GLENDALE / PEORIA ADMPU
107TH AVENUE AND UNION HILLS DRIVE
DESIGN CONCEPT REPORT - PHASE 2
Hydrology and Hydraulics Analysis
VOLUME II

CONTRACT FCD 2009C036
ASSIGNMENT NO. 2

Prepared for:
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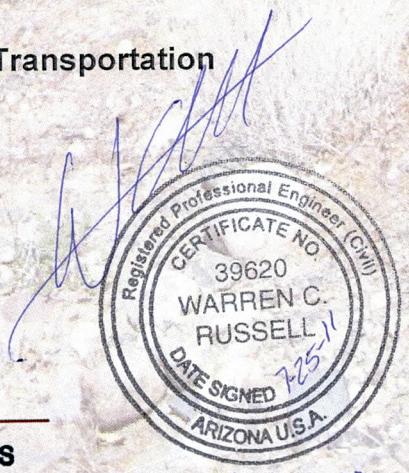

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GLENDALE / PEORIA ADMPU
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DESIGN CONCEPT REPORT - PHASE 2
VOLUME II – HYDROLOGY AND HYDRAULICS ANALYSIS

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JULY 2011 – FINAL DRAFT

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1. EXECUTIVE SUMMARY

The Glendale/Peoria Area Drainage Master Plan Update (ADMPU), 107th Avenue and Union Hills Drive Design Concept Report (DCR) is an update of the original Glendale / Peoria ADMPU and the Northwest Update. The DCR hydrology study is comprised of a watershed of approximately 16.5 square miles with the DCR area of interest being generally bound on the north by Beardsley Road, to the east by 107th Avenue, to the west by Agua Fria River and to the south by the Sun City Drain Channel confluence with the Agua Fria River.

The DCR has been commissioned by the Flood Control District of Maricopa County (FCD) in response to flooding complaints in area subdivisions and roadways near the 107th Ave. and Union Hills Drive intersection. The study area is located within three jurisdictions, the City of Peoria, the City of Surprise and Unincorporated Maricopa County. The DCR was initiated with the concept consistent with the Phase 1 Analysis and Recommendations Report with the specific areas of concern being the Lake Pleasant Mobile Home Estates, the Paradise Resort Travel Trailer Park, the Coyote Lakes development, 107th Avenue, Union Hills Drive, and 115th Avenue roadways and associated intersections.

Through the public input process and after additional review by the District it was determined that flows from the Beardsley Road Channel would be incorporated into 107th and Union Hills Drive Design Concept Report. The hydrologic and hydraulic analysis contained herein was performed for existing conditions and the final recommended alternative only.

The results of the hydrologic and hydraulic analysis indicate that the addition of proposed detention facilities along Union Hills Drive and at the intersection of 115th Avenue and Bell Road reduced the 100-year discharges significantly. The proposed improvements at the intersection of 111th Avenue and Union Hills Drive successfully mitigate the flooding problems in this area. The existing culverts within the Canyon Ridge channel section along Union Hills Drive and 115th Avenue, as well as the culverts beneath Bell Road, have sufficient capacity to handle the proposed discharges at each crossing without inundating adjacent streets or residential areas. The Sun City Drainage Channel also has sufficient capacity, after proposed improvements are made, to handle the 100-year discharge without inundating adjacent developments.

2. INTRODUCTION

2.1. Project Location

The overall study area for the Glendale/ Peoria Area Drainage Master Plan (ADMP) is approximately 80 square miles and includes portions of the Cities of Peoria, Glendale, Sun City, Youngtown, Phoenix, and unincorporated portions of Maricopa County. The original ADMP was completed in May 1987 by CDM Inc. and JM Montgomery Inc. and was updated in May 2002 by Entellus (ADMPU) and again in May 2007 by Wood Patel (NWU) for the Flood Control District of Maricopa County (FCD).

The 107th Avenue and Union Hills Drive Phase 2 Design Concept Report (DCR) is comprised of a watershed of approximately 16.5 square miles with the DCR area of interest being generally bound on the north by Beardsley Road, to the east by 107th Avenue, to the west by the Agua Fria River and to the south by the confluence with the Agua Fria River (Greenway Road alignment). See Figure 1 for a Location Map.

2.2. Need and Purpose

The DCR has been commissioned by the Flood Control District of Maricopa County (FCD) in response to flooding complaints in the area subdivisions and roadways near the 107th Ave. and Union Hills Drive intersection. The study area is located within three jurisdictions; the City of Peoria, the City of Surprise and Unincorporated Maricopa County (see *107th Avenue and Union Hills Drive Phase 2 Drainage Report, Volume 1* for Annexation Map).

The purpose of this analysis is to develop hydrologic and hydraulic models for the recommended alternatives to mitigate flooding along Union Hills Drive between 107th and 115th Avenue, 115th Avenue between Beardsley Road and Bell Road, and lastly along the Sun City Drain Channel south of Bell Road to the confluence with the Agua Fria River.

This report documents the methodologies and technical data used for the development of the existing conditions and recommended alternative models.

2.3. Scope

The information and analysis presented in this report is a part of the scope of work performed by Goodwin and Marshall, Inc. for the FCD under Contract No. 2009C036 Work Order No. 2 and Change Order No. 1. The scope includes preparation of baseline hydrologic and hydraulic analysis, data collection, development of alternatives, and selection of the recommended alternative and preparation of cost estimates and 15% plans. This volume of the report includes only the hydrologic and hydraulic analysis.

3. DATA COLLECTION AND PROJECT DATA

Various data was collected, reviewed and documented through the course of preparing the Design Concept Report. The information was obtained from the stakeholders, or through research of public records. A list of agencies contacted can

be viewed below. For additional information, please see the *107th Avenue and Union Hills Drive Phase 2 Drainage Report, Volume 1* for the Data Collection Memo.

- Arizona Public Service
- Arizona American Water
- COX Communications
- El Paso Natural Gas
- Qwest Communications
- Southwest Gas
- Maricopa County Department of Transportation
- Flood Control District of Maricopa County
- City of Surprise
- City of Peoria

3.1. Aerial Topographic Survey / Datum

3.1.1. Project Datum

The GIS information provided by the FCD is on NGVD datum however the project datum is NAVD 88 in order that the Aerial Topographic information may be utilized for the alternatives analysis and future design topography.

The project benchmark is:

Benchmark Held is a NGS control point

Designation= 1HB1 PID= AJ3858

State/County= Az/Maricopa

USGS Quad= Calderwood Butte (1981)

Location= 445 feet+/- Southwest of a parking lot at Deer Village Park on Deanna Drive east of 91st Avenue

Elevation= 1262.17 NAVD 88 Datum (Project Datum)

Elevation=1260.30 NGVD 29 Datum

3.1.2. Aerial Topographic Survey

An aerial topographic survey was performed in conjunction with the Phase 1 analysis for the project area generally located at 115th Avenue to ¾ mile east and Union Hills Drive to ¾ mile north. The aerial topographic survey was flown at an altitude sufficient to provide 1' contours and incorporates a minimum amount of planimetric features to complete Phase 1 of the work assignment. For the purposes of Phase 1 analysis, the aerial topography includes all planimetric features that are necessary to create the digital terrain model (DTM) required for producing the 1' contours. These features include curbs, gutters, creeks and break lines. Should the district wish, the remaining planimetric features may be completed with the final design.

3.1.3. Field Survey

A field survey was performed by District personnel on November 19, 2010 to supplement the FCD Aerial topographic information. The topographic survey was conducted along the full reach of the project; Sun City Drain Channel, Bell Road Culvert, Canyon Ridge Channel, and Union Hills Drive. The cross-sections were surveyed at locations that corresponded to the cross-sections within the Existing Conditions HEC-RAS model and also included existing culvert flow lines and top of curb elevations for incorporation into the HEC-RAS model.

4. BASELINE EXISTING CONDITIONS HYDROLOGY

4.1. Existing Data Reviewed

- *Glendale/Peoria ADMPU* (ADMPU) hydrologic models and reports (Entellus, 2001)
- *Glendale/Peoria ADMPU Northwest Region Update* (ADMPU NWU) hydrologic models and reports (Wood Patel, 2007)
- Site visit by G&M and stakeholders on September 23, 2010
- Aerial topography collected as part of Phase 1 DCR
- Aerial photography provided by FCD

- *Master Drainage Report for Canyon Ridge* (CVL, 1997)
- Canyon Ridge West Infrastructure – Mass Grading Plans (CVL, 1998)
- Canyon Ridge West Infrastructure – Paving and Storm Drain Plans (CVL, 1998)
- Canyon Ridge West – Parcel 5 – Grading and Drainage Plans (CVL, 2004)
- Canyon Ridge West – Parcel 5 – Paving and Storm Drain Plans (CVL, 2004)
- The Village at Canyon Ridge West – Grading and Drainage Plan (M2 group, 2006)

4.2. Summary of Hydrology Revisions

The Existing Conditions Hydrologic Model prepared with Phase 1 of the work assignment was revised twice during the Phase 2 assignment. The first revision to the model was to extend the Phase 1 DCR model to the confluence of the watershed and the Agua Fria River. The details of this revision can be found in the Technical Memorandum Dated October 4, 2010 in Appendix A.1. The second revision was completed in order to reflect the drainage basins and routing as found in the Canyon Ridge Master Drainage Report & associated as-built construction plans. The details of this hydrology revision may be viewed in the Technical Memorandum dated April 26, 2011 found in Appendix A.2.

4.3. Summary of Hydrologic Modeling Results

A flow comparison of the Baseline Existing Conditions model to the previous accepted baseline models is shown Tables 1 and 2. The revised HEC-1 model schematic can be seen on Plate 2.

Model	Concentration Point 100 year, 6 hour Discharge (cfs)			
	CA07F	CA07E	CA07D	CA07B(6)
ADMPU Exist. Conditions (Entellus, Inc.)	230	1140	1100	1830
ADMPU 107th & UHD DCR Exist. Conditions (G&M, 2010)	160	760	1050	1920
ADMPU 107th & UHD DCR-2 Exist. Conditions (G&M, 2010)	160	760	1050	1920
ADMPU 107th & UHD DCR-2 Exist. Conditions (G&M, 2011)	160	760	1050	1950

Table 1: 100-Yr, 6-Hr Discharge Comparison

Model	Concentration Point 100 year, 6 hour Discharge (cfs)			
	CA06A	CA06	A99P	CA99Q
ADMPU Exist. Conditions (Entellus, Inc.)	1980	2110	960	2090
ADMPU 107th & UHD DCR Exist. Conditions (G&M, 2010)	N/A	N/A	N/A	N/A
ADMPU 107th & UHD DCR-2 Exist. Conditions (G&M, 2010)	2070	850	960	2690
ADMPU 107th & UHD DCR-2 Exist. Conditions (G&M, 2011)	2090	850	960	2700

Table 2: 100-Yr, 6-Hr Discharge Comparison, Continued

5. EXISTING CONDITIONS HYDRAULIC ANALYSIS

5.1. 115th Avenue & Union Hills Drive

Existing conditions hydraulic analyses were performed on the 115th Avenue channel and the Beardsley Road channel. The analysis of the channel along Union Hills Drive and 115th Avenue was performed following the original revisions to the existing conditions hydrologic model. The details can be found in the technical memorandum *107th Avenue and Union Hill Drive Phase 2 – Alternative Analysis Hydrology Update & Hydraulics Existing Conditions*, dated October 4, 2010 in Appendix A.1. This report has been updated per FCD comments since originally being submitted. The FCD recommended that the Manning's "n" values be increased for the HEC-RAS model. These higher "n" values are the values included in the technical memo. The HEC-RAS base map for this channel can be found on Plate 3.

5.2. Beardsley Road Channel

The analysis of the Beardsley Road channel existing conditions was also performed as part of this work assignment. This analysis was performed after it was determined that the Beardsley Road flows would be conveyed south to Basin B.1 via a proposed channel. The details of this analysis can be found in the technical memorandum *107th Avenue and Union Hill Drive Phase 2 – Alternative Analysis Beardsley Road Channel Existing Conditions Hydraulics* found in Appendix B.2. The HEC-RAS base map for this channel can be found on Plate 5.

6. RECOMMENDED ALTERNATIVE HYDROLOGIC ANALYSIS

The hydrology model for the Recommended Alternative utilizes the same established methodologies as the previous ADMPU, NWU, and 107th Ave. & U.H.D. DCR (DCR) models to calculate the run-off within the watershed area. Per the 107th Avenue & Union Hills Drive DCR Scope of Work, only the 100 year, 6 hour hydrology model was prepared. The Recommended Alternative hydrology model was created using the latest existing conditions DCR model from the Technical Memorandum dated 4-25-2011 and titled Existing Conditions Hydrology Update with the following revisions:

- A diversion was added to the model after concentration point CA09C to divert flows within the Beardsley Road channel to the south to Basin B.3.
- Proposed drainage facilities at the intersection of 111th Avenue & Union Hills Drive and also within the Paradise Resort Travel Trailer Park have been added to the model.
- Detention Basins A.1, A.2, B.1, B.2, and B.3 were input into the model north of Union Hills Drive and west of 111th Avenue.
- Detention Basin C expansion was input into the model northeast of the intersection of 115th Avenue and Bell Road.

6.1. Beardsley Road Channel Diversion

It was determined by the Stakeholders that the best solution to alleviate the flooding issues at 115th Avenue & Beardsley Road as well as in the Coyote Lakes golf course was to divert the flows within the concrete channel along Beardsley Road south to utilize the proposed detention basins. The recommended solution contains a diversion that occurs immediately after concentration point CA09C and is named DA09C. At this diversion, which occurs along Beardsley Road approximately 900 feet west of 111th Avenue, 100% of the flow is diverted to the south. The diverted flow is conveyed within a proposed concrete channel to proposed detention Basin B.1. A hydraulic model was prepared using HEC-RAS for the existing Beardsley Road channel to determine that the flow was completely contained within the channel, ensuring

that 100% of the flow will actually be diverted south. This existing conditions model, as well as the proposed channel, will be discussed in further detail in the Hydraulics section of this report.

General questions have been raised regarding the addition of these flows to the already existing flooding problems in the downstream portion of the study area, as well as the effects on the flows going into the Agua Fria River. The proposed project, including the Beardsley Channel diversion, will not change the location of storm flows entering the Sun City Drain channel at the northeast corner of 115th Avenue and Bell Road, but will in fact control and reduce those flows thereby protecting the Drain and the associated Bell Road culvert. This is partly due to the fact that the Beardsley flows are currently diverted down 115th Avenue due to the limited capacity of the 2x36" CMP storm drain located at the intersection of the existing Beardsley channel and 115th Avenue. Under existing conditions, 140 cfs of the Beardsley flows are conveyed through these pipes and ultimately to the Agua Fria River, while 380 cfs is conveyed south along 115th Avenue. The point in the model at which the Beardsley flows enter the Agua Fria River is represented by concentration point AFR4, which can be seen on Plate 1. The flows at this point under existing conditions and in the recommended alternative are approximately 2400 cfs. This verifies that the diversion of the Beardsley flows does not have an effect on the flows in the Agua Fria River at this point. Concentration point AFR6 was added at the downstream end of the study area at the confluence of the Sun City Drain Channel and the Agua Fria River, to represent the flows within the Agua Fria at this point. The flow at AFR6 under existing conditions is about 4,120 cfs and in the recommended alternative the flow at this point is about 3,330 cfs. This 20% decrease in flow verifies the previous statement that the proposed project actually helps to control and reduce flows within the project area.

6.2. Intersection of 111th Avenue & U.H.D. and Paradise RV Park

The recommended alternative proposes changes to the drainage facilities at the intersection of 111th Avenue & Union Hills Drive and within Paradise Resort Travel Trailer Park. The flows being conveyed south along 111th Avenue are captured by proposed scuppers along either side of the road. This is represented in the model with diversion DA07G that conveys 50% of the flows west into Basin A.1 and 50% into the retention basin within Paradise Resort Travel Trailer Park. The flows diverted into the RV Park retention basin are combined with the flows exiting the RV Park at combination point CA07E4 and then conveyed beneath 111th Avenue via proposed culverts to Basin A.1 where they are combined with the other 50% of the 111th Avenue flow at combination point CA07E1. These flows are then routed through the proposed detention basins. Refer to Appendix D.4 for the 111th Avenue HY-8 culvert output.

6.3. Detention Basins A & B

The recommended alternative proposes that five detention basins be constructed north of Union Hills Drive, west of 111th Avenue, in order to reduce flows within the 115th Avenue channel and alleviate existing flooding problems. Basins A.1 and A.2 (routings DIA.1 and DIA.2, respectively) are located immediately west of 111th Avenue and accept flows from 111th Avenue and the Paradise Resort Travel Trailer Park. Basins B.1, B.2, and B.3 (routings DIB.1, DIB.2, and DIB.3, respectively) are west of Basins A.1 & A.2 and accept flows from the proposed Beardsley Channel as well as overland flows from the City of Peoria Water Reclamation Facility. The basin locations can be seen on Plate 7 and in the image below. The basins were modeled using storage routings with each basin having a unique stage-storage-discharge table. The data used to create these tables can be seen in Appendix D.4.

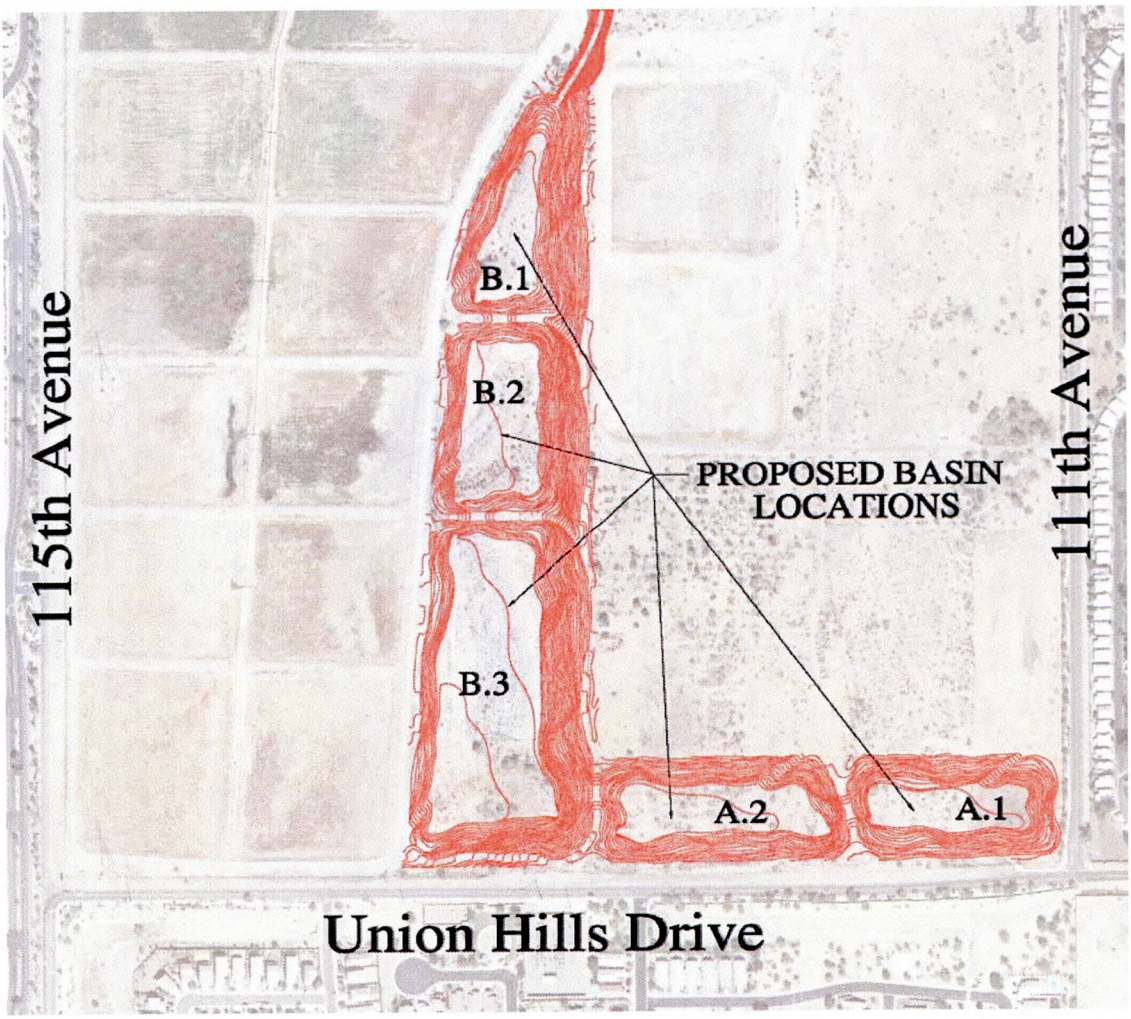

Figure 1: Proposed Location of Basins A & B

6.4. Detention Basin C

The recommended alternative also proposed that a detention basin be constructed at the northeast corner of 115th Avenue and Bell Road. An existing +/-175' basin at this location is proposed to be expanded to approximately 290' in width and modified to serve as a detention basin. Storage routing was again utilized to model Basin C at routing DIA07B using a stage-storage-discharge table. The data used to create this table can be seen in Appendix D.4. The outfall structure of this basin will be discussed in the hydraulics section. Refer to Plate 8 for the proposed Basin C improvements.

The proposed discharges for the recommended alternative can be seen on Plate 9. Refer to Appendices C.1 and C.2 for HEC-1 model output.

7. RECOMMENDED ALTERNATIVE HYDRAULIC ANALYSIS

Upon completion of the hydrologic model a hydraulic model was prepared for the Recommended Alternative. The existing conditions HEC-RAS models for the 115th Avenue Channel and Beardsley Road Channel were utilized as base models and revised to reflect the proposed conditions of the Recommended Alternative. Revisions made to the 115th Avenue Channel model to reflect proposed conditions were:

- Improvements to channel downstream of Bell Road
- Proposed Basin C outlet culvert and weir structure
- Raising top of bank around perimeter of Basin C
- Revised flows to reflect those of the Recommended Alternative

The following revisions were made to the Beardsley Road Channel to reflect proposed conditions:

- Downstream sections replaced with proposed concrete channel cross section
- Stationing revised to reflect proposed channel stationing

This section also covers the design of the proposed culverts for the recommended alternative. Culvert design was performed using the Federal Highway Administration (FHWA) HY-8 Culvert Hydraulics software.

7.1. Union Hills Drive / 115th Avenue Channel

7.1.1. Sun City Drainage Channel

Proposed improvements to the channel downstream of Bell Road involve excavating the existing Sun City Drainage Channel to increase its capacity. This is completed by revising cross sections 0.473, 0.568, and 0.663. The new channel section is achieved by holding the top of bank elevation on each side of the channel and sloping down at a 3:1 grade until the existing elevation on the respective side is reached. After this was reflected in the hydraulic model for the Recommended Alternative,

the maximum capacity of this channel that resulted in the existing wall along the west side not being inundated (with no freeboard) changed from approximately 850cfs to +/-1175cfs. The proposed discharge of 1150cfs through this region of the channel for the Recommended Alternative does not exceed this maximum +/-1175 cfs capacity. The capacity of each section of this portion of channel under existing and proposed conditions can be seen on Plate 10.

7.1.2. Detention Basin C

The Recommended Alternative HEC-RAS model was also updated to reflect the modifications to Basin C. A culvert routine was input into the model between stations 1.097 and 1.104 consisting of 2 – 10'x3' reinforced concrete box (RCB) culverts. These culverts begin with the downstream flow line tying into the existing concrete channel on the north side of Bell Road at an elevation of 1157.30 and end with the upstream flow line tying into the bottom of Basin C at an elevation of 1157.50. In order for Basin C to perform as a detention basin, a weir is proposed upstream of the culvert in order to store flows up to an elevation of 1162.00. This additional storage volume allows the time to peak for the flows being released from Basin C to be increased. This increase in the time to peak alleviates the magnitude of the downstream flows because as previously stated in the hydrology section, it allows the peak flow from the Sun City Drainage Channel along Bell Road to pass before the peak flow is released from Basin C. The weir structure has been sized so that the controlling factor in the outflow is the culvert and not the weir. The proposed improvements to Basin C can be seen on Plate 8.

The final revision to the HEC-RAS model related to Basin C was increasing the top of bank elevation to 1165.50. This revision was made to the cross sections from stations 1.097 to 1.266. The cross sections upstream of station 1.266 already had bank elevations equal to or greater than 1165.5 and did not need to be revised.

7.1.3. 115th Avenue

The recommended alternative did not propose any modifications to Segment 4 of the DRC Alternatives Analysis (Volume I). The only revision to the HEC-RAS model in this segment was to update the discharges to match the proposed hydrology model.

7.1.4. Steady Flow Data

The final revision to the model was to revise the flow regime to reflect the flows produced by the Recommended Alternative hydrology model and introduce the flows from the outlet of Basin B.3 at station 2.183. Table 3 shows the Steady Flow Data from the proposed conditions 115th Avenue Channel HEC-RAS model. A table of the HEC-RAS results and HEC-RAS cross sections can be found in Appendix D.1. Plate 13 contains the HEC-RAS base map for the proposed Beardsley Channel.

115th Avenue Channel HEC-RAS Station	100-YR, 6-HR Discharge (cfs)
2.462	160
2.182	350
1.968	390
1.640	470
1.346	500
1.136	520
1.104	420
1.083	1080
0.568	1150

Table 3: Steady Flow Data for Recommended Alternative 115th Avenue HEC-RAS Model

7.2. Beardsley Road Channel

The proposed conditions hydraulic model for the Recommended Alternative for the Beardsley Road Channel was prepared utilizing the existing conditions model for the Beardsley Road Channel. The proposed channel begins at the north end of proposed Basin B.1 and ties into the Beardsley Road channel at

existing conditions station 0.38. Therefore, the cross sections downstream of station 0.38 were deleted from the model and the reach was revised to reflect the alignment of the proposed channel. The stationing of the reach had to be adjusted because the proposed channel section was inserted downstream of the existing channel section. The new reach was revised to have a stationing of 0.00 at the downstream end of the proposed section where it enters Basin B.1. The stations of the cross sections from the existing conditions model that remained upstream of the proposed section were revised to the new stationing of the proposed channel alignment. The stations of these remaining cross sections were adjusted +0.25. The proposed cross sections were input into the model from stations 0.00 to 0.64, with the first cross section remaining from the existing conditions model located at station 0.71 (revised from 0.46 under existing conditions).

The proposed channel cross section consists of a trapezoidal channel with a 15' bottom width and 2:1 side slopes at a depth of 5' to convey the required 100-year discharge of 480 cfs. The slope throughout the entire proposed alignment is 0.10%, which results in a normal flow depth of 3.37'and velocity of 6.55 feet per second using Manning's Equation. This calculates to a Froude number of 0.72, which is below the FCD's recommended maximum Froude number of 0.86 to maintain stable flow conditions. A table of the HEC-RAS results and HEC-RAS cross sections can be found in Appendix D.2. Plate 12 shows the alignment and profile of the proposed channel for the Recommended Alternative. Plate 13 contains the HEC-RAS base map for the proposed Beardsley Channel.

Beardsley Road Channel HEC-RAS Station	100-YR, 6-HR Discharge (cfs)
1.270	480
1.040	460
0.790	480

Table 4: Steady Flow Data for Recommended Alternative Beardsley Road HEC-RAS Model

7.3. Detention Basin Hydraulics

The recommended alternative proposes hydraulic structures in each of detention basins A.1, A.2,B.1, B.2, and B.3. Basins A.1, A.2, B.1, and B.2 contain a weir structure with a bottom elevation set three feet below the max water surface elevation of each basin. The max design flow was calculated at one foot below the max water surface elevation of each basin to allow for one foot of freeboard. Low-flow outlets consisting of 2x24" RCP are also proposed in these four basins to allow them to drain after being utilized for storage. The discharge calculations for these outlet structures can be found in Appendix D.4.

The 3-10'x3' RCB culvert outlet for Basin B.3 was designed using HY-8. A weir is proposed in front of the culvert in order to increase the storage of this basin. The weir is set at an elevation of 1179.00 and the culvert flow line at 1178.00. The weir has been designed to allow enough flow so as to not limit the capacity of the culvert. The HY-8 culvert output can be seen in Appendix D.3.

8. SUMMARY

The flows from the recommended alternative hydrology model are significantly lower than the existing conditions hydrology model as expected. The addition of the detention basins has reduced the flow being released into the 115th Avenue Channel due to the large amount of storage provided. The flows within the channel south of Union Hills Drive and 115th Channel in the Recommended Alternative are sufficiently low as to not exceed the capacity of the culverts along this channel section. The detention basins have also delayed the peak flows from north of Union Hills Drive from reaching Bell Road until after the peak flows from the Canyon Ridge development and the Sun City Drainage Channel along Bell Road have passed. This results in a peak discharge being routed south beneath Bell Road to the Agua Fria River that is lower than the capacity of the Bell Road culverts and can be contained within the channel downstream of Bell Road post the recommended improvements. Tables 5 & 6 show a comparison of previous existing conditions

flows to the 100 year, 6 hour flows for the recommended alternative. The recommended alternative discharges can also be seen on Plate 9.

Model	Concentration Point 100 year, 6 hour Discharge (cfs)			
	CA07F	CA07E	CA07D	CA07B(6)
ADMPU Exist. Conditions (Entellus, Inc.)	230	1140	1100	1830
ADMPU 107th & UHD DCR Exist. Conditions (G&M, 2010)	160	760	1050	1920
ADMPU 107th & UHD DCR-2 Exist. Conditions (G&M, 2010)	160	760	1050	1920
ADMPU 107th & UHD DCR-2 Exist. Conditions (G&M, 2011)	160	760	1050	1950
ADMPU 107th & UHD Improved Conditions (G&M, 2011)	160	665	390	1090

Table 5: Recommended Alternative 100-Yr, 6-Hr Discharge Comparison

Model	Concentration Point 100 year, 6 hour Discharge (cfs)			
	CA06A	CA06	A99P	CA99Q
ADMPU Exist. Conditions (Entellus, Inc.)	1980	2110	960	2090
ADMPU 107th & UHD DCR Exist. Conditions (G&M, 2010)	N/A	N/A	N/A	N/A
ADMPU 107th & UHD DCR-2 Exist. Conditions (G&M, 2010)	2070	850	960	2690
ADMPU 107th & UHD DCR-2 Exist. Conditions (G&M, 2011)	2090	850	960	2700
ADMPU 107th & UHD Improved Conditions (G&M, 2011)	1150	850	960	1750

Table 6: Recommended Alternative 100-Yr, 6-Hr Discharge Comparison, Continued

The results of the recommended alternative hydraulic model were as expected. The discharges for the recommended alternative are completely contained within the channel. The existing culverts have capacity to convey the flows without overtopping their respective street or the 115th Avenue or Union Hills Drive top of curb. HEC-RAS results summaries and cross sections can be found in Appendices D.1 and D.2. The HEC-RAS base map for the recommended alternative on the 115th Avenue Channel for the can be found on Plate 10 and Beardsley Road on Plate 13.

9. REFERENCES

9.1. Anderson-Nelson, Inc., *Paving, Grading and Drainage Plans for Coyote Lakes, April 1992*

9.2. Coe and Van Loo, *Canyon Ridge West, Parcel 5 Improvement Plans, November 2003.*

9.3. Coe and Van Loo, *Canyon Ridge West, Infrastructure Improvement Plans, November 2003.*

9.4. Coe and Van Loo, *Canyon Ridge West, Mass Grading Plans, November 2003.*

9.5. Coe and Van Loo, *Canyon Ridge, Master Drainage Report, January 1997.*

9.6. Entellus, *Glendale/Peoria ADMPU, May 2002*

9.7. Flood Control District of Maricopa County, *Drainage Design Manual for Maricopa County, Arizona Volume I, Hydrology – 2009*

9.8. Flood Control District of Maricopa County, *Drainage Design Manual for Maricopa County, Arizona Volume II, Hydraulics – 1996*

9.9. Kaminski Hubbard Engineering, Inc., *Bell Road Improvement Program, Grand Avenue to 115th Avenue, April 1991.*

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9.12. Ritoch-Powell & Associates, Inc., *Grading and Drainage Plan for the Pavilions at Coyote Lakes, September 2006*

9.13. Ritoch-Powell and Associates, Inc, *Drainage Memo for Union Hills Drive, 115th Avenue to +/- 1,080 ft. West of 107th Avenue, September 2009.*

9.14. United Engineering Group, *Bell Road and 115th Improvement Plans, August 2008.*

9.15. Wood, Patel & Associates, *Glendale/ Peoria ADMPU Northwest Region Update Hydrologic Study, May 2007*

9.16. City of Peoria Department of Public Works and Engineering, *112th Avenue and Beardsley Road Street Improvements*, 2001-2002

9.17. Brown Engineering Co., *Landings at Ventana Lakes – Grading and Drainage Plans*, July 1993.

GOODWIN AND MARSHALL INC.
CIVIL ENGINEERS ~ PLANNERS ~ SURVEYORS
8909 W. Ray Road #15
Chandler, Arizona 85226
(602) 218-7295

LOCATION MAP

CONTRACT: FCD 2009C036.2
CITY OF PEORIA, MARICOPA COUNTY, ARIZONA

Scale:	1 = 12,000
Date:	JUNE 2011
Job No.:	10388A.2
Drafted:	CRH
Checked:	WCR

FIGURE 2

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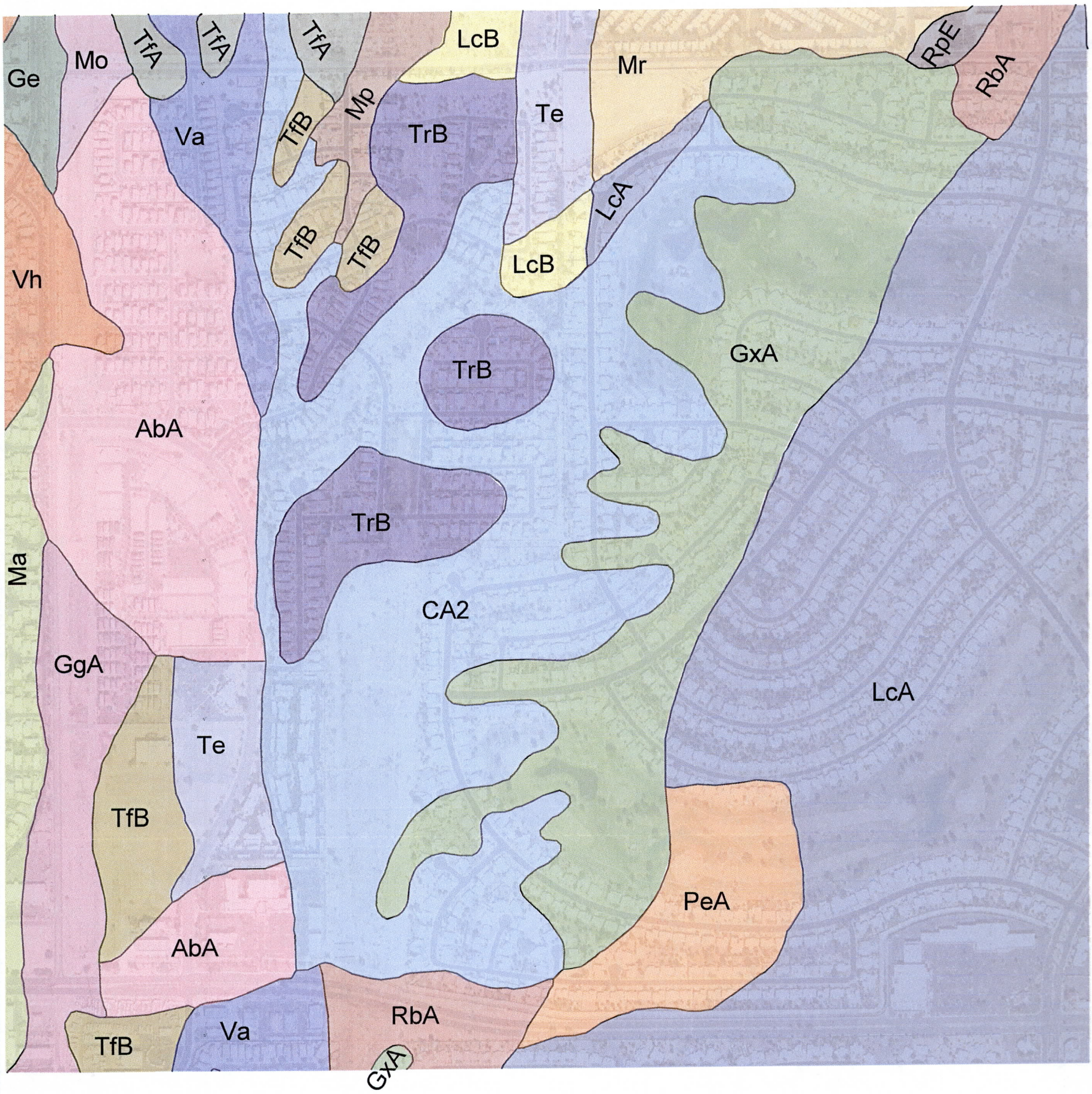

LEGEND

GxA – Gunsight–Rillito complex		Vh – Vint fine sandy loam	
LcA – Laveen loam, 0 to 1 percent slopes		LcB – Laveen loam, 1 to 3 percent slopes	
Mp – Mohall loam		Mr – Mohall clay loam	
PeA – Perryville gravelly loam, 0 to 1 percent slopes		RbA – Rillito loam, 0 to 1 percent slopes	
RpE – Rillito–Perryville complex, 5 to 20 percent slopes		Te – Tremant loam	
TfA – Tremant gravelly loam, 0 to 1 percent slopes		Ma – Maripo sandy loam	
AbA – Anthosandy Loam 0 to 1 percent slopes		GgA – Gilman loam, 0 to 1 percent slopes	
CA2 – Calciorthids and Torriorthents, eroded		TfB – Tremant gravelly loam, 1 to 3 percent slopes	
Ge – Gilman fine sandy loam		Va – Valencia sandy loam	
TrB – Tremant–Rillito complex, 1 to 3 percent slopes		Mo – Mohall sandy loam	

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ENGINEER/PLANNER:

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Metro (602) 218-7285

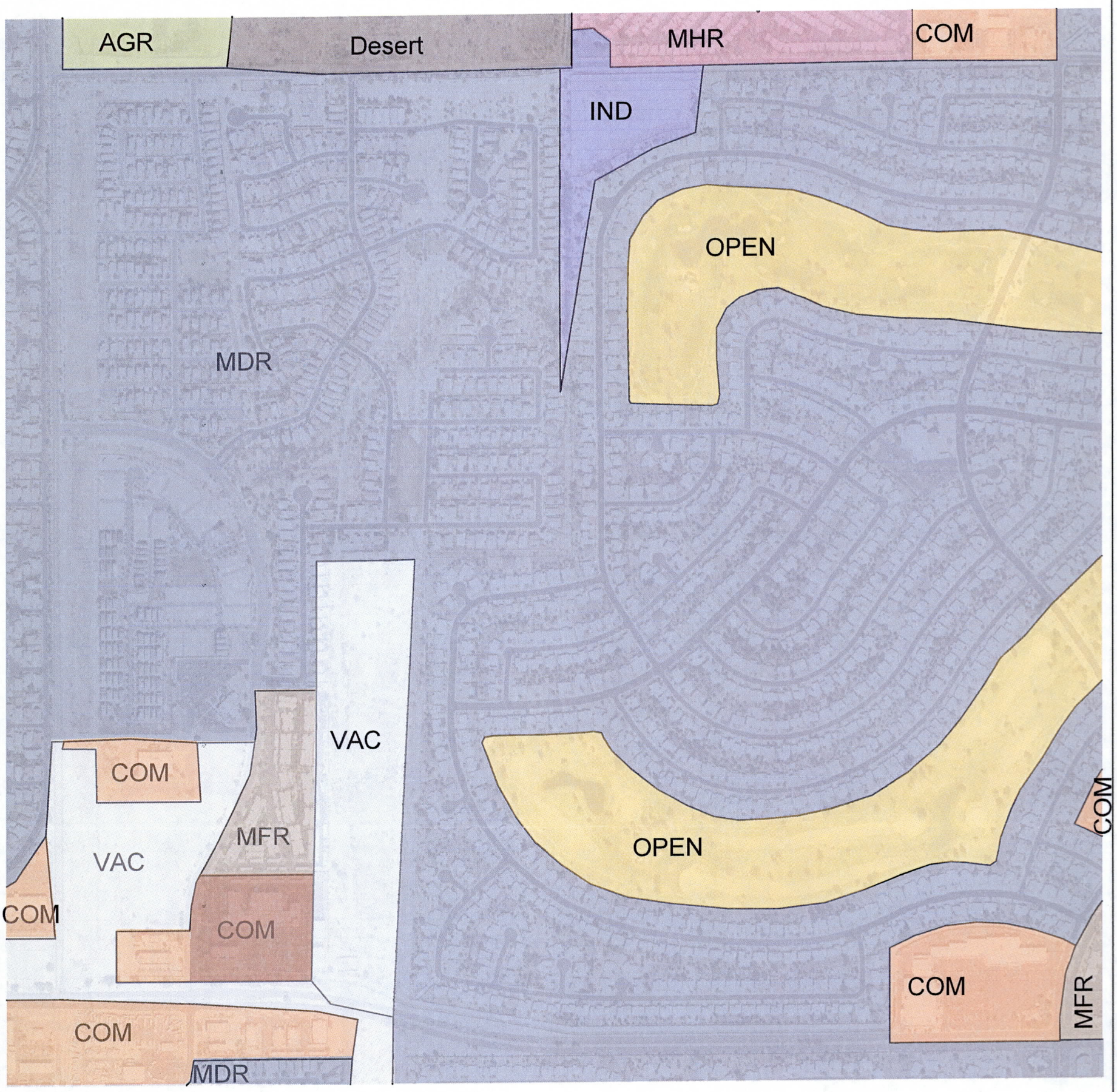
MARICOPA COUNTY ARIZONA 1871

CITY OF PEORIA 1954

SURPRISE ARIZONA

Flood Control District of Maricopa County

FIGURE 3
SOILS MAP
FOR
107TH AVENUE AND UNION HILLS DRIVE
CONTRACT: FCD 2009C036.2
CITIES OF PEORIA AND SURPRISE AND UNINCORPORATED MARICOPA COUNTY, ARIZONA
JULY 2011



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LEGEND

- AGR – Agriculture
- MDR – Medium Density Residential
- COM – Community Retail Center
- OPEN – Open Space
- VAC – Vacant
- MHR – Mobile Housing Residential
- MFR – Multi-Family Residential
- Desert – Desert
- IND – Industrial

ENGINEER/PLANNER:

GOODWIN & MARSHALL, INC.

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FIGURE 4
LAND USE MAP
FOR
107TH AVENUE AND UNION HILLS DRIVE
CONTRACT: FCD 2009C036.2
CITIES OF PEORIA AND SURPRISE AND UNINCORPORATED MARICOPA COUNTY, ARIZONA
JULY 2011

TECHNICAL MEMORANDUM

107th Avenue and Union Hill Drive
Phase 2 – Alternative Analysis
Hydrology Update &
Hydraulics Existing Conditions

Interim scope

The interim scope per Flood Control District of Maricopa County (FCD) contract FCD 2009C036.2 is as follows:

"2.1.1 The CONSULTANT shall extend the 107th Avenue / Union Hills Phase 1 DCR Hydrology models (100 year, 24 hour and 10 year, 6 hour) to the watershed routing's confluence with the Agua Fria River, approximately 1 mile south of Bell Road (Greenway Road alignment). The CONSULTANT shall research the status of area drainage projects and determine their effects on the modified study area limit. The CONSULTANT shall analyze the basin's topographic information and physical site conditions based on field visits, in order to, concur with the Glendale/Peoria ADMPU, Hydrologic Study (2002) watershed boundary for the concentration point at 115th Avenue and the Agua Fria River. The CONSULTANT shall revise the basin boundary if necessary.

2.1.2 The CONSULTANT shall extract the appropriate watershed area from the HEC-1 hydrologic models from the Glendale/Peoria ADMPU Existing Conditions and combine into the Phase 1 DCR models. The CONSULTANT shall identify any discrepancies in the combined existing conditions model and regional drainage facilities that have been constructed or in the process of being constructed that may affect the basin boundary or the sub-basin boundaries or routing. The CONSULTANT shall provide recommendations to the DISTRICT on how the model should be modified if discrepancies are found.

2.1.3 The CONSULTANT shall refine the sub-basin boundaries based on concentration points agreed upon by the district.

2.1.4 The CONSULTANT shall revise the hydrologic characteristics (i.e. land use and routing) as needed for the revised DCR watershed.

2.2 The CONSULTANT shall prepare an existing conditions baseline hydraulic model for the watercourse located generally along the 115th Avenue and Union Hills Drive alignments within

the study area. The model shall extend from the confluence with the Agua Fria River, north generally along the 115th Avenue alignment to Union Hills Drive, then east along Union Hills Drive to 107th Avenue.

2.2.1 The Hydraulic model shall utilize the topographic data compiled in Phase 1 of this work assignment.

2.2.2 The Hydraulic model shall be prepared in accordance with DISTRICT criteria as contained in Volume 2 (Hydraulics) of the DISTRICT'S design manual.

2.2.3 The CONSULTANT must obtain DISTRICT approval at each of the following steps:

- Draft field reconnaissance estimation of Manning's "n" values.
- Proposed location and alignment of the cross sections.
- Methodology used to estimate the 100 year floodplain delineations.

2.2.4.1 The CONSULTANT shall conduct a field reconnaissance of the study area. This shall include observation of channel and floodplain conditions for estimating Manning's "n" values; photographic documentation of floodplain characteristics; determination of channel bank characteristics; observation of possible overflow areas; observation of levees or other flood control structures; and measurement of bridge dimensions.

2.2.4.2 Manning's "n" values are to be determined using the methodology in the USGS report, *Estimated Manning's Roughness Coefficients for Stream Channels and Flood Plains in Maricopa County, Arizona,* April 1991. Copies of the report are available through the DISTRICT. Manning's Roughness Coefficients will be presented for typical reach types observed in the project area, rather than specific reaches of specific named watercourses.

2.2.5.1 The location and alignment of cross sections and channel centerline will be submitted for the DISTRICT'S review and approval before digitizing the cross section data. Cross section placement locations shall be selected with respect to existing structures such as roads, railways, drainage features and confluences, as well as at cadastral section lines. Cross section stationing will be from left to right looking downstream with the thalweg at station 10,000. Identification of cross sections will be in river miles, increasing upstream. The cross sections may need to be reoriented or altered after running the HEC-RAS model to ensure that they are perpendicular to

flow per FEMA criteria. Cross sections developed by the HEC-RAS interpolation feature are not to be used. The CONSULTANT must coordinate the methodology for generating the cross section geometric data. Acceptable methods might include collecting the data directly off paper copies of the DISTRICT'S 2-foot contour map orthophotos, use of a computer program to develop the data from digital information, or from field surveys.

2.2.5.2 The hydraulic effects of bridges and culverts should be incorporated into assessing the floodplain around such structures, especially in areas where ponding will occur. The Zone A limits must be determined according to FEMA criteria and clearly labeled on the final drawings. Minor conveyance structures such as small culverts (i.e. less than 30" in diameter), or, structures considered likely to become clogged during the 100-year peak discharge shall not be included in the hydraulic analyses.

2.2.6.1 The main project description box of the HEC-RAS models should include the following:

- Project Name and FCD Contract Number
- CONSULTANT(s) and Modeler's Name(s)
- File Name and latest run date/final date if completed
- Vertical Datum of the model, base map date, and base map contractor information
- Contractor Job Number

In addition, minor descriptions should be added to the model for hydraulic sections located above and below drainage structures, at section lines, at railway crossings, and at confluences. Model descriptions should be added at culverts and lateral structures, and at any other feature judged pertinent to the modeling.

2.2.6.2 Flood Zones must be determined according to FEMA criteria and clearly labeled on the final drawings."

Data Reviewed

- *Glendale/Peoria ADMPU* (ADMPU) hydrologic models and reports (Entellus, 2001)
- *Glendale/Peoria ADMPU 107th Avenue and Union Hills Drive Design Concept Report – Phase 1 Analysis and Recommendations* (Goodwin & Marshall, Inc., 2010)
- Site visit by G&M on September 23, 2010
- Aerial topography collected as part of the Phase 1 DCR
- Aerial photography provided by FCD
- *Estimated Manning's Roughness Coefficients for Stream Channels and Flood Plains in Maricopa County, Arizona* (USGS, April 1991)

Hydrology

The updated hydrologic model for the Glendale/Peoria ADMPU 107th Avenue and Union Hills Drive Phase 2 (Phase 2) was created using the Glendale/Peoria ADMPU 107th Avenue and Union Hills Drive Design Concept Report Phase 1 (DCR) model as a base model. The first step taken in creating the Phase 2 model was to determine the portion of the ADMPU hydrology model required to finalize the watershed boundary relative to the discharge location of expressed importance to the FCD. This was achieved by:

- Examining basins, routings, and diversions from the ADMPU hydrology model to determine which elements contained rainfall runoff that ultimately traveled to the concentration point of concern at the confluence of the 115th Avenue alignment channel and the Agua Fria River. (See Plate 1; referenced as CA99Q in the Phase 2 model)
- Elements for which this was found to be true were selected and input into the Phase 2 hydrology model in the appropriate location. Sub-basins A07, A07A, A06, A06A, A99Q, and A99P were extracted from the ADMPU model, along with any associated routings and diversions, and input into the Phase 2 model to complete the watershed associated with the concentration point in question.
- The addition of the ADMPU portion of the Phase 2 hydrology model begins with routing RA07B.

With the hydrology model updated to reflect the new Phase 2 watershed area, the recently added portion of the hydrologic model from the ADMPU was reviewed to ensure that it accurately reflected existing conditions. The following revisions were necessary:

- Based on examination of aerial topography provided by the FCD, concentration point CA06A does not combine with concentration point CA06. CA06A is now routed south along the 115th Avenue alignment through routing RA06A utilizing a similar channel cross-section as routing RA07B.

- Concentration point CA06 is now routed separately south to concentration point CA99Q through routing RA06, utilizing a cross-section similar to that of routing RA07.
- Further examination of aerial topography determined that discharges from sub-basin A99P should also be included in concentration point CA99Q.

The results obtained from the hydrology model were similar to previous models except in locations where the model was revised. The two locations where flows significantly changed were concentration points CA06 and CA99Q. The change in flow at CA06 from 2110 cfs in the ADMPU model to 850 cfs in the Phase 2 model was due to the new routing of CA06A south to CA99Q rather than being combined with CA06. The change in flow at CA99Q from 2090 cfs in the ADMPU model to 2690 cfs in the Phase 2 model is due to the addition of flows from sub-basin A99P at this concentration point.

Hydraulics

Once the hydrologic model was completed and discharges were determined, a hydraulic model for the 100 year, 6 hour flows was created for the channel reach using the U.S. Army Corps of Engineers backwater computation program HEC-RAS. The model extends from the confluence of the channel and the Agua Fria River, which is approximately located at the intersection of the 115th Avenue alignment and the Greenway Road alignment. It continues north generally along the 115th Avenue alignment to Union Hills Drive, then east along Union Hills Drive to 107th Avenue. Cross sections were created at a typical 500' interval, except where drainage features or other special conditions merited the location of a cross section. Cross sections were generated using digital topography obtained during Phase 1 of this work assignment as well as photography provided by the FCD. Based on the GIS data provided by the FCD, it was determined during Phase 1 that detailed topographic information sufficient to complete the analysis did not exist for the complete study area. Therefore, an aerial topographic survey was performed in conjunction with this analysis for the area generally located at 115th Avenue to ¾ mile east and Union Hills Drive to ¾ mile north. The aerial topographic survey was flown at an altitude sufficient to provide 1' contours and incorporates a minimum amount of planimetric features to complete the work assignment. The GIS information provided by the FCD was on NGVD 29 datum however the project datum is NAVD 88 in order that the Aerial Topographic information may be utilized for the alternatives analysis and future design topography. Existing walls located along the channel were included in the cross sections due to the fact that the goal of this model is to determine what actually occurs during the 100 year, 6 hour storm under existing conditions and these walls have a significant impact in some locations on where and how the discharges are conveyed. The wall locations were determined through examination of aerial photography and field visits. Their locations can be seen on the 115th Avenue HEC-RAS Base Map on Plate 3.

Per sections 2.2.4.1 and 2.2.4.2 of the Scope of Work, the Manning's "n" values for typical sections were determined by the following:

- Examination of photographs taken of the channel during the September 23, 2010 field visit. (See attached Photo Location Exhibit)
- Review of the USGS report *Estimated Manning's Roughness Coefficients for Stream Channels and Flood Plains in Maricopa County, Arizona,* dated April 1991. This was used to determine base "n" values as well as adjustment factors for each typical cross section in the model.
- Once typical "n" values were established for each type of channel section located within the project limits, they were applied over entire portions of the reach in which channel section types were similar.

There are four different types of sections within the reach. The sections are as follows:

115th Avenue Alignment from the Agua Fria River to Bell Road

South of Bell Road is a shotcrete channel that generally follows the 115th Avenue alignment south to the Agua Fria River. For approximately 2900 ft. south of Bell Road, or from Sta. 1.050 to the midpoint between Sta. 0.568 and Sta. 0.473, the flow is generally contained within the channel. The cross sections within this portion of the reach contain the existing wall on the west side. The remainder of the channel from this point south to the Agua Fria River continues to generally follow the 115th Avenue alignment. The cross sections in this portion of the reach typically contain asphalt/DG along the east side of the channel and wash/open space on the west side. Manning's "n" values of 0.021-0.035 are used for the shotcrete channel depending on the amount of vegetation, 0.015 for asphalt, 0.03 for open space, and 0.035 for the wash portion.

115th Avenue from Bell Road to Union Hills Drive, Union Hills Drive from 115th Avenue to 114th Avenue

At cross section Sta. 2.122 located upstream of 114th Avenue the entire flow is conveyed in the channel constructed with the Canyon Ridge development along the south side of Union Hills Drive, including the flow that was diverted with the lateral structure at 111th Avenue. The flow is returned to the channel by storm drain facilities in this area and also because the wall along the south side of Union Hills Drive ceases to exist at this location which drastically decreases the conveyance capacity of the street section. The overflow from the street will flow into the channel and the small flow that remains in the street is considered irrelevant. Cross sections within this section typically contain the existing wall located on the southern side for those along Union Hills Drive and on the east side for the cross sections located along 115th Avenue. Manning's "n" values of 0.029-0.039 are used for the channel portion depending on the amount of vegetation, 0.015 for the street, 0.03 for open space, and 0.0275 for any residential lot.

Union Hills Drive from 114th Avenue to 111th Avenue

At the intersection of Union Hills Drive and 111th Avenue only a small portion of the peak discharge will actually enter the channel constructed with the Canyon Ridge development that runs along the south side of Union Hills Drive from 111th Avenue to 115th Avenue. To reflect this in the model, a lateral structure has been inserted at this point that diverts the small portion of the flow that enters the channel out of the model. The remaining flow is conveyed down Union Hills Drive, with the street serving as the main channel. When the capacity of the street is exceeded, flow is conveyed through the open spaces on the north and south side of the Union Hills Drive. Cross sections within this section typically contain the existing wall located on the southern side. A Manning's "n" value of 0.029 is used for the channel, a value of 0.015 is used for the street portion, and a value of 0.03 is used for the open space.

Union Hills Drive from 107th Avenue to 111th Avenue

Beginning at the upstream end of the model at 107th Avenue, the 'main channel' consists of the small drainage channel along the south side of Union Hills Drive until 111th Avenue. When the capacity of this channel is exceeded, water is conveyed within the street and ultimately through the open space along the north side of Union Hills Drive if necessary. Cross sections within this section typically contain the existing walls located at both the north and south sides. A Manning's "n" value of 0.033 is used for the channel portion, 0.015 for the road, and 0.03 for the open space.

The water surface profile was computed using the peak 100 year, 6 hour discharges at concentration points along the channel. The downstream flow condition was set to the FEMA 100 year water surface elevation of 1137' per FEMA Flood Insurance Rate Map #04013C1170H dated September 30, 2005. The flow throughout the channel reach is conveyed as follows:

- Sta. 0.000 to Sta. 0.379 - The channel is flowing completely full and the flow is overtopping the west top of bank and flowing into the adjacent wash area.
- Sta. 0.379 up to Sta. 0.663 - The flow is contained within the channel including the use of the residential wall located on the west side of the channel.
- Sta. 0.663 to Sta. 0.947 - The flow overtops the east top of bank and flows into the retention basins adjacent to the channel.
- Sta. 0.947 to Sta. 1.050 – The flow is contained within the channel limits through these sections.
- Bell Road – the 3 – 5' x 9' culverts that exist under Bell Road have a computed capacity of approximately 1200 cfs. They were not designed to convey the 1980 cfs discharge that they would experience during the 100 year storm. As a result,

the culverts build up head until the water overtops Bell Road. After the water crosses Bell Road it is recaptured by the channel downstream.

- Sta. 1.083 to Sta. 1.330 – The flow is generally contained within the limits of the channel as well as 115th Avenue.
- West Valley Art Museum entrance - The 3 – 4' x 10' concrete box culverts that exist under this street have a computed capacity of approximately 680 cfs. Therefore, the 1260 cfs flow that occurs during the 100 year storm causes the culverts to accumulate head until the flow overtops the street. The flow is recaptured by the channel section downstream.
- Sta. 1.346 to Sta. 1.640 - The flow is generally contained within the channel limits through these sections. Stations 1.492 to 1.537 are used to model an existing broad-crested weir located at the base of a power line transmission tower. Stations 1.492 and 1.537 are the channel sections located immediately downstream and upstream of the channel, respectively. Stations 1.501 and 1.531 are the downstream and upstream sections of the weir, respectively. Due to the flows from 115th Avenue north of Union Hills Drive, 115th Avenue will contain its flow capacity of approximately 25 cfs while the majority of the flow overtops the curb and is conveyed within the channel. However, due to the limitations of HEC-RAS, this situation cannot be modeled with two separate water surface profiles for the street and channel conveyances so the street flow is assumed to be negligible and the channel water surface is profiled.
- Avenue of the Arts - The 3 – 4' x 10' concrete box culverts that exist under the Avenue of the Arts have a computed capacity of approximately 1065 cfs. Therefore, the 1070 cfs flow that occurs during the 100 year storm causes the culverts to accumulate head until the flow overtops the street. The flow is then recaptured by the channel section downstream.
- Sta. 1.675 to Sta. 2.102 – The flow is generally contained within the channel section as well as 115th Avenue through these sections. The same situation as previously stated with the flows within 115th Avenue occurs within these sections as well. There is also another weir located from Sta. 1.747 to Sta. 1.790. The absence of walls along the east side of the channel within multiple cross sections in this area along with high water surface elevations may cause a breakout of the flows therefore potentially inundating portions of the Canyon Ridge development adjacent to the east side of the channel. However, it appears that the aerial

topography obtained in Phase 1 of the 107th Ave. & Union Hills Drive DCR does not reflect the construction of Canyon Ridge Phase 5 and it is recommended that the County force supplement topography in this area prior to finalization of hydraulic study. This is necessary to determine if flooding will occur.

- 114th Avenue - The 2 – 4' x 10' concrete box culverts that exist under the 114th Avenue have a computed capacity of approximately 735 cfs. Therefore, the 870 cfs flow that occurs during the 100 year storm causes the culverts to accumulate head until the flow overtops the street. It appears based on the topography in this area that the portion of the flow overtopping the street will be conveyed south within 114th Avenue and potentially cause a portion of the Canyon Ridge subdivision to become inundated.
- Sta. 2.182 to Sta. 2.523 - The flow is generally contained within the channel through these sections. The original hydraulic model was prepared with the flows being conveyed down the street section through these stations, but after talks with the District, it was determined that these walls were not permanent structures and could not be used to impede flow. The flow is modeled to enter the channel immediately downstream of 111th Avenue and flows until it reaches the Culverts at 113th Avenue.
- 113th Avenue - The 2 – 4' x 10' concrete arch culverts that exist under the Avenue of the Arts have a computed capacity of approximately 760 cfs. Therefore, the 760 cfs flow that occurs during the 100 year storm should be conveyed through them without any adverse conditions occurring.
- Intersection of Union Hills Drive and 111th Avenue – It appears that the 100 year discharge was to be introduced into the channel constructed with the Canyon Ridge development along the south side of Union Hills Drive at this point. It was assumed that the flow will enter the Canyon Ridge channel downstreams of this intersection due to the walls not being a permanent structure. The flows completely inundate this intersection while impeding the walls on the south and spreads north along 111th Avenue for approximately 200 feet.
- Sta. 2.523 to Sta. 2.841 – The small drainage channel along the south side of Union Hills Drive does not have the capacity to convey the 100 year discharge. The flow is conveyed using the entire channel, street section, and open space on the north side of Union Hills Drive.

- Sta. 2.841 to Sta. 3.007 - The entire flow is contained within the drainage channel along the south side of Union Hills Drive.

Summary

The revisions made to the hydrology model presented results as expected. The discharges upstream of Bell Road remain the same as the Phase 1 DCR hydrology model and the flows downstream of Bell Road, where basins were added to the model, are reasonable when compared to the previous ADMPU hydrology model prepared by Entellus, Inc. with the exception of the locations where the routing of flows has been revised. Tables 1 & 2 below shows the comparison of flows at critical concentration points between the three hydrology models.

Model	Concentration Point 100 year, 6 hour Discharge (cfs)			
	CA07F	CA07E	CA07D	CA07B
ADMPU Exist. Conditions (Entellus, Inc.)	230	1140	1100	1830
ADMPU 107th & UHD DCR Exist. Conditions (G&M, 2010)	160	760	1050	1920
ADMPU 107th & UHD DCR-2 Exist. Conditions (G&M, 2010)	160	760	1050	1920

Table 1: 100-Yr, 6-Hr Discharge Comparison

Model	Concentration Point 100 year, 6 hour Discharge (cfs)			
	CA06A	CA06	A99P	CA99Q
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ADMPU 107th & UHD DCR Exist. Conditions (G&M, 2010)	N/A	N/A	N/A	N/A
ADMPU 107th & UHD DCR-2 Exist. Conditions (G&M, 2010)	2070	850	960	2690

Table 2: 100-Yr, 6-Hr Discharge Comparison, Continued

The results of the hydraulic model were also as expected. With the large discharges, there appears to be some areas of possible flooding. These areas are located in Phase 5 of Canyon Ridge along 115th Avenue. There are locations along the east perimeter where walls do not exist and the water surface elevation would potentially cause breakout of flows therefore potentially inundating portions of the subdivision. As previously stated, it is not typical FCD methodology to include existing walls that are not constructed specifically as drainage structures, but the existing walls were included in this model as to best represent existing conditions. It appears that the aerial topography obtained in Phase 1 of the 107th Ave. & Union Hills Drive DCR does not reflect the construction of Canyon Ridge Phase 5 and it is recommended that County forces supplement topography in this area prior to finalization of the hydraulic analysis. This is necessary to determine the true existing conditions relative to the region.

It has also been determined that the existing facilities located within the project area also set design conditions. The existing concrete box culverts beneath 113th Avenue have a calculated capacity of approximately 760 cfs, 114th Avenue culverts have a calculated capacity of approximately 735 cfs, the Avenue of the Arts culverts have a calculated capacity of approximately 1065 cfs, and the West Valley Arts Museum entrance culverts have a calculated capacity of approximately 685 cfs all. The 113th Avenue culverts were not included in the model due to the majority of the flow being conveyed within the street. However, the capacity of the 113th Avenue and 114th Avenue culverts is of concern because it will limit how much flow can be introduced into the channel and allowed to pass through them. Any flows higher than the capacity of these culverts poses a potential flooding problem once the flows overtop the street. If the final determined solution includes introducing additional flows into the channel at 111th Avenue, the proposed alternatives will be required to find a method to convey the remaining flow downstream to a point where it can be introduced back into the channel and the final model will include the culverts at 113th Avenue.

TECHNICAL MEMORANDUM

107th Avenue and Union Hills Drive
Design Concept Report
Phase 2 – Alternative Analysis
Existing Conditions Hydrology Update

Interim scope

The interim scope per Flood Control District of Maricopa County (FCD) contract FCD 2009C036 Phase 2 – Change Order #1 is as follows:

"**CO#1 A.) Hydrology**

1) Existing Conditions Hydrology

- Modify the Existing Conditions Hydrologic Model to Reflect the Drainage Basins and Routing as found in the Canyon Ridge Master Drainage Report & associated as-built construction plans. The modifications will add a concentration point south of Avenue of the Arts culverts at the location the Canyon Ridge development has routed off-site flows from the Sun City Development to the 115th avenue channel/detention basin system and is expected to decrease the flow rate at Bell Road and 115th Avenue."

Data Reviewed

- *Glendale/Peoria ADMPU* (ADMPU) hydrologic models and reports (Entellus, 2001)
- *Glendale/Peoria ADMPU Northwest Region Update* (ADMPU NWU) hydrologic models and reports (Wood Patel, 2007)
- Site visit by G&M and stakeholders on September 23, 2010
- Aerial topography collected as part of Phase 1 DCR
- Aerial photography provided by FCD
- *Master Drainage Report for Canyon Ridge* (CVL, 1997)
- Canyon Ridge West Infrastructure – Mass Grading Plans (CVL, 1998)
- Canyon Ridge West Infrastructure – Paving and Storm Drain Plans (CVL, 1998)
- Canyon Ridge West – Parcel 5 – Grading and Drainage Plans (CVL, 2004)
- Canyon Ridge West – Parcel 5 – Paving and Storm Drain Plans (CVL, 2004)
- The Village at Canyon Ridge West – Grading and Drainage Plan (M2 group, 2006)

Methodology

The hydrologic model for the Glendale/Peoria ADMPU 107th Avenue and Union Hills Drive Design Concept Report Update (DCR) was revised to determine the discharge at critical points along the 115th Avenue Channel and other areas within the Canyon Ridge development. Canyon Ridge is generally located west of 115th Avenue, between Bell Road and Union Hills Drive, and makes up the majority of drainage subbasin A07B of the existing hydrologic model. This revision was achieved by:

- Reviewing the existing drainage report for the Canyon Ridge development
- Examining available existing topography
- Examining multiple Canyon Ridge grading plans
- Determining critical points for which discharge should be calculated
- Creating drainage subbasin boundaries to correspond to the critical discharge points
- Modifying/adding flow routings to correspond to the updated subbasin configuration

New subbasins were created in DDMSW utilizing FCD topography, soil, and land use data, as well as existing construction drawings. Grading plans were utilized to calculate retention volumes for the existing retention basins within the new subbasins. Previous routings along 115th Avenue were revised to match new concentration points along this alignment. Concentration point CAO7B1 was added along 115th Avenue immediately upstream of Avenue of the Arts. CAO7B1 combines the flows from subbasin AO7B.1 with the flows in the 115th Avenue channel. The routing found in the *Master Drainage Report for Canyon Ridge* that carries flow from a portion of Sun City Unit 45 through the Canyon Ridge development to the 115th Avenue channel was deemed appropriate and extracted for use. This routing, named RAO7B3, carries flows from subbasin AO7B.3 to the north side of Avenue of the Arts where it combines with the discharge from subbasin AO7B.2 at concentration point CAO7B2. These discharges are then conveyed west in an existing channel along the south side of Avenue of the Arts to 115th Avenue, where they are combined with the flow from point CAO7B1 at concentration point CAO7B3 immediately south of Avenue of the Arts at 115th Avenue. These combined flows are conveyed south in the 115th Avenue channel to concentration point CAO7B4 immediately upstream of the driveway to the Art Museum property. This concentration point CAO7B4 combines these flows with the flows from subbasin AO7B.4. These flows are then routed south to concentration point CAO7B5 upstream of Bell Road where they are combined with flows from subbasin AO7B.5. Flows from subbasin AO7B.6 travel south to Bell Road where they are combined with routing RS30. These flows are conveyed west to the intersection of 115th Avenue and Bell Road, where they are combined at concentration point CAO7B6 with flows from CAO7B5. The flows are then conveyed south to the Aqua Fria River as previously modeled.

Summary

The HEC-1 model for the 107th Avenue and Union Hills Drive DCR has been modified to determine the discharge at critical points along the 115th Avenue channel. This involved dividing subbasin AO7B into six smaller subbasins, AO7B.1 – AO7B.6, revising routings along 115th Avenue to reflect additional concentration points, and revising routing RS30 along Bell Road to reflect addition of flows from subbasin AO7B.6. A flow comparison of the new model to older models at critical points is shown Tables 1 and 2 below.

Model	Concentration Point 100 year, 6 hour Discharge (cfs)			
	CA07F	CA07E	CA07D	CA07B
ADMPU (Entellus, Inc.)	230	1140	1100	1830
ADMPU 107th & UHD DCR (G&M)	160	760	1050	1920
ADMPU 107th & UHD DCR-2 (G&M, 2010)	160	760	1050	1920
ADMPU 107th & UHD DCR-2 (G&M, 2011)	160	760	1050	1950

Table 1: 100-YR, 6-HR Discharge Comparison

Model	Concentration Point 100 year, 6 hour Discharge (cfs)			
	CA06A	CA06	A99P	CA99Q
ADMPU (Entellus, Inc.)	1980	2110	960	2090
ADMPU 107th & UHD DCR (G&M)	N/A	N/A	N/A	N/A
ADMPU 107th & UHD DCR-2 (G&M, 2010)	2070	850	960	2690
ADMPU 107th & UHD DCR-2 (G&M, 2011)	2090	850	960	2700

Table 2: 100-YR, 6-HR Discharge Comparison, Continued

Flood Control District of Maricopa County
Drainage Design Management System
RAINFALL DATA
Project Reference: FCD2009C036 PHASE 2

6/12/2011

Rainfall Method: NOAA

Duration	2 Year	5 Year	10 Year	25 Year	50 Year	100 Year
5 MIN	0.330	0.420	0.490	0.580	0.660	0.730
10 MIN	0.490	0.640	0.740	0.890	1.000	1.120
15 MIN	0.590	0.800	0.940	1.130	1.280	1.430
30 MIN	0.790	1.070	1.260	1.530	1.740	1.940
1 HOUR	0.960	1.320	1.570	1.900	2.170	2.430
2 HOUR	1.040	1.450	1.730	2.100	2.400	2.690
3 HOUR	1.100	1.540	1.830	2.240	2.550	2.870
6 HOUR	1.200	1.700	2.030	2.490	2.850	3.200
12 HOUR	1.300	1.880	2.260	2.790	3.200	3.600
24 HOUR	1.400	2.060	2.490	3.090	3.540	4.000

Flood Control District of Maricopa County
Drainage Design Management System
SUB BASINS
Project Reference: FCD2009C036 PHASE 2

Area ID	Sub Basin Parameters						Rainfall Losses						Return Period Parameters					
	Area (sq mi)	Length (mi)	Slope (ft/mi)	Adj Slope	Time-Area	Kb	IA (in)	DTHETA	PSIF (in)	XKSAT (in/hr)	RTIMP (%)		2 Yr	5 Yr	10 Yr	25 Yr	50 Yr	100 Yr
Major Basin ID: 01																		
A07B.1	0.076	0.42	38.1	38.1	URBAN	0.057	0.25	0.25	4.20	0.50	30	**Tc (Hrs)**	0.600	0.589	0.532*	0.476*	0.443*	0.415*
												Vel (f/s)	1.03	1.05	1.16	1.29	1.39	1.48
												R (Hrs)	0.456	0.446	0.399	0.352	0.325	0.303
A07B.2	0.138	0.55	60.0	60.0	URBAN	0.053	0.25	0.25	4.70	0.36	30	**Tc (Hrs)**	0.559*	0.549*	0.498*	0.446*	0.413*	0.388*
												Vel (f/s)	1.44	1.47	1.62	1.81	1.95	2.08
												R (Hrs)	0.372	0.365	0.327	0.290	0.266	0.248
A07B.3	0.185	0.63	32.0	32.0	URBAN	0.051	0.25	0.25	4.80	0.35	30	**Tc (Hrs)**	0.711	0.699	0.634	0.568	0.526*	0.494*
												Vel (f/s)	1.30	1.32	1.46	1.63	1.76	1.87
												R (Hrs)	0.458	0.450	0.404	0.357	0.328	0.306
A07B.4	0.053	0.29	48.3	48.3	URBAN	0.059	0.25	0.25	4.30	0.48	45	**Tc (Hrs)**	0.440*	0.433*	0.396*	0.358*	0.335*	0.316*
												Vel (f/s)	0.97	0.98	1.07	1.19	1.27	1.35
												R (Hrs)	0.295	0.290	0.262	0.234	0.218	0.204
A07B.5	0.044	0.38	47.4	47.4	URBAN	0.031	0.10	0.32	4.55	0.37	29	**Tc (Hrs)**	0.379*	0.373*	0.338*	0.303*	0.281*	0.264*
												Vel (f/s)	1.47	1.49	1.65	1.84	1.98	2.11
												R (Hrs)	0.345	0.339	0.304	0.269	0.247	0.231
A07B.6	0.152	0.96	52.1	52.1	URBAN	0.048	0.22	0.26	4.60	0.39	31	**Tc (Hrs)**	0.733	0.721	0.654	0.586	0.544*	0.511*
												Vel (f/s)	1.92	1.95	2.15	2.40	2.59	2.76
												R (Hrs)	0.743	0.729	0.654	0.579	0.534	0.497

* Non default value or value out of range

Sub Basin	Land Use Code	Area (sq mi)	Area (%)	Initial Loss (IA)	Percent Impervious (RTIMP)	Vegetable Cover (%)	DTHETA	Kb
Major Basin ID: 01								
A07B.1	MDR	0.076	100.0	0.25000	30	50.0	NORMAL	.06000
		0.076	**100.0**					
A07B.2	MDR	0.138	100.0	0.25000	30	50.0	NORMAL	.05000
		0.138	**100.0**					
A07B.3	MDR	0.185	100.0	0.25000	30	50.0	NORMAL	.05000
		0.185	**100.0**					
A07B.4	MFR	0.053	100.0	0.25000	45	50.0	NORMAL	.06000
		0.053	**100.0**					
A07B.5	COMM	0.014	31.8	0.10000	80	75.0	NORMAL	.03000
	VAC	0.030	68.2	0.10000	5	15.0	DRY	.03000
		0.044	**100.0**					
A07B.6	COMM	0.010	6.5	0.10000	80	75.0	NORMAL	.03000
	MDR	0.112	73.2	0.25000	30	50.0	NORMAL	.05000
	MFR	0.012	7.8	0.25000	45	50.0	NORMAL	.07000
	VAC	0.019	12.4	0.10000	5	15.0	DRY	.03000
		0.153	**99.9**					

Area ID	Book Number	Map Unit	Soil ID	Area (sq mi)	Area (%)	XKSAT	Rock Percent (%)	Effective Rock (%)
Major Basin ID: 01								
A07B.1	651	TfA	651583120	0.002	2.50	0.37	-	100
	651	AbA	651202320	0.050	66.00	0.38	-	100
	651	Va	6516221	0.008	10.90	0.39	-	100
	651	Vh	6516235	0.008	9.90	0.27	-	100
	651	Mo	6514449	0.004	5.50	0.39	-	100
	651	Ge	6513229	0.004	4.70	0.26	-	100
	651	Ma	6514421	0.000	0.40	0.40	-	100
A07B.2	651	CA2	65124202	0.046	33.60	0.38	-	100
	651	TfA	651583120	0.002	1.10	0.37	-	100
	651	TfB	651583122	0.013	9.30	0.36	-	100
	651	TrB	651585522	0.041	30.00	0.13	-	100
	651	AbA	651202320	0.005	3.30	0.38	-	100
	651	Va	6516221	0.012	8.80	0.39	-	100
	651	Mp	6514451	0.007	4.90	0.25	-	100
	651	Te	6515829	0.008	5.70	0.25	-	100
	651	LcB	651422522	0.005	3.50	0.25	-	100
A07B.3	651	GxA	651326720	0.077	41.80	0.23	-	100
	651	LcA	651422520	0.051	27.50	0.25	-	100
	651	Te	6515829	0.004	2.10	0.25	-	100
	651	LcB	651422522	0.002	1.20	0.25	-	100
	651	CA2	65124202	0.039	21.00	0.38	-	100
	651	RbA	651542320	0.004	2.20	0.26	-	100
	651	Mr	6514455	0.008	4.20	0.05	-	100
A07B.4	651	AbA	651202320	0.038	71.00	0.38	-	100
	651	GgA	651323320	0.013	24.90	0.25	-	100
	651	TfB	651583122	0.002	4.10	0.36	-	100
A07B.5	651	AbA	651202320	0.002	3.40	0.38	-	100
	651	GgA	651323320	0.014	31.40	0.25	-	100
	651	TfB	651583122	0.017	37.70	0.36	-	100
	651	Te	6515829	0.012	27.50	0.25	-	100
A07B.6	651	AbA	651202320	0.008	5.50	0.38	-	100
	651	TfB	651583122	0.001	0.90	0.36	-	100
	651	Te	6515829	0.007	4.80	0.25	-	100
	651	TrB	651585522	0.026	17.00	0.13	-	100
	651	CA2	65124202	0.071	46.90	0.38	-	100
	651	GxA	651326720	0.023	14.90	0.23	-	100
	651	LcA	651422520	0.015	10.00	0.25	-	100

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*    U.S. ARMY CORPS OF ENGINEERS       *
*    HYDROLOGIC ENGINEERING             *
*         609 SECOND STREET             *
*       DAVIS, CALIFORNIA 95616         *
*           (916) 756-1104              *
*                                       *
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THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE.
THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION
NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,
DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL LOSS RATE:GREEN AND AMPT INFILTRATION
KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM

1 HEC-1 INPUT PAGE 1

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LINE          ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10
   1          ID   Project ID: 107 & Union Hills - Major Basin: 01 - Return Period: 10 Years
   2          ID                                                                  **
   3          ID   107th Avenue and Union Hills Drive Design Concept Report       **
   4          ID                                                                  **
   5          ID   PROJECT NO.: FCD 2009C036.2                  G&M: 10388A.2      **
   6          ID                                                                  **
   7          ID   Original HEC-1 Model: DCR10-6.DAT, Goodwin & Marshall, Inc., May 29, 2010 **
   8          ID                         10-Year 6-Hour HEC-1 Model for Existing Conditions  **
   9          ID   Modified HEC-1 Model: DCR10-6.DAT, Goodwin & Marshall, Inc., Apr 26, 2011 **
  10          ID                         10-Year 6-Hour HEC-1 Model for Existing Conditions  **
  11          ID                                                                  **
  12          ID   1) NOAA2 Rainfall Data                                         **
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  13          ID   2) DDMSW V3.5.7 Used                                           **
  14          ID   3) BASINS REVISED TO REFLECT CANYON RIDGE DEVELOPMENT AND DETERMINE FLOWS **
  15          ID      AT CRITICAL POINTS ALONG 115TH AVENUE                       **
  16          ID                                                                  **
  17          ID   ***************************************************************************
  18          ID   Project ID: 107 & Union Hills - Major Basin: 01 - Return Period: 10 Years
  19          ID                                                                  **
  20          ID   107th Avenue and Union Hills Drive Design Concept Report       **
  21          ID                                                                  **
  22          ID   PROJECT NO.: FCD 2009C036                  G&M: 10388A         **
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  25          ID                         10-Year 6-Hour HEC-1 Model for Existing Conditions  **
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  29          ID   1) NOAA2 Rainfall Data                                         **
  30          ID   2) DDMSW V3.5.7 Used                                           **
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  34          ID                                                                  **
  35          ID   Glendale/Peoria ADMPU Northwest Region Update                  **
  36          ID   Original HEC-1 Model: L3R5DVR.DAT, Wood/Patel, APRIL 14, 2006  **
  37          ID                         REVISED FOR DOVE VALLEY RANCH IMPROVEMENTS  **
  38          ID   Modified HEC-1 Model: EN06BASE.DAT, Wood/Patel, SZ, May 2007   **
  39          ID                         10-Year 6-Hour HEC-1 Model for Existing Conditions  **
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  41          ID   2) DDMSW MCUHP1 V3.3.2 Used                                    **
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  43          ID   ***************************************************************************
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  44          ID   ***************************************************************************
  45          ID   **                                                                        **
  46          ID   ** CONCEPT REFINEMENT STUDY FOR ROSE GARDEN LANE DRAINAGE IMPROVEMENTS     **
  47          ID   ** ORIGINAL HEC-1 FILE FROM GLENDAL/PEORIA ADMP UPDATE STUDY               **
  48          ID   ** MODIFIED HEC-1 MODEL: LEVEL3R5.DAT, Wood/Patel & CVL, May 2005         **
  49          ID   ** THIS IS THE PREFERRED ALTERNATIVE MODEL                               **
  50          ID   ** WPA REVISED APRIL 14, 2006 FOR DOVE VALLEY RANCH IMPROVEMENTS         **
  51          ID   ** USING LATEST SURVEY DATA.                                            **
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1 HEC-1 INPUT PAGE 2

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  56          ID   **                                                                **
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  59          ID   PROJECT:              Glendale Peoria ADMP Update
  60          ID   CLIENT:               Flood Control District of Maricopa County
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63          ID   FILE NAME: LEVEL3.DAT              CREATED DATE: JUNE 6, 2001
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65          ID   DEVELOPMENT CONDITIONS: LEVEL 3 HYDROLOGY
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68          IO       5
69          IN      15
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70          JD    2.03    0.01
71          PC   0.000   0.008   0.016   0.025   0.033   0.041   0.050   0.058   0.066   0.074
72          PC   0.087   0.099   0.118   0.138   0.216   0.377   0.834   0.911   0.931   0.950
73          PC   0.962   0.972   0.983   0.991   1.000
74          JD   2.017    0.50
75          PC   0.000   0.008   0.016   0.025   0.033   0.041   0.050   0.058   0.066   0.074
76          PC   0.087   0.099   0.118   0.138   0.216   0.377   0.834   0.911   0.931   0.950
77          PC   0.962   0.972   0.983   0.991   1.000
78          JD   1.979    2.80
79          PC   0.000   0.009   0.016   0.025   0.034   0.042   0.051   0.059   0.067   0.076
80          PC   0.087   0.100   0.120   0.163   0.252   0.451   0.694   0.837   0.900   0.938
81          PC   0.950   0.963   0.975   0.988   1.000
82          JD   1.872    16.0
83          PC   0.000   0.015   0.020   0.030   0.048   0.063   0.076   0.090   0.105   0.119
84          PC   0.135   0.152   0.175   0.222   0.304   0.472   0.670   0.796   0.868   0.912
85          PC   0.946   0.960   0.973   0.987   1.000
86          JD   1.648    90.0
87          PC   0.000   0.021   0.035   0.051   0.071   0.087   0.105   0.125   0.143   0.160
88          PC   0.179   0.201   0.232   0.281   0.364   0.500   0.658   0.773   0.841   0.888
89          PC   0.927   0.945   0.964   0.982   1.000
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            * Development.  Model CREATED BY A. MERCIER, CMX, ON 01/16/04
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1                                        HEC-1 INPUT                                  PAGE  3

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90          KK     CBA    BASIN
91          KM   SUB-BASIN CBA
92          BA    0.007
93          LG     0.34     0.35     6.80     0.13       11
94          UC    0.241    0.298
95          UA        0      3.0      5.0      8.0     12.0     20.0     43.0     75.0     90.0     96.0
96          UA      100
            *
97          KK     RCBA
98          KM   CHANNEL ROUTING
99          RD     1479    .0095     .030             TRAP        0        4
            *
100         KK     P28    BASIN
101         KM   SUB-BASIN P28
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103         LG     0.25     0.13    10.10     0.04       29
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105         UA        0      5.0     16.0     30.0     65.0     77.0     84.0     90.0     94.0     97.0
106         UA      100
            *
107         KK     CP28
108         KM
109         HC        2
            *
110         KK     DT28
111         KM
112         DT     DB28    1.230
113         DI        0      100      500     1000     5000
114         DQ        0      100      500     1000     5000
            *
115         KK     CBB    BASIN
116         KM   SUB-BASIN CBB
117         BA    0.017
118         LG     0.34     0.34     4.55     0.35       15
119         UC    0.258    0.213
120         UA        0      4.5     12.6     23.2     35.8     50.0     64.2     76.8     87.4     95.5
121         UA      100
            *
122         KK     RCBB
123         KM   CHANNEL ROUTING
124         RD     1231    .0244     .030             TRAP        0        4
            *
1                                        HEC-1 INPUT                                  PAGE  4

LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

125         KK    CP28a
126         KM
127         HC        2
            *
128         KK     R28a
129         KM   CHANNEL ROUTING
130         RD     1642    .0018     .030             TRAP       10        4
            *
131         KK     P27    BASIN
132         KM   SUB-BASIN P27
133         BA    0.065
134         LG     0.25     0.15     8.00     0.10       30
135         UC    0.526    0.565
136         UA        0      5.0     16.0     30.0     65.0     77.0     84.0     90.0     94.0     97.0
137         UA      100
            *
138         KK     DT27
139         KM
140         DT     DB27    1.360
141         DI        0      100      500     1000     5000
142         DQ        0      100      500     1000     5000
            *
143         KK     CP27
```

```
144          KM
145          HC       2
             *

146          KK     P27A    BASIN
147          KM   SUB-BASIN P27A
148          BA    0.008
149          LG     0.25     0.25    4.35    0.46       44
150          UC    0.294    0.378
151          UA        0      5.0    16.0    30.0     65.0    77.0    84.0    90.0    94.0    97.0
152          UA      100
             *

153          KK    DT27a
154          KM
155          DT    DB27a    0.210
156          DI        0      100     500    1000     5000
157          DQ        0      100     500    1000     5000
             *

158          KK     P27B    BASIN
159          KM   SUB-BASIN P27B
160          BA    0.013
161          LG     0.26     0.26    5.00    0.32       37
162          UC    0.329    0.449
163          UA        0      5.0    16.0    30.0     65.0    77.0    84.0    90.0    94.0    97.0
164          UA      100
             *
```



```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

165          KK    DT27b
166          KM
167          DT    DB27b    0.250
168          DI        0      100     500    1000     5000
169          DQ        0      100     500    1000     5000
             *

170          KK      CBL    BASIN
171          KM   SUB-BASIN CBL
172          BA    0.028
173          LG     0.28     0.29    5.70    0.23       24
174          UC    0.358    0.401
175          UA        0      5.0    16.0    30.0     65.0    77.0    84.0    90.0    94.0    97.0
176          UA      100
             *

177          KK     CCBL
178          KM
179          HC        4
             *

180          KK     RCBL
181          KM   NATURAL WASH ROUTING
182          RC    0.035    0.035   0.035     840    .0227
183          RX        0      7.5      15      50       60      95   102.5     110
184          RY        5      2.5       0       0        0       0     2.5       5
             *

185          KK      CBK    BASIN
186          KM   SUB-BASIN CBK
187          BA    0.052
```



```
188          LG     0.34     0.34    4.65    0.33        6
189          UC    0.374    0.290
190          UA        0      3.0     5.0     8.0     12.0    20.0    43.0    75.0    90.0    96.0
191          UA      100
             *

192          KK     CCBK
193          KM
194          HC        2
             *

195          KK     RCBK
196          KM   CHANNEL ROUTING
197          RD      755    .0238    .030            TRAP       10        4
             *

198          KK      P14    BASIN
199          KM   SUB-BASIN P14
200          BA    0.008
201          LG     0.34     0.34    3.81    0.53        2
202          UC    0.323    0.262
203          UA        0      4.5    12.6    23.2     35.8    50.0    64.2    76.8    87.4    95.5
204          UA      100
             *
```



```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

205          KK     RT14
206          KM
207          DT    RB14     1.130
208          DI        0      100     500    1000     5000
209          DQ        0      100     500    1000     5000
             *

210          KK     CP14
211          KM
212          HC        2
             *

213          KK      P15    BASIN
214          KM   SUB-BASIN P15
215          BA    0.006
216          LG     0.33     0.34    3.23    0.81        5
217          UC    0.617    0.829
218          UA        0      4.5    12.6    23.2     35.8    50.0    64.2    76.8    87.4    95.5
219          UA      100
             *

220          KK     DT15
221          KM
222          DT    DB15     0.260
223          DI        0      100     500    1000     5000
224          DQ        0      100     500    1000     5000
             *

225          KK      CBJ    BASIN
226          KM   SUB-BASIN CBJ
227          BA    0.015
228          LG     0.35     0.35    4.30    0.41       10
229          UC    0.303    0.333
230          UA        0      3.0     5.0     8.0     12.0    20.0    43.0    75.0    90.0    96.0
231          UA      100
```

```
                *
 232            KK    CP15
 233            KM
 234            HC       3
                *
 235            KK     R15
 236            KM  CHANNEL ROUTING
 237            RD     800  .0125    .030            TRAP      10       4
                *
 238            KK     CBH   BASIN
 239            KM  SUB-BASIN CBH
 240            BA   0.012
 241            LG    0.35    0.35    4.40    0.38      15
 242            UC   0.205   0.136
 243            UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 244            UA     100
                *
                * Route CBH to P25S
                *
```

1 HEC-1 INPUT

```
LINE            ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 245            KK    RCBH
 246            RS       2    FLOW       0
 247            RC    0.02     .02     .02    1500   .0055
 248            RX     280     320     340     350     360     370     390     430
 249            RY       6       4       2       0       0       2       4       6
                *
 250            KK    P25S   BASIN
 251            KM  SUB-BASIN P25S
 252            BA   0.028
 253            LG    0.35    0.35    4.35    0.40      15
 254            UC   0.634   0.564
 255            UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
 256            UA     100
                *
 257            KK   CP25S
 258            KM
 259            HC       2
                *
 260            KK    AFR0
 261            KM  Dummy Combination at Jomax Road and AFR
 262            HC       2
                *
                * ************************************************************************
 263            KK      E1   BASIN
 264            KM  SUB-BASIN E1
 265            BA   0.014
 266            LG    0.33    0.32    3.95    0.48       2
 267            UC   0.281   0.201
 268            UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
 269            UA     100
                *
 270            KK     RE1
```



```
 271            KM  CHANNEL ROUTING
 272            RD    1993  .0376    .030            TRAP      10       4
                *
 273            KK      E2   BASIN
 274            KM  SUB-BASIN E2
 275            BA   0.016
 276            LG    0.30    0.25    3.95    0.48       5
 277            UC   0.388   0.377
 278            UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
 279            UA     100
                *
```

1 HEC-1 INPUT

```
LINE            ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 280            KK     RE2
 281            KM  CHANNEL ROUTING
 282            RD    1108  .0542    .030            TRAP      10       4
                *
 283            KK     P13   BASIN
 284            KM  SUB-BASIN P13
 285            BA   0.059
 286            LG    0.26    0.25    3.92    0.57      27
 287            UC   0.401   0.257
 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    DT13
 291            KM
 292            DT    DB13   1.060
 293            DI       0     100     500    1000    5000
 294            DQ       0     100     500    1000    5000
                *
 295            KK    CP13
 296            KM
 297            HC       3
                *
 298            KK     R13
 299            KM  CHANNEL ROUTING
 300            RD    1412  .0035    .025            TRAP      10       4
                *
 301            KK     P12   BASIN
 302            KM  SUB-BASIN P12
 303            BA   0.044
 304            LG    0.25    0.26    3.58    0.71      30
 305            UC   0.544   0.415
 306            UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
 307            UA     100
                *
 308            KK    DT12
 309            KM
 310            DT    DB12   1.140
 311            DI       0     100     500    1000    5000
 312            DQ       0     100     500    1000    5000
                *
```

```
313          KK    CP12
314          KM
315          HC       2
             *
```



```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9.....10

316          KK      E3   BASIN
317          KM  SUB-BASIN E3
318          BA   0.082
319          LG    0.31    0.28    3.95    0.48       4
320          UC   0.797   0.827
321          UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
322          UA     100
             *

323          KK      RE3
324          KM  CHANNEL ROUTING
325          RD    1473   .0339    .030            TRAP      10       4
             *

326          KK      P10   BASIN
327          KM  SUB-BASIN P10
328          BA   0.055
329          LG    0.25    0.26    3.78    0.63       29
330          UC   0.522   0.329
331          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
332          UA     100
             *

333          KK    DT10
334          KM
335          DT    DB10   1.080
336          DI       0     100     500    1000    5000
337          DQ       0     100     500    1000    5000
             *

338          KK    CP10
339          KM
340          HC       2
             *

341          KK      R10
342          KM  CHANNEL ROUTING
343          RD    1947   .0035    .025            TRAP      10       4
             *

344          KK      P11   BASIN
345          KM  SUB-BASIN P11
346          BA   0.042
347          LG    0.25    0.25    3.85    0.60       30
348          UC   0.855   0.892
349          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
350          UA     100
             *
```



```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9.....10

351          KK    DT11
352          KM
```



```
353          DT    DB11   1.200
354          DI       0     100     500    1000    5000
355          DQ       0     100     500    1000    5000
             *

356          KK    CP11
357          KM
358          HC       2
             *

359          KK      E4   BASIN
360          KM  SUB-BASIN E4
361          BA   0.040
362          LG    0.34    0.33    4.00    0.47       3
363          UC   0.720   0.924
364          UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
365          UA     100
             *

366          KK      RE4
367          KM  CHANNEL ROUTING
368          KM  SHAPE REFLECTS CURRENT SET OF PLANS FOR HAPPY VALLEY ROAD DITCH
369          RD
370          RC    .015    .015    .015    1287   .0250
371          RX       0       2       4    9.84   12.84   15.84   21.84   27.56
372          RY    2.46    1.96    1.46       0     0.5       1       2    2.95
             *

373          KK      P9   BASIN
374          KM  SUB-BASIN P9
375          BA   0.045
376          LG    0.25    0.25    3.92    0.57       30
377          UC   0.401   0.370
378          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
379          UA     100
             *

380          KK     DT9
381          KM
382          DT     DB9   0.920
383          DI       0     100     500    1000    5000
384          DQ       0     100     500    1000    5000
             *

385          KK     HV1   BASIN
386          KM  SUB-BASIN HV1
387          BA   0.007
388          LG    0.27    0.29    3.95    0.55       25
389          UC   0.527   1.174
390          UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
391          UA     100
             *
```



```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9.....10

392          KK     CP9
393          KM
394          HC       3
             *

395          KK      R9
396          KM  CHANNEL ROUTING
```

```
397          KM  SHAPE REFLECTS CURRENT SET OF PLANS FOR HAPPY VALLEY ROAD DITCH
398          RD
399          RC    .015    .015    .015     940   .0250
400          RX       0       2       4    9.84   12.84   15.84   21.84   27.56
401          RY    2.46    1.96    1.46       0     0.5       1       2    2.95
             *

402          KK      P8   BASIN
403          KM  SUB-BASIN P8
404          BA   0.013
405          LG    0.25    0.25    4.15    0.52      30
406          UC   0.647   0.779
407          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
408          UA     100
             *

409          KK      DT8
410          KM
411          DT      DB8   0.300
412          DI        0     100     500    1000    5000
413          DQ        0     100     500    1000    5000
             *

414          KK      P7   BASIN
415          KM  SUB-BASIN P7
416          BA   0.014
417          LG    0.25    0.25    3.95    0.56      30
418          UC   0.584   0.691
419          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
420          UA     100
             *

421          KK      DT7
422          KM
423          DT      DB7   0.300
424          DI        0     100     500    1000    5000
425          DQ        0     100     500    1000    5000
             *

426          KK      CP7
427          KM
428          HC        3
             *
```



```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

429          KK      R7
430          KM  CHANNEL ROUTING
431          RD
432          RC    .015    .015    .015    1488   .0250
433          RX       0       2       4    9.84   12.84   15.84   21.84   27.56
434          RY    2.46    1.96    1.46       0     0.5       1       2    2.95
             *

435          KK      P6   BASIN
436          KM  SUB-BASIN P6
437          BA   0.070
438          LG    0.25    0.25    4.25    0.49      30
439          UC   1.147   1.475
440          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
441          UA     100
             *
```



```
442          KK      DT6
443          KM
444          DT      DB6   1.760
445          DI        0     100     500    1000    5000
446          DQ        0     100     500    1000    5000
             *

447          KK      CP6
448          KM
449          HC        2
             *

450          KK   HPVLY
451          KM
452          HC        3
             *
             *
             * ****************************************************************************
             *
             *

453          KK   A11MA   BASIN
454          KM  SUB-BASIN A11M North Portion
455          BA   0.073
456          LG    0.32    0.24    8.80    0.06       8
457          UC   0.330   0.153
458          UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
459          UA     100
             *
             * On-site Retention Basin
             *
```



```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

460          KK  A11MAQ
461          DT  DA11MA      3.4
462          DI        0     100    1000    1000
463          DQ        0     100    1000    1000
             *
             *
             *

464          KK  SA11MA STORAGE
465          KM  Online Detention Basin,  6.2 ac-ft.
466          RS        1    STOR       0
467          SV        0     1.5     2.5     4.0     6.2    10.0
468          SE        0       2       3       4       5       6
469          SL        0    3.14    0.62     0.5
470          SS        5      50     2.7     1.5
             *
             * ROUTE RA11MA IS 2000 FT WITH A SLOPE OF .0092
             * CROSS SECTION IS A SMALL NATURAL CHANNEL
             *

471          KK  RA11MA
472          RS        9    FLOW       0
473          RC    0.05    0.06    0.05    2000   .0092
474          RX       0     350     450     480     482     510     610     910
475          RY       7       6       5       1       0       5       6       7
             *
```

```
476          KK   A11MB   BASIN
477          KM  SUB-BASIN A11M South Portion
478          BA   0.194
479          LG    0.25    0.15    8.80    0.07      29
480          UC   0.489   0.213
481          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
482          UA     100
             *
             * On-site Retention Basin
             *     GP

483          KK  A11MBQ
484          DT  DA11MB     3.6
485          DI       0     100    1000    1000
486          DQ       0     100    1000    1000
             *

487          KK  SA11MB STORAGE
488          KM  Online Detention Basin, 11.2 ac-ft.
489          RS       1    STOR       0
490          SV       0     3.0     5.5     8.0    11.2    15.0
491          SE       0       2       3       4       5       6
492          SL       0    3.14    0.62     0.5
493          SS       5     200     2.7     1.5
             *
```



```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

494          KK   A11NA   BASIN
495          KM  SUB-BASIN A11N - Revised
496          BA   0.076
497          LG    0.29    0.30    5.40    0.25      26
498          UC   0.306   0.178
499          UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
500          UA     100
             *

501          KK  SA11NA STORAGE
502          KM  Online Detention Basin,  7.3 ac-ft.
503          RS       1    STOR       0
504          SV       0     1.0     3.0     5.0     7.3    11.0
505          SE       0       2       3       4       5       6
506          SL       0    3.14    0.62     0.5
507          SS       5     100     2.7     1.5
             *

508          KK  RA11NA
509          RS      11    FLOW       0
510          RC    0.05    0.06    0.05    2400  0.0090
511          RX       0     350     450     480     482     510     610     910
512          RY       7       6       5       1       0       5       6       7
             *
             * COMBINE Flows of A11NA, A11MA AND A11MB
             *

513          KK  CA11MB
514          HC       3
             *
             * Route Flow to A11J
             *

515          KK  RA11MB
```



```
516          RS       8    FLOW       0
517          RC    0.05    0.06    0.05    3000   .0085
518          RX       0     350     450     480     482     510     610     910
519          RY       7       6       5       1       0       5       6       7
             *

520          KK    A11O   BASIN
521          KM  SUBASIN A11O
522          BA   0.056
523          LG    0.28    0.27    6.20    0.19      23
524          UC   0.360   0.331
525          UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
526          UA     100
             *
```



```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

527          KK   SA11O STORAGE
528          KM  Online Detention Basin,  3.1 ac-ft.
529          RS       1    STOR       0
530          SV       0     0.5     1.0     2.0     3.1     5.0
531          SE       0       2       3       4       5       6
532          SL       0    3.14    0.62     0.5
533          SS       5      50     2.7     1.5
             *
             * ROUTE A11O to A11KB
             *

534          KK   RA11O
535          RS       9    FLOW       0
536          RC    0.05     .06     .05    2500   .0085
537          RX       0     350     450     480     482     510     610     910
538          RY       7       6       5       1       0       5       6       7
             *

539          KK   A11KB   BASIN
540          KM  SUB-BASIN A11K North Portion
541          BA   0.107
542          LG    0.25    0.25    4.70    0.36      30
543          UC   0.499   0.270
544          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
545          UA     100
             *

546          KK  SA11KB STORAGE
547          KM  Online Detention Basin, 10.7 ac-ft.
548          RS       1    STOR       0
549          SV       0     3.0     5.0     7.0    10.7    15.0
550          SE       0       2       3       4       5       6
551          SL       0    3.14    0.62     0.5
552          SS       5     100     2.7     1.5
             *

553          KK   A11KA   BASIN
554          KM  SUB-BASIN A11K East Portion
555          BA   0.081
556          LG    0.27    0.27    4.45    0.42      42
557          UC   0.342   0.244
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  SA11KA STORAGE
561          KM  Online Detention Basin,  9.6 ac-ft.
562          RS       1    STOR       0
563          SV       0     2.0     4.0     6.0     9.6    14.0
564          SE       0       2       3       4       5       6
565          SL       0    3.14    0.62     0.5
566          SS       5      50     2.7     1.5
             *
             * ROUTE A11KA to A11KB
             *
```



```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

567          KK  RA11KA
568          RS       8    FLOW       0
569          RC    0.05     .06     .05    2000   .0075
570          RX       0     350     450     480     482     510     610     910
571          RY       7       6       5       1       0       5       6       7
             *
             * COMBINE A11KB,A11KA AND A11O
             *

572          KK  CA11KB
573          HC       3
             *
             * ROUTE Flow of CA11KB to A11KC
             *

574          KK  RA11KB
575          RS       8    FLOW       0
576          RC    0.05    0.06    0.05    1600  0.0055
577          RX       0      50     250     350     360     420     620     720
578          RY      10       8       6       2       0       6       8      10
             *

579          KK    A11G   BASIN
580          KM  SUB-BASIN A11G
581          BA   0.060
582          LG    0.31    0.28    4.55    0.35      25
583          UC   0.550   0.491
584          UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
585          UA     100
             *
             * ROUTE A11G to A11KC
             *

586          KK  RA11GN
587          RS       7    FLOW       0
588          RC    0.05     .06     .05    2300   0.010
589          RX       0     350     450     480     482     510     610     910
590          RY       7       6       5       1       0       5       6       7
             *

591          KK   A11KC   BASIN
592          KM  SUB-BASIN A11K West Portion
593          BA   0.132
594          LG    0.27    0.26    4.15    0.50      27
595          UC   0.489   0.244
596          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
597          UA     100
             *
```



```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

598          KK  SA11KC STORAGE
599          KM  Online Detention Basin,  6.4 ac-ft.
600          RS       1    STOR       0
601          SV       0     1.5     2.5     4.0     6.4    10.0
602          SE       0       2       3       4       5       6
603          SL       0    3.14    0.62     0.5
604          SS       5      50     2.7     1.5
             *
             * COMBINE RA11KB, RA11G, AND A11KC
             *

605          KK  CA11KC
606          HC       3
             *
             * ROUTE CA11KC to A11J
             * CROSS SECTION IS A MEDIUM NATURAL CHANNEL
             *

607          KK  RA11KC
608          RS       4    FLOW       0
609          RC    0.05     .06     .05    1000   .0055
610          RX       0      50     250     350     360     420     620     720
611          RY      10       8       6       2       0       6       8      10
             *

612          KK    A11J   BASIN
613          KM  SUB-BASIN A11J
614          BA   0.112
615          LG    0.29    0.22    7.30    0.12      18
616          UC   0.740   0.589
617          UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
618          UA     100
             *

619          KK   SA11J STORAGE
620          KM  Online Detention Basin,  4.4 ac-ft.
621          RS       1    STOR       0
622          SV       0     1.0     2.0     3.0     4.4     7.0
623          SE       0       2       3       4       5       6
624          SL       0    3.14    0.62     0.5
625          SS       5      50     2.7     1.5
             *
             * COMBINE Flows of RA11MB, A11J, AND RA11KC
             *

626          KK   CA11J
627          HC       3
             *
```



```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

628          KK    A11L   BASIN
629          KM  SUB-BASIN A11L
630          BA   0.264
631          LG    0.27    0.12   11.20    0.03      24
632          UC   0.872   0.652
633          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
634          UA     100
```

```
                *
                * On-site Retention Basin
                *     GP
          635   KK  DA11LQ
          636   DT   DA11L     7.6
          637   DI       0     100    1000    1000
          638   DQ       0     100    1000    1000
                *
                * ROUTE FLOW TO A11I FROM A11L                                    G
                *
          639   KK   RA11L
          640   RS       9    FLOW       0
          641   RC    0.05    0.06    0.05    2600   .0069
          642   RX       0     350     450     480     482     510     610     910
          643   RY       7       6       5       1       0       5       6       7
                *
          644   KK    A11I   BASIN
          645   KM  SUB-BASIN A11I
          646   BA   0.153
          647   LG    0.25    0.10   11.20    0.03      28
          648   UC   0.634   0.409
          649   UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
          650   UA     100
                *
                * On-site Retention Basin
                *
          651   KK  DA11IQ
          652   DT   DA11I    11.7
          653   DI       0     100    1000    1000
          654   DQ       0     100    1000    1000
                *
                * COMBINE Flows of CA11J, A11I, and RA11L
                *
          655   KK   CA11I
          656   HC       3
                *
                * ROUTE FLOW TO A11EB FROM CA11I
                *
1                                        HEC-1 INPUT                                        PAGE 19

      LINE      ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

          657   KK   RA11I
          658   RS       9    FLOW       0
          659   RC    0.05     .06     .05    4000   .0075
          660   RX       0      50     100     150     180     230     280     330
          661   RY      10       8       6       0       0       6       8      10
                *
          662   KK   A11EA   BASIN
          663   KM  SUB-BASIN A11E East Portion
          664   BA   0.144
          665   LG    0.33    0.31    4.30    0.41      11
          666   UC   0.793   0.737
          667   UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
          668   UA     100
                *
                * ROUTE FLOW TO A11EB FROM A11EA
```



```
                *
          669   KK  RA11EA
          670   RS       6    FLOW       0
          671   RC    0.05     .06     .05    1500   .0065
          672   RX       0      50     250     320     360     420     620     720
          673   RY      10       8       6       0       0       6       8      10
                *
          674   KK   A11EB   BASIN
          675   KM  SUB-BASIN A11E West Portion
          676   BA   0.190
          677   LG    0.34    0.34    4.45    0.38       4
          678   UC   1.133   1.174
          679   UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
          680   UA     100
                *
                * COMBINE Flows of A11EA, A11EB, and RA11I
                *
          681   KK  CA11EB
          682   HC       3
                *
          683   KK      41   BASIN
          684   KM  SUB-BASIN 41
          685   BA   0.054
          686   LG    0.34    0.34    4.40    0.39      21
          687   UC   0.324   0.225
          688   UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
          689   UA     100
                *
1                                        HEC-1 INPUT                                        PAGE 20

      LINE      ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

          690   KK     B41
          691   KM  Storage Route Runoff through Detention Basin @41
          692   KM  Outlet Structure:  1-48" PIPE
          693   RS       1    STOR       0
          694   SA     .09     .18     .27      .4
          695   SE    1433    1435    1437    1440
          696   SQ       0      23      71     132
                *
          697   KK      42   BASIN
          698   KM  SUB-BASIN 42
          699   BA   0.075
          700   LG    0.35    0.35    4.25    0.42      44
          701   UC   0.324   0.231
          702   UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
          703   UA     100
                *
          704   KK     B42
          705   KM  Storage Route Runoff through Detention Basin @42
          706   KM  Outlet Structure:  48" PIPE
          707   RS       1    STOR       0
          708   SA     .07     .13     .21     .31      .4
          709   SE    1427    1429    1431    1433    1435
          710   SQ       0      23      71     112     147
                *
                * COMBINE Flows of 41 and 42                                      G
```

```
                  *
 711              KK     C41
 712              HC       2
                  *
                  * ROUTE FLOW TO A11F FROM C41
                  *

 713              KK    RC41
 714              RS      14    FLOW       0
 715              RC    0.05     .06     .05    5200   .0075
 716              RX       0      50      70      90     110     130     150     200
 717              RY       6       5       3       0       0       3       5       6
                  *

 718              KK    A11F   BASIN
 719              KM  SUB-BASIN A11F
 720              BA   0.334
 721              LG    0.33    0.31    4.35    0.40       8
 722              UC   0.837   0.581
 723              UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
 724              UA     100
                  *
                  * COMBINE Flows of A11F and RC41                                        G
                  *
1                                       HEC-1 INPUT                                          PAGE 21

LINE              ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 725              KK   CA11F
 726              HC       2
                  *
                  * COMBINE Flows of CA11F and CA11EB
                  *

 727              KK   CA11E
 728              HC       2
                  *
                  * ROUTE FLOW TO A11A FROM CA11E
                  *

 729              KK   RA11E
 730              RS       3    FLOW       0
 731              RC    0.05     .06     .05    1700   .0070
 732              RX       0      50      70      90     110     130     150     200
 733              RY       6       5       3       0       0       3       5       6
                  *

 734              KK    A09U   BASIN
 735              KM  SUB-BASIN A09U
 736              BA   0.175
 737              LG    0.32    0.30    4.20    0.43      22
 738              UC   0.450   0.302
 739              UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
 740              UA     100
                  *
                  * Happy Valley RD. Improvements
                  * 0 % FLOW GOES DOWN to South,100% WEST along HAPPY VALLEY
                  *

 741              KK   DA09U
 742              DT   A09UI     0.0     0.0
 743              DI     0.0    10.0   100.0  1000.0  5000.0     0.0     0.0     0.0     0.0     0.0
```



```
 744              DQ     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0
                  *
                  * ROUTE FLOW TO CA09T FROM A09U                                         G
                  *

 745              KK  RA09UW
 746              RS       9    FLOW       0
 747              RC    0.05    0.03     .05    4000   .0075
 748              RX       0     200     210     220     240     270     295     595
 749              RY     4.5       2       0       2       3       3     3.5     4.5
                  *

 750              KK    A09T   BASIN
 751              KM  SUB-BASIN A09T
 752              BA   0.182
 753              LG    0.33    0.31    4.30    0.41       2
 754              UC   0.752   0.547
 755              UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
 756              UA     100
                  *
                  * COMBINE  CA09U AND A09T
                  *
1                                       HEC-1 INPUT                                          PAGE 22

LINE              ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 757              KK   CA09T
 758              HC       2
                  *
                  * HAPPY VALLEY ROAD Improvements, 100% Flow TO THE WEST
                  *

 759              KK   DA09T
 760              DT   A09TI     0.0     0.0
 761              DI     0.0    10.0   100.0  1000.0 10000.0     0.0     0.0     0.0     0.0     0.0
 762              DQ     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0
                  *
                  * ROUTE FLOW TO CX22 FROM CA09T
                  *

 763              KK  RA09TW
 764              RS       2    FLOW       0
 765              RC    0.05    0.03    0.05    1500   .0025
 766              RX       0     200     210     220     230     270     295     595
 767              RY       6       4       0       0       4       4     5.5       7
                  *

 768              KK    A11A   BASIN
 769              KM  SUB-BASIN A11A
 770              BA   0.298
 771              LG    0.23    0.29    6.00    0.21      34
 772              UC   0.721   0.472
 773              UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
 774              UA     100
                  *
                  * On-site Retention Basin
                  *     GP

 775              KK  DA11AQ
 776              DT   DA11A     7.7
 777              DI       0     100    1000    1000
 778              DQ       0     100    1000    1000
                  *
```

```
* Combine  Flows of RA09TW, CA11E,and A11A
*
779         KK    CX23
780         HC       3
*
* ROUTE FLOW TO CS1 FROM CX23                                          GP
*
781         KK    RX23
782         RS       7    FLOW       0
783         RC    0.05     .06      .05    4000   .0074
784         RX       0      50      150     175     275     300     400     500
785         RY      12       8        6       0       0       6       8      12
*
```



```
LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9.....10

786         KK      S1   BASIN
787         KM  SUB-BASIN S1
788         BA   0.124
789         LG    0.31    0.27    4.25    0.47      12
790         UC   0.790   0.720
791         UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
792         UA     100
*
793         KK      P2   BASIN
794         KM  SUB-BASIN P2
795         BA   0.051
796         LG    0.25    0.25    4.45    0.43      29
797         UC   0.404   0.266
798         UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
799         UA     100
*
800         KK     RT2
801         KM
802         DT     RB2   4.740
803         DI       0     100     500    1000    5000
804         DQ       0     100     500    1000    5000
*
805         KK     CS1
806         KM
807         HC       3
*
808         KK     RS1
809         KM  CHANNEL ROUTING
810         RD     924   .0108    .035            TRAP     200       6
*
811         KK      S2   BASIN
812         KM  SUB-BASIN S2
813         BA   0.012
814         LG    0.34    0.33    4.70    0.32       3
815         UC   0.270   0.156
816         UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
817         UA     100
*
```



```
818         KK      S3   BASIN
819         KM  SUB-BASIN S3
820         BA   0.006
821         LG    0.30    0.25    4.65    0.32       5
822         UC   0.208   0.126
823         UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
824         UA     100
*
```



```
LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9.....10

825         KK     CS2
826         KM
827         HC       3
*
828         KK     RS2
829         KM  CHANNEL ROUTING
830         RD     665   .0075    .020            TRAP      20       4
*
831         KK      P3   BASIN
832         KM  SUB-BASIN P3
833         BA   0.054
834         LG    0.25    0.25    4.45    0.43      30
835         UC   0.551   0.475
836         UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
837         UA     100
*
838         KK     RT3
839         KM
840         DT     RB3   5.230
841         DI       0     100     500    1000    5000
842         DQ       0     100     500    1000    5000
*
843         KK     CP3
844         KM
845         HC       2
*
846         KK     P4b   BASIN
847         KM  SUB-BASIN P4b
848         BA   0.017
849         LG    0.25    0.25    4.45    0.43      30
850         UC   0.287   0.173
851         UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
852         UA     100
*
853         KK    RT4b
854         KM
855         DT    RB4b   0.320
856         DI       0     100     500    1000    5000
857         DQ       0     100     500    1000    5000
*
858         KK      S4   BASIN
859         KM  SUB-BASIN S4
860         BA   0.014
861         LG    0.33    0.31    4.80    0.30       2
```

```
862          UC   0.493   0.772
863          UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
864          UA     100
             *
```



```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9.....10

865          KK      P1   BASIN
866          KM  SUB-BASIN P1
867          BA   0.029
868          LG    0.34    0.38    6.00    0.18       1
869          UC   0.496   0.552
870          UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
871          UA     100
             *

872          KK     DT1
873          KM
874          DT     DB1   0.500
875          DI       0     100     500    1000    5000
876          DQ       0     100     500    1000    5000
             *

877          KK     CP1
878          KM
879          HC       2
             *

880          KK     HV2   BASIN
881          KM  SUB-BASIN HV2
882          BA   0.031
883          LG    0.25    0.25    4.45    0.43      29
884          UC   1.500   5.175
885          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
886          UA     100
             *

887          KK    RHV2
888          KM  CHANNEL ROUTING
889          RD     910   .0033    .015            TRAP      10       4
             *

890          KK   DTHV2
891          KM
892          DT   DBHV2   0.680
893          DI       0     100     500    1000    5000
894          DQ       0     100     500    1000    5000
             *

895          KK     P4a   BASIN
896          KM  SUB-BASIN P4a
897          BA   0.039
898          LG    0.25    0.25    4.00    0.55      30
899          UC   0.636   0.586
900          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
901          UA     100
             *
```



```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9.....10
```



```
902          KK    DT4a
903          KM
904          DT    DB4a   0.740
905          DI       0     100     500    1000    5000
906          DQ       0     100     500    1000    5000
             *

907          KK   SOUTH
908          KM  Combined at South HVR
909          HC       5
             *

910          KK    N11O   BASIN
911          KM  SUB-BASIN N11O
912          BA   0.054
913          LG    0.35    0.35    4.50    0.36       0
914          UC   0.632   0.483
915          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
916          UA     100
             *
             * A WASH TO THE WEST THAT CARRIES A MAX. FLOW OF 47 CFS.
             *

917          KK   DN11O
918          DT   N11OI
919          DI       0      30      60     100     300     600    1200    2200
920          DQ       0      27      54      90     270     553    1153    2153
             *
             * ROUTE RN11OW IS 2752 FT WITH A SLOPE OF .0025
             * CROSS SECTION IS A MEDIUM NATURAL WASH
             *

921          KK  RN11OW
922          RS      15    FLOW       0
923          RC    0.05     .06     .05    2752   .0025
924          RX       0      50     250     350     360     420     620     720
925          RY      10       8       6       2       0       6       8      10
             *
             * RECOVER DIVERTED FLOW FROM CA09T
             *

926          KK  DRA09T
927          DR   A09TI
             *
             * ROUTE RA09TS IS 2824 FT WITH A SLOPE OF .0057
             * CROSS SECTION IS SHALLOW CONCENTRATED FLOW
             * ROUTE FLOW TO CA09R FROM CA09T
             *
```



```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9.....10

928          KK  RA09TS
929          RS      15    FLOW       0
930          RC    0.05     .06     .05    2824   .0057
931          RX       0     400     800    1200    1600    2000    2400    2800
932          RY       3       1      .5       0       0      .5       1       3
             *

933          KK    A09R   BASIN
934          KM  SUB-BASIN A09R
935          BA   0.144
936          LG    0.35    0.34    4.25    0.43       1
```

```
UC   1.090   0.945
UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
UA     100
*
* COMBINE  CN11O,  CA09T, AND A09R
*

KK   CA09R
HC       3
*
* EXISTING CONDITIONS FLOW DOWN LAKE PLEASANT RD
*

KK   DA09R
DT   A09RI
DI       0      10      50     100     300     500     800    1000    2000
DQ       0     9.9    49.3    99.4   299.5     499     799     999    1999
*
* ROUTE RA09RW IS 1609 FT WITH A SLOPE OF .0012
* *** ROUTE FLOW TO CA09S FROM CA09R  ************************
*

KK  RA09RW
RS      15    FLOW       0
RC    0.05    0.04     .05    1609  0.0012
RX       0     200     300     325     340     360     380     880
RY       5       4       3       2       3       3       2     3.5
*

KK    A09S   BASIN
KM  SUB-BASIN A09S
BA   0.072
LG    0.13    0.25    4.90    0.40      71
UC   0.626   0.548
UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
UA     100
*
* On-site Retention Basin
*     GP
```



```
LINE      ID.......1.......2.......3.......4.......5.......6.......7.......8.......9.....10

KK  DA09SQ
DT   DA09S     7.0
DI       0     100    1000    1000
DQ       0     100    1000    1000
*
* *** COMBINE  RA09RW AND A09S ***************************************************
*

KK   CA09S
HC       2
*

KK  RA09SW
RS       6    FLOW       0
RC    0.03    0.03    0.03    1600  0.0085
RX       0      50     100     120     140     160     210     260
RY       6       4       3       0       0       3       4       6
*

KK   A09QA   BASIN
```



```
KM  SUB-BASIN A09Q North Portion
BA   0.092
LG    0.34    0.34    4.20    0.44       2
UC   0.731   0.470
UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
UA     100
*
* *** COMBINE  Flows of RA09SW and A09QA *****************************************
*

KK  CA09QA
HC       2
*
* *** DIVERTED  MAIN (SOUTH), DIVERTED (WEST)  ***************************
* FUTURE SPLIT: ALL EXISTING FLOW TO THE SOUTH
*

KK  DA09QA
DT  A09QAI
DI       0      10      30      50     100     500    1000    2000
DQ       0     9.2    29.3    49.4    99.5     499     999    1999
*
* *** ROUTE CA09QA TO CA99YA *************************************************
*

KK  RA09QW
RS       4    FLOW       0
RC    0.03    0.03    0.03    2400  0.0085
RX       0      50     100     120     140     160     210     260
RY       6       4       3       0       0       3       4       6
*
```



```
LINE      ID.......1.......2.......3.......4.......5.......6.......7.......8.......9.....10

KK   A99YA   BASIN
KM  SUB-BASIN A99Y East Portion
BA   0.103
LG    0.35    0.34    4.90    0.29       1
UC   0.568   0.414
UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
UA     100
*
* *** COMBINE  RA09QW AND A99YA *************************************************
*

KK  CA99YA
HC       2
*

KK  RA99YA
RS       3    FLOW       0
RC    0.03    0.03    0.03    2000  0.0085
RX       0      50     100     120     140     160     210     260
RY       6       4       3       0       0       3       4       6
*

KK   A99YB   BASIN
KM  SUB-BASIN A99Y West Portion
BA   0.171
LG    0.34    0.34    3.78    0.55       4
UC   0.764   0.424
UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
```

```
1007          UA     100
              *
              * *** COMBINE  RA99YA, SOUTH AND A99YB ***************************************
              *

1008          KK  CA99YB
1009          HC       3
              *
              *
              * Dummy Combining at AFR and South of Happy Valley Rd.
              *

1010          KK    AFR1
1011          HC       3
              *
              * RECOVER DIVERTED FLOW FROM A09U
              *

1012          KK  BA09UI
1013          DR   A09UI
              *
              * *** ROUTE RA09US ************************************************************
              * ROUTE RA09US IS 3000 FT WITH A SLOPE OF 0.0076
              * CROSS SECTION IS A SMALL ROAD WITH HOMES ON THE WEST SIDE
              * ALONG local STREETS
              * *** ROUTE FLOW TO N11NB FROM Happy Valley RD (CA09U)
              *
1                                        HEC-1 INPUT                                    PAGE 30

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1014          KK  RA09US
1015          RS       6    FLOW       0
1016          RC    0.04    0.03    0.04    3000  0.0076
1017          RX       0       1      54      55      95      96     124     624
1018          RY    9.25    1.25    0.25       0       0    0.25    1.25    3.25
              *
              *

1019          KK   N11NB   BASIN
1020          KM  SUB-BASIN N11NBN
1021          BA   0.140
1022          LG    0.31    0.27    4.70    0.31       4
1023          UC   0.767   0.672
1024          UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
1025          UA     100
              *
              * Combining Flows
              *

1026          KK  CN11NB
1027          HC       2
              *
              * ROUTE RN11NW IS 2521 FT WITH A SLOPE OF 0.0016
              * CROSS SECTION IS A SMALL ROAD WITH HOMES TO BOTH SIDES
              * ALONG Mariposa GrANDe
              *

1028          KK  RN11NW
1029          RS      12    FLOW       0
1030          RC    0.04    0.03    0.04    2521  0.0016
1031          RX       0       1      70      71      96      97     182     183
1032          RY    9.25    1.25    0.25       0       0    0.25    1.25    9.25
```



```
              *
              * RECOVER DIVERTED FLOW FROM N11OI

1033          KK  BN11OI
1034          DR   N11OI
              *
              * ROUTE RN11OS IS 1184 FT WITH A SLOPE OF 0.0068
              * CROSS SECTION IS SHALLOW CONCENTRATED FLOW
              * ALONG natural pathways
              * ROUTE FLOW TO Mariposa GrANDe (CN11M) FROM CN11O
              *

1035          KK  RN11OS
1036          RS      15    FLOW       0
1037          RC    0.05     .06     .05    1184  0.0068
1038          RX       0     400     800    1200    1600    2000    2400    2800
1039          RY       3       1      .5       0       0      .5       1       3
              *
1                                        HEC-1 INPUT                                    PAGE 31

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1040          KK    N11M   BASIN
1041          KM  SUB-BASIN N11M
1042          BA   0.100
1043          LG    0.35    0.35    4.15    0.45       0
1044          UC   0.660   0.374
1045          UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
1046          UA     100
              *
              * *** COMBINE  CN11M ********************************************************
              * COMBINE BASIN N11M, RN11OS, and RN11NW
              * Mariposa GrANDe AND 95st AVE
              *

1047          KK   CN11M
1048          HC       3
              *
              * *** DIVERSION DN11M *********************************************************
              * DIVERSION MAIN 95th AVE(SOUTH), SPLIT (WEST)
              *

1049          KK   DN11M
1050          DT   N11MI
1051          DI       0       1      40      80     100     300     600    1200    2200
1052          DQ       0     .25      10      20      25      75     150     184     184
              *
              * ROUTE RN11MS IS 2689 FT WITH A SLOPE OF 0.0071
              * CROSS SECTION IS A SMALL ROAD WITH HOMES TO ONE SIDE
              * ALONG 95st AVE
              * ROUTE FLOW TO PINNACLE PEAK (CN11J) FROM Mariposa GrANDe (CN11M)
              *

1053          KK  RN11MS
1054          RS       7    FLOW       0
1055          RC    0.05    0.03    0.05    2689  0.0071
1056          RX       0       1      50      51      73      74     124     524
1057          RY    9.25    1.25    0.25       0       0    0.25    1.25    3.25
              *

1058          KK    N11J   BASIN
1059          KM  SUB-BASIN N11J
1060          BA   0.244
```

```
LINE  ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1061  LG    0.30    0.25    4.10    0.51      13
1062  UC   1.122   0.817
1063  UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
1064  UA     100
      *
      * *** STORAGE ROUTING LN11J ***********************************************
      * *** SMALL SUBDIVISION STORAGE (ACCOUNTED) ******************************
      *
1065  KK   LN11J
1066  DT  LN11JD     1.8
1067  DI       0     100    1000   10000
1068  DQ       0     100    1000   10000
      *
      * COMBINE N11J AND RN11KW
      * Pinnacle Peak AND 95st AVE
      *
1069  KK   CN11J
1070  HC       2
      *
      * Existing Condition 100% to South
      *
1071  KK   DN11J
1072  DT   N11JI
1073  DI       0      10     100    1000    5000
1074  DQ       0      10     100    1000    5000
      *
      * ROUTE RN11JW IS 1080 FT WITH A SLOPE OF .0019
      * CROSS SECTION IS THE NEW CHANNEL ALONG PINNACLE PEAK ROAD
      *
      * ROUTE FLOW TO CX4 FROM CN11J
      *
1075  KK  RN11JW
1076  RS       1    FLOW       0
1077  RC     .04    0.04     .04    1080   .0019
1078  RX       0     100     140     160     200     300     400     500
1079  RY      10       9       0       0       9      10      11      12
      *
      * RECOVER DIVERTED FLOW FROM CN11M
      *
1080  KK  DRN11M
1081  DR   N11MI
      *
      * ROUTE RN11MW IS 3871 FT WITH A SLOPE OF .0046
      * CROSS SECTION IS A ROAD WITH HOMES TO THE WEST SIDE
      * ROUTE FLOW TO CX4 FROM CN11M
      *
1082  KK  RN11MW
1083  RS      15    FLOW       0
1084  RC    0.05    0.04     .05    3871   .0046
1085  RX       0       1      50      51      76      77     102     602
1086  RY      10       2       1    0.75    0.75       1       2     3.5
      *
      * *** COMBINE  CN11J AND CN11M ************************************************
      *
```



```
LINE  ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1087  KK      CX4
1088  HC        2
      *
      * ROUTE RX4 IS 2164 FT WITH A SLOPE OF .0023
      * CROSS SECTION IS THE NEW CHANNEL ALONG PINNACLE PEAK ROAD
      * *** ROUTE FLOW TO CA09O FROM CX4  ****************************
      *
1089  KK      RX4
1090  RS        6    FLOW      -1
1091  RC     .04    0.04     .04    2164  0.0023
1092  RX       0     100     140     160     200     300     400     500
1093  RY      10       9       0       0       9      10      11      12
      *
1094  KK    A09O   BASIN
1095  KM  SUB-BASIN A09O
1096  BA   0.194
1097  LG    0.32    0.29    4.40    0.41       6
1098  UC   1.263   1.308
1099  UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
1100  UA     100
      *
1101  KK   SA09O STORAGE
1102  KM  Online Detention Basin, 28.5 ac-ft.
1103  RS       1    STOR       0
1104  SV       0     9.0    15.0    21.0    28.5    38.0
1105  SE       0       2       3       4       5       6
1106  SL       0   7.065    0.62     0.5
1107  SS       5     100     2.7     1.5
      *
      * RECOVER DIVERTED FLOW FROM A09RI
      *
1108  KK  BA09RI
1109  DR   A09RI
      *
      * ROUTE RA09RS IS 3928 FT WITH A SLOPE OF .0074
      * CROSS SECTION IS A HIGHWAY
      * ROUTE FLOW TO CA09O FROM CA09R
      *
1110  KK  RA09RS
1111  RS      12    FLOW       0
1112  RC    0.05    0.04    0.05    3928   .0074
1113  RX       0     100     200     225     250     275     375     475
1114  RY       6       5       4       3       3       4       5       6
      *
      * *** COMBINE  CX4, RA09RS, AND A09O *******************************************
      *
```



```
LINE  ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1115  KK   CA09O
1116  HC       3
      *
```

```
                * Existing Condition: All Flow to South
                *
1117            KK   DA09O
1118            DT   A09OI
1119            DI       0     100    1000    5000
1120            DQ       0     100    1000    5000
                *
                *
                * ROUTE RA09OW IS 1076 FT WITH A SLOPE OF .0019
                * CROSS SECTION IS THE NEW CHANNEL ALONG PINNACLE PEAK ROAD
                * *** ROUTE FLOW TO CA09P FROM CA09O  **************************
                *
1121            KK  RA09OW
1122            RS       1    FLOW       0
1123            RC     .04     .04     .04    1076  0.0019
1124            RX       0     100     140     160     200     300     400     500
1125            RY      10       9       0       0       9      10      11      12
                *
1126            KK    A09P   BASIN
1127            KM  SUB-BASIN A09P
1128            BA   0.187
1129            LG    0.32    0.29    4.65    0.34       6
1130            UC   0.981   0.716
1131            UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
1132            UA     100
                *
1133            KK   SA09P STORAGE
1134            KM  Online Detention Basin, 25.2 ac-ft.
1135            RS       1    STOR       0
1136            SV       0     7.0    13.0    19.0    25.2    33.0
1137            SE       0       2       3       4       5       6
1138            SL       0   7.065    0.62     0.5
1139            SS       5     100     2.7     1.5
                *
                * *** COMBINE  CA09O AND A09P ***************************************************
                *
1140            KK   CA09P
1141            HC       2
                *
                * ROUTE RA09P IS 884 FT WITH A SLOPE OF .0136
                * CROSS SECTION IS THE NEW CHANNEL ALONG PINNACLE PEAK ROAD
                * *** ROUTE FLOW TO CA09Q FROM CA09P  **************************
                *
1                                       HEC-1 INPUT                                     PAGE 35

LINE            ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1142            KK   RA09P
1143            RS       2    FLOW       0
1144            RC     .04     .04     .04     884  0.0136
1145            RX       0     100     140     160     200     300     400     500
1146            RY      10       9       0       0       9      10      11      12
                *
                * Retrieve Diverted Flow of A09QAI
                *
1147            KK  BA09QA
1148            DR  A09QAI
```



```
                *
                * *** ROUTE FLOW TO CA09QB FROM CA09QA **************************
                *
1149            KK  RA09QB
1150            RS       8    FLOW       0
1151            RC    0.05     .06     .05    2700  0.0095
1152            RX       0     100     300     360     380     420     620     720
1153            RY      10       8       6       2       0       6       8      10
                *
1154            KK   A09QB   BASIN
1155            KM  SUB-BASIN A09Q South Portion
1156            BA   0.144
1157            LG    0.30    0.25    4.15    0.44       5
1158            UC   0.857   0.625
1159            UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
1160            UA     100
                *
                * *** COMBINE Flows of A09QA,A09QB  and RA09P  *********************************
                *
1161            KK   CA09Q
1162            HC       3
                *
                * Existing Condition:All Flow to South
                *
1163            KK   DA09Q
1164            DT   A09QI
1165            DI       0      10     100     500    1000    5000
1166            DQ       0      10     100     500    1000    5000
                *
                * ROUTE RA09QW IS 2468 FT WITH A SLOPE OF 0.0158
                * CROSS SECTION IS A MEDIUM CHANNEL
                * *** ROUTE CA09Q TO CA10A *************************************************
                *
1                                       HEC-1 INPUT                                     PAGE 36

LINE            ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1167            KK  RA09QW
1168            RS       1    FLOW       0
1169            RC     .05     .05     .05    2468  0.0158
1170            RX       0     100     140     160     200     300     400     500
1171            RY      10       9       0       0       9      10      11      12
                *
1172            KK    A10A   BASIN
1173            KM  SUB-BASIN A10A
1174            BA   0.189
1175            LG    0.33    0.32    5.30    0.24       2
1176            UC   0.714   0.466
1177            UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
1178            UA     100
                *
1179            KK   CA10A
1180            HC       2
                *
                * ROUTE RA10A IS 2831 FT WITH A SLOPE OF 0.0148
                * CROSS SECTION IS THE NEW CHANNEL ALONG PINNACLE PEAK ROAD
                *
```

```
1181          KK   RA10A
1182          RS       2    FLOW       0
1183          RC    0.05    0.05    0.05    1553     .03
1184          RX       0     100     140     170     210     310     410     510
1185          RY      10       9       0       0       9      10      11      12
              *

1186          KK    A99X   BASIN
1187          KM  SUB-BASIN A99X
1188          BA   0.264
1189          LG    0.21    0.28    4.20    0.53      39
1190          UC   0.527   0.261
1191          UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
1192          UA     100
              *

1193          KK   CA99X
1194          HC       2
              *
              * Dummy Combination at AFR and Pinnacle Peak Rd.
              *

1195          KK    AFR2
1196          HC       2
              *
              * Retrieve Diverted Flow of A09OI
              *
```



```
              LINE      ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1197          KK  BA09OI
1198          DR   A09OI
              *
              * ROUTE RA09OS IS 5602 FT WITH A SLOPE OF .0062
              * CROSS SECTION IS A RURAL ROAD WITH A DITCH RIGHT
              * *** ROUTE FLOW TO CX7 FROM CA09O  ****************************
              *

1199          KK  RA09OS
1200          RS       8    FLOW       0
1201          RC     .03     .03     .03    5602   .0062
1202          RX       0     200     220   227.5     235     255     300     460
1203          RY       4       2       0       0       2     2.5       3       4
              *

1204          KK    A09K   BASIN
1205          KM  SUB-BASIN A09K
1206          BA   0.410
1207          LG    0.34    0.34    4.40    0.39       2
1208          UC   1.156   0.791
1209          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
1210          UA     100
              *

1211          KK   DA09K
1212          KM  DIVERSION DA09K
1213          KM  DIVERSION SPLITS FLOW WITHIN SUB-BASIN A09K BASED ON TOPOGRAPHICAL SPLIT
1214          KM  A PORTION OF THE FLOW IS DIRECTED WEST TO LAKE PLEASANT PARKWAY
1215          KM  THE REMAINDER IS DIRECTED TO N11FA
1216          DT   A09KI
1217          DI       0     100     200     300     400     500     600     700    2000
```



```
1218          DQ       0      73     146     219     292     365     438     511    1460
              *

1219          KK     CX7
1220          KM  COMBINE Flows from North and East
1221          HC       2
              *

1222          KK    RX7S
1223          KM  ROUTE FLOW SOUTH TO CX8 FROM CX7
1224          KM  CROSS SECTION IS A PROPOSED TRAPEZOIDAL CHANNEL DESIGNED WITH
1225          KM  6:1 SIDE SLOPES ON THE LEFT BANK AND 3:1 SIDE SLOPES ON THE RIGHT BANK
1226          KM  ADJACENT TO LAKE PLEASANT PARKWAY ON THE WEST SIDE
1227          RS       5    FLOW       0
1228          RC     .03     .03     .03    2800     .002
1229          RX       0       3       9      15      35      41      47      50
1230          RY       5       4       2       0       0       2       4       5
              *
              * North Portion of N11N
              *
```



```
              LINE      ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1231          KK   N11NA   BASIN
1232          KM  UPPER PART OF SUBBASIN N11N
1233          BA   0.022
1234          LG    0.35    0.35    4.00    0.47      29
1235          UC   0.229   0.146
1236          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
1237          UA     100
              *

1238          KK  RN11NA
1239          RS      13    FLOW       0
1240          RC    0.05    0.04     .05    3500  0.0083
1241          RX       0       1      51      52      82      83     108     608
1242          RY    9.25    1.25    0.25       0       0    0.25    1.25    3.75
              *

1243          KK   N11NC   BASIN
1244          KM  East PART OF SUBBASIN N11N
1245          BA   0.171
1246          LG    0.31    0.29    4.20    0.46       7
1247          UC   0.608   0.382
1248          UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
1249          UA     100
              *

1250          KK  CN11NC
1251          HC       2
              *

1252          KK  DN11NC
1253          KM  DIVERT FLOW 10-YEAR RUNOFF (149 cfs) to East
1254          DT   N11NP
1255          DI       0     149    2000
1256          DQ       0     149     149
              *

1257          KK  RN11NC
1258          KM  ROUTE N11NC to South
1259          RS       5    FLOW      -1
```

```
1260          RC    0.05    0.04     .05    1600  0.0089
1261          RX       0      10      20      30      70      80      90     100
1262          RY       3       2       1       0       0       1       2       3
              *
1263          KK   N11ND   BASIN
1264          KM  LOWER PART OF SUBBASIN N11N
1265          BA   0.053
1266          LG    0.29    0.25    4.60    0.36      12
1267          UC   0.748   0.687
1268          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
1269          UA     100
              *
```



```
              LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1270          KK    N11K   BASIN
1271          KM  SUB-BASIN N11K
1272          BA   0.167
1273          LG    0.30    0.25    4.20    0.46       9
1274          UC   1.030   0.825
1275          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
1276          UA     100
              *
1277          KK   CN11K
1278          KM  COMBINE N11K, RN11NC AND N11ND AT 91ST AVENUE AND PINNACLE PEAK
1279          HC       3
              *
              * Divert 10-Year Flow (55 cfs) into SD to East

1280          KK  DN11KS
1281          DT   N11KP
1282          DI       0      55     500    2000
1283          DQ       0      55      55      55
              *
1284          KK   RN11K
1285          RS      15    FLOW       0
1286          RC     .04    0.04     .04    5178   .0062
1287          RX       0     200     230     260     280     310     340     540
1288          RY      10       8       7       0       0       7       8      10
              *
              * Initial flow goes to west and excess flow splits to southeast
              * DIVERSION HAS BEEN MODIFIED FROM ORIGINAL ENTELLUS STUDY
              * PER CITY OF PEORIA COMMENTS (1/18/05)
              *
1289          KK     DX5
1290          DT     X5I
1291          DI       0      10     100     200     300     400     500    1000    2000
1292          DQ       0       0       0      94     154     249     344     844    1844
              *
              * ROUTE RX5W IS 1292 FT WITH A SLOPE OF 0.0008
              * CROSS SECTION IS DIRT ROAD
              * WEST ALONG DEER VALLEY RD
              * ROUTE FLOW FROM 91st AVE. (CN11H) TO WEST OF 91st AVE (CX5)
              *
1293          KK    RX5W
1294          RS      11    FLOW       0
1295          RC    0.05   0.045    0.05    1292   .0008
```



```
1296          RX       0     200     225     250     270     295     320     520
1297          RY    4.25    2.25    1.25       0       0    1.25    2.25    4.25
              *
```



```
              LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1298          KK    N11H   BASIN
1299          KM  SUB-BASIN N11H
1300          BA   0.419
1301          LG    0.35    0.35    4.50    0.36       0
1302          UC   1.162   0.741
1303          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
1304          UA     100
              *
              * COMBINE RX5W AND BASIN N11H
              *
1305          KK   CN11H
1306          HC       2
              *
              * NEW ALTERNATIVE CHANNEL ACROSS STATE LAND
              *
1307          KK   RN11H
1308          KM  ROUTE FLOW WEST TO CN11G FROM CN11H
1309          KM  CROSS SECTION IS A PROPOSED TRAPEZOIDAL CHANNEL DESIGNED WITH
1310          KM  3:1 SIDE SLOPES ON THE LEFT BANK AND 3:1 SIDE SLOPES ON THE RIGHT BANK
1311          KM  ADJACENT TO DEAR VALLEY ROAD ON THE NORTH SIDE
1312          RS       7    FLOW       0
1313          RC     .03     .03     .03    3300    .001
1314          RX       0       3      12      18      38      44      53      56
1315          RY       6       5       2       0       0       2       5       6
              *
              * RECOVER DIVERTED FLOW FROM N11J                                        G
              *
1316          KK  BN11JI
1317          DR   N11JI
              *
              * ROUTE RN11JS IS 5670 FT WITH A SLOPE OF 0.0062
              * CROSS SECTION IS A SMALL NATURAL WASH
              * ALONG NATURAL WASH
              * ROUTE FLOW TO DEER VALLEY RD. (CN11G) FROM PINNACLE PEAK (CN11J)
              *
1318          KK  RN11JS
1319          RS      12    FLOW       0
1320          RC    0.05    0.06    0.05    5670  0.0062
1321          RX       0     350     450     480     482     510     610     910
1322          RY       7       6       5       1       0       5       6       7
              *
1323          KK    N11G   BASIN
1324          KM  SUB-BASIN N11G
1325          BA   0.524
1326          LG    0.35    0.35    4.35    0.40       0
1327          UC   1.170   0.667
1328          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
1329          UA     100
              *
              * COMBINE  RN11JS, RN11H AND N11G AT 98TH AVE
              *
```

```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9.....10

1330          KK   CN11G
1331          HC       3
              *
1332          KK   RN11G
1333          KM  ROUTE FLOW SOUTH TO CN11FB FROM CN11G
1334          KM  CROSS SECTION IS A PROPOSED TRAPEZOIDAL CHANNEL DESIGNED WITH
1335          KM  6:1 SIDE SLOPES ON THE LEFT BANK AND 3:1 SIDE SLOPES ON THE RIGHT BANK
1336          KM  ADJACENT TO 98TH AVE ON THE WEST SIDE
1337          RS       4    FLOW       0
1338          RC     .03     .03     .03    2500    .002
1339          RX       0      12      24      36      62      68      72      80
1340          RY       6       4       2       0       0       2       4       6
              *
1341          KK   N11DA   BASIN
1342          KM  SUB-BASIN N11DA CREATED BY CVL 7/04
1343          BA   0.256
1344          LG    0.25    0.25    4.60    0.39      30
1345          UC   0.998   0.672
1346          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
1347          UA     100
              *
              * DOVE VALLEY RANCH RESIDENTIAL DEVELOPMENT STORAGE (ACCOUNTED) *******
              * STORAGE MODIFIED PER CITY OF PEORIA TO DISCHARGE UP TO 200CFS WEST
              * TOTAL DETENTION/RETENTION VOLUME = 18 AC-FT, 10 AC-FT MODELED AS RETENTION
              * 8 AC-FT MODELED AS ON-LINE DETENTION BASIN ON NEC OF RGL & 95TH
              *
1348          KK  LN11DA
1349          DT  LDAOUT      8.0
1350          DI       0     100    1000   10000
1351          DQ       0     100    1000   10000
              *
1352          KK  SN11DA
1353          KM  2-8'x3' BOX CULVERTS TO TAKE FLOW TO WEST
1354          KM  THE WEST + EAST DETENTION BASIN WERE COMBINED WITH 1-18"RCP TO SOUTH
1355          RS       1    STOR       0
1356          SV     0.0     .06    0.16    0.35    1.91    5.62   10.58   16.46
1357          SE    1257    1258    1259    1260    1261    1262    1263    1264
1358          SQ       0       5       9      50      84     113     140     205
              *
1359          KK  N11DAW
1360          KM  SPLIT THE FLOW BETWEEN BOX AND PIPE - Pipe Flow to South
1361          DT  D11DAS
1362          DI       0       5       9      50      84     113     140     205
1363          DQ       0       5       9      15      18      20      22      23
              *
```



```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9.....10

1364          KK  RN11DA
1365          KM  ROUTE FLOW WEST TO CN11FB FROM N11DA
1366          KM  CROSS SECTION IS A PROPOSED TRAPEZOIDAL CHANNEL DESIGNED WITH
1367          KM  6:1 SIDE SLOPES ON THE LEFT BANK AND 3:1 SIDE SLOPES ON THE RIGHT BANK
```



```
1368          KM  ADJACENT TO LAKE PLEASANT PARKWAY ON THE NORTH SIDE
1369          RS       5    FLOW       0
1370          RC     .03     .03     .03    2000    .001
1371          RX       0       6      18      30      35      41      47      50
1372          RY       5       4       2       0       0       2       4       5
              *
1373          KK   N11FB   BASIN
1374          KM  SUB-BASIN N11FB
1375          BA   0.121
1376          LG    0.24    0.26    4.40    0.45      30
1377          UC   0.945   0.910
1378          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
1379          UA     100
              *
1380          KK  LN11FB
1381          KM  STORAGE ROUTING LN11FB
1382          KM  PROPOSED RETENTION BASED ON THE 100-YEAR, 2-HOUR STORM VOLUME
1383          DT  LN1FBD     10.6
1384          DI       0     100    1000   10000
1385          DQ       0     100    1000   10000
              *
1386          KK  CN11FB
1387          KM  COMBINE LN11FB and RN11DA
1388          HC       2
              *
1389          KK  C98RGL
1390          KM  COMBINE CN11FB AND RN11G AT WEST 98TH AVE AND RGL
1391          HC       2
              *
1392          KK  RN11FB
1393          KM  ROUTE FLOW WEST TO CN11FA FROM CN11FB
1394          KM  CROSS SECTION IS A PROPOSED TRAPEZOIDAL CHANNEL DESIGNED WITH
1395          KM  6:1 SIDE SLOPES ON THE LEFT BANK AND 3:1 SIDE SLOPES ON THE RIGHT BANK
1396          KM  ADJACENT TO LAKE PLEASANT PARKWAY ON THE NORTH SIDE
1397          RS       2    FLOW       0
1398          RC     .03     .03     .03    1100    .001
1399          RX       0      12      24      36      62      68      72      80
1400          RY       8       4       2       0       0       2       4       8
              *
```



```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9.....10

1401          KK  DRA09K
1402          KM  DIVERSION RECOVER DA09K
1403          KM  RECOVER DIVERTED FLOW FROM A09K
1404          DR   A09KI
              *
1405          KK  RA09KS
1406          KM  ROUTE FLOW SOUTH TO CN11FA
1407          KM  CROSS SECTION IS A PROPOSED TRAPEZOIDAL CHANNEL DESIGNED WITH
1408          KM  6:1 SIDE SLOPES ON THE LEFT BANK AND 3:1 SIDE SLOPES ON THE RIGHT BANK
1409          KM  ADJACENT TO THE COMMERCIAL PROPERTY ON THE EAST SIDE
1410          RS       5    FLOW       0
1411          RC     .03     .03     .03    2700    .002
1412          RX       0      12      24      26      52      58      64      70
1413          RY       6       4       2       0       0       2       4       6
```

```
                *
1414            KK   N11FA   BASIN
1415            BA   0.180
1416            LG    0.22    0.26    4.40    0.46      34
1417            UC   0.925   0.755
1418            UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
1419            UA     100
                *
1420            KK  LN11FA
1421            KM  STORAGE ROUTING LN11FA
1422            KM  PROPOSED RETENTION BASED ON THE 100-YEAR, 2-HOUR STORM VOLUME
1423            DT  LN1FAD      7.7
1424            DI        0     100    1000   10000
1425            DQ        0     100    1000   10000
                *
1426            KK   A09GA   BASIN
1427            BA   0.074
1428            LG    0.10    0.25    4.35    0.56      80
1429            UC   0.346   0.202
1430            UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
1431            UA     100
                *
1432            KK  LA09GA
1433            KM  STORAGE ROUTING LA09GA
1434            KM  PROPOSED RETENTION BASED ON THE 100-YEAR, 2-HOUR STORM VOLUME
1435            DT  L09GAD      5.9
1436            DI        0     100    1000   10000
1437            DQ        0     100    1000   10000
                *
1                                       HEC-1 INPUT                                         PAGE 44

                LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1438            KK  CN11FA
1439            KM  COMBINE RA09KS,LN11FA,LA09GA AND RN11FB
1440            HC        4
                *
1441            KK  RN11FA
1442            KM  ROUTE FLOW WEST TO CA09G FROM CN11FA
1443            KM  CROSS SECTION IS A PROPOSED TRAPEZOIDAL CHANNEL DESIGNED WITH
1444            KM  6:1 SIDE SLOPES ON THE LEFT BANK AND 3:1 SIDE SLOPES ON THE RIGHT BANK
1445            KM  ADJACENT TO ROSE GARDEN LANE ON THE NORTH SIDE
1446            RS        2     FLOW        0
1447            RC      .03      .03      .03      800     .001
1448            RX        0        6       12       18       52       58       64       70
1449            RY        8        4        2        0        0        2        4        8
                *
1450            KK   A09GB   BASIN
1451            KM  SUB-BASIN A09GB
1452            BA   0.051
1453            LG    0.23    0.25    4.30    0.49      35
1454            UC   1.497   1.958
1455            UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
1456            UA     100
                *
1457            KK  LA09GB
```



```
1458            KM  STORAGE ROUTING LA09GB
1459            KM  PROPOSED RETENTION BASED ON THE 100-YEAR, 2-HOUR STORM VOLUME
1460            DT  L09GBD      2.8
1461            DI        0     100    1000   10000
1462            DQ        0     100    1000   10000
                *
1463            KK   CA09G
1464            KM  COMBINE CA09GA and A09GB
1465            HC        2
                *
                * DIVERSION TO SOUTH ALONG 101ST AVE, MAXIMUM 150 CFS PER CITY

1466            KK   DA09G
1467            DT   A09GI
1468            DI        0       50      100      300      750     1200     2000
1469            DQ        0       10       20       60      150      150      150
                *
1470            KK  RA09GW
1471            KM  ROUTE FLOW WEST TO CX8 FROM CA09G
1472            KM  CROSS SECTION IS A PROPOSED TRAPEZOIDAL CHANNEL DESIGNED WITH
1473            KM  6:1 SIDE SLOPES ON THE LEFT BANK AND 3:1 SIDE SLOPES ON THE RIGHT BANK
1474            KM  ADJACENT TO ROSE GARDEN LANE ON THE NORTH SIDE
1475            RS        1     FLOW        0
1476            RC      .03      .03      .03      900     .001
1477            RX        0        6       12       18       52       58       64       70
1478            RY        8        4        2        0        0        2        4        8
                *
                * *** COMBINE  RX7S AND RA09GW ***********************************************
                *
1                                       HEC-1 INPUT                                         PAGE 45

                LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1479            KK      CX8
1480            HC        2
                *
                * ROUTE RX8W IS 2300 FT WITH A SLOPE OF .001
                * CROSS SECTION IS THE NEW CHANNEL ALONG ROSE GARDEN LANE
                *
1481            KK    RX8W
1482            KM  ROUTE FLOW WEST TO CA09H1 FROM CX8
1483            KM  CROSS SECTION IS A PROPOSED TRAPEZOIDAL CHANNEL DESIGNED WITH
1484            KM  6:1 SIDE SLOPES ON THE LEFT BANK AND 3:1 SIDE SLOPES ON THE RIGHT BANK
1485            KM  ADJACENT TO ROSE GARDEN LANE ON THE NORTH SIDE
1486            RS        4     FLOW        0
1487            RC      .03      .03      .03     2300     .001
1488            RX        0       12       24       36       62       68       74       80
1489            RY        8        4        2        0        0        2        4        8
                *
1490            KK    A09H   BASIN
1491            KM  SUB-BASIN A09H
1492            BA   0.237
1493            LG    0.24    0.25    4.55    0.41      31
1494            UC   1.196   1.050
1495            UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
1496            UA     100
                *
1497            KK   LA09H
```

```
1498          KM  STORAGE ROUTING LA09H
1499          KM  PROPOSED RETENTION BASED ON THE 100-YEAR, 2-HOUR STORM VOLUME
1500          DT  LA09HD    12.6
1501          DI       0     100    1000   10000
1502          DQ       0     100    1000   10000
              *
1503          KK  CA09H1
1504          KM  Combine flows from CX8 and A09H
1505          HC       2
              *
1506          KK    A09J   BASIN
1507          KM  SUB-BASIN A09J
1508          BA   0.168
1509          LG    0.25    0.25    4.35    0.46      30
1510          UC   0.956   0.839
1511          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
1512          UA     100
              *
              * *** STORAGE ROUTING LA09J ***********************************************
              * *** FUTURE DEVELOPMENT STORAGE (ACCOUNTED) ********************************
              *
```



```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1513          KK   LA09J
1514          DT  LA09JD     7.7
1515          DI       0     100    1000   10000
1516          DQ       0     100    1000   10000
              *
              * *** DIVERSION DA09J ***************************************************
              * *** DIVERTED  MAIN (SOUTH), DIVERTED (WEST)  ***************************
              * 100% Flows to South based on the report

1517          KK   DA09J
1518          DT   A09JI
1519          DI       0      10      30      50     100     500    1000    2000
1520          DQ       0       0       0       0       0       0       0       0
              *
              * *** ROUTE FLOW TO CA09H   *************************
              *

1521          KK  RA09JS
1522          RS      12    FLOW       0
1523          RC     .04     .04     .04    2800  .00350
1524          RX       0     100     200     225     245     270     370     470
1525          RY       8       7       6       0       0       6       7       8
              *

1526          KK   CA09H
1527          KM  COMBINE CA09H1 and RA09JS
1528          HC       2
              *
              * ROUTE FLOW TO CX10 FROM CA09H
              *

1529          KK   RA09H
1530          RS       1    FLOW       0
1531          RC     .03     .03     .03     850    .005
1532          RX     100     118     126     150     200     224     232     250
1533          RY      10       8       6       0       0       6       8      10
```



```
              *
              * *** RECOVER DIVERTED FLOW FROM A09QI*****************************************
              *

1534          KK  BA09QI
1535          DR   A09QI
              *
              * *** ROUTE RA09QS ***************************************************************
              *
              * ROUTE RA09QS IS 1655 FT WITH A SLOPE OF .0073
              * CROSS SECTION IS A MEDIUM NATURAL WASH
              * *** ROUTE FLOW TO CA09M FROM CA09Q  *************************
              *
```



```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1536          KK  RA09QS
1537          RS       6    FLOW       0
1538          RC    0.05     .06     .05    1655  0.0073
1539          RX       0      50     250     350     360     420     620     720
1540          RY      10       8       6       2       0       6       8      10
              *

1541          KK    A09M   BASIN
1542          KM  SUB-BASIN A09M
1543          BA   0.249
1544          LG    0.28    0.28    4.45    0.42      22
1545          UC   0.935   0.728
1546          UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
1547          UA     100
              *
              * *** STORAGE ROUTING LA09M ***********************************************
              * *** IRONWOOD RESIDENTIAL DEVELOPMENT STORAGE (ACCOUNTED) *****************
              *

1548          KK   LA09M
1549          DT  LA09MD     6.9
1550          DI       0     100    1000   10000
1551          DQ       0     100    1000   10000
              *
              * *** COMBINE  CA09Q AND A09M ***************************************************
              *

1552          KK   CA09M
1553          HC       2
              *
              * ROUTE RA09M IS 1102 FT WITH A SLOPE OF .0064
              * CROSS SECTION IS A CHANNEL (MEASURED)
              * *** ROUTE FLOW TO CA09N FROM CA09M  *************************
              *

1554          KK   RA09M
1555          RS       2    FLOW       0
1556          RC    0.05    0.04     .05    1102  0.0064
1557          RX       0       1      21      41      51      71     101     102
1558          RY      10       4       0       4       5       6       6      10
              *

1559          KK    A09N   BASIN
1560          KM  SUB-BASIN A09N
1561          BA   0.110
1562          LG    0.27    0.27    5.80    0.22      25
```

```
1563          UC   0.834   0.679
1564          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
1565          UA     100
              *
              * *** COMBINE BASIN A09N AND ROUTE RA09M  **********************************
              *
```



```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1566          KK   CA09N
1567          HC       2
              *
              * *** STORAGE ROUTING LA09N ***************************************************
              * *** ALTA VISTA RESIDENTIAL DEVELOPMENT STORAGE (ACCOUNTED) ***************
              *

1568          KK   LA09N
1569          RS       1    STOR       0
1570          SV     0.0     2.30    4.67    7.11    9.63   12.23   14.90   17.65   20.48
1571          SE  1250.0  1250.5  1251.0  1251.5  1252.0  1252.5  1253.0  1253.5  1254.0
1572          SQ       0     9.3    31.4    66.0   114.1   160.1   226.2   208.5   475.0
              *
              * CROSS SECTION IS A CHANNEL (MEASURED)
              * *** ROUTE FLOW TO CA09L FROM CA09N  ***************************
              *

1573          KK   RA09N
1574          RS      15    FLOW       0
1575          RC   0.025    0.02   0.025    2382  0.0040
1576          RX       0       1       7      11      17      21      29     100
1577          RY       5       4       2       0       0       2     3.0       5
              *
              * *** RECOVER DIVERTED FLOW FROM CA09J ***************************************
              *

1578          KK  DRA09J
1579          DR   A09JI
              *
              * ROUTE RA09JW IS 1749 FT WITH A SLOPE OF .0063
              * CROSS SECTION IS A CHANNEL ON THE WEST SIDE OF A ROAD
              * *** ROUTE FLOW TO CA09L FROM CA09J  ***************************
              *

1580          KK  RA09JW
1581          RS       1    FLOW       0
1582          RC    0.04    0.03    0.04    1749  0.0063
1583          RX       0       1      21      31      41      51      81     281
1584          RY      14       6       6       0       0       6       6       8
              *

1585          KK    A09L   BASIN
1586          KM  SUB-BASIN A09L
1587          BA   0.136
1588          LG    0.23    0.26    4.90    0.32      26
1589          UC   0.978   0.827
1590          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
1591          UA     100
              *
              * *** COMBINE BASIN A09L, RA09N, AND RA09JW  **********************************
              *
```



```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1592          KK   CA09L
1593          HC       3
              *
              * LA09L is an Onlin Detention Basin, NOT Retention Basin
              *

1594          KK   LA09L
1595          RS       1    STOR       0
1596          SV     0.0    0.57    1.17    1.82    2.50    3.22    3.98    4.78    5.63    6.52
1597          SE     0.0     0.5     1.0     1.5     2.0     2.5     3.0     3.5     4.0     5.5
1598          SQ       0    10.0    30.0    52.0    80.0   110.0   140.0   155.0   180.0     600
              *
              * ROUTE RA09LS IS 2615 FT WITH A SLOPE OF .0019
              * CROSS SECTION IS A NEW CHANNEL ALONG THE EAST SIDE OF THE ROAD
              * *** ROUTE FLOW TO CA99W FROM CA09L  ***************************
              *

1599          KK  RA09LS
1600          RS       3    FLOW       0
1601          RC   0.025     .02   0.025    2615  0.0040
1602          RX       0       1       6      12      19      25      29     100
1603          RY       6       5       4       0       0       4       5       6
              *

1604          KK   A09IH   BASIN
1605          KM   Subbasin for Rose Garden and Desert Star Areas
1606          KM   SUB-BASIN A09IH
1607          BA   0.091
1608          LG    0.25    0.26    4.60    0.39      27
1609          UC   0.770   0.750
1610          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
1611          UA     100
              *
              * *** COMBINE BASIN A09N AND ROUTE RA09M  **********************************
              *

1612          KK  CA09IH
1613          HC       2
              *
              * Onlin Detention Basin (Box Culvert Outlet)
              *

1614          KK  LA09IH
1615          RS       1    STOR       0
1616          SV     0.0    1.12    2.29    3.52    4.79    6.12    7.51    8.95   10.45   12.01
1617          SE  1237.0  1237.5  1238.0  1238.5  1239.0  1239.5  1240.0  1240.5  1241.0  1242.5
1618          SQ       0    10.0    30.0    52.0    80.0   112.0   145.0   183.0   220.0   600.0
              *
```



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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1619          KK    A09I   BASIN
1620          KM  SUB-BASIN A09I
1621          BA   0.126
1622          LG    0.25    0.20    6.60    0.17      29
1623          UC   0.977   0.913
1624          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
1625          UA     100
              *
```

```
                * *** ROSE GARDEN RESIDENTIAL DEVELOPMENT STORAGE (ACCOUNTED)  ************
                *
1626            KK   LA09I
1627            DT  LA09ID     5.4
1628            DI       0     100    1000   10000
1629            DQ       0     100    1000   10000
                *
                * *** COMBINE  RA09IW AND RA09LS ************************************************
                *
1630            KK    CX10
1631            HC       3
                *
                * ROUTE FLOW TO CA09F FROM CA09G
                *
1632            KK    RX10
1633            RS       5    FLOW       0
1634            RC    0.03    0.03    0.03    4470    .005
1635            RX     100     118     126     150     200     224     232     250
1636            RY      10       8       6       0       0       6       8      10
                *
1637            KK    A99V   BASIN
1638            KM  SUB-BASIN A99V
1639            BA   0.207
1640            LG    0.35    0.40    6.00    0.18       1
1641            UC   0.824   0.601
1642            UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
1643            UA     100
                *
                * *** COMBINE BASIN A99V AND RX11W  ************************************
                *
1644            KK   CA99V
1645            HC       2
                *
1646            KK     A10   BASIN
1647            KM  SUB-BASIN A10
1648            BA   0.214
1649            LG    0.34    0.34    4.65    0.33       2
1650            UC   0.639   0.311
1651            UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
1652            UA     100
                *
                *
```



```
LINE            ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1653            KK    A99W   BASIN
1654            KM  SUB-BASIN A99W
1655            BA   0.215
1656            LG    0.27    0.29    6.40    0.17      20
1657            UC   1.104   0.685
1658            UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
1659            UA     100
                *
                * *** STORAGE ROUTING LA99W ****************************************************
                * *** DEER VALLEY RANCH RESIDENTIAL DEVELOPMENT STORAGE (ACCOUNTED) *******
                *
```



```
1660            KK   LA99W
1661            DT  LA99WD     6.7
1662            DI       0     100    1000   10000
1663            DQ       0     100    1000   10000
                *
                * Dummy Combination at AFR and Rose Garden Lane.
                *
1664            KK    AFR3
1665            HC       4
                *
                * *** RECOVER DIVERTED FLOW FROM CA09G ***********************************
                *
1666            KK  DRA09G
1667            DR   A09GI
                *
                * ROUTE RA09GS IS 3990 FT WITH A SLOPE OF .0015
                * CROSS SECTION IS A MEDIUM ROADSIDE CHANNEL
                * ROUTE FLOW TO CA09F FROM CA09G
                *
1668            KK  RA09GS
1669            RS      13    FLOW       0
1670            RC    0.04    0.04    0.04    3990   .0015
1671            RX       0     200     220     240     260     280     320     520
1672            RY       6       4       0       0       3       4       4       6
                *
1673            KK    A09F   BASIN
1674            KM  SUB-BASIN A09F
1675            BA   0.365
1676            LG    0.21    0.27    5.30    0.28      35
1677            UC   1.036   0.628
1678            UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
1679            UA     100
                *
                * *** STORAGE ROUTING LA09F ****************************************************
                * *** PARKRIDGE ESTATES RESIDENTIAL DEVELOPMENT (ACCOUNTED) ***************
                *
```



```
LINE            ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1680            KK   LA09F
1681            DT  LA09FD    13.6
1682            DI       0     100    1000   10000
1683            DQ       0     100    1000   10000
                *
                * *** COMBINE  CA09G, CA09H, AND A09F ***************************************
                *
1684            KK   CA09F
1685            HC       2
                *
                * *** DIVERTED  MAIN (WEST), DIVERTED (SOUTH)  ****************************
                * BEARDSLEY ROAD CHANNEL TO THE WEST. EXCESS FLOW TO THE SOUTH.
                *
1686            KK   DA09F
1687            DT   A09FI
1688            DI       0      10      30      50     100     500     700    1000
```

```
1689          DQ       0      .2      .3      .4      .5      80     250     500
              *
              * ************************************************************************
              * *********************   BEARDSLEY RD DRAINAGE   ***************************
              * ************************************************************************
              *
              * ROUTE RA09FW IS 3031 FT WITH A SLOPE OF .002
              * CROSS SECTION IS BEARDSLEY CHANNEL (MEASURED)
              *
              * *** ROUTE FLOW TO CA09E FROM CA09F  **************************
              *
1690          KK  RA09FW
1691          RS       9    FLOW       0
1692          RC     .03     .025     .03    3031   0.002
1693          RX       0        1      16      36      51     123     148     648
1694          RY      16        8       0       0       8       8       9      11
              *
1695          KK    A09E   BASIN
1696          KM  SUB-BASIN A09E
1697          BA   0.147
1698          LG    0.22    0.24    4.70    0.35      34
1699          UC   0.968   0.908
1700          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
1701          UA     100
              *
              * *** STORAGE ROUTING LA09E ***************************************************
              * *** VENTANA LAKES RESIDENTIAL DEVELOPMENT (ACCOUNTED) *********************
              *
1                                        HEC-1 INPUT                                                PAGE 53

              LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1702          KK   LA09E
1703          DT  LA09ED     8.2
1704          DI       0     100    1000   10000
1705          DQ       0     100    1000   10000
              *
              * *** COMBINE LA09E AND A99E ***********************************************
              *
1706          KK   CA09E
1707          HC       2
              *
              * ROUTE RA09E IS 2700 FT WITH A SLOPE OF .0041
              * CROSS SECTION IS BEARDSLEY CHANNEL (MEASURED)
              *
              * ROUTE FLOW TO CA09C FROM CA09E
              *
1708          KK   RA09E
1709          RS       3    FLOW       0
1710          RC    0.04    0.03    0.04    2700   .0041
1711          RX       0        1      16      36      51     123     148     648
1712          RY      16        8       0       0       8       8       9      11
              *
1713          KK    A09D   BASIN
1714          KM  SUB-BASIN A09D
1715          BA   0.254
1716          LG    0.23    0.20    6.60    0.16      31
1717          UC   0.604   0.239
```



```
1718          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
1719          UA     100
              *
              * *** STORAGE ROUTING LA09D ***************************************************
              * *** VENTANA LAKES RESIDENTIAL DEVELOPMENT (ACCOUNTED) *********************
              *
1720          KK   LA09D
1721          DT  LA09DD    15.3
1722          DI       0     100    1000   10000
1723          DQ       0     100    1000   10000
              *
              * *** COMBINE LA09D, AND RA09EW *************************
              *
1724          KK  CA09C*
1725          HC       2
              *
              * ROUTE RA09C* IS 841 FT WITH A SLOPE OF .0083
              * CROSS SECTION IS BEARDSLEY ROAD CHANNEL (MEASURED)
              * *** ROUTE FLOW TO CA09C FROM CA09C*   ****************************
              *
1                                        HEC-1 INPUT                                                PAGE 54

              LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1726          KK  RA09C*
1727          RS       1    FLOW       0
1728          RC    0.04    0.03    0.04     841   .0083
1729          RX       0       51      61      71      81     111     151     651
1730          RY       9        8       0       0       8       9       9      10
              *
1731          KK    A09C   BASIN
1732          KM  SUB-BASIN A09C
1733          BA   0.073
1734          LG    0.35    0.32    4.50    0.38       4
1735          UC   0.789   0.749
1736          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
1737          UA     100
              *
              * *** COMBINE BASIN A09C AND RA09C*   ***********************************
              *
1738          KK   CA09C
1739          HC       2
              *
              * ROUTE RA09C IS 1978 FT WITH A SLOPE OF .0056
              * CROSS SECTION IS BEARDSLEY CHANNEL (MEASURED)
              *
1740          KK   RA09C
1741          RS       3    FLOW      -1
1742          RC    0.04    0.04    0.04    1978  0.0056
1743          RX       0     100     120     130     150     180     205     705
1744          RY      14       8       0       0       8       8       9      10
              *
1745          KK    A09B   BASIN
1746          KM  SUB-BASIN A09B
1747          BA   0.041
1748          LG    0.12    0.25    4.10    0.68      71
1749          UC   0.268   0.175
```

```
1750          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
1751          UA     100
              *
              * ROUTE RA09B IS 2497 FT WITH A SLOPE OF .0012
              * CROSS SECTION IS A SMALL NATURAL CHANNEL
              * *** ROUTE FLOW TO CA09A FROM CA09B  **************************
              *
1752          KK   RA09B
1753          RS      14    FLOW       0
1754          RC    0.05     .06     .05    2497   .0012
1755          RX       0     350     450     480     482     510     610     910
1756          RY       7       6       5       1       0       5       6       7
              *
```



```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1757          KK    A09A   BASIN
1758          KM  SUB-BASIN A09A
1759          BA   0.084
1760          LG    0.29    0.15    3.74    0.80      38
1761          UC   1.036   0.950
1762          UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
1763          UA     100
              *
              * *** Combine  CA09C, A09B, AND A09A ******************************************
              *
1764          KK   CA09A
1765          HC       3
              *
              * THIS FLOW IS DIVERTED. THERE IS TWO 36" CMP THAT CARRIES
              * FLOW TO THE WEST, AND THE REST FLOWS SOUTH.
              *
1766          KK  DA09AO
1767          DT   A09AI
1768          DI       0      70     140     400     600     800    1000    3000    5000
1769          DQ       0     0.2     0.3     260     460     660     860    2860    4860
              *
              * ROUTE RA09AW IS 5898 FT WITH A SLOPE OF .0017
              * CROSS SECTION IS A LARGE NATURAL WASH
              * *** ROUTE THE DIVERTED FLOW TO THE WEST AND SOUTH TO CA09 ********************
              *
1770          KK  RA09AW
1771          RS      15    FLOW       0
1772          RC    0.05     .06     .05    5898  0.0017
1773          RX       0      50     250     310     360     420     620     720
1774          RY      10       8       6       0       0       6       8      10
              *
1775          KK    A99T   BASIN
1776          KM  SUB-BASIN A99T
1777          BA   0.030
1778          LG    0.20    0.30    2.79    1.39      42
1779          UC   0.262   0.074
1780          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
1781          UA     100
              *
              * *** STORAGE ROUTING LA99T ***************************************************
              * *** GRAVEL PIT STORAGE (ACCOUNTED) ******************************************
```



```
              *
1782          KK   LA99T
1783          DT  LA99TD    0.64
1784          DI       0     100    1000   10000
1785          DQ       0     100    1000   10000
              *
              * ROUTE RA99T IS 886 FT WITH A SLOPE OF .0023
              * CROSS SECTION IS A MEDIUM NATURAL WASH
              * *** ROUTE FLOW TO CA09 FROM CA99T   **************************
              *
```



```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1786          KK   RA99T
1787          RS       5    FLOW       0
1788          RC    0.05     .06     .05     886  0.0023
1789          RX       0      50     250     350     360     420     620     720
1790          RY      10       8       6       2       0       6       8      10
              *
1791          KK     A09   BASIN
1792          KM  SUB-BASIN A09
1793          BA   0.176
1794          LG    0.24    0.31    3.58    0.68      22
1795          UC   0.750   0.320
1796          UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
1797          UA     100
              *
              * COMBINE RA99T, CA09, AND RA09AW
              *
1798          KK    CA09
1799          HC       3
              *
1800          KK    A99U   BASIN
1801          KM  SUB-BASIN A99U
1802          BA   0.070
1803          LG    0.25    0.30    3.71    0.66      29
1804          UC   0.605   0.615
1805          UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
1806          UA     100
              *
              * COMBINE CA09, A99U, AND AFR3 at AFR & South of Beardsley Rd.
              *
1807          KK    AFR4
1808          HC       3
              *
1809          KK    A99S   BASIN
1810          KM  SUB-BASIN A99S
1811          BA   0.077
1812          LG    0.35    0.35    3.64    0.59       0
1813          UC   1.214   1.245
1814          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
1815          UA     100
              *
1816          KK    A08A   BASIN
1817          KM  SUB-BASIN A08A
```

```
1818          BA   0.138
1819          LG    0.20    0.30    3.31    0.77      18
1820          UC   1.383   1.534
1821          UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
1822          UA     100
              *
              * ROUTE RA08A IS 1747 FT WITH A SLOPE OF .0057
              * CROSS SECTION IS A SMALL NATURAL WASH
              * *** ROUTE FLOW TO CA08 FROM CA08A  ***************************
              *
```



```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9.....10

1823          KK   RA08A
1824          RS       5    FLOW       0
1825          RC    0.05    0.05    0.05    1747  0.0057
1826          RX       0     350     450     480     482     510     610     910
1827          RY       7       6       5       1       0       5       6       7
              *
1828          KK    A99R   BASIN
1829          KM  SUB-BASIN A99R
1830          BA   0.037
1831          LG    0.31    0.31    3.55    0.66      12
1832          UC   0.546   0.328
1833          UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
1834          UA     100
              *
              * ROUTE RA99R IS 2159 FT WITH A SLOPE OF .0032
              * CROSS SECTION IS A SMALL NATURAL WASH
              * *** ROUTE FLOW TO CA08 FROM CA99R  ***************************
              *
1835          KK   RA99R
1836          RS       9    FLOW       0
1837          RC    0.05    0.05    0.05    2159   .0032
1838          RX       0     350     450     480     482     510     610     910
1839          RY       7       6       5       1       0       5       6       7
              *
1840          KK     A08   BASIN
1841          KM  SUB-BASIN A08
1842          BA   0.077
1843          LG    0.30    0.31    3.19    0.88      14
1844          UC   0.417   0.103
1845          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
1846          UA     100
              *
              * *** COMBINE A99S, A08, RA99R AND RA08A   ******************
              *
1847          KK    CA08
1848          HC       4
              *
              * *** COMBINE HYDROGRAPHS OF CA08 AND AFR4 at AFR and South of Union Hills Dr.
              *
1849          KK    AFR5
1850          HC       2
              *
              * KK  A07G   BASIN
              * KMSUB-BASIN A07G
```



```
              * BA 0.258
              * LG  0.24    0.16    7.60    0.11      32
              * UC 0.798   0.543
              * UA     0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97
              * UA   100
              *
```



```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9.....10

1851          KK  A07G.1   BASIN
1852          KM  SUB-BASIN A07G.1
1853          BA   0.233
1854          LG    0.24    0.15    8.00    0.10      33
1855          UC   0.619   0.433
1856          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
1857          UA     100
              *
              * *** STORAGE ROUTING LA07G ***************************************************
              * *** VENTANA LAKES RESIDENTIAL DEVELOPMENT (ACCOUNTED) ********************
              *
1858          KK   LA07G
1859          DT  LA07GD     12.9
1860          DI       0     100    1000   10000
1861          DQ       0     100    1000   10000
              *
              * ROUTE RA07G IS 2439 FT WITH A SLOPE OF .0012
              * CROSS SECTION IS 111TH AVE (MEASURED)
              * *** ROUTE FLOW FROM CA07G TO CA07E ***********************************
              *
1862          KK   RA07G
1863          RS       9    FLOW       0
1864          RC    0.04     .02    0.04    2439  0.0012
1865          RX       0       1      26      41      71      86     126     576
1866          RY      12       7       5       1       1       5       6       7
              *
              * KK  A07F   BASIN
              * KMSUB-BASIN A07F
              * BA 0.233
              * LG  0.21    0.27    4.90    0.32      26
              * UC 1.220   1.192
              * UA     0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95
              * UA   100
              *
              *
1867          KK  A07F.1   BASIN
1868          KM  SUB-BASIN A07F.1
1869          BA   0.133
1870          LG    0.25    0.25    4.80    0.35      30
1871          UC   1.064   1.410
1872          UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
1873          UA     100
              *
1874          KK  A07F.2   BASIN
1875          KM  SUB-BASIN A07F.2
1876          BA   0.074
1877          LG    0.14    0.32    4.70    0.29       8
1878          UC   0.800   1.170
1879          UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
```

```
1880          UA     100
              *
              * ROUTE RA07F IS 2619 FT WITH A SLOPE OF .0042
              * CROSS SECTION IS CHANNEL ALONG UNION HILLS RD (MEASURED)
              * *** ROUTE FLOW FROM CA07F TO CA07E ************************************
              *
              * KK RA07F
              * RS      5    FLOW       0
              * RC  0.03    0.02    0.03    2619  0.0042
              * RX      0       1      13      23      53      83     108     109
              * RY     14       6       0       0       6       6       7      15
              *
              * KK  A07E   BASIN
              * KMSUB-BASIN A07E
              * BA 0.227
              * LG  0.23    0.15    7.60    0.11      49
              * UC 0.696   0.433
              * UA      0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97
              * UA    100
              *
              *
1                                          HEC-1 INPUT                                          PAGE 59

              LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


1881          KK  A07E.8   BASIN
1882          KM  SUB-BASIN A07E.8
1883          BA   0.006
1884          LG    0.14    0.25    4.80    0.40      66
1885          UC   0.214   0.241
1886          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
1887          UA     100
              *
              * *** COMBINE BASINs A07E.8, A07F.1, AND A07F.2  ***************************
              *

1888          KK   CA07F
1889          HC       3
              *
              * ROUTE RA07F IS 800 FT WITH A SLOPE OF .0042
              * CROSS SECTION IS CHANNEL ALONG UNION HILLS RD (MEASURED)
              * *** ROUTE FLOW FROM CA07F TO CA07E.7 ***********************************
              *

1890          KK   RA07F
1891          RS       2    FLOW       0
1892          RC    0.03    0.02    0.03     800  0.0042
1893          RX       0       1      13      23      53      83     108     109
1894          RY      14       6       0       0       6       6       7      15
              *

1895          KK  A07E.7   BASIN
1896          KM  SUB-BASIN A07E.7
1897          BA   0.006
1898          LG    0.14    0.25    5.80    0.26      67
1899          UC   0.153   0.134
1900          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
1901          UA     100
              *
              * *** COMBINE BASIN A07E.7 AND RA07F  ****************************
              *

1902          KK  CA07E7
```



```
1903          HC       2
              *
              * ROUTE RA07E7 IS 1820 FT WITH A SLOPE OF .0042
              * CROSS SECTION IS CHANNEL ALONG UNION HILLS RD (MEASURED)
              * *** ROUTE FLOW FROM CA07E7 TO CA07E4 ***********************************
              *

1904          KK  RA07E7
1905          RS       4    FLOW       0
1906          RC    0.03    0.02    0.03    1820  0.0042
1907          RX       0       1      13      23      53      83     108     109
1908          RY      14       6       0       0       6       6       7      15
              *
1                                          HEC-1 INPUT                                          PAGE 60

              LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


1909          KK  A07G.2   BASIN
1910          KM  SUB-BASIN A07G.2
1911          BA   0.028
1912          LG    0.27    0.27    4.70    0.35      24
1913          UC   0.718   1.254
1914          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
1915          UA     100
              *
              * ROUTE RA07G2 IS 1400 FT WITH A SLOPE OF .0107
              * CROSS SECTION IS DINERO ROAD (MEASURED)
              * *** ROUTE FLOW FROM A07G2 TO CA07E3 ************************************
              *

1916          KK  RA07G2
1917          RS       6    FLOW       0
1918          RC    0.03    0.02    0.03    1400  0.0107
1919          RX       0      10      20      30      40      50      60      70
1920          RY       2       1       0       0       0       0       1       2
              *

1921          KK  A07E.3   BASIN
1922          KM  SUB-BASIN A07E.3
1923          BA   0.062
1924          LG    0.25    0.19    6.60    0.17      31
1925          UC   0.400   0.282
1926          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
1927          UA     100
              *
              * *** COMBINE BASIN A07E.3 AND RA07G2  ****************************
              *

1928          KK  CA07E3
1929          HC       2
              *

1930          KK  DI7E.3
1931          DT  DI7E.3     0.1
1932          DI       0     100    1000   10000
1933          DQ       0     100    1000   10000
              *
              * ROUTE RA07E3 IS 1650 FT WITH A SLOPE OF .0048
              * CROSS SECTION IS PARADISE RESORT STREET SECTION (MEASURED)
              * *** ROUTE FLOW FROM CA07E3 TO CA07E4 ************************************
              *

1934          KK  RA07E3
```

```
1935          RS      4    FLOW      0
1936          RC   0.03    0.02    0.03    1650  0.0048
1937          RX      0      10      20      30      40      50      60      70
1938          RY      2       1       0       0       0       0       1       2
              *
```



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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9.....10

1939          KK  A07E.2   BASIN
1940          KM  SUB-BASIN A07E.2
1941          BA   0.025
1942          LG    0.24    0.26    5.40    0.26      29
1943          UC   0.405   0.436
1944          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
1945          UA     100
              *

1946          KK  DI7E.2
1947          DT  DI7E.2    0.04
1948          DI       0     100    1000   10000
1949          DQ       0     100    1000   10000
              *
              * ROUTE RA07E2 IS 1700 FT WITH A SLOPE OF .0004
              * CROSS SECTION IS PARADISE RESORT STREET SECTION (MEASURED)
              * *** ROUTE FLOW FROM CA07E2 TO CA07E4 ************************************
              *

1950          KK  RA07E2
1951          RS      12    FLOW      0
1952          RC    0.03    0.02    0.03    1700  0.0004
1953          RX       0      10      20      30      40      50      60      70
1954          RY       2       1       0       0       0       0       1       2
              *

1955          KK  A07E.1   BASIN
1956          KM  SUB-BASIN A07E.1
1957          BA   0.037
1958          LG    0.25    0.15    8.00    0.10      60
1959          UC   0.518   0.539
1960          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
1961          UA     100
              *

1962          KK  DI7E.1
1963          DT  DI7E.1     1.4
1964          DI       0     100    1000   10000
1965          DQ       0     100    1000   10000
              *
              * ROUTE RA07E1 IS 1200 FT WITH A SLOPE OF .0025
              * CROSS SECTION IS PARADISE RESORT STREET SECTION (MEASURED)
              * *** ROUTE FLOW FROM CA07E1 TO CA07E4 ************************************
              *

1966          KK  RA07E1
1967          RS       5    FLOW      0
1968          RC    0.03    0.02    0.03    1200  0.0025
1969          RX       0      10      20      30      40      50      60      70
1970          RY       2       1       0       0       0       0       1       2
              *
```



```
1971          KK  A07E.6   BASIN
1972          KM  SUB-BASIN A07E.6
1973          BA   0.020
1974          LG    0.12    0.15    7.60    0.13      74
1975          UC   0.188   0.130
1976          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
1977          UA     100
              *

1978          KK  DI7E.6
1979          DT  DI7E.6    0.12
1980          DI       0     100    1000   10000
1981          DQ       0     100    1000   10000
              *
              * ROUTE RA07E6 IS 1400 FT WITH A SLOPE OF .0057
              * CROSS SECTION IS PARADISE RESORT STREET SECTION (MEASURED)
              * *** ROUTE FLOW FROM A07E6 TO CA07E5 *************************************
              *

1982          KK  RA07E6
1983          RS       4    FLOW      0
1984          RC    0.03    0.02    0.03    1400  0.0057
1985          RX       0      10      20      30      40      50      60      70
1986          RY       2       1       0       0       0       0       1       2
              *

1987          KK  A07E.5   BASIN
1988          KM  SUB-BASIN A07E.5
1989          BA   0.035
1990          LG    0.23    0.15    8.40    0.09      57
1991          UC   0.383   0.320
1992          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
1993          UA     100
              *
              * *** COMBINE BASIN A07E.5 AND RA07E6  ****************************
              *

1994          KK  CA07E5
1995          HC       2
              *
              * ROUTE RA07E5 IS 900 FT WITH A SLOPE OF .0033
              * CROSS SECTION IS PARADISE RESORT STREET SECTION (MEASURED)
              * *** ROUTE FLOW FROM CA07E5 TO CA07E4 ************************************
              *

1996          KK  RA07E5
1997          RS       2    FLOW      0
1998          RC    0.03    0.02    0.03     900  0.0033
1999          RX       0      10      20      30      40      50      60      70
2000          RY       2       1       0       0       0       0       1       2
              *
```



```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9.....10

2001          KK  A07E.4   BASIN
2002          KM  SUB-BASIN A07E.4
2003          BA   0.057
2004          LG    0.23    0.16    8.00    0.10      57
2005          UC   0.467   0.359
2006          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
```

```
2007          UA     100
              *
              * *** COMBINE BASIN A07E.4, RA07E1, RA07E2, RA07E3, AND RA07E5  *************
              *
2008          KK  CA07E4
2009          HC       5
              *
2010          KK  DI7E.4
2011          DT  DI7E.4     0.7
2012          DI       0     100    1000   10000
2013          DQ       0     100    1000   10000
              *
              * *** COMBINE CA07E4, AND RA07E7  *************
              *
2014          KK   CA07E
2015          HC       3
              *
2016          KK  DIA07E
2017          DT  DIA07E     2.8
2018          DI       0     100    1000   10000
2019          DQ       0     100    1000   10000
              *
              *
              * ROUTE RA07E IS 1771 FT WITH A SLOPE OF .004
              * CROSS SECTION IS CHANNEL ALONG UNION HILLS RD (MEASURED)
              * *** ROUTE FLOW FROM CA07E TO CA07C ************************************
              *
2020          KK   RA07E
2021          RS       4    FLOW       0
2022          RC    0.03    0.03    0.03    1771   0.004
2023          RX       0     100     112     122     134     154     189     689
2024          RY       8       6       0       0       6       7       7       9
              *
2025          KK    A07C   BASIN
2026          KM  SUB-BASIN A07C
2027          BA   0.175
2028          LG    0.34    0.31    4.90    0.30       5
2029          UC   0.923   0.648
2030          UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
2031          UA     100
              *
              * *** COMBINE BASIN A07C AND RA07E **************************************
              *
```



```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2032          KK   CA07C
2033          HC       2
              *
              * ROUTE RA07C IS 1051 FT WITH A SLOPE OF .0067
              * CROSS SECTION IS CHANNEL ALONG UNION HILLS RD (MEASURED)
              * *** ROUTE FLOW FROM CA07C TO CA07D ************************************
              *
2034          KK   RA07C
2035          RS       1    FLOW       0
```



```
2036          RC    0.03    0.03    0.03    1051  0.0067
2037          RX       0      50      62      72      84     104     139     640
2038          RY       9       6       0       0       6       7       7       9
              *
2039          KK    A07H   BASIN
2040          KM  SUB-BASIN A07H
2041          BA   0.093
2042          LG    0.23    0.21    4.70    0.44      47
2043          UC   0.423   0.211
2044          UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
2045          UA     100
              *
              * ROUTE RA07H IS 2386 FT WITH A SLOPE OF .0461
              * CROSS SECTION IS THE FARM FIELDS IN THE AGUA FRIA RIVER (MEASURED)
              * *** ROUTE FLOW FROM CA07H TO CA07D ************************************
              *
2046          KK   RA07H
2047          RS       3    FLOW       0
2048          RC    0.03    0.03    0.03    2386  0.0461
2049          RX       0      14     125     250     500     800    1000    1014
2050          RY       7       0       0       0       0       0       0       7
              *
              * *** RECOVER DIVERTED FLOW FROM A09AI ***************************************
              *
2051          KK  DA09AI
2052          DR   A09AI
              *
2053          KK  RA09AI
2054          RS      12    FLOW       0
2055          RC    0.03    0.03    0.03    3000   0.002
2056          RX       0      50     100     150     200     250     300     500
2057          RY       7       6       5       5       0       0       5       6
              *
2058          KK    A08B   BASIN
2059          KM  SUB-BASIN A08B
2060          BA   0.099
2061          LG    0.19    0.27    3.74    0.66      35
2062          UC   0.769   0.536
2063          UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
```



```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2064          UA     100
              *
              * *** COMBINE BASIN A09AI AND R80BE *************************************
              *
2065          KK   CA08B
2066          HC       2
              *
              * ROUTE RA08B IS 2925 FT WITH A SLOPE OF .001
              * CROSS SECTION IS 115TH AVE (MEASURED)
              * *** ROUTE FLOW FROM CA08B TO CA07D ************************************
              *
2067          KK   RA08B
2068          RS      12    FLOW       0
2069          RC    0.03    0.03    0.03    2925   0.001
```

```
2070          RX       0      50     100     150     200     250     300     500
2071          RY       7       6       5       5       0       0       5       6
              *

2072          KK    A07D   BASIN
2073          KM  SUB-BASIN A07D
2074          BA   0.229
2075          LG    0.49    0.02    4.10    0.67       1
2076          UC   1.500   1.715
2077          UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
2078          UA     100
              *
              * *** COMBINE BASIN A07D, RA08B, RA07H, AND RA07C **********************
              *

2079          KK   CA07D
2080          HC       4
              *
              * ROUTE RA07D IS 4828 FT WITH A SLOPE OF .0017
              * CROSS SECTION IS A CHANNEL AND 115TH AVE (MEASURED)
              *

2081          KK   RA07D
2082          RS      14    FLOW       0
2083          RC    0.03    0.03    0.03    4828  0.0017
2084          RX       0     100     112     147     159     179     214     580
2085          RY       8       6       0       0       6       7       7       9
              *
              * KK  A07B   BASIN
              * KM SUB-BASIN A07B
              * KM 6-HOUR RAINFALL, PATTERN NO. 1.15 WAS USED TO FIND TC & R FOR THIS BASIN
              * KM THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .992
              * KM    L = 1.58  Kb = .030  Adj. Slope =   41.0
              * BA  .649
              * LG  0.16    0.31    4.60    0.34      18
              * UC 0.808   0.539
              * UA     0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97
              * UA   100
              *
              *
              * *** STORAGE ROUTING LA07B ***************************************************
              * *** CANYON RIDGE WEST RESIDENTIAL DEVELOPMENT STORAGE (ACCOUNTED) *******
              * DDM     ***** Preserved *****
              * KK LA07B
              * DTLA07BD     19.2
              * DI       0     100    1000   10000
              * DQ       0     100    1000   10000
              *
              * ### BASIN A07B HAS BEEN FURTHER DIVIDED INTO BASINS A07B.1 - A07B.6 IN  ###
              * ### ORDER TO BETTER REPRESENT THE DRAINAGE PATTERNS ASSOCIATED WITH THE ###
              * ### CANYON RIDGE AND SUN CITY DEVELOPMENTS.                              ###
              *
```



```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2086          KK  A07B.1   BASIN
2087          BA   0.076
2088          LG    0.25    0.25    4.20    0.50      30
2089          UC   0.532   0.399
2090          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
2091          UA     100
              *
```



```
2092          KK  DA07B1
2093          DT  DA07B1     2.3
2094          DI       0     100    1000   10000
2095          DQ       0     100    1000   10000
              *

2096          KK  CA07B1
2097          KO                                21
2098          HC       2
              *
              * ROUTE RA07B1 IS 1800 FT WITH A SLOPE OF .0017
              * CROSS SECTION IS A CHANNEL AND 115TH AVE (MEASURED)
              *

2099          KK  RA07B1
2100          RS       8    FLOW       0
2101          RC    0.03    0.03    0.03    1800  0.0017
2102          RX       0     100     112     147     159     179     214     580
2103          RY       8       6       0       0       6       7       7       9
              *

2104          KK  A07B.2   BASIN
2105          BA   0.138
2106          LG    0.25    0.25    4.70    0.36      30
2107          UC   0.498   0.327
2108          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
2109          UA     100
              *

2110          KK  A07B.3   BASIN
2111          BA   0.185
2112          LG    0.25    0.25    4.80    0.35      30
2113          UC   0.634   0.404
2114          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
2115          UA     100
              *
              * ROUTE RA07B3 IS 3600 FT WITH A SLOPE OF .0075
              * CROSS SECTION IS THE EXISTING CHANNEL (MEASURED)
              *

2116          KK  RA07B3
2117          RS       2    FLOW       0
2118          RC    0.04    0.04    0.04    3600  0.0075
2119          RX     100     150     200     212     217     229     279     329
2120          RY       5     4.5       4       0       0       4     4.5       5
              *
```



```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2121          KK  CA07B2
2122          KO                                21
2123          HC       2
              *

2124          KK  RA07B2
2125          RS       2    FLOW       0
2126          RC    0.04    0.04    0.04     800  0.0075
2127          RX     100     150     200     212     217     229     279     329
2128          RY       5     4.5       4       0       0       4     4.5       5
              *
```

```
2129          KK  CA07B3
2130          KO                                    21
2131          HC       2
              *
              * ROUTE RA07B1 IS 1600 FT WITH A SLOPE OF .0025
              * CROSS SECTION IS A CHANNEL AND 115TH AVE (MEASURED)
              *

2132          KK  RA07B1
2133          RS       8    FLOW       0
2134          RC    0.03    0.03    0.03    1600  0.0025
2135          RX       0     100     112     147     159     179     214     580
2136          RY       8       6       0       0       6       7       7       9
              *

2137          KK  A07B.4   BASIN
2138          BA   0.053
2139          LG    0.25    0.25    4.30    0.48      45
2140          UC   0.396   0.262
2141          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
2142          UA     100
              *

2143          KK  DA07B4
2144          DT  DA07B4     2.1
2145          DI       0     100    1000   10000
2146          DQ       0     100    1000   10000
              *

2147          KK  CA07B4
2148          KO                                    21
2149          HC       2
              *
              * ROUTE RA07B4 IS 1285 FT WITH A SLOPE OF .0025
              * CROSS SECTION IS A CHANNEL AND 115TH AVE (MEASURED)
              *
```

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```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2150          KK  RA07B4
2151          RS       8    FLOW       0
2152          RC    0.03    0.03    0.03    1285  0.0025
2153          RX       0     100     112     147     159     179     214     580
2154          RY       8       6       0       0       6       7       7       9
              *

2155          KK  A07B.5   BASIN
2156          BA   0.044
2157          LG    0.10    0.32    4.55    0.37      29
2158          UC   0.338   0.304
2159          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
2160          UA     100
              *

2161          KK  CA07B5
2162          KO                                    21
2163          HC       2
              *
              * KKDIA07B
              * DTDIA07B      37
              * DI       0     100    1000   10000
              * DQ       0     100    1000   10000
```



```
              *
              *

2164          KK    S30D   BASIN
2165          KM  SUB-BASIN S30D
2166          BA   0.131
2167          LG    0.25    0.17    6.80    0.15      30
2168          UC   0.801   0.495
2169          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
2170          UA     100
              *
              * ROUTE RS30D IS 6176 FT WITH A SLOPE OF .0023
              * CROSS SECTION IS 99TH AVENUE
              * *** ROUTE S30D THROUGH S30C ****************************************
              *

2171          KK   RS30D
2172          RS      10    FLOW       0
2173          RC     .02     .02     .02    6176  0.0023
2174          RX       0       1      85      95     109     134     239     240
2175          RY      12       6       5       0       0       5       6      12
              *

2176          KK    S30C   BASIN
2177          KM  SUB-BASIN S30C
2178          BA   0.454
2179          LG    0.23    0.15    7.30    0.13      36
2180          UC   1.108   0.895
2181          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
2182          UA     100
              *
              * RECOVER DIVERTED FLOW FROM A09FI
              *
```

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```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2183          KK  DA09FI
2184          DR   A09FI
              *

2185          KK  RA09FI
2186          RS      10    FLOW       0
2187          RC     .02     .02     .02    7000  0.0023
2188          RX       0       1      85      95     109     134     239     240
2189          RY      12       6       5       0       0       5       6      12
              *

2190          KK     XX1
2191          HC       3
              *

2192          KK    S30B   BASIN
2193          KM  SUB-BASIN S30B
2194          BA   0.399
2195          LG    0.19    0.29    5.80    0.21      24
2196          UC   1.280   1.214
2197          UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
2198          UA     100
              *
              * *** COMBINE BASIN S30C, S30B, AND RS30D ****************************
              *
```

```
2199          KK   CS30B
2200          HC       2
              *
              * *** DIVERTED  MAIN (WEST) DIVERTED (SOUTH)  **********************
              * THERE IS A DIVERSION AT THIS LOCATION. THE DEL WEBB CHANNEL CAN CARRY
              * 550 CFS, THE REST OF THE FLOW OVERFLOWS TO THE SOUTH.
              *
2201          KK  DS30BO
2202          DT  DS30BI
2203          DI       1     250     550     750    1000    1500    1750    2000
2204          DQ      .1      .2      .3     200     450     950    1200    1450
              *
              * ROUTE RS30BW IS 5060 FT WITH A SLOPE OF .0008
              * CROSS SECTION IS DEL WEBB BLVD
              * *** ROUTED S30BO THROUGH S30A ******************************************
              *
2205          KK  RS30BW
2206          RS       9    FLOW       0
2207          RC     .02    0.02     .02    5060  0.0008
2208          RX       0       1     100     120     140     155     239     240
2209          RY      12       6       5       0       0       5       6      12
              *
1                                        HEC-1 INPUT                                    PAGE 70

              LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2210          KK    S30A   BASIN
2211          KM  SUB-BASIN S30A
2212          BA   0.531
2213          LG    0.22    0.21    6.40    0.21      28
2214          UC   1.281   0.883
2215          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
2216          UA     100
              *
              * *** COMBINE BASIN S30A AND RS30B ***************************************
              *
2217          KK   CS30A
2218          HC       2
              *
              * ************************************************************************
              * ************************************************************************
              * ******** THE FOLLOWING PORTION WAS EXTRACTED FROM THE GLENDALE/PEORIA
              * ******** ADMPU MODEL CREATED BY ENTELLUS, DATED OCTOBER 21, 2000.
              * ******** FILE NAME: 10yr6hr.DAT
              * ************************************************************************
              * ************************************************************************
              *
              * *** DIVERSION DS30AO ***************************************************
              * *** DIVERTED  MAIN (WEST) DIVERTED (SOUTH)  **************************
              *
              * THERE IS A DIVERSION AT THIS LOCATION. THE DEL WEBB CHANNEL CAN CARRY
              * 550 CFS, THE REST OF THE FLOW OVERFLOWS TO THE SOUTH.
              *
              * DDM   ***** Preserved *****
2219          KK  DS30AO
2220          DT  DS30AI
2221          DI       1     250     550     750    1000    1500    1750    2000
2222          DQ      .1      .2      .3     200     450     950    1200    1450
              *
```



```
              * *** ROUTE RS30AW  *****************************************************
              *
              * ROUTE RS30AW IS 4919 FT WITH A SLOPE OF .0043
              * CROSS SECTION IS DEL WEBB BLVD
              *
              * *** ROUTE FLOW FROM CS30A TO CS30 ***************************************
              *
              * DDM   ***** Preserved *****
2223          KK  RS30AW
2224          RS       5    FLOW       0
2225          RC    0.03    0.02    0.03    4919  0.0043
2226          RX       0       1     110     125     140     155     160     161
2227          RY      15       7       7       0       0       7       7      15
              *
              *
              * DDM   ***** Preserved *****
1                                        HEC-1 INPUT                                    PAGE 71

              LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2228          KK     S30   BASIN
2229          KM   SUB-BASIN S30
2230          KM   6-HOUR RAINFALL, PATTERN NO. 1.00 WAS USED TO FIND TC & R FOR THIS BASIN
2231          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .996
2232          KM     L = 1.12  Kb = .040  Adj. Slope =   27.0
2233          BA    .321
2234          LG    0.22    0.26    4.55    0.43      27
2235          UC   0.871   0.664
2236          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
2237          UA     100
              *
              * *** COMBINE BASIN S30 AND RS30A ****************************************
              *
              * DDM   ***** Preserved *****
2238          KK    CS30
2239          HC       2
              *
              * *** ROUTE RS30  ********************************************************
              *
              * ROUTE RS30 IS 691 FT WITH A SLOPE OF .0058
              * CROSS SECTION IS A CHANNEL ALONG BELL RD (MEASURED)
              *
              * *** ROUTE FLOW FROM CS30 TO CA07B ***************************************
              *
              * DDM   ***** Preserved *****
2240          KK    RS30
2241          RS       1    FLOW       0
2242          RC    0.03    0.02    0.03     691  0.0058
2243          RX       0      26     136     197     212     227     242     742
2244          RY       9       8       8       7       0       0       7       9
              *
              *
              * ### BASIN A07B.6 IS A PORTION OF THE CANYON RIDGE DEVELOPMENT ###
              *
2245          KK  A07B.6   BASIN
2246          BA   0.152
2247          LG    0.22    0.26    4.60    0.39      31
2248          UC   0.654   0.654
2249          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
```

```
2250          UA     100
              *
              * ### DA07B6 REPRESENT THE RETENTION LOCATED WITHIN BASIN A07B6 ###
              *

2251          KK  DA07B6
2252          DT  DA07B6      3.5
2253          DI       0     100    1000   10000
2254          DQ       0     100    1000   10000
              *
              * ### CS30 Combines DA07B6 AND RS30 ###
              *
```



```
      LINE    ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2255          KK    CS30
2256          KO                                  21
2257          HC       2
              *
              * ### COMBINES CS30 AND DIA07B ###

2258          KK  CA07B6
2259          KO                                  21
2260          HC       2
              *
              *
              * *** ROUTE RA07B  ****************************************************
              *
              * ROUTE RA07B IS 2990 FT WITH A SLOPE OF .0057
              * CROSS SECTION IS A MANMADE CHANNEL  (MEASURED)
              *
              * *** ROUTE FLOW FROM CA07B TO CA07A ***********************************
              *
              * DDM   ***** Preserved *****

2261          KK   RA07B
2262          KO       3                          21
2263          RS       1    FLOW       0
2264          RC    0.03    0.03    0.03    2990   .0057
2265          RX       0      76     136     197     222     227     242     367
2266          RY      10       9       8       7       0       0       7       9
              *
              * DDM   ***** Preserved *****

2267          KK    A06A   BASIN
2268          KM   SUB-BASIN A06A
2269          KM   6-HOUR RAINFALL, PATTERN NO. 1.00 WAS USED TO FIND TC & R FOR THIS BASIN
2270          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .996
2271          KM     L =  .73  Kb = .038  Adj. Slope =   70.0
2272          BA    .279
2273          LG   0.21    0.30    4.70    0.34      19
2274          UC  0.550   0.366
2275          UA      0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
2276          UA    100
              *
              *
              * *** COMBINE BASIN A06A AND RA07B *********************
              *
              * DDM   ***** Preserved *****

2277          KK   CA06A
2278          HC       2
```



```
              *
              * *** ROUTE RA06A  ****************************************************
              *
              * ROUTE RA07B IS 2500 FT WITH A SLOPE OF .007
              * CROSS SECTION IS A MANMADE CHANNEL  (MEASURED)
              *
              * *** ROUTE FLOW FROM CA07B TO CA07A ***********************************
              *
              * DDM   ***** Preserved *****
```



```
      LINE    ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2279          KK   RA06A
2280          KO       3                          21
2281          RS       3    FLOW       0
2282          RC    0.03     .02    0.03    2500    .007
2283          RX       0      76     136     197     222     247     262     387
2284          RY      10       9       8       7       0       0       7       9
              *
              * DDM   ***** Preserved *****

2285          KK    A07A   BASIN
2286          KM   SUB-BASIN A07A
2287          KM   6-HOUR RAINFALL, PATTERN NO. 1.00 WAS USED TO FIND TC & R FOR THIS BASIN
2288          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .998
2289          KM     L =  .88  Kb = .045  Adj. Slope =   18.0
2290          BA    .124
2291          LG   0.21    0.30    3.92    0.51      16
2292          UC  1.038   1.144
2293          UA      0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
2294          UA    100
              *
              *
              * *** ROUTE RA07A  ****************************************************
              *
              * ROUTE RA07A IS 1095 FT WITH A SLOPE OF .0037
              * CROSS SECTION IS A CHANNEL AND BELL RD (MEASURED)
              *
              * *** ROUTE FLOW FROM CA07A TO CA07 ************************************
              *
              *
              * DDM   ***** Preserved *****

2295          KK   RA07A
2296          RS       3    FLOW       0
2297          RC    0.03    0.03    0.03    1095  0.0037
2298          RX       0      50      62      72      84     104     204     704
2299          RY       7       6       0       0       6       7       9      10
              *
              * DDM   ***** Preserved *****

2300          KK     A07   BASIN
2301          KM   SUB-BASIN A07
2302          KM   6-HOUR RAINFALL, PATTERN NO. 1.00 WAS USED TO FIND TC & R FOR THIS BASIN
2303          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .998
2304          KM     L =  .15  Kb = .054  Adj. Slope =   53.0
2305          BA    .118
2306          LG   0.33    0.33    3.21    0.83       6
2307          UC  0.237   0.055
2308          UA      0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
2309          UA    100
              *
```

```
                * *** COMBINE BASIN A07 AND RA07A  ************************************
                *
                * DDM   ***** Preserved *****
1                                       HEC-1 INPUT                                                 PAGE 74

          LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

          2310          KK    CA07
          2311          HC       2
                        *
                        * *** ROUTE RA07  ****************************************************
                        *
                        * ROUTE RA07 IS 3464 FT WITH A SLOPE OF .0061
                        * CROSS SECTION IS THE AGUA FRIA RIVER (MEASURED)
                        *
                        * *** ROUTE FLOW FROM CA07 TO CA06 ************************************
                        *
                        * DDM   ***** Preserved *****

          2312          KK    RA07
          2313          KO       3
          2314          RS      22    FLOW       0
          2315          RC     .05     .05     .05    3464  0.0061
          2316          RX       0     100     200     250     300     350     900    1000
          2317          RY      12       8       1       0       0       1       8      12
                        *
                        * DDM   ***** Preserved *****

          2318          KK     A06   BASIN
          2319          KM   SUB-BASIN A06
          2320          KM   6-HOUR RAINFALL, PATTERN NO. 1.00 WAS USED TO FIND TC & R FOR THIS BASIN
          2321          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .996
          2322          KM     L =  .38  Kb = .049  Adj. Slope =   24.0
          2323          BA    .277
          2324          LG   0.35    0.35    3.58    0.61       0
          2325          UC  0.604   0.203
          2326          UA      0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
          2327          UA    100
                        *
                        * *** COMBINE BASIN A06 AND RA07  ******************************
                        *
                        * DDM   ***** Preserved *****

          2328          KK    CA06
          2329          HC       2
                        *
                        * *** ROUTE RA06  ****************************************************
                        *
                        * ROUTE RA06 IS 2650 FT WITH A SLOPE OF .0053
                        * CROSS SECTION IS THE AGUA FRIA RIVER (MEASURED)
                        *
                        * *** ROUTE FLOW FROM CA06 TO CA99Q ************************************
                        *
                        * DDM   ***** Preserved *****

          2330          KK    RA06
          2331          RS       8    FLOW       0
          2332          RC    0.03    0.03    0.03    2650  0.0053
          2333          RX       0     100     200     250     750     800     900    1000
          2334          RY       9       8       6       0       0       6       8       9
                        *
                        * DDM   ***** Preserved *****
1                                       HEC-1 INPUT                                                 PAGE 75
                                          Page 67
```



```
          LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

          2335          KK     A99Q   BASIN
          2336          KM   SUB-BASIN A99Q
          2337          KM   6-HOUR RAINFALL, PATTERN NO. 1.00 WAS USED TO FIND TC & R FOR THIS BASIN
          2338          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .998
          2339          KM     L =  .06  Kb = .054  Adj. Slope =   83.0
          2340          BA    .118
          2341          LG   0.35    0.35    3.67    0.58       0
          2342          UC  0.117   0.012
          2343          UA      0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
          2344          UA    100
                        *
                        *
                        * DDM   ***** Preserved *****
                        *

          2345          KK     A99P   BASIN
          2346          KM   SUB-BASIN A99P
          2347          KM   6-HOUR RAINFALL, PATTERN NO. 1.08 WAS USED TO FIND TC & R FOR THIS BASIN
          2348          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .993
          2349          KM     L = 1.34  Kb = .040  Adj. Slope =   57.0
          2350          BA    .575
          2351          LG   0.25    0.28    5.40    0.26      27
          2352          UC  0.738   0.458
          2353          UA      0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
          2354          UA    100
                        *
                        * *** COMBINE BASIN A99Q A99P, RA06, AND RA06A  *********************************
                        *

          2355          KK   CA99Q
          2356          HC       4
                        *

          2357          KK    AFR6
          2358          HC       2
                        *
          2359          ZZ
1
                SCHEMATIC DIAGRAM OF STREAM NETWORK

 INPUT
  LINE      (V) ROUTING           (--->) DIVERSION OR PUMP FLOW

    NO.     (.) CONNECTOR         (<---) RETURN OF DIVERTED OR PUMPED FLOW

     90          CBA
                  V
                  V
     97          RCBA
                   .
                   .
    100            .          P28
                   .           .
                   .           .
    107          CP28.............
                   .
                   .
    112            .-------->    DB28
    110          DT28
                   .
                   .
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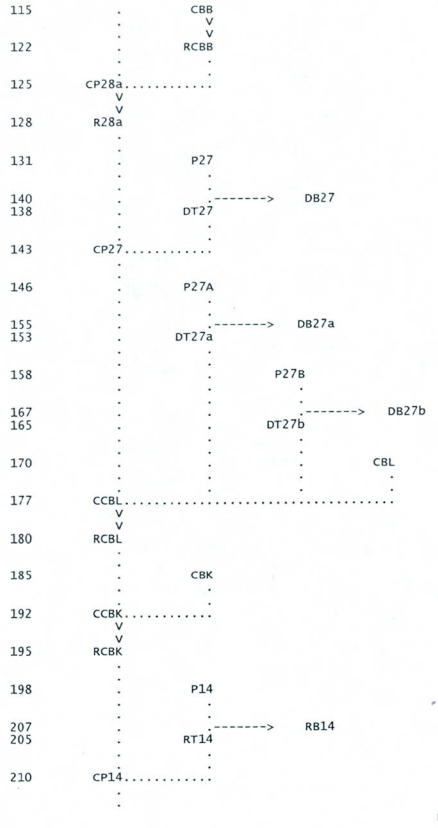
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CBB
122
RCBB
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CP28a
128
R28a
131
P27
140
DB27
138
DT27
143
CP27
146
P27A
155
DB27a
153
DT27a
158
P27B
167
DB27b
165
DT27b
170
CBL
177
CCBL
180
RCBL
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CBK
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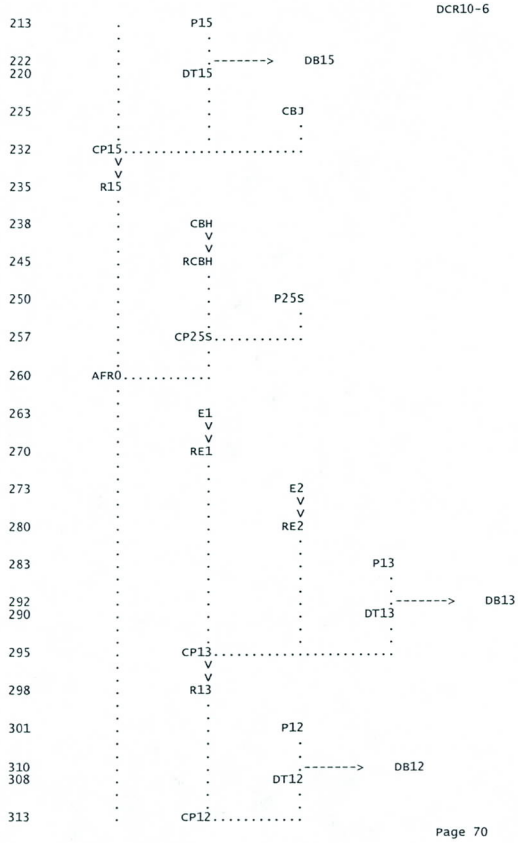
CCBK
195
RCBK
198
P14
207
RB14
205
RT14
210
CP14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P15
222
DB15
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DT15
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CBJ
232
CP15
235
R15
238
CBH
245
RCBH
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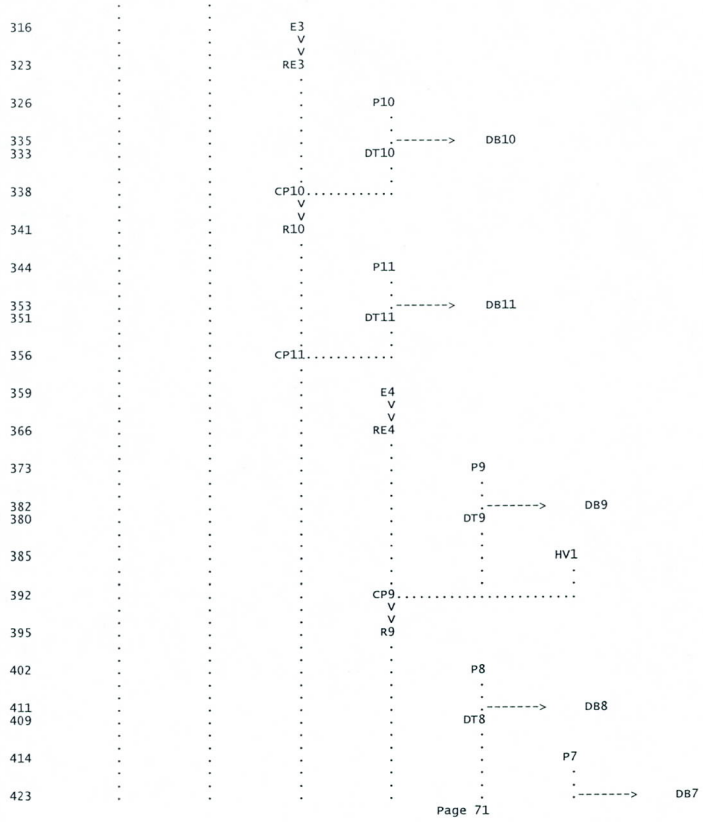
P25S
257
CP25S
260
AFR0
263
E1
270
RE1
273
E2
280
RE2
283
P13
292
DB13
290
DT13
295
CP13
298
R13
301
P12
310
DB12
308
DT12
313
CP12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E3
323
RE3
326
P10
335
DB10
333
DT10
338
CP10
341
R10
344
P11
353
DB11
351
DT11
356
CP11
359
E4
366
RE4
373
P9
382
DB9
380
DT9
385
HV1
392
CP9
395
R9
402
P8
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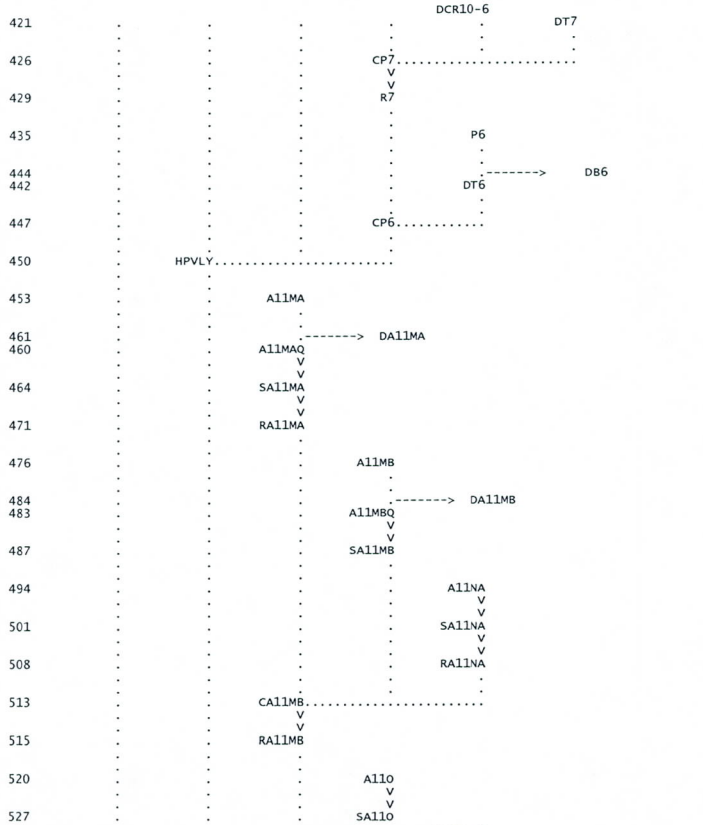
DB8
409
DT8
414
P7
423
DB7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CP7
429
R7
435
P6
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DB6
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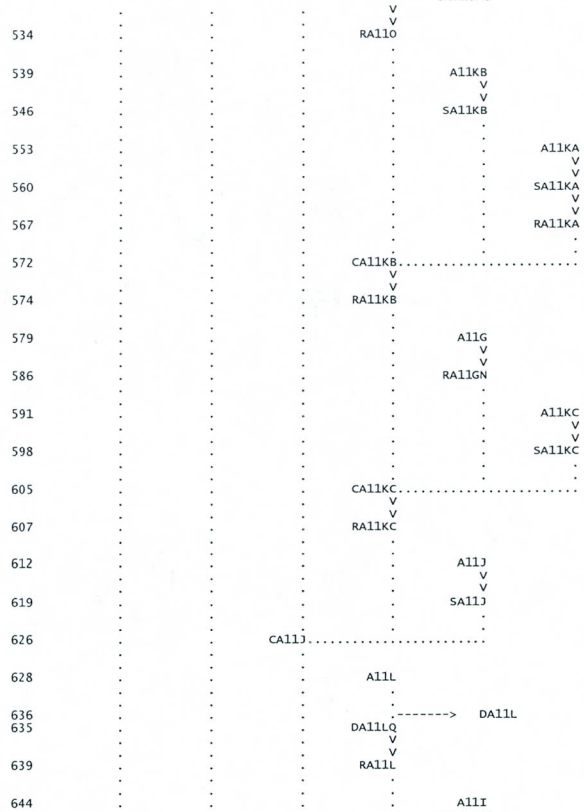
DT6
447
CP6
450
HPVLY
453
A11MA
461
DA11MA
460
A11MAQ
464
SA11MA
471
RA11MA
476
A11MB
484
DA11MB
483
A11MBQ
487
SA11MB
494
A11NA
501
SA11NA
508
RA11NA
513
CA11MB
515
RA11MB
520
A11O
527
SA11O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539 A11KB
546 SA11KB
553 A11KA
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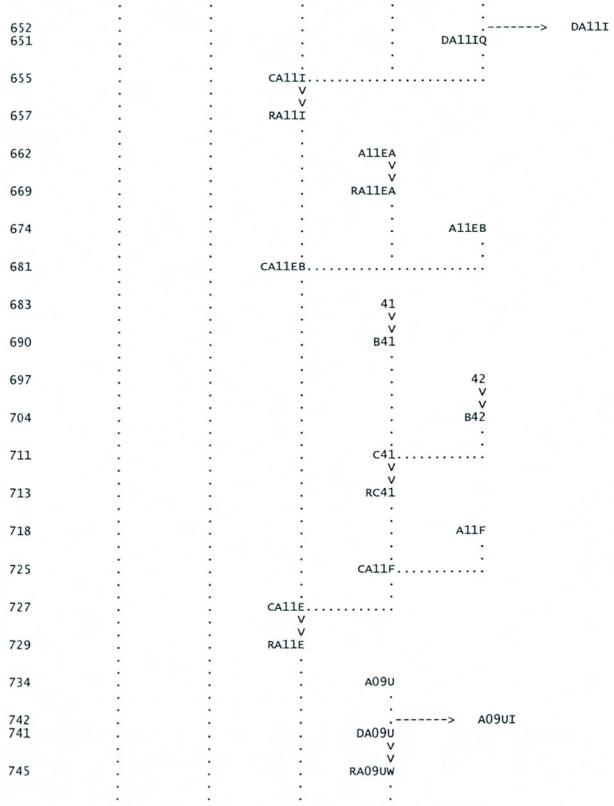
567 RA11KA
572 CA11KB
574 RA11KB
579 A11G
586 RA11GN
591 A11KC
598 SA11KC
605 CA11KC
607 RA11KC
612 A11J
619 SA11J
626 CA11J
628 A11L
636 DA11L
635 DA11LQ
639 RA11L
644 A11I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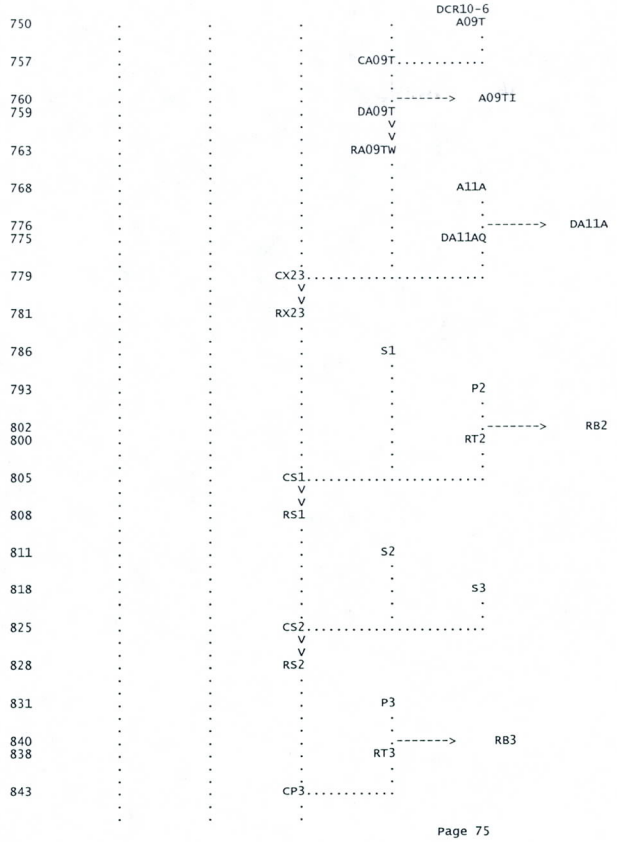
651 DA11IQ
655 CA11I
657 RA11I
662 A11EA
669 RA11EA
674 A11EB
681 CA11EB
683 41
690 B41
697 42
704 B42
711 C41
713 RC41
718 A11F
725 CA11F
727 CA11E
729 RA11E
734 A09U
742 A09UI
741 DA09U
745 RA09UW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760
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RA09TW
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DA11A
775
DA11AQ
779
CX23
781
RX23
786
S1
793
P2
802
RB2
800
RT2
805
CS1
808
RS1
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S2
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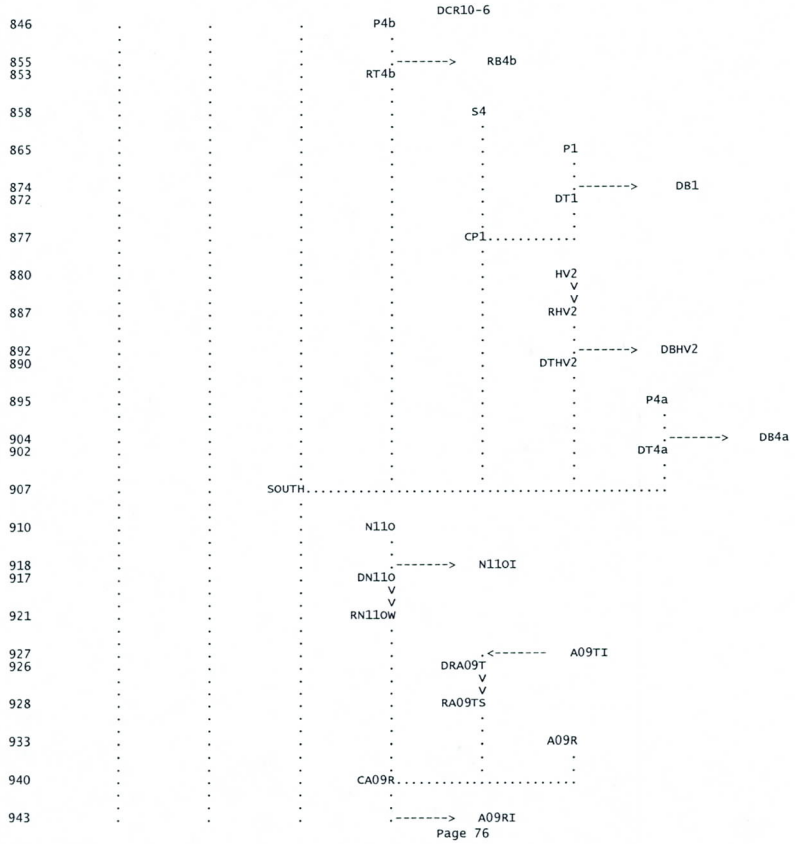
838
RT3
843
CP3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S4
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P1
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DB1
872
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877
CP1
880
HV2
887
RHV2
892
DBHV2
890
DTHV2
895
P4a
904
DB4a
902
DT4a
907
SOUTH
910
N11O
918
N11OI
917
DN11O
921
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926
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928
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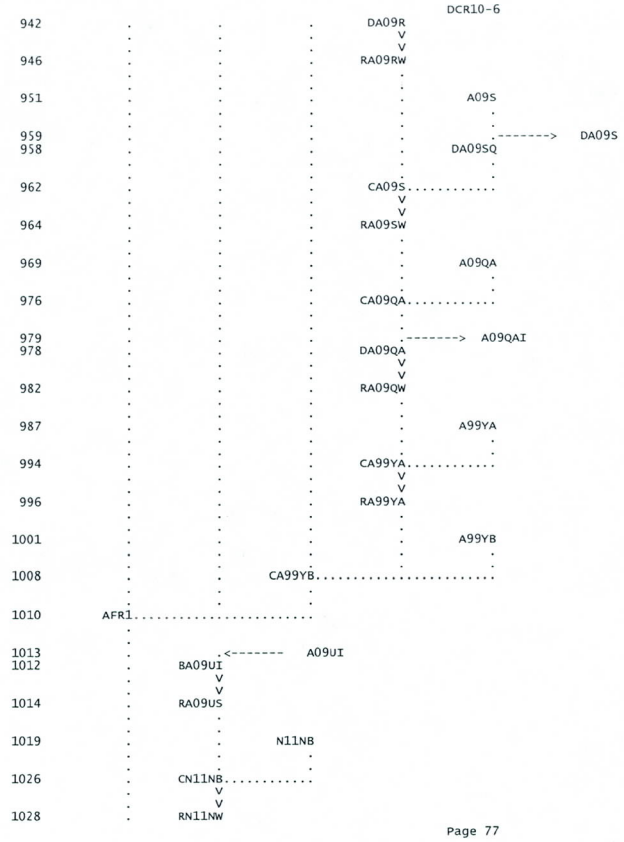
933
A09R
940
CA09R
943
A09RI


942 DA09R
946 RA09RW
951 A09S
959 DA09S
958 DA09SQ
962 CA09S
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979 A09QAI
978 DA09QA
982 RA09QW
987 A99YA
994 CA99YA
996 RA99YA
1001 A99YB
1008 CA99YB
1010 AFR1
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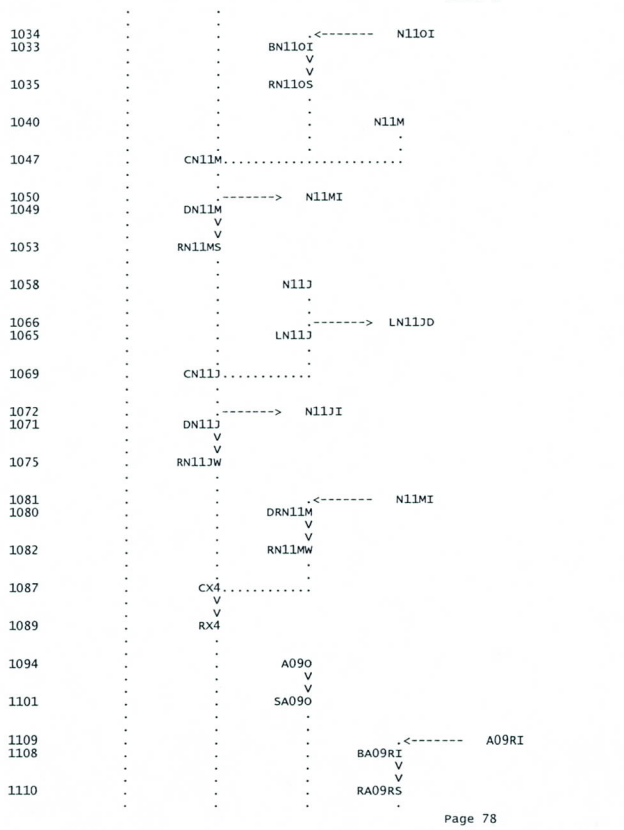
1012 BA09UI
1014 RA09US
1019 N11NB
1026 CN11NB
1028 RN11NW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1040 N11M
1047 CN11M
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1049 DN11M
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1066 LN11JD
1065 LN11J
1069 CN11J
1072 N11JI
1071 DN11J
1075 RN11JW
1081 N11MI
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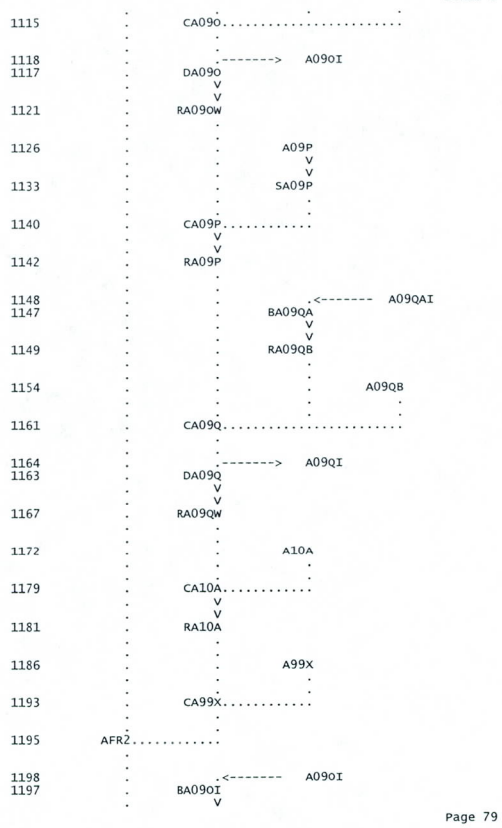
1087 CX4
1089 RX4
1094 A09O
1101 SA09O
1109 A09RI
1108 BA09RI
1110 RA09RS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1118
1117 DA09O
1121 RA09OW
1126 A09P
1133 SA09P
1140 CA09P
1142 RA09P
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1147 BA09QA
1149 RA09QB
1154 A09QB
1161 CA09Q
1164 A09QI
1163 DA09Q
1167 RA09QW
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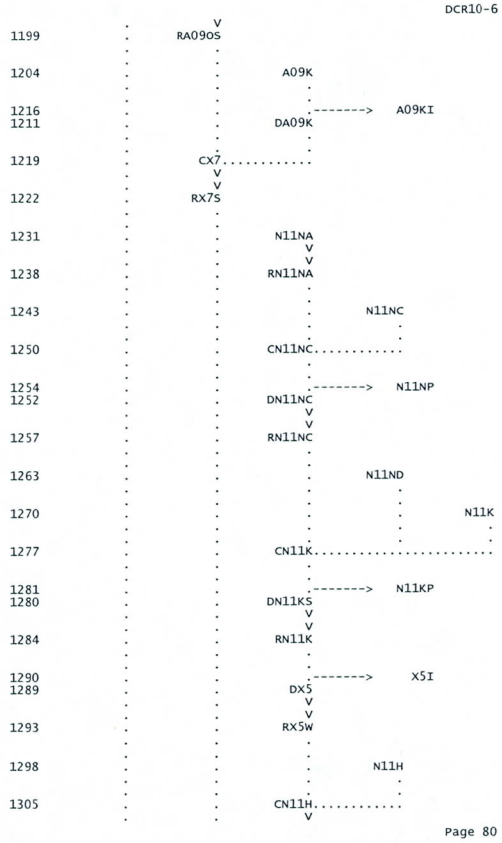
1179 CA10A
1181 RA10A
1186 A99X
1193 CA99X
1195 AFR2
1198 A09OI
1197 BA09OI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1219 CX7
1222 RX7S
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1238 RN11NA
1243 N11NC
1250 CN11NC
1254 N11NP
1252 DN11NC
1257 RN11NC
1263 N11ND
1270 N11K
1277 CN11K
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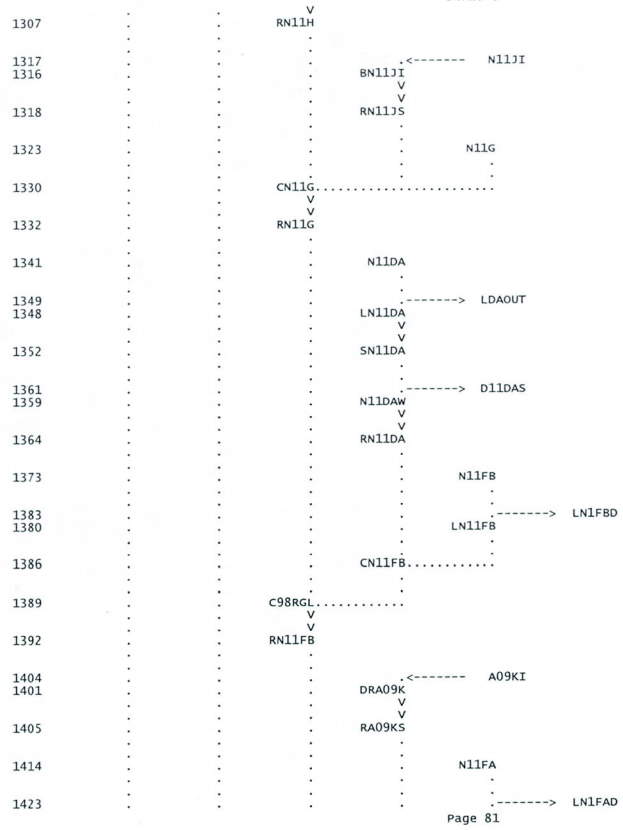
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1348 LN11DA
1352 SN11DA
1361 D11DAS
1359 N11DAW
1364 RN11DA
1373 N11FB
1383 LN1FBD
1380 LN11FB
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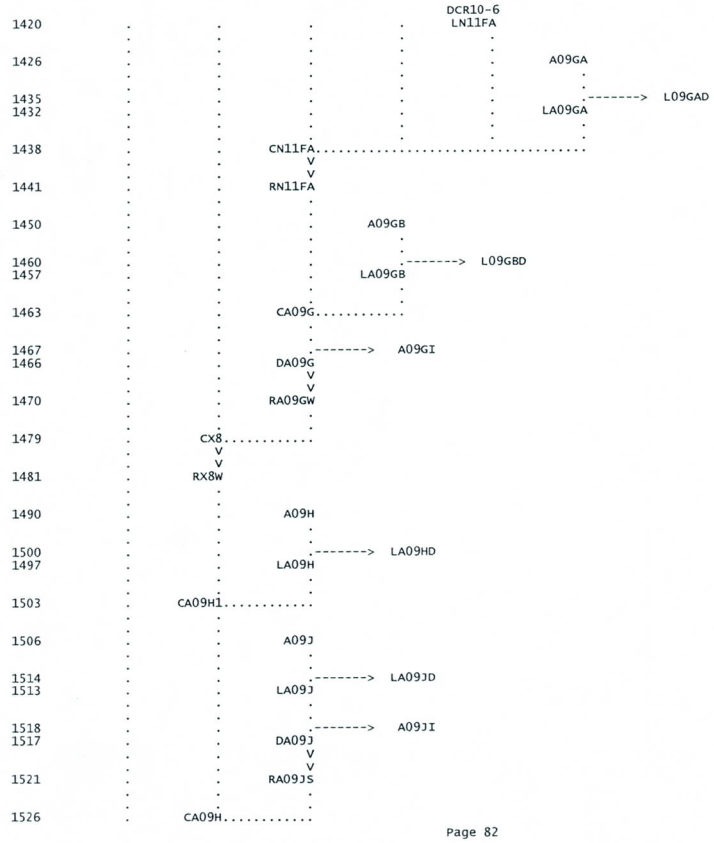
1414 N11FA
1423 LN1FAD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1441 RN11FA
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1457 LA09GB
1463 CA09G
1467 A09GI
1466 DA09G
1470 RA09GW
1479 CX8
1481 RX8W
1490 A09H
1500 LA09HD
1497 LA09H
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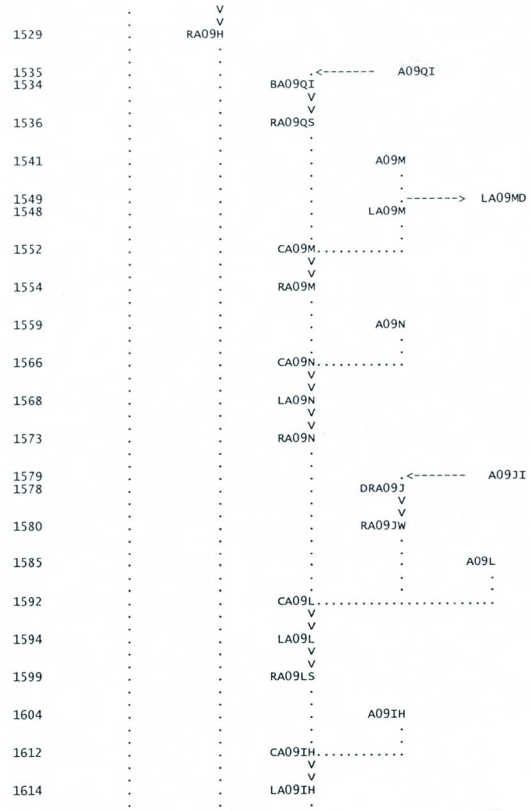
1518 A09JI
1517 DA09J
1521 RA09JS
1526 CA09H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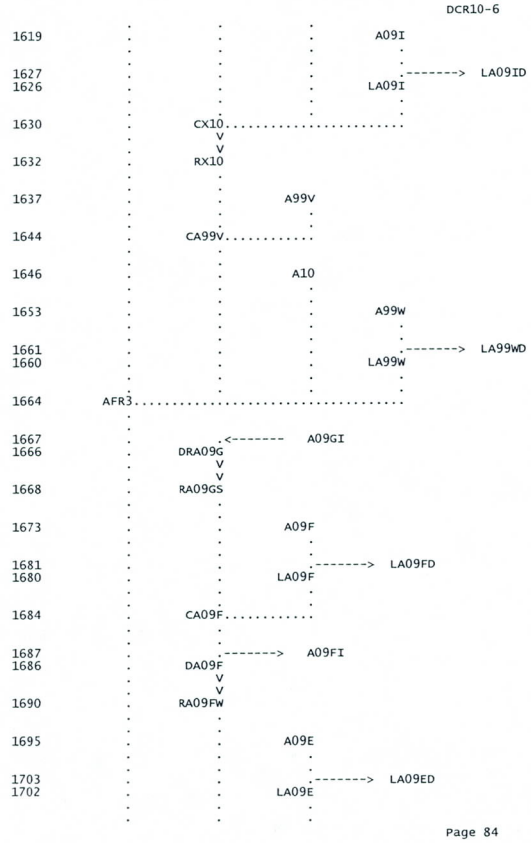
1534 BA09QI
1536 RA09QS
1541 A09M
1549 LA09MD
1548 LA09M
1552 CA09M
1554 RA09M
1559 A09N
1566 CA09N
1568 LA09N
1573 RA09N
1579 A09JI
1578 DRA09J
1580 RA09JW
1585 A09L
1592 CA09L
1594 LA09L
1599 RA09LS
1604 A09IH
1612 CA09IH
1614 LA09IH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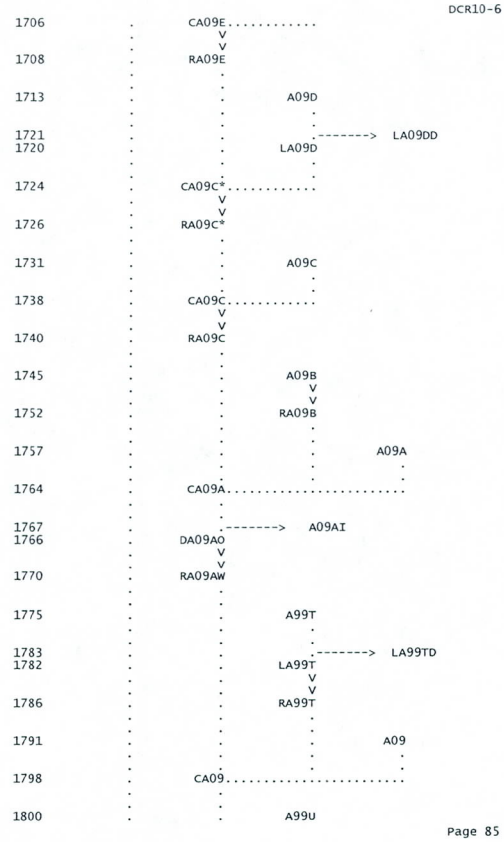
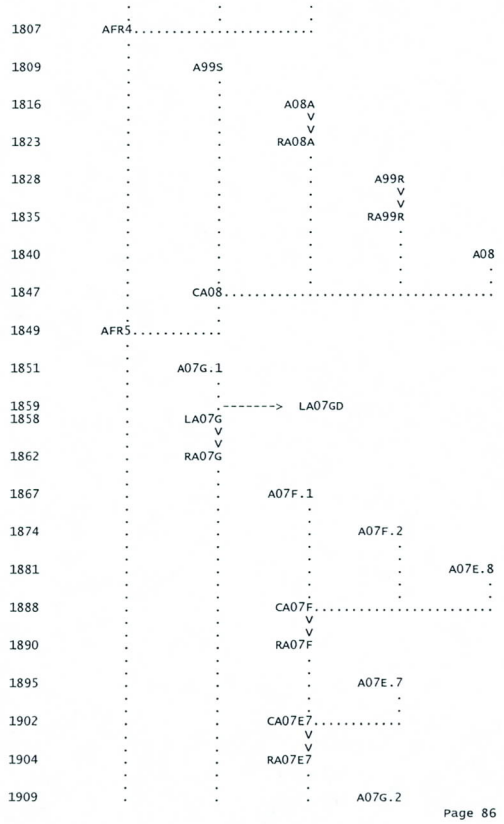
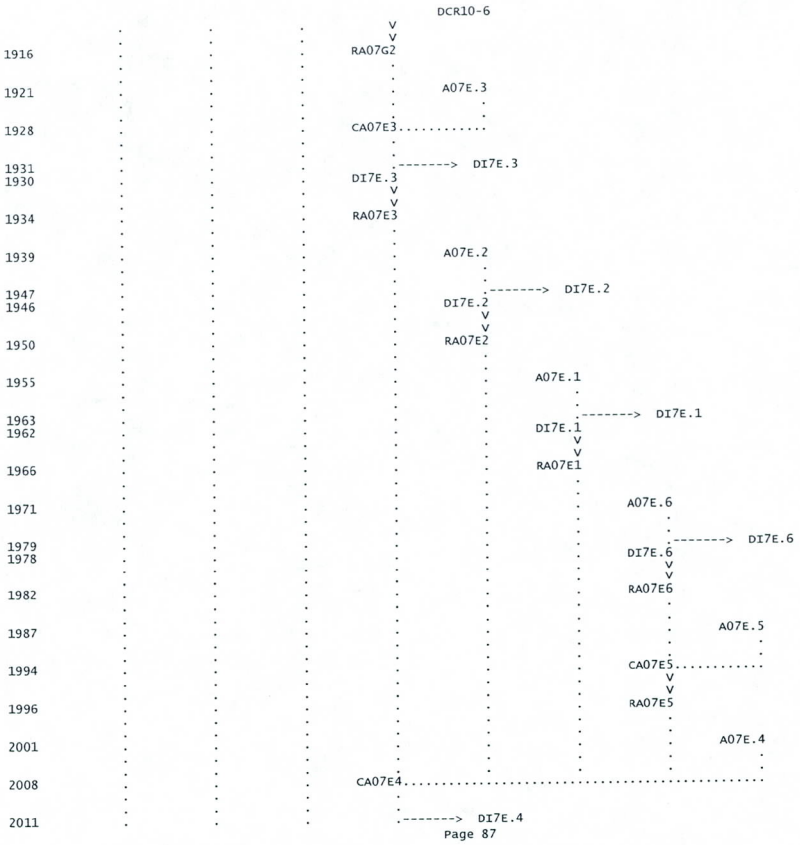
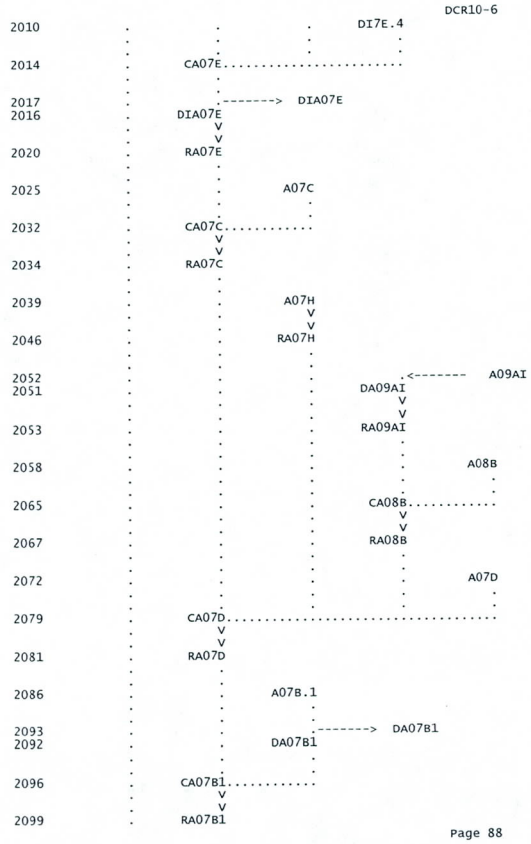
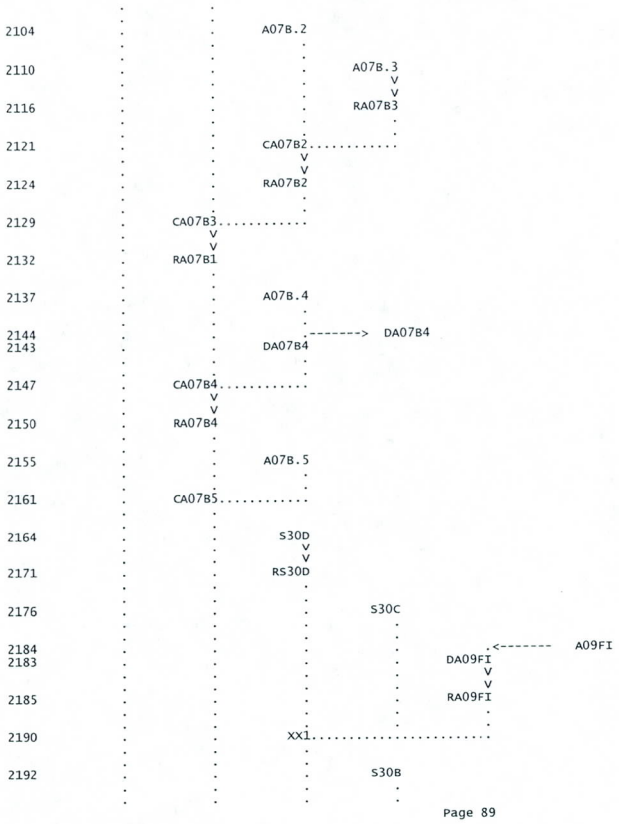
1646 A10
1653 A99W
1661 LA99WD
1660 LA99W
1664 AFR3
1667 A09GI
1666 DRA09G
1668 RA09GS
1673 A09F
1681 LA09FD
1680 LA09F
1684 CA09F
1687 A09FI
1686 DA09F
1690 RA09FW
1695 A09E
1703 LA09ED
1702 LA09E

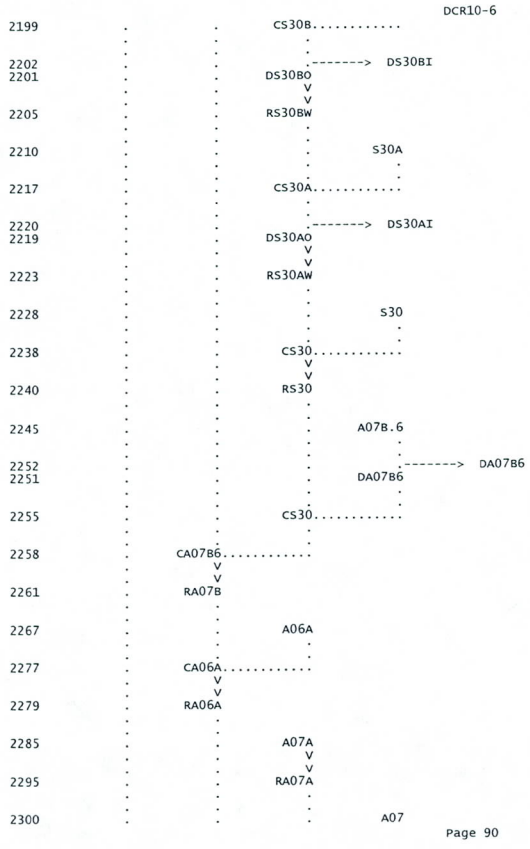

1706 CA09E
1708 RA09E
1713 A09D
1721 LA09DD
1720 LA09D
1724 CA09C*
1726 RA09C*
1731 A09C
1738 CA09C
1740 RA09C
1745 A09B
1752 RA09B
1757 A09A
1764 CA09A
1767 A09AI
1766 DA09AO
1770 RA09AW
1775 A99T
1783 LA99TD
1782 LA99T
1786 RA99T
1791 A09
1798 CA09
1800 A99U

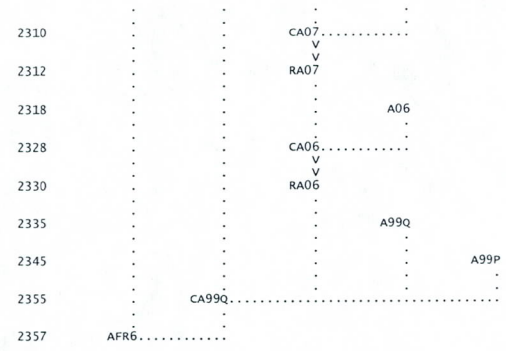

1807 AFR4
1809 A99S
1816 A08A
1823 RA08A
1828 A99R
1835 RA99R
1840 A08
1847 CA08
1849 AFR5
1851 A07G.1
1859 LA07GD
1858 LA07G
1862 RA07G
1867 A07F.1
1874 A07F.2
1881 A07E.8
1888 CA07F
1890 RA07F
1895 A07E.7
1902 CA07E7
1904 RA07E7
1909 A07G.2


DCR10-6
RA07G2
A07E.3
CA07E3
DI7E.3
DI7E.3
RA07E3
A07E.2
DI7E.2
DI7E.2
RA07E2
A07E.1
DI7E.1
DI7E.1
RA07E1
A07E.6
DI7E.6
DI7E.6
RA07E6
A07E.5
CA07E5
RA07E5
A07E.4
CA07E4
DI7E.4


DCR10-6
DI7E.4
CA07E
DIA07E
DIA07E
RA07E
A07C
CA07C
RA07C
A07H
RA07H
A09AI
DA09AI
RA09AI
A08B
CA08B
RA08B
A07D
CA07D
RA07D
A07B.1
DA07B1
DA07B1
CA07B1
RA07B1


2104
A07B.2
2110
A07B.3
2116
RA07B3
2121
CA07B2
2124
RA07B2
2129
CA07B3
2132
RA07B1
2137
A07B.4
2144
DA07B4
2143
DA07B4
2147
CA07B4
2150
RA07B4
2155
A07B.5
2161
CA07B5
2164
S30D
2171
RS30D
2176
S30C
2184
A09FI
2183
DA09FI
2185
RA09FI
2190
XX1
2192
S30B


2199
CS30B
2202
DS30BI
2201
DS30BO
2205
RS30BW
2210
S30A
2217
CS30A
2220
DS30AI
2219
DS30AO
2223
RS30AW
2228
S30
2238
CS30
2240
RS30
2245
A07B.6
2252
DA07B6
2251
DA07B6
2255
CS30
2258
CA07B6
2261
RA07B
2267
A06A
2277
CA06A
2279
RA06A
2285
A07A
2295
RA07A
2300
A07



(***) 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   21JUL11  TIME  16:22:11   *                                       *           (916) 756-1104
    *                                                                             *
  *                                       *                                       *
    *                                                                             *
   *****************************************
*****************************************
```

```
Project ID: 107 & Union Hills - Major Basin: 01 - Return Period: 10 Years      **
107th Avenue and Union Hills Drive Design Concept Report                       **
                                                                               **
PROJECT NO.: FCD 2009C036.2                    G&M: 10388A.2                        **
                                                                               **
Original HEC-1 Model: DCR10-6.DAT, Goodwin & Marshall, Inc., May 29, 2010 **
                      10-Year 6-Hour HEC-1 Model for Existing Conditions  **
Modified HEC-1 Model: DCR10-6.DAT, Goodwin & Marshall, Inc., Apr 26, 2010 **
```



```
                                                                               **
1) NOAA2 Rainfall Data                                                         **
2) DDMSW V3.5.7 Used                                                                **
3) BASINS REVISED TO REFLECT CANYON RIDGE DEVELOPMENT AND DETERMINE FLOWS **
   AT CRITICAL POINTS ALONG 115TH AVENUE                                       **
                                                                               **

********************************************************************************
Project ID: 107 & Union Hills - Major Basin: 01 - Return Period: 10 Years      **
107th Avenue and Union Hills Drive Design Concept Report                       **
                                                                               **
PROJECT NO.: FCD 2009C036                   G&M: 10388A                        **
                                                                               **
Original HEC-1 Model: EN06BASE.DAT, Wood/Patel, SZ, May 2007                   **
                      10-Year 6-Hour HEC-1 Model for Existing Conditions  **
Modified HEC-1 Model: DCR10-6.DAT, Goodwin & Marshall, Inc., May 29, 2010 **
                      10-Year 6-Hour HEC-1 Model for Existing Conditions  **
                                                                               **
1) NOAA2 Rainfall Data                                                         **
2) DDMSW V3.5.7 Used                                                           **
                                                                               **
********************************************************************************
Project ID: GP_NW ADMP_EX1 - Major Basin: 01 - Return Period: 10 Years         **
                                                                               **
Glendale/Peoria ADMPU Northwest Region Update                                  **
Original HEC-1 Model: L3R5DVR.DAT, Wood/Patel, APRIL 14, 2006                  **
                      REVISED FOR DOVE VALLEY RANCH IMPROVEMENTS               **
Modified HEC-1 Model: EN06BASE.DAT, Wood/Patel, SZ, May 2007                   **
                      10-Year 6-Hour HEC-1 Model for Existing Conditions  **
1) NOAA 2 Rainfall Data                                                        **
2) DDMSW MCUHP1 V3.3.2 Used                                                    **
                                                                               **
********************************************************************************
********************************************************************************
**                                                                            **
** CONCEPT REFINEMENT STUDY FOR ROSE GARDEN LANE DRAINAGE IMPROVEMENTS       **
** ORIGINAL HEC-1 FILE FROM GLENDAL/PEORIA ADMP UPDATE STUDY                 **
** MODIFIED HEC-1 MODEL: LEVEL3R5.DAT, Wood/Patel & CVL, May 2005           **
** THIS IS THE PREFERRED ALTERNATIVE MODEL                                   **
** WPA REVISED APRIL 14, 2006 FOR DOVE VALLEY RANCH IMPROVEMENTS             **
** USING LATEST SURVEY DATA.                                                 **
********************************************************************************
********************************************************************************
**                                                                            **
**                      Glendale/Peoria ADMP Update                           **
**                                                                            **
********************************************************************************
********************************************************************************
PROJECT:                Glendale Peoria ADMP Update
CLIENT:                 Flood Control District of Maricopa County
PREPARED BY:            Entellus, Inc.
PROJECT No:             FCD 99-44              Entellus 310.017
```

FILE NAME: LEVEL3.DAT CREATED DATE: JUNE 6, 2001
STORM: 100-year 6-hour Storm
DEVELOPMENT CONDITIONS: LEVEL 3 HYDROLOGY

```
68 IO          OUTPUT CONTROL VARIABLES
                     IPRNT           5  PRINT CONTROL
                     IPLOT           0  PLOT CONTROL
                     QSCAL           0.  HYDROGRAPH PLOT SCALE

   IT          HYDROGRAPH TIME DATA
                     NMIN            2  MINUTES IN COMPUTATION INTERVAL
                     IDATE       1   0  STARTING DATE
                     ITIME        0000  STARTING TIME
                       NQ         1000  NUMBER OF HYDROGRAPH ORDINATES
                    NDDATE       2   0  ENDING DATE
                    NDTIME        0918  ENDING TIME
                    ICENT           19  CENTURY MARK

                  COMPUTATION INTERVAL      .03 HOURS
                     TOTAL TIME BASE    33.30 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

70 JD          INDEX STORM NO. 1
                     STRM         2.03  PRECIPITATION DEPTH
                     TRDA          .01  TRANSPOSITION DRAINAGE AREA

71 PI            PRECIPITATION PATTERN
                  .00   .00   .00   .00   .00   .00   .00   .00   .00   .00
                  .00   .00   .00   .00   .00   .00   .00   .00   .00   .00
                  .00   .00   .00   .00   .00   .00   .00   .00   .00   .00
                  .00   .00   .00   .00   .00   .00   .00   .00   .00   .00
                  .00   .00   .00   .00   .00   .00   .00   .00   .00   .00
                  .00   .00   .00   .00   .00   .00   .00   .00   .00   .00
                  .00   .00   .00   .00   .00   .00   .00   .00   .00   .00
                  .00   .00   .00   .00   .00   .00   .00   .00   .00   .00
                  .00   .00   .00   .00   .00   .00   .00   .00   .00   .00
                  .00   .00   .00   .00   .00   .00   .00   .01   .01   .01
                  .01   .01   .01   .01   .01   .02   .02   .02   .02   .02
                  .02   .02   .04   .06   .06   .06   .06   .06   .06   .06
                  .01   .01   .01   .01   .01   .01   .01   .01   .00   .00
                  .00   .00   .00   .00   .00   .00   .00   .00   .00   .00
                  .00   .00   .00   .00   .00   .00   .00   .00   .00   .00
                  .00   .00   .00   .00   .00   .00   .00   .00   .00   .00
                  .00   .00   .00   .00   .00   .00   .00   .00   .00   .00
                  .00   .00   .00   .00   .00   .00   .00   .00   .00   .00

74 JD          INDEX STORM NO. 2
                     STRM         2.02  PRECIPITATION DEPTH
                     TRDA          .50  TRANSPOSITION DRAINAGE AREA

75 PI            PRECIPITATION PATTERN
                  .00   .00   .00   .00   .00   .00   .00   .00   .00   .00
                  .00   .00   .00   .00   .00   .00   .00   .00   .00   .00
                  .00   .00   .00   .00   .00   .00   .00   .00   .00   .00
                  .00   .00   .00   .00   .00   .00   .00   .00   .00   .00
```



```
                  .00   .00   .00   .00   .00   .00   .00   .00   .00   .00
                  .00   .00   .00   .00   .00   .00   .00   .00   .00   .00
                  .00   .00   .00   .00   .00   .00   .00   .00   .00   .00
                  .00   .00   .00   .00   .00   .00   .00   .00   .00   .00
                  .00   .00   .00   .00   .00   .00   .00   .00   .00   .00
                  .00   .00   .00   .00   .00   .00   .00   .01   .01   .01
                  .01   .01   .01   .01   .01   .02   .02   .02   .02   .02
                  .02   .02   .04   .06   .06   .06   .06   .06   .06   .06
                  .01   .01   .01   .01   .01   .01   .01   .01   .00   .00
                  .00   .00   .00   .00   .00   .00   .00   .00   .00   .00
                  .00   .00   .00   .00   .00   .00   .00   .00   .00   .00
                  .00   .00   .00   .00   .00   .00   .00   .00   .00   .00
                  .00   .00   .00   .00   .00   .00   .00   .00   .00   .00

78 JD          INDEX STORM NO. 3
                     STRM         1.98  PRECIPITATION DEPTH
                     TRDA         2.80  TRANSPOSITION DRAINAGE AREA

79 PI            PRECIPITATION PATTERN
                  .00   .00   .00   .00   .00   .00   .00   .00   .00   .00
                  .00   .00   .00   .00   .00   .00   .00   .00   .00   .00
                  .00   .00   .00   .00   .00   .00   .00   .00   .00   .00
                  .00   .00   .00   .00   .00   .00   .00   .00   .00   .00
                  .00   .00   .00   .00   .00   .00   .00   .00   .00   .00
                  .00   .00   .00   .00   .00   .00   .00   .00   .00   .00
                  .00   .00   .00   .00   .00   .00   .00   .00   .00   .00
                  .00   .00   .00   .00   .00   .00   .00   .00   .00   .00
                  .00   .00   .00   .00   .00   .00   .00   .00   .00   .00
                  .01   .01   .01   .01   .01   .01   .01   .01   .01   .01
                  .01   .01   .01   .01   .01   .03   .03   .03   .03   .03
                  .03   .03   .03   .03   .03   .03   .03   .03   .03   .03
                  .02   .02   .02   .02   .02   .02   .02   .01   .01   .01
                  .01   .01   .01   .01   .01   .01   .01   .01   .01   .01
                  .01   .01   .00   .00   .00   .00   .00   .00   .00   .00
                  .00   .00   .00   .00   .00   .00   .00   .00   .00   .00
                  .00   .00   .00   .00   .00   .00   .00   .00   .00   .00
                  .00   .00   .00   .00   .00   .00   .00   .00   .00   .00

82 JD          INDEX STORM NO. 4
                     STRM         1.87  PRECIPITATION DEPTH
                     TRDA        16.00  TRANSPOSITION DRAINAGE AREA

83 PI            PRECIPITATION PATTERN
                  .00   .00   .00   .00   .00   .00   .00   .00   .00   .00
                  .00   .00   .00   .00   .00   .00   .00   .00   .00   .00
                  .00   .00   .00   .00   .00   .00   .00   .00   .00   .00
                  .00   .00   .00   .00   .00   .00   .00   .00   .00   .00
                  .00   .00   .00   .00   .00   .00   .00   .00   .00   .00
                  .00   .00   .00   .00   .00   .00   .00   .00   .00   .00
                  .00   .00   .00   .00   .00   .00   .00   .00   .00   .00
                  .00   .00   .00   .00   .00   .00   .00   .00   .00   .00
                  .00   .00   .00   .00   .00   .00   .00   .00   .00   .00
                  .01   .01   .01   .01   .01   .01   .01   .01   .01   .01
                  .01   .01   .01   .01   .01   .02   .02   .02   .02   .02
                  .02   .02   .02   .03   .03   .03   .03   .03   .03   .03
                  .02   .02   .02   .02   .02   .02   .02   .01   .01   .01
                  .01   .01   .01   .01   .01   .01   .01   .01   .01   .01
                  .01   .01   .01   .00   .00   .00   .00   .00   .00   .00
                  .00   .00   .00   .00   .00   .00   .00   .00   .00   .00
                  .00   .00   .00   .00   .00   .00   .00   .00   .00   .00
                  .00   .00   .00   .00   .00   .00   .00   .00   .00   .00

86 JD          INDEX STORM NO. 5
```

```
                    STRM       1.65  PRECIPITATION DEPTH
                    TRDA      90.00  TRANSPOSITION DRAINAGE AREA

 87 PI           PRECIPITATION PATTERN
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .01       .01       .01       .01       .01       .01       .01       .01       .01       .01
                    .01       .01       .01       .01       .01       .02       .02       .02       .02       .02
                    .02       .02       .02       .02       .02       .02       .02       .02       .02       .02
                    .02       .02       .02       .02       .02       .02       .02       .01       .01       .01
                    .01       .01       .01       .01       .01       .01       .01       .01       .01       .01
                    .01       .01       .01       .01       .01       .01       .01       .01       .01       .01
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
          WARNING EXCESS AT PONDING LESS THAN ZERO FOR PERIOD. EXCESS SET TO ZERO


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

              **************
              *            *
2096 KK       *    CA07B1  *
              *            *
              **************

2097 KO            OUTPUT CONTROL VARIABLES
                         IPRNT          5  PRINT CONTROL
                         IPLOT          0  PLOT CONTROL
                         QSCAL         0.  HYDROGRAPH PLOT SCALE
                         IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                          IOUT         21  SAVE HYDROGRAPH ON THIS UNIT
                         ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                         ISAV2       1000  LAST ORDINATE PUNCHED OR SAVED
                        TIMINT       .033  TIME INTERVAL IN HOURS


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

              **************
              *            *
2121 KK       *    CA07B2  *
              *            *
              **************

2122 KO            OUTPUT CONTROL VARIABLES
                         IPRNT          5  PRINT CONTROL
                         IPLOT          0  PLOT CONTROL
                         QSCAL         0.  HYDROGRAPH PLOT SCALE
                         IPNCH          0  PUNCH COMPUTED HYDROGRAPH
```



```
                          IOUT         21  SAVE HYDROGRAPH ON THIS UNIT
                         ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                         ISAV2       1000  LAST ORDINATE PUNCHED OR SAVED
                        TIMINT       .033  TIME INTERVAL IN HOURS


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

              **************
              *            *
2129 KK       *    CA07B3  *
              *            *
              **************

2130 KO            OUTPUT CONTROL VARIABLES
                         IPRNT          5  PRINT CONTROL
                         IPLOT          0  PLOT CONTROL
                         QSCAL         0.  HYDROGRAPH PLOT SCALE
                         IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                          IOUT         21  SAVE HYDROGRAPH ON THIS UNIT
                         ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                         ISAV2       1000  LAST ORDINATE PUNCHED OR SAVED
                        TIMINT       .033  TIME INTERVAL IN HOURS


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

              **************
              *            *
2147 KK       *    CA07B4  *
              *            *
              **************

2148 KO            OUTPUT CONTROL VARIABLES
                         IPRNT          5  PRINT CONTROL
                         IPLOT          0  PLOT CONTROL
                         QSCAL         0.  HYDROGRAPH PLOT SCALE
                         IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                          IOUT         21  SAVE HYDROGRAPH ON THIS UNIT
                         ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                         ISAV2       1000  LAST ORDINATE PUNCHED OR SAVED
                        TIMINT       .033  TIME INTERVAL IN HOURS


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

              **************
              *            *
2161 KK       *    CA07B5  *
              *            *
              **************
```

```
2162 KO          OUTPUT CONTROL VARIABLES
                       IPRNT           5  PRINT CONTROL
                       IPLOT           0  PLOT CONTROL
                       QSCAL          0.  HYDROGRAPH PLOT SCALE
                       IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                        IOUT          21  SAVE HYDROGRAPH ON THIS UNIT
                       ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                       ISAV2        1000  LAST ORDINATE PUNCHED OR SAVED
                      TIMINT        .033  TIME INTERVAL IN HOURS


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

              **************
              *            *
2255 KK       *      CS30  *
              *            *
              **************

2256 KO          OUTPUT CONTROL VARIABLES
                       IPRNT           5  PRINT CONTROL
                       IPLOT           0  PLOT CONTROL
                       QSCAL          0.  HYDROGRAPH PLOT SCALE
                       IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                        IOUT          21  SAVE HYDROGRAPH ON THIS UNIT
                       ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                       ISAV2        1000  LAST ORDINATE PUNCHED OR SAVED
                      TIMINT        .033  TIME INTERVAL IN HOURS


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***
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2258 KK       *    CA07B6  *
              *            *
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2259 KO          OUTPUT CONTROL VARIABLES
                       IPRNT           5  PRINT CONTROL
                       IPLOT           0  PLOT CONTROL
                       QSCAL          0.  HYDROGRAPH PLOT SCALE
                       IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                        IOUT          21  SAVE HYDROGRAPH ON THIS UNIT
                       ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                       ISAV2        1000  LAST ORDINATE PUNCHED OR SAVED
                      TIMINT        .033  TIME INTERVAL IN HOURS


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              *            *
2261 KK       *     RA07B  *
              *            *
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2262 KO          OUTPUT CONTROL VARIABLES
                       IPRNT           3  PRINT CONTROL
                       IPLOT           0  PLOT CONTROL
                       QSCAL          0.  HYDROGRAPH PLOT SCALE
                       IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                        IOUT          21  SAVE HYDROGRAPH ON THIS UNIT
                       ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                       ISAV2        1000  LAST ORDINATE PUNCHED OR SAVED
                      TIMINT        .033  TIME INTERVAL IN HOURS

                 HYDROGRAPH ROUTING DATA

2263 RS            STORAGE ROUTING
                       NSTPS           1  NUMBER OF SUBREACHES
                        ITYP        FLOW  TYPE OF INITIAL CONDITION
                      RSVRIC         .00  INITIAL CONDITION
                           X         .00 WORKING R AND D COEFFICIENT

2264 RC            NORMAL DEPTH CHANNEL
                         ANL        .030  LEFT OVERBANK N-VALUE
                        ANCH        .030  MAIN CHANNEL N-VALUE
                         ANR        .030  RIGHT OVERBANK N-VALUE
                       RLNTH       2990.  REACH LENGTH
                         SEL       .0057  ENERGY SLOPE
                       ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                    CROSS-SECTION DATA
                              --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
2266 RY       ELEVATION     10.00     9.00     8.00     7.00      .00      .00     7.00     9.00
2265 RX       DISTANCE        .00    76.00   136.00   197.00   222.00   227.00   242.00   367.00

                                                  ***

                                  COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE         .00      .23      .58     1.03     1.59     2.26     3.04     3.93     4.92     6.03
          OUTFLOW         .00     7.31    26.38    58.46   105.42   169.18   251.55   354.30   479.13   627.69
        ELEVATION         .00      .53     1.05     1.58     2.11     2.63     3.16     3.68     4.21     4.74

          STORAGE        7.24     8.56     9.99    11.53    13.73    18.17    24.95    34.07    45.16    57.69
          OUTFLOW      801.57  1002.31  1231.40  1490.33  1286.23  1441.65  2108.65  3087.89  4505.07  6262.80
        ELEVATION        5.26     5.79     6.32     6.84     7.37     7.89     8.42     8.95     9.47    10.00

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

                       HYDROGRAPH AT STATION    RA07B
                      TRANSPOSITION AREA       .0 SQ MI

  PEAK FLOW     TIME                                MAXIMUM AVERAGE FLOW
                                      6-HR          24-HR          72-HR      33.30-HR
+   (CFS)       (HR)
                  (CFS)
+    1223.      4.97              390.           102.            74.            74.
                (INCHES)          .956          1.000          1.000          1.000
                 (AC-FT)          194.           202.           202.           202.

