CROSS SECTION


RIVER: Eastern Canal TW
REACH: Chandler to UPRR   RS: 7.892

INPUT
Description:
Station Elevation Data    num=      24
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*******************************************************************************
 9908.71 1275.58 9908.71 1268.58 9910.94 1268.31 9912.16    1267 9914.32 1264.48
  9915.8  1264.5 9922.32 1264.48 9924.82 1268.18 9925.98 1269.93 9937.82 1270.05
 9955.62  1270.2 9981.26 1270.52 9989.43 1270.52  9991.1 1268.71 9992.76 1266.74
10010.15  1266.710014.76 1266.7410016.19 1270.3810016.21 1270.4310016.37 1270.43
 10021.4  1270.3 10025.4 1270.3510033.15 1270.4510033.63 1270.41

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*************************************************
 9908.71    .035 9910.94    .015 9925.98    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9910.94 9925.98           500.44  500.44  500.44            .1       .3
Right Levee     Station= 9981.26      Elevation= 1270.52

CROSS SECTION


RIVER: Eastern Canal TW
REACH: Chandler to UPRR   RS: 7.796

INPUT
Description:
Station Elevation Data    num=      27
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*******************************************************************************
 9907.87 1275.52 9907.87 1268.52 9909.451268.804 9910.71 1268.21 9910.79 1268.19
 9913.91  1264.8    9914 1264.68  9921.9 1264.68    9922 1264.68 9922.18 1264.97
 9925.26  1269.6 9949.26 1270.27 9954.47 1270.45 9963.18 1270.38 9986.88 1270.29
 9988.41  1268.4  9989.9 1266.75  9993.4 1266.75 10011.9 1266.7510012.35 1267.69
10013.03  1269.310013.56 1270.2710014.91 1270.3610022.63 1270.8110023.06  1270.8
 10029.8  1270.610031.13 1270.45

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*************************************************
 9907.87    .035 9909.45    .015 9925.26    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9909.45 9925.26           502.04  502.04  502.04            .1       .3
Right Levee     Station= 9954.47      Elevation= 1270.45

CROSS SECTION


RIVER: Eastern Canal TW
REACH: Chandler to UPRR   RS: 7.702
```

```
INPUT
Description:
Station Elevation Data    num=      24
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*******************************************************************************
 9909.71 1275.82 9909.71 1268.82 9913.33 1268.73 9916.54 1264.75  9916.7 1264.52
 9917.53  1264.5  9924.7 1264.52 9925.73 1265.92 9928.01 1269.09 9947.98 1269.84
 9956.76  1270.2 9971.19 1270.25 9988.46 1270.29 9990.95 1268.09 9992.15 1267.04
10011.75    126710014.16 1267.0410014.47 1267.6210015.54 1269.2110016.06 1270.11
10018.95  1270.310024.61 1270.6410028.37 1270.8910030.45    1271

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
***********************************************
 9909.71    .035 9913.33    .015 9928.01    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9913.33 9928.01             495.31  495.31  495.31            .1       .3
Right Levee     Station= 9988.46      Elevation= 1270.29

CROSS SECTION


RIVER: Eastern Canal TW
REACH: Chandler to UPRR   RS: 7.607

INPUT
Description:
Station Elevation Data    num=      26
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*******************************************************************************
 9911.79 1275.05 9911.79 1269.05  9918.1  1269.1 9918.77    1269 9919.07 1267.09
 9920.64  1264.7 9924.19 1264.65 9929.01 1264.61 9933.89 1269.29 9934.43 1269.77
 9939.53  1269.9 9955.13 1270.25 9957.95 1270.36 9960.48 1270.49  9968.1 1270.55
 9988.78  1270.8 9991.66 1269.68 9995.07 1268.0910000.22 1268.0910017.08 1268.09
10018.35  1269.210019.21 1270.2710022.94  1270.910023.37 1270.9610025.18 1270.95
10034.46  1270.8

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
***********************************************
 9911.79    .035 9918.77    .015 9933.89    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9918.77 9933.89             497.37  497.37  497.37            .1       .3
Right Levee     Station= 9988.78      Elevation=  1270.8

CROSS SECTION


RIVER: Eastern Canal TW
REACH: Chandler to UPRR   RS: 7.513

INPUT
Description:
Station Elevation Data    num=      22
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*******************************************************************************
 9927.96 1273.57 9927.96 1268.57 9931.18 1268.53 9932.26 1267.44 9934.66  1264.7
 9938.27 1264.67 9942.66 1264.67 9946.79 1268.37 9947.63 1269.09 9953.33  1269.6
 9962.28 1270.41    9966 1270.39 9990.95 1270.17 9993.35 1268.78  9994.3  1268.2
10010.12 1268.2110016.33 1268.21 10016.8 1268.9510018.79 1270.2710020.63  1270.6
10022.38 1270.72 10033.5 1270.63

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
***********************************************
 9927.96    .035 9931.18    .015 9946.79    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9931.18 9946.79             502.98  502.98  502.98            .1       .3
Right Levee     Station= 9962.28      Elevation= 1270.41

CROSS SECTION


RIVER: Eastern Canal TW
REACH: Chandler to UPRR   RS: 7.423

INPUT
Description:
Station Elevation Data    num=      21
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*******************************************************************************
 9930.83 1273.66 9930.83 1267.66 9934.55 1267.62 9936.98 1265.28 9938.25 1264.34
 9943.46 1264.34 9944.32  1264.3  9947.1 1267.87 9948.37  1269.1 9979.16 1269.79
 9993.06 1270.11 9994.33  1269.3 9997.17 1268.2110016.02 1268.2110019.13 1268.21
10021.38 1269.31 10022.6  1269.810023.28 1270.1110023.61 1270.1510028.15 1270.79
 10029.3 1270.49

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
***********************************************
 9930.83    .035 9934.55    .015 9948.37    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9934.55 9948.37             162.82  162.82  162.82            .1       .3
Right Levee     Station= 9993.06      Elevation= 1270.11

CROSS SECTION


RIVER: Eastern Canal TW
REACH: Chandler to UPRR   RS: 7.396
```

```
INPUT
Description: U/S Val Vista Drive
Station Elevation Data    num=      25
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*******************************************************************************
 9929.68 1276.75 9929.68 1270.75 9933.81 1270.45 9935.29 1270.45 9935.47 1269.96
  9936.9 1267.25 9938.72 1262.97 9945.27 1262.97 9948.81 1262.97 9950.72 1262.97
 9955.28 1269.67 9956.61  1270.7 9960.35 1270.73   100001270.42910001.13 1270.42
10003.39 1269.01 10004.4 1268.2110009.97  1268.210023.81 1268.21 10026.5 1269.72
10027.17 1270.2710028.57  1270.410030.24  1270.710031.58 1270.8710039.79 1270.42

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
***********************************************
 9929.68    .035 9935.29    .015 9956.61    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9935.29 9956.61           151.41  151.41  151.41             .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
 9929.68 9938.72  1271.8       F
 9950.7210039.79  1271.8       F
Right Levee     Station= 9960.35      Elevation= 1270.73

CULVERT


RIVER: Eastern Canal TW
REACH: Chandler to UPRR   RS: 7.384

INPUT
Description: 12 x 5.5' Box Culvert under Val Vista Drive
Distance from Upstream XS =      10
Deck/Roadway Width        =   131.4
Weir Coefficient          =     2.6
Upstream  Deck/Roadway Coordinates
    num=       6
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
*****************************************************************************
 9452.41  1268.8         9647.27  1268.9         9734.73 1269.92
  9832.5 1270.96         9929.63  1271.8        10067.18    1272

Upstream Bridge Cross Section Data
Station Elevation Data    num=      25
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*******************************************************************************
 9929.68 1276.75 9929.68 1270.75 9933.81 1270.45 9935.29 1270.45 9935.47 1269.96
  9936.9 1267.25 9938.72 1262.97 9945.27 1262.97 9948.81 1262.97 9950.72 1262.97
 9955.28 1269.67 9956.61  1270.7 9960.35 1270.73   100001270.42910001.13 1270.42
10003.39 1269.01 10004.4 1268.2110009.97  1268.210023.81 1268.21 10026.5 1269.72
10027.17 1270.2710028.57  1270.410030.24  1270.710031.58 1270.8710039.79 1270.42

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
***********************************************
 9929.68    .035 9935.29    .015 9956.61    .035

Bank Sta: Left   Right    Coeff Contr.   Expan.
       9935.29 9956.61             .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
 9929.68 9938.72  1271.8       F
 9950.7210039.79  1271.8       F
Right Levee     Station= 9960.35      Elevation= 1270.73

Downstream  Deck/Roadway Coordinates
    num=       5
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
*****************************************************************************
 9647.27  1268.9         9734.73 1269.92          9832.5 1270.96
 9929.63  1271.8        10067.18    1272

Downstream Bridge Cross Section Data
Station Elevation Data    num=      17
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*******************************************************************************
  9927.8 1271.17 9929.53 1271.17 9932.51 1262.81 9937.22 1262.81 9940.84 1262.81
 9944.51 1262.81  9952.8  1271.1 9968.01 1271.01 9992.96 1270.86 9994.28 1270.31
 9997.22 1268.21   100001268.20610004.11  1268.210016.54 1268.2110017.89  1269.1
10019.22 1270.55 10034.6 1270.26

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
***********************************************
  9927.8    .035 9929.53    .015  9952.8    .035

Bank Sta: Left   Right    Coeff Contr.   Expan.
       9929.53  9952.8             .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
  9927.8 9932.51  1271.8       F
 9944.51 10034.6  1271.8       F
Right Levee     Station=  9952.8      Elevation=  1271.1

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         = 1270.96
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
12x5.5 Box          Box       5.5      12
```

```
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
              5.66   133.1     .015     .015         0                .4                  1
Upstream   Elevation =  1262.97
           Centerline Station =  9944.72
Downstream Elevation =  1262.81
           Centerline Station =  9938.51

CROSS SECTION


RIVER: Eastern Canal TW
REACH: Chandler to UPRR   RS: 7.367

INPUT
Description: D/S Val Vista Drive
Station Elevation Data    num=      17
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
  9927.8 1271.17 9929.53 1271.17 9932.51 1262.81 9937.22 1262.81 9940.84 1262.81
 9944.51 1262.81  9952.8  1271.1 9968.01 1271.01 9992.96 1270.86 9994.28 1270.31
 9997.22 1268.21   100001268.20610004.11  1268.210016.54 1268.2110017.89  1269.1
10019.22 1270.55 10034.6 1270.26

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
***********************************************
  9927.8    .035 9929.53    .015  9952.8    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9929.53  9952.8           187.74  187.74  187.74            .1        .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
  9927.8 9932.51  1271.8       F
 9944.51 10034.6  1271.8       F
Right Levee     Station=  9952.8      Elevation=  1271.1

CROSS SECTION


RIVER: Eastern Canal TW
REACH: Chandler to UPRR   RS: 7.332

INPUT
Description: Note: Stations 9937.70 and 9943.70 were added to better define the
             tailwater ditch through this section, with an assumed bottom width
             of 6 feet.
Station Elevation Data    num=      18
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
 9929.11  1274.9 9929.11  1268.9  9934.9 1266.63  9937.7  1262.8  9940.7  1262.8
  9943.7  1262.8 9951.23 1269.75 9962.81 1269.89 9995.26 1270.29 9997.15    1269
 9998.49  1268.1   100001268.09510007.39 1268.07 10020.8 1268.0410023.14 1269.71
10024.21 1270.4410026.05  1270.310027.82 1270.22

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
***********************************************
 9929.11    .035 9929.11    .015 9951.23    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9929.11 9951.23           468.36  468.36  468.36            .1        .3
Right Levee     Station= 9995.26      Elevation= 1270.29

CROSS SECTION


RIVER: Eastern Canal TW
REACH: Chandler to UPRR   RS: 7.243

INPUT
Description: Note: Stations 9940.43 and 9946.43 were added to better define the
             tailwater ditch through this section, with an assumed bottom width
             of 6 feet.
Station Elevation Data    num=      18
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
 9931.82 1274.81 9931.82 1268.43  9933.5 1268.43 9935.63 1267.97 9940.43 1263.11
 9943.43 1263.11 9946.43 1263.11  9947.8 1265.33 9954.55 1269.57 9988.19  1269.7
 9997.04 1269.75 9997.78 1269.26 9999.71 1268.0110006.11 1267.99 10023.7  1267.9
10024.53 1268.4210025.73 1269.77 10036.3 1268.62

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
***********************************************
 9931.82    .035  9933.5    .015 9954.55    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9933.5 9954.55           498.96  498.96  498.96            .1        .3
Right Levee     Station= 9997.04      Elevation= 1269.75

CROSS SECTION


RIVER: Eastern Canal TW
REACH: Chandler to UPRR   RS: 7.149

INPUT
Description: Note: Stations 9940.74 and 9946.74 were added to better define the
             tailwater ditch through this section, with an assumed bottom width
             of 6 feet.
Station Elevation Data    num=      21
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
```

```
 9933.3 1274.72  9933.3 1268.97  9937.8 1268.97 9938.56 1267.39 9940.74 1262.98
 9943.74 1262.98 9946.74 1262.98 9950.28  1266.8 9955.96 1270.26 9969.35 1270.62
 9975.13 1270.77 9978.92 1270.75 9986.82  1270.7 9995.75 1270.69 9997.67 1268.26
 9998.41 1267.3610003.34 1267.3610024.75  1267.4 10032.4 1268.19 10042.4 1269.25
 10042.7 1269.19

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
**********************************************
  9933.3    .035  9937.8    .015 9955.96    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        9937.8 9955.96            499.49  499.49  499.49            .1       .3
Right Levee     Station= 9975.13      Elevation= 1270.77

CROSS SECTION


RIVER: Eastern Canal TW
REACH: Chandler to UPRR   RS: 7.054

INPUT
Description: Note: Stations 9941.16 and 9947.16 were added to better define the
             tailwater ditch through this section, with an assumed bottom width
             of 6 feet.
Station Elevation Data    num=      19
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
**********************************************************************************
 9933.03 1274.63 9933.03 1268.89 9935.57 1268.89 9938.91  1267.4 9941.16    1263
 9944.16    1263 9947.16    1263 9954.67 1268.86  9957.1 1270.26 9966.64 1270.26
 9976.35  1270.3  9981.6 1270.22 9996.85 1270.28 9997.61  1269.3 9998.94 1267.36
10017.29  1267.410024.04 1267.3610031.67 1268.3310040.66 1269.51

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
**********************************************
 9933.03    .035 9935.57    .015  9957.1    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        9935.57  9957.1           501.1   501.1   501.1            .1       .3
Right Levee     Station= 9976.35      Elevation=  1270.3

CROSS SECTION


RIVER: Eastern Canal TW
REACH: Chandler to UPRR   RS: 6.953

INPUT
Description: Note: Stations 9935.62 and 9941.62 were added to better define the
             tailwater ditch through this section, with an assumed bottom width
             of 6 feet.
Station Elevation Data    num=      17
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
**********************************************************************************
  9927.8 1274.53  9927.8 1268.68 9930.41 1268.68 9932.54  1266.5 9935.62 1262.98
 9938.62 1262.98 9941.62 1262.98  9947.9 1269.96 9964.91 1270.46 9967.02  1270.5
 9970.45 1270.45 9989.07 1270.32 9993.39 1267.38 9993.41 1267.37 9993.58  1267.4
10015.68 1267.3710032.06 1269.45

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
**********************************************
  9927.8    .035 9930.41    .015  9947.9    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        9930.41  9947.9           498.07  498.07  498.07            .1       .3
Right Levee     Station= 9967.02      Elevation=  1270.5

CROSS SECTION


RIVER: Eastern Canal TW
REACH: Chandler to UPRR   RS: 6.858

INPUT
Description: Note: Stations 9937.60 and 9943.60 were added to better define the
             tailwater ditch through this section, with an assumed bottom width
             of 6 feet.

A block wall is model on the east side of the TWD.
             Begin wall.
Station Elevation Data    num=      18
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
**********************************************************************************
 9928.48 1274.44 9928.48 1268.44 9931.68 1268.44 9933.33  1267.6  9937.6 1262.98
  9940.6 1262.98  9943.6 1262.98 9952.37 1270.21 9970.21  1270.1 9991.36  1270.1
 9994.19 1268.22 9995.39 1267.3710015.62 1267.37 10019.4 1267.3710019.58  1267.5
10021.99 1269.1210027.26  1269.310040.63 1269.63

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
**********************************************
 9928.48    .035 9931.68    .015 9952.37    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        9931.68 9952.37           152.92  152.92  152.92            .1       .3
Right Levee     Station= 9952.37      Elevation= 1270.21

CROSS SECTION


RIVER: Eastern Canal TW
REACH: Chandler to UPRR   RS: 6.822

INPUT
```

```
Description: U/S Chandler Blvd.
Station Elevation Data     num=      40
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
*******************************************************************************
 9872.23 1270.419876.669 1270.349879.079  1270.4 9879.69 1270.38 9884.43  1270.3
 9904.06 1270.219914.409 1270.139916.251    1270  9921.5 1270.579923.001 1268.67
9927.259 1262.349930.759 1262.349934.259 1262.34 9937.97  1270.69938.389 1270.58
 9948.37 1270.529979.591 1270.419979.669 1270.41 9979.74  1270.49979.819 1270.41
9979.891 1270.419979.969 1270.41 9980.04 1270.419980.119  1270.49980.189 1270.41
9986.299 1270.34 9989.57 1270.49 9995.51 1270.29 9996.21  1268.99999.011 1265.04
10000.36 1265.0410001.13 1265.0410009.93 1265.0410017.01    126510023.28 1265.04
10025.06 1266.5310029.07 1269.4910038.08 1269.5910047.17  1269.810051.99 1269.77

Manning's n Values         num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
*********************************************
 9872.23    .0359923.001    .0159938.389    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right      Coeff Contr.   Expan.
      9923.0019938.389           160.34  160.34  160.34              .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
 9872.23  9927.8 1271.54       F
  9934.310051.99 1271.51       F
Right Levee     Station= 9938.39      Elevation= 1270.58

CULVERT


RIVER: Eastern Canal TW
REACH: Chandler to UPRR   RS: 6.805

INPUT
Description: 78" Pipe under Williams Field Road (Chandler Blvd)
Distance from Upstream XS =   33.69
Deck/Roadway Width        =      95
Weir Coefficient          =     2.6
Upstream  Deck/Roadway Coordinates
    num=       6
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
*************************************************************************
9685.321 1269.91         9709.98  1270.2        9814.619 1271.17
  9910.1 1271.54        10014.08 1271.53        10051.99  1271.5

Upstream Bridge Cross Section Data
Station Elevation Data     num=      40
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
*******************************************************************************
 9872.23 1270.419876.669 1270.349879.079  1270.4 9879.69 1270.38 9884.43  1270.3
 9904.06 1270.219914.409 1270.139916.251    1270  9921.5 1270.579923.001 1268.67
9927.259 1262.349930.759 1262.349934.259 1262.34 9937.97  1270.69938.389 1270.58
 9948.37 1270.529979.591 1270.419979.669 1270.41 9979.74  1270.49979.819 1270.41
9979.891 1270.419979.969 1270.41 9980.04 1270.419980.119  1270.49980.189 1270.41
9986.299 1270.34 9989.57 1270.49 9995.51 1270.29 9996.21  1268.99999.011 1265.04
10000.36 1265.0410001.13 1265.0410009.93 1265.0410017.01    126510023.28 1265.04
10025.06 1266.5310029.07 1269.4910038.08 1269.5910047.17  1269.810051.99 1269.77

Manning's n Values         num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
*********************************************
 9872.23    .0359923.001    .0159938.389    .035

Bank Sta: Left   Right    Coeff Contr.   Expan.
      9923.0019938.389            .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
 9872.23  9927.8 1271.54       F
  9934.310051.99 1271.51       F
Right Levee     Station= 9938.39      Elevation= 1270.58

Downstream  Deck/Roadway Coordinates
    num=       6
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
*************************************************************************
9685.321 1269.91         9709.98  1270.2        9814.619 1271.17
  9910.1 1271.54        10014.08 1271.53        10041.39  1271.5

Downstream Bridge Cross Section Data
Station Elevation Data     num=      32
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
*******************************************************************************
9884.701 1270.07 9894.44  1269.9 9906.71 1269.819913.009 1269.359913.419  1269.2
 9913.86  1269.29920.219 1269.029920.329 1269.01 9920.53  1268.9 9924.01 1261.31
9927.511 1261.319931.011 1261.319933.311 1266.15 9938.07 1268.73 9948.62  1269.2
 9950.49  1269.3 9951.66 1269.34 9960.05 1270.179960.729 1270.25 9962.74  1270.2
9972.919 1269.839990.069 1269.25 9990.69 1268.469996.289 1265.0410009.19    1265
10020.44 1265.04 10023.8 1267.6410025.14  1268.810025.73 1268.7810029.37  1268.6
10031.31 1268.5510041.39 1268.61

Manning's n Values         num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
*********************************************
9884.701    .035 9920.53    .015 9938.07    .035

Bank Sta: Left   Right    Coeff Contr.   Expan.
       9920.53 9938.07            .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
9884.701 9924.01 1271.54       F
 9930.5110041.39 1271.54       F
Right Levee     Station= 9960.73      Elevation= 1270.25

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         = 1271.17
```

```
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
78" pipe         Circular     6.5
FHWA Chart # 1 - Concrete Pipe Culvert
FHWA Scale # 1 - Square edge entrance with headwall
Solution Criteria = Highest U.S. EG
Culvert Upstrm Dist  Length    Top n  Bottom n  Depth Blocked  Entrance Loss Coef   Exit Loss Coef
               3.95     148     .015     .015        0                .5                 1
Upstream   Elevation =  1262.34
           Centerline Station =  9931.05
Downstream Elevation =  1261.31
           Centerline Station =  9927.26

CROSS SECTION


RIVER: Eastern Canal TW
REACH: Chandler to UPRR   RS: 6.791

INPUT
Description: D/S Chandler Blvd.
Station Elevation Data    num=      32
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************
9884.701 1270.07 9894.44  1269.9 9906.71 1269.819913.009 1269.359913.419  1269.2
 9913.86  1269.29920.219 1269.029920.329 1269.01 9920.53  1268.9 9924.01 1261.31
9927.511 1261.319931.011 1261.319933.311 1266.15 9938.07 1268.73 9948.62  1269.2
 9950.49  1269.3 9951.66 1269.34 9960.05 1270.179960.729 1270.25 9962.74  1270.2
9972.919 1269.839990.069 1269.25 9990.69 1268.469996.289 1265.0410009.19    1265
10020.44 1265.04 10023.8 1267.6410025.14  1268.810025.73 1268.7810029.37  1268.6
10031.31 1268.5510041.39 1268.61

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*************************************************
9884.701    .035 9920.53    .015 9938.07    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9920.53 9938.07           187.34  187.34  187.34            .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
9884.701 9924.01 1271.54       F
 9930.5110041.39 1271.54       F
Right Levee     Station= 9960.73      Elevation= 1270.25

CROSS SECTION


RIVER: Eastern Canal TW
REACH: Chandler to UPRR   RS: 6.762

INPUT
Description: Note: Stations 9935.90 and 9941.90 were added to better define the
             tailwater ditch through this section, with an assumed bottom width
             of 6 feet.
Station Elevation Data    num=      30
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************
 9927.72 1268.48 9929.62  1267.7 9929.63 1267.73 9929.82 1267.61  9935.9  1261.9
  9938.9  1261.9  9941.9  1261.9 9946.49 1267.07 9948.77  1268.5 9949.62 1268.06
 9951.72 1266.85 9956.64 1266.87 9957.64 1266.91 9959.11    1267  9965.2 1267.43
 9969.24 1267.97 9971.13 1268.43 9971.39  1268.5 9974.24  1268.5 9993.13 1268.09
 9995.86 1265.97 9997.04 1265.0410010.01 1265.0410017.45    126510017.88  1265.4
10019.86 1266.8310022.28 1267.4610024.91  1268.510031.03  1268.610035.33 1268.58

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*************************************************
 9927.72    .035 9927.72    .015 9948.77    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9927.72 9948.77              497     497     497            .1       .3
Right Levee     Station= 9948.77      Elevation=  1268.5

CROSS SECTION


RIVER: Eastern Canal TW
REACH: Pecos to Chandle   RS: 6.478

INPUT
Description: Note: Stations 9931.26 and 9937.26 were added to better define the
             tailwater ditch through this section, with an assumed bottom width
             of 6 feet.
Station Elevation Data    num=      23
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************
 9926.07 1267.31 9928.71  1265.5 9931.26 1261.47 9934.26 1261.47 9937.26 1261.47
 9944.45  1267.6 9945.37 1268.17 9945.81 1268.15    9956  1267.8 9960.47 1268.02
 9966.67 1268.27 9985.77  1268.2 9987.41 1268.19 9987.54  1268.1 9992.44 1264.41
    9997 1264.4110011.06 1264.4110012.75 1265.5910014.56  1266.910019.62 1267.93
10019.89    126810020.83 1268.0410029.73 1268.43

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*************************************************
 9926.07    .035 9926.07    .015 9945.37    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9926.07 9945.37           568.35   571.4  574.52            .1       .3
Right Levee     Station= 9966.67      Elevation= 1268.27
```

LATERAL STRUCTURE

RIVER: Eastern Canal TW
REACH: Pecos to Chandle RS: 6.477

INPUT
Description:
Lateral structure position = Left overbank
Distance from Upstream XS = 0
Deck/Roadway Width = 1
Weir Coefficient = 2
Weir Flow Reference = Water Surface
Weir Embankment Coordinates num = 5

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1267.31	568.35	1267.24	1000.01	1267.2	1500.02	1267.22	1994.02	1267.78

Weir crest shape = Broad Crested

LATERAL STRUCTURE OUTPUT Profile #PF 1 Lat Struct

E.G. US. (ft)	1265.20	Weir Sta US (ft)	
W.S. US. (ft)	1265.12	Weir Sta DS (ft)	
E.G. DS (ft)	1264.64	Weir Max Depth (ft)	
W.S. DS (ft)	1264.47	Weir Avg Depth (ft)	
Q US (cfs)	75.00	Weir Submerg	
Q Leaving Total (cfs)	0.00	Min El Weir Flow (ft)	1267.20
Q DS (cfs)	75.00	Wr Top Wdth (ft)	
Perc Q Leaving	0.00	Q Gate Group (cfs)	
Q Weir (cfs)		Gate Open Ht (ft)	
Q Gates (cfs)		Gate #Open	
Q Culv (cfs)		Gate Area (sq ft)	
Q Lat RC (cfs)		Gate Submerg	
Weir Flow Area (sq ft)		Gate Invert (ft)	

LATERAL STRUCTURE OUTPUT Profile #PF 2 Lat Struct

E.G. US. (ft)	1265.73	Weir Sta US (ft)	
W.S. US. (ft)	1265.63	Weir Sta DS (ft)	
E.G. DS (ft)	1265.11	Weir Max Depth (ft)	
W.S. DS (ft)	1264.91	Weir Avg Depth (ft)	
Q US (cfs)	100.00	Weir Submerg	
Q Leaving Total (cfs)	0.00	Min El Weir Flow (ft)	1267.20
Q DS (cfs)	100.00	Wr Top Wdth (ft)	
Perc Q Leaving	0.00	Q Gate Group (cfs)	
Q Weir (cfs)		Gate Open Ht (ft)	
Q Gates (cfs)		Gate #Open	
Q Culv (cfs)		Gate Area (sq ft)	
Q Lat RC (cfs)		Gate Submerg	
Weir Flow Area (sq ft)		Gate Invert (ft)	

LATERAL STRUCTURE OUTPUT Profile #PF 3 Lat Struct

E.G. US. (ft)	1266.18	Weir Sta US (ft)	
W.S. US. (ft)	1266.07	Weir Sta DS (ft)	
E.G. DS (ft)	1265.52	Weir Max Depth (ft)	
W.S. DS (ft)	1265.28	Weir Avg Depth (ft)	
Q US (cfs)	125.00	Weir Submerg	
Q Leaving Total (cfs)	0.00	Min El Weir Flow (ft)	1267.20
Q DS (cfs)	125.00	Wr Top Wdth (ft)	
Perc Q Leaving	0.00	Q Gate Group (cfs)	
Q Weir (cfs)		Gate Open Ht (ft)	
Q Gates (cfs)		Gate #Open	
Q Culv (cfs)		Gate Area (sq ft)	
Q Lat RC (cfs)		Gate Submerg	
Weir Flow Area (sq ft)		Gate Invert (ft)	

LATERAL STRUCTURE OUTPUT Profile #PF 4 Lat Struct

E.G. US. (ft)	1266.58	Weir Sta US (ft)	
W.S. US. (ft)	1266.46	Weir Sta DS (ft)	
E.G. DS (ft)	1265.88	Weir Max Depth (ft)	
W.S. DS (ft)	1265.61	Weir Avg Depth (ft)	
Q US (cfs)	150.00	Weir Submerg	
Q Leaving Total (cfs)	0.00	Min El Weir Flow (ft)	1267.20
Q DS (cfs)	150.00	Wr Top Wdth (ft)	
Perc Q Leaving	0.00	Q Gate Group (cfs)	
Q Weir (cfs)		Gate Open Ht (ft)	
Q Gates (cfs)		Gate #Open	
Q Culv (cfs)		Gate Area (sq ft)	
Q Lat RC (cfs)		Gate Submerg	
Weir Flow Area (sq ft)		Gate Invert (ft)	

LATERAL STRUCTURE OUTPUT Profile #PF 5 Lat Struct

E.G. US. (ft)	1266.94	Weir Sta US (ft)	
W.S. US. (ft)	1266.80	Weir Sta DS (ft)	
E.G. DS (ft)	1266.19	Weir Max Depth (ft)	
W.S. DS (ft)	1265.90	Weir Avg Depth (ft)	
Q US (cfs)	175.00	Weir Submerg	
Q Leaving Total (cfs)	0.00	Min El Weir Flow (ft)	1267.20
Q DS (cfs)	175.00	Wr Top Wdth (ft)	
Perc Q Leaving	0.00	Q Gate Group (cfs)	
Q Weir (cfs)		Gate Open Ht (ft)	
Q Gates (cfs)		Gate #Open	
Q Culv (cfs)		Gate Area (sq ft)	
Q Lat RC (cfs)		Gate Submerg	
Weir Flow Area (sq ft)		Gate Invert (ft)	

```
LATERAL STRUCTURE OUTPUT  Profile #PF 6  Lat Struct
*************************************************************************
* E.G. US. (ft)          * 1267.27  * Weir Sta US (ft)       *          *
* W.S. US. (ft)          * 1267.11  * Weir Sta DS (ft)       *          *
* E.G. DS (ft)           * 1266.48  * Weir Max Depth (ft)    *          *
* W.S. DS (ft)           * 1266.16  * Weir Avg Depth (ft)    *          *
* Q US (cfs)             *  200.00  * Weir Submerg           *          *
* Q Leaving Total (cfs)  *    0.00   * Min El Weir Flow (ft)  * 1267.20   *
* Q DS (cfs)             *  200.00  * Wr Top Wdth (ft)       *          *
* Perc Q Leaving         *    0.00   * Q Gate Group (cfs)     *          *
* Q Weir (cfs)           *           * Gate Open Ht (ft)      *          *
* Q Gates (cfs)          *           * Gate #Open             *          *
* Q Culv (cfs)           *           * Gate Area (sq ft)      *          *
* Q Lat RC (cfs)         *           * Gate Submerg           *          *
* Weir Flow Area (sq ft) *           * Gate Invert (ft)       *          *
*************************************************************************

LATERAL STRUCTURE OUTPUT  Profile #PF 7  Lat Struct
*************************************************************************
* E.G. US. (ft)          * 1267.57  * Weir Sta US (ft)       *    0.00  *
* W.S. US. (ft)          * 1267.40  * Weir Sta DS (ft)       *  467.86  *
* E.G. DS (ft)           * 1266.75  * Weir Max Depth (ft)    *    0.09  *
* W.S. DS (ft)           * 1266.41  * Weir Avg Depth (ft)    *    0.04  *
* Q US (cfs)             *  225.00  * Weir Submerg           *    0.00  *
* Q Leaving Total (cfs)  *    9.98   * Min El Weir Flow (ft)  * 1267.20  *
* Q DS (cfs)             *  225.00  * Wr Top Wdth (ft)       *  467.86  *
* Perc Q Leaving         *    4.43   * Q Gate Group (cfs)     *          *
* Q Weir (cfs)           *    9.98   * Gate Open Ht (ft)      *          *
* Q Gates (cfs)          *           * Gate #Open             *          *
* Q Culv (cfs)           *           * Gate Area (sq ft)      *          *
* Q Lat RC (cfs)         *           * Gate Submerg           *          *
* Weir Flow Area (sq ft) *   20.87   * Gate Invert (ft)       *          *
*************************************************************************

CROSS SECTION


RIVER: Eastern Canal TW
REACH: Pecos to Chandle   RS: 6.370

INPUT
Description: Note: Stations 9933.76 and 9939.76 were added to better define the
             tailwater ditch through this section, with an assumed bottom width
             of 6 feet.
Station Elevation Data    num=      23
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************
 9926.69 1267.24 9929.68 1266.41 9933.76 1261.47 9936.76 1261.47 9939.76 1261.47
 9945.76  1267.5 9948.28 1269.23 9948.68 1269.19 9960.77 1267.83 9964.77  1268.3
 9970.26  1268.9 9983.75 1268.17 9992.17 1267.71  9994.1 1266.06 9995.51 1264.41
   10010  1264.410013.89 1264.4110016.25 1266.2810017.13 1266.8910018.77 1267.26
10022.38    126810028.61 1268.1110032.55  1268.2

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************
 9926.69    .035 9926.69    .015 9948.28    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9926.69 9948.28          431.66  428.96  426.52            .1        .3
Right Levee     Station= 9948.28      Elevation= 1269.23

CROSS SECTION


RIVER: Eastern Canal TW
REACH: Pecos to Chandle   RS: 6.289

INPUT
Description: Note: Stations 9931.97 and 9937.97 were added to better define the
             tailwater ditch through this section, with an assumed bottom width
             of 6 feet.
Station Elevation Data    num=      25
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************
 9926.53  1267.2 9930.64 1264.49 9931.97 1261.47 9934.97 1261.47 9937.97 1261.47
 9941.57 1265.93 9946.02 1269.23 9955.03  1268.1 9959.46 1267.57 9963.15 1268.15
 9966.46 1268.66 9968.18 1268.93 9981.91  1268.2 9986.35  1267.6 9990.66 1267.71
 9991.71 1266.98 9995.06 1264.41   10006  1264.410012.33 1264.4110013.11  1265.3
10014.02  1266.110019.44 1267.4810020.39  1267.710021.27 1267.7310030.92 1267.51

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************
 9926.53    .035 9926.53    .015 9946.02    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9926.53 9946.02          500.01   502.5  505.07            .1        .3
Right Levee     Station= 9946.02      Elevation= 1269.23

CROSS SECTION


RIVER: Eastern Canal TW
REACH: Pecos to Chandle   RS: 6.194

INPUT
Description: Note: Stations 9923.56 and 9929.56 were added to better define the
             tailwater ditch through this section, with an assumed bottom width
             of 6 feet.
Station Elevation Data    num=      21
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************
 9919.23 1267.22 9921.31  1265.5 9923.56 1261.47 9926.56 1261.47 9929.56 1261.47
  9937.7 1267.56 9938.91 1268.26 9941.54 1268.16  9953.8  1267.5 9960.16 1268.48
```

```
 9960.24  1268.5 9960.39  1268.5 9982.45 1268.44 9984.79  1265.8 9986.07 1264.41
   10000 1264.4110005.97 1264.4110006.56 1264.7310008.56    1266 10010.7 1267.03
10012.01 1267.75

Manning's n Values          num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
**************************************************
 9919.23    .035 9919.23    .015 9938.91    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9919.23 9938.91             494     494     494             .1       .3
Right Levee     Station= 9960.16      Elevation= 1268.48

CROSS SECTION


RIVER: Eastern Canal TW
REACH: Pecos to Chandle   RS: 6.106

INPUT
Description: Note: Stations 9938.92 and 9944.92 were added to better define the
             tailwater ditch through this section, with an assumed bottom width
             of 6 feet.
Station Elevation Data     num=      21
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
 9931.78 1267.86 9936.29 1265.03 9938.92  1261.5 9941.92  1261.5 9944.92  1261.5
 9945.58 1263.71 9953.03 1268.26 9968.51 1267.41 9968.85 1267.39 9968.96  1267.4
 9974.31 1268.19 9987.39 1268.23 9995.86 1268.26 9997.05 1266.75 9999.82  1264.4
10015.52 1264.4110019.25 1264.4110021.59 1266.6810021.89 1266.9310022.41    1267
10028.71 1267.75

Manning's n Values          num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
**************************************************
 9931.78    .035 9931.78    .015 9953.03    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9931.78 9953.03             501.01  492.23  484.27             .1       .3
Right Levee     Station= 9995.86      Elevation= 1268.26

CROSS SECTION


RIVER: Eastern Canal TW
REACH: Pecos to Chandle   RS: 6.013

INPUT
Description: Note: Stations 9938.34 and 9944.34 were added to better define the
             tailwater ditch through this section, with an assumed bottom width
             of 6 feet.
Station Elevation Data     num=      21
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
 9929.84  1267.7 9937.72 1263.27 9938.34  1261.1 9941.34  1261.1 9944.34  1261.1
 9944.63 1263.15 9952.33 1267.77 9966.52 1266.84 9967.29 1266.79 9971.31  1267.4
 9974.58 1267.84 9985.32 1267.77 9996.11 1267.58 9997.22 1266.47 9999.18  1264.4
10013.07 1264.4110020.03 1264.4110022.05 1266.0110023.01  1266.710024.06  1266.8
10028.18 1267.29

Manning's n Values          num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
**************************************************
 9929.84    .035 9929.84    .015 9952.33    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9929.84 9952.33             509     509     509             .1       .3
Right Levee     Station= 9974.58      Elevation= 1267.84

CROSS SECTION


RIVER: Eastern Canal TW
REACH: Pecos to Chandle   RS: 5.913

INPUT
Description:
Station Elevation Data     num=      27
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
 9920.98 1267.96 9925.28 1264.01 9928.39  1261.5 9934.13 1261.29 9936.52 1261.24
  9937.7 1262.16 9940.77 1264.72 9944.39  1267.9 9949.32 1267.84 9969.03 1267.33
 9987.17 1267.68  9991.3 1267.71 9992.61  1266.7 9995.46 1264.4110011.01 1264.41
10013.02 1264.4110013.91 1264.8910016.19  1266.610019.71 1267.1510019.94 1267.18
10020.19 1267.2110020.48 1267.25 10020.8  1267.310021.17 1267.3410021.61 1267.39
10022.13 1267.4610022.47 1267.51

Manning's n Values          num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
**************************************************
 9920.98    .035 9920.98    .015 9944.39    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9920.98 9944.39             270     270  272.46             .1       .3
Right Levee     Station= 9944.39      Elevation=  1267.9

CROSS SECTION


RIVER: Eastern Canal TW
REACH: Pecos to Chandle   RS: 5.864

INPUT
Description:
Station Elevation Data     num=      19
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
```

```
*******************************************************************************
 9924.07  1267.7 9929.22 1263.25 9931.44  1261.3 9933.27 1261.31 9939.33 1261.21
 9944.97 1267.13 9945.36 1267.53 9946.24  1267.5 9967.43 1266.89  9980.7 1267.32
 9989.93 1267.71  9994.5 1265.22 9996.06  1264.110001.75 1263.9610011.36  1263.7
10013.27 1264.7610017.83    1267 10022.3  1267.510022.44 1267.51

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
***********************************************
 9924.07    .035 9924.07    .015 9945.36    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9924.07 9945.36           198.49  198.49  198.49            .1       .3
Right Levee     Station= 9989.93      Elevation= 1267.71

CROSS SECTION


RIVER: Eastern Canal TW
REACH: Pecos to Chandle   RS: 5.823

INPUT
Description:
Station Elevation Data    num=      19
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*******************************************************************************
  9942.1 1267.16 9943.59  1265.8 9949.58 1261.21 9952.21    1261 9956.47 1260.68
 9961.01 1266.71 9961.35  1267.1 9964.67 1267.18 9973.62 1267.25  9982.7 1267.17
 9986.91 1267.19 9987.85  1266.4 9991.63 1263.76   10003 1262.7710008.14  1262.3
10008.83 1262.7310015.12  1266.610016.05 1266.8210018.12 1267.44

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
***********************************************
  9942.1    .035  9942.1    .015 9961.35    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        9942.1 9961.35           500.26  500.55  500.87            .1       .3
Right Levee     Station= 9973.62      Elevation= 1267.25

CROSS SECTION


RIVER: Eastern Canal TW
REACH: Pecos to Chandle   RS: 5.728

INPUT
Description:
Station Elevation Data    num=      25
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*******************************************************************************
 9934.85 1266.94 9938.53 1266.87 9944.65  1266.9 9948.82 1262.77 9950.37 1261.21
 9954.71 1261.21 9957.27 1261.21 9957.88  1261.8 9963.15 1266.65 9969.84 1267.33
 9976.66 1268.06 9984.29 1267.99 9986.93    1268 9987.94 1267.95 9988.21 1267.69
  9994.8 1261.41 9999.96 1261.4610003.99  1261.510011.19 1261.5410014.58 1264.51
10016.88 1266.73 10018.5 1267.0510020.04  1267.310025.03 1267.0410029.86 1266.93

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
***********************************************
 9934.85    .035 9944.65    .015 9963.15    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9944.65 9963.15           458.17  457.03  456.06            .1       .3
Right Levee     Station= 9976.66      Elevation= 1268.06

CROSS SECTION


RIVER: Eastern Canal TW
REACH: Pecos to Chandle   RS: 5.633

INPUT
Description: Pecos Road
Station Elevation Data    num=      30
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*******************************************************************************
 9910.36    1268 9913.87 1267.61  9922.3 1267.06 9922.69  1266.8  9930.9 1261.34
 9937.77 1261.23 9939.26 1261.22 9942.71 1263.66  9948.2  1268.1 9957.62 1268.65
 9958.73 1268.71 9961.17 1268.73 9965.37 1268.81 9971.76  1268.9 9975.51 1268.73
  9981.5 1268.21 9992.47 1267.95 9994.27 1267.95 9996.83  1263.5   10000  1260.1
10008.42 1260.3310015.64  1260.510016.66 1263.8710018.64  1263.9 10021.5 1267.02
10024.07 1267.5510025.12 1267.7810033.17 1267.4510035.37  1267.510036.29 1267.69

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
***********************************************
 9910.36    .035  9922.3    .015  9948.2    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        9922.3  9948.2                 0       0       0            .1       .3
Right Levee     Station= 9971.76      Elevation=  1268.9
```

DS & DN.7 Hard Copy Models

DS & DN.7.1 100-yr, 6-hr Model

DS & DN.7.2 100-yr, 24-hr Model

```
1****************************************                    ****************************************
 *                                      *                    *                                      *
 *   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   12DEC07  TIME  20:25:48   *                    *          (916) 756-1104              *
 *                                      *                    *                                      *
 ****************************************                    ****************************************

                                    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

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

                        *Diagram
            1           ID   Project ID: MARI0040_SE - Major Basin: 01 - Return Period: 100 Years
            2           ID
            3           ID   Chandler/Gilbert Floodplain Delineation Study
            4           ID   Phase I-South, Eastern Canal Watershed
            5           ID   FCD# 2002C023
            6           ID   DATE: June 2007 Edited Sep 2007 LS
            7           ID
            8           ID   Watershed boundaries:
            9           ID   South of Union Pacific Railroad, east of Eastern Canal
           10           ID   North of Hunt Hwy, west of East Maricopa Floodway
           11           ID
           12           ID   Prepared by David Evans & Associates
           13           ID   Modelers:
           14           ID                Tami Norton, E.I.T., CFM
           15           ID                Gregory B. Jones, E.I.T.
           16           ID                Nathan A. Beutler, E.I.T., CFM
           17           ID   Updated: Larry Sibala, P.E. CFM
           18           ID                12/12/07
           19           ID
           20           ID   File:  P:\Mari0000-0040\Engineering\MARI0040-SE\HEC1\6-hour
           21           ID           \CGFDSP1S-6.dat
           22           ID
           23           ID   5-minute time interval - 100-year, 6-hour storm event.
           24           ID
           25           ID   Total Watershed Area = 22.64 sq. mi, Total Point Rainfall = 3.00
           26           ID
           27           ID   Aerial reduction was applied using PB records.
           28           ID   The Phase 1 - South watershed was broken into three PB regions:
           29           ID
           30           ID       First PB region includes sub-basins
           31           ID       200, 202, 203, 206-208, 212, 213
           32           ID       Area = 3.15 sq. mi, Reduction Factor = 0.973, PB record = 2.918
           33           ID
           34           ID       Second PB region includes sub-basins
           35           ID       201, 204, 205, 209-211, 214-221, 237
           36           ID       Area = 10.50 sq. mi, Reduction Factor = 0.938, PB record = 2.816
           37           ID
           38           ID       Third PB region includes sub-basins
           39           ID       222-236, 238
           40           ID       Area = 8.99 sq. mi, Reduction Factor = 0.944, PB record = 2.833
           41           ID
           42           ID   Green and Ampt Infiltration method used to determine rainfall losses.
           43           ID
           44           ID   Clark Method used to create Unit Hydrographs.
           45           ID
           46           ID   Normal Depth Method used for channel routing.
           47           ID
           48           ID   Eastern Maricopa and Northern Pinal Counties Area, Arizona Soil Survey
           49           ID   used for soils data.
           50           ID
           51           ID   Flood Control District of Maricopa County's (FCDMC) GIS data,
           52           ID   aerial photos dated Dec. 2002, and developments as directed
           53           ID   by Chandler and Gilbert by date of April 2003 used for Land Use Data.
           54           ID
1                                          HEC-1 INPUT                                          PAGE  2
```

```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

  55          ID   FCDMC DDMSW Version 2.1.0 Program used to calculate rainfall, rainfall losses
  56          ID   and Unit Hydrographs.
  57          ID
  58          ID   Model includes proposed Santan Freeway alignment and associated
  59          ID   drainage facilities.
  60          ID
  61          ID   DSS FIle: CGFDS.dss
  62          ID
  63          IT       5 03MAR03    1200    2000
  64          IO       5

  65          KK  00RAIN
  66          PB   2.714
              *
              * ******************************************************************************
              *          FIRST      PB   REGION
              * ******************************************************************************
              *

  67          KK     206   BASIN
  68          BA   0.759
  69          IN      15
  70          PB   2.918
  71          KM   The following parameters were determined for this basin.
  72          KM   L= 1.18 mi  S= 8.1 ft/mi  Kb= 0.045  Natural
  73          KM   Total point rainfall = 3.00, Area = 3.15 sq. mi, reduction factor = 0.973
  74          KM   Region bounded by UPRR on the northeast, the Santan Freeway on the east and
  75          KM   south, and the Eastern Canal on the west.
  76          PC   0.000   0.009   0.016   0.025   0.035   0.043   0.053   0.061   0.069   0.079
  77          PC   0.090   0.103   0.124   0.167   0.255   0.452   0.692   0.834   0.898   0.936
  78          PC   0.950   0.963   0.977   0.988   1.000
  79          LG    0.45    0.27    5.30    0.33       0
  80          UC   1.500   0.775
  81          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
  82          UA     100
              *

  83          KK    D206  INTERSECTION DIVERSION
  84          KM   Flow split at Val Vista and Chandler Blvd with 70%
  85          KM   diverted north along Val Vista.
  86          DT   To202
  87          DI       0     100     500    1000    2000
  88          DQ       0      70     350     700    1400
              *

  89          KK  206203   ROUTE   REACH
  90          KM   Flow split at Val Vista and Chandler Blvd. with 30%
  91          KM   routed west along Chandler Blvd.
  92          RS       3    FLOW      -1
  93          RC   0.035   0.015   0.035    2765  0.0028    2.00
  94          RX     0.0     0.0    60.0    60.0   140.0   140.0   200.0   200.0
  95          RY     2.0     0.8     0.5     0.0     0.0     0.5     0.8     2.0
              *
1                                          HEC-1 INPUT                                    PAGE  3

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

  96          KK   XRDPK
  97          KM   RETRIEVE DATA FROM THE DSS FILE
  98          KM   Flow from Crossroads Park conveyed under UPRR through 48" culvert
  99          BA   0.001
 100          ZR    =QI A=EAST B=XRDPK C=FLOW E=5MIN
              *

 101          KK   To200
 102          KM   Divert flow out if TWD to Sub-basin 200
 103          DT   XRPKD
 104          DI      25      50      75     100     125     150     175
 105          DQ       0       0       0       0       0       0       1
              *

 106          KK  XRD200   ROUTE
 107          KM   Route flow in tailwater ditch, not through Sub-basin 200
 108          RS       3    FLOW      -1
 109          RC   0.015   0.015   0.015    2343  0.0029    6.33
 110          RX    10.4    14.6    17.4    26.0      32    36.8    43.6    47.9
 111          RY    6.33    3.13    0.29       0    4.63    4.88    5.19     6.1
              *

 112          KK   XRPKD
 113          KM   Retreive overflow from TWD
 114          DR   XRPKD
              *

 115          KK     200   BASIN
 116          KM   The following parameters were determined for this sub basin.
 117          KM   L= 1.98 mi  S= 6.1 ft/mi  Kb= 0.029  Urban
 118          BA   0.158
 119          LG    0.29    0.10   11.20    0.03      16
 120          UC   1.317   2.483
 121          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
 122          UA     100
```

```
                 *
 123             KK    C200
 124             KM   Combine Sub-basin 200 and XRPKD
 125             KO       3
 126             HC       2
                 *

 127             KK    P200
 128             KM   Ponding due to back water at 8' x 7'box culvert. Water ponds east of the TWD
 129             KM   before weiring back into tailwater ditch and out through culvert
 130             KM   under Ray Road. Ponding volume includes portions of TWD just U/S of Ray Rd.
 131             KM   Road weir min elev = 1270.26
 132             KM   Canal weir min elev = 1268.07
 133             KO       3
 134             RS       1    STOR       0       0
 135             SV    0.01    0.02    0.31    1.59    3.21    4.00    5.66   26.28   66.65   92.97
 136             SE  1266.5    1267    1268  1268.5 1268.75 1268.84    1269    1270    1271  1271.5
 137             SQ       0       0       0      18    56.0      78     128     801    4321    7964
                 *
1                                                HEC-1 INPUT                                          PAGE  4

LINE             ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 138             KK   CP200
 139             KM   Combine all flow conveyed through 8' x 7'box culvert under Ray Road
 140             KM   All flow leaving Sub-basin 200 goes through culvert and is
 141             KM   Routed in TWD to CP202
 142             HC       2
                 *

 143             KK  200202   ROUTE
 144             KM   Route flow south in tailwater ditch, not though sub-basin 202.
 145             KM   A block wall separates tailwater ditch and residental retention
 146             KM   basins preventing overflow from ditch.
 147             RS       4    FLOW      -1
 148             RC   0.015   0.015   0.015    3863  0.0018    6.39
 149             RX       0     3.5     6.3     7.5   16.14    20.8    21.5    53.8
 150             RY    5.60    5.82    2.01    0.02       0    5.41    6.26    6.39
                 *

 151             KK  FRM206
 152             KM   Retrieve hydrograph from flow split at Val Vista & Chandler Blvd,
 153             KM   directed north.
 154             DR   To202
                 *

 155             KK  206202   ROUTE
 156             KM   Routed north along Val Vista Road to rention basin at C202.
 157             RS       2    FLOW      -1
 158             RC   0.035   0.015   0.035    1725  0.0003    2.00
 159             RX     0.0       0      45      45     128     128     173     173
 160             RY       2     0.8     0.5     0.0     0.0     0.5     0.8       2
                 *
                 *

 161             KK     202   BASIN
 162             KM   The following parameters were determined for this sub basin.
 163             KM   L= 1.77 mi  S= 9.0 ft/mi  Kb= 0.040  Urban
 164             BA   0.846
 165             LG    0.39    0.16    8.80    0.08      11
 166             UC   1.413   0.943
 167             UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
 168             UA     100
                 *

 169             KK     202
 170             KM   RETENTION DIVERSION
 171             KM   Divert flow retained within residential areas
 172             DT  202RET   20.56
 173             DI       0   10000
 174             DQ       0   10000
                 *
1                                                HEC-1 INPUT                                          PAGE  5

LINE             ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 175             KK    C202
 176             KM   Combine SUB 202, 206202
 177             KO       3
 178             HC       2
                 *

 179             KK    P202
 180             KM   Ponding in retention basins east of tailwater ditch.
 181             KM   Block wall prevents flow from overtopping into tailwater.
 182             KM   Flow overtops Val Vista Drive.
 183             KM   Road weir min elev = 1267.35
 184             KM   TWD eastbank weir min elev =1269.80
 185             KO       3
 186             RS       1    STOR       0       0
 187             SV       0    0.15     2.6   13.24   19.58   20.73   21.92    24.4    25.7      27
 188             SV   27.77   29.61
```

```
 189          SE    1262    1263    1265    1267  1267.6  1267.7  1267.8    1268  1268.1  1268.2
 190          SE  1268.3  1268.4
 191          SQ       0       0       0       0      14      40      78     186     257     340
 192          SQ     436     544
              *

 193          KK   Dummy
 194          KM   Divert flow overtopping Val Vista Drive
 195          DT   DVVOF
 196          DI       0     100
 197          DQ       0     100
              *

 198          KK   CP202
 199          KM   Concentration point added to determine total flow in tailwater ditch conveyed
 200          KM   in 12x5.5' box culvert under Val Vista Drive.
 201          HC       2
              *

 202          KK   Dummy
 203          KM   Divert Tailwater Ditch flow to be retrieved later.
 204          DT  DTD203
 205          DI       0     100
 206          DQ       0     100
              *

 207          KK    VVOF
 208          KM   Retrieve Val Vista Drive overflow from P202
 209          DR   DVVOF
              *

 210          KK     203   BASIN
 211          KM   The following parameters were determined for this sub basin.
 212          KM   L= 0.76 mi  S= 8.1 ft/mi  Kb= 0.038  Urban
 213          BA   0.106
 214          LG    0.23    0.22    6.60    0.16      24
 215          UC   0.742   0.766
 216          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
1                                          HEC-1 INPUT                                          PAGE  6

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 217          UA     100
              *

 218          KK    C203
 219          KM   Combine 206203, SUB203 & FR202.
 220          KO       3
 221          HC       4
              *

 222          KK    P203
 223          KM   Ponding in retention basins adjacent to tailwater ditch between Chandler
 224          KM   Blvd and Val Vista. Block wall prevents flow from overtopping into
 225          KM   tailwater ditch. Flow overtops Chandler Blvd.
 226          KM   Road weir min elev = 1268.05
 227          KM   TWD eastbank weir min elev =1269.25
 228          KO       3
 229          RS       1    STOR       0       0
 230          SV       0    3.85    35.3   37.46   39.65    41.8    42.9      44    46.2
 231          SE    1262    1264    1268  1268.2  1268.4  1268.6  1268.7  1268.8    1269
 232          SQ       0       0       0       5      41     120     175     241     410
              *

 233          KK  OTD203
 234          KM   A block wall exists along east side of tailwater ditch preventing any
 235          KM   overflow into tailwater ditch.
 236          KM   Divert 100% of flow over Chandler Blvd to be retrieved later.
 237          DT  DCBLVD
 238          DI       0     100
 239          DQ       0     100
              *

 240          KK  TWD203
 241          KM   Retrieve flow from TWD203
 242          DR  DTD203
              *

 243          KK  TWD203
 244          KM   Route flow south in tailwater ditch, not though sub-basin 203.
 245          KM   A block wall separates tailwater ditch and residential retention
 246          KM   basins preventing overflow from ditch or from basin.
 247          RS       3    FLOW      -1
 248          RC   0.015   0.015   0.015    2343  0.0029    6.33
 249          RX    10.4    14.6    17.4    26.0      32    36.8    43.6    47.9
 250          RY    6.33    3.13    0.29       0    4.63    4.88    5.19     6.1
              *

 251          KK   CP203
 252          KM   Concentration point added to determine total flow in tailwater conveyed
 253          KM   in 78" pipe under Chandler Blvd.
 254          HC       2
              *
1                                          HEC-1 INPUT                                          PAGE  7
```

```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 255          KK  203208   ROUTE
 256          KM   Route flow south in tailwater ditch, not through sub-basin 208.
 257          RS       3    FLOW      -1
 258          RC    0.03    0.03    0.03    2938  0.0014    6.59
 259          RX    6.38    15.5    16.2    17.3    18.7    25.9    32.1    36.3
 260          RY    6.59    6.58    6.24    5.80    4.92       0    3.74    6.48
              *

 261          KK  OCBLVD
 262          KM   Retrieve flow overtopping Chandler Blvd.
 263          DR  DCBLVD
              *

 264          KK   P208N
 265          KM   Ponding in Villas at Spectrum residential sub-division retention basin,
 266          KM   south of Chandler Blvd.  70 ft weir at south end of retention basin to
 267          KM   convey flow to P208S.
 268          KM   Retention Basin weir min elev = 1264.69
 269          KM   Canal weir min elev = 1267.78
 270          KO       3
 271          RS       1    STOR       0       0
 272          SV       0     2.2    3.47    4.85    7.99   11.64
 273          SE  1262.7 1263.69 1264.19 1264.69 1265.69 1266.69
 274          SQ       0      25      50     150     200     250     275     300     400  500.0
 275          SE  1264.7 1264.96 1265.11 1265.55 1265.72 1265.87 1265.94 1266.01 1266.27 1266.5
              *

 276          KK     208   BASIN
 277          KM   The following parameters were determined for this sub basin.
 278          KM   L= 0.83 mi  S= 10.5 ft/mi  Kb= 0.039  Urban
 279          BA   0.110
 280          LG    0.25    0.25    4.80    0.35      31
 281          UC   0.604   0.641
 282          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0   97.0
 283          UA     100
              *

 284          KK     208
 285          KM   RETENTION DIVERSION
 286          KM   Divert flow retained within residential areas
 287          DT  208RET    2.44
 288          DI       0   10000
 289          DQ       0   10000
              *

 290          KK   C208S
 291          KM   Combine flows from Sub-basin 208 and overflow from P208N overflow
 292          KO       3
 293          HC       2
              *
1                                        HEC-1 INPUT                                        PAGE  8

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 294          KK   P208S
 295          KM   Ponding in retention basins east of tailwater ditch, south of Chandler Blvd.
 296          KM   Southern berm weir min elev = 1266.0
 297          KM   TWD eastbank weir min elev =1267.20
 298          RS       1    STOR       0       0
 299          KO       3
 300          SV    0.46    2.46    4.90    7.69   10.84   14.48   18.66   19.34   19.69   19.99
 301          SV      23
 302          SE    1260    1261    1262    1263    1264    1265    1266 1266.16 1266.24 1266.31
 303          SE    1267
 304          SQ       0       0       0       0       0       0       0      17      33      50
 305          SQ     419
              *

 306          KK   Dummy
 307          KM   Divert flow overtopping from P208S to Sub-basin 207
 308          DT    D207
 309          DI       0     100
 310          DQ       0     100
              *

 311          KK   CP208
 312          KM   Concentration point added to determine total flow in tailwater conveyed
 313          KM   at CP208
 314          HC       2
              *

 315          KK  208207   ROUTE
 316          KM   Route flow south in tailwater ditch, not through sub-basin 207.
 317          RS       4    FLOW      -1
 318          RC   0.015   0.015   0.015    3151  0.0003    6.60
 319          RX       0    6.74    6.94   14.37    18.2    22.5    29.1    35.8
 320          RY     5.7    0.17    0.17       0    3.04    6.60    6.36     6.2
              *

 321          KK   Dummy
 322          KM   Tailwater ditch goes underground in 6x6 box culvert at Pecos. Flow is
```

```
 323          KM   conveyed to a lift station approximately 1600' south of Pecos road,
 324          KM   outletting into Eastern Canal. Therefore, flow in tail water ditch
 325          KM   is diverted out of the system.
 326          DT   CANAL
 327          DI       0     100
 328          DQ       0     100
              *

 329          KK     213   BASIN
 330          KM   The following parameters were determined for this sub basin.
 331          KM   L= 0.67 mi  S= 8.0 ft/mi  Kb= 0.045  Urban
 332          KO       3
 333          BA   0.125
 334          LG    0.39    0.23    6.20    0.21       4
 335          UC   0.908   0.790
 336          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
 337          UA     100
              *
1                                          HEC-1 INPUT                                          PAGE  9

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 338          KK    P213
 339          KM   Ponding along Eastern Canal, south of Pecos Rd.
 340          KM   South Boundary weir min elev =1266.30
 341          KM   Canal weir min elev = 1266.80
 342          KM   Pecos weir min elev = 1266.00
 343          KO       3
 344          RS       1    STOR       0       0
 345          SV       0     .06    4.44    7.53    9.41   14.13   29.52
 346          SE    1264    1265    1266  1266.2  1266.3  1266.5    1267
 347          SQ       0       0       0       5      14      86    1029
              *

 348          KK    O207
 349          KM   Retrieve flow overtopping from Sub-Basin 208
 350          DR    D207
              *

 351          KK     207   BASIN
 352          KM   The following parameters were determined for this sub basin.
 353          KM   L= 1.70 mi  S= 6.3 ft/mi  Kb= 0.027  Urban
 354          BA   0.678
 355          LG    0.27    0.25    5.20    0.30      28
 356          UC   1.238   0.894
 357          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
 358          UA     100
              *

 359          KK     207
 360          KM   RETENTION DIVERSION
 361          KM   Divert flow retained within residential areas
 362          DT  207RET    45.4
 363          DI       0   10000
 364          DQ       0   10000
              *

 365          KK   CP207
 366          KM   Combine SUB 207, O207 and oveflow from P213.
 367          KO       3
 368          HC       4
              *

 369          KK    P207
 370          KM   Ponding in retention basin east of tailwater ditch, north of Pecos Rd.
 371          KM   Road weir min elev =1265.95
 372          KM   TWD eastbank weir min elev =1266.94
 373          KO       3
 374          RS       1    STOR       0       0
 375          SV       0    1.27   10.55   36.54   50.79   65.83   98.20  115.51  133.60  152.47
 376          SV  172.37  182.88  205.24
 377          SE    1255    1256    1257    1259    1260    1261    1263    1264    1265    1266
 378          SE    1267  1267.5  1268.5
 379          SQ       0       0       0       0       0       0       0       0       0       1
 380          SQ     920    2716   12171
              *
1                                          HEC-1 INPUT                                          PAGE 10

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 381          KK    D207 Canal Diversion
 382          KM   Overflow to Canal
 383          DT  EAS207
 384          DI       0     100
 385          DQ       0     100
              *
              *

 386          KK     212   BASIN
 387          KM   The following parameters were determined for this sub basin.
 388          KM   L= 1.62 mi  S= 9.9 ft/mi  Kb= 0.046  Natural
 389          KO       3
 390          BA   0.372
```

```
391          LG    0.47    0.25    5.60    0.31       1
392          UC   1.500   1.500
393          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
394          UA     100
             *

395          KK    P212
396          KM   Ponding in low basin area, north of Santan Freeway, at Lindsey and 114th St.
397          KM   Canal weir min elev = 1266.00
398          KM   Lindsay weir min elev =1269.00
399          KM   114th St weir min elev = 1266.00
400          KO       3
401          RS       1    STOR       0       0
402          SV       0     .17     .57    1.66    2.98    4.41     4.7    4.77     4.9    4.96
403          SV    5.03    5.13
404          SE    1262  1262.5    1263    1264    1265    1266  1266.2 1266.25 1266.31 1266.38
405          SE  1266.4  1266.5
406          SQ       0       0       0       0       0       0      68      98     139     195
407          SQ     212     308
             *

408          KK   D212R Canal Diversion
409          KM   Flow is diverted in two directions: over the canal and over 114th St.
410          KM   This diversion shows flow over Canal. Remaining flow goes to Santan
411          KM   Basin O
412          KO       3
413          DT  EAS212
414          DI       0      68      98     139     195     212
415          DQ       0       2       4       7      10      11
             *
             * ******************************************************************************
             *         SECOND      PB            REGION
             * ******************************************************************************
             *

416          KK     209   BASIN
417          KM   The following parameters were determined for this sub basin.
418          KM   L= 1.51 mi  S=9.1 ft/mi  Kb= 0.026  Urban
419          PB   2.816
420          PC   0.000   0.013   0.019   0.029   0.044   0.058   0.070   0.082   0.095   0.108
421          PC   0.123   0.139   0.161   0.207   0.291   0.467   0.676   0.807   0.876   0.919
```



```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

422          PC   0.947   0.961   0.974   0.987   1.000
423          KM   Total point rainfall = 3.45, Area = 10.5 sq. mi, reduction factor = 0.948
424          KM   Region bounded by UPRR on the northeast, the EMF on the east, Ocotillo Rd. on
425          KM   the south, and the Eastern Canal and Santan Freeway on the west.
426          BA   0.868
427          LG    0.24    0.26    5.00    0.32      29
428          UC   0.921   0.509
429          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
430          UA     100
             *

431          KK     209
432          KM   RETENTION DIVERSION
433          KM   Divert flow retained within residential areas
434          DT  209RET   86.27
435          DI       0   10000
436          DQ       0   10000
             *

437          KK    D209  INTERSECTION DIVERSION
438          KM   Flow split at Higley and Pecos with 40%
439          KM   diverted north along Higley.
440          DT   To205
441          DI       0     100     500    1000    2000
442          DQ       0      40     200     400     800
             *

443          KK  209210   ROUTE   REACH
444          KM   Flow split at Higley and Pecos with 60%
445          KM   routed west along Pecos.
446          RS       6    FLOW      -1
447          RC   0.030   0.015   0.030    5297  0.0028   10.00
448          RX     0.0    10.0    21.0    25.0    25.0    49.0    58.0    68.0
449          RY    10.0     0.0     1.8     2.1     2.1     1.8     0.0    10.0
             *

450          KK     216   BASIN
451          KM   The following parameters were determined for this sub basin.
452          KM   L= 1.37 mi  S= 11.8 ft/mi  Kb= 0.039  Natural
453          BA   1.027
454          LG    0.41    0.25    5.70    0.27       7
455          UC   1.204   0.576
456          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
457          UA     100
             *

458          KK     216
459          KM   RETENTION DIVERSION
460          KM   Divert flow retained within residential areas
461          DT  216RET    9.05
```

```
462          DI       0   10000
463          DQ       0   10000
             *
1                                          HEC-1 INPUT                                                    PAGE 12

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


464          KK    D216  INTERSECTION DIVERSION
465          KM   Flow split at Greenfield and Germann with 70%
466          KM   diverted west along Germann.
467          DT   ToVVG
468          DI       0     100     500    1000    2000
469          DQ       0      70     350     700    1400
             *

470          KK  216210   ROUTE   REACH
471          KM   Flow split at Greenfield and Germann with 30%
472          KM   routed north along Greenfield.
473          KM   Flow contained on east side of Greenfield which is represented by
474          KM   X5 to X8 in route cross section.
475          RS       6    FLOW      -1
476          RC   0.030   0.015   0.035    5347  0.0016    2.10
477          RX     0.0    10.0    21.0    25.0    25.0    49.0    58.0  1010.0
478          RY     2.1     2.1     2.1     2.1     2.1     1.8     0.0     3.2
             *

479          KK     210   BASIN
480          KM   The following parameters were determined for this sub basin.
481          KM   L= 1.51 mi  S= 14.2 ft/mi  Kb= 0.041  Natural
482          BA   1.019
483          LG    0.43    0.16    7.60    0.13       5
484          UC   1.104   0.568
485          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
486          UA     100
             *

487          KK     210
488          KM   RETENTION DIVERSION
489          KM   Divert flow retained within residential areas
490          DT  210RET    3.38
491          DI       0   10000
492          DQ       0   10000
             *

493          KK   CP210
494          KM   Combine 209210, 216210, & SUB 210.
495          HC       3
             *

496          KK  FRM209
497          KM   Retrieve hydrograph from flow split at Higley and Pecos, flowing north.
498          DR   To205
             *

499          KK  209205   ROUTE   REACH
500          KM   Routed north along Higley.
501          RS      10    FLOW      -1
502          RC   0.030   0.015   0.035    9491  0.0030    4.60
503          RX     0.0   541.0   552.0   566.0   600.0   600.0   631.0   631.0
504          RY     4.6     0.0     1.8     2.0     1.2     1.7     2.2     4.6
             *
1                                          HEC-1 INPUT                                                    PAGE 13

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


505          KK     205   BASIN
506          KM   The following parameters were determined for this sub basin.
507          KM   L= 2.93 mi  S= 12.0 ft/mi  Kb= 0.032  Urban
508          BA   1.149
509          LG    0.32    0.25    5.00    0.32      11
510          UC   1.500   1.267
511          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
512          UA     100
             *

513          KK     205
514          KM   RETENTION DIVERSION
515          KM   Divert flow retained within residential areas
516          DT  205RET    7.46
517          DI       0   10000
518          DQ       0   10000
             *

519          KK   CP205
520          KM   Combine 209205 & SUB 205.
521          KM   Flow enters Santan Drainage System
522          HC       2
             *

523          KK  FRM216
524          KM   Retrieve hydrograph from flow split at Greenfield & Germann.
525          DR   ToVVG
             *
```

```
526          KK  216VVG   ROUTE   REACH
527          KM   Routed west along Germann.
528          KM   Flow contained on south side of Germann which is represented by
529          KM   X1 to X4 in route cross section.
530          RS       6    FLOW      -1
531          RC   0.035   0.015   0.030    5280  0.0028    1.40
532          RX     0.0   975.0   986.0  1000.0  1000.0  1014.0  1025.0  1035.0
533          RY     1.4     0.0     1.8     2.1     2.1     2.1     2.1     2.1
             *

534          KK    DVVG  INTERSECTION DIVERSION
535          KM   Flow split at Val Vista and Germann with 60%
536          KM   diverted west along Germann.
537          DT    ToLG
538          DI       0     100     500    1000    2000
539          DQ       0      60     300     600    1200
             *

540          KK  VVG211   ROUTE   REACH
541          KM   Flow split at Val Vista and Germann with 40%
542          KM   routed north along Val Vista.
543          KM   Flow contained on east side of road wich is represented by
544          KM   X5 to X8 in route cross section.
545          RS       4    FLOW      -1
546          RC   0.030   0.015   0.035    3522  0.0026    2.10
1                                         HEC-1 INPUT                                                    PAGE 14

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

547          RX     0.0    10.0    21.0    35.0    35.0    49.0    58.0  1065.0
548          RY     2.1     2.1     2.1     2.1     2.1     1.8     0.0     2.6
             *

549          KK     211   BASIN
550          KM   The following parameters were determined for this sub basin.
551          KM   L= 1.34 mi  S= 14.7 ft/mi  Kb= 0.037  Urban
552          BA   0.925
553          LG    0.38    0.15    7.00    0.14       4
554          UC   0.904   0.437
555          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
556          UA     100
             *

557          KK   CP211
558          KM   Combine 211 and VVG211.
559          KM   Flow enters Santan Channel.
560          HC       2
             *

561          KK     214   BASIN
562          KM   The following parameters were determined for this sub basin.
563          KM   L= 1.54 mi  S= 10.9 ft/mi  Kb= 0.047  Natural
564          BA   0.406
565          LG    0.50    0.25    4.35    0.59       0
566          UC   1.500   1.370
567          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
568          UA     100
             *

569          KK     201   BASIN
570          KM   The following parameters were determined for this sub basin.
571          KM   L= 2.55 mi  S= 9.0 ft/mi  Kb= 0.030  Urban
572          BA   0.634
573          LG    0.27    0.15    7.60    0.12      28
574          UC   1.417   1.493
575          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
576          UA     100
             *

577          KK     201
578          KM   RETENTION DIVERSION
579          KM   Divert flow retained within residential areas
580          DT  201RET   44.97
581          DI       0   10000
582          DQ       0   10000
             *

583          KK     204   BASIN
584          KM   The following parameters were determined for this sub basin.
585          KM   L= 2.17 mi  S= 12.6 ft/mi  Kb= 0.038  Urban
586          BA   0.816
587          LG    0.34    0.26    4.70    0.40      18
588          UC   1.500   1.211
589          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
1                                         HEC-1 INPUT                                                    PAGE 15

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

590          UA     100
             *

591          KK     204
592          KM   RETENTION DIVERSION
593          KM   Divert flow retained within residential areas
```

```
594          DT  204RET   45.55
595          DI       0   10000
596          DQ       0   10000
             *

597          KK  CPADOT
598          KM   Combine D212, CP210, CP205, CP211, SUB-BASINS 214, 201, & 204.
599          KM   Hydrographs combined at this CP are removed from the model.
600          KM   ADOT basins O and P have been designed to detain a 50yr-24hr event
601          KM   with enough freeboard for a 100yr-24hr event.
602          HC       7
             *

603          KK     220   BASIN
604          KM   The following parameters were determined for this sub basin.
605          KM   L= 1.60 mi  S= 16 ft/mi  Kb= 0.036  Urban
606          BA   0.786
607          LG    0.39    0.25    4.30    0.50       6
608          UC   1.221   0.771
609          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
610          UA     100
             *

611          KK    D220  INTERSECTION DIVERSION
612          KM   Flow split at Val Vista and Queen Creek with 30%
613          KM   diverted west along Queen Creek.
614          DT   To221
615          DI       0     100     500    1000    2000
616          DQ       0      30     150     300     600
             *

617          KK  220217   ROUTE   REACH
618          KM   Flow split at Val Vista and Queen Creek with 70%
619          KM   routed north along Val Vista.
620          KM   Flow contained on east side of Queen Creek which is represented by
621          KM   X5 to X8 in route cross section.
622          RS       3    FLOW      -1
623          RC   0.035   0.015   0.030    2671  0.0011    2.10
624          RX     0.0    10.0    21.0    35.0    35.0    49.0    58.0   170.0
625          RY     2.1     2.1     2.1     2.1     2.1     1.8     0.0     2.1
             *

626          KK     217   BASIN
627          KM   The following parameters were determined for this sub basin.
628          KM   L= 1.52 mi  S= 11.7 ft/mi  Kb= 0.044  Natural
629          BA   1.009
630          LG    0.48    0.25    4.35    0.56       1
631          UC   1.500   0.807
632          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
```



```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

633          UA     100
             *

634          KK   CP217
635          KM   Combine 220217 & SUB 217.
636          HC       2
             *

637          KK  217218   ROUTE   REACH
638          KM   Routed west through Estates at the Spectrum subdivision
639          KM   agricultural field.
640          RS       6    FLOW      -1
641          RC   0.035   0.035   0.035    5315  0.0029    1.40
642          RX     0.0   160.0   374.0   450.0   640.0   979.0  1266.0  1517.0
643          RY     1.4     0.9     0.1     0.0     0.0     0.4     1.0     1.4
             *

644          KK  FRM220
645          KM   Retrieve hrdrograph from flow split at Val Vista and Queen Creek.
646          DR   To221
             *

647          KK  220221   ROUTE   REACH
648          KM   Routed west along Queen Creek.
649          RS       6    FLOW      -1
650          RC   0.035   0.015   0.035    5278  0.0030    0.60
651          RX     0.0   500.0   511.0   525.0   525.0   539.0   550.0  1050.0
652          RY     0.6     0.0     1.8     2.1     2.1     1.8     0.0     0.6
             *

653          KK     221   BASIN
654          KM   The following parameters were determined for this sub basin.
655          KM   L= 1.46 mi  S= 15.9 ft/mi  Kb= 0.042  Natural
656          BA   0.502
657          LG    0.44    0.25    4.50    0.51      11
658          UC   1.242   0.943
659          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
660          UA     100
             *

661          KK     221
662          KM   RETENTION DIVERSION
```

```
 663          KM   Divert flow retained within residential areas
 664          DT  221RET   15.92
 665          DI       0   10000
 666          DQ       0   10000
              *

 667          KK   CP221
 668          KM   Combine 220221 & SUB 221
 669          HC       2
              *
1                                        HEC-1 INPUT                                                    PAGE 17

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


 670          KK    D221 INTERSECTION DI VERSION
 671          KM   Flow split at Lindsay and Queen Creek with 60%
 672          KM   diverted west along Queen Creek.
 673          DT   To238
 674          DI       0     100     500    1000    2000
 675          DQ       0      60     300     600    1200
              *

 676          KK  221218   ROUTE   REACH
 677          KM   Flow split at Lindsay and Queen Creek with 40%
 678          KM   routed north along Lindsay.
 679          KM   Flow contained on east side of Lindsay which is represented by
 680          KM   X5 to X8 in route cross section.
 681          RS       3    FLOW      -1
 682          RC   0.035   0.015   0.035    2655  0.0009    2.10
 683          RX     0.0    10.0    21.0    35.0    35.0    49.0    58.0   170.0
 684          RY     2.1     2.1     2.1     2.1     2.1     1.8     0.0     3.0
              *

 685          KK     218   BASIN
 686          KM   The following parameters were determined for this sub basin.
 687          KM   L= 1.50 mi  S= 12.1 ft/mi  Kb= 0.04  Natural
 688          BA   1.007
 689          LG    0.43    0.25    5.30    0.34       8
 690          UC   1.350   0.711
 691          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 692          UA     100
              *

 693          KK   CP218
 694          KM   Combine 217218, 221218, & SUB 218.
 695          HC       3
              *

 696          KK    D218
 697          KM   Flow split at CP218 with 50% diverted south of half mile dirt road
 698          KM   and 50% routed north of half mile dirt road.
 699          DT   To237
 700          DI       0     100     500    1000    2000
 701          DQ       0      50     250     500    1000
              *

 702          KK  218219   ROUTE   REACH
 703          KM   Routed west through agricultural field.
 704          RS       2    FLOW      -1
 705          RC   0.035   0.035   0.035    1992  0.0036    1.20
 706          RX     0.0   652.0  1317.0  1443.0  1538.0  1648.0  1754.0  1863.0
 707          RY     2.6     1.3     0.6     0.0     0.6     0.0     0.6     1.2
              *
1                                        HEC-1 INPUT                                                    PAGE 18

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


 708          KK  FRMVVG
 709          KM   Retrieve hydrograph from flow split at Val Vista and Germann.
 710          DR    ToLG
              *

 711          KK   VVGLG   ROUTE   REACH
 712          KM   Routed west along Germann.
 713          RS       6    FLOW      -1
 714          RC   0.035   0.015   0.030    5354  0.0030    0.70
 715          RX     0.0   500.0   511.0   525.0   525.0   539.0   550.0  1050.0
 716          RY     0.7     0.0     1.8     2.1     2.1     1.8     0.0     0.7
              *

 717          KK     DLG INTERSECTION DI VERSION
 718          KM   Flow split at Lindsay and Germann with 50%
 719          KM   diverted through Sub-area 219.
 720          DT   To219
 721          DI       0     100     500    1000    2000
 722          DQ       0      50     250     500    1000
              *

 723          KK   LG215   ROUTE   REACH
 724          KM   Routed west along Germann.
 725          RS       1    FLOW      -1
 726          RC   0.035   0.015   0.030     623  0.0069    0.80
 727          RX     0.0   500.0   511.0   525.0   525.0   539.0   550.0  1050.0
```

```
728          RY     0.7     0.0     1.8     2.1     2.1     1.8     0.0     0.7
             *

729          KK     215   BASIN
730          KM   The following parameters were determined for this sub basin.
731          KM   L= 0.37 mi  S= 8.3 ft/mi  Kb= 0.057  Urban
732          BA   0.040
733          LG    0.23    0.31    4.25    0.37       5
734          UC   0.721   0.727
735          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
736          UA     100
             *

737          KK   CP215
738          KM   Combine LG215 & SUB 215.
739          KO       3
740          HC       2
             *

741          KK    P215
742          KM   Ponding along Eastern Canal, north of Germann Road
743          KM   Canal weir min elev = 1264.10
744          KM   Germann weir min elev = 1263.9
745          KO       3
746          RS       1    STOR       0       0
747          SV     .25    1.43    3.82    7.63   12.72   26.37   44.62
748          SE    1261  1261.5    1262  1262.5    1263    1264    1265
749          SQ       0       0       0       0       0       0    1671
             *
1                                          HEC-1 INPUT                                                    PAGE 19

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

750          KK   FRMLG
751          KM   Retrieve hydrograph from flow split at Lindsay and Germann.
752          DR   To219
             *

753          KK   LG219   ROUTE   REACH
754          KM   Routed south along Eastern Canal.
755          RS       4    FLOW      -1
756          RC   0.035   0.035   0.035    3421  0.0015    1.30
757          RX     0.0    11.0   320.0   437.0   940.0  1047.0  1286.0  1301.0
758          RY     1.3     0.8     0.2     0.8     0.0     0.8     0.8     2.8
             *

759          KK     219   BASIN
760          KM   The following parameters were determined for this sub basin.
761          KM   L= 0.68 mi  S= 7.6 ft/mi  Kb= 0.056  Natural
762          BA   0.083
763          LG    0.29    0.14    8.40    0.09      27
764          UC   0.658   0.706
765          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
766          UA     100
             *

767          KK     219
768          KM   RETENTION DIVERSION
769          KM   Divert flow retained within Eagle Glen II
770          DT  219RET     1.1
771          DI       0   10000
772          DQ       0   10000
             *

773          KK   CP219
774          KM   Combine 218219, P215,LG219, & SUB 219.
775          KO       3
776          HC       4
             *
             * ******************************************************************************
             * *    UPDATED 6/07 BY NATHAN BEUTLER - VOLUME OF POND WITHIN EAGLE GLENN II   *
             * *    SUB-DIVISION.  VOLUME TAKEN FROM DRAINAGE REPORT. GRADING PLANS SHOW    *
             * *    CONTOUR 1 ft HIGHER THAN REPORTED HWE(1261.66 NAVD88) AT 1262.66.       *
             * ******************************************************************************
             *
             *  P219
             *  Ponding along Eastern Canal, south of Germann Road WITHIN EAGLE GLENN II
             *  SUB-DIVISION
             *  South Boundary weir min elev = 1260.76
             *  Canal weir min elev = 1262.40
             *      3
             *      1    STOR       0       0
             *      0    2.60    5.65    9.17   13.10   16.55   17.78
             *   1258 1258.76 1259.76 1260.76 1261.66 1262.66 1262.96
             *      0      60     100     160     220     240     260
             * 1260.7 1260.99 1261.08 1261.20 1261.30 1261.33 1261.36
             * ******************************************************************************
             *     P219 combined with P237 because of backwater affects from P237          *
             *     by LS                                                                    *
             * ******************************************************************************
1                                          HEC-1 INPUT                                                    PAGE 20

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10
```

```
KK  FRM218
KM   Retrieve hydrograph from flow split at CP218.
DR   To237
*

KK  218237   ROUTE   REACH
KM   Routed west through agricultural field.
RS       2    FLOW      -1
RC   0.035   0.035   0.035    1992  0.0036    1.20
RX     0.0   652.0  1317.0  1443.0  1538.0  1648.0  1754.0  1863.0
RY     2.6     1.3     0.6     0.0     0.6     0.0     0.6     1.2
*

KK     237   BASIN
KM   The following parameters were determined for this sub basin.
KM   L= 0.74 mi  S= 7.9 ft/mi  Kb= 0.055  Natural
BA   0.224
LG    0.22    0.22    5.10    0.30      37
UC   0.579   0.372
UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
UA     100
*

KK    D237 BASIN DIVERSION
KM   80% of Basin runoff diverted to P238.
DT  ToP238
DI       0     100     500    1000    2000
DQ       0      80     400     800    1600
*

KK   CP237
KM   Combine P219, 218237, & 20% of SUB 237.
KO       3
HC       3
*

KK    P237
KM   Ponding along Eastern Canal, north of Queen Creek Road
KM   ***************************************************************************
KM   *   THIS IS P219 AND P237 COMBINED                                         *
KM   ***************************************************************************
KM   Ponding Volume provided by Layton Lakes Gilbert Phase 1 Ball Field.
KM   Ball Field volume taken from Master Drainage Report for Layton Lakes Phase 2
KM   Chandler written by CMX,L.L.C.
KM   Road weir min elev = 1261.66
KM   Ballfield overtopping flows into P238 (Layton Lakes main lake system)
KO       3
RS       1    STOR       0       0
SV       0    9.17   28.38   30.77   32.18   33.37   34.92   35.34   38.89   42.47
SE  1258.7 1261.46 1261.66 1261.89 1262.03 1262.14 1262.29 1262.33 1262.66 1263.00
SQ       0     100     200     300     400     450     500
SE  1261.7 1261.89 1262.03 1262.14 1262.24 1262.29 1262.33
*
```



```
LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

KK  FRM237
KM   Retrieve hydrograph from Basin 237 Basin Diversion.
DR  ToP238
*

KK  237238   ROUTE   REACH
KM   ROUTED THROUGH LAYTON LAKES LAKE SYSTEM
KM   USED TYPICAL CROSS SECTION OF LAKE FOR ROUTING CHANNEL.
KM
RS      13    FLOW      -1
RC   0.035   0.020   0.035    3900  0.0001    1259
RX     0.0       5      14      20     250     254     262     267
RY    1259    1258    1256    1255    1255    1256    1258    1259
*

KK  FRM221
KM   Retrieve hydrograph from flow split at Lindsay and Queen Creek.
DR   To238
*

KK  221238   ROUTE   REACH
KM   Route west along Queen Creek then south along Eastern Canal.
KM   Flow contained along south side of Queen Creek which is represented by
KM   X1 to X4 in route cross section.
RS       6    FLOW      -1
RC   0.035   0.015   0.035    5883  0.0014    0.50
RX     0.0   700.0   711.0   725.0   725.0   739.0   750.0   760.0
RY     0.5     0.0     1.8     2.1     2.1     2.1     2.1     2.1
*
*
* ***************************************************************************
*          THIRD      PB   REGION
* ***************************************************************************
*

KK     238   BASIN
```

```
842          KM   The following parameters were determined for this sub basin.
843          KM   L= 1.11 mi  S= 7.4 ft/mi  Kb= 0.048  Natural
844          PB   2.833
845          PC   0.000   0.013   0.019   0.028   0.044   0.056   0.068   0.080   0.093   0.105
846          PC   0.120   0.135   0.157   0.203   0.287   0.465   0.678   0.809   0.878   0.920
847          PC   0.947   0.961   0.974   0.987   1.000
848          KM   Total point rainfall = 3.45, Area = 3.15 sq. mi, reduction factor = 0.962
849          KM   Region bounded by Queen Creek Rd on the north, EMF on the east, Ray Rd and
850          KM   Hunt Hwy on the south, and the Eastern Canal on the east.
851          BA   0.337
852          LG    0.46    0.24    4.80    0.43       7
853          UC   1.500   1.173
854          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
855          UA     100
             *
             * ******************************************************************************
             *  ADDED 6/07 BY NATHAN BEUTLER
             * ******************************************************************************
             *
1                                          HEC-1 INPUT                                          PAGE 22

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


856          KK    D238 SUBDIVISION DIVERSION
857          KM   Flow diverted to Basin S in the Layton Lakes development. Basin S is P224.
858          KM   VOLUME DATA TAKEN FROM MASTER DRAINAGE REPORT FOR LAYTON LAKES,
859          KM   Phase 2-Chandler
860          KO       3
861          DT   To224    2.45
862          DI       0   10000
863          DQ       0   10000
             *

864          KK   CP238
865          KM   Combine 237238, 221238, ToP238 & SUB 238.
866          KO       3
867          HC       4
             *
             * ******************************************************************************

868          KK    P238
869          KM    P237238 is Pond name in weir hydraulic computations (Culvert Master)
870          KM   PONDING IS CONTAINED WITHIN THE TWO LAKES; 1)PHASE 1 LAKE BASIN AND
871          KM   2) BASIN L.  VOLUME DATA TAKEN FROM MASTER DRAINAGE REPORT FOR LAYTON LAKES
872          KM   PHASE 2 - CHANDLER BY CMX.
873          KM   Ponding along Eastern Canal, south of Queen Creek Road
874          KM   South weir end is sidewalk Elev 1260.56 between Basin L and Basin S
875          KM   Canal weir min elev = 1260.20
876          KO       3
877          RS       1    STOR       0       0
878          SV       0    1.13   22.78   47.45   74.97    93.2    97.0    98.8   101.4   102.3
879          SV   102.9   103.8
880          SE  1256.5 1256.66 1257.66 1258.66 1259.66 1260.20 1260.41 1260.47 1260.56 1260.59
881          SE  1260.6 1260.64
882          SQ       0      31      50      90     120     160     195
883          SE  1260.2 1260.41 1260.47 1260.56 1260.59 1260.62 1260.64
             *

884          KK    D238 CANAL DIVERSION
885          KM   Flow diverted to canal resulting from ponding overflow into canal.
886          KM   Remaining flow goes to CP224
887          KO       3
888          DT  EAS238
889          DI       0      31      50      90     120     160     186
890          DQ       0      31      50      90     110     130     136
             *

891          KK  FRM238
892          KM   Retrieve hydrograph from flow diversion in Basin 238.
893          DR   To224
             *
1                                          HEC-1 INPUT                                          PAGE 23

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


894          KK     224   BASIN
895          KM   The following parameters were determined for this sub basin.
896          KM   L= 1.20 mi  S= 11.5 ft/mi  Kb=0.039  Natural
897          BA   0.427
898          LG    0.38    0.25    4.80    0.36      17
899          UC   1.179   0.835
900          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
901          UA     100
             *
             * ********UPDATED 6/07 BY NATHAN BEUTLER*************************************

902          KK   CP224
903          KM   Combine D238, FRM238 SUB 224.
904          KO       3
905          HC       3
             *
             * ******************************************************************************
             * *****UPDATE 6/07 BY NATHAN BEUTLER*********************************************
```

```
                 * ******************************************************************************
                 *
906              KK    P224
907              KM   VOLUME DATA TAKEN FROM MASTER DRAINAGE REPORT FOR LAYTON LAKES, PHASE 2-
908              KM   CHANDLER.
909              KM   Ponding along Eastern Canal, north of Ocotillo Road WITHIN BASIN S OF LAYTON
910              KM   LAKES SUBDIVISION.
911              KM   Road weir min elev = 1259.2
912              KM   Canal weir min elev = 1258.70
913              KO       3
914              RS       1    STOR       0       0
915              SV       0    6.10   19.32   33.91   49.87   58.35
916              SE  1255.2 1255.66 1256.66 1257.66 1258.66 1259.16
917              SQ       0       5      10      15      25      30      50
918              SE  1258.7 1258.71 1258.72 1258.73 1258.74 1258.75 1258.76
                 *

919              KK     225   BASIN
920              KM   The following parameters were determined for this sub basin.
921              KM   L= 1.57 mi  S= 11.5 ft/mi  Kb= 0.041  Natural
922              BA   0.659
923              LG    0.43    0.25    4.45    0.50       2
924              UC   1.500   1.056
925              UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
926              UA     100
                 *

927              KK     222   BASIN
928              KM   The following parameters were determined for this sub basin.
929              KM   L= 1.78 mi  S= 12.4 ft/mi  Kb= 0.033  Urban
930              BA   0.752
931              LG    0.36    0.25    4.30    0.48       4
932              UC   1.417   1.016
933              UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
934              UA     100
                 *
1                                                HEC-1 INPUT                                          PAGE 24

LINE             ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

935              KK   CP222
936              KM   Combine SUB 225 & SUB 222.
937              HC       2
                 *

938              KK  222223   ROUTE   REACH
939              KM   Routed west along Ocotillo.
940              RS       6    FLOW      -1
941              RC   0.035   0.015   0.035    5255  0.0028    0.80
942              RX     0.0   500.0   511.0   525.0   525.0   539.0   550.0  1050.0
943              RY     0.8     0.0     1.8     2.1     2.1     1.8     0.0     0.8
                 *

944              KK     226   BASIN
945              KM   The following parameters were determined for this sub basin.
946              KM   L= 1.23 mi  S= 14.0 ft/mi  Kb= 0.046  Natural
947              BA   0.504
948              LG    0.50    0.25    4.50    0.54       0
949              UC   1.463   0.984
950              UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
951              UA     100
                 *

952              KK     223   BASIN
953              KM   The following parameters were determined for this sub basin.
954              KM   L= 1.22 mi  S= 14.9 ft/mi  Kb= 0.045  Natural
955              BA   0.503
956              LG    0.45    0.26    4.15    0.61       1
957              UC   1.383   0.920
958              UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
959              UA     100
                 *

960              KK   CP223
961              KM   Combine 222223, SUB 226, & SUB 223.
962              HC       3
                 *

963              KK  223227   ROUTE   REACH
964              KM   Routed west along Ocotillo.
965              RS       7    FLOW      -1
966              RC   0.035   0.015   0.035    6381  0.0019    1.90
967              RX     0.0   439.5   447.0   469.5   469.5   492.0   499.5   680.0
968              RY     1.9     0.0     1.3     1.7     1.7     1.3     0.0     1.9
                 *

969              KK     227   BASIN
970              KM   The following parameters were determined for this sub basin.
971              KM   L= 1.21 mi  S= 12.7 ft/mi  Kb= 0.046  Natural
972              BA   0.467
973              LG    0.49    0.25    4.45    0.55       1
974              UC   1.496   1.040
975              UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
```

```
 976          UA     100
              *
1                                        HEC-1 INPUT                                                    PAGE 25

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


 977          KK   D227A
 978          KM   50% of Basin flow diverted to Quail Springs.
 979          KM   Remaining flow routed to Pond P230.
 980          DT   To227
 981          DI       0     100    1000   10000
 982          DQ       0      50     500    5000
              *

 983          KK   CP227
 984          KM   Combine P224, 223227, & D227A.
 985          KO       3
 986          HC       3
              *

 987          KK    P227
 988          KM   ***VOLUME SHOWN IN SV RECORDS TAKEN FROM QUAIL SPRINGS AS=BUILT
 989          KM   ***DRAWINGS.
 990          KM   Ponding along Eastern Canal and southern end of Quail Springs Retention Basin
 991          KM   Retention Basin weir min elev = 1259.63
 992          KM   Canal weir min elev = 1259.00
 993          KO       3
 994          RS       1    STOR       0       0
 995          SV       0    7.94   17.15   21.19   31.84   50.37
 996          SE    1257  1257.6  1258.6 1259.03 1259.33 1259.63
 997          SQ       0      50     100     150     200     250     300     350     450     500
 998          SE  1259.0 1259.28 1259.35 1259.40 1259.44 1259.48 1259.51 1259.54 1259.59 1259.61
              *

 999          KK   D227B CANAL DIVERSION
1000          KM   Flow diverted to canal resulting from ponding overflow into canal.
1001          KO       3
1002          DT  EAS227
1003          DI       0     100    1000   10000
1004          DQ       0     100    1000   10000
              *

1005          KK  FRM227
1006          KM   Retrieve 50% of Basin 227 flow.
1007          DR   To227
              *
1008          KM   Retention Diversion
1009          KM   Divert flow retained in subdivision
1010          DT  227RET
1011          DI       0     100    1000
1012          DQ       0     100    1000
              *
              * 227230   ROUTE   REACH
              * Route 50% of Basin flow to P230.
              *      2    FLOW      -1
              *  0.035   0.035   0.035    1409  0.0014   58.15
              *    0.0     8.4    55.8   121.0   215.0   232.3   256.0   267.7
              *   59.3    57.8    57.3    57.1    57.0    57.0    57.1    58.2
              *
1                                        HEC-1 INPUT                                                    PAGE 26

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


1013          KK     228   BASIN
1014          KM   The following parameters were determined for this sub basin.
1015          KM   L= 1.37 mi  S= 11.5 ft/mi  Kb= 0.037  Urban
1016          BA   0.570
1017          LG    0.39    0.25    4.70    0.38       3
1018          UC   1.271   0.856
1019          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
1020          UA     100
              *

1021          KK    D228  INTERSECTION DIVERSION
1022          KM   Flow split at Val Vista and Chandler Heights with 30%
1023          KM   routed south along Val Vista.
1024          DT   To231
1025          DI       0     100     500    1000    2000
1026          DQ       0      30     150     300     600
              *

1027          KK  228229   ROUTE   REACH
1028          KM   Flow split at Val Vista and Chandler Heights with 70%
1029          KM   routed west along Chandler Heights.
1030          RS       6    FLOW      -1
1031          RC   0.035   0.015   0.035    5308  0.0028    0.80
1032          RX     0.0   510.0   517.5   540.0   540.0   562.5   570.0  1080.0
1033          RY     0.8     0.0     1.3     1.7     1.7     1.3     0.0     0.8
              *

1034          KK     229   BASIN
1035          KM   The following parameters were determined for this sub basin.
1036          KM   L= 1.33 mi  S= 12.0 ft/mi  Kb= 0.05  Natural
```

```
1037          BA   0.507
1038          LG    0.50    0.25    4.55    0.52       0
1039          UC   1.500   1.074
1040          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
1041          UA     100
              *

1042          KK   CP229
1043          KM   Combine 228229 & SUB 229.
1044          HC       2
              *

1045          KK    D229  INTERSECTION DIVERSION
1046          KM   Flow split at Lindsay and Chandler Heights with 30%
1047          KM   routed south along Lindsay.
1048          DT   To232
1049          DI       0     100     500    1000    2000
1050          DQ       0      30     150     300     600
              *
1                                          HEC-1 INPUT                                                    PAGE 27

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1051          KK  229230   ROUTE   REACH
1052          KM   Flow split at Lindsay and Chandler Heights with 70%
1053          KM   routed west along Chandler Heights.
1054          RS       7    FLOW      -1
1055          RC   0.035   0.015   0.035    6413  0.0028    0.80
1056          RX     0.0   500.0   507.5   530.0   530.0   552.5   560.0  1060.0
1057          RY     0.8     0.0     1.3     1.7     1.7     1.3     0.0     0.8
              *

1058          KK     230   BASIN
1059          BA   0.565
1060          LG    0.39    0.28    4.65    0.41       0
1061          UC   1.500   1.105
1062          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
1063          UA     100
              *

1064          KK     230
1065          KM   RETENTION DIVERSION
1066          KM   Divert flow retained within residential areas
1067          DT  230RET   10.77
1068          DI       0   10000
1069          DQ       0   10000
              *

1070          KK   CP230
1071          KM   Combine 227228, 229230, & SUB 230.
1072          KO       3
1073          HC       3
              *

1074          KK    P230
1075          KM   RWCD Chandler Heights Storage Basin
1076          KM   Basin volume determined from DTM which accounts for water level in basin
1077          KM   at the time of the mapping.
1078          KM   Road weir min elev = 1255.90
1079          KM   Canal weir min elev = 1256.60
1080          KO       3
1081          RS       1    STOR       0       0
1082          SV       0   14.75   44.82   78.21  112.26  146.78   181.7  216.98  252.68  288.81
1083          SV  325.39  362.46   400.2  441.98   467.5
1084          SE    1244    1245    1246    1247    1248    1249    1250    1251    1252    1253
1085          SE    1254    1255    1256    1257  1257.5
1086          SQ       0       0       0       0       0       0       0       0       0       0
1087          SQ       0       0       2     890    4208
              *

1088          KK     234   BASIN
1089          KM   The following parameters were determined for this sub basin.
1090          KM   L= 0.84 mi  S= 8.3 ft/mi  Kb= 0.03  Urban
1091          BA   0.170
1092          LG    0.26    0.25    4.45    0.44      29
1093          UC   0.708   0.603
1094          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
                                           HEC-1 INPUT                                                    PAGE 28
1

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1095          UA     100
              *

1096          KK   CP234
1097          KM   Combine any overflow from P230 & SUB 234.
1098          KO       3
1099          HC       2
              *

1100          KK    P234
1101          KM   Ponding along Eastern Canal within residential retention basin south of
1102          KM   Chandler Height Road. Overlow routed to P235N.
1103          KM   South Boudnary weir min elev = 1252.40
```

```
1104          KM   Canal weir min elev = 1254.50
1105          KO       3
1106          RS       1    STOR       0       0
1107          SV       0    0.38    1.34    3.99    7.61   13.11   26.39   54.88
1108          SE    1248  1248.5    1249    1250    1251    1252    1253    1254
1109          SQ       0       0       0       0       0       0      13      89
              *

1110          KK  FRM229
1111          KM   Retrieve hydrograph from flow split at Lindsay and Chandler Heights.
1112          DR   To232
              *

1113          KK  229232   ROUTE   REACH
1114          KM   Routed south along Lindsay.
1115          RS       6    FLOW      -1
1116          RC   0.035   0.015   0.035    5276  0.0019    1.70
1117          RX     0.0   530.0   537.5   560.0   560.0   582.5   590.0   600.0
1118          RY     1.7     0.0     1.3     1.7     1.7     1.7     1.7     1.7
              *

1119          KK  FRM228
1120          KM   Retrieve hydrograph from flow split at Val Vista and Chandler Heights.
1121          DR   To231
              *

1122          KK  228231   ROUTE
1123          KM   Routed south along Val Vista.
1124          KM   Flow contained on east side of Val Vista which is represented by
1125          KM   X1 to X4 in route cross section.
1126          RS       6    FLOW      -1
1127          RC   0.035   0.015   0.030    5302  0.0018    1.70
1128          RX     0.0     780   787.5     810     810   832.5     840     850
1129          RY     1.7     0.0     1.3     1.7     1.7     1.7     1.7     1.7
              *

1130          KK     231   BASIN
1131          KM   The following parameters were determined for this sub basin.
1132          KM   L= 1.70 mi  S= 13.0 ft/mi  Kb= 0.042  Natural
1133          BA   0.996
1134          LG    0.49    0.25    4.70    0.46       2
1135          UC   1.500   0.889
```



```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1136          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
1137          UA     100
              *

1138          KK     236   BASIN
1139          KM   The following parameters were determined for this sub basin.
1140          KM   L= 1.05 mi  S= 15.0 ft/mi  Kb= 0.040  Natural
1141          BA   0.524
1142          LG    0.34    0.27    4.35    0.45       4
1143          UC   0.983   0.546
1144          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
1145          UA     100
              *

1146          KK   CP231
1147          KM   Combine 228231, SUB 231, & SUB 236.
1148          HC       3
              *

1149          KK  231232   ROUTE
1150          KM   Routed west along Riggs.
1151          RS       5    FLOW      -1
1152          RC   0.035   0.015   0.030    5280  0.0030    1.60
1153          RX     0.0      20    35.0    35.0    76.5    99.0   106.5     350
1154          RY     1.6     1.4     1.2      .7     1.7     1.3       0     1.7
              *

1155          KK     232   BASIN
1156          KM   The following parameters were determined for this sub basin.
1157          KM   L= 1.68 mi  S= 12.9 ft/mi  Kb= 0.038  Urban
1158          BA   1.008
1159          LG    0.33    0.27    4.70    0.36       4
1160          UC   1.408   0.816
1161          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
1162          UA     100
              *

1163          KK     232
1164          KM   RETENTION DIVERSION
1165          KM   Divert flow retained within residential areas
1166          DT  232RET   13.67
1167          DI       0   10000
1168          DQ       0   10000
              *

1169          KK   CP232
1170          KM   Combine 229232, 231232, & SUB 232.
1171          HC       3
              *
```

```
1                                        HEC-1 INPUT                                                    PAGE 30

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1172          KK  232233   ROUTE
1173          KM   Routed west along Riggs.
1174          RS       5    FLOW      -1
1175          RC   0.035   0.015   0.035    5065  0.0021    1.30
1176          RX     0.0      20      35      35    76.5    99.0   106.5     980
1177          RY     1.6     1.4     1.2      .7     1.7     1.3       0     1.3
              *

1178          KK     233   BASIN
1179          KM   The following parameters were determined for this sub basin.
1180          KM   L= 1.53 mi  S= 13.7 ft/mi  Kb= 0.039  Urban
1181          BA   0.963
1182          LG    0.41    0.25    4.65    0.44       9
1183          UC   1.296   0.708
1184          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
1185          UA     100
              *

1186          KK     233
1187          KM   RETENTION DIVERSION
1188          KM   Divert flow retained within residential areas
1189          DT  233RET   34.09
1190          DI       0   10000
1191          DQ       0   10000
              *

1192          KK   CP233
1193          KM   Combine 232233 & SUB 233.
1194          HC       2
              *

1195          KK  TCP235
1196          KM   According to the Final Drainage Report for Mesquite Grove
1197          KM   Estates, 20 cfs is piped from east boundary of Sub-division
1198          KM   to RWCD Storage Basin on west side of Gilbert Road.
1199          DT  TP235N             20
1200          DI       0    1000
1201          DQ       0    1000
              *

1202          KK  233235   ROUTE
1203          KM   Routed west along Riggs.
1204          RS       1    FLOW      -1
1205          RC   0.035   0.015   0.035     863  0.0031    1.00
1206          RX     0.0      20    35.0    35.0    76.5    99.0   106.5  1106.5
1207          RY     1.6     1.4     1.2     0.7     1.7     1.3       0       1
              *

1208          KK     235   BASIN
1209          KM   The following parameters were determined for this sub basin.
1210          KM   L= 0.55 mi  S= 7.3 ft/mi  Kb= 0.061  Natural
1211          BA   0.036
1212          LG    0.20    0.35    4.80    0.25       0
1213          UC   1.108   1.710
1                                        HEC-1 INPUT                                                    PAGE 31

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1214          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
1215          UA     100
              *

1216          KK   CP235
1217          KM   Combine 233235, & SUB 235.
1218          KO       3
1219          HC       2
              *

1220          KK   P235S
1221          KM   Open Space south of RWCD Storage Basin, north of Riggs Road
1222          KM   Riggs Road weir min elev = 1252.27
1223          KM   Canal weir min elev = 1253.01
1224          KM   Northern Boundary weir min elev = 1250.37
1225          KO       3
1226          RS       1    STOR       0       0
1227          SV       0     .15     .42    1.55    3.13    6.43   12.34   20.14   28.96   38.40
1228          SE    1247    1248    1249    1250  1250.5    1251  1251.5    1252  1252.5    1253
1229          SQ       0       0       0       0       3     191     909    2087    3725    6150
              *

1230          KK   R235N
1231          KM   Retrieve 20 cfs from CP233
1232          DR  TP235N
              *

1233          KK   C253N
1234          KM   Combine P234 and Overflow from P235S and TP235N.
1235          KO       3
1236          HC       3
              *
```

```
1237          KK   P235N
1238          KM   RWCD Storage Basin, 1/4 mi north of Riggs Road
1239          KM   Southern Boundary weir min elev = 1250.55
1240          KM   Canal weir min elev = 1253.93
1241          KO       3
1242          RS       1    STOR       0       0
1243          SV       0   19.27   91.58  141.65  193.30  246.76  260.43  274.23
1244          SE    1240    1241    1244    1246    1248    1250  1250.5    1251
1245          SQ       0       0       0       0       0       0       0     161
              *
              *

1246          KK  DSS207
1247          KM   Retrieve hydrograph for overflow from sub-basin 207.
1248          DR  EAS207
1249          ZW   A=EAST B=CP207  C=FLOW  E=5MIN
              *
1                                   HEC-1 INPUT                                    PAGE 32

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


1250          KK  DSS212
1251          KM   Retrieve hydrograph for overflow from sub-basin 212.
1252          DR  EAS212
1253          ZW   A=EAST B=CP212  C=FLOW  E=5MIN
              *
              * KKDSS219
              * KM Retrieve hydrograph for overflow from sub-basin 219.
              * DREAS219
              * ZW A=EAST B=CP219  C=FLOW  E=5MIN
              *
              * KKDSS237
              * KM Retrieve hydrograph for overflow from sub-basin 237.
              * DREAS237
              * ZW A=EAST B=CP237  C=FLOW  E=5MIN
              *

1254          KK  DSS238
1255          KM   Retrieve hydrograph for overflow from sub-basin 238.
1256          DR  EAS238
1257          ZW   A=EAST B=CP238  C=FLOW  E=5MIN
              *

1258          KK  DSS227
1259          KM   Retrieve hydrograph for overflow from sub-basin 227.
1260          DR  EAS227
1261          ZW   A=EAST B=CP227  C=FLOW  E=5MIN
              *

1262          KK  CPCANL
1263          KM   Combine overflows into Eastern Canal.
1264          HC       6
              *
              * **** END OF WRITING OVERFOW INTO CANAL DSS FILES ****
1265          ZZ
1
                SCHEMATIC DIAGRAM OF STREAM NETWORK
 INPUT
 LINE      (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

 NO.       (.) CONNECTOR        (<---) RETURN OF DIVERTED OR PUMPED FLOW

  67          206
                .
                .
  86            .------->   To202
  83         D206
                V
                V
  89        206203
                .
                .
  96            .       XRDPK
                .           .
                .           .
 103            .           .------->   XRPKD
 101            .       To200
                .           V
                .           V
 106            .      XRD200
                .           .
                .           .
 114            .           .           .<-------   XRPKD
 112            .           .       XRPKD
                .           .           .
                .           .           .
 115            .           .           .         200
                .           .           .           .
                .           .           .           .
 123            .           .        C200............
                .           .           V
                .           .           V
 127            .           .        P200
```

```
                .           .           .
                .           .           .
138             .       CP200............
                .           V
                .           V
143             .      200202
                .           .
                .           .
154             .           .           .<-------   To202
151             .           .      FRM206
                .           .           V
                .           .           V
155             .           .      206202
                .           .           .
                .           .           .
161             .           .           .         202
                .           .           .           .
                .           .           .           .
172             .           .           .           .-------> 202RET
169             .           .           .         202
                .           .           .           .
                .           .           .           .
175             .           .       C202............
                .           .           V
                .           .           V
179             .           .       P202
                .           .           .
                .           .           .
195             .           .           .------->   DVVOF
193             .           .      Dummy
                .           .           .
                .           .           .
198             .       CP202............
                .           .
                .           .
204             .           .-------> DTD203
202             .       Dummy
                .           .
                .           .
209             .           .           .<-------   DVVOF
207             .           .       VVOF
                .           .           .
                .           .           .
210             .           .           .         203
                .           .           .           .
                .           .           .           .
218         C203.....................................
                V
                V
222         P203
                .
                .
237             .-------> DCBLVD
233       OTD203
                .
                .
242             .           .<-------  DTD203
240             .      TWD203
                .           V
                .           V
243             .      TWD203
                .           .
                .           .
251        CP203............
                V
                V
255       203208
                .
                .
263             .           .<-------  DCBLVD
261             .      OCBLVD
                .           V
                .           V
264             .       P208N
                .           .
                .           .
276             .           .         208
                .           .           .
                .           .           .
287             .           .           .-------> 208RET
284             .           .         208
                .           .           .
                .           .           .
290             .       C208S............
                .           V
                .           V
294             .       P208S
                .           .
                .           .
308             .           .------->    D207
306             .       Dummy
                .           .
                .           .
311        CP208............
                V
```

```
                V
315       208207
                .
                .
326             .-------->   CANAL
321        Dummy
                .
                .
329             .         213
                .           V
                .           V
338             .        P213
                .           .
                .           .
350             .           .          .<-------    D207
348             .           .        O207
                .           .           .
                .           .           .
351             .           .           .         207
                .           .           .           .
                .           .           .           .
362             .           .           .           .-------->  207RET
359             .           .           .         207
                .           .           .           .
                .           .           .           .
365        CP207.................................
                V
                V
369         P207
                .
                .
383             .-------->  EAS207
381         D207
                .
                .
386             .         212
                .           V
                .           V
395             .        P212
                .           .
                .           .
413             .           .-------->  EAS212
408             .       D212R
                .           .
                .           .
416             .           .         209
                .           .           .
                .           .           .
434             .           .           .-------->  209RET
431             .           .         209
                .           .           .
                .           .           .
440             .           .           .-------->   To205
437             .           .        D209
                .           .           V
                .           .           V
443             .           .      209210
                .           .           .
                .           .           .
450             .           .           .         216
                .           .           .           .
                .           .           .           .
461             .           .           .           .-------->  216RET
458             .           .           .         216
                .           .           .           .
                .           .           .           .
467             .           .           .           .-------->   ToVVG
464             .           .           .        D216
                .           .           .           V
                .           .           .           V
470             .           .           .      216210
                .           .           .           .
                .           .           .           .
479             .           .           .           .         210
                .           .           .           .           .
                .           .           .           .           .
490             .           .           .           .           .-------->  210RET
487             .           .           .           .         210
                .           .           .           .           .
                .           .           .           .           .
493             .           .        CP210........................
                .           .           .
                .           .           .
498             .           .           .           .<-------   To205
496             .           .           .      FRM209
                .           .           .           V
                .           .           .           V
499             .           .           .      209205
                .           .           .           .
                .           .           .           .
505             .           .           .           .         205
                .           .           .           .           .
                .           .           .           .           .
516             .           .           .           .           .-------->  205RET
513             .           .           .           .         205
```

```
                 .         .         .         .         .
                 .         .         .         .         .
519              .         .         .     CP205...........
                 .         .         .         .
                 .         .         .         .
525              .         .         .         .<-------   ToVVG
523              .         .         .     FRM216
                 .         .         .         V
                 .         .         .         V
526              .         .         .     216VVG
                 .         .         .         .
                 .         .         .         .
537              .         .         .         .------->   ToLG
534              .         .         .       DVVG
                 .         .         .         V
                 .         .         .         V
540              .         .         .     VVG211
                 .         .         .         .
                 .         .         .         .
549              .         .         .         .         211
                 .         .         .         .           .
                 .         .         .         .           .
557              .         .         .      CP211...........
                 .         .         .         .
                 .         .         .         .
561              .         .         .         .         214
                 .         .         .         .           .
                 .         .         .         .           .
569              .         .         .         .           .         201
                 .         .         .         .           .           .
                 .         .         .         .           .           .
580              .         .         .         .           .           .------->  201RET
577              .         .         .         .           .         201
                 .         .         .         .           .           .
                 .         .         .         .           .           .
583              .         .         .         .           .           .         204
                 .         .         .         .           .           .           .
                 .         .         .         .           .           .           .
594              .         .         .         .           .           .           .------->  204RET
591              .         .         .         .           .           .         204
                 .         .         .         .           .           .           .
                 .         .         .         .           .           .           .
597              .     CPADOT.....................................................................
                 .         .
                 .         .
603              .         .         220
                 .         .           .
                 .         .           .
614              .         .           .------->   To221
611              .         .       D220
                 .         .           V
                 .         .           V
617              .         .     220217
                 .         .           .
                 .         .           .
626              .         .           .         217
                 .         .           .           .
                 .         .           .           .
634              .         .      CP217............
                 .         .           V
                 .         .           V
637              .         .     217218
                 .         .           .
                 .         .           .
646              .         .           .           .<-------   To221
644              .         .           .     FRM220
                 .         .           .           V
                 .         .           .           V
647              .         .           .     220221
                 .         .           .           .
                 .         .           .           .
653              .         .           .           .         221
                 .         .           .           .           .
                 .         .           .           .           .
664              .         .           .           .           .------->  221RET
661              .         .           .           .         221
                 .         .           .           .           .
                 .         .           .           .           .
667              .         .           .      CP221...........
                 .         .           .           .
                 .         .           .           .
673              .         .           .           .------->   To238
670              .         .           .       D221
                 .         .           .           V
                 .         .           .           V
676              .         .           .     221218
                 .         .           .           .
                 .         .           .           .
685              .         .           .           .         218
                 .         .           .           .           .
                 .         .           .           .           .
693              .         .           .      CP218........................
                 .         .           .           .
                 .         .           .           .
699              .         .           .           .------->   To237
```

```
696          .          .       D218
             .          .          V
             .          .          V
702          .          .     218219
             .          .          .
             .          .          .
710          .          .          .<-------    ToLG
708          .          .          .     FRMVVG
             .          .          .          V
             .          .          .          V
711          .          .          .      VVGLG
             .          .          .          .
             .          .          .          .
720          .          .          .          .-------->   To219
717          .          .          .        DLG
             .          .          .          V
             .          .          .          V
723          .          .          .      LG215
             .          .          .          .
             .          .          .          .
729          .          .          .          .         215
             .          .          .          .           .
             .          .          .          .           .
737          .          .          .      CP215............
             .          .          .          V
             .          .          .          V
741          .          .          .       P215
             .          .          .          .
             .          .          .          .
752          .          .          .          .           .<-------   To219
750          .          .          .          .       FRMLG
             .          .          .          .           V
             .          .          .          .           V
753          .          .          .          .       LG219
             .          .          .          .           .
             .          .          .          .           .
759          .          .          .          .           .         219
             .          .          .          .           .           .
             .          .          .          .           .           .
770          .          .          .          .           .           .-------->  219RET
767          .          .          .          .           .         219
             .          .          .          .           .           .
             .          .          .          .           .           .
773          .          .     CP219.................................
             .          .          .
             .          .          .
779          .          .          .          .<-------   To237
777          .          .          .     FRM218
             .          .          .          V
             .          .          .          V
780          .          .          .     218237
             .          .          .          .
             .          .          .          .
786          .          .          .          .         237
             .          .          .          .           .
             .          .          .          .           .
796          .          .          .          .           .-------->  ToP238
794          .          .          .          .       D237
             .          .          .          .           .
             .          .          .          .           .
799          .          .     CP237......................
             .          .          V
             .          .          V
803          .          .       P237
             .          .          .
             .          .          .
821          .          .          .          .<-------  ToP238
819          .          .          .     FRM237
             .          .          .          V
             .          .          .          V
822          .          .          .     237238
             .          .          .          .
             .          .          .          .
832          .          .          .          .           .<-------   To238
830          .          .          .          .      FRM221
             .          .          .          .           V
             .          .          .          .           V
833          .          .          .          .      221238
             .          .          .          .           .
             .          .          .          .           .
841          .          .          .          .           .         238
             .          .          .          .           .           .
             .          .          .          .           .           .
861          .          .          .          .           .           .-------->   To224
856          .          .          .          .           .       D238
             .          .          .          .           .           .
             .          .          .          .           .           .
864          .          .     CP238.................................
             .          .          V
             .          .          V
868          .          .       P238
             .          .          .
             .          .          .
888          .          .          .-------->  EAS238
884          .          .       D238
```

```
                 .          .          .
                 .          .          .
 893             .          .          .<-------   To224
 891             .          .      FRM238
                 .          .          .
                 .          .          .
 894             .          .          .         224
                 .          .          .           .
                 .          .          .           .
 902             .          .   CP224.......................
                 .          .       V
                 .          .       V
 906             .          .    P224
                 .          .          .
                 .          .          .
 919             .          .          .        225
                 .          .          .           .
                 .          .          .           .
 927             .          .          .         222
                 .          .          .           .
                 .          .          .           .
 935             .          .          .      CP222............
                 .          .          .           V
                 .          .          .           V
 938             .          .          .     222223
                 .          .          .           .
                 .          .          .           .
 944             .          .          .         226
                 .          .          .           .
                 .          .          .           .
 952             .          .          .           .         223
                 .          .          .           .           .
                 .          .          .           .           .
 960             .          .          .      CP223........................
                 .          .          .           V
                 .          .          .           V
 963             .          .          .     223227
                 .          .          .           .
                 .          .          .           .
 969             .          .          .           .         227
                 .          .          .           .           .
                 .          .          .           .           .
 980             .          .          .           .-------->   To227
 977             .          .          .          D227A
                 .          .          .           .           .
                 .          .          .           .           .
 983             .          .   CP227.......................
                 .          .       V
                 .          .       V
 987             .          .    P227
                 .          .          .
                 .          .          .
1002             .          .          .-------->  EAS227
 999             .          .   D227B
                 .          .          .
                 .          .          .
1007             .          .          .<-------   To227
1005             .          .      FRM227
                 .          .          .
                 .          .          .
1013             .          .          .         228
                 .          .          .           .
                 .          .          .           .
1024             .          .          .           .-------->   To231
1021             .          .          .        D228
                 .          .          .           V
                 .          .          .           V
1027             .          .          .      228229
                 .          .          .           .
                 .          .          .           .
1034             .          .          .           .         229
                 .          .          .           .           .
                 .          .          .           .           .
1042             .          .          .       CP229............
                 .          .          .           .
                 .          .          .           .
1048             .          .          .           .-------->   To232
1045             .          .          .        D229
                 .          .          .           V
                 .          .          .           V
1051             .          .          .      229230
                 .          .          .           .
                 .          .          .           .
1058             .          .          .           .         230
                 .          .          .           .           .
                 .          .          .           .           .
1067             .          .          .           .           .-------->  230RET
1064             .          .          .           .         230
                 .          .          .           .           .
                 .          .          .           .           .
1070             .          .          .      CP230........................
                 .          .          .           V
                 .          .          .           V
1074             .          .          .        P230
                 .          .          .           .
```

```
1088                                  234
                                        .
                                        .
1096                            CP234............
                                    V
                                    V
1100                             P234
                                        .
                                        .
1112                                    .<-------   To232
1110                                FRM229
                                        V
                                        V
1113                                229232
                                        .
                                        .
1121                                    .           .<-------   To231
1119                                    .       FRM228
                                        .           V
                                        .           V
1122                                    .       228231
                                        .           .
                                        .           .
1130                                    .           .         231
                                        .           .           .
                                        .           .           .
1138                                    .           .           .         236
                                        .           .           .           .
                                        .           .           .           .
1146                                    .        CP231........................
                                        .           V
                                        .           V
1149                                    .       231232
                                        .           .
                                        .           .
1155                                    .           .         232
                                        .           .           .
                                        .           .           .
1166                                    .           .           .-------> 232RET
1163                                    .           .         232
                                        .           .           .
                                        .           .           .
1169                                 CP232........................
                                        V
                                        V
1172                                232233
                                        .
                                        .
1178                                    .         233
                                        .           .
                                        .           .
1189                                    .           .-------> 233RET
1186                                    .         233
                                        .           .
                                        .           .
1192                                 CP233............
                                        .
                                        .
1199                                    .-------> TP235N
1195                                TCP235
                                        V
                                        V
1202                                233235
                                        .
                                        .
1208                                    .         235
                                        .           .
                                        .           .
1216                                 CP235............
                                        V
                                        V
1220                                 P235S
                                        .
                                        .
1232                                    .           .<-------  TP235N
1230                                    .        R235N
                                        .           .
                                        .           .
1233                            C253N........................
                                    V
                                    V
1237                            P235N
                                        .
                                        .
1248                                    .<-------  EAS207
1246                                DSS207
                                        .
                                        .
1252                                    .           .<-------  EAS212
1250                                    .       DSS212
                                        .           .
                                        .           .
1256                                    .           .           .<-------  EAS238
1254                                    .           .       DSS238
```

```
                .         .         .         .         .         .         .
                .         .         .         .         .         .         .
 1260           .         .         .         .         .         .         .<-------  EAS227
 1258           .         .         .         .         .         .         .    DSS227
                .         .         .         .         .         .         .         .
                .         .         .         .         .         .         .         .
 1262           .         .      CPCANL.......................................................
```

```
(***) RUNOFF ALSO COMPUTED AT THIS LOCATION
1****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*              JUN   1998              *
*            VERSION 4.1               *
*                                      *
*  RUN DATE   12DEC07  TIME  20:25:48  *
*                                      *
****************************************
```

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

```
Project ID: MARI0040_SE - Major Basin: 01 - Return Period: 100 Years

Chandler/Gilbert Floodplain Delineation Study
Phase I-South, Eastern Canal Watershed
FCD# 2002C023
DATE: June 2007 Edited Sep 2007 LS

Watershed boundaries:
South of Union Pacific Railroad, east of Eastern Canal
North of Hunt Hwy, west of East Maricopa Floodway

Prepared by David Evans & Associates
Modelers:
             Tami Norton, E.I.T., CFM
             Gregory B. Jones, E.I.T.
             Nathan A. Beutler, E.I.T., CFM
Updated:    Larry Sibala, P.E. CFM
             12/12/07

File:  P:\Mari0000-0040\Engineering\MARI0040-SE\HEC1\6-hour
         \CGFDSP1S-6.dat

5-minute time interval - 100-year, 6-hour storm event.

Total Watershed Area = 22.64 sq. mi, Total Point Rainfall = 3.00

Aerial reduction was applied using PB records.
The Phase 1 - South watershed was broken into three PB regions:

    First PB region includes sub-basins
    200, 202, 203, 206-208, 212, 213
    Area = 3.15 sq. mi, Reduction Factor = 0.973, PB record = 2.918

    Second PB region includes sub-basins
    201, 204, 205, 209-211, 214-221, 237
    Area = 10.50 sq. mi, Reduction Factor = 0.938, PB record = 2.816

    Third PB region includes sub-basins
    222-236, 238
    Area = 8.99 sq. mi, Reduction Factor = 0.944, PB record = 2.833

Green and Ampt Infiltration method used to determine rainfall losses.

Clark Method used to create Unit Hydrographs.

Normal Depth Method used for channel routing.

Eastern Maricopa and Northern Pinal Counties Area, Arizona Soil Survey
used for soils data.

Flood Control District of Maricopa County's (FCDMC) GIS data,
aerial photos dated Dec. 2002, and developments as directed
by Chandler and Gilbert by date of April 2003 used for Land Use Data.

FCDMC DDMSW Version 2.1.0 Program used to calculate rainfall, rainfall losses
and Unit Hydrographs.

Model includes proposed Santan Freeway alignment and associated
drainage facilities.

DSS FIle: CGFDS.dss
```

```
 64 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      3MAR 3  STARTING DATE
                      ITIME       1200  STARTING TIME
```

```
                    NQ        2000  NUMBER OF HYDROGRAPH ORDINATES
                NDDATE     10MAR 3  ENDING DATE
                NDTIME        1035  ENDING TIME
                ICENT           19  CENTURY MARK

            COMPUTATION INTERVAL    0.08 HOURS
                TOTAL TIME BASE  166.58 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
  -----DSS---ZOPEN:  Existing File Opened,  File: C:\FCDMC\DDMSW\Models\K.DSS
                     Unit: 71;  DSS Versions - Software: 6-LD, File: 6-JG
       ----- Entering ZRRTSX for unit 71 -----
Pathname: /EAST/XRDPK/FLOW//5MIN//
       Time Window set.  Interval:     5  Number of data values:      1
       Starting date and time:  Mar 3, 1903  1200  (   1157  720)
       Ending   date and time:  Mar 3, 1903  1200  (   1157  720)
       Input time offset:      0
       After ZRDINF, Record found: T
       Pathname: /EAST/XRDPK/FLOW/03MAR1903/5MIN//
       Number of actual data:  288  Header length:   0
       Compression:   0  Quality:   0  Double: F
-----DSS--- ZREAD Unit  71; Vers.    3:  /EAST/XRDPK/FLOW/03MAR1903/5MIN//
     ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
       NSTART:    1   NVALS:    1    JULS:    1157  ISTIME:   720
       NLDATA:  288   JULSD:    1157
       JULS: 03MAR03       JULSD: 03MAR03
       Quality Read: F,  Quality Requested: F
       ---ZRRTSB Calculations:  NPOS:  144  NDATA:  288  NREAD:    1  ILIM:    1
     ----- Exiting ZRRTS, Number of data values:      1,  Status:  0
       Offset:       0,  Units: CFS     ,  Type:INST-VAL
       ----- Entering ZRRTSX for unit 71 -----
Pathname: /EAST/XRDPK/FLOW//5MIN//
       Time Window set.  Interval:     5  Number of data values:    744
       Starting date and time:  Mar 3, 1903  1200  (   1157  720)
       Ending   date and time:  Mar 6, 1903  0155  (   1160  115)
       Input time offset:      0
       After ZRDINF, Record found: T
       Pathname: /EAST/XRDPK/FLOW/03MAR1903/5MIN//
       Number of actual data:  288  Header length:   0
       Compression:   0  Quality:   0  Double: F
-----DSS--- ZREAD Unit  71; Vers.    3:  /EAST/XRDPK/FLOW/03MAR1903/5MIN//
     ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
       NSTART:    1   NVALS:  744    JULS:    1157  ISTIME:   720
       NLDATA:  288   JULSD:    1157
       JULS: 03MAR03       JULSD: 03MAR03
       Quality Read: F,  Quality Requested: F
       ---ZRRTSB Calculations:  NPOS:  144  NDATA:  288  NREAD:  145  ILIM:  145
       After ZRDINF, Record found: T
       Pathname: /EAST/XRDPK/FLOW/04MAR1903/5MIN//
       Number of actual data:  288  Header length:   0
       Compression:   0  Quality:   0  Double: F
-----DSS--- ZREAD Unit  71; Vers.    3:  /EAST/XRDPK/FLOW/04MAR1903/5MIN//
     ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
       NSTART:  146   NVALS:  744    JULS:    1157  ISTIME:   720
       NLDATA:  288   JULSD:    1158
       JULS: 03MAR03       JULSD: 04MAR03
       Quality Read: F,  Quality Requested: F
       ---ZRRTSB Calculations:  NPOS:    1  NDATA:  288  NREAD:  288  ILIM:  433
       After ZRDINF, Record found: T
       Pathname: /EAST/XRDPK/FLOW/05MAR1903/5MIN//
       Number of actual data:  288  Header length:   0
       Compression:   0  Quality:   0  Double: F
-----DSS--- ZREAD Unit  71; Vers.    3:  /EAST/XRDPK/FLOW/05MAR1903/5MIN//
     ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
       NSTART:  434   NVALS:  744    JULS:    1157  ISTIME:   720
       NLDATA:  288   JULSD:    1159
       JULS: 03MAR03       JULSD: 05MAR03
       Quality Read: F,  Quality Requested: F
       ---ZRRTSB Calculations:  NPOS:    1  NDATA:  288  NREAD:  288  ILIM:  721
       After ZRDINF, Record found: T
       Pathname: /EAST/XRDPK/FLOW/06MAR1903/5MIN//
       Number of actual data:  288  Header length:   0
       Compression:   0  Quality:   0  Double: F
-----DSS--- ZREAD Unit  71; Vers.    3:  /EAST/XRDPK/FLOW/06MAR1903/5MIN//
     ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
       NSTART:  722   NVALS:  744    JULS:    1157  ISTIME:   720
       NLDATA:  288   JULSD:    1160
       JULS: 03MAR03       JULSD: 06MAR03
       Quality Read: F,  Quality Requested: F
       ---ZRRTSB Calculations:  NPOS:    1  NDATA:  288  NREAD:   23  ILIM:  744
     ----- Exiting ZRRTS, Number of data values:    744,  Status:  0
       Offset:       0,  Units: CFS     ,  Type:INST-VAL
       ----- Entering ZRRTSX for unit 71 -----
Pathname: /EAST/XRDPK/FLOW//5MIN//
       Time Window set.  Interval:     5  Number of data values:      1
       Starting date and time:  Mar 6, 1903  0155  (   1160  115)
       Ending   date and time:  Mar 6, 1903  0155  (   1160  115)
       Input time offset:      0
```

```
        After ZRDINF, Record found: T
        Pathname: /EAST/XRDPK/FLOW/06MAR1903/5MIN//
        Number of actual data:  288  Header length:   0
        Compression:   0  Quality:   0  Double: F
-----DSS--- ZREAD Unit  71; Vers.    3:  /EAST/XRDPK/FLOW/06MAR1903/5MIN//
      ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
        NSTART:    1   NVALS:    1    JULS:    1160  ISTIME:   115
        NLDATA:  288   JULSD:    1160
        JULS: 06MAR03       JULSD: 06MAR03
        Quality Read: F,  Quality Requested: F
        ---ZRRTSB Calculations:  NPOS:   23  NDATA:  288  NREAD:    1  ILIM:    1
      ----- Exiting ZRRTS, Number of data values:      1,  Status:  0
        Offset:       0,  Units: CFS     ,  Type:INST-VAL
        ----- Entering ZRRTSX for unit 71 -----
Pathname: /EAST/XRDPK/FLOW//5MIN//
        Time Window set.  Interval:     5  Number of data values:    744
        Starting date and time:  Mar 6, 1903  0155  (   1160  115)
        Ending   date and time:  Mar 8, 1903  1550  (   1162  950)
        Input time offset:      0
        After ZRDINF, Record found: T
        Pathname: /EAST/XRDPK/FLOW/06MAR1903/5MIN//
        Number of actual data:  288  Header length:   0
        Compression:   0  Quality:   0  Double: F
-----DSS--- ZREAD Unit  71; Vers.    3:  /EAST/XRDPK/FLOW/06MAR1903/5MIN//
      ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
        NSTART:    1   NVALS:  744    JULS:    1160  ISTIME:   115
        NLDATA:  288   JULSD:    1160
        JULS: 06MAR03       JULSD: 06MAR03
        Quality Read: F,  Quality Requested: F
        ---ZRRTSB Calculations:  NPOS:   23  NDATA:  288  NREAD:  266  ILIM:  266
        After ZRDINF, Record found: T
        Pathname: /EAST/XRDPK/FLOW/07MAR1903/5MIN//
        Number of actual data:  288  Header length:   0
        Compression:   0  Quality:   0  Double: F
-----DSS--- ZREAD Unit  71; Vers.    3:  /EAST/XRDPK/FLOW/07MAR1903/5MIN//
      ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
        NSTART:  267   NVALS:  744    JULS:    1160  ISTIME:   115
        NLDATA:  288   JULSD:    1161
        JULS: 06MAR03       JULSD: 07MAR03
        Quality Read: F,  Quality Requested: F
        ---ZRRTSB Calculations:  NPOS:    1  NDATA:  288  NREAD:  288  ILIM:  554
        After ZRDINF, Record found: T
        Pathname: /EAST/XRDPK/FLOW/08MAR1903/5MIN//
        Number of actual data:  288  Header length:   0
        Compression:   0  Quality:   0  Double: F
-----DSS--- ZREAD Unit  71; Vers.    3:  /EAST/XRDPK/FLOW/08MAR1903/5MIN//
      ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
        NSTART:  555   NVALS:  744    JULS:    1160  ISTIME:   115
        NLDATA:  288   JULSD:    1162
        JULS: 06MAR03       JULSD: 08MAR03
        Quality Read: F,  Quality Requested: F
        ---ZRRTSB Calculations:  NPOS:    1  NDATA:  288  NREAD:  190  ILIM:  744
      ----- Exiting ZRRTS, Number of data values:    744,  Status:  0
        Offset:       0,  Units: CFS     ,  Type:INST-VAL
        ----- Entering ZRRTSX for unit 71 -----
Pathname: /EAST/XRDPK/FLOW//5MIN//
        Time Window set.  Interval:     5  Number of data values:      1
        Starting date and time:  Mar 8, 1903  1550  (   1162  950)
        Ending   date and time:  Mar 8, 1903  1550  (   1162  950)
        Input time offset:      0
        After ZRDINF, Record found: T
        Pathname: /EAST/XRDPK/FLOW/08MAR1903/5MIN//
        Number of actual data:  288  Header length:   0
        Compression:   0  Quality:   0  Double: F
-----DSS--- ZREAD Unit  71; Vers.    3:  /EAST/XRDPK/FLOW/08MAR1903/5MIN//
      ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
        NSTART:    1   NVALS:    1    JULS:    1162  ISTIME:   950
        NLDATA:  288   JULSD:    1162
        JULS: 08MAR03       JULSD: 08MAR03
        Quality Read: F,  Quality Requested: F
        ---ZRRTSB Calculations:  NPOS:  190  NDATA:  288  NREAD:    1  ILIM:    1
      ----- Exiting ZRRTS, Number of data values:      1,  Status:  0
        Offset:       0,  Units: CFS     ,  Type:INST-VAL
        ----- Entering ZRRTSX for unit 71 -----
Pathname: /EAST/XRDPK/FLOW//5MIN//
        Time Window set.  Interval:     5  Number of data values:    744
        Starting date and time:  Mar 8, 1903  1550  (   1162  950)
        Ending   date and time:  Mar 11, 1903  0545  (   1165  345)
        Input time offset:      0
        After ZRDINF, Record found: T
        Pathname: /EAST/XRDPK/FLOW/08MAR1903/5MIN//
        Number of actual data:  288  Header length:   0
        Compression:   0  Quality:   0  Double: F
-----DSS--- ZREAD Unit  71; Vers.    3:  /EAST/XRDPK/FLOW/08MAR1903/5MIN//
      ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
        NSTART:    1   NVALS:  744    JULS:    1162  ISTIME:   950
        NLDATA:  288   JULSD:    1162
        JULS: 08MAR03       JULSD: 08MAR03
        Quality Read: F,  Quality Requested: F
        ---ZRRTSB Calculations:  NPOS:  190  NDATA:  288  NREAD:   99  ILIM:   99
        After ZRDINF, Record found: T
        Pathname: /EAST/XRDPK/FLOW/09MAR1903/5MIN//
        Number of actual data:  288  Header length:   0
        Compression:   0  Quality:   0  Double: F
-----DSS--- ZREAD Unit  71; Vers.    3:  /EAST/XRDPK/FLOW/09MAR1903/5MIN//
```

```
      ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
        NSTART:  100   NVALS:  744    JULS:    1162  ISTIME:   950
        NLDATA:  288   JULSD:    1163
        JULS: 08MAR03       JULSD: 09MAR03
        Quality Read: F,  Quality Requested: F
        ---ZRRTSB Calculations:  NPOS:    1  NDATA:  288  NREAD:  288  ILIM:  387
        After ZRDINF, Record found: T
        Pathname: /EAST/XRDPK/FLOW/10MAR1903/5MIN//
        Number of actual data:  288  Header length:   0
        Compression:   0  Quality:   0  Double: F
-----DSS--- ZREAD Unit  71; Vers.    3:  /EAST/XRDPK/FLOW/10MAR1903/5MIN//
      ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
        NSTART:  388   NVALS:  744    JULS:    1162  ISTIME:   950
        NLDATA:  288   JULSD:    1164
        JULS: 08MAR03       JULSD: 10MAR03
        Quality Read: F,  Quality Requested: F
        ---ZRRTSB Calculations:  NPOS:    1  NDATA:  288  NREAD:  288  ILIM:  675
        After ZRDINF, Record found: F
        Pathname: /EAST/XRDPK/FLOW/11MAR1903/5MIN//
      ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
        NSTART:  676   NVALS:  744    JULS:    1162  ISTIME:   950
        NLDATA:  288   JULSD:    1165
        JULS: 08MAR03       JULSD: 11MAR03
        Quality Read: F,  Quality Requested: F
        ---ZRRTSB Calculations:  NPOS:    1  NDATA:  288  NREAD:   69  ILIM:  744
-----DSS*** ZRRTS:  CAUTION - Data block not found in file.  Unit:  71
Pathname: /EAST/XRDPK/FLOW/11MAR1903/5MIN//
      ----- Exiting ZRRTS, Number of data values:   744,  Status:  3
        Offset:       0,  Units: CFS     ,  Type:INST-VAL


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
 123 KK     *      C200  *
            *            *
            **************

 125 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           3  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE

 126 HC          HYDROGRAPH COMBINATION
                      ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                                  ***

      ***             ***             ***             ***             ***

                        HYDROGRAPH AT STATION     C200

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR    166.58-HR
+   (CFS)       (HR)
                          (CFS)
+      61.      5.08                  33.          9.          3.          1.
                      (INCHES)     1.944       2.228       2.228       2.228
                       (AC-FT)       16.         19.         19.         19.