 PEAK STORAGE   TIME                          MAXIMUM AVERAGE STORAGE
```

+ (AC-FT)	(HR)	6-HR	24-HR	72-HR	33.30-HR
10.	4.97	4.	1.	1.	1.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
+ (FEET)	(HR)	6-HR	24-HR	72-HR	33.30-HR
6.30	4.97	3.35	1.04	.75	.75

CUMULATIVE AREA = 3.80 SQ MI

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HYDROGRAPH AT STATION RA07B
TRANSPOSITION AREA .5 SQ MI

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
+ (CFS)	(HR)	6-HR	24-HR	72-HR	33.30-HR
+ 1215.	4.97	(CFS) 387.	101.	73.	73.
		(INCHES) .947	.991	.991	.991
		(AC-FT) 192.	201.	201.	201.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
+ (AC-FT)	(HR)	6-HR	24-HR	72-HR	33.30-HR
10.	4.97	4.	1.	1.	1.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
+ (FEET)	(HR)	6-HR	24-HR	72-HR	33.30-HR
6.28	4.97	3.34	1.04	.75	.75

CUMULATIVE AREA = 3.80 SQ MI

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HYDROGRAPH AT STATION RA07B
TRANSPOSITION AREA 2.8 SQ MI

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
+ (CFS)	(HR)	6-HR	24-HR	72-HR	33.30-HR
+ 940.	5.13	(CFS) 314.	83.	59.	59.
		(INCHES) .769	.809	.809	.809
		(AC-FT) 156.	164.	164.	164.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
+ (AC-FT)	(HR)	6-HR	24-HR	72-HR	33.30-HR
8.	5.13	3.	1.	1.	1.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
+ (FEET)	(HR)	6-HR	24-HR	72-HR	33.30-HR
5.63	5.13	3.08	.96	.69	.69

CUMULATIVE AREA = 3.80 SQ MI

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HYDROGRAPH AT STATION RA07B
TRANSPOSITION AREA 16.0 SQ MI

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
+ (CFS)	(HR)	6-HR	24-HR	72-HR	33.30-HR
+ 693.	5.20	(CFS) 246.	66.	47.	47.
		(INCHES) .603	.645	.645	.645
		(AC-FT) 122.	131.	131.	131.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
+ (AC-FT)	(HR)	6-HR	24-HR	72-HR	33.30-HR
6.	5.20	3.	1.	1.	1.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
+ (FEET)	(HR)	6-HR	24-HR	72-HR	33.30-HR
4.94	5.20	2.82	.90	.65	.65

CUMULATIVE AREA = 3.80 SQ MI

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HYDROGRAPH AT STATION RA07B
TRANSPOSITION AREA 90.0 SQ MI

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
+ (CFS)	(HR)	6-HR	24-HR	72-HR	33.30-HR
+ 417.	5.37	(CFS) 169.	46.	33.	33.
		(INCHES) .414	.453	.453	.453
		(AC-FT) 84.	92.	92.	92.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
+ (AC-FT)	(HR)	6-HR	24-HR	72-HR	33.30-HR
4.	5.37	2.	1.	0.	0.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
+ (FEET)	(HR)	6-HR	24-HR	72-HR	33.30-HR
3.95	5.37	2.43	.79	.57	.57

CUMULATIVE AREA = 3.80 SQ MI

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INTERPOLATED HYDROGRAPH AT RA07B

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
+ (CFS)	(HR)	6-HR	24-HR	72-HR	33.30-HR
+ 896.	5.13	(CFS) 302.	80.	57.	57.
		(INCHES) .740	.780	.780	.780
		(AC-FT) 150.	158.	158.	158.

CUMULATIVE AREA = 3.80 SQ MI

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          *            *
2279 KK   *     RA06A  *
          *            *
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2280 KO OUTPUT CONTROL VARIABLES

IPRNT	3	PRINT CONTROL
IPLOT	0	PLOT CONTROL
QSCAL	0.	HYDROGRAPH PLOT SCALE
IPNCH	0	PUNCH COMPUTED HYDROGRAPH
IOUT	21	SAVE HYDROGRAPH ON THIS UNIT
ISAV1	1	FIRST ORDINATE PUNCHED OR SAVED
ISAV2	1000	LAST ORDINATE PUNCHED OR SAVED
TIMINT	.033	TIME INTERVAL IN HOURS

HYDROGRAPH ROUTING DATA

2281 RS STORAGE ROUTING

NSTPS	3	NUMBER OF SUBREACHES
ITYP	FLOW	TYPE OF INITIAL CONDITION
RSVRIC	.00	INITIAL CONDITION
X	.00	WORKING R AND D COEFFICIENT

2282 RC NORMAL DEPTH CHANNEL

ANL	.030	LEFT OVERBANK N-VALUE
ANCH	.020	MAIN CHANNEL N-VALUE
ANR	.030	RIGHT OVERBANK N-VALUE
RLNTH	2500.	REACH LENGTH
SEL	.0070	ENERGY SLOPE
ELMAX	.0	MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

CROSS-SECTION DATA

		--- LEFT OVERBANK ---	+	------ MAIN CHANNEL -------	+	--- RIGHT OVERBANK ---			
2284 RY	ELEVATION	10.00	9.00	8.00	7.00	.00	.00	7.00	9.00
2283 RX	DISTANCE	.00	76.00	136.00	197.00	222.00	247.00	262.00	387.00

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COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

STORAGE	.00	.80	1.69	2.67	3.75	4.91	6.17	7.51	8.95	10.48
OUTFLOW	.00	54.55	176.89	355.36	586.92	870.76	1207.06	1596.53	2040.19	2539.30
ELEVATION	.00	.53	1.05	1.58	2.11	2.63	3.16	3.68	4.21	4.74
STORAGE	12.09	13.80	15.60	17.49	19.93	24.25	30.53	38.76	48.63	59.72
OUTFLOW	3095.19	3709.31	4383.17	5118.29	4738.53	4874.45	6264.74	8174.72	10622.47	13499.00
ELEVATION	5.26	5.79	6.32	6.84	7.37	7.89	8.42	8.95	9.47	10.00

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN 587. TO 13499.
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.)

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HYDROGRAPH AT STATION RA06A
TRANSPOSITION AREA .0 SQ MI

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	33.30-HR
+ (CFS)	(HR)				
		(CFS)			
+ 1266.	5.00	416.	109.	79.	79.
		(INCHES) .950	.995	.995	.995
		(AC-FT) 206.	216.	216.	216.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
		6-HR	24-HR	72-HR	33.30-HR
+ (AC-FT)	(HR)				
2.	5.00	1.	0.	0.	0.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
		6-HR	24-HR	72-HR	33.30-HR
+ (FEET)	(HR)				
3.24	5.00	1.53	.43	.31	.31

CUMULATIVE AREA = 4.07 SQ MI

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HYDROGRAPH AT STATION RA06A
TRANSPOSITION AREA .5 SQ MI

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	33.30-HR
+ (CFS)	(HR)				
		(CFS)			
+ 1256.	5.00	413.	108.	78.	78.
		(INCHES) .941	.986	.986	.986
		(AC-FT) 205.	214.	214.	214.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
		6-HR	24-HR	72-HR	33.30-HR
+ (AC-FT)	(HR)				
2.	5.00	1.	0.	0.	0.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
		6-HR	24-HR	72-HR	33.30-HR
+ (FEET)	(HR)				
3.22	5.00	1.52	.43	.31	.31

CUMULATIVE AREA = 4.07 SQ MI

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HYDROGRAPH AT STATION RA06A
TRANSPOSITION AREA 2.8 SQ MI

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	33.30-HR
+ (CFS)	(HR)				
		(CFS)			
+ 964.	5.17	332.	88.	63.	63.
		(INCHES) .758	.799	.799	.799

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                        (AC-FT)      165.          174.         174.          174.

   PEAK STORAGE    TIME                          MAXIMUM AVERAGE STORAGE
                                     6-HR          24-HR        72-HR       33.30-HR
 + (AC-FT)         (HR)
       2.          5.17                1.            0.           0.            0.

     PEAK STAGE    TIME                          MAXIMUM AVERAGE STAGE
                                     6-HR          24-HR        72-HR       33.30-HR
 +   (FEET)        (HR)
      2.78         5.17              1.36           .38          .28           .28

                        CUMULATIVE AREA =    4.07 SQ MI


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                         HYDROGRAPH AT STATION     RA06A
                        TRANSPOSITION AREA     16.0 SQ MI

     PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR          24-HR        72-HR       33.30-HR
 +   (CFS)         (HR)
                          (CFS)
 +     710.        5.23              259.           70.          50.           50.
                        (INCHES)     .591          .635         .635          .635
                         (AC-FT)     129.          138.         138.          138.

   PEAK STORAGE    TIME                          MAXIMUM AVERAGE STORAGE
                                     6-HR          24-HR        72-HR       33.30-HR
 + (AC-FT)         (HR)
       1.          5.23                1.            0.           0.            0.

     PEAK STAGE    TIME                          MAXIMUM AVERAGE STAGE
                                     6-HR          24-HR        72-HR       33.30-HR
 +   (FEET)        (HR)
      2.33         5.23              1.19           .34          .25           .25

                        CUMULATIVE AREA =    4.07 SQ MI


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

                         HYDROGRAPH AT STATION     RA06A
                        TRANSPOSITION AREA     90.0 SQ MI

     PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR          24-HR        72-HR       33.30-HR
 +   (CFS)         (HR)
                          (CFS)
 +     427.        5.40              177.           49.          35.           35.
                        (INCHES)     .404          .445         .445          .445
                         (AC-FT)      88.           97.          97.           97.

   PEAK STORAGE    TIME                          MAXIMUM AVERAGE STORAGE
                                     6-HR          24-HR        72-HR       33.30-HR
 + (AC-FT)         (HR)
       1.          5.40                1.            0.           0.            0.

     PEAK STAGE    TIME                          MAXIMUM AVERAGE STAGE
                                     6-HR          24-HR        72-HR       33.30-HR
 +   (FEET)        (HR)
      1.74         5.40               .97           .29          .21           .21
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                        CUMULATIVE AREA =    4.07 SQ MI

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                        INTERPOLATED HYDROGRAPH AT      RA06A

     PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR          24-HR        72-HR       33.30-HR
 +   (CFS)         (HR)
                          (CFS)
 +     908.        5.17              316.           84.          60.           60.
                        (INCHES)     .722          .764         .764          .764
                         (AC-FT)     157.          166.         166.          166.

                        CUMULATIVE AREA =    4.07 SQ MI


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              *            *
2312 KK       *     RA07   *
              *            *
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2313 KO            OUTPUT CONTROL VARIABLES
                         IPRNT           3  PRINT CONTROL
                         IPLOT           0  PLOT CONTROL
                         QSCAL          0.  HYDROGRAPH PLOT SCALE

                 HYDROGRAPH ROUTING DATA

2314 RS            STORAGE ROUTING
                         NSTPS          22  NUMBER OF SUBREACHES
                          ITYP        FLOW  TYPE OF INITIAL CONDITION
                        RSVRIC         .00  INITIAL CONDITION
                             X         .00 WORKING R AND D COEFFICIENT

2315 RC            NORMAL DEPTH CHANNEL
                           ANL        .050  LEFT OVERBANK N-VALUE
                          ANCH        .050  MAIN CHANNEL N-VALUE
                           ANR        .050  RIGHT OVERBANK N-VALUE
                         RLNTH       3464.  REACH LENGTH
                           SEL       .0061  ENERGY SLOPE
                         ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                                CROSS-SECTION DATA
                            --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
2317 RY          ELEVATION    12.00      8.00      1.00       .00       .00      1.00      8.00     12.00
2316 RX          DISTANCE       .00    100.00    200.00    250.00    300.00    350.00    900.00   1000.00
                                                                ***

                                              COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

            STORAGE       .00      4.10     11.35     21.58     34.76     50.88     69.96     91.97    116.93    144.84
            OUTFLOW       .00     70.97    311.16    784.19   1502.36   2499.41   3807.27   5456.45   7476.22   9894.83
          ELEVATION       .00       .63      1.26      1.89      2.53      3.16      3.79      4.42      5.05      5.68
```

STORAGE	175.69	209.49	246.23	285.85	327.35	370.43	415.11	461.37	509.21	558.65
OUTFLOW	12739.61	16037.02	19812.86	24205.16	29341.63	34994.61	41163.93	47851.60	55061.14	62797.14
ELEVATION	6.32	6.95	7.58	8.21	8.84	9.47	10.11	10.74	11.37	12.00

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN 71. TO 62797.
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.)

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HYDROGRAPH AT STATION RA07
TRANSPOSITION AREA .0 SQ MI

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	33.30-HR
+ (CFS)	(HR)				
		(CFS)			
+ 81.	4.60	17.	4.	3.	3.
		(INCHES) .634	.654	.654	.654
		(AC-FT) 8.	8.	8.	8.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	33.30-HR
+ (AC-FT)	(HR)				
0.	4.60	0.	0.	0.	0.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	33.30-HR
+ (FEET)	(HR)				
.66	4.60	.15	.04	.03	.03

CUMULATIVE AREA = .24 SQ MI

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HYDROGRAPH AT STATION RA07
TRANSPOSITION AREA .5 SQ MI

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	33.30-HR
+ (CFS)	(HR)				
		(CFS)			
+ 79.	4.60	16.	4.	3.	3.
		(INCHES) .626	.646	.646	.646
		(AC-FT) 8.	8.	8.	8.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	33.30-HR
+ (AC-FT)	(HR)				
0.	4.60	0.	0.	0.	0.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	33.30-HR
+ (FEET)	(HR)				
.65	4.60	.14	.04	.03	.03

CUMULATIVE AREA = .24 SQ MI

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HYDROGRAPH AT STATION RA07
TRANSPOSITION AREA 2.8 SQ MI

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	33.30-HR
+ (CFS)	(HR)				
		(CFS)			
+ 19.	5.33	8.	2.	1.	1.
		(INCHES) .294	.311	.311	.311
		(AC-FT) 4.	4.	4.	4.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	33.30-HR
+ (AC-FT)	(HR)				
0.	5.27	0.	0.	0.	0.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	33.30-HR
+ (FEET)	(HR)				
.17	5.33	.07	.02	.01	.01

CUMULATIVE AREA = .24 SQ MI

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HYDROGRAPH AT STATION RA07
TRANSPOSITION AREA 16.0 SQ MI

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	33.30-HR
+ (CFS)	(HR)				
		(CFS)			
+ 12.	5.40	6.	2.	1.	1.
		(INCHES) .215	.233	.233	.233
		(AC-FT) 3.	3.	3.	3.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	33.30-HR
+ (AC-FT)	(HR)				
0.	5.20	0.	0.	0.	0.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	33.30-HR
+ (FEET)	(HR)				
.11	5.40	.05	.01	.01	.01

CUMULATIVE AREA = .24 SQ MI

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HYDROGRAPH AT STATION RA07
TRANSPOSITION AREA 90.0 SQ MI

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	33.30-HR
+ (CFS)	(HR)				
		(CFS)			
+ 8.	5.07	4.	1.	1.	1.
		(INCHES) .165	.183	.183	.183
		(AC-FT) 2.	2.	2.	2.

PEAK STORAGE TIME MAXIMUM AVERAGE STORAGE

DCR10-6

+ (AC-FT)	(HR)	6-HR	24-HR	72-HR	33.30-HR
0.	4.87	0.	0.	0.	0.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
+ (FEET)	(HR)	6-HR	24-HR	72-HR	33.30-HR
.07	5.07	.04	.01	.01	.01

CUMULATIVE AREA = .24 SQ MI

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INTERPOLATED HYDROGRAPH AT RA07

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	33.30-HR
+ (CFS)	(HR)					
		(CFS)				
+ 79.	4.60		16.	4.	3.	3.
		(INCHES)	.628	.648	.648	.648
		(AC-FT)	8.	8.	8.	8.

CUMULATIVE AREA = .24 SQ MI

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RUNOFF SUMMARY
FLOW IN CUBIC FEET PER SECOND
TIME IN HOURS, AREA IN SQUARE MILES

+	OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
+	HYDROGRAPH AT	CBA	7.	4.13	1.	0.	0.	.01		
+	ROUTED TO	RCBA	7.	4.27	1.	0.	0.	.01		
+	HYDROGRAPH AT	P28	29.	4.17	4.	1.	1.	.03		
+	2 COMBINED AT	CP28	35.	4.20	5.	1.	1.	.03		
+	DIVERSION TO	DB28	35.	4.20	2.	1.	0.	.03		
+	HYDROGRAPH AT	DT28	30.	4.37	2.	1.	0.	.03		
+	HYDROGRAPH AT	CBB	17.	4.13	1.	0.	0.	.02		
+	ROUTED TO	RCBB	17.	4.17	1.	0.	0.	.02		
+	2 COMBINED AT	CP28a	40.	4.37	4.	1.	1.	.05		
+	ROUTED TO	R28a	30.	4.60	4.	1.	1.	.05		
+	HYDROGRAPH AT	P27	52.	4.23	9.	2.	2.	.06		
+	DIVERSION TO	DB27	50.	4.17	3.	1.	0.	.06		
+	HYDROGRAPH AT	DT27	52.	4.23	7.	2.	1.	.06		
+	2 COMBINED AT	CP27	68.	4.53	11.	3.	2.	.12		
+	HYDROGRAPH AT	P27A	8.	4.10	1.	0.	0.	.01		
+	DIVERSION TO	DB27a	8.	4.10	0.	0.	0.	.01		
+	HYDROGRAPH AT	DT27a	7.	4.17	1.	0.	0.	.01		
+	HYDROGRAPH AT	P27B	11.	4.13	2.	0.	0.	.01		
+	DIVERSION TO	DB27b	10.	4.07	1.	0.	0.	.01		
+	HYDROGRAPH AT	DT27b	11.	4.13	1.	0.	0.	.01		
+	HYDROGRAPH AT	CBL	24.	4.13	3.	1.	1.	.03		
+	4 COMBINED AT	CCBL	96.	4.30	15.	4.	3.	.16		
+	ROUTED TO	RCBL	105.	4.33	15.	4.	3.	.16		
+	HYDROGRAPH AT	CBK	43.	4.23	4.	1.	1.	.05		
+	2 COMBINED AT	CCBK	140.	4.33	19.	5.	3.	.22		
+	ROUTED TO	RCBK	136.	4.37	19.	5.	3.	.22		
+	HYDROGRAPH AT	P14	5.	4.17	0.	0.	0.	.01		
+	DIVERSION TO	RB14	5.	4.17	0.	0.	0.	.01		
+	HYDROGRAPH AT	RT14	0.	.00	0.	0.	0.	.01		
+	2 COMBINED AT	CP14	136.	4.37	19.	5.	3.	.22		
+	HYDROGRAPH AT	P15	1.	4.47	0.	0.	0.	.01		

+	DIVERSION TO	DB15	1.	4.47	0.	0.	0.	.01
+	HYDROGRAPH AT	DT15	0.	.00	0.	0.	0.	.01
+	HYDROGRAPH AT	CBJ	11.	4.20	1.	0.	0.	.01
+	3 COMBINED AT	CP15	144.	4.37	20.	5.	4.	.25
+	ROUTED TO	R15	142.	4.40	20.	5.	4.	.25
+	HYDROGRAPH AT	CBH	15.	4.10	1.	0.	0.	.01
+	ROUTED TO	RCBH	13.	4.20	1.	0.	0.	.01
+	HYDROGRAPH AT	P25S	13.	4.27	2.	1.	0.	.03
+	2 COMBINED AT	CP25S	25.	4.23	3.	1.	1.	.04
+	2 COMBINED AT	AFR0	162.	4.40	24.	6.	4.	.29
+	HYDROGRAPH AT	E1	12.	4.13	1.	0.	0.	.01
+	ROUTED TO	RE1	12.	4.23	1.	0.	0.	.01
+	HYDROGRAPH AT	E2	11.	4.17	1.	0.	0.	.02
+	ROUTED TO	RE2	11.	4.20	1.	0.	0.	.02
+	HYDROGRAPH AT	P13	55.	4.13	6.	2.	1.	.06
+	DIVERSION TO	DB13	49.	4.07	2.	1.	0.	.06
+	HYDROGRAPH AT	DT13	55.	4.13	4.	1.	1.	.06
+	3 COMBINED AT	CP13	75.	4.17	6.	1.	1.	.09
+	ROUTED TO	R13	74.	4.27	6.	1.	1.	.09
+	HYDROGRAPH AT	P12	29.	4.23	5.	1.	1.	.04
+	DIVERSION TO	DB12	29.	4.23	2.	1.	0.	.04

+	HYDROGRAPH AT	DT12	25.	4.40	2.	1.	0.	.04
+	2 COMBINED AT	CP12	85.	4.40	8.	2.	1.	.13
+	HYDROGRAPH AT	E3	25.	4.60	6.	1.	1.	.08
+	ROUTED TO	RE3	25.	4.67	6.	1.	1.	.08
+	HYDROGRAPH AT	P10	42.	4.20	6.	1.	1.	.05
+	DIVERSION TO	DB10	42.	4.17	2.	1.	0.	.05
+	HYDROGRAPH AT	DT10	42.	4.23	4.	1.	1.	.05
+	2 COMBINED AT	CP10	53.	4.30	9.	2.	2.	.14
+	ROUTED TO	R10	53.	4.43	9.	2.	2.	.14
+	HYDROGRAPH AT	P11	16.	4.43	4.	1.	1.	.04
+	DIVERSION TO	DB11	16.	4.43	2.	1.	0.	.04
+	HYDROGRAPH AT	DT11	13.	4.90	2.	1.	0.	.04
+	2 COMBINED AT	CP11	53.	4.43	11.	3.	2.	.18
+	HYDROGRAPH AT	E4	11.	4.53	3.	1.	0.	.04
+	ROUTED TO	RE4	11.	4.60	3.	1.	0.	.04
+	HYDROGRAPH AT	P9	36.	4.17	5.	1.	1.	.05
+	DIVERSION TO	DB9	35.	4.13	2.	0.	0.	.05
+	HYDROGRAPH AT	DT9	35.	4.20	3.	1.	1.	.05
+	HYDROGRAPH AT	HV1	2.	4.40	1.	0.	0.	.01
+	3 COMBINED AT	CP9	41.	4.20	6.	2.	1.	.09
+	ROUTED TO	R9	41.	4.27	6.	2.	1.	.09
+	HYDROGRAPH AT							

+	P8	6.	4.33	1.	0.	0.	.01
+ DIVERSION TO	DB8	6.	4.33	1.	0.	0.	.01
+ HYDROGRAPH AT	DT8	5.	4.53	1.	0.	0.	.01
+ HYDROGRAPH AT	P7	7.	4.27	1.	0.	0.	.01
+ DIVERSION TO	DB7	7.	4.27	1.	0.	0.	.01
+ HYDROGRAPH AT	DT7	7.	4.43	1.	0.	0.	.01
+ 3 COMBINED AT	CP7	43.	4.53	8.	2.	1.	.12
+ ROUTED TO	R7	45.	4.30	8.	2.	1.	.12
+ HYDROGRAPH AT	P6	19.	4.67	7.	2.	1.	.07
+ DIVERSION TO	DB6	19.	4.67	4.	1.	1.	.07
+ HYDROGRAPH AT	DT6	16.	5.23	4.	1.	1.	.07
+ 2 COMBINED AT	CP6	45.	4.30	12.	3.	2.	.19
+ 3 COMBINED AT	HPVLY	174.	4.40	31.	8.	6.	.50
+ HYDROGRAPH AT	A11MA	106.	4.13	9.	2.	2.	.07
+ DIVERSION TO	DA11MA	106.	4.13	7.	2.	1.	.07
+ HYDROGRAPH AT	A11MAQ	49.	4.37	2.	0.	0.	.07
+ ROUTED TO	SA11MA	12.	4.63	2.	0.	0.	.07
+ ROUTED TO	RA11MA	11.	4.93	2.	0.	0.	.07
+ HYDROGRAPH AT	A11MB	262.	4.17	29.	7.	5.	.19
+ DIVERSION TO	DA11MB	181.	4.00	7.	2.	1.	.19
+ HYDROGRAPH AT	A11MBQ	262.	4.17	22.	5.	4.	.19
+ ROUTED TO	SA11MB	31.	4.80	21.	5.	4.	.19

+ HYDROGRAPH AT	A11NA	93.	4.13	8.	2.	2.	.08
+ ROUTED TO	SA11NA	25.	4.47	8.	2.	2.	.08
+ ROUTED TO	RA11NA	25.	4.77	8.	2.	2.	.08
+ 3 COMBINED AT	CA11MB	67.	4.90	31.	8.	6.	.34
+ ROUTED TO	RA11MB	66.	5.23	30.	8.	6.	.34
+ HYDROGRAPH AT	A11O	52.	4.20	6.	2.	1.	.06
+ ROUTED TO	SA11O	27.	4.50	6.	2.	1.	.06
+ ROUTED TO	RA11O	27.	4.83	6.	2.	1.	.06
+ HYDROGRAPH AT	A11KB	103.	4.17	12.	3.	2.	.11
+ ROUTED TO	SA11KB	24.	4.73	12.	3.	2.	.11
+ HYDROGRAPH AT	A11KA	92.	4.13	10.	3.	2.	.08
+ ROUTED TO	SA11KA	24.	4.57	10.	3.	2.	.08
+ ROUTED TO	RA11KA	24.	4.87	10.	3.	2.	.08
+ 3 COMBINED AT	CA11KB	75.	4.83	28.	7.	5.	.24
+ ROUTED TO	RA11KB	75.	5.03	28.	7.	5.	.24
+ HYDROGRAPH AT	A11G	38.	4.37	6.	2.	1.	.06
+ ROUTED TO	RA11GN	36.	4.60	6.	2.	1.	.06
+ HYDROGRAPH AT	A11KC	123.	4.17	14.	3.	2.	.13
+ ROUTED TO	SA11KC	31.	4.67	13.	3.	2.	.13
+ 3 COMBINED AT	CA11KC	131.	4.80	47.	12.	9.	.44
+ ROUTED TO	RA11KC	131.	4.90	47.	12.	9.	.44

+	HYDROGRAPH AT A11J	69.	4.50	13.	3.	2.	.11
+	ROUTED TO SA11J	30.	5.13	13.	3.	2.	.11
+	3 COMBINED AT CA11J	208.	5.07	84.	22.	16.	.89
+	HYDROGRAPH AT A11L	189.	4.40	41.	10.	7.	.26
+	DIVERSION TO DA11L	189.	4.40	15.	4.	3.	.26
+	HYDROGRAPH AT DA11LQ	184.	4.50	26.	6.	5.	.26
+	ROUTED TO RA11L	162.	4.83	26.	6.	5.	.26
+	HYDROGRAPH AT A11I	155.	4.23	25.	6.	4.	.15
+	DIVERSION TO DA11I	155.	4.23	24.	6.	4.	.15
+	HYDROGRAPH AT DA11IQ	15.	5.50	1.	0.	0.	.15
+	3 COMBINED AT CA11I	342.	4.93	106.	27.	20.	1.31
+	ROUTED TO RA11I	331.	5.27	105.	27.	20.	1.31
+	HYDROGRAPH AT A11EA	52.	4.57	11.	3.	2.	.14
+	ROUTED TO RA11EA	51.	4.77	11.	3.	2.	.14
+	HYDROGRAPH AT A11EB	41.	4.90	13.	3.	2.	.19
+	3 COMBINED AT CA11EB	368.	5.27	118.	31.	22.	1.64
+	HYDROGRAPH AT 41	56.	4.20	5.	1.	1.	.05
+	ROUTED TO B41	46.	4.27	5.	1.	1.	.05
+	HYDROGRAPH AT 42	88.	4.20	10.	2.	2.	.08
+	ROUTED TO B42	77.	4.27	10.	2.	2.	.08
+	2 COMBINED AT C41	122.	4.27	15.	4.	3.	.13
+	ROUTED TO RC41	104.	4.77	15.	4.	3.	.13
+	HYDROGRAPH AT A11F	131.	4.60	25.	6.	5.	.33
+	2 COMBINED AT CA11F	223.	4.70	39.	10.	7.	.46
+	2 COMBINED AT CA11E	428.	5.23	139.	36.	26.	2.11
+	ROUTED TO RA11E	422.	5.33	139.	36.	26.	2.11
+	HYDROGRAPH AT A09U	136.	4.27	17.	4.	3.	.17
+	DIVERSION TO A09UI	0.	.00	0.	0.	0.	.17
+	HYDROGRAPH AT DA09U	136.	4.27	17.	4.	3.	.17
+	ROUTED TO RA09UW	111.	4.73	17.	4.	3.	.17
+	HYDROGRAPH AT A09T	71.	4.53	12.	3.	2.	.18
+	2 COMBINED AT CA09T	172.	4.67	29.	7.	5.	.36
+	DIVERSION TO A09TI	0.	.00	0.	0.	0.	.36
+	HYDROGRAPH AT DA09T	172.	4.67	29.	7.	5.	.36
+	ROUTED TO RA09TW	169.	4.77	29.	7.	5.	.36
+	HYDROGRAPH AT A11A	202.	4.47	37.	9.	7.	.30
+	DIVERSION TO DA11A	200.	4.43	16.	4.	3.	.30
+	HYDROGRAPH AT DA11AQ	201.	4.50	22.	6.	4.	.30
+	3 COMBINED AT CX23	485.	5.30	164.	43.	31.	2.76
+	ROUTED TO RX23	472.	5.57	164.	43.	31.	2.76
+	HYDROGRAPH AT S1	46.	4.57	10.	3.	2.	.12
+	HYDROGRAPH AT P2	50.	4.13	6.	1.	1.	.05
+	DIVERSION TO RB2	50.	4.13	6.	1.	1.	.05

+	HYDROGRAPH AT	RT2	0.	.00	0.	0.	0.	.05
+	3 COMBINED AT	CS1	474.	5.57	167.	44.	32.	2.93
+	ROUTED TO	RS1	474.	5.60	167.	44.	32.	2.93
+	HYDROGRAPH AT	S2	13.	4.10	1.	0.	0.	.01
+	HYDROGRAPH AT	S3	8.	4.07	0.	0.	0.	.01
+	3 COMBINED AT	CS2	473.	5.63	167.	44.	32.	2.95
+	ROUTED TO	RS2	473.	5.63	167.	44.	32.	2.95
+	HYDROGRAPH AT	P3	37.	4.23	6.	2.	1.	.05
+	DIVERSION TO	RB3	37.	4.23	6.	2.	1.	.05
+	HYDROGRAPH AT	RT3	0.	.00	0.	0.	0.	.05
+	2 COMBINED AT	CP3	473.	5.63	167.	44.	32.	3.01
+	HYDROGRAPH AT	P4b	22.	4.10	2.	0.	0.	.02
+	DIVERSION TO	RB4b	16.	3.97	1.	0.	0.	.02
+	HYDROGRAPH AT	RT4b	22.	4.10	1.	0.	0.	.02
+	HYDROGRAPH AT	S4	5.	4.37	1.	0.	0.	.01
+	HYDROGRAPH AT	P1	15.	4.33	2.	1.	0.	.03
+	DIVERSION TO	DB1	15.	4.33	1.	0.	0.	.03
+	HYDROGRAPH AT	DT1	12.	4.50	1.	0.	0.	.03
+	2 COMBINED AT	CP1	17.	4.50	2.	1.	0.	.04
+	HYDROGRAPH AT	HV2	3.	5.30	2.	1.	1.	.03
+	ROUTED TO	RHV2	3.	5.37	2.	1.	1.	.03

+	DIVERSION TO	DBHV2	3.	5.37	1.	0.	0.	.03
+	HYDROGRAPH AT	DTHV2	2.	7.17	1.	0.	0.	.03
+	HYDROGRAPH AT	P4a	22.	4.27	4.	1.	1.	.04
+	DIVERSION TO	DB4a	22.	4.27	1.	0.	0.	.04
+	HYDROGRAPH AT	DT4a	21.	4.37	3.	1.	0.	.04
+	5 COMBINED AT	SOUTH	472.	5.63	169.	45.	32.	3.14
+	HYDROGRAPH AT	N11O	27.	4.43	3.	1.	1.	.05
+	DIVERSION TO	N11OI	24.	4.43	3.	1.	1.	.05
+	HYDROGRAPH AT	DN11O	3.	4.43	0.	0.	0.	.05
+	ROUTED TO	RN11OW	2.	5.50	0.	0.	0.	.05
+	HYDROGRAPH AT	DRA09T	0.	.00	0.	0.	0.	.36
+	ROUTED TO	RA09TS	0.	.00	0.	0.	0.	.36
+	HYDROGRAPH AT	A09R	33.	4.83	9.	2.	2.	.14
+	3 COMBINED AT	CA09R	33.	4.83	9.	2.	2.	.20
+	DIVERSION TO	A09RI	32.	4.83	9.	2.	2.	.20
+	HYDROGRAPH AT	DA09R	0.	4.83	0.	0.	0.	.20
+	ROUTED TO	RA09RW	0.	7.20	0.	0.	0.	.20
+	HYDROGRAPH AT	A09S	59.	4.27	12.	3.	2.	.07
+	DIVERSION TO	DA09S	59.	4.27	12.	3.	2.	.07
+	HYDROGRAPH AT	DA09SQ	0.	.00	0.	0.	0.	.07
+	2 COMBINED AT	CA09S	0.	7.20	0.	0.	0.	.27
	ROUTED TO							

+		RA09SW	0.	7.37	0.	0.	0.	.27
+	HYDROGRAPH AT	A09QA	37.	4.50	6.	1.	1.	.09
+	2 COMBINED AT	CA09QA	36.	4.50	6.	1.	1.	.36
+	DIVERSION TO	A09QAI	36.	4.50	5.	1.	1.	.36
+	HYDROGRAPH AT	DA09QA	1.	5.20	0.	0.	0.	.36
+	ROUTED TO	RA09QW	1.	5.33	0.	0.	0.	.36
+	HYDROGRAPH AT	A99YA	55.	4.37	7.	2.	1.	.10
+	2 COMBINED AT	CA99YA	55.	4.37	7.	2.	1.	.46
+	ROUTED TO	RA99YA	53.	4.47	7.	2.	1.	.46
+	HYDROGRAPH AT	A99YB	66.	4.50	10.	3.	2.	.17
+	3 COMBINED AT	CA99YB	468.	5.63	172.	46.	33.	3.77
+	3 COMBINED AT	AFR1	483.	5.63	193.	51.	37.	4.56
+	HYDROGRAPH AT	BA09UI	0.	.00	0.	0.	0.	.17
+	ROUTED TO	RA09US	0.	.00	0.	0.	0.	.17
+	HYDROGRAPH AT	N11NB	56.	4.53	11.	3.	2.	.14
+	2 COMBINED AT	CN11NB	56.	4.53	11.	3.	2.	.14
+	ROUTED TO	RN11NW	51.	5.10	11.	3.	2.	.14
+	HYDROGRAPH AT	BN11OI	24.	4.43	3.	1.	1.	.05
+	ROUTED TO	RN11OS	19.	5.10	3.	1.	1.	.05
+	HYDROGRAPH AT	N11M	44.	4.43	6.	1.	1.	.10
+	3 COMBINED AT	CN11M	80.	5.07	20.	5.	4.	.24
+	DIVERSION TO	N11MI	20.	5.07	5.	1.	1.	.24

+	HYDROGRAPH AT	DN11M	60.	5.07	15.	4.	3.	.24
+	ROUTED TO	RN11MS	58.	5.33	15.	4.	3.	.24
+	HYDROGRAPH AT	N11J	79.	4.50	20.	5.	4.	.24
+	DIVERSION TO	LN11JD	67.	4.33	4.	1.	1.	.24
+	HYDROGRAPH AT	LN11J	79.	4.50	16.	4.	3.	.24
+	2 COMBINED AT	CN11J	107.	4.73	31.	8.	6.	.48
+	DIVERSION TO	N11JI	107.	4.73	31.	8.	6.	.48
+	HYDROGRAPH AT	DN11J	0.	.00	0.	0.	0.	.48
+	ROUTED TO	RN11JW	0.	.00	0.	0.	0.	.48
+	HYDROGRAPH AT	DRN11M	20.	5.07	5.	1.	1.	.24
+	ROUTED TO	RN11MW	18.	5.80	5.	1.	1.	.24
+	2 COMBINED AT	CX4	18.	5.80	5.	1.	1.	.48
+	ROUTED TO	RX4	17.	6.30	5.	1.	1.	.48
+	HYDROGRAPH AT	A09O	40.	5.00	14.	4.	3.	.19
+	ROUTED TO	SA09O	19.	6.13	12.	4.	3.	.19
+	HYDROGRAPH AT	BA09RI	32.	4.83	9.	2.	2.	.20
+	ROUTED TO	RA09RS	31.	5.30	9.	2.	2.	.20
+	3 COMBINED AT	CA09O	49.	5.77	24.	6.	5.	.68
+	DIVERSION TO	A09OI	49.	5.77	24.	6.	5.	.68
+	HYDROGRAPH AT	DA09O	0.	.00	0.	0.	0.	.68
+	ROUTED TO	RA09OW	0.	.00	0.	0.	0.	.68

+	HYDROGRAPH AT	A09P	64.	4.70	14.	4.	3.	.19
+	ROUTED TO	SA09P	29.	5.43	14.	4.	3.	.19
+	2 COMBINED AT	CA09P	25.	5.43	12.	3.	2.	.87
+	ROUTED TO	RA09P	25.	5.53	12.	3.	2.	.87
+	HYDROGRAPH AT	BA09QA	36.	4.50	5.	1.	1.	.36
+	ROUTED TO	RA09QB	34.	4.80	5.	1.	1.	.36
+	HYDROGRAPH AT	A09QB	57.	4.37	11.	3.	2.	.14
+	3 COMBINED AT	CA09Q	71.	4.77	24.	6.	4.	1.01
+	DIVERSION TO	A09QI	71.	4.77	24.	6.	4.	1.01
+	HYDROGRAPH AT	DA09Q	0.	.00	0.	0.	0.	1.01
+	ROUTED TO	RA09QW	0.	.00	0.	0.	0.	1.01
+	HYDROGRAPH AT	A10A	94.	4.47	14.	4.	3.	.19
+	2 COMBINED AT	CA10A	72.	4.50	12.	3.	2.	1.20
+	ROUTED TO	RA10A	71.	4.57	12.	3.	2.	1.20
+	HYDROGRAPH AT	A99X	233.	4.30	32.	8.	6.	.26
+	2 COMBINED AT	CA99X	210.	4.37	38.	10.	7.	1.46
+	2 COMBINED AT	AFR2	472.	5.63	210.	56.	41.	6.02
+	HYDROGRAPH AT	BA09OI	49.	5.77	24.	6.	5.	.68
+	ROUTED TO	RA09OS	49.	6.17	23.	6.	5.	.68
+	HYDROGRAPH AT	A09K	125.	4.83	26.	7.	5.	.41
+	DIVERSION TO	A09KI	91.	4.83	19.	5.	3.	.41
	HYDROGRAPH AT							

+		DA09K	34.	4.83	7.	2.	1.	.41
+	2 COMBINED AT	CX7	65.	5.80	32.	9.	6.	.41
+	ROUTED TO	RX7S	64.	6.07	32.	9.	6.	.41
+	HYDROGRAPH AT	N11NA	28.	4.13	2.	1.	0.	.02
+	ROUTED TO	RN11NA	20.	4.60	2.	1.	0.	.02
+	HYDROGRAPH AT	N11NC	91.	4.37	12.	3.	2.	.17
+	2 COMBINED AT	CN11NC	103.	4.43	15.	4.	3.	.19
+	DIVERSION TO	N11NP	103.	4.43	15.	4.	3.	.19
+	HYDROGRAPH AT	DN11NC	0.	.00	0.	0.	0.	.19
+	ROUTED TO	RN11NC	0.	.00	0.	0.	0.	.19
+	HYDROGRAPH AT	N11ND	23.	4.33	5.	1.	1.	.05
+	HYDROGRAPH AT	N11K	54.	4.47	13.	3.	2.	.17
+	3 COMBINED AT	CN11K	76.	4.43	18.	4.	3.	.41
+	DIVERSION TO	N11KP	55.	4.23	16.	4.	3.	.41
+	HYDROGRAPH AT	DN11KS	21.	4.43	2.	0.	0.	.41
+	ROUTED TO	RN11K	14.	5.30	2.	0.	0.	.41
+	DIVERSION TO	X5I	0.	.00	0.	0.	0.	.41
+	HYDROGRAPH AT	DX5	14.	5.30	2.	0.	0.	.41
+	ROUTED TO	RX5W	12.	5.80	2.	0.	0.	.41
+	HYDROGRAPH AT	N11H	131.	4.83	26.	7.	5.	.42
+	2 COMBINED AT	CN11H	106.	4.83	22.	6.	4.	.83
+	ROUTED TO	RN11H	98.	5.17	22.	6.	4.	.83

+	HYDROGRAPH AT	BN11JI	107.	4.73	31.	8.	6.	.48
+	ROUTED TO	RN11JS	106.	5.50	31.	8.	6.	.48
+	HYDROGRAPH AT	N11G	165.	4.83	31.	8.	6.	.52
+	3 COMBINED AT	CN11G	192.	5.23	58.	15.	11.	1.36
+	ROUTED TO	RN11G	186.	5.40	58.	15.	11.	1.36
+	HYDROGRAPH AT	N11DA	124.	4.43	29.	7.	5.	.26
+	DIVERSION TO	LDAOUT	124.	4.43	16.	4.	3.	.26
+	HYDROGRAPH AT	LN11DA	98.	4.83	13.	3.	2.	.26
+	ROUTED TO	SN11DA	62.	5.20	13.	3.	2.	.26
+	DIVERSION TO	D11DAS	16.	5.20	5.	1.	1.	.26
+	HYDROGRAPH AT	N11DAW	46.	5.20	8.	2.	1.	.26
+	ROUTED TO	RN11DA	45.	5.47	8.	2.	1.	.26
+	HYDROGRAPH AT	N11FB	48.	4.47	13.	3.	2.	.12
+	DIVERSION TO	LN1FBD	48.	4.47	13.	3.	2.	.12
+	HYDROGRAPH AT	LN11FB	0.	.00	0.	0.	0.	.12
+	2 COMBINED AT	CN11FB	45.	5.47	8.	2.	1.	.38
+	2 COMBINED AT	C98RGL	186.	5.63	58.	15.	11.	1.73
+	ROUTED TO	RN11FB	172.	5.77	54.	14.	10.	1.73
+	HYDROGRAPH AT	DRA09K	91.	4.83	19.	5.	3.	.41
+	ROUTED TO	RA09KS	87.	5.07	19.	5.	3.	.41
+	HYDROGRAPH AT	N11FA	84.	4.43	21.	5.	4.	.18

+	DIVERSION TO	LN1FAD	84.	4.43	16.	4.	3.	.18
+	HYDROGRAPH AT	LN11FA	39.	5.30	6.	1.	1.	.18
+	HYDROGRAPH AT	A09GA	111.	4.10	14.	3.	2.	.07
+	DIVERSION TO	L09GAD	111.	4.10	12.	3.	2.	.07
+	HYDROGRAPH AT	LA09GA	24.	4.60	2.	0.	0.	.07
+	4 COMBINED AT	CN11FA	192.	5.77	63.	16.	11.	1.99
+	ROUTED TO	RN11FA	190.	5.83	63.	16.	11.	1.99
+	HYDROGRAPH AT	A09GB	11.	4.90	5.	2.	1.	.05
+	DIVERSION TO	L09GBD	11.	4.90	5.	1.	1.	.05
+	HYDROGRAPH AT	LA09GB	1.	9.90	0.	0.	0.	.05
+	2 COMBINED AT	CA09G	190.	5.83	62.	16.	11.	2.04
+	DIVERSION TO	A09GI	37.	5.83	12.	3.	2.	2.04
+	HYDROGRAPH AT	DA09G	150.	5.83	49.	12.	9.	2.04
+	ROUTED TO	RA09GW	147.	5.90	49.	12.	9.	2.04
+	2 COMBINED AT	CX8	148.	6.03	58.	15.	11.	2.45
+	ROUTED TO	RX8W	145.	6.23	57.	15.	11.	2.45
+	HYDROGRAPH AT	A09H	83.	4.60	26.	7.	5.	.24
+	DIVERSION TO	LA09HD	83.	4.60	25.	6.	5.	.24
+	HYDROGRAPH AT	LA09H	10.	7.30	2.	0.	0.	.24
+	2 COMBINED AT	CA09H1	145.	6.23	57.	15.	11.	2.69
+	HYDROGRAPH AT	A09J	70.	4.47	18.	5.	3.	.17
	DIVERSION TO							

+		LA09JD	70.	4.47	16.	4.	3.	.17
+	HYDROGRAPH AT	LA09J	20.	5.83	3.	1.	1.	.17
+	DIVERSION TO	A09JI	0.	.00	0.	0.	0.	.17
+	HYDROGRAPH AT	DA09J	20.	5.83	3.	1.	1.	.17
+	ROUTED TO	RA09JS	15.	6.47	3.	1.	1.	.17
+	2 COMBINED AT	CA09H	152.	6.27	57.	15.	11.	2.85
+	ROUTED TO	RA09H	129.	6.33	51.	13.	10.	2.85
+	HYDROGRAPH AT	BA09QI	71.	4.77	24.	6.	4.	1.01
+	ROUTED TO	RA09QS	70.	4.97	24.	6.	4.	1.01
+	HYDROGRAPH AT	A09M	100.	4.67	24.	6.	4.	.25
+	DIVERSION TO	LA09MD	100.	4.67	14.	3.	3.	.25
+	HYDROGRAPH AT	LA09M	77.	5.00	11.	3.	2.	.25
+	2 COMBINED AT	CA09M	168.	5.00	40.	10.	7.	.25
+	ROUTED TO	RA09M	156.	5.13	40.	10.	7.	.25
+	HYDROGRAPH AT	A09N	57.	4.37	12.	3.	2.	.11
+	2 COMBINED AT	CA09N	184.	5.10	52.	13.	10.	.36
+	ROUTED TO	LA09N	110.	5.63	48.	13.	10.	.36
+	ROUTED TO	RA09N	110.	5.73	48.	13.	10.	.36
+	HYDROGRAPH AT	DRA09J	0.	.00	0.	0.	0.	.17
+	ROUTED TO	RA09JW	0.	.00	0.	0.	0.	.17
+	HYDROGRAPH AT	A09L	58.	4.47	15.	4.	3.	.14
+	3 COMBINED AT	CA09L	130.	5.60	61.	17.	12.	.50

+	ROUTED TO	LA09L	122.	5.93	60.	17.	12.	.50
+	ROUTED TO	RA09LS	122.	6.03	60.	17.	12.	.50
+	HYDROGRAPH AT	A09IH	42.	4.37	10.	2.	2.	.09
+	2 COMBINED AT	CA09IH	123.	5.97	66.	19.	14.	.59
+	ROUTED TO	LA09IH	111.	6.43	64.	19.	14.	.59
+	HYDROGRAPH AT	A09I	59.	4.47	16.	4.	3.	.13
+	DIVERSION TO	LA09ID	59.	4.47	11.	3.	2.	.13
+	HYDROGRAPH AT	LA09I	33.	5.30	6.	1.	1.	.13
+	3 COMBINED AT	CX10	178.	6.33	85.	25.	18.	3.57
+	ROUTED TO	RX10	175.	6.60	85.	25.	18.	3.57
+	HYDROGRAPH AT	A99V	96.	4.57	15.	4.	3.	.21
+	2 COMBINED AT	CA99V	172.	6.60	88.	26.	19.	3.77
+	HYDROGRAPH AT	A10	121.	4.40	15.	4.	3.	.21
+	HYDROGRAPH AT	A99W	96.	4.77	23.	6.	4.	.22
+	DIVERSION TO	LA99WD	96.	4.77	14.	3.	2.	.22
+	HYDROGRAPH AT	LA99W	79.	5.07	10.	3.	2.	.22
+	4 COMBINED AT	AFR3	473.	5.80	253.	71.	51.	10.22
+	HYDROGRAPH AT	DRA09G	37.	5.83	12.	3.	2.	2.04
+	ROUTED TO	RA09GS	34.	6.47	12.	3.	2.	2.04
+	HYDROGRAPH AT	A09F	186.	4.70	45.	11.	8.	.37
+	DIVERSION TO	LA09FD	186.	4.70	27.	7.	5.	.37

+	HYDROGRAPH AT	LA09F	146.	5.03	18.	5.	3.	.37
+	2 COMBINED AT	CA09F	146.	5.03	43.	11.	8.	.37
+	DIVERSION TO	A09FI	10.	5.03	1.	0.	0.	.37
+	HYDROGRAPH AT	DA09F	137.	5.03	42.	11.	8.	.37
+	ROUTED TO	RA09FW	125.	6.07	41.	11.	8.	.37
+	HYDROGRAPH AT	A09E	64.	4.47	17.	5.	3.	.15
+	DIVERSION TO	LA09ED	64.	4.47	17.	4.	3.	.15
+	HYDROGRAPH AT	LA09E	10.	6.60	1.	0.	0.	.15
+	2 COMBINED AT	CA09E	125.	6.07	43.	11.	8.	.51
+	ROUTED TO	RA09E	121.	6.20	42.	11.	8.	.51
+	HYDROGRAPH AT	A09D	286.	4.20	34.	9.	6.	.25
+	DIVERSION TO	LA09DD	286.	4.20	31.	8.	6.	.25
+	HYDROGRAPH AT	LA09D	52.	4.80	3.	1.	1.	.25
+	2 COMBINED AT	CA09C*	121.	6.20	44.	11.	8.	.77
+	ROUTED TO	RA09C*	106.	6.23	39.	10.	7.	.77
+	HYDROGRAPH AT	A09C	27.	4.57	5.	1.	1.	.07
+	2 COMBINED AT	CA09C	105.	6.20	42.	11.	8.	.84
+	ROUTED TO	RA09C	104.	6.33	41.	11.	8.	.84
+	HYDROGRAPH AT	A09B	63.	4.07	7.	2.	1.	.04
+	ROUTED TO	RA09B	48.	4.60	7.	2.	1.	.04
+	HYDROGRAPH AT	A09A	32.	4.77	10.	2.	2.	.08
	3 COMBINED AT							

+		CA09A	108.	6.30	53.	14.	10.	.96
+	DIVERSION TO	A09AI	0.	6.23	0.	0.	0.	.96
+	HYDROGRAPH AT	DA09AO	108.	6.30	53.	14.	10.	.96
+	ROUTED TO	RA09AW	96.	7.33	51.	14.	10.	.96
+	HYDROGRAPH AT	A99T	37.	4.07	3.	1.	1.	.03
+	DIVERSION TO	LA99TD	26.	3.93	1.	0.	0.	.03
+	HYDROGRAPH AT	LA99T	37.	4.07	2.	0.	0.	.03
+	ROUTED TO	RA99T	28.	4.23	2.	0.	0.	.03
+	HYDROGRAPH AT	A09	97.	4.47	15.	4.	3.	.18
+	3 COMBINED AT	CA09	90.	7.37	58.	17.	12.	1.17
+	HYDROGRAPH AT	A99U	34.	4.40	7.	2.	1.	.07
+	3 COMBINED AT	AFR4	481.	5.80	273.	79.	57.	11.46
+	HYDROGRAPH AT	A99S	13.	4.93	4.	1.	1.	.08
+	HYDROGRAPH AT	A08A	26.	5.13	10.	3.	2.	.14
+	ROUTED TO	RA08A	26.	5.33	10.	3.	2.	.14
+	HYDROGRAPH AT	A99R	20.	4.33	3.	1.	0.	.04
+	ROUTED TO	RA99R	18.	4.70	3.	1.	0.	.04
+	HYDROGRAPH AT	A08	69.	4.13	5.	1.	1.	.08
+	4 COMBINED AT	CA08	72.	4.13	21.	6.	4.	.33
+	2 COMBINED AT	AFR5	489.	5.80	278.	80.	58.	11.79
+	HYDROGRAPH AT	A07G.1	212.	4.23	34.	9.	6.	.23
+	DIVERSION TO	LA07GD	212.	4.23	26.	7.	5.	.23

+	HYDROGRAPH AT	LA07G	97.	4.77	9.	2.	2.	.23
+	ROUTED TO	RA07G	72.	5.10	9.	2.	2.	.23
+	HYDROGRAPH AT	A07F.1	40.	4.87	14.	4.	3.	.13
+	HYDROGRAPH AT	A07F.2	23.	4.63	6.	2.	1.	.07
+	HYDROGRAPH AT	A07E.8	9.	4.07	1.	0.	0.	.01
+	3 COMBINED AT	CA07F	62.	4.73	22.	6.	4.	.21
+	ROUTED TO	RA07F	62.	4.77	22.	6.	4.	.21
+	HYDROGRAPH AT	A07E.7	11.	4.03	1.	0.	0.	.01
+	2 COMBINED AT	CA07E7	62.	4.77	23.	6.	4.	.22
+	ROUTED TO	RA07E7	62.	4.83	23.	6.	4.	.22
+	HYDROGRAPH AT	A07G.2	9.	4.43	3.	1.	1.	.03
+	ROUTED TO	RA07G2	9.	4.57	3.	1.	1.	.03
+	HYDROGRAPH AT	A07E.3	71.	4.13	8.	2.	1.	.06
+	2 COMBINED AT	CA07E3	73.	4.13	11.	3.	2.	.09
+	DIVERSION TO	DI7E.3	1.	1.67	0.	0.	0.	.09
+	HYDROGRAPH AT	DI7E.3	73.	4.13	11.	3.	2.	.09
+	ROUTED TO	RA07E3	71.	4.23	11.	3.	2.	.09
+	HYDROGRAPH AT	A07E.2	20.	4.17	3.	1.	1.	.03
+	DIVERSION TO	DI7E.2	0.	1.70	0.	0.	0.	.03
+	HYDROGRAPH AT	DI7E.2	20.	4.17	3.	1.	1.	.03
+	ROUTED TO	RA07E2	18.	4.57	3.	1.	1.	.03

+	HYDROGRAPH AT	A07E.1	33.	4.23	6.	2.	1.	.04
+	DIVERSION TO	DI7E.1	33.	4.23	3.	1.	1.	.04
+	HYDROGRAPH AT	DI7E.1	31.	4.37	4.	1.	1.	.04
+	ROUTED TO	RA07E1	27.	4.57	4.	1.	1.	.04
+	HYDROGRAPH AT	A07E.6	39.	4.03	4.	1.	1.	.02
+	DIVERSION TO	DI7E.6	1.	2.43	0.	0.	0.	.02
+	HYDROGRAPH AT	DI7E.6	39.	4.03	4.	1.	1.	.02
+	ROUTED TO	RA07E6	37.	4.13	4.	1.	1.	.02
+	HYDROGRAPH AT	A07E.5	44.	4.13	6.	2.	1.	.04
+	2 COMBINED AT	CA07E5	80.	4.13	10.	2.	2.	.05
+	ROUTED TO	RA07E5	78.	4.20	10.	2.	2.	.05
+	HYDROGRAPH AT	A07E.4	64.	4.17	10.	2.	2.	.06
+	5 COMBINED AT	CA07E4	210.	4.20	36.	9.	7.	.26
+	DIVERSION TO	DI7E.4	7.	3.27	1.	0.	0.	.26
+	HYDROGRAPH AT	DI7E.4	210.	4.20	36.	9.	6.	.26
+	3 COMBINED AT	CA07E	223.	4.23	64.	16.	12.	.72
+	DIVERSION TO	DIA07E	113.	4.00	6.	1.	1.	.72
+	HYDROGRAPH AT	DIA07E	223.	4.23	59.	15.	11.	.72
+	ROUTED TO	RA07E	221.	4.30	59.	15.	11.	.72
+	HYDROGRAPH AT	A07C	65.	4.67	13.	3.	2.	.17
+	2 COMBINED AT	CA07C	250.	4.60	69.	17.	13.	.89
	ROUTED TO							

+		RA07C	249.	4.60	69.	17.	13.	.89
+	HYDROGRAPH AT	A07H	106.	4.20	13.	3.	2.	.09
+	ROUTED TO	RA07H	101.	4.33	13.	3.	2.	.09
+	HYDROGRAPH AT	DA09AI	0.	6.23	0.	0.	0.	.96
+	ROUTED TO	RA09AI	0.	7.00	0.	0.	0.	.96
+	HYDROGRAPH AT	A08B	53.	4.50	11.	3.	2.	.10
+	2 COMBINED AT	CA08B	53.	4.50	11.	3.	2.	.10
+	ROUTED TO	RA08B	49.	5.03	11.	3.	2.	.10
+	HYDROGRAPH AT	A07D	44.	5.23	18.	5.	3.	.23
+	4 COMBINED AT	CA07D	320.	4.40	99.	26.	18.	1.31
+	ROUTED TO	RA07D	315.	4.70	99.	26.	18.	1.31
+	HYDROGRAPH AT	A07B.1	56.	4.20	8.	2.	2.	.08
+	DIVERSION TO	DA07B1	56.	4.20	5.	1.	1.	.08
+	HYDROGRAPH AT	DA07B1	44.	4.43	4.	1.	1.	.08
+	2 COMBINED AT	CA07B1	325.	4.80	101.	26.	19.	1.39
+	ROUTED TO	RA07B1	321.	4.90	100.	26.	19.	1.39
+	HYDROGRAPH AT	A07B.2	121.	4.20	16.	4.	3.	.14
+	HYDROGRAPH AT	A07B.3	137.	4.23	21.	5.	4.	.19
+	ROUTED TO	RA07B3	121.	4.47	21.	5.	4.	.19
+	2 COMBINED AT	CA07B2	210.	4.37	37.	9.	7.	.32
+	ROUTED TO	RA07B2	209.	4.40	37.	9.	7.	.32
+	2 COMBINED AT	CA07B3	411.	4.77	125.	33.	24.	1.71

+	ROUTED TO	RA07B1	409.	4.87	125.	33.	24.	1.71
+	HYDROGRAPH AT	A07B.4	58.	4.13	7.	2.	1.	.05
+	DIVERSION TO	DA07B4	58.	4.13	4.	1.	1.	.05
+	HYDROGRAPH AT	DA07B4	44.	4.30	3.	1.	1.	.05
+	2 COMBINED AT	CA07B4	415.	4.87	126.	33.	24.	1.76
+	ROUTED TO	RA07B4	415.	4.93	126.	33.	24.	1.76
+	HYDROGRAPH AT	A07B.5	43.	4.13	5.	1.	1.	.04
+	2 COMBINED AT	CA07B5	418.	4.93	129.	34.	25.	1.81
+	HYDROGRAPH AT	S30D	98.	4.33	18.	4.	3.	.13
+	ROUTED TO	RS30D	92.	4.70	18.	4.	3.	.13
+	HYDROGRAPH AT	S30C	233.	4.53	65.	17.	12.	.45
+	HYDROGRAPH AT	DA09FI	10.	5.03	1.	0.	0.	.37
+	ROUTED TO	RA09FI	4.	6.67	1.	0.	0.	.37
+	3 COMBINED AT	XX1	313.	4.67	83.	21.	15.	.58
+	HYDROGRAPH AT	S30B	128.	5.00	44.	11.	8.	.40
+	2 COMBINED AT	CS30B	396.	4.73	121.	31.	23.	.98
+	DIVERSION TO	DS30BI	0.	4.67	0.	0.	0.	.98
+	HYDROGRAPH AT	DS30BO	396.	4.73	121.	31.	23.	.98
+	ROUTED TO	RS30BW	390.	5.03	121.	31.	23.	.98
+	HYDROGRAPH AT	S30A	223.	4.57	64.	16.	12.	.53
+	2 COMBINED AT	CS30A	540.	4.97	174.	45.	33.	1.51

+	DIVERSION TO	DS30AI	25.	4.93	2.	0.	0.	1.51
+	HYDROGRAPH AT	DS30AO	516.	5.00	173.	45.	32.	1.51
+	ROUTED TO	RS30AW	515.	5.13	172.	45.	32.	1.51
+	HYDROGRAPH AT	S30	155.	4.37	34.	9.	6.	.32
+	2 COMBINED AT	CS30	574.	5.03	196.	51.	37.	1.84
+	ROUTED TO	RS30	574.	5.07	196.	51.	37.	1.84
+	HYDROGRAPH AT	A07B.6	84.	4.30	17.	4.	3.	.15
+	DIVERSION TO	DA07B6	84.	4.30	7.	2.	1.	.15
+	HYDROGRAPH AT	DA07B6	78.	4.47	10.	3.	2.	.15
+	2 COMBINED AT	CS30	601.	5.03	202.	53.	38.	1.99
+	2 COMBINED AT	CA07B6	910.	5.03	302.	80.	57.	3.80
+	ROUTED TO	RA07B	896.	5.13	302.	80.	57.	3.80
+	HYDROGRAPH AT	A06A	207.	4.20	27.	7.	5.	.28
+	2 COMBINED AT	CA06A	909.	5.13	317.	84.	60.	4.07
+	ROUTED TO	RA06A	908.	5.17	316.	84.	60.	4.07
+	HYDROGRAPH AT	A07A	34.	4.57	10.	3.	2.	.12
+	ROUTED TO	RA07A	34.	4.63	10.	3.	2.	.12
+	HYDROGRAPH AT	A07	127.	4.10	6.	2.	1.	.12
+	2 COMBINED AT	CA07	132.	4.10	16.	4.	3.	.24
+	ROUTED TO	RA07	79.	4.60	16.	4.	3.	.24
+	HYDROGRAPH AT	A06	175.	4.37	13.	3.	2.	.28
+	2 COMBINED AT	CA06	183.	4.40	29.	7.	5.	.52
+	ROUTED TO	RA06	164.	4.80	29.	7.	5.	.52
+	HYDROGRAPH AT	A99Q	159.	4.00	6.	1.	1.	.12
+	HYDROGRAPH AT	A99P	375.	4.30	64.	16.	12.	.57
+	4 COMBINED AT	CA99Q	970.	5.13	360.	96.	69.	5.29
+	2 COMBINED AT	AFR6	1171.	5.30	547.	153.	111.	17.08

1

SUMMARY OF KINEMATIC WAVE - MUSKINGUM-CUNGE ROUTING

(FLOW IS DIRECT RUNOFF WITHOUT BASE FLOW)

ISTAQ	ELEMENT	DT	PEAK	TIME TO PEAK	VOLUME	INTERPOLATED TO COMPUTATION INTERVAL DT	PEAK	TIME TO PEAK	VOLUME
		(MIN)	(CFS)	(MIN)	(IN)	(MIN)	(CFS)	(MIN)	(IN)
FOR STORM = 1 STORM AREA (SQ MI) = .01									
	RCBA MANE	2.00	7.29	256.00	.91	2.00	7.29	256.00	.91

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3386E+00 EXCESS= .0000E+00 OUTFLOW= .3386E+00 BASIN STORAGE= .6949E-03 PERCENT ERROR= -.2

FOR STORM = 2 STORM AREA (SQ MI) = .50									
	RCBA MANE	2.00	7.22	256.00	.90	2.00	7.22	256.00	.90

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3348E+00 EXCESS= .0000E+00 OUTFLOW= .3348E+00 BASIN STORAGE= .6918E-03 PERCENT ERROR= -.2

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

RCBA	MANE	2.00	3.87	258.00	.70	2.00	3.87	258.00	.70

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2629E+00 EXCESS= .0000E+00 OUTFLOW= .2628E+00 BASIN STORAGE= .7277E-03 PERCENT ERROR= -.2

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

RCBA	MANE	2.00	2.64	260.00	.53	2.00	2.64	260.00	.53

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1997E+00 EXCESS= .0000E+00 OUTFLOW= .1996E+00 BASIN STORAGE= .6755E-03 PERCENT ERROR= -.3

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

RCBA	MANE	2.00	1.28	262.00	.31	2.00	1.28	262.00	.31

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1150E+00 EXCESS= .0000E+00 OUTFLOW= .1150E+00 BASIN STORAGE= .7026E-03 PERCENT ERROR= -.6

FOR STORM = 1 STORM AREA (SQ MI) = .01

RCBB	MANE	2.00	17.16	250.00	.81	2.00	17.16	250.00	.81

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7376E+00 EXCESS= .0000E+00 OUTFLOW= .7377E+00 BASIN STORAGE= .4143E-03 PERCENT ERROR= -.1

FOR STORM = 2 STORM AREA (SQ MI) = .50

RCBB	MANE	2.00	16.97	250.00	.81	2.00	16.97	250.00	.81

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7298E+00 EXCESS= .0000E+00 OUTFLOW= .7299E+00 BASIN STORAGE= .4124E-03 PERCENT ERROR= -.1

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

RCBB	MANE	2.00	7.17	252.00	.51	2.00	7.17	252.00	.51

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4608E+00 EXCESS= .0000E+00 OUTFLOW= .4608E+00 BASIN STORAGE= .4020E-03 PERCENT ERROR= -.1

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

RCBB	MANE	2.00	3.95	252.00	.36	2.00	3.95	252.00	.36

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3221E+00 EXCESS= .0000E+00 OUTFLOW= .3220E+00 BASIN STORAGE= .4066E-03 PERCENT ERROR= -.1

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

RCBB	MANE	2.00	1.52	252.00	.25	2.00	1.52	252.00	.25

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2230E+00 EXCESS= .0000E+00 OUTFLOW= .2231E+00 BASIN STORAGE= .4046E-03 PERCENT ERROR= -.2

FOR STORM = 1 STORM AREA (SQ MI) = .01

R28a	MANE	2.00	30.62	276.00	.71	2.00	30.62	276.00	.71

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1963E+01 EXCESS= .0000E+00 OUTFLOW= .1943E+01 BASIN STORAGE= .2211E-02 PERCENT ERROR= .9

FOR STORM = 2 STORM AREA (SQ MI) = .50

R28a	MANE	2.00	30.05	276.00	.70	2.00	30.05	276.00	.70

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1935E+01 EXCESS= .0000E+00 OUTFLOW= .1915E+01 BASIN STORAGE= .2154E-02 PERCENT ERROR= .9

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

R28a	MANE	2.00	20.25	286.00	.55	2.00	20.25	286.00	.55

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1496E+01 EXCESS= .0000E+00 OUTFLOW= .1483E+01 BASIN STORAGE= .2272E-02 PERCENT ERROR= .7

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

R28a	MANE	2.00	13.02	296.00	.40	2.00	13.02	296.00	.40

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1096E+01 EXCESS= .0000E+00 OUTFLOW= .1085E+01 BASIN STORAGE= .2135E-02 PERCENT ERROR= .8

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

R28a	MANE	2.00	5.45	326.00	.20	2.00	5.45	326.00	.20

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5514E+00 EXCESS= .0000E+00 OUTFLOW= .5447E+00 BASIN STORAGE= .2373E-02 PERCENT ERROR= .8

FOR STORM = 1 STORM AREA (SQ MI) = .01

RCBL	MANE	2.00	106.61	260.00	.88	2.00	106.61	260.00	.88

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7703E+01 EXCESS= .0000E+00 OUTFLOW= .7704E+01 BASIN STORAGE= .7700E-04 PERCENT ERROR= .0

FOR STORM = 2 STORM AREA (SQ MI) = .50

RCBL	MANE	2.00	104.58	260.00	.86	2.00	104.58	260.00	.86

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7611E+01 EXCESS= .0000E+00 OUTFLOW= .7612E+01 BASIN STORAGE= .7699E-04 PERCENT ERROR= .0

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

RCBL	MANE	2.00	74.05	264.00	.71	2.00	74.05	264.00	.71

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6249E+01 EXCESS= .0000E+00 OUTFLOW= .6248E+01 BASIN STORAGE= .7831E-04 PERCENT ERROR= .0

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

RCBL	MANE	2.00	51.78	268.00	.55	2.00	51.78	268.00	.55

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4880E+01 EXCESS= .0000E+00 OUTFLOW= .4880E+01 BASIN STORAGE= .7485E-04 PERCENT ERROR= .0

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

RCBL	MANE	2.00	29.11	276.00	.34	2.00	29.11	276.00	.34

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2969E+01 EXCESS= .0000E+00 OUTFLOW= .2968E+01 BASIN STORAGE= .7605E-04 PERCENT ERROR= .0

FOR STORM = 1 STORM AREA (SQ MI) = .01

RCBK	MANE	1.56	140.13	261.55	.83	2.00	138.92	262.00	.83

CONTINUITY SUMMARY (AC-FT) - INFLOW= .9644E+01 EXCESS= .0000E+00 OUTFLOW= .9644E+01 BASIN STORAGE= .3861E-03 PERCENT ERROR= .0

FOR STORM = 2 STORM AREA (SQ MI) = .50

RCBK	MANE	1.56	136.75	262.84	.82	2.00	135.50	262.00	.82

CONTINUITY SUMMARY (AC-FT) - INFLOW= .9525E+01 EXCESS= .0000E+00 OUTFLOW= .9525E+01 BASIN STORAGE= .3915E-03 PERCENT ERROR= .0

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

RCBK	MANE	1.78	86.96	265.61	.63	2.00	85.47	266.00	.63

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7285E+01 EXCESS= .0000E+00 OUTFLOW= .7286E+01 BASIN STORAGE= .3911E-03 PERCENT ERROR= .0

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

RCBK	MANE	2.00	58.22	270.00	.47	2.00	58.22	270.00	.47

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5466E+01 EXCESS= .0000E+00 OUTFLOW= .5466E+01 BASIN STORAGE= .3940E-03 PERCENT ERROR= .0

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

RCBK	MANE	2.00	31.16	280.00	.28	2.00	31.16	280.00	.28

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3241E+01 EXCESS= .0000E+00 OUTFLOW= .3241E+01 BASIN STORAGE= .3815E-03 PERCENT ERROR= .0

FOR STORM = 1 STORM AREA (SQ MI) = .01

R15	MANE	2.00	145.32	264.00	.78	2.00	145.32	264.00	.78

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1021E+02 EXCESS= .0000E+00 OUTFLOW= .1021E+02 BASIN STORAGE= .5258E-03 PERCENT ERROR= .0

FOR STORM = 2 STORM AREA (SQ MI) = .50

R15	MANE	2.00	141.82	264.00	.77	2.00	141.82	264.00	.77

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1007E+02 EXCESS= .0000E+00 OUTFLOW= .1007E+02 BASIN STORAGE= .5252E-03 PERCENT ERROR= .0

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

R15	MANE	2.00	88.32	268.00	.58	2.00	88.32	268.00	.58

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7572E+01 EXCESS= .0000E+00 OUTFLOW= .7572E+01 BASIN STORAGE= .5052E-03 PERCENT ERROR= .0

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

R15	MANE	2.00	59.00	272.00	.43	2.00	59.00	272.00	.43

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5649E+01 EXCESS= .0000E+00 OUTFLOW= .5648E+01 BASIN STORAGE= .5341E-03 PERCENT ERROR= .0

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

R15	MANE	2.00	32.98	282.00	.26	2.00	32.98	282.00	.26

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3373E+01 EXCESS= .0000E+00 OUTFLOW= .3373E+01 BASIN STORAGE= .5116E-03 PERCENT ERROR= .0

FOR STORM = 1 STORM AREA (SQ MI) = .01

RE1	MANE	2.00	11.95	254.00	.58	2.00	11.95	254.00	.58

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4336E+00 EXCESS= .0000E+00 OUTFLOW= .4343E+00 BASIN STORAGE= .8999E-03 PERCENT ERROR= -.4

FOR STORM = 2 STORM AREA (SQ MI) = .50

RE1	MANE	2.00	11.79	254.00	.57	2.00	11.79	254.00	.57

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4277E+00 EXCESS= .0000E+00 OUTFLOW= .4284E+00 BASIN STORAGE= .8959E-03 PERCENT ERROR= -.4

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

RE1	MANE	2.00	3.44	256.00	.20	2.00	3.44	256.00	.20

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1490E+00 EXCESS= .0000E+00 OUTFLOW= .1491E+00 BASIN STORAGE= .8949E-03 PERCENT ERROR= -.7

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

RE1	MANE	2.00	1.11	262.00	.08	2.00	1.11	262.00	.08

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5675E-01 EXCESS= .0000E+00 OUTFLOW= .5669E-01 BASIN STORAGE= .8871E-03 PERCENT ERROR= -1.4

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

RE1	MANE	2.00	.17	268.00	.03	2.00	.17	268.00	.03

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2450E-01 EXCESS= .0000E+00 OUTFLOW= .2459E-01 BASIN STORAGE= .8667E-03 PERCENT ERROR= -3.9

FOR STORM = 1 STORM AREA (SQ MI) = .01

RE2	MANE	2.00	10.59	252.00	.68	2.00	10.59	252.00	.68

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5806E+00 EXCESS= .0000E+00 OUTFLOW= .5807E+00 BASIN STORAGE= .4419E-03 PERCENT ERROR= -.1

FOR STORM = 2 STORM AREA (SQ MI) = .50

RE2	MANE	2.00	10.47	252.00	.67	2.00	10.47	252.00	.67

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5740E+00 EXCESS= .0000E+00 OUTFLOW= .5741E+00 BASIN STORAGE= .4399E-03 PERCENT ERROR= -.1

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

RE2	MANE	2.00	4.09	254.00	.33	2.00	4.09	254.00	.33

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2853E+00 EXCESS= .0000E+00 OUTFLOW= .2852E+00 BASIN STORAGE= .4433E-03 PERCENT ERROR= -.1

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

RE2	MANE	2.00	1.92	254.00	.18	2.00	1.92	254.00	.18

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1495E+00 EXCESS= .0000E+00 OUTFLOW= .1495E+00 BASIN STORAGE= .4356E-03 PERCENT ERROR= -.3

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

RE2	MANE	2.00	.42	260.00	.08	2.00	.42	260.00	.08

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6997E-01 EXCESS= .0000E+00 OUTFLOW= .7000E-01 BASIN STORAGE= .4138E-03 PERCENT ERROR= -.6

FOR STORM = 1 STORM AREA (SQ MI) = .01

R13	MANE	2.00	74.72	256.00	.63	2.00	74.72	256.00	.63

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2982E+01 EXCESS= .0000E+00 OUTFLOW= .2972E+01 BASIN STORAGE= .1382E-02 PERCENT ERROR= .3

FOR STORM = 2 STORM AREA (SQ MI) = .50

R13	MANE	2.00	73.83	256.00	.62	2.00	73.83	256.00	.62

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2941E+01 EXCESS= .0000E+00 OUTFLOW= .2931E+01 BASIN STORAGE= .1376E-02 PERCENT ERROR= .3

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

R13	MANE	2.00	29.74	264.00	.30	2.00	29.74	264.00	.30

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1444E+01 EXCESS= .0000E+00 OUTFLOW= .1440E+01 BASIN STORAGE= .1398E-02 PERCENT ERROR= .2

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

R13	MANE	2.00	14.11	274.00	.18	2.00	14.11	274.00	.18

CONTINUITY SUMMARY (AC-FT) - INFLOW= .8397E+00 EXCESS= .0000E+00 OUTFLOW= .8374E+00 BASIN STORAGE= .1363E-02 PERCENT ERROR= .1

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

R13	MANE	2.00	5.98	298.00	.09	2.00	5.98	298.00	.09

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4278E+00 EXCESS= .0000E+00 OUTFLOW= .4269E+00 BASIN STORAGE= .1430E-02 PERCENT ERROR= -.1

FOR STORM = 1 STORM AREA (SQ MI) = .01

RE3	MANE	2.00	25.27	280.00	.64	2.00	25.27	280.00	.64

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2812E+01 EXCESS= .0000E+00 OUTFLOW= .2813E+01 BASIN STORAGE= .6855E-03 PERCENT ERROR= .0

FOR STORM = 2 STORM AREA (SQ MI) = .50

RE3	MANE	2.00	24.96	280.00	.64	2.00	24.96	280.00	.64

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2778E+01 EXCESS= .0000E+00 OUTFLOW= .2778E+01 BASIN STORAGE= .6825E-03 PERCENT ERROR= .0

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

RE3	MANE	2.00	9.97	282.00	.28	2.00	9.97	282.00	.28

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1227E+01 EXCESS= .0000E+00 OUTFLOW= .1227E+01 BASIN STORAGE= .6757E-03 PERCENT ERROR= -.1

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

RE3	MANE	2.00	4.22	284.00	.14	2.00	4.22	284.00	.14

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5992E+00 EXCESS= .0000E+00 OUTFLOW= .5992E+00 BASIN STORAGE= .6713E-03 PERCENT ERROR= -.1

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

RE3	MANE	2.00	1.29	288.00	.07	2.00	1.29	288.00	.07

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2869E+00 EXCESS= .0000E+00 OUTFLOW= .2869E+00 BASIN STORAGE= .6712E-03 PERCENT ERROR= -.2

FOR STORM = 1 STORM AREA (SQ MI) = .01

R10	MANE	2.00	53.29	266.00	.62	2.00	53.29	266.00	.62

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4574E+01 EXCESS= .0000E+00 OUTFLOW= .4565E+01 BASIN STORAGE= .2060E-02 PERCENT ERROR= .1

FOR STORM = 2 STORM AREA (SQ MI) = .50

R10	MANE	2.00	52.73	266.00	.62	2.00	52.73	266.00	.62

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4513E+01 EXCESS= .0000E+00 OUTFLOW= .4504E+01 BASIN STORAGE= .2051E-02 PERCENT ERROR= .1

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

R10	MANE	2.00	24.52	278.00	.29	2.00	24.52	278.00	.29

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2096E+01 EXCESS= .0000E+00 OUTFLOW= .2091E+01 BASIN STORAGE= .1717E-02 PERCENT ERROR= .1

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

R10	MANE	2.00	13.40	290.00	.16	2.00	13.40	290.00	.16

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1152E+01 EXCESS= .0000E+00 OUTFLOW= .1150E+01 BASIN STORAGE= .1821E-02 PERCENT ERROR= .1

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

R10	MANE	2.00	6.03	314.00	.08	2.00	6.03	314.00	.08

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6018E+00 EXCESS= .0000E+00 OUTFLOW= .6005E+00 BASIN STORAGE= .1827E-02 PERCENT ERROR= -.1

FOR STORM = 1 STORM AREA (SQ MI) = .01

RE4	MANE	2.00	10.89	276.00	.59	2.00	10.89	276.00	.59

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1256E+01 EXCESS= .0000E+00 OUTFLOW= .1257E+01 BASIN STORAGE= .1691E-03 PERCENT ERROR= .0

FOR STORM = 2 STORM AREA (SQ MI) = .50

RE4	MANE	2.00	10.74	276.00	.58	2.00	10.74	276.00	.58

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1239E+01 EXCESS= .0000E+00 OUTFLOW= .1239E+01 BASIN STORAGE= .1675E-03 PERCENT ERROR= .0

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

RE4	MANE	2.00	3.54	278.00	.21	2.00	3.54	278.00	.21	

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4515E+00 EXCESS= .0000E+00 OUTFLOW= .4515E+00 BASIN STORAGE= .1219E-03 PERCENT ERROR= .0

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

RE4	MANE	2.00	1.25	282.00	.09	2.00	1.25	282.00	.09	

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1934E+00 EXCESS= .0000E+00 OUTFLOW= .1934E+00 BASIN STORAGE= .1158E-03 PERCENT ERROR= -.1

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

RE4	MANE	2.00	.45	286.00	.05	2.00	.45	286.00	.05	

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1050E+00 EXCESS= .0000E+00 OUTFLOW= .1050E+00 BASIN STORAGE= .1060E-03 PERCENT ERROR= -.1

FOR STORM = 1 STORM AREA (SQ MI) = .01

R9	MANE	1.62	43.15	255.24	.63	2.00	42.40	254.00	.63	

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3100E+01 EXCESS= .0000E+00 OUTFLOW= .3101E+01 BASIN STORAGE= .7915E-04 PERCENT ERROR= .0

FOR STORM = 2 STORM AREA (SQ MI) = .50

R9	MANE	1.62	41.98	254.43	.62	2.00	41.09	256.00	.62	

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3051E+01 EXCESS= .0000E+00 OUTFLOW= .3052E+01 BASIN STORAGE= .8972E-04 PERCENT ERROR= .0

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

R9	MANE	2.00	21.71	264.00	.30	2.00	21.71	264.00	.30	

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1470E+01 EXCESS= .0000E+00 OUTFLOW= .1471E+01 BASIN STORAGE= .7899E-04 PERCENT ERROR= -.1

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

R9	MANE	2.00	12.14	276.00	.18	2.00	12.14	276.00	.18	

CONTINUITY SUMMARY (AC-FT) - INFLOW= .8818E+00 EXCESS= .0000E+00 OUTFLOW= .8822E+00 BASIN STORAGE= .7919E-04 PERCENT ERROR= .0

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

R9	MANE	2.00	5.57	300.00	.11	2.00	5.57	300.00	.11	

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5188E+00 EXCESS= .0000E+00 OUTFLOW= .5191E+00 BASIN STORAGE= .7764E-04 PERCENT ERROR= -.1

FOR STORM = 1 STORM AREA (SQ MI) = .01

R7	MANE	2.00	43.65	258.00	.62	2.00	43.65	258.00	.62	

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3964E+01 EXCESS= .0000E+00 OUTFLOW= .3966E+01 BASIN STORAGE= .1248E-03 PERCENT ERROR= -.1

FOR STORM = 2 STORM AREA (SQ MI) = .50

R7	MANE	2.00	45.14	258.00	.61	2.00	45.14	258.00	.61	

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3900E+01 EXCESS= .0000E+00 OUTFLOW= .3902E+01 BASIN STORAGE= .1284E-03 PERCENT ERROR= -.1

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

R7	MANE	2.00	23.45	268.00	.30	2.00	23.45	268.00	.30	

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1919E+01 EXCESS= .0000E+00 OUTFLOW= .1920E+01 BASIN STORAGE= .1220E-03 PERCENT ERROR= -.1

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

R7	MANE	2.00	13.11	280.00	.18	2.00	13.11	280.00	.18	

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1147E+01 EXCESS= .0000E+00 OUTFLOW= .1148E+01 BASIN STORAGE= .1276E-03 PERCENT ERROR= .0

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

R7	MANE	2.00	6.18	304.00	.10	2.00	6.18	304.00	.10	

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6276E+00 EXCESS= .0000E+00 OUTFLOW= .6278E+00 BASIN STORAGE= .1251E-03 PERCENT ERROR= -.1

FOR STORM = 1 STORM AREA (SQ MI) = .01

RS1	MANE	2.00	719.21	322.00	.79	2.00	719.21	322.00	.79	

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1236E+03 EXCESS= .0000E+00 OUTFLOW= .1236E+03 BASIN STORAGE= .3686E-02 PERCENT ERROR= .0

FOR STORM = 2 STORM AREA (SQ MI) = .50

RS1	MANE	2.00	709.59	322.00	.78	2.00	709.59	322.00	.78	

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1221E+03 EXCESS= .0000E+00 OUTFLOW= .1221E+03 BASIN STORAGE= .3679E-02 PERCENT ERROR= .0

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

RS1	MANE	2.00	478.60	336.00	.56	2.00	478.60	336.00	.56	

CONTINUITY SUMMARY (AC-FT) - INFLOW= .8763E+02 EXCESS= .0000E+00 OUTFLOW= .8763E+02 BASIN STORAGE= .3620E-02 PERCENT ERROR= .0

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

RS1	MANE	2.00	345.22	348.00	.42	2.00	345.22	348.00	.42	

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6592E+02 EXCESS= .0000E+00 OUTFLOW= .6592E+02 BASIN STORAGE= .3610E-02 PERCENT ERROR= .0

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

RS1	MANE	2.00	210.32	368.00	.28	2.00	210.32	368.00	.28	

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4449E+02 EXCESS= .0000E+00 OUTFLOW= .4450E+02 BASIN STORAGE= .3611E-02 PERCENT ERROR= .0

FOR STORM = 1 STORM AREA (SQ MI) = .01

RS2	MANE	1.02	719.11	322.18	.79	2.00	719.06	322.00	.79

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1242E+03 EXCESS= .0000E+00 OUTFLOW= .1242E+03 BASIN STORAGE= .5490E-03 PERCENT ERROR= .0

FOR STORM = 2 STORM AREA (SQ MI) = .50

RS2	MANE	1.03	709.34	322.51	.78	2.00	709.25	322.00	.78

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1227E+03 EXCESS= .0000E+00 OUTFLOW= .1227E+03 BASIN STORAGE= .5476E-03 PERCENT ERROR= .0

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

RS2	MANE	1.16	478.54	337.90	.56	2.00	478.50	338.00	.56

CONTINUITY SUMMARY (AC-FT) - INFLOW= .8800E+02 EXCESS= .0000E+00 OUTFLOW= .8800E+02 BASIN STORAGE= .5378E-03 PERCENT ERROR= .0

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

RS2	MANE	1.29	345.03	348.39	.42	2.00	344.79	348.00	.42

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6613E+02 EXCESS= .0000E+00 OUTFLOW= .6613E+02 BASIN STORAGE= .5506E-03 PERCENT ERROR= .0

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

RS2	MANE	1.50	210.31	370.54	.28	2.00	210.29	370.00	.28

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4456E+02 EXCESS= .0000E+00 OUTFLOW= .4456E+02 BASIN STORAGE= .5417E-03 PERCENT ERROR= .0

FOR STORM = 1 STORM AREA (SQ MI) = .01

RHV2	MANE	2.00	3.17	324.00	.87	2.00	3.17	324.00	.87

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1441E+01 EXCESS= .0000E+00 OUTFLOW= .1441E+01 BASIN STORAGE= .5691E-03 PERCENT ERROR= .0

FOR STORM = 2 STORM AREA (SQ MI) = .50

RHV2	MANE	2.00	3.14	324.00	.86	2.00	3.14	324.00	.86

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1429E+01 EXCESS= .0000E+00 OUTFLOW= .1429E+01 BASIN STORAGE= .5643E-03 PERCENT ERROR= .0

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

RHV2	MANE	2.00	2.29	326.00	.66	2.00	2.29	326.00	.66

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1083E+01 EXCESS= .0000E+00 OUTFLOW= .1083E+01 BASIN STORAGE= .5953E-03 PERCENT ERROR= -.1

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

RHV2	MANE	2.00	1.74	334.00	.52	2.00	1.74	334.00	.52

CONTINUITY SUMMARY (AC-FT) - INFLOW= .8660E+00 EXCESS= .0000E+00 OUTFLOW= .8660E+00 BASIN STORAGE= .5721E-03 PERCENT ERROR= -.1

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

RHV2	MANE	2.00	1.25	342.00	.40	2.00	1.25	342.00	.40

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6627E+00 EXCESS= .0000E+00 OUTFLOW= .6627E+00 BASIN STORAGE= .5814E-03 PERCENT ERROR= -.1

*** NORMAL END OF HEC-1 ***

```
1*****************************************
*****************************************
 *                                       *
 *                                       *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
 *                                       *
 *             JUN   1998                *
CENTER     *
 *          VERSION 4.1                  *
 *                                       *
 *                                       *
 *                                       *
 *  RUN DATE   19JUL11  TIME  14:38:15   *
 *                                       *
 *                                       *
 *                                       *
 *****************************************
*****************************************
```

```
*                                       *
*    U.S. ARMY CORPS OF ENGINEERS       *
*    HYDROLOGIC ENGINEERING             *
*          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
   1          ID   Project ID: 107 & Union Hills - Major Basin: 01 - Return Period: 10 Years
   2          ID                                                                          **
   3          ID   107th Avenue and Union Hills Drive Design Concept Report               **
   4          ID                                                                        **
   5          ID   PROJECT NO.: FCD 2009C036.2                    G&M: 10388A.2            **
   6          ID                                                                        **
   7          ID   Original HEC-1 Model: DCR100-6.DAT, Goodwin & Marshall, Inc., May 29, 2010**
   8          ID                         100-Year 6-Hour HEC-1 Model for Existing Conditions **
   9          ID   Modified HEC-1 Model: DCR100-6.DAT, Goodwin & Marshall, Inc., Apr 26, 2011**
  10          ID                         100-Year 6-Hour HEC-1 Model for Existing Conditions **
  11          ID                                                                          **
  12          ID   1) NOAA2 Rainfall Data                                                 **
```



```
  13          ID   2) DDMSW V3.5.7 Used                                                   **
  14          ID   3) BASINS REVISED TO REFLECT CANYON RIDGE DEVELOPMENT AND DETERMINE FLOWS **
  15          ID      AT CRITICAL POINTS ALONG 115TH AVENUE                            **
  16          ID                                                                       **
  17          ID   ***************************************************************************
  18          ID   Project ID: 107 & Union Hills - Major Basin: 01 - Return Period: 100 Years
  19          ID                                                                          **
  20          ID   107th Avenue and Union Hills Drive Design Concept Report               **
  21          ID                                                                        **
  22          ID   PROJECT NO.: FCD 2009C036                    G&M: 10388A               **
  23          ID                                                                        **
  24          ID   Original HEC-1 Model: EC06BASE.DAT, Wood/Patel, SZ, May 2007           **
  25          ID                         100-Year 6-Hour HEC-1 Model for Existing Conditions **
  26          ID   Modified HEC-1 Model: DCR100-6.DAT, Goodwin & Marshall, Inc., May 29, 2010**
  27          ID                         100-Year 6-Hour HEC-1 Model for Existing Conditions **
  28          ID                                                                       **
  29          ID   1) NOAA2 Rainfall Data                                             **
  30          ID   2) DDMSW V3.5.7 Used                                              **
  31          ID                                                                     **
  32          ID   ***************************************************************************
  33          ID   Project ID: GP_NW ADMP_EX1 - Major Basin: 01 - Return Period: 100 Years
  34          ID                                                                          **
  35          ID   Glendale/Peoria ADMP Northwest Region Update                           **
  36          ID   Original HEC-1 Model: L3R5DVR.DAT, Wood/Patel, APRIL 14, 2006          **
  37          ID                         REVISED FOR DOVE VALLEY RANCH IMPROVEMENTS       **
  38          ID   Modified HEC-1 Model: EC06BASE.DAT, Wood/Patel, SZ, May 2007           **
  39          ID                         100-Year 6-Hour HEC-1 Model for Existing Conditions **
  40          ID   1) NOAA 2 Rainfall Data                                              **
  41          ID   2) DDMSW MCUHP1 V3.3.2 Used                                         **
  42          ID                                                                       **
  43          ID   ***************************************************************************
               *
  44          ID   ***************************************************************************
  45          ID   **                                                                       **
  46          ID   ** CONCEPT REFINEMENT STUDY FOR ROSE GARDEN LANE DRAINAGE IMPROVEMENTS   **
  47          ID   ** ORIGINAL HEC-1 FILE FROM GLENDAL/PEORIA ADMP UPDATE STUDY             **
  48          ID   ** MODIFIED HEC-1 MODEL: LEVEL3R5.DAT, Wood/Patel & CVL, May 2005       **
  49          ID   ** THIS IS THE PREFERRED ALTERNATIVE MODEL                              **
  50          ID   ** WPA REVISED APRIL 14, 2006 FOR DOVE VALLEY RANCH IMPROVEMENTS        **
  51          ID   ** USING LATEST SURVEY DATA.                                           **
  52          ID   ***************************************************************************
               *
  53          ID   ***************************************************************************
```

1 HEC-1 INPUT PAGE 2

```
LINE          ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10
  54          ID   **                                                                       **
  55          ID   **                    Glendale/Peoria ADMP Update                        **
  56          ID   **                                                                       **
  57          ID   ***************************************************************************
  58          ID   ***************************************************************************
  59          ID   PROJECT:               Glendale Peoria ADMP Update
  60          ID   CLIENT:                Flood Control District of Maricopa County
```

```
ID   PREPARED BY:              Entellus, Inc.
ID   PROJECT NO:              FCD 99-44              Entellus 310.017
ID   FILE NAME: LEVEL3.DAT              CREATED DATE: JUNE 6, 2001
ID   STORM:                   100-year 6-hour Storm
ID   DEVELOPMENT CONDITIONS: LEVEL 3 HYDROLOGY
ID
*
* ************************************************************************
IT       2                    1000
IO       5
IN      15
*
*DIAGRAM
*
JD    3.20     0.01
PC   0.000   0.008   0.016   0.025   0.033   0.041   0.050   0.058   0.066   0.074
PC   0.087   0.099   0.118   0.138   0.216   0.377   0.834   0.911   0.931   0.950
PC   0.962   0.972   0.983   0.991   1.000
JD    3.179    0.50
PC   0.000   0.008   0.016   0.025   0.033   0.041   0.050   0.058   0.066   0.074
PC   0.087   0.099   0.118   0.138   0.216   0.377   0.834   0.911   0.931   0.950
PC   0.962   0.972   0.983   0.991   1.000
JD    3.120     2.80
PC   0.000   0.009   0.016   0.025   0.034   0.042   0.051   0.059   0.067   0.076
PC   0.087   0.100   0.120   0.163   0.252   0.451   0.694   0.837   0.900   0.938
PC   0.950   0.963   0.975   0.988   1.000
JD    2.950     16.0
PC   0.000   0.015   0.020   0.030   0.048   0.063   0.076   0.090   0.105   0.119
PC   0.135   0.152   0.175   0.222   0.304   0.472   0.670   0.796   0.868   0.912
PC   0.946   0.960   0.973   0.987   1.000
JD    2.598     90.0
PC   0.000   0.021   0.035   0.051   0.071   0.087   0.105   0.125   0.143   0.160
PC   0.179   0.201   0.232   0.281   0.364   0.500   0.658   0.773   0.841   0.888
PC   0.927   0.945   0.964   0.982   1.000
*
* ************************************************************************
*
* The Following Portion Came from the HEC-1 Model for the Tierra Del Rio
* Development.  Model CREATED BY A. MERCIER, CMX, ON 01/16/04
* FILE NAME: TDR6DC.DAT
*
* ************************************************************************
*
```



```
LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

KK     CBA   BASIN
BA   0.007
KM   SUB-BASIN CBA
LG    0.34    0.35    6.80    0.13      11
UC   0.182   0.219
UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
UA     100
*
KK     RCBA
KM   CHANNEL ROUTING
RD    1479   .0095    .030            TRAP       0       4
*
KK     P28   BASIN
KM   SUB-BASIN P28
```



```
BA   0.027
LG    0.25    0.13   10.10    0.04      29
UC   0.337   0.331
UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
UA     100
*
KK     CP28
KM
HC        2
*
KK     DT28
KM
DT     DB28   1.230
DI        0     100     500    1000    5000
DQ        0     100     500    1000    5000
*
KK     CBB   BASIN
KM   SUB-BASIN CBB
BA   0.017
LG    0.34    0.34    4.55    0.35      15
UC   0.195   0.156
UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
UA     100
*
KK     RCBB
KM   CHANNEL ROUTING
RD    1231   .0244    .030            TRAP       0       4
*
```



```
LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

KK    CP28a
KM
HC        2
*
KK     R28a
KM   CHANNEL ROUTING
RD    1642   .0018    .030            TRAP      10       4
*
KK     P27   BASIN
KM   SUB-BASIN P27
BA   0.065
LG    0.25    0.15    8.00    0.10      30
UC   0.423   0.443
UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
UA     100
*
KK     DT27
KM
DT     DB27   1.360
DI        0     100     500    1000    5000
DQ        0     100     500    1000    5000
*
KK     CP27
```

```
144          KM
145          HC       2
             *

146          KK    P27A   BASIN
147          KM  SUB-BASIN P27A
148          BA   0.008
149          LG    0.25    0.25    4.35    0.46      44
150          UC   0.235   0.295
151          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
152          UA     100
             *

153          KK   DT27a
154          KM
155          DT   DB27a   0.210
156          DI       0     100     500    1000    5000
157          DQ       0     100     500    1000    5000
             *

158          KK    P27B   BASIN
159          KM  SUB-BASIN P27B
160          BA   0.013
161          LG    0.26    0.26    5.00    0.32      37
162          UC   0.260   0.346
163          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
164          UA     100
             *
```



```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9.....10

165          KK   DT27b
166          KM
167          DT   DB27b   0.250
168          DI       0     100     500    1000    5000
169          DQ       0     100     500    1000    5000
             *

170          KK     CBL   BASIN
171          KM  SUB-BASIN CBL
172          BA   0.028
173          LG    0.28    0.29    5.70    0.23      24
174          UC   0.276   0.301
175          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
176          UA     100
             *

177          KK    CCBL
178          KM
179          HC       4
             *

180          KK    RCBL
181          KM  NATURAL WASH ROUTING
182          RC   0.035   0.035   0.035     840    .0227
183          RX       0     7.5      15      50      60      95   102.5     110
184          RY       5     2.5       0       0       0       0     2.5       5
             *

185          KK     CBK   BASIN
186          KM  SUB-BASIN CBK
187          BA   0.052
```



```
188          LG    0.34    0.34    4.65    0.33       6
189          UC   0.277   0.207
190          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
191          UA     100
             *

192          KK    CCBK
193          KM
194          HC       2
             *

195          KK    RCBK
196          KM  CHANNEL ROUTING
197          RD     755   .0238    .030            TRAP      10       4
             *

198          KK     P14   BASIN
199          KM  SUB-BASIN P14
200          BA   0.008
201          LG    0.34    0.34    3.81    0.53       2
202          UC   0.234   0.183
203          UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
204          UA     100
             *
```



```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9.....10

205          KK    RT14
206          KM
207          DT   RB14   1.130
208          DI       0     100     500    1000    5000
209          DQ       0     100     500    1000    5000
             *

210          KK    CP14
211          KM
212          HC       2
             *

213          KK     P15   BASIN
214          KM  SUB-BASIN P15
215          BA   0.006
216          LG    0.33    0.34    3.23    0.81       5
217          UC   0.436   0.564
218          UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
219          UA     100
             *

220          KK    DT15
221          KM
222          DT   DB15   0.260
223          DI       0     100     500    1000    5000
224          DQ       0     100     500    1000    5000
             *

225          KK     CBJ   BASIN
226          KM  SUB-BASIN CBJ
227          BA   0.015
228          LG    0.35    0.35    4.30    0.41      10
229          UC   0.227   0.241
230          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
231          UA     100
```

```
                 *
   232           KK     CP15
   233           KM
   234           HC        3
                 *
   235           KK      R15
   236           KM   CHANNEL ROUTING
   237           RD      800   .0125    .030            TRAP      10       4
                 *
   238           KK      CBH   BASIN
   239           KM   SUB-BASIN CBH
   240           BA    0.012
   241           LG     0.35    0.35    4.40    0.38      15
   242           UC    0.156   0.100
   243           UA        0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
   244           UA      100
                 *
                 * Route CBH to P25S
                 *
```



```
 LINE            ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

   245           KK     RCBH
   246           RS        2    FLOW       0
   247           RC     0.02     .02     .02    1500   .0055
   248           RX      280     320     340     350     360     370     390     430
   249           RY        6       4       2       0       0       2       4       6
                 *
   250           KK     P25S   BASIN
   251           KM   SUB-BASIN P25S
   252           BA    0.028
   253           LG     0.35    0.35    4.35    0.40      15
   254           UC    0.480   0.415
   255           UA        0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
   256           UA      100
                 *
   257           KK    CP25S
   258           KM
   259           HC        2
                 *
   260           KK     AFR0
   261           KM   Dummy Combination at Jomax Road and AFR
   262           HC        2
                 *
                 * ***********************************************************************
   263           KK       E1   BASIN
   264           KM   SUB-BASIN E1
   265           BA    0.014
   266           LG     0.33    0.32    3.95    0.48       2
   267           UC    0.205   0.142
   268           UA        0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
   269           UA      100
                 *
   270           KK      RE1
```



```
   271           KM   CHANNEL ROUTING
   272           RD     1993   .0376    .030            TRAP      10       4
                 *
   273           KK       E2   BASIN
   274           KM   SUB-BASIN E2
   275           BA    0.016
   276           LG     0.30    0.25    3.95    0.48       5
   277           UC    0.288   0.271
   278           UA        0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
   279           UA      100
                 *
```



```
 LINE            ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

   280           KK      RE2
   281           KM   CHANNEL ROUTING
   282           RD     1108   .0542    .030            TRAP      10       4
                 *
   283           KK      P13   BASIN
   284           KM   SUB-BASIN P13
   285           BA    0.059
   286           LG     0.26    0.25    3.92    0.57      27
   287           UC    0.313   0.195
   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     DT13
   291           KM
   292           DT     DB13   1.060
   293           DI        0     100     500    1000    5000
   294           DQ        0     100     500    1000    5000
                 *
   295           KK     CP13
   296           KM
   297           HC        3
                 *
   298           KK      R13
   299           KM   CHANNEL ROUTING
   300           RD     1412   .0035    .025            TRAP      10       4
                 *
   301           KK      P12   BASIN
   302           KM   SUB-BASIN P12
   303           BA    0.044
   304           LG     0.25    0.26    3.58    0.71      30
   305           UC    0.426   0.316
   306           UA        0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
   307           UA      100
                 *
   308           KK     DT12
   309           KM
   310           DT     DB12   1.140
   311           DI        0     100     500    1000    5000
   312           DQ        0     100     500    1000    5000
                 *
```

```
313          KK    CP12
314          KM
315          HC       2
             *
```



```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9.....10

316          KK      E3   BASIN
317          KM  SUB-BASIN E3
318          BA   0.082
319          LG    0.31    0.28    3.95    0.48       4
320          UC   0.589   0.591
321          UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
322          UA     100
             *

323          KK     RE3
324          KM  CHANNEL ROUTING
325          RD    1473   .0339    .030            TRAP      10       4
             *

326          KK     P10   BASIN
327          KM  SUB-BASIN P10
328          BA   0.055
329          LG    0.25    0.26    3.78    0.63       29
330          UC   0.409   0.251
331          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
332          UA     100
             *

333          KK    DT10
334          KM
335          DT    DB10   1.080
336          DI       0     100     500    1000    5000
337          DQ       0     100     500    1000    5000
             *

338          KK    CP10
339          KM
340          HC       2
             *

341          KK     R10
342          KM  CHANNEL ROUTING
343          RD    1947   .0035    .025            TRAP      10       4
             *

344          KK     P11   BASIN
345          KM  SUB-BASIN P11
346          BA   0.042
347          LG    0.25    0.25    3.85    0.60       30
348          UC   0.671   0.682
349          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
350          UA     100
             *
```



```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9.....10

351          KK    DT11
352          KM
```



```
353          DT    DB11   1.200
354          DI       0     100     500    1000    5000
355          DQ       0     100     500    1000    5000
             *

356          KK    CP11
357          KM
358          HC       2
             *

359          KK      E4   BASIN
360          KM  SUB-BASIN E4
361          BA   0.040
362          LG    0.34    0.33    4.00    0.47       3
363          UC   0.528   0.655
364          UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
365          UA     100
             *

366          KK     RE4
367          KM  CHANNEL ROUTING
368          KM  SHAPE REFLECTS CURRENT SET OF PLANS FOR HAPPY VALLEY ROAD DITCH
369          RD
370          RC    .015    .015    .015    1287   .0250
371          RX       0       2       4    9.84   12.84   15.84   21.84   27.56
372          RY    2.46    1.96    1.46       0     0.5       1       2    2.95
             *

373          KK      P9   BASIN
374          KM  SUB-BASIN P9
375          BA   0.045
376          LG    0.25    0.25    3.92    0.57       30
377          UC   0.315   0.283
378          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
379          UA     100
             *

380          KK     DT9
381          KM
382          DT     DB9   0.920
383          DI       0     100     500    1000    5000
384          DQ       0     100     500    1000    5000
             *

385          KK     HV1   BASIN
386          KM  SUB-BASIN HV1
387          BA   0.007
388          LG    0.27    0.29    3.95    0.55       25
389          UC   0.410   0.888
390          UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
391          UA     100
             *
```



```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9.....10

392          KK     CP9
393          KM
394          HC       3
             *

395          KK      R9
396          KM  CHANNEL ROUTING
```

```
397          KM  SHAPE REFLECTS CURRENT SET OF PLANS FOR HAPPY VALLEY ROAD DITCH
398          RD
399          RC    .015    .015    .015     940   .0250
400          RX       0       2       4    9.84   12.84   15.84   21.84   27.56
401          RY    2.46    1.96    1.46       0     0.5       1       2    2.95
             *

402          KK      P8   BASIN
403          KM  SUB-BASIN P8
404          BA   0.013
405          LG    0.25    0.25    4.15    0.52      30
406          UC   0.508   0.595
407          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
408          UA     100
             *

409          KK     DT8
410          KM
411          DT     DB8   0.300
412          DI       0     100     500    1000    5000
413          DQ       0     100     500    1000    5000
             *

414          KK      P7   BASIN
415          KM  SUB-BASIN P7
416          BA   0.014
417          LG    0.25    0.25    3.95    0.56      30
418          UC   0.458   0.528
419          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
420          UA     100
             *

421          KK     DT7
422          KM
423          DT     DB7   0.300
424          DI       0     100     500    1000    5000
425          DQ       0     100     500    1000    5000
             *

426          KK     CP7
427          KM
428          HC       3
             *
```



```
             LINE    ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

429          KK      R7
430          KM  CHANNEL ROUTING
431          RD
432          RC    .015    .015    .015    1488   .0250
433          RX       0       2       4    9.84   12.84   15.84   21.84   27.56
434          RY    2.46    1.96    1.46       0     0.5       1       2    2.95
             *

435          KK      P6   BASIN
436          KM  SUB-BASIN P6
437          BA   0.070
438          LG    0.25    0.25    4.25    0.49      30
439          UC   0.899   1.126
440          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
441          UA     100
             *
```



```
442          KK     DT6
443          KM
444          DT     DB6   1.760
445          DI       0     100     500    1000    5000
446          DQ       0     100     500    1000    5000
             *

447          KK     CP6
448          KM
449          HC       2
             *

450          KK   HPVLY
451          KM
452          HC       3
             *
             *
             * ****************************************************************************
             *
             *

453          KK   A11MA   BASIN
454          KM  SUB-BASIN A11M North Portion
455          BA   0.073
456          LG    0.32    0.24    8.80    0.06       8
457          UC   0.258   0.117
458          UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
459          UA     100
             *
             * On-site Retention Basin
             *
```



```
             LINE    ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

460          KK  A11MAQ
461          DT  DA11MA      3.4
462          DI       0     100    1000    1000
463          DQ       0     100    1000    1000
             *
             *
             *

464          KK  SA11MA STORAGE
465          KM  Online Detention Basin,  6.2 ac-ft.
466          RS       1    STOR       0
467          SV       0     1.5     2.5     4.0     6.2    10.0
468          SE       0       2       3       4       5       6
469          SL       0    3.14    0.62     0.5
470          SS       5      50     2.7     1.5
             *
             * ROUTE RA11MA IS 2000 FT WITH A SLOPE OF .0092
             * CROSS SECTION IS A SMALL NATURAL CHANNEL
             *

471          KK  RA11MA
472          RS       9    FLOW       0
473          RC    0.05    0.06    0.05    2000   .0092
474          RX       0     350     450     480     482     510     610     910
475          RY       7       6       5       1       0       5       6       7
             *
```

```
476          KK   A11MB   BASIN
477          KM  SUB-BASIN A11M South Portion
478          BA   0.194
479          LG    0.25    0.15    8.80    0.07      29
480          UC   0.393   0.167
481          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
482          UA     100
             *
             * On-site Retention Basin
             *     GP

483          KK  A11MBQ
484          DT  DA11MB     3.6
485          DI       0     100    1000    1000
486          DQ       0     100    1000    1000
             *

487          KK  SA11MB STORAGE
488          KM  Online Detention Basin, 11.2 ac-ft.
489          RS       1    STOR       0
490          SV       0     3.0     5.5     8.0    11.2    15.0
491          SE       0       2       3       4       5       6
492          SL       0    3.14    0.62     0.5
493          SS       5     200     2.7     1.5
             *
```



```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9.....10

494          KK   A11NA   BASIN
495          KM  SUB-BASIN A11N - Revised
496          BA   0.076
497          LG    0.29    0.30    5.40    0.25      26
498          UC   0.237   0.134
499          UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
500          UA     100
             *

501          KK  SA11NA STORAGE
502          KM  Online Detention Basin,  7.3 ac-ft.
503          RS       1    STOR       0
504          SV       0     1.0     3.0     5.0     7.3    11.0
505          SE       0       2       3       4       5       6
506          SL       0    3.14    0.62     0.5
507          SS       5     100     2.7     1.5
             *

508          KK  RA11NA
509          RS      11    FLOW       0
510          RC    0.05    0.06    0.05    2400  0.0090
511          RX       0     350     450     480     482     510     610     910
512          RY       7       6       5       1       0       5       6       7
             *
             * COMBINE Flows of A11NA, A11MA AND A11MB
             *

513          KK  CA11MB
514          HC       3
             *
             * Route Flow to A11J
             *

515          KK  RA11MB
```



```
516          RS       8    FLOW       0
517          RC    0.05    0.06    0.05    3000   .0085
518          RX       0     350     450     480     482     510     610     910
519          RY       7       6       5       1       0       5       6       7
             *

520          KK    A11O   BASIN
521          KM  SUBASIN A11O
522          BA   0.056
523          LG    0.28    0.27    6.20    0.19      23
524          UC   0.279   0.249
525          UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
526          UA     100
             *
```



```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9.....10

527          KK   SA11O STORAGE
528          KM  Online Detention Basin,  3.1 ac-ft.
529          RS       1    STOR       0
530          SV       0     0.5     1.0     2.0     3.1     5.0
531          SE       0       2       3       4       5       6
532          SL       0    3.14    0.62     0.5
533          SS       5      50     2.7     1.5
             *
             * ROUTE A11O to A11KB
             *

534          KK   RA11O
535          RS       9    FLOW       0
536          RC    0.05     .06     .05    2500   .0085
537          RX       0     350     450     480     482     510     610     910
538          RY       7       6       5       1       0       5       6       7
             *

539          KK   A11KB   BASIN
540          KM  SUB-BASIN A11K North Portion
541          BA   0.107
542          LG    0.25    0.25    4.70    0.36      30
543          UC   0.390   0.206
544          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
545          UA     100
             *

546          KK  SA11KB STORAGE
547          KM  Online Detention Basin, 10.7 ac-ft.
548          RS       1    STOR       0
549          SV       0     3.0     5.0     7.0    10.7    15.0
550          SE       0       2       3       4       5       6
551          SL       0    3.14    0.62     0.5
552          SS       5     100     2.7     1.5
             *

553          KK   A11KA   BASIN
554          KM  SUB-BASIN A11K East Portion
555          BA   0.081
556          LG    0.27    0.27    4.45    0.42      42
557          UC   0.272   0.190
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  SA11KA STORAGE
561          KM  Online Detention Basin,  9.6 ac-ft.
562          RS       1    STOR       0
563          SV       0     2.0     4.0     6.0     9.6    14.0
564          SE       0       2       3       4       5       6
565          SL       0    3.14    0.62     0.5
566          SS       5      50     2.7     1.5
             *
             * ROUTE A11KA to A11KB
             *
```



```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9.....10

567          KK  RA11KA
568          RS       8    FLOW       0
569          RC    0.05     .06     .05    2000   .0075
570          RX       0     350     450     480     482     510     610     910
571          RY       7       6       5       1       0       5       6       7
             *
             * COMBINE A11KB,A11KA AND A11O
             *

572          KK  CA11KB
573          HC       3
             *
             * ROUTE Flow of CA11KB to A11KC
             *

574          KK  RA11KB
575          RS       8    FLOW       0
576          RC    0.05    0.06    0.05    1600  0.0055
577          RX       0      50     250     350     360     420     620     720
578          RY      10       8       6       2       0       6       8      10
             *

579          KK    A11G   BASIN
580          KM  SUB-BASIN A11G
581          BA   0.060
582          LG    0.31    0.28    4.55    0.35      25
583          UC   0.425   0.369
584          UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
585          UA     100
             *
             * ROUTE A11G to A11KC
             *

586          KK  RA11GN
587          RS       7    FLOW       0
588          RC    0.05     .06     .05    2300   0.010
589          RX       0     350     450     480     482     510     610     910
590          RY       7       6       5       1       0       5       6       7
             *

591          KK   A11KC   BASIN
592          KM  SUB-BASIN A11K West Portion
593          BA   0.132
594          LG    0.27    0.26    4.15    0.50      27
595          UC   0.381   0.185
596          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
597          UA     100
             *
```



```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9.....10

598          KK  SA11KC STORAGE
599          KM  Online Detention Basin,  6.4 ac-ft.
600          RS       1    STOR       0
601          SV       0     1.5     2.5     4.0     6.4    10.0
602          SE       0       2       3       4       5       6
603          SL       0    3.14    0.62     0.5
604          SS       5      50     2.7     1.5
             *
             * COMBINE RA11KB, RA11G, AND A11KC
             *

605          KK  CA11KC
606          HC       3
             *
             * ROUTE CA11KC to A11J
             * CROSS SECTION IS A MEDIUM NATURAL CHANNEL
             *

607          KK  RA11KC
608          RS       4    FLOW       0
609          RC    0.05     .06     .05    1000   .0055
610          RX       0      50     250     350     360     420     620     720
611          RY      10       8       6       2       0       6       8      10
             *

612          KK    A11J   BASIN
613          KM  SUB-BASIN A11J
614          BA   0.112
615          LG    0.29    0.22    7.30    0.12      18
616          UC   0.579   0.448
617          UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
618          UA     100
             *

619          KK   SA11J STORAGE
620          KM  Online Detention Basin,  4.4 ac-ft.
621          RS       1    STOR       0
622          SV       0     1.0     2.0     3.0     4.4     7.0
623          SE       0       2       3       4       5       6
624          SL       0    3.14    0.62     0.5
625          SS       5      50     2.7     1.5
             *
             * COMBINE Flows of RA11MB, A11J, AND RA11KC
             *

626          KK   CA11J
627          HC       3
             *
```



```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9.....10

628          KK    A11L   BASIN
629          KM  SUB-BASIN A11L
630          BA   0.264
631          LG    0.27    0.12   11.20    0.03      24
632          UC   0.704   0.514
633          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
634          UA     100
```

```
                *
                * On-site Retention Basin
                *     GP

635             KK  DA11LQ
636             DT   DA11L      7.6
637             DI       0      100     1000     1000
638             DQ       0      100     1000     1000
                *
                * ROUTE FLOW TO A11I FROM A11L                                    G
                *

639             KK   RA11L
640             RS       9     FLOW        0
641             RC    0.05     0.06     0.05     2600    .0069
642             RX       0      350      450      480     482      510      610      910
643             RY       7        6        5        1       0        5        6        7
                *

644             KK    A11I   BASIN
645             KM  SUB-BASIN A11I
646             BA   0.153
647             LG    0.25     0.10    11.20     0.03      28
648             UC   0.516    0.325
649             UA       0      5.0     16.0     30.0     65.0     77.0     84.0     90.0     94.0     97.0
650             UA     100
                *
                * On-site Retention Basin
                *

651             KK  DA11IQ
652             DT   DA11I     11.7
653             DI       0      100     1000     1000
654             DQ       0      100     1000     1000
                *
                * COMBINE Flows of CA11J, A11I, and RA11L
                *

655             KK   CA11I
656             HC       3
                *
                * ROUTE FLOW TO A11EB FROM CA11I
                *
1                                       HEC-1 INPUT                                      PAGE 19

              LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

657             KK   RA11I
658             RS       9     FLOW        0
659             RC    0.05      .06      .05     4000    .0075
660             RX       0       50      100      150     180      230      280      330
661             RY      10        8        6        0       0        6        8       10
                *

662             KK   A11EA   BASIN
663             KM  SUB-BASIN A11E East Portion
664             BA   0.144
665             LG    0.33     0.31     4.30     0.41      11
666             UC   0.596    0.537
667             UA       0      4.5     12.6     23.2     35.8     50.0     64.2     76.8     87.4     95.5
668             UA     100
                *
                * ROUTE FLOW TO A11EB FROM A11EA
```



```
                *

669             KK  RA11EA
670             RS       6     FLOW        0
671             RC    0.05      .06      .05     1500    .0065
672             RX       0       50      250      320     360      420      620      720
673             RY      10        8        6        0       0        6        8       10
                *

674             KK   A11EB   BASIN
675             KM  SUB-BASIN A11E West Portion
676             BA   0.190
677             LG    0.34     0.34     4.45     0.38       4
678             UC   0.834    0.835
679             UA       0      4.5     12.6     23.2     35.8     50.0     64.2     76.8     87.4     95.5
680             UA     100
                *
                * COMBINE Flows of A11EA, A11EB, and RA11I
                *

681             KK  CA11EB
682             HC       3
                *

683             KK      41   BASIN
684             KM  SUB-BASIN 41
685             BA   0.054
686             LG    0.34     0.34     4.40     0.39      21
687             UC   0.249    0.168
688             UA       0      3.0      5.0      8.0     12.0     20.0     43.0     75.0     90.0     96.0
689             UA     100
                *
1                                       HEC-1 INPUT                                      PAGE 20

              LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

690             KK     B41
691             KM  Storage Route Runoff through Detention Basin @41
692             KM  Outlet Structure:  1-48" PIPE
693             RS       1     STOR        0
694             SA     .09      .18      .27       .4
695             SE    1433     1435     1437     1440
696             SQ       0       23       71      132
                *

697             KK      42   BASIN
698             KM  SUB-BASIN 42
699             BA   0.075
700             LG    0.35     0.35     4.25     0.42      44
701             UC   0.259    0.180
702             UA       0      3.0      5.0      8.0     12.0     20.0     43.0     75.0     90.0     96.0
703             UA     100
                *

704             KK     B42
705             KM  Storage Route Runoff through Detention Basin @42
706             KM  Outlet Structure:  48" PIPE
707             RS       1     STOR        0
708             SA     .07      .13      .21      .31       .4
709             SE    1427     1429     1431     1433     1435
710             SQ       0       23       71      112      147
                *
                * COMBINE Flows of 41 and 42                                      G
```

```
*
711         KK     C41
712         HC       2
            *
            * ROUTE FLOW TO A11F FROM C41
            *

713         KK    RC41
714         RS      14    FLOW       0
715         RC    0.05     .06      .05    5200   .0075
716         RX       0      50       70      90     110     130     150     200
717         RY       6       5        3       0       0       3       5       6
            *

718         KK    A11F   BASIN
719         KM  SUB-BASIN A11F
720         BA   0.334
721         LG    0.33    0.31    4.35    0.40       8
722         UC   0.624   0.419
723         UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
724         UA     100
            *
            * COMBINE Flows of A11F and RC41                                                  G
            *
```



```
744         DQ     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0
            *
            * ROUTE FLOW TO CA09T FROM A09U                                                   G
            *

745         KK  RA09UW
746         RS       9    FLOW       0
747         RC    0.05    0.03     .05    4000   .0075
748         RX       0     200     210     220     240     270     295     595
749         RY     4.5       2       0       2       3       3     3.5     4.5
            *

750         KK    A09T   BASIN
751         KM  SUB-BASIN A09T
752         BA   0.182
753         LG    0.33    0.31    4.30    0.41       2
754         UC   0.551   0.388
755         UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
756         UA     100
            *
            * COMBINE  CA09U AND A09T
            *
```



```
LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

725         KK   CA11F
726         HC       2
            *
            * COMBINE Flows of CA11F and CA11EB
            *

727         KK   CA11E
728         HC       2
            *
            * ROUTE FLOW TO A11A FROM CA11E
            *

729         KK   RA11E
730         RS       3    FLOW       0
731         RC    0.05     .06      .05    1700   .0070
732         RX       0      50       70      90     110     130     150     200
733         RY       6       5        3       0       0       3       5       6
            *

734         KK    A09U   BASIN
735         KM  SUB-BASIN A09U
736         BA   0.175
737         LG    0.32    0.30    4.20    0.43      22
738         UC   0.347   0.227
739         UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
740         UA     100
            *
            * Happy Valley RD. Improvements
            * 0 % FLOW GOES DOWN to South,100% WEST along HAPPY VALLEY
            *

741         KK   DA09U
742         DT   A09UI     0.0     0.0
743         DI     0.0    10.0   100.0  1000.0  5000.0     0.0     0.0     0.0     0.0     0.0
```



```
LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

757         KK   CA09T
758         HC       2
            *
            * HAPPY VALLEY ROAD Improvements, 100% Flow TO THE WEST
            *

759         KK   DA09T
760         DT   A09TI     0.0     0.0
761         DI     0.0    10.0   100.0  1000.0 10000.0     0.0     0.0     0.0     0.0     0.0
762         DQ     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0
            *
            * ROUTE FLOW TO CX22 FROM CA09T
            *

763         KK  RA09TW
764         RS       2    FLOW       0
765         RC    0.05    0.03    0.05    1500   .0025
766         RX       0     200     210     220     230     270     295     595
767         RY       6       4       0       0       4       4     5.5       7
            *

768         KK    A11A   BASIN
769         KM  SUB-BASIN A11A
770         BA   0.298
771         LG    0.23    0.29    6.00    0.21      34
772         UC   0.568   0.362
773         UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
774         UA     100
            *
            * On-site Retention Basin
            *     GP

775         KK  DA11AQ
776         DT   DA11A     7.7
777         DI       0     100    1000    1000
778         DQ       0     100    1000    1000
            *
```

```
* Combine  Flows of RA09TW, CA11E,and A11A
*
KK    CX23
HC       3
*
* ROUTE FLOW TO CS1 FROM CX23                                                GP
*
KK    RX23
RS       7    FLOW       0
RC    0.05     .06     .05    4000   .0074
RX       0      50     150     175     275     300     400     500
RY      12       8       6       0       0       6       8      12
*
```

1 HEC-1 INPUT PAGE 23

```
LINE  ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

KK      S1   BASIN
KM  SUB-BASIN S1
BA   0.124
LG    0.31    0.27    4.25    0.47      12
UC   0.597   0.527
UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
UA     100
*
KK      P2   BASIN
KM  SUB-BASIN P2
BA   0.051
LG    0.25    0.25    4.45    0.43      29
UC   0.316   0.203
UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
UA     100
*
KK     RT2
KM
DT     RB2   4.740
DI       0     100     500    1000    5000
DQ       0     100     500    1000    5000
*
KK     CS1
KM
HC       3
*
KK     RS1
KM  CHANNEL ROUTING
RD     924   .0108    .035            TRAP     200       6
*
KK      S2   BASIN
KM  SUB-BASIN S2
BA   0.012
LG    0.34    0.33    4.70    0.32       3
UC   0.198   0.111
UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
UA     100
*
```



```
KK      S3   BASIN
KM  SUB-BASIN S3
BA   0.006
LG    0.30    0.25    4.65    0.32       5
UC   0.154   0.090
UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
UA     100
*
```

1 HEC-1 INPUT PAGE 24

```
LINE  ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

KK     CS2
KM
HC       3
*
KK     RS2
KM  CHANNEL ROUTING
RD     665   .0075    .020            TRAP      20       4
*
KK      P3   BASIN
KM  SUB-BASIN P3
BA   0.054
LG    0.25    0.25    4.45    0.43      30
UC   0.431   0.361
UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
UA     100
*
KK     RT3
KM
DT     RB3   5.230
DI       0     100     500    1000    5000
DQ       0     100     500    1000    5000
*
KK     CP3
KM
HC       2
*
KK     P4b   BASIN
KM  SUB-BASIN P4b
BA   0.017
LG    0.25    0.25    4.45    0.43      30
UC   0.225   0.132
UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
UA     100
*
KK    RT4b
KM
DT    RB4b   0.320
DI       0     100     500    1000    5000
DQ       0     100     500    1000    5000
*
KK      S4   BASIN
KM  SUB-BASIN S4
BA   0.014
LG    0.33    0.31    4.80    0.30       2
```

```
862          UC   0.361   0.546
863          UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
864          UA     100
             *
```



```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

865          KK      P1   BASIN
866          KM  SUB-BASIN P1
867          BA   0.029
868          LG    0.34    0.38    6.00    0.18       1
869          UC   0.362   0.389
870          UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
871          UA     100
             *

872          KK     DT1
873          KM
874          DT     DB1   0.500
875          DI       0     100     500    1000    5000
876          DQ       0     100     500    1000    5000
             *

877          KK     CP1
878          KM
879          HC       2
             *

880          KK     HV2   BASIN
881          KM  SUB-BASIN HV2
882          BA   0.031
883          LG    0.25    0.25    4.45    0.43      29
884          UC   1.500   4.221
885          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
886          UA     100
             *

887          KK    RHV2
888          KM  CHANNEL ROUTING
889          RD     910   .0033    .015            TRAP      10       4
             *

890          KK   DTHV2
891          KM
892          DT   DBHV2   0.680
893          DI       0     100     500    1000    5000
894          DQ       0     100     500    1000    5000
             *

895          KK     P4a   BASIN
896          KM  SUB-BASIN P4a
897          BA   0.039
898          LG    0.25    0.25    4.00    0.55      30
899          UC   0.499   0.448
900          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
901          UA     100
             *
```



```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10
```



```
902          KK    DT4a
903          KM
904          DT    DB4a   0.740
905          DI       0     100     500    1000    5000
906          DQ       0     100     500    1000    5000
             *

907          KK   SOUTH
908          KM  Combined at South HVR
909          HC       5
             *

910          KK    N11O   BASIN
911          KM  SUB-BASIN N11O
912          BA   0.054
913          LG    0.35    0.35    4.50    0.36       0
914          UC   0.458   0.338
915          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
916          UA     100
             *
             * A WASH TO THE WEST THAT CARRIES A MAX. FLOW OF 47 CFS.
             *

917          KK   DN11O
918          DT   N11OI
919          DI       0      30      60     100     300     600    1200    2200
920          DQ       0      27      54      90     270     553    1153    2153
             *
             * ROUTE RN11OW IS 2752 FT WITH A SLOPE OF .0025
             * CROSS SECTION IS A MEDIUM NATURAL WASH
             *

921          KK  RN11OW
922          RS      15    FLOW       0
923          RC    0.05     .06     .05    2752   .0025
924          RX       0      50     250     350     360     420     620     720
925          RY      10       8       6       2       0       6       8      10
             *
             * RECOVER DIVERTED FLOW FROM CA09T
             *

926          KK  DRA09T
927          DR   A09TI
             *
             * ROUTE RA09TS IS 2824 FT WITH A SLOPE OF .0057
             * CROSS SECTION IS SHALLOW CONCENTRATED FLOW
             * ROUTE FLOW TO CA09R FROM CA09T
             *
```



```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

928          KK  RA09TS
929          RS      15    FLOW       0
930          RC    0.05     .06     .05    2824   .0057
931          RX       0     400     800    1200    1600    2000    2400    2800
932          RY       3       1      .5       0       0      .5       1       3
             *

933          KK    A09R   BASIN
934          KM  SUB-BASIN A09R
935          BA   0.144
936          LG    0.35    0.34    4.25    0.43       1
```

```
 937          UC   0.792   0.663
 938          UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
 939          UA     100
              *
              * COMBINE  CN11O,  CA09T, AND A09R
              *

 940          KK   CA09R
 941          HC       3
              *
              * EXISTING CONDITIONS FLOW DOWN LAKE PLEASANT RD
              *

 942          KK   DA09R
 943          DT   A09RI
 944          DI       0      10      50     100     300     500     800    1000    2000
 945          DQ       0     9.9    49.3    99.4   299.5     499     799     999    1999
              *
              * ROUTE RA09RW IS 1609 FT WITH A SLOPE OF .0012
              * *** ROUTE FLOW TO CA09S FROM CA09R  ***************************
              *

 946          KK  RA09RW
 947          RS      15    FLOW       0
 948          RC    0.05    0.04     .05    1609  0.0012
 949          RX       0     200     300     325     340     360     380     880
 950          RY       5       4       3       2       3       3       2     3.5
              *

 951          KK    A09S   BASIN
 952          KM  SUB-BASIN A09S
 953          BA   0.072
 954          LG    0.13    0.25    4.90    0.40      71
 955          UC   0.515   0.441
 956          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
 957          UA     100
              *
              * On-site Retention Basin
              *     GP
```



```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 958          KK  DA09SQ
 959          DT   DA09S     7.0
 960          DI       0     100    1000    1000
 961          DQ       0     100    1000    1000
              *
              * *** COMBINE  RA09RW AND A09S ************************************************
              *

 962          KK   CA09S
 963          HC       2
              *

 964          KK  RA09SW
 965          RS       6    FLOW       0
 966          RC    0.03    0.03    0.03    1600  0.0085
 967          RX       0      50     100     120     140     160     210     260
 968          RY       6       4       3       0       0       3       4       6
              *

 969          KK   A09QA   BASIN
```



```
 970          KM  SUB-BASIN A09Q North Portion
 971          BA   0.092
 972          LG    0.34    0.34    4.20    0.44       2
 973          UC   0.534   0.331
 974          UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
 975          UA     100
              *
              * *** COMBINE  Flows of RA09SW and A09QA ***************************************
              *

 976          KK  CA09QA
 977          HC       2
              *
              * *** DIVERTED  MAIN (SOUTH), DIVERTED (WEST)  ****************************
              * FUTURE SPLIT: ALL EXISTING FLOW TO THE SOUTH
              *

 978          KK  DA09QA
 979          DT  A09QAI
 980          DI       0      10      30      50     100     500    1000    2000
 981          DQ       0     9.2    29.3    49.4    99.5     499     999    1999
              *
              * *** ROUTE CA09QA TO CA99YA ***********************************************
              *

 982          KK  RA09QW
 983          RS       4    FLOW       0
 984          RC    0.03    0.03    0.03    2400  0.0085
 985          RX       0      50     100     120     140     160     210     260
 986          RY       6       4       3       0       0       3       4       6
              *
```



```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 987          KK   A99YA   BASIN
 988          KM  SUB-BASIN A99Y East Portion
 989          BA   0.103
 990          LG    0.35    0.34    4.90    0.29       1
 991          UC   0.413   0.291
 992          UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
 993          UA     100
              *
              * *** COMBINE  RA09QW AND A99YA ************************************************
              *

 994          KK  CA99YA
 995          HC       2
              *

 996          KK  RA99YA
 997          RS       3    FLOW       0
 998          RC    0.03    0.03    0.03    2000  0.0085
 999          RX       0      50     100     120     140     160     210     260
1000          RY       6       4       3       0       0       3       4       6
              *

1001          KK   A99YB   BASIN
1002          KM  SUB-BASIN A99Y West Portion
1003          BA   0.171
1004          LG    0.34    0.34    3.78    0.55       4
1005          UC   0.556   0.298
1006          UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
```

```
1007          UA     100
              *
              * *** COMBINE  RA99YA, SOUTH AND A99YB ***************************************
              *

1008          KK  CA99YB
1009          HC       3
              *
              *
              * Dummy Combining at AFR and South of Happy Valley Rd.
              *

1010          KK    AFR1
1011          HC       3
              *
              * RECOVER DIVERTED FLOW FROM A09U
              *

1012          KK  BA09UI
1013          DR   A09UI
              *
              * *** ROUTE RA09US ************************************************************
              * ROUTE RA09US IS 3000 FT WITH A SLOPE OF 0.0076
              * CROSS SECTION IS A SMALL ROAD WITH HOMES ON THE WEST SIDE
              * ALONG local STREETS
              * *** ROUTE FLOW TO N11NB FROM Happy Valley RD (CA09U)
              *
```



```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1014          KK  RA09US
1015          RS       6    FLOW       0
1016          RC    0.04    0.03    0.04    3000  0.0076
1017          RX       0       1      54      55      95      96     124     624
1018          RY    9.25    1.25    0.25       0       0    0.25    1.25    3.25
              *
              *

1019          KK   N11NB   BASIN
1020          KM  SUB-BASIN N11NBN
1021          BA   0.140
1022          LG    0.31    0.27    4.70    0.31       4
1023          UC   0.567   0.481
1024          UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
1025          UA     100
              *
              * Combining Flows
              *

1026          KK  CN11NB
1027          HC       2
              *
              * ROUTE RN11NW IS 2521 FT WITH A SLOPE OF 0.0016
              * CROSS SECTION IS A SMALL ROAD WITH HOMES TO BOTH SIDES
              * ALONG Mariposa GrANDe
              *

1028          KK  RN11NW
1029          RS      12    FLOW       0
1030          RC    0.04    0.03    0.04    2521  0.0016
1031          RX       0       1      70      71      96      97     182     183
1032          RY    9.25    1.25    0.25       0       0    0.25    1.25    9.25
```



```
              *
              * RECOVER DIVERTED FLOW FROM N11OI

1033          KK  BN11OI
1034          DR   N11OI
              *
              * ROUTE RN11OS IS 1184 FT WITH A SLOPE OF 0.0068
              * CROSS SECTION IS SHALLOW CONCENTRATED FLOW
              * ALONG natural pathways
              * ROUTE FLOW TO Mariposa GrANDe (CN11M) FROM CN11O
              *

1035          KK  RN11OS
1036          RS      15    FLOW       0
1037          RC    0.05     .06     .05    1184  0.0068
1038          RX       0     400     800    1200    1600    2000    2400    2800
1039          RY       3       1      .5       0       0      .5       1       3
              *
```



```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1040          KK    N11M   BASIN
1041          KM  SUB-BASIN N11M
1042          BA   0.100
1043          LG    0.35    0.35    4.15    0.45       0
1044          UC   0.477   0.261
1045          UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
1046          UA     100
              *
              * *** COMBINE  CN11M ********************************************************
              * COMBINE BASIN N11M, RN11OS, and RN11NW
              * Mariposa GrANDe AND 95st AVE
              *

1047          KK   CN11M
1048          HC       3
              *
              * *** DIVERSION DN11M *********************************************************
              * DIVERSION MAIN 95th AVE(SOUTH), SPLIT (WEST)
              *

1049          KK   DN11M
1050          DT   N11MI
1051          DI       0       1      40      80     100     300     600    1200    2200
1052          DQ       0     .25      10      20      25      75     150     184     184
              *
              * ROUTE RN11MS IS 2689 FT WITH A SLOPE OF 0.0071
              * CROSS SECTION IS A SMALL ROAD WITH HOMES TO ONE SIDE
              * ALONG 95st AVE
              * ROUTE FLOW TO PINNACLE PEAK (CN11J) FROM Mariposa GrANDe (CN11M)
              *

1053          KK  RN11MS
1054          RS       7    FLOW       0
1055          RC    0.05    0.03    0.05    2689  0.0071
1056          RX       0       1      50      51      73      74     124     524
1057          RY    9.25    1.25    0.25       0       0    0.25    1.25    3.25
              *

1058          KK    N11J   BASIN
1059          KM  SUB-BASIN N11J
1060          BA   0.244
```

```
1061          LG    0.30    0.25    4.10    0.51      13
1062          UC   0.851   0.601
1063          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
1064          UA     100
              *
              * *** STORAGE ROUTING LN11J ************************************************
              * *** SMALL SUBDIVISION STORAGE (ACCOUNTED) ******************************
              *
```



```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1065          KK   LN11J
1066          DT  LN11JD     1.8
1067          DI       0     100    1000   10000
1068          DQ       0     100    1000   10000
              *
              * COMBINE N11J AND RN11KW
              * Pinnacle Peak AND 95st AVE
              *

1069          KK   CN11J
1070          HC       2
              *
              * Existing Condition 100% to South
              *

1071          KK   DN11J
1072          DT   N11JI
1073          DI       0      10     100    1000    5000
1074          DQ       0      10     100    1000    5000
              *
              * ROUTE RN11JW IS 1080 FT WITH A SLOPE OF .0019
              * CROSS SECTION IS THE NEW CHANNEL ALONG PINNACLE PEAK ROAD
              *
              * ROUTE FLOW TO CX4 FROM CN11J
              *

1075          KK  RN11JW
1076          RS       1    FLOW       0
1077          RC     .04    0.04     .04    1080   .0019
1078          RX       0     100     140     160     200     300     400     500
1079          RY      10       9       0       0       9      10      11      12
              *
              * RECOVER DIVERTED FLOW FROM CN11M
              *

1080          KK  DRN11M
1081          DR   N11MI
              *
              * ROUTE RN11MW IS 3871 FT WITH A SLOPE OF .0046
              * CROSS SECTION IS A ROAD WITH HOMES TO THE WEST SIDE
              * ROUTE FLOW TO CX4 FROM CN11M
              *

1082          KK  RN11MW
1083          RS      15    FLOW       0
1084          RC    0.05    0.04     .05    3871   .0046
1085          RX       0       1      50      51      76      77     102     602
1086          RY      10       2       1    0.75    0.75       1       2     3.5
              *
              * *** COMBINE  CN11J AND CN11M ***************************************************
              *
```



```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1087          KK     CX4
1088          HC       2
              *
              * ROUTE RX4 IS 2164 FT WITH A SLOPE OF .0023
              * CROSS SECTION IS THE NEW CHANNEL ALONG PINNACLE PEAK ROAD
              * *** ROUTE FLOW TO CA09O FROM CX4  ****************************
              *

1089          KK     RX4
1090          RS       6    FLOW      -1
1091          RC     .04    0.04     .04    2164  0.0023
1092          RX       0     100     140     160     200     300     400     500
1093          RY      10       9       0       0       9      10      11      12
              *

1094          KK    A09O   BASIN
1095          KM  SUB-BASIN A09O
1096          BA   0.194
1097          LG    0.32    0.29    4.40    0.41       6
1098          UC   0.937   0.939
1099          UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
1100          UA     100
              *

1101          KK   SA09O STORAGE
1102          KM  Online Detention Basin, 28.5 ac-ft.
1103          RS       1    STOR       0
1104          SV       0     9.0    15.0    21.0    28.5    38.0
1105          SE       0       2       3       4       5       6
1106          SL       0   7.065    0.62     0.5
1107          SS       5     100     2.7     1.5
              *
              * RECOVER DIVERTED FLOW FROM A09RI
              *

1108          KK  BA09RI
1109          DR   A09RI
              *
              * ROUTE RA09RS IS 3928 FT WITH A SLOPE OF .0074
              * CROSS SECTION IS A HIGHWAY
              * ROUTE FLOW TO CA09O FROM CA09R
              *

1110          KK  RA09RS
1111          RS      12    FLOW       0
1112          RC    0.05    0.04    0.05    3928   .0074
1113          RX       0     100     200     225     250     275     375     475
1114          RY       6       5       4       3       3       4       5       6
              *
              * *** COMBINE  CX4, RA09RS, AND A09O ***************************************
              *
```



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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1115          KK   CA09O
1116          HC       3
              *
```

```
                * Existing Condition: All Flow to South
                *
1117            KK   DA09O
1118            DT   A09OI
1119            DI       0     100    1000    5000
1120            DQ       0     100    1000    5000
                *
                *
                * ROUTE RA09OW IS 1076 FT WITH A SLOPE OF .0019
                * CROSS SECTION IS THE NEW CHANNEL ALONG PINNACLE PEAK ROAD
                * *** ROUTE FLOW TO CA09P FROM CA09O  ************************
                *
1121            KK  RA09OW
1122            RS       1    FLOW       0
1123            RC     .04     .04     .04    1076  0.0019
1124            RX       0     100     140     160 -   200     300     400     500
1125            RY      10       9       0       0       9      10      11      12
                *
1126            KK    A09P   BASIN
1127            KM  SUB-BASIN A09P
1128            BA   0.187
1129            LG   0.32    0.29    4.65    0.34       6
1130            UC   0.727   0.513
1131            UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
1132            UA     100
                *
1133            KK   SA09P STORAGE
1134            KM  Online Detention Basin, 25.2 ac-ft.
1135            RS       1    STOR       0
1136            SV       0     7.0    13.0    19.0    25.2    33.0
1137            SE       0       2       3       4       5       6
1138            SL       0   7.065    0.62     0.5
1139            SS       5     100     2.7     1.5
                *
                * *** COMBINE  CA09O AND A09P ***************************************************
                *
1140            KK   CA09P
1141            HC       2
                *
                * ROUTE RA09P IS 884 FT WITH A SLOPE OF .0136
                * CROSS SECTION IS THE NEW CHANNEL ALONG PINNACLE PEAK ROAD
                * *** ROUTE FLOW TO CA09Q FROM CA09P  ************************
                *
1                                       HEC-1 INPUT                                     PAGE 35

LINE            ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1142            KK   RA09P
1143            RS       2    FLOW       0
1144            RC     .04     .04     .04     884  0.0136
1145            RX       0     100     140     160     200     300     400     500
1146            RY      10       9       0       0       9      10      11      12
                *
                * Retrieve Diverted Flow of A09QAI
                *
1147            KK  BA09QA
1148            DR  A09QAI
```



```
                *
                * *** ROUTE FLOW TO CA09QB FROM CA09QA ************************
                *
1149            KK  RA09QB
1150            RS       8    FLOW       0
1151            RC    0.05     .06     .05    2700  0.0095
1152            RX       0     100     300     360     380     420     620     720
1153            RY      10       8       6       2       0       6       8      10
                *
1154            KK   A09QB   BASIN
1155            KM  SUB-BASIN A09Q South Portion
1156            BA   0.144
1157            LG   0.30    0.25    4.15    0.44       5
1158            UC   0.636   0.449
1159            UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
1160            UA     100
                *
                * *** COMBINE Flows of A09QA,A09QB  and RA09P  *********************************
                *
1161            KK   CA09Q
1162            HC       3
                *
                * Existing Condition:All Flow to South
                *
1163            KK   DA09Q
1164            DT   A09QI
1165            DI       0      10     100     500    1000    5000
1166            DQ       0      10     100     500    1000    5000
                *
                * ROUTE RA09QW IS 2468 FT WITH A SLOPE OF 0.0158
                * CROSS SECTION IS A MEDIUM CHANNEL
                * *** ROUTE CA09Q TO CA10A ***************************************************
                *
1                                       HEC-1 INPUT                                     PAGE 36

LINE            ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1167            KK  RA09QW
1168            RS       1    FLOW       0
1169            RC     .05     .05     .05    2468  0.0158
1170            RX       0     100     140     160     200     300     400     500
1171            RY      10       9       0       0       9      10      11      12
                *
1172            KK    A10A   BASIN
1173            KM  SUB-BASIN A10A
1174            BA   0.189
1175            LG   0.33    0.32    5.30    0.24       2
1176            UC   0.524   0.330
1177            UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
1178            UA     100
                *
1179            KK   CA10A
1180            HC       2
                *
                * ROUTE RA10A IS 2831 FT WITH A SLOPE OF 0.0148
                * CROSS SECTION IS THE NEW CHANNEL ALONG PINNACLE PEAK ROAD
                *
```

```
1181          KK   RA10A
1182          RS       2    FLOW       0
1183          RC    0.05    0.05    0.05    1553     .03
1184          RX       0     100     140     170     210     310     410     510
1185          RY      10       9       0       0       9      10      11      12
              *

1186          KK    A99X   BASIN
1187          KM  SUB-BASIN A99X
1188          BA   0.264
1189          LG    0.21    0.28    4.20    0.53      39
1190          UC   0.419   0.203
1191          UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
1192          UA     100
              *

1193          KK   CA99X
1194          HC       2
              *
              * Dummy Combination at AFR and Pinnacle Peak Rd.
              *

1195          KK    AFR2
1196          HC       2
              *
              * Retrieve Diverted Flow of A090I
              *
```



```
              LINE      ID.......1.......2.......3.......4.......5.......6.......7.......8.......9.....10

1197          KK  BA090I
1198          DR   A090I
              *
              * ROUTE RA090S IS 5602 FT WITH A SLOPE OF .0062
              * CROSS SECTION IS A RURAL ROAD WITH A DITCH RIGHT
              * *** ROUTE FLOW TO CX7 FROM CA090  ****************************
              *

1199          KK  RA090S
1200          RS       8    FLOW       0
1201          RC     .03     .03     .03    5602   .0062
1202          RX       0     200     220   227.5     235     255     300     460
1203          RY       4       2       0       0       2     2.5       3       4
              *

1204          KK    A09K   BASIN
1205          KM  SUB-BASIN A09K
1206          BA   0.410
1207          LG    0.34    0.34    4.40    0.39       2
1208          UC   0.845   0.559
1209          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
1210          UA     100
              *

1211          KK   DA09K
1212          KM  DIVERSION DA09K
1213          KM  DIVERSION SPLITS FLOW WITHIN SUB-BASIN A09K BASED ON TOPOGRAPHICAL SPLIT
1214          KM  A PORTION OF THE FLOW IS DIRECTED WEST TO LAKE PLEASANT PARKWAY
1215          KM  THE REMAINDER IS DIRECTED TO N11FA
1216          DT   A09KI
1217          DI       0     100     200     300     400     500     600     700    2000
```



```
1218          DQ       0      73     146     219     292     365     438     511    1460
              *

1219          KK     CX7
1220          KM  COMBINE Flows from North and East
1221          HC       2
              *

1222          KK    RX7S
1223          KM  ROUTE FLOW SOUTH TO CX8 FROM CX7
1224          KM  CROSS SECTION IS A PROPOSED TRAPEZOIDAL CHANNEL DESIGNED WITH
1225          KM  6:1 SIDE SLOPES ON THE LEFT BANK AND 3:1 SIDE SLOPES ON THE RIGHT BANK
1226          KM  ADJACENT TO LAKE PLEASANT PARKWAY ON THE WEST SIDE
1227          RS       5    FLOW       0
1228          RC     .03     .03     .03    2800     .002
1229          RX       0       3       9      15      35      41      47      50
1230          RY       5       4       2       0       0       2       4       5
              *
              * North Portion of N11N
              *
```



```
              LINE      ID.......1.......2.......3.......4.......5.......6.......7.......8.......9.....10

1231          KK   N11NA   BASIN
1232          KM  UPPER PART OF SUBBASIN N11N
1233          BA   0.022
1234          LG    0.35    0.35    4.00    0.47      29
1235          UC   0.178   0.111
1236          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
1237          UA     100
              *

1238          KK  RN11NA
1239          RS      13    FLOW       0
1240          RC    0.05    0.04     .05    3500  0.0083
1241          RX       0       1      51      52      82      83     108     608
1242          RY    9.25    1.25    0.25       0       0    0.25    1.25    3.75
              *

1243          KK   N11NC   BASIN
1244          KM  East PART OF SUBBASIN N11N
1245          BA   0.171
1246          LG    0.31    0.29    4.20    0.46       7
1247          UC   0.453   0.276
1248          UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
1249          UA     100
              *

1250          KK  CN11NC
1251          HC       2
              *

1252          KK  DN11NC
1253          KM  DIVERT FLOW 10-YEAR RUNOFF (149 cfs) to East
1254          DT   N11NP
1255          DI       0     149    2000
1256          DQ       0     149     149
              *

1257          KK  RN11NC
1258          KM  ROUTE N11NC to South
1259          RS       5    FLOW      -1
```

```
1260          RC    0.05    0.04     .05    1600  0.0089
1261          RX       0      10      20      30      70      80      90     100
1262          RY       3       2       1       0       0       1       2       3
              *

1263          KK   N11ND   BASIN
1264          KM  LOWER PART OF SUBBASIN N11N
1265          BA   0.053
1266          LG    0.29    0.25    4.60    0.36      12
1267          UC   0.564   0.502
1268          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
1269          UA     100
              *
```



```
              LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1270          KK    N11K   BASIN
1271          KM  SUB-BASIN N11K
1272          BA   0.167
1273          LG    0.30    0.25    4.20    0.46       9
1274          UC   0.772   0.599
1275          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
1276          UA     100
              *

1277          KK   CN11K
1278          KM  COMBINE N11K, RN11NC AND N11ND AT 91ST AVENUE AND PINNACLE PEAK
1279          HC       3
              *
              * Divert 10-Year Flow (55 cfs) into SD to East

1280          KK  DN11KS
1281          DT   N11KP
1282          DI       0      55     500    2000
1283          DQ       0      55      55      55
              *

1284          KK   RN11K
1285          RS      15    FLOW       0
1286          RC     .04    0.04     .04    5178   .0062
1287          RX       0     200     230     260     280     310     340     540
1288          RY      10       8       7       0       0       7       8      10
              *
              * Initial flow goes to west and excess flow splits to southeast
              * DIVERSION HAS BEEN MODIFIED FROM ORIGINAL ENTELLUS STUDY
              * PER CITY OF PEORIA COMMENTS (1/18/05)
              *

1289          KK     DX5
1290          DT     X5I
1291          DI       0      10     100     200     300     400     500    1000    2000
1292          DQ       0       0       0      94     154     249     344     844    1844
              *
              * ROUTE RX5W IS 1292 FT WITH A SLOPE OF 0.0008
              * CROSS SECTION IS DIRT ROAD
              * WEST ALONG DEER VALLEY RD
              * ROUTE FLOW FROM 91st AVE. (CN11H) TO WEST OF 91st AVE (CX5)
              *

1293          KK    RX5W
1294          RS      11    FLOW       0
1295          RC    0.05   0.045    0.05    1292   .0008
```



```
1296          RX       0     200     225     250     270     295     320     520
1297          RY    4.25    2.25    1.25       0       0    1.25    2.25    4.25
              *
```



```
              LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1298          KK    N11H   BASIN
1299          KM  SUB-BASIN N11H
1300          BA   0.419
1301          LG    0.35    0.35    4.50    0.36       0
1302          UC   0.843   0.519
1303          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
1304          UA     100
              *
              * COMBINE RX5W AND BASIN N11H
              *

1305          KK   CN11H
1306          HC       2
              *
              * NEW ALTERNATIVE CHANNEL ACROSS STATE LAND
              *

1307          KK   RN11H
1308          KM  ROUTE FLOW WEST TO CN11G FROM CN11H
1309          KM  CROSS SECTION IS A PROPOSED TRAPEZOIDAL CHANNEL DESIGNED WITH
1310          KM  3:1 SIDE SLOPES ON THE LEFT BANK AND 3:1 SIDE SLOPES ON THE RIGHT BANK
1311          KM  ADJACENT TO DEAR VALLEY ROAD ON THE NORTH SIDE
1312          RS       7    FLOW       0
1313          RC     .03     .03     .03    3300    .001
1314          RX       0       3      12      18      38      44      53      56
1315          RY       6       5       2       0       0       2       5       6
              *
              * RECOVER DIVERTED FLOW FROM N11J                                        G
              *

1316          KK  BN11JI
1317          DR   N11JI
              *
              * ROUTE RN11JS IS 5670 FT WITH A SLOPE OF 0.0062
              * CROSS SECTION IS A SMALL NATURAL WASH
              * ALONG NATURAL WASH
              * ROUTE FLOW TO DEER VALLEY RD. (CN11G) FROM PINNACLE PEAK (CN11J)
              *

1318          KK  RN11JS
1319          RS      12    FLOW       0
1320          RC    0.05    0.06    0.05    5670  0.0062
1321          RX       0     350     450     480     482     510     610     910
1322          RY       7       6       5       1       0       5       6       7
              *

1323          KK    N11G   BASIN
1324          KM  SUB-BASIN N11G
1325          BA   0.524
1326          LG    0.35    0.35    4.35    0.40       0
1327          UC   0.844   0.464
1328          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
1329          UA     100
              *
              * COMBINE  RN11JS, RN11H AND N11G AT 98TH AVE
              *
```

```
LINE      ID.......1.......2.......3.......4.......5.......6.......7.......8.......9.....10

1330      KK   CN11G
1331      HC       3
          *
1332      KK   RN11G
1333      KM  ROUTE FLOW SOUTH TO CN11FB FROM CN11G
1334      KM  CROSS SECTION IS A PROPOSED TRAPEZOIDAL CHANNEL DESIGNED WITH
1335      KM  6:1 SIDE SLOPES ON THE LEFT BANK AND 3:1 SIDE SLOPES ON THE RIGHT BANK
1336      KM  ADJACENT TO 98TH AVE ON THE WEST SIDE
1337      RS       4    FLOW       0
1338      RC     .03     .03     .03    2500    .002
1339      RX       0      12      24      36      62      68      72      80
1340      RY       6       4       2       0       0       2       4       6
          *
1341      KK   N11DA   BASIN
1342      KM  SUB-BASIN N11DA CREATED BY CVL 7/04
1343      BA   0.256
1344      LG    0.25    0.25    4.60    0.39      30
1345      UC   0.781   0.511
1346      UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
1347      UA     100
          *
          * DOVE VALLEY RANCH RESIDENTIAL DEVELOPMENT STORAGE (ACCOUNTED) *******
          * STORAGE MODIFIED PER CITY OF PEORIA TO DISCHARGE UP TO 200CFS WEST
          * TOTAL DETENTION/RETENTION VOLUME = 18 AC-FT, 10 AC-FT MODELED AS RETENTION
          * 8 AC-FT MODELED AS ON-LINE DETENTION BASIN ON NEC OF RGL & 95TH
          *
1348      KK  LN11DA
1349      DT  LDAOUT      8.0
1350      DI       0     100    1000   10000
1351      DQ       0     100    1000   10000
          *
1352      KK  SN11DA
1353      KM  2-8'x3' BOX CULVERTS TO TAKE FLOW TO WEST
1354      KM  THE WEST + EAST DETENTION BASIN WERE COMBINED WITH 1-18"RCP TO SOUTH
1355      RS       1    STOR       0
1356      SV     0.0     .06     0.16    0.35    1.91    5.62   10.58   16.46
1357      SE    1257    1258    1259    1260    1261    1262    1263    1264
1358      SQ       0       5       9      50      84     113     140     205
          *
1359      KK  N11DAW
1360      KM  SPLIT THE FLOW BETWEEN BOX AND PIPE - Pipe Flow to South
1361      DT  D11DAS
1362      DI       0       5       9      50      84     113     140     205
1363      DQ       0       5       9      15      18      20      22      23
          *
```



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LINE      ID.......1.......2.......3.......4.......5.......6.......7.......8.......9.....10

1364      KK  RN11DA
1365      KM  ROUTE FLOW WEST TO CN11FB FROM N11DA
1366      KM  CROSS SECTION IS A PROPOSED TRAPEZOIDAL CHANNEL DESIGNED WITH
1367      KM  6:1 SIDE SLOPES ON THE LEFT BANK AND 3:1 SIDE SLOPES ON THE RIGHT BANK
```



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1368      KM  ADJACENT TO LAKE PLEASANT PARKWAY ON THE NORTH SIDE
1369      RS       5    FLOW       0
1370      RC     .03     .03     .03    2000    .001
1371      RX       0       6      18      30      35      41      47      50
1372      RY       5       4       2       0       0       2       4       5
          *
1373      KK   N11FB   BASIN
1374      KM  SUB-BASIN N11FB
1375      BA   0.121
1376      LG    0.24    0.26    4.40    0.45      30
1377      UC   0.740   0.694
1378      UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
1379      UA     100
          *
1380      KK  LN11FB
1381      KM  STORAGE ROUTING LN11FB
1382      KM  PROPOSED RETENTION BASED ON THE 100-YEAR, 2-HOUR STORM VOLUME
1383      DT  LN1FBD     10.6
1384      DI       0     100    1000   10000
1385      DQ       0     100    1000   10000
          *
1386      KK  CN11FB
1387      KM  COMBINE LN11FB and RN11DA
1388      HC       2
          *
1389      KK  C98RGL
1390      KM  COMBINE CN11FB AND RN11G AT WEST 98TH AVE AND RGL
1391      HC       2
          *
1392      KK  RN11FB
1393      KM  ROUTE FLOW WEST TO CN11FA FROM CN11FB
1394      KM  CROSS SECTION IS A PROPOSED TRAPEZOIDAL CHANNEL DESIGNED WITH
1395      KM  6:1 SIDE SLOPES ON THE LEFT BANK AND 3:1 SIDE SLOPES ON THE RIGHT BANK
1396      KM  ADJACENT TO LAKE PLEASANT PARKWAY ON THE NORTH SIDE
1397      RS       2    FLOW       0
1398      RC     .03     .03     .03    1100    .001
1399      RX       0      12      24      36      62      68      72      80
1400      RY       8       4       2       0       0       2       4       8
          *
```



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LINE      ID.......1.......2.......3.......4.......5.......6.......7.......8.......9.....10

1401      KK  DRA09K
1402      KM  DIVERSION RECOVER DA09K
1403      KM  RECOVER DIVERTED FLOW FROM AO9K
1404      DR   A09KI
          *
1405      KK  RA09KS
1406      KM  ROUTE FLOW SOUTH TO CN11FA
1407      KM  CROSS SECTION IS A PROPOSED TRAPEZOIDAL CHANNEL DESIGNED WITH
1408      KM  6:1 SIDE SLOPES ON THE LEFT BANK AND 3:1 SIDE SLOPES ON THE RIGHT BANK
1409      KM  ADJACENT TO THE COMMERCIAL PROPERTY ON THE EAST SIDE
1410      RS       5    FLOW       0
1411      RC     .03     .03     .03    2700    .002
1412      RX       0      12      24      26      52      58      64      70
1413      RY       6       4       2       0       0       2       4       6
```

```
                *
1414            KK   N11FA   BASIN
1415            BA   0.180
1416            LG    0.22    0.26    4.40    0.46      34
1417            UC   0.730   0.580
1418            UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
1419            UA     100
                *

1420            KK  LN11FA
1421            KM  STORAGE ROUTING LN11FA
1422            KM  PROPOSED RETENTION BASED ON THE 100-YEAR, 2-HOUR STORM VOLUME
1423            DT  LN1FAD      7.7
1424            DI        0     100    1000   10000
1425            DQ        0     100    1000   10000
                *

1426            KK   A09GA   BASIN
1427            BA   0.074
1428            LG    0.10    0.25    4.35    0.56      80
1429            UC   0.287   0.164
1430            UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
1431            UA     100
                *

1432            KK  LA09GA
1433            KM  STORAGE ROUTING LA09GA
1434            KM  PROPOSED RETENTION BASED ON THE 100-YEAR, 2-HOUR STORM VOLUME
1435            DT  L09GAD      5.9
1436            DI        0     100    1000   10000
1437            DQ        0     100    1000   10000
                *
1                                          HEC-1 INPUT                                          PAGE 44

                LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1438            KK  CN11FA
1439            KM  COMBINE RA09KS,LN11FA,LA09GA AND RN11FB
1440            HC        4
                *

1441            KK  RN11FA
1442            KM  ROUTE FLOW WEST TO CA09G FROM CN11FA
1443            KM  CROSS SECTION IS A PROPOSED TRAPEZOIDAL CHANNEL DESIGNED WITH
1444            KM  6:1 SIDE SLOPES ON THE LEFT BANK AND 3:1 SIDE SLOPES ON THE RIGHT BANK
1445            KM  ADJACENT TO ROSE GARDEN LANE ON THE NORTH SIDE
1446            RS        2    FLOW        0
1447            RC      .03     .03     .03     800    .001
1448            RX        0       6      12      18      52      58      64      70
1449            RY        8       4       2       0       0       2       4       8
                *

1450            KK   A09GB   BASIN
1451            KM  SUB-BASIN A09GB
1452            BA   0.051
1453            LG    0.23    0.25    4.30    0.49      35
1454            UC   1.183   1.508
1455            UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
1456            UA     100
                *

1457            KK  LA09GB
```



```
1458            KM  STORAGE ROUTING LA09GB
1459            KM  PROPOSED RETENTION BASED ON THE 100-YEAR, 2-HOUR STORM VOLUME
1460            DT  L09GBD      2.8
1461            DI        0     100    1000   10000
1462            DQ        0     100    1000   10000
                *

1463            KK   CA09G
1464            KM  COMBINE CA09GA and A09GB
1465            HC        2
                *
                * DIVERSION TO SOUTH ALONG 101ST AVE, MAXIMUM 150 CFS PER CITY

1466            KK   DA09G
1467            DT   A09GI
1468            DI        0      50     100     300     750    1200    2000
1469            DQ        0      10      20      60     150     150     150
                *

1470            KK  RA09GW
1471            KM  ROUTE FLOW WEST TO CX8 FROM CA09G
1472            KM  CROSS SECTION IS A PROPOSED TRAPEZOIDAL CHANNEL DESIGNED WITH
1473            KM  6:1 SIDE SLOPES ON THE LEFT BANK AND 3:1 SIDE SLOPES ON THE RIGHT BANK
1474            KM  ADJACENT TO ROSE GARDEN LANE ON THE NORTH SIDE
1475            RS        1    FLOW        0
1476            RC      .03     .03     .03     900    .001
1477            RX        0       6      12      18      52      58      64      70
1478            RY        8       4       2       0       0       2       4       8
                *
                * *** COMBINE  RX7S AND RA09GW ********************************************
                *
1                                          HEC-1 INPUT                                          PAGE 45

                LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1479            KK     CX8
1480            HC        2
                *
                * ROUTE RX8W IS 2300 FT WITH A SLOPE OF .001
                * CROSS SECTION IS THE NEW CHANNEL ALONG ROSE GARDEN LANE
                *

1481            KK    RX8W
1482            KM  ROUTE FLOW WEST TO CA09H1 FROM CX8
1483            KM  CROSS SECTION IS A PROPOSED TRAPEZOIDAL CHANNEL DESIGNED WITH
1484            KM  6:1 SIDE SLOPES ON THE LEFT BANK AND 3:1 SIDE SLOPES ON THE RIGHT BANK
1485            KM  ADJACENT TO ROSE GARDEN LANE ON THE NORTH SIDE
1486            RS        4    FLOW        0
1487            RC      .03     .03     .03    2300    .001
1488            RX        0      12      24      36      62      68      74      80
1489            RY        8       4       2       0       0       2       4       8
                *

1490            KK    A09H   BASIN
1491            KM  SUB-BASIN A09H
1492            BA   0.237
1493            LG    0.24    0.25    4.55    0.41      31
1494            UC   0.937   0.801
1495            UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
1496            UA     100
                *

1497            KK   LA09H
```

```
1498          KM  STORAGE ROUTING LA09H
1499          KM  PROPOSED RETENTION BASED ON THE 100-YEAR, 2-HOUR STORM VOLUME
1500          DT  LA09HD     12.6
1501          DI        0      100     1000    10000
1502          DQ        0      100     1000    10000
              *
1503          KK  CA09H1
1504          KM  Combine flows from CX8 and A09H
1505          HC        2
              *
1506          KK    A09J   BASIN
1507          KM  SUB-BASIN A09J
1508          BA   0.168
1509          LG    0.25    0.25    4.35    0.46      30
1510          UC   0.749   0.639
1511          UA        0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
1512          UA      100
              *
              * *** STORAGE ROUTING LA09J ***********************************************
              * *** FUTURE DEVELOPMENT STORAGE (ACCOUNTED) ********************************
              *
```



```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1513          KK   LA09J
1514          DT  LA09JD      7.7
1515          DI        0      100     1000    10000
1516          DQ        0      100     1000    10000
              *
              * *** DIVERSION DA09J ************************************************************
              * *** DIVERTED  MAIN (SOUTH), DIVERTED (WEST)  ****************************
              * 100% Flows to South based on the report

1517          KK   DA09J
1518          DT   A09JI
1519          DI        0       10       30       50      100      500     1000     2000
1520          DQ        0        0        0        0        0        0        0        0
              *
              * *** ROUTE FLOW TO CA09H   *************************
              *

1521          KK  RA09JS
1522          RS       12     FLOW        0
1523          RC      .04      .04      .04     2800   .00350
1524          RX        0      100      200      225      245      270      370      470
1525          RY        8        7        6        0        0        6        7        8
              *

1526          KK   CA09H
1527          KM  COMBINE CA09H1 and RA09JS
1528          HC        2
              *
              * ROUTE FLOW TO CX10 FROM CA09H
              *

1529          KK   RA09H
1530          RS        1     FLOW        0
1531          RC      .03      .03      .03      850     .005
1532          RX      100      118      126      150      200      224      232      250
1533          RY       10        8        6        0        0        6        8       10
```



```
              *
              * *** RECOVER DIVERTED FLOW FROM A09QI*****************************************
              *

1534          KK  BA09QI
1535          DR   A09QI
              *
              * *** ROUTE RA09QS ************************************************************
              *
              * ROUTE RA09QS IS 1655 FT WITH A SLOPE OF .0073
              * CROSS SECTION IS A MEDIUM NATURAL WASH
              * *** ROUTE FLOW TO CA09M FROM CA09Q  *************************
              *
```



```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1536          KK  RA09QS
1537          RS        6     FLOW        0
1538          RC     0.05      .06      .05     1655   0.0073
1539          RX        0       50      250      350      360      420      620      720
1540          RY       10        8        6        2        0        6        8       10
              *

1541          KK    A09M   BASIN
1542          KM  SUB-BASIN A09M
1543          BA   0.249
1544          LG    0.28    0.28    4.45    0.42      22
1545          UC   0.721   0.546
1546          UA        0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
1547          UA      100
              *
              * *** STORAGE ROUTING LA09M ***********************************************
              * *** IRONWOOD RESIDENTIAL DEVELOPMENT STORAGE (ACCOUNTED) *****************
              *

1548          KK   LA09M
1549          DT  LA09MD      6.9
1550          DI        0      100     1000    10000
1551          DQ        0      100     1000    10000
              *
              * *** COMBINE  CA09Q AND A09M ******************************************************
              *

1552          KK   CA09M
1553          HC        2
              *
              * ROUTE RA09M IS 1102 FT WITH A SLOPE OF .0064
              * CROSS SECTION IS A CHANNEL (MEASURED)
              * *** ROUTE FLOW TO CA09N FROM CA09M  *************************
              *

1554          KK   RA09M
1555          RS        2     FLOW        0
1556          RC     0.05     0.04      .05     1102   0.0064
1557          RX        0        1       21       41       51       71      101      102
1558          RY       10        4        0        4        5        6        6       10
              *

1559          KK    A09N   BASIN
1560          KM  SUB-BASIN A09N
1561          BA   0.110
1562          LG    0.27    0.27    5.80    0.22      25
```

```
1563          UC   0.647   0.512
1564          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
1565          UA     100
              *
              * *** COMBINE BASIN A09N AND ROUTE RA09M  **********************************
              *
```



```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9.....10

1566          KK   CA09N
1567          HC       2
              *
              * *** STORAGE ROUTING LA09N ***************************************************
              * *** ALTA VISTA RESIDENTIAL DEVELOPMENT STORAGE (ACCOUNTED) **************
              *

1568          KK   LA09N
1569          RS       1    STOR       0
1570          SV     0.0     2.30    4.67    7.11    9.63   12.23   14.90   17.65   20.48
1571          SE  1250.0  1250.5  1251.0  1251.5  1252.0  1252.5  1253.0  1253.5  1254.0
1572          SQ       0     9.3    31.4    66.0   114.1   160.1   226.2   208.5   475.0
              *
              * CROSS SECTION IS A CHANNEL (MEASURED)
              * *** ROUTE FLOW TO CA09L FROM CA09N  **************************
              *

1573          KK   RA09N
1574          RS      15    FLOW       0
1575          RC   0.025    0.02   0.025    2382  0.0040
1576          RX       0       1       7      11      17      21      29     100
1577          RY       5       4       2       0       0       2     3.0       5
              *
              * *** RECOVER DIVERTED FLOW FROM CA09J ***************************************
              *

1578          KK  DRA09J
1579          DR   A09JI
              *
              * ROUTE RA09JW IS 1749 FT WITH A SLOPE OF .0063
              * CROSS SECTION IS A CHANNEL ON THE WEST SIDE OF A ROAD
              * *** ROUTE FLOW TO CA09L FROM CA09J  **************************
              *

1580          KK  RA09JW
1581          RS       1    FLOW       0
1582          RC    0.04    0.03    0.04    1749  0.0063
1583          RX       0       1      21      31      41      51      81     281
1584          RY      14       6       6       0       0       6       6       8
              *

1585          KK    A09L   BASIN
1586          KM  SUB-BASIN A09L
1587          BA   0.136
1588          LG    0.23    0.26    4.90    0.32      26
1589          UC   0.760   0.625
1590          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
1591          UA     100
              *
              * *** COMBINE BASIN A09L, RA09N, AND RA09JW  **********************************
              *
```



```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9.....10

1592          KK   CA09L
1593          HC       3
              *
              * LAO9L is an Onlin Detention Basin, NOT Retention Basin
              *

1594          KK   LA09L
1595          RS       1    STOR       0
1596          SV     0.0    0.57    1.17    1.82    2.50    3.22    3.98    4.78    5.63    6.52
1597          SE     0.0     0.5     1.0     1.5     2.0     2.5     3.0     3.5     4.0     5.5
1598          SQ       0    10.0    30.0    52.0    80.0   110.0   140.0   155.0   180.0     600
              *
              * ROUTE RA09LS IS 2615 FT WITH A SLOPE OF .0019
              * CROSS SECTION IS A NEW CHANNEL ALONG THE EAST SIDE OF THE ROAD
              * *** ROUTE FLOW TO CA99W FROM CA09L  **************************
              *

1599          KK  RA09LS
1600          RS       3    FLOW       0
1601          RC   0.025     .02   0.025    2615  0.0040
1602          RX       0       1       6      12      19      25      29     100
1603          RY       6       5       4       0       0       4       5       6
              *

1604          KK   A09IH   BASIN
1605          KM   Subbasin for Rose Garden and Desert Star Areas
1606          KM   SUB-BASIN A09IH
1607          BA   0.091
1608          LG    0.25    0.26    4.60    0.39      27
1609          UC   0.599   0.568
1610          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
1611          UA     100
              *
              * *** COMBINE BASIN A09N AND ROUTE RA09M  **********************************
              *

1612          KK  CA09IH
1613          HC       2
              *
              * Onlin Detention Basin (Box Culvert Outlet)
              *

1614          KK  LA09IH
1615          RS       1    STOR       0
1616          SV     0.0    1.12    2.29    3.52    4.79    6.12    7.51    8.95   10.45   12.01
1617          SE  1237.0  1237.5  1238.0  1238.5  1239.0  1239.5  1240.0  1240.5  1241.0  1242.5
1618          SQ       0    10.0    30.0    52.0    80.0   112.0   145.0   183.0   220.0   600.0
              *
```



```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9.....10

1619          KK    A09I   BASIN
1620          KM  SUB-BASIN A09I
1621          BA   0.126
1622          LG    0.25    0.20    6.60    0.17      29
1623          UC   0.772   0.703
1624          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
1625          UA     100
              *
```

```
* *** ROSE GARDEN RESIDENTIAL DEVELOPMENT STORAGE (ACCOUNTED)  ************
*
KK   LA09I
DT  LA09ID     5.4
DI       0     100    1000   10000
DQ       0     100    1000   10000
*
* *** COMBINE  RA09IW AND RA09LS ***********************************************
*
KK    CX10
HC       3
*
* ROUTE FLOW TO CA09F FROM CA09G
*
KK    RX10
RS       5    FLOW       0
RC    0.03    0.03    0.03    4470    .005
RX     100     118     126     150     200     224     232     250
RY      10       8       6       0       0       6       8      10
*
KK    A99V   BASIN
KM  SUB-BASIN A99V
BA   0.207
LG    0.35    0.40    6.00    0.18       1
UC   0.601   0.423
UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
UA     100
*
* *** COMBINE BASIN A99V AND RX11W  ************************************
*
KK   CA99V
HC       2
*
KK     A10   BASIN
KM  SUB-BASIN A10
BA   0.214
LG    0.34    0.34    4.65    0.33       2
UC   0.467   0.220
UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
UA     100
*
*
```



```
LINE      ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

KK    A99W   BASIN
KM  SUB-BASIN A99W
BA   0.215
LG    0.27    0.29    6.40    0.17      20
UC   0.851   0.514
UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
UA     100
*
* *** STORAGE ROUTING LA99W ***************************************************
* *** DEER VALLEY RANCH RESIDENTIAL DEVELOPMENT STORAGE (ACCOUNTED) ********
*
```



```
KK   LA99W
DT  LA99WD     6.7
DI       0     100    1000   10000
DQ       0     100    1000   10000
*
* Dummy Combination at AFR and Rose Garden Lane.
*
KK    AFR3
HC       4
*
* *** RECOVER DIVERTED FLOW FROM CA09G ****************************************
*
KK  DRA09G
DR   A09GI
*
* ROUTE RA09GS IS 3990 FT WITH A SLOPE OF .0015
* CROSS SECTION IS A MEDIUM ROADSIDE CHANNEL
* ROUTE FLOW TO CA09F FROM CA09G
*
KK  RA09GS
RS      13    FLOW       0
RC    0.04    0.04    0.04    3990   .0015
RX       0     200     220     240     260     280     320     520
RY       6       4       0       0       3       4       4       6
*
KK    A09F   BASIN
KM  SUB-BASIN A09F
BA   0.365
LG    0.21    0.27    5.30    0.28      35
UC   0.817   0.483
UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
UA     100
*
* *** STORAGE ROUTING LA09F ****************************************************
* *** PARKRIDGE ESTATES RESIDENTIAL DEVELOPMENT (ACCOUNTED) ****************
*
```



```
LINE      ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

KK   LA09F
DT  LA09FD    13.6
DI       0     100    1000   10000
DQ       0     100    1000   10000
*
* *** COMBINE  CA09G, CA09H, AND A09F ******************************************
*
KK   CA09F
HC       2
*
* *** DIVERTED  MAIN (WEST), DIVERTED (SOUTH)  ****************************
* BEARDSLEY ROAD CHANNEL TO THE WEST. EXCESS FLOW TO THE SOUTH.
*
KK   DA09F
DT   A09FI
DI       0      10      30      50     100     500     700    1000
```

```
1689          DQ       0      .2      .3      .4      .5      80     250     500
              *
              * ************************************************************************
              * ********************     BEARDSLEY RD DRAINAGE     **********************
              * ************************************************************************
              *
              * ROUTE RA09FW IS 3031 FT WITH A SLOPE OF .002
              * CROSS SECTION IS BEARDSLEY CHANNEL (MEASURED)
              *
              * *** ROUTE FLOW TO CA09E FROM CA09F  **************************
              *
1690          KK  RA09FW
1691          RS       9    FLOW       0
1692          RC     .03     .025     .03    3031   0.002
1693          RX       0        1      16      36      51     123     148     648
1694          RY      16        8       0       0       8       8       9      11
              *
1695          KK    A09E   BASIN
1696          KM  SUB-BASIN A09E
1697          BA   0.147
1698          LG    0.22    0.24    4.70    0.35      34
1699          UC   0.763   0.697
1700          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
1701          UA     100
              *
              * *** STORAGE ROUTING LA09E ***************************************************
              * *** VENTANA LAKES RESIDENTIAL DEVELOPMENT (ACCOUNTED) ********************
              *
1                                        HEC-1 INPUT                                                PAGE 53

              LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1702          KK   LA09E
1703          DT  LA09ED     8.2
1704          DI       0     100    1000   10000
1705          DQ       0     100    1000   10000
              *
              * *** COMBINE LA09E AND A99E ***************************************
              *
1706          KK   CA09E
1707          HC       2
              *
              * ROUTE RA09E IS 2700 FT WITH A SLOPE OF .0041
              * CROSS SECTION IS BEARDSLEY CHANNEL (MEASURED)
              *
              * ROUTE FLOW TO CA09C FROM CA09E
              *
1708          KK   RA09E
1709          RS       3    FLOW       0
1710          RC    0.04    0.03    0.04    2700   .0041
1711          RX       0        1      16      36      51     123     148     648
1712          RY      16        8       0       0       8       8       9      11
              *
1713          KK    A09D   BASIN
1714          KM  SUB-BASIN A09D
1715          BA   0.254
1716          LG    0.23    0.20    6.60    0.16      31
1717          UC   0.480   0.185
```



```
1718          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
1719          UA     100
              *
              * *** STORAGE ROUTING LA09D ***************************************************
              * *** VENTANA LAKES RESIDENTIAL DEVELOPMENT (ACCOUNTED) ********************
              *
1720          KK   LA09D
1721          DT  LA09DD    15.3
1722          DI       0     100    1000   10000
1723          DQ       0     100    1000   10000
              *
              * *** COMBINE LA09D, AND RA09EW ************************
              *
1724          KK  CA09C*
1725          HC       2
              *
              * ROUTE RA09C* IS 841 FT WITH A SLOPE OF .0083
              * CROSS SECTION IS BEARDSLEY ROAD CHANNEL (MEASURED)
              * *** ROUTE FLOW TO CA09C FROM CA09C*   ****************************
              *
1                                        HEC-1 INPUT                                                PAGE 54

              LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1726          KK  RA09C*
1727          RS       1    FLOW       0
1728          RC    0.04    0.03    0.04     841   .0083
1729          RX       0       51      61      71      81     111     151     651
1730          RY       9        8       0       0       8       9       9      10
              *
1731          KK    A09C   BASIN
1732          KM  SUB-BASIN A09C
1733          BA   0.073
1734          LG    0.35    0.32    4.50    0.38       4
1735          UC   0.581   0.533
1736          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
1737          UA     100
              *
              * *** COMBINE BASIN A09C AND RA09C*   ***********************************
              *
1738          KK   CA09C
1739          HC       2
              *
              * ROUTE RA09C IS 1978 FT WITH A SLOPE OF .0056
              * CROSS SECTION IS BEARDSLEY CHANNEL (MEASURED)
              *
1740          KK   RA09C
1741          RS       3    FLOW      -1
1742          RC    0.04    0.04    0.04    1978  0.0056
1743          RX       0     100     120     130     150     180     205     705
1744          RY      14       8       0       0       8       8       9      10
              *
1745          KK    A09B   BASIN
1746          KM  SUB-BASIN A09B
1747          BA   0.041
1748          LG    0.12    0.25    4.10    0.68      71
1749          UC   0.221   0.141
```

```
1750          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
1751          UA     100
              *
              * ROUTE RA09B IS 2497 FT WITH A SLOPE OF .0012
              * CROSS SECTION IS A SMALL NATURAL CHANNEL
              * *** ROUTE FLOW TO CA09A FROM CA09B  **************************
              *
1752          KK   RA09B
1753          RS      14    FLOW       0
1754          RC    0.05     .06     .05    2497   .0012
1755          RX       0     350     450     480     482     510     610     910
1756          RY       7       6       5       1       0       5       6       7
              *
1                                        HEC-1 INPUT                                        PAGE 55

              LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1757          KK    A09A   BASIN
1758          KM  SUB-BASIN A09A
1759          BA   0.084
1760          LG    0.29    0.15    3.74    0.80      38
1761          UC   0.824   0.737
1762          UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
1763          UA     100
              *
              * *** Combine  CA09C, A09B, AND A09A ****************************************
              *
1764          KK   CA09A
1765          HC       3
              *
              * THIS FLOW IS DIVERTED. THERE IS TWO 36" CMP THAT CARRIES
              * FLOW TO THE WEST, AND THE REST FLOWS SOUTH.
              *
1766          KK  DA09AO
1767          DT   A09AI
1768          DI       0      70     140     400     600     800    1000    3000    5000
1769          DQ       0     0.2     0.3     260     460     660     860    2860    4860
              *
              * ROUTE RA09AW IS 5898 FT WITH A SLOPE OF .0017
              * CROSS SECTION IS A LARGE NATURAL WASH
              * *** ROUTE THE DIVERTED FLOW TO THE WEST AND SOUTH TO CA09 *********************
              *
1770          KK  RA09AW
1771          RS      15    FLOW       0
1772          RC    0.05     .06     .05    5898  0.0017
1773          RX       0      50     250     310     360     420     620     720
1774          RY      10       8       6       0       0       6       8      10
              *
1775          KK    A99T   BASIN
1776          KM  SUB-BASIN A99T
1777          BA   0.030
1778          LG    0.20    0.30    2.79    1.39      42
1779          UC   0.205   0.056
1780          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
1781          UA     100
              *
              * *** STORAGE ROUTING LA99T ***************************************************
              * *** GRAVEL PIT STORAGE (ACCOUNTED) ******************************************
```



```
              *
1782          KK   LA99T
1783          DT  LA99TD    0.64
1784          DI       0     100    1000   10000
1785          DQ       0     100    1000   10000
              *
              * ROUTE RA99T IS 886 FT WITH A SLOPE OF .0023
              * CROSS SECTION IS A MEDIUM NATURAL WASH
              * *** ROUTE FLOW TO CA09 FROM CA99T  **************************
              *
1                                        HEC-1 INPUT                                        PAGE 56

              LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1786          KK   RA99T
1787          RS       5    FLOW       0
1788          RC    0.05     .06     .05     886  0.0023
1789          RX       0      50     250     350     360     420     620     720
1790          RY      10       8       6       2       0       6       8      10
              *
1791          KK     A09   BASIN
1792          KM  SUB-BASIN A09
1793          BA   0.176
1794          LG    0.24    0.31    3.58    0.68      22
1795          UC   0.577   0.239
1796          UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
1797          UA     100
              *
              * COMBINE RA99T, CA09, AND RA09AW
              *
1798          KK    CA09
1799          HC       3
              *
1800          KK    A99U   BASIN
1801          KM  SUB-BASIN A99U
1802          BA   0.070
1803          LG    0.25    0.30    3.71    0.66      29
1804          UC   0.472   0.467
1805          UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
1806          UA     100
              *
              * COMBINE CA09, A99U, AND AFR3 at AFR4 South of Beardsley Rd.
              *
1807          KK    AFR4
1808          HC       3
              *
1809          KK    A99S   BASIN
1810          KM  SUB-BASIN A99S
1811          BA   0.077
1812          LG    0.35    0.35    3.64    0.59       0
1813          UC   0.862   0.851
1814          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
1815          UA     100
              *
1816          KK    A08A   BASIN
1817          KM  SUB-BASIN A08A
```

```
1818          BA   0.138
1819          LG    0.20    0.30    3.31    0.77      18
1820          UC   1.054   1.135
1821          UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
1822          UA     100
              *
              * ROUTE RA08A IS 1747 FT WITH A SLOPE OF .0057
              * CROSS SECTION IS A SMALL NATURAL WASH
              * *** ROUTE FLOW TO CA08 FROM CA08A  ***************************
              *
```



```
              LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1823          KK   RA08A
1824          RS       5    FLOW       0
1825          RC    0.05    0.05    0.05    1747  0.0057
1826          RX       0     350     450     480     482     510     610     910
1827          RY       7       6       5       1       0       5       6       7
              *
1828          KK    A99R   BASIN
1829          KM  SUB-BASIN A99R
1830          BA   0.037
1831          LG    0.31    0.31    3.55    0.66      12
1832          UC   0.408   0.237
1833          UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
1834          UA     100
              *
              * ROUTE RA99R IS 2159 FT WITH A SLOPE OF .0032
              * CROSS SECTION IS A SMALL NATURAL WASH
              * *** ROUTE FLOW TO CA08 FROM CA99R  ***************************
              *
1835          KK   RA99R
1836          RS       9    FLOW       0
1837          RC    0.05    0.05    0.05    2159   .0032
1838          RX       0     350     450     480     482     510     610     910
1839          RY       7       6       5       1       0       5       6       7
              *
1840          KK    A08   BASIN
1841          KM  SUB-BASIN A08
1842          BA   0.077
1843          LG    0.30    0.31    3.19    0.88      14
1844          UC   0.308   0.074
1845          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
1846          UA     100
              *
              * *** COMBINE A99S, A08, RA99R AND RA08A   ******************
              *
1847          KK    CA08
1848          HC       4
              *
              * *** COMBINE HYDROGRAPHS OF CA08 AND AFR4 at AFR and South of Union Hills Dr.
              *
1849          KK    AFR5
1850          HC       2
              *
              *
              * KK  A07G   BASIN
```



```
              * KMSUB-BASIN A07G
              * BA 0.258
              * LG  0.24    0.16    7.60    0.11      32
              * UC 0.641   0.425
              * UA     0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97
              * UA   100
              *
```



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              LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1851          KK  A07G.1   BASIN
1852          KM   SUB-BASIN A07G.1
1853          BA   0.233
1854          LG    0.24    0.15    8.00    0.10      33
1855          UC   0.501   0.343
1856          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
1857          UA     100
              *
              * *** STORAGE ROUTING LA07G ***************************************************
              * *** VENTANA LAKES RESIDENTIAL DEVELOPMENT (ACCOUNTED) ********************
              *
1858          KK   LA07G
1859          DT  LA07GD    12.9
1860          DI       0     100    1000   10000
1861          DQ       0     100    1000   10000
              *
              * ROUTE RA07G IS 2439 FT WITH A SLOPE OF .0012
              * CROSS SECTION IS 111TH AVE (MEASURED)
              * *** ROUTE FLOW FROM CA07G TO CA07E ***********************************
              *
1862          KK   RA07G
1863          RS       5    FLOW       0
1864          RC    0.04     .02    0.04    2439  0.0012
1865          RX       0       1      26      41      71      86     126     576
1866          RY      12       7       5       1       1       5       6       7
              *
              * KK  A07F   BASIN
              * KMSUB-BASIN A07F
              * BA 0.233
              * LG  0.21    0.27    4.90    0.32      26
              * UC 0.949   0.902
              * UA     0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95
              * UA   100
              *
              * KK  A07F   BASIN
              * KM SUB-BASIN A07F
              * BA 0.207
              * LG  0.21    0.28    4.80    0.32      22
              * UC 0.768   0.763
              * UA     0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95
              * UA   100
              *
1867          KK  A07F.1   BASIN
1868          KM   SUB-BASIN A07F.1
1869          BA   0.133
1870          LG    0.25    0.25    4.80    0.35      30
1871          UC   0.829   1.069
1872          UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
1873          UA     100
```

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                 *
1                                             HEC-1 INPUT                                         PAGE 59

         LINE    ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


         1874    KK  A07F.2   BASIN
         1875    KM   SUB-BASIN A07F.2
         1876    BA   0.074
         1877    LG    0.14    0.32    4.70    0.29       8
         1878    UC   0.602   0.853
         1879    UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
         1880    UA     100
                 *
                 * *** ROUTE RA07F IS 2619 FT WITH A SLOPE OF .0042
                 * *** CROSS SECTION IS CHANNEL ALONG UNION HILLS RD (MEASURED)
                 * *** *** ROUTE FLOW FROM CA07F TO CA07E ************************************
                 *
                 * KK RA07F
                 * RS      3    FLOW       0
                 * RC  0.03    0.02    0.03    2619  0.0042
                 * RX     0       1      13      23      53      83     108     109
                 * RY    14       6       0       0       6       6       7      15
                 *
                 * KK  A07E   BASIN
                 * KMSUB-BASIN A07E
                 * BA 0.227
                 * LG  0.23    0.15    7.60    0.11      49
                 * UC 0.567   0.345
                 * UA     0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97
                 * UA   100
                 *

         1881    KK  A07E.8   BASIN
         1882    KM   SUB-BASIN A07E.8
         1883    BA   0.006
         1884    LG    0.14    0.25    4.80    0.40      66
         1885    UC   0.175   0.193
         1886    UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
         1887    UA     100
                 *
                 * *** COMBINE BASINS A07E.8 AND A07F  ***************************
                 *

         1888    KK   CA07F
         1889    HC       3
                 *

         1890    KK   RA07F
         1891    RS       1    FLOW       0
         1892    RC    0.03    0.02    0.03     800  0.0042
         1893    RX       0       1      13      23      53      83     108     109
         1894    RY      14       6       0       0       6       6       7      15
                 *
                 * ROUTE RA07F IS 800 FT WITH A SLOPE OF .0042
                 * CROSS SECTION IS CHANNEL ALONG UNION HILLS RD (MEASURED)
                 * *** ROUTE FLOW FROM CA07F TO CA07E.7 ************************************
                 *
1                                             HEC-1 INPUT                                         PAGE 60

         LINE    ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


         1895    KK  A07E.7   BASIN
```



```
         1896    KM   SUB-BASIN A07E.7
         1897    BA   0.006
         1898    LG    0.14    0.25    5.80    0.26      67
         1899    UC   0.125   0.108
         1900    UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
         1901    UA     100
                 *
                 * *** COMBINE BASIN A07E.7 AND RA07F1  ***************************
                 *

         1902    KK  CA07E7
         1903    HC       2
                 *
                 * ROUTE RA07E7 IS 1820 FT WITH A SLOPE OF .0042
                 * CROSS SECTION IS CHANNEL ALONG UNION HILLS RD (MEASURED)
                 * *** ROUTE FLOW FROM CA07E7 TO CA07E4 ************************************
                 *

         1904    KK  RA07E7
         1905    RS       3    FLOW       0
         1906    RC    0.03    0.02    0.03    1820  0.0042
         1907    RX       0       1      13      23      53      83     108     109
         1908    RY      14       6       0       0       6       6       7      15
                 *

         1909    KK  A07G.2   BASIN
         1910    KM   SUB-BASIN A07G.2
         1911    BA   0.028
         1912    LG    0.27    0.27    4.70    0.35      24
         1913    UC   0.553   0.939
         1914    UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
         1915    UA     100
                 *
                 * ROUTE RA07G2 IS 1400 FT WITH A SLOPE OF .0107
                 * CROSS SECTION IS DINERO ROAD (MEASURED)
                 * *** ROUTE FLOW FROM A07G2 TO CA07E3 ************************************
                 *

         1916    KK  RA07G2
         1917    RS       4    FLOW       0
         1918    RC    0.03    0.02    0.03    1400  0.0107
         1919    RX       0      10      20      30      40      50      60      70
         1920    RY       2       1       0       0       0       0       1       2
                 *

         1921    KK  A07E.3   BASIN
         1922    KM   SUB-BASIN A07E.3
         1923    BA   0.062
         1924    LG    0.25    0.19    6.60    0.17      31
         1925    UC   0.317   0.218
         1926    UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
         1927    UA     100
                 *
                 * *** COMBINE BASIN A07E.3 AND RA07G2  ***************************
                 *
1                                             HEC-1 INPUT                                         PAGE 61

         LINE    ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


         1928    KK  CA07E3
         1929    HC       2
                 *
```

```
1930          KK  DI7E.3
1931          DT  DI7E.3     0.1
1932          DI       0     100    1000   10000
1933          DQ       0     100    1000   10000
              *
              * ROUTE RA07E3 IS 1650 FT WITH A SLOPE OF .0048
              * CROSS SECTION IS PARADISE RESORT STREET SECTION (MEASURED)
              * *** ROUTE FLOW FROM CA07E3 TO CA07E4 ************************************
              *
1934          KK  RA07E3
1935          RS       3    FLOW       0
1936          RC    0.03    0.02    0.03    1650  0.0048
1937          RX       0      10      20      30      40      50      60      70
1938          RY       2       1       0       0       0       0       1       2
              *
1939          KK  A07E.2   BASIN
1940          KM   SUB-BASIN A07E.2
1941          BA   0.025
1942          LG    0.24    0.26    5.40    0.26      29
1943          UC   0.316   0.330
1944          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
1945          UA     100
              *
1946          KK  DI7E.2
1947          DT  DI7E.2    0.04
1948          DI       0     100    1000   10000
1949          DQ       0     100    1000   10000
              *
              * ROUTE RA07E2 IS 1700 FT WITH A SLOPE OF .0004
              * CROSS SECTION IS PARADISE RESORT STREET SECTION (MEASURED)
              * *** ROUTE FLOW FROM CA07E2 TO CA07E4 ************************************
              *
1950          KK  RA07E2
1951          RS      12    FLOW       0
1952          RC    0.03    0.02    0.03    1700  0.0004
1953          RX       0      10      20      30      40      50      60      70
1954          RY       2       1       0       0       0       0       1       2
              *
1955          KK  A07E.1   BASIN
1956          KM   SUB-BASIN A07E.1
1957          BA   0.037
1958          LG    0.25    0.15    8.00    0.10      60
1959          UC   0.427   0.434
1960          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
1961          UA     100
              *
1                                        HEC-1 INPUT                                        PAGE 62

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1962          KK  DI7E.1
1963          DT  DI7E.1     1.4
1964          DI       0     100    1000   10000
1965          DQ       0     100    1000   10000
              *
              * ROUTE RA07E1 IS 1200 FT WITH A SLOPE OF .0025
              * CROSS SECTION IS PARADISE RESORT STREET SECTION (MEASURED)
              * *** ROUTE FLOW FROM CA07E1 TO CA07E4 ************************************
```



```
              *
1966          KK  RA07E1
1967          RS       4    FLOW       0
1968          RC    0.03    0.02    0.03    1200  0.0025
1969          RX       0      10      20      30      40      50      60      70
1970          RY       2       1       0       0       0       0       1       2
              *
1971          KK  A07E.6   BASIN
1972          KM   SUB-BASIN A07E.6
1973          BA   0.020
1974          LG    0.12    0.15    7.60    0.13      74
1975          UC   0.156   0.106
1976          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
1977          UA     100
              *
1978          KK  DI7E.6
1979          DT  DI7E.6    0.12
1980          DI       0     100    1000   10000
1981          DQ       0     100    1000   10000
              *
              * ROUTE RA07E6 IS 1400 FT WITH A SLOPE OF .0057
              * CROSS SECTION IS PARADISE RESORT STREET SECTION (MEASURED)
              * *** ROUTE FLOW FROM A07E6 TO CA07E5 *************************************
              *
1982          KK  RA07E6
1983          RS       4    FLOW       0
1984          RC    0.03    0.02    0.03    1400  0.0057
1985          RX       0      10      20      30      40      50      60      70
1986          RY       2       1       0       0       0       0       1       2
              *
1987          KK  A07E.5   BASIN
1988          KM   SUB-BASIN A07E.5
1989          BA   0.035
1990          LG    0.23    0.15    8.40    0.09      57
1991          UC   0.315   0.258
1992          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
1993          UA     100
              *
              * *** COMBINE BASIN A07E.5 AND RA07E6  ***************************
              *
1                                        HEC-1 INPUT                                        PAGE 63

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1994          KK  CA07E5
1995          HC       2
              *
              * ROUTE RA07E5 IS 900 FT WITH A SLOPE OF .0033
              * CROSS SECTION IS PARADISE RESORT STREET SECTION (MEASURED)
              * *** ROUTE FLOW FROM CA07E5 TO CA07E4 ************************************
              *
1996          KK  RA07E5
1997          RS       2    FLOW       0
1998          RC    0.03    0.02    0.03     900  0.0033
1999          RX       0      10      20      30      40      50      60      70
2000          RY       2       1       0       0       0       0       1       2
              *
```

```
2001          KK  A07E.4   BASIN
2002          KM   SUB-BASIN A07E.4
2003          BA   0.057
2004          LG    0.23    0.16    8.00    0.10      57
2005          UC   0.384   0.289
2006          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
2007          UA     100
              *
              * *** COMBINE BASIN A07E.4, RA07E1, RA07E2, RA07E3, AND RA07E5  *************
              *

2008          KK  CA07E4
2009          HC       5
              *

2010          KK  DI7E.4
2011          DT  DI7E.4     0.7
2012          DI       0     100    1000   10000
2013          DQ       0     100    1000   10000
              *
              * *** COMBINE CA07E4, AND RA07E7  *************
              *

2014          KK   CA07E
2015          HC       3
              *

2016          KK  DIA07E
2017          DT  DIA07E     2.8
2018          DI       0     100    1000   10000
2019          DQ       0     100    1000   10000
              *
              *
              * ROUTE RA07E IS 1771 FT WITH A SLOPE OF .004
              * CROSS SECTION IS CHANNEL ALONG UNION HILLS RD (MEASURED)
              * *** ROUTE FLOW FROM CA07E TO CA07C ************************************
              *
1                                          HEC-1 INPUT                                    PAGE 64

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2020          KK   RA07E
2021          RS       2    FLOW       0
2022          RC    0.03    0.03    0.03    1771   0.004
2023          RX       0     100     112     122     134     154     189     689
2024          RY       8       6       0       0       6       7       7       9
              *

2025          KK    A07C   BASIN
2026          KM  SUB-BASIN A07C
2027          BA   0.175
2028          LG    0.34    0.31    4.90    0.30       5
2029          UC   0.681   0.462
2030          UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
2031          UA     100
              *
              * *** COMBINE BASIN A07C AND RA07E **************************************
              *

2032          KK   CA07C
2033          HC       2
              *
```



```
              * ROUTE RA07C IS 1051 FT WITH A SLOPE OF .0067
              * CROSS SECTION IS CHANNEL ALONG UNION HILLS RD (MEASURED)
              * *** ROUTE FLOW FROM CA07C TO CA07D ************************************
              *

2034          KK   RA07C
2035          RS       1    FLOW       0
2036          RC    0.03    0.03    0.03    1051  0.0067
2037          RX       0      50      62      72      84     104     139     640
2038          RY       9       6       0       0       6       7       7       9
              *

2039          KK    A07H   BASIN
2040          KM  SUB-BASIN A07H
2041          BA   0.093
2042          LG    0.23    0.21    4.70    0.44      47
2043          UC   0.339   0.165
2044          UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
2045          UA     100
              *
              * ROUTE RA07H IS 2386 FT WITH A SLOPE OF .0461
              * CROSS SECTION IS THE FARM FIELDS IN THE AGUA FRIA RIVER (MEASURED)
              * *** ROUTE FLOW FROM CA07H TO CA07D ************************************
              *

2046          KK   RA07H
2047          RS       3    FLOW       0
2048          RC    0.03    0.03    0.03    2386  0.0461
2049          RX       0      14     125     250     500     800    1000    1014
2050          RY       7       0       0       0       0       0       0       7
              *
              * *** RECOVER DIVERTED FLOW FROM A09AI ***********************************
              *
1                                          HEC-1 INPUT                                    PAGE 65

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2051          KK  DA09AI
2052          DR   A09AI
              *

2053          KK  RA09AI
2054          RS      12    FLOW       0
2055          RC    0.03    0.03    0.03    3000   0.002
2056          RX       0      50     100     150     200     250     300     500
2057          RY       7       6       5       5       0       0       5       6
              *

2058          KK    A08B   BASIN
2059          KM  SUB-BASIN A08B
2060          BA   0.099
2061          LG    0.19    0.27    3.74    0.66      35
2062          UC   0.608   0.413
2063          UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
2064          UA     100
              *
              * *** COMBINE BASIN A09AI AND R80BE **************************************
              *

2065          KK   CA08B
2066          HC       2
              *
              * ROUTE RA08B IS 2925 FT WITH A SLOPE OF .001
```

```
* CROSS SECTION IS 115TH AVE (MEASURED)
* *** ROUTE FLOW FROM CA08B TO CA07D ***********************************
*
2067          KK   RA08B
2068          RS     12    FLOW       0
2069          RC    0.03    0.03    0.03    2925   0.001
2070          RX       0      50     100     150     200     250     300     500
2071          RY       7       6       5       5       0       0       5       6
*
2072          KK    A07D   BASIN
2073          KM  SUB-BASIN A07D
2074          BA   0.229
2075          LG    0.49    0.02    4.10    0.67       1
2076          UC   1.327   1.248
2077          UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
2078          UA     100
*
* *** COMBINE BASIN A07D, RA08B, RA07H, AND RA07C **********************
*
2079          KK   CA07D
2080          HC       4
*
* ROUTE RA07D IS 1800 FT WITH A SLOPE OF .0017
* CROSS SECTION IS A CHANNEL AND 115TH AVE (MEASURED)
*
```



```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2081          KK   RA07D
2082          RS       8    FLOW       0
2083          RC    0.03    0.03    0.03    1800  0.0017
2084          RX       0     100     112     147     159     179     214     580
2085          RY       8       6       0       0       6       7       7       9
*
* KK  A07B   BASIN
* KM SUB-BASIN A07B
* KM 6-HOUR RAINFALL, PATTERN NO. 1.15 WAS USED TO FIND TC & R FOR THIS BASIN
* KM THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .992
* KM    L = 1.58  Kb = .030  Adj. Slope =   41.0
* BA  .649
* LG  0.16    0.31    4.60    0.34      18
* UC 0.533   0.339
* UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97
* UA     100
*
* *** STORAGE ROUTING LA07B ********************************************
* *** CANYON RIDGE WEST RESIDENTIAL DEVELOPMENT STORAGE (ACCOUNTED) *******
* DDM    ***** Preserved *****
* KK LA07B
* DTLA07BD     19.2
* DI       0     100    1000   10000
* DQ       0     100    1000   10000
*
* ### BASIN A07B HAS BEEN FURTHER DIVIDED INTO BASINS A07B.1 - A07B.6 IN  ###
* ### ORDER TO BETTER REPRESENT THE DRAINAGE PATTERNS ASSOCIATED WITH THE ###
* ### CANYON RIDGE AND SUN CITY DEVELOPMENTS.                             ###
*
2086          KK  A07B.1   BASIN
```



```
2087          BA   0.076
2088          LG    0.25    0.25    4.20    0.50      30
2089          UC   0.415   0.303
2090          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
2091          UA     100
*
2092          KK  DA07B1
2093          DT  DA07B1     2.3
2094          DI       0     100    1000   10000
2095          DQ       0     100    1000   10000
*
2096          KK  CA07B1
2097          KO                                21
2098          HC       2
*
* ROUTE RA07B1 IS 1800 FT WITH A SLOPE OF .0017
* CROSS SECTION IS A CHANNEL AND 115TH AVE (MEASURED)
*
```



```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2099          KK  RA07B1
2100          RS       8    FLOW       0
2101          RC    0.03    0.03    0.03    1800  0.0017
2102          RX       0     100     112     147     159     179     214     580
2103          RY       8       6       0       0       6       7       7       9
*
2104          KK  A07B.2   BASIN
2105          BA   0.138
2106          LG    0.25    0.25    4.70    0.36      30
2107          UC   0.388   0.248
2108          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
2109          UA     100
*
2110          KK  A07B.3   BASIN
2111          BA   0.185
2112          LG    0.25    0.25    4.80    0.35      30
2113          UC   0.494   0.306
2114          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
2115          UA     100
*
* ROUTE RA07B3 IS 3600 FT WITH A SLOPE OF .0075
* CROSS SECTION IS THE EXISTING CHANNEL (MEASURED)
*
2116          KK  RA07B3
2117          RS       2    FLOW       0
2118          RC    0.04    0.04    0.04    3600  0.0075
2119          RX     100     150     200     212     217     229     279     329
2120          RY       5     4.5       4       0       0       4     4.5       5
*
2121          KK  CA07B2
2122          KO                                21
2123          HC       2
*
* ROUTE RA07B2 IS 1600 FT WITH A SLOPE OF .0025
* CROSS SECTION IS A CHANNEL AND 115TH AVE (MEASURED)
```

```
                *
2124            KK  RA07B2
2125            RS      2    FLOW       0
2126            RC   0.04    0.04    0.04     800  0.0075
2127            RX    100     150     200     212     217     229     279     329
2128            RY      5     4.5       4       0       0       4     4.5       5
                *

2129            KK  CA07B3
2130            KO                                      21
2131            HC      2
                *
```



```
LINE            ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2132            KK  RA07B2
2133            RS      8    FLOW       0
2134            RC   0.03    0.03    0.03    1600  0.0025
2135            RX      0     100     112     147     159     179     214     580
2136            RY      8       6       0       0       6       7       7       9
                *

2137            KK  A07B.4   BASIN
2138            BA   0.053
2139            LG    0.25    0.25    4.30    0.48      45
2140            UC   0.316   0.204
2141            UA      0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
2142            UA    100
                *

2143            KK  DA07B4
2144            DT  DA07B4     2.1
2145            DI       0     100    1000   10000
2146            DQ       0     100    1000   10000
                *

2147            KK  CA07B4
2148            KO                                      21
2149            HC      2
                *
                * ROUTE RA07B4 IS 1285 FT WITH A SLOPE OF .0025
                * CROSS SECTION IS A CHANNEL AND 115TH AVE (MEASURED)
                *

2150            KK  RA07B4
2151            RS      8    FLOW       0
2152            RC   0.03    0.03    0.03    1285  0.0025
2153            RX      0     100     112     147     159     179     214     580
2154            RY      8       6       0       0       6       7       7       9
                *

2155            KK  A07B.5   BASIN
2156            BA   0.044
2157            LG    0.10    0.32    4.55    0.37      29
2158            UC   0.264   0.231
2159            UA      0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
2160            UA    100
                *

2161            KK  CA07B5
2162            KO                                      21
```



```
2163            HC      2
                *
                * KKDIA07B
                * DTDIA07B      37
                * DI       0     100    1000   10000
                * DQ       0     100    1000   10000
                *
                *
```



```
LINE            ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2164            KK    S30D   BASIN
2165            KM  SUB-BASIN S30D
2166            BA   0.131
2167            LG    0.25    0.17    6.80    0.15      30
2168            UC   0.638   0.385
2169            UA      0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
2170            UA    100
                *
                * ROUTE RS30D IS 6176 FT WITH A SLOPE OF .0023
                * CROSS SECTION IS 99TH AVENUE
                * *** ROUTE S30D THROUGH S30C ****************************************
                *

2171            KK   RS30D
2172            RS     10    FLOW       0
2173            RC    .02     .02     .02    6176  0.0023
2174            RX      0       1      85      95     109     134     239     240
2175            RY     12       6       5       0       0       5       6      12
                *

2176            KK    S30C   BASIN
2177            KM  SUB-BASIN S30C
2178            BA   0.454
2179            LG    0.23    0.15    7.30    0.13      36
2180            UC   0.892   0.703
2181            UA      0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
2182            UA    100
                *
                * RECOVER DIVERTED FLOW FROM A09FI
                *

2183            KK  DA09FI
2184            DR   A09FI
                *

2185            KK  RA09FI
2186            RS     10    FLOW       0
2187            RC    .02     .02     .02    7000  0.0023
2188            RX      0       1      85      95     109     134     239     240
2189            RY     12       6       5       0       0       5       6      12
                *

2190            KK     XX1
2191            HC       3
                *

2192            KK    S30B   BASIN
2193            KM  SUB-BASIN S30B
2194            BA   0.399
2195            LG    0.19    0.29    5.80    0.21      24
2196            UC   0.995   0.918
```

```
2197          UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
2198          UA     100
              *
              * *** COMBINE BASIN S30C, S30B, AND RS30D ****************************
              *
```



```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


2199          KK   CS30B
2200          HC       2
              *
              * *** DIVERTED  MAIN (WEST) DIVERTED (SOUTH)  **********************
              * THERE IS A DIVERSION AT THIS LOCATION. THE DEL WEBB CHANNEL CAN CARRY
              * 550 CFS, THE REST OF THE FLOW OVERFLOWS TO THE SOUTH.
              *

2201          KK  DS30BO
2202          DT  DS30BI
2203          DI       1     250     550     750    1000    1500    1750    2000
2204          DQ      .1      .2      .3     200     450     950    1200    1450
              *
              * ROUTE RS30BW IS 5060 FT WITH A SLOPE OF .0008
              * CROSS SECTION IS DEL WEBB BLVD
              * *** ROUTED S30BO THROUGH S30A ******************************************
              *

2205          KK  RS30BW
2206          RS       9    FLOW       0
2207          RC     .02    0.02     .02    5060  0.0008
2208          RX       0       1     100     120     140     155     239     240
2209          RY      12       6       5       0       0       5       6      12
              *

2210          KK    S30A   BASIN
2211          KM  SUB-BASIN S30A
2212          BA   0.531
2213          LG    0.22    0.21    6.40    0.21      28
2214          UC   1.005   0.674
2215          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
2216          UA     100
              *
              * *** COMBINE BASIN S30A AND RS30B ***************************************
              *

2217          KK   CS30A
2218          HC       2
              *
              * ************************************************************************
              * ************************************************************************
              * ******** THE FOLLOWING PORTION WAS EXTRACTED FROM THE GLENDALE/PEORIA
              * ******** ADMPU MODEL CREATED BY ENTELLUS, DATED OCTOBER 21, 2000.
              * ******** FILE NAME: 100yr6hr.DAT
              * ************************************************************************
              * ************************************************************************
              *
              * *** DIVERSION DS30AO ***************************************************
              * *** DIVERTED  MAIN (WEST) DIVERTED (SOUTH)  **************************
              *
              * THERE IS A DIVERSION AT THIS LOCATION. THE DEL WEBB CHANNEL CAN CARRY
              * 550 CFS, THE REST OF THE FLOW OVERFLOWS TO THE SOUTH.
              *
              * DDM   ***** Preserved *****
```



```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


2219          KK  DS30AO
2220          DT  DS30AI
2221          DI       1     250     550     750    1000    1500    1750    2000
2222          DQ      .1      .2      .3     200     450     950    1200    1450
              *
              * *** ROUTE RS30AW  *****************************************************
              *
              * ROUTE RS30AW IS 4919 FT WITH A SLOPE OF .0043
              * CROSS SECTION IS DEL WEBB BLVD
              *
              * *** ROUTE FLOW FROM CS30A TO CS30 **************************************
              *
              * DDM   ***** Preserved *****

2223          KK  RS30AW
2224          RS       5    FLOW       0
2225          RC    0.03    0.02    0.03    4919  0.0043
2226          RX       0       1     110     125     140     155     160     161
2227          RY      15       7       7       0       0       7       7      15
              *
              *
              * DDM   ***** Preserved *****

2228          KK     S30   BASIN
2229          KM    SUB-BASIN S30
2230          KM    6-HOUR RAINFALL, PATTERN NO. 1.00 WAS USED TO FIND TC & R FOR THIS BASIN
2231          KM    THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .996
2232          KM      L = 1.12  Kb = .040  Adj. Slope =   27.0
2233          BA     .321
2234          LG     0.22    0.26    4.55    0.43      27
2235          UC    0.596   0.436
2236          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
2237          UA     100
              *
              * *** COMBINE BASIN S30 AND RS30A ***************************************
              *
              * DDM   ***** Preserved *****

2238          KK     CS30
2239          HC       2
              *
              * *** ROUTE RS30  *****************************************************
              *
              * ROUTE RS30 IS 691 FT WITH A SLOPE OF .0058
              * CROSS SECTION IS A CHANNEL ALONG BELL RD (MEASURED)
              *
              * *** ROUTE FLOW FROM CS30 TO CA07B **************************************
              *
              * DDM   ***** Preserved *****
```



```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


2240          KK     RS30
2241          RS       1    FLOW       0
2242          RC    0.03    0.02    0.03     691  0.0058
2243          RX       0      26     136     197     212     227     242     742
2244          RY       9       8       8       7       0       0       7       9
```

```
                *
                *
                * ### BASIN A07B.6 IS A PORTION OF THE CANYON RIDGE DEVELOPMENT ###
                *
2245            KK  A07B.6   BASIN
2246            BA   0.152
2247            LG   0.22    0.26    4.60    0.39      31
2248            UC   0.511   0.497
2249            UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
2250            UA     100
                *
                * ### DA07B6 REPRESENT THE RETENTION LOCATED WITHIN BASIN A07B6 ###
                *
2251            KK  DA07B6
2252            DT  DA07B6     3.5
2253            DI       0     100    1000   10000
2254            DQ       0     100    1000   10000
                *
                * ### CS30 Combines DA07B6 AND RS30 ###
                *
2255            KK    CS30
2256            KO                                  21
2257            HC       2
                *
                * ### COMBINES CS30 AND DIA07B ###

2258            KK  CA07B6
2259            KO                                  21
2260            HC       2
                *
                *
                * *** ROUTE RA07B  ****************************************************
                *
                * ROUTE RA07B IS 2990 FT WITH A SLOPE OF .0057
                * CROSS SECTION IS A MANMADE CHANNEL  (MEASURED)
                *
                * *** ROUTE FLOW FROM CA07B TO CA07A ***********************************
                *
                * DDM   ***** Preserved *****

2261            KK   RA07B
2262            KO       3                          21
2263            RS       3    FLOW       0
2264            RC    0.03     .02     0.03    2990   .0057
2265            RX       0      76      136     197    222     247     262     387
2266            RY      10       9        8       7      0       0       7       9
                *
                * DDM   ***** Preserved *****
```



```
LINE            ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2267            KK    A06A   BASIN
2268            KM   SUB-BASIN A06A
2269            KM   6-HOUR RAINFALL, PATTERN NO. 1.00 WAS USED TO FIND TC & R FOR THIS BASIN
2270            KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .996
2271            KM     L =  .73  Kb = .038  Adj. Slope =   70.0
2272            BA    .279
2273            LG   0.21    0.30    4.70    0.34      19
2274            UC  0.375   0.239
```



```
2275            UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
2276            UA     100
                *
                *
                * *** COMBINE BASIN A06A AND RA07B *********************
                *
                * DDM   ***** Preserved *****

2277            KK   CA06A
2278            HC       2
                *
                * *** ROUTE RA06A  ****************************************************
                *
                * ROUTE RA07B IS 2500 FT WITH A SLOPE OF .007
                * CROSS SECTION IS A MANMADE CHANNEL  (MEASURED)
                *
                * *** ROUTE FLOW FROM CA07B TO CA07A ***********************************
                *
                * DDM   ***** Preserved *****

2279            KK   RA06A
2280            KO       3                          21
2281            RS       3    FLOW       0
2282            RC    0.03     .02     0.03    2500   .007
2283            RX       0      76      136     197    222     247     262     387
2284            RY      10       9        8       7      0       0       7       9
                *
                *
                * DDM   ***** Preserved *****

2285            KK    A07A   BASIN
2286            KM   SUB-BASIN A07A
2287            KM   6-HOUR RAINFALL, PATTERN NO. 1.00 WAS USED TO FIND TC & R FOR THIS BASIN
2288            KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .998
2289            KM     L =  .88  Kb = .045  Adj. Slope =   18.0
2290            BA    .124
2291            LG   0.21    0.30    3.92    0.51      16
2292            UC  0.688   0.725
2293            UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
2294            UA     100
                *
                *
                * *** ROUTE RA07A  ****************************************************
                *
                * ROUTE RA07A IS 1095 FT WITH A SLOPE OF .0037
                * CROSS SECTION IS A CHANNEL AND BELL RD (MEASURED)
                *
                * *** ROUTE FLOW FROM CA07A TO CA07 ************************************
                *
                *
                * DDM   ***** Preserved *****
```



```
LINE            ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2295            KK   RA07A
2296            RS       2    FLOW       0
2297            RC    0.03    0.03    0.03    1095  0.0037
2298            RX       0      50      62      72      84     104     204     704
2299            RY       7       6       0       0       6       7       9      10
                *
                * DDM   ***** Preserved *****
```

```
2300          KK     A07   BASIN
2301          KM    SUB-BASIN A07
2302          KM    6-HOUR RAINFALL, PATTERN NO. 1.00 WAS USED TO FIND TC & R FOR THIS BASIN
2303          KM    THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .998
2304          KM      L =  .15  Kb = .054  Adj. Slope =   53.0
2305          BA     .118
2306          LG    0.33    0.33    3.21    0.83       6
2307          UC   0.167   0.038
2308          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
2309          UA     100
              *
              * *** COMBINE BASIN A07 AND RA07A  ************************************
              *
              * DDM   ***** Preserved *****

2310          KK    CA07
2311          HC       2
              *
              * *** ROUTE RA07  ******************************************************
              *
              * ROUTE RA07 IS 3464 FT WITH A SLOPE OF .0061
              * CROSS SECTION IS THE AGUA FRIA RIVER (MEASURED)
              *
              * *** ROUTE FLOW FROM CA07 TO CA06 *********************************
              *
              * DDM   ***** Preserved *****

2312          KK    RA07
2313          KO       3
2314          RS       3    FLOW       0
2315          RC    0.03    0.03    0.03    3464  0.0061
2316          RX       0     100     200     250     300     350     500    1000
2317          RY      12       8       6       0       0       6       8      12
              *
              * DDM   ***** Preserved *****

2318          KK     A06   BASIN
2319          KM    SUB-BASIN A06
2320          KM    6-HOUR RAINFALL, PATTERN NO. 1.00 WAS USED TO FIND TC & R FOR THIS BASIN
2321          KM    THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .996
2322          KM      L =  .38  Kb = .049  Adj. Slope =   24.0
2323          BA     .277
2324          LG    0.35    0.35    3.58    0.61       0
2325          UC   0.346   0.109
2326          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
2327          UA     100
              *
              * *** COMBINE BASIN A06 AND RA07 ******************************
              *
              * DDM   ***** Preserved *****
```



```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2328          KK    CA06
2329          HC       2
              *
              * *** ROUTE RA06  ******************************************************
              *
              * ROUTE RA06 IS 2650 FT WITH A SLOPE OF .0053
              * CROSS SECTION IS THE AGUA FRIA RIVER (MEASURED)
              *
              * *** ROUTE FLOW FROM CA06 TO CA99Q *********************************
```



```
              *
              * DDM   ***** Preserved *****

2330          KK    RA06
2331          RS       6    FLOW       0
2332          RC    0.03    0.03    0.03    2650  0.0053
2333          RX       0     100     200     250     750     800     900    1000
2334          RY       9       8       6       0       0       6       8       9
              *
              * DDM   ***** Preserved *****

2335          KK    A99Q   BASIN
2336          KM    SUB-BASIN A99Q
2337          KM    6-HOUR RAINFALL, PATTERN NO. 1.00 WAS USED TO FIND TC & R FOR THIS BASIN
2338          KM    THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .998
2339          KM      L =  .06  Kb = .054  Adj. Slope =   83.0
2340          BA     .118
2341          LG    0.35    0.35    3.67    0.58       0
2342          UC   0.087   0.009
2343          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
2344          UA     100
              *
              *
              * DDM   ***** Preserved *****
              *

2345          KK    A99P   BASIN
2346          KM    SUB-BASIN A99P
2347          KM    6-HOUR RAINFALL, PATTERN NO. 1.08 WAS USED TO FIND TC & R FOR THIS BASIN
2348          KM    THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .993
2349          KM      L = 1.34  Kb = .040  Adj. Slope =   57.0
2350          BA     .575
2351          LG    0.25    0.28    5.40    0.26      27
2352          UC   0.508   0.302
2353          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
2354          UA     100
              *
              * *** COMBINE BASIN A99Q, A99P, RA06 AND RA06A  *********************************
              *
```



```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2355          KK   CA99Q
2356          HC       4
              *

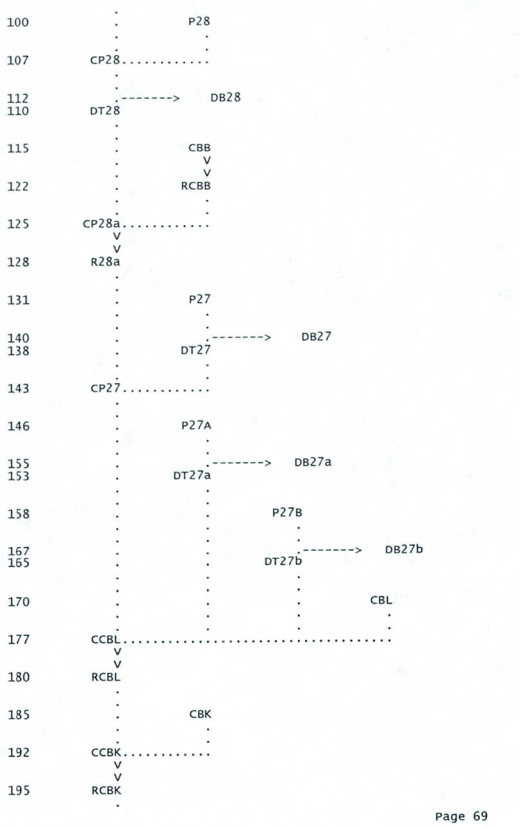
2357          KK   AFR6
2358          HC       2
              *
2359          ZZ
```

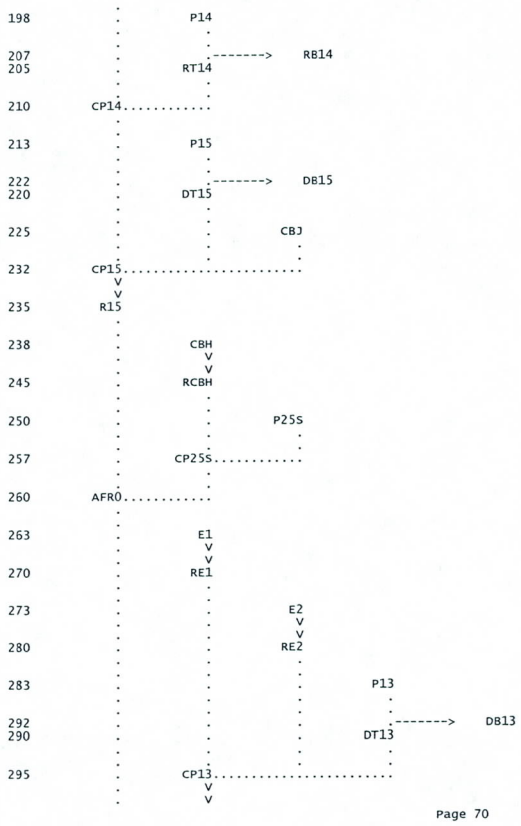
1 SCHEMATIC DIAGRAM OF STREAM NETWORK

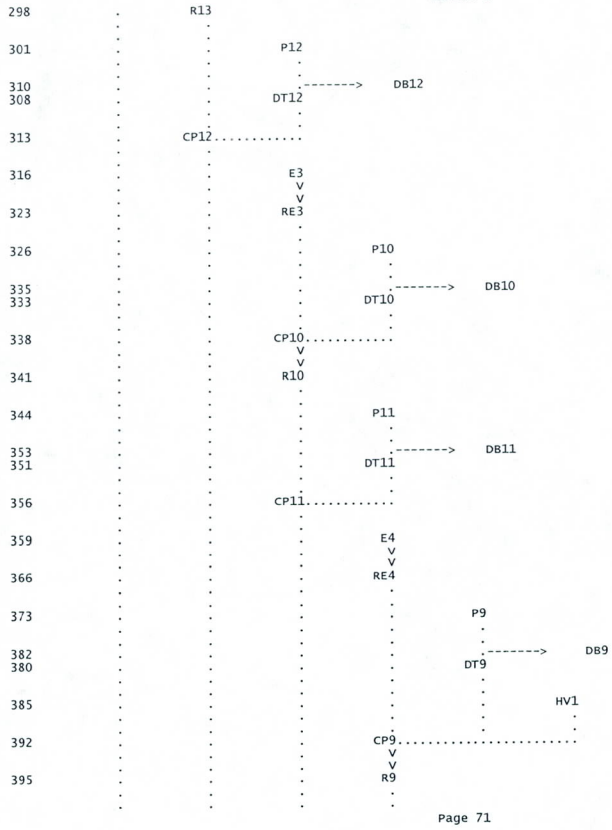
```
 INPUT
  LINE      (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

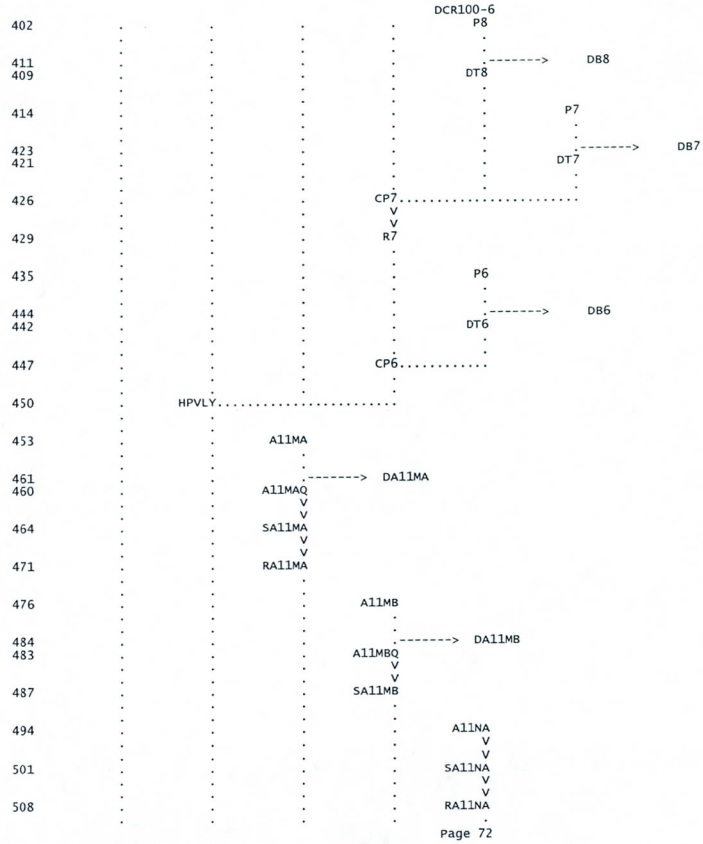
    NO.     (.) CONNECTOR        (<---) RETURN OF DIVERTED OR PUMPED FLOW

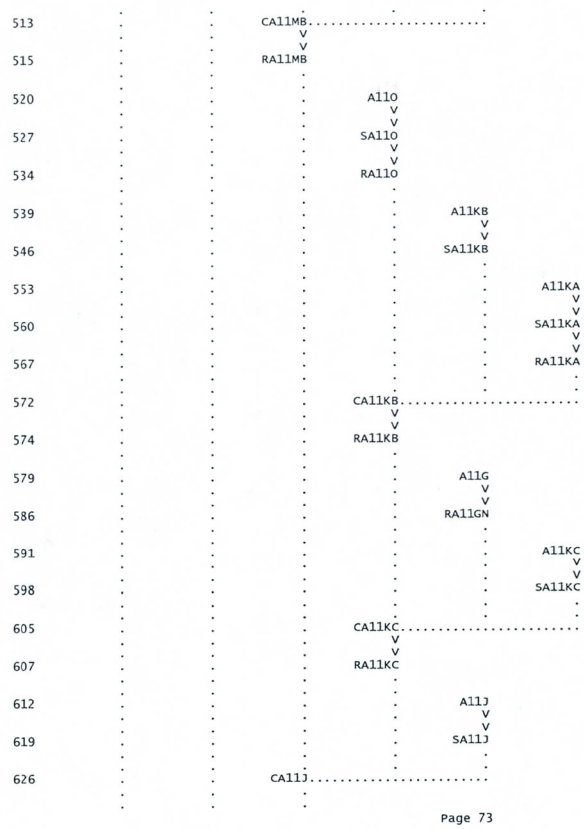
    90         CBA
                V
                V
    97         RCBA
                .
```

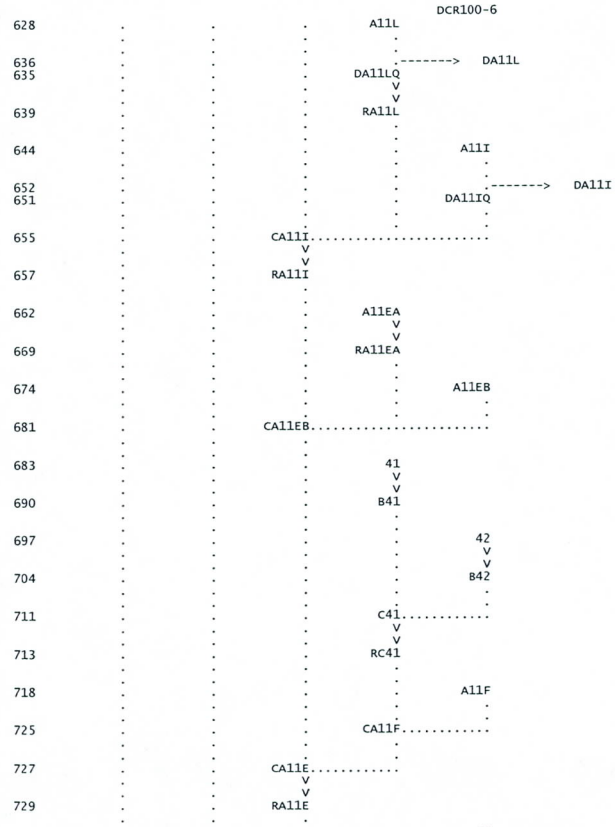

100
P28
107
CP28
112
DB28
110
DT28
115
CBB
122
RCBB
125
CP28a
128
R28a
131
P27
140
DB27
138
DT27
143
CP27
146
P27A
155
DB27a
153
DT27a
158
P27B
167
DB27b
165
DT27b
170
CBL
177
CCBL
180
RCBL
185
CBK
192
CCBK
195
RCBK

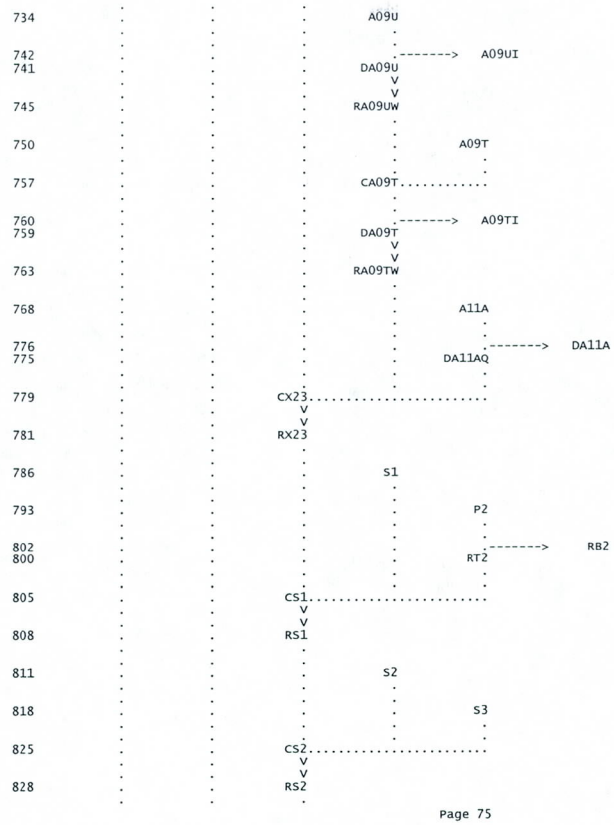

198
P14
207
RB14
205
RT14
210
CP14
213
P15
222
DB15
220
DT15
225
CBJ
232
CP15
235
R15
238
CBH
245
RCBH
250
P25S
257
CP25S
260
AFR0
263
E1
270
RE1
273
E2
280
RE2
283
P13
292
DB13
290
DT13
295
CP13

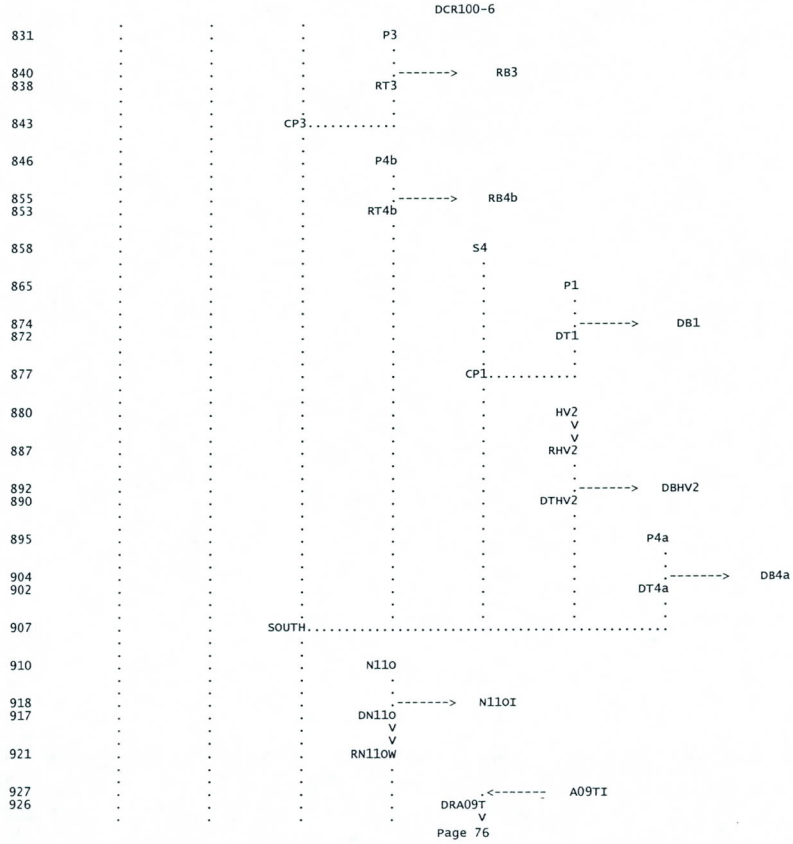

298 R13
301 P12
310 DB12
308 DT12
313 CP12
316 E3
323 RE3
326 P10
335 DB10
333 DT10
338 CP10
341 R10
344 P11
353 DB11
351 DT11
356 CP11
359 E4
366 RE4
373 P9
382 DB9
380 DT9
385 HV1
392 CP9
395 R9

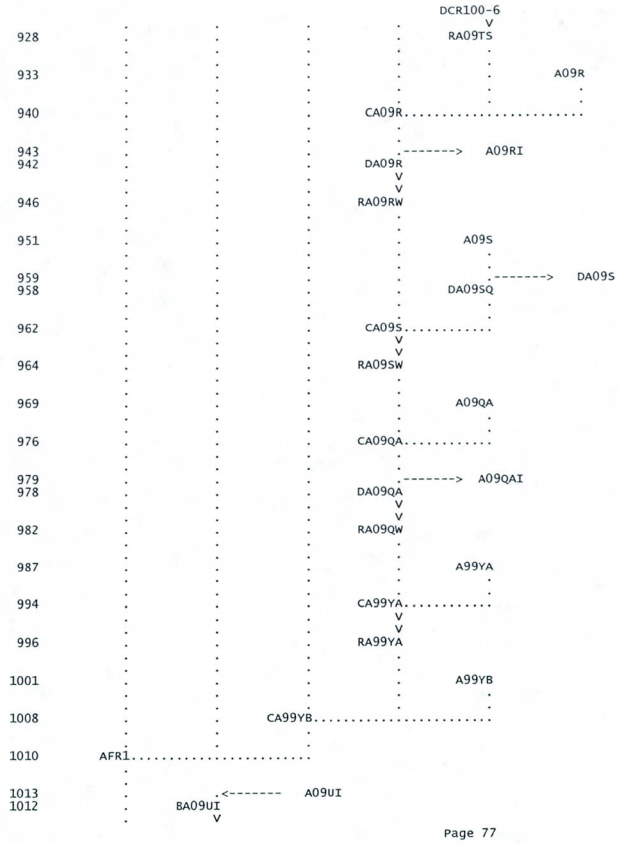

402 P8
411 DB8
409 DT8
414 P7
423 DB7
421 DT7
426 CP7
429 R7
435 P6
444 DB6
442 DT6
447 CP6
450 HPVLY
453 A11MA
461 DA11MA
460 A11MAQ
464 SA11MA
471 RA11MA
476 A11MB
484 DA11MB
483 A11MBQ
487 SA11MB
494 A11NA
501 SA11NA
508 RA11NA

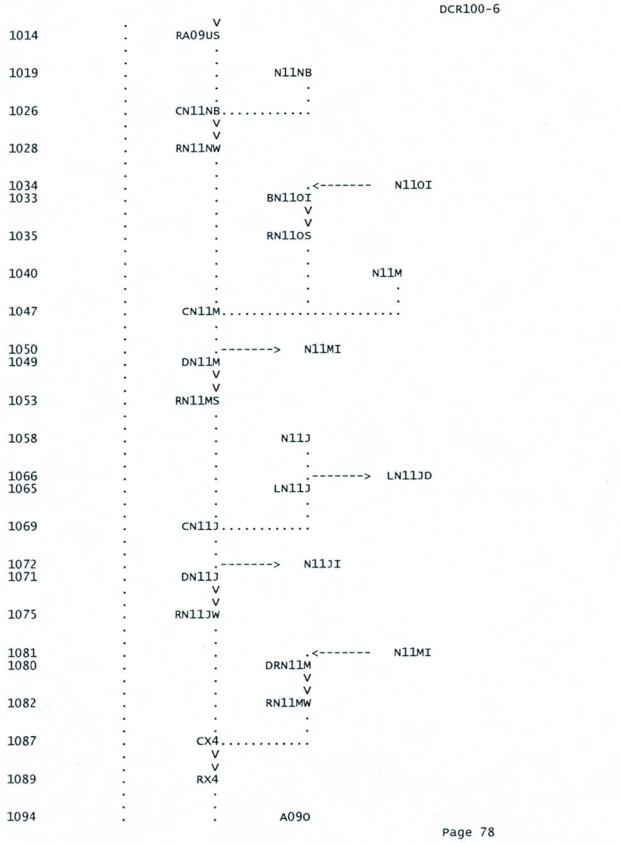

513 CA11MB
515 RA11MB
520 A11O
527 SA11O
534 RA11O
539 A11KB
546 SA11KB
553 A11KA
560 SA11KA
567 RA11KA
572 CA11KB
574 RA11KB
579 A11G
586 RA11GN
591 A11KC
598 SA11KC
605 CA11KC
607 RA11KC
612 A11J
619 SA11J
626 CA11J

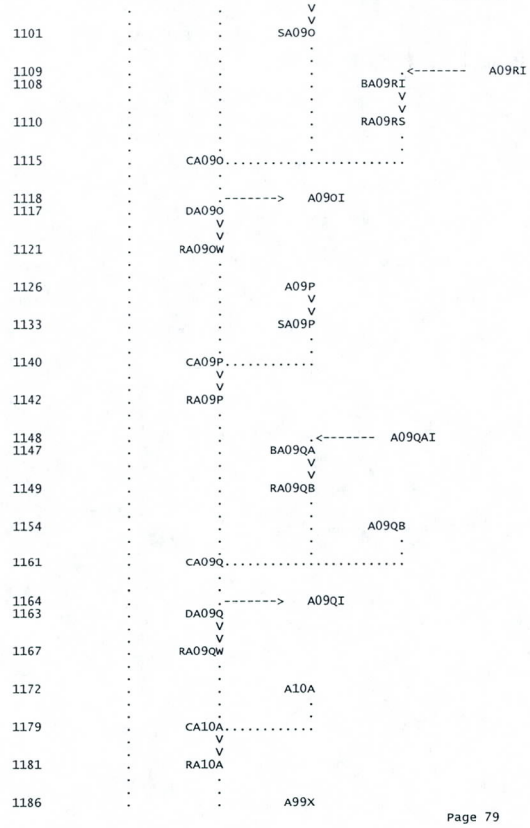

628 A11L
636
635 DA11LQ
639 RA11L
644 A11I
652
651 DA11IQ
655 CA11I
657 RA11I
662 A11EA
669 RA11EA
674 A11EB
681 CA11EB
683 41
690 B41
697 42
704 B42
711 C41
713 RC41
718 A11F
725 CA11F
727 CA11E
729 RA11E
DA11L
DA11I

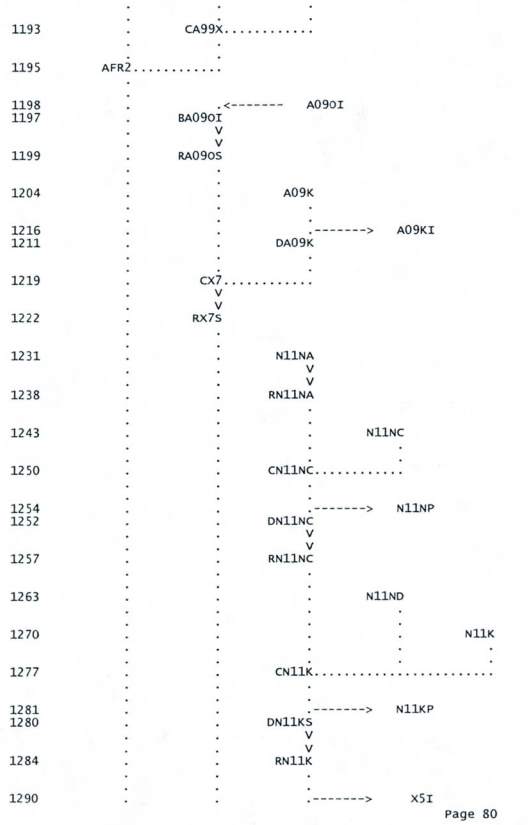

734 A09U
742 A09UI
741 DA09U
745 RA09UW
750 A09T
757 CA09T
760 A09TI
759 DA09T
763 RA09TW
768 A11A
776 DA11A
775 DA11AQ
779 CX23
781 RX23
786 S1
793 P2
802 RB2
800 RT2
805 CS1
808 RS1
811 S2
818 S3
825 CS2
828 RS2

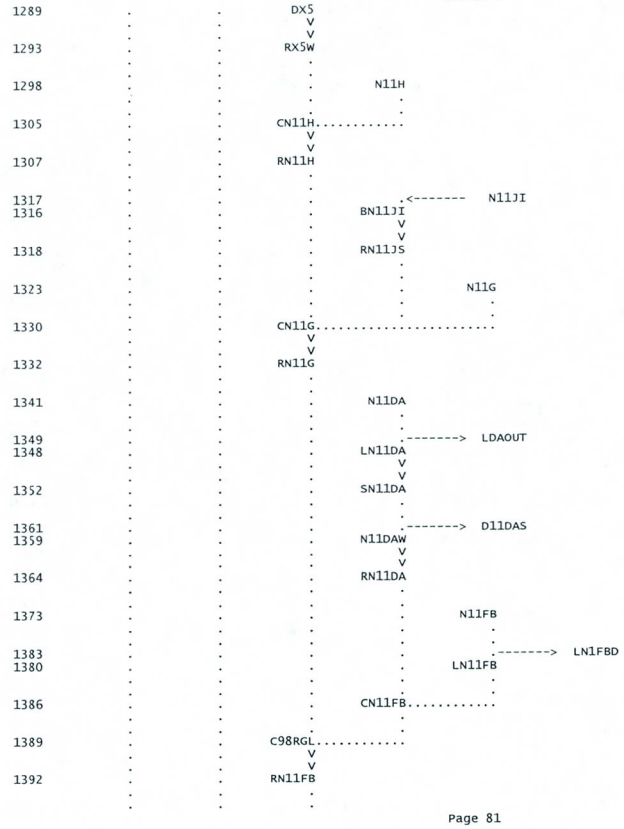

831 P3
840 RB3
838 RT3
843 CP3
846 P4b
855 RB4b
853 RT4b
858 S4
865 P1
874 DB1
872 DT1
877 CP1
880 HV2
887 RHV2
892 DBHV2
890 DTHV2
895 P4a
904 DB4a
902 DT4a
907 SOUTH
910 N11O
918 N11OI
917 DN11O
921 RN11OW
927 A09TI
926 DRA09T

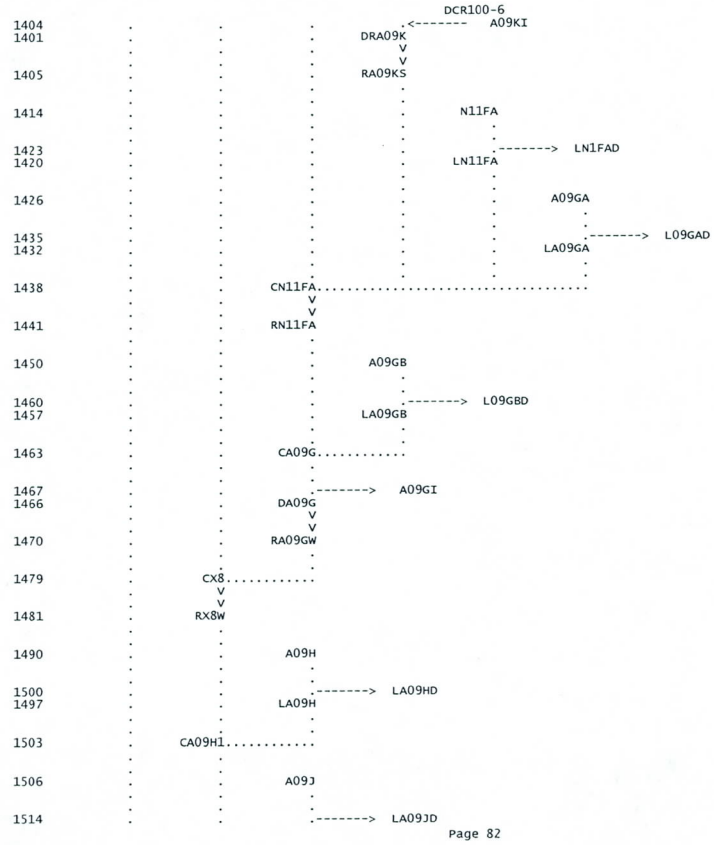

928 RA09TS
933 A09R
940 CA09R
943 A09RI
942 DA09R
946 RA09RW
951 A09S
959 DA09S
958 DA09SQ
962 CA09S
964 RA09SW
969 A09QA
976 CA09QA
979 A09QAI
978 DA09QA
982 RA09QW
987 A99YA
994 CA99YA
996 RA99YA
1001 A99YB
1008 CA99YB
1010 AFR1
1013 A09UI
1012 BA09UI

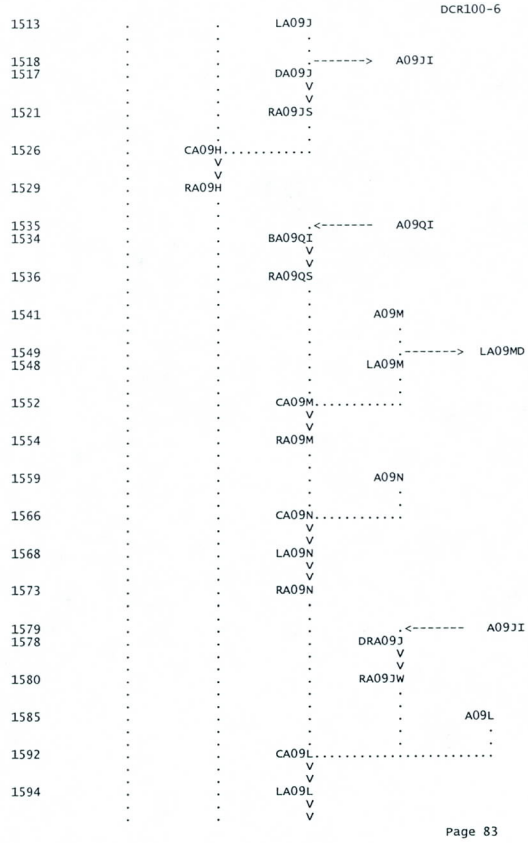

1014 RA09US
1019 N11NB
1026 CN11NB
1028 RN11NW
1034 N11OI
1033 BN11OI
1035 RN11OS
1040 N11M
1047 CN11M
1050 N11MI
1049 DN11M
1053 RN11MS
1058 N11J
1066 LN11JD
1065 LN11J
1069 CN11J
1072 N11JI
1071 DN11J
1075 RN11JW
1081 N11MI
1080 DRN11M
1082 RN11MW
1087 CX4
1089 RX4
1094 A09O

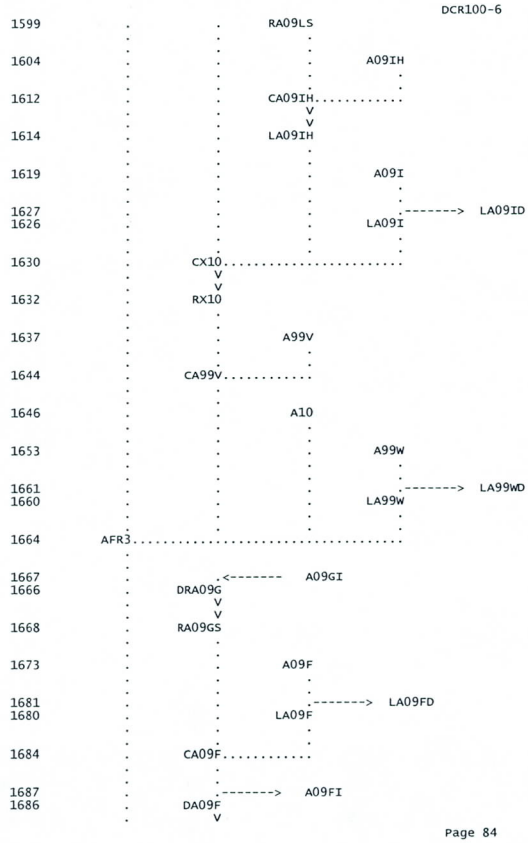

1101 SA09O
1109 A09RI
1108 BA09RI
1110 RA09RS
1115 CA09O
1118 A09OI
1117 DA09O
1121 RA09OW
1126 A09P
1133 SA09P
1140 CA09P
1142 RA09P
1148 A09QAI
1147 BA09QA
1149 RA09QB
1154 A09QB
1161 CA09Q
1164 A09QI
1163 DA09Q
1167 RA09QW
1172 A10A
1179 CA10A
1181 RA10A
1186 A99X

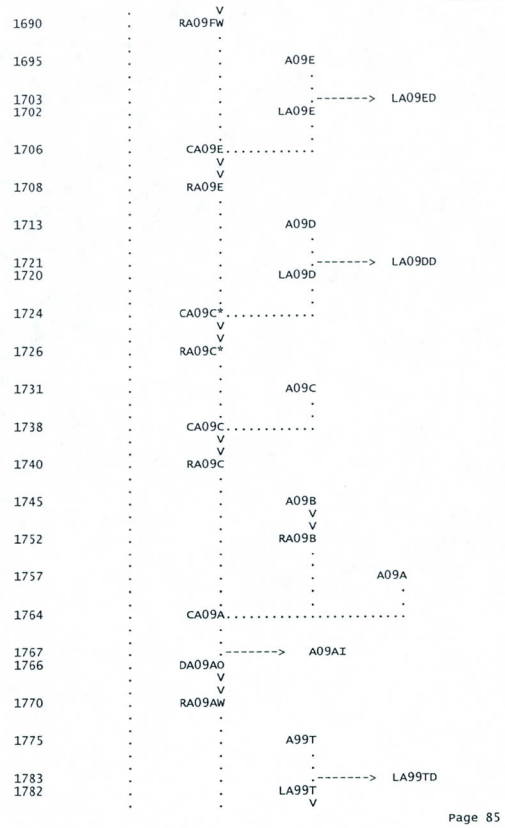

1193 CA99X
1195 AFR2
1198 A09OI
1197 BA09OI
1199 RA09OS
1204 A09K
1216 A09KI
1211 DA09K
1219 CX7
1222 RX7S
1231 N11NA
1238 RN11NA
1243 N11NC
1250 CN11NC
1254 N11NP
1252 DN11NC
1257 RN11NC
1263 N11ND
1270 N11K
1277 CN11K
1281 N11KP
1280 DN11KS
1284 RN11K
1290 X5I

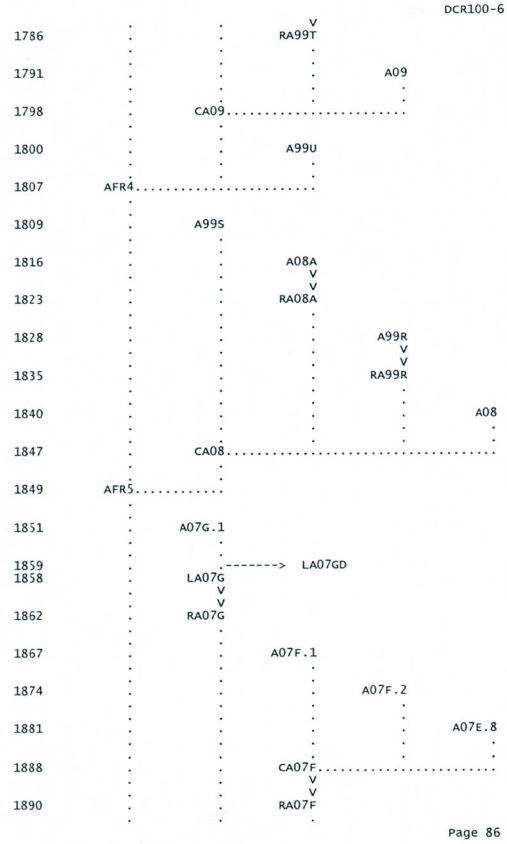

1289 DX5
1293 RX5W
1298 N11H
1305 CN11H
1307 RN11H
1317 N11JI
1316 BN11JI
1318 RN11JS
1323 N11G
1330 CN11G
1332 RN11G
1341 N11DA
1349
1348 LN11DA
1352 SN11DA
1361 D11DAS
1359 N11DAW
1364 RN11DA
1373 N11FB
1383 LN1FBD
1380 LN11FB
1386 CN11FB
1389 C98RGL
1392 RN11FB

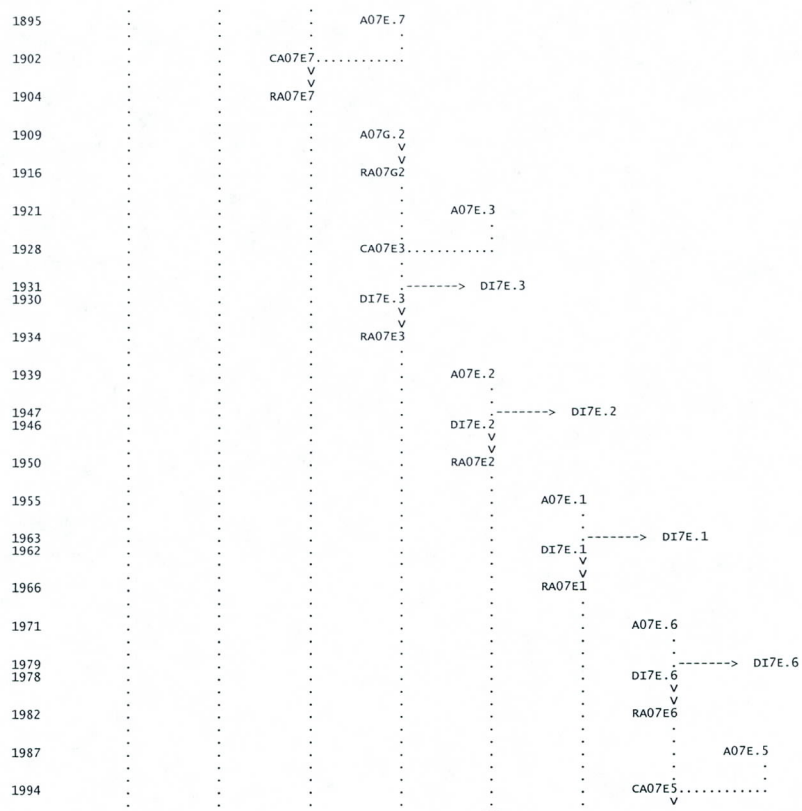

1404 A09KI
1401 DRA09K
1405 RA09KS
1414 N11FA
1423 LN1FAD
1420 LN11FA
1426 A09GA
1435 L09GAD
1432 LA09GA
1438 CN11FA
1441 RN11FA
1450 A09GB
1460 L09GBD
1457 LA09GB
1463 CA09G
1467 A09GI
1466 DA09G
1470 RA09GW
1479 CX8
1481 RX8W
1490 A09H
1500 LA09HD
1497 LA09H
1503 CA09H1
1506 A09J
1514 LA09JD

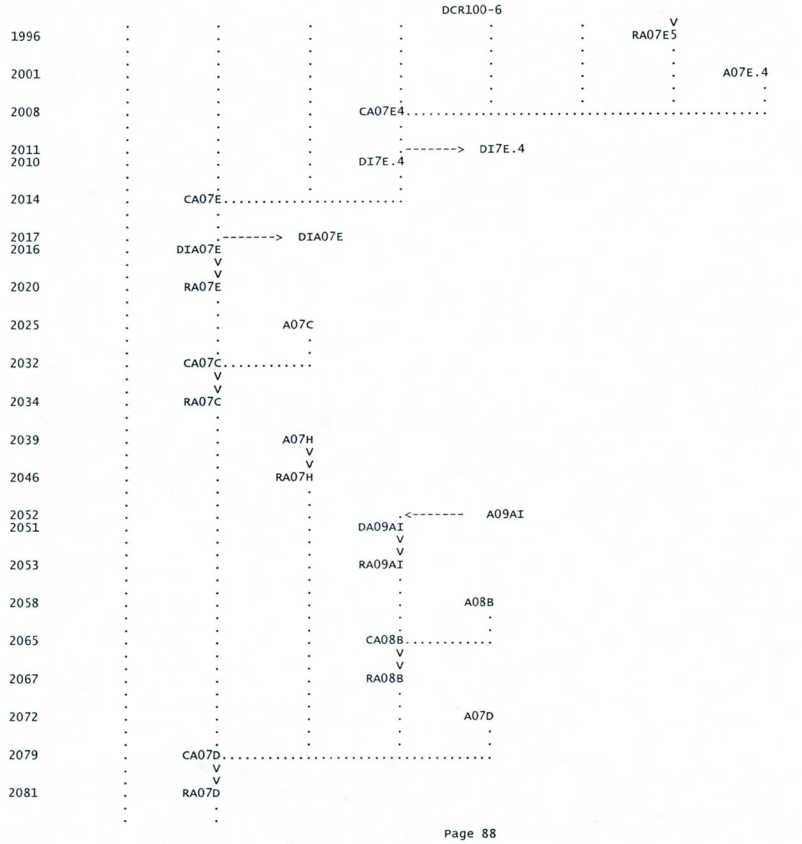

1513 LA09J
1518 A09JI
1517 DA09J
1521 RA09JS
1526 CA09H
1529 RA09H
1535 A09QI
1534 BA09QI
1536 RA09QS
1541 A09M
1549 LA09MD
1548 LA09M
1552 CA09M
1554 RA09M
1559 A09N
1566 CA09N
1568 LA09N
1573 RA09N
1579 A09JI
1578 DRA09J
1580 RA09JW
1585 A09L
1592 CA09L
1594 LA09L

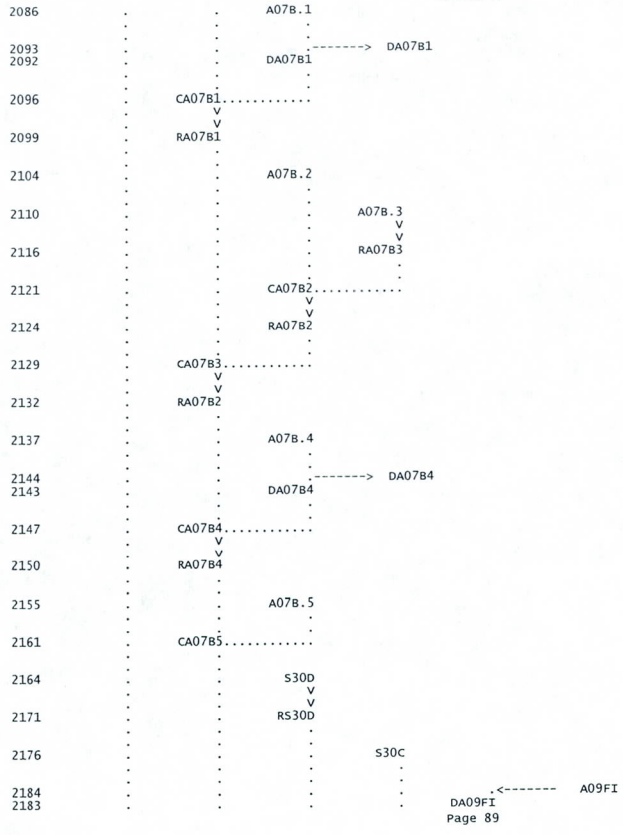

1599 RA09LS
1604 A09IH
1612 CA09IH
1614 LA09IH
1619 A09I
1627 LA09ID
1626 LA09I
1630 CX10
1632 RX10
1637 A99V
1644 CA99V
1646 A10
1653 A99W
1661 LA99WD
1660 LA99W
1664 AFR3
1667 A09GI
1666 DRA09G
1668 RA09GS
1673 A09F
1681 LA09FD
1680 LA09F
1684 CA09F
1687 A09FI
1686 DA09F


1690 RA09FW
1695 A09E
1703
1702 LA09E
LA09ED
1706 CA09E
1708 RA09E
1713 A09D
1721
1720 LA09D
LA09DD
1724 CA09C*
1726 RA09C*
1731 A09C
1738 CA09C
1740 RA09C
1745 A09B
1752 RA09B
1757 A09A
1764 CA09A
1767
1766 DA09AO
A09AI
1770 RA09AW
1775 A99T
1783
1782 LA99T
LA99TD


1786 RA99T
1791 A09
1798 CA09
1800 A99U
1807 AFR4
1809 A99S
1816 A08A
1823 RA08A
1828 A99R
1835 RA99R
1840 A08
1847 CA08
1849 AFR5
1851 A07G.1
1859
1858 LA07G
LA07GD
1862 RA07G
1867 A07F.1
1874 A07F.2
1881 A07E.8
1888 CA07F
1890 RA07F


1895
A07E.7
1902
CA07E7
1904
RA07E7
1909
A07G.2
1916
RA07G2
1921
A07E.3
1928
CA07E3
1931
DI7E.3
1930
DI7E.3
1934
RA07E3
1939
A07E.2
1947
DI7E.2
1946
DI7E.2
1950
RA07E2
1955
A07E.1
1963
DI7E.1
1962
DI7E.1
1966
RA07E1
1971
A07E.6
1979
DI7E.6
1978
DI7E.6
1982
RA07E6
1987
A07E.5
1994
CA07E5


1996
RA07E5
2001
A07E.4
2008
CA07E4
2011
DI7E.4
2010
DI7E.4
2014
CA07E
2017
DIA07E
2016
DIA07E
2020
RA07E
2025
A07C
2032
CA07C
2034
RA07C
2039
A07H
2046
RA07H
2052
A09AI
2051
DA09AI
2053
RA09AI
2058
A08B
2065
CA08B
2067
RA08B
2072
A07D
2079
CA07D
2081
RA07D


2086
A07B.1
2093
2092
DA07B1
DA07B1
2096
CA07B1
2099
RA07B1
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A07B.2
2110
A07B.3
2116
RA07B3
2121
CA07B2
2124
RA07B2
2129
CA07B3
2132
RA07B2
2137
A07B.4
2144
2143
DA07B4
DA07B4
2147
CA07B4
2150
RA07B4
2155
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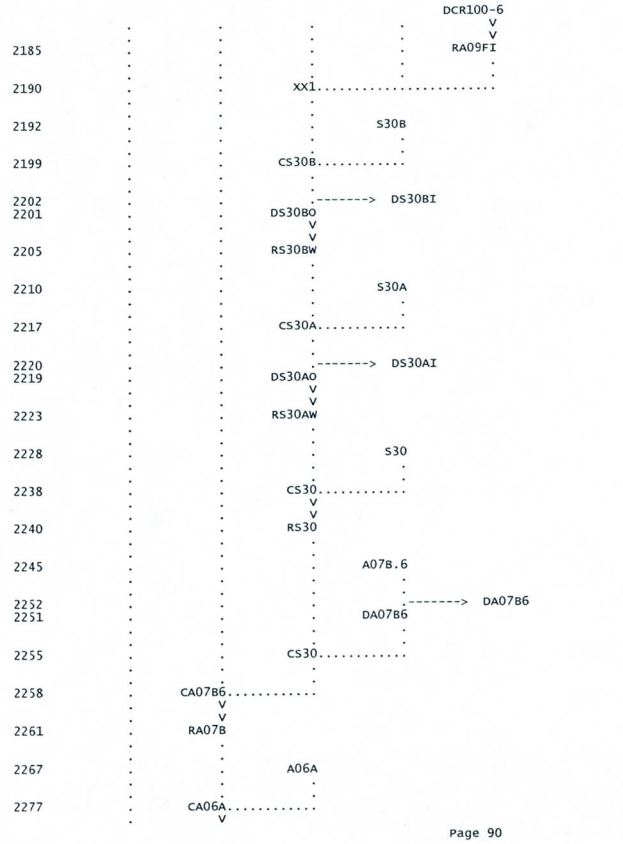
RS30D
2176
S30C
2184
2183
A09FI
DA09FI


2185
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2190
XX1
2192
S30B
2199
CS30B
2202
2201
DS30BO
DS30BI
2205
RS30BW
2210
S30A
2217
CS30A
2220
2219
DS30AO
DS30AI
2223
RS30AW
2228
S30
2238
CS30
2240
RS30
2245
A07B.6
2252
2251
DA07B6
DA07B6
2255
CS30
2258
CA07B6
2261
RA07B
2267
A06A
2277
CA06A

```
                                 V
2279            .           RA06A
                .             .
                .             .
2285            .             .          A07A
                .             .            V
                .             .            V
2295            .             .         RA07A
                .             .            .
                .             .            .
2300            .             .            .          A07
                .             .            .            .
                .             .            .            .
2310            .             .          CA07...........
                .             .            V
                .             .            V
2312            .             .          RA07
                .             .            .
                .             .            .
2318            .             .            .          A06
                .             .            .            .
                .             .            .            .
2328            .             .          CA06...........
                .             .            V
                .             .            V
2330            .             .          RA06
                .             .            .
                .             .            .
2335            .             .            .          A99Q
                .             .            .            .
                .             .            .            .
2345            .             .            .            .          A99P
                .             .            .            .            .
                .             .            .            .            .
2355            .          CA99Q.................................
                .             .
                .             .
2357        AFR6 ...........

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION
1**************************************
**************************************
*                                    *
 *
*  FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
 *
*             JUN   1998              *
CENTER   *
*            VERSION 4.1              *
 *
*                                     *
 *
*  RUN DATE   19JUL11  TIME  14:38:15  *
 *
*                                     *
 *
**************************************
**************************************

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



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                                                                      **
107th Avenue and Union Hills Drive Design Concept Report              **
                                                                      **

PROJECT NO.: FCD 2009C036.2                  G&M: 10388A.2                   **
                                                                      **

Original HEC-1 Model: DCR100-6.DAT, Goodwin & Marshall, Inc., May 29, 2010**
                      100-Year 6-Hour HEC-1 Model for Existing Conditions **
Modified HEC-1 Model: DCR100-6.DAT, Goodwin & Marshall, Inc., Apr 26, 2010**
                      100-Year 6-Hour HEC-1 Model for Existing Conditions **
                                                                      **
1) NOAA2 Rainfall Data                                                **

2) DDMSW V3.5.7 Used                                                         **

3) BASINS REVISED TO REFLECT CANYON RIDGE DEVELOPMENT AND DETERMINE FLOWS **
   AT CRITICAL POINTS ALONG 115TH AVENUE                              **

                                                                      **
**************************************************************************
Project ID: 107 & Union Hills - Major Basin: 01 - Return Period: 100 Years
                                                                      **
107th Avenue and Union Hills Drive Design Concept Report              **
                                                                      **

PROJECT NO.: FCD 2009C036              G&M: 10388A                    **
                                                                      **

Original HEC-1 Model: EC06BASE.DAT, Wood/Patel, SZ, May 2007          **
                      100-Year 6-Hour HEC-1 Model for Existing Conditions **
Modified HEC-1 Model: DCR100-6.DAT, Goodwin & Marshall, Inc., May 29, 2010**
                      100-Year 6-Hour HEC-1 Model for Existing Conditions **
                                                                      **
1) NOAA2 Rainfall Data                                                **

2) DDMSW V3.5.7 Used                                                  **

                                                                      **
**************************************************************************
Project ID: GP_NW ADMP_EX1 - Major Basin: 01 - Return Period: 100 Years
                                                                      **
Glendale/Peoria ADMP Northwest Region Update                          **
Original HEC-1 Model: L3R5DVR.DAT, Wood/Patel, APRIL 14, 2006         **
                      REVISED FOR DOVE VALLEY RANCH IMPROVEMENTS      **
Modified HEC-1 Model: EC06BASE.DAT, Wood/Patel, SZ, May 2007          **
                      100-Year 6-Hour HEC-1 Model for Existing Conditions **
1) NOAA 2 Rainfall Data                                               **
2) DDMSW MCUHP1 V3.3.2 Used                                           **
                                                                      **
**************************************************************************
***************************************************************************
**                                                                       **
** CONCEPT REFINEMENT STUDY FOR ROSE GARDEN LANE DRAINAGE IMPROVEMENTS   **
** ORIGINAL HEC-1 FILE FROM GLENDAL/PEORIA ADMP UPDATE STUDY             **
** MODIFIED HEC-1 MODEL: LEVEL3R5.DAT, Wood/Patel & CVL, May 2005        **
** THIS IS THE PREFERRED ALTERNATIVE MODEL                               **
** WPA REVISED APRIL 14, 2006 FOR DOVE VALLEY RANCH IMPROVEMENTS         **
** USING LATEST SURVEY DATA.
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**                                                                  **
**                    Glendale/Peoria ADMP Update                   **
**                                                                  **
**********************************************************************
**********************************************************************
PROJECT:                Glendale Peoria ADMP Update
CLIENT:                 Flood Control District of Maricopa County
PREPARED BY:            Entellus, Inc.
PROJECT NO:             FCD 99-44              Entellus 310.017
FILE NAME: LEVEL3.DAT            CREATED DATE: JUNE 6, 2001
STORM:                  100-year 6-hour Storm
DEVELOPMENT CONDITIONS: LEVEL 3 HYDROLOGY

68 IO       OUTPUT CONTROL VARIABLES
              IPRNT          5  PRINT CONTROL
              IPLOT          0  PLOT CONTROL
              QSCAL          0.  HYDROGRAPH PLOT SCALE

   IT       HYDROGRAPH TIME DATA
              NMIN           2  MINUTES IN COMPUTATION INTERVAL
             IDATE      1    0  STARTING DATE
             ITIME         0000  STARTING TIME
                NQ         1000  NUMBER OF HYDROGRAPH ORDINATES
            NDDATE      2    0  ENDING DATE
            NDTIME         0918  ENDING TIME
             ICENT           19  CENTURY MARK

          COMPUTATION INTERVAL      .03 HOURS
               TOTAL TIME BASE    33.30 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

70 JD       INDEX STORM NO. 1
              STRM         3.20  PRECIPITATION DEPTH
              TRDA          .01  TRANSPOSITION DRAINAGE AREA

71 PI         PRECIPITATION PATTERN
              .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
              .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
              .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
              .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
              .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
              .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
              .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
              .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
              .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
              .00       .00       .00       .00       .00       .00       .00       .01       .01       .01
              .01       .01       .01       .01       .01       .02       .02       .02       .02       .02
              .02       .02       .04       .06       .06       .06       .06       .06       .06       .06
              .01       .01       .01       .01       .01       .01       .01       .01       .00       .00
              .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
              .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
              .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
              .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
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              .00       .00       .00       .00       .00       .00       .00       .00       .00       .00

74 JD       INDEX STORM NO. 2
              STRM         3.18  PRECIPITATION DEPTH
              TRDA          .50  TRANSPOSITION DRAINAGE AREA

75 PI         PRECIPITATION PATTERN
              .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
              .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
              .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
              .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
              .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
              .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
              .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
              .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
              .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
              .00       .00       .00       .00       .00       .00       .00       .01       .01       .01
              .01       .01       .01       .01       .01       .02       .02       .02       .02       .02
              .02       .02       .04       .06       .06       .06       .06       .06       .06       .06
              .01       .01       .01       .01       .01       .01       .01       .01       .00       .00
              .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
              .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
              .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
              .00       .00       .00       .00       .00       .00       .00       .00       .00       .00

78 JD       INDEX STORM NO. 3
              STRM         3.12  PRECIPITATION DEPTH
              TRDA         2.80  TRANSPOSITION DRAINAGE AREA

79 PI         PRECIPITATION PATTERN
              .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
              .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
              .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
              .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
              .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
              .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
              .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
              .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
              .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
              .01       .01       .01       .01       .01       .01       .01       .01       .01       .01
              .01       .01       .01       .01       .01       .03       .03       .03       .03       .03
              .03       .03       .03       .03       .03       .03       .03       .03       .03       .03
              .02       .02       .02       .02       .02       .02       .02       .01       .01       .01
              .01       .01       .01       .01       .01       .01       .01       .01       .01       .01
              .01       .01       .00       .00       .00       .00       .00       .00       .00       .00
              .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
              .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
              .00       .00       .00       .00       .00       .00       .00       .00       .00       .00

82 JD       INDEX STORM NO. 4
              STRM         2.95  PRECIPITATION DEPTH
              TRDA        16.00  TRANSPOSITION DRAINAGE AREA

83 PI         PRECIPITATION PATTERN
              .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
              .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
              .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
              .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
              .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
              .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
              .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
              .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
              .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
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               .01      .01      .01      .01      .01      .01      .01      .01      .01      .01
               .01      .01      .01      .01      .01      .02      .02      .02      .02      .02
               .02      .02      .02      .03      .03      .03      .03      .03      .03      .03
               .02      .02      .02      .02      .02      .02      .02      .01      .01      .01
               .01      .01      .01      .01      .01      .01      .01      .01      .01      .01
               .01      .01      .01      .00      .00      .00      .00      .00      .00      .00
               .00      .00      .00      .00      .00      .00      .00      .00      .00      .00
               .00      .00      .00      .00      .00      .00      .00      .00      .00      .00
               .00      .00      .00      .00      .00      .00      .00      .00      .00      .00

  86 JD         INDEX STORM NO. 5
                    STRM       2.60  PRECIPITATION DEPTH
                    TRDA      90.00  TRANSPOSITION DRAINAGE AREA

  87 PI           PRECIPITATION PATTERN
               .00      .00      .00      .00      .00      .00      .00      .00      .00      .00
               .00      .00      .00      .00      .00      .00      .00      .00      .00      .00
               .00      .00      .00      .00      .00      .00      .00      .00      .00      .00
               .00      .00      .00      .00      .00      .00      .00      .00      .00      .00
               .00      .00      .00      .00      .00      .00      .00      .00      .00      .00
               .00      .00      .00      .00      .00      .00      .00      .00      .00      .00
               .00      .00      .00      .00      .00      .00      .00      .00      .00      .00
               .00      .00      .00      .00      .00      .00      .00      .00      .00      .00
               .00      .00      .00      .00      .00      .00      .00      .00      .00      .00
               .01      .01      .01      .01      .01      .01      .01      .01      .01      .01
               .01      .01      .01      .01      .01      .02      .02      .02      .02      .02
               .02      .02      .02      .02      .02      .02      .02      .02      .02      .02
               .02      .02      .02      .02      .02      .02      .02      .01      .01      .01
               .01      .01      .01      .01      .01      .01      .01      .01      .01      .01
               .01      .01      .01      .01      .01      .01      .01      .01      .01      .01
               .00      .00      .00      .00      .00      .00      .00      .00      .00      .00
               .00      .00      .00      .00      .00      .00      .00      .00      .00      .00
               .00      .00      .00      .00      .00      .00      .00      .00      .00      .00
       WARNING EXCESS AT PONDING LESS THAN ZERO FOR PERIOD. EXCESS SET TO ZERO
       WARNING EXCESS AT PONDING LESS THAN ZERO FOR PERIOD. EXCESS SET TO ZERO


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              **************
              *            *
2096 KK       *   CA07B1   *
              *            *
              **************

2097 KO         OUTPUT CONTROL VARIABLES
                    IPRNT          5  PRINT CONTROL
                    IPLOT          0  PLOT CONTROL
                    QSCAL         0.  HYDROGRAPH PLOT SCALE
                    IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                     IOUT         21  SAVE HYDROGRAPH ON THIS UNIT
                    ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                    ISAV2       1000  LAST ORDINATE PUNCHED OR SAVED
                   TIMINT       .033  TIME INTERVAL IN HOURS


 *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***
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              **************
              *            *
2121 KK       *   CA07B2   *
              *            *
              **************

2122 KO         OUTPUT CONTROL VARIABLES
                    IPRNT          5  PRINT CONTROL
                    IPLOT          0  PLOT CONTROL
                    QSCAL         0.  HYDROGRAPH PLOT SCALE
                    IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                     IOUT         21  SAVE HYDROGRAPH ON THIS UNIT
                    ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                    ISAV2       1000  LAST ORDINATE PUNCHED OR SAVED
                   TIMINT       .033  TIME INTERVAL IN HOURS


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

              **************
              *            *
2129 KK       *   CA07B3   *
              *            *
              **************

2130 KO         OUTPUT CONTROL VARIABLES
                    IPRNT          5  PRINT CONTROL
                    IPLOT          0  PLOT CONTROL
                    QSCAL         0.  HYDROGRAPH PLOT SCALE
                    IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                     IOUT         21  SAVE HYDROGRAPH ON THIS UNIT
                    ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                    ISAV2       1000  LAST ORDINATE PUNCHED OR SAVED
                   TIMINT       .033  TIME INTERVAL IN HOURS


 *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***
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              **************
              *            *
2147 KK       *   CA07B4   *
              *            *
              **************

2148 KO         OUTPUT CONTROL VARIABLES
                    IPRNT          5  PRINT CONTROL
                    IPLOT          0  PLOT CONTROL
                    QSCAL         0.  HYDROGRAPH PLOT SCALE
                    IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                     IOUT         21  SAVE HYDROGRAPH ON THIS UNIT
                    ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                    ISAV2       1000  LAST ORDINATE PUNCHED OR SAVED
                   TIMINT       .033  TIME INTERVAL IN HOURS
```

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*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***
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              **************
              *            *
2161 KK       *   CA07B5   *
              *            *
              **************

2162 KO            OUTPUT CONTROL VARIABLES
                          IPRNT          5  PRINT CONTROL
                          IPLOT          0  PLOT CONTROL
                          QSCAL         0.  HYDROGRAPH PLOT SCALE
                          IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                           IOUT         21  SAVE HYDROGRAPH ON THIS UNIT
                          ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                          ISAV2       1000  LAST ORDINATE PUNCHED OR SAVED
                         TIMINT       .033  TIME INTERVAL IN HOURS


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***
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              **************
              *            *
2255 KK       *     CS30   *
              *            *
              **************

2256 KO            OUTPUT CONTROL VARIABLES
                          IPRNT          5  PRINT CONTROL
                          IPLOT          0  PLOT CONTROL
                          QSCAL         0.  HYDROGRAPH PLOT SCALE
                          IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                           IOUT         21  SAVE HYDROGRAPH ON THIS UNIT
                          ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                          ISAV2       1000  LAST ORDINATE PUNCHED OR SAVED
                         TIMINT       .033  TIME INTERVAL IN HOURS


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

              **************
              *            *
2258 KK       *   CA07B6   *
              *            *
              **************

2259 KO            OUTPUT CONTROL VARIABLES
                          IPRNT          5  PRINT CONTROL
                          IPLOT          0  PLOT CONTROL
                          QSCAL         0.  HYDROGRAPH PLOT SCALE
                          IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                           IOUT         21  SAVE HYDROGRAPH ON THIS UNIT
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                          ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                          ISAV2       1000  LAST ORDINATE PUNCHED OR SAVED
                         TIMINT       .033  TIME INTERVAL IN HOURS


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

              **************
              *            *
2261 KK       *    RA07B   *
              *            *
              **************

2262 KO            OUTPUT CONTROL VARIABLES
                          IPRNT          3  PRINT CONTROL
                          IPLOT          0  PLOT CONTROL
                          QSCAL         0.  HYDROGRAPH PLOT SCALE
                          IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                           IOUT         21  SAVE HYDROGRAPH ON THIS UNIT
                          ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                          ISAV2       1000  LAST ORDINATE PUNCHED OR SAVED
                         TIMINT       .033  TIME INTERVAL IN HOURS

                   HYDROGRAPH ROUTING DATA

2263 RS            STORAGE ROUTING
                          NSTPS          3  NUMBER OF SUBREACHES
                           ITYP       FLOW  TYPE OF INITIAL CONDITION
                         RSVRIC        .00  INITIAL CONDITION
                              X        .00 WORKING R AND D COEFFICIENT

2264 RC            NORMAL DEPTH CHANNEL
                            ANL       .030  LEFT OVERBANK N-VALUE
                           ANCH       .020  MAIN CHANNEL N-VALUE
                            ANR       .030  RIGHT OVERBANK N-VALUE
                          RLNTH      2990.  REACH LENGTH
                            SEL      .0057  ENERGY SLOPE
                          ELMAX         .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                            CROSS-SECTION DATA
                           --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
2266 RY          ELEVATION    10.00      9.00      8.00      7.00       .00       .00      7.00      9.00
2265 RX          DISTANCE       .00     76.00    136.00    197.00    222.00    247.00    262.00    387.00

                                                   ***

                                      COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

             STORAGE       .00       .96      2.02      3.20      4.48      5.87      7.37      8.98     10.70     12.53
             OUTFLOW       .00     49.22    159.62    320.67    529.63    785.76   1089.22   1440.67   1841.03   2291.40
           ELEVATION       .00       .53      1.05      1.58      2.11      2.63      3.16      3.68      4.21      4.74

             STORAGE     14.46     16.51     18.66     20.92     23.84     29.01     36.52     46.35     58.16     71.42
             OUTFLOW   2793.03   3347.20   3955.27   4618.63   4275.95   4398.60   5653.16   7376.68   9585.48  12181.20
           ELEVATION      5.26      5.79      6.32      6.84      7.37      7.89      8.42      8.95      9.47     10.00

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN     1841. TO     4619.
                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 RA07B
TRANSPOSITION AREA .0 SQ MI

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	33.30-HR
+ (CFS)	(HR)				
		(CFS)			
+ 2570.	4.50	773.	198.	143.	143.
		(INCHES) 1.894	1.942	1.942	1.942
		(AC-FT) 383.	393.	393.	393.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
		6-HR	24-HR	72-HR	33.30-HR
+ (AC-FT)	(HR)				
5.	4.50	2.	0.	0.	0.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
		6-HR	24-HR	72-HR	33.30-HR
+ (FEET)	(HR)				
5.03	4.50	2.21	.61	.44	.44

CUMULATIVE AREA = 3.80 SQ MI

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

HYDROGRAPH AT STATION RA07B
TRANSPOSITION AREA .5 SQ MI

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	33.30-HR
+ (CFS)	(HR)				
		(CFS)			
+ 2549.	4.50	766.	196.	142.	142.
		(INCHES) 1.877	1.925	1.925	1.925
		(AC-FT) 380.	390.	390.	390.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
		6-HR	24-HR	72-HR	33.30-HR
+ (AC-FT)	(HR)				
5.	4.50	2.	0.	0.	0.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
		6-HR	24-HR	72-HR	33.30-HR
+ (FEET)	(HR)				
5.01	4.50	2.20	.60	.43	.43

CUMULATIVE AREA = 3.80 SQ MI

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

HYDROGRAPH AT STATION RA07B
TRANSPOSITION AREA 2.8 SQ MI

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	33.30-HR
+ (CFS)	(HR)				
		(CFS)			
+ 2014.	4.57	690.	177.	128.	128.

		(INCHES) 1.690	1.737	1.737	1.737
		(AC-FT) 342.	352.	352.	352.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
		6-HR	24-HR	72-HR	33.30-HR
+ (AC-FT)	(HR)				
4.	4.57	2.	0.	0.	0.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
		6-HR	24-HR	72-HR	33.30-HR
+ (FEET)	(HR)				
4.41	4.57	2.11	.58	.42	.42

CUMULATIVE AREA = 3.80 SQ MI

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

HYDROGRAPH AT STATION RA07B
TRANSPOSITION AREA 16.0 SQ MI

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	33.30-HR
+ (CFS)	(HR)				
		(CFS)			
+ 1643.	4.60	584.	151.	109.	109.
		(INCHES) 1.430	1.483	1.483	1.483
		(AC-FT) 290.	300.	300.	300.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
		6-HR	24-HR	72-HR	33.30-HR
+ (AC-FT)	(HR)				
3.	4.60	1.	0.	0.	0.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
		6-HR	24-HR	72-HR	33.30-HR
+ (FEET)	(HR)				
3.95	4.60	1.95	.54	.39	.39

CUMULATIVE AREA = 3.80 SQ MI

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

HYDROGRAPH AT STATION RA07B
TRANSPOSITION AREA 90.0 SQ MI

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	33.30-HR
+ (CFS)	(HR)				
		(CFS)			
+ 1215.	4.77	420.	110.	79.	79.
		(INCHES) 1.029	1.080	1.080	1.080
		(AC-FT) 208.	219.	219.	219.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
		6-HR	24-HR	72-HR	33.30-HR
+ (AC-FT)	(HR)				
3.	4.77	1.	0.	0.	0.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
		6-HR	24-HR	72-HR	33.30-HR
+ (FEET)	(HR)				
3.35	4.77	1.63	.46	.33	.33

CUMULATIVE AREA = 3.80 SQ MI

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INTERPOLATED HYDROGRAPH AT RA07B

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	33.30-HR
+ (CFS)	(HR)					
		(CFS)				
+ 1948.	4.57		671.	173.	125.	125.
		(INCHES)	1.644	1.692	1.692	1.692
		(AC-FT)	333.	343.	343.	343.

CUMULATIVE AREA = 3.80 SQ MI

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              *            *
2279 KK       *    RA06A   *
              *            *
              **************

2280 KO         OUTPUT CONTROL VARIABLES
                      IPRNT          3  PRINT CONTROL
                      IPLOT          0  PLOT CONTROL
                      QSCAL         0.  HYDROGRAPH PLOT SCALE
                      IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                       IOUT         21  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2       1000  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT       .033  TIME INTERVAL IN HOURS

              HYDROGRAPH ROUTING DATA

2281 RS         STORAGE ROUTING
                      NSTPS          3  NUMBER OF SUBREACHES
                       ITYP       FLOW  TYPE OF INITIAL CONDITION
                     RSVRIC        .00  INITIAL CONDITION
                          X        .00 WORKING R AND D COEFFICIENT

2282 RC         NORMAL DEPTH CHANNEL
                        ANL       .030  LEFT OVERBANK N-VALUE
                       ANCH       .020  MAIN CHANNEL N-VALUE
                        ANR       .030  RIGHT OVERBANK N-VALUE
                      RLNTH      2500.  REACH LENGTH
                        SEL      .0070  ENERGY SLOPE
                      ELMAX         .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                          CROSS-SECTION DATA
                         --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
2284 RY       ELEVATION   10.00      9.00      8.00      7.00       .00       .00      7.00      9.00
2283 RX       DISTANCE      .00     76.00    136.00    197.00    222.00    247.00    262.00    387.00
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COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

STORAGE	.00	.80	1.69	2.67	3.75	4.91	6.17	7.51	8.95	10.48
OUTFLOW	.00	54.55	176.89	355.36	586.92	870.76	1207.06	1596.53	2040.19	2539.30
ELEVATION	.00	.53	1.05	1.58	2.11	2.63	3.16	3.68	4.21	4.74
STORAGE	12.09	13.80	15.60	17.49	19.93	24.25	30.53	38.76	48.63	59.72
OUTFLOW	3095.19	3709.31	4383.17	5118.29	4738.53	4874.45	6264.74	8174.72	10622.47	13499.00
ELEVATION	5.26	5.79	6.32	6.84	7.37	7.89	8.42	8.95	9.47	10.00

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN 587. TO 13499.
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.)

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HYDROGRAPH AT STATION RA06A
TRANSPOSITION AREA .0 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	33.30-HR
+ (CFS)	(HR)					
		(CFS)				
+ 2753.	4.50		826.	212.	153.	153.
		(INCHES)	1.885	1.934	1.934	1.934
		(AC-FT)	410.	420.	420.	420.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	33.30-HR
+ (AC-FT)	(HR)				
4.	4.50	1.	0.	0.	0.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	33.30-HR
+ (FEET)	(HR)				
4.94	4.50	2.19	.60	.43	.43

CUMULATIVE AREA = 4.07 SQ MI

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HYDROGRAPH AT STATION RA06A
TRANSPOSITION AREA .5 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	33.30-HR
+ (CFS)	(HR)					
		(CFS)				
+ 2731.	4.50		819.	210.	151.	151.
		(INCHES)	1.868	1.917	1.917	1.917
		(AC-FT)	406.	417.	417.	417.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	33.30-HR
+ (AC-FT)	(HR)				
4.	4.50	1.	0.	0.	0.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	33.30-HR
+ (FEET)	(HR)				

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     4.92       4.50              2.18          .60         .43            .43

                        CUMULATIVE AREA =     4.07 SQ MI


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

                          HYDROGRAPH AT STATION     RA06A
                        TRANSPOSITION AREA      2.8 SQ MI

   PEAK FLOW       TIME                        MAXIMUM AVERAGE FLOW
                                          6-HR         24-HR       72-HR        33.30-HR
 +   (CFS)         (HR)
                                (CFS)
 +    2176.        4.57                    734.         189.        136.         136.
                             (INCHES)     1.676        1.724       1.724        1.724
                              (AC-FT)      364.         375.        375.         375.

  PEAK STORAGE     TIME                      MAXIMUM AVERAGE STORAGE
                                          6-HR         24-HR       72-HR        33.30-HR
 +  (AC-FT)        (HR)
          3.       4.53                      1.           0.          0.            0.

   PEAK STAGE      TIME                        MAXIMUM AVERAGE STAGE
                                          6-HR         24-HR       72-HR        33.30-HR
 +   (FEET)        (HR)
        4.35       4.57                   2.08          .57         .41            .41

                        CUMULATIVE AREA =     4.07 SQ MI


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

                          HYDROGRAPH AT STATION     RA06A
                        TRANSPOSITION AREA     16.0 SQ MI

   PEAK FLOW       TIME                        MAXIMUM AVERAGE FLOW
                                          6-HR         24-HR       72-HR        33.30-HR
 +   (CFS)         (HR)
                                (CFS)
 +    1757.        4.63                    620.         161.        116.         116.
                             (INCHES)     1.414        1.468       1.468        1.468
                              (AC-FT)      307.         319.        319.         319.

  PEAK STORAGE     TIME                      MAXIMUM AVERAGE STORAGE
                                          6-HR         24-HR       72-HR        33.30-HR
 +  (AC-FT)        (HR)
          3.       4.60                      1.           0.          0.            0.

   PEAK STAGE      TIME                        MAXIMUM AVERAGE STAGE
                                          6-HR         24-HR       72-HR        33.30-HR
 +   (FEET)        (HR)
        3.88       4.63                   1.91          .54         .39            .39

                        CUMULATIVE AREA =     4.07 SQ MI


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

                          HYDROGRAPH AT STATION     RA06A
                        TRANSPOSITION AREA     90.0 SQ MI

   PEAK FLOW       TIME                        MAXIMUM AVERAGE FLOW
                                          6-HR         24-HR       72-HR        33.30-HR
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 +   (CFS)         (HR)
                                (CFS)
 +    1260.        4.80                    444.         117.         84.          84.
                             (INCHES)     1.013        1.065       1.065        1.065
                              (AC-FT)      220.         232.        232.         232.

  PEAK STORAGE     TIME                      MAXIMUM AVERAGE STORAGE
                                          6-HR         24-HR       72-HR        33.30-HR
 +  (AC-FT)        (HR)
          2.       4.80                      1.           0.          0.            0.

   PEAK STAGE      TIME                        MAXIMUM AVERAGE STAGE
                                          6-HR         24-HR       72-HR        33.30-HR
 +   (FEET)        (HR)
        3.23       4.80                   1.60          .45         .33            .33

                        CUMULATIVE AREA =     4.07 SQ MI

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


                       INTERPOLATED HYDROGRAPH AT     RA06A

   PEAK FLOW       TIME                        MAXIMUM AVERAGE FLOW
                                          6-HR         24-HR       72-HR        33.30-HR
 +   (CFS)         (HR)
                                (CFS)
 +    2083.        4.57                    709.         183.        132.         132.
                             (INCHES)     1.619        1.669       1.669        1.669
                              (AC-FT)      352.         363.        363.         363.

                        CUMULATIVE AREA =     4.07 SQ MI

          WARNING EXCESS AT PONDING LESS THAN ZERO FOR PERIOD. EXCESS SET TO ZERO


 *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***
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               *            *
 2312 KK       *    RA07    *
               *            *
               **************


 2313 KO           OUTPUT CONTROL VARIABLES
                         IPRNT          3  PRINT CONTROL
                         IPLOT          0  PLOT CONTROL
                         QSCAL         0.  HYDROGRAPH PLOT SCALE

                  HYDROGRAPH ROUTING DATA

 2314 RS           STORAGE ROUTING
                         NSTPS          3  NUMBER OF SUBREACHES
                          ITYP       FLOW  TYPE OF INITIAL CONDITION
                        RSVRIC        .00  INITIAL CONDITION
                             X        .00 WORKING R AND D COEFFICIENT

 2315 RC           NORMAL DEPTH CHANNEL
                           ANL       .030  LEFT OVERBANK N-VALUE
                          ANCH       .030  MAIN CHANNEL N-VALUE
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      ANR        .030  RIGHT OVERBANK N-VALUE
    RLNTH       3464.  REACH LENGTH
      SEL       .0061  ENERGY SLOPE
    ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                CROSS-SECTION DATA
                    --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
2317 RY   ELEVATION    12.00     8.00     6.00      .00      .00     6.00     8.00     12.00
2316 RX   DISTANCE       .00   100.00   200.00   250.00   300.00   350.00   500.00   1000.00

                                          ***

                          COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

     STORAGE        .00     2.78     6.08     9.91    14.27    19.16    24.58    30.53    37.01    44.01
     OUTFLOW        .00    93.72   310.98   640.30  1084.02  1647.53  2337.28  3160.18  4123.27  5233.61
   ELEVATION        .00      .63     1.26     1.89     2.53     3.16     3.79     4.42     5.05     5.68

     STORAGE      51.98    63.47    78.94    98.41   122.47   151.28   184.85   223.18   266.27   314.11
     OUTFLOW    6642.56  8463.84 10694.98 13426.75 16772.95 20858.33 25771.41 31597.99 38420.15 46316.57
   ELEVATION        6.32     6.95     7.58     8.21     8.84     9.47    10.11    10.74    11.37    12.00

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

                  HYDROGRAPH AT STATION     RA07
                 TRANSPOSITION AREA       .0 SQ MI

  PEAK FLOW     TIME                    MAXIMUM AVERAGE FLOW
                                6-HR        24-HR        72-HR     33.30-HR
+   (CFS)       (HR)
                 (CFS)
+     263.      4.20              36.           9.           7.           7.
               (INCHES)        1.397        1.413        1.413        1.413
                (AC-FT)          18.          18.          18.          18.

  PEAK STORAGE  TIME                    MAXIMUM AVERAGE STORAGE
                                6-HR        24-HR        72-HR     33.30-HR
+  (AC-FT)      (HR)
        2.      4.20               0.           0.           0.           0.

  PEAK STAGE    TIME                    MAXIMUM AVERAGE STAGE
                                6-HR        24-HR        72-HR     33.30-HR
+   (FEET)      (HR)
      1.12      4.20              .21          .05          .04          .04

                 CUMULATIVE AREA =     .24 SQ MI

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

                  HYDROGRAPH AT STATION     RA07
                 TRANSPOSITION AREA       .5 SQ MI

  PEAK FLOW     TIME                    MAXIMUM AVERAGE FLOW
                                6-HR        24-HR        72-HR     33.30-HR
+   (CFS)       (HR)
                 (CFS)
+     260.      4.20              36.           9.           7.           7.
               (INCHES)        1.383        1.398        1.398        1.398
                (AC-FT)          18.          18.          18.          18.

  PEAK STORAGE  TIME                    MAXIMUM AVERAGE STORAGE
                                6-HR        24-HR        72-HR     33.30-HR
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+  (AC-FT)      (HR)
        2.      4.20               0.           0.           0.           0.

  PEAK STAGE    TIME                    MAXIMUM AVERAGE STAGE
                                6-HR        24-HR        72-HR     33.30-HR
+   (FEET)      (HR)
      1.11      4.20              .21          .05          .04          .04

                 CUMULATIVE AREA =     .24 SQ MI

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

                  HYDROGRAPH AT STATION     RA07
                 TRANSPOSITION AREA     2.8 SQ MI

  PEAK FLOW     TIME                    MAXIMUM AVERAGE FLOW
                                6-HR        24-HR        72-HR     33.30-HR
+   (CFS)       (HR)
                 (CFS)
+     112.      4.27              26.           7.           5.           5.
               (INCHES)        1.002        1.018        1.018        1.018
                (AC-FT)          13.          13.          13.          13.

  PEAK STORAGE  TIME                    MAXIMUM AVERAGE STORAGE
                                6-HR        24-HR        72-HR     33.30-HR
+  (AC-FT)      (HR)
        1.      4.27               0.           0.           0.           0.

  PEAK STAGE    TIME                    MAXIMUM AVERAGE STAGE
                                6-HR        24-HR        72-HR     33.30-HR
+   (FEET)      (HR)
       .69      4.27              .17          .04          .03          .03

                 CUMULATIVE AREA =     .24 SQ MI

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

                  HYDROGRAPH AT STATION     RA07
                 TRANSPOSITION AREA    16.0 SQ MI

  PEAK FLOW     TIME                    MAXIMUM AVERAGE FLOW
                                6-HR        24-HR        72-HR     33.30-HR
+   (CFS)       (HR)
                 (CFS)
+      63.      4.47              18.           5.           3.           3.
               (INCHES)         .698         .716         .716         .716
                (AC-FT)           9.           9.           9.           9.

  PEAK STORAGE  TIME                    MAXIMUM AVERAGE STORAGE
                                6-HR        24-HR        72-HR     33.30-HR
+  (AC-FT)      (HR)
        1.      4.43               0.           0.           0.           0.

  PEAK STAGE    TIME                    MAXIMUM AVERAGE STAGE
                                6-HR        24-HR        72-HR     33.30-HR
+   (FEET)      (HR)
       .42      4.47              .12          .03          .02          .02

                 CUMULATIVE AREA =     .24 SQ MI

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HYDROGRAPH AT STATION RA07
TRANSPOSITION AREA 90.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	33.30-HR
29.	4.83	(CFS)	10.	3.	2.	2.
		(INCHES)	.393	.411	.411	.411
		(AC-FT)	5.	5.	5.	5.

PEAK STORAGE (AC-FT)	TIME (HR)		MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	33.30-HR
0.	4.80		0.	0.	0.	0.

PEAK STAGE (FEET)	TIME (HR)		MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	33.30-HR
.19	4.83		.07	.02	.01	.01

CUMULATIVE AREA = .24 SQ MI

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INTERPOLATED HYDROGRAPH AT RA07

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	33.30-HR
260.	4.20	(CFS)	36.	9.	7.	7.
		(INCHES)	1.385	1.401	1.401	1.401
		(AC-FT)	18.	18.	18.	18.

CUMULATIVE AREA = .24 SQ MI

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RUNOFF SUMMARY
FLOW IN CUBIC FEET PER SECOND
TIME IN HOURS, AREA IN SQUARE MILES

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
HYDROGRAPH AT	CBA	16.	4.10	1.	0.	0.	.01		
ROUTED TO	RCBA	16.	4.20	1.	0.	0.	.01		
HYDROGRAPH AT	P28	56.	4.13	7.	2.	1.	.03		
2 COMBINED AT	CP28	70.	4.13	9.	2.	2.	.03		
DIVERSION TO	DB28	55.	4.03	2.	1.	0.	.03		

HYDROGRAPH AT	DT28	70.	4.13	6.	2.	1.	.03
HYDROGRAPH AT	CBB	40.	4.07	3.	1.	1.	.02
ROUTED TO	RCBB	40.	4.10	3.	1.	1.	.02
2 COMBINED AT	CP28a	110.	4.13	9.	2.	2.	.05
ROUTED TO	R28a	93.	4.30	9.	2.	2.	.05
HYDROGRAPH AT	P27	107.	4.17	17.	4.	3.	.06
DIVERSION TO	DB27	54.	3.93	3.	1.	0.	.06
HYDROGRAPH AT	DT27	107.	4.17	14.	3.	3.	.06
2 COMBINED AT	CP27	191.	4.27	23.	6.	4.	.12
HYDROGRAPH AT	P27A	16.	4.07	2.	0.	0.	.01
DIVERSION TO	DB27a	9.	3.90	0.	0.	0.	.01
HYDROGRAPH AT	DT27a	16.	4.07	1.	0.	0.	.01
HYDROGRAPH AT	P27B	24.	4.10	3.	1.	1.	.01
DIVERSION TO	DB27b	10.	3.87	1.	0.	0.	.01
HYDROGRAPH AT	DT27b	24.	4.10	3.	1.	0.	.01
HYDROGRAPH AT	CBL	54.	4.10	6.	2.	1.	.03
4 COMBINED AT	CCBL	260.	4.23	33.	8.	6.	.16
ROUTED TO	RCBL	260.	4.30	33.	8.	6.	.16
HYDROGRAPH AT	CBK	108.	4.17	9.	2.	2.	.05
2 COMBINED AT	CCBK	344.	4.23	41.	10.	7.	.22
ROUTED TO	RCBK	341.	4.27	41.	10.	7.	.22
HYDROGRAPH AT							

+		P14	16.	4.10	1.	0.	0.	.01
+	DIVERSION TO	RB14	16.	4.10	1.	0.	0.	.01
+	HYDROGRAPH AT	RT14	0.	.00	0.	0.	0.	.01
+	2 COMBINED AT	CP14	341.	4.27	41.	10.	7.	.22
+	HYDROGRAPH AT	P15	5.	4.30	1.	0.	0.	.01
+	DIVERSION TO	DB15	5.	4.30	1.	0.	0.	.01
+	HYDROGRAPH AT	DT15	2.	4.80	0.	0.	0.	.01
+	HYDROGRAPH AT	CBJ	29.	4.13	2.	1.	0.	.01
+	3 COMBINED AT	CP15	363.	4.23	44.	11.	8.	.25
+	ROUTED TO	R15	362.	4.27	44.	11.	8.	.25
+	HYDROGRAPH AT	CBH	34.	4.07	2.	1.	0.	.01
+	ROUTED TO	RCBH	30.	4.13	2.	1.	0.	.01
+	HYDROGRAPH AT	P25S	36.	4.20	5.	1.	1.	.03
+	2 COMBINED AT	CP25S	64.	4.13	7.	2.	1.	.04
+	2 COMBINED AT	AFR0	415.	4.23	51.	13.	9.	.29
+	HYDROGRAPH AT	E1	32.	4.07	2.	0.	0.	.01
+	ROUTED TO	RE1	32.	4.13	2.	0.	0.	.01
+	HYDROGRAPH AT	E2	28.	4.10	3.	1.	0.	.02
+	ROUTED TO	RE2	28.	4.13	3.	1.	0.	.02
+	HYDROGRAPH AT	P13	125.	4.10	11.	3.	2.	.06
+	DIVERSION TO	DB13	43.	3.87	2.	1.	0.	.06
+	HYDROGRAPH AT	DT13	125.	4.10	9.	2.	2.	.06

+	3 COMBINED AT	CP13	182.	4.10	14.	3.	2.	.09
+	ROUTED TO	R13	178.	4.17	14.	3.	2.	.09
+	HYDROGRAPH AT	P12	69.	4.17	8.	2.	2.	.04
+	DIVERSION TO	DB12	53.	4.03	2.	1.	0.	.04
+	HYDROGRAPH AT	DT12	69.	4.17	6.	2.	1.	.04
+	2 COMBINED AT	CP12	246.	4.17	20.	5.	4.	.13
+	HYDROGRAPH AT	E3	74.	4.40	12.	3.	2.	.08
+	ROUTED TO	RE3	74.	4.43	12.	3.	2.	.08
+	HYDROGRAPH AT	P10	98.	4.13	11.	3.	2.	.05
+	DIVERSION TO	DB10	46.	3.93	2.	1.	0.	.05
+	HYDROGRAPH AT	DT10	98.	4.13	9.	2.	2.	.05
+	2 COMBINED AT	CP10	142.	4.20	21.	5.	4.	.14
+	ROUTED TO	R10	141.	4.33	21.	5.	4.	.14
+	HYDROGRAPH AT	P11	39.	4.30	8.	2.	2.	.04
+	DIVERSION TO	DB11	39.	4.27	2.	1.	0.	.04
+	HYDROGRAPH AT	DT11	39.	4.33	6.	1.	1.	.04
+	2 COMBINED AT	CP11	180.	4.33	27.	7.	5.	.18
+	HYDROGRAPH AT	E4	33.	4.37	6.	1.	1.	.04
+	ROUTED TO	RE4	33.	4.40	6.	1.	1.	.04
+	HYDROGRAPH AT	P9	82.	4.10	9.	2.	2.	.05
+	DIVERSION TO	DB9	45.	3.93	2.	0.	0.	.05

+	HYDROGRAPH AT	DT9	82.	4.10	7.	2.	1.	.05
+	HYDROGRAPH AT	HV1	6.	4.30	1.	0.	0.	.01
+	3 COMBINED AT	CP9	104.	4.13	14.	4.	3.	.09
+	ROUTED TO	R9	104.	4.17	14.	4.	3.	.09
+	HYDROGRAPH AT	P8	14.	4.23	3.	1.	0.	.01
+	DIVERSION TO	DB8	12.	4.10	1.	0.	0.	.01
+	HYDROGRAPH AT	DT8	14.	4.23	2.	1.	0.	.01
+	HYDROGRAPH AT	P7	17.	4.20	3.	1.	1.	.01
+	DIVERSION TO	DB7	13.	4.07	1.	0.	0.	.01
+	HYDROGRAPH AT	DT7	17.	4.20	2.	1.	0.	.01
+	3 COMBINED AT	CP7	135.	4.17	18.	5.	3.	.12
+	ROUTED TO	R7	134.	4.20	18.	5.	3.	.12
+	HYDROGRAPH AT	P6	46.	4.50	14.	4.	3.	.07
+	DIVERSION TO	DB6	45.	4.40	4.	1.	1.	.07
+	HYDROGRAPH AT	DT6	46.	4.50	11.	3.	2.	.07
+	2 COMBINED AT	CP6	145.	4.47	29.	7.	5.	.19
+	3 COMBINED AT	HPVLY	498.	4.20	75.	19.	14.	.50
+	HYDROGRAPH AT	A11MA	207.	4.07	17.	4.	3.	.07
+	DIVERSION TO	DA11MA	182.	4.00	7.	2.	1.	.07
+	HYDROGRAPH AT	A11MAQ	207.	4.07	10.	2.	2.	.07
+	ROUTED TO	SA11MA	30.	4.47	10.	2.	2.	.07
+	ROUTED TO	RA11MA	30.	4.70	10.	2.	2.	.07

+	HYDROGRAPH AT	A11MB	494.	4.10	51.	13.	9.	.19
+	DIVERSION TO	DA11MB	142.	3.77	7.	2.	1.	.19
+	HYDROGRAPH AT	A11MBQ	494.	4.10	43.	11.	8.	.19
+	ROUTED TO	SA11MB	267.	4.33	41.	11.	8.	.19
+	HYDROGRAPH AT	A11NA	198.	4.07	16.	4.	3.	.08
+	ROUTED TO	SA11NA	32.	4.47	16.	4.	3.	.08
+	ROUTED TO	RA11NA	32.	4.70	16.	4.	3.	.08
+	3 COMBINED AT	CA11MB	308.	4.37	66.	17.	12.	.34
+	ROUTED TO	RA11MB	279.	4.60	66.	17.	12.	.34
+	HYDROGRAPH AT	A11O	116.	4.13	12.	3.	2.	.06
+	ROUTED TO	SA11O	35.	4.53	12.	3.	2.	.06
+	ROUTED TO	RA11O	35.	4.83	12.	3.	2.	.06
+	HYDROGRAPH AT	A11KB	227.	4.13	23.	6.	4.	.11
+	ROUTED TO	SA11KB	32.	4.67	21.	6.	4.	.11
+	HYDROGRAPH AT	A11KA	191.	4.07	19.	5.	3.	.08
+	ROUTED TO	SA11KA	31.	4.57	18.	5.	3.	.08
+	ROUTED TO	RA11KA	31.	4.80	18.	5.	3.	.08
+	3 COMBINED AT	CA11KB	98.	4.80	51.	14.	10.	.24
+	ROUTED TO	RA11KB	98.	5.03	51.	14.	10.	.24
+	HYDROGRAPH AT	A11G	90.	4.23	12.	3.	2.	.06
+	ROUTED TO	RA11GN	86.	4.43	12.	3.	2.	.06

+	HYDROGRAPH AT	A11KC	276.	4.13	26.	7.	5.	.13
+	ROUTED TO	SA11KC	82.	4.47	25.	7.	5.	.13
+	3 COMBINED AT	CA11KC	240.	4.50	87.	23.	17.	.44
+	ROUTED TO	RA11KC	237.	4.60	87.	23.	17.	.44
+	HYDROGRAPH AT	A11J	157.	4.37	25.	6.	5.	.11
+	ROUTED TO	SA11J	88.	4.77	25.	6.	5.	.11
+	3 COMBINED AT	CA11J	515.	4.67	170.	45.	33.	.89
+	HYDROGRAPH AT	A11L	382.	4.30	72.	18.	13.	.26
+	DIVERSION TO	DA11L	285.	4.10	15.	4.	3.	.26
+	HYDROGRAPH AT	DA11LQ	382.	4.30	57.	14.	10.	.26
+	ROUTED TO	RA11L	375.	4.50	57.	14.	10.	.26
+	HYDROGRAPH AT	A11I	298.	4.20	43.	11.	8.	.15
+	DIVERSION TO	DA11I	298.	4.20	24.	6.	4.	.15
+	HYDROGRAPH AT	DA11IQ	249.	4.37	19.	5.	3.	.15
+	3 COMBINED AT	CA11I	919.	4.63	241.	63.	45.	1.31
+	ROUTED TO	RA11I	898.	4.83	240.	63.	45.	1.31
+	HYDROGRAPH AT	A11EA	143.	4.40	24.	6.	4.	.14
+	ROUTED TO	RA11EA	141.	4.53	24.	6.	4.	.14
+	HYDROGRAPH AT	A11EB	126.	4.60	29.	7.	5.	.19
+	3 COMBINED AT	CA11EB	1040.	4.83	281.	73.	53.	1.64
+	HYDROGRAPH AT	41	126.	4.13	10.	3.	2.	.05

+	ROUTED TO	B41	96.	4.23	10.	3.	2.	.05
+	HYDROGRAPH AT	42	180.	4.13	17.	4.	3.	.08
+	ROUTED TO	B42	136.	4.23	17.	4.	3.	.08
+	2 COMBINED AT	C41	232.	4.23	27.	7.	5.	.13
+	ROUTED TO	RC41	212.	4.63	27.	7.	5.	.13
+	HYDROGRAPH AT	A11F	368.	4.40	54.	14.	10.	.33
+	2 COMBINED AT	CA11F	517.	4.53	81.	20.	15.	.46
+	2 COMBINED AT	CA11E	1279.	4.80	343.	89.	64.	2.11
+	ROUTED TO	RA11E	1270.	4.90	342.	89.	64.	2.11
+	HYDROGRAPH AT	A09U	324.	4.17	33.	8.	6.	.17
+	DIVERSION TO	A09UI	0.	.00	0.	0.	0.	.17
+	HYDROGRAPH AT	DA09U	324.	4.17	33.	8.	6.	.17
+	ROUTED TO	RA09UW	238.	4.67	33.	8.	6.	.17
+	HYDROGRAPH AT	A09T	210.	4.33	27.	7.	5.	.18
+	2 COMBINED AT	CA09T	383.	4.43	60.	15.	11.	.36
+	DIVERSION TO	A09TI	0.	.00	0.	0.	0.	.36
+	HYDROGRAPH AT	DA09T	383.	4.43	60.	15.	11.	.36
+	ROUTED TO	RA09TW	360.	4.70	60.	15.	11.	.36
+	HYDROGRAPH AT	A11A	452.	4.33	69.	17.	13.	.30
+	DIVERSION TO	DA11A	315.	4.10	16.	4.	3.	.30
+	HYDROGRAPH AT	DA11AQ	452.	4.33	54.	14.	10.	.30
+	3 COMBINED AT							

+		CX23	1591.	4.83	430.	112.	81.	2.76
+	ROUTED TO	RX23	1562.	5.03	429.	112.	81.	2.76
+	HYDROGRAPH AT	S1	124.	4.40	21.	5.	4.	.12
+	HYDROGRAPH AT	P2	111.	4.10	11.	3.	2.	.05
+	DIVERSION TO	RB2	111.	4.10	10.	2.	2.	.05
+	HYDROGRAPH AT	RT2	18.	4.57	1.	0.	0.	.05
+	3 COMBINED AT	CS1	1585.	5.03	441.	115.	83.	2.93
+	ROUTED TO	RS1	1584.	5.03	441.	115.	83.	2.93
+	HYDROGRAPH AT	S2	31.	4.07	2.	0.	0.	.01
+	HYDROGRAPH AT	S3	18.	4.03	1.	0.	0.	.01
+	3 COMBINED AT	CS2	1583.	5.03	442.	116.	83.	2.95
+	ROUTED TO	RS2	1583.	5.07	442.	116.	83.	2.95
+	HYDROGRAPH AT	P3	85.	4.17	11.	3.	2.	.05
+	DIVERSION TO	RB3	85.	4.17	11.	3.	2.	.05
+	HYDROGRAPH AT	RT3	9.	5.17	1.	0.	0.	.05
+	2 COMBINED AT	CP3	1583.	5.07	442.	116.	83.	3.01
+	HYDROGRAPH AT	P4b	45.	4.07	4.	1.	1.	.02
+	DIVERSION TO	RB4b	12.	3.80	1.	0.	0.	.02
+	HYDROGRAPH AT	RT4b	45.	4.07	3.	1.	1.	.02
+	HYDROGRAPH AT	S4	16.	4.23	2.	1.	0.	.01
+	HYDROGRAPH AT	P1	42.	4.20	5.	1.	1.	.03
+	DIVERSION TO	DB1	33.	4.07	1.	0.	0.	.03

+	HYDROGRAPH AT	DT1	42.	4.20	4.	1.	1.	.03
+	2 COMBINED AT	CP1	57.	4.20	6.	2.	1.	.04
+	HYDROGRAPH AT	HV2	7.	5.20	5.	1.	1.	.03
+	ROUTED TO	RHV2	7.	5.27	5.	1.	1.	.03
+	DIVERSION TO	DBHV2	7.	5.27	1.	0.	0.	.03
+	HYDROGRAPH AT	DTHV2	7.	5.50	4.	1.	1.	.03
+	HYDROGRAPH AT	P4a	51.	4.20	8.	2.	1.	.04
+	DIVERSION TO	DB4a	30.	4.00	1.	0.	0.	.04
+	HYDROGRAPH AT	DT4a	51.	4.20	6.	2.	1.	.04
+	5 COMBINED AT	SOUTH	1588.	5.07	454.	119.	86.	3.14
+	HYDROGRAPH AT	N11O	78.	4.30	8.	2.	1.	.05
+	DIVERSION TO	N11OI	70.	4.30	7.	2.	1.	.05
+	HYDROGRAPH AT	DN11O	8.	4.30	1.	0.	0.	.05
+	ROUTED TO	RN11OW	5.	5.20	1.	0.	0.	.05
+	HYDROGRAPH AT	DRA09T	0.	.00	0.	0.	0.	.36
+	ROUTED TO	RA09TS	0.	.00	0.	0.	0.	.36
+	HYDROGRAPH AT	A09R	104.	4.57	20.	5.	4.	.14
+	3 COMBINED AT	CA09R	104.	4.57	21.	5.	4.	.20
+	DIVERSION TO	A09RI	104.	4.57	21.	5.	4.	.20
+	HYDROGRAPH AT	DA09R	1.	5.20	0.	0.	0.	.20
+	ROUTED TO	RA09RW	1.	7.07	0.	0.	0.	.20

+	HYDROGRAPH AT	A09S	116.	4.20	21.	5.	4.	.07
+	DIVERSION TO	DA09S	116.	4.20	14.	4.	3.	.07
+	HYDROGRAPH AT	DA09SQ	69.	4.60	7.	2.	1.	.07
+	2 COMBINED AT	CA09S	69.	4.60	7.	2.	1.	.27
+	ROUTED TO	RA09SW	61.	4.77	7.	2.	1.	.27
+	HYDROGRAPH AT	A09QA	112.	4.30	13.	3.	2.	.09
+	2 COMBINED AT	CA09QA	111.	4.30	20.	5.	4.	.36
+	DIVERSION TO	A09QAI	111.	4.30	19.	5.	4.	.36
+	HYDROGRAPH AT	DA09QA	1.	5.97	0.	0.	0.	.36
+	ROUTED TO	RA09QW	1.	6.10	0.	0.	0.	.36
+	HYDROGRAPH AT	A99YA	157.	4.23	16.	4.	3.	.10
+	2 COMBINED AT	CA99YA	157.	4.23	17.	4.	3.	.46
+	ROUTED TO	RA99YA	152.	4.30	17.	4.	3.	.46
+	HYDROGRAPH AT	A99YB	205.	4.30	23.	6.	4.	.17
+	3 COMBINED AT	CA99YB	1585.	5.07	473.	124.	89.	3.77
+	3 COMBINED AT	AFR1	1744.	5.03	558.	146.	105.	4.56
+	HYDROGRAPH AT	BA09UI	0.	.00	0.	0.	0.	.17
+	ROUTED TO	RA09US	0.	.00	0.	0.	0.	.17
+	HYDROGRAPH AT	N11NB	159.	4.37	24.	6.	4.	.14
+	2 COMBINED AT	CN11NB	159.	4.37	24.	6.	4.	.14
+	ROUTED TO	RN11NW	148.	4.77	24.	6.	4.	.14
+	HYDROGRAPH AT							

+		BN11OI	70.	4.30	7.	2.	1.	.05
+	ROUTED TO	RN11OS	57.	4.73	7.	2.	1.	.05
+	HYDROGRAPH AT	N11M	137.	4.27	14.	3.	2.	.10
+	3 COMBINED AT	CN11M	235.	4.73	45.	11.	8.	.24
+	DIVERSION TO	N11MI	59.	4.73	11.	3.	2.	.24
+	HYDROGRAPH AT	DN11M	176.	4.73	34.	8.	6.	.24
+	ROUTED TO	RN11MS	164.	4.97	34.	8.	6.	.24
+	HYDROGRAPH AT	N11J	214.	4.37	41.	10.	7.	.24
+	DIVERSION TO	LN11JD	80.	4.03	4.	1.	1.	.24
+	HYDROGRAPH AT	LN11J	214.	4.37	38.	9.	7.	.24
+	2 COMBINED AT	CN11J	299.	4.50	71.	18.	13.	.48
+	DIVERSION TO	N11JI	299.	4.50	71.	18.	13.	.48
+	HYDROGRAPH AT	DN11J	0.	.00	0.	0.	0.	.48
+	ROUTED TO	RN11JW	0.	.00	0.	0.	0.	.48
+	HYDROGRAPH AT	DRN11M	59.	4.73	11.	3.	2.	.24
+	ROUTED TO	RN11MW	52.	5.27	11.	3.	2.	.24
+	2 COMBINED AT	CX4	52.	5.27	11.	3.	2.	.48
+	ROUTED TO	RX4	50.	5.50	11.	3.	2.	.48
+	HYDROGRAPH AT	A09O	119.	4.70	31.	8.	6.	.19
+	ROUTED TO	SA09O	45.	5.73	28.	8.	6.	.19
+	HYDROGRAPH AT	BA09RI	104.	4.57	21.	5.	4.	.20
+	ROUTED TO	RA09RS	100.	4.90	21.	5.	4.	.20

+	3 COMBINED AT	CA09O	152.	5.30	57.	15.	11.	.68
+	DIVERSION TO	A09OI	152.	5.30	57.	15.	11.	.68
+	HYDROGRAPH AT	DA09O	0.	.00	0.	0.	0.	.68
+	ROUTED TO	RA09OW	0.	.00	0.	0.	0.	.68
+	HYDROGRAPH AT	A09P	184.	4.47	31.	8.	6.	.19
+	ROUTED TO	SA09P	54.	5.23	30.	8.	6.	.19
+	2 COMBINED AT	CA09P	52.	5.23	28.	7.	5.	.87
+	ROUTED TO	RA09P	52.	5.27	28.	7.	5.	.87
+	HYDROGRAPH AT	BA09QA	111.	4.30	19.	5.	4.	.36
+	ROUTED TO	RA09QB	104.	4.53	19.	5.	4.	.36
+	HYDROGRAPH AT	A09QB	163.	4.27	23.	6.	4.	.14
+	3 COMBINED AT	CA09Q	234.	4.50	66.	17.	12.	1.01
+	DIVERSION TO	A09QI	234.	4.50	66.	17.	12.	1.01
+	HYDROGRAPH AT	DA09Q	0.	.00	0.	0.	0.	1.01
+	ROUTED TO	RA09QW	0.	.00	0.	0.	0.	1.01
+	HYDROGRAPH AT	A10A	266.	4.30	32.	8.	6.	.19
+	2 COMBINED AT	CA10A	219.	4.30	29.	7.	5.	1.20
+	ROUTED TO	RA10A	217.	4.37	29.	7.	5.	1.20
+	HYDROGRAPH AT	A99X	507.	4.20	57.	14.	10.	.26
+	2 COMBINED AT	CA99X	562.	4.23	82.	21.	15.	1.46
+	2 COMBINED AT	AFR2	1760.	5.03	604.	159.	115.	6.02

+	HYDROGRAPH AT	BA09OI	152.	5.30	57.	15.	11.	.68
+	ROUTED TO	RA09OS	150.	5.57	57.	15.	11.	.68
+	HYDROGRAPH AT	A09K	382.	4.57	60.	15.	11.	.41
+	DIVERSION TO	A09KI	279.	4.57	44.	11.	8.	.41
+	HYDROGRAPH AT	DA09K	103.	4.57	16.	4.	3.	.41
+	2 COMBINED AT	CX7	183.	5.40	75.	20.	14.	.41
+	ROUTED TO	RX7S	183.	5.53	74.	20.	14.	.41
+	HYDROGRAPH AT	N11NA	60.	4.07	4.	1.	1.	.02
+	ROUTED TO	RN11NA	46.	4.43	4.	1.	1.	.02
+	HYDROGRAPH AT	N11NC	250.	4.23	27.	7.	5.	.17
+	2 COMBINED AT	CN11NC	265.	4.27	31.	8.	6.	.19
+	DIVERSION TO	N11NP	149.	4.03	24.	6.	4.	.19
+	HYDROGRAPH AT	DN11NC	116.	4.27	7.	2.	1.	.19
+	ROUTED TO	RN11NC	111.	4.37	7.	2.	1.	.19
+	HYDROGRAPH AT	N11ND	62.	4.23	10.	2.	2.	.05
+	HYDROGRAPH AT	N11K	152.	4.33	28.	7.	5.	.17
+	3 COMBINED AT	CN11K	318.	4.37	44.	11.	8.	.41
+	DIVERSION TO	N11KP	55.	3.97	19.	5.	4.	.41
+	HYDROGRAPH AT	DN11KS	263.	4.37	24.	6.	4.	.41
+	ROUTED TO	RN11K	246.	4.63	24.	6.	4.	.41
+	DIVERSION TO	X5I	122.	4.63	7.	2.	1.	.41
	HYDROGRAPH AT							

+		DX5	124.	4.63	17.	4.	3.	.41
+	ROUTED TO	RX5W	118.	4.93	17.	4.	3.	.41
+	HYDROGRAPH AT	N11H	410.	4.57	61.	15.	11.	.42
+	2 COMBINED AT	CN11H	364.	4.57	72.	18.	13.	.83
+	ROUTED TO	RN11H	351.	4.80	72.	18.	13.	.83
+	HYDROGRAPH AT	BN11JI	299.	4.50	71.	18.	13.	.48
+	ROUTED TO	RN11JS	289.	4.93	71.	18.	13.	.48
+	HYDROGRAPH AT	N11G	526.	4.57	73.	18.	13.	.52
+	3 COMBINED AT	CN11G	855.	4.80	191.	48.	34.	1.36
+	ROUTED TO	RN11G	844.	4.90	191.	48.	34.	1.36
+	HYDROGRAPH AT	N11DA	295.	4.30	54.	14.	10.	.26
+	DIVERSION TO	LDAOUT	277.	4.23	16.	4.	3.	.26
+	HYDROGRAPH AT	LN11DA	295.	4.30	38.	10.	7.	.26
+	ROUTED TO	SN11DA	121.	5.00	38.	10.	7.	.26
+	DIVERSION TO	D11DAS	21.	5.00	8.	2.	1.	.26
+	HYDROGRAPH AT	N11DAW	100.	5.00	30.	8.	5.	.26
+	ROUTED TO	RN11DA	100.	5.20	30.	8.	5.	.26
+	HYDROGRAPH AT	N11FB	114.	4.33	25.	6.	5.	.12
+	DIVERSION TO	LN1FBD	114.	4.33	21.	5.	4.	.12
+	HYDROGRAPH AT	LN11FB	29.	5.57	4.	1.	1.	.12
+	2 COMBINED AT	CN11FB	124.	5.57	34.	8.	6.	.38
+	2 COMBINED AT	C98RGL	881.	4.93	210.	53.	38.	1.73

+	ROUTED TO	RN11FB	875.	4.97	210.	53.	38.	1.73
+	HYDROGRAPH AT	DRA09K	279.	4.57	44.	11.	8.	.41
+	ROUTED TO	RA09KS	271.	4.73	44.	11.	8.	.41
+	HYDROGRAPH AT	N11FA	194.	4.30	38.	10.	7.	.18
+	DIVERSION TO	LN1FAD	194.	4.30	16.	4.	3.	.18
+	HYDROGRAPH AT	LN11FA	185.	4.43	23.	6.	4.	.18
+	HYDROGRAPH AT	A09GA	200.	4.07	22.	6.	4.	.07
+	DIVERSION TO	L09GAD	198.	4.07	12.	3.	2.	.07
+	HYDROGRAPH AT	LA09GA	193.	4.10	10.	3.	2.	.07
+	4 COMBINED AT	CN11FA	1124.	4.93	269.	67.	49.	1.99
+	ROUTED TO	RN11FA	1120.	4.97	269.	67.	49.	1.99
+	HYDROGRAPH AT	A09GB	27.	4.67	10.	3.	2.	.05
+	DIVERSION TO	L09GBD	27.	4.67	6.	1.	1.	.05
+	HYDROGRAPH AT	LA09GB	20.	5.40	5.	1.	1.	.05
+	2 COMBINED AT	CA09G	1116.	4.97	272.	68.	49.	2.04
+	DIVERSION TO	A09GI	150.	4.73	48.	12.	9.	2.04
+	HYDROGRAPH AT	DA09G	964.	4.97	224.	56.	40.	2.04
+	ROUTED TO	RA09GW	956.	5.03	224.	56.	40.	2.04
+	2 COMBINED AT	CX8	990.	5.07	274.	70.	50.	2.45
+	ROUTED TO	RX8W	981.	5.17	273.	70.	50.	2.45
+	HYDROGRAPH AT	A09H	199.	4.43	50.	13.	9.	.24

+	DIVERSION TO	LA09HD	199.	4.43	25.	6.	5.	.24
+	HYDROGRAPH AT	LA09H	166.	4.80	25.	6.	5.	.24
+	2 COMBINED AT	CA09H1	1058.	5.17	287.	73.	53.	2.69
+	HYDROGRAPH AT	A09J	166.	4.33	34.	9.	6.	.17
+	DIVERSION TO	LA09JD	166.	4.33	16.	4.	3.	.17
+	HYDROGRAPH AT	LA09J	151.	4.53	19.	5.	3.	.17
+	DIVERSION TO	A09JI	0.	.00	0.	0.	0.	.17
+	HYDROGRAPH AT	DA09J	151.	4.53	19.	5.	3.	.17
+	ROUTED TO	RA09JS	130.	4.87	19.	5.	3.	.17
+	2 COMBINED AT	CA09H	1122.	5.13	298.	76.	55.	2.85
+	ROUTED TO	RA09H	1120.	5.17	298.	76.	55.	2.85
+	HYDROGRAPH AT	BA09QI	234.	4.50	66.	17.	12.	1.01
+	ROUTED TO	RA09QS	230.	4.63	66.	17.	12.	1.01
+	HYDROGRAPH AT	A09M	251.	4.47	47.	12.	9.	.25
+	DIVERSION TO	LA09MD	230.	4.33	14.	3.	3.	.25
+	HYDROGRAPH AT	LA09M	251.	4.47	34.	8.	6.	.25
+	2 COMBINED AT	CA09M	500.	4.57	106.	27.	19.	.25
+	ROUTED TO	RA09M	497.	4.60	106.	27.	19.	.25
+	HYDROGRAPH AT	A09N	138.	4.27	24.	6.	4.	.11
+	2 COMBINED AT	CA09N	598.	4.57	128.	33.	24.	.36
+	ROUTED TO	LA09N	415.	4.93	123.	33.	24.	.36
	ROUTED TO							

+		RA09N	414.	5.03	123.	33.	24.	.36
+	HYDROGRAPH AT	DRA09J	0.	.00	0.	0.	0.	.17
+	ROUTED TO	RA09JW	0.	.00	0.	0.	0.	.17
+	HYDROGRAPH AT	A09L	142.	4.33	29.	7.	5.	.14
+	3 COMBINED AT	CA09L	480.	5.03	149.	40.	29.	.50
+	ROUTED TO	LA09L	478.	5.07	148.	40.	29.	.50
+	ROUTED TO	RA09LS	475.	5.10	148.	40.	29.	.50
+	HYDROGRAPH AT	A09IH	103.	4.27	19.	5.	3.	.09
+	2 COMBINED AT	CA09IH	490.	5.10	162.	44.	32.	.59
+	ROUTED TO	LA09IH	468.	5.20	159.	44.	32.	.59
+	HYDROGRAPH AT	A09I	134.	4.37	30.	8.	5.	.13
+	DIVERSION TO	LA09ID	134.	4.37	11.	3.	2.	.13
+	HYDROGRAPH AT	LA09I	131.	4.47	19.	5.	3.	.13
+	3 COMBINED AT	CX10	1301.	5.23	429.	113.	81.	3.57
+	ROUTED TO	RX10	1292.	5.37	428.	113.	81.	3.57
+	HYDROGRAPH AT	A99V	276.	4.40	35.	9.	6.	.21
+	2 COMBINED AT	CA99V	1307.	5.37	445.	119.	86.	3.77
+	HYDROGRAPH AT	A10	347.	4.23	33.	8.	6.	.21
+	HYDROGRAPH AT	A99W	237.	4.57	46.	12.	8.	.22
+	DIVERSION TO	LA99WD	211.	4.37	14.	3.	2.	.22
+	HYDROGRAPH AT	LA99W	237.	4.57	33.	8.	6.	.22
+	4 COMBINED AT	AFR3	2411.	5.23	972.	259.	187.	10.22

+	HYDROGRAPH AT	DRA09G	150.	4.73	48.	12.	9.	2.04
+	ROUTED TO	RA09GS	150.	5.60	48.	12.	9.	2.04
+	HYDROGRAPH AT	A09F	426.	4.53	84.	21.	15.	.37
+	DIVERSION TO	LA09FD	392.	4.37	27.	7.	5.	.37
+	HYDROGRAPH AT	LA09F	426.	4.53	57.	14.	10.	.37
+	2 COMBINED AT	CA09F	426.	4.53	109.	27.	20.	.37
+	DIVERSION TO	A09FI	65.	4.53	12.	3.	2.	.37
+	HYDROGRAPH AT	DA09F	360.	4.53	97.	24.	18.	.37
+	ROUTED TO	RA09FW	363.	4.63	97.	24.	18.	.37
+	HYDROGRAPH AT	A09E	148.	4.33	33.	8.	6.	.15
+	DIVERSION TO	LA09ED	148.	4.33	17.	4.	3.	.15
+	HYDROGRAPH AT	LA09E	123.	4.67	17.	4.	3.	.15
+	2 COMBINED AT	CA09E	478.	4.67	113.	29.	21.	.51
+	ROUTED TO	RA09E	443.	4.83	113.	29.	21.	.51
+	HYDROGRAPH AT	A09D	577.	4.13	62.	15.	11.	.25
+	DIVERSION TO	LA09DD	577.	4.13	31.	8.	6.	.25
+	HYDROGRAPH AT	LA09D	553.	4.20	31.	8.	6.	.25
+	2 COMBINED AT	CA09C*	458.	4.23	139.	35.	25.	.77
+	ROUTED TO	RA09C*	452.	4.87	139.	35.	25.	.77
+	HYDROGRAPH AT	A09C	78.	4.40	11.	3.	2.	.07
+	2 COMBINED AT	CA09C	480.	4.27	148.	38.	27.	.84

+	ROUTED TO	RA09C	469.	4.97	148.	38.	27.	.84
+	HYDROGRAPH AT	A09B	115.	4.07	12.	3.	2.	.04
+	ROUTED TO	RA09B	91.	4.50	11.	3.	2.	.04
+	HYDROGRAPH AT	A09A	72.	4.57	18.	4.	3.	.08
+	3 COMBINED AT	CA09A	556.	4.40	172.	44.	32.	.96
+	DIVERSION TO	A09AI	416.	4.40	86.	21.	15.	.96
+	HYDROGRAPH AT	DA09AO	140.	4.40	87.	23.	16.	.96
+	ROUTED TO	RA09AW	140.	6.20	85.	23.	16.	.96
+	HYDROGRAPH AT	A99T	83.	4.03	6.	1.	1.	.03
+	DIVERSION TO	LA99TD	16.	3.73	1.	0.	0.	.03
+	HYDROGRAPH AT	LA99T	83.	4.03	5.	1.	1.	.03
+	ROUTED TO	RA99T	70.	4.17	5.	1.	1.	.03
+	HYDROGRAPH AT	A09	249.	4.30	30.	8.	5.	.18
+	3 COMBINED AT	CA09	241.	4.27	109.	30.	22.	1.17
+	HYDROGRAPH AT	A99U	82.	4.30	13.	3.	2.	.07
+	3 COMBINED AT	AFR4	2396.	5.27	1057.	284.	204.	11.46
+	HYDROGRAPH AT	A99S	47.	4.63	10.	2.	2.	.08
+	HYDROGRAPH AT	A08A	70.	4.80	22.	6.	4.	.14
+	ROUTED TO	RA08A	69.	4.97	22.	6.	4.	.14
+	HYDROGRAPH AT	A99R	57.	4.20	6.	1.	1.	.04
+	ROUTED TO	RA99R	51.	4.47	6.	1.	1.	.04
+	HYDROGRAPH AT							

+	A08	185.	4.07	11.	3.	2.	.08
+	4 COMBINED AT CA08	195.	4.07	47.	12.	9.	.33
+	2 COMBINED AT AFR5	2429.	5.27	1076.	289.	208.	11.79
+	HYDROGRAPH AT A07G.1	425.	4.20	60.	15.	11.	.23
+	DIVERSION TO LA07GD	425.	4.17	26.	7.	5.	.23
+	HYDROGRAPH AT LA07G	410.	4.23	34.	9.	6.	.23
+	ROUTED TO RA07G	348.	4.47	34.	9.	6.	.23
+	HYDROGRAPH AT A07F.1	96.	4.63	28.	7.	5.	.13
+	HYDROGRAPH AT A07F.2	61.	4.43	14.	3.	2.	.07
+	HYDROGRAPH AT A07E.8	16.	4.03	2.	0.	0.	.01
+	3 COMBINED AT CA07F	156.	4.53	43.	11.	8.	.21
+	ROUTED TO RA07F	155.	4.57	43.	11.	8.	.21
+	HYDROGRAPH AT A07E.7	19.	4.03	2.	0.	0.	.01
+	2 COMBINED AT CA07E7	156.	4.53	45.	11.	8.	.22
+	ROUTED TO RA07E7	156.	4.60	45.	11.	8.	.22
+	HYDROGRAPH AT A07G.2	23.	4.30	6.	1.	1.	.03
+	ROUTED TO RA07G2	23.	4.40	6.	1.	1.	.03
+	HYDROGRAPH AT A07E.3	145.	4.10	15.	4.	3.	.06
+	2 COMBINED AT CA07E3	155.	4.10	20.	5.	4.	.09
+	DIVERSION TO DI7E.3	2.	1.17	0.	0.	0.	.09
+	HYDROGRAPH AT DI7E.3	155.	4.10	20.	5.	4.	.09
+	ROUTED TO RA07E3	150.	4.20	20.	5.	4.	.09

+	HYDROGRAPH AT A07E.2	46.	4.13	6.	1.	1.	.03
+	DIVERSION TO DI7E.2	0.	1.40	0.	0.	0.	.03
+	HYDROGRAPH AT DI7E.2	46.	4.13	6.	1.	1.	.03
+	ROUTED TO RA07E2	42.	4.40	6.	1.	1.	.03
+	HYDROGRAPH AT A07E.1	64.	4.17	11.	3.	2.	.04
+	DIVERSION TO DI7E.1	45.	4.00	3.	1.	1.	.04
+	HYDROGRAPH AT DI7E.1	64.	4.17	8.	2.	1.	.04
+	ROUTED TO RA07E1	62.	4.30	8.	2.	1.	.04
+	HYDROGRAPH AT A07E.6	66.	4.03	6.	2.	1.	.02
+	DIVERSION TO DI7E.6	1.	1.53	0.	0.	0.	.02
+	HYDROGRAPH AT DI7E.6	66.	4.03	6.	1.	1.	.02
+	ROUTED TO RA07E6	63.	4.10	6.	1.	1.	.02
+	HYDROGRAPH AT A07E.5	81.	4.10	10.	3.	2.	.04
+	2 COMBINED AT CA07E5	144.	4.10	16.	4.	3.	.05
+	ROUTED TO RA07E5	140.	4.13	16.	4.	3.	.05
+	HYDROGRAPH AT A07E.4	122.	4.13	16.	4.	3.	.06
+	5 COMBINED AT CA07E4	457.	4.23	66.	17.	12.	.26
+	DIVERSION TO DI7E.4	6.	2.40	1.	0.	0.	.26
+	HYDROGRAPH AT DI7E.4	457.	4.23	65.	16.	12.	.26
+	3 COMBINED AT CA07E	757.	4.47	141.	36.	26.	.72
+	DIVERSION TO DIA07E	68.	3.70	6.	1.	1.	.72

+	HYDROGRAPH AT	DIA07E	757.	4.47	137.	34.	25.	.72
+	ROUTED TO	RA07E	738.	4.53	137.	34.	25.	.72
+	HYDROGRAPH AT	A07C	187.	4.43	29.	7.	5.	.17
+	2 COMBINED AT	CA07C	874.	4.53	162.	41.	29.	.89
+	ROUTED TO	RA07C	866.	4.57	162.	41.	29.	.89
+	HYDROGRAPH AT	A07H	217.	4.13	23.	6.	4.	.09
+	ROUTED TO	RA07H	202.	4.27	23.	6.	4.	.09
+	HYDROGRAPH AT	DA09AI	416.	4.40	86.	21.	15.	.96
+	ROUTED TO	RA09AI	378.	5.17	86.	21.	15.	.96
+	HYDROGRAPH AT	A08B	122.	4.37	20.	5.	4.	.10
+	2 COMBINED AT	CA08B	560.	4.60	115.	29.	21.	.10
+	ROUTED TO	RA08B	480.	4.90	115.	29.	21.	.10
+	HYDROGRAPH AT	A07D	117.	5.03	39.	10.	7.	.23
+	4 COMBINED AT	CA07D	1045.	4.57	312.	79.	57.	1.31
+	ROUTED TO	RA07D	1039.	4.67	312.	79.	57.	1.31
+	HYDROGRAPH AT	A07B.1	129.	4.13	16.	4.	3.	.08
+	DIVERSION TO	DA07B1	103.	4.03	5.	1.	1.	.08
+	HYDROGRAPH AT	DA07B1	129.	4.13	11.	3.	2.	.08
+	2 COMBINED AT	CA07B1	1069.	4.67	320.	81.	58.	1.39
+	ROUTED TO	RA07B1	1064.	4.73	320.	81.	58.	1.39
+	HYDROGRAPH AT	A07B.2	272.	4.13	30.	7.	5.	.14
+	HYDROGRAPH AT	A07B.3	315.	4.17	40.	10.	7.	.19
+	ROUTED TO	RA07B3	281.	4.33	40.	10.	7.	.19
+	2 COMBINED AT	CA07B2	486.	4.23	69.	17.	13.	.32
+	ROUTED TO	RA07B2	481.	4.30	69.	17.	13.	.32
+	2 COMBINED AT	CA07B3	1246.	4.70	374.	95.	69.	1.71
+	ROUTED TO	RA07B2	1242.	4.77	374.	95.	69.	1.71
+	HYDROGRAPH AT	A07B.4	120.	4.10	12.	3.	2.	.05
+	DIVERSION TO	DA07B4	86.	3.97	4.	1.	1.	.05
+	HYDROGRAPH AT	DA07B4	120.	4.10	8.	2.	1.	.05
+	2 COMBINED AT	CA07B4	1252.	4.77	380.	97.	70.	1.76
+	ROUTED TO	RA07B4	1250.	4.80	380.	97.	70.	1.76
+	HYDROGRAPH AT	A07B.5	94.	4.07	9.	2.	2.	.04
+	2 COMBINED AT	CA07B5	1256.	4.80	386.	99.	71.	1.81
+	HYDROGRAPH AT	S30D	209.	4.23	32.	8.	6.	.13
+	ROUTED TO	RS30D	198.	4.53	32.	8.	6.	.13
+	HYDROGRAPH AT	S30C	496.	4.40	116.	29.	21.	.45
+	HYDROGRAPH AT	DA09FI	65.	4.53	12.	3.	2.	.37
+	ROUTED TO	RA09FI	49.	5.13	12.	3.	2.	.37
+	3 COMBINED AT	XX1	671.	4.50	158.	40.	29.	.58
+	HYDROGRAPH AT	S30B	311.	4.73	86.	22.	16.	.40
+	2 COMBINED AT	CS30B	892.	4.57	237.	60.	43.	.98
+	DIVERSION TO	DS30BI	342.	4.57	36.	9.	7.	.98

+	HYDROGRAPH AT	DS30BO	550.	4.47	200.	51.	37.	.98
+	ROUTED TO	RS30BW	550.	4.90	200.	51.	37.	.98
+	HYDROGRAPH AT	S30A	524.	4.43	120.	30.	22.	.53
+	2 COMBINED AT	CS30A	995.	4.60	313.	80.	58.	1.51
+	DIVERSION TO	DS30AI	445.	4.60	68.	17.	12.	1.51
+	HYDROGRAPH AT	DS30AO	550.	4.37	245.	63.	45.	1.51
+	ROUTED TO	RS30AW	550.	4.67	245.	63.	45.	1.51
+	HYDROGRAPH AT	S30	418.	4.23	65.	16.	12.	.32
+	2 COMBINED AT	CS30	839.	4.40	302.	78.	56.	1.84
+	ROUTED TO	RS30	838.	4.43	302.	78.	56.	1.84
+	HYDROGRAPH AT	A07B.6	196.	4.20	33.	8.	6.	.15
+	DIVERSION TO	DA07B6	152.	4.07	7.	2.	1.	.15
+	HYDROGRAPH AT	DA07B6	196.	4.20	26.	6.	5.	.15
+	2 COMBINED AT	CS30	971.	4.40	324.	83.	60.	1.99
+	2 COMBINED AT	CA07B6	1951.	4.53	671.	173.	125.	3.80
+	ROUTED TO	RA07B	1948.	4.57	671.	173.	125.	3.80
+	HYDROGRAPH AT	A06A	541.	4.13	54.	14.	10.	.28
+	2 COMBINED AT	CA06A	2085.	4.53	710.	183.	132.	4.07
+	ROUTED TO	RA06A	2083.	4.57	709.	183.	132.	4.07
+	HYDROGRAPH AT	A07A	103.	4.30	21.	5.	4.	.12
+	ROUTED TO	RA07A	103.	4.37	21.	5.	4.	.12

+	HYDROGRAPH AT	A07	319.	4.03	15.	4.	3.	.12
+	2 COMBINED AT	CA07	349.	4.03	36.	9.	7.	.24
+	ROUTED TO	RA07	260.	4.20	36.	9.	7.	.24
+	HYDROGRAPH AT	A06	605.	4.17	34.	9.	6.	.28
+	2 COMBINED AT	CA06	846.	4.20	70.	17.	13.	.52
+	ROUTED TO	RA06	663.	4.40	70.	17.	13.	.52
+	HYDROGRAPH AT	A99Q	345.	4.00	15.	4.	3.	.12
+	HYDROGRAPH AT	A99P	959.	4.17	123.	31.	22.	.57
+	4 COMBINED AT	CA99Q	2694.	4.53	842.	217.	157.	5.29
+ 1	2 COMBINED AT	AFR6	4120.	4.63	1735.	463.	334.	17.08

SUMMARY OF KINEMATIC WAVE - MUSKINGUM-CUNGE ROUTING

(FLOW IS DIRECT RUNOFF WITHOUT BASE FLOW)

ISTAQ	ELEMENT	DT	PEAK	TIME TO PEAK	VOLUME	INTERPOLATED TO COMPUTATION INTERVAL DT	PEAK	TIME TO PEAK	VOLUME
		(MIN)	(CFS)	(MIN)	(IN)	(MIN)	(CFS)	(MIN)	(IN)
FOR STORM = 1 STORM AREA (SQ MI) = .01									
RCBA	MANE	2.00	16.20	252.00	1.88	2.00	16.20	252.00	1.88

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7029E+00 EXCESS= .0000E+00 OUTFLOW= .7028E+00 BASIN STORAGE= .6822E-03 PERCENT ERROR= -.1

FOR STORM = 2 STORM AREA (SQ MI) = .50

RCBA	MANE	2.00	16.06	252.00	1.87	2.00	16.06	252.00	1.87

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6964E+00 EXCESS= .0000E+00 OUTFLOW= .6964E+00 BASIN STORAGE= .6790E-03 PERCENT ERROR= -.1

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

RCBA	MANE	2.00	9.23	252.00	1.65	2.00	9.23	252.00	1.65

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6177E+00 EXCESS= .0000E+00 OUTFLOW= .6177E+00 BASIN STORAGE= .6721E-03 PERCENT ERROR= -.1

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

RCBA	MANE	2.00	6.93	254.00	1.38	2.00	6.93	254.00	1.38

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5170E+00 EXCESS= .0000E+00 OUTFLOW= .5169E+00 BASIN STORAGE= .6849E-03 PERCENT ERROR= -.1

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

RCBA	MANE	2.00	4.43	254.00	.98	2.00	4.43	254.00	.98

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3666E+00 EXCESS= .0000E+00 OUTFLOW= .3665E+00 BASIN STORAGE= .7026E-03 PERCENT ERROR= -.2

FOR STORM = 1 STORM AREA (SQ MI) = .01

RCBB	MANE	2.00	40.33	246.00	1.67	2.00	40.33	246.00	1.67

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1511E+01 EXCESS= .0000E+00 OUTFLOW= .1511E+01 BASIN STORAGE= .4107E-03 PERCENT ERROR=

.0

FOR STORM = 2 STORM AREA (SQ MI) = .50

RCBB	MANE	2.00	39.98	246.00	1.65	2.00	39.98	246.00	1.65

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1495E+01 EXCESS= .0000E+00 OUTFLOW= .1496E+01 BASIN STORAGE= .4087E-03 PERCENT ERROR= .0

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

RCBB	MANE	2.00	20.79	248.00	1.37	2.00	20.79	248.00	1.37

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1240E+01 EXCESS= .0000E+00 OUTFLOW= .1240E+01 BASIN STORAGE= .4385E-03 PERCENT ERROR= .0

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

RCBB	MANE	2.00	14.74	248.00	1.08	2.00	14.74	248.00	1.08

CONTINUITY SUMMARY (AC-FT) - INFLOW= .9835E+00 EXCESS= .0000E+00 OUTFLOW= .9836E+00 BASIN STORAGE= .4458E-03 PERCENT ERROR= -.1

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

RCBB	MANE	2.00	8.21	248.00	.70	2.00	8.21	248.00	.70

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6322E+00 EXCESS= .0000E+00 OUTFLOW= .6323E+00 BASIN STORAGE= .4268E-03 PERCENT ERROR= -.1

FOR STORM = 1 STORM AREA (SQ MI) = .01

R28a	MANE	2.00	93.47	258.00	1.69	2.00	93.47	258.00	1.69

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4661E+01 EXCESS= .0000E+00 OUTFLOW= .4606E+01 BASIN STORAGE= .2152E-02 PERCENT ERROR= 1.1

FOR STORM = 2 STORM AREA (SQ MI) = .50

R28a	MANE	2.00	92.51	258.00	1.68	2.00	92.51	258.00	1.68

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4611E+01 EXCESS= .0000E+00 OUTFLOW= .4556E+01 BASIN STORAGE= .2141E-02 PERCENT ERROR= 1.1

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

R28a	MANE	2.00	61.51	262.00	1.52	2.00	61.51	262.00	1.52

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4171E+01 EXCESS= .0000E+00 OUTFLOW= .4140E+01 BASIN STORAGE= .2113E-02 PERCENT ERROR= .7

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

R28a	MANE	2.00	46.45	264.00	1.28	2.00	46.45	264.00	1.28

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3518E+01 EXCESS= .0000E+00 OUTFLOW= .3492E+01 BASIN STORAGE= .2118E-02 PERCENT ERROR= .7

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

R28a	MANE	2.00	30.11	270.00	.90	2.00	30.11	270.00	.90

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2479E+01 EXCESS= .0000E+00 OUTFLOW= .2462E+01 BASIN STORAGE= .2175E-02 PERCENT ERROR= .6

FOR STORM = 1 STORM AREA (SQ MI) = .01

RCBL	MANE	2.00	261.85	258.00	1.87	2.00	261.85	258.00	1.87

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1649E+02 EXCESS= .0000E+00 OUTFLOW= .1650E+02 BASIN STORAGE= .7427E-04 PERCENT ERROR= .0

FOR STORM = 2 STORM AREA (SQ MI) = .50

RCBL	MANE	2.00	259.55	258.00	1.86	2.00	259.55	258.00	1.86

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1633E+02 EXCESS= .0000E+00 OUTFLOW= .1634E+02 BASIN STORAGE= .7378E-04 PERCENT ERROR= .0

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

RCBL	MANE	2.00	186.09	260.00	1.70	2.00	186.09	260.00	1.70

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1495E+02 EXCESS= .0000E+00 OUTFLOW= .1495E+02 BASIN STORAGE= .7962E-04 PERCENT ERROR= .0

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

RCBL	MANE	2.00	141.36	262.00	1.45	2.00	141.36	262.00	1.45

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1280E+02 EXCESS= .0000E+00 OUTFLOW= .1280E+02 BASIN STORAGE= .7387E-04 PERCENT ERROR= .0

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

RCBL	MANE	2.00	91.72	270.00	1.06	2.00	91.72	270.00	1.06

CONTINUITY SUMMARY (AC-FT) - INFLOW= .9365E+01 EXCESS= .0000E+00 OUTFLOW= .9364E+01 BASIN STORAGE= .7616E-04 PERCENT ERROR= .0

FOR STORM = 1 STORM AREA (SQ MI) = .01

RCBK	MANE	1.21	345.61	254.80	1.79	2.00	344.17	254.00	1.79

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2075E+02 EXCESS= .0000E+00 OUTFLOW= .2075E+02 BASIN STORAGE= .3977E-03 PERCENT ERROR= .0

FOR STORM = 2 STORM AREA (SQ MI) = .50

RCBK	MANE	1.21	341.62	255.52	1.77	2.00	340.43	256.00	1.77

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2053E+02 EXCESS= .0000E+00 OUTFLOW= .2053E+02 BASIN STORAGE= .3927E-03 PERCENT ERROR= .0

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

RCBK	MANE	1.35	231.84	261.32	1.58	2.00	230.58	262.00	1.58

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1832E+02 EXCESS= .0000E+00 OUTFLOW= .1832E+02 BASIN STORAGE= .3845E-03 PERCENT ERROR= .0

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

RCBK	MANE	1.47	172.48	263.68	1.33	2.00	172.08	264.00	1.33

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1534E+02 EXCESS= .0000E+00 OUTFLOW= .1534E+02 BASIN STORAGE= .3787E-03 PERCENT ERROR= .0

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

RCBK	MANE	1.69	105.90	269.24	.93	2.00	105.53	268.00	.93

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1082E+02 EXCESS= .0000E+00 OUTFLOW= .1082E+02 BASIN STORAGE= .3902E-03 PERCENT ERROR= .0

FOR STORM = 1 STORM AREA (SQ MI) = .01

R15	MANE	1.59	364.60	255.19	1.68	2.00	364.40	256.00	1.68

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2207E+02 EXCESS= .0000E+00 OUTFLOW= .2207E+02 BASIN STORAGE= .5519E-03 PERCENT ERROR= .0

FOR STORM = 2 STORM AREA (SQ MI) = .50

R15	MANE	1.59	361.32	256.10	1.66	2.00	361.17	256.00	1.66

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2182E+02 EXCESS= .0000E+00 OUTFLOW= .2182E+02 BASIN STORAGE= .5449E-03 PERCENT ERROR= .0

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

R15	MANE	1.78	242.06	262.19	1.47	2.00	242.04	262.00	1.47

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1925E+02 EXCESS= .0000E+00 OUTFLOW= .1925E+02 BASIN STORAGE= .5437E-03 PERCENT ERROR= .0

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

R15	MANE	1.94	178.96	264.24	1.22	2.00	178.70	264.00	1.22

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1604E+02 EXCESS= .0000E+00 OUTFLOW= .1604E+02 BASIN STORAGE= .5145E-03 PERCENT ERROR= .0

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

R15	MANE	2.00	108.84	270.00	.86	2.00	108.84	270.00	.86

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1122E+02 EXCESS= .0000E+00 OUTFLOW= .1122E+02 BASIN STORAGE= .5202E-03 PERCENT ERROR= .0

FOR STORM = 1 STORM AREA (SQ MI) = .01

RE1	MANE	2.00	31.63	248.00	1.33	2.00	31.63	248.00	1.33

CONTINUITY SUMMARY (AC-FT) - INFLOW= .9906E+00 EXCESS= .0000E+00 OUTFLOW= .9916E+00 BASIN STORAGE= .9785E-03 PERCENT ERROR= -.2

FOR STORM = 2 STORM AREA (SQ MI) = .50

RE1	MANE	2.00	31.33	248.00	1.31	2.00	31.33	248.00	1.31

CONTINUITY SUMMARY (AC-FT) - INFLOW= .9789E+00 EXCESS= .0000E+00 OUTFLOW= .9800E+00 BASIN STORAGE= .9741E-03 PERCENT ERROR= -.2

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

RE1	MANE	2.00	14.94	250.00	.98	2.00	14.94	250.00	.98

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7298E+00 EXCESS= .0000E+00 OUTFLOW= .7305E+00 BASIN STORAGE= .9297E-03 PERCENT ERROR= -.2

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

RE1	MANE	2.00	9.90	250.00	.66	2.00	9.90	250.00	.66

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4921E+00 EXCESS= .0000E+00 OUTFLOW= .4924E+00 BASIN STORAGE= .9535E-03 PERCENT ERROR= -.3

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

RE1	MANE	2.00	4.48	252.00	.29	2.00	4.48	252.00	.29

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2165E+00 EXCESS= .0000E+00 OUTFLOW= .2165E+00 BASIN STORAGE= .9318E-03 PERCENT ERROR= -.4

FOR STORM = 1 STORM AREA (SQ MI) = .01

RE2	MANE	2.00	28.17	248.00	1.48	2.00	28.17	248.00	1.48

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1266E+01 EXCESS= .0000E+00 OUTFLOW= .1266E+01 BASIN STORAGE= .4434E-03 PERCENT ERROR= -.1

FOR STORM = 2 STORM AREA (SQ MI) = .50

RE2	MANE	2.00	27.90	248.00	1.47	2.00	27.90	248.00	1.47

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1251E+01 EXCESS= .0000E+00 OUTFLOW= .1252E+01 BASIN STORAGE= .4414E-03 PERCENT ERROR= -.1

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

RE2	MANE	2.00	15.28	250.00	1.14	2.00	15.28	250.00	1.14

CONTINUITY SUMMARY (AC-FT) - INFLOW= .9756E+00 EXCESS= .0000E+00 OUTFLOW= .9758E+00 BASIN STORAGE= .4537E-03 PERCENT ERROR=

-.1

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

RE2	MANE	2.00	10.53	250.00	.83	2.00	10.53	250.00	.83

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7092E+00 EXCESS= .0000E+00 OUTFLOW= .7093E+00 BASIN STORAGE= .4172E-03 PERCENT ERROR= -.1

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

RE2	MANE	2.00	5.33	252.00	.45	2.00	5.33	252.00	.45

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3842E+00 EXCESS= .0000E+00 OUTFLOW= .3842E+00 BASIN STORAGE= .4384E-03 PERCENT ERROR= -.1

FOR STORM = 1 STORM AREA (SQ MI) = .01

R13	MANE	2.00	178.99	250.00	1.45	2.00	178.99	250.00	1.45

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6914E+01 EXCESS= .0000E+00 OUTFLOW= .6896E+01 BASIN STORAGE= .1287E-02 PERCENT ERROR= .2

FOR STORM = 2 STORM AREA (SQ MI) = .50

R13	MANE	2.00	177.35	250.00	1.44	2.00	177.35	250.00	1.44

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6837E+01 EXCESS= .0000E+00 OUTFLOW= .6822E+01 BASIN STORAGE= .1281E-02 PERCENT ERROR= .2

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

R13	MANE	2.00	96.23	252.00	1.15	2.00	96.23	252.00	1.15

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5447E+01 EXCESS= .0000E+00 OUTFLOW= .5438E+01 BASIN STORAGE= .1461E-02 PERCENT ERROR= .1

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

R13	MANE	2.00	66.74	252.00	.85	2.00	66.74	252.00	.85

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4042E+01 EXCESS= .0000E+00 OUTFLOW= .4035E+01 BASIN STORAGE= .1282E-02 PERCENT ERROR= .1

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

R13	MANE	2.00	35.14	256.00	.48	2.00	35.14	256.00	.48

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2285E+01 EXCESS= .0000E+00 OUTFLOW= .2281E+01 BASIN STORAGE= .1289E-02 PERCENT ERROR= .1

FOR STORM = 1 STORM AREA (SQ MI) = .01

RE3	MANE	2.00	74.17	266.00	1.42	2.00	74.17	266.00	1.42

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6215E+01 EXCESS= .0000E+00 OUTFLOW= .6216E+01 BASIN STORAGE= .6845E-03 PERCENT ERROR= .0

FOR STORM = 2 STORM AREA (SQ MI) = .50

RE3	MANE	2.00	73.37	266.00	1.40	2.00	73.37	266.00	1.40

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6143E+01 EXCESS= .0000E+00 OUTFLOW= .6143E+01 BASIN STORAGE= .6814E-03 PERCENT ERROR= .0

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

RE3	MANE	2.00	48.52	268.00	1.08	2.00	48.52	268.00	1.08

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4722E+01 EXCESS= .0000E+00 OUTFLOW= .4722E+01 BASIN STORAGE= .6793E-03 PERCENT ERROR= .0

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

RE3	MANE	2.00	33.13	270.00	.76	2.00	33.13	270.00	.76

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3336E+01 EXCESS= .0000E+00 OUTFLOW= .3336E+01 BASIN STORAGE= .6983E-03 PERCENT ERROR= .0

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

RE3	MANE	2.00	16.02	272.00	.39	2.00	16.02	272.00	.39

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1702E+01 EXCESS= .0000E+00 OUTFLOW= .1702E+01 BASIN STORAGE= .6575E-03 PERCENT ERROR= .0

FOR STORM = 1 STORM AREA (SQ MI) = .01

R10	MANE	2.00	141.93	260.00	1.43	2.00	141.93	260.00	1.43

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1046E+02 EXCESS= .0000E+00 OUTFLOW= .1045E+02 BASIN STORAGE= .1845E-02 PERCENT ERROR= .1

FOR STORM = 2 STORM AREA (SQ MI) = .50

R10	MANE	2.00	140.50	260.00	1.41	2.00	140.50	260.00	1.41

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1034E+02 EXCESS= .0000E+00 OUTFLOW= .1033E+02 BASIN STORAGE= .1818E-02 PERCENT ERROR= .1

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

R10	MANE	2.00	92.85	266.00	1.11	2.00	92.85	266.00	1.11

CONTINUITY SUMMARY (AC-FT) - INFLOW= .8091E+01 EXCESS= .0000E+00 OUTFLOW= .8080E+01 BASIN STORAGE= .1701E-02 PERCENT ERROR= .1

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

R10	MANE	2.00	64.26	266.00	.80	2.00	64.26	266.00	.80

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5876E+01 EXCESS= .0000E+00 OUTFLOW= .5867E+01 BASIN STORAGE= .1796E-02 PERCENT ERROR= .1

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

R10	MANE	2.00	33.07	270.00	.43	2.00	33.07	270.00	.43

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3177E+01 EXCESS= .0000E+00 OUTFLOW= .3171E+01 BASIN STORAGE= .1875E-02 PERCENT ERROR= .1

FOR STORM = 1 STORM AREA (SQ MI) = .01

RE4	MANE	2.00	33.30	264.00	1.34	2.00	33.30	264.00	1.34

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2853E+01 EXCESS= .0000E+00 OUTFLOW= .2854E+01 BASIN STORAGE= .1069E-03 PERCENT ERROR= .0

FOR STORM = 2 STORM AREA (SQ MI) = .50

RE4	MANE	2.00	32.94	264.00	1.32	2.00	32.94	264.00	1.32

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2820E+01 EXCESS= .0000E+00 OUTFLOW= .2821E+01 BASIN STORAGE= .1052E-03 PERCENT ERROR= .0

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

RE4	MANE	2.00	21.16	266.00	.99	2.00	21.16	266.00	.99

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2115E+01 EXCESS= .0000E+00 OUTFLOW= .2115E+01 BASIN STORAGE= .1198E-03 PERCENT ERROR= .0

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

RE4	MANE	2.00	14.06	268.00	.68	2.00	14.06	268.00	.68

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1442E+01 EXCESS= .0000E+00 OUTFLOW= .1442E+01 BASIN STORAGE= .1092E-03 PERCENT ERROR= .0

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

RE4	MANE	2.00	6.12	270.00	.31	2.00	6.12	270.00	.31

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6571E+00 EXCESS= .0000E+00 OUTFLOW= .6571E+00 BASIN STORAGE= .1077E-03 PERCENT ERROR= .0

FOR STORM = 1 STORM AREA (SQ MI) = .01

R9	MANE	1.20	104.61	250.83	1.44	2.00	104.60	250.00	1.45

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7088E+01 EXCESS= .0000E+00 OUTFLOW= .7090E+01 BASIN STORAGE= .8732E-04 PERCENT ERROR= .0

FOR STORM = 2 STORM AREA (SQ MI) = .50

R9	MANE	1.21	103.65	249.50	1.43	2.00	103.65	250.00	1.43

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7006E+01 EXCESS= .0000E+00 OUTFLOW= .7008E+01 BASIN STORAGE= .8777E-04 PERCENT ERROR= .0

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

R9	MANE	1.42	65.29	256.25	1.13	2.00	65.29	256.00	1.13

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5560E+01 EXCESS= .0000E+00 OUTFLOW= .5561E+01 BASIN STORAGE= .8130E-04 PERCENT ERROR= .0

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

R9	MANE	1.57	45.78	255.48	.84	2.00	45.78	256.00	.84

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4104E+01 EXCESS= .0000E+00 OUTFLOW= .4104E+01 BASIN STORAGE= .7945E-04 PERCENT ERROR= .0

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

R9	MANE	1.87	24.83	245.53	.47	2.00	24.48	258.00	.47

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2301E+01 EXCESS= .0000E+00 OUTFLOW= .2302E+01 BASIN STORAGE= .8181E-04 PERCENT ERROR= -.1

FOR STORM = 1 STORM AREA (SQ MI) = .01

R7	MANE	1.71	135.73	253.30	1.45	2.00	134.52	252.00	1.45

CONTINUITY SUMMARY (AC-FT) - INFLOW= .9217E+01 EXCESS= .0000E+00 OUTFLOW= .9221E+01 BASIN STORAGE= .1383E-03 PERCENT ERROR= .0

FOR STORM = 2 STORM AREA (SQ MI) = .50

R7	MANE	1.72	134.06	252.28	1.44	2.00	133.30	252.00	1.44

CONTINUITY SUMMARY (AC-FT) - INFLOW= .9119E+01 EXCESS= .0000E+00 OUTFLOW= .9123E+01 BASIN STORAGE= .1401E-03 PERCENT ERROR= .0

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

R7	MANE	2.00	88.48	254.00	1.15	2.00	88.48	254.00	1.15

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7286E+01 EXCESS= .0000E+00 OUTFLOW= .7288E+01 BASIN STORAGE= .1238E-03 PERCENT ERROR= .0

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

R7	MANE	2.00	62.30	256.00	.85	2.00	62.30	256.00	.85

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5422E+01 EXCESS= .0000E+00 OUTFLOW= .5424E+01 BASIN STORAGE= .1246E-03 PERCENT ERROR= .0

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

R7	MANE	2.00	34.02	266.00	.49	2.00	34.02	266.00	.49

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3088E+01 EXCESS= .0000E+00 OUTFLOW= .3090E+01 BASIN STORAGE= .1296E-03 PERCENT ERROR= -.1

FOR STORM = 1 STORM AREA (SQ MI) = .01

RS1	MANE	2.00	2198.73	300.00	1.70	2.00	2198.73	300.00	1.70

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2667E+03 EXCESS= .0000E+00 OUTFLOW= .2668E+03 BASIN STORAGE= .3607E-02 PERCENT ERROR= .0

FOR STORM = 2 STORM AREA (SQ MI) = .50

RS1	MANE	2.00	2168.25	300.00	1.69	2.00	2168.25	300.00	1.69

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2639E+03 EXCESS= .0000E+00 OUTFLOW= .2639E+03 BASIN STORAGE= .3673E-02 PERCENT ERROR= .0

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

RS1	MANE	2.00	1596.84	302.00	1.47	2.00	1596.84	302.00	1.47

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2297E+03 EXCESS= .0000E+00 OUTFLOW= .2297E+03 BASIN STORAGE= .3616E-02 PERCENT ERROR= .0

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

RS1	MANE	2.00	1163.15	308.00	1.21	2.00	1163.15	308.00	1.21

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1889E+03 EXCESS= .0000E+00 OUTFLOW= .1889E+03 BASIN STORAGE= .3624E-02 PERCENT ERROR= .0

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

RS1	MANE	2.00	677.57	316.00	.83	2.00	677.57	316.00	.83

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1300E+03 EXCESS= .0000E+00 OUTFLOW= .1300E+03 BASIN STORAGE= .3677E-02 PERCENT ERROR= .0

FOR STORM = 1 STORM AREA (SQ MI) = .01

RS2	MANE	.72	2197.08	299.67	1.70	2.00	2196.86	300.00	1.70

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2683E+03 EXCESS= .0000E+00 OUTFLOW= .2682E+03 BASIN STORAGE= .5435E-03 PERCENT ERROR= .0

FOR STORM = 2 STORM AREA (SQ MI) = .50

RS2	MANE	.73	2165.55	300.24	1.69	2.00	2164.93	300.00	1.69

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2654E+03 EXCESS= .0000E+00 OUTFLOW= .2654E+03 BASIN STORAGE= .5426E-03 PERCENT ERROR= .0

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

RS2	MANE	.80	1596.57	303.14	1.47	2.00	1596.42	304.00	1.47

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2309E+03 EXCESS= .0000E+00 OUTFLOW= .2309E+03 BASIN STORAGE= .5459E-03 PERCENT ERROR= .0

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

RS2	MANE	.88	1163.11	308.18	1.21	2.00	1163.09	308.00	1.21

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1898E+03 EXCESS= .0000E+00 OUTFLOW= .1898E+03 BASIN STORAGE= .5392E-03 PERCENT ERROR= .0

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

RS2	MANE	1.04	677.43	316.76	.83	2.00	677.22	316.00	.83

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1305E+03 EXCESS= .0000E+00 OUTFLOW= .1305E+03 BASIN STORAGE= .5409E-03 PERCENT ERROR= .0

FOR STORM = 1 STORM AREA (SQ MI) = .01

RHV2	MANE	2.00	7.08	316.00	1.75	2.00	7.08	316.00	1.75

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2888E+01 EXCESS= .0000E+00 OUTFLOW= .2888E+01 BASIN STORAGE= .5656E-03 PERCENT ERROR= .0

FOR STORM = 2 STORM AREA (SQ MI) = .50

RHV2	MANE	2.00	7.02	316.00	1.73	2.00	7.02	316.00	1.73

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2862E+01 EXCESS= .0000E+00 OUTFLOW= .2862E+01 BASIN STORAGE= .5630E-03 PERCENT ERROR= .0

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

RHV2	MANE	2.00	5.93	320.00	1.50	2.00	5.93	320.00	1.50

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2483E+01 EXCESS= .0000E+00 OUTFLOW= .2483E+01 BASIN STORAGE= .5801E-03 PERCENT ERROR= .0

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

RHV2	MANE	2.00	4.79	324.00	1.26	2.00	4.79	324.00	1.26

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2081E+01 EXCESS= .0000E+00 OUTFLOW= .2080E+01 BASIN STORAGE= .5954E-03 PERCENT ERROR= .0

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

RHV2	MANE	2.00	3.29	328.00	.92	2.00	3.29	328.00	.92

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1515E+01 EXCESS= .0000E+00 OUTFLOW= .1515E+01 BASIN STORAGE= .5886E-03 PERCENT ERROR= .0

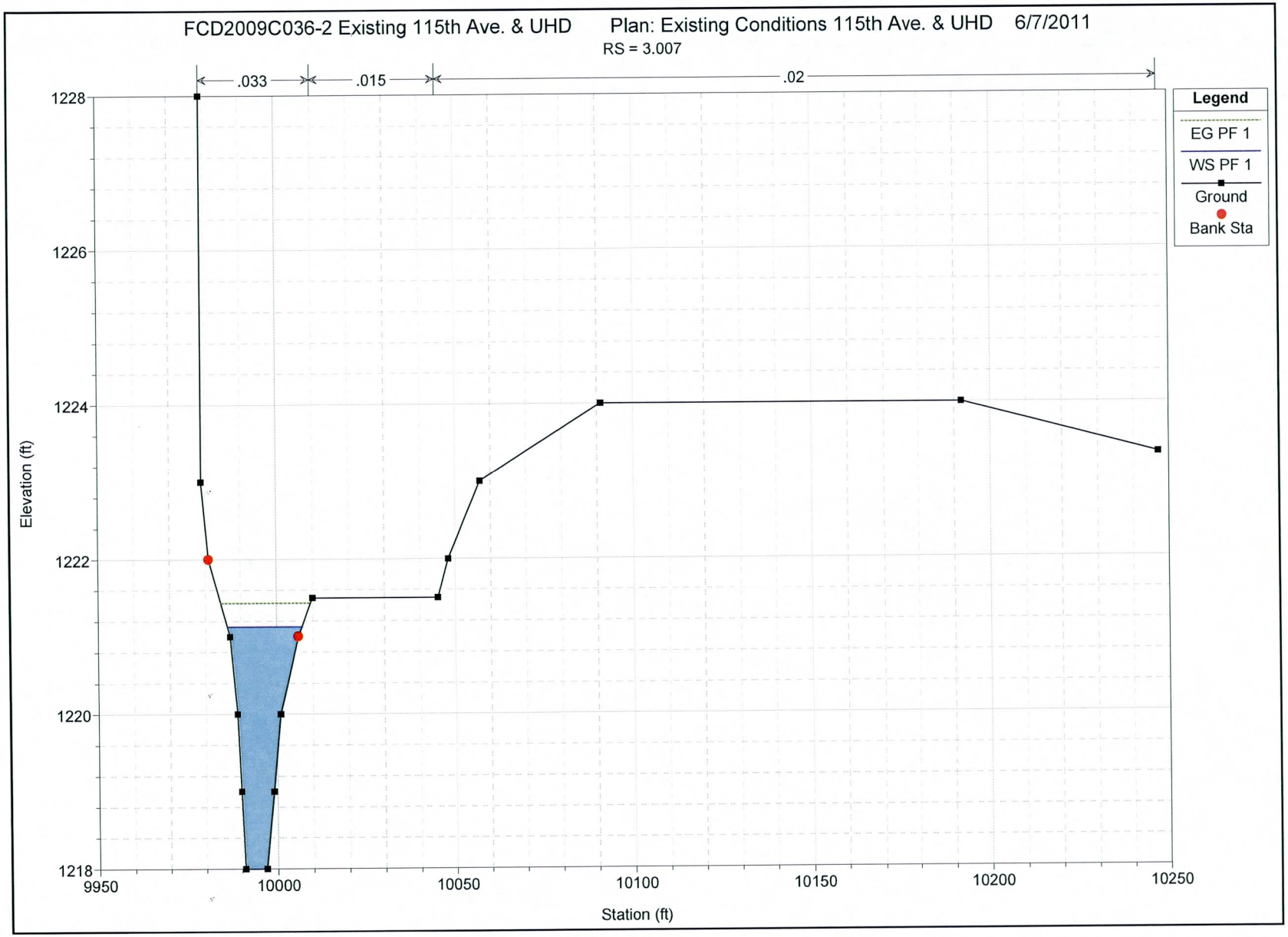
*** NORMAL END OF HEC-1 ***

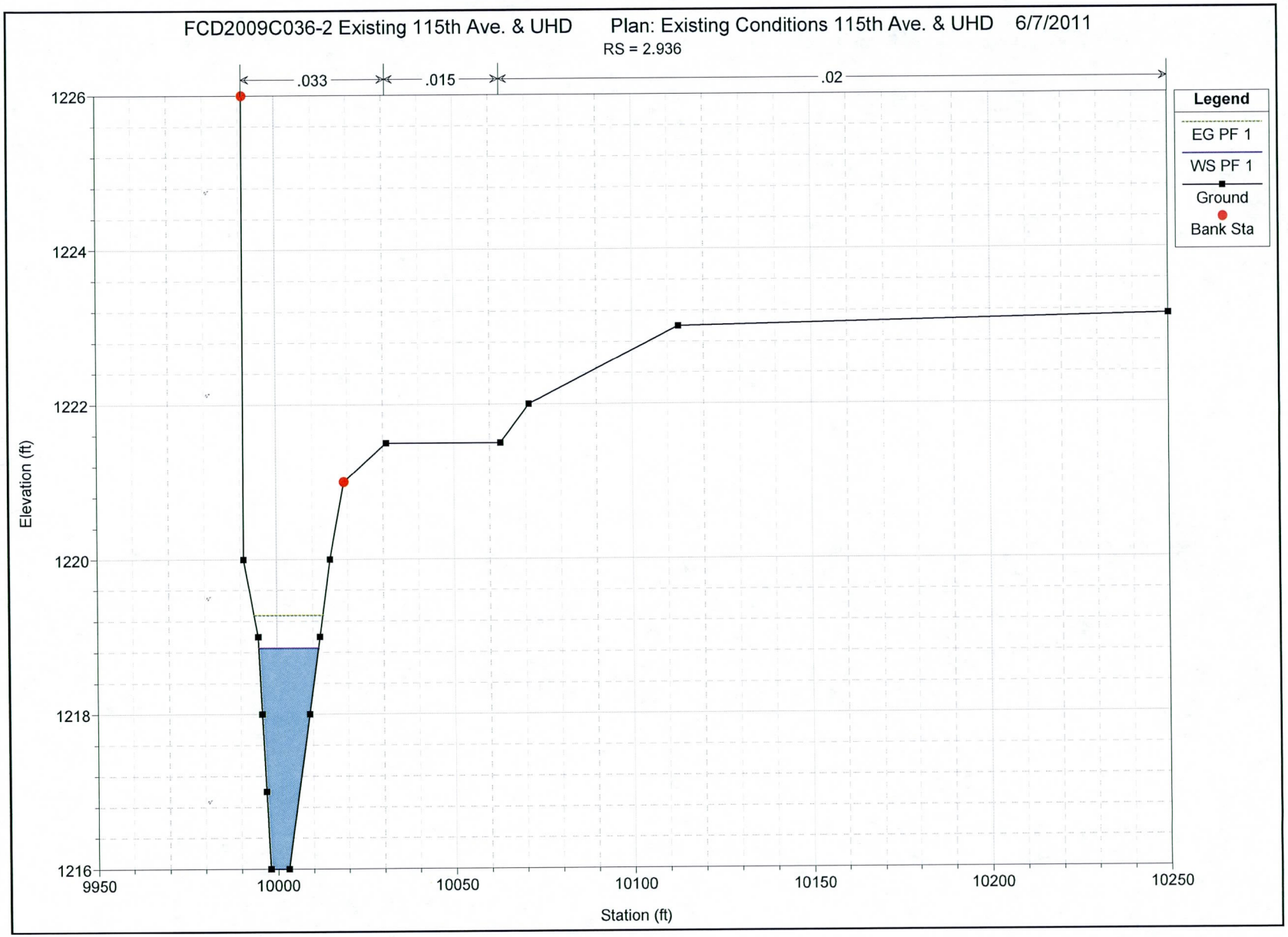
HEC-RAS Plan: Exist 115th Ave. River: River 1 Reach: Reach 1 Profile: PF 1

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach 1	3.007	PF 1	160.00	1218.00	1221.13		1221.44	0.004857	4.44	36.12	20.84	0.58
Reach 1	2.936	PF 1	160.00	1216.00	1218.86		1219.28	0.006636	5.22	30.68	16.44	0.67
Reach 1	2.841	PF 1	160.00	1214.00	1216.12		1216.36	0.005000	4.36	46.56	87.36	0.60
Reach 1	2.746	PF 1	160.00	1211.00	1213.33	1213.33	1213.58	0.006131	4.48	42.94	78.27	0.65
Reach 1	2.652	PF 1	160.00	1207.00	1208.45	1208.45	1208.67	0.007613	4.23	42.20	82.47	0.69
Reach 1	2.557	PF 1	160.00	1205.00	1205.82	1205.63	1205.95	0.002529	1.69	58.83	88.33	0.37
Reach 1	2.523	PF 1	760.00	1203.75	1205.00	1205.00	1205.33	0.004408	3.23	166.13	243.92	0.54
Reach 1	2.462	PF 1	760.00	1193.00	1194.89	1194.83	1195.64	0.009406	6.95	109.32	65.54	0.95
Reach 1	2.367	PF 1	760.00	1190.00	1194.96		1195.05	0.000326	2.29	331.32	83.50	0.20
Reach 1	2.300	PF 1	760.00	1187.90	1194.94	1189.74	1194.97	0.000089	1.45	525.43	99.28	0.11
Reach 1	2.241		Culvert									
Reach 1	2.182	PF 1	870.00	1183.60	1185.61	1185.61	1186.51	0.010327	7.63	114.00	63.68	1.01
Reach 1	2.122	PF 1	870.00	1175.50	1182.79	1177.61	1182.83	0.000101	1.61	549.17	108.28	0.12
Reach 1	2.112		Culvert									
Reach 1	2.102	PF 1	870.00	1173.00	1175.36	1175.26	1176.19	0.008666	7.33	118.74	61.89	0.93
Reach 1	2.083	PF 1	870.00	1172.00	1174.37	1174.37	1175.22	0.010558	7.42	117.31	69.83	1.01
Reach 1	2.030	PF 1	870.00	1168.00	1173.27		1173.35	0.000288	2.20	395.20	96.71	0.19
Reach 1	1.968	PF 1	1050.00	1167.50	1173.18		1173.25	0.000280	2.03	518.18	110.88	0.17
Reach 1	1.894	PF 1	1050.00	1167.50	1173.08		1173.14	0.000271	1.96	534.42	117.00	0.16
Reach 1	1.790	PF 1	1050.00	1167.00	1172.95	1168.87	1173.00	0.000222	1.86	574.34	172.76	0.15
Reach 1	1.784	PF 1	1050.00	1170.00	1172.61	1171.87	1172.96	0.004453	4.73	222.21	107.35	0.58
Reach 1	1.758	PF 1	1050.00	1170.00	1171.28	1171.28	1171.86	0.016174	6.10	172.14	149.55	1.00
Reach 1	1.747	PF 1	1050.00	1164.70	1170.10		1170.14	0.000188	1.65	636.12	137.73	0.14
Reach 1	1.705	PF 1	1050.00	1164.60	1170.09	1165.91	1170.11	0.000079	1.10	952.16	196.92	0.09
Reach 1	1.679	PF 1	1050.00	1164.40	1170.08	1165.71	1170.10	0.000072	1.07	978.18	196.87	0.08
Reach 1	1.675	PF 1	1050.00	1167.40	1169.44	1169.36	1170.03	0.012893	6.17	170.14	122.57	0.92
Reach 1	1.667	PF 1	1070.00	1163.50	1169.75	1165.45	1169.85	0.000284	2.49	429.64	141.88	0.18
Reach 1	1.6535		Culvert									
Reach 1	1.640	PF 1	1250.00	1161.60	1167.87	1163.79	1168.00	0.000389	2.93	426.31	417.23	0.21
Reach 1	1.610	PF 1	1250.00	1161.50	1167.90	1163.29	1167.94	0.000150	1.65	756.88	138.09	0.12
Reach 1	1.537	PF 1	1250.00	1161.50	1167.81	1163.82	1167.86	0.000259	1.80	697.32	175.35	0.16
Reach 1	1.531	PF 1	1250.00	1164.50	1167.68	1166.06	1167.84	0.001256	3.21	400.25	169.77	0.33
Reach 1	1.501	PF 1	1250.00	1164.50	1166.56	1166.56	1167.30	0.014936	6.88	181.68	127.14	1.00
Reach 1	1.492	PF 1	1250.00	1159.00	1166.90	1160.75	1166.92	0.000073	1.27	998.28	192.24	0.09
Reach 1	1.420	PF 1	1250.00	1159.00	1166.88	1160.66	1166.90	0.000062	1.14	1135.60	294.45	0.08
Reach 1	1.346	PF 1	1250.00	1158.90	1166.84	1161.35	1166.87	0.000080	1.34	1002.27	280.42	0.09
Reach 1	1.338		Culvert									
Reach 1	1.330	PF 1	1250.00	1158.70	1166.14	1160.84	1166.17	0.000117	1.37	968.86	239.89	0.10

HEC-RAS Plan: Exist 115th Ave. River: River 1 Reach: Reach 1 Profile: PF 1 (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach 1	1.301	PF 1	1250.00	1158.60	1166.05	1160.75	1166.14	0.000257	2.32	539.81	220.53	0.15
Reach 1	1.292	PF 1	1250.00	1163.10	1165.96	1164.54	1166.11	0.001774	3.10	419.79	183.65	0.33
Reach 1	1.284	PF 1	1250.00	1159.00	1166.01	1161.26	1166.06	0.000205	1.68	764.03	247.10	0.13
Reach 1	1.273	PF 1	1250.00	1158.80	1166.00	1161.13	1166.04	0.000196	1.66	772.84	245.17	0.12
Reach 1	1.266	PF 1	1250.00	1161.70	1165.96		1166.03	0.000569	2.24	634.41	345.42	0.20
Reach 1	1.255	PF 1	1250.00	1161.70	1165.90		1165.98	0.000606	2.29	615.03	334.48	0.21
Reach 1	1.231	PF 1	1250.00	1157.80	1165.93	1159.46	1165.94	0.000047	0.94	1663.28	623.94	0.06
Reach 1	1.136	PF 1	1260.00	1157.50	1165.91	1159.07	1165.92	0.000031	0.80	1970.87	831.86	0.05
Reach 1	1.104	PF 1	1260.00	1157.50	1165.91	1159.21	1165.92	0.000040	0.91	1789.66	806.08	0.06
Reach 1	1.097	PF 1	1260.00	1160.50	1165.90	1161.97	1165.91	0.000075	0.96	1585.81	815.00	0.08
Reach 1	1.083	PF 1	1950.00	1157.20	1165.88	1161.85	1165.91	0.000035	1.96	2281.07	1369.40	0.12
Reach 1	1.0665		Culvert									
Reach 1	1.050	PF 1	1950.00	1155.87	1161.67	1161.04	1163.45	0.008749	10.73	181.78	36.24	0.84
Reach 1	0.947	PF 1	1950.00	1152.72	1158.94		1159.97	0.004370	8.11	241.44	72.20	0.71
Reach 1	0.852	PF 1	1950.00	1150.64	1156.47	1156.47	1157.97	0.003490	9.95	207.05	78.29	0.90
Reach 1	0.758	PF 1	1950.00	1148.49	1154.44	1154.44	1155.56	0.002470	9.02	260.19	113.00	0.78
Reach 1	0.663	PF 1	1950.00	1146.90	1152.55	1152.40	1153.58	0.002553	8.62	256.40	103.00	0.78
Reach 1	0.568	PF 1	1950.00	1145.32	1151.81		1152.42	0.001691	6.63	322.50	83.00	0.54
Reach 1	0.473	PF 1	2090.00	1143.35	1149.16	1149.13	1150.84	0.005850	10.39	202.00	66.09	0.97
Reach 1	0.379	PF 1	2090.00	1141.06	1147.21	1147.21	1148.45	0.003581	9.31	260.47	107.00	0.79
Reach 1	0.284	PF 1	2090.00	1135.74	1143.41	1142.19	1144.29	0.004211	7.77	302.08	101.66	0.62
Reach 1	0.189	PF 1	2090.00	1133.57	1139.03	1139.03	1140.86	0.011939	10.85	192.58	52.04	0.99
Reach 1	0.095	PF 1	2090.00	1129.05	1136.90	1133.15	1137.21	0.001040	4.44	470.57	75.69	0.31
Reach 1	0.000	PF 1	2090.00	1124.51	1137.00	1128.49	1137.03	0.000071	1.54	1462.76	202.60	0.09


FCD2009C036-2 Existing 115th Ave. & UHD
Plan: Existing Conditions 115th Ave. & UHD 6/7/2011
RS = 3.007
.033
.015
.02
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
1228
1226
1224
1222
1220
1218
9950
10000
10050
10100
10150
10200
10250
Station (ft)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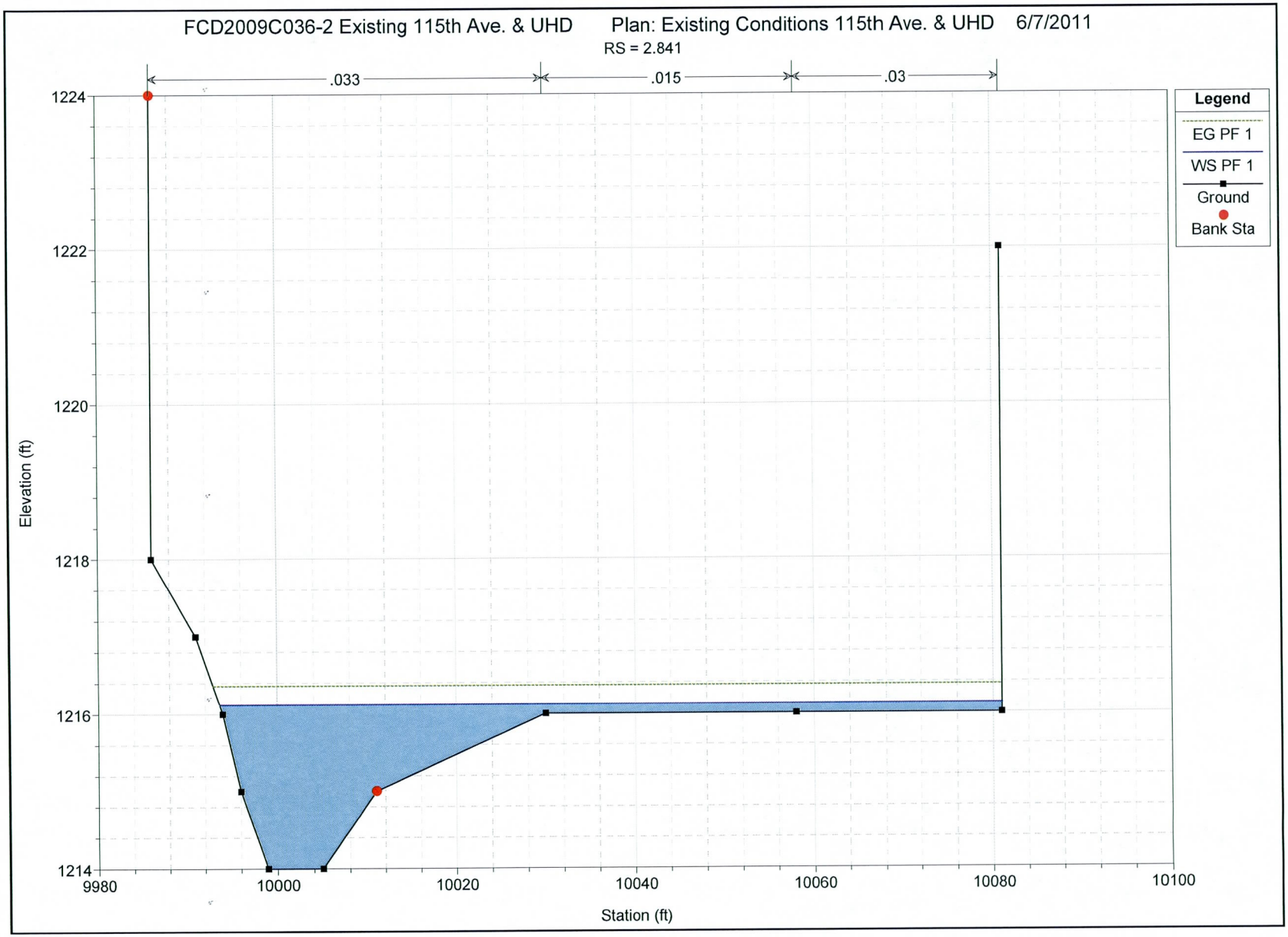
Plan: Existing Conditions 115th Ave. & UHD
6/7/2011
RS = 2.936
.033
.015
.02
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
1226
1224
1222
1220
1218
1216
9950
10000
10050
10100
10150
10200
10250
Station (ft)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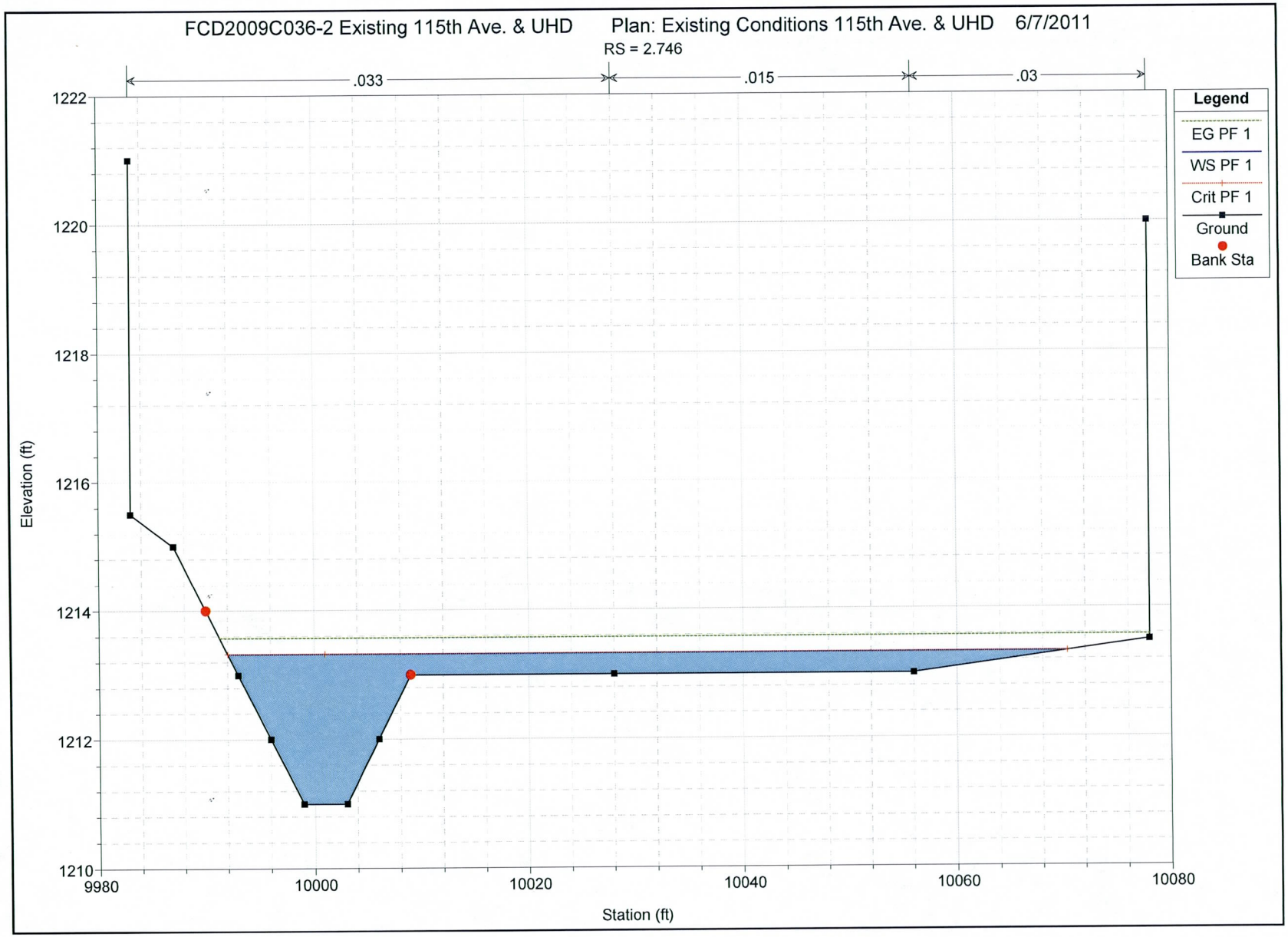
Plan: Existing Conditions 115th Ave. & UHD
6/7/2011
RS = 2.841
.033
.015
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
1224
1222
1220
1218
1216
1214
9980
10000
10020
10040
10060
10080
10100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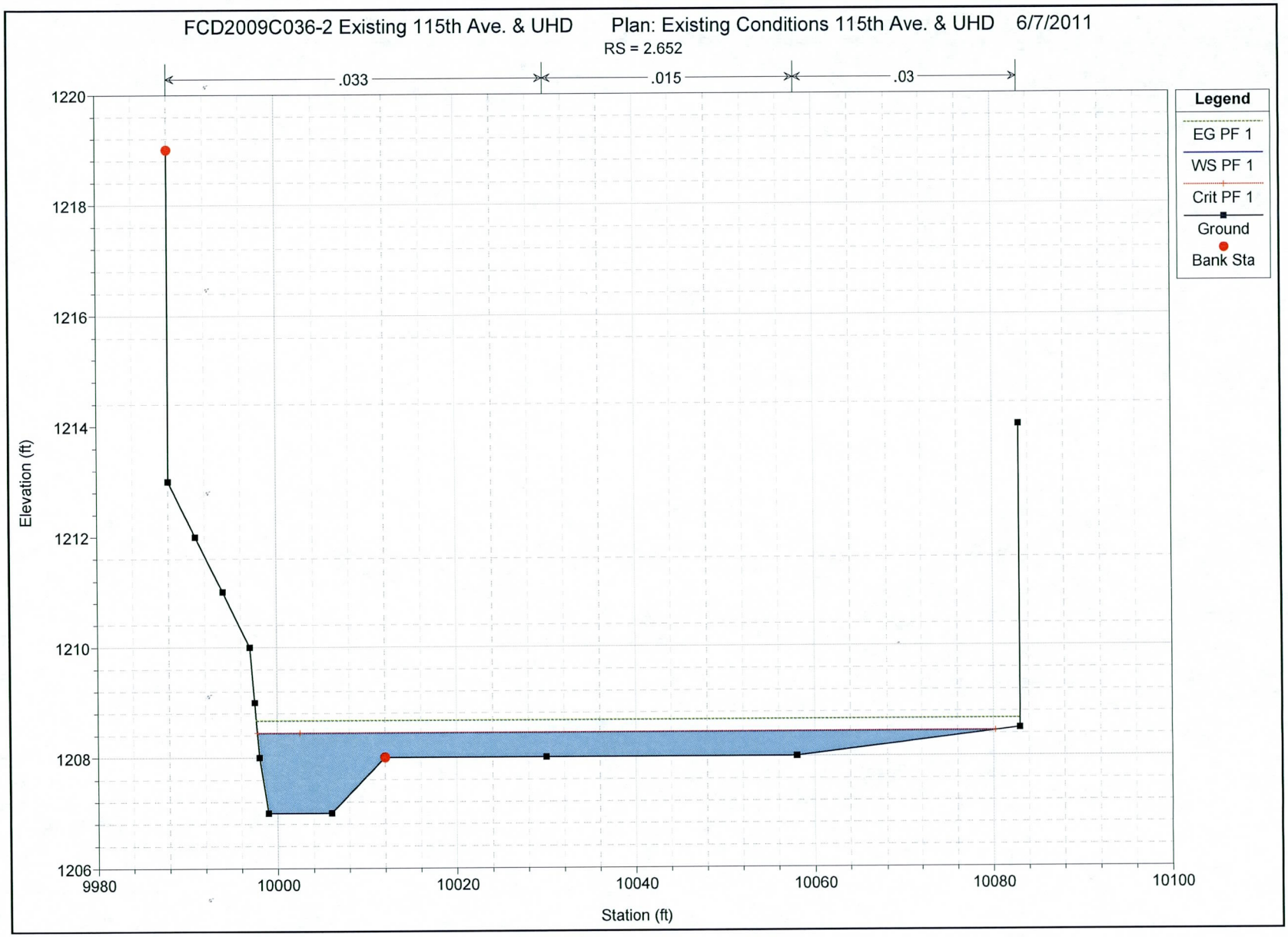
Plan: Existing Conditions 115th Ave. & UHD
6/7/2011
RS = 2.746
.033
.015
.03
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
1222
1220
1218
1216
1214
1212
1210
9980
10000
10020
10040
10060
10080
Station (ft)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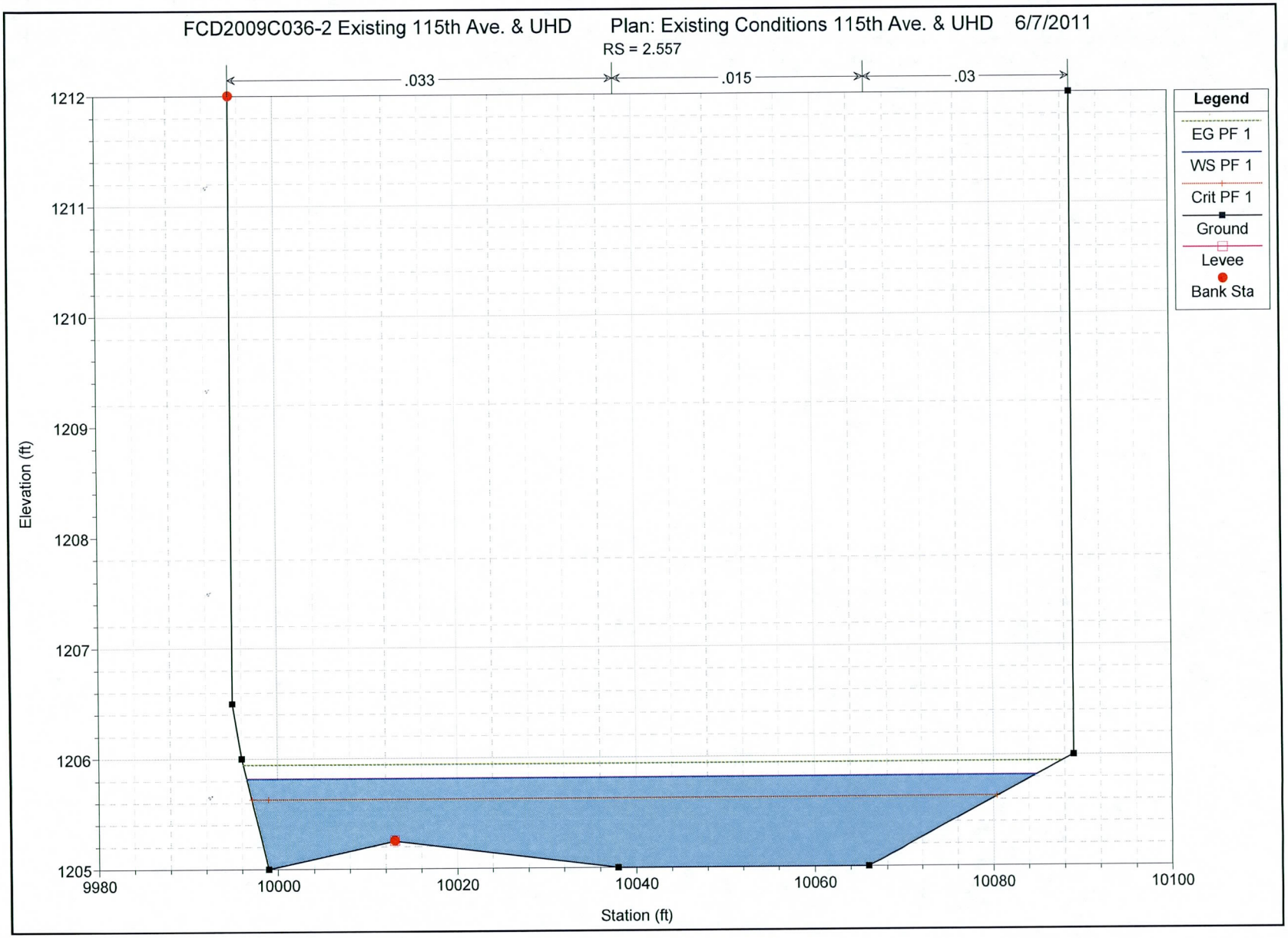
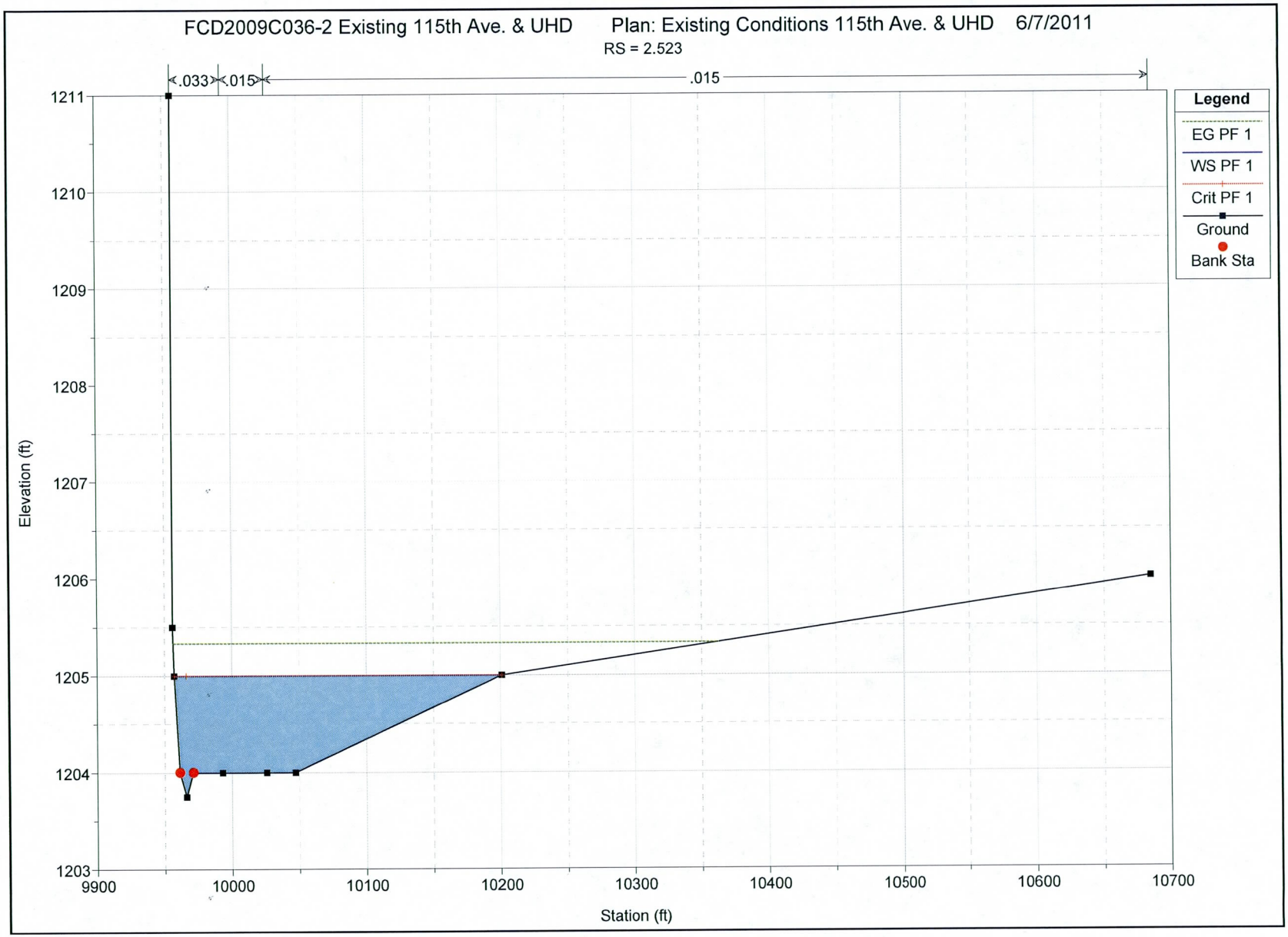
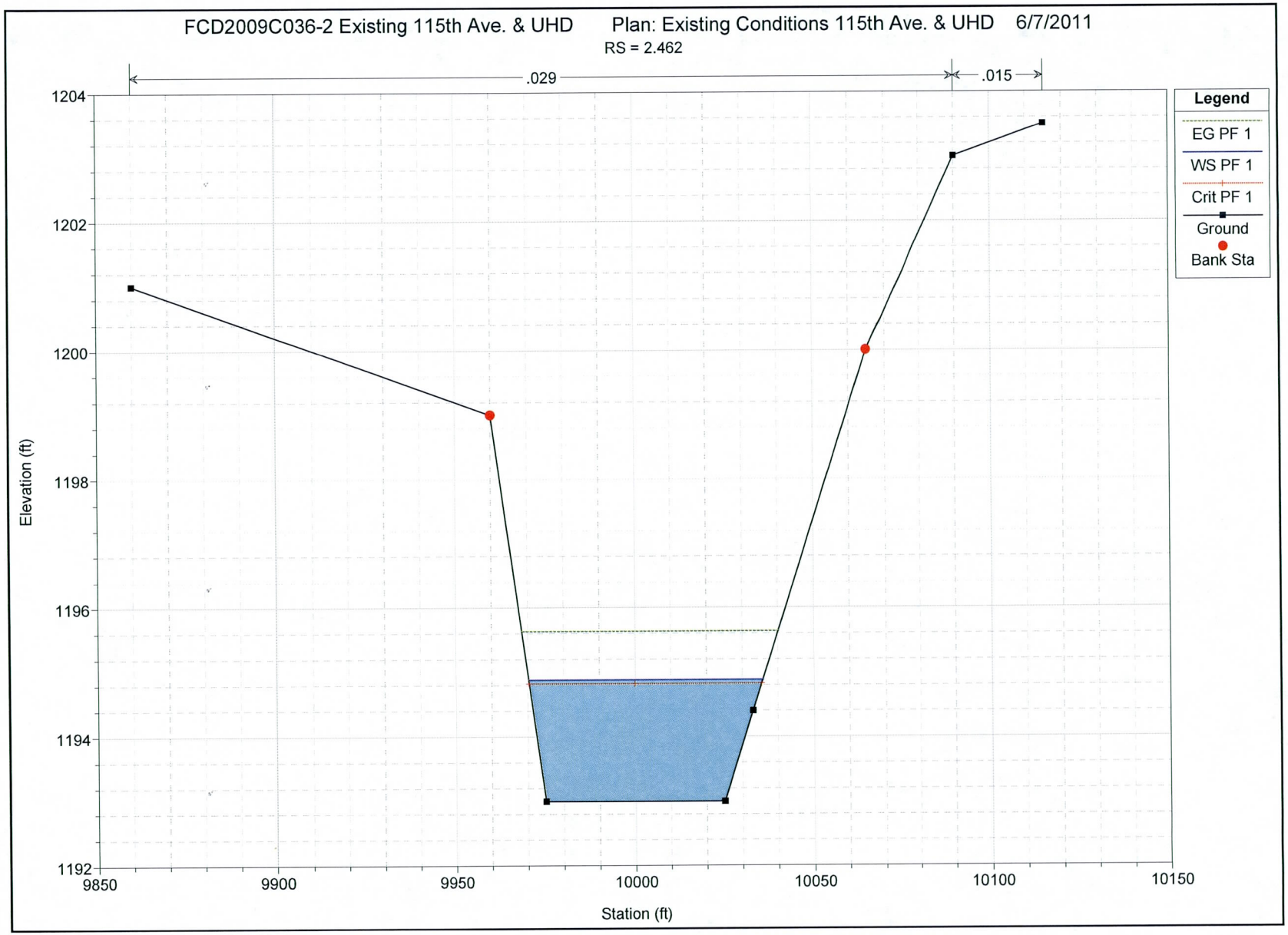
Plan: Existing Conditions 115th Ave. & UHD
6/7/2011
RS = 2.652
.033
.015
.03
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
1220
1218
1216
1214
1212
1210
1208
1206
9980
10000
10020
10040
10060
10080
10100


FCD2009C036-2 Existing 115th Ave. & UHD
Plan: Existing Conditions 115th Ave. & UHD 6/7/2011
RS = 2.557
.033
.015
.03
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
Elevation (ft)
1212
1211
1210
1209
1208
1207
1206
1205
9980
10000
10020
10040
10060
10080
10100
Station (ft)


FCD2009C036-2 Existing 115th Ave. & UHD
Plan: Existing Conditions 115th Ave. & UHD
6/7/2011
RS = 2.523
.033
.015
.015
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
1211
1210
1209
1208
1207
1206
1205
1204
1203
9900
10000
10100
10200
10300
10400
10500
10600
10700
Station (ft)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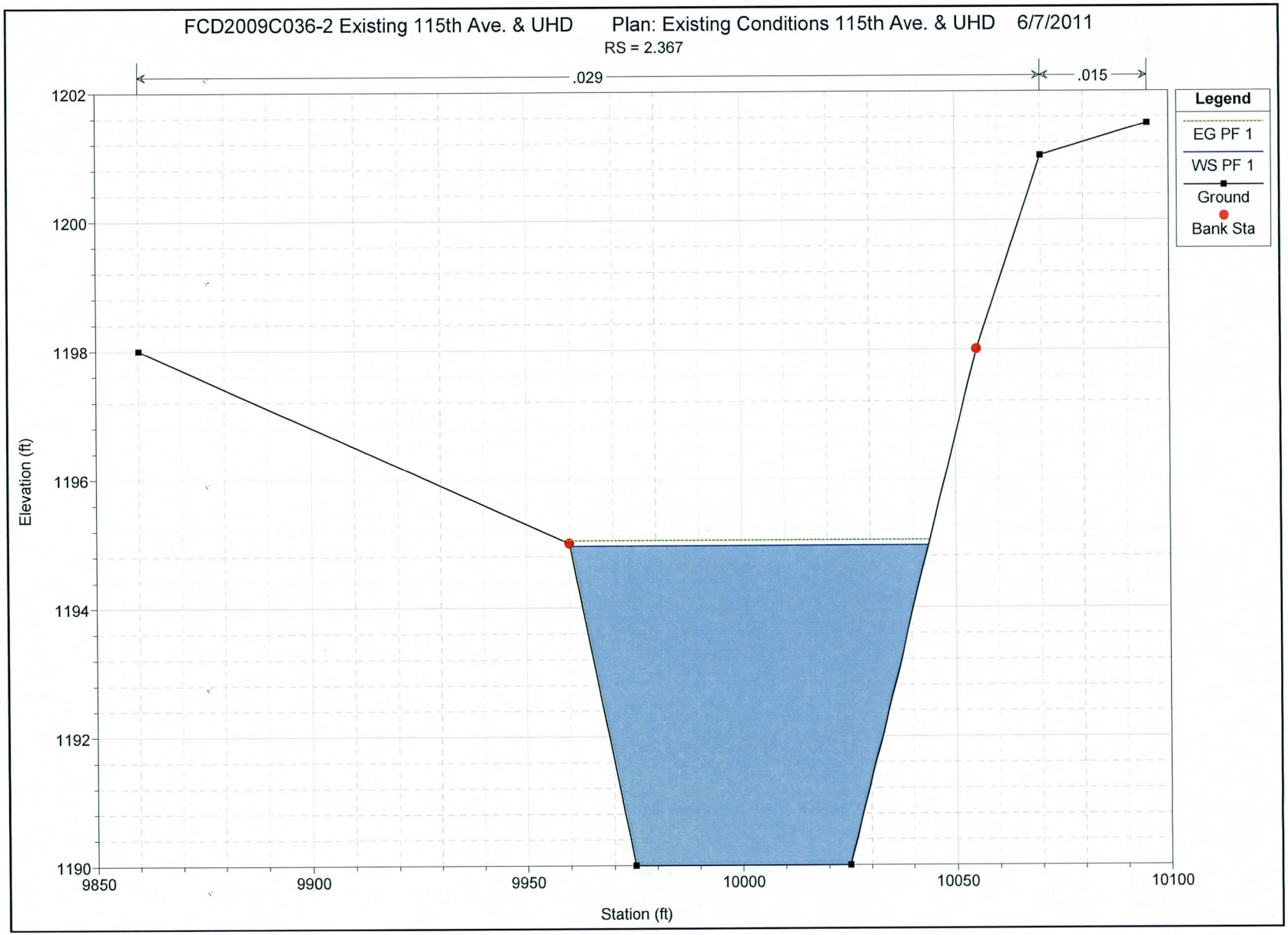
Plan: Existing Conditions 115th Ave. & UHD
6/7/2011
RS = 2.462
.029
.015
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
1204
1202
1200
1198
1196
1194
1192
9850
9900
9950
10000
10050
10100
10150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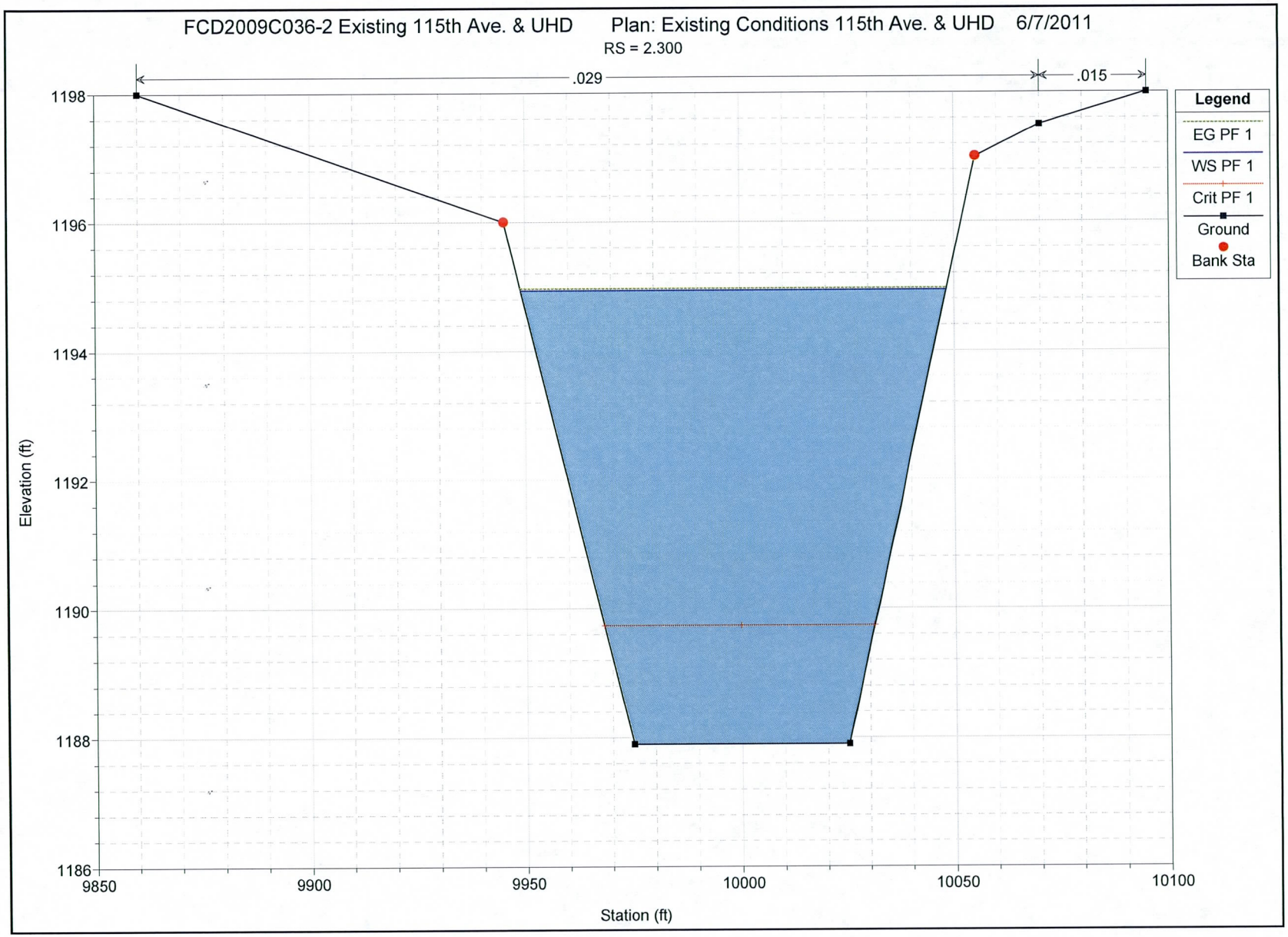
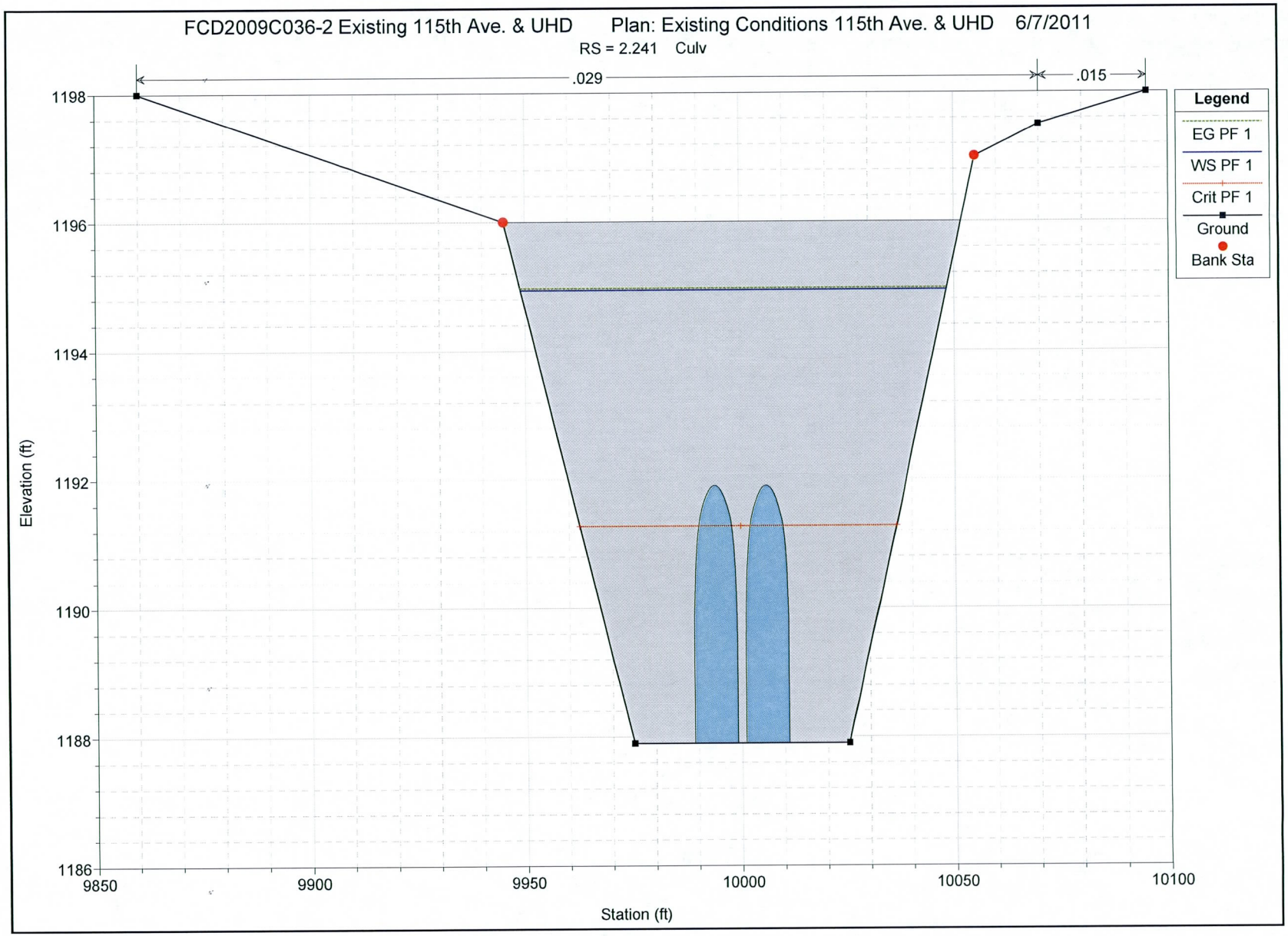
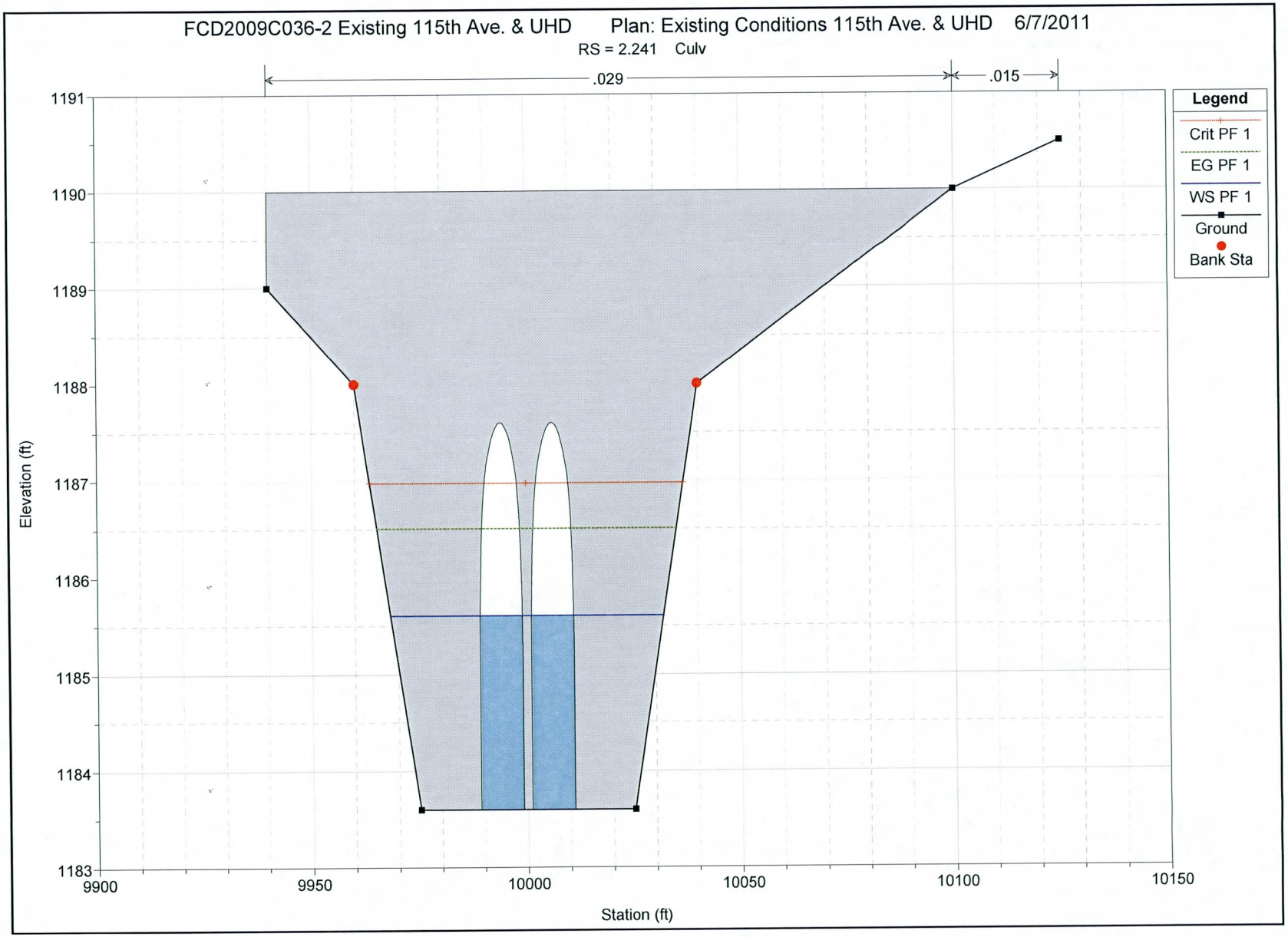
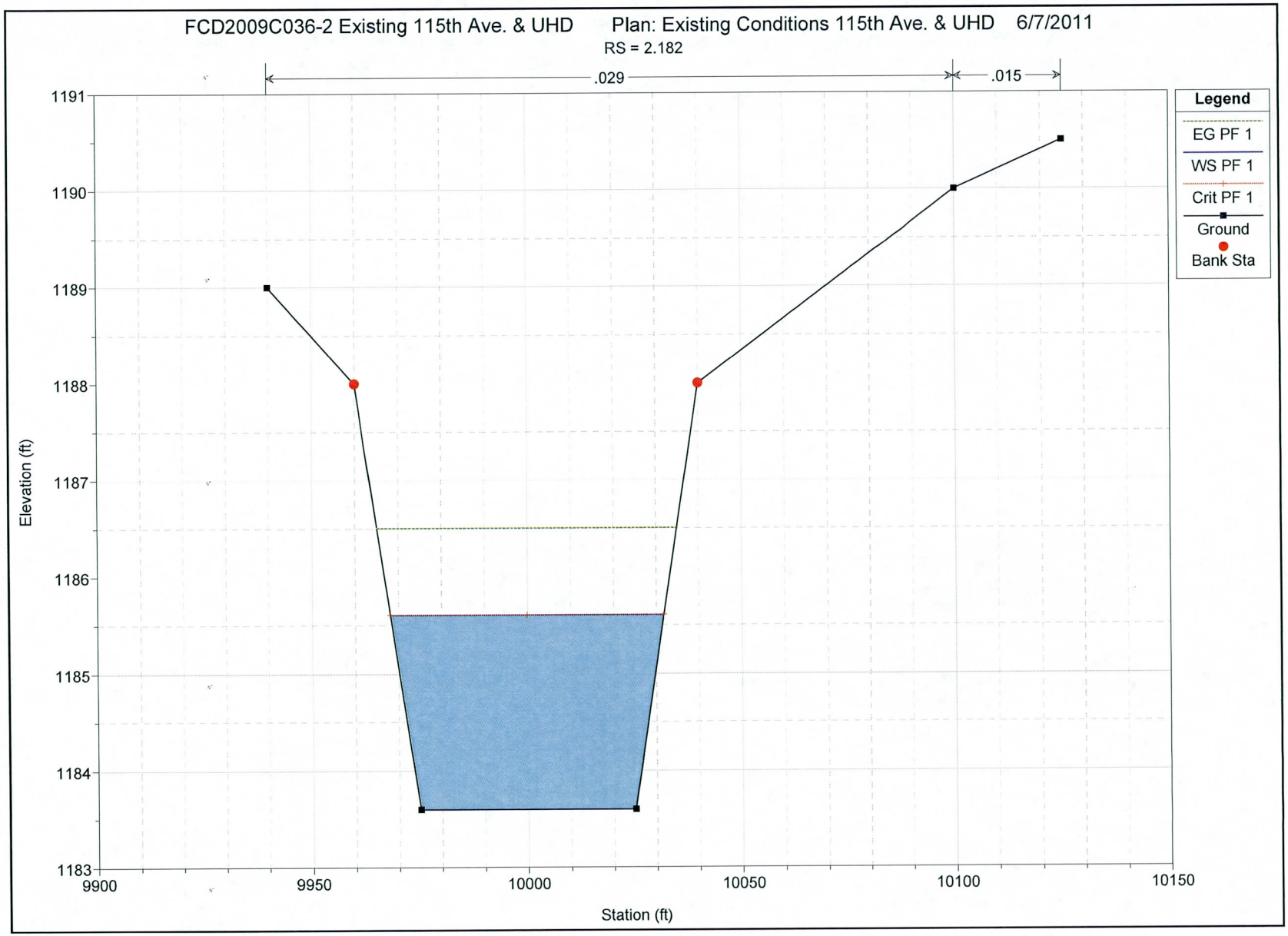
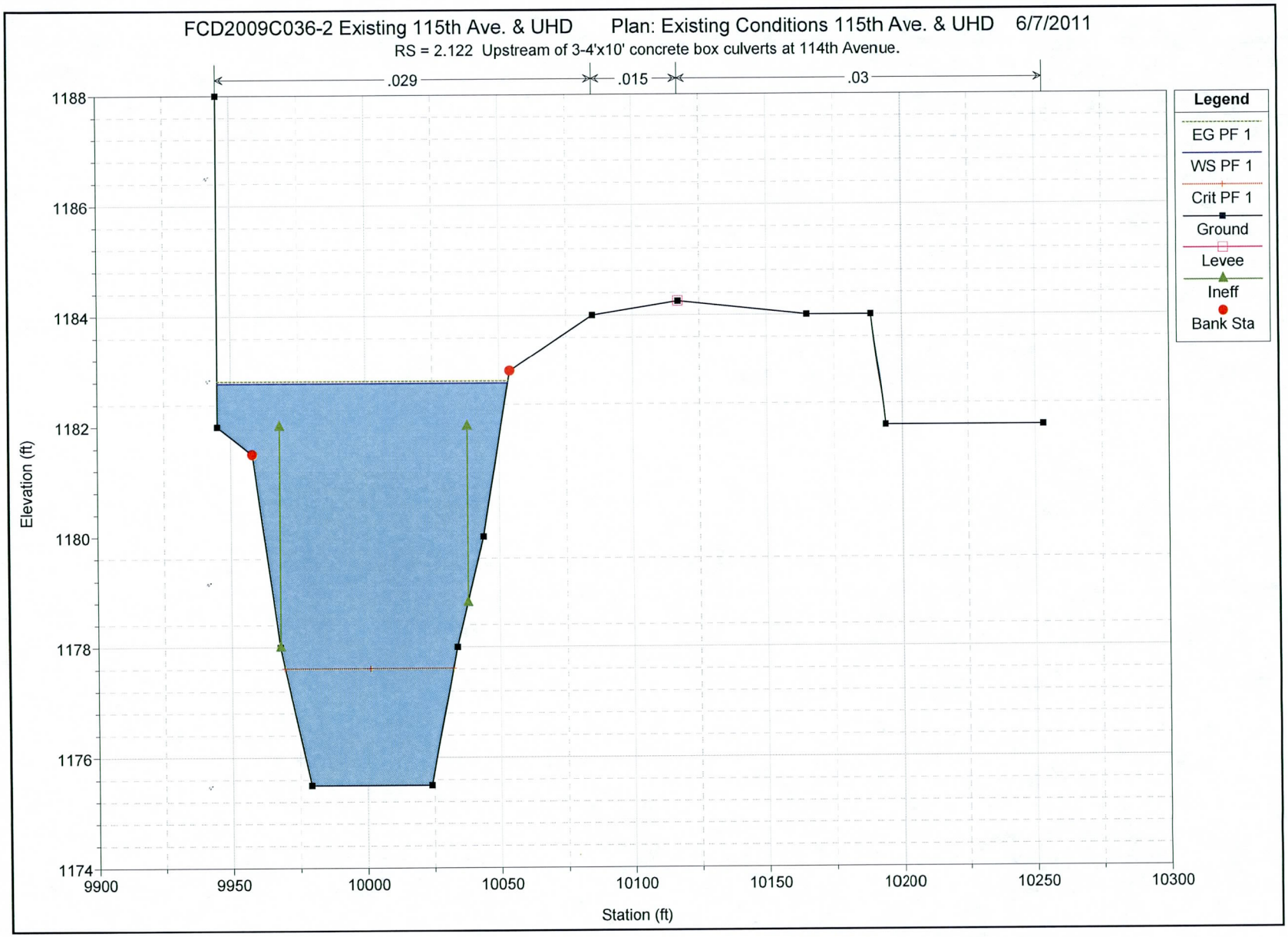
Plan: Existing Conditions 115th Ave. & UHD
6/7/2011
RS = 2.367
.029
.015
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
1202
1200
1198
1196
1194
1192
1190
9850
9900
9950
10000
10050
10100

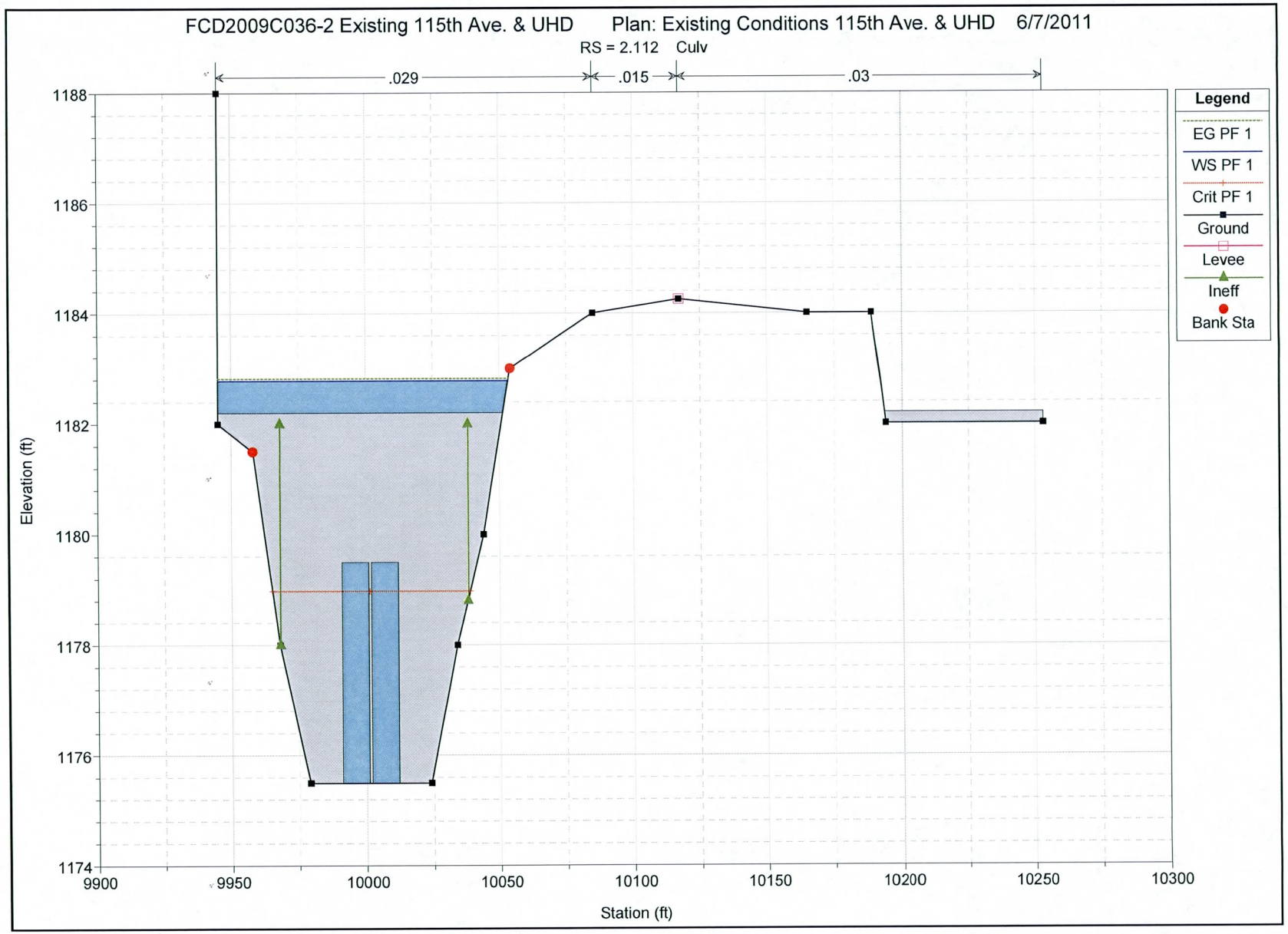

FCD2009C036-2 Existing 115th Ave. & UHD Plan: Existing Conditions 115th Ave. & UHD 6/7/2011
RS = 2.300
.029
.015
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
1198
1196
1194
1192
1190
1188
1186
9850
9900
9950
10000
10050
10100
Station (ft)

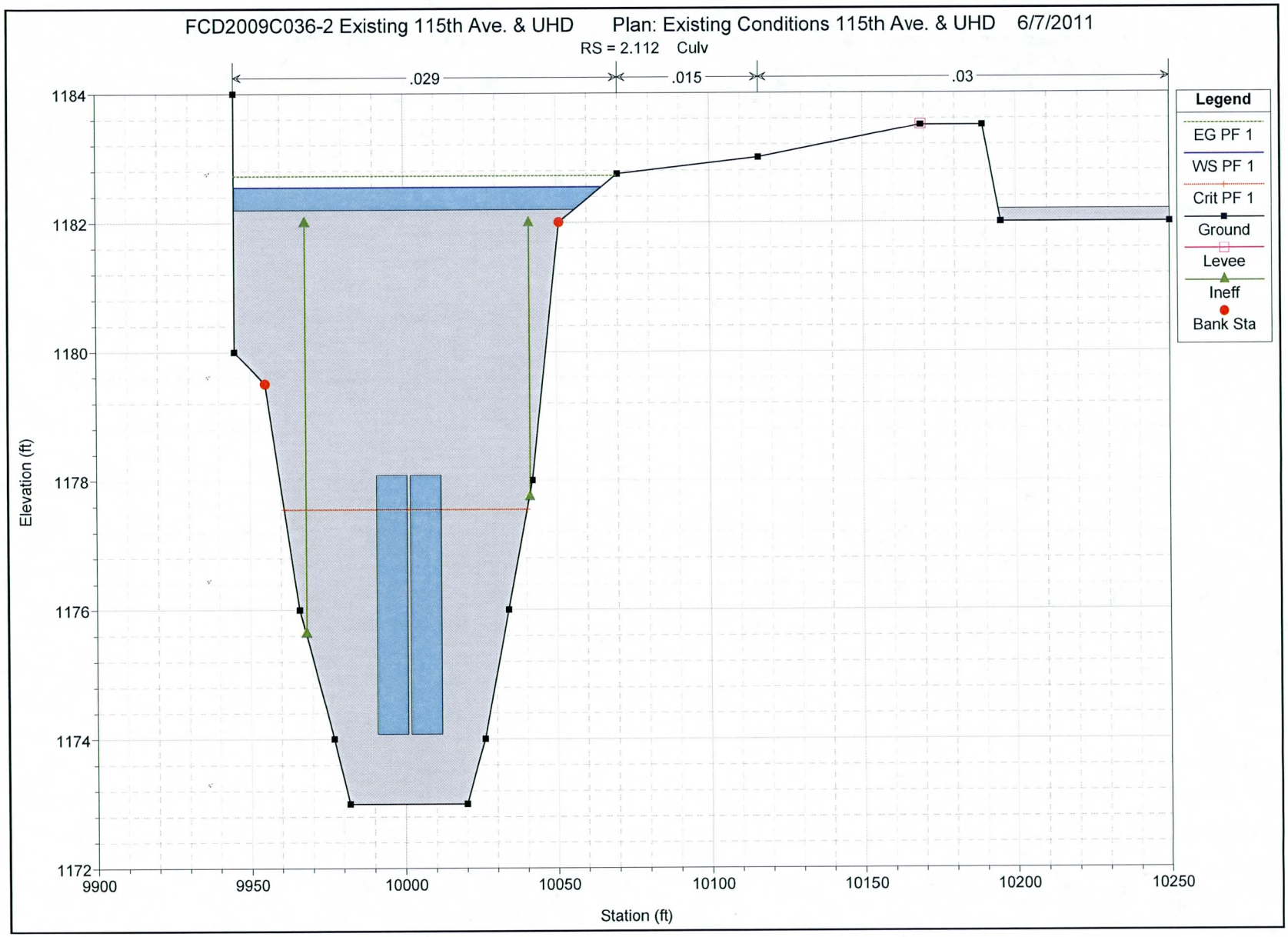

FCD2009C036-2 Existing 115th Ave. & UHD Plan: Existing Conditions 115th Ave. & UHD 6/7/2011
RS = 2.241 Culv
.029
.015
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
1198
1196
1194
1192
1190
1188
1186
9850
9900
9950
10000
10050
10100
Station (ft)

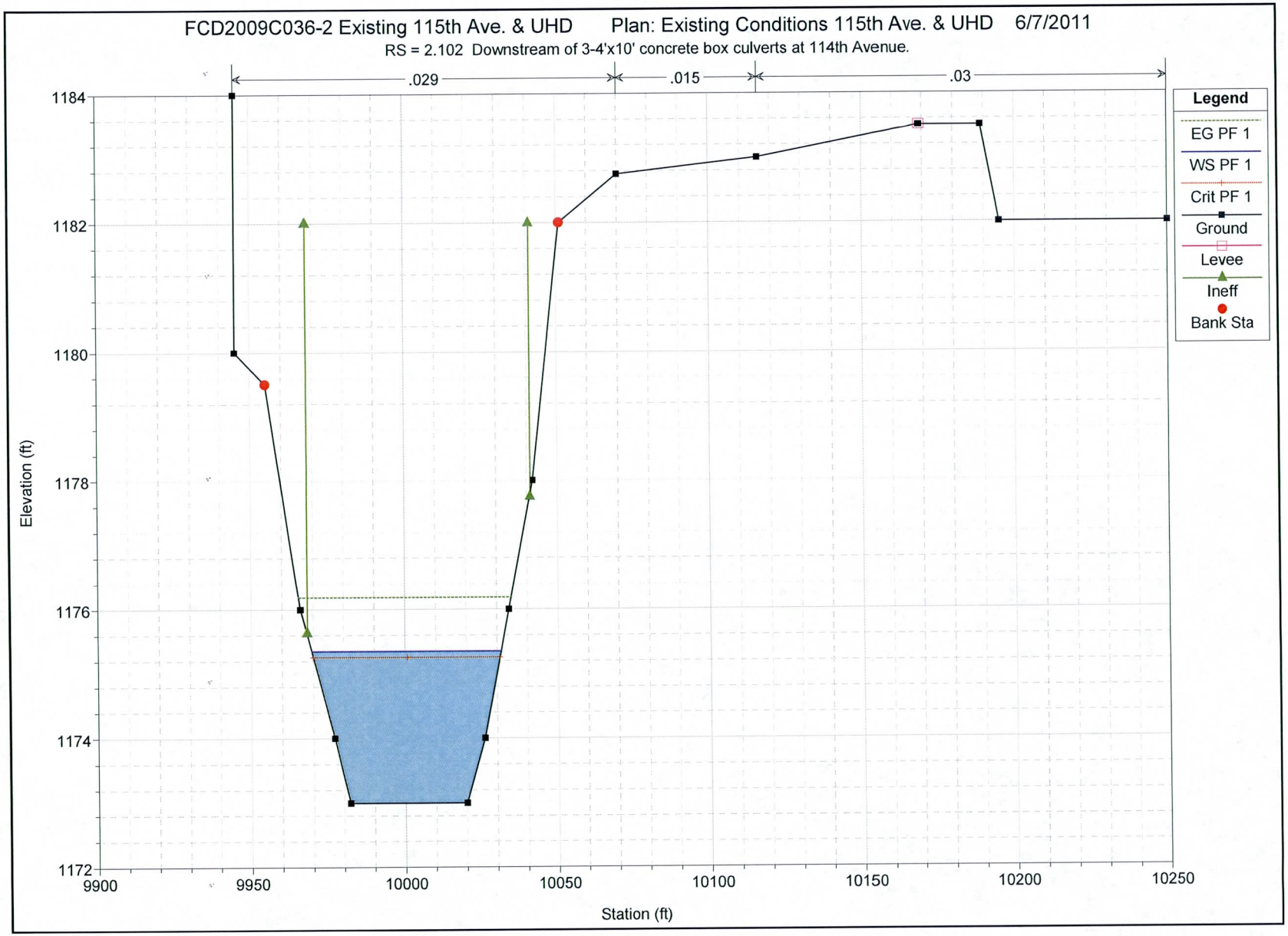

FCD2009C036-2 Existing 115th Ave. & UHD Plan: Existing Conditions 115th Ave. & UHD 6/7/2011
RS = 2.241 Culv
.029
.015
Legend
Crit PF 1
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
1191
1190
1189
1188
1187
1186
1185
1184
1183
9900
9950
10000
10050
10100
10150
Station (ft)

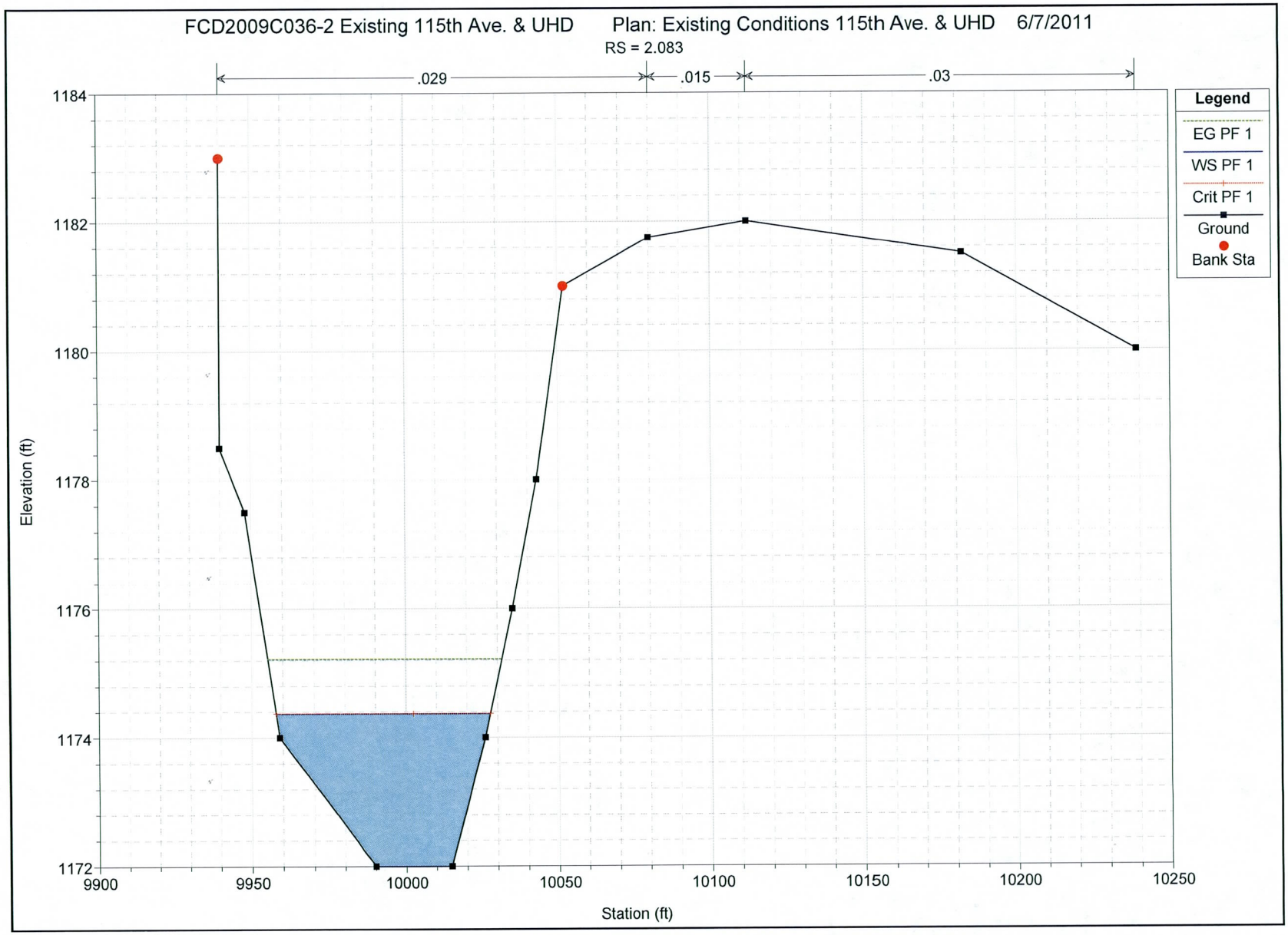

FCD2009C036-2 Existing 115th Ave. & UHD Plan: Existing Conditions 115th Ave. & UHD 6/7/2011
RS = 2.182
.029
.015
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
1191
1190
1189
1188
1187
1186
1185
1184
1183
9900
9950
10000
10050
10100
10150
Station (ft)

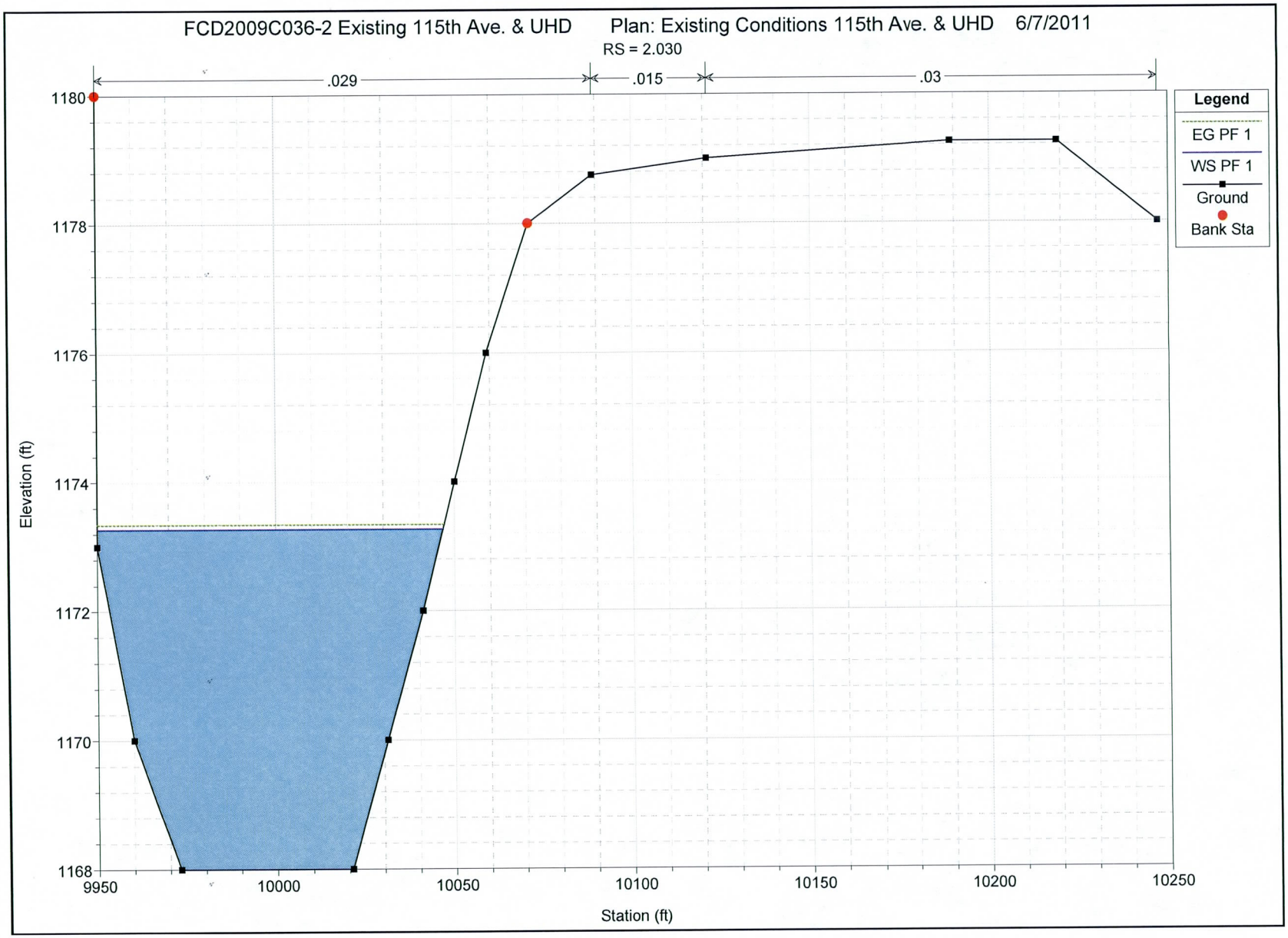

FCD2009C036-2 Existing 115th Ave. & UHD Plan: Existing Conditions 115th Ave. & UHD 6/7/2011
RS = 2.122 Upstream of 3-4'x10' concrete box culverts at 114th Avenue.
.029
.015
.03
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Levee
Ineff
Bank Sta
Elevation (ft)
1188
1186
1184
1182
1180
1178
1176
1174
9900
9950
10000
10050
10100
10150
10200
10250
10300
Station (ft)

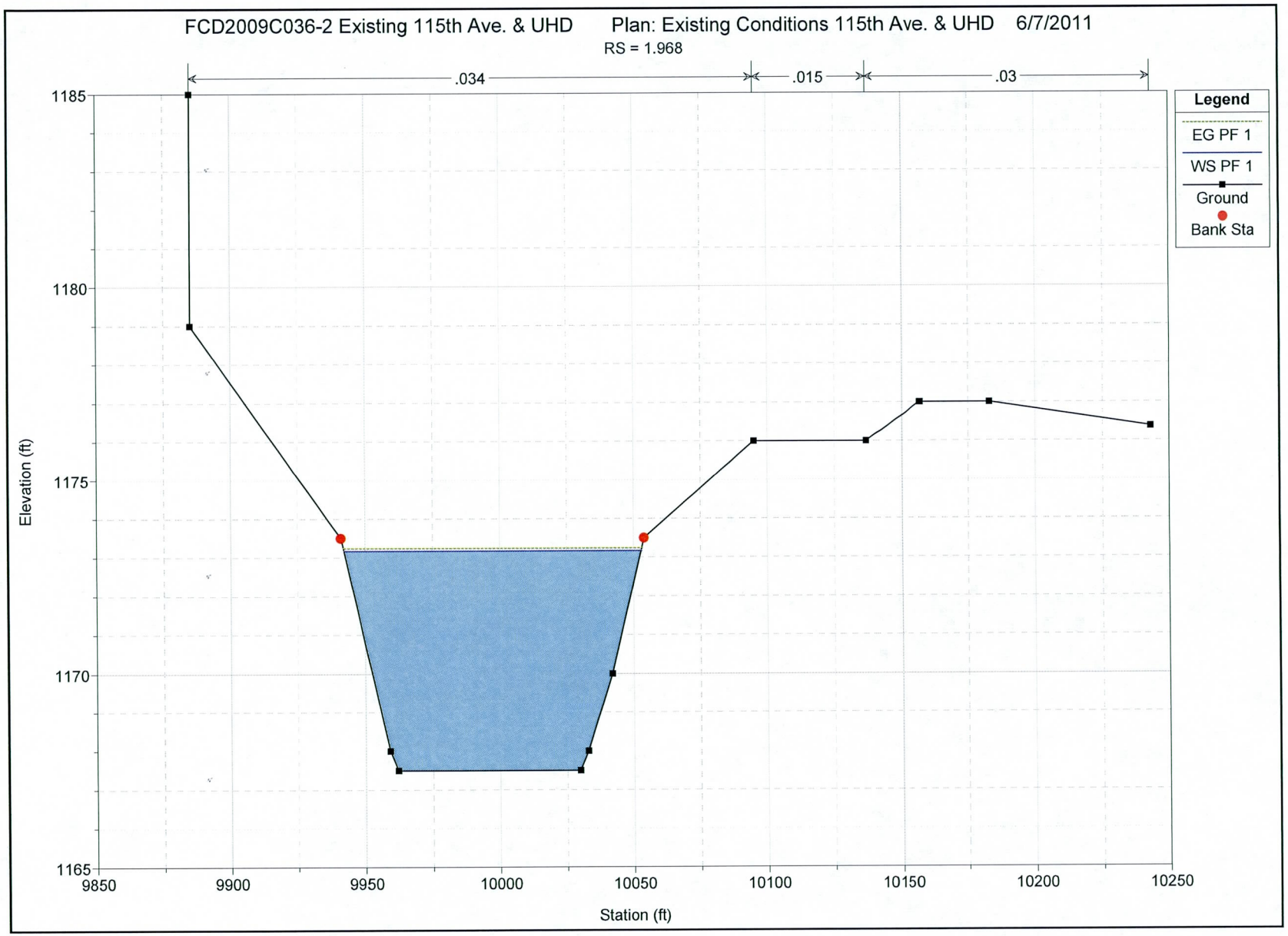

FCD2009C036-2 Existing 115th Ave. & UHD
Plan: Existing Conditions 115th Ave. & UHD
6/7/2011
RS = 2.112
Culv
.029
.015
.03
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Levee
Ineff
Bank Sta
Elevation (ft)
Station (ft)
1188
1186
1184
1182
1180
1178
1176
1174
9900
9950
10000
10050
10100
10150
10200
10250
10300

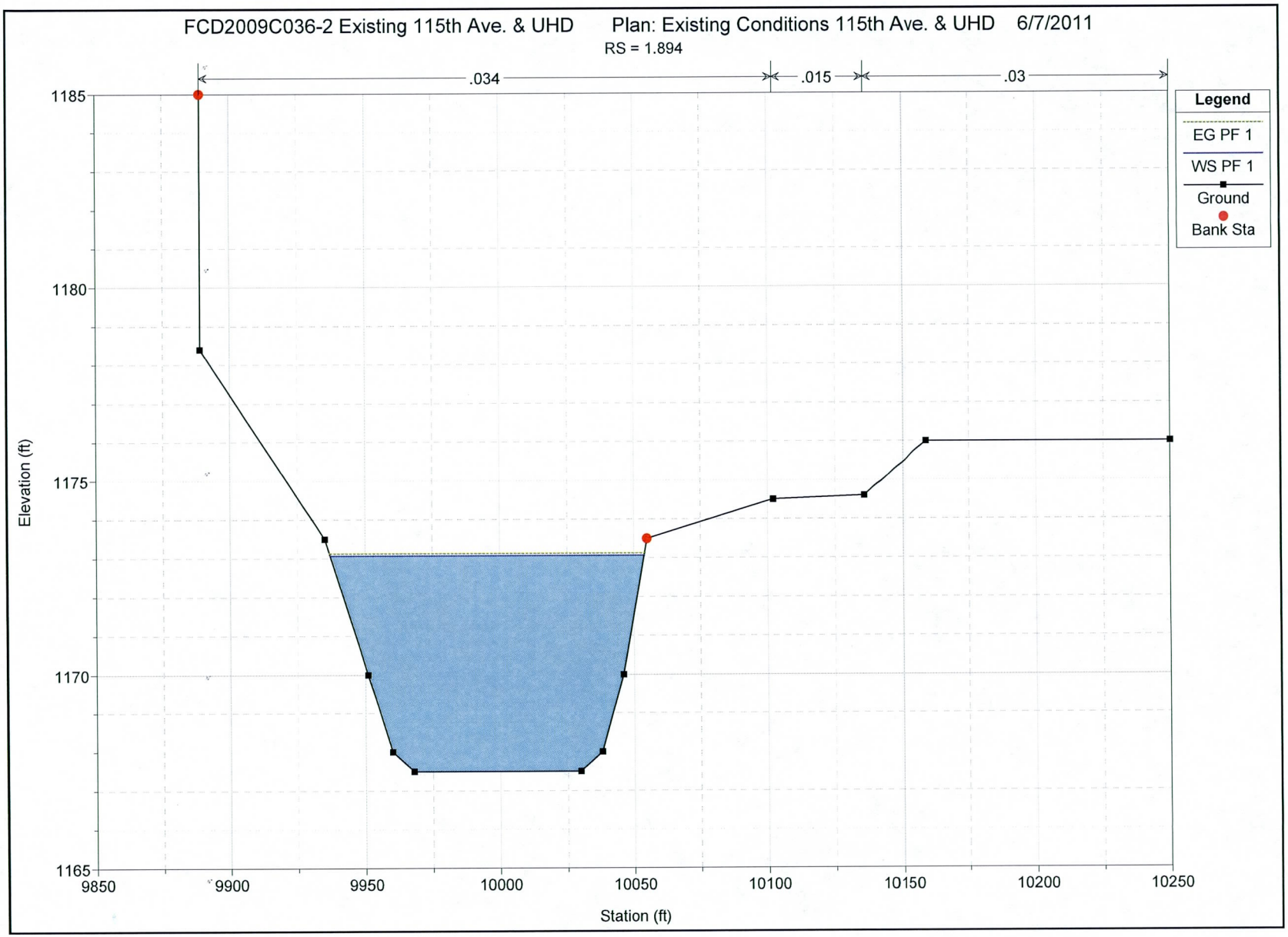

FCD2009C036-2 Existing 115th Ave. & UHD Plan: Existing Conditions 115th Ave. & UHD 6/7/2011
RS = 2.112 Culv
.029
.015
.03
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Levee
Ineff
Bank Sta
Elevation (ft)
1184
1182
1180
1178
1176
1174
1172
9900
9950
10000
10050
10100
10150
10200
10250
Station (ft)

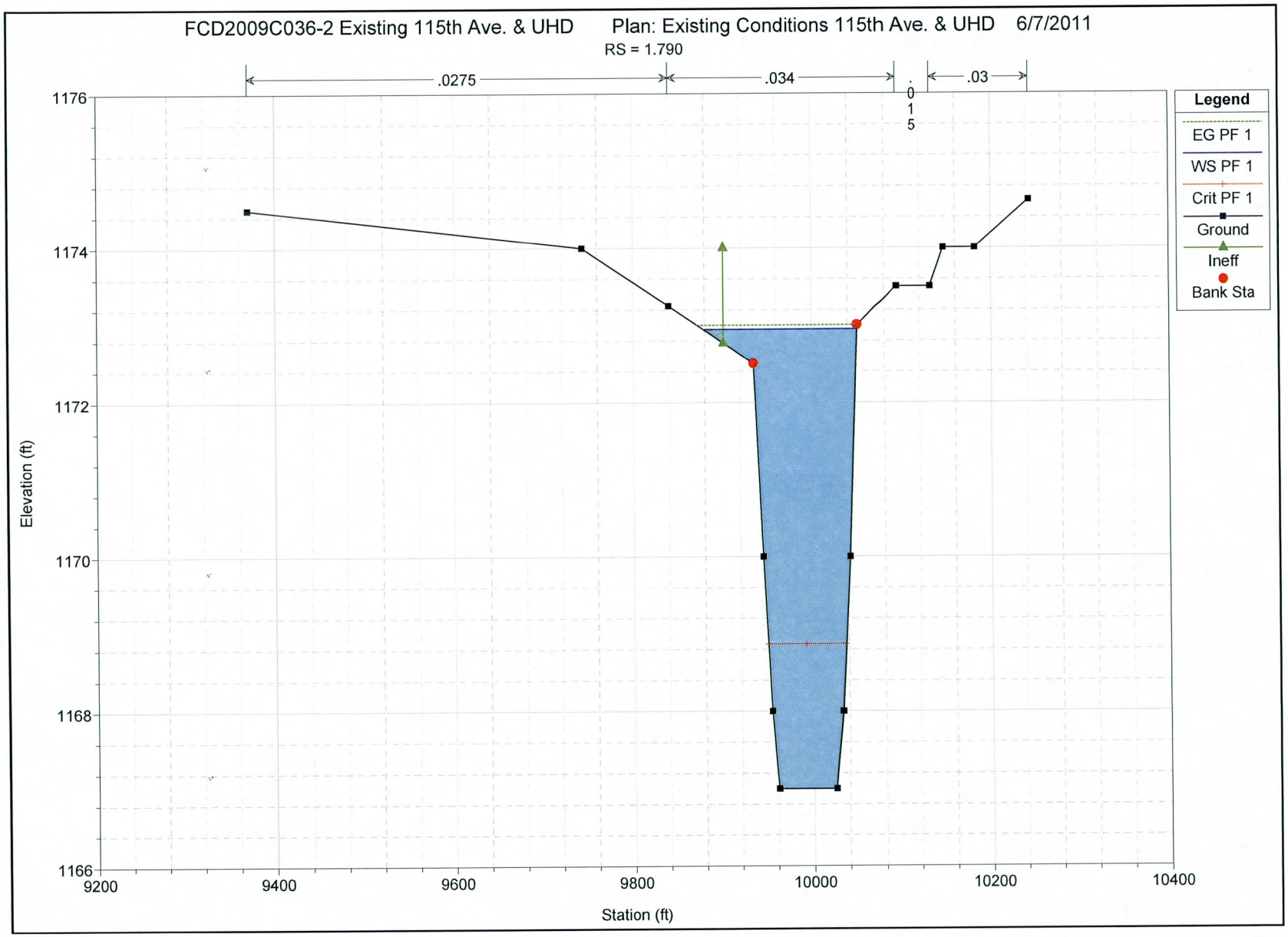

FCD2009C036-2 Existing 115th Ave. & UHD Plan: Existing Conditions 115th Ave. & UHD 6/7/2011
RS = 2.102 Downstream of 3-4'x10' concrete box culverts at 114th Avenue.
.029
.015
.03
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Levee
Ineff
Bank Sta
Elevation (ft)
1184
1182
1180
1178
1176
1174
1172
9900
9950
10000
10050
10100
10150
10200
10250
Station (ft)

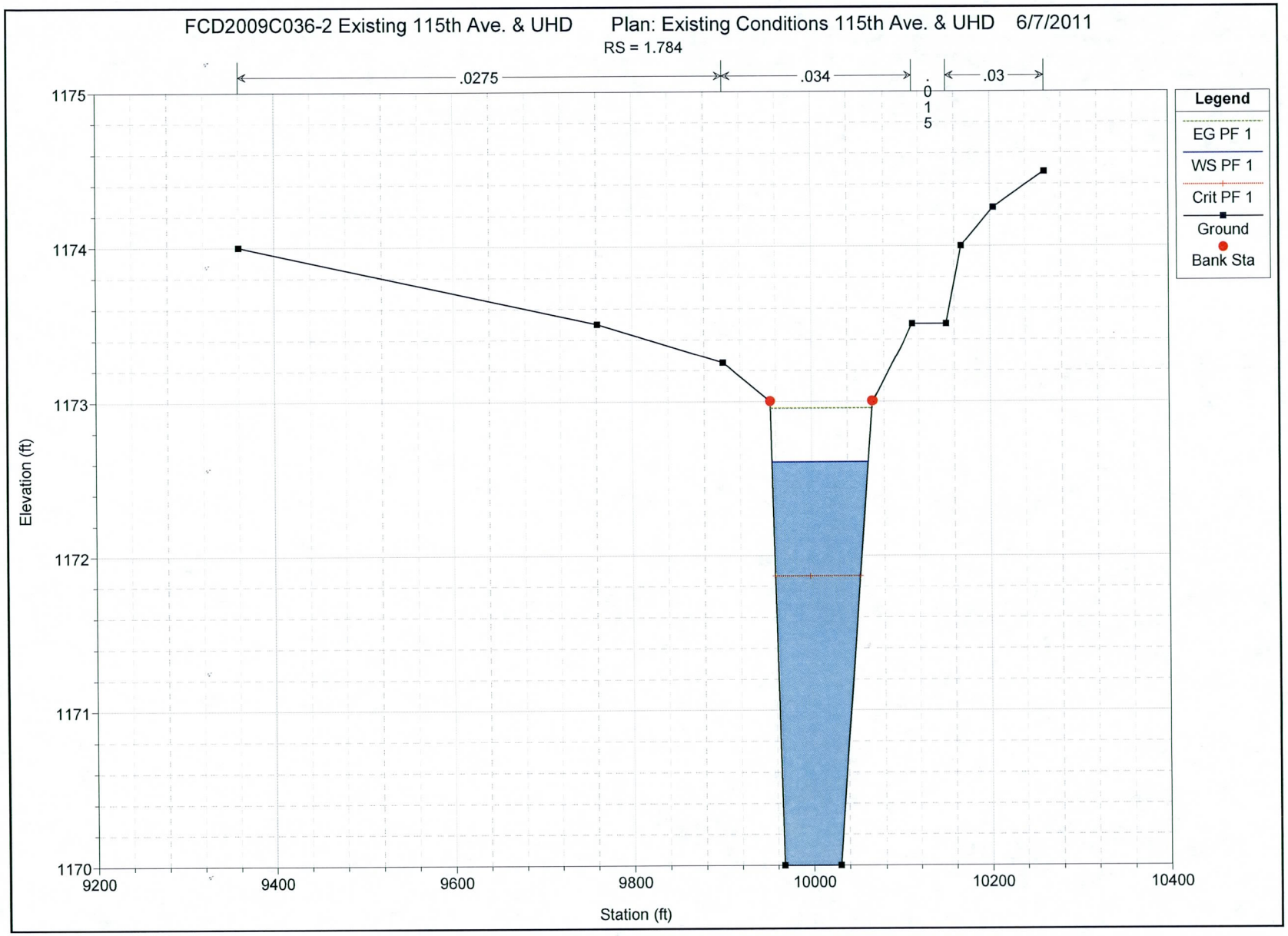

FCD2009C036-2 Existing 115th Ave. & UHD
Plan: Existing Conditions 115th Ave. & UHD
6/7/2011
RS = 2.083
.029
.015
.03
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
1184
1182
1180
1178
1176
1174
1172
9900
9950
10000
10050
10100
10150
10200
10250

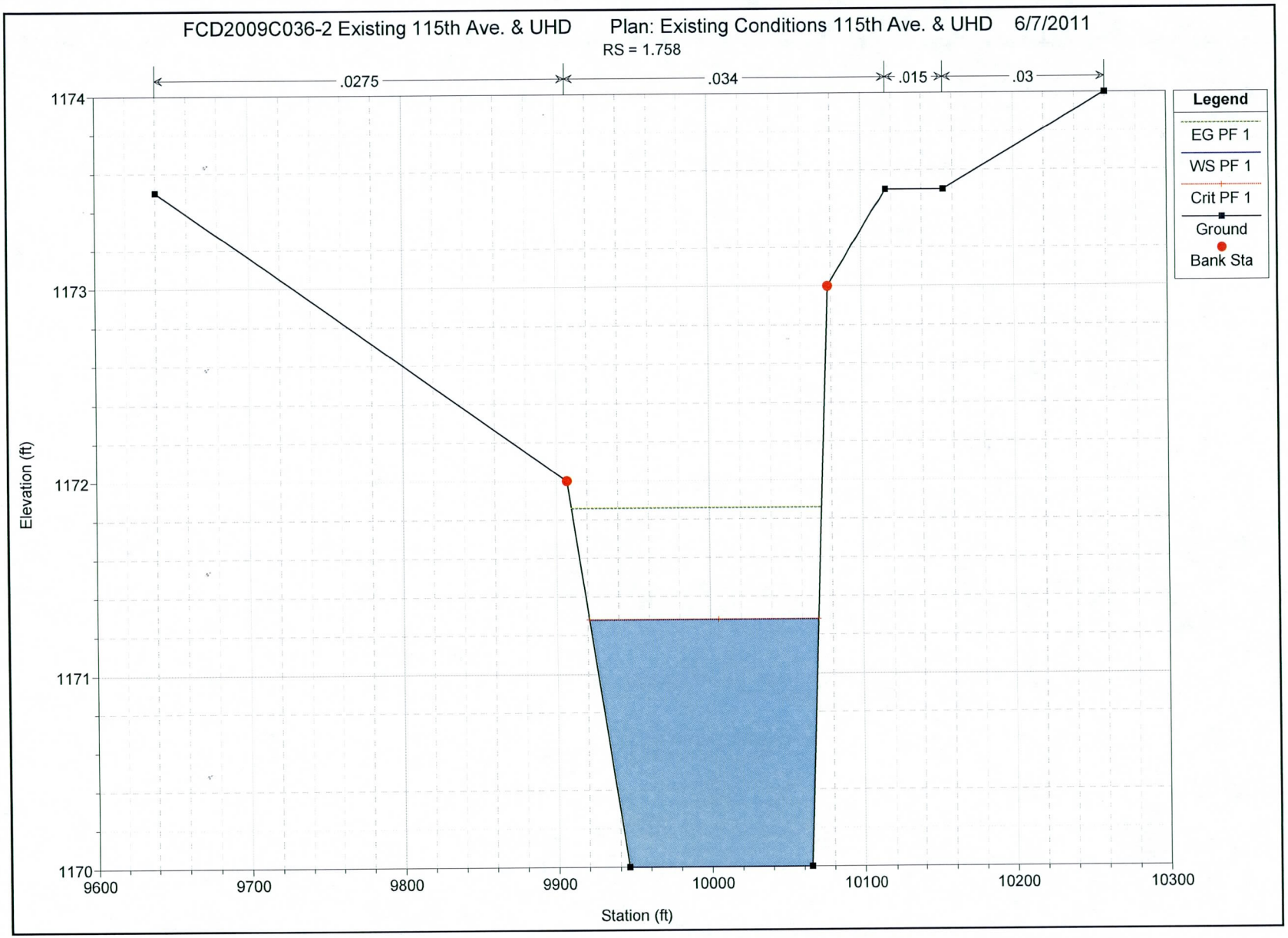

FCD2009C036-2 Existing 115th Ave. & UHD
Plan: Existing Conditions 115th Ave. & UHD
6/7/2011
RS = 2.030
.029
.015
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
1180
1178
1176
1174
1172
1170
1168
9950
10000
10050
10100
10150
10200
10250
Station (ft)

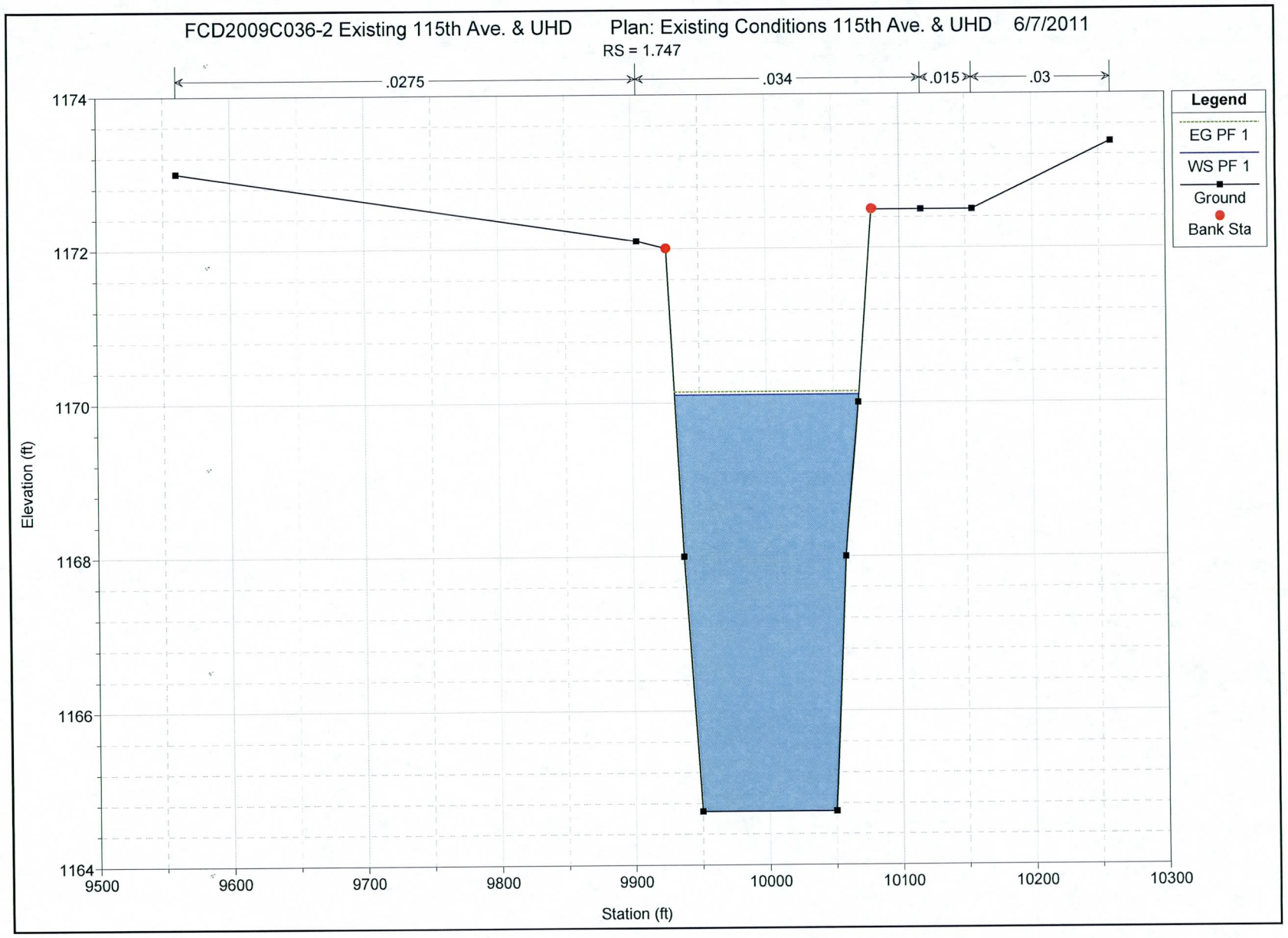

FCD2009C036-2 Existing 115th Ave. & UHD
Plan: Existing Conditions 115th Ave. & UHD
6/7/2011
RS = 1.968
.034
.015
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
1185
1180
1175
1170
1165
9850
9900
9950
10000
10050
10100
10150
10200
10250
Station (ft)

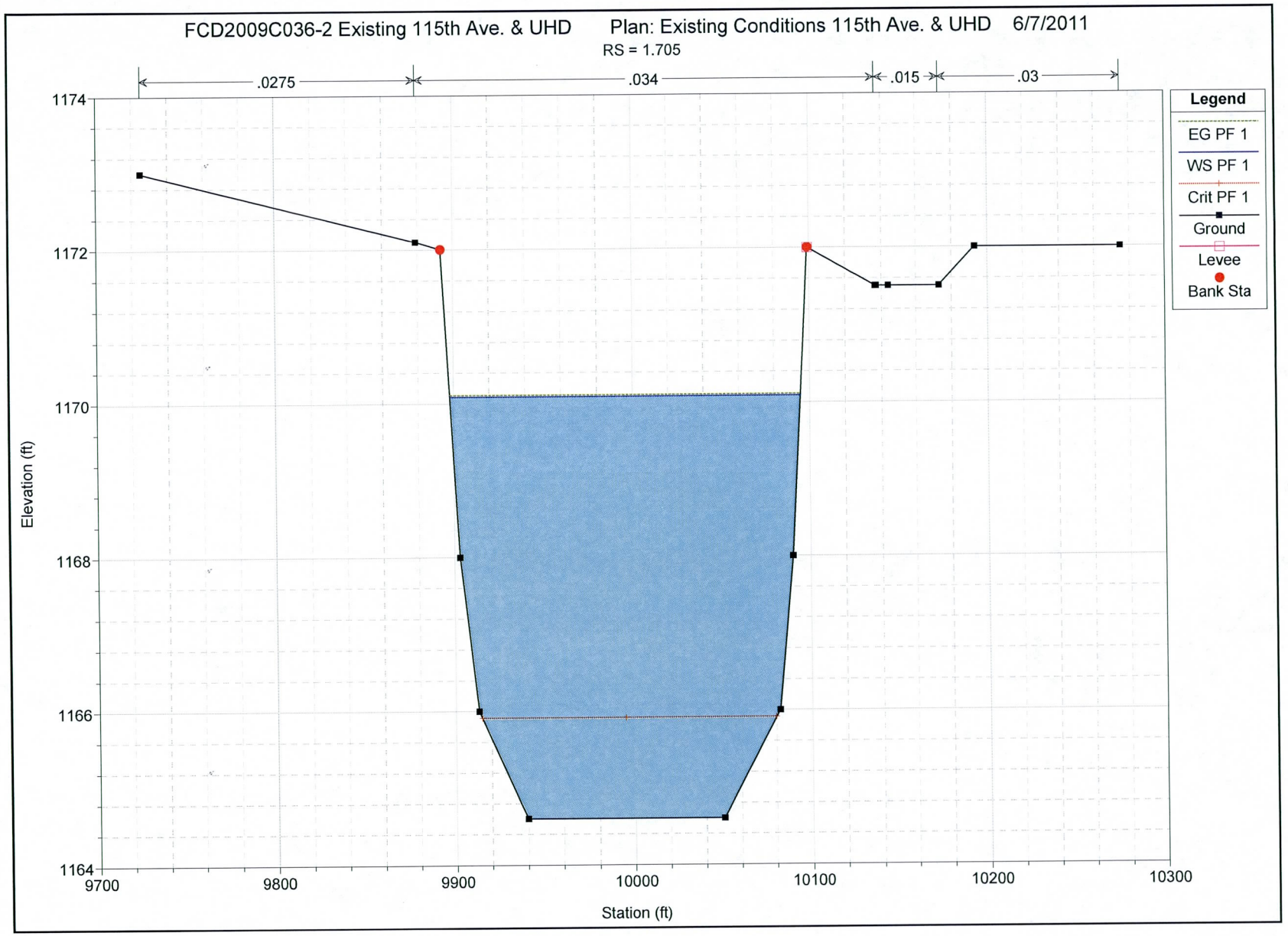

FCD2009C036-2 Existing 115th Ave. & UHD
Plan: Existing Conditions 115th Ave. & UHD
6/7/2011
RS = 1.894
.034
.015
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
1185
1180
1175
1170
1165
9850
9900
9950
10000
10050
10100
10150
10200
10250
Station (ft)

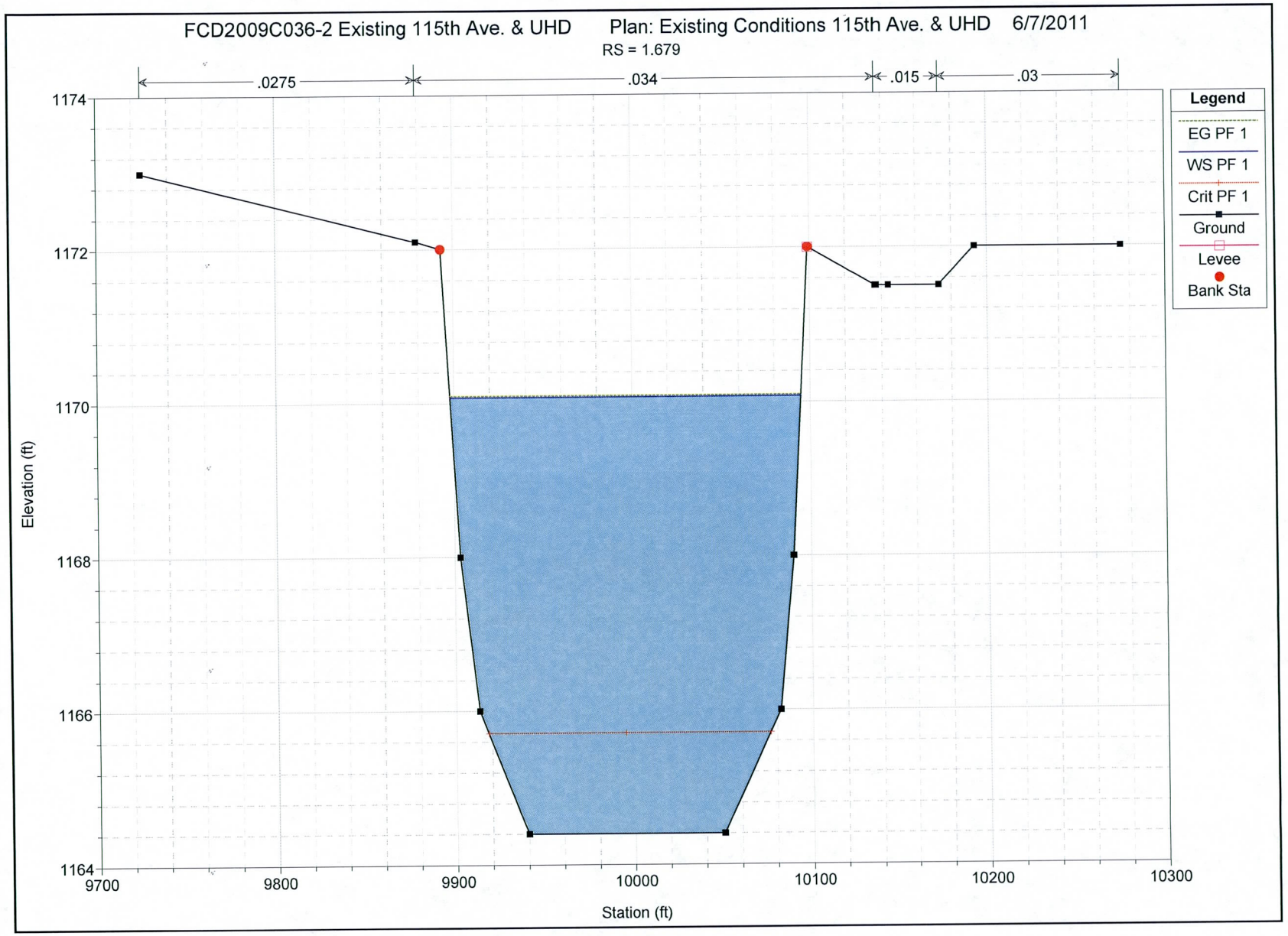

FCD2009C036-2 Existing 115th Ave. & UHD
Plan: Existing Conditions 115th Ave. & UHD
6/7/2011
RS = 1.790
.0275
.034
.03
.015
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
1176
1174
1172
1170
1168
1166
9200
9400
9600
9800
10000
10200
10400

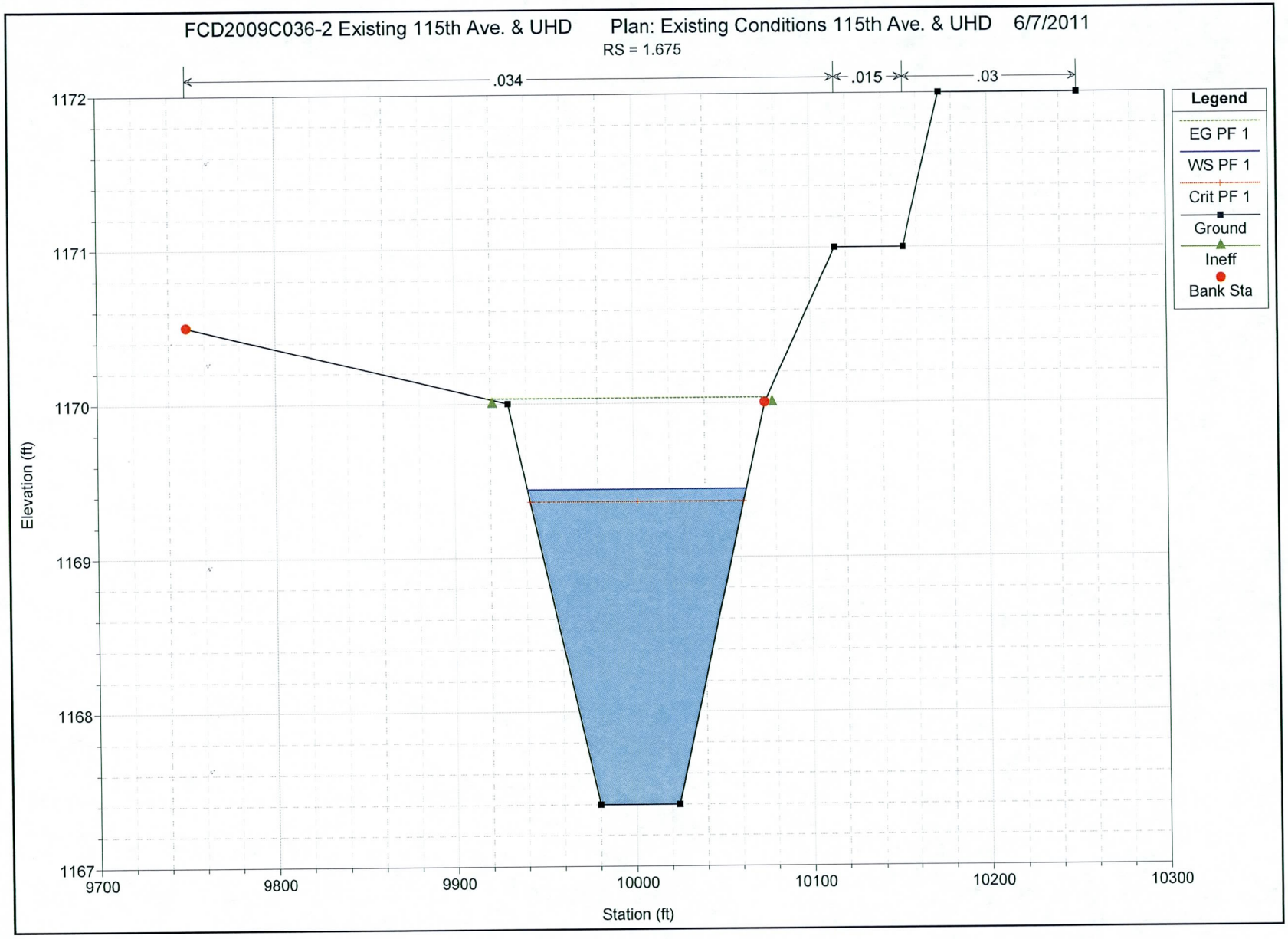

FCD2009C036-2 Existing 115th Ave. & UHD
Plan: Existing Conditions 115th Ave. & UHD
6/7/2011
RS = 1.784
.0275
.034
.03
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
1175
1174
1173
1172
1171
1170
9200
9400
9600
9800
10000
10200
10400

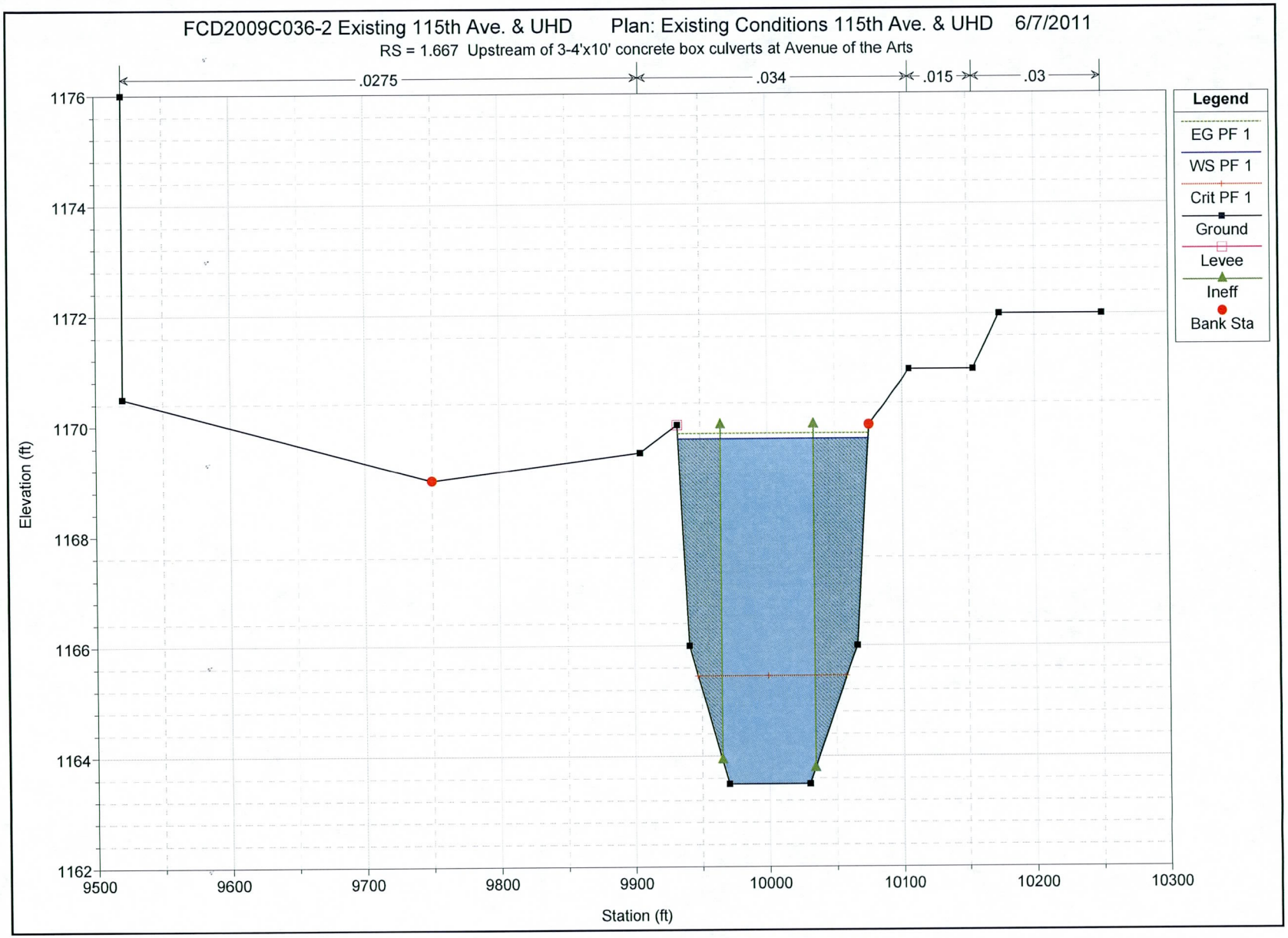

FCD2009C036-2 Existing 115th Ave. & UHD
Plan: Existing Conditions 115th Ave. & UHD 6/7/2011
RS = 1.758
.0275
.034
.015
.03
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
1174
1173
1172
1171
1170
9600
9700
9800
9900
10000
10100
10200
10300
Station (ft)

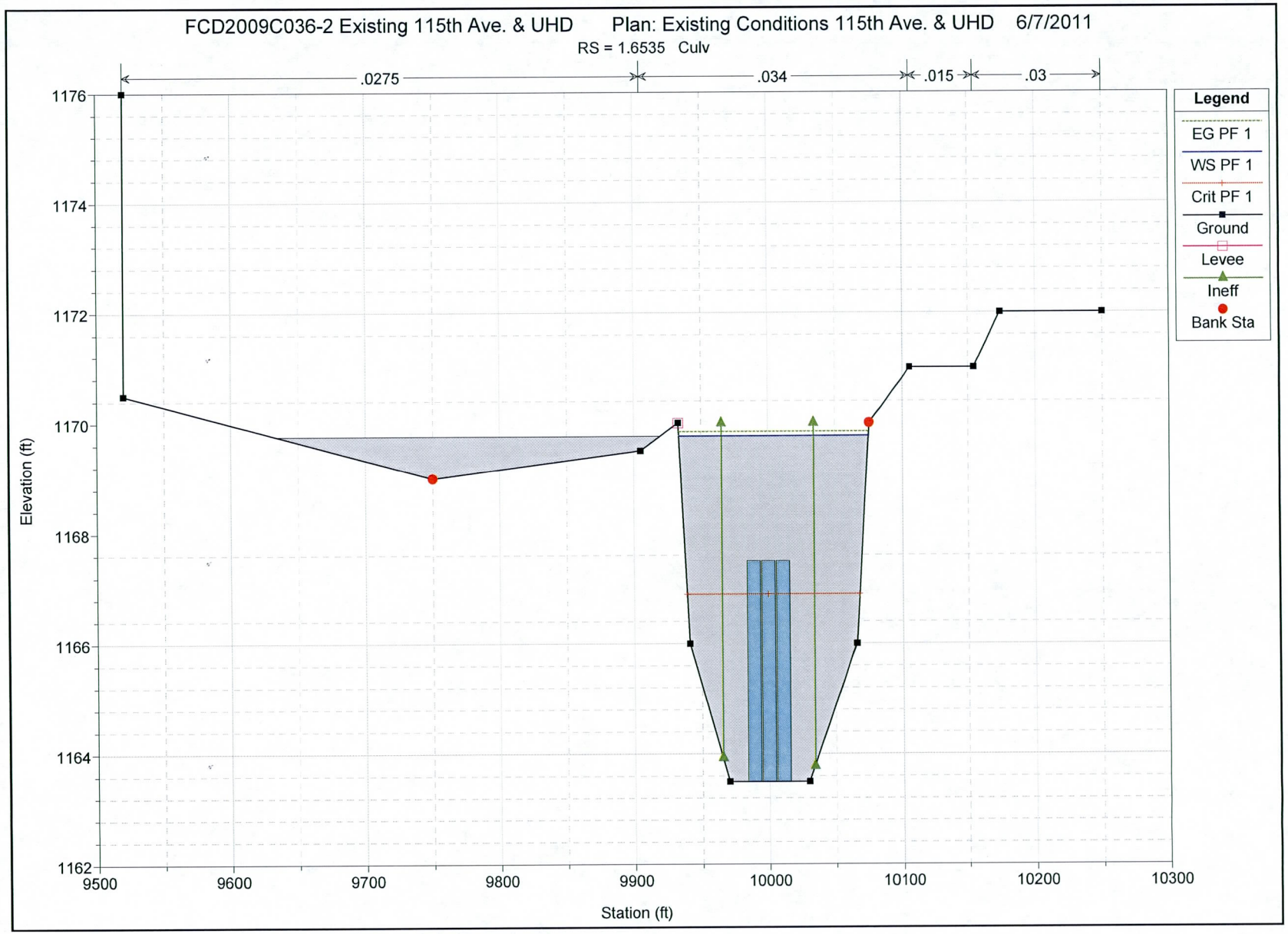

FCD2009C036-2 Existing 115th Ave. & UHD
Plan: Existing Conditions 115th Ave. & UHD
6/7/2011
RS = 1.747
.0275
.034
.015
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
1174
1172
1170
1168
1166
1164
9500
9600
9700
9800
9900
10000
10100
10200
10300

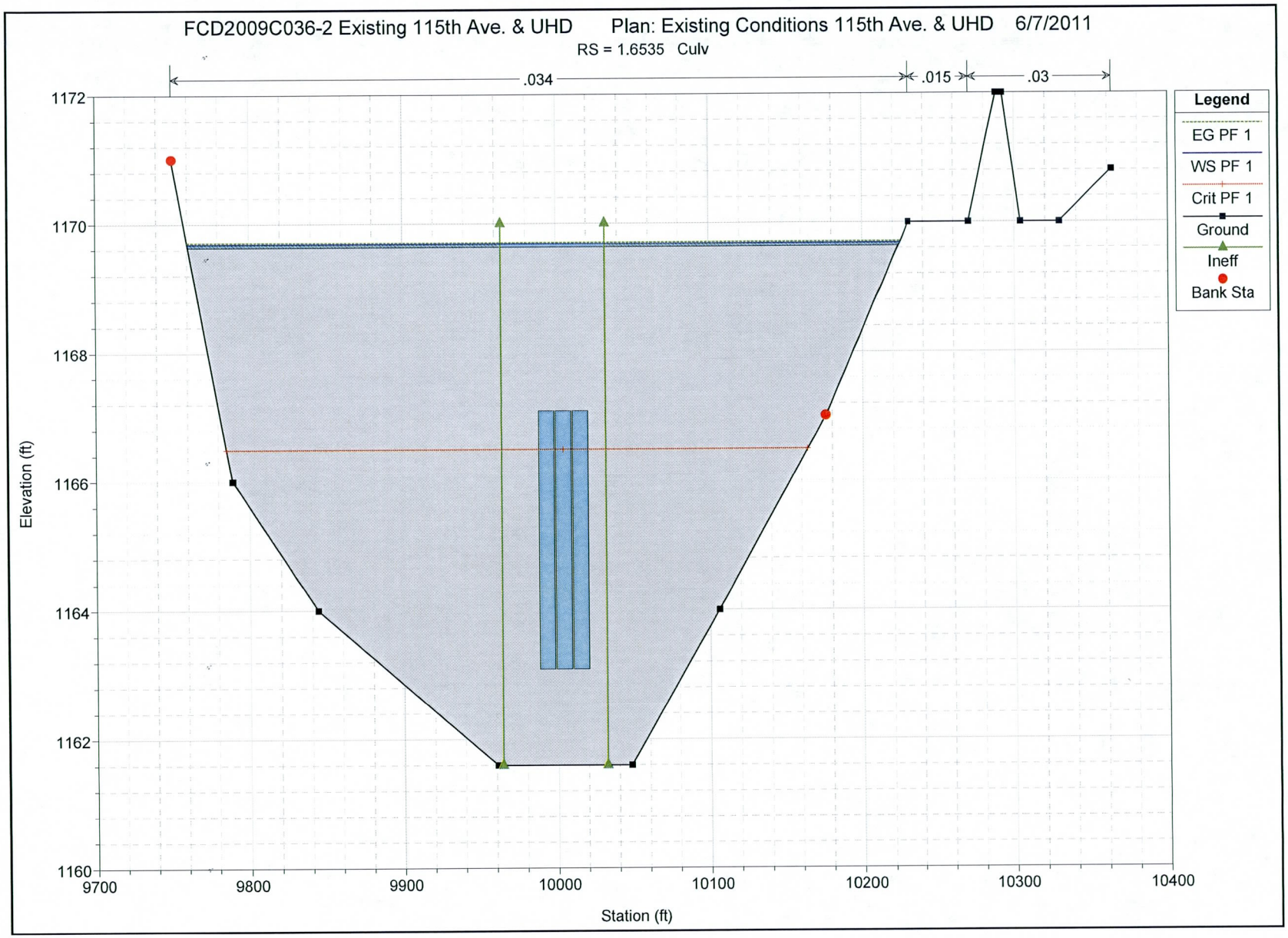

FCD2009C036-2 Existing 115th Ave. & UHD
Plan: Existing Conditions 115th Ave. & UHD
6/7/2011
RS = 1.705
.0275
.034
.015
.03
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
Elevation (ft)
1174
1172
1170
1168
1166
1164
9700
9800
9900
10000
10100
10200
10300
Station (ft)

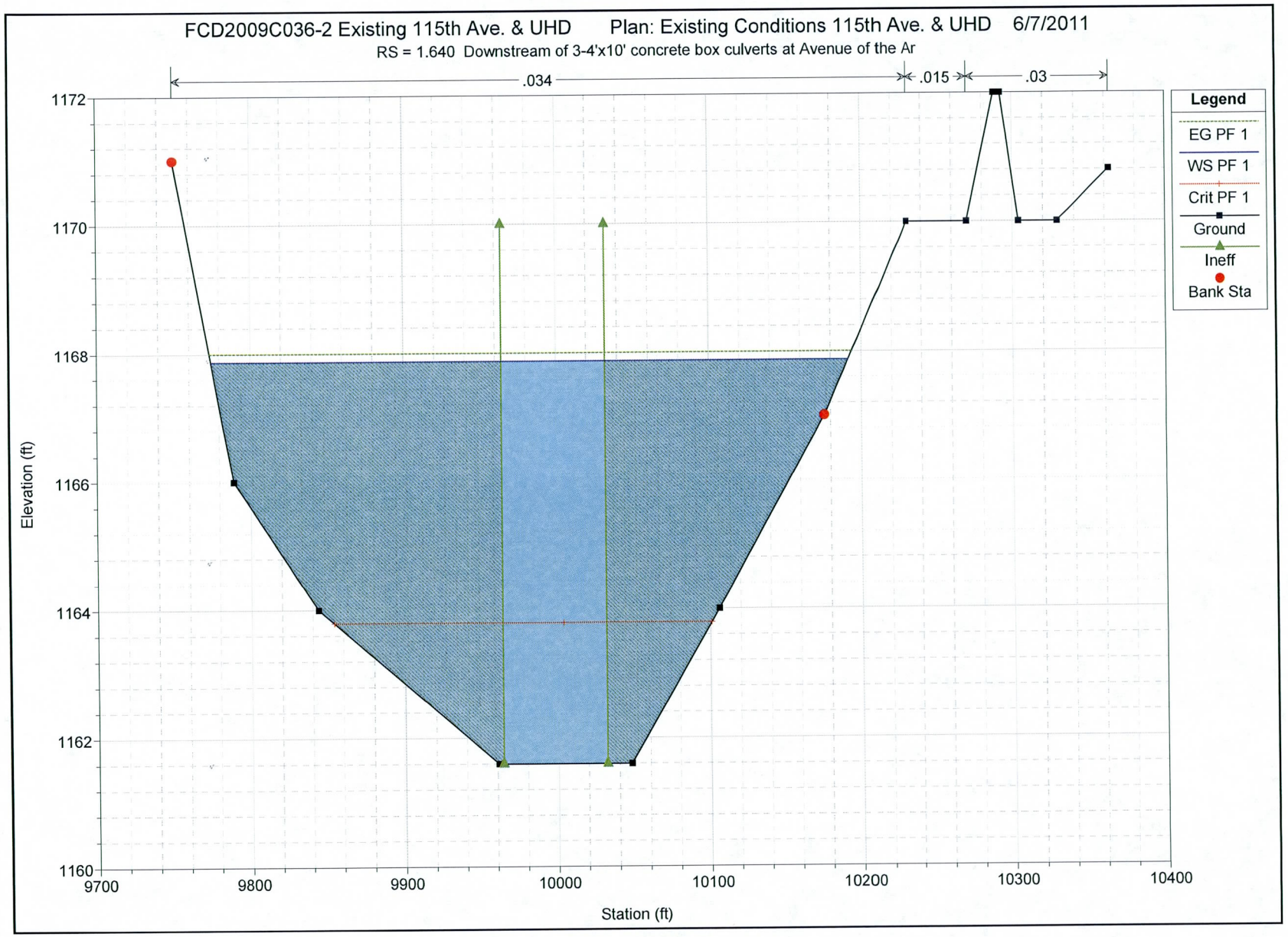

FCD2009C036-2 Existing 115th Ave. & UHD
Plan: Existing Conditions 115th Ave. & UHD
6/7/2011
RS = 1.679
.0275
.034
.015
.03
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
Elevation (ft)
1174
1172
1170
1168
1166
1164
9700
9800
9900
10000
10100
10200
10300
Station (ft)

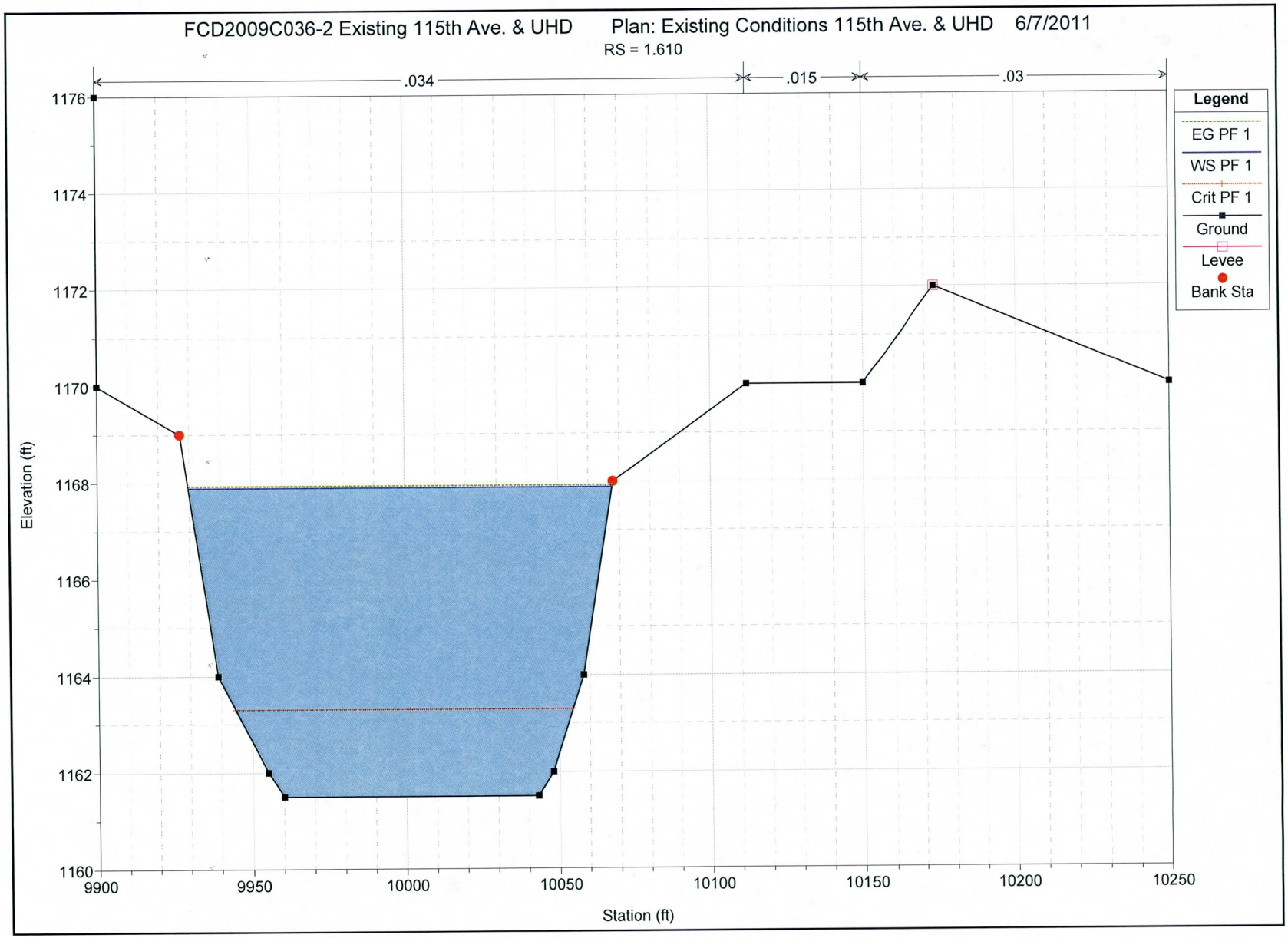

FCD2009C036-2 Existing 115th Ave. & UHD
Plan: Existing Conditions 115th Ave. & UHD
6/7/2011
RS = 1.675
.034
.015
.03
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
1172
1171
1170
1169
1168
1167
9700
9800
9900
10000
10100
10200
10300
Station (ft)

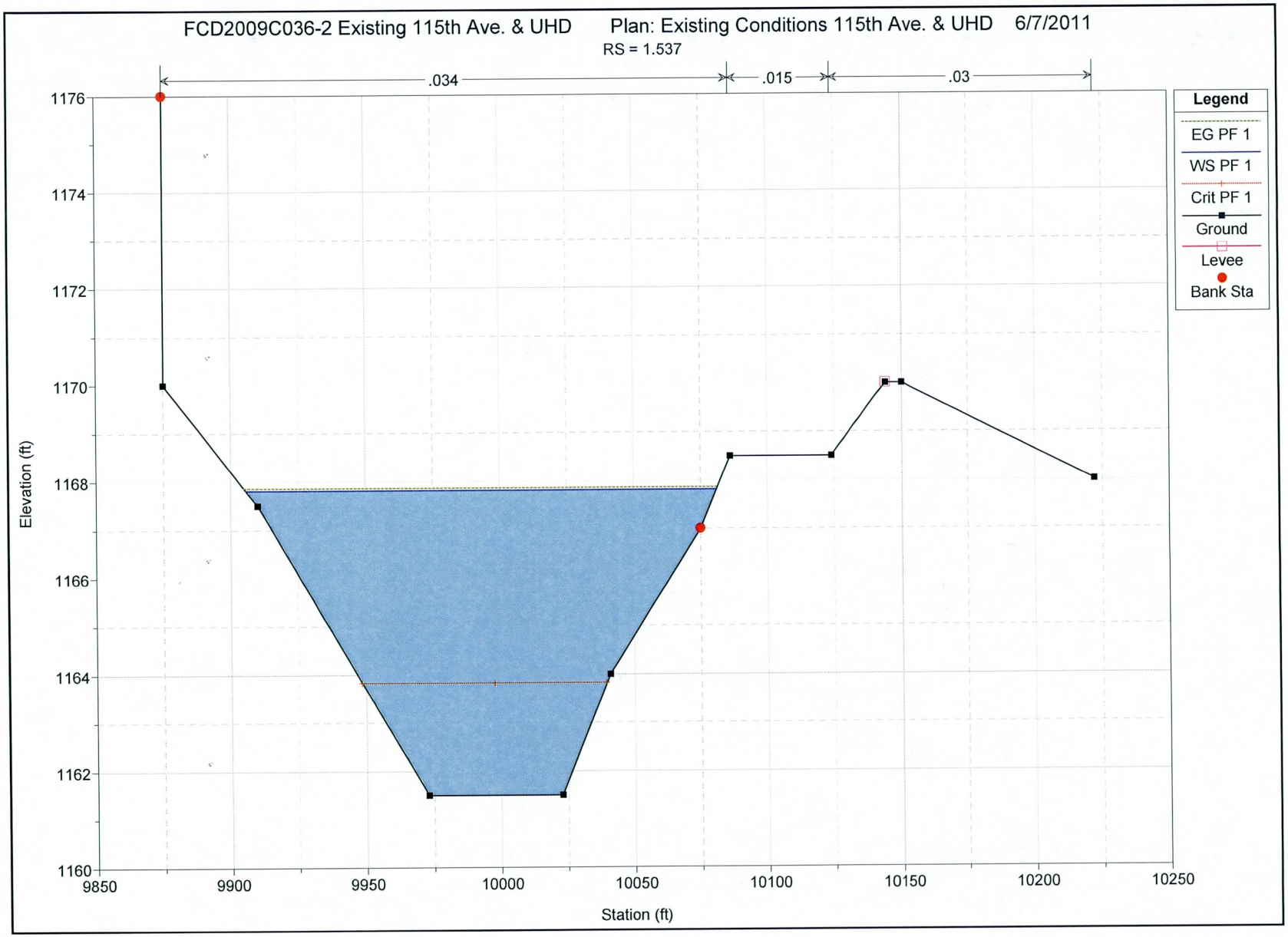

FCD2009C036-2 Existing 115th Ave. & UHD Plan: Existing Conditions 115th Ave. & UHD 6/7/2011
RS = 1.667 Upstream of 3-4'x10' concrete box culverts at Avenue of the Arts
.0275
.034
.015
.03
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Levee
Ineff
Bank Sta
Elevation (ft)
1176
1174
1172
1170
1168
1166
1164
1162
9500
9600
9700
9800
9900
10000
10100
10200
10300
Station (ft)