                       CUMULATIVE AREA =    0.16 SQ MI


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
 127 KK     *      P200  *
            *            *
            **************

 133 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           3  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE

               HYDROGRAPH ROUTING DATA

 134 RS          STORAGE ROUTING
                      NSTPS           1  NUMBER OF SUBREACHES
                       ITYP        STOR  TYPE OF INITIAL CONDITION
                     RSVRIC        0.00  INITIAL CONDITION
                          X        0.00 WORKING R AND D COEFFICIENT

 135 SV            STORAGE         0.0       0.0       0.3       1.6       3.2       4.0       5.7      26.3      66.7      93.0

 136 SE          ELEVATION     1266.50   1267.00   1268.00   1268.50   1268.75   1268.84   1269.00   1270.00   1271.00   1271.50
```

```
 137 SQ          DISCHARGE          0.        0.        0.       18.       56.       78.      128.      801.     4321.     7964.

                                                                  ***

      ***             ***             ***             ***             ***

                        HYDROGRAPH AT STATION     P200

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR    166.58-HR
+   (CFS)       (HR)
                          (CFS)
+     53.       5.67                  32.          9.          3.          1.
                        (INCHES)    1.867       2.192       2.192       2.192
                         (AC-FT)     16.         18.         18.         18.

 PEAK STORAGE   TIME                          MAXIMUM AVERAGE STORAGE
                                     6-HR       24-HR       72-HR    166.58-HR
+  (AC-FT)      (HR)
       3.       5.67                   2.          1.          0.          0.

  PEAK STAGE    TIME                          MAXIMUM AVERAGE STAGE
                                     6-HR       24-HR       72-HR    166.58-HR
+   (FEET)      (HR)
   1268.73      5.67               1268.57     1268.18     1268.06     1268.00

                        CUMULATIVE AREA =    0.16 SQ MI


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
 175 KK     *      C202  *
            *            *
            **************

 177 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           3  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE

 178 HC          HYDROGRAPH COMBINATION
                      ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                                  ***

      ***             ***             ***             ***             ***

                        HYDROGRAPH AT STATION     C202

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR    166.58-HR
+   (CFS)       (HR)
                          (CFS)
+    609.       5.17                 174.         . 43.       14.          6.
                        (INCHES)    1.907       1.910       1.910       1.910
                         (AC-FT)     86.         86.         86.         86.

                        CUMULATIVE AREA =    0.85 SQ MI


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
 179 KK     *      P202  *
            *            *
            **************

 185 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           3  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE

               HYDROGRAPH ROUTING DATA

 186 RS          STORAGE ROUTING
                      NSTPS           1  NUMBER OF SUBREACHES
                       ITYP        STOR  TYPE OF INITIAL CONDITION
                     RSVRIC        0.00  INITIAL CONDITION
                          X        0.00 WORKING R AND D COEFFICIENT

 187 SV            STORAGE         0.0       0.2       2.6      13.2      19.6      20.7      21.9      24.4      25.7      27.0
                                  27.8      29.6

 189 SE          ELEVATION     1262.00   1263.00   1265.00   1267.00   1267.60   1267.70   1267.80   1268.00   1268.10   1268.20
```

```
                                1268.30   1268.40

  191 SQ          DISCHARGE          0.        0.        0.        0.       14.       40.       78.      186.      257.      340.
                                   436.      544.

                                                                                  ***

       ***             ***             ***             ***             ***

                          HYDROGRAPH AT STATION     P202

  PEAK FLOW     TIME                            MAXIMUM AVERAGE FLOW
                                        6-HR       24-HR       72-HR    166.58-HR
+   (CFS)       (HR)
                             (CFS)
+     522.      5.58                    137.         37.         12.          5.
                          (INCHES)    1.502       1.612       1.617       1.617
                           (AC-FT)       68.         73.         73.         73.

 PEAK STORAGE   TIME                           MAXIMUM AVERAGE STORAGE
                                        6-HR       24-HR       72-HR    166.58-HR
+  (AC-FT)      (HR)
      29.       5.58                     22.         17.         14.         13.

  PEAK STAGE    TIME                            MAXIMUM AVERAGE STAGE
                                        6-HR       24-HR       72-HR    166.58-HR
+   (FEET)      (HR)
   1268.38      5.58                1267.83     1267.31     1267.11     1266.91

                          CUMULATIVE AREA =    0.85 SQ MI


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
  218 KK    *      C203  *
            *            *
            **************

  220 KO          OUTPUT CONTROL VARIABLES
                        IPRNT           3  PRINT CONTROL
                        IPLOT           0  PLOT CONTROL
                        QSCAL          0.  HYDROGRAPH PLOT SCALE

  221 HC          HYDROGRAPH COMBINATION
                        ICOMP           4  NUMBER OF HYDROGRAPHS TO COMBINE
                                                                                  ***

       ***             ***             ***             ***             ***

                          HYDROGRAPH AT STATION     C203

  PEAK FLOW     TIME                            MAXIMUM AVERAGE FLOW
                                        6-HR       24-HR       72-HR    166.58-HR
+   (CFS)       (HR)
                             (CFS)
+     632.      5.50                    176.         47.         16.          7.
                          (INCHES)    0.873       0.939       0.943       0.943
                           (AC-FT)       87.         94.         94.         94.

                          CUMULATIVE AREA =    1.87 SQ MI


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
  222 KK    *      P203  *
            *            *
            **************

  228 KO          OUTPUT CONTROL VARIABLES
                        IPRNT           3  PRINT CONTROL
                        IPLOT           0  PLOT CONTROL
                        QSCAL          0.  HYDROGRAPH PLOT SCALE

                HYDROGRAPH ROUTING DATA

  229 RS          STORAGE ROUTING
                        NSTPS           1  NUMBER OF SUBREACHES
                         ITYP        STOR  TYPE OF INITIAL CONDITION
                       RSVRIC        0.00  INITIAL CONDITION
                            X        0.00 WORKING R AND D COEFFICIENT

  230 SV            STORAGE         0.0       3.8      35.3      37.5      39.7      41.8      42.9      44.0      46.2

  231 SE          ELEVATION     1262.00   1264.00   1268.00   1268.20   1268.40   1268.60   1268.70   1268.80   1269.00
```

```
 232 SQ          DISCHARGE          0.        0.        0.        5.       41.      120.      175.      241.      410.
                                                                   ***

      ***             ***             ***             ***             ***

                        HYDROGRAPH AT STATION     P203

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR    166.58-HR
+   (CFS)       (HR)
                            (CFS)
+     393.      6.17                104.         29.         10.          4.
                         (INCHES)   0.518       0.582       0.589        0.589
                          (AC-FT)     52.         58.         59.         59.

 PEAK STORAGE   TIME                         MAXIMUM AVERAGE STORAGE
                                     6-HR       24-HR       72-HR    166.58-HR
+  (AC-FT)      (HR)
       46.      6.17                 41.         38.         36.         35.

  PEAK STAGE    TIME                          MAXIMUM AVERAGE STAGE
                                     6-HR       24-HR       72-HR    166.58-HR
+   (FEET)      (HR)
   1268.98      6.17             1268.49     1268.23     1268.08     1267.86

                         CUMULATIVE AREA =    1.87 SQ MI


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
 264 KK     *     P208N  *
            *            *
            **************

 270 KO          OUTPUT CONTROL VARIABLES
                       IPRNT          3  PRINT CONTROL
                       IPLOT          0  PLOT CONTROL
                       QSCAL         0.  HYDROGRAPH PLOT SCALE

               HYDROGRAPH ROUTING DATA

 271 RS          STORAGE ROUTING
                       NSTPS          1  NUMBER OF SUBREACHES
                        ITYP       STOR  TYPE OF INITIAL CONDITION
                      RSVRIC       0.00  INITIAL CONDITION
                           X       0.00 WORKING R AND D COEFFICIENT

 272 SV            STORAGE        0.0       2.2       3.5       4.8       8.0      11.6

 273 SE          ELEVATION     1262.70   1263.69   1264.19   1264.69   1265.69   1266.69

 274 SQ          DISCHARGE          0.       25.       50.      150.      200.      250.      275.      300.      400.      500.

 275 SE          ELEVATION     1264.70   1264.96   1265.11   1265.55   1265.72   1265.87   1265.94   1266.01   1266.27   1266.50

                                                                   ***

                                          COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

            STORAGE       0.00      2.20      3.47      4.85      4.88      5.70      6.17      7.55      7.99      8.10
            OUTFLOW       0.00      0.00      0.00      0.00      0.00     25.00     50.00    150.00    191.16    200.00
          ELEVATION    1262.70   1263.69   1264.19   1264.69   1264.70   1264.96   1265.11   1265.55   1265.69   1265.72

            STORAGE       8.65      8.90      9.16     10.11     10.95     11.64
            OUTFLOW     250.00    275.00    300.00    400.00    500.00    582.59
          ELEVATION    1265.87   1265.94   1266.01   1266.27   1266.50   1266.69

      ***             ***             ***             ***             ***

                        HYDROGRAPH AT STATION    P208N

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR    166.58-HR
+   (CFS)       (HR)
                            (CFS)
+     347.      6.42                 94.         27.          9.          4.
                         (INCHES)   0.000       0.000       0.000       0.000
                          (AC-FT)     47.         53.         54.         54.

 PEAK STORAGE   TIME                         MAXIMUM AVERAGE STORAGE
                                     6-HR       24-HR       72-HR    166.58-HR
+  (AC-FT)      (HR)
       10.      6.42                  7.          5.          5.          5.

  PEAK STAGE    TIME                          MAXIMUM AVERAGE STAGE
                                     6-HR       24-HR       72-HR    166.58-HR
```

```
+   (FEET)       (HR)
   1266.13       6.42                1265.24     1264.87     1264.75      1264.68

                        CUMULATIVE AREA =    0.00 SQ MI


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
 290 KK     *     C208S  *
            *            *
            **************

 292 KO          OUTPUT CONTROL VARIABLES
                       IPRNT          3  PRINT CONTROL
                       IPLOT          0  PLOT CONTROL
                       QSCAL         0.  HYDROGRAPH PLOT SCALE

 293 HC          HYDROGRAPH COMBINATION
                       ICOMP          2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                                  ***

      ***             ***             ***             ***             ***

                        HYDROGRAPH AT STATION    C208S

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR    166.58-HR
+   (CFS)       (HR)
                          (CFS)
+     354.      6.42                103.         30.         10.           4.
                       (INCHES)     8.701      10.228      10.394       10.394
                        (AC-FT)      51.         60.         61.          61.

                        CUMULATIVE AREA =    0.11 SQ MI


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
 294 KK     *     P208S  *
            *            *
            **************

 299 KO          OUTPUT CONTROL VARIABLES
                       IPRNT          3  PRINT CONTROL
                       IPLOT          0  PLOT CONTROL
                       QSCAL         0.  HYDROGRAPH PLOT SCALE

               HYDROGRAPH ROUTING DATA

 298 RS          STORAGE ROUTING
                       NSTPS          1  NUMBER OF SUBREACHES
                        ITYP       STOR  TYPE OF INITIAL CONDITION
                      RSVRIC       0.00  INITIAL CONDITION
                           X       0.00 WORKING R AND D COEFFICIENT

 300 SV            STORAGE         0.5       2.5       4.9       7.7      10.8      14.5      18.7      19.3      19.7      20.0
                                  23.0

 302 SE          ELEVATION     1260.00   1261.00   1262.00   1263.00   1264.00   1265.00   1266.00   1266.16   1266.24   1266.31
                               1267.00

 304 SQ          DISCHARGE          0.        0.        0.        0.        0.        0.        0.       17.       33.       50.
                                  419.

                                                                  ***

      ***             ***             ***             ***             ***

                        HYDROGRAPH AT STATION    P208S

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR    166.58-HR
+   (CFS)       (HR)
                          (CFS)
+     268.      6.92                 71.         21.          7.           3.
                       (INCHES)     5.990       7.089       7.213        7.214
                        (AC-FT)      35.         42.         42.          42.

 PEAK STORAGE  TIME                          MAXIMUM AVERAGE STORAGE
                                     6-HR       24-HR       72-HR    166.58-HR
+  (AC-FT)      (HR)
      22.      6.92                  20.         19.         19.          18.

 PEAK STAGE    TIME                          MAXIMUM AVERAGE STAGE
```

```
                                    6-HR        24-HR        72-HR     166.58-HR
+   (FEET)       (HR)
  1266.72       6.92              1266.31      1266.11      1266.04      1265.81

                        CUMULATIVE AREA =    0.11 SQ MI


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
 329 KK     *      213   *        BASIN
            *            *
            **************

 332 KO          OUTPUT CONTROL VARIABLES
                      IPRNT          3  PRINT CONTROL
                      IPLOT          0  PLOT CONTROL
                      QSCAL         0.  HYDROGRAPH PLOT SCALE

               SUBBASIN RUNOFF DATA

 333 BA          SUBBASIN CHARACTERISTICS
                      TAREA       0.13  SUBBASIN AREA

                 PRECIPITATION DATA

  71 PB                STORM       2.92  BASIN TOTAL PRECIPITATION

  71 PI            INCREMENTAL PRECIPITATION PATTERN
                     0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                     0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                     0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                     0.00      0.00      0.00      0.01      0.01      0.01      0.01      0.01      0.01      0.03
                     0.03      0.03      0.07      0.07      0.07      0.08      0.08      0.08      0.05      0.05
                     0.05      0.02      0.02      0.02      0.01      0.01      0.01      0.00      0.00      0.00
                     0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                     0.00      0.00

 334 LG          GREEN AND AMPT LOSS RATE
                      STRTL       0.39  STARTING LOSS
                        DTH       0.23  MOISTURE DEFICIT
                       PSIF       6.20  WETTING FRONT SUCTION
                      XKSAT       0.21  HYDRAULIC CONDUCTIVITY
                      RTIMP       4.00  PERCENT IMPERVIOUS AREA

 335 UC          CLARK UNITGRAPH
                         TC       0.91  TIME OF CONCENTRATION
                          R       0.79  STORAGE COEFFICIENT

 336 UA          ACCUMULATED-AREA VS. TIME,  11 ORDINATES
                       0.0       5.0      16.0      30.0      65.0      77.0      84.0      90.0      94.0      97.0
                     100.0

                                                   ***

                                          UNIT HYDROGRAPH PARAMETERS
                                   CLARK   TC=  0.91 HR,       R=  0.79 HR
                                  SNYDER   TP=  0.54 HR,      CP=  0.41

                                          UNIT HYDROGRAPH
                                   55 END-OF-PERIOD ORDINATES
                 2.        9.       19.       36.       54.       62.       63.       62.       60.       57.
                53.       49.       44.       40.       36.       32.       29.       26.       24.       21.
                19.       17.       15.       14.       12.       11.       10.        9.        8.        7.
                 7.        6.        5.        5.        4.        4.        4.        3.        3.        3.
                 2.        2.        2.        2.        2.        1.        1.        1.        1.        1.
                 1.        1.        1.        1.        1.

      ***             ***             ***             ***             ***

                        HYDROGRAPH AT STATION      213

    TOTAL RAINFALL =    2.92, TOTAL LOSS =    1.63, TOTAL EXCESS =    1.28

  PEAK FLOW      TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR        24-HR        72-HR     166.58-HR
+   (CFS)        (HR)
                                   (CFS)
+      68.       4.58                 17.           4.           1.           1.
                                 (INCHES)      1.272        1.279        1.279        1.279
                                  (AC-FT)        8.           9.           9.           9.

                        CUMULATIVE AREA =    0.13 SQ MI


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
```

```
                *            *
 338 KK         *      P213  *
                *            *
                **************

 343 KO            OUTPUT CONTROL VARIABLES
                         IPRNT           3  PRINT CONTROL
                         IPLOT           0  PLOT CONTROL
                         QSCAL          0.  HYDROGRAPH PLOT SCALE

                 HYDROGRAPH ROUTING DATA

 344 RS            STORAGE ROUTING
                         NSTPS           1  NUMBER OF SUBREACHES
                          ITYP        STOR  TYPE OF INITIAL CONDITION
                        RSVRIC        0.00  INITIAL CONDITION
                             X        0.00 WORKING R AND D COEFFICIENT

 345 SV              STORAGE         0.0       0.1       4.4       7.5       9.4      14.1      29.5

 346 SE            ELEVATION     1264.00   1265.00   1266.00   1266.20   1266.30   1266.50   1267.00

 347 SQ            DISCHARGE          0.        0.        0.        5.       14.       86.     1029.

                                                                   ***

      ***             ***             ***             ***             ***

                          HYDROGRAPH AT STATION     P213

 PEAK FLOW     TIME                           MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR    166.58-HR
+   (CFS)      (HR)
                             (CFS)
+       5.     6.83                  4.          2.          1.           0.
                         (INCHES)  0.317       0.585       0.613        0.613
                          (AC-FT)    2.          4.          4.           4.

 PEAK STORAGE  TIME                           MAXIMUM AVERAGE STORAGE
                                     6-HR       24-HR       72-HR    166.58-HR
+  (AC-FT)     (HR)
        8.     6.83                  7.          6.          5.           5.

 PEAK STAGE    TIME                           MAXIMUM AVERAGE STAGE
                                     6-HR       24-HR       72-HR    166.58-HR
+   (FEET)     (HR)
   1266.20     6.83             1266.17     1266.08     1266.03      1265.97

                         CUMULATIVE AREA =    0.13 SQ MI


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


                **************
                *            *
 365 KK         *     CP207  *
                *            *
                **************

 367 KO            OUTPUT CONTROL VARIABLES
                         IPRNT           3  PRINT CONTROL
                         IPLOT           0  PLOT CONTROL
                         QSCAL          0.  HYDROGRAPH PLOT SCALE

 368 HC            HYDROGRAPH COMBINATION
                         ICOMP           4  NUMBER OF HYDROGRAPHS TO COMBINE

                                                                   ***

      ***             ***             ***             ***             ***

                          HYDROGRAPH AT STATION    CP207

 PEAK FLOW     TIME                           MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR    166.58-HR
+   (CFS)      (HR)
                             (CFS)
+     326.     6.92                 99.         29.         10.           4.
                         (INCHES)  0.330       0.391       0.399        0.399
                          (AC-FT)   49.         58.         59.          59.

                         CUMULATIVE AREA =    2.78 SQ MI


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


                **************
                *            *
 369 KK         *      P207  *
```

```
                *            *
                **************

 373 KO           OUTPUT CONTROL VARIABLES
                        IPRNT           3  PRINT CONTROL
                        IPLOT           0  PLOT CONTROL
                        QSCAL          0.  HYDROGRAPH PLOT SCALE

                 HYDROGRAPH ROUTING DATA

 374 RS           STORAGE ROUTING
                        NSTPS           1  NUMBER OF SUBREACHES
                         ITYP        STOR  TYPE OF INITIAL CONDITION
                       RSVRIC        0.00  INITIAL CONDITION
                            X        0.00 WORKING R AND D COEFFICIENT

 375 SV             STORAGE         0.0       1.3      10.6      36.5      50.8      65.8      98.2     115.5     133.6     152.5
                                   172.4     182.9     205.2

 377 SE           ELEVATION      1255.00   1256.00   1257.00   1259.00   1260.00   1261.00   1263.00   1264.00   1265.00   1266.00
                                 1267.00   1267.50   1268.50

 379 SQ           DISCHARGE          0.        0.        0.        0.        0.        0.        0.        0.        0.        1.
                                    920.     2716.    12171.

                                                                   ***

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN     2716. TO    12171.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)

     ***             ***             ***             ***             ***

                        HYDROGRAPH AT STATION     P207

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR        24-HR        72-HR     166.58-HR
+   (CFS)       (HR)
                             (CFS)
+       0.      0.00                 0.           0.           0.           0.
                          (INCHES)  0.000        0.000        0.000        0.000
                           (AC-FT)     0.           0.           0.           0.

  PEAK STORAGE  TIME                          MAXIMUM AVERAGE STORAGE
                                     6-HR        24-HR        72-HR     166.58-HR
+  (AC-FT)      (HR)
      59.      92.67                  59.          59.          59.          56.

  PEAK STAGE    TIME                          MAXIMUM AVERAGE STAGE
                                     6-HR        24-HR        72-HR     166.58-HR
+   (FEET)      (HR)
   1260.56     73.92               1260.55      1260.56      1260.53      1260.24

                        CUMULATIVE AREA =     2.78 SQ MI


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


                **************
                *            *
 386 KK         *       212  *        BASIN
                *            *
                **************

 389 KO           OUTPUT CONTROL VARIABLES
                        IPRNT           3  PRINT CONTROL
                        IPLOT           0  PLOT CONTROL
                        QSCAL          0.  HYDROGRAPH PLOT SCALE

                 SUBBASIN RUNOFF DATA

 390 BA           SUBBASIN CHARACTERISTICS
                        TAREA        0.37  SUBBASIN AREA

                  PRECIPITATION DATA

  71 PB                 STORM        2.92  BASIN TOTAL PRECIPITATION

  71 PI             INCREMENTAL PRECIPITATION PATTERN
                      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                      0.00      0.00      0.00      0.01      0.01      0.01      0.01      0.01      0.01      0.03
                      0.03      0.03      0.07      0.07      0.07      0.08      0.08      0.08      0.05      0.05
                      0.05      0.02      0.02      0.02      0.01      0.01      0.01      0.00      0.00      0.00
                      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                      0.00      0.00

 391 LG           GREEN AND AMPT LOSS RATE
                        STRTL        0.47  STARTING LOSS
                          DTH        0.25  MOISTURE DEFICIT
                         PSIF        5.60  WETTING FRONT SUCTION
```

```
                    XKSAT        0.31  HYDRAULIC CONDUCTIVITY
                    RTIMP        1.00  PERCENT IMPERVIOUS AREA

392 UC          CLARK UNITGRAPH
                       TC        1.50  TIME OF CONCENTRATION
                        R        1.50  STORAGE COEFFICIENT

393 UA          ACCUMULATED-AREA VS. TIME,  11 ORDINATES
                     0.0       3.0       5.0       8.0      12.0      20.0      43.0      75.0      90.0      96.0
                   100.0

                                                   ***

                                                UNIT HYDROGRAPH PARAMETERS
                                         CLARK   TC=  1.50 HR,       R=  1.50 HR
                                        SNYDER   TP=  1.30 HR,      CP=  0.60

                                                 UNIT HYDROGRAPH
                                            107 END-OF-PERIOD ORDINATES
                 1.       4.       6.       7.       9.      12.      14.      18.      24.      36.
                55.      76.      97.     109.     114.     114.     113.     110.     106.     100.
                95.      90.      85.      80.      76.      72.      68.      64.      61.      58.
                54.      51.      49.      46.      44.      41.      39.      37.      35.      33.
                31.      30.      28.      26.      25.      24.      22.      21.      20.      19.
                18.      17.      16.      15.      14.      14.      13.      12.      11.      11.
                10.      10.       9.       9.       8.       8.       7.       7.       7.       6.
                 6.       6.       5.       5.       5.       4.       4.       4.       4.       4.
                 3.       3.       3.       3.       3.       3.       2.       2.       2.       2.
                 2.       2.       2.       2.       2.       1.       1.       1.       1.       1.
                 1.       1.       1.       1.       1.       1.       1.

     ***             ***             ***             ***             ***

                        HYDROGRAPH AT STATION      212

    TOTAL RAINFALL =    2.92, TOTAL LOSS =    1.95, TOTAL EXCESS =    0.97

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                      6-HR       24-HR       72-HR    166.58-HR
+   (CFS)       (HR)
                          (CFS)
+     103.      5.25                  37.         10.          3.          1.
                        (INCHES)    0.934       0.964       0.964       0.964
                         (AC-FT)       19.         19.         19.         19.

                        CUMULATIVE AREA =    0.37 SQ MI


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
395 KK      *      P212  *
            *            *
            **************

400 KO          OUTPUT CONTROL VARIABLES
                      IPRNT          3  PRINT CONTROL
                      IPLOT          0  PLOT CONTROL
                      QSCAL         0.  HYDROGRAPH PLOT SCALE

              HYDROGRAPH ROUTING DATA

401 RS          STORAGE ROUTING
                      NSTPS          1  NUMBER OF SUBREACHES
                       ITYP       STOR  TYPE OF INITIAL CONDITION
                     RSVRIC       0.00  INITIAL CONDITION
                          X       0.00 WORKING R AND D COEFFICIENT

402 SV            STORAGE         0.0       0.2       0.6       1.7       3.0       4.4       4.7       4.8       4.9       5.0
                                  5.0       5.1

404 SE          ELEVATION     1262.00   1262.50   1263.00   1264.00   1265.00   1266.00   1266.20   1266.25   1266.31   1266.38
                              1266.40   1266.50

406 SQ          DISCHARGE          0.        0.        0.        0.        0.        0.       68.       98.      139.      195.
                                 212.      308.

                                                   ***

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN       68. TO      308.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)

     ***             ***             ***             ***             ***

                        HYDROGRAPH AT STATION     P212

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                      6-HR       24-HR       72-HR    166.58-HR
+   (CFS)       (HR)
                          (CFS)
```

```
+     106.      5.33                    29.          7.          2.          1.
                          (INCHES)    0.732       0.742       0.742       0.742
                           (AC-FT)       15.         15.         15.         15.

 PEAK STORAGE   TIME                          MAXIMUM AVERAGE STORAGE
                                        6-HR       24-HR       72-HR    166.58-HR
+  (AC-FT)      (HR)
       5.       5.33                     5.          4.          4.          4.

  PEAK STAGE    TIME                          MAXIMUM AVERAGE STAGE
                                        6-HR       24-HR       72-HR    166.58-HR
+   (FEET)      (HR)
   1266.26      5.33                1266.08     1266.02     1266.01     1265.89

                          CUMULATIVE AREA =    0.37 SQ MI


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
 408 KK     *     D212R  *      Canal Diversion
            *            *
            **************

 412 KO          OUTPUT CONTROL VARIABLES
                       IPRNT           3  PRINT CONTROL
                       IPLOT           0  PLOT CONTROL
                       QSCAL          0.  HYDROGRAPH PLOT SCALE

     DT          DIVERSION
                       ISTAD      EAS212  DIVERSION HYDROGRAPH IDENTIFICATION

     DI             INFLOW        0.00     68.00     98.00    139.00    195.00    212.00

     DQ      DIVERTED FLOW        0.00      2.00      4.00      7.00     10.00     11.00

                                                                  ***

      ***             ***             ***             ***             ***

                        DIVERSION HYDROGRAPH   EAS212

 PEAK FLOW      TIME                          MAXIMUM AVERAGE FLOW
                                        6-HR       24-HR       72-HR    166.58-HR
+   (CFS)       (HR)
                          (CFS)
+       5.      5.33                     1.          0.          0.          0.
                          (INCHES)    0.024       0.024       0.024       0.024
                           (AC-FT)       0.          0.          0.          0.

                          CUMULATIVE AREA =    0.37 SQ MI

      ***             ***             ***             ***             ***

                        HYDROGRAPH AT STATION    D212R

 PEAK FLOW      TIME                          MAXIMUM AVERAGE FLOW
                                        6-HR       24-HR       72-HR    166.58-HR
+   (CFS)       (HR)
                          (CFS)
+     101.      5.33                    28.          7.          2.          1.
                          (INCHES)    0.708       0.718       0.718       0.718
                           (AC-FT)       14.         14.         14.         14.

                          CUMULATIVE AREA =    0.37 SQ MI


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
 737 KK     *     CP215  *
            *            *
            **************

 739 KO          OUTPUT CONTROL VARIABLES
                       IPRNT           3  PRINT CONTROL
                       IPLOT           0  PLOT CONTROL
                       QSCAL          0.  HYDROGRAPH PLOT SCALE

 740 HC          HYDROGRAPH COMBINATION
                       ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                                  ***

      ***             ***             ***             ***             ***
```

```
                    HYDROGRAPH AT STATION    CP215

  PEAK FLOW     TIME                        MAXIMUM AVERAGE FLOW
                                    6-HR       24-HR       72-HR    166.58-HR
+   (CFS)       (HR)
                            (CFS)
+      44.      7.83                19.          6.          2.           1.
                         (INCHES)  4.382       5.425       5.435        5.435
                          (AC-FT)    9.          12.         12.          12.

                         CUMULATIVE AREA =    0.04 SQ MI


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
  741 KK    *      P215  *
            *            *
            **************

  745 KO          OUTPUT CONTROL VARIABLES
                        IPRNT          3  PRINT CONTROL
                        IPLOT          0  PLOT CONTROL
                        QSCAL         0.  HYDROGRAPH PLOT SCALE

                HYDROGRAPH ROUTING DATA

  746 RS          STORAGE ROUTING
                        NSTPS          1  NUMBER OF SUBREACHES
                         ITYP        STOR  TYPE OF INITIAL CONDITION
                       RSVRIC        0.00  INITIAL CONDITION
                            X        0.00 WORKING R AND D COEFFICIENT

  747 SV            STORAGE         0.3       1.4       3.8       7.6      12.7      26.4      44.6

  748 SE          ELEVATION     1261.00   1261.50   1262.00   1262.50   1263.00   1264.00   1265.00

  749 SQ          DISCHARGE          0.        0.        0.        0.        0.        0.     1671.

                                                                  ***

      ***             ***             ***             ***             ***

                    HYDROGRAPH AT STATION     P215

  PEAK FLOW     TIME                        MAXIMUM AVERAGE FLOW
                                    6-HR       24-HR       72-HR    166.58-HR
+   (CFS)       (HR)
                            (CFS)
+       0.      0.00                 0.          0.          0.           0.
                         (INCHES)  0.000       0.000       0.000        0.000
                          (AC-FT)    0.          0.          0.           0.

 PEAK STORAGE   TIME                       MAXIMUM AVERAGE STORAGE
                                    6-HR       24-HR       72-HR    166.58-HR
+  (AC-FT)      (HR)
    . 12.     36.33                12.         12.         12.          11.

  PEAK STAGE    TIME                        MAXIMUM AVERAGE STAGE
                                    6-HR       24-HR       72-HR    166.58-HR
+   (FEET)      (HR)
   1262.89     35.83             1262.89     1262.88     1262.87      1262.81

                         CUMULATIVE AREA =    0.04 SQ MI


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
  773 KK    *     CP219  *
            *            *
            **************

  775 KO          OUTPUT CONTROL VARIABLES
                        IPRNT          3  PRINT CONTROL
                        IPLOT          0  PLOT CONTROL
                        QSCAL         0.  HYDROGRAPH PLOT SCALE

  776 HC          HYDROGRAPH COMBINATION
                        ICOMP          4  NUMBER OF HYDROGRAPHS TO COMBINE

                                                                  ***

      ***             ***             ***             ***             ***

                    HYDROGRAPH AT STATION    CP219
```

```
  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR    166.58-HR
+   (CFS)       (HR)
                            (CFS)
+     206.      5.33                119.         34.         11.           5.
                         (INCHES)   0.322       0.371       0.371        0.371
                          (AC-FT)    59.         68.         68.          68.

                         CUMULATIVE AREA =    3.43 SQ MI


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
  799 KK    *     CP237  *
            *            *
            **************

  801 KO          OUTPUT CONTROL VARIABLES
                        IPRNT          3  PRINT CONTROL
                        IPLOT          0  PLOT CONTROL
                        QSCAL         0.  HYDROGRAPH PLOT SCALE

  802 HC          HYDROGRAPH COMBINATION
                        ICOMP          3  NUMBER OF HYDROGRAPHS TO COMBINE

                                                          ***

      ***             ***             ***             ***             ***

                        HYDROGRAPH AT STATION    CP237

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR    166.58-HR
+   (CFS)       (HR)
                            (CFS)
+     395.      6.25                220.         62.         21.           9.
                         (INCHES)   0.561       0.629       0.630        0.630
                          (AC-FT)   109.        123.        123.         123.

                         CUMULATIVE AREA =    3.65 SQ MI


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
  803 KK    *      P237  *
            *            *
            **************

  813 KO          OUTPUT CONTROL VARIABLES
                        IPRNT          3  PRINT CONTROL
                        IPLOT          0  PLOT CONTROL
                        QSCAL         0.  HYDROGRAPH PLOT SCALE

               HYDROGRAPH ROUTING DATA

  814 RS          STORAGE ROUTING
                        NSTPS          1  NUMBER OF SUBREACHES
                         ITYP        STOR  TYPE OF INITIAL CONDITION
                        RSVRIC       0.00  INITIAL CONDITION
                             X       0.00 WORKING R AND D COEFFICIENT

  815 SV            STORAGE         0.0       9.2      28.4      30.8      32.2      33.4      34.9      35.3      38.9      42.5

  816 SE          ELEVATION     1258.70   1261.46   1261.66   1261.89   1262.03   1262.14   1262.29   1262.33   1262.66   1263.00

  817 SQ          DISCHARGE          0.      100.      200.      300.      400.      450.      500.

  818 SE          ELEVATION     1261.70   1261.89   1262.03   1262.14   1262.24   1262.29   1262.33

                                                          ***

                                        COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

            STORAGE       0.00      9.17     28.38     28.79     30.77     32.18     33.37     34.40     34.92     35.34
            OUTFLOW       0.00      0.00      0.00      0.00    100.00    200.00    300.00    400.00    450.00    500.00
          ELEVATION    1258.70   1261.46   1261.66   1261.70   1261.89   1262.03   1262.14   1262.24   1262.29   1262.33

            STORAGE      38.89     42.47
            OUTFLOW     913.46   1339.30
          ELEVATION    1262.66   1263.00

      ***             ***             ***             ***             ***
```

```
                    HYDROGRAPH AT STATION     P237

  PEAK FLOW     TIME                        MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR    166.58-HR
+   (CFS)       (HR)
                           (CFS)
+     390.      6.42                175.         47.         16.           7.
                        (INCHES)   0.447       0.482       0.482        0.482
                         (AC-FT)     87.         94.         94.          94.

 PEAK STORAGE   TIME                       MAXIMUM AVERAGE STORAGE
                                     6-HR       24-HR       72-HR    166.58-HR
+  (AC-FT)      (HR)
      34.       6.42                 32.         30.         29.          28.

  PEAK STAGE    TIME                        MAXIMUM AVERAGE STAGE
                                     6-HR       24-HR       72-HR    166.58-HR
+   (FEET)      (HR)
   1262.23      6.42             1261.97     1261.77     1261.72      1261.66

                        CUMULATIVE AREA =    3.65 SQ MI


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
 856 KK     *      D238  *      SUBDIVISION DIVERSION
            *            *
            **************

 860 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           3  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE

     DT          DIVERSION
                      ISTAD       To224  DIVERSION HYDROGRAPH IDENTIFICATION
                     DSTRMX        2.45  MAXIMUM VOLUME TO BE DIVERTED

     DI             INFLOW        0.00  10000.00

     DQ      DIVERTED FLOW        0.00  10000.00

                                                                  ***

      ***            ***             ***             ***             ***

                    DIVERSION HYDROGRAPH    To224

  PEAK FLOW     TIME                        MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR    166.58-HR
+   (CFS)       (HR)
                           (CFS)
+      62.      4.83                   5.          1.          0.           0.
                        (INCHES)   0.136       0.136       0.136        0.136
                         (AC-FT)      2.          2.          2.           2.

                        CUMULATIVE AREA =    0.34 SQ MI

      ***            ***             ***             ***             ***

                    HYDROGRAPH AT STATION     D238

  PEAK FLOW     TIME                        MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR    166.58-HR
+   (CFS)       (HR)
                           (CFS)
+      86.      5.25                  24.          6.          2.           1.
                        (INCHES)   0.663       0.664       0.664        0.664
                         (AC-FT)     12.         12.         12.          12.

                        CUMULATIVE AREA =    0.34 SQ MI


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
 864 KK     *     CP238  *
            *            *
            **************

 866 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           3  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
```

```
867 HC          HYDROGRAPH COMBINATION
                     ICOMP          4  NUMBER OF HYDROGRAPHS TO COMBINE
                                                                  ***

     ***             ***             ***             ***             ***

                        HYDROGRAPH AT STATION    CP238

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR    166.58-HR
+   (CFS)       (HR)
                            (CFS)
+     504.      6.17                234.         65.         22.          9.
                         (INCHES)   0.545       0.610       0.611        0.611
                          (AC-FT)    116.        130.        130.         130.

                         CUMULATIVE AREA =    3.99 SQ MI


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
868 KK      *      P238  *
            *            *
            **************

876 KO          OUTPUT CONTROL VARIABLES
                     IPRNT          3  PRINT CONTROL
                     IPLOT          0  PLOT CONTROL
                     QSCAL         0.  HYDROGRAPH PLOT SCALE

              HYDROGRAPH ROUTING DATA

877 RS          STORAGE ROUTING
                     NSTPS          1  NUMBER OF SUBREACHES
                      ITYP       STOR  TYPE OF INITIAL CONDITION
                    RSVRIC       0.00  INITIAL CONDITION
                         X       0.00 WORKING R AND D COEFFICIENT

878 SV            STORAGE        0.0       1.1      22.8      47.5      75.0      93.2      97.0      98.8     101.4     102.3
                                102.9     103.8

880 SE          ELEVATION     1256.50   1256.66   1257.66   1258.66   1259.66   1260.20   1260.41   1260.47   1260.56   1260.59
                              1260.60   1260.64

882 SQ          DISCHARGE          0.       31.       50.       90.      120.      160.      195.

883 SE          ELEVATION     1260.20   1260.41   1260.47   1260.56   1260.59   1260.62   1260.64
                                                                  ***

                                          COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

            STORAGE       0.00      1.13     22.78     47.45     74.97     93.20     97.00     98.80    101.40    102.30
            OUTFLOW       0.00      0.00      0.00      0.00      0.00      0.00     31.00     50.00     90.00    120.00
          ELEVATION    1256.50   1256.66   1257.66   1258.66   1259.66   1260.20   1260.41   1260.47   1260.56   1260.59

            STORAGE     102.90    103.35    103.80
            OUTFLOW     133.33    160.00    195.00
          ELEVATION    1260.60   1260.62   1260.64

     ***             ***             ***             ***             ***

                        HYDROGRAPH AT STATION     P238

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR    166.58-HR
+   (CFS)       (HR)
                            (CFS)
+     107.      10.08                62.         19.          6.          3.
                         (INCHES)   0.144       0.173       0.173        0.173
                          (AC-FT)     31.         37.         37.          37.

 PEAK STORAGE   TIME                          MAXIMUM AVERAGE STORAGE
                                     6-HR       24-HR       72-HR    166.58-HR
+  (AC-FT)      (HR)
     102.      10.00                 99.         95.         94.          90.

  PEAK STAGE    TIME                          MAXIMUM AVERAGE STAGE
                                     6-HR       24-HR       72-HR    166.58-HR
+   (FEET)      (HR)
   1260.58     10.00              1260.49     1260.29     1260.23      1260.09

                         CUMULATIVE AREA =    3.99 SQ MI


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***
```

```
                 **************
                 *            *
884 KK           *     D238   *      CANAL DIVERSION
                 *            *
                 **************

887 KO              OUTPUT CONTROL VARIABLES
                          IPRNT           3  PRINT CONTROL
                          IPLOT           0  PLOT CONTROL
                          QSCAL          0.  HYDROGRAPH PLOT SCALE

    DT              DIVERSION
                          ISTAD      EAS238  DIVERSION HYDROGRAPH IDENTIFICATION

    DI                 INFLOW        0.00     31.00     50.00     90.00    120.00    160.00    186.00

    DQ          DIVERTED FLOW        0.00     31.00     50.00     90.00    110.00    130.00    136.00

                                                                   ***

     ***             ***             ***             ***             ***

                        DIVERSION HYDROGRAPH   EAS238

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                   6-HR       24-HR       72-HR    166.58-HR
+  (CFS)       (HR)
                          (CFS)
+    101.     10.08                61.         18.          6.           3.
                        (INCHES)   0.142       0.171       0.171        0.171
                         (AC-FT)    30.         36.         36.          36.

                        CUMULATIVE AREA =    3.99 SQ MI

     ***             ***             ***             ***             ***

                        HYDROGRAPH AT STATION     D238

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                   6-HR       24-HR       72-HR    166.58-HR
+  (CFS)       (HR)
                          (CFS)
+      6.     10.08                 1.          0.          0.           0.
                        (INCHES)   0.002       0.002       0.002        0.002
                         (AC-FT)    0.          0.          0.           0.

                        CUMULATIVE AREA =    3.99 SQ MI


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


                 **************
                 *            *
902 KK           *    CP224   *
                 *            *
                 **************

904 KO              OUTPUT CONTROL VARIABLES
                          IPRNT           3  PRINT CONTROL
                          IPLOT           0  PLOT CONTROL
                          QSCAL          0.  HYDROGRAPH PLOT SCALE

905 HC              HYDROGRAPH COMBINATION
                          ICOMP           3  NUMBER OF HYDROGRAPHS TO COMBINE

                                                                   ***

     ***             ***             ***             ***             ***

                        HYDROGRAPH AT STATION    CP224

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                   6-HR       24-HR       72-HR    166.58-HR
+  (CFS)       (HR)
                          (CFS)
+    238.      4.83                56.         15.          5.           2.
                        (INCHES)   0.117       0.122       0.122        0.122
                         (AC-FT)    28.         29.         29.          29.

                        CUMULATIVE AREA =    4.41 SQ MI


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


                 **************
                 *            *
906 KK           *     P224   *
```

```
            *            *
            **************

913 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           3  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE

              HYDROGRAPH ROUTING DATA

914 RS          STORAGE ROUTING
                      NSTPS           1  NUMBER OF SUBREACHES
                       ITYP        STOR  TYPE OF INITIAL CONDITION
                      RSVRIC       0.00  INITIAL CONDITION
                           X       0.00 WORKING R AND D COEFFICIENT

915 SV            STORAGE         0.0       6.1      19.3      33.9      49.9      58.3

916 SE          ELEVATION     1255.20   1255.66   1256.66   1257.66   1258.66   1259.16

917 SQ          DISCHARGE          0.        5.       10.       15.       25.       30.       50.

918 SE          ELEVATION     1258.70   1258.71   1258.72   1258.73   1258.74   1258.75   1258.76
                                                                  ***

                                          COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

            STORAGE       0.00      6.10     19.32     33.91     49.87     50.55     50.72     50.89     51.06     51.23
            OUTFLOW       0.00      0.00      0.00      0.00      0.00      0.00      5.00     10.00     15.00     25.00
          ELEVATION    1255.20   1255.66   1256.66   1257.66   1258.66   1258.70   1258.71   1258.72   1258.73   1258.74

            STORAGE      51.40     51.57     58.35
            OUTFLOW      30.00     50.00    849.27
          ELEVATION    1258.75   1258.76   1259.16

      ***             ***             ***             ***             ***

                        HYDROGRAPH AT STATION     P224

  PEAK FLOW      TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR        24-HR        72-HR     166.58-HR
+   (CFS)        (HR)
                           (CFS)
+       0.       0.00                 0.           0.           0.           0.
                         (INCHES)   0.000        0.000        0.000        0.000
                          (AC-FT)      0.           0.           0.           0.

 PEAK STORAGE    TIME                          MAXIMUM AVERAGE STORAGE
                                     6-HR        24-HR        72-HR     166.58-HR
+  (AC-FT)       (HR)
      29.       10.83                 29.          29.          29.          28.

  PEAK STAGE     TIME                          MAXIMUM AVERAGE STAGE
                                     6-HR        24-HR        72-HR     166.58-HR
+   (FEET)       (HR)
   1257.31      10.83             1257.30      1257.31      1257.30      1257.21

                        CUMULATIVE AREA =    4.41 SQ MI


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
983 KK      *     CP227  *
            *            *
            **************

985 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           3  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE

986 HC          HYDROGRAPH COMBINATION
                      ICOMP           3  NUMBER OF HYDROGRAPHS TO COMBINE
                                                                  ***

      ***             ***             ***             ***             ***

                        HYDROGRAPH AT STATION    CP227

  PEAK FLOW      TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR        24-HR        72-HR     166.58-HR
+   (CFS)        (HR)
                           (CFS)
+     308.       7.08                150.          42.          14.           6.
                         (INCHES)   0.191        0.213        0.213        0.213
                          (AC-FT)     74.          83.          83.          83.

                        CUMULATIVE AREA =    7.30 SQ MI
```

```
*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
 987 KK     *     P227   *
            *            *
            **************

 993 KO          OUTPUT CONTROL VARIABLES
                      IPRNT          3  PRINT CONTROL
                      IPLOT          0  PLOT CONTROL
                      QSCAL         0.  HYDROGRAPH PLOT SCALE

               HYDROGRAPH ROUTING DATA

 994 RS          STORAGE ROUTING
                      NSTPS          1  NUMBER OF SUBREACHES
                       ITYP       STOR  TYPE OF INITIAL CONDITION
                     RSVRIC       0.00  INITIAL CONDITION
                          X       0.00 WORKING R AND D COEFFICIENT

 995 SV            STORAGE        0.0       7.9      17.1      21.2      31.8      50.4

 996 SE          ELEVATION     1257.00   1257.60   1258.60   1259.03   1259.33   1259.63

 997 SQ          DISCHARGE          0.       50.      100.      150.      200.      250.    30000.    35000.    45000.    50000.

 998 SE          ELEVATION     1259.00   1259.28   1259.35   1259.40   1259.44   1259.48   1259.51   1259.54   1259.59   1259.61

                                                                  ***

                                                   COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

            STORAGE       0.00      7.94     17.15     20.91     21.19     30.07     31.84     33.08     36.17     38.63
            OUTFLOW       0.00      0.00      0.00      0.00      5.36     50.00     85.69    100.00    150.00    200.00
          ELEVATION    1257.00   1257.60   1258.60   1259.00   1259.03   1259.28   1259.33   1259.35   1259.40   1259.44

            STORAGE      41.10     42.96     44.81     47.90     49.13     50.37
            OUTFLOW     250.00  30000.00  35000.00  45000.00  50000.00  55000.00
          ELEVATION    1259.48   1259.51   1259.54   1259.59   1259.61   1259.63

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN      250. TO    55000.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)

      ***             ***             ***             ***             ***

                          HYDROGRAPH AT STATION     P227

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR    166.58-HR
+   (CFS)       (HR)
                            (CFS)
+     201.      8.25         105.        31.         10.           5.
                        (INCHES)     0.134       0.160       0.160       0.160
                         (AC-FT)        52.         62.         62.         62.

 PEAK STORAGE   TIME                          MAXIMUM AVERAGE STORAGE
                                     6-HR       24-HR       72-HR    166.58-HR
+  (AC-FT)      (HR)
      39.       8.25          33.         25.         22.          21.

  PEAK STAGE    TIME                          MAXIMUM AVERAGE STAGE
                                     6-HR       24-HR       72-HR    166.58-HR
+   (FEET)      (HR)
   1259.44      8.25       1259.34     1259.11     1259.04     1258.94

                        CUMULATIVE AREA =    7.30 SQ MI


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
 999 KK     *    D227B   *      CANAL DIVERSION
            *            *
            **************

1001 KO          OUTPUT CONTROL VARIABLES
                      IPRNT          3  PRINT CONTROL
                      IPLOT          0  PLOT CONTROL
                      QSCAL         0.  HYDROGRAPH PLOT SCALE

     DT          DIVERSION
                      ISTAD      EAS227  DIVERSION HYDROGRAPH IDENTIFICATION
```

```
     DI            INFLOW        0.00    100.00   1000.00  10000.00

     DQ      DIVERTED FLOW       0.00    100.00   1000.00  10000.00
                                                                 ***

      ***             ***             ***             ***             ***

                        DIVERSION HYDROGRAPH   EAS227

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR    166.58-HR
+   (CFS)       (HR)
                            (CFS)
+     201.      8.25                105.         31.         10.           5.
                         (INCHES)    0.134       0.160       0.160        0.160
                          (AC-FT)     52.         62.         62.          62.

                         CUMULATIVE AREA =    7.30 SQ MI

      ***             ***             ***             ***             ***

                        HYDROGRAPH AT STATION    D227B

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR    166.58-HR
+   (CFS)       (HR)
                            (CFS)
+       0.      0.00                 0.          0.          0.           0.
                         (INCHES)    0.000       0.000       0.000        0.000
                          (AC-FT)      0.          0.          0.           0.

                         CUMULATIVE AREA =    7.30 SQ MI


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
1070 KK     *     CP230  *
            *            *
            **************

1072 KO          OUTPUT CONTROL VARIABLES
                       IPRNT           3  PRINT CONTROL
                       IPLOT           0  PLOT CONTROL
                       QSCAL          0.  HYDROGRAPH PLOT SCALE

1073 HC          HYDROGRAPH COMBINATION
                       ICOMP           3  NUMBER OF HYDROGRAPHS TO COMBINE
                                                                 ***

      ***             ***             ***             ***             ***

                        HYDROGRAPH AT STATION    CP230

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR    166.58-HR
+   (CFS)       (HR)
                            (CFS)
+      96.      5.75                 56.         16.          5.           2.
                         (INCHES)    0.058       0.065       0.065        0.065
                          (AC-FT)     28.         31.         31.          31.

                         CUMULATIVE AREA =    8.94 SQ MI


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
1074 KK     *      P230  *
            *            *
            **************

1080 KO          OUTPUT CONTROL VARIABLES
                       IPRNT           3  PRINT CONTROL
                       IPLOT           0  PLOT CONTROL
                       QSCAL          0.  HYDROGRAPH PLOT SCALE

                HYDROGRAPH ROUTING DATA

1081 RS          STORAGE ROUTING
                       NSTPS           1  NUMBER OF SUBREACHES
                        ITYP        STOR  TYPE OF INITIAL CONDITION
                      RSVRIC        0.00  INITIAL CONDITION
```

```
                    X        0.00 WORKING R AND D COEFFICIENT

1082 SV          STORAGE        0.0      14.8      44.8      78.2     112.3     146.8     181.7     217.0     252.7     288.8
                              325.4     362.5     400.2     442.0     467.5

1084 SE         ELEVATION    1244.00   1245.00   1246.00   1247.00   1248.00   1249.00   1250.00   1251.00   1252.00   1253.00
                             1254.00   1255.00   1256.00   1257.00   1257.50

1086 SQ         DISCHARGE        0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
                                 0.        0.        2.      890.     4208.

                                                                  ***

     ***            ***            ***            ***            ***

                    HYDROGRAPH AT STATION     P230

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                   6-HR       24-HR       72-HR    166.58-HR
+   (CFS)      (HR)
                          (CFS)
+      0.      0.00                 0.          0.          0.          0.
                       (INCHES)   0.000       0.000       0.000       0.000
                        (AC-FT)      0.          0.          0.          0.

 PEAK STORAGE  TIME                          MAXIMUM AVERAGE STORAGE
                                   6-HR       24-HR       72-HR    166.58-HR
+  (AC-FT)     (HR)
     31.     44.42                 31.         31.         31.         30.

  PEAK STAGE   TIME                          MAXIMUM AVERAGE STAGE
                                   6-HR       24-HR       72-HR    166.58-HR
+   (FEET)     (HR)
  1245.55     49.58              1245.55     1245.53     1245.54     1245.45

                    CUMULATIVE AREA =    8.94 SQ MI


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
1096 KK     *     CP234  *
            *            *
            **************

1098 KO          OUTPUT CONTROL VARIABLES
                       IPRNT          3  PRINT CONTROL
                       IPLOT          0  PLOT CONTROL
                       QSCAL         0.  HYDROGRAPH PLOT SCALE

1099 HC          HYDROGRAPH COMBINATION
                       ICOMP          2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                                  ***

     ***            ***            ***            ***            ***

                    HYDROGRAPH AT STATION    CP234

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                   6-HR       24-HR       72-HR    166.58-HR
+   (CFS)      (HR)
                          (CFS)
+     95.      4.42                24.          6.          2.          1.
                       (INCHES)   0.025       0.025       0.025       0.025
                        (AC-FT)     12.         12.         12.         12.

                    CUMULATIVE AREA =    9.11 SQ MI


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
1100 KK     *      P234  *
            *            *
            **************

1105 KO          OUTPUT CONTROL VARIABLES
                       IPRNT          3  PRINT CONTROL
                       IPLOT          0  PLOT CONTROL
                       QSCAL         0.  HYDROGRAPH PLOT SCALE

                 HYDROGRAPH ROUTING DATA

1106 RS          STORAGE ROUTING
                       NSTPS          1  NUMBER OF SUBREACHES
                        ITYP       STOR  TYPE OF INITIAL CONDITION
```

```
                    RSVRIC        0.00  INITIAL CONDITION
                         X        0.00 WORKING R AND D COEFFICIENT

1107 SV          STORAGE          0.0       0.4       1.3       4.0       7.6      13.1      26.4      54.9

1108 SE        ELEVATION     1248.00   1248.50   1249.00   1250.00   1251.00   1252.00   1253.00   1254.00

1109 SQ        DISCHARGE          0.        0.        0.        0.        0.        0.       13.       89.

                                                                  ***

     ***            ***            ***            ***            ***

                        HYDROGRAPH AT STATION     P234

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR    166.58-HR
+   (CFS)      (HR)
                          (CFS)
+      0.      0.00                    0.          0.          0.          0.
                       (INCHES)     0.000       0.000       0.000       0.000
                        (AC-FT)        0.          0.          0.          0.

 PEAK STORAGE  TIME                          MAXIMUM AVERAGE STORAGE
                                     6-HR       24-HR       72-HR    166.58-HR
+  (AC-FT)     (HR)
     12.      8.92                   12.         12.         12.         12.

  PEAK STAGE   TIME                          MAXIMUM AVERAGE STAGE
                                     6-HR       24-HR       72-HR    166.58-HR
+   (FEET)     (HR)
  1251.83     9.00               1251.83     1251.82     1251.82     1251.74

                       CUMULATIVE AREA =    9.11 SQ MI


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
1216 KK     *     CP235  *
            *            *
            **************

1218 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           3  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE

1219 HC          HYDROGRAPH COMBINATION
                      ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                                  ***

     ***            ***            ***            ***            ***

                        HYDROGRAPH AT STATION    CP235

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR    166.58-HR
+   (CFS)      (HR)
                          (CFS)
+    518.      6.42                  198.         50.         17.          7.
                       (INCHES)     0.521       0.531       0.531       0.531
                        (AC-FT)       98.        100.        100.        100.

                       CUMULATIVE AREA =    3.53 SQ MI


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
1220 KK     *     P235S  *
            *            *
            **************

1225 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           3  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE

                HYDROGRAPH ROUTING DATA

1226 RS          STORAGE ROUTING
                      NSTPS           1  NUMBER OF SUBREACHES
                       ITYP        STOR  TYPE OF INITIAL CONDITION
                     RSVRIC        0.00  INITIAL CONDITION
                          X        0.00 WORKING R AND D COEFFICIENT
```

```
1227 SV          STORAGE        0.0       0.2       0.4       1.5       3.1       6.4      12.3      20.1      29.0      38.4

1228 SE        ELEVATION     1247.00   1248.00   1249.00   1250.00   1250.50   1251.00   1251.50   1252.00   1252.50   1253.00

1229 SQ        DISCHARGE        0.        0.        0.        0.        3.      191.      909.     2087.     3725.     6150.

                                                                  ***

     ***            ***            ***            ***            ***

                        HYDROGRAPH AT STATION    P235S

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                   6-HR       24-HR       72-HR    166.58-HR
+   (CFS)       (HR)
                          (CFS)
+     512.      6.50                193.         50.         17.           7.
                        (INCHES)    0.509       0.522       0.523        0.523
                         (AC-FT)     96.         98.         98.          98.

 PEAK STORAGE  TIME                          MAXIMUM AVERAGE STORAGE
                                   6-HR       24-HR       72-HR    166.58-HR
+  (AC-FT)      (HR)
       9.      6.50                  6.          3.          2.           2.

  PEAK STAGE   TIME                          MAXIMUM AVERAGE STAGE
                                   6-HR       24-HR       72-HR    166.58-HR
+   (FEET)      (HR)
   1251.22     6.50               1250.87     1250.37     1250.13      1249.97

                        CUMULATIVE AREA =    3.53 SQ MI


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
1233 KK     *     C253N  *
            *            *
            **************

1235 KO          OUTPUT CONTROL VARIABLES
                       IPRNT           3  PRINT CONTROL
                       IPLOT           0  PLOT CONTROL
                       QSCAL          0.  HYDROGRAPH PLOT SCALE

1236 HC          HYDROGRAPH COMBINATION
                       ICOMP           3  NUMBER OF HYDROGRAPHS TO COMBINE

                                                                  ***

     ***            ***            ***            ***            ***

                        HYDROGRAPH AT STATION    C253N

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                   6-HR       24-HR       72-HR    166.58-HR
+   (CFS)       (HR)
                          (CFS)
+     532.      6.50                213.         58.         19.           8.
                        (INCHES)    0.157       0.170       0.170        0.170
                         (AC-FT)     106.        115.        115.         115.

                        CUMULATIVE AREA =   12.64 SQ MI


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
1237 KK     *     P235N  *
            *            *
            **************

1241 KO          OUTPUT CONTROL VARIABLES
                       IPRNT           3  PRINT CONTROL
                       IPLOT           0  PLOT CONTROL
                       QSCAL          0.  HYDROGRAPH PLOT SCALE

               HYDROGRAPH ROUTING DATA

1242 RS          STORAGE ROUTING
                       NSTPS           1  NUMBER OF SUBREACHES
                        ITYP        STOR  TYPE OF INITIAL CONDITION
                      RSVRIC        0.00  INITIAL CONDITION
```

```
                          X        0.00 WORKING R AND D COEFFICIENT

1243 SV          STORAGE          0.0      19.3      91.6     141.6     193.3     246.8     260.4     274.2

1244 SE        ELEVATION      1240.00   1241.00   1244.00   1246.00   1248.00   1250.00   1250.50   1251.00

1245 SQ        DISCHARGE          0.        0.        0.        0.        0.        0.        0.      161.

                                                                  ***

     ***            ***            ***            ***            ***

                        HYDROGRAPH AT STATION    P235N

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR    166.58-HR
+   (CFS)       (HR)
                                  (CFS)
+       0.      0.00                 0.          0.          0.          0.
                               (INCHES)      0.000       0.000       0.000       0.000
                                (AC-FT)         0.          0.          0.          0.

 PEAK STORAGE   TIME                          MAXIMUM AVERAGE STORAGE
                                     6-HR       24-HR       72-HR    166.58-HR
+  (AC-FT)      (HR)
     115.      58.67                115.        115.        115.        109.

  PEAK STAGE    TIME                          MAXIMUM AVERAGE STAGE
                                     6-HR       24-HR       72-HR    166.58-HR
+   (FEET)      (HR)
   1244.92     61.17              1244.92     1244.94     1244.91     1244.68

                        CUMULATIVE AREA =   12.64 SQ MI

 -----DSS---ZWRITE Unit  71; Vers.   60:  /EAST/CP207/FLOW/03MAR1903/5MIN//
 -----DSS---ZWRITE Unit  71; Vers.   60:  /EAST/CP207/FLOW/04MAR1903/5MIN//
 -----DSS---ZWRITE Unit  71; Vers.   60:  /EAST/CP207/FLOW/05MAR1903/5MIN//
 -----DSS---ZWRITE Unit  71; Vers.   60:  /EAST/CP207/FLOW/06MAR1903/5MIN//
 -----DSS---ZWRITE Unit  71; Vers.   60:  /EAST/CP207/FLOW/07MAR1903/5MIN//
 -----DSS---ZWRITE Unit  71; Vers.   60:  /EAST/CP207/FLOW/08MAR1903/5MIN//
 -----DSS---ZWRITE Unit  71; Vers.   60:  /EAST/CP207/FLOW/09MAR1903/5MIN//
 -----DSS---ZWRITE Unit  71; Vers.   60:  /EAST/CP207/FLOW/10MAR1903/5MIN//
 -----DSS---ZWRITE Unit  71; Vers.   60:  /EAST/CP212/FLOW/03MAR1903/5MIN//
 -----DSS---ZWRITE Unit  71; Vers.   60:  /EAST/CP212/FLOW/04MAR1903/5MIN//
 -----DSS---ZWRITE Unit  71; Vers.   60:  /EAST/CP212/FLOW/05MAR1903/5MIN//
 -----DSS---ZWRITE Unit  71; Vers.   60:  /EAST/CP212/FLOW/06MAR1903/5MIN//
 -----DSS---ZWRITE Unit  71; Vers.   60:  /EAST/CP212/FLOW/07MAR1903/5MIN//
 -----DSS---ZWRITE Unit  71; Vers.   60:  /EAST/CP212/FLOW/08MAR1903/5MIN//
 -----DSS---ZWRITE Unit  71; Vers.   60:  /EAST/CP212/FLOW/09MAR1903/5MIN//
 -----DSS---ZWRITE Unit  71; Vers.   60:  /EAST/CP212/FLOW/10MAR1903/5MIN//
 -----DSS---ZWRITE Unit  71; Vers.   60:  /EAST/CP238/FLOW/03MAR1903/5MIN//
 -----DSS---ZWRITE Unit  71; Vers.   60:  /EAST/CP238/FLOW/04MAR1903/5MIN//
 -----DSS---ZWRITE Unit  71; Vers.   60:  /EAST/CP238/FLOW/05MAR1903/5MIN//
 -----DSS---ZWRITE Unit  71; Vers.   60:  /EAST/CP238/FLOW/06MAR1903/5MIN//
 -----DSS---ZWRITE Unit  71; Vers.   60:  /EAST/CP238/FLOW/07MAR1903/5MIN//
 -----DSS---ZWRITE Unit  71; Vers.   60:  /EAST/CP238/FLOW/08MAR1903/5MIN//
 -----DSS---ZWRITE Unit  71; Vers.   60:  /EAST/CP238/FLOW/09MAR1903/5MIN//
 -----DSS---ZWRITE Unit  71; Vers.   60:  /EAST/CP238/FLOW/10MAR1903/5MIN//
 -----DSS---ZWRITE Unit  71; Vers.   60:  /EAST/CP227/FLOW/03MAR1903/5MIN//
 -----DSS---ZWRITE Unit  71; Vers.   60:  /EAST/CP227/FLOW/04MAR1903/5MIN//
 -----DSS---ZWRITE Unit  71; Vers.   60:  /EAST/CP227/FLOW/05MAR1903/5MIN//
 -----DSS---ZWRITE Unit  71; Vers.   60:  /EAST/CP227/FLOW/06MAR1903/5MIN//
 -----DSS---ZWRITE Unit  71; Vers.   60:  /EAST/CP227/FLOW/07MAR1903/5MIN//
 -----DSS---ZWRITE Unit  71; Vers.   60:  /EAST/CP227/FLOW/08MAR1903/5MIN//
 -----DSS---ZWRITE Unit  71; Vers.   60:  /EAST/CP227/FLOW/09MAR1903/5MIN//
 -----DSS---ZWRITE Unit  71; Vers.   60:  /EAST/CP227/FLOW/10MAR1903/5MIN//
1
                                   RUNOFF SUMMARY
                          FLOW IN CUBIC FEET PER SECOND
                       TIME IN HOURS,  AREA IN SQUARE MILES

                                   PEAK   TIME OF   AVERAGE FLOW FOR MAXIMUM PERIOD   BASIN   MAXIMUM   TIME OF
          OPERATION      STATION   FLOW    PEAK                                      AREA    STAGE   MAX STAGE
+                                                     6-HOUR    24-HOUR    72-HOUR

          HYDROGRAPH AT
+                         00RAIN     0.    0.00         0.         0.         0.    0.00

          HYDROGRAPH AT
+                           206    302.    5.17        74.        18.         6.    0.76

          DIVERSION TO
+                          To202    212.    5.17        52.        13.         4.    0.76

          HYDROGRAPH AT
+                           D206     91.    5.17        22.         6.         2.    0.76

          ROUTED TO
+                         206203     89.    5.33        22.         6.         2.    0.76
+                                                                                      0.39      5.33

          HYDROGRAPH AT
+                          XRDPK    123.   33.08       121.       109.        61.    0.00

          DIVERSION TO
```

+		XRPKD	0.	33.08	0.	0.	0.	0.00	
+	HYDROGRAPH AT	To200	123.	33.08	121.	109.	61.	0.00	
+	ROUTED TO	XRD200	123.	33.17	121.	109.	61.	0.00	1.86 33.17
+	HYDROGRAPH AT	XRPKD	0.	0.00	0.	0.	0.	0.00	
+	HYDROGRAPH AT	200	61.	5.08	33.	9.	3.	0.16	
+	2 COMBINED AT	C200	61.	5.08	33.	9.	3.	0.16	
+	ROUTED TO	P200	53.	5.67	32.	9.	3.	0.16	1268.73 5.67
+	2 COMBINED AT	CP200	123.	33.17	121.	109.	61.	0.16	
+	ROUTED TO	200202	123.	33.33	121.	109.	61.	0.16	2.12 33.33
+	HYDROGRAPH AT	FRM206	212.	5.17	52.	13.	4.	0.00	
+	ROUTED TO	206202	194.	5.42	52.	13.	4.	0.00	1.13 5.42
+	HYDROGRAPH AT	202	500.	4.83	161.	41.	14.	0.85	
+	DIVERSION TO	202RET	466.	4.83	41.	10.	3.	0.85	
+	HYDROGRAPH AT	202	500.	4.83	122.	31.	10.	0.85	
+	2 COMBINED AT	C202	609.	5.17	174.	43.	14.	0.85	
+	ROUTED TO	P202	522.	5.58	137.	37.	12.	0.85	1268.38 5.58
+	DIVERSION TO	DVVOF	522.	0.00	137.	37.	12.	0.85	
+	HYDROGRAPH AT	Dummy	0.	0.00	0.	0.	0.	0.85	
+	2 COMBINED AT	CP202	123.	33.33	121.	109.	61.	1.00	
+	DIVERSION TO	DTD203	123.	0.00	121.	109.	61.	1.00	
+	HYDROGRAPH AT	Dummy	0.	0.00	0.	0.	0.	1.00	
+	HYDROGRAPH AT	VVOF	522.	5.58	137.	37.	12.	0.00	
+	HYDROGRAPH AT	203	76.	4.50	20.	5.	2.	0.11	
+	4 COMBINED AT	C203	632.	5.50	176.	47.	16.	1.87	
+	ROUTED TO	P203	393.	6.17	104.	29.	10.	1.87	1268.98 6.17
+	DIVERSION TO	DCBLVD	393.	0.00	104.	29.	10.	1.87	
+	HYDROGRAPH AT	OTD203	0.	0.00	0.	0.	0.	1.87	
+	HYDROGRAPH AT	TWD203	123.	33.33	121.	109.	61.	0.00	
+	ROUTED TO	TWD203	123.	33.33	121.	109.	61.	0.00	1.86 33.42
+	2 COMBINED AT	CP203	123.	33.33	121.	109.	61.	1.87	

```
+                ROUTED TO
+                              203208    123.   33.58      121.      109.      61.     1.87
+                                                                                                  5.05      33.58

+                HYDROGRAPH AT
                               OCBLVD    393.    6.17      104.       29.      10.     0.00

+                ROUTED TO
+                               P208N    347.    6.42       94.       27.       9.     0.00
+                                                                                               1266.13       6.42

+                HYDROGRAPH AT
                                  208     78.    4.42       19.        5.       2.     0.11

+                DIVERSION TO
                               208RET     59.    4.42        5.        1.       0.     0.11

+                HYDROGRAPH AT
                                  208     78.    4.42       14.        4.       1.     0.11

+                2 COMBINED AT
                                C208S    354.    6.42      103.       30.      10.     0.11

+                ROUTED TO
+                               P208S    268.    6.92       71.       21.       7.     0.11
+                                                                                               1266.72       6.92

+                DIVERSION TO
                                 D207    268.    0.00       71.       21.       7.     0.11

+                HYDROGRAPH AT
                                Dummy      0.    0.00        0.        0.       0.     0.11

+                2 COMBINED AT
                                CP208    123.   33.58      121.      109.      61.     1.98

+                ROUTED TO
+                              208207    123.   33.75      121.      109.      61.     1.98
+                                                                                                  3.51      33.75

+                DIVERSION TO
                                CANAL    123.    0.00      121.      109.      61.     1.98

+                HYDROGRAPH AT
                                Dummy      0.    0.00        0.        0.       0.     1.98

+                HYDROGRAPH AT
                                  213     68.    4.58       17.        4.       1.     0.13

+                ROUTED TO
+                                 P213      5.    6.83        4.        2.       1.     0.13
+                                                                                               1266.20       6.83

+                HYDROGRAPH AT
                                 O207    268.    6.92       71.       21.       7.     0.00

+                HYDROGRAPH AT
                                  207    365.    4.67      114.       29.      10.     0.68

+                DIVERSION TO
                               207RET    365.    5.92       92.       23.       8.     0.68

+                HYDROGRAPH AT
                                  207    146.    5.92       26.        6.       2.     0.68

+                4 COMBINED AT
                                CP207    326.    6.92       99.       29.      10.     2.78

+                ROUTED TO
+                                 P207      0.    0.00        0.        0.       0.     2.78
+                                                                                               1260.56      73.92

+                DIVERSION TO
                               EAS207      0.    0.00        0.        0.       0.     2.78

+                HYDROGRAPH AT
                                 D207      0.    0.00        0.        0.       0.     2.78

+                HYDROGRAPH AT
                                  212    103.    5.25       37.       10.       3.     0.37

+                ROUTED TO
+                                 P212    106.    5.33       29.        7.       2.     0.37
+                                                                                               1266.26       5.33

+                DIVERSION TO
                               EAS212      5.    5.33        1.        0.       0.     0.37

+                HYDROGRAPH AT
                               D212R    101.    5.33       28.        7.       2.     0.37

+                HYDROGRAPH AT
                                  209    538.    4.50      133.       34.      11.     0.87
```

+	DIVERSION TO	209RET	538.	0.00	133.	34.	11.	0.87	
+	HYDROGRAPH AT	209	0.	0.00	0.	0.	0.	0.87	
+	DIVERSION TO	To205	0.	0.00	0.	0.	0.	0.87	
+	HYDROGRAPH AT	D209	0.	0.00	0.	0.	0.	0.87	
+	ROUTED TO	209210	0.	0.00	0.	0.	0.	0.87	0.00 6.17
+	HYDROGRAPH AT	216	497.	4.92	111.	28.	9.	1.03	
+	DIVERSION TO	216RET	285.	4.92	18.	5.	2.	1.03	
+	HYDROGRAPH AT	216	497.	4.92	93.	23.	8.	1.03	
+	DIVERSION TO	ToVVG	348.	4.92	65.	16.	5.	1.03	
+	HYDROGRAPH AT	D216	149.	4.92	28.	7.	2.	1.03	
+	ROUTED TO	216210	83.	6.33	27.	7.	2.	1.03	0.78 6.33
+	HYDROGRAPH AT	210	659.	4.83	151.	38.	13.	1.02	
+	DIVERSION TO	210RET	101.	4.83	7.	2.	1.	1.02	
+	HYDROGRAPH AT	210	659.	4.83	145.	36.	12.	1.02	
+	3 COMBINED AT	CP210	659.	4.83	172.	43.	14.	2.91	
+	HYDROGRAPH AT	FRM209	0.	0.00	0.	0.	0.	0.00	
+	ROUTED TO	209205	0.	0.00	0.	0.	0.	0.00	0.00 8.50
+	HYDROGRAPH AT	205	337.	4.92	127.	33.	11.	1.15	
+	DIVERSION TO	205RET	205.	4.92	15.	4.	1.	1.15	
+	HYDROGRAPH AT	205	337.	4.92	117.	29.	10.	1.15	
+	2 COMBINED AT	CP205	337.	4.92	117.	29.	10.	1.15	
+	HYDROGRAPH AT	FRM216	348.	4.92	65.	16.	5.	0.00	
+	ROUTED TO	216VVG	226.	6.08	64.	16.	5.	0.00	0.74 6.08
+	DIVERSION TO	ToLG	136.	6.08	39.	10.	3.	0.00	
+	HYDROGRAPH AT	DVVG	91.	6.08	26.	7.	2.	0.00	
+	ROUTED TO	VVG211	71.	7.00	25.	7.	2.	0.00	0.60 7.00
+	HYDROGRAPH AT	211	674.	4.50	140.	35.	12.	0.93	
+	2 COMBINED AT	CP211	674.	4.50	161.	42.	14.	0.93	
+	HYDROGRAPH AT	214	53.	5.25	18.	4.	1.	0.41	
+	HYDROGRAPH AT	201	271.	5.00	117.	31.	10.	0.63	

```
+          DIVERSION TO
                          201RET      271.   6.50        91.       23.       8.      0.63
+          HYDROGRAPH AT
                            201       132.   6.50        35.        9.       3.      0.63
+          HYDROGRAPH AT
                            204       238.   4.83        90.       24.       8.      0.82
+          DIVERSION TO
                          204RET      238.   8.50        90.       23.       8.      0.82
+          HYDROGRAPH AT
                            204        18.   8.50         3.        1.       0.      0.82
+          7 COMBINED AT
                          CPADOT     1578.   4.75       527.      136.      45.      7.22
+          HYDROGRAPH AT
                            220       226.   4.67        60.       15.       5.      0.79
+          DIVERSION TO
                           To221       68.   4.67        18.        5.       2.      0.79
+          HYDROGRAPH AT
                           D220       158.   4.67        42.       11.       4.      0.79
+          ROUTED TO
                          220217      144.   5.08        42.       11.       4.      0.79
+                                                                                     1.79      5.08
+          HYDROGRAPH AT
                            217       210.   5.17        52.       13.       4.      1.01
+          2 COMBINED AT
                           CP217      352.   5.17        94.       24.       8.      1.79
+          ROUTED TO
                          217218      270.   6.17        92.       24.       8.      1.79
+                                                                                     0.48      6.17
+          HYDROGRAPH AT
                          FRM220       68.   4.67        18.        5.       2.      0.00
+          ROUTED TO
                          220221       38.   6.67        17.        5.       2.      0.00
+                                                                                     0.27      6.67
+          HYDROGRAPH AT
                            221       139.   5.00        41.       11.       4.      0.50
+          DIVERSION TO
                          221RET      139.   6.08        32.        8.       3.      0.50
+          HYDROGRAPH AT
                            221        59.   6.08        10.        3.       1.      0.50
+          2 COMBINED AT
                           CP221       87.   6.08        27.        7.       2.      0.50
+          DIVERSION TO
                           To238       52.   6.08        16.        4.       1.      0.50
+          HYDROGRAPH AT
                           D221        35.   6.08        11.        3.       1.      0.50
+          ROUTED TO
                          221218       26.   7.17        11.        3.       1.      0.50
+                                                                                     1.17      7.17
+          HYDROGRAPH AT
                            218       387.   5.00        97.       25.       8.      1.01
+          3 COMBINED AT
                           CP218      398.   6.00       193.       51.      17.      3.30
+          DIVERSION TO
                           To237      199.   6.00        97.       26.       9.      3.30
+          HYDROGRAPH AT
                           D218       199.   6.00        97.       26.       9.      3.30
+          ROUTED TO
                          218219      191.   6.25        96.       26.       9.      3.30
+                                                                                     0.65      6.25
+          HYDROGRAPH AT
                          FRMVVG       136.   6.08        39.       10.       3.      0.00
+          ROUTED TO
                           VVGLG        90.   7.67        37.       10.       3.      0.00
+                                                                                     0.38      7.67
+          DIVERSION TO
                           To219       45.   7.67        18.        5.       2.      0.00
```

+	HYDROGRAPH AT	DLG	45.	7.67	18.	5.	2.	0.00	
+	ROUTED TO	LG215	44.	7.83	18.	5.	2.	0.00	0.25 7.83
+	HYDROGRAPH AT	215	16.	4.42	4.	1.	0.	0.04	
+	2 COMBINED AT	CP215	44.	7.83	19.	6.	2.	0.04	
+	ROUTED TO	P215	0.	0.00	0.	0.	0.	0.04	1262.89 35.83
+	HYDROGRAPH AT	FRMLG	45.	7.67	18.	5.	2.	0.00	
+	ROUTED TO	LG219	31.	9.42	17.	5.	2.	0.00	0.37 9.42
+	HYDROGRAPH AT	219	61.	4.58	17.	4.	1.	0.08	
+	DIVERSION TO	219RET	25.	4.58	2.	1.	0.	0.08	
+	HYDROGRAPH AT	219	61.	4.58	15.	4.	1.	0.08	
+	4 COMBINED AT	CP219	206.	5.33	119.	34.	11.	3.43	
+	HYDROGRAPH AT	FRM218	199.	6.00	97.	26.	9.	0.00	
+	ROUTED TO	218237	191.	6.25	96.	26.	9.	0.00	0.65 6.25
+	HYDROGRAPH AT	237	187.	4.42	39.	10.	3.	0.22	
+	DIVERSION TO	ToP238	149.	4.42	32.	8.	3.	0.22	
+	HYDROGRAPH AT	D237	37.	4.42	8.	2.	1.	0.22	
+	3 COMBINED AT	CP237	395.	6.25	220.	62.	21.	3.65	
+	ROUTED TO	P237	390.	6.42	175.	47.	16.	3.65	1262.23 6.42
+	HYDROGRAPH AT	FRM237	149.	4.42	32.	8.	3.	0.00	
+	ROUTED TO	237238	107.	5.67	31.	8.	3.	0.00	1255.75 5.67
+	HYDROGRAPH AT	FRM221	52.	6.08	16.	4.	1.	0.00	
+	ROUTED TO	221238	22.	9.83	14.	4.	1.	0.00	0.27 9.83
+	HYDROGRAPH AT	238	86.	5.25	28.	7.	2.	0.34	
+	DIVERSION TO	To224	62.	5.25	5.	1.	0.	0.34	
+	HYDROGRAPH AT	D238	86.	5.25	24.	6.	2.	0.34	
+	4 COMBINED AT	CP238	504.	6.17	234.	65.	22.	3.99	
+	ROUTED TO	P238	107.	10.08	62.	19.	6.	3.99	1260.58 10.00
+	DIVERSION TO	EAS238	101.	10.08	61.	18.	6.	3.99	
+	HYDROGRAPH AT	D238	6.	10.08	1.	0.	0.	3.99	

+	HYDROGRAPH AT	FRM238	62.	4.83	5.	1.	0.	0.00	
+	HYDROGRAPH AT	224	180.	4.92	51.	13.	4.	0.43	
+	3 COMBINED AT	CP224	238.	4.83	56.	15.	5.	4.41	
+	ROUTED TO	P224	0.	0.00	0.	0.	0.	4.41	1257.31 10.83
+	HYDROGRAPH AT	225	147.	5.17	44.	11.	4.	0.66	
+	HYDROGRAPH AT	222	187.	4.75	59.	15.	5.	0.75	
+	2 COMBINED AT	CP222	313.	5.08	102.	26.	9.	1.41	
+	ROUTED TO	222223	251.	6.25	100.	26.	9.	1.41	0.62 6.25
+	HYDROGRAPH AT	226	96.	5.17	26.	7.	2.	0.50	
+	HYDROGRAPH AT	223	94.	5.08	25.	6.	2.	0.50	
+	3 COMBINED AT	CP223	330.	6.08	148.	39.	13.	2.42	
+	ROUTED TO	223227	299.	7.08	143.	39.	13.	2.42	1.17 7.08
+	HYDROGRAPH AT	227	87.	5.17	25.	6.	2.	0.47	
+	DIVERSION TO	To227	44.	5.17	13.	3.	1.	0.47	
+	HYDROGRAPH AT	D227A	44.	5.17	13.	3.	1.	0.47	
+	3 COMBINED AT	CP227	308.	7.08	150.	42.	14.	7.30	
+	ROUTED TO	P227	201.	8.25	105.	31.	10.	7.30	1259.44 8.25
+	DIVERSION TO	EAS227	201.	0.00	105.	31.	10.	7.30	
+	HYDROGRAPH AT	D227B	0.	0.00	0.	0.	0.	7.30	
+	DIVERSION TO	227RET	0.	0.00	0.	0.	0.	7.30	
+	HYDROGRAPH AT	FRM227	0.	0.00	0.	0.	0.	7.30	
+	HYDROGRAPH AT	228	181.	4.67	50.	13.	4.	0.57	
+	DIVERSION TO	To231	54.	4.67	15.	4.	1.	0.57	
+	HYDROGRAPH AT	D228	126.	4.67	35.	9.	3.	0.57	
+	ROUTED TO	228229	82.	6.33	34.	9.	3.	0.57	0.40 6.33
+	HYDROGRAPH AT	229	95.	5.17	27.	7.	2.	0.51	
+	2 COMBINED AT	CP229	126.	6.08	60.	16.	5.	1.08	
+	DIVERSION TO	To232	38.	6.08	18.	5.	2.	1.08	
+	HYDROGRAPH AT	D229	88.	6.08	42.	11.	4.	1.08	
+	ROUTED TO	229230	72.	7.92	39.	11.	4.	1.08	

```
+                                                                                                  0.39        7.92

          HYDROGRAPH AT
+                    230      135.   5.17       40.       10.       3.     0.56

          DIVERSION TO
+                 230RET      135.   5.75       22.        5.       2.     0.56

          HYDROGRAPH AT
+                    230       95.   5.75       19.        5.       2.     0.56

          3 COMBINED AT
+                  CP230       96.   5.75       56.       16.       5.     8.94

          ROUTED TO
+                   P230        0.   0.00        0.        0.       0.     8.94
+                                                                                             1245.55       49.58

          HYDROGRAPH AT
+                    234       95.   4.42       24.        6.       2.     0.17

          2 COMBINED AT
+                  CP234       95.   4.42       24.        6.       2.     9.11

          ROUTED TO
+                   P234        0.   0.00        0.        0.       0.     9.11
+                                                                                             1251.83        9.00

          HYDROGRAPH AT
+                 FRM229       38.   6.08       18.        5.       2.     0.00

          ROUTED TO
+                229232       32.   7.58       17.        5.       2.     0.00
+                                                                                                0.52        7.58

          HYDROGRAPH AT
+                 FRM228       54.   4.67       15.        4.       1.     0.00

          ROUTED TO
+                228231       33.   6.58       14.        4.       1.     0.00
+                                                                                                0.45        6.58

          HYDROGRAPH AT
+                    231      249.   5.17       66.       17.       6.     1.00

          HYDROGRAPH AT
+                    236      216.   4.75       43.       11.       4.     0.52

          3 COMBINED AT
+                  CP231      409.   5.00      122.       31.      10.     1.52

          ROUTED TO
+                231232      369.   5.58      121.       31.      10.     1.52
+                                                                                                1.44        5.58

          HYDROGRAPH AT
+                    232      337.   4.75       94.       24.       8.     1.01

          DIVERSION TO
+                 232RET      323.   4.75       28.        7.       2.     1.01

          HYDROGRAPH AT
+                    232      337.   4.75       68.       17.       6.     1.01

          3 COMBINED AT
+                  CP232      577.   5.42      204.       53.      18.     2.53

          ROUTED TO
+                232233      484.   6.33      197.       53.      18.     2.53
+                                                                                                1.05        6.33

          HYDROGRAPH AT
+                    233      327.   4.67       87.       22.       7.     0.96

          DIVERSION TO
+                 233RET      327.   5.67       69.       17.       6.     0.96

          HYDROGRAPH AT
+                    233      135.   5.67       19.        5.       2.     0.96

          2 COMBINED AT
+                  CP233      545.   6.25      216.       58.      19.     3.49

          DIVERSION TO
+                 TP235N       20.   6.25       20.        8.       3.     3.49

          HYDROGRAPH AT
+                 TCP235      525.   6.25      196.       49.      16.     3.49

          ROUTED TO
+                233235      514.   6.42      196.       49.      16.     3.49
+                                                                                                0.87        6.42

          HYDROGRAPH AT
+                    235        9.   5.00        4.        1.       0.     0.04
```

```
          2 COMBINED AT
+                         CP235      518.   6.42       198.       50.       17.     3.53
          ROUTED TO
+                         P235S      512.   6.50       193.       50.       17.     3.53          1251.22        6.50
+
          HYDROGRAPH AT
+                         R235N       20.   5.33        20.        8.        3.     0.00
          3 COMBINED AT
+                         C253N      532.   6.50       213.       58.       19.    12.64
          ROUTED TO
+                         P235N        0.   0.00         0.        0.        0.    12.64          1244.92       61.17
+
          HYDROGRAPH AT
+                         DSS207       0.   0.00         0.        0.        0.     0.00
          HYDROGRAPH AT
+                         DSS212       5.   5.33         1.        0.        0.     0.00
          HYDROGRAPH AT
+                         DSS238     101.  10.08        61.       18.        6.     0.00
          HYDROGRAPH AT
+                         DSS227     201.   8.25       105.       31.       10.     0.00
          6 COMBINED AT
+                         CPCANL    1578.   4.75       611.      185.       62.    19.85


*** NORMAL END OF HEC-1 ***


     -----DSS---ZCLOSE Unit:  71,   File: C:\FCDMC\DDMSW\Models\K.DSS
              Pointer Utilization:  0.65
              Number of Records:    916
              File Size:   1436.7  Kbytes
              Percent Inactive:   0.0
```

```
1****************************************                                    ****************************************
 *                                      *                                    *                                      *
 *   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   29OCT07  TIME  10:09:10  *                                    *          (916) 756-1104              *
 *                                      *                                    *                                      *
 ****************************************                                    ****************************************


                                        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


          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   Project ID: GILBERT1_6HR - Major Basin: 01 - Return Period: 100 Years
           2          ID  CHANDLER/GILBERT FLOODPLAIN DELINEATION STUDY
           3          ID  PHASE I - NORTH EASTERN CANAL WATERSHED
                      *
           4          ID  NORTH OF UNION PACIFIC RAILROAD, EAST OF EASTERN CANAL
           5          ID  SOUTH OF BASELINE, WEST OF EAST MARICOPA FLOODWAY
                      *
           6          ID  PREPARED BY MDH AND YX, PROJECT ENGINEERING CONSULTANTS
                      *
           7          ID  MODEL INCLUDES PROPOSED SANTAN FREEWAY ALIGNMENT AND ASSOCIATED DRAINAGE
           8          ID  FACILITIES
                      *
           9          ID  5-MINUTE TIME INTERVAL - 100-YEAR, 6-HOUR STORM EVENT
                      *
          10          ID  TOTAL WATERSHED AREA = 14.17 SQ. MI
          11          ID  AERIAL REDUCTION WAS APPLIED USING PB RECORDS
          12          ID  THIS MODELING AREA WAS BROKEN INTO TWO REGIONS:
          13          ID  THE FIRST PB CARD REGION (NORTH OF SANTAN FREEWAY) INCLUDES
          14          ID  SUB-BASINS 103-118.  AREA = 9.92 SQ. MI
          15          ID  THE SECOND PB CARD REGION (SOUTH OF SANTAN FREEWAY) INCLUDES
          16          ID  SUB-BASINS 119-124.  AREA = 4.25 SQ. MI
          17          ID  GREEN AND AMPT INFILTRATION METHOD USED TO DETERMINE RAINFALL LOSSES
          18          ID  CLARK METHOD USED TO CREATE UNIT HYDROGRAPHS
          19          ID  NORMAL DEPTH METHOD USED FOR CHANNEL ROUTING
          20          ID  EASTERN MARICOPA COUNTY SOIL SURVEY USED FOR SOILS DATA
          21          ID  FLOOD CONTROL DISTRICT OF MARICOPA COUNTY'S GIS DATA, AERIAL PHOTOS DATED
          22          ID  DEC. 2002, AND DEVELOPMENTS AS DIRECTED BY CHANDLER AND GILBERT BY DATE OF
          23          ID  APRIL 2003 USED FOR LANDUSE DATA
          24          ID  DDMSW VERSION 2.1.0 PROGRAM USED TO CALCULATE RAINFALL, RAINFALL LOSSES
          25          ID  AND UNIT HYDROGRAPHS
                      *
          26          ID   DSS File: CGFDS.dss
                      *
                      *DIAGRAM
                      *  NORTHOF SANTAN FREEWA       Y
          27          IT       5 03MAR03    1200    2000
          28          IO       5

          29          KK  NOR102
          30          KM  THE RUNOFF HYDROGRAPH FROM NORTH OF BASELINE ALONG THE EASTERN CANNAL IS
          31          KM  RETRIEVED BY THE FOLLOWING "ZR" CARD.
          32          BA   0.001
                      * THIS AREA VALUE DOESN'T AFFECT THE MODELING RESULTS.
          33          IN      15
          34          PB   2.821
          35          PC       0   0.013   0.019   0.029   0.044   0.057   0.069   0.081   0.094   0.107
          36          PC   0.121   0.137   0.159   0.205   0.289   0.466   0.677   0.808   0.877   0.919
          37          PC   0.947   0.961   0.974   0.987       1
                      * THIS R AINFALLDEPTH IS NOT REALLY USED  IN THEMODELING PROCESSES. OTHE     R 2
                      * VALUES ARE USED FOR TH E AREASNORTH AN D SOUTHOF THE SANTAN FR  EEWAY.
          38          ZR     =QI  A=EAST B=BASE6  C=FLOW  E=5MIN
                      *
1                                                   HEC-1 INPUT                                                    PAGE  2

        LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10
```

```
 39          KK  OFF102   ROUTE   REACH
 40          KM  ROUTE THE RETRIEVED FLOW FROM NORTH OF BASELINE TO CP105
 41          RS       3    STOR       0
 42          RC   0.035   0.035   0.035    2650  0.0004   80.50
 43          RX   112.0   120.0   129.0   150.0   166.0   205.0   270.0   430.0
 44          RY    80.5    76.7    80.8    79.0    78.7    79.2    79.0    80.5
             * ***********************************************************************

 45          KK     102   BASIN
 46          KM  RUNOFF CALCULATION FOR SUB-BASIN 102
 47          KM  THE FOLLOWING PARAMETERS WERE DETERMINED FOR THIS SUB-BASIN:
 48          KM  L=1.05 MI   S=14.0 FT/MI   Kb=0.029    URBAN
 49          KM  THE FOLLOWING RAINFALL DEPTH (PB) IS USED FOR THE AREAS NORTH OF
 50          KM  THE SANTAN FREEWAY.
 51          KM  TOTAL POINT RAINFALL=3.00 IN  AREA REDUCED=9.92 SQM  REDUCTION FACTOR=0.940
 52          PB   2.821
 53          PC       0   0.013   0.019   0.029   0.044   0.057   0.069   0.081   0.094   0.107
 54          PC   0.121   0.137   0.159   0.205   0.289   0.466   0.677   0.808   0.877   0.919
 55          PC   0.947   0.961   0.974   0.987       1
 56          BA   0.293
 57          LG    0.22    0.16    9.70    0.06      28
 58          UC   0.663   0.490
 59          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
 60          UA     100
             *

 61          KK  102OUT
 62          KM  RETENTION WITHIN SUB-BASIN 102
 63          DT  102RET    5.19
 64          DI       0     100
 65          DQ       0     100
             *

 66          KK   CP102
 67          KM  COMBINE THE FLOW FROM NORTH OF BASELINE AND THE FLOW FROM SUB-BASIN 102
 68          HC       2
             *

 69          KK    P102
 70          KM  STORAGE ROUTING AT CP102, THE NE CORNER OF TAILWATER DITCH AND HOUSTON AVE
 71          KO       3
 72          RS       1    STOR       0
 73          SV       0   0.038    0.99    2.99    6.58   14.20   25.13   31.36      35   37.11
 74          SE  1276.7    1277    1278    1279    1280    1281    1282 1282.44 1282.63 1282.78
 75          SQ       0       0    4.04    14.5   32.26   58.34   93.92   112.0  128.31  156.14
             *

 76          KK  102EAS
 77          KM  THE TOTAL RUNOFF AT CP102 MAY BE PARTIALLY DIVERTED TO THE EASTERN CANAL.
 78          KO       3
 79          DT  EAS102
 80          DI  234.97  290.16  1950.4
 81          DQ       0    0.12   405.1
             *
```



```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 82          KK  102105ROUTE   REACH
 83          KM  ROUTE THE RETRIEVED FLOW FROM NORTH OF BASELINE TO CP105
 84          RS       3    STOR       0
 85          RC   0.035   0.035   0.035    2650  0.0004   80.50
 86          RX   112.0   120.0   129.0   150.0   166.0   205.0   270.0   430.0
 87          RY    80.5    76.7    80.8    79.0    78.7    79.2    79.0    80.5
             *

 88          KK     103   BASIN
 89          KM  RUNOFF CALCULATION FOR SUB-BASIN 103
 90          KM  THE FOLLOWING PARAMETERS WERE DETERMINED FOR THIS SUB-BASIN:
 91          KM  L=1.42 MI   S=18.3 FT/MI   Kb=0.025    URBAN
 92          BA   0.713
 93          LG    0.26    0.25    4.70    0.35      23
 94          UC   0.754   0.434
 95          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
 96          UA     100
             *

 97          KK  103OUT
 98          KM  RETENTION WITHIN SUB-BASIN 103
 99          DT  103RET    16.6
100          DI       0     100
101          DQ       0     100
             *

102          KK    D103
103          KM  DIVERT 40% OF THE TOTAL RUNOFF AT CP103 TO CP106
104          DT   TO106
105          DI       0     100
106          DQ       0      40
             *

107          KK  103104ROUTE   REACH
108          KM  ROUTE THE RUNOFF FROM CP103 TO CP104
109          RS       6    STOR       0
```

```
 110          RC   0.035   0.015   0.035    5280  0.0038    2.00
 111          RX     0.0     0.0    60.0    60.0   128.0   128.0   188.0   188.0
 112          RY     2.0     1.0     0.5     0.0     0.0     0.5     1.0     2.0
              *

 113          KK     104   BASIN
 114          KM  RUNOFF CALCULATION FOR SUB-BASIN 104
 115          KM  THE FOLLOWING PARAMETERS WERE DETERMINED FOR THIS SUB-BASIN:
 116          KM  L=1.67 MI   S=18.2 FT/MI   Kb=0.032    URBAN
 117          BA   0.984
 118          LG    0.32    0.23    6.20    0.21      19
 119          UC   0.950   0.532
 120          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
 121          UA     100
              *
1                                          HEC-1 INPUT                                          PAGE  4

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


 122          KK  104OUT
 123          KM  RETENTION WITHIN SUB-BASIN 104
 124          DT  104RET    70.5
 125          DI       0     100
 126          DQ       0     100
              *

 127          KK  NOR104
 128          KM  THE RUNOFF HYDROGRAPH FROM NORTH OF BASELINE ALONG HIGLEY ROAD IS
 129          KM  RETRIEVED BY THE FOLLOWING "ZR" CARD.
 130          BA   0.001
              * THIS AREA VALUE DOESN'T AFFECT THE MODELING RESULTS.
 131          ZR     =QI  A=EAST B=BEHR6  C=FLOW  E=5MIN
              *

 132          KK  OFF104ROUTE   REACH
 133          KM  ROUTE THE RETRIEVED FLOW FROM NORTH OF BASELINE TO CP105
 134          RS       6    STOR       0
 135          RC   0.035   0.015   0.035    5280  0.0013    2.00
 136          RX     0.0     0.0    60.0    60.0   128.0   128.0   188.0   188.0
 137          RY     2.0     1.0     0.5     0.0     0.0     0.5     1.0     2.0
              *

 138          KK   CP104
 139          KM  COMBINE THE WESTBOUND FLOW FROM CP103 AND THE FLOW FROM SUB-BASIN 104
 140          HC       3
              *

 141          KK    D104
 142          KM  DIVERT 50% OF THE TOTAL RUNOFF AT CP104 TO CP107
 143          DT   TO107
 144          DI       0     100
 145          DQ       0      50
              *

 146          KK  104105ROUTE   REACH
 147          KM  ROUTE THE RUNOFF FROM CP104 TO CP105
 148          RS       3    STOR       0
 149          RC   0.035   0.015   0.035    2640  0.0052    2.00
 150          RX     0.0     0.0    45.0    45.0   125.0   125.0   170.0   170.0
 151          RY     2.0     0.8     0.5     0.0     0.0     0.5     0.8     2.0
              *

 152          KK     105   BASIN
 153          KM  RUNOFF CALCULATION FOR SUB-BASIN 105
 154          KM  THE FOLLOWING PARAMETERS WERE DETERMINED FOR THIS SUB-BASIN:
 155          KM  L=1.07 MI   S=12.2 FT/MI   Kb=0.027    URBAN
 156          BA   0.282
 157          LG    0.28    0.15    7.60    0.10      16
 158          UC   0.692   0.534
 159          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
 160          UA     100
              *
1                                          HEC-1 INPUT                                          PAGE  5

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


 161          KK  105OUT
 162          KM  RETENTION WITHIN SUB-BASIN 105
 163          DT  105RET    14.7
 164          DI       0     100
 165          DQ       0     100
              *

 166          KK   CP105
 167          KM  COMBINE FLOW FROM CP102, CP104 AND SUB-BASIN 105
 168          HC       3
              *

 169          KK    P105
 170          KM  STORAGE ROUTING AT CP105
 171          KO       3
 172          RS       1    STOR       0
 173          SV       0   0.001    0.01    0.08    0.35     0.6    1.29       2    11.4    17.0
```

```
 174          SE  1274.4    1275    1276    1277    1278  1278.5    1279  1279.1    1280 1280.28
 175          SQ       0     2.5     3.5     3.8       4      72     134     144     145     146
              *

 176          KK  105EAS
 177          KM  THE TOTAL RUNOFF AT CP105 MAY BE PARTIALLY DIVERTED TO THE EASTERN CANAL.
 178          KO       3
 179          DT  EAS105
 180          DI   295.1   305.6   328.6
 181          DQ       0     6.3    25.0
              *

 182          KK  105108ROUTE   REACH
 183          KM  ROUTE THE RUNOFF FROM CP105 TO CP108
 184          RS       3    STOR       0
 185          RC   0.035   0.035   0.035    2650  0.0006   79.50
 186          RX   100.0   120.0   130.0   140.0   165.0   224.0   261.0   269.0
 187          RY    79.5    74.3    79.3    78.6    79.5    78.0    78.0    79.5
              *

 188          KK  FRM103
 189          KM  RETRIEVE THE FLOW DIVERTED FROM CP103 TO CP106.
 190          DR   TO106
              *

 191          KK  103106ROUTE   REACH
 192          KM  ROUTE THE RUNOFF FROM CP103 TO CP106
 193          RS       3    STOR       0
 194          RC   0.035   0.015   0.035    2640  0.0026    2.00
 195          RX     0.0     0.0    60.0    60.0   128.0   128.0   188.0   188.0
 196          RY     2.0     1.0     0.5     0.0     0.0     0.5     1.0     2.0
              *
1                                          HEC-1 INPUT                                          PAGE  6

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 197          KK     106   BASIN
 198          KM  RUNOFF CALCULATION FOR SUB-BASIN 106
 199          KM  THE FOLLOWING PARAMETERS WERE DETERMINED FOR THIS SUB-BASIN:
 200          KM  L=1.39 MI    S=20.9 FT/MI    Kb=0.028    URBAN
 201          BA   0.428
 202          LG    0.26    0.26    5.20    0.28      21
 203          UC   0.746   0.564
 204          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
 205          UA     100
              *

 206          KK  106OUT
 207          KM  RETENTION WITHIN SUB-BASIN 106
 208          DT  106RET    25.4
 209          DI       0     100
 210          DQ       0     100
              *

 211          KK   CP106
 212          KM  COMBINE THE SOUTHBOUND FLOW FROM CP103 AND THE FLOW FROM CP106
 213          HC       2
              *

 214          KK  106107ROUTE   REACH
 215          KM  ROUTE THE RUNOFF FROM CP106 TO CP107
 216          RS       5    STOR       0
 217          RC   0.035   0.015   0.035    5186  0.0034    2.00
 218          RX     0.0     0.0    60.0    60.0   140.0   140.0   200.0   200.0
 219          RY     2.0     1.0     0.5     0.0     0.0     0.5     1.0     2.0
              *

 220          KK    D104
 221          KM  RETRIEVE THE FLOW DIVERTED FROM CP104 TO CP107.
 222          DR   TO107
              *

 223          KK  104107ROUTE   REACH
 224          KM  ROUTE THE RUNOFF FROM CP104 TO CP107
 225          RS       3    STOR       0
 226          RC   0.035   0.015   0.035    2620  0.0018    2.00
 227          RX     0.0     0.0    45.0    45.0   125.0   125.0   170.0   170.0
 228          RY     2.0     0.8     0.5     0.0     0.0     0.5     0.8     2.0
              *

 229          KK     107   BASIN
 230          KM  RUNOFF CALCULATION FOR SUB-BASIN 107
 231          KM  THE FOLLOWING PARAMETERS WERE DETERMINED FOR THIS SUB-BASIN:
 232          KM  L=1.43 MI    S=16.5 FT/MI    Kb=0.026    URBAN
 233          BA   0.494
 234          LG    0.27    0.15    9.70    0.05      18
 235          UC   0.700   0.496
 236          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
 237          UA     100
              *
1                                          HEC-1 INPUT                                          PAGE  7

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10
```

```
238          KK  107OUT
239          KM  RETENTION WITHIN SUB-BASIN 107
240          DT  107RET    12.3
241          DI       0     100
242          DQ       0     100
             *

243          KK   CP107
244          KM  COMBINE THE SOUTHBOUND FLOW FROM CP104 AND FLOWS FROM CP106 AND SUB-BASIN 107
245          HC       3
             *

246          KK  107108ROUTE   REACH
247          KM  ROUTE THE RUNOFF FROM CP107 TO CP108
248          RS       3    STOR       0
249          RC   0.035   0.015   0.035    2867  0.0035    2.00
250          RX     0.0     0.0    60.0    60.0   140.0   140.0   200.0   200.0
251          RY     2.0   160.0     0.5     0.0     0.0     0.5     1.0     2.0
             *

252          KK     108   BASIN
253          KM  RUNOFF CALCULATION FOR SUB-BASIN 108
254          KM  THE NORTH HALF OF THE SUB-BASIN 108 (WATER TREATMENT PLANT AND THE BASIN)
255          KM  IS CONSIDERED NON-CONTRIBUTING.
256          KM  THE FOLLOWING PARAMETERS WERE DETERMINED FOR THIS SUB-BASIN:
257          KM  L=0.78 MI   S=15.5 FT/MI   Kb=0.028    URBAN
258          BA   0.133
259          LG    0.30    0.10   11.20    0.02       6
260          UC   0.521   0.464
261          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
262          UA     100
             *

263          KK  108OUT
264          KM  RETENTION WITHIN SUB-BASIN 108
265          DT  108RET    14.1
266          DI       0     100
267          DQ       0     100
             *

268          KK   CP108
269          KM  COMBINE FLOWS FROM CP105, CP107 AND SUB-BASIN 108
270          HC       3
             *

271          KK    P108
272          KM  STORAGE ROUTING AT CP108, NE CORNER OF TAILWATER DITCH AND OLNEY AVE.
273          KM  THE FLOW TO THE BASIN EAST OF WTP IS TAKEN INTO ACCOUNT.
274          KO       3
275          RS       1    STOR       0
276          SV       0   0.051    0.29    0.68    1.62    9.26   27.98      29    33.4      36
277          SE    1274    1275    1276    1277    1278    1279    1280 1280.05  1280.1  1280.2
278          SQ       0     4.2    14.8    32.7    58.9  103.84     326     370     420     535
             *
1                                          HEC-1 INPUT                                          PAGE  8

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

279          KK  108EAS
280          KM  THE TOTAL RUNOFF AT CP108 MAY BE PARTIALLY DIVERTED TO THE BASIN (EAST)
281          KM  A SMALL PORTION OF THE DIVERTED FLOW MAY GO TO THE EASTERN CANAL.
282          KO       3
283          DT  LOS108
284          DI  103.84     251     326     370     420     535
285          DQ       0       9      11      12      13      15
             *

286          KK  108111ROUTE   REACH
287          KM  ROUTE THE RUNOFF FROM CP108 TO CP111
288          RS       3    STOR       0
289          RC   0.035   0.035   0.035    2680  0.0005   82.50
290          RX   100.0   111.0   121.0   130.0   142.0   160.0   381.0   410.0
291          RY    83.7    83.3    76.5    82.6    82.7    76.1    76.5    82.5
             *

292          KK     109   BASIN
293          KM  RUNOFF CALCULATION FOR SUB-BASIN 109
294          KM  THE FOLLOWING PARAMETERS WERE DETERMINED FOR THIS SUB-BASIN:
295          KM  L=1.45 MI   S=20.1 FT/MI   Kb=0.043    NATURAL
296          BA   0.713
297          LG    0.50    0.21    6.40    0.23       0
298          UC   1.175   0.722
299          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
300          UA     100
             *

301          KK  109110ROUTE   REACH
302          KM  ROUTE THE RUNOFF FROM CP109 TO CP110
303          RS       5    STOR       0
304          RC   0.035   0.015   0.035    5200  0.0033    1.00
305          RX     0.0   700.0   711.0   711.0   751.0   765.0   776.0  1526.0
306          RY     1.0     0.0     0.5     0.0     1.0     0.7     0.0     1.1
             *
```

```
307          KK     110   BASIN
308          KM  RUNOFF CALCULATION FOR SUB-BASIN 110
309          KM  THE FOLLOWING PARAMETERS WERE DETERMINED FOR THIS SUB-BASIN:
310          KM  L=1.43 MI   S=12.0 FT/MI   Kb=0.026    URBAN
311          BA   0.487
312          LG    0.24    0.10   11.20    0.03      29
313          UC   0.767   0.553
314          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
315          UA     100
             *

316          KK  110OUT
317          KM  RETENTION WITHIN SUB-BASIN 110
318          DT  110RET    50.6
319          DI       0     100
320          DQ       0     100
             *
1                                          HEC-1 INPUT                                          PAGE  9

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

321          KK     116   BASIN
322          KM  RUNOFF CALCULATION FOR SUB-BASIN116
323          KM  THE FOLLOWING PARAMETERS WERE DETERMINED FOR THIS SUB-BASIN:
324          KM  L=1.65 MI   S=12.9 FT/MI   Kb=0.042    URBAN
325          BA   0.603
326          LG    0.43    0.15    9.70    0.07       7
327          UC   1.204   0.906
328          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
329          UA     100
             *

330          KK    D116
331          KM  DIVERT 80% OF THE TOTAL RUNOFF AT CP116 TO CP117
332          DT   TO117
333          DI       0     100
334          DQ       0      80
             *

335          KK  116112ROUTE   REACH
336          KM  ROUTE THE RUNOFF FROM CP116 TO CP112
337          RS       3    STOR       0
338          RC   0.035   0.015   0.035    2650  0.0004    1.20
339          RX     0.0   550.0   561.0   575.0   575.0   589.0   600.0  1150.0
340          RY     2.0     0.0     1.8     2.1     2.1     1.8     0.0     1.2
             *

341          KK     112   BASIN
342          KM  RUNOFF CALCULATION FOR SUB-BASIN 112
343          KM  THE FOLLOWING PARAMETERS WERE DETERMINED FOR THIS SUB-BASIN:
344          KM  L=1.72 MI   S=15.5 FT/MI   Kb=0.040    NATURAL
345          BA   1.280
346          LG    0.50    0.13   10.10    0.05       0
347          UC   1.096   0.549
348          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
349          UA     100
             *

350          KK   CP112
351          KM  COMBINE THE NORTHBOUND FLOW FROM CP116 AND THE FLOW FROM BUB-BASIN 112
352          HC       2
             *

353          KK  112113ROUTE   REACH
354          KM  ROUTE THE RUNOFF FROM CP112 TO CP113
355          RS       8    STOR       0
356          RC   0.035   0.015   0.035    7825  0.0021    1.00
357          RX     0.0  1500.0  1511.0  1524.9  1525.0  1539.0  1550.0  2550.0
358          RY     1.0     0.0     1.8     2.1     2.1     1.8     0.0     1.0
             *
1                                          HEC-1 INPUT                                          PAGE 10

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

359          KK     113   BASIN
360          KM  RUNOFF CALCULATION FOR SUB-BASIN 113
361          KM  THE FOLLOWING PARAMETERS WERE DETERMINED FOR THIS SUB-BASIN:
362          KM  L=1.95 MI   S=8.6 FT/MI   Kb=0.040    NATURAL
363          BA   0.985
364          LG    0.45    0.06   12.40    0.02       1
365          UC   1.417   0.937
366          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
367          UA     100
             *

368          KK   CP110
369          KM  COMBINE FLOWS FROM CP112 AND SUB-BASINS 109, 110 AND 113
370          HC       4
             *

371          KK  110111ROUTE   REACH
372          KM  ROUTE THE RUNOFF FROM CP110 TO CP111
```

```
 373          RS       4    STOR       0
 374          RC   0.035   0.015   0.035    3375  0.0037    1.00
 375          RX     0.0  1500.0  1511.0  1511.0  1545.0  1559.0  1570.0  2370.0
 376          RY     1.4     0.0     0.5     0.0     0.9     0.6     0.0     1.0
              *

 377          KK     111   BASIN
 378          KM  RUNOFF CALCULATION FOR SUB-BASIN 111
 379          KM  THE FOLLOWING PARAMETERS WERE DETERMINED FOR THIS SUB-BASIN:
 380          KM  L=1.01 MI   S=10.2 FT/MI   Kb=0.026    URBAN
 381          BA   0.291
 382          LG    0.25    0.15    9.70    0.06      30
 383          UC   0.679   0.491
 384          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
 385          UA     100
              *

 386          KK  111OUT
 387          KM  RETENTION WITHIN SUB-BASIN 111
 388          DT  111RET     9.3
 389          DI       0     100
 390          DQ       0     100
              *

 391          KK   CP111
 392          KM  COMBINE FLOWS FROM CP108, CP110 AND SUB-BASIN 111
 393          HC       3
              *

 394          KK    P111
 395          KM  STORAGE ROUTING AT CP111, NE CORNER OF TAILWATER DITCH AND ELLIOT ROAD
 396          KO       3
 397          RS       1    STOR       0
 398          SV       0    7.87   21.82   36.61   52.16   69.09   87.99   94.34  111.55   122.5
 399          SV     127     128   143.5
 400          SE  1271.7    1273    1274    1275    1276    1277    1278  1278.3    1279 1279.38
1                                          HEC-1 INPUT                                          PAGE 11

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 401          SE  1279.5 1279.55    1280
 402          SQ       0     0.4      10      30      58      95     127     148     324     789
 403          SQ     968    1066    2422
              *

 404          KK  111EAS
 405          KM  THE TOTAL RUNOFF AT CP111 IS PARTIALLY DIVERTED TO THE EASTERN CANAL.
 406          KO       3
 407          DT  EAS111
 408          DI     353    1431    2422
 409          DQ       0       0    60.7
              *

 410          KK   114EA
 411          KM  WATER LOSS TO THE EASTERN CANAL FROM THE TAIL WATER DITCH
 412          KO       3
 413          DT   EA114
 414          DI     260     300     400     500     600     700     800     900    1000    1267
 415          DQ       0    5.11   29.54   59.27   92.02  130.94  171.95  210.98  252.07  350.29
              *

 416          KK  111114ROUTE   REACH
 417          KM  ROUTE THE RUNOFF FROM CP111 TO CP114
 418          RS       3    STOR       0
 419          RC   0.035   0.035   0.035    2920  0.0007   77.00
 420          RX  1005.0  1043.0  1047.0  1070.0  1075.0  1230.0  1261.0  1530.0
 421          RY    77.0    70.7    70.7    75.7    75.2    75.5    75.2    77.0
              *

 422          KK     114   BASIN
 423          KM  RUNOFF CALCULATION FOR SUB-BASIN 114
 424          KM  THE FOLLOWING PARAMETERS WERE DETERMINED FOR THIS SUB-BASIN:
 425          KM  L=1.40 MI   S=8.2 FT/MI   Kb=0.037    URBAN
 426          BA   0.386
 427          LG    0.38    0.10   11.20    0.03       3
 428          UC   1.125   0.950
 429          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
 430          UA     100
              *

 431          KK  114OUT
 432          KM  RETENTION WITHIN SUB-BASIN 114
 433          DT  114RET     1.5
 434          DI       0     100
 435          DQ       0     100
              *

 436          KK   CP114
 437          KM  COMBINE FLOWS FROM CP111 AND SUB-BASIN 114
 438          HC       2
              *
1                                          HEC-1 INPUT                                          PAGE 12

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10
```

```
439          KK    P114
440          KM  STORAGE ROUTING AT CP114, NE CORNER OF TAILWATER DITCH AND MEQUITE ST
441          KO       3
442          RS       1    STOR       0
443          SV       0       0    0.05    0.21    0.58    1.24    2.49    3.48    11.1      32
444          SV   34.56      40
445          SE  1269.4    1270    1271    1272    1273    1274    1275  1275.2    1276  1276.9
446          SE    1277 1277.19
447          SQ       0    2.29    12.5    30.4    57.1    93.5  140.67  151.49  219.61  471.97
448          SQ  593.25  981.09
             *

449          KK  114EAS
450          KM  THE TOTAL RUNOFF AT CP114 MAY BE PARTIALLY DIVERTED TO THE EASTERN CANAL.
451          KO       3
452          DT  EAS114
453          DI     357     499     825    1277
454          DQ       0    27.6     168     482
             *

455          KK   115EA
456          KM  WATER LOSS TO THE EASTERN CANAL FROM THE TAIL WATER DITCH
457          KO       3
458          DT   EA115
459          DI     268     270     300     400     500     646
460          DQ       0    0.03    8.44   78.09  158.68  281.51
             *

461          KK  114115ROUTE   REACH
462          KM  ROUTE THE RUNOFF FROM CP114 TO CP115
463          RS       5    STOR       0
464          RC   0.035   0.035   0.035    2125  0.0009   73.00
465          RX   100.0   118.0   140.0   172.0   210.0   251.0   270.0   440.0
466          RY    75.5    68.5    74.2    75.5    70.5    68.5    68.5    73.0
             *

467          KK     115   BASIN
468          KM  RUNOFF CALCULATION FOR SUB-BASIN 115
469          KM  THE FOLLOWING PARAMETERS WERE DETERMINED FOR THIS SUB-BASIN:
470          KM  L=1.24 MI   S=8.8 FT/MI   Kb=0.040    URBAN
471          BA   0.468
472          LG    0.37    0.04   12.40    0.02      10
473          UC   1.038   0.706
474          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
475          UA     100
             *

476          KK  115OUT
477          KM  RETENTION WITHIN SUB-BASIN 115
478          DT  115RET     8.7
479          DI       0     100
480          DQ       0     100
             *
1                                          HEC-1 INPUT                                          PAGE 13

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

481          KK   CP115
482          KM  COMBINE FLOWS FROM CP114 AND SUB-BASIN 115
483          HC       2
             *

484          KK    P115
485          KM  STORAGE ROUTING AT CP115, NE CORNER OF TAILWATER DITCH AND WARNER RD
486          KO       3
487          RS       1    STOR       0
488          SV   0.076   0.133   1.135    3.42    7.13   13.64   26.17   45.22   72.71   85.47
489          SV      98  115.02  179.37
490          SE    1267    1268    1269    1270    1271    1272    1273    1274    1275 1275.35
491          SE  1275.6    1276    1277
492          SQ       0       3      20      55     102     152     195     230     275     372
493          SQ     626    1400    6005
             *

494          KK  115EAS
495          KM  THE TOTAL RUNOFF AT CP115 MAY BE PARTIALLY DIVERTED TO THE EASTERN CANAL.
496          KO       3
497          DT  EAS115
498          DI    1584    1725
499          DQ       0    1.14
             *

500          KK  115118ROUTE   REACH
501          KM  ROUTE THE RUNOFF FROM CP115 TO CP118
502          RS       5    STOR       0
503          RC   0.035   0.035   0.035    4800  0.0009   71.60
504          RX   100.0   132.0   150.0   161.0   165.0   182.0   400.0   426.0
505          RY    71.6    71.3    66.5    69.5    71.2    68.8    69.2    72.8
             *

506          KK    D116
507          KM  RETRIEVE THE FLOW DIVERTED FROM CP116 TO CP117.
508          DR   TO117
```

```
                 *

 509             KK  116117ROUTE   REACH
 510             RS       5    STOR       0
 511             RC   0.035   0.015   0.035    5230  0.0032    0.50
 512             RX     0.0   875.0   886.0   900.0   900.0   914.0   925.0  1625.0
 513             RY     0.5     0.0     1.8     2.1     2.1     1.8     0.0     0.5
                 *

 514             KK     117   BASIN
 515             KM  RUNOFF CALCULATION FOR SUB-BASIN 117
 516             KM  THE FOLLOWING PARAMETERS WERE DETERMINED FOR THIS SUB-BASIN:
 517             KM  L=1.46 MI   S=10.3 FT/MI   Kb=0.046    NATURAL
 518             BA   0.483
 519             LG    0.50    0.05   12.40    0.02       0
 520             UC   1.196   0.925
 521             UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 522             UA     100
                 *
1                                                HEC-1 INPUT                                          PAGE 14

LINE             ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 523             KK   CP117
 524             KM  COMBINE THE WESTBOUND FLOW FROM CP116 AND THE FLOW FROM SUB-BASIN 117
 525             HC       2
                 *

 526             KK  117118ROUTE   REACH
 527             KM  ROUTE THE RUNOFF FROM CP117 TO CP118
 528             RS      10    STOR       0
 529             RC   0.035   0.015   0.035    9920  0.0021    0.90
 530             RX     0.0  1050.0  1061.0  1075.0  1075.0  1089.0  1100.0  1650.0
 531             RY     0.9     0.0     1.8     2.1     2.1     1.8     0.0     0.9
                 *

 532             KK     118   BASIN
 533             KM  RUNOFF CALCULATION FOR SUB-BASIN 118
 534             KM  THE FOLLOWING PARAMETERS WERE DETERMINED FOR THIS SUB-BASIN:
 535             KM  L=2.22 MI   S=10.0 FT/MI   Kb=0.030    URBAN
 536             BA   0.899
 537             LG    0.29    0.08   11.20    0.03      19
 538             UC   1.188   0.901
 539             UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
 540             UA     100
                 *

 541             KK  118OUT
 542             KM  RETENTION WITHIN SUB-BASIN 118
 543             DT  118RET    56.1
 544             DI       0     100
 545             DQ       0     100
                 *

 546             KK   CP118CROSS RO AD PARK
 547             KM  COMBINE FLOWS FROM CP115, CP117 AND SUB BASIN 118
 548             HC       3
                 *

 549             KK    P118
 550             KM  STORAGE ROUTING AT CP118 (THE CROSS ROAD PARK)
 551             KO       3
 552             RS       1    STOR       0
 553             SV       0   177.3   200.1   223.8   248.6   276.1   307.5   389.1     418  450.15
 554             SE  1247.8    1263    1264    1265    1266    1267    1268    1270  1270.6 1271.25
 555             SQ       0       0       4      15      35      59      85     124     134     143
                 *

 556             KK   XRDPKCROSS RO AD PARKSOUTHBOUND OUTFLOW AT CP     118
 557             KM  THE TOTAL RUNOFF AT CP118 MAY BE PARTIALLY DIVERTED TO THE EASTERN CANAL.
 558             KO       3
 559             DT  EAS118
 560             DI  154.93  195.50  199.68  213.60  255.93  327.68  426.38
 561             DQ       0    0.03    2.51   14.74    55.4  125.49  222.55
 562             ZW  A=EAST  B=XRD6  C=FLOW  E=5MIN
                 *
                 * **************THIS BLOCK WRITES OVERBANK HYDROGRAPHS TO DSS FILES*************
1                                                HEC-1 INPUT                                          PAGE 15

LINE             ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 563             KK  DSS102
 564             KM  RETRIEVE THE BANK OVERFLOW AT CP102.
 565             DR  EAS102
 566             ZW  A=EAST B=HOUS6  C=FLOW  E=5MIN

 567             KK  RTR108
 568             KM  RETRIEVE THE BANK OVERFLOW AT CP108 AND THE FLOW TO THE BASIN.
 569             DR  LOS108

 570             KK  EAS108
 571             KM  SEPARATE THE FLOW TO THE BASIN AND OVERBANK FLOW
 572             DT  TOBASN
```

```
573          DI     3.1     8.9    11.2    15.7    23.1
574          DQ     3.1     8.9    10.8    12.9    15.2
575          ZW  A=EAST B=108_6  C=FLOW  E=5MIN

576          KK  DSS111
577          KM  RETRIEVE THE BANK OVERFLOW AT CP111.
578          DR  EAS111
579          ZW  A=EAST B=111_6  C=FLOW  E=5MIN

580          KK  DSS114
581          KM  RETRIEVE THE BANK OVERFLOW AT CP114.
582          DR  EAS114
583          ZW  A=EAST B=114_6  C=FLOW  E=5MIN

584          KK  RTR114
585          KM  RETRIEVE THE BANK OVERFLOW BETWEEN P111 AND P114
586          DR   EA114
587          ZW  A=EAST B=U1146  C=FLOW  E=5MIN

588          KK  RTR115
589          KM  RETRIEVE THE BANK OVERFLOW BETWEEN P114 AND P115
590          DR   EA115
591          ZW  A=EAST B=U1156  C=FLOW  E=5MIN

592          KK  OVERBK
593          HC       7
             * *********************END OF WRITING OVERBANK DSS FILES************************
             * SOUTHOF SANTAN  FREEWA       Y
             * ****************************************************************************

594          KK     122   BASIN
595          KM  RUNOFF CALCULATION FOR SUB-BASIN 122
596          KM  THE FOLLOWING PARAMETERS WERE DETERMINED FOR THIS SUB-BASIN:
597          KM  L=1.87 MI   S=9.6 FT/MI   Kb=0.036    URBAN
598          KM  THE FOLLOWING RAINFALL DEPTH (PB) IS USED FOR THE AREAS SOUTH OF THE FREEWAY.
599          KM  TOTAL POINT RAINFALL=3.00 IN  AREA REDUCED=4.25 SQM  REDUCTION FACTOR=0.965
600          PB   2.895
601          PC       0    0.01   0.017   0.026   0.037   0.047   0.057   0.066   0.076   0.086
602          PC   0.098   0.112   0.133   0.177   0.264   0.456   0.688   0.827   0.892   0.932
603          PC   0.949   0.962   0.975   0.988       1
604          BA   1.065
605          LG    0.38    0.15    7.30    0.15      14
```



```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

606          UC   1.400   0.856
607          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
608          UA     100
             *

609          KK  122OUT
610          KM  RETENTION WITHIN SUB-BASIN 122
611          DT  122RET    26.9
612          DI       0     100
613          DQ       0     100
             *

614          KK    D122
615          KM  DIVERT 40% OF THE TOTAL RUNOFF AT CP122 TO CP123
616          DT   TO123
617          DI       0     100
618          DQ       0      40
             *

619          KK  122119ROUTE   REACH
620          KM  ROUTE THE RUNOFF FROM CP122 TO CP119
621          RS       3    STOR       0
622          RC   0.035   0.015   0.035    2190  0.0008    2.00
623          RX     0.0     0.0    60.0    60.0   128.0   128.0   188.0   188.0
624          RY     2.0     1.0     0.5     0.0     0.0     0.5     1.0     2.0
             *

625          KK     119   BASIN
626          KM  RUNOFF CALCULATION FOR SUB-BASIN 119
627          KM  THE FOLLOWING PARAMETERS WERE DETERMINED FOR THIS SUB-BASIN:
628          KM  L=1.58 MI   S=13.1 FT/MI   Kb=0.039    NATURAL
629          BA   0.489
630          LG    0.39    0.05   12.40    0.02      13
631          UC   1.021   0.821
632          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
633          UA     100
             *

634          KK  119OUT
635          KM  RETENTION WITHIN SUB-BASIN 119
636          DT  119RET     9.3
637          DI       0     100
638          DQ       0     100
             *

639          KK   CP119
640          KM  COMBINE THE NORTHBOUND FLOW FROM CP122 AND THE FLOW FROM SUB-BASIN 119
641          KM  FLOW ENTERS SANTAN CHANNEL
642          HC       2
```

```
                    *
1                                          HEC-1 INPUT                                                    PAGE 17

LINE                ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 643                KK  FRM122
 644                KM  RETRIEVE THE FLOW DIVERTED FROM CP122 TO CP123.
 645                DR   TO123
                    *

 646                KK  122123ROUTE   REACH
 647                KM  ROUTE THE RUNOFF FROM CP122 TO CP123
 648                RS       5    STOR       0
 649                RC   0.035   0.015   0.035    5250  0.0026    1.00
 650                RX     0.0   300.0   311.0   325.0   325.0   339.0   350.0   750.0
 651                RY     1.0     0.0     1.8     2.1     2.1     1.8     0.0     1.3
                    *

 652                KK     124   BASIN
 653                KM  RUNOFF CALCULATION FOR SUB-BASIN 124
 654                KM  THE FOLLOWING PARAMETERS WERE DETERMINED FOR THIS SUB-BASIN:
 655                KM  L=1.32 MI   S=13.7 FT/MI   Kb=0.044    NATURAL
 656                BA   0.656
 657                LG    0.49    0.25    4.80    0.45       2
 658                UC   1.500   0.921
 659                UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 660                UA     100
                    *

 661                KK    P124
 662                KM  STORAGE ROUTING AT CP124.  CROSS SECTION OF THE RAILROAD AND WILLIAMS FIELD RD
 663                KO       3
 664                RS       1    STOR       0
 665                SV       0    0.11    0.83    4.09    12.5   12.72   13.81   15.09   16.59
 666                SE    1299    1300    1301    1302    1303 1303.01  1303.1  1303.2  1303.3
 667                SQ       0       0       0       0       0       0   10.72   84.56  211.66
                    *

 668                KK  124123ROUTE   REACH
 669                KM  ROUTE THE RUNOFF FROM CP124 TO CP123
 670                RS       6    STOR       0
 671                RC   0.035   0.015   0.035    6100  0.0016    0.80
 672                RX     0.0   550.0   561.0   575.0   575.0   589.0   600.0  1150.0
 673                RY     1.3     0.0     1.8     2.1     2.1     1.8     0.0     0.8
                    *