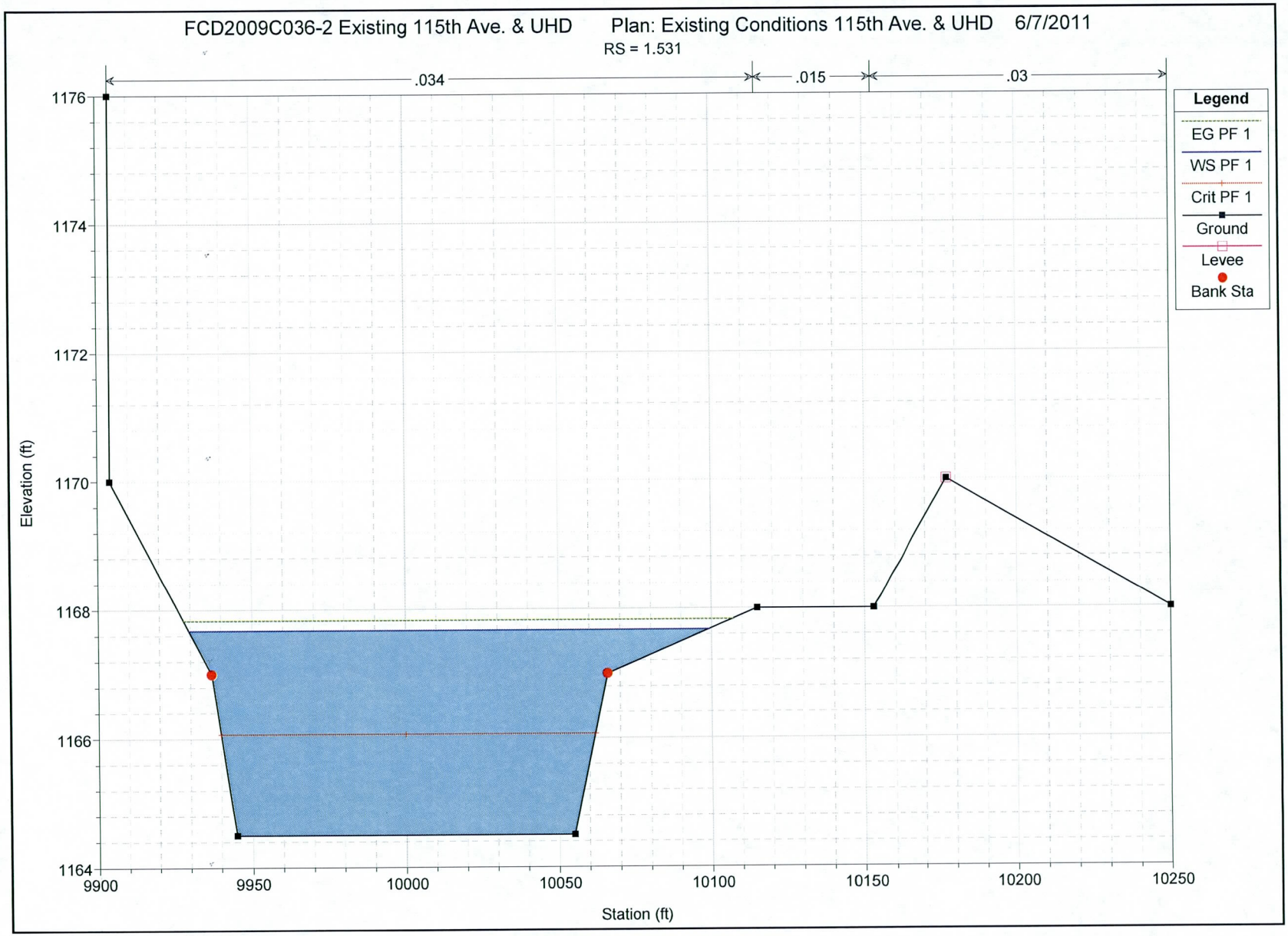

FCD2009C036-2 Existing 115th Ave. & UHD Plan: Existing Conditions 115th Ave. & UHD 6/7/2011
RS = 1.6535 Culv
.0275
.034
.015
.03
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Levee
Ineff
Bank Sta
Elevation (ft)
1176
1174
1172
1170
1168
1166
1164
1162
9500
9600
9700
9800
9900
10000
10100
10200
10300
Station (ft)

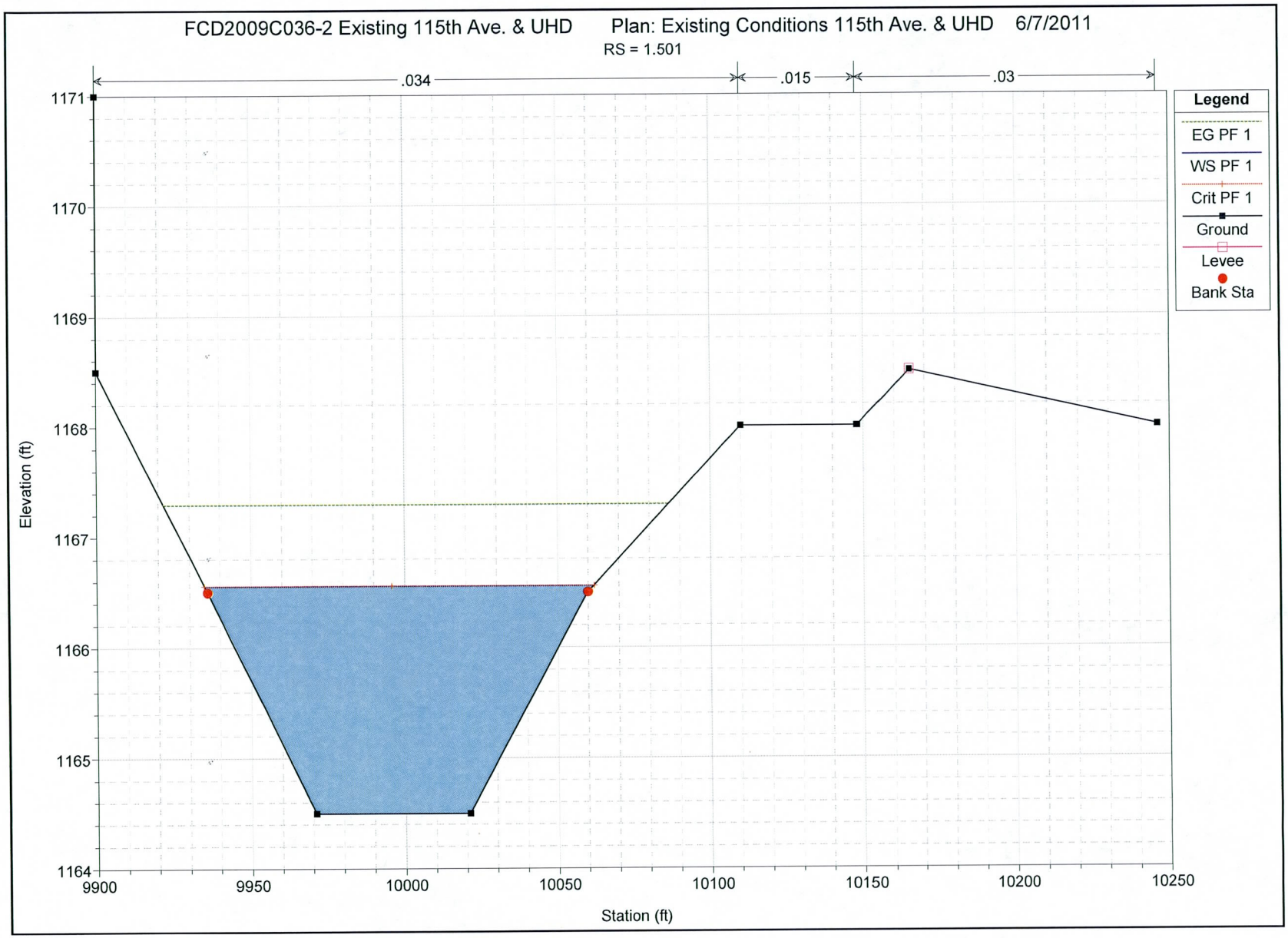

FCD2009C036-2 Existing 115th Ave. & UHD Plan: Existing Conditions 115th Ave. & UHD 6/7/2011
RS = 1.6535 Culv
.034
.015
.03
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
1172
1170
1168
1166
1164
1162
1160
9700
9800
9900
10000
10100
10200
10300
10400

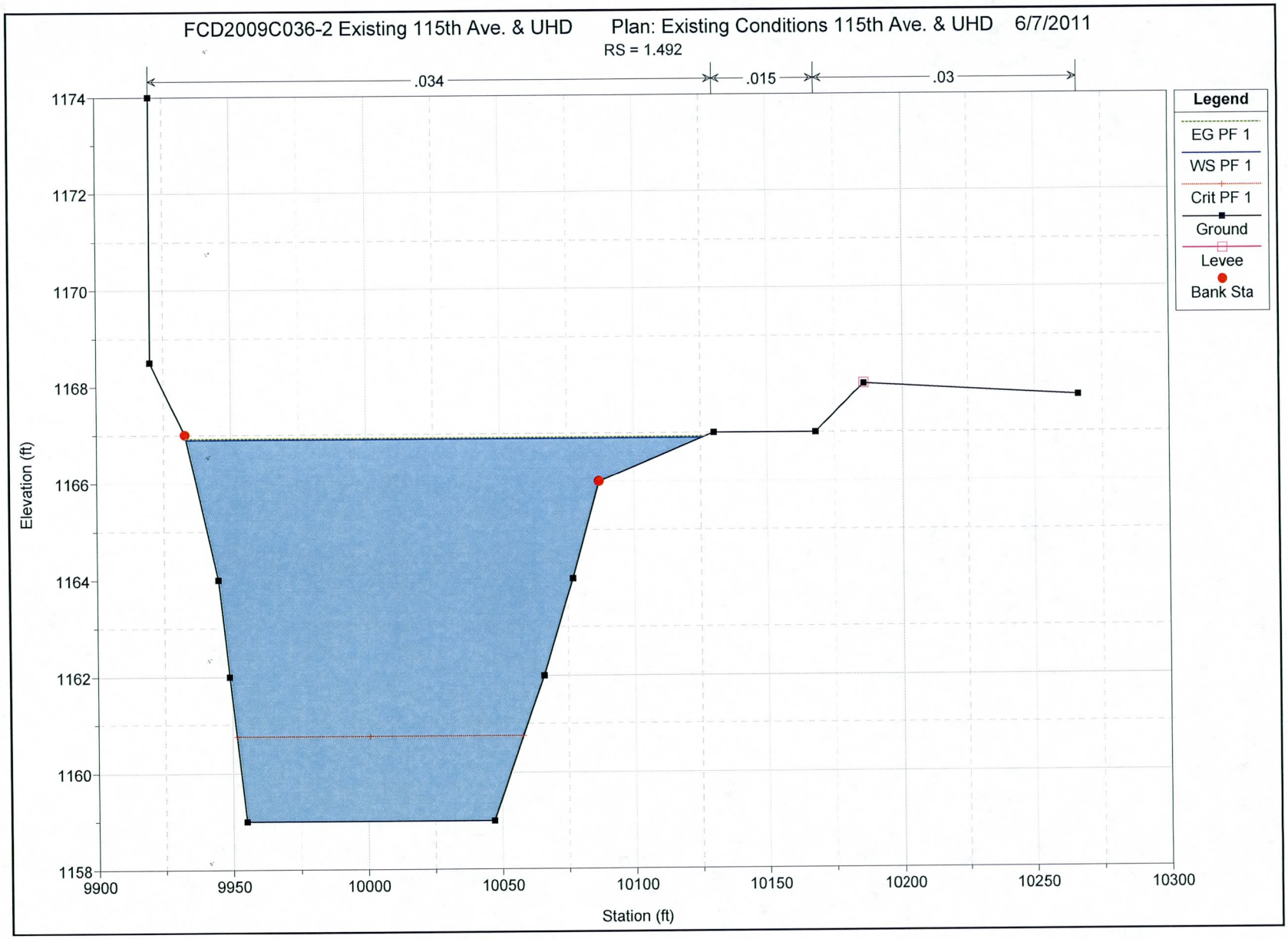

FCD2009C036-2 Existing 115th Ave. & UHD Plan: Existing Conditions 115th Ave. & UHD 6/7/2011
RS = 1.640 Downstream of 3-4'x10' concrete box culverts at Avenue of the Ar
.034
.015
.03
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
1172
1170
1168
1166
1164
1162
1160
9700
9800
9900
10000
10100
10200
10300
10400
Station (ft)

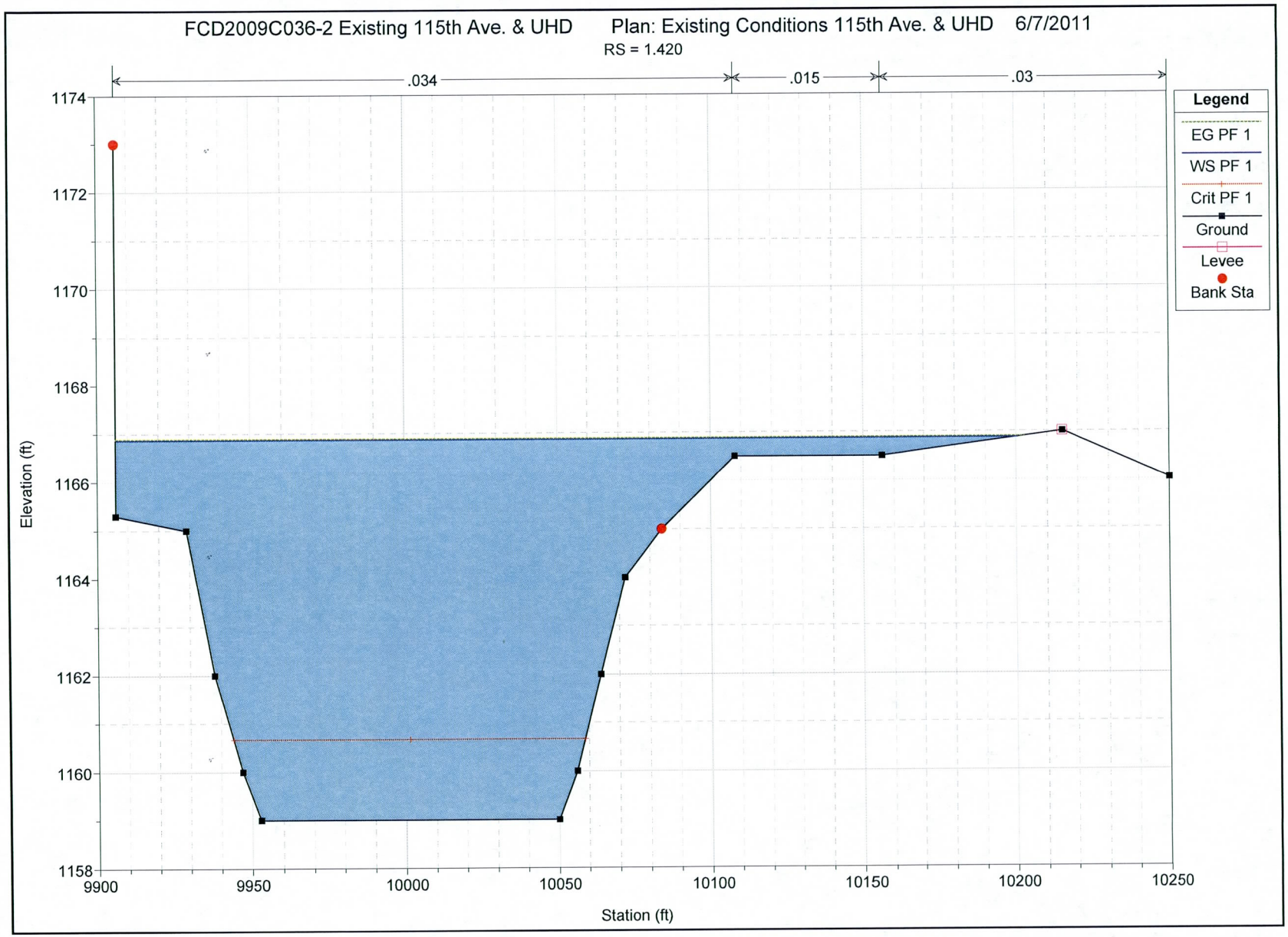

FCD2009C036-2 Existing 115th Ave. & UHD
Plan: Existing Conditions 115th Ave. & UHD
6/7/2011
RS = 1.610
.034
.015
.03
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
Elevation (ft)
Station (ft)
1176
1174
1172
1170
1168
1166
1164
1162
1160
9900
9950
10000
10050
10100
10150
10200
10250

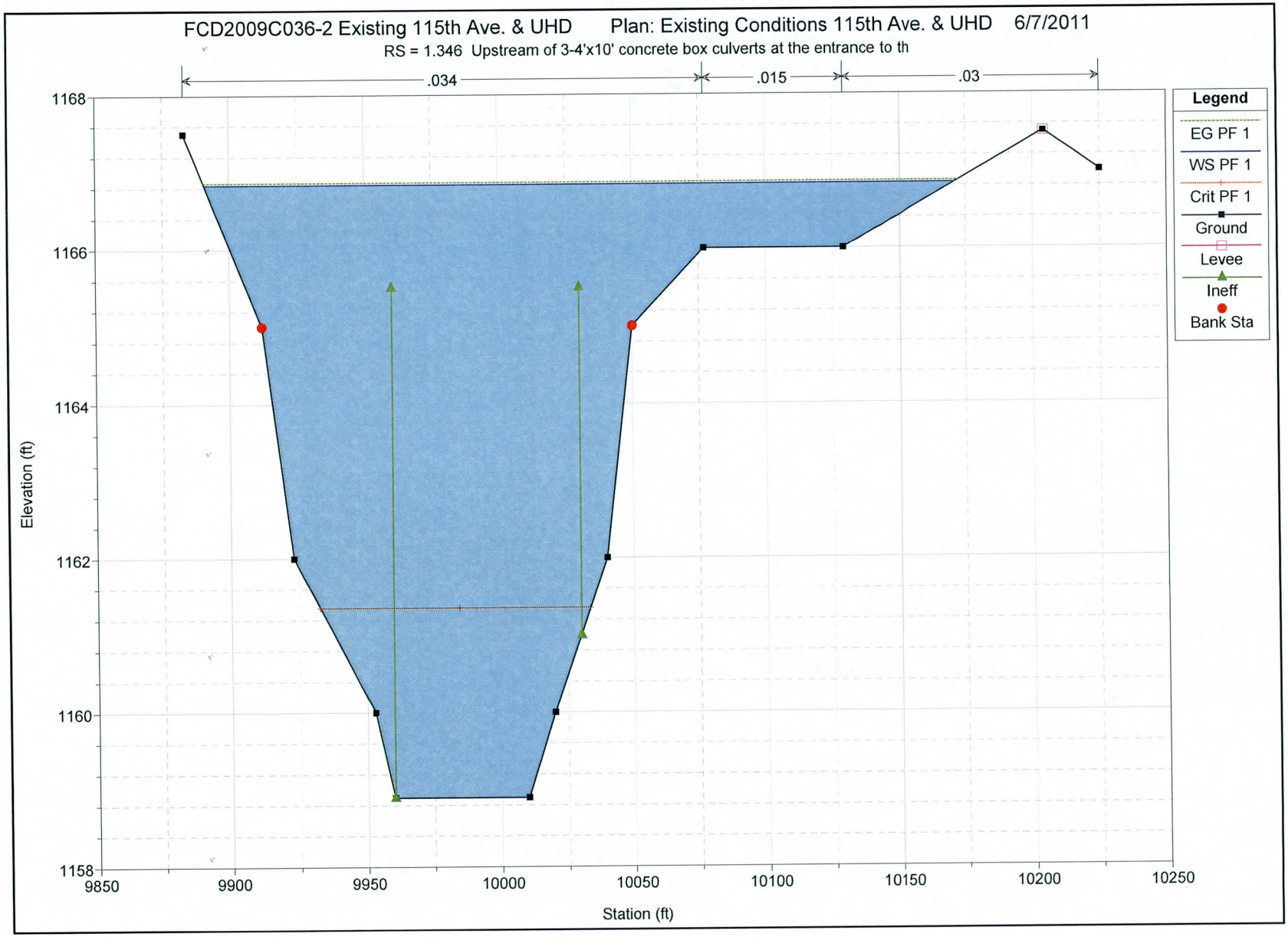

FCD2009C036-2 Existing 115th Ave. & UHD
Plan: Existing Conditions 115th Ave. & UHD 6/7/2011
RS = 1.537
.034
.015
.03
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
Elevation (ft)
1176
1174
1172
1170
1168
1166
1164
1162
1160
9850
9900
9950
10000
10050
10100
10150
10200
10250
Station (ft)

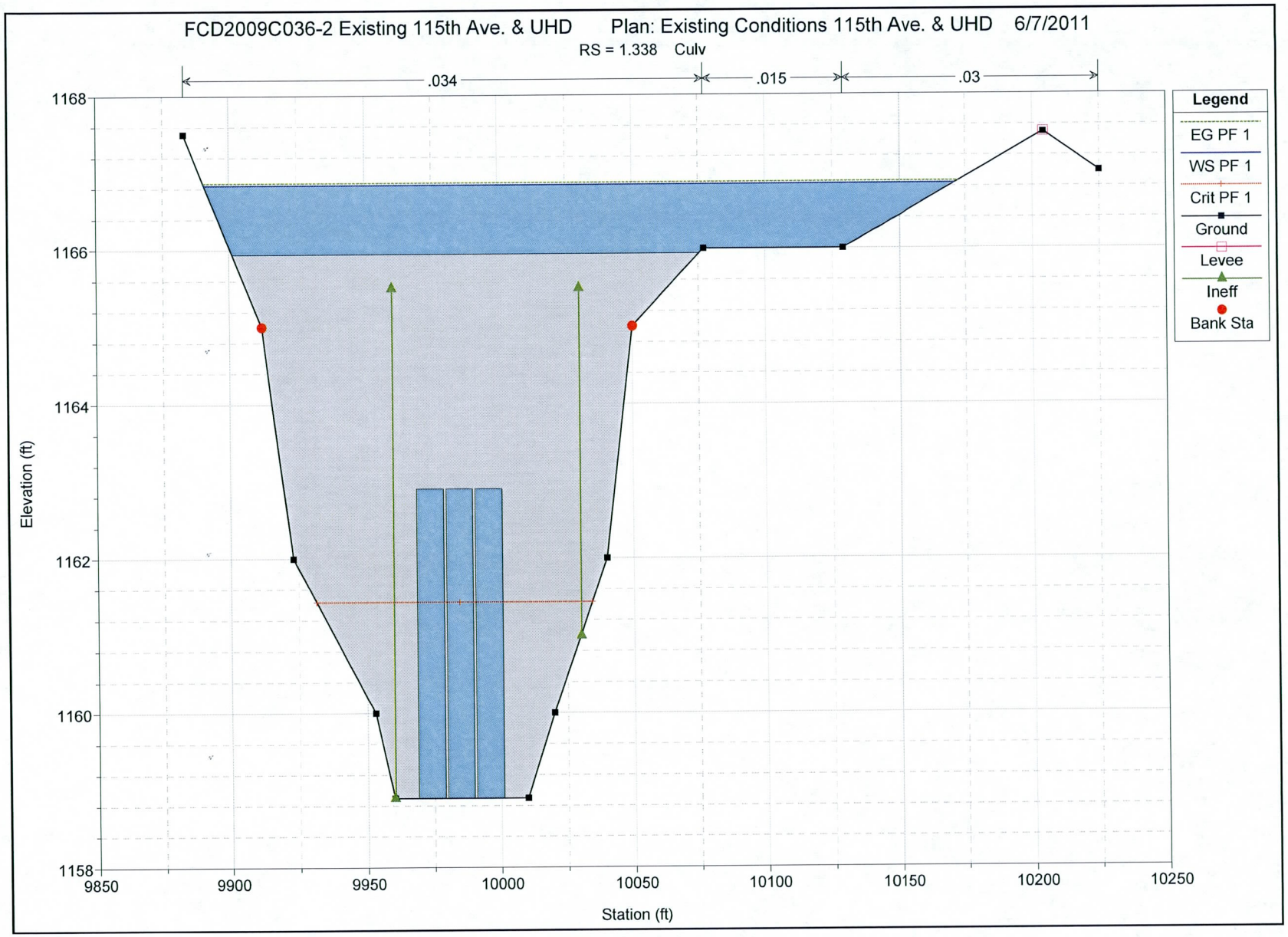

FCD2009C036-2 Existing 115th Ave. & UHD
Plan: Existing Conditions 115th Ave. & UHD 6/7/2011
RS = 1.531
.034
.015
.03
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
Elevation (ft)
1176
1174
1172
1170
1168
1166
1164
9900
9950
10000
10050
10100
10150
10200
10250
Station (ft)

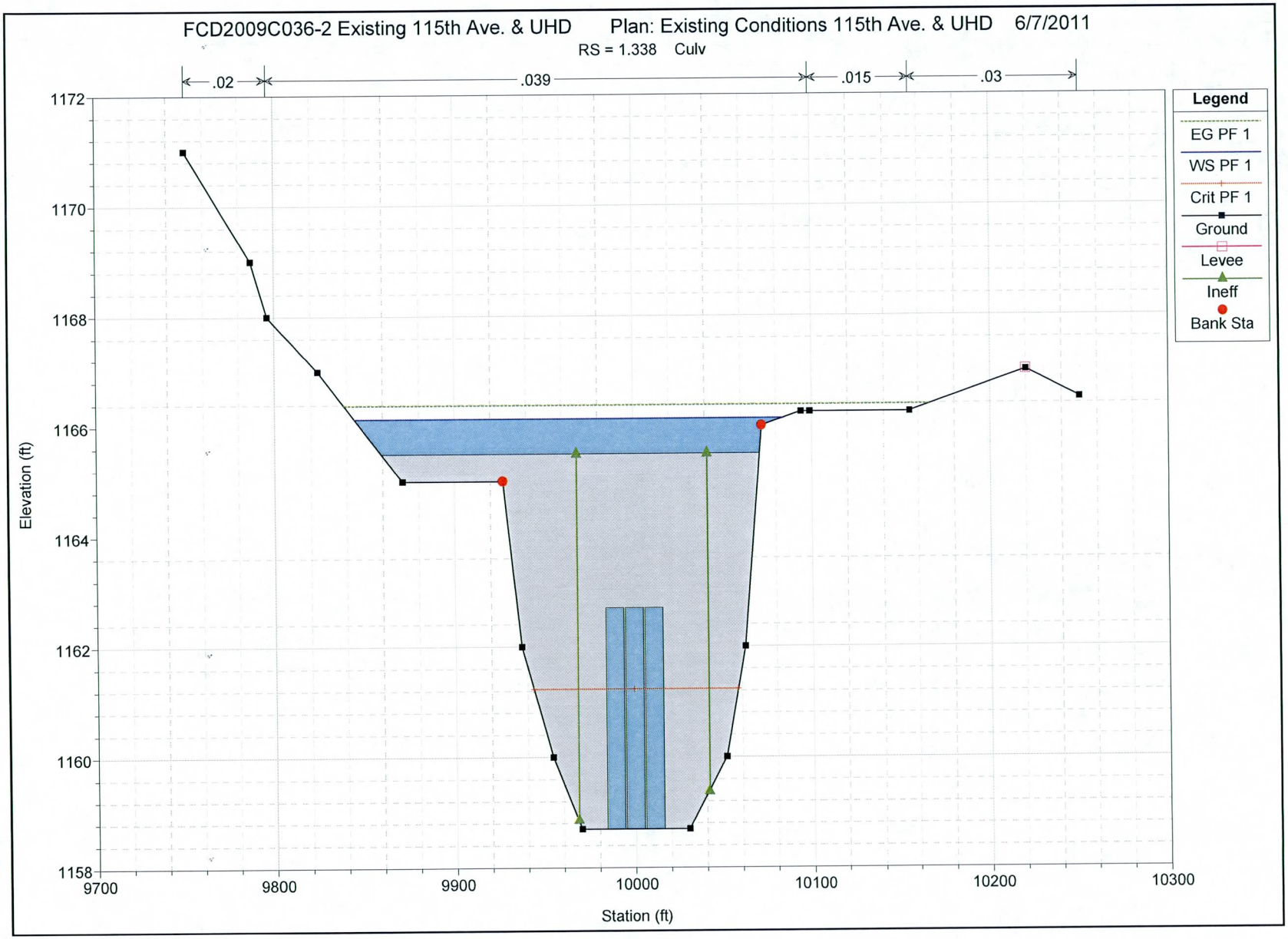

FCD2009C036-2 Existing 115th Ave. & UHD
Plan: Existing Conditions 115th Ave. & UHD 6/7/2011
RS = 1.501
.034
.015
.03
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
Elevation (ft)
1171
1170
1169
1168
1167
1166
1165
1164
9900
9950
10000
10050
10100
10150
10200
10250
Station (ft)

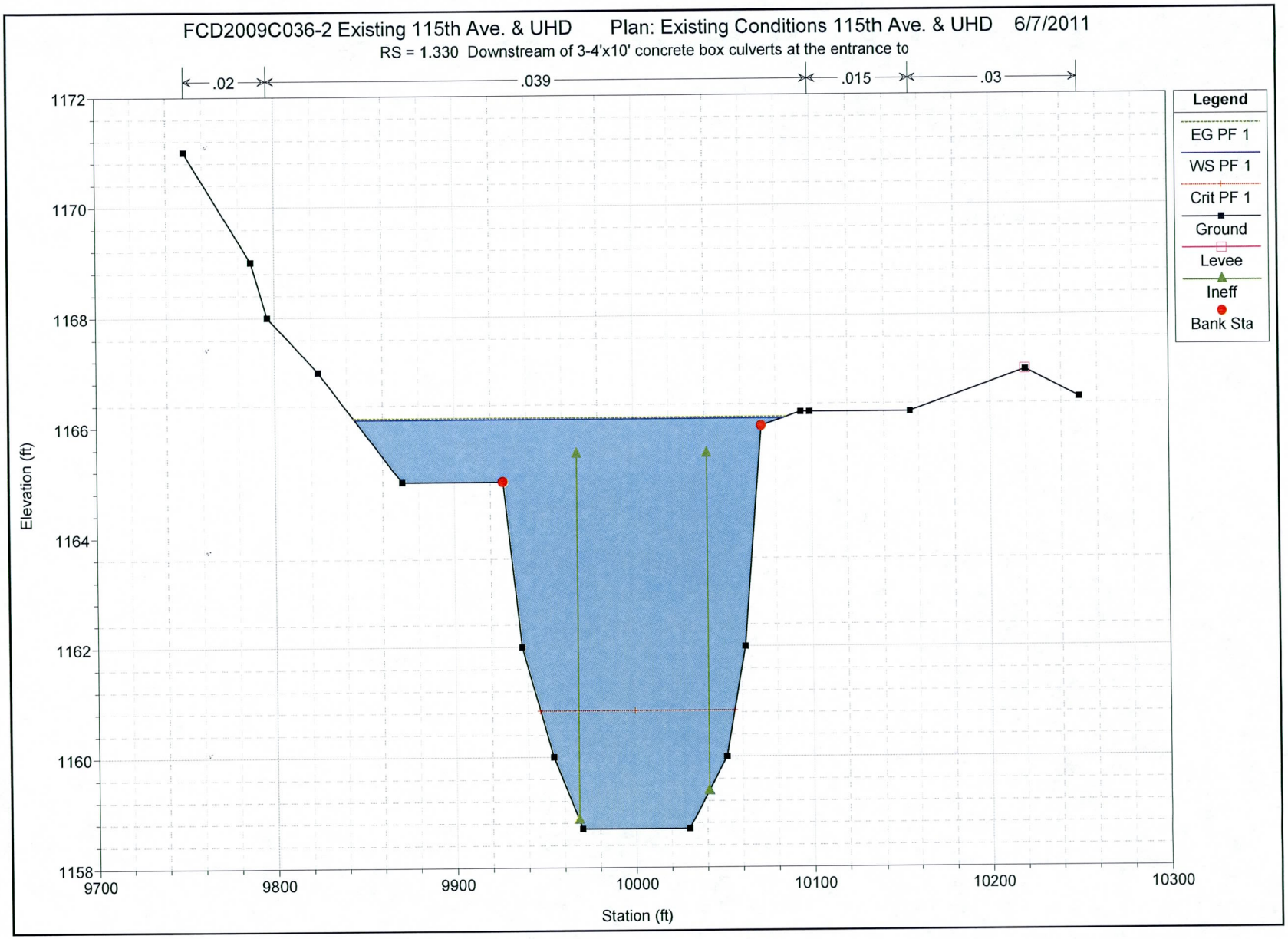

FCD2009C036-2 Existing 115th Ave. & UHD
Plan: Existing Conditions 115th Ave. & UHD 6/7/2011
RS = 1.492
.034
.015
.03
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
Elevation (ft)
1174
1172
1170
1168
1166
1164
1162
1160
1158
9900
9950
10000
10050
10100
10150
10200
10250
10300
Station (ft)

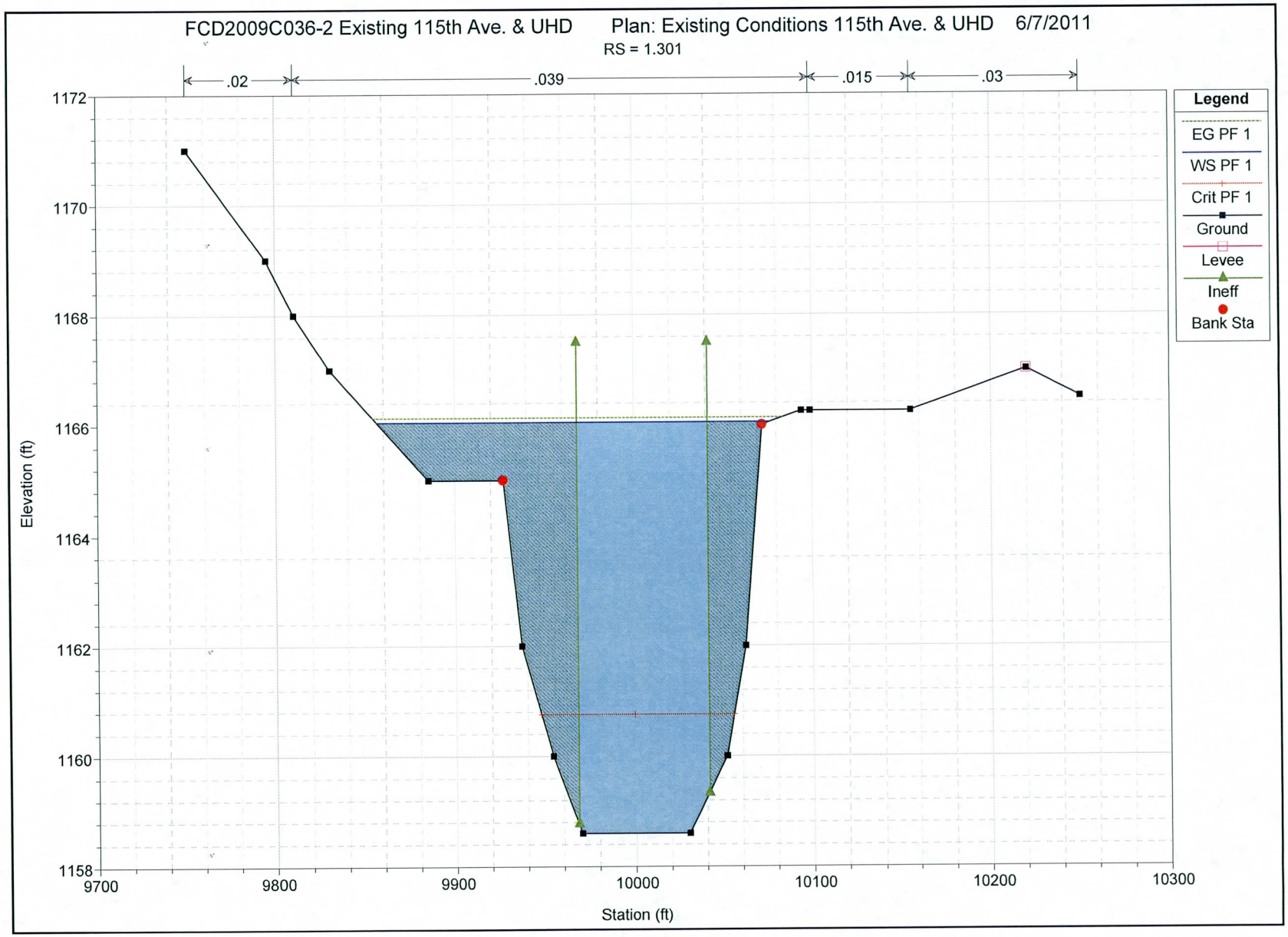

FCD2009C036-2 Existing 115th Ave. & UHD
Plan: Existing Conditions 115th Ave. & UHD
6/7/2011
RS = 1.420
.034
.015
.03
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
Elevation (ft)
1174
1172
1170
1168
1166
1164
1162
1160
1158
9900
9950
10000
10050
10100
10150
10200
10250
Station (ft)

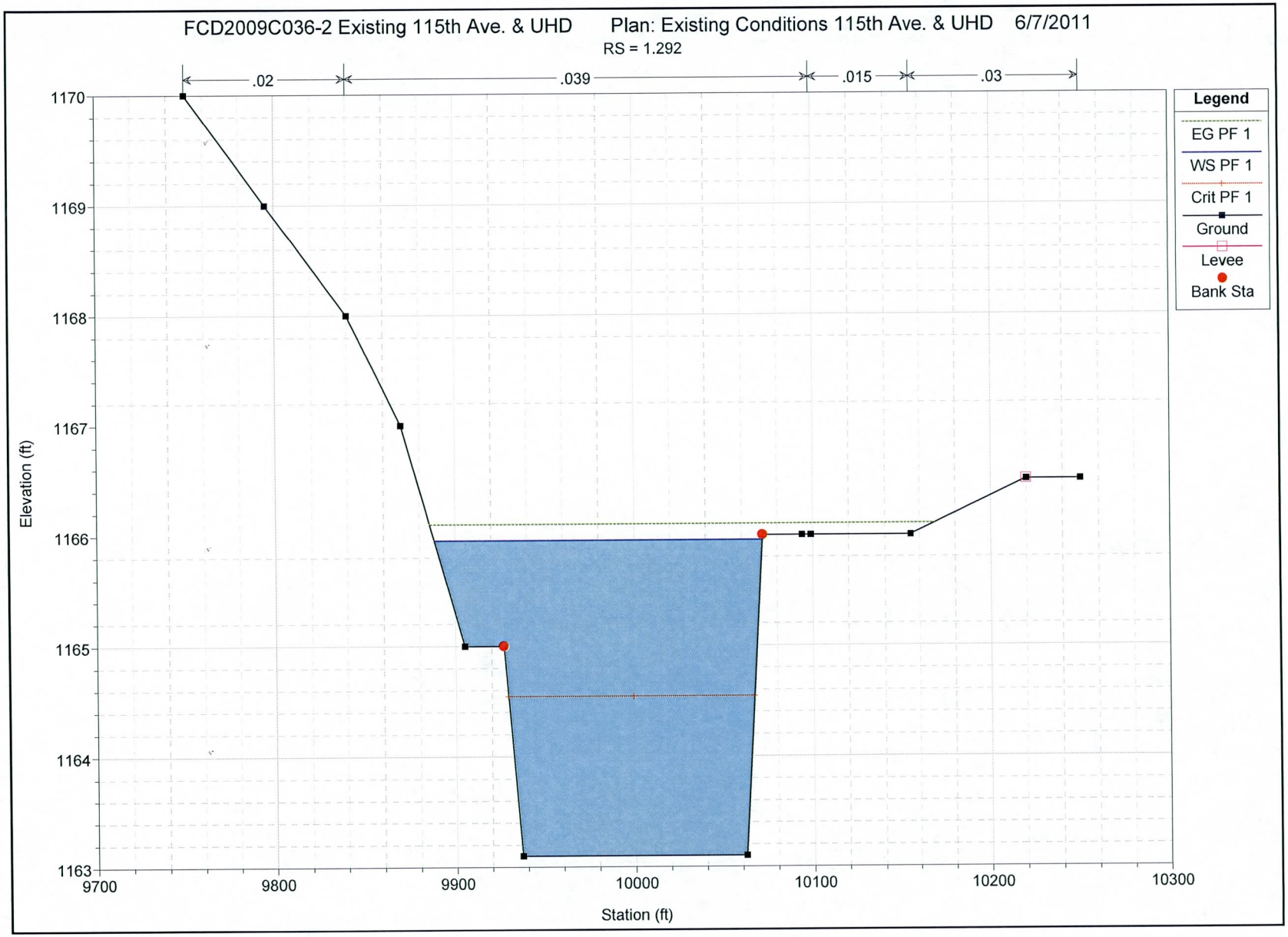

FCD2009C036-2 Existing 115th Ave. & UHD Plan: Existing Conditions 115th Ave. & UHD 6/7/2011
RS = 1.346 Upstream of 3-4'x10' concrete box culverts at the entrance to th
.034
.015
.03
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Levee
Ineff
Bank Sta
Elevation (ft)
1168
1166
1164
1162
1160
1158
9850
9900
9950
10000
10050
10100
10150
10200
10250
Station (ft)

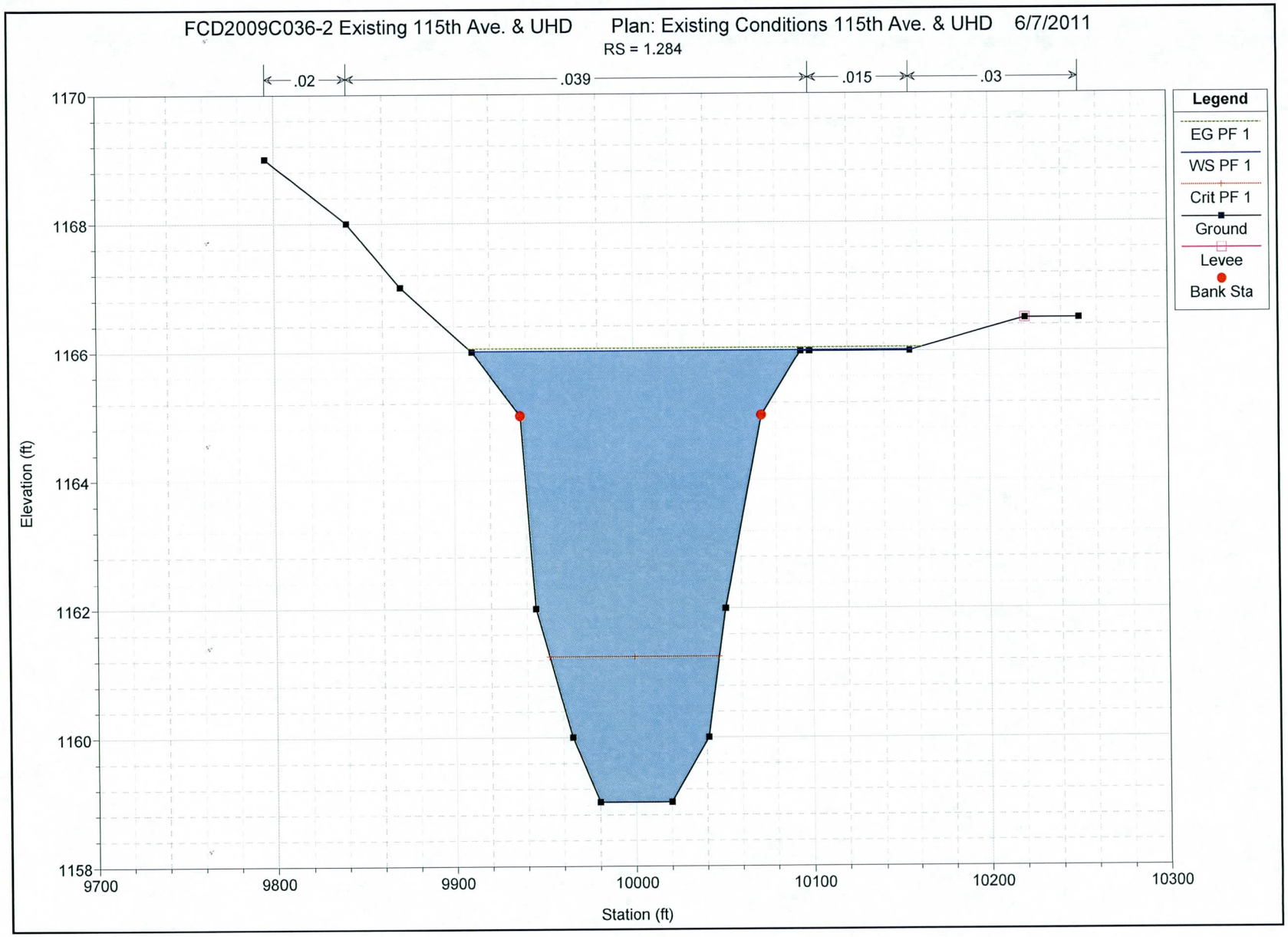

FCD2009C036-2 Existing 115th Ave. & UHD
Plan: Existing Conditions 115th Ave. & UHD
6/7/2011
RS = 1.338 Culv
.034
.015
.03
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Levee
Ineff
Bank Sta
Elevation (ft)
1168
1166
1164
1162
1160
1158
9850
9900
9950
10000
10050
10100
10150
10200
10250
Station (ft)

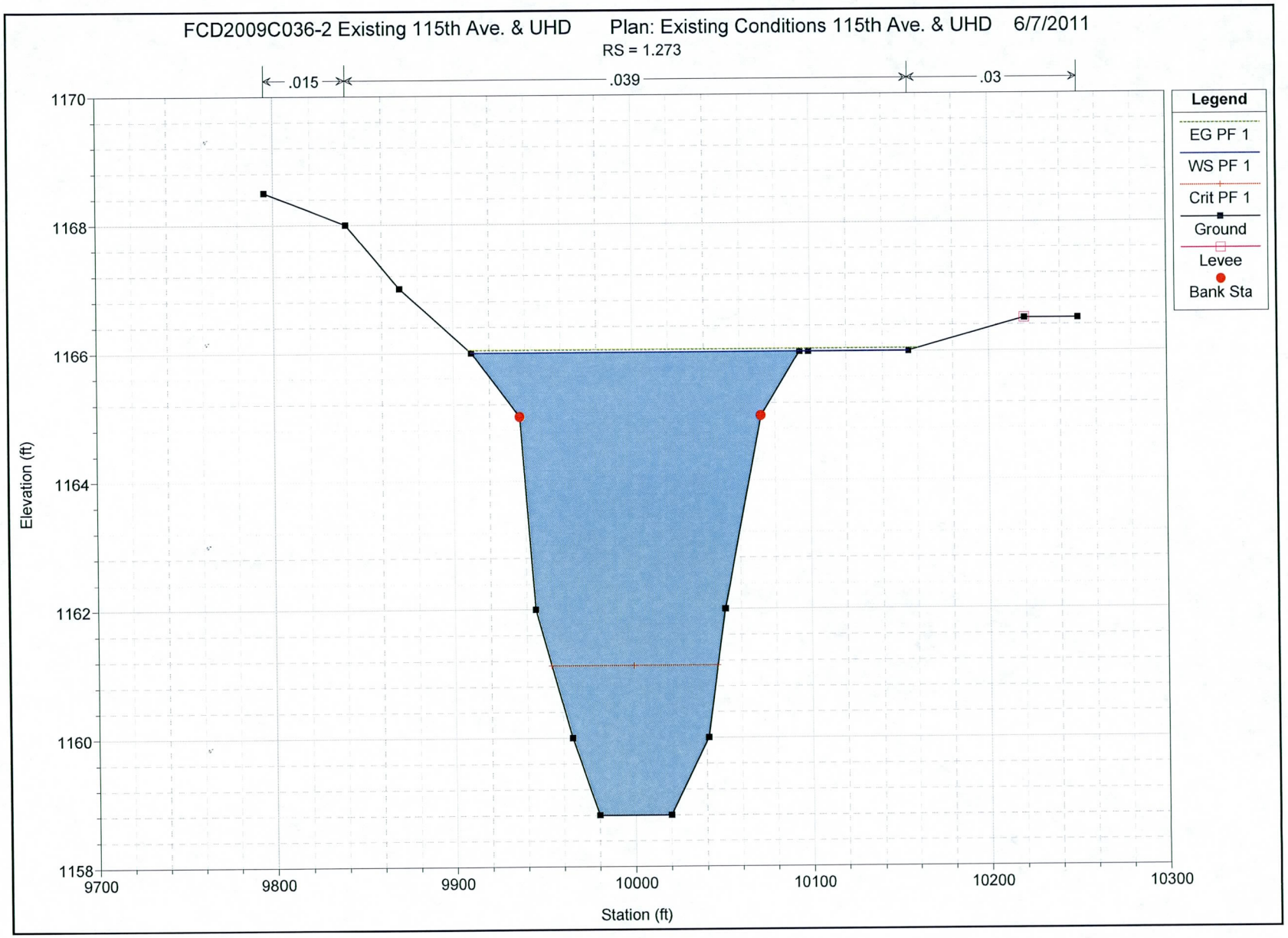

FCD2009C036-2 Existing 115th Ave. & UHD
Plan: Existing Conditions 115th Ave. & UHD
6/7/2011
RS = 1.338 Culv
.02
.039
.015
.03
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Levee
Ineff
Bank Sta
Elevation (ft)
1172
1170
1168
1166
1164
1162
1160
1158
9700
9800
9900
10000
10100
10200
10300
Station (ft)

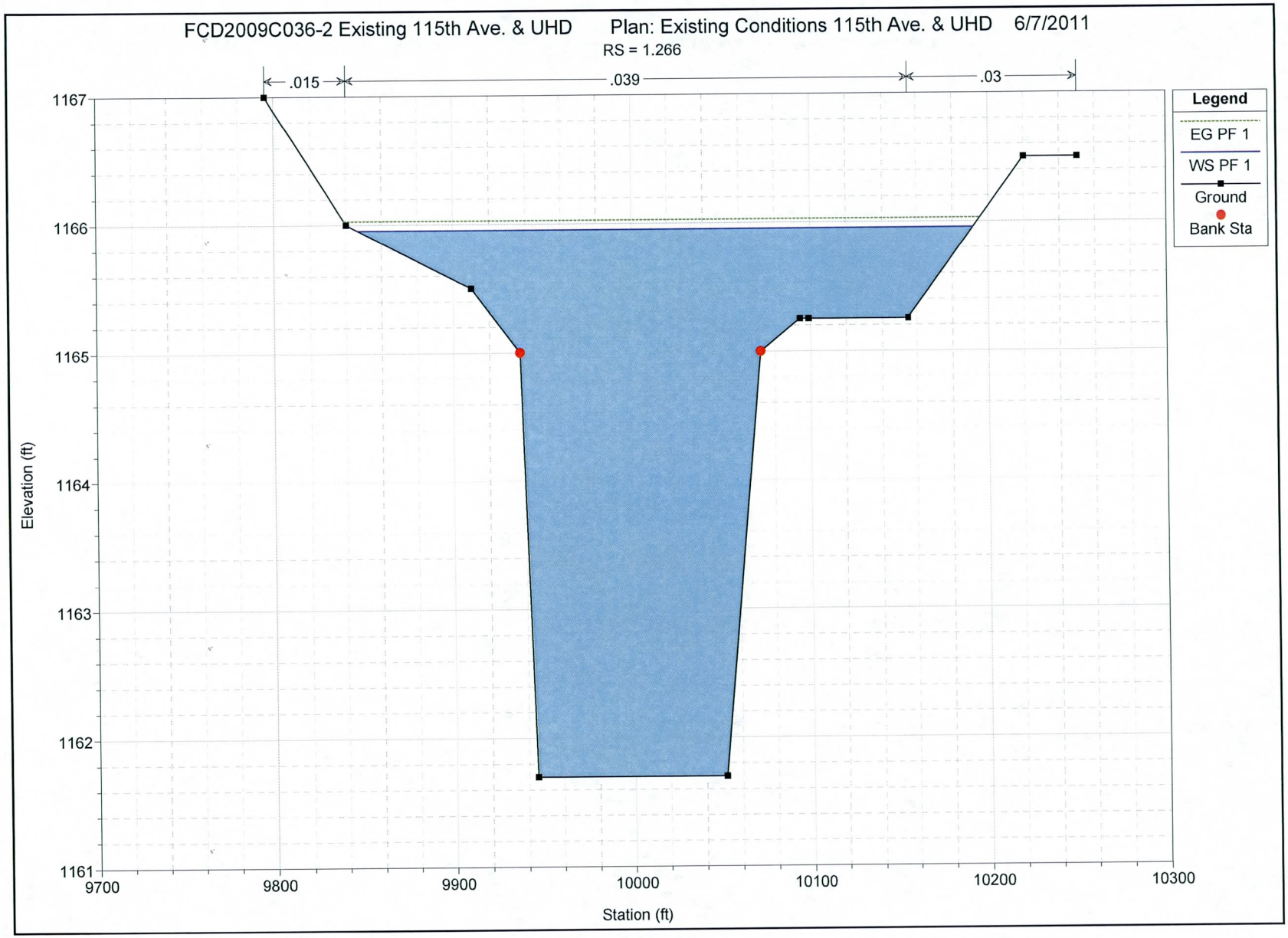

FCD2009C036-2 Existing 115th Ave. & UHD Plan: Existing Conditions 115th Ave. & UHD 6/7/2011
RS = 1.330 Downstream of 3-4'x10' concrete box culverts at the entrance to
.02
.039
.015
.03
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Levee
Ineff
Bank Sta
Elevation (ft)
1172
1170
1168
1166
1164
1162
1160
1158
9700
9800
9900
10000
10100
10200
10300
Station (ft)

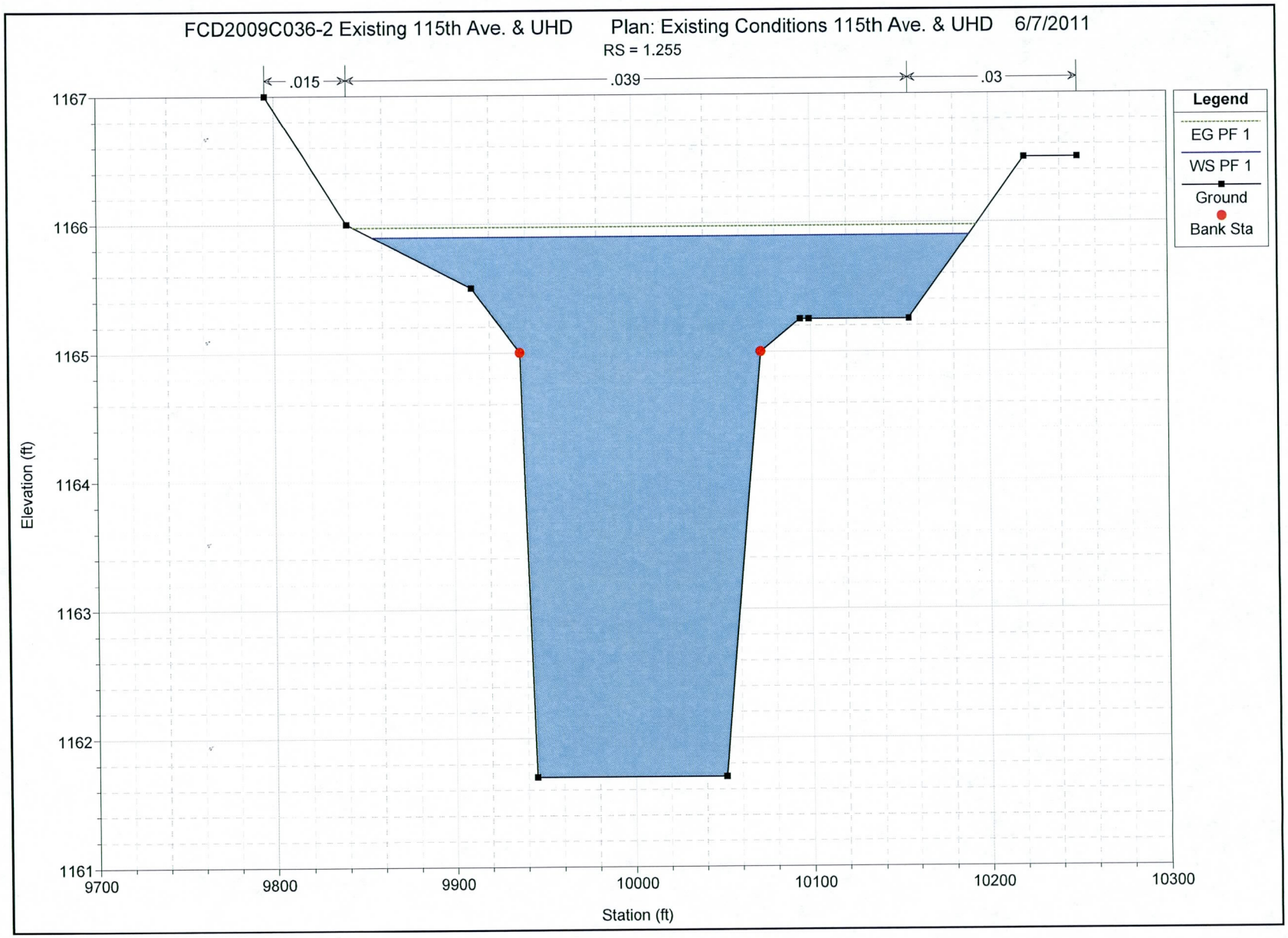

FCD2009C036-2 Existing 115th Ave. & UHD
Plan: Existing Conditions 115th Ave. & UHD
6/7/2011
RS = 1.301
.02
.039
.015
.03
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Levee
Ineff
Bank Sta
Elevation (ft)
1172
1170
1168
1166
1164
1162
1160
1158
9700
9800
9900
10000
10100
10200
10300
Station (ft)

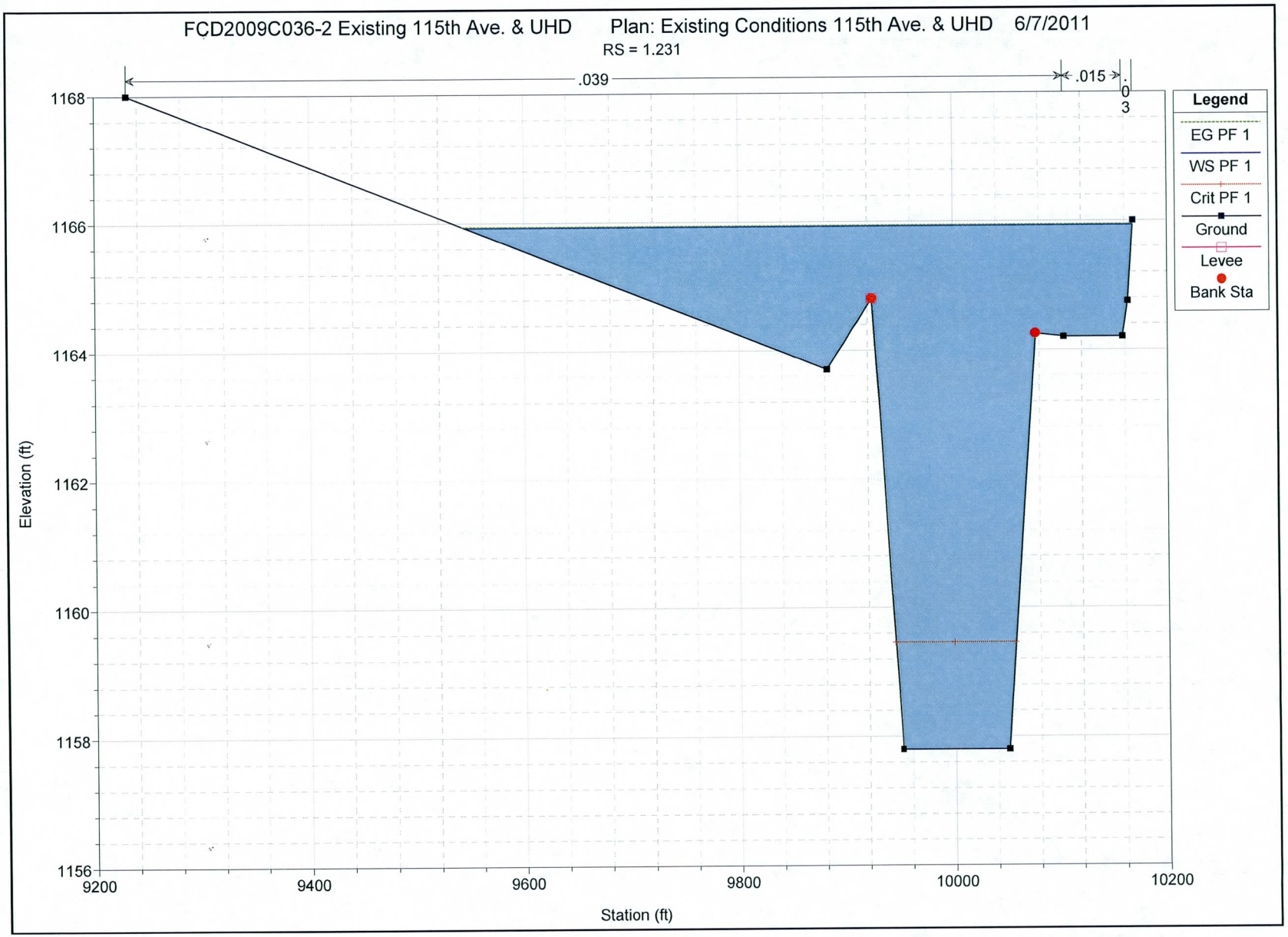

FCD2009C036-2 Existing 115th Ave. & UHD
Plan: Existing Conditions 115th Ave. & UHD
6/7/2011
RS = 1.292
.02
.039
.015
.03
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
Elevation (ft)
1170
1169
1168
1167
1166
1165
1164
1163
9700
9800
9900
10000
10100
10200
10300
Station (ft)

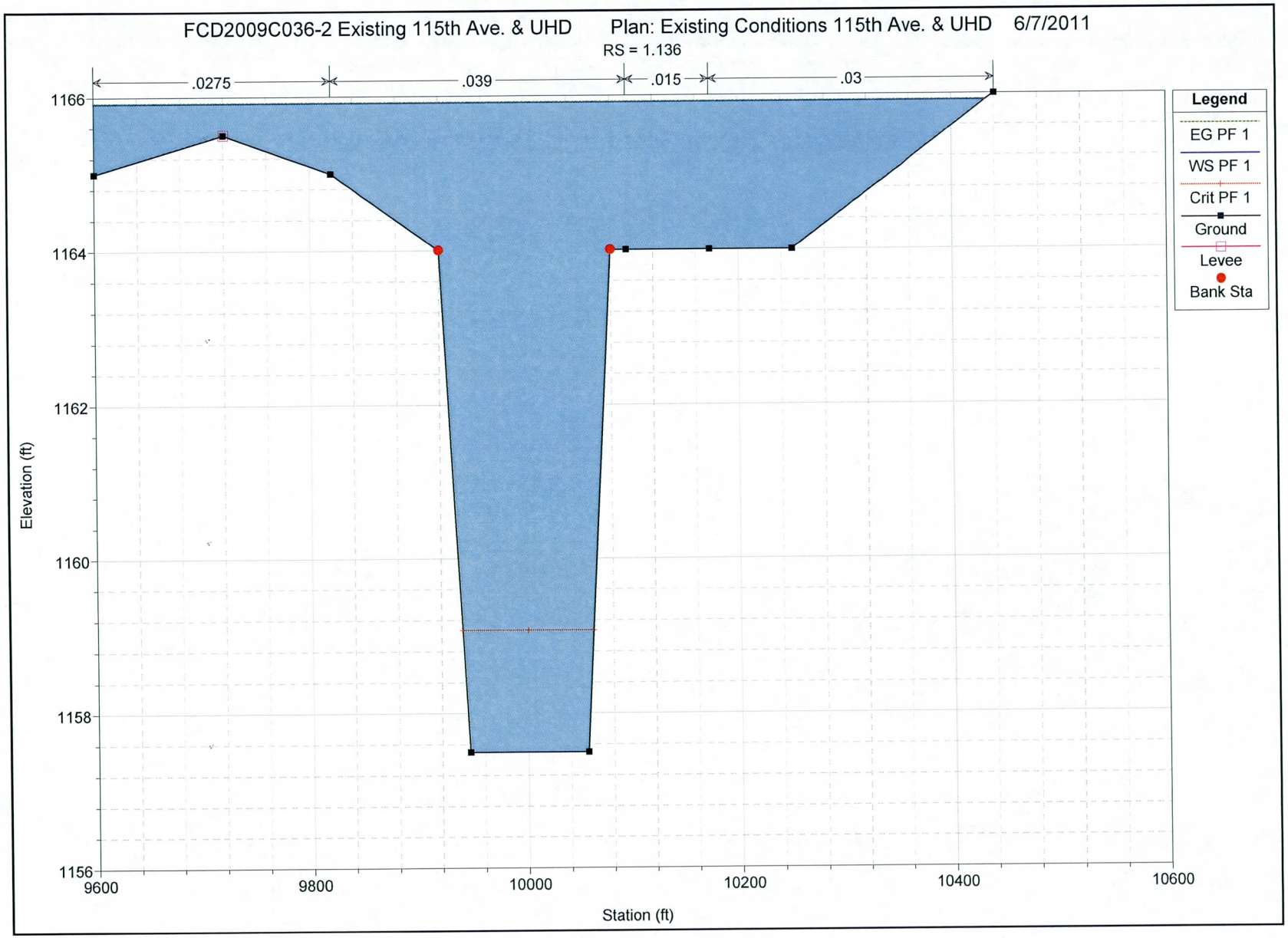

FCD2009C036-2 Existing 115th Ave. & UHD
Plan: Existing Conditions 115th Ave. & UHD
6/7/2011
RS = 1.284
.02
.039
.015
.03
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
Elevation (ft)
1170
1168
1166
1164
1162
1160
1158
9700
9800
9900
10000
10100
10200
10300
Station (ft)

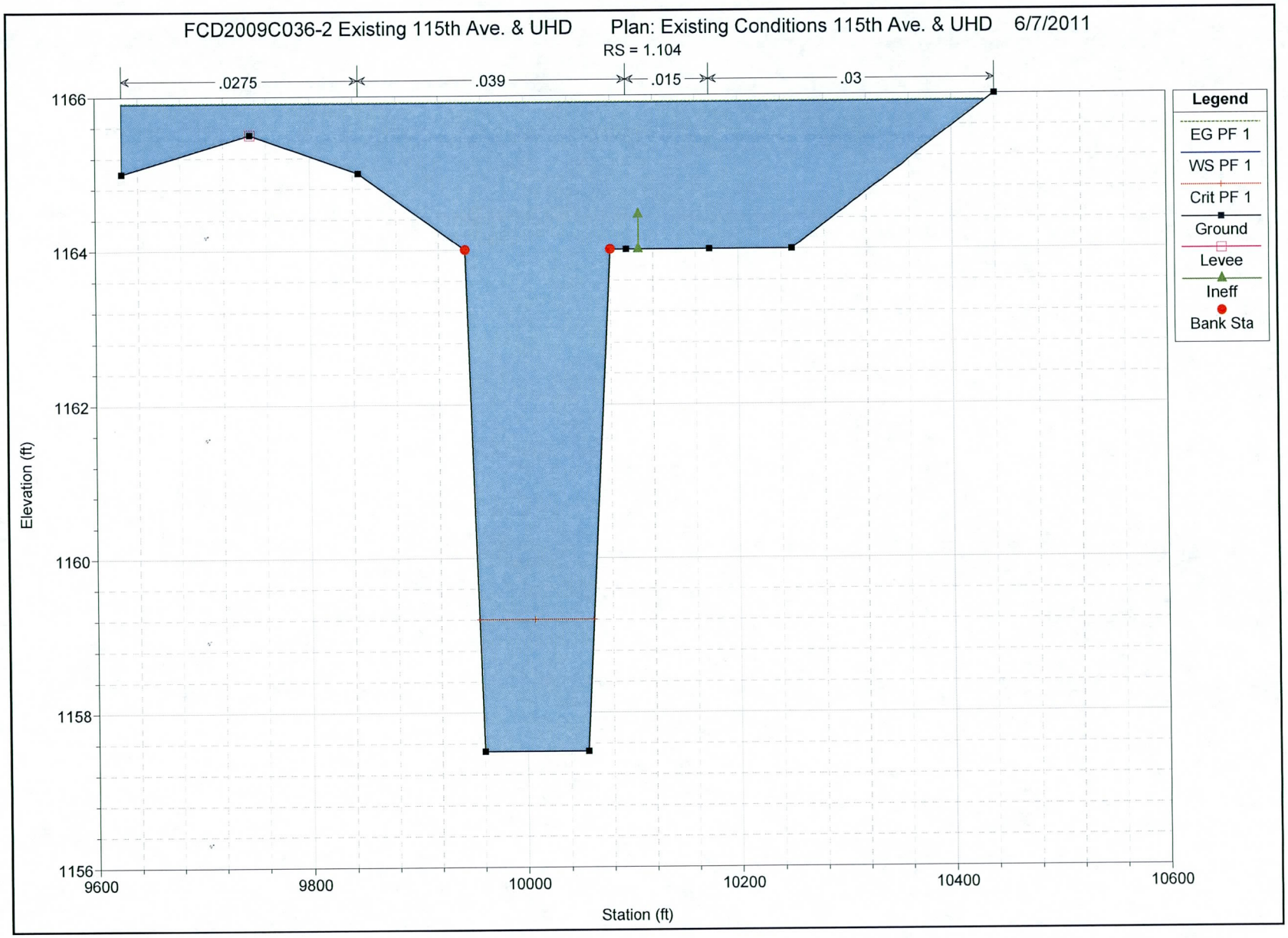

FCD2009C036-2 Existing 115th Ave. & UHD
Plan: Existing Conditions 115th Ave. & UHD
6/7/2011
RS = 1.273
.015
.039
.03
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
Elevation (ft)
1170
1168
1166
1164
1162
1160
1158
9700
9800
9900
10000
10100
10200
10300
Station (ft)

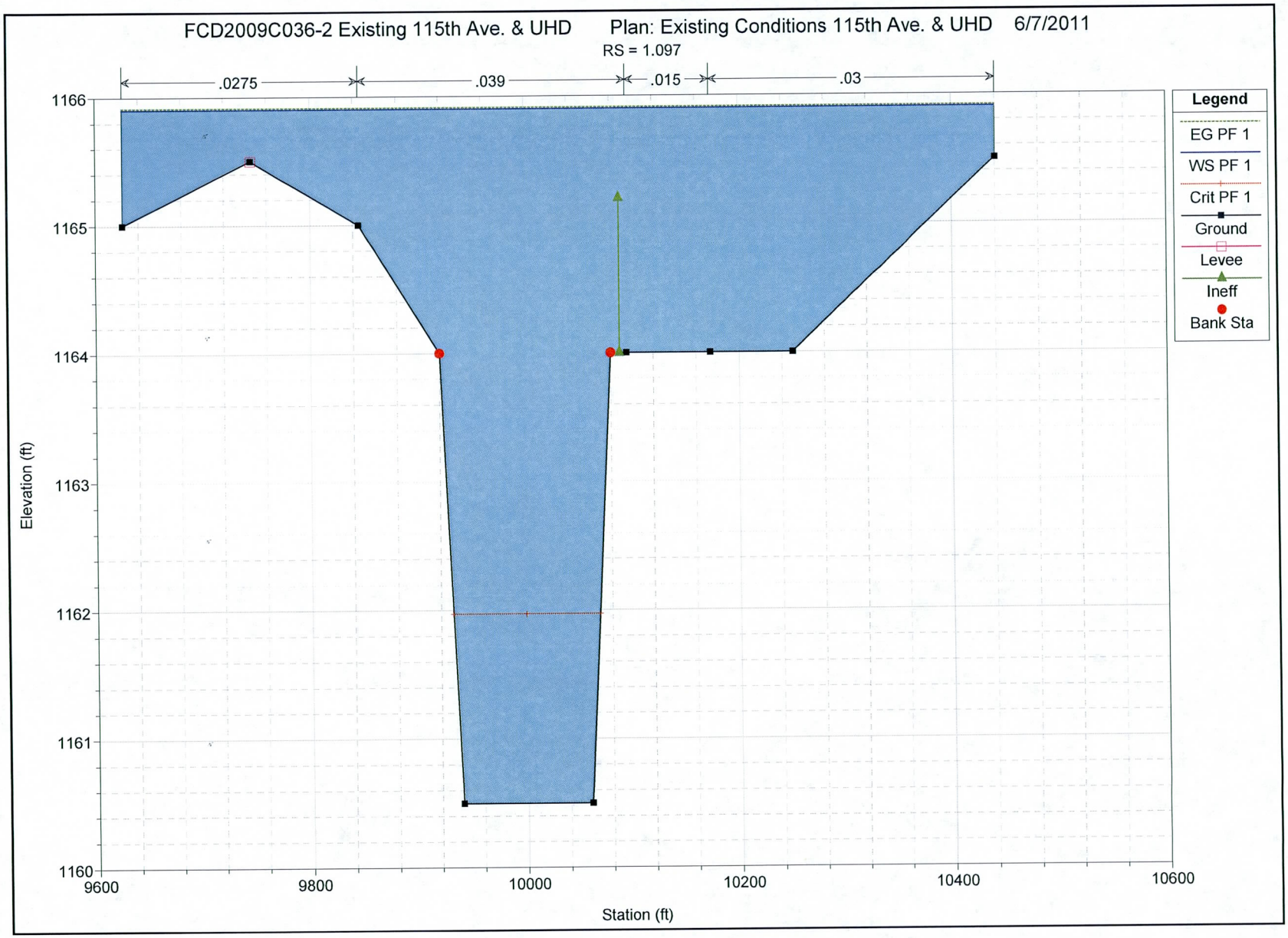

FCD2009C036-2 Existing 115th Ave. & UHD
Plan: Existing Conditions 115th Ave. & UHD
6/7/2011
RS = 1.266
.015
.039
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
1167
1166
1165
1164
1163
1162
1161
9700
9800
9900
10000
10100
10200
10300
Station (ft)

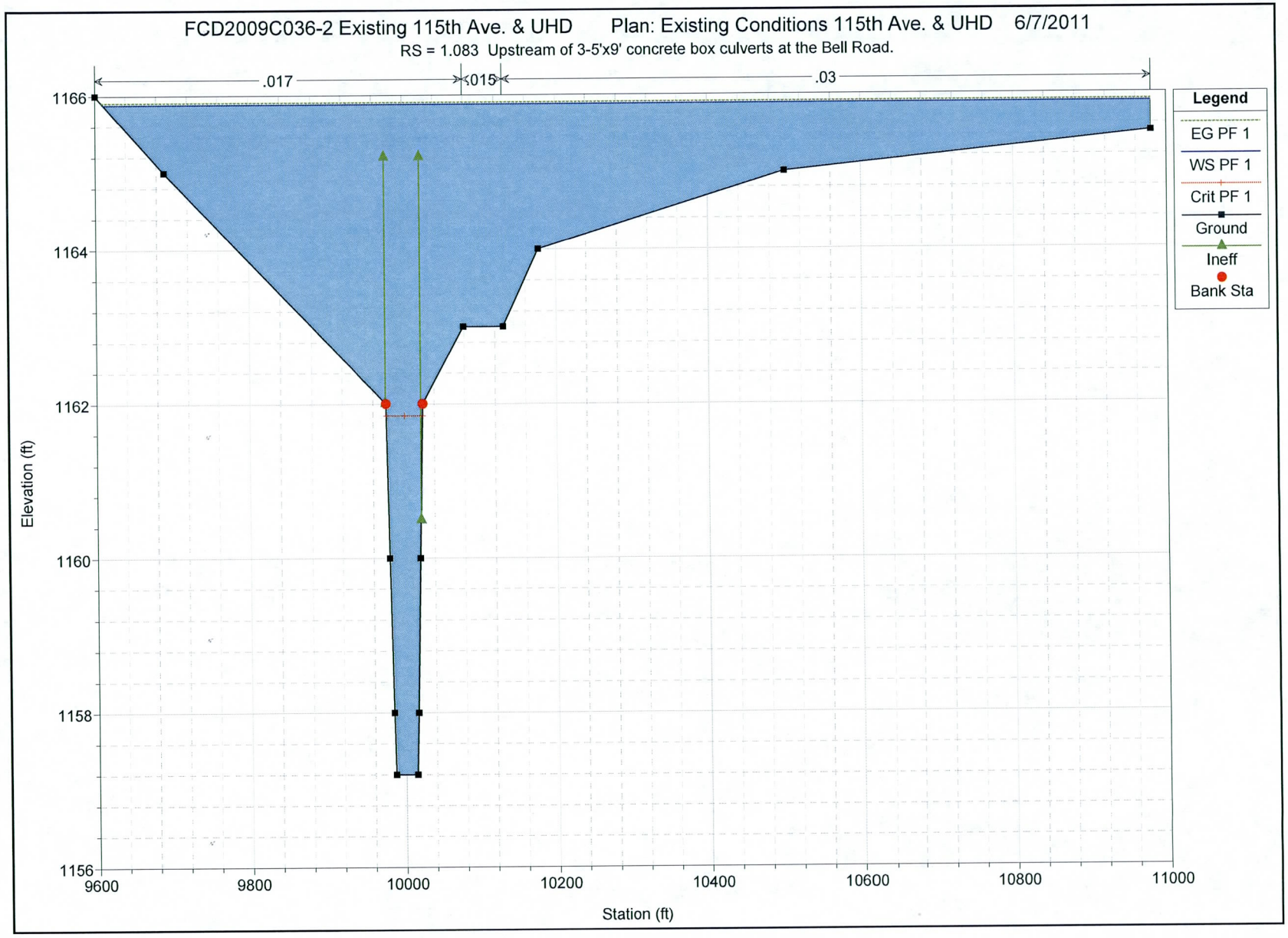

FCD2009C036-2 Existing 115th Ave. & UHD
Plan: Existing Conditions 115th Ave. & UHD 6/7/2011
RS = 1.255
.015
.039
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
1167
1166
1165
1164
1163
1162
1161
9700
9800
9900
10000
10100
10200
10300
Station (ft)

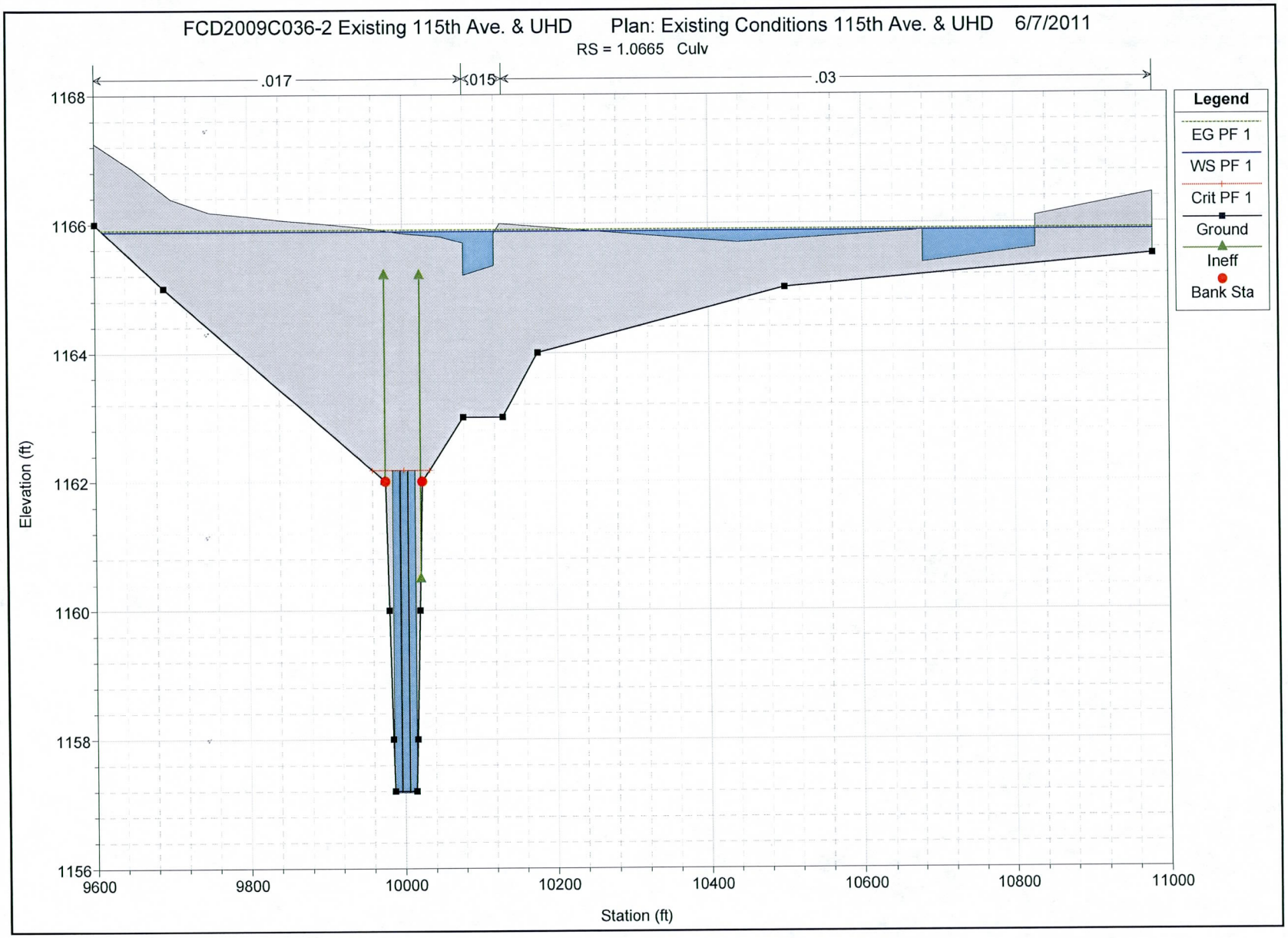

FCD2009C036-2 Existing 115th Ave. & UHD Plan: Existing Conditions 115th Ave. & UHD 6/7/2011
RS = 1.231
.039
.015
.0
3
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
Elevation (ft)
1168
1166
1164
1162
1160
1158
1156
9200
9400
9600
9800
10000
10200
Station (ft)

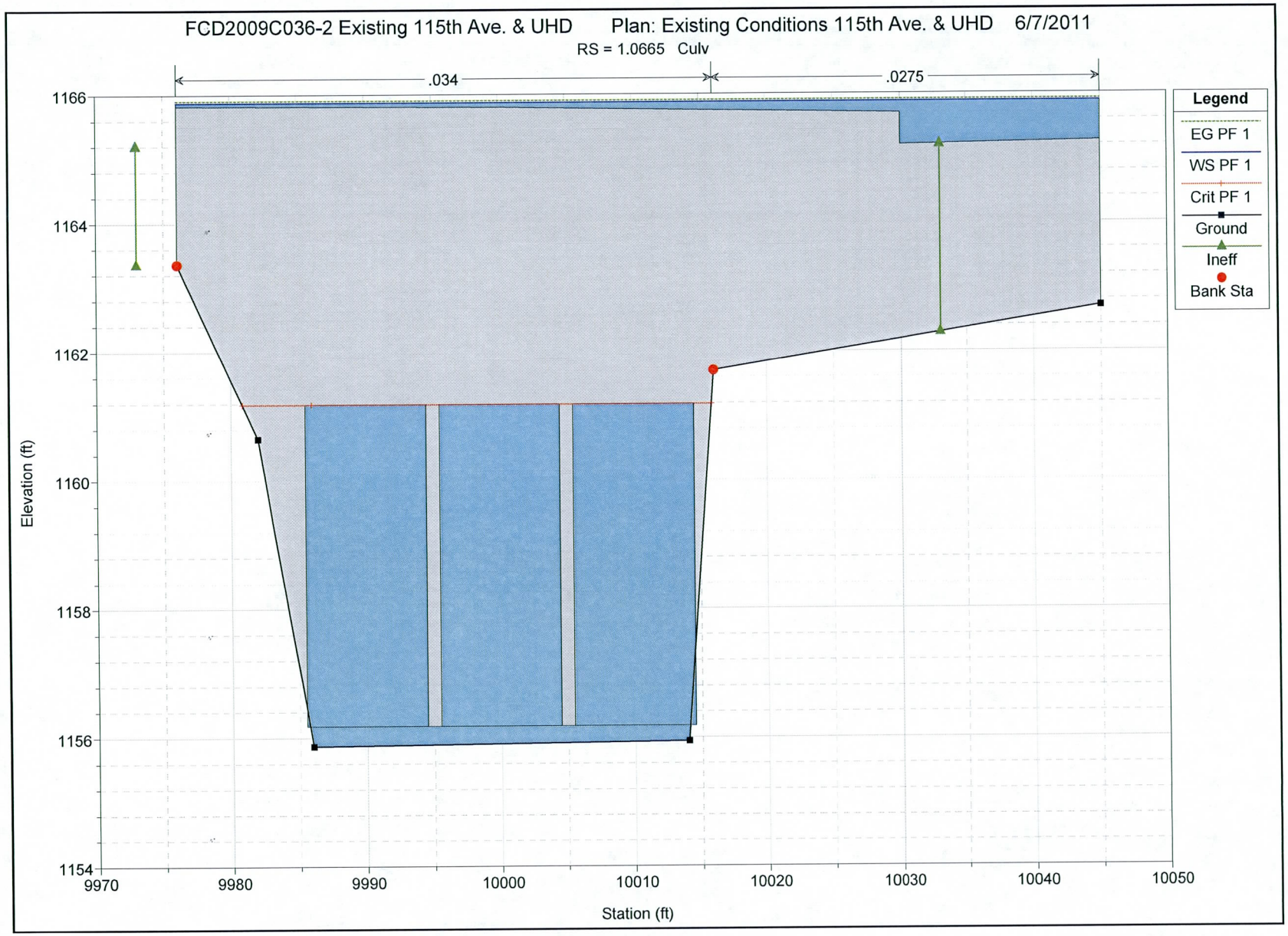

FCD2009C036-2 Existing 115th Ave. & UHD
Plan: Existing Conditions 115th Ave. & UHD
6/7/2011
RS = 1.136
.0275
.039
.015
.03
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
Elevation (ft)
1166
1164
1162
1160
1158
1156
9600
9800
10000
10200
10400
10600
Station (ft)

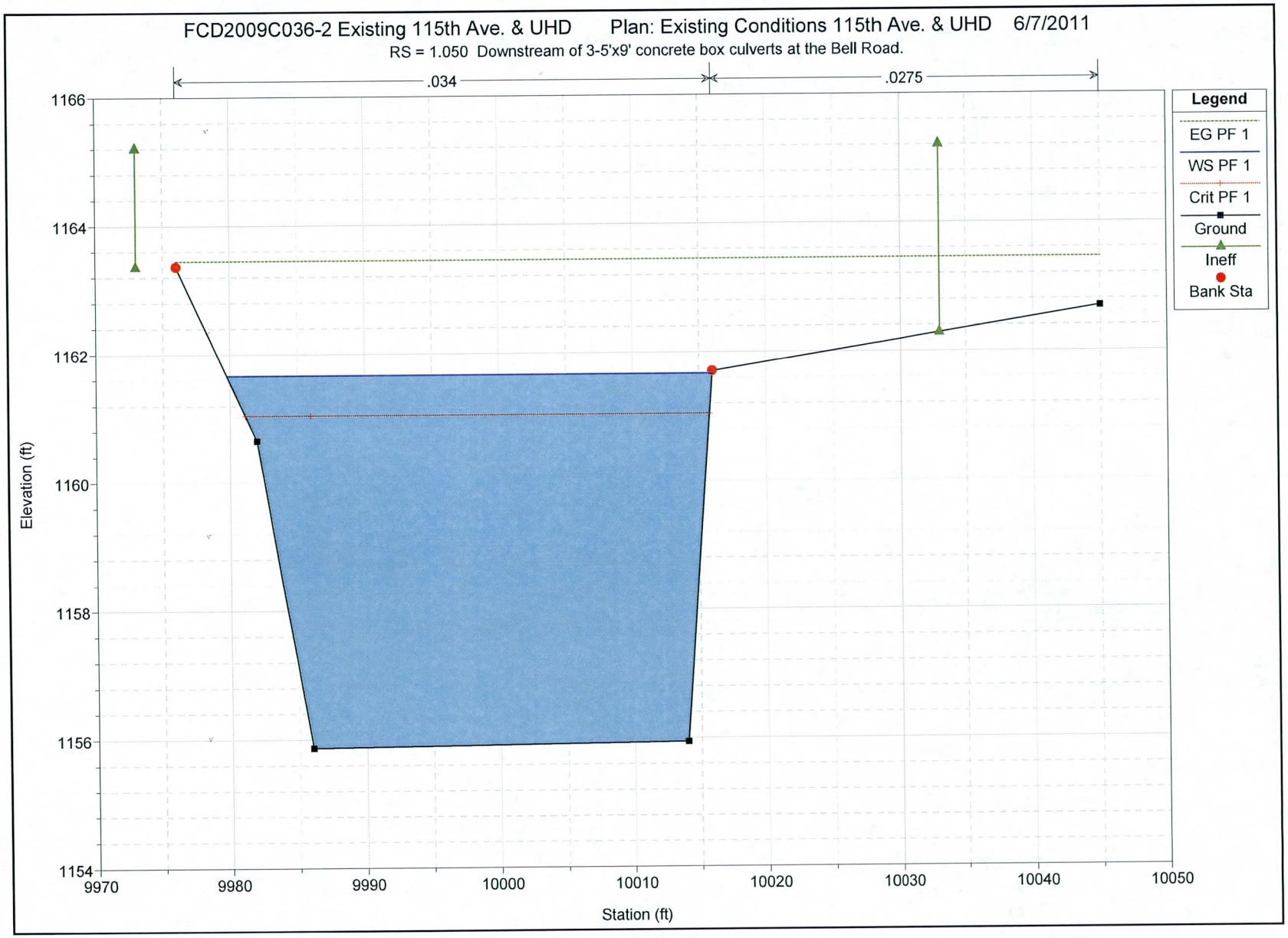

FCD2009C036-2 Existing 115th Ave. & UHD
Plan: Existing Conditions 115th Ave. & UHD
6/7/2011
RS = 1.104
.0275
.039
.015
.03
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Levee
Ineff
Bank Sta
Elevation (ft)
Station (ft)
1166
1164
1162
1160
1158
1156
9600
9800
10000
10200
10400
10600

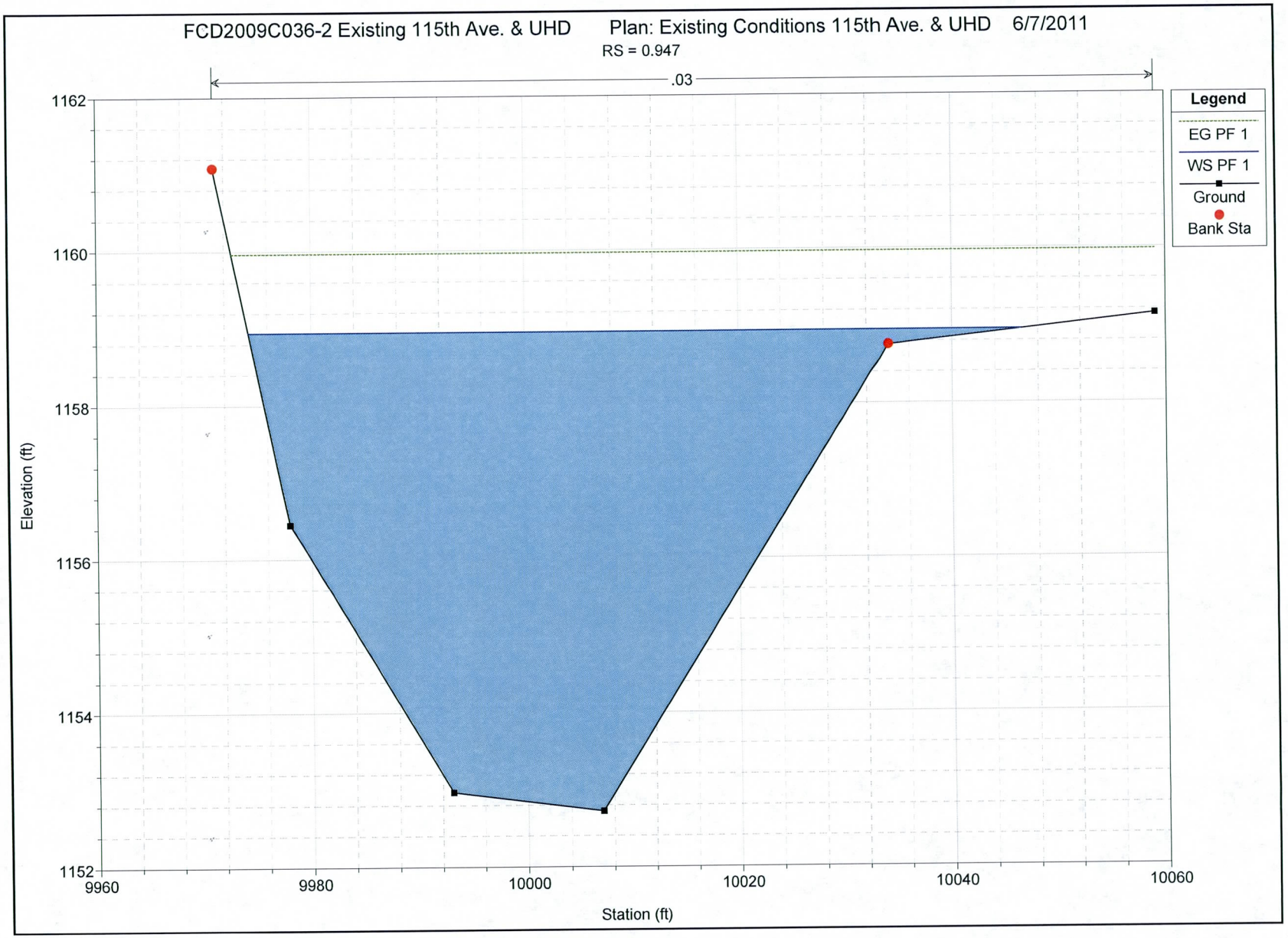

FCD2009C036-2 Existing 115th Ave. & UHD
Plan: Existing Conditions 115th Ave. & UHD
6/7/2011
RS = 1.097
.0275
.039
.015
.03
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Levee
Ineff
Bank Sta
Elevation (ft)
1166
1165
1164
1163
1162
1161
1160
9600
9800
10000
10200
10400
10600
Station (ft)

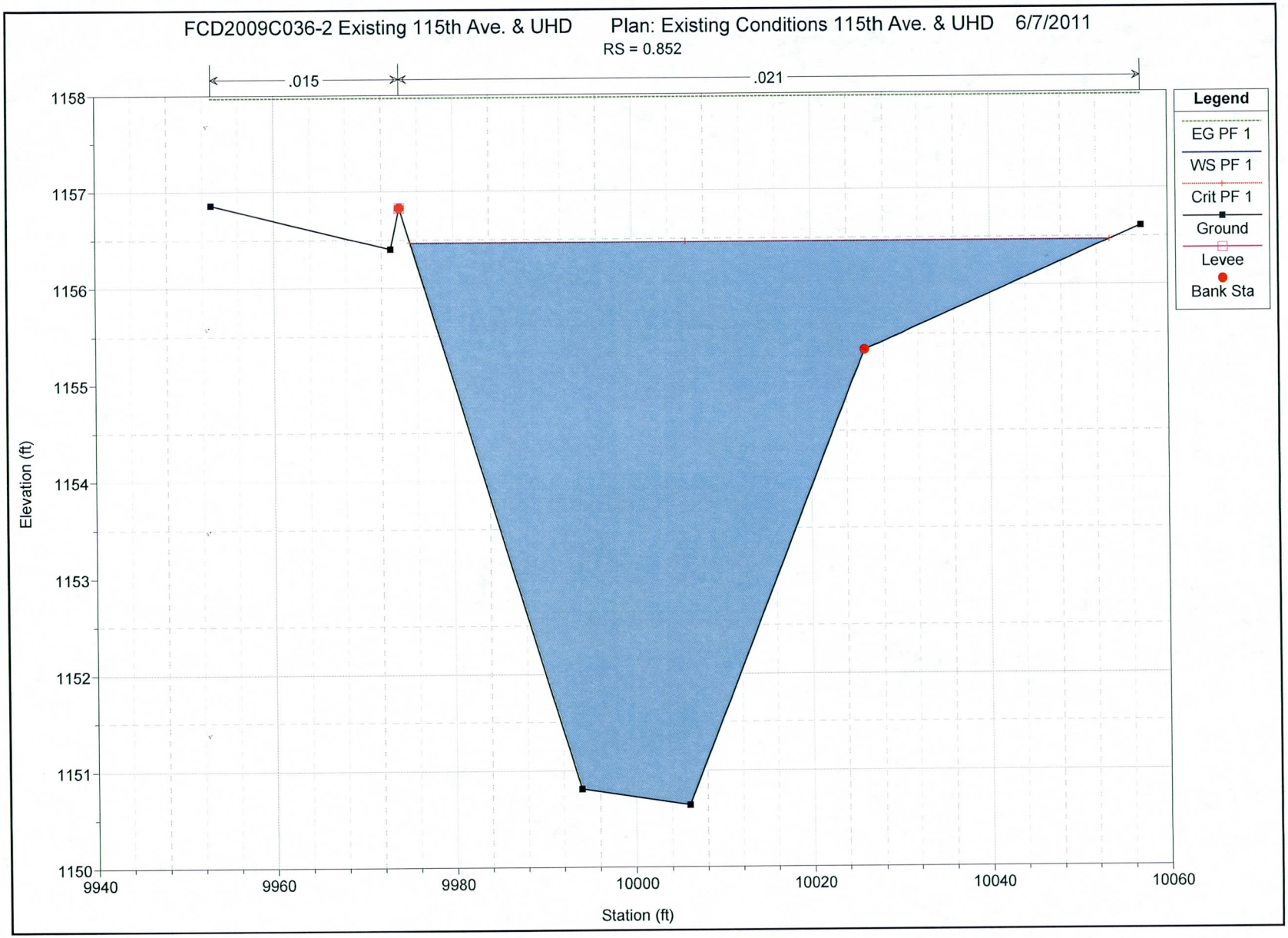

FCD2009C036-2 Existing 115th Ave. & UHD Plan: Existing Conditions 115th Ave. & UHD 6/7/2011
RS = 1.083 Upstream of 3-5'x9' concrete box culverts at the Bell Road.
.017
.015
.03
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
1166
1164
1162
1160
1158
1156
9600
9800
10000
10200
10400
10600
10800
11000
Station (ft)

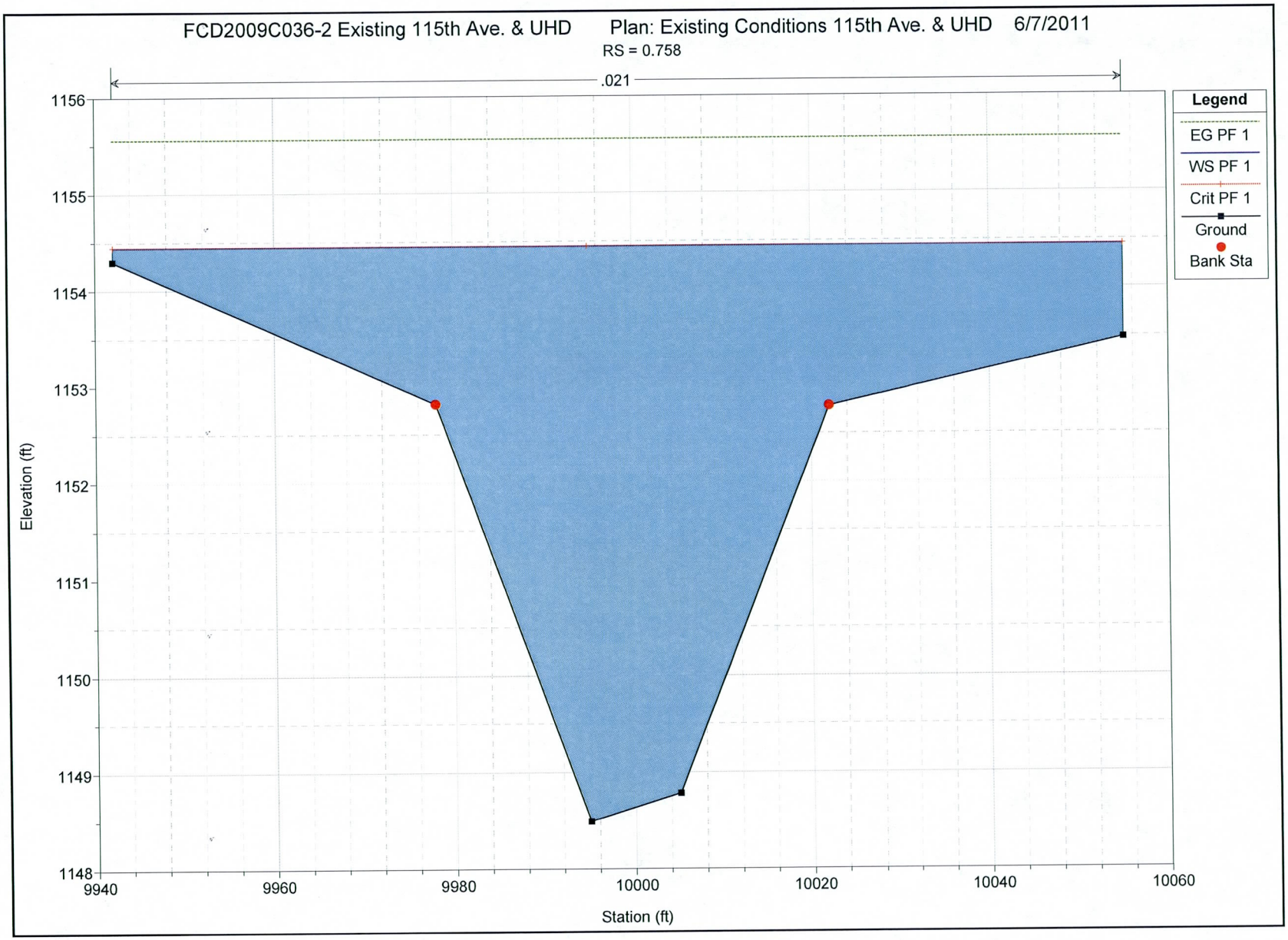

FCD2009C036-2 Existing 115th Ave. & UHD Plan: Existing Conditions 115th Ave. & UHD 6/7/2011
RS = 1.0665 Culv
.017
.015
.03
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
1168
1166
1164
1162
1160
1158
1156
9600
9800
10000
10200
10400
10600
10800
11000

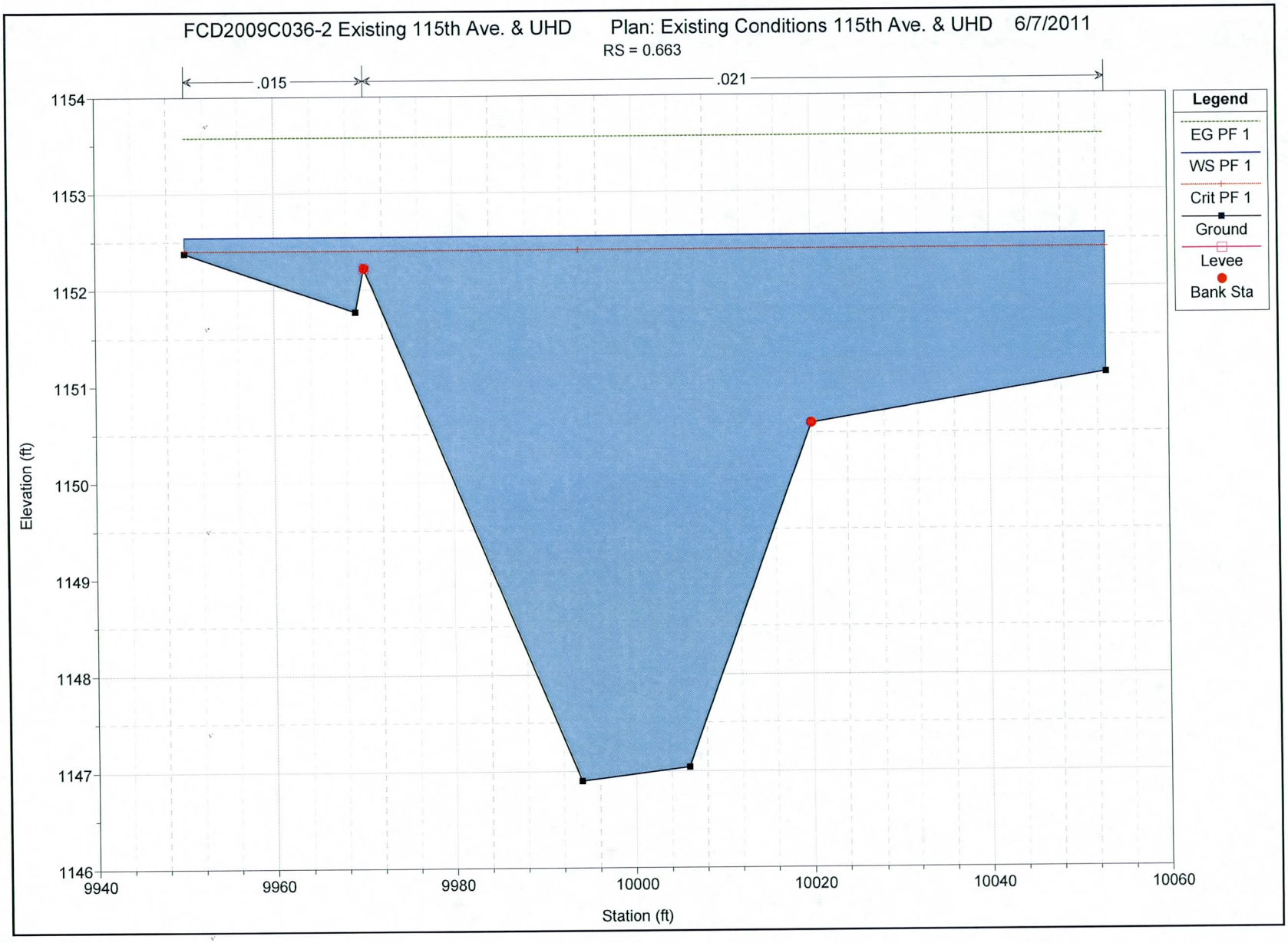

FCD2009C036-2 Existing 115th Ave. & UHD Plan: Existing Conditions 115th Ave. & UHD 6/7/2011
RS = 1.0665 Culv
.034
.0275
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
1166
1164
1162
1160
1158
1156
1154
9970
9980
9990
10000
10010
10020
10030
10040
10050

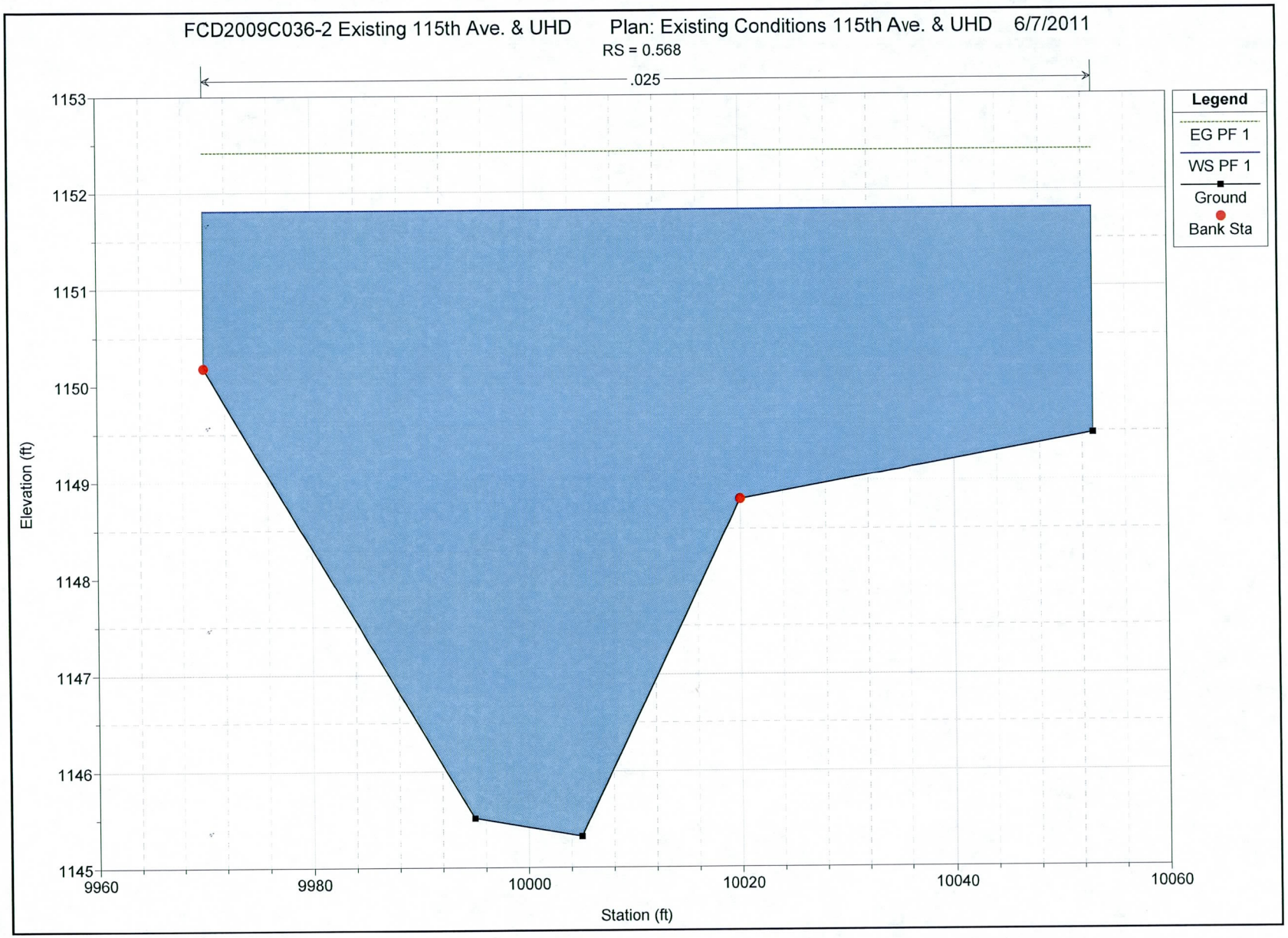

FCD2009C036-2 Existing 115th Ave. & UHD Plan: Existing Conditions 115th Ave. & UHD 6/7/2011
RS = 1.050 Downstream of 3-5'x9' concrete box culverts at the Bell Road.
.034
.0275
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
1166
1164
1162
1160
1158
1156
1154
9970
9980
9990
10000
10010
10020
10030
10040
10050

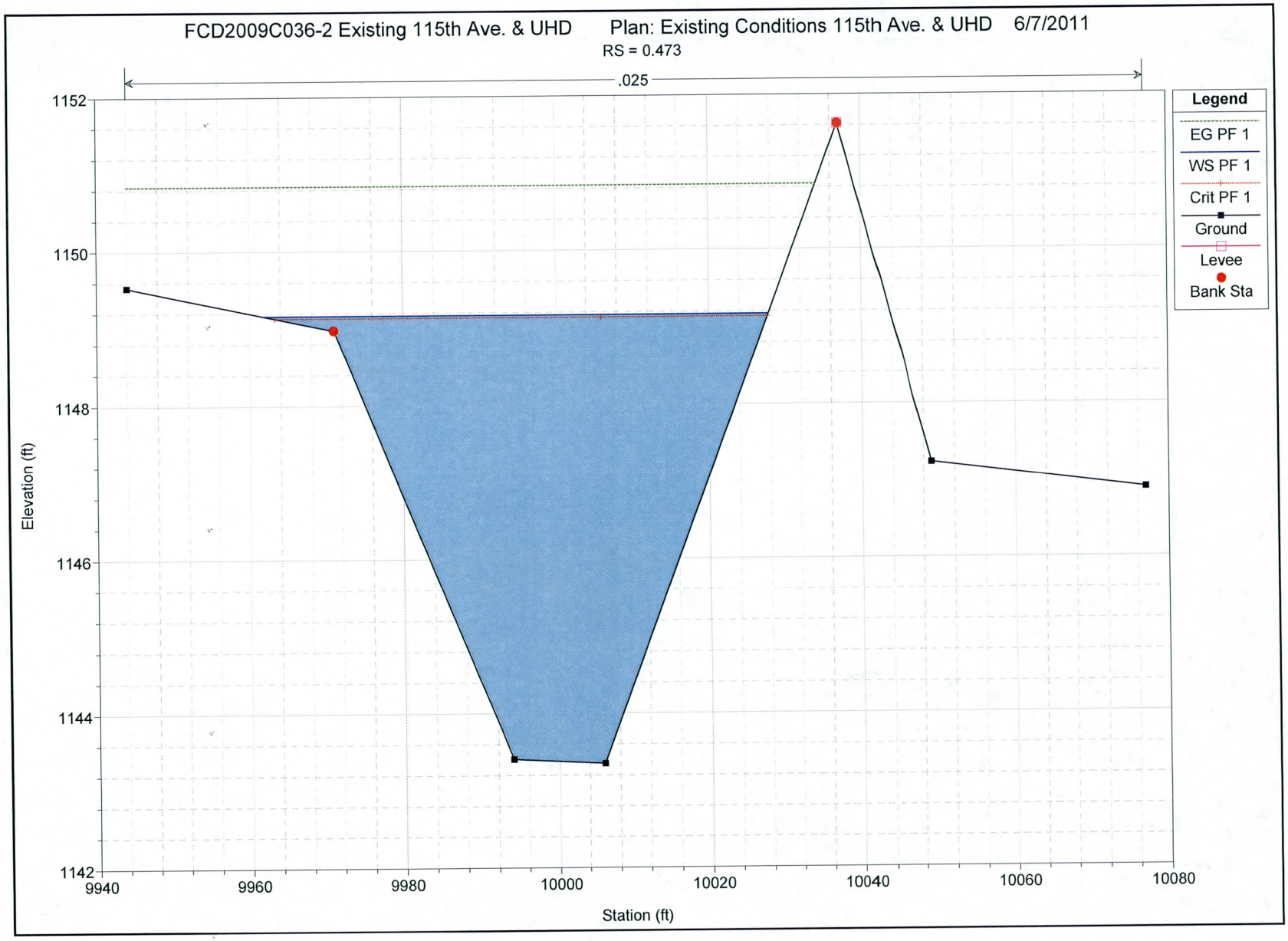

FCD2009C036-2 Existing 115th Ave. & UHD
Plan: Existing Conditions 115th Ave. & UHD
6/7/2011
RS = 0.947
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
1162
1160
1158
1156
1154
1152
9960
9980
10000
10020
10040
10060

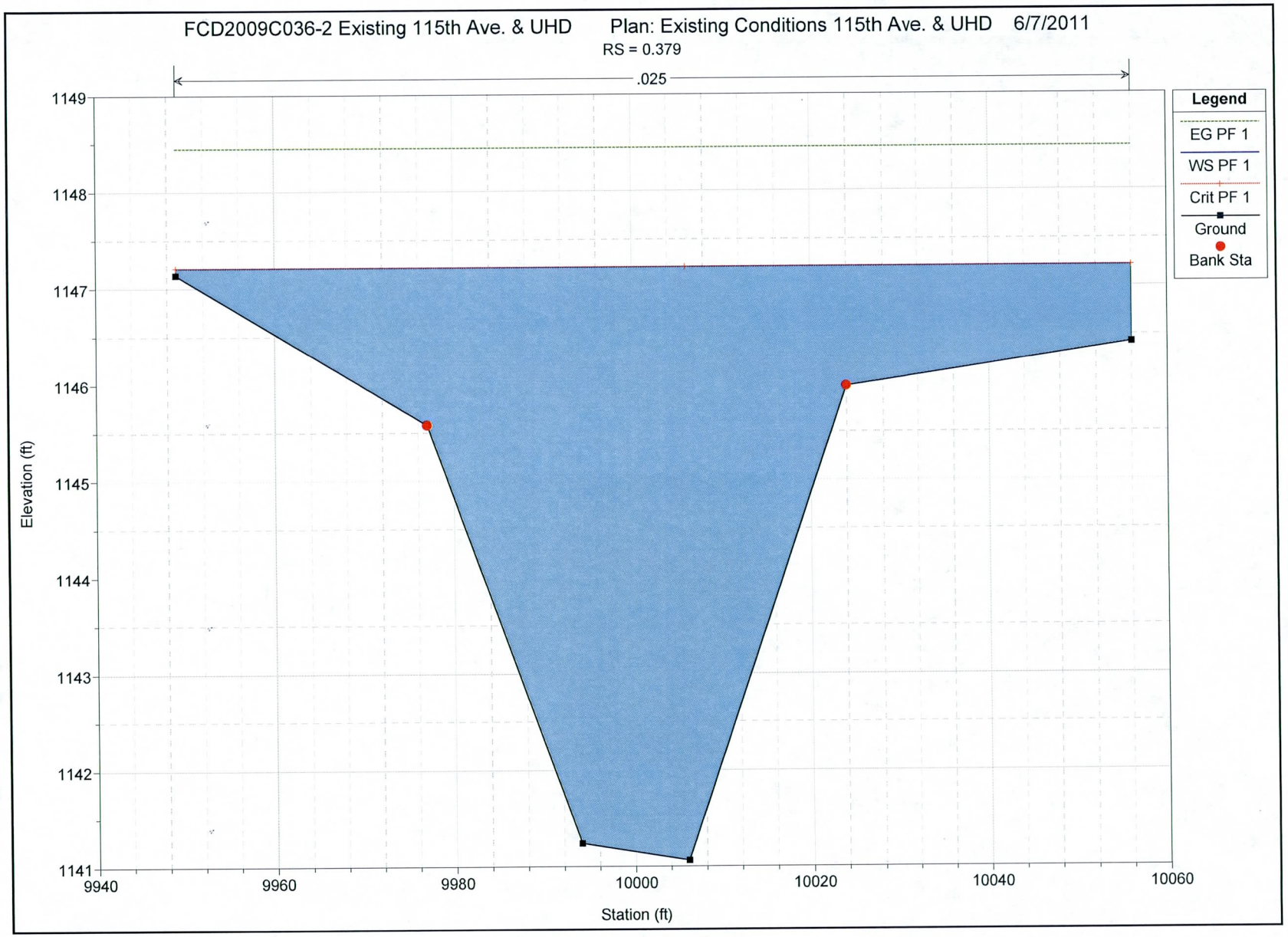

FCD2009C036-2 Existing 115th Ave. & UHD
Plan: Existing Conditions 115th Ave. & UHD
6/7/2011
RS = 0.852
.015
.021
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
Elevation (ft)
Station (ft)
1158
1157
1156
1155
1154
1153
1152
1151
1150
9940
9960
9980
10000
10020
10040
10060

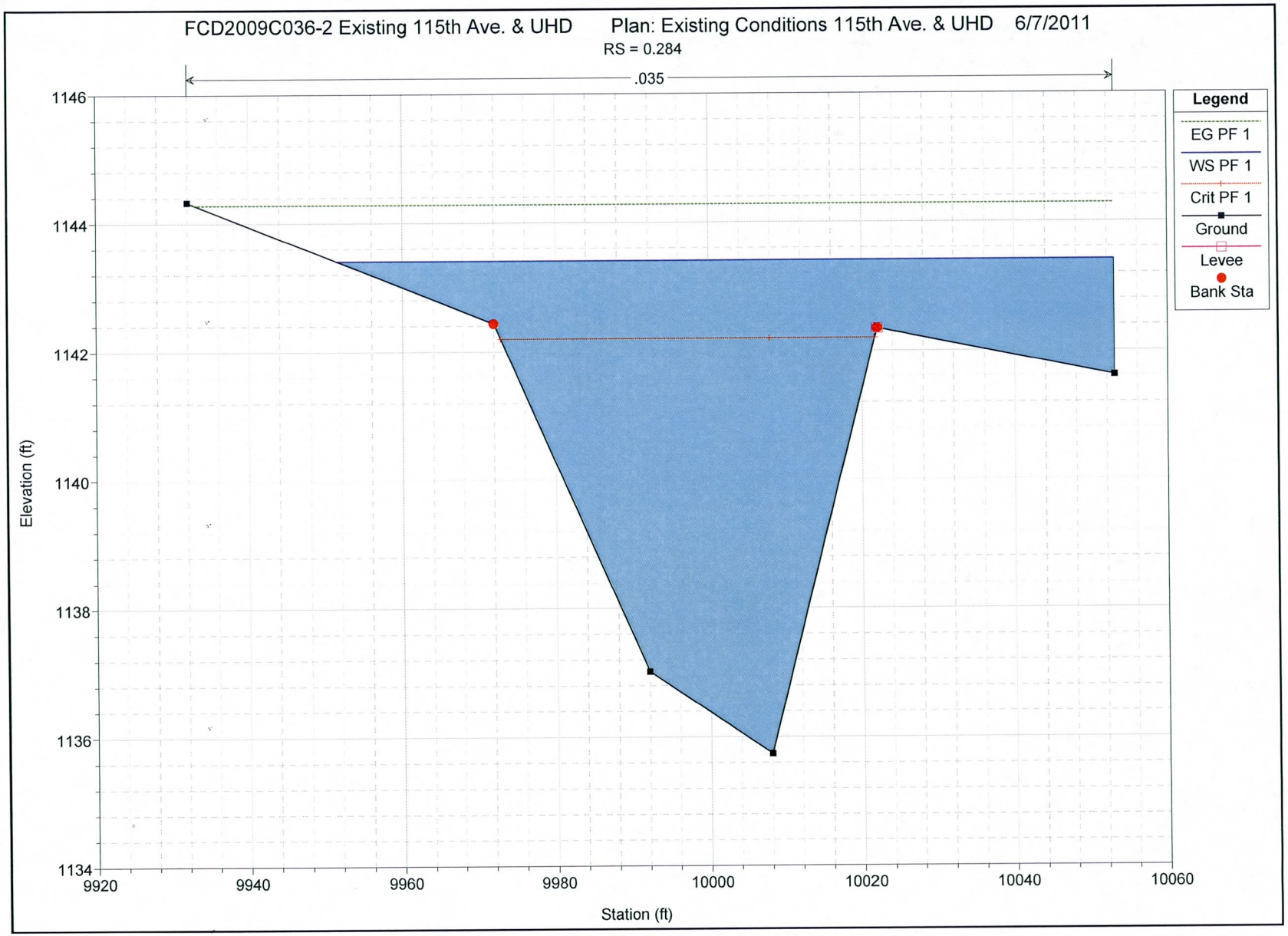

FCD2009C036-2 Existing 115th Ave. & UHD
Plan: Existing Conditions 115th Ave. & UHD 6/7/2011
RS = 0.758
.021
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
1156
1155
1154
1153
1152
1151
1150
1149
1148
9940
9960
9980
10000
10020
10040
10060
Station (ft)

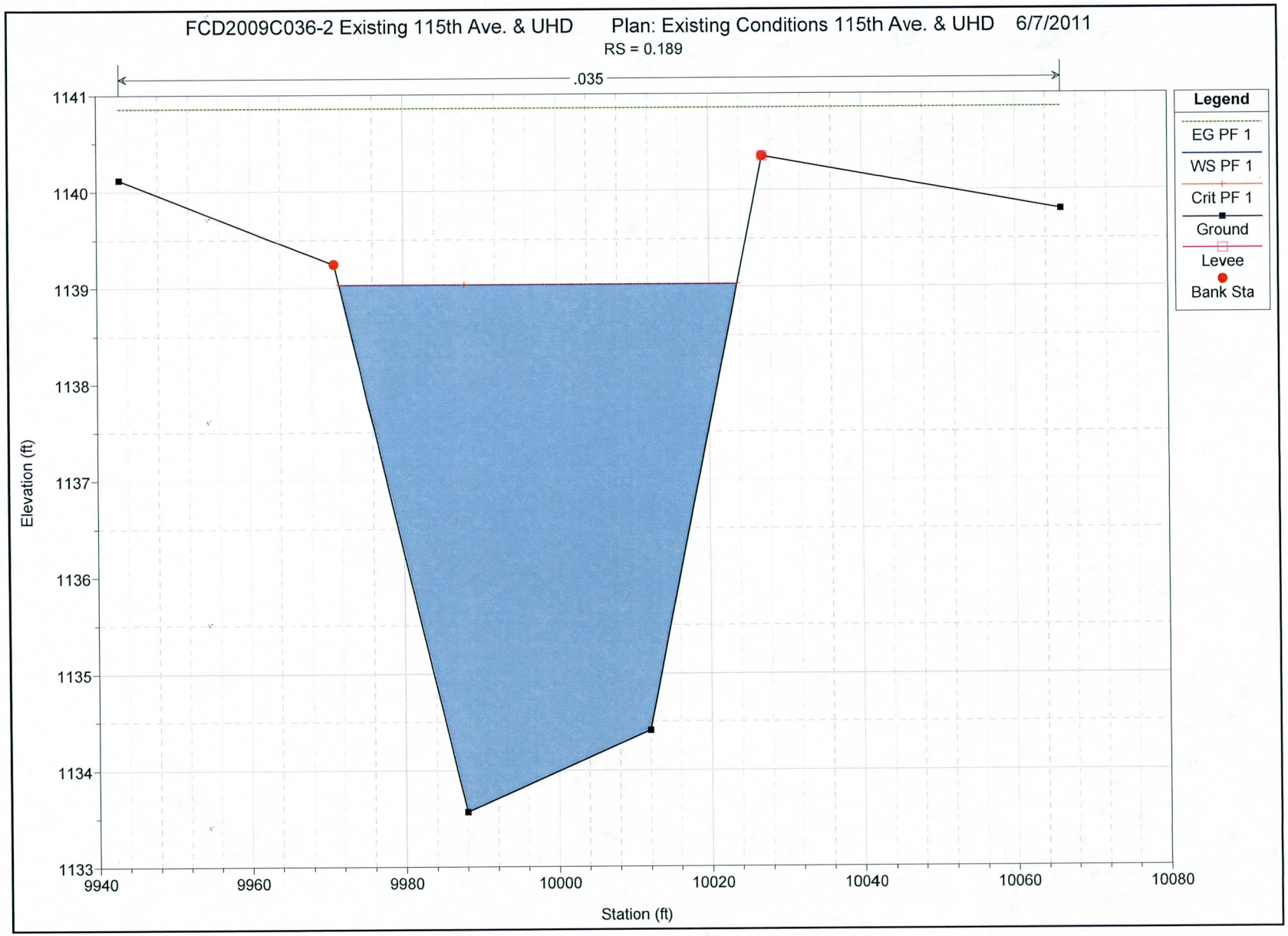

FCD2009C036-2 Existing 115th Ave. & UHD
Plan: Existing Conditions 115th Ave. & UHD 6/7/2011
RS = 0.663
.015
.021
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
Elevation (ft)
Station (ft)
1154
1153
1152
1151
1150
1149
1148
1147
1146
9940
9960
9980
10000
10020
10040
10060


FCD2009C036-2 Existing 115th Ave. & UHD
Plan: Existing Conditions 115th Ave. & UHD 6/7/2011
RS = 0.568
.025
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
1153
1152
1151
1150
1149
1148
1147
1146
1145
9960
9980
10000
10020
10040
10060


FCD2009C036-2 Existing 115th Ave. & UHD
Plan: Existing Conditions 115th Ave. & UHD
6/7/2011
RS = 0.473
.025
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
Elevation (ft)
Station (ft)
1152
1150
1148
1146
1144
1142
9940
9960
9980
10000
10020
10040
10060
10080


FCD2009C036-2 Existing 115th Ave. & UHD
Plan: Existing Conditions 115th Ave. & UHD
6/7/2011
RS = 0.379
.025
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
1149
1148
1147
1146
1145
1144
1143
1142
1141
9940
9960
9980
10000
10020
10040
10060


FCD2009C036-2 Existing 115th Ave. & UHD
Plan: Existing Conditions 115th Ave. & UHD
6/7/2011
RS = 0.284
.035
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
Elevation (ft)
1146
1144
1142
1140
1138
1136
1134
9920
9940
9960
9980
10000
10020
10040
10060
Station (ft)


FCD2009C036-2 Existing 115th Ave. & UHD
Plan: Existing Conditions 115th Ave. & UHD
6/7/2011
RS = 0.189
.035
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
Elevation (ft)
1141
1140
1139
1138
1137
1136
1135
1134
1133
9940
9960
9980
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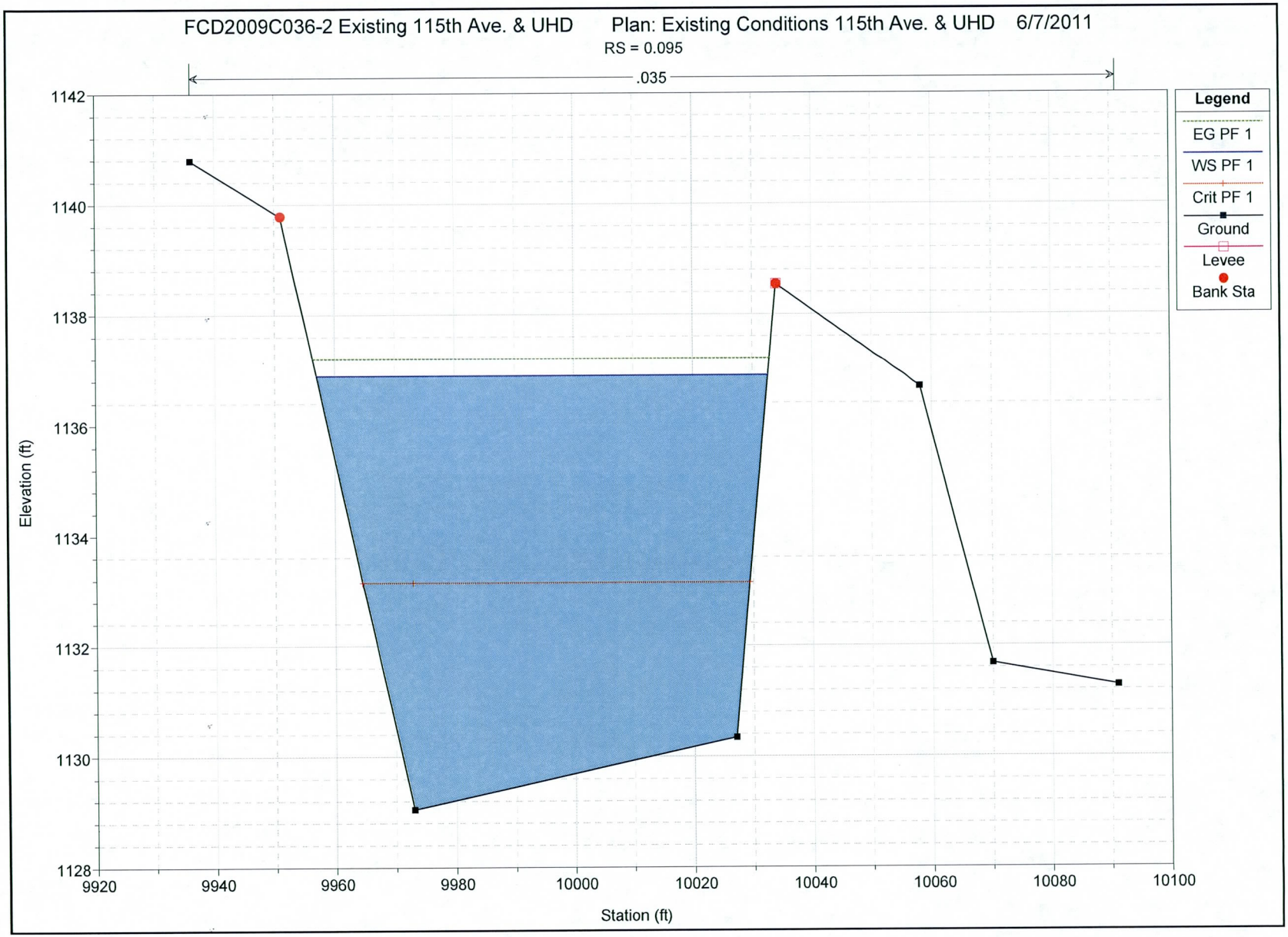
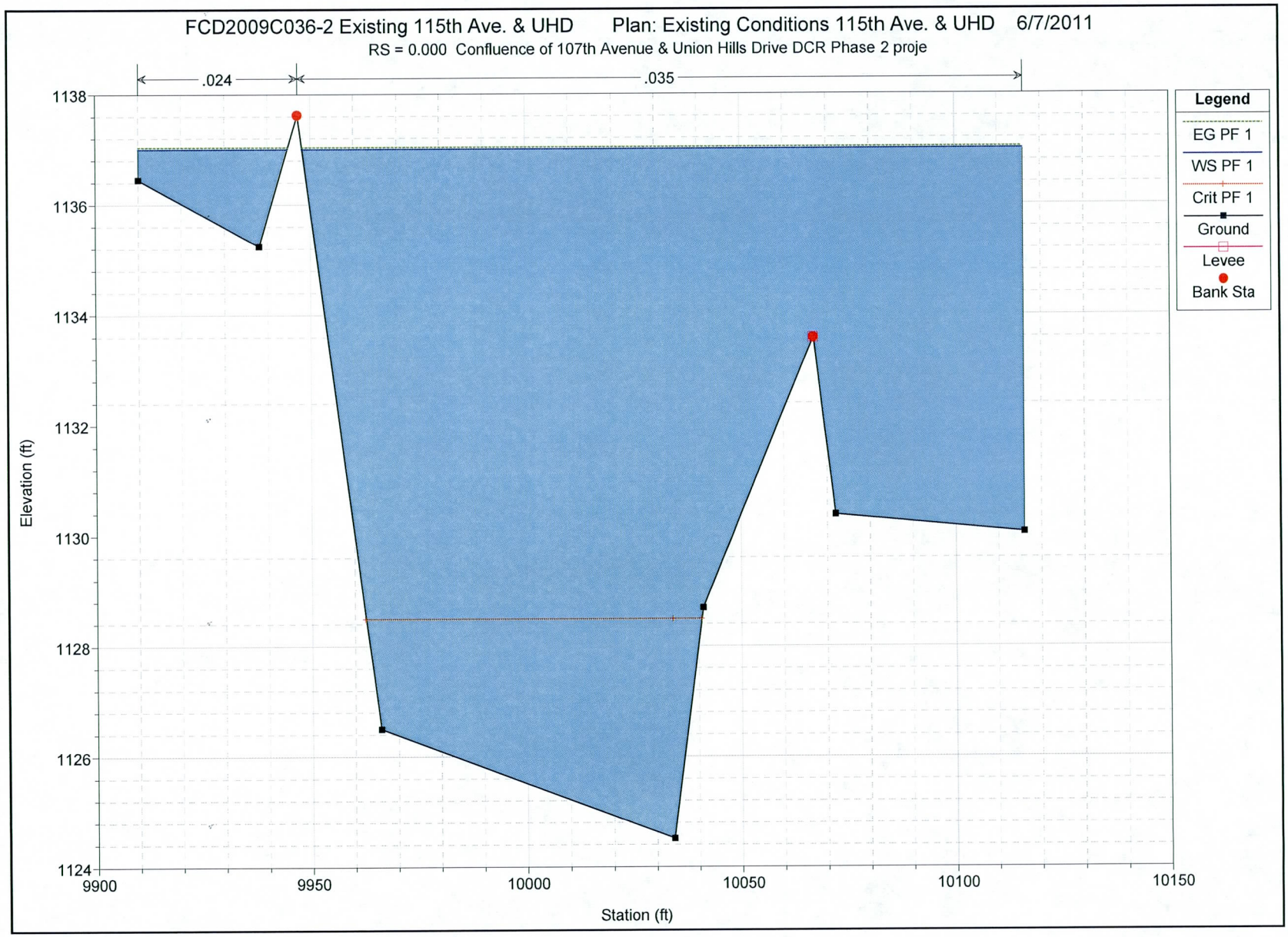
10020
10040
10060
10080
Station (ft)


FCD2009C036-2 Existing 115th Ave. & UHD
Plan: Existing Conditions 115th Ave. & UHD
6/7/2011
RS = 0.095
.035
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
Elevation (ft)
Station (ft)
1142
1140
1138
1136
1134
1132
1130
1128
9920
9940
9960
9980
10000
10020
10040
10060
10080
10100


FCD2009C036-2 Existing 115th Ave. & UHD Plan: Existing Conditions 115th Ave. & UHD 6/7/2011
RS = 0.000 Confluence of 107th Avenue & Union Hills Drive DCR Phase 2 proje
.024
.035
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
Elevation (ft)
1138
1136
1134
1132
1130
1128
1126
1124
9900
9950
10000
10050
10100
10150
Station (ft)

TECHNICAL MEMORANDUM

107th Avenue and Union Hill Drive
Phase 2 – Alternative Analysis
Beardsley Road Channel
Existing Conditions Hydraulics

Interim scope

The interim scope per Flood Control District of Maricopa County (FCD) contract FCD 2009C036.2 Change Order #1 is as follows:

CO#1 A) Hydraulics

1) Prepare Existing Conditions Hydraulic Analysis of the Beardsley Road channel system from 115th Avenue to 107th Avenue. The hydraulic analysis shall be performed in HEC-RAS format and shall be prepared utilizing District topographic information, area as-built construction plans, and verification based on field evaluation. Should field surveying be required, the district shall provide the resources necessary to perform the field work.
    - The purpose of preparing the Existing Hydraulic Analysis for the Beardsley Road channel is to verify that the flows are channelized and that they can be effectively captured and routed south to the Union Hills Drive basins.

Data Reviewed

- *Glendale/Peoria ADMPU 107th Avenue and Union Hills Drive Design Concept Report – Phase 1 Analysis and Recommendations* (Goodwin & Marshall, Inc., 2010)
- *Glendale/Peoria ADMPU 107th Avenue and Union Hills Drive Design Concept Report – Phase 2* 100 year, 6 hour hydrology model
- Beardsley Road, 111th Avenue to Lake Pleasant Heights Road Pavement Rehabilitation and Utility Improvements Plans (Carter & Burgess, 2005)
- 112th Avenue and Beardsley Road Street Improvements Plans (City of Peoria Public Works, 2002)
- Moonlight Bay at Ventana Lakes Phase 1 &2 – Grading and Drainage Plans (Brown Engineering, 1995)
- Site visit by G&M on September 23, 2010
- Aerial topography collected as part of the Phase 1 DCR
- Aerial photography provided by FCD
- *Estimated Manning's Roughness Coefficients for Stream Channels and Flood Plains in Maricopa County, Arizona* (USGS, April 1991)

Hydraulics

A hydraulic model for the 100 year, 6 hour flow was created for the reach of channel along Beardsley Road from 115th Avenue to 107th Avenue using the U.S. Army Corps of Engineers backwater computation program HEC-RAS. Cross sections were created at a typical 500' interval, except where drainage features or other special conditions merited the location of a cross section. Cross sections were generated using digital topography obtained during Phase 1 of this work assignment as well as photography provided by the FCD. As-built construction drawings were also utilized to ensure the accuracy of the provided aerial topography. The GIS information provided by the FCD was on NGVD 29 datum however the project datum is NAVD 88 in order that the Aerial Topographic information may be utilized for the alternatives analysis and future design topography. The discharges used in the model were taken from the existing conditions Glendale/Peoria ADMPU 107th Avenue and Union Hills Drive Design Concept Report hydrology model, which was last updated in the Technical Memorandum *107th Avenue and Union Hills Drive Design Concept Report Phase 2 – Alternative Analysis Existing Conditions Hydrology Update* dated 4-25-2011. The purpose of preparing this model is to determine that under existing conditions the discharges are contained within the existing channel section where the proposed Beardsley Channel would tie into it, resulting in all flows being conveyed south to the proposed detention basins along Union Hills Drive.

Per sections 2.2.4.1 and 2.2.4.2 of the Scope of Work, the Manning's "n" values for typical sections were determined by the following:

- Examination of photographs taken of the channel during the September 23, 2010 field visit. (See attached Photo Location Exhibit)
- Review of the USGS report *Estimated Manning's Roughness Coefficients for Stream Channels and Flood Plains in Maricopa County, Arizona,* dated April 1991. This was used to determine base "n" values as well as adjustment factors for each typical cross section in the model.
- Once typical "n" values were established for each type of channel section located within the project limits, they were applied over entire portions of the reach in which channel section types were similar.

There are three different types of sections within the reach. The sections are as follows:

115th Avenue to Approximately 114th Avenue Alignment

The first portion of the Beardsley Road channel is located from 115th Avenue to approximately the 114th Avenue alignment at the maintenance road entrance to the Arizona American Water Company parcel located south of Beardsley Road. This portion of channel is represented by Sta. 0.00 through Sta. 0.35 in the HEC-RAS model and consists of a generally trapezoidal channel section with a bottom width that varies between +/-12'-20' with

varying side slopes and depth. The bottom of the channel consists mainly of firm soil with small amounts of fine gravel. The sides of the channel are heavily vegetated and also consist of firm soil with small amounts of fine gravel. Manning's "n" values of 0.028-0.035 are used for the channel depending on the amount of vegetation. A value of 0.028 was typically used for the bottom portion of the channel while a value of 0.035 was used for the sides due to vegetation.

114th Avenue alignment to 111th Avenue

The second portion of the Beardsley Road channel is located from approximately the 114th Avenue alignment to 111th Avenue. This portion of the channel is represented by Sta. 0.36 through Sta. 0.52 in the model and consists of a generally trapezoidal channel with a bottom width that varies between +/-10'-20' with side slopes of 1:1 and 1.5:1 and a varying depth. The entire section of channel is composed of concrete. A Manning's "n" value of 0.018 is used for this entire portion of channel.

111th Avenue to 107th Avenue

The third and final portion of the Beardsley Road channel for this analysis is located from 111th Avenue to 107th Avenue. This portion of the channel is represented by Sta. 0.54 through Sta. 1.02 in the model and consists of a generally trapezoidal channel with a bottom width that varies between +/-10'-25' with side slopes of approximately 4:1 and varying depth. The bottom of the channel consists mainly of firm soil with small amounts of fine gravel. The sides of the channel are very lightly vegetated and also consist of firm soil with small amounts of fine gravel. Manning's "n" values of 0.028-0.03 are used for the channel depending on the amount of vegetation. Plate 6 contains photographs of the existing channel and the Manning's "n" value used for each portion.

The water surface profile was computed using the peak 100 year, 6 hour discharges at concentration points along the channel. The downstream flow condition was set to the normal depth based on the existing channel slope. The flow throughout the channel reach is conveyed as follows:

- Sta. 0.000 to Sta. 0.142 - The flow is completely confined within the channel.
- Sta. 0.151 - The flow is overtopping the dirt road containing 5 x 36" corrugated metal pipes.
- Sta. 0.159 - The flow overtops the north top of bank and flows into the mining operation parking area.
- Sta. 0.168 – The flow is overtopping the dirt road containing 5 x 36" corrugated metal pipes.
- Sta. 0.176 to Sta. 0.52 - The flow is completely confined within the channel in every section except for Sta. 0.176. At Sta. 0.176 the flow overtops the north top of bank and flows in the mining operation parking area.

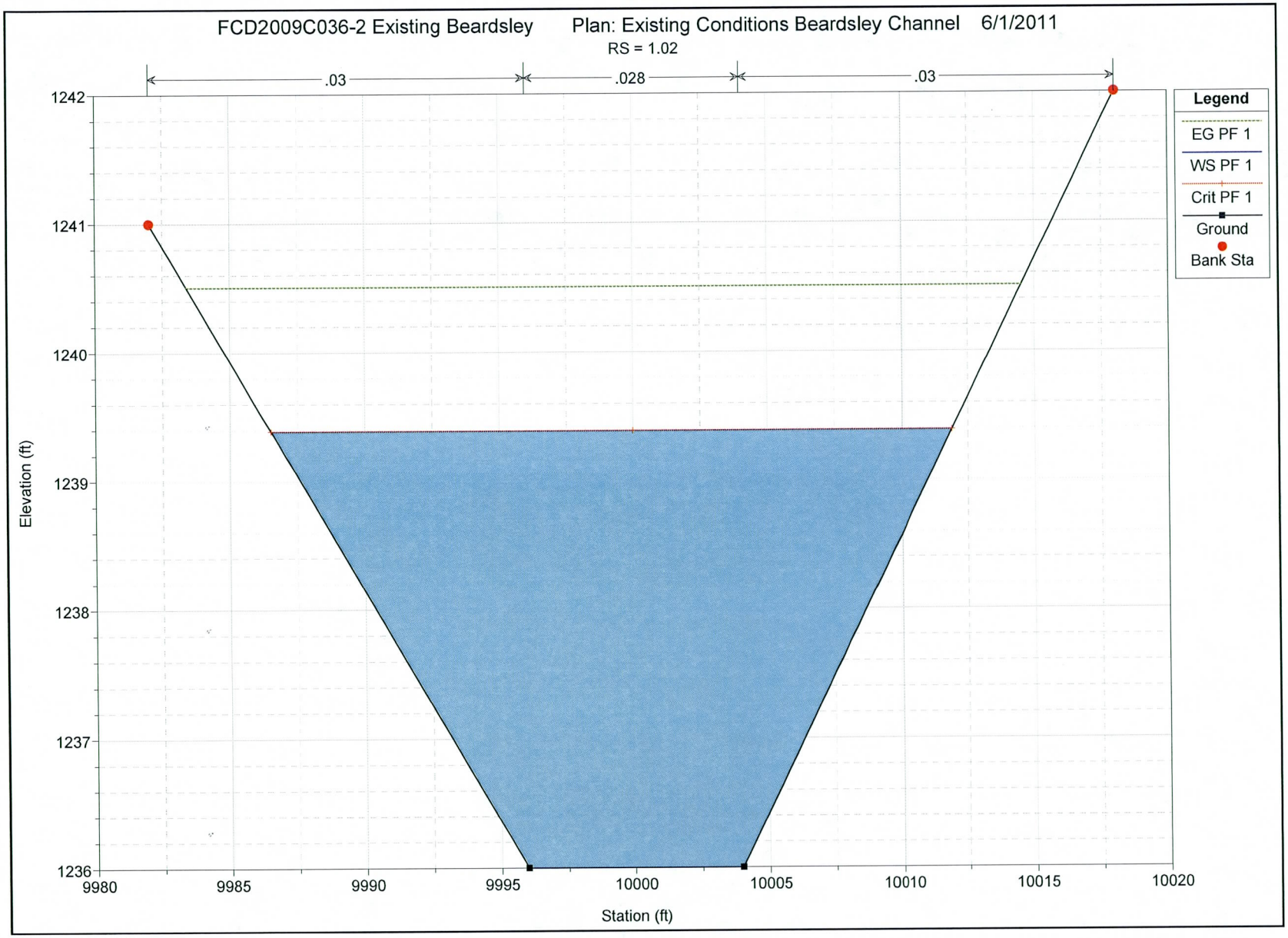
- 111th Avenue - The 2 – 8' x 4' concrete box culverts have the capacity to convey the existing conditions flow of 480 cfs.
- Sta. 0.54 to Sta. 0.77 – The flow is contained within the limits of the channel at every cross section except for Sta. 0.54. At Sta. 0.54 the flow overtops the south top of bank and impounds the existing walls along 111th Avenue and Moonlight Bay at Ventana Lakes Phase 2.
- 109th Avenue - The 2 – 10' x 3' concrete box culverts that exist under this street have enough capacity to convey the existing conditions flow of 480 cfs.
- Sta. 0.79 to Sta. 0.93 - The flow is contained within the channel limits through these sections.
- Entrance to Well Site - The 2 – 10' x 3' concrete box culverts that exist under the entrance to the well site on the south side of Beardsley Road have the capacity to convey the existing conditions flow of 480 cfs.
- Sta. 0.95 to Sta. 1.02 – The flow is contained within the channel limits through these sections.

Summary

The results of the hydraulic model were as expected. Under existing conditions the Beardsley Road channel flows are generally contained within the limits of the channel in the developed areas from 111th Avenue to 107th Avenue. This is also true for the flows within the concrete channel section downstream of 111th Avenue. The flows downstream of the maintenance road entrance all the way to 115th Avenue are also generally contained within the limits of the channel, except for the two sets of 36" culverts at stations 0.168 and 0.151, where the flows overtop the roads as well as the channel limits and flow into the mining operations parking area to the north. The results of the model show that in the main area of concern, which is the point where the proposed Beardsley Channel will tie into the concrete channel section approximately at Sta. 0.39, flows are completely contained within the channel limits. This confirms the assumption that all of the Beardsley Road flows upstream of this point would be diverted south after the addition of the proposed Beardsley Channel. A table of the HEC-RAS results and HEC-RAS cross sections can be found in Appendix D.2. The HEC-RAS Base Map for Beardsley Road can be found on Plate 5.

HEC-RAS Plan: Exist. Beardsley River: Beardsley Channe Reach: 115th to 107th Profile: PF 1

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
115th to 107th	1.02	PF 1	480.00	1236.00	1239.39	1239.39	1240.51	0.010328	8.48	56.61	25.40	1.00
115th to 107th	0.94	PF 1	480.00	1232.00	1236.55	1234.26	1236.76	0.000808	3.63	132.37	42.03	0.32
115th to 107th	0.935		Culvert									
115th to 107th	0.93	PF 1	480.00	1231.50	1233.69	1233.69	1234.66	0.009892	7.90	60.73	35.13	1.00
115th to 107th	0.79	PF 1	480.00	1222.50	1226.84	1224.68	1226.99	0.000673	3.12	153.79	57.93	0.29
115th to 107th	0.78		Culvert									
115th to 107th	0.77	PF 1	480.00	1222.00	1225.26	1224.14	1225.54	0.001992	4.24	113.08	48.22	0.47
115th to 107th	0.73	PF 1	480.00	1221.00	1224.56		1224.96	0.003334	5.06	94.79	40.63	0.58
115th to 107th	0.63	PF 1	480.00	1219.50	1222.82		1223.27	0.003413	5.38	89.17	35.71	0.60
115th to 107th	0.54	PF 1	460.00	1217.50	1222.53	1219.78	1222.66	0.000474	2.86	160.89	69.84	0.24
115th to 107th	0.53		Culvert									
115th to 107th	0.52	PF 1	460.00	1217.00	1220.55	1218.95	1220.76	0.000451	3.69	124.78	45.16	0.37
115th to 107th	0.46	PF 1	460.00	1215.50	1218.95	1218.95	1220.29	0.004067	9.28	49.55	18.73	1.01
115th to 107th	0.36	PF 1	480.00	1204.00	1209.85	1206.44	1209.97	0.000182	2.85	168.20	37.54	0.24
115th to 107th	.355		Culvert									
115th to 107th	0.35	PF 1	480.00	1203.00	1206.03	1205.93	1206.86	0.009896	7.34	65.37	34.85	0.94
115th to 107th	0.26	PF 1	480.00	1199.00	1202.33	1201.86	1202.87	0.006334	5.89	81.48	48.79	0.80
115th to 107th	0.176	PF 1	480.00	1197.50	1201.82	1199.90	1201.90	0.000927	2.46	224.54	104.17	0.26
115th to 107th	0.168		Culvert									
115th to 107th	0.159	PF 1	480.00	1197.00	1201.07	1199.66	1201.20	0.001632	3.17	191.25	113.57	0.34
115th to 107th	.151		Culvert									
115th to 107th	0.142	PF 1	480.00	1195.00	1197.44	1197.44	1198.28	0.015692	7.37	65.16	38.42	1.00
115th to 107th	0.095	PF 1	480.00	1192.00	1195.85	1194.22	1196.04	0.001919	3.46	138.73	52.08	0.37
115th to 107th	0.00	PF 1	480.00	1191.00	1193.67	1193.29	1194.26	0.008002	6.18	77.71	38.17	0.76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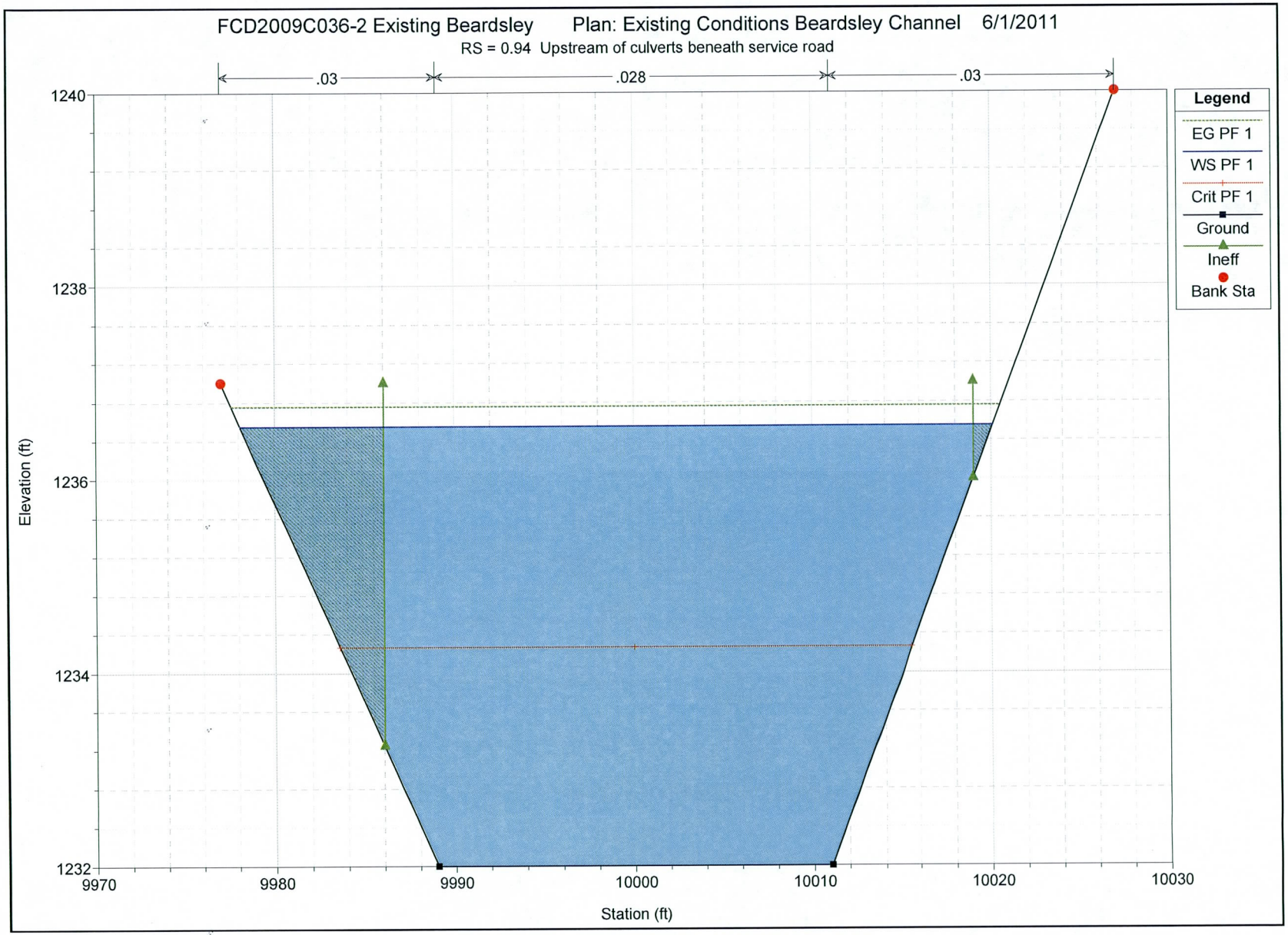
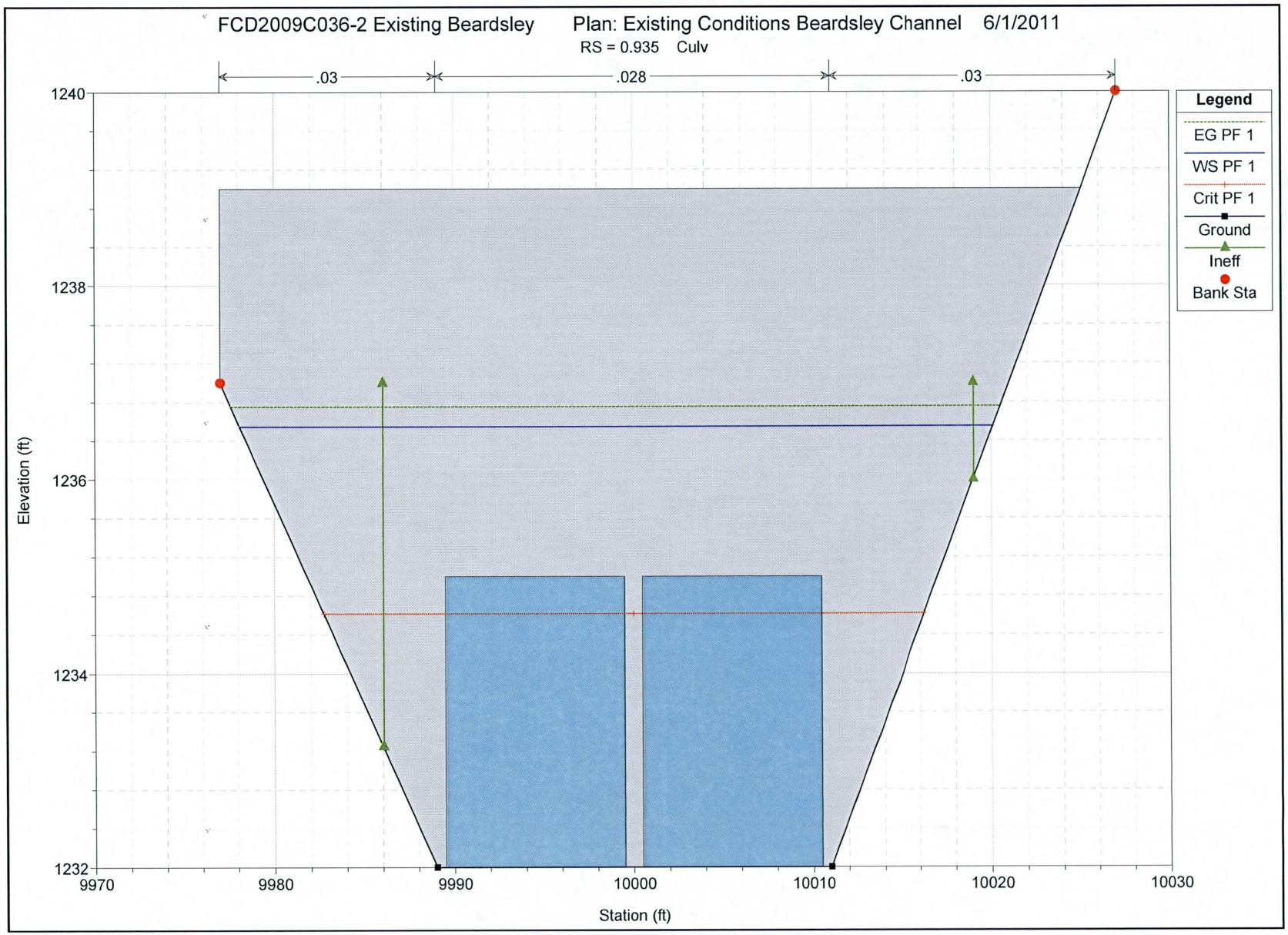
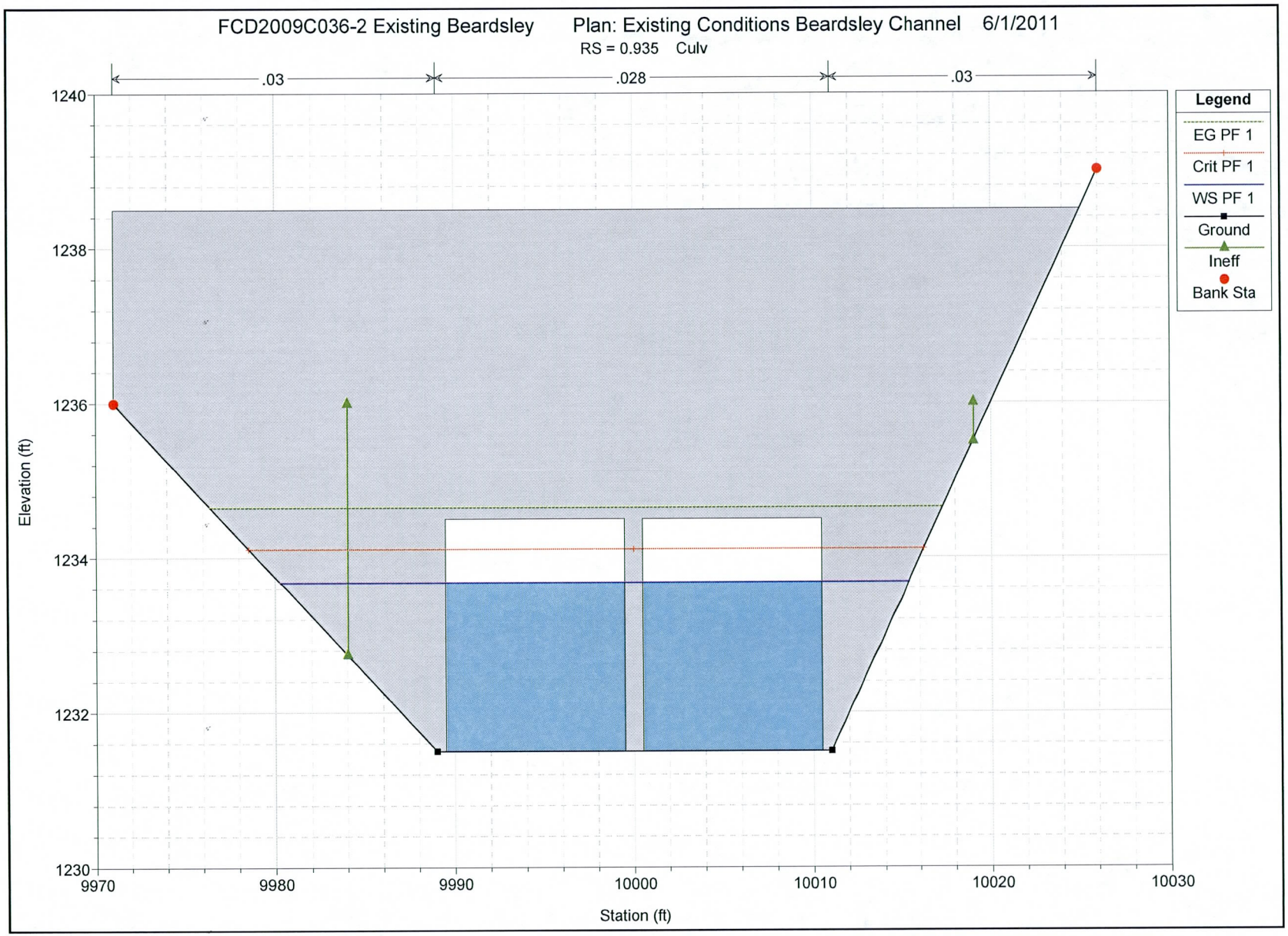
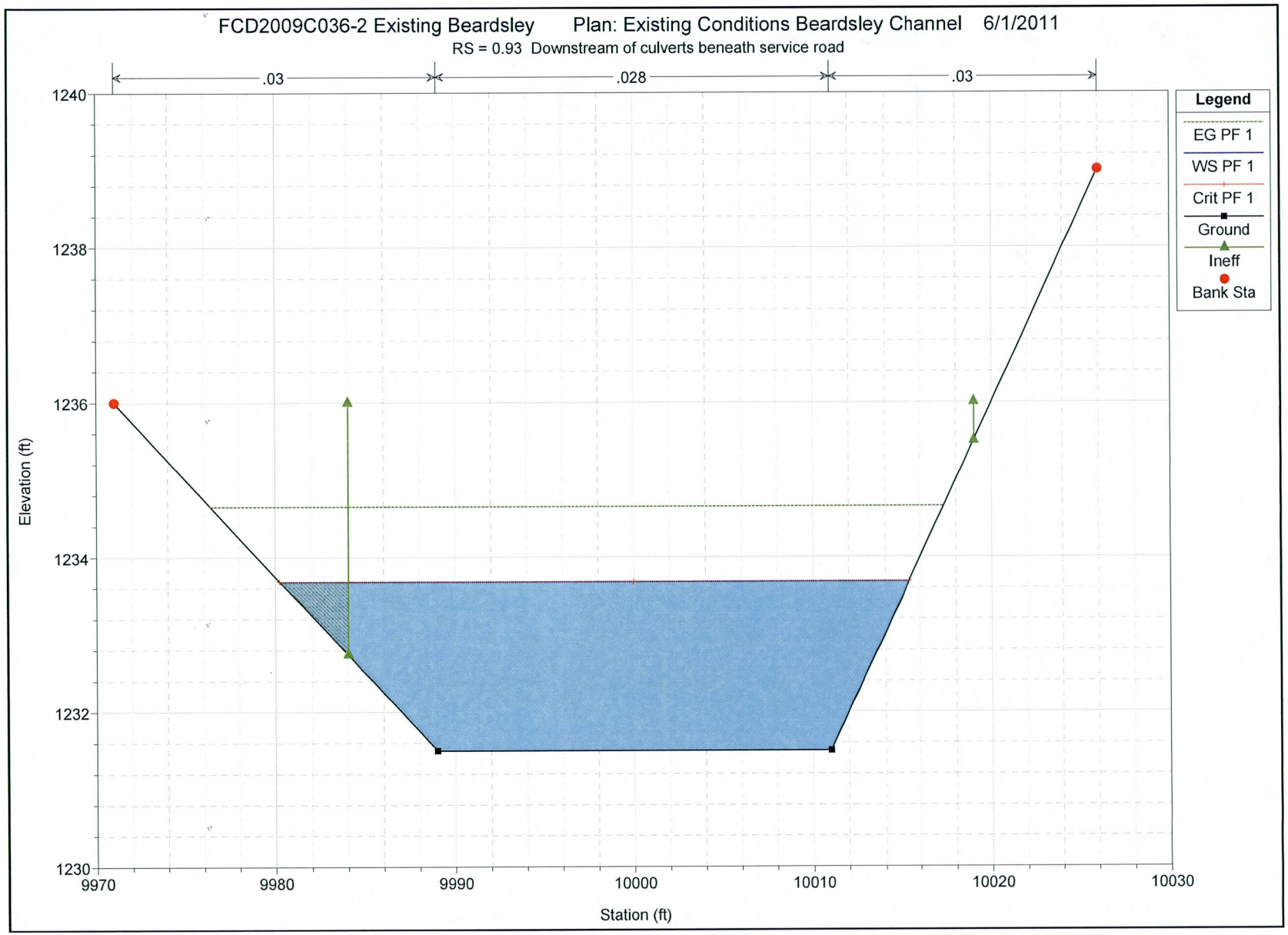
RS = 1.02
.03
.028
.03
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
1242
1241
1240
1239
1238
1237
1236
9980
9985
9990
9995
10000
10005
10010
10015
10020


FCD2009C036-2 Existing Beardsley Plan: Existing Conditions Beardsley Channel 6/1/2011
RS = 0.94 Upstream of culverts beneath service road
.03
.028
.03
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
1240
1238
1236
1234
1232
9970
9980
9990
10000
10010
10020
10030
Station (ft)


FCD2009C036-2 Existing Beardsley
Plan: Existing Conditions Beardsley Channel 6/1/2011
RS = 0.935 Culv
.03
.028
.03
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
1240
1238
1236
1234
1232
9970
9980
9990
10000
10010
10020
10030
Station (ft)


FCD2009C036-2 Existing Beardsley
Plan: Existing Conditions Beardsley Channel 6/1/2011
RS = 0.935 Culv
.03
.028
.03
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
1240
1238
1236
1234
1232
1230
9970
9980
9990
10000
10010
10020
10030
Station (ft)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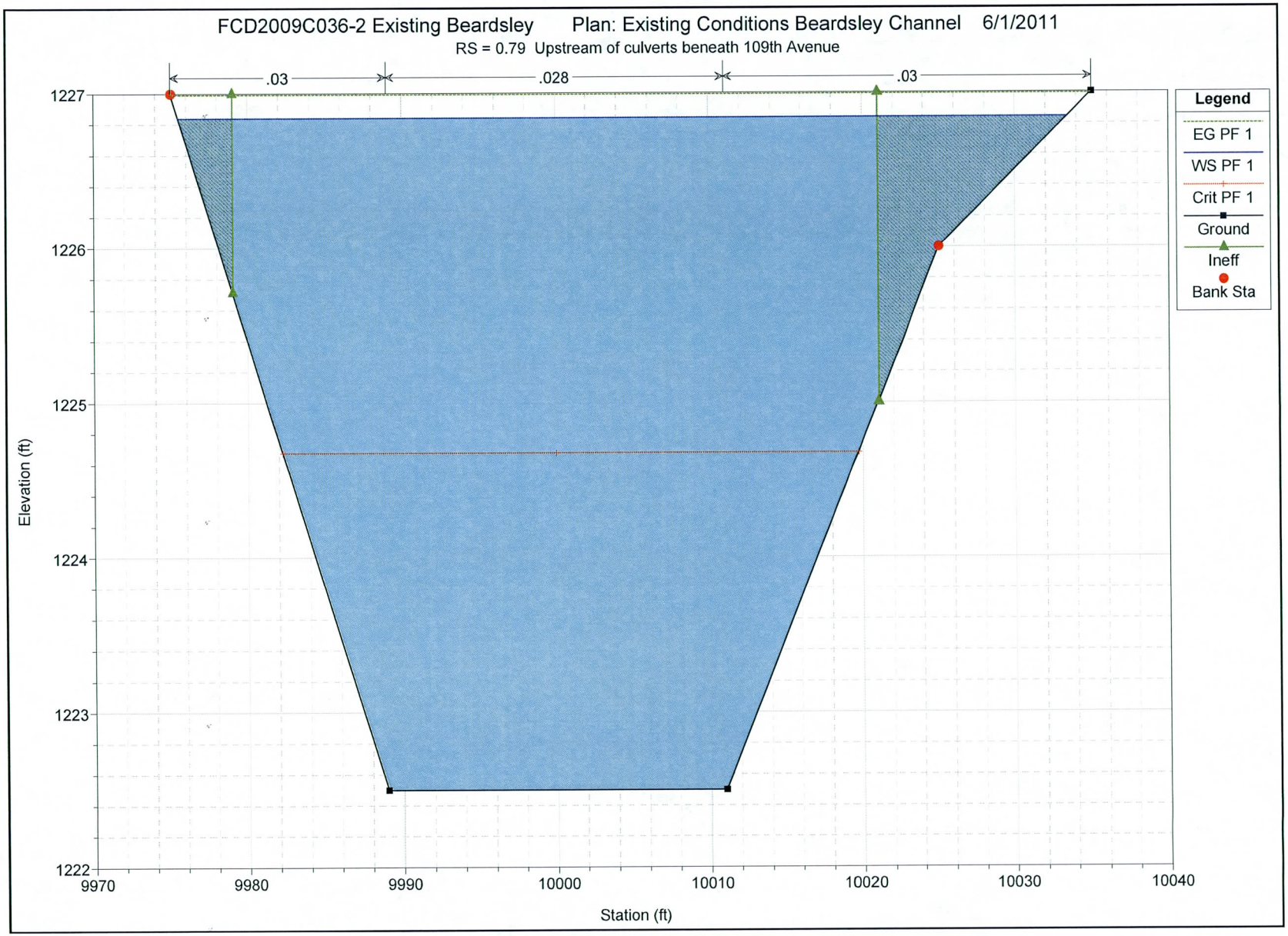
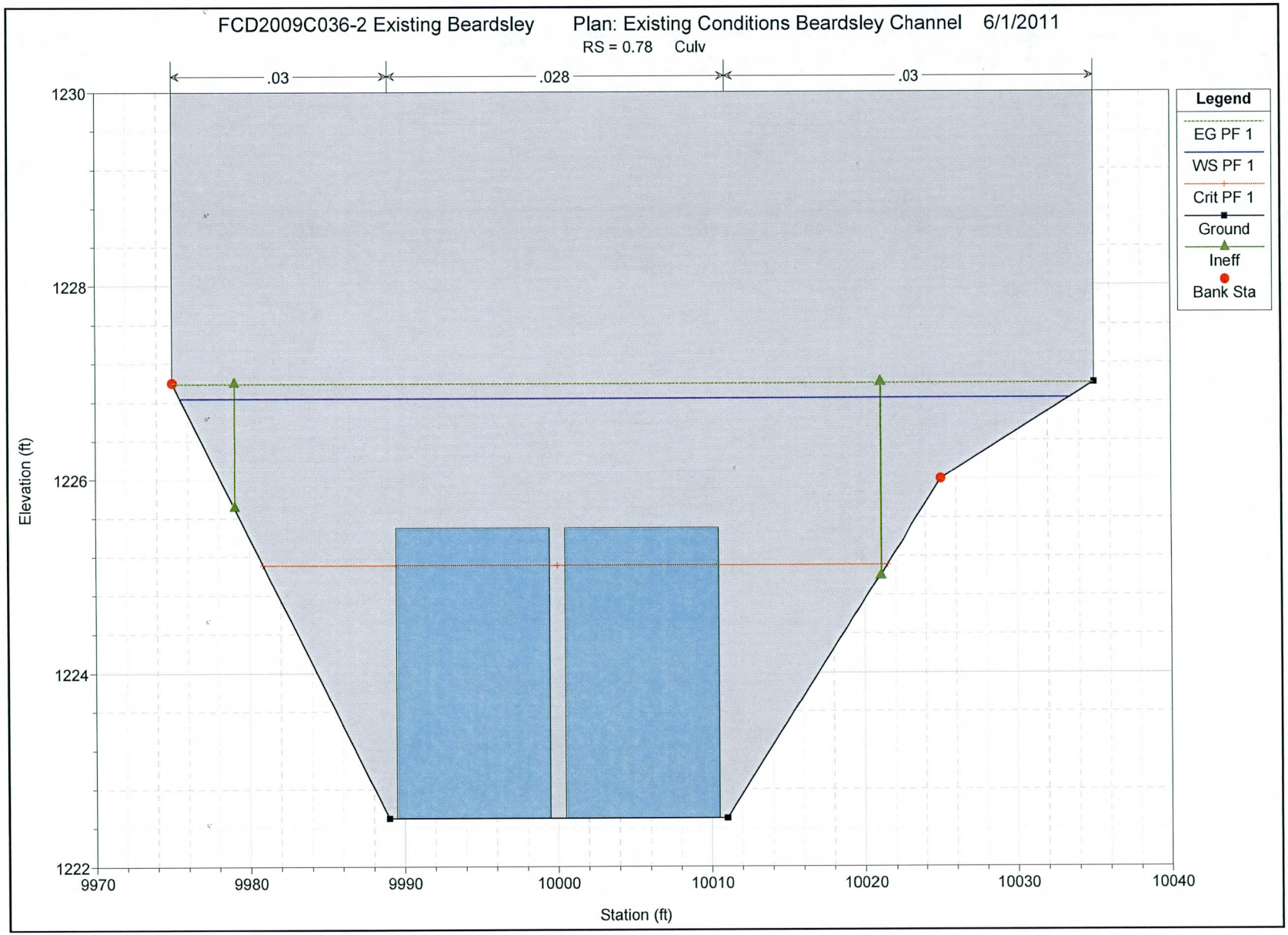
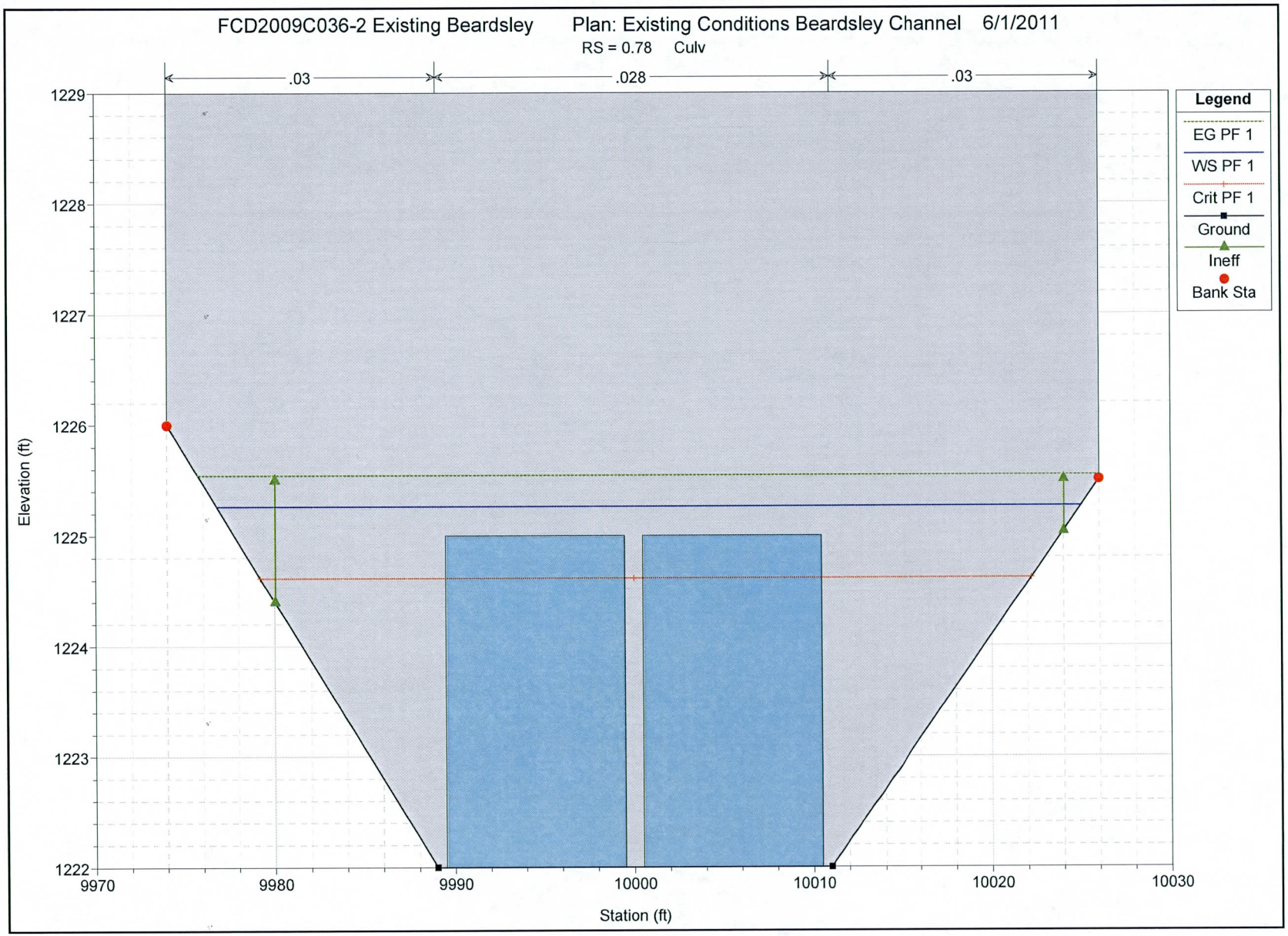
RS = 0.93 Downstream of culverts beneath service road
.03
.028
.03
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
1240
1238
1236
1234
1232
1230
9970
9980
9990
10000
10010
10020
10030
Station (ft)


FCD2009C036-2 Existing Beardsley Plan: Existing Conditions Beardsley Channel 6/1/2011
RS = 0.79 Upstream of culverts beneath 109th Avenue
.03
.028
.03
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
1227
1226
1225
1224
1223
1222
9970
9980
9990
10000
10010
10020
10030
10040
Station (ft)


FCD2009C036-2 Existing Beardsley
Plan: Existing Conditions Beardsley Channel
6/1/2011
RS = 0.78
Culv
.03
.028
.03
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
1230
1228
1226
1224
1222
9970
9980
9990
10000
10010
10020
10030
10040
Station (ft)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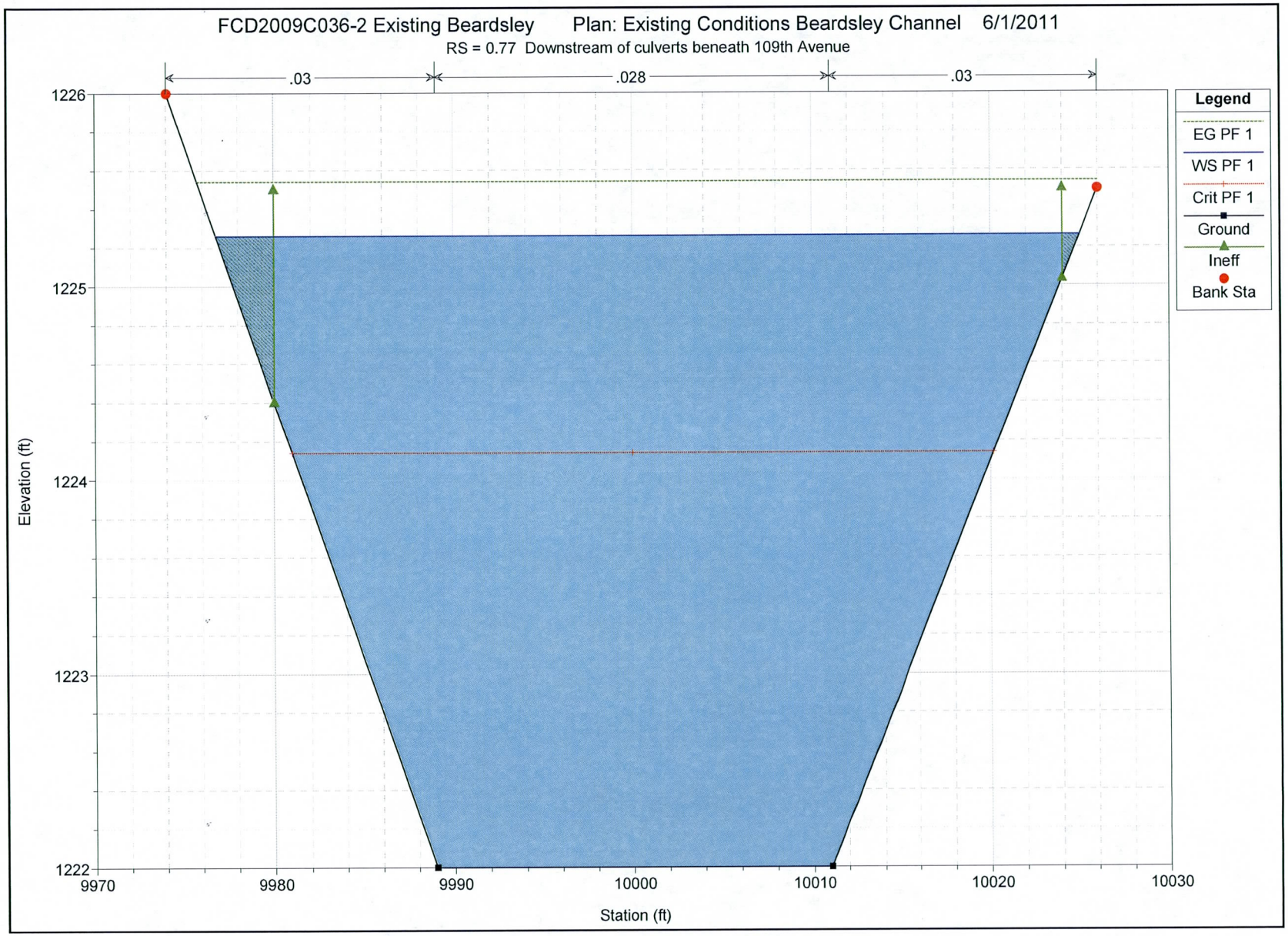
Plan: Existing Conditions Beardsley Channel 6/1/2011
RS = 0.78 Culv
.03
.028
.03
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
1229
1228
1227
1226
1225
1224
1223
1222
9970
9980
9990
10000
10010
10020
10030
Station (ft)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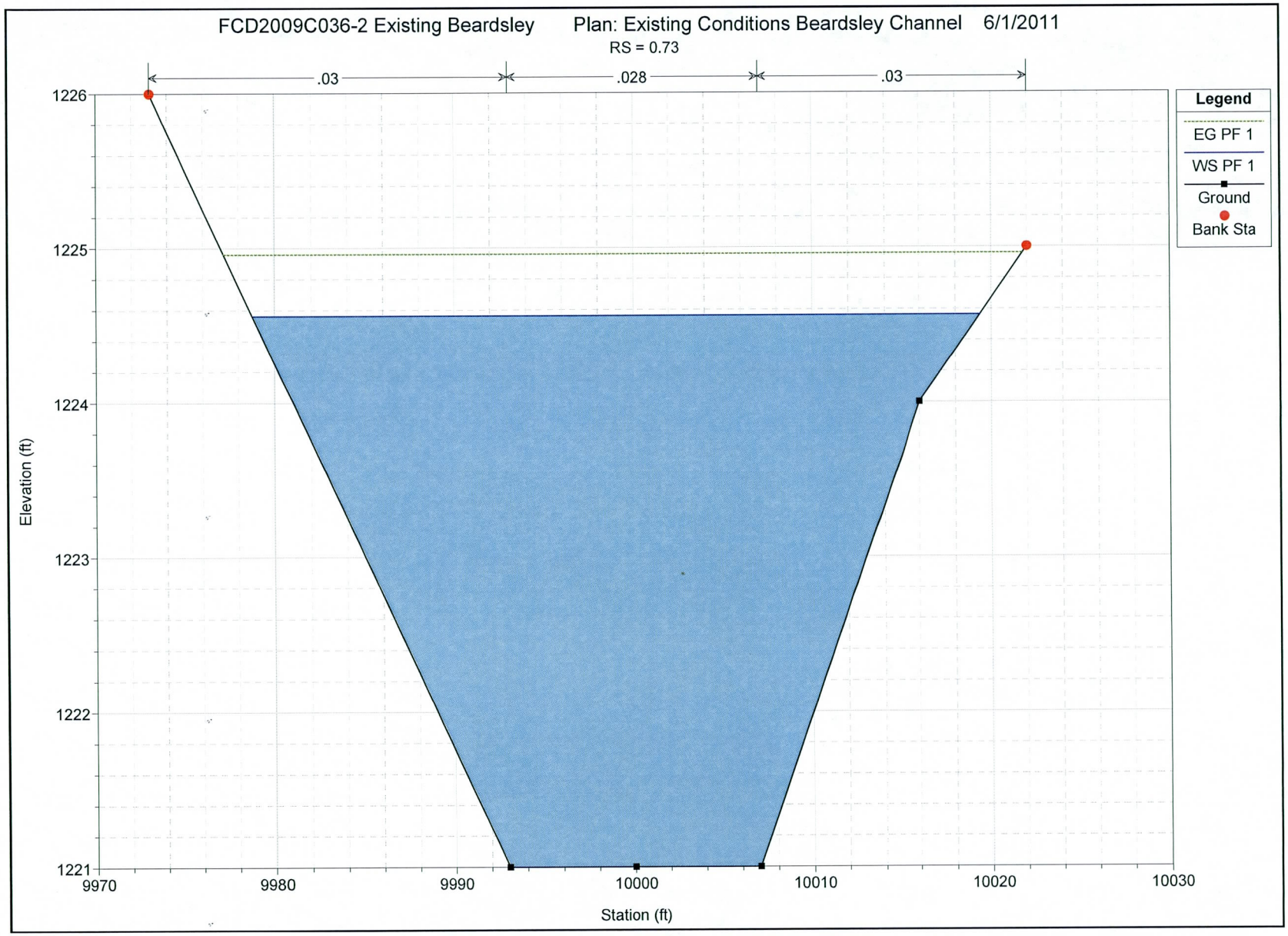
RS = 0.77 Downstream of culverts beneath 109th Avenue
.03
.028
.03
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
1226
1225
1224
1223
1222
9970
9980
9990
10000
10010
10020
10030
Station (ft)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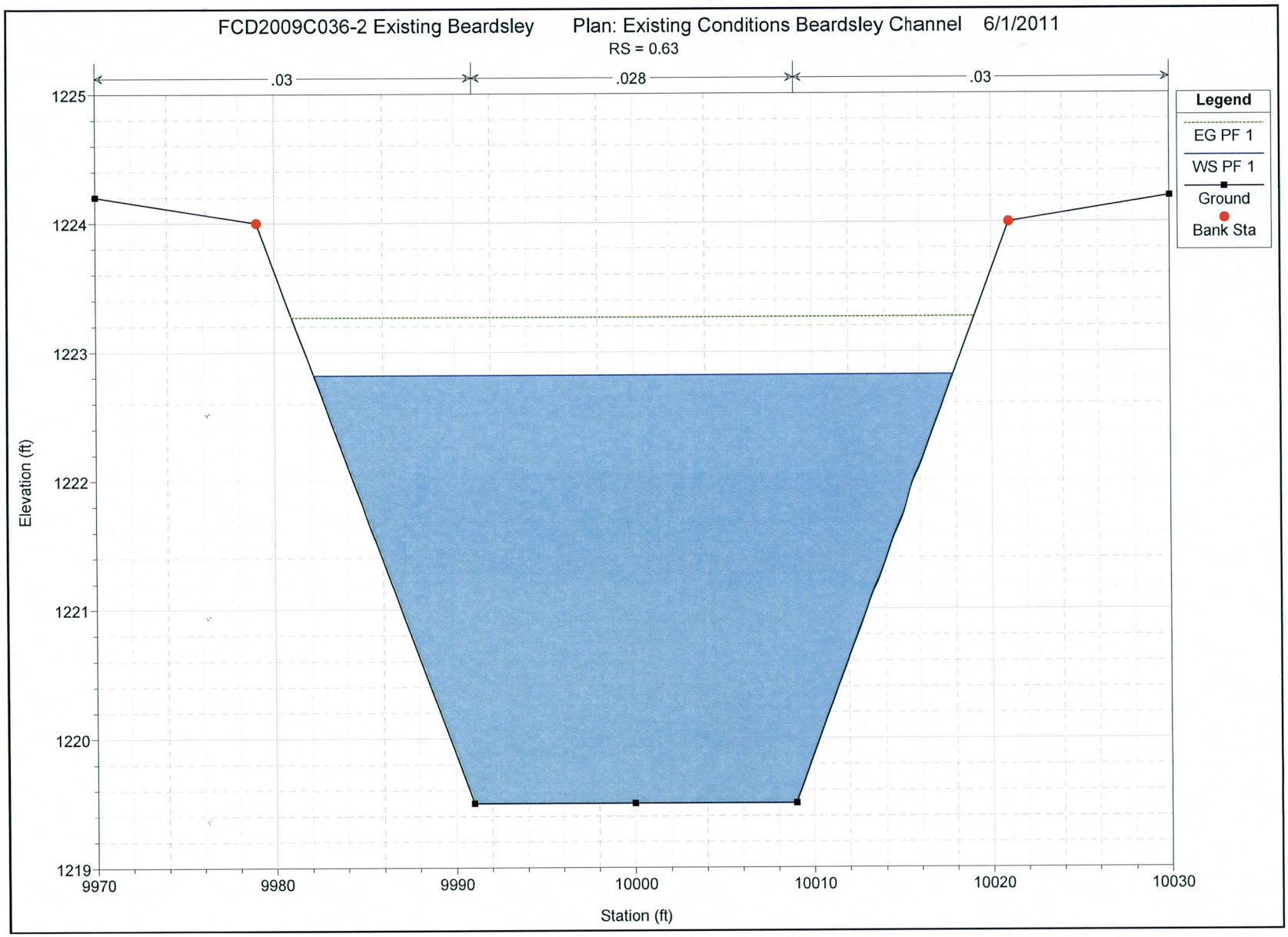
Plan: Existing Conditions Beardsley Channel
6/1/2011
RS = 0.73
.03
.028
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
1226
1225
1224
1223
1222
1221
9970
9980
9990
10000
10010
10020
10030
Station (ft)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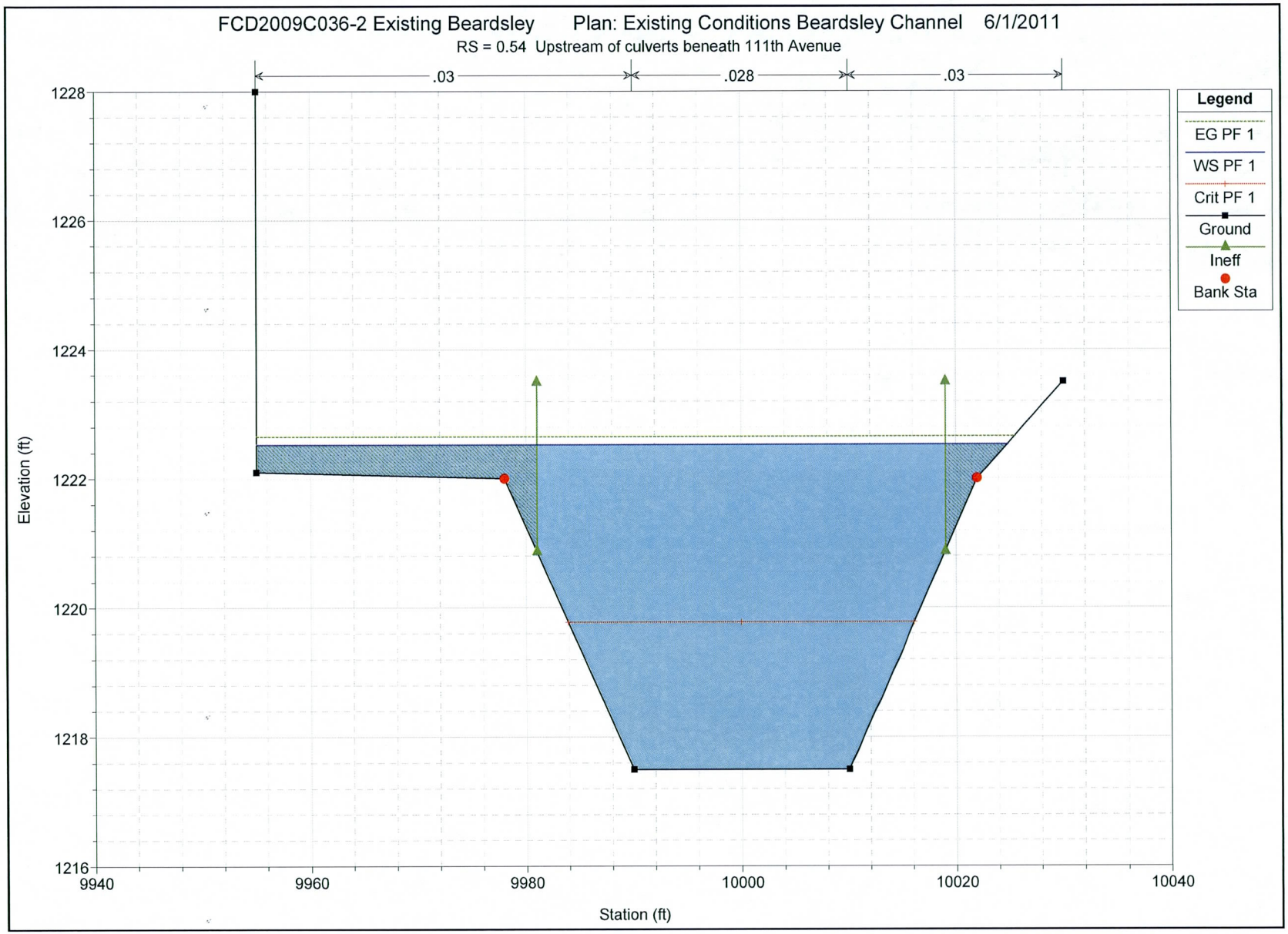
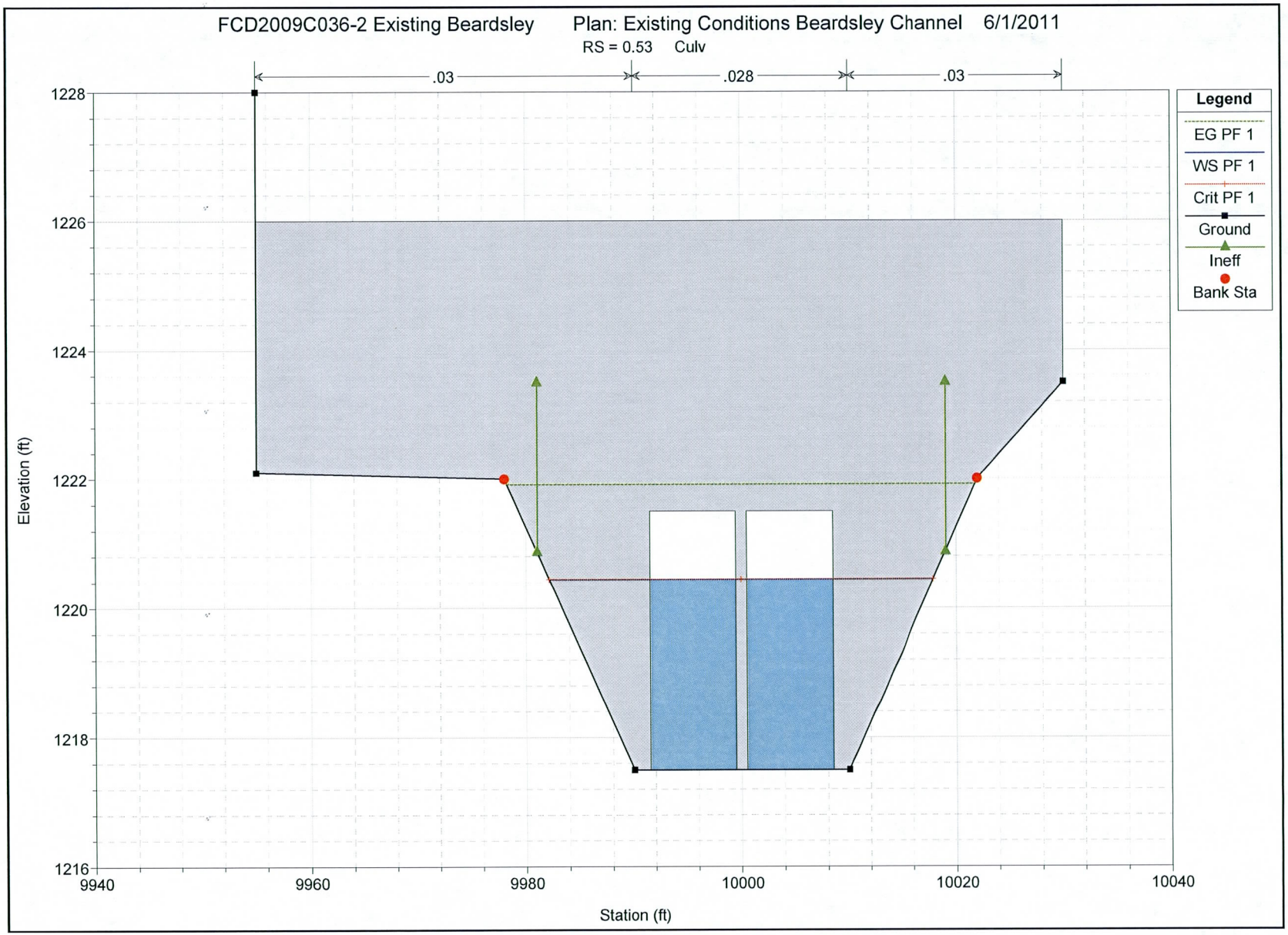
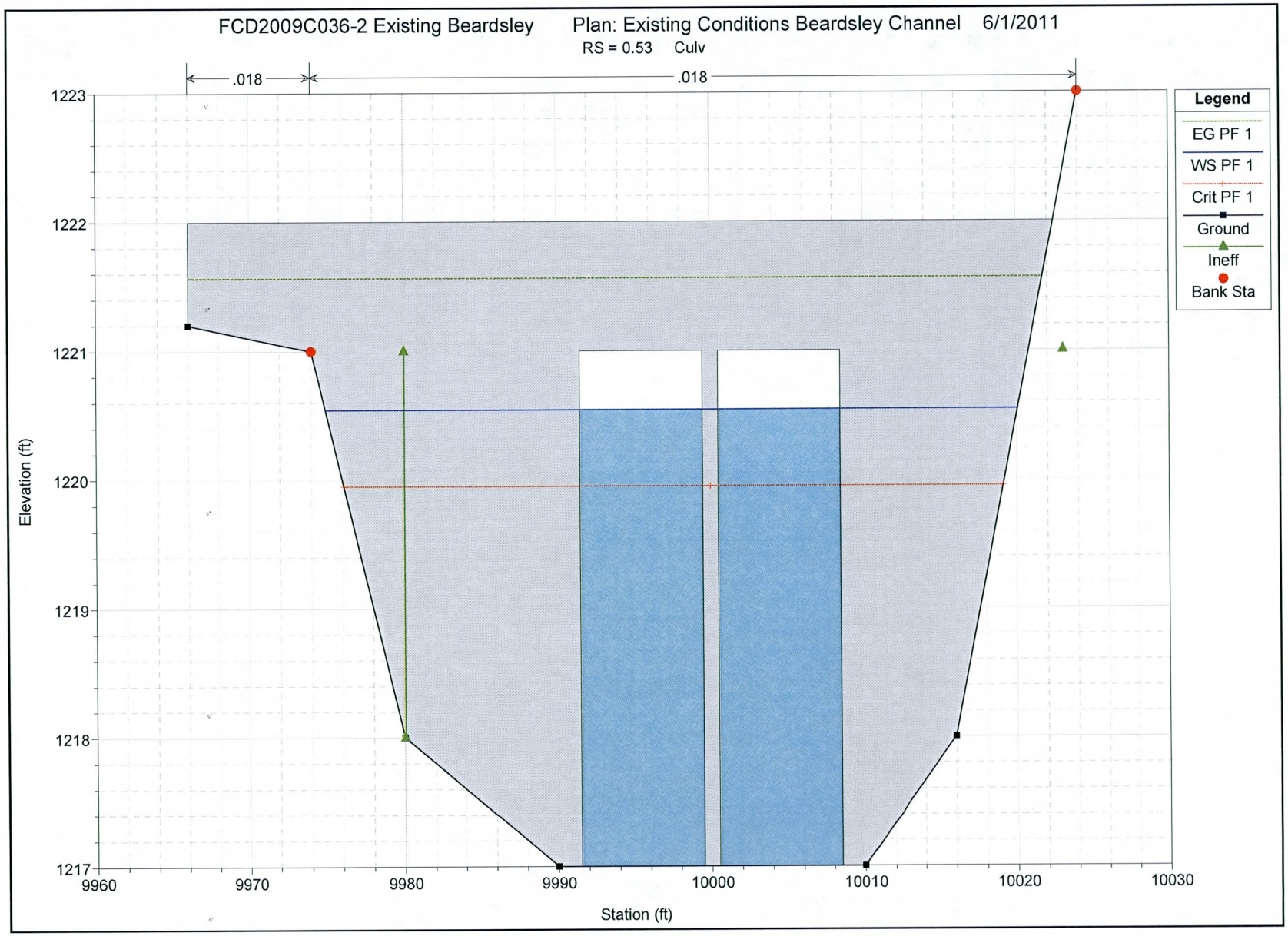
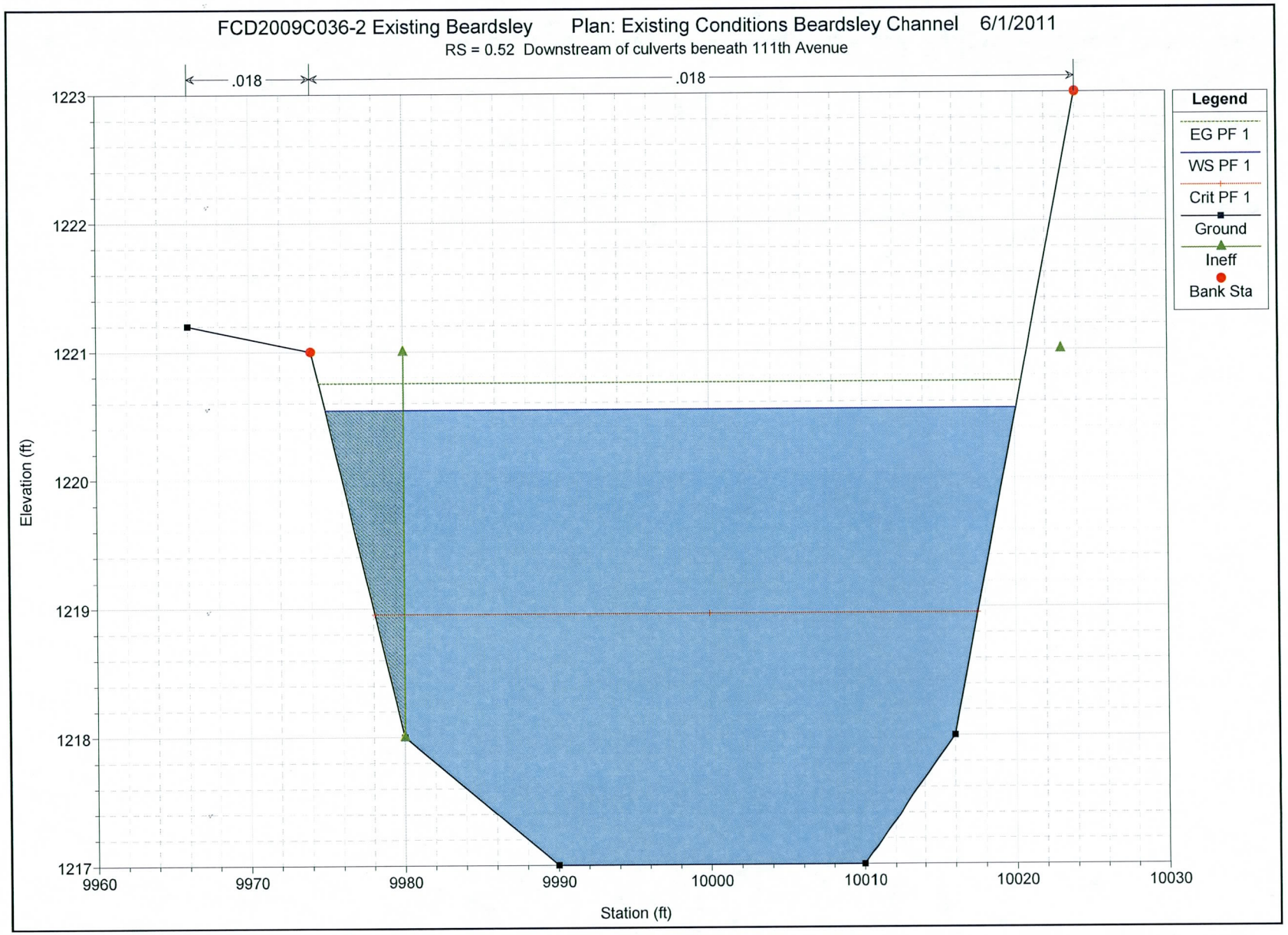
Plan: Existing Conditions Beardsley Channel
6/1/2011
RS = 0.63
.03
.028
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
1225
1224
1223
1222
1221
1220
1219
9970
9980
9990
10000
10010
10020
10030
Station (ft)


FCD2009C036-2 Existing Beardsley Plan: Existing Conditions Beardsley Channel 6/1/2011
RS = 0.54 Upstream of culverts beneath 111th Avenue
.03
.028
.03
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
1228
1226
1224
1222
1220
1218
1216
9940
9960
9980
10000
10020
10040
Station (ft)


FCD2009C036-2 Existing Beardsley
Plan: Existing Conditions Beardsley Channel 6/1/2011
RS = 0.53 Culv
.03
.028
.03
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
1228
1226
1224
1222
1220
1218
1216
9940
9960
9980
10000
10020
10040
Station (ft)


FCD2009C036-2 Existing Beardsley
Plan: Existing Conditions Beardsley Channel 6/1/2011
RS = 0.53 Culv
.018
.018
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
1223
1222
1221
1220
1219
1218
1217
9960
9970
9980
9990
10000
10010
10020
10030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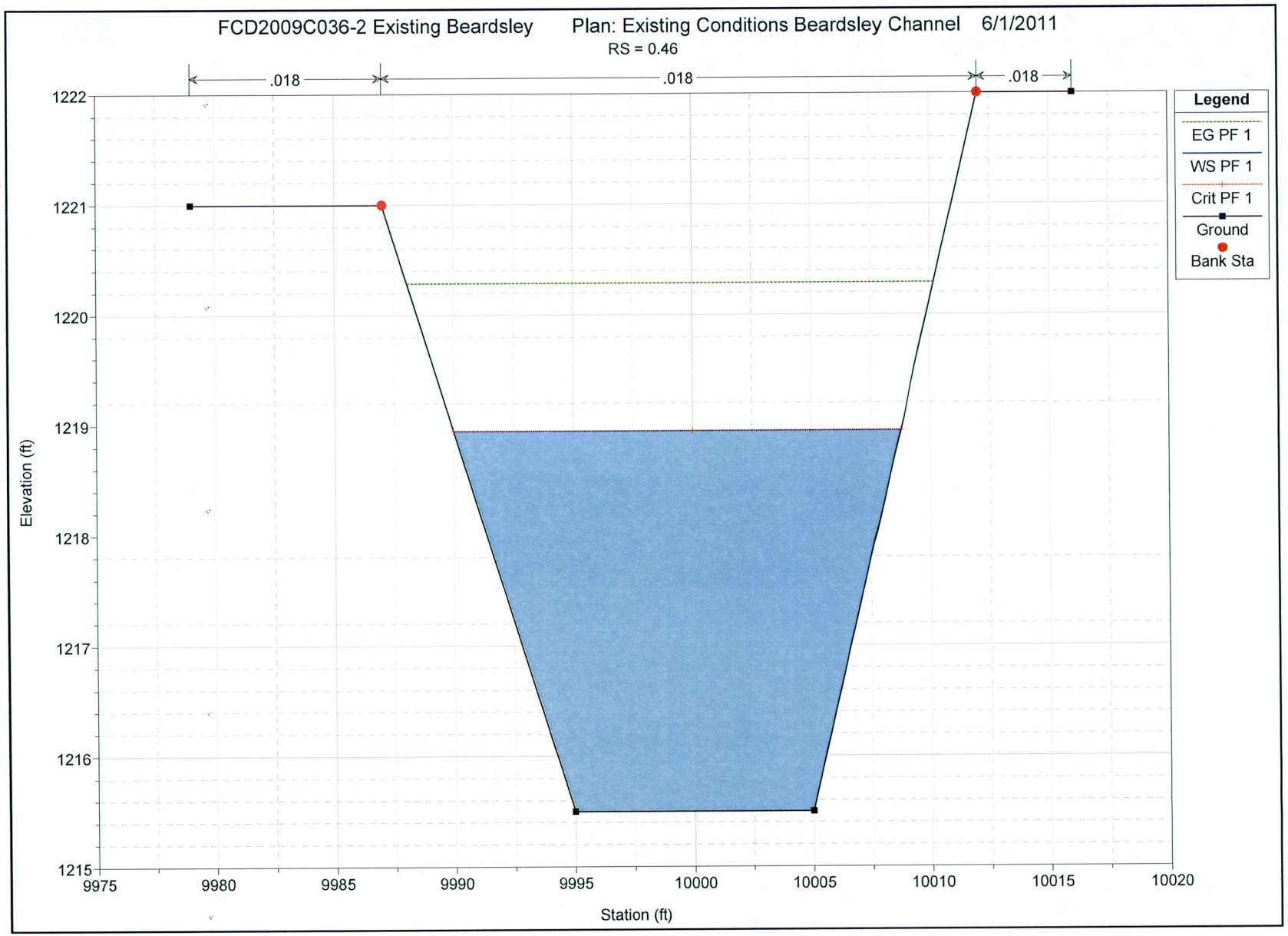
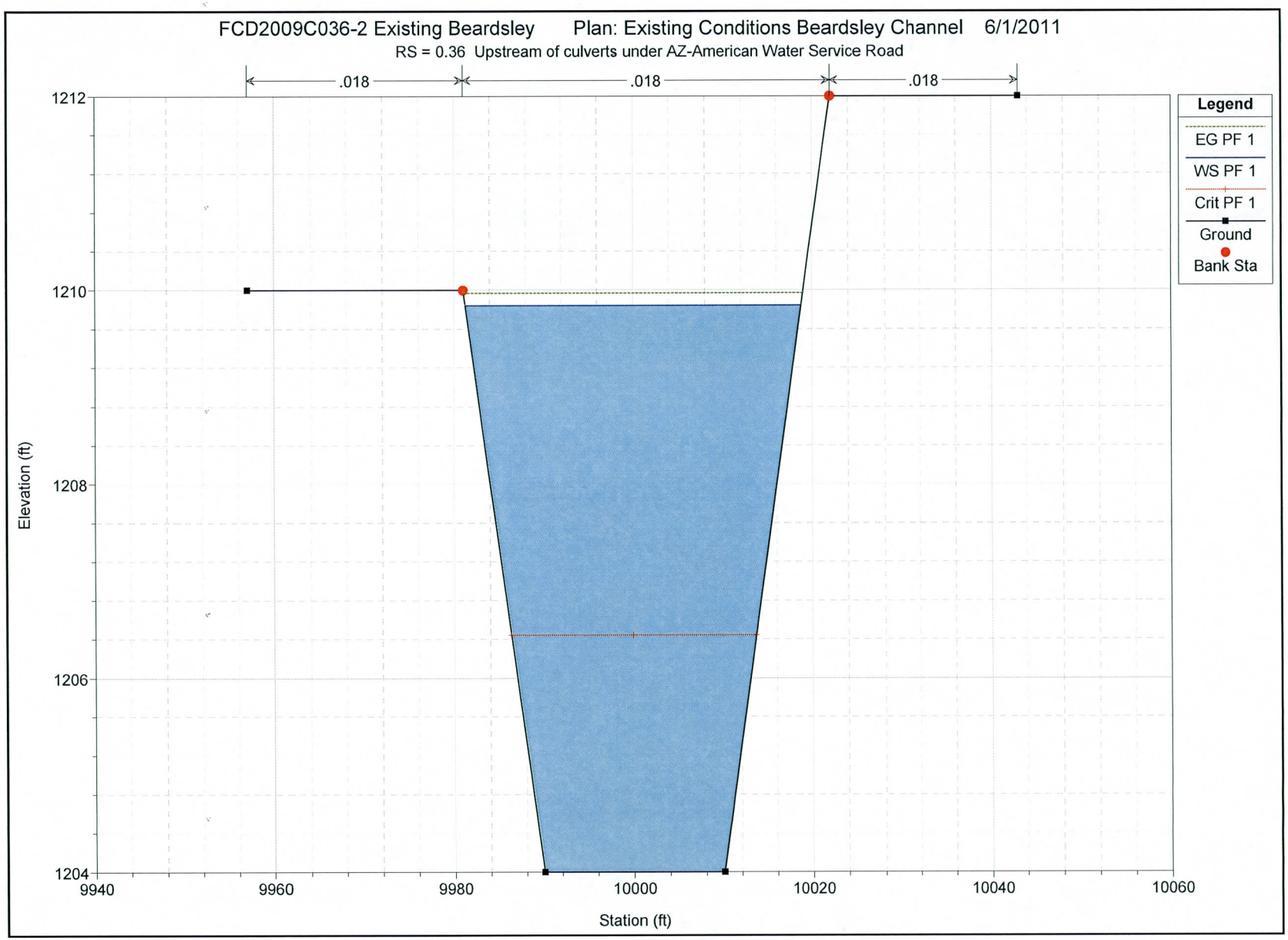
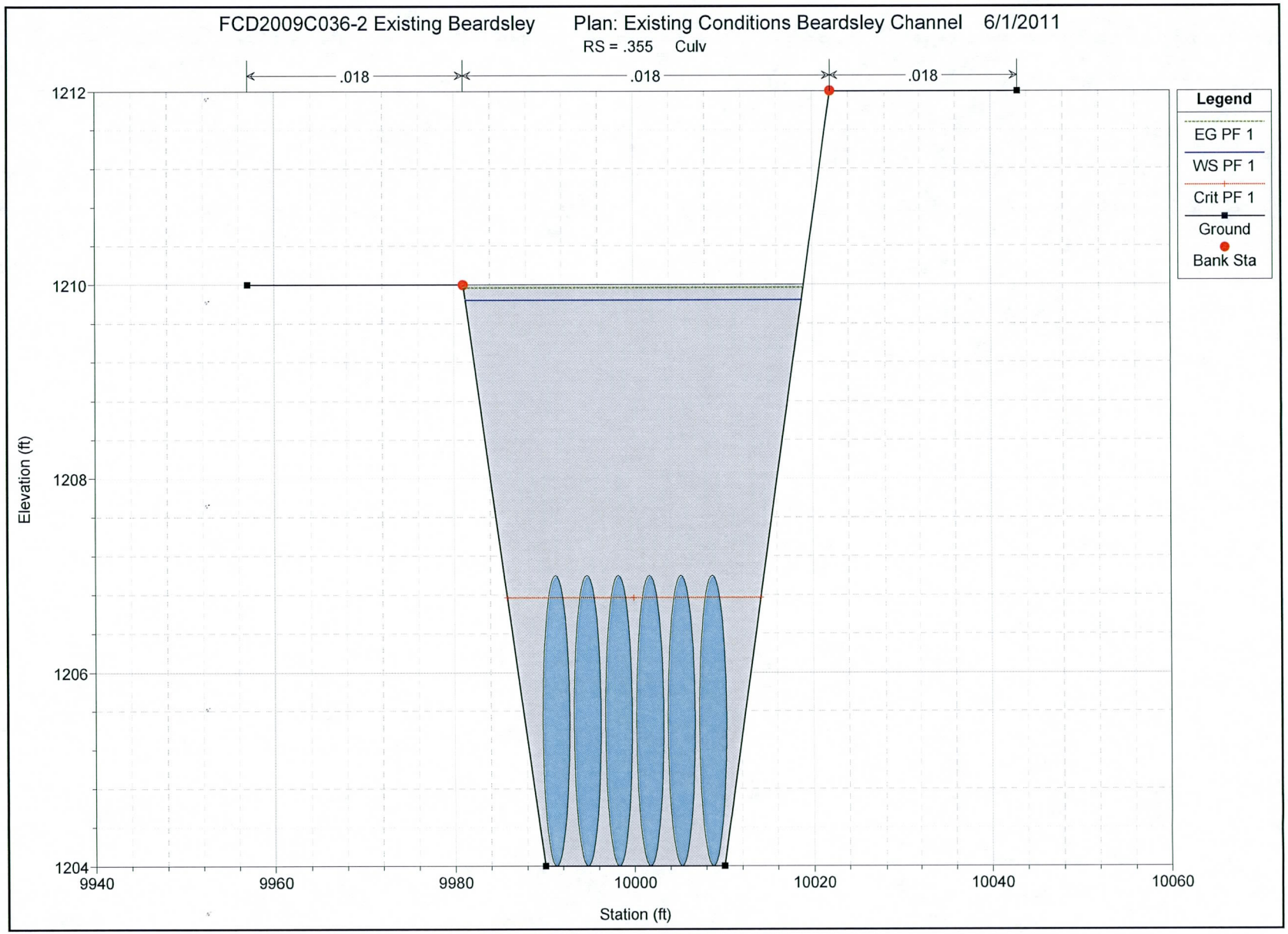
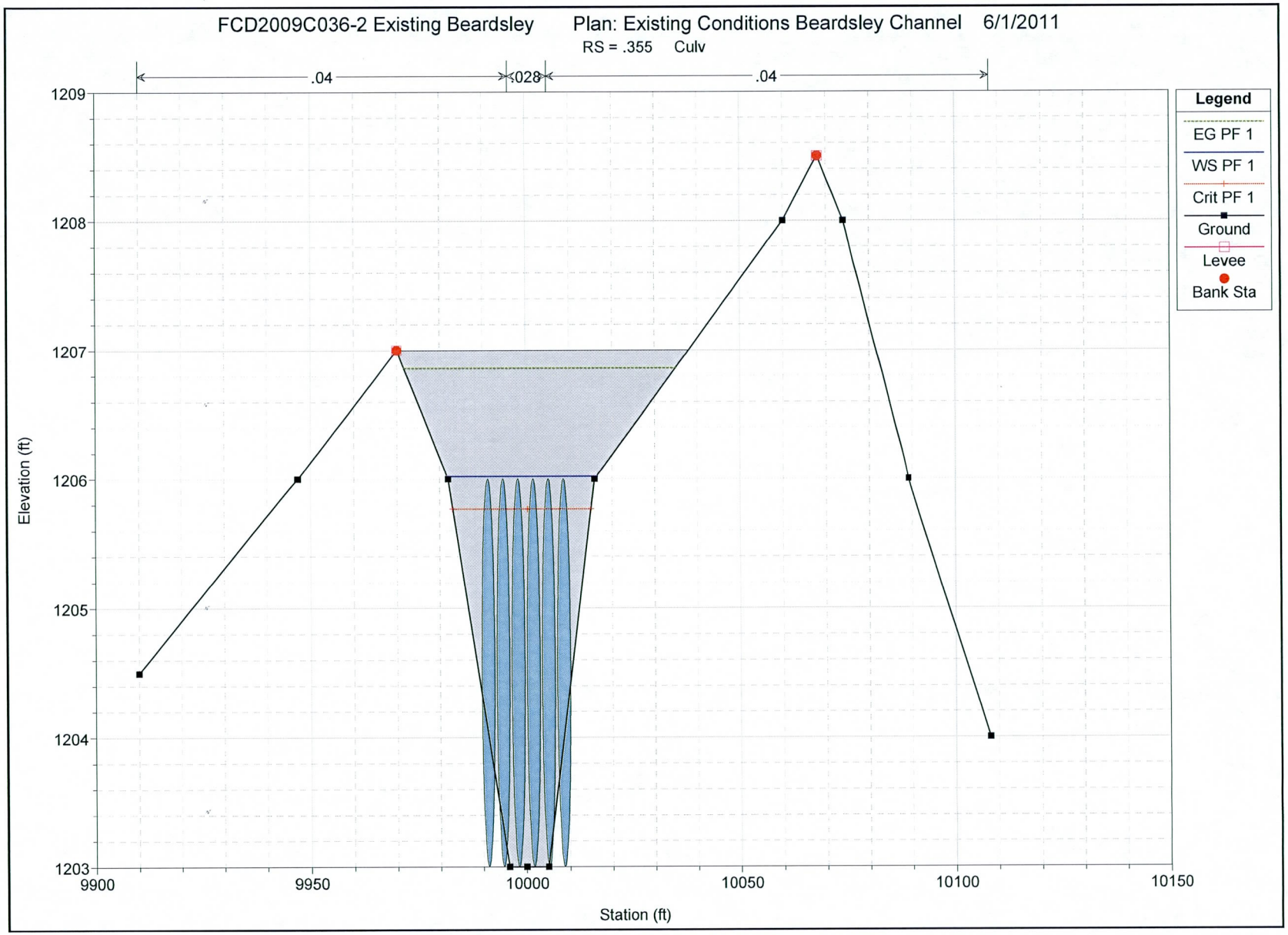
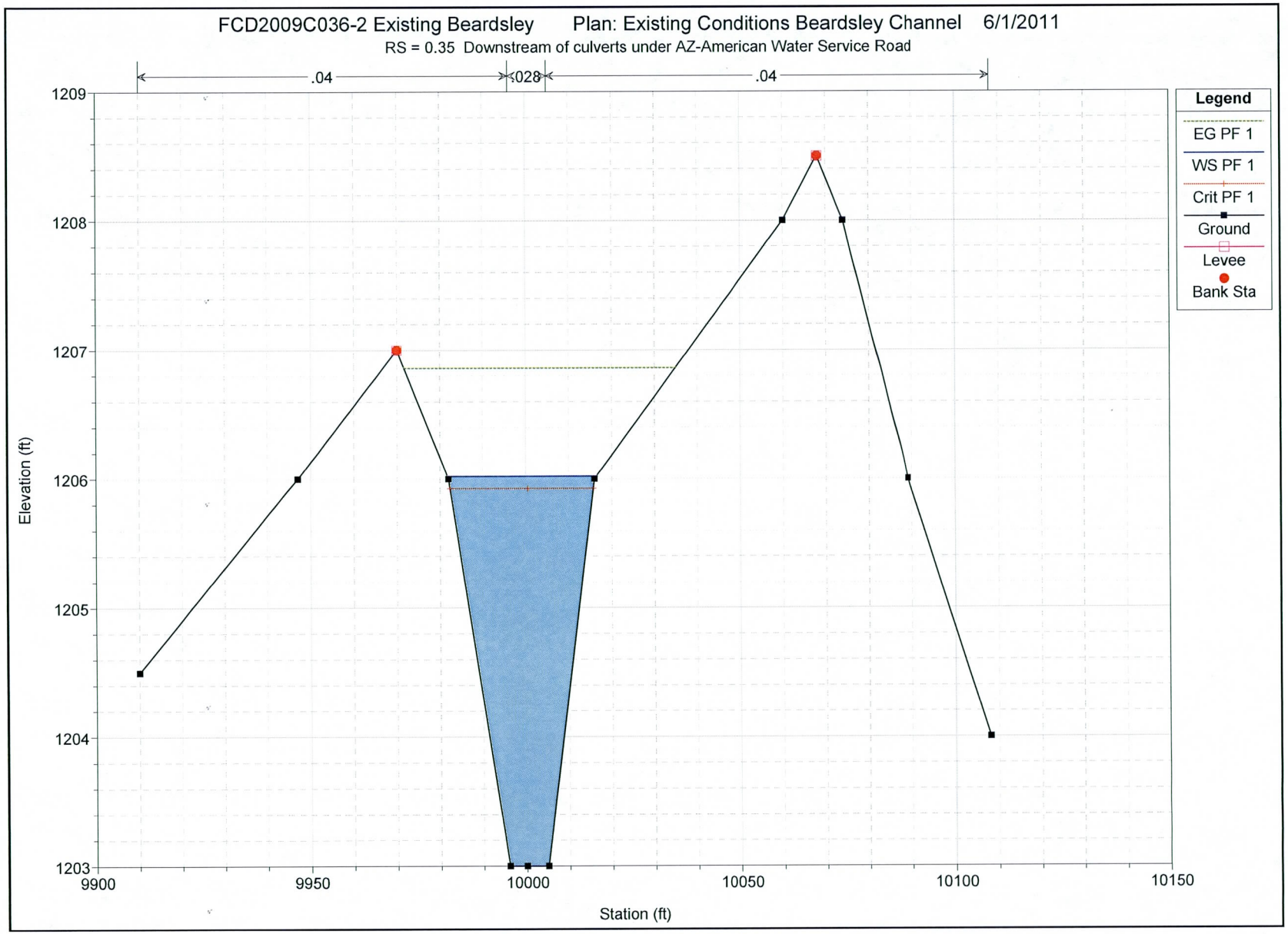
RS = 0.52 Downstream of culverts beneath 111th Avenue
.018
.018
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
1223
1222
1221
1220
1219
1218
1217
9960
9970
9980
9990
10000
10010
10020
10030
Station (ft)

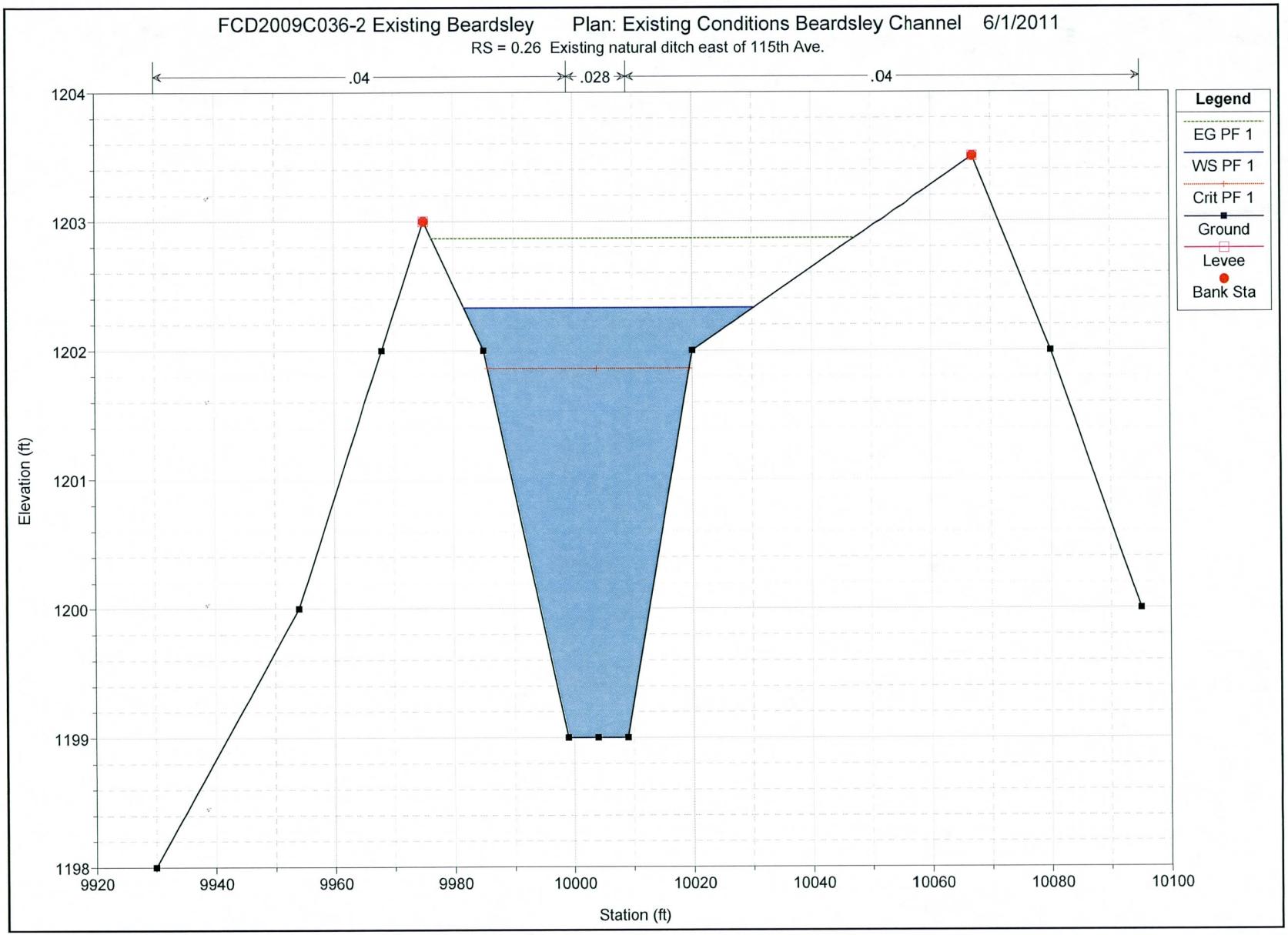

FCD2009C036-2 Existing Beardsley
Plan: Existing Conditions Beardsley Channel
6/1/2011
RS = 0.46
.018
.018
.018
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
1222
1221
1220
1219
1218
1217
1216
1215
9975
9980
9985
9990
9995
10000
10005
10010
10015
10020

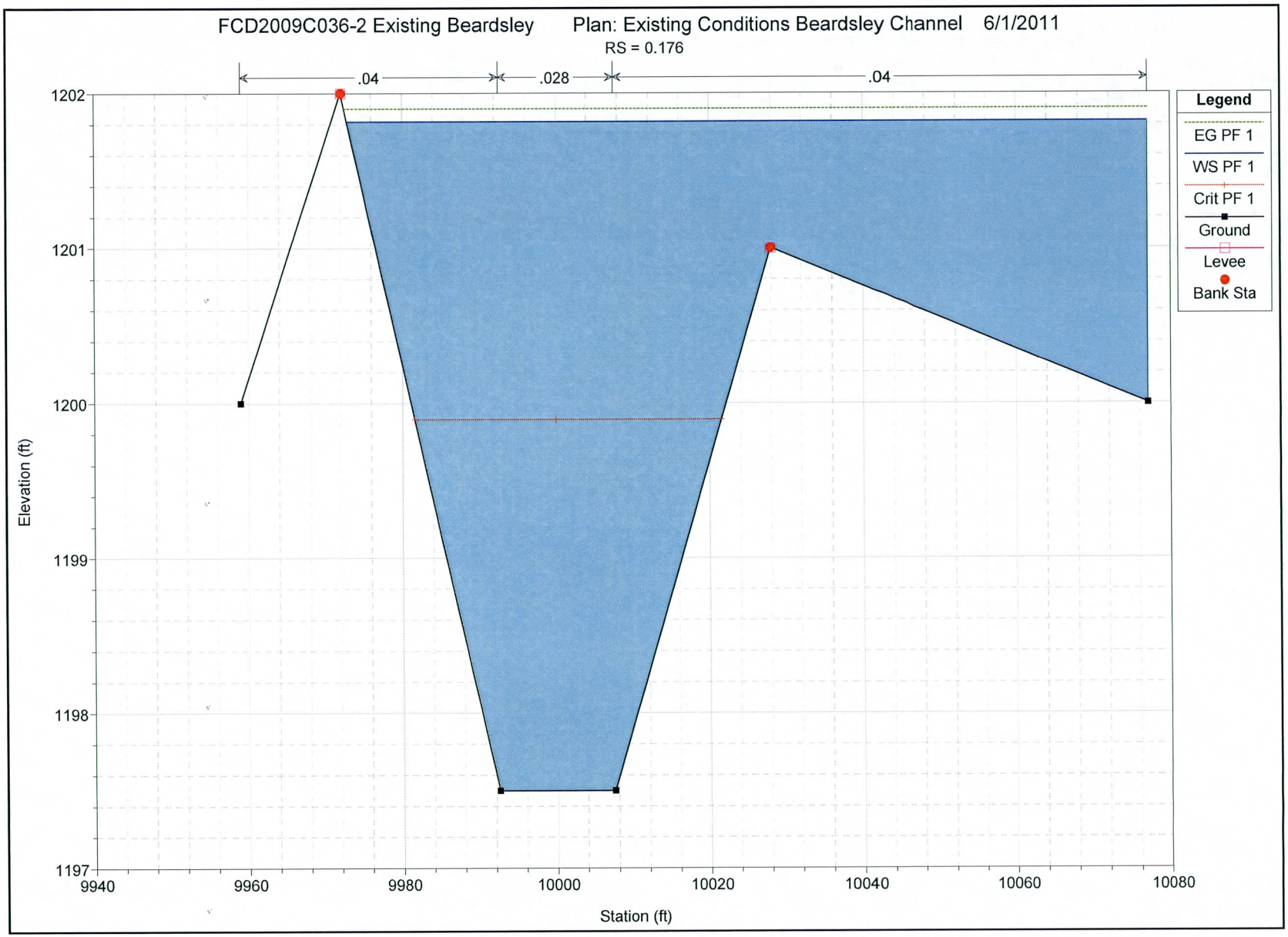

FCD2009C036-2 Existing Beardsley Plan: Existing Conditions Beardsley Channel 6/1/2011
RS = 0.36 Upstream of culverts under AZ-American Water Service Road
.018
.018
.018
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
1212
1210
1208
1206
1204
9940
9960
9980
10000
10020
10040
10060
Station (ft)

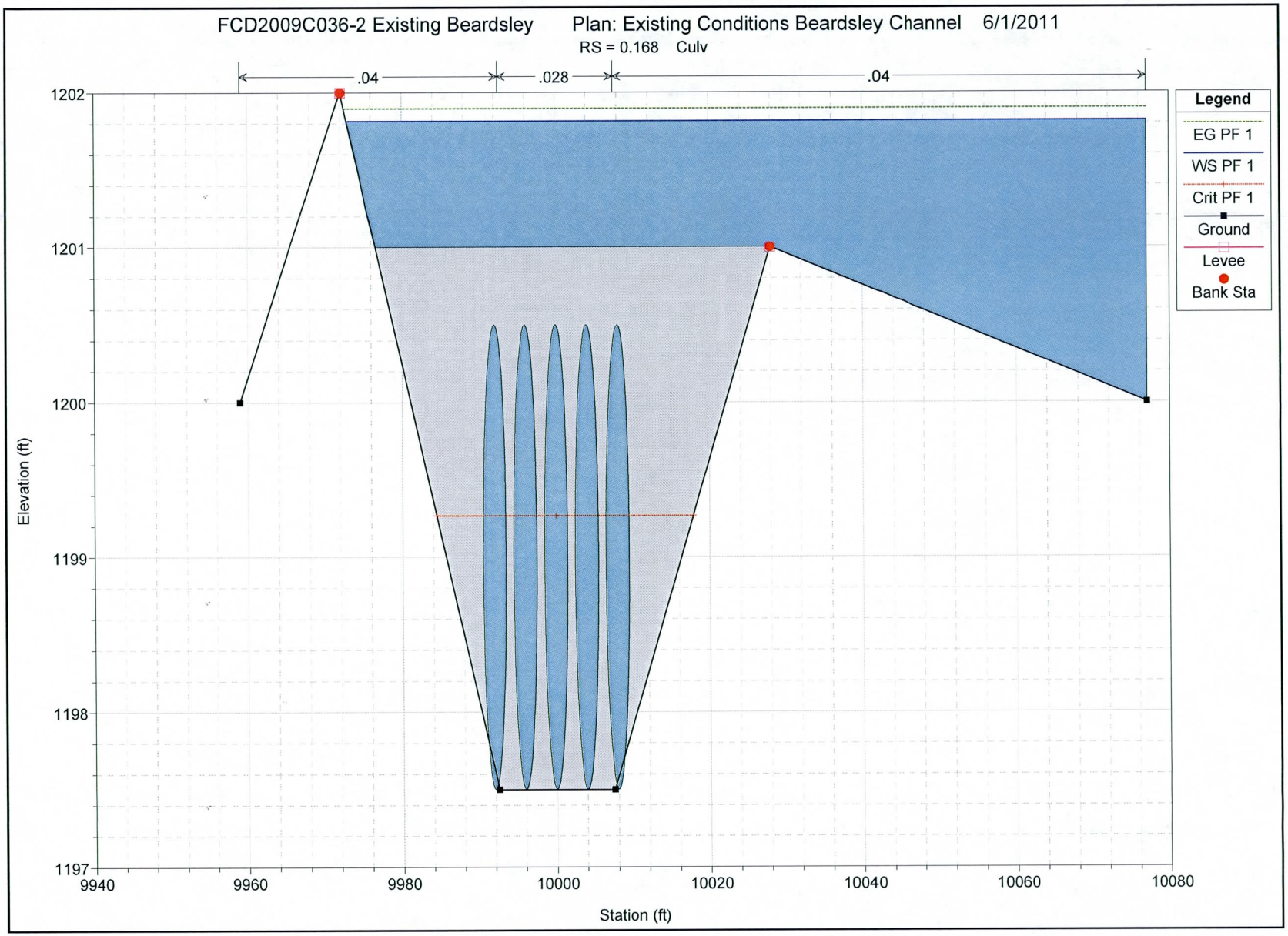

FCD2009C036-2 Existing Beardsley
Plan: Existing Conditions Beardsley Channel 6/1/2011
RS = .355 Culv
.018
.018
.018
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
1212
1210
1208
1206
1204
9940
9960
9980
10000
10020
10040
10060
Station (ft)

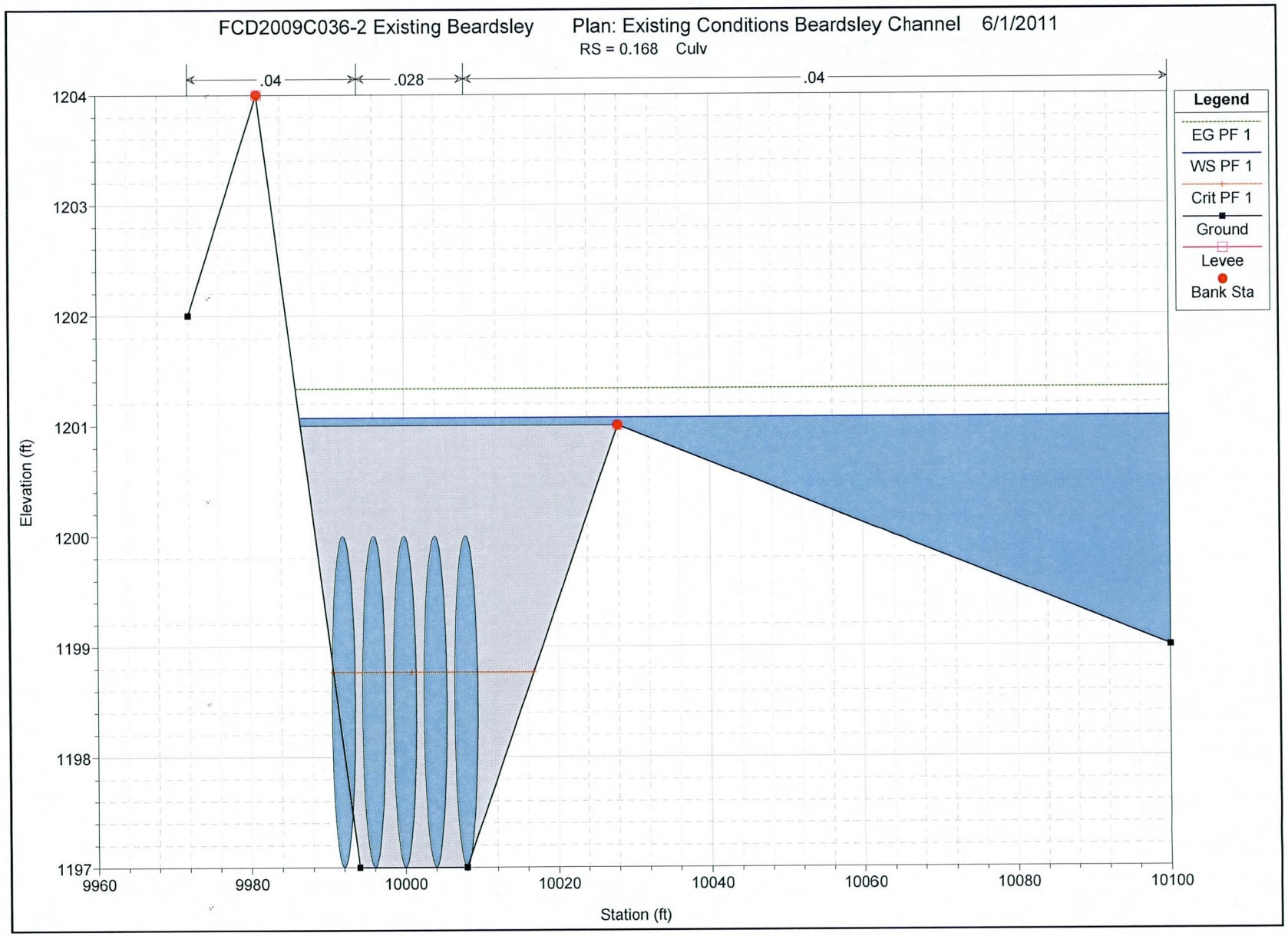

FCD2009C036-2 Existing Beardsley
Plan: Existing Conditions Beardsley Channel
6/1/2011
RS = .355
Culv
.04
.028
.04
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
Elevation (ft)
1209
1208
1207
1206
1205
1204
1203
9900
9950
10000
10050
10100
10150
Station (ft)

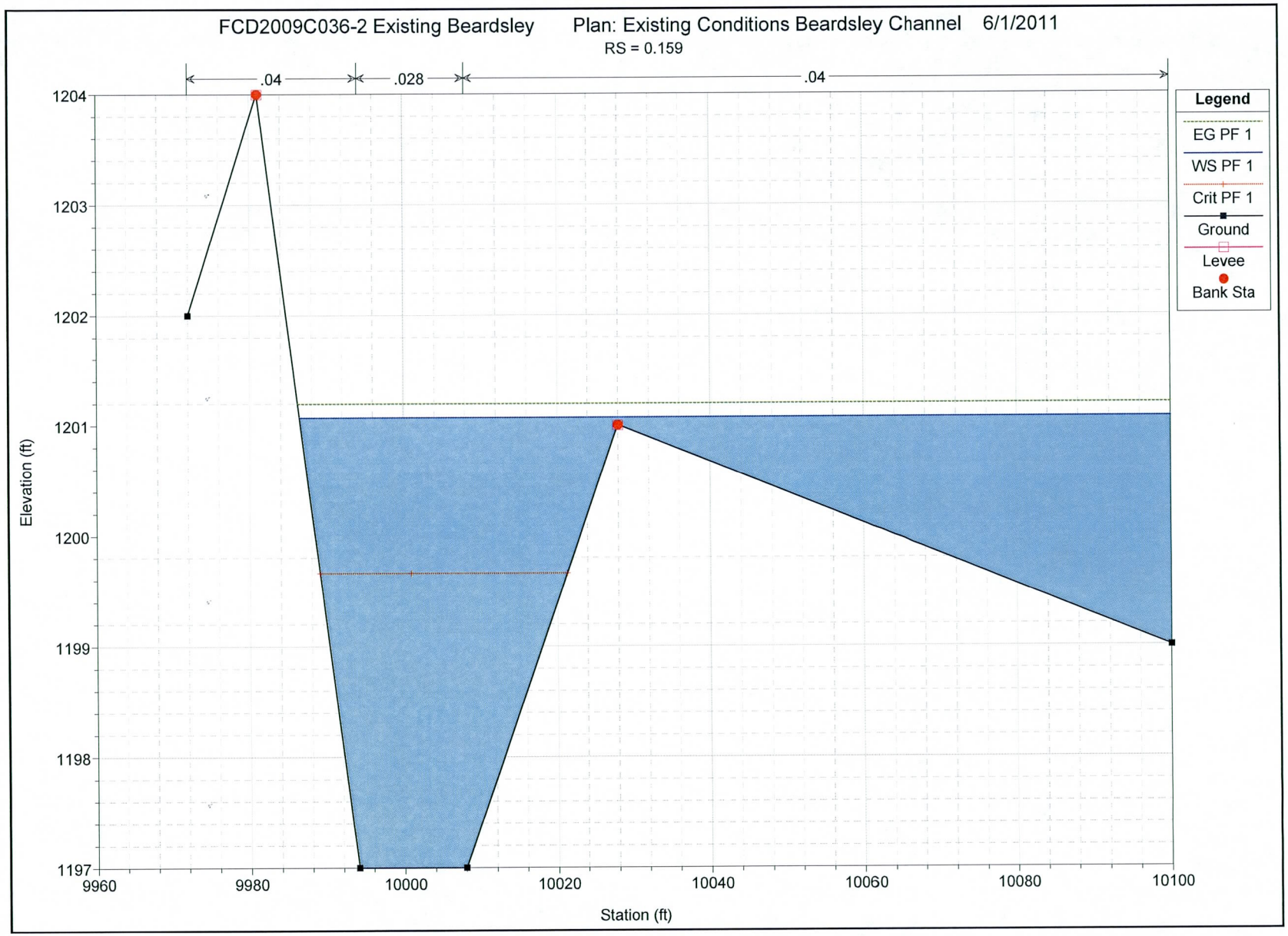

FCD2009C036-2 Existing Beardsley Plan: Existing Conditions Beardsley Channel 6/1/2011
RS = 0.35 Downstream of culverts under AZ-American Water Service Road
.04
.028
.04
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
Elevation (ft)
1209
1208
1207
1206
1205
1204
1203
9900
9950
10000
10050
10100
10150
Station (ft)

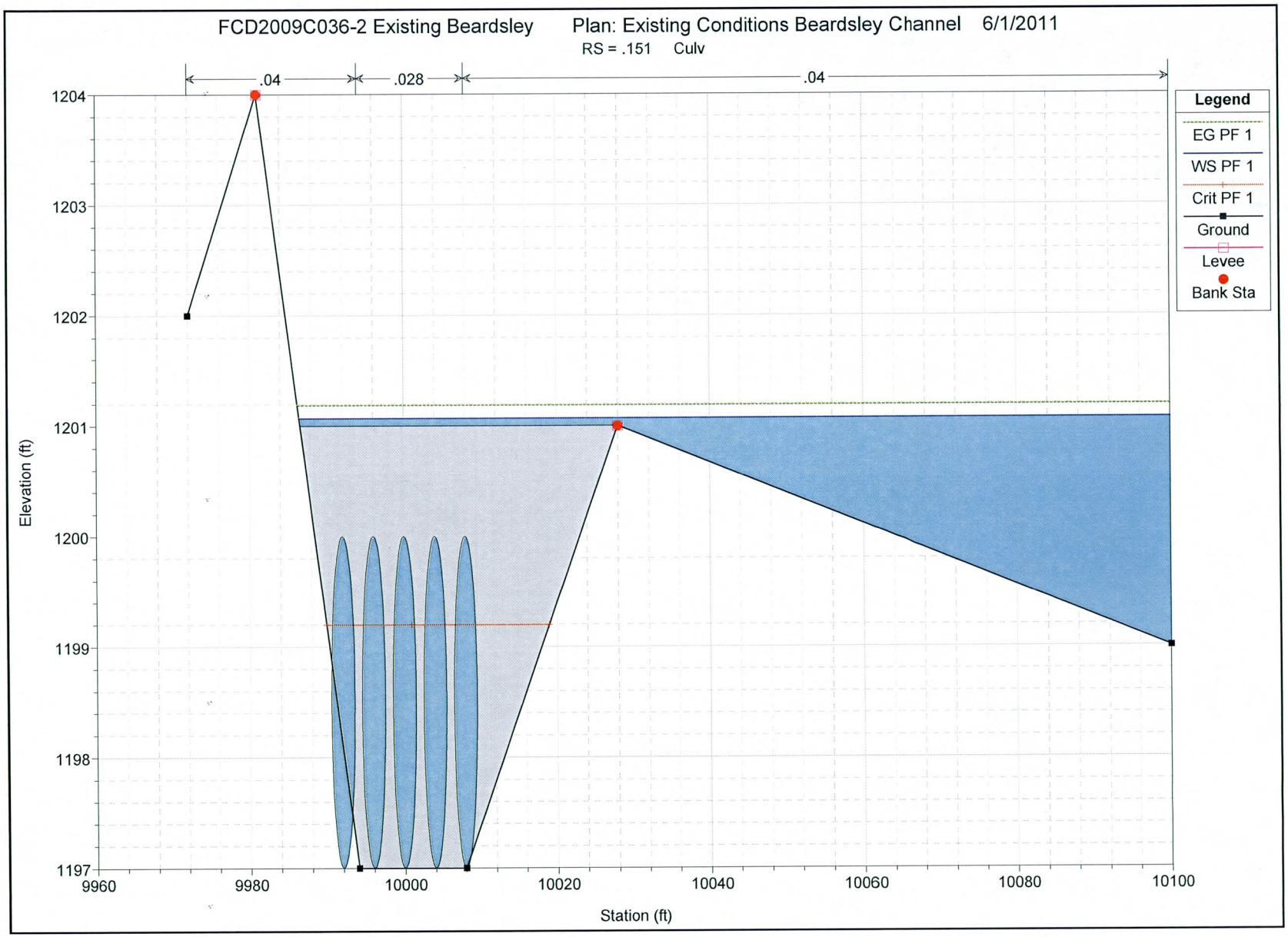

FCD2009C036-2 Existing Beardsley Plan: Existing Conditions Beardsley Channel 6/1/2011
RS = 0.26 Existing natural ditch east of 115th Ave.
.04
.028
.04
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
Elevation (ft)
1204
1203
1202
1201
1200
1199
1198
9920
9940
9960
9980
10000
10020
10040
10060
10080
10100
Station (ft)

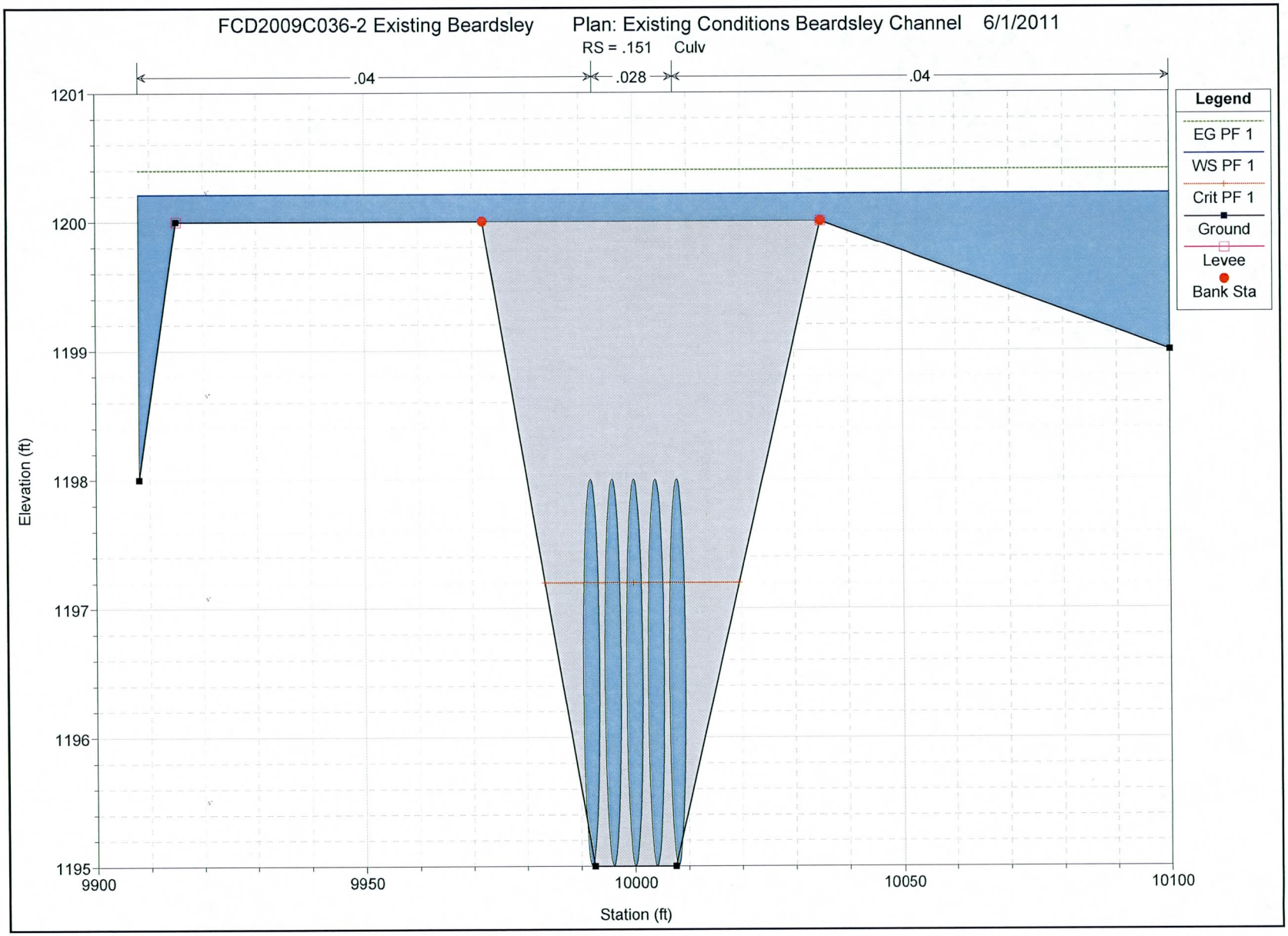

FCD2009C036-2 Existing Beardsley
Plan: Existing Conditions Beardsley Channel
6/1/2011
RS = 0.176
.04
.028
.04
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
Elevation (ft)
Station (ft)
1202
1201
1200
1199
1198
1197
9940
9960
9980
10000
10020
10040
10060
10080

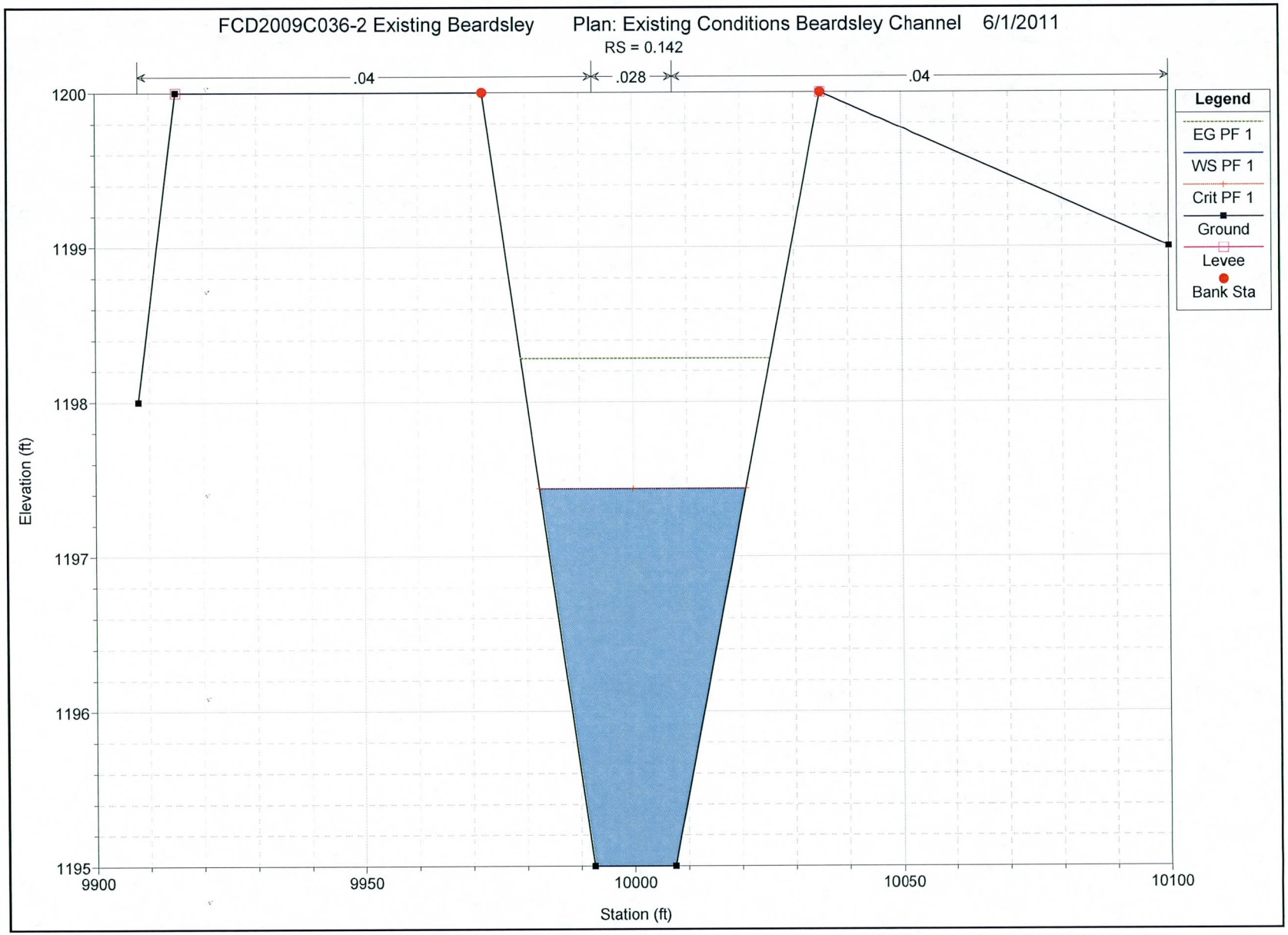

FCD2009C036-2 Existing Beardsley
Plan: Existing Conditions Beardsley Channel
6/1/2011
RS = 0.168 Culv
.04
.028
.04
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
Elevation (ft)
Station (ft)
1202
1201
1200
1199
1198
1197
9940
9960
9980
10000
10020
10040
10060
10080

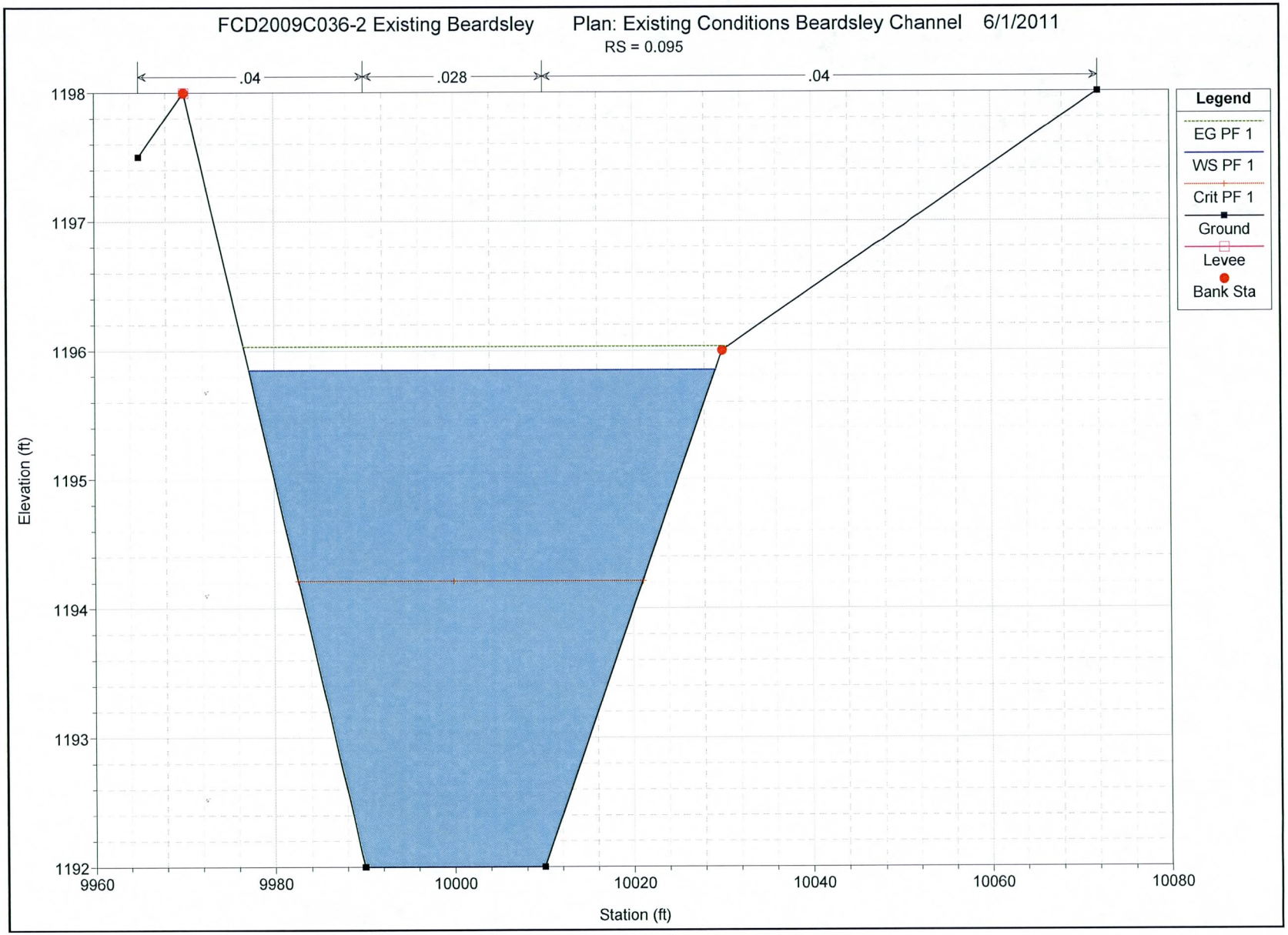

FCD2009C036-2 Existing Beardsley
Plan: Existing Conditions Beardsley Channel 6/1/2011
RS = 0.168 Culv
.04
.028
.04
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
Elevation (ft)
1204
1203
1202
1201
1200
1199
1198
1197
9960
9980
10000
10020
10040
10060
10080
10100
Station (ft)

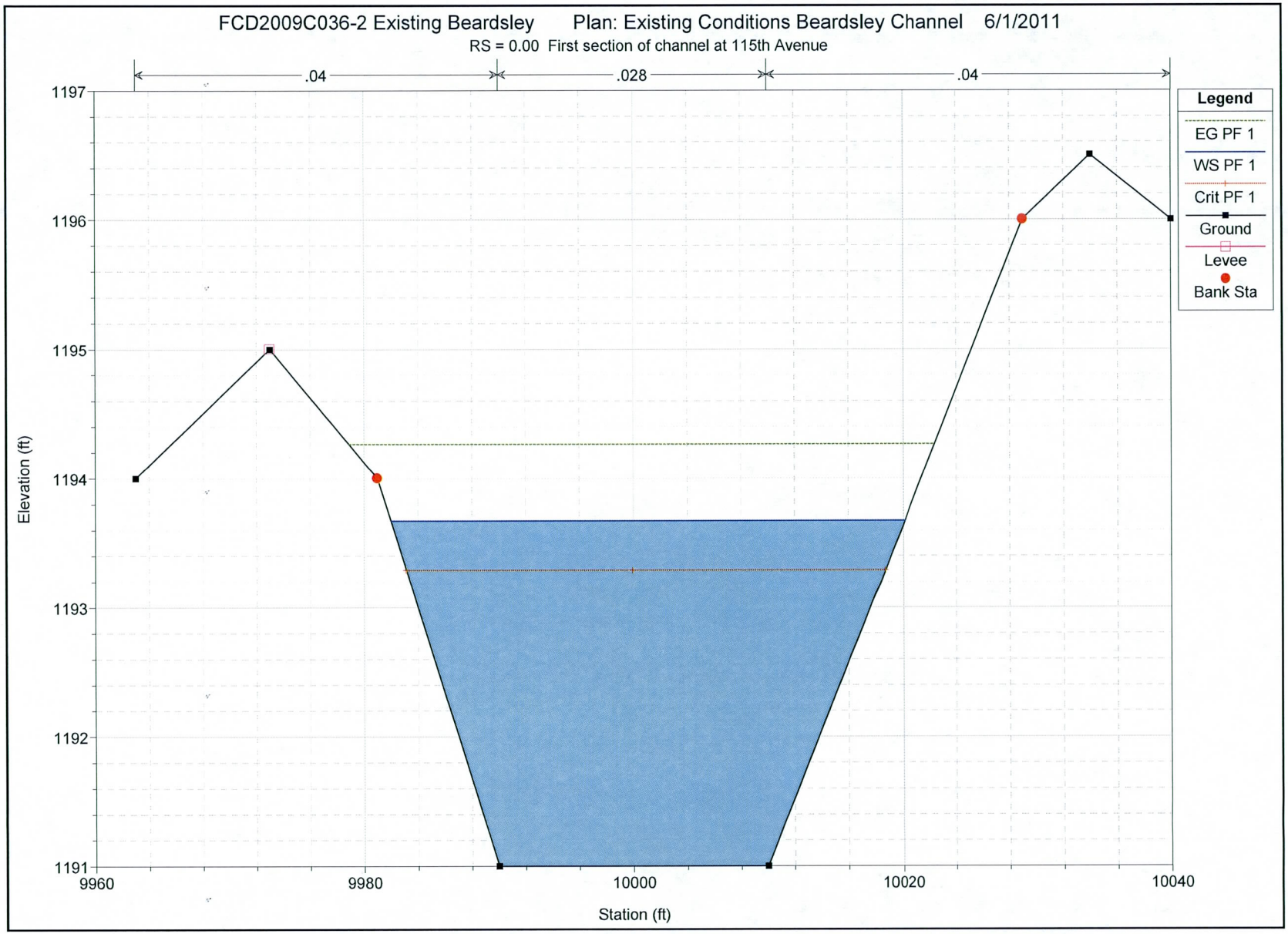

FCD2009C036-2 Existing Beardsley
Plan: Existing Conditions Beardsley Channel 6/1/2011
RS = 0.159
.04
.028
.04
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
Elevation (ft)
1204
1203
1202
1201
1200
1199
1198
1197
9960
9980
10000
10020
10040
10060
10080
10100
Station (ft)


FCD2009C036-2 Existing Beardsley
Plan: Existing Conditions Beardsley Channel 6/1/2011
RS = .151 Culv
.04
.028
.04
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
Elevation (ft)
1204
1203
1202
1201
1200
1199
1198
1197
9960
9980
10000
10020
10040
10060
10080
10100
Station (ft)


FCD2009C036-2 Existing Beardsley
Plan: Existing Conditions Beardsley Channel 6/1/2011
RS = .151
Culv
.04
.028
.04
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
1201
1200
1199
1198
1197
1196
1195
Elevation (ft)
9900
9950
10000
10050
10100
Station (ft)


FCD2009C036-2 Existing Beardsley
Plan: Existing Conditions Beardsley Channel
6/1/2011
RS = 0.142
.04
.028
.04
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
Elevation (ft)
1200
1199
1198
1197
1196
1195
9900
9950
10000
10050
10100
Station (ft)


FCD2009C036-2 Existing Beardsley
Plan: Existing Conditions Beardsley Channel
6/1/2011
RS = 0.095
.04
.028
.04
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
Elevation (ft)
1198
1197
1196
1195
1194
1193
1192
9960
9980
10000
10020
10040
10060
10080
Station (ft)


FCD2009C036-2 Existing Beardsley Plan: Existing Conditions Beardsley Channel 6/1/2011
RS = 0.00 First section of channel at 115th Avenue
.04
.028
.04
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
Elevation (ft)
1197
1196
1195
1194
1193
1192
1191
9960
9980
10000
10020
10040
Station (ft)

```
1*****************************************
*****************************************
 *                                       *
 *                                       *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
 *                                       *
 *              JUN   1998               *
CENTER     *
 *           VERSION 4.1                 *
 *                                       *
 *                                       *
 *                                       *
 *  RUN DATE   21JUL11  TIME  16:41:58   *
 *                                       *
 *                                       *
 *                                       *
 *****************************************
*****************************************
```

```
*                                       *
*    U.S. ARMY CORPS OF ENGINEERS       *
*    HYDROLOGIC ENGINEERING             *
*         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
   1          ID   Project ID: 107 & Union Hills - Major Basin: 01 - Return Period: 10 Years
   2          ID                                                                          **
   3          ID   107th Avenue and Union Hills Drive Design Concept Report              **
   4          ID                                                                        **
   5          ID   PROJECT NO.: FCD 2009C036.2                    G&M: 10388A.2              **
   6          ID                                                                        **
   7          ID   Original HEC-1 Model: DCR10-6.DAT, Goodwin & Marshall, Inc., Apr 26, 2011 **
   8          ID                        10-Year 6-Hour HEC-1 Model for Existing Conditions  **
   9          ID   Modified HEC-1 Model: REC ALT10-6.DAT, Goodwin & Marshall, Inc., 7/15/2011**
  10          ID                        10-Year 6-Hour HEC-1 Model for Recom. Alternative   **
  11          ID                                                                          **
  12          ID   1) NOAA2 Rainfall Data                                                 **
```



```
  13          ID   2) DDMSW V3.5.7 Used                                                        **
  14          ID   3) Model revised to reflect Recommended Alternative                       **
  15          ID                                                                          **
  16          ID   ***************************************************************************
  17          ID   Project ID: 107 & Union Hills - Major Basin: 01 - Return Period: 10 Years
  18          ID                                                                          **
  19          ID   107th Avenue and Union Hills Drive Design Concept Report              **
  20          ID                                                                        **
  21          ID   PROJECT NO.: FCD 2009C036.2                    G&M: 10388A.2              **
  22          ID                                                                        **
  23          ID   Original HEC-1 Model: DCR10-6.DAT, Goodwin & Marshall, Inc., May 29, 2010 **
  24          ID                        10-Year 6-Hour HEC-1 Model for Existing Conditions  **
  25          ID   Modified HEC-1 Model: DCR10-6.DAT, Goodwin & Marshall, Inc., Apr 26, 2011 **
  26          ID                        10-Year 6-Hour HEC-1 Model for Existing Conditions  **
  27          ID                                                                          **
  28          ID   1) NOAA2 Rainfall Data                                                 **
  29          ID   2) DDMSW V3.5.7 Used                                                        **
  30          ID   3) BASINS REVISED TO REFLECT CANYON RIDGE DEVELOPMENT AND DETERMINE FLOWS **
  31          ID      AT CRITICAL POINTS ALONG 115TH AVENUE                               **
  32          ID                                                                          **
  33          ID   ***************************************************************************
  34          ID   Project ID: 107 & Union Hills - Major Basin: 01 - Return Period: 10 Years
  35          ID                                                                          **
  36          ID   107th Avenue and Union Hills Drive Design Concept Report              **
  37          ID                                                                        **
  38          ID   PROJECT NO.: FCD 2009C036                      G&M: 10388A                **
  39          ID                                                                        **
  40          ID   Original HEC-1 Model: EN06BASE.DAT, Wood/Patel, SZ, May 2007              **
  41          ID                        10-Year 6-Hour HEC-1 Model for Existing Conditions  **
  42          ID   Modified HEC-1 Model: DCR10-6.DAT, Goodwin & Marshall, Inc., May 29, 2010 **
  43          ID                        10-Year 6-Hour HEC-1 Model for Existing Conditions  **
  44          ID                                                                          **
  45          ID   1) NOAA2 Rainfall Data                                                 **
  46          ID   2) DDMSW V3.5.7 Used                                                   **
  47          ID                                                                          **
  48          ID   ***************************************************************************
  49          ID   Project ID: GP_NW ADMP_EX1 - Major Basin: 01 - Return Period: 10 Years
  50          ID                                                                          **
  51          ID   Glendale/Peoria ADMPU Northwest Region Update                          **
  52          ID   Original HEC-1 Model: L3R5DVR.DAT, Wood/Patel, APRIL 14, 2006          **
  53          ID                        REVISED FOR DOVE VALLEY RANCH IMPROVEMENTS        **
  54          ID   Modified HEC-1 Model: EN06BASE.DAT, Wood/Patel, SZ, May 2007           **
  55          ID                        10-Year 6-Hour HEC-1 Model for Existing Conditions  **
1                                   HEC-1 INPUT                                          PAGE  2
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10
```

```
56          ID   1) NOAA 2 Rainfall Data                                                **
57          ID   2) DDMSW MCUHP1 V3.3.2 Used                                            **
58          ID                                                                          **
59          ID   ****************************************************************************
            *
60          ID   ****************************************************************************
61          ID   **                                                                      **
62          ID   ** CONCEPT REFINEMENT STUDY FOR ROSE GARDEN LANE DRAINAGE IMPROVEMENTS  **
63          ID   ** ORIGINAL HEC-1 FILE FROM GLENDAL/PEORIA ADMP UPDATE STUDY            **
64          ID   ** MODIFIED HEC-1 MODEL: LEVEL3R5.DAT, Wood/Patel & CVL, May 2005       **
65          ID   ** THIS IS THE PREFERRED ALTERNATIVE MODEL                              **
66          ID   ** WPA REVISED APRIL 14, 2006 FOR DOVE VALLEY RANCH IMPROVEMENTS        **
67          ID   ** USING LATEST SURVEY DATA.                                           **
68          ID   ****************************************************************************
            *
69          ID   ****************************************************************************
70          ID   **                                                                      **
71          ID   **                    Glendale/Peoria ADMP Update                       **
72          ID   **                                                                      **
73          ID   ****************************************************************************
74          ID   ****************************************************************************
75          ID   PROJECT:                Glendale Peoria ADMP Update
76          ID   CLIENT:                 Flood Control District of Maricopa County
77          ID   PREPARED BY:            Entellus, Inc.
78          ID   PROJECT No:             FCD 99-44                    Entellus 310.017
79          ID   FILE NAME: LEVEL3.DAT                CREATED DATE: JUNE 6, 2001
80          ID   STORM:                  100-year 6-hour Storm
81          ID   DEVELOPMENT CONDITIONS: LEVEL 3 HYDROLOGY
82          ID
            *
            * ****************************************************************************
83          IT       2                    1000
84          IO       5
85          IN      15
            *
            *DIAGRAM
            *
86          JD    2.03    0.01
87          PC   0.000   0.008   0.016   0.025   0.033   0.041   0.050   0.058   0.066   0.074
88          PC   0.087   0.099   0.118   0.138   0.216   0.377   0.834   0.911   0.931   0.950
89          PC   0.962   0.972   0.983   0.991   1.000
90          JD   2.017    0.50
91          PC   0.000   0.008   0.016   0.025   0.033   0.041   0.050   0.058   0.066   0.074
92          PC   0.087   0.099   0.118   0.138   0.216   0.377   0.834   0.911   0.931   0.950
93          PC   0.962   0.972   0.983   0.991   1.000
94          JD   1.979    2.80
95          PC   0.000   0.009   0.016   0.025   0.034   0.042   0.051   0.059   0.067   0.076
96          PC   0.087   0.100   0.120   0.163   0.252   0.451   0.694   0.837   0.900   0.938
97          PC   0.950   0.963   0.975   0.988   1.000
98          JD   1.872    16.0
99          PC   0.000   0.015   0.020   0.030   0.048   0.063   0.076   0.090   0.105   0.119
100         PC   0.135   0.152   0.175   0.222   0.304   0.472   0.670   0.796   0.868   0.912
101         PC   0.946   0.960   0.973   0.987   1.000
102         JD   1.648    90.0
103         PC   0.000   0.021   0.035   0.051   0.071   0.087   0.105   0.125   0.143   0.160
```



```
LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

104         PC   0.179   0.201   0.232   0.281   0.364   0.500   0.658   0.773   0.841   0.888
105         PC   0.927   0.945   0.964   0.982   1.000
            *
            * ****************************************************************************
```



```
            *
            * The Following Portion Came from the HEC-1 Model for the Tierra Del Rio
            * Development.  Model CREATED BY A. MERCIER, CMX, ON 01/16/04
            * FILE NAME: TDR6DC.DAT
            *
            * ****************************************************************************
            *
106         KK     CBA    BASIN
107         KM   SUB-BASIN CBA
108         BA   0.007
109         LG    0.34    0.35    6.80    0.13      11
110         UC   0.241   0.298
111         UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
112         UA     100
            *
113         KK     RCBA
114         KM   CHANNEL ROUTING
115         RD    1479   .0095    .030            TRAP       0       4
            *
116         KK     P28    BASIN
117         KM   SUB-BASIN P28
118         BA   0.027
119         LG    0.25    0.13   10.10    0.04      29
120         UC   0.417   0.419
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     CP28
124         KM
125         HC        2
            *
126         KK     DT28
127         KM
128         DT     DB28   1.230
129         DI        0     100     500    1000    5000
130         DQ        0     100     500    1000    5000
            *
131         KK      CBB    BASIN
132         KM   SUB-BASIN CBB
133         BA   0.017
134         LG    0.34    0.34    4.55    0.35      15
135         UC   0.258   0.213
136         UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
137         UA     100
            *
```



```
LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

138         KK     RCBB
139         KM   CHANNEL ROUTING
140         RD    1231   .0244    .030            TRAP       0       4
            *
141         KK    CP28a
142         KM
143         HC        2
```

```
                *
144             KK    R28a
145             KM  CHANNEL ROUTING
146             RD    1642   .0018    .030            TRAP      10       4
                *
147             KK     P27   BASIN
148             KM  SUB-BASIN P27
149             BA   0.065
150             LG    0.25    0.15    8.00    0.10      30
151             UC   0.526   0.565
152             UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
153             UA     100
                *
154             KK    DT27
155             KM
156             DT    DB27   1.360
157             DI       0     100     500    1000    5000
158             DQ       0     100     500    1000    5000
                *
159             KK    CP27
160             KM
161             HC       2
                *
162             KK    P27A   BASIN
163             KM  SUB-BASIN P27A
164             BA   0.008
165             LG    0.25    0.25    4.35    0.46      44
166             UC   0.294   0.378
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    DT27a
170             KM
171             DT    DB27a   0.210
172             DI       0     100     500    1000    5000
173             DQ       0     100     500    1000    5000
                *
1                                          HEC-1 INPUT                                          PAGE  5

            LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

174             KK    P27B   BASIN
175             KM  SUB-BASIN P27B
176             BA   0.013
177             LG    0.26    0.26    5.00    0.32      37
178             UC   0.329   0.449
179             UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
180             UA     100
                *
181             KK    DT27b
182             KM
183             DT    DB27b   0.250
184             DI       0     100     500    1000    5000
185             DQ       0     100     500    1000    5000
                *
```



```
186             KK     CBL   BASIN
187             KM  SUB-BASIN CBL
188             BA   0.028
189             LG    0.28    0.29    5.70    0.23      24
190             UC   0.358   0.401
191             UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
192             UA     100
                *
193             KK    CCBL
194             KM
195             HC       4
                *
196             KK    RCBL
197             KM  NATURAL WASH ROUTING
198             RC   0.035   0.035   0.035     840   .0227
199             RX       0     7.5      15      50      60      95   102.5     110
200             RY       5     2.5       0       0       0       0     2.5       5
                *
201             KK     CBK   BASIN
202             KM  SUB-BASIN CBK
203             BA   0.052
204             LG    0.34    0.34    4.65    0.33       6
205             UC   0.374   0.290
206             UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
207             UA     100
                *
208             KK    CCBK
209             KM
210             HC       2
                *
1                                          HEC-1 INPUT                                          PAGE  6

            LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

211             KK    RCBK
212             KM  CHANNEL ROUTING
213             RD     755   .0238    .030            TRAP      10       4
                *
214             KK     P14   BASIN
215             KM  SUB-BASIN P14
216             BA   0.008
217             LG    0.34    0.34    3.81    0.53       2
218             UC   0.323   0.262
219             UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
220             UA     100
                *
221             KK    RT14
222             KM
223             DT    RB14   1.130
224             DI       0     100     500    1000    5000
225             DQ       0     100     500    1000    5000
                *
226             KK    CP14
227             KM
228             HC       2
                *
```

```
                KK     P15   BASIN
                KM  SUB-BASIN P15
                BA   0.006
                LG    0.33    0.34    3.23    0.81       5
                UC   0.617   0.829
                UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
                UA     100
                *

                KK    DT15
                KM
                DT    DB15   0.260
                DI       0     100     500    1000    5000
                DQ       0     100     500    1000    5000
                *

                KK     CBJ   BASIN
                KM  SUB-BASIN CBJ
                BA   0.015
                LG    0.35    0.35    4.30    0.41      10
                UC   0.303   0.333
                UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
                UA     100
                *
```



```
            LINE  ID.......1.......2.......3.......4.......5.......6.......7.......8.......9.....10

                KK    CP15
                KM
                HC       3
                *

                KK     R15
                KM  CHANNEL ROUTING
                RD     800   .0125    .030           TRAP      10       4
                *

                KK     CBH   BASIN
                KM  SUB-BASIN CBH
                BA   0.012
                LG    0.35    0.35    4.40    0.38      15
                UC   0.205   0.136
                UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
                UA     100
                *
                * Route CBH to P25S
                *

                KK    RCBH
                RS       2    FLOW       0
                RC    0.02     .02     .02    1500   .0055
                RX     280     320     340     350     360     370     390     430
                RY       6       4       2       0       0       2       4       6
                *

                KK    P25S   BASIN
                KM  SUB-BASIN P25S
                BA   0.028
                LG    0.35    0.35    4.35    0.40      15
                UC   0.634   0.564
                UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
```



```
                UA     100
                *

                KK    CP25S
                KM
                HC       2
                *

                KK     AFR0
                KM  Dummy Combination at Jomax Road and AFR
                HC       2
                *
                * ************************************************************************

                KK      E1   BASIN
                KM  SUB-BASIN E1
                BA   0.014
                LG    0.33    0.32    3.95    0.48       2
                UC   0.281   0.201
                UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
```



```
            LINE  ID.......1.......2.......3.......4.......5.......6.......7.......8.......9.....10

                UA     100
                *

                KK     RE1
                KM  CHANNEL ROUTING
                RD    1993   .0376    .030           TRAP      10       4
                *

                KK      E2   BASIN
                KM  SUB-BASIN E2
                BA   0.016
                LG    0.30    0.25    3.95    0.48       5
                UC   0.388   0.377
                UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
                UA     100
                *

                KK     RE2
                KM  CHANNEL ROUTING
                RD    1108   .0542    .030           TRAP      10       4
                *

                KK     P13   BASIN
                KM  SUB-BASIN P13
                BA   0.059
                LG    0.26    0.25    3.92    0.57      27
                UC   0.401   0.257
                UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
                UA     100
                *

                KK    DT13
                KM
                DT    DB13   1.060
                DI       0     100     500    1000    5000
                DQ       0     100     500    1000    5000
                *

                KK    CP13
                KM
```

```
313          HC       3
             *

314          KK     R13
315          KM  CHANNEL ROUTING
316          RD    1412   .0035    .025            TRAP      10       4
             *

317          KK     P12   BASIN
318          KM  SUB-BASIN P12
319          BA   0.044
320          LG    0.25    0.26    3.58    0.71      30
321          UC   0.544   0.415
322          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
323          UA     100
             *
```



```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

324          KK    DT12
325          KM
326          DT    DB12   1.140
327          DI       0     100     500    1000    5000
328          DQ       0     100     500    1000    5000
             *

329          KK    CP12
330          KM
331          HC       2
             *

332          KK     E3   BASIN
333          KM  SUB-BASIN E3
334          BA   0.082
335          LG    0.31    0.28    3.95    0.48       4
336          UC   0.797   0.827
337          UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
338          UA     100
             *

339          KK     RE3
340          KM  CHANNEL ROUTING
341          RD    1473   .0339    .030            TRAP      10       4
             *

342          KK     P10   BASIN
343          KM  SUB-BASIN P10
344          BA   0.055
345          LG    0.25    0.26    3.78    0.63      29
346          UC   0.522   0.329
347          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
348          UA     100
             *

349          KK    DT10
350          KM
351          DT    DB10   1.080
352          DI       0     100     500    1000    5000
353          DQ       0     100     500    1000    5000
             *

354          KK    CP10
```



```
355          KM
356          HC       2
             *

357          KK     R10
358          KM  CHANNEL ROUTING
359          RD    1947   .0035    .025            TRAP      10       4
             *
```



```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

360          KK     P11   BASIN
361          KM  SUB-BASIN P11
362          BA   0.042
363          LG    0.25    0.25    3.85    0.60      30
364          UC   0.855   0.892
365          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
366          UA     100
             *

367          KK    DT11
368          KM
369          DT    DB11   1.200
370          DI       0     100     500    1000    5000
371          DQ       0     100     500    1000    5000
             *

372          KK    CP11
373          KM
374          HC       2
             *

375          KK     E4   BASIN
376          KM  SUB-BASIN E4
377          BA   0.040
378          LG    0.34    0.33    4.00    0.47       3
379          UC   0.720   0.924
380          UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
381          UA     100
             *

382          KK     RE4
383          KM  CHANNEL ROUTING
384          KM  SHAPE REFLECTS CURRENT SET OF PLANS FOR HAPPY VALLEY ROAD DITCH
385          RD
386          RC    .015    .015    .015    1287   .0250
387          RX       0       2       4    9.84   12.84   15.84   21.84   27.56
388          RY    2.46    1.96    1.46       0     0.5       1       2    2.95
             *

389          KK      P9   BASIN
390          KM  SUB-BASIN P9
391          BA   0.045
392          LG    0.25    0.25    3.92    0.57      30
393          UC   0.401   0.370
394          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
395          UA     100
             *

396          KK     DT9
397          KM
398          DT     DB9   0.920
```

```
399          DI       0     100     500    1000    5000
400          DQ       0     100     500    1000    5000
             *
1                                  HEC-1 INPUT                                  PAGE 11

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

401          KK     HV1   BASIN
402          KM  SUB-BASIN HV1
403          BA   0.007
404          LG    0.27    0.29    3.95    0.55      25
405          UC   0.527   1.174
406          UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
407          UA     100
             *

408          KK     CP9
409          KM
410          HC       3
             *

411          KK      R9
412          KM  CHANNEL ROUTING
413          KM  SHAPE REFLECTS CURRENT SET OF PLANS FOR HAPPY VALLEY ROAD DITCH
414          RD
415          RC    .015    .015    .015     940   .0250
416          RX       0       2       4    9.84   12.84   15.84   21.84   27.56
417          RY    2.46    1.96    1.46       0     0.5       1       2    2.95
             *

418          KK      P8   BASIN
419          KM  SUB-BASIN P8
420          BA   0.013
421          LG    0.25    0.25    4.15    0.52      30
422          UC   0.647   0.779
423          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
424          UA     100
             *

425          KK     DT8
426          KM
427          DT     DB8   0.300
428          DI       0     100     500    1000    5000
429          DQ       0     100     500    1000    5000
             *

430          KK      P7   BASIN
431          KM  SUB-BASIN P7
432          BA   0.014
433          LG    0.25    0.25    3.95    0.56      30
434          UC   0.584   0.691
435          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
436          UA     100
             *

437          KK     DT7
438          KM
439          DT     DB7   0.300
440          DI       0     100     500    1000    5000
441          DQ       0     100     500    1000    5000
             *
1                                  HEC-1 INPUT                                  PAGE 12
```



```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

442          KK     CP7
443          KM
444          HC       3
             *

445          KK      R7
446          KM  CHANNEL ROUTING
447          RD
448          RC    .015    .015    .015    1488   .0250
449          RX       0       2       4    9.84   12.84   15.84   21.84   27.56
450          RY    2.46    1.96    1.46       0     0.5       1       2    2.95
             *

451          KK      P6   BASIN
452          KM  SUB-BASIN P6
453          BA   0.070
454          LG    0.25    0.25    4.25    0.49      30
455          UC   1.147   1.475
456          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
457          UA     100
             *

458          KK     DT6
459          KM
460          DT     DB6   1.760
461          DI       0     100     500    1000    5000
462          DQ       0     100     500    1000    5000
             *

463          KK     CP6
464          KM
465          HC       2
             *

466          KK   HPVLY
467          KM
468          HC       3
             *
             *
             * ****************************************************************************
             *
             *

469          KK   A11MA   BASIN
470          KM  SUB-BASIN A11M North Portion
471          BA   0.073
472          LG    0.32    0.24    8.80    0.06       8
473          UC   0.330   0.153
474          UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
475          UA     100
             *
             * On-site Retention Basin
             *
1                                  HEC-1 INPUT                                  PAGE 13

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

476          KK  A11MAQ
477          DT  DA11MA      3.4
478          DI       0     100    1000    1000
```

```
479          DQ       0     100    1000    1000
             *
             *
             *

480          KK  SA11MA STORAGE
481          KM  Online Detention Basin,  6.2 ac-ft.
482          RS       1    STOR       0
483          SV       0     1.5     2.5     4.0     6.2    10.0
484          SE       0       2       3       4       5       6
485          SL       0    3.14    0.62     0.5
486          SS       5      50     2.7     1.5
             *
             * ROUTE RA11MA IS 2000 FT WITH A SLOPE OF .0092
             * CROSS SECTION IS A SMALL NATURAL CHANNEL
             *

487          KK  RA11MA
488          RS       9    FLOW       0
489          RC    0.05    0.06    0.05    2000   .0092
490          RX       0     350     450     480     482     510     610     910
491          RY       7       6       5       1       0       5       6       7
             *

492          KK   A11MB   BASIN
493          KM  SUB-BASIN A11M South Portion
494          BA   0.194
495          LG    0.25    0.15    8.80    0.07      29
496          UC   0.489   0.213
497          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
498          UA     100
             *
             * On-site Retention Basin
             *     GP

499          KK  A11MBQ
500          DT  DA11MB     3.6
501          DI       0     100    1000    1000
502          DQ       0     100    1000    1000
             *

503          KK  SA11MB STORAGE
504          KM  Online Detention Basin, 11.2 ac-ft.
505          RS       1    STOR       0
506          SV       0     3.0     5.5     8.0    11.2    15.0
507          SE       0       2       3       4       5       6
508          SL       0    3.14    0.62     0.5
509          SS       5     200     2.7     1.5
             *
```



```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

510          KK   A11NA   BASIN
511          KM  SUB-BASIN A11N - Revised
512          BA   0.076
513          LG    0.29    0.30    5.40    0.25      26
514          UC   0.306   0.178
515          UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
516          UA     100
             *

517          KK  SA11NA STORAGE
```



```
518          KM  Online Detention Basin,  7.3 ac-ft.
519          RS       1    STOR       0
520          SV       0     1.0     3.0     5.0     7.3    11.0
521          SE       0       2       3       4       5       6
522          SL       0    3.14    0.62     0.5
523          SS       5     100     2.7     1.5
             *

524          KK  RA11NA
525          RS      11    FLOW       0
526          RC    0.05    0.06    0.05    2400  0.0090
527          RX       0     350     450     480     482     510     610     910
528          RY       7       6       5       1       0       5       6       7
             *
             * COMBINE Flows of A11NA, A11MA AND A11MB
             *

529          KK  CA11MB
530          HC       3
             *
             * Route Flow to A11J
             *

531          KK  RA11MB
532          RS       8    FLOW       0
533          RC    0.05    0.06    0.05    3000   .0085
534          RX       0     350     450     480     482     510     610     910
535          RY       7       6       5       1       0       5       6       7
             *

536          KK    A11O   BASIN
537          KM  SUBASIN A11O
538          BA   0.056
539          LG    0.28    0.27    6.20    0.19      23
540          UC   0.360   0.331
541          UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
542          UA     100
             *
```



```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

543          KK   SA11O STORAGE
544          KM  Online Detention Basin,  3.1 ac-ft.
545          RS       1    STOR       0
546          SV       0     0.5     1.0     2.0     3.1     5.0
547          SE       0       2       3       4       5       6
548          SL       0    3.14    0.62     0.5
549          SS       5      50     2.7     1.5
             *
             * ROUTE A11O to A11KB
             *

550          KK   RA11O
551          RS       9    FLOW       0
552          RC    0.05     .06     .05    2500   .0085
553          RX       0     350     450     480     482     510     610     910
554          RY       7       6       5       1       0       5       6       7
             *

555          KK   A11KB   BASIN
556          KM  SUB-BASIN A11K North Portion
557          BA   0.107
```

```
LG    0.25    0.25    4.70    0.36      30
UC   0.499   0.270
UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
UA     100
*

KK  SA11KB STORAGE
KM  Online Detention Basin, 10.7 ac-ft.
RS       1    STOR       0
SV       0     3.0     5.0     7.0    10.7    15.0
SE       0       2       3       4       5       6
SL       0    3.14    0.62     0.5
SS       5     100     2.7     1.5
*

KK   A11KA   BASIN
KM  SUB-BASIN A11K East Portion
BA   0.081
LG    0.27    0.27    4.45    0.42      42
UC   0.342   0.244
UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
UA     100
*

KK  SA11KA STORAGE
KM  Online Detention Basin,  9.6 ac-ft.
RS       1    STOR       0
SV       0     2.0     4.0     6.0     9.6    14.0
SE       0       2       3       4       5       6
SL       0    3.14    0.62     0.5
SS       5      50     2.7     1.5
*
* ROUTE A11KA to A11KB
*
```



```
LINE      ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

KK  RA11KA
RS       8    FLOW       0
RC    0.05     .06     .05    2000   .0075
RX       0     350     450     480     482     510     610     910
RY       7       6       5       1       0       5       6       7
*
* COMBINE A11KB,A11KA AND A11O
*

KK  CA11KB
HC       3
*
* ROUTE Flow of CA11KB to A11KC
*

KK  RA11KB
RS       8    FLOW       0
RC    0.05    0.06    0.05    1600  0.0055
RX       0      50     250     350     360     420     620     720
RY      10       8       6       2       0       6       8      10
*

KK    A11G   BASIN
KM  SUB-BASIN A11G
BA   0.060
```



```
LG    0.31    0.28    4.55    0.35      25
UC   0.550   0.491
UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
UA     100
*
* ROUTE A11G to A11KC
*

KK  RA11GN
RS       7    FLOW       0
RC    0.05     .06     .05    2300   0.010
RX       0     350     450     480     482     510     610     910
RY       7       6       5       1       0       5       6       7
*

KK   A11KC   BASIN
KM  SUB-BASIN A11K West Portion
BA   0.132
LG    0.27    0.26    4.15    0.50      27
UC   0.489   0.244
UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
UA     100
*
```



```
LINE      ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

KK  SA11KC STORAGE
KM  Online Detention Basin,  6.4 ac-ft.
RS       1    STOR       0
SV       0     1.5     2.5     4.0     6.4    10.0
SE       0       2       3       4       5       6
SL       0    3.14    0.62     0.5
SS       5      50     2.7     1.5
*
* COMBINE RA11KB, RA11G, AND A11KC
*

KK  CA11KC
HC       3
*
* ROUTE CA11KC to A11J
* CROSS SECTION IS A MEDIUM NATURAL CHANNEL
*

KK  RA11KC
RS       4    FLOW       0
RC    0.05     .06     .05    1000   .0055
RX       0      50     250     350     360     420     620     720
RY      10       8       6       2       0       6       8      10
*

KK    A11J   BASIN
KM  SUB-BASIN A11J
BA   0.112
LG    0.29    0.22    7.30    0.12      18
UC   0.740   0.589
UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
UA     100
*

KK   SA11J STORAGE
KM  Online Detention Basin,  4.4 ac-ft.
```

```
637          RS       1    STOR       0
638          SV       0     1.0     2.0     3.0     4.4     7.0
639          SE       0       2       3       4       5       6
640          SL       0    3.14    0.62     0.5
641          SS       5      50     2.7     1.5
             *
             * COMBINE Flows of RA11MB, A11J, AND RA11KC
             *

642          KK   CA11J
643          HC       3
             *
```



```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9.....10

644          KK    A11L   BASIN
645          KM  SUB-BASIN A11L
646          BA   0.264
647          LG    0.27    0.12   11.20    0.03      24
648          UC   0.872   0.652
649          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
650          UA     100
             *
             * On-site Retention Basin
             *      GP

651          KK  DA11LQ
652          DT   DA11L     7.6
653          DI       0     100    1000    1000
654          DQ       0     100    1000    1000
             *
             * ROUTE FLOW TO A11I FROM A11L                                              G
             *

655          KK   RA11L
656          RS       9    FLOW       0
657          RC    0.05    0.06    0.05    2600   .0069
658          RX       0     350     450     480     482     510     610     910
659          RY       7       6       5       1       0       5       6       7
             *

660          KK    A11I   BASIN
661          KM  SUB-BASIN A11I
662          BA   0.153
663          LG    0.25    0.10   11.20    0.03      28
664          UC   0.634   0.409
665          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
666          UA     100
             *
             * On-site Retention Basin
             *

667          KK  DA11IQ
668          DT   DA11I    11.7
669          DI       0     100    1000    1000
670          DQ       0     100    1000    1000
             *
             * COMBINE Flows of CA11J, A11I, and RA11L
             *

671          KK   CA11I
672          HC       3
```



```
             *
             * ROUTE FLOW TO A11EB FROM CA11I
             *
```



```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9.....10

673          KK   RA11I
674          RS       9    FLOW       0
675          RC    0.05     .06     .05    4000   .0075
676          RX       0      50     100     150     180     230     280     330
677          RY      10       8       6       0       0       6       8      10
             *

678          KK   A11EA   BASIN
679          KM  SUB-BASIN A11E East Portion
680          BA   0.144
681          LG    0.33    0.31    4.30    0.41      11
682          UC   0.793   0.737
683          UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
684          UA     100
             *
             * ROUTE FLOW TO A11EB FROM A11EA
             *

685          KK  RA11EA
686          RS       6    FLOW       0
687          RC    0.05     .06     .05    1500   .0065
688          RX       0      50     250     320     360     420     620     720
689          RY      10       8       6       0       0       6       8      10
             *

690          KK   A11EB   BASIN
691          KM  SUB-BASIN A11E West Portion
692          BA   0.190
693          LG    0.34    0.34    4.45    0.38       4
694          UC   1.133   1.174
695          UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
696          UA     100
             *
             * COMBINE Flows of A11EA, A11EB, and RA11I
             *

697          KK  CA11EB
698          HC       3
             *

699          KK      41   BASIN
700          KM  SUB-BASIN 41
701          BA   0.054
702          LG    0.34    0.34    4.40    0.39      21
703          UC   0.324   0.225
704          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
705          UA     100
             *
```



```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9.....10

706          KK     B41
707          KM  Storage Route Runoff through Detention Basin @41
708          KM  Outlet Structure:  1-48" PIPE
```

```
RS       1    STOR       0
SA     .09     .18      .27      .4
SE    1433    1435     1437    1440
SQ       0       23       71     132
*

KK      42   BASIN
KM  SUB-BASIN 42
BA   0.075
LG    0.35    0.35    4.25    0.42      44
UC   0.324   0.231
UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
UA     100
*

KK     B42
KM  Storage Route Runoff through Detention Basin @42
KM  Outlet Structure:  48" PIPE
RS       1    STOR       0
SA     .07     .13      .21      .31      .4
SE    1427    1429     1431     1433    1435
SQ       0       23       71      112     147
*
* COMBINE Flows of 41 and 42                                                    G
*

KK     C41
HC       2
*
* ROUTE FLOW TO A11F FROM C41
*

KK    RC41
RS      14    FLOW       0
RC    0.05     .06      .05     5200   .0075
RX       0      50       70       90     110     130     150     200
RY       6       5        3        0       0       3       5       6
*

KK    A11F   BASIN
KM  SUB-BASIN A11F
BA   0.334
LG    0.33    0.31    4.35    0.40       8
UC   0.837   0.581
UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
UA     100
*
* COMBINE Flows of A11F and RC41                                                G
*
```



```
LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

KK   CA11F
HC       2
*
* COMBINE Flows of CA11F and CA11EB
*

KK   CA11E
HC       2
*
* ROUTE FLOW TO A11A FROM CA11E
```



```
*

KK   RA11E
RS       3    FLOW       0
RC    0.05     .06      .05     1700   .0070
RX       0      50       70       90     110     130     150     200
RY       6       5        3        0       0       3       5       6
*

KK    A09U   BASIN
KM  SUB-BASIN A09U
BA   0.175
LG    0.32    0.30    4.20    0.43      22
UC   0.450   0.302
UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
UA     100
*
* Happy Valley RD. Improvements
* 0 % FLOW GOES DOWN to South,100% WEST along HAPPY VALLEY
*

KK   DA09U
DT   A09UI     0.0     0.0
DI     0.0    10.0   100.0  1000.0  5000.0     0.0     0.0     0.0     0.0     0.0
DQ     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0
*
* ROUTE FLOW TO CA09T FROM A09U                                                 G
*

KK  RA09UW
RS       9    FLOW       0
RC    0.05    0.03      .05     4000   .0075
RX       0     200      210      220     240     270     295     595
RY     4.5       2        0        2       3       3     3.5     4.5
*

KK    A09T   BASIN
KM  SUB-BASIN A09T
BA   0.182
LG    0.33    0.31    4.30    0.41       2
UC   0.752   0.547
UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
UA     100
*
* COMBINE  CA09U AND A09T
*
```



```
LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

KK   CA09T
HC       2
*
* HAPPY VALLEY ROAD Improvements, 100% Flow TO THE WEST
*

KK   DA09T
DT   A09TI     0.0     0.0
DI     0.0    10.0   100.0  1000.0 10000.0     0.0     0.0     0.0     0.0     0.0
DQ     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0
*
* ROUTE FLOW TO CX22 FROM CA09T
*
```

```
779          KK  RA09TW
780          RS       2    FLOW       0
781          RC    0.05    0.03    0.05    1500   .0025
782          RX       0     200     210     220     230     270     295     595
783          RY       6       4       0       0       4       4     5.5       7
             *

784          KK    A11A   BASIN
785          KM  SUB-BASIN A11A
786          BA   0.298
787          LG    0.23    0.29    6.00    0.21      34
788          UC   0.721   0.472
789          UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
790          UA     100
             *
             * On-site Retention Basin
             *     GP

791          KK  DA11AQ
792          DT   DA11A     7.7
793          DI       0     100    1000    1000
794          DQ       0     100    1000    1000
             *
             * Combine  Flows of RA09TW, CA11E,and A11A
             *

795          KK    CX23
796          HC       3
             *
             * ROUTE FLOW TO CS1 FROM CX23                                        GP
             *

797          KK    RX23
798          RS       7    FLOW       0
799          RC    0.05     .06     .05    4000   .0074
800          RX       0      50     150     175     275     300     400     500
801          RY      12       8       6       0       0       6       8      12
             *
```



```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9.....10

802          KK      S1   BASIN
803          KM  SUB-BASIN S1
804          BA   0.124
805          LG    0.31    0.27    4.25    0.47      12
806          UC   0.790   0.720
807          UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
808          UA     100
             *

809          KK      P2   BASIN
810          KM  SUB-BASIN P2
811          BA   0.051
812          LG    0.25    0.25    4.45    0.43      29
813          UC   0.404   0.266
814          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
815          UA     100
             *

816          KK     RT2
817          KM
```



```
818          DT     RB2   4.740
819          DI       0     100     500    1000    5000
820          DQ       0     100     500    1000    5000
             *

821          KK     CS1
822          KM
823          HC       3
             *

824          KK     RS1
825          KM  CHANNEL ROUTING
826          RD     924   .0108    .035            TRAP     200       6
             *

827          KK      S2   BASIN
828          KM  SUB-BASIN S2
829          BA   0.012
830          LG    0.34    0.33    4.70    0.32       3
831          UC   0.270   0.156
832          UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
833          UA     100
             *

834          KK      S3   BASIN
835          KM  SUB-BASIN S3
836          BA   0.006
837          LG    0.30    0.25    4.65    0.32       5
838          UC   0.208   0.126
839          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
840          UA     100
             *
```



```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9.....10

841          KK     CS2
842          KM
843          HC       3
             *

844          KK     RS2
845          KM  CHANNEL ROUTING
846          RD     665   .0075    .020            TRAP      20       4
             *

847          KK      P3   BASIN
848          KM  SUB-BASIN P3
849          BA   0.054
850          LG    0.25    0.25    4.45    0.43      30
851          UC   0.551   0.475
852          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
853          UA     100
             *

854          KK     RT3
855          KM
856          DT     RB3   5.230
857          DI       0     100     500    1000    5000
858          DQ       0     100     500    1000    5000
             *

859          KK     CP3
```

```
860          KM
861          HC       2
             *
862          KK     P4b    BASIN
863          KM  SUB-BASIN P4b
864          BA   0.017
865          LG    0.25    0.25    4.45    0.43      30
866          UC   0.287   0.173
867          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
868          UA     100
             *
869          KK     RT4b
870          KM
871          DT     RB4b   0.320
872          DI        0     100     500    1000    5000
873          DQ        0     100     500    1000    5000
             *
874          KK      S4    BASIN
875          KM  SUB-BASIN S4
876          BA   0.014
877          LG    0.33    0.31    4.80    0.30       2
878          UC   0.493   0.772
879          UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
880          UA     100
             *
```



```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

881          KK      P1    BASIN
882          KM  SUB-BASIN P1
883          BA   0.029
884          LG    0.34    0.38    6.00    0.18       1
885          UC   0.496   0.552
886          UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
887          UA     100
             *
888          KK     DT1
889          KM
890          DT     DB1    0.500
891          DI        0     100     500    1000    5000
892          DQ        0     100     500    1000    5000
             *
893          KK     CP1
894          KM
895          HC       2
             *
896          KK     HV2    BASIN
897          KM  SUB-BASIN HV2
898          BA   0.031
899          LG    0.25    0.25    4.45    0.43      29
900          UC   1.500   5.175
901          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
902          UA     100
             *
903          KK     RHV2
```



```
904          KM  CHANNEL ROUTING
905          RD     910   .0033    .015            TRAP      10       4
             *
906          KK    DTHV2
907          KM
908          DT    DBHV2   0.680
909          DI        0     100     500    1000    5000
910          DQ        0     100     500    1000    5000
             *
911          KK     P4a    BASIN
912          KM  SUB-BASIN P4a
913          BA   0.039
914          LG    0.25    0.25    4.00    0.55      30
915          UC   0.636   0.586
916          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
917          UA     100
             *
```



```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

918          KK     DT4a
919          KM
920          DT     DB4a   0.740
921          DI        0     100     500    1000    5000
922          DQ        0     100     500    1000    5000
             *
923          KK    SOUTH
924          KM  Combined at South HVR
925          HC       5
             *
926          KK     N11O   BASIN
927          KM  SUB-BASIN N11O
928          BA   0.054
929          LG    0.35    0.35    4.50    0.36       0
930          UC   0.632   0.483
931          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
932          UA     100
             *
             * A WASH TO THE WEST THAT CARRIES A MAX. FLOW OF 47 CFS.
             *
933          KK    DN11O
934          DT    N11OI
935          DI        0      30      60     100     300     600    1200    2200
936          DQ        0      27      54      90     270     553    1153    2153
             *
             * ROUTE RN11OW IS 2752 FT WITH A SLOPE OF .0025
             * CROSS SECTION IS A MEDIUM NATURAL WASH
             *
937          KK  RN11OW
938          RS       15    FLOW       0
939          RC    0.05     .06     .05    2752   .0025
940          RX        0      50     250     350     360     420     620     720
941          RY       10       8       6       2       0       6       8      10
             *
             * RECOVER DIVERTED FLOW FROM CA09T
             *
```

```
                KK  DRA09T
                DR   A09TI
                *
                * ROUTE RA09TS IS 2824 FT WITH A SLOPE OF .0057
                * CROSS SECTION IS SHALLOW CONCENTRATED FLOW
                * ROUTE FLOW TO CA09R FROM CA09T
                *
1                                       HEC-1 INPUT                                     PAGE 27

          LINE  ID.......1.......2.......3.......4.......5.......6.......7.......8.......9.....10

                KK  RA09TS
                RS      15    FLOW       0
                RC    0.05     .06     .05    2824   .0057
                RX       0     400     800    1200    1600    2000    2400    2800
                RY       3       1      .5       0       0      .5       1       3
                *
                KK    A09R   BASIN
                KM  SUB-BASIN A09R
                BA   0.144
                LG    0.35    0.34    4.25    0.43       1
                UC   1.090   0.945
                UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
                UA     100
                *
                * COMBINE  CN110,  CA09T, AND A09R
                *
                KK   CA09R
                HC       3
                *
                * EXISTING CONDITIONS FLOW DOWN LAKE PLEASANT RD
                *
                KK   DA09R
                DT   A09RI
                DI       0      10      50     100     300     500     800    1000    2000
                DQ       0     9.9    49.3    99.4   299.5     499     799     999    1999
                *
                * ROUTE RA09RW IS 1609 FT WITH A SLOPE OF .0012
                * *** ROUTE FLOW TO CA09S FROM CA09R  **************************
                *
                KK  RA09RW
                RS      15    FLOW       0
                RC    0.05    0.04     .05    1609  0.0012
                RX       0     200     300     325     340     360     380     880
                RY       5       4       3       2       3       3       2     3.5
                *
                KK    A09S   BASIN
                KM  SUB-BASIN A09S
                BA   0.072
                LG    0.13    0.25    4.90    0.40      71
                UC   0.626   0.548
                UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
                UA     100
                *
                * On-site Retention Basin
                *      GP
1                                       HEC-1 INPUT                                     PAGE 28
                                           Page 25
```



```
          LINE  ID.......1.......2.......3.......4.......5.......6.......7.......8.......9.....10

                KK  DA09SQ
                DT   DA09S     7.0
                DI       0     100    1000    1000
                DQ       0     100    1000    1000
                *
                * *** COMBINE  RA09RW AND A09S ************************************************
                *
                KK   CA09S
                HC       2
                *
                KK  RA09SW
                RS       6    FLOW       0
                RC    0.03    0.03    0.03    1600  0.0085
                RX       0      50     100     120     140     160     210     260
                RY       6       4       3       0       0       3       4       6
                *
                KK   A09QA   BASIN
                KM  SUB-BASIN A09Q North Portion
                BA   0.092
                LG    0.34    0.34    4.20    0.44       2
                UC   0.731   0.470
                UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
                UA     100
                *
                * *** COMBINE  Flows of RA09SW and A09QA ***************************************
                *
                KK  CA09QA
                HC       2
                *
                * *** DIVERTED  MAIN (SOUTH), DIVERTED (WEST)  ****************************
                * FUTURE SPLIT: ALL EXISTING FLOW TO THE SOUTH
                *
                KK  DA09QA
                DT  A09QAI
                DI       0      10      30      50     100     500    1000    2000
                DQ       0     9.2    29.3    49.4    99.5     499     999    1999
                *
                * *** ROUTE CA09QA TO CA99YA ***********************************************
                *
                KK  RA09QW
                RS       4    FLOW       0
                RC    0.03    0.03    0.03    2400  0.0085
                RX       0      50     100     120     140     160     210     260
                RY       6       4       3       0       0       3       4       6
                *
1                                       HEC-1 INPUT                                     PAGE 29

          LINE  ID.......1.......2.......3.......4.......5.......6.......7.......8.......9.....10

                KK   A99YA   BASIN
                KM  SUB-BASIN A99Y East Portion
                BA   0.103
                LG    0.35    0.34    4.90    0.29       1
                                           Page 26
```

```
1007          UC   0.568   0.414
1008          UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
1009          UA     100
              *
              * *** COMBINE  RA09QW AND A99YA ************************************************
              *

1010          KK  CA99YA
1011          HC       2
              *

1012          KK  RA99YA
1013          RS       3    FLOW       0
1014          RC    0.03    0.03    0.03    2000  0.0085
1015          RX       0      50     100     120     140     160     210     260
1016          RY       6       4       3       0       0       3       4       6
              *

1017          KK   A99YB   BASIN
1018          KM  SUB-BASIN A99Y West Portion
1019          BA   0.171
1020          LG    0.34    0.34    3.78    0.55       4
1021          UC   0.764   0.424
1022          UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
1023          UA     100
              *
              * *** COMBINE  RA99YA, SOUTH AND A99YB ***************************************
              *

1024          KK  CA99YB
1025          HC       3
              *
              *
              * Dummy Combining at AFR and South of Happy Valley Rd.
              *

1026          KK    AFR1
1027          HC       3
              *
              * RECOVER DIVERTED FLOW FROM A09U
              *

1028          KK  BA09UI
1029          DR   A09UI
              *
              * *** ROUTE RA09US ***************************************************************
              * ROUTE RA09US IS 3000 FT WITH A SLOPE OF 0.0076
              * CROSS SECTION IS A SMALL ROAD WITH HOMES ON THE WEST SIDE
              * ALONG local STREETS
              * *** ROUTE FLOW TO N11NB FROM Happy Valley RD (CA09U)
              *
```



```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1030          KK  RA09US
1031          RS       6    FLOW       0
1032          RC    0.04    0.03    0.04    3000  0.0076
1033          RX       0       1      54      55      95      96     124     624
1034          RY    9.25    1.25    0.25       0       0    0.25    1.25    3.25
              *
              *
```



```
1035          KK   N11NB   BASIN
1036          KM  SUB-BASIN N11NBN
1037          BA   0.140
1038          LG    0.31    0.27    4.70    0.31       4
1039          UC   0.767   0.672
1040          UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
1041          UA     100
              *
              * Combining Flows
              *

1042          KK  CN11NB
1043          HC       2
              *
              * ROUTE RN11NW IS 2521 FT WITH A SLOPE OF 0.0016
              * CROSS SECTION IS A SMALL ROAD WITH HOMES TO BOTH SIDES
              * ALONG Mariposa GrANDe
              *

1044          KK  RN11NW
1045          RS      12    FLOW       0
1046          RC    0.04    0.03    0.04    2521  0.0016
1047          RX       0       1      70      71      96      97     182     183
1048          RY    9.25    1.25    0.25       0       0    0.25    1.25    9.25
              *
              * RECOVER DIVERTED FLOW FROM N11OI

1049          KK  BN11OI
1050          DR   N11OI
              *
              * ROUTE RN11OS IS 1184 FT WITH A SLOPE OF 0.0068
              * CROSS SECTION IS SHALLOW CONCENTRATED FLOW
              * ALONG natural pathways
              * ROUTE FLOW TO Mariposa GrANDe (CN11M) FROM CN11O
              *

1051          KK  RN11OS
1052          RS      15    FLOW       0
1053          RC    0.05     .06     .05    1184  0.0068
1054          RX       0     400     800    1200    1600    2000    2400    2800
1055          RY       3       1      .5       0       0      .5       1       3
              *
```



```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1056          KK    N11M   BASIN
1057          KM  SUB-BASIN N11M
1058          BA   0.100
1059          LG    0.35    0.35    4.15    0.45       0
1060          UC   0.660   0.374
1061          UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
1062          UA     100
              *
              * *** COMBINE  CN11M ************************************************************
              * COMBINE BASIN N11M, RN11OS, and RN11NW
              * Mariposa GrANDe AND 95st AVE
              *

1063          KK   CN11M
1064          HC       3
              *
              * *** DIVERSION DN11M ************************************************************
```

```
* DIVERSION MAIN 95th AVE(SOUTH), SPLIT (WEST)
*
KK   DN11M
DT   N11MI
DI       0       1      40      80     100     300     600    1200    2200
DQ       0     .25      10      20      25      75     150     184     184
*
* ROUTE RN11MS IS 2689 FT WITH A SLOPE OF 0.0071
* CROSS SECTION IS A SMALL ROAD WITH HOMES TO ONE SIDE
* ALONG 95st AVE
* ROUTE FLOW TO PINNACLE PEAK (CN11J) FROM Mariposa GrANDe (CN11M)
*
KK  RN11MS
RS       7    FLOW       0
RC    0.05    0.03    0.05    2689  0.0071
RX       0       1      50      51      73      74     124     524
RY    9.25    1.25    0.25       0       0    0.25    1.25    3.25
*
KK    N11J   BASIN
KM  SUB-BASIN N11J
BA   0.244
LG    0.30    0.25    4.10    0.51      13
UC   1.122   0.817
UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
UA     100
*
* *** STORAGE ROUTING LN11J ***********************************************
* *** SMALL SUBDIVISION STORAGE (ACCOUNTED) ********************************
*
```



```
LINE      ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

KK   LN11J
DT  LN11JD     1.8
DI       0     100    1000   10000
DQ       0     100    1000   10000
*
* COMBINE N11J AND RN11KW
* Pinnacle Peak AND 95st AVE
*
KK   CN11J
HC       2
*
* Existing Condition 100% to South
*
KK   DN11J
DT   N11JI
DI       0      10     100    1000    5000
DQ       0      10     100    1000    5000
*
* ROUTE RN11JW IS 1080 FT WITH A SLOPE OF .0019
* CROSS SECTION IS THE NEW CHANNEL ALONG PINNACLE PEAK ROAD
*
* ROUTE FLOW TO CX4 FROM CN11J
*
KK  RN11JW
```



```
RS       1    FLOW       0
RC     .04    0.04     .04    1080   .0019
RX       0     100     140     160     200     300     400     500
RY      10       9       0       0       9      10      11      12
*
* RECOVER DIVERTED FLOW FROM CN11M
*
KK  DRN11M
DR   N11MI
*
* ROUTE RN11MW IS 3871 FT WITH A SLOPE OF .0046
* CROSS SECTION IS A ROAD WITH HOMES TO THE WEST SIDE
* ROUTE FLOW TO CX4 FROM CN11M
*
KK  RN11MW
RS      15    FLOW       0
RC    0.05    0.04     .05    3871   .0046
RX       0       1      50      51      76      77     102     602
RY      10       2       1    0.75    0.75       1       2     3.5
*
* *** COMBINE  CN11J AND CN11M ********************************************
*
```



```
LINE      ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

KK     CX4
HC       2
*
* ROUTE RX4 IS 2164 FT WITH A SLOPE OF .0023
* CROSS SECTION IS THE NEW CHANNEL ALONG PINNACLE PEAK ROAD
* *** ROUTE FLOW TO CA09O FROM CX4  ***************************
*
KK     RX4
RS       6    FLOW      -1
RC     .04    0.04     .04    2164  0.0023
RX       0     100     140     160     200     300     400     500
RY      10       9       0       0       9      10      11      12
*
KK    A09O   BASIN
KM  SUB-BASIN A09O
BA   0.194
LG    0.32    0.29    4.40    0.41       6
UC   1.263   1.308
UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
UA     100
*
KK   SA09O STORAGE
KM  Online Detention Basin, 28.5 ac-ft.
RS       1    STOR       0
SV       0     9.0    15.0    21.0    28.5    38.0
SE       0       2       3       4       5       6
SL       0   7.065    0.62     0.5
SS       5     100     2.7     1.5
*
* RECOVER DIVERTED FLOW FROM A09RI
*
```

```
1124          KK  BA09RI
1125          DR   A09RI
              *
              * ROUTE RA09RS IS 3928 FT WITH A SLOPE OF .0074
              * CROSS SECTION IS A HIGHWAY
              * ROUTE FLOW TO CA09O FROM CA09R
              *
1126          KK  RA09RS
1127          RS      12    FLOW       0
1128          RC    0.05    0.04    0.05    3928   .0074
1129          RX       0     100     200     225     250     275     375     475
1130          RY       6       5       4       3       3       4       5       6
              *
              * *** COMBINE  CX4, RA09RS, AND A09O ***************************************
              *
```



```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1131          KK   CA09O
1132          HC       3
              *
              * Existing Condition: All Flow to South
              *
1133          KK   DA09O
1134          DT   A09OI
1135          DI       0     100    1000    5000
1136          DQ       0     100    1000    5000
              *
              *
              * ROUTE RA09OW IS 1076 FT WITH A SLOPE OF .0019
              * CROSS SECTION IS THE NEW CHANNEL ALONG PINNACLE PEAK ROAD
              * *** ROUTE FLOW TO CA09P FROM CA09O  **************************
              *
1137          KK  RA09OW
1138          RS       1    FLOW       0
1139          RC     .04     .04     .04    1076  0.0019
1140          RX       0     100     140     160     200     300     400     500
1141          RY      10       9       0       0       9      10      11      12
              *
1142          KK    A09P   BASIN
1143          KM  SUB-BASIN A09P
1144          BA   0.187
1145          LG    0.32    0.29    4.65    0.34       6
1146          UC   0.981   0.716
1147          UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
1148          UA     100
              *
1149          KK   SA09P STORAGE
1150          KM  Online Detention Basin, 25.2 ac-ft.
1151          RS       1    STOR       0
1152          SV       0     7.0    13.0    19.0    25.2    33.0
1153          SE       0       2       3       4       5       6
1154          SL       0   7.065    0.62     0.5
1155          SS       5     100     2.7     1.5
              *
              * *** COMBINE  CA09O AND A09P ************************************************
              *
```



```
1156          KK   CA09P
1157          HC       2
              *
              * ROUTE RA09P IS 884 FT WITH A SLOPE OF .0136
              * CROSS SECTION IS THE NEW CHANNEL ALONG PINNACLE PEAK ROAD
              * *** ROUTE FLOW TO CA09Q FROM CA09P  **************************
              *
```



```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1158          KK   RA09P
1159          RS       2    FLOW       0
1160          RC     .04     .04     .04     884  0.0136
1161          RX       0     100     140     160     200     300     400     500
1162          RY      10       9       0       0       9      10      11      12
              *
              * Retrieve Diverted Flow of A09QAI
              *
1163          KK  BA09QA
1164          DR  A09QAI
              *
              * *** ROUTE FLOW TO CA09QB FROM CA09QA **************************
              *
1165          KK  RA09QB
1166          RS       8    FLOW       0
1167          RC    0.05     .06     .05    2700  0.0095
1168          RX       0     100     300     360     380     420     620     720
1169          RY      10       8       6       2       0       6       8      10
              *
1170          KK   A09QB   BASIN
1171          KM  SUB-BASIN A09Q South Portion
1172          BA   0.144
1173          LG    0.30    0.25    4.15    0.44       5
1174          UC   0.857   0.625
1175          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
1176          UA     100
              *
              * *** COMBINE Flows of A09QA,A09QB  and RA09P  *********************************
              *
1177          KK   CA09Q
1178          HC       3
              *
              * Existing Condition:All Flow to South
              *
1179          KK   DA09Q
1180          DT   A09QI
1181          DI       0      10     100     500    1000    5000
1182          DQ       0      10     100     500    1000    5000
              *
              * ROUTE RA09QW IS 2468 FT WITH A SLOPE OF 0.0158
              * CROSS SECTION IS A MEDIUM CHANNEL
              * *** ROUTE CA09Q TO CA10A ************************************************
              *
```



```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10
```

```
1183          KK  RA09QW
1184          RS       1    FLOW       0
1185          RC     .05     .05     .05     2468  0.0158
1186          RX       0     100     140      160      200      300      400      500
1187          RY      10       9       0        0        9       10       11       12
              *

1188          KK    A10A   BASIN
1189          KM  SUB-BASIN A10A
1190          BA   0.189
1191          LG    0.33    0.32    5.30    0.24        2
1192          UC   0.714   0.466
1193          UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
1194          UA     100
              *

1195          KK    CA10A
1196          HC        2
              *
              * ROUTE RA10A IS 2831 FT WITH A SLOPE OF 0.0148
              * CROSS SECTION IS THE NEW CHANNEL ALONG PINNACLE PEAK ROAD
              *

1197          KK    RA10A
1198          RS        2    FLOW       0
1199          RC     0.05    0.05    0.05    1553     .03
1200          RX        0     100     140      170      210      310      410      510
1201          RY       10       9       0        0        9       10       11       12
              *

1202          KK    A99X   BASIN
1203          KM  SUB-BASIN A99X
1204          BA   0.264
1205          LG    0.21    0.28    4.20    0.53       39
1206          UC   0.527   0.261
1207          UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
1208          UA     100
              *

1209          KK    CA99X
1210          HC        2
              *
              * Dummy Combination at AFR and Pinnacle Peak Rd.
              *

1211          KK    AFR2
1212          HC        2
              *
              * Retrieve Diverted Flow of A090I
              *
```



```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1213          KK  BA09OI
1214          DR   A09OI
              *
              * ROUTE RA09OS IS 5602 FT WITH A SLOPE OF .0062
              * CROSS SECTION IS A RURAL ROAD WITH A DITCH RIGHT
              * *** ROUTE FLOW TO CX7 FROM CA09O  ****************************
              *
```



```
1215          KK  RA09OS
1216          RS       8    FLOW       0
1217          RC     .03     .03     .03     5602    .0062
1218          RX       0     200     220    227.5      235      255      300      460
1219          RY       4       2       0        0        2      2.5        3        4
              *

1220          KK    A09K   BASIN
1221          KM  SUB-BASIN A09K
1222          BA   0.410
1223          LG    0.34    0.34    4.40    0.39        2
1224          UC   1.156   0.791
1225          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
1226          UA     100
              *

1227          KK   DA09K
1228          KM  DIVERSION DA09K
1229          KM  DIVERSION SPLITS FLOW WITHIN SUB-BASIN A09K BASED ON TOPOGRAPHICAL SPLIT
1230          KM  A PORTION OF THE FLOW IS DIRECTED WEST TO LAKE PLEASANT PARKWAY
1231          KM  THE REMAINDER IS DIRECTED TO N11FA
1232          DT   A09KI
1233          DI       0     100     200     300     400     500     600     700    2000
1234          DQ       0      73     146     219     292     365     438     511    1460
              *

1235          KK     CX7
1236          KM  COMBINE Flows from North and East
1237          HC        2
              *

1238          KK    RX7S
1239          KM  ROUTE FLOW SOUTH TO CX8 FROM CX7
1240          KM  CROSS SECTION IS A PROPOSED TRAPEZOIDAL CHANNEL DESIGNED WITH
1241          KM  6:1 SIDE SLOPES ON THE LEFT BANK AND 3:1 SIDE SLOPES ON THE RIGHT BANK
1242          KM  ADJACENT TO LAKE PLEASANT PARKWAY ON THE WEST SIDE
1243          RS        5    FLOW       0
1244          RC      .03     .03     .03    2800     .002
1245          RX        0       3       9      15       35       41       47       50
1246          RY        5       4       2       0        0        2        4        5
              *
              * North Portion of N11N
              *
```



```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1247          KK   N11NA   BASIN
1248          KM  UPPER PART OF SUBBASIN N11N
1249          BA   0.022
1250          LG    0.35    0.35    4.00    0.47       29
1251          UC   0.229   0.146
1252          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
1253          UA     100
              *

1254          KK  RN11NA
1255          RS       13    FLOW       0
1256          RC     0.05    0.04     .05    3500  0.0083
1257          RX        0       1      51      52       82       83      108      608
1258          RY     9.25    1.25    0.25       0        0     0.25    1.25     3.75
              *
```

```
1259          KK   N11NC   BASIN
1260          KM  East PART OF SUBBASIN N11N
1261          BA   0.171
1262          LG    0.31    0.29    4.20    0.46       7
1263          UC   0.608   0.382
1264          UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
1265          UA     100
              *

1266          KK  CN11NC
1267          HC       2
              *

1268          KK  DN11NC
1269          KM  DIVERT FLOW 10-YEAR RUNOFF (149 cfs) to East
1270          DT   N11NP
1271          DI       0     149    2000
1272          DQ       0     149     149
              *

1273          KK  RN11NC
1274          KM  ROUTE N11NC to South
1275          RS       5    FLOW      -1
1276          RC    0.05    0.04     .05    1600  0.0089
1277          RX       0      10      20      30      70      80      90     100
1278          RY       3       2       1       0       0       1       2       3
              *

1279          KK   N11ND   BASIN
1280          KM  LOWER PART OF SUBBASIN N11N
1281          BA   0.053
1282          LG    0.29    0.25    4.60    0.36      12
1283          UC   0.748   0.687
1284          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
1285          UA     100
              *
```



```
              LINE  ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1286          KK    N11K   BASIN
1287          KM  SUB-BASIN N11K
1288          BA   0.167
1289          LG    0.30    0.25    4.20    0.46       9
1290          UC   1.030   0.825
1291          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
1292          UA     100
              *

1293          KK   CN11K
1294          KM  COMBINE N11K, RN11NC AND N11ND AT 91ST AVENUE AND PINNACLE PEAK
1295          HC       3
              *
              * Divert 10-Year Flow (55 cfs) into SD to East

1296          KK  DN11KS
1297          DT   N11KP
1298          DI       0      55     500    2000
1299          DQ       0      55      55      55
              *

1300          KK   RN11K
```



```
1301          RS      15    FLOW       0
1302          RC     .04    0.04     .04    5178   .0062
1303          RX       0     200     230     260     280     310     340     540
1304          RY      10       8       7       0       0       7       8      10
              *
              * Initial flow goes to west and excess flow splits to southeast
              * DIVERSION HAS BEEN MODIFIED FROM ORIGINAL ENTELLUS STUDY
              * PER CITY OF PEORIA COMMENTS (1/18/05)
              *

1305          KK     DX5
1306          DT     X5I
1307          DI       0      10     100     200     300     400     500    1000    2000
1308          DQ       0       0       0      94     154     249     344     844    1844
              *
              * ROUTE RX5W IS 1292 FT WITH A SLOPE OF 0.0008
              * CROSS SECTION IS DIRT ROAD
              * WEST ALONG DEER VALLEY RD
              * ROUTE FLOW FROM 91st AVE. (CN11H) TO WEST OF 91st AVE (CX5)
              *

1309          KK    RX5W
1310          RS      11    FLOW       0
1311          RC    0.05   0.045    0.05    1292   .0008
1312          RX       0     200     225     250     270     295     320     520
1313          RY    4.25    2.25    1.25       0       0    1.25    2.25    4.25
              *
```



```
              LINE  ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1314          KK    N11H   BASIN
1315          KM  SUB-BASIN N11H
1316          BA   0.419
1317          LG    0.35    0.35    4.50    0.36       0
1318          UC   1.162   0.741
1319          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
1320          UA     100
              *
              * COMBINE RX5W AND BASIN N11H
              *

1321          KK   CN11H
1322          HC       2
              *
              * NEW ALTERNATIVE CHANNEL ACROSS STATE LAND
              *

1323          KK   RN11H
1324          KM  ROUTE FLOW WEST TO CN11G FROM CN11H
1325          KM  CROSS SECTION IS A PROPOSED TRAPEZOIDAL CHANNEL DESIGNED WITH
1326          KM  3:1 SIDE SLOPES ON THE LEFT BANK AND 3:1 SIDE SLOPES ON THE RIGHT BANK
1327          KM  ADJACENT TO DEAR VALLEY ROAD ON THE NORTH SIDE
1328          RS       7    FLOW       0
1329          RC     .03     .03     .03    3300    .001
1330          RX       0       3      12      18      38      44      53      56
1331          RY       6       5       2       0       0       2       5       6
              *
              * RECOVER DIVERTED FLOW FROM N11J                                        G
              *

1332          KK  BN11JI
1333          DR   N11JI
```

```
                *
                * ROUTE RN11JS IS 5670 FT WITH A SLOPE OF 0.0062
                * CROSS SECTION IS A SMALL NATURAL WASH
                * ALONG NATURAL WASH
                * ROUTE FLOW TO DEER VALLEY RD. (CN11G) FROM PINNACLE PEAK (CN11J)
                *
1334            KK  RN11JS
1335            RS     12    FLOW       0
1336            RC   0.05    0.06    0.05    5670  0.0062
1337            RX      0     350     450     480     482     510     610     910
1338            RY      7       6       5       1       0       5       6       7
                *
1339            KK    N11G   BASIN
1340            KM  SUB-BASIN N11G
1341            BA   0.524
1342            LG    0.35    0.35    4.35    0.40       0
1343            UC   1.170   0.667
1344            UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
1345            UA     100
                *
                * COMBINE  RN11JS, RN11H AND N11G AT 98TH AVE
                *
1                                                HEC-1 INPUT                                        PAGE 41

LINE            ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1346            KK   CN11G
1347            HC       3
                *
1348            KK   RN11G
1349            KM  ROUTE FLOW SOUTH TO CN11FB FROM CN11G
1350            KM  CROSS SECTION IS A PROPOSED TRAPEZOIDAL CHANNEL DESIGNED WITH
1351            KM  6:1 SIDE SLOPES ON THE LEFT BANK AND 3:1 SIDE SLOPES ON THE RIGHT BANK
1352            KM  ADJACENT TO 98TH AVE ON THE WEST SIDE
1353            RS       4    FLOW       0
1354            RC     .03     .03     .03    2500    .002
1355            RX       0      12      24      36      62      68      72      80
1356            RY       6       4       2       0       0       2       4       6
                *
1357            KK   N11DA   BASIN
1358            KM  SUB-BASIN N11DA CREATED BY CVL 7/04
1359            BA   0.256
1360            LG    0.25    0.25    4.60    0.39      30
1361            UC   0.998   0.672
1362            UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
1363            UA     100
                *
                * DOVE VALLEY RANCH RESIDENTIAL DEVELOPMENT STORAGE (ACCOUNTED) *******
                * STORAGE MODIFIED PER CITY OF PEORIA TO DISCHARGE UP TO 200CFS WEST
                * TOTAL DETENTION/RETENTION VOLUME = 18 AC-FT, 10 AC-FT MODELED AS RETENTION
                * 8 AC-FT MODELED AS ON-LINE DETENTION BASIN ON NEC OF RGL & 95TH
                *
1364            KK  LN11DA
1365            DT  LDAOUT     8.0
1366            DI       0     100    1000   10000
1367            DQ       0     100    1000   10000
                *
```



```
1368            KK  SN11DA
1369            KM  2-8'x3' BOX CULVERTS TO TAKE FLOW TO WEST
1370            KM  THE WEST + EAST DETENTION BASIN WERE COMBINED WITH 1-18"RCP TO SOUTH
1371            RS       1    STOR       0
1372            SV     0.0     .06    0.16    0.35    1.91    5.62   10.58   16.46
1373            SE    1257    1258    1259    1260    1261    1262    1263    1264
1374            SQ       0       5       9      50      84     113     140     205
                *
1375            KK  N11DAW
1376            KM  SPLIT THE FLOW BETWEEN BOX AND PIPE - Pipe Flow to South
1377            DT  D11DAS
1378            DI       0       5       9      50      84     113     140     205
1379            DQ       0       5       9      15      18      20      22      23
                *
1                                                HEC-1 INPUT                                        PAGE 42

LINE            ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1380            KK  RN11DA
1381            KM  ROUTE FLOW WEST TO CN11FB FROM N11DA
1382            KM  CROSS SECTION IS A PROPOSED TRAPEZOIDAL CHANNEL DESIGNED WITH
1383            KM  6:1 SIDE SLOPES ON THE LEFT BANK AND 3:1 SIDE SLOPES ON THE RIGHT BANK
1384            KM  ADJACENT TO LAKE PLEASANT PARKWAY ON THE NORTH SIDE
1385            RS       5    FLOW       0
1386            RC     .03     .03     .03    2000    .001
1387            RX       0       6      18      30      35      41      47      50
1388            RY       5       4       2       0       0       2       4       5
                *
1389            KK   N11FB   BASIN
1390            KM  SUB-BASIN N11FB
1391            BA   0.121
1392            LG    0.24    0.26    4.40    0.45      30
1393            UC   0.945   0.910
1394            UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
1395            UA     100
                *
1396            KK  LN11FB
1397            KM  STORAGE ROUTING LN11FB
1398            KM  PROPOSED RETENTION BASED ON THE 100-YEAR, 2-HOUR STORM VOLUME
1399            DT  LN1FBD    10.6
1400            DI       0     100    1000   10000
1401            DQ       0     100    1000   10000
                *
1402            KK  CN11FB
1403            KM  COMBINE LN11FB and RN11DA
1404            HC       2
                *
1405            KK  C98RGL
1406            KM  COMBINE CN11FB AND RN11G AT WEST 98TH AVE AND RGL
1407            HC       2
                *
1408            KK  RN11FB
1409            KM  ROUTE FLOW WEST TO CN11FA FROM CN11FB
1410            KM  CROSS SECTION IS A PROPOSED TRAPEZOIDAL CHANNEL DESIGNED WITH
1411            KM  6:1 SIDE SLOPES ON THE LEFT BANK AND 3:1 SIDE SLOPES ON THE RIGHT BANK
1412            KM  ADJACENT TO LAKE PLEASANT PARKWAY ON THE NORTH SIDE
1413            RS       2    FLOW       0
```

```
1414          RC     .03     .03     .03    1100    .001
1415          RX       0      12      24      36      62      68      72      80
1416          RY       8       4       2       0       0       2       4       8
              *
```



```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9.....10

1417          KK  DRA09K
1418          KM  DIVERSION RECOVER DA09K
1419          KM  RECOVER DIVERTED FLOW FROM A09K
1420          DR   A09KI
              *

1421          KK  RA09KS
1422          KM  ROUTE FLOW SOUTH TO CN11FA
1423          KM  CROSS SECTION IS A PROPOSED TRAPEZOIDAL CHANNEL DESIGNED WITH
1424          KM  6:1 SIDE SLOPES ON THE LEFT BANK AND 3:1 SIDE SLOPES ON THE RIGHT BANK
1425          KM  ADJACENT TO THE COMMERCIAL PROPERTY ON THE EAST SIDE
1426          RS       5    FLOW       0
1427          RC     .03     .03     .03    2700    .002
1428          RX       0      12      24      26      52      58      64      70
1429          RY       6       4       2       0       0       2       4       6
              *

1430          KK   N11FA   BASIN
1431          BA   0.180
1432          LG    0.22    0.26    4.40    0.46      34
1433          UC   0.925   0.755
1434          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
1435          UA     100
              *

1436          KK  LN11FA
1437          KM  STORAGE ROUTING LN11FA
1438          KM  PROPOSED RETENTION BASED ON THE 100-YEAR, 2-HOUR STORM VOLUME
1439          DT  LN1FAD     7.7
1440          DI       0     100    1000   10000
1441          DQ       0     100    1000   10000
              *

1442          KK   A09GA   BASIN
1443          BA   0.074
1444          LG    0.10    0.25    4.35    0.56      80
1445          UC   0.346   0.202
1446          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
1447          UA     100
              *

1448          KK  LA09GA
1449          KM  STORAGE ROUTING LA09GA
1450          KM  PROPOSED RETENTION BASED ON THE 100-YEAR, 2-HOUR STORM VOLUME
1451          DT  L09GAD     5.9
1452          DI       0     100    1000   10000
1453          DQ       0     100    1000   10000
              *
```



```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9.....10

1454          KK  CN11FA
1455          KM  COMBINE RA09KS,LN11FA,LA09GA AND RN11FB
```



```
1456          HC       4
              *

1457          KK  RN11FA
1458          KM  ROUTE FLOW WEST TO CA09G FROM CN11FA
1459          KM  CROSS SECTION IS A PROPOSED TRAPEZOIDAL CHANNEL DESIGNED WITH
1460          KM  6:1 SIDE SLOPES ON THE LEFT BANK AND 3:1 SIDE SLOPES ON THE RIGHT BANK
1461          KM  ADJACENT TO ROSE GARDEN LANE ON THE NORTH SIDE
1462          RS       2    FLOW       0
1463          RC     .03     .03     .03     800    .001
1464          RX       0       6      12      18      52      58      64      70
1465          RY       8       4       2       0       0       2       4       8
              *

1466          KK   A09GB   BASIN
1467          KM  SUB-BASIN A09GB
1468          BA   0.051
1469          LG    0.23    0.25    4.30    0.49      35
1470          UC   1.497   1.958
1471          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
1472          UA     100
              *

1473          KK  LA09GB
1474          KM  STORAGE ROUTING LA09GB
1475          KM  PROPOSED RETENTION BASED ON THE 100-YEAR, 2-HOUR STORM VOLUME
1476          DT  L09GBD     2.8
1477          DI       0     100    1000   10000
1478          DQ       0     100    1000   10000
              *

1479          KK   CA09G
1480          KM  COMBINE CA09GA and A09GB
1481          HC       2
              *
              * DIVERSION TO SOUTH ALONG 101ST AVE, MAXIMUM 150 CFS PER CITY

1482          KK   DA09G
1483          DT   A09GI
1484          DI       0      50     100     300     750    1200    2000
1485          DQ       0      10      20      60     150     150     150
              *

1486          KK  RA09GW
1487          KM  ROUTE FLOW WEST TO CX8 FROM CA09G
1488          KM  CROSS SECTION IS A PROPOSED TRAPEZOIDAL CHANNEL DESIGNED WITH
1489          KM  6:1 SIDE SLOPES ON THE LEFT BANK AND 3:1 SIDE SLOPES ON THE RIGHT BANK
1490          KM  ADJACENT TO ROSE GARDEN LANE ON THE NORTH SIDE
1491          RS       1    FLOW       0
1492          RC     .03     .03     .03     900    .001
1493          RX       0       6      12      18      52      58      64      70
1494          RY       8       4       2       0       0       2       4       8
              *
              * *** COMBINE  RX7S AND RA09GW ***********************************************
              *
```



```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9.....10

1495          KK     CX8
1496          HC       2
              *
              * ROUTE RX8W IS 2300 FT WITH A SLOPE OF .001
```

```
* CROSS SECTION IS THE NEW CHANNEL ALONG ROSE GARDEN LANE
*
1497    KK    RX8W
1498    KM  ROUTE FLOW WEST TO CA09H1 FROM CX8
1499    KM  CROSS SECTION IS A PROPOSED TRAPEZOIDAL CHANNEL DESIGNED WITH
1500    KM  6:1 SIDE SLOPES ON THE LEFT BANK AND 3:1 SIDE SLOPES ON THE RIGHT BANK
1501    KM  ADJACENT TO ROSE GARDEN LANE ON THE NORTH SIDE
1502    RS      4    FLOW       0
1503    RC    .03     .03     .03    2300    .001
1504    RX      0      12      24      36      62      68      74      80
1505    RY      8       4       2       0       0       2       4       8
*
1506    KK    A09H   BASIN
1507    KM  SUB-BASIN A09H
1508    BA   0.237
1509    LG    0.24    0.25    4.55    0.41      31
1510    UC   1.196   1.050
1511    UA      0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
1512    UA    100
*
1513    KK   LA09H
1514    KM  STORAGE ROUTING LA09H
1515    KM  PROPOSED RETENTION BASED ON THE 100-YEAR, 2-HOUR STORM VOLUME
1516    DT  LA09HD    12.6
1517    DI      0     100    1000   10000
1518    DQ      0     100    1000   10000
*
1519    KK  CA09H1
1520    KM  Combine flows from CX8 and A09H
1521    HC      2
*
1522    KK    A09J   BASIN
1523    KM  SUB-BASIN A09J
1524    BA   0.168
1525    LG    0.25    0.25    4.35    0.46      30
1526    UC   0.956   0.839
1527    UA      0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
1528    UA    100
*
* *** STORAGE ROUTING LA09J ***********************************************
* *** FUTURE DEVELOPMENT STORAGE (ACCOUNTED) ********************************
*
```



```
LINE    ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1529    KK   LA09J
1530    DT  LA09JD     7.7
1531    DI      0     100    1000   10000
1532    DQ      0     100    1000   10000
*
* *** DIVERSION DA09J ******************************************************
* *** DIVERTED  MAIN (SOUTH), DIVERTED (WEST)  ***************************
* 100% Flows to South based on the report
1533    KK   DA09J
1534    DT   A09JI
1535    DI      0      10      30      50     100     500    1000    2000
```



```
1536    DQ      0       0       0       0       0       0       0       0
*
* *** ROUTE FLOW TO CA09H   *************************
*
1537    KK  RA09JS
1538    RS     12    FLOW       0
1539    RC    .04     .04     .04    2800  .00350
1540    RX      0     100     200     225     245     270     370     470
1541    RY      8       7       6       0       0       6       7       8
*
1542    KK   CA09H
1543    KM  COMBINE CA09H1 and RA09JS
1544    HC      2
*
* ROUTE FLOW TO CX10 FROM CA09H
*
1545    KK   RA09H
1546    RS      1    FLOW       0
1547    RC    .03     .03     .03     850    .005
1548    RX    100     118     126     150     200     224     232     250
1549    RY     10       8       6       0       0       6       8      10
*
* *** RECOVER DIVERTED FLOW FROM A09QI*************************************
*
1550    KK  BA09QI
1551    DR   A09QI
*
* *** ROUTE RA09QS ************************************************************
*
* ROUTE RA09QS IS 1655 FT WITH A SLOPE OF .0073
* CROSS SECTION IS A MEDIUM NATURAL WASH
* *** ROUTE FLOW TO CA09M FROM CA09Q  *************************
*
```



```
LINE    ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1552    KK  RA09QS
1553    RS      6    FLOW       0
1554    RC   0.05     .06     .05    1655  0.0073
1555    RX      0      50     250     350     360     420     620     720
1556    RY     10       8       6       2       0       6       8      10
*
1557    KK    A09M   BASIN
1558    KM  SUB-BASIN A09M
1559    BA   0.249
1560    LG    0.28    0.28    4.45    0.42      22
1561    UC   0.935   0.728
1562    UA      0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
1563    UA    100
*
* *** STORAGE ROUTING LA09M ***********************************************
* *** IRONWOOD RESIDENTIAL DEVELOPMENT STORAGE (ACCOUNTED) *****************
*
1564    KK   LA09M
1565    DT  LA09MD     6.9
1566    DI      0     100    1000   10000
```

```
1567          DQ       0     100    1000   10000
              *
              * *** COMBINE  CA09Q AND A09M ************************************************
              *

1568          KK   CA09M
1569          HC       2
              *
              * ROUTE RA09M IS 1102 FT WITH A SLOPE OF .0064
              * CROSS SECTION IS A CHANNEL (MEASURED)
              * *** ROUTE FLOW TO CA09N FROM CA09M  *************************
              *

1570          KK   RA09M
1571          RS       2    FLOW       0
1572          RC    0.05    0.04     .05     1102  0.0064
1573          RX       0       1      21       41      51      71     101     102
1574          RY      10       4       0        4       5       6       6      10
              *

1575          KK    A09N   BASIN
1576          KM  SUB-BASIN A09N
1577          BA   0.110
1578          LG    0.27    0.27    5.80    0.22      25
1579          UC   0.834   0.679
1580          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
1581          UA     100
              *
              * *** COMBINE BASIN A09N AND ROUTE RA09M  *********************************
              *
```



```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1582          KK   CA09N
1583          HC       2
              *
              * *** STORAGE ROUTING LA09N ***************************************************
              * *** ALTA VISTA RESIDENTIAL DEVELOPMENT STORAGE (ACCOUNTED) ***************
              *

1584          KK   LA09N
1585          RS       1    STOR       0
1586          SV     0.0     2.30    4.67    7.11    9.63   12.23   14.90   17.65   20.48
1587          SE  1250.0  1250.5  1251.0  1251.5  1252.0  1252.5  1253.0  1253.5  1254.0
1588          SQ       0     9.3    31.4    66.0   114.1   160.1   226.2   208.5   475.0
              *
              * CROSS SECTION IS A CHANNEL (MEASURED)
              * *** ROUTE FLOW TO CA09L FROM CA09N  *************************
              *

1589          KK   RA09N
1590          RS      15    FLOW       0
1591          RC   0.025    0.02   0.025    2382  0.0040
1592          RX       0       1       7      11      17      21      29     100
1593          RY       5       4       2       0       0       2    3.0       5
              *
              * *** RECOVER DIVERTED FLOW FROM CA09J ***********************************
              *

1594          KK  DRA09J
1595          DR   A09JI
              *
```



```
              * ROUTE RA09JW IS 1749 FT WITH A SLOPE OF .0063
              * CROSS SECTION IS A CHANNEL ON THE WEST SIDE OF A ROAD
              * *** ROUTE FLOW TO CA09L FROM CA09J  *************************
              *

1596          KK  RA09JW
1597          RS       1    FLOW       0
1598          RC    0.04    0.03    0.04    1749  0.0063
1599          RX       0       1      21      31      41      51      81     281
1600          RY      14       6       6       0       0       6       6       8
              *

1601          KK    A09L   BASIN
1602          KM  SUB-BASIN A09L
1603          BA   0.136
1604          LG    0.23    0.26    4.90    0.32      26
1605          UC   0.978   0.827
1606          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
1607          UA     100
              *
              * *** COMBINE BASIN A09L, RA09N, AND RA09JW  *********************************
              *
```



```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1608          KK   CA09L
1609          HC       3
              *
              * LA09L is an Onlin Detention Basin, NOT Retention Basin
              *

1610          KK   LA09L
1611          RS       1    STOR       0
1612          SV     0.0    0.57    1.17    1.82    2.50    3.22    3.98    4.78    5.63    6.52
1613          SE     0.0     0.5     1.0     1.5     2.0     2.5     3.0     3.5     4.0     5.5
1614          SQ       0    10.0    30.0    52.0    80.0   110.0   140.0   155.0   180.0     600
              *
              * ROUTE RA09LS IS 2615 FT WITH A SLOPE OF .0019
              * CROSS SECTION IS A NEW CHANNEL ALONG THE EAST SIDE OF THE ROAD
              * *** ROUTE FLOW TO CA99W FROM CA09L  *************************
              *

1615          KK  RA09LS
1616          RS       3    FLOW       0
1617          RC   0.025     .02   0.025    2615  0.0040
1618          RX       0       1       6      12      19      25      29     100
1619          RY       6       5       4       0       0       4       5       6
              *

1620          KK   A09IH   BASIN
1621          KM   Subbasin for Rose Garden and Desert Star Areas
1622          KM   SUB-BASIN A09IH
1623          BA   0.091
1624          LG    0.25    0.26    4.60    0.39      27
1625          UC   0.770   0.750
1626          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
1627          UA     100
              *
              * *** COMBINE BASIN A09N AND ROUTE RA09M  *********************************
              *

1628          KK  CA09IH
```

```
1629          HC       2
              *
              * Onlin Detention Basin (Box Culvert Outlet)
              *
1630          KK  LA09IH
1631          RS       1    STOR       0
1632          SV     0.0    1.12    2.29    3.52    4.79    6.12    7.51    8.95   10.45   12.01
1633          SE  1237.0  1237.5  1238.0  1238.5  1239.0  1239.5  1240.0  1240.5  1241.0  1242.5
1634          SQ       0    10.0    30.0    52.0    80.0   112.0   145.0   183.0   220.0   600.0
              *
```



```
              LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1635          KK    A09I   BASIN
1636          KM  SUB-BASIN A09I
1637          BA   0.126
1638          LG    0.25    0.20    6.60    0.17      29
1639          UC   0.977   0.913
1640          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
1641          UA     100
              *
              * *** ROSE GARDEN RESIDENTIAL DEVELOPMENT STORAGE (ACCOUNTED)  ************
              *
1642          KK   LA09I
1643          DT  LA09ID     5.4
1644          DI       0     100    1000   10000
1645          DQ       0     100    1000   10000
              *
              * *** COMBINE  RA09IW AND RA09LS ***********************************************
              *
1646          KK    CX10
1647          HC       3
              *
              * ROUTE FLOW TO CA09F FROM CA09G
              *
1648          KK    RX10
1649          RS       5    FLOW       0
1650          RC    0.03    0.03    0.03    4470    .005
1651          RX     100     118     126     150     200     224     232     250
1652          RY      10       8       6       0       0       6       8      10
              *
1653          KK    A99V   BASIN
1654          KM  SUB-BASIN A99V
1655          BA   0.207
1656          LG    0.35    0.40    6.00    0.18       1
1657          UC   0.824   0.601
1658          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
1659          UA     100
              *
              * *** COMBINE BASIN A99V AND RX11W  ************************************
              *
1660          KK   CA99V
1661          HC       2
              *
1662          KK     A10   BASIN
```



```
1663          KM  SUB-BASIN A10
1664          BA   0.214
1665          LG    0.34    0.34    4.65    0.33       2
1666          UC   0.639   0.311
1667          UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
1668          UA     100
              *
              *
```



```
              LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1669          KK    A99W   BASIN
1670          KM  SUB-BASIN A99W
1671          BA   0.215
1672          LG    0.27    0.29    6.40    0.17      20
1673          UC   1.104   0.685
1674          UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
1675          UA     100
              *
              * *** STORAGE ROUTING LA99W ***************************************************
              * *** DEER VALLEY RANCH RESIDENTIAL DEVELOPMENT STORAGE (ACCOUNTED) *******
              *
1676          KK   LA99W
1677          DT  LA99WD     6.7
1678          DI       0     100    1000   10000
1679          DQ       0     100    1000   10000
              *
              * Dummy Combination at AFR and Rose Garden Lane.
              *
1680          KK    AFR3
1681          HC       4
              *
              * *** RECOVER DIVERTED FLOW FROM CA09G ***************************************
              *
1682          KK  DRA09G
1683          DR   A09GI
              *
              * ROUTE RA09GS IS 3990 FT WITH A SLOPE OF .0015
              * CROSS SECTION IS A MEDIUM ROADSIDE CHANNEL
              * ROUTE FLOW TO CA09F FROM CA09G
              *
1684          KK  RA09GS
1685          RS      13    FLOW       0
1686          RC    0.04    0.04    0.04    3990   .0015
1687          RX       0     200     220     240     260     280     320     520
1688          RY       6       4       0       0       3       4       4       6
              *
1689          KK    A09F   BASIN
1690          KM  SUB-BASIN A09F
1691          BA   0.365
1692          LG    0.21    0.27    5.30    0.28      35
1693          UC   1.036   0.628
1694          UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
1695          UA     100
              *
              * *** STORAGE ROUTING LA09F ***************************************************
              * *** PARKRIDGE ESTATES RESIDENTIAL DEVELOPMENT (ACCOUNTED) ****************
```

```
                *
1                                       HEC-1 INPUT                                                    PAGE 52

          LINE  ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

          1696  KK   LA09F
          1697  DT  LA09FD    13.6
          1698  DI       0     100    1000   10000
          1699  DQ       0     100    1000   10000
                *
                * *** COMBINE  CA09G, CA09H, AND A09F ***************************************
                *

          1700  KK   CA09F
          1701  HC       2
                *
                * *** DIVERTED  MAIN (WEST), DIVERTED (SOUTH)  ****************************
                * BEARDSLEY ROAD CHANNEL TO THE WEST. EXCESS FLOW TO THE SOUTH.
                *

          1702  KK   DA09F
          1703  DT   A09FI
          1704  DI       0      10      30      50     100     500     700    1000
          1705  DQ       0      .2      .3      .4      .5      80     250     500
                *
                * ******************************************************************************
                * *********************   BEARDSLEY RD DRAINAGE    *****************************
                * ******************************************************************************
                *
                * ROUTE RA09FW IS 3031 FT WITH A SLOPE OF .002
                * CROSS SECTION IS BEARDSLEY CHANNEL (MEASURED)
                *
                * *** ROUTE FLOW TO CA09E FROM CA09F  **************************
                *

          1706  KK  RA09FW
          1707  RS       9    FLOW       0
          1708  RC     .03    .025     .03    3031   0.002
          1709  RX       0       1      16      36      51     123     148     648
          1710  RY      16       8       0       0       8       8       9      11
                *

          1711  KK    A09E   BASIN
          1712  KM  SUB-BASIN A09E
          1713  BA   0.147
          1714  LG    0.22    0.24    4.70    0.35      34
          1715  UC   0.968   0.908
          1716  UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
          1717  UA     100
                *
                * *** STORAGE ROUTING LA09E ***************************************************
                * *** VENTANA LAKES RESIDENTIAL DEVELOPMENT (ACCOUNTED) ********************
                *
1                                       HEC-1 INPUT                                                    PAGE 53

          LINE  ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

          1718  KK   LA09E
          1719  DT  LA09ED     8.2
          1720  DI       0     100    1000   10000
          1721  DQ       0     100    1000   10000
                *
```



```
                * *** COMBINE LA09E AND A99E ***************************************
                *

          1722  KK   CA09E
          1723  HC       2
                *
                * ROUTE RA09E IS 2700 FT WITH A SLOPE OF .0041
                * CROSS SECTION IS BEARDSLEY CHANNEL (MEASURED)
                *
                * ROUTE FLOW TO CA09C FROM CA09E
                *

          1724  KK   RA09E
          1725  RS       3    FLOW       0
          1726  RC    0.04    0.03    0.04    2700   .0041
          1727  RX       0       1      16      36      51     123     148     648
          1728  RY      16       8       0       0       8       8       9      11
                *

          1729  KK    A09D   BASIN
          1730  KM  SUB-BASIN A09D
          1731  BA   0.254
          1732  LG    0.23    0.20    6.60    0.16      31
          1733  UC   0.604   0.239
          1734  UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
          1735  UA     100
                *
                * *** STORAGE ROUTING LA09D ***************************************************
                * *** VENTANA LAKES RESIDENTIAL DEVELOPMENT (ACCOUNTED) ********************
                *

          1736  KK   LA09D
          1737  DT  LA09DD    15.3
          1738  DI       0     100    1000   10000
          1739  DQ       0     100    1000   10000
                *
                * *** COMBINE LA09D, AND RA09EW **************************
                *

          1740  KK  CA09C*
          1741  HC       2
                *
                * ROUTE RA09C* IS 841 FT WITH A SLOPE OF .0083
                * CROSS SECTION IS BEARDSLEY ROAD CHANNEL (MEASURED)
                * *** ROUTE FLOW TO CA09C FROM CA09C*  **************************
                *
1                                       HEC-1 INPUT                                                    PAGE 54

          LINE  ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

          1742  KK  RA09C*
          1743  RS       1    FLOW       0
          1744  RC    0.04    0.03    0.04     841   .0083
          1745  RX       0      51      61      71      81     111     151     651
          1746  RY       9       8       0       0       8       9       9      10
                *

          1747  KK    A09C   BASIN
          1748  KM  SUB-BASIN A09C
          1749  BA   0.073
          1750  LG    0.35    0.32    4.50    0.38       4
          1751  UC   0.789   0.749
          1752  UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
```

```
1753          UA     100
              *
              * *** COMBINE BASIN A09C AND RA09C*   ***********************************
              *

1754          KK   CA09C
1755          HC       2
              *

1756          KK  DIA09C
1757          DT   DA09C
1758          DI       0     100    1000   10000
1759          DQ       0     100    1000   10000
              *
              *
              * ROUTE RA09C IS 1978 FT WITH A SLOPE OF .0056
              * CROSS SECTION IS BEARDSLEY CHANNEL (MEASURED)
              *

1760          KK   RA09C
1761          RS       3    FLOW      -1
1762          RC    0.04    0.04    0.04    1978  0.0056
1763          RX       0     100     120     130     150     180     205     705
1764          RY      14       8       0       0       8       8       9      10
              *

1765          KK    A09B   BASIN
1766          KM  SUB-BASIN A09B
1767          BA   0.041
1768          LG    0.12    0.25    4.10    0.68      71
1769          UC   0.268   0.175
1770          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
1771          UA     100
              *
              * ROUTE RA09B IS 2497 FT WITH A SLOPE OF .0012
              * CROSS SECTION IS A SMALL NATURAL CHANNEL
              * *** ROUTE FLOW TO CA09A FROM CA09B  **************************
              *
```



```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1772          KK   RA09B
1773          RS      14    FLOW       0
1774          RC    0.05     .06     .05    2497   .0012
1775          RX       0     350     450     480     482     510     610     910
1776          RY       7       6       5       1       0       5       6       7
              *

1777          KK    A09A   BASIN
1778          KM  SUB-BASIN A09A
1779          BA   0.084
1780          LG    0.29    0.15    3.74    0.80      38
1781          UC   1.036   0.950
1782          UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
1783          UA     100
              *
              * *** Combine  CA09C, A09B, AND A09A ********************************************
              *

1784          KK   CA09A
1785          HC       3
              *
```



```
              * THIS FLOW IS DIVERTED. THERE IS TWO 36" CMP THAT CARRIES
              * FLOW TO THE WEST, AND THE REST FLOWS SOUTH.
              *

1786          KK  DA09AO
1787          DT   A09AI
1788          DI       0      70     140     400     600     800    1000    3000    5000
1789          DQ       0     0.2     0.3     260     460     660     860    2860    4860
              *
              * ROUTE RA09AW IS 5898 FT WITH A SLOPE OF .0017
              * CROSS SECTION IS A LARGE NATURAL WASH
              * *** ROUTE THE DIVERTED FLOW TO THE WEST AND SOUTH TO CA09 ********************
              *

1790          KK  RA09AW
1791          RS      15    FLOW       0
1792          RC    0.05     .06     .05    5898  0.0017
1793          RX       0      50     250     310     360     420     620     720
1794          RY      10       8       6       0       0       6       8      10
              *

1795          KK    A99T   BASIN
1796          KM  SUB-BASIN A99T
1797          BA   0.030
1798          LG    0.20    0.30    2.79    1.39      42
1799          UC   0.262   0.074
1800          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
1801          UA     100
              *
              * *** STORAGE ROUTING LA99T ***************************************************
              * *** GRAVEL PIT STORAGE (ACCOUNTED) ***************************************
              *
```



```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1802          KK   LA99T
1803          DT  LA99TD    0.64
1804          DI       0     100    1000   10000
1805          DQ       0     100    1000   10000
              *
              * ROUTE RA99T IS 886 FT WITH A SLOPE OF .0023
              * CROSS SECTION IS A MEDIUM NATURAL WASH
              * *** ROUTE FLOW TO CA09 FROM CA99T   **************************
              *

1806          KK   RA99T
1807          RS       5    FLOW       0
1808          RC    0.05     .06     .05     886  0.0023
1809          RX       0      50     250     350     360     420     620     720
1810          RY      10       8       6       2       0       6       8      10
              *

1811          KK     A09   BASIN
1812          KM  SUB-BASIN A09
1813          BA   0.176
1814          LG    0.24    0.31    3.58    0.68      22
1815          UC   0.750   0.320
1816          UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
1817          UA     100
              *
              * COMBINE RA99T, CA09, AND RA09AW
              *
```

```
1818          KK    CA09
1819          HC       3
              *

1820          KK    A99U   BASIN
1821          KM  SUB-BASIN A99U
1822          BA   0.070
1823          LG   0.25    0.30    3.71    0.66      29
1824          UC   0.605   0.615
1825          UA      0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
1826          UA    100
              *
              * COMBINE CA09, A99U, AND AFR3 at AFR & South of Beardsley Rd.
              *

1827          KK    AFR4
1828          HC       3
              *

1829          KK    A99S   BASIN
1830          KM  SUB-BASIN A99S
1831          BA   0.077
1832          LG   0.35    0.35    3.64    0.59       0
1833          UC   1.214   1.245
1834          UA      0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
1835          UA    100
              *
```



```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1836          KK    A08A   BASIN
1837          KM  SUB-BASIN A08A
1838          BA   0.138
1839          LG   0.20    0.30    3.31    0.77      18
1840          UC   1.383   1.534
1841          UA      0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
1842          UA    100
              *
              * ROUTE RA08A IS 1747 FT WITH A SLOPE OF .0057
              * CROSS SECTION IS A SMALL NATURAL WASH
              * *** ROUTE FLOW TO CA08 FROM CA08A  ***************************
              *

1843          KK   RA08A
1844          RS       5    FLOW       0
1845          RC    0.05    0.05    0.05    1747  0.0057
1846          RX       0     350     450     480     482     510     610     910
1847          RY       7       6       5       1       0       5       6       7
              *

1848          KK    A99R   BASIN
1849          KM  SUB-BASIN A99R
1850          BA   0.037
1851          LG   0.31    0.31    3.55    0.66      12
1852          UC   0.546   0.328
1853          UA      0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
1854          UA    100
              *
              * ROUTE RA99R IS 2159 FT WITH A SLOPE OF .0032
              * CROSS SECTION IS A SMALL NATURAL WASH
              * *** ROUTE FLOW TO CA08 FROM CA99R  ***************************
```



```
              *

1855          KK   RA99R
1856          RS       9    FLOW       0
1857          RC    0.05    0.05    0.05    2159   .0032
1858          RX       0     350     450     480     482     510     610     910
1859          RY       7       6       5       1       0       5       6       7
              *

1860          KK     A08   BASIN
1861          KM  SUB-BASIN A08
1862          BA   0.077
1863          LG   0.30    0.31    3.19    0.88      14
1864          UC   0.417   0.103
1865          UA      0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
1866          UA    100
              *
              * *** COMBINE A99S, A08, RA99R AND RA08A   ******************
              *
```



```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1867          KK    CA08
1868          HC       4
              *
              * *** COMBINE HYDROGRAPHS OF CA08 AND AFR4 at AFR and South of Union Hills Dr.
              *

1869          KK    AFR5
1870          HC       2
              *
              * KK  A07F   BASIN
              * KMSUB-BASIN A07F
              * BA 0.233
              * LG  0.21    0.27    4.90    0.32      26
              * UC 1.220   1.192
              * UA     0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95
              * UA   100
              *
              *

1871          KK  A07F.1   BASIN
1872          KM  SUB-BASIN A07F.1
1873          BA   0.133
1874          LG   0.25    0.25    4.80    0.35      30
1875          UC   1.064   1.410
1876          UA      0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
1877          UA    100
              *

1878          KK  A07F.2   BASIN
1879          KM  SUB-BASIN A07F.2
1880          BA   0.074
1881          LG   0.14    0.32    4.70    0.29       8
1882          UC   0.800   1.170
1883          UA      0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
1884          UA    100
              *
              * ROUTE RA07F IS 2619 FT WITH A SLOPE OF .0042
              * CROSS SECTION IS CHANNEL ALONG UNION HILLS RD (MEASURED)
              * *** ROUTE FLOW FROM CA07F TO CA07E ***************************************
              *
```

```
* KK RA07F
* RS     5    FLOW      0
* RC  0.03    0.02    0.03    2619  0.0042
* RX     0       1      13      23      53      83     108     109
* RY    14       6       0       0       6       6       7      15
*
* KK  A07E   BASIN
* KMSUB-BASIN A07E
* BA 0.227
* LG  0.23    0.15    7.60    0.11      49
* UC 0.696   0.433
* UA     0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97
* UA   100
*
*
```



```
LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9.....10

1885        KK  A07E.8   BASIN
1886        KM  SUB-BASIN A07E.8
1887        BA   0.006
1888        LG    0.14    0.25    4.80    0.40      66
1889        UC   0.214   0.241
1890        UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
1891        UA     100
            *
            * *** COMBINE BASINS A07E.8, A07F.1, AND A07F.2  ****************************
            *

1892        KK   CA07F
1893        HC       3
            *
            * ROUTE RA07F IS 800 FT WITH A SLOPE OF .0042
            * CROSS SECTION IS CHANNEL ALONG UNION HILLS RD (MEASURED)
            * *** ROUTE FLOW FROM CA07F TO CA07E.7 ***********************************
            *

1894        KK   RA07F
1895        RS       2    FLOW      0
1896        RC    0.03    0.02    0.03     800  0.0042
1897        RX       0       1      13      23      53      83     108     109
1898        RY      14       6       0       0       6       6       7      15
            *

1899        KK  A07E.7   BASIN
1900        KM  SUB-BASIN A07E.7
1901        BA   0.006
1902        LG    0.14    0.25    5.80    0.26      67
1903        UC   0.153   0.134
1904        UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
1905        UA     100
            *
            * *** COMBINE BASIN A07E.7 AND RA07F  ****************************
            *

1906        KK  CA07E7
1907        HC       2
            *
            * ROUTE RA07E7 IS 1820 FT WITH A SLOPE OF .0042
            * CROSS SECTION IS CHANNEL ALONG UNION HILLS RD (MEASURED)
            * *** ROUTE FLOW FROM CA07E7 TO CA07E4 ***********************************
            *
```



```
1908        KK  RA07E7
1909        RS       4    FLOW      0
1910        RC    0.03    0.02    0.03    1820  0.0042
1911        RX       0       1      13      23      53      83     108     109
1912        RY      14       6       0       0       6       6       7      15
            *
```



```
LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9.....10

1913        KK   RA07E
1914        RS       2    FLOW      0
1915        RC    0.03    0.03    0.03    1771   0.004
1916        RX       0     100     112     122     134     154     189     689
1917        RY       8       6       0       0       6       7       7       9
            *
            * KK  A07G   BASIN
            * KMSUB-BASIN A07G
            * BA 0.258
            * LG  0.24    0.16    7.60    0.11      32
            * UC 0.798   0.543
            * UA     0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97
            * UA   100
            *

1918        KK  A07G.1   BASIN
1919        KM  SUB-BASIN A07G.1
1920        BA   0.233
1921        LG    0.24    0.15    8.00    0.10      33
1922        UC   0.619   0.433
1923        UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
1924        UA     100
            *
            * *** STORAGE ROUTING LA07G *********************************************
            * *** VENTANA LAKES RESIDENTIAL DEVELOPMENT (ACCOUNTED) *******************
            *

1925        KK   LA07G
1926        DT  LA07GD    12.9
1927        DI       0     100    1000   10000
1928        DQ       0     100    1000   10000
            *
            * ROUTE RA07G IS 2439 FT WITH A SLOPE OF .0012
            * CROSS SECTION IS 111TH AVE (MEASURED)
            * *** ROUTE FLOW FROM CA07G TO CA07E *************************************
            *

1929        KK   RA07G
1930        RS       9    FLOW      0
1931        RC    0.04     .02    0.04    2439  0.0012
1932        RX       0       1      26      41      71      86     126     576
1933        RY      12       7       5       1       1       5       6       7
            *

1934        KK   DA07G
1935        DT  DA07GE
1936        DI       0     100    1000   10000
1937        DQ       0      50     500    5000
            *
```



```
LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9.....10
```

```
1938          KK  A07G.2   BASIN
1939          KM  SUB-BASIN A07G.2
1940          BA   0.028
1941          LG    0.27    0.27    4.70    0.35      24
1942          UC   0.718   1.254
1943          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
1944          UA     100
              *
              * ROUTE RA07G2 IS 1400 FT WITH A SLOPE OF .0107
              * CROSS SECTION IS DINERO ROAD (MEASURED)
              * *** ROUTE FLOW FROM A07G2 TO CA07E3 ***********************************
              *
1945          KK  RA07G2
1946          RS       6    FLOW       0
1947          RC    0.03    0.02    0.03    1400  0.0107
1948          RX       0      10      20      30      40      50      60      70
1949          RY       2       1       0       0       0       0       1       2
              *
1950          KK  A07E.3   BASIN
1951          KM  SUB-BASIN A07E.3
1952          BA   0.062
1953          LG    0.25    0.19    6.60    0.17      31
1954          UC   0.400   0.282
1955          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
1956          UA     100
              *
              * *** COMBINE BASIN A07E.3 AND RA07G2  *****************************
              *
1957          KK  CA07E3
1958          HC       2
              *
1959          KK  DI7E.3
1960          DT  DI7E.3     0.1
1961          DI       0     100    1000   10000
1962          DQ       0     100    1000   10000
              *
              * ROUTE RA07E3 IS 1650 FT WITH A SLOPE OF .0048
              * CROSS SECTION IS PARADISE RESORT STREET SECTION (MEASURED)
              * *** ROUTE FLOW FROM CA07E3 TO CA07E4 ***********************************
              *
1963          KK  RA07E3
1964          RS       4    FLOW       0
1965          RC    0.03    0.02    0.03    1650  0.0048
1966          RX       0      10      20      30      40      50      60      70
1967          RY       2       1       0       0       0       0       1       2
              *
```



```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9.....10

1968          KK  A07E.2   BASIN
1969          KM  SUB-BASIN A07E.2
1970          BA   0.025
1971          LG    0.24    0.26    5.40    0.26      29
1972          UC   0.405   0.436
1973          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
```



```
1974          UA     100
              *
1975          KK  DI7E.2
1976          DT  DI7E.2     0.04
1977          DI       0     100    1000   10000
1978          DQ       0     100    1000   10000
              *
              * ROUTE RA07E2 IS 1700 FT WITH A SLOPE OF .0004
              * CROSS SECTION IS PARADISE RESORT STREET SECTION (MEASURED)
              * *** ROUTE FLOW FROM CA07E2 TO CA07E4 ***********************************
              *
1979          KK  RA07E2
1980          RS      12    FLOW       0
1981          RC    0.03    0.02    0.03    1700  0.0004
1982          RX       0      10      20      30      40      50      60      70
1983          RY       2       1       0       0       0       0       1       2
              *
1984          KK  A07E.1   BASIN
1985          KM  SUB-BASIN A07E.1
1986          BA   0.037
1987          LG    0.25    0.15    8.00    0.10      60
1988          UC   0.518   0.539
1989          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
1990          UA     100
              *
1991          KK  DI7E.1
1992          DT  DI7E.1     1.4
1993          DI       0     100    1000   10000
1994          DQ       0     100    1000   10000
              *
              * ROUTE RA07E1 IS 1200 FT WITH A SLOPE OF .0025
              * CROSS SECTION IS PARADISE RESORT STREET SECTION (MEASURED)
              * *** ROUTE FLOW FROM CA07E1 TO CA07E4 ***********************************
              *
1995          KK  RA07E1
1996          RS       5    FLOW       0
1997          RC    0.03    0.02    0.03    1200  0.0025
1998          RX       0      10      20      30      40      50      60      70
1999          RY       2       1       0       0       0       0       1       2
              *
```



```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9.....10

2000          KK  A07E.6   BASIN
2001          KM  SUB-BASIN A07E.6
2002          BA   0.020
2003          LG    0.12    0.15    7.60    0.13      74
2004          UC   0.188   0.130
2005          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
2006          UA     100
              *
2007          KK  DI7E.6
2008          DT  DI7E.6     0.12
2009          DI       0     100    1000   10000
2010          DQ       0     100    1000   10000
              *
```

```
* ROUTE RA07E6 IS 1400 FT WITH A SLOPE OF .0057
* CROSS SECTION IS PARADISE RESORT STREET SECTION (MEASURED)
* *** ROUTE FLOW FROM A07E6 TO CA07E5 ************************************
*

2011    KK  RA07E6
2012    RS      4    FLOW       0
2013    RC   0.03    0.02    0.03    1400  0.0057
2014    RX      0      10      20      30      40      50      60      70
2015    RY      2       1       0       0       0       0       1       2
*

2016    KK  A07E.5   BASIN
2017    KM  SUB-BASIN A07E.5
2018    BA   0.035
2019    LG    0.23    0.15    8.40    0.09      57
2020    UC   0.383   0.320
2021    UA      0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
2022    UA    100
*
* *** COMBINE BASIN A07E.5 AND RA07E6  ****************************
*

2023    KK  CA07E5
2024    HC      2
*
* ROUTE RA07E5 IS 900 FT WITH A SLOPE OF .0033
* CROSS SECTION IS PARADISE RESORT STREET SECTION (MEASURED)
* *** ROUTE FLOW FROM CA07E5 TO CA07E4 ************************************
*

2025    KK  RA07E5
2026    RS      2    FLOW       0
2027    RC   0.03    0.02    0.03     900  0.0033
2028    RX      0      10      20      30      40      50      60      70
2029    RY      2       1       0       0       0       0       1       2
*
```



```
LINE    ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2030    KK  A07E.4   BASIN
2031    KM  SUB-BASIN A07E.4
2032    BA   0.057
2033    LG    0.23    0.16    8.00    0.10      57
2034    UC   0.467   0.359
2035    UA      0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
2036    UA    100
*
* *** COMBINE BASIN A07E.4, RA07E1, RA07E2, RA07E3, AND RA07E5  *************
*

2037    KK  CA07E4
2038    HC      6
*

2039    KK  DI7E.4
2040    DT  DI7E.4     0.7
2041    DI      0     100    1000   10000
2042    DQ      0     100    1000   10000
*
* *** COMBINE CA07E4, AND RA07E7  *************
*
```



```
2043    KK  DA07GE
2044    DR  DA07GE
*

2045    KK  CA07E1
2046    HC      2
*
* KKDIA07E
* DTDIA07E     2.8
* DI      0     100    1000   10000
* DQ      0     100    1000   10000
*
*
* ROUTE RA07E IS 1771 FT WITH A SLOPE OF .004
* CROSS SECTION IS CHANNEL ALONG UNION HILLS RD (MEASURED)
* *** ROUTE FLOW FROM CA07E TO CA07C ************************************
*
* KK RA07E
* RS      4    FLOW       0
* RC   0.03    0.03    0.03    1771   0.004
* RX      0     100     112     122     134     154     189     689
* RY      8       6       0       0       6       7       7       9
*

2047    KK   DIA.1
2048    RS      1    STOR       0
2049    SV      0     0.1     1.1     2.5     4.0     5.6     7.4     9.4    11.6    13.9
2050    SV   16.4    19.1
2051    SE   1188    1189    1190    1191    1192    1193    1194    1195    1196    1197
2052    SE   1198    1199
2053    SQ      0     5.0      30      43      52      61      68      74      80      86
```



```
LINE    ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2054    SQ    241     520
*

2055    KK   DIA.2
2056    RS      1    STOR       0
2057    SV      0     0.1     1.4     3.2     5.2     7.4     9.8    12.4    15.3    18.3
2058    SV   21.6    25.1
2059    SE   1184    1185    1186    1187    1188    1189    1190    1191    1192    1193
2060    SE   1194    1195
2061    SQ      0     5.0      30      43      52      61      68      74      80      86
2062    SQ    241     520
*
* *** COMBINE BASIN A09C AND RA07E ************************************
*

2063    KK   DA09C
2064    DR   DA09C
*
* ROUTE RA09C IS 3250 FT WITH A SLOPE OF .0067
* CROSS SECTION IS PROPOSED EARTHEN CHANNEL
*

2065    KK   RA09C
2066    RS      3    FLOW      -1
2067    RC   0.04    0.04    0.04    3250  0.0067
2068    RX      0     100     120     130     150     180     205     705
2069    RY     14       8       0       0       8       8       9      10
*
```

```
2070          KK    A07H   BASIN
2071          KM  SUB-BASIN A07H
2072          BA   0.093
2073          LG    0.23    0.21    4.70    0.44      47
2074          UC   0.423   0.211
2075          UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
2076          UA     100
              *
              * ROUTE RA07H IS 2386 FT WITH A SLOPE OF .0461
              * CROSS SECTION IS THE FARM FIELDS IN THE AGUA FRIA RIVER (MEASURED)
              * *** ROUTE FLOW FROM CA07H TO CA07D ***********************************
              *
              * KK RA07H
              * RS     1    FLOW       0
              * RC  0.03    0.03    0.03    2386  0.0461
              * RX     0      14     125     250     500     800    1000    1014
              * RY     7       0       0       0       0       0       0       7
              *

2077          KK   CA07H
2078          HC       2    0.93
              *
```



```
              LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2079          KK   DIB.1
2080          RS       1    STOR       0
2081          SV       0     0.1     1.2     2.5     4.0     5.7     7.6     9.6    11.9    14.3
2082          SV    16.9
2083          SE    1177    1178    1179    1180    1181    1182    1183    1184    1185    1186
2084          SE    1187
2085          SQ       0     5.0      30      43      52      61      68      74      80     236
2086          SQ     515
              *

2087          KK   DIB.2
2088          RS       1    STOR       0
2089          SV       0     0.1     1.6     3.8     6.1     8.7    11.4    14.3    17.4    20.6
2090          SE    1175    1176    1177    1178    1179    1180    1181    1182    1183    1184
2091          SQ       0     5.0      30      43      52      61      68      74     230     510
              *

2092          KK    A07C   BASIN
2093          KM  SUB-BASIN A07C
2094          BA   0.175
2095          LG    0.34    0.31    4.90    0.30       5
2096          UC   0.923   0.648
2097          UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
2098          UA     100
              *

2099          KK  CA07C1
2100          HC       3
              *

2101          KK   DIB.3
2102          RS       1    STOR       0
2103          SV       0     0.1     2.3     6.9    12.2    17.9    23.8    30.0    36.5    43.3
2104          SE    1172    1173    1174    1175    1176    1177    1178    1179    1180    1181
2105          SQ       0       0       0       0       0       0       0       0     160     350
              *
```



```
              * KKDIA07C
              * KO     1
              * RS     1    STOR       0
              * SV     0    10.1    26.7    31.8    43.9    56.4    69.6    83.4    97.8   112
              * SE  1180    1181    1182    1183    1184    1185    1186    1187    1188    11
              * SQ     0       0       0       0       0       0     130     368     675    10
              *

2106          KK  CA07C2
2107          HC       2
              *
              * ROUTE RA07C IS 1051 FT WITH A SLOPE OF .0067
              * CROSS SECTION IS CHANNEL ALONG UNION HILLS RD (MEASURED)
              * *** ROUTE FLOW FROM CA07C TO CA07D ***********************************
              *
```



```
              LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2108          KK   RA07C
2109          RS       1    FLOW       0
2110          RC    0.03    0.03    0.03    1051  0.0067
2111          RX       0      50      62      72      84     104     139     640
2112          RY       9       6       0       0       6       7       7       9
              *
              * *** RECOVER DIVERTED FLOW FROM A09AI ***************************************
              *

2113          KK  DA09AI
2114          DR   A09AI
              *

2115          KK  RA09AI
2116          RS      12    FLOW       0
2117          RC    0.03    0.03    0.03    3000   0.002
2118          RX       0      50     100     150     200     250     300     500
2119          RY       7       6       5       5       0       0       5       6
              *

2120          KK    A08B   BASIN
2121          KM  SUB-BASIN A08B
2122          BA   0.099
2123          LG    0.19    0.27    3.74    0.66      35
2124          UC   0.769   0.536
2125          UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
2126          UA     100
              *
              * *** COMBINE BASIN A09AI AND R80BE ************************************
              *

2127          KK   CA08B
2128          HC       2
              *
              * ROUTE RA08B IS 2925 FT WITH A SLOPE OF .001
              * CROSS SECTION IS 115TH AVE (MEASURED)
              * *** ROUTE FLOW FROM CA08B TO CA07D ***********************************
              *

2129          KK   RA08B
2130          RS      12    FLOW       0
2131          RC    0.03    0.03    0.03    2925   0.001
2132          RX       0      50     100     150     200     250     300     500
2133          RY       7       6       5       5       0       0       5       6
```

```
                *
2134            KK    A07D   BASIN
2135            KM  SUB-BASIN A07D
2136            BA   0.229
2137            LG    0.49    0.02    4.10    0.67       1
2138            UC   1.500   1.715
2139            UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
2140            UA     100
                *
                * *** COMBINE BASIN A07D, RA08B, RA07H, AND RA07C **********************
                *
```



```
LINE            ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2141            KK   CA07D
2142            HC       3
                *
                * ROUTE RA07D IS 4828 FT WITH A SLOPE OF .0017
                * CROSS SECTION IS A CHANNEL AND 115TH AVE (MEASURED)
                *

2143            KK    RA07D
2144            RS       14    FLOW       0
2145            RC     0.03    0.03    0.03    1800  0.0017
2146            RX        0     100     112     147     159     179     214     580
2147            RY        8       6       0       0       6       7       7       9
                *
                * KK  A07B   BASIN
                * KM SUB-BASIN A07B
                * KM 6-HOUR RAINFALL, PATTERN NO. 1.15 WAS USED TO FIND TC & R FOR THIS BASIN
                * KM THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .992
                * KM    L = 1.58  Kb = .030  Adj. Slope =   41.0
                * BA  .649
                * LG  0.16    0.31    4.60    0.34      18
                * UC 0.808   0.539
                * UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97
                * UA    100
                *
                *
                * *** STORAGE ROUTING LA07B ***********************************************
                * *** CANYON RIDGE WEST RESIDENTIAL DEVELOPMENT STORAGE (ACCOUNTED) *******
                * DDM    ***** Preserved *****
                * KK LA07B
                * DTLA07BD    19.2
                * DI       0     100    1000   10000
                * DQ       0     100    1000   10000
                *
                * ### BASIN A07B HAS BEEN FURTHER DIVIDED INTO BASINS A07B.1 - A07B.6 IN  ###
                * ### ORDER TO BETTER REPRESENT THE DRAINAGE PATTERNS ASSOCIATED WITH THE ###
                * ### CANYON RIDGE AND SUN CITY DEVELOPMENTS.                             ###
                *

2148            KK  A07B.1   BASIN
2149            BA   0.076
2150            LG    0.25    0.25    4.20    0.50      30
2151            UC   0.532   0.399
2152            UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
2153            UA     100
                *

2154            KK  DA07B1
```



```
2155            DT  DA07B1     2.3
2156            DI       0     100    1000   10000
2157            DQ       0     100    1000   10000
                *
```



```
LINE            ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2158            KK  CA07B1
2159            KO                                  21
2160            HC       2
                *
                * ROUTE RA07B1 IS 1800 FT WITH A SLOPE OF .0017
                * CROSS SECTION IS A CHANNEL AND 115TH AVE (MEASURED)
                *

2161            KK  RA07B1
2162            RS       8    FLOW       0
2163            RC    0.03    0.03    0.03    1800  0.0017
2164            RX       0     100     112     147     159     179     214     580
2165            RY       8       6       0       0       6       7       7       9
                *

2166            KK  A07B.2   BASIN
2167            BA   0.138
2168            LG    0.25    0.25    4.70    0.36      30
2169            UC   0.498   0.327
2170            UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
2171            UA     100
                *

2172            KK  A07B.3   BASIN
2173            BA   0.185
2174            LG    0.25    0.25    4.80    0.35      30
2175            UC   0.634   0.404
2176            UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
2177            UA     100
                *
                * ROUTE RA07B3 IS 3600 FT WITH A SLOPE OF .0075
                * CROSS SECTION IS THE EXISTING CHANNEL (MEASURED)
                *

2178            KK  RA07B3
2179            RS       2    FLOW       0
2180            RC    0.04    0.04    0.04    3600  0.0075
2181            RX     100     150     200     212     217     229     279     329
2182            RY       5     4.5       4       0       0       4     4.5       5
                *

2183            KK  CA07B2
2184            KO                                  21
2185            HC       2
                *

2186            KK  RA07B2
2187            RS       2    FLOW       0
2188            RC    0.04    0.04    0.04     800  0.0075
2189            RX     100     150     200     212     217     229     279     329
2190            RY       5     4.5       4       0       0       4     4.5       5
                *
                *
```

```
LINE      ID.......1.......2.......3.......4.......5.......6.......7.......8.......9.....10

2191      KK  CA07B3
2192      KO                                    21
2193      HC       2
          *
          * ROUTE RA07B1 IS 1600 FT WITH A SLOPE OF .0025
          * CROSS SECTION IS A CHANNEL AND 115TH AVE (MEASURED)
          *
2194      KK  RA07B1
2195      RS       8    FLOW       0
2196      RC    0.03    0.03    0.03    1600  0.0025
2197      RX       0     100     112     147     159     179     214     580
2198      RY       8       6       0       0       6       7       7       9
          *
2199      KK  A07B.4   BASIN
2200      BA   0.053
2201      LG    0.25    0.25    4.30    0.48      45
2202      UC   0.396   0.262
2203      UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
2204      UA     100
          *
2205      KK  DA07B4
2206      DT  DA07B4     2.1
2207      DI       0     100    1000   10000
2208      DQ       0     100    1000   10000
          *
2209      KK  CA07B4
2210      KO                                    21
2211      HC       2
          *
          * ROUTE RA07B4 IS 1285 FT WITH A SLOPE OF .0025
          * CROSS SECTION IS A CHANNEL AND 115TH AVE (MEASURED)
          *
2212      KK  RA07B4
2213      RS       8    FLOW       0
2214      RC    0.03    0.03    0.03    1285  0.0025
2215      RX       0     100     112     147     159     179     214     580
2216      RY       8       6       0       0       6       7       7       9
          *
2217      KK  A07B.5   BASIN
2218      BA   0.044
2219      LG    0.10    0.32    4.55    0.37      29
2220      UC   0.338   0.304
2221      UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
2222      UA     100
          *
1                                   HEC-1 INPUT                                   PAGE 71

LINE      ID.......1.......2.......3.......4.......5.......6.......7.......8.......9.....10

2223      KK  CA07B5
2224      KO                                    21
2225      HC       2
          *
```



```
2226      KK  DIA07B
2227      RS       1    STOR       0
          * SV     0     2.1     4.4     6.8     9.4    12.2    15.1    17.8
2228      SV       0       2       4       8      12    14.5      17      25      29
2229      SE  1157.5  1158.5  1159.5  1160.5  1161.5  1162.0  1162.5  1163.5  1164.5
2230      SQ       0       0       0       0       0       0      90     325     530
          *
          * KKDIA07B
          * DTDIA07B      37
          * DI     0     100    1000   10000
          * DQ     0     100    1000   10000
          *
          *
2231      KK    S30D   BASIN
2232      KM  SUB-BASIN S30D
2233      BA   0.131
2234      LG    0.25    0.17    6.80    0.15      30
2235      UC   0.801   0.495
2236      UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
2237      UA     100
          *
          * ROUTE RS30D IS 6176 FT WITH A SLOPE OF .0023
          * CROSS SECTION IS 99TH AVENUE
          * *** ROUTE S30D THROUGH S30C ****************************************
          *
2238      KK   RS30D
2239      RS      10    FLOW       0
2240      RC     .02     .02     .02    6176  0.0023
2241      RX       0       1      85      95     109     134     239     240
2242      RY      12       6       5       0       0       5       6      12
          *
2243      KK    S30C   BASIN
2244      KM  SUB-BASIN S30C
2245      BA   0.454
2246      LG    0.23    0.15    7.30    0.13      36
2247      UC   1.108   0.895
2248      UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
2249      UA     100
          *
          * RECOVER DIVERTED FLOW FROM A09FI
          *
1                                   HEC-1 INPUT                                   PAGE 72

LINE      ID.......1.......2.......3.......4.......5.......6.......7.......8.......9.....10

2250      KK  DA09FI
2251      DR   A09FI
          *
2252      KK  RA09FI
2253      RS      10    FLOW       0
2254      RC     .02     .02     .02    7000  0.0023
2255      RX       0       1      85      95     109     134     239     240
2256      RY      12       6       5       0       0       5       6      12
          *
2257      KK     XX1
2258      HC       3
          *
```

```
2259          KK    S30B   BASIN
2260          KM  SUB-BASIN S30B
2261          BA   0.399
2262          LG    0.19    0.29    5.80    0.21      24
2263          UC   1.280   1.214
2264          UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
2265          UA     100
              *
              * *** COMBINE BASIN S30C, S30B, AND RS30D ******************************
              *

2266          KK   CS30B
2267          HC       2
              *
              * *** DIVERTED  MAIN (WEST) DIVERTED (SOUTH)  **********************
              * THERE IS A DIVERSION AT THIS LOCATION. THE DEL WEBB CHANNEL CAN CARRY
              * 550 CFS, THE REST OF THE FLOW OVERFLOWS TO THE SOUTH.
              *

2268          KK  DS30BO
2269          DT  DS30BI
2270          DI       1     250     550     750    1000    1500    1750    2000
2271          DQ      .1      .2      .3     200     450     950    1200    1450
              *
              * ROUTE RS30BW IS 5060 FT WITH A SLOPE OF .0008
              * CROSS SECTION IS DEL WEBB BLVD
              * *** ROUTED S30BO THROUGH S30A ***********************************
              *

2272          KK  RS30BW
2273          RS       9    FLOW       0
2274          RC     .02    0.02     .02    5060  0.0008
2275          RX       0       1     100     120     140     155     239     240
2276          RY      12       6       5       0       0       5       6      12
              *
1                                        HEC-1 INPUT                                        PAGE 73

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2277          KK    S30A   BASIN
2278          KM  SUB-BASIN S30A
2279          BA   0.531
2280          LG    0.22    0.21    6.40    0.21      28
2281          UC   1.281   0.883
2282          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
2283          UA     100
              *
              * *** COMBINE BASIN S30A AND RS30B ***************************************
              *

2284          KK   CS30A
2285          HC       2
              *
              * ************************************************************************
              * ************************************************************************
              * ******** THE FOLLOWING PORTION WAS EXTRACTED FROM THE GLENDALE/PEORIA
              * ******** ADMPU MODEL CREATED BY ENTELLUS, DATED OCTOBER 21, 2000.
              * ******** FILE NAME: 10yr6hr.DAT
              * ************************************************************************
              * ************************************************************************
              *
              * *** DIVERSION DS30AO ************************************************
              * *** DIVERTED  MAIN (WEST) DIVERTED (SOUTH)  **************************
```



```
              *
              * THERE IS A DIVERSION AT THIS LOCATION. THE DEL WEBB CHANNEL CAN CARRY
              * 550 CFS, THE REST OF THE FLOW OVERFLOWS TO THE SOUTH.
              *
              * DDM   ***** Preserved *****

2286          KK  DS30AO
2287          DT  DS30AI
2288          DI       1     250     550     750    1000    1500    1750    2000
2289          DQ      .1      .2      .3     200     450     950    1200    1450
              *
              * *** ROUTE RS30AW  ***************************************************
              *
              * ROUTE RS30AW IS 4919 FT WITH A SLOPE OF .0043
              * CROSS SECTION IS DEL WEBB BLVD
              *
              * *** ROUTE FLOW FROM CS30A TO CS30 ***********************************
              *
              * DDM   ***** Preserved *****

2290          KK  RS30AW
2291          RS       5    FLOW       0
2292          RC    0.03    0.02    0.03    4919  0.0043
2293          RX       0       1     110     125     140     155     160     161
2294          RY      15       7       7       0       0       7       7      15
              *
              *
              * DDM   ***** Preserved *****
1                                        HEC-1 INPUT                                        PAGE 74

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2295          KK     S30   BASIN
2296          KM   SUB-BASIN S30
2297          KM   6-HOUR RAINFALL, PATTERN NO. 1.00 WAS USED TO FIND TC & R FOR THIS BASIN
2298          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .996
2299          KM     L = 1.12  Kb = .040  Adj. Slope =   27.0
2300          BA    .321
2301          LG    0.22    0.26    4.55    0.43      27
2302          UC   0.871   0.664
2303          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
2304          UA     100
              *
              * *** COMBINE BASIN S30 AND RS30A ************************************
              *
              * DDM   ***** Preserved *****

2305          KK    CS30
2306          HC       2
              *
              * *** ROUTE RS30  *****************************************************
              *
              * ROUTE RS30 IS 691 FT WITH A SLOPE OF .0058
              * CROSS SECTION IS A CHANNEL ALONG BELL RD (MEASURED)
              *
              * *** ROUTE FLOW FROM CS30 TO CA07B ***********************************
              *
              * DDM   ***** Preserved *****

2307          KK    RS30
2308          RS       1    FLOW       0
2309          RC    0.03    0.02    0.03     691  0.0058
2310          RX       0      26     136     197     212     227     242     742
```

```
2311          RY       9       8       8       7       0       0       7       9
              *
              *
              * ### BASIN A07B.6 IS A PORTION OF THE CANYON RIDGE DEVELOPMENT ###
              *
2312          KK  A07B.6   BASIN
2313          BA   0.152
2314          LG    0.22    0.26    4.60    0.39      31
2315          UC   0.654   0.654
2316          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
2317          UA     100
              *
              * ### DA07B6 REPRESENT THE RETENTION LOCATED WITHIN BASIN A07B6 ###
              *
2318          KK  DA07B6
2319          DT  DA07B6     3.5
2320          DI       0     100    1000   10000
2321          DQ       0     100    1000   10000
              *
              * ### CS30 Combines DA07B6 AND RS30 ###
              *
```



```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2322          KK    CS30
2323          KO                                    21
2324          HC       2
              *
              * ### COMBINES CS30 AND DIA07B ###
              *
2325          KK  CA07B6
2326          KO                                    21
2327          HC       2
              *
              *
              * *** ROUTE RA07B  ****************************************************
              *
              * ROUTE RA07B IS 2990 FT WITH A SLOPE OF .0057
              * CROSS SECTION IS A MANMADE CHANNEL  (MEASURED)
              *
              * *** ROUTE FLOW FROM CA07B TO CA07A ***********************************
              *
              * DDM   ***** Preserved *****

2328          KK   RA07B
2329          KO       3                            21
2330          RS       1    FLOW       0
2331          RC    0.03    0.03    0.03    2990   .0057
2332          RX       0      76     136     197     222     227     242     367
2333          RY      10       9       8       7       0       0       7       9
              *
              * DDM   ***** Preserved *****

2334          KK    A06A   BASIN
2335          KM   SUB-BASIN A06A
2336          KM   6-HOUR RAINFALL, PATTERN NO. 1.00 WAS USED TO FIND TC & R FOR THIS BASIN
2337          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .996
2338          KM     L =  .73  Kb = .038  Adj. Slope =   70.0
2339          BA    .279
```



```
2340          LG    0.21    0.30    4.70    0.34      19
2341          UC   0.550   0.366
2342          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
2343          UA     100
              *
              *
              * *** COMBINE BASIN A06A AND RA07B *********************
              *
              * DDM   ***** Preserved *****

2344          KK   CA06A
2345          HC       2
              *
              * *** ROUTE RA06A  ****************************************************
              *
              * ROUTE RA07B IS 2500 FT WITH A SLOPE OF .007
              * CROSS SECTION IS A MANMADE CHANNEL  (MEASURED)
              *
              * *** ROUTE FLOW FROM CA07B TO CA07A ***********************************
              *
              * DDM   ***** Preserved *****
```



```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2346          KK   RA06A
2347          KO       3                            21
2348          RS       3    FLOW       0
2349          RC    0.03     .02    0.03    2500    .007
2350          RX       0      76     136     197     222     247     262     387
2351          RY      10       9       8       7       0       0       7       9
              *
              * DDM   ***** Preserved *****

2352          KK    A07A   BASIN
2353          KM   SUB-BASIN A07A
2354          KM   6-HOUR RAINFALL, PATTERN NO. 1.00 WAS USED TO FIND TC & R FOR THIS BASIN
2355          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .998
2356          KM     L =  .88  Kb = .045  Adj. Slope =   18.0
2357          BA    .124
2358          LG    0.21    0.30    3.92    0.51      16
2359          UC   1.038   1.144
2360          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
2361          UA     100
              *
              *
              * *** ROUTE RA07A  ****************************************************
              *
              * ROUTE RA07A IS 1095 FT WITH A SLOPE OF .0037
              * CROSS SECTION IS A CHANNEL AND BELL RD (MEASURED)
              *
              * *** ROUTE FLOW FROM CA07A TO CA07 ************************************
              *
              *
              * DDM   ***** Preserved *****

2362          KK   RA07A
2363          RS       3    FLOW       0
2364          RC    0.03    0.03    0.03    1095  0.0037
2365          RX       0      50      62      72      84     104     204     704
2366          RY       7       6       0       0       6       7       9      10
              *
              * DDM   ***** Preserved *****
```

```
2367          KK     A07   BASIN
2368          KM   SUB-BASIN A07
2369          KM   6-HOUR RAINFALL, PATTERN NO. 1.00 WAS USED TO FIND TC & R FOR THIS BASIN
2370          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .998
2371          KM     L =  .15  Kb = .054  Adj. Slope =   53.0
2372          BA    .118
2373          LG   0.33    0.33    3.21    0.83       6
2374          UC  0.237   0.055
2375          UA      0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
2376          UA    100
                    *
                    * *** COMBINE BASIN A07 AND RA07A  ************************************
                    *
                    * DDM   ***** Preserved *****
```



```
              LINE  ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2377          KK    CA07
2378          HC       2
                    *
                    * *** ROUTE RA07  ******************************************************
                    *
                    * ROUTE RA07 IS 3464 FT WITH A SLOPE OF .0061
                    * CROSS SECTION IS THE AGUA FRIA RIVER (MEASURED)
                    *
                    * *** ROUTE FLOW FROM CA07 TO CA06 **********************************
                    *
                    * DDM   ***** Preserved *****

2379          KK    RA07
2380          KO       3
2381          RS      22    FLOW       0
2382          RC     .05     .05     .05    3464  0.0061
2383          RX       0     100     200     250     300     350     900    1000
2384          RY      12       8       1       0       0       1       8      12
                    *
                    * DDM   ***** Preserved *****

2385          KK     A06   BASIN
2386          KM   SUB-BASIN A06
2387          KM   6-HOUR RAINFALL, PATTERN NO. 1.00 WAS USED TO FIND TC & R FOR THIS BASIN
2388          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .996
2389          KM     L =  .38  Kb = .049  Adj. Slope =   24.0
2390          BA    .277
2391          LG   0.35    0.35    3.58    0.61       0
2392          UC  0.604   0.203
2393          UA      0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
2394          UA    100
                    *
                    * *** COMBINE BASIN A06 AND RA07  *****************************
                    *
                    * DDM   ***** Preserved *****

2395          KK    CA06
2396          HC       2
                    *
                    * *** ROUTE RA06  ******************************************************
                    *
                    * ROUTE RA06 IS 2650 FT WITH A SLOPE OF .0053
                    * CROSS SECTION IS THE AGUA FRIA RIVER (MEASURED)
                    *
```



```
                    * *** ROUTE FLOW FROM CA06 TO CA99Q *********************************
                    *
                    * DDM   ***** Preserved *****

2397          KK    RA06
2398          RS       8    FLOW       0
2399          RC    0.03    0.03    0.03    2650  0.0053
2400          RX       0     100     200     250     750     800     900    1000
2401          RY       9       8       6       0       0       6       8       9
                    *
                    * DDM   ***** Preserved *****
```



```
              LINE  ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2402          KK    A99Q   BASIN
2403          KM   SUB-BASIN A99Q
2404          KM   6-HOUR RAINFALL, PATTERN NO. 1.00 WAS USED TO FIND TC & R FOR THIS BASIN
2405          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .998
2406          KM     L =  .06  Kb = .054  Adj. Slope =   83.0
2407          BA    .118
2408          LG   0.35    0.35    3.67    0.58       0
2409          UC  0.117   0.012
2410          UA      0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
2411          UA    100
                    *
                    *
                    * DDM   ***** Preserved *****
                    *

2412          KK    A99P   BASIN
2413          KM   SUB-BASIN A99P
2414          KM   6-HOUR RAINFALL, PATTERN NO. 1.08 WAS USED TO FIND TC & R FOR THIS BASIN
2415          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .993
2416          KM     L = 1.34  Kb = .040  Adj. Slope =   57.0
2417          BA    .575
2418          LG   0.25    0.28    5.40    0.26      27
2419          UC  0.738   0.458
2420          UA      0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
2421          UA    100
                    *
                    * *** COMBINE BASIN A99Q A99P, RA06, AND RA06A  *********************************
                    *

2422          KK   CA99Q
2423          HC       4
                    *

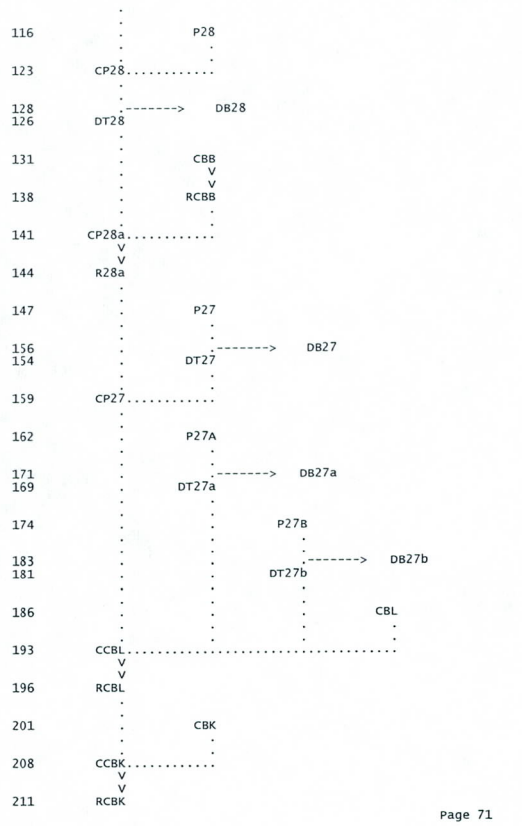
2424          KK    AFR6
2425          HC       2
                    *
2426          ZZ
```

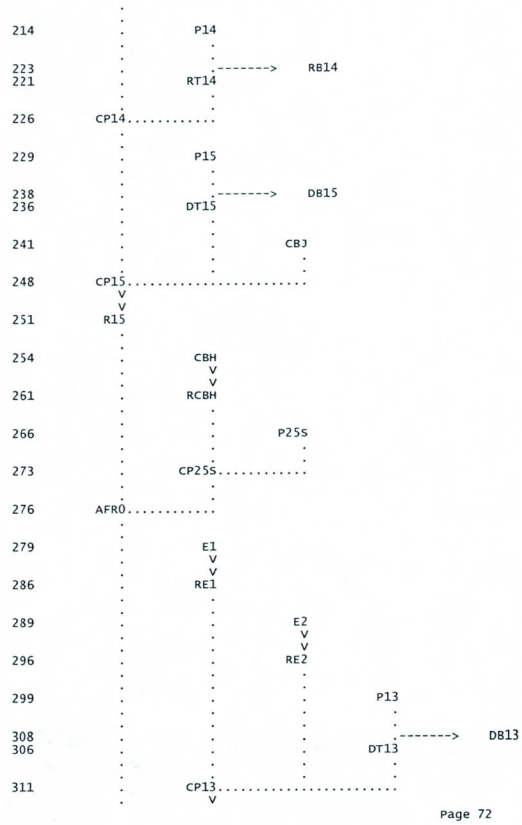

SCHEMATIC DIAGRAM OF STREAM NETWORK

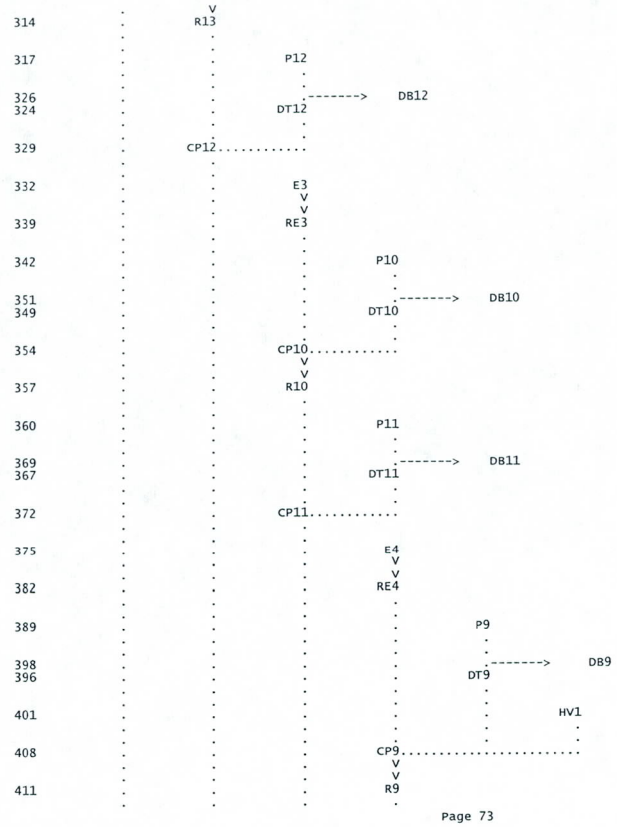
```
INPUT
 LINE     (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

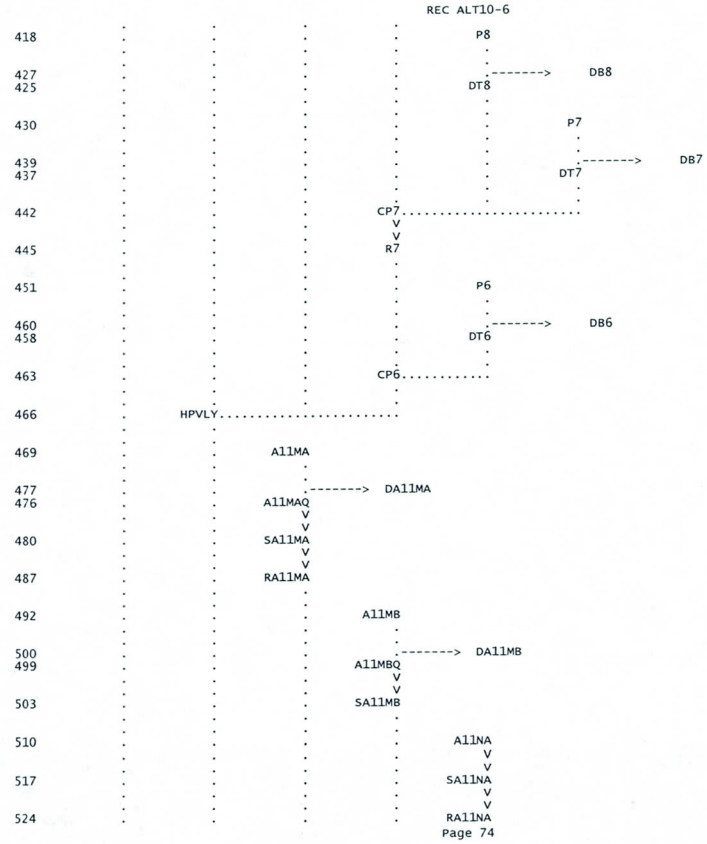
  NO.     (.) CONNECTOR        (<---) RETURN OF DIVERTED OR PUMPED FLOW

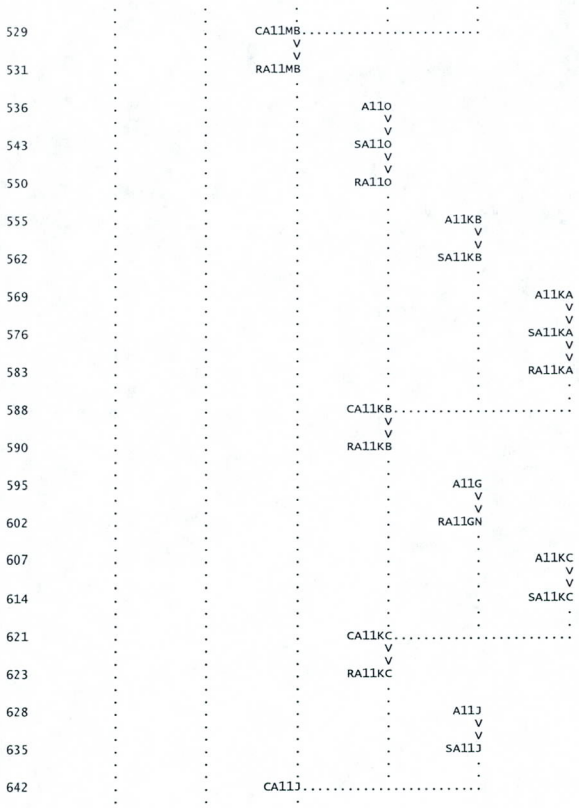
  106        CBA
              V
              V
  113        RCBA
```

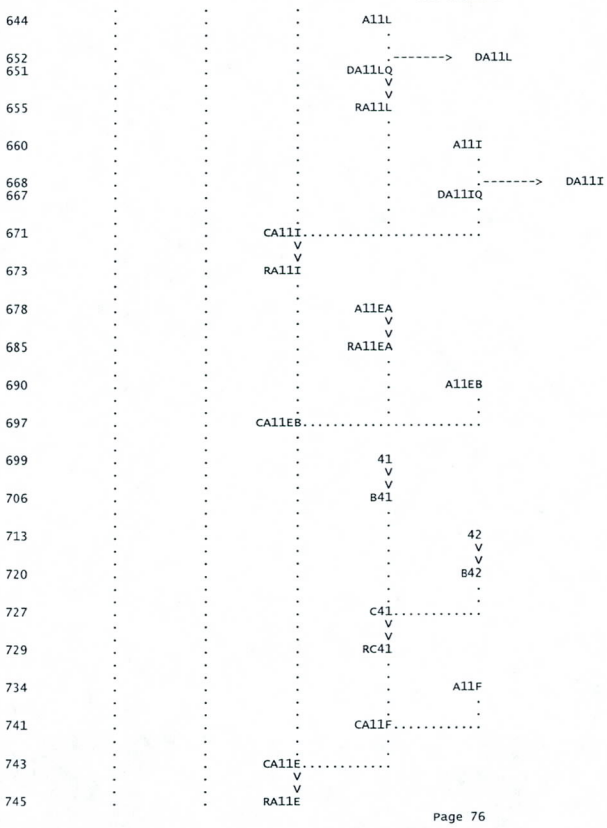

116 P28
123 CP28
128 DB28
126 DT28
131 CBB
138 RCBB
141 CP28a
144 R28a
147 P27
156 DB27
154 DT27
159 CP27
162 P27A
171 DB27a
169 DT27a
174 P27B
183 DB27b
181 DT27b
186 CBL
193 CCBL
196 RCBL
201 CBK
208 CCBK
211 RCBK

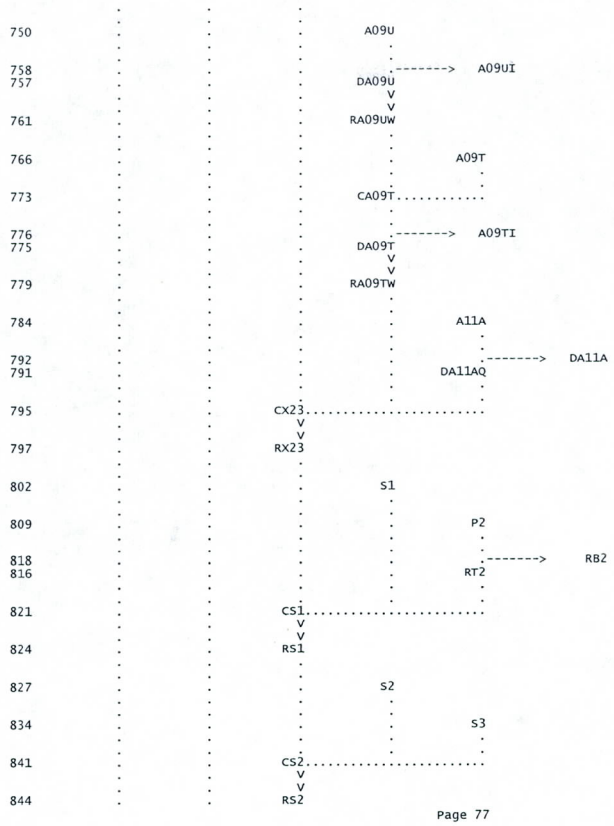

214 P14
223 RB14
221 RT14
226 CP14
229 P15
238 DB15
236 DT15
241 CBJ
248 CP15
251 R15
254 CBH
261 RCBH
266 P25S
273 CP25S
276 AFR0
279 E1
286 RE1
289 E2
296 RE2
299 P13
308 DB13
306 DT13
311 CP13

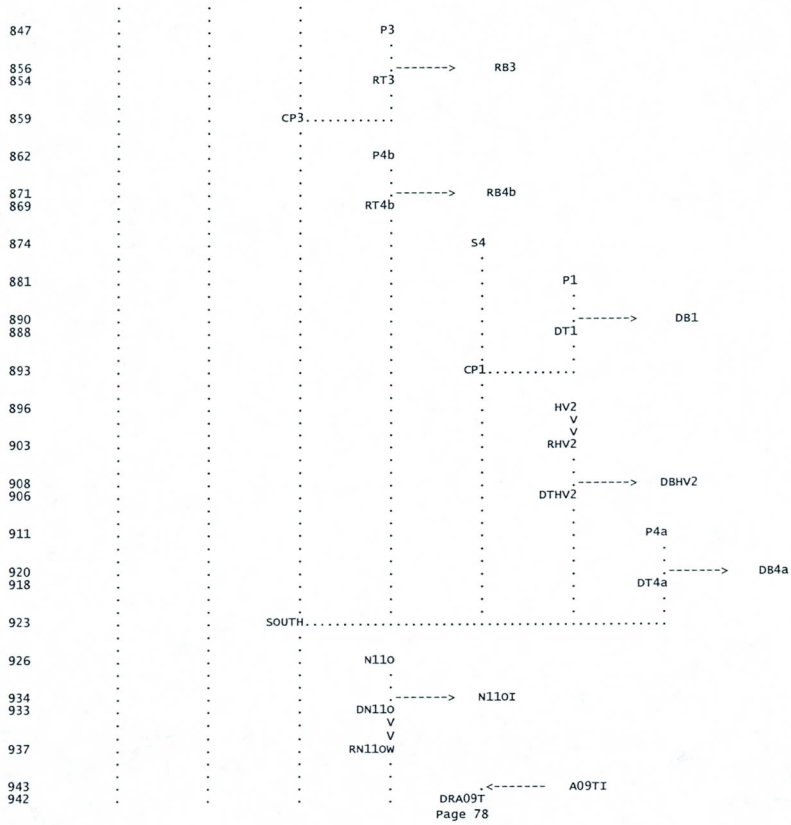

R13
P12
DT12
DB12
CP12
E3
RE3
P10
DT10
DB10
CP10
R10
P11
DT11
DB11
CP11
E4
RE4
P9
DT9
DB9
HV1
CP9
R9

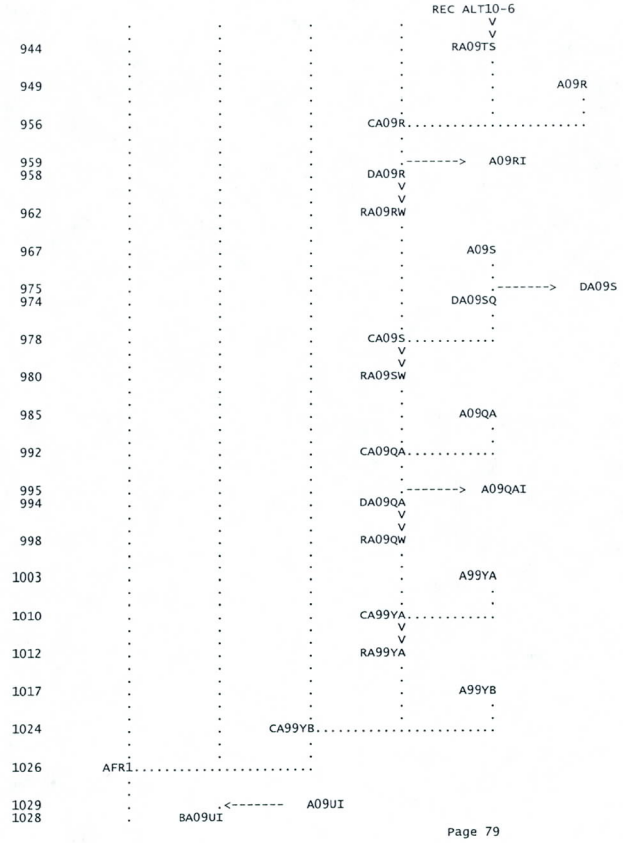

P8
DT8
DB8
P7
DT7
DB7
CP7
R7
P6
DT6
DB6
CP6
HPVLY
A11MA
DA11MA
A11MAQ
SA11MA
RA11MA
A11MB
DA11MB
A11MBQ
SA11MB
A11NA
SA11NA
RA11NA

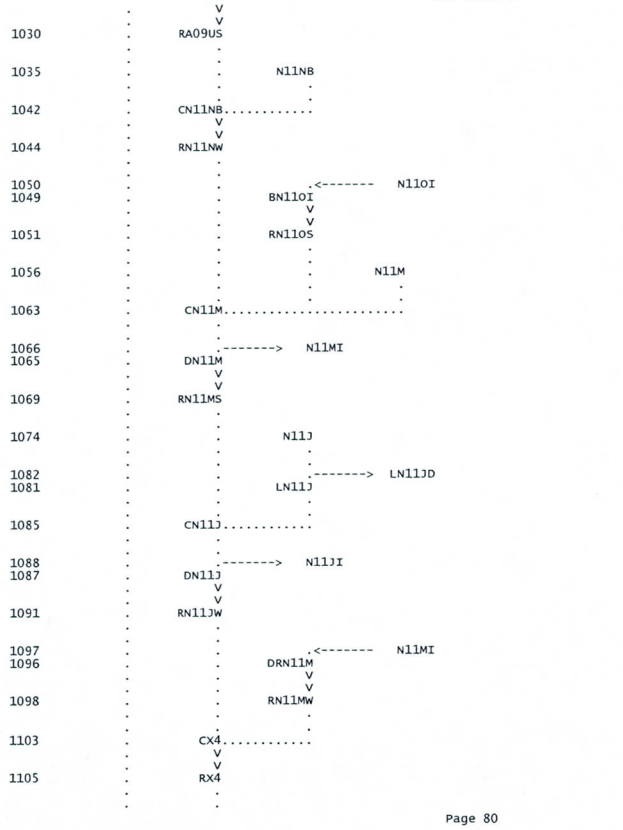

529 CA11MB
531 RA11MB
536 A11O
543 SA11O
550 RA11O
555 A11KB
562 SA11KB
569 A11KA
576 SA11KA
583 RA11KA
588 CA11KB
590 RA11KB
595 A11G
602 RA11GN
607 A11KC
614 SA11KC
621 CA11KC
623 RA11KC
628 A11J
635 SA11J
642 CA11J

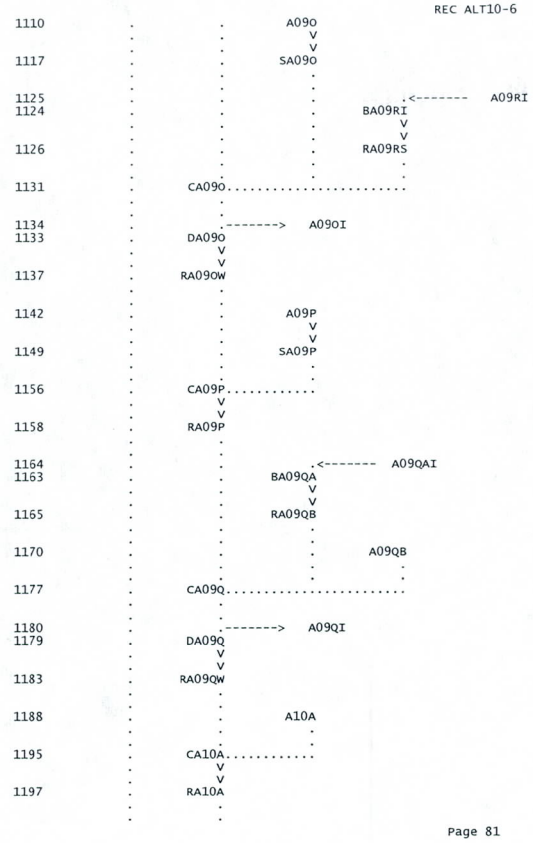

644 A11L
652
651 DA11LQ
655 RA11L
660 A11I
668
667 DA11IQ
671 CA11I
673 RA11I
678 A11EA
685 RA11EA
690 A11EB
697 CA11EB
699 41
706 B41
713 42
720 B42
727 C41
729 RC41
734 A11F
741 CA11F
743 CA11E
745 RA11E
DA11L
DA11I

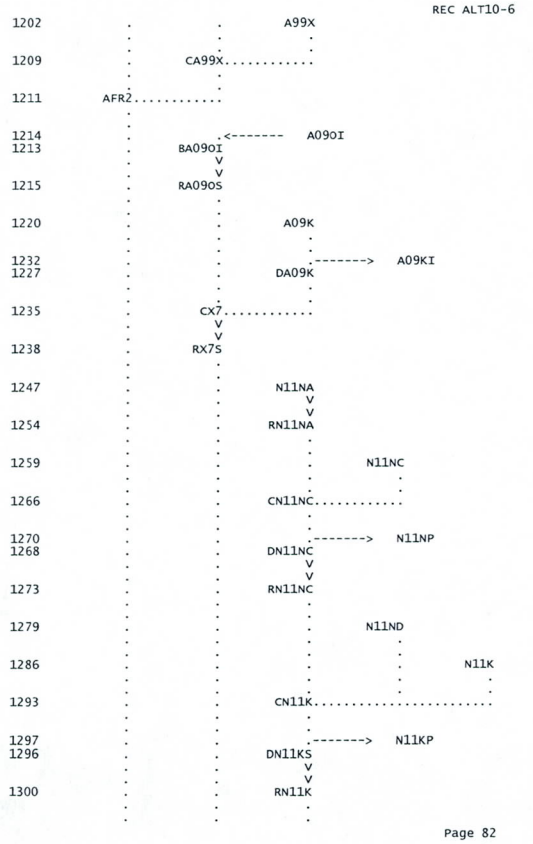

750 A09U
758 .-------> A09UI
757 DA09U
761 RA09UW
766 A09T
773 CA09T
776 .-------> A09TI
775 DA09T
779 RA09TW
784 A11A
792 .-------> DA11A
791 DA11AQ
795 CX23
797 RX23
802 S1
809 P2
818 .-------> RB2
816 RT2
821 CS1
824 RS1
827 S2
834 S3
841 CS2
844 RS2

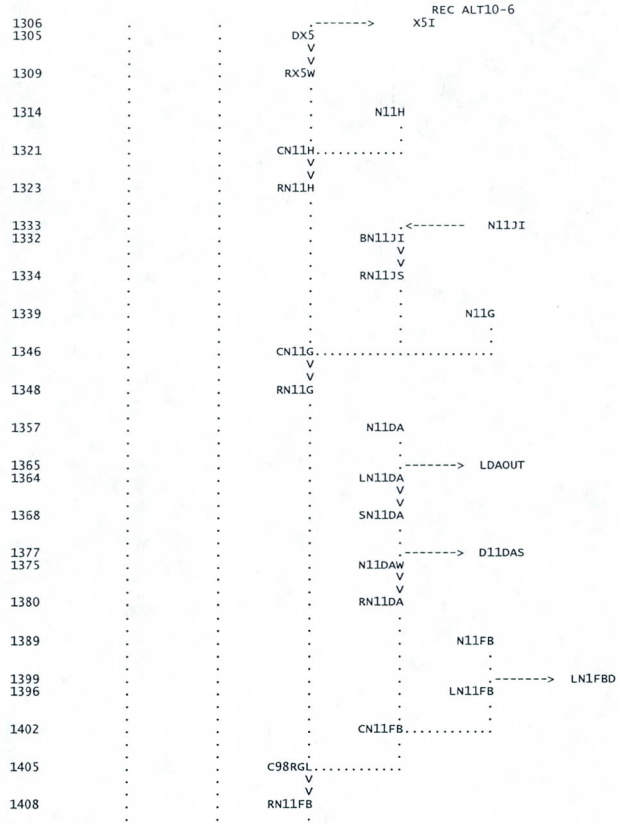

847 P3
856 .-------> RB3
854 RT3
859 CP3
862 P4b
871 .-------> RB4b
869 RT4b
874 S4
881 P1
890 .-------> DB1
888 DT1
893 CP1
896 HV2
903 RHV2
908 .-------> DBHV2
906 DTHV2
911 P4a
920 .-------> DB4a
918 DT4a
923 SOUTH
926 N11O
934 .-------> N11OI
933 DN11O
937 RN11OW
943 .<------- A09TI
942 DRA09T

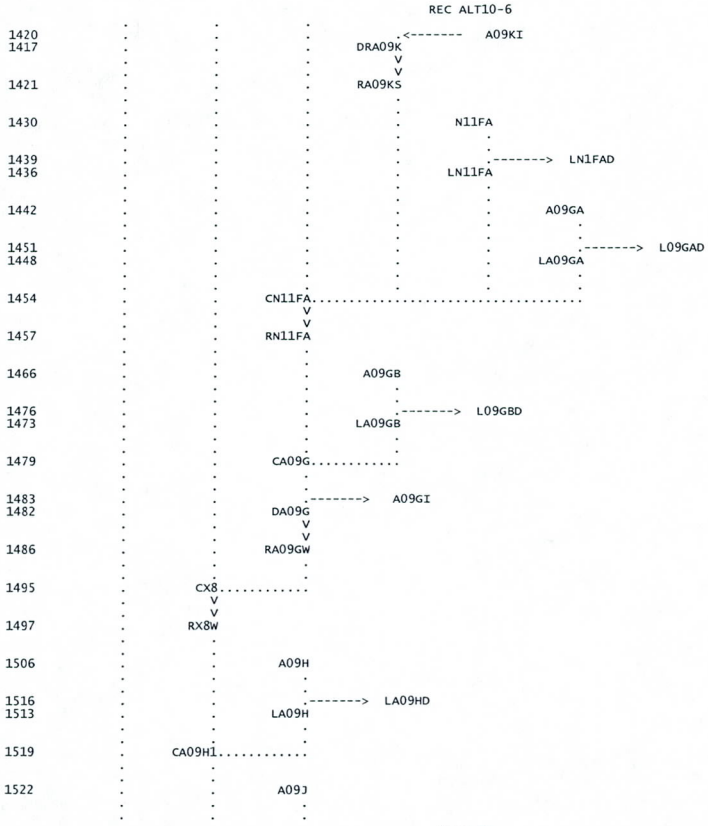

944 RA09TS
949 A09R
956 CA09R
959 A09RI
958 DA09R
962 RA09RW
967 A09S
975 DA09S
974 DA09SQ
978 CA09S
980 RA09SW
985 A09QA
992 CA09QA
995 A09QAI
994 DA09QA
998 RA09QW
1003 A99YA
1010 CA99YA
1012 RA99YA
1017 A99YB
1024 CA99YB
1026 AFR1
1029 A09UI
1028 BA09UI

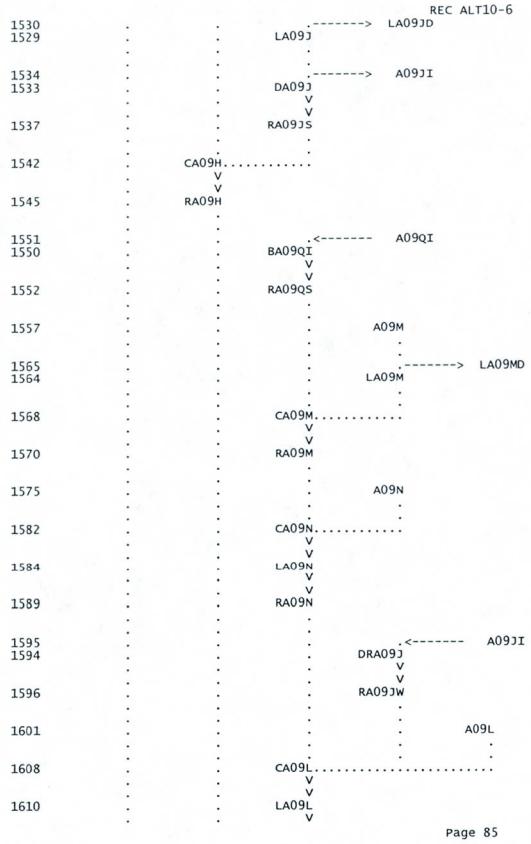

1030 RA09US
1035 N11NB
1042 CN11NB
1044 RN11NW
1050 N11OI
1049 BN11OI
1051 RN11OS
1056 N11M
1063 CN11M
1066 N11MI
1065 DN11M
1069 RN11MS
1074 N11J
1082 LN11JD
1081 LN11J
1085 CN11J
1088 N11JI
1087 DN11J
1091 RN11JW
1097 N11MI
1096 DRN11M
1098 RN11MW
1103 CX4
1105 RX4

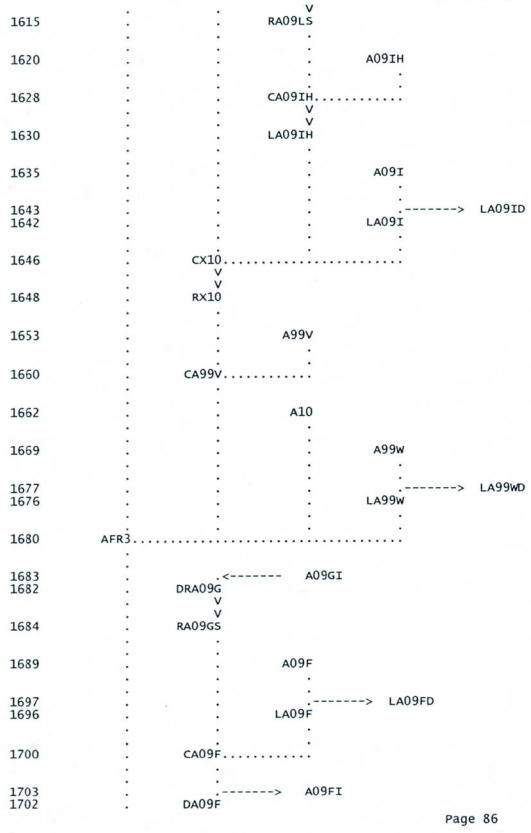

1110
A09O
1117
SA09O
1125
A09RI
1124
BA09RI
1126
RA09RS
1131
CA09O
1134
A09OI
1133
DA09O
1137
RA09OW
1142
A09P
1149
SA09P
1156
CA09P
1158
RA09P
1164
A09QAI
1163
BA09QA
1165
RA09QB
1170
A09QB
1177
CA09Q
1180
A09QI
1179
DA09Q
1183
RA09QW
1188
A10A
1195
CA10A
1197
RA10A

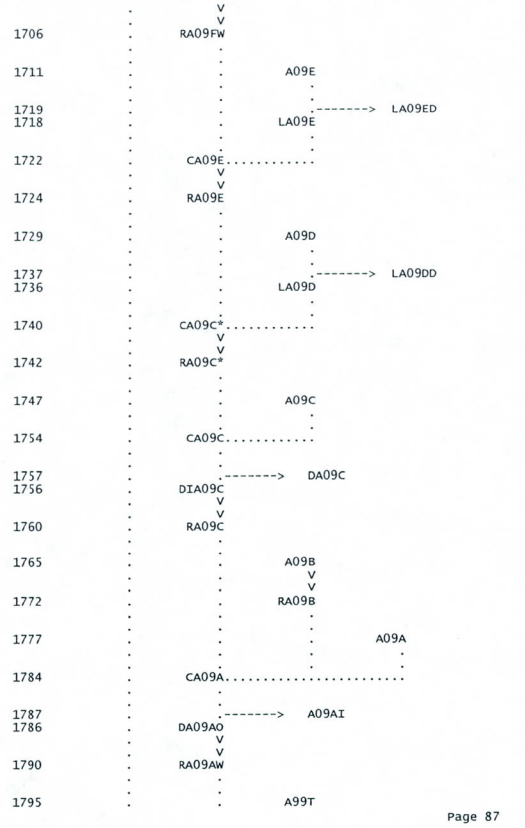

1202
A99X
1209
CA99X
1211
AFR2
1214
A09OI
1213
BA09OI
1215
RA09OS
1220
A09K
1232
A09KI
1227
DA09K
1235
CX7
1238
RX7S
1247
N11NA
1254
RN11NA
1259
N11NC
1266
CN11NC
1270
N11NP
1268
DN11NC
1273
RN11NC
1279
N11ND
1286
N11K
1293
CN11K
1297
N11KP
1296
DN11KS
1300
RN11K

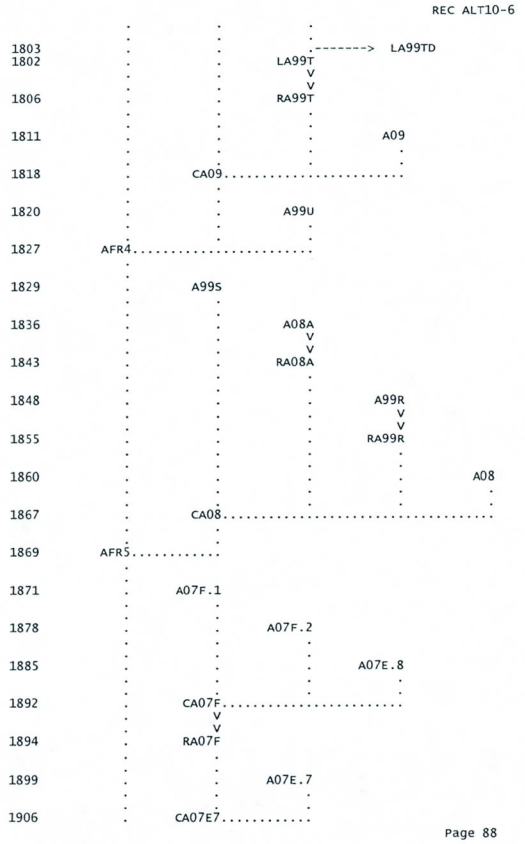

REC ALT10-6
X5I
DX5
RX5W
N11H
CN11H
RN11H
N11JI
BN11JI
RN11JS
N11G
CN11G
RN11G
N11DA
LDAOUT
LN11DA
SN11DA
D11DAS
N11DAW
RN11DA
N11FB
LN1FBD
LN11FB
CN11FB
C98RGL
RN11FB

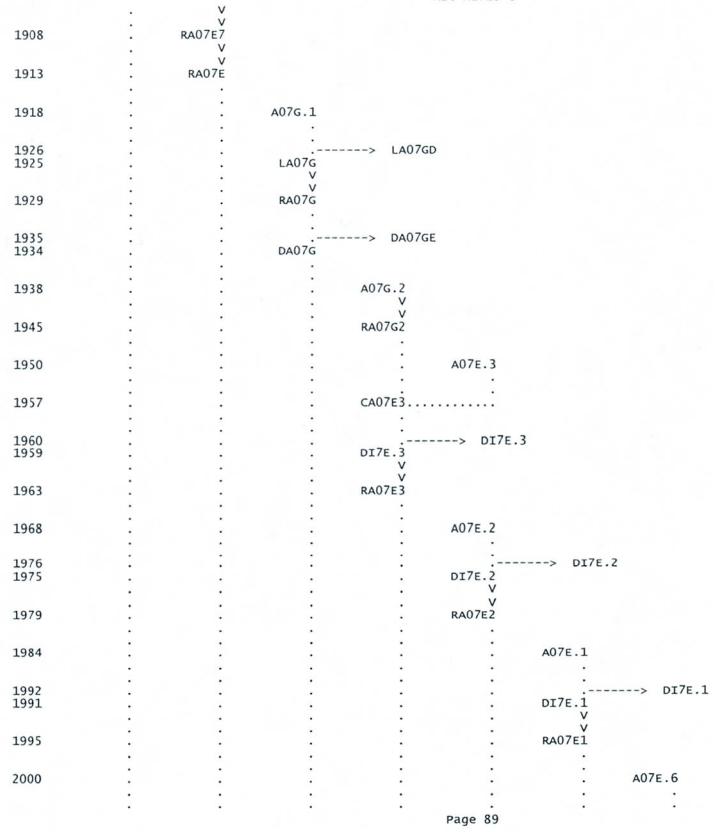

REC ALT10-6
A09KI
DRA09K
RA09KS
N11FA
LN1FAD
LN11FA
A09GA
L09GAD
LA09GA
CN11FA
RN11FA
A09GB
L09GBD
LA09GB
CA09G
A09GI
DA09G
RA09GW
CX8
RX8W
A09H
LA09HD
LA09H
CA09H1
A09J

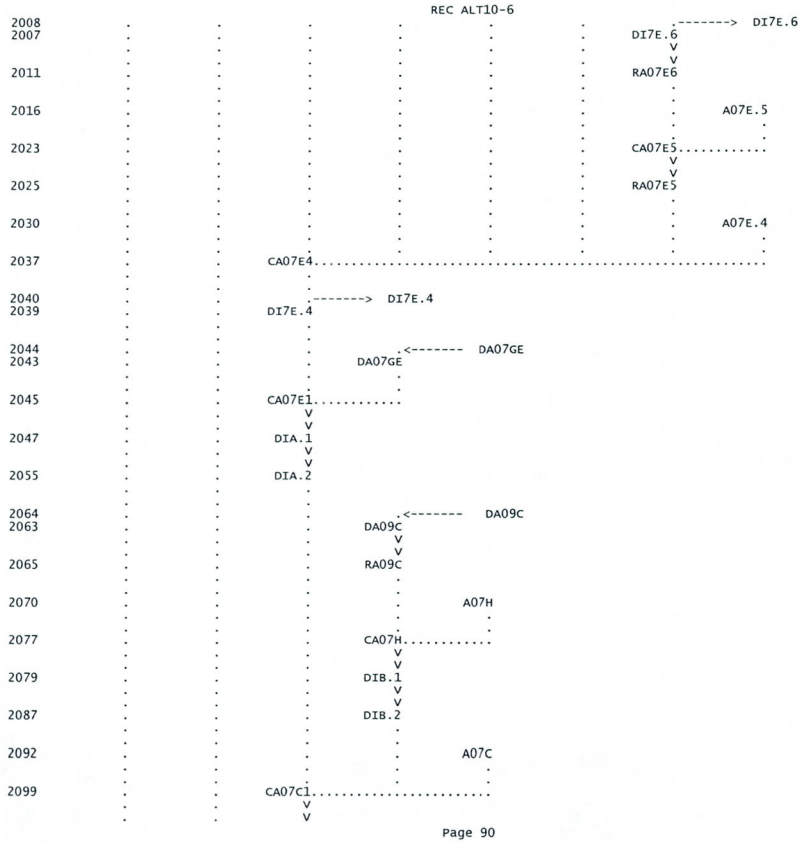

1530
1529 LA09J
LA09JD
1534
1533 DA09J
A09JI
1537 RA09JS
1542 CA09H
1545 RA09H
1551
1550 BA09QI
A09QI
1552 RA09QS
1557 A09M
1565
1564 LA09M
LA09MD
1568 CA09M
1570 RA09M
1575 A09N
1582 CA09N
1584 LA09N
1589 RA09N
1595
1594 DRA09J
A09JI
1596 RA09JW
1601 A09L
1608 CA09L
1610 LA09L

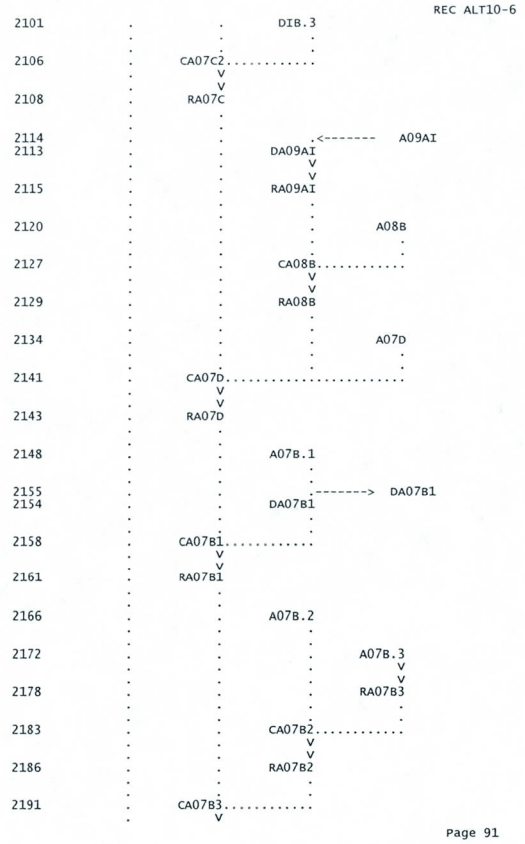

1615 RA09LS
1620 A09IH
1628 CA09IH
1630 LA09IH
1635 A09I
1643
1642 LA09I
LA09ID
1646 CX10
1648 RX10
1653 A99V
1660 CA99V
1662 A10
1669 A99W
1677
1676 LA99W
LA99WD
1680 AFR3
1683
1682 DRA09G
A09GI
1684 RA09GS
1689 A09F
1697
1696 LA09F
LA09FD
1700 CA09F
1703
1702 DA09F
A09FI

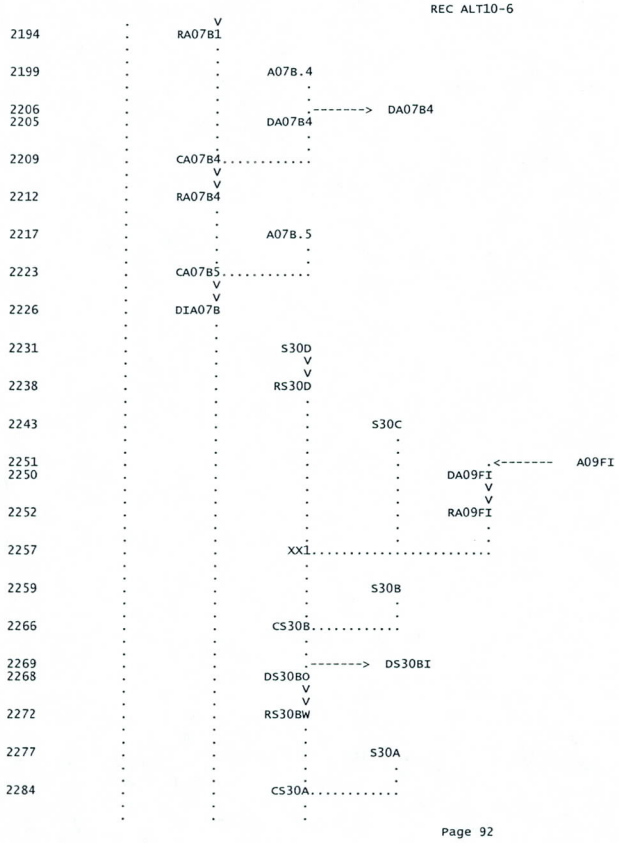

1706 RA09FW
1711 A09E
1719
1718 LA09E
LA09ED
1722 CA09E
1724 RA09E
1729 A09D
1737
1736 LA09D
LA09DD
1740 CA09C*
1742 RA09C*
1747 A09C
1754 CA09C
1757
1756 DIA09C
DA09C
1760 RA09C
1765 A09B
1772 RA09B
1777 A09A
1784 CA09A
1787
1786 DA09AO
A09AI
1790 RA09AW
1795 A99T

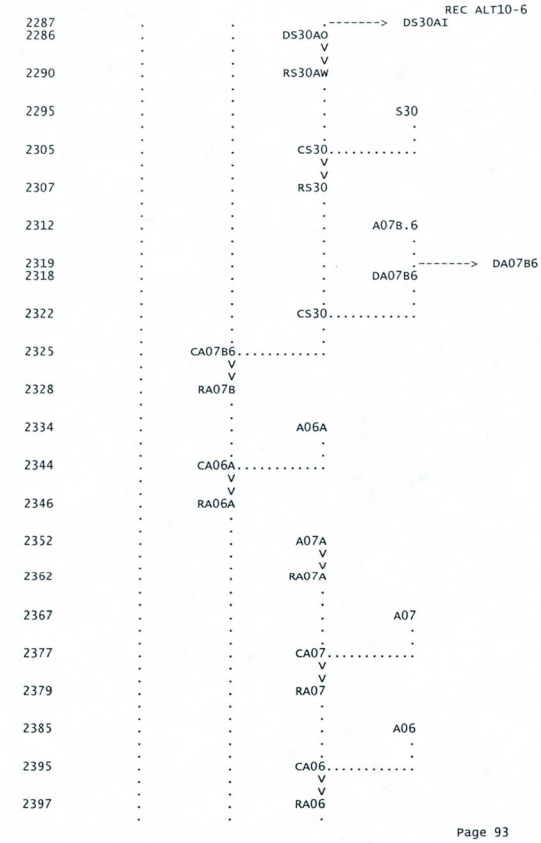

1803
1802 LA99T
LA99TD
1806 RA99T
1811 A09
1818 CA09
1820 A99U
1827 AFR4
1829 A99S
1836 A08A
1843 RA08A
1848 A99R
1855 RA99R
1860 A08
1867 CA08
1869 AFR5
1871 A07F.1
1878 A07F.2
1885 A07E.8
1892 CA07F
1894 RA07F
1899 A07E.7
1906 CA07E7

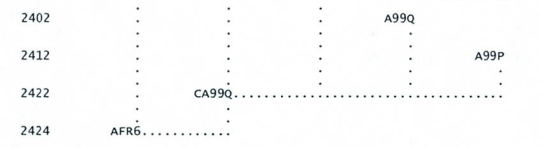

1908 RA07E7
1913 RA07E
1918 A07G.1
1926
1925 LA07G
1929 RA07G
1935
1934 DA07G
1938 A07G.2
1945 RA07G2
1950 A07E.3
1957 CA07E3
1960
1959 DI7E.3
1963 RA07E3
1968 A07E.2
1976
1975 DI7E.2
1979 RA07E2
1984 A07E.1
1992
1991 DI7E.1
1995 RA07E1
2000 A07E.6
LA07GD
DA07GE
DI7E.3
DI7E.2
DI7E.1


2008
2007 DI7E.6
2011 RA07E6
2016 A07E.5
2023 CA07E5
2025 RA07E5
2030 A07E.4
2037 CA07E4
2040
2039 DI7E.4
2044
2043 DA07GE
2045 CA07E1
2047 DIA.1
2055 DIA.2
2064
2063 DA09C
2065 RA09C
2070 A07H
2077 CA07H
2079 DIB.1
2087 DIB.2
2092 A07C
2099 CA07C1
DI7E.6
DA07GE
DA09C


2101
DIB.3
2106
CA07C2
2108
RA07C
2114
A09AI
2113
DA09AI
2115
RA09AI
2120
A08B
2127
CA08B
2129
RA08B
2134
A07D
2141
CA07D
2143
RA07D
2148
A07B.1
2155
DA07B1
2154
DA07B1
2158
CA07B1
2161
RA07B1
2166
A07B.2
2172
A07B.3
2178
RA07B3
2183
CA07B2
2186
RA07B2
2191
CA07B3


2194
RA07B1
2199
A07B.4
2206
DA07B4
2205
DA07B4
2209
CA07B4
2212
RA07B4
2217
A07B.5
2223
CA07B5
2226
DIA07B
2231
S30D
2238
RS30D
2243
S30C
2251
A09FI
2250
DA09FI
2252
RA09FI
2257
XX1
2259
S30B
2266
CS30B
2269
DS30BI
2268
DS30BO
2272
RS30BW
2277
S30A
2284
CS30A





(***) 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   21JUL11  TIME  16:41:58   *                                       *           (916) 756-1104
   *                                                                           *
 *                                       *                                       *
   *                                                                           *
 *****************************************
*****************************************
```

```
Project ID: 107 & Union Hills - Major Basin: 01 - Return Period: 10 Years
                                                                              **
107th Avenue and Union Hills Drive Design Concept Report                      **
                                                                              **

PROJECT NO.: FCD 2009C036.2                          G&M: 10388A.2            **

                                                                              **

Original HEC-1 Model: DCR10-6.DAT, Goodwin & Marshall, Inc., Apr 26, 2011 **
                      10-Year 6-Hour HEC-1 Model for Existing Conditions  **
Modified HEC-1 Model: REC ALT10-6.DAT, Goodwin & Marshall, Inc., 7/15/2011**
                      10-Year 6-Hour HEC-1 Model for Recom. Alternative   **
                                                                              **

1) NOAA2 Rainfall Data                                                        **

2) DDMSW V3.5.7 Used                                                                  **

3) Model revised to reflect Recommended Alternative                           **
                                                                              **

*******************************************************************************
Project ID: 107 & Union Hills - Major Basin: 01 - Return Period: 10 Years
                                                                              **
107th Avenue and Union Hills Drive Design Concept Report                      **
                                                                              **
```

```
PROJECT NO.: FCD 2009C036.2                          G&M: 10388A.2                  **
                                                                                    **
Original HEC-1 Model: DCR10-6.DAT, Goodwin & Marshall, Inc., May 29, 2010 **
                      10-Year 6-Hour HEC-1 Model for Existing Conditions  **
Modified HEC-1 Model: DCR10-6.DAT, Goodwin & Marshall, Inc., Apr 26, 2011 **
                      10-Year 6-Hour HEC-1 Model for Existing Conditions  **
                                                                          **
1) NOAA2 Rainfall Data                                                    **
2) DDMSW V3.5.7 Used                                                                **
3) BASINS REVISED TO REFLECT CANYON RIDGE DEVELOPMENT AND DETERMINE FLOWS **
   AT CRITICAL POINTS ALONG 115TH AVENUE                                  **
                                                                          **
*****************************************************************************
Project ID: 107 & Union Hills - Major Basin: 01 - Return Period: 10 Years
                                                                          **
107th Avenue and Union Hills Drive Design Concept Report                  **
                                                                          **
PROJECT NO.: FCD 2009C036                    G&M: 10388A                  **
                                                                          **
Original HEC-1 Model: EN06BASE.DAT, Wood/Patel, SZ, May 2007              **
                      10-Year 6-Hour HEC-1 Model for Existing Conditions  **
Modified HEC-1 Model: DCR10-6.DAT, Goodwin & Marshall, Inc., May 29, 2010 **
                      10-Year 6-Hour HEC-1 Model for Existing Conditions  **
                                                                          **
1) NOAA2 Rainfall Data                                                    **
2) DDMSW V3.5.7 Used                                                      **
                                                                          **
*****************************************************************************
Project ID: GP_NW ADMP_EX1 - Major Basin: 01 - Return Period: 10 Years
                                                                          **
Glendale/Peoria ADMPU Northwest Region Update                             **
Original HEC-1 Model: L3R5DVR.DAT, Wood/Patel, APRIL 14, 2006             **
                      REVISED FOR DOVE VALLEY RANCH IMPROVEMENTS          **
Modified HEC-1 Model: EN06BASE.DAT, Wood/Patel, SZ, May 2007              **
                      10-Year 6-Hour HEC-1 Model for Existing Conditions  **
1) NOAA 2 Rainfall Data                                                   **
2) DDMSW MCUHP1 V3.3.2 Used                                               **
                                                                          **
*****************************************************************************
*****************************************************************************
**                                                                         **
** CONCEPT REFINEMENT STUDY FOR ROSE GARDEN LANE DRAINAGE IMPROVEMENTS     **
** ORIGINAL HEC-1 FILE FROM GLENDAL/PEORIA ADMP UPDATE STUDY               **
** MODIFIED HEC-1 MODEL: LEVEL3R5.DAT, Wood/Patel & CVL, May 2005         **
** THIS IS THE PREFERRED ALTERNATIVE MODEL                                **
** WPA REVISED APRIL 14, 2006 FOR DOVE VALLEY RANCH IMPROVEMENTS          **
** USING LATEST SURVEY DATA.                                              **
*****************************************************************************
*****************************************************************************
**                                                                         **
**                      Glendale/Peoria ADMP Update                        **
```



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**                                                                         **
*****************************************************************************
*****************************************************************************
PROJECT:                Glendale Peoria ADMP Update
CLIENT:                 Flood Control District of Maricopa County
PREPARED BY:            Entellus, Inc.
PROJECT NO:             FCD 99-44                    Entellus 310.017
FILE NAME: LEVEL3.DAT                CREATED DATE: JUNE 6, 2001
STORM:                  100-year 6-hour Storm
DEVELOPMENT CONDITIONS: LEVEL 3 HYDROLOGY

84 IO       OUTPUT CONTROL VARIABLES
              IPRNT          5  PRINT CONTROL
              IPLOT          0  PLOT CONTROL
              QSCAL          0.  HYDROGRAPH PLOT SCALE

   IT       HYDROGRAPH TIME DATA
              NMIN           2  MINUTES IN COMPUTATION INTERVAL
             IDATE      1    0  STARTING DATE
             ITIME        0000  STARTING TIME
                NQ        1000  NUMBER OF HYDROGRAPH ORDINATES
            NDDATE      2    0  ENDING DATE
            NDTIME        0918  ENDING TIME
            ICENT           19  CENTURY MARK

          COMPUTATION INTERVAL     .03 HOURS
             TOTAL TIME BASE   33.30 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

86 JD       INDEX STORM NO. 1
              STRM        2.03  PRECIPITATION DEPTH
              TRDA         .01  TRANSPOSITION DRAINAGE AREA

87 PI         PRECIPITATION PATTERN
          .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
          .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
          .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
          .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
          .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
          .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
          .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
          .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
          .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
          .00       .00       .00       .00       .00       .00       .00       .01       .01       .01
          .01       .01       .01       .01       .01       .02       .02       .02       .02       .02
          .02       .02       .04       .06       .06       .06       .06       .06       .06       .06
          .01       .01       .01       .01       .01       .01       .01       .01       .00       .00
          .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
          .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
          .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
          .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
          .00       .00       .00       .00       .00       .00       .00       .00       .00       .00

90 JD       INDEX STORM NO. 2
              STRM        2.02  PRECIPITATION DEPTH
```

TRDA .50 TRANSPOSITION DRAINAGE AREA

91 PI PRECIPITATION PATTERN

.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.01	.01	.01
.01	.01	.01	.01	.01	.02	.02	.02	.02	.02
.02	.02	.04	.06	.06	.06	.06	.06	.06	.06
.01	.01	.01	.01	.01	.01	.01	.01	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00

94 JD INDEX STORM NO. 3
STRM 1.98 PRECIPITATION DEPTH
TRDA 2.80 TRANSPOSITION DRAINAGE AREA

95 PI PRECIPITATION PATTERN

.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.01	.01	.01	.01	.01	.01	.01	.01	.01	.01
.01	.01	.01	.01	.01	.03	.03	.03	.03	.03
.03	.03	.03	.03	.03	.03	.03	.03	.03	.03
.02	.02	.02	.02	.02	.02	.02	.01	.01	.01
.01	.01	.01	.01	.01	.01	.01	.01	.01	.01
.01	.01	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00

98 JD INDEX STORM NO. 4
STRM 1.87 PRECIPITATION DEPTH
TRDA 16.00 TRANSPOSITION DRAINAGE AREA

99 PI PRECIPITATION PATTERN

.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.01	.01	.01	.01	.01	.01	.01	.01	.01	.01
.01	.01	.01	.01	.01	.02	.02	.02	.02	.02
.02	.02	.02	.03	.03	.03	.03	.03	.03	.03
.02	.02	.02	.02	.02	.02	.02	.01	.01	.01

.01	.01	.01	.01	.01	.01	.01	.01	.01	.01
.01	.01	.01	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00

102 JD INDEX STORM NO. 5
STRM 1.65 PRECIPITATION DEPTH
TRDA 90.00 TRANSPOSITION DRAINAGE AREA

103 PI PRECIPITATION PATTERN

.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.01	.01	.01	.01	.01	.01	.01	.01	.01	.01
.01	.01	.01	.01	.01	.02	.02	.02	.02	.02
.02	.02	.02	.02	.02	.02	.02	.02	.02	.02
.02	.02	.02	.02	.02	.02	.02	.01	.01	.01
.01	.01	.01	.01	.01	.01	.01	.01	.01	.01
.01	.01	.01	.01	.01	.01	.01	.01	.01	.01
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00

WARNING EXCESS AT PONDING LESS THAN ZERO FOR PERIOD. EXCESS SET TO ZERO

*** ***

```
           **************
           *            *
2158 KK    *   CA07B1   *
           *            *
           **************
```

2159 KO OUTPUT CONTROL VARIABLES

IPRNT	5	PRINT CONTROL
IPLOT	0	PLOT CONTROL
QSCAL	0.	HYDROGRAPH PLOT SCALE
IPNCH	0	PUNCH COMPUTED HYDROGRAPH
IOUT	21	SAVE HYDROGRAPH ON THIS UNIT
ISAV1	1	FIRST ORDINATE PUNCHED OR SAVED
ISAV2	1000	LAST ORDINATE PUNCHED OR SAVED
TIMINT	.033	TIME INTERVAL IN HOURS

*** ***

```
           **************
           *            *
2183 KK    *   CA07B2   *
           *            *
```

```
                **************

 2184 KO             OUTPUT CONTROL VARIABLES
                           IPRNT          5  PRINT CONTROL
                           IPLOT          0  PLOT CONTROL
                           QSCAL         0.  HYDROGRAPH PLOT SCALE
                           IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                            IOUT         21  SAVE HYDROGRAPH ON THIS UNIT
                           ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                           ISAV2       1000  LAST ORDINATE PUNCHED OR SAVED
                          TIMINT       .033  TIME INTERVAL IN HOURS


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

                **************
                *            *
 2191 KK        *   CA07B3   *
                *            *
                **************

 2192 KO             OUTPUT CONTROL VARIABLES
                           IPRNT          5  PRINT CONTROL
                           IPLOT          0  PLOT CONTROL
                           QSCAL         0.  HYDROGRAPH PLOT SCALE
                           IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                            IOUT         21  SAVE HYDROGRAPH ON THIS UNIT
                           ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                           ISAV2       1000  LAST ORDINATE PUNCHED OR SAVED
                          TIMINT       .033  TIME INTERVAL IN HOURS


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

                **************
                *            *
 2209 KK        *   CA07B4   *
                *            *
                **************

 2210 KO             OUTPUT CONTROL VARIABLES
                           IPRNT          5  PRINT CONTROL
                           IPLOT          0  PLOT CONTROL
                           QSCAL         0.  HYDROGRAPH PLOT SCALE
                           IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                            IOUT         21  SAVE HYDROGRAPH ON THIS UNIT
                           ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                           ISAV2       1000  LAST ORDINATE PUNCHED OR SAVED
                          TIMINT       .033  TIME INTERVAL IN HOURS


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***
*** ***
```



```
                **************
                *            *
 2223 KK        *   CA07B5   *
                *            *
                **************

 2224 KO             OUTPUT CONTROL VARIABLES
                           IPRNT          5  PRINT CONTROL
                           IPLOT          0  PLOT CONTROL
                           QSCAL         0.  HYDROGRAPH PLOT SCALE
                           IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                            IOUT         21  SAVE HYDROGRAPH ON THIS UNIT
                           ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                           ISAV2       1000  LAST ORDINATE PUNCHED OR SAVED
                          TIMINT       .033  TIME INTERVAL IN HOURS


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

                **************
                *            *
 2322 KK        *     CS30   *
                *            *
                **************

 2323 KO             OUTPUT CONTROL VARIABLES
                           IPRNT          5  PRINT CONTROL
                           IPLOT          0  PLOT CONTROL
                           QSCAL         0.  HYDROGRAPH PLOT SCALE
                           IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                            IOUT         21  SAVE HYDROGRAPH ON THIS UNIT
                           ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                           ISAV2       1000  LAST ORDINATE PUNCHED OR SAVED
                          TIMINT       .033  TIME INTERVAL IN HOURS


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

                **************
                *            *
 2325 KK        *   CA07B6   *
                *            *
                **************

 2326 KO             OUTPUT CONTROL VARIABLES
                           IPRNT          5  PRINT CONTROL
                           IPLOT          0  PLOT CONTROL
                           QSCAL         0.  HYDROGRAPH PLOT SCALE
                           IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                            IOUT         21  SAVE HYDROGRAPH ON THIS UNIT
                           ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                           ISAV2       1000  LAST ORDINATE PUNCHED OR SAVED
                          TIMINT       .033  TIME INTERVAL IN HOURS
```

*** ***

```
           **************
           *            *
2328 KK    *     RA07B  *
           *            *
           **************

2329 KO          OUTPUT CONTROL VARIABLES
                       IPRNT           3  PRINT CONTROL
                       IPLOT           0  PLOT CONTROL
                       QSCAL          0.  HYDROGRAPH PLOT SCALE
                       IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                        IOUT          21  SAVE HYDROGRAPH ON THIS UNIT
                       ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                       ISAV2        1000  LAST ORDINATE PUNCHED OR SAVED
                      TIMINT        .033  TIME INTERVAL IN HOURS


               HYDROGRAPH ROUTING DATA

2330 RS          STORAGE ROUTING
                       NSTPS           1  NUMBER OF SUBREACHES
                        ITYP        FLOW  TYPE OF INITIAL CONDITION
                      RSVRIC         .00  INITIAL CONDITION
                           X         .00 WORKING R AND D COEFFICIENT

2331 RC          NORMAL DEPTH CHANNEL
                         ANL        .030  LEFT OVERBANK N-VALUE
                        ANCH        .030  MAIN CHANNEL N-VALUE
                         ANR        .030  RIGHT OVERBANK N-VALUE
                       RLNTH       2990.  REACH LENGTH
                         SEL       .0057  ENERGY SLOPE
                       ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                  CROSS-SECTION DATA
                          --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
2333 RY       ELEVATION     10.00      9.00      8.00      7.00       .00       .00      7.00      9.00
2332 RX       DISTANCE        .00     76.00    136.00    197.00    222.00    227.00    242.00    367.00
                                                    ***

                                COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE        .00       .23       .58      1.03      1.59      2.26      3.04      3.93      4.92      6.03
          OUTFLOW        .00      7.31     26.38     58.46    105.42    169.18    251.55    354.30    479.13    627.69
        ELEVATION        .00       .53      1.05      1.58      2.11      2.63      3.16      3.68      4.21      4.74

          STORAGE       7.24      8.56      9.99     11.53     13.73     18.17     24.95     34.07     45.16     57.69
          OUTFLOW     801.57   1002.31   1231.40   1490.33   1286.23   1441.65   2108.65   3087.89   4505.07   6262.80
        ELEVATION       5.26      5.79      6.32      6.84      7.37      7.89      8.42      8.95      9.47     10.00

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

                       HYDROGRAPH AT STATION    RA07B
                     TRANSPOSITION AREA       .0 SQ MI

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                    6-HR         24-HR         72-HR      33.30-HR
```



```
+   (CFS)       (HR)
                          (CFS)
+     791.      5.37      317.          94.          68.          68.
                     (INCHES)      .637         .757         .757         .757
                      (AC-FT)      157.         187.         187.         187.

 PEAK STORAGE   TIME                          MAXIMUM AVERAGE STORAGE
                                    6-HR         24-HR         72-HR      33.30-HR
+  (AC-FT)      (HR)
       7.      5.37                3.           1.           1.           1.

  PEAK STAGE    TIME                          MAXIMUM AVERAGE STAGE
                                    6-HR         24-HR         72-HR      33.30-HR
+   (FEET)      (HR)
      5.23      5.37              3.24         1.26          .91          .91

                    CUMULATIVE AREA =    4.63 SQ MI

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

                       HYDROGRAPH AT STATION    RA07B
                     TRANSPOSITION AREA       .5 SQ MI

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                    6-HR         24-HR         72-HR      33.30-HR
+   (CFS)       (HR)
                          (CFS)
+     786.      5.37      314.          93.          67.          67.
                     (INCHES)      .630         .747         .747         .747
                      (AC-FT)      156.         185.         185.         185.

 PEAK STORAGE   TIME                          MAXIMUM AVERAGE STORAGE
                                    6-HR         24-HR         72-HR      33.30-HR
+  (AC-FT)      (HR)
       7.      5.37                3.           1.           1.           1.

  PEAK STAGE    TIME                          MAXIMUM AVERAGE STAGE
                                    6-HR         24-HR         72-HR      33.30-HR
+   (FEET)      (HR)
      5.22      5.37              3.22         1.25          .90          .90

                    CUMULATIVE AREA =    4.63 SQ MI

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

                       HYDROGRAPH AT STATION    RA07B
                     TRANSPOSITION AREA      2.8 SQ MI

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                    6-HR         24-HR         72-HR      33.30-HR
+   (CFS)       (HR)
                          (CFS)
+     580.      5.43      238.          67.          48.          48.
                     (INCHES)      .478         .540         .540         .540
                      (AC-FT)      118.         133.         133.         133.

 PEAK STORAGE   TIME                          MAXIMUM AVERAGE STORAGE
                                    6-HR         24-HR         72-HR      33.30-HR
+  (AC-FT)      (HR)
       6.      5.43                3.           1.           1.           1.

  PEAK STAGE    TIME                          MAXIMUM AVERAGE STAGE
```

+ (FEET)	(HR)	6-HR	24-HR	72-HR	33.30-HR
4.57	5.43	2.78	1.00	.72	.72

CUMULATIVE AREA = 4.63 SQ MI

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

HYDROGRAPH AT STATION RA07B
TRANSPOSITION AREA 16.0 SQ MI

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	33.30-HR
+ (CFS)	(HR)				
		(CFS)			
+ 439.	5.23	183.	49.	35.	35.
		(INCHES) .367	.394	.394	.394
		(AC-FT) 91.	97.	97.	97.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
		6-HR	24-HR	72-HR	33.30-HR
+ (AC-FT)	(HR)				
5.	5.23	2.	1.	0.	0.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
		6-HR	24-HR	72-HR	33.30-HR
+ (FEET)	(HR)				
4.04	5.23	2.50	.79	.57	.57

CUMULATIVE AREA = 4.63 SQ MI

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

HYDROGRAPH AT STATION RA07B
TRANSPOSITION AREA 90.0 SQ MI

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	33.30-HR
+ (CFS)	(HR)				
		(CFS)			
+ 268.	5.37	119.	33.	24.	24.
		(INCHES) .238	.263	.263	.263
		(AC-FT) 59.	65.	65.	65.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
		6-HR	24-HR	72-HR	33.30-HR
+ (AC-FT)	(HR)				
3.	5.37	2.	0.	0.	0.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
		6-HR	24-HR	72-HR	33.30-HR
+ (FEET)	(HR)				
3.24	5.37	2.08	.67	.48	.48

CUMULATIVE AREA = 4.63 SQ MI

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

INTERPOLATED HYDROGRAPH AT RA07B

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	33.30-HR
+ (CFS)	(HR)				
		(CFS)			
+ 536.	5.17	222.	62.	45.	45.
		(INCHES) .446	.498	.498	.498
		(AC-FT) 110.	123.	123.	123.

CUMULATIVE AREA = 4.63 SQ MI

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          *            *
2346 KK   *     RA06A  *
          *            *
          **************

2347 KO          OUTPUT CONTROL VARIABLES
                      IPRNT          3  PRINT CONTROL
                      IPLOT          0  PLOT CONTROL
                      QSCAL         0.  HYDROGRAPH PLOT SCALE
                      IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                       IOUT         21  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2       1000  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT       .033  TIME INTERVAL IN HOURS


             HYDROGRAPH ROUTING DATA

2348 RS          STORAGE ROUTING
                      NSTPS          3  NUMBER OF SUBREACHES
                       ITYP       FLOW  TYPE OF INITIAL CONDITION
                     RSVRIC        .00  INITIAL CONDITION
                          X        .00 WORKING R AND D COEFFICIENT

2349 RC          NORMAL DEPTH CHANNEL
                        ANL       .030  LEFT OVERBANK N-VALUE
                       ANCH       .020  MAIN CHANNEL N-VALUE
                        ANR       .030  RIGHT OVERBANK N-VALUE
                      RLNTH      2500.  REACH LENGTH
                        SEL      .0070  ENERGY SLOPE
                      ELMAX         .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                  CROSS-SECTION DATA
                          --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
2351 RY        ELEVATION    10.00     9.00     8.00     7.00      .00      .00     7.00     9.00
2350 RX        DISTANCE       .00    76.00   136.00   197.00   222.00   247.00   262.00   387.00

                                                  ***

                                  COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE         .00      .80     1.69     2.67     3.75     4.91     6.17     7.51     8.95    10.48
          OUTFLOW         .00    54.55   176.89   355.36   586.92   870.76  1207.06  1596.53  2040.19  2539.30
        ELEVATION         .00      .53     1.05     1.58     2.11     2.63     3.16     3.68     4.21     4.74

          STORAGE       12.09    13.80    15.60    17.49    19.93    24.25    30.53    38.76    48.63    59.72
```

OUTFLOW	3095.19	3709.31	4383.17	5118.29	4738.53	4874.45	6264.74	8174.72	10622.47	13499.00
ELEVATION	5.26	5.79	6.32	6.84	7.37	7.89	8.42	8.95	9.47	10.00

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN 587. TO 13499.
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 RA06A
TRANSPOSITION AREA .0 SQ MI

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	33.30-HR
+ (CFS)	(HR)				
		(CFS)			
+ 807.	5.40	340.	101.	73.	73.
		(INCHES) .643	.766	.766	.766
		(AC-FT) 168.	201.	201.	201.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
		6-HR	24-HR	72-HR	33.30-HR
+ (AC-FT)	(HR)				
2.	5.37	1.	0.	0.	0.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
		6-HR	24-HR	72-HR	33.30-HR
+ (FEET)	(HR)				
2.51	5.40	1.42	.49	.36	.36

CUMULATIVE AREA = 4.91 SQ MI

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

HYDROGRAPH AT STATION RA06A
TRANSPOSITION AREA .5 SQ MI

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	33.30-HR
+ (CFS)	(HR)				
		(CFS)			
+ 803.	5.40	336.	100.	72.	72.
		(INCHES) .636	.757	.757	.757
		(AC-FT) 167.	198.	198.	198.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
		6-HR	24-HR	72-HR	33.30-HR
+ (AC-FT)	(HR)				
2.	5.37	1.	0.	0.	0.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
		6-HR	24-HR	72-HR	33.30-HR
+ (FEET)	(HR)				
2.51	5.40	1.41	.49	.35	.35

CUMULATIVE AREA = 4.91 SQ MI

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

HYDROGRAPH AT STATION RA06A
TRANSPOSITION AREA 2.8 SQ MI

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	33.30-HR
+ (CFS)	(HR)				
		(CFS)			
+ 601.	5.17	256.	72.	52.	52.
		(INCHES) .484	.547	.547	.547
		(AC-FT) 127.	143.	143.	143.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
		6-HR	24-HR	72-HR	33.30-HR
+ (AC-FT)	(HR)				
1.	5.17	1.	0.	0.	0.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
		6-HR	24-HR	72-HR	33.30-HR
+ (FEET)	(HR)				
2.13	5.17	1.19	.38	.27	.27

CUMULATIVE AREA = 4.91 SQ MI

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

HYDROGRAPH AT STATION RA06A
TRANSPOSITION AREA 16.0 SQ MI

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	33.30-HR
+ (CFS)	(HR)				
		(CFS)			
+ 456.	5.27	196.	53.	38.	38.
		(INCHES) .371	.400	.400	.400
		(AC-FT) 97.	105.	105.	105.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
		6-HR	24-HR	72-HR	33.30-HR
+ (AC-FT)	(HR)				
1.	5.27	1.	0.	0.	0.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
		6-HR	24-HR	72-HR	33.30-HR
+ (FEET)	(HR)				
1.81	5.27	1.03	.29	.21	.21

CUMULATIVE AREA = 4.91 SQ MI

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

HYDROGRAPH AT STATION RA06A
TRANSPOSITION AREA 90.0 SQ MI

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	33.30-HR
+ (CFS)	(HR)				
		(CFS)			
+ 278.	5.40	126.	35.	25.	25.
		(INCHES) .239	.266	.266	.266
		(AC-FT) 63.	70.	70.	70.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
		6-HR	24-HR	72-HR	33.30-HR
+ (AC-FT)	(HR)				

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      1.        5.37                     0.          0.          0.          0.

  PEAK STAGE    TIME                           MAXIMUM AVERAGE STAGE
                                        6-HR        24-HR       72-HR     33.30-HR
+   (FEET)      (HR)
      1.35      5.40                     .80         .23         .17         .17

                          CUMULATIVE AREA =    4.91 SQ MI

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


                          INTERPOLATED HYDROGRAPH AT     RA06A

  PEAK FLOW     TIME                           MAXIMUM AVERAGE FLOW
                                        6-HR        24-HR       72-HR     33.30-HR
+   (CFS)       (HR)
                           (CFS)
+      553.     5.20                    236.         66.         48.         48.
                           (INCHES)     .447        .500        .500        .500
                           (AC-FT)      117.        131.        131.        131.

                          CUMULATIVE AREA =    4.91 SQ MI


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

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              *            *
 2379 KK      *    RA07    *
              *            *
              **************

 2380 KO          OUTPUT CONTROL VARIABLES
                        IPRNT          3  PRINT CONTROL
                        IPLOT          0  PLOT CONTROL
                        QSCAL         0.  HYDROGRAPH PLOT SCALE

                HYDROGRAPH ROUTING DATA

 2381 RS          STORAGE ROUTING
                        NSTPS         22  NUMBER OF SUBREACHES
                         ITYP       FLOW  TYPE OF INITIAL CONDITION
                       RSVRIC        .00  INITIAL CONDITION
                            X        .00 WORKING R AND D COEFFICIENT

 2382 RC          NORMAL DEPTH CHANNEL
                          ANL       .050  LEFT OVERBANK N-VALUE
                         ANCH       .050  MAIN CHANNEL N-VALUE
                          ANR       .050  RIGHT OVERBANK N-VALUE
                        RLNTH      3464.  REACH LENGTH
                          SEL      .0061  ENERGY SLOPE
                        ELMAX         .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                             CROSS-SECTION DATA
                            --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
 2384 RY       ELEVATION    12.00     8.00     1.00       .00       .00      1.00      8.00     12.00
 2383 RX       DISTANCE       .00   100.00   200.00    250.00    300.00    350.00    900.00   1000.00
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                                        ***

                              COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

      STORAGE        .00      4.10     11.35     21.58     34.76     50.88     69.96     91.97    116.93    144.84
      OUTFLOW        .00     70.97    311.16    784.19   1502.36   2499.41   3807.27   5456.45   7476.22   9894.83
    ELEVATION        .00       .63      1.26      1.89      2.53      3.16      3.79      4.42      5.05      5.68

      STORAGE     175.69    209.49    246.23    285.85    327.35    370.43    415.11    461.37    509.21    558.65
      OUTFLOW   12739.61  16037.02  19812.86  24205.16  29341.63  34994.61  41163.93  47851.60  55061.14  62797.14
    ELEVATION       6.32      6.95      7.58      8.21      8.84      9.47     10.11     10.74     11.37     12.00

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN       71. TO     62797.
                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      RA07
                        TRANSPOSITION AREA       .0 SQ MI

  PEAK FLOW     TIME                           MAXIMUM AVERAGE FLOW
                                        6-HR        24-HR       72-HR     33.30-HR
+   (CFS)       (HR)
                           (CFS)
+       81.     4.60                     17.          4.          3.          3.
                           (INCHES)     .634        .654        .654        .654
                           (AC-FT)        8.          8.          8.          8.

 PEAK STORAGE   TIME                           MAXIMUM AVERAGE STORAGE
                                        6-HR        24-HR       72-HR     33.30-HR
+  (AC-FT)      (HR)
        0.      4.60                      0.          0.          0.          0.

  PEAK STAGE    TIME                           MAXIMUM AVERAGE STAGE
                                        6-HR        24-HR       72-HR     33.30-HR
+   (FEET)      (HR)
       .66      4.60                     .15         .04         .03         .03

                          CUMULATIVE AREA =     .24 SQ MI

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

                          HYDROGRAPH AT STATION      RA07
                        TRANSPOSITION AREA       .5 SQ MI

  PEAK FLOW     TIME                           MAXIMUM AVERAGE FLOW
                                        6-HR        24-HR       72-HR     33.30-HR
+   (CFS)       (HR)
                           (CFS)
+       79.     4.60                     16.          4.          3.          3.
                           (INCHES)     .626        .646        .646        .646
                           (AC-FT)        8.          8.          8.          8.

 PEAK STORAGE   TIME                           MAXIMUM AVERAGE STORAGE
                                        6-HR        24-HR       72-HR     33.30-HR
+  (AC-FT)      (HR)
        0.      4.60                      0.          0.          0.          0.

  PEAK STAGE    TIME                           MAXIMUM AVERAGE STAGE
                                        6-HR        24-HR       72-HR     33.30-HR
+   (FEET)      (HR)
```

.65 4.60 .14 .04 .03 .03

CUMULATIVE AREA = .24 SQ MI

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

HYDROGRAPH AT STATION RA07
TRANSPOSITION AREA 2.8 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	33.30-HR
+ (CFS)	(HR)					
		(CFS)				
+ 19.	5.33		8.	2.	1.	1.
		(INCHES)	.294	.311	.311	.311
		(AC-FT)	4.	4.	4.	4.

PEAK STORAGE	TIME		MAXIMUM AVERAGE STORAGE			
			6-HR	24-HR	72-HR	33.30-HR
+ (AC-FT)	(HR)					
0.	5.27		0.	0.	0.	0.

PEAK STAGE	TIME		MAXIMUM AVERAGE STAGE			
			6-HR	24-HR	72-HR	33.30-HR
+ (FEET)	(HR)					
.17	5.33		.07	.02	.01	.01

CUMULATIVE AREA = .24 SQ MI

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

HYDROGRAPH AT STATION RA07
TRANSPOSITION AREA 16.0 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	33.30-HR
+ (CFS)	(HR)					
		(CFS)				
+ 12.	5.40		6.	2.	1.	1.
		(INCHES)	.215	.233	.233	.233
		(AC-FT)	3.	3.	3.	3.

PEAK STORAGE	TIME		MAXIMUM AVERAGE STORAGE			
			6-HR	24-HR	72-HR	33.30-HR
+ (AC-FT)	(HR)					
0.	5.20		0.	0.	0.	0.

PEAK STAGE	TIME		MAXIMUM AVERAGE STAGE			
			6-HR	24-HR	72-HR	33.30-HR
+ (FEET)	(HR)					
.11	5.40		.05	.01	.01	.01

CUMULATIVE AREA = .24 SQ MI

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

HYDROGRAPH AT STATION RA07
TRANSPOSITION AREA 90.0 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	33.30-HR

+ (CFS)	(HR)					
		(CFS)				
+ 8.	5.07		4.	1.	1.	1.
		(INCHES)	.165	.183	.183	.183
		(AC-FT)	2.	2.	2.	2.

PEAK STORAGE	TIME		MAXIMUM AVERAGE STORAGE			
			6-HR	24-HR	72-HR	33.30-HR
+ (AC-FT)	(HR)					
0.	4.87		0.	0.	0.	0.

PEAK STAGE	TIME		MAXIMUM AVERAGE STAGE			
			6-HR	24-HR	72-HR	33.30-HR
+ (FEET)	(HR)					
.07	5.07		.04	.01	.01	.01

CUMULATIVE AREA = .24 SQ MI

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

INTERPOLATED HYDROGRAPH AT RA07

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	33.30-HR
+ (CFS)	(HR)					
		(CFS)				
+ 79.	4.60		16.	4.	3.	3.
		(INCHES)	.628	.648	.648	.648
		(AC-FT)	8.	8.	8.	8.

CUMULATIVE AREA = .24 SQ MI

1

RUNOFF SUMMARY
FLOW IN CUBIC FEET PER SECOND
TIME IN HOURS, AREA IN SQUARE MILES

+	OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
+	HYDROGRAPH AT	CBA	7.	4.13	1.	0.	0.	.01		
+	ROUTED TO	RCBA	7.	4.27	1.	0.	0.	.01		
+	HYDROGRAPH AT	P28	29.	4.17	4.	1.	1.	.03		
+	2 COMBINED AT	CP28	35.	4.20	5.	1.	1.	.03		
+	DIVERSION TO	DB28	35.	4.20	2.	1.	0.	.03		
+	HYDROGRAPH AT	DT28	30.	4.37	2.	1.	0.	.03		
+	HYDROGRAPH AT	CBB	17.	4.13	1.	0.	0.	.02		

+	ROUTED TO	RCBB	17.	4.17	1.	0.	0.	.02
+	2 COMBINED AT	CP28a	40.	4.37	4.	1.	1.	.05
+	ROUTED TO	R28a	30.	4.60	4.	1.	1.	.05
+	HYDROGRAPH AT	P27	52.	4.23	9.	2.	2.	.06
+	DIVERSION TO	DB27	50.	4.17	3.	1.	0.	.06
+	HYDROGRAPH AT	DT27	52.	4.23	7.	2.	1.	.06
+	2 COMBINED AT	CP27	68.	4.53	11.	3.	2.	.12
+	HYDROGRAPH AT	P27A	8.	4.10	1.	0.	0.	.01
+	DIVERSION TO	DB27a	8.	4.10	0.	0.	0.	.01
+	HYDROGRAPH AT	DT27a	7.	4.17	1.	0.	0.	.01
+	HYDROGRAPH AT	P27B	11.	4.13	2.	0.	0.	.01
+	DIVERSION TO	DB27b	10.	4.07	1.	0.	0.	.01
+	HYDROGRAPH AT	DT27b	11.	4.13	1.	0.	0.	.01
+	HYDROGRAPH AT	CBL	24.	4.13	3.	1.	1.	.03
+	4 COMBINED AT	CCBL	96.	4.30	15.	4.	3.	.16
+	ROUTED TO	RCBL	105.	4.33	15.	4.	3.	.16
+	HYDROGRAPH AT	CBK	43.	4.23	4.	1.	1.	.05
+	2 COMBINED AT	CCBK	140.	4.33	19.	5.	3.	.22
+	ROUTED TO	RCBK	136.	4.37	19.	5.	3.	.22
+	HYDROGRAPH AT	P14	5.	4.17	0.	0.	0.	.01
+	DIVERSION TO	RB14	5.	4.17	0.	0.	0.	.01
	HYDROGRAPH AT							

+		RT14	0.	.00	0.	0.	0.	.01
+	2 COMBINED AT	CP14	136.	4.37	19.	5.	3.	.22
+	HYDROGRAPH AT	P15	1.	4.47	0.	0.	0.	.01
+	DIVERSION TO	DB15	1.	4.47	0.	0.	0.	.01
+	HYDROGRAPH AT	DT15	0.	.00	0.	0.	0.	.01
+	HYDROGRAPH AT	CBJ	11.	4.20	1.	0.	0.	.01
+	3 COMBINED AT	CP15	144.	4.37	20.	5.	4.	.25
+	ROUTED TO	R15	142.	4.40	20.	5.	4.	.25
+	HYDROGRAPH AT	CBH	15.	4.10	1.	0.	0.	.01
+	ROUTED TO	RCBH	13.	4.20	1.	0.	0.	.01
+	HYDROGRAPH AT	P25S	13.	4.27	2.	1.	0.	.03
+	2 COMBINED AT	CP25S	25.	4.23	3.	1.	1.	.04
+	2 COMBINED AT	AFR0	162.	4.40	24.	6.	4.	.29
+	HYDROGRAPH AT	E1	12.	4.13	1.	0.	0.	.01
+	ROUTED TO	RE1	12.	4.23	1.	0.	0.	.01
+	HYDROGRAPH AT	E2	11.	4.17	1.	0.	0.	.02
+	ROUTED TO	RE2	11.	4.20	1.	0.	0.	.02
+	HYDROGRAPH AT	P13	55.	4.13	6.	2.	1.	.06
+	DIVERSION TO	DB13	49.	4.07	2.	1.	0.	.06
+	HYDROGRAPH AT	DT13	55.	4.13	4.	1.	1.	.06
+	3 COMBINED AT	CP13	75.	4.17	6.	1.	1.	.09
+	ROUTED TO	R13	74.	4.27	6.	1.	1.	.09

+	HYDROGRAPH AT	P12	29.	4.23	5.	1.	1.	.04
+	DIVERSION TO	DB12	29.	4.23	2.	1.	0.	.04
+	HYDROGRAPH AT	DT12	25.	4.40	2.	1.	0.	.04
+	2 COMBINED AT	CP12	85.	4.40	8.	2.	1.	.13
+	HYDROGRAPH AT	E3	25.	4.60	6.	1.	1.	.08
+	ROUTED TO	RE3	25.	4.67	6.	1.	1.	.08
+	HYDROGRAPH AT	P10	42.	4.20	6.	1.	1.	.05
+	DIVERSION TO	DB10	42.	4.17	2.	1.	0.	.05
+	HYDROGRAPH AT	DT10	42.	4.23	4.	1.	1.	.05
+	2 COMBINED AT	CP10	53.	4.30	9.	2.	2.	.14
+	ROUTED TO	R10	53.	4.43	9.	2.	2.	.14
+	HYDROGRAPH AT	P11	16.	4.43	4.	1.	1.	.04
+	DIVERSION TO	DB11	16.	4.43	2.	1.	0.	.04
+	HYDROGRAPH AT	DT11	13.	4.90	2.	1.	0.	.04
+	2 COMBINED AT	CP11	53.	4.43	11.	3.	2.	.18
+	HYDROGRAPH AT	E4	11.	4.53	3.	1.	0.	.04
+	ROUTED TO	RE4	11.	4.60	3.	1.	0.	.04
+	HYDROGRAPH AT	P9	36.	4.17	5.	1.	1.	.05
+	DIVERSION TO	DB9	35.	4.13	2.	0.	0.	.05
+	HYDROGRAPH AT	DT9	35.	4.20	3.	1.	1.	.05
+	HYDROGRAPH AT	HV1	2.	4.40	1.	0.	0.	.01

+	3 COMBINED AT	CP9	41.	4.20	6.	2.	1.	.09
+	ROUTED TO	R9	41.	4.27	6.	2.	1.	.09
+	HYDROGRAPH AT	P8	6.	4.33	1.	0.	0.	.01
+	DIVERSION TO	DB8	6.	4.33	1.	0.	0.	.01
+	HYDROGRAPH AT	DT8	5.	4.53	1.	0.	0.	.01
+	HYDROGRAPH AT	P7	7.	4.27	1.	0.	0.	.01
+	DIVERSION TO	DB7	7.	4.27	1.	0.	0.	.01
+	HYDROGRAPH AT	DT7	7.	4.43	1.	0.	0.	.01
+	3 COMBINED AT	CP7	43.	4.53	8.	2.	1.	.12
+	ROUTED TO	R7	45.	4.30	8.	2.	1.	.12
+	HYDROGRAPH AT	P6	19.	4.67	7.	2.	1.	.07
+	DIVERSION TO	DB6	19.	4.67	4.	1.	1.	.07
+	HYDROGRAPH AT	DT6	16.	5.23	4.	1.	1.	.07
+	2 COMBINED AT	CP6	45.	4.30	12.	3.	2.	.19
+	3 COMBINED AT	HPVLY	174.	4.40	31.	8.	6.	.50
+	HYDROGRAPH AT	A11MA	106.	4.13	9.	2.	2.	.07
+	DIVERSION TO	DA11MA	106.	4.13	7.	2.	1.	.07
+	HYDROGRAPH AT	A11MAQ	49.	4.37	2.	0.	0.	.07
+	ROUTED TO	SA11MA	12.	4.63	2.	0.	0.	.07
+	ROUTED TO	RA11MA	11.	4.93	2.	0.	0.	.07
+	HYDROGRAPH AT	A11MB	262.	4.17	29.	7.	5.	.19
	DIVERSION TO							

+		DA11MB	181.	4.00	7.	2.	1.	.19
+	HYDROGRAPH AT	A11MBQ	262.	4.17	22.	5.	4.	.19
+	ROUTED TO	SA11MB	31.	4.80	21.	5.	4.	.19
+	HYDROGRAPH AT	A11NA	93.	4.13	8.	2.	2.	.08
+	ROUTED TO	SA11NA	25.	4.47	8.	2.	2.	.08
+	ROUTED TO	RA11NA	25.	4.77	8.	2.	2.	.08
+	3 COMBINED AT	CA11MB	67.	4.90	31.	8.	6.	.34
+	ROUTED TO	RA11MB	66.	5.23	30.	8.	6.	.34
+	HYDROGRAPH AT	A11O	52.	4.20	6.	2.	1.	.06
+	ROUTED TO	SA11O	27.	4.50	6.	2.	1.	.06
+	ROUTED TO	RA11O	27.	4.83	6.	2.	1.	.06
+	HYDROGRAPH AT	A11KB	103.	4.17	12.	3.	2.	.11
+	ROUTED TO	SA11KB	24.	4.73	12.	3.	2.	.11
+	HYDROGRAPH AT	A11KA	92.	4.13	10.	3.	2.	.08
+	ROUTED TO	SA11KA	24.	4.57	10.	3.	2.	.08
+	ROUTED TO	RA11KA	24.	4.87	10.	3.	2.	.08
+	3 COMBINED AT	CA11KB	75.	4.83	28.	7.	5.	.24
+	ROUTED TO	RA11KB	75.	5.03	28.	7.	5.	.24
+	HYDROGRAPH AT	A11G	38.	4.37	6.	2.	1.	.06
+	ROUTED TO	RA11GN	36.	4.60	6.	2.	1.	.06
+	HYDROGRAPH AT	A11KC	123.	4.17	14.	3.	2.	.13
+	ROUTED TO	SA11KC	31.	4.67	13.	3.	2.	.13

+	3 COMBINED AT	CA11KC	131.	4.80	47.	12.	9.	.44
+	ROUTED TO	RA11KC	131.	4.90	47.	12.	9.	.44
+	HYDROGRAPH AT	A11J	69.	4.50	13.	3.	2.	.11
+	ROUTED TO	SA11J	30.	5.13	13.	3.	2.	.11
+	3 COMBINED AT	CA11J	208.	5.07	84.	22.	16.	.89
+	HYDROGRAPH AT	A11L	189.	4.40	41.	10.	7.	.26
+	DIVERSION TO	DA11L	189.	4.40	15.	4.	3.	.26
+	HYDROGRAPH AT	DA11LQ	184.	4.50	26.	6.	5.	.26
+	ROUTED TO	RA11L	162.	4.83	26.	6.	5.	.26
+	HYDROGRAPH AT	A11I	155.	4.23	25.	6.	4.	.15
+	DIVERSION TO	DA11I	155.	4.23	24.	6.	4.	.15
+	HYDROGRAPH AT	DA11IQ	15.	5.50	1.	0.	0.	.15
+	3 COMBINED AT	CA11I	342.	4.93	106.	27.	20.	1.31
+	ROUTED TO	RA11I	331.	5.27	105.	27.	20.	1.31
+	HYDROGRAPH AT	A11EA	52.	4.57	11.	3.	2.	.14
+	ROUTED TO	RA11EA	51.	4.77	11.	3.	2.	.14
+	HYDROGRAPH AT	A11EB	41.	4.90	13.	3.	2.	.19
+	3 COMBINED AT	CA11EB	368.	5.27	118.	31.	22.	1.64
+	HYDROGRAPH AT	41	56.	4.20	5.	1.	1.	.05
+	ROUTED TO	B41	46.	4.27	5.	1.	1.	.05
+	HYDROGRAPH AT	42	88.	4.20	10.	2.	2.	.08

+	ROUTED TO	B42	77.	4.27	10.	2.	2.	.08
+	2 COMBINED AT	C41	122.	4.27	15.	4.	3.	.13
+	ROUTED TO	RC41	104.	4.77	15.	4.	3.	.13
+	HYDROGRAPH AT	A11F	131.	4.60	25.	6.	5.	.33
+	2 COMBINED AT	CA11F	223.	4.70	39.	10.	7.	.46
+	2 COMBINED AT	CA11E	428.	5.23	139.	36.	26.	2.11
+	ROUTED TO	RA11E	422.	5.33	139.	36.	26.	2.11
+	HYDROGRAPH AT	A09U	136.	4.27	17.	4.	3.	.17
+	DIVERSION TO	A09UI	0.	.00	0.	0.	0.	.17
+	HYDROGRAPH AT	DA09U	136.	4.27	17.	4.	3.	.17
+	ROUTED TO	RA09UW	111.	4.73	17.	4.	3.	.17
+	HYDROGRAPH AT	A09T	71.	4.53	12.	3.	2.	.18
+	2 COMBINED AT	CA09T	172.	4.67	29.	7.	5.	.36
+	DIVERSION TO	A09TI	0.	.00	0.	0.	0.	.36
+	HYDROGRAPH AT	DA09T	172.	4.67	29.	7.	5.	.36
+	ROUTED TO	RA09TW	169.	4.77	29.	7.	5.	.36
+	HYDROGRAPH AT	A11A	202.	4.47	37.	9.	7.	.30
+	DIVERSION TO	DA11A	200.	4.43	16.	4.	3.	.30
+	HYDROGRAPH AT	DA11AQ	201.	4.50	22.	6.	4.	.30
+	3 COMBINED AT	CX23	485.	5.30	164.	43.	31.	2.76
+	ROUTED TO	RX23	472.	5.57	164.	43.	31.	2.76
	HYDROGRAPH AT							

+		S1	46.	4.57	10.	3.	2.	.12
+	HYDROGRAPH AT	P2	50.	4.13	6.	1.	1.	.05
+	DIVERSION TO	RB2	50.	4.13	6.	1.	1.	.05
+	HYDROGRAPH AT	RT2	0.	.00	0.	0.	0.	.05
+	3 COMBINED AT	CS1	474.	5.57	167.	44.	32.	2.93
+	ROUTED TO	RS1	474.	5.60	167.	44.	32.	2.93
+	HYDROGRAPH AT	S2	13.	4.10	1.	0.	0.	.01
+	HYDROGRAPH AT	S3	8.	4.07	0.	0.	0.	.01
+	3 COMBINED AT	CS2	473.	5.63	167.	44.	32.	2.95
+	ROUTED TO	RS2	473.	5.63	167.	44.	32.	2.95
+	HYDROGRAPH AT	P3	37.	4.23	6.	2.	1.	.05
+	DIVERSION TO	RB3	37.	4.23	6.	2.	1.	.05
+	HYDROGRAPH AT	RT3	0.	.00	0.	0.	0.	.05
+	2 COMBINED AT	CP3	473.	5.63	167.	44.	32.	3.01
+	HYDROGRAPH AT	P4b	22.	4.10	2.	0.	0.	.02
+	DIVERSION TO	RB4b	16.	3.97	1.	0.	0.	.02
+	HYDROGRAPH AT	RT4b	22.	4.10	1.	0.	0.	.02
+	HYDROGRAPH AT	S4	5.	4.37	1.	0.	0.	.01
+	HYDROGRAPH AT	P1	15.	4.33	2.	1.	0.	.03
+	DIVERSION TO	DB1	15.	4.33	1.	0.	0.	.03
+	HYDROGRAPH AT	DT1	12.	4.50	1.	0.	0.	.03
+	2 COMBINED AT	CP1	17.	4.50	2.	1.	0.	.04

+	HYDROGRAPH AT	HV2	3.	5.30	2.	1.	1.	.03
+	ROUTED TO	RHV2	3.	5.37	2.	1.	1.	.03
+	DIVERSION TO	DBHV2	3.	5.37	1.	0.	0.	.03
+	HYDROGRAPH AT	DTHV2	2.	7.17	1.	0.	0.	.03
+	HYDROGRAPH AT	P4a	22.	4.27	4.	1.	1.	.04
+	DIVERSION TO	DB4a	22.	4.27	1.	0.	0.	.04
+	HYDROGRAPH AT	DT4a	21.	4.37	3.	1.	0.	.04
+	5 COMBINED AT	SOUTH	472.	5.63	169.	45.	32.	3.14
+	HYDROGRAPH AT	N11O	27.	4.43	3.	1.	1.	.05
+	DIVERSION TO	N11OI	24.	4.43	3.	1.	1.	.05
+	HYDROGRAPH AT	DN11O	3.	4.43	0.	0.	0.	.05
+	ROUTED TO	RN11OW	2.	5.50	0.	0.	0.	.05
+	HYDROGRAPH AT	DRA09T	0.	.00	0.	0.	0.	.36
+	ROUTED TO	RA09TS	0.	.00	0.	0.	0.	.36
+	HYDROGRAPH AT	A09R	33.	4.83	9.	2.	2.	.14
+	3 COMBINED AT	CA09R	33.	4.83	9.	2.	2.	.20
+	DIVERSION TO	A09RI	32.	4.83	9.	2.	2.	.20
+	HYDROGRAPH AT	DA09R	0.	4.83	0.	0.	0.	.20
+	ROUTED TO	RA09RW	0.	7.20	0.	0.	0.	.20
+	HYDROGRAPH AT	A09S	59.	4.27	12.	3.	2.	.07
+	DIVERSION TO	DA09S	59.	4.27	12.	3.	2.	.07

+	HYDROGRAPH AT	DA09SQ	0.	.00	0.	0.	0.	.07
+	2 COMBINED AT	CA09S	0.	7.20	0.	0.	0.	.27
+	ROUTED TO	RA09SW	0.	7.37	0.	0.	0.	.27
+	HYDROGRAPH AT	A09QA	37.	4.50	6.	1.	1.	.09
+	2 COMBINED AT	CA09QA	36.	4.50	6.	1.	1.	.36
+	DIVERSION TO	A09QAI	36.	4.50	5.	1.	1.	.36
+	HYDROGRAPH AT	DA09QA	1.	5.20	0.	0.	0.	.36
+	ROUTED TO	RA09QW	1.	5.33	0.	0.	0.	.36
+	HYDROGRAPH AT	A99YA	55.	4.37	7.	2.	1.	.10
+	2 COMBINED AT	CA99YA	55.	4.37	7.	2.	1.	.46
+	ROUTED TO	RA99YA	53.	4.47	7.	2.	1.	.46
+	HYDROGRAPH AT	A99YB	66.	4.50	10.	3.	2.	.17
+	3 COMBINED AT	CA99YB	468.	5.63	172.	46.	33.	3.77
+	3 COMBINED AT	AFR1	483.	5.63	193.	51.	37.	4.56
+	HYDROGRAPH AT	BA09UI	0.	.00	0.	0.	0.	.17
+	ROUTED TO	RA09US	0.	.00	0.	0.	0.	.17
+	HYDROGRAPH AT	N11NB	56.	4.53	11.	3.	2.	.14
+	2 COMBINED AT	CN11NB	56.	4.53	11.	3.	2.	.14
+	ROUTED TO	RN11NW	51.	5.10	11.	3.	2.	.14
+	HYDROGRAPH AT	BN11OI	24.	4.43	3.	1.	1.	.05
+	ROUTED TO	RN11OS	19.	5.10	3.	1.	1.	.05
	HYDROGRAPH AT							

+		N11M	44.	4.43	6.	1.	1.	.10
+	3 COMBINED AT	CN11M	80.	5.07	20.	5.	4.	.24
+	DIVERSION TO	N11MI	20.	5.07	5.	1.	1.	.24
+	HYDROGRAPH AT	DN11M	60.	5.07	15.	4.	3.	.24
+	ROUTED TO	RN11MS	58.	5.33	15.	4.	3.	.24
+	HYDROGRAPH AT	N11J	79.	4.50	20.	5.	4.	.24
+	DIVERSION TO	LN11JD	67.	4.33	4.	1.	1.	.24
+	HYDROGRAPH AT	LN11J	79.	4.50	16.	4.	3.	.24
+	2 COMBINED AT	CN11J	107.	4.73	31.	8.	6.	.48
+	DIVERSION TO	N11JI	107.	4.73	31.	8.	6.	.48
+	HYDROGRAPH AT	DN11J	0.	.00	0.	0.	0.	.48
+	ROUTED TO	RN11JW	0.	.00	0.	0.	0.	.48
+	HYDROGRAPH AT	DRN11M	20.	5.07	5.	1.	1.	.24
+	ROUTED TO	RN11MW	18.	5.80	5.	1.	1.	.24
+	2 COMBINED AT	CX4	18.	5.80	5.	1.	1.	.48
+	ROUTED TO	RX4	17.	6.30	5.	1.	1.	.48
+	HYDROGRAPH AT	A09O	40.	5.00	14.	4.	3.	.19
+	ROUTED TO	SA09O	19.	6.13	12.	4.	3.	.19
+	HYDROGRAPH AT	BA09RI	32.	4.83	9.	2.	2.	.20
+	ROUTED TO	RA09RS	31.	5.30	9.	2.	2.	.20
+	3 COMBINED AT	CA09O	49.	5.77	24.	6.	5.	.68
+	DIVERSION TO	A09OI	49.	5.77	24.	6.	5.	.68

+	HYDROGRAPH AT	DA09O	0.	.00	0.	0.	0.	.68
+	ROUTED TO	RA09OW	0.	.00	0.	0.	0.	.68
+	HYDROGRAPH AT	A09P	64.	4.70	14.	4.	3.	.19
+	ROUTED TO	SA09P	29.	5.43	14.	4.	3.	.19
+	2 COMBINED AT	CA09P	25.	5.43	12.	3.	2.	.87
+	ROUTED TO	RA09P	25.	5.53	12.	3.	2.	.87
+	HYDROGRAPH AT	BA09QA	36.	4.50	5.	1.	1.	.36
+	ROUTED TO	RA09QB	34.	4.80	5.	1.	1.	.36
+	HYDROGRAPH AT	A09QB	57.	4.37	11.	3.	2.	.14
+	3 COMBINED AT	CA09Q	71.	4.77	24.	6.	4.	1.01
+	DIVERSION TO	A09QI	71.	4.77	24.	6.	4.	1.01
+	HYDROGRAPH AT	DA09Q	0.	.00	0.	0.	0.	1.01
+	ROUTED TO	RA09QW	0.	.00	0.	0.	0.	1.01
+	HYDROGRAPH AT	A10A	94.	4.47	14.	4.	3.	.19
+	2 COMBINED AT	CA10A	72.	4.50	12.	3.	2.	1.20
+	ROUTED TO	RA10A	71.	4.57	12.	3.	2.	1.20
+	HYDROGRAPH AT	A99X	233.	4.30	32.	8.	6.	.26
+	2 COMBINED AT	CA99X	210.	4.37	38.	10.	7.	1.46
+	2 COMBINED AT	AFR2	472.	5.63	210.	56.	41.	6.02
+	HYDROGRAPH AT	BA09OI	49.	5.77	24.	6.	5.	.68
+	ROUTED TO	RA09OS	49.	6.17	23.	6.	5.	.68

+	HYDROGRAPH AT	A09K	125.	4.83	26.	7.	5.	.41
+	DIVERSION TO	A09KI	91.	4.83	19.	5.	3.	.41
+	HYDROGRAPH AT	DA09K	34.	4.83	7.	2.	1.	.41
+	2 COMBINED AT	CX7	65.	5.80	32.	9.	6.	.41
+	ROUTED TO	RX7S	64.	6.07	32.	9.	6.	.41
+	HYDROGRAPH AT	N11NA	28.	4.13	2.	1.	0.	.02
+	ROUTED TO	RN11NA	20.	4.60	2.	1.	0.	.02
+	HYDROGRAPH AT	N11NC	91.	4.37	12.	3.	2.	.17
+	2 COMBINED AT	CN11NC	103.	4.43	15.	4.	3.	.19
+	DIVERSION TO	N11NP	103.	4.43	15.	4.	3.	.19
+	HYDROGRAPH AT	DN11NC	0.	.00	0.	0.	0.	.19
+	ROUTED TO	RN11NC	0.	.00	0.	0.	0.	.19
+	HYDROGRAPH AT	N11ND	23.	4.33	5.	1.	1.	.05
+	HYDROGRAPH AT	N11K	54.	4.47	13.	3.	2.	.17
+	3 COMBINED AT	CN11K	76.	4.43	18.	4.	3.	.41
+	DIVERSION TO	N11KP	55.	4.23	16.	4.	3.	.41
+	HYDROGRAPH AT	DN11KS	21.	4.43	2.	0.	0.	.41
+	ROUTED TO	RN11K	14.	5.30	2.	0.	0.	.41
+	DIVERSION TO	X5I	0.	.00	0.	0.	0.	.41
+	HYDROGRAPH AT	DX5	14.	5.30	2.	0.	0.	.41
+	ROUTED TO	RX5W	12.	5.80	2.	0.	0.	.41
	HYDROGRAPH AT							

+		N11H	131.	4.83	26.	7.	5.	.42
+	2 COMBINED AT	CN11H	106.	4.83	22.	6.	4.	.83
+	ROUTED TO	RN11H	98.	5.17	22.	6.	4.	.83
+	HYDROGRAPH AT	BN11JI	107.	4.73	31.	8.	6.	.48
+	ROUTED TO	RN11JS	106.	5.50	31.	8.	6.	.48
+	HYDROGRAPH AT	N11G	165.	4.83	31.	8.	6.	.52
+	3 COMBINED AT	CN11G	192.	5.23	58.	15.	11.	1.36
+	ROUTED TO	RN11G	186.	5.40	58.	15.	11.	1.36
+	HYDROGRAPH AT	N11DA	124.	4.43	29.	7.	5.	.26
+	DIVERSION TO	LDAOUT	124.	4.43	16.	4.	3.	.26
+	HYDROGRAPH AT	LN11DA	98.	4.83	13.	3.	2.	.26
+	ROUTED TO	SN11DA	62.	5.20	13.	3.	2.	.26
+	DIVERSION TO	D11DAS	16.	5.20	5.	1.	1.	.26
+	HYDROGRAPH AT	N11DAW	46.	5.20	8.	2.	1.	.26
+	ROUTED TO	RN11DA	45.	5.47	8.	2.	1.	.26
+	HYDROGRAPH AT	N11FB	48.	4.47	13.	3.	2.	.12
+	DIVERSION TO	LN1FBD	48.	4.47	13.	3.	2.	.12
+	HYDROGRAPH AT	LN11FB	0.	.00	0.	0.	0.	.12
+	2 COMBINED AT	CN11FB	45.	5.47	8.	2.	1.	.38
+	2 COMBINED AT	C98RGL	186.	5.63	58.	15.	11.	1.73
+	ROUTED TO	RN11FB	172.	5.77	54.	14.	10.	1.73
+	HYDROGRAPH AT	DRA09K	91.	4.83	19.	5.	3.	.41

+	ROUTED TO	RA09KS	87.	5.07	19.	5.	3.	.41
+	HYDROGRAPH AT	N11FA	84.	4.43	21.	5.	4.	.18
+	DIVERSION TO	LN1FAD	84.	4.43	16.	4.	3.	.18
+	HYDROGRAPH AT	LN11FA	39.	5.30	6.	1.	1.	.18
+	HYDROGRAPH AT	A09GA	111.	4.10	14.	3.	2.	.07
+	DIVERSION TO	L09GAD	111.	4.10	12.	3.	2.	.07
+	HYDROGRAPH AT	LA09GA	24.	4.60	2.	0.	0.	.07
+	4 COMBINED AT	CN11FA	192.	5.77	63.	16.	11.	1.99
+	ROUTED TO	RN11FA	190.	5.83	63.	16.	11.	1.99
+	HYDROGRAPH AT	A09GB	11.	4.90	5.	2.	1.	.05
+	DIVERSION TO	L09GBD	11.	4.90	5.	1.	1.	.05
+	HYDROGRAPH AT	LA09GB	1.	9.90	0.	0.	0.	.05
+	2 COMBINED AT	CA09G	190.	5.83	62.	16.	11.	2.04
+	DIVERSION TO	A09GI	37.	5.83	12.	3.	2.	2.04
+	HYDROGRAPH AT	DA09G	150.	5.83	49.	12.	9.	2.04
+	ROUTED TO	RA09GW	147.	5.90	49.	12.	9.	2.04
+	2 COMBINED AT	CX8	148.	6.03	58.	15.	11.	2.45
+	ROUTED TO	RX8W	145.	6.23	57.	15.	11.	2.45
+	HYDROGRAPH AT	A09H	83.	4.60	26.	7.	5.	.24
+	DIVERSION TO	LA09HD	83.	4.60	25.	6.	5.	.24
+	HYDROGRAPH AT	LA09H	10.	7.30	2.	0.	0.	.24

+	2 COMBINED AT	CA09H1	145.	6.23	57.	15.	11.	2.69
+	HYDROGRAPH AT	A09J	70.	4.47	18.	5.	3.	.17
+	DIVERSION TO	LA09JD	70.	4.47	16.	4.	3.	.17
+	HYDROGRAPH AT	LA09J	20.	5.83	3.	1.	1.	.17
+	DIVERSION TO	A09JI	0.	.00	0.	0.	0.	.17
+	HYDROGRAPH AT	DA09J	20.	5.83	3.	1.	1.	.17
+	ROUTED TO	RA09JS	15.	6.47	3.	1.	1.	.17
+	2 COMBINED AT	CA09H	152.	6.27	57.	15.	11.	2.85
+	ROUTED TO	RA09H	129.	6.33	51.	13.	10.	2.85
+	HYDROGRAPH AT	BA09QI	71.	4.77	24.	6.	4.	1.01
+	ROUTED TO	RA09QS	70.	4.97	24.	6.	4.	1.01
+	HYDROGRAPH AT	A09M	100.	4.67	24.	6.	4.	.25
+	DIVERSION TO	LA09MD	100.	4.67	14.	3.	3.	.25
+	HYDROGRAPH AT	LA09M	77.	5.00	11.	3.	2.	.25
+	2 COMBINED AT	CA09M	168.	5.00	40.	10.	7.	.25
+	ROUTED TO	RA09M	156.	5.13	40.	10.	7.	.25
+	HYDROGRAPH AT	A09N	57.	4.37	12.	3.	2.	.11
+	2 COMBINED AT	CA09N	184.	5.10	52.	13.	10.	.36
+	ROUTED TO	LA09N	110.	5.63	48.	13.	10.	.36
+	ROUTED TO	RA09N	110.	5.73	48.	13.	10.	.36
+	HYDROGRAPH AT	DRA09J	0.	.00	0.	0.	0.	.17
	ROUTED TO							

+		RA09JW	0.	.00	0.	0.	0.	.17
+	HYDROGRAPH AT	A09L	58.	4.47	15.	4.	3.	.14
+	3 COMBINED AT	CA09L	130.	5.60	61.	17.	12.	.50
+	ROUTED TO	LA09L	122.	5.93	60.	17.	12.	.50
+	ROUTED TO	RA09LS	122.	6.03	60.	17.	12.	.50
+	HYDROGRAPH AT	A09IH	42.	4.37	10.	2.	2.	.09
+	2 COMBINED AT	CA09IH	123.	5.97	66.	19.	14.	.59
+	ROUTED TO	LA09IH	111.	6.43	64.	19.	14.	.59
+	HYDROGRAPH AT	A09I	59.	4.47	16.	4.	3.	.13
+	DIVERSION TO	LA09ID	59.	4.47	11.	3.	2.	.13
+	HYDROGRAPH AT	LA09I	33.	5.30	6.	1.	1.	.13
+	3 COMBINED AT	CX10	178.	6.33	85.	25.	18.	3.57
+	ROUTED TO	RX10	175.	6.60	85.	25.	18.	3.57
+	HYDROGRAPH AT	A99V	96.	4.57	15.	4.	3.	.21
+	2 COMBINED AT	CA99V	172.	6.60	88.	26.	19.	3.77
+	HYDROGRAPH AT	A10	121.	4.40	15.	4.	3.	.21
+	HYDROGRAPH AT	A99W	96.	4.77	23.	6.	4.	.22
+	DIVERSION TO	LA99WD	96.	4.77	14.	3.	2.	.22
+	HYDROGRAPH AT	LA99W	79.	5.07	10.	3.	2.	.22
+	4 COMBINED AT	AFR3	473.	5.80	253.	71.	51.	10.22
+	HYDROGRAPH AT	DRA09G	37.	5.83	12.	3.	2.	2.04
+	ROUTED TO	RA09GS	34.	6.47	12.	3.	2.	2.04

+	HYDROGRAPH AT	A09F	186.	4.70	45.	11.	8.	.37
+	DIVERSION TO	LA09FD	186.	4.70	27.	7.	5.	.37
+	HYDROGRAPH AT	LA09F	146.	5.03	18.	5.	3.	.37
+	2 COMBINED AT	CA09F	146.	5.03	43.	11.	8.	.37
+	DIVERSION TO	A09FI	10.	5.03	1.	0.	0.	.37
+	HYDROGRAPH AT	DA09F	137.	5.03	42.	11.	8.	.37
+	ROUTED TO	RA09FW	125.	6.07	41.	11.	8.	.37
+	HYDROGRAPH AT	A09E	64.	4.47	17.	5.	3.	.15
+	DIVERSION TO	LA09ED	64.	4.47	17.	4.	3.	.15
+	HYDROGRAPH AT	LA09E	10.	6.60	1.	0.	0.	.15
+	2 COMBINED AT	CA09E	125.	6.07	43.	11.	8.	.51
+	ROUTED TO	RA09E	121.	6.20	42.	11.	8.	.51
+	HYDROGRAPH AT	A09D	286.	4.20	34.	9.	6.	.25
+	DIVERSION TO	LA09DD	286.	4.20	31.	8.	6.	.25
+	HYDROGRAPH AT	LA09D	52.	4.80	3.	1.	1.	.25
+	2 COMBINED AT	CA09C*	121.	6.20	44.	11.	8.	.77
+	ROUTED TO	RA09C*	106.	6.23	39.	10.	7.	.77
+	HYDROGRAPH AT	A09C	27.	4.57	5.	1.	1.	.07
+	2 COMBINED AT	CA09C	105.	6.20	42.	11.	8.	.84
+	DIVERSION TO	DA09C	105.	6.20	42.	11.	8.	.84
+	HYDROGRAPH AT	DIA09C	0.	.00	0.	0.	0.	.84

+	ROUTED TO	RA09C	0.	.00	0.	0.	0.	.84
+	HYDROGRAPH AT	A09B	63.	4.07	7.	2.	1.	.04
+	ROUTED TO	RA09B	48.	4.60	7.	2.	1.	.04
+	HYDROGRAPH AT	A09A	32.	4.77	10.	2.	2.	.08
+	3 COMBINED AT	CA09A	67.	4.63	15.	4.	3.	.96
+	DIVERSION TO	A09AI	0.	4.60	0.	0.	0.	.96
+	HYDROGRAPH AT	DA09AO	67.	4.63	15.	4.	3.	.96
+	ROUTED TO	RA09AW	44.	6.20	15.	4.	3.	.96
+	HYDROGRAPH AT	A99T	37.	4.07	3.	1.	1.	.03
+	DIVERSION TO	LA99TD	26.	3.93	1.	0.	0.	.03
+	HYDROGRAPH AT	LA99T	37.	4.07	2.	0.	0.	.03
+	ROUTED TO	RA99T	28.	4.23	2.	0.	0.	.03
+	HYDROGRAPH AT	A09	97.	4.47	15.	4.	3.	.18
+	3 COMBINED AT	CA09	86.	4.37	27.	7.	5.	1.17
+	HYDROGRAPH AT	A99U	34.	4.40	7.	2.	1.	.07
+	3 COMBINED AT	AFR4	479.	5.80	268.	76.	55.	11.46
+	HYDROGRAPH AT	A99S	13.	4.93	4.	1.	1.	.08
+	HYDROGRAPH AT	A08A	26.	5.13	10.	3.	2.	.14
+	ROUTED TO	RA08A	26.	5.33	10.	3.	2.	.14
+	HYDROGRAPH AT	A99R	20.	4.33	3.	1.	0.	.04
+	ROUTED TO	RA99R	18.	4.70	3.	1.	0.	.04
	HYDROGRAPH AT							

+		A08	69.	4.13	5.	1.	1.	.08
+	4 COMBINED AT	CA08	72.	4.13	21.	6.	4.	.33
+	2 COMBINED AT	AFR5	487.	5.80	273.	77.	56.	11.79
+	HYDROGRAPH AT	A07F.1	40.	4.87	14.	4.	3.	.13
+	HYDROGRAPH AT	A07F.2	23.	4.63	6.	2.	1.	.07
+	HYDROGRAPH AT	A07E.8	9.	4.07	1.	0.	0.	.01
+	3 COMBINED AT	CA07F	62.	4.73	22.	6.	4.	.21
+	ROUTED TO	RA07F	62.	4.77	22.	6.	4.	.21
+	HYDROGRAPH AT	A07E.7	11.	4.03	1.	0.	0.	.01
+	2 COMBINED AT	CA07E7	62.	4.77	23.	6.	4.	.22
+	ROUTED TO	RA07E7	62.	4.83	23.	6.	4.	.22
+	ROUTED TO	RA07E	62.	4.97	23.	6.	4.	.22
+	HYDROGRAPH AT	A07G.1	212.	4.23	34.	9.	6.	.23
+	DIVERSION TO	LA07GD	212.	4.23	26.	7.	5.	.23
+	HYDROGRAPH AT	LA07G	97.	4.77	9.	2.	2.	.23
+	ROUTED TO	RA07G	72.	5.10	9.	2.	2.	.23
+	DIVERSION TO	DA07GE	36.	5.10	4.	1.	1.	.23
+	HYDROGRAPH AT	DA07G	36.	5.10	4.	1.	1.	.23
+	HYDROGRAPH AT	A07G.2	9.	4.43	3.	1.	1.	.03
+	ROUTED TO	RA07G2	9.	4.57	3.	1.	1.	.03
+	HYDROGRAPH AT	A07E.3	71.	4.13	8.	2.	1.	.06
+	2 COMBINED AT	CA07E3	73.	4.13	11.	3.	2.	.09

+	DIVERSION TO	DI7E.3	1.	1.67	0.	0.	0.	.09
+	HYDROGRAPH AT	DI7E.3	73.	4.13	11.	3.	2.	.09
+	ROUTED TO	RA07E3	71.	4.23	11.	3.	2.	.09
+	HYDROGRAPH AT	A07E.2	20.	4.17	3.	1.	1.	.03
+	DIVERSION TO	DI7E.2	0.	1.70	0.	0.	0.	.03
+	HYDROGRAPH AT	DI7E.2	20.	4.17	3.	1.	1.	.03
+	ROUTED TO	RA07E2	18.	4.57	3.	1.	1.	.03
+	HYDROGRAPH AT	A07E.1	33.	4.23	6.	2.	1.	.04
+	DIVERSION TO	DI7E.1	33.	4.23	3.	1.	1.	.04
+	HYDROGRAPH AT	DI7E.1	31.	4.37	4.	1.	1.	.04
+	ROUTED TO	RA07E1	27.	4.57	4.	1.	1.	.04
+	HYDROGRAPH AT	A07E.6	39.	4.03	4.	1.	1.	.02
+	DIVERSION TO	DI7E.6	1.	2.43	0.	0.	0.	.02
+	HYDROGRAPH AT	DI7E.6	39.	4.03	4.	1.	1.	.02
+	ROUTED TO	RA07E6	37.	4.13	4.	1.	1.	.02
+	HYDROGRAPH AT	A07E.5	44.	4.13	6.	2.	1.	.04
+	2 COMBINED AT	CA07E5	80.	4.13	10.	2.	2.	.05
+	ROUTED TO	RA07E5	78.	4.20	10.	2.	2.	.05
+	HYDROGRAPH AT	A07E.4	64.	4.17	10.	2.	2.	.06
+	6 COMBINED AT	CA07E4	210.	4.20	40.	10.	7.	.50
+	DIVERSION TO	DI7E.4	7.	3.27	1.	0.	0.	.50