 674                KK     123   BASIN
 675                KM  RUNOFF CALCULATION FOR SUB-BASIN 123
 676                KM  THE FOLLOWING PARAMETERS WERE DETERMINED FOR THIS SUB-BASIN:
 677                KM  L=1.63 MI   S=9.7 FT/MI   Kb=0.041    NATURAL
 678                BA   0.956
 679                LG    0.46    0.15    7.30    0.16       4
 680                UC   1.483   0.869
 681                UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 682                UA     100
                    *
1                                          HEC-1 INPUT                                                    PAGE 18

LINE                ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 683                KK   CP123
 684                KM  COMBINE WESTBOUND FLOW FROM CP122 AND FLOWS FROM SUB-BASINS 123 AND 124
 685                HC       3
                    *

 686                KK    D123
 687                KM  DIVERT 60% OF THE TOTAL RUNOFF AT CP123 TO CP121
 688                DT   TO121
 689                DI       0     100
 690                DQ       0      60
                    *

 691                KK  123120ROUTE   REACH
 692                KM  ROUTE THE RUNOFF FROM CP123 TO CP120
 693                RS       2    STOR       0
 694                RC   0.035   0.015   0.035    2010  0.0010    1.00
 695                RX     0.0   450.0   461.0   475.0   475.0   489.0   500.0  1700.0
 696                RY     2.0     0.0     1.8     2.1     2.1     1.8     0.0     1.0
                    *

 697                KK     120   BASIN
 698                KM  RUNOFF CALCULATION FOR SUB-BASIN 120
 699                KM  THE FOLLOWING PARAMETERS WERE DETERMINED FOR THIS SUB-BASIN:
 700                KM  L=1.33 MI   S=10.7 FT/MI   Kb=0.043    NATURAL
 701                BA   0.412
 702                LG    0.42    0.11   11.20    0.03       4
 703                UC   1.088   0.846
 704                UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 705                UA     100
                    *

 706                KK  120OUT
 707                KM  RETENTION WITHIN SUB-BASIN 120
```

```
 708          DT  120RET    12.7
 709          DI       0     100
 710          DQ       0     100
              *

 711          KK   CP120
 712          KM  COMBINE NORTHBOUND FLOW FROM CP123 AND FLOW FROM SUB-BASIN 120
 713          KM  FLOW ENTERS SANTAN CHANNEL
 714          HC       2
              *

 715          KK     121   BASIN
 716          KM  RUNOFF CALCULATION FOR SUB-BASIN 121
 717          KM  THE FOLLOWING PARAMETERS WERE DETERMINED FOR THIS SUB-BASIN:
 718          KM  L=1.16 MI   S=15.3 FT/MI   Kb=0.042    NATURAL
 719          BA   0.672
 720          LG    0.45    0.13   10.10    0.05       5
 721          UC   0.875   0.451
 722          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 723          UA     100
              *
1                                                HEC-1 INPUT                                          PAGE 19

     LINE     ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


 724          KK  121OUT
 725          KM  RETENTION WITHIN SUB-BASIN 121
 726          DT  121RET    39.1
 727          DI       0     100
 728          DQ       0     100
              *

 729          KK  FRM123
 730          KM  RETRIEVE THE FLOW DIVERTED FROM CP123 TO CP121.
 731          DR   TO121
              *

 732          KK  123121ROUTE   REACH
 733          KM  ROUTE THE RUNOFF FROM CP123 TO CP121
 734          RS       5    STOR       0
 735          RC   0.035   0.015   0.035    4910  0.0030    0.75
 736          RX     0.0  1050.0  1061.0  1075.0  1075.0  1089.0  1100.0  1388.0
 737          RY     0.8     0.0     1.8     2.1     2.1     1.8     0.0     1.0
              *

 738          KK   CP121
 739          KM  COMBINE THE WESTBOUND FLOW FROM CP123 AND FLOW FROM SUB-BASIN 121
 740          ZW  A=SANT  B=RAY6  C=FLOW  E=5MIN
 741          HC       2
              *

 742          KK   CPSAN
 743          KM  COMBINE FLOW INTO SANTAN CHANNEL FROM CP119, CP120, AND CP121
 744          KM  (FLOWS COMBINED ONLY, NOT ROUTED)
 745          HC       3
              *
 746          ZZ
1
              SCHEMATIC DIAGRAM OF STREAM NETWORK
 INPUT
  LINE     (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

   NO.     (.) CONNECTOR        (<---) RETURN OF DIVERTED OR PUMPED FLOW

   29      NOR102
                V
                V
   39      OFF102
                .
                .
   45           .         102
                .           .
                .           .
   63           .           .-------> 102RET
   61           .      102OUT
                .           .
                .           .
   66       CP102............
                V
                V
   69        P102
                .
                .
   79           .-------> EAS102
   76      102EAS
                V
                V
   82      102105
                .
                .
   88           .         103
                .           .
                .           .
   99           .           .-------> 103RET
```

```
 97          .      103OUT
             .           .
             .           .
104          .           .-------->   TO106
102          .        D103
             .           V
             .           V
107          .      103104
             .           .
             .           .
113          .           .         104
             .           .           .
             .           .           .
124          .           .           .-------->  104RET
122          .           .      104OUT
             .           .           .
             .           .           .
127          .           .           .      NOR104
             .           .           .           V
             .           .           .           V
132          .           .           .      OFF104
             .           .           .           .
             .           .           .           .
138          .       CP104........................
             .           .
             .           .
143          .           .-------->   TO107
141          .        D104
             .           V
             .           V
146          .      104105
             .           .
             .           .
152          .           .         105
             .           .           .
             .           .           .
163          .           .           .-------->  105RET
161          .           .      105OUT
             .           .           .
             .           .           .
166       CP105........................
             V
             V
169        P105
             .
             .
179          .-------->  EAS105
176      105EAS
             V
             V
182      105108
             .
             .
190          .           .<--------   TO106
188          .      FRM103
             .           V
             .           V
191          .      103106
             .           .
             .           .
197          .           .         106
             .           .           .
             .           .           .
208          .           .           .-------->  106RET
206          .           .      106OUT
             .           .           .
             .           .           .
211          .       CP106............
             .           V
             .           V
214          .      106107
             .           .
             .           .
222          .           .           .<--------   TO107
220          .           .        D104
             .           .           V
             .           .           V
223          .           .      104107
             .           .           .
             .           .           .
229          .           .           .         107
             .           .           .           .
             .           .           .           .
240          .           .           .           .-------->  107RET
238          .           .           .      107OUT
             .           .           .           .
             .           .           .           .
243          .       CP107........................
             .           V
             .           V
246          .      107108
             .           .
             .           .
252          .           .         108
             .           .           .
```

```
                .          .          .
265             .          .          .-------> 108RET
263             .          .     108OUT
                .          .          .
                .          .          .
268         CP108......................
                V
                V
271          P108
                .
                .
283             .-------> LOS108
279        108EAS
                V
                V
286        108111
                .
                .
292             .        109
                .          V
                .          V
301             .     109110
                .          .
                .          .
307             .          .        110
                .          .          .
                .          .          .
318             .          .          .-------> 110RET
316             .          .     110OUT
                .          .          .
                .          .          .
321             .          .          .        116
                .          .          .          .
                .          .          .          .
332             .          .          .          .------->  TO117
330             .          .          .       D116
                .          .          .          V
                .          .          .          V
335             .          .          .     116112
                .          .          .          .
                .          .          .          .
341             .          .          .          .        112
                .          .          .          .          .
                .          .          .          .          .
350             .          .          .      CP112...........
                .          .          .          V
                .          .          .          V
353             .          .          .     112113
                .          .          .          .
                .          .          .          .
359             .          .          .          .        113
                .          .          .          .          .
                .          .          .          .          .
368             .      CP110...................................
                .          V
                .          V
371             .     110111
                .          .
                .          .
377             .          .        111
                .          .          .
                .          .          .
388             .          .          .-------> 111RET
386             .          .     111OUT
                .          .          .
                .          .          .
391         CP111......................
                V
                V
394          P111
                .
                .
407             .-------> EAS111
404        111EAS
                .
                .
413             .------->  EA114
410         114EA
                V
                V
416        111114
                .
                .
422             .        114
                .          .
                .          .
433             .          .-------> 114RET
431             .     114OUT
                .          .
                .          .
436         CP114...........
                V
                V
439          P114
                .
```

```
                .
452             .-------> EAS114
449        114EAS
                .
                .
458             .------->  EA115
455         115EA
                V
                V
461        114115
                .
                .
467             .        115
                .          .
                .          .
478             .          .-------> 115RET
476             .     115OUT
                .          .
                .          .
481         CP115............
                V
                V
484          P115
                .
                .
497             .-------> EAS115
494        115EAS
                V
                V
500        115118
                .
                .
508             .          .<-------   TO117
506             .       D116
                .          V
                .          V
509             .     116117
                .          .
                .          .
514             .          .        117
                .          .          .
                .          .          .
523             .      CP117............
                .          V
                .          V
526             .     117118
                .          .
                .          .
532             .          .        118
                .          .          .
                .          .          .
543             .          .          .-------> 118RET
541             .          .     118OUT
                .          .          .
                .          .          .
546         CP118........................
                V
                V
549          P118
                .
                .
559             .-------> EAS118
556         XRDPK
                .
                .
565             .          .<-------  EAS102
563             .     DSS102
                .          .
                .          .
569             .          .          .<-------  LOS108
567             .          .     RTR108
                .          .          .
                .          .          .
572             .          .          .-------> TOBASN
570             .          .     EAS108
                .          .          .
                .          .          .
578             .          .          .          .<-------  EAS111
576             .          .          .     DSS111
                .          .          .          .
                .          .          .          .
582             .          .          .          .          .<-------  EAS114
580             .          .          .          .     DSS114
                .          .          .          .          .
                .          .          .          .          .
586             .          .          .          .          .          .<-------   EA114
584             .          .          .          .          .     RTR114
                .          .          .          .          .          .
                .          .          .          .          .          .
590             .          .          .          .          .          .          .<-------   EA115
588             .          .          .          .          .          .     RTR115
                .          .          .          .          .          .          .
                .          .          .          .          .          .          .
592        OVERBK.......................................................................
                .
```

```
                .
594             .         122
                .           .
                .           .
611             .           .-------> 122RET
609             .      122OUT
                .           .
                .           .
616             .           .------->  TO123
614             .        D122
                .          V
                .          V
619             .      122119
                .           .
                .           .
625             .           .         119
                .           .           .
                .           .           .
636             .           .           .-------> 119RET
634             .           .      119OUT
                .           .           .
                .           .           .
639             .       CP119............
                .           .
                .           .
645             .           .           .<-------  TO123
643             .           .      FRM122
                .           .           V
                .           .           V
646             .           .      122123
                .           .           .
                .           .           .
652             .           .           .         124
                .           .           .           V
                .           .           .           V
661             .           .           .        P124
                .           .           .           V
                .           .           .           V
668             .           .           .      124123
                .           .           .           .
                .           .           .           .
674             .           .           .           .         123
                .           .           .           .           .
                .           .           .           .           .
683             .           .       CP123........................
                .           .           .
                .           .           .
688             .           .           .------->  TO121
686             .           .        D123
                .           .           V
                .           .           V
691             .           .      123120
                .           .           .
                .           .           .
697             .           .           .         120
                .           .           .           .
                .           .           .           .
708             .           .           .           .-------> 120RET
706             .           .           .      120OUT
                .           .           .           .
                .           .           .           .
711             .           .       CP120............
                .           .           .
                .           .           .
715             .           .           .         121
                .           .           .           .
                .           .           .           .
726             .           .           .           .-------> 121RET
724             .           .           .      121OUT
                .           .           .           .
                .           .           .           .
731             .           .           .           .           .<-------  TO121
729             .           .           .           .      FRM123
                .           .           .           .           V
                .           .           .           .           V
732             .           .           .           .      123121
                .           .           .           .           .
                .           .           .           .           .
738             .           .           .       CP121............
                .           .           .           .
                .           .           .           .
742             .       CPSAN........................
```

```
(***) RUNOFF ALSO COMPUTED AT THIS LOCATION
1****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*               JUN   1998             *
*            VERSION 4.1               *
*                                      *
*  RUN DATE   29OCT07  TIME  10:09:10  *
*                                      *
****************************************
```

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

```
                    Project ID: GILBERT1_6HR - Major Basin: 01 - Return Period: 100 Years
                   CHANDLER/GILBERT FLOODPLAIN DELINEATION STUDY
                   PHASE I - NORTH EASTERN CANAL WATERSHED
                   NORTH OF UNION PACIFIC RAILROAD, EAST OF EASTERN CANAL
                   SOUTH OF BASELINE, WEST OF EAST MARICOPA FLOODWAY
                   PREPARED BY MDH AND YX, PROJECT ENGINEERING CONSULTANTS
                   MODEL INCLUDES PROPOSED SANTAN FREEWAY ALIGNMENT AND ASSOCIATED DRAINAGE
                   FACILITIES
                   5-MINUTE TIME INTERVAL - 100-YEAR, 6-HOUR STORM EVENT
                   TOTAL WATERSHED AREA = 14.17 SQ. MI
                   AERIAL REDUCTION WAS APPLIED USING PB RECORDS
                   THIS MODELING AREA WAS BROKEN INTO TWO REGIONS:
                   THE FIRST PB CARD REGION (NORTH OF SANTAN FREEWAY) INCLUDES
                   SUB-BASINS 103-118.  AREA = 9.92 SQ. MI
                   THE SECOND PB CARD REGION (SOUTH OF SANTAN FREEWAY) INCLUDES
                   SUB-BASINS 119-124.  AREA = 4.25 SQ. MI
                   GREEN AND AMPT INFILTRATION METHOD USED TO DETERMINE RAINFALL LOSSES
                   CLARK METHOD USED TO CREATE UNIT HYDROGRAPHS
                   NORMAL DEPTH METHOD USED FOR CHANNEL ROUTING
                   EASTERN MARICOPA COUNTY SOIL SURVEY USED FOR SOILS DATA
                   FLOOD CONTROL DISTRICT OF MARICOPA COUNTY'S GIS DATA, AERIAL PHOTOS DATED
                   DEC. 2002, AND DEVELOPMENTS AS DIRECTED BY CHANDLER AND GILBERT BY DATE OF
                   APRIL 2003 USED FOR LANDUSE DATA
                   DDMSW VERSION 2.1.0 PROGRAM USED TO CALCULATE RAINFALL, RAINFALL LOSSES
                   AND UNIT HYDROGRAPHS
                    DSS File: CGFDS.dss

 28 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      3MAR 3  STARTING DATE
                      ITIME        1200  STARTING TIME
                         NQ        2000  NUMBER OF HYDROGRAPH ORDINATES
                     NDDATE     10MAR 3  ENDING DATE
                     NDTIME        1035  ENDING TIME
                     ICENT          19  CENTURY MARK

                  COMPUTATION INTERVAL     .08 HOURS
                       TOTAL TIME BASE  166.58 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
   -----DSS---ZOPEN:  Existing File Opened,  File: CGFDSP1N-6.DSS
                      Unit:  71;  DSS Version: 6-JG
        ----- Entering ZRRTSX for unit 71 -----
Pathname: /EAST/BASE6/FLOW//5MIN//
        Time Window set.  Interval:     5  Number of data values:      1
        Starting date and time:  Mar 3, 1903  1200  (   1157  720)
        Ending   date and time:  Mar 3, 1903  1200  (   1157  720)
        Input time offset:      0
        After ZRDINF, Record found: T
        Pathname: /EAST/BASE6/FLOW/03MAR1903/5MIN//
        Number of actual data:  288  Header length:   0
        Compression:   0  Quality:   0
-----DSS--- ZREAD Unit  71; Vers.    5:  /EAST/BASE6/FLOW/03MAR1903/5MIN//
      ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
        NSTART:    1   NVALS:    1    JULS:    1157  ISTIME:   720
        NLDATA:  288   JULSD:    1157
        JULS: 03MAR03       JULSD: 03MAR03
        Quality Read: F,  Quality Requested: F
        ---ZRRTSB Calculations:  NPOS:  144  NDATA:  288  NREAD:    1  ILIM:    1
      ----- Exiting ZRRTS, Number of data values:      1,  Status:  0
        Offset:       0,  Units: CFS     ,  Type:INST-VAL
        ----- Entering ZRRTSX for unit 71 -----
Pathname: /EAST/BASE6/FLOW//5MIN//
        Time Window set.  Interval:     5  Number of data values:    744
        Starting date and time:  Mar 3, 1903  1200  (   1157  720)
        Ending   date and time:  Mar 6, 1903  0155  (   1160  115)
        Input time offset:      0
        After ZRDINF, Record found: T
        Pathname: /EAST/BASE6/FLOW/03MAR1903/5MIN//
        Number of actual data:  288  Header length:   0
        Compression:   0  Quality:   0
-----DSS--- ZREAD Unit  71; Vers.    5:  /EAST/BASE6/FLOW/03MAR1903/5MIN//
      ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
        NSTART:    1   NVALS:  744    JULS:    1157  ISTIME:   720
        NLDATA:  288   JULSD:    1157
        JULS: 03MAR03       JULSD: 03MAR03
        Quality Read: F,  Quality Requested: F
        ---ZRRTSB Calculations:  NPOS:  144  NDATA:  288  NREAD:  145  ILIM:  145
        After ZRDINF, Record found: T
        Pathname: /EAST/BASE6/FLOW/04MAR1903/5MIN//
```

```
        Number of actual data:  288  Header length:   0
        Compression:   0  Quality:   0
-----DSS--- ZREAD Unit  71; Vers.    5:  /EAST/BASE6/FLOW/04MAR1903/5MIN//
      ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
        NSTART:  146   NVALS:  744    JULS:    1157  ISTIME:   720
        NLDATA:  288   JULSD:    1158
        JULS: 03MAR03       JULSD: 04MAR03
        Quality Read: F,  Quality Requested: F
        ---ZRRTSB Calculations:  NPOS:    1  NDATA:  288  NREAD:  288  ILIM:  433
        After ZRDINF, Record found: T
        Pathname: /EAST/BASE6/FLOW/05MAR1903/5MIN//
        Number of actual data:  288  Header length:   0
        Compression:   0  Quality:   0
-----DSS--- ZREAD Unit  71; Vers.    5:  /EAST/BASE6/FLOW/05MAR1903/5MIN//
      ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
        NSTART:  434   NVALS:  744    JULS:    1157  ISTIME:   720
        NLDATA:  288   JULSD:    1159
        JULS: 03MAR03       JULSD: 05MAR03
        Quality Read: F,  Quality Requested: F
        ---ZRRTSB Calculations:  NPOS:    1  NDATA:  288  NREAD:  288  ILIM:  721
        After ZRDINF, Record found: T
        Pathname: /EAST/BASE6/FLOW/06MAR1903/5MIN//
        Number of actual data:  288  Header length:   0
        Compression:   0  Quality:   0
-----DSS--- ZREAD Unit  71; Vers.    5:  /EAST/BASE6/FLOW/06MAR1903/5MIN//
      ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
        NSTART:  722   NVALS:  744    JULS:    1157  ISTIME:   720
        NLDATA:  288   JULSD:    1160
        JULS: 03MAR03       JULSD: 06MAR03
        Quality Read: F,  Quality Requested: F
        ---ZRRTSB Calculations:  NPOS:    1  NDATA:  288  NREAD:   23  ILIM:  744
      ----- Exiting ZRRTS, Number of data values:    744,  Status:  0
        Offset:       0,  Units: CFS     ,  Type:INST-VAL
        ----- Entering ZRRTSX for unit 71 -----
Pathname: /EAST/BASE6/FLOW//5MIN//
        Time Window set.  Interval:     5  Number of data values:      1
        Starting date and time:  Mar 6, 1903  0155  (   1160  115)
        Ending   date and time:  Mar 6, 1903  0155  (   1160  115)
        Input time offset:      0
        After ZRDINF, Record found: T
        Pathname: /EAST/BASE6/FLOW/06MAR1903/5MIN//
        Number of actual data:  288  Header length:   0
        Compression:   0  Quality:   0
-----DSS--- ZREAD Unit  71; Vers.    5:  /EAST/BASE6/FLOW/06MAR1903/5MIN//
      ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
        NSTART:    1   NVALS:    1    JULS:    1160  ISTIME:   115
        NLDATA:  288   JULSD:    1160
        JULS: 06MAR03       JULSD: 06MAR03
        Quality Read: F,  Quality Requested: F
        ---ZRRTSB Calculations:  NPOS:   23  NDATA:  288  NREAD:    1  ILIM:    1
      ----- Exiting ZRRTS, Number of data values:      1,  Status:  0
        Offset:       0,  Units: CFS     ,  Type:INST-VAL
        ----- Entering ZRRTSX for unit 71 -----
Pathname: /EAST/BASE6/FLOW//5MIN//
        Time Window set.  Interval:     5  Number of data values:    744
        Starting date and time:  Mar 6, 1903  0155  (   1160  115)
        Ending   date and time:  Mar 8, 1903  1550  (   1162  950)
        Input time offset:      0
        After ZRDINF, Record found: T
        Pathname: /EAST/BASE6/FLOW/06MAR1903/5MIN//
        Number of actual data:  288  Header length:   0
        Compression:   0  Quality:   0
-----DSS--- ZREAD Unit  71; Vers.    5:  /EAST/BASE6/FLOW/06MAR1903/5MIN//
      ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
        NSTART:    1   NVALS:  744    JULS:    1160  ISTIME:   115
        NLDATA:  288   JULSD:    1160
        JULS: 06MAR03       JULSD: 06MAR03
        Quality Read: F,  Quality Requested: F
        ---ZRRTSB Calculations:  NPOS:   23  NDATA:  288  NREAD:  266  ILIM:  266
        After ZRDINF, Record found: T
        Pathname: /EAST/BASE6/FLOW/07MAR1903/5MIN//
        Number of actual data:  288  Header length:   0
        Compression:   0  Quality:   0
-----DSS--- ZREAD Unit  71; Vers.    5:  /EAST/BASE6/FLOW/07MAR1903/5MIN//
      ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
        NSTART:  267   NVALS:  744    JULS:    1160  ISTIME:   115
        NLDATA:  288   JULSD:    1161
        JULS: 06MAR03       JULSD: 07MAR03
        Quality Read: F,  Quality Requested: F
        ---ZRRTSB Calculations:  NPOS:    1  NDATA:  288  NREAD:  288  ILIM:  554
        After ZRDINF, Record found: T
        Pathname: /EAST/BASE6/FLOW/08MAR1903/5MIN//
        Number of actual data:  288  Header length:   0
        Compression:   0  Quality:   0
-----DSS--- ZREAD Unit  71; Vers.    5:  /EAST/BASE6/FLOW/08MAR1903/5MIN//
      ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
        NSTART:  555   NVALS:  744    JULS:    1160  ISTIME:   115
        NLDATA:  288   JULSD:    1162
        JULS: 06MAR03       JULSD: 08MAR03
        Quality Read: F,  Quality Requested: F
        ---ZRRTSB Calculations:  NPOS:    1  NDATA:  288  NREAD:  190  ILIM:  744
      ----- Exiting ZRRTS, Number of data values:    744,  Status:  0
        Offset:       0,  Units: CFS     ,  Type:INST-VAL
        ----- Entering ZRRTSX for unit 71 -----
Pathname: /EAST/BASE6/FLOW//5MIN//
```

```
        Time Window set.  Interval:     5  Number of data values:      1
        Starting date and time:  Mar 8, 1903  1550  (   1162  950)
        Ending   date and time:  Mar 8, 1903  1550  (   1162  950)
        Input time offset:      0
        After ZRDINF, Record found: T
        Pathname: /EAST/BASE6/FLOW/08MAR1903/5MIN//
        Number of actual data:  288  Header length:   0
        Compression:   0  Quality:   0
-----DSS--- ZREAD Unit  71; Vers.    5:  /EAST/BASE6/FLOW/08MAR1903/5MIN//
      ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
        NSTART:    1   NVALS:    1    JULS:    1162  ISTIME:   950
        NLDATA:  288   JULSD:    1162
        JULS: 08MAR03       JULSD: 08MAR03
        Quality Read: F,  Quality Requested: F
        ---ZRRTSB Calculations:  NPOS:  190  NDATA:  288  NREAD:    1  ILIM:    1
      ----- Exiting ZRRTS, Number of data values:      1,  Status:  0
        Offset:       0,  Units: CFS     ,  Type:INST-VAL
        ----- Entering ZRRTSX for unit 71 -----
Pathname: /EAST/BASE6/FLOW//5MIN//
        Time Window set.  Interval:     5  Number of data values:    744
        Starting date and time:  Mar 8, 1903  1550  (   1162  950)
        Ending   date and time:  Mar 11, 1903  0545  (   1165  345)
        Input time offset:      0
        After ZRDINF, Record found: T
        Pathname: /EAST/BASE6/FLOW/08MAR1903/5MIN//
        Number of actual data:  288  Header length:   0
        Compression:   0  Quality:   0
-----DSS--- ZREAD Unit  71; Vers.    5:  /EAST/BASE6/FLOW/08MAR1903/5MIN//
      ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
        NSTART:    1   NVALS:  744    JULS:    1162  ISTIME:   950
        NLDATA:  288   JULSD:    1162
        JULS: 08MAR03       JULSD: 08MAR03
        Quality Read: F,  Quality Requested: F
        ---ZRRTSB Calculations:  NPOS:  190  NDATA:  288  NREAD:   99  ILIM:   99
        After ZRDINF, Record found: T
        Pathname: /EAST/BASE6/FLOW/09MAR1903/5MIN//
        Number of actual data:  288  Header length:   0
        Compression:   0  Quality:   0
-----DSS--- ZREAD Unit  71; Vers.    5:  /EAST/BASE6/FLOW/09MAR1903/5MIN//
      ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
        NSTART:  100   NVALS:  744    JULS:    1162  ISTIME:   950
        NLDATA:  288   JULSD:    1163
        JULS: 08MAR03       JULSD: 09MAR03
        Quality Read: F,  Quality Requested: F
        ---ZRRTSB Calculations:  NPOS:    1  NDATA:  288  NREAD:  288  ILIM:  387
        After ZRDINF, Record found: T
        Pathname: /EAST/BASE6/FLOW/10MAR1903/5MIN//
        Number of actual data:  288  Header length:   0
        Compression:   0  Quality:   0
-----DSS--- ZREAD Unit  71; Vers.    5:  /EAST/BASE6/FLOW/10MAR1903/5MIN//
      ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
        NSTART:  388   NVALS:  744    JULS:    1162  ISTIME:   950
        NLDATA:  288   JULSD:    1164
        JULS: 08MAR03       JULSD: 10MAR03
        Quality Read: F,  Quality Requested: F
        ---ZRRTSB Calculations:  NPOS:    1  NDATA:  288  NREAD:  288  ILIM:  675
        After ZRDINF, Record found: F
        Pathname: /EAST/BASE6/FLOW/11MAR1903/5MIN//
      ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
        NSTART:  676   NVALS:  744    JULS:    1162  ISTIME:   950
        NLDATA:  288   JULSD:    1165
      . JULS: 08MAR03       JULSD: 11MAR03
        Quality Read: F,  Quality Requested: F
        ---ZRRTSB Calculations:  NPOS:    1  NDATA:  288  NREAD:   69  ILIM:  744
-----DSS*** ZRRTS:  CAUTION - Data block not found in file.  Unit:  71
Pathname: /EAST/BASE6/FLOW/11MAR1903/5MIN//
      ----- Exiting ZRRTS, Number of data values:    744,  Status:  3
        Offset:       0,  Units: CFS     ,  Type:INST-VAL


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
  69 KK     *      P102  *
            *            *
            **************

  71 KO          OUTPUT CONTROL VARIABLES
                       IPRNT           3  PRINT CONTROL
                       IPLOT           0  PLOT CONTROL
                       QSCAL          0.  HYDROGRAPH PLOT SCALE

               HYDROGRAPH ROUTING DATA

  72 RS          STORAGE ROUTING
                       NSTPS           1  NUMBER OF SUBREACHES
                        ITYP        STOR  TYPE OF INITIAL CONDITION
                      RSVRIC         .00  INITIAL CONDITION
                           X         .00 WORKING R AND D COEFFICIENT

  73 SV            STORAGE          .0        .0       1.0       3.0       6.6      14.2      25.1      31.4      35.0      37.1
```

```
  74 SE          ELEVATION     1276.70   1277.00   1278.00   1279.00   1280.00   1281.00   1282.00   1282.44   1282.63   1282.78

  75 SQ          DISCHARGE        0.        0.        4.       15.       32.       58.       94.      112.      128.      156.

                                                                                  ***

     ***            ***            ***            ***            ***

                        HYDROGRAPH AT STATION     P102

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR    166.58-HR
+   (CFS)       (HR)
                            (CFS)
+     141.      8.00                111.         50.         22.          11.
                         (INCHES)   3.510       6.266       8.255        9.661
                          (AC-FT)    55.         98.        129.         151.

 PEAK STORAGE   TIME                          MAXIMUM AVERAGE STORAGE
                                     6-HR       24-HR       72-HR    166.58-HR
+  (AC-FT)      (HR)
      36.       8.00                 30.         12.          5.           3.

  PEAK STAGE    TIME                          MAXIMUM AVERAGE STAGE
                                     6-HR       24-HR       72-HR    166.58-HR
+   (FEET)      (HR)
   1282.70      8.00              1282.31     1280.34     1279.02      1278.26

                         CUMULATIVE AREA =     .29 SQ MI


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
  76 KK     *    102EAS  *
            *            *
            **************

  78 KO          OUTPUT CONTROL VARIABLES
                       IPRNT          3  PRINT CONTROL
                       IPLOT          0  PLOT CONTROL
                       QSCAL         0.  HYDROGRAPH PLOT SCALE

     DT          DIVERSION
                       ISTAD      EAS102  DIVERSION HYDROGRAPH IDENTIFICATION

     DI             INFLOW      234.97    290.16   1950.40

     DQ      DIVERTED FLOW         .00       .12    405.10

                                                                                  ***

     ***            ***            ***            ***            ***

                        DIVERSION HYDROGRAPH   EAS102

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR    166.58-HR
+   (CFS)       (HR)
                            (CFS)
+       0.        .00                  0.          0.          0.           0.
                         (INCHES)    .000        .000        .000         .000
                          (AC-FT)     0.          0.          0.           0.

                         CUMULATIVE AREA =     .29 SQ MI

     ***            ***            ***            ***            ***

                        HYDROGRAPH AT STATION   102EAS

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR    166.58-HR
+   (CFS)       (HR)
                            (CFS)
+     141.      8.00                111.         50.         22.          11.
                         (INCHES)   3.510       6.266       8.255        9.661
                          (AC-FT)    55.         98.        129.         151.

                         CUMULATIVE AREA =     .29 SQ MI

        ----- Entering ZRRTSX for unit 71 -----
 Pathname: /EAST/BEHR6/FLOW//5MIN//
        Time Window set.  Interval:     5  Number of data values:      1
        Starting date and time:  Mar 3, 1903  1200  (   1157  720)
        Ending   date and time:  Mar 3, 1903  1200  (   1157  720)
        Input time offset:      0
        After ZRDINF, Record found: T
```

```
        Pathname: /EAST/BEHR6/FLOW/03MAR1903/5MIN//
        Number of actual data:  288  Header length:   0
        Compression:   0  Quality:   0
-----DSS--- ZREAD Unit  71; Vers.    5:  /EAST/BEHR6/FLOW/03MAR1903/5MIN//
      ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
        NSTART:    1   NVALS:    1    JULS:    1157  ISTIME:   720
        NLDATA:  288   JULSD:    1157
        JULS: 03MAR03       JULSD: 03MAR03
        Quality Read: F,  Quality Requested: F
        ---ZRRTSB Calculations:  NPOS:  144  NDATA:  288  NREAD:    1  ILIM:    1
      ----- Exiting ZRRTS, Number of data values:      1,  Status:  0
        Offset:       0,  Units: CFS     ,  Type:INST-VAL
        ----- Entering ZRRTSX for unit 71 -----
Pathname: /EAST/BEHR6/FLOW//5MIN//
        Time Window set.  Interval:     5  Number of data values:    744
        Starting date and time:  Mar 3, 1903  1200  (   1157  720)
        Ending   date and time:  Mar 6, 1903  0155  (   1160  115)
        Input time offset:      0
        After ZRDINF, Record found: T
        Pathname: /EAST/BEHR6/FLOW/03MAR1903/5MIN//
        Number of actual data:  288  Header length:   0
        Compression:   0  Quality:   0
-----DSS--- ZREAD Unit  71; Vers.    5:  /EAST/BEHR6/FLOW/03MAR1903/5MIN//
      ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
        NSTART:    1   NVALS:  744    JULS:    1157  ISTIME:   720
        NLDATA:  288   JULSD:    1157
        JULS: 03MAR03       JULSD: 03MAR03
        Quality Read: F,  Quality Requested: F
        ---ZRRTSB Calculations:  NPOS:  144  NDATA:  288  NREAD:  145  ILIM:  145
        After ZRDINF, Record found: T
        Pathname: /EAST/BEHR6/FLOW/04MAR1903/5MIN//
        Number of actual data:  288  Header length:   0
        Compression:   0  Quality:   0
-----DSS--- ZREAD Unit  71; Vers.    5:  /EAST/BEHR6/FLOW/04MAR1903/5MIN//
      ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
        NSTART:  146   NVALS:  744    JULS:    1157  ISTIME:   720
        NLDATA:  288   JULSD:    1158
        JULS: 03MAR03       JULSD: 04MAR03
        Quality Read: F,  Quality Requested: F
        ---ZRRTSB Calculations:  NPOS:    1  NDATA:  288  NREAD:  288  ILIM:  433
        After ZRDINF, Record found: T
        Pathname: /EAST/BEHR6/FLOW/05MAR1903/5MIN//
        Number of actual data:  288  Header length:   0
        Compression:   0  Quality:   0
-----DSS--- ZREAD Unit  71; Vers.    5:  /EAST/BEHR6/FLOW/05MAR1903/5MIN//
      ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
        NSTART:  434   NVALS:  744    JULS:    1157  ISTIME:   720
        NLDATA:  288   JULSD:    1159
        JULS: 03MAR03       JULSD: 05MAR03
        Quality Read: F,  Quality Requested: F
        ---ZRRTSB Calculations:  NPOS:    1  NDATA:  288  NREAD:  288  ILIM:  721
        After ZRDINF, Record found: T
        Pathname: /EAST/BEHR6/FLOW/06MAR1903/5MIN//
        Number of actual data:  288  Header length:   0
        Compression:   0  Quality:   0
-----DSS--- ZREAD Unit  71; Vers.    5:  /EAST/BEHR6/FLOW/06MAR1903/5MIN//
      ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
        NSTART:  722   NVALS:  744    JULS:    1157  ISTIME:   720
        NLDATA:  288   JULSD:    1160
        JULS: 03MAR03       JULSD: 06MAR03
        Quality Read: F,  Quality Requested: F
        ---ZRRTSB Calculations:  NPOS:    1  NDATA:  288  NREAD:   23  ILIM:  744
      ----- Exiting ZRRTS, Number of data values:    744,  Status:  0
        Offset:       0,  Units: CFS     ,  Type:INST-VAL
        ----- Entering ZRRTSX for unit 71 -----
Pathname: /EAST/BEHR6/FLOW//5MIN//
        Time Window set.  Interval:     5  Number of data values:      1
        Starting date and time:  Mar 6, 1903  0155  (   1160  115)
        Ending   date and time:  Mar 6, 1903  0155  (   1160  115)
        Input time offset:      0
        After ZRDINF, Record found: T
        Pathname: /EAST/BEHR6/FLOW/06MAR1903/5MIN//
        Number of actual data:  288  Header length:   0
        Compression:   0  Quality:   0
-----DSS--- ZREAD Unit  71; Vers.    5:  /EAST/BEHR6/FLOW/06MAR1903/5MIN//
      ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
        NSTART:    1   NVALS:    1    JULS:    1160  ISTIME:   115
        NLDATA:  288   JULSD:    1160
        JULS: 06MAR03       JULSD: 06MAR03
        Quality Read: F,  Quality Requested: F
        ---ZRRTSB Calculations:  NPOS:   23  NDATA:  288  NREAD:    1  ILIM:    1
      ----- Exiting ZRRTS, Number of data values:      1,  Status:  0
        Offset:       0,  Units: CFS     ,  Type:INST-VAL
        ----- Entering ZRRTSX for unit 71 -----
Pathname: /EAST/BEHR6/FLOW//5MIN//
        Time Window set.  Interval:     5  Number of data values:    744
        Starting date and time:  Mar 6, 1903  0155  (   1160  115)
        Ending   date and time:  Mar 8, 1903  1550  (   1162  950)
        Input time offset:      0
        After ZRDINF, Record found: T
        Pathname: /EAST/BEHR6/FLOW/06MAR1903/5MIN//
        Number of actual data:  288  Header length:   0
        Compression:   0  Quality:   0
-----DSS--- ZREAD Unit  71; Vers.    5:  /EAST/BEHR6/FLOW/06MAR1903/5MIN//
      ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
```

```
        NSTART:    1   NVALS:  744    JULS:    1160  ISTIME:   115
        NLDATA:  288   JULSD:    1160
        JULS: 06MAR03       JULSD: 06MAR03
        Quality Read: F,  Quality Requested: F
        ---ZRRTSB Calculations:  NPOS:   23  NDATA:  288  NREAD:  266  ILIM:  266
        After ZRDINF, Record found: T
        Pathname: /EAST/BEHR6/FLOW/07MAR1903/5MIN//
        Number of actual data:  288  Header length:   0
        Compression:   0  Quality:   0
-----DSS--- ZREAD Unit  71; Vers.    5:  /EAST/BEHR6/FLOW/07MAR1903/5MIN//
      ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
        NSTART:  267   NVALS:  744    JULS:    1160  ISTIME:   115
        NLDATA:  288   JULSD:    1161
        JULS: 06MAR03       JULSD: 07MAR03
        Quality Read: F,  Quality Requested: F
        ---ZRRTSB Calculations:  NPOS:    1  NDATA:  288  NREAD:  288  ILIM:  554
        After ZRDINF, Record found: T
        Pathname: /EAST/BEHR6/FLOW/08MAR1903/5MIN//
        Number of actual data:  288  Header length:   0
        Compression:   0  Quality:   0
-----DSS--- ZREAD Unit  71; Vers.    5:  /EAST/BEHR6/FLOW/08MAR1903/5MIN//
      ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
        NSTART:  555   NVALS:  744    JULS:    1160  ISTIME:   115
        NLDATA:  288   JULSD:    1162
        JULS: 06MAR03       JULSD: 08MAR03
        Quality Read: F,  Quality Requested: F
        ---ZRRTSB Calculations:  NPOS:    1  NDATA:  288  NREAD:  190  ILIM:  744
      ----- Exiting ZRRTS, Number of data values:    744,  Status:  0
        Offset:       0,  Units: CFS     ,  Type:INST-VAL
        ----- Entering ZRRTSX for unit 71 -----
Pathname: /EAST/BEHR6/FLOW//5MIN//
        Time Window set.  Interval:     5  Number of data values:      1
        Starting date and time:  Mar 8, 1903  1550  (   1162  950)
        Ending   date and time:  Mar 8, 1903  1550  (   1162  950)
        Input time offset:      0
        After ZRDINF, Record found: T
        Pathname: /EAST/BEHR6/FLOW/08MAR1903/5MIN//
        Number of actual data:  288  Header length:   0
        Compression:   0  Quality:   0
-----DSS--- ZREAD Unit  71; Vers.    5:  /EAST/BEHR6/FLOW/08MAR1903/5MIN//
      ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
        NSTART:    1   NVALS:    1    JULS:    1162  ISTIME:   950
        NLDATA:  288   JULSD:    1162
        JULS: 08MAR03       JULSD: 08MAR03
        Quality Read: F,  Quality Requested: F
        ---ZRRTSB Calculations:  NPOS:  190  NDATA:  288  NREAD:    1  ILIM:    1
      ----- Exiting ZRRTS, Number of data values:      1,  Status:  0
        Offset:       0,  Units: CFS     ,  Type:INST-VAL
        ----- Entering ZRRTSX for unit 71 -----
Pathname: /EAST/BEHR6/FLOW//5MIN//
        Time Window set.  Interval:     5  Number of data values:    744
        Starting date and time:  Mar 8, 1903  1550  (   1162  950)
        Ending   date and time:  Mar 11, 1903  0545  (   1165  345)
        Input time offset:      0
        After ZRDINF, Record found: T
        Pathname: /EAST/BEHR6/FLOW/08MAR1903/5MIN//
        Number of actual data:  288  Header length:   0
        Compression:   0  Quality:   0
-----DSS--- ZREAD Unit  71; Vers.    5:  /EAST/BEHR6/FLOW/08MAR1903/5MIN//
      ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
        NSTART:    1   NVALS:  744    JULS:    1162  ISTIME:   950
        NLDATA:  288   JULSD:    1162
        JULS: 08MAR03       JULSD: 08MAR03
        Quality Read: F,  Quality Requested: F
        ---ZRRTSB Calculations:  NPOS:  190  NDATA:  288  NREAD:   99  ILIM:   99
        After ZRDINF, Record found: T
        Pathname: /EAST/BEHR6/FLOW/09MAR1903/5MIN//
        Number of actual data:  288  Header length:   0
        Compression:   0  Quality:   0
-----DSS--- ZREAD Unit  71; Vers.    5:  /EAST/BEHR6/FLOW/09MAR1903/5MIN//
      ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
        NSTART:  100   NVALS:  744    JULS:    1162  ISTIME:   950
        NLDATA:  288   JULSD:    1163
        JULS: 08MAR03       JULSD: 09MAR03
        Quality Read: F,  Quality Requested: F
        ---ZRRTSB Calculations:  NPOS:    1  NDATA:  288  NREAD:  288  ILIM:  387
        After ZRDINF, Record found: T
        Pathname: /EAST/BEHR6/FLOW/10MAR1903/5MIN//
        Number of actual data:  288  Header length:   0
        Compression:   0  Quality:   0
-----DSS--- ZREAD Unit  71; Vers.    5:  /EAST/BEHR6/FLOW/10MAR1903/5MIN//
      ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
        NSTART:  388   NVALS:  744    JULS:    1162  ISTIME:   950
        NLDATA:  288   JULSD:    1164
        JULS: 08MAR03       JULSD: 10MAR03
        Quality Read: F,  Quality Requested: F
        ---ZRRTSB Calculations:  NPOS:    1  NDATA:  288  NREAD:  288  ILIM:  675
        After ZRDINF, Record found: F
        Pathname: /EAST/BEHR6/FLOW/11MAR1903/5MIN//
      ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
        NSTART:  676   NVALS:  744    JULS:    1162  ISTIME:   950
        NLDATA:  288   JULSD:    1165
        JULS: 08MAR03       JULSD: 11MAR03
        Quality Read: F,  Quality Requested: F
        ---ZRRTSB Calculations:  NPOS:    1  NDATA:  288  NREAD:   69  ILIM:  744
```

```
-----DSS*** ZRRTS:  CAUTION - Data block not found in file.  Unit:  71
Pathname: /EAST/BEHR6/FLOW/11MAR1903/5MIN//
     ----- Exiting ZRRTS, Number of data values:    744,  Status:  3
       Offset:       0,  Units: CFS      ,  Type:INST-VAL


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
 169 KK     *      P105  *
            *            *
            **************

 171 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           3  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE

               HYDROGRAPH ROUTING DATA

 172 RS          STORAGE ROUTING
                      NSTPS           1  NUMBER OF SUBREACHES
                       ITYP        STOR  TYPE OF INITIAL CONDITION
                     RSVRIC         .00  INITIAL CONDITION
                          X         .00 WORKING R AND D COEFFICIENT

 173 SV            STORAGE          .0        .0        .0        .1        .3        .6       1.3       2.0      11.4      17.0


 174 SE          ELEVATION     1274.40   1275.00   1276.00   1277.00   1278.00   1278.50   1279.00   1279.10   1280.00   1280.28


 175 SQ          DISCHARGE          0.        3.        4.        4.        4.       72.      134.      144.      145.      146.

                                                                  ***

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN        0. TO        3.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)

     ***             ***             ***             ***             ***

                         HYDROGRAPH AT STATION     P105

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR        24-HR        72-HR    166.58-HR
+   (CFS)       (HR)
                             (CFS)
+     145.      6.08         145.         63.          26.          13.
                        (INCHES)        .591       1.030       1.292       1.475
                         (AC-FT)         72.         125.         157.         179.

 PEAK STORAGE   TIME                          MAXIMUM AVERAGE STORAGE
                                     6-HR        24-HR        72-HR    166.58-HR
+  (AC-FT)      (HR)
       10.      6.67                   8.           2.           1.           0.

  PEAK STAGE    TIME                          MAXIMUM AVERAGE STAGE
                                     6-HR        24-HR        72-HR    166.58-HR
+   (FEET)      (HR)
   1279.83      6.67              1279.64      1278.59      1278.21      1276.82

                         CUMULATIVE AREA =    2.27 SQ MI


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
 176 KK     *    105EAS  *
            *            *
            **************

 178 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           3  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE

     DT          DIVERSION
                      ISTAD      EAS105  DIVERSION HYDROGRAPH IDENTIFICATION

     DI             INFLOW      295.10    305.60    328.60

     DQ      DIVERTED FLOW         .00      6.30     25.00

                                                                  ***

     ***             ***             ***             ***             ***
```

```
                    DIVERSION HYDROGRAPH   EAS105

  PEAK FLOW     TIME                        MAXIMUM AVERAGE FLOW
                                   6-HR       24-HR       72-HR    166.58-HR
+   (CFS)       (HR)
                          (CFS)
+      0.        .00                 0.          0.          0.           0.
                       (INCHES)     .000        .000        .000         .000
                        (AC-FT)      0.          0.          0.           0.

                     CUMULATIVE AREA =    2.27 SQ MI

      ***            ***            ***            ***            ***

                    HYDROGRAPH AT STATION   105EAS

  PEAK FLOW     TIME                        MAXIMUM AVERAGE FLOW
                                   6-HR       24-HR       72-HR    166.58-HR
+   (CFS)       (HR)
                          (CFS)
+    145.       6.08                145.         63.         26.          13.
                       (INCHES)     .591       1.030       1.292        1.475
                        (AC-FT)      72.        125.        157.         179.

                     CUMULATIVE AREA =    2.27 SQ MI


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
  271 KK    *      P108  *
            *            *
            **************

  274 KO          OUTPUT CONTROL VARIABLES
                        IPRNT          3  PRINT CONTROL
                        IPLOT          0  PLOT CONTROL
                        QSCAL         0.  HYDROGRAPH PLOT SCALE

                HYDROGRAPH ROUTING DATA

  275 RS          STORAGE ROUTING
                        NSTPS          1  NUMBER OF SUBREACHES
                         ITYP       STOR  TYPE OF INITIAL CONDITION
                       RSVRIC        .00  INITIAL CONDITION
                            X        .00 WORKING R AND D COEFFICIENT

  276 SV            STORAGE         .0        .1        .3        .7       1.6       9.3      28.0      29.0      33.4      36.0

  277 SE          ELEVATION     1274.00   1275.00   1276.00   1277.00   1278.00   1279.00   1280.00   1280.05   1280.10   1280.20

  278 SQ          DISCHARGE         0.        4.       15.       33.       59.      104.      326.      370.      420.      535.

                                                                  ***

      ***            ***            ***            ***            ***

                    HYDROGRAPH AT STATION     P108

  PEAK FLOW     TIME                        MAXIMUM AVERAGE FLOW
                                   6-HR       24-HR       72-HR    166.58-HR
+   (CFS)       (HR)
                          (CFS)
+    398.       6.00                249.        100.         39.          18.
                       (INCHES)     .696       1.115       1.300        1.425
                        (AC-FT)     123.        198.        231.         253.

 PEAK STORAGE   TIME                        MAXIMUM AVERAGE STORAGE
                                   6-HR       24-HR       72-HR    166.58-HR
+  (AC-FT)      (HR)
      32.       6.00                 21.          8.          3.           1.

  PEAK STAGE    TIME                        MAXIMUM AVERAGE STAGE
                                   6-HR       24-HR       72-HR    166.58-HR
+   (FEET)      (HR)
   1280.08      6.00              1279.62     1277.81     1276.19      1275.32

                     CUMULATIVE AREA =    3.33 SQ MI


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
```

```
            *            *
  279 KK    *    108EAS  *
            *            *
            **************

  282 KO          OUTPUT CONTROL VARIABLES
                        IPRNT           3  PRINT CONTROL
                        IPLOT           0  PLOT CONTROL
                        QSCAL          0.  HYDROGRAPH PLOT SCALE

      DT          DIVERSION
                        ISTAD      LOS108  DIVERSION HYDROGRAPH IDENTIFICATION

      DI             INFLOW      103.84    251.00    326.00    370.00    420.00    535.00

      DQ      DIVERTED FLOW         .00      9.00     11.00     12.00     13.00     15.00

                                                                  ***

       ***             ***             ***             ***             ***

                          DIVERSION HYDROGRAPH   LOS108

  PEAK FLOW     TIME                            MAXIMUM AVERAGE FLOW
                                        6-HR       24-HR       72-HR    166.58-HR
+   (CFS)       (HR)
                            (CFS)
+     13.       6.00                      8.          2.          1.          0.
                         (INCHES)      .021        .024        .024        .024
                          (AC-FT)        4.          4.          4.          4.

                         CUMULATIVE AREA =    3.33 SQ MI

       ***             ***             ***             ***             ***

                          HYDROGRAPH AT STATION   108EAS

  PEAK FLOW     TIME                            MAXIMUM AVERAGE FLOW
                                        6-HR       24-HR       72-HR    166.58-HR
+   (CFS)       (HR)
                            (CFS)
+    386.       6.00                    241.         98.         38.         18.
                         (INCHES)      .674       1.091       1.276       1.401
                          (AC-FT)      120.        194.        227.        249.

                         CUMULATIVE AREA =    3.33 SQ MI


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
  394 KK    *      P111  *
            *            *
            **************

  396 KO          OUTPUT CONTROL VARIABLES
                        IPRNT           3  PRINT CONTROL
                        IPLOT           0  PLOT CONTROL
                        QSCAL          0.  HYDROGRAPH PLOT SCALE

              HYDROGRAPH ROUTING DATA

  397 RS          STORAGE ROUTING
                        NSTPS           1  NUMBER OF SUBREACHES
                         ITYP        STOR  TYPE OF INITIAL CONDITION
                       RSVRIC         .00  INITIAL CONDITION
                            X         .00 WORKING R AND D COEFFICIENT

  398 SV            STORAGE          .0       7.9      21.8      36.6      52.2      69.1      88.0      94.3     111.6     122.5
                                  127.0     128.0     143.5

  400 SE          ELEVATION     1271.70   1273.00   1274.00   1275.00   1276.00   1277.00   1278.00   1278.30   1279.00   1279.38
                                1279.50   1279.55   1280.00

  402 SQ          DISCHARGE          0.        0.       10.       30.       58.       95.      127.      148.      324.      789.
                                   968.     1066.     2422.

                                                                  ***

       ***             ***             ***             ***             ***

                          HYDROGRAPH AT STATION     P111

  PEAK FLOW     TIME                            MAXIMUM AVERAGE FLOW
                                        6-HR       24-HR       72-HR    166.58-HR
+   (CFS)       (HR)
                            (CFS)
+    1294.      7.08                    611.        225.         84.         39.
                         (INCHES)      .739       1.087       1.225       1.295
                          (AC-FT)      303.        446.        502.        531.
```

```
 PEAK STORAGE   TIME                          MAXIMUM AVERAGE STORAGE
                                        6-HR       24-HR       72-HR    166.58-HR
+  (AC-FT)      (HR)
      131.      7.08                    117.         80.         43.          26.

  PEAK STAGE    TIME                          MAXIMUM AVERAGE STAGE
                                        6-HR       24-HR       72-HR    166.58-HR
+   (FEET)      (HR)
   1279.63      7.08                 1279.16     1277.43     1275.26      1274.14

                         CUMULATIVE AREA =    7.69 SQ MI


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
 404 KK     *    111EAS  *
            *            *
            **************

 406 KO          OUTPUT CONTROL VARIABLES
                       IPRNT           3  PRINT CONTROL
                       IPLOT           0  PLOT CONTROL
                       QSCAL          0.  HYDROGRAPH PLOT SCALE

     DT          DIVERSION
                       ISTAD      EAS111  DIVERSION HYDROGRAPH IDENTIFICATION

     DI             INFLOW      353.00   1431.00   2422.00

     DQ      DIVERTED FLOW         .00       .00     60.70

                                                          ***

      ***             ***             ***             ***             ***

                         DIVERSION HYDROGRAPH   EAS111

 PEAK FLOW      TIME                          MAXIMUM AVERAGE FLOW
                                        6-HR       24-HR       72-HR    166.58-HR
+   (CFS)       (HR)
                          (CFS)
+       0.       .00                     0.          0.          0.           0.
                       (INCHES)       .000        .000        .000         .000
                        (AC-FT)        0.          0.          0.           0.

                         CUMULATIVE AREA =    7.69 SQ MI

      ***             ***             ***             ***             ***

                         HYDROGRAPH AT STATION   111EAS

 PEAK FLOW      TIME                          MAXIMUM AVERAGE FLOW
                                        6-HR       24-HR       72-HR    166.58-HR
+   (CFS)       (HR)
                          (CFS)
+    1294.      7.08                   611.        225.         84.          39.
                       (INCHES)       .739       1.087       1.225        1.295
                        (AC-FT)       303.        446.        502.         531.

                         CUMULATIVE AREA =    7.69 SQ MI


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
 410 KK     *     114EA  *
            *            *
            **************

 412 KO          OUTPUT CONTROL VARIABLES
                       IPRNT           3  PRINT CONTROL
                       IPLOT           0  PLOT CONTROL
                       QSCAL          0.  HYDROGRAPH PLOT SCALE

     DT          DIVERSION
                       ISTAD       EA114  DIVERSION HYDROGRAPH IDENTIFICATION

     DI             INFLOW      260.00    300.00    400.00    500.00    600.00    700.00    800.00    900.00   1000.00   1267.00

     DQ      DIVERTED FLOW         .00      5.11     29.54     59.27     92.02    130.94    171.95    210.98    252.07    350.29

                                                          ***
```

```
      ***             ***             ***             ***             ***

                        DIVERSION HYDROGRAPH    EA114

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                    6-HR       24-HR       72-HR    166.58-HR
+   (CFS)       (HR)
                            (CFS)
+     360.      7.08                112.         28.          9.           4.
                         (INCHES)    .135        .135        .135         .135
                          (AC-FT)     56.         56.         56.          56.

                         CUMULATIVE AREA =    7.69 SQ MI

      ***             ***             ***             ***             ***

                        HYDROGRAPH AT STATION    114EA

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                    6-HR       24-HR       72-HR    166.58-HR
+   (CFS)       (HR)
                            (CFS)
+     934.      7.08                499.        197.         75.          35.
                         (INCHES)    .604        .952       1.090        1.160
                          (AC-FT)    248.        390.        447.         476.

                         CUMULATIVE AREA =    7.69 SQ MI


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
  439 KK    *      P114  *
            *            *
            **************

  441 KO          OUTPUT CONTROL VARIABLES
                        IPRNT          3  PRINT CONTROL
                        IPLOT          0  PLOT CONTROL
                        QSCAL         0.  HYDROGRAPH PLOT SCALE

                HYDROGRAPH ROUTING DATA

  442 RS          STORAGE ROUTING
                        NSTPS          1  NUMBER OF SUBREACHES
                         ITYP       STOR  TYPE OF INITIAL CONDITION
                       RSVRIC        .00  INITIAL CONDITION
                            X        .00 WORKING R AND D COEFFICIENT

  443 SV            STORAGE          .0        .0        .1        .2        .6       1.2       2.5       3.5      11.1      32.0
                                   34.6      40.0

  445 SE          ELEVATION     1269.40   1270.00   1271.00   1272.00   1273.00   1274.00   1275.00   1275.20   1276.00   1276.90
                                1277.00   1277.19

  447 SQ          DISCHARGE          0.        2.       13.       30.       57.       94.      141.      151.      220.      472.
                                   593.      981.

                                                                   ***

      ***             ***             ***             ***             ***

                        HYDROGRAPH AT STATION     P114

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                    6-HR       24-HR       72-HR    166.58-HR
+   (CFS)       (HR)
                            (CFS)
+     821.      8.08                483.        213.         81.          37.
                         (INCHES)    .557        .981       1.124        1.193
                          (AC-FT)    240.        422.        484.         514.

 PEAK STORAGE   TIME                         MAXIMUM AVERAGE STORAGE
                                    6-HR       24-HR       72-HR    166.58-HR
+  (AC-FT)      (HR)
      38.       8.08                 28.         10.          3.           1.

  PEAK STAGE    TIME                          MAXIMUM AVERAGE STAGE
                                    6-HR       24-HR       72-HR    166.58-HR
+   (FEET)      (HR)
   1277.11      8.08              1276.73     1274.94     1272.38      1271.10

                         CUMULATIVE AREA =    8.07 SQ MI


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***
```

```
                **************
                *            *
  449 KK        *    114EAS  *
                *            *
                **************

  451 KO            OUTPUT CONTROL VARIABLES
                          IPRNT           3  PRINT CONTROL
                          IPLOT           0  PLOT CONTROL
                          QSCAL          0.  HYDROGRAPH PLOT SCALE

      DT            DIVERSION
                          ISTAD      EAS114  DIVERSION HYDROGRAPH IDENTIFICATION

      DI               INFLOW      357.00    499.00    825.00   1277.00

      DQ        DIVERTED FLOW         .00     27.60    168.00    482.00

                                                                   ***

       ***              ***              ***              ***              ***

                            DIVERSION HYDROGRAPH   EAS114

  PEAK FLOW      TIME                            MAXIMUM AVERAGE FLOW
                                        6-HR       24-HR       72-HR    166.58-HR
+   (CFS)        (HR)
                             (CFS)
+     166.       8.08                    42.         10.          3.           2.
                          (INCHES)     .048        .048        .048         .048
                           (AC-FT)      21.         21.         21.          21.

                           CUMULATIVE AREA =    8.07 SQ MI

       ***              ***              ***              ***              ***

                            HYDROGRAPH AT STATION   114EAS

  PEAK FLOW      TIME                            MAXIMUM AVERAGE FLOW
                                        6-HR       24-HR       72-HR    166.58-HR
+   (CFS)        (HR)
                             (CFS)
+     655.       8.08                   441.        202.         78.          36.
                          (INCHES)     .508        .932       1.076        1.145
                           (AC-FT)     219.        401.        463.         493.

                           CUMULATIVE AREA =    8.07 SQ MI


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


                **************
                *            *
  455 KK        *     115EA  *
                *            *
                **************

  457 KO            OUTPUT CONTROL VARIABLES
                          IPRNT           3  PRINT CONTROL
                          IPLOT           0  PLOT CONTROL
                          QSCAL          0.  HYDROGRAPH PLOT SCALE

      DT            DIVERSION
                          ISTAD       EA115  DIVERSION HYDROGRAPH IDENTIFICATION

      DI               INFLOW      268.00    270.00    300.00    400.00    500.00    646.00

      DQ        DIVERTED FLOW         .00       .03      8.44     78.09    158.68    281.51

                                                                   ***

       ***              ***              ***              ***              ***

                            DIVERSION HYDROGRAPH    EA115

  PEAK FLOW      TIME                            MAXIMUM AVERAGE FLOW
                                        6-HR       24-HR       72-HR    166.58-HR
+   (CFS)        (HR)
                             (CFS)
+     289.       8.08                   116.         29.         10.           4.
                          (INCHES)     .133        .133        .133         .133
                           (AC-FT)      57.         57.         57.          57.

                           CUMULATIVE AREA =    8.07 SQ MI

       ***              ***              ***              ***              ***

                            HYDROGRAPH AT STATION    115EA
```

```
  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR    166.58-HR
+   (CFS)       (HR)
                            (CFS)
+     366.      8.08                326.        173.         68.          32.
                         (INCHES)   .375        .799        .943        1.012
                          (AC-FT)   161.        344.        406.         436.

                         CUMULATIVE AREA =    8.07 SQ MI


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
  484 KK    *      P115  *
            *            *
            **************

  486 KO          OUTPUT CONTROL VARIABLES
                        IPRNT           3  PRINT CONTROL
                        IPLOT           0  PLOT CONTROL
                        QSCAL          0.  HYDROGRAPH PLOT SCALE

               HYDROGRAPH ROUTING DATA

  487 RS          STORAGE ROUTING
                        NSTPS           1  NUMBER OF SUBREACHES
                         ITYP        STOR  TYPE OF INITIAL CONDITION
                       RSVRIC         .00  INITIAL CONDITION
                            X         .00 WORKING R AND D COEFFICIENT

  488 SV            STORAGE          .1        .1       1.1       3.4       7.1      13.6      26.2      45.2      72.7      85.5
                                   98.0     115.0     179.4

  490 SE          ELEVATION     1267.00   1268.00   1269.00   1270.00   1271.00   1272.00   1273.00   1274.00   1275.00   1275.35
                                1275.60   1276.00   1277.00

  492 SQ          DISCHARGE          0.        3.       20.       55.      102.      152.      195.      230.      275.      372.
                                   626.     1400.     6005.

                                                                   ***

      ***             ***             ***             ***             ***

                          HYDROGRAPH AT STATION     P115

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR    166.58-HR
+   (CFS)       (HR)
                            (CFS)
+     276.     13.50                269.        195.         76.          35.
                         (INCHES)   .293        .848        .991        1.057
                          (AC-FT)   134.        386.        452.         482.

 PEAK STORAGE   TIME                         MAXIMUM AVERAGE STORAGE
                                     6-HR       24-HR       72-HR    166.58-HR
+  (AC-FT)      (HR)
       73.     13.50                 69.         38.         13.           6.

  PEAK STAGE    TIME                          MAXIMUM AVERAGE STAGE
                                     6-HR       24-HR       72-HR    166.58-HR
+   (FEET)      (HR)
   1275.01     13.50               1274.87     1273.13     1270.18      1268.94

                         CUMULATIVE AREA =    8.54 SQ MI


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
  494 KK    *    115EAS  *
            *            *
            **************

  496 KO          OUTPUT CONTROL VARIABLES
                        IPRNT           3  PRINT CONTROL
                        IPLOT           0  PLOT CONTROL
                        QSCAL          0.  HYDROGRAPH PLOT SCALE

      DT          DIVERSION
                        ISTAD      EAS115  DIVERSION HYDROGRAPH IDENTIFICATION

      DI             INFLOW     1584.00   1725.00

      DQ      DIVERTED FLOW         .00      1.14

                                                                   ***
```

```
      ***             ***             ***             ***             ***

                        DIVERSION HYDROGRAPH   EAS115

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR   166.58-HR
+   (CFS)       (HR)
                          (CFS)
+       0.       .00                  0.          0.          0.          0.
                        (INCHES)     .000        .000        .000        .000
                         (AC-FT)      0.          0.          0.          0.

                       CUMULATIVE AREA =    8.54 SQ MI


      ***             ***             ***             ***             ***

                        HYDROGRAPH AT STATION   115EAS

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR   166.58-HR
+   (CFS)       (HR)
                          (CFS)
+     276.     13.50                269.        195.         76.         35.
                        (INCHES)     .293        .848        .991       1.057
                         (AC-FT)     134.        386.        452.        482.

                       CUMULATIVE AREA =    8.54 SQ MI


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
  549 KK    *      P118  *
            *            *
            **************

  551 KO          OUTPUT CONTROL VARIABLES
                        IPRNT          3  PRINT CONTROL
                        IPLOT          0  PLOT CONTROL
                        QSCAL         0.  HYDROGRAPH PLOT SCALE

                HYDROGRAPH ROUTING DATA

  552 RS          STORAGE ROUTING
                        NSTPS          1  NUMBER OF SUBREACHES
                         ITYP       STOR  TYPE OF INITIAL CONDITION
                       RSVRIC        .00  INITIAL CONDITION
                            X        .00 WORKING R AND D COEFFICIENT

  553 SV            STORAGE          .0     177.3     200.1     223.8     248.6     276.1     307.5     389.1     418.0     450.1

  554 SE          ELEVATION     1247.80   1263.00   1264.00   1265.00   1266.00   1267.00   1268.00   1270.00   1270.60   1271.25

  555 SQ          DISCHARGE          0.        0.        4.        15.       35.       59.       85.      124.      134.      143.

                                                                  ***

      ***             ***             ***             ***             ***

                        HYDROGRAPH AT STATION     P118

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR   166.58-HR
+   (CFS)       (HR)
                          (CFS)
+     125.     24.33                123.        110.         63.         31.
                        (INCHES)     .116        .413        .707        .801
                         (AC-FT)      61.        219.        374.        424.

 PEAK STORAGE   TIME                          MAXIMUM AVERAGE STORAGE
                                     6-HR       24-HR       72-HR   166.58-HR
+  (AC-FT)      (HR)
      391.     24.33                388.        360.        289.        232.

  PEAK STAGE    TIME                          MAXIMUM AVERAGE STAGE
                                     6-HR       24-HR       72-HR   166.58-HR
+   (FEET)      (HR)
   1270.04     24.33              1269.98     1269.29     1267.17     1264.75

                       CUMULATIVE AREA =    9.92 SQ MI


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***
```

```
                **************
                *            *
  556 KK        *     XRDPK  *     CROSS RO AD PARKSOUTHBOUND OUTFLOW AT CP     118
                *            *
                **************

  558 KO          OUTPUT CONTROL VARIABLES
                        IPRNT          3  PRINT CONTROL
                        IPLOT          0  PLOT CONTROL
                        QSCAL         0.  HYDROGRAPH PLOT SCALE

      DT          DIVERSION
                        ISTAD      EAS118  DIVERSION HYDROGRAPH IDENTIFICATION

      DI             INFLOW      154.93    195.50    199.68    213.60    255.93    327.68    426.38

      DQ       DIVERTED FLOW        .00       .03      2.51     14.74     55.40    125.49    222.55

                                                                  ***

       ***             ***             ***             ***             ***

                          DIVERSION HYDROGRAPH   EAS118

  PEAK FLOW     TIME                              MAXIMUM AVERAGE FLOW
                                        6-HR       24-HR       72-HR    166.58-HR
+   (CFS)       (HR)
                             (CFS)
+      0.        .00                     0.          0.          0.          0.
                          (INCHES)     .000        .000        .000        .000
                           (AC-FT)       0.          0.          0.          0.

                          CUMULATIVE AREA =    9.92 SQ MI


       ***             ***             ***             ***             ***

                          HYDROGRAPH AT STATION    XRDPK

  PEAK FLOW     TIME                              MAXIMUM AVERAGE FLOW
                                        6-HR       24-HR       72-HR    166.58-HR
+   (CFS)       (HR)
                             (CFS)
+    125.     24.33                    123.        110.         63.         31.
                          (INCHES)     .116        .413        .707        .801
                           (AC-FT)      61.        219.        374.        424.

                          CUMULATIVE AREA =    9.92 SQ MI

  -----DSS---ZWRITE Unit  71; Vers.   14:  /EAST/XRD6/FLOW/03MAR1903/5MIN//
  -----DSS---ZWRITE Unit  71; Vers.   14:  /EAST/XRD6/FLOW/04MAR1903/5MIN//
  -----DSS---ZWRITE Unit  71; Vers.   14:  /EAST/XRD6/FLOW/05MAR1903/5MIN//
  -----DSS---ZWRITE Unit  71; Vers.   14:  /EAST/XRD6/FLOW/06MAR1903/5MIN//
  -----DSS---ZWRITE Unit  71; Vers.   14:  /EAST/XRD6/FLOW/07MAR1903/5MIN//
  -----DSS---ZWRITE Unit  71; Vers.   14:  /EAST/XRD6/FLOW/08MAR1903/5MIN//
  -----DSS---ZWRITE Unit  71; Vers.   14:  /EAST/XRD6/FLOW/09MAR1903/5MIN//
  -----DSS---ZWRITE Unit  71; Vers.   14:  /EAST/XRD6/FLOW/10MAR1903/5MIN//
  -----DSS---ZWRITE Unit  71; Vers.   14:  /EAST/HOUS6/FLOW/03MAR1903/5MIN//
  -----DSS---ZWRITE Unit  71; Vers.   14:  /EAST/HOUS6/FLOW/04MAR1903/5MIN//
  -----DSS---ZWRITE Unit  71; Vers.   14:  /EAST/HOUS6/FLOW/05MAR1903/5MIN//
  -----DSS---ZWRITE Unit  71; Vers.   14:  /EAST/HOUS6/FLOW/06MAR1903/5MIN//
  -----DSS---ZWRITE Unit  71; Vers.   14:  /EAST/HOUS6/FLOW/07MAR1903/5MIN//
  -----DSS---ZWRITE Unit  71; Vers.   14:  /EAST/HOUS6/FLOW/08MAR1903/5MIN//
  -----DSS---ZWRITE Unit  71; Vers.   14:  /EAST/HOUS6/FLOW/09MAR1903/5MIN//
  -----DSS---ZWRITE Unit  71; Vers.   14:  /EAST/HOUS6/FLOW/10MAR1903/5MIN//
  -----DSS---ZWRITE Unit  71; Vers.   14:  /EAST/108_6/FLOW/03MAR1903/5MIN//
  -----DSS---ZWRITE Unit  71; Vers.   14:  /EAST/108_6/FLOW/04MAR1903/5MIN//
  -----DSS---ZWRITE Unit  71; Vers.   14:  /EAST/108_6/FLOW/05MAR1903/5MIN//
  -----DSS---ZWRITE Unit  71; Vers.   14:  /EAST/108_6/FLOW/06MAR1903/5MIN//
  -----DSS---ZWRITE Unit  71; Vers.   14:  /EAST/108_6/FLOW/07MAR1903/5MIN//
  -----DSS---ZWRITE Unit  71; Vers.   14:  /EAST/108_6/FLOW/08MAR1903/5MIN//
  -----DSS---ZWRITE Unit  71; Vers.   14:  /EAST/108_6/FLOW/09MAR1903/5MIN//
  -----DSS---ZWRITE Unit  71; Vers.   14:  /EAST/108_6/FLOW/10MAR1903/5MIN//
  -----DSS---ZWRITE Unit  71; Vers.   14:  /EAST/111_6/FLOW/03MAR1903/5MIN//
  -----DSS---ZWRITE Unit  71; Vers.   14:  /EAST/111_6/FLOW/04MAR1903/5MIN//
  -----DSS---ZWRITE Unit  71; Vers.   14:  /EAST/111_6/FLOW/05MAR1903/5MIN//
  -----DSS---ZWRITE Unit  71; Vers.   14:  /EAST/111_6/FLOW/06MAR1903/5MIN//
  -----DSS---ZWRITE Unit  71; Vers.   14:  /EAST/111_6/FLOW/07MAR1903/5MIN//
  -----DSS---ZWRITE Unit  71; Vers.   14:  /EAST/111_6/FLOW/08MAR1903/5MIN//
  -----DSS---ZWRITE Unit  71; Vers.   14:  /EAST/111_6/FLOW/09MAR1903/5MIN//
  -----DSS---ZWRITE Unit  71; Vers.   14:  /EAST/111_6/FLOW/10MAR1903/5MIN//
  -----DSS---ZWRITE Unit  71; Vers.   14:  /EAST/114_6/FLOW/03MAR1903/5MIN//
  -----DSS---ZWRITE Unit  71; Vers.   14:  /EAST/114_6/FLOW/04MAR1903/5MIN//
  -----DSS---ZWRITE Unit  71; Vers.   14:  /EAST/114_6/FLOW/05MAR1903/5MIN//
  -----DSS---ZWRITE Unit  71; Vers.   14:  /EAST/114_6/FLOW/06MAR1903/5MIN//
  -----DSS---ZWRITE Unit  71; Vers.   14:  /EAST/114_6/FLOW/07MAR1903/5MIN//
  -----DSS---ZWRITE Unit  71; Vers.   14:  /EAST/114_6/FLOW/08MAR1903/5MIN//
  -----DSS---ZWRITE Unit  71; Vers.   14:  /EAST/114_6/FLOW/09MAR1903/5MIN//
  -----DSS---ZWRITE Unit  71; Vers.   14:  /EAST/114_6/FLOW/10MAR1903/5MIN//
  -----DSS---ZWRITE Unit  71; Vers.   14:  /EAST/U1146/FLOW/03MAR1903/5MIN//
  -----DSS---ZWRITE Unit  71; Vers.   14:  /EAST/U1146/FLOW/04MAR1903/5MIN//
  -----DSS---ZWRITE Unit  71; Vers.   14:  /EAST/U1146/FLOW/05MAR1903/5MIN//
  -----DSS---ZWRITE Unit  71; Vers.   14:  /EAST/U1146/FLOW/06MAR1903/5MIN//
  -----DSS---ZWRITE Unit  71; Vers.   14:  /EAST/U1146/FLOW/07MAR1903/5MIN//
```

```
-----DSS---ZWRITE Unit  71; Vers.   14:  /EAST/U1146/FLOW/08MAR1903/5MIN//
-----DSS---ZWRITE Unit  71; Vers.   14:  /EAST/U1146/FLOW/09MAR1903/5MIN//
-----DSS---ZWRITE Unit  71; Vers.   14:  /EAST/U1146/FLOW/10MAR1903/5MIN//
-----DSS---ZWRITE Unit  71; Vers.   14:  /EAST/U1156/FLOW/03MAR1903/5MIN//
-----DSS---ZWRITE Unit  71; Vers.   14:  /EAST/U1156/FLOW/04MAR1903/5MIN//
-----DSS---ZWRITE Unit  71; Vers.   14:  /EAST/U1156/FLOW/05MAR1903/5MIN//
-----DSS---ZWRITE Unit  71; Vers.   14:  /EAST/U1156/FLOW/06MAR1903/5MIN//
-----DSS---ZWRITE Unit  71; Vers.   14:  /EAST/U1156/FLOW/07MAR1903/5MIN//
-----DSS---ZWRITE Unit  71; Vers.   14:  /EAST/U1156/FLOW/08MAR1903/5MIN//
-----DSS---ZWRITE Unit  71; Vers.   14:  /EAST/U1156/FLOW/09MAR1903/5MIN//
-----DSS---ZWRITE Unit  71; Vers.   14:  /EAST/U1156/FLOW/10MAR1903/5MIN//


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
 661 KK     *      P124  *
            *            *
            **************

 663 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           3  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE

               HYDROGRAPH ROUTING DATA

 664 RS          STORAGE ROUTING
                      NSTPS           1  NUMBER OF SUBREACHES
                       ITYP        STOR  TYPE OF INITIAL CONDITION
                     RSVRIC         .00  INITIAL CONDITION
                          X         .00 WORKING R AND D COEFFICIENT

 665 SV            STORAGE          .0        .1        .8       4.1      12.5      12.7      13.8      15.1      16.6

 666 SE          ELEVATION     1299.00   1300.00   1301.00   1302.00   1303.00   1303.01   1303.10   1303.20   1303.30

 667 SQ          DISCHARGE          0.        0.        0.        0.        0.        0.       11.       85.      212.

                                                                  ***

      ***             ***             ***             ***             ***

                        HYDROGRAPH AT STATION     P124

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR    166.58-HR
+   (CFS)       (HR)
                          (CFS)
+     111.      5.92                27.          7.          2.           1.
                        (INCHES)    .384        .388        .388         .388
                         (AC-FT)     13.         14.         14.          14.

 PEAK STORAGE   TIME                          MAXIMUM AVERAGE STORAGE
                                     6-HR       24-HR       72-HR    166.58-HR
+  (AC-FT)      (HR)
      15.       5.92                14.         13.         13.          12.

  PEAK STAGE    TIME                          MAXIMUM AVERAGE STAGE
                                     6-HR       24-HR       72-HR    166.58-HR
+   (FEET)      (HR)
   1303.22      5.92              1303.10     1303.03     1303.01      1302.91

                        CUMULATIVE AREA =     .66 SQ MI

 -----DSS---ZWRITE Unit  71; Vers.   14:  /SANT/RAY6/FLOW/03MAR1903/5MIN//
 -----DSS---ZWRITE Unit  71; Vers.   14:  /SANT/RAY6/FLOW/04MAR1903/5MIN//
 -----DSS---ZWRITE Unit  71; Vers.   14:  /SANT/RAY6/FLOW/05MAR1903/5MIN//
 -----DSS---ZWRITE Unit  71; Vers.   14:  /SANT/RAY6/FLOW/06MAR1903/5MIN//
 -----DSS---ZWRITE Unit  71; Vers.   14:  /SANT/RAY6/FLOW/07MAR1903/5MIN//
 -----DSS---ZWRITE Unit  71; Vers.   14:  /SANT/RAY6/FLOW/08MAR1903/5MIN//
 -----DSS---ZWRITE Unit  71; Vers.   14:  /SANT/RAY6/FLOW/09MAR1903/5MIN//
 -----DSS---ZWRITE Unit  71; Vers.   14:  /SANT/RAY6/FLOW/10MAR1903/5MIN//
1
                                                RUNOFF SUMMARY
                                        FLOW IN CUBIC FEET PER SECOND
                                      TIME IN HOURS,  AREA IN SQUARE MILES

                                     PEAK   TIME OF     AVERAGE FLOW FOR MAXIMUM PERIOD      BASIN     MAXIMUM     TIME OF
          OPERATION       STATION    FLOW     PEAK                                          AREA      STAGE     MAX STAGE
+                                                          6-HOUR     24-HOUR     72-HOUR

          HYDROGRAPH AT
+                          NOR102     169.    6.00          105.         37.         17.        .00

          ROUTED TO
+                          OFF102     167.    6.75          103.         37.         17.        .00
+                                                                                                 80.05        6.75

          HYDROGRAPH AT
+                             102     257.    4.42           63.         16.          5.        .29
```

```
                DIVERSION TO
+                    102RET     144.   4.42      10.      3.      1.     .29
                HYDROGRAPH AT
+                    102OUT     257.   4.42      53.     13.      4.     .29
                2 COMBINED AT
+                     CP102     278.   4.42     155.     50.     22.     .29
                ROUTED TO
+                      P102     141.   8.00     111.     50.     22.     .29
+                                                                     1282.70      8.00
                DIVERSION TO
+                    EAS102       0.   8.00       0.      0.      0.     .29
                HYDROGRAPH AT
+                    102EAS     141.   8.00     111.     50.     22.     .29
                ROUTED TO
+                    102105     136.   8.67     109.     49.     22.     .29
+                                                                       79.93      8.67
                HYDROGRAPH AT
+                       103     462.   4.42     100.     25.      8.     .71
                DIVERSION TO
+                    103RET     394.   4.42      33.      8.      3.     .71
                HYDROGRAPH AT
+                    103OUT     462.   4.42      67.     17.      6.     .71
                DIVERSION TO
+                     TO106     185.   4.42      27.      7.      2.     .71
                HYDROGRAPH AT
+                      D103     277.   4.42      40.     10.      3.     .71
                ROUTED TO
+                    103104     251.   4.83      40.     10.      3.     .71
+                                                                         .74      4.83
                HYDROGRAPH AT
+                       104     617.   4.50     146.     37.     12.     .98
                DIVERSION TO
+                    104RET     617.   6.25     142.     36.     12.     .98
                HYDROGRAPH AT
+                    104OUT      56.   6.25       6.      1.      0.     .98
                HYDROGRAPH AT
+                    NOR104     126.   4.75      19.      5.      2.     .00
                ROUTED TO
+                    OFF104     109.   5.25      19.      5.      2.     .00
+                                                                         .62      5.25
                3 COMBINED AT
+                     CP104     280.   5.08      65.     16.      5.    1.70
                DIVERSION TO
+                     TO107     140.   5.08      32.      8.      3.    1.70
                HYDROGRAPH AT
+                      D104     140.   5.08      32.      8.      3.    1.70
                ROUTED TO
+                    104105     137.   5.17      32.      8.      3.    1.70
+                                                                         .43      5.17
                HYDROGRAPH AT
+                       105     223.   4.42      53.     13.      4.     .28
                DIVERSION TO
+                    105RET     223.   4.75      30.      7.      2.     .28
                HYDROGRAPH AT
+                    105OUT     183.   4.75      23.      6.      2.     .28
                3 COMBINED AT
+                     CP105     291.   4.92     151.     63.     26.    2.27
                ROUTED TO
+                      P105     145.   6.08     145.     63.     26.    2.27
+                                                                     1279.83      6.67
                DIVERSION TO
+                    EAS105       0.   6.08       0.      0.      0.    2.27
                HYDROGRAPH AT
+                    105EAS     145.   6.08     145.     63.     26.    2.27
                ROUTED TO
+                    105108     145.   7.33     144.     63.     26.    2.27
```

```
+                                                                                                  78.85        7.33

          HYDROGRAPH AT
+                    FRM103     185.   4.42      27.       7.       2.     .00

          ROUTED TO
+                   103106     172.   4.67      27.       7.       2.     .00
+                                                                                                   .66        4.67

          HYDROGRAPH AT
+                       106     258.   4.42      61.      15.       5.     .43

          DIVERSION TO
+                   106RET     258.   5.42      51.      13.       4.     .43

          HYDROGRAPH AT
+                   106OUT      83.   5.42      10.       3.       1.     .43

          2 COMBINED AT
+                     CP106     172.   4.67      37.       9.       3.     .43

          ROUTED TO
+                   106107     155.   5.00      37.       9.       3.     .43
+                                                                                                   .52        5.00

          HYDROGRAPH AT
+                      D104     140.   5.08      32.       8.       3.     .00

          ROUTED TO
+                   104107     135.   5.25      32.       8.       3.     .00
+                                                                                                   .58        5.25

          HYDROGRAPH AT
+                       107     428.   4.42     103.      26.       9.     .49

          DIVERSION TO
+                   107RET     334.   4.42      25.       6.       2.     .49

          HYDROGRAPH AT
+                   107OUT     428.   4.42      78.      20.       7.     .49

          3 COMBINED AT
+                     CP107     536.   5.00     148.      37.      12.     .92

          ROUTED TO
+                   107108     522.   5.08     148.      37.      12.     .92
+                                                                                                  1.05        5.08

          HYDROGRAPH AT
+                       108     128.   4.33      30.       8.       3.     .13

          DIVERSION TO
+                   108RET     128.   5.83      28.       7.       2.     .13

          HYDROGRAPH AT
+                   108OUT      18.   5.83       2.       0.       0.     .13

          3 COMBINED AT
+                     CP108     588.   5.17     270.     100.      39.    3.33

          ROUTED TO
+                      P108     398.   6.00     249.     100.      39.    3.33
+                                                                                                1280.08        6.00

          DIVERSION TO
+                   LOS108      13.   6.00       8.       2.       1.    3.33

          HYDROGRAPH AT
+                   108EAS     386.   6.00     241.      98.      38.    3.33

          ROUTED TO
+                   108111     377.   6.42     237.      97.      38.    3.33
+                                                                                                  77.70        6.42

          HYDROGRAPH AT
+                       109     310.   4.92      73.      18.       6.     .71

          ROUTED TO
+                   109110     209.   6.08      71.      18.       6.     .71
+                                                                                                   .52        6.08

          HYDROGRAPH AT
+                       110     429.   4.42     116.      29.      10.     .49

          DIVERSION TO
+                   110RET     429.   5.67     102.      26.       9.     .49

          HYDROGRAPH AT
+                   110OUT     122.   5.67      15.       4.       1.     .49

          HYDROGRAPH AT
+                       116     330.   4.75     104.      26.       9.     .60

          DIVERSION TO
+                    TO117     264.   4.75      83.      21.       7.     .60
```

```
                HYDROGRAPH AT
+                         D116       66.   4.75       21.       5.       2.     .60
                ROUTED TO
+                       116112       38.   6.42       19.       5.       2.     .60
+                                                                                     .53      6.42
                HYDROGRAPH AT
+                          112      954.   4.83      223.      56.      19.    1.28
                2 COMBINED AT
+                         CP112      957.   4.83      241.      61.      20.    1.88
                ROUTED TO
+                       112113      576.   6.75      228.      61.      20.    1.88
+                                                                                     .69      6.75
                HYDROGRAPH AT
+                          113      632.   5.17      214.      54.      18.     .99
                4 COMBINED AT
+                         CP110     1016.   6.42      513.     137.      46.    4.07
                ROUTED TO
+                       110111      985.   6.92      507.     137.      46.    4.07
+                                                                                     .83      6.92
                HYDROGRAPH AT
+                          111      256.   4.42       63.      16.       5.     .29
                DIVERSION TO
+                       111RET      223.   4.42       19.       5.       2.     .29
                HYDROGRAPH AT
+                       111OUT      256.   4.42       45.      11.       4.     .29
                3 COMBINED AT
+                         CP111     1341.   6.75      754.     244.      87.    7.69
                ROUTED TO
+                         P111     1294.   7.08      611.     225.      84.    7.69
+                                                                                1279.63      7.08
                DIVERSION TO
+                       EAS111        0.   7.08        0.       0.       0.    7.69
                HYDROGRAPH AT
+                       111EAS     1294.   7.08      611.     225.      84.    7.69
                DIVERSION TO
+                         EA114      360.   7.08      112.      28.       9.    7.69
                HYDROGRAPH AT
+                         114EA      934.   7.08      499.     197.      75.    7.69
                ROUTED TO
+                       111114      875.   7.67      492.     197.      75.    7.69
+                                                                                  76.56      7.67
                HYDROGRAPH AT
+                          114      237.   4.75       80.      20.       7.     .39
                DIVERSION TO
+                       114RET       54.   4.75        3.       1.       0.     .39
                HYDROGRAPH AT
+                       114OUT      237.   4.75       78.      19.       6.     .39
                2 COMBINED AT
+                         CP114      894.   7.67      499.     213.      81.    8.07
                ROUTED TO
+                         P114      821.   8.08      483.     213.      81.    8.07
+                                                                                1277.11      8.08
                DIVERSION TO
+                       EAS114      166.   8.08       42.      10.       3.    8.07
                HYDROGRAPH AT
+                       114EAS      655.   8.08      441.     202.      78.    8.07
                DIVERSION TO
+                         EA115      289.   8.08      116.      29.      10.    8.07
                HYDROGRAPH AT
+                         115EA      366.   8.08      326.     173.      68.    8.07
                ROUTED TO
+                       114115      365.   8.42      325.     173.      68.    8.07
+                                                                                  70.90      8.42
                HYDROGRAPH AT
+                          115      362.   4.58      110.      28.       9.     .47
```

```
+                DIVERSION TO
                      115RET     246.   4.58       18.       4.       1.      .47
+                HYDROGRAPH AT
                      115OUT     362.   4.58       94.      23.       8.      .47
+                2 COMBINED AT
                       CP115     473.   4.83      334.     196.      76.     8.54
+                ROUTED TO
                        P115     276.  13.50      269.     195.      76.     8.54
+                                                                   1275.01    13.50
+                DIVERSION TO
                      EAS115       0.  13.50        0.       0.       0.     8.54
+                HYDROGRAPH AT
                      115EAS     276.  13.50      269.     195.      76.     8.54
+                ROUTED TO
                      115118     276.  14.17      269.     193.      76.     8.54
+                                                                     69.82    14.17
+                HYDROGRAPH AT
                        D116     264.   4.75       83.      21.       7.      .00
+                ROUTED TO
                      116117     183.   6.33       80.      21.       7.      .00
+                                                                       .38     6.33
+                HYDROGRAPH AT
                         117     315.   5.00      104.      26.       9.      .48
+                2 COMBINED AT
                       CP117     350.   5.75      180.      47.      16.      .48
+                ROUTED TO
                      117118     287.   8.33      163.      47.      16.      .48
+                                                                       .60     8.33
+                HYDROGRAPH AT
                         118     597.   4.75      205.      53.      18.      .90
+                DIVERSION TO
                      118RET     597.   5.25      113.      28.       9.      .90
+                HYDROGRAPH AT
                      118OUT     490.   5.25       97.      24.       8.      .90
+                3 COMBINED AT
                       CP118     527.   8.17      438.     264.     100.     9.92
+                ROUTED TO
                        P118     125.  24.33      123.     110.      63.     9.92
+                                                                   1270.04    24.33
+                DIVERSION TO
                      EAS118       0.  24.33        0.       0.       0.     9.92
+                HYDROGRAPH AT
                       XRDPK     125.  24.33      123.     110.      63.     9.92
+                HYDROGRAPH AT
                      DSS102       0.    .00        0.       0.       0.      .00
+                HYDROGRAPH AT
                      RTR108      13.   6.00        8.       2.       1.      .00
+                DIVERSION TO
                      TOBASN      11.   6.00        7.       2.       1.      .00
+                HYDROGRAPH AT
                      EAS108       1.   6.00        0.       0.       0.      .00
+                HYDROGRAPH AT
                      DSS111       0.    .00        0.       0.       0.      .00
+                HYDROGRAPH AT
                      DSS114     166.   8.08       42.      10.       3.      .00
+                HYDROGRAPH AT
                      RTR114     360.   7.08      112.      28.       9.      .00
+                HYDROGRAPH AT
                      RTR115     289.   8.08      116.      29.      10.      .00
+                7 COMBINED AT
                      OVERBK     680.   8.08      275.     150.      85.     9.92
+                HYDROGRAPH AT
                         122     601.   4.75      185.      47.      16.     1.07
+                DIVERSION TO
                      122RET     569.   4.75       54.      14.       5.     1.07
```

```
          HYDROGRAPH AT
+                    122OUT      601.   4.75       134.       33.       11.      1.07
          DIVERSION TO
+                     TO123      240.   4.75        53.       13.        4.      1.07
          HYDROGRAPH AT
+                      D122      361.   4.75        80.       20.        7.      1.07
          ROUTED TO
+                    122119      328.   5.25        80.       20.        7.      1.07
+                                                                                        1.26        5.25
          HYDROGRAPH AT
+                       119      392.   4.83       118.       30.       10.       .49
          DIVERSION TO
+                    119RET      267.   4.83        19.        5.        2.       .49
          HYDROGRAPH AT
+                    119OUT      392.   4.83       101.       25.        8.       .49
          2 COMBINED AT
+                     CP119      673.   5.17       181.       45.       15.      1.55
          HYDROGRAPH AT
+                    FRM122      240.   4.75        53.       13.        4.       .00
          ROUTED TO
+                    122123      144.   6.33        52.       13.        4.       .00
+                                                                                         .67        6.33
          HYDROGRAPH AT
+                       124      194.   5.17        53.       13.        4.       .66
          ROUTED TO
+                      P124      111.   5.92        27.        7.        2.       .66
+                                                                                     1303.22        5.92
          ROUTED TO
+                    124123       45.   8.58        24.        7.        2.       .66
+                                                                                         .38        8.58
          HYDROGRAPH AT
+                       123      512.   5.17       145.       36.       12.       .96
          3 COMBINED AT
+                     CP123      513.   5.17       210.       57.       19.      1.61
          DIVERSION TO
+                     TO121      308.   5.17       126.       34.       11.      1.61
          HYDROGRAPH AT
+                      D123      205.   5.17        84.       23.        8.      1.61
          ROUTED TO
+                    123120      164.   6.17        81.       23.        8.      1.61
+                                                                                         .61        6.17
          HYDROGRAPH AT
+                       120      300.   4.92        87.       22.        7.       .41
          DIVERSION TO
+                    120RET      288.   4.92        26.        6.        2.       .41
          HYDROGRAPH AT
+                    120OUT      300.   4.92        62.       16.        5.       .41
          2 COMBINED AT
+                     CP120      338.   5.25       143.       38.       13.      2.02
          HYDROGRAPH AT
+                       121      633.   4.67       130.       33.       11.       .67
          DIVERSION TO
+                    121RET      633.   5.00        79.       20.        7.       .67
          HYDROGRAPH AT
+                    121OUT      491.   5.00        51.       13.        4.       .67
          HYDROGRAPH AT
+                    FRM123      308.   5.17       126.       34.       11.       .00
          ROUTED TO
+                    123121      249.   6.58       121.       34.       11.       .00
+                                                                                         .56        6.58
          2 COMBINED AT
+                     CP121      494.   5.00       170.       47.       16.       .67
          3 COMBINED AT
+                     CPSAN     1454.   5.00       490.      130.       43.      4.25
```

```
*** NORMAL END OF HEC-1 ***


  -----DSS---ZCLOSE Unit:  71,   File: CGFDSP1N-6.DSS
             Pointer Utilization:   .65
             Number of Records:    916
             File Size:   1436.7  Kbytes
             Percent Inactive:    .0
```

```
1****************************************
 *                                      *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
 *              JUN   1998              *
 *            VERSION 4.1               *
 *                                      *
 *  RUN DATE   12DEC07  TIME  19:49:37  *
 *                                      *
 ****************************************
```

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

```
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
```

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

                    *Diagram
        1           ID   Project ID: MARI0040_SE - Major Basin: 01 - Return Period: 100 Years
        2           ID
        3           ID   Chandler/Gilbert Floodplain Delineation Study
        4           ID   Phase I-South, Eastern Canal Watershed
        5           ID   FCD# 2002C023
        6           ID   DATE: June 2007
        7           ID
        8           ID   Watershed boundaries:
        9           ID   South of Union Pacific Railroad, east of Eastern Canal
       10           ID   North of Hunt Hwy, west of East Maricopa Floodway
       11           ID
       12           ID   Prepared by David Evans & Associates
       13           ID   Modelers:
       14           ID                Tami Norton, E.I.T., CFM
       15           ID                Gregory B. Jones, E.I.T.
       16           ID                Nathan A. Beutler, E.I.T., CFM
       17           ID   Updated:     Larry Sibala, P.E., CFM
       18           ID                12/12/07
       19           ID   Changes per comments
       20           ID   File:  P:\MARI0000-0004\Engineering\MARI0040-SE\HEC1\CGFDSP1S-24.dat
       21           ID
       22           ID   5-minute time interval - 100-year, 24-hour storm event.
       23           ID
       24           ID   Total Watershed Area = 22.64 sq. mi, Total Point Rainfall = 3.45
       25           ID
       26           ID   Aerial reduction was applied using PB records.
       27           ID   The Phase 1 - South watershed was broken into three PB regions:
       28           ID
       29           ID       First PB region includes sub-basins
       30           ID       200, 202, 203, 206-208, 212, 213
       31           ID       Area = 3.15 sq. mi, Reduction Factor = 0.985, PB record = 3.400
       32           ID
       33           ID       Second PB region includes sub-basins
       34           ID       201, 204, 205, 209-211, 214-221, 237
       35           ID       Area = 10.50 sq. mi, Reduction Factor = 0.948, PB record = 3.270
       36           ID
       37           ID       Third PB region includes sub-basins
       38           ID       222-236, 238
       39           ID       Area = 8.99 sq. mi, Reduction Factor = 0.962, PB record = 3.320
       40           ID
       41           ID   Green and Ampt Infiltration method used to determine rainfall losses.
       42           ID
       43           ID   Clark Method used to create Unit Hydrographs.
       44           ID
       45           ID   Normal Depth Method used for channel routing.
       46           ID
       47           ID   Eastern Maricopa and Northern Pinal Counties Area, Arizona Soil Survey
       48           ID   used for soils data.
       49           ID
       50           ID   Flood Control District of Maricopa County's (FCDMC) GIS data,
       51           ID   aerial photos dated Dec. 2002, and developments as directed
       52           ID   by Chandler and Gilbert by date of April 2003 used for Land Use Data.
       53           ID
       54           ID   FCDMC DDMSW Version 2.1.0 Program used to calculate rainfall, rainfall losses
1                                    HEC-1 INPUT                                    PAGE  2
```

```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

  55          ID   and Unit Hydrographs.
  56          ID
  57          ID   Model includes proposed Santan Freeway alignment and associated
  58          ID   drainage facilities.
  59          ID
  60          ID   DSS file: CGFDS.dss
  61          ID
  62          IT       5 03MAR03    1200    2000
  63          IO       5

  64          KK  00RAIN
  65          PB   3.130
              *
              * ******************************************************************************
              *          FIRST      PB   REGION
              * ******************************************************************************

  66          KK     206   BASIN
  67          BA   0.759
  68          IN      15
  69          PB   3.400
  70          KM   The following parameters were determined for this basin.
  71          KM   L= 1.18 mi  S= 8.1 ft/mi  Kb= 0.045  Natural
  72          KM   Total point rainfall = 3.45, Area = 3.15 sq. mi, reduction factor = 0.985
  73          KM   Region bounded by UPRR on the northeast, the Santan Freeway on the east and
  74          KM   south, and the Eastern Canal on the west.
  75          PC   0.000   0.002   0.005   0.008   0.011   0.014   0.017   0.020   0.023   0.026
  76          PC   0.029   0.032   0.035   0.038   0.041   0.044   0.048   0.052   0.056   0.060
  77          PC   0.064   0.068   0.072   0.076   0.080   0.085   0.090   0.095   0.100   0.105
  78          PC   0.110   0.115   0.120   0.126   0.133   0.140   0.147   0.155   0.163   0.172
  79          PC   0.181   0.191   0.203   0.218   0.236   0.257   0.283   0.387   0.663   0.707
  80          PC   0.735   0.758   0.776   0.791   0.804   0.815   0.825   0.834   0.842   0.849
  81          PC   0.856   0.863   0.869   0.875   0.881   0.887   0.893   0.898   0.903   0.908
  82          PC   0.913   0.918   0.922   0.926   0.930   0.934   0.938   0.942   0.946   0.950
  83          PC   0.953   0.956   0.959   0.962   0.965   0.968   0.971   0.974   0.977   0.980
  84          PC   0.983   0.986   0.989   0.992   0.995   0.998   1.000
  85          LG    0.45    0.27    5.30    0.33       0
  86          UC   1.500   0.775
  87          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
  88          UA     100
              *

  89          KK    D206  INTERSECTION DIVERSION
  90          KM   Flow split at Val Vista and Chandler Blvd with 70%
  91          KM   diverted north along Val Vista.
  92          DT   To202
  93          DI       0     100     500    1000    2000
  94          DQ       0      70     350     700    1400
              *
1                                          HEC-1 INPUT                                          PAGE  3

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

  95          KK  206203   ROUTE   REACH
  96          KM   Flow split at Val Vista and Chandler Blvd. with 30%
  97          KM   routed west along Chandler Blvd.
  98          RS       3    FLOW      -1
  99          RC   0.035   0.015   0.035    2765  0.0028    2.00
 100          RX     0.0     0.0    60.0    60.0   140.0   140.0   200.0   200.0
 101          RY     2.0     0.8     0.5     0.0     0.0     0.5     0.8     2.0
              *

 102          KK   XRDPK
 103          KM   RETRIEVE DATA FROM THE DSS FILE
 104          KM   Flow from Crossroads Park conveyed under UPRR through 48" culvert
 105          BA   0.001
 106          ZR    =QI A=EAST B=XRDPK C=FLOW E=5MIN
              *

 107          KK   To200
 108          KM   Divert flow out if TWD to Sub-basin 200
 109          DT   XRPKD
 110          DI      25      50      75     100     125     150     175
 111          DQ       0       0       0       0       0       0       1
              *

 112          KK  XRD200   ROUTE
 113          KM   Route flow in tailwater ditch, not through Sub-basin 200
 114          RS       3    FLOW      -1
 115          RC   0.015   0.015   0.015    2343  0.0029    6.33
 116          RX    10.4    14.6    17.4    26.0      32    36.8    43.6    47.9
 117          RY    6.33    3.13    0.29       0    4.63    4.88    5.19     6.1
              *

 118          KK   XRPKD
 119          KM   Retreive overflow from TWD
 120          DR   XRPKD
              *

 121          KK     200   BASIN
 122          KM   The following parameters were determined for this sub basin.
 123          KM   L= 1.98 mi  S= 6.1 ft/mi  Kb= 0.029  Urban
```

```
 124          BA   0.158
 125          LG    0.29    0.10   11.20    0.03      16
 126          UC   1.317   2.483
 127          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
 128          UA     100
              *

 129          KK    C200
 130          KM   Combine Sub-basin 200 and XRPKD
 131          KO       3
 132          HC       2
              *
1                                          HEC-1 INPUT                                          PAGE  4

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 133          KK    P200
 134          KM   Ponding due to back water at 8' x 7'box culvert. Water ponds east of the TWD
 135          KM   before weiring back into tailwater ditch and out through culvert
 136          KM   under Ray Road. Ponding volume includes portions of TWD just U/S of Ray Rd.
 137          KM   Road weir min elev = 1270.26
 138          KM   Canal weir min elev = 1268.07
 139          KO       3
 140          RS       1    STOR       0       0
 141          SV    0.01    0.02    0.31    1.59    3.21    4.00    5.66   26.28   66.65   92.97
 142          SE  1266.5    1267    1268  1268.5 1268.75 1268.84    1269    1270    1271  1271.5
 143          SQ       0       0       0      18    56.0      78     128     801    4321    7964
              *

 144          KK   CP200
 145          KM   Combine all flow conveyed through 8' x 7'box culvert under Ray Road
 146          KM   All flow leaving Sub-basin 200 goes through culvert and is
 147          KM   Routed in TWD to CP202
 148          HC       2
              *

 149          KK  200202   ROUTE
 150          KM   Route flow south in tailwater ditch, not though sub-basin 202.
 151          KM   A block wall separates tailwater ditch and residental retention
 152          KM   basins preventing overflow from ditch.
 153          RS       4    FLOW      -1
 154          RC   0.015   0.015   0.015    3863  0.0018    6.39
 155          RX       0     3.5     6.3     7.5   16.14    20.8    21.5    53.8
 156          RY    5.60    5.82    2.01    0.02       0    5.41    6.26    6.39
              *

 157          KK  FRM206
 158          KM   Retrieve hydrograph from flow split at Val Vista & Chandler Blvd,
 159          KM   directed north.
 160          DR   To202
              *

 161          KK  206202   ROUTE
 162          KM   Routed north along Val Vista Road to rention basin at C202.
 163          RS       2    FLOW      -1
 164          RC   0.035   0.015   0.035    1725  0.0003    2.00
 165          RX     0.0       0      45      45     128     128     173     173
 166          RY       2     0.8     0.5     0.0     0.0     0.5     0.8       2
              *
              *

 167          KK     202   BASIN
 168          KM   The following parameters were determined for this sub basin.
 169          KM   L= 1.77 mi  S= 9.0 ft/mi  Kb= 0.040  Urban
 170          BA   0.846
 171          LG    0.39    0.16    8.80    0.08      11
 172          UC   1.413   0.943
 173          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
 174          UA     100
              *
1                                          HEC-1 INPUT                                          PAGE  5

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 175          KK     202
 176          KM   RETENTION DIVERSION
 177          KM   Divert flow retained within residential areas
 178          DT  202RET   20.56
 179          DI       0   10000
 180          DQ       0   10000
              *

 181          KK    C202
 182          KM   Combine SUB 202, 206202
 183          KO       3
 184          HC       2
              *

 185          KK    P202
 186          KM   Ponding in retention basins east of tailwater ditch.
 187          KM   Block wall prevents flow from overtopping into tailwater.
 188          KM   Flow overtops Val Vista Drive.
 189          KM   Road weir min elev = 1267.35
```

```
 190          KM   TWD eastbank weir min elev =1269.80
 191          KO       3
 192          RS       1    STOR       0       0
 193          SV       0    0.15     2.6   13.24   19.58   20.73   21.92    24.4    25.7      27
 194          SV   27.77   29.61
 195          SE    1262    1263    1265    1267  1267.6  1267.7  1267.8    1268  1268.1  1268.2
 196          SE  1268.3  1268.4
 197          SQ       0       0       0       0      14      40      78     186     257     340
 198          SQ     436     544
              *

 199          KK   Dummy
 200          KM   Divert flow overtopping Val Vista Drive
 201          DT   DVVOF
 202          DI       0     100
 203          DQ       0     100
              *

 204          KK   CP202
 205          KM   Concentration point added to determine total flow in tailwater ditch conveyed
 206          KM   in 12x5.5' box culvert under Val Vista Drive.
 207          HC       2
              *

 208          KK   Dummy
 209          KM   Divert Tailwater Ditch flow to be retrieved later.
 210          DT  DTD203
 211          DI       0     100
 212          DQ       0     100
              *
1                                          HEC-1 INPUT                                          PAGE  6

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 213          KK    VVOF
 214          KM   Retrieve Val Vista Drive overflow from P202
 215          DR   DVVOF
              *

 216          KK     203   BASIN
 217          KM   The following parameters were determined for this sub basin.
 218          KM   L= 0.76 mi  S= 8.1 ft/mi  Kb= 0.038  Urban
 219          BA   0.106
 220          LG    0.23    0.22    6.60    0.16      24
 221          UC   0.742   0.766
 222          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
 223          UA     100
              *

 224          KK    C203
 225          KM   Combine 206203, SUB203 & FR202.
 226          KO       3
 227          HC       4
              *

 228          KK    P203
 229          KM   Ponding in retention basins adjacent to tailwater ditch between Chandler
 230          KM   Blvd and Val Vista. Block wall prevents flow from overtopping into
 231          KM   tailwater ditch. Flow overtops Chandler Blvd.
 232          KM   Road weir min elev = 1268.05
 233          KM   TWD eastbank weir min elev =1269.25
 234          KO       3
 235          RS       1    STOR       0       0
 236          SV       0    3.85    35.3   37.46   39.65    41.8    42.9      44    46.2
 237          SE    1262    1264    1268  1268.2  1268.4  1268.6  1268.7  1268.8    1269
 238          SQ       0       0       0       5      41     120     175     241     410
              *

 239          KK  OTD203
 240          KM   A block wall exists along east side of tailwater ditch preventing any
 241          KM   overflow into tailwater ditch.
 242          KM   Divert 100% of flow over Chandler Blvd to be retrieved later.
 243          DT  DCBLVD
 244          DI       0     100
 245          DQ       0     100
              *

 246          KK  TWD203
 247          KM   Retrieve flow from TWD203
 248          DR  DTD203
              *

 249          KK  TWD203
 250          KM   Route flow south in tailwater ditch, not though sub-basin 203.
 251          KM   A block wall separates tailwater ditch and residential retention
 252          KM   basins preventing overflow from ditch or from basin.
 253          RS       3    FLOW      -1
 254          RC   0.015   0.015   0.015    2343  0.0029    6.33
1                                          HEC-1 INPUT                                          PAGE  7

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 255          RX    10.4    14.6    17.4    26.0      32    36.8    43.6    47.9
 256          RY    6.33    3.13    0.29       0    4.63    4.88    5.19     6.1
```

```
                *
 257            KK   CP203
 258            KM   Concentration point added to determine total flow in tailwater conveyed
 259            KM   in 78" pipe under Chandler Blvd.
 260            HC       2
                *

 261            KK  203208   ROUTE
 262            KM   Route flow south in tailwater ditch, not through sub-basin 208.
 263            RS       3    FLOW      -1
 264            RC    0.03    0.03    0.03    2938  0.0014    6.59
 265            RX    6.38    15.5    16.2    17.3    18.7    25.9    32.1    36.3
 266            RY    6.59    6.58    6.24    5.80    4.92       0    3.74    6.48
                *

 267            KK  OCBLVD
 268            KM   Retrieve flow overtopping Chandler Blvd.
 269            DR  DCBLVD
                *

 270            KK   P208N
 271            KM   Ponding in Villas at Spectrum residential sub-division retention basin,
 272            KM   south of Chandler Blvd.  70 ft weir at south end of retention basin to
 273            KM   convey flow to P208S.
 274            KM   Retention Basin weir min elev = 1264.69
 275            KM   Canal weir min elev = 1267.78
 276            KO       3
 277            RS       1    STOR       0       0
 278            SV       0     2.2    3.47    4.85    7.99   11.64
 279            SE  1262.7 1263.69 1264.19 1264.69 1265.69 1266.69
 280            SQ       0      25      50     150     200     250     275     300     400    500.
 281            SE  1264.7 1264.96 1265.11 1265.55 1265.72 1265.87 1265.94 1266.01 1266.27 1266.50
                *

 282            KK     208   BASIN
 283            KM   The following parameters were determined for this sub basin.
 284            KM   L= 0.83 mi  S= 10.5 ft/mi  Kb= 0.039  Urban
 285            BA   0.110
 286            LG    0.25    0.25    4.80    0.35      31
 287            UC   0.604   0.641
 288            UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
 289            UA     100
                *

 290            KK     208
 291            KM   RETENTION DIVERSION
 292            KM   Divert flow retained within residential areas
 293            DT  208RET    2.44
 294            DI       0   10000
 295            DQ       0   10000
                *
1                                          HEC-1 INPUT                                          PAGE  8

LINE            ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 296            KK   C208S
 297            KM   Combine flows from Sub-basin 208 and overflow from P208N overflow
 298            KO       3
 299            HC       2
                *

 300            KK   P208S
 301            KM   Ponding in retention basins east of tailwater ditch, south of Chandler Blvd.
 302            KM   Southern berm weir min elev = 1266.00
 303            KM   TWD eastbank weir min elev =1267.20
 304            RS       1    STOR       0       0
 305            KO       3
 306            SV    0.46    2.46    4.90    7.69   10.84   14.48   18.66   19.34   19.69   19.99
 307            SV      23
 308            SE    1260    1261    1262    1263    1264    1265    1266 1266.16 1266.24 1266.31
 309            SE    1267
 310            SQ       0       0       0       0       0       0       0      17      33      50
 311            SQ     419
                *

 312            KK   Dummy
 313            KM   Divert flow overtopping from P208S to Sub-basin 207
 314            DT    D207
 315            DI       0     100
 316            DQ       0     100
                *

 317            KK   CP208
 318            KM   Concentration point added to determine total flow in tailwater conveyed
 319            KM   at CP208
 320            HC       2
                *

 321            KK  208207   ROUTE
 322            KM   Route flow south in tailwater ditch, not through sub-basin 207.
 323            RS       4    FLOW      -1
 324            RC   0.015   0.015   0.015    3151  0.0003    6.60
 325            RX       0    6.74    6.94   14.37    18.2    22.5    29.1    35.8
```

```
326          RY     5.7    0.17    0.17       0    3.04    6.60    6.36     6.2
             *

327          KK   Dummy
328          KM   Tailwater ditch goes underground in 6x6 box culvert at Pecos. Flow is
329          KM   conveyed to a lift station approximately 1600' south of Pecos road,
330          KM   outletting into Eastern Canal. Therefore, flow in tail water ditch
331          KM   is diverted out of the system.
332          DT   CANAL
333          DI       0     100
334          DQ       0     100
             *
1                                          HEC-1 INPUT                                                    PAGE  9

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

335          KK     213   BASIN
336          KM   The following parameters were determined for this sub basin.
337          KM   L= 0.67 mi  S= 8.0 ft/mi  Kb= 0.045  Urban
338          KO       3
339          BA   0.125
340          LG    0.39    0.23    6.20    0.21       4
341          UC   0.908   0.790
342          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
343          UA     100
             *

344          KK    P213
345          KM   Ponding along Eastern Canal, south of Pecos Rd.
346          KM   South Boundary weir min elev =1266.30
347          KM   Canal weir min elev = 1266.80
348          KM   Pecos weir min elev = 1266.00
349          KO       3
350          RS       1    STOR       0       0
351          SV       0     .06    4.44    7.53    9.41   14.13   29.52
352          SE    1264    1265    1266  1266.2  1266.3  1266.5    1267
353          SQ       0       0       0       5      14      86    1029
             *

354          KK    O207
355          KM   Retrieve flow overtopping from Sub-Basin 208
356          DR    D207
             *

357          KK     207   BASIN
358          KM   The following parameters were determined for this sub basin.
359          KM   L= 1.70 mi  S= 6.3 ft/mi  Kb= 0.027  Urban
360          BA   0.678
361          LG    0.27    0.25    5.20    0.30      28
362          UC   1.238   0.894
363          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
364          UA     100
             *

365          KK     207
366          KM   RETENTION DIVERSION
367          KM   Divert flow retained within residential areas
368          DT  207RET    45.4
369          DI       0   10000
370          DQ       0   10000
             *

371          KK   CP207
372          KM   Combine SUB 207, O207 and oveflow from P213.
373          KO       3
374          HC       4
             *
1                                          HEC-1 INPUT                                                    PAGE 10

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

375          KK    P207
376          KM   Ponding in retention basin east of tailwater ditch, north of Pecos Rd.
377          KM   Road weir min elev =1265.95
378          KM   TWD eastbank weir min elev =1266.94
379          KO       3
380          RS       1    STOR       0       0
381          SV       0    1.27   10.55   36.54   50.79   65.83   98.20  115.51  133.60  152.47
382          SV  172.37  182.88  205.24
383          SE    1255    1256    1257    1259    1260    1261    1263    1264    1265    1266
384          SE    1267  1267.5  1268.5
385          SQ       0       0       0       0       0       0       0       0       0       1
386          SQ     920    2716   12171
             *

387          KK    D207 Canal Diversion
388          KM   Overflow to Canal
389          DT  EAS207
390          DI       0     100
391          DQ       0     100
             *
             *
```

```
392          KK     212   BASIN
393          KM   The following parameters were determined for this sub basin.
394          KM   L= 1.62 mi  S= 9.9 ft/mi  Kb= 0.046  Natural
395          KO       3
396          BA   0.372
397          LG    0.47    0.25    5.60    0.31       1
398          UC   1.500   1.500
399          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
400          UA     100
             *

401          KK    P212
402          KM   Ponding in low basin area, north of Santan Freeway, at Lindsey and 114th St.
403          KM   Canal weir min elev = 1266.00
404          KM   Lindsay weir min elev =1269.00
405          KM   114th St weir min elev = 1266.00
406          KO       3
407          RS       1    STOR       0       0
408          SV       0     .17     .57    1.66    2.98    4.41     4.7    4.77    4.85    4.96
409          SV    5.03    5.13
410          SE    1262  1262.5    1263    1264    1265    1266  1266.2 1266.25 1266.31 1266.38
411          SE  1266.4  1266.5
412          SQ       0       0       0       0       0       0      68      98     139     195
413          SQ     212     308
             *

414          KK   D212R Canal Diversion
415          KM   Flow is diverted in two directions: over the canal and over 114th St.
416          KM   This diversion shows flow over Canal. Remaining flow goes to Santan
417          KM   Basin O
418          KO       3
419          DT  EAS212
```



```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

420          DI       0      68      98     139     195     212
421          DQ       0       2       4       7      10      11
             *
             * ******************************************************************************
             *         SECOND      PB          REGIO       N
             * ******************************************************************************

422          KK     209   BASIN
423          KM   The following parameters were determined for this sub basin.
424          KM   L= 1.51 mi  S=9.1 ft/mi  Kb= 0.026  Urban
425          PB   3.270
426          KM   Total point rainfall = 3.45, Area = 10.5 sq. mi, reduction factor = 0.948
427          KM   Region bounded by UPRR on the northeast, the EMF on the east, Ocotillo Rd. on
428          KM   the south, and the Eastern Canal and Santan Freeway on the west.
429          BA   0.868
430          LG    0.24    0.26    5.00    0.32      29
431          UC   0.921   0.509
432          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
433          UA     100
             *

434          KK     209
435          KM   RETENTION DIVERSION
436          KM   Divert flow retained within residential areas
437          DT  209RET   86.27
438          DI       0   10000
439          DQ       0   10000
             *

440          KK    D209  INTERSECTION DIVERSION
441          KM   Flow split at Higley and Pecos with 40%
442          KM   diverted north along Higley.
443          DT   To205
444          DI       0     100     500    1000    2000
445          DQ       0      40     200     400     800
             *

446          KK  209210   ROUTE   REACH
447          KM   Flow split at Higley and Pecos with 60%
448          KM   routed west along Pecos.
449          RS       6    FLOW      -1
450          RC   0.030   0.015   0.030    5297  0.0028   10.00
451          RX     0.0    10.0    21.0    25.0    25.0    49.0    58.0    68.0
452          RY    10.0     0.0     1.8     2.1     2.1     1.8     0.0    10.0
             *

453          KK     216   BASIN
454          KM   The following parameters were determined for this sub basin.
455          KM   L= 1.37 mi  S= 11.8 ft/mi  Kb= 0.039  Natural
456          BA   1.027
457          LG    0.41    0.25    5.70    0.27       7
458          UC   1.204   0.576
459          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
460          UA     100
             *
```



```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10
```

```
461          KK     216
462          KM   RETENTION DIVERSION
463          KM   Divert flow retained within residential areas
464          DT  216RET    9.05
465          DI       0   10000
466          DQ       0   10000
             *

467          KK    D216  INTERSECTION DIVERSION
468          KM   Flow split at Greenfield and Germann with 70%
469          KM   diverted west along Germann.
470          DT   ToVVG
471          DI       0     100     500    1000    2000
472          DQ       0      70     350     700    1400
             *

473          KK  216210   ROUTE   REACH
474          KM   Flow split at Greenfield and Germann with 30%
475          KM   routed north along Greenfield.
476          KM   Flow contained on east side of Greenfield which is represented by
477          KM   X5 to X8 in route cross section.
478          RS       6    FLOW      -1
479          RC   0.030   0.015   0.035    5347  0.0016    2.10
480          RX     0.0    10.0    21.0    25.0    25.0    49.0    58.0  1010.0
481          RY     2.1     2.1     2.1     2.1     2.1     1.8     0.0     3.2
             *

482          KK     210   BASIN
483          KM   The following parameters were determined for this sub basin.
484          KM   L= 1.51 mi  S= 14.2 ft/mi  Kb= 0.041  Natural
485          BA   1.019
486          LG    0.43    0.16    7.60    0.13       5
487          UC   1.104   0.568
488          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
489          UA     100
             *

490          KK     210
491          KM   RETENTION DIVERSION
492          KM   Divert flow retained within residential areas
493          DT  210RET    3.38
494          DI       0   10000
495          DQ       0   10000
             *

496          KK   CP210
497          KM   Combine 209210, 216210, & SUB 210.
498          HC       3
             *
```



```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

499          KK  FRM209
500          KM   Retrieve hydrograph from flow split at Higley and Pecos, flowing north.
501          DR   To205
             *

502          KK  209205   ROUTE   REACH
503          KM   Routed north along Higley.
504          RS      10    FLOW      -1
505          RC   0.030   0.015   0.035    9491  0.0030    4.60
506          RX     0.0   541.0   552.0   566.0   600.0   600.0   631.0   631.0
507          RY     4.6     0.0     1.8     2.0     1.2     1.7     2.2     4.6
             *

508          KK     205   BASIN
509          KM   The following parameters were determined for this sub basin.
510          KM   L= 2.93 mi  S= 12.0 ft/mi  Kb= 0.032  Urban
511          BA   1.149
512          LG    0.32    0.25    5.00    0.32      11
513          UC   1.500   1.267
514          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
515          UA     100
             *

516          KK     205
517          KM   RETENTION DIVERSION
518          KM   Divert flow retained within residential areas
519          DT  205RET    7.46
520          DI       0   10000
521          DQ       0   10000
             *

522          KK   CP205
523          KM   Combine 209205 & SUB 205.
524          KM   Flow enters Santan Drainage System
525          HC       2
             *

526          KK  FRM216
527          KM   Retrieve hydrograph from flow split at Greenfield & Germann.
528          DR   ToVVG
```

```
                *
529             KK  216VVG   ROUTE   REACH
530             KM   Routed west along Germann.
531             KM   Flow contained on south side of Germann which is represented by
532             KM   X1 to X4 in route cross section.
533             RS       6    FLOW      -1
534             RC   0.035   0.015   0.030    5280  0.0028    1.40
535             RX     0.0   975.0   986.0  1000.0  1000.0  1014.0  1025.0  1035.0
536             RY     1.4     0.0     1.8     2.1     2.1     2.1     2.1     2.1
                *
1                                          HEC-1 INPUT                                          PAGE 14

LINE            ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


537             KK    DVVG  INTERSECTION DIVERSION
538             KM   Flow split at Val Vista and Germann with 60%
539             KM   diverted west along Germann.
540             DT    ToLG
541             DI       0     100     500    1000    2000
542             DQ       0      60     300     600    1200
                *

543             KK  VVG211   ROUTE   REACH
544             KM   Flow split at Val Vista and Germann with 40%
545             KM   routed north along Val Vista.
546             KM   Flow contained on east side of road wich is represented by
547             KM   X5 to X8 in route cross section.
548             RS       4    FLOW      -1
549             RC   0.030   0.015   0.035    3522  0.0026    2.10
550             RX     0.0    10.0    21.0    35.0    35.0    49.0    58.0  1065.0
551             RY     2.1     2.1     2.1     2.1     2.1     1.8     0.0     2.6
                *

552             KK     211   BASIN
553             KM   The following parameters were determined for this sub basin.
554             KM   L= 1.34 mi  S= 14.7 ft/mi  Kb= 0.037  Urban
555             BA   0.925
556             LG    0.38    0.15    7.00    0.14       4
557             UC   0.904   0.437
558             UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
559             UA     100
                *

560             KK   CP211
561             KM   Combine 211 and VVG211.
562             KM   Flow enters Santan Channel.
563             HC       2
                *

564             KK     214   BASIN
565             KM   The following parameters were determined for this sub basin.
566             KM   L= 1.54 mi  S= 10.9 ft/mi  Kb= 0.047  Natural
567             BA   0.406
568             LG    0.50    0.25    4.35    0.59       0
569             UC   1.500   1.370
570             UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
571             UA     100
                *

572             KK     201   BASIN
573             KM   The following parameters were determined for this sub basin.
574             KM   L= 2.55 mi  S= 9.0 ft/mi  Kb= 0.030  Urban
575             BA   0.634
576             LG    0.27    0.15    7.60    0.12      28
577             UC   1.417   1.493
578             UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
579             UA     100
                *
1                                          HEC-1 INPUT                                          PAGE 15

LINE            ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


580             KK     201
581             KM   RETENTION DIVERSION
582             KM   Divert flow retained within residential areas
583             DT  201RET   44.97
584             DI       0   10000
585             DQ       0   10000
                *

586             KK     204   BASIN
587             KM   The following parameters were determined for this sub basin.
588             KM   L= 2.17 mi  S= 12.6 ft/mi  Kb= 0.038  Urban
589             BA   0.816
590             LG    0.34    0.26    4.70    0.40      18
591             UC   1.500   1.211
592             UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
593             UA     100
                *

594             KK     204
595             KM   RETENTION DIVERSION
```

```
596          KM   Divert flow retained within residential areas
597          DT  204RET   45.55
598          DI       0   10000
599          DQ       0   10000
             *

600          KK  CPADOT
601          KM   Combine D212, CP210, CP205, CP211, SUB-BASINS 214, 201, & 204.
602          KM   Hydrographs combined at this CP are removed from the model.
603          KM   ADOT basins O and P have been designed to detain a 50yr-24hr event
604          KM   with enough freeboard for a 100yr-24hr event.
605          HC       7
             *

606          KK     220   BASIN
607          KM   The following parameters were determined for this sub basin.
608          KM   L= 1.60 mi  S= 16 ft/mi  Kb= 0.036  Urban
609          BA   0.786
610          LG    0.39    0.25    4.30    0.50       6
611          UC   1.221   0.771
612          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
613          UA     100
             *

614          KK    D220  INTERSECTION DIVERSION
615          KM   Flow split at Val Vista and Queen Creek with 30%
616          KM   diverted west along Queen Creek.
617          DT   To221
618          DI       0     100     500    1000    2000
619          DQ       0      30     150     300     600
             *
1                                          HEC-1 INPUT                                          PAGE 16

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

620          KK  220217   ROUTE   REACH
621          KM   Flow split at Val Vista and Queen Creek with 70%
622          KM   routed north along Val Vista.
623          KM   Flow contained on east side of Queen Creek which is represented by
624          KM   X5 to X8 in route cross section.
625          RS       3    FLOW      -1
626          RC   0.035   0.015   0.030    2671  0.0011    2.10
627          RX     0.0    10.0    21.0    35.0    35.0    49.0    58.0   170.0
628          RY     2.1     2.1     2.1     2.1     2.1     1.8     0.0     2.1
             *

629          KK     217   BASIN
630          KM   The following parameters were determined for this sub basin.
631          KM   L= 1.52 mi  S= 11.7 ft/mi  Kb= 0.044  Natural
632          BA   1.009
633          LG    0.48    0.25    4.35    0.56       1
634          UC   1.500   0.807
635          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
636          UA     100
             *

637          KK   CP217
638          KM   Combine 220217 & SUB 217.
639          HC       2
             *

640          KK  217218   ROUTE   REACH
641          KM   Routed west through Estates at the Spectrum subdivision
642          KM   agricultural field.
643          RS       6    FLOW      -1
644          RC   0.035   0.035   0.035    5315  0.0029    1.40
645          RX     0.0   160.0   374.0   450.0   640.0   979.0  1266.0  1517.0
646          RY     1.4     0.9     0.1     0.0     0.0     0.4     1.0     1.4
             *

647          KK  FRM220
648          KM   Retrieve hrdrograph from flow split at Val Vista and Queen Creek.
649          DR   To221
             *

650          KK  220221   ROUTE   REACH
651          KM   Routed west along Queen Creek.
652          RS       6    FLOW      -1
653          RC   0.035   0.015   0.035    5278  0.0030    0.60
654          RX     0.0   500.0   511.0   525.0   525.0   539.0   550.0  1050.0
655          RY     0.6     0.0     1.8     2.1     2.1     1.8     0.0     0.6
             *

656          KK     221   BASIN
657          KM   The following parameters were determined for this sub basin.
658          KM   L= 1.46 mi  S= 15.9 ft/mi  Kb= 0.042  Natural
659          BA   0.502
660          LG    0.44    0.25    4.50    0.51      11
661          UC   1.242   0.943
1                                          HEC-1 INPUT                                          PAGE 17

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

662          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
```

```
663          UA     100
             *

664          KK     221
665          KM   RETENTION DIVERSION
666          KM   Divert flow retained within residential areas
667          DT  221RET   15.92
668          DI       0   10000
669          DQ       0   10000
             *

670          KK   CP221
671          KM   Combine 220221 & SUB 221
672          HC       2
             *

673          KK    D221 INTERSECTION DI VERSION
674          KM   Flow split at Lindsay and Queen Creek with 60%
675          KM   diverted west along Queen Creek.
676          DT   To238
677          DI       0     100     500    1000    2000
678          DQ       0      60     300     600    1200
             *

679          KK  221218   ROUTE   REACH
680          KM   Flow split at Lindsay and Queen Creek with 40%
681          KM   routed north along Lindsay.
682          KM   Flow contained on east side of Lindsay which is represented by
683          KM   X5 to X8 in route cross section.
684          RS       3    FLOW      -1
685          RC   0.035   0.015   0.035    2655  0.0009    2.10
686          RX     0.0    10.0    21.0    35.0    35.0    49.0    58.0   170.0
687          RY     2.1     2.1     2.1     2.1     2.1     1.8     0.0     3.0
             *

688          KK     218   BASIN
689          KM   The following parameters were determined for this sub basin.
690          KM   L= 1.50 mi  S= 12.1 ft/mi  Kb= 0.04  Natural
691          BA   1.007
692          LG    0.43    0.25    5.30    0.34       8
693          UC   1.350   0.711
694          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
695          UA     100
             *

696          KK   CP218
697          KM   Combine 217218, 221218, & SUB 218.
698          HC       3
             *
```



```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

699          KK    D218
700          KM   Flow split at CP218 with 50% diverted south of half mile dirt road
701          KM   and 50% routed north of half mile dirt road.
702          DT   To237
703          DI       0     100     500    1000    2000
704          DQ       0      50     250     500    1000
             *

705          KK  218219   ROUTE   REACH
706          KM   Routed west through agricultural field.
707          RS       2    FLOW      -1
708          RC   0.035   0.035   0.035    1992  0.0036    1.20
709          RX     0.0   652.0  1317.0  1443.0  1538.0  1648.0  1754.0  1863.0
710          RY     2.6     1.3     0.6     0.0     0.6     0.0     0.6     1.2
             *

711          KK  FRMVVG
712          KM   Retrieve hydrograph from flow split at Val Vista and Germann.
713          DR    ToLG
             *

714          KK   VVGLG   ROUTE   REACH
715          KM   Routed west along Germann.
716          RS       6    FLOW      -1
717          RC   0.035   0.015   0.030    5354  0.0030    0.70
718          RX     0.0   500.0   511.0   525.0   525.0   539.0   550.0  1050.0
719          RY     0.7     0.0     1.8     2.1     2.1     1.8     0.0     0.7
             *

720          KK     DLG INTERSECTION DI VERSION
721          KM   Flow split at Lindsay and Germann with 50%
722          KM   diverted through Sub-area 219.
723          DT   To219
724          DI       0     100     500    1000    2000
725          DQ       0      50     250     500    1000
             *

726          KK   LG215   ROUTE   REACH
727          KM   Routed west along Germann.
728          RS       1    FLOW      -1
729          RC   0.035   0.015   0.030     623  0.0069    0.80
```

```
730          RX     0.0   500.0   511.0   525.0   525.0   539.0   550.0  1050.0
731          RY     0.7     0.0     1.8     2.1     2.1     1.8     0.0     0.7
             *

732          KK     215   BASIN
733          KM   The following parameters were determined for this sub basin.
734          KM   L= 0.37 mi  S= 8.3 ft/mi  Kb= 0.057  Urban
735          BA   0.040
736          LG    0.23    0.31    4.25    0.37       5
737          UC   0.721   0.727
738          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
739          UA     100
             *
1                                          HEC-1 INPUT                                          PAGE 19

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


740          KK   CP215
741          KM   Combine LG215 & SUB 215.
742          KO       3
743          HC       2
             *

744          KK    P215
745          KM   Ponding along Eastern Canal, north of Germann Road
746          KM   Canal weir min elev = 1264.10
747          KM   Germann weir min elev = 1263.9
748          KO       3
749          RS       1    STOR       0       0
750          SV     .25    1.43    3.82    7.63   12.72   26.37   44.62
751          SE    1261  1261.5    1262  1262.5    1263    1264    1265
752          SQ       0       0       0       0       0       0    1671
             *

753          KK   FRMLG
754          KM   Retrieve hydrograph from flow split at Lindsay and Germann.
755          DR   To219
             *

756          KK   LG219   ROUTE   REACH
757          KM   Routed south along Eastern Canal.
758          RS       4    FLOW      -1
759          RC   0.035   0.035   0.035    3421  0.0015    1.30
760          RX     0.0    11.0   320.0   437.0   940.0  1047.0  1286.0  1301.0
761          RY     1.3     0.8     0.2     0.8     0.0     0.8     0.8     2.8
             *

762          KK     219   BASIN
763          KM   The following parameters were determined for this sub basin.
764          KM   L= 0.68 mi  S= 7.6 ft/mi  Kb= 0.056  Natural
765          BA   0.083
766          LG    0.29    0.14    8.40    0.09      27
767          UC   0.658   0.706
768          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
769          UA     100
             *

770          KK     219
771          KM   RETENTION DIVERSION
772          KM   Divert flow retained within Eagle Glen II
773          DT  219RET     1.1
774          DI       0   10000
775          DQ       0   10000
             *

776          KK   CP219
777          KM   Combine 218219, P215,LG219, & SUB 219.
778          KO       3
779          HC       4
             *
             * ******************************************************************************
             * *    UPDATED 6/07 BY NATHAN BEUTLER - VOLUME OF POND WITHIN EAGLE GLENN II   *
             * *    SUB-DIVISION.  VOLUME TAKEN FROM DRAINAGE REPORT. GRADING PLANS SHOW    *
             * *    CONTOUR 1 ft HIGHER THAN REPORTED HWE(1261.66 NAVD88) AT 1262.66.       *
             * ******************************************************************************
             *
             *  P219
             *  Ponding along Eastern Canal, south of Germann Road WITHIN EAGLE GLENN II
             *  SUB-DIVISION
             *  South Boundary weir min elev = 1260.76
             *  Canal weir min elev = 1262.40
             *      3
             *      1    STOR       0       0
             *      0    2.60    5.65    9.17   13.10   16.55   17.78
             *   1258 1258.76 1259.76 1260.76 1261.66 1262.66 1262.96
             *      0      60     100     160     220     240     260
             * SE1260.7 1260.99 1261.08 1261.20 1261.30 1261.33 1261.36
             *
             * P219 Combined with P237 to accomodate ponding in P237 backing into P219
             *
             * KK  D219 CANAL DIVERSION
             * KM Flow diverted to canal resulting from ponding overflow into canal.
             * DTEAS219
             * DI     0     100     500    1000    2000
```

```
                    * DQ     0     100     500    1000    2000
                    *
1                                                HEC-1 INPUT                                                    PAGE 20

          LINE      ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


           780      KK  FRM218
           781      KM   Retrieve hydrograph from flow split at CP218.
           782      DR   To237
                    *

           783      KK  218237   ROUTE   REACH
           784      KM   Routed west through agricultural field.
           785      RS       2    FLOW      -1
           786      RC   0.035   0.035   0.035    1992  0.0036    1.20
           787      RX     0.0   652.0  1317.0  1443.0  1538.0  1648.0  1754.0  1863.0
           788      RY     2.6     1.3     0.6     0.0     0.6     0.0     0.6     1.2
                    *

           789      KK     237   BASIN
           790      KM   The following parameters were determined for this sub basin.
           791      KM   L= 0.74 mi  S= 7.9 ft/mi  Kb= 0.055  Natural
           792      BA   0.224
           793      LG    0.22    0.22    5.10    0.30      37
           794      UC   0.579   0.372
           795      UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
                    *
           796      UA     100

           797      KK    D237 BASIN DIVERSION
           798      KM   80% of Basin runoff diverted to P238.
           799      DT  ToP238
           800      DI       0     100     500    1000    2000
           801      DQ       0      80     400     800    1600
                    *

           802      KK   CP237
           803      KM   Combine CP219, 218237, & 20% of SUB 237.
           804      KO       3
           805      HC       3
                    *

           806      KK    P237
           807      KM   Ponding along Eastern Canal north and south of Ryan Rd.
           808      KM   ******************************************************************************
           809      KM   *        THIS IS P219 AND P237 COMBINED                                        *
           810      KM   ******************************************************************************
           811      KM   Ponding Volume provided by Layton Lakes Gilbert Phase 1 Ball Field.
           812      KM   Ball Field volume taken from Master Drainage Report for Layton Lakes Phase 2
           813      KM   Chandler written by CMX,L.L.C.
           814      KM   Road weir min elev = 1261.66
           815      KM   Ballfield backwaters into P219, therefore 2 basins combined, overtopping flow
           816      KM   into P238 (Layton Lakes main lake system)
           817      KO       3
           818      RS       1    STOR       0       0
           819      SV       0    9.17   28.38   30.77   32.18   33.37   34.92   35.34   38.89   42.47
           820      SE  1258.7 1261.46 1261.66 1261.89 1262.03 1262.14 1262.29 1262.33 1262.66 1263.00
           821      SQ       0       0     100     200     300     400     450     500
           822      SE  1258.7 1261.66 1261.89 1262.03 1262.14 1262.24 1262.29 1262.33
                    *
1                                                HEC-1 INPUT                                                    PAGE 21

          LINE      ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


           823      KK  FRM237
           824      KM   Retrieve hydrograph from Basin 237 Basin Diversion.
           825      DR  ToP238
                    *

           826      KK  237238   ROUTE   REACH
           827      KM   ROUTED THROUGH LAYTON LAKES LAKE SYSTEM
           828      KM   USED TYPICAL CROSS SECTION OF LAKE FOR ROUTING CHANNEL.
           829      KM
           830      RS      13    FLOW      -1
           831      RC   0.035   0.020   0.035    3900  0.0001    1259
           832      RX     0.0       5      14      20     250     254     262     267
           833      RY    1259    1258    1256    1255    1255    1256    1258    1259
                    *

           834      KK  FRM221
           835      KM   Retrieve hydrograph from flow split at Lindsay and Queen Creek.
           836      DR   To238
                    *

           837      KK  221238   ROUTE   REACH
           838      KM   Route west along Queen Creek then south along Eastern Canal.
           839      KM   Flow contained along south side of Queen Creek which is represented by
           840      KM   X1 to X4 in route cross section.
           841      RS       6    FLOW      -1
           842      RC   0.035   0.015   0.035    5883  0.0014    0.50
           843      RX     0.0   700.0   711.0   725.0   725.0   739.0   750.0   760.0
           844      RY     0.5     0.0     1.8     2.1     2.1     2.1     2.1     2.1
                    *
```

```
                 * ******************************************************************************
                 *          THIRD      PB   REGION
                 * ******************************************************************************

 845             KK     238   BASIN
 846             KM   The following parameters were determined for this sub basin.
 847             KM   L= 1.11 mi  S= 7.4 ft/mi  Kb= 0.048  Natural
 848             PB   3.320
 849             KM   Total point rainfall = 3.45, Area = 3.15 sq. mi, reduction factor = 0.962
 850             KM   Region bounded by Queen Creek Rd on the north, EMF on the east, Ray Rd and
 851             KM   Hunt Hwy on the south, and the Eastern Canal on the east.
 852             BA   0.337
 853             LG    0.46    0.24    4.80    0.43       7
 854             UC   1.500   1.173
 855             UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 856             UA     100
                 *
                 * ******************************************************************************
                 *  ADDED 6/07 BY NATHAN BEUTLER
                 * ******************************************************************************
                 *
1                                                HEC-1 INPUT                                                PAGE 22

LINE             ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 857             KK    D238 SUBDIVISION DIVERSION
 858             KM   Flow diverted to Basin S in the Layton Lakes development. Basin S is P224.
 859             KM   VOLUME DATA TAKEN FROM MASTER DRAINAGE REPORT FOR LAYTON LAKES,
 860             KM   Phase 2-Chandler
 861             DT   To224    2.45
 862             DI       0   10000
 863             DQ       0   10000
                 *

 864             KK   CP238
 865             KM   Combine 237238, 221238, ToP238 & SUB 238.
 866             KO       3
 867             HC       4
                 *
                 * ******************************************************************************

 868             KK    P238
 869             KM    P237238 is Pond name in weir hydraulic computations (Culvert Master)
 870             KM   PONDING IS CONTAINED WITHIN THE TWO LAKES; 1)PHASE 1 LAKE BASIN AND
 871             KM   2) BASIN L.  VOLUME DATA TAKEN FROM MASTER DRAINAGE REPORT FOR LAYTON LAKES
 872             KM   PHASE 2 - CHANDLER BY CMX.
 873             KM   Ponding along Eastern Canal, south of Queen Creek Road
 874             KM   South weir end is sidewalk Elev 1260.56 between Basin L and Basin S
 875             KM   Canal weir min elev = 1260.20
 876             KO       3
 877             RS       1    STOR       0       0
 878             SV       0    1.13   22.78   47.45   74.97    93.2    97.0    98.8   101.4   102.3
 879             SV   103.2   103.8
 880             SE  1256.5 1256.66 1257.66 1258.66 1259.66 1260.20 1260.41 1260.47 1260.56 1260.59
 881             SE  1260.6 1260.64
 882             SQ       0      31      50      90     120     160     195
 883             SE  1260.2 1260.41 1260.47 1260.56 1260.59 1260.62 1260.64
                 *

 884             KK    D238 CANAL DIVERSION
 885             KM   Flow diverted to canal resulting from ponding overflow into canal.
 886             KM   Remaining flow goes to CP224
 887             KO       3
 888             DT  EAS238
 889             DI       0      31      50      90     120     160     186
 890             DQ       0      31      50      90     110     130     136
                 *
                 * ******************************************************************************
                 *  ADDED 6/07 BY NATHAN BEUTLER
                 * ******************************************************************************
                 *

 891             KK  FRM238
 892             KM   Retrieve hydrograph from flow diversion in Basin 238.
 893             DR   To224
                 *
1                                                HEC-1 INPUT                                                PAGE 23

LINE             ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 894             KK     224   BASIN
 895             KM   The following parameters were determined for this sub basin.
 896             KM   L= 1.20 mi  S= 11.5 ft/mi  Kb=0.039  Natural
 897             BA   0.427
 898             LG    0.38    0.25    4.80    0.36      17
 899             UC   1.179   0.835
 900             UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 901             UA     100
                 *
                 * ********UPDATED 6/07 BY NATHAN BEUTLER*****************************************

 902             KK   CP224
 903             KM   Combine D238, FRM238 SUB 224.
```

```
904          KO       3
905          HC       3
             *
             * ******************************************************************************
             * *****UPDATE 6/07 BY NATHAN BEUTLER*****************************************
             * ******************************************************************************
             *

906          KK    P224
907          KM   VOLUME DATA TAKEN FROM MASTER DRAINAGE REPORT FOR LAYTON LAKES, PHASE 2-
908          KM   CHANDLER.
909          KM   Ponding along Eastern Canal, north of Ocotillo Road WITHIN BASIN S OF LAYTON
910          KM   LAKES SUBDIVISION.
911          KM   Road weir min elev = 1259.2
912          KM   Canal weir min elev = 1258.70
913          KO       3
914          RS       1    STOR       0       0
915          SV       0    6.10   19.32   33.91   49.87   58.35
916          SE  1255.2 1255.66 1256.66 1257.66 1258.66 1259.16
917          SQ       0       5      10      15      25      30      50
918          SE  1258.7 1258.71 1258.72 1258.73 1258.74 1258.75 1258.76
             *

919          KK     225   BASIN
920          KM   The following parameters were determined for this sub basin.
921          KM   L= 1.57 mi  S= 11.5 ft/mi  Kb= 0.041  Natural
922          BA   0.659
923          LG    0.43    0.25    4.45    0.50       2
924          UC   1.500   1.056
925          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
926          UA     100
             *

927          KK     222   BASIN
928          KM   The following parameters were determined for this sub basin.
929          KM   L= 1.78 mi  S= 12.4 ft/mi  Kb= 0.033  Urban
930          BA   0.752
931          LG    0.36    0.25    4.30    0.48       4
932          UC   1.417   1.016
933          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
934          UA     100
             *
1                                          HEC-1 INPUT                                          PAGE 24

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

935          KK   CP222
936          KM   Combine SUB 225 & SUB 222.
937          HC       2
             *

938          KK  222223   ROUTE   REACH
939          KM   Routed west along Ocotillo.
940          RS       6    FLOW      -1
941          RC   0.035   0.015   0.035    5255  0.0028    0.80
942          RX     0.0   500.0   511.0   525.0   525.0   539.0   550.0  1050.0
943          RY     0.8     0.0     1.8     2.1     2.1     1.8     0.0     0.8
             *

944          KK     226   BASIN
945          KM   The following parameters were determined for this sub basin.
946          KM   L= 1.23 mi  S= 14.0 ft/mi  Kb= 0.046  Natural
947          BA   0.504
948          LG    0.50    0.25    4.50    0.54       0
949          UC   1.463   0.984
950          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
951          UA     100
             *

952          KK     223   BASIN
953          KM   The following parameters were determined for this sub basin.
954          KM   L= 1.22 mi  S= 14.9 ft/mi  Kb= 0.045  Natural
955          BA   0.503
956          LG    0.45    0.26    4.15    0.61       1
957          UC   1.383   0.920
958          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
959          UA     100
             *

960          KK   CP223
961          KM   Combine 222223, SUB 226, & SUB 223.
962          HC       3
             *

963          KK  223227   ROUTE   REACH
964          KM   Routed west along Ocotillo.
965          RS       7    FLOW      -1
966          RC   0.035   0.015   0.035    6381  0.0019    1.90
967          RX     0.0   439.5   447.0   469.5   469.5   492.0   499.5   680.0
968          RY     1.9     0.0     1.3     1.7     1.7     1.3     0.0     1.9
             *

969          KK     227   BASIN
970          KM   The following parameters were determined for this sub basin.
```

```
 971          KM   L= 1.21 mi  S= 12.7 ft/mi  Kb= 0.046  Natural
 972          BA   0.467
 973          LG    0.49    0.25    4.45    0.55       1
 974          UC   1.496   1.040
 975          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 976          UA     100
              *
1                                          HEC-1 INPUT                                          PAGE 25

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


 977          KK   D227A
 978          KM   50% of Basin flow diverted to Quail Springs.
 979          KM   Remaining flow routed to Pond P230.
 980          DT   To227
 981          DI       0     100    1000   10000
 982          DQ       0      50     500    5000
              *

 983          KK   CP227
 984          KM   Combine P224, 223227, & D227A.
 985          KO       3
 986          HC       3
              *

 987          KK    P227
 988          KM   ***VOLUME SHOWN IN SV RECORDS TAKEN FROM QUAIL SPRINGS AS=BUILT
 989          KM   ***DRAWINGS.
 990          KM   Ponding along Eastern Canal and southern end of Quail Springs Retention Basin
 991          KM   Retention Basin weir min elev = 1259.63
 992          KM   Canal weir min elev = 1259.00
 993          KO       3
 994          RS       1    STOR       0       0
 995          SV       0    7.94   17.15   21.19   31.84   50.37
 996          SE    1257  1257.6  1258.6 1259.03 1259.33 1259.63
 997          SQ       0      50     100     150     200     250     300     350     450     500
 998          SE  1259.0 1259.28 1259.35 1259.40 1259.44 1259.48 1259.51 1259.54 1259.59 1259.61
              *

 999          KK   D227B CANAL DIVERSION
1000          KM   Flow diverted to canal resulting from ponding overflow into canal.
1001          KO       3
1002          DT  EAS227
1003          DI       0     100    1000   10000
1004          DQ       0     100    1000   10000
              *

1005          KK  FRM227
1006          KM   Retrieve 50% of Basin 227 flow.
1007          DR   To227
              *
1008          KM   Retention Diversion
1009          KM   Divert flow retained in subdivision
1010          DT  227RET
1011          DI       0     100
1012          DQ       0     100
              *

1013          KK     228   BASIN
1014          KM   The following parameters were determined for this sub basin.
1015          KM   L= 1.37 mi  S= 11.5 ft/mi  Kb= 0.037  Urban
1016          BA   0.570
1017          LG    0.39    0.25    4.70    0.38       3
1018          UC   1.271   0.856
1019          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
1                                          HEC-1 INPUT                                          PAGE 26

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1020          UA     100
              *

1021          KK    D228  INTERSECTION DIVERSION
1022          KM   Flow split at Val Vista and Chandler Heights with 30%
1023          KM   routed south along Val Vista.
1024          DT   To231
1025          DI       0     100     500    1000    2000
1026          DQ       0      30     150     300     600
              *

1027          KK  228229   ROUTE   REACH
1028          KM   Flow split at Val Vista and Chandler Heights with 70%
1029          KM   routed west along Chandler Heights.
1030          RS       6    FLOW      -1
1031          RC   0.035   0.015   0.035    5308  0.0028    0.80
1032          RX     0.0   510.0   517.5   540.0   540.0   562.5   570.0  1080.0
1033          RY     0.8     0.0     1.3     1.7     1.7     1.3     0.0     0.8
              *

1034          KK     229   BASIN
1035          KM   The following parameters were determined for this sub basin.
1036          KM   L= 1.33 mi  S= 12.0 ft/mi  Kb= 0.05  Natural
1037          BA   0.507
1038          LG    0.50    0.25    4.55    0.52       0
```

```
1039          UC   1.500   1.074
1040          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
1041          UA     100
              *

1042          KK   CP229
1043          KM   Combine 228229 & SUB 229.
1044          HC       2
              *

1045          KK    D229  INTERSECTION DIVERSION
1046          KM   Flow split at Lindsay and Chandler Heights with 30%
1047          KM   routed south along Lindsay.
1048          DT   To232
1049          DI       0     100     500    1000    2000
1050          DQ       0      30     150     300     600
              *

1051          KK  229230   ROUTE   REACH
1052          KM   Flow split at Lindsay and Chandler Heights with 70%
1053          KM   routed west along Chandler Heights.
1054          RS       7    FLOW      -1
1055          RC   0.035   0.015   0.035    6413  0.0028    0.80
1056          RX     0.0   500.0   507.5   530.0   530.0   552.5   560.0  1060.0
1057          RY     0.8     0.0     1.3     1.7     1.7     1.3     0.0     0.8
              *
1                                          HEC-1 INPUT                                          PAGE 27

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1058          KK     230   BASIN
1059          BA   0.565
1060          LG    0.39    0.28    4.65    0.41       0
1061          UC   1.500   1.105
1062          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
1063          UA     100
              *

1064          KK     230
1065          KM   RETENTION DIVERSION
1066          KM   Divert flow retained within residential areas
1067          DT  230RET   10.77
1068          DI       0   10000
1069          DQ       0   10000
              *

1070          KK   CP230
1071          KM   Combine 227228, 229230, & SUB 230.
1072          KO       3
1073          HC       3
              *

1074          KK    P230
1075          KM   RWCD Chandler Heights Storage Basin
1076          KM   Basin volume determined from DTM which accounts for water level in basin
1077          KM   at the time of the mapping.
1078          KM   Road weir min elev = 1255.90
1079          KM   Canal weir min elev = 1256.60
1080          KO       3
1081          RS       1    STOR       0       0
1082          SV       0   14.75   44.82   78.21  112.26  146.78   181.7  216.98  252.68  288.81
1083          SV  325.39  362.46   400.2  441.98   467.5
1084          SE    1244    1245    1246    1247    1248    1249    1250    1251    1252    1253
1085          SE    1254    1255    1256    1257  1257.5
1086          SQ       0       0       0       0       0       0       0       0       0       0
1087          SQ       0       0       2     890    4208
              *

1088          KK     234   BASIN
1089          KM   The following parameters were determined for this sub basin.
1090          KM   L= 0.84 mi  S= 8.3 ft/mi  Kb= 0.03  Urban
1091          BA   0.170
1092          LG    0.26    0.25    4.45    0.44      29
1093          UC   0.708   0.603
1094          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
1095          UA     100
              *

1096          KK   CP234
1097          KM   Combine any overflow from P230 & SUB 234.
1098          KO       3
1099          HC       2
              *
1                                          HEC-1 INPUT                                          PAGE 28

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1100          KK    P234
1101          KM   Ponding along Eastern Canal within residential retention basin south of
1102          KM   Chandler Height Road. Overlow routed to P235N.
1103          KM   South Boudnary weir min elev = 1252.40
1104          KM   Canal weir min elev = 1254.50
1105          KO       3
```

```
1106          RS       1    STOR       0       0
1107          SV       0    0.38    1.34    3.99    7.61   13.11   26.39   54.88
1108          SE    1248  1248.5    1249    1250    1251    1252    1253    1254
1109          SQ       0       0       0       0       0       0      13      89
              *

1110          KK  FRM229
1111          KM   Retrieve hydrograph from flow split at Lindsay and Chandler Heights.
1112          DR   To232
              *

1113          KK  229232   ROUTE   REACH
1114          KM   Routed south along Lindsay.
1115          RS       6    FLOW      -1
1116          RC   0.035   0.015   0.035    5276  0.0019    1.70
1117          RX     0.0   530.0   537.5   560.0   560.0   582.5   590.0   600.0
1118          RY     1.7     0.0     1.3     1.7     1.7     1.7     1.7     1.7
              *

1119          KK  FRM228
1120          KM   Retrieve hydrograph from flow split at Val Vista and Chandler Heights.
1121          DR   To231
              *

1122          KK  228231   ROUTE
1123          KM   Routed south along Val Vista.
1124          KM   Flow contained on east side of Val Vista which is represented by
1125          KM   X1 to X4 in route cross section.
1126          RS       6    FLOW      -1
1127          RC   0.035   0.015   0.030    5302  0.0018    1.70
1128          RX     0.0     780   787.5     810     810   832.5     840     850
1129          RY     1.7     0.0     1.3     1.7     1.7     1.7     1.7     1.7
              *

1130          KK     231   BASIN
1131          KM   The following parameters were determined for this sub basin.
1132          KM   L= 1.70 mi  S= 13.0 ft/mi  Kb= 0.042  Natural
1133          BA   0.996
1134          LG    0.49    0.25    4.70    0.46       2
1135          UC   1.500   0.889
1136          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
1137          UA     100
              *
```



```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1138          KK     236   BASIN
1139          KM   The following parameters were determined for this sub basin.
1140          KM   L= 1.05 mi  S= 15.0 ft/mi  Kb= 0.040  Natural
1141          BA   0.524
1142          LG    0.34    0.27    4.35    0.45       4
1143          UC   0.983   0.546
1144          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
1145          UA     100
              *

1146          KK   CP231
1147          KM   Combine 228231, SUB 231, & SUB 236.
1148          HC       3
              *

1149          KK  231232   ROUTE
1150          KM   Routed west along Riggs.
1151          RS       5    FLOW      -1
1152          RC   0.035   0.015   0.030    5280  0.0030    1.60
1153          RX     0.0      20    35.0    35.0    76.5    99.0   106.5     350
1154          RY     1.6     1.4     1.2      .7     1.7     1.3       0     1.7
              *

1155          KK     232   BASIN
1156          KM   The following parameters were determined for this sub basin.
1157          KM   L= 1.68 mi  S= 12.9 ft/mi  Kb= 0.038  Urban
1158          BA   1.008
1159          LG    0.33    0.27    4.70    0.36       4
1160          UC   1.408   0.816
1161          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
1162          UA     100
              *

1163          KK     232
1164          KM   RETENTION DIVERSION
1165          KM   Divert flow retained within residential areas
1166          DT  232RET   13.67
1167          DI       0   10000
1168          DQ       0   10000
              *

1169          KK   CP232
1170          KM   Combine 229232, 231232, & SUB 232.
1171          HC       3
              *

1172          KK  232233   ROUTE
```

```
1173          KM   Routed west along Riggs.
1174          RS       5    FLOW      -1
1175          RC   0.035   0.015   0.035    5065  0.0021    1.30
1176          RX     0.0      20      35      35    76.5    99.0   106.5     980
1177          RY     1.6     1.4     1.2      .7     1.7     1.3       0     1.3
              *
1                                          HEC-1 INPUT                                                    PAGE 30

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


1178          KK     233   BASIN
1179          KM   The following parameters were determined for this sub basin.
1180          KM   L= 1.53 mi  S= 13.7 ft/mi  Kb= 0.039  Urban
1181          BA   0.963
1182          LG    0.41    0.25    4.65    0.44       9
1183          UC   1.296   0.708
1184          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
1185          UA     100
              *

1186          KK     233
1187          KM   RETENTION DIVERSION
1188          KM   Divert flow retained within residential areas
1189          DT  233RET   34.09
1190          DI       0   10000
1191          DQ       0   10000
              *

1192          KK   CP233
1193          KM   Combine 232233 & SUB 233.
1194          HC       2
              *

1195          KK  TCP235
1196          KM   According to the Final Drainage Report for Mesquite Grove
1197          KM   Estates, 20 cfs is piped from east boundary of Sub-division
1198          KM   to RWCD Storage Basin on west side of Gilbert Road.
1199          DT  TP235N              20
1200          DI       0    1000
1201          DQ       0    1000
              *

1202          KK  233235   ROUTE
1203          KM   Routed west along Riggs.
1204          RS       1    FLOW      -1
1205          RC   0.035   0.015   0.035     863  0.0031    1.00
1206          RX     0.0      20    35.0    35.0    76.5    99.0   106.5  1106.5
1207          RY     1.6     1.4     1.2     0.7     1.7     1.3       0       1
              *

1208          KK     235   BASIN
1209          KM   The following parameters were determined for this sub basin.
1210          KM   L= 0.55 mi  S= 7.3 ft/mi  Kb= 0.061  Natural
1211          BA   0.036
1212          LG    0.20    0.35    4.80    0.25       0
1213          UC   1.108   1.710
1214          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
1215          UA     100
              *
1                                          HEC-1 INPUT                                                    PAGE 31

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


1216          KK   CP235
1217          KM   Combine 233235, & SUB 235.
1218          KO       3
1219          HC       2
              *

1220          KK   P235S
1221          KM   Open Space south of RWCD Storage Basin, north of Riggs Road
1222          KM   Riggs Road weir min elev = 1252.27
1223          KM   Canal weir min elev = 1253.01
1224          KM   Northern Boundary weir min elev = 1250.37
1225          KO       3
1226          RS       1    STOR       0       0
1227          SV       0     .15     .42    1.55    3.13    6.43   12.34   20.14   28.96   38.40
1228          SE    1247    1248    1249    1250  1250.5    1251  1251.5    1252  1252.5    1253
1229          SQ       0       0       0       0       3     191     909    2087    3725    6150
              *

1230          KK   R235N
1231          KM   Retrieve 20 cfs from CP233
1232          DR  TP235N
              *

1233          KK   C253N
1234          KM   Combine P234 and Overflow from P235S and TP235N.
1235          KO       3
1236          HC       3
              *

1237          KK   P235N
```

```
1238          KM   RWCD Storage Basin, 1/4 mi north of Riggs Road
1239          KM   Southern Boundary weir min elev = 1250.55
1240          KM   Canal weir min elev = 1253.93
1241          KO       3
1242          RS       1    STOR        0        0
1243          SV       0   19.27   91.58  141.65  193.30  246.76  260.43  274.23
1244          SE    1240    1241    1244    1246    1248    1250  1250.5    1251
1245          SQ       0       0       0       0       0       0       0     161
              *
              *

1246          KK  DSS207
1247          KM   Retrieve hydrograph for overflow from sub-basin 207.
1248          DR  EAS207
1249          ZW   A=EAST B=CP207  C=FLOW  E=5MIN
              *

1250          KK  DSS212
1251          KM   Retrieve hydrograph for overflow from sub-basin 212.
1252          DR  EAS212
1253          ZW   A=EAST B=CP212  C=FLOW  E=5MIN
              *
              * KKDSS219
              * KM Retrieve hydrograph for overflow from sub-basin 219.
              * DREAS219
              * ZW A=EAST B=CP219  C=FLOW  E=5MIN
              *
              * KKDSS237
              * KM Retrieve hydrograph for overflow from sub-basin 237.
              * DREAS237
              * ZW A=EAST B=CP237  C=FLOW  E=5MIN
              *
1                                          HEC-1 INPUT                                          PAGE 32

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


1254          KK  DSS238
1255          KM   Retrieve hydrograph for overflow from sub-basin 238.
1256          DR  EAS238
1257          ZW   A=EAST B=CP238  C=FLOW  E=5MIN
              *

1258          KK  DSS227
1259          KM   Retrieve hydrograph for overflow from sub-basin 227.
1260          DR  EAS227
1261          ZW   A=EAST B=CP227  C=FLOW  E=5MIN
              *

1262          KK  CPCANL
1263          KM   Combine overflows into Eastern Canal.
1264          HC       6
              * **** END OF WRITING OVERFOW INTO CANAL DSS FIL ES ****
1265          ZZ
1
                 SCHEMATIC DIAGRAM OF STREAM NETWORK
 INPUT
 LINE      (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

  NO.      (.) CONNECTOR        (<---) RETURN OF DIVERTED OR PUMPED FLOW

   66         206
                .
                .
   92           .-------->   To202
   89        D206
                V
                V
   95      206203
                .
                .
  102           .       XRDPK
                .           .
                .           .
  109           .           .-------->   XRPKD
  107           .       To200
                .           V
                .           V
  112           .      XRD200
                .           .
                .           .
  120           .           .           .<--------   XRPKD
  118           .           .       XRPKD
                .           .           .
                .           .           .
  121           .           .           .         200
                .           .           .           .
                .           .           .           .
  129           .           .        C200............
                .           .           V
                .           .           V
  133           .           .        P200
                .           .           .
                .           .           .
  144           .       CP200............
```

```
                .          V
                .          V
149             .     200202
                .          .
                .          .
160             .          .          .<-------   To202
157             .          .     FRM206
                .          .          V
                .          .          V
161             .          .     206202
                .          .          .
                .          .          .
167             .          .          .         202
                .          .          .           .
                .          .          .           .
178             .          .          .           .-------> 202RET
175             .          .          .         202
                .          .          .           .
                .          .          .           .
181             .          .       C202............
                .          .          V
                .          .          V
185             .          .       P202
                .          .          .
                .          .          .
201             .          .          .------->   DVVOF
199             .          .      Dummy
                .          .          .
                .          .          .
204             .      CP202............
                .          .
                .          .
210             .          .-------> DTD203
208             .      Dummy
                .          .
                .          .
215             .          .          .<-------   DVVOF
213             .          .       VVOF
                .          .          .
                .          .          .
216             .          .          .         203
                .          .          .           .
                .          .          .           .
224          C203.................................
                V
                V
228          P203
                .
                .
243             .-------> DCBLVD
239        OTD203
                .
                .
248             .          .<-------  DTD203
246             .      TWD203
                .          V
                .          V
249             .      TWD203
                .          .
                .          .
257         CP203............
                V
                V
261        203208
                .
                .
269             .          .<-------  DCBLVD
267             .      OCBLVD
                .          V
                .          V
270             .       P208N
                .          .
                .          .
282             .          .         208
                .          .          .
                .          .          .
293             .          .          .-------> 208RET
290             .          .         208
                .          .          .
                .          .          .
296             .      C208S............
                .          V
                .          V
300             .       P208S
                .          .
                .          .
314             .          .------->    D207
312             .      Dummy
                .          .
                .          .
317         CP208............
                V
                V
321        208207
                .
```

```
                .
332             .-------->   CANAL
327         Dummy
                .
                .
335             .         213
                .           V
                .           V
344             .        P213
                .           .
                .           .
356             .           .           .<-------    D207
354             .           .        O207
                .           .           .
                .           .           .
357             .           .           .         207
                .           .           .           .
                .           .           .           .
368             .           .           .           .-------->  207RET
365             .           .           .         207
                .           .           .           .
                .           .           .           .
371         CP207.................................
                V
                V
375         P207
                .
                .
389             .-------->  EAS207
387         D207
                .
                .
392             .         212
                .           V
                .           V
401             .        P212
                .           .
                .           .
419             .           .-------->  EAS212
414             .       D212R
                .           .
                .           .
422             .           .         209
                .           .           .
                .           .           .
437             .           .           .-------->  209RET
434             .           .         209
                .           .           .
                .           .           .
443             .           .           .-------->   To205
440             .           .        D209
                .           .           V
                .           .           V
446             .           .      209210
                .           .           .
                .           .           .
453             .           .           .         216
                .           .           .           .
                .           .           .           .
464             .           .           .           .-------->  216RET
461             .           .           .         216
                .           .           .           .
                .           .           .           .
470             .           .           .           .-------->   ToVVG
467             .           .           .        D216
                .           .           .           V
                .           .           .           V
473             .           .           .      216210
                .           .           .           .
                .           .           .           .
482             .           .           .           .         210
                .           .           .           .           .
                .           .           .           .           .
493             .           .           .           .           .-------->  210RET
490             .           .           .           .         210
                .           .           .           .           .
                .           .           .           .           .
496             .           .       CP210.......................
                .           .           .
                .           .           .
501             .           .           .           .<-------   To205
499             .           .           .      FRM209
                .           .           .           V
                .           .           .           V
502             .           .           .      209205
                .           .           .           .
                .           .           .           .
508             .           .           .           .         205
                .           .           .           .           .
                .           .           .           .           .
519             .           .           .           .           .-------->  205RET
516             .           .           .           .         205
                .           .           .           .           .
                .           .           .           .           .
522             .           .           .       CP205............
```

```
                .         .         .         .
                .         .         .         .
528             .         .         .         .          .<-------   ToVVG
526             .         .         .         .     FRM216
                .         .         .         .          V
                .         .         .         .          V
529             .         .         .         .     216VVG
                .         .         .         .          .
                .         .         .         .          .
540             .         .         .         .          .------->   ToLG
537             .         .         .         .       DVVG
                .         .         .         .          V
                .         .         .         .          V
543             .         .         .         .     VVG211
                .         .         .         .          .
                .         .         .         .          .
552             .         .         .         .          .        211
                .         .         .         .          .          .
                .         .         .         .          .          .
560             .         .         .         .      CP211............
                .         .         .         .          .
                .         .         .         .          .
564             .         .         .         .          .        214
                .         .         .         .          .          .
                .         .         .         .          .          .
572             .         .         .         .          .          .        201
                .         .         .         .          .          .          .
                .         .         .         .          .          .          .
583             .         .         .         .          .          .          .------->  201RET
580             .         .         .         .          .          .        201
                .         .         .         .          .          .          .
                .         .         .         .          .          .          .
586             .         .         .         .          .          .          .        204
                .         .         .         .          .          .          .          .
                .         .         .         .          .          .          .          .
597             .         .         .         .          .          .          .          .------->  204RET
594             .         .         .         .          .          .          .        204
                .         .         .         .          .          .          .          .
                .         .         .         .          .          .          .          .
600             .     CPADOT.......................................................................
                .         .
                .         .
606             .         .        220
                .         .          .
                .         .          .
617             .         .          .------->   To221
614             .         .       D220
                .         .          V
                .         .          V
620             .         .     220217
                .         .          .
                .         .          .
629             .         .          .        217
                .         .          .          .
                .         .          .          .
637             .         .      CP217............
                .         .          V
                .         .          V
640             .         .     217218
                .         .          .
                .         .          .
649             .         .          .          .<-------   To221
647             .         .          .     FRM220
                .         .          .          V
                .         .          .          V
650             .         .          .     220221
                .         .          .          .
                .         .          .          .
656             .         .          .          .        221
                .         .          .          .          .
                .         .          .          .          .
667             .         .          .          .          .------->  221RET
664             .         .          .          .        221
                .         .          .          .          .
                .         .          .          .          .
670             .         .          .      CP221............
                .         .          .          .
                .         .          .          .
676             .         .          .          .------->   To238
673             .         .          .       D221
                .         .          .          V
                .         .          .          V
679             .         .          .     221218
                .         .          .          .
                .         .          .          .
688             .         .          .          .        218
                .         .          .          .          .
                .         .          .          .          .
696             .         .          .      CP218......................
                .         .          .
                .         .          .
702             .         .          .------->   To237
699             .         .          .      D218
                .         .          .          V
                .         .          .          V
```

```
705          .          .     218219
             .          .          .
             .          .          .
713          .          .          .          .<-------    ToLG
711          .          .          .     FRMVVG
             .          .          .          V
             .          .          .          V
714          .          .          .      VVGLG
             .          .          .          .
             .          .          .          .
723          .          .          .          .------->   To219
720          .          .          .        DLG
             .          .          .          V
             .          .          .          V
726          .          .          .      LG215
             .          .          .          .
             .          .          .          .
732          .          .          .          .         215
             .          .          .          .          .
             .          .          .          .          .
740          .          .          .      CP215............
             .          .          .          V
             .          .          .          V
744          .          .          .       P215
             .          .          .          .
             .          .          .          .
755          .          .          .          .          .<-------   To219
753          .          .          .          .       FRMLG
             .          .          .          .          V
             .          .          .          .          V
756          .          .          .          .       LG219
             .          .          .          .          .
             .          .          .          .          .
762          .          .          .          .          .         219
             .          .          .          .          .           .
             .          .          .          .          .           .
773          .          .          .          .          .           .------->  219RET
770          .          .          .          .          .         219
             .          .          .          .          .           .
             .          .          .          .          .           .
776          .          .     CP219.................................
             .          .          .
             .          .          .
782          .          .          .          .<-------   To237
780          .          .          .     FRM218
             .          .          .          V
             .          .          .          V
783          .          .          .     218237
             .          .          .          .
             .          .          .          .
789          .          .          .          .         237
             .          .          .          .          .
             .          .          .          .          .
799          .          .          .          .          .------->  ToP238
797          .          .          .          .       D237
             .          .          .          .          .
             .          .          .          .          .
802          .          .     CP237......................
             .          .         V
             .          .         V
806          .          .      P237
             .          .          .
             .          .          .
825          .          .          .          .<-------  ToP238
823          .          .          .     FRM237
             .          .          .          V
             .          .          .          V
826          .          .          .     237238
             .          .          .          .
             .          .          .          .
836          .          .          .          .          .<-------   To238
834          .          .          .          .      FRM221
             .          .          .          .          V
             .          .          .          .          V
837          .          .          .          .      221238
             .          .          .          .          .
             .          .          .          .          .
845          .          .          .          .          .         238
             .          .          .          .          .           .
             .          .          .          .          .           .
861          .          .          .          .          .           .------->   To224
857          .          .          .          .          .        D238
             .          .          .          .          .           .
             .          .          .          .          .           .
864          .          .     CP238.................................
             .          .         V
             .          .         V
868          .          .      P238
             .          .          .
             .          .          .
888          .          .          .------->  EAS238
884          .          .      D238
             .          .          .
             .          .          .
893          .          .          .          .<-------   To224
```

```
 891          .          .          .      FRM238
              .          .          .          .
              .          .          .          .
 894          .          .          .          .         224
              .          .          .          .           .
              .          .          .          .           .
 902          .          .      CP224.......................
              .          .          V
              .          .          V
 906          .          .       P224
              .          .          .
              .          .          .
 919          .          .          .        225
              .          .          .          .
              .          .          .          .
 927          .          .          .          .         222
              .          .          .          .           .
              .          .          .          .           .
 935          .          .          .      CP222............
              .          .          .          V
              .          .          .          V
 938          .          .          .     222223
              .          .          .          .
              .          .          .          .
 944          .          .          .          .         226
              .          .          .          .           .
              .          .          .          .           .
 952          .          .          .          .           .         223
              .          .          .          .           .           .
              .          .          .          .           .           .
 960          .          .          .      CP223........................
              .          .          .          V
              .          .          .          V
 963          .          .          .     223227
              .          .          .          .
              .          .          .          .
 969          .          .          .          .         227
              .          .          .          .           .
              .          .          .          .           .
 980          .          .          .          .           .-------->   To227
 977          .          .          .          .      D227A
              .          .          .          .           .
              .          .          .          .           .
 983          .          .      CP227.......................
              .          .          V
              .          .          V
 987          .          .       P227
              .          .          .
              .          .          .
1002          .          .          .-------->  EAS227
 999          .          .      D227B
              .          .          .
              .          .          .
1007          .          .          .          .<-------   To227
1005          .          .          .     FRM227
              .          .          .          .
              .          .          .          .
1013          .          .          .          .         228
              .          .          .          .           .
              .          .          .          .           .
1024          .          .          .          .           .-------->   To231
1021          .          .          .          .       D228
              .          .          .          .          V
              .          .          .          .          V
1027          .          .          .          .     228229
              .          .          .          .          .
              .          .          .          .          .
1034          .          .          .          .          .         229
              .          .          .          .          .           .
              .          .          .          .          .           .
1042          .          .          .          .      CP229............
              .          .          .          .          .
              .          .          .          .          .
1048          .          .          .          .          .-------->   To232
1045          .          .          .          .       D229
              .          .          .          .          V
              .          .          .          .          V
1051          .          .          .          .     229230
              .          .          .          .          .
              .          .          .          .          .
1058          .          .          .          .          .         230
              .          .          .          .          .           .
              .          .          .          .          .           .
1067          .          .          .          .          .           .-------->  230RET
1064          .          .          .          .          .         230
              .          .          .          .          .           .
              .          .          .          .          .           .
1070          .          .          .      CP230........................
              .          .          .          V
              .          .          .          V
1074          .          .          .       P230
              .          .          .          .
              .          .          .          .
1088          .          .          .          .         234
              .          .          .          .           .
```

```
1096                CP234............
                        V
                        V
1100                 P234
                        .
                        .
1112                    .<-------   To232
1110                FRM229
                        V
                        V
1113                229232
                        .
                        .
1121                    .           .<-------   To231
1119                    .       FRM228
                        .           V
                        .           V
1122                    .       228231
                        .           .
                        .           .
1130                    .           .         231
                        .           .           .
                        .           .           .
1138                    .           .           .         236
                        .           .           .           .
                        .           .           .           .
1146                    .       CP231........................
                        .           V
                        .           V
1149                    .       231232
                        .           .
                        .           .
1155                    .           .         232
                        .           .           .
                        .           .           .
1166                    .           .           .-------> 232RET
1163                    .           .         232
                        .           .           .
                        .           .           .
1169                    .     CP232........................
                        .         V
                        .         V
1172                    .     232233
                        .         .
                        .         .
1178                    .         .       233
                        .         .         .
                        .         .         .
1189                    .         .         .-------> 233RET
1186                    .         .       233
                        .         .         .
                        .         .         .
1192                    .     CP233............
                        .         .
                        .         .
1199                    .         .-------> TP235N
1195                    .     TCP235
                        .         V
                        .         V
1202                    .     233235
                        .         .
                        .         .
1208                    .         .       235
                        .         .         .
                        .         .         .
1216                    .     CP235............
                        .         V
                        .         V
1220                    .      P235S
                        .         .
                        .         .
1232                    .         .         .<-------  TP235N
1230                    .         .     R235N
                        .         .         .
                        .         .         .
1233                CP253N........................
                        V
                        V
1237                P235N
                        .
                        .
1248                    .         .<-------  EAS207
1246                    .     DSS207
                        .         .
                        .         .
1252                    .         .         .<-------  EAS212
1250                    .         .     DSS212
                        .         .         .
                        .         .         .
1256                    .         .         .           .<-------  EAS238
1254                    .         .         .       DSS238
                        .         .         .           .
                        .         .         .           .
1260                    .         .         .           .           .<-------  EAS227
```

```
 1258          .          .          .          .          .          .          .      DSS227
               .          .          .          .          .          .          .          .
               .          .          .          .          .          .          .          .
 1262          .          .      CPCANL.......................................................
```

```
 (***) RUNOFF ALSO COMPUTED AT THIS LOCATION
1****************************************                                    ****************************************
 *                                      *                                    *                                      *
 *   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   12DEC07  TIME  19:49:37  *                                    *          (916) 756-1104              *
 *                                      *                                    *                                      *
 ****************************************                                    ****************************************
```

Project ID: MARI0040_SE - Major Basin: 01 - Return Period: 100 Years

Chandler/Gilbert Floodplain Delineation Study
Phase I-South, Eastern Canal Watershed
FCD# 2002C023
DATE: June 2007

Watershed boundaries:
South of Union Pacific Railroad, east of Eastern Canal
North of Hunt Hwy, west of East Maricopa Floodway

Prepared by David Evans & Associates
Modelers:
Tami Norton, E.I.T., CFM
Gregory B. Jones, E.I.T.
Nathan A. Beutler, E.I.T., CFM
Updated: Larry Sibala, P.E., CFM
12/12/07
Changes per comments
File: P:\MARI0000-0004\Engineering\MARI0040-SE\HEC1\CGFDSP1S-24.dat

5-minute time interval - 100-year, 24-hour storm event.

Total Watershed Area = 22.64 sq. mi, Total Point Rainfall = 3.45

Aerial reduction was applied using PB records.
The Phase 1 - South watershed was broken into three PB regions:

First PB region includes sub-basins
200, 202, 203, 206-208, 212, 213
Area = 3.15 sq. mi, Reduction Factor = 0.985, PB record = 3.400

Second PB region includes sub-basins
201, 204, 205, 209-211, 214-221, 237
Area = 10.50 sq. mi, Reduction Factor = 0.948, PB record = 3.270

Third PB region includes sub-basins
222-236, 238
Area = 8.99 sq. mi, Reduction Factor = 0.962, PB record = 3.320

Green and Ampt Infiltration method used to determine rainfall losses.

Clark Method used to create Unit Hydrographs.

Normal Depth Method used for channel routing.

Eastern Maricopa and Northern Pinal Counties Area, Arizona Soil Survey
used for soils data.

Flood Control District of Maricopa County's (FCDMC) GIS data,
aerial photos dated Dec. 2002, and developments as directed
by Chandler and Gilbert by date of April 2003 used for Land Use Data.

FCDMC DDMSW Version 2.1.0 Program used to calculate rainfall, rainfall losses
and Unit Hydrographs.

Model includes proposed Santan Freeway alignment and associated
drainage facilities.

DSS file: CGFDS.dss

```
 63 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     3MAR 3  STARTING DATE
                      ITIME       1200  STARTING TIME
                         NQ       2000  NUMBER OF HYDROGRAPH ORDINATES
                     NDDATE    10MAR 3  ENDING DATE
                     NDTIME       1035  ENDING TIME
                      ICENT         19  CENTURY MARK
```

```
                    COMPUTATION INTERVAL    0.08 HOURS
                         TOTAL TIME BASE  166.58 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
   -----DSS---ZOPEN:  Existing File Opened,  File: C:\FCDMC\DDMSW\Models\K.DSS
                      Unit: 71;  DSS Versions - Software: 6-LD, File: 6-JG
        ----- Entering ZRRTSX for unit 71 -----
Pathname: /EAST/XRDPK/FLOW//5MIN//
        Time Window set.  Interval:     5  Number of data values:      1
        Starting date and time:  Mar 3, 1903  1200  (   1157  720)
        Ending   date and time:  Mar 3, 1903  1200  (   1157  720)
        Input time offset:      0
        After ZRDINF, Record found: T
        Pathname: /EAST/XRDPK/FLOW/03MAR1903/5MIN//
        Number of actual data:  288  Header length:   0
        Compression:   0  Quality:   0  Double: F
-----DSS--- ZREAD Unit  71; Vers.    3:  /EAST/XRDPK/FLOW/03MAR1903/5MIN//
      ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
        NSTART:    1   NVALS:    1    JULS:    1157  ISTIME:   720
        NLDATA:  288   JULSD:    1157
        JULS: 03MAR03       JULSD: 03MAR03
        Quality Read: F,  Quality Requested: F
        ---ZRRTSB Calculations:  NPOS:  144  NDATA:  288  NREAD:    1  ILIM:    1
      ----- Exiting ZRRTS, Number of data values:      1,  Status:  0
        Offset:       0,  Units: CFS     ,  Type:INST-VAL
        ----- Entering ZRRTSX for unit 71 -----
Pathname: /EAST/XRDPK/FLOW//5MIN//
        Time Window set.  Interval:     5  Number of data values:    744
        Starting date and time:  Mar 3, 1903  1200  (   1157  720)
        Ending   date and time:  Mar 6, 1903  0155  (   1160  115)
        Input time offset:      0
        After ZRDINF, Record found: T
        Pathname: /EAST/XRDPK/FLOW/03MAR1903/5MIN//
        Number of actual data:  288  Header length:   0
        Compression:   0  Quality:   0  Double: F
-----DSS--- ZREAD Unit  71; Vers.    3:  /EAST/XRDPK/FLOW/03MAR1903/5MIN//
      ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
        NSTART:    1   NVALS:  744    JULS:    1157  ISTIME:   720
        NLDATA:  288   JULSD:    1157
        JULS: 03MAR03       JULSD: 03MAR03
        Quality Read: F,  Quality Requested: F
        ---ZRRTSB Calculations:  NPOS:  144  NDATA:  288  NREAD:  145  ILIM:  145
        After ZRDINF, Record found: T
        Pathname: /EAST/XRDPK/FLOW/04MAR1903/5MIN//
        Number of actual data:  288  Header length:   0
        Compression:   0  Quality:   0  Double: F
-----DSS--- ZREAD Unit  71; Vers.    3:  /EAST/XRDPK/FLOW/04MAR1903/5MIN//
      ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
        NSTART:  146   NVALS:  744    JULS:    1157  ISTIME:   720
        NLDATA:  288   JULSD:    1158
        JULS: 03MAR03       JULSD: 04MAR03
        Quality Read: F,  Quality Requested: F
        ---ZRRTSB Calculations:  NPOS:    1  NDATA:  288  NREAD:  288  ILIM:  433
        After ZRDINF, Record found: T
        Pathname: /EAST/XRDPK/FLOW/05MAR1903/5MIN//
        Number of actual data:  288  Header length:   0
        Compression:   0  Quality:   0  Double: F
-----DSS--- ZREAD Unit  71; Vers.    3:  /EAST/XRDPK/FLOW/05MAR1903/5MIN//
      ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
        NSTART:  434   NVALS:  744    JULS:    1157  ISTIME:   720
        NLDATA:  288   JULSD:    1159
        JULS: 03MAR03       JULSD: 05MAR03
        Quality Read: F,  Quality Requested: F
        ---ZRRTSB Calculations:  NPOS:    1  NDATA:  288  NREAD:  288  ILIM:  721
        After ZRDINF, Record found: T
        Pathname: /EAST/XRDPK/FLOW/06MAR1903/5MIN//
        Number of actual data:  288  Header length:   0
        Compression:   0  Quality:   0  Double: F
-----DSS--- ZREAD Unit  71; Vers.    3:  /EAST/XRDPK/FLOW/06MAR1903/5MIN//
      ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
        NSTART:  722   NVALS:  744    JULS:    1157  ISTIME:   720
        NLDATA:  288   JULSD:    1160
        JULS: 03MAR03       JULSD: 06MAR03
        Quality Read: F,  Quality Requested: F
        ---ZRRTSB Calculations:  NPOS:    1  NDATA:  288  NREAD:   23  ILIM:  744
      ----- Exiting ZRRTS, Number of data values:    744,  Status:  0
        Offset:       0,  Units: CFS     ,  Type:INST-VAL
        ----- Entering ZRRTSX for unit 71 -----
Pathname: /EAST/XRDPK/FLOW//5MIN//
        Time Window set.  Interval:     5  Number of data values:      1
        Starting date and time:  Mar 6, 1903  0155  (   1160  115)
        Ending   date and time:  Mar 6, 1903  0155  (   1160  115)
        Input time offset:      0
        After ZRDINF, Record found: T
        Pathname: /EAST/XRDPK/FLOW/06MAR1903/5MIN//
        Number of actual data:  288  Header length:   0
        Compression:   0  Quality:   0  Double: F
```

```
-----DSS--- ZREAD Unit  71; Vers.    3:  /EAST/XRDPK/FLOW/06MAR1903/5MIN//
      ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
        NSTART:    1   NVALS:    1    JULS:    1160  ISTIME:   115
        NLDATA:  288   JULSD:    1160
        JULS: 06MAR03       JULSD: 06MAR03
        Quality Read: F,  Quality Requested: F
        ---ZRRTSB Calculations:  NPOS:   23  NDATA:  288  NREAD:    1  ILIM:    1
      ----- Exiting ZRRTS, Number of data values:      1,  Status:  0
        Offset:       0,  Units: CFS     ,  Type:INST-VAL
        ----- Entering ZRRTSX for unit 71 -----
Pathname: /EAST/XRDPK/FLOW//5MIN//
        Time Window set.  Interval:     5  Number of data values:    744
        Starting date and time:  Mar 6, 1903  0155  (   1160  115)
        Ending   date and time:  Mar 8, 1903  1550  (   1162  950)
        Input time offset:      0
        After ZRDINF, Record found: T
        Pathname: /EAST/XRDPK/FLOW/06MAR1903/5MIN//
        Number of actual data:  288  Header length:   0
        Compression:   0  Quality:   0  Double: F
-----DSS--- ZREAD Unit  71; Vers.    3:  /EAST/XRDPK/FLOW/06MAR1903/5MIN//
      ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
        NSTART:    1   NVALS:  744    JULS:    1160  ISTIME:   115
        NLDATA:  288   JULSD:    1160
        JULS: 06MAR03       JULSD: 06MAR03
        Quality Read: F,  Quality Requested: F
        ---ZRRTSB Calculations:  NPOS:   23  NDATA:  288  NREAD:  266  ILIM:  266
        After ZRDINF, Record found: T
        Pathname: /EAST/XRDPK/FLOW/07MAR1903/5MIN//
        Number of actual data:  288  Header length:   0
        Compression:   0  Quality:   0  Double: F
-----DSS--- ZREAD Unit  71; Vers.    3:  /EAST/XRDPK/FLOW/07MAR1903/5MIN//
      ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
        NSTART:  267   NVALS:  744    JULS:    1160  ISTIME:   115
        NLDATA:  288   JULSD:    1161
        JULS: 06MAR03       JULSD: 07MAR03
        Quality Read: F,  Quality Requested: F
        ---ZRRTSB Calculations:  NPOS:    1  NDATA:  288  NREAD:  288  ILIM:  554
        After ZRDINF, Record found: T
        Pathname: /EAST/XRDPK/FLOW/08MAR1903/5MIN//
        Number of actual data:  288  Header length:   0
        Compression:   0  Quality:   0  Double: F
-----DSS--- ZREAD Unit  71; Vers.    3:  /EAST/XRDPK/FLOW/08MAR1903/5MIN//
      ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
        NSTART:  555   NVALS:  744    JULS:    1160  ISTIME:   115
        NLDATA:  288   JULSD:    1162
        JULS: 06MAR03       JULSD: 08MAR03
        Quality Read: F,  Quality Requested: F
        ---ZRRTSB Calculations:  NPOS:    1  NDATA:  288  NREAD:  190  ILIM:  744
      ----- Exiting ZRRTS, Number of data values:    744,  Status:  0
        Offset:       0,  Units: CFS     ,  Type:INST-VAL
        ----- Entering ZRRTSX for unit 71 -----
Pathname: /EAST/XRDPK/FLOW//5MIN//
        Time Window set.  Interval:     5  Number of data values:      1
        Starting date and time:  Mar 8, 1903  1550  (   1162  950)
        Ending   date and time:  Mar 8, 1903  1550  (   1162  950)
        Input time offset:      0
        After ZRDINF, Record found: T
        Pathname: /EAST/XRDPK/FLOW/08MAR1903/5MIN//
        Number of actual data:  288  Header length:   0
        Compression:   0  Quality:   0  Double: F
-----DSS--- ZREAD Unit  71; Vers.    3:  /EAST/XRDPK/FLOW/08MAR1903/5MIN//
      ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
        NSTART:    1   NVALS:    1    JULS:    1162  ISTIME:   950
        NLDATA:  288   JULSD:    1162
        JULS: 08MAR03       JULSD: 08MAR03
        Quality Read: F,  Quality Requested: F
        ---ZRRTSB Calculations:  NPOS:  190  NDATA:  288  NREAD:    1  ILIM:    1
      ----- Exiting ZRRTS, Number of data values:      1,  Status:  0
        Offset:       0,  Units: CFS     ,  Type:INST-VAL
        ----- Entering ZRRTSX for unit 71 -----
Pathname: /EAST/XRDPK/FLOW//5MIN//
        Time Window set.  Interval:     5  Number of data values:    744
        Starting date and time:  Mar 8, 1903  1550  (   1162  950)
        Ending   date and time:  Mar 11, 1903  0545  (   1165  345)
        Input time offset:      0
        After ZRDINF, Record found: T
        Pathname: /EAST/XRDPK/FLOW/08MAR1903/5MIN//
        Number of actual data:  288  Header length:   0
        Compression:   0  Quality:   0  Double: F
-----DSS--- ZREAD Unit  71; Vers.    3:  /EAST/XRDPK/FLOW/08MAR1903/5MIN//
      ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
        NSTART:    1   NVALS:  744    JULS:    1162  ISTIME:   950
        NLDATA:  288   JULSD:    1162
        JULS: 08MAR03       JULSD: 08MAR03
        Quality Read: F,  Quality Requested: F
        ---ZRRTSB Calculations:  NPOS:  190  NDATA:  288  NREAD:   99  ILIM:   99
        After ZRDINF, Record found: T
        Pathname: /EAST/XRDPK/FLOW/09MAR1903/5MIN//
        Number of actual data:  288  Header length:   0
        Compression:   0  Quality:   0  Double: F
-----DSS--- ZREAD Unit  71; Vers.    3:  /EAST/XRDPK/FLOW/09MAR1903/5MIN//
      ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
        NSTART:  100   NVALS:  744    JULS:    1162  ISTIME:   950
        NLDATA:  288   JULSD:    1163
        JULS: 08MAR03       JULSD: 09MAR03
```

```
        Quality Read: F,  Quality Requested: F
        ---ZRRTSB Calculations:  NPOS:    1  NDATA:  288  NREAD:  288  ILIM:  387
        After ZRDINF, Record found: T
        Pathname: /EAST/XRDPK/FLOW/10MAR1903/5MIN//
        Number of actual data:  288  Header length:   0
        Compression:   0  Quality:   0  Double: F
-----DSS--- ZREAD Unit  71; Vers.    3:  /EAST/XRDPK/FLOW/10MAR1903/5MIN//
      ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
        NSTART:  388   NVALS:  744    JULS:    1162  ISTIME:   950
        NLDATA:  288   JULSD:    1164
        JULS: 08MAR03       JULSD: 10MAR03
        Quality Read: F,  Quality Requested: F
        ---ZRRTSB Calculations:  NPOS:    1  NDATA:  288  NREAD:  288  ILIM:  675
        After ZRDINF, Record found: F
        Pathname: /EAST/XRDPK/FLOW/11MAR1903/5MIN//
      ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
        NSTART:  676   NVALS:  744    JULS:    1162  ISTIME:   950
        NLDATA:  288   JULSD:    1165
        JULS: 08MAR03       JULSD: 11MAR03
        Quality Read: F,  Quality Requested: F
        ---ZRRTSB Calculations:  NPOS:    1  NDATA:  288  NREAD:   69  ILIM:  744
-----DSS*** ZRRTS:  CAUTION - Data block not found in file.  Unit:  71
Pathname: /EAST/XRDPK/FLOW/11MAR1903/5MIN//
      ----- Exiting ZRRTS, Number of data values:    744,  Status:  3
        Offset:       0,  Units: CFS     ,  Type:INST-VAL


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
 129 KK     *      C200  *
            *            *
            **************

 131 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           3  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE

 132 HC          HYDROGRAPH COMBINATION
                      ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                                  ***

      ***             ***             ***             ***             ***

                        HYDROGRAPH AT STATION     C200

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR    166.58-HR
+   (CFS)       (HR)
                          (CFS)
+      50.     13.00                29.          9.          3.          1.
                        (INCHES)   1.688       2.084       2.095       2.095
                         (AC-FT)     14.         18.         18.         18.

                        CUMULATIVE AREA =    0.16 SQ MI


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
 133 KK     *      P200  *
            *            *
            **************

 139 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           3  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE

               HYDROGRAPH ROUTING DATA

 140 RS          STORAGE ROUTING
                      NSTPS           1  NUMBER OF SUBREACHES
                       ITYP        STOR  TYPE OF INITIAL CONDITION
                     RSVRIC        0.00  INITIAL CONDITION
                          X        0.00 WORKING R AND D COEFFICIENT

 141 SV            STORAGE         0.0       0.0       0.3       1.6       3.2       4.0       5.7      26.3      66.7      93.0

 142 SE          ELEVATION     1266.50   1267.00   1268.00   1268.50   1268.75   1268.84   1269.00   1270.00   1271.00   1271.50

 143 SQ          DISCHARGE          0.        0.        0.       18.       56.       78.      128.      801.     4321.     7964.
```

```
                                                                  ***
     ***             ***             ***             ***             ***

                        HYDROGRAPH AT STATION     P200

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR    166.58-HR
+   (CFS)       (HR)
                          (CFS)
+     44.      13.67                28.          9.          3.           1.
                        (INCHES)   1.630       2.058       2.059        2.059
                         (AC-FT)     14.         17.         17.          17.

 PEAK STORAGE   TIME                         MAXIMUM AVERAGE STORAGE
                                     6-HR       24-HR       72-HR    166.58-HR
+  (AC-FT)      (HR)
       3.      13.67                 2.          1.          0.           0.

  PEAK STAGE    TIME                          MAXIMUM AVERAGE STAGE
                                     6-HR       24-HR       72-HR    166.58-HR
+   (FEET)      (HR)
  1268.67     13.67             1268.55     1268.19     1268.06      1267.99

                        CUMULATIVE AREA =    0.16 SQ MI


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
  181 KK    *      C202  *
            *            *
            **************

  183 KO          OUTPUT CONTROL VARIABLES
                        IPRNT          3  PRINT CONTROL
                        IPLOT          0  PLOT CONTROL
                        QSCAL         0.  HYDROGRAPH PLOT SCALE

  184 HC          HYDROGRAPH COMBINATION
                        ICOMP          2  NUMBER OF HYDROGRAPHS TO COMBINE
                                                                  ***
     ***             ***             ***             ***             ***

                        HYDROGRAPH AT STATION     C202

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR    166.58-HR
+   (CFS)       (HR)
                          (CFS)
+    510.      13.17                143.         37.         12.           5.
                        (INCHES)   1.570       1.609       1.609        1.609
                         (AC-FT)     71.         73.         73.          73.

                        CUMULATIVE AREA =    0.85 SQ MI


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
  185 KK    *      P202  *
            *            *
            **************

  191 KO          OUTPUT CONTROL VARIABLES
                        IPRNT          3  PRINT CONTROL
                        IPLOT          0  PLOT CONTROL
                        QSCAL         0.  HYDROGRAPH PLOT SCALE

                HYDROGRAPH ROUTING DATA

  192 RS          STORAGE ROUTING
                        NSTPS          1  NUMBER OF SUBREACHES
                         ITYP       STOR  TYPE OF INITIAL CONDITION
                       RSVRIC       0.00  INITIAL CONDITION
                            X       0.00 WORKING R AND D COEFFICIENT

  193 SV            STORAGE        0.0       0.2       2.6      13.2      19.6      20.7      21.9      24.4      25.7      27.0
                                  27.8      29.6

  195 SE          ELEVATION     1262.00   1263.00   1265.00   1267.00   1267.60   1267.70   1267.80   1268.00   1268.10   1268.20
                                1268.30   1268.40

  197 SQ          DISCHARGE         0.        0.        0.        0.       14.       40.       78.      186.      257.      340.
                                  436.      544.
```

```
                                                                    ***
     ***             ***             ***             ***             ***

                        HYDROGRAPH AT STATION     P202

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR    166.58-HR
+   (CFS)       (HR)
                          (CFS)
+     413.     13.58                 106.         30.         10.           4.
                        (INCHES)    1.161       1.309       1.316        1.316
                         (AC-FT)     52.         59.         59.          59.

 PEAK STORAGE   TIME                          MAXIMUM AVERAGE STORAGE
                                     6-HR       24-HR       72-HR    166.58-HR
+  (AC-FT)      (HR)
      28.     13.58                  22.         17.         14.          13.

  PEAK STAGE    TIME                          MAXIMUM AVERAGE STAGE
                                     6-HR       24-HR       72-HR    166.58-HR
+   (FEET)      (HR)
   1268.28     13.58              1267.79     1267.34     1267.11      1266.67

                        CUMULATIVE AREA =    0.85 SQ MI


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
  224 KK    *      C203  *
            *            *
            **************

  226 KO          OUTPUT CONTROL VARIABLES
                        IPRNT          3  PRINT CONTROL
                        IPLOT          0  PLOT CONTROL
                        QSCAL         0.  HYDROGRAPH PLOT SCALE

  227 HC          HYDROGRAPH COMBINATION
                        ICOMP          4  NUMBER OF HYDROGRAPHS TO COMBINE
                                                                    ***
     ***             ***             ***             ***             ***

                        HYDROGRAPH AT STATION     C203

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR    166.58-HR
+   (CFS)       (HR)
                          (CFS)
+     503.     13.58                 138.         39.         13.           6.
                        (INCHES)    0.688       0.776       0.788        0.788
                         (AC-FT)     69.         77.         79.          79.

                        CUMULATIVE AREA =    1.87 SQ MI


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
  228 KK    *      P203  *
            *            *
            **************

  234 KO          OUTPUT CONTROL VARIABLES
                        IPRNT          3  PRINT CONTROL
                        IPLOT          0  PLOT CONTROL
                        QSCAL         0.  HYDROGRAPH PLOT SCALE

               HYDROGRAPH ROUTING DATA

  235 RS          STORAGE ROUTING
                        NSTPS          1  NUMBER OF SUBREACHES
                         ITYP       STOR  TYPE OF INITIAL CONDITION
                       RSVRIC       0.00  INITIAL CONDITION
                            X       0.00 WORKING R AND D COEFFICIENT

  236 SV            STORAGE        0.0       3.8      35.3      37.5      39.7      41.8      42.9      44.0      46.2

  237 SE          ELEVATION     1262.00   1264.00   1268.00   1268.20   1268.40   1268.60   1268.70   1268.80   1269.00

  238 SQ          DISCHARGE          0.        0.        0.        5.       41.      120.      175.      241.      410.
                                                                    ***
```

```
      ***             ***             ***             ***             ***

                        HYDROGRAPH AT STATION     P203

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR    166.58-HR
+   (CFS)       (HR)
                              (CFS)
+     230.     14.58                69.         21.          7.           3.
                          (INCHES)  0.343       0.424       0.434        0.434
                           (AC-FT)   34.         42.         43.          43.

 PEAK STORAGE   TIME                          MAXIMUM AVERAGE STORAGE
                                     6-HR       24-HR       72-HR    166.58-HR
+  (AC-FT)      (HR)
      44.     14.58                 40.         38.         36.          33.

  PEAK STAGE    TIME                          MAXIMUM AVERAGE STAGE
                                     6-HR       24-HR       72-HR    166.58-HR
+   (FEET)      (HR)
  1268.78     14.58             1268.43     1268.23     1268.08      1267.58

                        CUMULATIVE AREA =    1.87 SQ MI


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
  270 KK    *     P208N  *
            *            *
            **************

  276 KO          OUTPUT CONTROL VARIABLES
                        IPRNT          3  PRINT CONTROL
                        IPLOT          0  PLOT CONTROL
                        QSCAL         0.  HYDROGRAPH PLOT SCALE

                HYDROGRAPH ROUTING DATA

  277 RS          STORAGE ROUTING
                        NSTPS          1  NUMBER OF SUBREACHES
                         ITYP       STOR  TYPE OF INITIAL CONDITION
                       RSVRIC       0.00  INITIAL CONDITION
                            X       0.00 WORKING R AND D COEFFICIENT

  278 SV            STORAGE        0.0       2.2       3.5       4.8       8.0      11.6

  279 SE          ELEVATION    1262.70   1263.69   1264.19   1264.69   1265.69   1266.69

  280 SQ          DISCHARGE         0.       25.       50.      150.      200.      250.      275.      300.      400.      500.

  281 SE          ELEVATION    1264.70   1264.96   1265.11   1265.55   1265.72   1265.87   1265.94   1266.01   1266.27   1266.50

                                                                  ***

                                          COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

            STORAGE       0.00      2.20      3.47      4.85      4.88      5.70      6.17      7.55      7.99      8.10
            OUTFLOW       0.00      0.00      0.00      0.00      0.00     25.00     50.00    150.00    191.16    200.00
          ELEVATION    1262.70   1263.69   1264.19   1264.69   1264.70   1264.96   1265.11   1265.55   1265.69   1265.72

            STORAGE       8.65      8.90      9.16     10.11     10.95     11.64
            OUTFLOW     250.00    275.00    300.00    400.00    500.00    582.59
          ELEVATION    1265.87   1265.94   1266.01   1266.27   1266.50   1266.69

      ***             ***             ***             ***             ***

                        HYDROGRAPH AT STATION    P208N

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR    166.58-HR
+   (CFS)       (HR)
                              (CFS)
+     194.     14.92                59.         19.          6.           3.
                          (INCHES)  0.000       0.000       0.000        0.000
                           (AC-FT)   29.         37.         38.          38.

 PEAK STORAGE   TIME                          MAXIMUM AVERAGE STORAGE
                                     6-HR       24-HR       72-HR    166.58-HR
+  (AC-FT)      (HR)
       8.     14.92                  6.          5.          5.           5.

  PEAK STAGE    TIME                          MAXIMUM AVERAGE STAGE
                                     6-HR       24-HR       72-HR    166.58-HR
+   (FEET)      (HR)
  1265.70     14.92             1265.11     1264.85     1264.75      1264.58

                        CUMULATIVE AREA =    0.00 SQ MI
```

```
*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
 296 KK     *     C208S  *
            *            *
            **************

 298 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           3  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE

 299 HC          HYDROGRAPH COMBINATION
                      ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                          ***

      ***             ***             ***             ***             ***

                        HYDROGRAPH AT STATION    C208S

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR    166.58-HR
+   (CFS)       (HR)
                          (CFS)
+     198.     14.92                 66.         22.          8.           3.
                        (INCHES)   5.540       7.545       7.786        7.787
                         (AC-FT)     33.         44.         46.          46.

                         CUMULATIVE AREA =    0.11 SQ MI


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
 300 KK     *     P208S  *
            *            *
            **************

 305 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           3  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE

               HYDROGRAPH ROUTING DATA

 304 RS          STORAGE ROUTING
                      NSTPS           1  NUMBER OF SUBREACHES
                       ITYP        STOR  TYPE OF INITIAL CONDITION
                     RSVRIC        0.00  INITIAL CONDITION
                          X        0.00 WORKING R AND D COEFFICIENT

 306 SV            STORAGE         0.5       2.5       4.9       7.7      10.8      14.5      18.7      19.3      19.7      20.0
                                  23.0

 308 SE          ELEVATION     1260.00   1261.00   1262.00   1263.00   1264.00   1265.00   1266.00   1266.16   1266.24   1266.31
                               1267.00

 310 SQ          DISCHARGE          0.        0.        0.        0.        0.        0.        0.       17.       33.       50.
                                  419.

                                                          ***

      ***             ***             ***             ***             ***

                        HYDROGRAPH AT STATION    P208S

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR    166.58-HR
+   (CFS)       (HR)
                          (CFS)
+     107.     15.83                 37.         13.          5.           2.
                        (INCHES)   3.116       4.445       4.605        4.606
                         (AC-FT)     18.         26.         27.          27.

 PEAK STORAGE   TIME                         MAXIMUM AVERAGE STORAGE
                                     6-HR       24-HR       72-HR    166.58-HR
+  (AC-FT)      (HR)
      20.      15.83                 20.         19.         19.          17.

  PEAK STAGE    TIME                          MAXIMUM AVERAGE STAGE
                                     6-HR       24-HR       72-HR    166.58-HR
+   (FEET)      (HR)
   1266.42     15.83              1266.23     1266.10     1266.03      1265.50
```

```
                    CUMULATIVE AREA =    0.11 SQ MI


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


          **************
          *            *
335 KK    *       213  *        BASIN
          *            *
          **************

338 KO          OUTPUT CONTROL VARIABLES
                     IPRNT           3  PRINT CONTROL
                     IPLOT           0  PLOT CONTROL
                     QSCAL          0.  HYDROGRAPH PLOT SCALE

            SUBBASIN RUNOFF DATA

339 BA          SUBBASIN CHARACTERISTICS
                     TAREA        0.13  SUBBASIN AREA

                PRECIPITATION DATA

 70 PB               STORM        3.40  BASIN TOTAL PRECIPITATION

 70 PI            INCREMENTAL PRECIPITATION PATTERN
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.01      0.00      0.01
                    0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.03      0.03
                    0.03      0.09      0.09      0.09      0.01      0.01      0.01      0.01      0.01      0.01
                    0.01      0.01      0.01      0.01      0.01      0.01      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00

340 LG          GREEN AND AMPT LOSS RATE
                     STRTL        0.39  STARTING LOSS
                       DTH        0.23  MOISTURE DEFICIT
                      PSIF        6.20  WETTING FRONT SUCTION
                     XKSAT        0.21  HYDRAULIC CONDUCTIVITY
                     RTIMP        4.00  PERCENT IMPERVIOUS AREA

341 UC          CLARK UNITGRAPH
                        TC        0.91  TIME OF CONCENTRATION
                         R        0.79  STORAGE COEFFICIENT

342 UA          ACCUMULATED-AREA VS. TIME,  11 ORDINATES
                     0.0       5.0      16.0      30.0      65.0      77.0      84.0      90.0      94.0      97.0
                   100.0

                                                  ***

                                          UNIT HYDROGRAPH PARAMETERS
                                   CLARK   TC=  0.91 HR,       R=  0.79 HR
                                  SNYDER   TP=  0.54 HR,      CP=  0.41

                                          UNIT HYDROGRAPH
                                   55 END-OF-PERIOD ORDINATES
              2.        9.       19.       36.       54.       62.       63.       62.       60.       57.
             53.       49.       44.       40.       36.       32.       29.       26.       24.       21.
             19.       17.       15.       14.       12.       11.       10.        9.        8.        7.
              7.        6.        5.        5.        4.        4.        4.        3.        3.        3.
              2.        2.        2.        2.        2.        1.        1.        1.        1.        1.
              1.        1.        1.        1.        1.

    ***             ***             ***             ***             ***

                    HYDROGRAPH AT STATION      213

  TOTAL RAINFALL =    3.40, TOTAL LOSS =    2.31, TOTAL EXCESS =    1.09
```

```
  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR        24-HR        72-HR     166.58-HR
+   (CFS)       (HR)
                            (CFS)
+      62.     12.42                 14.           4.           1.           1.
                         (INCHES)   1.049        1.088        1.089        1.089
                          (AC-FT)      7.           7.           7.           7.

                         CUMULATIVE AREA =    0.13 SQ MI


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
  344 KK    *      P213  *
            *            *
            **************

  349 KO          OUTPUT CONTROL VARIABLES
                        IPRNT          3  PRINT CONTROL
                        IPLOT          0  PLOT CONTROL
                        QSCAL         0.  HYDROGRAPH PLOT SCALE

               HYDROGRAPH ROUTING DATA

  350 RS          STORAGE ROUTING
                        NSTPS          1  NUMBER OF SUBREACHES
                         ITYP        STOR  TYPE OF INITIAL CONDITION
                       RSVRIC        0.00  INITIAL CONDITION
                            X        0.00 WORKING R AND D COEFFICIENT

  351 SV            STORAGE         0.0       0.1       4.4       7.5       9.4      14.1      29.5

  352 SE          ELEVATION     1264.00   1265.00   1266.00   1266.20   1266.30   1266.50   1267.00

  353 SQ          DISCHARGE          0.        0.        0.        5.       14.       86.     1029.

                                                                  ***

      ***             ***             ***             ***             ***

                          HYDROGRAPH AT STATION     P213

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR        24-HR        72-HR     166.58-HR
+   (CFS)       (HR)
                            (CFS)
+       3.     15.00                  3.           1.           0.           0.
                         (INCHES)   0.210        0.403        0.423        0.423
                          (AC-FT)      1.           3.           3.           3.

 PEAK STORAGE   TIME                         MAXIMUM AVERAGE STORAGE
                                     6-HR        24-HR        72-HR     166.58-HR
+  (AC-FT)      (HR)
       7.     15.00                   6.           5.           5.           4.

  PEAK STAGE    TIME                          MAXIMUM AVERAGE STAGE
                                     6-HR        24-HR        72-HR     166.58-HR
+   (FEET)      (HR)
   1266.13     15.00               1266.11      1266.05      1266.02      1265.91

                         CUMULATIVE AREA =    0.13 SQ MI


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
  371 KK    *     CP207  *
            *            *
            **************

  373 KO          OUTPUT CONTROL VARIABLES
                        IPRNT          3  PRINT CONTROL
                        IPLOT          0  PLOT CONTROL
                        QSCAL         0.  HYDROGRAPH PLOT SCALE

  374 HC          HYDROGRAPH COMBINATION
                        ICOMP          4  NUMBER OF HYDROGRAPHS TO COMBINE

                                                                  ***

      ***             ***             ***             ***             ***

                          HYDROGRAPH AT STATION    CP207

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR        24-HR        72-HR     166.58-HR
```

```
+   (CFS)        (HR)
                              (CFS)
+     135.      15.83                    57.          21.          7.           3.
                          (INCHES)     0.192        0.277        0.286        0.286
                           (AC-FT)       28.          41.          43.          43.

                          CUMULATIVE AREA =    2.78 SQ MI


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


              **************
              *            *
 375 KK       *      P207  *
              *            *
              **************

 379 KO           OUTPUT CONTROL VARIABLES
                        IPRNT           3  PRINT CONTROL
                        IPLOT           0  PLOT CONTROL
                        QSCAL          0.  HYDROGRAPH PLOT SCALE

                HYDROGRAPH ROUTING DATA

 380 RS           STORAGE ROUTING
                        NSTPS           1  NUMBER OF SUBREACHES
                         ITYP        STOR  TYPE OF INITIAL CONDITION
                       RSVRIC        0.00  INITIAL CONDITION
                            X        0.00 WORKING R AND D COEFFICIENT

 381 SV             STORAGE         0.0       1.3      10.6      36.5      50.8      65.8      98.2     115.5     133.6     152.5
                                   172.4     182.9     205.2

 383 SE           ELEVATION      1255.00   1256.00   1257.00   1259.00   1260.00   1261.00   1263.00   1264.00   1265.00   1266.00
                                 1267.00   1267.50   1268.50

 385 SQ           DISCHARGE          0.        0.        0.        0.        0.        0.        0.        0.        0.        1.
                                    920.     2716.    12171.

                                                                   ***

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN     2716. TO    12171.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)

     ***             ***             ***             ***             ***

                        HYDROGRAPH AT STATION     P207

 PEAK FLOW      TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR        24-HR        72-HR     166.58-HR
+   (CFS)       (HR)
                              (CFS)
+       0.      0.00                      0.           0.           0.           0.
                          (INCHES)     0.000        0.000        0.000        0.000
                           (AC-FT)        0.           0.           0.           0.

 PEAK STORAGE   TIME                         MAXIMUM AVERAGE STORAGE
                                     6-HR        24-HR        72-HR     166.58-HR
+  (AC-FT)      (HR)
      43.     148.25                     43.          43.          43.          37.

 PEAK STAGE     TIME                          MAXIMUM AVERAGE STAGE
                                     6-HR        24-HR        72-HR     166.58-HR
+   (FEET)      (HR)
   1259.42    144.25                 1259.42      1259.41      1259.39      1258.93

                          CUMULATIVE AREA =    2.78 SQ MI


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


              **************
              *            *
 392 KK       *       212  *        BASIN
              *            *
              **************

 395 KO           OUTPUT CONTROL VARIABLES
                        IPRNT           3  PRINT CONTROL
                        IPLOT           0  PLOT CONTROL
                        QSCAL          0.  HYDROGRAPH PLOT SCALE

                SUBBASIN RUNOFF DATA

 396 BA           SUBBASIN CHARACTERISTICS
                        TAREA        0.37  SUBBASIN AREA

                  PRECIPITATION DATA
```

```
 70 PB                STORM        3.40  BASIN TOTAL PRECIPITATION

 70 PI            INCREMENTAL PRECIPITATION PATTERN
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.01      0.00      0.01
                    0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.03      0.03
                    0.03      0.09      0.09      0.09      0.01      0.01      0.01      0.01      0.01      0.01
                    0.01      0.01      0.01      0.01      0.01      0.01      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00

397 LG           GREEN AND AMPT LOSS RATE
                      STRTL        0.47  STARTING LOSS
                        DTH        0.25  MOISTURE DEFICIT
                       PSIF        5.60  WETTING FRONT SUCTION
                      XKSAT        0.31  HYDRAULIC CONDUCTIVITY
                      RTIMP        1.00  PERCENT IMPERVIOUS AREA

398 UC           CLARK UNITGRAPH
                         TC        1.50  TIME OF CONCENTRATION
                          R        1.50  STORAGE COEFFICIENT

399 UA           ACCUMULATED-AREA VS. TIME,  11 ORDINATES
                      0.0       3.0       5.0       8.0      12.0      20.0      43.0      75.0      90.0      96.0
                    100.0

                                                  ***

                                          UNIT HYDROGRAPH PARAMETERS
                                   CLARK   TC=  1.50 HR,       R=  1.50 HR
                                  SNYDER   TP=  1.30 HR,      CP=  0.60

                                          UNIT HYDROGRAPH
                                     107 END-OF-PERIOD ORDINATES
                     1.        4.        6.        7.        9.       12.       14.       18.       24.       36.
                    55.       76.       97.      109.      114.      114.      113.      110.      106.      100.
                    95.       90.       85.       80.       76.       72.       68.       64.       61.       58.
                    54.       51.       49.       46.       44.       41.       39.       37.       35.       33.
                    31.       30.       28.       26.       25.       24.       22.       21.       20.       19.
                    18.       17.       16.       15.       14.       14.       13.       12.       11.       11.
                    10.       10.        9.        9.        8.        8.        7.        7.        7.        6.
                     6.        6.        5.        5.        5.        4.        4.        4.        4.        4.
                     3.        3.        3.        3.        3.        3.        2.        2.        2.        2.
                     2.        2.        2.        2.        2.        1.        1.        1.        1.        1.
                     1.        1.        1.        1.        1.        1.        1.

        ***             ***             ***             ***             ***

                          HYDROGRAPH AT STATION       212

      TOTAL RAINFALL =     3.40, TOTAL LOSS =     2.54, TOTAL EXCESS =     0.86

    PEAK FLOW      TIME                          MAXIMUM AVERAGE FLOW
                                        6-HR        24-HR        72-HR     166.58-HR
+     (CFS)        (HR)
                                     (CFS)
+       95.       13.17                 33.           9.           3.           1.
                                  (INCHES)      0.820        0.854        0.854        0.854
                                   (AC-FT)        16.          17.          17.          17.

                                  CUMULATIVE AREA =     0.37 SQ MI


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


                 **************
                 *            *
 401 KK          *     P212   *
                 *            *
```

```
              **************

  406 KO          OUTPUT CONTROL VARIABLES
                        IPRNT           3  PRINT CONTROL
                        IPLOT           0  PLOT CONTROL
                        QSCAL          0.  HYDROGRAPH PLOT SCALE

                HYDROGRAPH ROUTING DATA

  407 RS          STORAGE ROUTING
                        NSTPS           1  NUMBER OF SUBREACHES
                         ITYP        STOR  TYPE OF INITIAL CONDITION
                       RSVRIC        0.00  INITIAL CONDITION
                            X        0.00 WORKING R AND D COEFFICIENT

  408 SV            STORAGE         0.0       0.2       0.6       1.7       3.0       4.4       4.7       4.8       4.8       5.0
                                    5.0       5.1

  410 SE          ELEVATION     1262.00   1262.50   1263.00   1264.00   1265.00   1266.00   1266.20   1266.25   1266.31   1266.38
                                1266.40   1266.50

  412 SQ          DISCHARGE          0.        0.        0.        0.        0.        0.       68.       98.      139.      195.
                                   212.      308.

                                                                  ***

 *** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN       68. TO      308.
                 THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                 THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)

      ***             ***             ***             ***             ***

                        HYDROGRAPH AT STATION     P212

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                      6-HR       24-HR       72-HR    166.58-HR
+   (CFS)       (HR)
                          (CFS)
+      93.     13.33                  25.         6.          2.          1.
                        (INCHES)    0.620       0.632       0.632       0.632
                         (AC-FT)       12.         13.         13.         13.

 PEAK STORAGE   TIME                         MAXIMUM AVERAGE STORAGE
                                      6-HR       24-HR       72-HR    166.58-HR
+  (AC-FT)      (HR)
       5.      13.33                   5.          4.          4.          4.

  PEAK STAGE    TIME                          MAXIMUM AVERAGE STAGE
                                      6-HR       24-HR       72-HR    166.58-HR
+   (FEET)      (HR)
   1266.24     13.33               1266.07     1266.02     1266.01     1265.71

                        CUMULATIVE AREA =    0.37 SQ MI


 *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


              **************
              *            *
  414 KK      *     D212R  *      Canal Diversion
              *            *
              **************

  418 KO          OUTPUT CONTROL VARIABLES
                        IPRNT           3  PRINT CONTROL
                        IPLOT           0  PLOT CONTROL
                        QSCAL          0.  HYDROGRAPH PLOT SCALE

      DT          DIVERSION
                        ISTAD      EAS212  DIVERSION HYDROGRAPH IDENTIFICATION

      DI             INFLOW        0.00      68.00      98.00     139.00     195.00     212.00

      DQ       DIVERTED FLOW       0.00       2.00       4.00       7.00      10.00      11.00

                                                                  ***

      ***             ***             ***             ***             ***

                        DIVERSION HYDROGRAPH   EAS212

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                      6-HR       24-HR       72-HR    166.58-HR
+   (CFS)       (HR)
                          (CFS)
+       4.      13.33                   1.          0.          0.          0.
                        (INCHES)    0.019       0.020       0.020       0.020
                         (AC-FT)       0.          0.          0.          0.

                        CUMULATIVE AREA =    0.37 SQ MI
```

```
     ***             ***             ***             ***             ***

                        HYDROGRAPH AT STATION    D212R

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR    166.58-HR
+   (CFS)       (HR)
                          (CFS)
+      89.     13.33                 24.          6.          2.           1.
                        (INCHES)    0.601       0.612       0.612        0.612
                         (AC-FT)     12.         12.         12.          12.

                        CUMULATIVE AREA =    0.37 SQ MI


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
  740 KK    *     CP215  *
            *            *
            **************

  742 KO          OUTPUT CONTROL VARIABLES
                        IPRNT          3  PRINT CONTROL
                        IPLOT          0  PLOT CONTROL
                        QSCAL         0.  HYDROGRAPH PLOT SCALE

  743 HC          HYDROGRAPH COMBINATION
                        ICOMP          2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                                ***

     ***             ***             ***             ***             ***

                        HYDROGRAPH AT STATION    CP215

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR    166.58-HR
+   (CFS)       (HR)
                          (CFS)
+      42.     15.75                 18.          6.          2.           1.
                        (INCHES)    4.199       5.365       5.426        5.426
                         (AC-FT)      9.         11.         12.          12.

                        CUMULATIVE AREA =    0.04 SQ MI


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
  744 KK    *      P215  *
            *            *
            **************

  748 KO          OUTPUT CONTROL VARIABLES
                        IPRNT          3  PRINT CONTROL
                        IPLOT          0  PLOT CONTROL
                        QSCAL         0.  HYDROGRAPH PLOT SCALE

                HYDROGRAPH ROUTING DATA

  749 RS          STORAGE ROUTING
                        NSTPS          1  NUMBER OF SUBREACHES
                         ITYP       STOR  TYPE OF INITIAL CONDITION
                        RSVRIC      0.00  INITIAL CONDITION
                             X      0.00 WORKING R AND D COEFFICIENT

  750 SV            STORAGE        0.3       1.4       3.8       7.6      12.7      26.4      44.6

  751 SE          ELEVATION     1261.00   1261.50   1262.00   1262.50   1263.00   1264.00   1265.00

  752 SQ          DISCHARGE        0.        0.        0.        0.        0.        0.     1671.

                                                                ***

     ***             ***             ***             ***             ***

                        HYDROGRAPH AT STATION     P215

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR    166.58-HR
+   (CFS)       (HR)
                          (CFS)
+       0.      0.00                  0.          0.          0.           0.
                        (INCHES)    0.000       0.000       0.000        0.000
                         (AC-FT)      0.          0.          0.           0.
```

```
 PEAK STORAGE   TIME                          MAXIMUM AVERAGE STORAGE
                                      6-HR       24-HR       72-HR    166.58-HR
+  (AC-FT)      (HR)
      12.      55.33                    12.         12.         12.          10.

  PEAK STAGE    TIME                          MAXIMUM AVERAGE STAGE
                                      6-HR       24-HR       72-HR    166.58-HR
+   (FEET)      (HR)
   1262.89     50.50                 1262.89     1262.88     1262.87      1262.72

                         CUMULATIVE AREA =    0.04 SQ MI


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
 776 KK     *     CP219  *
            *            *
            **************

 778 KO          OUTPUT CONTROL VARIABLES
                       IPRNT          3  PRINT CONTROL
                       IPLOT          0  PLOT CONTROL
                       QSCAL         0.  HYDROGRAPH PLOT SCALE

 779 HC          HYDROGRAPH COMBINATION
                       ICOMP          4  NUMBER OF HYDROGRAPHS TO COMBINE

                                                                  ***

      ***             ***             ***             ***             ***

                         HYDROGRAPH AT STATION    CP219

 PEAK FLOW      TIME                          MAXIMUM AVERAGE FLOW
                                      6-HR       24-HR       72-HR    166.58-HR
+   (CFS)       (HR)
                                    (CFS)
+     231.     14.25                  126.         37.         13.           5.
                         (INCHES)   0.342       0.405       0.410        0.410
                          (AC-FT)     63.         74.         75.          75.

                         CUMULATIVE AREA =    3.43 SQ MI


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
 802 KK     *     CP237  *
            *            *
            **************

 804 KO          OUTPUT CONTROL VARIABLES
                       IPRNT          3  PRINT CONTROL
                       IPLOT          0  PLOT CONTROL
                       QSCAL         0.  HYDROGRAPH PLOT SCALE

 805 HC          HYDROGRAPH COMBINATION
                       ICOMP          3  NUMBER OF HYDROGRAPHS TO COMBINE

                                                                  ***

      ***             ***             ***             ***             ***

                         HYDROGRAPH AT STATION    CP237

 PEAK FLOW      TIME                          MAXIMUM AVERAGE FLOW
                                      6-HR       24-HR       72-HR    166.58-HR
+   (CFS)       (HR)
                                    (CFS)
+     455.     14.25                  237.         69.         23.          10.
                         (INCHES)   0.603       0.698       0.705        0.705
                          (AC-FT)    117.        136.        137.         137.

                         CUMULATIVE AREA =    3.65 SQ MI


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
 806 KK     *      P237  *
            *            *
            **************
```

```
817 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           3  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE

              HYDROGRAPH ROUTING DATA

818 RS          STORAGE ROUTING
                      NSTPS           1  NUMBER OF SUBREACHES
                       ITYP        STOR  TYPE OF INITIAL CONDITION
                     RSVRIC        0.00  INITIAL CONDITION
                          X        0.00 WORKING R AND D COEFFICIENT

819 SV            STORAGE         0.0       9.2      28.4      30.8      32.2      33.4      34.9      35.3      38.9      42.5

820 SE          ELEVATION     1258.70   1261.46   1261.66   1261.89   1262.03   1262.14   1262.29   1262.33   1262.66   1263.00

821 SQ          DISCHARGE          0.        0.      100.      200.      300.      400.      450.      500.

822 SE          ELEVATION     1258.70   1261.66   1261.89   1262.03   1262.14   1262.24   1262.29   1262.33
                                                                  ***

                                                COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

            STORAGE       0.00      9.17     28.38     30.77     32.18     33.37     34.40     34.92     35.34     38.89
            OUTFLOW       0.00      0.00      0.00    100.00    200.00    300.00    400.00    450.00    500.00    913.46
          ELEVATION    1258.70   1261.46   1261.66   1261.89   1262.03   1262.14   1262.24   1262.29   1262.33   1262.66

            STORAGE      42.47
            OUTFLOW    1339.30
          ELEVATION    1263.00

     ***             ***             ***             ***             ***

                        HYDROGRAPH AT STATION     P237

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR    166.58-HR
+   (CFS)       (HR)
                           (CFS)
+     449.     14.42                197.         55.         18.          8.
                         (INCHES)  0.502      0.559       0.560        0.560
                          (AC-FT)   98.        109.        109.         109.

 PEAK STORAGE   TIME                          MAXIMUM AVERAGE STORAGE
                                     6-HR       24-HR       72-HR    166.58-HR
+  (AC-FT)      (HR)
      35.      14.42                 32.         29.         29.          26.

  PEAK STAGE    TIME                          MAXIMUM AVERAGE STAGE
                                     6-HR       24-HR       72-HR    166.58-HR
+   (FEET)      (HR)
   1262.29     14.42            1262.00     1261.75     1261.70      1261.48

                        CUMULATIVE AREA =    3.65 SQ MI


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
864 KK      *     CP238  *
            *            *
            **************

866 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           3  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE

867 HC          HYDROGRAPH COMBINATION
                      ICOMP           4  NUMBER OF HYDROGRAPHS TO COMBINE
                                                                  ***

     ***             ***             ***             ***             ***

                        HYDROGRAPH AT STATION    CP238

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR    166.58-HR
+   (CFS)       (HR)
                           (CFS)
+     551.     14.25                256.         75.         25.          11.
                         (INCHES)  0.598      0.703       0.709        0.709
                          (AC-FT)   127.        150.        151.         151.

                        CUMULATIVE AREA =    3.99 SQ MI
```

```
*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
868 KK      *      P238  *
            *            *
            **************

876 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           3  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE

              HYDROGRAPH ROUTING DATA

877 RS          STORAGE ROUTING
                      NSTPS           1  NUMBER OF SUBREACHES
                       ITYP        STOR  TYPE OF INITIAL CONDITION
                     RSVRIC        0.00  INITIAL CONDITION
                          X        0.00 WORKING R AND D COEFFICIENT

878 SV            STORAGE         0.0       1.1      22.8      47.5      75.0      93.2      97.0      98.8     101.4     102.3
                                103.2     103.8

880 SE          ELEVATION     1256.50   1256.66   1257.66   1258.66   1259.66   1260.20   1260.41   1260.47   1260.56   1260.59
                              1260.60   1260.64

882 SQ          DISCHARGE          0.       31.       50.       90.      120.      160.      195.

883 SE          ELEVATION     1260.20   1260.41   1260.47   1260.56   1260.59   1260.62   1260.64
                                                                  ***

                                          COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

            STORAGE       0.00      1.13     22.78     47.45     74.97     93.20     97.00     98.80    101.40    102.30
            OUTFLOW       0.00      0.00      0.00      0.00      0.00      0.00     31.00     50.00     90.00    120.00
          ELEVATION    1256.50   1256.66   1257.66   1258.66   1259.66   1260.20   1260.41   1260.47   1260.56   1260.59

            STORAGE     103.20    103.50    103.80
            OUTFLOW     133.33    160.00    195.00
          ELEVATION    1260.60   1260.62   1260.64

      ***             ***             ***             ***             ***

                        HYDROGRAPH AT STATION     P238

  PEAK FLOW      TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR        24-HR        72-HR    166.58-HR
+   (CFS)        (HR)
                             (CFS)
+     156.      17.25                89.          29.          10.           4.
                          (INCHES)  0.208        0.270        0.271        0.271
                           (AC-FT)     44.          57.          58.          58.

 PEAK STORAGE    TIME                          MAXIMUM AVERAGE STORAGE
                                     6-HR        24-HR        72-HR    166.58-HR
+  (AC-FT)       (HR)
     103.      17.25                101.          96.          94.          86.

  PEAK STAGE     TIME                          MAXIMUM AVERAGE STAGE
                                     6-HR        24-HR        72-HR    166.58-HR
+   (FEET)       (HR)
   1260.62      17.25             1260.54      1260.33      1260.25      1259.93

                        CUMULATIVE AREA =    3.99 SQ MI


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
884 KK      *      D238  *      CANAL DIVERSION
            *            *
            **************

887 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           3  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE

     DT         DIVERSION
                      ISTAD      EAS238  DIVERSION HYDROGRAPH IDENTIFICATION

     DI            INFLOW        0.00      31.00      50.00      90.00     120.00     160.00     186.00

     DQ      DIVERTED FLOW       0.00      31.00      50.00      90.00     110.00     130.00     136.00
```

```
                                                                    ***
      ***             ***             ***             ***             ***

                        DIVERSION HYDROGRAPH   EAS238

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR    166.58-HR
+   (CFS)       (HR)
                            (CFS)
+     128.     17.25                 83.         27.          9.           4.
                         (INCHES)   0.193       0.255       0.256        0.256
                          (AC-FT)    41.         54.         54.          54.

                         CUMULATIVE AREA =    3.99 SQ MI


      ***             ***             ***             ***             ***

                        HYDROGRAPH AT STATION     D238

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR    166.58-HR
+   (CFS)       (HR)
                            (CFS)
+      28.     17.25                  6.          2.          1.           0.
                         (INCHES)   0.015       0.015       0.015        0.015
                          (AC-FT)     3.          3.          3.           3.

                         CUMULATIVE AREA =    3.99 SQ MI


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
  902 KK    *     CP224  *
            *            *
            **************

  904 KO          OUTPUT CONTROL VARIABLES
                        IPRNT          3  PRINT CONTROL
                        IPLOT          0  PLOT CONTROL
                        QSCAL         0.  HYDROGRAPH PLOT SCALE

  905 HC          HYDROGRAPH COMBINATION
                        ICOMP          3  NUMBER OF HYDROGRAPHS TO COMBINE
                                                                    ***
      ***             ***             ***             ***             ***

                        HYDROGRAPH AT STATION    CP224

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR    166.58-HR
+   (CFS)       (HR)
                            (CFS)
+     236.     12.75                 56.         17.          6.           2.
                         (INCHES)   0.117       0.142       0.142        0.142
                          (AC-FT)    28.         33.         34.          34.

                         CUMULATIVE AREA =    4.41 SQ MI


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
  906 KK    *      P224  *
            *            *
            **************

  913 KO          OUTPUT CONTROL VARIABLES
                        IPRNT          3  PRINT CONTROL
                        IPLOT          0  PLOT CONTROL
                        QSCAL         0.  HYDROGRAPH PLOT SCALE

                HYDROGRAPH ROUTING DATA

  914 RS          STORAGE ROUTING
                        NSTPS          1  NUMBER OF SUBREACHES
                         ITYP       STOR  TYPE OF INITIAL CONDITION
                       RSVRIC       0.00  INITIAL CONDITION
                            X       0.00 WORKING R AND D COEFFICIENT

  915 SV            STORAGE         0.0       6.1      19.3      33.9      49.9      58.3
```

```
916 SE          ELEVATION     1255.20   1255.66   1256.66   1257.66   1258.66   1259.16

917 SQ          DISCHARGE          0.        5.       10.       15.       25.       30.       50.

918 SE          ELEVATION     1258.70   1258.71   1258.72   1258.73   1258.74   1258.75   1258.76

                                                                  ***

                                          COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

            STORAGE       0.00      6.10     19.32     33.91     49.87     50.55     50.72     50.89     51.06     51.23
            OUTFLOW       0.00      0.00      0.00      0.00      0.00      0.00      5.00     10.00     15.00     25.00
          ELEVATION    1255.20   1255.66   1256.66   1257.66   1258.66   1258.70   1258.71   1258.72   1258.73   1258.74

            STORAGE      51.40     51.57     58.35
            OUTFLOW      30.00     50.00    849.27
          ELEVATION    1258.75   1258.76   1259.16

      ***             ***             ***             ***             ***

                        HYDROGRAPH AT STATION     P224

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                      6-HR       24-HR       72-HR    166.58-HR
+   (CFS)       (HR)
                            (CFS)
+       0.      0.00                   0.          0.          0.          0.
                          (INCHES)   0.000       0.000       0.000       0.000
                           (AC-FT)      0.          0.          0.          0.

 PEAK STORAGE   TIME                          MAXIMUM AVERAGE STORAGE
                                      6-HR       24-HR       72-HR    166.58-HR
+  (AC-FT)      (HR)
      34.     28.50                   34.         34.         34.         31.

  PEAK STAGE    TIME                          MAXIMUM AVERAGE STAGE
                                      6-HR       24-HR       72-HR    166.58-HR
+   (FEET)      (HR)
   1257.63     27.92               1257.63     1257.63     1257.62     1257.45

                          CUMULATIVE AREA =    4.41 SQ MI


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
983 KK      *     CP227  *
            *            *
            **************

985 KO          OUTPUT CONTROL VARIABLES
                      IPRNT          3  PRINT CONTROL
                      IPLOT          0  PLOT CONTROL
                      QSCAL         0.  HYDROGRAPH PLOT SCALE

986 HC          HYDROGRAPH COMBINATION
                      ICOMP          3  NUMBER OF HYDROGRAPHS TO COMBINE

                                                                  ***

      ***             ***             ***             ***             ***

                        HYDROGRAPH AT STATION    CP227

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                      6-HR       24-HR       72-HR    166.58-HR
+   (CFS)       (HR)
                            (CFS)
+     364.     15.00                 178.         50.         17.          7.
                          (INCHES)  0.226       0.254       0.255       0.255
                           (AC-FT)     88.         99.         99.         99.

                          CUMULATIVE AREA =    7.30 SQ MI


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
987 KK      *      P227  *
            *            *
            **************

993 KO          OUTPUT CONTROL VARIABLES
                      IPRNT          3  PRINT CONTROL
                      IPLOT          0  PLOT CONTROL
                      QSCAL         0.  HYDROGRAPH PLOT SCALE
```

```
                HYDROGRAPH ROUTING DATA

 994 RS          STORAGE ROUTING
                      NSTPS           1  NUMBER OF SUBREACHES
                       ITYP        STOR  TYPE OF INITIAL CONDITION
                      RSVRIC        0.00  INITIAL CONDITION
                           X        0.00 WORKING R AND D COEFFICIENT

 995 SV            STORAGE         0.0       7.9      17.1      21.2      31.8      50.4

 996 SE          ELEVATION     1257.00   1257.60   1258.60   1259.03   1259.33   1259.63

 997 SQ          DISCHARGE          0.       50.      100.      150.      200.      250.      300.      350.      450.      500.

 998 SE          ELEVATION     1259.00   1259.28   1259.35   1259.40   1259.44   1259.48   1259.51   1259.54   1259.59   1259.61

                                                                  ***

                                                COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

             STORAGE       0.00      7.94     17.15     20.91     21.19     30.07     31.84     33.08     36.17     38.63
             OUTFLOW       0.00      0.00      0.00      0.00      5.36     50.00     85.69    100.00    150.00    200.00
           ELEVATION    1257.00   1257.60   1258.60   1259.00   1259.03   1259.28   1259.33   1259.35   1259.40   1259.44

             STORAGE      41.10     42.96     44.81     47.90     49.13     50.37
             OUTFLOW     250.00    300.00    350.00    450.00    500.00    550.00
           ELEVATION    1259.48   1259.51   1259.54   1259.59   1259.61   1259.63

      ***             ***             ***             ***             ***

                        HYDROGRAPH AT STATION     P227

  PEAK FLOW      TIME                          MAXIMUM AVERAGE FLOW
                                      6-HR       24-HR       72-HR    166.58-HR
+   (CFS)        (HR)
                           (CFS)
+     261.      15.92                133.         39.         13.           6.
                        (INCHES)    0.169       0.200       0.201        0.201
                         (AC-FT)       66.         78.         78.          78.

 PEAK STORAGE    TIME                          MAXIMUM AVERAGE STORAGE
                                      6-HR       24-HR       72-HR    166.58-HR
+  (AC-FT)       (HR)
       42.      15.92                 35.         25.         22.          20.

  PEAK STAGE     TIME                          MAXIMUM AVERAGE STAGE
                                      6-HR       24-HR       72-HR    166.58-HR
+   (FEET)       (HR)
   1259.49      15.92               1259.37     1259.12     1259.04      1258.85

                        CUMULATIVE AREA =    7.30 SQ MI


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


             **************
             *            *
 999 KK      *     D227B  *      CANAL DIVERSION
             *            *
             **************

1001 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           3  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE

     DT          DIVERSION
                      ISTAD      EAS227  DIVERSION HYDROGRAPH IDENTIFICATION

     DI             INFLOW        0.00    100.00   1000.00  10000.00

     DQ      DIVERTED FLOW        0.00    100.00   1000.00  10000.00

                                                                  ***

      ***             ***             ***             ***             ***

                        DIVERSION HYDROGRAPH   EAS227

  PEAK FLOW      TIME                          MAXIMUM AVERAGE FLOW
                                      6-HR       24-HR       72-HR    166.58-HR
+   (CFS)        (HR)
                           (CFS)
+     261.      15.92                133.         39.         13.           6.
                        (INCHES)    0.169       0.200       0.201        0.201
                         (AC-FT)       66.         78.         78.          78.

                        CUMULATIVE AREA =    7.30 SQ MI
```

```
      ***             ***             ***             ***             ***

                        HYDROGRAPH AT STATION    D227B

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR    166.58-HR
+   (CFS)       (HR)
                          (CFS)
+       0.      0.00                 0.          0.          0.           0.
                        (INCHES)    0.000       0.000       0.000        0.000
                         (AC-FT)      0.          0.          0.           0.

                        CUMULATIVE AREA =    7.30 SQ MI


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
1070 KK     *     CP230  *
            *            *
            **************

1072 KO          OUTPUT CONTROL VARIABLES
                       IPRNT           3  PRINT CONTROL
                       IPLOT           0  PLOT CONTROL
                       QSCAL          0.  HYDROGRAPH PLOT SCALE

1073 HC          HYDROGRAPH COMBINATION
                       ICOMP           3  NUMBER OF HYDROGRAPHS TO COMBINE

                                                                  ***

      ***             ***             ***             ***             ***

                        HYDROGRAPH AT STATION    CP230

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR    166.58-HR
+   (CFS)       (HR)
                          (CFS)
+     111.     13.58                64.         18.          6.           3.
                        (INCHES)    0.067       0.074       0.075        0.075
                         (AC-FT)      32.         36.         36.          36.

                        CUMULATIVE AREA =    8.94 SQ MI


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
1074 KK     *      P230  *
            *            *
            **************

1080 KO          OUTPUT CONTROL VARIABLES
                       IPRNT           3  PRINT CONTROL
                       IPLOT           0  PLOT CONTROL
                       QSCAL          0.  HYDROGRAPH PLOT SCALE

                HYDROGRAPH ROUTING DATA

1081 RS          STORAGE ROUTING
                       NSTPS           1  NUMBER OF SUBREACHES
                        ITYP        STOR  TYPE OF INITIAL CONDITION
                      RSVRIC        0.00  INITIAL CONDITION
                           X        0.00 WORKING R AND D COEFFICIENT

1082 SV            STORAGE         0.0      14.8      44.8      78.2     112.3     146.8     181.7     217.0     252.7     288.8
                                 325.4     362.5     400.2     442.0     467.5

1084 SE          ELEVATION     1244.00   1245.00   1246.00   1247.00   1248.00   1249.00   1250.00   1251.00   1252.00   1253.00
                               1254.00   1255.00   1256.00   1257.00   1257.50

1086 SQ          DISCHARGE          0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
                                    0.        0.        2.      890.     4208.

                                                                  ***

      ***             ***             ***             ***             ***

                        HYDROGRAPH AT STATION     P230

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR    166.58-HR
+   (CFS)       (HR)
                          (CFS)
+       0.      0.00                 0.          0.          0.           0.
```

```
                    (INCHES)     0.000       0.000       0.000       0.000
                     (AC-FT)       0.          0.          0.          0.

 PEAK STORAGE   TIME                        MAXIMUM AVERAGE STORAGE
                                     6-HR       24-HR       72-HR    166.58-HR
+  (AC-FT)      (HR)
      36.     58.17                   36.         36.         36.         32.

  PEAK STAGE    TIME                        MAXIMUM AVERAGE STAGE
                                     6-HR       24-HR       72-HR    166.58-HR
+   (FEET)      (HR)
   1245.69     53.75              1245.69     1245.69     1245.73     1245.56

                    CUMULATIVE AREA =    8.94 SQ MI


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
 1096 KK    *     CP234  *
            *            *
            **************

 1098 KO          OUTPUT CONTROL VARIABLES
                       IPRNT          3  PRINT CONTROL
                       IPLOT          0  PLOT CONTROL
                       QSCAL         0.  HYDROGRAPH PLOT SCALE

 1099 HC          HYDROGRAPH COMBINATION
                       ICOMP          2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                          ***

      ***             ***             ***             ***             ***

                        HYDROGRAPH AT STATION    CP234

  PEAK FLOW     TIME                        MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR    166.58-HR
+   (CFS)       (HR)
                          (CFS)
+     103.     12.33                   22.          7.          2.          1.
                    (INCHES)     0.023       0.028       0.028       0.028
                     (AC-FT)      11.         14.         14.         14.

                    CUMULATIVE AREA =    9.11 SQ MI


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
 1100 KK    *      P234  *
            *            *
            **************

 1105 KO          OUTPUT CONTROL VARIABLES
                       IPRNT          3  PRINT CONTROL
                       IPLOT          0  PLOT CONTROL
                       QSCAL         0.  HYDROGRAPH PLOT SCALE

               HYDROGRAPH ROUTING DATA

 1106 RS          STORAGE ROUTING
                       NSTPS          1  NUMBER OF SUBREACHES
                        ITYP       STOR  TYPE OF INITIAL CONDITION
                      RSVRIC       0.00  INITIAL CONDITION
                           X       0.00 WORKING R AND D COEFFICIENT

 1107 SV            STORAGE        0.0       0.4       1.3       4.0       7.6      13.1      26.4      54.9

 1108 SE          ELEVATION    1248.00   1248.50   1249.00   1250.00   1251.00   1252.00   1253.00   1254.00

 1109 SQ          DISCHARGE        0.        0.        0.        0.        0.        0.       13.       89.

                                                          ***

      ***             ***             ***             ***             ***

                        HYDROGRAPH AT STATION     P234

  PEAK FLOW     TIME                        MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR    166.58-HR
+   (CFS)       (HR)
                          (CFS)
+       0.     24.75                    0.          0.          0.          0.
                    (INCHES)     0.000       0.001       0.001       0.001
                     (AC-FT)       0.          0.          1.          1.
```

```
 PEAK STORAGE   TIME                          MAXIMUM AVERAGE STORAGE
                                      6-HR        24-HR        72-HR     166.58-HR
+  (AC-FT)      (HR)
      14.      24.75                    13.          13.          13.           12.

  PEAK STAGE    TIME                          MAXIMUM AVERAGE STAGE
                                      6-HR        24-HR        72-HR     166.58-HR
+   (FEET)      (HR)
   1252.03     24.83                1252.03      1252.02      1252.01       1251.74

                         CUMULATIVE AREA =    9.11 SQ MI


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
 1216 KK    *     CP235  *
            *            *
            **************

 1218 KO          OUTPUT CONTROL VARIABLES
                        IPRNT          3  PRINT CONTROL
                        IPLOT          0  PLOT CONTROL
                        QSCAL         0.  HYDROGRAPH PLOT SCALE

 1219 HC          HYDROGRAPH COMBINATION
                        ICOMP          2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                                  ***

      ***             ***             ***             ***             ***

                         HYDROGRAPH AT STATION    CP235

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                      6-HR        24-HR        72-HR     166.58-HR
+   (CFS)       (HR)
                                    (CFS)
+     555.     14.42                 219.          56.          19.            8.
                             (INCHES)     0.578       0.592        0.592        0.592
                              (AC-FT)     109.        111.         111.         111.

                         CUMULATIVE AREA =    3.53 SQ MI


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
 1220 KK    *     P235S  *
            *            *
            **************

 1225 KO          OUTPUT CONTROL VARIABLES
                        IPRNT          3  PRINT CONTROL
                        IPLOT          0  PLOT CONTROL
                        QSCAL         0.  HYDROGRAPH PLOT SCALE

                HYDROGRAPH ROUTING DATA

 1226 RS          STORAGE ROUTING
                        NSTPS          1  NUMBER OF SUBREACHES
                         ITYP       STOR  TYPE OF INITIAL CONDITION
                       RSVRIC       0.00  INITIAL CONDITION
                            X       0.00 WORKING R AND D COEFFICIENT

 1227 SV            STORAGE         0.0       0.2       0.4       1.5       3.1       6.4      12.3      20.1      29.0      38.4

 1228 SE          ELEVATION     1247.00   1248.00   1249.00   1250.00   1250.50   1251.00   1251.50   1252.00   1252.50   1253.00

 1229 SQ          DISCHARGE          0.        0.        0.        0.        3.      191.      909.     2087.     3725.     6150.

                                                                  ***

      ***             ***             ***             ***             ***

                         HYDROGRAPH AT STATION    P235S

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                      6-HR        24-HR        72-HR     166.58-HR
+   (CFS)       (HR)
                                    (CFS)
+     549.     14.50                 214.          55.          18.            8.
                             (INCHES)     0.565       0.583        0.584        0.584
```

```
                        (AC-FT)      106.        110.        110.        110.

 PEAK STORAGE   TIME                          MAXIMUM AVERAGE STORAGE
                                     6-HR       24-HR       72-HR    166.58-HR
+  (AC-FT)      (HR)
       9.     14.50                   6.          3.          2.          2.

  PEAK STAGE    TIME                          MAXIMUM AVERAGE STAGE
                                     6-HR       24-HR       72-HR    166.58-HR
+   (FEET)      (HR)
   1251.25     14.50              1250.90     1250.40     1250.13     1249.83

                        CUMULATIVE AREA =    3.53 SQ MI


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
 1233 KK    *     C253N  *
            *            *
            **************

 1235 KO          OUTPUT CONTROL VARIABLES
                        IPRNT          3  PRINT CONTROL
                        IPLOT          0  PLOT CONTROL
                        QSCAL         0.  HYDROGRAPH PLOT SCALE

 1236 HC          HYDROGRAPH COMBINATION
                        ICOMP          3  NUMBER OF HYDROGRAPHS TO COMBINE

                                                                  ***

      ***             ***             ***             ***             ***

                        HYDROGRAPH AT STATION    C253N

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR    166.58-HR
+   (CFS)       (HR)
                          (CFS)
+     569.     14.50                 234.         65.         22.          9.
                        (INCHES)    0.172       0.191       0.193       0.193
                         (AC-FT)     116.        129.        130.        130.

                        CUMULATIVE AREA =   12.64 SQ MI


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
 1237 KK    *     P235N  *
            *            *
            **************

 1241 KO          OUTPUT CONTROL VARIABLES
                        IPRNT          3  PRINT CONTROL
                        IPLOT          0  PLOT CONTROL
                        QSCAL         0.  HYDROGRAPH PLOT SCALE

               HYDROGRAPH ROUTING DATA

 1242 RS          STORAGE ROUTING
                        NSTPS          1  NUMBER OF SUBREACHES
                         ITYP       STOR  TYPE OF INITIAL CONDITION
                       RSVRIC       0.00  INITIAL CONDITION
                            X       0.00 WORKING R AND D COEFFICIENT

 1243 SV            STORAGE        0.0      19.3      91.6     141.6     193.3     246.8     260.4     274.2

 1244 SE          ELEVATION     1240.00   1241.00   1244.00   1246.00   1248.00   1250.00   1250.50   1251.00

 1245 SQ          DISCHARGE          0.        0.        0.        0.        0.        0.        0.      161.

                                                                  ***

      ***             ***             ***             ***             ***

                        HYDROGRAPH AT STATION    P235N

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR    166.58-HR
+   (CFS)       (HR)
                          (CFS)
+       0.      0.00                    0.          0.          0.          0.
                        (INCHES)    0.000       0.000       0.000       0.000
                         (AC-FT)        0.          0.          0.          0.
```

```
 PEAK STORAGE    TIME                          MAXIMUM AVERAGE STORAGE
                                        6-HR       24-HR       72-HR    166.58-HR
+  (AC-FT)       (HR)
     130.       98.58                   130.        130.        130.        117.

  PEAK STAGE     TIME                          MAXIMUM AVERAGE STAGE
                                        6-HR       24-HR       72-HR    166.58-HR
+   (FEET)       (HR)
   1245.53      88.75                 1245.53     1245.53     1245.50     1244.97

                         CUMULATIVE AREA =   12.64 SQ MI

 -----DSS---ZWRITE Unit  71; Vers.   58:  /EAST/CP207/FLOW/03MAR1903/5MIN//
 -----DSS---ZWRITE Unit  71; Vers.   58:  /EAST/CP207/FLOW/04MAR1903/5MIN//
 -----DSS---ZWRITE Unit  71; Vers.   58:  /EAST/CP207/FLOW/05MAR1903/5MIN//
 -----DSS---ZWRITE Unit  71; Vers.   58:  /EAST/CP207/FLOW/06MAR1903/5MIN//
 -----DSS---ZWRITE Unit  71; Vers.   58:  /EAST/CP207/FLOW/07MAR1903/5MIN//
 -----DSS---ZWRITE Unit  71; Vers.   58:  /EAST/CP207/FLOW/08MAR1903/5MIN//
 -----DSS---ZWRITE Unit  71; Vers.   58:  /EAST/CP207/FLOW/09MAR1903/5MIN//
 -----DSS---ZWRITE Unit  71; Vers.   58:  /EAST/CP207/FLOW/10MAR1903/5MIN//
 -----DSS---ZWRITE Unit  71; Vers.   58:  /EAST/CP212/FLOW/03MAR1903/5MIN//
 -----DSS---ZWRITE Unit  71; Vers.   58:  /EAST/CP212/FLOW/04MAR1903/5MIN//
 -----DSS---ZWRITE Unit  71; Vers.   58:  /EAST/CP212/FLOW/05MAR1903/5MIN//
 -----DSS---ZWRITE Unit  71; Vers.   58:  /EAST/CP212/FLOW/06MAR1903/5MIN//
 -----DSS---ZWRITE Unit  71; Vers.   58:  /EAST/CP212/FLOW/07MAR1903/5MIN//
 -----DSS---ZWRITE Unit  71; Vers.   58:  /EAST/CP212/FLOW/08MAR1903/5MIN//
 -----DSS---ZWRITE Unit  71; Vers.   58:  /EAST/CP212/FLOW/09MAR1903/5MIN//
 -----DSS---ZWRITE Unit  71; Vers.   58:  /EAST/CP212/FLOW/10MAR1903/5MIN//
 -----DSS---ZWRITE Unit  71; Vers.   58:  /EAST/CP238/FLOW/03MAR1903/5MIN//
 -----DSS---ZWRITE Unit  71; Vers.   58:  /EAST/CP238/FLOW/04MAR1903/5MIN//
 -----DSS---ZWRITE Unit  71; Vers.   58:  /EAST/CP238/FLOW/05MAR1903/5MIN//
 -----DSS---ZWRITE Unit  71; Vers.   58:  /EAST/CP238/FLOW/06MAR1903/5MIN//
 -----DSS---ZWRITE Unit  71; Vers.   58:  /EAST/CP238/FLOW/07MAR1903/5MIN//
 -----DSS---ZWRITE Unit  71; Vers.   58:  /EAST/CP238/FLOW/08MAR1903/5MIN//
 -----DSS---ZWRITE Unit  71; Vers.   58:  /EAST/CP238/FLOW/09MAR1903/5MIN//
 -----DSS---ZWRITE Unit  71; Vers.   58:  /EAST/CP238/FLOW/10MAR1903/5MIN//
 -----DSS---ZWRITE Unit  71; Vers.   58:  /EAST/CP227/FLOW/03MAR1903/5MIN//
 -----DSS---ZWRITE Unit  71; Vers.   58:  /EAST/CP227/FLOW/04MAR1903/5MIN//
 -----DSS---ZWRITE Unit  71; Vers.   58:  /EAST/CP227/FLOW/05MAR1903/5MIN//
 -----DSS---ZWRITE Unit  71; Vers.   58:  /EAST/CP227/FLOW/06MAR1903/5MIN//
 -----DSS---ZWRITE Unit  71; Vers.   58:  /EAST/CP227/FLOW/07MAR1903/5MIN//
 -----DSS---ZWRITE Unit  71; Vers.   58:  /EAST/CP227/FLOW/08MAR1903/5MIN//
 -----DSS---ZWRITE Unit  71; Vers.   58:  /EAST/CP227/FLOW/09MAR1903/5MIN//
 -----DSS---ZWRITE Unit  71; Vers.   58:  /EAST/CP227/FLOW/10MAR1903/5MIN//
1
                                          RUNOFF SUMMARY
                                   FLOW IN CUBIC FEET PER SECOND
                                TIME IN HOURS,  AREA IN SQUARE MILES

                                     PEAK   TIME OF    AVERAGE FLOW FOR MAXIMUM PERIOD    BASIN    MAXIMUM   TIME OF
          OPERATION        STATION   FLOW    PEAK                                        AREA     STAGE   MAX STAGE
+                                                        6-HOUR     24-HOUR    72-HOUR

          HYDROGRAPH AT
+                           00RAIN      0.    0.00          0.          0.         0.     0.00
          HYDROGRAPH AT
+                              206    292.   13.08         66.         16.         5.     0.76
          DIVERSION TO
+                            To202    205.   13.08         46.         12.         4.     0.76
          HYDROGRAPH AT
+                             D206     88.   13.08         20.          5.         2.     0.76
          ROUTED TO
+                           206203     85.   13.25         20.          5.         2.     0.76
+                                                                                          0.38      13.25
          HYDROGRAPH AT
+                            XRDPK    123.   33.08        121.        109.        61.     0.00
          DIVERSION TO
+                            XRPKD      0.   33.08          0.          0.         0.     0.00
          HYDROGRAPH AT
+                             To200    123.   33.08        121.        109.        61.     0.00
          ROUTED TO
+                            XRD200    123.   33.17        121.        109.        61.     0.00
+                                                                                          1.86      33.17
          HYDROGRAPH AT
+                            XRPKD      0.    0.00          0.          0.         0.     0.00
          HYDROGRAPH AT
+                               200     50.   13.00         29.          9.         3.     0.16
          2 COMBINED AT
+                              C200     50.   13.00         29.          9.         3.     0.16
          ROUTED TO
+                              P200     44.   13.67         28.          9.         3.     0.16
+                                                                                       1268.67      13.67
```

```
                 2 COMBINED AT
+                          CP200      123.   33.17       121.       109.       63.      0.16
                 ROUTED TO
+                          200202     123.   33.25       121.       109.       63.      0.16
+                                                                                                  2.12       33.33
                 HYDROGRAPH AT
+                          FRM206     205.   13.08        46.        12.        4.      0.00
                 ROUTED TO
+                          206202     181.   13.42        46.        12.        4.      0.00
+                                                                                                  1.09       13.42
                 HYDROGRAPH AT
+                              202    419.   12.67       131.        35.       12.      0.85
                 DIVERSION TO
+                          202RET     415.   12.75        39.        10.        3.      0.85
                 HYDROGRAPH AT
+                              202    417.   12.75        97.        25.        8.      0.85
                 2 COMBINED AT
+                              C202   510.   13.17       143.        37.       12.      0.85
                 ROUTED TO
+                              P202   413.   13.58       106.        30.       10.      0.85
+                                                                                               1268.28       13.58
                 DIVERSION TO
+                              DVVOF  413.    0.00       106.        30.       10.      0.85
                 HYDROGRAPH AT
+                              Dummy    0.    0.00         0.         0.        0.      0.85
                 2 COMBINED AT
+                              CP202  123.   33.25       121.       109.       63.      1.00
                 DIVERSION TO
+                              DTD203 123.    0.00       121.       109.       63.      1.00
                 HYDROGRAPH AT
+                              Dummy    0.    0.00         0.         0.        0.      1.00
                 HYDROGRAPH AT
+                              VVOF   413.   13.58       106.        30.       10.      0.00
                 HYDROGRAPH AT
+                              203     67.   12.33        16.         5.        2.      0.11
                 4 COMBINED AT
+                              C203   503.   13.58       138.        39.       13.      1.87
                 ROUTED TO
+                              P203   230.   14.58        69.        21.        7.      1.87
+                                                                                               1268.78       14.58
                 DIVERSION TO
+                          DCBLVD     230.    0.00        69.        21.        7.      1.87
                 HYDROGRAPH AT
+                          OTD203       0.    0.00         0.         0.        0.      1.87
                 HYDROGRAPH AT
+                          TWD203     123.   33.25       121.       109.       63.      0.00
                 ROUTED TO
+                          TWD203     123.   33.33       121.       109.       63.      0.00
+                                                                                                  1.86       33.33
                 2 COMBINED AT
+                              CP203  123.   33.33       121.       109.       63.      1.87
                 ROUTED TO
+                          203208     123.   33.58       121.       109.       63.      1.87
+                                                                                                  5.05       33.58
                 HYDROGRAPH AT
+                          OCBLVD     230.   14.58        69.        21.        7.      0.00
                 ROUTED TO
+                              P208N  194.   14.92        59.        19.        6.      0.00
+                                                                                               1265.70       14.92
                 HYDROGRAPH AT
+                              208     73.   12.25        16.         5.        2.      0.11
                 DIVERSION TO
+                          208RET      53.   12.25         4.         1.        0.      0.11
                 HYDROGRAPH AT
+                              208     73.   12.25        14.         4.        1.      0.11
                 2 COMBINED AT
```

```
+                    C208S     198.  14.92      66.      22.      8.     0.11
        ROUTED TO
+                    P208S     107.  15.83      37.      13.      5.     0.11
+                                                                        1266.42     15.83
        DIVERSION TO
+                     D207     107.   0.00      37.      13.      5.     0.11
        HYDROGRAPH AT
+                    Dummy       0.   0.00       0.       0.      0.     0.11
        2 COMBINED AT
+                    CP208     123.  33.58     121.     109.     63.     1.98
        ROUTED TO
+                   208207     123.  33.75     121.     109.     63.     1.98
+                                                                           3.51     33.75
        DIVERSION TO
+                    CANAL     123.   0.00     121.     109.     63.     1.98
        HYDROGRAPH AT
+                    Dummy       0.   0.00       0.       0.      0.     1.98
        HYDROGRAPH AT
+                      213      62.  12.42      14.       4.      1.     0.13
        ROUTED TO
+                     P213       3.  15.00       3.       1.      0.     0.13
+                                                                        1266.13     15.00
        HYDROGRAPH AT
+                     O207     107.  15.83      37.      13.      5.     0.00
        HYDROGRAPH AT
+                      207     311.  12.58      96.      29.     10.     0.68
        DIVERSION TO
+                   207RET     311.  14.33      85.      23.      8.     0.68
        HYDROGRAPH AT
+                      207      81.  14.33      21.       6.      2.     0.68
        4 COMBINED AT
+                    CP207     135.  15.83      57.      21.      7.     2.78
        ROUTED TO
+                     P207       0.   0.00       0.       0.      0.     2.78
+                                                                        1259.42    144.25
        DIVERSION TO
+                   EAS207       0.   0.00       0.       0.      0.     2.78
        HYDROGRAPH AT
+                     D207       0.   0.00       0.       0.      0.     2.78
        HYDROGRAPH AT
+                      212      95.  13.17      33.       9.      3.     0.37
        ROUTED TO
+                     P212      93.  13.33      25.       6.      2.     0.37
+                                                                        1266.24     13.33
        DIVERSION TO
+                   EAS212       4.  13.33       1.       0.      0.     0.37
        HYDROGRAPH AT
+                    D212R      89.  13.33      24.       6.      2.     0.37
        HYDROGRAPH AT
+                      209     560.  12.42     118.      36.     12.     0.87
        DIVERSION TO
+                   209RET     560.   0.00     118.      36.     12.     0.87
        HYDROGRAPH AT
+                      209       0.   0.00       0.       0.      0.     0.87
        DIVERSION TO
+                    To205       0.   0.00       0.       0.      0.     0.87
        HYDROGRAPH AT
+                     D209       0.   0.00       0.       0.      0.     0.87
        ROUTED TO
+                   209210       0.   0.00       0.       0.      0.     0.87
+                                                                           0.00     14.42
        HYDROGRAPH AT
+                      216     546.  12.83     103.      28.      9.     1.03
        DIVERSION TO
+                   216RET     259.  12.83      16.       5.      2.     1.03
```

```
                HYDROGRAPH AT
+                        216      546.  12.83       90.       23.       8.      1.03
                DIVERSION TO
+                      ToVVG      382.  12.83       63.       16.       5.      1.03
                HYDROGRAPH AT
+                       D216      164.  12.83       27.        7.       2.      1.03
                ROUTED TO
+                     216210       79.  14.33       26.        7.       2.      1.03
+                                                                                      0.76      14.33
                HYDROGRAPH AT
+                        210      687.  12.75      128.       33.      11.      1.02
                DIVERSION TO
+                     210RET       76.  12.75        6.        2.       1.      1.02
                HYDROGRAPH AT
+                        210      687.  12.75      125.       32.      11.      1.02
                3 COMBINED AT
+                      CP210      687.  12.75      150.       39.      13.      2.91
                HYDROGRAPH AT
+                     FRM209        0.   0.00        0.        0.       0.      0.00
                ROUTED TO
+                     209205        0.   0.00        0.        0.       0.      0.00
+                                                                                      0.00      16.75
                HYDROGRAPH AT
+                        205      327.  12.75      120.       34.      11.      1.15
                DIVERSION TO
+                     205RET      151.  12.75       12.        4.       1.      1.15
                HYDROGRAPH AT
+                        205      327.  12.75      115.       30.      10.      1.15
                2 COMBINED AT
+                      CP205      327.  12.75      115.       30.      10.      1.15
                HYDROGRAPH AT
+                     FRM216      382.  12.83       63.       16.       5.      0.00
                ROUTED TO
+                     216VVG      218.  14.00       62.       16.       5.      0.00
+                                                                                      0.73      14.00
                DIVERSION TO
+                       ToLG      131.  14.00       37.       10.       3.      0.00
                HYDROGRAPH AT
+                       DVVG       87.  14.00       25.        6.       2.      0.00
                ROUTED TO
+                     VVG211       67.  14.92       24.        6.       2.      0.00
+                                                                                      0.59      14.92
                HYDROGRAPH AT
+                        211      707.  12.33      117.       30.      10.      0.93
                2 COMBINED AT
+                      CP211      707.  12.33      138.       36.      12.      0.93
                HYDROGRAPH AT
+                        214       77.  13.17       25.        6.       2.      0.41
                HYDROGRAPH AT
+                        201      232.  12.83       99.       30.      10.      0.63
                DIVERSION TO
+                     201RET      232.  15.00       84.       23.       8.      0.63
                HYDROGRAPH AT
+                        201       80.  15.00       26.        7.       2.      0.63
                HYDROGRAPH AT
+                        204      236.  12.75       88.       26.       9.      0.82
                DIVERSION TO
+                     204RET      236.  16.08       85.       23.       8.      0.82
                HYDROGRAPH AT
+                        204       30.  16.08       11.        3.       1.      0.82
                7 COMBINED AT
+                     CPADOT     1545.  12.67      475.      128.      43.      7.22
                HYDROGRAPH AT
+                        220      260.  12.50       64.       17.       6.      0.79
                DIVERSION TO
```

```
+                    To221      78.   12.50      19.      5.      2.    0.79
          HYDROGRAPH AT
+                     D220     182.   12.50      45.     12.      4.    0.79
          ROUTED TO
+                   220217     161.   13.00      45.     12.      4.    0.79
+                                                                          1.87      13.00
          HYDROGRAPH AT
+                      217     289.   13.08      67.     17.      6.    1.01
          2 COMBINED AT
+                    CP217     449.   13.08     111.     29.     10.    1.79
          ROUTED TO
+                   217218     337.   14.08     109.     29.     10.    1.79
+                                                                          0.53      14.08
          HYDROGRAPH AT
+                   FRM220      78.   12.50      19.      5.      2.    0.00
          ROUTED TO
+                   220221      41.   14.58      18.      5.      2.    0.00
+                                                                          0.28      14.58
          HYDROGRAPH AT
+                      221     164.   12.92      44.     12.      4.    0.50
          DIVERSION TO
+                   221RET     164.   13.83      30.      8.      3.    0.50
          HYDROGRAPH AT
+                      221      77.   13.83      16.      4.      1.    0.50
          2 COMBINED AT
+                    CP221      98.   13.83      34.     10.      3.    0.50
          DIVERSION TO
+                    To238      59.   13.83      21.      6.      2.    0.50
          HYDROGRAPH AT
+                     D221      39.   13.83      14.      4.      1.    0.50
          ROUTED TO
+                   221218      31.   14.92      13.      4.      1.    0.50
+                                                                          1.25      14.92
          HYDROGRAPH AT
+                      218     427.   12.92      95.     26.      9.    1.01
          3 COMBINED AT
+                    CP218     468.   14.00     213.     58.     20.    3.30
          DIVERSION TO
+                    To237     234.   14.00     106.     29.     10.    3.30
          HYDROGRAPH AT
+                     D218     234.   14.00     106.     29.     10.    3.30
          ROUTED TO
+                   218219     222.   14.25     106.     29.     10.    3.30
+                                                                          0.68      14.25
          HYDROGRAPH AT
+                   FRMVVG     131.   14.00      37.     10.      3.    0.00
          ROUTED TO
+                    VVGLG      84.   15.58      35.     10.      3.    0.00
+                                                                          0.37      15.58
          DIVERSION TO
+                    To219      42.   15.58      17.      5.      2.    0.00
          HYDROGRAPH AT
+                      DLG      42.   15.58      17.      5.      2.    0.00
          ROUTED TO
+                    LG215      41.   15.75      17.      5.      2.    0.00
+                                                                          0.24      15.75
          HYDROGRAPH AT
+                      215      18.   12.33       4.      1.      0.    0.04
          2 COMBINED AT
+                    CP215      42.   15.75      18.      6.      2.    0.04
          ROUTED TO
+                     P215       0.    0.00       0.      0.      0.    0.04
+                                                                       1262.89      50.50
          HYDROGRAPH AT
+                   FRMLG      42.   15.58      17.      5.      2.    0.00
          ROUTED TO
```

```
+                    LG219      29.  17.42      16.      5.      2.    0.00
+                                                                           0.36     17.42

     HYDROGRAPH AT
+                      219      61.  12.50      14.      4.      1.    0.08

     DIVERSION TO
+                   219RET      14.  12.50       2.      1.      0.    0.08

     HYDROGRAPH AT
+                      219      61.  12.50      13.      4.      1.    0.08

     4 COMBINED AT
+                    CP219     231.  14.25     126.     37.     13.    3.43

     HYDROGRAPH AT
+                   FRM218     234.  14.00     106.     29.     10.    0.00

     ROUTED TO
+                   218237     222.  14.25     106.     29.     10.    0.00
+                                                                           0.68     14.25

     HYDROGRAPH AT
+                      237     213.  12.42      34.     11.      4.    0.22

     DIVERSION TO
+                    ToP238     170.  12.42      27.      9.      3.    0.22

     HYDROGRAPH AT
+                     D237      43.  12.42       7.      2.      1.    0.22

     3 COMBINED AT
+                    CP237     455.  14.25     237.     69.     23.    3.65

     ROUTED TO
+                     P237     449.  14.42     197.     55.     18.    3.65
+                                                                        1262.29     14.42

     HYDROGRAPH AT
+                   FRM237     170.  12.42      27.      9.      3.    0.00

     ROUTED TO
+                   237238      92.  13.75      27.      8.      3.    0.00
+                                                                        1255.68     13.75

     HYDROGRAPH AT
+                   FRM221      59.  13.83      21.      6.      2.    0.00

     ROUTED TO
+                   221238      27.  17.50      17.      5.      2.    0.00
+                                                                           0.30     17.50

     HYDROGRAPH AT
+                      238      95.  13.08      29.      8.      3.    0.34

     DIVERSION TO
+                    To224      52.  13.08       4.      1.      0.    0.34

     HYDROGRAPH AT
+                     D238      95.  13.08      26.      7.      2.    0.34

     4 COMBINED AT
+                    CP238     551.  14.25     256.     75.     25.    3.99

     ROUTED TO
+                     P238     156.  17.25      89.     29.     10.    3.99
+                                                                        1260.62     17.25

     DIVERSION TO
+                   EAS238     128.  17.25      83.     27.      9.    3.99

     HYDROGRAPH AT
+                     D238      28.  17.25       6.      2.      1.    3.99

     HYDROGRAPH AT
+                   FRM238      52.  12.75       4.      1.      0.    0.00

     HYDROGRAPH AT
+                      224     191.  12.83      49.     14.      5.    0.43

     3 COMBINED AT
+                    CP224     236.  12.75      56.     17.      6.    4.41

     ROUTED TO
+                     P224       0.   0.00       0.      0.      0.    4.41
+                                                                        1257.63     27.92

     HYDROGRAPH AT
+                      225     177.  13.08      49.     13.      4.    0.66

     HYDROGRAPH AT
+                      222     207.  12.67      62.     16.      5.    0.75

     2 COMBINED AT
+                    CP222     358.  13.00     112.     29.     10.    1.41
```

```
          ROUTED TO
+                    222223     280.   14.17      109.      29.      10.     1.41
+                                                                                    0.65      14.17
          HYDROGRAPH AT
+                       226     130.   13.08       33.       8.       3.     0.50
          HYDROGRAPH AT
+                       223     135.   13.00       33.       8.       3.     0.50
          3 COMBINED AT
+                     CP223     385.   14.00      173.      46.      15.     2.42
          ROUTED TO
+                    223227     353.   15.00      168.      46.      15.     2.42
+                                                                                    1.24      15.00
          HYDROGRAPH AT
+                       227     116.   13.08       32.       8.       3.     0.47
          DIVERSION TO
+                     To227      58.   13.08       16.       4.       1.     0.47
          HYDROGRAPH AT
+                    D227A      58.   13.08       16.       4.       1.     0.47
          3 COMBINED AT
+                     CP227     364.   15.00      178.      50.      17.     7.30
          ROUTED TO
+                      P227     261.   15.92      133.      39.      13.     7.30
+                                                                                 1259.49      15.92
          DIVERSION TO
+                    EAS227     261.    0.00      133.      39.      13.     7.30
          HYDROGRAPH AT
+                    D227B        0.    0.00        0.       0.       0.     7.30
          DIVERSION TO
+                   227RET        0.    0.00        0.       0.       0.     7.30
          HYDROGRAPH AT
+                   FRM227        0.    0.00        0.       0.       0.     7.30
          HYDROGRAPH AT
+                       228     195.   12.58       51.      13.       4.     0.57
          DIVERSION TO
+                     To231      59.   12.58       15.       4.       1.     0.57
          HYDROGRAPH AT
+                     D228     137.   12.58       35.       9.       3.     0.57
          ROUTED TO
+                    228229      84.   14.33       34.       9.       3.     0.57
+                                                                                    0.41      14.33
          HYDROGRAPH AT
+                       229     124.   13.08       34.       9.       3.     0.51
          2 COMBINED AT
+                     CP229     140.   14.00       67.      18.       6.     1.08
          DIVERSION TO
+                     To232      42.   14.00       20.       5.       2.     1.08
          HYDROGRAPH AT
+                     D229      98.   14.00       47.      12.       4.     1.08
          ROUTED TO
+                    229230      82.   15.75       44.      12.       4.     1.08
+                                                                                    0.41      15.75
          HYDROGRAPH AT
+                       230     155.   13.08       44.      11.       4.     0.56
          DIVERSION TO
+                    230RET     155.   13.58       22.       5.       2.     0.56
          HYDROGRAPH AT
+                       230     111.   13.58       22.       6.       2.     0.56
          3 COMBINED AT
+                     CP230     111.   13.58       64.      18.       6.     8.94
          ROUTED TO
+                      P230       0.    0.00        0.       0.       0.     8.94
+                                                                                 1245.69      53.75
          HYDROGRAPH AT
+                       234     103.   12.33       22.       7.       2.     0.17
          2 COMBINED AT
```

```
+                    CP234      103.   12.33       22.        7.        2.      9.11
          ROUTED TO
+                    P234         0.   24.75        0.        0.        0.      9.11
+                                                                                        1252.03      24.83
          HYDROGRAPH AT
+                    FRM229      42.   14.00       20.        5.        2.      0.00
          ROUTED TO
+                    229232      36.   15.42       19.        5.        2.      0.00
+                                                                                           0.54      15.42
          HYDROGRAPH AT
+                    FRM228      59.   12.58       15.        4.        1.      0.00
          ROUTED TO
+                    228231      33.   14.50       15.        4.        1.      0.00
+                                                                                           0.46      14.50
          HYDROGRAPH AT
+                    231        302.   13.08       75.       19.        6.      1.00
          HYDROGRAPH AT
+                    236        266.   12.67       44.       12.        4.      0.52
          3 COMBINED AT
+                    CP231      478.   13.00      133.       35.       12.      1.52
          ROUTED TO
+                    231232     423.   13.50      132.       35.       12.      1.52
+                                                                                           1.51      13.50
          HYDROGRAPH AT
+                    232        359.   12.58       94.       24.        8.      1.01
          DIVERSION TO
+                    232RET     359.   12.75       27.        7.        2.      1.01
          HYDROGRAPH AT
+                    232        345.   12.75       69.       18.        6.      1.01
          3 COMBINED AT
+                    CP232      626.   13.42      219.       58.       19.      2.53
          ROUTED TO
+                    232233     521.   14.33      211.       58.       19.      2.53
+                                                                                           1.08      14.33
          HYDROGRAPH AT
+                    233        363.   12.58       89.       24.        8.      0.96
          DIVERSION TO
+                    233RET     363.   13.42       66.       17.        6.      0.96
          HYDROGRAPH AT
+                    233        174.   13.42       27.        7.        2.      0.96
          2 COMBINED AT
+                    CP233      582.   14.25      238.       65.       22.      3.49
          DIVERSION TO
+                    TP235N      20.   14.25       20.       10.        3.      3.49
          HYDROGRAPH AT
+                    TCP235     562.   14.25      218.       55.       18.      3.49
          ROUTED TO
+                    233235     551.   14.42      217.       55.       18.      3.49
+                                                                                           0.89      14.42
          HYDROGRAPH AT
+                    235          9.   12.83        3.        1.        0.      0.04
          2 COMBINED AT
+                    CP235      555.   14.42      219.       56.       19.      3.53
          ROUTED TO
+                    P235S      549.   14.50      214.       55.       18.      3.53
+                                                                                        1251.25      14.50
          HYDROGRAPH AT
+                    R235N       20.   13.25       20.       10.        3.      0.00
          3 COMBINED AT
+                    C253N      569.   14.50      234.       65.       22.     12.64
          ROUTED TO
+                    P235N        0.    0.00        0.        0.        0.     12.64
+                                                                                        1245.53      88.75
          HYDROGRAPH AT
+                    DSS207       0.    0.00        0.        0.        0.      0.00
          HYDROGRAPH AT
```

```
+                        DSS212        4.   13.33          1.         0.         0.      0.00

         HYDROGRAPH AT
+                        DSS238      128.   17.25         83.        27.         9.      0.00

         HYDROGRAPH AT
+                        DSS227      261.   15.92        133.        39.        13.      0.00

         6 COMBINED AT
+                        CPCANL     1545.   12.67        607.       194.        65.     19.85


 *** NORMAL END OF HEC-1 ***


    -----DSS---ZCLOSE Unit:  71,   File: C:\FCDMC\DDMSW\Models\K.DSS
              Pointer Utilization:  0.65
              Number of Records:    916
              File Size:   1436.7  Kbytes
              Percent Inactive:   0.0
```

```
1****************************************                                    ****************************************
 *                                      *                                    *                                      *
 *   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   29OCT07  TIME  10:10:57  *                                    *           (916) 756-1104             *
 *                                      *                                    *                                      *
 ****************************************                                    ****************************************

                                        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

          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   Project ID: GILBERT1 - Major Basin: 01 - Return Period: 100 Years
          2           ID  CHANDLER/GILBERT FLOODPLAIN DELINEATION STUDY
          3           ID  PHASE I - NORTH EASTERN CANAL WATERSHED
                      *
          4           ID  NORTH OF UNION PACIFIC RAILROAD, EAST OF EASTERN CANAL
          5           ID  SOUTH OF BASELINE, WEST OF EAST MARICOPA FLOODWAY
                      *
          6           ID  PREPARED BY MDH AND YX, PROJECT ENGINEERING CONSULTANTS
                      *
          7           ID  MODEL INCLUDES PROPOSED SANTAN FREEWAY ALIGNMENT AND ASSOCIATED DRAINAGE
          8           ID  FACILITIES
                      *
          9           ID  5-MINUTE TIME INTERVAL - 100-YEAR, 24-HOUR STORM EVENT
                      *
         10           ID  TOTAL WATERSHED AREA = 14.17 SQ. MI
         11           ID  AERIAL REDUCTION WAS APPLIED USING PB RECORDS
         12           ID  THIS MODELING AREA WAS BROKEN INTO TWO REGIONS:
         13           ID  THE FIRST PB CARD REGION (NORTH OF SANTAN FREEWAY) INCLUDES
         14           ID  SUB-BASINS 103-118.  AREA = 9.92 SQ. MI
         15           ID  THE SECOND PB CARD REGION (SOUTH OF SANTAN FREEWAY) INCLUDES
         16           ID  SUB-BASINS 119-124.  AREA = 4.25 SQ. MI
         17           ID  GREEN AND AMPT INFILTRATION METHOD USED TO DETERMINE RAINFALL LOSSES
         18           ID  CLARK METHOD USED TO CREATE UNIT HYDROGRAPHS
         19           ID  NORMAL DEPTH METHOD USED FOR CHANNEL ROUTING
         20           ID  EASTERN MARICOPA COUNTY SOIL SURVEY USED FOR SOILS DATA
         21           ID  FLOOD CONTROL DISTRICT OF MARICOPA COUNTY'S GIS DATA, AERIAL PHOTOS DATED
         22           ID  DEC. 2002, AND DEVELOPMENTS AS DIRECTED BY CHANDLER AND GILBERT BY DATE OF
         23           ID  APRIL 2003 USED FOR LANDUSE DATA
         24           ID  DDMSW VERSION 2.1.0 PROGRAM USED TO CALCULATE RAINFALL, RAINFALL LOSSES
         25           ID  AND UNIT HYDROGRAPHS
                      *
         26           ID   DSS FIle: CGFDS.dss
                      *
                      *DIAGRAM
                      *  NORTHOF SANTAN FREEWA       Y
         27           IT       5 03MAR03    1200    2000
         28           IO       5

         29           KK  NOR102
         30           KM  THE RUNOFF HYDROGRAPH FROM NORTH OF BASELINE ALONG THE EASTERN CANNAL IS
         31           KM  RETRIEVED BY THE FOLLOWING "ZR" CARD.
         32           BA   0.001
                      * THIS AREA VALUE DOESN'T AFFECT THE MODELING RESULTS.
         33           IN      15
         34           PB    3.28
         35           PC   0.000   0.002   0.005   0.008   0.011   0.014   0.017   0.020   0.023   0.026
         36           PC   0.029   0.032   0.035   0.038   0.041   0.044   0.048   0.052   0.056   0.060
         37           PC   0.064   0.068   0.072   0.076   0.080   0.085   0.090   0.095   0.100   0.105
         38           PC   0.110   0.115   0.120   0.126   0.133   0.140   0.147   0.155   0.163   0.172
         39           PC   0.181   0.191   0.203   0.218   0.236   0.257   0.283   0.387   0.663   0.707
         40           PC   0.735   0.758   0.776   0.791   0.804   0.815   0.825   0.834   0.842   0.849
         41           PC   0.856   0.863   0.869   0.875   0.881   0.887   0.893   0.898   0.903   0.908
         42           PC   0.913   0.918   0.922   0.926   0.930   0.934   0.938   0.942   0.946   0.950
         43           PC   0.953   0.956   0.959   0.962   0.965   0.968   0.971   0.974   0.977   0.980
         44           PC   0.983   0.986   0.989   0.992   0.995   0.998   1.000
                      * THIS R AINFALLDEPTH IS NOT REALLY USED  IN THEMODELING PROCESSES. OTHE     R 2
                      * VALUES ARE USED FOR TH E AREASNORTH AN D SOUTHOF THE SANTAN FR  EEWAY.
```

```
1                                          HEC-1 INPUT                                                    PAGE  2

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

  45          ZR     =QI A=CGFDS B=BAS24  C=FLOW  E=5MIN
              *

  46          KK  OFF102   ROUTE   REACH
  47          KM  ROUTE THE RETRIEVED FLOW FROM NORTH OF BASELINE TO CP105
  48          RS       3    STOR       0
  49          RC   0.035   0.035   0.035    2650  0.0004   80.50
  50          RX   112.0   120.0   129.0   150.0   166.0   205.0   270.0   430.0
  51          RY    80.5    76.7    80.8    79.0    78.7    79.2    79.0    80.5
              * ******************************************************************************

  52          KK     102   BASIN
  53          KM  RUNOFF CALCULATION FOR SUB-BASIN 102
  54          KM  THE FOLLOWING PARAMETERS WERE DETERMINED FOR THIS SUB-BASIN:
  55          KM  L=1.05 MI   S=14.0 FT/MI   Kb=0.029    URBAN
  56          KM  THE FOLLOWING RAINFALL DEPTH (PB) IS USED FOR THE AREAS NORTH OF
  57          KM  THE SANTAN FREEWAY.
  58          KM  TOTAL POINT RAINFALL=3.45 IN  AREA REDUCED=9.92 SQM  REDUCTION FACTOR=0.95
  59          PB    3.28
  60          BA   0.293
  61          LG    0.22    0.16    9.70    0.06      28
  62          UC   0.563   0.409
  63          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
  64          UA     100
              *

  65          KK  102OUT
  66          KM  RETENTION WITHIN SUB-BASIN 102
  67          DT  102RET    5.19
  68          DI       0     100
  69          DQ       0     100
              *

  70          KK   CP102
  71          KM  COMBINE THE FLOW FROM NORTH OF BASELINE AND THE FLOW FROM SUB-BASIN 102
  72          HC       2
              *

  73          KK    P102
  74          KM  STORAGE ROUTING AT CP102, THE NE CORNER OF TAILWATER DITCH AND HOUSTON AVE
  75          KO       3
  76          RS       1    STOR       0
  77          SV       0   0.038    0.99    2.99    6.58   14.20   25.13   31.36      35   37.11
  78          SE  1276.7    1277    1278    1279    1280    1281    1282 1282.44 1282.63 1282.78
  79          SQ       0       0    4.04    14.5   32.26   58.34   93.92   112.0  128.31  156.14
              *

  80          KK  102EAS
  81          KM  THE TOTAL RUNOFF AT CP102 MAY BE PARTIALLY DIVERTED TO THE EASTERN CANAL.
  82          KO       3
  83          DT  EAS102
  84          DI  234.97  290.16  1950.4
  85          DQ       0    0.12   405.1
              *
1                                          HEC-1 INPUT                                                    PAGE  3

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

  86          KK  102105   ROUTE   REACH
  87          KM  ROUTE THE RETRIEVED FLOW FROM NORTH OF BASELINE TO CP105
  88          RS       3    STOR       0
  89          RC   0.035   0.035   0.035    2650  0.0004   80.50
  90          RX   112.0   120.0   129.0   150.0   166.0   205.0   270.0   430.0
  91          RY    80.5    76.7    80.8    79.0    78.7    79.2    79.0    80.5
              *

  92          KK     103   BASIN
  93          KM  RUNOFF CALCULATION FOR SUB-BASIN 103
  94          KM  THE FOLLOWING PARAMETERS WERE DETERMINED FOR THIS SUB-BASIN:
  95          KM  L=1.42 MI   S=18.3 FT/MI   Kb=0.025    URBAN
  96          BA   0.713
  97          LG    0.26    0.25    4.70    0.35      23
  98          UC   0.617   0.347
  99          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
 100          UA     100
              *

 101          KK  103OUT
 102          KM  RETENTION WITHIN SUB-BASIN 103
 103          DT  103RET    16.6
 104          DI       0     100
 105          DQ       0     100
              *

 106          KK    D103
 107          KM  DIVERT 40% OF THE TOTAL RUNOFF AT CP103 TO CP106
 108          DT   TO106
 109          DI       0     100
 110          DQ       0      40
              *
```

```
111          KK  103104   ROUTE   REACH
112          KM  ROUTE THE RUNOFF FROM CP103 TO CP104
113          RS       6    STOR       0
114          RC   0.035   0.015   0.035    5280  0.0038    2.00
115          RX     0.0     0.0    60.0    60.0   128.0   128.0   188.0   188.0
116          RY     2.0     1.0     0.5     0.0     0.0     0.5     1.0     2.0
             *

117          KK     104   BASIN
118          KM  RUNOFF CALCULATION FOR SUB-BASIN 104
119          KM  THE FOLLOWING PARAMETERS WERE DETERMINED FOR THIS SUB-BASIN:
120          KM  L=1.67 MI   S=18.2 FT/MI   Kb=0.032    URBAN
121          BA   0.984
122          LG    0.32    0.23    6.20    0.21      19
123          UC   0.838   0.462
124          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
125          UA     100
             *
1                                          HEC-1 INPUT                                          PAGE  4

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

126          KK  104OUT
127          KM  RETENTION WITHIN SUB-BASIN 104
128          DT  104RET    70.5
129          DI       0     100
130          DQ       0     100
             *

131          KK  NOR104
132          KM  THE RUNOFF HYDROGRAPH FROM NORTH OF BASELINE ALONG HIGLEY ROAD IS
133          KM  RETRIEVED BY THE FOLLOWING "ZR" CARD.
134          BA   0.001
             * THIS AREA VALUE DOESN'T AFFECT THE MODELING RESULTS.
135          ZR     =QI A=CGFDS B=BHR24  C=FLOW  E=5MIN
             *

136          KK  OFF104   ROUTE   REACH
137          KM  ROUTE THE RETRIEVED FLOW FROM NORTH OF BASELINE TO CP105
138          RS       6    STOR       0
139          RC   0.035   0.015   0.035    5280  0.0013    2.00
140          RX     0.0     2.0    60.0    60.0   128.0   128.0   188.0   188.0
141          RY     2.0     1.0     0.5     0.0     0.0     0.5     1.0     2.0
             *

142          KK   CP104
143          KM  COMBINE THE WESTBOUND FLOW FROM CP103 AND THE FLOW FROM SUB-BASIN 104
144          HC       3
             *

145          KK    D104
146          KM  DIVERT 50% OF THE TOTAL RUNOFF AT CP104 TO CP107
147          DT   TO107
148          DI       0     100
149          DQ       0      50
             *

150          KK  104105   ROUTE   REACH
151          KM  ROUTE THE RUNOFF FROM CP104 TO CP105
152          RS       3    STOR       0
153          RC   0.035   0.015   0.035    2640  0.0052    2.00
154          RX     0.0     0.0    45.0    45.0   125.0   125.0   170.0   170.0
155          RY     2.0     0.8     0.5     0.0     0.0     0.5     0.8     2.0
             *

156          KK     105   BASIN
157          KM  RUNOFF CALCULATION FOR SUB-BASIN 105
158          KM  THE FOLLOWING PARAMETERS WERE DETERMINED FOR THIS SUB-BASIN:
159          KM  L=1.07 MI   S=12.2 FT/MI   Kb=0.027    URBAN
160          BA   0.282
161          LG    0.28    0.15    7.60    0.10      16
162          UC   0.596   0.452
163          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
164          UA     100
             *
1                                          HEC-1 INPUT                                          PAGE  5

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

165          KK  105OUT
166          KM  RETENTION WITHIN SUB-BASIN 105
167          DT  105RET    14.7
168          DI       0     100
169          DQ       0     100
             *

170          KK   CP105
171          KM  COMBINE FLOW FROM CP102, CP104 AND SUB-BASIN 105
172          HC       3
             *

173          KK    P105
```

```
174          KM  STORAGE ROUTING AT CP105
175          KO       3
176          RS       1    STOR       0
177          SV       0   0.001    0.01    0.08    0.35     0.6    1.29       2    11.4    17.0
178          SE  1274.4    1275    1276    1277    1278  1278.5    1279  1279.1    1280 1280.28
179          SQ       0     2.5     3.5     3.8       4      72     134     144     145     146
             *

180          KK  105EAS
181          KM  THE TOTAL RUNOFF AT CP105 MAY BE PARTIALLY DIVERTED TO THE EASTERN CANAL.
182          KO       3
183          DT  EAS105
184          DI   295.1   305.6   328.6
185          DQ       0     6.3    25.0
             *

186          KK  105108ROUTE   REACH
187          KM  ROUTE THE RUNOFF FROM CP105 TO CP108
188          RS       3    STOR       0
189          RC   0.035   0.035   0.035    2650  0.0006   79.50
190          RX   100.0   120.0   130.0   140.0   165.0   224.0   261.0   269.0
191          RY    79.5    74.3    79.3    78.6    79.5    78.0    78.0    79.5
             *

192          KK  FRM103
193          KM  RETRIEVE THE FLOW DIVERTED FROM CP103 TO CP106.
194          DR   TO106
             *

195          KK  103106ROUTE   REACH
196          KM  ROUTE THE RUNOFF FROM CP103 TO CP106
197          RS       3    STOR       0
198          RC   0.035   0.015   0.035    2640  0.0026    2.00
199          RX     0.0     0.0    60.0    60.0   128.0   128.0   188.0   188.0
200          RY     2.0     1.0     0.5     0.0     0.0     0.5     1.0     2.0
             *
1                                          HEC-1 INPUT                                          PAGE  6

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

201          KK     106   BASIN
202          KM  RUNOFF CALCULATION FOR SUB-BASIN 106
203          KM  THE FOLLOWING PARAMETERS WERE DETERMINED FOR THIS SUB-BASIN:
204          KM  L=1.39 MI   S=20.9 FT/MI   Kb=0.028    URBAN
205          BA   0.428
206          LG    0.26    0.26    5.20    0.28      21
207          UC   0.621   0.460
208          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
209          UA     100
             *

210          KK  106OUT
211          KM  RETENTION WITHIN SUB-BASIN 106
212          DT  106RET    25.4
213          DI       0     100
214          DQ       0     100
             *

215          KK   CP106
216          KM  COMBINE THE SOUTHBOUND FLOW FROM CP103 AND THE FLOW FROM CP106
217          HC       2
             *

218          KK  106107ROUTE   REACH
219          KM  ROUTE THE RUNOFF FROM CP106 TO CP107
220          RS       5    STOR       0
221          RC   0.035   0.015   0.035    5186  0.0034    2.00
222          RX     0.0     0.0    60.0    60.0   140.0   140.0   200.0   200.0
223          RY     2.0     1.0     0.5     0.0     0.0     0.5     1.0     2.0
             *

224          KK    D104
225          KM  RETRIEVE THE FLOW DIVERTED FROM CP104 TO CP107.
226          DR   TO107
             *

227          KK  104107ROUTE   REACH
228          KM  ROUTE THE RUNOFF FROM CP104 TO CP107
229          RS       3    STOR       0
230          RC   0.035   0.015   0.035    2620  0.0018    2.00
231          RX     0.0     0.0    45.0    45.0   125.0   125.0   170.0   170.0
232          RY     2.0     0.8     0.5     0.0     0.0     0.5     0.8     2.0
             *

233          KK     107   BASIN
234          KM  RUNOFF CALCULATION FOR SUB-BASIN 107
235          KM  THE FOLLOWING PARAMETERS WERE DETERMINED FOR THIS SUB-BASIN:
236          KM  L=1.43 MI   S=16.5 FT/MI   Kb=0.026    URBAN
237          BA   0.494
238          LG    0.27    0.15    9.70    0.05      18
239          UC   0.613   0.427
240          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
241          UA     100
             *
```

```
1                                          HEC-1 INPUT                                                          PAGE  7

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

  242         KK  107OUT
  243         KM  RETENTION WITHIN SUB-BASIN 107
  244         DT  107RET    12.3
  245         DI       0     100
  246         DQ       0     100
              *

  247         KK   CP107
  248         KM  COMBINE THE SOUTHBOUND FLOW FROM CP104 AND FLOWS FROM CP106 AND SUB-BASIN 107
  249         HC       3
              *

  250         KK  107108ROUTE   REACH
  251         KM  ROUTE THE RUNOFF FROM CP107 TO CP108
  252         RS       3    STOR       0
  253         RC   0.035   0.015   0.035    2867  0.0035    2.00
  254         RX     0.0     0.0    60.0    60.0   140.0   140.0   200.0   200.0
  255         RY     2.0   160.0     0.5     0.0     0.0     0.5     1.0     2.0
              *

  256         KK     108   BASIN
  257         KM  RUNOFF CALCULATION FOR SUB-BASIN 108
  258         KM  THE NORTH HALF OF THE SUB-BASIN 108 (WATER TREATMENT PLANT AND THE BASIN)
  259         KM  IS CONSIDERED NON-CONTRIBUTING.
  260         KM  THE FOLLOWING PARAMETERS WERE DETERMINED FOR THIS SUB-BASIN:
  261         KM  L=0.78 MI   S=15.5 FT/MI   Kb=0.028    URBAN
  262         BA   0.133
  263         LG    0.30    0.10   11.20    0.02       6
  264         UC   0.450   0.395
  265         UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
  266         UA     100
              *

  267         KK  108OUT
  268         KM  RETENTION WITHIN SUB-BASIN 108
  269         DT  108RET    14.1
  270         DI       0     100
  271         DQ       0     100
              *

  272         KK   CP108
  273         KM  COMBINE FLOWS FROM CP105, CP107 AND SUB-BASIN 108
  274         HC       3
              *

  275         KK    P108
  276         KM  STORAGE ROUTING AT CP108, NE CORNER OF TAILWATER DITCH AND OLNEY AVE.
  277         KM  THE FLOW TO THE BASIN EAST OF WTP IS TAKEN INTO ACCOUNT.
  278         KO       3
  279         RS       1    STOR       0
  280         SV       0   0.051    0.29    0.68    1.62    9.26   27.98      29    33.4      36
  281         SE    1274    1275    1276    1277    1278    1279    1280 1280.05  1280.1  1280.2
  282         SQ       0     4.2    14.8    32.7    58.9  103.84     326     370     420     535
              *
1                                          HEC-1 INPUT                                                          PAGE  8

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

  283         KK  108EAS
  284         KM  THE TOTAL RUNOFF AT CP108 MAY BE PARTIALLY DIVERTED TO THE BASIN (EAST)
  285         KM  A SMALL PORTION OF THE DIVERTED FLOW MAY GO TO THE EASTERN CANAL.
  286         KO       3
  287         DT  LOS108
  288         DI  103.84     251     326     370     420     535
  289         DQ       0       9      11      12      13      15
              *

  290         KK  108111ROUTE   REACH
  291         KM  ROUTE THE RUNOFF FROM CP108 TO CP111
  292         RS       3    STOR       0
  293         RC   0.035   0.035   0.035    2680  0.0005   82.50
  294         RX   100.0   111.0   121.0   130.0   142.0   160.0   381.0   410.0
  295         RY    83.7    83.3    76.5    82.6    82.7    76.1    76.5    82.5
              *

  296         KK     109   BASIN
  297         KM  RUNOFF CALCULATION FOR SUB-BASIN 109
  298         KM  THE FOLLOWING PARAMETERS WERE DETERMINED FOR THIS SUB-BASIN:
  299         KM  L=1.45 MI   S=20.1 FT/MI   Kb=0.043    NATURAL
  300         BA   0.713
  301         LG    0.50    0.21    6.40    0.23       0
  302         UC   1.079   0.657
  303         UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
  304         UA     100
              *

  305         KK  109110ROUTE   REACH
  306         KM  ROUTE THE RUNOFF FROM CP109 TO CP110
  307         RS       5    STOR       0
```

```
308          RC   0.035   0.015   0.035    5200  0.0033    1.00
309          RX     0.0   700.0   711.0   711.0   751.0   765.0   776.0  1526.0
310          RY     1.0     0.0     0.5     0.0     1.0     0.7     0.0     1.1
             *

311          KK     110   BASIN
312          KM  RUNOFF CALCULATION FOR SUB-BASIN 110
313          KM  THE FOLLOWING PARAMETERS WERE DETERMINED FOR THIS SUB-BASIN:
314          KM  L=1.43 MI   S=12.0 FT/MI   Kb=0.026    URBAN
315          BA   0.487
316          LG    0.24    0.10   11.20    0.03      29
317          UC   0.679   0.483
318          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
319          UA     100
             *

320          KK  110OUT
321          KM  RETENTION WITHIN SUB-BASIN 110
322          DT  110RET    50.6
323          DI       0     100
324          DQ       0     100
             *
1                                          HEC-1 INPUT                                          PAGE  9

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

325          KK     116   BASIN
326          KM  RUNOFF CALCULATION FOR SUB-BASIN116
327          KM  THE FOLLOWING PARAMETERS WERE DETERMINED FOR THIS SUB-BASIN:
328          KM  L=1.65 MI   S=12.9 FT/MI   Kb=0.042    URBAN
329          BA   0.603
330          LG    0.43    0.15    9.70    0.07       7
331          UC   1.167   0.874
332          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
333          UA     100
             *

334          KK    D116
335          KM  DIVERT 80% OF THE TOTAL RUNOFF AT CP116 TO CP117
336          DT   TO117
337          DI       0     100
338          DQ       0      80
             *

339          KK  116112ROUTE   REACH
340          KM  ROUTE THE RUNOFF FROM CP116 TO CP112
341          RS       3    STOR       0
342          RC   0.035   0.015   0.035    2650  0.0004    1.20
343          RX     0.0   550.0   561.0   575.0   575.0   589.0   600.0  1150.0
344          RY     2.0     0.0     1.8     2.1     2.1     1.8     0.0     1.2
             *

345          KK     112   BASIN
346          KM  RUNOFF CALCULATION FOR SUB-BASIN 112
347          KM  THE FOLLOWING PARAMETERS WERE DETERMINED FOR THIS SUB-BASIN:
348          KM  L=1.72 MI   S=15.5 FT/MI   Kb=0.040    NATURAL
349          BA   1.280
350          LG    0.50    0.13   10.10    0.05       0
351          UC   1.067   0.533
352          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
353          UA     100
             *

354          KK   CP112
355          KM  COMBINE THE NORTHBOUND FLOW FROM CP116 AND THE FLOW FROM BUB-BASIN 112
356          HC       2
             *

357          KK  112113ROUTE   REACH
358          KM  ROUTE THE RUNOFF FROM CP112 TO CP113
359          RS       8    STOR       0
360          RC   0.035   0.015   0.035    7825  0.0021    1.00
361          RX     0.0  1500.0  1511.0  1524.9  1525.0  1539.0  1550.0  2550.0
362          RY     1.0     0.0     1.8     2.1     2.1     1.8     0.0     1.0
             *
1                                          HEC-1 INPUT                                          PAGE 10

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

363          KK     113   BASIN
364          KM  RUNOFF CALCULATION FOR SUB-BASIN 113
365          KM  THE FOLLOWING PARAMETERS WERE DETERMINED FOR THIS SUB-BASIN:
366          KM  L=1.95 MI   S=8.6 FT/MI   Kb=0.040    NATURAL
367          BA   0.985
368          LG    0.45    0.06   12.40    0.02       1
369          UC   1.454   0.965
370          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
371          UA     100
             *

372          KK   CP110
373          KM  COMBINE FLOWS FROM CP112 AND SUB-BASINS 109, 110 AND 113
374          HC       4
```

```
                *

375             KK  110111ROUTE   REACH
376             KM  ROUTE THE RUNOFF FROM CP110 TO CP111
377             RS       4    STOR       0
378             RC   0.035   0.015   0.035    3375  0.0037    1.00
379             RX     0.0  1500.0  1511.0  1511.0  1545.0  1559.0  1570.0  2370.0
380             RY     1.4     0.0     0.5     0.0     0.9     0.6     0.0     1.0
                *

381             KK     111   BASIN
382             KM  RUNOFF CALCULATION FOR SUB-BASIN 111
383             KM  THE FOLLOWING PARAMETERS WERE DETERMINED FOR THIS SUB-BASIN:
384             KM  L=1.01 MI   S=10.2 FT/MI   Kb=0.026    URBAN
385             BA   0.291
386             LG    0.25    0.15    9.70    0.06      30
387             UC   0.575   0.408
388             UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
389             UA     100
                *

390             KK  111OUT
391             KM  RETENTION WITHIN SUB-BASIN 111
392             DT  111RET     9.3
393             DI       0     100
394             DQ       0     100
                *

395             KK   CP111
396             KM  COMBINE FLOWS FROM CP108, CP110 AND SUB-BASIN 111
397             HC       3
                *

398             KK    P111
399             KM  STORAGE ROUTING AT CP111, NE CORNER OF TAILWATER DITCH AND ELLIOT ROAD
400             KO       3
401             RS       1    STOR       0
402             SV       0    7.87   21.82   36.61   52.16   69.09   87.99   94.34  111.55   122.5
403             SV     127     128   143.5
404             SE  1271.7    1273    1274    1275    1276    1277    1278  1278.3    1279 1279.38
```



```
LINE            ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

405             SE  1279.5 1279.55    1280
406             SQ       0     0.4      10      30      58      95     127     148     324     789
407             SQ     968    1066    2422
                *

408             KK  111EAS
409             KM  THE TOTAL RUNOFF AT CP111 IS PARTIALLY DIVERTED TO THE EASTERN CANAL.
410             KO       3
411             DT  EAS111
412             DI     353    1431    2422
413             DQ       0       0    60.7
                *

414             KK   114EA
415             KM  WATER LOSS TO THE EASTERN CANAL FROM THE TAIL WATER DITCH
416             KO       3
417             DT   EA114
418             DI     260     300     400     500     600     700     800     900    1000    1267
419             DQ       0    5.11   29.54   59.27   92.02  130.94  171.95  210.98  252.07  350.29
                *

420             KK  111114ROUTE   REACH
421             KM  ROUTE THE RUNOFF FROM CP111 TO CP114
422             RS       3    STOR       0
423             RC   0.035   0.035   0.035    2920  0.0007   77.00
424             RX  1005.0  1043.0    1047  1070.0  1075.0  1230.0  1261.0  1530.0
425             RY    77.0    70.7    70.7    75.7    75.2    75.5    75.2    77.0
                *

426             KK     114   BASIN
427             KM  RUNOFF CALCULATION FOR SUB-BASIN 114
428             KM  THE FOLLOWING PARAMETERS WERE DETERMINED FOR THIS SUB-BASIN:
429             KM  L=1.40 MI   S=8.2 FT/MI   Kb=0.037    URBAN
430             BA   0.386
431             LG    0.38    0.10   11.20    0.03       3
432             UC   1.113   0.938
433             UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
434             UA     100
                *

435             KK  114OUT
436             KM  RETENTION WITHIN SUB-BASIN 114
437             DT  114RET     1.5
438             DI       0     100
439             DQ       0     100
                *

440             KK   CP114
441             KM  COMBINE FLOWS FROM CP111 AND SUB-BASIN 114
442             HC       2
                *
```

```
1                                          HEC-1 INPUT                                                    PAGE 12

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 443          KK    P114
 444          KM  STORAGE ROUTING AT CP114, NE CORNER OF TAILWATER DITCH AND MEQUITE ST
 445          KO       3
 446          RS       1    STOR       0
 447          SV       0       0    0.05    0.21    0.58    1.24    2.49    3.48    11.1      32
 448          SV   34.56      40
 449          SE  1269.4    1270    1271    1272    1273    1274    1275  1275.2    1276  1276.9
 450          SE    1277 1277.19
 451          SQ       0    2.29    12.5    30.4    57.1    93.5  140.67  151.49  219.61  471.97
 452          SQ  593.25  981.09
              *

 453          KK  114EAS
 454          KM  THE TOTAL RUNOFF AT CP114 MAY BE PARTIALLY DIVERTED TO THE EASTERN CANAL.
 455          KO       3
 456          DT  EAS114
 457          DI     357     499     825    1277
 458          DQ       0    27.6     168     482
              *

 459          KK   115EA
 460          KM  WATER LOSS TO THE EASTERN CANAL FROM THE TAIL WATER DITCH
 461          KO       3
 462          DT   EA115
 463          DI     268     270     300     400     500     646
 464          DQ       0    0.03    8.44   78.09  158.68  281.51
              *

 465          KK  114115ROUTE   REACH
 466          KM  ROUTE THE RUNOFF FROM CP114 TO CP115
 467          RS       5    STOR       0
 468          RC   0.035   0.035   0.035    2125  0.0009   73.00
 469          RX   100.0   118.0   140.0   172.0   210.0   251.0   270.0   440.0
 470          RY    75.5    68.5    74.2    75.5    70.5    68.5    68.5    73.0
              *

 471          KK     115   BASIN
 472          KM  RUNOFF CALCULATION FOR SUB-BASIN 115
 473          KM  THE FOLLOWING PARAMETERS WERE DETERMINED FOR THIS SUB-BASIN:
 474          KM  L=1.24 MI   S=8.8 FT/MI   Kb=0.040    URBAN
 475          BA   0.468
 476          LG    0.37    0.04   12.40    0.02      10
 477          UC   1.008   0.684
 478          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
 479          UA     100
              *

 480          KK  115OUT
 481          KM  RETENTION WITHIN SUB-BASIN 115
 482          DT  115RET     8.7
 483          DI       0     100
 484          DQ       0     100
              *
1                                          HEC-1 INPUT                                                    PAGE 13

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 485          KK   CP115
 486          KM  COMBINE FLOWS FROM CP114 AND SUB-BASIN 115
 487          HC       2
              *

 488          KK    P115
 489          KM  STORAGE ROUTING AT CP115, NE CORNER OF TAILWATER DITCH AND WARNER RD
 490          KO       3
 491          RS       1    STOR       0
 492          SV   0.076   0.133   1.135    3.42    7.13   13.64   26.17   45.22   72.71   85.47
 493          SV      98  115.02  179.37
 494          SE    1267    1268    1269    1270    1271    1272    1273    1274    1275 1275.35
 495          SE  1275.6    1276    1277
 496          SQ       0       3      20      55     102     152     195     230     275     372
 497          SQ     626    1400    6005
              *

 498          KK  115EAS
 499          KM  THE TOTAL RUNOFF AT CP115 MAY BE PARTIALLY DIVERTED TO THE EASTERN CANAL.
 500          KO       3
 501          DT  EAS115
 502          DI    1584    1725
 503          DQ       0    1.14
              *

 504          KK  115118ROUTE   REACH
 505          KM  ROUTE THE RUNOFF FROM CP115 TO CP118
 506          RS       5    STOR       0
 507          RC   0.035   0.035   0.035    4800  0.0009   71.60
 508          RX   100.0   132.0   150.0   161.0   165.0   182.0   400.0   426.0
 509          RY    71.6    71.3    66.5    69.5    71.2    68.8    69.2    72.8
              *
```

```
510          KK    D116
511          KM  RETRIEVE THE FLOW DIVERTED FROM CP116 TO CP117.
512          DR   TO117
             *

513          KK  116117ROUTE   REACH
514          RS       5    STOR       0
515          RC   0.035   0.015   0.035    5230  0.0032    0.50
516          RX     0.0   875.0   886.0   900.0   900.0   914.0   925.0  1625.0
517          RY     0.5     0.0     1.8     2.1     2.1     1.8     0.0     0.5
             *

518          KK     117   BASIN
519          KM  RUNOFF CALCULATION FOR SUB-BASIN 117
520          KM  THE FOLLOWING PARAMETERS WERE DETERMINED FOR THIS SUB-BASIN:
521          KM  L=1.46 MI   S=10.3 FT/MI   Kb=0.046    NATURAL
522          BA   0.483
523          LG    0.50    0.05   12.40    0.02       0
524          UC   1.208   0.936
525          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
526          UA     100
             *
1                                          HEC-1 INPUT                                          PAGE 14

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

527          KK   CP117
528          KM  COMBINE THE WESTBOUND FLOW FROM CP116 AND THE FLOW FROM SUB-BASIN 117
529          HC       2
             *

530          KK  117118ROUTE   REACH
531          KM  ROUTE THE RUNOFF FROM CP117 TO CP118
532          RS      10    STOR       0
533          RC   0.035   0.015   0.035    9920  0.0021    0.90
534          RX     0.0  1050.0  1061.0  1075.0  1075.0  1089.0  1100.0  1650.0
535          RY     0.9     0.0     1.8     2.1     2.1     1.8     0.0     0.9
             *

536          KK     118   BASIN
537          KM  RUNOFF CALCULATION FOR SUB-BASIN 118
538          KM  THE FOLLOWING PARAMETERS WERE DETERMINED FOR THIS SUB-BASIN:
539          KM  L=2.22 MI   S=10.0 FT/MI   Kb=0.030    URBAN
540          BA   0.899
541          LG    0.29    0.08   11.20    0.03      19
542          UC   1.150   0.869
543          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
544          UA     100
             *

545          KK  118OUT
546          KM  RETENTION WITHIN SUB-BASIN 118
547          DT  118RET    56.1
548          DI       0     100
549          DQ       0     100
             *

550          KK   CP118CROSS RO AD PARK
551          KM  COMBINE FLOWS FROM CP115, CP117 AND SUB BASIN 118
552          HC       3
             *

553          KK    P118
554          KM  STORAGE ROUTING AT CP118 (THE CROSS ROAD PARK)
555          KO       3
556          RS       1    STOR       0
557          SV       0   177.3   200.1   223.8   248.6   276.1   307.5   389.1     418  450.15
558          SE  1247.8    1263    1264    1265    1266    1267    1268    1270  1270.6 1271.25
559          SQ       0       0       4      15      35      59      85     124     134     143
             *

560          KK   XRDPKCROSS RO AD PARKSOUTHBOUND OUTFLOW AT CP     118
561          KM  THE TOTAL RUNOFF AT CP118 MAY BE PARTIALLY DIVERTED TO THE EASTERN CANAL.
562          KO       3
563          DT  EAS118
564          DI  154.93  195.50  199.68  213.60  255.93  327.68  426.38
565          DQ       0    0.03    2.51   14.74    55.4  125.49  222.55
566          ZW  A=EAST B=XRDPK  C=FLOW  E=5MIN
             *
             * **************THIS BLOCK WRITES OVERBANK HYDROGRAPHS TO DSS FILES*************
1                                          HEC-1 INPUT                                          PAGE 15

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

567          KK  DSS102
568          KM  RETRIEVE THE BANK OVERFLOW AT CP102.
569          DR  EAS102
570          ZW  A=EAST  B=HOUS  C=FLOW  E=5MIN

571          KK  RTR108
572          KM  RETRIEVE THE BANK OVERFLOW AT CP108 AND THE FLOW TO THE BASIN.
573          DR  LOS108
```

```
574          KK  EAS108
575          KM  SEPARATE THE FLOW TO THE BASIN AND OVERBANK FLOW
576          DT  TOBASN
577          DI     3.1     8.9    11.2    15.7    23.1
578          DQ     3.1     8.9    10.8    12.9    15.2
579          ZW  A=EAST B=CP108  C=FLOW  E=5MIN

580          KK  DSS111
581          KM  RETRIEVE THE BANK OVERFLOW AT CP111.
582          DR  EAS111
583          ZW  A=EAST B=CP111  C=FLOW  E=5MIN

584          KK  DSS114
585          KM  RETRIEVE THE BANK OVERFLOW AT CP114.
586          DR  EAS114
587          ZW  A=EAST B=CP114  C=FLOW  E=5MIN

588          KK  RTR114
589          KM  RETRIEVE THE BANK OVERFLOW BETWEEN P111 AND P114
590          DR   EA114
591          ZW  A=EAST B=UP114  C=FLOW  E=5MIN

592          KK  RTR115
593          KM  RETRIEVE THE BANK OVERFLOW BETWEEN P114 AND P115
594          DR   EA115
595          ZW  A=EAST B=UP115  C=FLOW  E=5MIN

596          KK  OVERBK
597          HC       7
             * *********************END OF WRITING OVERBANK DSS FILES************************
             * SOUTHOF SANTAN  FREEWA       Y
             * ****************************************************************************

598          KK     122   BASIN
599          KM  RUNOFF CALCULATION FOR SUB-BASIN 122
600          KM  THE FOLLOWING PARAMETERS WERE DETERMINED FOR THIS SUB-BASIN:
601          KM  L=1.87 MI   S=9.6 FT/MI   Kb=0.036    URBAN
602          KM  THE FOLLOWING RAINFALL DEPTH (PB) IS USED FOR THE AREAS SOUTH OF THE FREEWAY.
603          KM  TOTAL POINT RAINFALL=3.45 IN  AREA REDUCED=4.25 SQM  REDUCTION FACTOR=0.98
604          PB    3.38
605          BA   1.065
606          LG    0.38    0.15    7.30    0.15      14
607          UC   1.342   0.816
608          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
609          UA     100
             *
```



```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

610          KK  122OUT
611          KM  RETENTION WITHIN SUB-BASIN 122
612          DT  122RET    26.9
613          DI       0     100
614          DQ       0     100
             *

615          KK    D122
616          KM  DIVERT 40% OF THE TOTAL RUNOFF AT CP122 TO CP123
617          DT   TO123
618          DI       0     100
619          DQ       0      40
             *

620          KK  122119ROUTE   REACH
621          KM  ROUTE THE RUNOFF FROM CP122 TO CP119
622          RS       3    STOR      0
623          RC   0.035   0.015   0.035    2190  0.0008    2.00
624          RX     0.0     0.0    60.0    60.0   128.0   128.0   188.0   188.0
625          RY     2.0     1.0     0.5     0.0     0.0     0.5     1.0     2.0
             *

626          KK     119   BASIN
627          KM  RUNOFF CALCULATION FOR SUB-BASIN 119
628          KM  THE FOLLOWING PARAMETERS WERE DETERMINED FOR THIS SUB-BASIN:
629          KM  L=1.58 MI   S=13.1 FT/MI   Kb=0.039    NATURAL
630          BA   0.489
631          LG    0.39    0.05   12.40    0.02      13
632          UC   0.979   0.784
633          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
634          UA     100
             *

635          KK  119OUT
636          KM  RETENTION WITHIN SUB-BASIN 119
637          DT  119RET     9.3
638          DI       0     100
639          DQ       0     100
             *

640          KK   CP119
641          KM  COMBINE THE NORTHBOUND FLOW FROM CP122 AND THE FLOW FROM SUB-BASIN 119
642          KM  FLOW ENTERS SANTAN CHANNEL
```

```
 643          HC       2
              *

 644          KK  FRM122
 645          KM  RETRIEVE THE FLOW DIVERTED FROM CP122 TO CP123.
 646          DR   TO123
              *
1                                        HEC-1 INPUT                                                    PAGE 17

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 647          KK  122123ROUTE   REACH
 648          KM  ROUTE THE RUNOFF FROM CP122 TO CP123
 649          RS       5    STOR       0
 650          RC   0.035   0.015   0.035    5250  0.0026    1.00
 651          RX     0.0   300.0   311.0   325.0   325.0   339.0   350.0   750.0
 652          RY     1.0     0.0     1.8     2.1     2.1     1.8     0.0     1.3
              *

 653          KK     124   BASIN
 654          KM  RUNOFF CALCULATION FOR SUB-BASIN 124
 655          KM  THE FOLLOWING PARAMETERS WERE DETERMINED FOR THIS SUB-BASIN:
 656          KM  L=1.32 MI   S=13.7 FT/MI   Kb=0.044    NATURAL
 657          BA   0.656
 658          LG    0.49    0.25    4.80    0.45       2
 659          UC   1.388   0.845
 660          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 661          UA     100
              *

 662          KK    P124
 663          KM  STORAGE ROUTING AT CP124.  CROSS SECTION OF THE RAILROAD AND WILLIAMS FIELD RD
 664          KO       3
 665          RS       1    STOR       0
 666          SV       0    0.11    0.83    4.09    12.5   12.72   13.81   15.09   16.59
 667          SE    1299    1300    1301    1302    1303 1303.01  1303.1  1303.2  1303.3
 668          SQ       0       0       0       0       0       0   10.72   84.56  211.66
              *

 669          KK  124123ROUTE   REACH
 670          KM  ROUTE THE RUNOFF FROM CP124 TO CP123
 671          RS       6    STOR       0
 672          RC   0.035   0.015   0.035    6100  0.0016    0.80
 673          RX     0.0   550.0   561.0   575.0   575.0   589.0   600.0  1150.0
 674          RY     1.3     0.0     1.8     2.1     2.1     1.8     0.0     0.8
              *

 675          KK     123   BASIN
 676          KM  RUNOFF CALCULATION FOR SUB-BASIN 123
 677          KM  THE FOLLOWING PARAMETERS WERE DETERMINED FOR THIS SUB-BASIN:
 678          KM  L=1.63 MI   S=9.7 FT/MI   Kb=0.041    NATURAL
 679          BA   0.956
 680          LG    0.46    0.15    7.30    0.16       4
 681          UC   1.438   0.840
 682          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 683          UA     100
              *

 684          KK   CP123
 685          KM  COMBINE WESTBOUND FLOW FROM CP122 AND FLOWS FROM SUB-BASINS 123 AND 124
 686          HC       3
              *
1                                        HEC-1 INPUT                                                    PAGE 18

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 687          KK    D123
 688          KM  DIVERT 60% OF THE TOTAL RUNOFF AT CP123 TO CP121
 689          DT   TO121
 690          DI       0     100
 691          DQ       0      60
              *

 692          KK  123120ROUTE   REACH
 693          KM  ROUTE THE RUNOFF FROM CP123 TO CP120
 694          RS       2    STOR       0
 695          RC   0.035   0.015   0.035    2010  0.0010    1.00
 696          RX     0.0   450.0   461.0   475.0   475.0   489.0   500.0  1700.0
 697          RY     2.0     0.0     1.8     2.1     2.1     1.8     0.0     1.0
              *

 698          KK     120   BASIN
 699          KM  RUNOFF CALCULATION FOR SUB-BASIN 120
 700          KM  THE FOLLOWING PARAMETERS WERE DETERMINED FOR THIS SUB-BASIN:
 701          KM  L=1.33 MI   S=10.7 FT/MI   Kb=0.043    NATURAL
 702          BA   0.412
 703          LG    0.42    0.11   11.20    0.03       4
 704          UC   1.063   0.824
 705          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 706          UA     100
              *

 707          KK  120OUT
```

```
 708          KM  RETENTION WITHIN SUB-BASIN 120
 709          DT  120RET    12.7
 710          DI       0     100
 711          DQ       0     100
              *

 712          KK   CP120
 713          KM  COMBINE NORTHBOUND FLOW FROM CP123 AND FLOW FROM SUB-BASIN 120
 714          KM  FLOW ENTERS SANTAN CHANNEL
 715          HC       2
              *

 716          KK     121   BASIN
 717          KM  RUNOFF CALCULATION FOR SUB-BASIN 121
 718          KM  THE FOLLOWING PARAMETERS WERE DETERMINED FOR THIS SUB-BASIN:
 719          KM  L=1.16 MI   S=15.3 FT/MI   Kb=0.042    NATURAL
 720          BA   0.672
 721          LG    0.45    0.13   10.10    0.05       5
 722          UC   0.817   0.417
 723          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 724          UA     100
              *
1                                                HEC-1 INPUT                                                PAGE 19

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


 725          KK  121OUT
 726          KM  RETENTION WITHIN SUB-BASIN 121
 727          DT  121RET    39.1
 728          DI       0     100
 729          DQ       0     100
              *

 730          KK  FRM123
 731          KM  RETRIEVE THE FLOW DIVERTED FROM CP123 TO CP121.
 732          DR   TO121
              *

 733          KK  123121ROUTE   REACH
 734          KM  ROUTE THE RUNOFF FROM CP123 TO CP121
 735          RS       5    STOR       0
 736          RC   0.035   0.015   0.035    4910  0.0030    0.75
 737          RX     0.0  1050.0  1061.0  1075.0  1075.0  1089.0  1100.0  1388.0
 738          RY     0.8     0.0     1.8     2.1     2.1     1.8     0.0     1.0
              *

 739          KK   CP121
 740          KM  COMBINE THE WESTBOUND FLOW FROM CP123 AND FLOW FROM SUB-BASIN 121
 741          ZW  A=SANT   B=RAY  C=FLOW  E=5MIN
 742          HC       2
              *

 743          KK   CPSAN
 744          KM  COMBINE FLOW INTO SANTAN CHANNEL FROM CP119, CP120, AND CP121
 745          KM  (FLOWS COMBINED ONLY, NOT ROUTED)
 746          HC       3
              *
 747          ZZ
1
              SCHEMATIC DIAGRAM OF STREAM NETWORK
 INPUT
  LINE     (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

   NO.     (.) CONNECTOR        (<---) RETURN OF DIVERTED OR PUMPED FLOW

    29     NOR102
                V
                V
    46     OFF102
                .
                .
    52          .         102
                .           .
                .           .
    67          .           .-------> 102RET
    65          .      102OUT
                .           .
                .           .
    70      CP102............
                V
                V
    73       P102
                .
                .
    83          .-------> EAS102
    80     102EAS
                V
                V
    86     102105
                .
                .
    92          .         103
                .           .
                .           .
```

```
103          .           .-------> 103RET
101          .      103OUT
             .           .
             .           .
108          .           .------->  TO106
106          .        D103
             .           V
             .           V
111          .      103104
             .           .
             .           .
117          .           .         104
             .           .           .
             .           .           .
128          .           .           .-------> 104RET
126          .           .      104OUT
             .           .           .
             .           .           .
131          .           .           .      NOR104
             .           .           .          V
             .           .           .          V
136          .           .           .      OFF104
             .           .           .           .
             .           .           .           .
142          .       CP104.......................
             .           .
             .           .
147          .           .------->  TO107
145          .        D104
             .           V
             .           V
150          .      104105
             .           .
             .           .
156          .           .         105
             .           .           .
             .           .           .
167          .           .           .-------> 105RET
165          .           .      105OUT
             .           .           .
             .           .           .
170       CP105.......................
             V
             V
173        P105
             .
             .
183          .-------> EAS105
180      105EAS
             V
             V
186      105108
             .
             .
194          .           .<-------  TO106
192          .      FRM103
             .           V
             .           V
195          .      103106
             .           .
             .           .
201          .           .         106
             .           .           .
             .           .           .
212          .           .           .-------> 106RET
210          .           .      106OUT
             .           .           .
             .           .           .
215          .       CP106............
             .           V
             .           V
218          .      106107
             .           .
             .           .
226          .           .           .<-------  TO107
224          .           .        D104
             .           .           V
             .           .           V
227          .           .      104107
             .           .           .
             .           .           .
233          .           .           .         107
             .           .           .           .
             .           .           .           .
244          .           .           .           .-------> 107RET
242          .           .           .      107OUT
             .           .           .           .
             .           .           .           .
247          .       CP107.......................
             .           V
             .           V
250          .      107108
             .           .
             .           .
256          .           .         108
```

```
                .           .           .
                .           .           .
269             .           .           .-------> 108RET
267             .           .      108OUT
                .           .           .
                .           .           .
272         CP108.......................
                V
                V
275          P108
                .
                .
287             .-------> LOS108
283         108EAS
                V
                V
290         108111
                .
                .
296             .         109
                .           V
                .           V
305             .      109110
                .           .
                .           .
311             .           .        110
                .           .           .
                .           .           .
322             .           .           .-------> 110RET
320             .           .      110OUT
                .           .           .
                .           .           .
325             .           .           .        116
                .           .           .          .
                .           .           .          .
336             .           .           .          .------->  TO117
334             .           .           .       D116
                .           .           .          V
                .           .           .          V
339             .           .           .     116112
                .           .           .          .
                .           .           .          .
345             .           .           .          .         112
                .           .           .          .           .
                .           .           .          .           .
354             .           .           .      CP112............
                .           .           .          V
                .           .           .          V
357             .           .           .     112113
                .           .           .          .
                .           .           .          .
363             .           .           .          .         113
                .           .           .          .           .
                .           .           .          .           .
372             .       CP110...................................
                .           V
                .           V
375             .      110111
                .           .
                .           .
381             .           .        111
                .           .           .
                .           .           .
392             .           .           .-------> 111RET
390             .           .      111OUT
                .           .           .
                .           .           .
395         CP111.......................
                V
                V
398          P111
                .
                .
411             .-------> EAS111
408         111EAS
                .
                .
417             .------->  EA114
414          114EA
                V
                V
420         111114
                .
                .
426             .         114
                .           .
                .           .
437             .           .-------> 114RET
435             .      114OUT
                .           .
                .           .
440         CP114............
                V
                V
443          P114
```

```
                .
                .
456             .-------> EAS114
453        114EAS
                .
                .
462             .------->  EA115
459         115EA
                V
                V
465        114115
                .
                .
471             .         115
                .           .
                .           .
482             .           .-------> 115RET
480             .      115OUT
                .           .
                .           .
485         CP115............
                V
                V
488          P115
                .
                .
501             .-------> EAS115
498        115EAS
                V
                V
504        115118
                .
                .
512             .           .<-------   TO117
510             .        D116
                .           V
                .           V
513             .      116117
                .           .
                .           .
518             .           .         117
                .           .           .
                .           .           .
527             .       CP117............
                .           V
                .           V
530             .      117118
                .           .
                .           .
536             .           .         118
                .           .           .
                .           .           .
547             .           .           .-------> 118RET
545             .           .      118OUT
                .           .           .
                .           .           .
550         CP118........................
                V
                V
553          P118
                .
                .
563             .-------> EAS118
560         XRDPK
                .
                .
569             .           .<-------  EAS102
567             .      DSS102
                .           .
                .           .
573             .           .           .<-------  LOS108
571             .           .      RTR108
                .           .           .
                .           .           .
576             .           .           .-------> TOBASN
574             .           .      EAS108
                .           .           .
                .           .           .
582             .           .           .           .<-------  EAS111
580             .           .           .      DSS111
                .           .           .           .
                .           .           .           .
586             .           .           .           .           .<-------  EAS114
584             .           .           .           .      DSS114
                .           .           .           .           .
                .           .           .           .           .
590             .           .           .           .           .           .<-------   EA114
588             .           .           .           .           .      RTR114
                .           .           .           .           .           .
                .           .           .           .           .           .
594             .           .           .           .           .           .           .<-------   EA115
592             .           .           .           .           .           .      RTR115
                .           .           .           .           .           .           .
                .           .           .           .           .           .           .
596        OVERBK.......................................................................
```

```
                .
                .
598             .        122
                .          .
                .          .
612             .          .-------> 122RET
610             .     122OUT
                .          .
                .          .
617             .          .------->  TO123
615             .       D122
                .          V
                .          V
620             .     122119
                .          .
                .          .
626             .          .        119
                .          .          .
                .          .          .
637             .          .          .-------> 119RET
635             .          .     119OUT
                .          .          .
                .          .          .
640             .      CP119............
                .          .
                .          .
646             .          .          .<-------  TO123
644             .          .     FRM122
                .          .          V
                .          .          V
647             .          .     122123
                .          .          .
                .          .          .
653             .          .          .        124
                .          .          .          V
                .          .          .          V
662             .          .          .       P124
                .          .          .          V
                .          .          .          V
669             .          .          .     124123
                .          .          .          .
                .          .          .          .
675             .          .          .          .         123
                .          .          .          .           .
                .          .          .          .           .
684             .          .      CP123........................
                .          .          .
                .          .          .
689             .          .          .------->  TO121
687             .          .       D123
                .          .          V
                .          .          V
692             .          .     123120
                .          .          .
                .          .          .
698             .          .          .        120
                .          .          .          .
                .          .          .          .
709             .          .          .          .-------> 120RET
707             .          .          .     120OUT
                .          .          .          .
                .          .          .          .
712             .          .      CP120............
                .          .          .
                .          .          .
716             .          .          .        121
                .          .          .          .
                .          .          .          .
727             .          .          .          .-------> 121RET
725             .          .          .     121OUT
                .          .          .          .
                .          .          .          .
732             .          .          .          .           .<-------  TO121
730             .          .          .          .      FRM123
                .          .          .          .          V
                .          .          .          .          V
733             .          .          .          .     123121
                .          .          .          .           .
                .          .          .          .           .
739             .          .          .      CP121............
                .          .          .          .
                .          .          .          .
743             .       CPSAN........................
```