+	HYDROGRAPH AT	DI7E.4	210.	4.20	40.	10.	7.	.50
+	HYDROGRAPH AT	DA07GE	36.	5.10	4.	1.	1.	.23
+	2 COMBINED AT	CA07E1	210.	4.20	44.	11.	8.	.50
+	ROUTED TO	DIA.1	74.	5.40	44.	11.	8.	.50
+	ROUTED TO	DIA.2	55.	7.00	43.	11.	8.	.50
+	HYDROGRAPH AT	DA09C	105.	6.20	42.	11.	8.	.84
+	ROUTED TO	RA09C	103.	6.40	41.	11.	8.	.84
+	HYDROGRAPH AT	A07H	106.	4.20	13.	3.	2.	.09
+	2 COMBINED AT	CA07H	99.	6.37	49.	13.	10.	.93
+	ROUTED TO	DIB.1	60.	7.43	47.	13.	10.	.93
+	ROUTED TO	DIB.2	48.	8.87	41.	13.	10.	.93
+	HYDROGRAPH AT	A07C	65.	4.67	13.	3.	2.	.17
+	3 COMBINED AT	CA07C1	105.	4.80	81.	23.	17.	1.60
+	ROUTED TO	DIB.3	64.	9.23	32.	8.	6.	1.60
+	2 COMBINED AT	CA07C2	64.	9.20	37.	12.	9.	1.82
+	ROUTED TO	RA07C	63.	9.23	37.	12.	9.	1.82
+	HYDROGRAPH AT	DA09AI	0.	4.60	0.	0.	0.	.96
+	ROUTED TO	RA09AI	0.	5.40	0.	0.	0.	.96
+	HYDROGRAPH AT	A08B	53.	4.50	11.	3.	2.	.10
+	2 COMBINED AT	CA08B	53.	4.50	11.	3.	2.	.10
+	ROUTED TO	RA08B	49.	5.03	11.	3.	2.	.10
	HYDROGRAPH AT							

+		A07D	44.	5.23	18.	5.	3.	.23
+	3 COMBINED AT	CA07D	108.	5.07	54.	17.	12.	2.15
+	ROUTED TO	RA07D	108.	5.23	54.	17.	12.	2.15
+	HYDROGRAPH AT	A07B.1	56.	4.20	8.	2.	2.	.08
+	DIVERSION TO	DA07B1	56.	4.20	5.	1.	1.	.08
+	HYDROGRAPH AT	DA07B1	44.	4.43	4.	1.	1.	.08
+	2 COMBINED AT	CA07B1	114.	5.17	55.	17.	12.	2.22
+	ROUTED TO	RA07B1	114.	5.33	55.	17.	12.	2.22
+	HYDROGRAPH AT	A07B.2	121.	4.20	16.	4.	3.	.14
+	HYDROGRAPH AT	A07B.3	137.	4.23	21.	5.	4.	.19
+	ROUTED TO	RA07B3	121.	4.47	21.	5.	4.	.19
+	2 COMBINED AT	CA07B2	210.	4.37	37.	9.	7.	.32
+	ROUTED TO	RA07B2	209.	4.40	37.	9.	7.	.32
+	2 COMBINED AT	CA07B3	159.	5.13	72.	23.	17.	2.55
+	ROUTED TO	RA07B1	159.	5.27	72.	23.	17.	2.55
+	HYDROGRAPH AT	A07B.4	58.	4.13	7.	2.	1.	.05
+	DIVERSION TO	DA07B4	58.	4.13	4.	1.	1.	.05
+	HYDROGRAPH AT	DA07B4	44.	4.30	3.	1.	1.	.05
+	2 COMBINED AT	CA07B4	162.	5.23	73.	23.	17.	2.60
+	ROUTED TO	RA07B4	161.	5.33	73.	23.	17.	2.60
+	HYDROGRAPH AT	A07B.5	43.	4.13	5.	1.	1.	.04
+	2 COMBINED AT	CA07B5	168.	4.67	75.	24.	17.	2.64

+	ROUTED TO	DIA07B	117.	5.90	56.	17.	12.	2.64
+	HYDROGRAPH AT	S30D	98.	4.33	18.	4.	3.	.13
+	ROUTED TO	RS30D	92.	4.70	18.	4.	3.	.13
+	HYDROGRAPH AT	S30C	233.	4.53	65.	17.	12.	.45
+	HYDROGRAPH AT	DA09FI	10.	5.03	1.	0.	0.	.37
+	ROUTED TO	RA09FI	4.	6.67	1.	0.	0.	.37
+	3 COMBINED AT	XX1	313.	4.67	83.	21.	15.	.58
+	HYDROGRAPH AT	S30B	128.	5.00	44.	11.	8.	.40
+	2 COMBINED AT	CS30B	396.	4.73	121.	31.	23.	.98
+	DIVERSION TO	DS30BI	0.	4.67	0.	0.	0.	.98
+	HYDROGRAPH AT	DS30BO	396.	4.73	121.	31.	23.	.98
+	ROUTED TO	RS30BW	390.	5.03	121.	31.	23.	.98
+	HYDROGRAPH AT	S30A	223.	4.57	64.	16.	12.	.53
+	2 COMBINED AT	CS30A	540.	4.97	174.	45.	33.	1.51
+	DIVERSION TO	DS30AI	25.	4.93	2.	0.	0.	1.51
+	HYDROGRAPH AT	DS30AO	516.	5.00	173.	45.	32.	1.51
+	ROUTED TO	RS30AW	515.	5.13	172.	45.	32.	1.51
+	HYDROGRAPH AT	S30	155.	4.37	34.	9.	6.	.32
+	2 COMBINED AT	CS30	574.	5.03	196.	51.	37.	1.84
+	ROUTED TO	RS30	574.	5.07	196.	51.	37.	1.84
+	HYDROGRAPH AT	A07B.6	84.	4.30	17.	4.	3.	.15

+	DIVERSION TO	DA07B6	84.	4.30	7.	2.	1.	.15
+	HYDROGRAPH AT	DA07B6	78.	4.47	10.	3.	2.	.15
+	2 COMBINED AT	CS30	601.	5.03	202.	53.	38.	1.99
+	2 COMBINED AT	CA07B6	543.	5.07	222.	62.	45.	4.63
+	ROUTED TO	RA07B	536.	5.17	222.	62.	45.	4.63
+	HYDROGRAPH AT	A06A	207.	4.20	27.	7.	5.	.28
+	2 COMBINED AT	CA06A	554.	5.17	236.	66.	48.	4.91
+	ROUTED TO	RA06A	553.	5.20	236.	66.	48.	4.91
+	HYDROGRAPH AT	A07A	34.	4.57	10.	3.	2.	.12
+	ROUTED TO	RA07A	34.	4.63	10.	3.	2.	.12
+	HYDROGRAPH AT	A07	127.	4.10	6.	2.	1.	.12
+	2 COMBINED AT	CA07	132.	4.10	16.	4.	3.	.24
+	ROUTED TO	RA07	79.	4.60	16.	4.	3.	.24
+	HYDROGRAPH AT	A06	175.	4.37	13.	3.	2.	.28
+	2 COMBINED AT	CA06	183.	4.40	29.	7.	5.	.52
+	ROUTED TO	RA06	164.	4.80	29.	7.	5.	.52
+	HYDROGRAPH AT	A99Q	159.	4.00	6.	1.	1.	.12
+	HYDROGRAPH AT	A99P	375.	4.30	64.	16.	12.	.57
+	4 COMBINED AT	CA99Q	634.	5.10	281.	78.	56.	6.12
+	2 COMBINED AT	AFR6	911.	5.30	477.	133.	96.	17.92

1

SUMMARY OF KINEMATIC WAVE - MUSKINGUM-CUNGE ROUTING

(FLOW IS DIRECT RUNOFF WITHOUT BASE FLOW)

ISTAQ	ELEMENT	DT	PEAK	TIME TO PEAK	VOLUME	INTERPOLATED TO COMPUTATION INTERVAL DT	PEAK	TIME TO PEAK	VOLUME
		(MIN)	(CFS)	(MIN)	(IN)	(MIN)	(CFS)	(MIN)	(IN)
FOR STORM = 1 STORM AREA (SQ MI) = .01									
RCBA	MANE	2.00	7.29	256.00	.91	2.00	7.29	256.00	.91

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3386E+00 EXCESS= .0000E+00 OUTFLOW= .3386E+00 BASIN STORAGE= .6949E-03 PERCENT ERROR= -.2

FOR STORM = 2 STORM AREA (SQ MI) = .50									
RCBA	MANE	2.00	7.22	256.00	.90	2.00	7.22	256.00	.90

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3348E+00 EXCESS= .0000E+00 OUTFLOW= .3348E+00 BASIN STORAGE= .6918E-03 PERCENT ERROR= -.2

FOR STORM = 3 STORM AREA (SQ MI) = 2.80									
RCBA	MANE	2.00	3.87	258.00	.70	2.00	3.87	258.00	.70

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2629E+00 EXCESS= .0000E+00 OUTFLOW= .2628E+00 BASIN STORAGE= .7277E-03 PERCENT ERROR= -.2

FOR STORM = 4 STORM AREA (SQ MI) = 16.00									
RCBA	MANE	2.00	2.64	260.00	.53	2.00	2.64	260.00	.53

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1997E+00 EXCESS= .0000E+00 OUTFLOW= .1996E+00 BASIN STORAGE= .6755E-03 PERCENT ERROR= -.3

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

RCBA	MANE	2.00	1.28	262.00	.31	2.00	1.28	262.00	.31

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1150E+00 EXCESS= .0000E+00 OUTFLOW= .1150E+00 BASIN STORAGE= .7026E-03 PERCENT ERROR= -.6

FOR STORM = 1 STORM AREA (SQ MI) = .01

RCBB	MANE	2.00	17.16	250.00	.81	2.00	17.16	250.00	.81

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7376E+00 EXCESS= .0000E+00 OUTFLOW= .7377E+00 BASIN STORAGE= .4143E-03 PERCENT ERROR= -.1

FOR STORM = 2 STORM AREA (SQ MI) = .50

RCBB	MANE	2.00	16.97	250.00	.81	2.00	16.97	250.00	.81

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7298E+00 EXCESS= .0000E+00 OUTFLOW= .7299E+00 BASIN STORAGE= .4124E-03 PERCENT ERROR= -.1

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

RCBB	MANE	2.00	7.17	252.00	.51	2.00	7.17	252.00	.51

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4608E+00 EXCESS= .0000E+00 OUTFLOW= .4608E+00 BASIN STORAGE= .4020E-03 PERCENT ERROR= -.1

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

RCBB	MANE	2.00	3.95	252.00	.36	2.00	3.95	252.00	.36

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3221E+00 EXCESS= .0000E+00 OUTFLOW= .3220E+00 BASIN STORAGE= .4066E-03 PERCENT ERROR= -.1

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

RCBB	MANE	2.00	1.52	252.00	.25	2.00	1.52	252.00	.25

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2230E+00 EXCESS= .0000E+00 OUTFLOW= .2231E+00 BASIN STORAGE= .4046E-03 PERCENT ERROR= -.2

FOR STORM = 1 STORM AREA (SQ MI) = .01

R28a	MANE	2.00	30.62	276.00	.71	2.00	30.62	276.00	.71

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1963E+01 EXCESS= .0000E+00 OUTFLOW= .1943E+01 BASIN STORAGE= .2211E-02 PERCENT ERROR= .9

FOR STORM = 2 STORM AREA (SQ MI) = .50

R28a	MANE	2.00	30.05	276.00	.70	2.00	30.05	276.00	.70

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1935E+01 EXCESS= .0000E+00 OUTFLOW= .1915E+01 BASIN STORAGE= .2154E-02 PERCENT ERROR= .9

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

R28a	MANE	2.00	20.25	286.00	.55	2.00	20.25	286.00	.55

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1496E+01 EXCESS= .0000E+00 OUTFLOW= .1483E+01 BASIN STORAGE= .2272E-02 PERCENT ERROR=

.7

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

R28a	MANE	2.00	13.02	296.00	.40	2.00	13.02	296.00	.40

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1096E+01 EXCESS= .0000E+00 OUTFLOW= .1085E+01 BASIN STORAGE= .2135E-02 PERCENT ERROR= .8

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

R28a	MANE	2.00	5.45	326.00	.20	2.00	5.45	326.00	.20

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5514E+00 EXCESS= .0000E+00 OUTFLOW= .5447E+00 BASIN STORAGE= .2373E-02 PERCENT ERROR= .8

FOR STORM = 1 STORM AREA (SQ MI) = .01

RCBL	MANE	2.00	106.61	260.00	.88	2.00	106.61	260.00	.88

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7703E+01 EXCESS= .0000E+00 OUTFLOW= .7704E+01 BASIN STORAGE= .7700E-04 PERCENT ERROR= .0

FOR STORM = 2 STORM AREA (SQ MI) = .50

RCBL	MANE	2.00	104.58	260.00	.86	2.00	104.58	260.00	.86

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7611E+01 EXCESS= .0000E+00 OUTFLOW= .7612E+01 BASIN STORAGE= .7699E-04 PERCENT ERROR= .0

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

RCBL	MANE	2.00	74.05	264.00	.71	2.00	74.05	264.00	.71

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6249E+01 EXCESS= .0000E+00 OUTFLOW= .6248E+01 BASIN STORAGE= .7831E-04 PERCENT ERROR= .0

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

RCBL	MANE	2.00	51.78	268.00	.55	2.00	51.78	268.00	.55

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4880E+01 EXCESS= .0000E+00 OUTFLOW= .4880E+01 BASIN STORAGE= .7485E-04 PERCENT ERROR= .0

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

RCBL	MANE	2.00	29.11	276.00	.34	2.00	29.11	276.00	.34

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2969E+01 EXCESS= .0000E+00 OUTFLOW= .2968E+01 BASIN STORAGE= .7605E-04 PERCENT ERROR= .0

FOR STORM = 1 STORM AREA (SQ MI) = .01

RCBK	MANE	1.56	140.13	261.55	.83	2.00	138.92	262.00	.83

CONTINUITY SUMMARY (AC-FT) - INFLOW= .9644E+01 EXCESS= .0000E+00 OUTFLOW= .9644E+01 BASIN STORAGE= .3861E-03 PERCENT ERROR= .0

FOR STORM = 2 STORM AREA (SQ MI) = .50

RCBK	MANE	1.56	136.75	262.84	.82	2.00	135.50	262.00	.82

CONTINUITY SUMMARY (AC-FT) - INFLOW= .9525E+01 EXCESS= .0000E+00 OUTFLOW= .9525E+01 BASIN STORAGE= .3915E-03 PERCENT ERROR= .0

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

RCBK	MANE	1.78	86.96	265.61	.63	2.00	85.47	266.00	.63

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7285E+01 EXCESS= .0000E+00 OUTFLOW= .7286E+01 BASIN STORAGE= .3911E-03 PERCENT ERROR= .0

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

RCBK	MANE	2.00	58.22	270.00	.47	2.00	58.22	270.00	.47

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5466E+01 EXCESS= .0000E+00 OUTFLOW= .5466E+01 BASIN STORAGE= .3940E-03 PERCENT ERROR= .0

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

RCBK	MANE	2.00	31.16	280.00	.28	2.00	31.16	280.00	.28

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3241E+01 EXCESS= .0000E+00 OUTFLOW= .3241E+01 BASIN STORAGE= .3815E-03 PERCENT ERROR= .0

FOR STORM = 1 STORM AREA (SQ MI) = .01

R15	MANE	2.00	145.32	264.00	.78	2.00	145.32	264.00	.78

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1021E+02 EXCESS= .0000E+00 OUTFLOW= .1021E+02 BASIN STORAGE= .5258E-03 PERCENT ERROR= .0

FOR STORM = 2 STORM AREA (SQ MI) = .50

R15	MANE	2.00	141.82	264.00	.77	2.00	141.82	264.00	.77

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1007E+02 EXCESS= .0000E+00 OUTFLOW= .1007E+02 BASIN STORAGE= .5252E-03 PERCENT ERROR= .0

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

R15	MANE	2.00	88.32	268.00	.58	2.00	88.32	268.00	.58

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7572E+01 EXCESS= .0000E+00 OUTFLOW= .7572E+01 BASIN STORAGE= .5052E-03 PERCENT ERROR= .0

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

R15	MANE	2.00	59.00	272.00	.43	2.00	59.00	272.00	.43

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5649E+01 EXCESS= .0000E+00 OUTFLOW= .5648E+01 BASIN STORAGE= .5341E-03 PERCENT ERROR= .0

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

R15	MANE	2.00	32.98	282.00	.26	2.00	32.98	282.00	.26

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3373E+01 EXCESS= .0000E+00 OUTFLOW= .3373E+01 BASIN STORAGE= .5116E-03 PERCENT ERROR= .0

FOR STORM = 1 STORM AREA (SQ MI) = .01

RE1	MANE	2.00	11.95	254.00	.58	2.00	11.95	254.00	.58

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4336E+00 EXCESS= .0000E+00 OUTFLOW= .4343E+00 BASIN STORAGE= .8999E-03 PERCENT ERROR= -.4

FOR STORM = 2 STORM AREA (SQ MI) = .50

RE1	MANE	2.00	11.79	254.00	.57	2.00	11.79	254.00	.57

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4277E+00 EXCESS= .0000E+00 OUTFLOW= .4284E+00 BASIN STORAGE= .8959E-03 PERCENT ERROR= -.4

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

RE1	MANE	2.00	3.44	256.00	.20	2.00	3.44	256.00	.20

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1490E+00 EXCESS= .0000E+00 OUTFLOW= .1491E+00 BASIN STORAGE= .8949E-03 PERCENT ERROR= -.7

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

RE1	MANE	2.00	1.11	262.00	.08	2.00	1.11	262.00	.08

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5675E-01 EXCESS= .0000E+00 OUTFLOW= .5669E-01 BASIN STORAGE= .8871E-03 PERCENT ERROR= -1.4

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

RE1	MANE	2.00	.17	268.00	.03	2.00	.17	268.00	.03

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2450E-01 EXCESS= .0000E+00 OUTFLOW= .2459E-01 BASIN STORAGE= .8667E-03 PERCENT ERROR= -3.9

FOR STORM = 1 STORM AREA (SQ MI) = .01

RE2	MANE	2.00	10.59	252.00	.68	2.00	10.59	252.00	.68

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5806E+00 EXCESS= .0000E+00 OUTFLOW= .5807E+00 BASIN STORAGE= .4419E-03 PERCENT ERROR= -.1

FOR STORM = 2 STORM AREA (SQ MI) = .50

RE2	MANE	2.00	10.47	252.00	.67	2.00	10.47	252.00	.67

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5740E+00 EXCESS= .0000E+00 OUTFLOW= .5741E+00 BASIN STORAGE= .4399E-03 PERCENT ERROR= -.1

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

RE2	MANE	2.00	4.09	254.00	.33	2.00	4.09	254.00	.33

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2853E+00 EXCESS= .0000E+00 OUTFLOW= .2852E+00 BASIN STORAGE= .4433E-03 PERCENT ERROR= -.1

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

RE2	MANE	2.00	1.92	254.00	.18	2.00	1.92	254.00	.18

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1495E+00 EXCESS= .0000E+00 OUTFLOW= .1495E+00 BASIN STORAGE= .4356E-03 PERCENT ERROR= -.3

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

RE2	MANE	2.00	.42	260.00	.08	2.00	.42	260.00	.08

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6997E-01 EXCESS= .0000E+00 OUTFLOW= .7000E-01 BASIN STORAGE= .4138E-03 PERCENT ERROR= -.6

FOR STORM = 1 STORM AREA (SQ MI) = .01

R13 MANE 2.00 74.72 256.00 .63 2.00 74.72 256.00 .63

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2982E+01 EXCESS= .0000E+00 OUTFLOW= .2972E+01 BASIN STORAGE= .1382E-02 PERCENT ERROR= .3

FOR STORM = 2 STORM AREA (SQ MI) = .50

R13 MANE 2.00 73.83 256.00 .62 2.00 73.83 256.00 .62

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2941E+01 EXCESS= .0000E+00 OUTFLOW= .2931E+01 BASIN STORAGE= .1376E-02 PERCENT ERROR= .3

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

R13 MANE 2.00 29.74 264.00 .30 2.00 29.74 264.00 .30

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1444E+01 EXCESS= .0000E+00 OUTFLOW= .1440E+01 BASIN STORAGE= .1398E-02 PERCENT ERROR= .2

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

R13 MANE 2.00 14.11 274.00 .18 2.00 14.11 274.00 .18

CONTINUITY SUMMARY (AC-FT) - INFLOW= .8397E+00 EXCESS= .0000E+00 OUTFLOW= .8374E+00 BASIN STORAGE= .1363E-02 PERCENT ERROR= .1

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

R13 MANE 2.00 5.98 298.00 .09 2.00 5.98 298.00 .09

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4278E+00 EXCESS= .0000E+00 OUTFLOW= .4269E+00 BASIN STORAGE= .1430E-02 PERCENT ERROR= -.1

FOR STORM = 1 STORM AREA (SQ MI) = .01

RE3 MANE 2.00 25.27 280.00 .64 2.00 25.27 280.00 .64

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2812E+01 EXCESS= .0000E+00 OUTFLOW= .2813E+01 BASIN STORAGE= .6855E-03 PERCENT ERROR= .0

FOR STORM = 2 STORM AREA (SQ MI) = .50

RE3 MANE 2.00 24.96 280.00 .64 2.00 24.96 280.00 .64

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2778E+01 EXCESS= .0000E+00 OUTFLOW= .2778E+01 BASIN STORAGE= .6825E-03 PERCENT ERROR= .0

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

RE3 MANE 2.00 9.97 282.00 .28 2.00 9.97 282.00 .28

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1227E+01 EXCESS= .0000E+00 OUTFLOW= .1227E+01 BASIN STORAGE= .6757E-03 PERCENT ERROR= -.1

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

RE3 MANE 2.00 4.22 284.00 .14 2.00 4.22 284.00 .14

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5992E+00 EXCESS= .0000E+00 OUTFLOW= .5992E+00 BASIN STORAGE= .6713E-03 PERCENT ERROR= -.1

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

RE3 MANE 2.00 1.29 288.00 .07 2.00 1.29 288.00 .07

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2869E+00 EXCESS= .0000E+00 OUTFLOW= .2869E+00 BASIN STORAGE= .6712E-03 PERCENT ERROR= -.2

FOR STORM = 1 STORM AREA (SQ MI) = .01

R10	MANE	2.00	53.29	266.00	.62	2.00	53.29	266.00	.62

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4574E+01 EXCESS= .0000E+00 OUTFLOW= .4565E+01 BASIN STORAGE= .2060E-02 PERCENT ERROR= .1

FOR STORM = 2 STORM AREA (SQ MI) = .50

R10	MANE	2.00	52.73	266.00	.62	2.00	52.73	266.00	.62

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4513E+01 EXCESS= .0000E+00 OUTFLOW= .4504E+01 BASIN STORAGE= .2051E-02 PERCENT ERROR= .1

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

R10	MANE	2.00	24.52	278.00	.29	2.00	24.52	278.00	.29

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2096E+01 EXCESS= .0000E+00 OUTFLOW= .2091E+01 BASIN STORAGE= .1717E-02 PERCENT ERROR= .1

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

R10	MANE	2.00	13.40	290.00	.16	2.00	13.40	290.00	.16

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1152E+01 EXCESS= .0000E+00 OUTFLOW= .1150E+01 BASIN STORAGE= .1821E-02 PERCENT ERROR= .1

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

R10	MANE	2.00	6.03	314.00	.08	2.00	6.03	314.00	.08

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6018E+00 EXCESS= .0000E+00 OUTFLOW= .6005E+00 BASIN STORAGE= .1827E-02 PERCENT ERROR= -.1

FOR STORM = 1 STORM AREA (SQ MI) = .01

RE4	MANE	2.00	10.89	276.00	.59	2.00	10.89	276.00	.59

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1256E+01 EXCESS= .0000E+00 OUTFLOW= .1257E+01 BASIN STORAGE= .1691E-03 PERCENT ERROR= .0

FOR STORM = 2 STORM AREA (SQ MI) = .50

RE4	MANE	2.00	10.74	276.00	.58	2.00	10.74	276.00	.58

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1239E+01 EXCESS= .0000E+00 OUTFLOW= .1239E+01 BASIN STORAGE= .1675E-03 PERCENT ERROR= .0

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

RE4	MANE	2.00	3.54	278.00	.21	2.00	3.54	278.00	.21

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4515E+00 EXCESS= .0000E+00 OUTFLOW= .4515E+00 BASIN STORAGE= .1219E-03 PERCENT ERROR= .0

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

RE4	MANE	2.00	1.25	282.00	.09	2.00	1.25	282.00	.09

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1934E+00 EXCESS= .0000E+00 OUTFLOW= .1934E+00 BASIN STORAGE= .1158E-03 PERCENT ERROR= -.1

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

RE4	MANE	2.00	.45	286.00	.05	2.00	.45	286.00	.05

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1050E+00 EXCESS= .0000E+00 OUTFLOW= .1050E+00 BASIN STORAGE= .1060E-03 PERCENT ERROR= -.1

FOR STORM = 1 STORM AREA (SQ MI) = .01

R9	MANE	1.62	43.15	255.24	.63	2.00	42.40	254.00	.63

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3100E+01 EXCESS= .0000E+00 OUTFLOW= .3101E+01 BASIN STORAGE= .7915E-04 PERCENT ERROR= .0

FOR STORM = 2 STORM AREA (SQ MI) = .50

R9	MANE	1.62	41.98	254.43	.62	2.00	41.09	256.00	.62

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3051E+01 EXCESS= .0000E+00 OUTFLOW= .3052E+01 BASIN STORAGE= .8972E-04 PERCENT ERROR= .0

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

R9	MANE	2.00	21.71	264.00	.30	2.00	21.71	264.00	.30

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1470E+01 EXCESS= .0000E+00 OUTFLOW= .1471E+01 BASIN STORAGE= .7899E-04 PERCENT ERROR= -.1

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

R9	MANE	2.00	12.14	276.00	.18	2.00	12.14	276.00	.18

CONTINUITY SUMMARY (AC-FT) - INFLOW= .8818E+00 EXCESS= .0000E+00 OUTFLOW= .8822E+00 BASIN STORAGE= .7919E-04 PERCENT ERROR= .0

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

R9	MANE	2.00	5.57	300.00	.11	2.00	5.57	300.00	.11

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5188E+00 EXCESS= .0000E+00 OUTFLOW= .5191E+00 BASIN STORAGE= .7764E-04 PERCENT ERROR= -.1

FOR STORM = 1 STORM AREA (SQ MI) = .01

R7	MANE	2.00	43.65	258.00	.62	2.00	43.65	258.00	.62

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3964E+01 EXCESS= .0000E+00 OUTFLOW= .3966E+01 BASIN STORAGE= .1248E-03 PERCENT ERROR= -.1

FOR STORM = 2 STORM AREA (SQ MI) = .50

R7	MANE	2.00	45.14	258.00	.61	2.00	45.14	258.00	.61

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3900E+01 EXCESS= .0000E+00 OUTFLOW= .3902E+01 BASIN STORAGE= .1284E-03 PERCENT ERROR= -.1

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

R7	MANE	2.00	23.45	268.00	.30	2.00	23.45	268.00	.30

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1919E+01 EXCESS= .0000E+00 OUTFLOW= .1920E+01 BASIN STORAGE= .1220E-03 PERCENT ERROR= -.1

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

R7	MANE	2.00	13.11	280.00	.18	2.00	13.11	280.00	.18	

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1147E+01 EXCESS= .0000E+00 OUTFLOW= .1148E+01 BASIN STORAGE= .1276E-03 PERCENT ERROR= .0

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

R7	MANE	2.00	6.18	304.00	.10	2.00	6.18	304.00	.10	

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6276E+00 EXCESS= .0000E+00 OUTFLOW= .6278E+00 BASIN STORAGE= .1251E-03 PERCENT ERROR= -.1

FOR STORM = 1 STORM AREA (SQ MI) = .01

RS1	MANE	2.00	719.21	322.00	.79	2.00	719.21	322.00	.79	

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1236E+03 EXCESS= .0000E+00 OUTFLOW= .1236E+03 BASIN STORAGE= .3686E-02 PERCENT ERROR= .0

FOR STORM = 2 STORM AREA (SQ MI) = .50

RS1	MANE	2.00	709.59	322.00	.78	2.00	709.59	322.00	.78	

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1221E+03 EXCESS= .0000E+00 OUTFLOW= .1221E+03 BASIN STORAGE= .3679E-02 PERCENT ERROR= .0

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

RS1	MANE	2.00	478.60	336.00	.56	2.00	478.60	336.00	.56	

CONTINUITY SUMMARY (AC-FT) - INFLOW= .8763E+02 EXCESS= .0000E+00 OUTFLOW= .8763E+02 BASIN STORAGE= .3620E-02 PERCENT ERROR= .0

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

RS1	MANE	2.00	345.22	348.00	.42	2.00	345.22	348.00	.42	

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6592E+02 EXCESS= .0000E+00 OUTFLOW= .6592E+02 BASIN STORAGE= .3610E-02 PERCENT ERROR= .0

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

RS1	MANE	2.00	210.32	368.00	.28	2.00	210.32	368.00	.28	

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4449E+02 EXCESS= .0000E+00 OUTFLOW= .4450E+02 BASIN STORAGE= .3611E-02 PERCENT ERROR= .0

FOR STORM = 1 STORM AREA (SQ MI) = .01

RS2	MANE	1.02	719.11	322.18	.79	2.00	719.06	322.00	.79	

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1242E+03 EXCESS= .0000E+00 OUTFLOW= .1242E+03 BASIN STORAGE= .5490E-03 PERCENT ERROR= .0

FOR STORM = 2 STORM AREA (SQ MI) = .50

RS2	MANE	1.03	709.34	322.51	.78	2.00	709.25	322.00	.78	

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1227E+03 EXCESS= .0000E+00 OUTFLOW= .1227E+03 BASIN STORAGE= .5476E-03 PERCENT ERROR=

.0

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

RS2	MANE	1.16	478.54	337.90	.56	2.00	478.50	338.00	.56

CONTINUITY SUMMARY (AC-FT) - INFLOW= .8800E+02 EXCESS= .0000E+00 OUTFLOW= .8800E+02 BASIN STORAGE= .5378E-03 PERCENT ERROR= .0

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

RS2	MANE	1.29	345.03	348.39	.42	2.00	344.79	348.00	.42

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6613E+02 EXCESS= .0000E+00 OUTFLOW= .6613E+02 BASIN STORAGE= .5506E-03 PERCENT ERROR= .0

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

RS2	MANE	1.50	210.31	370.54	.28	2.00	210.29	370.00	.28

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4456E+02 EXCESS= .0000E+00 OUTFLOW= .4456E+02 BASIN STORAGE= .5417E-03 PERCENT ERROR= .0

FOR STORM = 1 STORM AREA (SQ MI) = .01

RHV2	MANE	2.00	3.17	324.00	.87	2.00	3.17	324.00	.87

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1441E+01 EXCESS= .0000E+00 OUTFLOW= .1441E+01 BASIN STORAGE= .5691E-03 PERCENT ERROR= .0

FOR STORM = 2 STORM AREA (SQ MI) = .50

RHV2	MANE	2.00	3.14	324.00	.86	2.00	3.14	324.00	.86

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1429E+01 EXCESS= .0000E+00 OUTFLOW= .1429E+01 BASIN STORAGE= .5643E-03 PERCENT ERROR= .0

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

RHV2	MANE	2.00	2.29	326.00	.66	2.00	2.29	326.00	.66

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1083E+01 EXCESS= .0000E+00 OUTFLOW= .1083E+01 BASIN STORAGE= .5953E-03 PERCENT ERROR= -.1

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

RHV2	MANE	2.00	1.74	334.00	.52	2.00	1.74	334.00	.52

CONTINUITY SUMMARY (AC-FT) - INFLOW= .8660E+00 EXCESS= .0000E+00 OUTFLOW= .8660E+00 BASIN STORAGE= .5721E-03 PERCENT ERROR= -.1

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

RHV2	MANE	2.00	1.25	342.00	.40	2.00	1.25	342.00	.40

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6627E+00 EXCESS= .0000E+00 OUTFLOW= .6627E+00 BASIN STORAGE= .5814E-03 PERCENT ERROR= -.1

*** NORMAL END OF HEC-1 ***

```
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   21JUL11  TIME  16:41:44  *            (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: 107 & Union Hills - Major Basin: 01 - Return Period: 10 Years
   2          ID                                                                              **
   3          ID   107th Avenue and Union Hills Drive Design Concept Report                    **
   4          ID                                                                            **
   5          ID   PROJECT NO.: FCD 2009C036.2                    G&M: 10388A.2               **
   6          ID                                                                            **
   7          ID   Original HEC-1 Model: DCR100-6.DAT, Goodwin & Marshall, Inc., Apr 26, 2011**
   8          ID                          100-Year 6-Hour HEC-1 Model for Existing Conditions **
   9          ID   Modified HEC-1 Model: REC ALT100-6.DAT, Goodwin & Marshall, Inc, 7/15/2011**
  10          ID                          100-Year 6-Hour HEC-1 Model for Recom. Alternative  **
  11          ID                                                                              **
  12          ID   1) NOAA2 Rainfall Data                                                     **
```



```
  13          ID   2) DDMSW V3.5.7 Used                                                          **
  14          ID   3) Model revised to reflect Recommended Alternative                          **
  15          ID                                                                              **
  16          ID   ********************************************************************************
  17          ID   Project ID: 107 & Union Hills - Major Basin: 01 - Return Period: 10 Years
  18          ID                                                                              **
  19          ID   107th Avenue and Union Hills Drive Design Concept Report                    **
  20          ID                                                                            **
  21          ID   PROJECT NO.: FCD 2009C036.2                    G&M: 10388A.2               **
  22          ID                                                                            **
  23          ID   Original HEC-1 Model: DCR10-6.DAT, Goodwin & Marshall, Inc., May 29, 2010 **
  24          ID                          10-Year 6-Hour HEC-1 Model for Existing Conditions  **
  25          ID   Modified HEC-1 Model: DCR10-6.DAT, Goodwin & Marshall, Inc., Apr 26, 2011 **
  26          ID                          10-Year 6-Hour HEC-1 Model for Existing Conditions  **
  27          ID                                                                            **
  28          ID   1) NOAA2 Rainfall Data                                                   **
  29          ID   2) DDMSW V3.5.7 Used                                                        **
  30          ID   3) BASINS REVISED TO REFLECT CANYON RIDGE DEVELOPMENT AND DETERMINE FLOWS **
  31          ID      AT CRITICAL POINTS ALONG 115TH AVENUE                                 **
  32          ID                                                                            **
  33          ID   ********************************************************************************
  34          ID   Project ID: 107 & Union Hills - Major Basin: 01 - Return Period: 100 Years
  35          ID                                                                              **
  36          ID   107th Avenue and Union Hills Drive Design Concept Report                    **
  37          ID                                                                            **
  38          ID   PROJECT NO.: FCD 2009C036                      G&M: 10388A                 **
  39          ID                                                                            **
  40          ID   Original HEC-1 Model: EC06BASE.DAT, Wood/Patel, SZ, May 2007               **
  41          ID                          100-Year 6-Hour HEC-1 Model for Existing Conditions **
  42          ID   Modified HEC-1 Model: DCR100-6.DAT, Goodwin & Marshall, Inc., May 29, 2010**
  43          ID                          100-Year 6-Hour HEC-1 Model for Existing Conditions **
  44          ID                                                                            **
  45          ID   1) NOAA2 Rainfall Data                                                   **
  46          ID   2) DDMSW V3.5.7 Used                                                    **
  47          ID                                                                          **
  48          ID   ********************************************************************************
  49          ID   Project ID: GP_NW ADMP_EX1 - Major Basin: 01 - Return Period: 100 Years
  50          ID                                                                              **
  51          ID   Glendale/Peoria ADMP Northwest Region Update                               **
  52          ID   Original HEC-1 Model: L3R5DVR.DAT, Wood/Patel, APRIL 14, 2006              **
  53          ID                          REVISED FOR DOVE VALLEY RANCH IMPROVEMENTS          **
  54          ID   Modified HEC-1 Model: EC06BASE.DAT, Wood/Patel, SZ, May 2007               **
  55          ID                          100-Year 6-Hour HEC-1 Model for Existing Conditions **
```

1 HEC-1 INPUT PAGE 2

```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10
```

```
                ID   1) NOAA 2 Rainfall Data                                                          **
                ID   2) DDMSW MCUHP1 V3.3.2 Used                                                      **
                ID                                                                                    **
                ID   ********************************************************************************
                *
                ID   ********************************************************************************
                ID   **                                                                              **
                ID   ** CONCEPT REFINEMENT STUDY FOR ROSE GARDEN LANE DRAINAGE IMPROVEMENTS           **
                ID   ** ORIGINAL HEC-1 FILE FROM GLENDAL/PEORIA ADMP UPDATE STUDY                     **
                ID   ** MODIFIED HEC-1 MODEL: LEVEL3R5.DAT, Wood/Patel & CVL, May 2005               **
                ID   ** THIS IS THE PREFERRED ALTERNATIVE MODEL                                       **
                ID   ** WPA REVISED APRIL 14, 2006 FOR DOVE VALLEY RANCH IMPROVEMENTS                 **
                ID   ** USING LATEST SURVEY DATA.                                                    **
                ID   ********************************************************************************
                *
                ID   ********************************************************************************
                ID   **                                                                              **
                ID   **                    Glendale/Peoria ADMP Update                               **
                ID   **                                                                              **
                ID   ********************************************************************************
                ID   ********************************************************************************
                ID   PROJECT:                Glendale Peoria ADMP Update
                ID   CLIENT:                 Flood Control District of Maricopa County
                ID   PREPARED BY:            Entellus, Inc.
                ID   PROJECT No:             FCD 99-44                    Entellus 310.017
                ID   FILE NAME: LEVEL3.DAT                CREATED DATE: JUNE 6, 2001
                ID   STORM:                  100-year 6-hour Storm
                ID   DEVELOPMENT CONDITIONS: LEVEL 3 HYDROLOGY
                ID
                *
                * ******************************************************************************
                IT       2                    1000
                IO       5
                IN      15
                *
                *DIAGRAM
                *
                JD    3.20     0.01
                PC   0.000   0.008   0.016   0.025   0.033   0.041   0.050   0.058   0.066   0.074
                PC   0.087   0.099   0.118   0.138   0.216   0.377   0.834   0.911   0.931   0.950
                PC   0.962   0.972   0.983   0.991   1.000
                JD    3.179    0.50
                PC   0.000   0.008   0.016   0.025   0.033   0.041   0.050   0.058   0.066   0.074
                PC   0.087   0.099   0.118   0.138   0.216   0.377   0.834   0.911   0.931   0.950
                PC   0.962   0.972   0.983   0.991   1.000
                JD    3.120    2.80
                PC   0.000   0.009   0.016   0.025   0.034   0.042   0.051   0.059   0.067   0.076
                PC   0.087   0.100   0.120   0.163   0.252   0.451   0.694   0.837   0.900   0.938
                PC   0.950   0.963   0.975   0.988   1.000
                JD    2.950    16.0
                PC   0.000   0.015   0.020   0.030   0.048   0.063   0.076   0.090   0.105   0.119
                PC   0.135   0.152   0.175   0.222   0.304   0.472   0.670   0.796   0.868   0.912
                PC   0.946   0.960   0.973   0.987   1.000
                JD    2.598    90.0
                PC   0.000   0.021   0.035   0.051   0.071   0.087   0.105   0.125   0.143   0.160
1                                          HEC-1 INPUT                                          PAGE  3
            LINE  ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10
                PC   0.179   0.201   0.232   0.281   0.364   0.500   0.658   0.773   0.841   0.888
                PC   0.927   0.945   0.964   0.982   1.000
                *
                * ******************************************************************************
```



```
                *
                * The Following Portion Came from the HEC-1 Model for the Tierra Del Rio
                * Development.  Model CREATED BY A. MERCIER, CMX, ON 01/16/04
                * FILE NAME: TDR6DC.DAT
                *
                * ******************************************************************************
                *
                KK     CBA    BASIN
                BA    0.007
                KM    SUB-BASIN CBA
                LG     0.34     0.35     6.80     0.13       11
                UC    0.182    0.219
                UA        0      3.0      5.0      8.0     12.0     20.0     43.0     75.0     90.0     96.0
                UA      100
                *
                KK     RCBA
                KM    CHANNEL ROUTING
                RD     1479    .0095     .030             TRAP        0        4
                *
                KK     P28    BASIN
                KM    SUB-BASIN P28
                BA    0.027
                LG     0.25     0.13    10.10     0.04       29
                UC    0.337    0.331
                UA        0      5.0     16.0     30.0     65.0     77.0     84.0     90.0     94.0     97.0
                UA      100
                *
                KK     CP28
                KM
                HC        2
                *
                KK     DT28
                KM
                DT     DB28    1.230
                DI        0      100      500     1000     5000
                DQ        0      100      500     1000     5000
                *
                KK      CBB    BASIN
                KM    SUB-BASIN CBB
                BA    0.017
                LG     0.34     0.34     4.55     0.35       15
                UC    0.195    0.156
                UA        0      4.5     12.6     23.2     35.8     50.0     64.2     76.8     87.4     95.5
                UA      100
                *
1                                          HEC-1 INPUT                                          PAGE  4
            LINE  ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10
                KK     RCBB
                KM    CHANNEL ROUTING
                RD     1231    .0244     .030             TRAP        0        4
                *
                KK     CP28a
                KM
                HC        2
```

```
                *
144             KK    R28a
145             KM  CHANNEL ROUTING
146             RD    1642   .0018    .030            TRAP      10       4
                *
147             KK     P27   BASIN
148             KM  SUB-BASIN P27
149             BA   0.065
150             LG    0.25    0.15    8.00    0.10      30
151             UC   0.423   0.443
152             UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
153             UA     100
                *
154             KK    DT27
155             KM
156             DT    DB27   1.360
157             DI       0     100     500    1000    5000
158             DQ       0     100     500    1000    5000
                *
159             KK    CP27
160             KM
161             HC       2
                *
162             KK    P27A   BASIN
163             KM  SUB-BASIN P27A
164             BA   0.008
165             LG    0.25    0.25    4.35    0.46      44
166             UC   0.235   0.295
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    DT27a
170             KM
171             DT    DB27a   0.210
172             DI       0     100     500    1000    5000
173             DQ       0     100     500    1000    5000
                *
1                                          HEC-1 INPUT                                          PAGE  5

            LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

174             KK    P27B   BASIN
175             KM  SUB-BASIN P27B
176             BA   0.013
177             LG    0.26    0.26    5.00    0.32      37
178             UC   0.260   0.346
179             UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
180             UA     100
                *
181             KK    DT27b
182             KM
183             DT    DB27b   0.250
184             DI       0     100     500    1000    5000
185             DQ       0     100     500    1000    5000
                *
```



```
186             KK     CBL   BASIN
187             KM  SUB-BASIN CBL
188             BA   0.028
189             LG    0.28    0.29    5.70    0.23      24
190             UC   0.276   0.301
191             UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
192             UA     100
                *
193             KK    CCBL
194             KM
195             HC       4
                *
196             KK    RCBL
197             KM  NATURAL WASH ROUTING
198             RC   0.035   0.035   0.035     840   .0227
199             RX       0     7.5      15      50      60      95   102.5     110
200             RY       5     2.5       0       0       0       0     2.5       5
                *
201             KK     CBK   BASIN
202             KM  SUB-BASIN CBK
203             BA   0.052
204             LG    0.34    0.34    4.65    0.33       6
205             UC   0.277   0.207
206             UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
207             UA     100
                *
208             KK    CCBK
209             KM
210             HC       2
                *
1                                          HEC-1 INPUT                                          PAGE  6

            LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

211             KK    RCBK
212             KM  CHANNEL ROUTING
213             RD     755   .0238    .030            TRAP      10       4
                *
214             KK     P14   BASIN
215             KM  SUB-BASIN P14
216             BA   0.008
217             LG    0.34    0.34    3.81    0.53       2
218             UC   0.234   0.183
219             UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
220             UA     100
                *
221             KK    RT14
222             KM
223             DT    RB14   1.130
224             DI       0     100     500    1000    5000
225             DQ       0     100     500    1000    5000
                *
226             KK    CP14
227             KM
228             HC       2
                *
```

```
KK     P15   BASIN
KM  SUB-BASIN P15
BA   0.006
LG    0.33    0.34    3.23    0.81       5
UC   0.436   0.564
UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
UA     100
*

KK    DT15
KM
DT    DB15   0.260
DI       0     100     500    1000    5000
DQ       0     100     500    1000    5000
*

KK     CBJ   BASIN
KM  SUB-BASIN CBJ
BA   0.015
LG    0.35    0.35    4.30    0.41      10
UC   0.227   0.241
UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
UA     100
*
```



```
LINE  ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

KK    CP15
KM
HC       3
*

KK     R15
KM  CHANNEL ROUTING
RD     800   .0125    .030           TRAP      10       4
*

KK     CBH   BASIN
KM  SUB-BASIN CBH
BA   0.012
LG    0.35    0.35    4.40    0.38      15
UC   0.156   0.100
UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
UA     100
*
* Route CBH to P25S
*

KK    RCBH
RS       2    FLOW       0
RC    0.02     .02     .02    1500   .0055
RX     280     320     340     350     360     370     390     430
RY       6       4       2       0       0       2       4       6
*

KK    P25S   BASIN
KM  SUB-BASIN P25S
BA   0.028
LG    0.35    0.35    4.35    0.40      15
UC   0.480   0.415
UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
```



```
UA     100
*

KK   CP25S
KM
HC       2
*

KK    AFR0
KM  Dummy Combination at Jomax Road and AFR
HC       2
*
* ************************************************************************

KK     E1   BASIN
KM  SUB-BASIN E1
BA   0.014
LG    0.33    0.32    3.95    0.48       2
UC   0.205   0.142
UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
```



```
LINE  ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

UA     100
*

KK     RE1
KM  CHANNEL ROUTING
RD    1993   .0376    .030           TRAP      10       4
*

KK     E2   BASIN
KM  SUB-BASIN E2
BA   0.016
LG    0.30    0.25    3.95    0.48       5
UC   0.288   0.271
UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
UA     100
*

KK     RE2
KM  CHANNEL ROUTING
RD    1108   .0542    .030           TRAP      10       4
*

KK     P13   BASIN
KM  SUB-BASIN P13
BA   0.059
LG    0.26    0.25    3.92    0.57      27
UC   0.313   0.195
UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
UA     100
*

KK    DT13
KM
DT    DB13   1.060
DI       0     100     500    1000    5000
DQ       0     100     500    1000    5000
*

KK    CP13
KM
```

```
313          HC       3
             *

314          KK     R13
315          KM   CHANNEL ROUTING
316          RD    1412   .0035    .025            TRAP      10       4
             *

317          KK     P12   BASIN
318          KM   SUB-BASIN P12
319          BA    0.044
320          LG     0.25    0.26    3.58    0.71      30
321          UC    0.426   0.316
322          UA        0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
323          UA      100
             *
```



```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

324          KK    DT12
325          KM
326          DT    DB12   1.140
327          DI       0     100     500    1000    5000
328          DQ       0     100     500    1000    5000
             *

329          KK    CP12
330          KM
331          HC       2
             *

332          KK     E3   BASIN
333          KM   SUB-BASIN E3
334          BA    0.082
335          LG     0.31    0.28    3.95    0.48       4
336          UC    0.589   0.591
337          UA        0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
338          UA      100
             *

339          KK     RE3
340          KM   CHANNEL ROUTING
341          RD    1473   .0339    .030            TRAP      10       4
             *

342          KK     P10   BASIN
343          KM   SUB-BASIN P10
344          BA    0.055
345          LG     0.25    0.26    3.78    0.63      29
346          UC    0.409   0.251
347          UA        0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
348          UA      100
             *

349          KK    DT10
350          KM
351          DT    DB10   1.080
352          DI       0     100     500    1000    5000
353          DQ       0     100     500    1000    5000
             *

354          KK    CP10
```



```
355          KM
356          HC       2
             *

357          KK     R10
358          KM   CHANNEL ROUTING
359          RD    1947   .0035    .025            TRAP      10       4
             *
```



```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

360          KK     P11   BASIN
361          KM   SUB-BASIN P11
362          BA    0.042
363          LG     0.25    0.25    3.85    0.60      30
364          UC    0.671   0.682
365          UA        0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
366          UA      100
             *

367          KK    DT11
368          KM
369          DT    DB11   1.200
370          DI       0     100     500    1000    5000
371          DQ       0     100     500    1000    5000
             *

372          KK    CP11
373          KM
374          HC       2
             *

375          KK     E4   BASIN
376          KM   SUB-BASIN E4
377          BA    0.040
378          LG     0.34    0.33    4.00    0.47       3
379          UC    0.528   0.655
380          UA        0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
381          UA      100
             *

382          KK     RE4
383          KM   CHANNEL ROUTING
384          KM   SHAPE REFLECTS CURRENT SET OF PLANS FOR HAPPY VALLEY ROAD DITCH
385          RD
386          RC    .015    .015    .015    1287   .0250
387          RX       0       2       4    9.84   12.84   15.84   21.84   27.56
388          RY    2.46    1.96    1.46       0     0.5       1       2    2.95
             *

389          KK      P9   BASIN
390          KM   SUB-BASIN P9
391          BA    0.045
392          LG     0.25    0.25    3.92    0.57      30
393          UC    0.315   0.283
394          UA        0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
395          UA      100
             *

396          KK     DT9
397          KM
398          DT     DB9   0.920
```

```
399          DI       0     100     500    1000    5000
400          DQ       0     100     500    1000    5000
             *
```



```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9.....10

401          KK     HV1   BASIN
402          KM  SUB-BASIN HV1
403          BA   0.007
404          LG    0.27    0.29    3.95    0.55      25
405          UC   0.410   0.888
406          UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
407          UA     100
             *

408          KK     CP9
409          KM
410          HC       3
             *

411          KK      R9
412          KM  CHANNEL ROUTING
413          KM  SHAPE REFLECTS CURRENT SET OF PLANS FOR HAPPY VALLEY ROAD DITCH
414          RD
415          RC    .015    .015    .015     940   .0250
416          RX       0       2       4    9.84   12.84   15.84   21.84   27.56
417          RY    2.46    1.96    1.46       0     0.5       1       2    2.95
             *

418          KK      P8   BASIN
419          KM  SUB-BASIN P8
420          BA   0.013
421          LG    0.25    0.25    4.15    0.52      30
422          UC   0.508   0.595
423          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
424          UA     100
             *

425          KK     DT8
426          KM
427          DT     DB8   0.300
428          DI       0     100     500    1000    5000
429          DQ       0     100     500    1000    5000
             *

430          KK      P7   BASIN
431          KM  SUB-BASIN P7
432          BA   0.014
433          LG    0.25    0.25    3.95    0.56      30
434          UC   0.458   0.528
435          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
436          UA     100
             *

437          KK     DT7
438          KM
439          DT     DB7   0.300
440          DI       0     100     500    1000    5000
441          DQ       0     100     500    1000    5000
             *
```



```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9.....10

442          KK     CP7
443          KM
444          HC       3
             *

445          KK      R7
446          KM  CHANNEL ROUTING
447          RD
448          RC    .015    .015    .015    1488   .0250
449          RX       0       2       4    9.84   12.84   15.84   21.84   27.56
450          RY    2.46    1.96    1.46       0     0.5       1       2    2.95
             *

451          KK      P6   BASIN
452          KM  SUB-BASIN P6
453          BA   0.070
454          LG    0.25    0.25    4.25    0.49      30
455          UC   0.899   1.126
456          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
457          UA     100
             *

458          KK     DT6
459          KM
460          DT     DB6   1.760
461          DI       0     100     500    1000    5000
462          DQ       0     100     500    1000    5000
             *

463          KK     CP6
464          KM
465          HC       2
             *

466          KK   HPVLY
467          KM
468          HC       3
             *
             *
             * ****************************************************************************
             *
             *

469          KK   A11MA   BASIN
470          KM  SUB-BASIN A11M North Portion
471          BA   0.073
472          LG    0.32    0.24    8.80    0.06       8
473          UC   0.258   0.117
474          UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
475          UA     100
             *
             * On-site Retention Basin
             *
```



```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9.....10

476          KK  A11MAQ
477          DT  DA11MA     3.4
478          DI       0     100    1000    1000
```

```
479          DQ       0     100    1000    1000
             *
             *
             *

480          KK  SA11MA STORAGE
481          KM  Online Detention Basin,  6.2 ac-ft.
482          RS       1    STOR       0
483          SV       0     1.5     2.5     4.0     6.2    10.0
484          SE       0       2       3       4       5       6
485          SL       0    3.14    0.62     0.5
486          SS       5      50     2.7     1.5
             *
             * ROUTE RA11MA IS 2000 FT WITH A SLOPE OF .0092
             * CROSS SECTION IS A SMALL NATURAL CHANNEL
             *

487          KK  RA11MA
488          RS       9    FLOW       0
489          RC    0.05    0.06    0.05    2000   .0092
490          RX       0     350     450     480     482     510     610     910
491          RY       7       6       5       1       0       5       6       7
             *

492          KK   A11MB   BASIN
493          KM  SUB-BASIN A11M South Portion
494          BA   0.194
495          LG    0.25    0.15    8.80    0.07      29
496          UC   0.393   0.167
497          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
498          UA     100
             *
             * On-site Retention Basin
             *     GP

499          KK  A11MBQ
500          DT  DA11MB     3.6
501          DI       0     100    1000    1000
502          DQ       0     100    1000    1000
             *

503          KK  SA11MB STORAGE
504          KM  Online Detention Basin, 11.2 ac-ft.
505          RS       1    STOR       0
506          SV       0     3.0     5.5     8.0    11.2    15.0
507          SE       0       2       3       4       5       6
508          SL       0    3.14    0.62     0.5
509          SS       5     200     2.7     1.5
             *
```



```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9.....10

510          KK   A11NA   BASIN
511          KM  SUB-BASIN A11N - Revised
512          BA   0.076
513          LG   0.229    0.30    5.40    0.25      26
514          UC   0.237   0.134
515          UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
516          UA     100
             *

517          KK  SA11NA STORAGE
```



```
518          KM  Online Detention Basin,  7.3 ac-ft.
519          RS       1    STOR       0
520          SV       0     1.0     3.0     5.0     7.3    11.0
521          SE       0       2       3       4       5       6
522          SL       0    3.14    0.62     0.5
523          SS       5     100     2.7     1.5
             *

524          KK  RA11NA
525          RS      11    FLOW       0
526          RC    0.05    0.06    0.05    2400  0.0090
527          RX       0     350     450     480     482     510     610     910
528          RY       7       6       5       1       0       5       6       7
             *
             * COMBINE Flows of A11NA, A11MA AND A11MB
             *

529          KK  CA11MB
530          HC       3
             *
             * Route Flow to A11J
             *

531          KK  RA11MB
532          RS       8    FLOW       0
533          RC    0.05    0.06    0.05    3000   .0085
534          RX       0     350     450     480     482     510     610     910
535          RY       7       6       5       1       0       5       6       7
             *

536          KK    A11O   BASIN
537          KM  SUBASIN A11O
538          BA   0.056
539          LG    0.28    0.27    6.20    0.19      23
540          UC   0.279   0.249
541          UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
542          UA     100
             *
```



```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9.....10

543          KK   SA11O STORAGE
544          KM  Online Detention Basin,  3.1 ac-ft.
545          RS       1    STOR       0
546          SV       0     0.5     1.0     2.0     3.1     5.0
547          SE       0       2       3       4       5       6
548          SL       0    3.14    0.62     0.5
549          SS       5      50     2.7     1.5
             *
             * ROUTE A11O to A11KB
             *

550          KK   RA11O
551          RS       9    FLOW       0
552          RC    0.05     .06     .05    2500   .0085
553          RX       0     350     450     480     482     510     610     910
554          RY       7       6       5       1       0       5       6       7
             *

555          KK   A11KB   BASIN
556          KM  SUB-BASIN A11K North Portion
557          BA   0.107
```

```
LG    0.25    0.25    4.70    0.36      30
UC   0.390   0.206
UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
UA     100
*

KK  SA11KB STORAGE
KM  Online Detention Basin, 10.7 ac-ft.
RS       1    STOR       0
SV       0     3.0     5.0     7.0    10.7    15.0
SE       0       2       3       4       5       6
SL       0    3.14    0.62     0.5
SS       5     100     2.7     1.5
*

KK   A11KA   BASIN
KM  SUB-BASIN A11K East Portion
BA   0.081
LG    0.27    0.27    4.45    0.42      42
UC   0.272   0.190
UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
UA     100
*

KK  SA11KA STORAGE
KM  Online Detention Basin,  9.6 ac-ft.
RS       1    STOR       0
SV       0     2.0     4.0     6.0     9.6    14.0
SE       0       2       3       4       5       6
SL       0    3.14    0.62     0.5
SS       5      50     2.7     1.5
*
* ROUTE A11KA to A11KB
*
```



```
LINE      ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

KK  RA11KA
RS       8    FLOW       0
RC    0.05     .06     .05    2000   .0075
RX       0     350     450     480     482     510     610     910
RY       7       6       5       1       0       5       6       7
*
* COMBINE A11KB,A11KA AND A11O
*

KK  CA11KB
HC       3
*
* ROUTE Flow of CA11KB to A11KC
*

KK  RA11KB
RS       8    FLOW       0
RC    0.05    0.06    0.05    1600  0.0055
RX       0      50     250     350     360     420     620     720
RY      10       8       6       2       0       6       8      10
*

KK    A11G   BASIN
KM  SUB-BASIN A11G
BA   0.060
```



```
LG    0.31    0.28    4.55    0.35      25
UC   0.425   0.369
UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
UA     100
*
* ROUTE A11G to A11KC
*

KK  RA11GN
RS       7    FLOW       0
RC    0.05     .06     .05    2300   0.010
RX       0     350     450     480     482     510     610     910
RY       7       6       5       1       0       5       6       7
*

KK   A11KC   BASIN
KM  SUB-BASIN A11K West Portion
BA   0.132
LG    0.27    0.26    4.15    0.50      27
UC   0.381   0.185
UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
UA     100
*
```



```
LINE      ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

KK  SA11KC STORAGE
KM  Online Detention Basin,  6.4 ac-ft.
RS       1    STOR       0
SV       0     1.5     2.5     4.0     6.4    10.0
SE       0       2       3       4       5       6
SL       0    3.14    0.62     0.5
SS       5      50     2.7     1.5
*
* COMBINE RA11KB, RA11G, AND A11KC
*

KK  CA11KC
HC       3
*
* ROUTE CA11KC to A11J
* CROSS SECTION IS A MEDIUM NATURAL CHANNEL
*

KK  RA11KC
RS       4    FLOW       0
RC    0.05     .06     .05    1000   .0055
RX       0      50     250     350     360     420     620     720
RY      10       8       6       2       0       6       8      10
*

KK    A11J   BASIN
KM  SUB-BASIN A11J
BA   0.112
LG    0.29    0.22    7.30    0.12      18
UC   0.579   0.448
UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
UA     100
*

KK   SA11J STORAGE
KM  Online Detention Basin,  4.4 ac-ft.
```

```
637          RS       1    STOR       0
638          SV       0     1.0      2.0      3.0      4.4      7.0
639          SE       0       2        3        4        5        6
640          SL       0    3.14     0.62      0.5
641          SS       5      50      2.7      1.5
             *
             * COMBINE Flows of RA11MB, A11J, AND RA11KC
             *

642          KK   CA11J
643          HC       3
             *
```



```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9.....10

644          KK    A11L   BASIN
645          KM  SUB-BASIN A11L
646          BA   0.264
647          LG    0.27    0.12   11.20    0.03      24
648          UC   0.704   0.514
649          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
650          UA     100
             *
             * On-site Retention Basin
             *      GP

651          KK  DA11LQ
652          DT   DA11L     7.6
653          DI       0     100    1000    1000
654          DQ       0     100    1000    1000
             *
             * ROUTE FLOW TO A11I FROM A11L                                                  G
             *

655          KK   RA11L
656          RS       9    FLOW       0
657          RC    0.05    0.06    0.05    2600   .0069
658          RX       0     350     450     480     482     510     610     910
659          RY       7       6       5       1       0       5       6       7
             *

660          KK    A11I   BASIN
661          KM  SUB-BASIN A11I
662          BA   0.153
663          LG    0.25    0.10   11.20    0.03      28
664          UC   0.516   0.325
665          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
666          UA     100
             *
             * On-site Retention Basin
             *

667          KK  DA11IQ
668          DT   DA11I    11.7
669          DI       0     100    1000    1000
670          DQ       0     100    1000    1000
             *
             * COMBINE Flows of CA11J, A11I, and RA11L
             *

671          KK   CA11I
672          HC       3
```



```
             *
             * ROUTE FLOW TO A11EB FROM CA11I
             *
```



```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9.....10

673          KK   RA11I
674          RS       9    FLOW       0
675          RC    0.05     .06     .05    4000   .0075
676          RX       0      50     100     150     180     230     280     330
677          RY      10       8       6       0       0       6       8      10
             *

678          KK   A11EA   BASIN
679          KM  SUB-BASIN A11E East Portion
680          BA   0.144
681          LG    0.33    0.31    4.30    0.41      11
682          UC   0.596   0.537
683          UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
684          UA     100
             *
             * ROUTE FLOW TO A11EB FROM A11EA
             *

685          KK  RA11EA
686          RS       6    FLOW       0
687          RC    0.05     .06     .05    1500   .0065
688          RX       0      50     250     320     360     420     620     720
689          RY      10       8       6       0       0       6       8      10
             *

690          KK   A11EB   BASIN
691          KM  SUB-BASIN A11E West Portion
692          BA   0.190
693          LG    0.34    0.34    4.45    0.38       4
694          UC   0.834   0.835
695          UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
696          UA     100
             *
             * COMBINE Flows of A11EA, A11EB, and RA11I
             *

697          KK  CA11EB
698          HC       3
             *

699          KK      41   BASIN
700          KM  SUB-BASIN 41
701          BA   0.054
702          LG    0.34    0.34    4.40    0.39      21
703          UC   0.249   0.168
704          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
705          UA     100
             *
```



```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9.....10

706          KK     B41
707          KM  Storage Route Runoff through Detention Basin @41
708          KM  Outlet Structure:  1-48" PIPE
```

```
709          RS       1    STOR       0
710          SA     .09     .18     .27      .4
711          SE    1433    1435    1437    1440
712          SQ       0      23      71     132
             *
713          KK      42   BASIN
714          KM  SUB-BASIN 42
715          BA   0.075
716          LG    0.35    0.35    4.25    0.42      44
717          UC   0.259   0.180
718          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
719          UA     100
             *
720          KK     B42
721          KM  Storage Route Runoff through Detention Basin @42
722          KM  Outlet Structure:  48" PIPE
723          RS       1    STOR       0
724          SA     .07     .13     .21     .31      .4
725          SE    1427    1429    1431    1433    1435
726          SQ       0      23      71     112     147
             *
             * COMBINE Flows of 41 and 42                                          G
             *
727          KK     C41
728          HC       2
             *
             * ROUTE FLOW TO A11F FROM C41
             *
729          KK    RC41
730          RS      14    FLOW       0
731          RC    0.05     .06     .05    5200   .0075
732          RX       0      50      70      90     110     130     150     200
733          RY       6       5       3       0       0       3       5       6
             *
734          KK    A11F   BASIN
735          KM  SUB-BASIN A11F
736          BA   0.334
737          LG    0.33    0.31    4.35    0.40       8
738          UC   0.624   0.419
739          UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
740          UA     100
             *
             * COMBINE Flows of A11F and RC41                                      G
             *
```



```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

741          KK   CA11F
742          HC       2
             *
             * COMBINE Flows of CA11F and CA11EB
             *
743          KK   CA11E
744          HC       2
             *
             * ROUTE FLOW TO A11A FROM CA11E
```



```
             *
745          KK   RA11E
746          RS       3    FLOW       0
747          RC    0.05     .06     .05    1700   .0070
748          RX       0      50      70      90     110     130     150     200
749          RY       6       5       3       0       0       3       5       6
             *
750          KK    A09U   BASIN
751          KM  SUB-BASIN A09U
752          BA   0.175
753          LG    0.32    0.30    4.20    0.43      22
754          UC   0.347   0.227
755          UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
756          UA     100
             *
             * Happy Valley RD. Improvements
             * 0 % FLOW GOES DOWN to South,100% WEST along HAPPY VALLEY
             *
757          KK   DA09U
758          DT   A09UI     0.0     0.0
759          DI     0.0    10.0   100.0  1000.0  5000.0     0.0     0.0     0.0     0.0     0.0
760          DQ     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0
             *
             * ROUTE FLOW TO CA09T FROM A09U                                       G
             *
761          KK  RA09UW
762          RS       9    FLOW       0
763          RC    0.05    0.03     .05    4000   .0075
764          RX       0     200     210     220     240     270     295     595
765          RY     4.5       2       0       2       3       3     3.5     4.5
             *
766          KK    A09T   BASIN
767          KM  SUB-BASIN A09T
768          BA   0.182
769          LG    0.33    0.31    4.30    0.41       2
770          UC   0.551   0.388
771          UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
772          UA     100
             *
             * COMBINE  CA09U AND A09T
             *
```



```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

773          KK   CA09T
774          HC       2
             *
             * HAPPY VALLEY ROAD Improvements, 100% Flow TO THE WEST
             *
775          KK   DA09T
776          DT   A09TI     0.0     0.0
777          DI     0.0    10.0   100.0  1000.0 10000.0     0.0     0.0     0.0     0.0     0.0
778          DQ     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0
             *
             * ROUTE FLOW TO CX22 FROM CA09T
             *
```

```
779          KK  RA09TW
780          RS       2    FLOW       0
781          RC    0.05    0.03    0.05    1500   .0025
782          RX       0     200     210     220     230     270     295     595
783          RY       6       4       0       0       4       4     5.5       7
             *
784          KK     A11A   BASIN
785          KM  SUB-BASIN A11A
786          BA   0.298
787          LG    0.23    0.29    6.00    0.21      34
788          UC   0.568   0.362
789          UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
790          UA     100
             *
             * On-site Retention Basin
             *     GP
791          KK  DA11AQ
792          DT   DA11A     7.7
793          DI       0     100    1000    1000
794          DQ       0     100    1000    1000
             *
             * Combine  Flows of RA09TW, CA11E,and A11A
             *
795          KK     CX23
796          HC        3
             *
             * ROUTE FLOW TO CS1 FROM CX23                                        GP
             *
797          KK     RX23
798          RS        7    FLOW       0
799          RC    0.05     .06     .05    4000   .0074
800          RX       0      50     150     175     275     300     400     500
801          RY      12       8       6       0       0       6       8      12
             *
1                                        HEC-1 INPUT                                    PAGE 23

           LINE          ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

802          KK       S1   BASIN
803          KM  SUB-BASIN S1
804          BA   0.124
805          LG    0.31    0.27    4.25    0.47      12
806          UC   0.597   0.527
807          UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
808          UA     100
             *
809          KK       P2   BASIN
810          KM  SUB-BASIN P2
811          BA   0.051
812          LG    0.25    0.25    4.45    0.43      29
813          UC   0.316   0.203
814          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
815          UA     100
             *
816          KK     RT2
817          KM
```



```
818          DT     RB2   4.740
819          DI       0     100     500    1000    5000
820          DQ       0     100     500    1000    5000
             *
821          KK     CS1
822          KM
823          HC        3
             *
824          KK     RS1
825          KM  CHANNEL ROUTING
826          RD     924   .0108    .035            TRAP     200       6
             *
827          KK       S2   BASIN
828          KM  SUB-BASIN S2
829          BA   0.012
830          LG    0.34    0.33    4.70    0.32       3
831          UC   0.198   0.111
832          UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
833          UA     100
             *
834          KK       S3   BASIN
835          KM  SUB-BASIN S3
836          BA   0.006
837          LG    0.30    0.25    4.65    0.32       5
838          UC   0.154   0.090
839          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
840          UA     100
             *
1                                        HEC-1 INPUT                                    PAGE 24

           LINE          ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

841          KK     CS2
842          KM
843          HC        3
             *
844          KK     RS2
845          KM  CHANNEL ROUTING
846          RD     665   .0075    .020            TRAP      20       4
             *
847          KK       P3   BASIN
848          KM  SUB-BASIN P3
849          BA   0.054
850          LG    0.25    0.25    4.45    0.43      30
851          UC   0.431   0.361
852          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
853          UA     100
             *
854          KK     RT3
855          KM
856          DT     RB3   5.230
857          DI       0     100     500    1000    5000
858          DQ       0     100     500    1000    5000
             *
859          KK     CP3
```

```
860          KM
861          HC       2
             *

862          KK     P4b    BASIN
863          KM  SUB-BASIN P4b
864          BA   0.017
865          LG    0.25    0.25    4.45    0.43      30
866          UC   0.225   0.132
867          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
868          UA     100
             *

869          KK     RT4b
870          KM
871          DT     RB4b   0.320
872          DI        0     100     500    1000    5000
873          DQ        0     100     500    1000    5000
             *

874          KK      S4    BASIN
875          KM  SUB-BASIN S4
876          BA   0.014
877          LG    0.33    0.31    4.80    0.30       2
878          UC   0.361   0.546
879          UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
880          UA     100
             *
```



```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9.....10

881          KK      P1    BASIN
882          KM  SUB-BASIN P1
883          BA   0.029
884          LG    0.34    0.38    6.00    0.18       1
885          UC   0.362   0.389
886          UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
887          UA     100
             *

888          KK     DT1
889          KM
890          DT     DB1   0.500
891          DI        0     100     500    1000    5000
892          DQ        0     100     500    1000    5000
             *

893          KK     CP1
894          KM
895          HC       2
             *

896          KK     HV2    BASIN
897          KM  SUB-BASIN HV2
898          BA   0.031
899          LG    0.25    0.25    4.45    0.43      29
900          UC   1.500   4.221
901          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
902          UA     100
             *

903          KK     RHV2
```



```
904          KM  CHANNEL ROUTING
905          RD     910   .0033    .015            TRAP      10       4
             *

906          KK    DTHV2
907          KM
908          DT    DBHV2   0.680
909          DI        0     100     500    1000    5000
910          DQ        0     100     500    1000    5000
             *

911          KK     P4a    BASIN
912          KM  SUB-BASIN P4a
913          BA   0.039
914          LG    0.25    0.25    4.00    0.55      30
915          UC   0.499   0.448
916          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
917          UA     100
             *
```



```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9.....10

918          KK     DT4a
919          KM
920          DT     DB4a   0.740
921          DI        0     100     500    1000    5000
922          DQ        0     100     500    1000    5000
             *

923          KK    SOUTH
924          KM  Combined at South HVR
925          HC       5
             *

926          KK     N11O    BASIN
927          KM  SUB-BASIN N11O
928          BA   0.054
929          LG    0.35    0.35    4.50    0.36       0
930          UC   0.458   0.338
931          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
932          UA     100
             *
             * A WASH TO THE WEST THAT CARRIES A MAX. FLOW OF 47 CFS.
             *

933          KK    DN11O
934          DT    N11OI
935          DI        0      30      60     100     300     600    1200    2200
936          DQ        0      27      54      90     270     553    1153    2153
             *
             * ROUTE RN11OW IS 2752 FT WITH A SLOPE OF .0025
             * CROSS SECTION IS A MEDIUM NATURAL WASH
             *

937          KK  RN11OW
938          RS       15    FLOW       0
939          RC     0.05     .06     .05    2752   .0025
940          RX        0      50     250     350     360     420     620     720
941          RY       10       8       6       2       0       6       8      10
             *
             * RECOVER DIVERTED FLOW FROM CA09T
             *
```

```
                KK  DRA09T
                DR   A09TI
                *
                * ROUTE RA09TS IS 2824 FT WITH A SLOPE OF .0057
                * CROSS SECTION IS SHALLOW CONCENTRATED FLOW
                * ROUTE FLOW TO CA09R FROM CA09T
                *
1                                       HEC-1 INPUT                                                 PAGE 27

          LINE  ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

                KK  RA09TS
                RS      15    FLOW       0
                RC    0.05     .06      .05    2824   .0057
                RX       0     400      800    1200    1600     2000     2400     2800
                RY       3       1       .5       0       0       .5        1        3
                *
                KK    A09R   BASIN
                KM  SUB-BASIN A09R
                BA   0.144
                LG    0.35    0.34    4.25    0.43       1
                UC   0.792   0.663
                UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
                UA     100
                *
                * COMBINE  CN11O,  CA09T, AND A09R
                *
                KK   CA09R
                HC       3
                *
                * EXISTING CONDITIONS FLOW DOWN LAKE PLEASANT RD
                *
                KK   DA09R
                DT   A09RI
                DI       0      10      50     100     300     500     800    1000    2000
                DQ       0     9.9    49.3    99.4   299.5     499     799     999    1999
                *
                * ROUTE RA09RW IS 1609 FT WITH A SLOPE OF .0012
                * *** ROUTE FLOW TO CA09S FROM CA09R  ************************
                *
                KK  RA09RW
                RS      15    FLOW       0
                RC    0.05    0.04     .05    1609  0.0012
                RX       0     200     300     325     340     360     380     880
                RY       5       4       3       2       3       3       2     3.5
                *
                KK    A09S   BASIN
                KM  SUB-BASIN A09S
                BA   0.072
                LG    0.13    0.25    4.90    0.40      71
                UC   0.515   0.441
                UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
                UA     100
                *
                * On-site Retention Basin
                *     GP
1                                       HEC-1 INPUT                                                 PAGE 28
                                           Page 25
```



```
          LINE  ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

                KK  DA09SQ
                DT   DA09S     7.0
                DI       0     100    1000    1000
                DQ       0     100    1000    1000
                *
                * *** COMBINE  RA09RW AND A09S ***************************************************
                *
                KK   CA09S
                HC       2
                *
                KK  RA09SW
                RS       6    FLOW       0
                RC    0.03    0.03    0.03    1600  0.0085
                RX       0      50     100     120     140     160     210     260
                RY       6       4       3       0       0       3       4       6
                *
                KK   A09QA   BASIN
                KM  SUB-BASIN A09Q North Portion
                BA   0.092
                LG    0.34    0.34    4.20    0.44       2
                UC   0.534   0.331
                UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
                UA     100
                *
                * *** COMBINE  Flows of RA09SW and A09QA ************************************
                *
                KK  CA09QA
                HC       2
                *
                * *** DIVERTED  MAIN (SOUTH), DIVERTED (WEST)  ***************************
                * FUTURE SPLIT: ALL EXISTING FLOW TO THE SOUTH
                *
                KK  DA09QA
                DT  A09QAI
                DI       0      10      30      50     100     500    1000    2000
                DQ       0     9.2    29.3    49.4    99.5     499     999    1999
                *
                * *** ROUTE CA09QA TO CA99YA ************************************************
                *
                KK  RA09QW
                RS       4    FLOW       0
                RC    0.03    0.03    0.03    2400  0.0085
                RX       0      50     100     120     140     160     210     260
                RY       6       4       3       0       0       3       4       6
                *
1                                       HEC-1 INPUT                                                 PAGE 29

          LINE  ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

                KK   A99YA   BASIN
                KM  SUB-BASIN A99Y East Portion
                BA   0.103
                LG    0.35    0.34    4.90    0.29       1
                                           Page 26
```

```
1007          UC   0.413   0.291
1008          UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
1009          UA     100
              *
              * *** COMBINE  RA09QW AND A99YA ************************************************
              *
1010          KK  CA99YA
1011          HC       2
              *
1012          KK  RA99YA
1013          RS       3    FLOW       0
1014          RC    0.03    0.03    0.03    2000  0.0085
1015          RX       0      50     100     120     140     160     210     260
1016          RY       6       4       3       0       0       3       4       6
              *
1017          KK   A99YB   BASIN
1018          KM  SUB-BASIN A99Y West Portion
1019          BA   0.171
1020          LG    0.34    0.34    3.78    0.55       4
1021          UC   0.556   0.298
1022          UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
1023          UA     100
              *
              * *** COMBINE  RA99YA, SOUTH AND A99YB ******************************************
              *
1024          KK  CA99YB
1025          HC       3
              *
              *
              * Dummy Combining at AFR and South of Happy Valley Rd.
              *
1026          KK    AFR1
1027          HC       3
              *
              * RECOVER DIVERTED FLOW FROM A09U
              *
1028          KK  BA09UI
1029          DR   A09UI
              *
              * *** ROUTE RA09US ***************************************************************
              * ROUTE RA09US IS 3000 FT WITH A SLOPE OF 0.0076
              * CROSS SECTION IS A SMALL ROAD WITH HOMES ON THE WEST SIDE
              * ALONG local STREETS
              * *** ROUTE FLOW TO N11NB FROM Happy Valley RD (CA09U)
              *
```



```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10
```

```
1030          KK  RA09US
1031          RS       6    FLOW       0
1032          RC    0.04    0.03    0.04    3000  0.0076
1033          RX       0       1      54      55      95      96     124     624
1034          RY    9.25    1.25    0.25       0       0    0.25    1.25    3.25
              *
              *
```



```
1035          KK   N11NB   BASIN
1036          KM  SUB-BASIN N11NBN
1037          BA   0.140
1038          LG    0.31    0.27    4.70    0.31       4
1039          UC   0.567   0.481
1040          UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
1041          UA     100
              *
              * Combining Flows
              *
1042          KK  CN11NB
1043          HC       2
              *
              * ROUTE RN11NW IS 2521 FT WITH A SLOPE OF 0.0016
              * CROSS SECTION IS A SMALL ROAD WITH HOMES TO BOTH SIDES
              * ALONG Mariposa GrANDe
              *
1044          KK  RN11NW
1045          RS      12    FLOW       0
1046          RC    0.04    0.03    0.04    2521  0.0016
1047          RX       0       1      70      71      96      97     182     183
1048          RY    9.25    1.25    0.25       0       0    0.25    1.25    9.25
              *
              * RECOVER DIVERTED FLOW FROM N11OI
1049          KK  BN11OI
1050          DR   N11OI
              *
              * ROUTE RN11OS IS 1184 FT WITH A SLOPE OF 0.0068
              * CROSS SECTION IS SHALLOW CONCENTRATED FLOW
              * ALONG natural pathways
              * ROUTE FLOW TO Mariposa GrANDe (CN11M) FROM CN11O
              *
1051          KK  RN11OS
1052          RS      15    FLOW       0
1053          RC    0.05     .06     .05    1184  0.0068
1054          RX       0     400     800    1200    1600    2000    2400    2800
1055          RY       3       1      .5       0       0      .5       1       3
              *
```



```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10
```

```
1056          KK    N11M   BASIN
1057          KM  SUB-BASIN N11M
1058          BA   0.100
1059          LG    0.35    0.35    4.15    0.45       0
1060          UC   0.477   0.261
1061          UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
1062          UA     100
              *
              * *** COMBINE  CN11M ************************************************************
              * COMBINE BASIN N11M, RN11OS, and RN11NW
              * Mariposa GrANDe AND 95st AVE
              *
1063          KK   CN11M
1064          HC       3
              *
              * *** DIVERSION DN11M ************************************************************
```

```
* DIVERSION MAIN 95th AVE(SOUTH), SPLIT (WEST)
*
KK   DN11M
DT   N11MI
DI       0       1      40      80     100     300     600    1200    2200
DQ       0     .25      10      20      25      75     150     184     184
*
* ROUTE RN11MS IS 2689 FT WITH A SLOPE OF 0.0071
* CROSS SECTION IS A SMALL ROAD WITH HOMES TO ONE SIDE
* ALONG 95st AVE
* ROUTE FLOW TO PINNACLE PEAK (CN11J) FROM Mariposa GranDe (CN11M)
*
KK  RN11MS
RS       7    FLOW       0
RC    0.05    0.03    0.05    2689  0.0071
RX       0       1      50      51      73      74     124     524
RY    9.25    1.25    0.25       0       0    0.25    1.25    3.25
*
KK    N11J   BASIN
KM  SUB-BASIN N11J
BA   0.244
LG    0.30    0.25    4.10    0.51      13
UC   0.851   0.601
UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
UA     100
*
* *** STORAGE ROUTING LN11J ************************************************
* *** SMALL SUBDIVISION STORAGE (ACCOUNTED) *********************************
*
```



```
LINE      ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

KK   LN11J
DT  LN11JD     1.8
DI       0     100    1000   10000
DQ       0     100    1000   10000
*
* COMBINE N11J AND RN11KW
* Pinnacle Peak AND 95st AVE
*
KK   CN11J
HC       2
*
* Existing Condition 100% to South
*
KK   DN11J
DT   N11JI
DI       0      10     100    1000    5000
DQ       0      10     100    1000    5000
*
* ROUTE RN11JW IS 1080 FT WITH A SLOPE OF .0019
* CROSS SECTION IS THE NEW CHANNEL ALONG PINNACLE PEAK ROAD
*
* ROUTE FLOW TO CX4 FROM CN11J
*
KK  RN11JW
```



```
RS       1    FLOW       0
RC     .04    0.04     .04    1080   .0019
RX       0     100     140     160     200     300     400     500
RY      10       9       0       0       9      10      11      12
*
* RECOVER DIVERTED FLOW FROM CN11M
*
KK  DRN11M
DR   N11MI
*
* ROUTE RN11MW IS 3871 FT WITH A SLOPE OF .0046
* CROSS SECTION IS A ROAD WITH HOMES TO THE WEST SIDE
* ROUTE FLOW TO CX4 FROM CN11M
*
KK  RN11MW
RS      15    FLOW       0
RC    0.05    0.04     .05    3871   .0046
RX       0       1      50      51      76      77     102     602
RY      10       2       1    0.75    0.75       1       2     3.5
*
* *** COMBINE  CN11J AND CN11M *********************************************
*
```



```
LINE      ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

KK     CX4
HC       2
*
* ROUTE RX4 IS 2164 FT WITH A SLOPE OF .0023
* CROSS SECTION IS THE NEW CHANNEL ALONG PINNACLE PEAK ROAD
* *** ROUTE FLOW TO CA09O FROM CX4  ****************************
*
KK     RX4
RS       6    FLOW      -1
RC     .04    0.04     .04    2164  0.0023
RX       0     100     140     160     200     300     400     500
RY      10       9       0       0       9      10      11      12
*
KK    A09O   BASIN
KM  SUB-BASIN A09O
BA   0.194
LG    0.32    0.29    4.40    0.41       6
UC   0.937   0.939
UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
UA     100
*
KK   SA09O STORAGE
KM  Online Detention Basin, 28.5 ac-ft.
RS       1    STOR       0
SV       0     9.0    15.0    21.0    28.5    38.0
SE       0       2       3       4       5       6
SL       0   7.065    0.62     0.5
SS       5     100     2.7     1.5
*
* RECOVER DIVERTED FLOW FROM A09RI
*
```

```
1124          KK  BA09RI
1125          DR   A09RI
              *
              * ROUTE RA09RS IS 3928 FT WITH A SLOPE OF .0074
              * CROSS SECTION IS A HIGHWAY
              * ROUTE FLOW TO CA09O FROM CA09R
              *

1126          KK  RA09RS
1127          RS      12    FLOW       0
1128          RC    0.05    0.04    0.05    3928   .0074
1129          RX       0     100     200     225     250     275     375     475
1130          RY       6       5       4       3       3       4       5       6
              *
              * *** COMBINE  CX4, RA09RS, AND A09O ***************************************
              *
```



```
              LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


1131          KK   CA09O
1132          HC       3
              *
              * Existing Condition: All Flow to South
              *

1133          KK   DA09O
1134          DT   A09OI
1135          DI       0     100    1000    5000
1136          DQ       0     100    1000    5000
              *
              *
              * ROUTE RA09OW IS 1076 FT WITH A SLOPE OF .0019
              * CROSS SECTION IS THE NEW CHANNEL ALONG PINNACLE PEAK ROAD
              * *** ROUTE FLOW TO CA09P FROM CA09O  ***************************
              *

1137          KK  RA09OW
1138          RS       1    FLOW       0
1139          RC     .04     .04     .04    1076  0.0019
1140          RX       0     100     140     160     200     300     400     500
1141          RY      10       9       0       0       9      10      11      12
              *

1142          KK    A09P   BASIN
1143          KM  SUB-BASIN A09P
1144          BA   0.187
1145          LG    0.32    0.29    4.65    0.34       6
1146          UC   0.727   0.513
1147          UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
1148          UA     100
              *

1149          KK   SA09P STORAGE
1150          KM  Online Detention Basin, 25.2 ac-ft.
1151          RS       1    STOR       0
1152          SV       0     7.0    13.0    19.0    25.2    33.0
1153          SE       0       2       3       4       5       6
1154          SL       0   7.065    0.62     0.5
1155          SS       5     100     2.7     1.5
              *
              * *** COMBINE  CA09O AND A09P ***************************************************
              *
```



```
1156          KK   CA09P
1157          HC       2
              *
              * ROUTE RA09P IS 884 FT WITH A SLOPE OF .0136
              * CROSS SECTION IS THE NEW CHANNEL ALONG PINNACLE PEAK ROAD
              * *** ROUTE FLOW TO CA09Q FROM CA09P  ***************************
              *
```



```
              LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


1158          KK   RA09P
1159          RS       2    FLOW       0
1160          RC     .04     .04     .04     884  0.0136
1161          RX       0     100     140     160     200     300     400     500
1162          RY      10       9       0       0       9      10      11      12
              *
              * Retrieve Diverted Flow of A09QAI
              *

1163          KK  BA09QA
1164          DR  A09QAI
              *
              * *** ROUTE FLOW TO CA09QB FROM CA09QA ***************************
              *

1165          KK  RA09QB
1166          RS       8    FLOW       0
1167          RC    0.05     .06     .05    2700  0.0095
1168          RX       0     100     300     360     380     420     620     720
1169          RY      10       8       6       2       0       6       8      10
              *

1170          KK   A09QB   BASIN
1171          KM  SUB-BASIN A09Q South Portion
1172          BA   0.144
1173          LG    0.30    0.25    4.15    0.44       5
1174          UC   0.636   0.449
1175          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
1176          UA     100
              *
              * *** COMBINE Flows of A09QA,A09QB  and RA09P  **********************************
              *

1177          KK   CA09Q
1178          HC       3
              *
              * Existing Condition:All Flow to South
              *

1179          KK   DA09Q
1180          DT   A09QI
1181          DI       0      10     100     500    1000    5000
1182          DQ       0      10     100     500    1000    5000
              *
              * ROUTE RA09QW IS 2468 FT WITH A SLOPE OF 0.0158
              * CROSS SECTION IS A MEDIUM CHANNEL
              * *** ROUTE CA09Q TO CA10A ********************************************
              *
```



```
              LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10
```

```
1183          KK  RA09QW
1184          RS       1    FLOW       0
1185          RC     .05     .05     .05     2468  0.0158
1186          RX       0     100     140      160      200      300      400      500
1187          RY      10       9       0        0        9       10       11       12
              *
1188          KK    A10A   BASIN
1189          KM  SUB-BASIN A10A
1190          BA   0.189
1191          LG    0.33    0.32    5.30    0.24        2
1192          UC   0.524   0.330
1193          UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
1194          UA     100
              *
1195          KK    CA10A
1196          HC       2
              *
              * ROUTE RA10A IS 2831 FT WITH A SLOPE OF 0.0148
              * CROSS SECTION IS THE NEW CHANNEL ALONG PINNACLE PEAK ROAD
              *
1197          KK    RA10A
1198          RS       2    FLOW       0
1199          RC    0.05    0.05    0.05    1553     .03
1200          RX       0     100     140      170      210      310      410      510
1201          RY      10       9       0        0        9       10       11       12
              *
1202          KK    A99X   BASIN
1203          KM  SUB-BASIN A99X
1204          BA   0.264
1205          LG    0.21    0.28    4.20    0.53       39
1206          UC   0.419   0.203
1207          UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
1208          UA     100
              *
1209          KK    CA99X
1210          HC       2
              *
              * Dummy Combination at AFR and Pinnacle Peak Rd.
              *
1211          KK    AFR2
1212          HC       2
              *
              * Retrieve Diverted Flow of A09OI
              *
```



```
              LINE      ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10
1213          KK  BA09OI
1214          DR   A09OI
              *
              * ROUTE RA09OS IS 5602 FT WITH A SLOPE OF .0062
              * CROSS SECTION IS A RURAL ROAD WITH A DITCH RIGHT
              * *** ROUTE FLOW TO CX7 FROM CA09O  ****************************
              *
```



```
1215          KK  RA09OS
1216          RS       8    FLOW       0
1217          RC     .03     .03     .03     5602     .0062
1218          RX       0     200     220    227.5      235      255      300      460
1219          RY       4       2       0        0        2      2.5        3        4
              *
1220          KK    A09K   BASIN
1221          KM  SUB-BASIN A09K
1222          BA   0.410
1223          LG    0.34    0.34    4.40    0.39        2
1224          UC   0.845   0.559
1225          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
1226          UA     100
              *
1227          KK   DA09K
1228          KM  DIVERSION DA09K
1229          KM  DIVERSION SPLITS FLOW WITHIN SUB-BASIN A09K BASED ON TOPOGRAPHICAL SPLIT
1230          KM  A PORTION OF THE FLOW IS DIRECTED WEST TO LAKE PLEASANT PARKWAY
1231          KM  THE REMAINDER IS DIRECTED TO N11FA
1232          DT   A09KI
1233          DI       0     100     200     300     400     500     600     700    2000
1234          DQ       0      73     146     219     292     365     438     511    1460
              *
1235          KK     CX7
1236          KM  COMBINE Flows from North and East
1237          HC       2
              *
1238          KK    RX7S
1239          KM  ROUTE FLOW SOUTH TO CX8 FROM CX7
1240          KM  CROSS SECTION IS A PROPOSED TRAPEZOIDAL CHANNEL DESIGNED WITH
1241          KM  6:1 SIDE SLOPES ON THE LEFT BANK AND 3:1 SIDE SLOPES ON THE RIGHT BANK
1242          KM  ADJACENT TO LAKE PLEASANT PARKWAY ON THE WEST SIDE
1243          RS       5    FLOW       0
1244          RC     .03     .03     .03    2800     .002
1245          RX       0       3       9      15       35       41       47       50
1246          RY       5       4       2       0        0        2        4        5
              *
              * North Portion of N11N
              *
```



```
              LINE      ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10
1247          KK   N11NA   BASIN
1248          KM  UPPER PART OF SUBBASIN N11N
1249          BA   0.022
1250          LG    0.35    0.35    4.00    0.47       29
1251          UC   0.178   0.111
1252          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
1253          UA     100
              *
1254          KK  RN11NA
1255          RS      13    FLOW       0
1256          RC    0.05    0.04     .05    3500  0.0083
1257          RX       0       1      51      52       82       83      108      608
1258          RY    9.25    1.25    0.25       0        0     0.25    1.25    3.75
              *
```

```
1259          KK   N11NC   BASIN
1260          KM  East PART OF SUBBASIN N11N
1261          BA   0.171
1262          LG    0.31    0.29    4.20    0.46       7
1263          UC   0.453   0.276
1264          UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
1265          UA     100
              *
1266          KK  CN11NC
1267          HC       2
              *
1268          KK  DN11NC
1269          KM  DIVERT FLOW 10-YEAR RUNOFF (149 cfs) to East
1270          DT   N11NP
1271          DI       0     149    2000
1272          DQ       0     149     149
              *
1273          KK  RN11NC
1274          KM  ROUTE N11NC to South
1275          RS       5    FLOW      -1
1276          RC    0.05    0.04     .05    1600  0.0089
1277          RX       0      10      20      30      70      80      90     100
1278          RY       3       2       1       0       0       1       2       3
              *
1279          KK   N11ND   BASIN
1280          KM  LOWER PART OF SUBBASIN N11N
1281          BA   0.053
1282          LG    0.29    0.25    4.60    0.36      12
1283          UC   0.564   0.502
1284          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
1285          UA     100
              *
```



```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1286          KK    N11K   BASIN
1287          KM  SUB-BASIN N11K
1288          BA   0.167
1289          LG    0.30    0.25    4.20    0.46       9
1290          UC   0.772   0.599
1291          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
1292          UA     100
              *
1293          KK   CN11K
1294          KM  COMBINE N11K, RN11NC AND N11ND AT 91ST AVENUE AND PINNACLE PEAK
1295          HC       3
              *
              * Divert 10-Year Flow (55 cfs) into SD to East
1296          KK  DN11KS
1297          DT   N11KP
1298          DI       0      55     500    2000
1299          DQ       0      55      55      55
              *
1300          KK   RN11K
```



```
1301          RS      15    FLOW       0
1302          RC     .04    0.04     .04    5178   .0062
1303          RX       0     200     230     260     280     310     340     540
1304          RY      10       8       7       0       0       7       8      10
              *
              * Initial flow goes to west and excess flow splits to southeast
              * DIVERSION HAS BEEN MODIFIED FROM ORIGINAL ENTELLUS STUDY
              * PER CITY OF PEORIA COMMENTS (1/18/05)
              *
1305          KK     DX5
1306          DT     X5I
1307          DI       0      10     100     200     300     400     500    1000    2000
1308          DQ       0       0       0      94     154     249     344     844    1844
              *
              * ROUTE RX5W IS 1292 FT WITH A SLOPE OF 0.0008
              * CROSS SECTION IS DIRT ROAD
              * WEST ALONG DEER VALLEY RD
              * ROUTE FLOW FROM 91st AVE. (CN11H) TO WEST OF 91st AVE (CX5)
              *
1309          KK    RX5W
1310          RS      11    FLOW       0
1311          RC    0.05   0.045    0.05    1292   .0008
1312          RX       0     200     225     250     270     295     320     520
1313          RY    4.25    2.25    1.25       0       0    1.25    2.25    4.25
              *
```



```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1314          KK    N11H   BASIN
1315          KM  SUB-BASIN N11H
1316          BA   0.419
1317          LG    0.35    0.35    4.50    0.36       0
1318          UC   0.843   0.519
1319          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
1320          UA     100
              *
              * COMBINE RX5W AND BASIN N11H
              *
1321          KK   CN11H
1322          HC       2
              *
              * NEW ALTERNATIVE CHANNEL ACROSS STATE LAND
              *
1323          KK   RN11H
1324          KM  ROUTE FLOW WEST TO CN11G FROM CN11H
1325          KM  CROSS SECTION IS A PROPOSED TRAPEZOIDAL CHANNEL DESIGNED WITH
1326          KM  3:1 SIDE SLOPES ON THE LEFT BANK AND 3:1 SIDE SLOPES ON THE RIGHT BANK
1327          KM  ADJACENT TO DEAR VALLEY ROAD ON THE NORTH SIDE
1328          RS       7    FLOW       0
1329          RC     .03     .03     .03    3300    .001
1330          RX       0       3      12      18      38      44      53      56
1331          RY       6       5       2       0       0       2       5       6
              *
              * RECOVER DIVERTED FLOW FROM N11J                                        G
              *
1332          KK  BN11JI
1333          DR   N11JI
```

```
                *
                * ROUTE RN11JS IS 5670 FT WITH A SLOPE OF 0.0062
                * CROSS SECTION IS A SMALL NATURAL WASH
                * ALONG NATURAL WASH
                * ROUTE FLOW TO DEER VALLEY RD. (CN11G) FROM PINNACLE PEAK (CN11J)
                *
1334            KK  RN11JS
1335            RS      12    FLOW       0
1336            RC    0.05    0.06    0.05    5670  0.0062
1337            RX       0     350     450     480     482     510     610     910
1338            RY       7       6       5       1       0       5       6       7
                *
1339            KK    N11G   BASIN
1340            KM  SUB-BASIN N11G
1341            BA   0.524
1342            LG    0.35    0.35    4.35    0.40       0
1343            UC   0.844   0.464
1344            UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
1345            UA     100
                *
                * COMBINE  RN11JS, RN11H AND N11G AT 98TH AVE
                *
1                                        HEC-1 INPUT                                        PAGE 41

LINE            ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1346            KK   CN11G
1347            HC       3
                *
1348            KK   RN11G
1349            KM  ROUTE FLOW SOUTH TO CN11FB FROM CN11G
1350            KM  CROSS SECTION IS A PROPOSED TRAPEZOIDAL CHANNEL DESIGNED WITH
1351            KM  6:1 SIDE SLOPES ON THE LEFT BANK AND 3:1 SIDE SLOPES ON THE RIGHT BANK
1352            KM  ADJACENT TO 98TH AVE ON THE WEST SIDE
1353            RS       4    FLOW       0
1354            RC     .03     .03     .03    2500    .002
1355            RX       0      12      24      36      62      68      72      80
1356            RY       6       4       2       0       0       2       4       6
                *
1357            KK   N11DA   BASIN
1358            KM  SUB-BASIN N11DA CREATED BY CVL 7/04
1359            BA   0.256
1360            LG    0.25    0.25    4.60    0.39      30
1361            UC   0.781   0.511
1362            UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
1363            UA     100
                *
                * DOVE VALLEY RANCH RESIDENTIAL DEVELOPMENT STORAGE (ACCOUNTED) *******
                * STORAGE MODIFIED PER CITY OF PEORIA TO DISCHARGE UP TO 200CFS WEST
                * TOTAL DETENTION/RETENTION VOLUME = 18 AC-FT, 10 AC-FT MODELED AS RETENTION
                * 8 AC-FT MODELED AS ON-LINE DETENTION BASIN ON NEC OF RGL & 95TH
                *
1364            KK  LN11DA
1365            DT  LDAOUT     8.0
1366            DI       0     100    1000   10000
1367            DQ       0     100    1000   10000
                *
```



```
1368            KK  SN11DA
1369            KM  2-8'x3' BOX CULVERTS TO TAKE FLOW TO WEST
1370            KM  THE WEST + EAST DETENTION BASIN WERE COMBINED WITH 1-18"RCP TO SOUTH
1371            RS       1    STOR       0
1372            SV     0.0     .06     0.16    0.35    1.91    5.62   10.58   16.46
1373            SE    1257    1258    1259    1260    1261    1262    1263    1264
1374            SQ       0       5       9      50      84     113     140     205
                *
1375            KK  N11DAW
1376            KM  SPLIT THE FLOW BETWEEN BOX AND PIPE - Pipe Flow to South
1377            DT  D11DAS
1378            DI       0       5       9      50      84     113     140     205
1379            DQ       0       5       9      15      18      20      22      23
                *
1                                        HEC-1 INPUT                                        PAGE 42

LINE            ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1380            KK  RN11DA
1381            KM  ROUTE FLOW WEST TO CN11FB FROM N11DA
1382            KM  CROSS SECTION IS A PROPOSED TRAPEZOIDAL CHANNEL DESIGNED WITH
1383            KM  6:1 SIDE SLOPES ON THE LEFT BANK AND 3:1 SIDE SLOPES ON THE RIGHT BANK
1384            KM  ADJACENT TO LAKE PLEASANT PARKWAY ON THE NORTH SIDE
1385            RS       5    FLOW       0
1386            RC     .03     .03     .03    2000    .001
1387            RX       0       6      18      30      35      41      47      50
1388            RY       5       4       2       0       0       2       4       5
                *
1389            KK   N11FB   BASIN
1390            KM  SUB-BASIN N11FB
1391            BA   0.121
1392            LG    0.24    0.26    4.40    0.45      30
1393            UC   0.740   0.694
1394            UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
1395            UA     100
                *
1396            KK  LN11FB
1397            KM  STORAGE ROUTING LN11FB
1398            KM  PROPOSED RETENTION BASED ON THE 100-YEAR, 2-HOUR STORM VOLUME
1399            DT  LN1FBD     10.6
1400            DI       0     100    1000   10000
1401            DQ       0     100    1000   10000
                *
1402            KK  CN11FB
1403            KM  COMBINE LN11FB and RN11DA
1404            HC       2
                *
1405            KK  C98RGL
1406            KM  COMBINE CN11FB AND RN11G AT WEST 98TH AVE AND RGL
1407            HC       2
                *
1408            KK  RN11FB
1409            KM  ROUTE FLOW WEST TO CN11FA FROM CN11FB
1410            KM  CROSS SECTION IS A PROPOSED TRAPEZOIDAL CHANNEL DESIGNED WITH
1411            KM  6:1 SIDE SLOPES ON THE LEFT BANK AND 3:1 SIDE SLOPES ON THE RIGHT BANK
1412            KM  ADJACENT TO LAKE PLEASANT PARKWAY ON THE NORTH SIDE
1413            RS       2    FLOW       0
```

```
1414          RC     .03     .03     .03    1100    .001
1415          RX       0      12      24      36      62      68      72      80
1416          RY       8       4       2       0       0       2       4       8
              *
```



```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1417          KK  DRA09K
1418          KM  DIVERSION RECOVER DA09K
1419          KM  RECOVER DIVERTED FLOW FROM A09K
1420          DR   A09KI
              *

1421          KK  RA09KS
1422          KM  ROUTE FLOW SOUTH TO CN11FA
1423          KM  CROSS SECTION IS A PROPOSED TRAPEZOIDAL CHANNEL DESIGNED WITH
1424          KM  6:1 SIDE SLOPES ON THE LEFT BANK AND 3:1 SIDE SLOPES ON THE RIGHT BANK
1425          KM  ADJACENT TO THE COMMERCIAL PROPERTY ON THE EAST SIDE
1426          RS       5    FLOW       0
1427          RC     .03     .03     .03    2700    .002
1428          RX       0      12      24      26      52      58      64      70
1429          RY       6       4       2       0       0       2       4       6
              *

1430          KK   N11FA   BASIN
1431          BA   0.180
1432          LG    0.22    0.26    4.40    0.46      34
1433          UC   0.730   0.580
1434          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
1435          UA     100
              *

1436          KK  LN11FA
1437          KM  STORAGE ROUTING LN11FA
1438          KM  PROPOSED RETENTION BASED ON THE 100-YEAR, 2-HOUR STORM VOLUME
1439          DT  LN1FAD      7.7
1440          DI       0     100    1000   10000
1441          DQ       0     100    1000   10000
              *

1442          KK   A09GA   BASIN
1443          BA   0.074
1444          LG    0.10    0.25    4.35    0.56      80
1445          UC   0.287   0.164
1446          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
1447          UA     100
              *

1448          KK  LA09GA
1449          KM  STORAGE ROUTING LA09GA
1450          KM  PROPOSED RETENTION BASED ON THE 100-YEAR, 2-HOUR STORM VOLUME
1451          DT  L09GAD      5.9
1452          DI       0     100    1000   10000
1453          DQ       0     100    1000   10000
              *
```



```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1454          KK  CN11FA
1455          KM  COMBINE RA09KS,LN11FA,LA09GA AND RN11FB
```



```
1456          HC       4
              *

1457          KK  RN11FA
1458          KM  ROUTE FLOW WEST TO CA09G FROM CN11FA
1459          KM  CROSS SECTION IS A PROPOSED TRAPEZOIDAL CHANNEL DESIGNED WITH
1460          KM  6:1 SIDE SLOPES ON THE LEFT BANK AND 3:1 SIDE SLOPES ON THE RIGHT BANK
1461          KM  ADJACENT TO ROSE GARDEN LANE ON THE NORTH SIDE
1462          RS       2    FLOW       0
1463          RC     .03     .03     .03     800    .001
1464          RX       0       6      12      18      52      58      64      70
1465          RY       8       4       2       0       0       2       4       8
              *

1466          KK   A09GB   BASIN
1467          KM  SUB-BASIN A09GB
1468          BA   0.051
1469          LG    0.23    0.25    4.30    0.49      35
1470          UC   1.183   1.508
1471          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
1472          UA     100
              *

1473          KK  LA09GB
1474          KM  STORAGE ROUTING LA09GB
1475          KM  PROPOSED RETENTION BASED ON THE 100-YEAR, 2-HOUR STORM VOLUME
1476          DT  L09GBD      2.8
1477          DI       0     100    1000   10000
1478          DQ       0     100    1000   10000
              *

1479          KK   CA09G
1480          KM  COMBINE CA09GA and A09GB
1481          HC       2
              *
              * DIVERSION TO SOUTH ALONG 101ST AVE, MAXIMUM 150 CFS PER CITY

1482          KK   DA09G
1483          DT   A09GI
1484          DI       0      50     100     300     750    1200    2000
1485          DQ       0      10      20      60     150     150     150
              *

1486          KK  RA09GW
1487          KM  ROUTE FLOW WEST TO CX8 FROM CA09G
1488          KM  CROSS SECTION IS A PROPOSED TRAPEZOIDAL CHANNEL DESIGNED WITH
1489          KM  6:1 SIDE SLOPES ON THE LEFT BANK AND 3:1 SIDE SLOPES ON THE RIGHT BANK
1490          KM  ADJACENT TO ROSE GARDEN LANE ON THE NORTH SIDE
1491          RS       1    FLOW       0
1492          RC     .03     .03     .03     900    .001
1493          RX       0       6      12      18      52      58      64      70
1494          RY       8       4       2       0       0       2       4       8
              *
              * *** COMBINE  RX7S AND RA09GW ***********************************************
              *
```



```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1495          KK     CX8
1496          HC       2
              *
              * ROUTE RX8W IS 2300 FT WITH A SLOPE OF .001
```

```
* CROSS SECTION IS THE NEW CHANNEL ALONG ROSE GARDEN LANE
*
KK    RX8W
KM  ROUTE FLOW WEST TO CA09H1 FROM CX8
KM  CROSS SECTION IS A PROPOSED TRAPEZOIDAL CHANNEL DESIGNED WITH
KM  6:1 SIDE SLOPES ON THE LEFT BANK AND 3:1 SIDE SLOPES ON THE RIGHT BANK
KM  ADJACENT TO ROSE GARDEN LANE ON THE NORTH SIDE
RS       4    FLOW       0
RC     .03     .03     .03    2300    .001
RX       0      12      24      36      62      68      74      80
RY       8       4       2       0       0       2       4       8
*

KK    A09H   BASIN
KM  SUB-BASIN A09H
BA   0.237
LG    0.24    0.25    4.55    0.41      31
UC   0.937   0.801
UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
UA     100
*

KK   LA09H
KM  STORAGE ROUTING LA09H
KM  PROPOSED RETENTION BASED ON THE 100-YEAR, 2-HOUR STORM VOLUME
DT  LA09HD    12.6
DI       0     100    1000   10000
DQ       0     100    1000   10000
*

KK  CA09H1
KM  Combine flows from CX8 and A09H
HC       2
*

KK    A09J   BASIN
KM  SUB-BASIN A09J
BA   0.168
LG    0.25    0.25    4.35    0.46      30
UC   0.749   0.639
UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
UA     100
*
* *** STORAGE ROUTING LA09J ***************************************************
* *** FUTURE DEVELOPMENT STORAGE (ACCOUNTED) ***********************************
*
```

1 HEC-1 INPUT PAGE 46

```
LINE  ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

KK   LA09J
DT  LA09JD     7.7
DI       0     100    1000   10000
DQ       0     100    1000   10000
*
* *** DIVERSION DA09J *********************************************************
* *** DIVERTED  MAIN (SOUTH), DIVERTED (WEST)  ***************************
* 100% Flows to South based on the report

KK   DA09J
DT   A09JI
DI       0      10      30      50     100     500    1000    2000
```



```
DQ       0       0       0       0       0       0       0       0
*
* *** ROUTE FLOW TO CA09H   *************************
*

KK  RA09JS
RS      12    FLOW       0
RC     .04     .04     .04    2800  .00350
RX       0     100     200     225     245     270     370     470
RY       8       7       6       0       0       6       7       8
*

KK   CA09H
KM  COMBINE CA09H1 and RA09JS
HC       2
*
* ROUTE FLOW TO CX10 FROM CA09H
*

KK   RA09H
RS       1    FLOW       0
RC     .03     .03     .03     850    .005
RX     100     118     126     150     200     224     232     250
RY      10       8       6       0       0       6       8      10
*
* *** RECOVER DIVERTED FLOW FROM A09QI*****************************************
*

KK  BA09QI
DR   A09QI
*
* *** ROUTE RA09QS *************************************************************
*
* ROUTE RA09QS IS 1655 FT WITH A SLOPE OF .0073
* CROSS SECTION IS A MEDIUM NATURAL WASH
* *** ROUTE FLOW TO CA09M FROM CA09Q  *************************
*
```

1 HEC-1 INPUT PAGE 47

```
LINE  ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

KK  RA09QS
RS       6    FLOW       0
RC    0.05     .06     .05    1655  0.0073
RX       0      50     250     350     360     420     620     720
RY      10       8       6       2       0       6       8      10
*

KK    A09M   BASIN
KM  SUB-BASIN A09M
BA   0.249
LG    0.28    0.28    4.45    0.42      22
UC   0.721   0.546
UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
UA     100
*
* *** STORAGE ROUTING LA09M ***************************************************
* *** IRONWOOD RESIDENTIAL DEVELOPMENT STORAGE (ACCOUNTED) *****************
*

KK   LA09M
DT  LA09MD     6.9
DI       0     100    1000   10000
```

```
1567          DQ       0     100    1000   10000
              *
              * *** COMBINE  CA09Q AND A09M ************************************************
              *

1568          KK   CA09M
1569          HC       2
              *
              * ROUTE RA09M IS 1102 FT WITH A SLOPE OF .0064
              * CROSS SECTION IS A CHANNEL (MEASURED)
              * *** ROUTE FLOW TO CA09N FROM CA09M  **************************
              *

1570          KK   RA09M
1571          RS       2    FLOW       0
1572          RC    0.05    0.04     .05    1102  0.0064
1573          RX       0       1      21      41      51      71     101     102
1574          RY      10       4       0       4       5       6       6      10
              *

1575          KK    A09N   BASIN
1576          KM  SUB-BASIN A09N
1577          BA   0.110
1578          LG    0.27    0.27    5.80    0.22      25
1579          UC   0.647   0.512
1580          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
1581          UA     100
              *
              * *** COMBINE BASIN A09N AND ROUTE RA09M  *********************************
              *
```



```
              LINE      ID.......1.......2.......3.......4.......5.......6.......7.......8.......9.....10

1582          KK   CA09N
1583          HC       2
              *
              * *** STORAGE ROUTING LA09N ***************************************************
              * *** ALTA VISTA RESIDENTIAL DEVELOPMENT STORAGE (ACCOUNTED) ***************
              *

1584          KK   LA09N
1585          RS       1    STOR       0
1586          SV     0.0    2.30    4.67    7.11    9.63   12.23   14.90   17.65   20.48
1587          SE  1250.0  1250.5  1251.0  1251.5  1252.0  1252.5  1253.0  1253.5  1254.0
1588          SQ       0     9.3    31.4    66.0   114.1   160.1   226.2   208.5   475.0
              *
              * CROSS SECTION IS A CHANNEL (MEASURED)
              * *** ROUTE FLOW TO CA09L FROM CA09N  **************************
              *

1589          KK   RA09N
1590          RS      15    FLOW       0
1591          RC   0.025    0.02   0.025    2382  0.0040
1592          RX       0       1       7      11      17      21      29     100
1593          RY       5       4       2       0       0       2     3.0       5
              *
              * *** RECOVER DIVERTED FLOW FROM CA09J ***************************************
              *

1594          KK  DRA09J
1595          DR   A09JI
              *
```



```
              * ROUTE RA09JW IS 1749 FT WITH A SLOPE OF .0063
              * CROSS SECTION IS A CHANNEL ON THE WEST SIDE OF A ROAD
              * *** ROUTE FLOW TO CA09L FROM CA09J  **************************
              *

1596          KK  RA09JW
1597          RS       1    FLOW       0
1598          RC    0.04    0.03    0.04    1749  0.0063
1599          RX       0       1      21      31      41      51      81     281
1600          RY      14       6       6       0       0       6       6       8
              *

1601          KK    A09L   BASIN
1602          KM  SUB-BASIN A09L
1603          BA   0.136
1604          LG    0.23    0.26    4.90    0.32      26
1605          UC   0.760   0.625
1606          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
1607          UA     100
              *
              * *** COMBINE BASIN A09L, RA09N, AND RA09JW  *********************************
              *
```



```
              LINE      ID.......1.......2.......3.......4.......5.......6.......7.......8.......9.....10

1608          KK   CA09L
1609          HC       3
              *
              * LA09L is an Onlin Detention Basin, NOT Retention Basin
              *

1610          KK   LA09L
1611          RS       1    STOR       0
1612          SV     0.0    0.57    1.17    1.82    2.50    3.22    3.98    4.78    5.63    6.52
1613          SE     0.0     0.5     1.0     1.5     2.0     2.5     3.0     3.5     4.0     5.5
1614          SQ       0    10.0    30.0    52.0    80.0   110.0   140.0   155.0   180.0     600
              *
              * ROUTE RA09LS IS 2615 FT WITH A SLOPE OF .0019
              * CROSS SECTION IS A NEW CHANNEL ALONG THE EAST SIDE OF THE ROAD
              * *** ROUTE FLOW TO CA99W FROM CA09L  **************************
              *

1615          KK  RA09LS
1616          RS       3    FLOW       0
1617          RC   0.025     .02   0.025    2615  0.0040
1618          RX       0       1       6      12      19      25      29     100
1619          RY       6       5       4       0       0       4       5       6
              *

1620          KK   A09IH   BASIN
1621          KM   Subbasin for Rose Garden and Desert Star Areas
1622          KM   SUB-BASIN A09IH
1623          BA   0.091
1624          LG    0.25    0.26    4.60    0.39      27
1625          UC   0.599   0.568
1626          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
1627          UA     100
              *
              * *** COMBINE BASIN A09N AND ROUTE RA09M  *********************************
              *

1628          KK  CA09IH
```

```
1629          HC       2
              *
              * Onlin Detention Basin (Box Culvert Outlet)
              *
1630          KK  LA09IH
1631          RS       1    STOR       0
1632          SV     0.0    1.12    2.29    3.52    4.79    6.12    7.51    8.95   10.45   12.01
1633          SE  1237.0  1237.5  1238.0  1238.5  1239.0  1239.5  1240.0  1240.5  1241.0  1242.5
1634          SQ       0    10.0    30.0    52.0    80.0   112.0   145.0   183.0   220.0   600.0
              *
```



```
              LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1635          KK    A09I   BASIN
1636          KM  SUB-BASIN A09I
1637          BA   0.126
1638          LG    0.25    0.20    6.60    0.17      29
1639          UC   0.772   0.703
1640          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
1641          UA     100
              *
              * *** ROSE GARDEN RESIDENTIAL DEVELOPMENT STORAGE (ACCOUNTED)  ************
              *
1642          KK   LA09I
1643          DT  LA09ID     5.4
1644          DI       0     100    1000   10000
1645          DQ       0     100    1000   10000
              *
              * *** COMBINE  RA09IW AND RA09LS ************************************************
              *
1646          KK    CX10
1647          HC       3
              *
              * ROUTE FLOW TO CA09F FROM CA09G
              *
1648          KK    RX10
1649          RS       5    FLOW       0
1650          RC    0.03    0.03    0.03    4470    .005
1651          RX     100     118     126     150     200     224     232     250
1652          RY      10       8       6       0       0       6       8      10
              *
1653          KK    A99V   BASIN
1654          KM  SUB-BASIN A99V
1655          BA   0.207
1656          LG    0.35    0.40    6.00    0.18       1
1657          UC   0.601   0.423
1658          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
1659          UA     100
              *
              * *** COMBINE BASIN A99V AND RX11W  ************************************
              *
1660          KK   CA99V
1661          HC       2
              *
1662          KK     A10   BASIN
```



```
1663          KM  SUB-BASIN A10
1664          BA   0.214
1665          LG    0.34    0.34    4.65    0.33       2
1666          UC   0.467   0.220
1667          UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
1668          UA     100
              *
              *
```



```
              LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1669          KK    A99W   BASIN
1670          KM  SUB-BASIN A99W
1671          BA   0.215
1672          LG    0.27    0.29    6.40    0.17      20
1673          UC   0.851   0.514
1674          UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
1675          UA     100
              *
              * *** STORAGE ROUTING LA99W ************************************************
              * *** DEER VALLEY RANCH RESIDENTIAL DEVELOPMENT STORAGE (ACCOUNTED) *******
              *
1676          KK   LA99W
1677          DT  LA99WD     6.7
1678          DI       0     100    1000   10000
1679          DQ       0     100    1000   10000
              *
              * Dummy Combination at AFR and Rose Garden Lane.
              *
1680          KK    AFR3
1681          HC       4
              *
              * *** RECOVER DIVERTED FLOW FROM CA09G ***************************************
              *
1682          KK  DRA09G
1683          DR   A09GI
              *
              * ROUTE RA09GS IS 3990 FT WITH A SLOPE OF .0015
              * CROSS SECTION IS A MEDIUM ROADSIDE CHANNEL
              * ROUTE FLOW TO CA09F FROM CA09G
              *
1684          KK  RA09GS
1685          RS      13    FLOW       0
1686          RC    0.04    0.04    0.04    3990   .0015
1687          RX       0     200     220     240     260     280     320     520
1688          RY       6       4       0       0       3       4       4       6
              *
1689          KK    A09F   BASIN
1690          KM  SUB-BASIN A09F
1691          BA   0.365
1692          LG    0.21    0.27    5.30    0.28      35
1693          UC   0.817   0.483
1694          UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
1695          UA     100
              *
              * *** STORAGE ROUTING LA09F *************************************************
              * *** PARKRIDGE ESTATES RESIDENTIAL DEVELOPMENT (ACCOUNTED) ***************
```

```
LINE      ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10
                  *
1696              KK   LA09F
1697              DT  LA09FD    13.6
1698              DI       0     100    1000   10000
1699              DQ       0     100    1000   10000
                  *
                  * *** COMBINE  CA09G, CA09H, AND A09F ***************************************
                  *
1700              KK   CA09F
1701              HC       2
                  *
                  * *** DIVERTED  MAIN (WEST), DIVERTED (SOUTH)  ***************************
                  * BEARDSLEY ROAD CHANNEL TO THE WEST. EXCESS FLOW TO THE SOUTH.
                  *
1702              KK   DA09F
1703              DT   A09FI
1704              DI       0      10      30      50     100     500     700    1000
1705              DQ       0      .2      .3      .4      .5      80     250     500
                  *
                  * ************************************************************************
                  * ********************   BEARDSLEY RD DRAINAGE    ***************************
                  * ************************************************************************
                  *
                  * ROUTE RA09FW IS 3031 FT WITH A SLOPE OF .002
                  * CROSS SECTION IS BEARDSLEY CHANNEL (MEASURED)
                  *
                  * *** ROUTE FLOW TO CA09E FROM CA09F  **************************
                  *
1706              KK  RA09FW
1707              RS       9    FLOW       0
1708              RC     .03    .025     .03    3031   0.002
1709              RX       0       1      16      36      51     123     148     648
1710              RY      16       8       0       0       8       8       9      11
                  *
1711              KK    A09E   BASIN
1712              KM  SUB-BASIN A09E
1713              BA    0.147
1714              LG     0.22    0.24    4.70    0.35      34
1715              UC    0.763   0.697
1716              UA        0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
1717              UA      100
                  *
                  * *** STORAGE ROUTING LA09E ***************************************************
                  * *** VENTANA LAKES RESIDENTIAL DEVELOPMENT (ACCOUNTED) *********************
                  *
1 HEC-1 INPUT PAGE 53
LINE      ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10
1718              KK   LA09E
1719              DT  LA09ED     8.2
1720              DI       0     100    1000   10000
1721              DQ       0     100    1000   10000
                  *
```



```
                  * *** COMBINE LA09E AND A99E ***************************************
                  *
1722              KK   CA09E
1723              HC       2
                  *
                  * ROUTE RA09E IS 2700 FT WITH A SLOPE OF .0041
                  * CROSS SECTION IS BEARDSLEY CHANNEL (MEASURED)
                  *
                  * ROUTE FLOW TO CA09C FROM CA09E
                  *
1724              KK   RA09E
1725              RS       3    FLOW       0
1726              RC    0.04    0.03    0.04    2700   .0041
1727              RX       0       1      16      36      51     123     148     648
1728              RY      16       8       0       0       8       8       9      11
                  *
1729              KK    A09D   BASIN
1730              KM  SUB-BASIN A09D
1731              BA    0.254
1732              LG     0.23    0.20    6.60    0.16      31
1733              UC    0.480   0.185
1734              UA        0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
1735              UA      100
                  *
                  * *** STORAGE ROUTING LA09D ***************************************************
                  * *** VENTANA LAKES RESIDENTIAL DEVELOPMENT (ACCOUNTED) *********************
                  *
1736              KK   LA09D
1737              DT  LA09DD    15.3
1738              DI       0     100    1000   10000
1739              DQ       0     100    1000   10000
                  *
                  * *** COMBINE LA09D, AND RA09EW **************************
                  *
1740              KK  CA09C*
1741              HC       2
                  *
                  * ROUTE RA09C* IS 841 FT WITH A SLOPE OF .0083
                  * CROSS SECTION IS BEARDSLEY ROAD CHANNEL (MEASURED)
                  * *** ROUTE FLOW TO CA09C FROM CA09C*  **************************
                  *
1 HEC-1 INPUT PAGE 54
LINE      ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10
1742              KK  RA09C*
1743              RS       1    FLOW       0
1744              RC    0.04    0.03    0.04     841   .0083
1745              RX       0      51      61      71      81     111     151     651
1746              RY       9       8       0       0       8       9       9      10
                  *
1747              KK    A09C   BASIN
1748              KM  SUB-BASIN A09C
1749              BA   0.073
1750              LG    0.35    0.32    4.50    0.38       4
1751              UC   0.581   0.533
1752              UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
```

```
1753          UA     100
              *
              * *** COMBINE BASIN A09C AND RA09C*   ***********************************
              *

1754          KK   CA09C
1755          HC       2
              *

1756          KK  DIA09C
1757          DT   DA09C
1758          DI       0     100    1000   10000
1759          DQ       0     100    1000   10000
              *
              * ROUTE RA09C IS 1978 FT WITH A SLOPE OF .0056
              * CROSS SECTION IS BEARDSLEY CHANNEL (MEASURED)
              *

1760          KK   RA09C
1761          RS       3    FLOW      -1
1762          RC    0.04    0.04    0.04    1978  0.0056
1763          RX       0     100     120     130     150     180     205     705
1764          RY      14       8       0       0       8       8       9      10
              *

1765          KK    A09B   BASIN
1766          KM  SUB-BASIN A09B
1767          BA   0.041
1768          LG    0.12    0.25    4.10    0.68      71
1769          UC   0.221   0.141
1770          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
1771          UA     100
              *
              * ROUTE RA09B IS 2497 FT WITH A SLOPE OF .0012
              * CROSS SECTION IS A SMALL NATURAL CHANNEL
              * *** ROUTE FLOW TO CA09A FROM CA09B  ************************
              *
```



```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1772          KK   RA09B
1773          RS      14    FLOW       0
1774          RC    0.05     .06     .05    2497   .0012
1775          RX       0     350     450     480     482     510     610     910
1776          RY       7       6       5       1       0       5       6       7
              *

1777          KK    A09A   BASIN
1778          KM  SUB-BASIN A09A
1779          BA   0.084
1780          LG    0.29    0.15    3.74    0.80      38
1781          UC   0.824   0.737
1782          UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
1783          UA     100
              *
              * *** Combine  CA09C, A09B, AND A09A ********************************************
              *

1784          KK   CA09A
1785          HC       3
              *
              * THIS FLOW IS DIVERTED. THERE IS TWO 36" CMP THAT CARRIES
```



```
              * FLOW TO THE WEST, AND THE REST FLOWS SOUTH.
              *

1786          KK  DA09AO
1787          DT   A09AI
1788          DI       0      70     140     400     600     800    1000    3000    5000
1789          DQ       0     0.2     0.3     260     460     660     860    2860    4860
              *
              * ROUTE RA09AW IS 5898 FT WITH A SLOPE OF .0017
              * CROSS SECTION IS A LARGE NATURAL WASH
              * *** ROUTE THE DIVERTED FLOW TO THE WEST AND SOUTH TO CA09 *********************
              *

1790          KK  RA09AW
1791          RS      15    FLOW       0
1792          RC    0.05     .06     .05    5898  0.0017
1793          RX       0      50     250     310     360     420     620     720
1794          RY      10       8       6       0       0       6       8      10
              *

1795          KK    A99T   BASIN
1796          KM  SUB-BASIN A99T
1797          BA   0.030
1798          LG    0.20    0.30    2.79    1.39      42
1799          UC   0.205   0.056
1800          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
1801          UA     100
              *
              * *** STORAGE ROUTING LA99T ***************************************************
              * *** GRAVEL PIT STORAGE (ACCOUNTED) ***************************************
              *
```



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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1802          KK   LA99T
1803          DT  LA99TD    0.64
1804          DI       0     100    1000   10000
1805          DQ       0     100    1000   10000
              *
              * ROUTE RA99T IS 886 FT WITH A SLOPE OF .0023
              * CROSS SECTION IS A MEDIUM NATURAL WASH
              * *** ROUTE FLOW TO CA09 FROM CA99T   ************************
              *

1806          KK   RA99T
1807          RS       5    FLOW       0
1808          RC    0.05     .06     .05     886  0.0023
1809          RX       0      50     250     350     360     420     620     720
1810          RY      10       8       6       2       0       6       8      10
              *

1811          KK     A09   BASIN
1812          KM  SUB-BASIN A09
1813          BA   0.176
1814          LG    0.24    0.31    3.58    0.68      22
1815          UC   0.577   0.239
1816          UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
1817          UA     100
              *
              * COMBINE RA99T, CA09, AND RA09AW
              *
```

```
1818          KK    CA09
1819          HC       3
              *

1820          KK    A99U   BASIN
1821          KM  SUB-BASIN A99U
1822          BA   0.070
1823          LG    0.25    0.30    3.71    0.66      29
1824          UC   0.472   0.467
1825          UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
1826          UA     100
              *
              * COMBINE CA09, A99U, AND AFR3 at AFR & South of Beardsley Rd.
              *

1827          KK    AFR4
1828          HC       3
              *

1829          KK    A99S   BASIN
1830          KM  SUB-BASIN A99S
1831          BA   0.077
1832          LG    0.35    0.35    3.64    0.59       0
1833          UC   0.862   0.851
1834          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
1835          UA     100
              *
```



```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1836          KK    A08A   BASIN
1837          KM  SUB-BASIN A08A
1838          BA   0.138
1839          LG    0.20    0.30    3.31    0.77      18
1840          UC   1.054   1.135
1841          UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
1842          UA     100
              *
              * ROUTE RA08A IS 1747 FT WITH A SLOPE OF .0057
              * CROSS SECTION IS A SMALL NATURAL WASH
              * *** ROUTE FLOW TO CA08 FROM CA08A  ***************************
              *

1843          KK   RA08A
1844          RS       5    FLOW       0
1845          RC    0.05    0.05    0.05    1747  0.0057
1846          RX       0     350     450     480     482     510     610     910
1847          RY       7       6       5       1       0       5       6       7
              *

1848          KK    A99R   BASIN
1849          KM  SUB-BASIN A99R
1850          BA   0.037
1851          LG    0.31    0.31    3.55    0.66      12
1852          UC   0.408   0.237
1853          UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
1854          UA     100
              *
              * ROUTE RA99R IS 2159 FT WITH A SLOPE OF .0032
              * CROSS SECTION IS A SMALL NATURAL WASH
              * *** ROUTE FLOW TO CA08 FROM CA99R  ***************************
              *
```



```
1855          KK   RA99R
1856          RS       9    FLOW       0
1857          RC    0.05    0.05    0.05    2159   .0032
1858          RX       0     350     450     480     482     510     610     910
1859          RY       7       6       5       1       0       5       6       7
              *

1860          KK     A08   BASIN
1861          KM  SUB-BASIN A08
1862          BA   0.077
1863          LG    0.30    0.31    3.19    0.88      14
1864          UC   0.308   0.074
1865          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
1866          UA     100
              *
              * *** COMBINE A99S, A08, RA99R AND RA08A   ******************
              *
```



```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1867          KK    CA08
1868          HC       4
              *
              * *** COMBINE HYDROGRAPHS OF CA08 AND AFR4 at AFR and South of Union Hills Dr.
              *

1869          KK    AFR5
1870          HC       2
              *
              * KK  A07F   BASIN
              * KMSUB-BASIN A07F
              * BA 0.233
              * LG  0.21    0.27    4.90    0.32      26
              * UC 0.949   0.902
              * UA     0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95
              * UA   100
              *
              * KK  A07F   BASIN
              * KM SUB-BASIN A07F
              * BA 0.207
              * LG  0.21    0.28    4.80    0.32      22
              * UC 0.768   0.763
              * UA     0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95
              * UA   100
              *

1871          KK  A07F.1   BASIN
1872          KM   SUB-BASIN A07F.1
1873          BA   0.133
1874          LG    0.25    0.25    4.80    0.35      30
1875          UC   0.829   1.069
1876          UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
1877          UA     100
              *

1878          KK  A07F.2   BASIN
1879          KM   SUB-BASIN A07F.2
1880          BA   0.074
1881          LG    0.14    0.32    4.70    0.29       8
1882          UC   0.602   0.853
1883          UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
```

```
1884          UA     100
              *
              * *** ROUTE RA07F IS 2619 FT WITH A SLOPE OF .0042
              * *** CROSS SECTION IS CHANNEL ALONG UNION HILLS RD (MEASURED)
              * *** *** ROUTE FLOW FROM CA07F TO CA07E ************************************
              *
              * KK RA07F
              * RS     3    FLOW       0
              * RC  0.03    0.02    0.03    2619  0.0042
              * RX     0       1      13      23      53      83     108     109
              * RY    14       6       0       0       6       6       7      15
              *
              * KK  A07E   BASIN
              * KMSUB-BASIN A07E
              * BA 0.227
              * LG  0.23    0.15    7.60    0.11      49
              * UC 0.567   0.345
              * UA     0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97
              * UA   100
              *
1                                          HEC-1 INPUT                                          PAGE 59

              LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1885          KK  A07E.8   BASIN
1886          KM   SUB-BASIN A07E.8
1887          BA   0.006
1888          LG   0.14    0.25    4.80    0.40      66
1889          UC   0.175   0.193
1890          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
1891          UA     100
              *
              * *** COMBINE BASINS A07E.8 AND A07F  ***************************
              *

1892          KK   CA07F
1893          HC       3
              *

1894          KK   RA07F
1895          RS       1    FLOW       0
1896          RC    0.03    0.02    0.03     800  0.0042
1897          RX       0       1      13      23      53      83     108     109
1898          RY      14       6       0       0       6       6       7      15
              *
              * ROUTE RA07F IS 800 FT WITH A SLOPE OF .0042
              * CROSS SECTION IS CHANNEL ALONG UNION HILLS RD (MEASURED)
              * *** ROUTE FLOW FROM CA07F TO CA07E.7 ***********************************
              *

1899          KK  A07E.7   BASIN
1900          KM   SUB-BASIN A07E.7
1901          BA   0.006
1902          LG   0.14    0.25    5.80    0.26      67
1903          UC   0.125   0.108
1904          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
1905          UA     100
              *
              * *** COMBINE BASIN A07E.7 AND RA07F1  ****************************
              *

1906          KK  CA07E7
1907          HC       2
```



```
              *
              * ROUTE RA07E7 IS 1820 FT WITH A SLOPE OF .0042
              * CROSS SECTION IS CHANNEL ALONG UNION HILLS RD (MEASURED)
              * *** ROUTE FLOW FROM CA07E7 TO CA07E4 ***********************************
              *

1908          KK  RA07E7
1909          RS       3    FLOW       0
1910          RC    0.03    0.02    0.03    1820  0.0042
1911          RX       0       1      13      23      53      83     108     109
1912          RY      14       6       0       0       6       6       7      15
              *
              * ROUTE RA07E IS 1771 FT WITH A SLOPE OF .004
              * CROSS SECTION IS CHANNEL ALONG UNION HILLS RD (MEASURED)
              * *** ROUTE FLOW FROM CA07E TO CA07C *************************************
              *
1                                          HEC-1 INPUT                                          PAGE 60

              LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1913          KK   RA07E
1914          RS       2    FLOW       0
1915          RC    0.03    0.03    0.03    1771   0.004
1916          RX       0     100     112     122     134     154     189     689
1917          RY       8       6       0       0       6       7       7       9
              *
              *
              * KK  A07G   BASIN
              * KMSUB-BASIN A07G
              * BA 0.258
              * LG  0.24    0.16    7.60    0.11      32
              * UC 0.641   0.425
              * UA     0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97
              * UA   100
              *

1918          KK  A07G.1   BASIN
1919          KM   SUB-BASIN A07G.1
1920          BA   0.233
1921          LG   0.24    0.15    8.00    0.10      33
1922          UC   0.501   0.343
1923          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
1924          UA     100
              *
              * *** STORAGE ROUTING LA07G *********************************************
              * *** VENTANA LAKES RESIDENTIAL DEVELOPMENT (ACCOUNTED) *******************
              *

1925          KK   LA07G
1926          DT  LA07GD    12.9
1927          DI       0     100    1000   10000
1928          DQ       0     100    1000   10000
              *
              * ROUTE RA07G IS 2439 FT WITH A SLOPE OF .0012
              * CROSS SECTION IS 111TH AVE (MEASURED)
              * *** ROUTE FLOW FROM CA07G TO CA07E *************************************
              *

1929          KK   RA07G
1930          RS       5    FLOW       0
1931          RC    0.04     .02    0.04    2439  0.0012
1932          RX       0       1      26      41      71      86     126     576
1933          RY      12       7       5       1       1       5       6       7
```

```
                *
1934            KK   DA07G
1935            DT  DA07GE
1936            DI       0     100    1000   10000
1937            DQ       0      50     500    5000
                *
```



```
LINE            ID.......1.......2.......3.......4.......5.......6.......7.......8.......9.....10

1938            KK  A07G.2   BASIN
1939            KM   SUB-BASIN A07G.2
1940            BA   0.028
1941            LG    0.27    0.27    4.70    0.35      24
1942            UC   0.553   0.939
1943            UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
1944            UA     100
                *
                * ROUTE RA07G2 IS 1400 FT WITH A SLOPE OF .0107
                * CROSS SECTION IS DINERO ROAD (MEASURED)
                * *** ROUTE FLOW FROM A07G2 TO CA07E3 ************************************
                *
1945            KK  RA07G2
1946            RS       4    FLOW       0
1947            RC    0.03    0.02    0.03    1400  0.0107
1948            RX       0      10      20      30      40      50      60      70
1949            RY       2       1       0       0       0       0       1       2
                *
1950            KK  A07E.3   BASIN
1951            KM   SUB-BASIN A07E.3
1952            BA   0.062
1953            LG    0.25    0.19    6.60    0.17      31
1954            UC   0.317   0.218
1955            UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
1956            UA     100
                *
                * *** COMBINE BASIN A07E.3 AND RA07G2  ****************************
                *
1957            KK  CA07E3
1958            HC       2
                *
1959            KK  DI7E.3
1960            DT  DI7E.3     0.1
1961            DI       0     100    1000   10000
1962            DQ       0     100    1000   10000
                *
                * ROUTE RA07E3 IS 1650 FT WITH A SLOPE OF .0048
                * CROSS SECTION IS PARADISE RESORT STREET SECTION (MEASURED)
                * *** ROUTE FLOW FROM CA07E3 TO CA07E4 ************************************
                *
1963            KK  RA07E3
1964            RS       3    FLOW       0
1965            RC    0.03    0.02    0.03    1650  0.0048
1966            RX       0      10      20      30      40      50      60      70
1967            RY       2       1       0       0       0       0       1       2
                *
```



```
LINE            ID.......1.......2.......3.......4.......5.......6.......7.......8.......9.....10

1968            KK  A07E.2   BASIN
1969            KM   SUB-BASIN A07E.2
1970            BA   0.025
1971            LG    0.24    0.26    5.40    0.26      29
1972            UC   0.316   0.330
1973            UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
1974            UA     100
                *
1975            KK  DI7E.2
1976            DT  DI7E.2    0.04
1977            DI       0     100    1000   10000
1978            DQ       0     100    1000   10000
                *
                * ROUTE RA07E2 IS 1700 FT WITH A SLOPE OF .0004
                * CROSS SECTION IS PARADISE RESORT STREET SECTION (MEASURED)
                * *** ROUTE FLOW FROM CA07E2 TO CA07E4 ************************************
                *
1979            KK  RA07E2
1980            RS      12    FLOW       0
1981            RC    0.03    0.02    0.03    1700  0.0004
1982            RX       0      10      20      30      40      50      60      70
1983            RY       2       1       0       0       0       0       1       2
                *
1984            KK  A07E.1   BASIN
1985            KM   SUB-BASIN A07E.1
1986            BA   0.037
1987            LG    0.25    0.15    8.00    0.10      60
1988            UC   0.427   0.434
1989            UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
1990            UA     100
                *
1991            KK  DI7E.1
1992            DT  DI7E.1     1.4
1993            DI       0     100    1000   10000
1994            DQ       0     100    1000   10000
                *
                * ROUTE RA07E1 IS 1200 FT WITH A SLOPE OF .0025
                * CROSS SECTION IS PARADISE RESORT STREET SECTION (MEASURED)
                * *** ROUTE FLOW FROM CA07E1 TO CA07E4 ************************************
                *
1995            KK  RA07E1
1996            RS       4    FLOW       0
1997            RC    0.03    0.02    0.03    1200  0.0025
1998            RX       0      10      20      30      40      50      60      70
1999            RY       2       1       0       0       0       0       1       2
                *
```



```
LINE            ID.......1.......2.......3.......4.......5.......6.......7.......8.......9.....10

2000            KK  A07E.6   BASIN
2001            KM   SUB-BASIN A07E.6
2002            BA   0.020
2003            LG    0.12    0.15    7.60    0.13   -  74
```

```
2004          UC   0.156   0.106
2005          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
2006          UA     100
              *

2007          KK  DI7E.6
2008          DT  DI7E.6    0.12
2009          DI       0     100    1000   10000
2010          DQ       0     100    1000   10000
              *
              * ROUTE RA07E6 IS 1400 FT WITH A SLOPE OF .0057
              * CROSS SECTION IS PARADISE RESORT STREET SECTION (MEASURED)
              * *** ROUTE FLOW FROM A07E6 TO CA07E5 ************************************
              *

2011          KK  RA07E6
2012          RS       4    FLOW       0
2013          RC    0.03    0.02    0.03    1400  0.0057
2014          RX       0      10      20      30      40      50      60      70
2015          RY       2       1       0       0       0       0       1       2
              *

2016          KK  A07E.5   BASIN
2017          KM   SUB-BASIN A07E.5
2018          BA   0.035
2019          LG    0.23    0.15    8.40    0.09      57
2020          UC   0.315   0.258
2021          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
2022          UA     100
              *
              * *** COMBINE BASIN A07E.5 AND RA07E6  ****************************
              *

2023          KK  CA07E5
2024          HC       2
              *
              * ROUTE RA07E5 IS 900 FT WITH A SLOPE OF .0033
              * CROSS SECTION IS PARADISE RESORT STREET SECTION (MEASURED)
              * *** ROUTE FLOW FROM CA07E5 TO CA07E4 ************************************
              *

2025          KK  RA07E5
2026          RS       2    FLOW       0
2027          RC    0.03    0.02    0.03     900  0.0033
2028          RX       0      10      20      30      40      50      60      70
2029          RY       2       1       0       0       0       0       1       2
              *
```



```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9.....10

2030          KK  A07E.4   BASIN
2031          KM   SUB-BASIN A07E.4
2032          BA   0.057
2033          LG    0.23    0.16    8.00    0.10      57
2034          UC   0.384   0.289
2035          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
2036          UA     100
              *
              * *** COMBINE BASIN A07E.4, RA07E1, RA07E2, RA07E3, AND RA07E5  *************
              *

2037          KK  CA07E4
```



```
2038          HC       6
              *

2039          KK  DI7E.4
2040          DT  DI7E.4     0.7
2041          DI       0     100    1000   10000
2042          DQ       0     100    1000   10000
              *
              * *** COMBINE CA07E4, AND RA07E7  *************
              *

2043          KK  DA07GE
2044          DR  DA07GE
              *

2045          KK  CA07E1
2046          HC       2
              *
              * KKDIA07E
              * DTDIA07E     2.8
              * DI       0     100    1000   10000
              * DQ       0     100    1000   10000
              *
              * ROUTE RA07E IS 800 FT WITH A SLOPE OF .0025
              * CROSS SECTION IS CHANNEL ALONG NORTH SIDE OF UNION HILLS RD
              * *** ROUTE FLOW FROM CA07E TO CA07C ************************************
              *
              * KK RA07E
              * RS       1    FLOW       0
              * RC    0.03    0.03    0.03    1300   0.025
              * RX       0      50      62      72      84     104     139     640
              * RY       9       6       0       0       6       7       7       9
              *

2047          KK   DIA.1
2048          RS       1    STOR       0
2049          SV       0     0.1     1.1     2.5     4.0     5.6     7.4     9.4    11.6    13.9
2050          SV    16.4    19.1
2051          SE    1188    1189    1190    1191    1192    1193    1194    1195    1196    1197
2052          SE    1198    1199
2053          SQ       0     5.0      30      43      52      61      68      74      80      86
2054          SQ     241     520
              *
```



```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9.....10

2055          KK   DIA.2
2056          RS       1    STOR       0
2057          SV       0     0.1     1.4     3.2     5.2     7.4     9.8    12.4    15.3    18.3
2058          SV    21.6    25.1
2059          SE    1184    1185    1186    1187    1188    1189    1190    1191    1192    1193
2060          SE    1194    1195
2061          SQ       0     5.0      30      43      52      61      68      74      80      86
2062          SQ     241     520
              *
              * *** COMBINE BASIN A09C AND RA07E ************************************
              *

2063          KK   DA09C
2064          DR   DA09C
              *
              * ROUTE RA09C IS 3250 FT WITH A SLOPE OF .0067
```

```
* CROSS SECTION IS PROPOSED EARTHEN CHANNEL
*
KK    RA09C
RS       3    FLOW      -1
RC    0.04    0.04    0.04    3250  0.0067
RX       0     100     120     130     150     180     205     705
RY      14       8       0       0       8       8       9      10
*
KK     A07H   BASIN
KM  SUB-BASIN A07H
BA   0.093
LG    0.23    0.21    4.70    0.44      47
UC   0.339   0.165
UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
UA     100
*
* ROUTE RA07H IS 2386 FT WITH A SLOPE OF .0461
* CROSS SECTION IS THE FARM FIELDS IN THE AGUA FRIA RIVER (MEASURED)
* *** ROUTE FLOW FROM CA07H TO CA07D ***********************************
*
* KK RA07H
* RS       3    FLOW       0
* RC    0.03    0.03    0.03    2386  0.0461
* RX       0      14     125     250     500     800    1000    1014
* RY       7       0       0       0       0       0       0       7
*
KK    CA07H
HC       2    0.93
*
```



```
LINE      ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

KK    DIB.1
RS       1    STOR       0
SV       0     0.1     1.2     2.5     4.0     5.7     7.6     9.6    11.9    14.3
SV    16.9
SE    1177    1178    1179    1180    1181    1182    1183    1184    1185    1186
SE    1187
SQ       0     5.0      30      43      52      61      68      74      80     236
SQ     515
*
KK    DIB.2
RS       1    STOR       0
SV       0     0.1     1.6     3.8     6.1     8.7    11.4    14.3    17.4    20.6
SE    1175    1176    1177    1178    1179    1180    1181    1182    1183    1184
SQ       0     5.0      30      43      52      61      68      74     230     510
*
KK     A07C   BASIN
KM  SUB-BASIN A07C
BA   0.175
LG    0.34    0.31    4.90    0.30       5
UC   0.681   0.462
UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
UA     100
*
KK  CA07C1
```



```
HC       3
*
*
KK    DIB.3
RS       1    STOR       0
SV       0     0.1     2.3     6.9    12.2    17.9    23.8    30.0    36.5    43.3
SE    1172    1173    1174    1175    1176    1177    1178    1179    1180    1181
SQ       0       0       0       0       0       0       0       0     160     350
*
* KKDIA07C
* KO       1
* RS       1    STOR       0
* SV       0    10.1    26.7    31.8    43.9    56.4    69.6    83.4    97.8   112
* SE    1180    1181    1182    1183    1184    1185    1186    1187    1188    11
* SQ       0       0       0       0       0       0     130     368     675    10
*
KK  CA07C2
HC       2
*
* ROUTE RA07C IS 1051 FT WITH A SLOPE OF .0067
* CROSS SECTION IS CHANNEL ALONG UNION HILLS RD (MEASURED)
* *** ROUTE FLOW FROM CA07C TO CA07D ***********************************
*
```



```
LINE      ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

KK    RA07C
RS       1    FLOW       0
RC    0.03    0.03    0.03    1051  0.0067
RX       0      50      62      72      84     104     139     640
RY       9       6       0       0       6       7       7       9
*
* *** RECOVER DIVERTED FLOW FROM A09AI ***************************************
*
KK  DA09AI
DR   A09AI
*
KK  RA09AI
RS      12    FLOW       0
RC    0.03    0.03    0.03    3000   0.002
RX       0      50     100     150     200     250     300     500
RY       7       6       5       5       0       0       5       6
*
KK     A08B   BASIN
KM  SUB-BASIN A08B
BA   0.099
LG    0.19    0.27    3.74    0.66      35
UC   0.608   0.413
UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
UA     100
*
* *** COMBINE BASIN A09AI AND R80BE ************************************
*
KK    CA08B
HC       2
*
```

```
* ROUTE RA08B IS 2925 FT WITH A SLOPE OF .001
* CROSS SECTION IS 115TH AVE (MEASURED)
* *** ROUTE FLOW FROM CA08B TO CA07D **********************************
*
KK   RA08B
RS     12    FLOW       0
RC   0.03    0.03    0.03    2925   0.001
RX      0      50     100     150     200     250     300     500
RY      7       6       5       5       0       0       5       6
*
KK    A07D   BASIN
KM  SUB-BASIN A07D
BA   0.229
LG    0.49    0.02    4.10    0.67       1
UC   1.327   1.248
UA      0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
UA    100
*
* *** COMBINE BASIN A07D, RA08B, RA07H, AND RA07C **********************
*
```



```
LINE      ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

KK   CA07D
HC       3
*
* ROUTE RA07D IS 1800 FT WITH A SLOPE OF .0017
* CROSS SECTION IS A CHANNEL AND 115TH AVE (MEASURED)
*
KK   RA07D
RS       8    FLOW       0
RC    0.03    0.03    0.03    1800  0.0017
RX       0     100     112     147     159     179     214     580
RY       8       6       0       0       6       7       7       9
*
* KK  A07B   BASIN
* KM SUB-BASIN A07B
* KM 6-HOUR RAINFALL, PATTERN NO. 1.15 WAS USED TO FIND TC & R FOR THIS BASIN
* KM THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .992
* KM   L = 1.58  Kb = .030  Adj. Slope =   41.0
* BA  .649
* LG  0.16    0.31    4.60    0.34      18
* UC 0.533   0.339
* UA     0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97
* UA   100
*
* *** STORAGE ROUTING LA07B ********************************************
* *** CANYON RIDGE WEST RESIDENTIAL DEVELOPMENT STORAGE (ACCOUNTED) *******
* DDM   ***** Preserved *****
* KK LA07B
* DTLA07BD    19.2
* DI       0     100    1000   10000
* DQ       0     100    1000   10000
*
* ### BASIN A07B HAS BEEN FURTHER DIVIDED INTO BASINS A07B.1 - A07B.6 IN  ###
* ### ORDER TO BETTER REPRESENT THE DRAINAGE PATTERNS ASSOCIATED WITH THE ###
* ### CANYON RIDGE AND SUN CITY DEVELOPMENTS.                             ###
*
```



```
KK  A07B.1   BASIN
BA   0.076
LG    0.25    0.25    4.20    0.50      30
UC   0.415   0.303
UA      0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
UA    100
*
KK  DA07B1
DT  DA07B1     2.3
DI       0     100    1000   10000
DQ       0     100    1000   10000
*
* *** COMBINE LA07B, RA07D, AND RS30  **********************************
*
```



```
LINE      ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

KK  CA07B1
KO                                  21
HC       2
*
KK  RA07B1
RS       8    FLOW       0
RC    0.03    0.03    0.03    1800  0.0017
RX       0     100     112     147     159     179     214     580
RY       8       6       0       0       6       7       7       9
*
KK  A07B.2   BASIN
BA   0.138
LG    0.25    0.25    4.70    0.36      30
UC   0.388   0.248
UA      0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
UA    100
*
KK  A07B.3   BASIN
BA   0.185
LG    0.25    0.25    4.80    0.35      30
UC   0.494   0.306
UA      0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
UA    100
*
KK  RA07B3
RS       2    FLOW       0
RC    0.04    0.04    0.04    3600  0.0075
RX     100     150     200     212     217     229     279     329
RY       5     4.5       4       0       0       4     4.5       5
*
KK  CA07B2
KO                                  21
HC       2
*
KK  RA07B2
RS       2    FLOW       0
RC    0.04    0.04    0.04     800  0.0075
RX     100     150     200     212     217     229     279     329
```

```
2190          RY       5     4.5       4       0       0       4     4.5       5
              *

2191          KK  CA07B3
2192          KO                                      21
2193          HC       2
              *
              * ROUTE RA07B1 IS 1600 FT WITH A SLOPE OF .0025
              * CROSS SECTION IS A CHANNEL AND 115TH AVE (MEASURED)
              *
```



```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9.....10

2194          KK  RA07B1
2195          RS       8    FLOW       0
2196          RC    0.03    0.03    0.03    1600  0.0025
2197          RX       0     100     112     147     159     179     214     580
2198          RY       8       6       0       0       6       7       7       9
              *

2199          KK  A07B.4   BASIN
2200          BA   0.053
2201          LG    0.25    0.25    4.30    0.48      45
2202          UC   0.316   0.204
2203          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
2204          UA     100
              *

2205          KK  DA07B4
2206          DT  DA07B4     2.1
2207          DI       0     100    1000   10000
2208          DQ       0     100    1000   10000
              *

2209          KK  CA07B4
2210          KO                                      21
2211          HC       2
              *
              * ROUTE RA07B4 IS 1285 FT WITH A SLOPE OF .0025
              * CROSS SECTION IS A CHANNEL AND 115TH AVE (MEASURED)
              *

2212          KK  RA07B4
2213          RS       8    FLOW       0
2214          RC    0.03    0.03    0.03    1285  0.0025
2215          RX       0     100     112     147     159     179     214     580
2216          RY       8       6       0       0       6       7       7       9
              *

2217          KK  A07B.5   BASIN
2218          BA   0.044
2219          LG    0.10    0.32    4.55    0.37      29
2220          UC   0.264   0.231
2221          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
2222          UA     100
              *

2223          KK  CA07B5
2224          KO                                      21
2225          HC       2
              *
```



```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9.....10

2226          KK  DIA07B
2227          RS       1    STOR       0
              * SV     0     2.1     4.4     6.8     9.4    12.2    15.1    17.8
2228          SV       0       2       4       8      12    14.5      17      25      29
2229          SE  1157.5  1158.5  1159.5  1160.5  1161.5  1162.0  1162.5  1163.5  1164.5
2230          SQ       0       0       0       0       0       0      90     325     530
              *
              * KKDIA07B
              * DTDIA07B      37
              * DI      0     100    1000   10000
              * DQ      0     100    1000   10000
              *

2231          KK    S30D   BASIN
2232          KM  SUB-BASIN S30D
2233          BA   0.131
2234          LG    0.25    0.17    6.80    0.15      30
2235          UC   0.638   0.385
2236          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
2237          UA     100
              *
              * ROUTE RS30D IS 6176 FT WITH A SLOPE OF .0023
              * CROSS SECTION IS 99TH AVENUE
              * *** ROUTE S30D THROUGH S30C ****************************************
              *

2238          KK   RS30D
2239          RS      10    FLOW       0
2240          RC     .02     .02     .02    6176  0.0023
2241          RX       0       1      85      95     109     134     239     240
2242          RY      12       6       5       0       0       5       6      12
              *

2243          KK    S30C   BASIN
2244          KM  SUB-BASIN S30C
2245          BA   0.454
2246          LG    0.23    0.15    7.30    0.13      36
2247          UC   0.892   0.703
2248          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
2249          UA     100
              *
              * RECOVER DIVERTED FLOW FROM A09FI
              *

2250          KK  DA09FI
2251          DR   A09FI
              *

2252          KK  RA09FI
2253          RS      10    FLOW       0
2254          RC     .02     .02     .02    7000  0.0023
2255          RX       0       1      85      95     109     134     239     240
2256          RY      12       6       5       0       0       5       6      12
              *
```



```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9.....10

2257          KK     XX1
```

```
2258          HC       3
              *
2259          KK    S30B   BASIN
2260          KM  SUB-BASIN S30B
2261          BA   0.399
2262          LG    0.19    0.29    5.80    0.21      24
2263          UC   0.995   0.918
2264          UA       0     4.5    12.6    23.2    35.8    50.0    64.2    76.8    87.4    95.5
2265          UA     100
              *
              * *** COMBINE BASIN S30C, S30B, AND RS30D ******************************
              *
2266          KK   CS30B
2267          HC       2
              *
              * *** DIVERTED  MAIN (WEST) DIVERTED (SOUTH)  **********************
              * THERE IS A DIVERSION AT THIS LOCATION. THE DEL WEBB CHANNEL CAN CARRY
              * 550 CFS, THE REST OF THE FLOW OVERFLOWS TO THE SOUTH.
              *
2268          KK  DS30BO
2269          DT  DS30BI
2270          DI       1     250     550     750    1000    1500    1750    2000
2271          DQ      .1      .2      .3     200     450     950    1200    1450
              *
              * ROUTE RS30BW IS 5060 FT WITH A SLOPE OF .0008
              * CROSS SECTION IS DEL WEBB BLVD
              * *** ROUTED S30BO THROUGH S30A ****************************************
              *
2272          KK  RS30BW
2273          RS       9    FLOW       0
2274          RC     .02    0.02     .02    5060  0.0008
2275          RX       0       1     100     120     140     155     239     240
2276          RY      12       6       5       0       0       5       6      12
              *
2277          KK    S30A   BASIN
2278          KM  SUB-BASIN S30A
2279          BA   0.531
2280          LG    0.22    0.21    6.40    0.21      28
2281          UC   1.005   0.674
2282          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
2283          UA     100
              *
              * *** COMBINE BASIN S30A AND RS30B *************************************
              *
```



```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2284          KK   CS30A
2285          HC       2
              *
              * ***********************************************************************
              * ***********************************************************************
              * ******** THE FOLLOWING PORTION WAS EXTRACTED FROM THE GLENDALE/PEORIA
              * ******** ADMPU MODEL CREATED BY ENTELLUS, DATED OCTOBER 21, 2000.
              * ******** FILE NAME: 100yr6hr.DAT
              * ***********************************************************************
              * ***********************************************************************
```



```
              *
              * *** DIVERSION DS30AO *************************************************
              * *** DIVERTED  MAIN (WEST) DIVERTED (SOUTH)  **************************
              *
              * THERE IS A DIVERSION AT THIS LOCATION. THE DEL WEBB CHANNEL CAN CARRY
              * 550 CFS, THE REST OF THE FLOW OVERFLOWS TO THE SOUTH.
              *
              * DDM   ***** Preserved *****

2286          KK  DS30AO
2287          DT  DS30AI
2288          DI       1     250     550     750    1000    1500    1750    2000
2289          DQ      .1      .2      .3     200     450     950    1200    1450
              *
              * *** ROUTE RS30AW  ****************************************************
              *
              * ROUTE RS30AW IS 4919 FT WITH A SLOPE OF .0043
              * CROSS SECTION IS DEL WEBB BLVD
              *
              * *** ROUTE FLOW FROM CS30A TO CS30 ************************************
              *
              * DDM   ***** Preserved *****

2290          KK  RS30AW
2291          RS       5    FLOW       0
2292          RC    0.03    0.02    0.03    4919  0.0043
2293          RX       0       1     110     125     140     155     160     161
2294          RY      15       7       7       0       0       7       7      15
              *
              *
              * DDM   ***** Preserved *****

2295          KK     S30   BASIN
2296          KM   SUB-BASIN S30
2297          KM   6-HOUR RAINFALL, PATTERN NO. 1.00 WAS USED TO FIND TC & R FOR THIS BASIN
2298          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .996
2299          KM     L = 1.12  Kb = .040  Adj. Slope =   27.0
2300          BA    .321
2301          LG    0.22    0.26    4.55    0.43      27
2302          UC   0.596   0.436
2303          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
2304          UA     100
              *
              * *** COMBINE BASIN S30 AND RS30A **************************************
              *
              * DDM   ***** Preserved *****
```



```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2305          KK    CS30
2306          HC       2
              *
              * *** ROUTE RS30  *****************************************************
              *
              * ROUTE RS30 IS 691 FT WITH A SLOPE OF .0058
              * CROSS SECTION IS A CHANNEL ALONG BELL RD (MEASURED)
              *
              * *** ROUTE FLOW FROM CS30 TO CA07B ************************************
              *
              * DDM   ***** Preserved *****

2307          KK    RS30
```

```
2308          RS       1    FLOW       0
2309          RC    0.03    0.02    0.03     691  0.0058
2310          RX       0      26     136     197     212     227     242     742
2311          RY       9       8       8       7       0       0       7       9
              *
              * ### BASIN A07B.6 IS A PORTION OF THE CANYON RIDGE DEVELOPMENT ###
              *

2312          KK  A07B.6   BASIN
2313          BA   0.152
2314          LG    0.22    0.26    4.60    0.39      31
2315          UC   0.511   0.497
2316          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
2317          UA     100
              *
              * ### DA07B6 REPRESENT THE RETENTION LOCATED WITHIN BASIN A07B6 ###
              *

2318          KK  DA07B6
2319          DT  DA07B6     3.5
2320          DI       0     100    1000   10000
2321          DQ       0     100    1000   10000
              *
              * ### CS30 Combines DA07B6 AND RS30 ###
              *

2322          KK    CS30
2323          KO                                  21
2324          HC       2
              *
              * ### COMBINES CS30 AND DIA07B ###
              *

2325          KK  CA07B6
2326          HC       2
              *
              *
              * *** ROUTE RA07B  *****************************************************
              *
              * ROUTE RA07B IS 2990 FT WITH A SLOPE OF .0057
              * CROSS SECTION IS A MANMADE CHANNEL  (MEASURED)
              *
              * *** ROUTE FLOW FROM CA07B TO CA07A ***********************************
              *
              * DDM   ***** Preserved *****
```



```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2327          KK   RA07B
2328          KO       3                          21
2329          RS       3    FLOW       0
2330          RC    0.03     .02    0.03    2990   .0057
2331          RX       0      76     136     197     222     247     262     387
2332          RY      10       9       8       7       0       0       7       9
              *
              * DDM   ***** Preserved *****

2333          KK    A06A   BASIN
2334          KM   SUB-BASIN A06A
2335          KM   6-HOUR RAINFALL, PATTERN NO. 1.00 WAS USED TO FIND TC & R FOR THIS BASIN
2336          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .996
2337          KM     L =  .73  Kb = .038  Adj. Slope =   70.0
```



```
2338          BA    .279
2339          LG    0.21    0.30    4.70    0.34      19
2340          UC   0.375   0.239
2341          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
2342          UA     100
              *
              *
              * *** COMBINE BASIN A06A AND RA07B ***********************
              *
              * DDM   ***** Preserved *****

2343          KK   CA06A
2344          HC       2
              *
              * *** ROUTE RA06A  *****************************************************
              *
              * ROUTE RA07B IS 2500 FT WITH A SLOPE OF .007
              * CROSS SECTION IS A MANMADE CHANNEL  (MEASURED)
              *
              * *** ROUTE FLOW FROM CA07B TO CA07A ***********************************
              *
              * DDM   ***** Preserved *****

2345          KK   RA06A
2346          KO       3                          21
2347          RS       3    FLOW       0
2348          RC    0.03     .02    0.03    2500   .007
2349          RX       0      76     136     197     222     247     262     387
2350          RY      10       9       8       7       0       0       7       9
              *
              *
              * DDM   ***** Preserved *****

2351          KK    A07A   BASIN
2352          KM   SUB-BASIN A07A
2353          KM   6-HOUR RAINFALL, PATTERN NO. 1.00 WAS USED TO FIND TC & R FOR THIS BASIN
2354          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .998
2355          KM     L =  .88  Kb = .045  Adj. Slope =   18.0
2356          BA    .124
2357          LG    0.21    0.30    3.92    0.51      16
```



```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2358          UC   0.688   0.725
2359          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
2360          UA     100
              *
              *
              * *** ROUTE RA07A  *****************************************************
              *
              * ROUTE RA07A IS 1095 FT WITH A SLOPE OF .0037
              * CROSS SECTION IS A CHANNEL AND BELL RD (MEASURED)
              *
              * *** ROUTE FLOW FROM CA07A TO CA07 ************************************
              *
              *
              * DDM   ***** Preserved *****

2361          KK   RA07A
2362          RS       2    FLOW       0
2363          RC    0.03    0.03    0.03    1095  0.0037
2364          RX       0      50      62      72      84     104     204     704
2365          RY       7       6       0       0       6       7       9      10
```

```
                *
                * DDM   ***** Preserved *****

2366            KK     A07   BASIN
2367            KM   SUB-BASIN A07
2368            KM   6-HOUR RAINFALL, PATTERN NO. 1.00 WAS USED TO FIND TC & R FOR THIS BASIN
2369            KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .998
2370            KM     L =  .15  Kb = .054  Adj. Slope =   53.0
2371            BA    .118
2372            LG   0.33    0.33    3.21    0.83       6
2373            UC  0.167   0.038
2374            UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
2375            UA     100
                *
                * *** COMBINE BASIN A07 AND RA07A  ***********************************
                *
                * DDM   ***** Preserved *****

2376            KK     CA07
2377            HC        2
                *
                * *** ROUTE RA07  *****************************************************
                *
                * ROUTE RA07 IS 3464 FT WITH A SLOPE OF .0061
                * CROSS SECTION IS THE AGUA FRIA RIVER (MEASURED)
                *
                * *** ROUTE FLOW FROM CA07 TO CA06 ************************************
                *
                * DDM   ***** Preserved *****
1                                           HEC-1 INPUT                                                 PAGE 77

            LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2378            KK     RA07
2379            KO        3
2380            RS        3    FLOW       0
2381            RC    0.03    0.03    0.03    3464  0.0061
2382            RX       0     100     200     250     300     350     500    1000
2383            RY      12       8       6       0       0       6       8      12
                *
                * DDM   ***** Preserved *****

2384            KK     A06   BASIN
2385            KM   SUB-BASIN A06
2386            KM   6-HOUR RAINFALL, PATTERN NO. 1.00 WAS USED TO FIND TC & R FOR THIS BASIN
2387            KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .996
2388            KM     L =  .38  Kb = .049  Adj. Slope =   24.0
2389            BA    .277
2390            LG   0.35    0.35    3.58    0.61       0
2391            UC  0.346   0.109
2392            UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
2393            UA     100
                *
                * *** COMBINE BASIN A06 AND RA07 ***************************
                *
                * DDM   ***** Preserved *****

2394            KK     CA06
2395            HC        2
                *
                * *** ROUTE RA06  *****************************************************
                *
                * ROUTE RA06 IS 2650 FT WITH A SLOPE OF .0053
```



```
                * CROSS SECTION IS THE AGUA FRIA RIVER (MEASURED)
                *
                * *** ROUTE FLOW FROM CA06 TO CA99Q ************************************
                *
                * DDM   ***** Preserved *****

2396            KK     RA06
2397            RS        6    FLOW       0
2398            RC    0.03    0.03    0.03    2650  0.0053
2399            RX       0     100     200     250     750     800     900    1000
2400            RY       9       8       6       0       0       6       8       9
                *
                * DDM   ***** Preserved *****

2401            KK     A99Q   BASIN
2402            KM   SUB-BASIN A99Q
2403            KM   6-HOUR RAINFALL, PATTERN NO. 1.00 WAS USED TO FIND TC & R FOR THIS BASIN
2404            KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .998
2405            KM     L =  .06  Kb = .054  Adj. Slope =   83.0
2406            BA    .118
2407            LG   0.35    0.35    3.67    0.58       0
2408            UC  0.087   0.009
2409            UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
2410            UA     100
                *
                *
                * DDM   ***** Preserved *****
                *
1                                           HEC-1 INPUT                                                 PAGE 78

            LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2411            KK     A99P   BASIN
2412            KM   SUB-BASIN A99P
2413            KM   6-HOUR RAINFALL, PATTERN NO. 1.08 WAS USED TO FIND TC & R FOR THIS BASIN
2414            KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .993
2415            KM     L = 1.34  Kb = .040  Adj. Slope =   57.0
2416            BA    .575
2417            LG   0.25    0.28    5.40    0.26      27
2418            UC  0.508   0.302
2419            UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
2420            UA     100
                *
                * *** COMBINE BASIN A99Q, A99P, RA06 AND RA06A  *********************************
                *

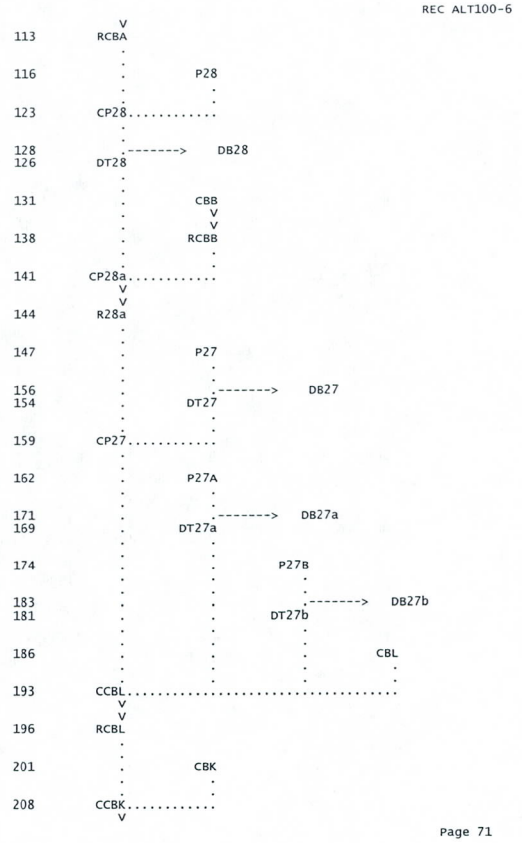
2421            KK    CA99Q
2422            HC        4
                *

2423            KK     AFR6
2424            HC        2
                *
2425            ZZ
1
                SCHEMATIC DIAGRAM OF STREAM NETWORK

 INPUT
  LINE      (V) ROUTING           (--->) DIVERSION OR PUMP FLOW

    NO.     (.) CONNECTOR         (<---) RETURN OF DIVERTED OR PUMPED FLOW

   106          CBA
                 V
```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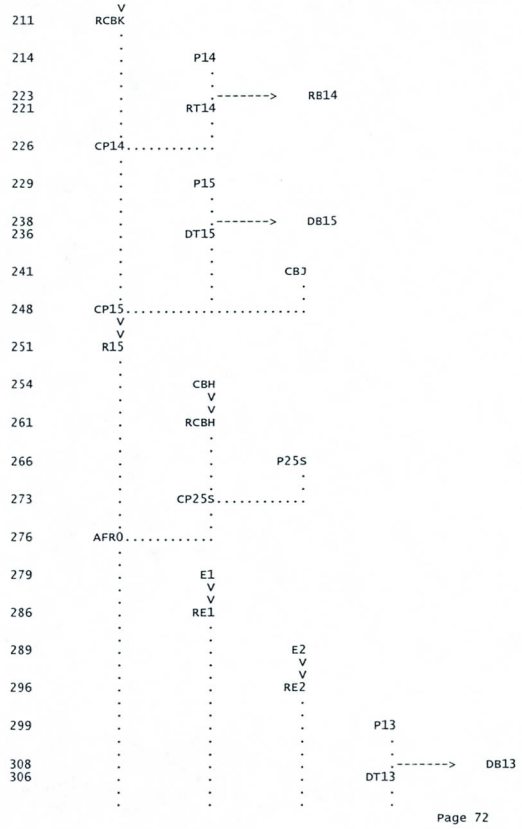
123 CP28
128 DB28
126 DT28
131 CBB
138 RCBB
141 CP28a
144 R28a
147 P27
156 DB27
154 DT27
159 CP27
162 P27A
171 DB27a
169 DT27a
174 P27B
183 DB27b
181 DT27b
186 CBL
193 CCBL
196 RCBL
201 CBK
208 CCBK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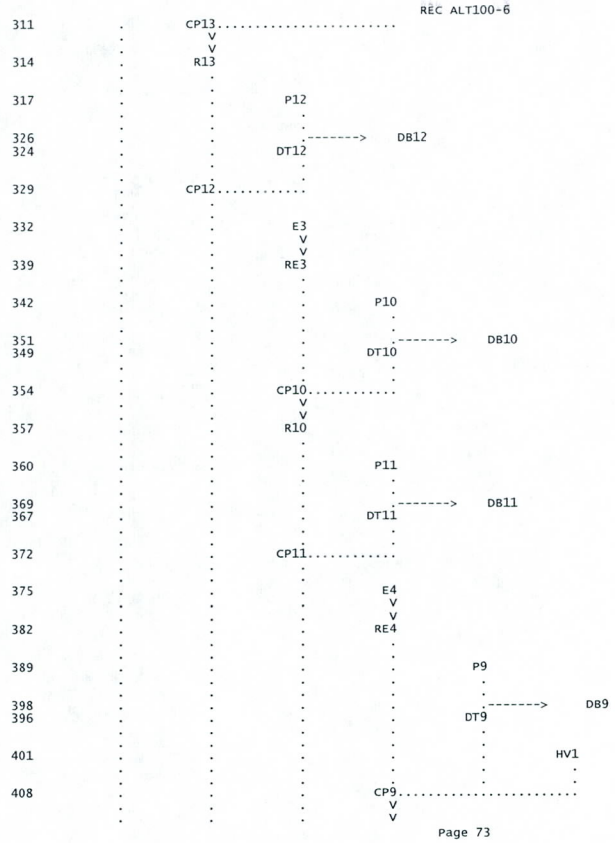
223 RB14
221 RT14
226 CP14
229 P15
238 DB15
236 DT15
241 CBJ
248 CP15
251 R15
254 CBH
261 RCBH
266 P25S
273 CP25S
276 AFR0
279 E1
286 RE1
289 E2
296 RE2
299 P13
308 DB13
306 DT13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CP12
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E3
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RE3
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DB10
349
DT10
354
CP10
357
R10
360
P11
369
DB11
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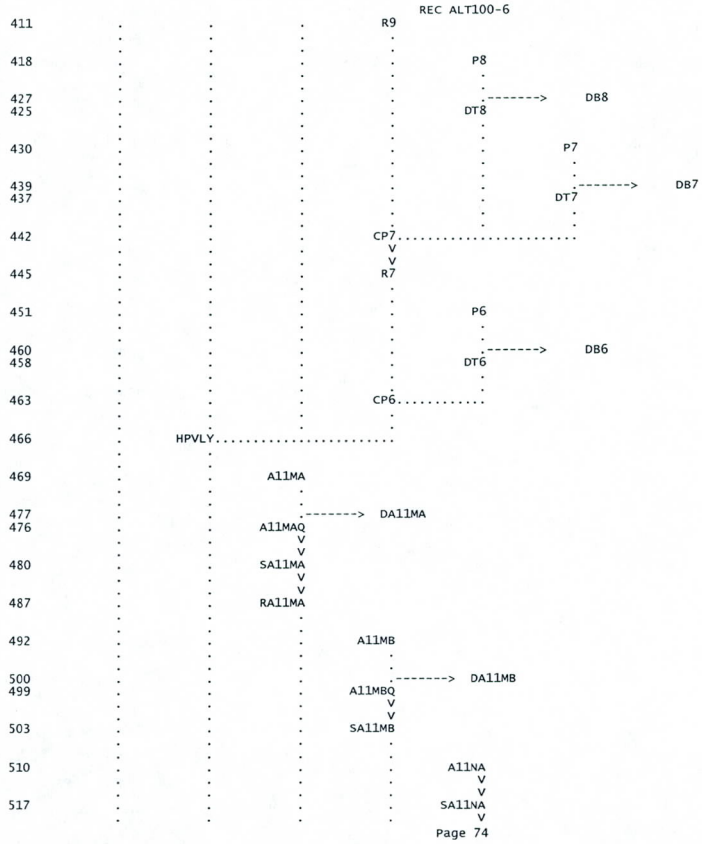
DT9
401
HV1
408
CP9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P6
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DB6
458
DT6
463
CP6
466
HPVLY
469
A11MA
477
DA11MA
476
A11MAQ
480
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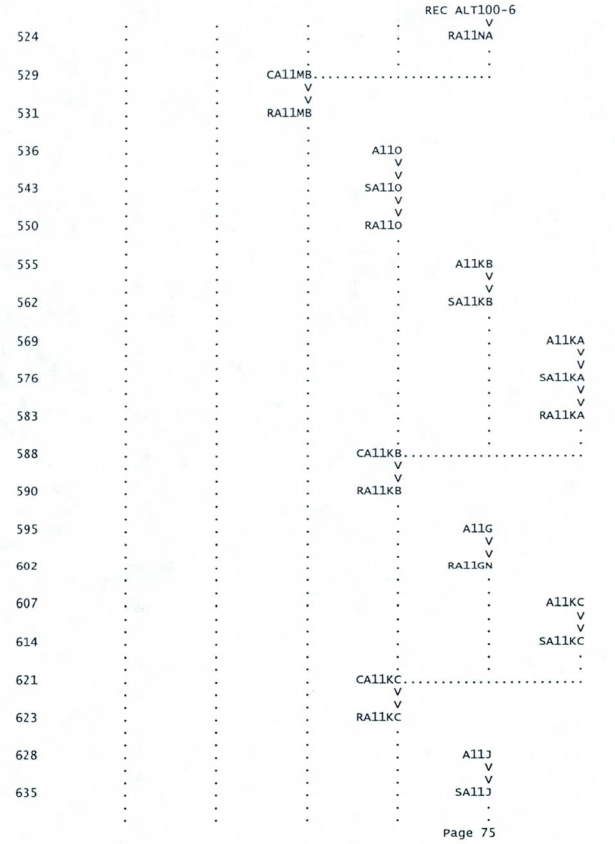
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SA11KA
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RA11KA
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CA11KB
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RA11KB
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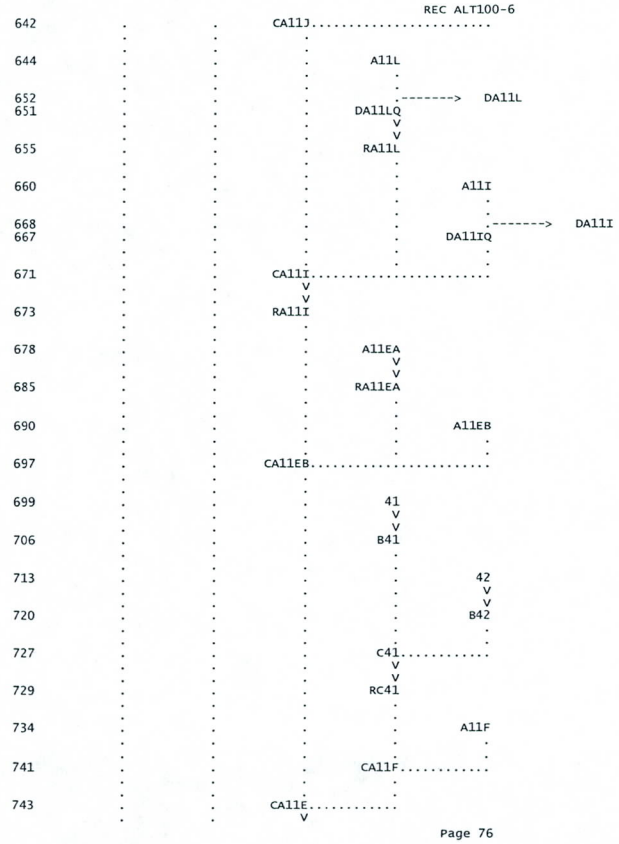
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CA11I
673
RA11I
678
A11EA
685
RA11EA
690
A11EB
697
CA11EB
699
41
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C41
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RC41
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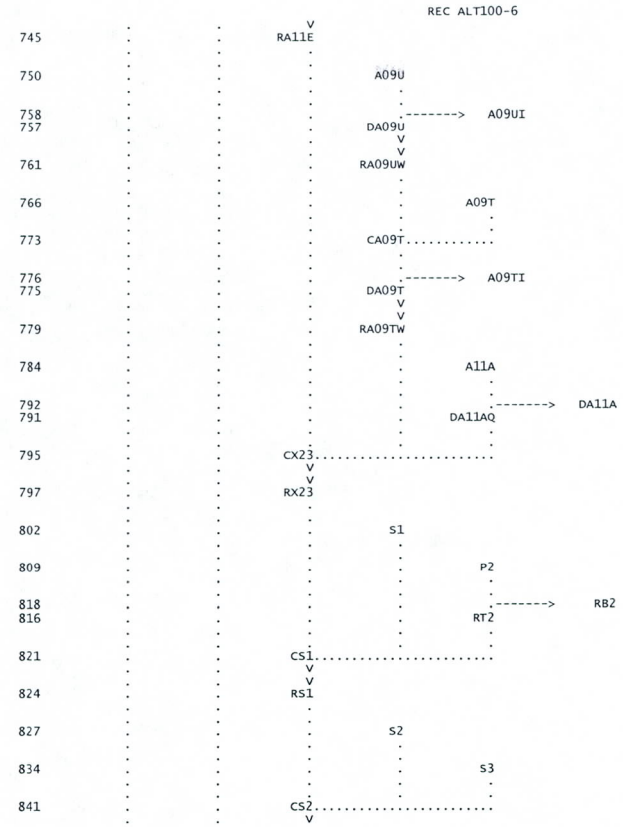
CA11F
743
CA11E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776 A09TI
775 DA09T
779 RA09TW
784 A11A
792 DA11A
791 DA11AQ
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797 RX23
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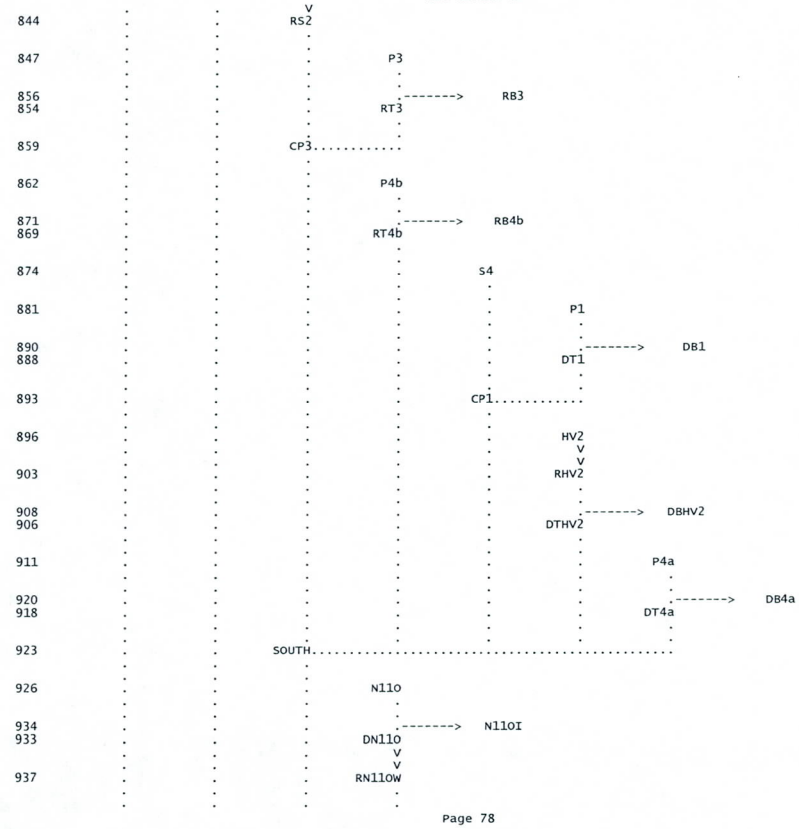
809 P2
818 RB2
816 RT2
821 CS1
824 RS1
827 S2
834 S3
841 CS2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881 P1
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888 DT1
893 CP1
896 HV2
903 RHV2
908 DBHV2
906 DTHV2
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920 DB4a
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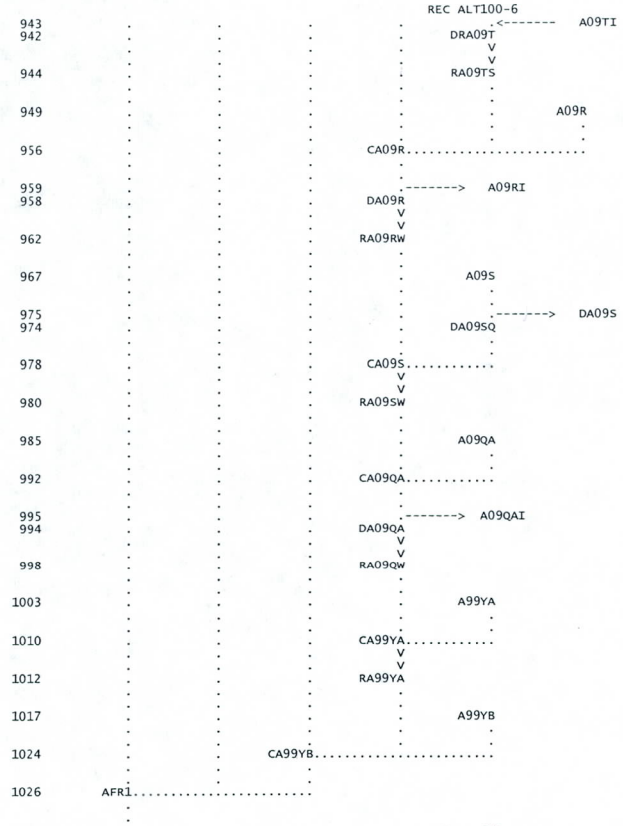
926 N11O
934 N11OI
933 DN11O
937 RN11OW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1024
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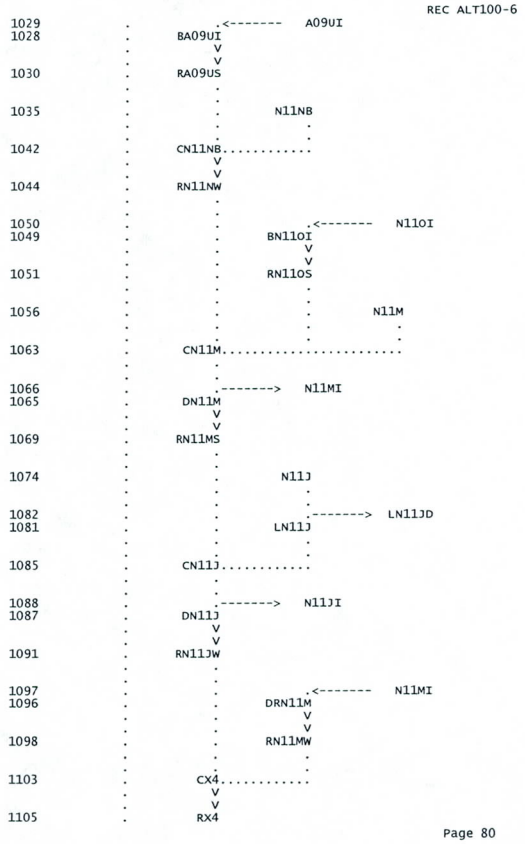
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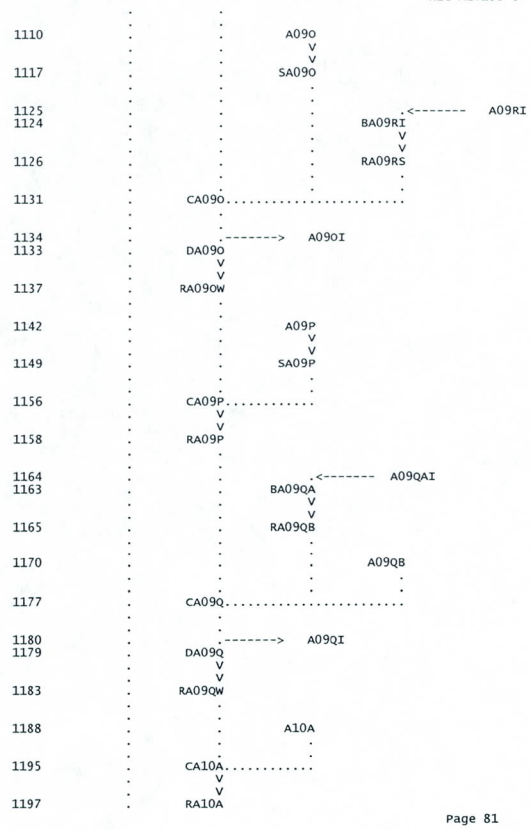
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1133 DA09O
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1149 SA09P
1156 CA09P
1158 RA09P
1164 A09QAI
1163 BA09QA
1165 RA09QB
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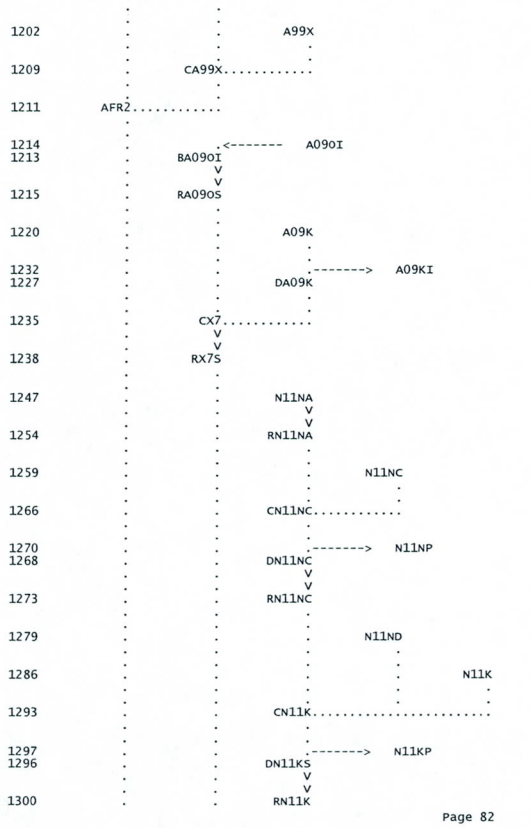
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1235 CX7
1238 RX7S
1247 N11NA
1254 RN11NA
1259 N11NC
1266 CN11NC
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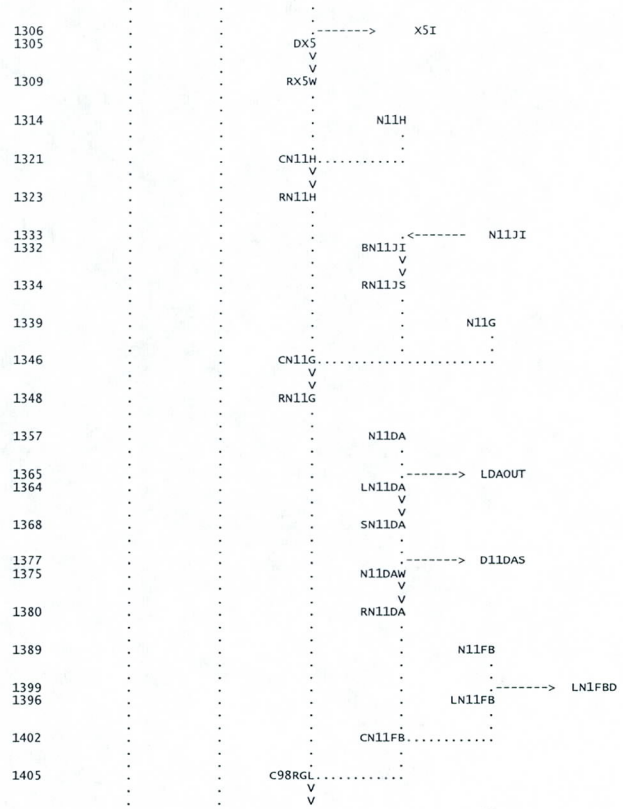
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1365
1364 LN11DA
1368 SN11DA
1377
1375 N11DAW
1380 RN11DA
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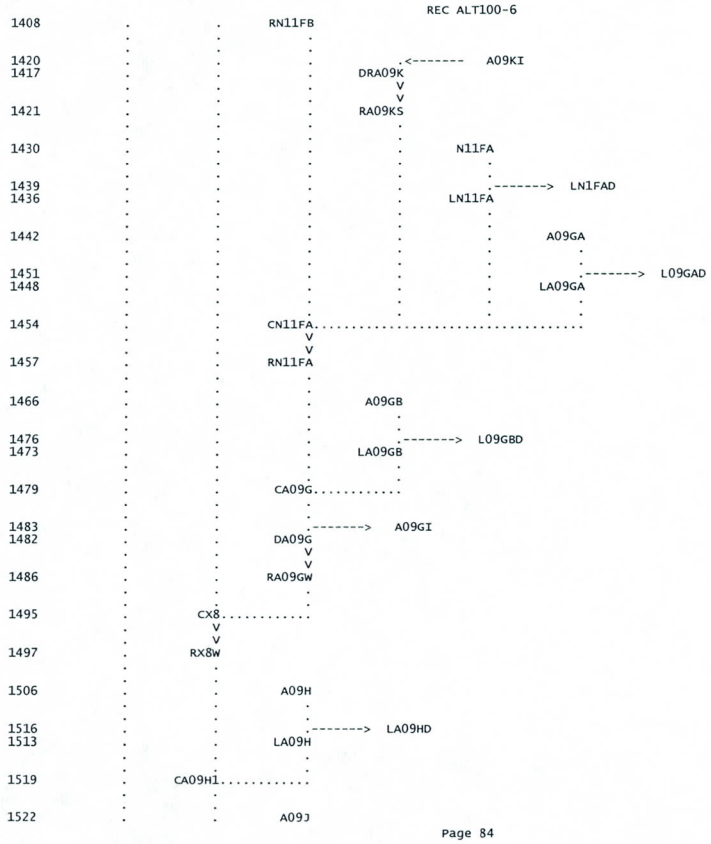
D11DAS
LN1FBD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1457 RN11FA
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1473 LA09GB
1479 CA09G
1483
1482 DA09G
1486 RA09GW
1495 CX8
1497 RX8W
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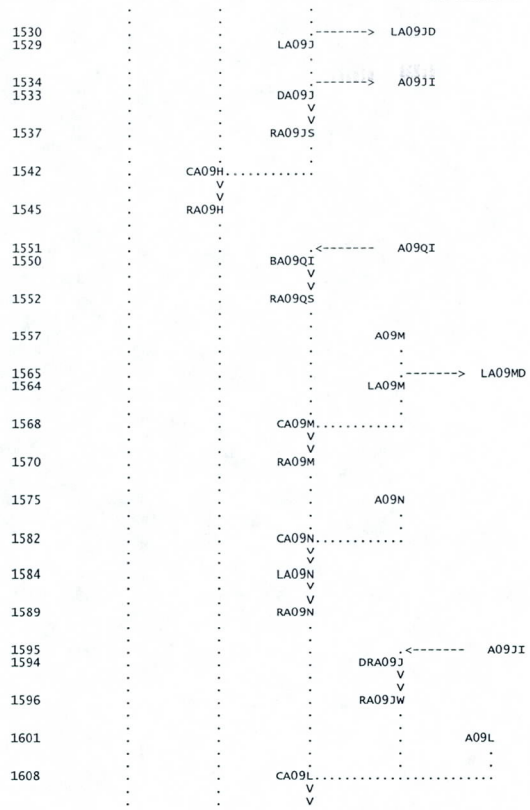
LA09HD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A09QI
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LA09MD
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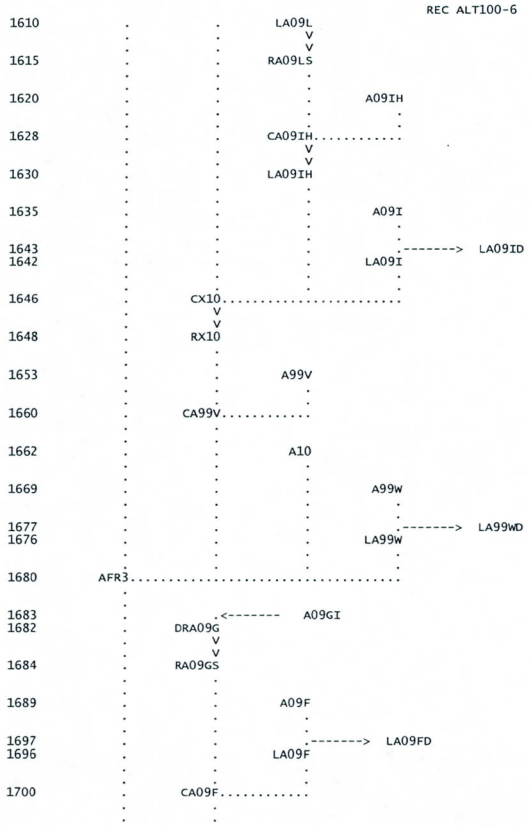
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RX10
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A10
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A99W
1677
1676
LA99W
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AFR3
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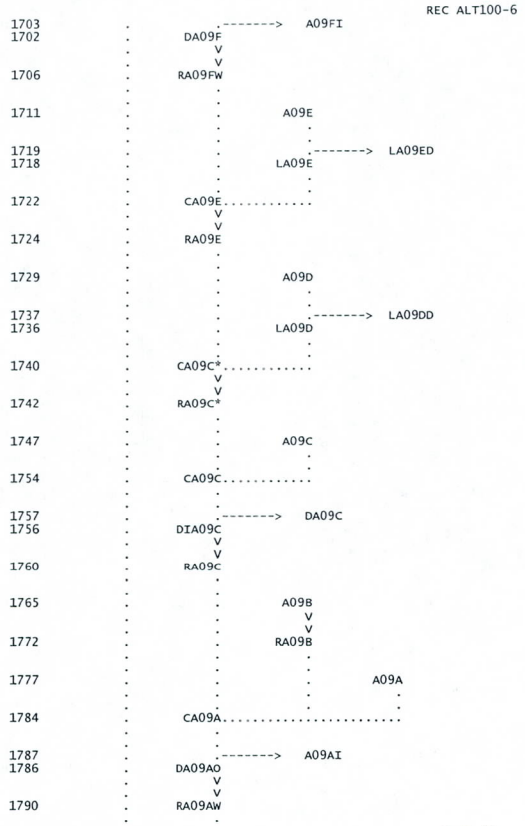
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1742 RA09C*
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1754 CA09C
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1760 RA09C
1765 A09B
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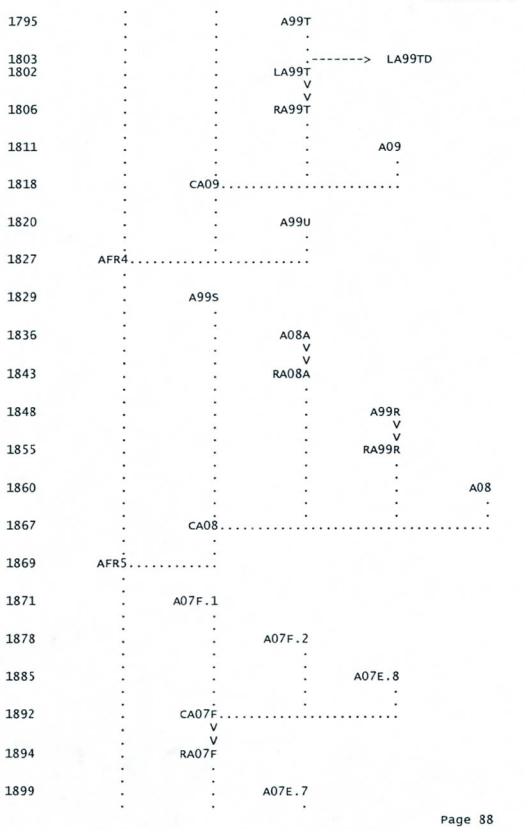
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1867 CA08
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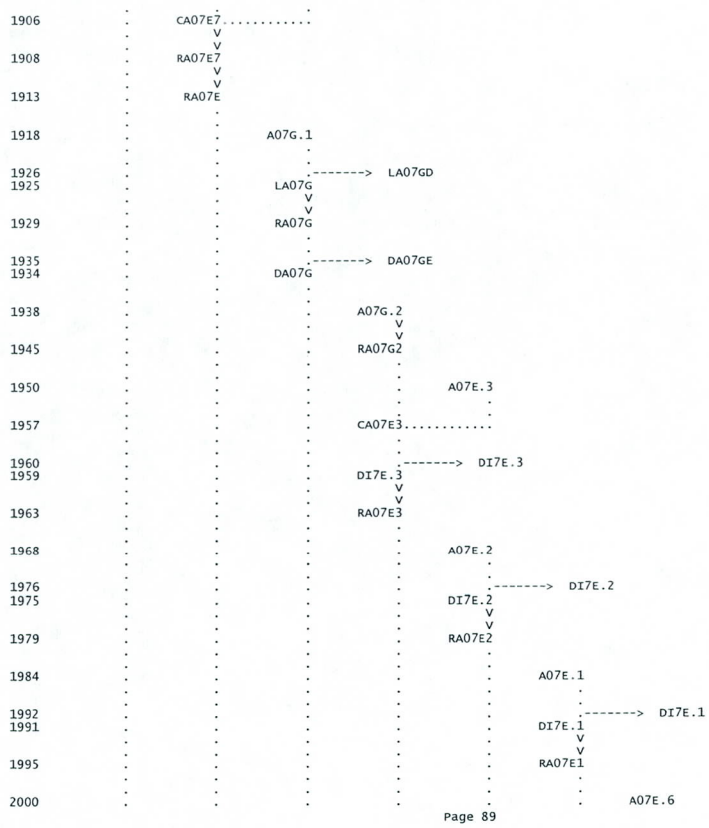
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DI7E.3
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RA07E3
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DI7E.2
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DI7E.2
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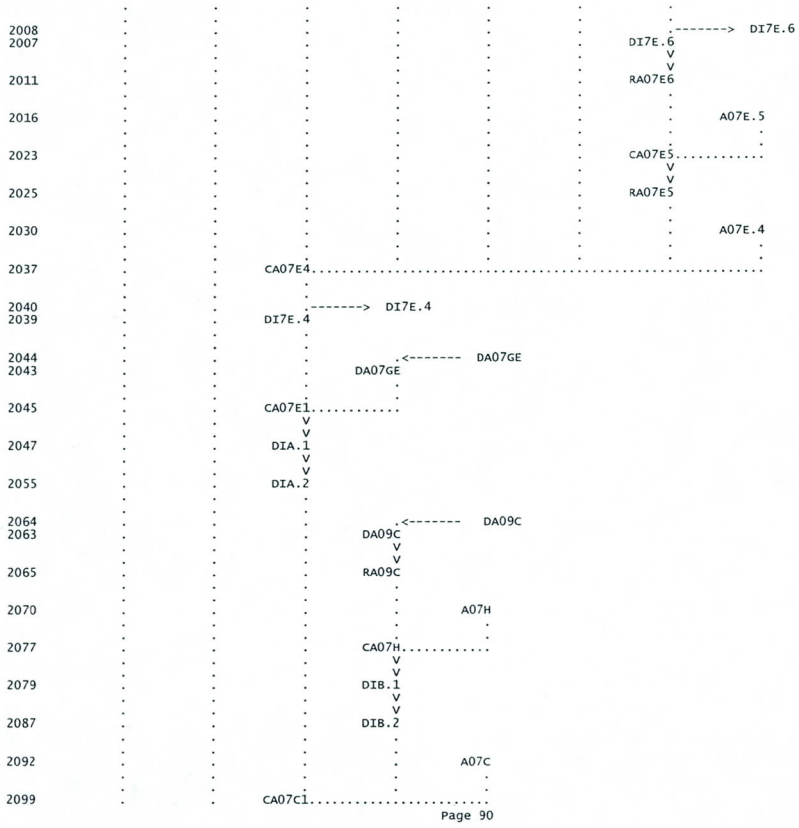
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DI7E.4
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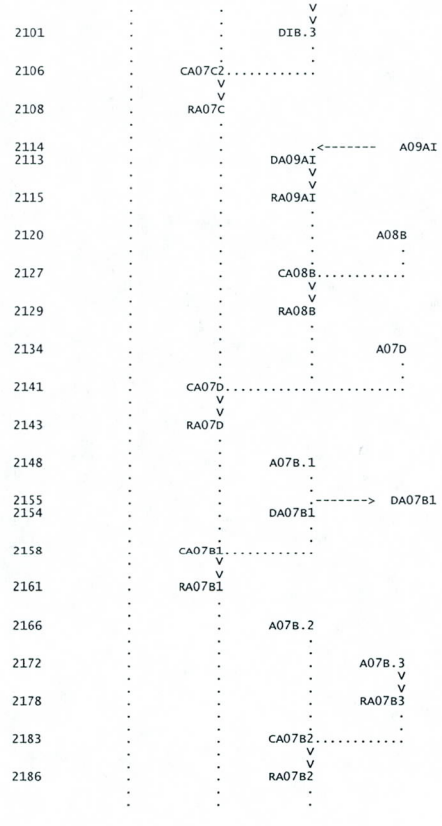
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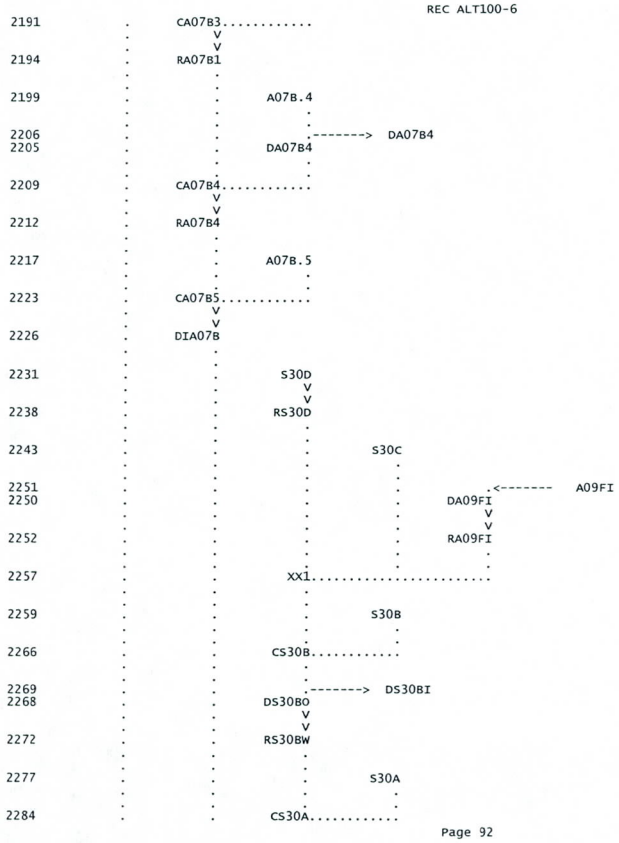
2186
RA07B2


2191
CA07B3
2194
RA07B1
2199
A07B.4
2206
2205
DA07B4
DA07B4
2209
CA07B4
2212
RA07B4
2217
A07B.5
2223
CA07B5
2226
DIA07B
2231
S30D
2238
RS30D
2243
S30C
2251
2250
A09FI
DA09FI
2252
RA09FI
2257
XX1
2259
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CS30B
2269
2268
DS30BI
DS30BO
2272
RS30BW
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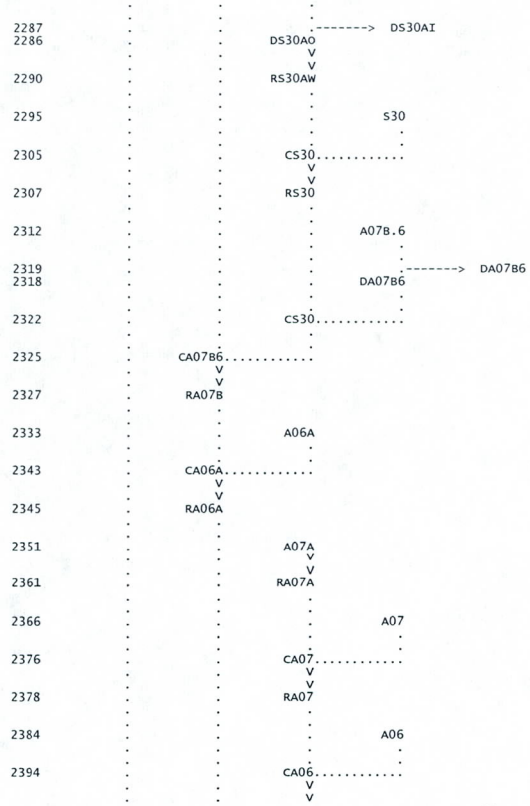
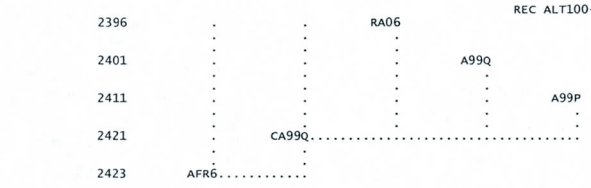
S30A
2284
CS30A





(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

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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   21JUL11  TIME  16:41:44   *                                       *           (916) 756-1104
   *                                                                             *
 *                                       *                                       *
   *
 *****************************************
*****************************************
```

Project ID: 107 & Union Hills - Major Basin: 01 - Return Period: 10 Years **
107th Avenue and Union Hills Drive Design Concept Report **
**

PROJECT NO.: FCD 2009C036.2 G&M: 10388A.2 **

**

Original HEC-1 Model: DCR100-6.DAT, Goodwin & Marshall, Inc., Apr 26, 2010**
100-Year 6-Hour HEC-1 Model for Existing Conditions **
Modified HEC-1 Model: REC ALT100-6.DAT, Goodwin & Marshall, Inc, 7/15/2011**
100-Year 6-Hour HEC-1 Model for Recom. Alternative **
**

1) NOAA2 Rainfall Data **

2) DDMSW V3.5.7 Used **

3) Model revised to reflect Recommended Alternative **
**

****

Project ID: 107 & Union Hills - Major Basin: 01 - Return Period: 10 Years **
107th Avenue and Union Hills Drive Design Concept Report **

```
                                                                              **
PROJECT NO.: FCD 2009C036.2                          G&M: 10388A.2            **
                                                                              **
Original HEC-1 Model: DCR10-6.DAT, Goodwin & Marshall, Inc., May 29, 2010 **
                      10-Year 6-Hour HEC-1 Model for Existing Conditions  **
Modified HEC-1 Model: DCR10-6.DAT, Goodwin & Marshall, Inc., Apr 26, 2011 **
                      10-Year 6-Hour HEC-1 Model for Existing Conditions  **
                                                                          **
1) NOAA2 Rainfall Data                                                    **
2) DDMSW V3.5.7 Used                                                      **
3) BASINS REVISED TO REFLECT CANYON RIDGE DEVELOPMENT AND DETERMINE FLOWS **
   AT CRITICAL POINTS ALONG 115TH AVENUE                                  **
                                                                          **
*****************************************************************************
Project ID: 107 & Union Hills - Major Basin: 01 - Return Period: 100 Years
                                                                          **
107th Avenue and Union Hills Drive Design Concept Report                  **
                                                                          **
PROJECT NO.: FCD 2009C036                  G&M: 10388A                    **
                                                                          **
Original HEC-1 Model: EC06BASE.DAT, Wood/Patel, SZ, May 2007              **
                      100-Year 6-Hour HEC-1 Model for Existing Conditions **
Modified HEC-1 Model: DCR100-6.DAT, Goodwin & Marshall, Inc., May 29, 2010**
                      100-Year 6-Hour HEC-1 Model for Existing Conditions **
                                                                          **
1) NOAA2 Rainfall Data                                                    **
2) DDMSW V3.5.7 Used                                                      **
                                                                          **
*****************************************************************************
Project ID: GP_NW ADMP_EX1 - Major Basin: 01 - Return Period: 100 Years
                                                                          **
Glendale/Peoria ADMP Northwest Region Update                              **
Original HEC-1 Model: L3R5DVR.DAT, Wood/Patel, APRIL 14, 2006             **
                      REVISED FOR DOVE VALLEY RANCH IMPROVEMENTS          **
Modified HEC-1 Model: EC06BASE.DAT, Wood/Patel, SZ, May 2007              **
                      100-Year 6-Hour HEC-1 Model for Existing Conditions **
1) NOAA 2 Rainfall Data                                                   **
2) DDMSW MCUHP1 V3.3.2 Used                                               **
                                                                          **
*****************************************************************************
*****************************************************************************
**                                                                         **
** CONCEPT REFINEMENT STUDY FOR ROSE GARDEN LANE DRAINAGE IMPROVEMENTS     **
** ORIGINAL HEC-1 FILE FROM GLENDAL/PEORIA ADMP UPDATE STUDY               **
** MODIFIED HEC-1 MODEL: LEVEL3R5.DAT, Wood/Patel & CVL, May 2005         **
** THIS IS THE PREFERRED ALTERNATIVE MODEL                                **
** WPA REVISED APRIL 14, 2006 FOR DOVE VALLEY RANCH IMPROVEMENTS          **
** USING LATEST SURVEY DATA.                                              **
*****************************************************************************
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                                                                              **
**                          Glendale/Peoria ADMP Update                      **
**                                                                           **
*****************************************************************************
*****************************************************************************
PROJECT:                Glendale Peoria ADMP Update
CLIENT:                 Flood Control District of Maricopa County
PREPARED BY:            Entellus, Inc.
PROJECT NO:             FCD 99-44              Entellus 310.017
FILE NAME: LEVEL3.DAT              CREATED DATE: JUNE 6, 2001
STORM:                  100-year 6-hour Storm
DEVELOPMENT CONDITIONS: LEVEL 3 HYDROLOGY

84 IO         OUTPUT CONTROL VARIABLES
                   IPRNT          5  PRINT CONTROL
                   IPLOT          0  PLOT CONTROL
                   QSCAL          0.  HYDROGRAPH PLOT SCALE

   IT         HYDROGRAPH TIME DATA
                    NMIN          2  MINUTES IN COMPUTATION INTERVAL
                   IDATE      1   0  STARTING DATE
                   ITIME       0000  STARTING TIME
                      NQ       1000  NUMBER OF HYDROGRAPH ORDINATES
                  NDDATE      2    0  ENDING DATE
                  NDTIME       0918  ENDING TIME
                   ICENT         19  CENTURY MARK

                COMPUTATION INTERVAL     .03 HOURS
                    TOTAL TIME BASE   33.30 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

86 JD         INDEX STORM NO. 1
                   STRM        3.20  PRECIPITATION DEPTH
                   TRDA         .01  TRANSPOSITION DRAINAGE AREA

87 PI          PRECIPITATION PATTERN
               .00   .00   .00   .00   .00   .00   .00   .00   .00   .00
               .00   .00   .00   .00   .00   .00   .00   .00   .00   .00
               .00   .00   .00   .00   .00   .00   .00   .00   .00   .00
               .00   .00   .00   .00   .00   .00   .00   .00   .00   .00
               .00   .00   .00   .00   .00   .00   .00   .00   .00   .00
               .00   .00   .00   .00   .00   .00   .00   .00   .00   .00
               .00   .00   .00   .00   .00   .00   .00   .00   .00   .00
               .00   .00   .00   .00   .00   .00   .00   .00   .00   .00
               .00   .00   .00   .00   .00   .00   .00   .00   .01   .01
               .01   .01   .01   .01   .01   .02   .02   .02   .02   .02
               .02   .02   .04   .06   .06   .06   .06   .06   .06   .06
               .01   .01   .01   .01   .01   .01   .01   .01   .00   .00
               .00   .00   .00   .00   .00   .00   .00   .00   .00   .00
               .00   .00   .00   .00   .00   .00   .00   .00   .00   .00
               .00   .00   .00   .00   .00   .00   .00   .00   .00   .00
               .00   .00   .00   .00   .00   .00   .00   .00   .00   .00
               .00   .00   .00   .00   .00   .00   .00   .00   .00   .00
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90 JD          INDEX STORM NO. 2
                    STRM        3.18  PRECIPITATION DEPTH
                    TRDA         .50  TRANSPOSITION DRAINAGE AREA

91 PI            PRECIPITATION PATTERN
                   .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                   .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                   .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                   .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                   .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                   .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                   .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                   .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                   .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                   .00       .00       .00       .00       .00       .00       .00       .01       .01       .01
                   .01       .01       .01       .01       .01       .02       .02       .02       .02       .02
                   .02       .02       .04       .06       .06       .06       .06       .06       .06       .06
                   .01       .01       .01       .01       .01       .01       .01       .01       .00       .00
                   .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                   .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                   .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                   .00       .00       .00       .00       .00       .00       .00       .00       .00       .00

94 JD          INDEX STORM NO. 3
                    STRM        3.12  PRECIPITATION DEPTH
                    TRDA        2.80  TRANSPOSITION DRAINAGE AREA

95 PI            PRECIPITATION PATTERN
                   .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                   .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                   .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                   .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                   .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                   .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                   .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                   .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                   .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                   .01       .01       .01       .01       .01       .01       .01       .01       .01       .01
                   .01       .01       .01       .01       .01       .03       .03       .03       .03       .03
                   .03       .03       .03       .03       .03       .03       .03       .03       .03       .03
                   .02       .02       .02       .02       .02       .02       .02       .01       .01       .01
                   .01       .01       .01       .01       .01       .01       .01       .01       .01       .01
                   .01       .01       .00       .00       .00       .00       .00       .00       .00       .00
                   .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                   .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                   .00       .00       .00       .00       .00       .00       .00       .00       .00       .00

98 JD          INDEX STORM NO. 4
                    STRM        2.95  PRECIPITATION DEPTH
                    TRDA       16.00  TRANSPOSITION DRAINAGE AREA

99 PI            PRECIPITATION PATTERN
                   .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                   .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                   .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                   .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                   .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
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                   .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
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                   .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                   .01       .01       .01       .01       .01       .01       .01       .01       .01       .01
                   .01       .01       .01       .01       .01       .02       .02       .02       .02       .02
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                   .02       .02       .02       .03       .03       .03       .03       .03       .03       .03
                   .02       .02       .02       .02       .02       .02       .02       .01       .01       .01
                   .01       .01       .01       .01       .01       .01       .01       .01       .01       .01
                   .01       .01       .01       .00       .00       .00       .00       .00       .00       .00
                   .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                   .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                   .00       .00       .00       .00       .00       .00       .00       .00       .00       .00

102 JD         INDEX STORM NO. 5
                    STRM        2.60  PRECIPITATION DEPTH
                    TRDA       90.00  TRANSPOSITION DRAINAGE AREA

103 PI           PRECIPITATION PATTERN
                   .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                   .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                   .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                   .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                   .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                   .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                   .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                   .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
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                   .01       .01       .01       .01       .01       .02       .02       .02       .02       .02
                   .02       .02       .02       .02       .02       .02       .02       .02       .02       .02
                   .02       .02       .02       .02       .02       .02       .02       .01       .01       .01
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                   .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
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       WARNING EXCESS AT PONDING LESS THAN ZERO FOR PERIOD. EXCESS SET TO ZERO

WARNING --- ROUTED OUTFLOW (    355.) IS GREATER THAN MAXIMUM OUTFLOW (    350.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (    363.) IS GREATER THAN MAXIMUM OUTFLOW (    350.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (    370.) IS GREATER THAN MAXIMUM OUTFLOW (    350.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (    376.) IS GREATER THAN MAXIMUM OUTFLOW (    350.) IN STORAGE-OUTFLOW TABLE

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WARNING --- ROUTED OUTFLOW (    381.) IS GREATER THAN MAXIMUM OUTFLOW (    350.) IN STORAGE-OUTFLOW TABLE
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WARNING --- ROUTED OUTFLOW (      379.) IS GREATER THAN MAXIMUM OUTFLOW (      350.) IN STORAGE-OUTFLOW TABLE
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WARNING --- ROUTED OUTFLOW (      368.) IS GREATER THAN MAXIMUM OUTFLOW (      350.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (      365.) IS GREATER THAN MAXIMUM OUTFLOW (      350.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (      362.) IS GREATER THAN MAXIMUM OUTFLOW (      350.) IN STORAGE-OUTFLOW TABLE
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WARNING --- ROUTED OUTFLOW (      353.) IS GREATER THAN MAXIMUM OUTFLOW (      350.) IN STORAGE-OUTFLOW TABLE
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*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***
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             **************
             *            *
2158 KK      *   CA07B1   *
             *            *
             **************

2159 KO           OUTPUT CONTROL VARIABLES
                        IPRNT          5  PRINT CONTROL
                        IPLOT          0  PLOT CONTROL
                        QSCAL         0.  HYDROGRAPH PLOT SCALE
                        IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                         IOUT         21  SAVE HYDROGRAPH ON THIS UNIT
                        ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                        ISAV2       1000  LAST ORDINATE PUNCHED OR SAVED
                       TIMINT       .033  TIME INTERVAL IN HOURS


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

             **************
             *            *
2183 KK      *   CA07B2   *
             *            *
             **************

2184 KO           OUTPUT CONTROL VARIABLES
                        IPRNT          5  PRINT CONTROL
                        IPLOT          0  PLOT CONTROL
                        QSCAL         0.  HYDROGRAPH PLOT SCALE
                        IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                         IOUT         21  SAVE HYDROGRAPH ON THIS UNIT
                        ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                        ISAV2       1000  LAST ORDINATE PUNCHED OR SAVED
                       TIMINT       .033  TIME INTERVAL IN HOURS


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

             **************
             *            *
2191 KK      *   CA07B3   *
             *            *
             **************

2192 KO           OUTPUT CONTROL VARIABLES
                        IPRNT          5  PRINT CONTROL
                        IPLOT          0  PLOT CONTROL
                        QSCAL         0.  HYDROGRAPH PLOT SCALE
                        IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                         IOUT         21  SAVE HYDROGRAPH ON THIS UNIT
                        ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                        ISAV2       1000  LAST ORDINATE PUNCHED OR SAVED
```

```
                    TIMINT        .033  TIME INTERVAL IN HOURS


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

              ***************
              *             *
2209 KK       *    CA07B4   *
              *             *
              ***************

2210 KO           OUTPUT CONTROL VARIABLES
                       IPRNT           5  PRINT CONTROL
                       IPLOT           0  PLOT CONTROL
                       QSCAL          0.  HYDROGRAPH PLOT SCALE
                       IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                        IOUT          21  SAVE HYDROGRAPH ON THIS UNIT
                       ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                       ISAV2        1000  LAST ORDINATE PUNCHED OR SAVED
                      TIMINT        .033  TIME INTERVAL IN HOURS


 *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***
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              *             *
2223 KK       *    CA07B5   *
              *             *
              ***************

2224 KO           OUTPUT CONTROL VARIABLES
                       IPRNT           5  PRINT CONTROL
                       IPLOT           0  PLOT CONTROL
                       QSCAL          0.  HYDROGRAPH PLOT SCALE
                       IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                        IOUT          21  SAVE HYDROGRAPH ON THIS UNIT
                       ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                       ISAV2        1000  LAST ORDINATE PUNCHED OR SAVED
                      TIMINT        .033  TIME INTERVAL IN HOURS

 WARNING --- ROUTED OUTFLOW (    531.) IS GREATER THAN MAXIMUM OUTFLOW (    530.) IN STORAGE-OUTFLOW TABLE

 WARNING --- ROUTED OUTFLOW (    531.) IS GREATER THAN MAXIMUM OUTFLOW (    530.) IN STORAGE-OUTFLOW TABLE


 *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***
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              *             *
2322 KK       *      CS30   *
              *             *
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2323 KO           OUTPUT CONTROL VARIABLES
                       IPRNT           5  PRINT CONTROL
                       IPLOT           0  PLOT CONTROL
                       QSCAL          0.  HYDROGRAPH PLOT SCALE
                       IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                        IOUT          21  SAVE HYDROGRAPH ON THIS UNIT
                       ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                       ISAV2        1000  LAST ORDINATE PUNCHED OR SAVED
                      TIMINT        .033  TIME INTERVAL IN HOURS


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              *             *
2327 KK       *     RA07B   *
              *             *
              ***************

2328 KO           OUTPUT CONTROL VARIABLES
                       IPRNT           3  PRINT CONTROL
                       IPLOT           0  PLOT CONTROL
                       QSCAL          0.  HYDROGRAPH PLOT SCALE
                       IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                        IOUT          21  SAVE HYDROGRAPH ON THIS UNIT
                       ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                       ISAV2        1000  LAST ORDINATE PUNCHED OR SAVED
                      TIMINT        .033  TIME INTERVAL IN HOURS

                 HYDROGRAPH ROUTING DATA

2329 RS            STORAGE ROUTING
                       NSTPS           3  NUMBER OF SUBREACHES
                        ITYP        FLOW  TYPE OF INITIAL CONDITION
                      RSVRIC         .00  INITIAL CONDITION
                           X         .00 WORKING R AND D COEFFICIENT

2330 RC            NORMAL DEPTH CHANNEL
                         ANL        .030  LEFT OVERBANK N-VALUE
                        ANCH        .020  MAIN CHANNEL N-VALUE
                         ANR        .030  RIGHT OVERBANK N-VALUE
                       RLNTH       2990.  REACH LENGTH
                         SEL       .0057  ENERGY SLOPE
                       ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                    CROSS-SECTION DATA
                           --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
2332 RY        ELEVATION    10.00      9.00      8.00      7.00       .00       .00      7.00      9.00
2331 RX        DISTANCE       .00     76.00    136.00    197.00    222.00    247.00    262.00    387.00

                                                  ***

                                    COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

              STORAGE        .00       .96      2.02      3.20      4.48      5.87      7.37      8.98     10.70     12.53
              OUTFLOW        .00     49.22    159.62    320.67    529.63    785.76   1089.22   1440.67   1841.03   2291.40
            ELEVATION        .00       .53      1.05      1.58      2.11      2.63      3.16      3.68      4.21      4.74
```

STORAGE	14.46	16.51	18.66	20.92	23.84	29.01	36.52	46.35	58.16	71.42
OUTFLOW	2793.03	3347.20	3955.27	4618.63	4275.95	4398.60	5653.16	7376.68	9585.48	12181.20
ELEVATION	5.26	5.79	6.32	6.84	7.37	7.89	8.42	8.95	9.47	10.00

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN 1841. TO 4619.
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.)

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HYDROGRAPH AT STATION RA07B
TRANSPOSITION AREA .0 SQ MI

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	33.30-HR
+ (CFS)	(HR)				
		(CFS)			
+ 1314.	4.73	661.	193.	139.	139.
		(INCHES) 1.326	1.549	1.549	1.549
		(AC-FT) 328.	383.	383.	383.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
		6-HR	24-HR	72-HR	33.30-HR
+ (AC-FT)	(HR)				
3.	4.73	2.	1.	0.	0.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
		6-HR	24-HR	72-HR	33.30-HR
+ (FEET)	(HR)				
3.50	4.73	2.26	.79	.57	.57

CUMULATIVE AREA = 4.63 SQ MI

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

HYDROGRAPH AT STATION RA07B
TRANSPOSITION AREA .5 SQ MI

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	33.30-HR
+ (CFS)	(HR)				
		(CFS)			
+ 1302.	4.73	654.	191.	138.	138.
		(INCHES) 1.313	1.534	1.534	1.534
		(AC-FT) 324.	379.	379.	379.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
		6-HR	24-HR	72-HR	33.30-HR
+ (AC-FT)	(HR)				
3.	4.73	2.	1.	0.	0.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
		6-HR	24-HR	72-HR	33.30-HR
+ (FEET)	(HR)				
3.48	4.73	2.25	.79	.57	.57

CUMULATIVE AREA = 4.63 SQ MI

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

HYDROGRAPH AT STATION RA07B

TRANSPOSITION AREA 2.8 SQ MI

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	33.30-HR
+ (CFS)	(HR)				
		(CFS)			
+ 1132.	5.00	577.	172.	124.	124.
		(INCHES) 1.157	1.382	1.382	1.382
		(AC-FT) 286.	341.	341.	341.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
		6-HR	24-HR	72-HR	33.30-HR
+ (AC-FT)	(HR)				
3.	4.97	2.	1.	0.	0.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
		6-HR	24-HR	72-HR	33.30-HR
+ (FEET)	(HR)				
3.22	5.00	2.11	.75	.54	.54

CUMULATIVE AREA = 4.63 SQ MI

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

HYDROGRAPH AT STATION RA07B
TRANSPOSITION AREA 16.0 SQ MI

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	33.30-HR
+ (CFS)	(HR)				
		(CFS)			
+ 966.	5.00	475.	146.	105.	105.
		(INCHES) .953	1.172	1.172	1.172
		(AC-FT) 235.	290.	290.	290.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
		6-HR	24-HR	72-HR	33.30-HR
+ (AC-FT)	(HR)				
2.	4.97	1.	0.	0.	0.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
		6-HR	24-HR	72-HR	33.30-HR
+ (FEET)	(HR)				
2.94	5.00	1.88	.70	.50	.50

CUMULATIVE AREA = 4.63 SQ MI

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

HYDROGRAPH AT STATION RA07B
TRANSPOSITION AREA 90.0 SQ MI

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	33.30-HR
+ (CFS)	(HR)				
		(CFS)			
+ 787.	5.30	328.	102.	74.	74.
		(INCHES) .658	.821	.821	.821
		(AC-FT) 163.	203.	203.	203.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
		6-HR	24-HR	72-HR	33.30-HR

```
 + (AC-FT)      (HR)
       2.       5.27                    1.          0.          0.          0.

   PEAK STAGE   TIME                          MAXIMUM AVERAGE STAGE
                                      6-HR        24-HR       72-HR    33.30-HR
 +  (FEET)      (HR)
      2.63      5.30                  1.47         .55         .40         .40

                          CUMULATIVE AREA =     4.63 SQ MI

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


                          INTERPOLATED HYDROGRAPH AT     RA07B

   PEAK FLOW    TIME                          MAXIMUM AVERAGE FLOW
                                      6-HR        24-HR       72-HR    33.30-HR
 +  (CFS)       (HR)
                              (CFS)
 +   1084.      5.00                  547.        165.        119.        119.
                            (INCHES)  1.098       1.321       1.321       1.321
                             (AC-FT)  271.        326.        326.        326.

                          CUMULATIVE AREA =     4.63 SQ MI


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             *            *
 2345 KK     *   RA06A    *
             *            *
             **************

 2346 KO         OUTPUT CONTROL VARIABLES
                       IPRNT          3  PRINT CONTROL
                       IPLOT          0  PLOT CONTROL
                       QSCAL         0.  HYDROGRAPH PLOT SCALE
                       IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                        IOUT         21  SAVE HYDROGRAPH ON THIS UNIT
                       ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                       ISAV2       1000  LAST ORDINATE PUNCHED OR SAVED
                      TIMINT       .033  TIME INTERVAL IN HOURS

               HYDROGRAPH ROUTING DATA

 2347 RS         STORAGE ROUTING
                       NSTPS          3  NUMBER OF SUBREACHES
                        ITYP       FLOW  TYPE OF INITIAL CONDITION
                      RSVRIC        .00  INITIAL CONDITION
                           X        .00 WORKING R AND D COEFFICIENT

 2348 RC         NORMAL DEPTH CHANNEL
                         ANL       .030  LEFT OVERBANK N-VALUE
                        ANCH       .020  MAIN CHANNEL N-VALUE
                         ANR       .030  RIGHT OVERBANK N-VALUE
                       RLNTH      2500.  REACH LENGTH
                         SEL      .0070  ENERGY SLOPE
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                       ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                          CROSS-SECTION DATA
                            --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
 2350 RY       ELEVATION    10.00      9.00      8.00      7.00       .00       .00      7.00      9.00
 2349 RX        DISTANCE      .00     76.00    136.00    197.00    222.00    247.00    262.00    387.00

                                                    ***

                                    COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

            STORAGE       .00       .80      1.69      2.67      3.75      4.91      6.17      7.51      8.95     10.48
            OUTFLOW       .00     54.55    176.89    355.36    586.92    870.76   1207.06   1596.53   2040.19   2539.30
          ELEVATION       .00       .53      1.05      1.58      2.11      2.63      3.16      3.68      4.21      4.74

            STORAGE     12.09     13.80     15.60     17.49     19.93     24.25     30.53     38.76     48.63     59.72
            OUTFLOW   3095.19   3709.31   4383.17   5118.29   4738.53   4874.45   6264.74   8174.72  10622.47  13499.00
          ELEVATION      5.26      5.79      6.32      6.84      7.37      7.89      8.42      8.95      9.47     10.00

 *** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN      587. TO    13499.
                 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     RA06A
                        TRANSPOSITION AREA      .0 SQ MI

   PEAK FLOW    TIME                          MAXIMUM AVERAGE FLOW
                                      6-HR        24-HR       72-HR    33.30-HR
 +  (CFS)       (HR)
                              (CFS)
 +   1440.      4.53                  708.        207.        149.        149.
                            (INCHES)  1.340       1.565       1.565       1.565
                             (AC-FT)  351.        410.        410.        410.

   PEAK STORAGE TIME                          MAXIMUM AVERAGE STORAGE
                                      6-HR        24-HR       72-HR    33.30-HR
 + (AC-FT)      (HR)
       2.       4.53                    1.          0.          0.          0.

   PEAK STAGE   TIME                          MAXIMUM AVERAGE STAGE
                                      6-HR        24-HR       72-HR    33.30-HR
 +  (FEET)      (HR)
      3.47      4.53                  2.22         .78         .56         .56

                          CUMULATIVE AREA =     4.91 SQ MI

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

                          HYDROGRAPH AT STATION     RA06A
                        TRANSPOSITION AREA      .5 SQ MI

   PEAK FLOW    TIME                          MAXIMUM AVERAGE FLOW
                                      6-HR        24-HR       72-HR    33.30-HR
 +  (CFS)       (HR)
                              (CFS)
 +   1427.      4.53                  701.        205.        148.        148.
                            (INCHES)  1.327       1.550       1.550       1.550
                             (AC-FT)  348.        406.        406.        406.

   PEAK STORAGE TIME                          MAXIMUM AVERAGE STORAGE
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                                              6-HR        24-HR       72-HR       33.30-HR
+  (AC-FT)       (HR)
       2.        4.53                           1.           0.          0.            0.

  PEAK STAGE     TIME                                 MAXIMUM AVERAGE STAGE
                                              6-HR        24-HR       72-HR       33.30-HR
+   (FEET)       (HR)
     3.46        4.53                         2.21          .77         .56           .56

                             CUMULATIVE AREA =     4.91 SQ MI

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

                              HYDROGRAPH AT STATION     RA06A
                             TRANSPOSITION AREA       2.8 SQ MI

  PEAK FLOW      TIME                                 MAXIMUM AVERAGE FLOW
                                              6-HR        24-HR       72-HR       33.30-HR
+   (CFS)        (HR)
                               (CFS)
+    1215.       4.63                         615.         184.        132.          132.
                             (INCHES)        1.165        1.391       1.391         1.391
                              (AC-FT)         305.         364.        364.          364.

 PEAK STORAGE    TIME                                 MAXIMUM AVERAGE STORAGE
                                              6-HR        24-HR       72-HR       33.30-HR
+  (AC-FT)       (HR)
       2.        4.63                           1.           0.          0.            0.

  PEAK STAGE     TIME                                 MAXIMUM AVERAGE STAGE
                                              6-HR        24-HR       72-HR       33.30-HR
+   (FEET)       (HR)
     3.17        4.63                         2.06          .74         .53           .53

                             CUMULATIVE AREA =     4.91 SQ MI

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

                              HYDROGRAPH AT STATION     RA06A
                             TRANSPOSITION AREA      16.0 SQ MI

  PEAK FLOW      TIME                                 MAXIMUM AVERAGE FLOW
                                              6-HR        24-HR       72-HR       33.30-HR
+   (CFS)        (HR)
                               (CFS)
+    1022.       4.77                         506.         156.        112.          112.
                             (INCHES)         .957        1.177       1.177         1.177
                              (AC-FT)         251.         308.        308.          308.

 PEAK STORAGE    TIME                                 MAXIMUM AVERAGE STORAGE
                                              6-HR        24-HR       72-HR       33.30-HR
+  (AC-FT)       (HR)
       2.        4.77                           1.           0.          0.            0.

  PEAK STAGE     TIME                                 MAXIMUM AVERAGE STAGE
                                              6-HR        24-HR       72-HR       33.30-HR
+   (FEET)       (HR)
     2.87        4.77                         1.84          .68         .49           .49

                             CUMULATIVE AREA =     4.91 SQ MI
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         ***              ***            ***             ***               ***

                              HYDROGRAPH AT STATION     RA06A
                             TRANSPOSITION AREA      90.0 SQ MI

  PEAK FLOW      TIME                                 MAXIMUM AVERAGE FLOW
                                              6-HR        24-HR       72-HR       33.30-HR
+   (CFS)        (HR)
                               (CFS)
+     801.       5.27                         348.         109.         78.           78.
                             (INCHES)         .659         .824        .824          .824
                              (AC-FT)         173.         216.        216.          216.

 PEAK STORAGE    TIME                                 MAXIMUM AVERAGE STORAGE
                                              6-HR        24-HR       72-HR       33.30-HR
+  (AC-FT)       (HR)
       2.        5.20                           1.           0.          0.            0.

  PEAK STAGE     TIME                                 MAXIMUM AVERAGE STAGE
                                              6-HR        24-HR       72-HR       33.30-HR
+   (FEET)       (HR)
     2.50        5.27                         1.44          .54         .39           .39

                             CUMULATIVE AREA =     4.91 SQ MI

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


                             INTERPOLATED HYDROGRAPH AT      RA06A

  PEAK FLOW      TIME                                 MAXIMUM AVERAGE FLOW
                                              6-HR        24-HR       72-HR       33.30-HR
+   (CFS)        (HR)
                               (CFS)
+    1149.       4.70                         580.         175.        126.          126.
                             (INCHES)        1.098        1.322       1.322         1.322
                              (AC-FT)         288.         346.        346.          346.

                             CUMULATIVE AREA =     4.91 SQ MI

                  WARNING EXCESS AT PONDING LESS THAN ZERO FOR PERIOD. EXCESS SET TO ZERO


 *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***
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               *            *
2378 KK        *    RA07    *
               *            *
               **************

2379 KO              OUTPUT CONTROL VARIABLES
                           IPRNT          3  PRINT CONTROL
                           IPLOT          0  PLOT CONTROL
                           QSCAL         0.  HYDROGRAPH PLOT SCALE

                     HYDROGRAPH ROUTING DATA

2380 RS              STORAGE ROUTING
                           NSTPS          3  NUMBER OF SUBREACHES
```

ITYP	FLOW	TYPE OF INITIAL CONDITION
RSVRIC	.00	INITIAL CONDITION
X	.00	WORKING R AND D COEFFICIENT

2381 RC NORMAL DEPTH CHANNEL

ANL	.030	LEFT OVERBANK N-VALUE
ANCH	.030	MAIN CHANNEL N-VALUE
ANR	.030	RIGHT OVERBANK N-VALUE
RLNTH	3464.	REACH LENGTH
SEL	.0061	ENERGY SLOPE
ELMAX	.0	MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

CROSS-SECTION DATA

		--- LEFT OVERBANK ---		+ ------ MAIN CHANNEL -------			+ --- RIGHT OVERBANK ---		
2383 RY	ELEVATION	12.00	8.00	6.00	.00	.00	6.00	8.00	12.00
2382 RX	DISTANCE	.00	100.00	200.00	250.00	300.00	350.00	500.00	1000.00

***

COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

STORAGE	.00	2.78	6.08	9.91	14.27	19.16	24.58	30.53	37.01	44.01
OUTFLOW	.00	93.72	310.98	640.30	1084.02	1647.53	2337.28	3160.18	4123.27	5233.61
ELEVATION	.00	.63	1.26	1.89	2.53	3.16	3.79	4.42	5.05	5.68
STORAGE	51.98	63.47	78.94	98.41	122.47	151.28	184.85	223.18	266.27	314.11
OUTFLOW	6642.56	8463.84	10694.98	13426.75	16772.95	20858.33	25771.41	31597.99	38420.15	46316.57
ELEVATION	6.32	6.95	7.58	8.21	8.84	9.47	10.11	10.74	11.37	12.00

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

HYDROGRAPH AT STATION RA07
TRANSPOSITION AREA .0 SQ MI

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	33.30-HR
+ (CFS)	(HR)				
+ 263.	4.20	(CFS) 36.	9.	7.	7.
		(INCHES) 1.397	1.413	1.413	1.413
		(AC-FT) 18.	18.	18.	18.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
		6-HR	24-HR	72-HR	33.30-HR
+ (AC-FT)	(HR)				
2.	4.20	0.	0.	0.	0.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
		6-HR	24-HR	72-HR	33.30-HR
+ (FEET)	(HR)				
1.12	4.20	.21	.05	.04	.04

CUMULATIVE AREA = .24 SQ MI

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

HYDROGRAPH AT STATION RA07
TRANSPOSITION AREA .5 SQ MI

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	33.30-HR
+ (CFS)	(HR)				

+ 260.	4.20	(CFS) 36.	9.	7.	7.
		(INCHES) 1.383	1.398	1.398	1.398
		(AC-FT) 18.	18.	18.	18.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
		6-HR	24-HR	72-HR	33.30-HR
+ (AC-FT)	(HR)				
2.	4.20	0.	0.	0.	0.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
		6-HR	24-HR	72-HR	33.30-HR
+ (FEET)	(HR)				
1.11	4.20	.21	.05	.04	.04

CUMULATIVE AREA = .24 SQ MI

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HYDROGRAPH AT STATION RA07
TRANSPOSITION AREA 2.8 SQ MI

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	33.30-HR
+ (CFS)	(HR)				
+ 112.	4.27	(CFS) 26.	7.	5.	5.
		(INCHES) 1.002	1.018	1.018	1.018
		(AC-FT) 13.	13.	13.	13.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
		6-HR	24-HR	72-HR	33.30-HR
+ (AC-FT)	(HR)				
1.	4.27	0.	0.	0.	0.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
		6-HR	24-HR	72-HR	33.30-HR
+ (FEET)	(HR)				
.69	4.27	.17	.04	.03	.03

CUMULATIVE AREA = .24 SQ MI

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HYDROGRAPH AT STATION RA07
TRANSPOSITION AREA 16.0 SQ MI

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	33.30-HR
+ (CFS)	(HR)				
+ 63.	4.47	(CFS) 18.	5.	3.	3.
		(INCHES) .698	.716	.716	.716
		(AC-FT) 9.	9.	9.	9.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
		6-HR	24-HR	72-HR	33.30-HR
+ (AC-FT)	(HR)				
1.	4.43	0.	0.	0.	0.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
		6-HR	24-HR	72-HR	33.30-HR

+ (FEET)	(HR)				
.42	4.47	.12	.03	.02	.02

CUMULATIVE AREA = .24 SQ MI

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

HYDROGRAPH AT STATION RA07
TRANSPOSITION AREA 90.0 SQ MI

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	33.30-HR
+ (CFS)	(HR)				
		(CFS)			
+ 29.	4.83	10.	3.	2.	2.
		(INCHES) .393	.411	.411	.411
		(AC-FT) 5.	5.	5.	5.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
		6-HR	24-HR	72-HR	33.30-HR
+ (AC-FT)	(HR)				
0.	4.80	0.	0.	0.	0.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
		6-HR	24-HR	72-HR	33.30-HR
+ (FEET)	(HR)				
.19	4.83	.07	.02	.01	.01

CUMULATIVE AREA = .24 SQ MI

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

INTERPOLATED HYDROGRAPH AT RA07

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	33.30-HR
+ (CFS)	(HR)				
		(CFS)			
+ 260.	4.20	36.	9.	7.	7.
		(INCHES) 1.385	1.401	1.401	1.401
		(AC-FT) 18.	18.	18.	18.