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

```
1****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*             JUN  1998                *
*           VERSION 4.1                *
*                                      *
*  RUN DATE   29OCT07  TIME  10:10:57  *
*                                      *
****************************************
```

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

```
                    Project ID: GILBERT1 - Major Basin: 01 - Return Period: 100 Years
                    CHANDLER/GILBERT FLOODPLAIN DELINEATION STUDY
                    PHASE I - NORTH EASTERN CANAL WATERSHED
                    NORTH OF UNION PACIFIC RAILROAD, EAST OF EASTERN CANAL
                    SOUTH OF BASELINE, WEST OF EAST MARICOPA FLOODWAY
                    PREPARED BY MDH AND YX, PROJECT ENGINEERING CONSULTANTS
                    MODEL INCLUDES PROPOSED SANTAN FREEWAY ALIGNMENT AND ASSOCIATED DRAINAGE
                    FACILITIES
                    5-MINUTE TIME INTERVAL - 100-YEAR, 24-HOUR STORM EVENT
                    TOTAL WATERSHED AREA = 14.17 SQ. MI
                    AERIAL REDUCTION WAS APPLIED USING PB RECORDS
                    THIS MODELING AREA WAS BROKEN INTO TWO REGIONS:
                    THE FIRST PB CARD REGION (NORTH OF SANTAN FREEWAY) INCLUDES
                    SUB-BASINS 103-118.  AREA = 9.92 SQ. MI
                    THE SECOND PB CARD REGION (SOUTH OF SANTAN FREEWAY) INCLUDES
                    SUB-BASINS 119-124.  AREA = 4.25 SQ. MI
                    GREEN AND AMPT INFILTRATION METHOD USED TO DETERMINE RAINFALL LOSSES
                    CLARK METHOD USED TO CREATE UNIT HYDROGRAPHS
                    NORMAL DEPTH METHOD USED FOR CHANNEL ROUTING
                    EASTERN MARICOPA COUNTY SOIL SURVEY USED FOR SOILS DATA
                    FLOOD CONTROL DISTRICT OF MARICOPA COUNTY'S GIS DATA, AERIAL PHOTOS DATED
                    DEC. 2002, AND DEVELOPMENTS AS DIRECTED BY CHANDLER AND GILBERT BY DATE OF
                    APRIL 2003 USED FOR LANDUSE DATA
                    DDMSW VERSION 2.1.0 PROGRAM USED TO CALCULATE RAINFALL, RAINFALL LOSSES
                    AND UNIT HYDROGRAPHS
                     DSS FIle: CGFDS.dss

 28 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      3MAR 3  STARTING DATE
                      ITIME        1200  STARTING TIME
                         NQ        2000  NUMBER OF HYDROGRAPH ORDINATES
                     NDDATE     10MAR 3  ENDING DATE
                     NDTIME        1035  ENDING TIME
                      ICENT          19  CENTURY MARK

                  COMPUTATION INTERVAL     .08 HOURS
                       TOTAL TIME BASE  166.58 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
   -----DSS---ZOPEN:  Existing File Opened,  File: CGFDSP1N-24.DSS
                      Unit:  71;  DSS Version: 6-JG
       ----- Entering ZRRTSX for unit 71 -----
Pathname: /CGFDS/BAS24/FLOW//5MIN//
        Time Window set.  Interval:     5  Number of data values:      1
        Starting date and time:  Mar 3, 1903  1200  (   1157  720)
        Ending   date and time:  Mar 3, 1903  1200  (   1157  720)
        Input time offset:      0
        After ZRDINF, Record found: T
        Pathname: /CGFDS/BAS24/FLOW/03MAR1903/5MIN//
        Number of actual data:  288  Header length:   0
        Compression:   0  Quality:   0
-----DSS--- ZREAD Unit  71; Vers.    1:  /CGFDS/BAS24/FLOW/03MAR1903/5MIN//
      ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
        NSTART:    1   NVALS:    1    JULS:    1157  ISTIME:   720
        NLDATA:  288   JULSD:    1157
        JULS: 03MAR03       JULSD: 03MAR03
        Quality Read: F,  Quality Requested: F
        ---ZRRTSB Calculations:  NPOS:  144  NDATA:  288  NREAD:    1  ILIM:    1
      ----- Exiting ZRRTS, Number of data values:      1,  Status:  0
        Offset:       0,  Units: CFS     ,  Type:INST-VAL
        ----- Entering ZRRTSX for unit 71 -----
Pathname: /CGFDS/BAS24/FLOW//5MIN//
        Time Window set.  Interval:     5  Number of data values:    744
        Starting date and time:  Mar 3, 1903  1200  (   1157  720)
        Ending   date and time:  Mar 6, 1903  0155  (   1160  115)
        Input time offset:      0
        After ZRDINF, Record found: T
        Pathname: /CGFDS/BAS24/FLOW/03MAR1903/5MIN//
        Number of actual data:  288  Header length:   0
        Compression:   0  Quality:   0
-----DSS--- ZREAD Unit  71; Vers.    1:  /CGFDS/BAS24/FLOW/03MAR1903/5MIN//
      ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
        NSTART:    1   NVALS:  744    JULS:    1157  ISTIME:   720
        NLDATA:  288   JULSD:    1157
        JULS: 03MAR03       JULSD: 03MAR03
        Quality Read: F,  Quality Requested: F
        ---ZRRTSB Calculations:  NPOS:  144  NDATA:  288  NREAD:  145  ILIM:  145
        After ZRDINF, Record found: T
```

```
        Pathname: /CGFDS/BAS24/FLOW/04MAR1903/5MIN//
        Number of actual data:  288  Header length:   0
        Compression:   0  Quality:   0
-----DSS--- ZREAD Unit  71; Vers.    1:  /CGFDS/BAS24/FLOW/04MAR1903/5MIN//
      ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
        NSTART:  146   NVALS:  744    JULS:    1157  ISTIME:   720
        NLDATA:  288   JULSD:    1158
        JULS: 03MAR03       JULSD: 04MAR03
        Quality Read: F,  Quality Requested: F
        ---ZRRTSB Calculations:  NPOS:    1  NDATA:  288  NREAD:  288  ILIM:  433
        After ZRDINF, Record found: T
        Pathname: /CGFDS/BAS24/FLOW/05MAR1903/5MIN//
        Number of actual data:  288  Header length:   0
        Compression:   0  Quality:   0
-----DSS--- ZREAD Unit  71; Vers.    1:  /CGFDS/BAS24/FLOW/05MAR1903/5MIN//
      ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
        NSTART:  434   NVALS:  744    JULS:    1157  ISTIME:   720
        NLDATA:  288   JULSD:    1159
        JULS: 03MAR03       JULSD: 05MAR03
        Quality Read: F,  Quality Requested: F
        ---ZRRTSB Calculations:  NPOS:    1  NDATA:  288  NREAD:  288  ILIM:  721
        After ZRDINF, Record found: F
        Pathname: /CGFDS/BAS24/FLOW/06MAR1903/5MIN//
      ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
        NSTART:  722   NVALS:  744    JULS:    1157  ISTIME:   720
        NLDATA:  288   JULSD:    1160
        JULS: 03MAR03       JULSD: 06MAR03
        Quality Read: F,  Quality Requested: F
        ---ZRRTSB Calculations:  NPOS:    1  NDATA:  288  NREAD:   23  ILIM:  744
-----DSS*** ZRRTS:  CAUTION - Data block not found in file.  Unit:  71
Pathname: /CGFDS/BAS24/FLOW/06MAR1903/5MIN//
      ----- Exiting ZRRTS, Number of data values:    744,  Status:  3
        Offset:       0,  Units: CFS     ,  Type:INST-VAL

****** WARNING RDTIMS - MISSING FLOW                IN DSS FILE - READ AND INTERPOLATED VALUES SET TO ZERO ******

        ----- Entering ZRRTSX for unit 71 -----
Pathname: /CGFDS/BAS24/FLOW//5MIN//
        Time Window set.  Interval:     5  Number of data values:      1
        Starting date and time:  Mar 6, 1903  0155  (   1160  115)
        Ending   date and time:  Mar 6, 1903  0155  (   1160  115)
        Input time offset:      0
        After ZRDINF, Record found: F
        Pathname: /CGFDS/BAS24/FLOW/06MAR1903/5MIN//
      ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
        NSTART:    1   NVALS:    1    JULS:    1160  ISTIME:   115
        NLDATA:  288   JULSD:    1160
        JULS: 06MAR03       JULSD: 06MAR03
        Quality Read: F,  Quality Requested: F
        ---ZRRTSB Calculations:  NPOS:   23  NDATA:  288  NREAD:    1  ILIM:    1
-----DSS*** ZRRTS:  CAUTION - Data block not found in file.  Unit:  71
Pathname: /CGFDS/BAS24/FLOW/06MAR1903/5MIN//
      ----- Exiting ZRRTS, Number of data values:      1,  Status:  5
        Offset:       0,  Units:         ,  Type:
        ----- Entering ZRRTSX for unit 71 -----
Pathname: /CGFDS/BAS24/FLOW//5MIN//
        Time Window set.  Interval:     5  Number of data values:    744
        Starting date and time:  Mar 6, 1903  0155  (   1160  115)
        Ending   date and time:  Mar 8, 1903  1550  (   1162  950)
        Input time offset:      0
        After ZRDINF, Record found: F
        Pathname: /CGFDS/BAS24/FLOW/06MAR1903/5MIN//
      ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
        NSTART:    1   NVALS:  744    JULS:    1160  ISTIME:   115
        NLDATA:  288   JULSD:    1160
        JULS: 06MAR03       JULSD: 06MAR03
        Quality Read: F,  Quality Requested: F
        ---ZRRTSB Calculations:  NPOS:   23  NDATA:  288  NREAD:  266  ILIM:  266
-----DSS*** ZRRTS:  CAUTION - Data block not found in file.  Unit:  71
Pathname: /CGFDS/BAS24/FLOW/06MAR1903/5MIN//
        After ZRDINF, Record found: F
        Pathname: /CGFDS/BAS24/FLOW/07MAR1903/5MIN//
      ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
        NSTART:  267   NVALS:  744    JULS:    1160  ISTIME:   115
        NLDATA:  288   JULSD:    1161
        JULS: 06MAR03       JULSD: 07MAR03
        Quality Read: F,  Quality Requested: F
        ---ZRRTSB Calculations:  NPOS:    1  NDATA:  288  NREAD:  288  ILIM:  554
        After ZRDINF, Record found: F
        Pathname: /CGFDS/BAS24/FLOW/08MAR1903/5MIN//
      ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
        NSTART:  555   NVALS:  744    JULS:    1160  ISTIME:   115
        NLDATA:  288   JULSD:    1162
        JULS: 06MAR03       JULSD: 08MAR03
        Quality Read: F,  Quality Requested: F
        ---ZRRTSB Calculations:  NPOS:    1  NDATA:  288  NREAD:  190  ILIM:  744
      ----- Exiting ZRRTS, Number of data values:    744,  Status:  5
        Offset:       0,  Units:         ,  Type:

****** WARNING RDTIMS - MISSING FLOW                IN DSS FILE - READ AND INTERPOLATED VALUES SET TO ZERO ******
```

```
        ----- Entering ZRRTSX for unit 71 -----
Pathname: /CGFDS/BAS24/FLOW//5MIN//
        Time Window set.  Interval:     5  Number of data values:      1
        Starting date and time:  Mar 8, 1903  1550  (   1162  950)
        Ending   date and time:  Mar 8, 1903  1550  (   1162  950)
        Input time offset:      0
        After ZRDINF, Record found: F
        Pathname: /CGFDS/BAS24/FLOW/08MAR1903/5MIN//
      ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
        NSTART:    1   NVALS:    1    JULS:    1162  ISTIME:   950
        NLDATA:  288   JULSD:    1162
        JULS: 08MAR03       JULSD: 08MAR03
        Quality Read: F,  Quality Requested: F
        ---ZRRTSB Calculations:  NPOS:  190  NDATA:  288  NREAD:    1  ILIM:    1
-----DSS*** ZRRTS:  CAUTION - Data block not found in file.  Unit:  71
Pathname: /CGFDS/BAS24/FLOW/08MAR1903/5MIN//
      ----- Exiting ZRRTS, Number of data values:      1,  Status:  5
        Offset:       0,  Units:         ,  Type:
        ----- Entering ZRRTSX for unit 71 -----
Pathname: /CGFDS/BAS24/FLOW//5MIN//
        Time Window set.  Interval:     5  Number of data values:    744
        Starting date and time:  Mar 8, 1903  1550  (   1162  950)
        Ending   date and time:  Mar 11, 1903  0545  (   1165  345)
        Input time offset:      0
        After ZRDINF, Record found: F
        Pathname: /CGFDS/BAS24/FLOW/08MAR1903/5MIN//
      ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
        NSTART:    1   NVALS:  744    JULS:    1162  ISTIME:   950
        NLDATA:  288   JULSD:    1162
        JULS: 08MAR03       JULSD: 08MAR03
        Quality Read: F,  Quality Requested: F
        ---ZRRTSB Calculations:  NPOS:  190  NDATA:  288  NREAD:   99  ILIM:   99
-----DSS*** ZRRTS:  CAUTION - Data block not found in file.  Unit:  71
Pathname: /CGFDS/BAS24/FLOW/08MAR1903/5MIN//
        After ZRDINF, Record found: F
        Pathname: /CGFDS/BAS24/FLOW/09MAR1903/5MIN//
      ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
        NSTART:  100   NVALS:  744    JULS:    1162  ISTIME:   950
        NLDATA:  288   JULSD:    1163
        JULS: 08MAR03       JULSD: 09MAR03
        Quality Read: F,  Quality Requested: F
        ---ZRRTSB Calculations:  NPOS:    1  NDATA:  288  NREAD:  288  ILIM:  387
        After ZRDINF, Record found: F
        Pathname: /CGFDS/BAS24/FLOW/10MAR1903/5MIN//
      ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
        NSTART:  388   NVALS:  744    JULS:    1162  ISTIME:   950
        NLDATA:  288   JULSD:    1164
        JULS: 08MAR03       JULSD: 10MAR03
        Quality Read: F,  Quality Requested: F
        ---ZRRTSB Calculations:  NPOS:    1  NDATA:  288  NREAD:  288  ILIM:  675
        After ZRDINF, Record found: F
        Pathname: /CGFDS/BAS24/FLOW/11MAR1903/5MIN//
      ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
        NSTART:  676   NVALS:  744    JULS:    1162  ISTIME:   950
        NLDATA:  288   JULSD:    1165
        JULS: 08MAR03       JULSD: 11MAR03
        Quality Read: F,  Quality Requested: F
        ---ZRRTSB Calculations:  NPOS:    1  NDATA:  288  NREAD:   69  ILIM:  744
      ----- Exiting ZRRTS, Number of data values:    744,  Status:  5
        Offset:       0,  Units:         ,  Type:

****** WARNING RDTIMS - MISSING FLOW                IN DSS FILE - READ AND INTERPOLATED VALUES SET TO ZERO ******


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
  73 KK     *      P102  *
            *            *
            **************

  75 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           3  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE

               HYDROGRAPH ROUTING DATA

  76 RS          STORAGE ROUTING
                      NSTPS           1  NUMBER OF SUBREACHES
                       ITYP        STOR  TYPE OF INITIAL CONDITION
                     RSVRIC         .00  INITIAL CONDITION
                          X         .00 WORKING R AND D COEFFICIENT

  77 SV            STORAGE          .0        .0       1.0       3.0       6.6      14.2      25.1      31.4      35.0      37.1

  78 SE          ELEVATION     1276.70   1277.00   1278.00   1279.00   1280.00   1281.00   1282.00   1282.44   1282.63   1282.78
```

```
  79 SQ          DISCHARGE          0.        0.        4.       15.       32.       58.       94.      112.      128.      156.

                                                                  ***

      ***             ***             ***             ***             ***

                        HYDROGRAPH AT STATION     P102

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR    166.58-HR
+   (CFS)       (HR)
                            (CFS)
+     130.     16.33                106.         50.         19.           8.
                         (INCHES)   3.366       6.368       7.234        7.234
                          (AC-FT)     53.        100.        113.         113.

 PEAK STORAGE   TIME                          MAXIMUM AVERAGE STORAGE
                                     6-HR       24-HR       72-HR    166.58-HR
+  (AC-FT)      (HR)
       35.     16.33                 29.         13.          5.           2.

  PEAK STAGE    TIME                          MAXIMUM AVERAGE STAGE
                                     6-HR       24-HR       72-HR    166.58-HR
+   (FEET)      (HR)
   1282.64     16.33             1282.25     1280.42     1278.52      1277.66

                        CUMULATIVE AREA =     .29 SQ MI


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
  80 KK     *    102EAS  *
            *            *
            **************

  82 KO          OUTPUT CONTROL VARIABLES
                       IPRNT          3  PRINT CONTROL
                       IPLOT          0  PLOT CONTROL
                       QSCAL         0.  HYDROGRAPH PLOT SCALE

     DT          DIVERSION
                       ISTAD      EAS102  DIVERSION HYDROGRAPH IDENTIFICATION

     DI             INFLOW      234.97    290.16   1950.40

     DQ      DIVERTED FLOW         .00       .12    405.10

                                                                  ***

      ***             ***             ***             ***             ***

                        DIVERSION HYDROGRAPH   EAS102

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR    166.58-HR
+   (CFS)       (HR)
                            (CFS)
+       0.       .00                  0.          0.          0.           0.
                         (INCHES)    .000        .000        .000         .000
                          (AC-FT)     0.          0.          0.           0.

                        CUMULATIVE AREA =     .29 SQ MI

      ***             ***             ***             ***             ***

                        HYDROGRAPH AT STATION   102EAS

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR    166.58-HR
+   (CFS)       (HR)
                            (CFS)
+     130.     16.33                106.         50.         19.           8.
                         (INCHES)   3.366       6.368       7.234        7.234
                          (AC-FT)     53.        100.        113.         113.

                        CUMULATIVE AREA =     .29 SQ MI

        ----- Entering ZRRTSX for unit 71 -----
 Pathname: /CGFDS/BHR24/FLOW//5MIN//
        Time Window set.  Interval:     5  Number of data values:      1
        Starting date and time:  Mar 3, 1903  1200  (   1157  720)
        Ending   date and time:  Mar 3, 1903  1200  (   1157  720)
        Input time offset:      0
        After ZRDINF, Record found: T
        Pathname: /CGFDS/BHR24/FLOW/03MAR1903/5MIN//
        Number of actual data:  288  Header length:   0
        Compression:   0  Quality:   0
```

```
-----DSS--- ZREAD Unit  71; Vers.    1:  /CGFDS/BHR24/FLOW/03MAR1903/5MIN//
      ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
        NSTART:    1   NVALS:    1    JULS:    1157  ISTIME:   720
        NLDATA:  288   JULSD:    1157
        JULS: 03MAR03       JULSD: 03MAR03
        Quality Read: F,  Quality Requested: F
        ---ZRRTSB Calculations:  NPOS:  144  NDATA:  288  NREAD:    1  ILIM:    1
      ----- Exiting ZRRTS, Number of data values:     1,  Status:  0
        Offset:       0,  Units: CFS     ,  Type:INST-VAL
        ----- Entering ZRRTSX for unit 71 -----
Pathname: /CGFDS/BHR24/FLOW//5MIN//
        Time Window set.  Interval:     5  Number of data values:    744
        Starting date and time:  Mar 3, 1903  1200  (   1157  720)
        Ending   date and time:  Mar 6, 1903  0155  (   1160  115)
        Input time offset:      0
        After ZRDINF, Record found: T
        Pathname: /CGFDS/BHR24/FLOW/03MAR1903/5MIN//
        Number of actual data:  288  Header length:   0
        Compression:   0  Quality:   0
-----DSS--- ZREAD Unit  71; Vers.    1:  /CGFDS/BHR24/FLOW/03MAR1903/5MIN//
      ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
        NSTART:    1   NVALS:  744    JULS:    1157  ISTIME:   720
        NLDATA:  288   JULSD:    1157
        JULS: 03MAR03       JULSD: 03MAR03
        Quality Read: F,  Quality Requested: F
        ---ZRRTSB Calculations:  NPOS:  144  NDATA:  288  NREAD:  145  ILIM:  145
        After ZRDINF, Record found: T
        Pathname: /CGFDS/BHR24/FLOW/04MAR1903/5MIN//
        Number of actual data:  288  Header length:   0
        Compression:   0  Quality:   0
-----DSS--- ZREAD Unit  71; Vers.    1:  /CGFDS/BHR24/FLOW/04MAR1903/5MIN//
      ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
        NSTART:  146   NVALS:  744    JULS:    1157  ISTIME:   720
        NLDATA:  288   JULSD:    1158
        JULS: 03MAR03       JULSD: 04MAR03
        Quality Read: F,  Quality Requested: F
        ---ZRRTSB Calculations:  NPOS:    1  NDATA:  288  NREAD:  288  ILIM:  433
        After ZRDINF, Record found: T
        Pathname: /CGFDS/BHR24/FLOW/05MAR1903/5MIN//
        Number of actual data:  288  Header length:   0
        Compression:   0  Quality:   0
-----DSS--- ZREAD Unit  71; Vers.    1:  /CGFDS/BHR24/FLOW/05MAR1903/5MIN//
      ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
        NSTART:  434   NVALS:  744    JULS:    1157  ISTIME:   720
        NLDATA:  288   JULSD:    1159
        JULS: 03MAR03       JULSD: 05MAR03
        Quality Read: F,  Quality Requested: F
        ---ZRRTSB Calculations:  NPOS:    1  NDATA:  288  NREAD:  288  ILIM:  721
        After ZRDINF, Record found: F
        Pathname: /CGFDS/BHR24/FLOW/06MAR1903/5MIN//
      ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
        NSTART:  722   NVALS:  744    JULS:    1157  ISTIME:   720
        NLDATA:  288   JULSD:    1160
        JULS: 03MAR03       JULSD: 06MAR03
        Quality Read: F,  Quality Requested: F
        ---ZRRTSB Calculations:  NPOS:    1  NDATA:  288  NREAD:   23  ILIM:  744
-----DSS*** ZRRTS:  CAUTION - Data block not found in file.  Unit:  71
Pathname: /CGFDS/BHR24/FLOW/06MAR1903/5MIN//
      ----- Exiting ZRRTS, Number of data values:    744,  Status:  3
        Offset:       0,  Units: CFS     ,  Type:INST-VAL

****** WARNING RDTIMS - MISSING FLOW                IN DSS FILE - READ AND INTERPOLATED VALUES SET TO ZERO ******

        ----- Entering ZRRTSX for unit 71 -----
Pathname: /CGFDS/BHR24/FLOW//5MIN//
        Time Window set.  Interval:     5  Number of data values:      1
        Starting date and time:  Mar 6, 1903  0155  (   1160  115)
        Ending   date and time:  Mar 6, 1903  0155  (   1160  115)
        Input time offset:      0
        After ZRDINF, Record found: F
        Pathname: /CGFDS/BHR24/FLOW/06MAR1903/5MIN//
      ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
        NSTART:    1   NVALS:    1    JULS:    1160  ISTIME:   115
        NLDATA:  288   JULSD:    1160
        JULS: 06MAR03       JULSD: 06MAR03
        Quality Read: F,  Quality Requested: F
        ---ZRRTSB Calculations:  NPOS:   23  NDATA:  288  NREAD:    1  ILIM:    1
-----DSS*** ZRRTS:  CAUTION - Data block not found in file.  Unit:  71
Pathname: /CGFDS/BHR24/FLOW/06MAR1903/5MIN//
      ----- Exiting ZRRTS, Number of data values:     1,  Status:  5
        Offset:       0,  Units:         ,  Type:
        ----- Entering ZRRTSX for unit 71 -----
Pathname: /CGFDS/BHR24/FLOW//5MIN//
        Time Window set.  Interval:     5  Number of data values:    744
        Starting date and time:  Mar 6, 1903  0155  (   1160  115)
        Ending   date and time:  Mar 8, 1903  1550  (   1162  950)
        Input time offset:      0
        After ZRDINF, Record found: F
        Pathname: /CGFDS/BHR24/FLOW/06MAR1903/5MIN//
      ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
        NSTART:    1   NVALS:  744    JULS:    1160  ISTIME:   115
        NLDATA:  288   JULSD:    1160
        JULS: 06MAR03       JULSD: 06MAR03
```

```
        Quality Read: F,  Quality Requested: F
        ---ZRRTSB Calculations:  NPOS:   23  NDATA:  288  NREAD:  266  ILIM:  266
-----DSS*** ZRRTS:  CAUTION - Data block not found in file.  Unit:  71
Pathname: /CGFDS/BHR24/FLOW/06MAR1903/5MIN//
        After ZRDINF, Record found: F
        Pathname: /CGFDS/BHR24/FLOW/07MAR1903/5MIN//
      ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
        NSTART:  267   NVALS:  744    JULS:    1160  ISTIME:   115
        NLDATA:  288   JULSD:    1161
        JULS: 06MAR03        JULSD: 07MAR03
        Quality Read: F,  Quality Requested: F
        ---ZRRTSB Calculations:  NPOS:    1  NDATA:  288  NREAD:  288  ILIM:  554
        After ZRDINF, Record found: F
        Pathname: /CGFDS/BHR24/FLOW/08MAR1903/5MIN//
      ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
        NSTART:  555   NVALS:  744    JULS:    1160  ISTIME:   115
        NLDATA:  288   JULSD:    1162
        JULS: 06MAR03        JULSD: 08MAR03
        Quality Read: F,  Quality Requested: F
        ---ZRRTSB Calculations:  NPOS:    1  NDATA:  288  NREAD:  190  ILIM:  744
      ----- Exiting ZRRTS, Number of data values:    744,  Status:  5
        Offset:       0,  Units:         ,  Type:

****** WARNING RDTIMS - MISSING FLOW                IN DSS FILE - READ AND INTERPOLATED VALUES SET TO ZERO ******

        ----- Entering ZRRTSX for unit 71 -----
Pathname: /CGFDS/BHR24/FLOW//5MIN//
        Time Window set.  Interval:     5  Number of data values:      1
        Starting date and time:  Mar 8, 1903  1550  (   1162  950)
        Ending   date and time:  Mar 8, 1903  1550  (   1162  950)
        Input time offset:      0
        After ZRDINF, Record found: F
        Pathname: /CGFDS/BHR24/FLOW/08MAR1903/5MIN//
      ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
        NSTART:    1   NVALS:    1    JULS:    1162  ISTIME:   950
        NLDATA:  288   JULSD:    1162
        JULS: 08MAR03        JULSD: 08MAR03
        Quality Read: F,  Quality Requested: F
        ---ZRRTSB Calculations:  NPOS:  190  NDATA:  288  NREAD:    1  ILIM:    1
-----DSS*** ZRRTS:  CAUTION - Data block not found in file.  Unit:  71
Pathname: /CGFDS/BHR24/FLOW/08MAR1903/5MIN//
      ----- Exiting ZRRTS, Number of data values:      1,  Status:  5
        Offset:       0,  Units:         ,  Type:
        ----- Entering ZRRTSX for unit 71 -----
Pathname: /CGFDS/BHR24/FLOW//5MIN//
        Time Window set.  Interval:     5  Number of data values:    744
        Starting date and time:  Mar 8, 1903  1550  (   1162  950)
        Ending   date and time:  Mar 11, 1903  0545  (   1165  345)
        Input time offset:      0
        After ZRDINF, Record found: F
        Pathname: /CGFDS/BHR24/FLOW/08MAR1903/5MIN//
      ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
        NSTART:    1   NVALS:  744    JULS:    1162  ISTIME:   950
        NLDATA:  288   JULSD:    1162
        JULS: 08MAR03        JULSD: 08MAR03
        Quality Read: F,  Quality Requested: F
        ---ZRRTSB Calculations:  NPOS:  190  NDATA:  288  NREAD:   99  ILIM:   99
-----DSS*** ZRRTS:  CAUTION - Data block not found in file.  Unit:  71
Pathname: /CGFDS/BHR24/FLOW/08MAR1903/5MIN//
        After ZRDINF, Record found: F
        Pathname: /CGFDS/BHR24/FLOW/09MAR1903/5MIN//
      ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
        NSTART:  100   NVALS:  744    JULS:    1162  ISTIME:   950
        NLDATA:  288   JULSD:    1163
        JULS: 08MAR03        JULSD: 09MAR03
        Quality Read: F,  Quality Requested: F
        ---ZRRTSB Calculations:  NPOS:    1  NDATA:  288  NREAD:  288  ILIM:  387
        After ZRDINF, Record found: F
        Pathname: /CGFDS/BHR24/FLOW/10MAR1903/5MIN//
      ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
        NSTART:  388   NVALS:  744    JULS:    1162  ISTIME:   950
        NLDATA:  288   JULSD:    1164
        JULS: 08MAR03        JULSD: 10MAR03
        Quality Read: F,  Quality Requested: F
        ---ZRRTSB Calculations:  NPOS:    1  NDATA:  288  NREAD:  288  ILIM:  675
        After ZRDINF, Record found: F
        Pathname: /CGFDS/BHR24/FLOW/11MAR1903/5MIN//
      ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
        NSTART:  676   NVALS:  744    JULS:    1162  ISTIME:   950
        NLDATA:  288   JULSD:    1165
        JULS: 08MAR03        JULSD: 11MAR03
        Quality Read: F,  Quality Requested: F
        ---ZRRTSB Calculations:  NPOS:    1  NDATA:  288  NREAD:   69  ILIM:  744
      ----- Exiting ZRRTS, Number of data values:    744,  Status:  5
        Offset:       0,  Units:         ,  Type:

****** WARNING RDTIMS - MISSING FLOW                IN DSS FILE - READ AND INTERPOLATED VALUES SET TO ZERO ******
```

```
*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
 173 KK     *      P105  *
            *            *
            **************

 175 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           3  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE

               HYDROGRAPH ROUTING DATA

 176 RS          STORAGE ROUTING
                      NSTPS           1  NUMBER OF SUBREACHES
                       ITYP        STOR  TYPE OF INITIAL CONDITION
                     RSVRIC         .00  INITIAL CONDITION
                          X         .00 WORKING R AND D COEFFICIENT

 177 SV            STORAGE          .0        .0        .0        .1        .3        .6       1.3       2.0      11.4      17.0

 178 SE          ELEVATION     1274.40   1275.00   1276.00   1277.00   1278.00   1278.50   1279.00   1279.10   1280.00   1280.28

 179 SQ          DISCHARGE          0.        3.        4.        4.        4.       72.      134.      144.      145.      146.

                                                                                  ***

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN        0. TO        3.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)

      ***             ***             ***             ***             ***

                        HYDROGRAPH AT STATION     P105

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                      6-HR       24-HR       72-HR    166.58-HR
+   (CFS)       (HR)
                             (CFS)
+     144.     13.25          129.         61.         23.          10.
                         (INCHES)       .527       1.006       1.125        1.125
                          (AC-FT)        64.        122.        136.         136.

 PEAK STORAGE   TIME                         MAXIMUM AVERAGE STORAGE
                                      6-HR       24-HR       72-HR    166.58-HR
+  (AC-FT)      (HR)
       5.     13.25            2.          1.          0.           0.

  PEAK STAGE    TIME                          MAXIMUM AVERAGE STAGE
                                      6-HR       24-HR       72-HR    166.58-HR
+   (FEET)      (HR)
   1279.38     13.25       1279.02     1278.45     1276.56      1275.34

                        CUMULATIVE AREA =    2.27 SQ MI


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
 180 KK     *    105EAS  *
            *            *
            **************

 182 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           3  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE

     DT          DIVERSION
                      ISTAD      EAS105  DIVERSION HYDROGRAPH IDENTIFICATION

     DI             INFLOW      295.10    305.60    328.60

     DQ      DIVERTED FLOW         .00      6.30     25.00

                                                                  ***

      ***             ***             ***             ***             ***

                        DIVERSION HYDROGRAPH   EAS105

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                      6-HR       24-HR       72-HR    166.58-HR
+   (CFS)       (HR)
                             (CFS)
```

```
+       0.       .00                    0.          0.          0.          0.
                          (INCHES)     .000        .000        .000        .000
                           (AC-FT)       0.          0.          0.          0.

                          CUMULATIVE AREA =    2.27 SQ MI

      ***             ***             ***             ***             ***

                           HYDROGRAPH AT STATION   105EAS

  PEAK FLOW     TIME                            MAXIMUM AVERAGE FLOW
                                        6-HR       24-HR       72-HR    166.58-HR
+   (CFS)       (HR)
                             (CFS)
+     144.     13.25                   129.         61.         23.         10.
                          (INCHES)     .527       1.006       1.125       1.125
                           (AC-FT)       64.        122.        136.        136.

                          CUMULATIVE AREA =    2.27 SQ MI


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
  275 KK    *     P108   *
            *            *
            **************

  278 KO          OUTPUT CONTROL VARIABLES
                        IPRNT           3  PRINT CONTROL
                        IPLOT           0  PLOT CONTROL
                        QSCAL          0.  HYDROGRAPH PLOT SCALE

                HYDROGRAPH ROUTING DATA

  279 RS          STORAGE ROUTING
                        NSTPS           1  NUMBER OF SUBREACHES
                         ITYP        STOR  TYPE OF INITIAL CONDITION
                       RSVRIC         .00  INITIAL CONDITION
                            X         .00 WORKING R AND D COEFFICIENT

  280 SV            STORAGE          .0        .1        .3        .7       1.6       9.3      28.0      29.0      33.4      36.0

  281 SE          ELEVATION     1274.00   1275.00   1276.00   1277.00   1278.00   1279.00   1280.00   1280.05   1280.10   1280.20

  282 SQ          DISCHARGE          0.        4.       15.       33.       59.      104.      326.      370.      420.      535.

                                                                  ***

      ***             ***             ***             ***             ***

                           HYDROGRAPH AT STATION     P108

  PEAK FLOW     TIME                            MAXIMUM AVERAGE FLOW
                                        6-HR       24-HR       72-HR    166.58-HR
+   (CFS)       (HR)
                             (CFS)
+     318.     13.83                   216.         96.         35.         15.
                          (INCHES)     .602       1.074       1.162       1.162
                           (AC-FT)     107.        191.        206.        206.

 PEAK STORAGE   TIME                           MAXIMUM AVERAGE STORAGE
                                        6-HR       24-HR       72-HR    166.58-HR
+  (AC-FT)      (HR)
       27.     13.83                    19.          7.          3.          1.

  PEAK STAGE    TIME                           MAXIMUM AVERAGE STAGE
                                        6-HR       24-HR       72-HR    166.58-HR
+   (FEET)      (HR)
   1279.96     13.83                1279.50     1277.96     1275.73     1274.75

                          CUMULATIVE AREA =    3.33 SQ MI


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
  283 KK    *   108EAS   *
            *            *
            **************

  286 KO          OUTPUT CONTROL VARIABLES
                        IPRNT           3  PRINT CONTROL
```

```
                    IPLOT          0  PLOT CONTROL
                    QSCAL         0.  HYDROGRAPH PLOT SCALE

     DT          DIVERSION
                    ISTAD     LOS108  DIVERSION HYDROGRAPH IDENTIFICATION

     DI             INFLOW     103.84    251.00    326.00    370.00    420.00    535.00

     DQ       DIVERTED FLOW       .00      9.00     11.00     12.00     13.00     15.00
                                                                  ***

      ***            ***            ***            ***            ***

                       DIVERSION HYDROGRAPH   LOS108

  PEAK FLOW      TIME                          MAXIMUM AVERAGE FLOW
                                      6-HR       24-HR       72-HR    166.58-HR
+   (CFS)        (HR)
                          (CFS)
+      11.       13.83                 6.          2.          1.          0.
                       (INCHES)      .018        .020        .020        .020
                        (AC-FT)       3.          3.          3.          3.

                       CUMULATIVE AREA =    3.33 SQ MI

      ***            ***            ***            ***            ***

                       HYDROGRAPH AT STATION   108EAS

  PEAK FLOW      TIME                          MAXIMUM AVERAGE FLOW
                                      6-HR       24-HR       72-HR    166.58-HR
+   (CFS)        (HR)
                          (CFS)
+     307.       13.83                209.         94.         34.         15.
                       (INCHES)      .585       1.054       1.142       1.142
                        (AC-FT)      104.        187.        203.        203.

                       CUMULATIVE AREA =    3.33 SQ MI


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
  398 KK    *     P111   *
            *            *
            **************

  400 KO          OUTPUT CONTROL VARIABLES
                     IPRNT          3  PRINT CONTROL
                     IPLOT          0  PLOT CONTROL
                     QSCAL         0.  HYDROGRAPH PLOT SCALE

               HYDROGRAPH ROUTING DATA

  401 RS          STORAGE ROUTING
                     NSTPS          1  NUMBER OF SUBREACHES
                      ITYP       STOR  TYPE OF INITIAL CONDITION
                    RSVRIC        .00  INITIAL CONDITION
                         X        .00 WORKING R AND D COEFFICIENT

  402 SV            STORAGE         .0       7.9      21.8      36.6      52.2      69.1      88.0      94.3     111.6     122.5
                                 127.0     128.0     143.5

  404 SE          ELEVATION    1271.70   1273.00   1274.00   1275.00   1276.00   1277.00   1278.00   1278.30   1279.00   1279.38
                               1279.50   1279.55   1280.00

  406 SQ          DISCHARGE         0.        0.       10.       30.       58.       95.      127.      148.      324.      789.
                                   968.      1066.     2422.
                                                                  ***

      ***            ***            ***            ***            ***

                       HYDROGRAPH AT STATION     P111

  PEAK FLOW      TIME                          MAXIMUM AVERAGE FLOW
                                      6-HR       24-HR       72-HR    166.58-HR
+   (CFS)        (HR)
                          (CFS)
+    1065.       15.33                529.        209.         78.         34.
                       (INCHES)      .640       1.011       1.127       1.137
                        (AC-FT)      262.        414.        462.        466.

  PEAK STORAGE   TIME                          MAXIMUM AVERAGE STORAGE
                                      6-HR       24-HR       72-HR    166.58-HR
+  (AC-FT)       (HR)
     128.       15.33                115.         82.         41.         22.

  PEAK STAGE     TIME                          MAXIMUM AVERAGE STAGE
```

```
                                    6-HR       24-HR       72-HR    166.58-HR
+   (FEET)      (HR)
   1279.55     15.33              1279.11     1277.56     1275.14      1273.79

                        CUMULATIVE AREA =    7.69 SQ MI


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
 408 KK     *    111EAS  *
            *            *
            **************

 410 KO          OUTPUT CONTROL VARIABLES
                      IPRNT          3  PRINT CONTROL
                      IPLOT          0  PLOT CONTROL
                      QSCAL         0.  HYDROGRAPH PLOT SCALE

     DT          DIVERSION
                      ISTAD      EAS111  DIVERSION HYDROGRAPH IDENTIFICATION

     DI             INFLOW      353.00   1431.00   2422.00

     DQ      DIVERTED FLOW         .00       .00     60.70

                                                                  ***

      ***            ***            ***            ***            ***

                        DIVERSION HYDROGRAPH   EAS111

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                    6-HR       24-HR       72-HR    166.58-HR
+   (CFS)       (HR)
                          (CFS)
+       0.       .00                 0.          0.          0.           0.
                       (INCHES)     .000        .000        .000         .000
                        (AC-FT)      0.          0.          0.           0.

                        CUMULATIVE AREA =    7.69 SQ MI

      ***            ***            ***            ***            ***

                        HYDROGRAPH AT STATION   111EAS

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                    6-HR       24-HR       72-HR    166.58-HR
+   (CFS)       (HR)
                          (CFS)
+    1065.     15.33                529.        209.         78.          34.
                       (INCHES)     .640       1.011       1.127        1.137
                        (AC-FT)     262.        414.        462.         466.

                        CUMULATIVE AREA =    7.69 SQ MI

                        .

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
 414 KK     *     114EA  *
            *            *
            **************

 416 KO          OUTPUT CONTROL VARIABLES
                      IPRNT          3  PRINT CONTROL
                      IPLOT          0  PLOT CONTROL
                      QSCAL         0.  HYDROGRAPH PLOT SCALE

     DT          DIVERSION
                      ISTAD       EA114  DIVERSION HYDROGRAPH IDENTIFICATION

     DI             INFLOW      260.00    300.00    400.00    500.00    600.00    700.00    800.00    900.00   1000.00   1267.00

     DQ      DIVERTED FLOW         .00      5.11     29.54     59.27     92.02    130.94    171.95    210.98    252.07    350.29

                                                                  ***

      ***            ***            ***            ***            ***

                        DIVERSION HYDROGRAPH    EA114

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                    6-HR       24-HR       72-HR    166.58-HR
```

```
+   (CFS)        (HR)
                          (CFS)
+     276.      15.33                82.          21.           7.           3.
                       (INCHES)      .099         .099         .099         .099
                        (AC-FT)       41.          41.          41.          41.

                       CUMULATIVE AREA =    7.69 SQ MI


      ***            ***            ***            ***            ***

                       HYDROGRAPH AT STATION    114EA

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR        24-HR        72-HR    166.58-HR
+   (CFS)        (HR)
                          (CFS)
+     789.      15.33               447.         188.          71.          31.
                       (INCHES)      .540         .911        1.027        1.037
                        (AC-FT)      221.         374.         421.         425.

                       CUMULATIVE AREA =    7.69 SQ MI


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
  443 KK    *      P114  *
            *            *
            **************

  445 KO          OUTPUT CONTROL VARIABLES
                       IPRNT           3  PRINT CONTROL
                       IPLOT           0  PLOT CONTROL
                       QSCAL          0.  HYDROGRAPH PLOT SCALE

                HYDROGRAPH ROUTING DATA

  446 RS          STORAGE ROUTING
                       NSTPS           1  NUMBER OF SUBREACHES
                        ITYP        STOR  TYPE OF INITIAL CONDITION
                      RSVRIC         .00  INITIAL CONDITION
                           X         .00 WORKING R AND D COEFFICIENT

  447 SV            STORAGE          .0        .0        .1        .2        .6       1.2       2.5       3.5      11.1      32.0
                                   34.6      40.0

  449 SE          ELEVATION     1269.40   1270.00   1271.00   1272.00   1273.00   1274.00   1275.00   1275.20   1276.00   1276.90
                                1277.00   1277.19

  451 SQ          DISCHARGE          0.        2.       13.       30.       57.       94.      141.      151.      220.      472.
                                    593.      981.

                                                                  ***

      ***            ***            ***            ***            ***

                       HYDROGRAPH AT STATION     P114

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR        24-HR        72-HR    166.58-HR
+   (CFS)        (HR)
                          (CFS)
+     676.      16.50               430.         202.          77.          33.
                       (INCHES)      .496         .931        1.058        1.068
                        (AC-FT)      213.         401.         456.         460.

 PEAK STORAGE   TIME                          MAXIMUM AVERAGE STORAGE
                                     6-HR        24-HR        72-HR    166.58-HR
+  (AC-FT)      (HR)
       36.     16.50                 26.           9.           3.           1.

  PEAK STAGE    TIME                          MAXIMUM AVERAGE STAGE
                                     6-HR        24-HR        72-HR    166.58-HR
+   (FEET)       (HR)
   1277.04     16.50            1276.65      1275.02      1272.26      1270.72

                       CUMULATIVE AREA =    8.07 SQ MI


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
  453 KK    *    114EAS  *
            *            *
            **************
```

```
 455 KO          OUTPUT CONTROL VARIABLES
                       IPRNT           3  PRINT CONTROL
                       IPLOT           0  PLOT CONTROL
                       QSCAL          0.  HYDROGRAPH PLOT SCALE

     DT          DIVERSION
                       ISTAD      EAS114  DIVERSION HYDROGRAPH IDENTIFICATION

     DI             INFLOW      357.00    499.00    825.00   1277.00

     DQ      DIVERTED FLOW         .00     27.60    168.00    482.00

                                                                  ***

      ***             ***             ***             ***             ***

                         DIVERSION HYDROGRAPH   EAS114

  PEAK FLOW     TIME                            MAXIMUM AVERAGE FLOW
                                        6-HR       24-HR       72-HR    166.58-HR
+   (CFS)       (HR)
                            (CFS)
+     104.     16.50                    24.          6.          2.           1.
                        (INCHES)      .028        .028        .028         .028
                         (AC-FT)       12.         12.         12.          12.

                        CUMULATIVE AREA =    8.07 SQ MI


      ***             ***             ***             ***             ***

                         HYDROGRAPH AT STATION   114EAS

  PEAK FLOW     TIME                            MAXIMUM AVERAGE FLOW
                                        6-HR       24-HR       72-HR    166.58-HR
+   (CFS)       (HR)
                            (CFS)
+     572.     16.50                   406.        196.         75.          33.
                        (INCHES)      .468        .904       1.030        1.040
                         (AC-FT)      202.        389.        444.         448.

                        CUMULATIVE AREA =    8.07 SQ MI


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
 459 KK     *     115EA  *
            *            *
            **************

 461 KO          OUTPUT CONTROL VARIABLES
                       IPRNT           3  PRINT CONTROL
                       IPLOT           0  PLOT CONTROL
                       QSCAL          0.  HYDROGRAPH PLOT SCALE

     DT          DIVERSION
                       ISTAD       EA115  DIVERSION HYDROGRAPH IDENTIFICATION

     DI             INFLOW      268.00    270.00    300.00    400.00    500.00    646.00

     DQ      DIVERTED FLOW         .00       .03      8.44     78.09    158.68    281.51

                                                                  ***

      ***             ***             ***             ***             ***

                         DIVERSION HYDROGRAPH    EA115

  PEAK FLOW     TIME                            MAXIMUM AVERAGE FLOW
                                        6-HR       24-HR       72-HR    166.58-HR
+   (CFS)       (HR)
                            (CFS)
+     220.     16.50                    88.         22.          7.           3.
                        (INCHES)      .102        .102        .102         .102
                         (AC-FT)       44.         44.         44.          44.

                        CUMULATIVE AREA =    8.07 SQ MI


      ***             ***             ***             ***             ***

                         HYDROGRAPH AT STATION    115EA

  PEAK FLOW     TIME                            MAXIMUM AVERAGE FLOW
                                        6-HR       24-HR       72-HR    166.58-HR
+   (CFS)       (HR)
                            (CFS)
+     353.     16.50                   318.        174.         67.          29.
                        (INCHES)      .366        .802        .929         .939
                         (AC-FT)      158.        345.        400.         404.
```

```
                    CUMULATIVE AREA =    8.07 SQ MI


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


          **************
          *            *
488 KK    *      P115  *
          *            *
          **************

490 KO          OUTPUT CONTROL VARIABLES
                     IPRNT          3  PRINT CONTROL
                     IPLOT          0  PLOT CONTROL
                     QSCAL         0.  HYDROGRAPH PLOT SCALE

             HYDROGRAPH ROUTING DATA

491 RS          STORAGE ROUTING
                     NSTPS          1  NUMBER OF SUBREACHES
                      ITYP       STOR  TYPE OF INITIAL CONDITION
                    RSVRIC        .00  INITIAL CONDITION
                         X        .00 WORKING R AND D COEFFICIENT

492 SV            STORAGE         .1       .1       1.1       3.4       7.1      13.6      26.2      45.2      72.7      85.5
                                 98.0     115.0     179.4

494 SE          ELEVATION     1267.00   1268.00   1269.00   1270.00   1271.00   1272.00   1273.00   1274.00   1275.00   1275.35
                              1275.60   1276.00   1277.00

496 SQ          DISCHARGE         0.        3.       20.       55.      102.      152.      195.      230.      275.      372.
                                 626.     1400.     6005.

                                                                  ***

     ***            ***            ***            ***            ***

                       HYDROGRAPH AT STATION     P115

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                   6-HR       24-HR       72-HR    166.58-HR
+   (CFS)       (HR)
                         (CFS)
+     271.     21.83       265.        195.         75.          33.
                      (INCHES)      .288        .851        .980        .990
                       (AC-FT)      131.        388.        447.        451.

 PEAK STORAGE   TIME                          MAXIMUM AVERAGE STORAGE
                                   6-HR       24-HR       72-HR    166.58-HR
+  (AC-FT)      (HR)
      70.     21.83        66.         37.         13.           6.

 PEAK STAGE    TIME                          MAXIMUM AVERAGE STAGE
                                   6-HR       24-HR       72-HR    166.58-HR
+   (FEET)      (HR)
   1274.91     21.83      1274.77     1273.13     1270.10      1268.43

                       CUMULATIVE AREA =    8.54 SQ MI


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


          **************
          *            *
498 KK    *    115EAS  *
          *            *
          **************

500 KO          OUTPUT CONTROL VARIABLES
                     IPRNT          3  PRINT CONTROL
                     IPLOT          0  PLOT CONTROL
                     QSCAL         0.  HYDROGRAPH PLOT SCALE

     DT         DIVERSION
                     ISTAD     EAS115  DIVERSION HYDROGRAPH IDENTIFICATION

     DI            INFLOW     1584.00   1725.00

     DQ      DIVERTED FLOW        .00      1.14

                                                                  ***

     ***            ***            ***            ***            ***

                       DIVERSION HYDROGRAPH   EAS115

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                   6-HR       24-HR       72-HR    166.58-HR
```

```
+   (CFS)        (HR)
                          (CFS)
+       0.        .00                  0.          0.          0.          0.
                       (INCHES)      .000        .000        .000        .000
                        (AC-FT)        0.          0.          0.          0.

                       CUMULATIVE AREA =    8.54 SQ MI


      ***             ***             ***             ***             ***

                        HYDROGRAPH AT STATION   115EAS

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR    166.58-HR
+   (CFS)        (HR)
                          (CFS)
+     271.     21.83                265.        195.         75.         33.
                       (INCHES)      .288        .851        .980        .990
                        (AC-FT)      131.        388.        447.        451.

                       CUMULATIVE AREA =    8.54 SQ MI


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
  553 KK    *      P118  *
            *            *
            **************

  555 KO          OUTPUT CONTROL VARIABLES
                        IPRNT          3  PRINT CONTROL
                        IPLOT          0  PLOT CONTROL
                        QSCAL         0.  HYDROGRAPH PLOT SCALE

                HYDROGRAPH ROUTING DATA

  556 RS          STORAGE ROUTING
                        NSTPS          1  NUMBER OF SUBREACHES
                         ITYP       STOR  TYPE OF INITIAL CONDITION
                       RSVRIC        .00  INITIAL CONDITION
                            X        .00 WORKING R AND D COEFFICIENT

  557 SV            STORAGE          .0     177.3     200.1     223.8     248.6     276.1     307.5     389.1     418.0     450.1

  558 SE          ELEVATION     1247.80   1263.00   1264.00   1265.00   1266.00   1267.00   1268.00   1270.00   1270.60   1271.25

  559 SQ          DISCHARGE          0.        0.        4.       15.       35.       59.       85.      124.      134.      143.

                                                                   ***

      ***             ***             ***             ***             ***

                        HYDROGRAPH AT STATION     P118

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR    166.58-HR
+   (CFS)        (HR)
                          (CFS)
+     123.     33.08                121.        109.         61.         29.
                       (INCHES)      .114        .407        .687        .742
                        (AC-FT)       60.        216.        364.        393.

 PEAK STORAGE   TIME                          MAXIMUM AVERAGE STORAGE
                                     6-HR       24-HR       72-HR    166.58-HR
+  (AC-FT)      (HR)
      386.     33.17                383.        357.        286.        217.

  PEAK STAGE    TIME                          MAXIMUM AVERAGE STAGE
                                     6-HR       24-HR       72-HR    166.58-HR
+   (FEET)       (HR)
   1269.93     33.08             1269.86     1269.21     1267.08     1263.75

                       CUMULATIVE AREA =    9.92 SQ MI


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
  560 KK    *     XRDPK  *     CROSS RO AD PARKSOUTHBOUND OUTFLOW AT CP     118
            *            *
            **************
```

```
562 KO          OUTPUT CONTROL VARIABLES
                      IPRNT          3  PRINT CONTROL
                      IPLOT          0  PLOT CONTROL
                      QSCAL         0.  HYDROGRAPH PLOT SCALE

    DT          DIVERSION
                      ISTAD      EAS118  DIVERSION HYDROGRAPH IDENTIFICATION

    DI             INFLOW      154.93    195.50    199.68    213.60    255.93    327.68    426.38

    DQ      DIVERTED FLOW         .00       .03      2.51     14.74     55.40    125.49    222.55

                                                                  ***

     ***            ***            ***            ***            ***

                        DIVERSION HYDROGRAPH   EAS118

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR    166.58-HR
+   (CFS)       (HR)
                          (CFS)
+      0.        .00                 0.          0.          0.          0.
                        (INCHES)    .000        .000        .000        .000
                         (AC-FT)      0.          0.          0.          0.

                        CUMULATIVE AREA =    9.92 SQ MI

     ***            ***            ***            ***            ***

                        HYDROGRAPH AT STATION    XRDPK

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR    166.58-HR
+   (CFS)       (HR)
                          (CFS)
+    123.     33.08                121.        109.         61.         29.
                        (INCHES)    .114        .407        .687        .742
                         (AC-FT)     60.        216.        364.        393.

                        CUMULATIVE AREA =    9.92 SQ MI

-----DSS---ZWRITE Unit  71; Vers.    7:  /EAST/XRDPK/FLOW/03MAR1903/5MIN//
-----DSS---ZWRITE Unit  71; Vers.    7:  /EAST/XRDPK/FLOW/04MAR1903/5MIN//
-----DSS---ZWRITE Unit  71; Vers.    7:  /EAST/XRDPK/FLOW/05MAR1903/5MIN//
-----DSS---ZWRITE Unit  71; Vers.    7:  /EAST/XRDPK/FLOW/06MAR1903/5MIN//
-----DSS---ZWRITE Unit  71; Vers.    7:  /EAST/XRDPK/FLOW/07MAR1903/5MIN//
-----DSS---ZWRITE Unit  71; Vers.    7:  /EAST/XRDPK/FLOW/08MAR1903/5MIN//
-----DSS---ZWRITE Unit  71; Vers.    7:  /EAST/XRDPK/FLOW/09MAR1903/5MIN//
-----DSS---ZWRITE Unit  71; Vers.    7:  /EAST/XRDPK/FLOW/10MAR1903/5MIN//
-----DSS---ZWRITE Unit  71; Vers.    7:  /EAST/HOUS/FLOW/03MAR1903/5MIN//
-----DSS---ZWRITE Unit  71; Vers.    7:  /EAST/HOUS/FLOW/04MAR1903/5MIN//
-----DSS---ZWRITE Unit  71; Vers.    7:  /EAST/HOUS/FLOW/05MAR1903/5MIN//
-----DSS---ZWRITE Unit  71; Vers.    7:  /EAST/HOUS/FLOW/06MAR1903/5MIN//
-----DSS---ZWRITE Unit  71; Vers.    7:  /EAST/HOUS/FLOW/07MAR1903/5MIN//
-----DSS---ZWRITE Unit  71; Vers.    7:  /EAST/HOUS/FLOW/08MAR1903/5MIN//
-----DSS---ZWRITE Unit  71; Vers.    7:  /EAST/HOUS/FLOW/09MAR1903/5MIN//
-----DSS---ZWRITE Unit  71; Vers.    7:  /EAST/HOUS/FLOW/10MAR1903/5MIN//
-----DSS---ZWRITE Unit  71; Vers.    7:  /EAST/CP108/FLOW/03MAR1903/5MIN//
-----DSS---ZWRITE Unit  71; Vers.    7:  /EAST/CP108/FLOW/04MAR1903/5MIN//
-----DSS---ZWRITE Unit  71; Vers.    7:  /EAST/CP108/FLOW/05MAR1903/5MIN//
-----DSS---ZWRITE Unit  71; Vers.    7:  /EAST/CP108/FLOW/06MAR1903/5MIN//
-----DSS---ZWRITE Unit  71; Vers.    7:  /EAST/CP108/FLOW/07MAR1903/5MIN//
-----DSS---ZWRITE Unit  71; Vers.    7:  /EAST/CP108/FLOW/08MAR1903/5MIN//
-----DSS---ZWRITE Unit  71; Vers.    7:  /EAST/CP108/FLOW/09MAR1903/5MIN//
-----DSS---ZWRITE Unit  71; Vers.    7:  /EAST/CP108/FLOW/10MAR1903/5MIN//
-----DSS---ZWRITE Unit  71; Vers.    7:  /EAST/CP111/FLOW/03MAR1903/5MIN//
-----DSS---ZWRITE Unit  71; Vers.    7:  /EAST/CP111/FLOW/04MAR1903/5MIN//
-----DSS---ZWRITE Unit  71; Vers.    7:  /EAST/CP111/FLOW/05MAR1903/5MIN//
-----DSS---ZWRITE Unit  71; Vers.    7:  /EAST/CP111/FLOW/06MAR1903/5MIN//
-----DSS---ZWRITE Unit  71; Vers.    7:  /EAST/CP111/FLOW/07MAR1903/5MIN//
-----DSS---ZWRITE Unit  71; Vers.    7:  /EAST/CP111/FLOW/08MAR1903/5MIN//
-----DSS---ZWRITE Unit  71; Vers.    7:  /EAST/CP111/FLOW/09MAR1903/5MIN//
-----DSS---ZWRITE Unit  71; Vers.    7:  /EAST/CP111/FLOW/10MAR1903/5MIN//
-----DSS---ZWRITE Unit  71; Vers.    7:  /EAST/CP114/FLOW/03MAR1903/5MIN//
-----DSS---ZWRITE Unit  71; Vers.    7:  /EAST/CP114/FLOW/04MAR1903/5MIN//
-----DSS---ZWRITE Unit  71; Vers.    7:  /EAST/CP114/FLOW/05MAR1903/5MIN//
-----DSS---ZWRITE Unit  71; Vers.    7:  /EAST/CP114/FLOW/06MAR1903/5MIN//
-----DSS---ZWRITE Unit  71; Vers.    7:  /EAST/CP114/FLOW/07MAR1903/5MIN//
-----DSS---ZWRITE Unit  71; Vers.    7:  /EAST/CP114/FLOW/08MAR1903/5MIN//
-----DSS---ZWRITE Unit  71; Vers.    7:  /EAST/CP114/FLOW/09MAR1903/5MIN//
-----DSS---ZWRITE Unit  71; Vers.    7:  /EAST/CP114/FLOW/10MAR1903/5MIN//
-----DSS---ZWRITE Unit  71; Vers.    7:  /EAST/UP114/FLOW/03MAR1903/5MIN//
-----DSS---ZWRITE Unit  71; Vers.    7:  /EAST/UP114/FLOW/04MAR1903/5MIN//
-----DSS---ZWRITE Unit  71; Vers.    7:  /EAST/UP114/FLOW/05MAR1903/5MIN//
-----DSS---ZWRITE Unit  71; Vers.    7:  /EAST/UP114/FLOW/06MAR1903/5MIN//
-----DSS---ZWRITE Unit  71; Vers.    7:  /EAST/UP114/FLOW/07MAR1903/5MIN//
-----DSS---ZWRITE Unit  71; Vers.    7:  /EAST/UP114/FLOW/08MAR1903/5MIN//
-----DSS---ZWRITE Unit  71; Vers.    7:  /EAST/UP114/FLOW/09MAR1903/5MIN//
-----DSS---ZWRITE Unit  71; Vers.    7:  /EAST/UP114/FLOW/10MAR1903/5MIN//
-----DSS---ZWRITE Unit  71; Vers.    7:  /EAST/UP115/FLOW/03MAR1903/5MIN//
-----DSS---ZWRITE Unit  71; Vers.    7:  /EAST/UP115/FLOW/04MAR1903/5MIN//
-----DSS---ZWRITE Unit  71; Vers.    7:  /EAST/UP115/FLOW/05MAR1903/5MIN//
-----DSS---ZWRITE Unit  71; Vers.    7:  /EAST/UP115/FLOW/06MAR1903/5MIN//
```

```
-----DSS---ZWRITE Unit  71; Vers.    7:  /EAST/UP115/FLOW/07MAR1903/5MIN//
-----DSS---ZWRITE Unit  71; Vers.    7:  /EAST/UP115/FLOW/08MAR1903/5MIN//
-----DSS---ZWRITE Unit  71; Vers.    7:  /EAST/UP115/FLOW/09MAR1903/5MIN//
-----DSS---ZWRITE Unit  71; Vers.    7:  /EAST/UP115/FLOW/10MAR1903/5MIN//


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
 662 KK     *      P124  *
            *            *
            **************

 664 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           3  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE

               HYDROGRAPH ROUTING DATA

 665 RS          STORAGE ROUTING
                      NSTPS           1  NUMBER OF SUBREACHES
                       ITYP        STOR  TYPE OF INITIAL CONDITION
                     RSVRIC         .00  INITIAL CONDITION
                          X         .00 WORKING R AND D COEFFICIENT

 666 SV            STORAGE          .0        .1        .8       4.1      12.5      12.7      13.8      15.1      16.6

 667 SE          ELEVATION     1299.00   1300.00   1301.00   1302.00   1303.00   1303.01   1303.10   1303.20   1303.30

 668 SQ          DISCHARGE          0.        0.        0.        0.        0.        0.       11.       85.      212.

                                                                  ***
                                                                 ..
      ***             ***             ***             ***             ***

                        HYDROGRAPH AT STATION     P124

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR    166.58-HR
+   (CFS)       (HR)
                          (CFS)
+     115.     13.75                27.          7.          2.          1.
                        (INCHES)   .377        .388        .388        .388
                         (AC-FT)    13.         14.         14.         14.

 PEAK STORAGE   TIME                          MAXIMUM AVERAGE STORAGE
                                     6-HR       24-HR       72-HR    166.58-HR
+  (AC-FT)      (HR)
      15.      13.75                 14.         13.         13.         12.

  PEAK STAGE    TIME                          MAXIMUM AVERAGE STAGE
                                     6-HR       24-HR       72-HR    166.58-HR
+   (FEET)      (HR)
   1303.22     13.75             1303.10     1303.03     1303.01     1302.76

                        CUMULATIVE AREA =     .66 SQ MI

 -----DSS---ZWRITE Unit  71; Vers.    7:  /SANT/RAY/FLOW/03MAR1903/5MIN//
 -----DSS---ZWRITE Unit  71; Vers.    7:  /SANT/RAY/FLOW/04MAR1903/5MIN//
 -----DSS---ZWRITE Unit  71; Vers.    7:  /SANT/RAY/FLOW/05MAR1903/5MIN//
 -----DSS---ZWRITE Unit  71; Vers.    7:  /SANT/RAY/FLOW/06MAR1903/5MIN//
 -----DSS---ZWRITE Unit  71; Vers.    7:  /SANT/RAY/FLOW/07MAR1903/5MIN//
 -----DSS---ZWRITE Unit  71; Vers.    7:  /SANT/RAY/FLOW/08MAR1903/5MIN//
 -----DSS---ZWRITE Unit  71; Vers.    7:  /SANT/RAY/FLOW/09MAR1903/5MIN//
 -----DSS---ZWRITE Unit  71; Vers.    7:  /SANT/RAY/FLOW/10MAR1903/5MIN//
1
                                                  RUNOFF SUMMARY
                                         FLOW IN CUBIC FEET PER SECOND
                                       TIME IN HOURS,  AREA IN SQUARE MILES

                                     PEAK   TIME OF     AVERAGE FLOW FOR MAXIMUM PERIOD      BASIN     MAXIMUM     TIME OF
          OPERATION       STATION    FLOW    PEAK                                          AREA      STAGE     MAX STAGE
+                                                          6-HOUR     24-HOUR     72-HOUR

          HYDROGRAPH AT
+                         NOR102      171.   14.08         108.         39.         15.        .00

          ROUTED TO
+                         OFF102      168.   14.83         106.         39.         15.        .00
+                                                                                                          80.06       14.83

          HYDROGRAPH AT
+                            102      299.   12.25          52.         15.          5.        .29

          DIVERSION TO
+                         102RET       80.   12.25           8.          3.          1.        .29

          HYDROGRAPH AT
+                         102OUT      299.   12.25          48.         13.          4.        .29

          2 COMBINED AT
```

+		CP102	311.	12.25	151.	51.	19.	.29		
+	ROUTED TO	P102	130.	16.33	106.	50.	19.	.29	1282.64	16.33
+	DIVERSION TO	EAS102	0.	16.33	0.	0.	0.	.29		
+	HYDROGRAPH AT	102EAS	130.	16.33	106.	50.	19.	.29		
+	ROUTED TO	102105	126.	17.00	105.	50.	19.	.29	79.89	17.00
+	HYDROGRAPH AT	103	606.	12.25	90.	27.	9.	.71		
+	DIVERSION TO	103RET	469.	12.25	29.	8.	3.	.71		
+	HYDROGRAPH AT	103OUT	606.	12.25	68.	18.	6.	.71		
+	DIVERSION TO	TO106	242.	12.25	27.	7.	2.	.71		
+	HYDROGRAPH AT	D103	363.	12.25	41.	11.	4.	.71		
+	ROUTED TO	103104	292.	12.67	40.	11.	4.	.71	.80	12.67
+	HYDROGRAPH AT	104	717.	12.33	128.	37.	12.	.98		
+	DIVERSION TO	104RET	717.	18.75	128.	36.	12.	.98		
+	HYDROGRAPH AT	104OUT	7.	18.75	5.	1.	0.	.98		
+	HYDROGRAPH AT	NOR104	66.	12.75	7.	2.	1.	.00		
+	ROUTED TO	OFF104	44.	13.42	7.	2.	1.	.00	.36	13.42
+	3 COMBINED AT	CP104	292.	12.67	47.	14.	5.	1.70		
+	DIVERSION TO	TO107	146.	12.67	24.	7.	2.	1.70		
+	HYDROGRAPH AT	D104	146.	12.67	24.	7.	2.	1.70		
+	ROUTED TO	104105	141.	12.75	23.	7.	2.	1.70	.43	12.75
+	HYDROGRAPH AT	105	257.	12.25	43.	12.	4.	.28		
+	DIVERSION TO	105RET	257.	12.67	28.	7.	2.	.28		
+	HYDROGRAPH AT	105OUT	156.	12.67	17.	5.	2.	.28		
+	3 COMBINED AT	CP105	287.	12.75	130.	62.	23.	2.27		
+	ROUTED TO	P105	144.	13.25	129.	61.	23.	2.27	1279.38	13.25
+	DIVERSION TO	EAS105	0.	13.25	0.	0.	0.	2.27		
+	HYDROGRAPH AT	105EAS	144.	13.25	129.	61.	23.	2.27		
+	ROUTED TO	105108	144.	14.58	127.	61.	23.	2.27	78.85	14.58
+	HYDROGRAPH AT	FRM103	242.	12.25	27.	7.	2.	.00		
+	ROUTED TO	103106	204.	12.50	27.	7.	2.	.00		

```
+                                                                                                  .73       12.50
+   HYDROGRAPH AT
                        106       321.  12.25      54.      16.       5.     .43
+   DIVERSION TO
                     106RET       321.  13.25      48.      13.       4.     .43
+   HYDROGRAPH AT
                     106OUT        64.  13.25      10.       3.       1.     .43
+   2 COMBINED AT
                      CP106       204.  12.50      37.      10.       3.     .43
+   ROUTED TO
                     106107       174.  12.83      36.      10.       3.     .43
+                                                                                                  .56       12.83
+   HYDROGRAPH AT
                       D104       146.  12.67      24.       7.       2.     .00
+   ROUTED TO
                     104107       129.  12.92      23.       7.       2.     .00
+                                                                                                  .56       12.92
+   HYDROGRAPH AT
                        107       485.  12.25      87.      24.       8.     .49
+   DIVERSION TO
                     107RET       380.  12.25      23.       6.       2.     .49
+   HYDROGRAPH AT
                     107OUT       485.  12.25      68.      18.       6.     .49
+   3 COMBINED AT
                      CP107       528.  12.83     126.      35.      12.     .92
+   ROUTED TO
                     107108       510.  12.92     125.      35.      12.     .92
+                                                                                                 1.03       12.92
+   HYDROGRAPH AT
                        108       149.  12.17      27.       7.       2.     .13
+   DIVERSION TO
                     108RET       149.  18.33      27.       7.       2.     .13
+   HYDROGRAPH AT
                     108OUT         1.  18.33       0.       0.       0.     .13
+   3 COMBINED AT
                      CP108       559.  13.00     236.      96.      35.    3.33
+   ROUTED TO
                       P108       318.  13.83     216.      96.      35.    3.33
+                                                                                              1279.96       13.83
+   DIVERSION TO
                     LOS108        11.  13.83       6.       2.       1.    3.33
+   HYDROGRAPH AT
                     108EAS       307.  13.83     209.      94.      34.    3.33
+   ROUTED TO
                     108111       302.  14.33     205.      94.      34.    3.33
+                                                                                                77.53       14.33
+   HYDROGRAPH AT
                        109       361.  12.75      67.      17.       6.     .71
+   ROUTED TO
                     109110       205.  13.92      66.      17.       6.     .71
+                                                                                                  .52       13.92
+   HYDROGRAPH AT
                        110       457.  12.25     101.      29.      10.     .49
+   DIVERSION TO
                     110RET       457.  14.33      96.      26.       9.     .49
+   HYDROGRAPH AT
                     110OUT        40.  14.33      11.       3.       1.     .49
+   HYDROGRAPH AT
                        116       313.  12.58      88.      23.       8.     .60
+   DIVERSION TO
                      TO117       250.  12.58      70.      18.       6.     .60
+   HYDROGRAPH AT
                       D116        63.  12.58      18.       5.       2.     .60
+   ROUTED TO
                     116112        31.  14.42      16.       5.       2.     .60
+                                                                                                  .50       14.42
```

```
                HYDROGRAPH AT
+                        112     1006.  12.75      193.      48.      16.     1.28
                2 COMBINED AT
+                      CP112     1008.  12.75      208.      53.      18.     1.88
                ROUTED TO
+                     112113      495.  14.75      197.      53.      18.     1.88
+                                                                              .65      14.75
                HYDROGRAPH AT
+                        113      583.  13.08      198.      52.      17.      .99
                4 COMBINED AT
+                      CP110      887.  14.42      456.     125.      42.     4.07
                ROUTED TO
+                     110111      848.  15.00      451.     125.      42.     4.07
+                                                                              .78      15.00
                HYDROGRAPH AT
+                        111      297.  12.25       53.      15.       5.      .29
                DIVERSION TO
+                     111RET      239.  12.25       16.       5.       2.      .29
                HYDROGRAPH AT
+                     111OUT      297.  12.25       40.      11.       4.      .29
                3 COMBINED AT
+                      CP111     1131.  14.92      664.     229.      79.     7.69
                ROUTED TO
+                       P111     1065.  15.33      529.     209.      78.     7.69
+                                                                         1279.55      15.33
                DIVERSION TO
+                     EAS111        0.  15.33        0.       0.       0.     7.69
                HYDROGRAPH AT
+                     111EAS     1065.  15.33      529.     209.      78.     7.69
                DIVERSION TO
+                      EA114      276.  15.33       82.      21.       7.     7.69
                HYDROGRAPH AT
+                     114EA      789.  15.33      447.     188.      71.     7.69
                ROUTED TO
+                     111114      737.  15.92      440.     188.      71.     7.69
+                                                                           76.40      15.92
                HYDROGRAPH AT
+                        114      219.  12.58       71.      18.       6.      .39
                DIVERSION TO
+                     114RET       33.  12.58        3.       1.       0.      .39
                HYDROGRAPH AT
+                     114OUT      219.  12.58       69.      17.       6.      .39
                2 COMBINED AT
+                      CP114      752.  15.92      447.     202.      77.     8.07
                ROUTED TO
+                       P114      676.  16.50      430.     202.      77.     8.07
+                                                                         1277.04      16.50
                DIVERSION TO
+                     EAS114      104.  16.50       24.       6.       2.     8.07
                HYDROGRAPH AT
+                     114EAS      572.  16.50      406.     196.      75.     8.07
                DIVERSION TO
+                      EA115      220.  16.50       88.      22.       7.     8.07
                HYDROGRAPH AT
+                     115EA      353.  16.50      318.     174.      67.     8.07
                ROUTED TO
+                     114115      352.  16.83      318.     174.      67.     8.07
+                                                                           70.87      16.83
                HYDROGRAPH AT
+                        115      344.  12.42      101.      28.       9.      .47
                DIVERSION TO
+                     115RET      184.  12.42       16.       4.       1.      .47
                HYDROGRAPH AT
+                     115OUT      344.  12.42       90.      24.       8.      .47
                2 COMBINED AT
```

+		CP115	419.	12.83	326.	197.	75.	8.54		
+	ROUTED TO	P115	271.	21.83	265.	195.	75.	8.54	1274.91	21.83
+	DIVERSION TO	EAS115	0.	21.83	0.	0.	0.	8.54		
+	HYDROGRAPH AT	115EAS	271.	21.83	265.	195.	75.	8.54		
+	ROUTED TO	115118	271.	22.50	264.	194.	75.	8.54	69.81	22.50
+	HYDROGRAPH AT	D116	250.	12.58	70.	18.	6.	.00		
+	ROUTED TO	116117	155.	14.25	68.	18.	6.	.00	.36	14.25
+	HYDROGRAPH AT	117	300.	12.92	97.	26.	9.	.48		
+	2 COMBINED AT	CP117	307.	12.92	162.	44.	15.	.48		
+	ROUTED TO	117118	247.	16.33	146.	44.	15.	.48	.57	16.33
+	HYDROGRAPH AT	118	551.	12.58	182.	50.	17.	.90		
+	DIVERSION TO	118RET	551.	13.25	108.	28.	9.	.90		
+	HYDROGRAPH AT	118OUT	396.	13.25	84.	22.	7.	.90		
+	3 COMBINED AT	CP118	485.	16.25	403.	260.	97.	9.92		
+	ROUTED TO	P118	123.	33.08	121.	109.	61.	9.92	1269.93	33.08
+	DIVERSION TO	EAS118	0.	33.08	0.	0.	0.	9.92		
+	HYDROGRAPH AT	XRDPK	123.	33.08	121.	109.	61.	9.92		
+	HYDROGRAPH AT	DSS102	0.	.00	0.	0.	0.	.00		
+	HYDROGRAPH AT	RTR108	11.	13.83	6.	2.	1.	.00		
+	DIVERSION TO	TOBASN	10.	13.83	6.	2.	1.	.00		
+	HYDROGRAPH AT	EAS108	0.	13.83	0.	0.	0.	.00		
+	HYDROGRAPH AT	DSS111	0.	.00	0.	0.	0.	.00		
+	HYDROGRAPH AT	DSS114	104.	16.50	24.	6.	2.	.00		
+	HYDROGRAPH AT	RTR114	276.	15.33	82.	21.	7.	.00		
+	HYDROGRAPH AT	RTR115	220.	16.50	88.	22.	7.	.00		
+	7 COMBINED AT	OVERBK	466.	16.42	197.	127.	77.	9.92		
+	HYDROGRAPH AT	122	545.	12.58	152.	42.	14.	1.07		
+	DIVERSION TO	122RET	545.	12.75	50.	14.	5.	1.07		
+	HYDROGRAPH AT	122OUT	528.	12.75	108.	28.	9.	1.07		
+	DIVERSION TO	TO123	211.	12.75	43.	11.	4.	1.07		
	HYDROGRAPH AT									

```
+                          D122      317.   12.75        65.       17.        6.      1.07
          ROUTED TO
+                        122119      271.   13.17        64.       17.        6.      1.07
+                                                                                     1.15      13.17
          HYDROGRAPH AT
+                           119      367.   12.75       108.       30.       10.       .49
          DIVERSION TO
+                        119RET      188.   12.75        17.        5.        2.       .49
          HYDROGRAPH AT
+                        119OUT      367.   12.75        97.       26.        9.       .49
          2 COMBINED AT
+                         CP119      556.   13.08       161.       43.       14.      1.55
          HYDROGRAPH AT
+                        FRM122      211.   12.75        43.       11.        4.       .00
          ROUTED TO
+                        122123      111.   14.33        41.       11.        4.       .00
+                                                                                       .60      14.33
          HYDROGRAPH AT
+                           124      220.   13.00        52.       13.        4.       .66
          ROUTED TO
+                          P124      115.   13.75        27.        7.        2.       .66
+                                                                                  1303.22      13.75
          ROUTED TO
+                        124123       44.   16.42        23.        7.        2.       .66
+                                                                                       .37      16.42
          HYDROGRAPH AT
+                           123      481.   13.00       119.       31.       10.       .96
          3 COMBINED AT
+                         CP123      481.   13.00       175.       49.       16.      1.61
          DIVERSION TO
+                         TO121      289.   13.00       105.       29.       10.      1.61
          HYDROGRAPH AT
+                          D123      193.   13.00        70.       19.        7.      1.61
          ROUTED TO
+                        123120      133.   14.00        67.       19.        7.      1.61
+                                                                                       .56      14.00
          HYDROGRAPH AT
+                           120      281.   12.75        78.       20.        7.       .41
          DIVERSION TO
+                        120RET      281.   12.92        25.        6.        2.       .41
          HYDROGRAPH AT
+                        120OUT      270.   12.92        54.       14.        5.       .41
          2 COMBINED AT
+                         CP120      294.   12.92       121.       33.       11.      2.02
          HYDROGRAPH AT
+                           121      665.   12.58       111.       29.       10.       .67
          DIVERSION TO
+                        121RET      665.   13.00        78.       20.        7.       .67
          HYDROGRAPH AT
+                        121OUT      334.   13.00        35.        9.        3.       .67
          HYDROGRAPH AT
+                        FRM123      289.   13.00       105.       29.       10.       .00
          ROUTED TO
+                        123121      202.   14.42       100.       29.       10.       .00
+                                                                                       .51      14.42
          2 COMBINED AT
+                         CP121      337.   13.00       134.       38.       13.       .67
          3 COMBINED AT
+                         CPSAN     1171.   13.00       410.      114.       38.      4.25

*** NORMAL END OF HEC-1 ***

     -----DSS---ZCLOSE Unit:  71,   File: CGFDSP1N-24.DSS
               Pointer Utilization:   .65
               Number of Records:    916
```

```
File Size:    1436.7  Kbytes
Percent Inactive:     .0
```

DS & DN.8 Pertinent Excerpts

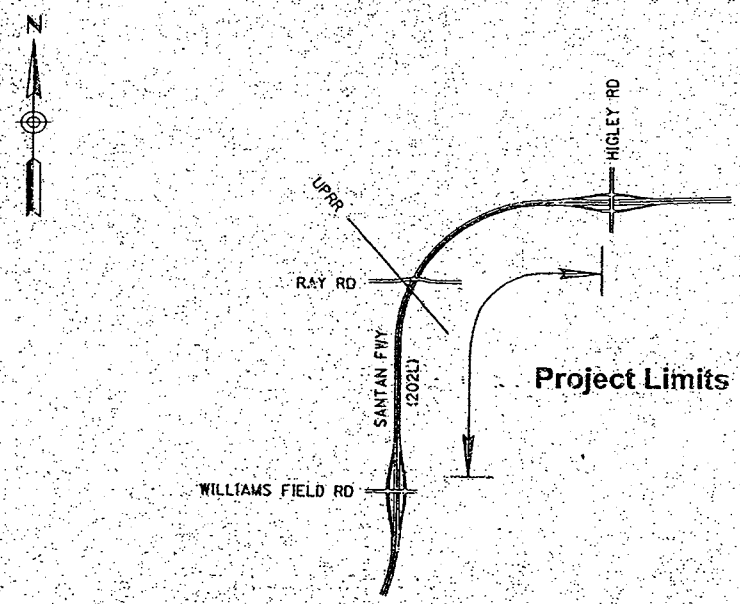
SANTAN FREEWAY (202L)

WILLIAMS FIELD ROAD TO HIGLEY ROAD

INITIAL DRAINAGE REPORT

(STAGE II DESIGN)

(Volume 1 of 2)



By

Project Engineering Consultants, Ltd.
2310 W. Mission Lane, #4
Phoenix, AZ 85021

and

DMJM HARRIS

2777 E. Camelback Road, Suite 200
Phoenix, Arizona 85016

December 2002

enlarging Basin Q using land on the south side of Ray Road, thereby reducing the depth of the basin and the length of a possible gravity drain system.

Based on ADOT's comments on the original alternatives, DMJM+HARRIS developed six alternative drainage system configurations along with relative costs. Two of these alternatives include reducing the depth of Basin Q and increasing the basin area to provide the required volume. Basin Q would then gravity drain to the off-site drainage system. These alternatives would increase the relative cost of the drainage system from $625,000 to $1.6 million when compared to the double pumping system alternative.

Two additional alternatives were developed with different gravity conveyance systems between Ray Road and Williams Field Road. Each alternative assumed the redirection of off-site drainage south of the railroad to the original Basin P site at Williams Field Road. The depth of Basin Q was reduced and a gravity drain connection proposed under the railroad to the off-site channel from Basin Q. These alternatives reduce the operations and maintenance cost associated with double pumping and utilizing a dual wet well pump station for on-site and off-site stormwater at Ray Road. However, these alternatives would increase the relative cost of the drainage system from $1.9 to $2.8 million when compared to the double pumping system alternative.

A third pair of additional alternatives was developed utilizing different gravity conveyance systems from Ray Road to the Basin P (Pecos Road). The depth of Basin Q was reduced to connect to the off-site culvert under the railroad. Basin Q would only be constructed north of Ray Road and the lost detention volume would be provided at Basin P. These alternatives reduce the operations and maintenance cost associated with double pumping and utilizing a dual wet well pump station at Ray Road and Williams Field Road. These alternatives would increase the relative cost of the drainage system by approximately $370,000 to $1.2 million when compared to the double pumping system alternative. However, these alternatives provide the opportunity to eliminate the pump station at Williams Field Road. By eliminating the Williams Field Road pump station, these alternatives potentially reduce the relative cost of the drainage system by as much as $2 million when compared to the double pumping system alternative.

2.4.6 Recommended Alternative

Based on the results of the alternative concept development process summarized above, ADOT concurred with the DMJM+HARRIS recommendation to advance the third alternative concept into final design. ADOT also agreed with the recommendation to eliminate the on-site stormwater pump station at Williams Field Road in favor of constructing a larger pump station at Ray Road.

The recommended concept implements a continuous gravity drain system from the EMF to Basin O at Lindsay Road. Off-site stormwater will be collected and conveyed in

an open channel along the south side of the Santan Freeway from the EMF to Basin Q on the north side of Ray Road. On-site flows will be lifted by the pump station at Ray Road and discharged to Basin Q. Basin Q will be an on-line detention basin that discharges stormwater south under Ray Road and the railroad to the new Basin P site at Pecos Road. Due to the natural high point occurring near the middle of this freeway section (Williams Field Road), the conveyance facilities will be up to 25 feet deep.

Basin P will operate as a surge basin with a restricted outlet to the downstream conveyance facilities. Off-site flows originating from south of Basin P will be collected and conveyed to Basin O. The Val Vista Drive pump station will also discharge to this conveyance system. Basin O will also operate as a surge basin with a restricted outlet consisting of a gravity storm drain system discharging to the off-site channel west of the Eastern Canal and ultimately into the SEVRDS system. The application of the surge basin concept at Basins P and O permits nuisance flows to gravity drain to the west while redistributing detention storage volume to the available right-of-way.

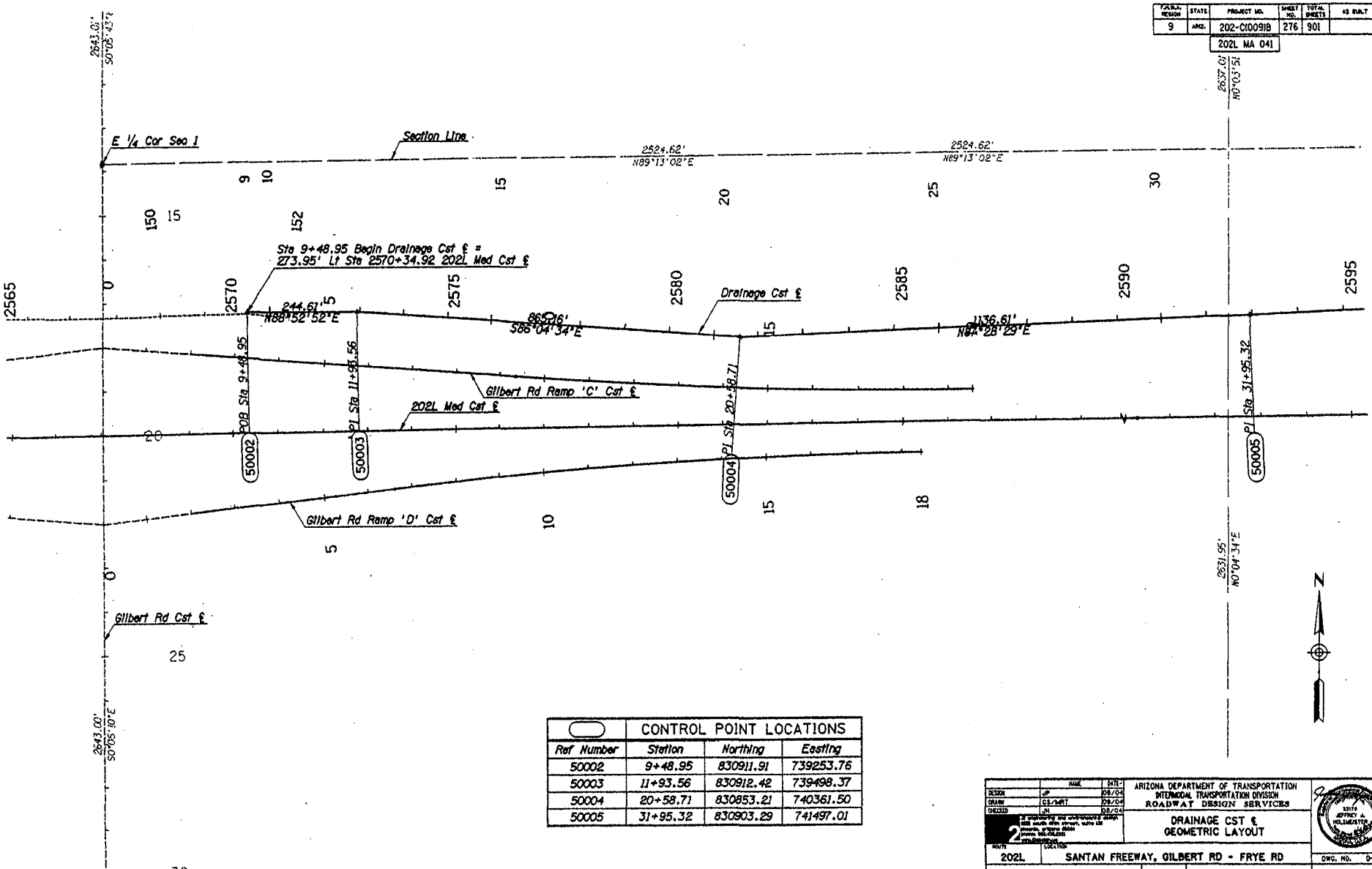
The recommended off-site drainage system is very complex from an analytical and design perspective. The drainage systems downstream of these remaining segments of the Santan Freeway utilize hydrologic routing to define the design discharges for the conveyance facilities. Hydrologic routing is not applicable to the recommended drainage facilities from Lindsay Road to the EMF since it does not account for the peak attenuation associated with surge basins. Therefore, the hydrologic analysis presented in the following section of this report only defines the inflow hydrographs to the system. Hydraulic routing of the design flood hydrographs was utilized to size the off-site drainage facilities.

DMJM+HARRIS reviewed the Stage I concept design with ADOT staff on December 4, 2002. After review of the proposed concept with staff, ADOT concurred with advancing this concept to the Stage II level of design.

REDUCED SIZE - DO NOT SCALE

F.A.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	202-C(009)B	276	901	

202L MA 041



CONTROL POINT LOCATIONS			
Ref Number	Station	Northing	Easting
50002	9+48.95	830911.91	739253.76
50003	11+93.56	830912.42	739498.37
50004	20+58.71	830853.21	740361.50
50005	31+95.32	830903.29	741497.01

	NAME	DATE
DESIGN	JP	08/04
DRAWN	GS/MRT	08/04
CHECKED	JH	08/04

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

DRAINAGE CST ℄
GEOMETRIC LAYOUT

ROUTE 202L | LOCATION SANTAN FREEWAY, GILBERT RD - FRYE RD

TRACS NO. H5912 01C | 202-C(009)B

DWG. NO. D-L1

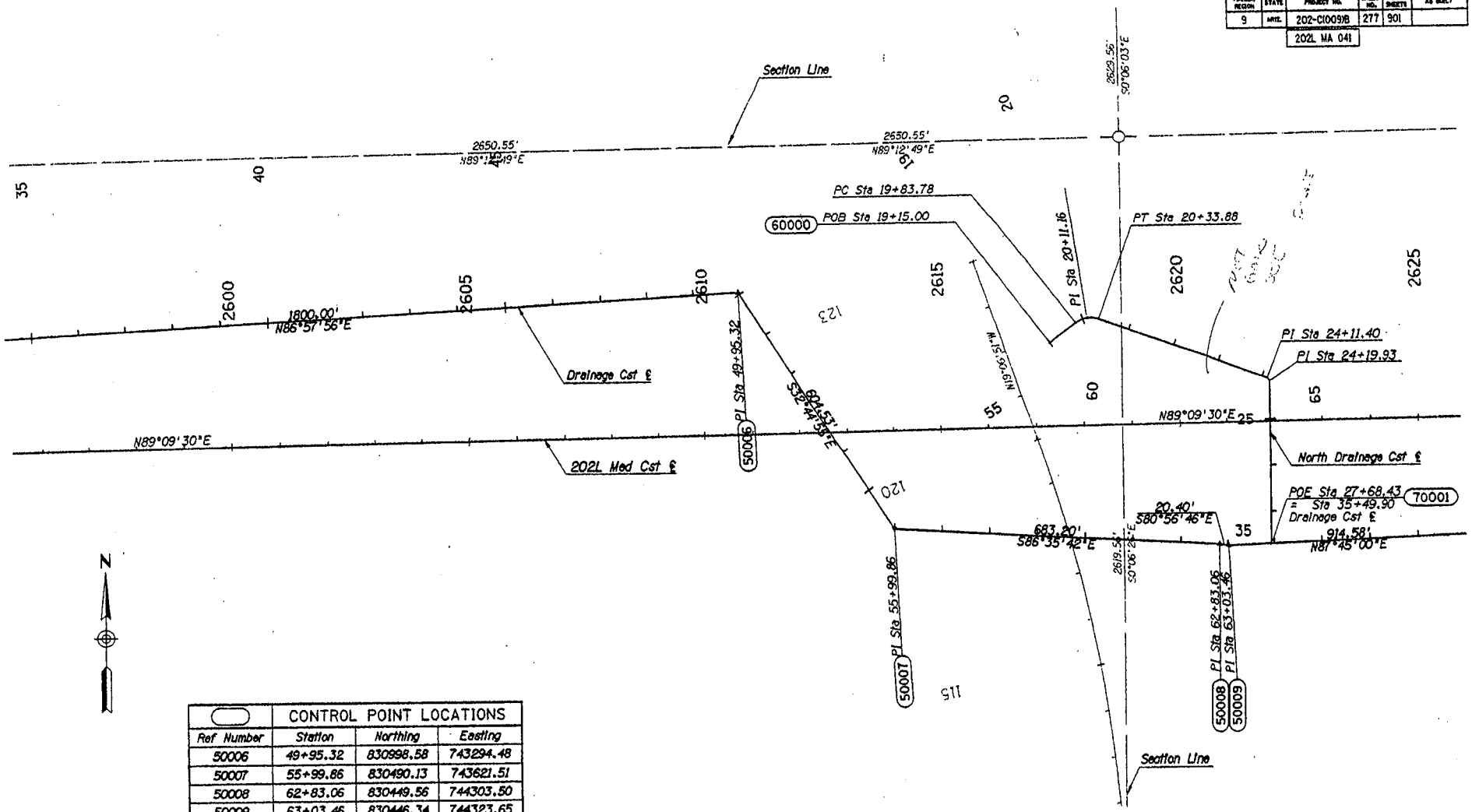
___ OF ___

p:\3028\JECad\Sheets\h5912ag01.dgn Plotted By: MRT 8/6/2004 4:56:16 PM

REDUCED SIZE - DO NOT SCALE

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	202-C(009)B	277	901	

202L MA 041



	CONTROL POINT LOCATIONS		
Ref Number	Station	Northing	Easting
50006	49+95.32	830998.58	743294.48
50007	55+99.86	830490.13	743621.51
50008	62+83.06	830449.56	744303.50
50009	63+03.46	830446.34	744323.65
60000	19+15.00	830885.46	743952.67
70001	27+68.43	830425.01	744414.42

	NAME	DATE
DESIGN	JP	08/04
DRAWN	CS/MRT	08/04
CHECKED	JH	08/04

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

DRAINAGE CST ℄
GEOMETRIC LAYOUT

ROUTE: 202L
LOCATION: SANTAN FREEWAY, GILBERT RD - FRYE RD

DWG. NO. D-1.2

TRACS NO. H5912 01C

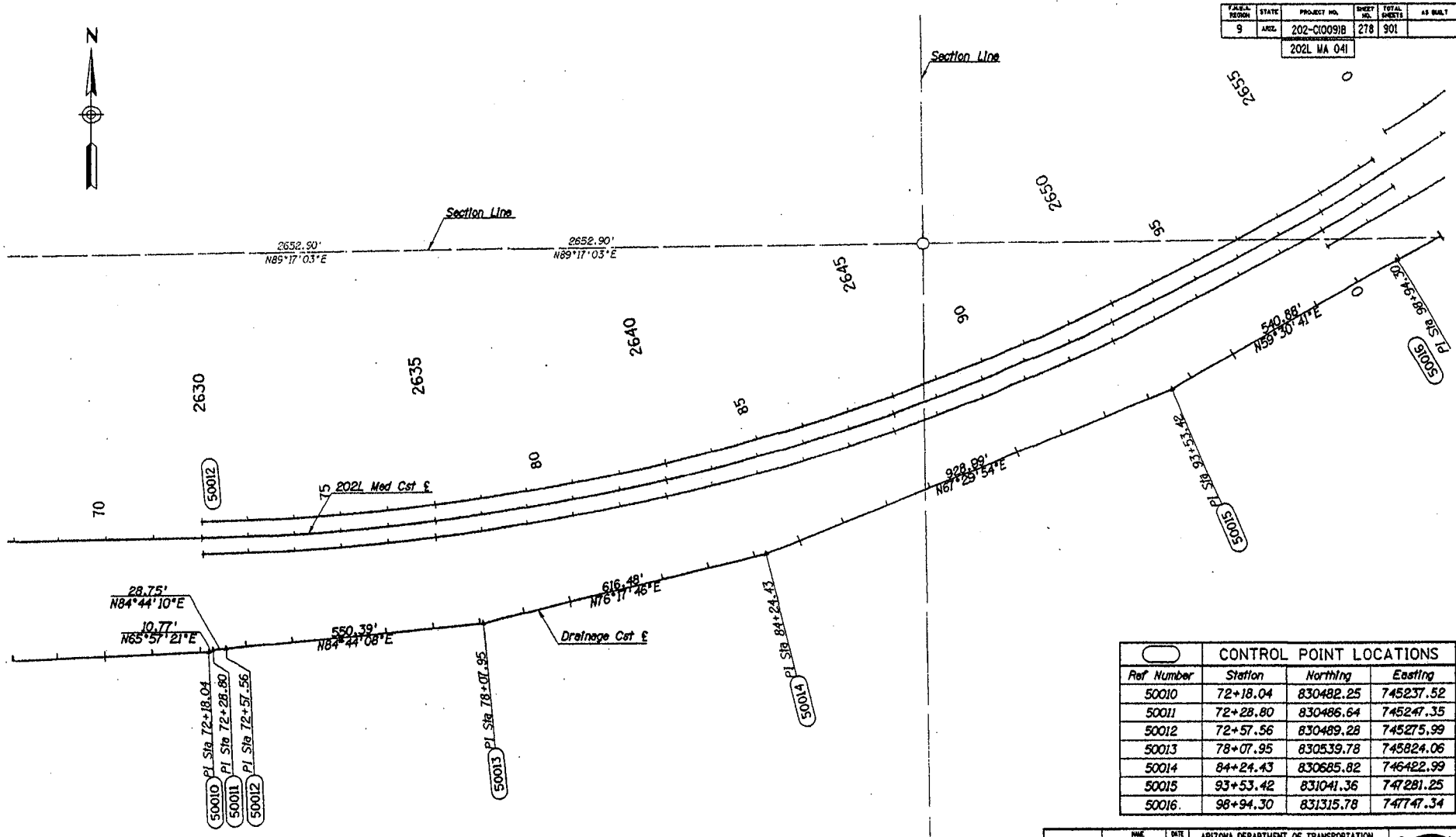
202-C(009)B

___ OF ___

p:\3028\J2Cad\Sheets\h5912sg02.dgn Plotted By: MRT 8/6/2004 4:56:57 PM

REDUCED SIZE DO NOT SCALE

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	202-C(009)B	278	901	
		202L MA 041			



CONTROL POINT LOCATIONS			
Ref Number	Station	Northing	Easting
50010	72+18.04	830482.25	745237.52
50011	72+28.80	830486.64	745247.35
50012	72+57.56	830489.28	745275.99
50013	78+07.95	830539.78	745824.06
50014	84+24.43	830685.82	746422.99
50015	93+53.42	831041.36	747281.25
50016	98+94.30	831315.78	747747.34

	NAME	DATE
DESIGN	JP	08/04
DRAWN	CS/MRT	08/04
CHECKED	JH	08/04

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

DRAINAGE CST ℄
GEOMETRIC LAYOUT

ROUTE 202L — LOCATION SANTAN FREEWAY, GILBERT RD - FRYE RD

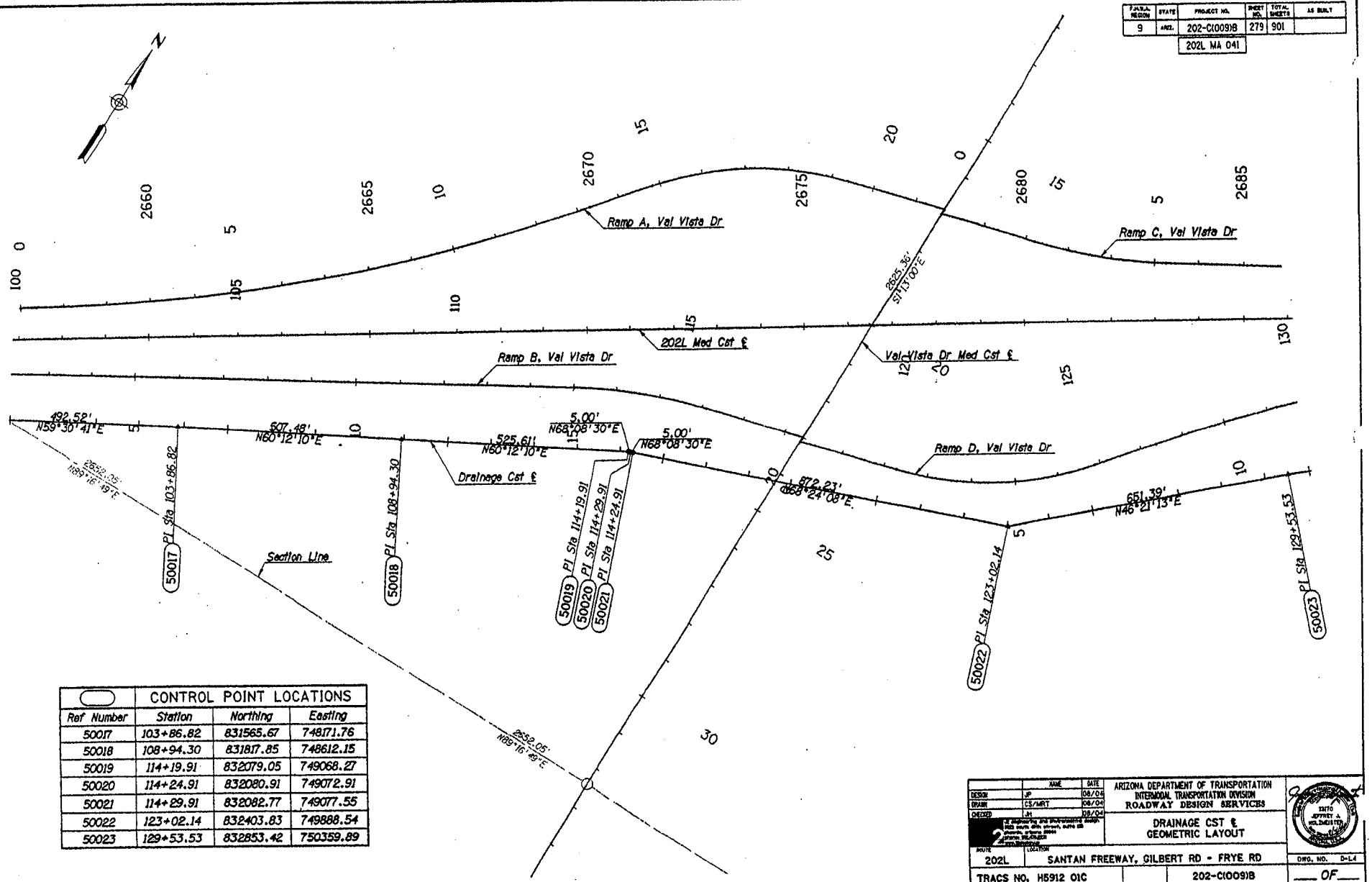
DWG. NO. D-1.3

TRACS NO. H5912 01C — 202-C(009)B — ___ OF ___

p:\9028\J2Cad\Sheets\h5912eg03.dgn Plotted By: MRT 5/4/2004 4:50:49 PM

REDUCED SIZE - DO NOT SCALE

F.A.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	202-C(009)B	279	901	
		202L MA 041			



CONTROL POINT LOCATIONS			
Ref Number	Station	Northing	Easting
50017	103+86.82	831565.67	748171.76
50018	108+94.30	831817.85	748612.15
50019	114+19.91	832079.05	749068.27
50020	114+24.91	832080.91	749072.91
50021	114+29.91	832082.77	749077.55
50022	123+02.14	832403.83	749888.54
50023	129+53.53	832853.42	750359.89

	NAME	DATE
DESIGN	JP	08/04
DRAWN	CS/MRT	08/04
CHECKED	JH	08/04

2 ALL dimensions and shot-mounting design must cover the street, curve as shown, a force drawn prime WILDHORSE

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

DRAINAGE CST ℄
GEOMETRIC LAYOUT

ROUTE 202L — LOCATION SANTAN FREEWAY, GILBERT RD - FRYE RD

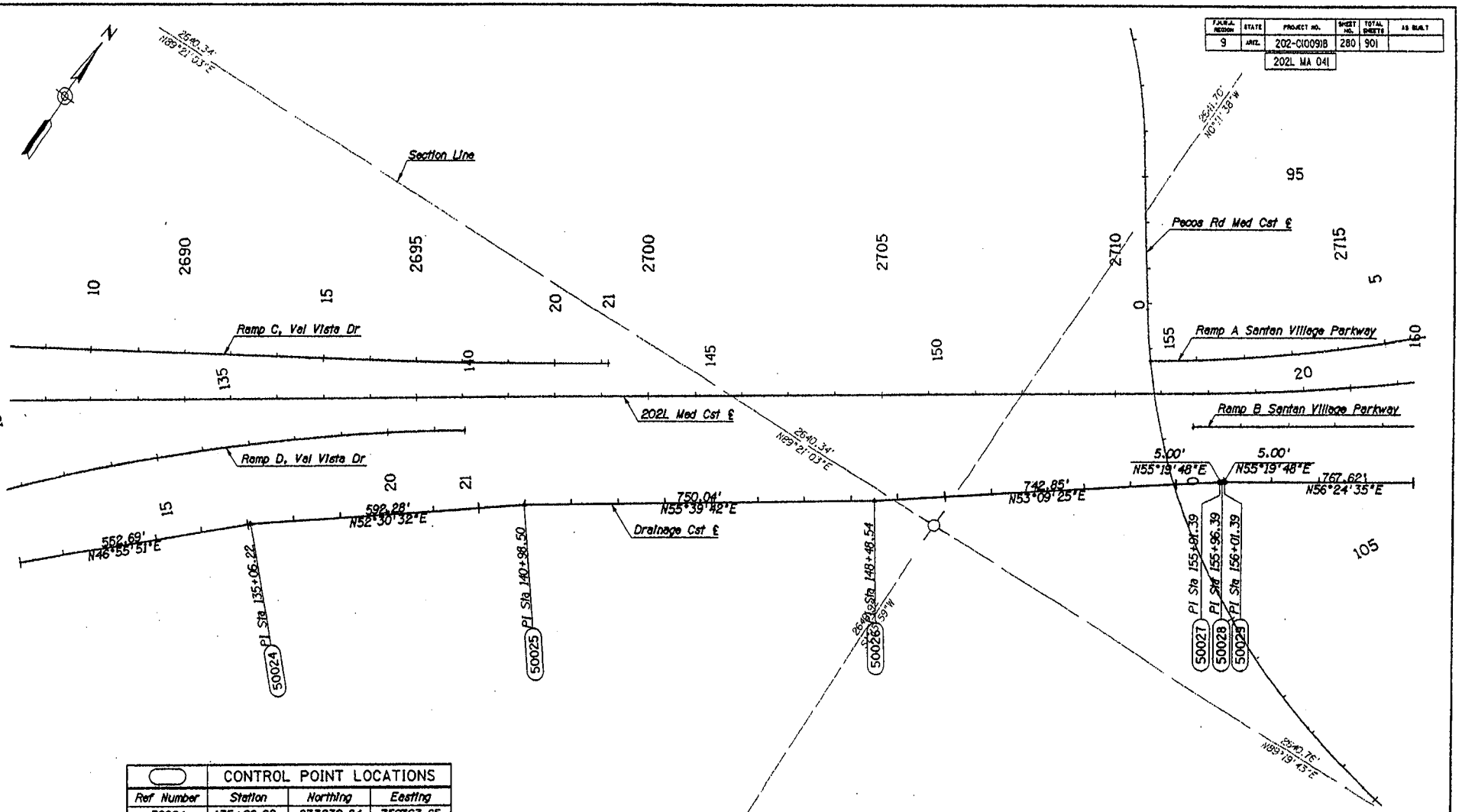
DWG. NO. D-L4

TRACS NO. H5912 01C — 202-C(009)B — ___ OF ___

p:\3028\J2Cad\Alvarez\h5912sg04.dgn Plotted By: MRT 8/4/2004 4:51:03 PM

REDUCED SIZE - DO NOT SCALE

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	202-C(009)B	280	901	
		202L MA 041			



CONTROL POINT LOCATIONS			
Ref Number	Station	Northing	Easting
50024	135+06.22	833230.84	750763.65
50025	140+98.50	833591.33	751233.59
50026	148+48.54	834014.41	751852.92
50027	155+91.39	834459.84	752447.40
50028	155+96.39	834462.68	752451.52
50029	156+01.39	834465.53	752455.63

	NAME	DATE
DESIGN	JP	08/04
DRAWN	CS/MRT	08/04
CHECKED	JH	08/04

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

DRAINAGE CST ℄
GEOMETRIC LAYOUT

ROUTE 202L — LOCATION SANTAN FREEWAY, GILBERT RD - FRYE RD

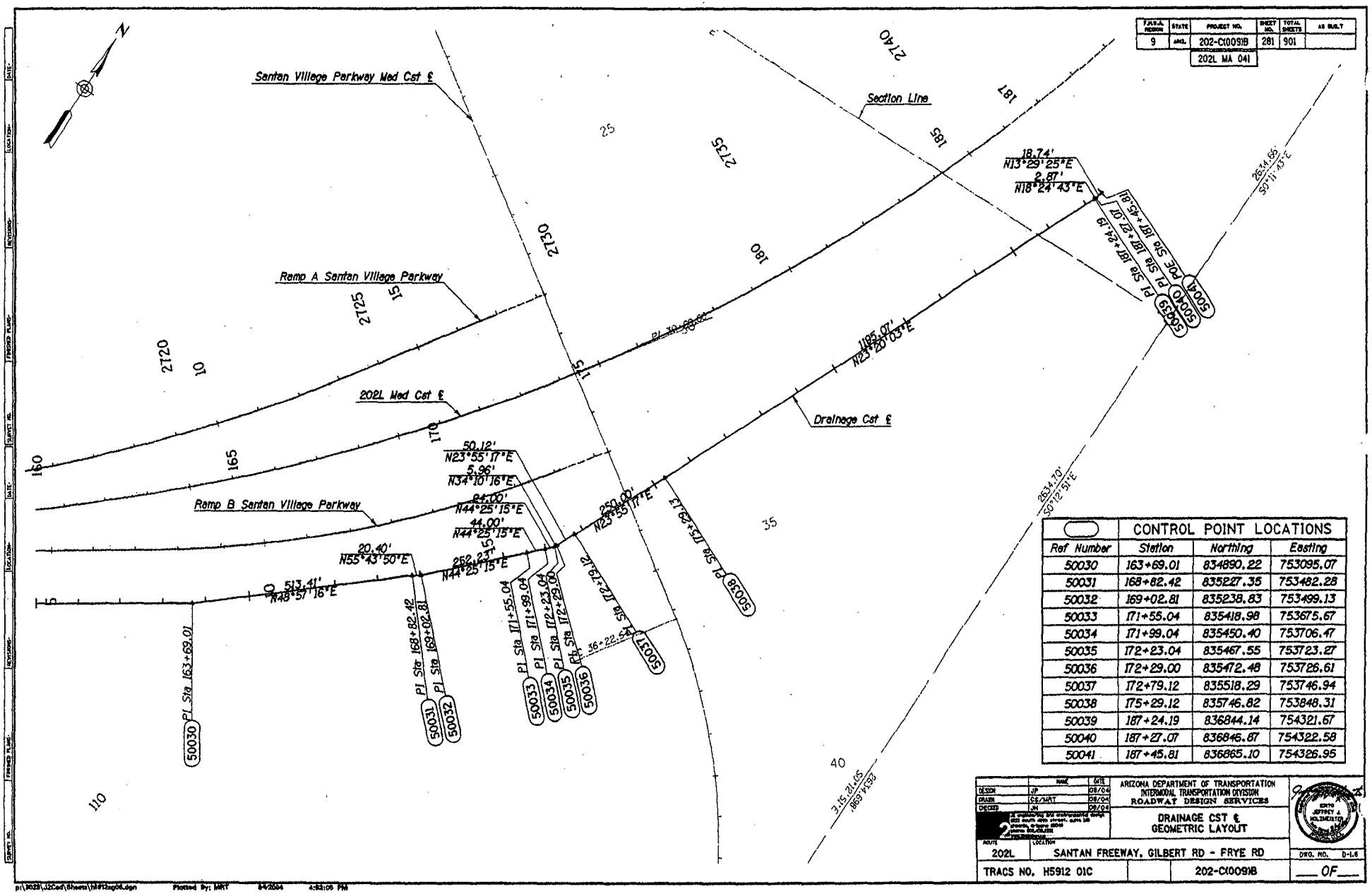
DWG. NO. D-1.3

TRACS NO. H5912 01C — 202-C(009)B — ___ OF ___

p:\3028\J2Cad\Dgns\h5912eg05.dgn Plotted By: MRT 8/4/2004 4:51:13 PM

REDUCED SIZE - DO NOT SCALE

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	202-C(009)B	281	901	
		202L MA 041			



	CONTROL POINT LOCATIONS		
Ref Number	Station	Northing	Easting
50030	163+69.01	834890.22	753095.07
50031	168+82.42	835227.35	753482.28
50032	169+02.81	835238.83	753499.13
50033	171+55.04	835418.98	753675.67
50034	171+99.04	835450.40	753706.47
50035	172+23.04	835467.55	753723.27
50036	172+29.00	835472.48	753726.61
50037	172+79.12	835518.29	753746.94
50038	175+29.12	835746.82	753848.31
50039	187+24.19	836844.14	754321.67
50040	187+27.07	836846.87	754322.58
50041	187+45.81	836865.10	754326.95

	NAME	DATE
DESIGN	JP	08/04
DRAWN	CE/MRT	08/04
CHECKED	JM	08/04

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

DRAINAGE CST ℄
GEOMETRIC LAYOUT

ROUTE 202L — LOCATION SANTAN FREEWAY, GILBERT RD - FRYE RD

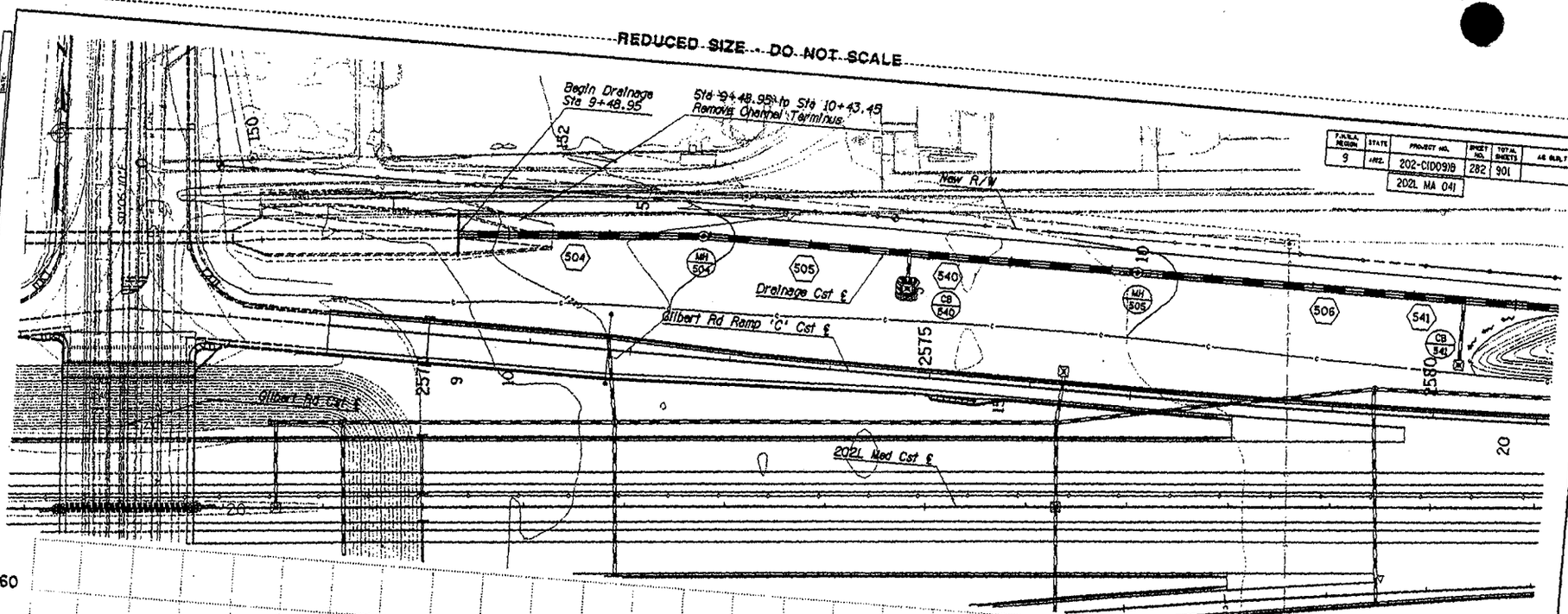
DWG. NO. D-1.6

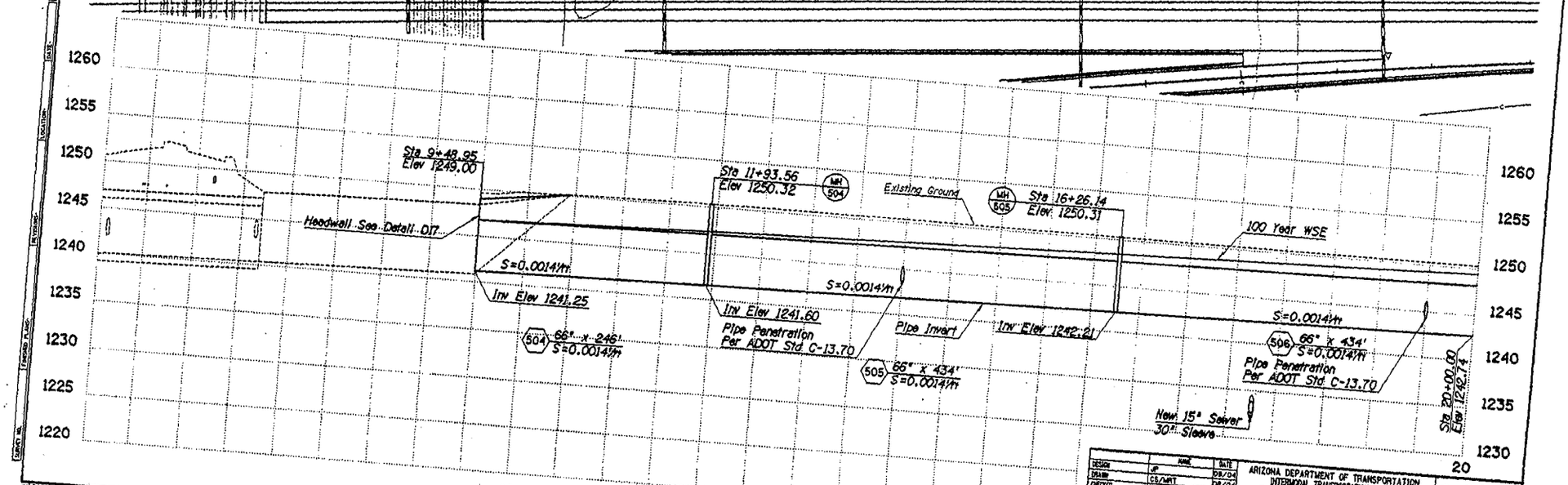
TRACS NO. H5912 01C — 202-C(009)B — ___ OF ___

p:\9028\J2Cad\Sheets\h5912sg06.dgn Plotted By: MRT 8/4/2004 4:23:06 PM

REDUCED SIZE - DO NOT SCALE

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	202-C(009)B	282	901	
		202L MA 041			





	NAME	DATE
DESIGN	JP	08/04
DRAWN	CS/MRT	08/04
CHECKED	JN	08/04

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

PLAN AND PROFILE
STA 9+48.95 TO STA 20+00

ROUTE 202L

SANTAN FREEWAY, GILBERT RD - FRYE RD

TRACS NO. H5912 01C

202-C(009)B

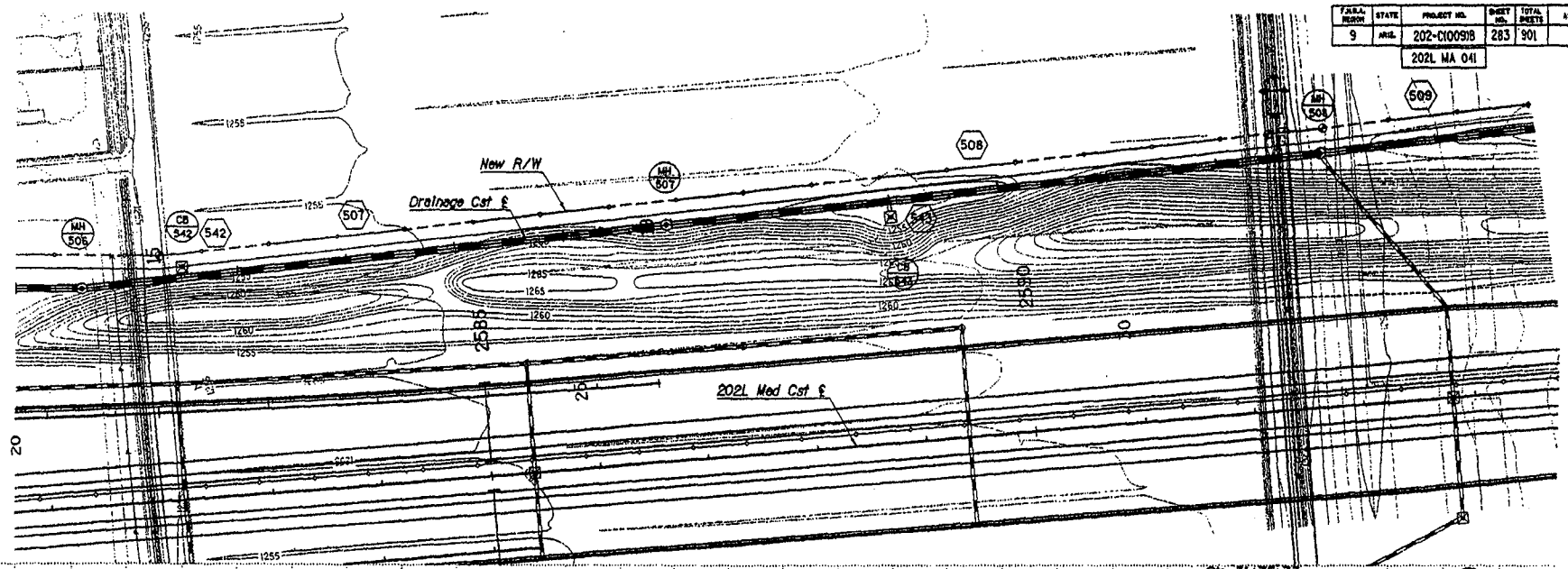
DWG. NO. D-2.1

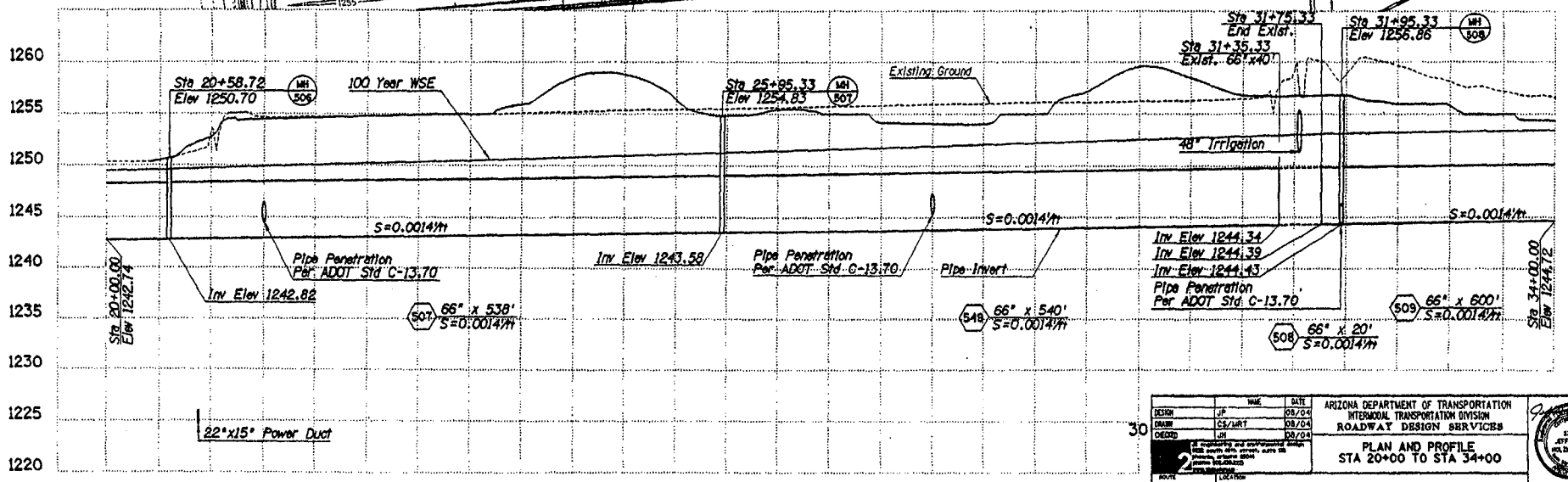
OF

P:\3022R\12C\d\Sheets\bdrdwlayoPl.dgn Plotted By: MRT 9/4/2004 4:44:16 PM

REDUCED SIZE - DO NOT SCALE

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	202-C(009)B	283	901	
		202L MA 041			





	NAME	DATE
DESIGN	JJF	08/04
DRAWN	CS/MRT	08/04
CHECKED	JJH	08/04

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

PLAN AND PROFILE
STA 20+00 TO STA 34+00

ROUTE 202L LOCATION SANTAN FREEWAY, GILBERT RD - FRYE RD

DWG. NO. D-2.2

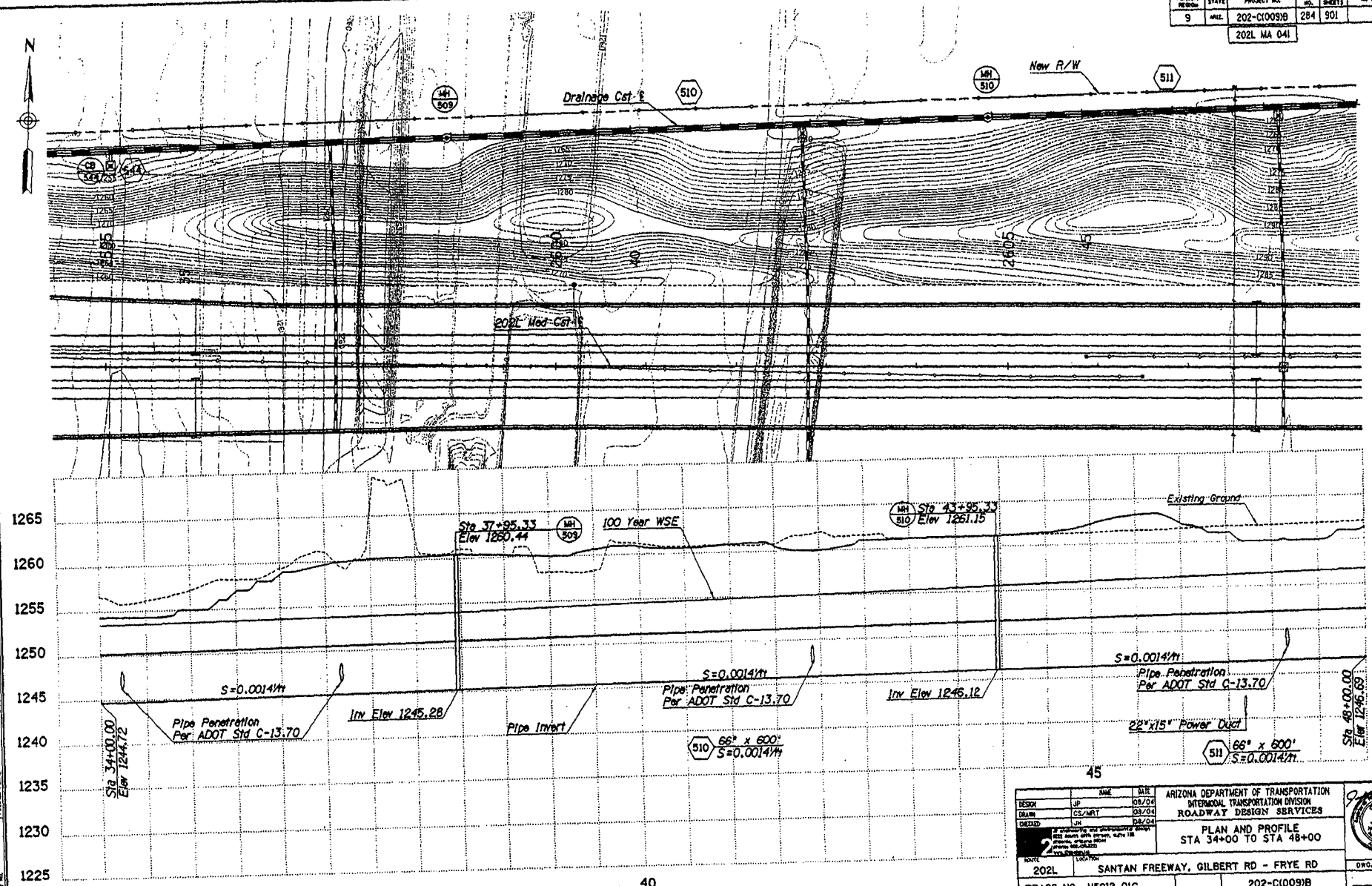
TRACS NO. H5912 01C 202-C(009)B

___ OF ___

P:\2028\J2Cad\Sheets\h5912shpp02.dgn Plotted By: MRT 8/9/2004 4:44:57 PM

REDUCED SIZE - DO NOT SCALE

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	202-C(009)B	284	901	
		202L MA 041			



	NAME	DATE
DESIGN	JP	08/04
DRAWN	CS/MRT	08/04
CHECKED	JH	08/04

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

PLAN AND PROFILE
STA 34+00 TO STA 48+00

ROUTE 202L
LOCATION SANTAN FREEWAY, GILBERT RD - FRYE RD

TRACS NO. H5912 01C

202-C(009)B

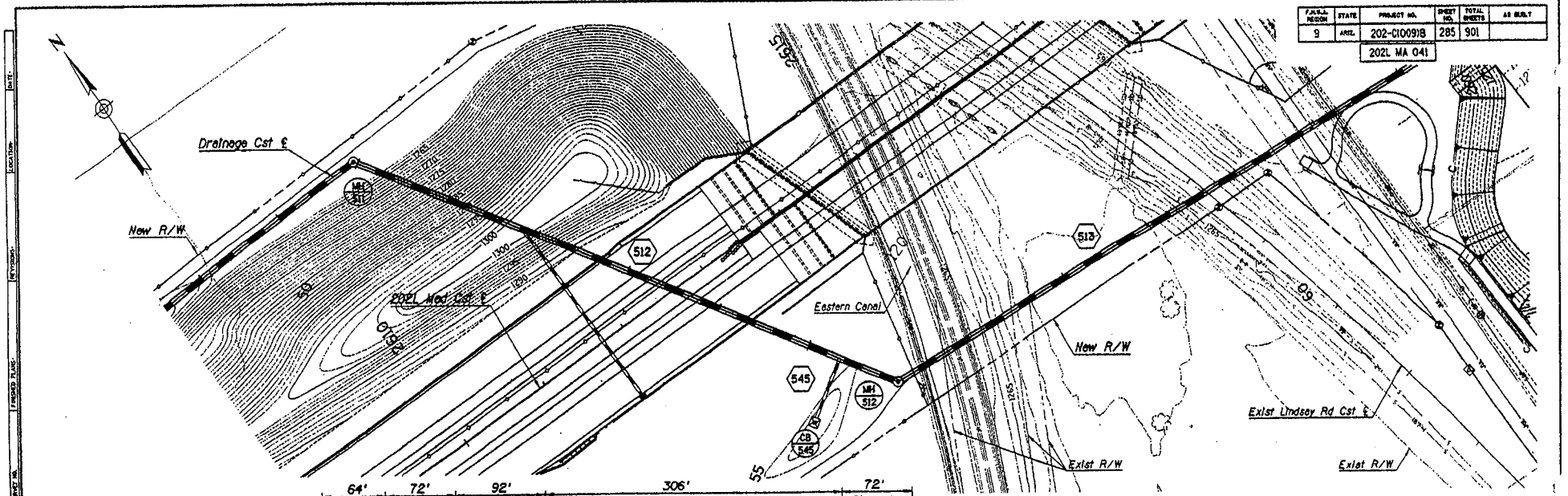
DWG. NO. D-2.3

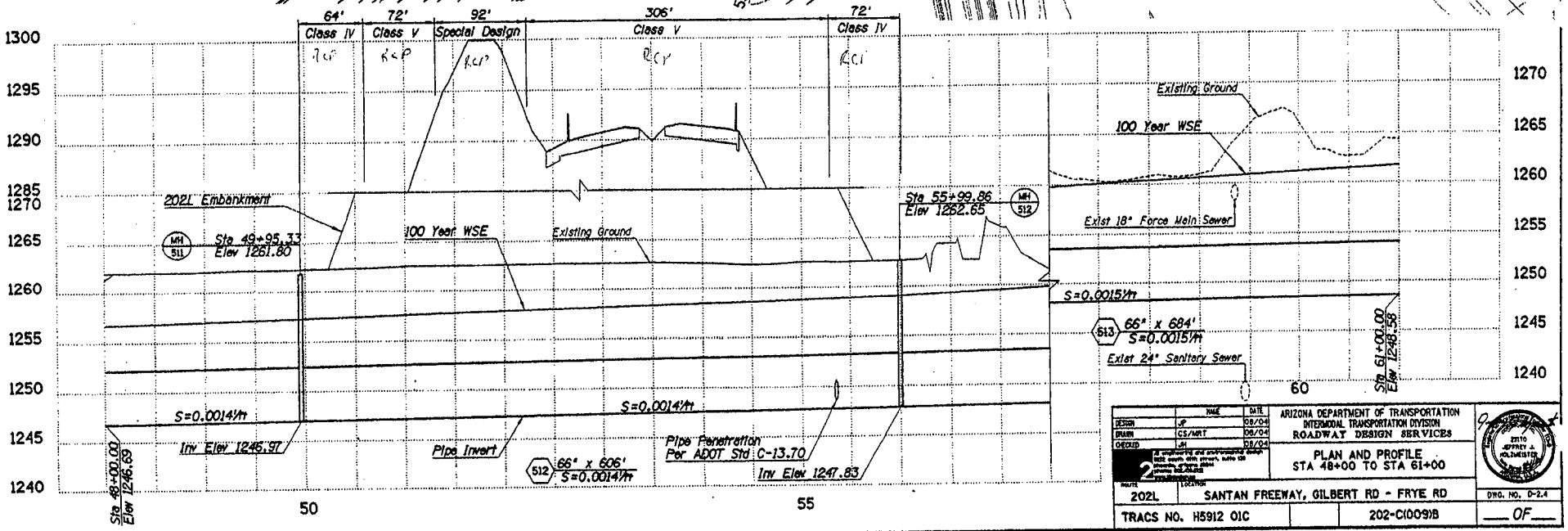
___ OF ___

Plotted By: MRT 8/4/2004 4:46:04 PM

REDUCED SIZE---DO NOT SCALE

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	202-C(009)B	285	901	
		202L MA 041			





	NAME	DATE
DESIGN	JP	08/04
DRAWN	CS/MRT	08/04
CHECKED	JM	08/04

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

PLAN AND PROFILE
STA 48+00 TO STA 61+00

ROUTE 202L | LOCATION SANTAN FREEWAY, GILBERT RD - FRYE RD

TRACS NO. H5912 01C | 202-C(009)B

DWG. NO. D-2.4

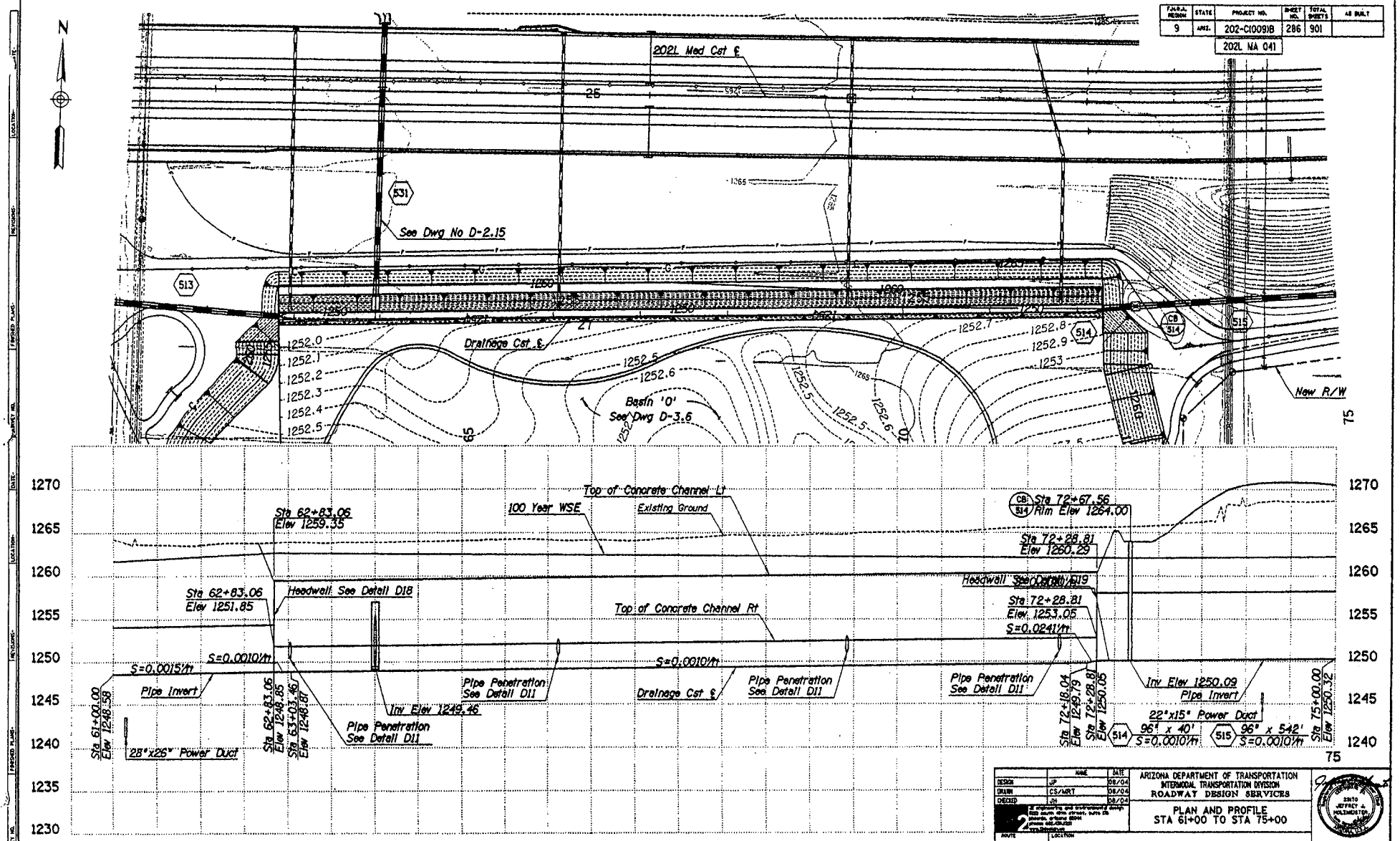
___ OF ___

p:\3025\J2Cad\Sheets\h5912c1pp04.dgn Plotted By: MRT 8/4/2004 4:48:23 PM

REDUCED SIZE - DO NOT SCALE

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	202-C(009)B	286	901	

202L MA 041



	NAME	DATE
DESIGN	JP	08/04
DRAWN	CS/MRT	08/04
CHECKED	JH	08/04

2 ℄ engineering and environmental design 333 south 48th street, suite 25 phoenix, arizona 85034 phone 602.426.0333 www.hdcinc.com

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

PLAN AND PROFILE
STA 61+00 TO STA 75+00

ROUTE: 202L
LOCATION: SANTAN FREEWAY, GILBERT RD - FRYE RD

TRACS NO. H5912 01C

202-C(009)B

DWG. NO. D-2.5

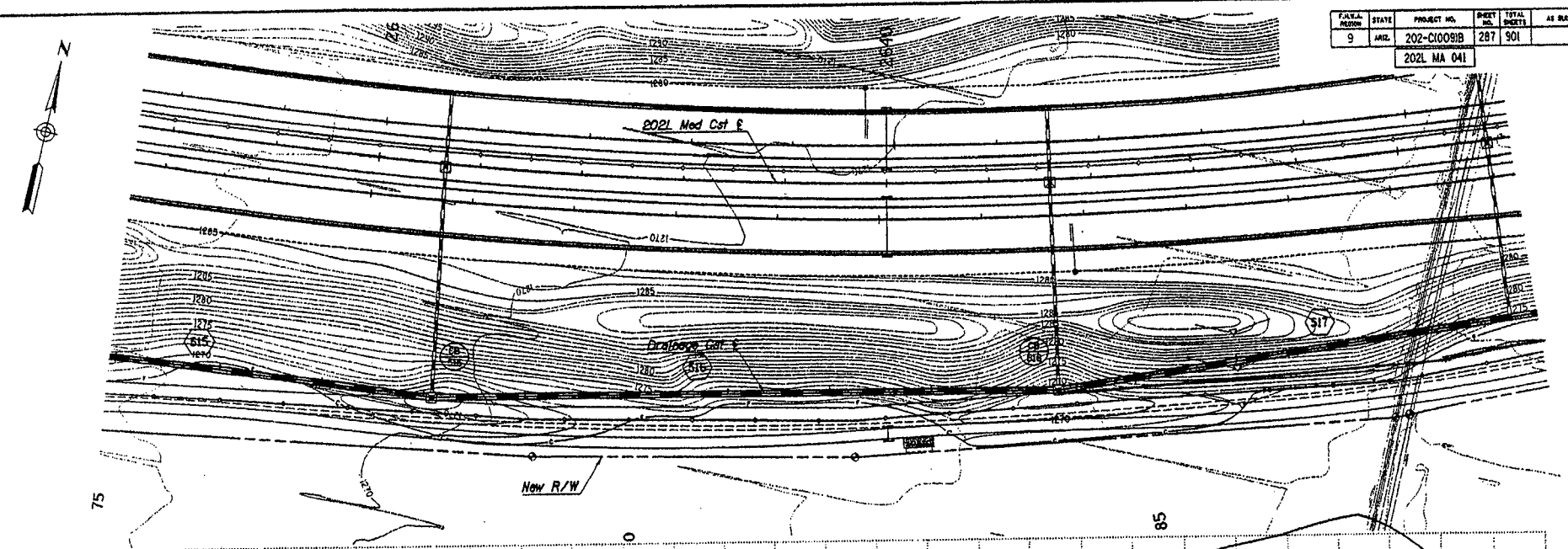
___ OF ___

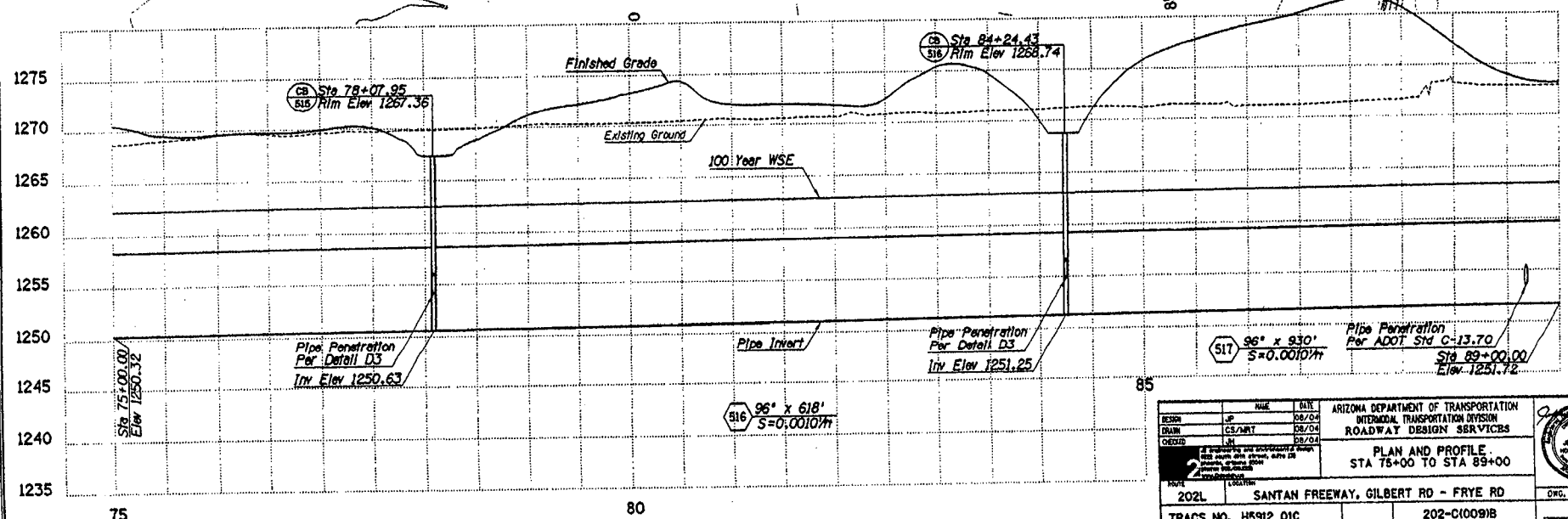
p:\3028\12Cad\Sheets\h5912chpg06.dgn Plotted By: MRT 8-9-2004 4:48:54 PM

REDUCED SIZE - DO NOT SCALE

F.A.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	202-C(009)B	287	901	

202L MA 041





	NAME	DATE
DESIGN	JP	08/04
DRAWN	CS/MRT	08/04
CHECKED	JH	08/04

2 All engineering and architectural design, 205 south 17th street, suite 138 phoenix, arizona 85007 phone 602.255.7991 www.dpa-inc.com

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

PLAN AND PROFILE
STA 75+00 TO STA 89+00

ROUTE 202L LOCATION SANTAN FREEWAY, GILBERT RD - FRYE RD

TRACS NO. H5912 01C

202-C(009)B

DWG. NO. 0-2.6

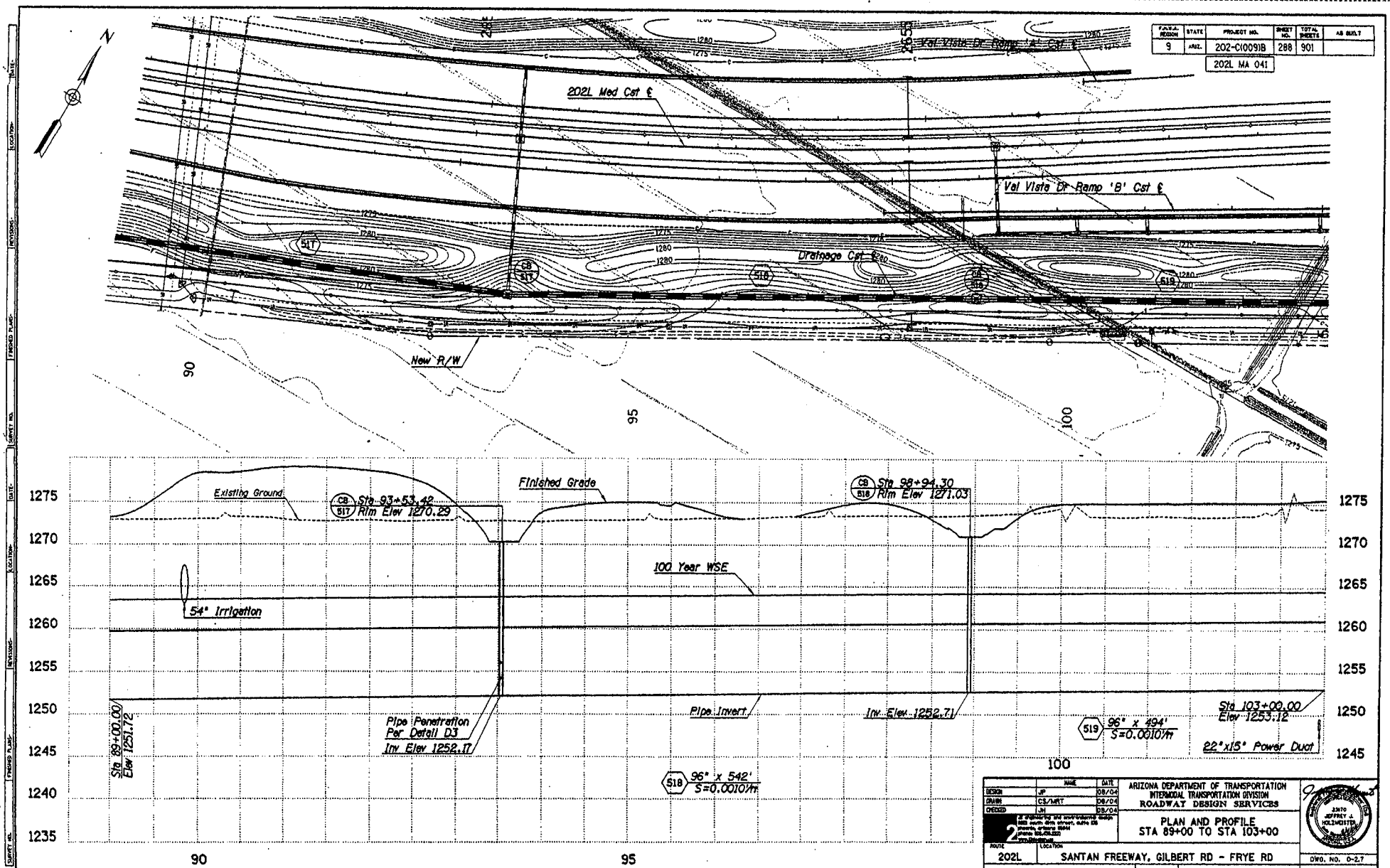
___ OF ___

p:\3028\J2Cad\Sheets\H912shpp06.dgn Plotted By: MRT 8/4/2004 4:48:13 PM

REDUCED SIZE - DO NOT SCALE

F.A.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	202-C(009)B	288	901	

202L MA 041



	NAME	DATE
DESIGN	JP	08/04
DRAWN	CS/MRT	08/04
CHECKED	JH	08/04

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

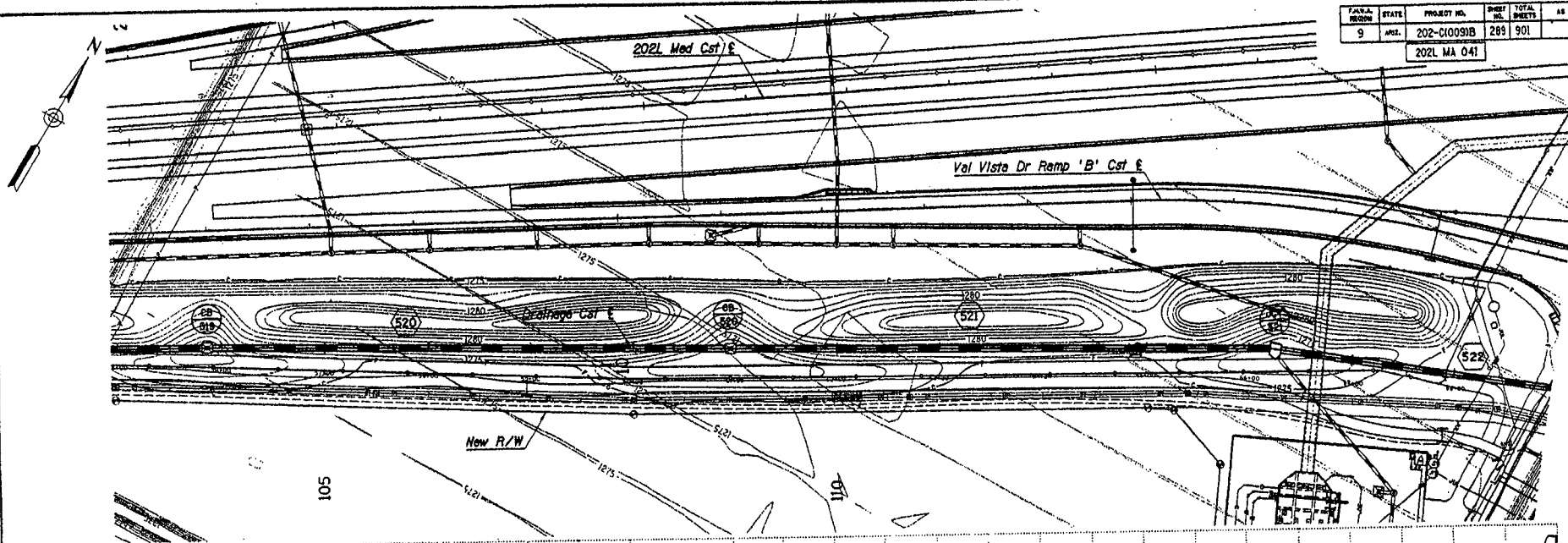
PLAN AND PROFILE
STA 89+00 TO STA 103+00

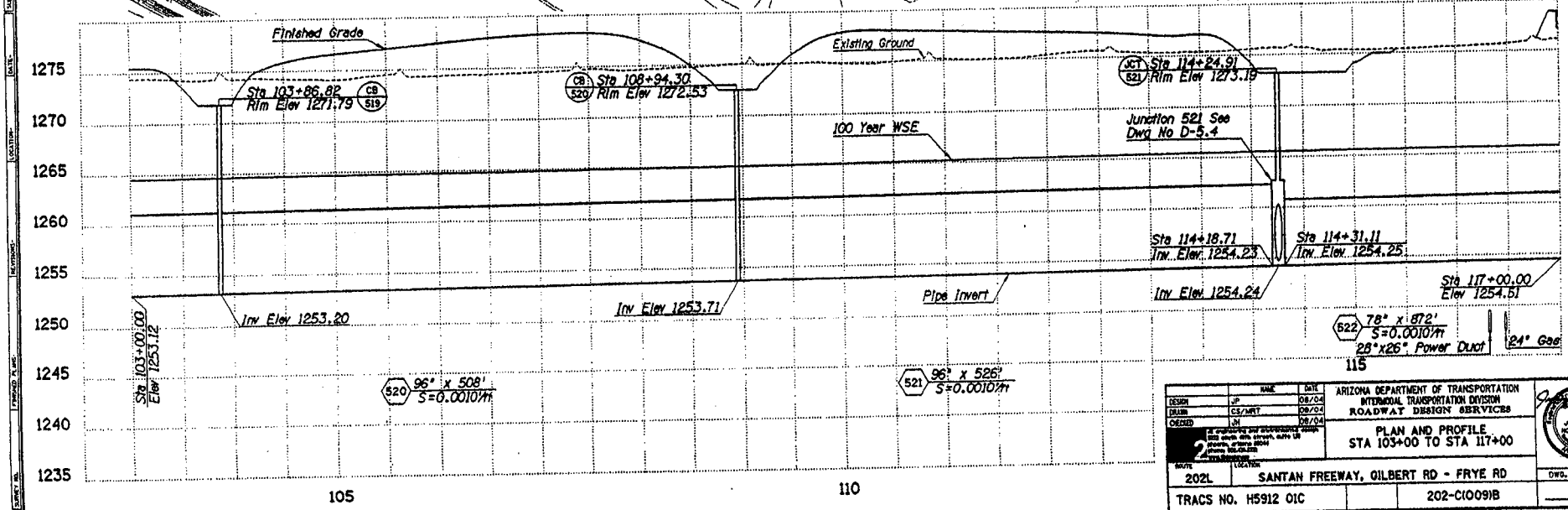
ROUTE: 202L
LOCATION: SANTAN FREEWAY, GILBERT RD - FRYE RD
DWG. NO. D-2.7
TRACS NO. H5912 01C
202-C(009)B
___ OF ___

p:\2025_02Cad\Rivets\h5912a1ppp07.dgn Plotted By: MRT 9/9/2004 4:46:52 PM

REDUCED SIZE - DO NOT SCALE

F.A.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	202-C(009)B	289	901	
		202L MA 041			





	NAME	DATE
DESIGN	JP	08/04
DRAWN	CS/MRT	08/04
CHECKED	JH	08/04

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

PLAN AND PROFILE
STA 103+00 TO STA 117+00

ROUTE 202L LOCATION SANTAN FREEWAY, GILBERT RD - FRYE RD

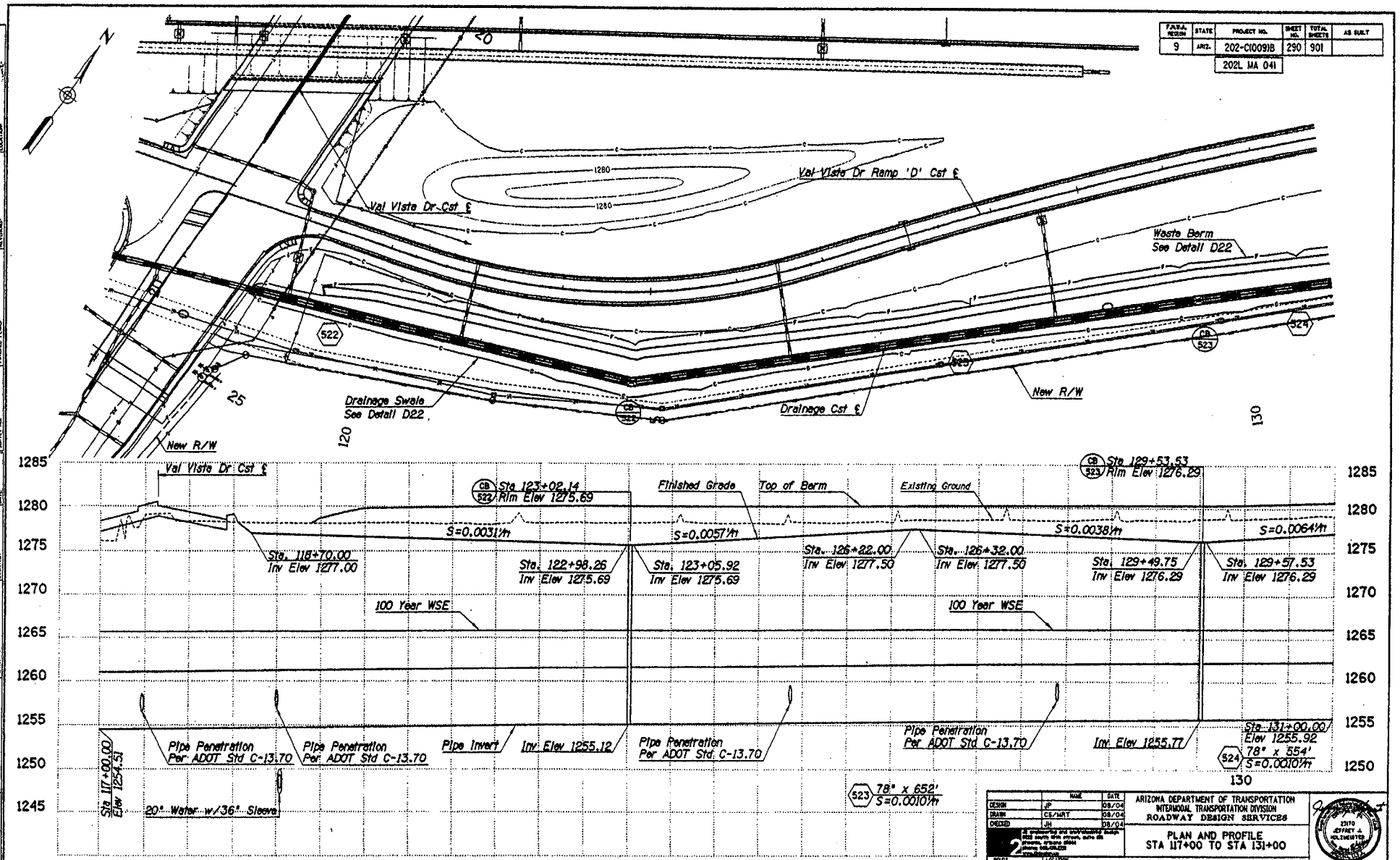
DWG. NO. D-2.8

TRACS NO. H5912 01C 202-C(009)B ___ OF ___

p:\9628_RCCad\Sheets\h5912alppp08.dgn Plotted By: MRT 8/4/2004 4:47:16 PM

REDUCED SIZE - DO NOT SCALE

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	202-C(009)B	290	901	
		202L MA 041			



	NAME	DATE
DESIGN	JP	08/04
DRAWN	CS/MRT	08/04
CHECKED	JH	08/04

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

PLAN AND PROFILE
STA 117+00 TO STA 131+00

ROUTE 202L — LOCATION SANTAN FREEWAY, GILBERT RD - FRYE RD

DWG. NO. D-2.9

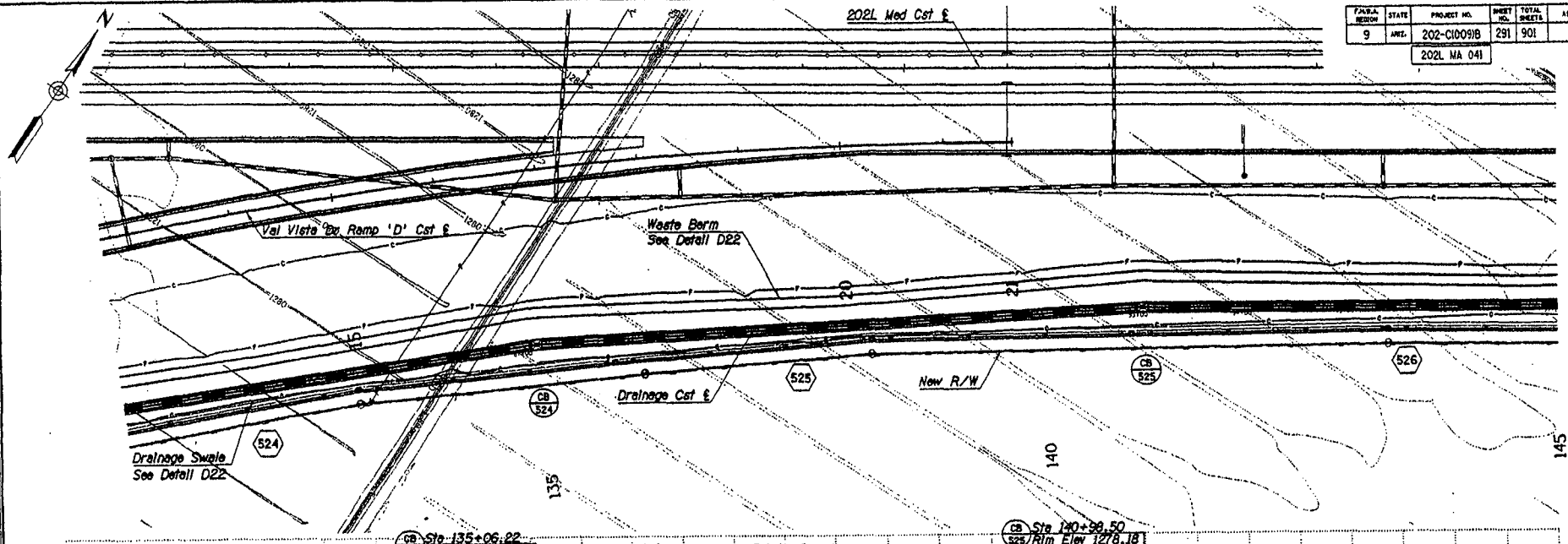
TRACS NO. H5912 01C — 202-C(009)B — ___ OF ___

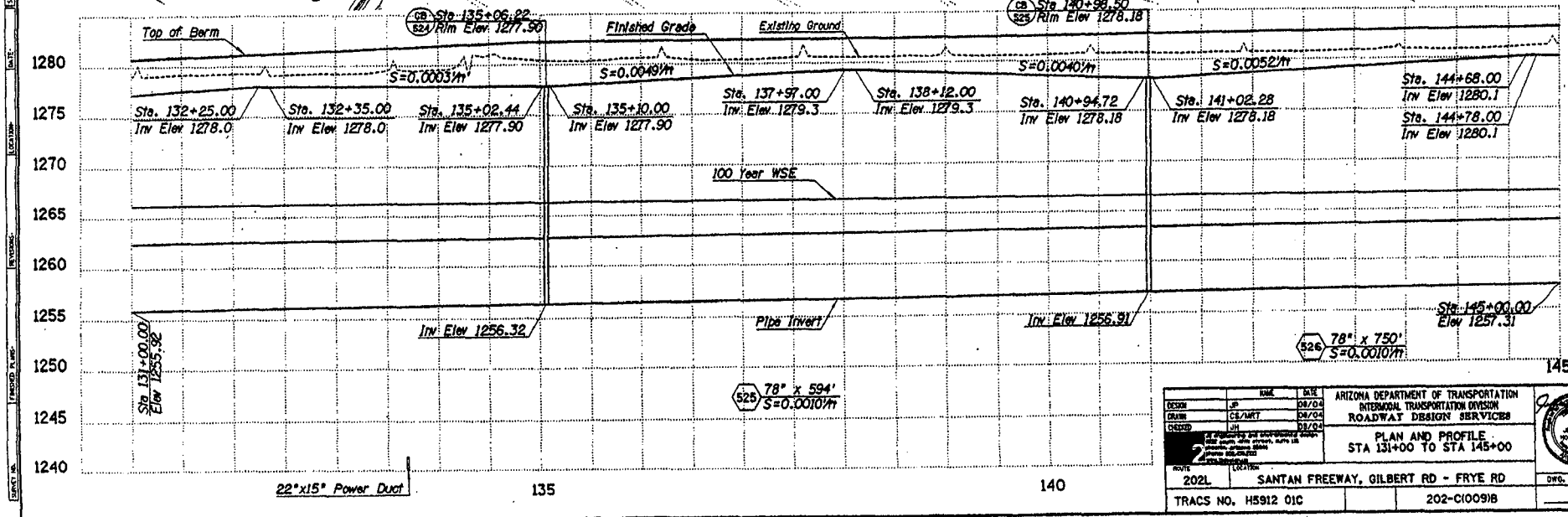
p:\3028\,JCad\Sheets\h5912shpp48.dgn Plotted By: MRT 8/2/2004 4:47:36 PM

REDUCED SIZE - DO NOT SCALE

F.A.H.S. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	202-C(009)B	291	901	

202L MA 041





	NAME	DATE
DESIGN	JP	08/04
DRAWN	CS/MRT	08/04
CHECKED	JH	08/04

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

PLAN AND PROFILE
STA 131+00 TO STA 145+00

ROUTE 202L — LOCATION SANTAN FREEWAY, GILBERT RD - FRYE RD

TRACS NO. H5912 01C — 202-C(009)B

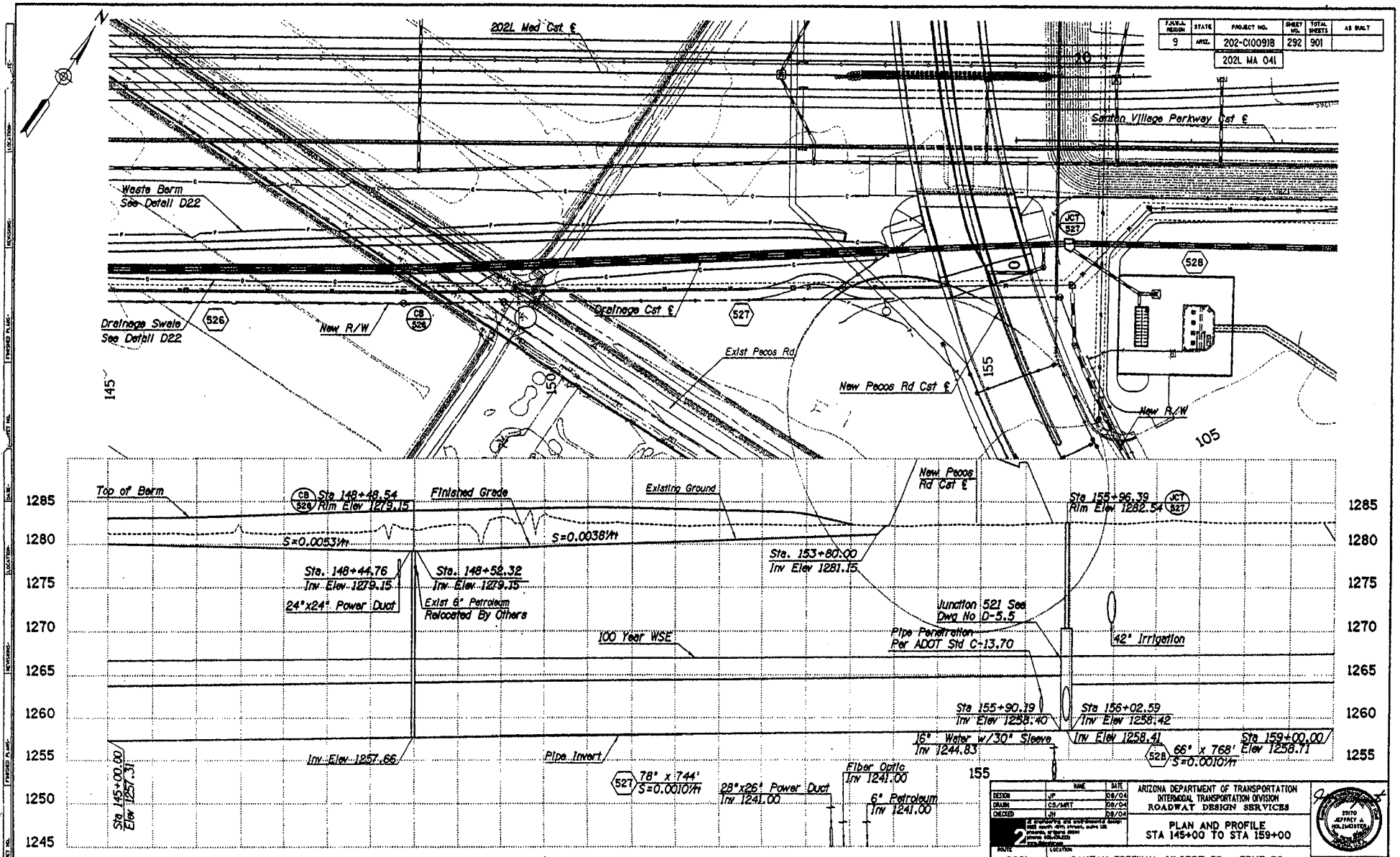
DWG. NO. D-2.10

___ OF ___

p:\3028\JSCad\Sheets\h5912sbpp18.dgn Plotted By: MRT 8/4/2004 4:47:59 PM

REDUCED SIZE - DO NOT SCALE

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	202-C(009)B	292	901	
		202L MA 041			



	NAME	DATE
DESIGN	JP	08/04
DRAWN	CS/MRT	08/04
CHECKED	JH	08/04

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

PLAN AND PROFILE
STA 145+00 TO STA 159+00

ROUTE 202L — LOCATION SANTAN FREEWAY, GILBERT RD - FRYE RD

TRACS NO. H5912 01C — 202-C(009)B

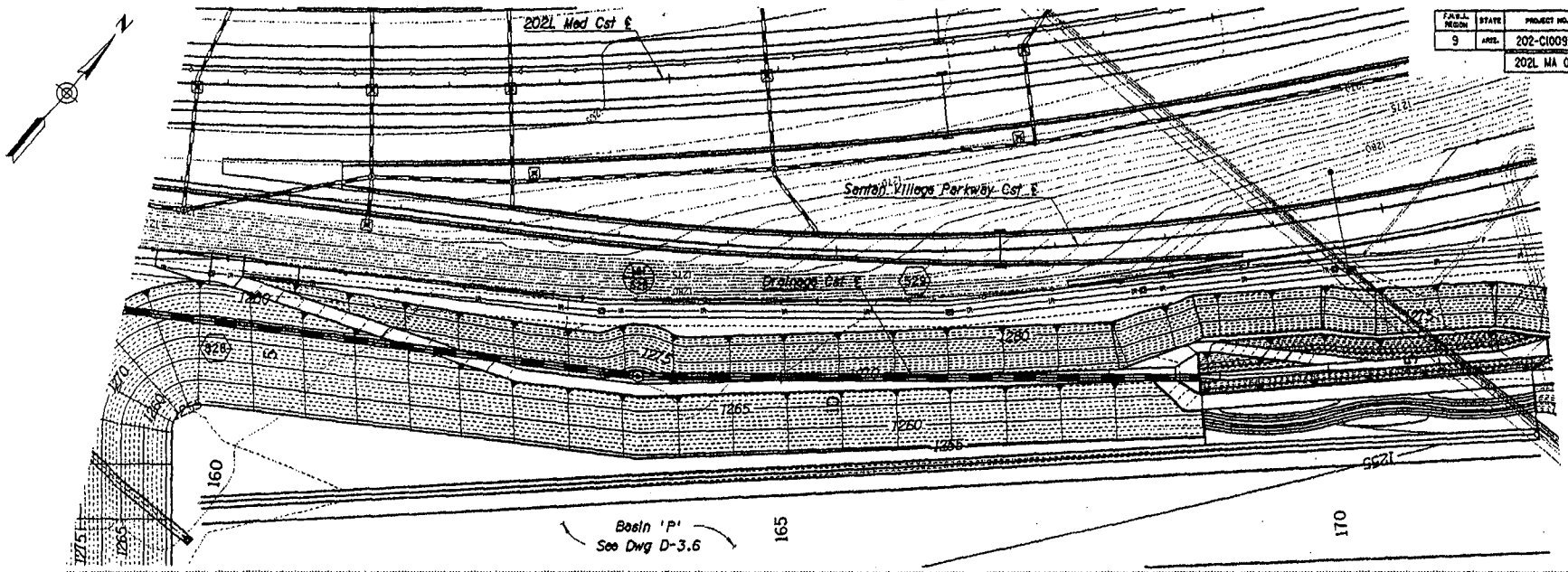
DWG. NO. 0-2.11

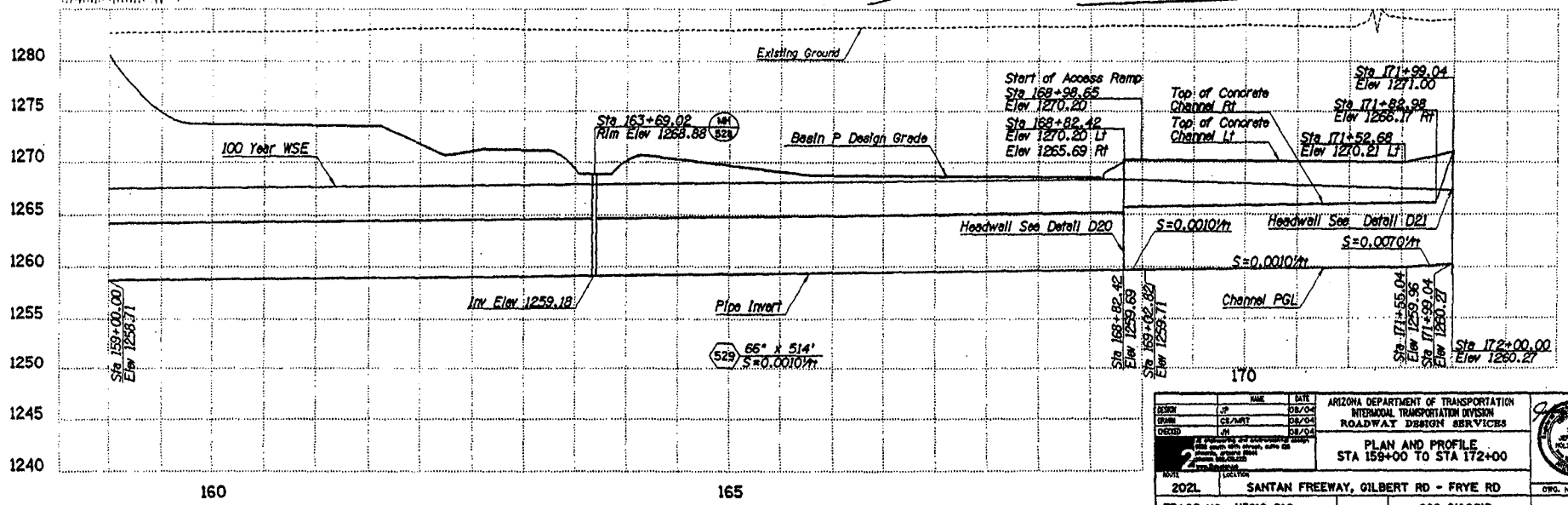
___ OF ___

p:\9028\J2Cad\Sheets\H5912ahpr11.dgn Plotted By: CAB 8/10/2004 10:22:44 AM

REDUCED SIZE - DO NOT SCALE

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	202-C(009)B	293	901	
		202L MA 041			





	NAME	DATE
DESIGN	JP	08/04
DRAWN	CS/MRT	08/04
CHECKED	JM	08/04

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

PLAN AND PROFILE
STA 159+00 TO STA 172+00

ROUTE 202L | LOCATION SANTAN FREEWAY, GILBERT RD - FRYE RD

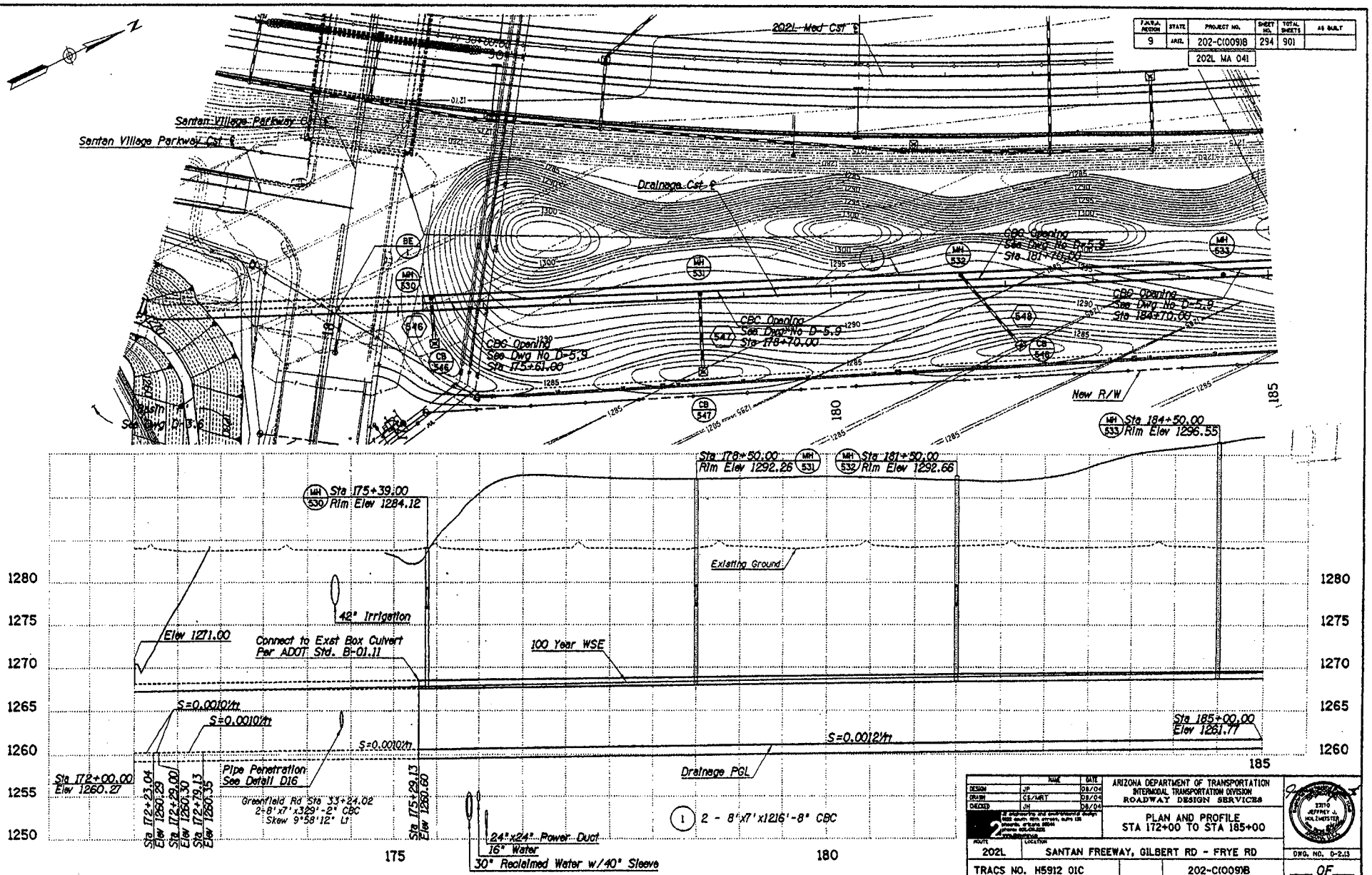
DWG. NO. D-2.12

TRACS NO. H5912 01C | 202-C(009)B | ___ OF ___

p:\202l\22Cad\Sheets\M412shpp12.dgn Plotted By: MRT 8/4/2004 4:48:36 PM

REDUCED SIZE - DO NOT SCALE

FAPA REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	202-C(009)B	294	901	
		202L MA 041			



	NAME	DATE
DESIGN	JP	08/04
DRAWN	CE/MRT	08/04
CHECKED	JH	08/04

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

PLAN AND PROFILE
STA 172+00 TO STA 185+00

ROUTE	LOCATION	
202L	SANTAN FREEWAY, GILBERT RD - FRYE RD	
TRACS NO. H5912 01C		202-C(009)B

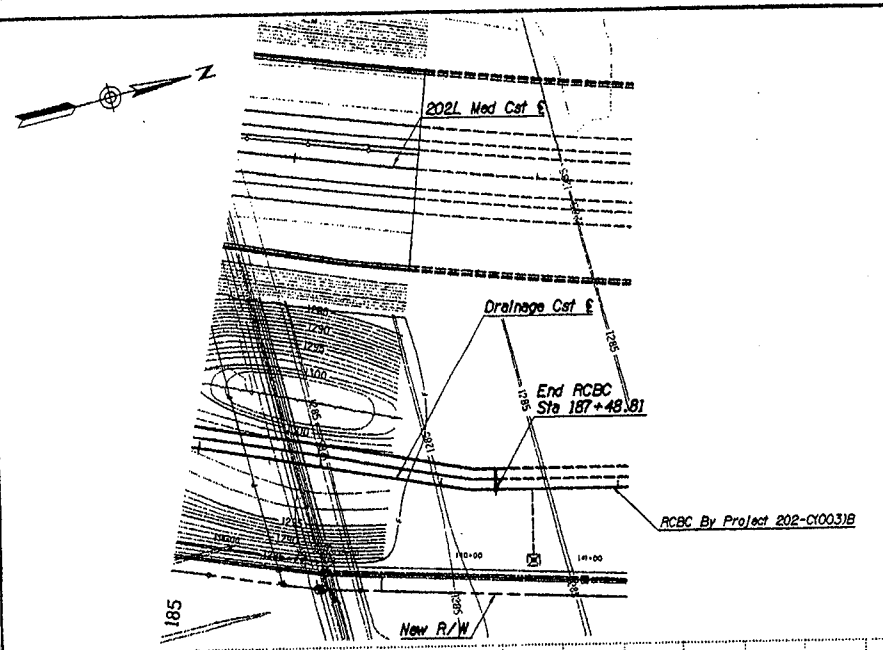
DWG. NO. D-2.13

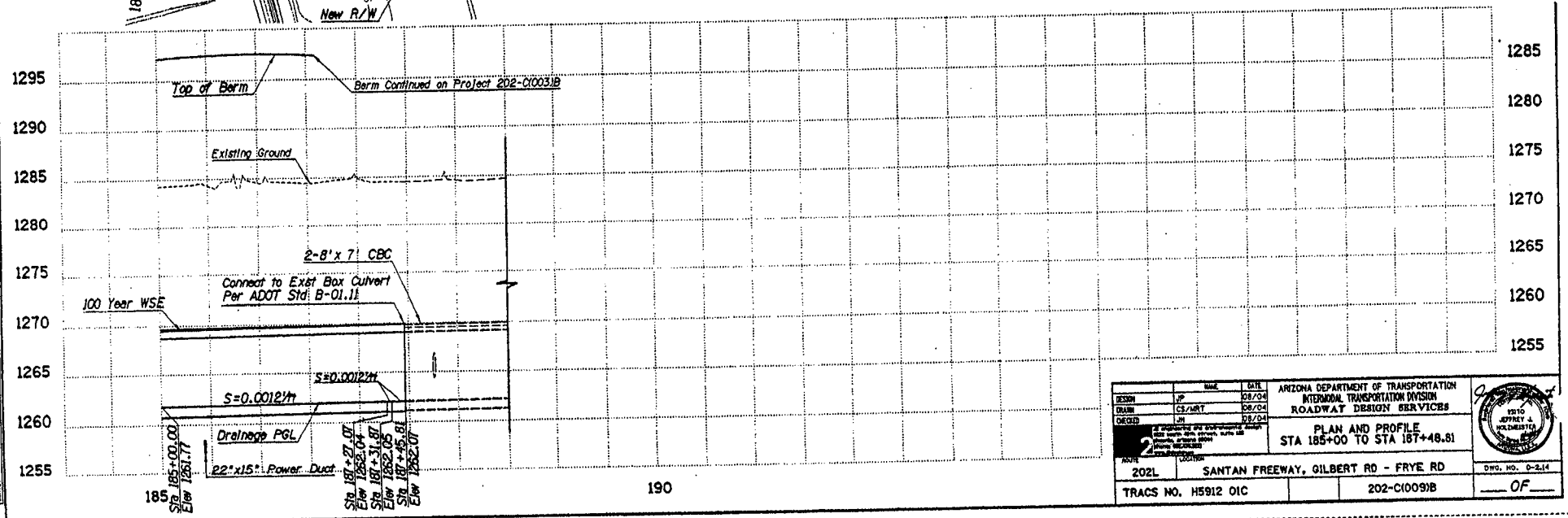
___ OF ___

p:\3028\J2Cad\Share\h5912ahpp18.dgn Plotted By: MRT 8/4/2004 4:48:58 PM

REDUCED SIZE - DO NOT SCALE

F.A.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	202-C(009)B	295	901	
		202L MA 041			





	NAME	DATE
DESIGN	JP	08/04
DRAWN	CS/MRT	08/04
CHECKED	JM	08/04

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

PLAN AND PROFILE
STA 185+00 TO STA 187+48.81

12210 JEFFREY J. WOLDHEISTER

202L SANTAN FREEWAY, GILBERT RD - FRYE RD

DWG. NO. D-2.14

TRACS NO. H5912 01C | 202-C(009)B | ___ OF ___

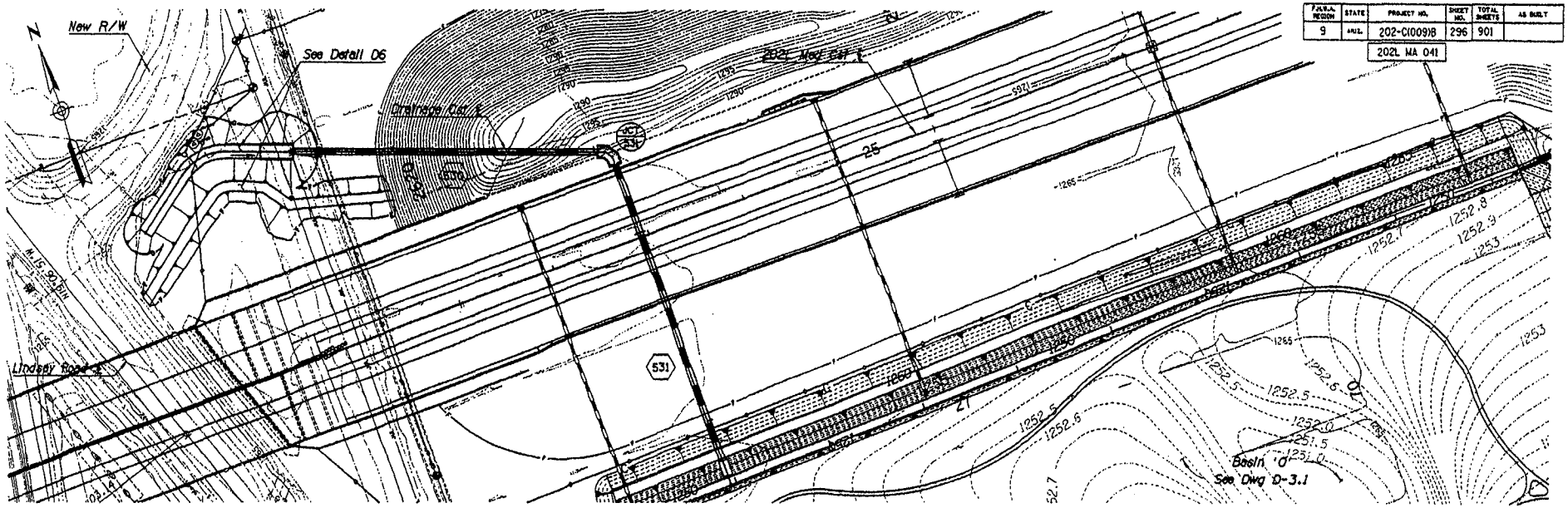
190

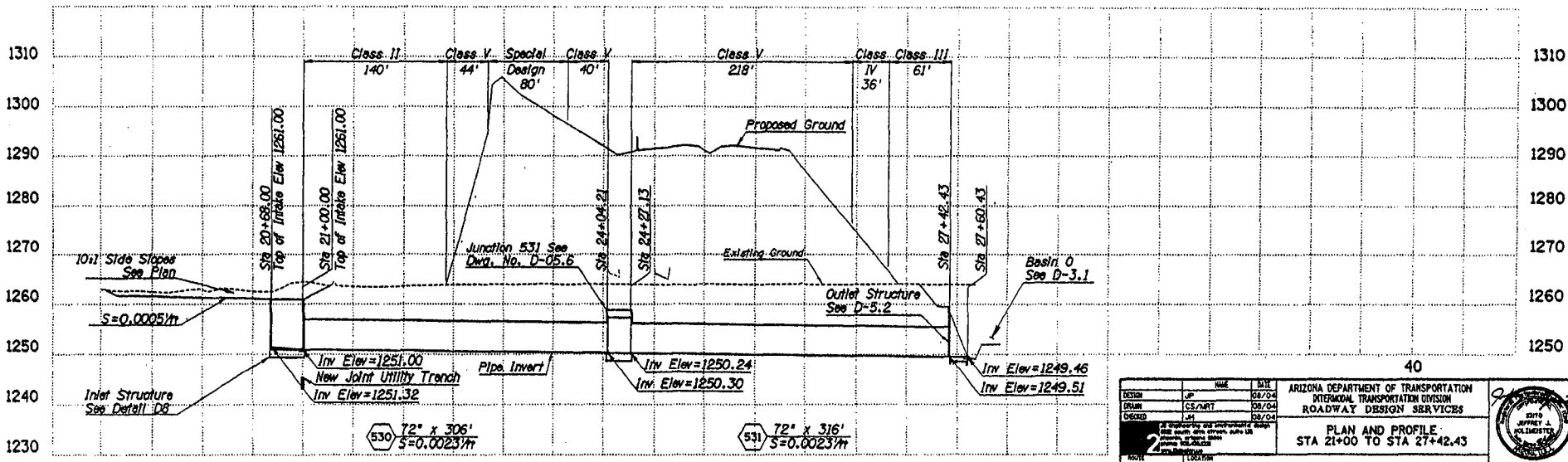
m:\202L\202Cad\Sheets\h5912shpp14.dgn Plotted By: MRT 8/4/2004 4:49:19 PM

REDUCED SIZE -- DO NOT SCALE

FEDERAL REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	202-C(009)8	296	901	

202L MA 041





	NAME	DATE
DESIGN	JP	08/04
DRAWN	CS/MRT	08/04
CHECKED	JH	08/04

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

PLAN AND PROFILE
STA 21+00 TO STA 27+42.43

ROUTE 202L — LOCATION SANTAN FREEWAY, GILBERT RD - FRYE RD

DWG. NO. D-2.25

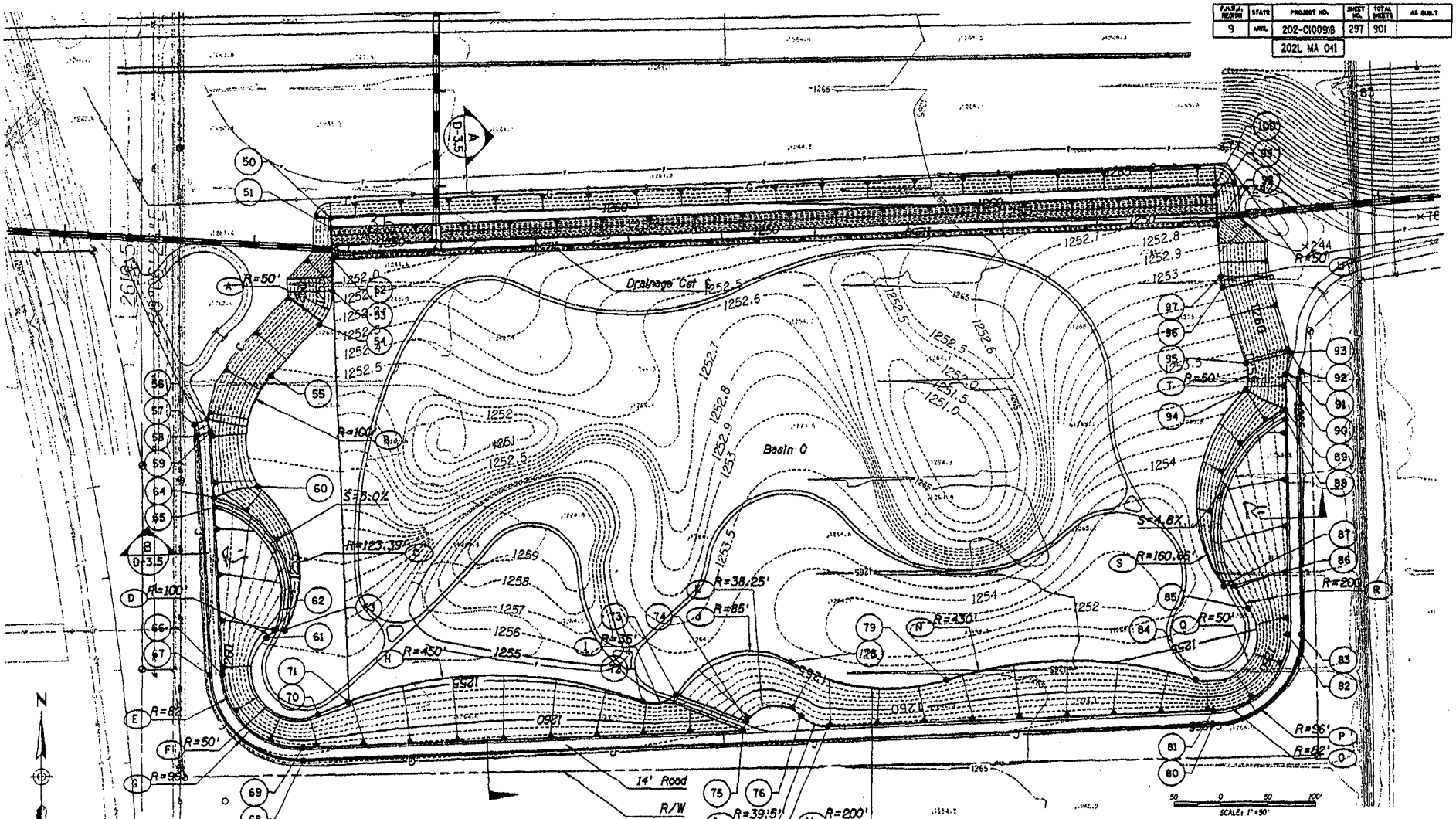
TRACS NO. H5912 01C — 202-C(009)8 — ___ OF ___

p:\202l_IdCad\Sheets\h5912ahrpp18.dgn Plotted By: MRT 8/4/2004 4:40:16 PM

REDUCED SIZE - - DO NOT SCALE

F.A.P.N.H. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	202-C(009)B	297	901	

202L MA 041



Notes:

1. See Sheet D-3.3 for Basin Coordinate Geometry Layout.
2. Contours Shown are Final Design Grades.

	NAME	DATE
DESIGN	JP	08/04
DRAWN	CS/MRT	08/04
CHECKED	JH	08/04

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

BASIN O
PLAN SHEET

ROUTE 202L LOCATION SANTAN FREEWAY, GILBERT RD - FRYE RD

DWG. NO. D-3.1

TRACS NO. H5912 01C

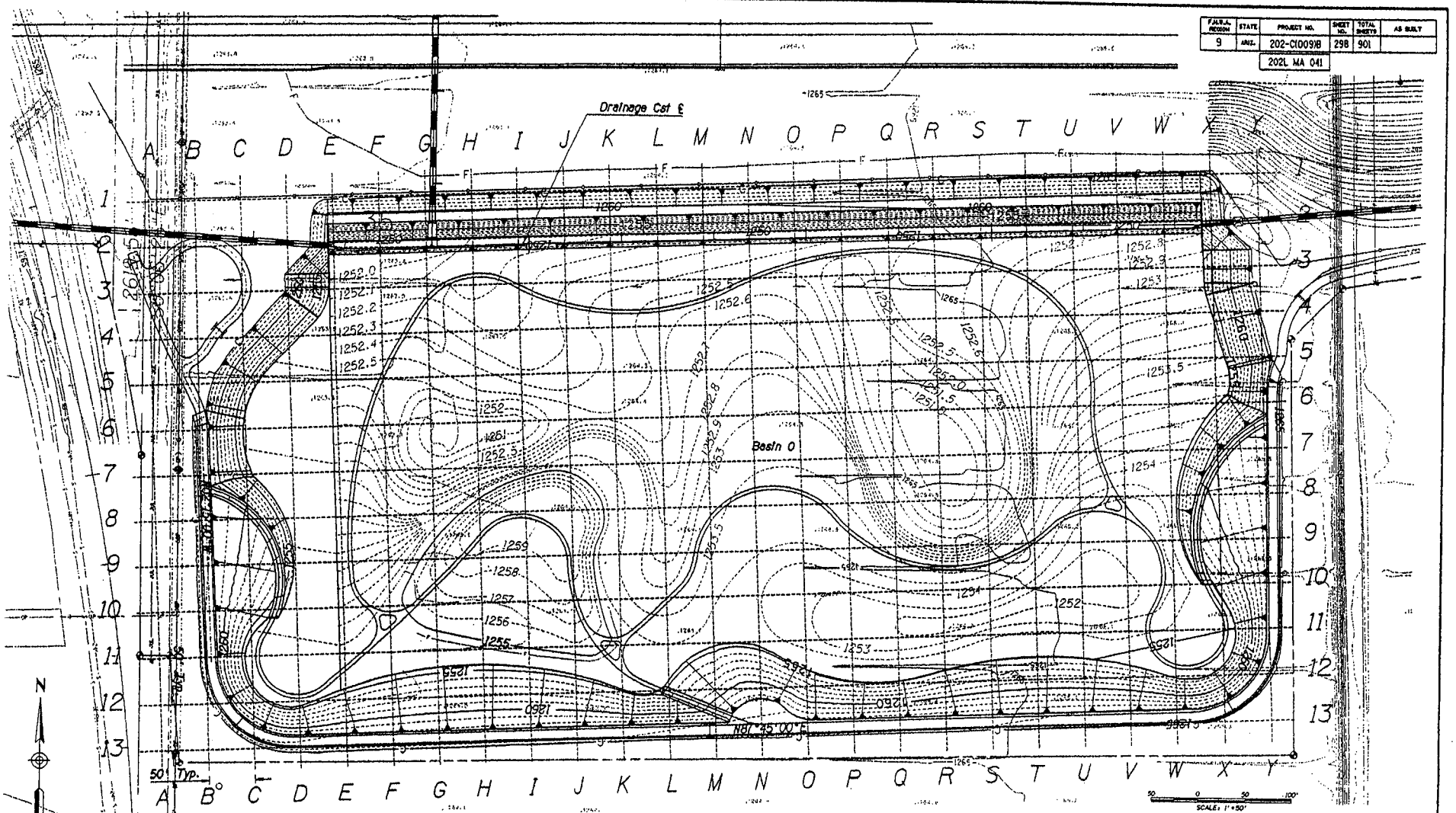
202-C(009)B

___ OF ___

s:\3029\LgCad\Sheets\h5912santOOsc01.dgn Plotted By: MRT 8/4/2004 4:53:01 PM

REDUCED SIZE - DO NOT SCALE

F.A.P.N. REVISION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	202-C(009)B	298	901	
		202L MA 041			



Note: See Sheet D-3.4 for Basin-Coordinate Geometry Table.
A-13 = N 829895.33 E 744130.24
Y-13 = N 829942.44 E 745329.32

	NAME	DATE
DESIGN	JP	08/04
DRAWN	CS/MRT	08/04
CHECKED	JH	08/04

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

BASIN O
GRID PLAN SHEET

ROUTE 202L
LOCATION SANTAN FREEWAY, GILBERT RD - FRYE RD

TRACS NO. H5912 01C
202-C(009)B

DWG. NO. D-3.2
___ OF ___

p:\h5912_SCad\Sheets\h5912BasinOGeo02.dgn Plotted By: MRT 8/6/2004 4:53:22 PM

REDUCED SIZE - DO NOT SCALE

F.A.P.N. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	202-C(009)B	299	901	
		202L MA 041			

Coordinate Table			
PT#	Northing	Easting	Elevation
50	830483.52	744301.81	1259.56
51	830472.90	744302.23	1259.36
52	830439.55	744303.54	1251.87
53	830404.81	744303.90	1252.05
54	830368.36	744290.62	1252.23
55	830313.60	744240.00	1252.55
56	830268.65	744172.19	1263.58
57	830262.76	744158.37	1263.71
58	830250.84	744161.88	1262.47
59	830254.91	744175.69	1262.19
60	830196.58	744225.44	1253.23
61	830032.65	744234.84	1253.96
62	830041.00	744243.35	1253.92
63	830041.16	744254.12	1253.90
64	830184.99	744179.24	1262.05
65	830174.71	744180.69	1261.99
66	829992.76	744189.02	1261.68
67	829992.05	744175.04	1261.95
68	829901.00	744274.68	1262.12
69	859914.99	744274.13	1261.84
70	829950.08	744289.80	1254.41
71	829963.37	744321.47	1254.24
72	829964.37	744636.39	1254.63
73	829971.85	744672.79	1254.59
74	829942.76	744747.32	1262.83
75	829933.44	744743.69	1263.03
76	829948.30	744805.75	1262.94
77	829937.03	744834.96	1263.26
78	830006.80	744795.01	1254.59
79	829987.15	744960.64	1254.90
80	829939.08	745243.82	1264.57
81	829953.07	745243.27	1264.29
82	830035.87	745322.05	1264.17
83	830036.01	745336.05	1264.46

Coordinate Table			
PT#	Northing	Easting	Elevation
84	829987.24	745224.32	1255.22
85	830064.28	745280.05	1254.88
86	830089.39	745264.47	1254.73
87	830088.84	745253.67	1254.72
88	830268.21	745319.61	1264.68
89	830278.21	745319.50	1264.70
90	830316.40	745319.10	1264.78
91	830312.22	745333.15	1265.05
92	830319.41	745335.29	1265.80
93	830338.70	745324.95	1265.84
94	830299.92	745277.16	1253.77
95	830327.61	745277.15	1253.57
96	830410.25	745253.00	1253.13
97	830422.17	745251.08	1253.07
98	830476.65	745247.76	1252.79
99	830510.71	745247.41	1260.30
100	830520.61	745246.03	1260.49

(A)	Control Point Coordinate Location					
Curve No.	PI Northing	PI Easting	Delta Δ	Radius	Length	Tangent
A	830382.73	744303.90	42°44'49" Rt	50.00	37.30	19.57
B	830259.79	744190.27	72°27'18" Lt	100.00	126.46	73.26
C	830129.35	744304.09	78°48'27" Rt	123.39	169.72	101.37
D	830036.59	744239.57	6°38'38" Rt	100.00	11.59	5.80
E	829911.81	744193.14	89°20'21" Lt	82.00	127.86	81.06
F	829806.58	743982.51	163°13'36" Lt	50.00	142.44	339.14
G	829897.28	744179.86	89°20'21" Lt	96.00	149.69	94.90
H	830029.61	744460.11	45°20'24" Lt	450.00	356.10	187.96
I	829954.42	744663.26	78°37'06" Lt	35.00	48.03	28.66
J	830050.88	744722.71	89°44'26" Rt	85.00	133.13	84.62
K	829980.19	744773.25	99°55'56" Rt	38.25	66.71	45.53
L	829936.36	744817.92	46°42'15" Lt	39.50	32.20	17.05
M	829958.98	744873.31	49°17'17" Lt	200.00	172.05	91.75
N	830029.68	745092.42	35°43'15" Rt	430.00	268.08	138.56
O	829956.20	745322.89	88°21'07" Lt	82.00	126.45	79.67
P	829942.74	745337.03	88°21'07" Lt	96.00	148.04	93.28
Q	829940.26	745370.36	143°53'46" Lt	50.00	125.57	153.41
R	830076.25	745271.33	8°28'22" Rt	200.00	29.58	14.81
S	830203.70	745173.98	82°03'22" Rt	160.66	230.09	139.80
T	830312.99	745281.42	33°53'12" Lt	50.00	29.57	15.23
U	830416.12	745251.29	13°56'21" Rt	50.00	12.16	6.11

Note: See Sheet D-3.1 for Basin Plan

	NAME	DATE
DESIGN	JP	08/04
DRAWN	CS/MRT	08/04
CHECKED	JH	08/04

2

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

BASIN O
COORDINATE DATA

ROUTE 202L
LOCATION SANTAN FREEWAY, GILBERT RD - FRYE RD

TRACS NO. H5912 01C
202-C(009)B

DWG. NO. D-3.3
___ OF ___

p:\3028\12Cad\Sheets\h5912santOGeo03.dgn Plotted By: MRT 8/9/2004 4:53:33 PM

REDUCED SIZE - DO NOT SCALE

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	202-C(009)B	300	901	
		202L MA 041			

Basin O Grid Location Table (Final Design Elevations)

Grid #	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1264.86	1264.91	1264.96	1265.01	1265.06	1265.11	1265.16	1265.21	0.00	0.00
2	0.00	0.00	0.00	0.00	1249.23	1249.36	1249.41	1249.45	1249.50	1249.55	1249.60	1249.65	1249.70	1249.75	1249.80	1249.85	1249.90	1249.95	1250.00	1250.05	1250.09	1250.14	1250.19	1262.26	0.00
3	0.00	0.00	0.00	1262.94	1252.05	1252.10	1252.14	1252.10	1252.17	1252.28	1252.35	1252.40	1252.45	1252.50	1252.51	1252.02	1252.50	1252.55	1252.62	1252.75	1252.84	1252.89	1252.94	1255.23	0.00
4	0.00	0.00	0.00	1264.63	1252.30	1252.35	1252.36	1252.23	1252.21	1252.32	1252.45	1252.56	1252.66	1252.72	1252.65	1252.24	1252.36	1252.55	1252.67	1252.87	1253.03	1253.13	1252.19	1253.83	0.00
5	0.00	0.00	1255.85	1252.59	1252.55	1252.56	1252.50	1252.44	1252.33	1252.36	1252.43	1252.56	1252.74	1252.87	1252.79	1252.50	1251.50	1252.25	1252.58	1252.92	1253.21	1253.38	1253.44	1253.49	1263.23
6	0.00	1262.38	1252.89	1252.84	1252.80	1252.65	1251.00	1251.00	1252.93	1252.57	1252.57	1252.58	1252.74	1252.99	1253.01	1252.58	1251.11	1251.00	1251.97	1252.90	1253.43	1253.61	1253.69	1253.74	1263.72
7	0.00	1262.29	1254.29	1253.09	1253.05	1252.80	1251.99	1252.63	1259.39	1253.90	1253.36	1252.66	1252.82	1253.37	1253.41	1253.06	1251.72	1251.00	1251.42	1252.85	1253.69	1253.88	1253.94	1260.93	1264.47
8	0.00	1262.20	1259.73	1253.34	1253.29	1253.14	1253.29	1257.84	1258.73	1259.08	1253.74	1252.77	1252.95	1253.68	1253.74	1253.49	1252.50	1251.00	1251.53	1252.96	1254.00	1253.15	1254.11	1260.73	1264.42
9	0.00	1262.11	1258.95	1253.59	1253.56	1253.71	1256.89	1258.77	1257.14	1259.03	1253.53	1252.88	1253.19	1253.96	1254.00	1253.85	1253.13	1252.51	1252.76	1254.00	1252.47	1252.33	1254.05	1259.31	1264.40
10	0.00	1262.02	1256.90	1253.84	1253.80	1252.14	1256.37	1256.72	1255.02	1258.03	1253.75	1253.20	1253.52	1254.00	1253.40	1253.03	1253.96	1254.00	1253.96	1252.15	1252.00	1252.00	1253.05	1256.16	1264.32
11	0.00	1261.94	1254.14	1254.09	1254.05	1254.10	1254.15	1254.20	1254.25	1255.69	1254.34	1254.00	1253.86	1254.40	1253.61	1252.85	1252.25	1252.35	1253.62	1254.06	1253.76	1253.68	1254.36	1254.99	1264.24
12	0.00	0.00	1257.27	1254.34	1256.17	1257.43	1257.99	1258.18	1257.94	1257.20	1255.11	1253.34	1258.88	1260.84	1257.54	1255.69	1255.53	1257.19	1258.24	1258.60	1258.37	1257.42	1255.19	1257.50	1264.83
13	0.00	0.00	0.00	1262.14	1262.26	1262.39	1262.52	1262.64	1262.77	1262.90	1260.23	1263.15	1263.27	1263.40	1263.53	1263.65	1263.78	1263.91	1264.03	1264.16	1264.28	1264.41	1264.54	0.00	0.00

See Sheet D-3.2 for Design Elevation Grid Locations

	NAME	DATE
DESIGN	JP	08/04
DRAWN	CS/MRT	08/04
CHECKED	JH	08/04

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

BASIN O
FINAL GRADES COORDINATE MATRIX

ROUTE	LOCATION
202L	SANTAN FREEWAY, GILBERT RD - FRYE RD

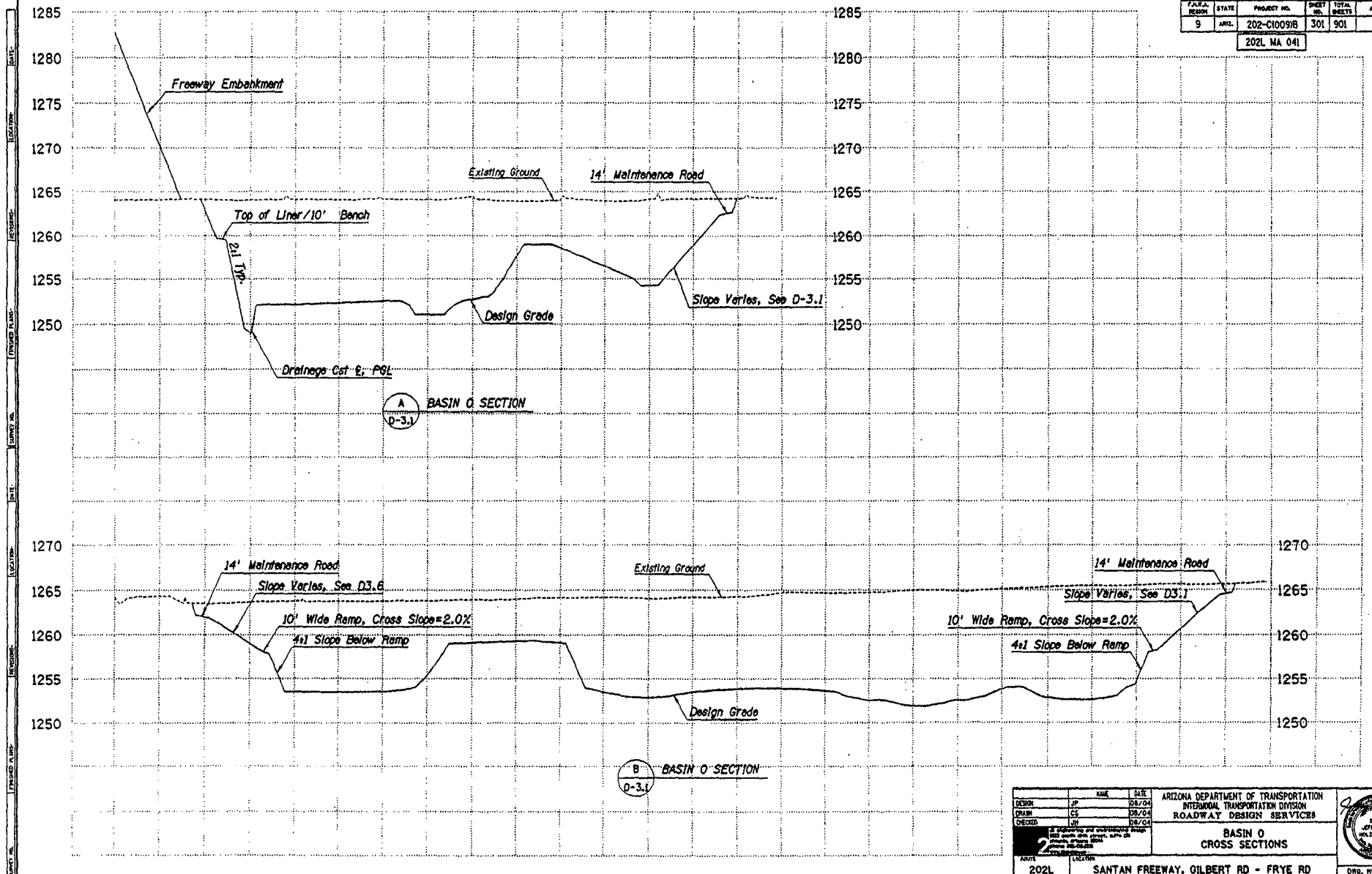
TRACS NO. H5912 01C | 202-C(009)B

DWG. NO. D-3.4

___ OF ___

REDUCED SIZE - DO NOT SCALE

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	202-C(009)B	301	901	
		202L MA 041			



	NAME	DATE
DESIGN	JP	08/04
DRAWN	CS	08/04
CHECKED	JN	08/04

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

BASIN O
CROSS SECTIONS

ROUTE 202L — LOCATION SANTAN FREEWAY, GILBERT RD - FRYE RD

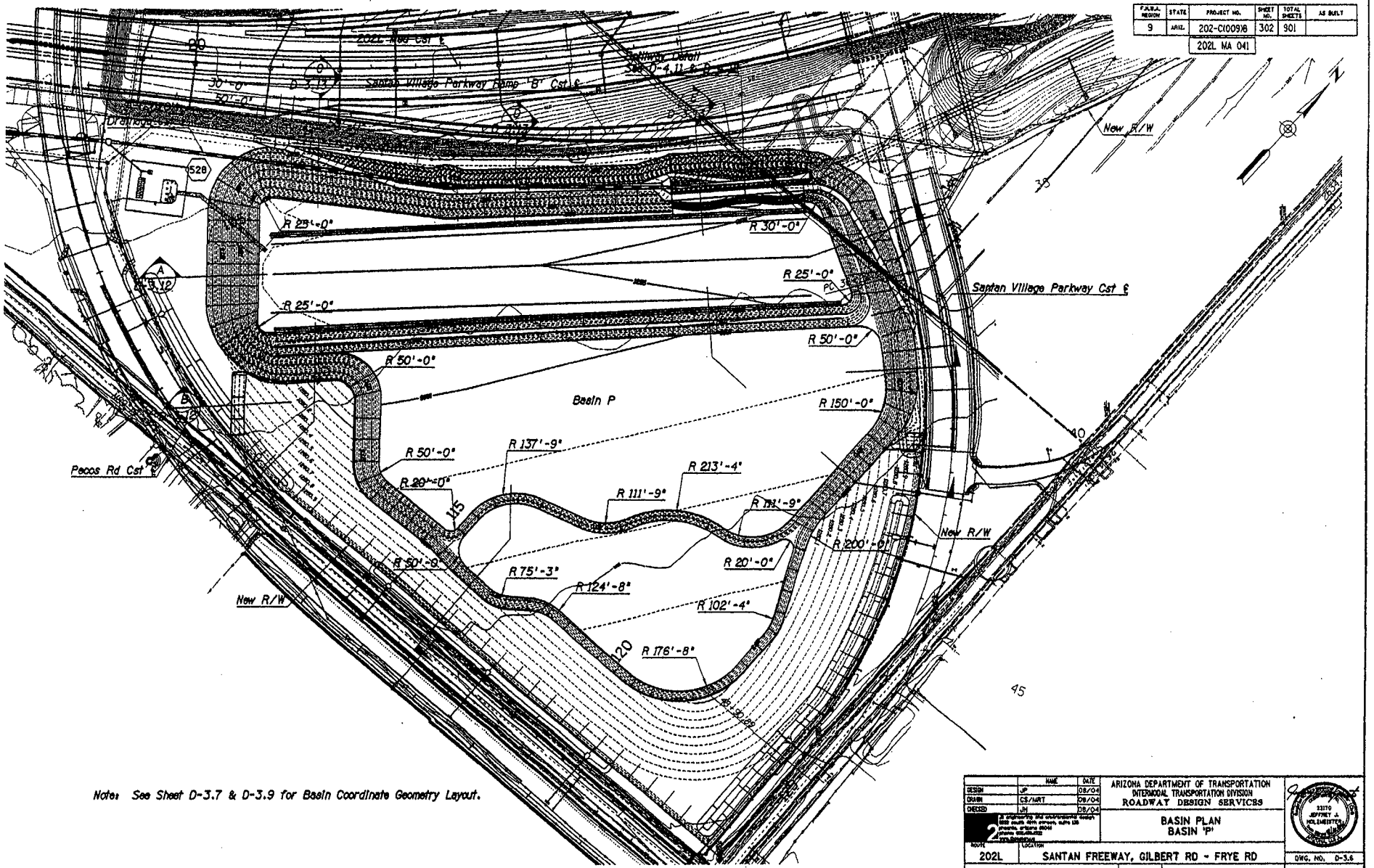
DWG. NO. D-3.6

TRACS NO. H5912 01C — 202-C(009)B — ___ OF ___

p:\9028\JECad\Sheets\b5912Basin0SecD1.dgn Plotted By: MRT 8/6/2004 4:34:01 PM

REDUCED SIZE - DO NOT SCALE

F.A.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	202-C(009)B	302	901	
		202L MA 041			



Note: See Sheet D-3.7 & D-3.9 for Basin Coordinate Geometry Layout.