CUMULATIVE AREA = .24 SQ MI

1

RUNOFF SUMMARY
FLOW IN CUBIC FEET PER SECOND
TIME IN HOURS, AREA IN SQUARE MILES

+	OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
+	HYDROGRAPH AT	CBA	16.	4.10	1.	0.	0.	.01		
+	ROUTED TO	RCBA	16.	4.20	1.	0.	0.	.01		
+	HYDROGRAPH AT	P28	56.	4.13	7.	2.	1.	.03		

+	2 COMBINED AT	CP28	70.	4.13	9.	2.	2.	.03
+	DIVERSION TO	DB28	55.	4.03	2.	1.	0.	.03
+	HYDROGRAPH AT	DT28	70.	4.13	6.	2.	1.	.03
+	HYDROGRAPH AT	CBB	40.	4.07	3.	1.	1.	.02
+	ROUTED TO	RCBB	40.	4.10	3.	1.	1.	.02
+	2 COMBINED AT	CP28a	110.	4.13	9.	2.	2.	.05
+	ROUTED TO	R28a	93.	4.30	9.	2.	2.	.05
+	HYDROGRAPH AT	P27	107.	4.17	17.	4.	3.	.06
+	DIVERSION TO	DB27	54.	3.93	3.	1.	0.	.06
+	HYDROGRAPH AT	DT27	107.	4.17	14.	3.	3.	.06
+	2 COMBINED AT	CP27	191.	4.27	23.	6.	4.	.12
+	HYDROGRAPH AT	P27A	16.	4.07	2.	0.	0.	.01
+	DIVERSION TO	DB27a	9.	3.90	0.	0.	0.	.01
+	HYDROGRAPH AT	DT27a	16.	4.07	1.	0.	0.	.01
+	HYDROGRAPH AT	P27B	24.	4.10	3.	1.	1.	.01
+	DIVERSION TO	DB27b	10.	3.87	1.	0.	0.	.01
+	HYDROGRAPH AT	DT27b	24.	4.10	3.	1.	0.	.01
+	HYDROGRAPH AT	CBL	54.	4.10	6.	2.	1.	.03
+	4 COMBINED AT	CCBL	260.	4.23	33.	8.	6.	.16
+	ROUTED TO	RCBL	260.	4.30	33.	8.	6.	.16
+	HYDROGRAPH AT	CBK	108.	4.17	9.	2.	2.	.05

+	2 COMBINED AT	CCBK	344.	4.23	41.	10.	7.	.22
+	ROUTED TO	RCBK	341.	4.27	41.	10.	7.	.22
+	HYDROGRAPH AT	P14	16.	4.10	1.	0.	0.	.01
+	DIVERSION TO	RB14	16.	4.10	1.	0.	0.	.01
+	HYDROGRAPH AT	RT14	0.	.00	0.	0.	0.	.01
+	2 COMBINED AT	CP14	341.	4.27	41.	10.	7.	.22
+	HYDROGRAPH AT	P15	5.	4.30	1.	0.	0.	.01
+	DIVERSION TO	DB15	5.	4.30	1.	0.	0.	.01
+	HYDROGRAPH AT	DT15	2.	4.80	0.	0.	0.	.01
+	HYDROGRAPH AT	CBJ	29.	4.13	2.	1.	0.	.01
+	3 COMBINED AT	CP15	363.	4.23	44.	11.	8.	.25
+	ROUTED TO	R15	362.	4.27	44.	11.	8.	.25
+	HYDROGRAPH AT	CBH	34.	4.07	2.	1.	0.	.01
+	ROUTED TO	RCBH	30.	4.13	2.	1.	0.	.01
+	HYDROGRAPH AT	P25S	36.	4.20	5.	1.	1.	.03
+	2 COMBINED AT	CP25S	64.	4.13	7.	2.	1.	.04
+	2 COMBINED AT	AFR0	415.	4.23	51.	13.	9.	.29
+	HYDROGRAPH AT	E1	32.	4.07	2.	0.	0.	.01
+	ROUTED TO	RE1	32.	4.13	2.	0.	0.	.01
+	HYDROGRAPH AT	E2	28.	4.10	3.	1.	0.	.02
+	ROUTED TO	RE2	28.	4.13	3.	1.	0.	.02
	HYDROGRAPH AT							

+		P13	125.	4.10	11.	3.	2.	.06
+	DIVERSION TO	DB13	43.	3.87	2.	1.	0.	.06
+	HYDROGRAPH AT	DT13	125.	4.10	9.	2.	2.	.06
+	3 COMBINED AT	CP13	182.	4.10	14.	3.	2.	.09
+	ROUTED TO	R13	178.	4.17	14.	3.	2.	.09
+	HYDROGRAPH AT	P12	69.	4.17	8.	2.	2.	.04
+	DIVERSION TO	DB12	53.	4.03	2.	1.	0.	.04
+	HYDROGRAPH AT	DT12	69.	4.17	6.	2.	1.	.04
+	2 COMBINED AT	CP12	246.	4.17	20.	5.	4.	.13
+	HYDROGRAPH AT	E3	74.	4.40	12.	3.	2.	.08
+	ROUTED TO	RE3	74.	4.43	12.	3.	2.	.08
+	HYDROGRAPH AT	P10	98.	4.13	11.	3.	2.	.05
+	DIVERSION TO	DB10	46.	3.93	2.	1.	0.	.05
+	HYDROGRAPH AT	DT10	98.	4.13	9.	2.	2.	.05
+	2 COMBINED AT	CP10	142.	4.20	21.	5.	4.	.14
+	ROUTED TO	R10	141.	4.33	21.	5.	4.	.14
+	HYDROGRAPH AT	P11	39.	4.30	8.	2.	2.	.04
+	DIVERSION TO	DB11	39.	4.27	2.	1.	0.	.04
+	HYDROGRAPH AT	DT11	39.	4.33	6.	1.	1.	.04
+	2 COMBINED AT	CP11	180.	4.33	27.	7.	5.	.18
+	HYDROGRAPH AT	E4	33.	4.37	6.	1.	1.	.04
+	ROUTED TO	RE4	33.	4.40	6.	1.	1.	.04

+	HYDROGRAPH AT	P9	82.	4.10	9.	2.	2.	.05
+	DIVERSION TO	DB9	45.	3.93	2.	0.	0.	.05
+	HYDROGRAPH AT	DT9	82.	4.10	7.	2.	1.	.05
+	HYDROGRAPH AT	HV1	6.	4.30	1.	0.	0.	.01
+	3 COMBINED AT	CP9	104.	4.13	14.	4.	3.	.09
+	ROUTED TO	R9	104.	4.17	14.	4.	3.	.09
+	HYDROGRAPH AT	P8	14.	4.23	3.	1.	0.	.01
+	DIVERSION TO	DB8	12.	4.10	1.	0.	0.	.01
+	HYDROGRAPH AT	DT8	14.	4.23	2.	1.	0.	.01
+	HYDROGRAPH AT	P7	17.	4.20	3.	1.	1.	.01
+	DIVERSION TO	DB7	13.	4.07	1.	0.	0.	.01
+	HYDROGRAPH AT	DT7	17.	4.20	2.	1.	0.	.01
+	3 COMBINED AT	CP7	135.	4.17	18.	5.	3.	.12
+	ROUTED TO	R7	134.	4.20	18.	5.	3.	.12
+	HYDROGRAPH AT	P6	46.	4.50	14.	4.	3.	.07
+	DIVERSION TO	DB6	45.	4.40	4.	1.	1.	.07
+	HYDROGRAPH AT	DT6	46.	4.50	11.	3.	2.	.07
+	2 COMBINED AT	CP6	145.	4.47	29.	7.	5.	.19
+	3 COMBINED AT	HPVLY	498.	4.20	75.	19.	14.	.50
+	HYDROGRAPH AT	A11MA	207.	4.07	17.	4.	3.	.07
+	DIVERSION TO	DA11MA	182.	4.00	7.	2.	1.	.07

+	HYDROGRAPH AT	A11MAQ	207.	4.07	10.	2.	2.	.07
+	ROUTED TO	SA11MA	30.	4.47	10.	2.	2.	.07
+	ROUTED TO	RA11MA	30.	4.70	10.	2.	2.	.07
+	HYDROGRAPH AT	A11MB	494.	4.10	51.	13.	9.	.19
+	DIVERSION TO	DA11MB	142.	3.77	7.	2.	1.	.19
+	HYDROGRAPH AT	A11MBQ	494.	4.10	43.	11.	8.	.19
+	ROUTED TO	SA11MB	267.	4.33	41.	11.	8.	.19
+	HYDROGRAPH AT	A11NA	198.	4.07	16.	4.	3.	.08
+	ROUTED TO	SA11NA	32.	4.47	16.	4.	3.	.08
+	ROUTED TO	RA11NA	32.	4.70	16.	4.	3.	.08
+	3 COMBINED AT	CA11MB	308.	4.37	66.	17.	12.	.34
+	ROUTED TO	RA11MB	279.	4.60	66.	17.	12.	.34
+	HYDROGRAPH AT	A11O	116.	4.13	12.	3.	2.	.06
+	ROUTED TO	SA11O	35.	4.53	12.	3.	2.	.06
+	ROUTED TO	RA11O	35.	4.83	12.	3.	2.	.06
+	HYDROGRAPH AT	A11KB	227.	4.13	23.	6.	4.	.11
+	ROUTED TO	SA11KB	32.	4.67	21.	6.	4.	.11
+	HYDROGRAPH AT	A11KA	191.	4.07	19.	5.	3.	.08
+	ROUTED TO	SA11KA	31.	4.57	18.	5.	3.	.08
+	ROUTED TO	RA11KA	31.	4.80	18.	5.	3.	.08
+	3 COMBINED AT	CA11KB	98.	4.80	51.	14.	10.	.24
	ROUTED TO							

+		RA11KB	98.	5.03	51.	14.	10.	.24
+	HYDROGRAPH AT	A11G	90.	4.23	12.	3.	2.	.06
+	ROUTED TO	RA11GN	86.	4.43	12.	3.	2.	.06
+	HYDROGRAPH AT	A11KC	276.	4.13	26.	7.	5.	.13
+	ROUTED TO	SA11KC	82.	4.47	25.	7.	5.	.13
+	3 COMBINED AT	CA11KC	240.	4.50	87.	23.	17.	.44
+	ROUTED TO	RA11KC	237.	4.60	87.	23.	17.	.44
+	HYDROGRAPH AT	A11J	157.	4.37	25.	6.	5.	.11
+	ROUTED TO	SA11J	88.	4.77	25.	6.	5.	.11
+	3 COMBINED AT	CA11J	515.	4.67	170.	45.	33.	.89
+	HYDROGRAPH AT	A11L	382.	4.30	72.	18.	13.	.26
+	DIVERSION TO	DA11L	285.	4.10	15.	4.	3.	.26
+	HYDROGRAPH AT	DA11LQ	382.	4.30	57.	14.	10.	.26
+	ROUTED TO	RA11L	375.	4.50	57.	14.	10.	.26
+	HYDROGRAPH AT	A11I	298.	4.20	43.	11.	8.	.15
+	DIVERSION TO	DA11I	298.	4.20	24.	6.	4.	.15
+	HYDROGRAPH AT	DA11IQ	249.	4.37	19.	5.	3.	.15
+	3 COMBINED AT	CA11I	919.	4.63	241.	63.	45.	1.31
+	ROUTED TO	RA11I	898.	4.83	240.	63.	45.	1.31
+	HYDROGRAPH AT	A11EA	143.	4.40	24.	6.	4.	.14
+	ROUTED TO	RA11EA	141.	4.53	24.	6.	4.	.14
+	HYDROGRAPH AT	A11EB	126.	4.60	29.	7.	5.	.19

+	3 COMBINED AT	CA11EB	1040.	4.83	281.	73.	53.	1.64
+	HYDROGRAPH AT	41	126.	4.13	10.	3.	2.	.05
+	ROUTED TO	B41	96.	4.23	10.	3.	2.	.05
+	HYDROGRAPH AT	42	180.	4.13	17.	4.	3.	.08
+	ROUTED TO	B42	136.	4.23	17.	4.	3.	.08
+	2 COMBINED AT	C41	232.	4.23	27.	7.	5.	.13
+	ROUTED TO	RC41	212.	4.63	27.	7.	5.	.13
+	HYDROGRAPH AT	A11F	368.	4.40	54.	14.	10.	.33
+	2 COMBINED AT	CA11F	517.	4.53	81.	20.	15.	.46
+	2 COMBINED AT	CA11E	1279.	4.80	343.	89.	64.	2.11
+	ROUTED TO	RA11E	1270.	4.90	342.	89.	64.	2.11
+	HYDROGRAPH AT	A09U	324.	4.17	33.	8.	6.	.17
+	DIVERSION TO	A09UI	0.	.00	0.	0.	0.	.17
+	HYDROGRAPH AT	DA09U	324.	4.17	33.	8.	6.	.17
+	ROUTED TO	RA09UW	238.	4.67	33.	8.	6.	.17
+	HYDROGRAPH AT	A09T	210.	4.33	27.	7.	5.	.18
+	2 COMBINED AT	CA09T	383.	4.43	60.	15.	11.	.36
+	DIVERSION TO	A09TI	0.	.00	0.	0.	0.	.36
+	HYDROGRAPH AT	DA09T	383.	4.43	60.	15.	11.	.36
+	ROUTED TO	RA09TW	360.	4.70	60.	15.	11.	.36
+	HYDROGRAPH AT	A11A	452.	4.33	69.	17.	13.	.30

+	DIVERSION TO	DA11A	315.	4.10	16.	4.	3.	.30
+	HYDROGRAPH AT	DA11AQ	452.	4.33	54.	14.	10.	.30
+	3 COMBINED AT	CX23	1591.	4.83	430.	112.	81.	2.76
+	ROUTED TO	RX23	1562.	5.03	429.	112.	81.	2.76
+	HYDROGRAPH AT	S1	124.	4.40	21.	5.	4.	.12
+	HYDROGRAPH AT	P2	111.	4.10	11.	3.	2.	.05
+	DIVERSION TO	RB2	111.	4.10	10.	2.	2.	.05
+	HYDROGRAPH AT	RT2	18.	4.57	1.	0.	0.	.05
+	3 COMBINED AT	CS1	1585.	5.03	441.	115.	83.	2.93
+	ROUTED TO	RS1	1584.	5.03	441.	115.	83.	2.93
+	HYDROGRAPH AT	S2	31.	4.07	2.	0.	0.	.01
+	HYDROGRAPH AT	S3	18.	4.03	1.	0.	0.	.01
+	3 COMBINED AT	CS2	1583.	5.03	442.	116.	83.	2.95
+	ROUTED TO	RS2	1583.	5.07	442.	116.	83.	2.95
+	HYDROGRAPH AT	P3	85.	4.17	11.	3.	2.	.05
+	DIVERSION TO	RB3	85.	4.17	11.	3.	2.	.05
+	HYDROGRAPH AT	RT3	9.	5.17	1.	0.	0.	.05
+	2 COMBINED AT	CP3	1583.	5.07	442.	116.	83.	3.01
+	HYDROGRAPH AT	P4b	45.	4.07	4.	1.	1.	.02
+	DIVERSION TO	RB4b	12.	3.80	1.	0.	0.	.02
+	HYDROGRAPH AT	RT4b	45.	4.07	3.	1.	1.	.02
	HYDROGRAPH AT							

+		S4	16.	4.23	2.	1.	0.	.01
+	HYDROGRAPH AT	P1	42.	4.20	5.	1.	1.	.03
+	DIVERSION TO	DB1	33.	4.07	1.	0.	0.	.03
+	HYDROGRAPH AT	DT1	42.	4.20	4.	1.	1.	.03
+	2 COMBINED AT	CP1	57.	4.20	6.	2.	1.	.04
+	HYDROGRAPH AT	HV2	7.	5.20	5.	1.	1.	.03
+	ROUTED TO	RHV2	7.	5.27	5.	1.	1.	.03
+	DIVERSION TO	DBHV2	7.	5.27	1.	0.	0.	.03
+	HYDROGRAPH AT	DTHV2	7.	5.50	4.	1.	1.	.03
+	HYDROGRAPH AT	P4a	51.	4.20	8.	2.	1.	.04
+	DIVERSION TO	DB4a	30.	4.00	1.	0.	0.	.04
+	HYDROGRAPH AT	DT4a	51.	4.20	6.	2.	1.	.04
+	5 COMBINED AT	SOUTH	1588.	5.07	454.	119.	86.	3.14
+	HYDROGRAPH AT	N11O	78.	4.30	8.	2.	1.	.05
+	DIVERSION TO	N11OI	70.	4.30	7.	2.	1.	.05
+	HYDROGRAPH AT	DN11O	8.	4.30	1.	0.	0.	.05
+	ROUTED TO	RN11OW	5.	5.20	1.	0.	0.	.05
+	HYDROGRAPH AT	DRA09T	0.	.00	0.	0.	0.	.36
+	ROUTED TO	RA09TS	0.	.00	0.	0.	0.	.36
+	HYDROGRAPH AT	A09R	104.	4.57	20.	5.	4.	.14
+	3 COMBINED AT	CA09R	104.	4.57	21.	5.	4.	.20
+	DIVERSION TO	A09RI	104.	4.57	21.	5.	4.	.20

+	HYDROGRAPH AT	DA09R	1.	5.20	0.	0.	0.	.20
+	ROUTED TO	RA09RW	1.	7.07	0.	0.	0.	.20
+	HYDROGRAPH AT	A09S	116.	4.20	21.	5.	4.	.07
+	DIVERSION TO	DA09S	116.	4.20	14.	4.	3.	.07
+	HYDROGRAPH AT	DA09SQ	69.	4.60	7.	2.	1.	.07
+	2 COMBINED AT	CA09S	69.	4.60	7.	2.	1.	.27
+	ROUTED TO	RA09SW	61.	4.77	7.	2.	1.	.27
+	HYDROGRAPH AT	A09QA	112.	4.30	13.	3.	2.	.09
+	2 COMBINED AT	CA09QA	111.	4.30	20.	5.	4.	.36
+	DIVERSION TO	A09QAI	111.	4.30	19.	5.	4.	.36
+	HYDROGRAPH AT	DA09QA	1.	5.97	0.	0.	0.	.36
+	ROUTED TO	RA09QW	1.	6.10	0.	0.	0.	.36
+	HYDROGRAPH AT	A99YA	157.	4.23	16.	4.	3.	.10
+	2 COMBINED AT	CA99YA	157.	4.23	17.	4.	3.	.46
+	ROUTED TO	RA99YA	152.	4.30	17.	4.	3.	.46
+	HYDROGRAPH AT	A99YB	205.	4.30	23.	6.	4.	.17
+	3 COMBINED AT	CA99YB	1585.	5.07	473.	124.	89.	3.77
+	3 COMBINED AT	AFR1	1744.	5.03	558.	146.	105.	4.56
+	HYDROGRAPH AT	BA09UI	0.	.00	0.	0.	0.	.17
+	ROUTED TO	RA09US	0.	.00	0.	0.	0.	.17
+	HYDROGRAPH AT	N11NB	159.	4.37	24.	6.	4.	.14

+	2 COMBINED AT	CN11NB	159.	4.37	24.	6.	4.	.14
+	ROUTED TO	RN11NW	148.	4.77	24.	6.	4.	.14
+	HYDROGRAPH AT	BN11OI	70.	4.30	7.	2.	1.	.05
+	ROUTED TO	RN11OS	57.	4.73	7.	2.	1.	.05
+	HYDROGRAPH AT	N11M	137.	4.27	14.	3.	2.	.10
+	3 COMBINED AT	CN11M	235.	4.73	45.	11.	8.	.24
+	DIVERSION TO	N11MI	59.	4.73	11.	3.	2.	.24
+	HYDROGRAPH AT	DN11M	176.	4.73	34.	8.	6.	.24
+	ROUTED TO	RN11MS	164.	4.97	34.	8.	6.	.24
+	HYDROGRAPH AT	N11J	214.	4.37	41.	10.	7.	.24
+	DIVERSION TO	LN11JD	80.	4.03	4.	1.	1.	.24
+	HYDROGRAPH AT	LN11J	214.	4.37	38.	9.	7.	.24
+	2 COMBINED AT	CN11J	299.	4.50	71.	18.	13.	.48
+	DIVERSION TO	N11JI	299.	4.50	71.	18.	13.	.48
+	HYDROGRAPH AT	DN11J	0.	.00	0.	0.	0.	.48
+	ROUTED TO	RN11JW	0.	.00	0.	0.	0.	.48
+	HYDROGRAPH AT	DRN11M	59.	4.73	11.	3.	2.	.24
+	ROUTED TO	RN11MW	52.	5.27	11.	3.	2.	.24
+	2 COMBINED AT	CX4	52.	5.27	11.	3.	2.	.48
+	ROUTED TO	RX4	50.	5.50	11.	3.	2.	.48
+	HYDROGRAPH AT	A09O	119.	4.70	31.	8.	6.	.19
	ROUTED TO							

+		SA09O	45.	5.73	28.	8.	6.	.19
+	HYDROGRAPH AT	BA09RI	104.	4.57	21.	5.	4.	.20
+	ROUTED TO	RA09RS	100.	4.90	21.	5.	4.	.20
+	3 COMBINED AT	CA09O	152.	5.30	57.	15.	11.	.68
+	DIVERSION TO	A09OI	152.	5.30	57.	15.	11.	.68
+	HYDROGRAPH AT	DA09O	0.	.00	0.	0.	0.	.68
+	ROUTED TO	RA09OW	0.	.00	0.	0.	0.	.68
+	HYDROGRAPH AT	A09P	184.	4.47	31.	8.	6.	.19
+	ROUTED TO	SA09P	54.	5.23	30.	8.	6.	.19
+	2 COMBINED AT	CA09P	52.	5.23	28.	7.	5.	.87
+	ROUTED TO	RA09P	52.	5.27	28.	7.	5.	.87
+	HYDROGRAPH AT	BA09QA	111.	4.30	19.	5.	4.	.36
+	ROUTED TO	RA09QB	104.	4.53	19.	5.	4.	.36
+	HYDROGRAPH AT	A09QB	163.	4.27	23.	6.	4.	.14
+	3 COMBINED AT	CA09Q	234.	4.50	66.	17.	12.	1.01
+	DIVERSION TO	A09QI	234.	4.50	66.	17.	12.	1.01
+	HYDROGRAPH AT	DA09Q	0.	.00	0.	0.	0.	1.01
+	ROUTED TO	RA09QW	0.	.00	0.	0.	0.	1.01
+	HYDROGRAPH AT	A10A	266.	4.30	32.	8.	6.	.19
+	2 COMBINED AT	CA10A	219.	4.30	29.	7.	5.	1.20
+	ROUTED TO	RA10A	217.	4.37	29.	7.	5.	1.20
+	HYDROGRAPH AT	A99X	507.	4.20	57.	14.	10.	.26

+	2 COMBINED AT	CA99X	562.	4.23	82.	21.	15.	1.46
+	2 COMBINED AT	AFR2	1760.	5.03	604.	159.	115.	6.02
+	HYDROGRAPH AT	BA09OI	152.	5.30	57.	15.	11.	.68
+	ROUTED TO	RA09OS	150.	5.57	57.	15.	11.	.68
+	HYDROGRAPH AT	A09K	382.	4.57	60.	15.	11.	.41
+	DIVERSION TO	A09KI	279.	4.57	44.	11.	8.	.41
+	HYDROGRAPH AT	DA09K	103.	4.57	16.	4.	3.	.41
+	2 COMBINED AT	CX7	183.	5.40	75.	20.	14.	.41
+	ROUTED TO	RX7S	183.	5.53	74.	20.	14.	.41
+	HYDROGRAPH AT	N11NA	60.	4.07	4.	1.	1.	.02
+	ROUTED TO	RN11NA	46.	4.43	4.	1.	1.	.02
+	HYDROGRAPH AT	N11NC	250.	4.23	27.	7.	5.	.17
+	2 COMBINED AT	CN11NC	265.	4.27	31.	8.	6.	.19
+	DIVERSION TO	N11NP	149.	4.03	24.	6.	4.	.19
+	HYDROGRAPH AT	DN11NC	116.	4.27	7.	2.	1.	.19
+	ROUTED TO	RN11NC	111.	4.37	7.	2.	1.	.19
+	HYDROGRAPH AT	N11ND	62.	4.23	10.	2.	2.	.05
+	HYDROGRAPH AT	N11K	152.	4.33	28.	7.	5.	.17
+	3 COMBINED AT	CN11K	318.	4.37	44.	11.	8.	.41
+	DIVERSION TO	N11KP	55.	3.97	19.	5.	4.	.41
+	HYDROGRAPH AT	DN11KS	263.	4.37	24.	6.	4.	.41

+	ROUTED TO	RN11K	246.	4.63	24.	6.	4.	.41
+	DIVERSION TO	X5I	122.	4.63	7.	2.	1.	.41
+	HYDROGRAPH AT	DX5	124.	4.63	17.	4.	3.	.41
+	ROUTED TO	RX5W	118.	4.93	17.	4.	3.	.41
+	HYDROGRAPH AT	N11H	410.	4.57	61.	15.	11.	.42
+	2 COMBINED AT	CN11H	364.	4.57	72.	18.	13.	.83
+	ROUTED TO	RN11H	351.	4.80	72.	18.	13.	.83
+	HYDROGRAPH AT	BN11JI	299.	4.50	71.	18.	13.	.48
+	ROUTED TO	RN11JS	289.	4.93	71.	18.	13.	.48
+	HYDROGRAPH AT	N11G	526.	4.57	73.	18.	13.	.52
+	3 COMBINED AT	CN11G	855.	4.80	191.	48.	34.	1.36
+	ROUTED TO	RN11G	844.	4.90	191.	48.	34.	1.36
+	HYDROGRAPH AT	N11DA	295.	4.30	54.	14.	10.	.26
+	DIVERSION TO	LDAOUT	277.	4.23	16.	4.	3.	.26
+	HYDROGRAPH AT	LN11DA	295.	4.30	38.	10.	7.	.26
+	ROUTED TO	SN11DA	121.	5.00	38.	10.	7.	.26
+	DIVERSION TO	D11DAS	21.	5.00	8.	2.	1.	.26
+	HYDROGRAPH AT	N11DAW	100.	5.00	30.	8.	5.	.26
+	ROUTED TO	RN11DA	100.	5.20	30.	8.	5.	.26
+	HYDROGRAPH AT	N11FB	114.	4.33	25.	6.	5.	.12
+	DIVERSION TO	LN1FBD	114.	4.33	21.	5.	4.	.12
	HYDROGRAPH AT							

+		LN11FB	29.	5.57	4.	1.	1.	.12
+	2 COMBINED AT	CN11FB	124.	5.57	34.	8.	6.	.38
+	2 COMBINED AT	C98RGL	881.	4.93	210.	53.	38.	1.73
+	ROUTED TO	RN11FB	875.	4.97	210.	53.	38.	1.73
+	HYDROGRAPH AT	DRA09K	279.	4.57	44.	11.	8.	.41
+	ROUTED TO	RA09KS	271.	4.73	44.	11.	8.	.41
+	HYDROGRAPH AT	N11FA	194.	4.30	38.	10.	7.	.18
+	DIVERSION TO	LN1FAD	194.	4.30	16.	4.	3.	.18
+	HYDROGRAPH AT	LN11FA	185.	4.43	23.	6.	4.	.18
+	HYDROGRAPH AT	A09GA	200.	4.07	22.	6.	4.	.07
+	DIVERSION TO	L09GAD	198.	4.07	12.	3.	2.	.07
+	HYDROGRAPH AT	LA09GA	193.	4.10	10.	3.	2.	.07
+	4 COMBINED AT	CN11FA	1124.	4.93	269.	67.	49.	1.99
+	ROUTED TO	RN11FA	1120.	4.97	269.	67.	49.	1.99
+	HYDROGRAPH AT	A09GB	27.	4.67	10.	3.	2.	.05
+	DIVERSION TO	L09GBD	27.	4.67	6.	1.	1.	.05
+	HYDROGRAPH AT	LA09GB	20.	5.40	5.	1.	1.	.05
+	2 COMBINED AT	CA09G	1116.	4.97	272.	68.	49.	2.04
+	DIVERSION TO	A09GI	150.	4.73	48.	12.	9.	2.04
+	HYDROGRAPH AT	DA09G	964.	4.97	224.	56.	40.	2.04
+	ROUTED TO	RA09GW	956.	5.03	224.	56.	40.	2.04
+	2 COMBINED AT	CX8	990.	5.07	274.	70.	50.	2.45

+	ROUTED TO	RX8W	981.	5.17	273.	70.	50.	2.45
+	HYDROGRAPH AT	A09H	199.	4.43	50.	13.	9.	.24
+	DIVERSION TO	LA09HD	199.	4.43	25.	6.	5.	.24
+	HYDROGRAPH AT	LA09H	166.	4.80	25.	6.	5.	.24
+	2 COMBINED AT	CA09H1	1058.	5.17	287.	73.	53.	2.69
+	HYDROGRAPH AT	A09J	166.	4.33	34.	9.	6.	.17
+	DIVERSION TO	LA09JD	166.	4.33	16.	4.	3.	.17
+	HYDROGRAPH AT	LA09J	151.	4.53	19.	5.	3.	.17
+	DIVERSION TO	A09JI	0.	.00	0.	0.	0.	.17
+	HYDROGRAPH AT	DA09J	151.	4.53	19.	5.	3.	.17
+	ROUTED TO	RA09JS	130.	4.87	19.	5.	3.	.17
+	2 COMBINED AT	CA09H	1122.	5.13	298.	76.	55.	2.85
+	ROUTED TO	RA09H	1120.	5.17	298.	76.	55.	2.85
+	HYDROGRAPH AT	BA09QI	234.	4.50	66.	17.	12.	1.01
+	ROUTED TO	RA09QS	230.	4.63	66.	17.	12.	1.01
+	HYDROGRAPH AT	A09M	251.	4.47	47.	12.	9.	.25
+	DIVERSION TO	LA09MD	230.	4.33	14.	3.	3.	.25
+	HYDROGRAPH AT	LA09M	251.	4.47	34.	8.	6.	.25
+	2 COMBINED AT	CA09M	500.	4.57	106.	27.	19.	.25
+	ROUTED TO	RA09M	497.	4.60	106.	27.	19.	.25
+	HYDROGRAPH AT	A09N	138.	4.27	24.	6.	4.	.11

+	2 COMBINED AT	CA09N	598.	4.57	128.	33.	24.	.36
+	ROUTED TO	LA09N	415.	4.93	123.	33.	24.	.36
+	ROUTED TO	RA09N	414.	5.03	123.	33.	24.	.36
+	HYDROGRAPH AT	DRA09J	0.	.00	0.	0.	0.	.17
+	ROUTED TO	RA09JW	0.	.00	0.	0.	0.	.17
+	HYDROGRAPH AT	A09L	142.	4.33	29.	7.	5.	.14
+	3 COMBINED AT	CA09L	480.	5.03	149.	40.	29.	.50
+	ROUTED TO	LA09L	478.	5.07	148.	40.	29.	.50
+	ROUTED TO	RA09LS	475.	5.10	148.	40.	29.	.50
+	HYDROGRAPH AT	A09IH	103.	4.27	19.	5.	3.	.09
+	2 COMBINED AT	CA09IH	490.	5.10	162.	44.	32.	.59
+	ROUTED TO	LA09IH	468.	5.20	159.	44.	32.	.59
+	HYDROGRAPH AT	A09I	134.	4.37	30.	8.	5.	.13
+	DIVERSION TO	LA09ID	134.	4.37	11.	3.	2.	.13
+	HYDROGRAPH AT	LA09I	131.	4.47	19.	5.	3.	.13
+	3 COMBINED AT	CX10	1301.	5.23	429.	113.	81.	3.57
+	ROUTED TO	RX10	1292.	5.37	428.	113.	81.	3.57
+	HYDROGRAPH AT	A99V	276.	4.40	35.	9.	6.	.21
+	2 COMBINED AT	CA99V	1307.	5.37	445.	119.	86.	3.77
+	HYDROGRAPH AT	A10	347.	4.23	33.	8.	6.	.21
+	HYDROGRAPH AT	A99W	237.	4.57	46.	12.	8.	.22
	DIVERSION TO							

+		LA99WD	211.	4.37	14.	3.	2.	.22
+	HYDROGRAPH AT	LA99W	237.	4.57	33.	8.	6.	.22
+	4 COMBINED AT	AFR3	2411.	5.23	972.	259.	187.	10.22
+	HYDROGRAPH AT	DRA09G	150.	4.73	48.	12.	9.	2.04
+	ROUTED TO	RA09GS	150.	5.60	48.	12.	9.	2.04
+	HYDROGRAPH AT	A09F	426.	4.53	84.	21.	15.	.37
+	DIVERSION TO	LA09FD	392.	4.37	27.	7.	5.	.37
+	HYDROGRAPH AT	LA09F	426.	4.53	57.	14.	10.	.37
+	2 COMBINED AT	CA09F	426.	4.53	109.	27.	20.	.37
+	DIVERSION TO	A09FI	65.	4.53	12.	3.	2.	.37
+	HYDROGRAPH AT	DA09F	360.	4.53	97.	24.	18.	.37
+	ROUTED TO	RA09FW	363.	4.63	97.	24.	18.	.37
+	HYDROGRAPH AT	A09E	148.	4.33	33.	8.	6.	.15
+	DIVERSION TO	LA09ED	148.	4.33	17.	4.	3.	.15
+	HYDROGRAPH AT	LA09E	123.	4.67	17.	4.	3.	.15
+	2 COMBINED AT	CA09E	478.	4.67	113.	29.	21.	.51
+	ROUTED TO	RA09E	443.	4.83	113.	29.	21.	.51
+	HYDROGRAPH AT	A09D	577.	4.13	62.	15.	11.	.25
+	DIVERSION TO	LA09DD	577.	4.13	31.	8.	6.	.25
+	HYDROGRAPH AT	LA09D	553.	4.20	31.	8.	6.	.25
+	2 COMBINED AT	CA09C*	458.	4.23	139.	35.	25.	.77
+	ROUTED TO	RA09C*	452.	4.87	139.	35.	25.	.77

+	HYDROGRAPH AT	A09C	78.	4.40	11.	3.	2.	.07
+	2 COMBINED AT	CA09C	480.	4.27	148.	38.	27.	.84
+	DIVERSION TO	DA09C	480.	4.27	148.	38.	27.	.84
+	HYDROGRAPH AT	DIA09C	0.	.00	0.	0.	0.	.84
+	ROUTED TO	RA09C	0.	.00	0.	0.	0.	.84
+	HYDROGRAPH AT	A09B	115.	4.07	12.	3.	2.	.04
+	ROUTED TO	RA09B	91.	4.50	11.	3.	2.	.04
+	HYDROGRAPH AT	A09A	72.	4.57	18.	4.	3.	.08
+	3 COMBINED AT	CA09A	141.	4.50	28.	7.	5.	.96
+	DIVERSION TO	A09AI	13.	4.50	0.	0.	0.	.96
+	HYDROGRAPH AT	DA09AO	128.	4.53	27.	7.	5.	.96
+	ROUTED TO	RA09AW	98.	5.70	27.	7.	5.	.96
+	HYDROGRAPH AT	A99T	83.	4.03	6.	1.	1.	.03
+	DIVERSION TO	LA99TD	16.	3.73	1.	0.	0.	.03
+	HYDROGRAPH AT	LA99T	83.	4.03	5.	1.	1.	.03
+	ROUTED TO	RA99T	70.	4.17	5.	1.	1.	.03
+	HYDROGRAPH AT	A09	249.	4.30	30.	8.	5.	.18
+	3 COMBINED AT	CA09	241.	4.27	56.	15.	11.	1.17
+	HYDROGRAPH AT	A99U	82.	4.30	13.	3.	2.	.07
+	3 COMBINED AT	AFR4	2400.	5.23	1009.	269.	194.	11.46
+	HYDROGRAPH AT	A99S	47.	4.63	10.	2.	2.	.08

+	HYDROGRAPH AT	A08A	70.	4.80	22.	6.	4.	.14
+	ROUTED TO	RA08A	69.	4.97	22.	6.	4.	.14
+	HYDROGRAPH AT	A99R	57.	4.20	6.	1.	1.	.04
+	ROUTED TO	RA99R	51.	4.47	6.	1.	1.	.04
+	HYDROGRAPH AT	A08	185.	4.07	11.	3.	2.	.08
+	4 COMBINED AT	CA08	195.	4.07	47.	12.	9.	.33
+	2 COMBINED AT	AFR5	2416.	5.23	1023.	273.	197.	11.79
+	HYDROGRAPH AT	A07F.1	96.	4.63	28.	7.	5.	.13
+	HYDROGRAPH AT	A07F.2	61.	4.43	14.	3.	2.	.07
+	HYDROGRAPH AT	A07E.8	16.	4.03	2.	0.	0.	.01
+	3 COMBINED AT	CA07F	156.	4.53	43.	11.	8.	.21
+	ROUTED TO	RA07F	155.	4.57	43.	11.	8.	.21
+	HYDROGRAPH AT	A07E.7	19.	4.03	2.	0.	0.	.01
+	2 COMBINED AT	CA07E7	156.	4.53	45.	11.	8.	.22
+	ROUTED TO	RA07E7	156.	4.60	45.	11.	8.	.22
+	ROUTED TO	RA07E	155.	4.70	45.	11.	8.	.22
+	HYDROGRAPH AT	A07G.1	425.	4.20	60.	15.	11.	.23
+	DIVERSION TO	LA07GD	425.	4.17	26.	7.	5.	.23
+	HYDROGRAPH AT	LA07G	410.	4.23	34.	9.	6.	.23
+	ROUTED TO	RA07G	348.	4.47	34.	9.	6.	.23
+	DIVERSION TO	DA07GE	174.	4.47	17.	4.	3.	.23
	HYDROGRAPH AT							

+		DA07G	174.	4.47	17.	4.	3.	.23
+	HYDROGRAPH AT	A07G.2	23.	4.30	6.	1.	1.	.03
+	ROUTED TO	RA07G2	23.	4.40	6.	1.	1.	.03
+	HYDROGRAPH AT	A07E.3	145.	4.10	15.	4.	3.	.06
+	2 COMBINED AT	CA07E3	155.	4.10	20.	5.	4.	.09
+	DIVERSION TO	DI7E.3	2.	1.17	0.	0.	0.	.09
+	HYDROGRAPH AT	DI7E.3	155.	4.10	20.	5.	4.	.09
+	ROUTED TO	RA07E3	150.	4.20	20.	5.	4.	.09
+	HYDROGRAPH AT	A07E.2	46.	4.13	6.	1.	1.	.03
+	DIVERSION TO	DI7E.2	0.	1.40	0.	0.	0.	.03
+	HYDROGRAPH AT	DI7E.2	46.	4.13	6.	1.	1.	.03
+	ROUTED TO	RA07E2	42.	4.40	6.	1.	1.	.03
+	HYDROGRAPH AT	A07E.1	64.	4.17	11.	3.	2.	.04
+	DIVERSION TO	DI7E.1	45.	4.00	3.	1.	1.	.04
+	HYDROGRAPH AT	DI7E.1	64.	4.17	8.	2.	1.	.04
+	ROUTED TO	RA07E1	62.	4.30	8.	2.	1.	.04
+	HYDROGRAPH AT	A07E.6	66.	4.03	6.	2.	1.	.02
+	DIVERSION TO	DI7E.6	1.	1.53	0.	0.	0.	.02
+	HYDROGRAPH AT	DI7E.6	66.	4.03	6.	1.	1.	.02
+	ROUTED TO	RA07E6	63.	4.10	6.	1.	1.	.02
+	HYDROGRAPH AT	A07E.5	81.	4.10	10.	3.	2.	.04
+	2 COMBINED AT	CA07E5	144.	4.10	16.	4.	3.	.05

+	ROUTED TO	RA07E5	140.	4.13	16.	4.	3.	.05
+	HYDROGRAPH AT	A07E.4	122.	4.13	16.	4.	3.	.06
+	6 COMBINED AT	CA07E4	499.	4.43	83.	21.	15.	.50
+	DIVERSION TO	DI7E.4	6.	2.40	1.	0.	0.	.50
+	HYDROGRAPH AT	DI7E.4	499.	4.43	82.	21.	15.	.50
+	HYDROGRAPH AT	DA07GE	174.	4.47	17.	4.	3.	.23
+	2 COMBINED AT	CA07E1	665.	4.43	99.	25.	18.	.50
+	ROUTED TO	DIA.1	495.	4.60	98.	25.	18.	.50
+	ROUTED TO	DIA.2	163.	5.30	85.	25.	18.	.50
+	HYDROGRAPH AT	DA09C	480.	4.27	148.	38.	27.	.84
+	ROUTED TO	RA09C	454.	5.00	148.	38.	27.	.84
+	HYDROGRAPH AT	A07H	217.	4.13	23.	6.	4.	.09
+	2 COMBINED AT	CA07H	472.	4.43	166.	43.	31.	.93
+	ROUTED TO	DIB.1	423.	5.13	158.	43.	31.	.93
+	ROUTED TO	DIB.2	331.	5.70	138.	43.	31.	.93
+	HYDROGRAPH AT	A07C	187.	4.43	29.	7.	5.	.17
+	3 COMBINED AT	CA07C1	432.	5.70	227.	71.	51.	1.60
+	ROUTED TO	DIB.3	318.	6.43	191.	56.	40.	1.60
+	2 COMBINED AT	CA07C2	349.	6.40	203.	66.	47.	1.82
+	ROUTED TO	RA07C	349.	6.43	203.	66.	47.	1.82
+	HYDROGRAPH AT	DA09AI	13.	4.50	0.	0.	0.	.96

+	ROUTED TO	RA09AI	4.	5.23	0.	0.	0.	.96
+	HYDROGRAPH AT	A08B	122.	4.37	20.	5.	4.	.10
+	2 COMBINED AT	CA08B	122.	4.37	21.	5.	4.	.10
+	ROUTED TO	RA08B	115.	4.73	21.	5.	4.	.10
+	HYDROGRAPH AT	A07D	117.	5.03	39.	10.	7.	.23
+	3 COMBINED AT	CA07D	393.	6.37	245.	77.	56.	2.15
+	ROUTED TO	RA07D	393.	6.47	245.	77.	56.	2.15
+	HYDROGRAPH AT	A07B.1	129.	4.13	16.	4.	3.	.08
+	DIVERSION TO	DA07B1	103.	4.03	5.	1.	1.	.08
+	HYDROGRAPH AT	DA07B1	129.	4.13	11.	3.	2.	.08
+	2 COMBINED AT	CA07B1	392.	6.47	249.	79.	57.	2.22
+	ROUTED TO	RA07B1	391.	6.57	249.	79.	57.	2.22
+	HYDROGRAPH AT	A07B.2	272.	4.13	30.	7.	5.	.14
+	HYDROGRAPH AT	A07B.3	315.	4.17	40.	10.	7.	.19
+	ROUTED TO	RA07B3	281.	4.33	40.	10.	7.	.19
+	2 COMBINED AT	CA07B2	486.	4.23	69.	17.	13.	.32
+	ROUTED TO	RA07B2	481.	4.30	69.	17.	13.	.32
+	2 COMBINED AT	CA07B3	469.	4.47	289.	94.	68.	2.55
+	ROUTED TO	RA07B1	468.	4.53	289.	94.	68.	2.55
+	HYDROGRAPH AT	A07B.4	120.	4.10	12.	3.	2.	.05
+	DIVERSION TO	DA07B4	86.	3.97	4.	1.	1.	.05
	HYDROGRAPH AT							

+		DA07B4	120.	4.10	8.	2.	1.	.05
+	2 COMBINED AT	CA07B4	500.	4.47	295.	95.	69.	2.60
+	ROUTED TO	RA07B4	500.	4.53	295.	95.	69.	2.60
+	HYDROGRAPH AT	A07B.5	94.	4.07	9.	2.	2.	.04
+	2 COMBINED AT	CA07B5	523.	4.53	300.	97.	70.	2.64
+	ROUTED TO	DIA07B	427.	5.13	280.	90.	65.	2.64
+	HYDROGRAPH AT	S30D	209.	4.23	32.	8.	6.	.13
+	ROUTED TO	RS30D	198.	4.53	32.	8.	6.	.13
+	HYDROGRAPH AT	S30C	496.	4.40	116.	29.	21.	.45
+	HYDROGRAPH AT	DA09FI	65.	4.53	12.	3.	2.	.37
+	ROUTED TO	RA09FI	49.	5.13	12.	3.	2.	.37
+	3 COMBINED AT	XX1	671.	4.50	158.	40.	29.	.58
+	HYDROGRAPH AT	S30B	311.	4.73	86.	22.	16.	.40
+	2 COMBINED AT	CS30B	892.	4.57	237.	60.	43.	.98
+	DIVERSION TO	DS30BI	342.	4.57	36.	9.	7.	.98
+	HYDROGRAPH AT	DS30BO	550.	4.47	200.	51.	37.	.98
+	ROUTED TO	RS30BW	550.	4.90	200.	51.	37.	.98
+	HYDROGRAPH AT	S30A	524.	4.43	120.	30.	22.	.53
+	2 COMBINED AT	CS30A	995.	4.60	313.	80.	58.	1.51
+	DIVERSION TO	DS30AI	445.	4.60	68.	17.	12.	1.51
+	HYDROGRAPH AT	DS30AO	550.	4.37	245.	63.	45.	1.51
+	ROUTED TO	RS30AW	550.	4.67	245.	63.	45.	1.51

+	HYDROGRAPH AT	S30	418.	4.23	65.	16.	12.	.32
+	2 COMBINED AT	CS30	839.	4.40	302.	78.	56.	1.84
+	ROUTED TO	RS30	838.	4.43	302.	78.	56.	1.84
+	HYDROGRAPH AT	A07B.6	196.	4.20	33.	8.	6.	.15
+	DIVERSION TO	DA07B6	152.	4.07	7.	2.	1.	.15
+	HYDROGRAPH AT	DA07B6	196.	4.20	26.	6.	5.	.15
+	2 COMBINED AT	CS30	971.	4.40	324.	83.	60.	1.99
+	2 COMBINED AT	CA07B6	1085.	4.93	547.	165.	119.	4.63
+	ROUTED TO	RA07B	1084.	5.00	547.	165.	119.	4.63
+	HYDROGRAPH AT	A06A	541.	4.13	54.	14.	10.	.28
+	2 COMBINED AT	CA06A	1150.	4.63	580.	175.	126.	4.91
+	ROUTED TO	RA06A	1149.	4.70	580.	175.	126.	4.91
+	HYDROGRAPH AT	A07A	103.	4.30	21.	5.	4.	.12
+	ROUTED TO	RA07A	103.	4.37	21.	5.	4.	.12
+	HYDROGRAPH AT	A07	319.	4.03	15.	4.	3.	.12
+	2 COMBINED AT	CA07	349.	4.03	36.	9.	7.	.24
+	ROUTED TO	RA07	260.	4.20	36.	9.	7.	.24
+	HYDROGRAPH AT	A06	605.	4.17	34.	9.	6.	.28
+	2 COMBINED AT	CA06	846.	4.20	70.	17.	13.	.52
+	ROUTED TO	RA06	663.	4.40	70.	17.	13.	.52
+	HYDROGRAPH AT	A99Q	345.	4.00	15.	4.	3.	.12

+ HYDROGRAPH AT	A99P	959.	4.17	123.	31.	22.	.57
+ 4 COMBINED AT	CA99Q	1753.	4.50	706.	209.	151.	6.12
+ 2 COMBINED AT	AFR6	3328.	4.63	1553.	438.	315.	17.92

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SUMMARY OF KINEMATIC WAVE - MUSKINGUM-CUNGE ROUTING

(FLOW IS DIRECT RUNOFF WITHOUT BASE FLOW)

ISTAQ	ELEMENT	DT	PEAK	TIME TO PEAK	VOLUME	INTERPOLATED TO COMPUTATION INTERVAL DT	PEAK	TIME TO PEAK	VOLUME
		(MIN)	(CFS)	(MIN)	(IN)	(MIN)	(CFS)	(MIN)	(IN)
FOR STORM = 1 STORM AREA (SQ MI) = .01									
	RCBA MANE	2.00	16.20	252.00	1.88	2.00	16.20	252.00	1.88

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7029E+00 EXCESS= .0000E+00 OUTFLOW= .7028E+00 BASIN STORAGE= .6822E-03 PERCENT ERROR= -.1

FOR STORM = 2 STORM AREA (SQ MI) = .50									
	RCBA MANE	2.00	16.06	252.00	1.87	2.00	16.06	252.00	1.87

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6964E+00 EXCESS= .0000E+00 OUTFLOW= .6964E+00 BASIN STORAGE= .6790E-03 PERCENT ERROR= -.1

FOR STORM = 3 STORM AREA (SQ MI) = 2.80									
	RCBA MANE	2.00	9.23	252.00	1.65	2.00	9.23	252.00	1.65

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6177E+00 EXCESS= .0000E+00 OUTFLOW= .6177E+00 BASIN STORAGE= .6721E-03 PERCENT ERROR= -.1

FOR STORM = 4 STORM AREA (SQ MI) = 16.00									
	RCBA MANE	2.00	6.93	254.00	1.38	2.00	6.93	254.00	1.38

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5170E+00 EXCESS= .0000E+00 OUTFLOW= .5169E+00 BASIN STORAGE= .6849E-03 PERCENT ERROR= -.1

FOR STORM = 5 STORM AREA (SQ MI) = 90.00									
	RCBA MANE	2.00	4.43	254.00	.98	2.00	4.43	254.00	.98

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3666E+00 EXCESS= .0000E+00 OUTFLOW= .3665E+00 BASIN STORAGE= .7026E-03 PERCENT ERROR= -.2

FOR STORM = 1 STORM AREA (SQ MI) = .01									
	RCBB MANE	2.00	40.33	246.00	1.67	2.00	40.33	246.00	1.67

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1511E+01 EXCESS= .0000E+00 OUTFLOW= .1511E+01 BASIN STORAGE= .4107E-03 PERCENT ERROR= .0

FOR STORM = 2 STORM AREA (SQ MI) = .50									
	RCBB MANE	2.00	39.98	246.00	1.65	2.00	39.98	246.00	1.65

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1495E+01 EXCESS= .0000E+00 OUTFLOW= .1496E+01 BASIN STORAGE= .4087E-03 PERCENT ERROR= .0

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

RCBB	MANE	2.00	20.79	248.00	1.37	2.00	20.79	248.00	1.37

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1240E+01 EXCESS= .0000E+00 OUTFLOW= .1240E+01 BASIN STORAGE= .4385E-03 PERCENT ERROR= .0

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

RCBB	MANE	2.00	14.74	248.00	1.08	2.00	14.74	248.00	1.08

CONTINUITY SUMMARY (AC-FT) - INFLOW= .9835E+00 EXCESS= .0000E+00 OUTFLOW= .9836E+00 BASIN STORAGE= .4458E-03 PERCENT ERROR= -.1

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

RCBB	MANE	2.00	8.21	248.00	.70	2.00	8.21	248.00	.70

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6322E+00 EXCESS= .0000E+00 OUTFLOW= .6323E+00 BASIN STORAGE= .4268E-03 PERCENT ERROR= -.1

FOR STORM = 1 STORM AREA (SQ MI) = .01

R28a	MANE	2.00	93.47	258.00	1.69	2.00	93.47	258.00	1.69

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4661E+01 EXCESS= .0000E+00 OUTFLOW= .4606E+01 BASIN STORAGE= .2152E-02 PERCENT ERROR= 1.1

FOR STORM = 2 STORM AREA (SQ MI) = .50

R28a	MANE	2.00	92.51	258.00	1.68	2.00	92.51	258.00	1.68

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4611E+01 EXCESS= .0000E+00 OUTFLOW= .4556E+01 BASIN STORAGE= .2141E-02 PERCENT ERROR= 1.1

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

R28a	MANE	2.00	61.51	262.00	1.52	2.00	61.51	262.00	1.52

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4171E+01 EXCESS= .0000E+00 OUTFLOW= .4140E+01 BASIN STORAGE= .2113E-02 PERCENT ERROR= .7

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

R28a	MANE	2.00	46.45	264.00	1.28	2.00	46.45	264.00	1.28

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3518E+01 EXCESS= .0000E+00 OUTFLOW= .3492E+01 BASIN STORAGE= .2118E-02 PERCENT ERROR= .7

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

R28a	MANE	2.00	30.11	270.00	.90	2.00	30.11	270.00	.90

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2479E+01 EXCESS= .0000E+00 OUTFLOW= .2462E+01 BASIN STORAGE= .2175E-02 PERCENT ERROR= .6

FOR STORM = 1 STORM AREA (SQ MI) = .01

RCBL	MANE	2.00	261.85	258.00	1.87	2.00	261.85	258.00	1.87

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1649E+02 EXCESS= .0000E+00 OUTFLOW= .1650E+02 BASIN STORAGE= .7427E-04 PERCENT ERROR= .0

FOR STORM = 2 STORM AREA (SQ MI) = .50

RCBL	MANE	2.00	259.55	258.00	1.86	2.00	259.55	258.00	1.86

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1633E+02 EXCESS= .0000E+00 OUTFLOW= .1634E+02 BASIN STORAGE= .7378E-04 PERCENT ERROR= .0

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

RCBL	MANE	2.00	186.09	260.00	1.70	2.00	186.09	260.00	1.70

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1495E+02 EXCESS= .0000E+00 OUTFLOW= .1495E+02 BASIN STORAGE= .7962E-04 PERCENT ERROR= .0

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

RCBL	MANE	2.00	141.36	262.00	1.45	2.00	141.36	262.00	1.45

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1280E+02 EXCESS= .0000E+00 OUTFLOW= .1280E+02 BASIN STORAGE= .7387E-04 PERCENT ERROR= .0

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

RCBL	MANE	2.00	91.72	270.00	1.06	2.00	91.72	270.00	1.06

CONTINUITY SUMMARY (AC-FT) - INFLOW= .9365E+01 EXCESS= .0000E+00 OUTFLOW= .9364E+01 BASIN STORAGE= .7616E-04 PERCENT ERROR= .0

FOR STORM = 1 STORM AREA (SQ MI) = .01

RCBK	MANE	1.21	345.61	254.80	1.79	2.00	344.17	254.00	1.79

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2075E+02 EXCESS= .0000E+00 OUTFLOW= .2075E+02 BASIN STORAGE= .3977E-03 PERCENT ERROR= .0

FOR STORM = 2 STORM AREA (SQ MI) = .50

RCBK	MANE	1.21	341.62	255.52	1.77	2.00	340.43	256.00	1.77

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2053E+02 EXCESS= .0000E+00 OUTFLOW= .2053E+02 BASIN STORAGE= .3927E-03 PERCENT ERROR= .0

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

RCBK	MANE	1.35	231.84	261.32	1.58	2.00	230.58	262.00	1.58

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1832E+02 EXCESS= .0000E+00 OUTFLOW= .1832E+02 BASIN STORAGE= .3845E-03 PERCENT ERROR= .0

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

RCBK	MANE	1.47	172.48	263.68	1.33	2.00	172.08	264.00	1.33

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1534E+02 EXCESS= .0000E+00 OUTFLOW= .1534E+02 BASIN STORAGE= .3787E-03 PERCENT ERROR= .0

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

RCBK	MANE	1.69	105.90	269.24	.93	2.00	105.53	268.00	.93

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1082E+02 EXCESS= .0000E+00 OUTFLOW= .1082E+02 BASIN STORAGE= .3902E-03 PERCENT ERROR= .0

FOR STORM = 1 STORM AREA (SQ MI) = .01

R15	MANE	1.59	364.60	255.19	1.68	2.00	364.40	256.00	1.68

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2207E+02 EXCESS= .0000E+00 OUTFLOW= .2207E+02 BASIN STORAGE= .5519E-03 PERCENT ERROR= .0

FOR STORM = 2 STORM AREA (SQ MI) = .50

R15	MANE	1.59	361.32	256.10	1.66	2.00	361.17	256.00	1.66

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2182E+02 EXCESS= .0000E+00 OUTFLOW= .2182E+02 BASIN STORAGE= .5449E-03 PERCENT ERROR= .0

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

R15	MANE	1.78	242.06	262.19	1.47	2.00	242.04	262.00	1.47

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1925E+02 EXCESS= .0000E+00 OUTFLOW= .1925E+02 BASIN STORAGE= .5437E-03 PERCENT ERROR= .0

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

R15	MANE	1.94	178.96	264.24	1.22	2.00	178.70	264.00	1.22

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1604E+02 EXCESS= .0000E+00 OUTFLOW= .1604E+02 BASIN STORAGE= .5145E-03 PERCENT ERROR= .0

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

R15	MANE	2.00	108.84	270.00	.86	2.00	108.84	270.00	.86

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1122E+02 EXCESS= .0000E+00 OUTFLOW= .1122E+02 BASIN STORAGE= .5202E-03 PERCENT ERROR= .0

FOR STORM = 1 STORM AREA (SQ MI) = .01

RE1	MANE	2.00	31.63	248.00	1.33	2.00	31.63	248.00	1.33

CONTINUITY SUMMARY (AC-FT) - INFLOW= .9906E+00 EXCESS= .0000E+00 OUTFLOW= .9916E+00 BASIN STORAGE= .9785E-03 PERCENT ERROR= -.2

FOR STORM = 2 STORM AREA (SQ MI) = .50

RE1	MANE	2.00	31.33	248.00	1.31	2.00	31.33	248.00	1.31

CONTINUITY SUMMARY (AC-FT) - INFLOW= .9789E+00 EXCESS= .0000E+00 OUTFLOW= .9800E+00 BASIN STORAGE= .9741E-03 PERCENT ERROR= -.2

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

RE1	MANE	2.00	14.94	250.00	.98	2.00	14.94	250.00	.98

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7298E+00 EXCESS= .0000E+00 OUTFLOW= .7305E+00 BASIN STORAGE= .9297E-03 PERCENT ERROR= -.2

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

RE1	MANE	2.00	9.90	250.00	.66	2.00	9.90	250.00	.66

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4921E+00 EXCESS= .0000E+00 OUTFLOW= .4924E+00 BASIN STORAGE= .9535E-03 PERCENT ERROR= -.3

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

RE1	MANE	2.00	4.48	252.00	.29	2.00	4.48	252.00	.29

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2165E+00 EXCESS= .0000E+00 OUTFLOW= .2165E+00 BASIN STORAGE= .9318E-03 PERCENT ERROR= -.4

FOR STORM = 1 STORM AREA (SQ MI) = .01

RE2	MANE	2.00	28.17	248.00	1.48	2.00	28.17	248.00	1.48

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1266E+01 EXCESS= .0000E+00 OUTFLOW= .1266E+01 BASIN STORAGE= .4434E-03 PERCENT ERROR= -.1

FOR STORM = 2 STORM AREA (SQ MI) = .50

RE2	MANE	2.00	27.90	248.00	1.47	2.00	27.90	248.00	1.47

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1251E+01 EXCESS= .0000E+00 OUTFLOW= .1252E+01 BASIN STORAGE= .4414E-03 PERCENT ERROR= -.1

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

RE2	MANE	2.00	15.28	250.00	1.14	2.00	15.28	250.00	1.14

CONTINUITY SUMMARY (AC-FT) - INFLOW= .9756E+00 EXCESS= .0000E+00 OUTFLOW= .9758E+00 BASIN STORAGE= .4537E-03 PERCENT ERROR= -.1

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

RE2	MANE	2.00	10.53	250.00	.83	2.00	10.53	250.00	.83

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7092E+00 EXCESS= .0000E+00 OUTFLOW= .7093E+00 BASIN STORAGE= .4172E-03 PERCENT ERROR= -.1

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

RE2	MANE	2.00	5.33	252.00	.45	2.00	5.33	252.00	.45

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3842E+00 EXCESS= .0000E+00 OUTFLOW= .3842E+00 BASIN STORAGE= .4384E-03 PERCENT ERROR= -.1

FOR STORM = 1 STORM AREA (SQ MI) = .01

R13	MANE	2.00	178.99	250.00	1.45	2.00	178.99	250.00	1.45

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6914E+01 EXCESS= .0000E+00 OUTFLOW= .6896E+01 BASIN STORAGE= .1287E-02 PERCENT ERROR= .2

FOR STORM = 2 STORM AREA (SQ MI) = .50

R13	MANE	2.00	177.35	250.00	1.44	2.00	177.35	250.00	1.44

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6837E+01 EXCESS= .0000E+00 OUTFLOW= .6822E+01 BASIN STORAGE= .1281E-02 PERCENT ERROR= .2

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

R13	MANE	2.00	96.23	252.00	1.15	2.00	96.23	252.00	1.15

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5447E+01 EXCESS= .0000E+00 OUTFLOW= .5438E+01 BASIN STORAGE= .1461E-02 PERCENT ERROR= .1

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

R13	MANE	2.00	66.74	252.00	.85	2.00	66.74	252.00	.85

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4042E+01 EXCESS= .0000E+00 OUTFLOW= .4035E+01 BASIN STORAGE= .1282E-02 PERCENT ERROR= .1

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

R13	MANE	2.00	35.14	256.00	.48	2.00	35.14	256.00	.48

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2285E+01 EXCESS= .0000E+00 OUTFLOW= .2281E+01 BASIN STORAGE= .1289E-02 PERCENT ERROR= .1

FOR STORM = 1 STORM AREA (SQ MI) = .01

RE3	MANE	2.00	74.17	266.00	1.42	2.00	74.17	266.00	1.42

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6215E+01 EXCESS= .0000E+00 OUTFLOW= .6216E+01 BASIN STORAGE= .6845E-03 PERCENT ERROR= .0

FOR STORM = 2 STORM AREA (SQ MI) = .50

RE3	MANE	2.00	73.37	266.00	1.40	2.00	73.37	266.00	1.40

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6143E+01 EXCESS= .0000E+00 OUTFLOW= .6143E+01 BASIN STORAGE= .6814E-03 PERCENT ERROR= .0

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

RE3	MANE	2.00	48.52	268.00	1.08	2.00	48.52	268.00	1.08

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4722E+01 EXCESS= .0000E+00 OUTFLOW= .4722E+01 BASIN STORAGE= .6793E-03 PERCENT ERROR= .0

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

RE3	MANE	2.00	33.13	270.00	.76	2.00	33.13	270.00	.76

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3336E+01 EXCESS= .0000E+00 OUTFLOW= .3336E+01 BASIN STORAGE= .6983E-03 PERCENT ERROR= .0

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

RE3	MANE	2.00	16.02	272.00	.39	2.00	16.02	272.00	.39

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1702E+01 EXCESS= .0000E+00 OUTFLOW= .1702E+01 BASIN STORAGE= .6575E-03 PERCENT ERROR= .0

FOR STORM = 1 STORM AREA (SQ MI) = .01

R10	MANE	2.00	141.93	260.00	1.43	2.00	141.93	260.00	1.43

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1046E+02 EXCESS= .0000E+00 OUTFLOW= .1045E+02 BASIN STORAGE= .1845E-02 PERCENT ERROR= .1

FOR STORM = 2 STORM AREA (SQ MI) = .50

R10	MANE	2.00	140.50	260.00	1.41	2.00	140.50	260.00	1.41

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1034E+02 EXCESS= .0000E+00 OUTFLOW= .1033E+02 BASIN STORAGE= .1818E-02 PERCENT ERROR= .1

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

R10	MANE	2.00	92.85	266.00	1.11	2.00	92.85	266.00	1.11

CONTINUITY SUMMARY (AC-FT) - INFLOW= .8091E+01 EXCESS= .0000E+00 OUTFLOW= .8080E+01 BASIN STORAGE= .1701E-02 PERCENT ERROR= .1

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

R10	MANE	2.00	64.26	266.00	.80	2.00	64.26	266.00	.80

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5876E+01 EXCESS= .0000E+00 OUTFLOW= .5867E+01 BASIN STORAGE= .1796E-02 PERCENT ERROR= .1

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

R10	MANE	2.00	33.07	270.00	.43	2.00	33.07	270.00	.43

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3177E+01 EXCESS= .0000E+00 OUTFLOW= .3171E+01 BASIN STORAGE= .1875E-02 PERCENT ERROR= .1

FOR STORM = 1 STORM AREA (SQ MI) = .01

RE4	MANE	2.00	33.30	264.00	1.34	2.00	33.30	264.00	1.34

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2853E+01 EXCESS= .0000E+00 OUTFLOW= .2854E+01 BASIN STORAGE= .1069E-03 PERCENT ERROR= .0

FOR STORM = 2 STORM AREA (SQ MI) = .50

RE4	MANE	2.00	32.94	264.00	1.32	2.00	32.94	264.00	1.32

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2820E+01 EXCESS= .0000E+00 OUTFLOW= .2821E+01 BASIN STORAGE= .1052E-03 PERCENT ERROR= .0

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

RE4	MANE	2.00	21.16	266.00	.99	2.00	21.16	266.00	.99

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2115E+01 EXCESS= .0000E+00 OUTFLOW= .2115E+01 BASIN STORAGE= .1198E-03 PERCENT ERROR= .0

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

RE4	MANE	2.00	14.06	268.00	.68	2.00	14.06	268.00	.68

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1442E+01 EXCESS= .0000E+00 OUTFLOW= .1442E+01 BASIN STORAGE= .1092E-03 PERCENT ERROR= .0

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

RE4	MANE	2.00	6.12	270.00	.31	2.00	6.12	270.00	.31

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6571E+00 EXCESS= .0000E+00 OUTFLOW= .6571E+00 BASIN STORAGE= .1077E-03 PERCENT ERROR= .0

FOR STORM = 1 STORM AREA (SQ MI) = .01

R9	MANE	1.20	104.61	250.83	1.44	2.00	104.60	250.00	1.45

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7088E+01 EXCESS= .0000E+00 OUTFLOW= .7090E+01 BASIN STORAGE= .8732E-04 PERCENT ERROR= .0

FOR STORM = 2 STORM AREA (SQ MI) = .50

R9	MANE	1.21	103.65	249.50	1.43	2.00	103.65	250.00	1.43

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7006E+01 EXCESS= .0000E+00 OUTFLOW= .7008E+01 BASIN STORAGE= .8777E-04 PERCENT ERROR= .0

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

R9	MANE	1.42	65.29	256.25	1.13	2.00	65.29	256.00	1.13

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5560E+01 EXCESS= .0000E+00 OUTFLOW= .5561E+01 BASIN STORAGE= .8130E-04 PERCENT ERROR= .0

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

R9	MANE	1.57	45.78	255.48	.84	2.00	45.78	256.00	.84

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4104E+01 EXCESS= .0000E+00 OUTFLOW= .4104E+01 BASIN STORAGE= .7945E-04 PERCENT ERROR= .0

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

R9	MANE	1.87	24.83	245.53	.47	2.00	24.48	258.00	.47

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2301E+01 EXCESS= .0000E+00 OUTFLOW= .2302E+01 BASIN STORAGE= .8181E-04 PERCENT ERROR= -.1

FOR STORM = 1 STORM AREA (SQ MI) = .01

R7	MANE	1.71	135.73	253.30	1.45	2.00	134.52	252.00	1.45

CONTINUITY SUMMARY (AC-FT) - INFLOW= .9217E+01 EXCESS= .0000E+00 OUTFLOW= .9221E+01 BASIN STORAGE= .1383E-03 PERCENT ERROR= .0

FOR STORM = 2 STORM AREA (SQ MI) = .50

R7	MANE	1.72	134.06	252.28	1.44	2.00	133.30	252.00	1.44

CONTINUITY SUMMARY (AC-FT) - INFLOW= .9119E+01 EXCESS= .0000E+00 OUTFLOW= .9123E+01 BASIN STORAGE= .1401E-03 PERCENT ERROR= .0

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

R7	MANE	2.00	88.48	254.00	1.15	2.00	88.48	254.00	1.15

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7286E+01 EXCESS= .0000E+00 OUTFLOW= .7288E+01 BASIN STORAGE= .1238E-03 PERCENT ERROR= .0

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

R7	MANE	2.00	62.30	256.00	.85	2.00	62.30	256.00	.85

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5422E+01 EXCESS= .0000E+00 OUTFLOW= .5424E+01 BASIN STORAGE= .1246E-03 PERCENT ERROR= .0

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

R7	MANE	2.00	34.02	266.00	.49	2.00	34.02	266.00	.49

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3088E+01 EXCESS= .0000E+00 OUTFLOW= .3090E+01 BASIN STORAGE= .1296E-03 PERCENT ERROR= -.1

FOR STORM = 1 STORM AREA (SQ MI) = .01

RS1	MANE	2.00	2198.73	300.00	1.70	2.00	2198.73	300.00	1.70

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2667E+03 EXCESS= .0000E+00 OUTFLOW= .2668E+03 BASIN STORAGE= .3607E-02 PERCENT ERROR= .0

FOR STORM = 2 STORM AREA (SQ MI) = .50

	RS1	MANE	2.00	2168.25	300.00	1.69	2.00	2168.25	300.00	1.69

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2639E+03 EXCESS= .0000E+00 OUTFLOW= .2639E+03 BASIN STORAGE= .3673E-02 PERCENT ERROR= .0

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

	RS1	MANE	2.00	1596.84	302.00	1.47	2.00	1596.84	302.00	1.47

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2297E+03 EXCESS= .0000E+00 OUTFLOW= .2297E+03 BASIN STORAGE= .3616E-02 PERCENT ERROR= .0

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

	RS1	MANE	2.00	1163.15	308.00	1.21	2.00	1163.15	308.00	1.21

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1889E+03 EXCESS= .0000E+00 OUTFLOW= .1889E+03 BASIN STORAGE= .3624E-02 PERCENT ERROR= .0

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

	RS1	MANE	2.00	677.57	316.00	.83	2.00	677.57	316.00	.83

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1300E+03 EXCESS= .0000E+00 OUTFLOW= .1300E+03 BASIN STORAGE= .3677E-02 PERCENT ERROR= .0

FOR STORM = 1 STORM AREA (SQ MI) = .01

	RS2	MANE	.72	2197.08	299.67	1.70	2.00	2196.86	300.00	1.70

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2683E+03 EXCESS= .0000E+00 OUTFLOW= .2682E+03 BASIN STORAGE= .5435E-03 PERCENT ERROR= .0

FOR STORM = 2 STORM AREA (SQ MI) = .50

	RS2	MANE	.73	2165.55	300.24	1.69	2.00	2164.93	300.00	1.69

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2654E+03 EXCESS= .0000E+00 OUTFLOW= .2654E+03 BASIN STORAGE= .5426E-03 PERCENT ERROR= .0

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

	RS2	MANE	.80	1596.57	303.14	1.47	2.00	1596.42	304.00	1.47

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2309E+03 EXCESS= .0000E+00 OUTFLOW= .2309E+03 BASIN STORAGE= .5459E-03 PERCENT ERROR= .0

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

	RS2	MANE	.88	1163.11	308.18	1.21	2.00	1163.09	308.00	1.21

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1898E+03 EXCESS= .0000E+00 OUTFLOW= .1898E+03 BASIN STORAGE= .5392E-03 PERCENT ERROR= .0

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

	RS2	MANE	1.04	677.43	316.76	.83	2.00	677.22	316.00	.83

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1305E+03 EXCESS= .0000E+00 OUTFLOW= .1305E+03 BASIN STORAGE= .5409E-03 PERCENT ERROR= .0

FOR STORM = 1 STORM AREA (SQ MI) = .01

	RHV2	MANE	2.00	7.08	316.00	1.75	2.00	7.08	316.00	1.75

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2888E+01 EXCESS= .0000E+00 OUTFLOW= .2888E+01 BASIN STORAGE= .5656E-03 PERCENT ERROR= .0

FOR STORM = 2 STORM AREA (SQ MI) = .50

RHV2	MANE	2.00	7.02	316.00	1.73	2.00	7.02	316.00	1.73

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2862E+01 EXCESS= .0000E+00 OUTFLOW= .2862E+01 BASIN STORAGE= .5630E-03 PERCENT ERROR= .0

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

RHV2	MANE	2.00	5.93	320.00	1.50	2.00	5.93	320.00	1.50

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2483E+01 EXCESS= .0000E+00 OUTFLOW= .2483E+01 BASIN STORAGE= .5801E-03 PERCENT ERROR= .0

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

RHV2	MANE	2.00	4.79	324.00	1.26	2.00	4.79	324.00	1.26

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2081E+01 EXCESS= .0000E+00 OUTFLOW= .2080E+01 BASIN STORAGE= .5954E-03 PERCENT ERROR= .0

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

RHV2	MANE	2.00	3.29	328.00	.92	2.00	3.29	328.00	.92

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1515E+01 EXCESS= .0000E+00 OUTFLOW= .1515E+01 BASIN STORAGE= .5886E-03 PERCENT ERROR= .0

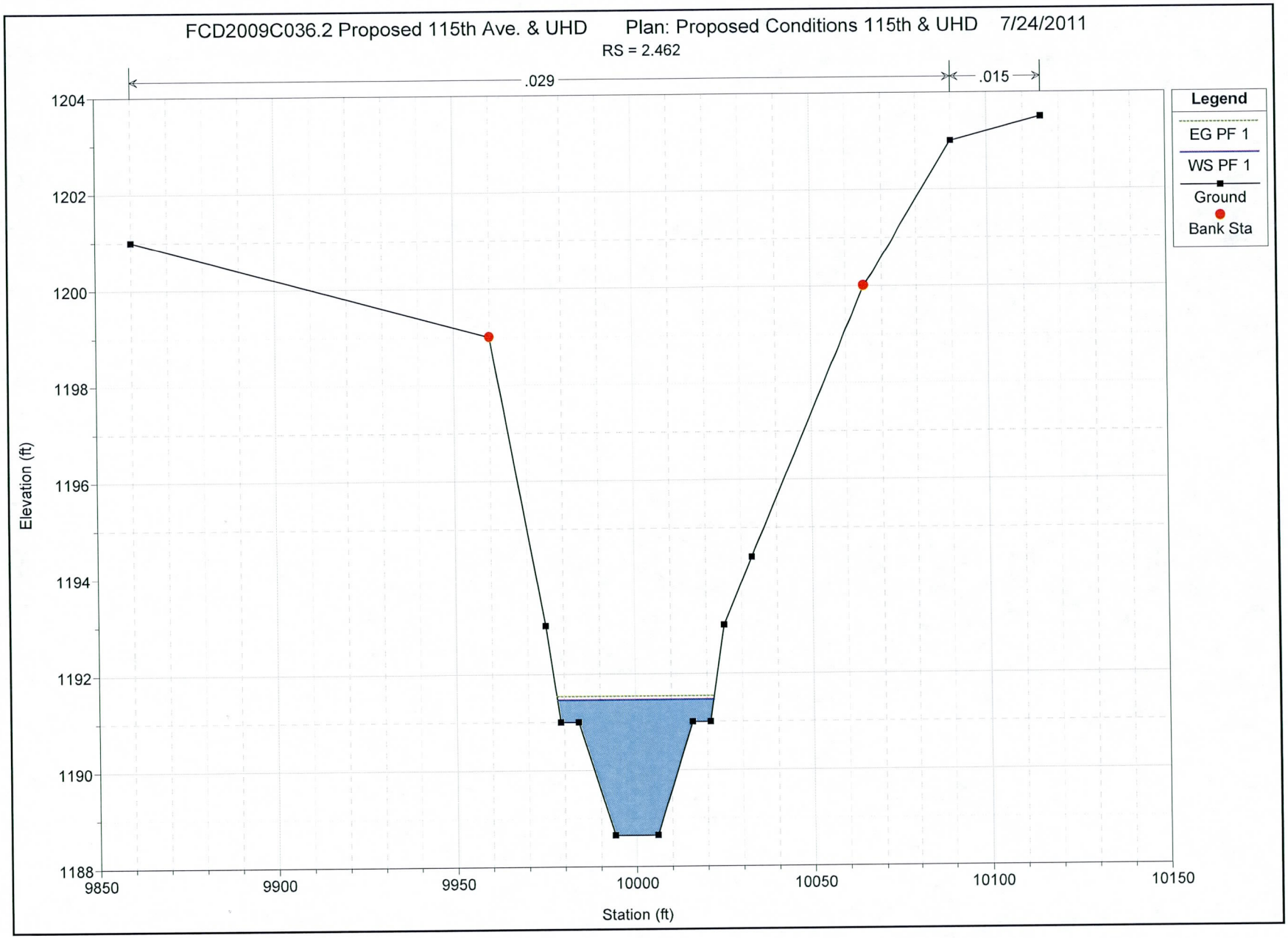
*** NORMAL END OF HEC-1 ***

HEC-RAS Plan: Prop 115th River: River 1 Reach: Reach 1 Profile: PF 1

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach 1	2.462	PF 1	160.00	1188.65	1191.46		1191.54	0.001020	2.24	71.44	43.84	0.31
Reach 1	2.367	PF 1	160.00	1188.15	1190.40		1190.74	0.004044	4.69	34.12	18.32	0.61
Reach 1	2.300	PF 1	160.00	1187.90	1190.03	1188.81	1190.10	0.000761	2.17	73.85	37.49	0.27
Reach 1	2.241		Culvert									
Reach 1	2.182	PF 1	350.00	1183.60	1184.72	1184.72	1185.24	0.012324	5.83	60.07	57.61	1.01
Reach 1	2.122	PF 1	350.00	1175.50	1179.24	1176.69	1179.28	0.000200	1.56	223.77	75.72	0.15
Reach 1	2.112		Culvert									
Reach 1	2.102	PF 1	350.00	1173.00	1174.52	1174.29	1174.91	0.006653	4.97	70.40	53.96	0.77
Reach 1	2.083	PF 1	350.00	1172.00	1173.47	1173.47	1174.01	0.012096	5.87	59.64	55.95	1.00
Reach 1	2.030	PF 1	350.00	1168.00	1171.95		1171.98	0.000137	1.28	273.67	87.29	0.13
Reach 1	1.968	PF 1	390.00	1167.50	1171.92		1171.94	0.000094	1.02	383.74	102.44	0.09
Reach 1	1.894	PF 1	390.00	1167.50	1171.89		1171.90	0.000088	0.97	400.23	108.50	0.09
Reach 1	1.790	PF 1	390.00	1167.00	1171.85	1168.00	1171.86	0.000066	0.89	438.83	109.94	0.08
Reach 1	1.784	PF 1	390.00	1170.00	1171.71	1171.01	1171.84	0.002805	2.94	132.45	92.04	0.43
Reach 1	1.758	PF 1	390.00	1170.00	1170.68	1170.68	1171.00	0.019717	4.54	85.96	135.12	1.00
Reach 1	1.747	PF 1	390.00	1164.70	1169.00		1169.01	0.000057	0.80	490.19	129.03	0.07
Reach 1	1.705	PF 1	390.00	1164.60	1169.00	1165.30	1169.00	0.000024	0.53	740.70	191.75	0.05
Reach 1	1.679	PF 1	390.00	1164.40	1169.00	1165.10	1169.00	0.000021	0.51	768.03	191.74	0.04
Reach 1	1.675	PF 1	390.00	1167.40	1168.54	1168.54	1168.96	0.017404	5.19	75.11	87.83	0.99
Reach 1	1.667	PF 1	390.00	1163.50	1166.90	1164.50	1166.94	0.000290	1.67	233.01	129.05	0.16
Reach 1	1.6535		Culvert									
Reach 1	1.640	PF 1	470.00	1161.60	1166.60	1162.73	1166.63	0.000117	1.38	339.94	382.32	0.11
Reach 1	1.610	PF 1	470.00	1161.50	1166.60	1162.46	1166.61	0.000048	0.81	582.15	131.75	0.07
Reach 1	1.537	PF 1	470.00	1161.50	1166.57	1162.79	1166.59	0.000097	0.95	494.91	150.40	0.09
Reach 1	1.531	PF 1	470.00	1164.50	1166.51	1165.32	1166.57	0.000887	1.98	236.87	125.30	0.25
Reach 1	1.501	PF 1	470.00	1164.50	1165.70	1165.70	1166.16	0.017078	5.40	87.02	94.55	0.99
Reach 1	1.492	PF 1	470.00	1159.00	1164.99	1159.93	1165.00	0.000029	0.67	697.40	140.90	0.05
Reach 1	1.420	PF 1	470.00	1159.00	1164.98	1159.88	1164.99	0.000026	0.63	748.25	154.69	0.05
Reach 1	1.346	PF 1	500.00	1158.90	1164.94	1160.30	1164.97	0.000079	1.25	401.47	137.60	0.09
Reach 1	1.338		Culvert									
Reach 1	1.330	PF 1	500.00	1158.70	1164.58	1159.90	1164.60	0.000091	1.18	425.31	140.05	0.09
Reach 1	1.301	PF 1	500.00	1158.60	1164.57	1159.80	1164.59	0.000087	1.16	431.35	139.97	0.08
Reach 1	1.292	PF 1	500.00	1163.10	1164.44	1163.88	1164.57	0.004049	2.86	175.10	136.66	0.44
Reach 1	1.284	PF 1	500.00	1159.00	1164.51	1160.35	1164.52	0.000092	0.93	535.99	130.22	0.08
Reach 1	1.273	PF 1	500.00	1158.80	1164.50	1160.20	1164.51	0.000086	0.91	546.93	130.18	0.08
Reach 1	1.266	PF 1	500.00	1161.70	1164.47	1162.57	1164.51	0.000482	1.55	322.68	127.13	0.17
Reach 1	1.255	PF 1	500.00	1161.70	1164.42	1162.57	1164.46	0.000510	1.58	316.83	126.77	0.18
Reach 1	1.231	PF 1	500.00	1157.80	1164.45	1158.38	1164.45	0.000007	0.33	1512.57	255.23	0.02

HEC-RAS Plan: Prop 115th River: River 1 Reach: Reach 1 Profile: PF 1 (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach 1	1.136	PF 1	520.00	1157.50	1164.44	1158.09	1164.44	0.000007	0.33	1581.14	255.54	0.02
Reach 1	1.110		Inl Struct									
Reach 1	1.104	PF 1	425.00	1157.50	1164.44	1158.02	1164.44	0.000004	0.27	1579.64	255.49	0.02
Reach 1	1.100		Culvert									
Reach 1	1.097	PF 1	425.00	1157.30	1163.34	1158.02	1163.35	0.000018	0.48	880.75	171.57	0.04
Reach 1	1.083	PF 1	1090.00	1157.18	1162.94	1160.47	1163.30	0.000381	4.85	225.38	188.02	0.38
Reach 1	1.0665		Culvert									
Reach 1	1.050	PF 1	1090.00	1155.87	1160.19	1159.43	1161.27	0.007022	8.33	130.83	33.09	0.74
Reach 1	0.947	PF 1	1090.00	1152.72	1157.58		1158.27	0.004144	6.68	163.09	52.46	0.67
Reach 1	0.852	PF 1	1090.00	1150.64	1155.20	1154.90	1156.29	0.003640	8.39	129.93	45.99	0.88
Reach 1	0.758	PF 1	1090.00	1148.49	1152.95	1152.95	1154.25	0.004536	9.13	120.28	55.68	0.98
Reach 1	0.663	PF 1	1090.00	1146.90	1151.07	1150.41	1151.90	0.002391	7.33	154.51	76.76	0.73
Reach 1	0.568	PF 1	1150.00	1145.32	1148.84	1148.84	1150.19	0.004786	9.31	123.58	47.61	1.00
Reach 1	0.473	PF 1	1150.00	1143.35	1147.84	1146.88	1148.55	0.001921	6.77	169.98	51.29	0.65
Reach 1	0.379	PF 1	1150.00	1141.06	1145.45	1145.45	1146.84	0.006869	9.46	121.58	44.57	1.01
Reach 1	0.284	PF 1	1150.00	1135.74	1141.93	1140.65	1142.61	0.004520	6.61	173.99	47.28	0.61
Reach 1	0.189	PF 1	1150.00	1133.57	1137.56	1137.56	1138.94	0.013134	9.43	121.91	43.90	1.00
Reach 1	0.095	PF 1	1150.00	1129.05	1136.97	1132.03	1137.06	0.000304	2.42	475.98	75.90	0.17
Reach 1	0.000	PF 1	1150.00	1124.51	1137.00	1127.52	1137.01	0.000022	0.85	1462.76	202.60	0.05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7/24/2011
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Ground
Bank Sta
Elevation (ft)
Station (ft)
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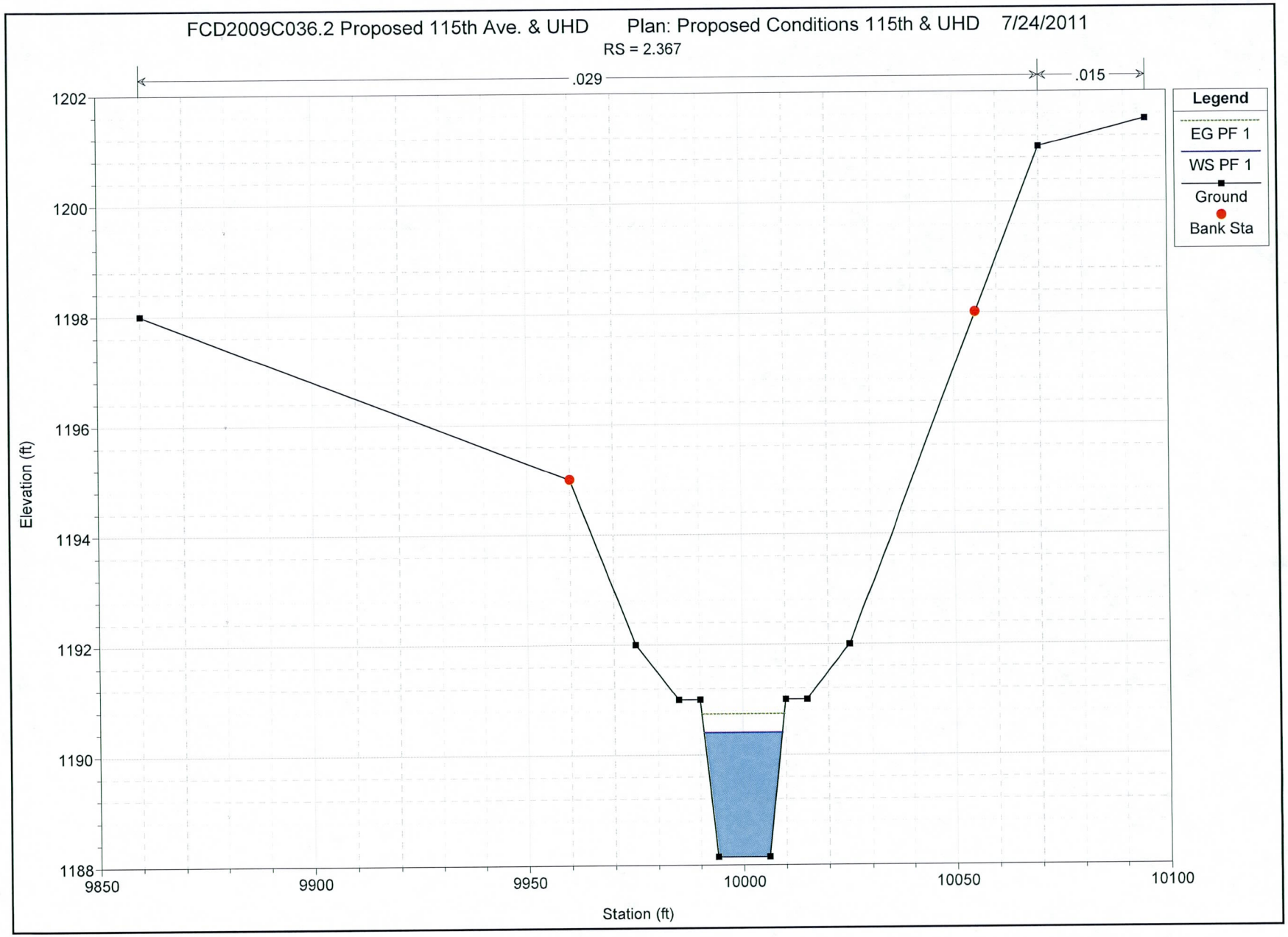
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Elevation (ft)
Station (ft)
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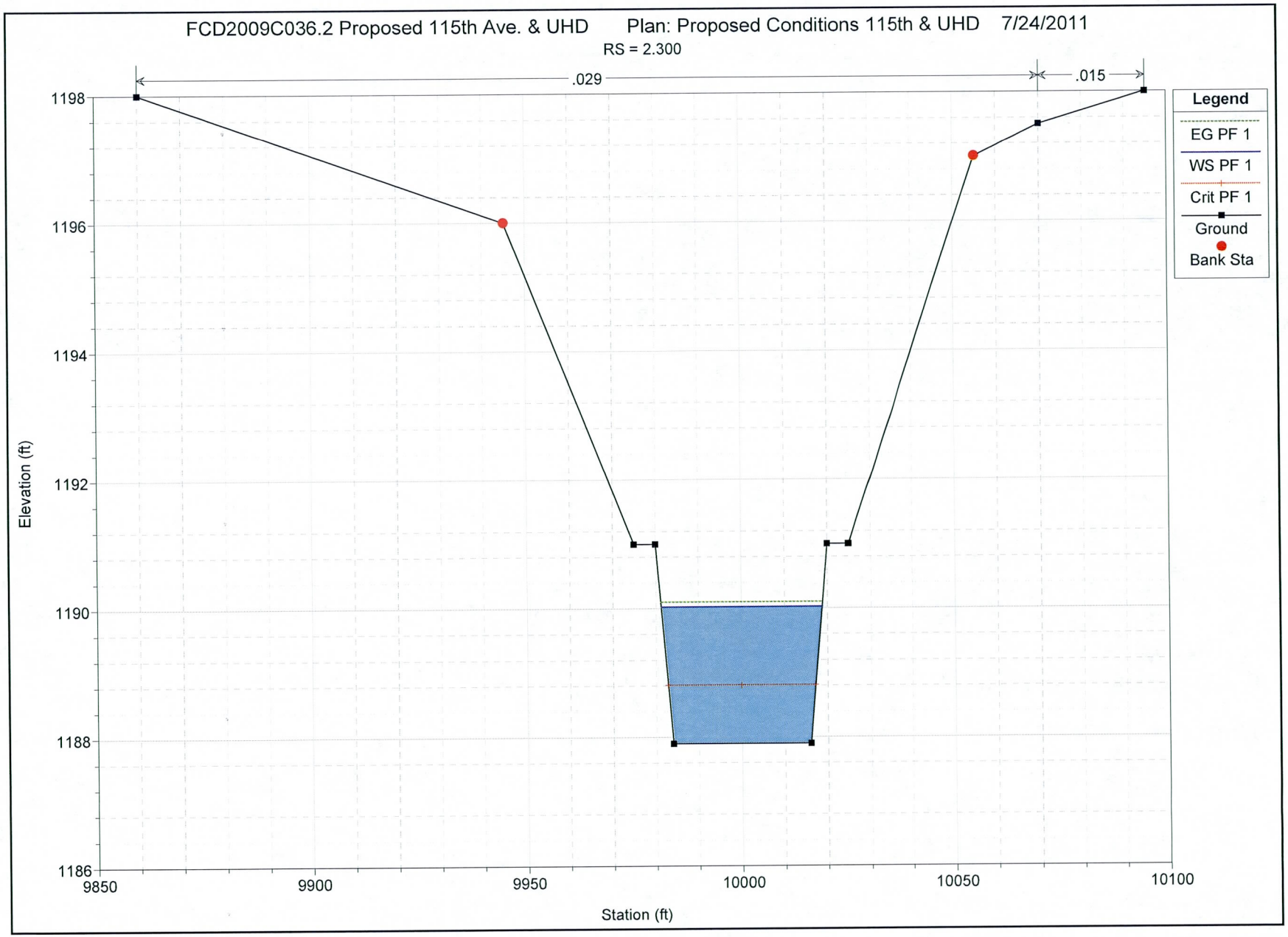
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Elevation (ft)
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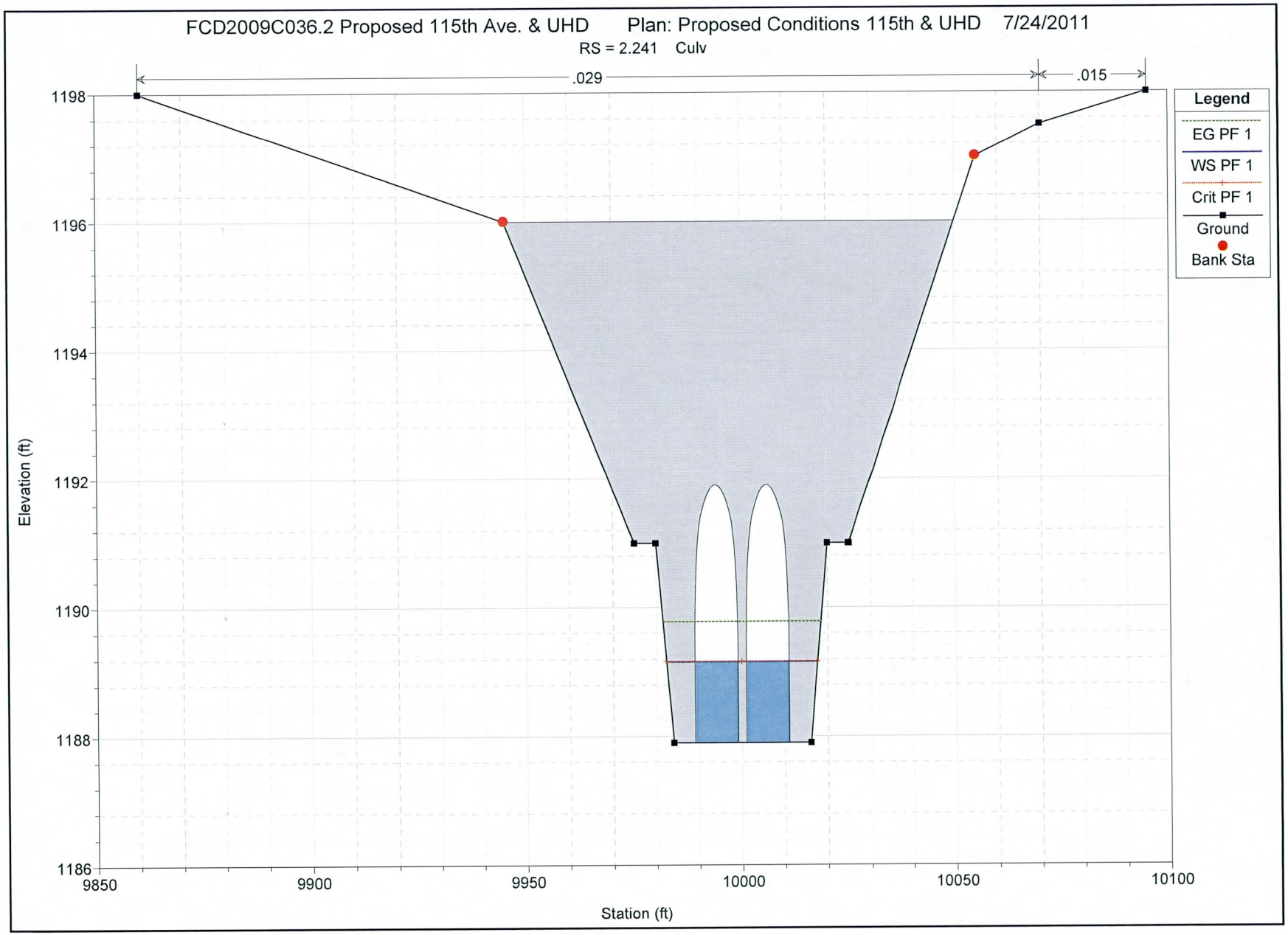
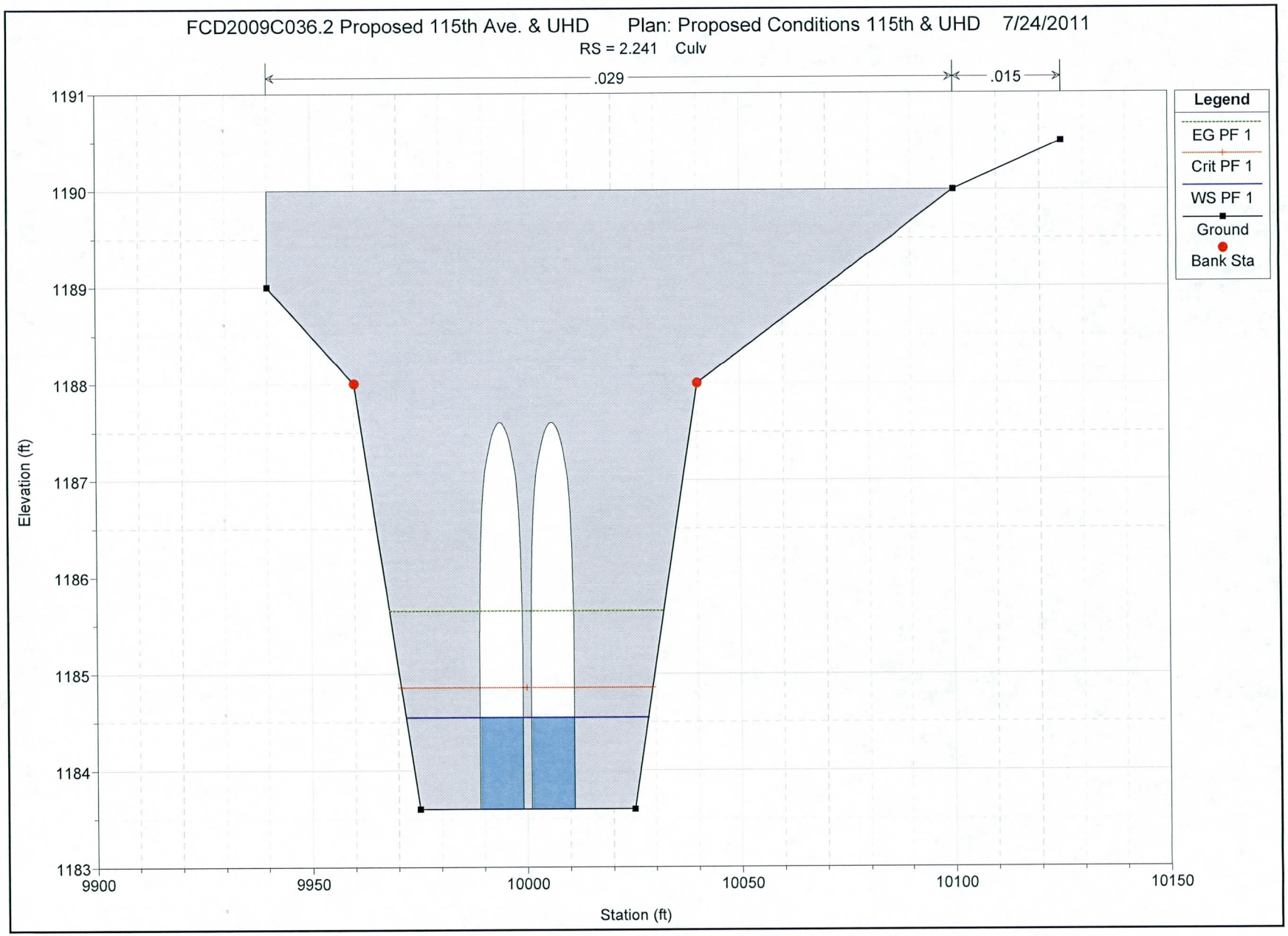
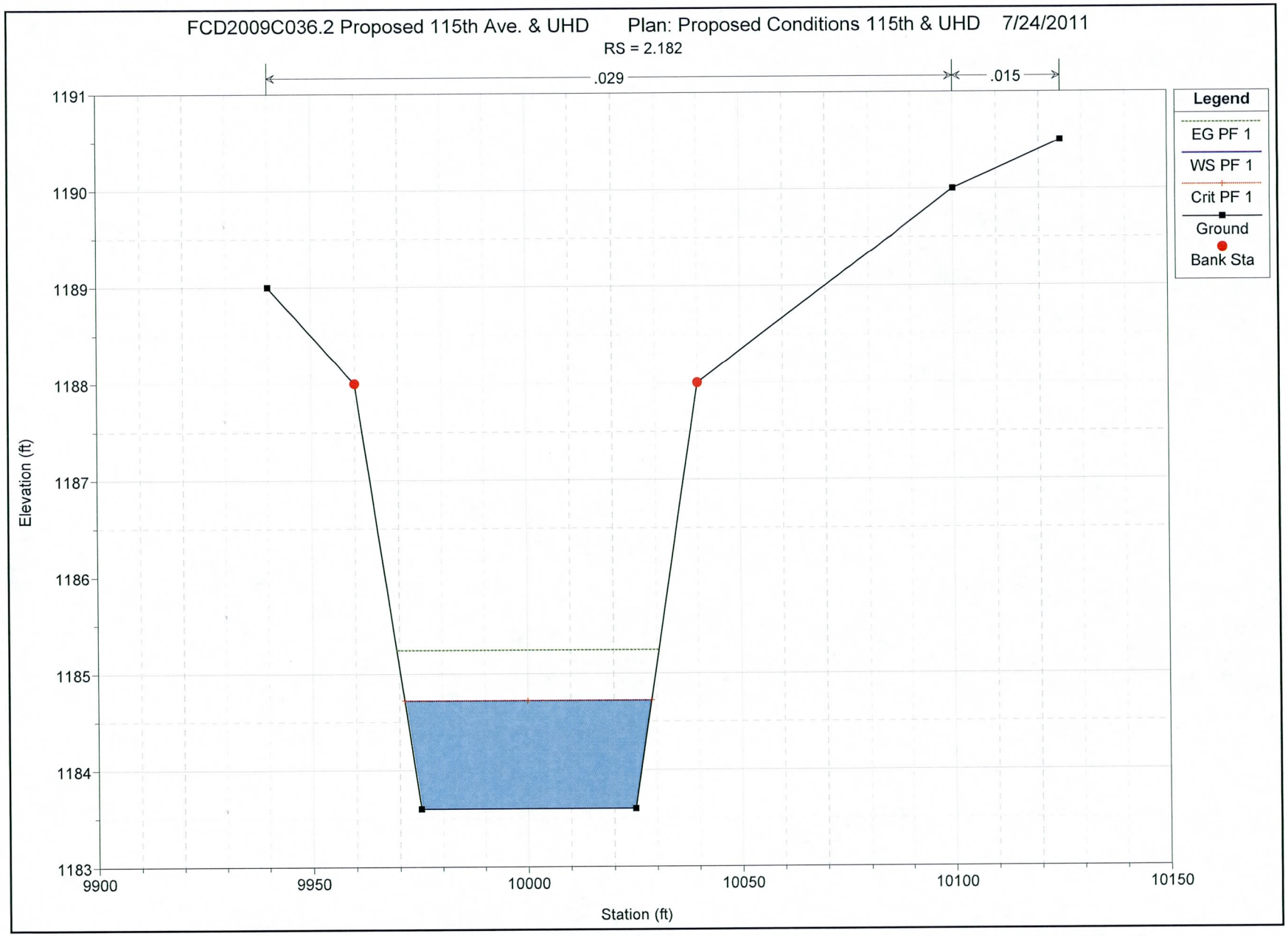
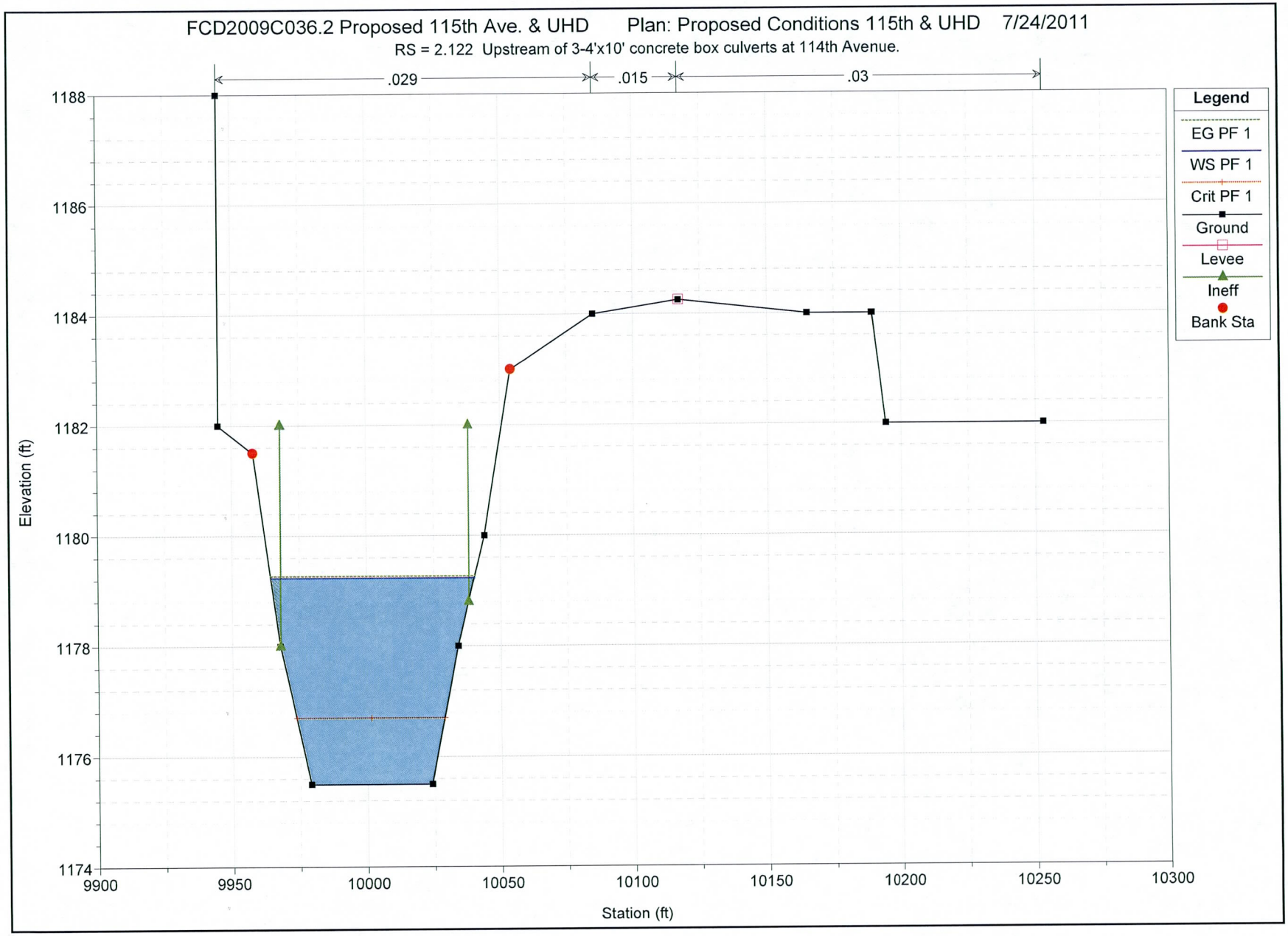
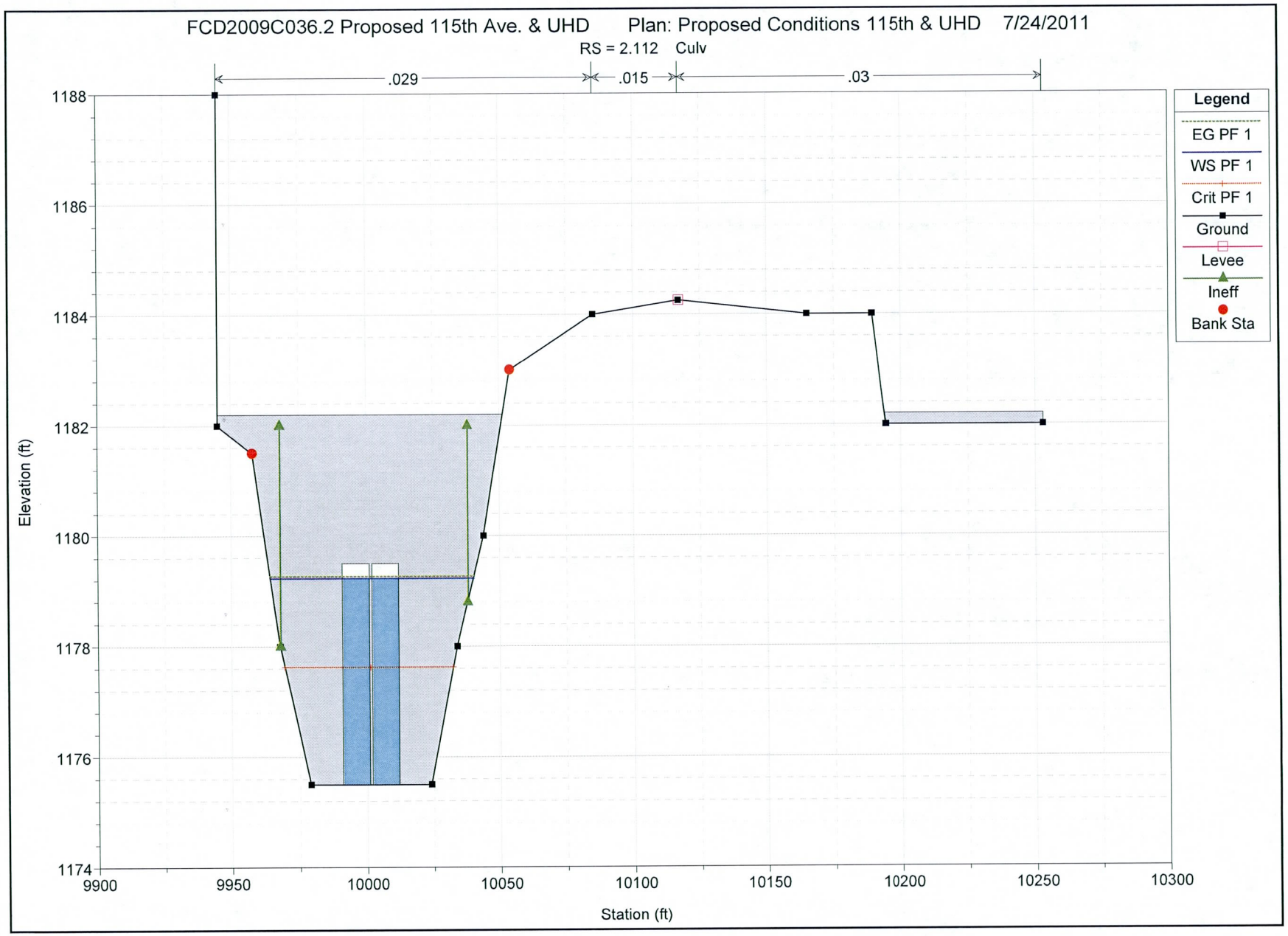
1192
1190
1188
1186
9850
9900
9950
10000
10050
10100
Station (ft)

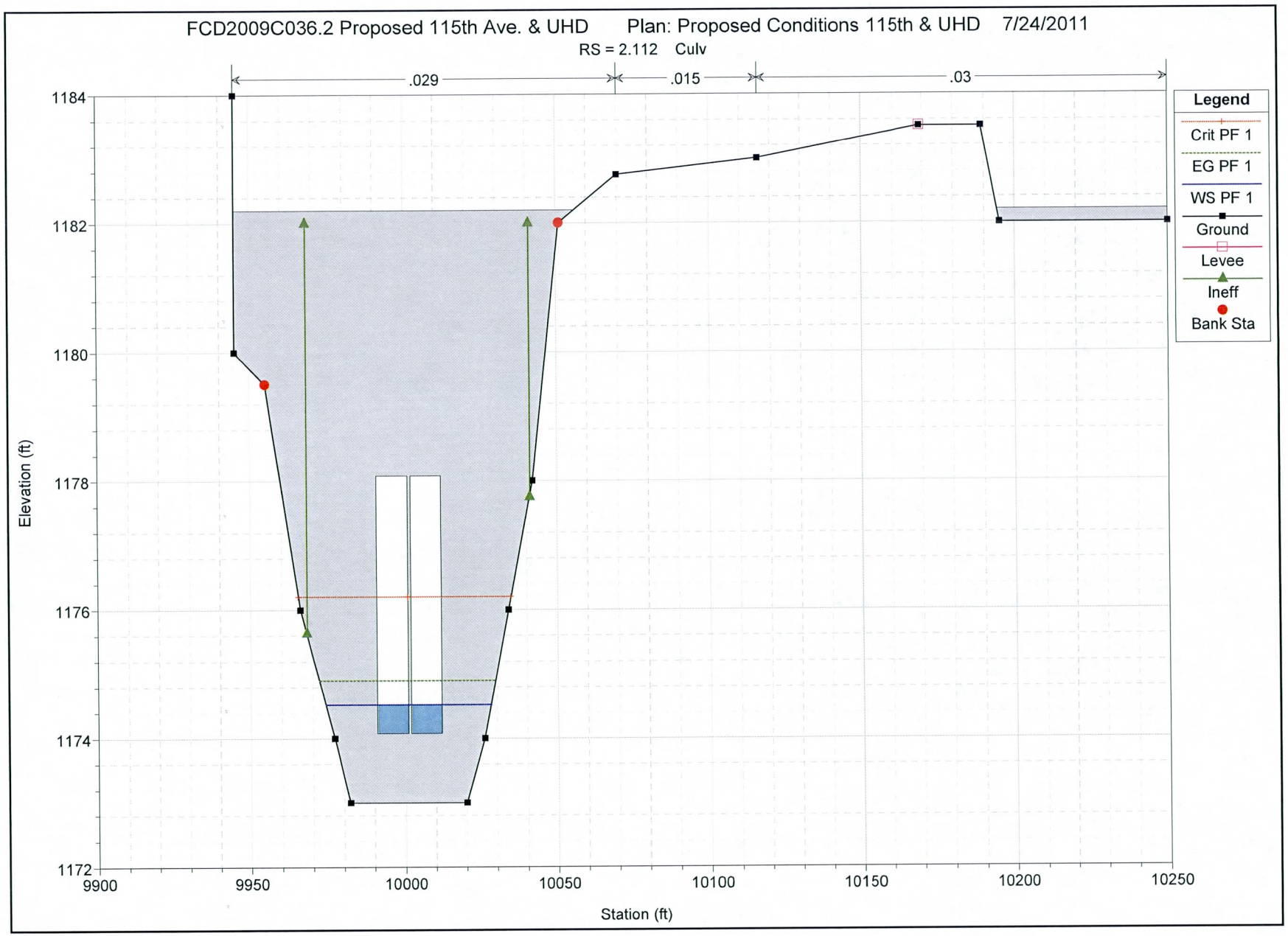

FCD2009C036.2 Proposed 115th Ave. & UHD Plan: Proposed Conditions 115th & UHD 7/24/2011
RS = 2.241 Culv
.029
.015
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
1198
1196
1194
1192
1190
1188
1186
9850
9900
9950
10000
10050
10100
Station (ft)

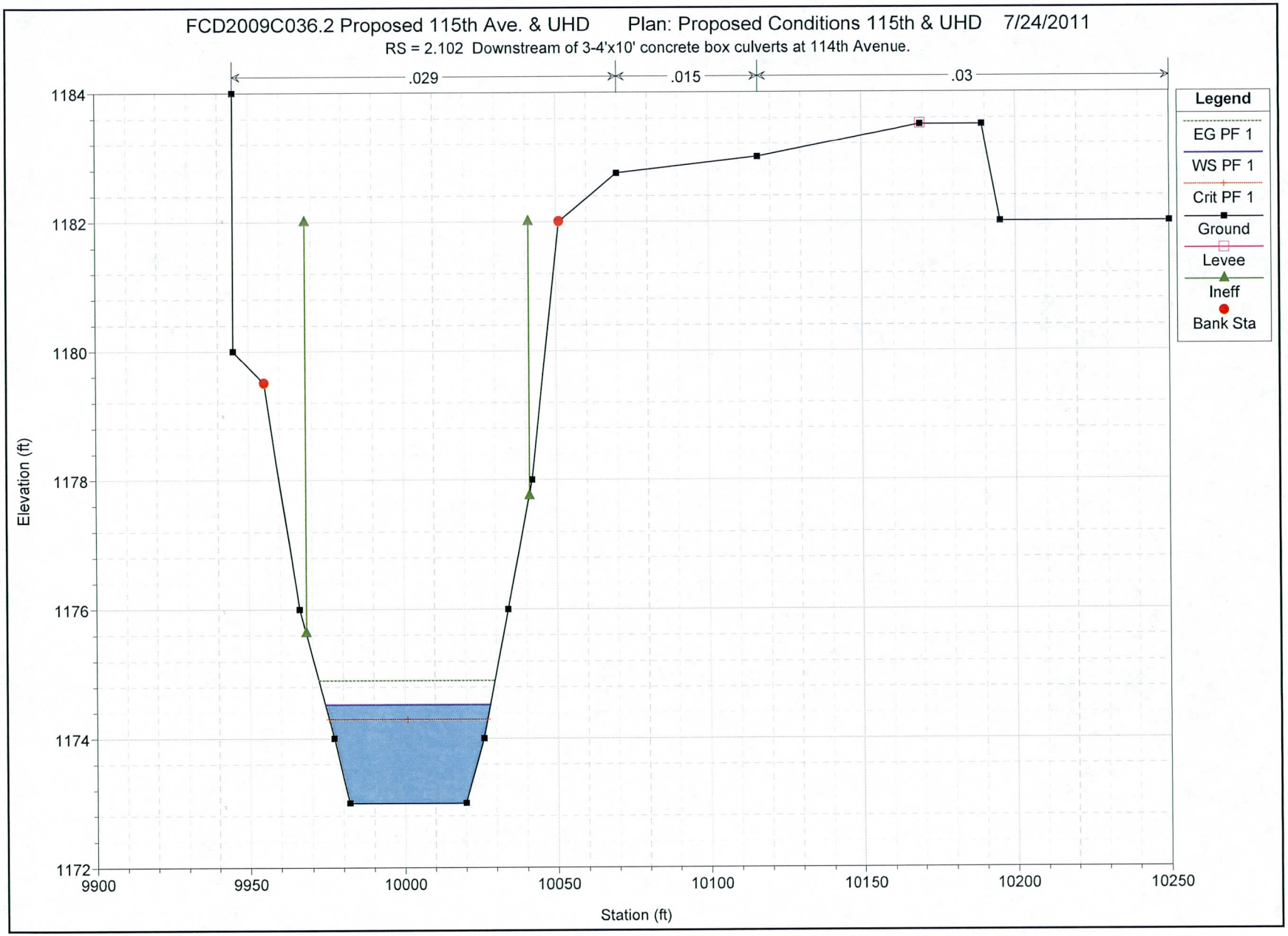

FCD2009C036.2 Proposed 115th Ave. & UHD Plan: Proposed Conditions 115th & UHD 7/24/2011
RS = 2.241 Culv
.029
.015
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
1191
1190
1189
1188
1187
1186
1185
1184
1183
9900
9950
10000
10050
10100
10150
Station (ft)

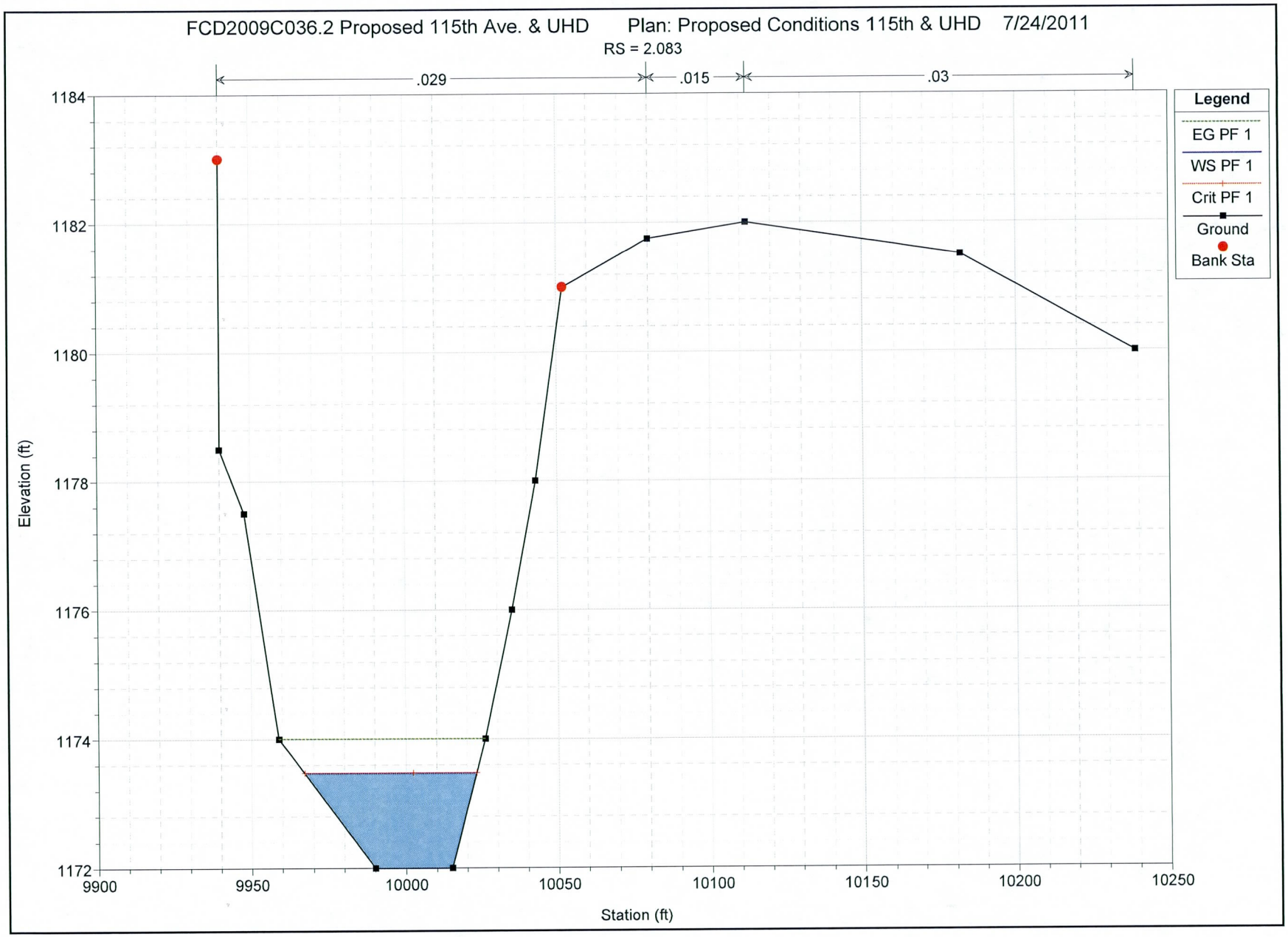

FCD2009C036.2 Proposed 115th Ave. & UHD
Plan: Proposed Conditions 115th & UHD
7/24/2011
RS = 2.182
.029
.015
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
1191
1190
1189
1188
1187
1186
1185
1184
1183
9900
9950
10000
10050
10100
10150
Station (ft)

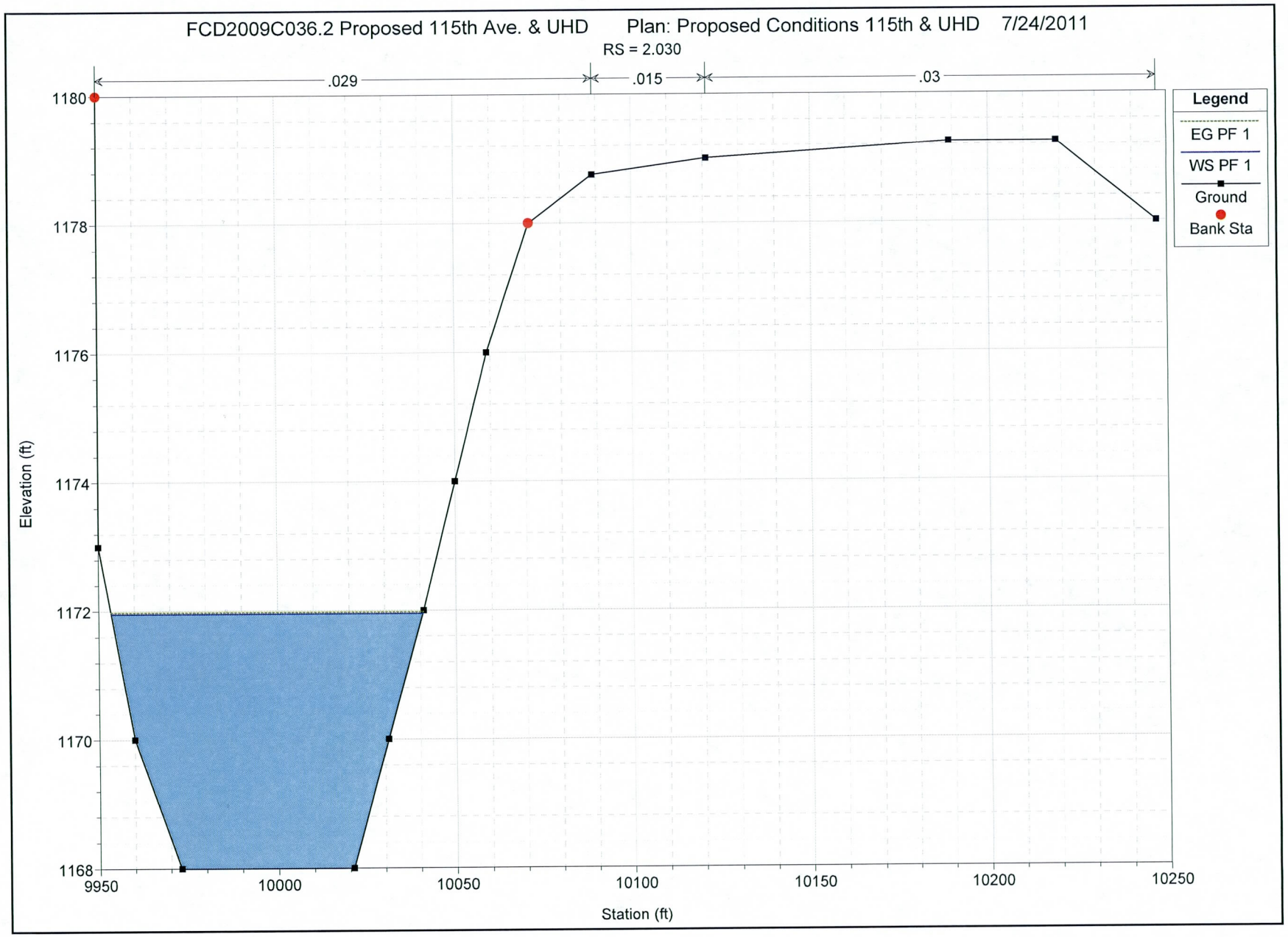

FCD2009C036.2 Proposed 115th Ave. & UHD Plan: Proposed Conditions 115th & UHD 7/24/2011
RS = 2.122 Upstream of 3-4'x10' concrete box culverts at 114th Avenue.
.029
.015
.03
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Levee
Ineff
Bank Sta
Elevation (ft)
1188
1186
1184
1182
1180
1178
1176
1174
9900
9950
10000
10050
10100
10150
10200
10250
10300
Station (ft)

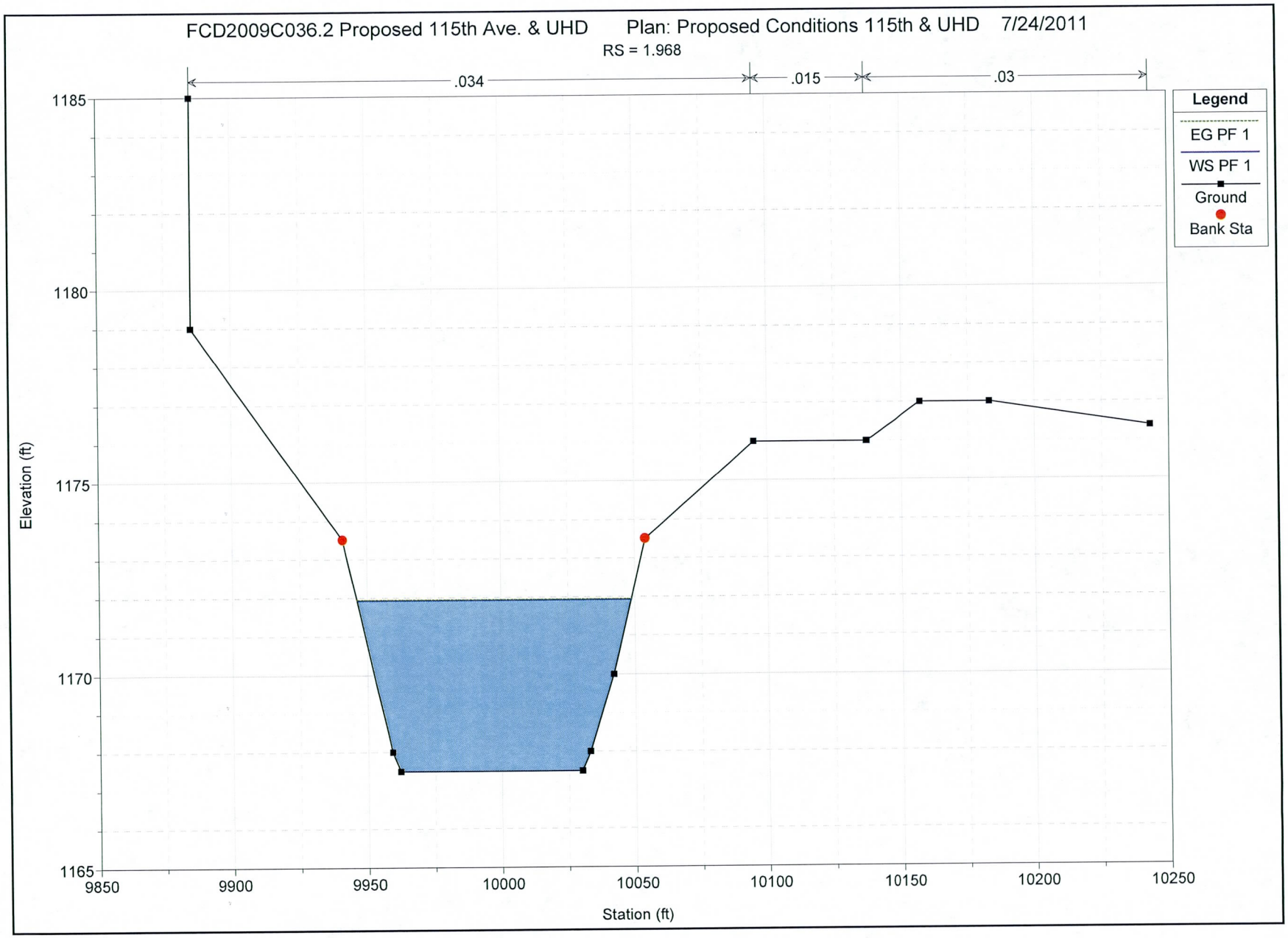

FCD2009C036.2 Proposed 115th Ave. & UHD Plan: Proposed Conditions 115th & UHD 7/24/2011
RS = 2.112 Culv
.029
.015
.03
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Levee
Ineff
Bank Sta
Elevation (ft)
1188
1186
1184
1182
1180
1178
1176
1174
9900
9950
10000
10050
10100
10150
10200
10250
10300
Station (ft)

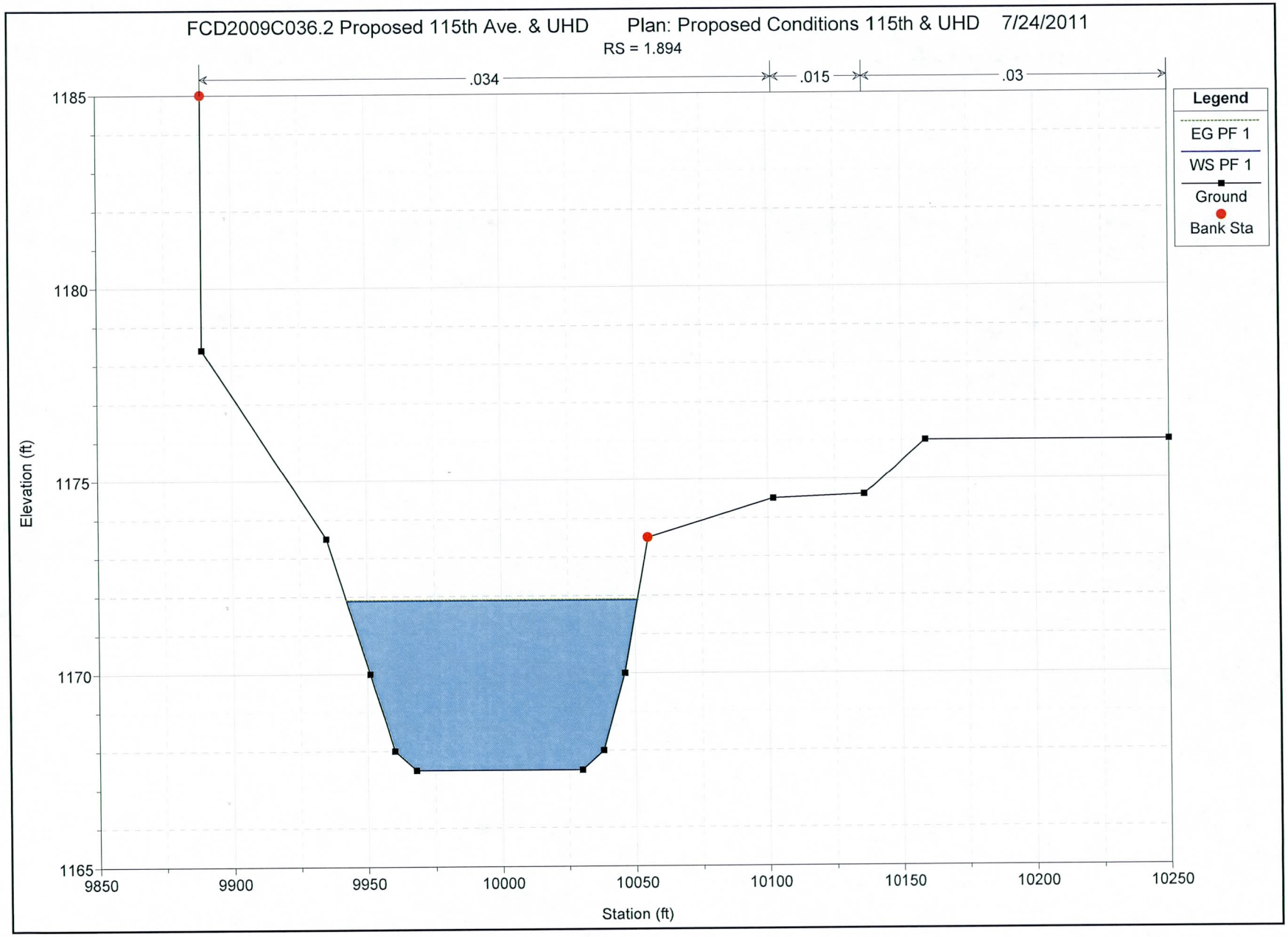

FCD2009C036.2 Proposed 115th Ave. & UHD Plan: Proposed Conditions 115th & UHD 7/24/2011
RS = 2.112 Culv
.029
.015
.03
Legend
Crit PF 1
EG PF 1
WS PF 1
Ground
Levee
Ineff
Bank Sta
Elevation (ft)
Station (ft)
1184
1182
1180
1178
1176
1174
1172
9900
9950
10000
10050
10100
10150
10200
10250

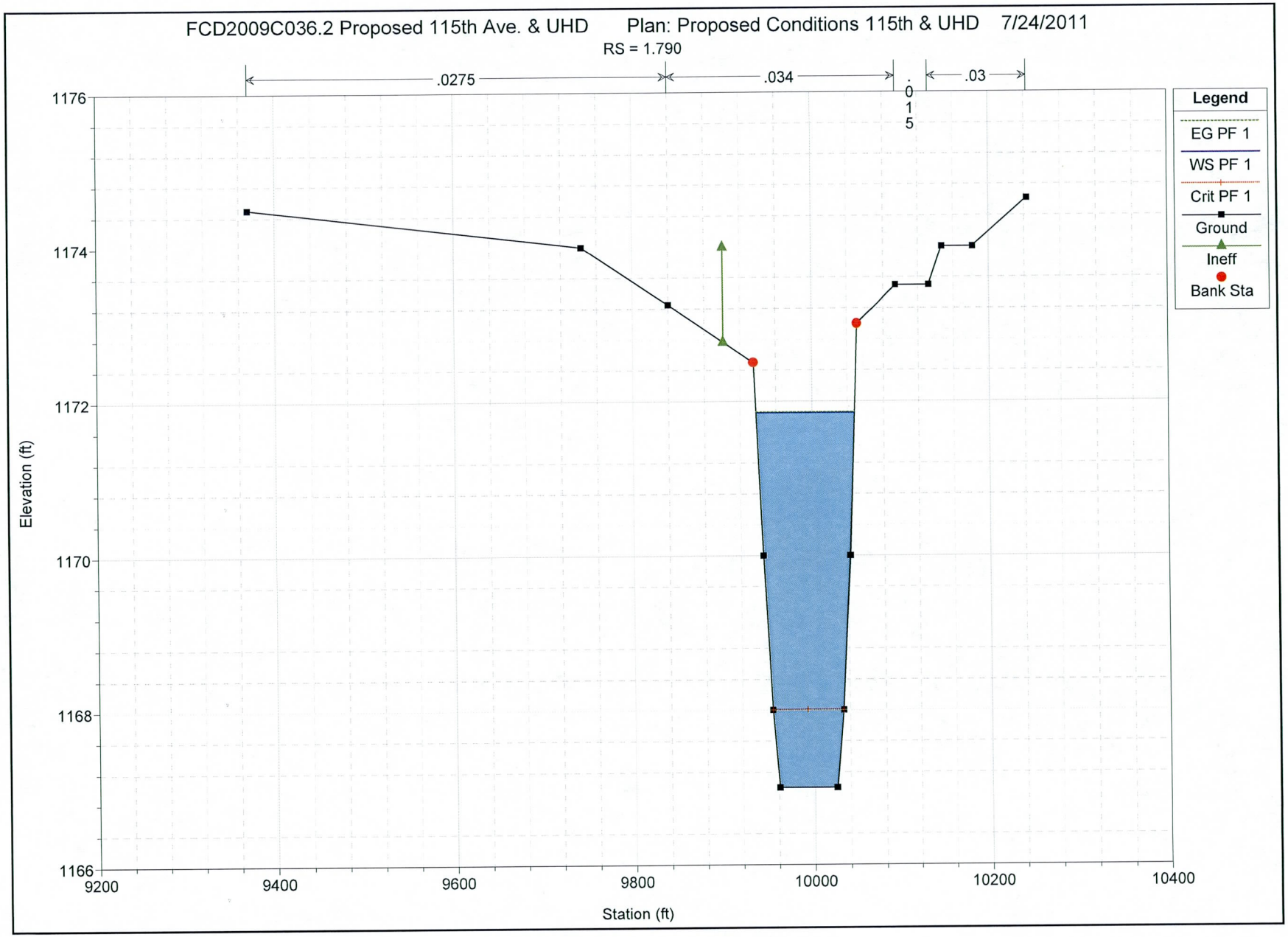

FCD2009C036.2 Proposed 115th Ave. & UHD Plan: Proposed Conditions 115th & UHD 7/24/2011
RS = 2.102 Downstream of 3-4'x10' concrete box culverts at 114th Avenue.
.029
.015
.03
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Levee
Ineff
Bank Sta
Elevation (ft)
1184
1182
1180
1178
1176
1174
1172
9900
9950
10000
10050
10100
10150
10200
10250
Station (ft)

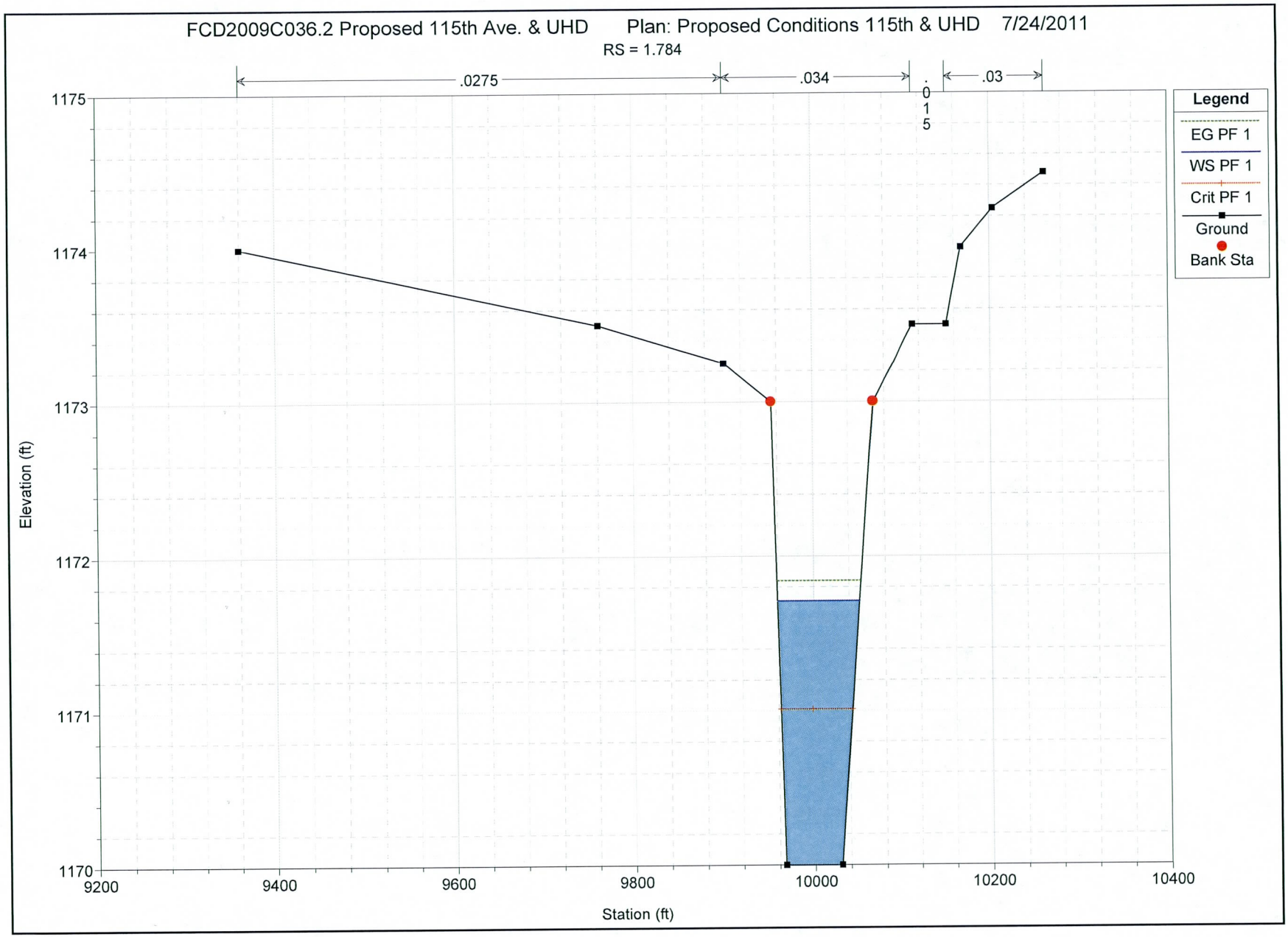

FCD2009C036.2 Proposed 115th Ave. & UHD Plan: Proposed Conditions 115th & UHD 7/24/2011
RS = 2.083
.029
.015
.03
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
1184
1182
1180
1178
1176
1174
1172
9900
9950
10000
10050
10100
10150
10200
10250
Station (ft)

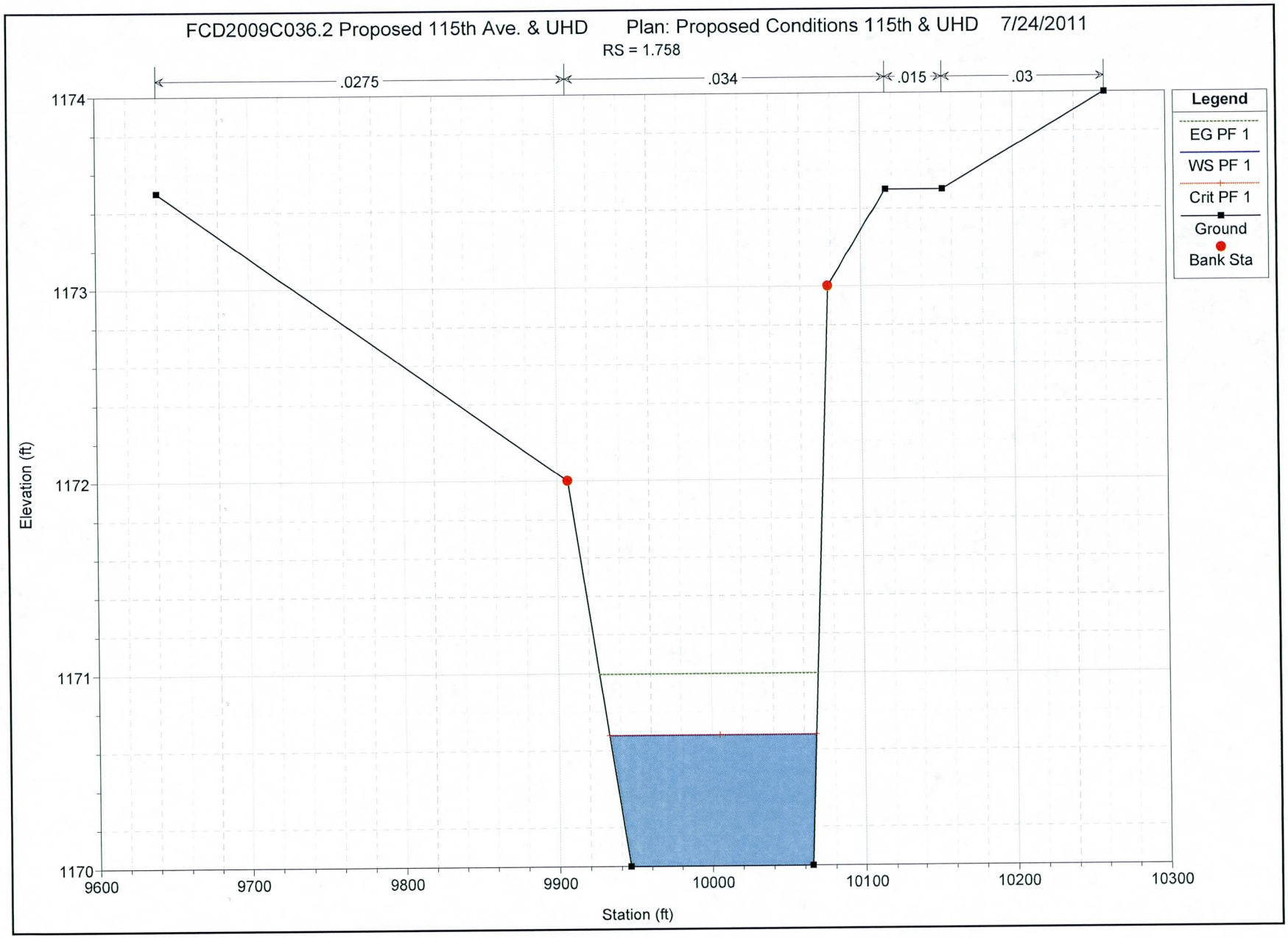

FCD2009C036.2 Proposed 115th Ave. & UHD
Plan: Proposed Conditions 115th & UHD
7/24/2011
RS = 2.030
.029
.015
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
1180
1178
1176
1174
1172
1170
1168
9950
10000
10050
10100
10150
10200
10250
Station (ft)

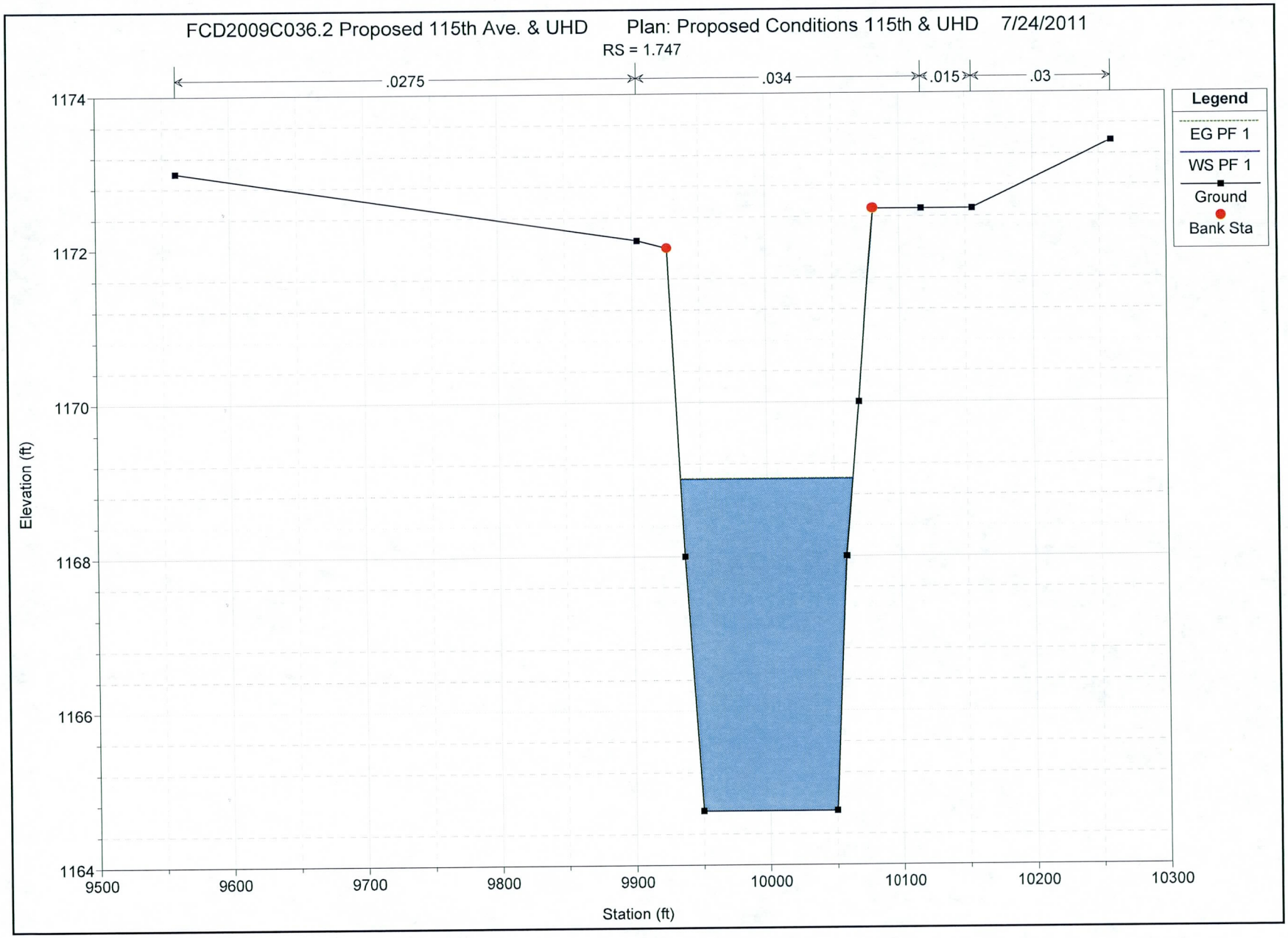

FCD2009C036.2 Proposed 115th Ave. & UHD
Plan: Proposed Conditions 115th & UHD
7/24/2011
RS = 1.968
.034
.015
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
1185
1180
1175
1170
1165
9850
9900
9950
10000
10050
10100
10150
10200
10250
Station (ft)

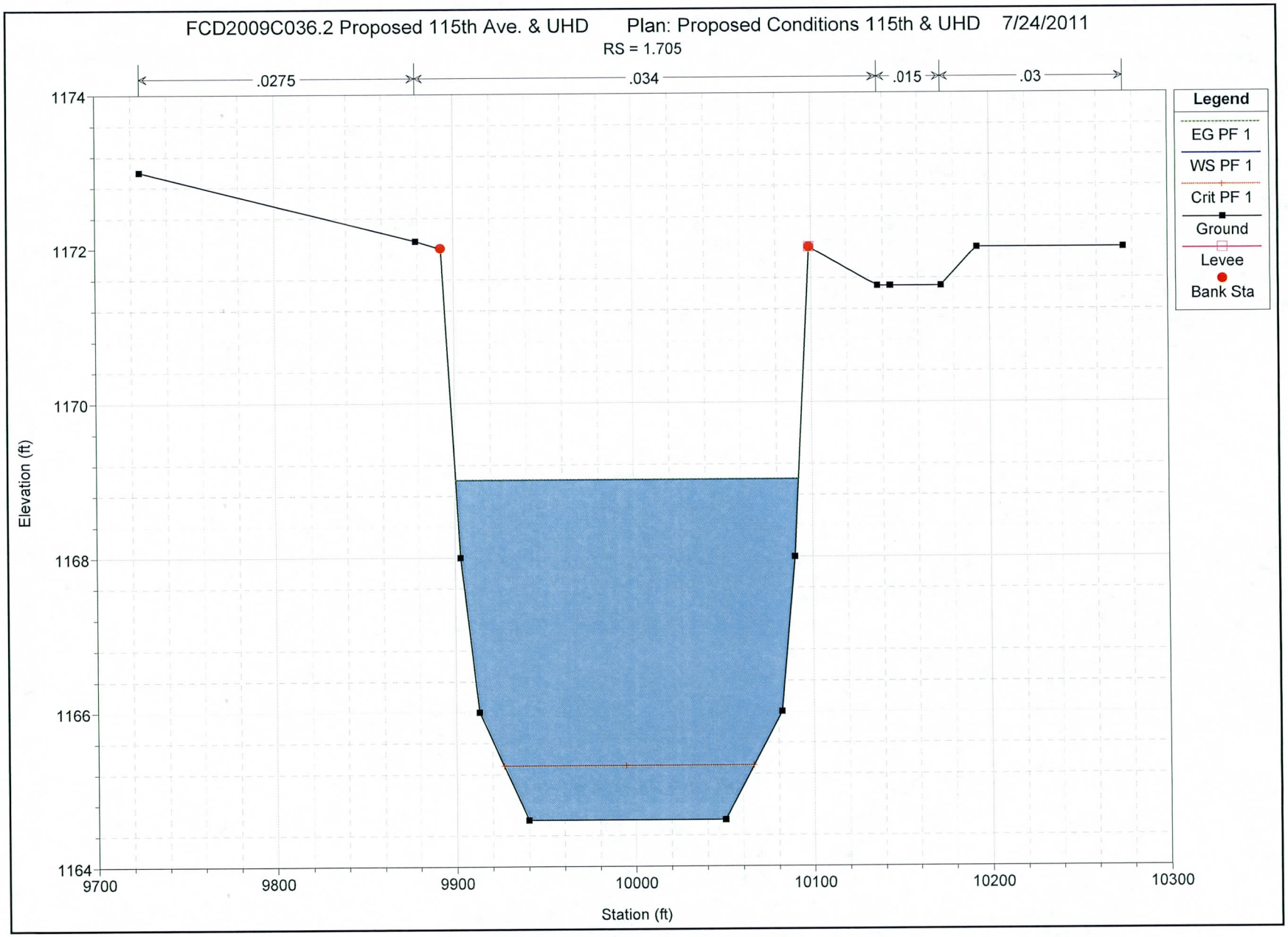

FCD2009C036.2 Proposed 115th Ave. & UHD Plan: Proposed Conditions 115th & UHD 7/24/2011
RS = 1.894
.034
.015
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
1185
1180
1175
1170
1165
9850
9900
9950
10000
10050
10100
10150
10200
10250
Station (ft)

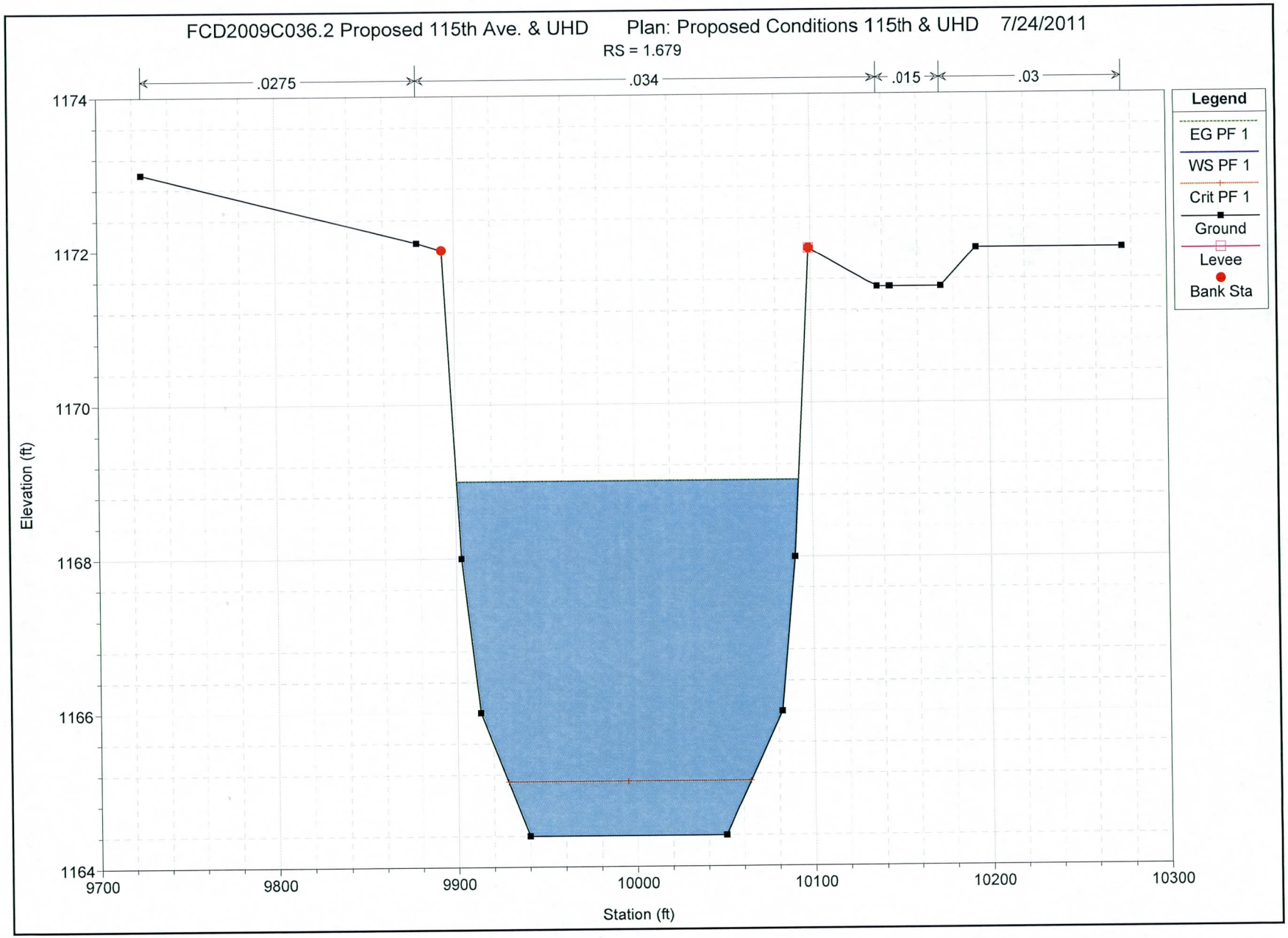

FCD2009C036.2 Proposed 115th Ave. & UHD
Plan: Proposed Conditions 115th & UHD
7/24/2011
RS = 1.790
.0275
.034
.015
.03
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
1176
1174
1172
1170
1168
1166
9200
9400
9600
9800
10000
10200
10400

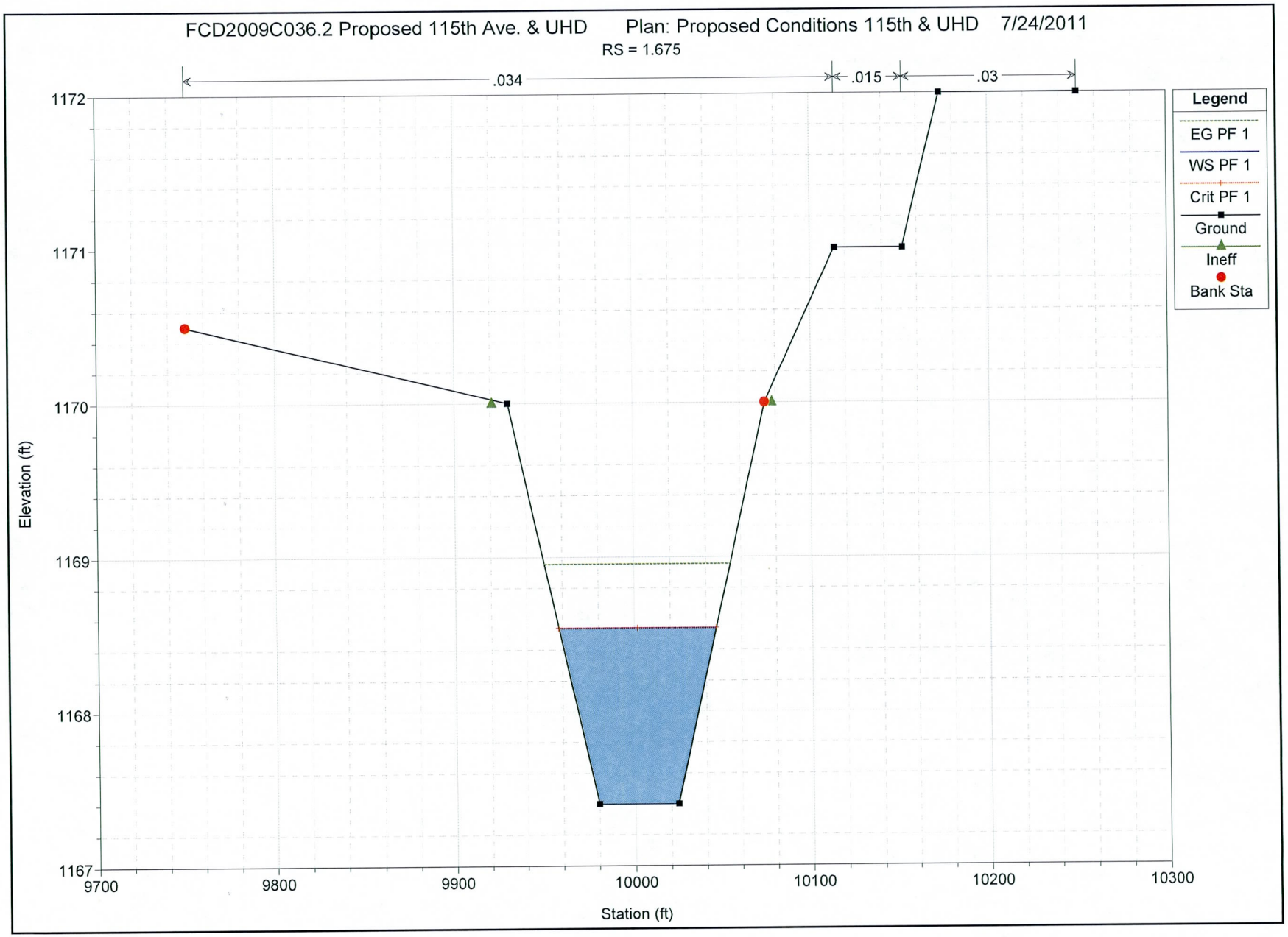

FCD2009C036.2 Proposed 115th Ave. & UHD
Plan: Proposed Conditions 115th & UHD
7/24/2011
RS = 1.784
.0275
.034
.015
.03
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
1175
1174
1173
1172
1171
1170
9200
9400
9600
9800
10000
10200
10400
Station (ft)

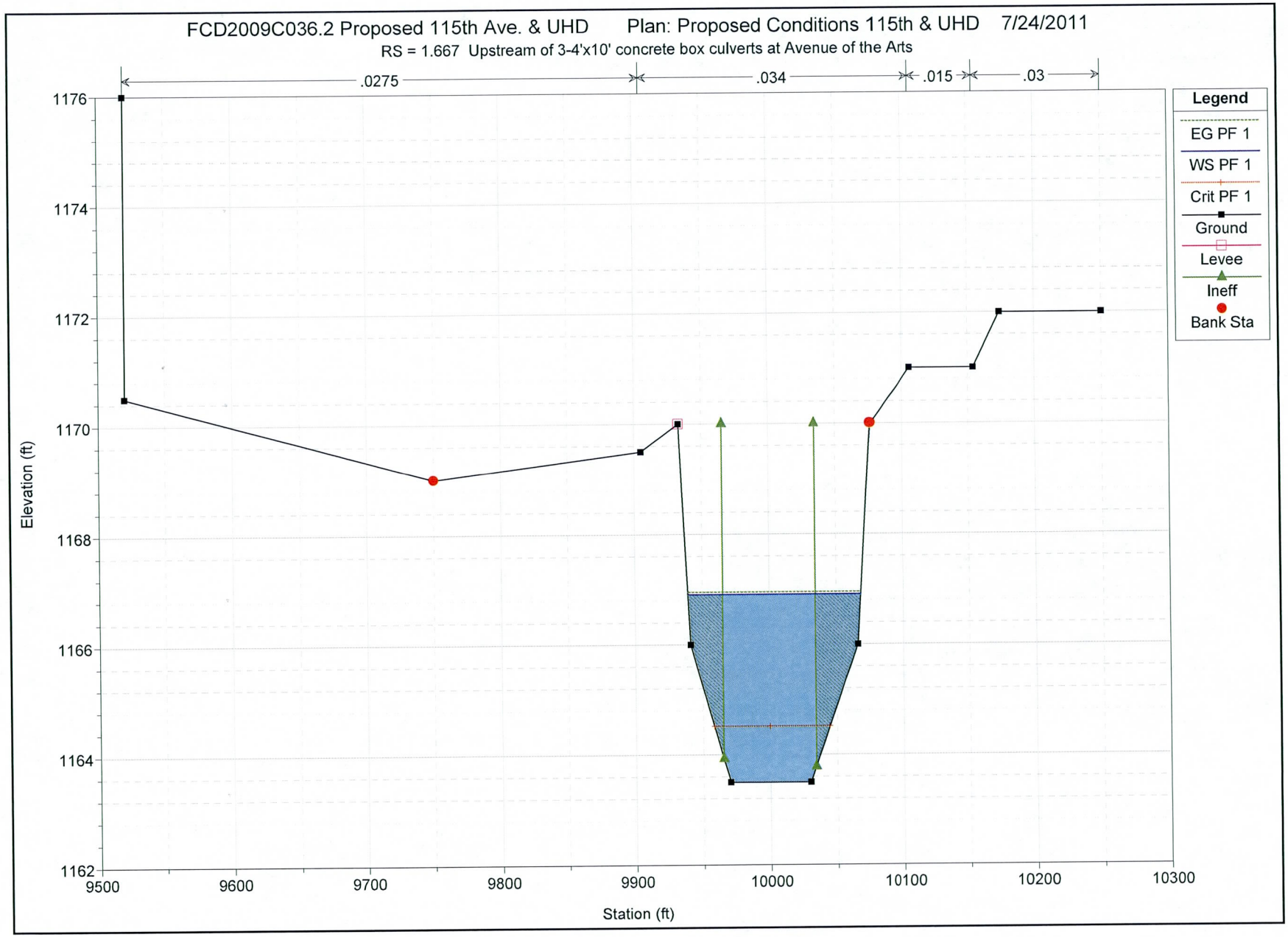

FCD2009C036.2 Proposed 115th Ave. & UHD
Plan: Proposed Conditions 115th & UHD
7/24/2011
RS = 1.758
.0275
.034
.015
.03
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
1174
1173
1172
1171
1170
9600
9700
9800
9900
10000
10100
10200
10300
Station (ft)

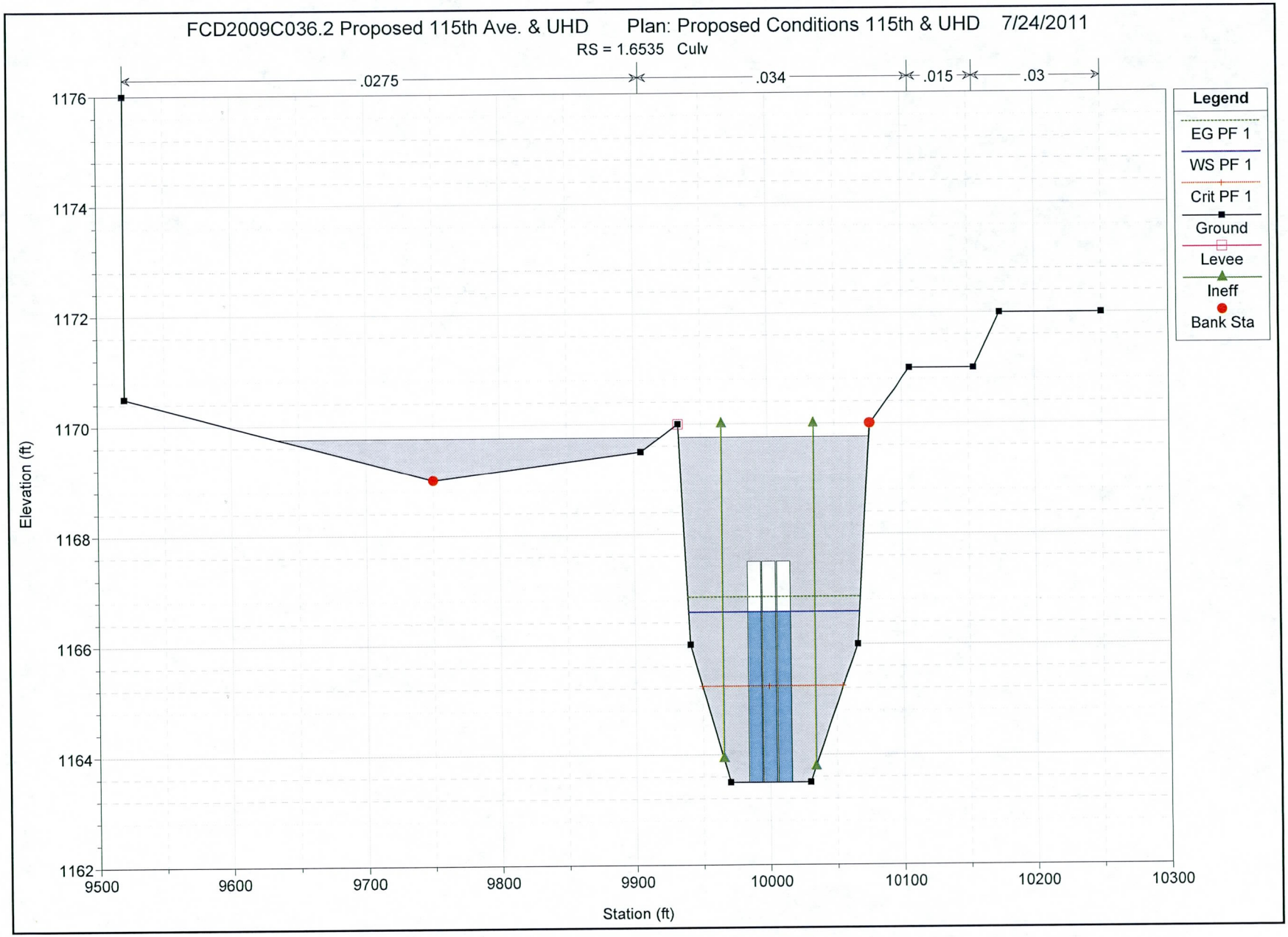

FCD2009C036.2 Proposed 115th Ave. & UHD
Plan: Proposed Conditions 115th & UHD
7/24/2011
RS = 1.747
.0275
.034
.015
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
1174
1172
1170
1168
1166
1164
9500
9600
9700
9800
9900
10000
10100
10200
10300
Station (ft)

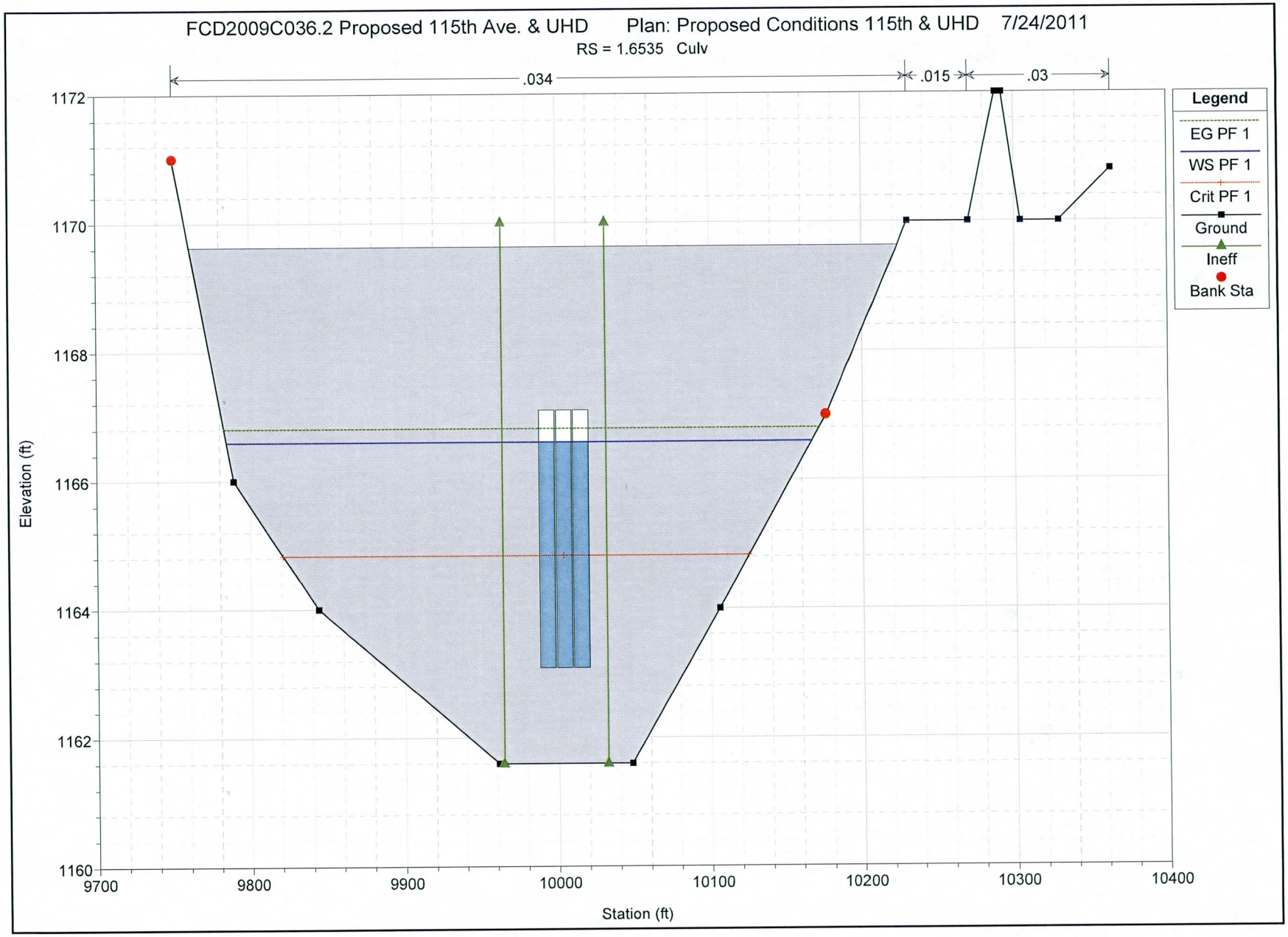

FCD2009C036.2 Proposed 115th Ave. & UHD Plan: Proposed Conditions 115th & UHD 7/24/2011
RS = 1.705
.0275
.034
.015
.03
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
Elevation (ft)
1174
1172
1170
1168
1166
1164
9700
9800
9900
10000
10100
10200
10300
Station (ft)

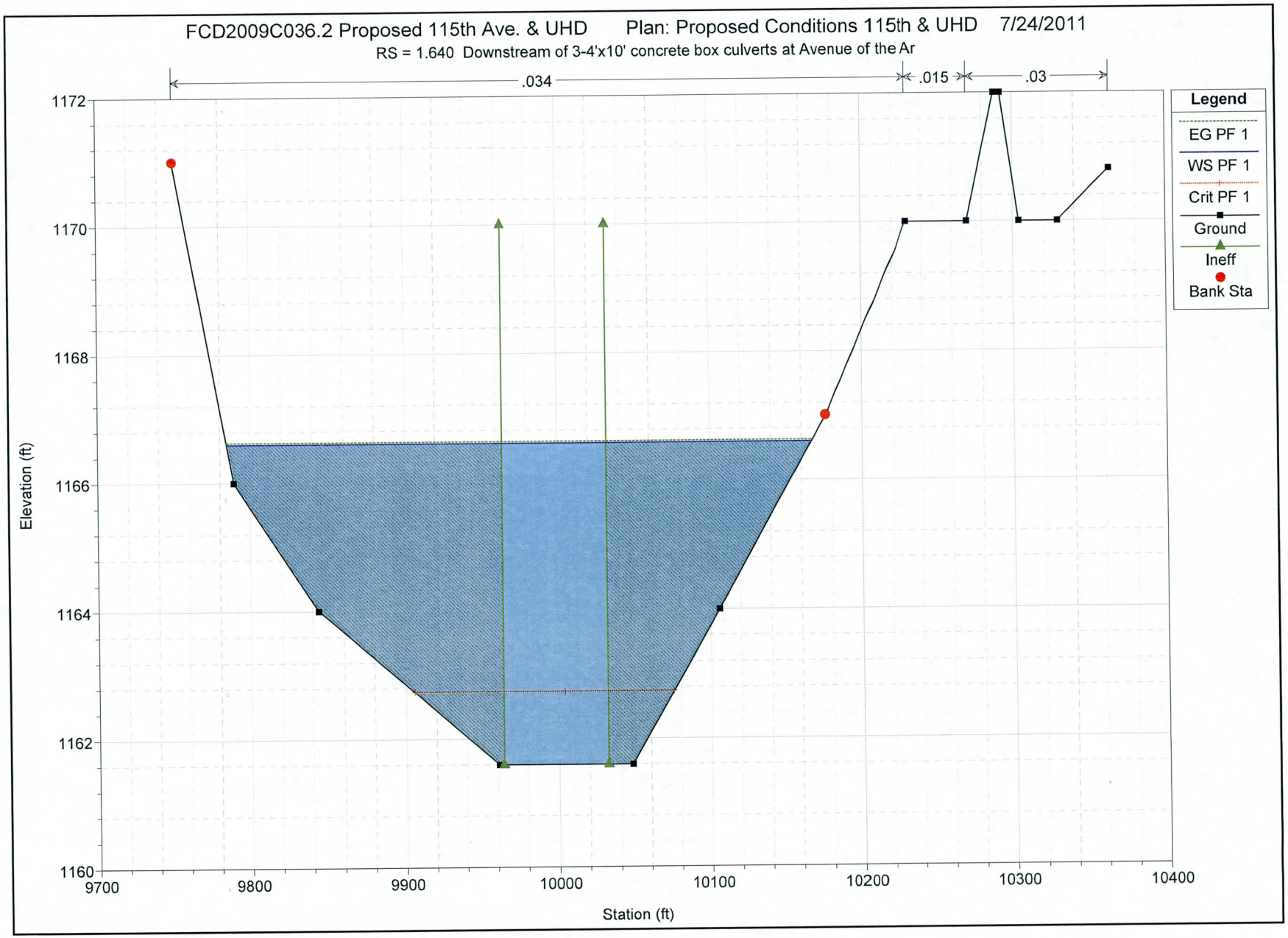

FCD2009C036.2 Proposed 115th Ave. & UHD Plan: Proposed Conditions 115th & UHD 7/24/2011
RS = 1.679
.0275
.034
.015
.03
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
Elevation (ft)
1174
1172
1170
1168
1166
1164
9700
9800
9900
10000
10100
10200
10300
Station (ft)

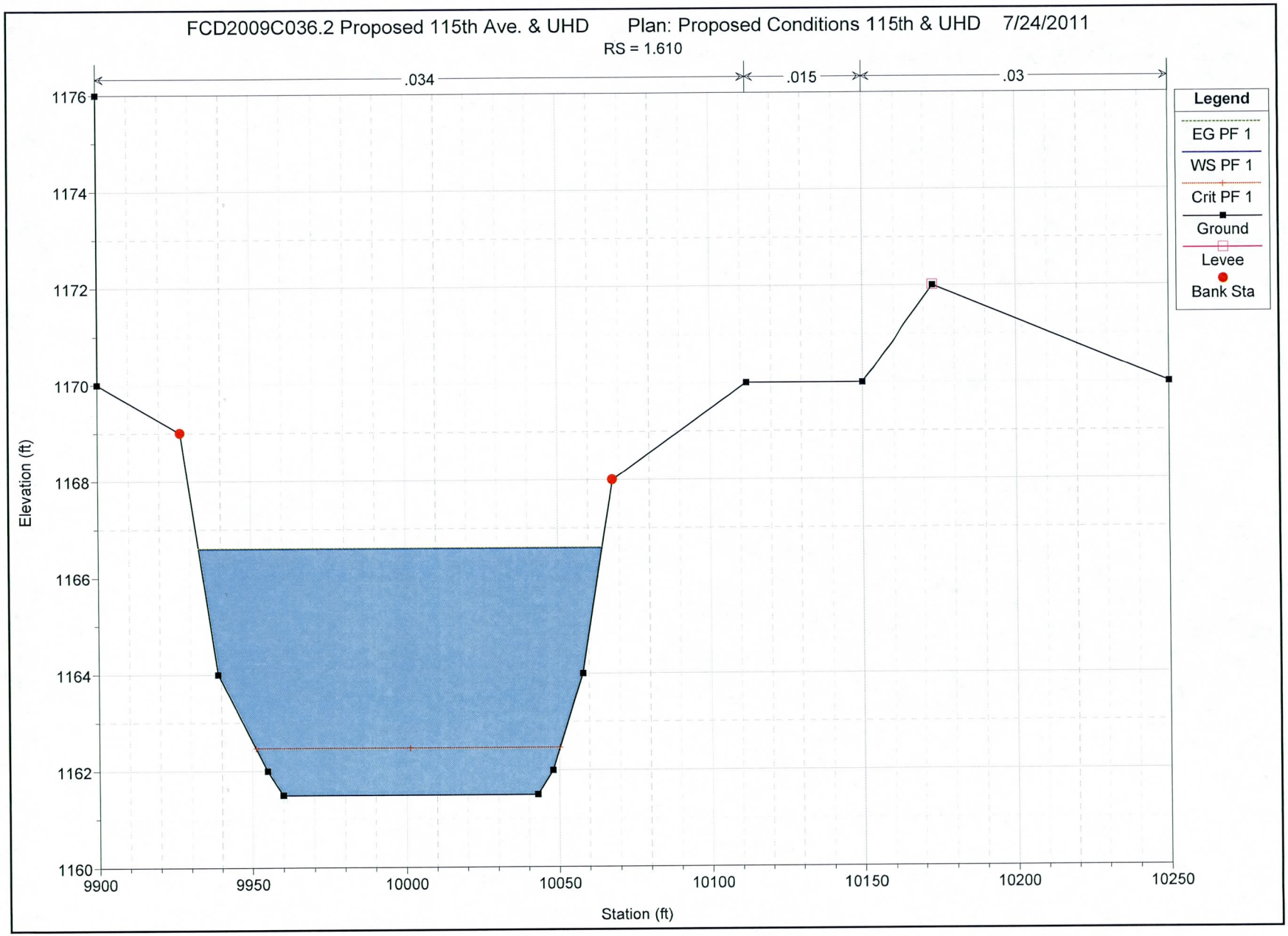

FCD2009C036.2 Proposed 115th Ave. & UHD Plan: Proposed Conditions 115th & UHD 7/24/2011
RS = 1.675
.034
.015
.03
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
1172
1171
1170
1169
1168
1167
9700
9800
9900
10000
10100
10200
10300
Station (ft)

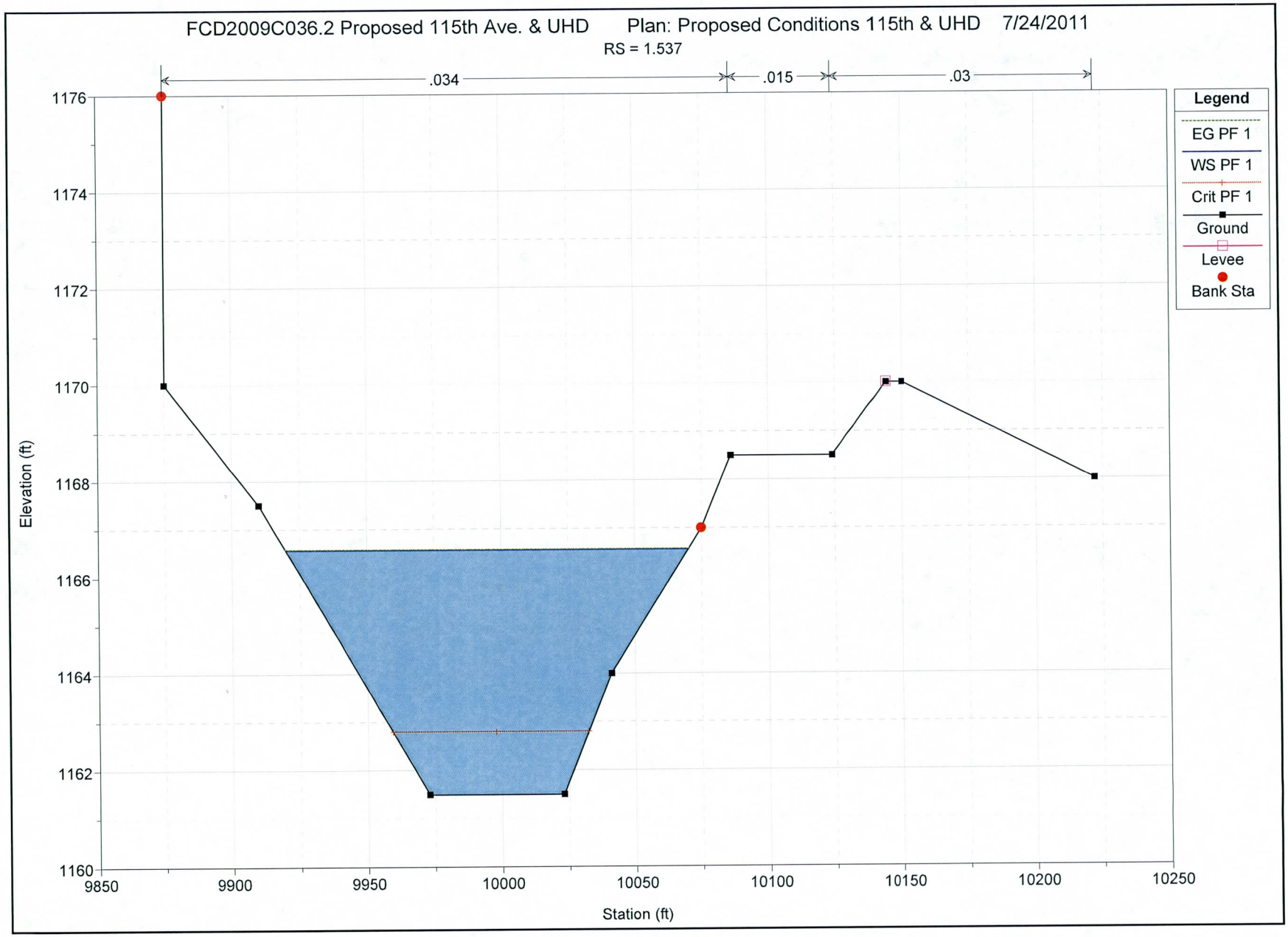

FCD2009C036.2 Proposed 115th Ave. & UHD Plan: Proposed Conditions 115th & UHD 7/24/2011
RS = 1.667 Upstream of 3-4'x10' concrete box culverts at Avenue of the Arts
.0275
.034
.015
.03
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Levee
Ineff
Bank Sta
Elevation (ft)
1176
1174
1172
1170
1168
1166
1164
1162
9500
9600
9700
9800
9900
10000
10100
10200
10300
Station (ft)

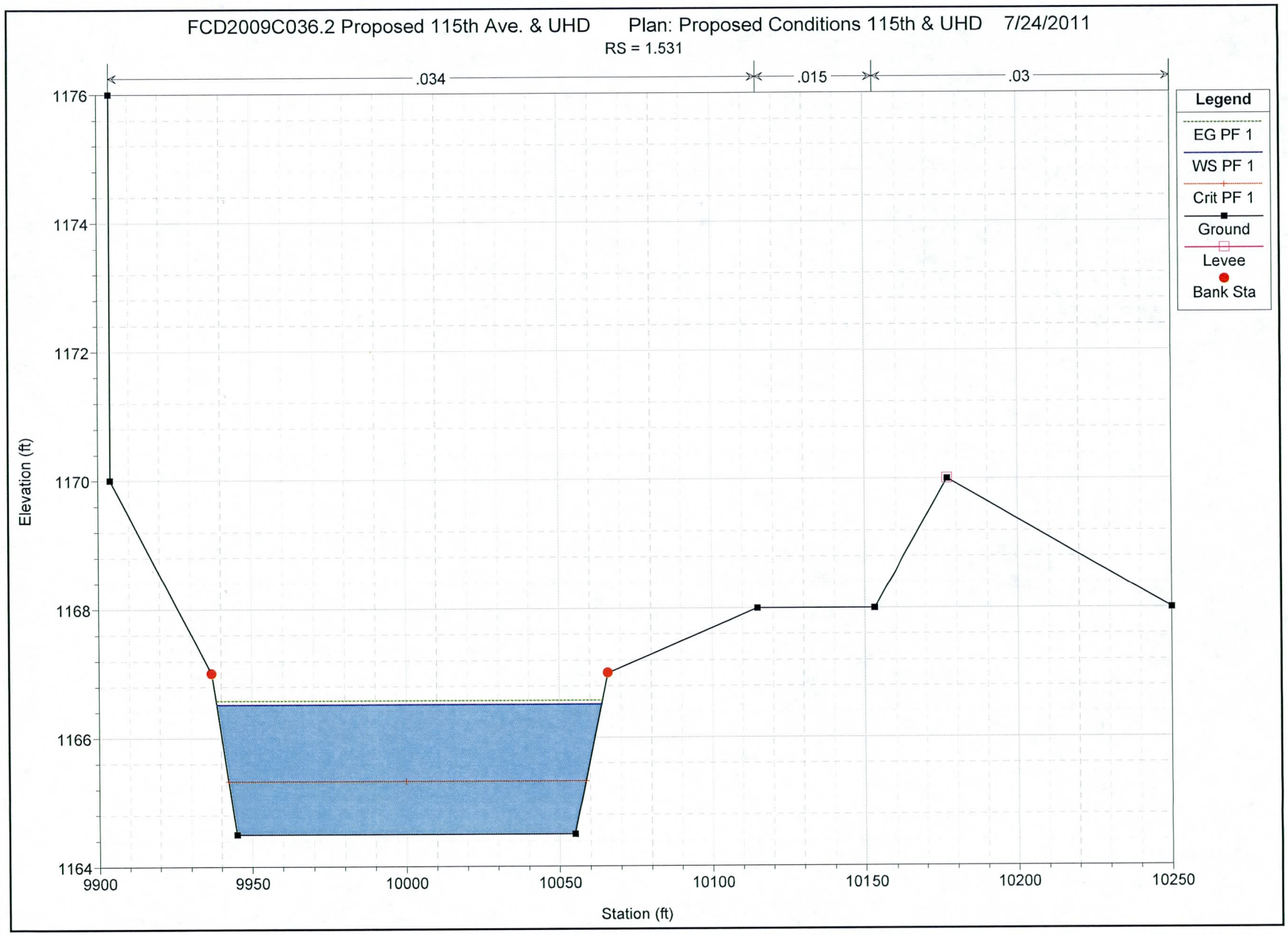

FCD2009C036.2 Proposed 115th Ave. & UHD Plan: Proposed Conditions 115th & UHD 7/24/2011
RS = 1.6535 Culv
.0275
.034
.015
.03
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Levee
Ineff
Bank Sta
Elevation (ft)
1176
1174
1172
1170
1168
1166
1164
1162
9500
9600
9700
9800
9900
10000
10100
10200
10300
Station (ft)

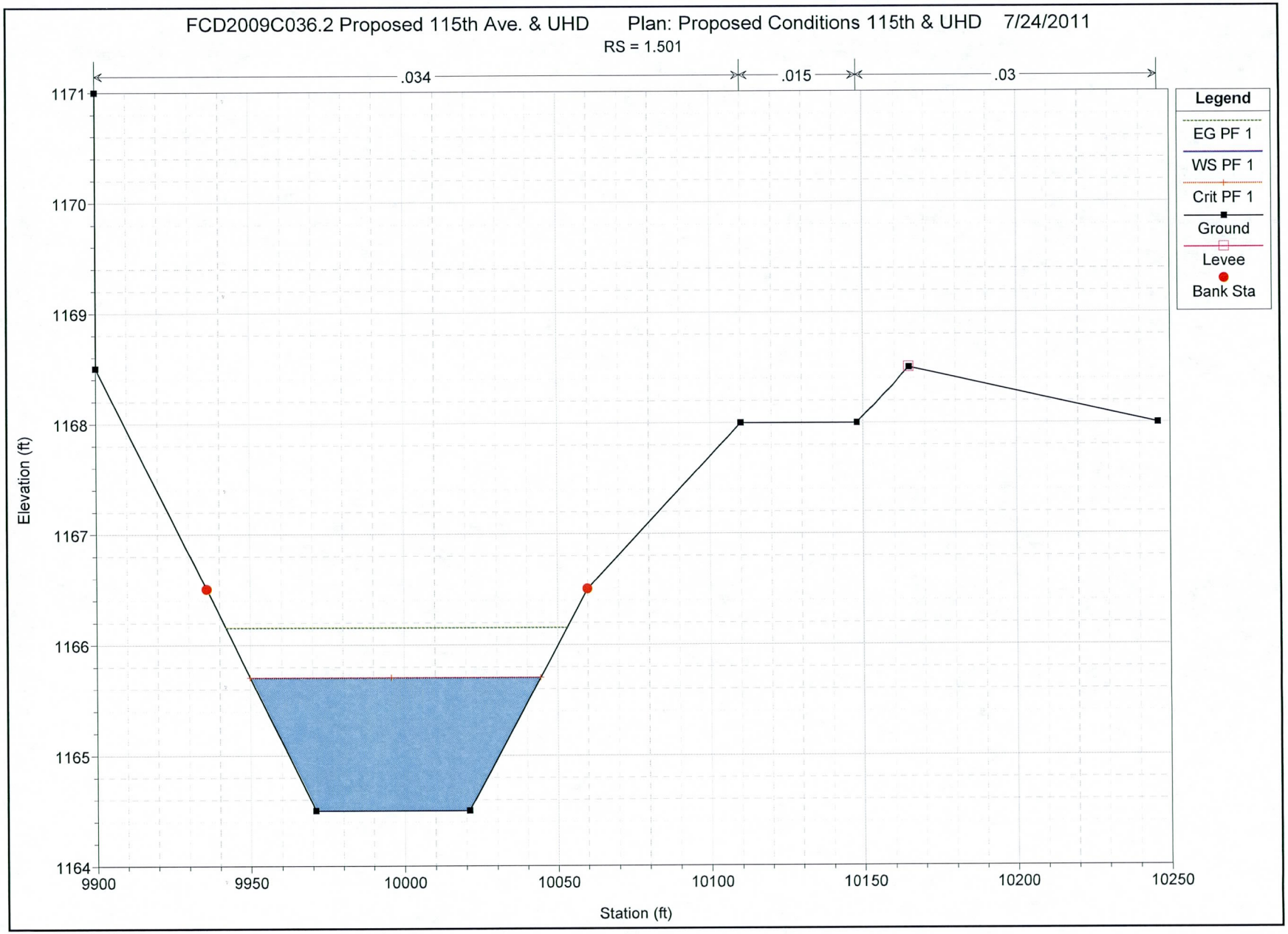

FCD2009C036.2 Proposed 115th Ave. & UHD Plan: Proposed Conditions 115th & UHD 7/24/2011
RS = 1.6535 Culv
.034
.015
.03
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
1172
1170
1168
1166
1164
1162
1160
9700
9800
9900
10000
10100
10200
10300
10400
Station (ft)

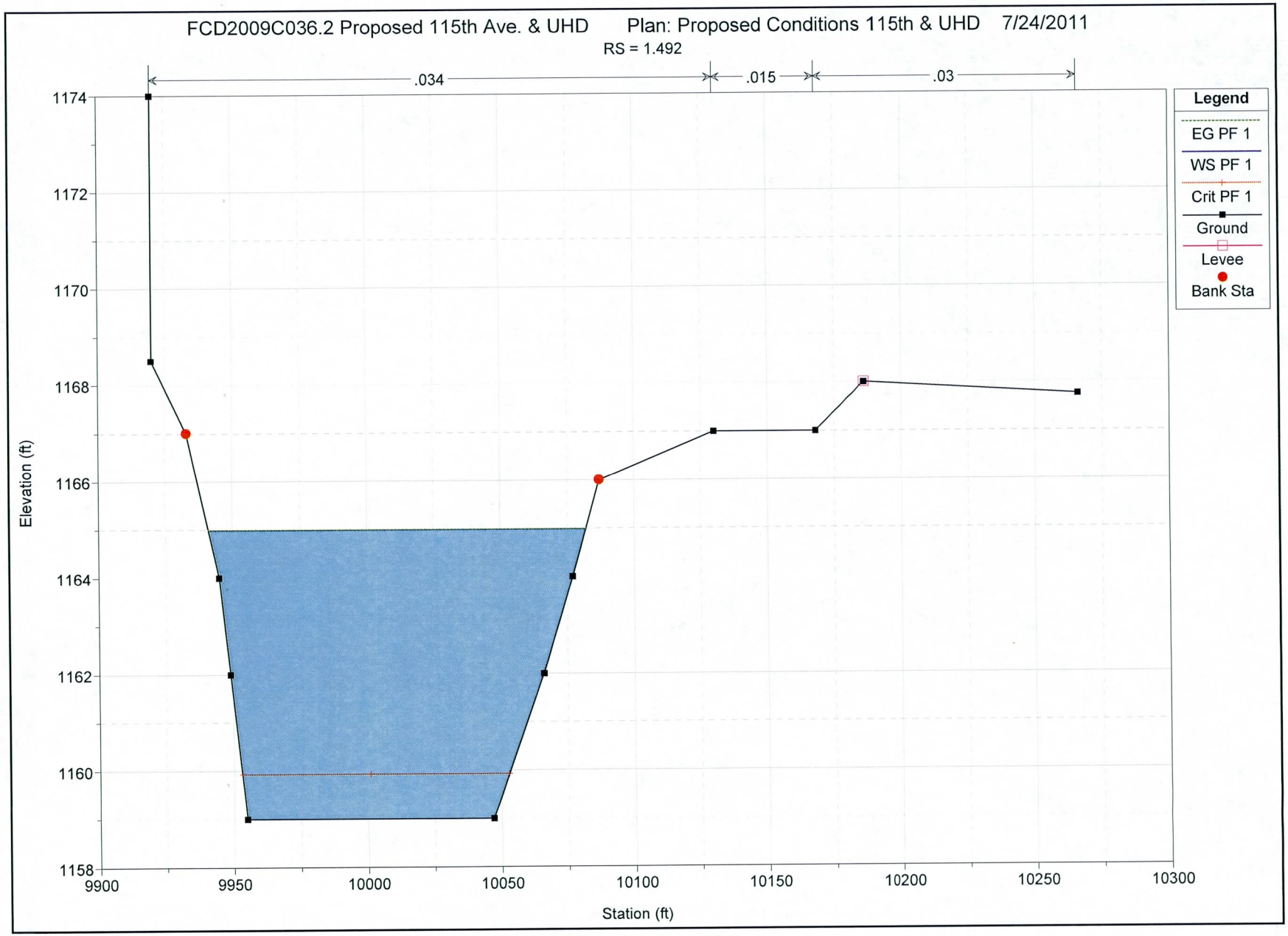

FCD2009C036.2 Proposed 115th Ave. & UHD Plan: Proposed Conditions 115th & UHD 7/24/2011
RS = 1.640 Downstream of 3-4'x10' concrete box culverts at Avenue of the Ar
.034
.015
.03
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
1172
1170
1168
1166
1164
1162
1160
9700
9800
9900
10000
10100
10200
10300
10400
Station (ft)

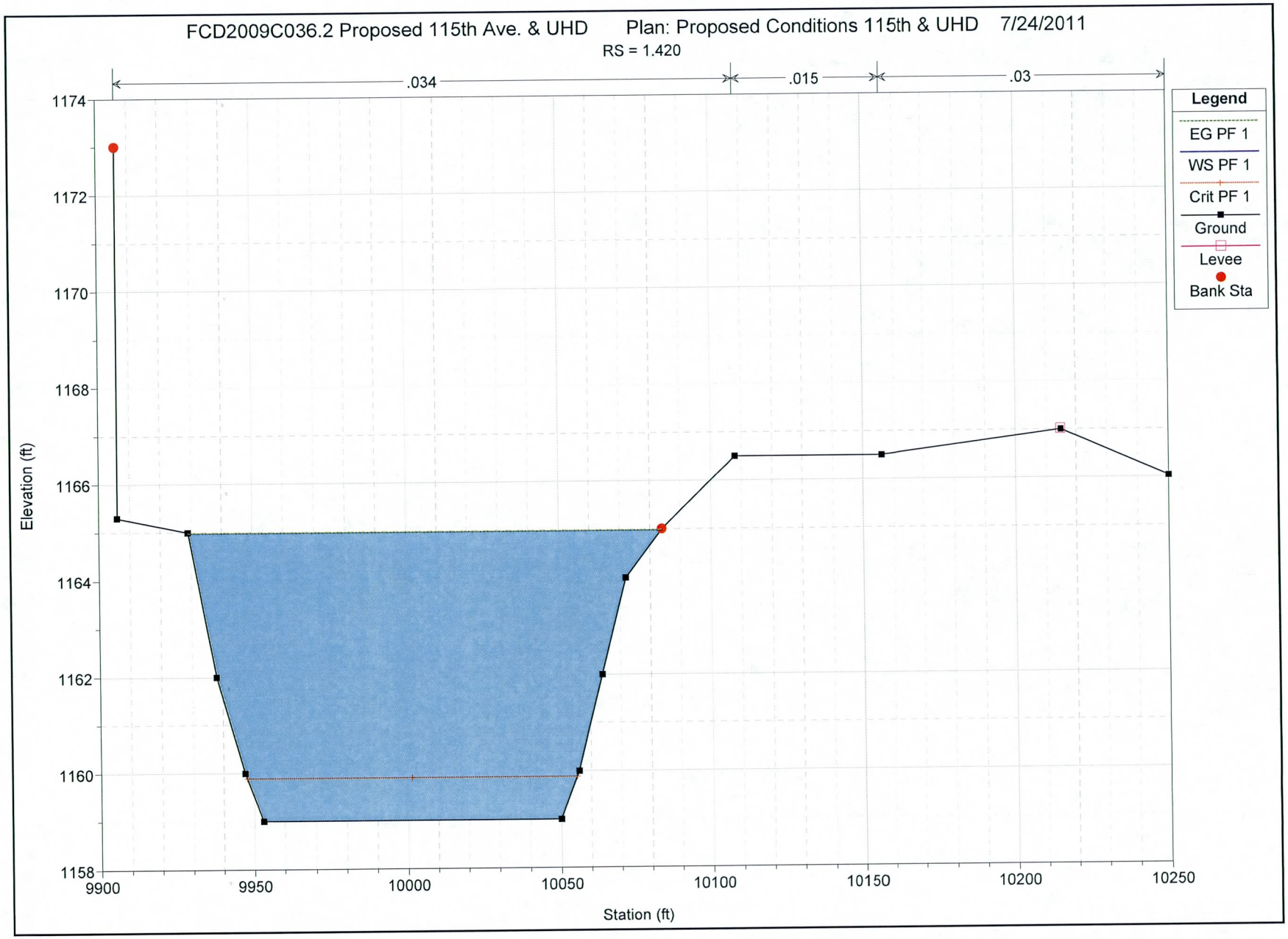

FCD2009C036.2 Proposed 115th Ave. & UHD Plan: Proposed Conditions 115th & UHD 7/24/2011
RS = 1.610
.034
.015
.03
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
Elevation (ft)
1176
1174
1172
1170
1168
1166
1164
1162
1160
9900
9950
10000
10050
10100
10150
10200
10250
Station (ft)

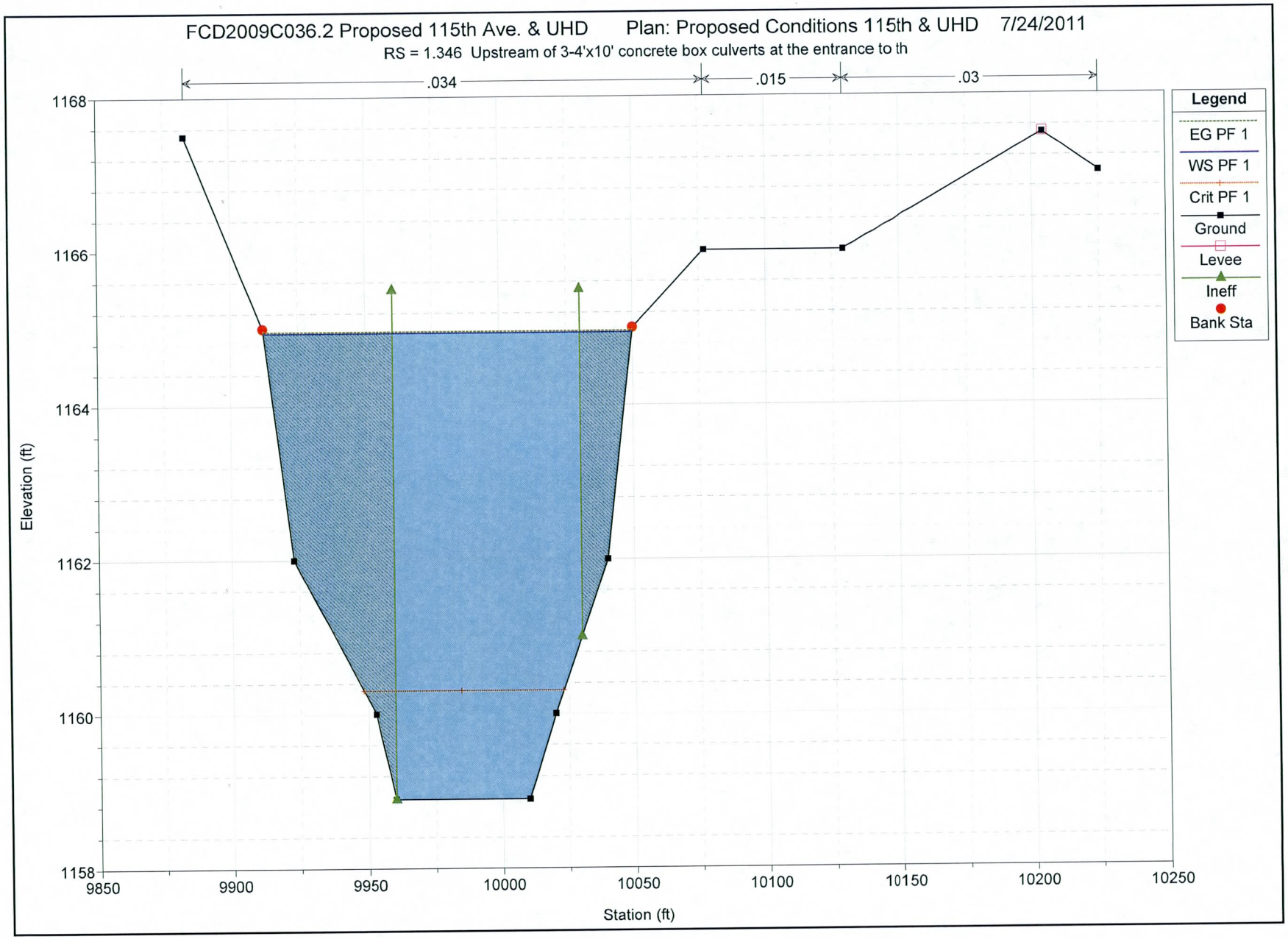

FCD2009C036.2 Proposed 115th Ave. & UHD
Plan: Proposed Conditions 115th & UHD
7/24/2011
RS = 1.537
.034
.015
.03
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
Elevation (ft)
1176
1174
1172
1170
1168
1166
1164
1162
1160
9850
9900
9950
10000
10050
10100
10150
10200
10250
Station (ft)

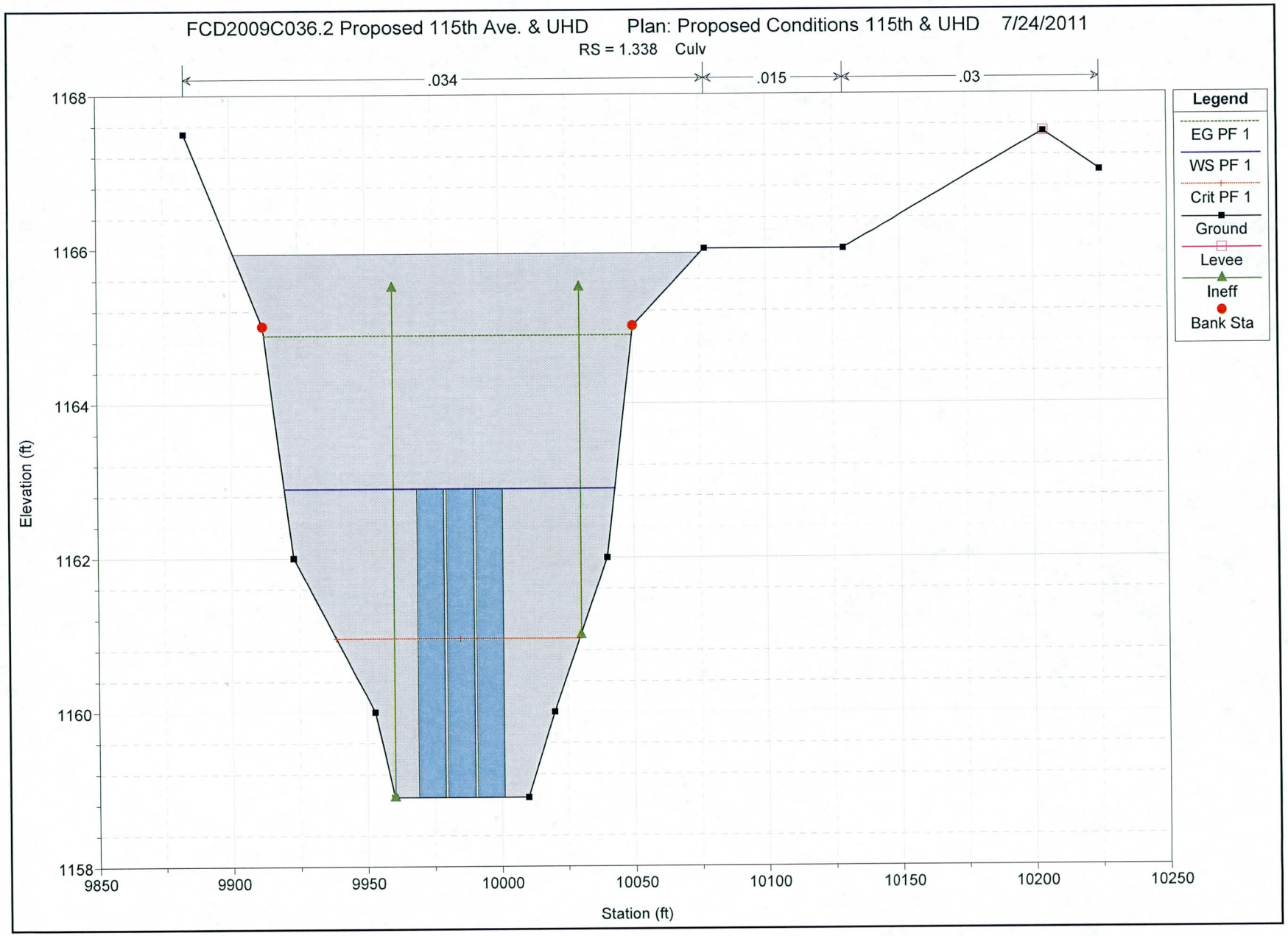

FCD2009C036.2 Proposed 115th Ave. & UHD Plan: Proposed Conditions 115th & UHD 7/24/2011
RS = 1.531
.034
.015
.03
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
Elevation (ft)
1176
1174
1172
1170
1168
1166
1164
9900
9950
10000
10050
10100
10150
10200
10250
Station (ft)

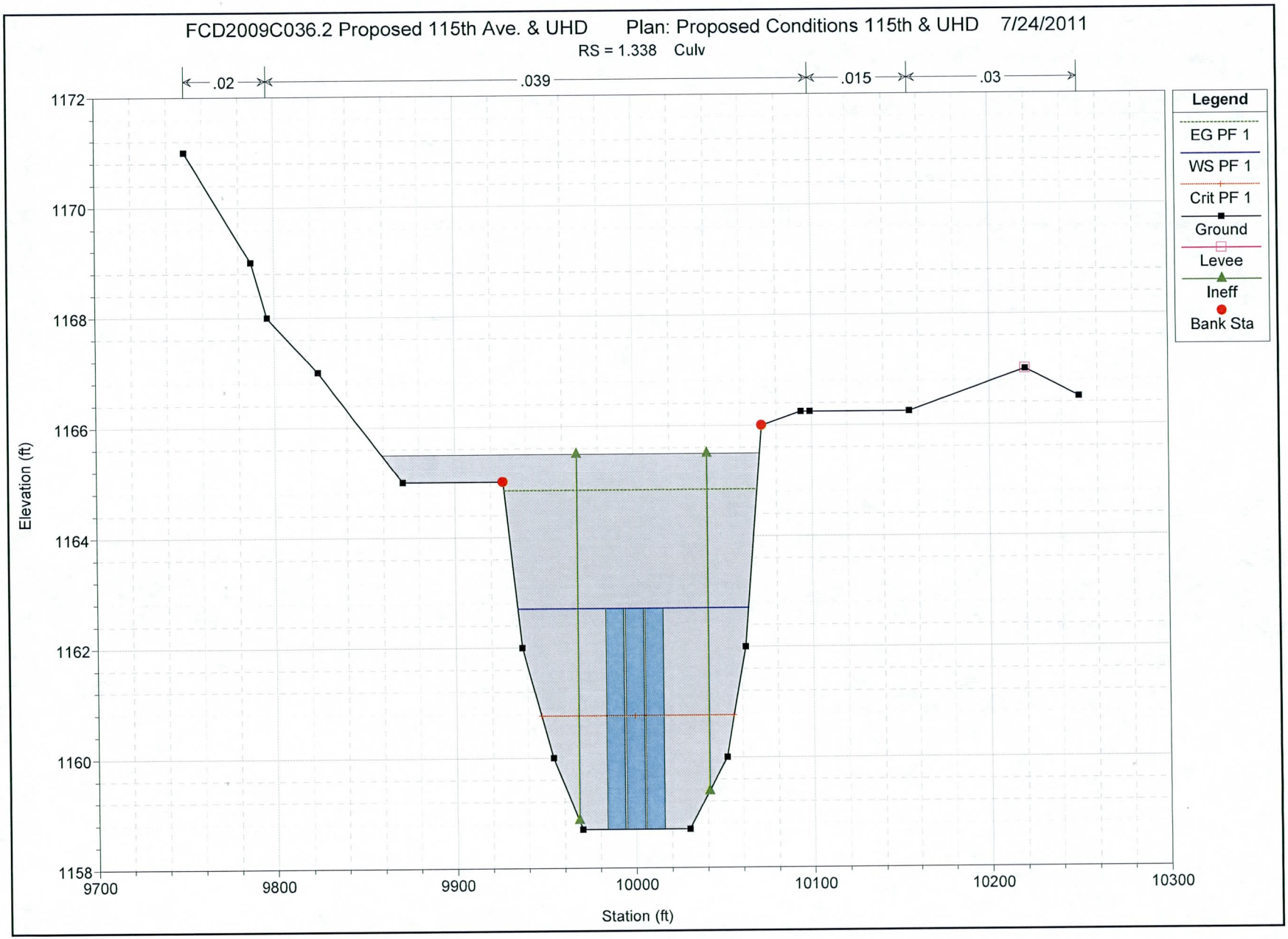

FCD2009C036.2 Proposed 115th Ave. & UHD Plan: Proposed Conditions 115th & UHD 7/24/2011
RS = 1.501
.034
.015
.03
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
Elevation (ft)
1171
1170
1169
1168
1167
1166
1165
1164
9900
9950
10000
10050
10100
10150
10200
10250
Station (ft)

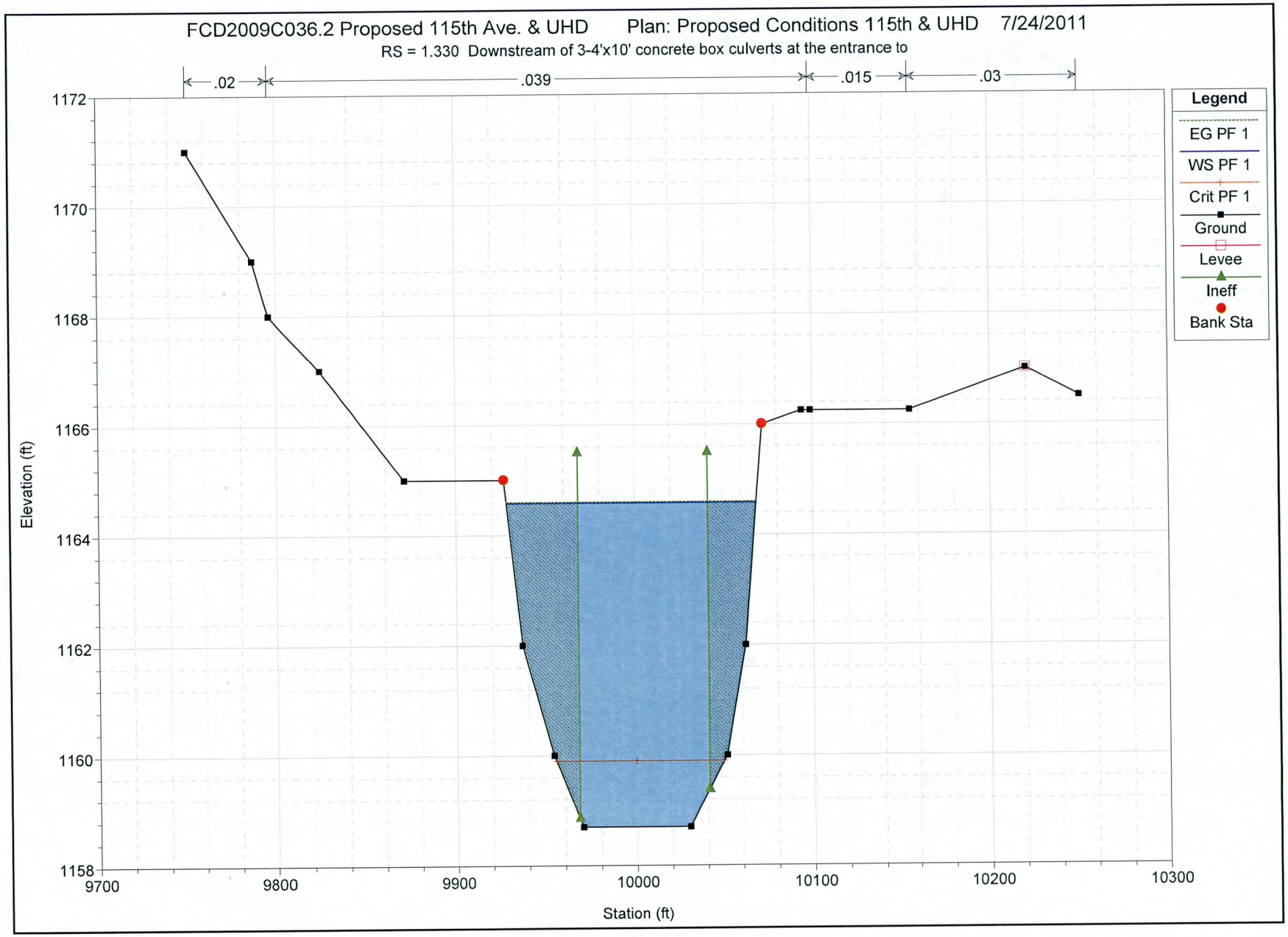

FCD2009C036.2 Proposed 115th Ave. & UHD
Plan: Proposed Conditions 115th & UHD
7/24/2011
RS = 1.492
.034
.015
.03
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
Elevation (ft)
1174
1172
1170
1168
1166
1164
1162
1160
1158
9900
9950
10000
10050
10100
10150
10200
10250
10300
Station (ft)

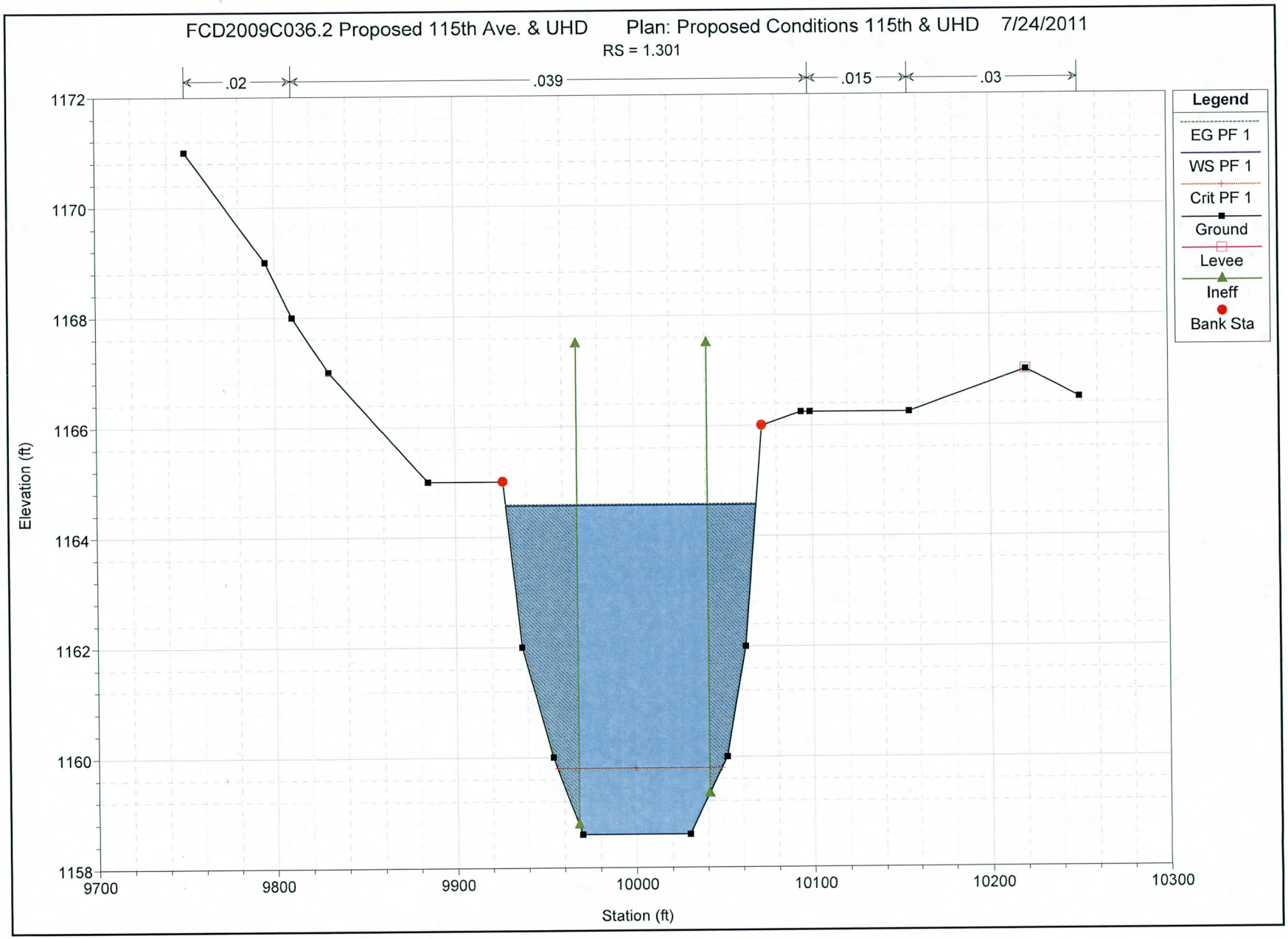

FCD2009C036.2 Proposed 115th Ave. & UHD Plan: Proposed Conditions 115th & UHD 7/24/2011
RS = 1.420
.034
.015
.03
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
Elevation (ft)
1174
1172
1170
1168
1166
1164
1162
1160
1158
9900
9950
10000
10050
10100
10150
10200
10250
Station (ft)

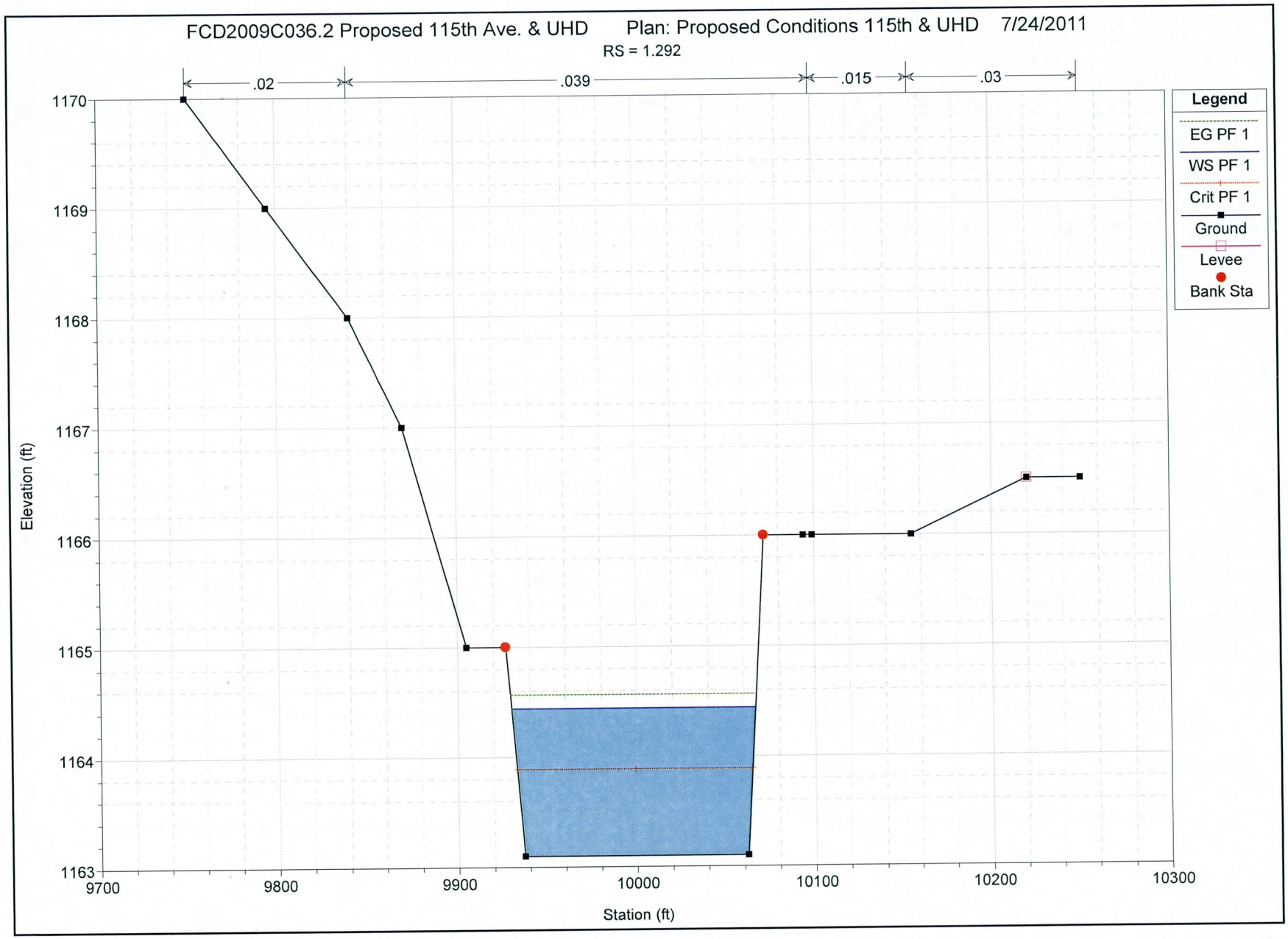

FCD2009C036.2 Proposed 115th Ave. & UHD Plan: Proposed Conditions 115th & UHD 7/24/2011
RS = 1.346 Upstream of 3-4'x10' concrete box culverts at the entrance to th
.034
.015
.03
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Levee
Ineff
Bank Sta
Elevation (ft)
1168
1166
1164
1162
1160
1158
9850
9900
9950
10000
10050
10100
10150
10200
10250
Station (ft)

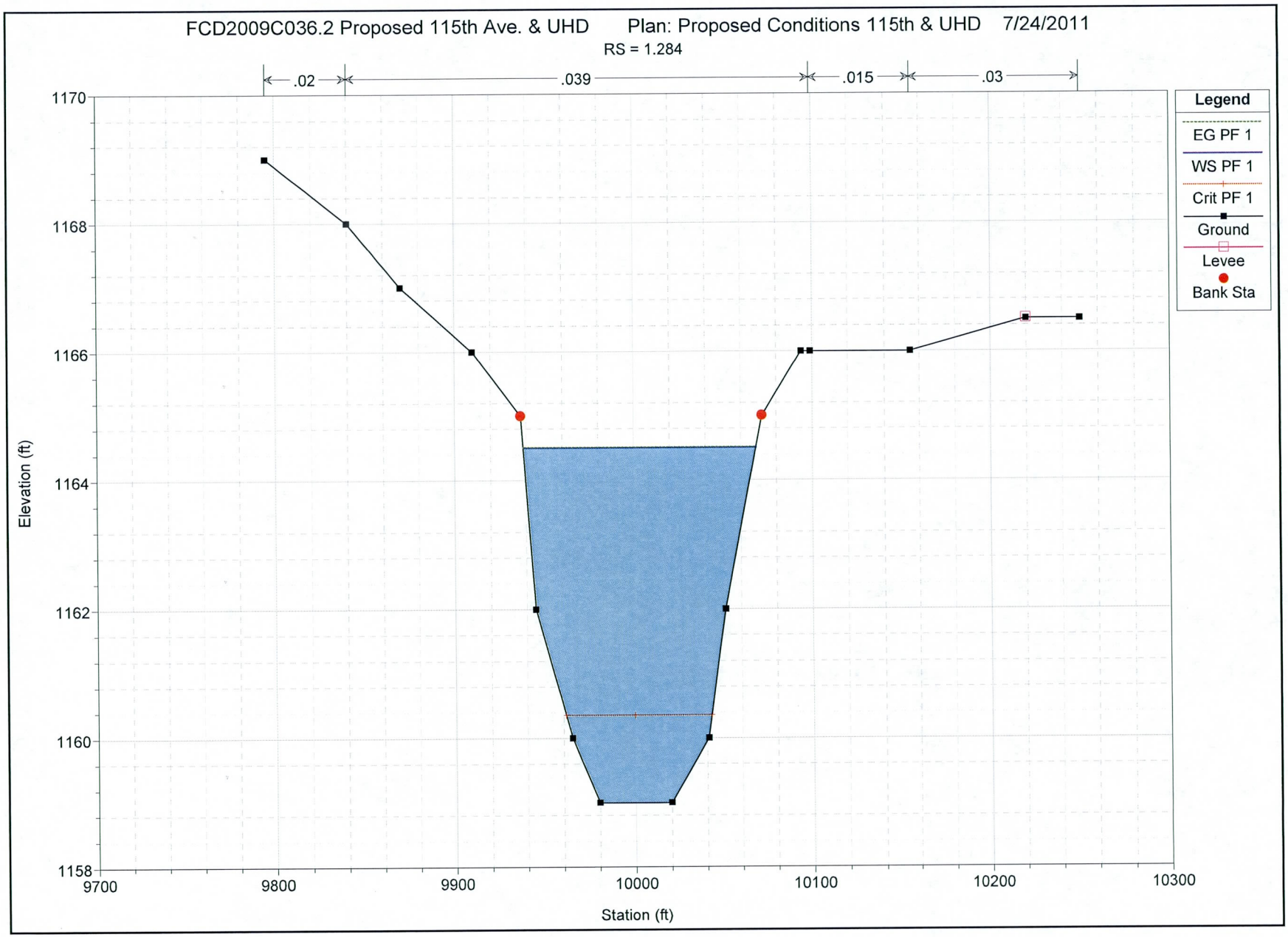

FCD2009C036.2 Proposed 115th Ave. & UHD
Plan: Proposed Conditions 115th & UHD
7/24/2011
RS = 1.338 Culv
.034
.015
.03
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Levee
Ineff
Bank Sta
Elevation (ft)
Station (ft)
1168
1166
1164
1162
1160
1158
9850
9900
9950
10000
10050
10100
10150
10200
10250

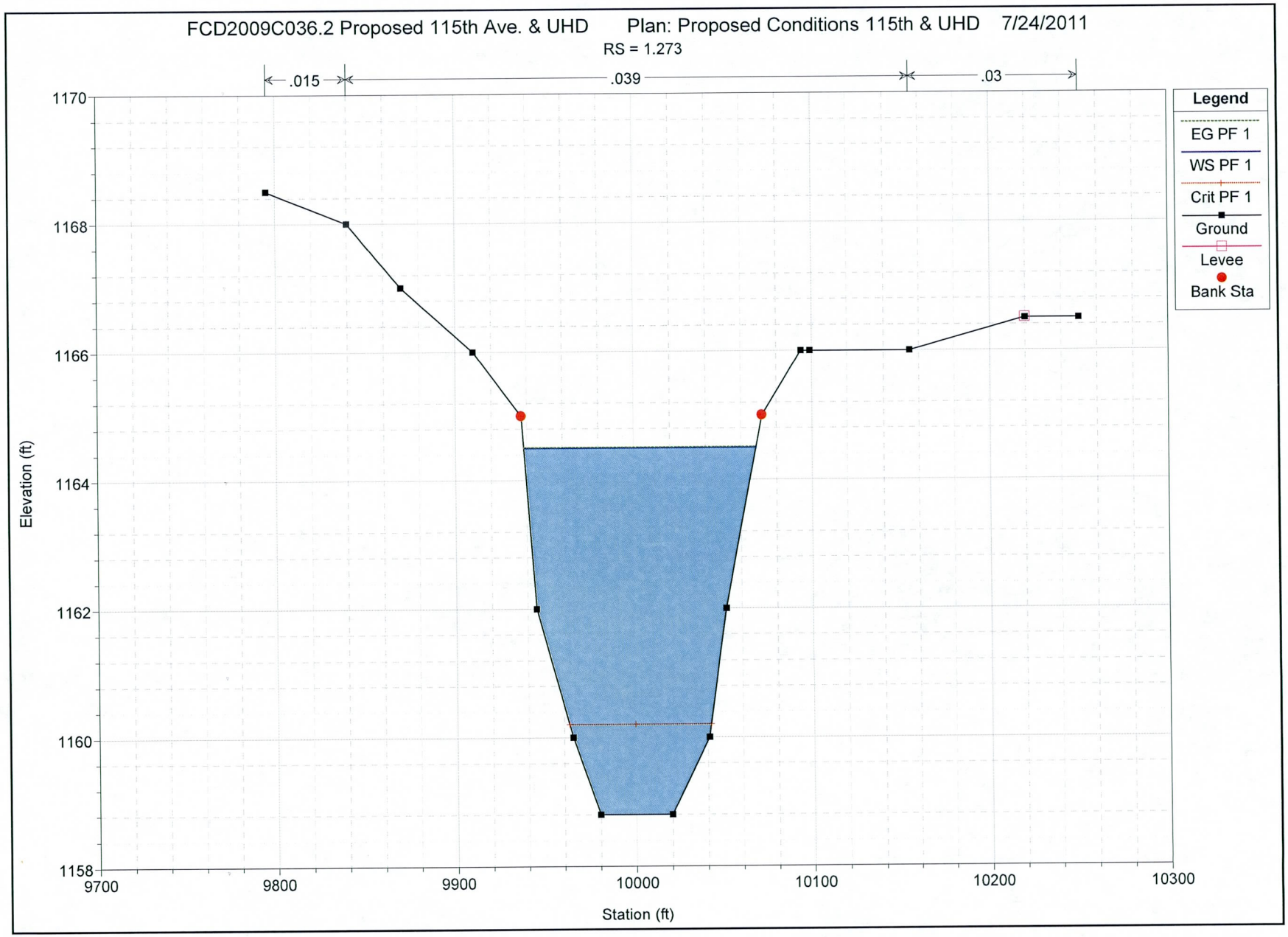

FCD2009C036.2 Proposed 115th Ave. & UHD Plan: Proposed Conditions 115th & UHD 7/24/2011
RS = 1.338 Culv
.02
.039
.015
.03
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Levee
Ineff
Bank Sta
Elevation (ft)
1172
1170
1168
1166
1164
1162
1160
1158
9700
9800
9900
10000
10100
10200
10300
Station (ft)

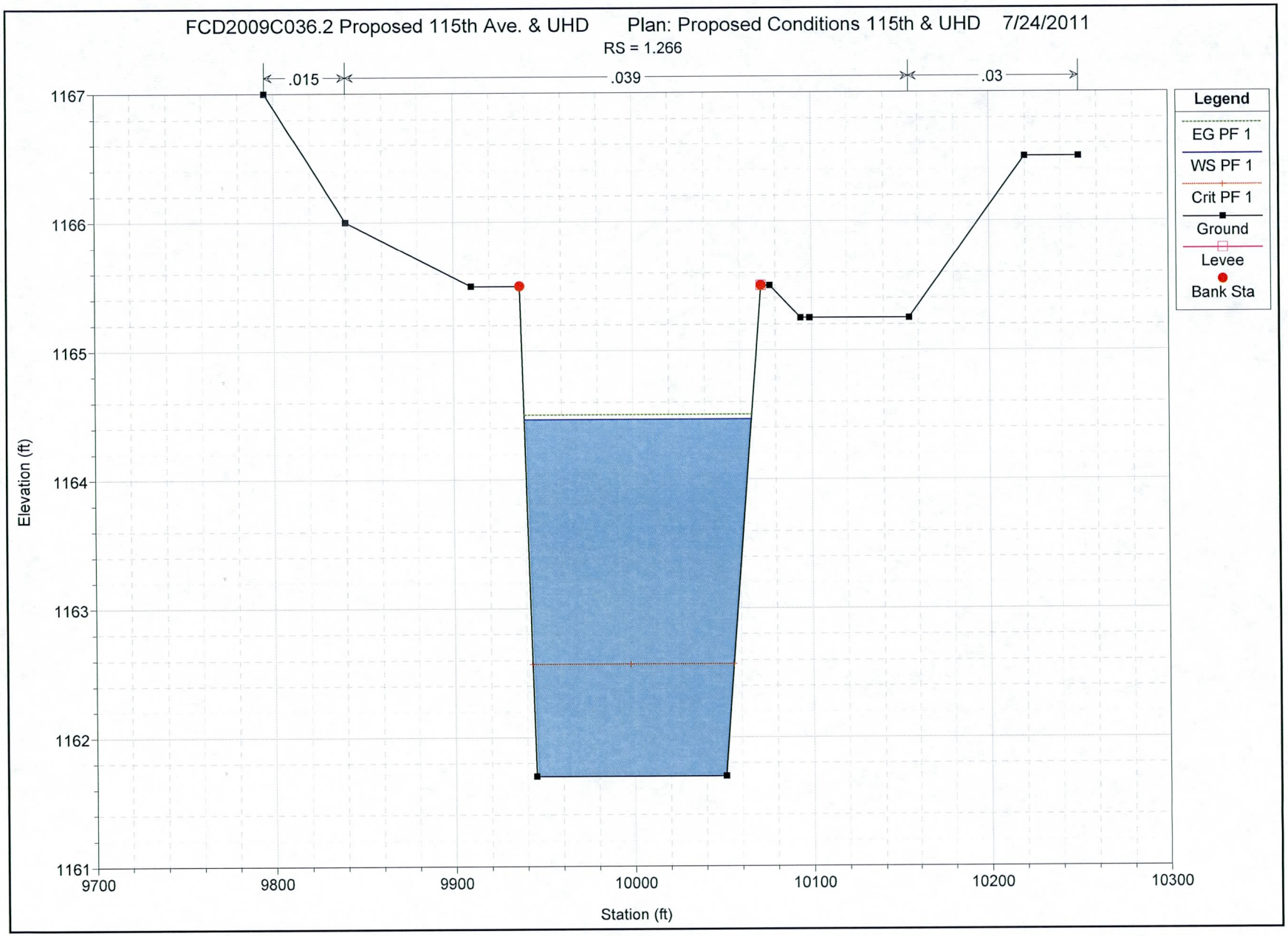

FCD2009C036.2 Proposed 115th Ave. & UHD Plan: Proposed Conditions 115th & UHD 7/24/2011
RS = 1.330 Downstream of 3-4'x10' concrete box culverts at the entrance to
.02
.039
.015
.03
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Levee
Ineff
Bank Sta
Elevation (ft)
1172
1170
1168
1166
1164
1162
1160
1158
9700
9800
9900
10000
10100
10200
10300
Station (ft)

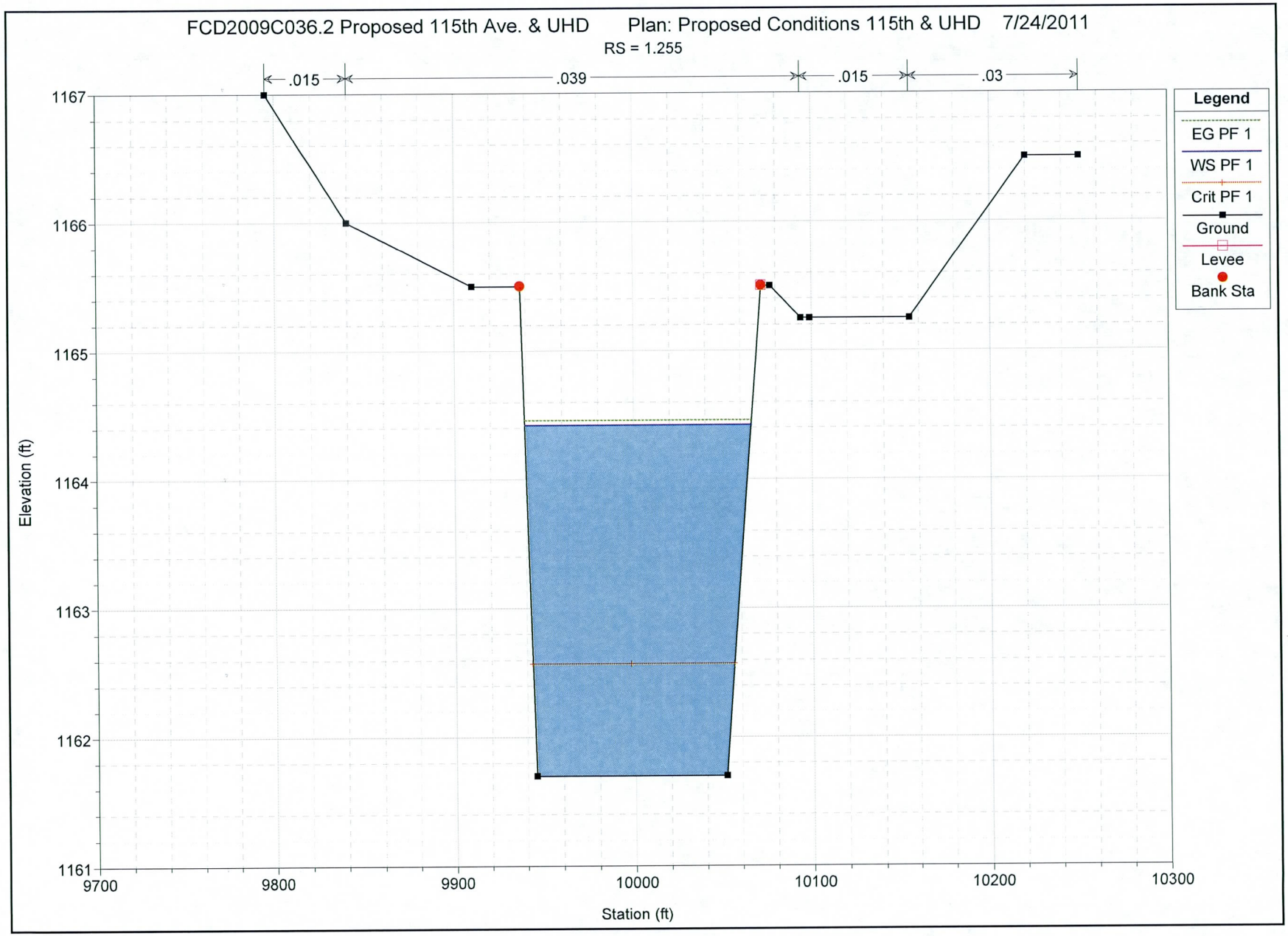

FCD2009C036.2 Proposed 115th Ave. & UHD
Plan: Proposed Conditions 115th & UHD
7/24/2011
RS = 1.301
.02
.039
.015
.03
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Levee
Ineff
Bank Sta
Elevation (ft)
1172
1170
1168
1166
1164
1162
1160
1158
9700
9800
9900
10000
10100
10200
10300
Station (ft)

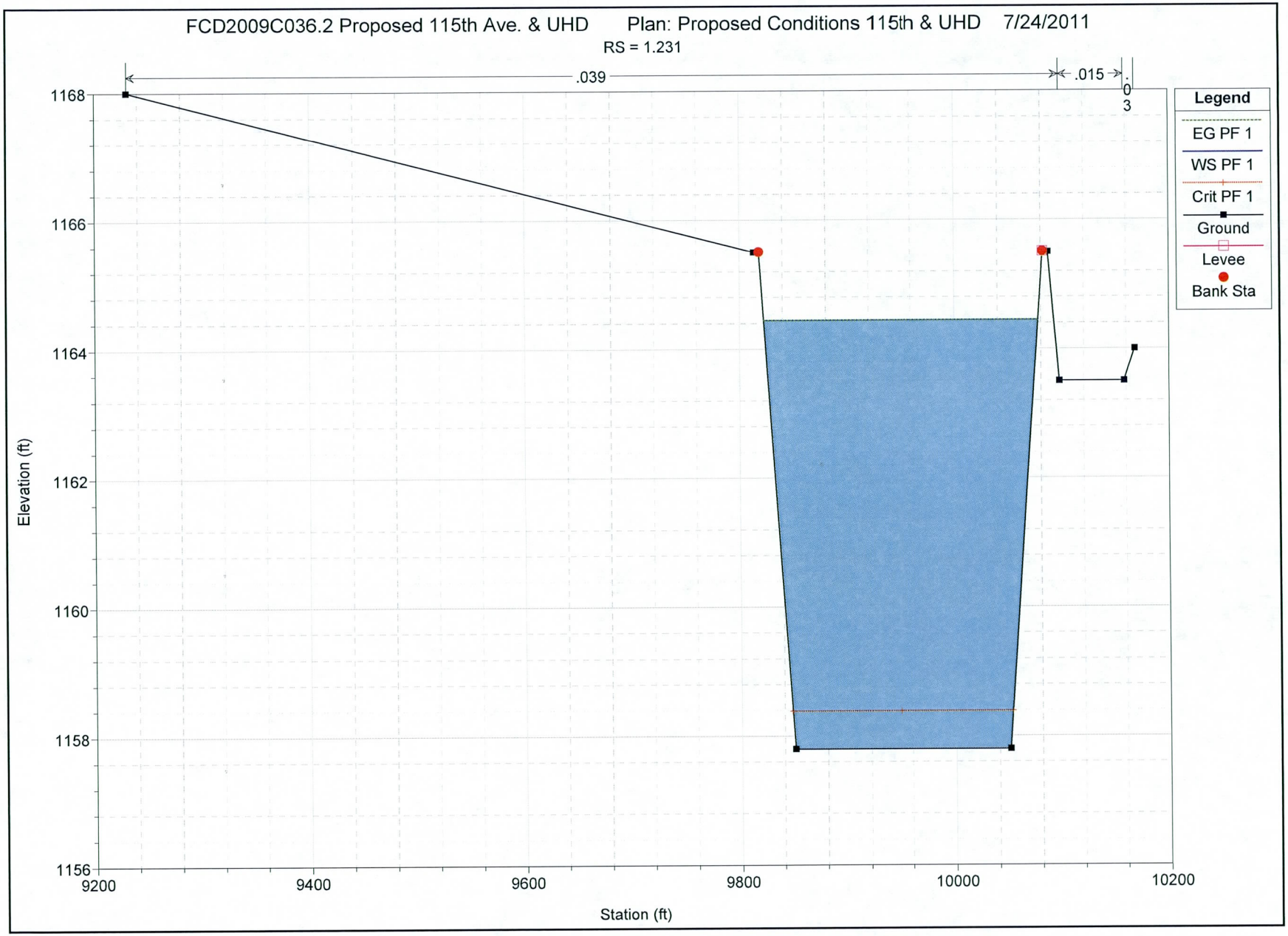

FCD2009C036.2 Proposed 115th Ave. & UHD
Plan: Proposed Conditions 115th & UHD
7/24/2011
RS = 1.292
.02
.039
.015
.03
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
Elevation (ft)
1170
1169
1168
1167
1166
1165
1164
1163
9700
9800
9900
10000
10100
10200
10300
Station (ft)

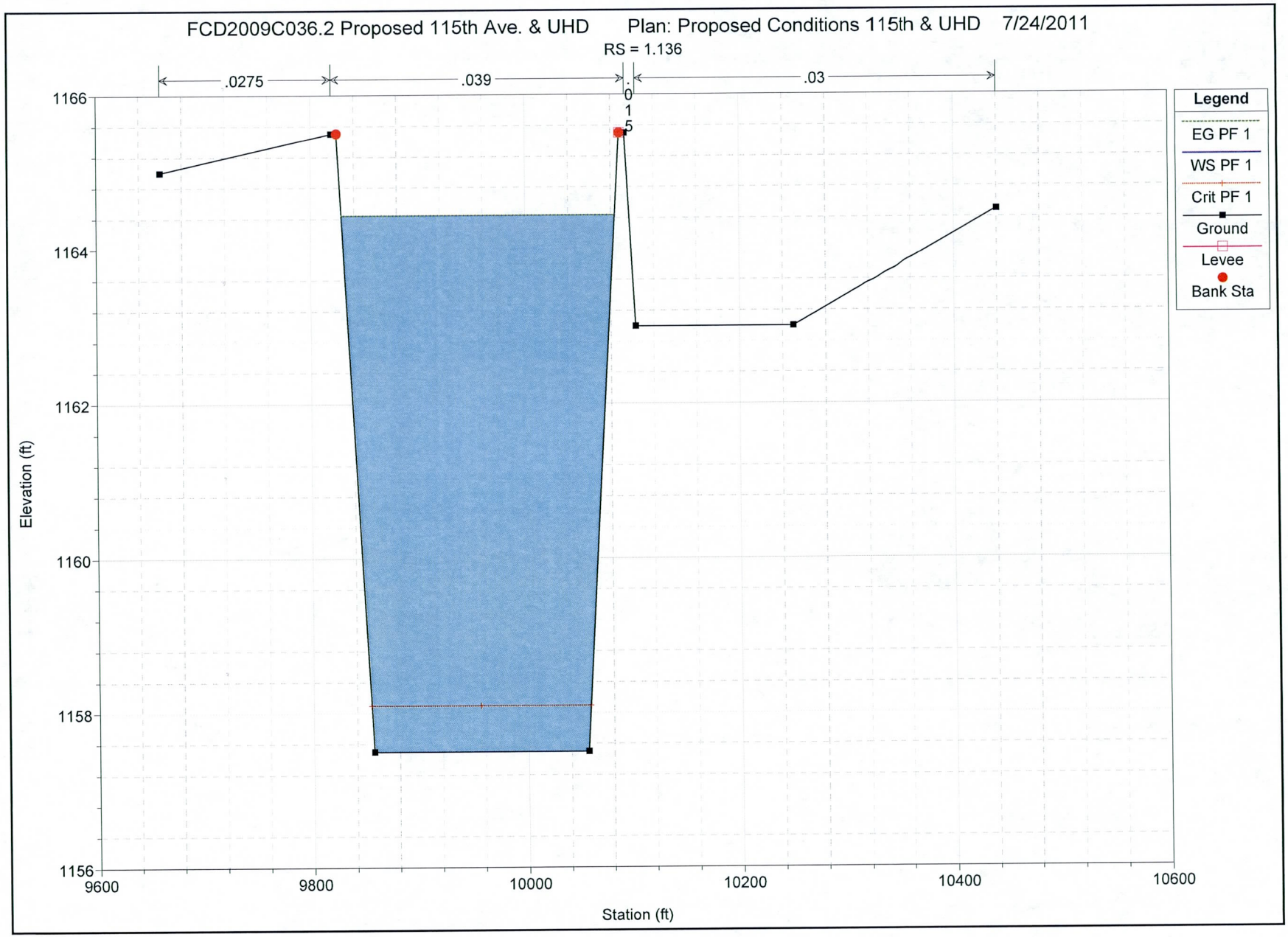

FCD2009C036.2 Proposed 115th Ave. & UHD Plan: Proposed Conditions 115th & UHD 7/24/2011
RS = 1.284
.02
.039
.015
.03
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
Elevation (ft)
1170
1168
1166
1164
1162
1160
1158
9700
9800
9900
10000
10100
10200
10300
Station (ft)

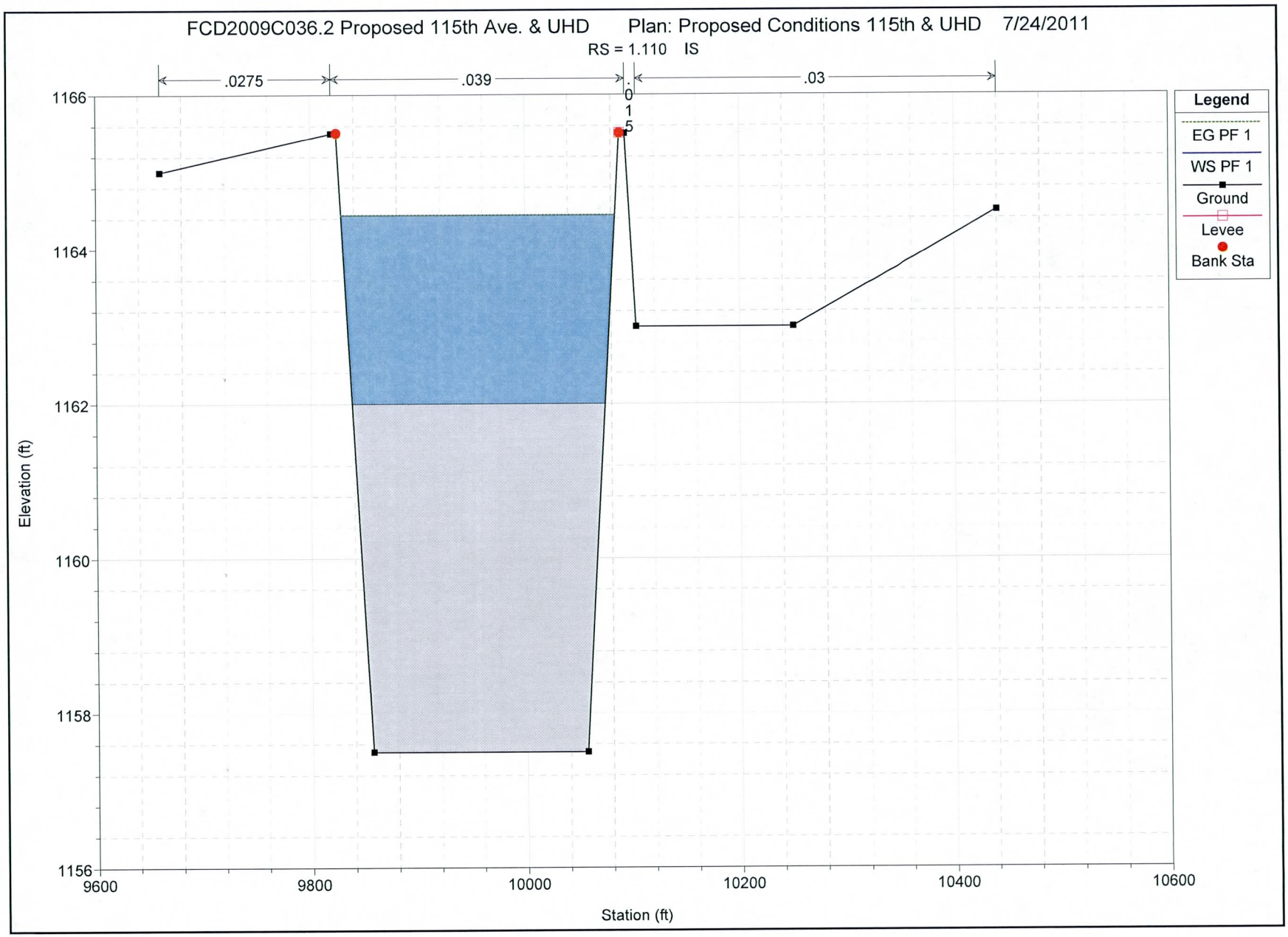

FCD2009C036.2 Proposed 115th Ave. & UHD Plan: Proposed Conditions 115th & UHD 7/24/2011
RS = 1.273
.015
.039
.03
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
Elevation (ft)
1170
1168
1166
1164
1162
1160
1158
9700
9800
9900
10000
10100
10200
10300
Station (ft)

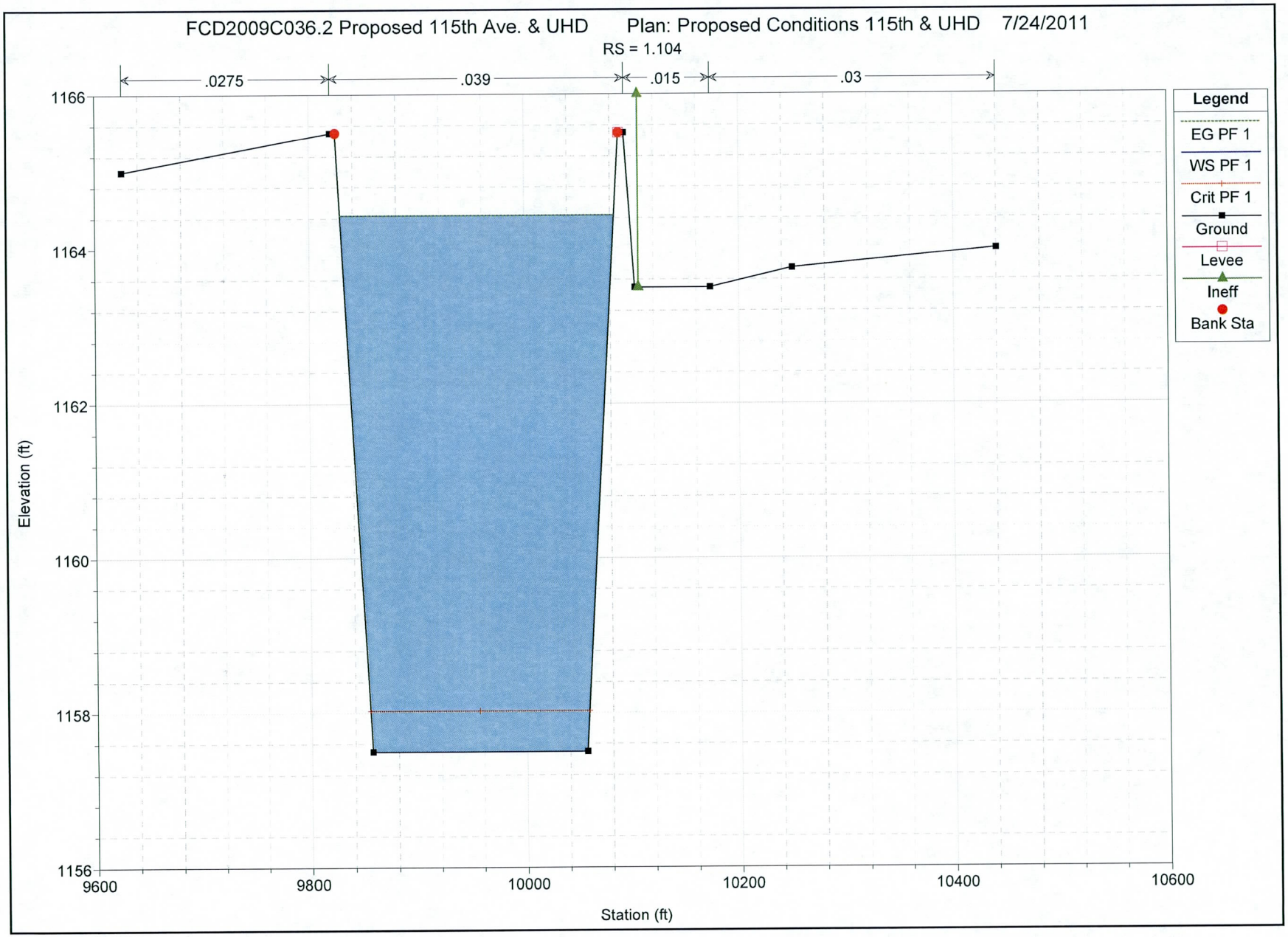

FCD2009C036.2 Proposed 115th Ave. & UHD Plan: Proposed Conditions 115th & UHD 7/24/2011
RS = 1.266
.015
.039
.03
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
Elevation (ft)
1167
1166
1165
1164
1163
1162
1161
9700
9800
9900
10000
10100
10200
10300
Station (ft)

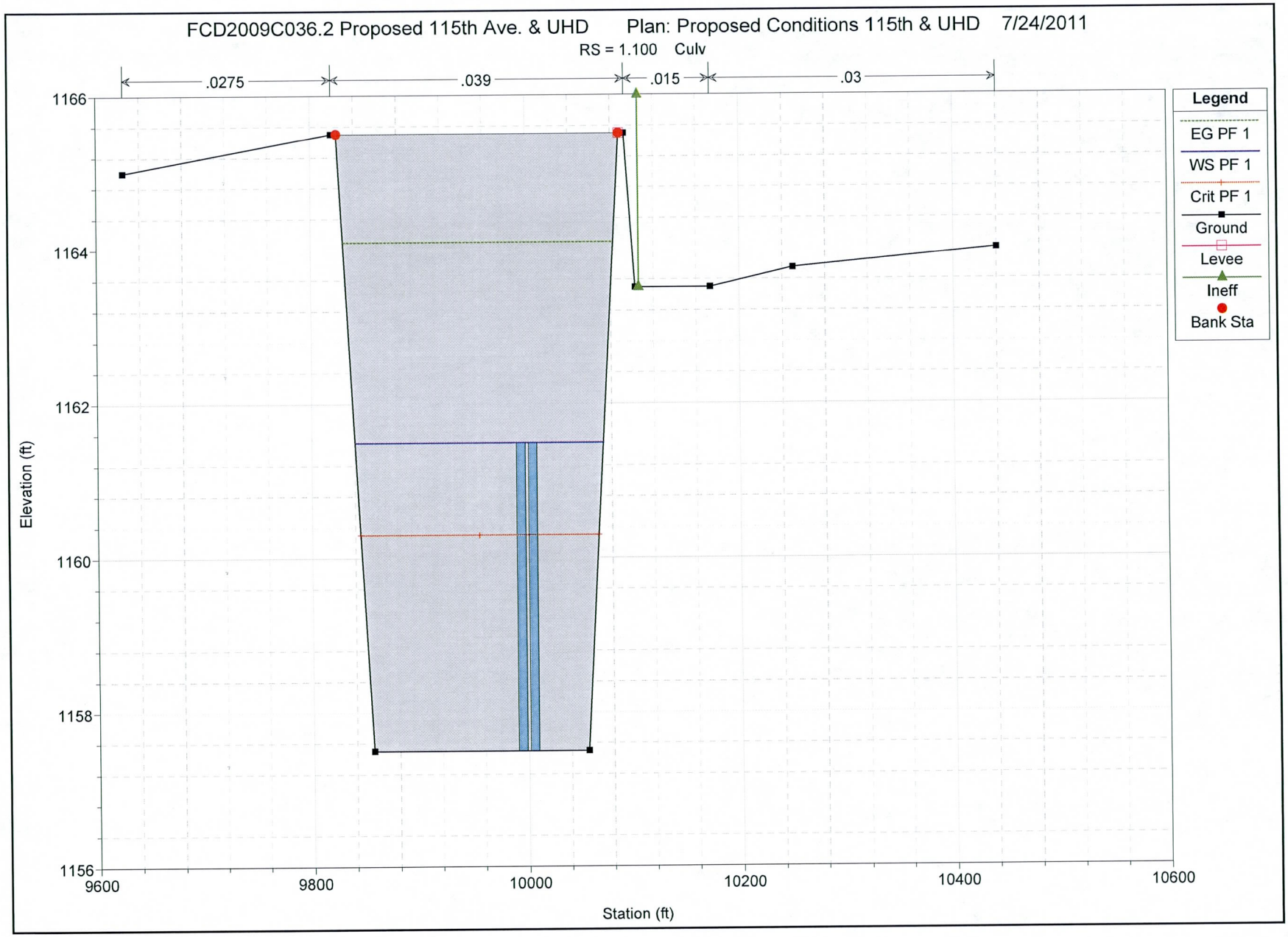

FCD2009C036.2 Proposed 115th Ave. & UHD
Plan: Proposed Conditions 115th & UHD
7/24/2011
RS = 1.255
.015
.039
.015
.03
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
Elevation (ft)
1167
1166
1165
1164
1163
1162
1161
9700
9800
9900
10000
10100
10200
10300
Station (ft)

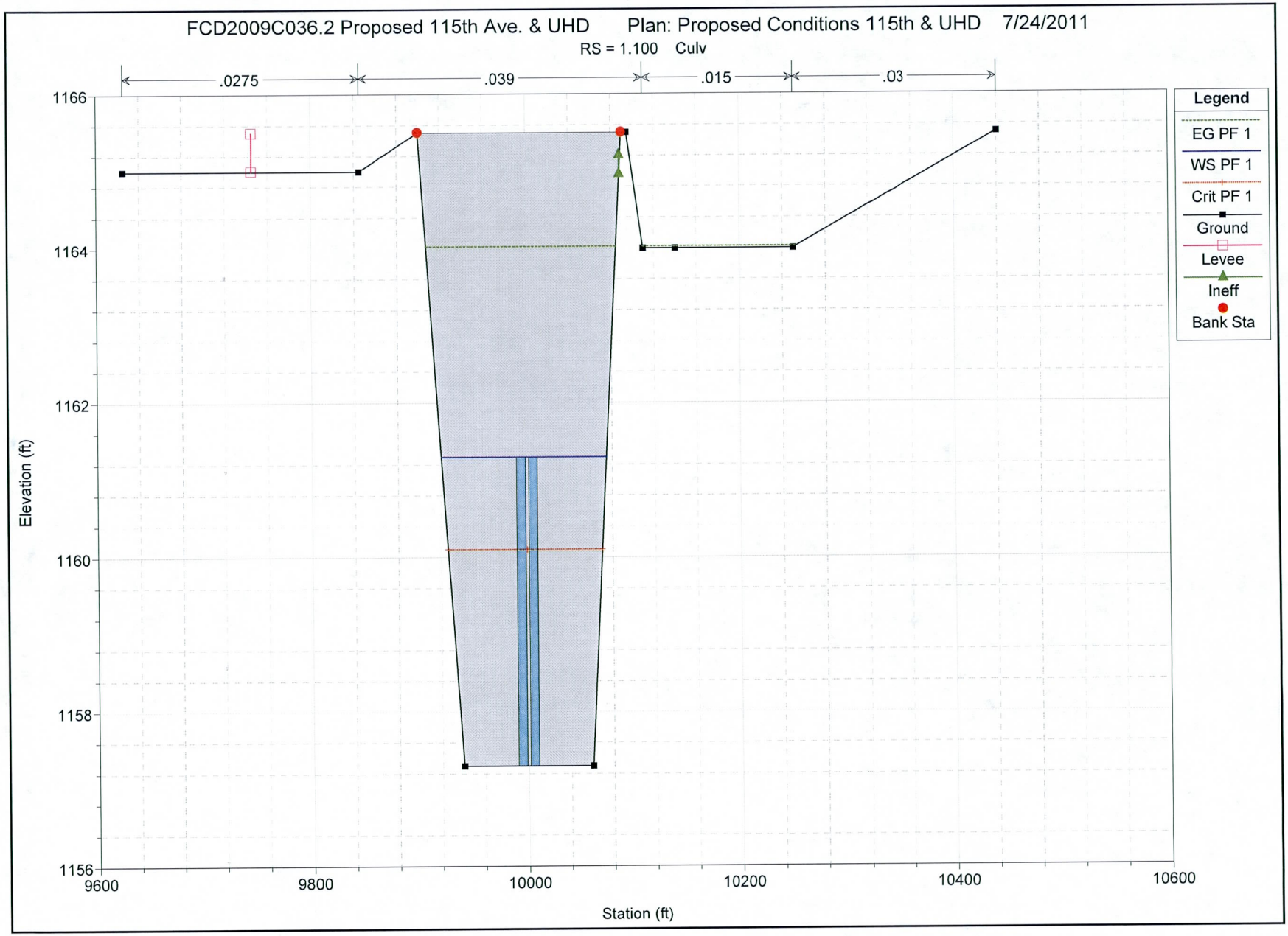

FCD2009C036.2 Proposed 115th Ave. & UHD Plan: Proposed Conditions 115th & UHD 7/24/2011
RS = 1.231
.039
.015
.03
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
Elevation (ft)
1168
1166
1164
1162
1160
1158
1156
9200
9400
9600
9800
10000
10200
Station (ft)

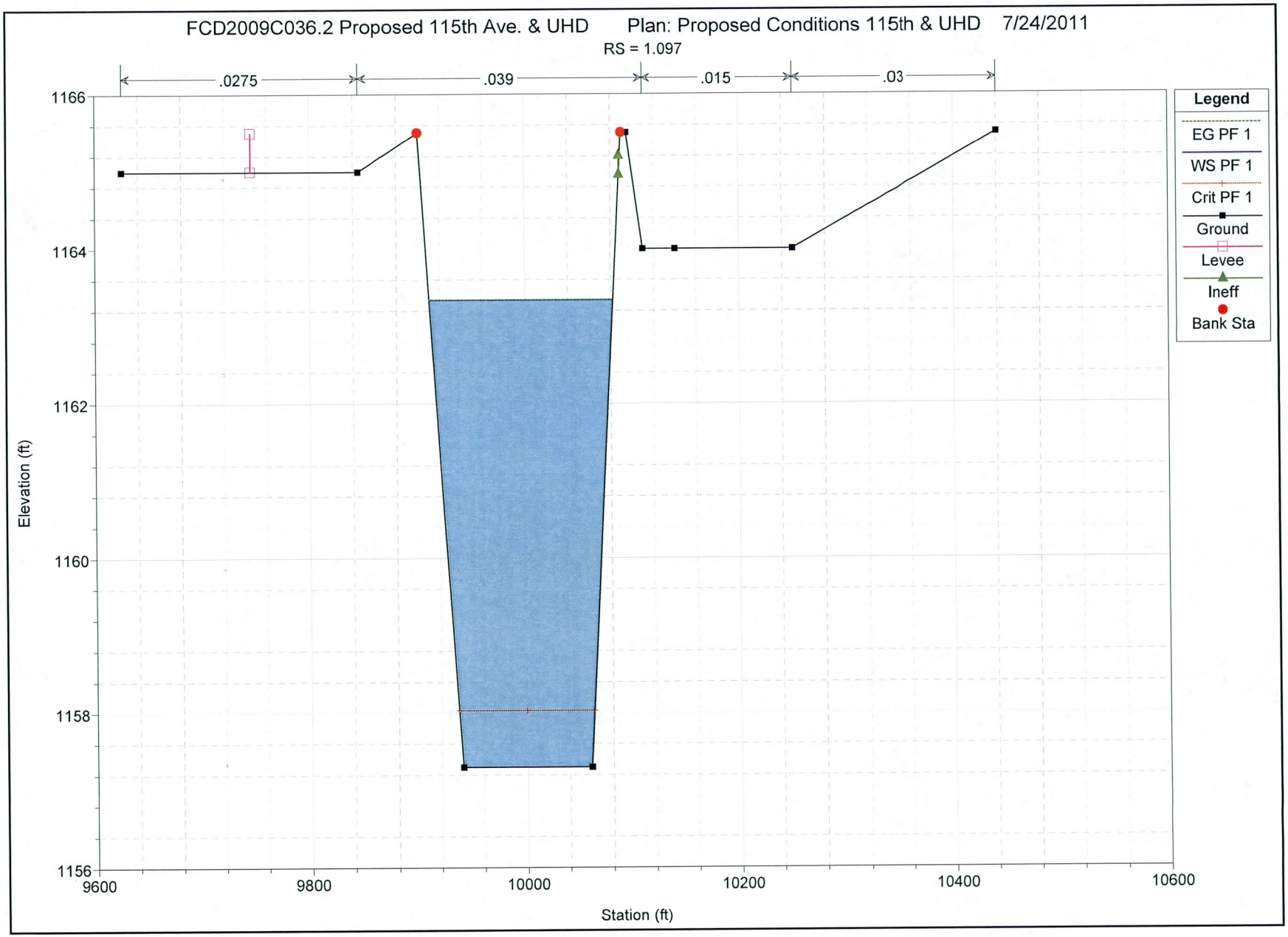

FCD2009C036.2 Proposed 115th Ave. & UHD
Plan: Proposed Conditions 115th & UHD
7/24/2011
RS = 1.136
.0275
.039
.015
.03
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
Elevation (ft)
1166
1164
1162
1160
1158
1156
9600
9800
10000
10200
10400
10600
Station (ft)

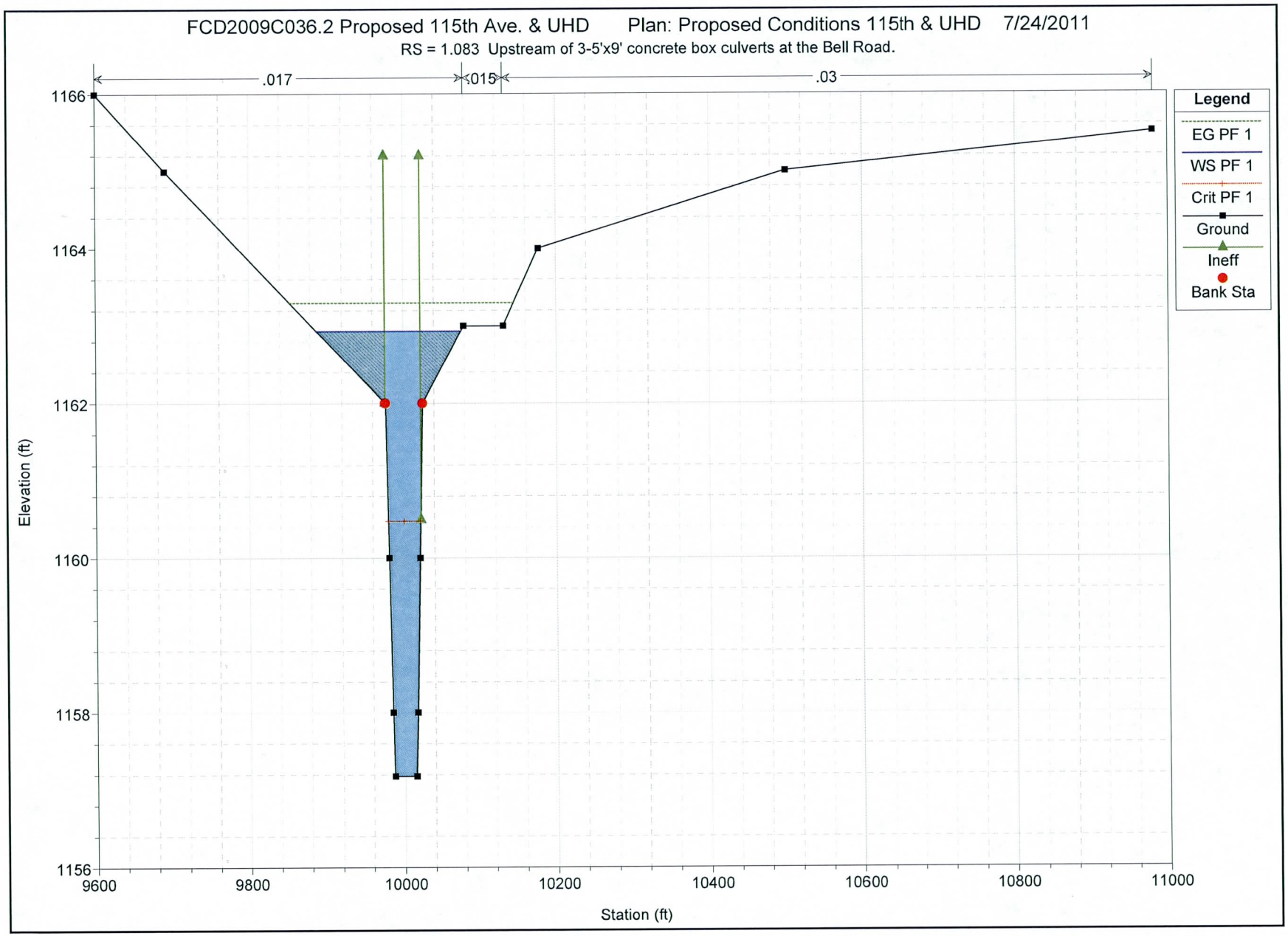

FCD2009C036.2 Proposed 115th Ave. & UHD Plan: Proposed Conditions 115th & UHD 7/24/2011
RS = 1.110 IS
.0275
.039
.015
.03
Legend
EG PF 1
WS PF 1
Ground
Levee
Bank Sta
Elevation (ft)
1166
1164
1162
1160
1158
1156
9600
9800
10000
10200
10400
10600
Station (ft)

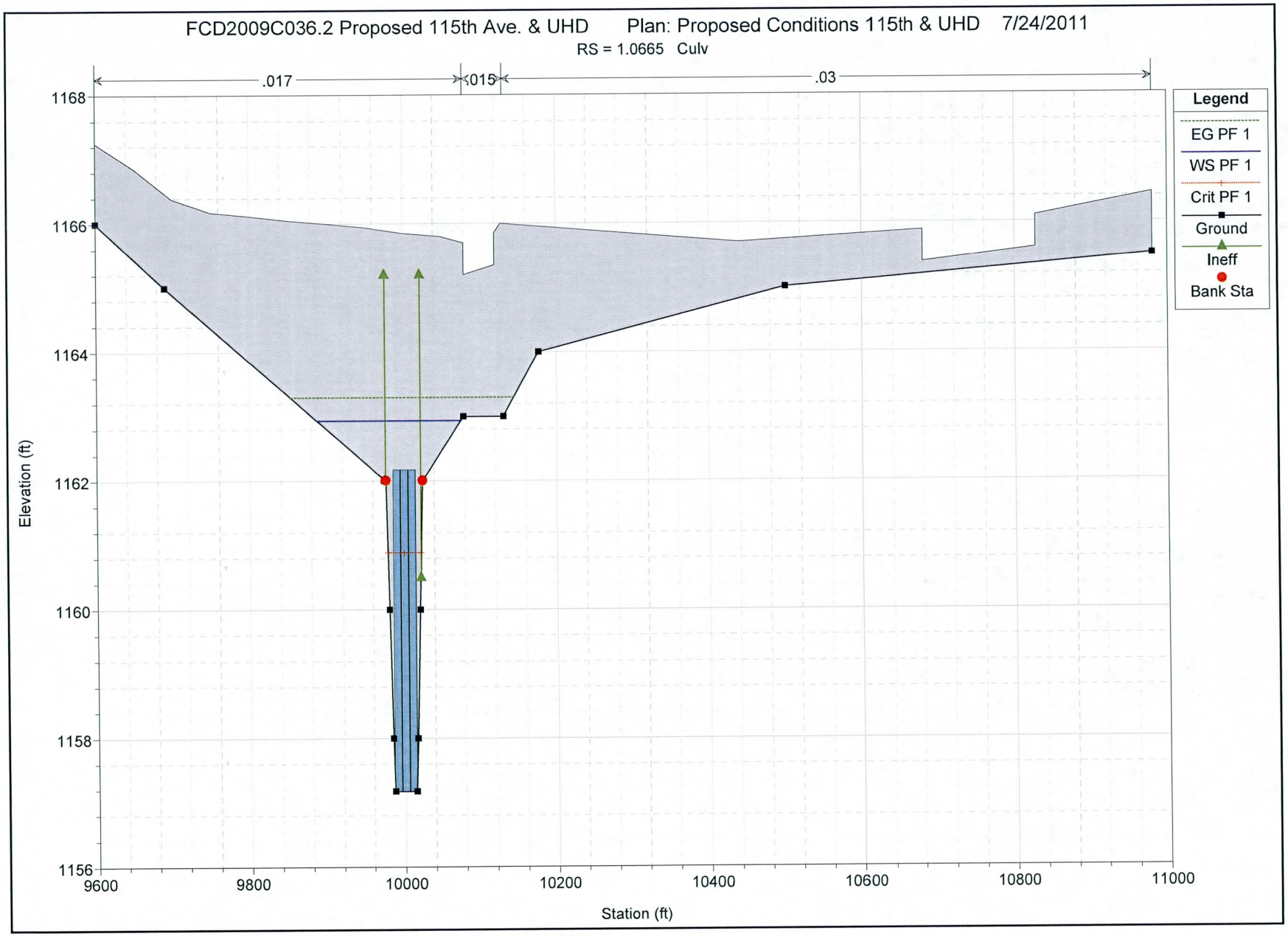

FCD2009C036.2 Proposed 115th Ave. & UHD
Plan: Proposed Conditions 115th & UHD
7/24/2011
RS = 1.104
.0275
.039
.015
.03
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Levee
Ineff
Bank Sta
Elevation (ft)
1166
1164
1162
1160
1158
1156
9600
9800
10000
10200
10400
10600
Station (ft)