	NAME	DATE
DESIGN	JP	08/04
DRAWN	CS/MRT	08/04
CHECKED	JH	08/04

2 JE engineering and environmental design 1555 south 48th street, suite 135 phoenix, arizona 85044 phone 602.438.0202 www.jeengineering.com

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

BASIN PLAN
BASIN "P"

ROUTE: 202L
LOCATION: SANTAN FREEWAY, GILBERT RD - FRYE RD

TRACS NO. H5912 01C

202-C(009)B

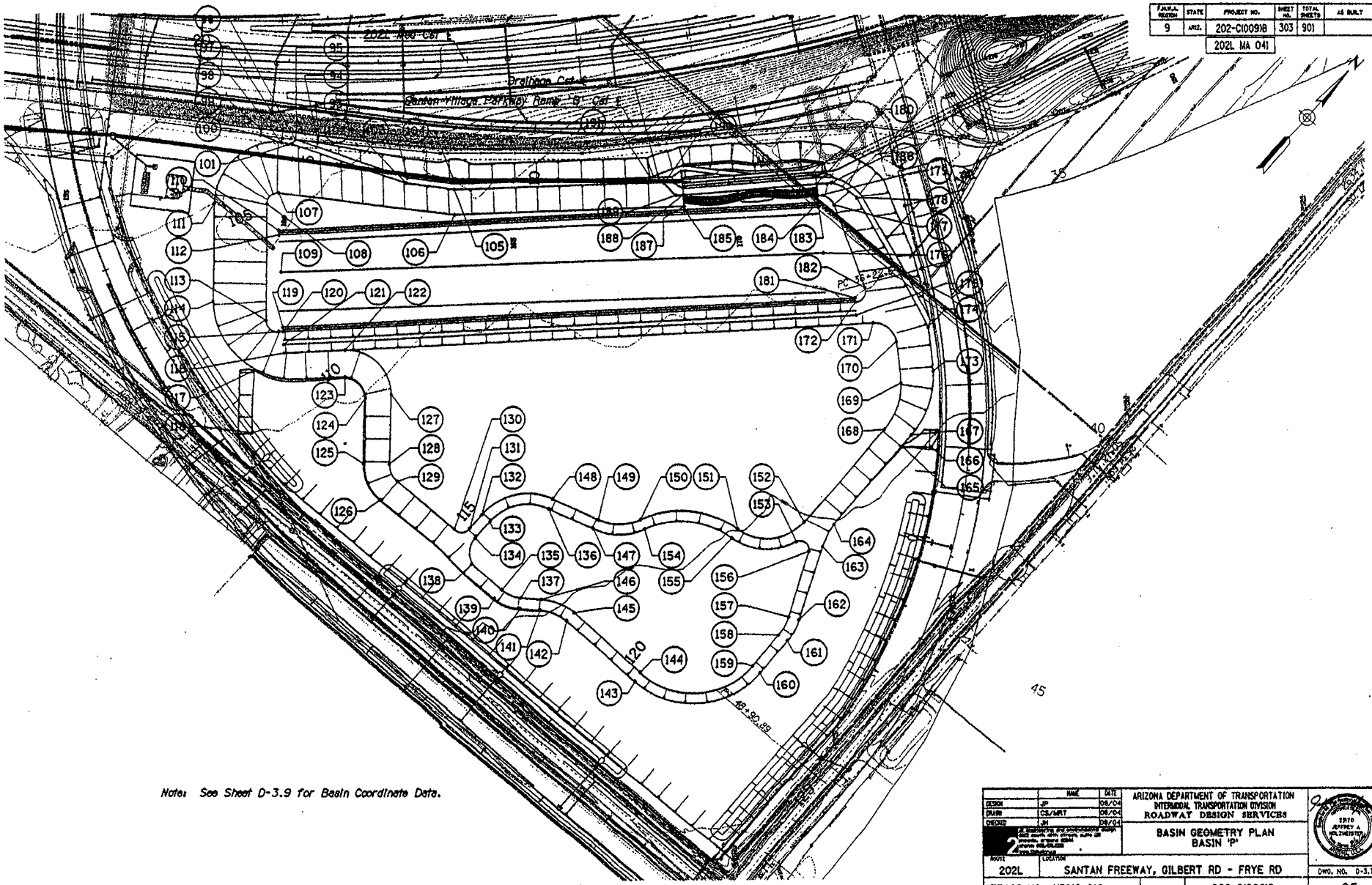
DWG. NO. D-3.6

___ OF ___

p:\5028\JECad\Sheets\H5912SanPGeo01.dgn Plotted By: CAS 8/10/2004 10:14:17 AM

REDUCED SIZE - DO NOT SCALE

FAHWA REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	202-C(009)B	303	901	
		202L MA 041			



Note: See Sheet D-3.9 for Basin Coordinate Data.

	NAME	DATE
DESIGN	JP	06/04
DRAWN	CS/MRT	06/04
CHECKED	JH	06/04

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

BASIN GEOMETRY PLAN
BASIN 'P'

ROUTE: 202L
LOCATION: SANTAN FREEWAY, GILBERT RD - FRYE RD

TRACS NO. H5912 01C

202-C(009)B

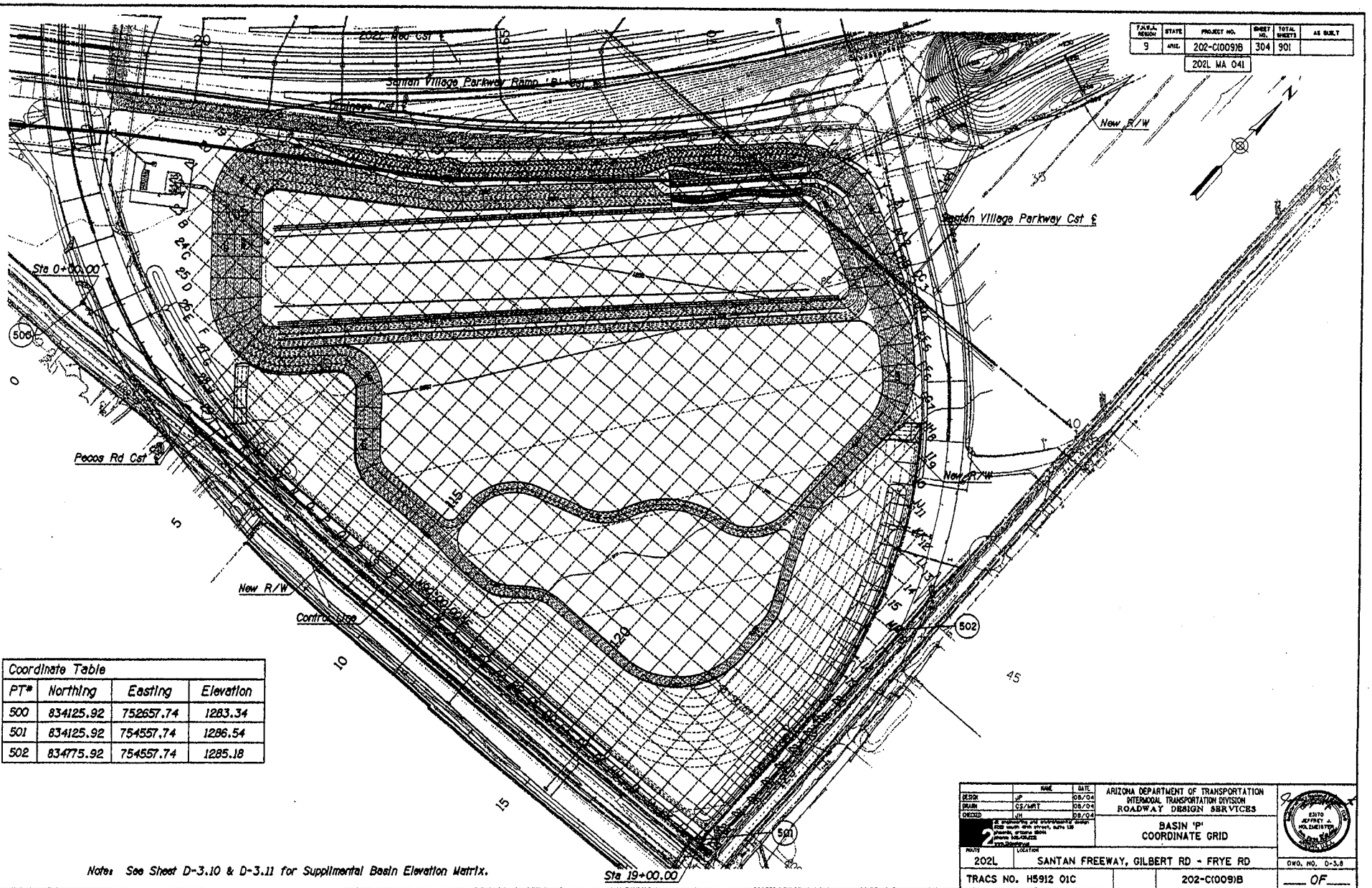
DWG. NO. D-3.7

___ OF ___

p:\9028\J2Cad\Sheets\H5912BenPGeo02.dgn Plotted By: CAS 6/10/2004 10:16:06 AM

REDUCED SIZE - DO NOT SCALE

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	202-C(009)B	304	901	
		202L MA 041			



Coordinate Table			
PT#	Northing	Easting	Elevation
500	834125.92	752657.74	1283.34
501	834125.92	754557.74	1286.54
502	834775.92	754557.74	1285.18

Note: See Sheet D-3.10 & D-3.11 for Supplimental Basin Elevation Matrix.

	NAME	DATE
DESIGN	JP	08/04
DRAWN	CS/MRT	08/04
CHECKED	JH	08/04

2 JE Engineering and Environmental Design 2150 South 35th Street, Suite 135 Phoenix, Arizona 85034 phone 602-258-2222 www.jeedesign.com

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

BASIN 'P'
COORDINATE GRID

ROUTE 202L | LOCATION SANTAN FREEWAY, GILBERT RD - FRYE RD

TRACS NO. H5912 01C | 202-C(009)B

DWG. NO. D-3.8

___ OF ___

p:\3029\J2Cad\Sheets\h59128enPGeo03.dgn Plotted By: CAS 9/10/2004 10:18:06 AM

REDUCED SIZE - DO NOT SCALE

F.A.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	202-C(009)B	305	901	
		202L MA 041			

Coordinate Table			
PT#	Northing	Easting	Elevation
93	834763.75	752797.61	1283.00
94	834751.16	752806.18	1283.00
95	834738.24	752754.49	1282.00
96	834723.51	752764.52	1282.00
97	834721.30	752729.73	1282.00
98	834697.64	752745.84	1282.00
99	834690.73	752690.05	1283.00
100	834678.48	752698.39	1283.00
101	834710.81	752764.62	1282.00
102	834813.78	753015.28	1268.50
103	834824.42	753009.59	1268.74
104	834890.22	753095.07	1268.88
105	834875.08	753106.62	1268.50
106	834831.90	753144.61	1254.26
107	834609.77	752814.69	1254.06
108	834573.65	752809.77	1253.84
109	834478.79	752936.42	1254.39
110	834545.46	752869.22	1253.87
111	834497.49	752720.66	1282.93
112	834538.27	752876.18	1253.87
113	834372.56	752983.39	1253.83
114	834331.37	752866.80	1282.61
115	834373.16	753021.91	1253.86
116	834344.26	753063.95	1264.07
117	834270.25	753037.57	1280.51
118	834161.28	753126.11	1280.94
119	834387.38	753022.22	1253.87
120	834380.11	753029.10	1253.87
121	834358.63	753050.04	1259.07
122	834437.67	753160.47	1264.20
123	834393.14	753199.74	1278.96
124	834388.90	753265.92	1279.10
125	834274.77	753357.97	1280.30
126	834238.06	753440.67	1280.00

Coordinate Table			
PT#	Northing	Easting	Elevation
127	834432.36	753303.50	1264.91
128	834312.30	753402.96	1265.67
129	834294.56	753441.78	1265.89
130	834296.48	753610.31	1266.58
131	834321.10	753635.02	1266.61
132	834362.92	753634.99	1266.48
133	834362.93	753658.99	1272.49
134	934311.73	753659.03	1272.64
135	834261.75	753783.24	1273.29
136	834472.29	753741.05	1272.51
137	834276.95	753828.15	1273.43
138	834261.76	753692.96	1273.45
139	834236.73	753783.49	1249.54
140	834257.05	753842.93	1279.63
141	834285.35	753880.23	1279.66
142	834305.67	753940.66	1279.90
143	834305.67	754145.17	1280.19
144	834328.10	754140.66	1274.58
145	834329.72	753940.66	1273.89
146	834304.98	753865.34	1273.50
147	834503.45	753846.03	1272.85
148	834495.02	753733.28	1266.50
149	834526.77	753840.28	1266.85
150	834589.67	753912.22	1266.97
151	834717.26	754091.65	1267.33
152	834828.61	754194.36	1267.43
153	834783.25	754210.67	1273.51
154	834580.00	753934.19	1272.97
155	834693.46	754095.08	1273.33
156	834784.16	754246.07	1273.66
157	834641.22	754312.40	1274.36
158	834595.67	754321.89	1274.54
159	834505.80	754322.47	1274.80
160	834505.67	754345.17	1280.48

Coordinate Table			
PT#	Northing	Easting	Elevation
161	834598.99	754345.17	1280.34
162	834650.85	754333.91	1280.25
163	834811.99	754262.25	1280.17
164	834866.59	754247.62	1280.20
165	835098.87	754249.88	1280.66
166	835140.10	754299.76	1280.98
167	835132.04	754247.78	1279.96
168	835102.46	754194.10	1266.61
169	835204.66	754153.75	1266.14
170	835269.05	754085.03	1265.67
171	835267.71	754018.08	1265.40
172	853277.61	753956.40	1255.16
173	835272.37	754191.63	1284.81
174	835340.70	754117.24	1284.18
175	835255.59	753977.31	1260.46
176	835314.46	753826.78	1255.61
177	835411.40	753774.42	1255.08
178	835457.99	753803.09	1269.99
179	835403.61	753733.42	1255.27
180	835421.13	753714.19	1265.89
181	835284.44	753949.09	1255.16
182	835317.27	753950.45	1255.07
183	835385.69	753751.75	1255.09
184	835392.76	753744.67	1255.06
185	835182.80	753527.74	1254.74
186	853444.53	753737.11	1269.00
187	835188.31	753522.37	1254.78
188	835206.35	753503.70	1265.42
189	835194.55	753492.13	1265.85
190	835197.38	753454.70	1268.46
191	835185.37	753421.65	1268.74

Note: See Sheet D-3.6 for Basin Plan
See Sheet D-3.7 for Geometry Points

	NAME	DATE
DESIGN	JP	08/04
DRAWN	CS/MRT	08/04
CHECKED	JM	08/04

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

BASIN GEOMETRY DATA
BASIN P

ROUTE: 202L
LOCATION: SANTAN FREEWAY, GILBERT RD - FRYE RD

DWG. NO. D-3.9

TRACS NO. H5912 01C

202-C(009)B

___ OF ___

p:\3028\,j2Cad\Sheets\h5912BasnPGeo04.dgn Plotted By: MRT 9/4/2004 4:58:05 PM

REDUCED SIZE - DO NOT SCALE

F.A.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	202-C(009)B	306	901	
		202L MA 041			

Basin P Grid Location Table (Finished Grade Elevations)

Grid #	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1283.72
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1283.85	1277.57
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1283.31	1277.43	1265.58
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1283.09	1274.88	1262.45	1265.85
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1283.34	1274.95	1265.82	1265.75	1254.88
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1283.26	1279.44	1269.08	1265.65	1256.38	1254.95
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1283.17	1280.99	1268.61	1263.61	1255.07	1254.88	1255.10
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1283.11	1280.21	1268.82	1263.02	1254.69	1254.82	1255.04	1255.26
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1282.98	1279.42	1268.70	1262.43	1254.62	1254.75	1254.98	1255.20	1255.17
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1282.89	1278.63	1268.65	1261.84	1254.55	1254.59	1254.92	1255.14	1255.09	1254.95
12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1282.88	1277.85	1268.60	1261.25	1254.48	1254.62	1254.85	1255.08	1255.01	1254.87	1254.75
13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1282.88	1276.40	1268.56	1260.66	1251.41	1254.56	1254.79	1255.02	1254.93	1254.79	1254.67	1257.22
14	0.00	0.00	0.00	0.00	0.00	0.00	1283.13	1283.06	1273.83	1268.48	1260.07	1254.34	1254.50	1254.73	1254.97	1254.84	1254.71	1254.60	1257.44	1263.87
15	0.00	0.00	0.00	0.00	1282.86	1283.01	1278.16	1269.50	1265.11	1258.14	1254.27	1254.43	1251.67	1254.90	1254.76	1254.63	1254.52	1257.66	1264.08	1264.96
16	0.00	0.00	0.00	1282.80	1281.01	1274.27	1268.66	1261.69	1254.73	1254.15	1254.37	1254.61	1254.82	1254.68	1254.55	1254.45	1257.87	1264.30	1264.90	1265.11
17	0.00	1282.55	1282.72	1279.18	1272.21	1265.25	1258.28	1251.15	1253.84	1254.31	1254.55	1254.73	1254.60	1254.46	1254.37	1258.09	1264.52	1264.83	1265.05	1265.26
18	1282.57	1282.68	1275.90	1268.80	1261.83	1254.86	1254.09	1253.54	1254.25	1254.49	1254.65	1254.52	1254.38	1254.30	1258.31	1264.55	1264.77	1264.98	1265.20	1265.41
19	1282.59	1282.69	1267.82	1258.42	1254.06	1254.02	1253.24	1254.18	1254.43	1254.57	1254.44	1254.30	1254.22	1258.53	1264.49	1264.70	1264.92	1265.14	1265.35	1265.57
20	1282.63	1282.71	1265.72	1253.85	1253.93	1252.94	1254.12	1254.38	1254.49	1254.35	1254.22	1254.15	1258.75	1264.42	1264.65	1264.86	1265.07	1265.29	1265.50	1265.72
21	1282.71	1282.89	1271.24	1261.82	1253.64	1254.06	1254.32	1251.41	1254.27	1254.14	1254.08	1258.97	1264.36	1264.60	1264.81	1265.02	1265.23	1265.44	1265.66	1265.87
22	1282.84	1282.99	1283.02	1270.03	1260.61	1254.01	1254.32	1254.19	1254.06	1254.00	1259.04	1264.30	1264.56	1264.77	1264.97	1265.18	1265.39	1265.60	1265.81	1266.03
23	0.00	1283.01	1283.08	1283.09	1268.83	1259.41	1253.90	1253.97	1253.93	1258.99	1265.83	1272.82	1272.56	1265.18	1265.14	1265.35	1265.56	1265.77	1265.97	1266.18
24	0.00	0.00	1283.11	1283.19	1283.29	1267.61	1258.31	1253.85	1258.95	1266.05	1274.78	1279.82	1279.81	1273.33	1265.30	1265.50	1265.71	1265.92	1266.13	1266.33
25	0.00	0.00	0.00	1283.25	1283.43	1283.40	1268.46	1264.63	1268.20	1275.03	1280.10	1280.07	1280.06	1280.05	1272.02	1265.65	1265.86	1266.07	1266.28	1266.48
26	0.00	0.00	0.00	0.00	1283.49	1283.49	1283.62	1278.82	1280.20	1280.38	1280.35	1280.32	1280.31	1280.30	1280.16	1272.27	1270.66	1271.00	1271.35	1271.69
27	0.00	0.00	0.00	0.00	0.00	0.00	1283.70	1283.76	1283.62	1280.63	1280.60	1280.57	1280.56	1280.55	1280.55	1280.55	1280.56	1280.56	1280.56	1280.57
28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1283.83	1283.68	1283.92	1280.84	1280.82	1280.80	1280.80	1280.80	1280.80	1280.81	1280.81	1280.81	1280.82
29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1283.97	1284.05	1284.14	1284.35	1283.73	1283.37	1283.41	1283.62	1283.83	1284.90	1284.88	1284.91

See Sheet D-3.8 for Finished Grade Elevation Grid Locations
See Sheet D-3.11 for Matrix Continuation

	NAME	DATE
DESIGN	JP	08/04
DRAWN	CS/MRT	08/04
CHECKED	JN	08/04

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

BASIN P
ELEVATION COORDINATE MATRIX

ROUTE	LOCATION
202L	SANTAN FREEWAY, GILBERT RD - FRYE RD

TRACS NO. H5912 01C | 202-C(009)B

DWG. NO. D-3.10

___ OF ___

REDUCED SIZE - DO NOT SCALE

F.A.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	202-C(009)B	307	901	
		202L MA 041			

Basin P Grid Location Table (Finished Grade Elevations)

Grid #	U	V	W	X	Y	Z	AA	BB	CC	DD	EE	FF	GG	HH	II	JJ	KK	LL	MM
1	1284.40	1283.96	1283.94	1283.23	1284.37	1284.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	1279.39	1273.80	1271.72	1270.80	1276.77	1282.75	1284.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	1265.30	1266.05	1259.53	1262.47	1268.34	1273.38	1277.63	1284.75	1284.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	1265.95	1256.70	1255.14	1255.16	1257.32	1263.30	1269.91	1276.91	1281.46	1284.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	1255.09	1255.07	1255.29	1255.50	1255.38	1255.09	1258.53	1266.56	1273.56	1280.56	1284.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	1255.01	1255.22	1255.44	1255.50	1255.36	1255.13	1255.68	1263.88	1265.54	1270.77	1279.41	1284.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	1255.16	1255.38	1255.42	1255.28	1255.15	1255.91	1262.34	1265.47	1265.68	1265.89	1270.56	1280.04	1284.84	0.00	0.00	0.00	0.00	0.00	0.00
8	1255.32	1255.33	1255.20	1255.06	1256.13	1262.56	1265.41	1265.62	1265.83	1266.04	1266.24	1273.19	1282.80	1285.06	0.00	0.00	0.00	0.00	0.00
9	1255.25	1255.12	1254.98	1256.35	1262.78	1265.34	1265.55	1265.76	1265.97	1266.18	1266.39	1270.23	1282.39	1280.97	1285.23	0.00	0.00	0.00	0.00
10	1255.04	1254.90	1256.56	1262.99	1265.28	1265.49	1265.70	1265.91	1266.12	1266.33	1266.54	1270.10	1280.62	1280.83	1282.89	0.00	0.00	0.00	0.00
11	1254.83	1256.78	1263.21	1265.22	1265.43	1265.64	1265.85	1266.06	1266.27	1266.48	1266.69	1270.23	1280.48	1280.69	1280.91	1285.20	0.00	0.00	0.00
12	1257.00	1263.43	1265.15	1265.36	1265.58	1265.79	1266.00	1266.21	1266.42	1266.63	1266.84	1270.37	1280.35	1280.56	1280.78	1281.12	1285.29	0.00	0.00
13	1263.65	1265.09	1265.30	1265.51	1265.73	1265.94	1266.15	1266.36	1266.57	1266.78	1266.99	1270.50	1280.22	1280.44	1280.67	1280.89	1285.29	1285.39	0.00
14	1265.02	1265.24	1265.45	1265.66	1265.87	1266.09	1266.30	1266.51	1266.72	1266.93	1267.14	1270.52	1280.11	1280.33	1280.56	1280.79	1281.93	1285.44	0.00
15	1265.17	1265.39	1265.60	1265.81	1266.02	1266.24	1266.45	1266.66	1266.87	1267.08	1267.28	1270.41	1280.00	1280.23	1280.46	1280.69	1280.93	1285.78	0.00
16	1265.32	1265.54	1265.75	1265.96	1266.17	1266.38	1266.60	1266.81	1267.02	1267.22	1267.43	1273.52	1275.48	1280.14	1280.37	1280.61	1280.85	1285.73	1285.18
17	1265.48	1265.69	1265.90	1266.11	1266.32	1266.53	1266.75	1266.96	1267.17	1267.37	1271.40	1273.67	1273.88	1280.18	1280.30	1280.54	1280.78	1281.88	1285.52
18	1265.63	1265.84	1266.05	1266.26	1266.47	1266.69	1266.90	1270.74	1273.22	1273.43	1273.63	1273.83	1274.03	1276.80	1280.23	1280.47	1280.71	1280.96	1285.93
19	1265.78	1265.99	1266.20	1266.41	1266.63	1266.84	1272.01	1273.14	1273.36	1273.58	1273.78	1273.98	1274.18	1274.39	1280.31	1280.42	1280.66	1280.91	1285.98
20	1265.93	1266.15	1266.36	1266.57	1266.78	1267.55	1273.07	1273.28	1273.50	1273.72	1273.93	1274.13	1274.33	1274.54	1280.13	1280.38	1280.62	1280.87	1285.92
21	1266.09	1266.30	1266.51	1266.72	1268.59	1273.02	1273.22	1273.43	1273.65	1273.87	1274.07	1274.28	1274.48	1274.68	1280.13	1280.35	1280.59	1280.84	1285.84
22	1266.24	1268.29	1272.56	1272.77	1272.98	1273.17	1273.37	1273.58	1273.79	1274.01	1274.22	1274.42	1274.62	1274.83	1280.21	1280.33	1280.58	1280.83	1285.79
23	1268.02	1272.48	1272.71	1272.81	1273.12	1273.32	1273.52	1273.73	1273.94	1274.16	1274.36	1274.57	1274.77	1275.81	1280.09	1280.34	1280.59	1280.84	1285.92
24	1271.94	1272.63	1272.85	1273.06	1273.27	1273.47	1273.67	1273.88	1274.09	1274.30	1274.51	1274.71	1274.92	1280.06	1280.19	1280.41	1280.64	1280.88	1285.84
25	1272.28	1272.79	1272.99	1273.20	1273.41	1273.62	1274.86	1274.93	1275.00	1275.07	1275.27	1277.94	1280.12	1280.20	1280.35	1280.54	1280.75	1280.97	1286.17
26	1273.00	1272.94	1273.14	1273.35	1278.12	1280.34	1280.35	1280.35	1280.35	1280.36	1280.36	1280.37	1280.37	1280.43	1280.55	1280.70	1280.89	1281.00	1286.13
27	1280.57	1280.58	1280.58	1280.58	1280.59	1280.59	1280.60	1280.60	1280.60	1280.61	1280.61	1280.62	1280.62	1280.67	1280.76	1280.89	1281.00	1281.00	1286.12
28	1280.82	1280.83	1280.83	1280.83	1280.84	1280.84	1285.13	1285.19	1285.29	1285.45	1285.40	1285.52	1285.55	1285.73	1285.76	1285.83	1285.89	1286.00	1286.31
29	1284.94	1284.97	1285.00	1285.00	1285.12	1285.08	1285.12	1285.20	1285.37	1285.39	1285.48	1285.62	1285.69	1285.76	1285.81	1285.77	1285.97	1286.25	1286.54

See Sheet D-3.8 for Finished Grade Elevation Grid Locations
See Sheet D-3.10 for Matrix Continuation

	NAME	DATE
DESIGN	JP	08/04
DRAWN	CS/MRT	08/04
CHECKED	JN	08/04

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

BASIN P
ELEVATION COORDINATE MATRIX

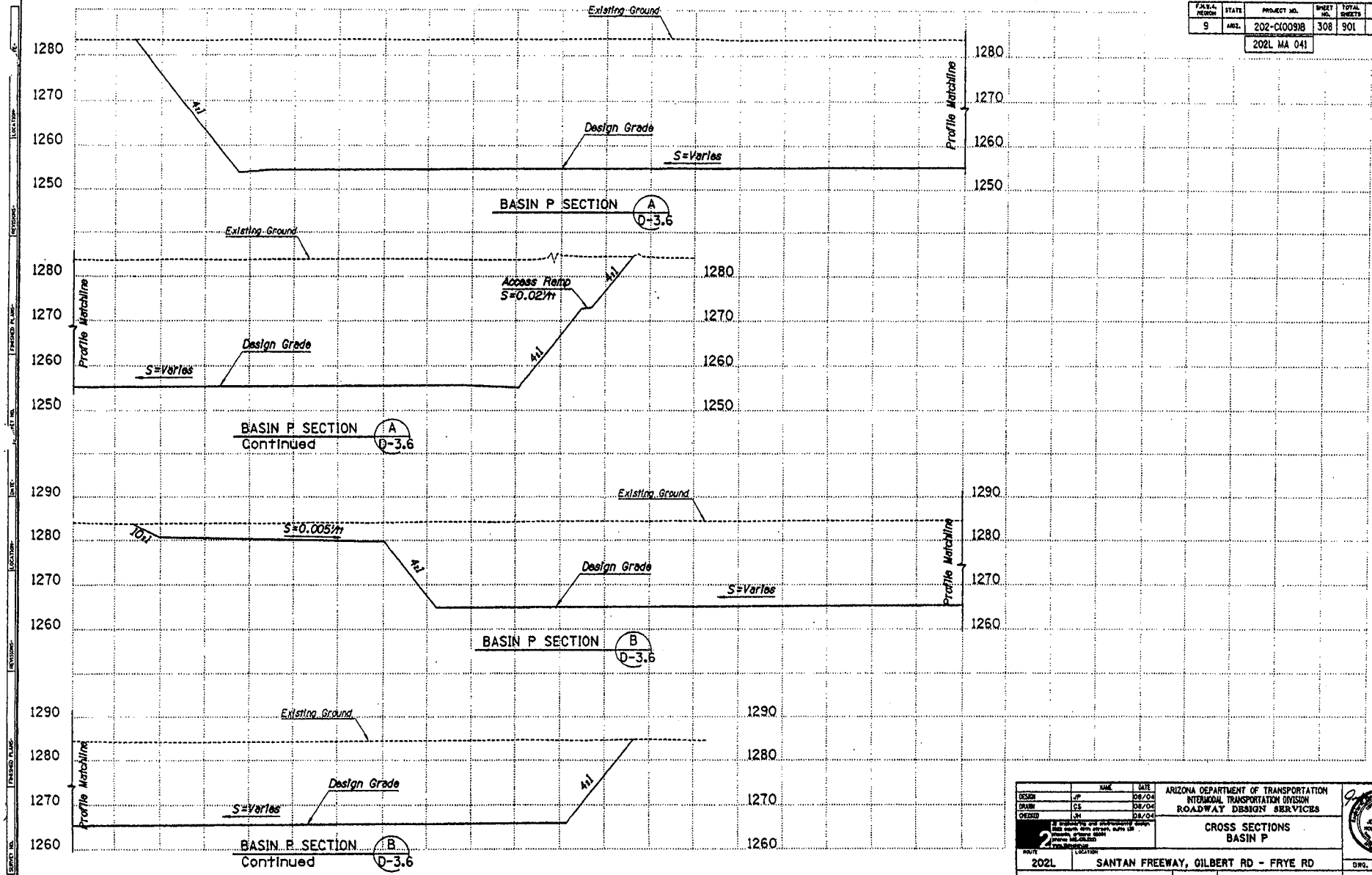
ROUTE 202L | LOCATION SANTAN FREEWAY, GILBERT RD - FRYE RD

TRACS NO. H5912 01C | 202-C(009)B | DWG. NO. D-3.11 | ___ OF ___

Plotted By: MRT 8/4/2004 4:08:25 PM

REDUCED SIZE - DO NOT SCALE

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	202-C(009)B	308	901	
		202L MA 041			



	NAME	DATE
DESIGN	JP	08/04
DRAWN	CS	08/04
CHECKED	JH	08/04

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

CROSS SECTIONS
BASIN P

ROUTE: 202L
LOCATION: SANTAN FREEWAY, GILBERT RD - FRYE RD

DWG. NO. D-3.12

TRACS NO. H5912 01C

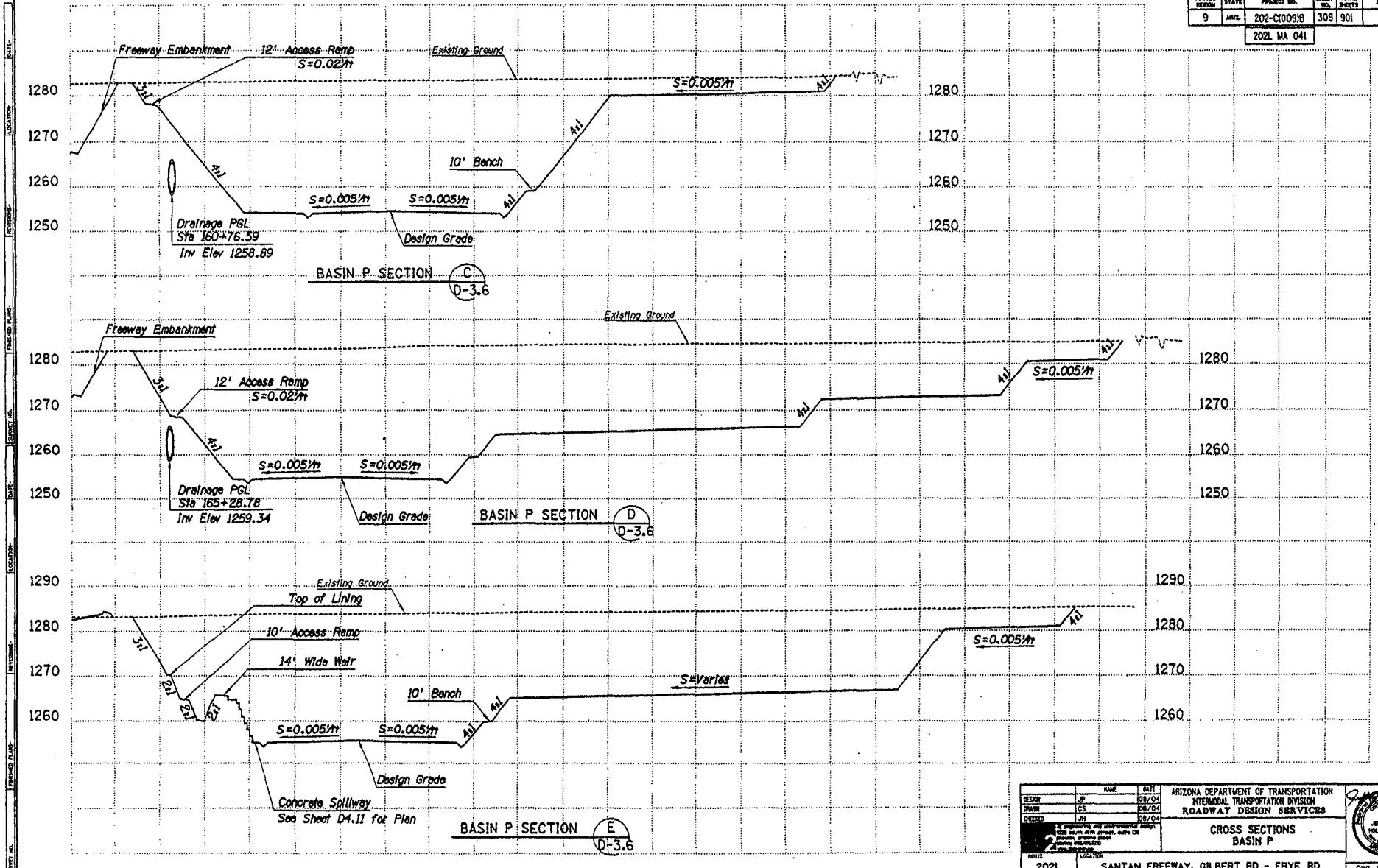
202-C(009)B

___ OF ___

p:\9028\JZCad\Sheets\h5912ben\PBas01.dgn Plotted By: MRT 8/4/2004 4:06:48 PM

REDUCED SIZE - DO NOT SCALE

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	202-C(009)B	309	901	
		202L MA 041			



	NAME	DATE
DESIGN	JP	08/04
DRAWN	CS	08/04
CHECKED	JM	08/04

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

CROSS SECTIONS
BASIN P

ROUTE: 202L
LOCATION: SANTAN FREEWAY, GILBERT RD - FRYE RD

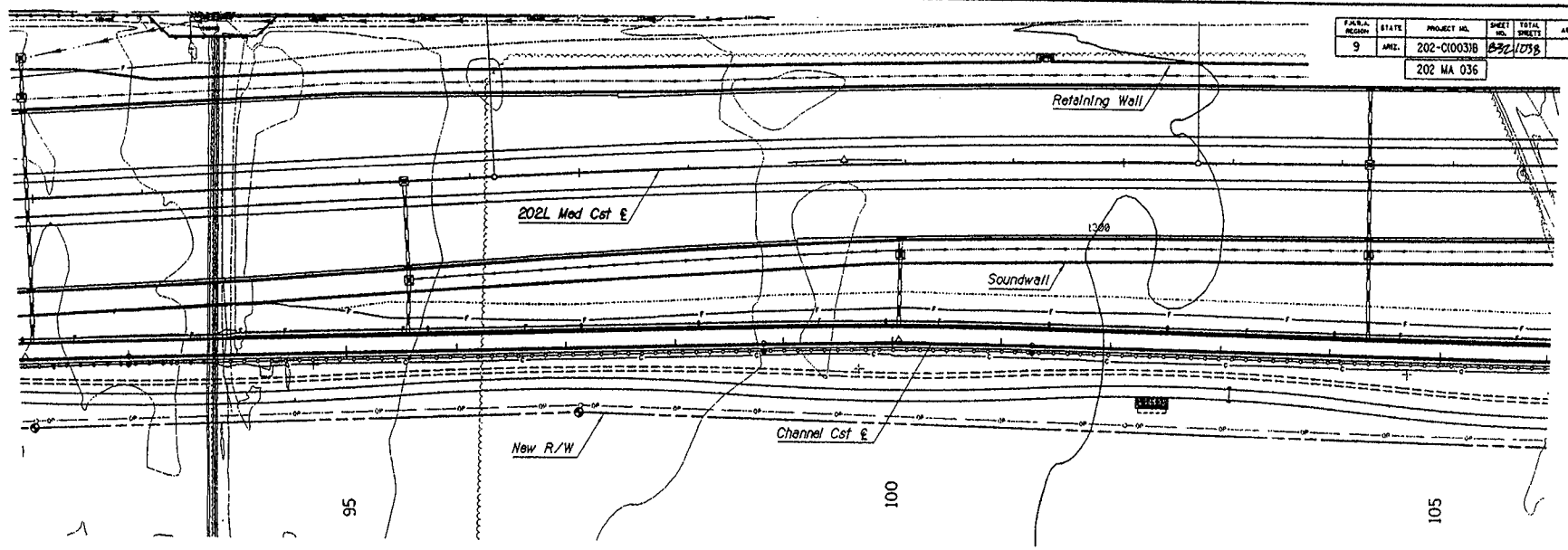
TRACS NO. H5912 01C

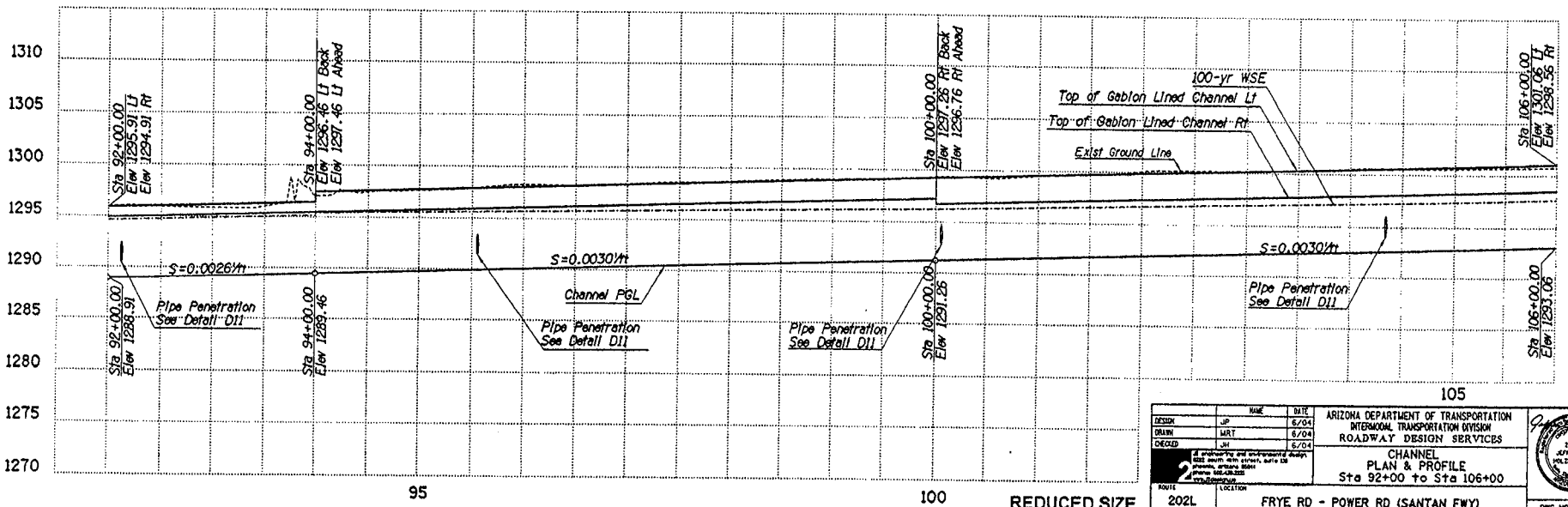
202-C(009)B

DWG. NO. D-3.13

___ OF ___

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	202-C(003)B	832	1038	
		202 MA 036			





REDUCED SIZE
DO NOT SCALE

	NAME	DATE
DESIGN	JP	6/04
DRAWN	MRT	6/04
CHECKED	JH	6/04

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

CHANNEL
PLAN & PROFILE
Sta 92+00 to Sta 106+00

ROUTE: 202L
LOCATION: FRYE RD - POWER RD (SANTAN FWY)

TRACS NO. H 5911 01 C

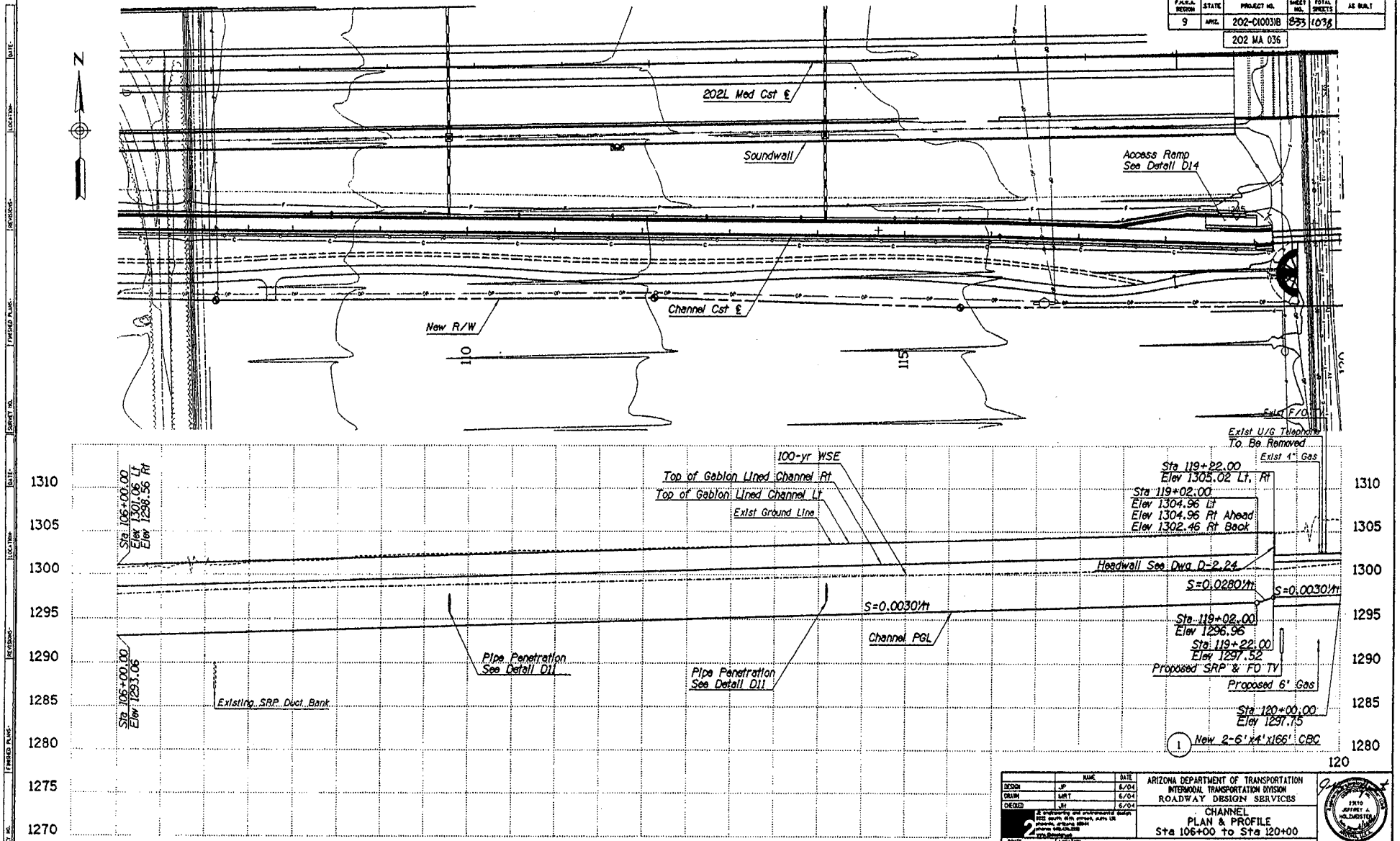
202-C(003)B

DWG NO. D-2.7

___ OF ___

$FILE$ $USER$ $DATE$ $TIME$

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	202-C(003)B	833	1038	
		202 MA 036			



REDUCED SIZE
DO NOT SCALE

	NAME	DATE
DESIGN	JP	6/04
DRAWN	MRT	6/04
CHECKED	JH	6/04

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

CHANNEL
PLAN & PROFILE
Sta 106+00 to Sta 120+00

ROUTE: 202L
LOCATION: FRYE RD - POWER RD (SANTAN FWY)

TRACS NO. H 5911 01 C

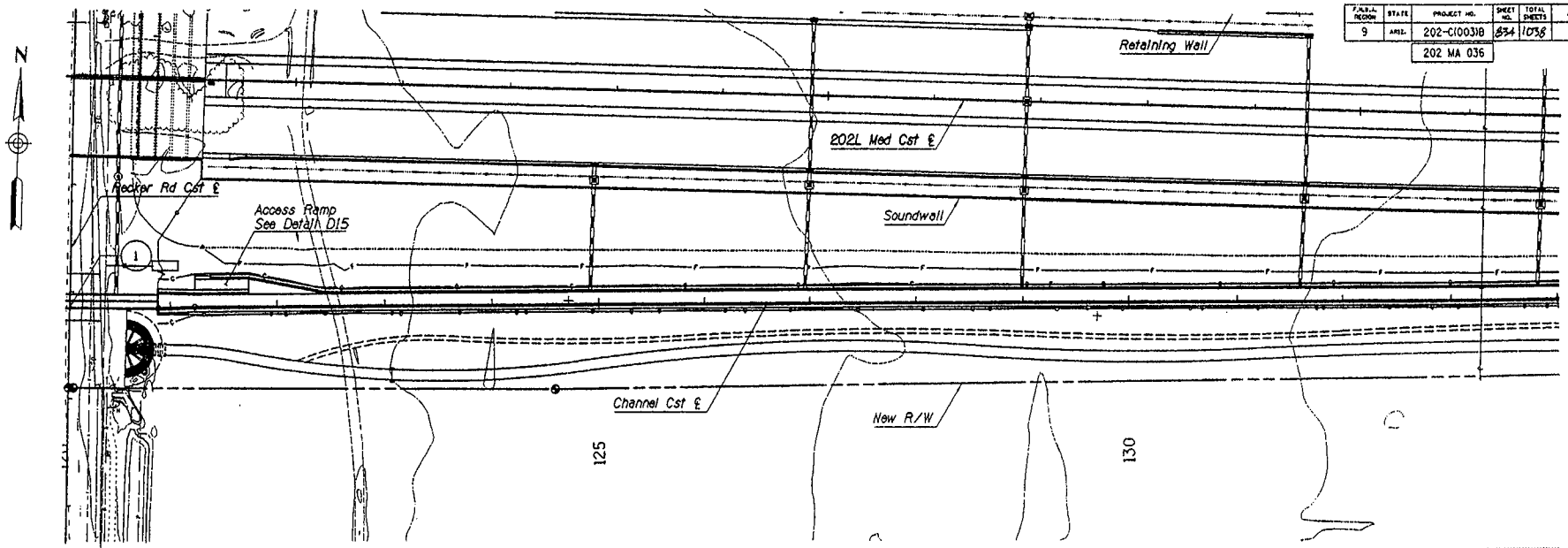
202-C(003)B

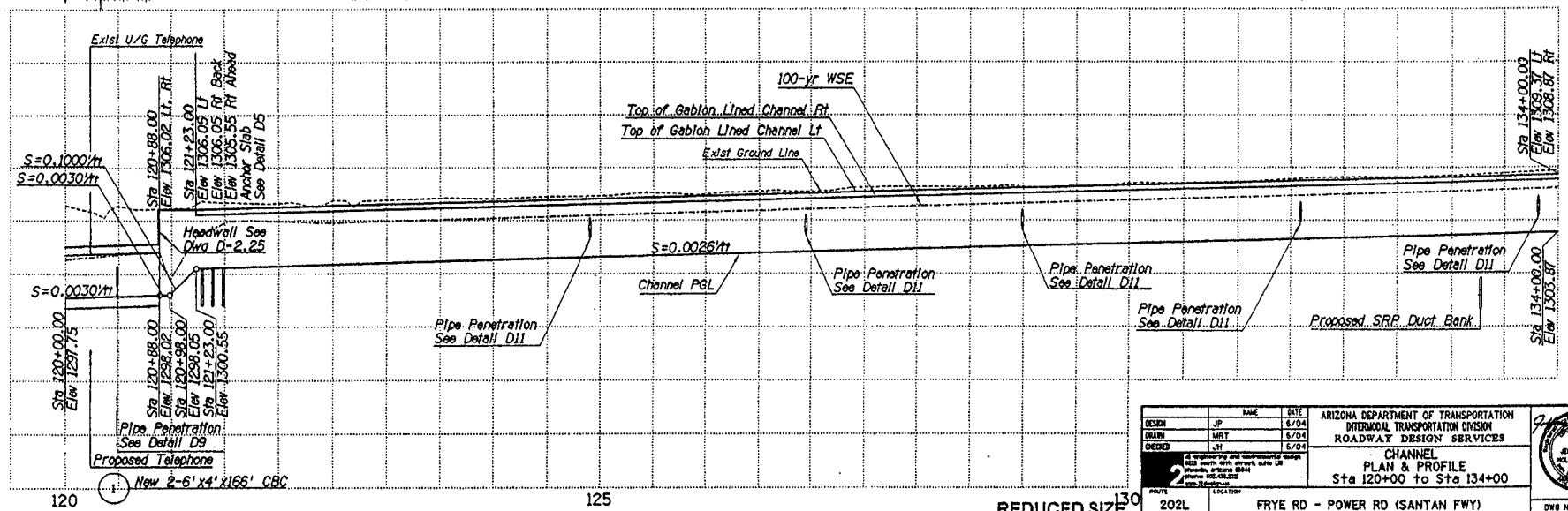
DWG NO. D-2.8

___ OF ___

$FILE$ $USER$ $DATE$ $TIME$

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	202-C(003)8	834	1036	
		202 MA 036			





REDUCED SIZE
DO NOT SCALE

	NAME	DATE
DESIGN	JP	6/04
DRAWN	MRT	6/04
CHECKED	JH	6/04

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

CHANNEL
PLAN & PROFILE
Sta 120+00 to Sta 134+00

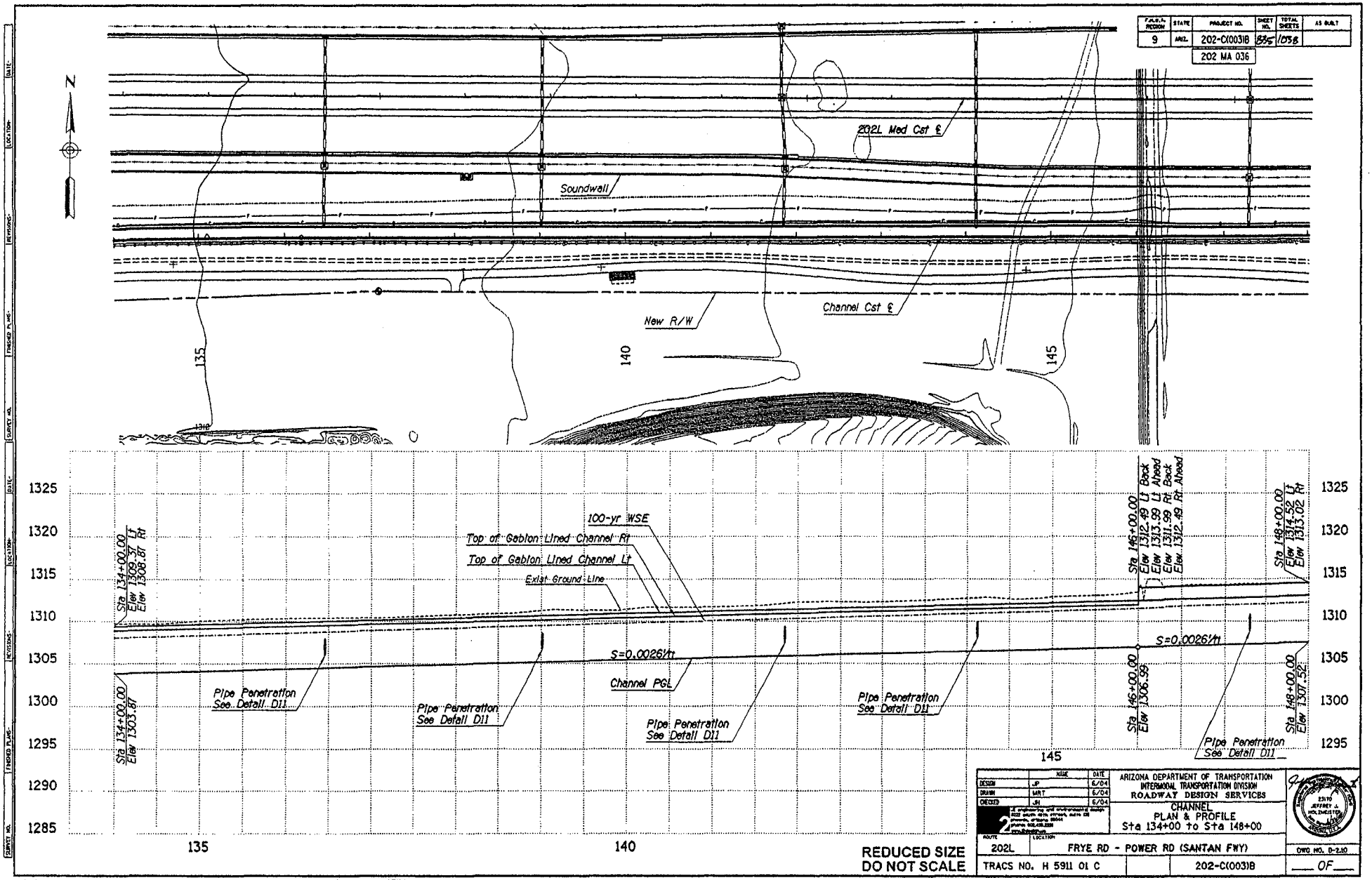
ROUTE 202L
LOCATION FRYE RD - POWER RD (SANTAN FWY)

TRACS NO. H 5911 01 C
202-C(003)8

DWG NO. D-2.9
___ OF ___

$FILE$ $USER$ $DATE$ $TIME$

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	202-C(003)B	835	1038	
		202 MA 036			



REDUCED SIZE
DO NOT SCALE

	NAME	DATE
DESIGN	JP	6/04
DRAWN	MRT	6/04
CHECKED	JH	6/04

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

CHANNEL
PLAN & PROFILE
Sta 134+00 to Sta 148+00

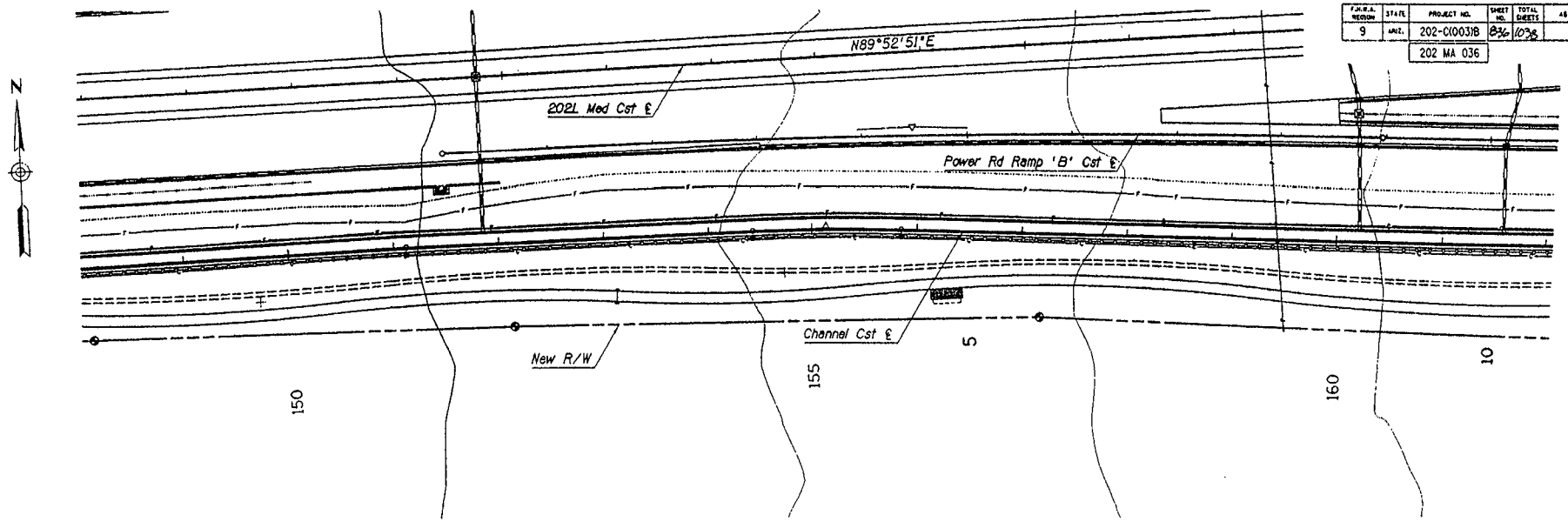
ROUTE: 202L
LOCATION: FRYE RD - POWER RD (SANTAN FWY)

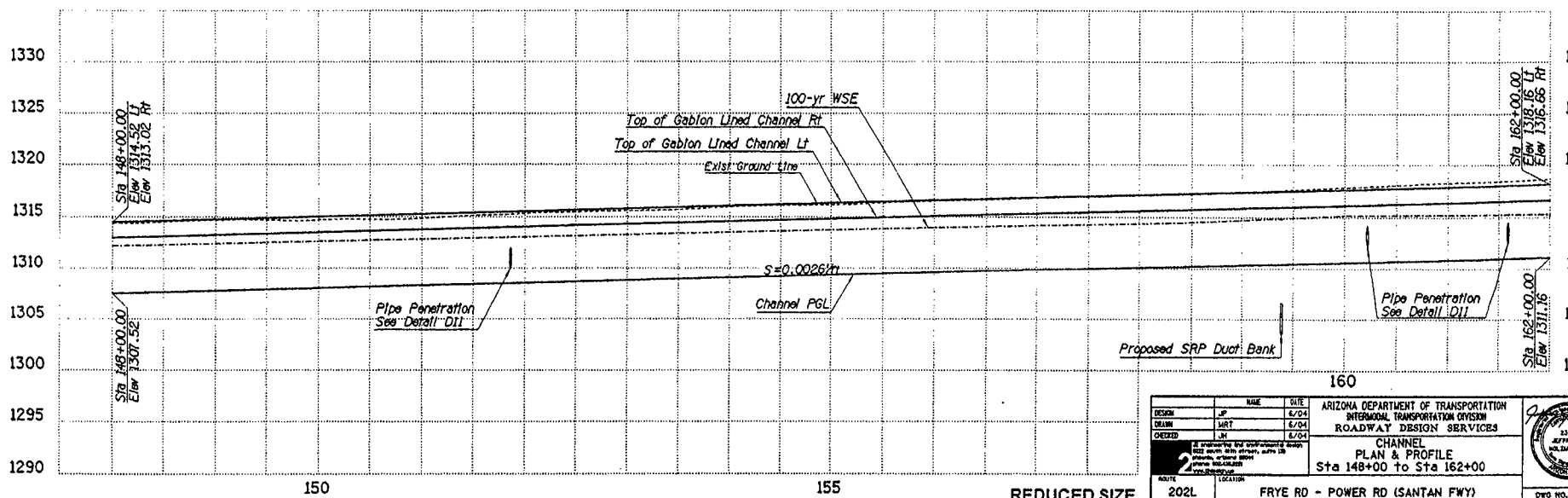
TRACS NO. H 5911 01 C
202-C(003)B

DWG NO. D-2.10
___ OF ___

$FILES $USERS $DATES $TIMES

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	202-C(003)B	836	1036	
		202 MA 036			





REDUCED SIZE
DO NOT SCALE

	NAME	DATE
DESIGN	JP	6/04
DRAWN	MRT	6/04
CHECKED	JM	6/04

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

CHANNEL
PLAN & PROFILE
Sta 148+00 to Sta 162+00

ROUTE 202L
LOCATION FRYE RD - POWER RD (SANTAN FWY)

TRACS NO. H 5911 01 C

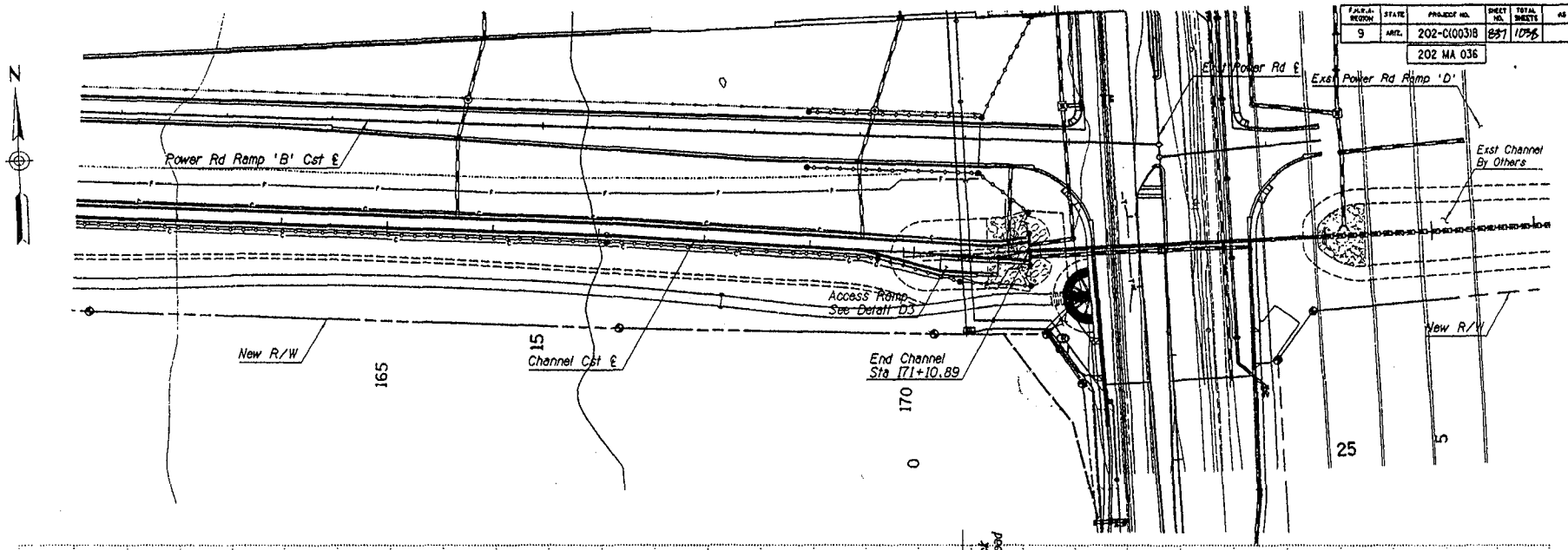
202-C(003)B

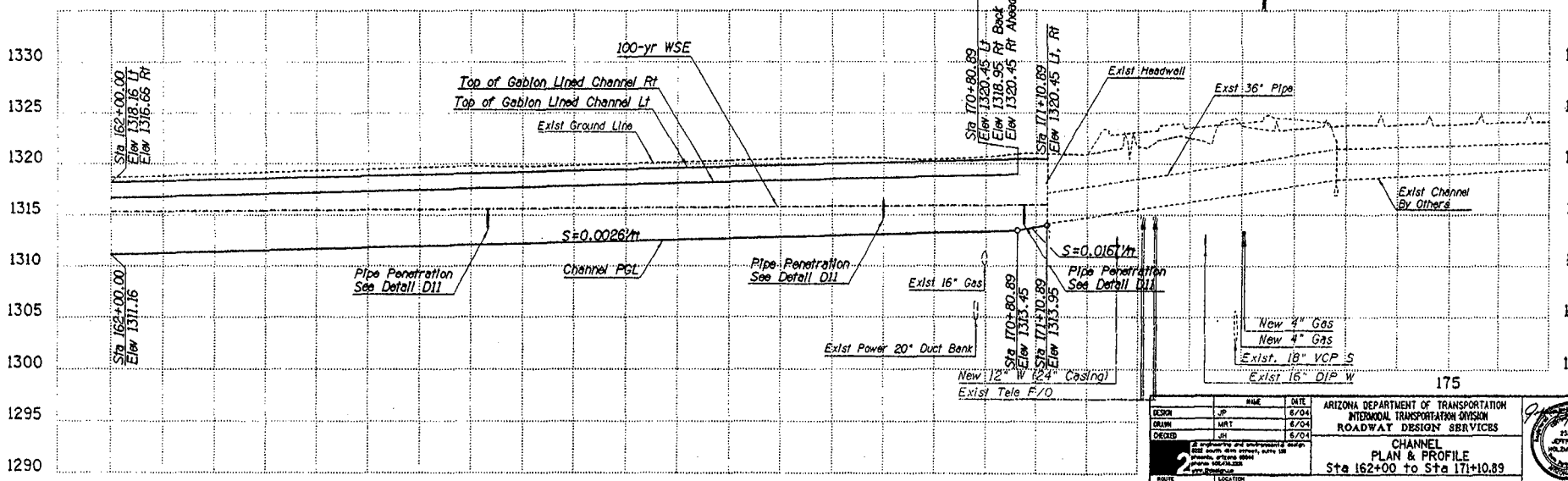
DWG NO. D-2.11

___ OF ___

$FILE$ $USER$ $DATE$ $TIME$

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	202-C(003)B	857	1078	
		202 MA 036			





REDUCED SIZE
DO NOT SCALE

	NAME	DATE
DESIGN	JP	6/04
DRAWN	MRT	6/04
CHECKED	JH	6/04

2 Engineering and Environmental design, 222 south 48th street, suite 120 phoenix, arizona 85034 phone 602.414.1225 www.2engineering.com

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

CHANNEL
PLAN & PROFILE
Sta 162+00 to Sta 171+10.89

ROUTE: 202L
LOCATION: FRYE RD - POWER RD (SANTAN FWY)

TRACS NO. H 5911 01 C

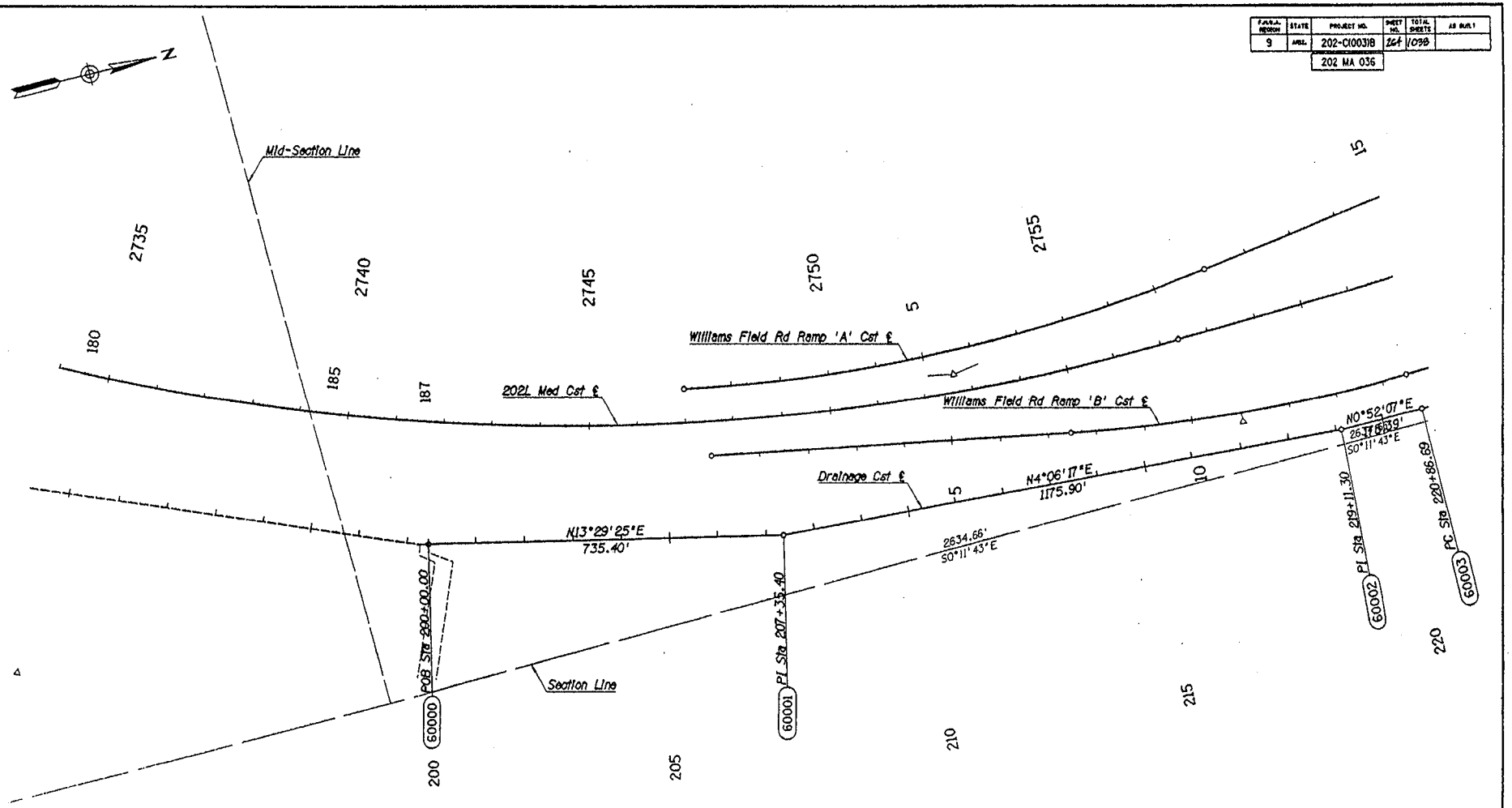
202-C(003)B

DWG NO. D-2.12

___ OF ___

p:\2006\J2Cad\Sheets\h5911c008.dgn Plotted By: MRT 6/22/2004 8:10:10 AM

F.A.H.U. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	202-C(003)B	264	1098	
		202 MA 036			



REDUCED SIZE
DO NOT SCALE

	CONTROL POINT LOCATIONS		
Ref Number	Station	Northing	Easting
60000	200+00.00	836865.10	754326.95
60001	207+35.40	837580.21	754498.50
60002	219+11.30	838753.09	754582.68
60003	220+86.69	838928.46	754585.34

	NAME	DATE
DESIGN	JP, KD	6/04
DRAWN	CS, MRT	6/04
CHECKED	JH	6/04

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

CHANNEL
GEOMETRIC LAYOUT
STA 200+00 TO STA 221+00

ROUTE 202L
LOCATION FRYE ROAD - POWER ROAD (SANTAN FWY)

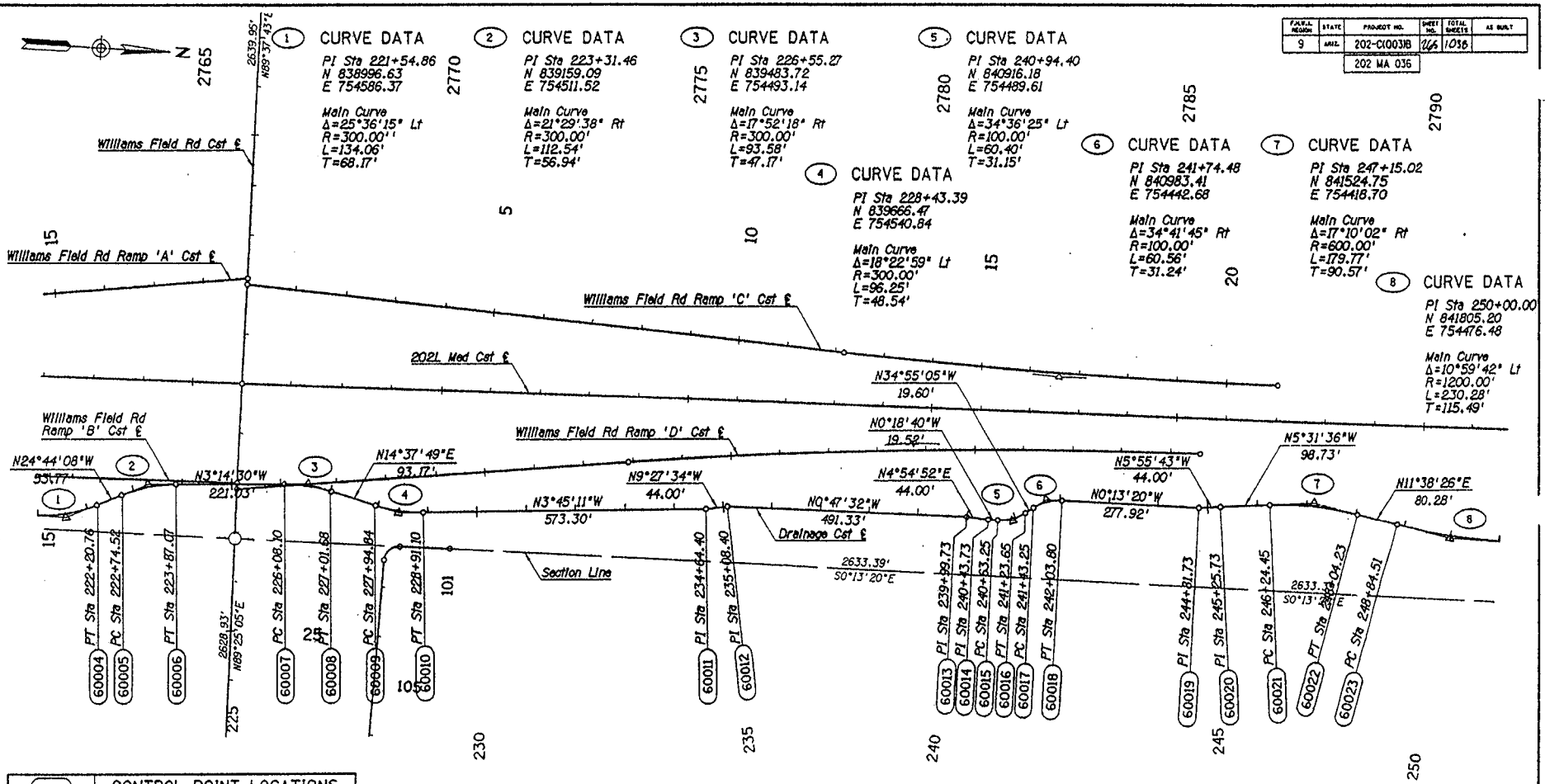
TRACS NO. H 5911 01 C
202-C(003)B

DWG. NO. D-05.01
___ OF ___

p:\3029\j2cad\sheets\h5914cg01.dgn Plotted By: MRT 6/24/2004 1:16:38 PM

oooooSYSTIMEoooooooooooDGNoSPECIFICATIONoooooo

FAR.W.L. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	202-C(003)B	266	1036	
		202 MA 036			



① CURVE DATA

PI Sta 221+54.86
N 838996.63
E 754586.37

Main Curve
Δ=25°36'15" Lt
R=300.00'
L=134.06'
T=68.17'

② CURVE DATA

PI Sta 223+31.46
N 839159.09
E 754511.52

Main Curve
Δ=21°29'38" Rt
R=300.00'
L=112.54'
T=56.94'

③ CURVE DATA

PI Sta 226+55.27
N 839483.72
E 754493.14

Main Curve
Δ=17°52'18" Rt
R=300.00'
L=93.58'
T=47.17'

④ CURVE DATA

PI Sta 228+43.39
N 839666.47
E 754540.84

Main Curve
Δ=18°22'59" Lt
R=300.00'
L=96.25'
T=48.54'

⑤ CURVE DATA

PI Sta 240+94.40
N 840916.18
E 754489.61

Main Curve
Δ=34°36'25" Lt
R=100.00'
L=60.40'
T=31.15'

⑥ CURVE DATA

PI Sta 241+74.48
N 840983.41
E 754442.68

Main Curve
Δ=34°41'45" Rt
R=100.00'
L=60.56'
T=31.24'

⑦ CURVE DATA

PI Sta 247+15.02
N 841524.75
E 754418.70

Main Curve
Δ=17°10'02" Rt
R=600.00'
L=179.77'
T=90.57'

⑧ CURVE DATA

PI Sta 250+00.00
N 841805.20
E 754476.48

Main Curve
Δ=10°59'42" Lt
R=1200.00'
L=230.28'
T=115.49'

⬭ CONTROL POINT LOCATIONS			
Ref Number	Station	Northing	Easting
60004	222+20.76	839058.54	754557.84
60005	222+74.52	839107.37	754535.35
60006	223+87.07	839215.94	754508.30
60007	226+08.10	839436.62	754495.80
60008	227+01.68	839529.36	754505.05
60009	227+94.84	839619.50	754528.58
60010	228+91.10	839714.91	754537.67
60011	234+64.40	840286.99	754500.14
60012	235+08.40	840330.39	754492.91

⬭ CONTROL POINT LOCATIONS			
Ref Number	Station	Northing	Easting
60013	239+99.73	840821.67	754486.12
60014	240+43.73	840865.51	754489.89
60015	240+63.25	840885.03	754489.78
60016	241+23.65	840941.72	754471.78
60017	241+43.25	840957.79	754460.56
60018	242+03.80	841014.65	754442.56
60019	244+81.73	841292.57	754441.48
60020	245+25.73	841336.33	754436.94

⬭ CONTROL POINT LOCATIONS			
Ref Number	Station	Northing	Easting
60021	246+24.45	841434.60	754427.43
60022	248+04.23	841613.45	754436.98
60023	248+84.51	841692.08	754453.18

REDUCED SIZE
DO NOT SCALE

	NAME	DATE
DESIGN	JP, KD	6/04
DRAWN	CS, MRT	6/04
CHECKED	JH	6/04

2 A engineering and environmental design firm
2828 south 48th street, suite 125
tempe, arizona 85282
phone 602.438.2323
www.kimley-horn.com

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

CHANNEL
GEOMETRIC LAYOUT
STA 221+00 TO STA 251+00

23176 JEFFREY J. HOLMESTED

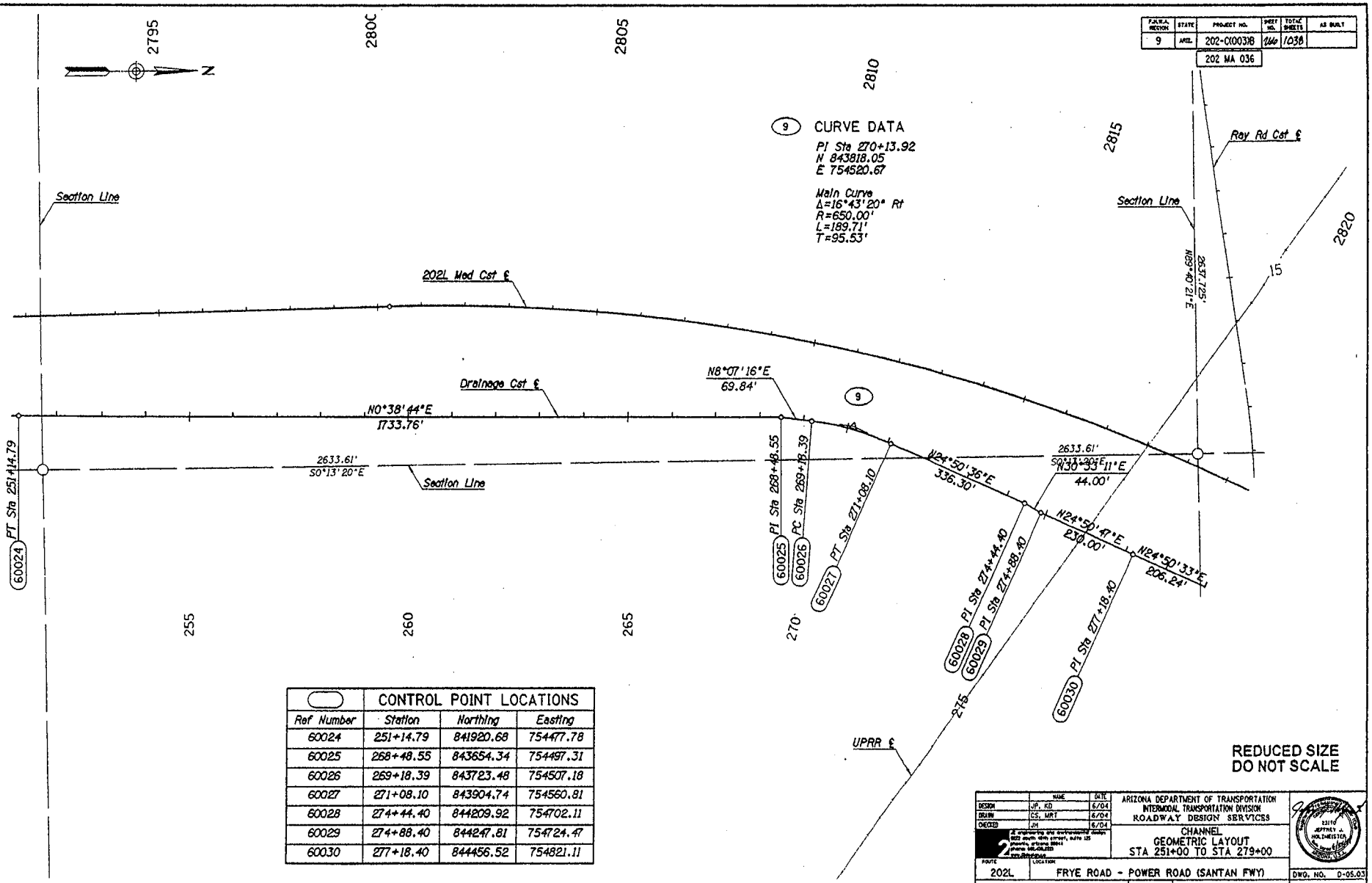
ROUTE	LOCATION	DWG. NO. D-05.02
202L	FRYE ROAD - POWER ROAD (SANTAN FWY)	
TRACS NO. H 5911 01 C	202-C(003)B	___ OF ___

p:\3029\j2aad\sheets\h5914cg02.dgn Plotted By: MRT 6/24/2004 1:15:57 PM

ooooooSYSTEMooooo oooooOONGSPECIFICATIONoooooo

F.A.P.N.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	202-C(003)8	146	1038	

202 MA 036



9 CURVE DATA

PI Sta 270+13.92
N 843818.05
E 754520.67

Main Curve
Δ=16°43'20" Rt
R=650.00'
L=189.71'
T=95.53'

CONTROL POINT LOCATIONS			
Ref Number	Station	Northing	Easting
60024	251+14.79	841920.68	754477.78
60025	268+48.55	843654.34	754497.31
60026	269+18.39	843723.48	754507.18
60027	271+08.10	843904.74	754560.81
60028	274+44.40	844209.92	754702.11
60029	274+88.40	844247.81	754724.47
60030	277+18.40	844456.52	754821.11

REDUCED SIZE
DO NOT SCALE

	NAME	DATE
DESIGN	JP, KD	6/04
DRAWN	CS, MRT	6/04
CHECKED	JH	6/04

2 Engineering and Environmental Design
1655 South 48th Street, Suite 115
Phoenix, Arizona 85044
phone 602.426.2220
www.2design.com

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

CHANNEL
GEOMETRIC LAYOUT
STA 251+00 TO STA 279+00

ROUTE: 202L
LOCATION: FRYE ROAD - POWER ROAD (SANTAN FWY)

TRACS NO. H 5911 01 C

202-C(003)8

DWG. NO. D-05.03

___ OF ___

P:\2029\2cad\sheets\h5914eg03.dgn Plotted By: MRT 6/24/2004 1:16:27 PM

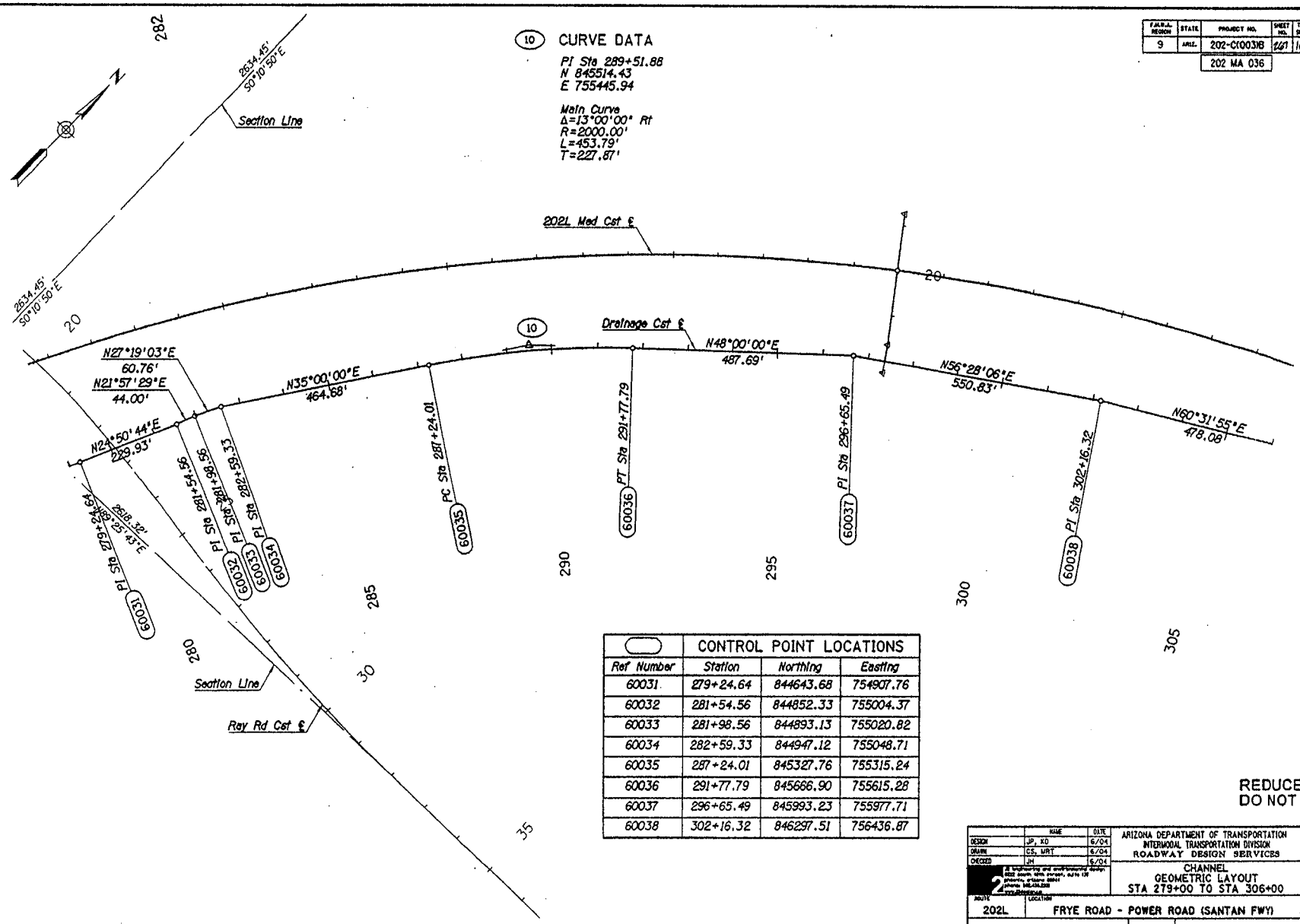
oooooSYSTIMEoooooo oooooCUONoSPECIFICATIONoooooo

FARA. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	202-C(003)B	241	1096	
		202 MA 036			

(10) CURVE DATA

PI Sta 289+51.88
N 845514.43
E 755445.94

Main Curve
Δ=13°00'00" Rt
R=2000.00'
L=453.79'
T=227.87'



(CONTROL POINT LOCATIONS)			
Ref Number	Station	Northing	Easting
60031	279+24.64	844643.68	754907.76
60032	281+54.56	844852.33	755004.37
60033	281+98.56	844893.13	755020.82
60034	282+59.33	844947.12	755048.71
60035	287+24.01	845327.76	755315.24
60036	291+77.79	845666.90	755615.28
60037	296+65.49	845993.23	755977.71
60038	302+16.32	846297.51	756436.87

REDUCED SIZE
DO NOT SCALE

	NAME	DATE
DESIGN	JP, KO	6/04
DRAWN	CS, MRT	6/04
CHECKED	JH	6/04

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

CHANNEL
GEOMETRIC LAYOUT
STA 279+00 TO STA 306+00

ROUTE 202L | LOCATION FRYE ROAD - POWER ROAD (SANTAN FWY)

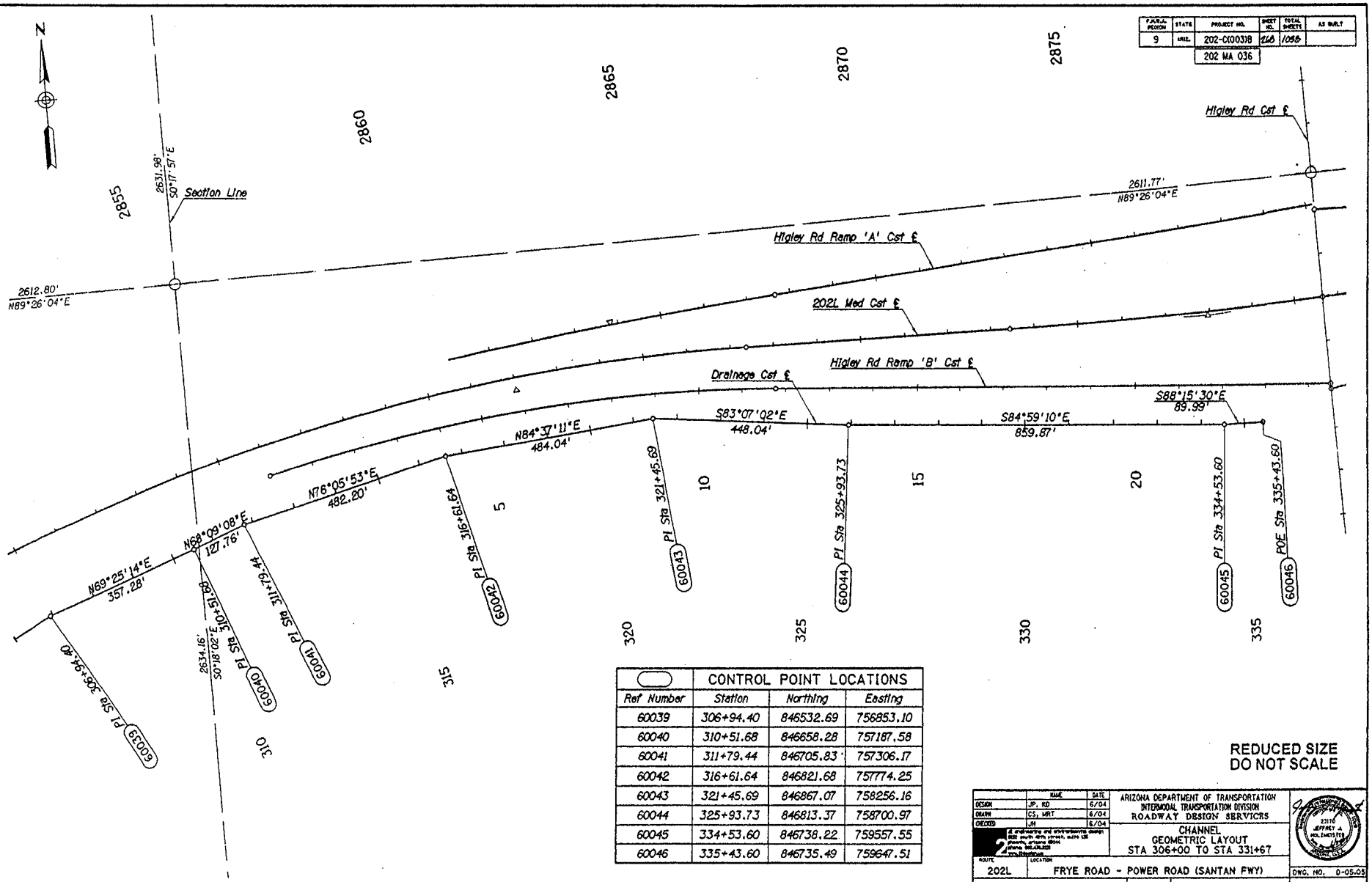
DWG. NO. D-06.04

TRACS NO. H 5911 01 C | 202-C(003)B | ___ OF ___

p:\3029\j2cad\sheets\h5914cg04.dgn Plotted By: MRT 6/24/2004 1:16:27 PM

oooooSYSTIMEoooooo oooooOUNOSPECIFICATIONoooooo

F.A.P.N.J. PROJECT	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	202-C(003)B	216	1056	
		202 MA 036			



CONTROL POINT LOCATIONS			
Ref Number	Station	Northing	Easting
60039	306+94.40	846532.69	756853.10
60040	310+51.68	846658.28	757187.58
60041	311+79.44	846705.83	757306.17
60042	316+61.64	846821.68	757774.25
60043	321+45.69	846867.07	758256.16
60044	325+93.73	846813.37	758700.97
60045	334+53.60	846738.22	759557.55
60046	335+43.60	846735.49	759647.51

REDUCED SIZE
DO NOT SCALE

	NAME	DATE
DESIGN	JP. KO	6/04
DRAWN	C.S. MRT	6/04
CHECKED	J.H.	6/04

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

CHANNEL
GEOMETRIC LAYOUT
STA 306+00 TO STA 331+67

ROUTE: 202L
LOCATION: FRYE ROAD - POWER ROAD (SANTAN FWY)

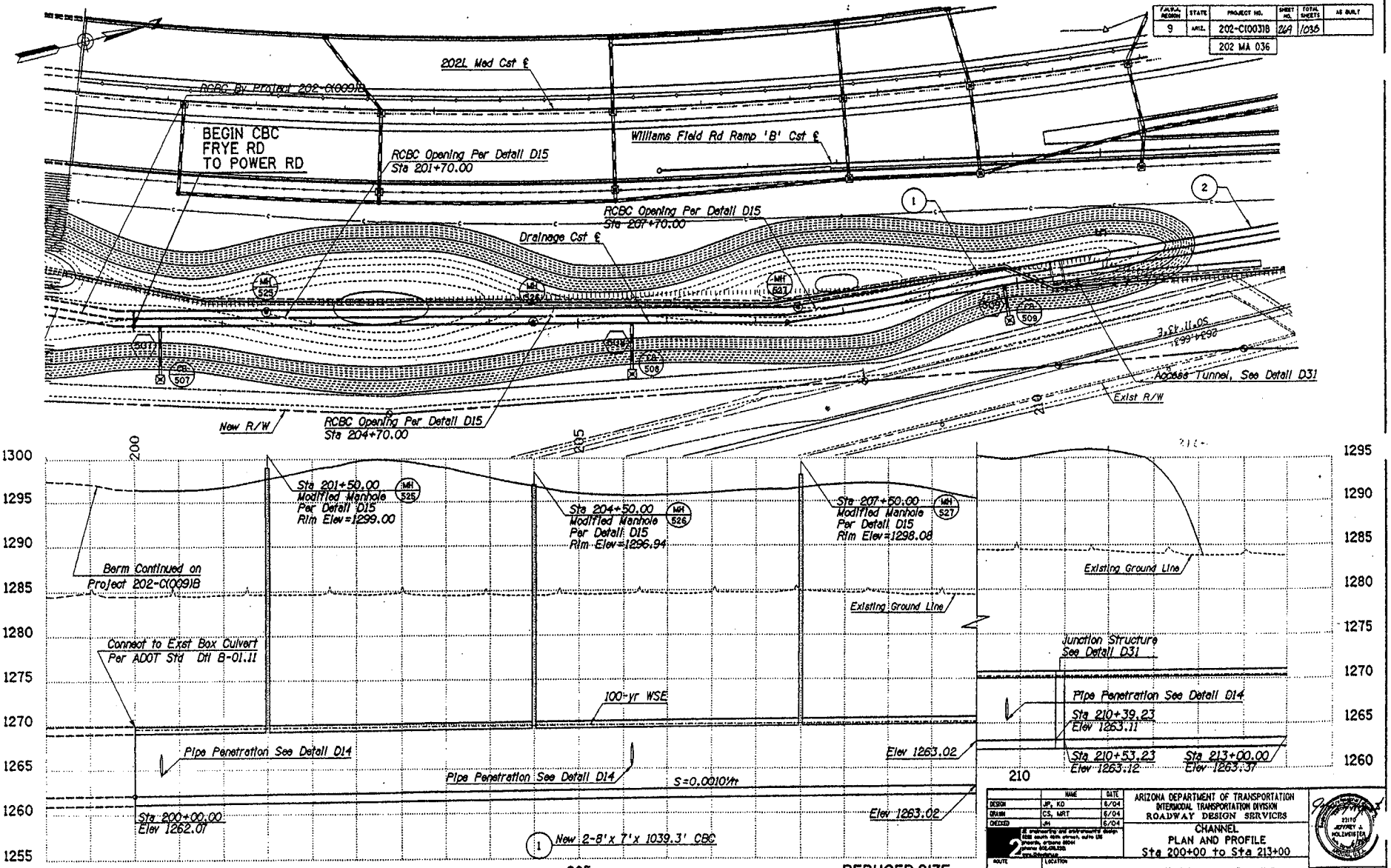
DWG. NO. 0-05.03

TRACS NO. H 5911 01 C | 202-C(003)B | ___ OF ___

p:\3028\j2cad\sheets\h5914og06.dgn Plotted By: MRT 6/24/2004 1:15:37 PM

ooooSYSTIMEoooooooooUUNoSPECIFICATIONoooooo

FAHPA REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	202-C(003)B	249	1036	
		202 MA 036			



REDUCED SIZE
DO NOT SCALE

	NAME	DATE
DESIGN	JP, KO	6/04
DRAWN	CS, MRT	6/04
CHECKED	JM	6/04

2 JE engineering and environmental design 1026 south 16th street, suite 108 phoenix, arizona 85034 phone 602.438.3325 www.jeengineering.com

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

CHANNEL
PLAN AND PROFILE
Sta 200+00 to Sta 213+00

ROUTE: 202L
LOCATION: FRYE ROAD - POWER ROAD (SANTAN FWY)

DWG. NO. 0-06.01

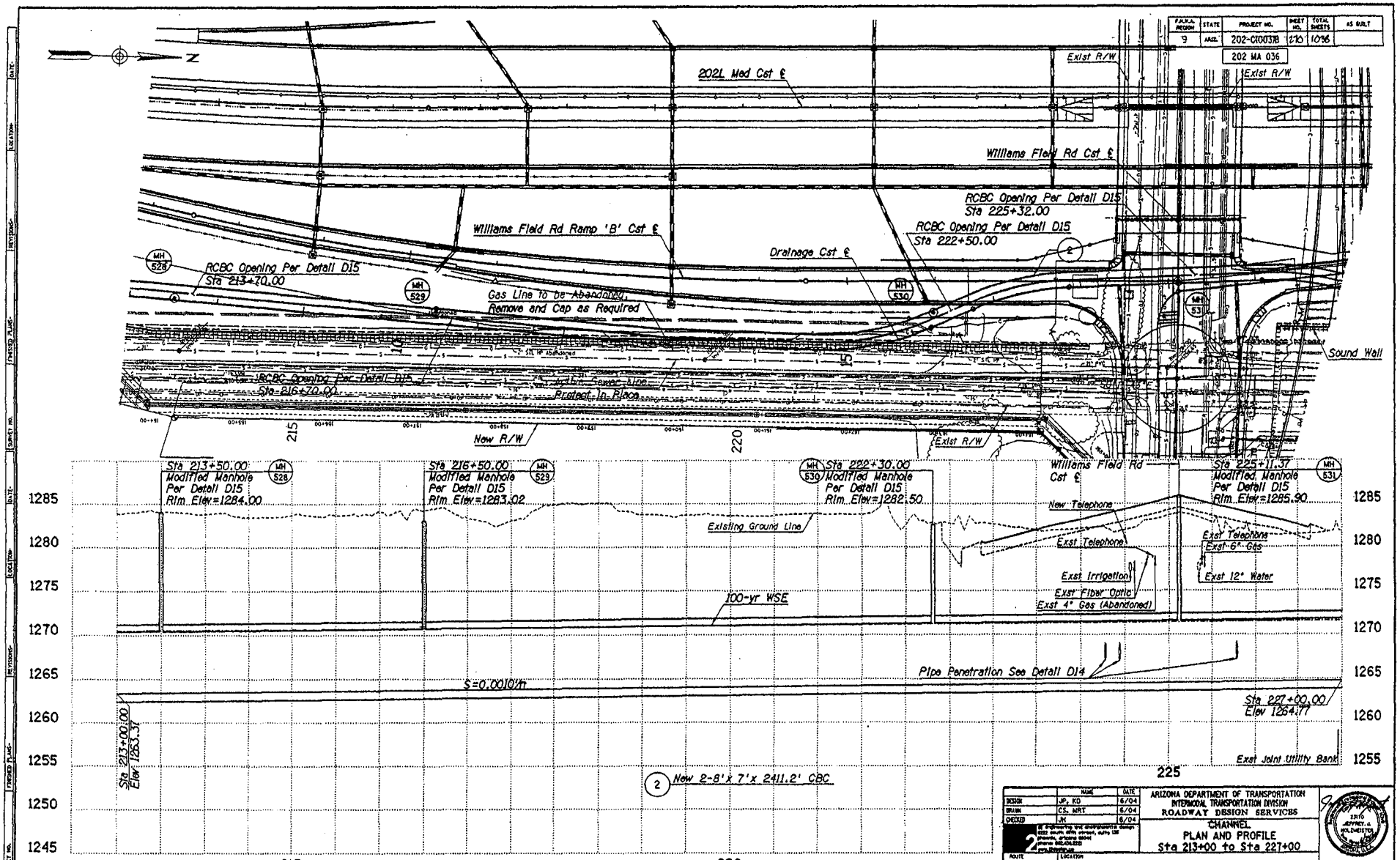
TRACS NO. H 5911 01 C | 202-C(003)B | ___ OF ___

p:\8029\2cad\sheets\h5914cpp01.dgn Plotted By: MRT 6/24/2004 1:20:16 PM

SYSTIMEDDGNSPECIFICATIONS

F.A.P.N. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	202-C(003)B	216	1036	

202 MA 036



Note: See utility sheets also.

REDUCED SIZE
DO NOT SCALE

	NAME	DATE
DESIGN	JP, KD	6/04
DRAWN	CS, MRT	6/04
CHECKED	JN	6/04

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

CHANNEL
PLAN AND PROFILE
Sta 213+00 to Sta 227+00

ROUTE	LOCATION
202L	FRYE ROAD - POWER ROAD (SANTAN FWY)

DWG. NO. D-06.02

TRACS NO. H 5911 01 C

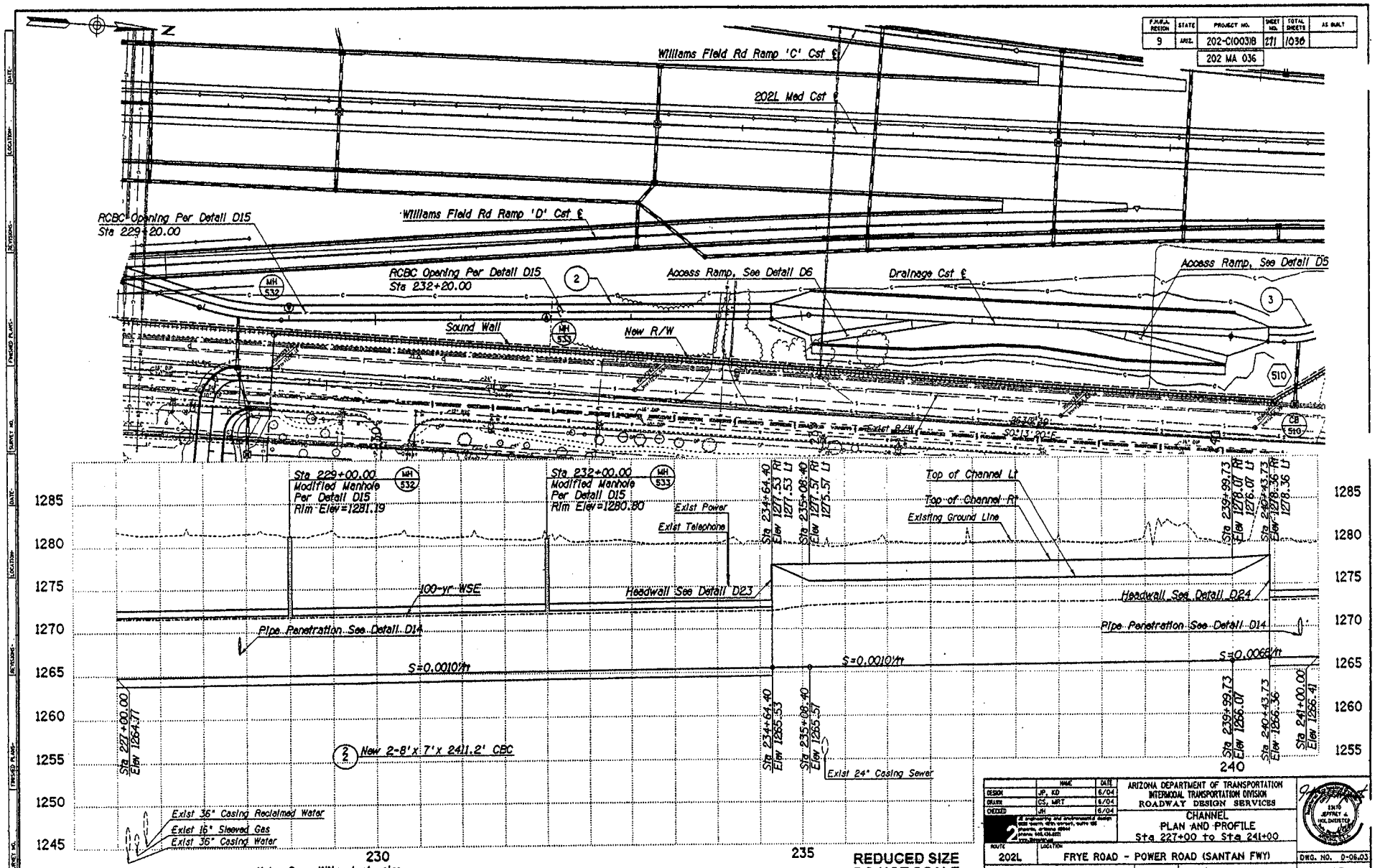
202-C(003)B

___ OF ___

p:\3029\12cad\sheets\h5914opp02.dgn Plotted By: MRT 6/24/2004 1:20:17 PM

SYSTIME DGNSPECIFICATION

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	202-C(003)B	271	1036	
		202 MA 036			



Note: See utility sheets also.

REDUCED SIZE
DO NOT SCALE

	NAME	DATE
DESIGN	JP, KD	6/04
DRAWN	CS, MRT	6/04
CHECKED	JH	6/04

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

CHANNEL
PLAN AND PROFILE
Sta 227+00 to Sta 241+00

ROUTE	LOCATION	
202L	FRYE ROAD - POWER ROAD (SANTAN FWY)	
TRACS NO. H 5911 01 C		202-C(003)B

DWG. NO. D-06.03

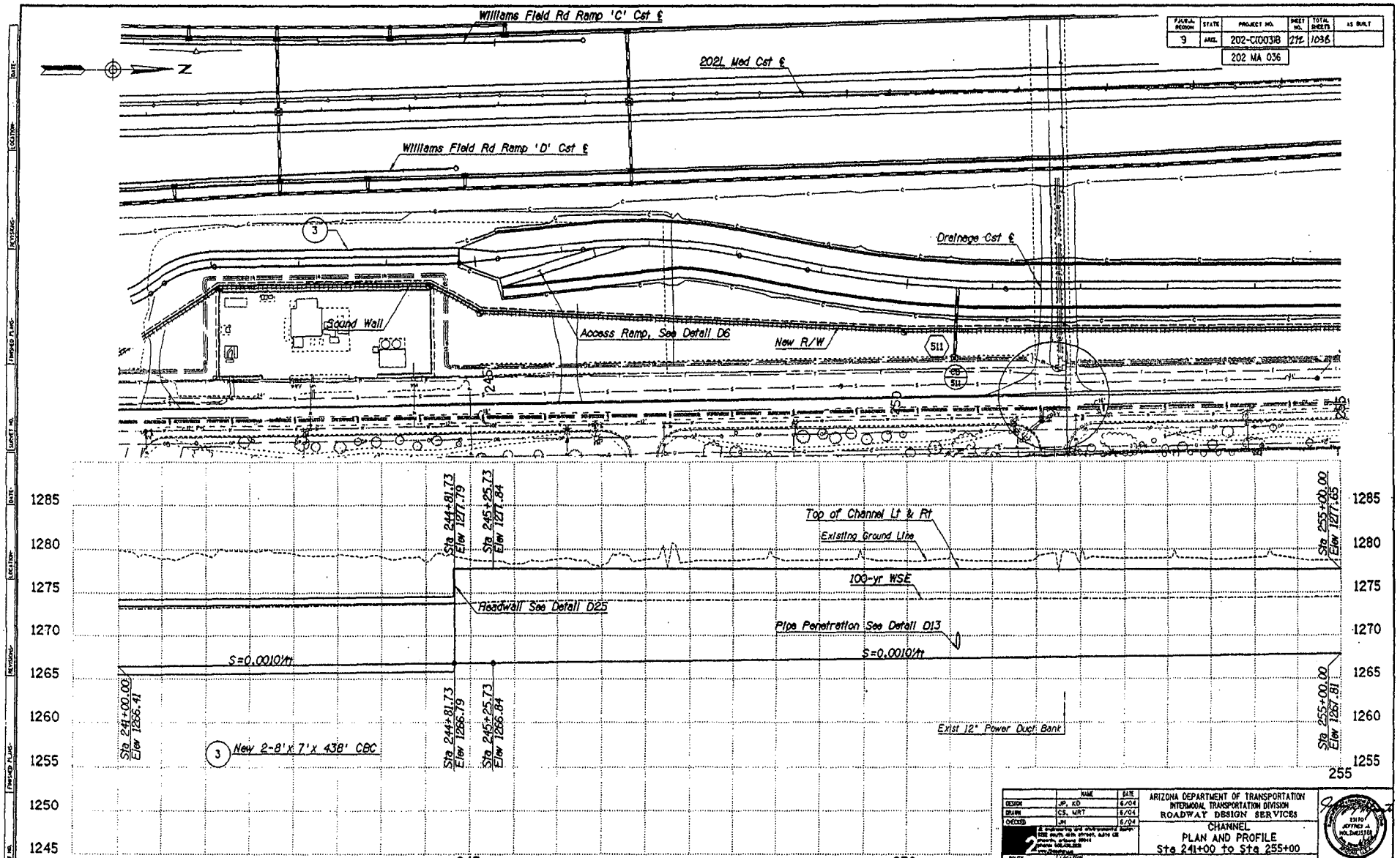
___ OF ___

9:\3020\j2cad\sheets\h5911opp02.dgn Plotted By: MRT 6/24/2004 1:20:19 PM

ooooooSYSTIMEoooooo oooooOUNGSPECIFICATIONoooooo

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	202-C(003)B	272	1036	

202 MA 036



REDUCED SIZE
DO NOT SCALE

	NAME	DATE
DESIGN	JP, KD	6/04
DRAWN	CS, MRT	6/04
CHECKED	JM	6/04

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

CHANNEL
PLAN AND PROFILE
Sta 241+00 to Sta 255+00

ROUTE: 202L
LOCATION: FRYE ROAD - POWER ROAD (SANTAN FWY)

TRACS NO. H 5911 01 C

202-C(003)B

DWG. NO. D-06.04

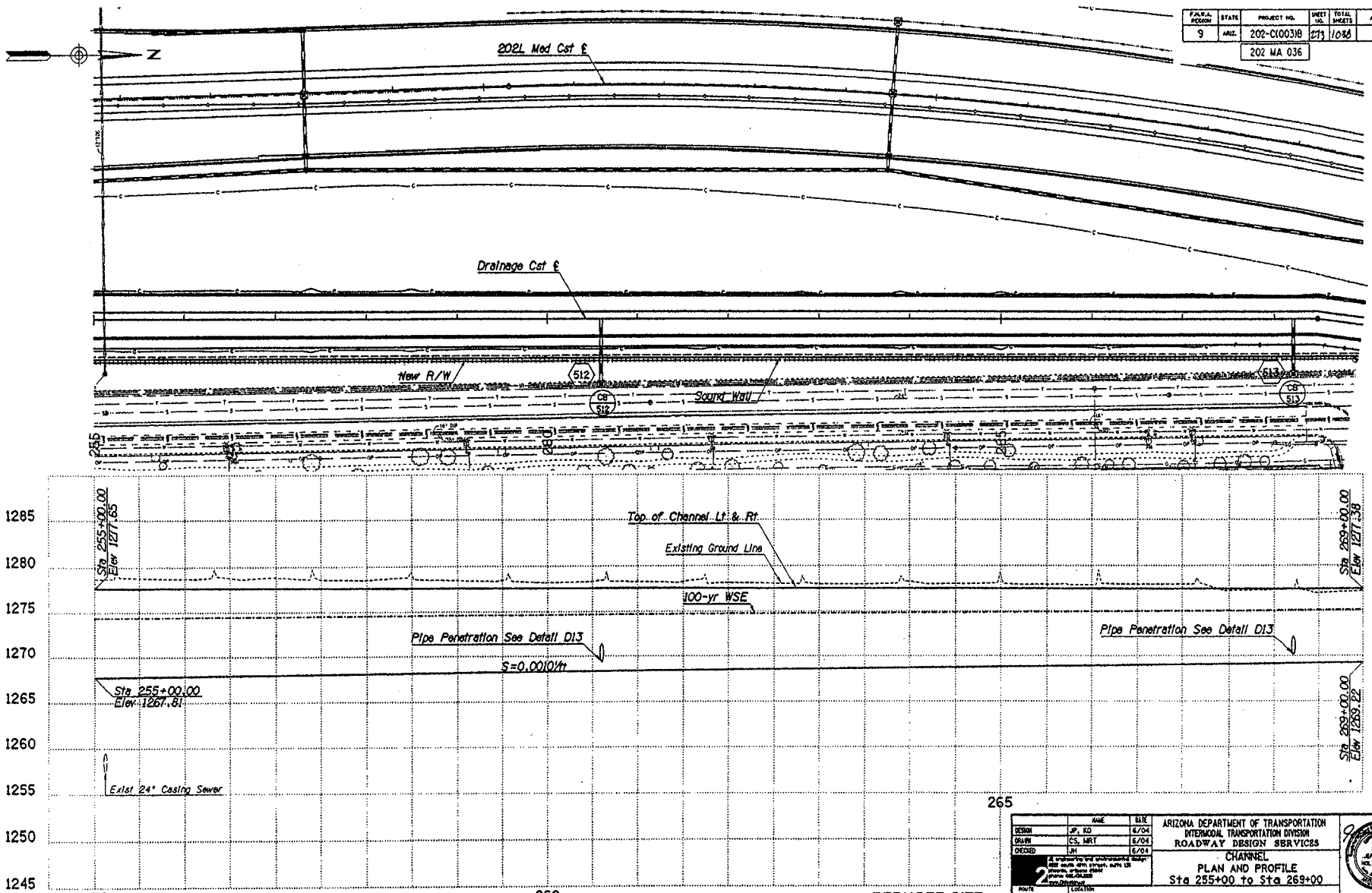
___ OF ___

p:\3029\12cad\sheets\h5914opp04.dgn Plotted By: MRT 6/24/2004 1:20:20 PM

SYSTIME DGNSPECIFICATION

F.A.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	202-C(003)B	273	1036	

202 MA 036



REDUCED SIZE
DO NOT SCALE

	NAME	DATE
DESIGN	JP, KO	6/04
DRAWN	CS, MRT	6/04
CHECKED	JH	6/04

2

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

CHANNEL
PLAN AND PROFILE
Sta 255+00 to Sta 269+00

ROUTE 202L | LOCATION FRYE ROAD - POWER ROAD (SANTAN FWY)

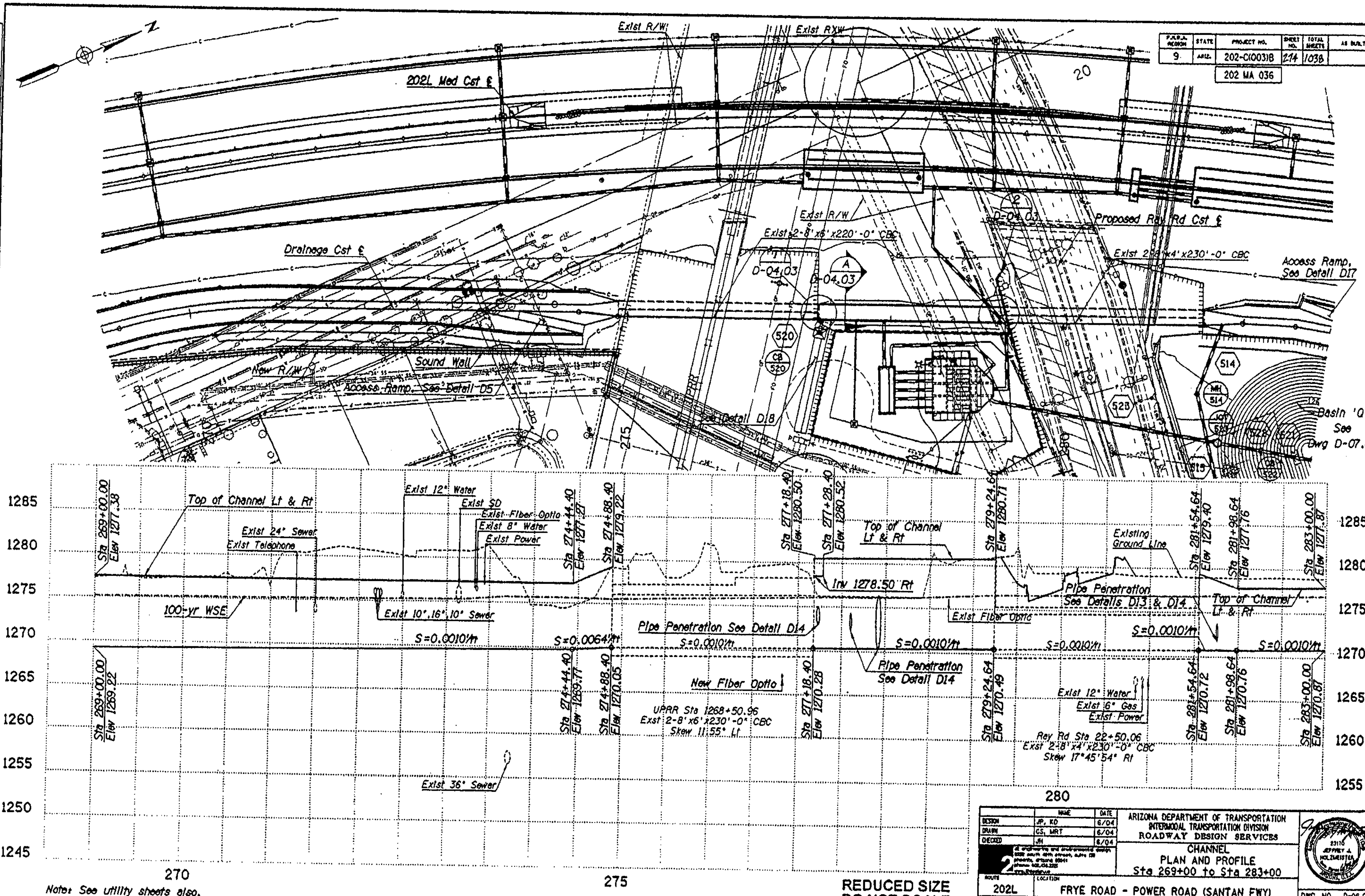
TRACS NO. H 5911 01 C | 202-C(003)B | DWG. NO. 0-06.05 | ___ OF ___

p:\3025\j2cad\sheets\h5914app06.dgn Plotted By: MRT 6/24/2004 1:20:22 PM

ooooooSYSTIMEoooooo oooooooUNOSPECIFICATIONoooooo

F.A.P.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	202-C(003)B	274	1038	

202 MA 036



Note: See utility sheets also.

REDUCED SIZE DO NOT SCALE

	NAME	DATE
DESIGN	JP, KD	6/04
DRAWN	CS, MRT	6/04
CHECKED	JH	6/04

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

CHANNEL
PLAN AND PROFILE
Sta 269+00 to Sta 283+00

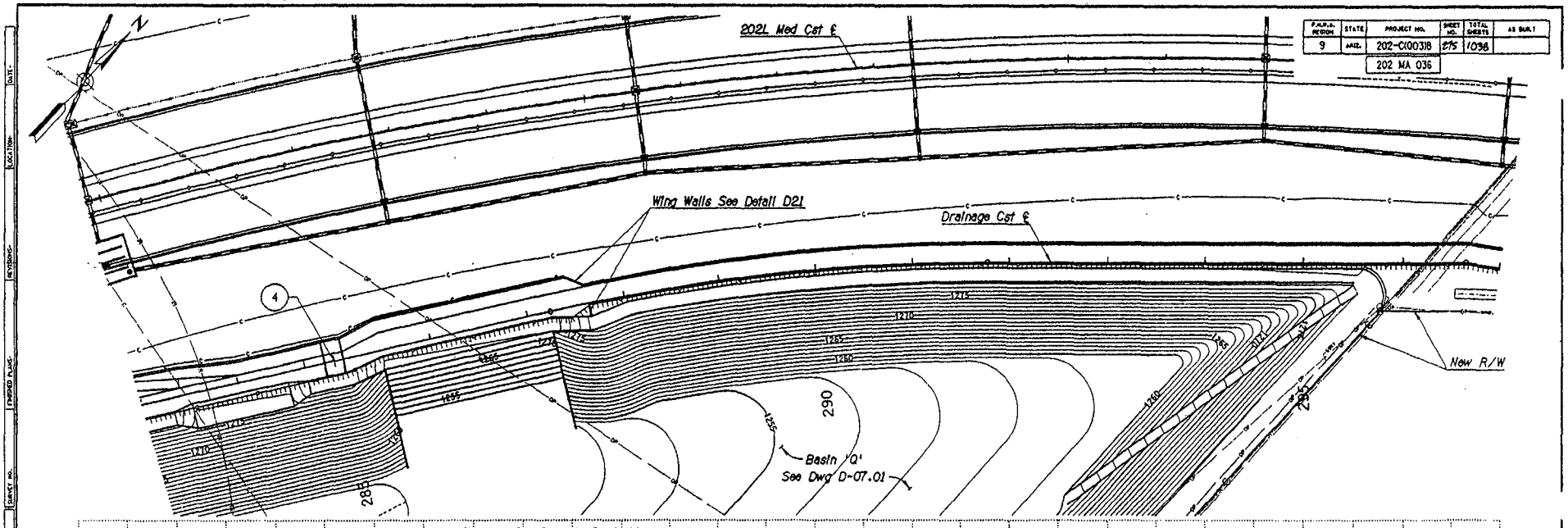
ROUTE 202L — LOCATION FRYE ROAD - POWER ROAD (SANTAN FWY)

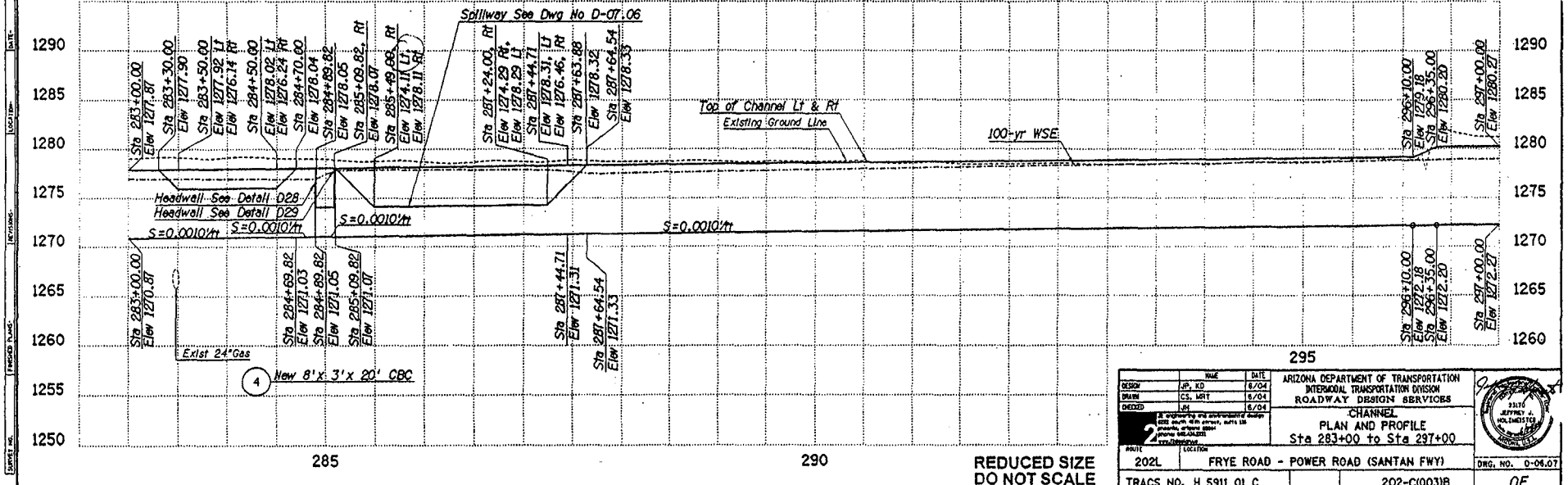
TRACS NO. H 5911 01 C — 202-C(003)B

DWG. NO. D-06.06 — OF

p:\3029\j2oad\sheets\h5914opp06.dgn Plotted By: MRT 6/24/2004 1:20:26 PM

F.A.P.N.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	202-C(003)B	275	1096	
		202 MA 036			





REDUCED SIZE
DO NOT SCALE

	NAME	DATE
DESIGN	JP, KD	6/04
DRAWN	CS, MRT	6/04
CHECKED	JH	6/04

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

CHANNEL
PLAN AND PROFILE
Sta 283+00 to Sta 297+00

ROUTE 202L — LOCATION FRYE ROAD - POWER ROAD (SANTAN FWY)

TRACS NO. H 5911 01 C — 202-C(003)B

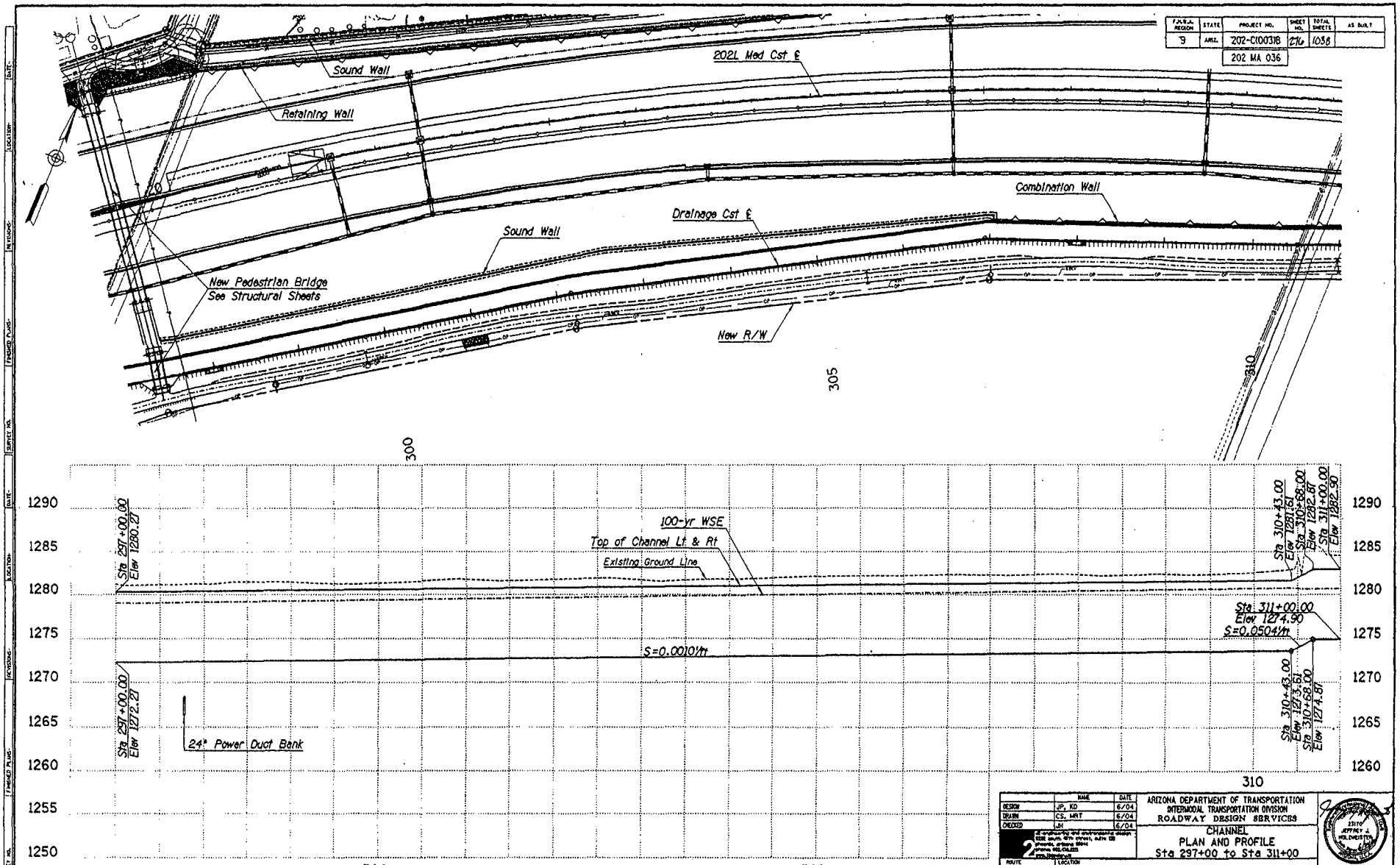
DWG. NO. D-06.07

___ OF ___

p:\3029\j2sad\sheets\h5914cpp07.dgn Plotted By: MRT 6/24/2004 1:20:31 PM

ooooSYSTIMEoooooooooUNoSPECIFICATIONoooooo

F.A.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	202-C(003)B	216	1038	
		202 MA 036			



REDUCED SIZE
DO NOT SCALE

	NAME	DATE
DESIGN	JP, KD	6/04
DRAWN	CS, MRT	6/04
CHECKED	JH	6/04

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

CHANNEL
PLAN AND PROFILE
Sta 297+00 to Sta 311+00

ROUTE: 202L
LOCATION: FRYE ROAD - POWER ROAD (SANTAN FWY)

TRACS NO. H 5911 01 C

202-C(003)B

DWG. NO. D-06.08

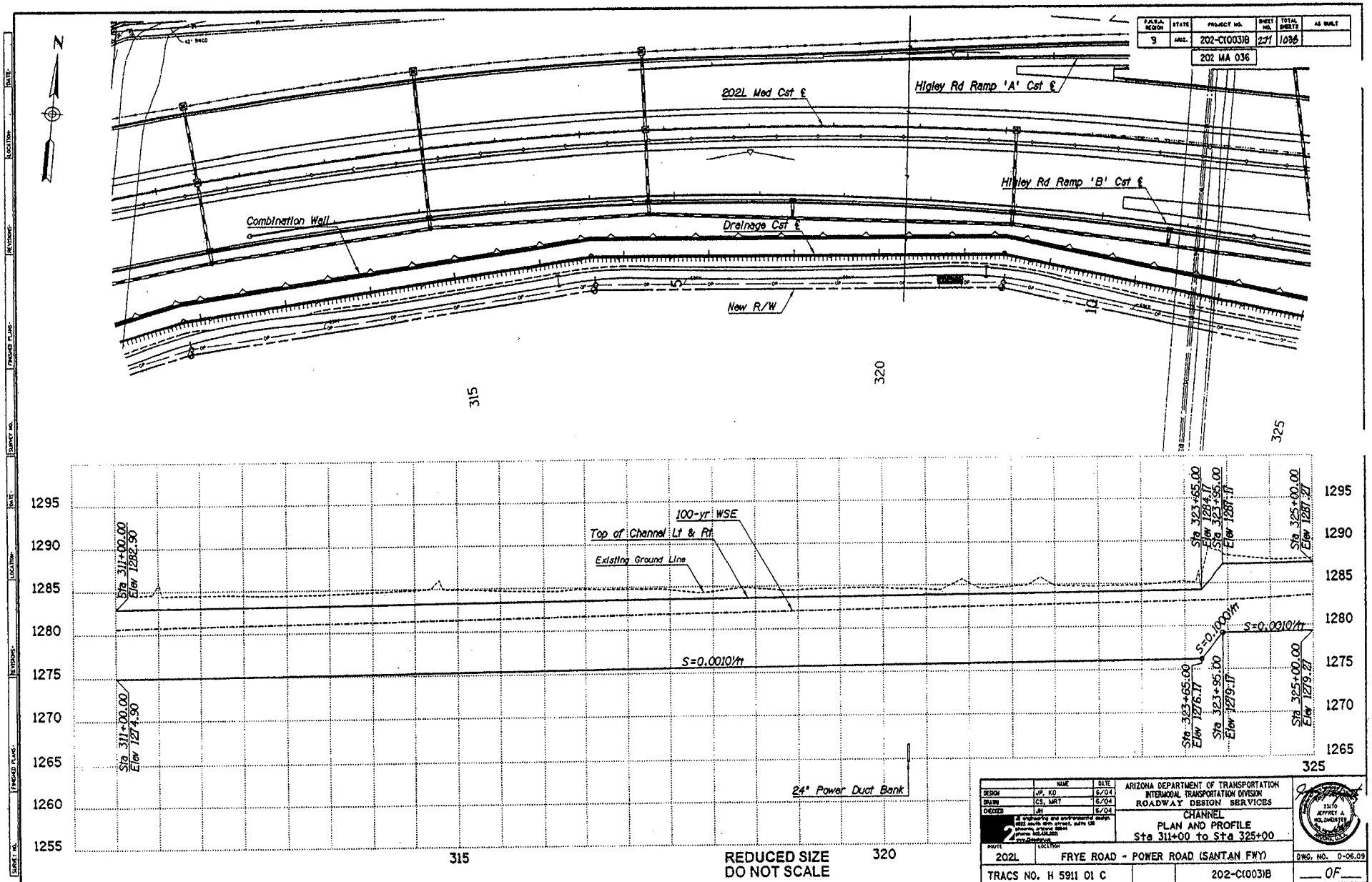
___ OF ___

p:\3029\12csd\sheets\h5914opp08.dgn Plotted By: MRT 6/24/2004 1:20:33 PM

oooooSYSTIMEoooooo oooooDONOTSPECIFICATIONoooooo

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	202-C(003)B	271	1036	

202 MA 036



REDUCED SIZE
DO NOT SCALE

	NAME	DATE
DESIGN	JP, KO	6/04
DRAWN	CS, MRT	6/04
CHECKED	JH	6/04

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

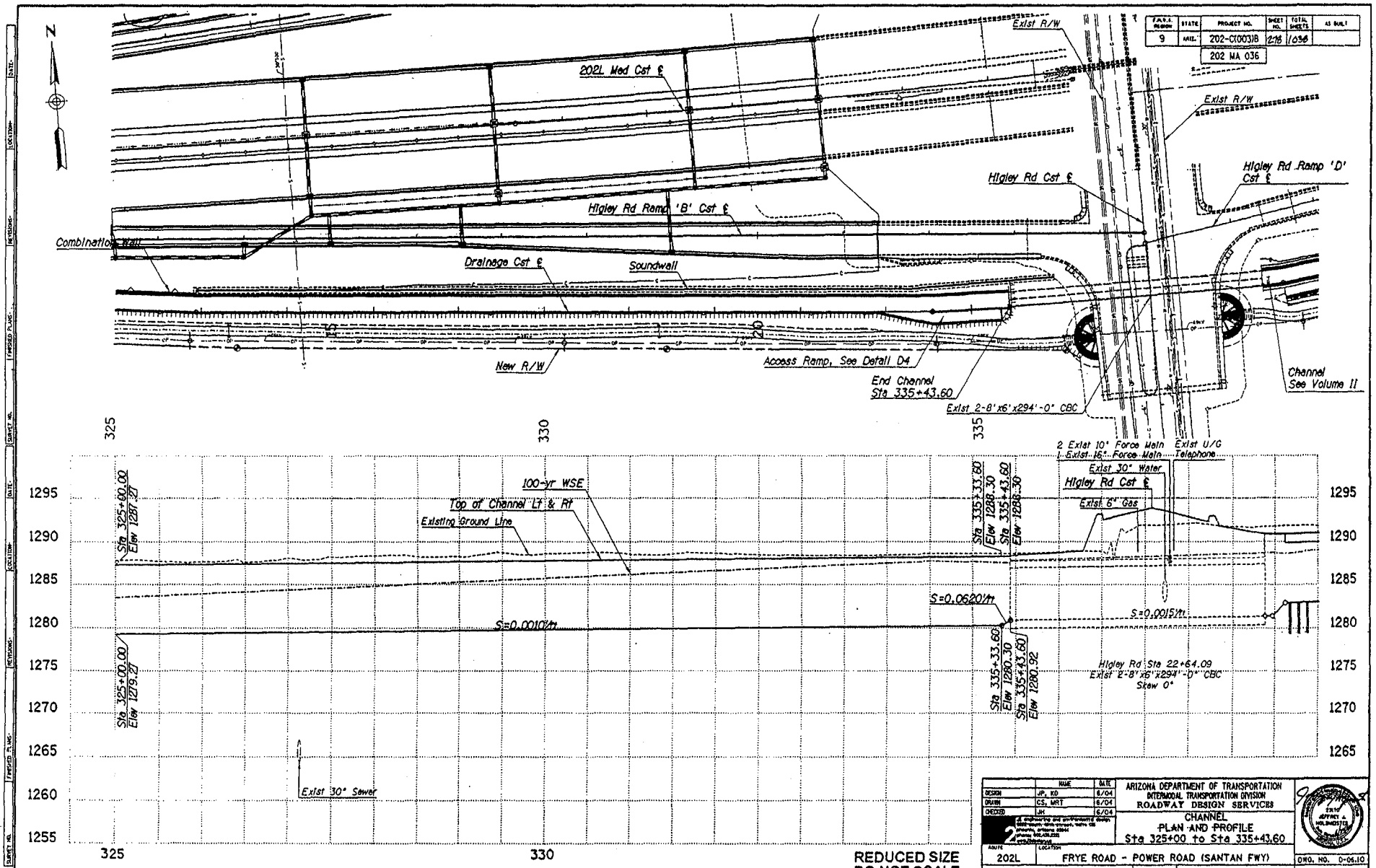
CHANNEL
PLAN AND PROFILE
Sta 311+00 to Sta 325+00

ROUTE: 202L
LOCATION: FRYE ROAD - POWER ROAD (SANTAN FWY)
DWG. NO. 0-06.09
TRACS NO. H 5911 01 C
202-C(003)B
___ OF ___

p:\3029\j2ccd\sheets\h5914pp09.dgn Plotted By: MRT 6/24/2004 1:20:36 PM

SYSTIME UGNSPECIFICATION

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	202-C(003)8	276	1036	
		202 MA 036			



REDUCED SIZE
DO NOT SCALE

	NAME	DATE
DESIGN	JP, KD	6/04
DRAWN	CS, MRT	6/04
CHECKED	JH	6/04

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

CHANNEL
PLAN AND PROFILE
Sta 325+00 to Sta 335+43.60

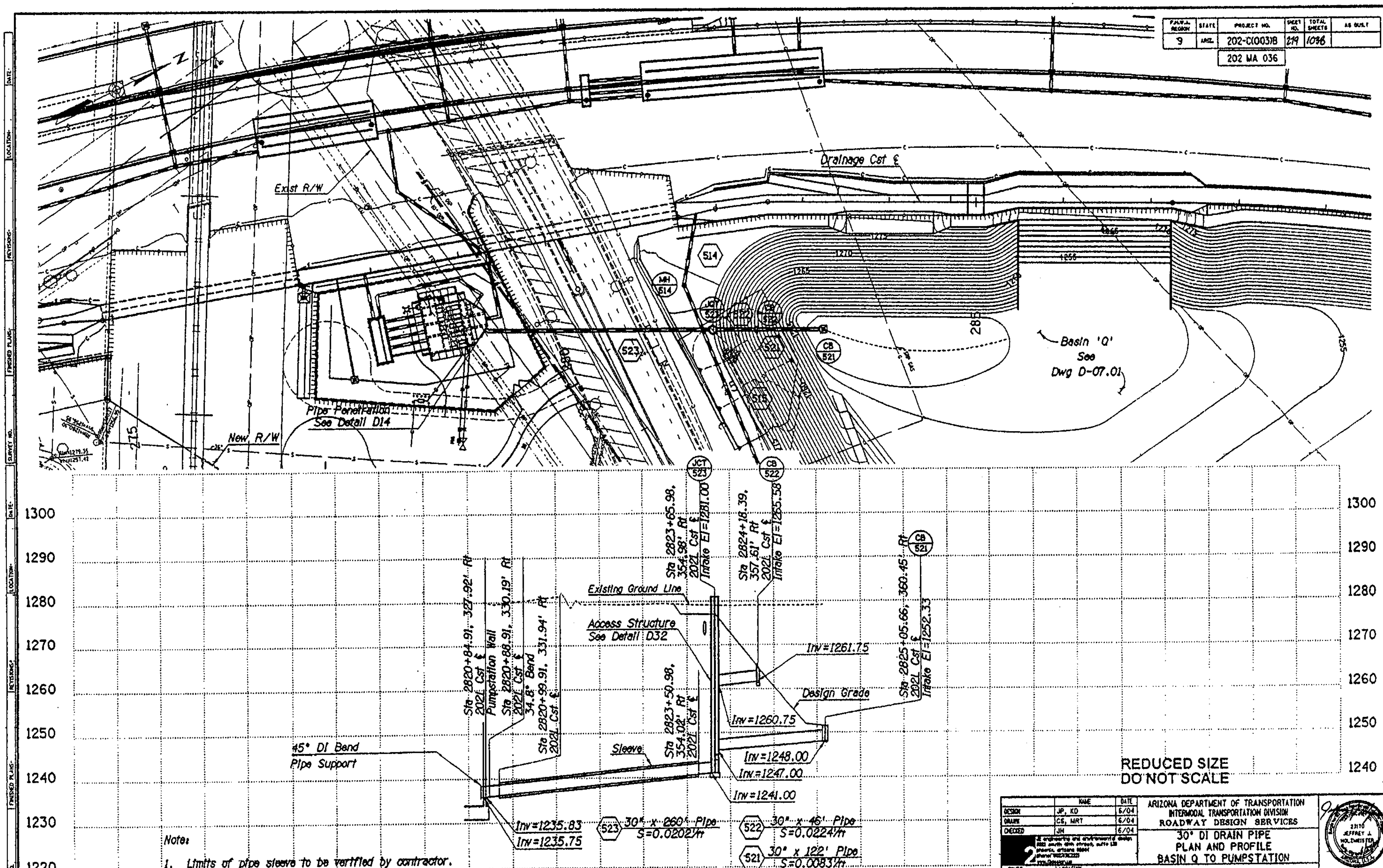
ROUTE	LOCATION	
202L	FRYE ROAD - POWER ROAD (SANTAN FWY)	DWG. NO. D-06.10
TRACS NO. H 5911 01 C		202-C(003)8 ___ OF ___

9:\3028\j2cad\sheets\h5914epp10.dgn Plotted By: MRT 6/24/2004 1:29:37 PM

ooooSYSTIMEoooooooooooUNOSPECIFICATIONoooooo

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	202-C(003)B	219	1036	

202 MA 036



Note:

1. Limits of pipe sleeve to be verified by contractor.

REDUCED SIZE
DO NOT SCALE

	NAME	DATE
DESIGN	JP, KD	6/04
DRAWN	CS, MRT	6/04
CHECKED	JH	6/04

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

30" DI DRAIN PIPE
PLAN AND PROFILE
BASIN Q TO PUMPSTATION

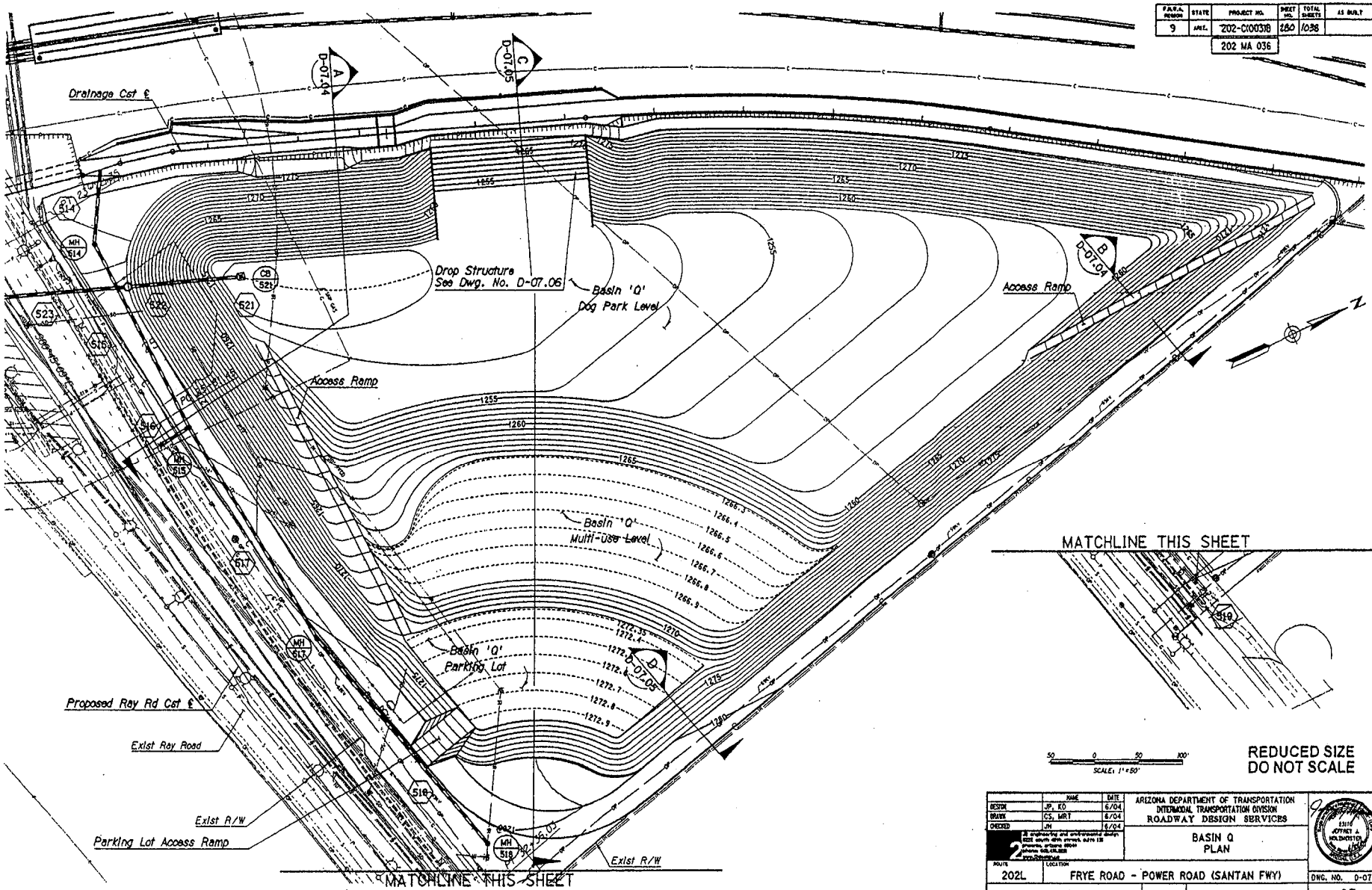
ROUTE	LOCATION	DWG. NO.
202L	FRYE ROAD - POWER ROAD (SANTAN FWY)	D-06.11

TRACS NO. H 5911 01 C | 202-C(003)B | ___ OF ___

23170 JEFFREY J. HOLZMEISTER

oooooSYSTIMEooooo oooooDGNoSPECIFICATIONooooo

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	202-C(003)B	280	1038	
		202 MA 036			



	NAME	DATE
DESIGN	JP, KO	6/04
DRAWN	CS, MRT	6/04
CHECKED	JN	6/04

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

BASIN Q
PLAN

ROUTE: 202L
LOCATION: FRYE ROAD - POWER ROAD (SANTAN FWY)

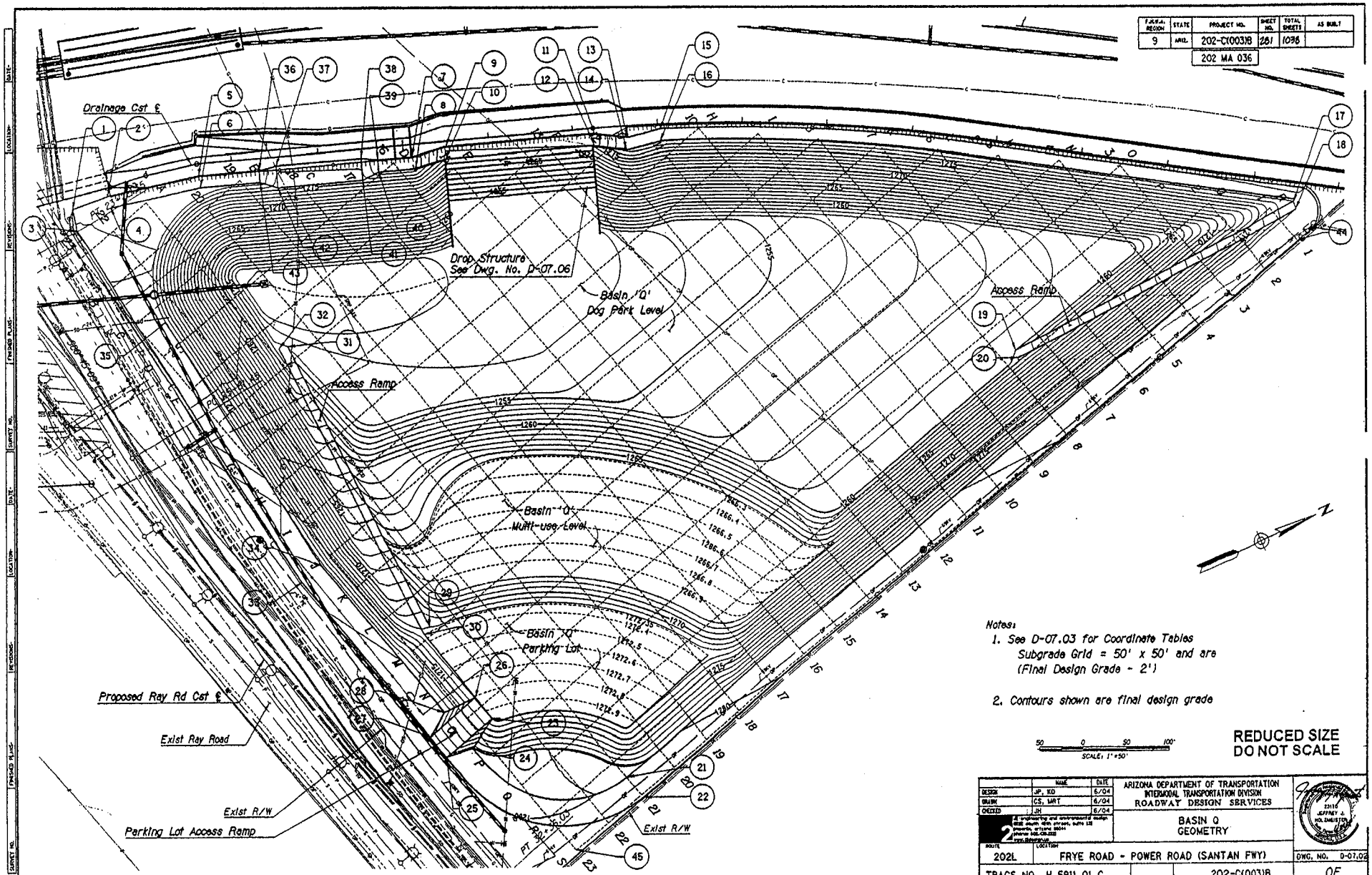
DWG. NO. D-07.01

TRACS NO. H 5911 01 C | 202-C(003)B | ___ OF ___

p:\3029\12oad\sheets\h5914basnpln01.dgn Plotted By: MRT 6/24/2004 1:21:04 PM

SYSTIME DUNGSPECIFICATION

F.A.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	202-C(003)B	251	1036	
		202 MA 036			



	NAME	DATE
DESIGN	JP, KD	6/04
DRAWN	CS, MRT	6/04
CHECKED	JH	6/04

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

BASIN Q
GEOMETRY

ROUTE 202L LOCATION FRYE ROAD - POWER ROAD (SANTAN FWY)

DWG. NO. D-07.02

TRACS. NO. H 5911 01 C 202-C(003)B

OF

p:\3029\j2oad\sheets\h5914bsngeo01.dgn Plotted By: MRT 6/24/2004 1:20:57 PM

SYSTIMEDDNGSPECIFICATIONS

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	202-C(003)B	1036	1036	

202 MA 036

Coordinate Table (Design Grades)

PT#	Northing	Easting	Elevation
1	754996.62	844802.44	1277.67
2	755010.71	844843.06	1277.71
3	755018.60	844790.60	1276.67
4	755023.61	844837.52	1277.43
5	755060.72	844939.86	1277.82
6	755072.72	844932.60	1277.54
7	755203.85	845144.28	1278.07
8	755216.14	845137.42	1277.79
9	755219.75	845180.99	1274.11
10	755231.21	845172.95	1273.83
11	755320.15	845324.32	1274.28
12	755330.34	845314.48	1274.00
13	755349.46	845351.55	1278.34
14	755359.97	845342.20	1278.06
15	755366.46	845387.75	1278.38
16	755378.52	845380.48	1278.10
17	755907.05	845898.98	1278.00
18	755916.02	845895.14	1278.00
19	755833.06	845542.18	1260.00
20	755842.03	845538.34	1260.00
21	755919.05	844877.46	1280.18
22	755949.05	844877.57	1280.48
23	755764.27	844795.51	1272.95
24	755774.75	844757.02	1279.39
25	755763.89	844727.02	1279.66
26	755733.64	844795.82	1272.81
27	755733.73	844727.02	1279.56
28	755723.31	844757.02	1279.23
29	755636.50	844807.70	1272.00
30	755639.21	844796.80	1272.35
31	755278.88	844890.91	1254.00
32	755274.71	844881.82	1254.00
33	755498.73	844727.02	1278.86
34	755498.73	844757.02	1278.56
35	755166.01	844801.34	1277.03
36	755100.87	844997.20	1277.89
37	755109.48	845015.59	1276.14
38	755166.99	845097.39	1276.24
39	755181.18	845111.90	1278.03
40	755192.48	845103.62	1277.65
41	755187.72	845082.88	1275.73
42	755130.36	845000.97	1275.63
43	755112.19	844988.96	1277.61
44	755945.49	845873.22	
45	755945.49	844773.22	

Grid Location Table (Subgrade Elevations - Design Grade - 2')

Grid #	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1274.43	0
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1272.3	1272.34	1276.64
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1276.88	1271.31	1263.44	1271.32	1276.7
4	0	0	0	0	0	0	0	0	0	0	0	0	0	1276.74	1270.31	1261.98	1261.14	1271.39	1276.75
5	0	0	0	0	0	0	0	0	0	0	0	0	1276.59	1269.33	1260.99	1257.46	1261.21	1271.46	1276.81
6	0	0	0	0	0	0	0	0	0	0	0	1276.46	1268.31	1260.01	1256.67	1256.98	1261.28	1271.53	1276.86
7	0	0	0	0	0	0	0	0	0	0	1276.37	1267.69	1259.09	1255.75	1256.07	1256.82	1259.76	1271.6	1276.92
8	0	0	0	0	0	0	0	0	0	1276.33	1267.7	1258.78	1254.88	1255.19	1255.9	1256.8	1259.17	1271.67	1276.98
9	0	0	0	0	0	0	0	0	1276.34	1268.36	1259.12	1254.17	1254.32	1254.99	1255.89	1256.8	1259.24	1271.74	1277.09
10	0	0	0	0	0	0	0	1276.4	1269.65	1260.11	1253.63	1253.5	1254.08	1254.98	1255.89	1256.8	1259.31	1271.81	1277.21
11	0	0	0	0	0	0	0	1271.65	1261.75	1252.93	1252.75	1253.23	1254.07	1254.98	1255.89	1256.8	1259.38	1271.88	1277.32
12	0	0	0	0	0	0	1273.03	1265.68	1254.72	1252.24	1252.46	1253.16	1254.07	1254.98	1255.89	1256.8	1259.45	1271.95	1277.43
13	0	0	0	0	0	1272.04	1255.48	1256.36	1251.5	1251.57	1252.26	1253.16	1254.07	1254.98	1255.89	1256.81	1259.52	1272.02	1277.55
14	0	0	0	0	0	1259.91	1250.79	1250.56	1250.87	1251.36	1252.26	1253.16	1254.09	1255.09	1256.75	1259.31	1262.1	1272.09	1277.66
15	0	0	0	0	1265.84	1250.83	1250.5	1250.52	1250.77	1251.35	1252.26	1253.34	1255.94	1260.38	1264.15	1264.39	1264.46	1272.16	1277.78
16	0	0	0	1275.94	1267.46	1255.37	1250.2	1250.4	1250.77	1251.35	1252.58	1257.43	1262.75	1264.4	1264.52	1264.62	1264.7	1272.23	1277.89
17	0	0	0	1270.68	1260.47	1250.26	1249.99	1250.43	1250.9	1251.84	1257.35	1263.5	1264.45	1264.6	1264.74	1264.85	1264.95	1272.3	1278.01
18	0	0	1273.68	1263.47	1253.26	1249.87	1250	1250.69	1251.47	1255.71	1262.56	1264.44	1264.63	1264.8	1264.95	1267.57	1270.37	1274.13	1278.12
19	0	1275.68	1266.47	1256.26	1249.85	1249.85	1250.45	1251.23	1252.6	1260.01	1264.39	1264.6	1264.8	1264.98	1270.04	1270.49	1270.6	1274.28	1278.23
20	0	1271.09	1259.32	1249.87	1249.78	1250.5	1251.4	1251.68	1255.96	1261.79	1264.5	1264.73	1264.94	1269.9	1270.53	1270.69	1270.83	1274.36	1278.35
21	1275.43	1271.77	1260.7	1256.02	1254.6	1253.43	1255.43	1256.05	1258.87	1261.29	1263.86	1264.84	1267.23	1270.48	1270.69	1270.88	1273.62	1277.71	1278.45
22	1275.09	1274.98	1270.91	1268.44	1267.03	1265.61	1264.19	1262.77	1261.55	1263.29	1265.57	1266.72	1270.34	1270.59	1270.82	1272.98	1278.02	1278	0
23	0	1276.99	1275.25	1275.41	1275.56	1275.72	1275.88	1275.2	1273.78	1272.36	1272.37	1272.52	1274.06	1274.27	1272.96	1276.91	1277.69	1278.02	0

Note: See Coordinate Geomentry Dwg. No. D-07.02

REDUCED SIZE
DO NOT SCALE

	NAME	DATE
DESIGN	JP, KO	6/04
DRAWN	CS, MRT	6/04
CHECKED	JH	6/04

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

BASIN Q
COORDINATE DATA

ROUTE 202L — LOCATION FRYE ROAD - POWER ROAD (SANTAN FWY)

TRACS NO. H.5911 01 C — 202-C(003)B

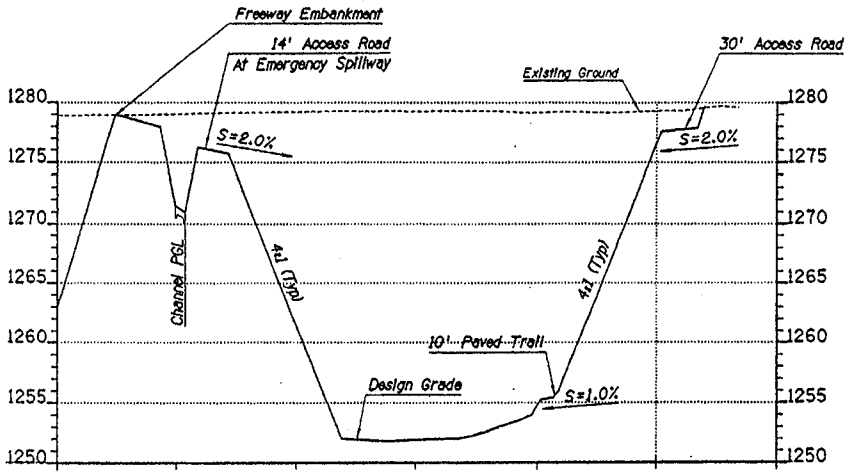
DWG. NO. D-07.03

___ OF ___

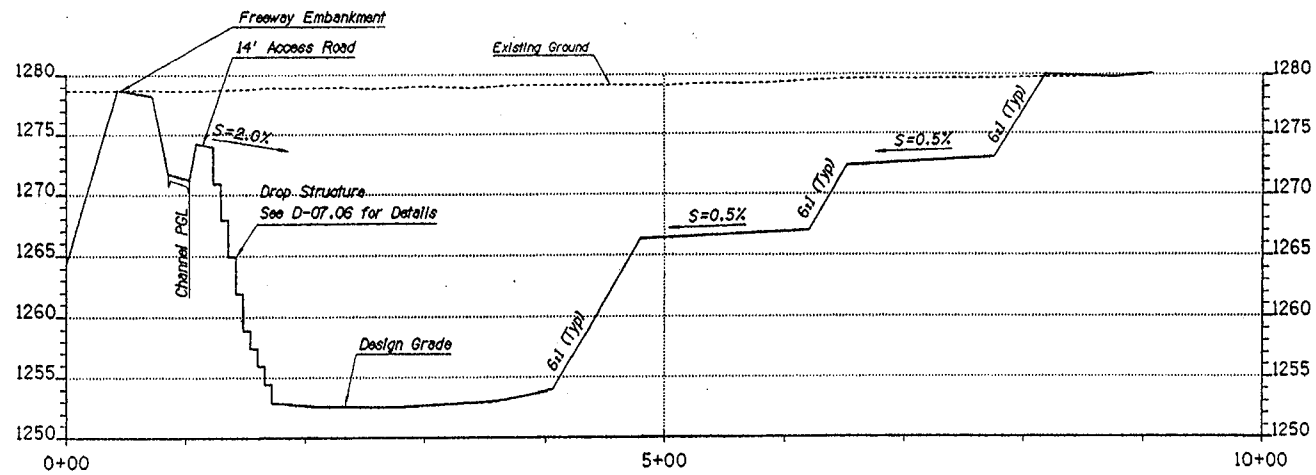
p:\3029\j2cad\sheets\h5914bengeo02.dgn Plotted By: MRT 6/24/2004 1:21:00 PM

ooooSYSTIMEoooooooooDGNoSPECIFICATIONoooooo

F.A.R.P.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	202-C(003)B	285	1056	
		202 MA 036			



BASIN Q SECTION A
D-07.01



BASIN Q SECTION B
D-07.01

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

REDUCED SIZE
DO NOT SCALE

	NAME	DATE
DESIGN	JP, KD	6/04
DRAWN	CS, MRT	6/04
CHECKED	JH	6/04

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

BASIN Q
SECTIONS

ROUTE 202L
LOCATION FRYE ROAD - POWER ROAD (SANTAN FWY)

DWG. NO. D-07.04

TRACS NO. H 5911 01 C

202-C(003)B

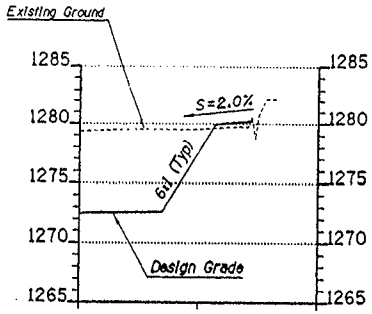
___ OF ___

p:\3029\2cad\sheets\h5914basseo01.dgn Plotted By: MRT 6/24/2004 1:21:07 PM

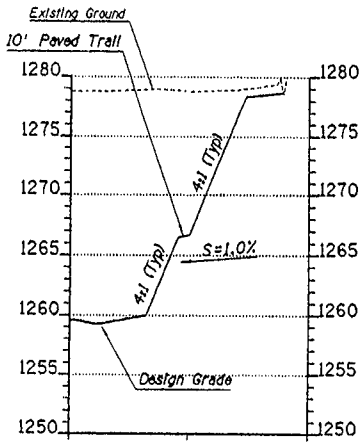
oooooSYSTIMEoooooooooooDONOSPECIFICATIONoooooo

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	202-C(003)B	264	1036	

202 MA 036



BASIN Q SECTION C
D-07.01



BASIN Q SECTION D
D-07.01

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

REDUCED SIZE
DO NOT SCALE

	NAME	DATE
DESIGN	JP, KO	6/04
DRAWN	CS, MRT	6/04
CHECKED	JH	6/04

2 JE engineering and environmental design 202 south stim street, suite 128 phoenix, arizona 85004 phone 602.256.2021 www.jeedesign.com

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

BASIN Q
SECTIONS

23170 JEFFREY A. HOLZMEISTER

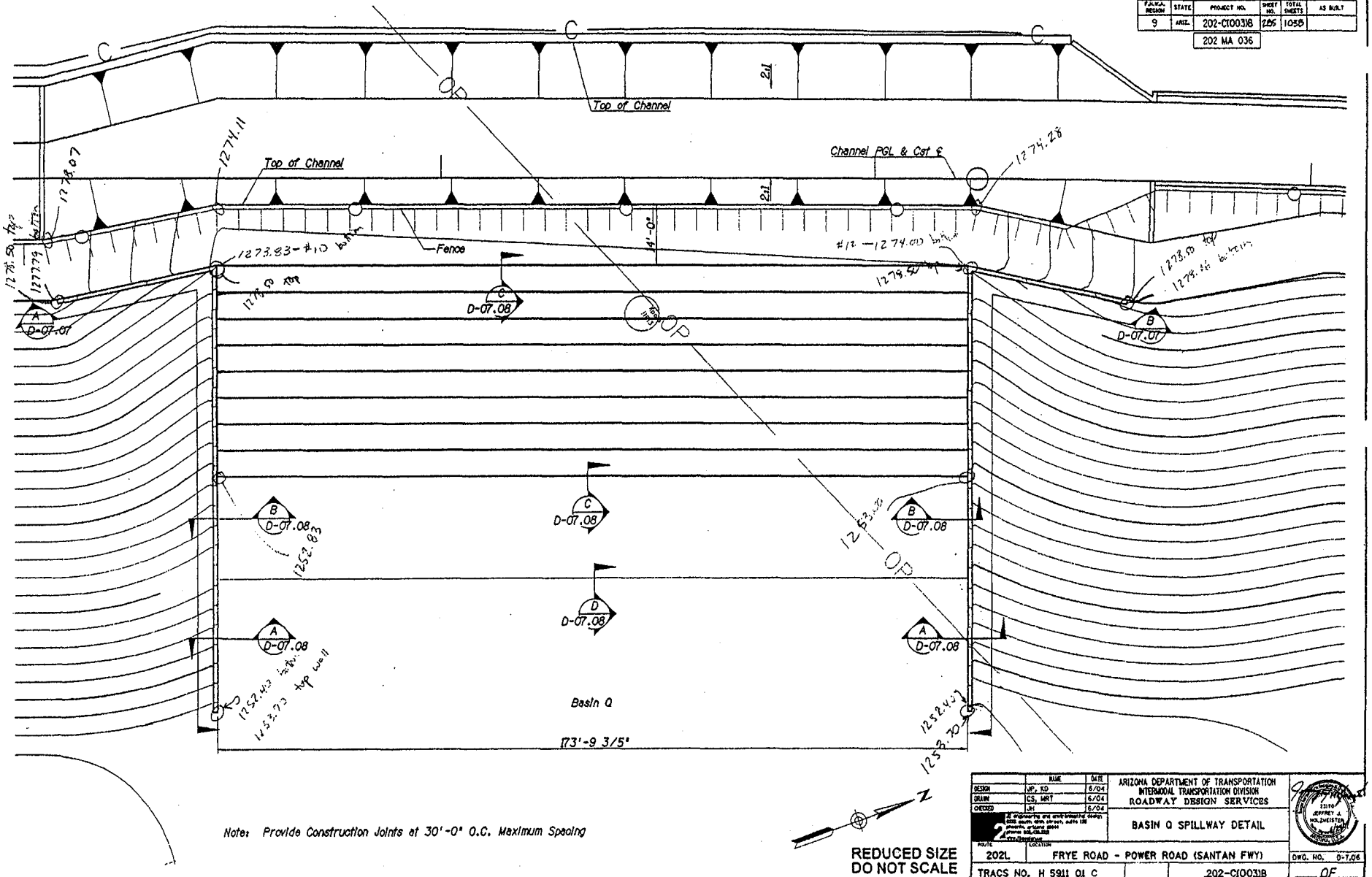
ROUTE	LOCATION	DWG. NO.
202L	FRYE ROAD - POWER ROAD (SANTAN FWY)	D-07.05
TRACS NO. H 5911 01 C	202-C(003)B	___ OF ___

p:\3029\jzcad\sheets\h5914bsnsec02.dgn Plotted By: MRT 6/24/2004 1:21:07 PM

oooooSYSTIMEoooooo oooooDGNoSPECIFICATIONoooooo

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	202-C(003)B	205	1058	

202 MA 036



Note: Provide Construction Joints at 30'-0" O.C. Maximum Spacing

REDUCED SIZE
DO NOT SCALE

	NAME	DATE
DESIGN	JP, KD	6/04
DRAWN	CS, MRT	6/04
CHECKED	JH	6/04

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

BASIN Q SPILLWAY DETAIL

ROUTE 202L — LOCATION FRYE ROAD - POWER ROAD (SANTAN FWY)

DWG. NO. D-7.06

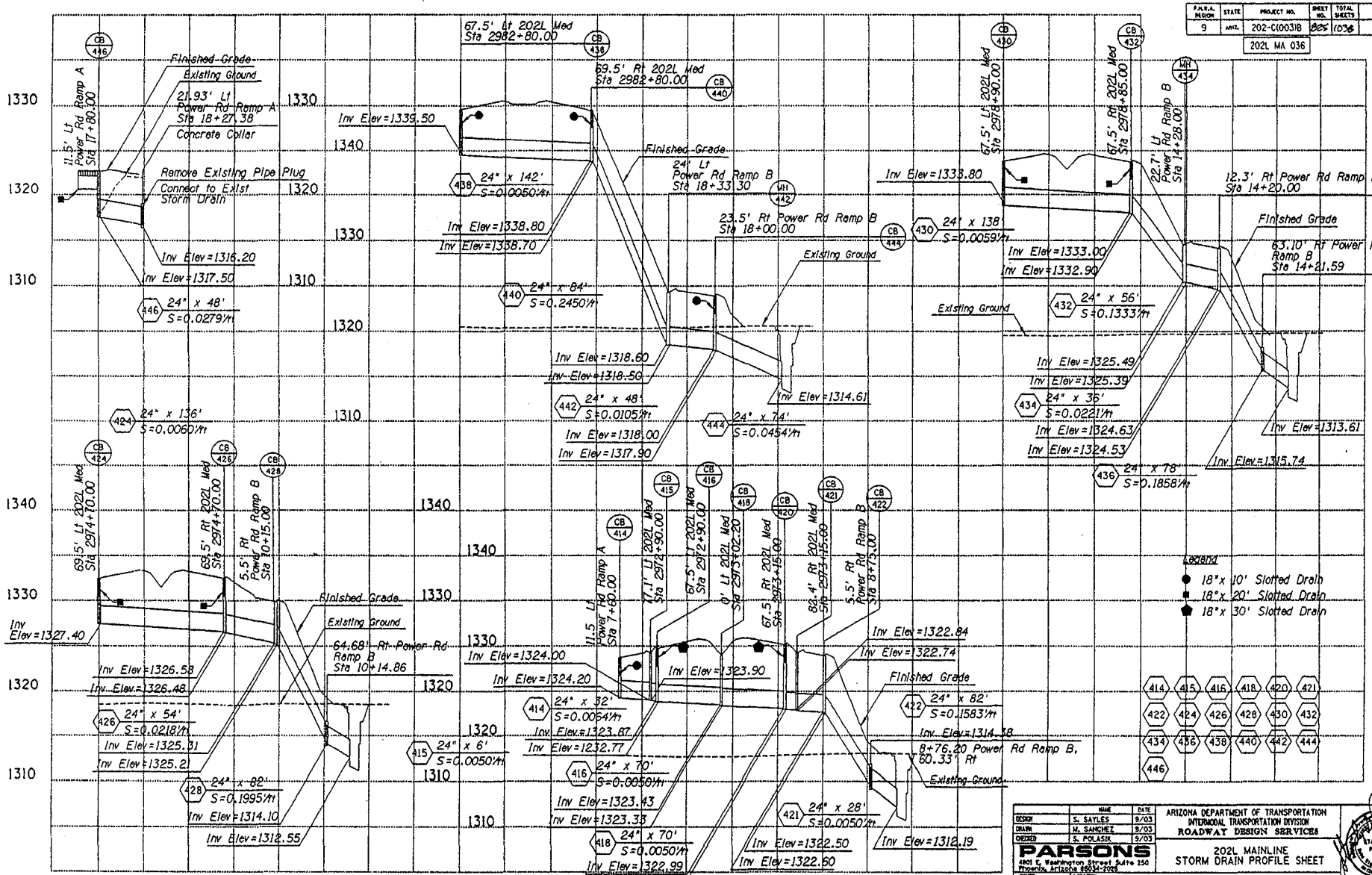
TRACS NO. H 5911 01 C — 202-C(003)B — ___ OF ___

p:\3029\J2Cad\Sheets\h5914dd_7.06.dgn Plotted By: MRT 6/24/2004 1:27:12 PM

oooooSYSTIMEoooooo oooooUDNoSPECIFICATIONoooooo

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	202-C(003)B	805	1036	

202L MA 036



REDUCED SIZE DO NOT SCALE

	NAME	DATE
DESIGN	S. SAYLES	9/03
DRAWN	M. SANCHEZ	9/03
CHECKED	S. POLASIK	9/03

PARSONS
4801 E. Washington Street Suite 250
Phoenix, Arizona 85034-2026

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

202L MAINLINE
STORM DRAIN PROFILE SHEET

ROUTE	LOCATION
202L	FRYE RD - POWER RD (SANTAN FWY)

TRACS NO. H 5911 01 C

202-C(003)B

DWG NO. D-1.19

___ OF ___

p0089950 C. Lambert 03:40:29 PM 06/08/04 p:\projects\645583\microstation\sht\persons\hdr\h5911d019_h.dgn

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	202-C(003)B	826	1038	
		202 MA 036			

(1) CURVE DATA

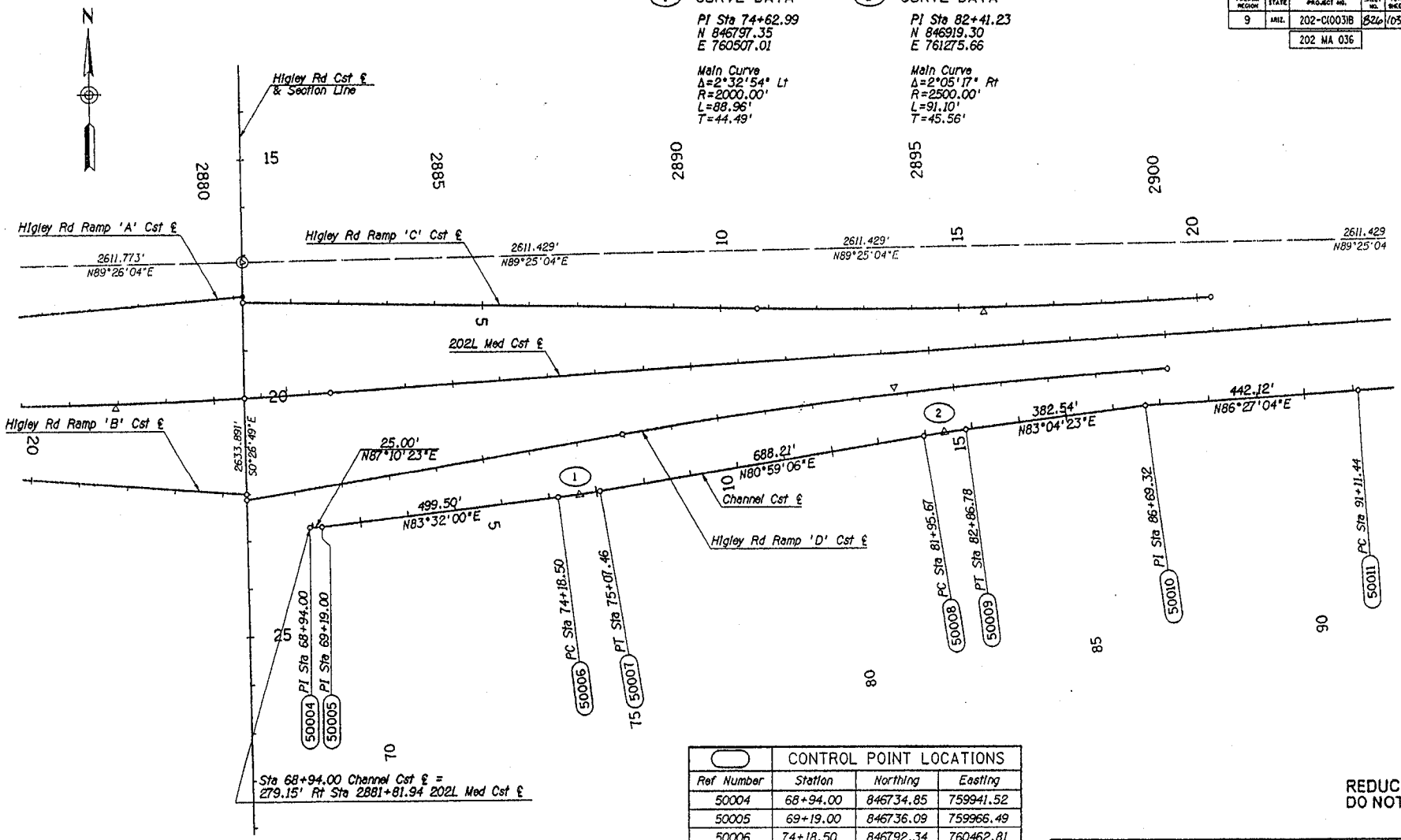
PI Sta 74+62.99
N 846797.35
E 760507.01

Main Curve
Δ=2°32'54" Lt
R=2000.00'
L=88.96'
T=44.49'

(2) CURVE DATA

PI Sta 82+41.23
N 846919.30
E 761275.66

Main Curve
Δ=2°05'17" Rt
R=2500.00'
L=91.10'
T=45.56'



CONTROL POINT LOCATIONS			
Ref Number	Station	Northing	Easting
50004	68+94.00	846734.85	759941.52
50005	69+19.00	846736.09	759966.49
50006	74+18.50	846792.34	760462.81
50007	75+07.46	846804.32	760550.95
50008	81+95.67	846912.16	761230.66
50009	82+86.78	846924.79	761320.88
50010	86+69.32	846970.93	761700.63
50011	91+11.44	846998.30	762141.90

REDUCED SIZE
DO NOT SCALE

	NAME	DATE
DESIGN	JP	6/04
DRAWN	MRT	6/04
CHECKED	JH	6/04

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

CHANNEL
GEOMETRIC LAYOUT

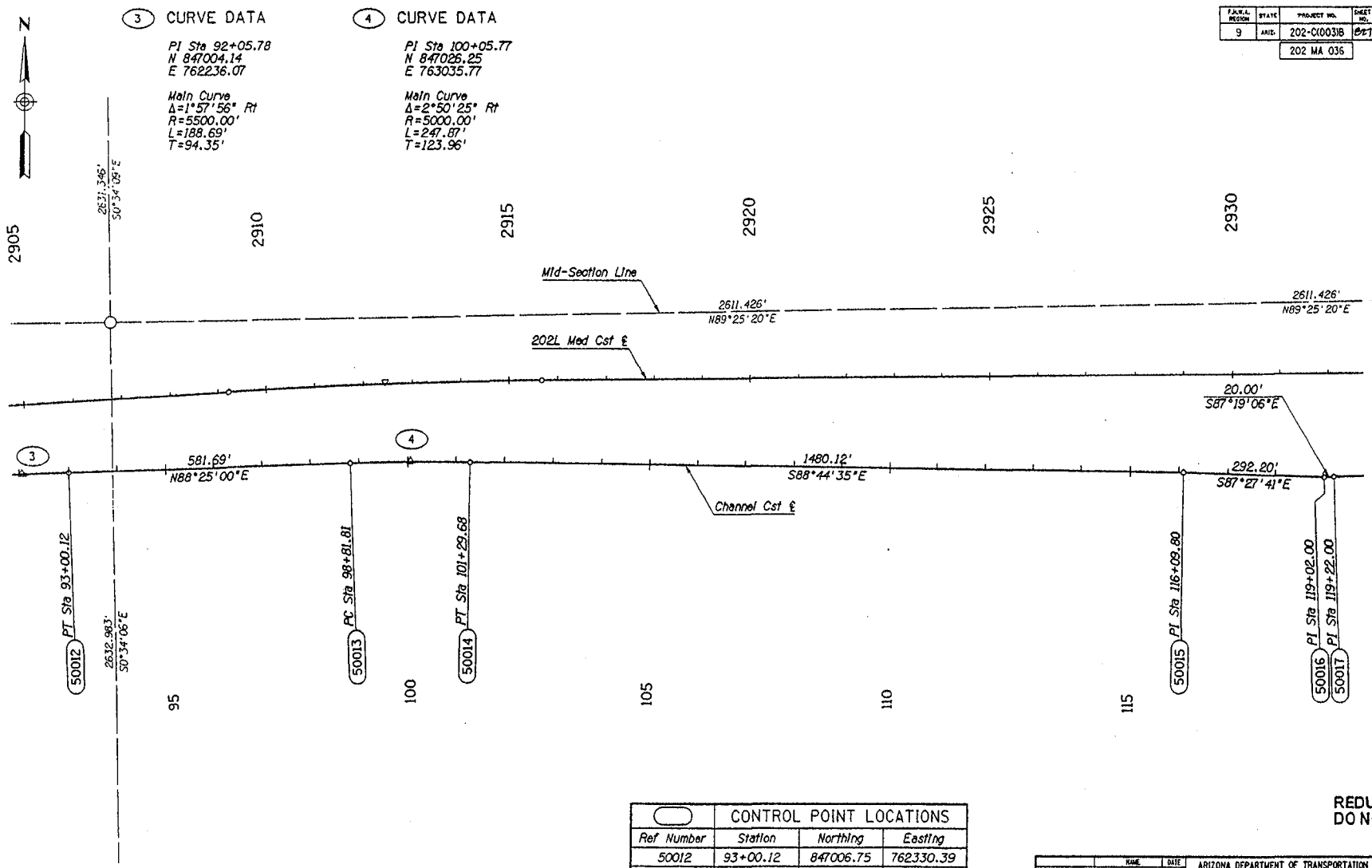
ROUTE: 202L
LOCATION: FRYE RD - POWER RD (SANTAN FWY)

TRACS NO. H 5911 01 C
202-C(003)B

DWG NO. D-23
___ OF ___

$FILE$ $USER$ $DATE$ $TIME$

F.A.P. NO. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	202-C(003)B	8B7	1038	
		202 MA 036			



CONTROL POINT LOCATIONS			
Ref Number	Station	Northing	Easting
50012	93+00.12	847006.75	762330.39
50013	98+81.81	847022.82	762911.85
50014	101+29.68	847023.53	763159.70
50015	116+09.80	846991.06	764639.46
50016	119+02.00	846978.11	764931.37
50017	119+22.00	846979.05	764951.35

REDUCED SIZE
DO NOT SCALE

	NAME	DATE	ARIZONA DEPARTMENT OF TRANSPORTATION INTERMODAL TRANSPORTATION DIVISION ROADWAY DESIGN SERVICES
DESIGN	JP	6/04	
DRAWN	MRT	6/04	
CHECKED	JH	6/04	CHANNEL GEOMETRIC LAYOUT
ROUTE 202L	LOCATION FRYE RD - POWER RD (SANTAN FWY)		DWG NO. D-2.2
TRACS NO. H 5911 01 C		202-C(003)B	___ OF ___

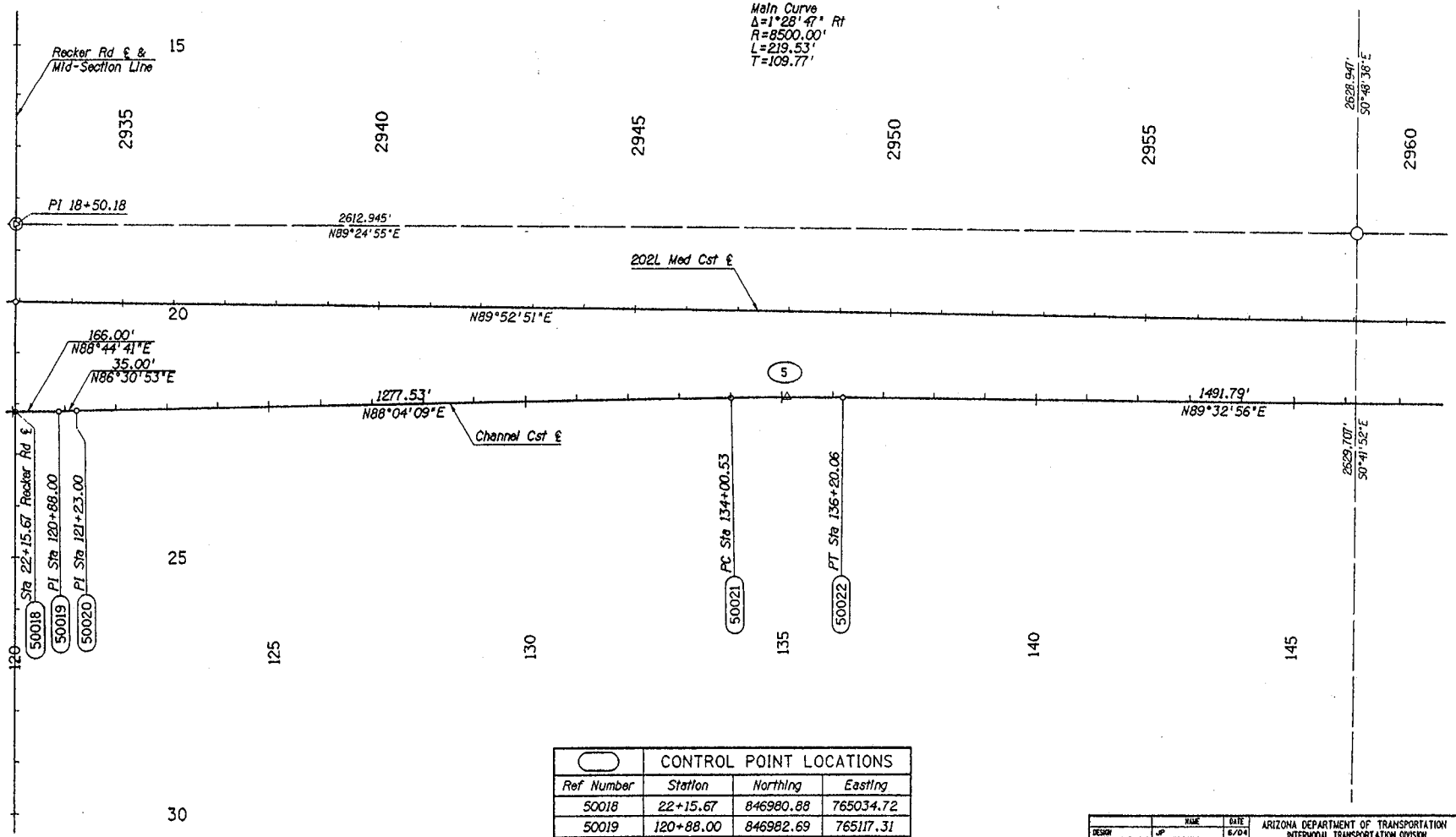
$FILE$ $USER$ $DATE$ $TIME$

F.A.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	202-C(003)B	528	1056	
		202 MA 036			

(5) CURVE DATA

PI Sta 135+10.30
N 847031.56
E 766538.76

Main Curve
Δ=1°28'47" Rt
R=8500.00'
L=219.53'
T=109.77'



	CONTROL POINT LOCATIONS		
Ref Number	Station	Northing	Easting
50018	22+15.67	846980.88	765034.72
50019	120+88.00	846982.69	765117.31
50020	121+23.00	846984.81	765152.25
50021	134+00.53	847027.86	766429.05
50022	136+20.06	847032.42	766648.52

REDUCED SIZE
DO NOT SCALE

	NAME	DATE
DESIGN	JP	6/04
DRAWN	MRT	6/04
CHECKED	JH	6/04

2 engineering and environmental design
2222 south 48th street, suite 125
phoenix, arizona 85034
phone 602.952.2525
www.kimley-horn.com

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

CHANNEL
GEOMETRIC LAYOUT

ROUTE: 202L
LOCATION: FRYE RD. - POWER RD (SANTAN FWY)

TRACS NO. H 5911 01 C

202-C(003)B

DWG NO. 0-2.3

___ OF ___

$FILE$ $USER$ $DATE$ $TIME$

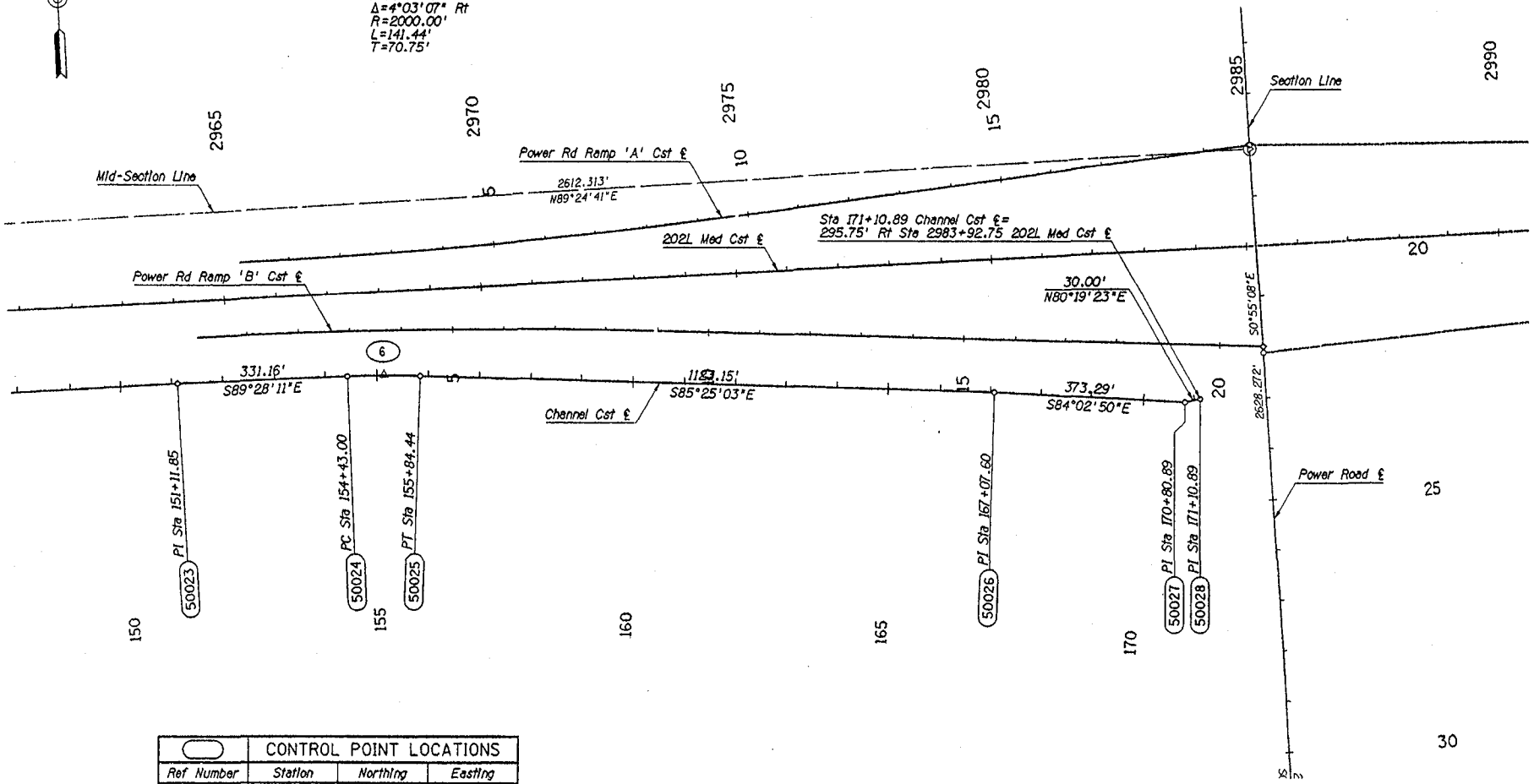
F.A.P.N.H. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	202-C(003)B	524	1038	

202 MA 036

(6) CURVE DATA

PI Sta 155+13.75
N 847040.45
E 768542.16

Main Curve
Δ=4°03'07" Rt
R=2000.00'
L=141.44'
T=70.75'



	CONTROL POINT LOCATIONS		
Ref Number	Station	Northing	Easting
50023	151+11.85	847044.17	768140.27
50024	154+43.00	847041.10	768471.41
50025	155+84.44	847034.80	768612.68
50026	167+07.60	846945.06	769732.24
50027	170+80.89	846906.35	770103.53
50028	171+10.89	846911.39	770133.10

REDUCED SIZE
DO NOT SCALE

	NAME	DATE
DESIGN	JP	6/04
DRAWN	MRT	6/04
CHECKED	JH	6/04

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

CHANNEL
GEOMETRIC LAYOUT

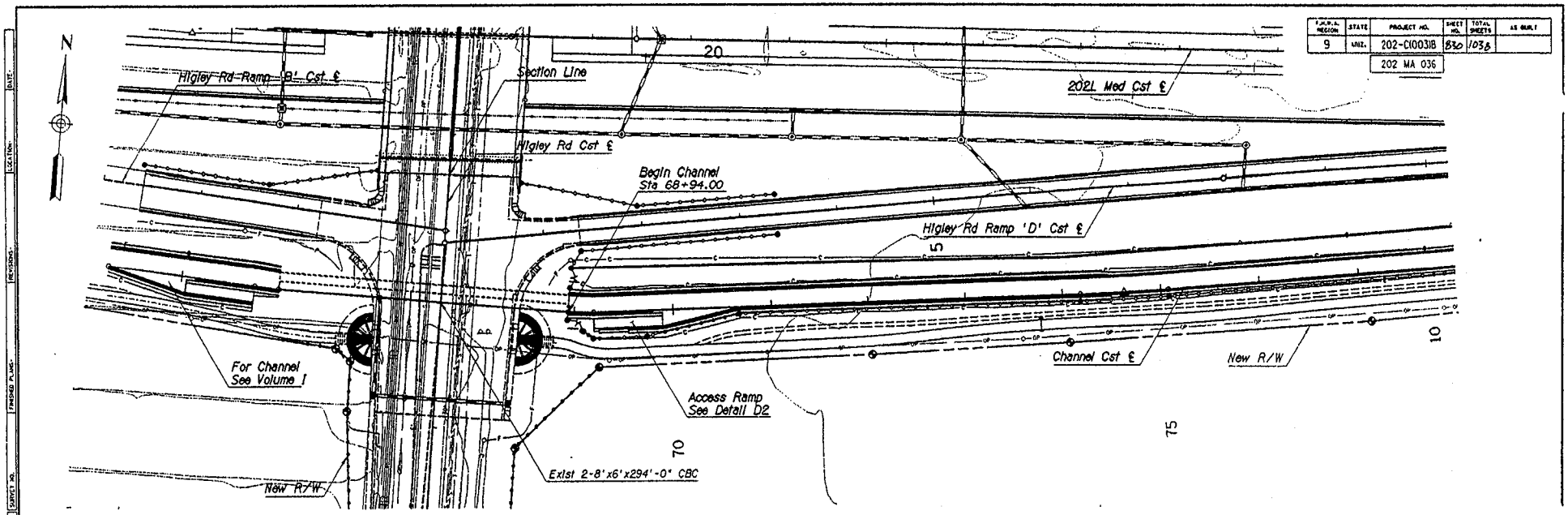
ROUTE: 202L
LOCATION: FRYE RD - POWER RD (SANTAN FWY)

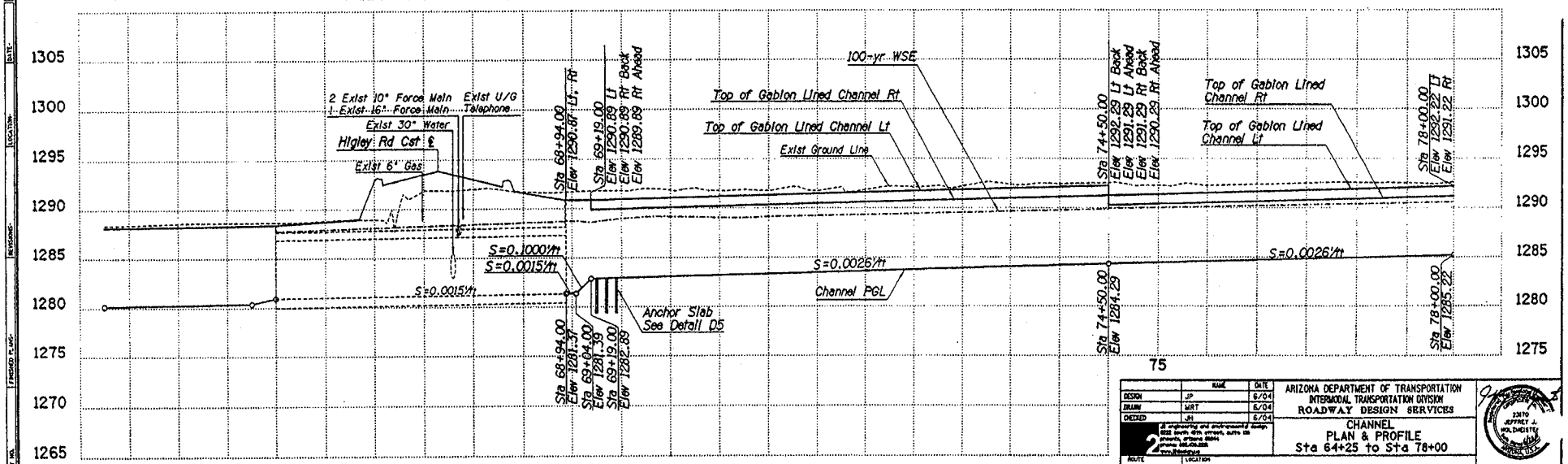
TRACS NO. H 5911 01 C | 202-C(003)B

DWG NO. D-2.4
___ OF ___

$FILE$ $USER$ $DATE$ $TIME$

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	202-C(003)B	830	1038	
		202 MA 036			





REDUCED SIZE
DO NOT SCALE

	NAME	DATE
DESIGN	JP	6/04
DRAWN	MRT	6/04
CHECKED	JH	6/04

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

CHANNEL
PLAN & PROFILE
Sta 64+25 to Sta 78+00

ROUTE 202L | LOCATION FRYE RD - POWER RD (SANTAN FWY)

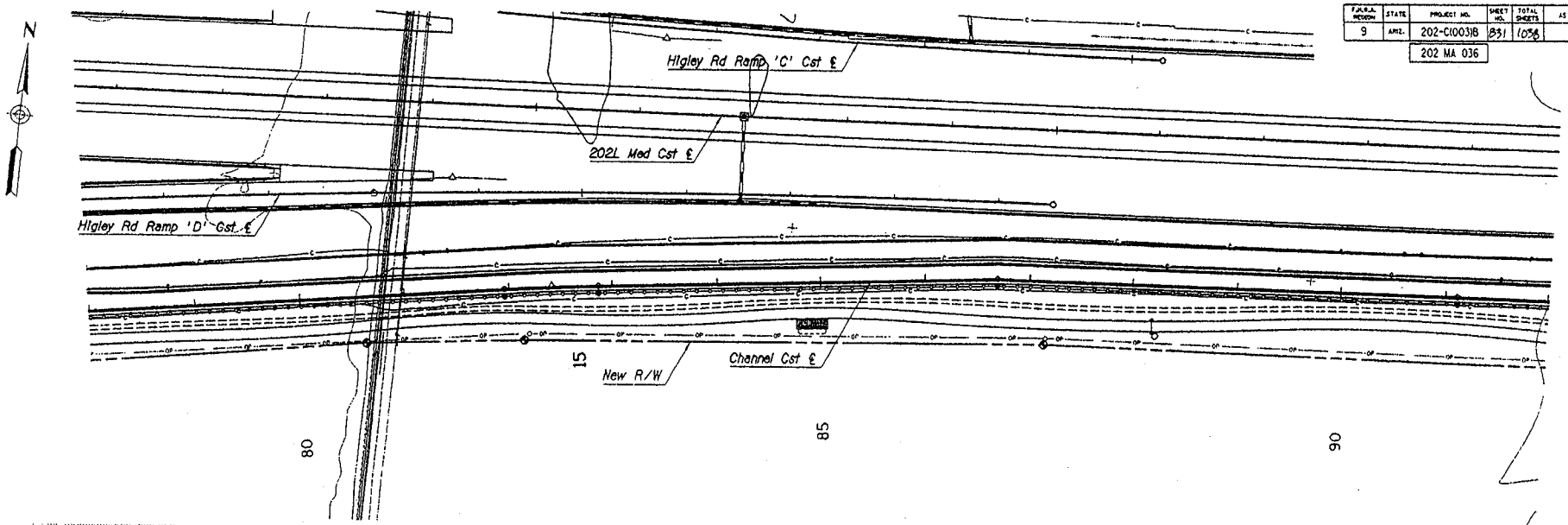
TRACS NO. H 5911 01 C | 202-C(003)B

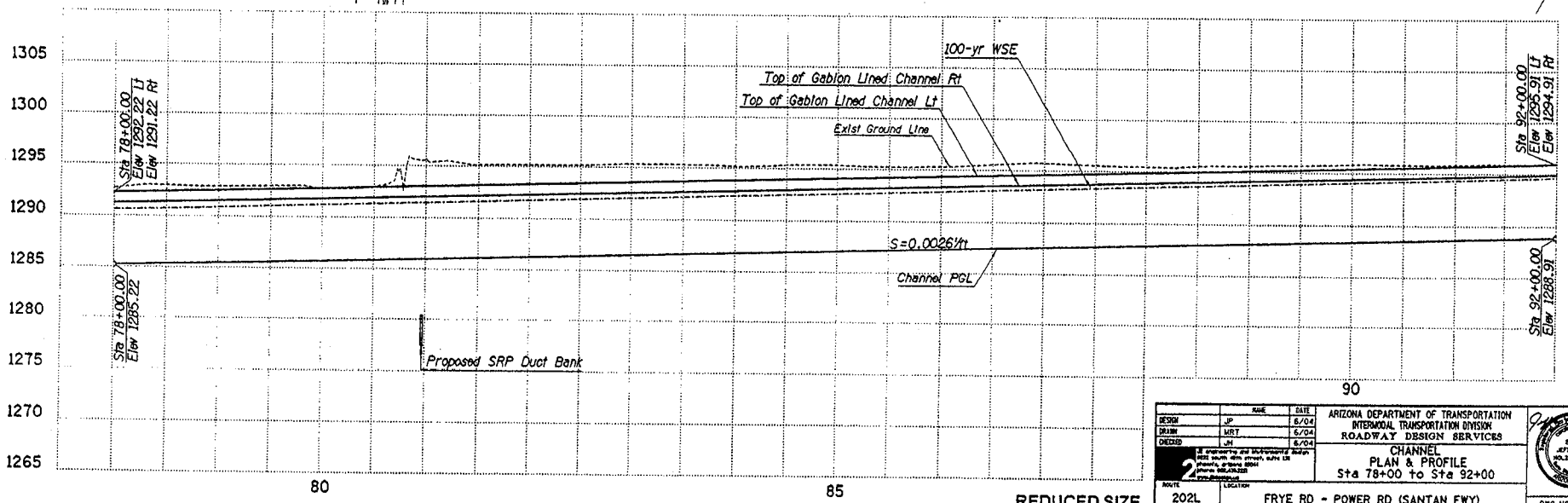
DWG NO. D-3.5 ___ OF ___

$FILE$ $USER$ $DATE$ $TIME$

F.H.W.A. REVISION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	202-C(003)B	831	1058	

202 MA 036





REDUCED SIZE
DO NOT SCALE

	NAME	DATE
DESIGN	JP	6/04
DRAWN	MRT	6/04
CHECKED	JH	6/04

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

CHANNEL
PLAN & PROFILE
Sta 78+00 to Sta 92+00

ROUTE: 202L
LOCATION: FRYE RD - POWER RD (SANTAN FWY)

TRACS NO. H 5911 01 C

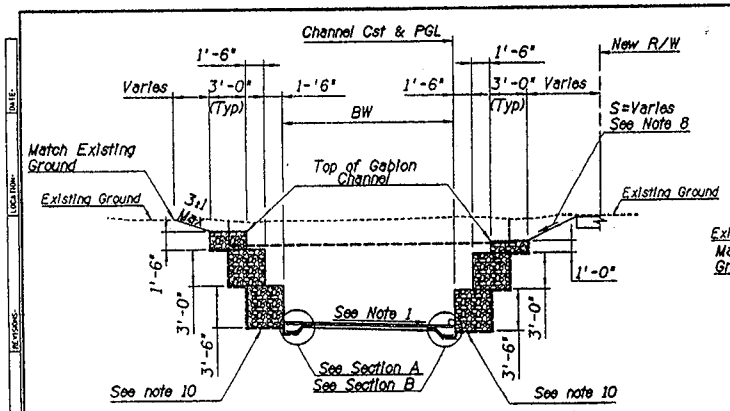
202-C(003)B

DWG NO. D-2.6

___ OF ___

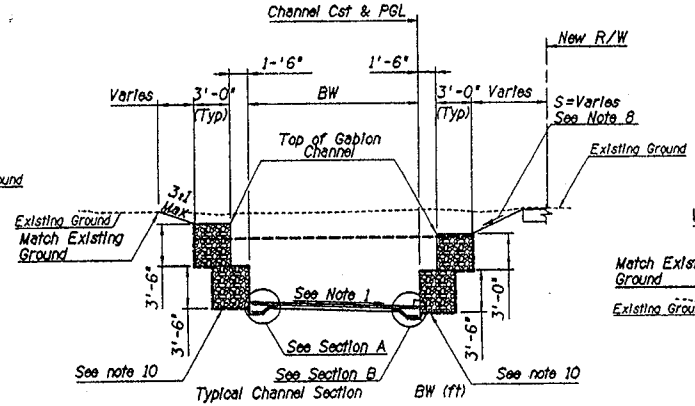
$FILE$ $USER$ $DATE$ $TIME$

F.A.R.N. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	202-C(003)B	835	1058	
		202 MA 036			



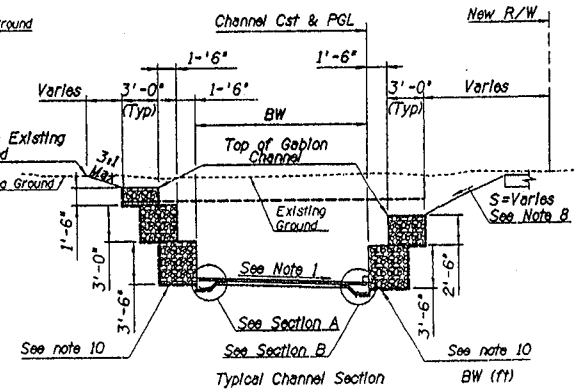
Typical Channel Section BW (ft)

Lt Sta 69+19 to Sta 74+50	16
Rt Sta 69+19 to Sta 70+69 (See Ramp Dtl D2)	
Rt Sta 70+69 to Sta 74+50	16



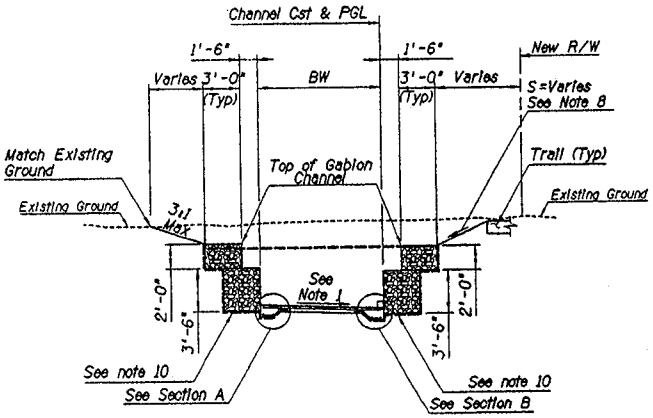
Typical Channel Section BW (ft)

Sta 74+50.00 to Sta 78+00.00	16
Sta 78+00.00 to Sta 78+50.00	Varies
Sta 78+50.00 to Sta 94+00.00	14
Rt Sta 94+00.00 to Sta 100+00.00	14



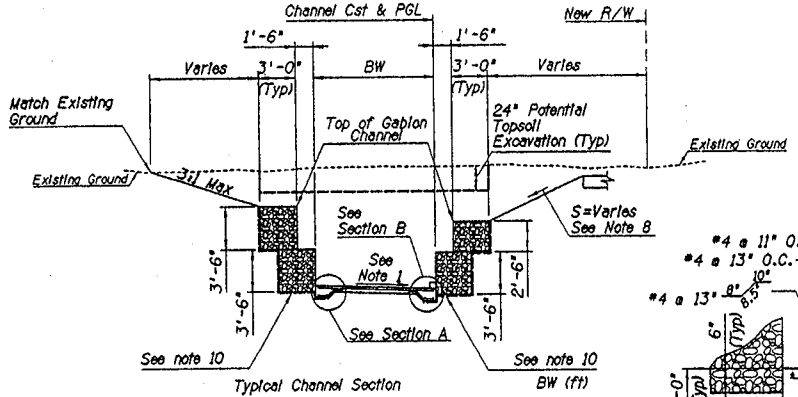
Typical Channel Section BW (ft)

Lt Sta 94+00.00 to Sta 100+00.00	14
Sta 100+00.00 to Sta 117+45.00	14
Lt Sta 117+45.00 to Sta 119+02.00 (See Ramp Dtl D14)	14
Rt Sta 117+45.00 to Sta 119+02.00	14



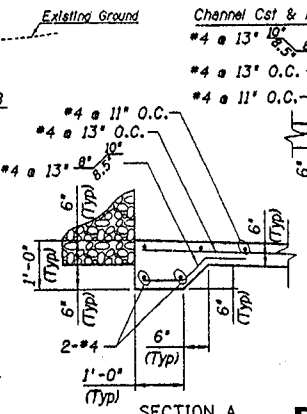
Typical Channel Section BW (ft)

Lt Sta 121+23.00 to Sta 122+45.50 (See Ramp Dtl D15)	
Rt Sta 121+23.00 to Sta 122+45.50	12
Sta 122+45.50 to Sta 146+00.00	12

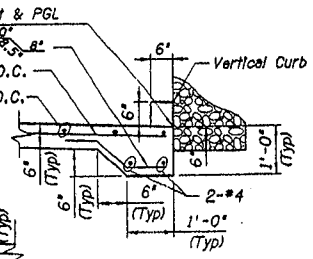


Typical Channel Section BW (ft)

Sta 146+00.00 to Sta 146+50.00	Varies
Sta 146+50.00 to Sta 169+32.50	10
Lt Sta 169+32.50 to Sta 170+80.89	10
Rt Sta 169+32.50 to Sta 170+60.00 (See Ramp Dtl D3)	
Sta 170+60.00 to Sta 170+80.89	10



SECTION A



SECTION B

REDUCED SIZE
DO NOT SCALE

DETAIL D1

Notes:

1. Drop in elevation across the channel bottom shall be 2% or 0.5 ft which ever is greater.
2. All concrete shall be Class S (f'_c=3000 psi) See special provisions for detailed requirements.
3. All reinforced steel shall conform to ASTM A615/A615M-96a, Grade 60.
4. All reinforcing steel shall have a minimum 2" clear cover to grade and 2" to exposed surfaces unless otherwise noted.
5. Anchor slabs shall be installed in the locations shown on the plans.
6. Bottom gabion shall be placed 6" below concrete channel bottom.
7. All gabion baskets shall have a width of 3'-0".
8. Refer to Dwg No D-3.1 to Dwg No D-3.21 for Trail Typical Sections.
9. Contractor shall scarification the top 12" in channel bottom and recompact to 90% at -1% to +3% optimum moisture content.
10. Use geotextile fabric per section 506-2.04 of the standard specifications.
11. Channel geometry at transitions, see details D6 & D7
12. Refer to detail D8 for lining to lining construction joint detail.

	NAME	DATE
DESIGN	JP	6/04
DRAWN	MRT	6/04
CHECKED	JH	6/04

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

TYPICAL CHANNEL SECTIONS

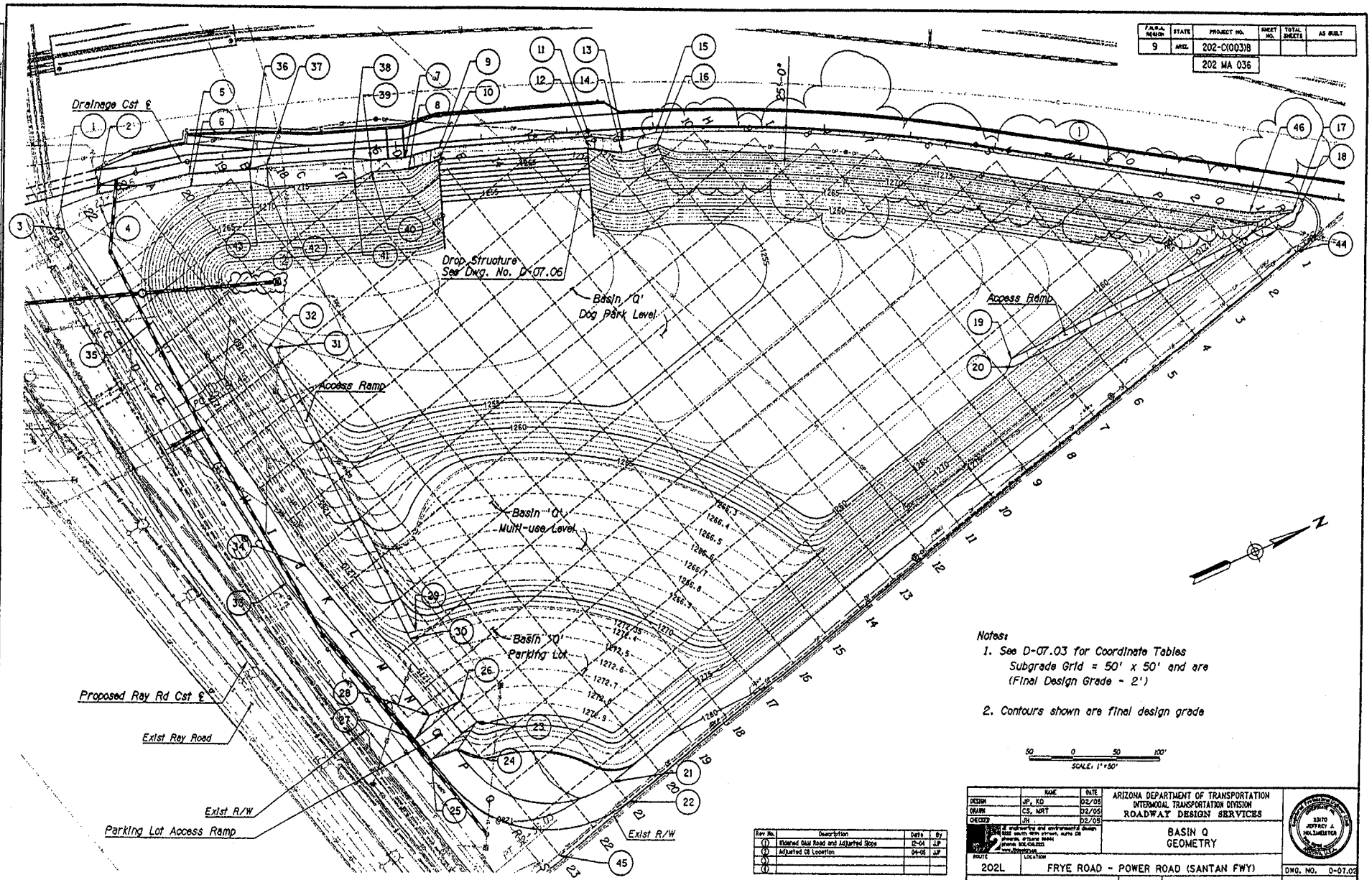
ROUTE 202L — LOCATION: FRYE RD - POWER RD (SANTAN FWY)

TRACS NO. H 5911 01 C — 202-C(003)B

DWG NO. D-2.13 — OF

$FILE$ $USER$ $DATE$ $TIME$

F.A.P.N. DESIGN	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	202-C(003)B			
		202 MA 036			



Notes:

1. See D-07.03 for Coordinate Tables
   Subgrade Grid = 50' x 50' and are
   (Final Design Grade ~ 2')

2. Contours shown are final design grade

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

Rev No.	Description	Date	By
1	Widened Dirt Road and Adjusted Slope	12-04	JJP
2	Adjusted CB Location	04-05	JJP
3			
4			

	NAME	DATE
DESIGN	JP, KO	02/05
DRAWN	CS, MRT	02/05
CHECKED	JH	02/05

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

BASIN Q
GEOMETRY

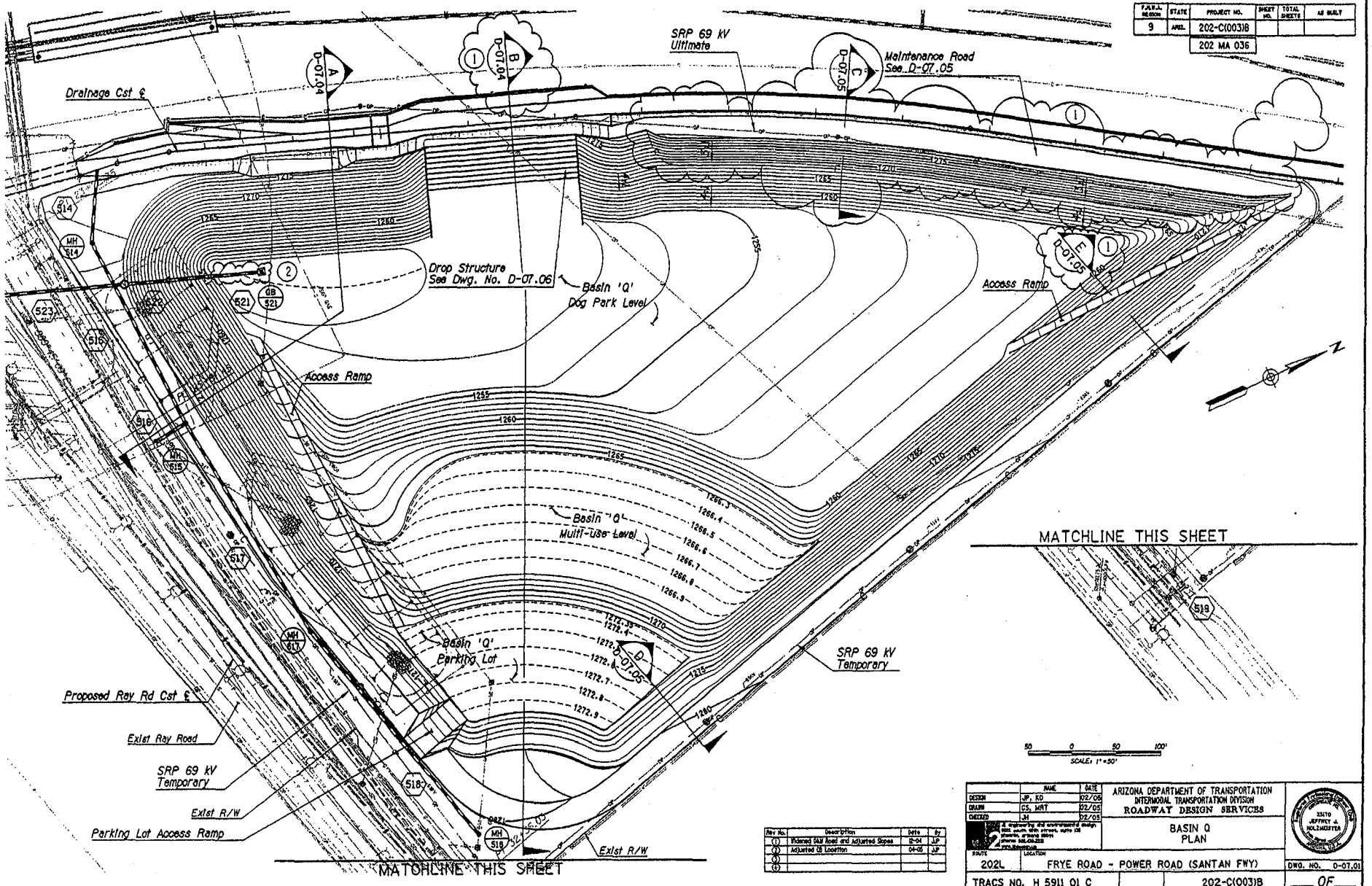
ROUTE 202L
LOCATION FRYE ROAD - POWER ROAD (SANTAN FWY)

TRACS NO. H 5911 01 C
202-C(003)B

DWG. NO. D-07.02
___ OF ___

p:\3029\J2Cad\Sheets\Addendum\h5914BanGeo01add.dgn Plotted By: MRT 4/11/2005 2:06:54 PM

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	202-C(003)B			
		202 MA 036			



Rev No.	Description	Date	By
1	Widened Gdn Road and Adjusted Slopes	8-04	JP
2	Adjusted CL Location	04-05	JP
3			
4			

	NAME	DATE
DESIGN	JP, KD	02/06
DRAWN	CS, MRT	02/05
CHECKED	JH	02/05

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

BASIN Q
PLAN

ROUTE 202L — LOCATION FRYE ROAD - POWER ROAD (SANTAN FWY)

DWG. NO. D-07.01

TRACS NO. H 5911 01 C — 202-C(003)B — ___ OF ___

p:\3028\J2Cad\Sheets\Addendum\h5914benpln01sdd.dgn Plotted By: MRT 4/12/2005 3:00:27 PM

F.A.R.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	202-C(003)B			

202 MA 036

Coordinate Table (Design Grades)

PT#	Northing	Easting	Elevation
1	754996.62	844802.44	1277.67
2	755010.71	844843.06	1277.71
3	755018.60	844790.60	1276.67
4	755023.61	844837.52	1277.43
5	755060.72	844939.86	1277.82
6	755072.72	844932.60	1277.54
7	755203.85	845144.28	1278.07
8	755216.14	845137.42	1277.79
9	755219.75	845180.99	1274.11
10	755231.21	845172.95	1273.83
11	755320.15	845324.32	1274.28
12	755330.34	845314.48	1274.00
13	755349.46	845351.55	1278.34
14	755359.97	845342.20	1278.06
15	755366.46	845387.75	1278.38
16	755378.52	845380.48	1278.10
17	755907.05	845898.98	1278.00
18	755916.02	845895.14	1278.00
19	755833.06	845542.18	1260.00
20	755842.03	845538.34	1260.00
21	755919.05	844877.46	1280.18
22	755949.05	844877.57	1280.48
23	755764.27	844795.51	1272.95
24	755774.75	844757.02	1279.39
25	755763.89	844727.02	1279.66
26	755733.64	844795.82	1272.81
27	755733.73	844727.02	1279.56
28	755723.31	844757.02	1279.23
29	755636.50	844807.70	1272.00
30	755639.21	844796.80	1272.35
31	755278.88	844890.91	1254.00
32	755274.71	844881.82	1254.00
33	755498.73	844727.02	1278.86
34	755498.73	844757.02	1278.56
35	755166.01	844801.34	1277.03
36	755100.87	844997.20	1277.89
37	755109.48	845015.59	1276.14
38	755166.99	845097.39	1276.24
39	755181.18	845111.90	1278.03
40	755192.48	845103.62	1277.65
41	755187.72	845082.88	1275.73
42	755130.36	845000.97	1275.63
43	755112.19	844988.96	1277.61
44	755945.49	845873.22	
45	755945.49	844773.22	
46	755875.64	845859.61	1278.58

1

Coordinate Table (Basin P - Spillway Structure)

Point No.	Northing	Easting	Top Elevation	Bottom Elevation
10	755231.21	845172.95	1278.50	1273.83
12	755330.33	845314.46	1278.50	1274.00
46	755270.53	845145.41	NA	1252.83
47	755369.65	845286.93	NA	1253.00
48	755314.9	845114.28	1253.70	1252.40
49	755414.18	845256.09	1253.70	1252.40
50	755216.87	845139.12	1278.50	1277.60
51	755357.16	845339.58	1278.50	1277.68

2

Grid Location Table (Subgrade Elevations - Design Grade - 2')

Grid #	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1274.43	0
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1272.3	1272.34	1276.64
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1276.88	1272.93	1263.44	1271.32	1276.7
4	0	0	0	0	0	0	0	0	0	0	0	0	0	1276.44	1271.63	1261.98	1261.14	1271.39	1276.75
5	0	0	0	0	0	0	0	0	0	0	0	0	1276.59	1270.32	1260.99	1257.46	1261.21	1271.46	1276.81
6	0	0	0	0	0	0	0	0	0	0	0	1276.46	1269.02	1260.01	1256.67	1256.98	1261.28	1271.53	1276.86
7	0	0	0	0	0	0	0	0	0	0	1276.32	1268.23	1259.09	1255.75	1256.07	1256.82	1259.76	1271.6	1276.92
8	0	0	0	0	0	0	0	0	0	1276.33	1268.29	1258.78	1254.88	1255.19	1255.9	1256.8	1259.17	1271.67	1276.98
9	0	0	0	0	0	0	0	0	1276.34	1269.20	1259.12	1254.17	1254.32	1254.99	1255.89	1256.8	1259.24	1271.74	1277.09
10	0	0	0	0	0	0	0	1276.4	1268.23	1260.11	1253.63	1253.5	1254.08	1254.98	1255.89	1256.8	1259.31	1271.81	1277.21
11	0	0	0	0	0	0	0	1271.65	1261.75	1252.93	1252.75	1253.23	1254.07	1254.98	1255.89	1256.8	1259.38	1271.88	1277.32
12	0	0	0	0	0	0	1273.03	1265.68	1254.72	1252.24	1252.46	1253.16	1254.07	1254.98	1255.89	1256.8	1259.45	1271.95	1277.43
13	0	0	0	0	0	1272.04	1255.48	1256.36	1251.5	1251.57	1252.26	1253.16	1254.07	1254.98	1255.89	1256.81	1259.52	1272.02	1277.55
14	0	0	0	0	0	1259.91	1250.79	1250.56	1250.87	1251.36	1252.26	1253.16	1254.09	1255.09	1256.75	1259.31	1262.1	1272.09	1277.66
15	0	0	0	0	1265.84	1250.83	1250.5	1250.52	1250.77	1251.35	1252.26	1253.34	1255.94	1260.38	1264.15	1264.39	1264.46	1272.16	1277.78
16	0	0	0	1275.94	1267.46	1255.37	1250.2	1250.4	1250.77	1251.35	1252.58	1257.43	1262.75	1264.4	1264.52	1264.62	1264.7	1272.23	1277.89
17	0	0	0	1270.68	1260.47	1250.26	1249.99	1250.43	1250.9	1251.84	1257.35	1263.5	1264.45	1264.6	1264.74	1264.85	1264.95	1272.3	1278.01
18	0	0	1273.68	1263.47	1253.26	1249.87	1250	1250.69	1251.47	1255.71	1262.56	1264.44	1264.63	1264.8	1264.95	1267.57	1270.37	1274.13	1278.12
19	0	1275.68	1266.47	1256.26	1249.85	1249.85	1250.45	1251.23	1252.6	1260.01	1264.39	1264.6	1264.8	1264.98	1270.04	1270.49	1270.6	1274.28	1278.23
20	0	1271.09	1259.32	1249.87	1249.78	1250.5	1251.4	1251.68	1255.96	1261.79	1264.5	1264.73	1264.94	1269.9	1270.53	1270.69	1270.83	1274.36	1278.35
21	1275.43	1271.77	1260.7	1256.02	1254.6	1253.43	1255.43	1256.05	1258.87	1261.29	1263.86	1264.84	1267.23	1270.48	1270.69	1270.88	1273.62	1277.71	1278.45
22	1275.09	1274.98	1270.91	1268.44	1267.03	1265.61	1264.19	1262.77	1261.55	1263.29	1265.57	1266.72	1270.34	1270.59	1270.82	1272.98	1278.02	1278	0
23	0	1276.99	1275.25	1275.41	1275.56	1275.72	1275.88	1275.2	1273.78	1272.36	1272.37	1272.52	1274.06	1274.27	1272.96	1276.91	1277.69	1278.02	0

Note: See Coordinate Geomentry Dwg. No. D-07.02

Rev No.	Description	Date	By
1	Updated Basin Data	12-04	JP
2	Added Coordinate Data	04-06	JP
3			
4			

	NAME	DATE
DESIGN	JP, KO	02/05
DRAWN	CS, MRT	02/05
CHECKED	JH	02/05

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

BASIN Q
COORDINATE DATA

ROUTE: 202L
LOCATION: FRYE ROAD - POWER ROAD (SANTAN FWY)

TRACS NO. H 5911 01 C

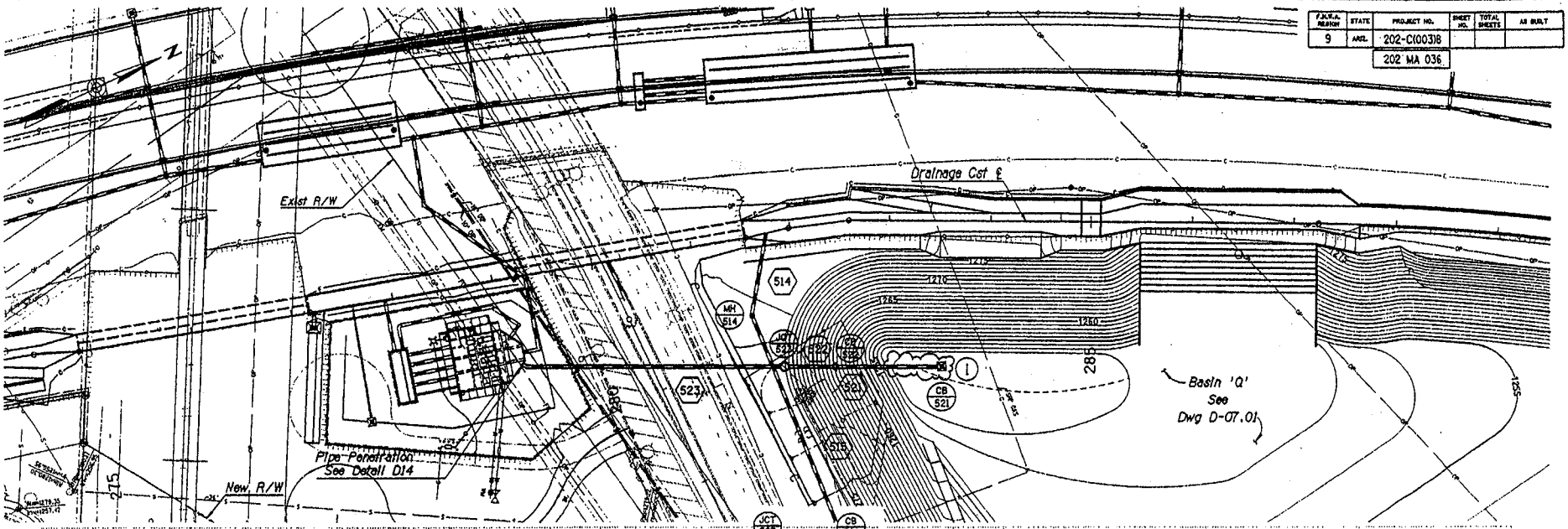
202-C(003)B

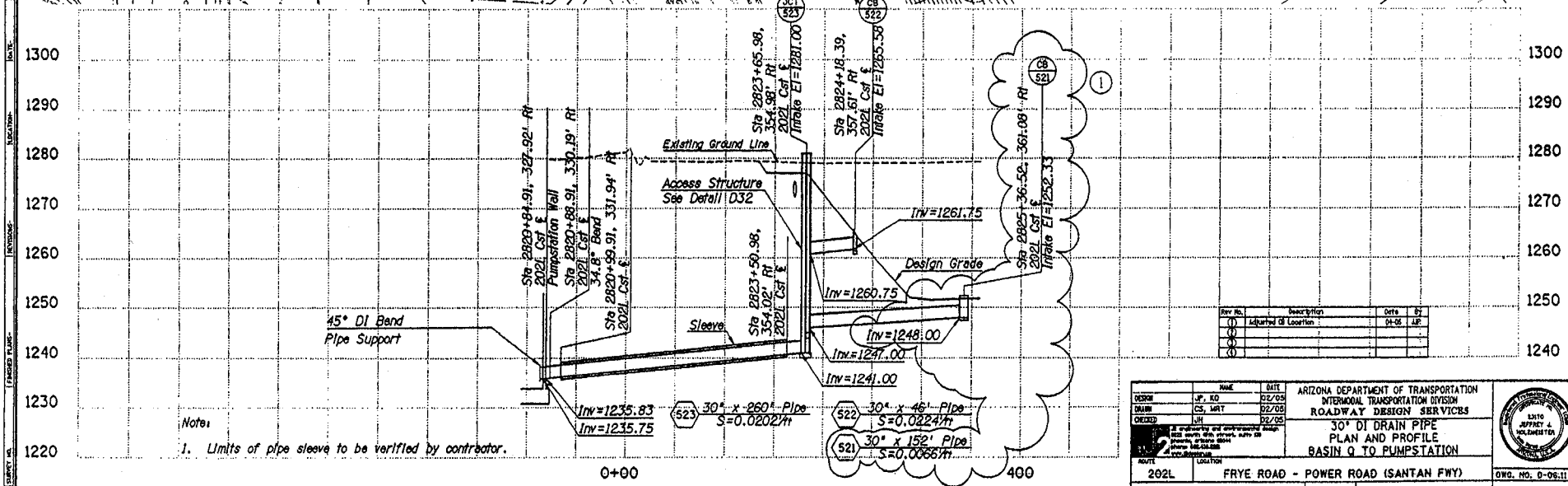
DWG. NO. D-07.03

OF

p:\3029\J2Cad\Sheets\Addendum\h5914BenGeo02add.dgn Plotted By: MRT 4/12/2006 3:25:40 PM

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	202-C(003)B			
		202 MA 036			





Notes:

1. Limits of pipe sleeve to be verified by contractor.

Rev No.	Description	Date	By
1	Adjusted CB Location	04-05	JJP
2			
3			
4			

	NAME	DATE
DESIGN	JP, KO	02/05
DRAWN	CS, MRT	02/05
CHECKED	JH	02/05

ROUTE 202L — LOCATION FRYE ROAD - POWER ROAD (SANTAN FWY)

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

30" DI DRAIN PIPE
PLAN AND PROFILE
BASIN Q TO PUMPSTATION

DWG. NO. D-06.11

TRACS NO. H 5911 01 C — 202-C(003)B — ___ OF ___

p:\3029\J2Cad\Sheets\Addendum\h5914pp11add.dgn Plotted By: MRT 4/12/2005 3:23:52 PM

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	202-C(003)B			
		202 MA 036			

Coordinate Table (Design Grades)

PT#	Northing	Easting	Elevation
1	754996.62	844802.44	1277.67
2	755010.71	844843.06	1277.71
3	755018.60	844790.60	1276.67
4	755023.61	844837.52	1277.43
5	755060.72	844939.86	1277.82
6	755072.72	844932.60	1277.54
7	755203.85	845144.28	1278.07
8	755216.14	845137.42	1277.79
9	755219.75	845180.99	1274.11
10	755231.21	845172.95	1273.83
11	755320.15	845324.32	1274.28
12	755330.34	845314.48	1274.00
13	755349.46	845351.55	1278.34
14	755359.97	845342.20	1278.06
15	755366.46	845387.75	1278.38
16	755378.52	845380.48	1278.10
17	755907.05	845898.98	1278.00
18	755916.02	845895.14	1278.00
19	755833.06	845542.18	1260.00
20	755842.03	845538.34	1260.00
21	755919.05	844877.46	1280.18
22	755949.05	844877.57	1280.48
23	755764.27	844795.51	1272.95
24	755774.75	844757.02	1279.39
25	755763.89	844727.02	1279.66
26	755733.64	844795.82	1272.81
27	755733.73	844727.02	1279.56
28	755723.31	844757.02	1279.23
29	755636.50	844807.70	1272.00
30	755639.21	844796.80	1272.35
31	755278.88	844890.91	1254.00
32	755274.71	844881.82	1254.00
33	755498.73	844727.02	1278.86
34	755498.73	844757.02	1278.56
35	755166.01	844801.34	1277.03
36	755100.87	844997.20	1277.89
37	755109.48	845015.59	1276.14
38	755166.99	845097.39	1276.24
39	755181.18	845111.90	1278.03
40	755192.48	845103.62	1277.65
41	755187.72	845082.88	1275.73
42	755130.36	845000.97	1275.63
43	755112.19	844988.96	1277.61
44	755945.49	845873.22	
45	755945.49	845873.22	
46	755875.64	845859.61	1278.58

1

Coordinate Table (Basin P - Spillway Structure)

Point No.	Northing	Easting	Top Elevation	Bottom Elevation
10	755231.21	845172.95	1278.50	1273.83
12	755330.33	845314.46	1278.50	1274.00
46	755270.53	845145.41	NA	1252.83
47	755369.65	845286.93	NA	1253.00
48	755314.9	845114.28	1253.70	1252.40
49	755414.18	845256.09	1253.70	1252.40
50	755216.87	845139.12	1278.50	1277.60
51	755357.16	845339.58	1278.50	1277.68

2

Grid Location Table (Subgrade Elevations - Design Grade - 2')

Grid #	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 1	1274.43	0
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1272.3	1272.34	1276.64
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1276.88	1272.93	1265.44	1271.32	1276.7
4	0	0	0	0	0	0	0	0	0	0	0	0	0	1276.14	1271.63	1261.98	1261.14	1271.39	1276.75
5	0	0	0	0	0	0	0	0	0	0	0	0	1276.59	1270.32	1260.99	1257.46	1261.21	1271.46	1276.81
6	0	0	0	0	0	0	0	0	0	0	0	1276.46	1269.02	1260.01	1256.67	1256.98	1261.28	1271.53	1276.86
7	0	0	0	0	0	0	0	0	0	0	1276.32	1268.23	1259.09	1255.75	1256.07	1256.82	1259.76	1271.6	1276.92
8	0	0	0	0	0	0	0	0	0	1276.33	1268.29	1258.78	1254.88	1255.19	1255.9	1256.8	1259.17	1271.67	1276.98
9	0	0	0	0	0	0	0	0	1276.34	1269.20	1259.12	1254.17	1254.32	1254.99	1255.89	1256.8	1259.24	1271.74	1277.09
10	0	0	0	0	0	0	0	1276.4	1268.23	1260.11	1253.63	1253.5	1254.08	1254.98	1255.89	1256.8	1259.31	1271.81	1277.21
11	0	0	0	0	0	0	0	1271.65	1261.75	1252.93	1252.75	1253.23	1254.07	1254.98	1255.89	1256.8	1259.38	1271.88	1277.32
12	0	0	0	0	0	0	1273.03	1265.68	1254.72	1252.24	1252.46	1253.16	1254.07	1254.98	1255.89	1256.8	1259.45	1271.95	1277.43
13	0	0	0	0	0	1272.04	1255.48	1256.36	1251.5	1251.57	1252.26	1253.16	1254.07	1254.98	1255.89	1256.81	1259.52	1272.02	1277.55
14	0	0	0	0	0	1259.91	1250.79	1250.56	1250.87	1251.36	1252.26	1253.16	1254.09	1255.09	1256.75	1259.31	1262.1	1272.09	1277.66
15	0	0	0	0	1265.84	1250.83	1250.5	1250.52	1250.77	1251.35	1252.26	1253.34	1255.94	1260.38	1264.15	1264.39	1264.46	1272.16	1277.78
16	0	0	0	1275.94	1267.46	1255.37	1250.2	1250.4	1250.77	1251.35	1252.58	1257.43	1262.75	1264.4	1264.52	1264.62	1264.7	1272.23	1277.89
17	0	0	0	1270.68	1260.47	1250.26	1249.99	1250.43	1250.9	1251.84	1257.35	1263.5	1264.45	1264.6	1264.74	1264.85	1264.95	1272.3	1278.01
18	0	0	1273.68	1263.47	1253.26	1249.87	1250	1250.69	1251.47	1255.71	1262.56	1264.44	1264.63	1264.8	1264.95	1267.57	1270.37	1274.13	1278.12
19	0	1275.68	1266.47	1256.26	1249.85	1249.85	1250.45	1251.23	1252.6	1260.01	1264.39	1264.6	1264.8	1264.98	1270.04	1270.49	1270.6	1274.28	1278.23
20	0	1271.09	1259.32	1249.87	1249.78	1250.5	1251.4	1251.68	1255.96	1261.79	1264.5	1264.73	1264.94	1269.9	1270.53	1270.69	1270.83	1274.36	1278.35
21	1275.43	1271.77	1260.7	1256.02	1254.6	1253.43	1255.43	1256.05	1258.87	1261.29	1263.86	1264.84	1267.23	1270.48	1270.69	1270.88	1273.62	1277.71	1278.45
22	1275.09	1274.98	1270.91	1268.44	1267.03	1265.61	1264.19	1262.77	1261.55	1263.29	1265.57	1266.72	1270.34	1270.59	1270.82	1272.98	1278.02	1278	0
23	0	1276.99	1275.25	1275.41	1275.56	1275.72	1275.88	1275.2	1273.78	1272.36	1272.37	1272.52	1274.06	1274.27	1272.96	1276.91	1277.69	1278.02	0

Note: See Coordinate Geomentry Dwg. No. D-07.02

Rev No.	Description	Date	By
1	Updated Basin Data	12-04	JP
2	Added Coordinate Data	04-06	JP
3			
4			

	NAME	DATE
DESIGN	JP, KD	02/05
DRAWN	CS, MRT	02/05
CHECKED	JH	02/05

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

BASIN Q
COORDINATE DATA

ROUTE: 202L
LOCATION: FRYE ROAD - POWER ROAD (SANTAN FWY)

TRACS NO. H 5911 01 C

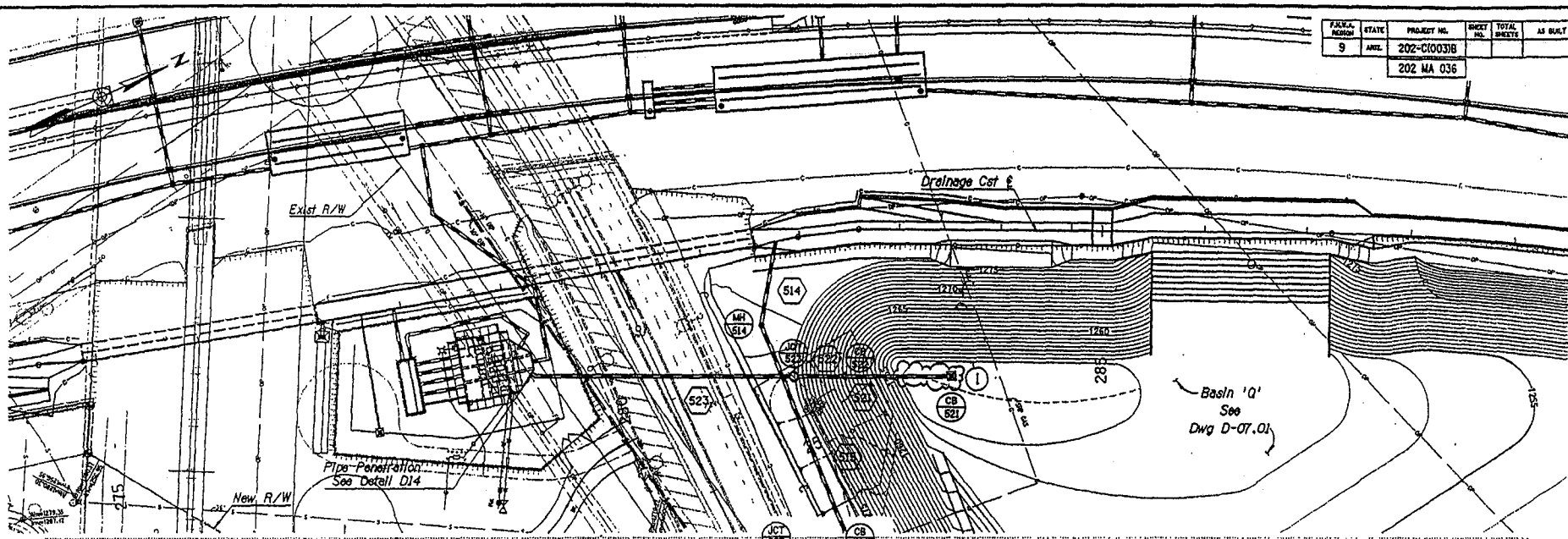
202-C(003)B

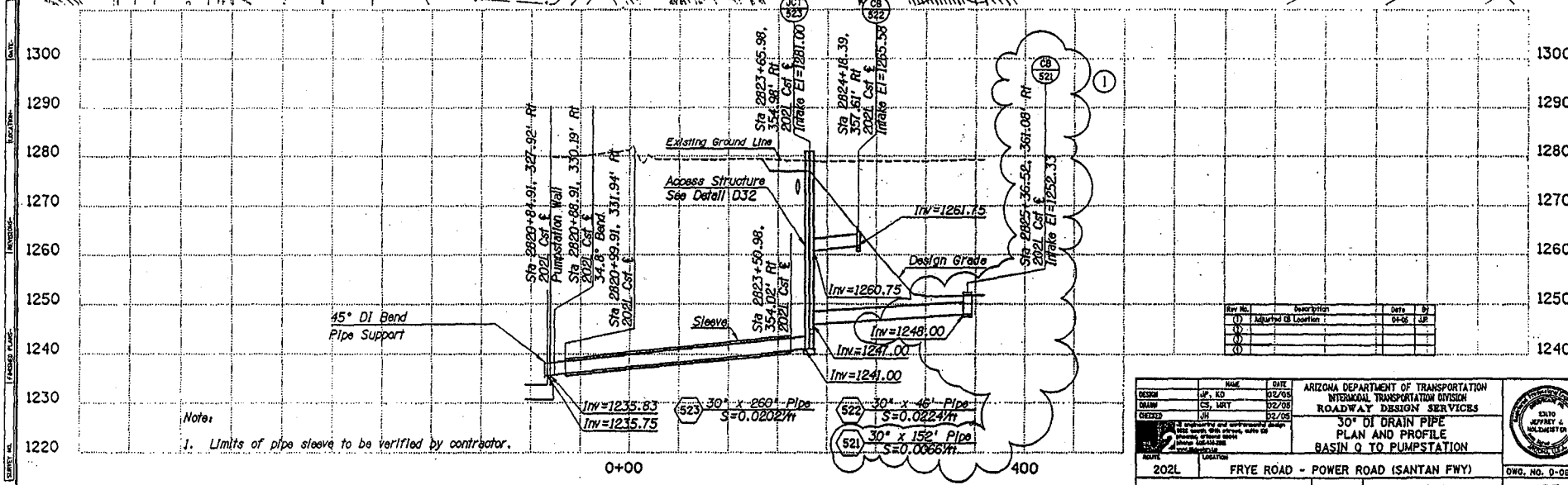
DWG. NO. D-07.03

___ OF ___

p:\5029\J2Cad\Sheets\Addendum\h5914BenGeo02add.dgn Plotted By: MRT 4/1/2006 3:28:40 PM

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	202-C(003)B			
		202 MA 036			





Note:

1. Limits of pipe sleeve to be verified by contractor.

Rev No.	Description	Date	By
0	Adjusted CB Location	09-06	JJR
1			
2			
3			
4			

	NAME	DATE
DESIGN	JP, KD	02/05
DRAWN	CS, MRT	02/05
CHECKED	JH	02/05

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

30" DI DRAIN PIPE
PLAN AND PLAN
BASIN Q TO PUMPSTATION

STATE OF ARIZONA JEFFREY A. HOLDEMSTON

ROUTE: 202L
LOCATION: FRYE ROAD - POWER ROAD (SANTAN FWY)
DWG. NO. D-06.11
TRACS NO. H 5911 01 C
202-C(003)B
___ OF ___

p:\3029\J2Cad\Sheets\Addendum\h5914appTradd.dgn Plotted By: MRT 4/12/2006 3:23:52 PM