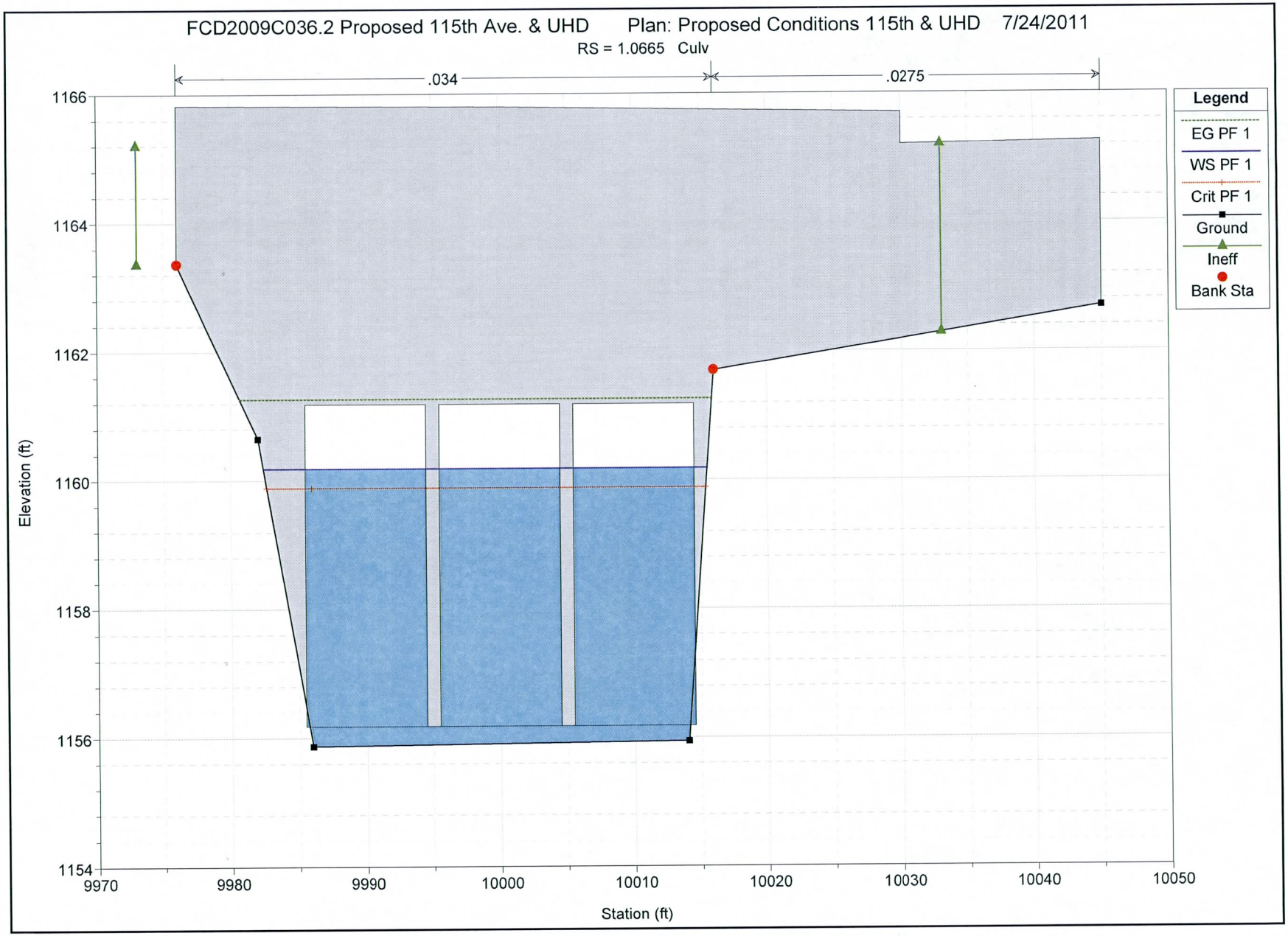

FCD2009C036.2 Proposed 115th Ave. & UHD
Plan: Proposed Conditions 115th & UHD
7/24/2011
RS = 1.100 Culv
.0275
.039
.015
.03
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Levee
Ineff
Bank Sta
Elevation (ft)
1166
1164
1162
1160
1158
1156
9600
9800
10000
10200
10400
10600
Station (ft)

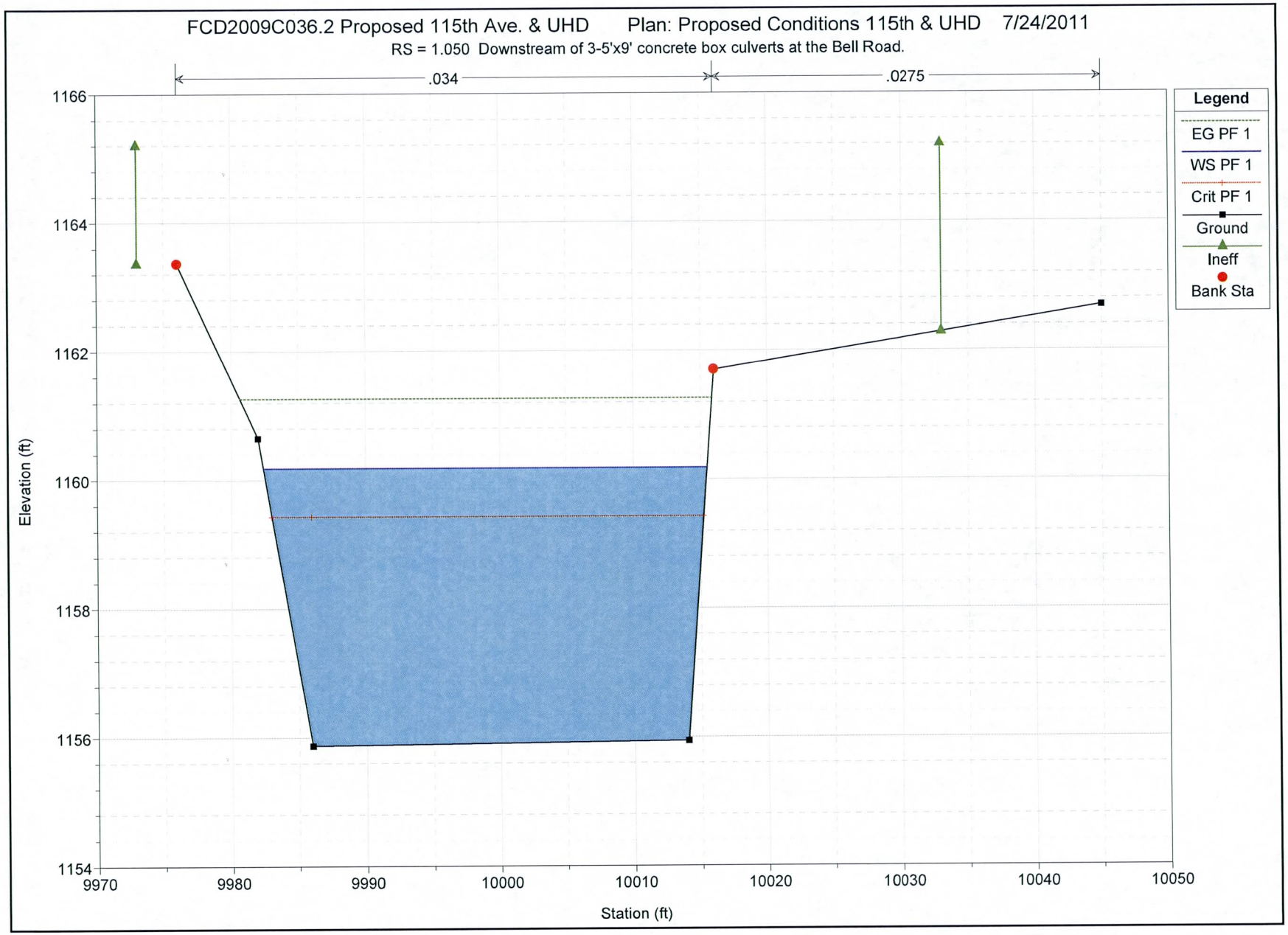

FCD2009C036.2 Proposed 115th Ave. & UHD Plan: Proposed Conditions 115th & UHD 7/24/2011
RS = 1.100 Culv
.0275
.039
.015
.03
1166
1164
1162
1160
1158
1156
Elevation (ft)
9600
9800
10000
10200
10400
10600
Station (ft)
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Levee
Ineff
Bank Sta

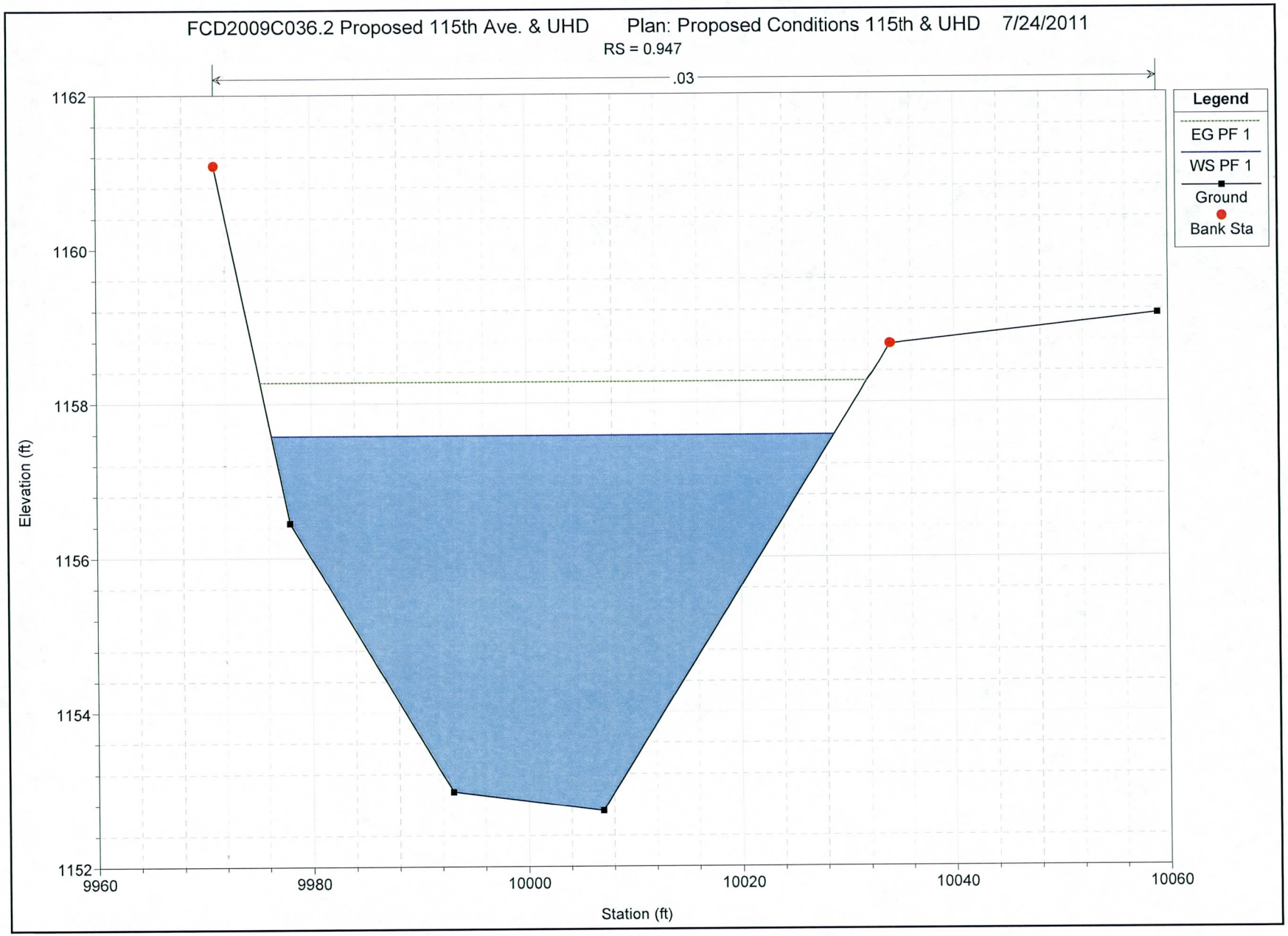

FCD2009C036.2 Proposed 115th Ave. & UHD
Plan: Proposed Conditions 115th & UHD
7/24/2011
RS = 1.097
.0275
.039
.015
.03
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Levee
Ineff
Bank Sta
Elevation (ft)
1166
1164
1162
1160
1158
1156
9600
9800
10000
10200
10400
10600
Station (ft)

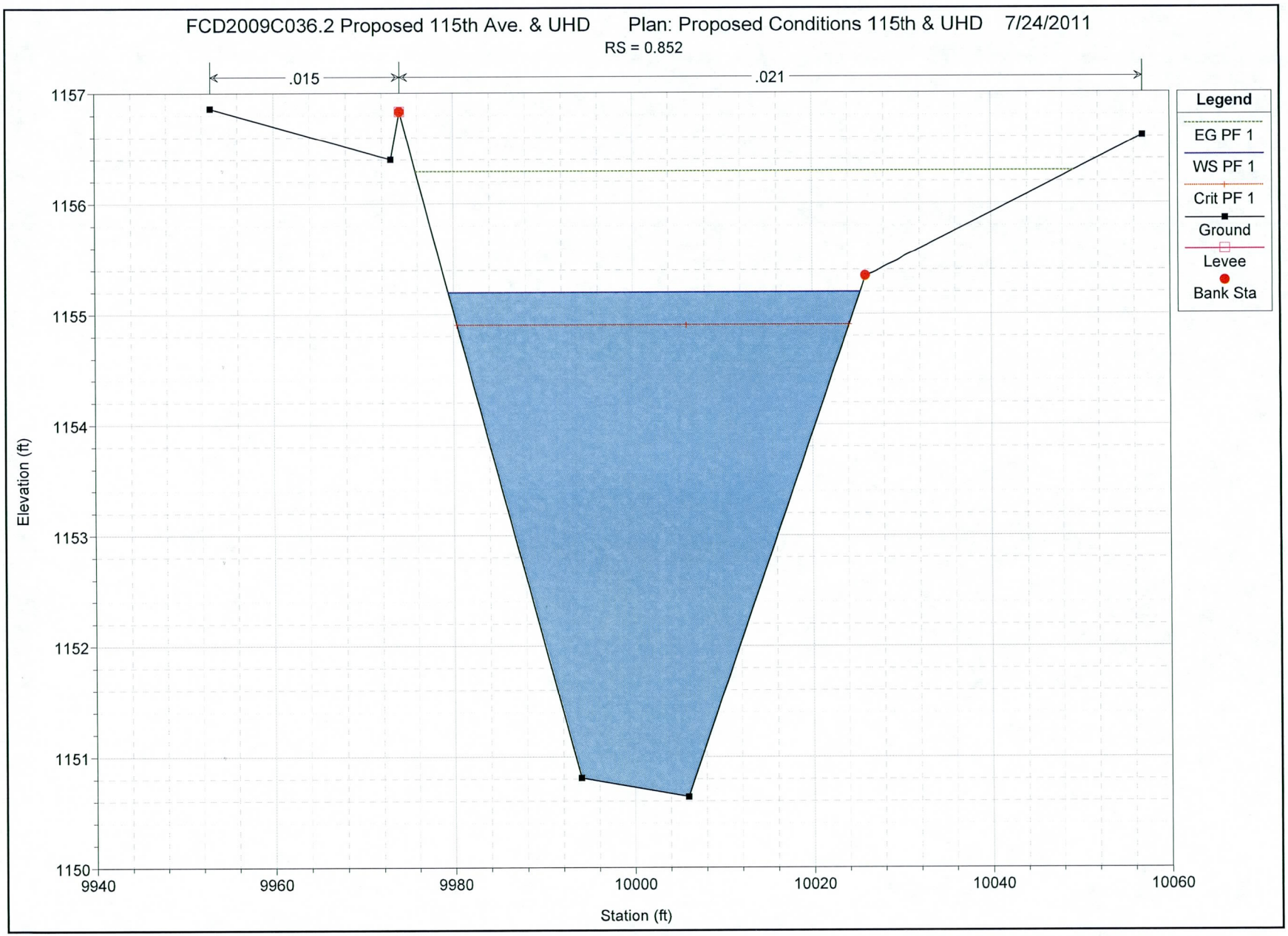

FCD2009C036.2 Proposed 115th Ave. & UHD Plan: Proposed Conditions 115th & UHD 7/24/2011
RS = 1.083 Upstream of 3-5'x9' concrete box culverts at the Bell Road.
.017
.015
.03
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
1166
1164
1162
1160
1158
1156
9600
9800
10000
10200
10400
10600
10800
11000
Station (ft)

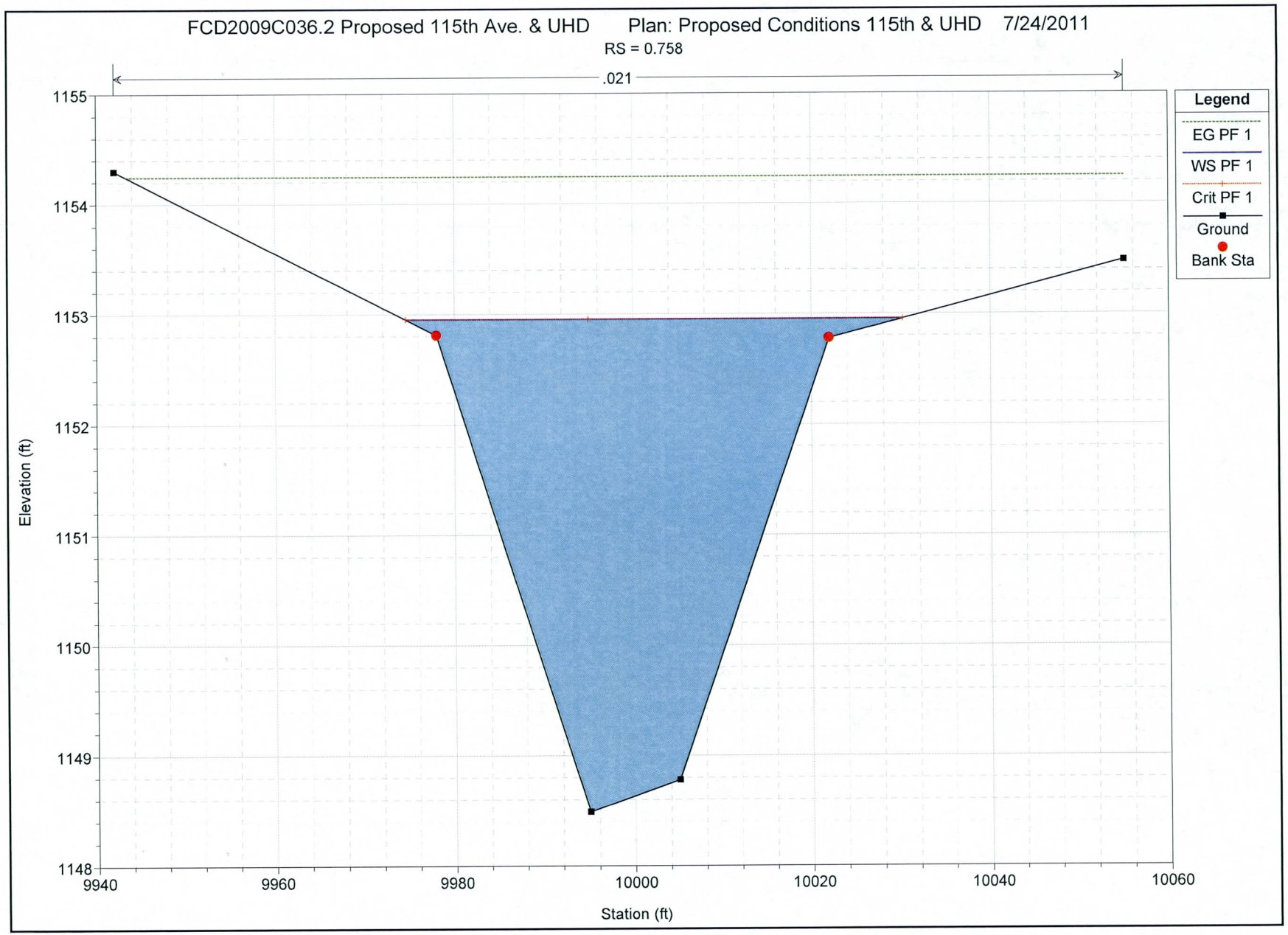

FCD2009C036.2 Proposed 115th Ave. & UHD Plan: Proposed Conditions 115th & UHD 7/24/2011
RS = 1.0665 Culv
.017
.015
.03
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
1168
1166
1164
1162
1160
1158
1156
9600
9800
10000
10200
10400
10600
10800
11000
Station (ft)

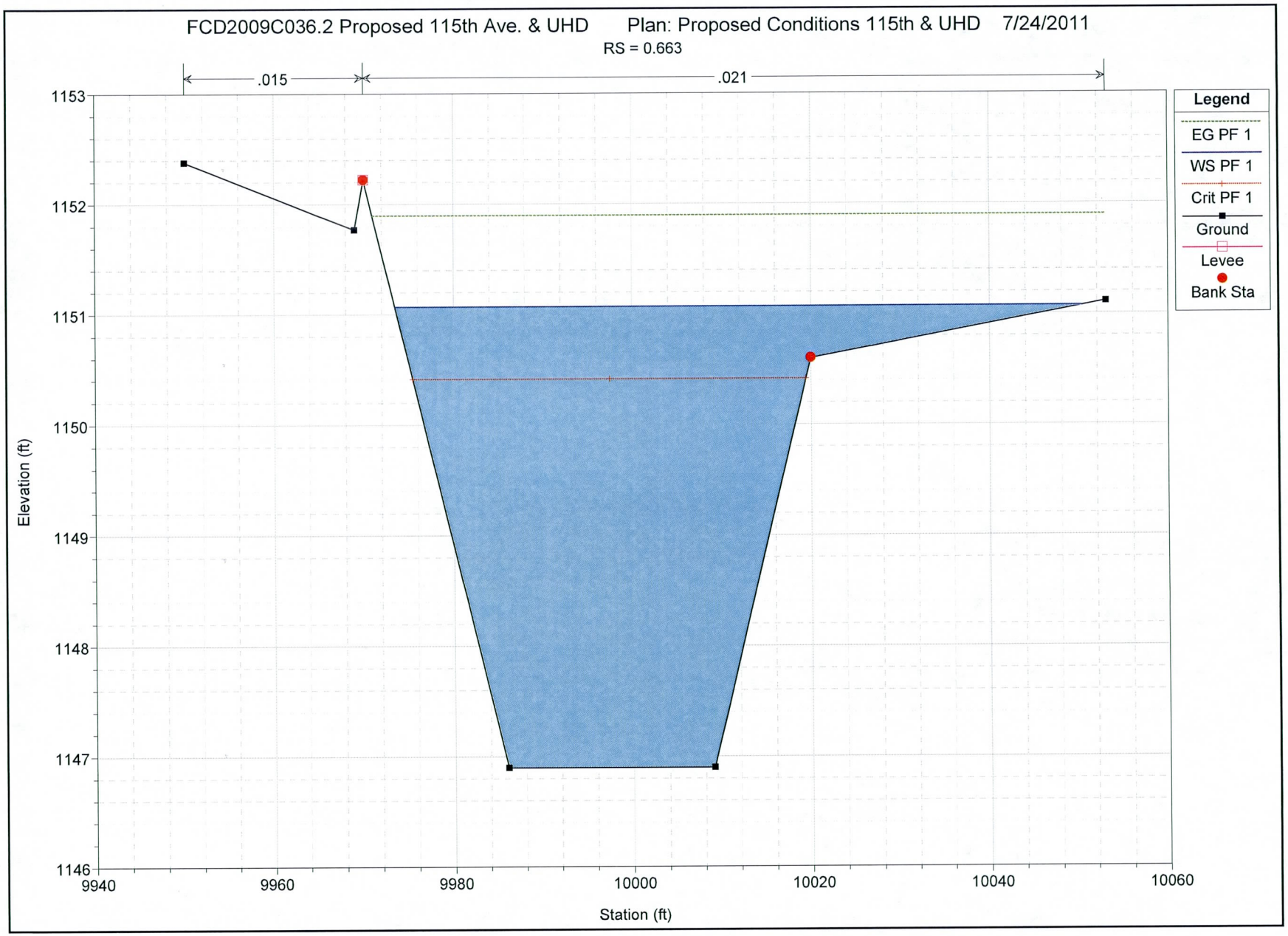

FCD2009C036.2 Proposed 115th Ave. & UHD Plan: Proposed Conditions 115th & UHD 7/24/2011
RS = 1.0665 Culv
.034
.0275
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
1166
1164
1162
1160
1158
1156
1154
9970
9980
9990
10000
10010
10020
10030
10040
10050
Station (ft)

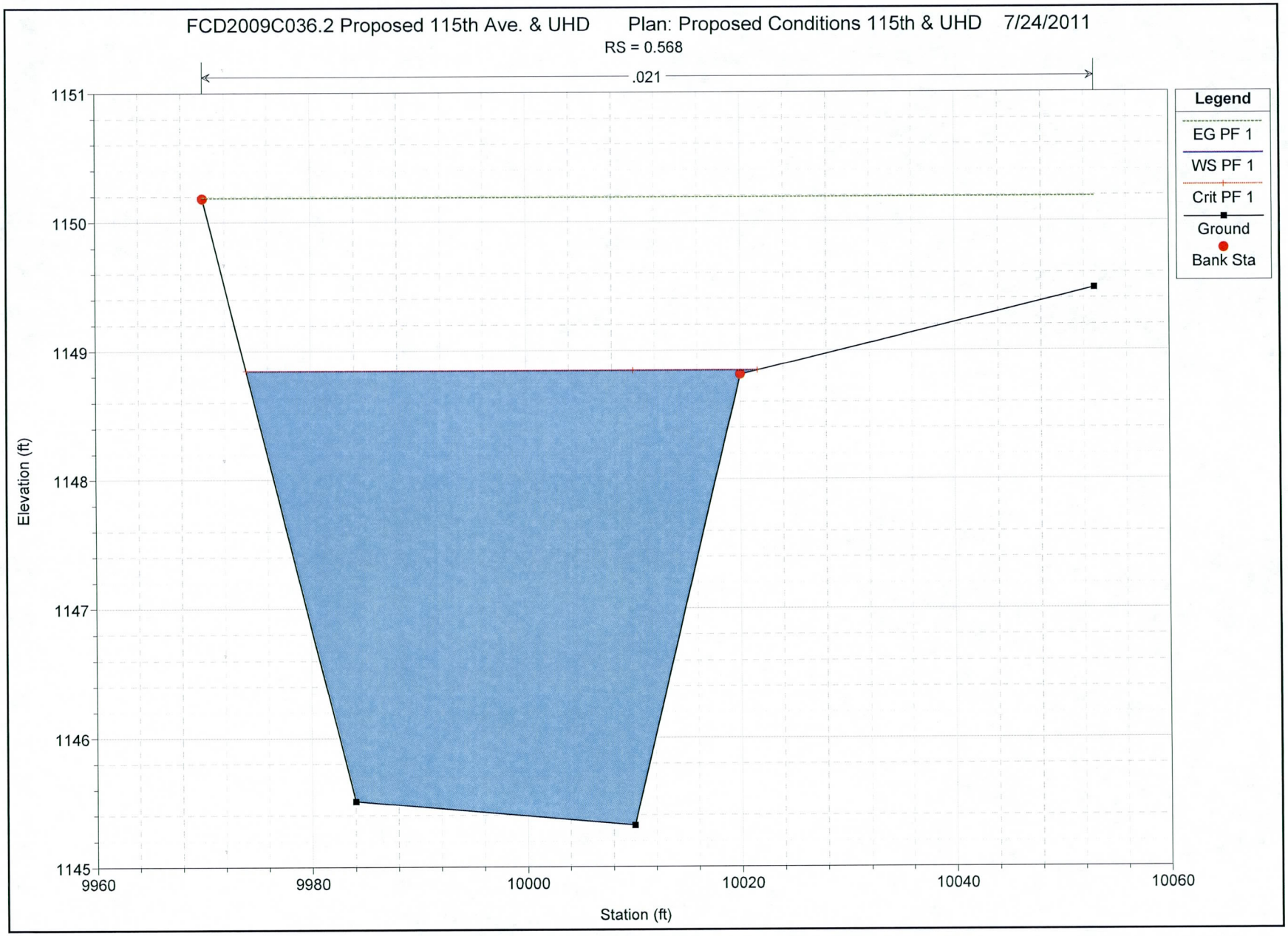

FCD2009C036.2 Proposed 115th Ave. & UHD Plan: Proposed Conditions 115th & UHD 7/24/2011
RS = 1.050 Downstream of 3-5'x9' concrete box culverts at the Bell Road.
.034
.0275
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
1166
1164
1162
1160
1158
1156
1154
9970
9980
9990
10000
10010
10020
10030
10040
10050
Station (ft)

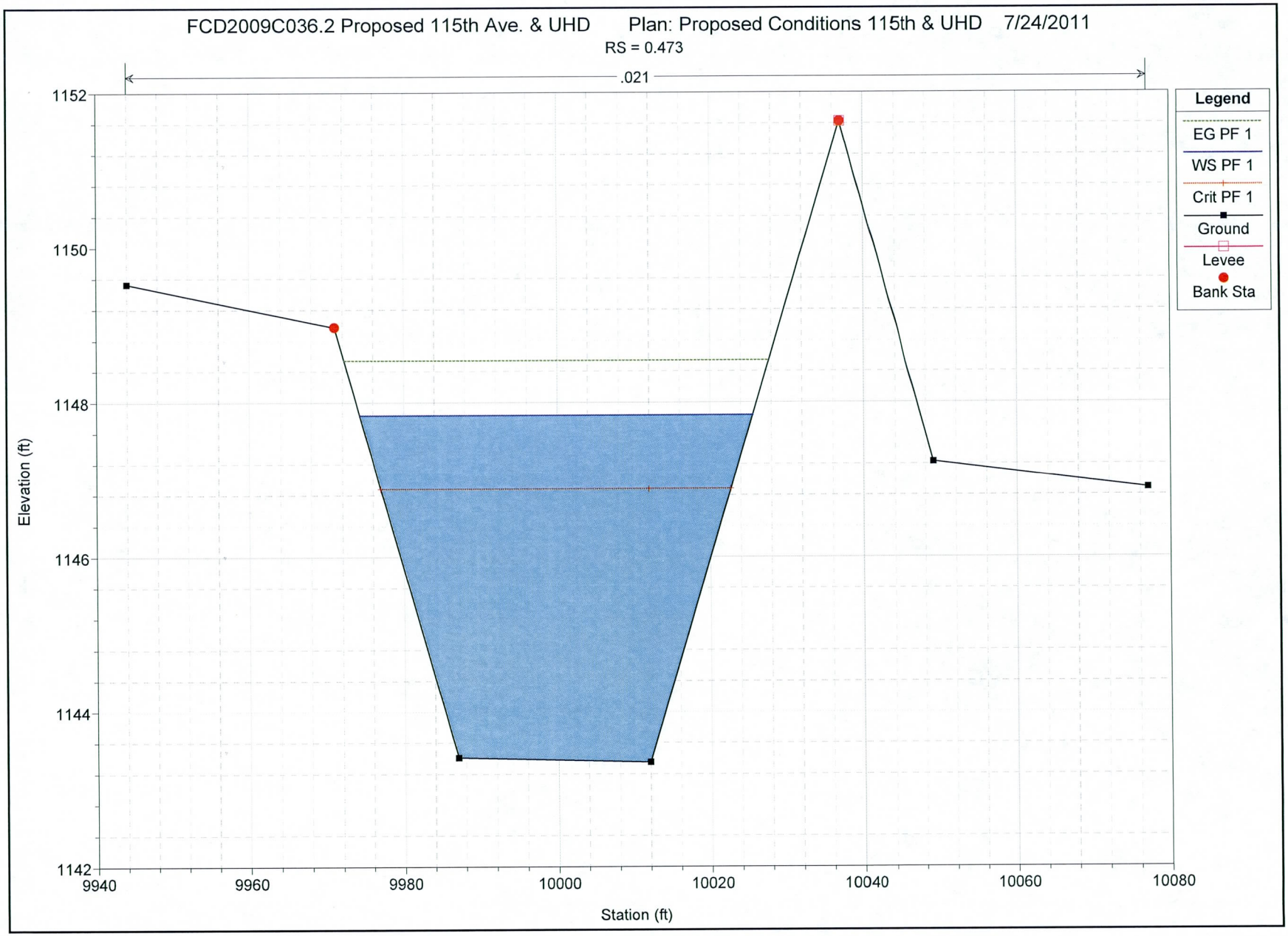

FCD2009C036.2 Proposed 115th Ave. & UHD Plan: Proposed Conditions 115th & UHD 7/24/2011
RS = 0.947
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
1162
1160
1158
1156
1154
1152
9960
9980
10000
10020
10040
10060
Station (ft)

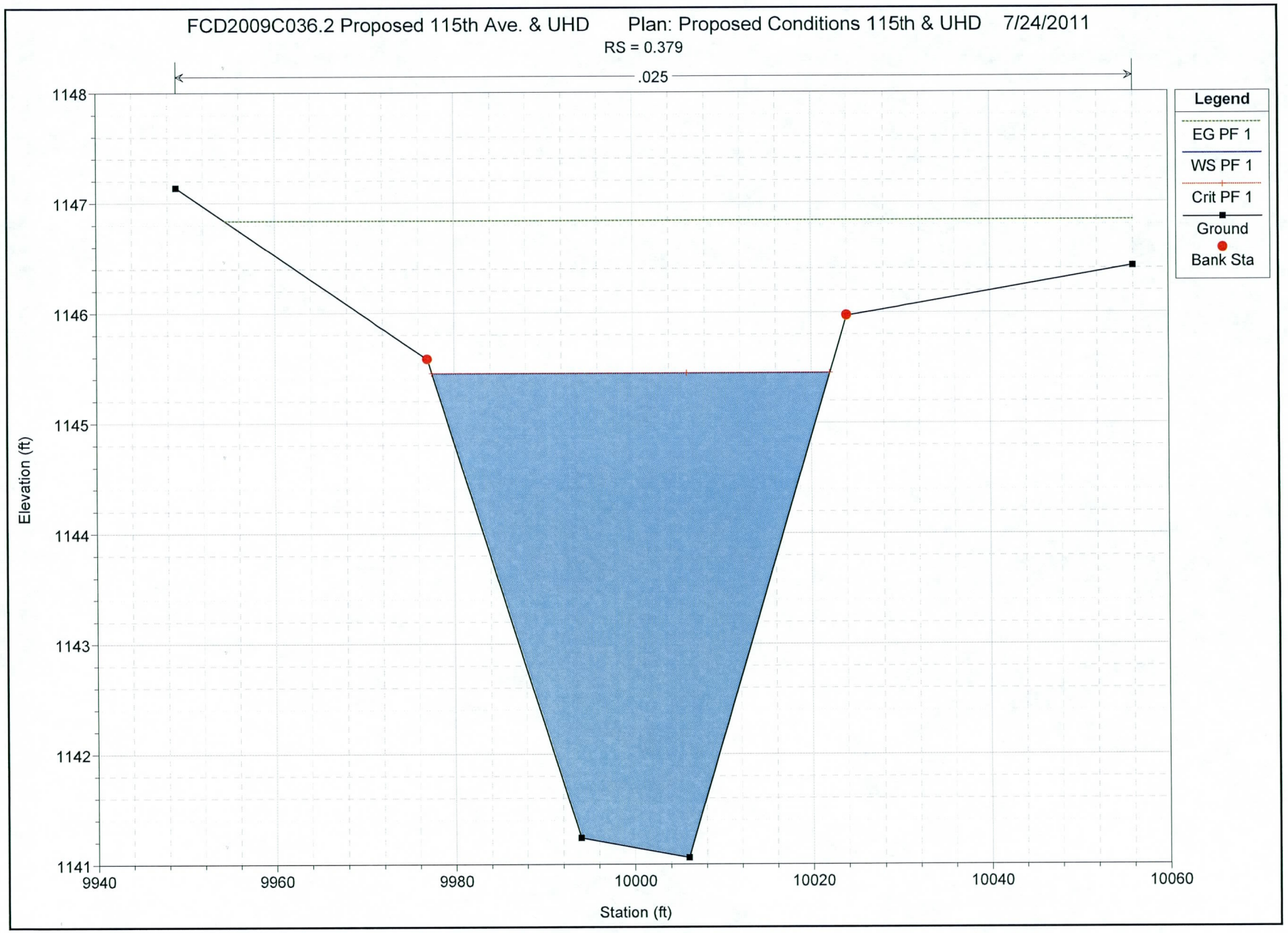

FCD2009C036.2 Proposed 115th Ave. & UHD
Plan: Proposed Conditions 115th & UHD
7/24/2011
RS = 0.852
.015
.021
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
Elevation (ft)
Station (ft)
1157
1156
1155
1154
1153
1152
1151
1150
9940
9960
9980
10000
10020
10040
10060

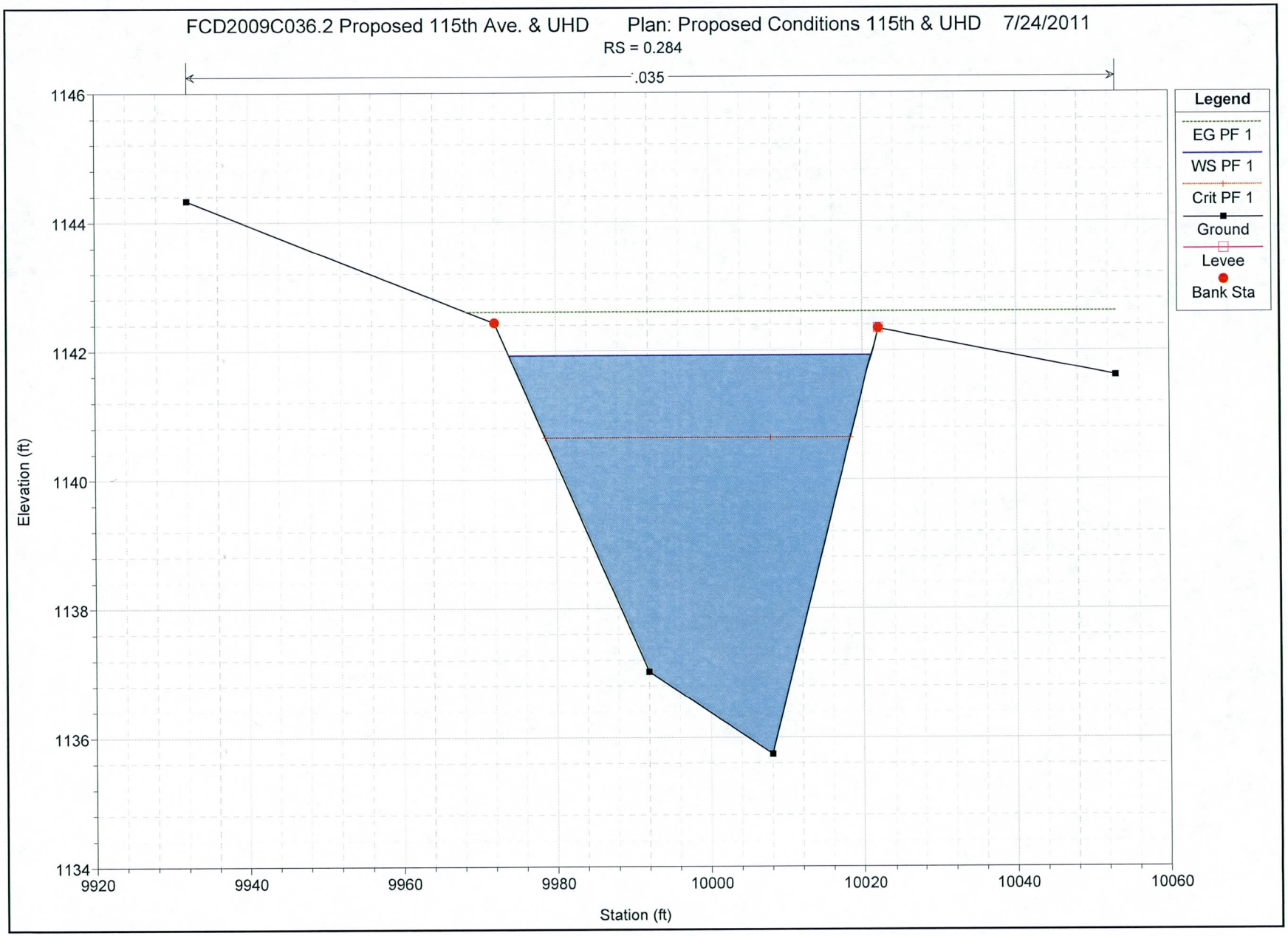

FCD2009C036.2 Proposed 115th Ave. & UHD Plan: Proposed Conditions 115th & UHD 7/24/2011
RS = 0.758
.021
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
1155
1154
1153
1152
1151
1150
1149
1148
9940
9960
9980
10000
10020
10040
10060

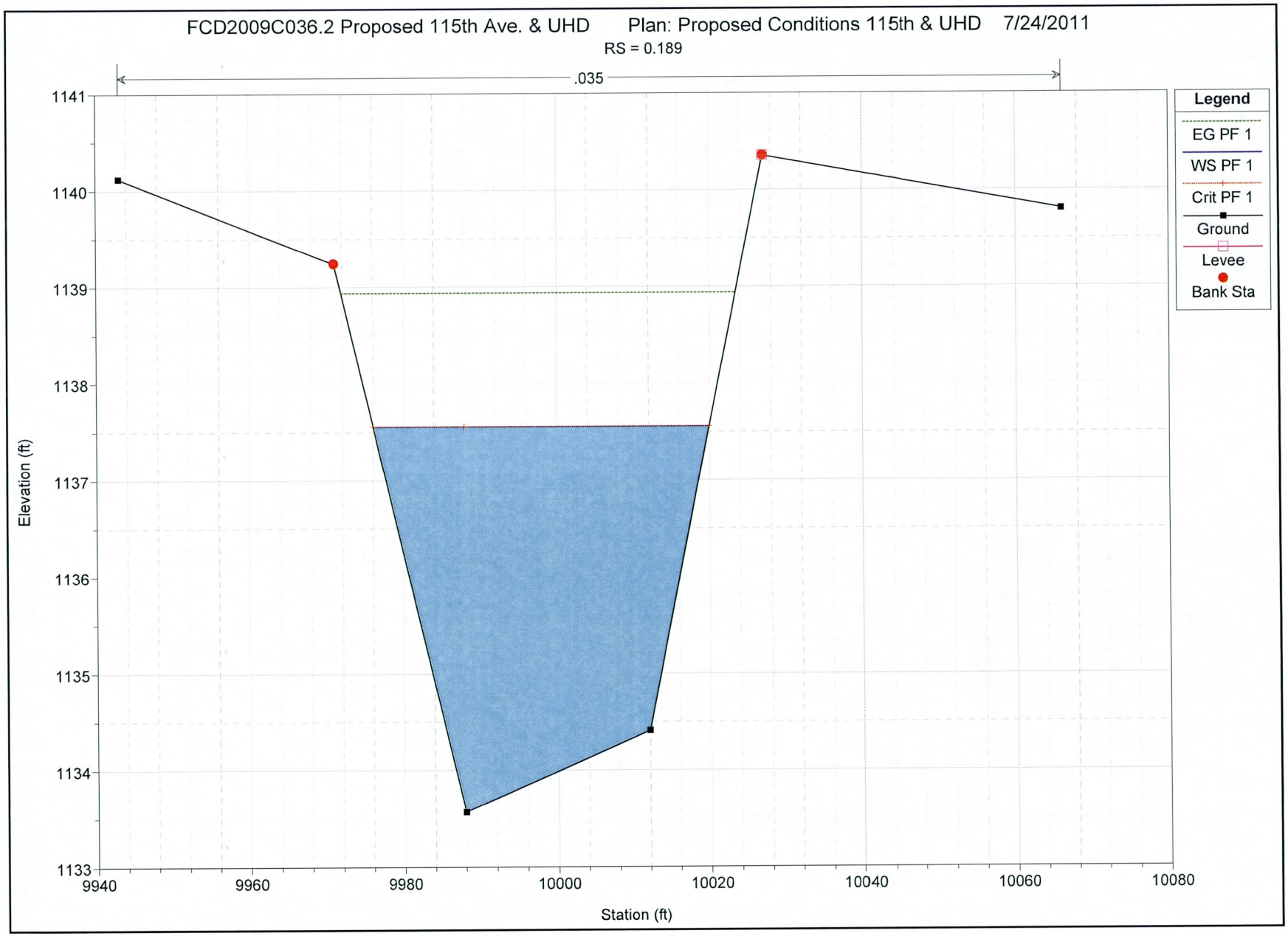

FCD2009C036.2 Proposed 115th Ave. & UHD
Plan: Proposed Conditions 115th & UHD
7/24/2011
RS = 0.663
.015
.021
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
Elevation (ft)
Station (ft)
1153
1152
1151
1150
1149
1148
1147
1146
9940
9960
9980
10000
10020
10040
10060

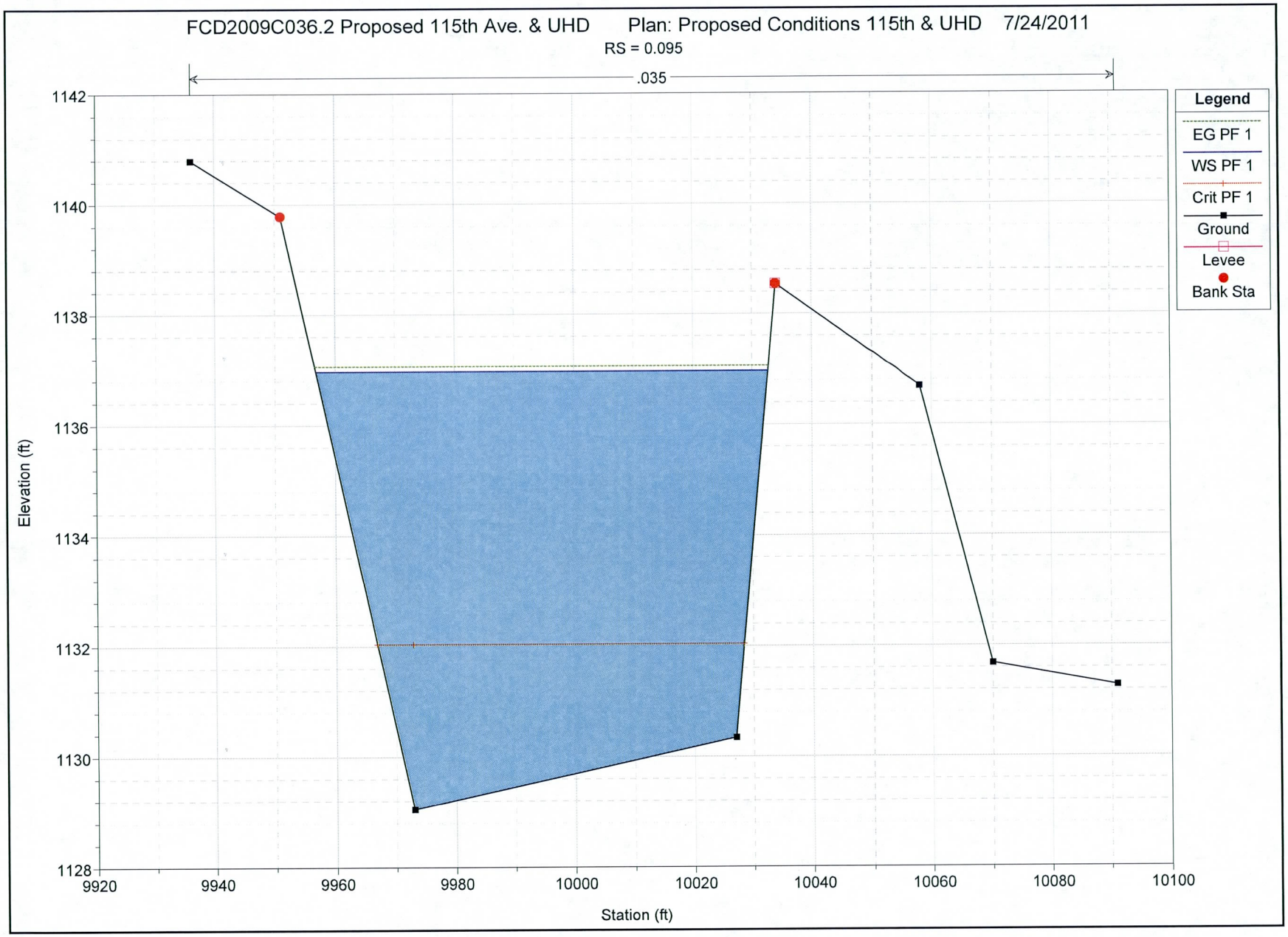

FCD2009C036.2 Proposed 115th Ave. & UHD Plan: Proposed Conditions 115th & UHD 7/24/2011
RS = 0.568
.021
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
1151
1150
1149
1148
1147
1146
1145
9960
9980
10000
10020
10040
10060
Station (ft)

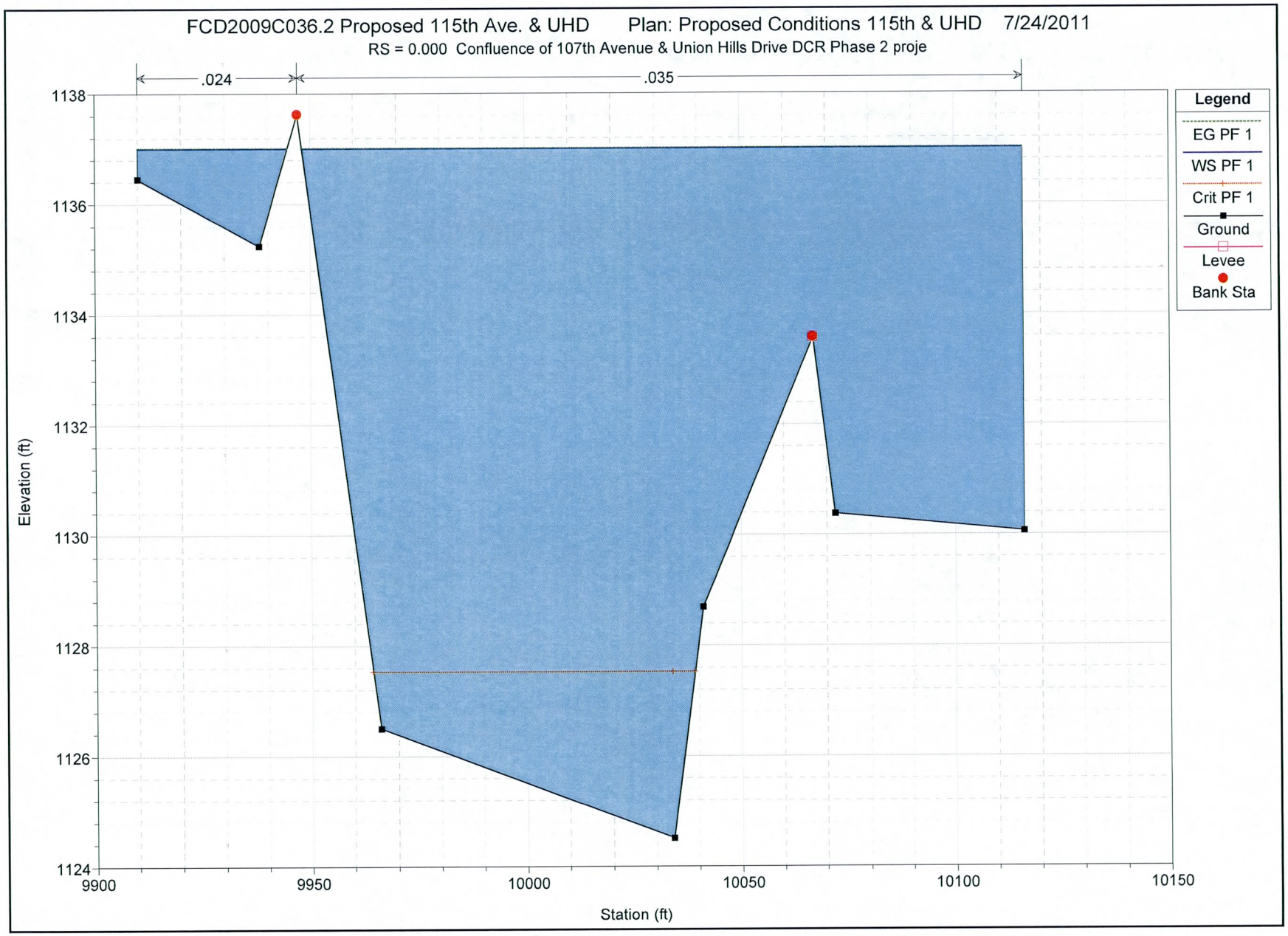

FCD2009C036.2 Proposed 115th Ave. & UHD Plan: Proposed Conditions 115th & UHD 7/24/2011
RS = 0.473
.021
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
Elevation (ft)
Station (ft)
1152
1150
1148
1146
1144
1142
9940
9960
9980
10000
10020
10040
10060
10080


FCD2009C036.2 Proposed 115th Ave. & UHD Plan: Proposed Conditions 115th & UHD 7/24/2011
RS = 0.379
.025
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
1148
1147
1146
1145
1144
1143
1142
1141
9940
9960
9980
10000
10020
10040
10060


FCD2009C036.2 Proposed 115th Ave. & UHD Plan: Proposed Conditions 115th & UHD 7/24/2011
RS = 0.284
.035
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
Elevation (ft)
1146
1144
1142
1140
1138
1136
1134
9920
9940
9960
9980
10000
10020
10040
10060
Station (ft)

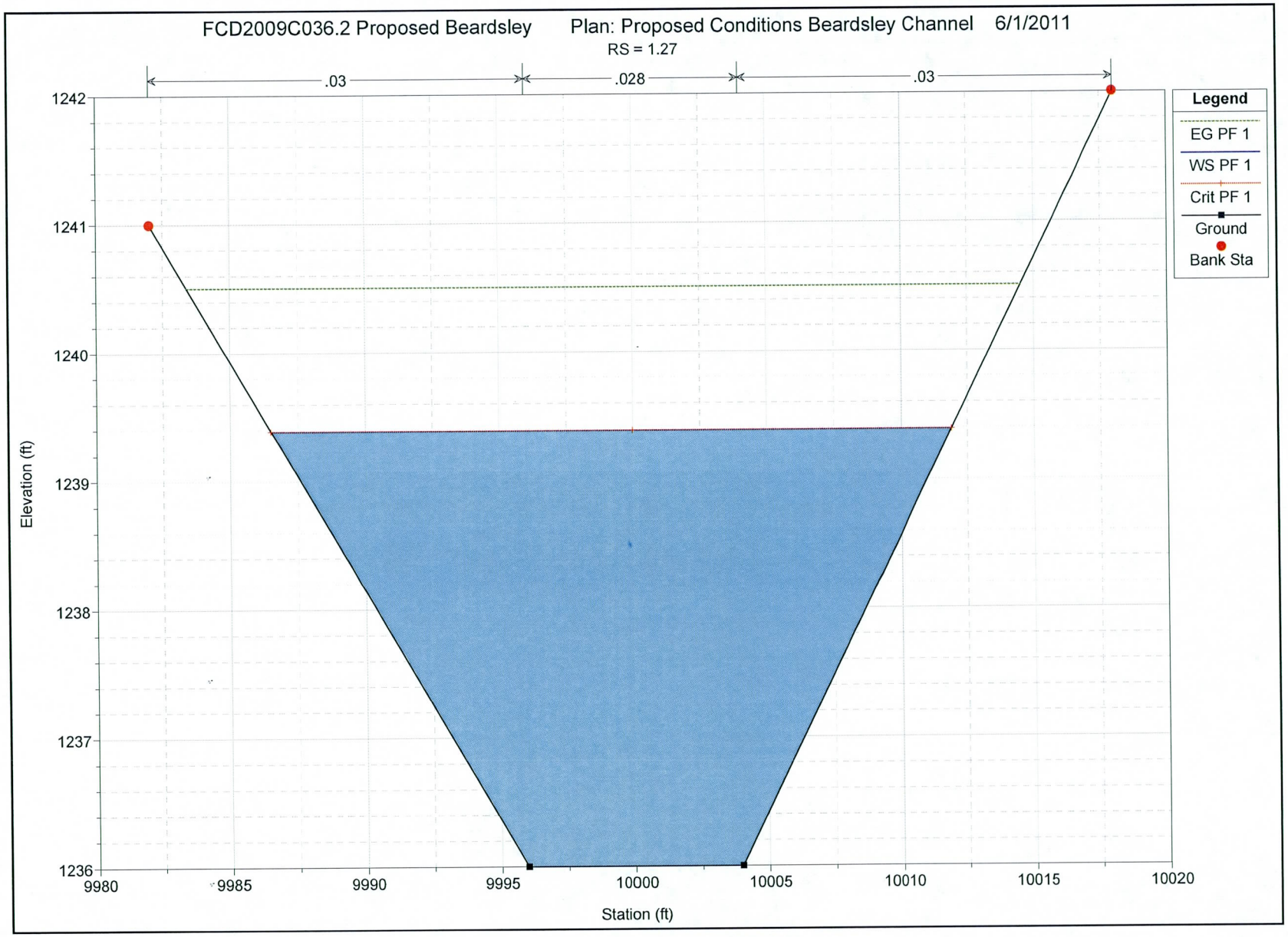

FCD2009C036.2 Proposed 115th Ave. & UHD Plan: Proposed Conditions 115th & UHD 7/24/2011
RS = 0.189
.035
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
Elevation (ft)
1141
1140
1139
1138
1137
1136
1135
1134
1133
9940
9960
9980
10000
10020
10040
10060
10080
Station (ft)

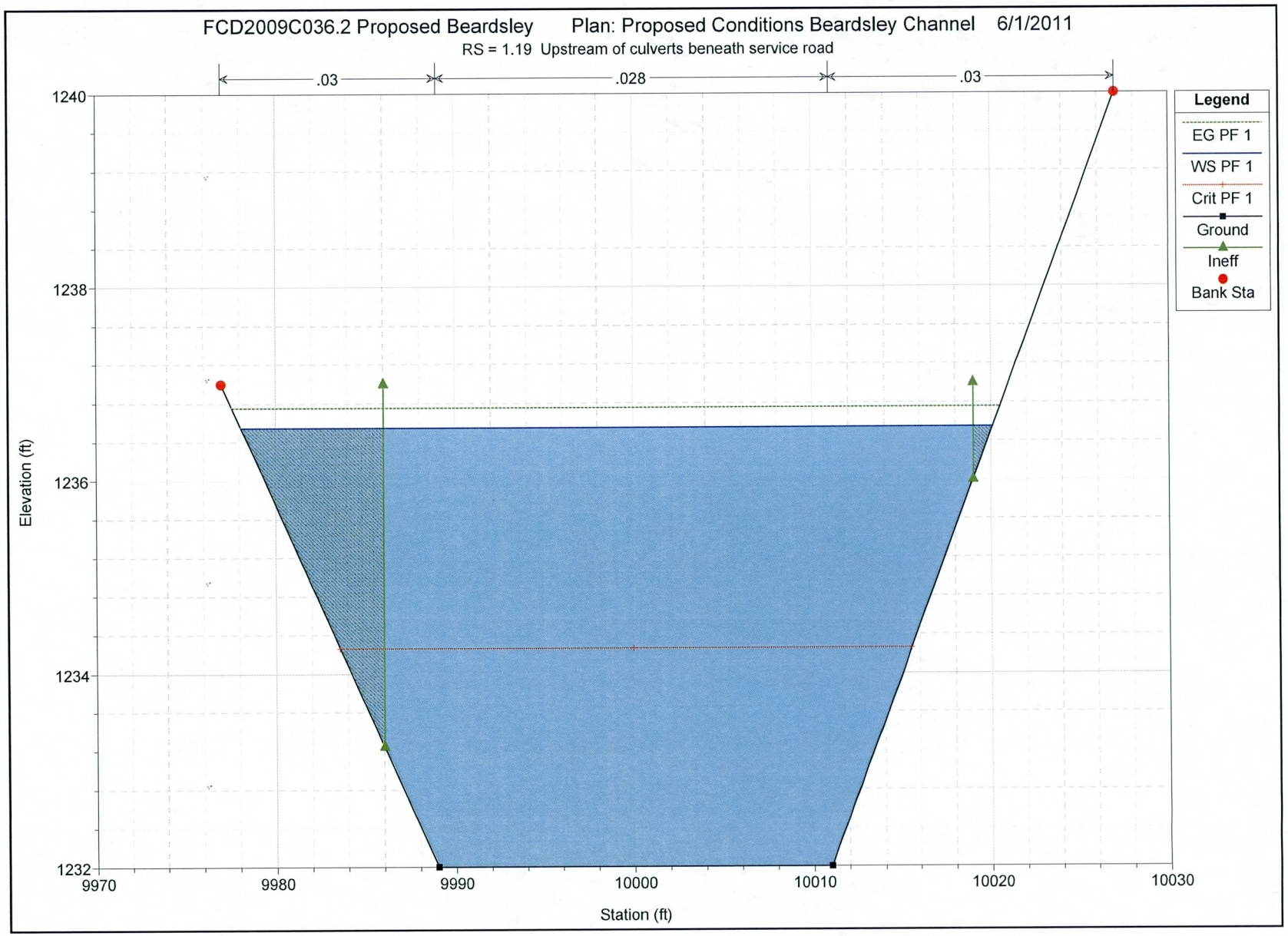

FCD2009C036.2 Proposed 115th Ave. & UHD Plan: Proposed Conditions 115th & UHD 7/24/2011
RS = 0.095
.035
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
Elevation (ft)
1142
1140
1138
1136
1134
1132
1130
1128
9920
9940
9960
9980
10000
10020
10040
10060
10080
10100
Station (ft)

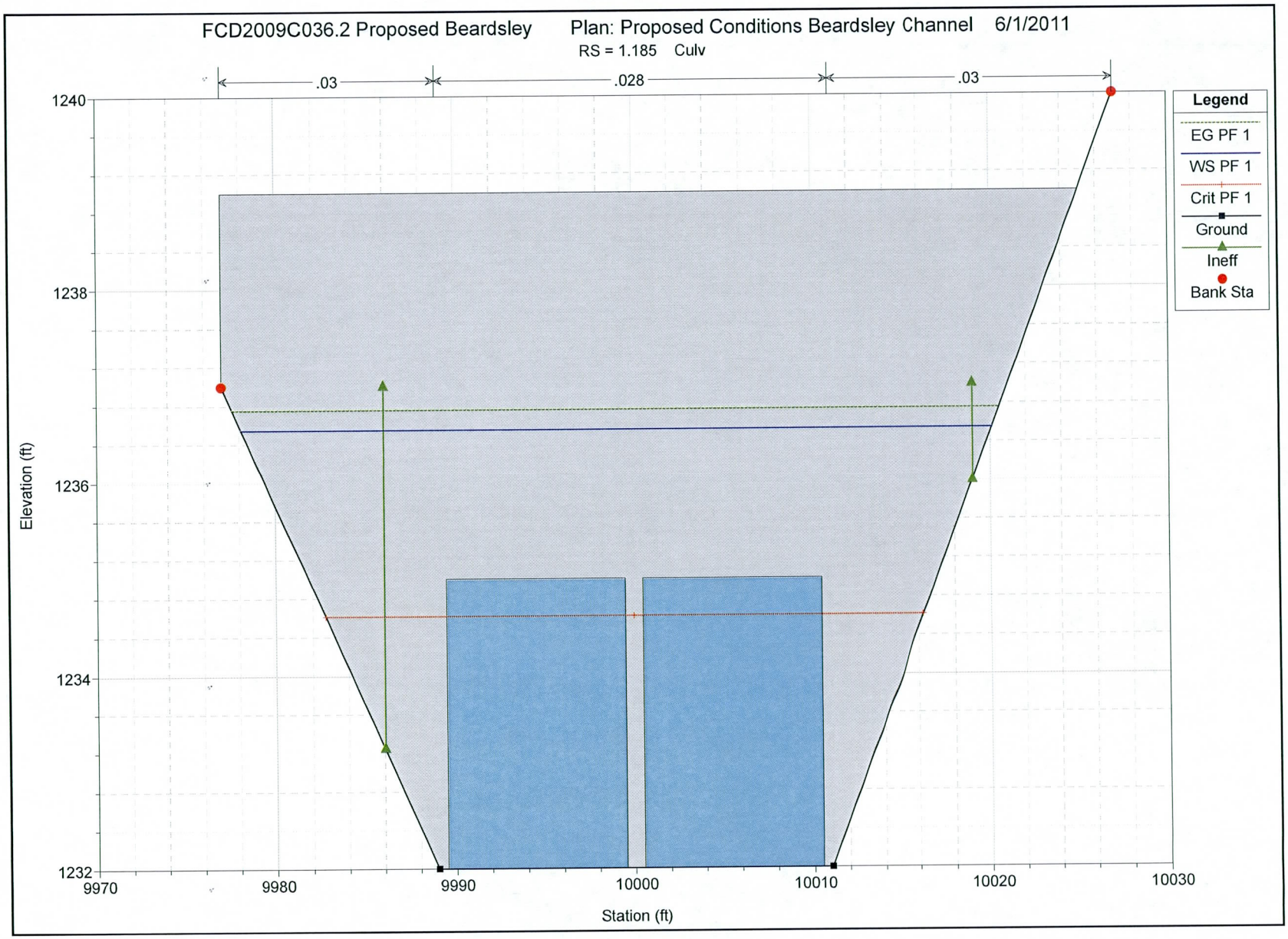

FCD2009C036.2 Proposed 115th Ave. & UHD Plan: Proposed Conditions 115th & UHD 7/24/2011
RS = 0.000 Confluence of 107th Avenue & Union Hills Drive DCR Phase 2 proje
.024
.035
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
Elevation (ft)
1138
1136
1134
1132
1130
1128
1126
1124
9900
9950
10000
10050
10100
10150
Station (ft)

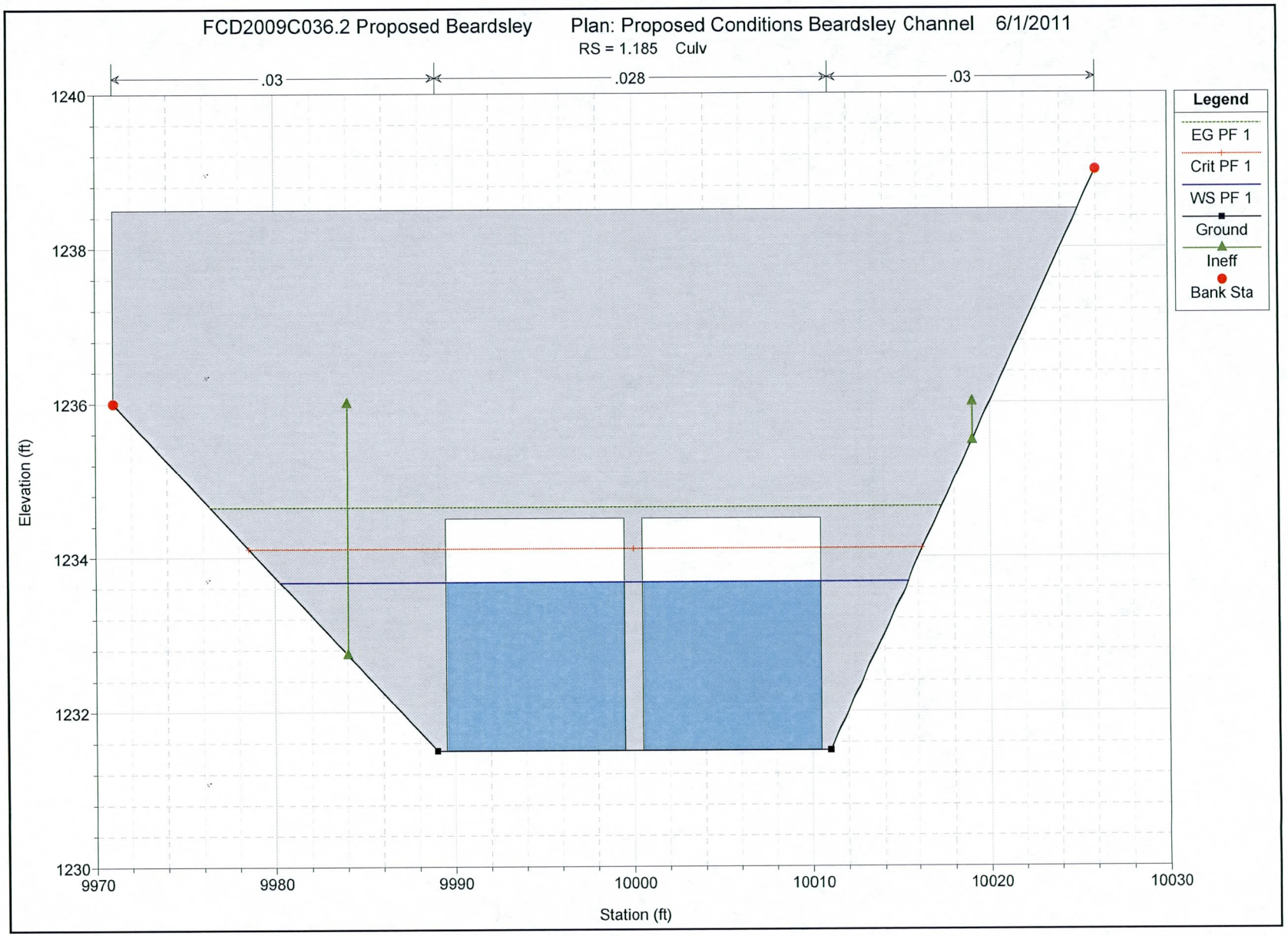
HEC-RAS Plan: Prop. Beardsley River: Beardsley Channe Reach: Basin B.1 to 107 Profile: PF 1

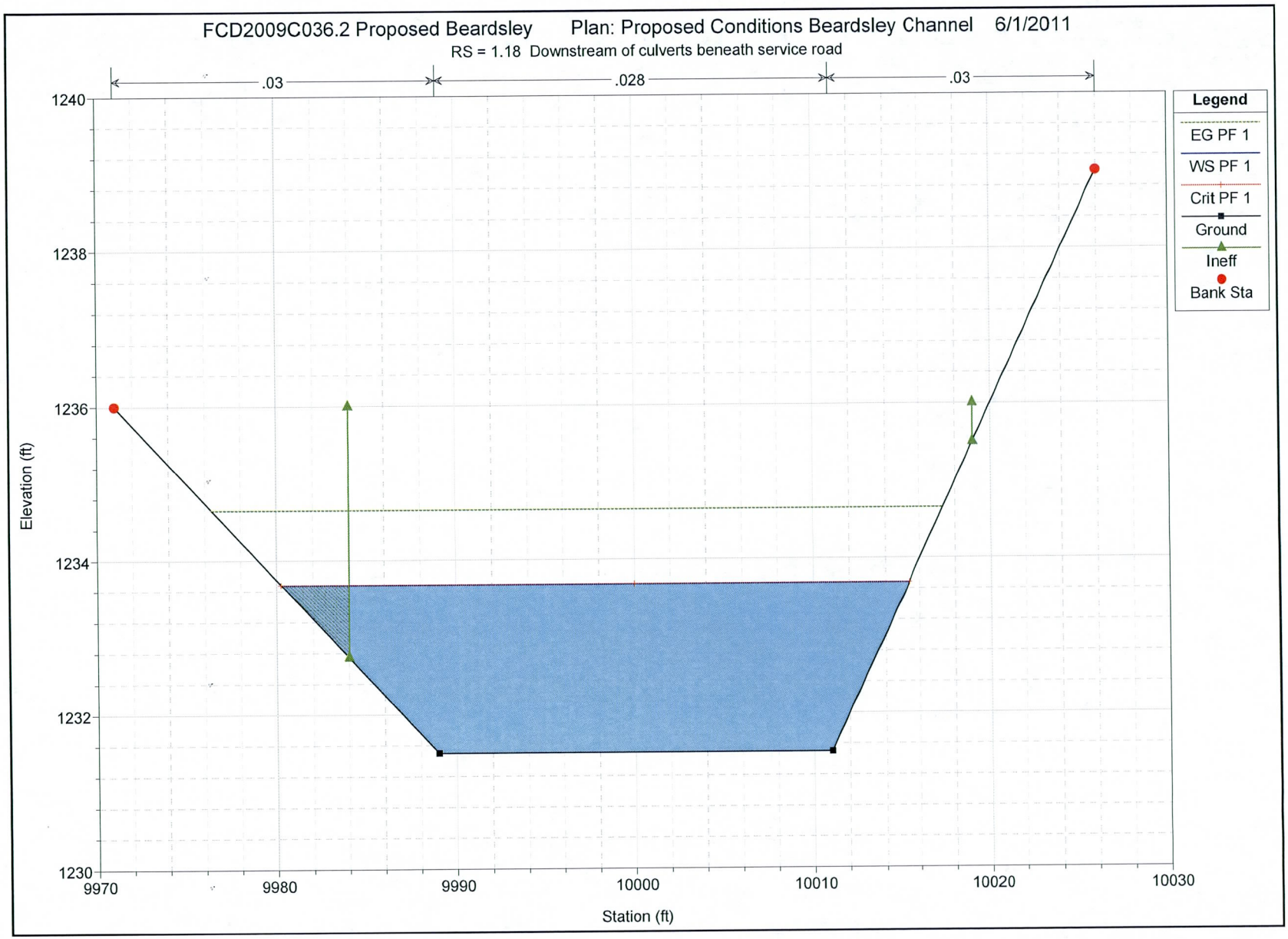
Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Basin B.1 to 107	1.27	PF 1	480.00	1236.00	1239.39	1239.39	1240.51	0.010328	8.48	56.61	25.40	1.00
Basin B.1 to 107	1.19	PF 1	480.00	1232.00	1236.55	1234.26	1236.76	0.000808	3.63	132.37	42.03	0.32
Basin B.1 to 107	1.185		Culvert									
Basin B.1 to 107	1.18	PF 1	480.00	1231.50	1233.69	1233.69	1234.66	0.009892	7.90	60.73	35.13	1.00
Basin B.1 to 107	1.04	PF 1	460.00	1222.50	1226.74	1224.62	1226.88	0.000730	2.93	158.95	56.62	0.29
Basin B.1 to 107	1.03		Culvert									
Basin B.1 to 107	1.02	PF 1	460.00	1222.00	1225.22	1224.08	1225.49	0.001939	4.14	111.12	47.87	0.46
Basin B.1 to 107	0.98	PF 1	460.00	1221.00	1224.58		1224.94	0.003017	4.83	95.33	40.76	0.56
Basin B.1 to 107	0.88	PF 1	460.00	1219.00	1222.95		1223.38	0.003215	5.21	88.37	35.73	0.58
Basin B.1 to 107	0.79	PF 1	480.00	1217.50	1222.71	1219.83	1222.81	0.000454	2.60	195.41	71.03	0.23
Basin B.1 to 107	0.78		Culvert									
Basin B.1 to 107	0.77	PF 1	480.00	1217.00	1220.65	1219.00	1220.87	0.000442	3.72	129.07	45.54	0.37
Basin B.1 to 107	0.71	PF 1	480.00	1215.50	1219.04	1219.04	1220.40	0.004044	9.38	51.18	18.95	1.01
Basin B.1 to 107	0.64	PF 1	480.00	1204.00	1206.45	1206.45	1207.51	0.003987	8.30	57.86	27.33	1.00
Basin B.1 to 107	0.608	PF 1	480.00	1202.36	1205.49	1205.13	1206.30	0.001751	7.21	66.55	27.52	0.82
Basin B.1 to 107	0.602	PF 1	480.00	1202.33	1205.11	1205.11	1206.21	0.002714	8.41	57.06	26.11	1.00
Basin B.1 to 107	0.600	PF 1	480.00	1200.43	1203.73	1203.20	1204.44	0.001435	6.72	71.40	28.22	0.74
Basin B.1 to 107	0.582	PF 1	480.00	1200.34	1203.11	1203.11	1204.22	0.002731	8.43	56.93	26.09	1.01
Basin B.1 to 107	0.580	PF 1	480.00	1198.53	1202.05		1202.64	0.001139	6.19	77.49	29.07	0.67
Basin B.1 to 107	0.506	PF 1	480.00	1198.13	1201.40	1200.90	1202.12	0.001488	6.81	70.49	28.09	0.76
Basin B.1 to 107	0.493	PF 1	480.00	1198.07	1200.84	1200.84	1201.95	0.002733	8.43	56.92	26.08	1.01
Basin B.1 to 107	0.491	PF 1	480.00	1197.06	1200.48		1201.12	0.001261	6.42	74.74	28.69	0.70
Basin B.1 to 107	0.458	PF 1	480.00	1196.88	1199.65	1199.65	1200.76	0.002731	8.43	56.93	26.09	1.01
Basin B.1 to 107	0.456	PF 1	480.00	1195.12	1198.56		1199.19	0.001232	6.37	75.37	28.78	0.69
Basin B.1 to 107	0.419	PF 1	480.00	1194.92	1197.69	1197.69	1198.80	0.002730	8.43	56.94	26.09	1.01
Basin B.1 to 107	0.417	PF 1	480.00	1192.41	1195.75	1195.18	1196.43	0.001377	6.62	72.46	28.37	0.73
Basin B.1 to 107	0.395	PF 1	480.00	1192.30	1195.07	1195.07	1196.18	0.002731	8.43	56.93	26.09	1.01
Basin B.1 to 107	0.393	PF 1	480.00	1189.79	1193.16	1192.56	1193.83	0.001333	6.55	73.29	28.48	0.72
Basin B.1 to 107	0.366	PF 1	480.00	1189.64	1192.41	1192.41	1193.52	0.002734	8.44	56.90	26.07	1.01
Basin B.1 to 107	0.364	PF 1	480.00	1188.63	1192.27		1192.81	0.001004	5.92	81.04	29.55	0.63
Basin B.1 to 107	0.337	PF 1	480.00	1188.47	1192.13		1192.67	0.000984	5.88	81.76	31.59	0.62
Basin B.1 to 107	0.265	PF 1	480.00	1188.11	1191.74		1192.29	0.001013	5.94	80.79	29.52	0.63
Basin B.1 to 107	.170	PF 1	480.00	1187.61	1191.21		1191.77	0.001041	6.00	80.01	29.41	0.64
Basin B.1 to 107	0.076	PF 1	480.00	1187.11	1190.63		1191.23	0.001134	6.19	77.61	29.08	0.67
Basin B.1 to 107	0.022	PF 1	480.00	1186.83	1189.60	1189.60	1190.71	0.002727	8.43	56.96	26.09	1.01
Basin B.1 to 107	0.00	PF 1	480.00	1186.71	1189.27	1188.73	1189.68	0.001000	5.23	104.36	66.71	0.63

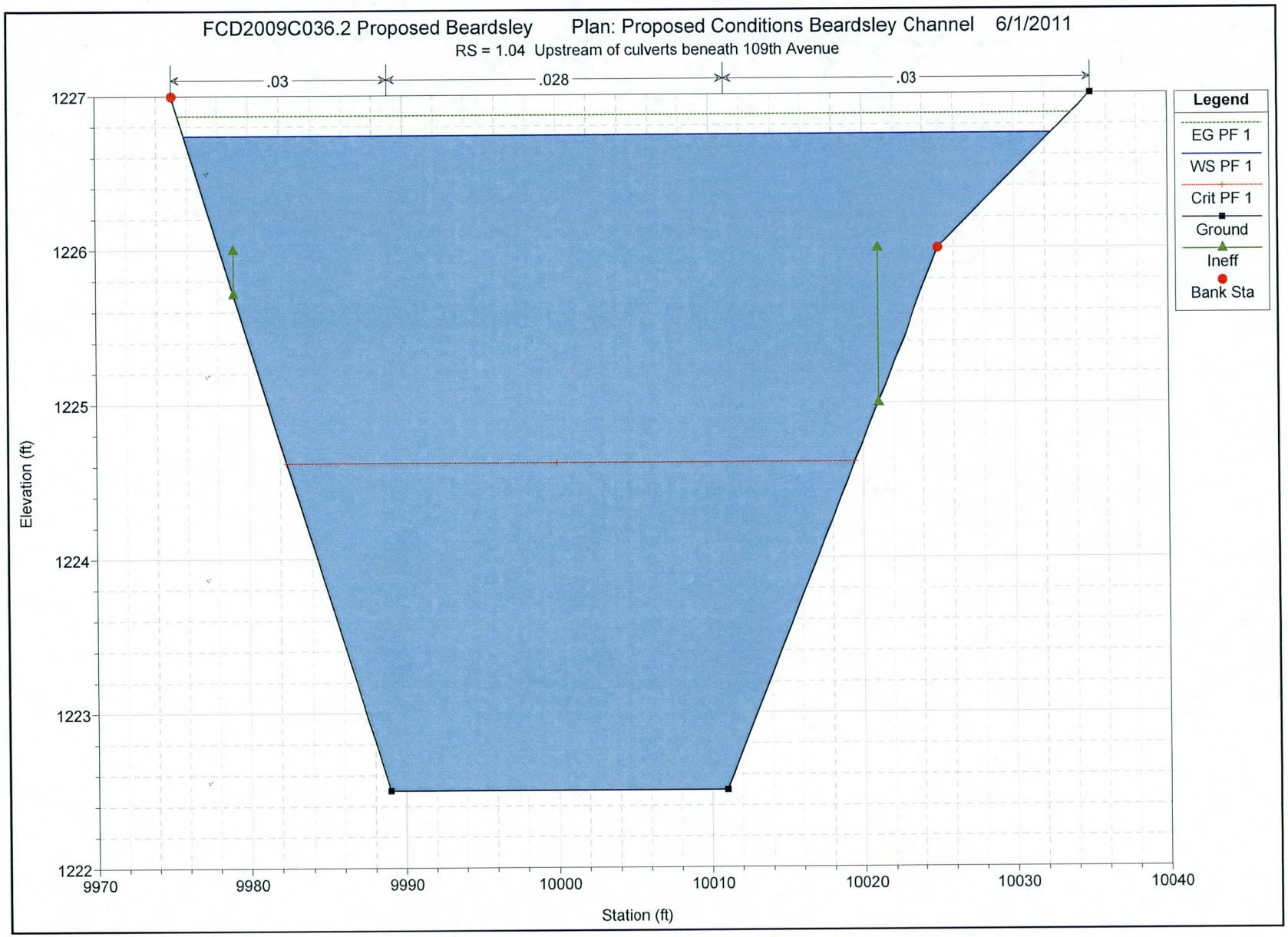

FCD2009C036.2 Proposed Beardsley
Plan: Proposed Conditions Beardsley Channel 6/1/2011
RS = 1.27
.03
.028
.03
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
1242
1241
1240
1239
1238
1237
1236
9980
9985
9990
9995
10000
10005
10010
10015
10020

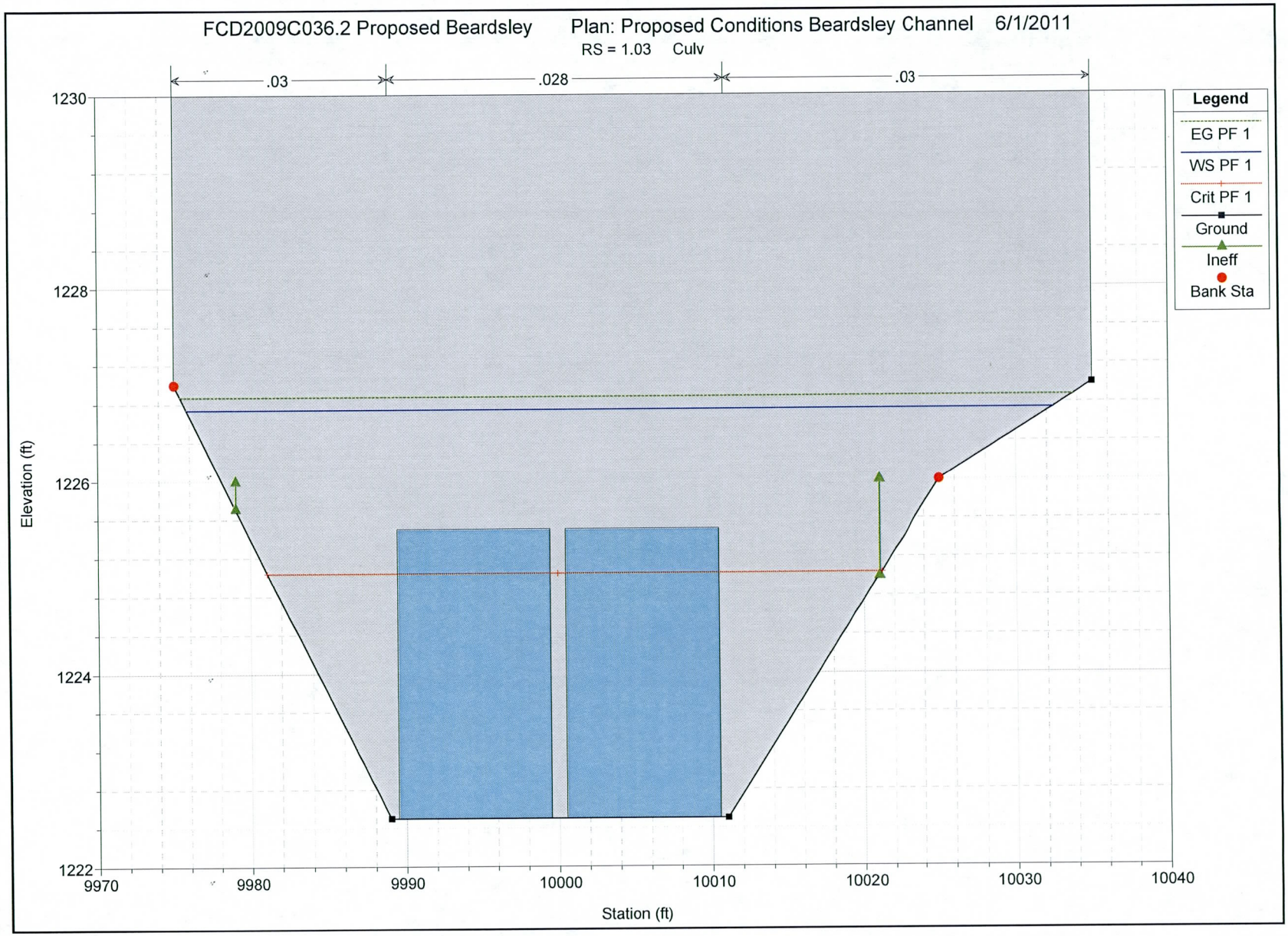

FCD2009C036.2 Proposed Beardsley Plan: Proposed Conditions Beardsley Channel 6/1/2011
RS = 1.19 Upstream of culverts beneath service road
.03
.028
.03
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
1240
1238
1236
1234
1232
9970
9980
9990
10000
10010
10020
10030
Station (ft)

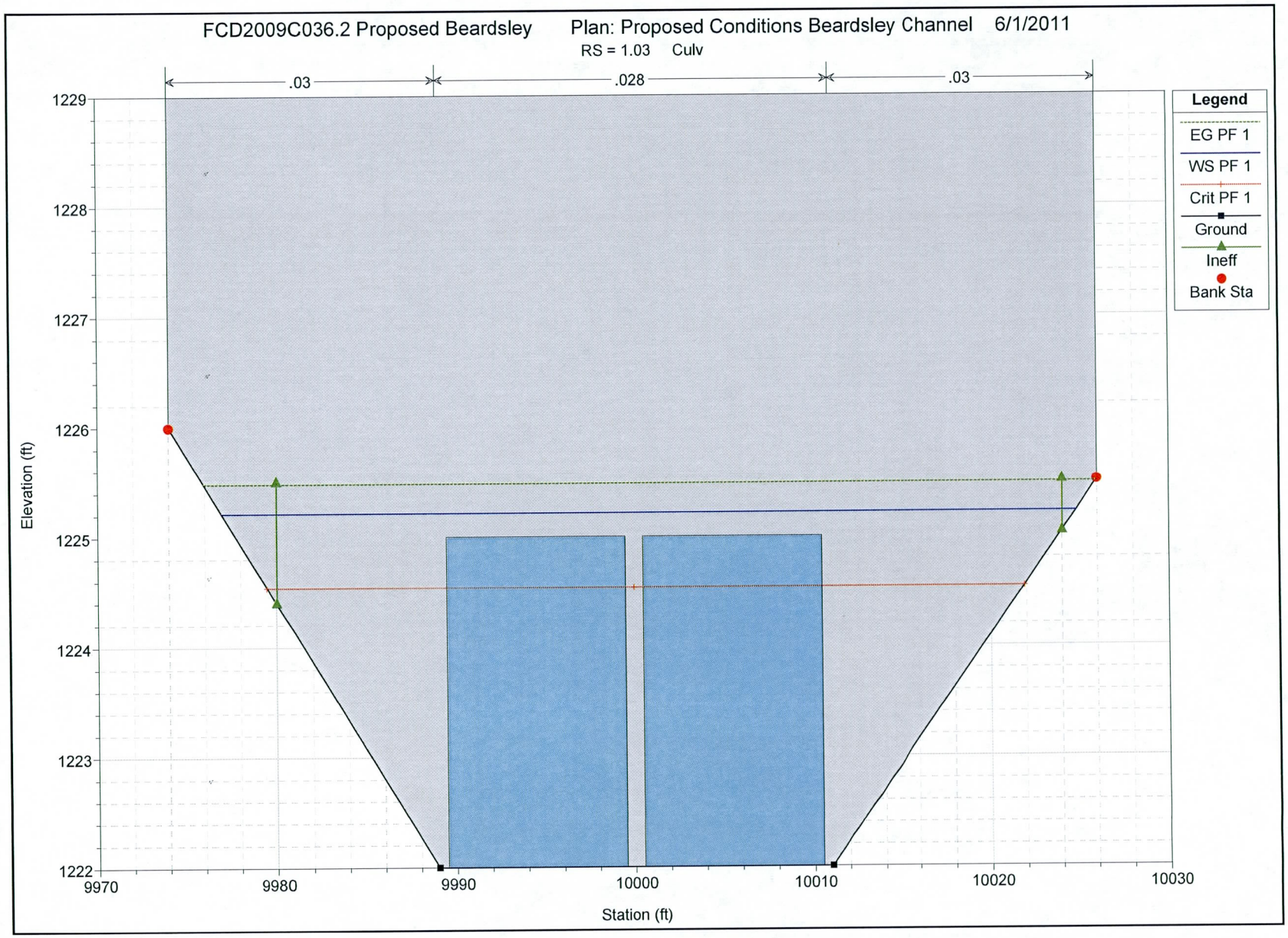

FCD2009C036.2 Proposed Beardsley
Plan: Proposed Conditions Beardsley Channel 6/1/2011
RS = 1.185 Culv
.03
.028
.03
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
1240
1238
1236
1234
1232
9970
9980
9990
10000
10010
10020
10030
Station (ft)

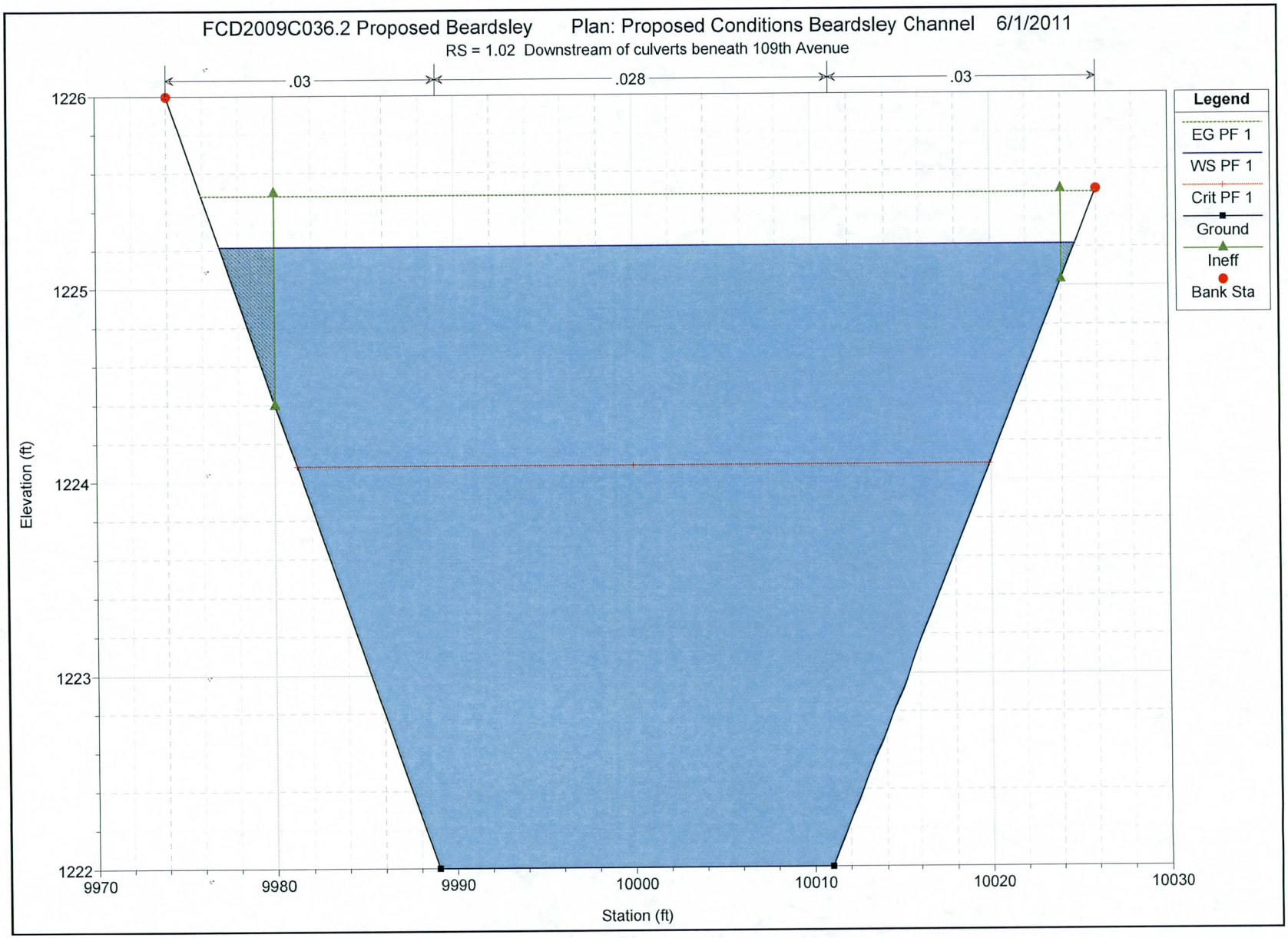

FCD2009C036.2 Proposed Beardsley
Plan: Proposed Conditions Beardsley Channel 6/1/2011
RS = 1.185 Culv
.03
.028
.03
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
1240
1238
1236
1234
1232
1230
9970
9980
9990
10000
10010
10020
10030
Station (ft)

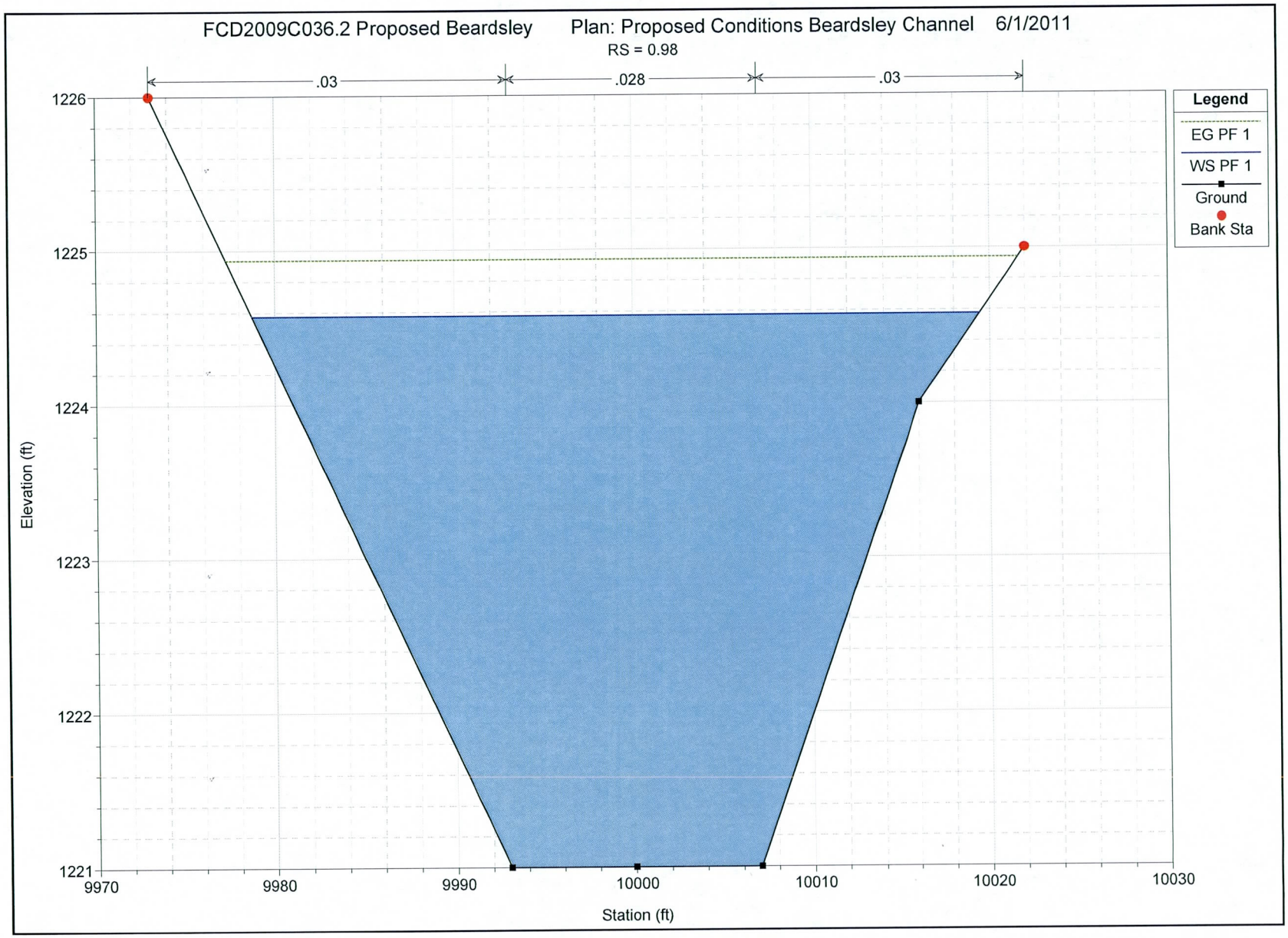

FCD2009C036.2 Proposed Beardsley Plan: Proposed Conditions Beardsley Channel 6/1/2011
RS = 1.18 Downstream of culverts beneath service road
.03
.028
.03
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
1240
1238
1236
1234
1232
1230
9970
9980
9990
10000
10010
10020
10030
Station (ft)

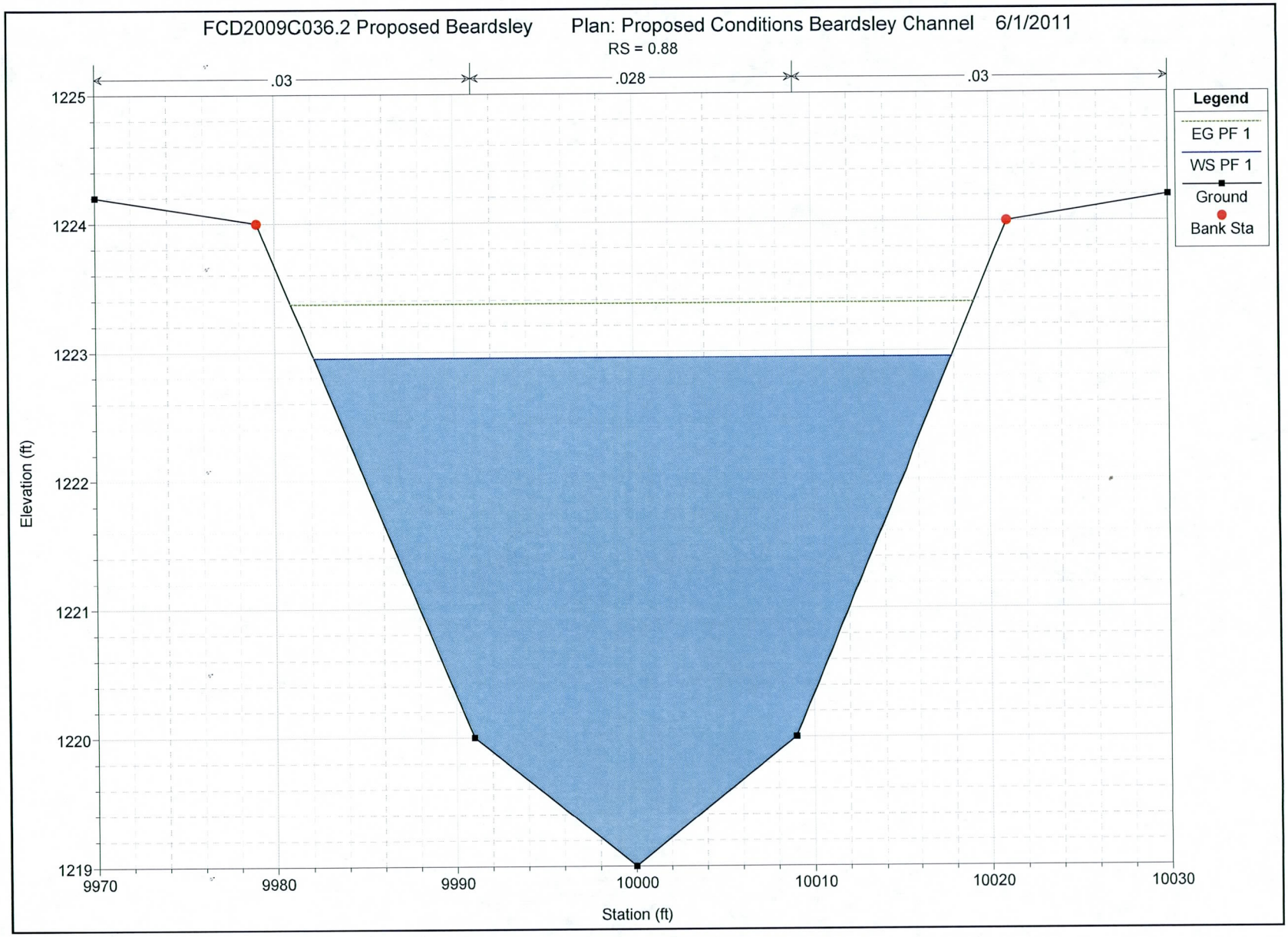

FCD2009C036.2 Proposed Beardsley Plan: Proposed Conditions Beardsley Channel 6/1/2011
RS = 1.04 Upstream of culverts beneath 109th Avenue
.03
.028
.03
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
1227
1226
1225
1224
1223
1222
9970
9980
9990
10000
10010
10020
10030
10040
Station (ft)

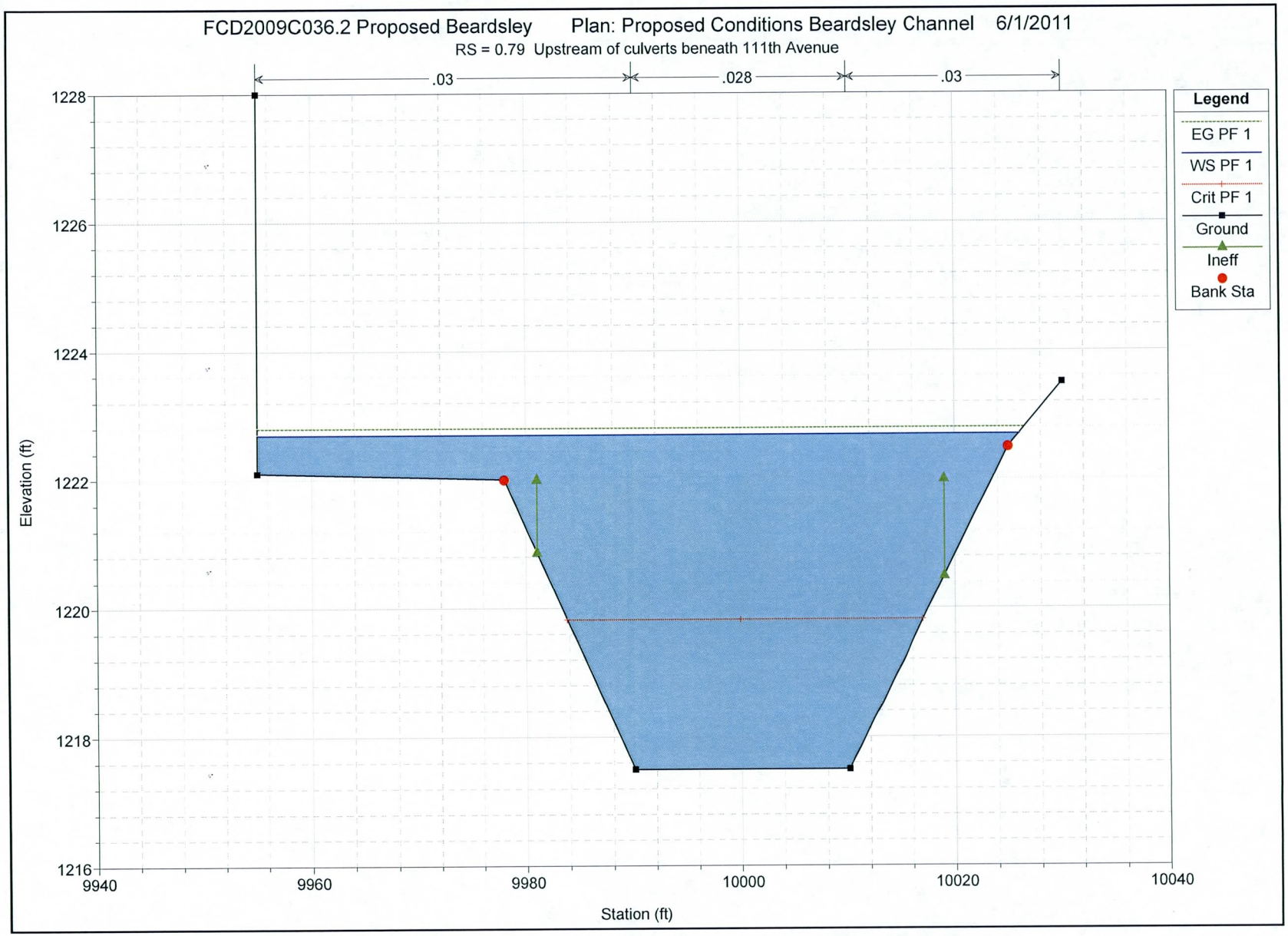

FCD2009C036.2 Proposed Beardsley
Plan: Proposed Conditions Beardsley Channel 6/1/2011
RS = 1.03 Culv
.03
.028
.03
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
1230
1228
1226
1224
1222
9970
9980
9990
10000
10010
10020
10030
10040
Station (ft)

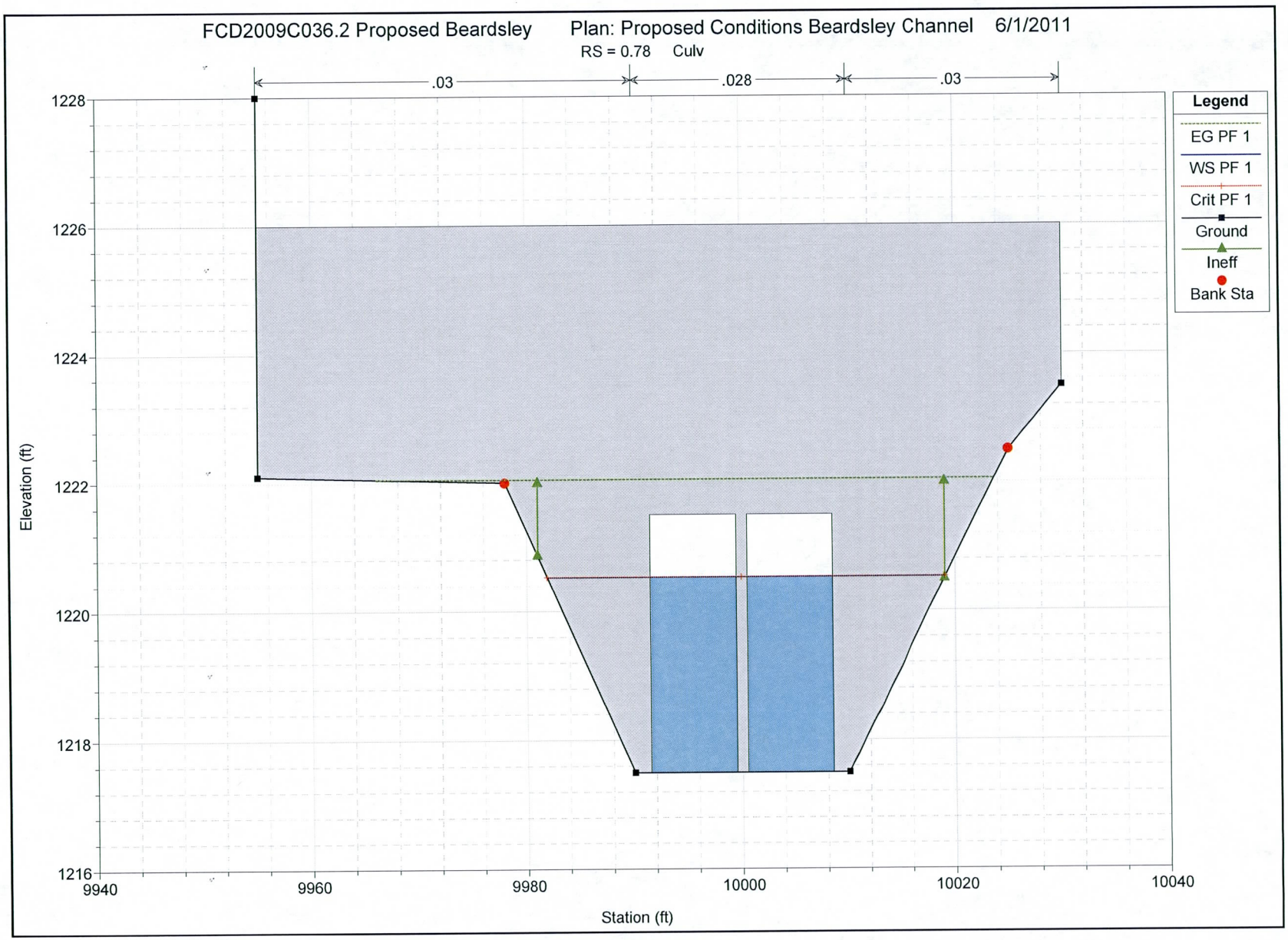

FCD2009C036.2 Proposed Beardsley
Plan: Proposed Conditions Beardsley Channel 6/1/2011
RS = 1.03 Culv
.03
.028
.03
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
1229
1228
1227
1226
1225
1224
1223
1222
9970
9980
9990
10000
10010
10020
10030
Station (ft)

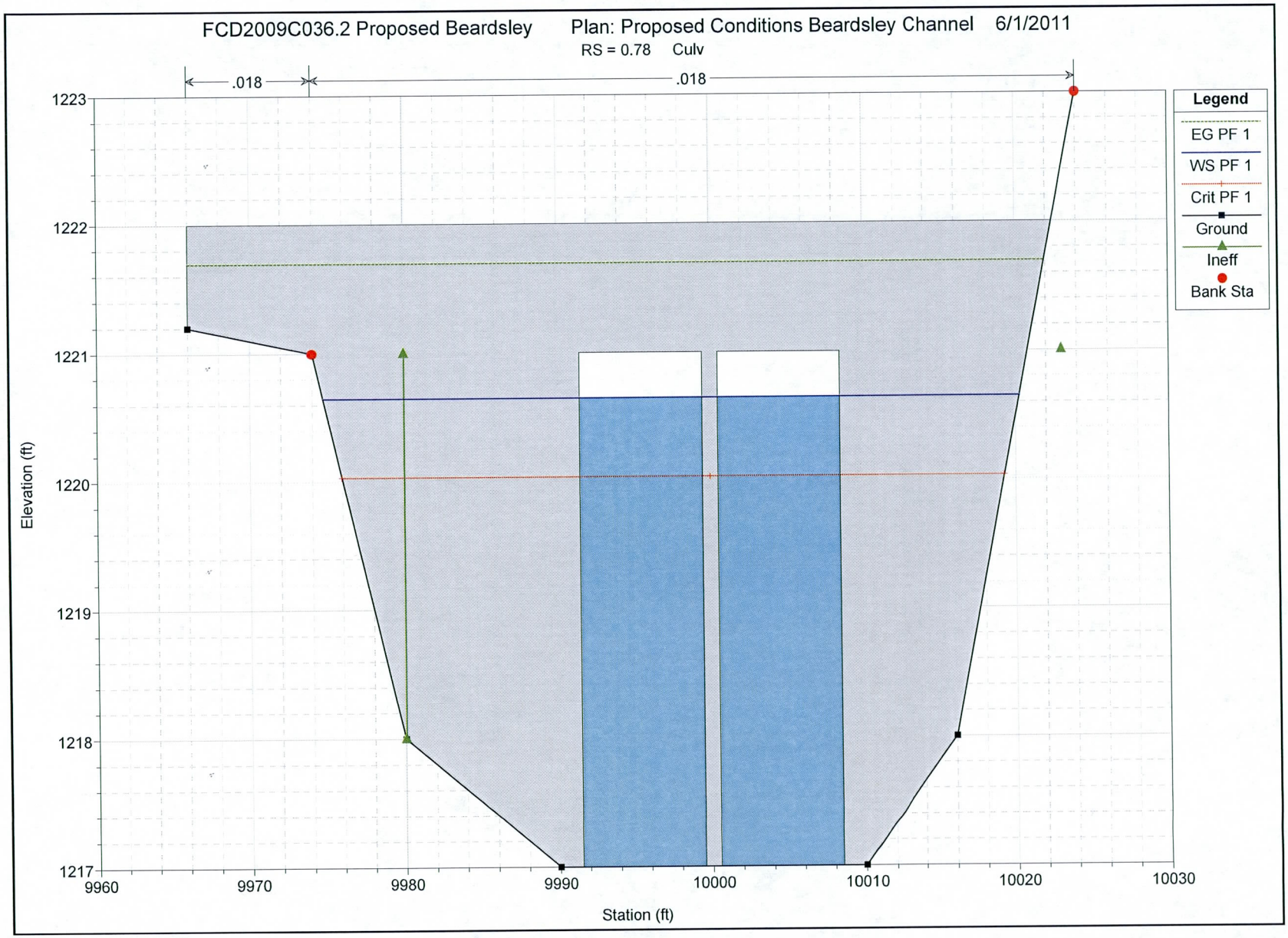

FCD2009C036.2 Proposed Beardsley Plan: Proposed Conditions Beardsley Channel 6/1/2011
RS = 1.02 Downstream of culverts beneath 109th Avenue
.03
.028
.03
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Ineff
Bank Sta
1226
1225
1224
1223
1222
Elevation (ft)
9970
9980
9990
10000
10010
10020
10030
Station (ft)

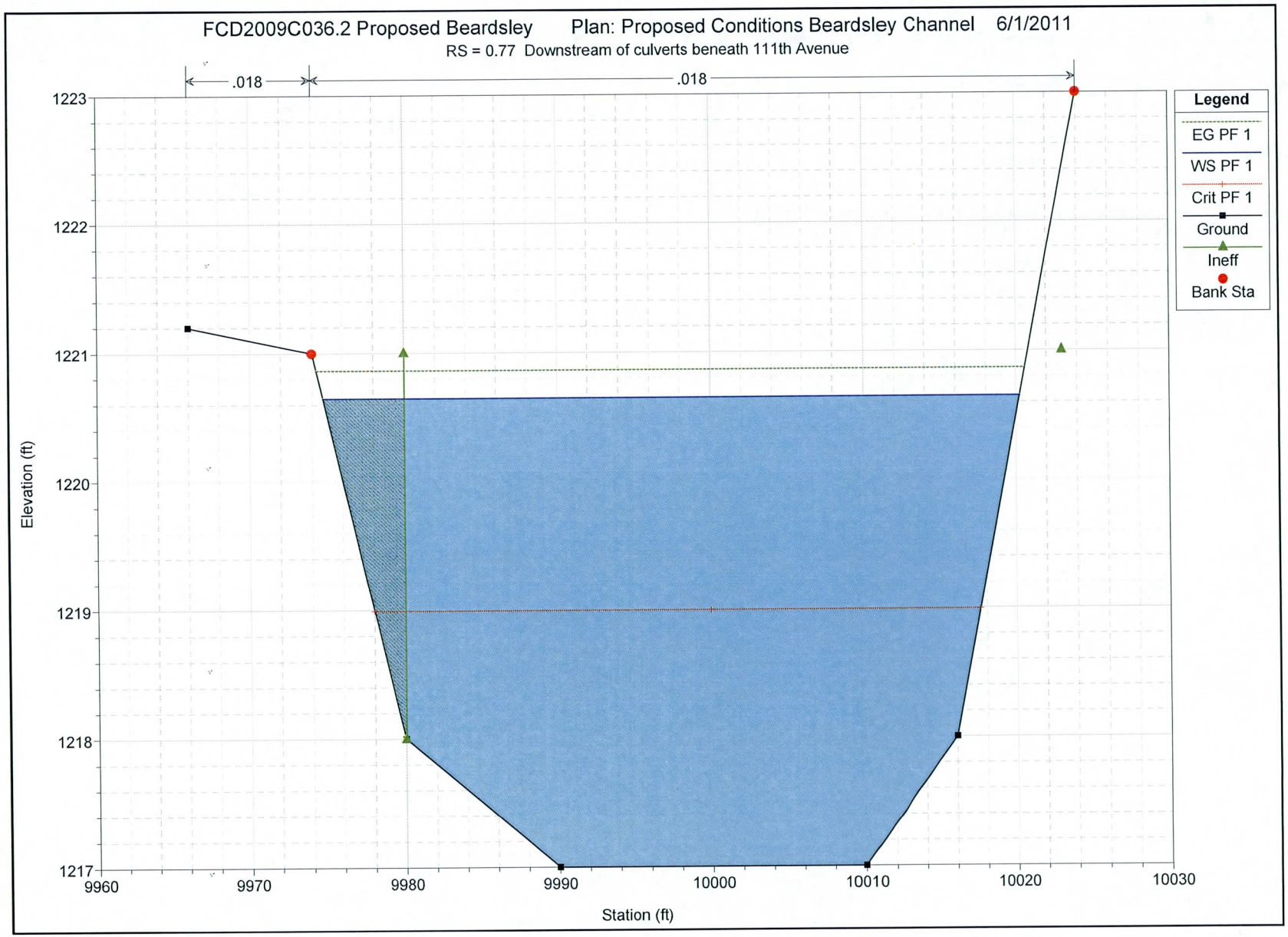

FCD2009C036.2 Proposed Beardsley
Plan: Proposed Conditions Beardsley Channel 6/1/2011
RS = 0.98
.03
.028
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
1226
1225
1224
1223
1222
1221
Elevation (ft)
9970
9980
9990
10000
10010
10020
10030
Station (ft)

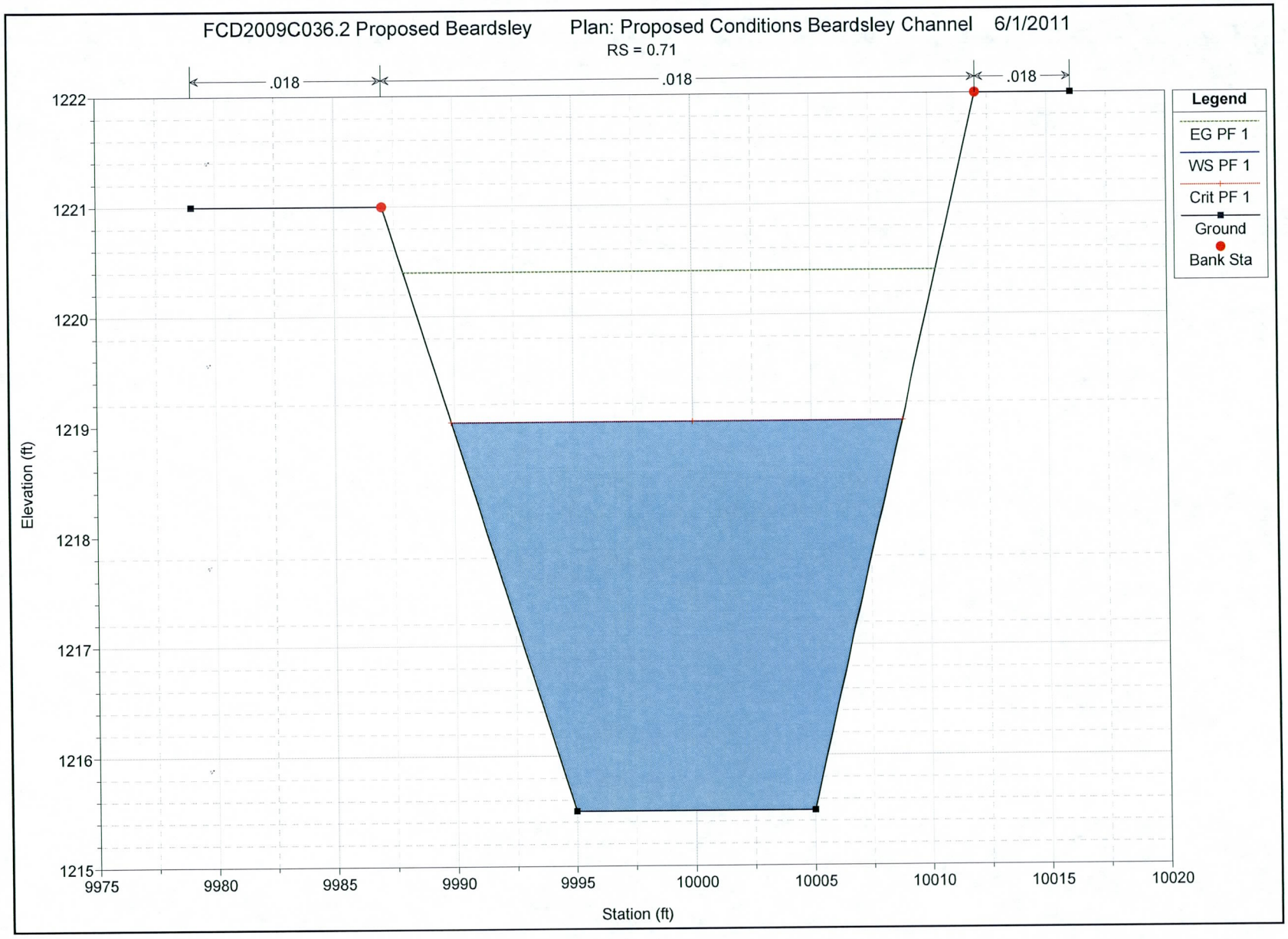

FCD2009C036.2 Proposed Beardsley
Plan: Proposed Conditions Beardsley Channel 6/1/2011
RS = 0.88
.03
.028
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
1225
1224
1223
1222
1221
1220
1219
9970
9980
9990
10000
10010
10020
10030
Station (ft)

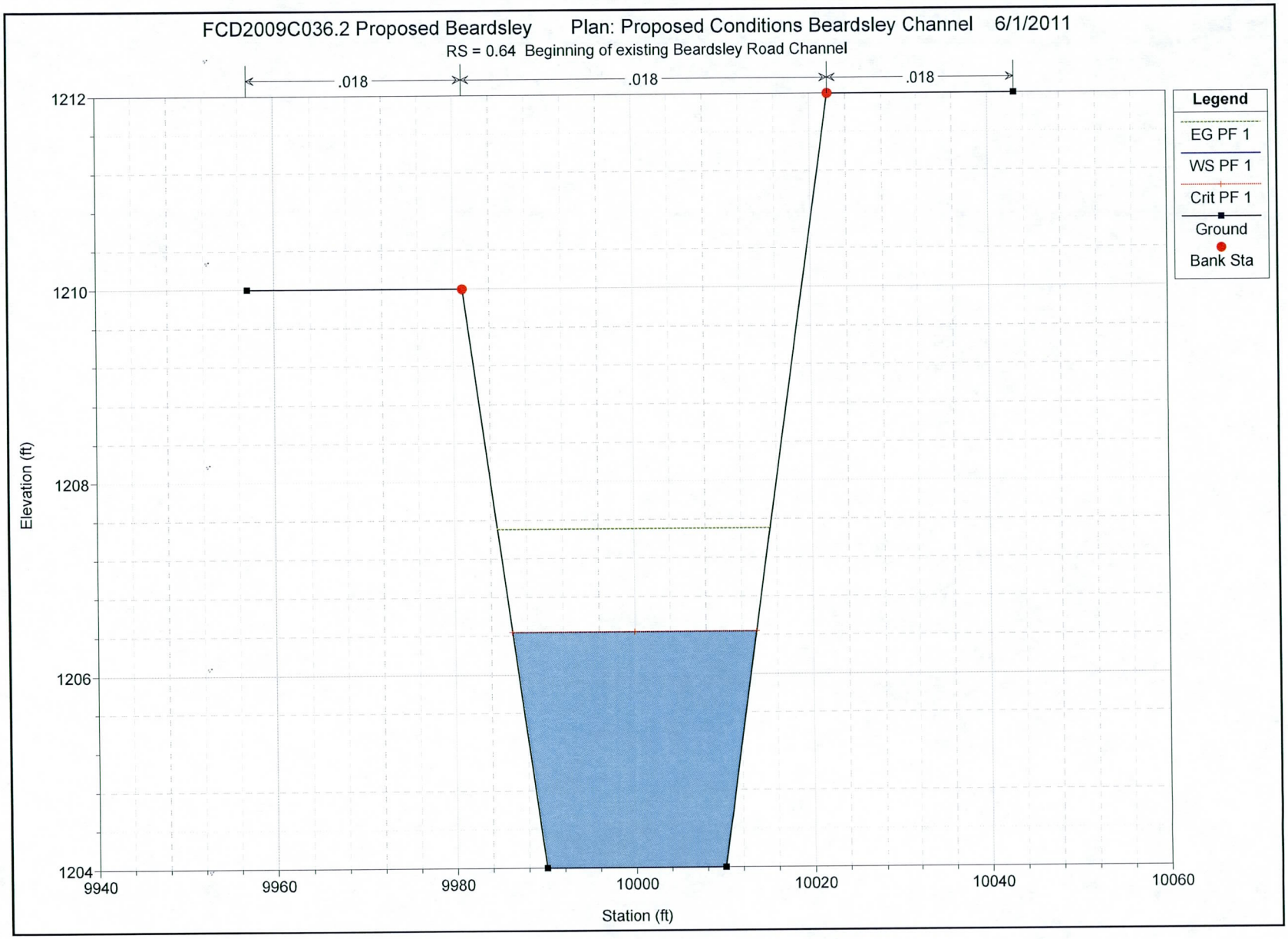

FCD2009C036.2 Proposed Beardsley Plan: Proposed Conditions Beardsley Channel 6/1/2011
RS = 0.79 Upstream of culverts beneath 111th Avenue
.03
.028
.03
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
1228
1226
1224
1222
1220
1218
1216
9940
9960
9980
10000
10020
10040
Station (ft)

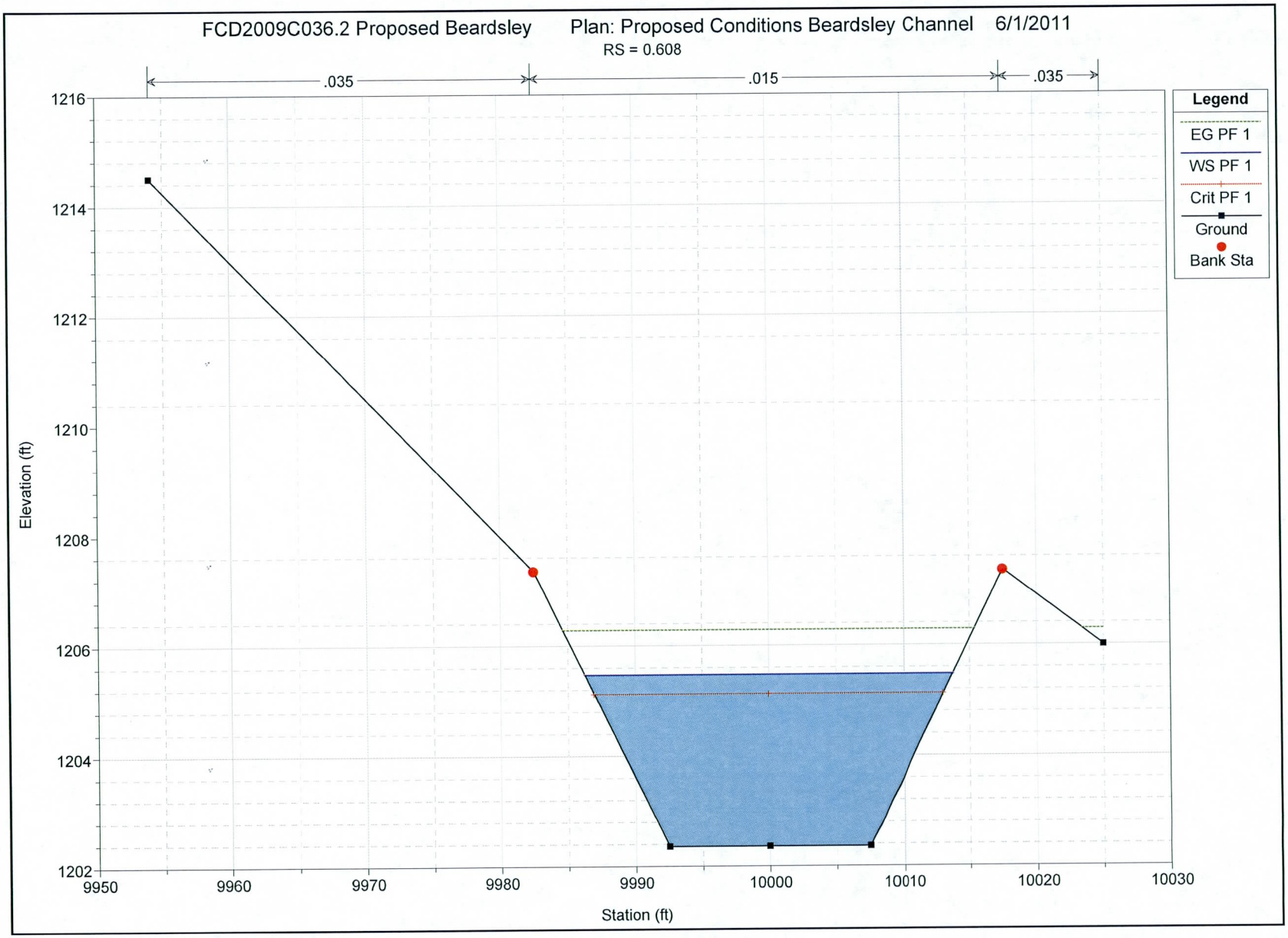

FCD2009C036.2 Proposed Beardsley
Plan: Proposed Conditions Beardsley Channel 6/1/2011
RS = 0.78 Culv
.03
.028
.03
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
1228
1226
1224
1222
1220
1218
1216
9940
9960
9980
10000
10020
10040
Station (ft)

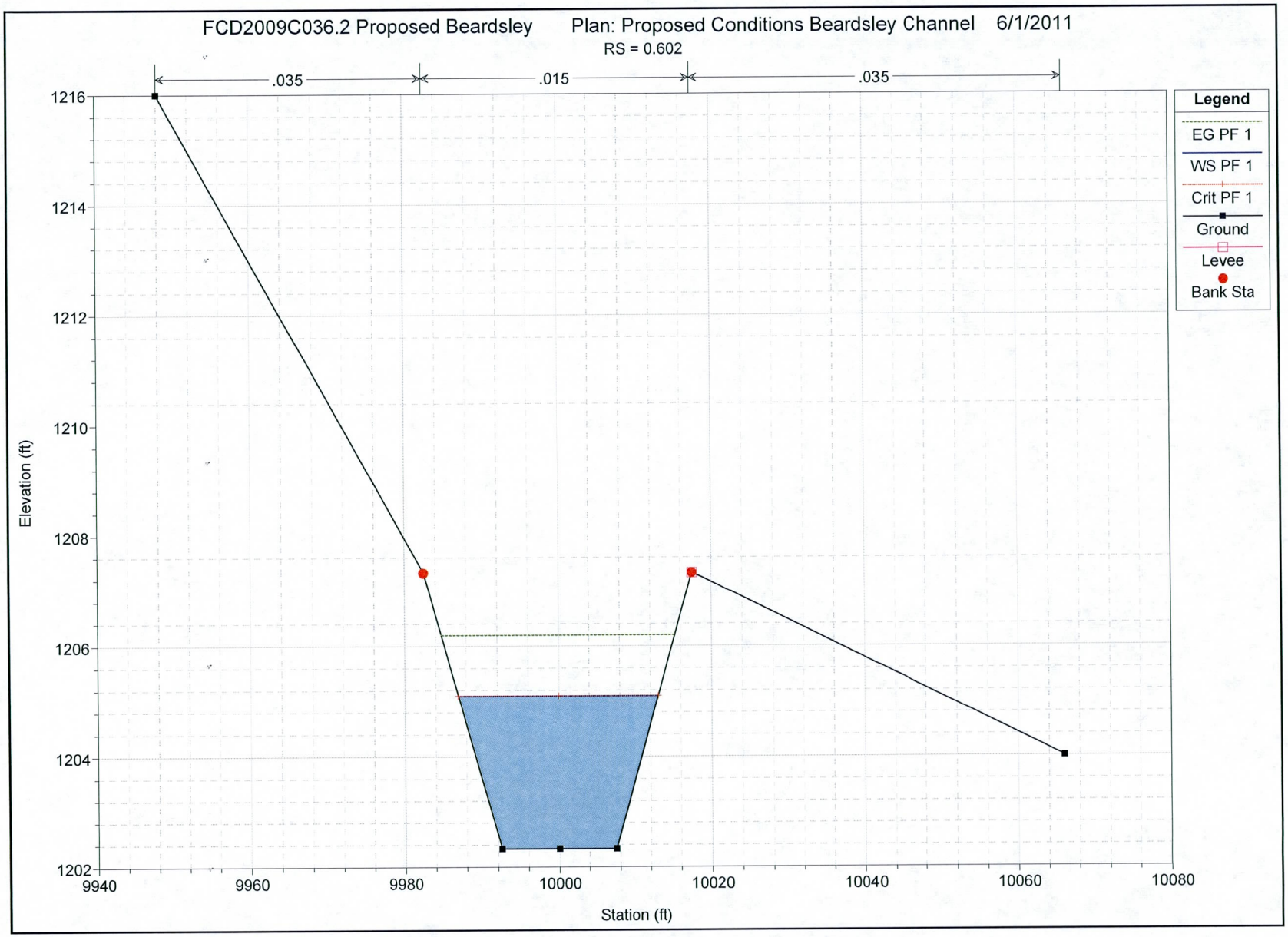

FCD2009C036.2 Proposed Beardsley
Plan: Proposed Conditions Beardsley Channel 6/1/2011
RS = 0.78 Culv
.018
.018
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
1223
1222
1221
1220
1219
1218
1217
9960
9970
9980
9990
10000
10010
10020
10030

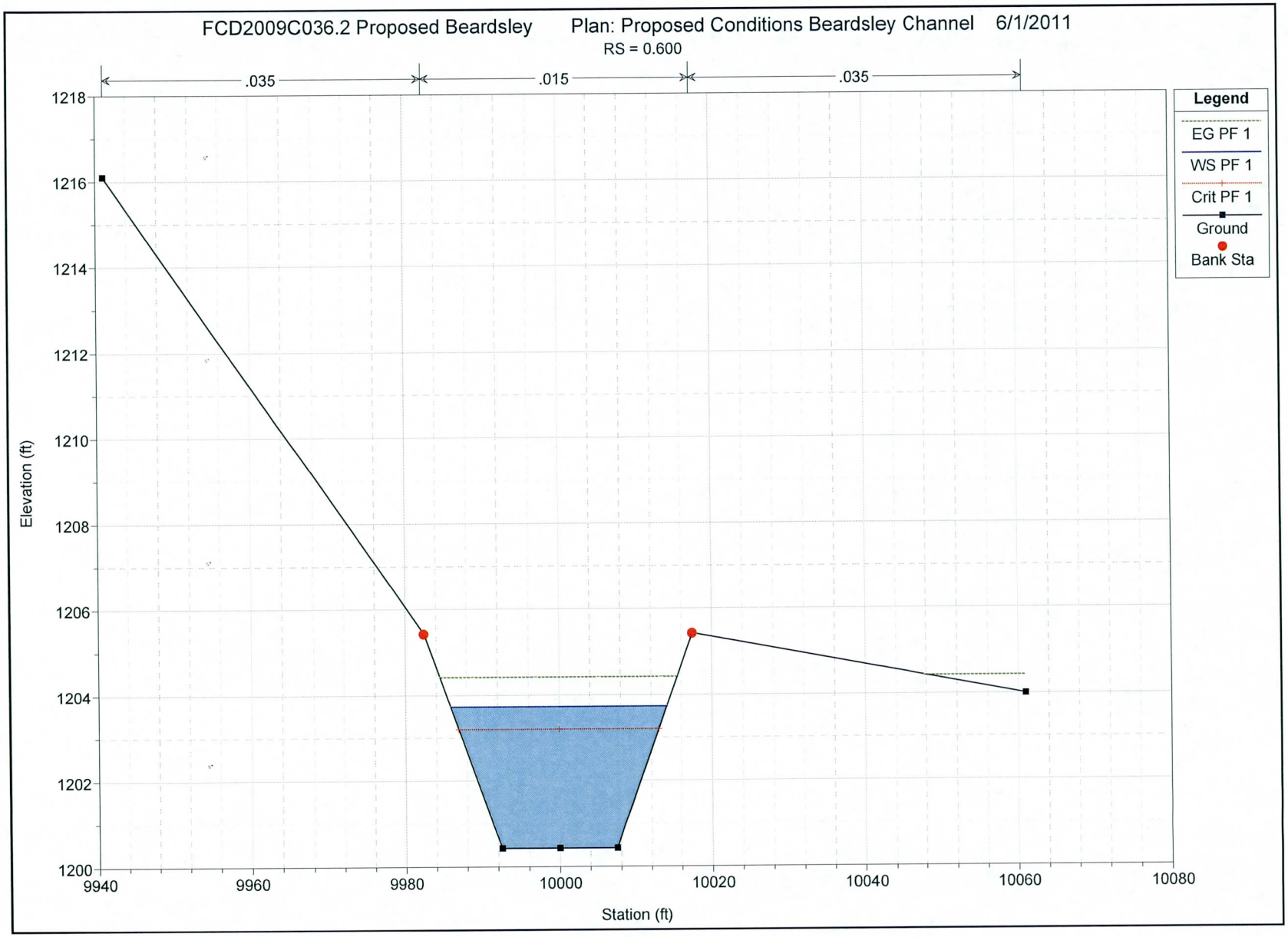

FCD2009C036.2 Proposed Beardsley Plan: Proposed Conditions Beardsley Channel 6/1/2011
RS = 0.77 Downstream of culverts beneath 111th Avenue
.018
.018
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
1223
1222
1221
1220
1219
1218
1217
9960
9970
9980
9990
10000
10010
10020
10030
Station (ft)

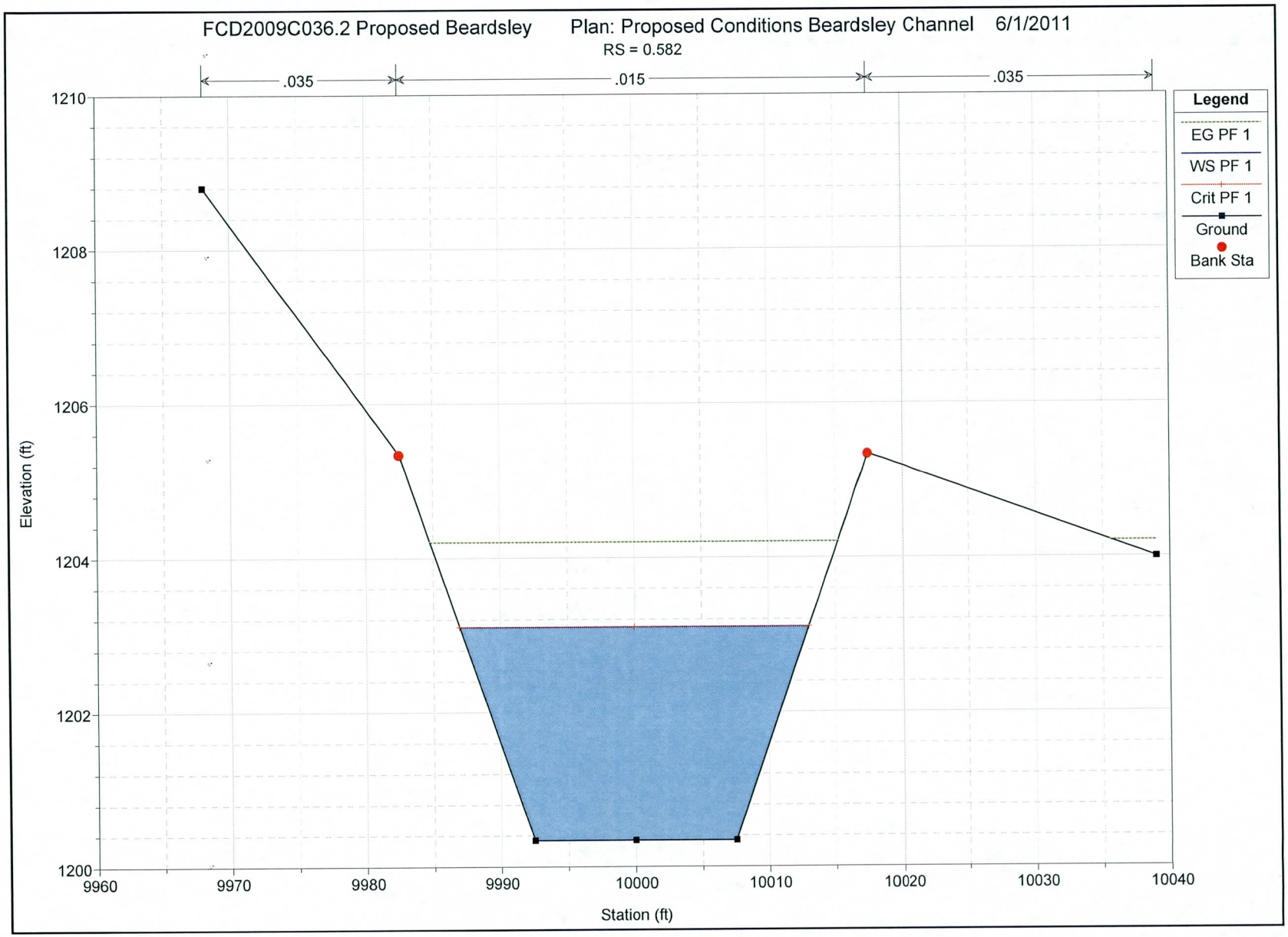

FCD2009C036.2 Proposed Beardsley
Plan: Proposed Conditions Beardsley Channel 6/1/2011
RS = 0.71
.018
.018
.018
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
1222
1221
1220
1219
1218
1217
1216
1215
9975
9980
9985
9990
9995
10000
10005
10010
10015
10020

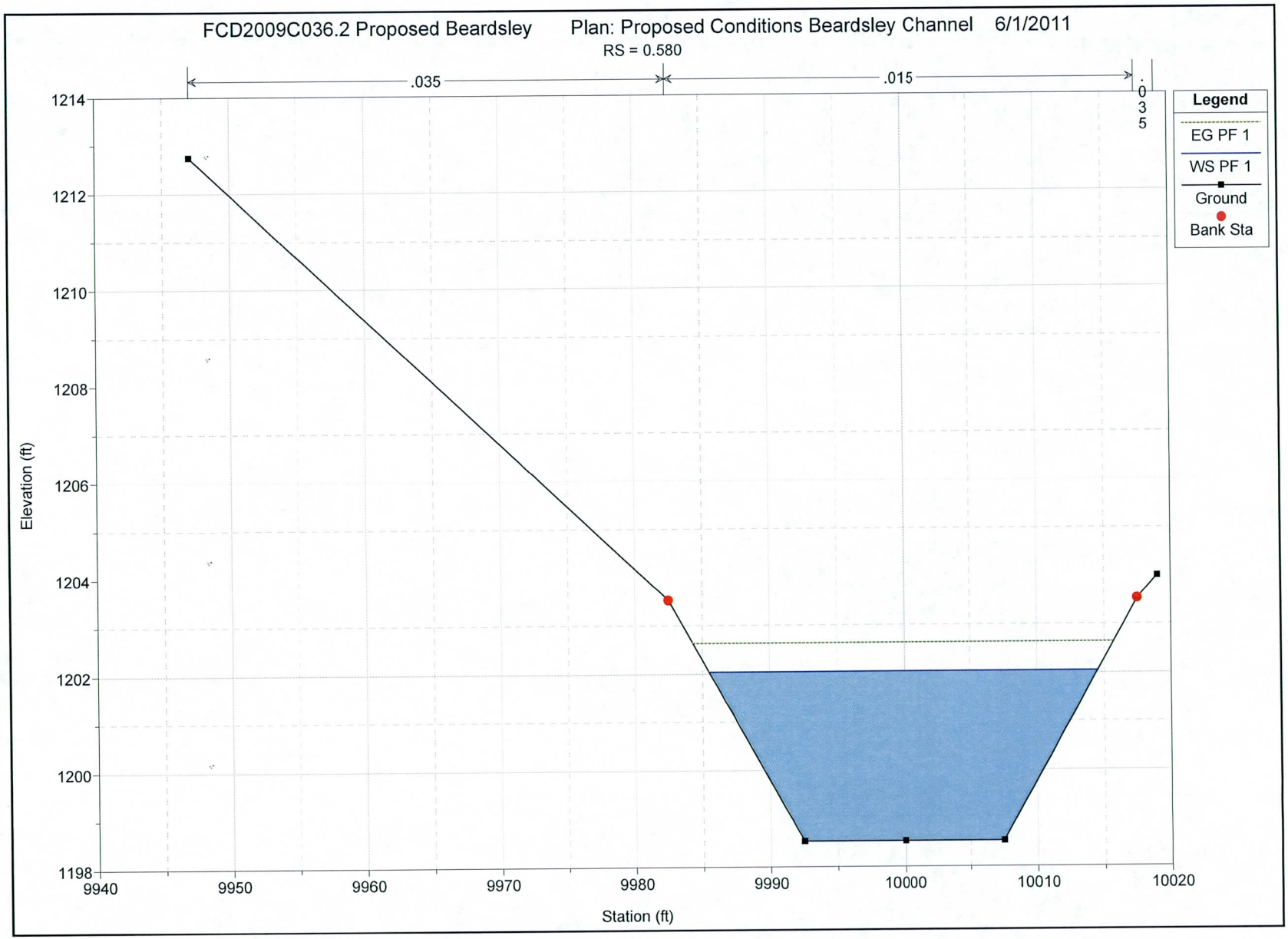

FCD2009C036.2 Proposed Beardsley Plan: Proposed Conditions Beardsley Channel 6/1/2011
RS = 0.64 Beginning of existing Beardsley Road Channel
.018
.018
.018
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
1212
1210
1208
1206
1204
9940
9960
9980
10000
10020
10040
10060
Station (ft)

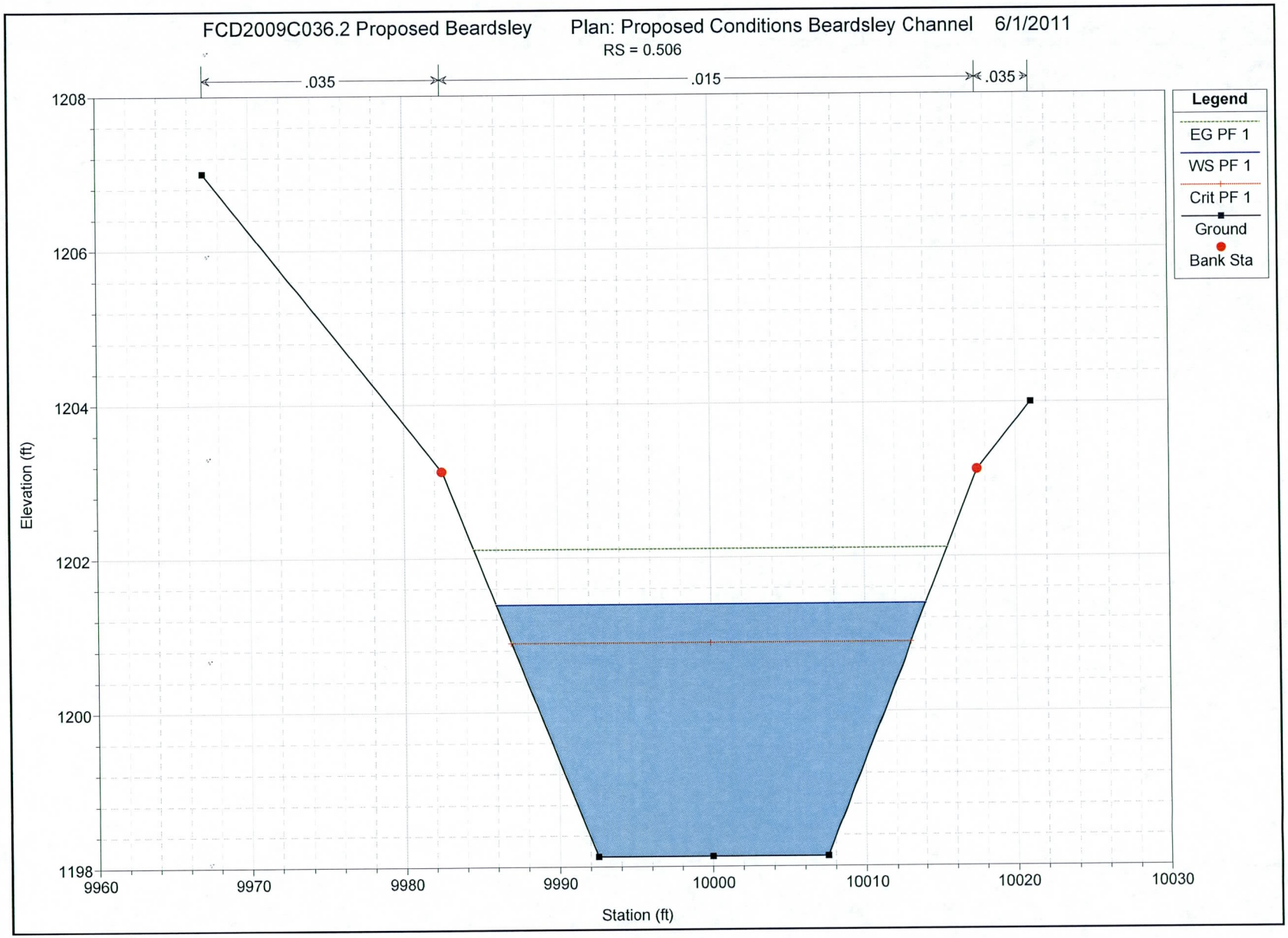

FCD2009C036.2 Proposed Beardsley
Plan: Proposed Conditions Beardsley Channel 6/1/2011
RS = 0.608
.035
.015
.035
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
1216
1214
1212
1210
1208
1206
1204
1202
9950
9960
9970
9980
9990
10000
10010
10020
10030

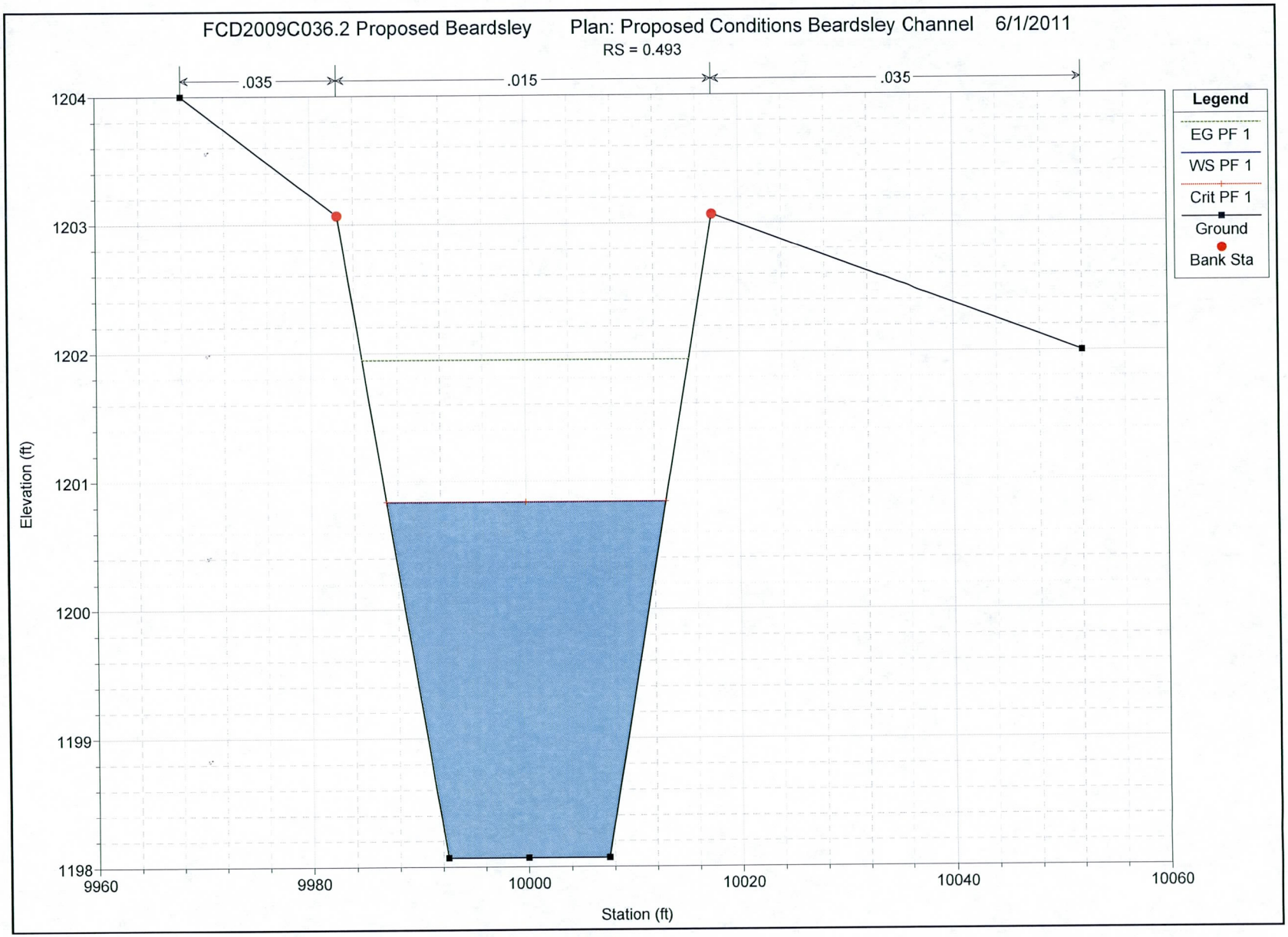

FCD2009C036.2 Proposed Beardsley
Plan: Proposed Conditions Beardsley Channel
6/1/2011
RS = 0.602
.035
.015
.035
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
Elevation (ft)
1216
1214
1212
1210
1208
1206
1204
1202
9940
9960
9980
10000
10020
10040
10060
10080
Station (ft)

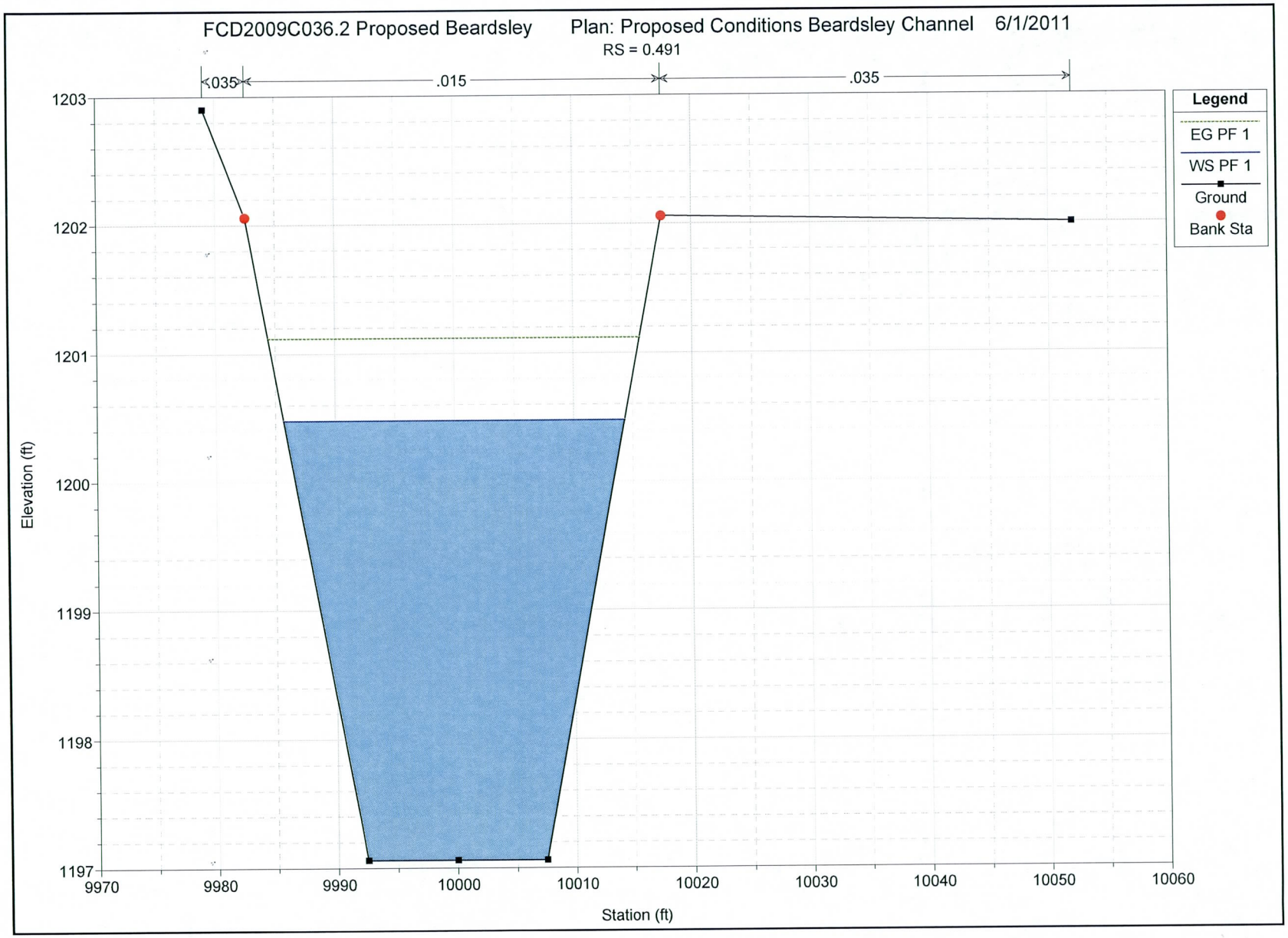

FCD2009C036.2 Proposed Beardsley
Plan: Proposed Conditions Beardsley Channel
6/1/2011
RS = 0.600
.035
.015
.035
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
1218
1216
1214
1212
1210
1208
1206
1204
1202
1200
9940
9960
9980
10000
10020
10040
10060
10080

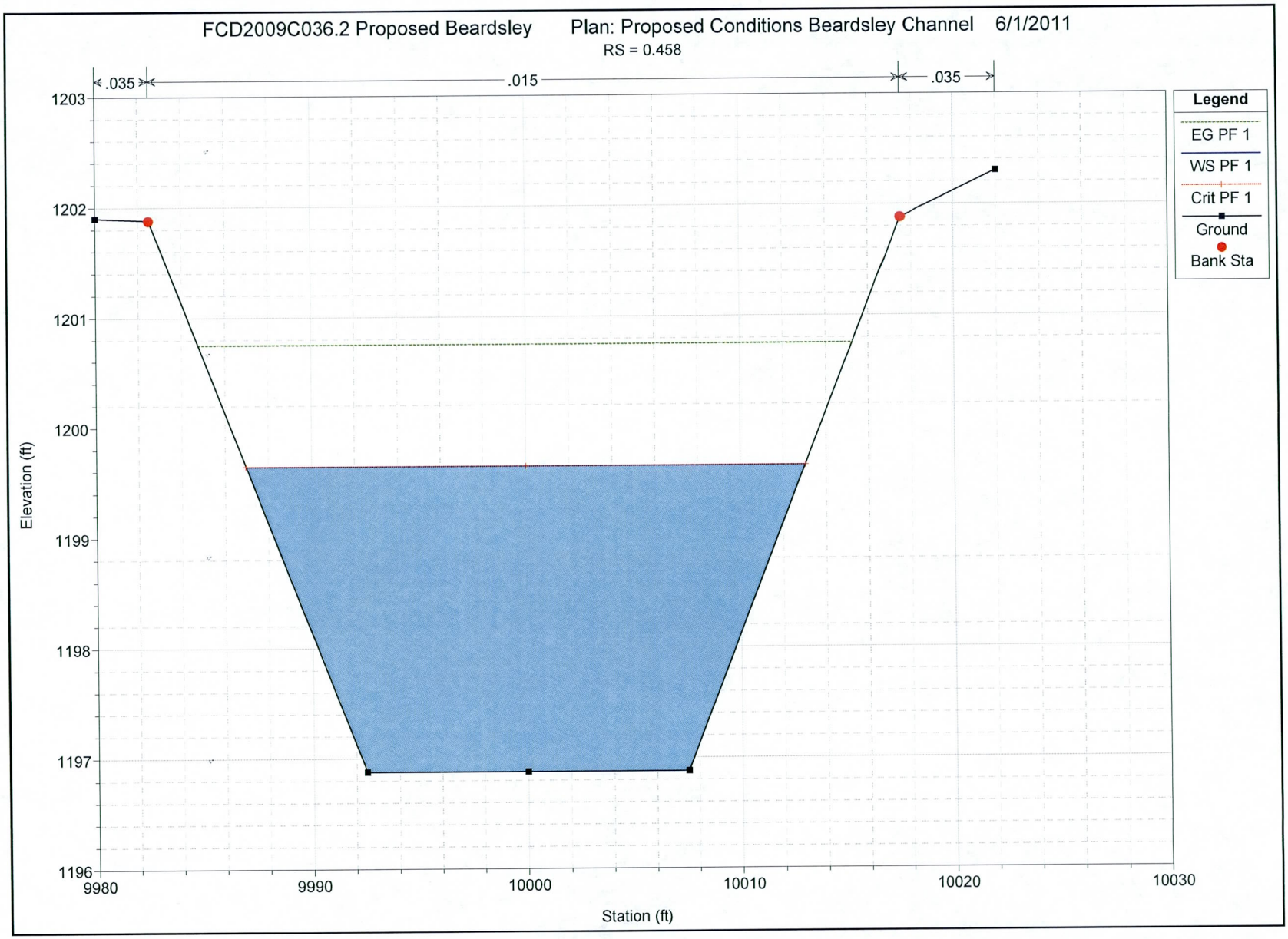

FCD2009C036.2 Proposed Beardsley
Plan: Proposed Conditions Beardsley Channel 6/1/2011
RS = 0.582
.035
.015
.035
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
1210
1208
1206
1204
1202
1200
9960
9970
9980
9990
10000
10010
10020
10030
10040
Station (ft)

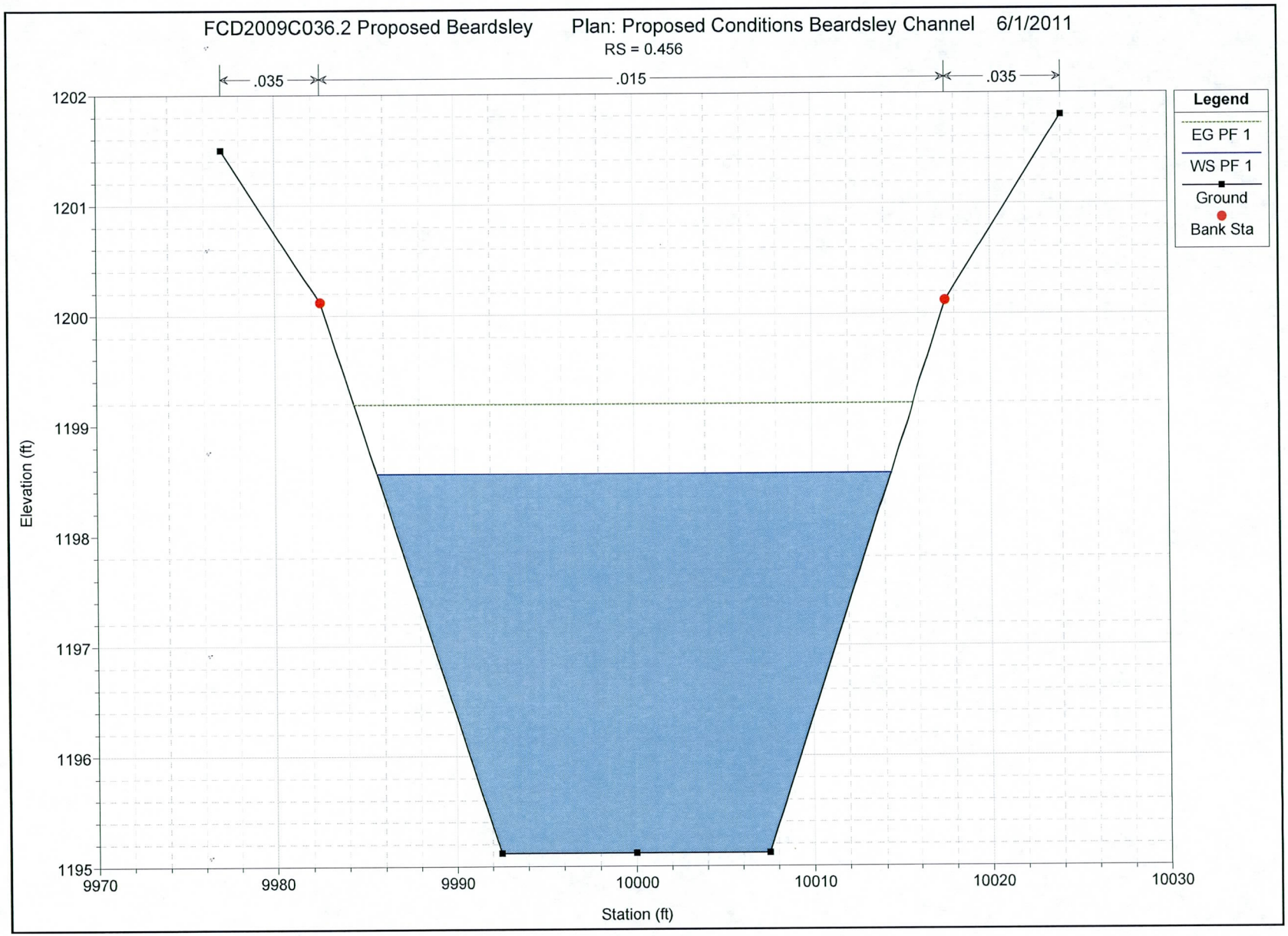

FCD2009C036.2 Proposed Beardsley
Plan: Proposed Conditions Beardsley Channel 6/1/2011
RS = 0.580
.035
.015
.035
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
1214
1212
1210
1208
1206
1204
1202
1200
1198
9940
9950
9960
9970
9980
9990
10000
10010
10020
Station (ft)

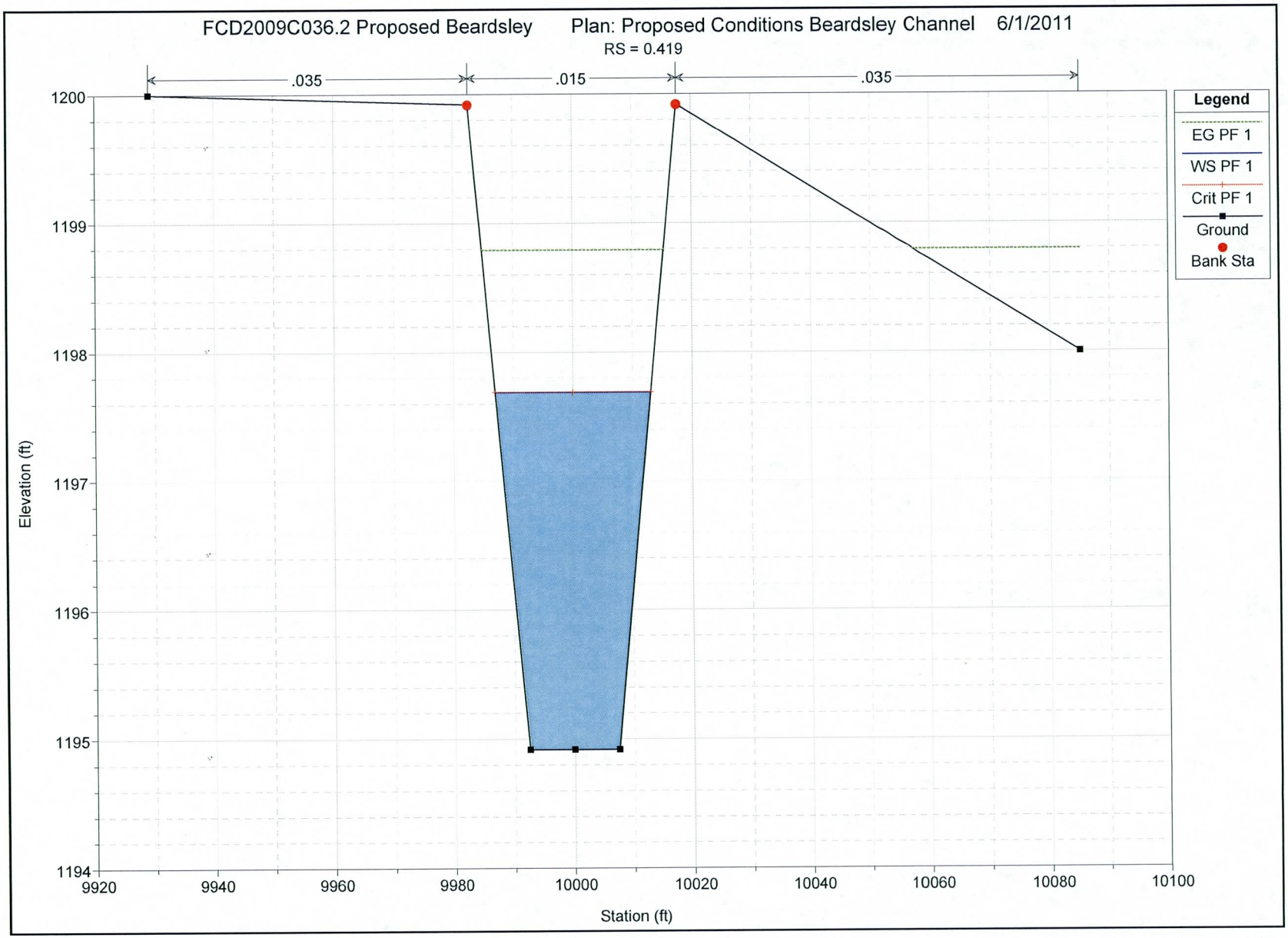

FCD2009C036.2 Proposed Beardsley
Plan: Proposed Conditions Beardsley Channel 6/1/2011
RS = 0.506
.035
.015
.035
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
1208
1206
1204
1202
1200
1198
9960
9970
9980
9990
10000
10010
10020
10030
Station (ft)

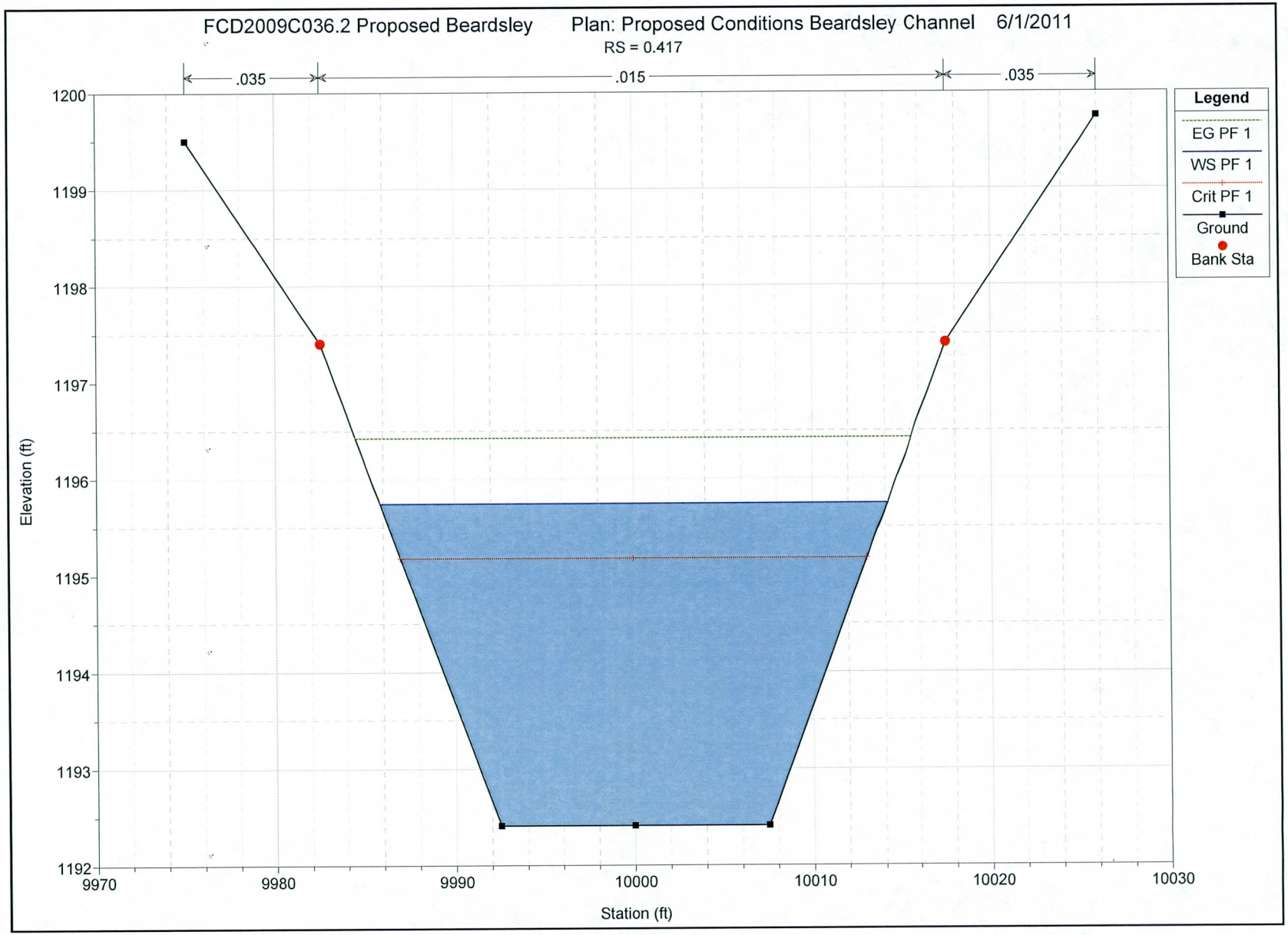

FCD2009C036.2 Proposed Beardsley
Plan: Proposed Conditions Beardsley Channel 6/1/2011
RS = 0.493
.035
.015
.035
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
1204
1203
1202
1201
1200
1199
1198
9960
9980
10000
10020
10040
10060
Station (ft)

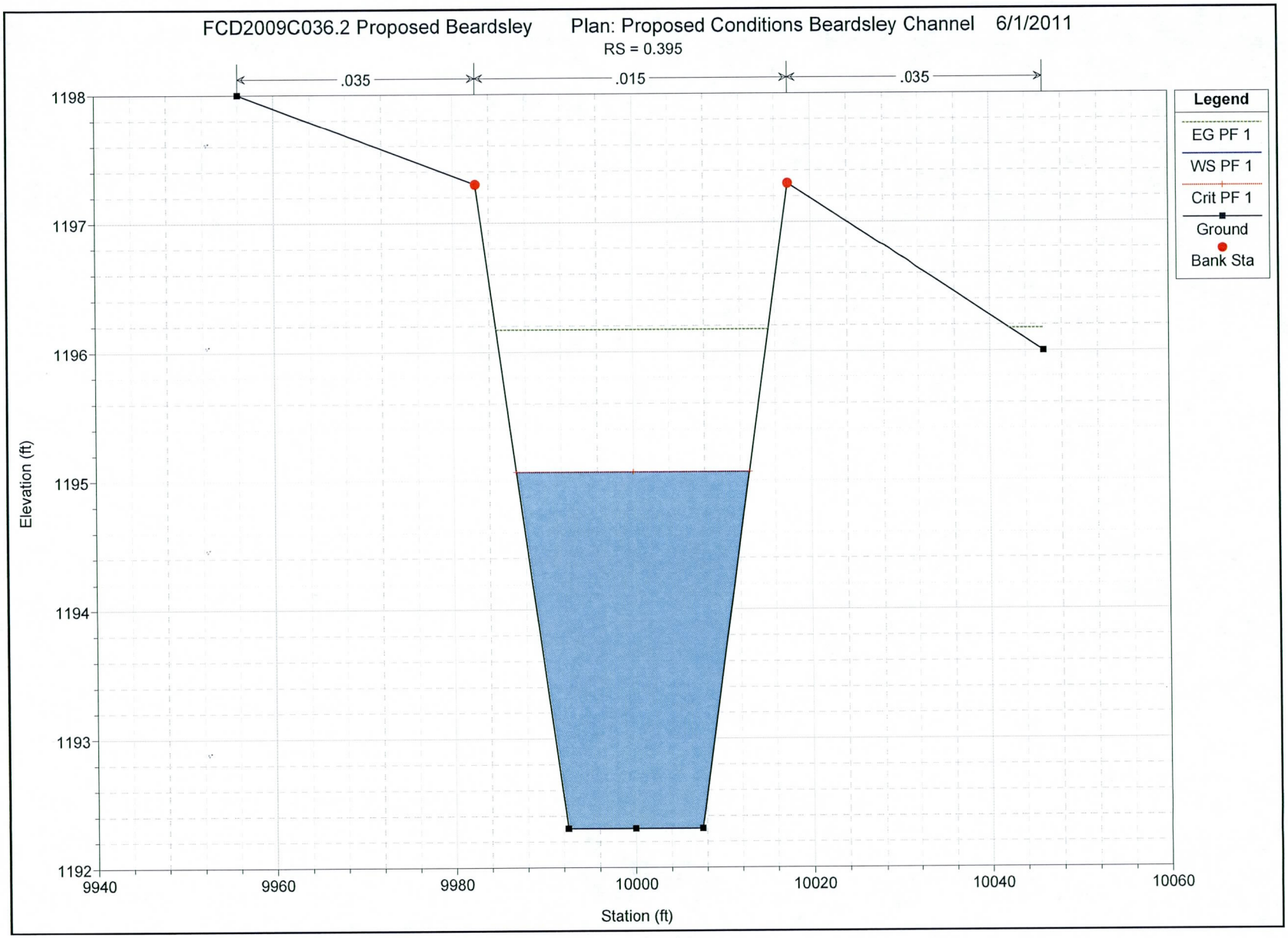

FCD2009C036.2 Proposed Beardsley
Plan: Proposed Conditions Beardsley Channel 6/1/2011
RS = 0.491
.035
.015
.035
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
1203
1202
1201
1200
1199
1198
1197
9970
9980
9990
10000
10010
10020
10030
10040
10050
10060

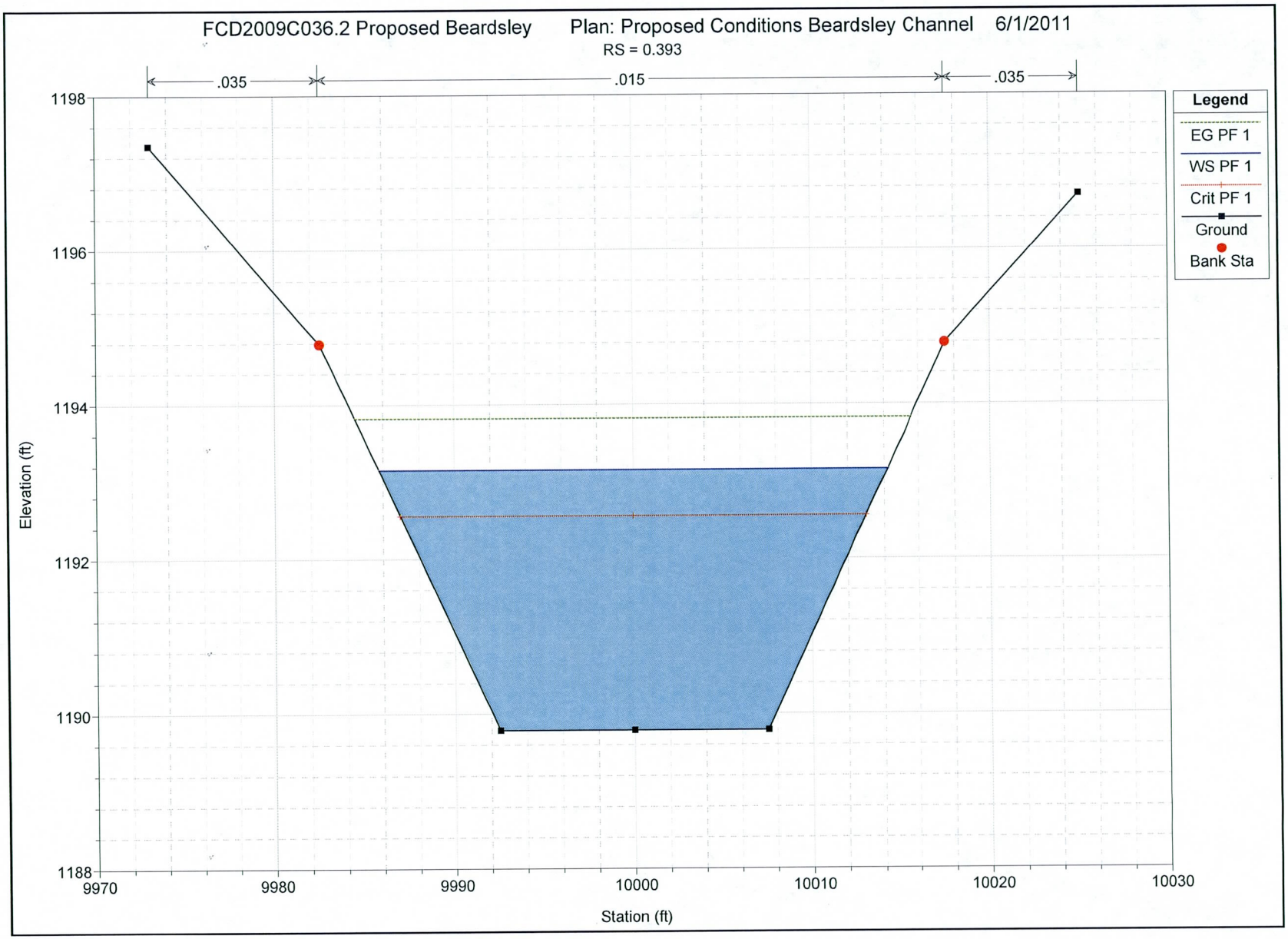

FCD2009C036.2 Proposed Beardsley
Plan: Proposed Conditions Beardsley Channel 6/1/2011
RS = 0.458
.035
.015
.035
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
1203
1202
1201
1200
1199
1198
1197
1196
9980
9990
10000
10010
10020
10030
Station (ft)

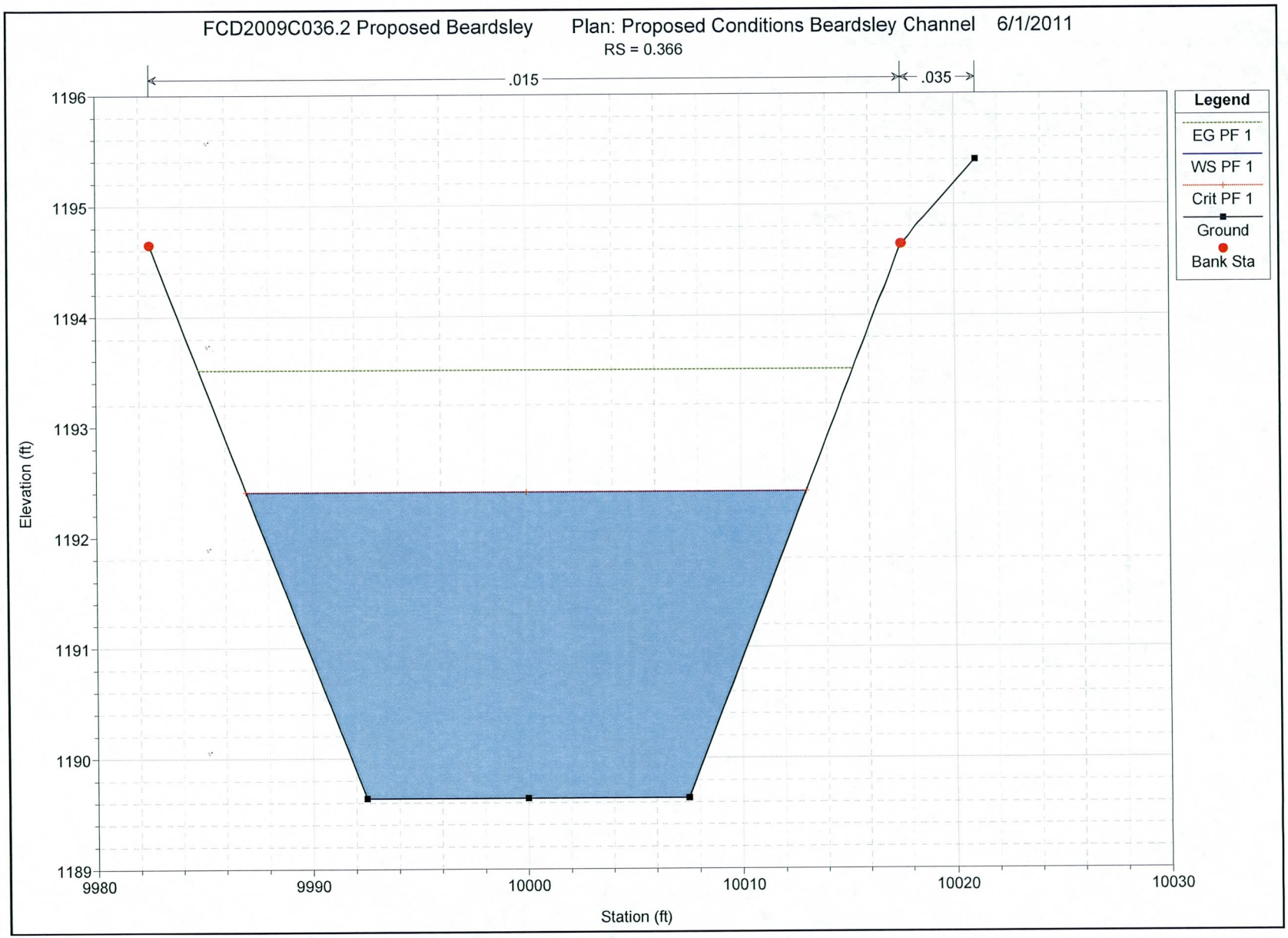

FCD2009C036.2 Proposed Beardsley
Plan: Proposed Conditions Beardsley Channel
6/1/2011
RS = 0.456
.035
.015
.035
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
1202
1201
1200
1199
1198
1197
1196
1195
9970
9980
9990
10000
10010
10020
10030

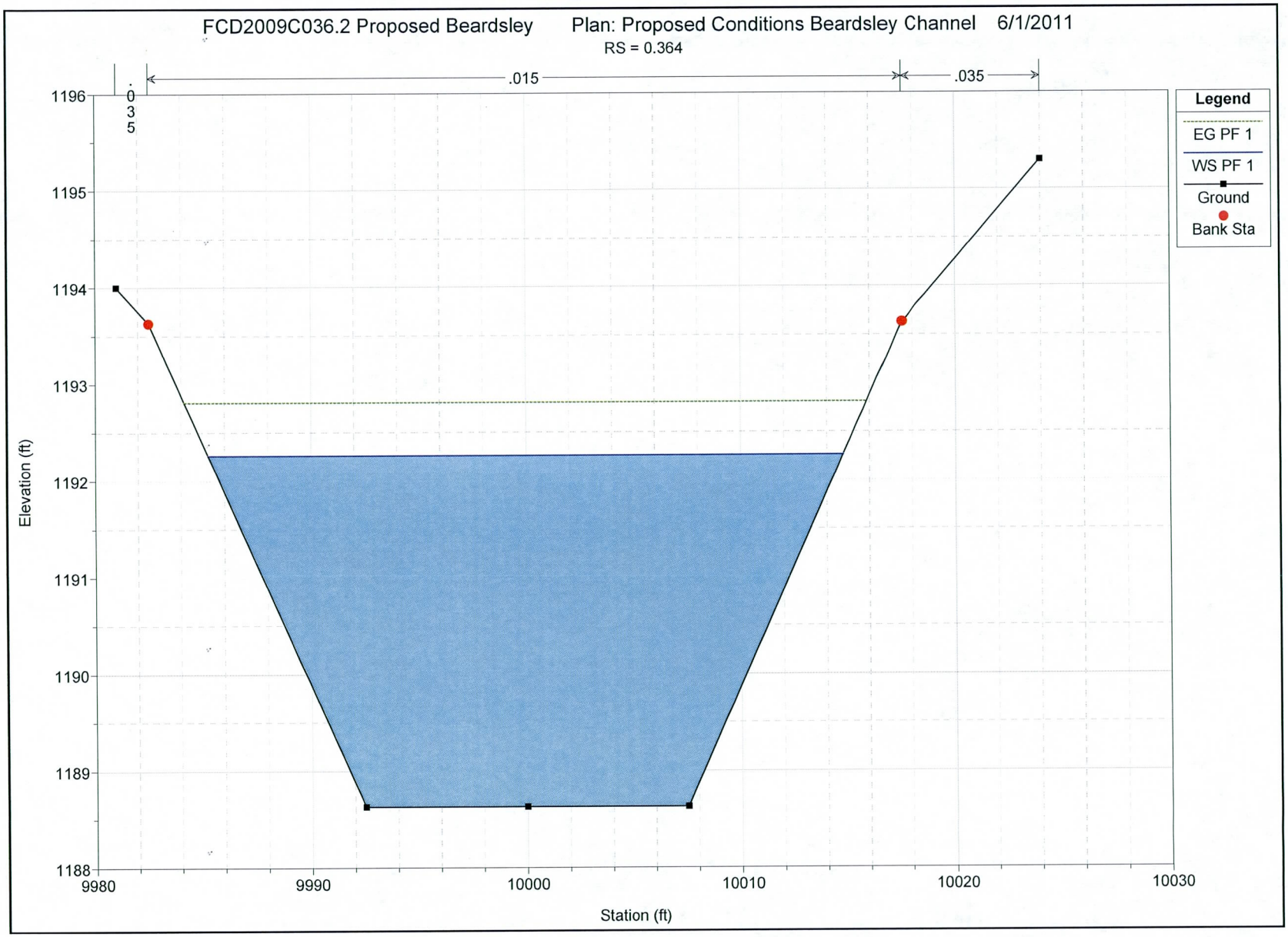

FCD2009C036.2 Proposed Beardsley
Plan: Proposed Conditions Beardsley Channel
6/1/2011
RS = 0.419
.035
.015
.035
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
1200
1199
1198
1197
1196
1195
1194
9920
9940
9960
9980
10000
10020
10040
10060
10080
10100

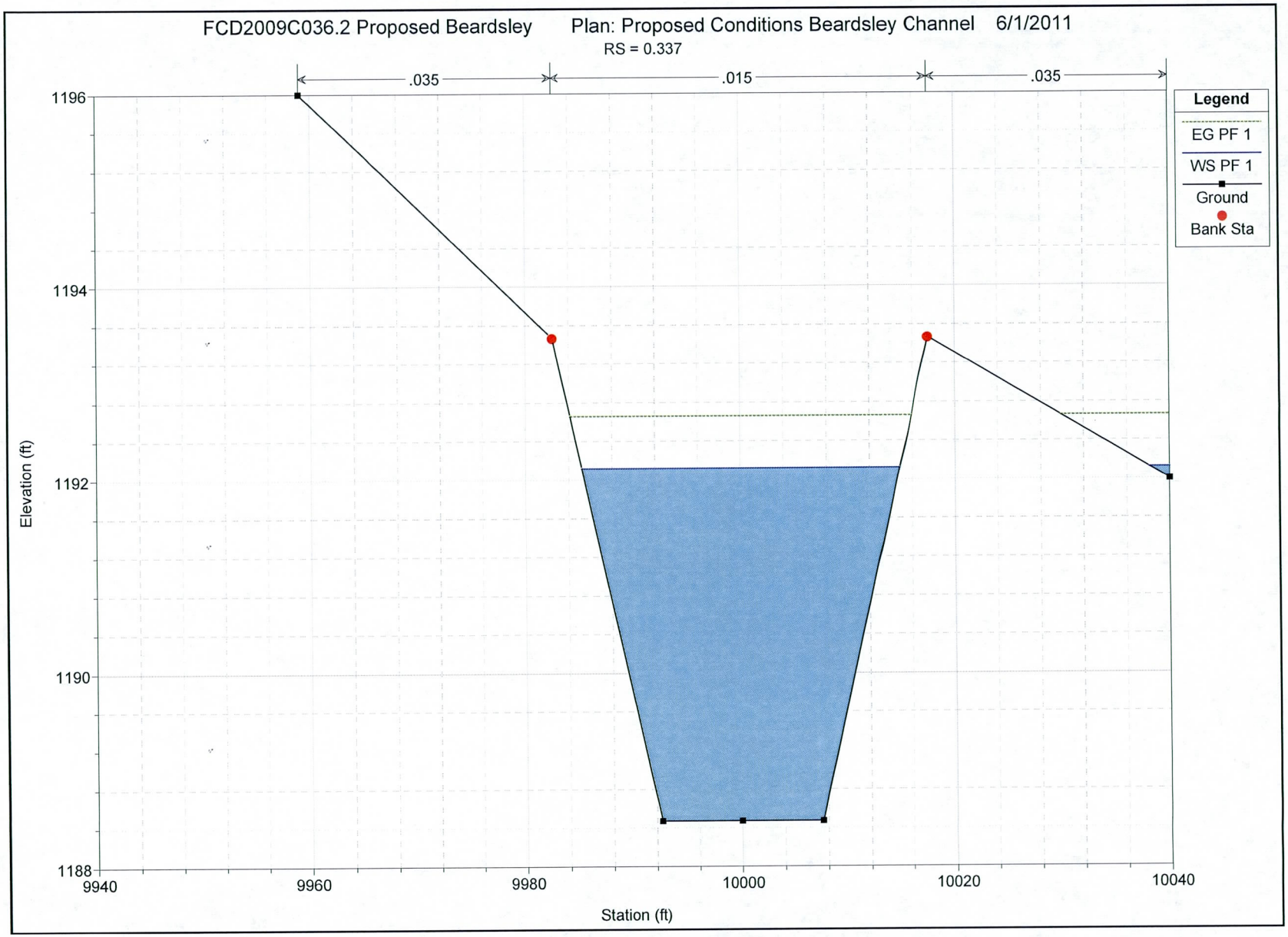

FCD2009C036.2 Proposed Beardsley
Plan: Proposed Conditions Beardsley Channel
6/1/2011
RS = 0.417
.035
.015
.035
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
1200
1199
1198
1197
1196
1195
1194
1193
1192
9970
9980
9990
10000
10010
10020
10030
Station (ft)

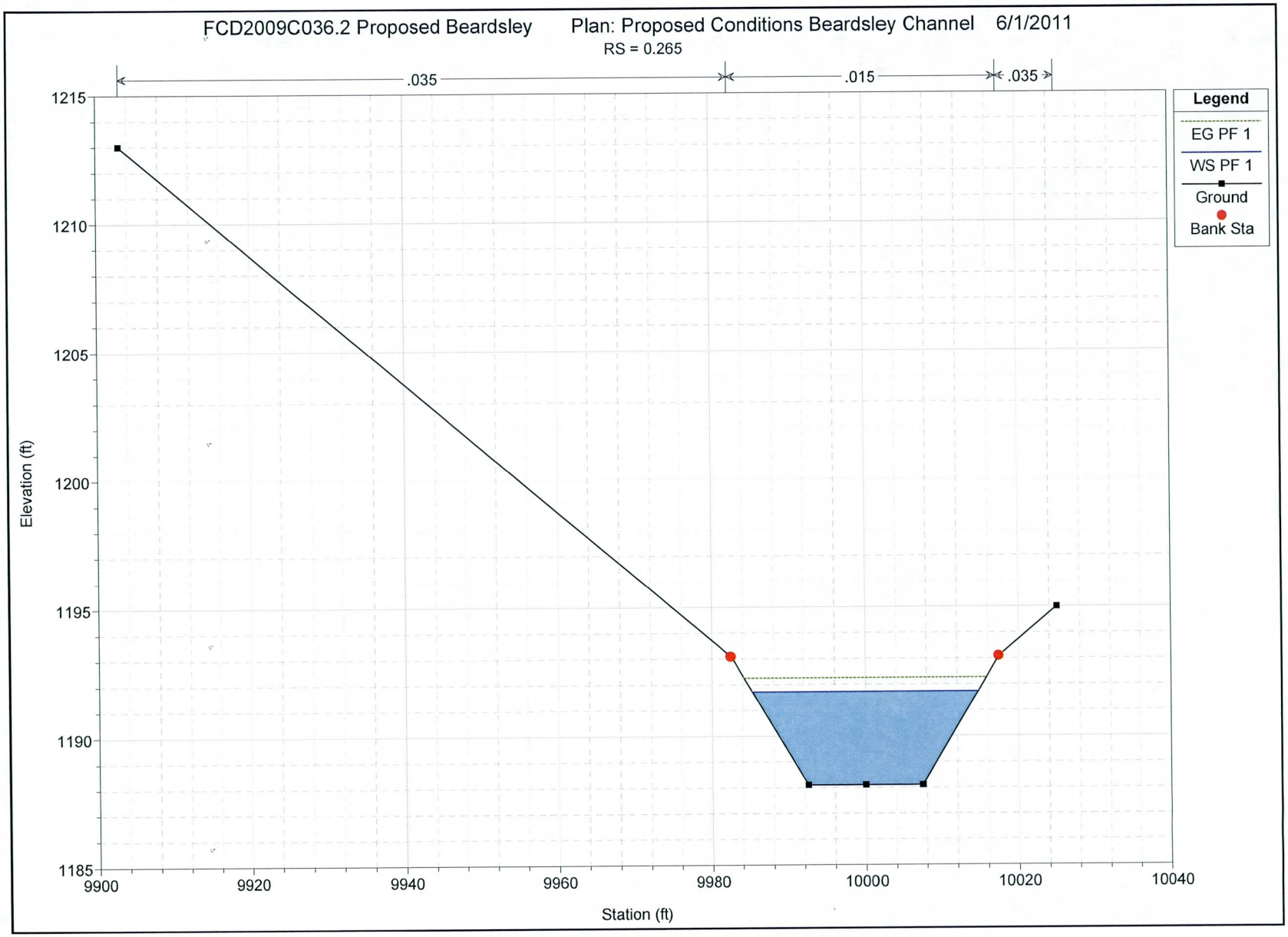

FCD2009C036.2 Proposed Beardsley
Plan: Proposed Conditions Beardsley Channel 6/1/2011
RS = 0.395
.035
.015
.035
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
1198
1197
1196
1195
1194
1193
1192
9940
9960
9980
10000
10020
10040
10060
Station (ft)

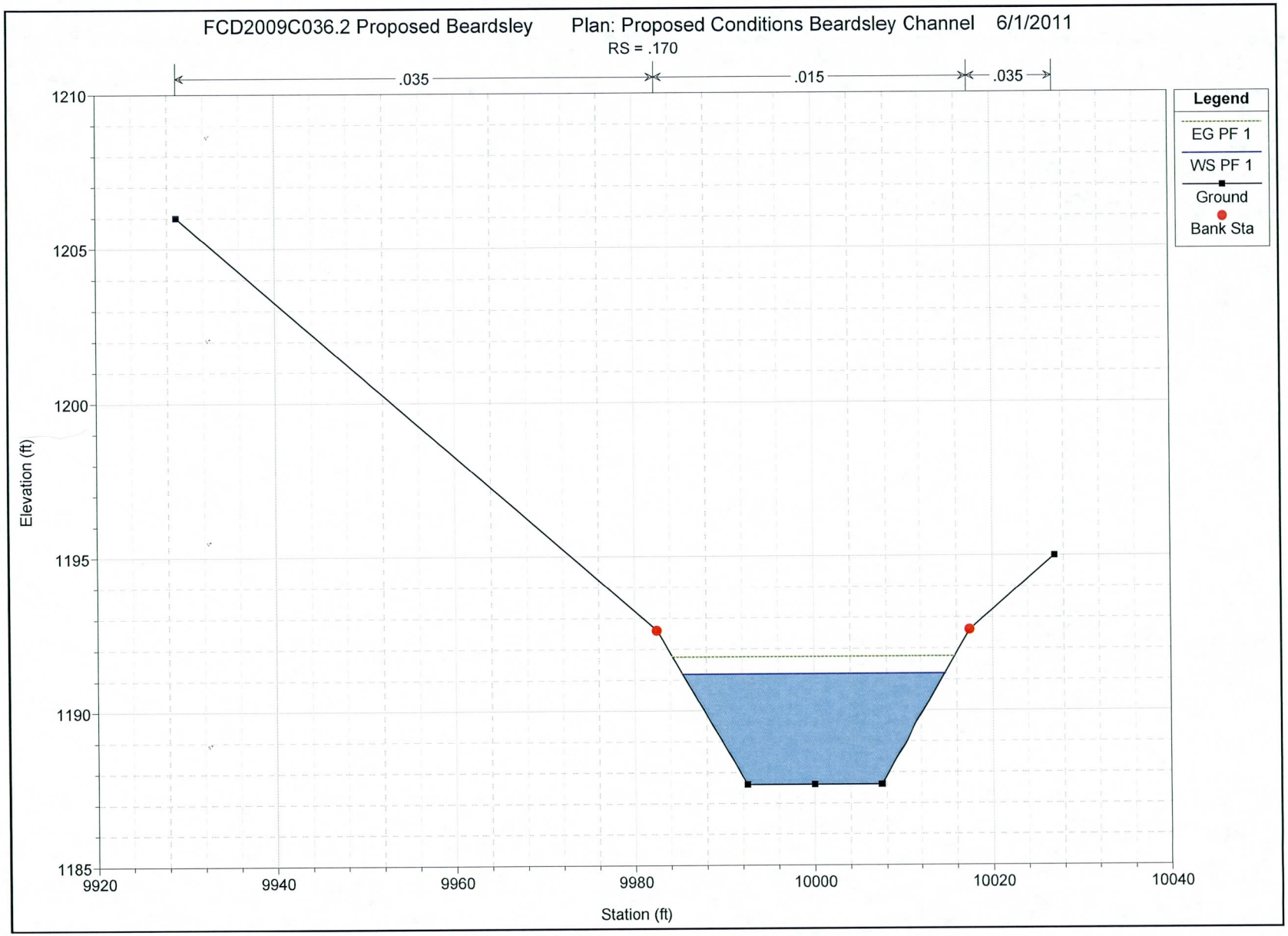

FCD2009C036.2 Proposed Beardsley
Plan: Proposed Conditions Beardsley Channel 6/1/2011
RS = 0.393
.035
.015
.035
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
1198
1196
1194
1192
1190
1188
9970
9980
9990
10000
10010
10020
10030
Station (ft)

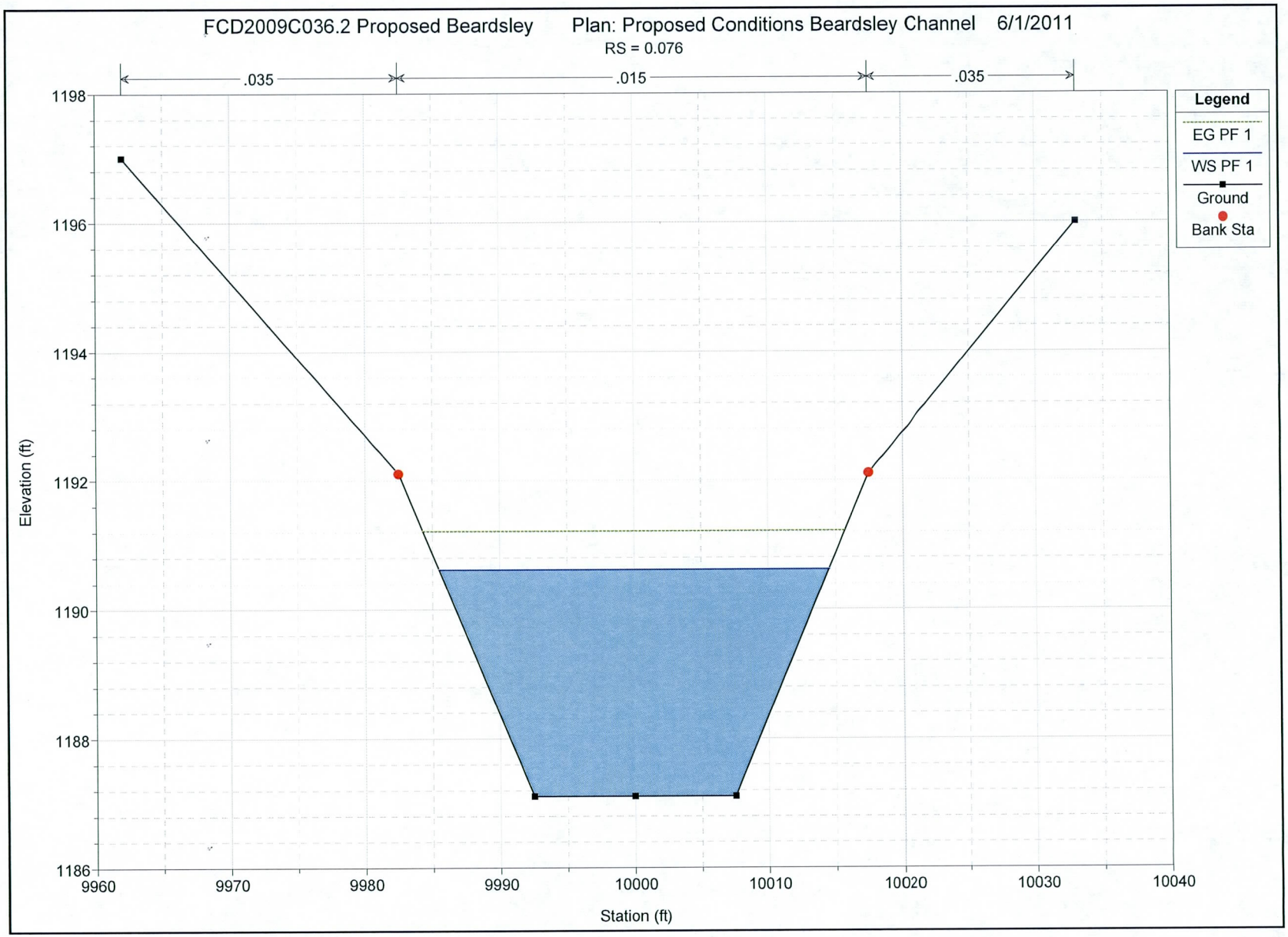

FCD2009C036.2 Proposed Beardsley Plan: Proposed Conditions Beardsley Channel 6/1/2011
RS = 0.366
.015
.035
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
1196
1195
1194
1193
1192
1191
1190
1189
9980
9990
10000
10010
10020
10030

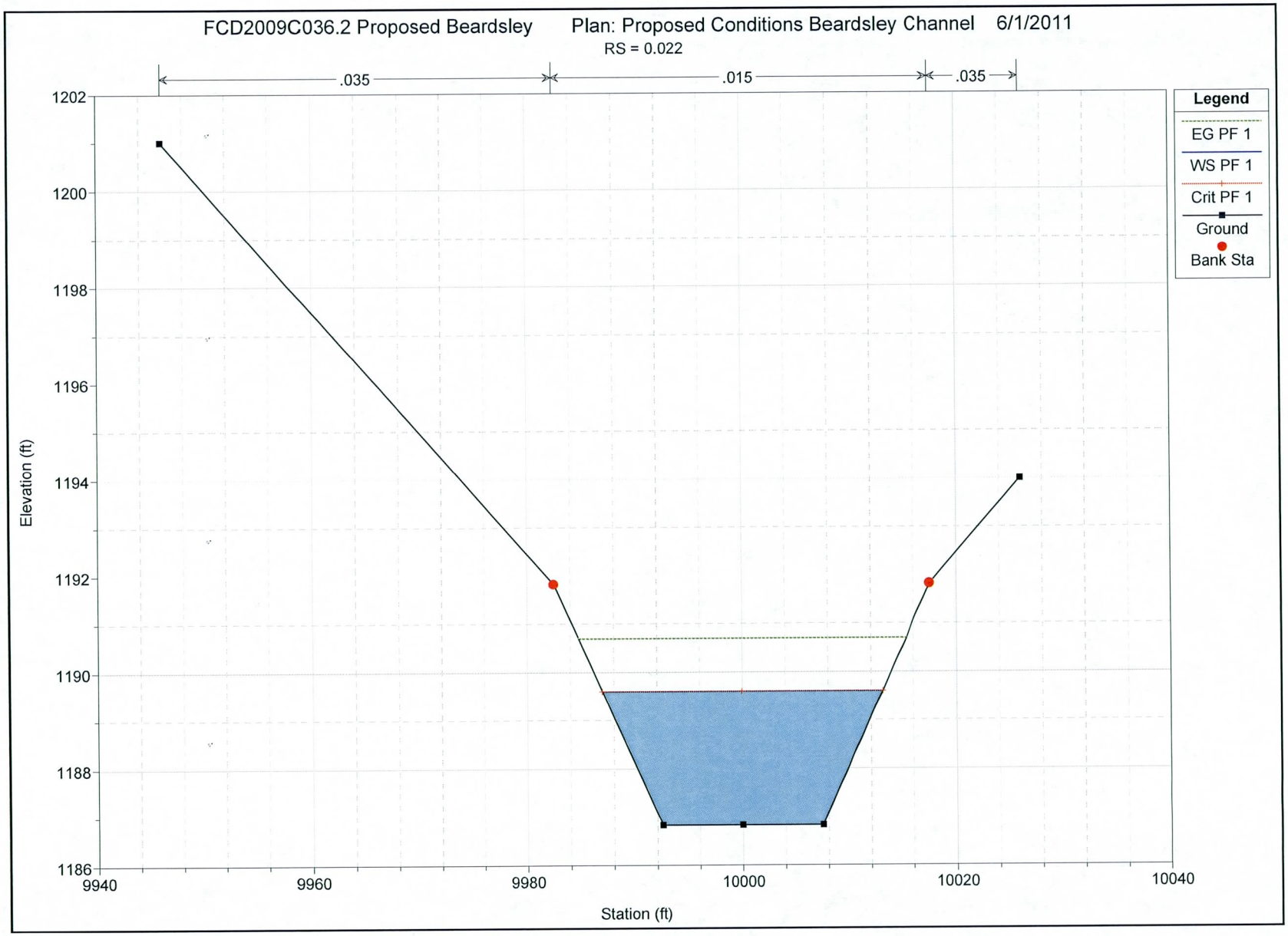

FCD2009C036.2 Proposed Beardsley
Plan: Proposed Conditions Beardsley Channel 6/1/2011
RS = 0.364
.035
.015
.035
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
1196
1195
1194
1193
1192
1191
1190
1189
1188
9980
9990
10000
10010
10020
10030

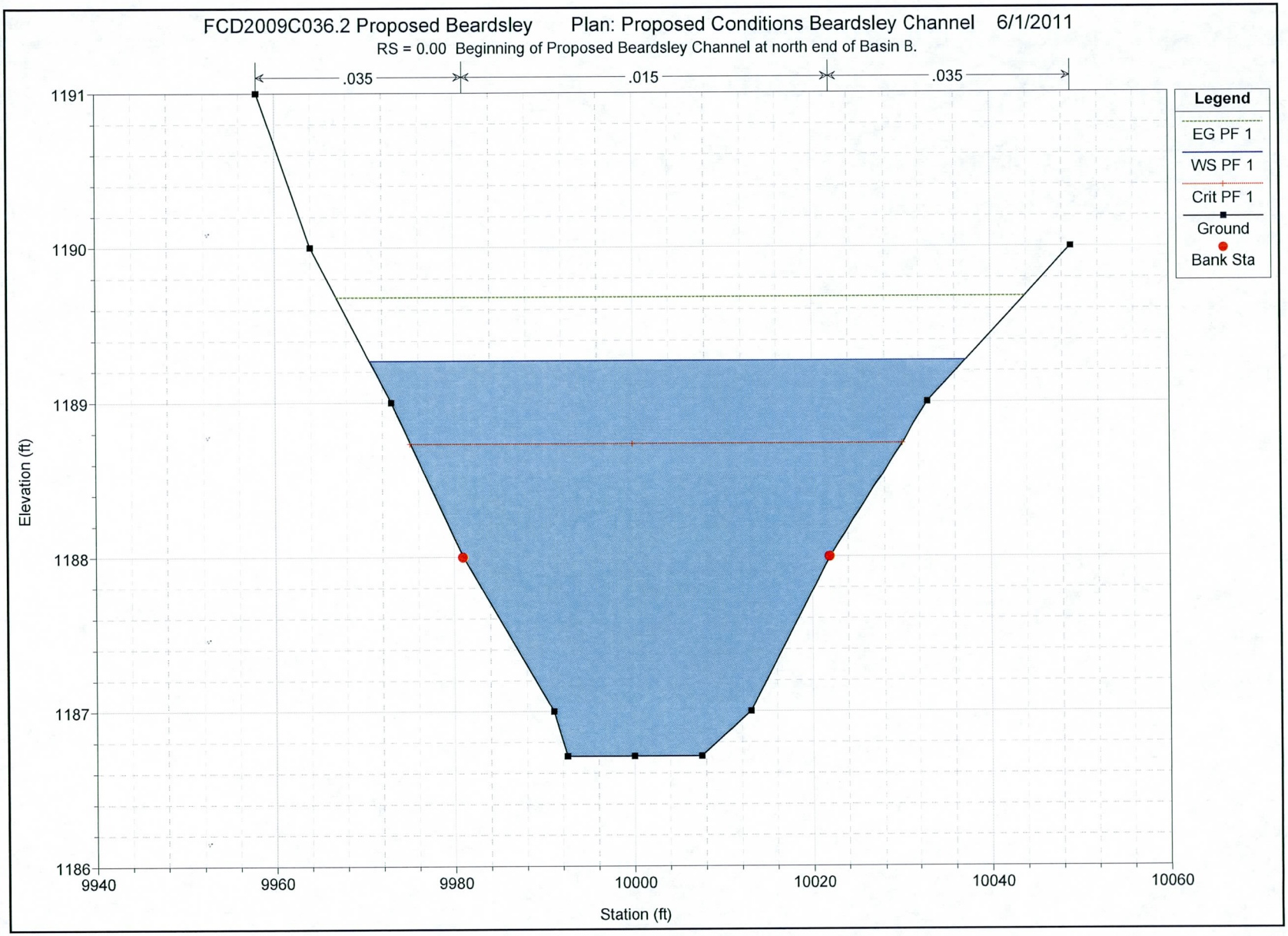

FCD2009C036.2 Proposed Beardsley
Plan: Proposed Conditions Beardsley Channel 6/1/2011
RS = 0.337
.035
.015
.035
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
1196
1194
1192
1190
1188
Elevation (ft)
9940
9960
9980
10000
10020
10040
Station (ft)


FCD2009C036.2 Proposed Beardsley
Plan: Proposed Conditions Beardsley Channel 6/1/2011
RS = 0.265
.035
.015
.035
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
1215
1210
1205
1200
1195
1190
1185
9900
9920
9940
9960
9980
10000
10020
10040
Station (ft)


FCD2009C036.2 Proposed Beardsley
Plan: Proposed Conditions Beardsley Channel 6/1/2011
RS = .170
.035
.015
.035
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
1210
1205
1200
1195
1190
1185
9920
9940
9960
9980
10000
10020
10040
Station (ft)


FCD2009C036.2 Proposed Beardsley
Plan: Proposed Conditions Beardsley Channel
6/1/2011
RS = 0.076
.035
.015
.035
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
1198
1196
1194
1192
1190
1188
1186
9960
9970
9980
9990
10000
10010
10020
10030
10040
Station (ft)


FCD2009C036.2 Proposed Beardsley
Plan: Proposed Conditions Beardsley Channel
6/1/2011
RS = 0.022
.035
.015
.035
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
1202
1200
1198
1196
1194
1192
1190
1188
1186
9940
9960
9980
10000
10020
10040
Station (ft)


FCD2009C036.2 Proposed Beardsley Plan: Proposed Conditions Beardsley Channel 6/1/2011
RS = 0.00 Beginning of Proposed Beardsley Channel at north end of Basin B.
.035
.015
.035
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
1191
1190
1189
1188
1187
1186
9940
9960
9980
10000
10020
10040
10060
Station (ft)

HY-8 Analysis Results

Culvert Summary Table - Culvert 1

Culvert Crossing: 111th Culvert

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth(ft)	Outlet Control Depth(ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
450.00	450.00	1202.57	5.07	0.29	5-S2n	2.83	2.91	2.83	0.79	9.93	17.07
455.00	455.00	1202.62	5.12	0.30	5-S2n	2.85	2.93	2.85	0.80	9.96	17.14
460.00	460.00	1202.67	5.17	0.30	5-S2n	2.87	2.96	2.88	0.80	10.00	17.21
465.00	465.00	1202.71	5.21	0.31	5-S2n	2.89	2.98	2.90	0.81	10.03	17.28
470.00	470.00	1202.76	5.26	0.31	5-S2n	2.92	3.00	2.92	0.81	10.07	17.35
475.00	475.00	1202.81	5.31	0.32	5-S2n	2.94	3.02	2.94	0.82	10.09	17.41
480.00	480.00	1202.86	5.36	0.32	5-S2n	2.96	3.04	2.97	0.82	10.12	17.48
485.00	485.00	1202.91	5.41	0.33	5-S2n	2.98	3.06	2.99	0.83	10.13	17.54
490.00	490.00	1202.96	5.46	0.33	5-S2n	3.01	3.08	3.01	0.83	10.17	17.61
495.00	495.00	1203.01	5.51	0.34	5-S2n	3.03	3.10	3.03	0.84	10.20	17.67
500.00	500.00	1203.06	5.56	0.34	5-S2n	3.05	3.13	3.05	0.84	10.23	17.73

HY-8 Analysis Results

Culvert Summary Table - Basin B.3 Culvert

Culvert Crossing: Basin B.3 Box Culvert

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth(ft)	Outlet Control Depth(ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
0.00	0.00	1178.00	0.00	0.0*	0-NF	0.00	0.00	0.00	0.50	0.00	0.00
50.00	50.00	1178.78	0.78	0.0*	1-S2n	0.37	0.51	0.37	0.50	5.57	0.00
100.00	100.00	1179.24	1.24	0.0*	1-S2n	0.57	0.82	0.58	0.50	7.24	0.00
150.00	150.00	1179.63	1.63	0.0*	1-S2n	0.75	1.07	0.76	0.50	8.24	0.00
200.00	200.00	1179.97	1.97	0.0*	1-S2n	0.91	1.29	0.91	0.50	9.12	0.00
250.00	250.00	1180.30	2.30	0.0*	1-S2n	1.05	1.50	1.05	0.50	9.90	0.00
300.00	300.00	1180.60	2.60	0.0*	1-S2n	1.19	1.70	1.19	0.50	10.48	0.00
350.00	350.00	1180.88	2.88	0.0*	1-S2n	1.32	1.88	1.32	0.50	11.03	0.00
400.00	400.00	1181.16	3.16	0.0*	1-S2n	1.44	2.06	1.47	0.50	11.34	0.00
450.00	450.00	1181.42	3.42	0.0*	1-S2n	1.56	2.22	1.57	0.50	11.97	0.00
500.00	500.00	1181.68	3.68	0.0*	1-S2n	1.68	2.38	1.72	0.50	12.12	0.00

HY-8 Analysis Results

Crossing Summary Table

Culvert Crossing: Basin C Box Culvert

Headwater Elevation (ft)	Total Discharge (cfs)	BASIN C Discharge (cfs)	Roadway Discharge (cfs)	Iterations
1162.84	0.00	0.00	0.00	1
1162.86	60.00	60.00	0.00	1
1162.93	120.00	120.00	0.00	1
1163.05	180.00	180.00	0.00	1
1163.20	240.00	240.00	0.00	1
1163.41	300.00	300.00	0.00	1
1163.66	360.00	360.00	0.00	1
1163.96	420.00	420.00	0.00	1
1164.30	480.00	480.00	0.00	1
1164.42	500.00	500.00	0.00	1
1165.12	600.00	600.00	0.00	1
1165.50	648.04	648.04	0.00	Overtopping

RECOMMENDED ALTERNATIVE BASIN CALCULATIONS

Basin	A.1		**Top =**	1200	
			Bottom =	1188	
RCP D (ft) =	2		**Weir :**	**L (ft)=**	45
# Pipes	2			**Elev. =**	1197

Elev.	Orifice Flow	Weir Flow	Total	Storage
1188	0	0	0	0.0
1189	5.0	0	5	0.1
1190	30	0	30	1.1
1191	43	0	43	2.5
1192	52	0	52	4.0
1193	61	0	61	5.6
1194	68	0	68	7.4
1195	74	0	74	9.4
1196	80	0	80	11.6
1197	86	0	86	13.9
1198	91	150	241	16.4
1199	96	424	520	19.1

Basin	A.2		**Top =**	1196	
			Bottom =	1184	
RCP D (ft) =	2		**Weir :**	**L (ft)=**	45
# Pipes	2			**Elev. =**	1193

Elev.	Orifice Flow	Weir Flow	Total	Storage
1184	0	0	0	0.0
1185	5.0	0	5	0.1
1186	30	0	30	1.4
1187	43	0	43	3.2
1188	52	0	52	5.2
1189	61	0	61	7.4
1190	68	0	68	9.8
1191	74	0	74	12.4
1192	80	0	80	15.3
1193	86	0	86	18.3
1194	91	150	241	21.6
1195	96	424	520	25.1

Basin	B.1		Top =	1188	
			Bottom =	1177	
RCP D (ft) =	2		Weir :	L (ft)=	45
# Pipes	2			Elev. =	1185

Elev.	Orifice Flow	Weir Flow	Total	Storage
1177	0	0	0	0.0
1178	5.0	0	5	0.0
1179	30	0	30	1.2
1180	43	0	43	2.5
1181	52	0	52	4.0
1182	61	0	61	5.7
1183	68	0	68	7.6
1184	74	0	74	9.6
1185	80	0	80	11.9
1186	86	150	236	14.3
1187	91	424	515	16.9

Basin	B.2		Top =	1185	
			Bottom =	1175	
RCP D (ft) =	2		Weir :	L (ft)=	45
# Pipes	2			Elev. =	1182

Elev.	Orifice Flow	Weir Flow	Total	Storage
1175	0	0	0	0.0
1176	5.0	0	5	0.1
1177	30	0	30	1.6
1178	43	0	43	3.8
1179	52	0	52	6.1
1180	61	0	61	8.7
1181	68	0	68	11.4
1182	74	0	74	14.3
1183	80	150	230	17.4
1184	86	424	510	20.6

Basin	B.3	Top =	1182	
		Bottom =	1172	
	Culvert:		10'x3'	
	#:		3	

Elev.	Orifice Flow	Culvert Flow	Total	Storage
1172	0	0	0	0.0
1173	0.0	0	0	0.0
1174	0	0	0	2.3
1175	0	0	0	6.9
1176	0	0	0	12.2
1177	0	0	0	17.9
1178	0	0	0	23.8
1179	0	0	0	30.0
1180	0	160	160	36.5
1181	0	350	350	43.3

Plates

Plate 1: Watershed Boundary and HEC-1 Schematic for Baseline Model
Plate 2: Existing Conditions 100-YR, 6-HR Discharge Map
Plate 3: Existing Conditions 115th Avenue and U.H.D. HEC-RAS Base Map
Plate 4: Existing Conditions 115th Avenue and U.H.D. Manning's 'n' Values
Plate 5: Existing Conditions Beardsley Road HEC-RAS Base Map
Plate 6: Existing Conditions Beardsley Road Manning's 'n' Values
Plate 7: Recommended Alternative Basins A&B Improvements
Plate 8: Recommended Alternative Basin C Improvements
Plate 9: Recommended Alternative 100-YR, 6-HR Discharges
Plate 10: Sun City Drainage Channel Capacity Exhibit
Plate 11: Recommended Alternative 115th Avenue and U.H.D. HEC-RAS Base Map
Plate 12: Recommended Alternative Beardsley Channel Alignment and Profile
Plate 13: Recommended Alternative Beardsley Road HEC-RAS Base Map

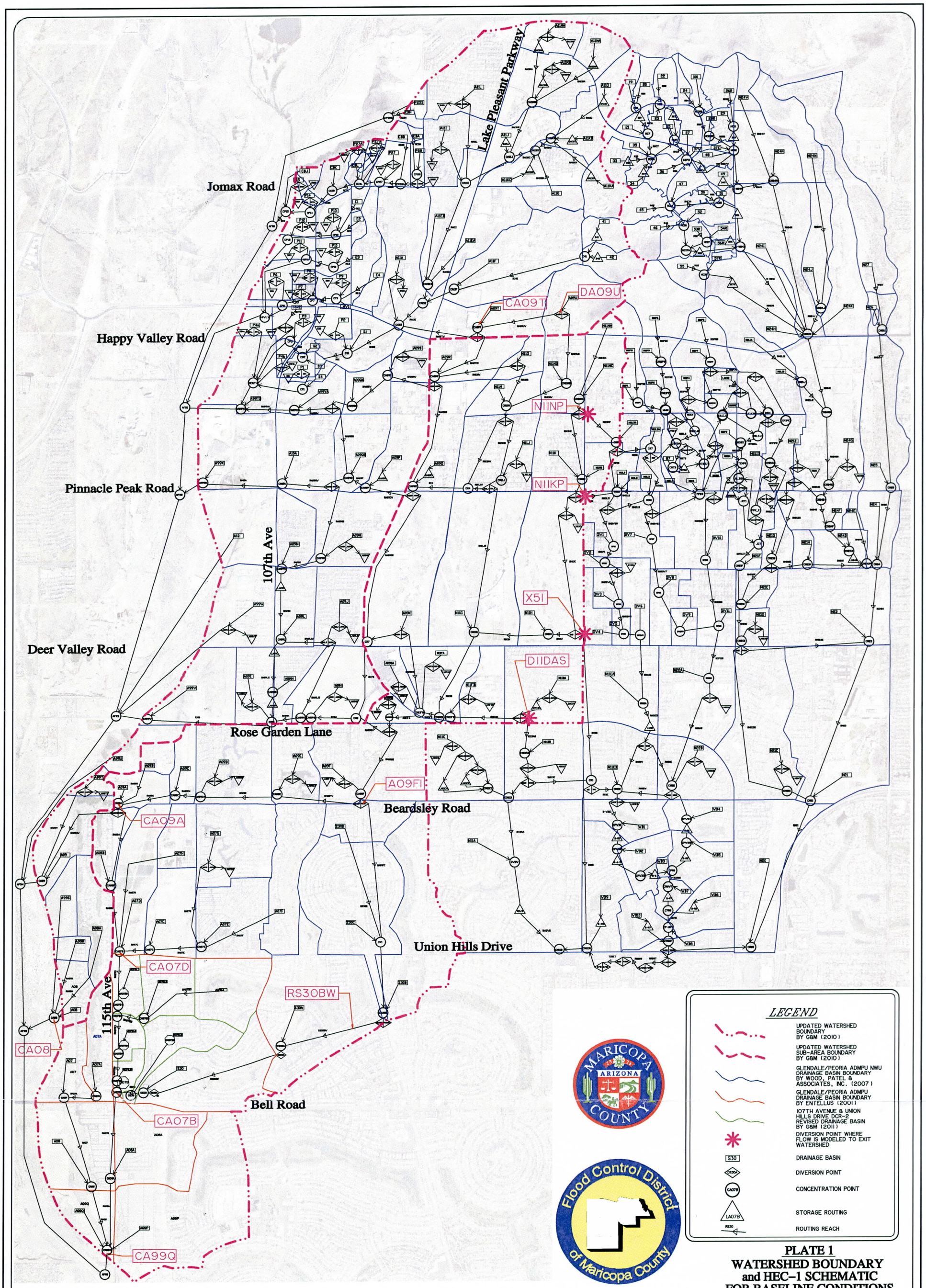


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PLATE 1
WATERSHED BOUNDARY and HEC-1 SCHEMATIC FOR BASELINE CONDITIONS
FOR
107TH AVENUE AND UNION HILLS DRIVE
CONTRACT: FCD 2009C036.2
CITIES OF PEORIA AND SURPRISE AND UNINCORPORATED MARICOPA COUNTY, ARIZONA
JULY 2011

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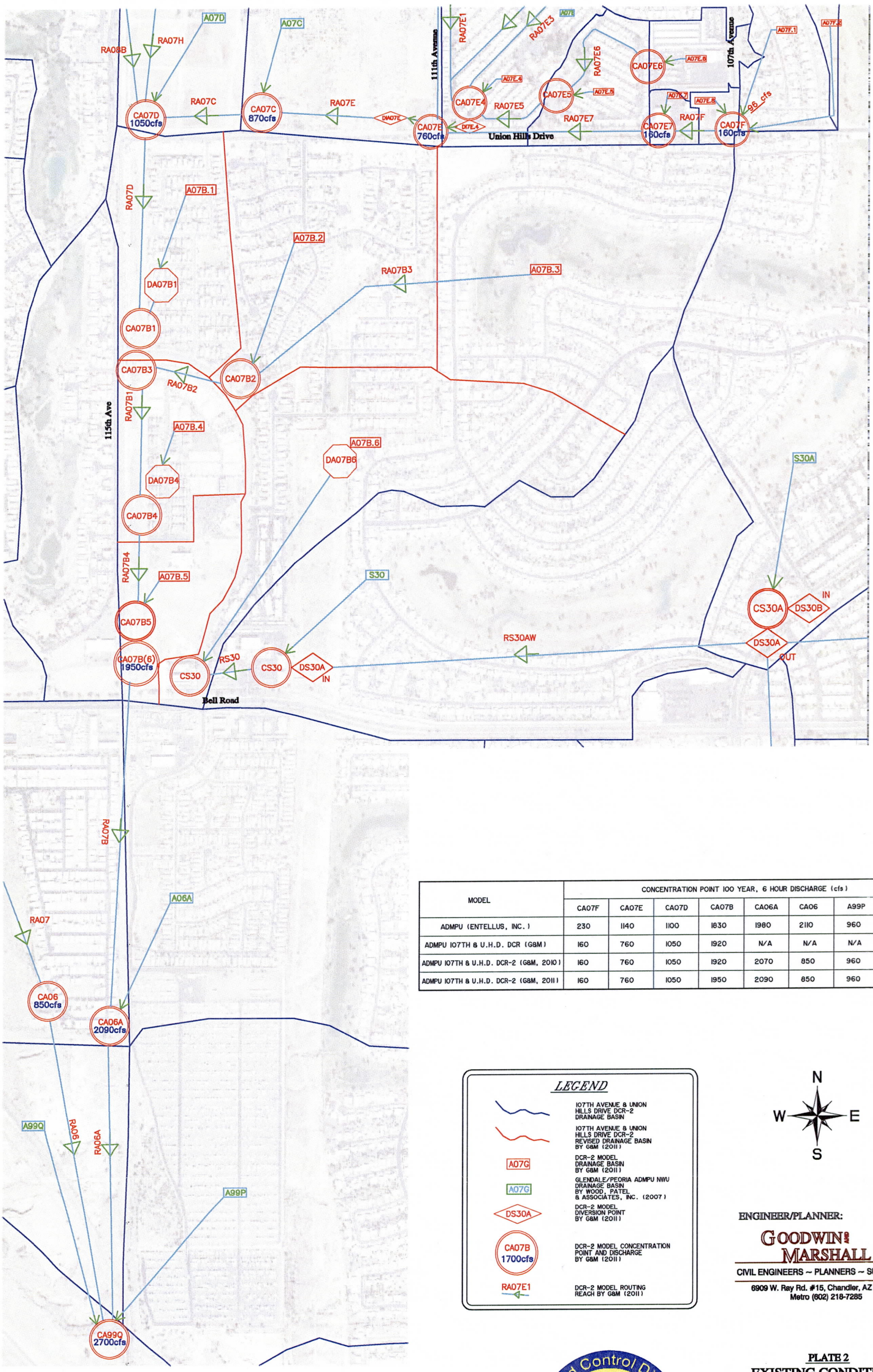

MODEL	CONCENTRATION POINT 100 YEAR, 6 HOUR DISCHARGE (cfs)							
	CA07F	CA07E	CA07D	CA07B	CA06A	CA06	A99P	CA99Q
ADMPU (ENTELLUS, INC.)	230	1140	1100	1830	1980	2110	960	2090
ADMPU 107TH & U.H.D. DCR (G&M)	160	760	1050	1920	N/A	N/A	N/A	N/A
ADMPU 107TH & U.H.D. DCR-2 (G&M, 2010)	160	760	1050	1920	2070	850	960	2690
ADMPU 107TH & U.H.D. DCR-2 (G&M, 2011)	160	760	1050	1950	2090	850	960	2700

LEGEND

- 107TH AVENUE & UNION HILLS DRIVE DCR-2 DRAINAGE BASIN
- 107TH AVENUE & UNION HILLS DRIVE DCR-2 REVISED DRAINAGE BASIN BY G&M (2011)
- A07G — DCR-2 MODEL DRAINAGE BASIN BY G&M (2011)
- A07G — GLENDALE/PEORIA ADMPU NWU DRAINAGE BASIN BY WOOD, PATEL & ASSOCIATES, INC. (2007)
- DS30A — DCR-2 MODEL DIVERSION POINT BY G&M (2011)
- CA07B 1700cfs — DCR-2 MODEL CONCENTRATION POINT AND DISCHARGE BY G&M (2011)
- RA07E1 — DCR-2 MODEL ROUTING REACH BY G&M (2011)

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PLATE 2

EXISTING CONDITIONS 100-YR, 6-HR DISCHARGE MAP FOR 107TH AVENUE AND UNION HILLS DRIVE

CONTRACT: FCD 2009C036.2

CITIES OF PEORIA AND SURPRISE AND ININCORPORATED MARICOPA COUNTY, ARIZONA

JULY 2011

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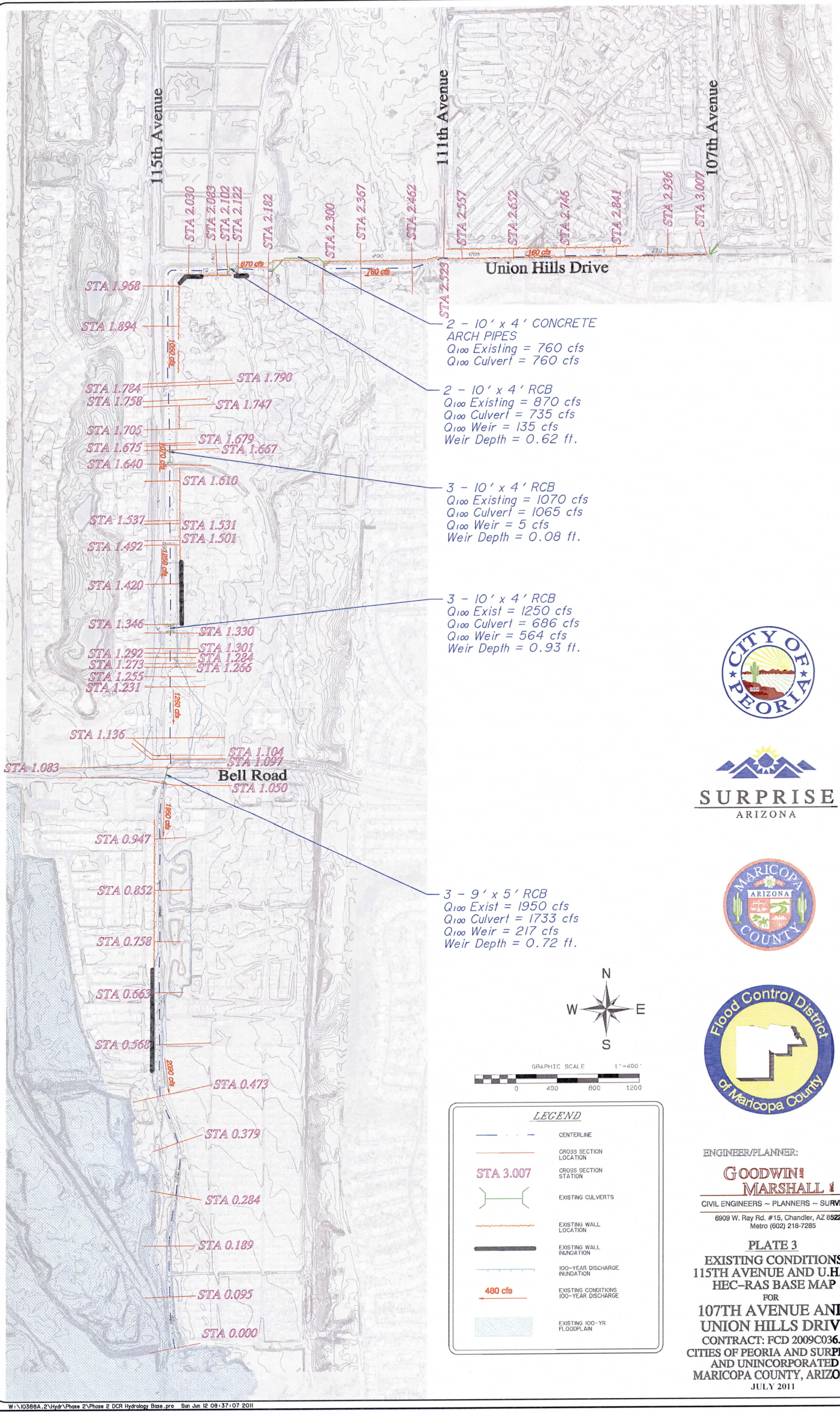

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PLATE 3
EXISTING CONDITIONS 115TH AVENUE AND U.H.D. HEC-RAS BASE MAP
FOR
107TH AVENUE AND UNION HILLS DRIVE
CONTRACT: FCD 2009C036.2
CITIES OF PEORIA AND SURPRISE AND UNINCORPORATED MARICOPA COUNTY, ARIZONA
JULY 2011

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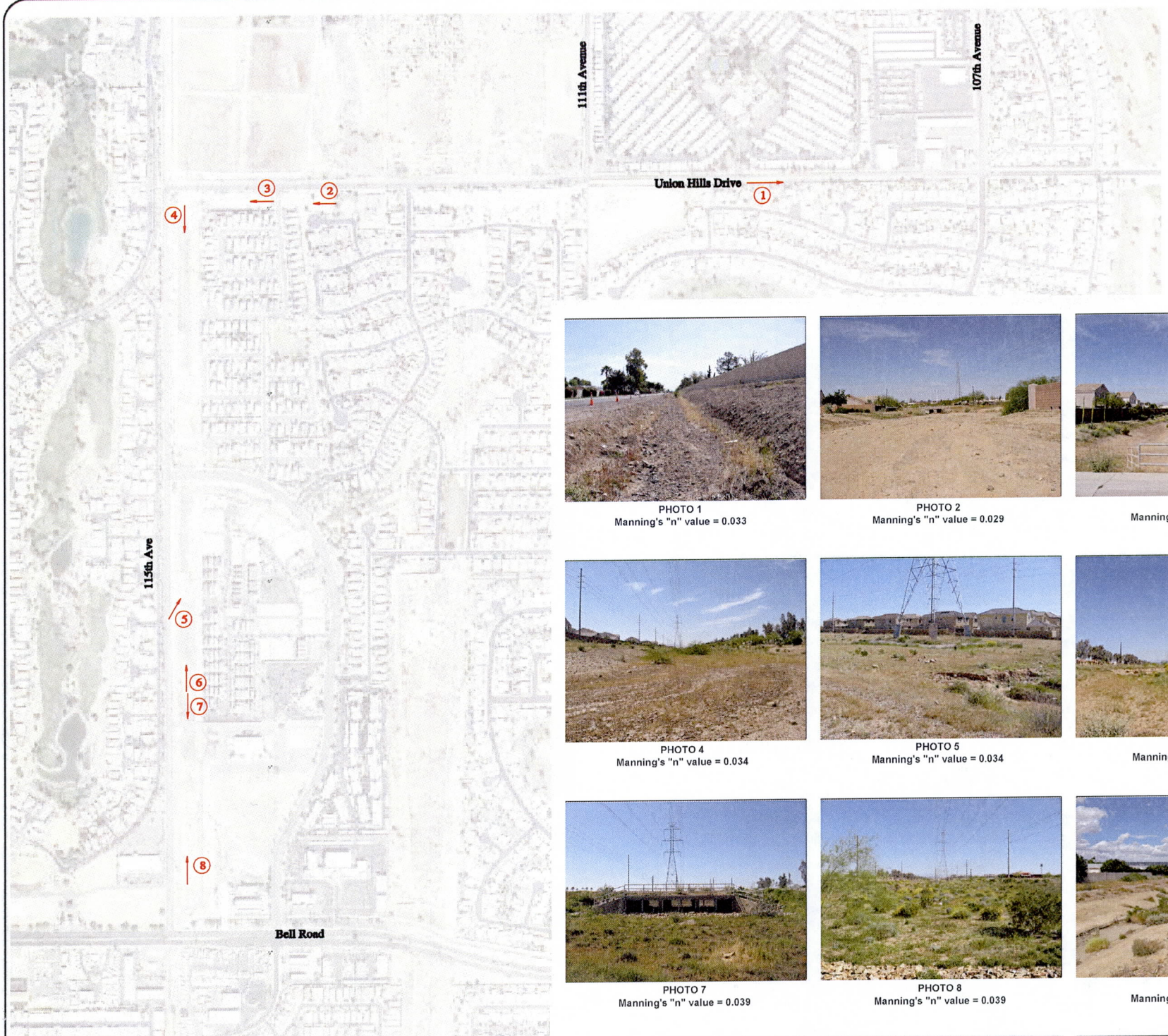

PHOTO 1
Manning's "n" value = 0.033

PHOTO 2
Manning's "n" value = 0.029

PHOTO 3
Manning's "n" value = 0.029

PHOTO 4
Manning's "n" value = 0.034

PHOTO 5
Manning's "n" value = 0.034

PHOTO 6
Manning's "n" value = 0.034

PHOTO 7
Manning's "n" value = 0.039

PHOTO 8
Manning's "n" value = 0.039

PHOTO 9
Manning's "n" value = 0.034

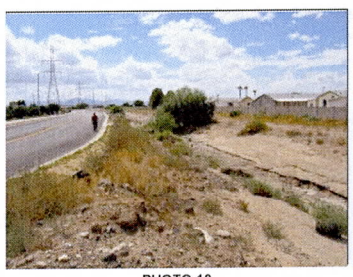
PHOTO 10
Manning's "n" value = 0.030

PHOTO 11
Manning's "n" value = 0.021

PHOTO 12
Manning's "n" value = 0.035

LEGEND

13 — DCR SITE PHOTO NUMBER AND LOCATION

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GRAPHIC SCALE 1"=400'
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PLATE 4

FIELD RECONNAISSANCE OF
115TH AVENUE CHANNEL
MANNING'S "N" VALUES
FOR

107TH AVENUE AND UNION HILLS DRIVE

CONTRACT: FCD 2009C036.2
CITIES OF PEORIA AND SURPRISE
AND UNINCORPORATED
MARICOPA COUNTY, ARIZONA
JULY 2011

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GRAPHIC SCALE 1"=200'
0 200 400 600

LEGEND

- CENTERLINE
- CROSS SECTION LOCATION
- STA 3.007 — CROSS SECTION STATION
- EXISTING CULVERTS
- EXISTING WALL LOCATION
- EXISTING WALL INUNDATION
- 480 cfs — EXISTING CONDITIONS 100-YEAR DISCHARGE

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PLATE 5
EXISTING CONDITIONS
BEARDSLEY ROAD CHANNEL
HEC-RAS BASE MAP
FOR
107TH AVENUE AND UNION HILLS DRIVE
CONTRACT: FCD 2009C036.2
CITIES OF PEORIA AND SURPRISE
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MARICOPA COUNTY, ARIZONA
JULY 2011

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PHOTO 1
Channel bottom Manning's 'n' value = 0.028
Channel sides Manning's 'n' value = 0.040

PHOTO 2
Channel bottom Manning's 'n' value = 0.028
Channel sides Manning's 'n' value = 0.040

PHOTO 3
Manning's 'n' value = 0.018

PHOTO 4
Channel bottom Manning's 'n' value = 0.028
Channel sides Manning's 'n' value = 0.030

PHOTO 5
Channel bottom Manning's 'n' value = 0.028
Channel sides Manning's 'n' value = 0.030

PHOTO 6
Channel bottom Manning's 'n' value = 0.028
Channel sides Manning's 'n' value = 0.030

LEGEND

① *DCR SITE PHOTO NUMBER AND LOCATION*

SURPRISE
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GRAPHIC SCALE 1"=200'
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PLATE 6

FIELD RECONNAISSANCE OF BEARDSLEY ROAD CHANNEL EXISTING CONDITIONS MANNING'S "N" VALUES
FOR
107TH AVENUE AND UNION HILLS DRIVE
CONTRACT: FCD 2009C036.2
CITIES OF PEORIA AND SURPRISE AND UNINCORPORATED MARICOPA COUNTY, ARIZONA
JULY 2011

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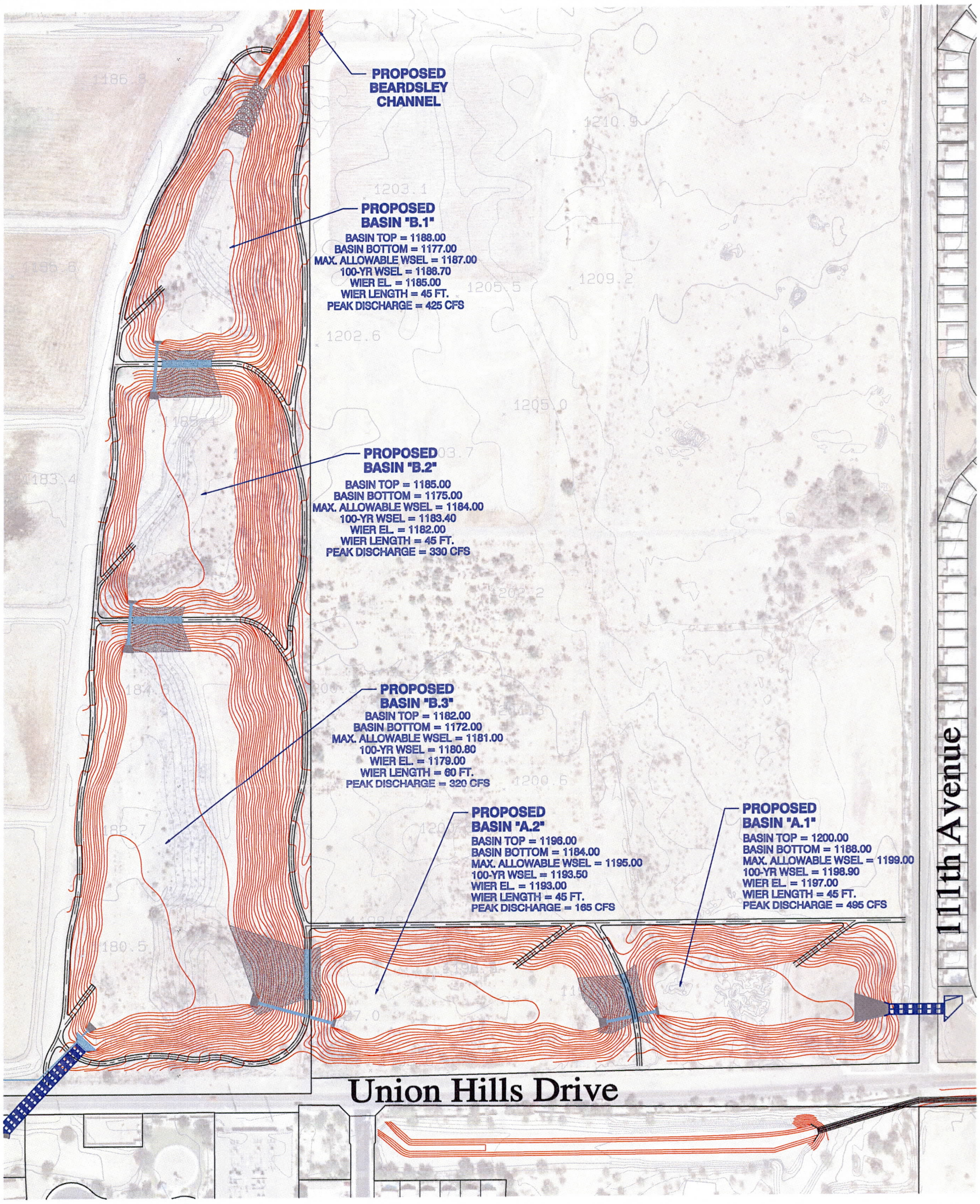

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PLATE 7

RECOMMENDED ALTERNATIVE BASINS A & B IMPROVEMENTS FOR 107TH AVENUE AND UNION HILLS DRIVE

CONTRACT: FCD 2009C036.2
CITIES OF PEORIA AND SURPRISE AND UNINCORPORATED MARICOPA COUNTY, ARIZONA
JULY 2011

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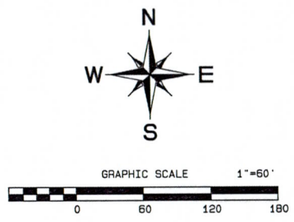

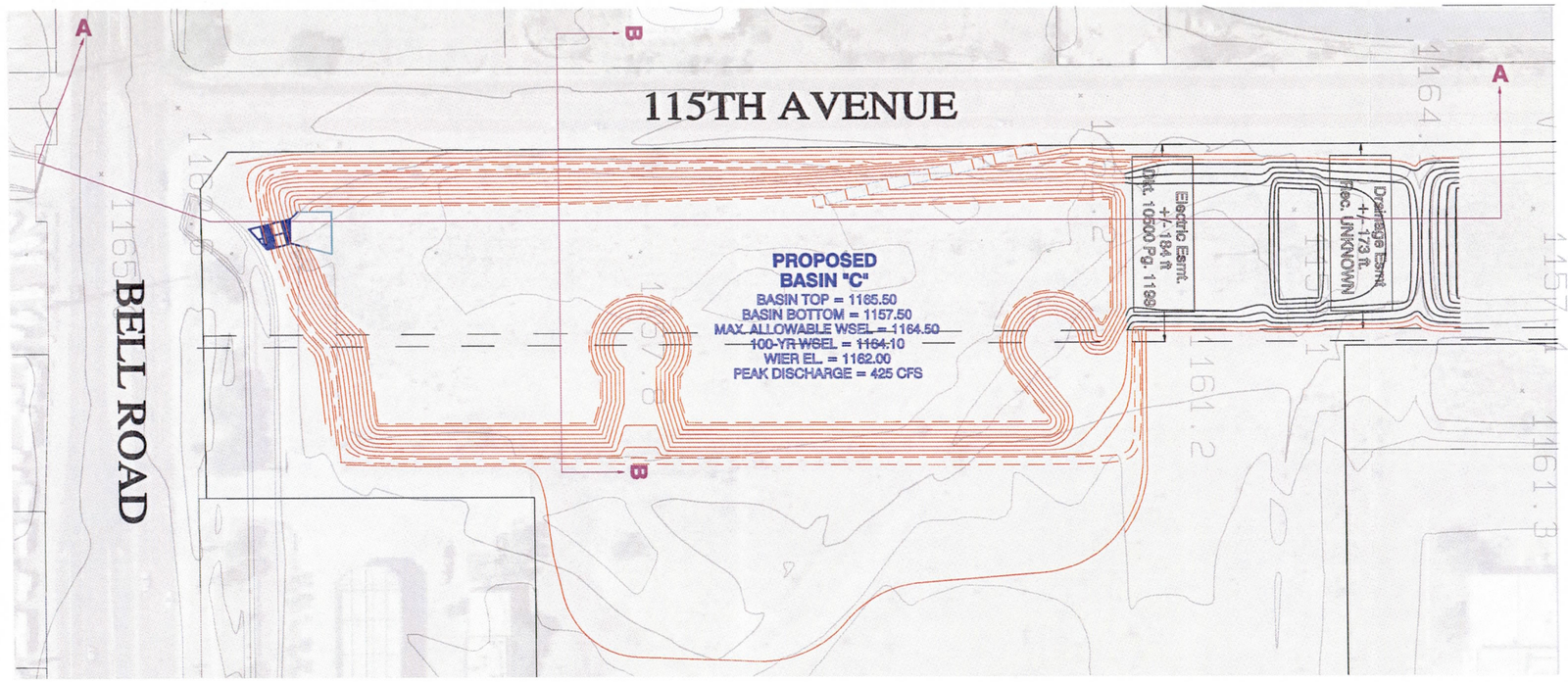

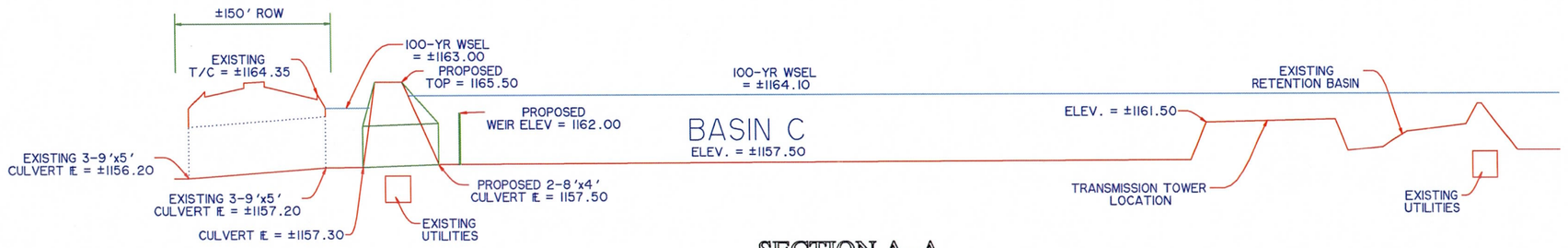

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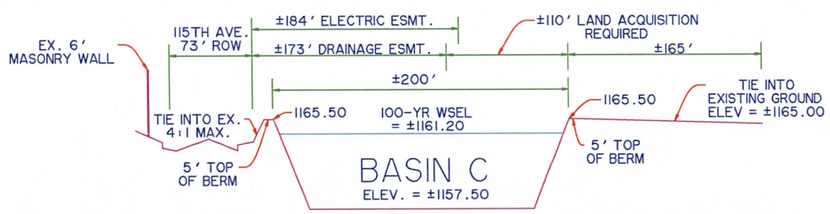

SECTION B-B

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PLATE 8

RECOMMENDED ALTERNATIVE BASIN C IMPROVEMENTS FOR 107TH AVENUE AND UNION HILLS DRIVE

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LEGEND

160 cfs — PROPOSED ALTERNATIVE 100-YEAR DISCHARGE

EXISTING CULVERTS

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PLATE 9
RECOMMENDED ALTERNATIVE 100-YR, 6-HR DISCHARGES
FOR
107TH AVENUE AND UNION HILLS DRIVE
CONTRACT: FCD 2009C036.2
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JULY 2011

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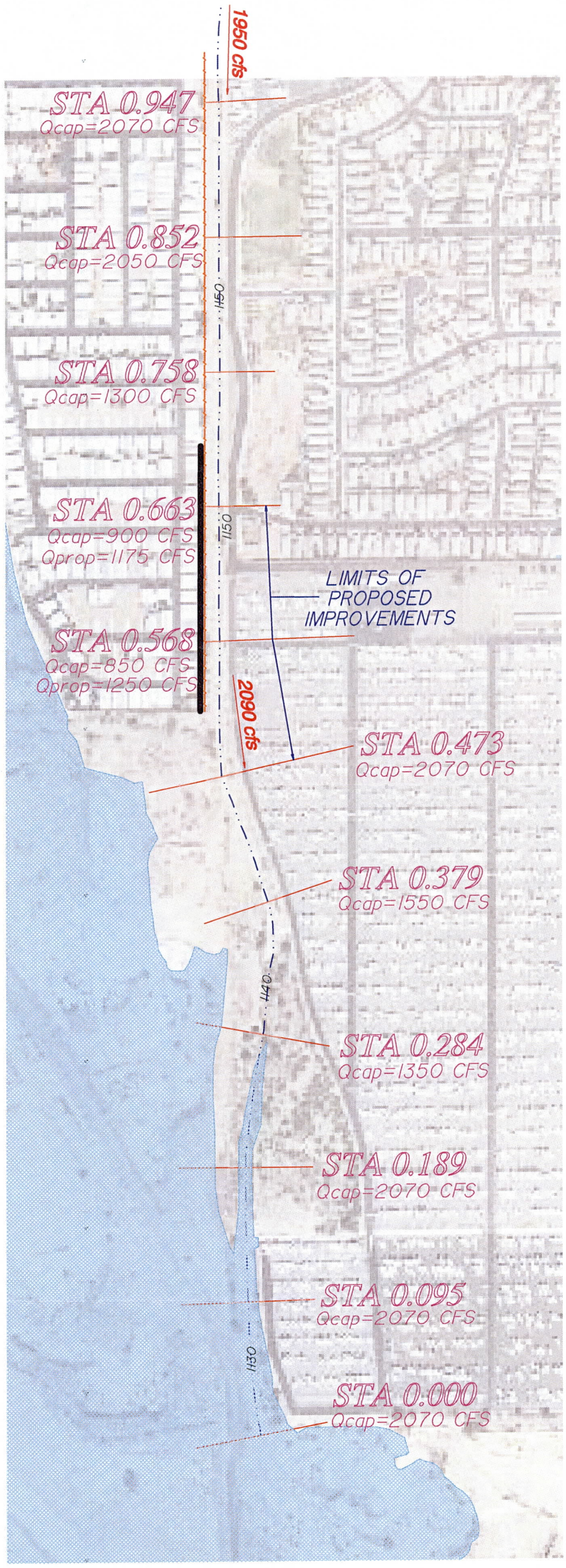

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GRAPHIC SCALE 1"=200'
0 200 400 500

LEGEND

- CENTERLINE
- CROSS SECTION LOCATION
- STA 3.007 — CROSS SECTION STATION
- EXISTING WALL LOCATION
- EXISTING WALL INUNDATION
- EXISTING 100-YR FLOODPLAIN

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PLATE 10

EXISTING CONDITIONS AND RECOMMENDED ALTERNATIVE SUN CITY DRAIN CHANNEL CAPACITY EXHIBIT

FOR

107TH AVENUE AND UNION HILLS DRIVE

CONTRACT: FCD 2009C036.2
CITIES OF PEORIA AND SURPRISE AND UNINCORPORATED MARICOPA COUNTY, ARIZONA
JULY 2011

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PLATE 11

RECOMMENDED ALTERNATIVE 115TH AVENUE AND U.H.D. HEC-RAS BASE MAP

FOR

107TH AVENUE AND UNION HILLS DRIVE

CONTRACT: FCD 2009C036.2

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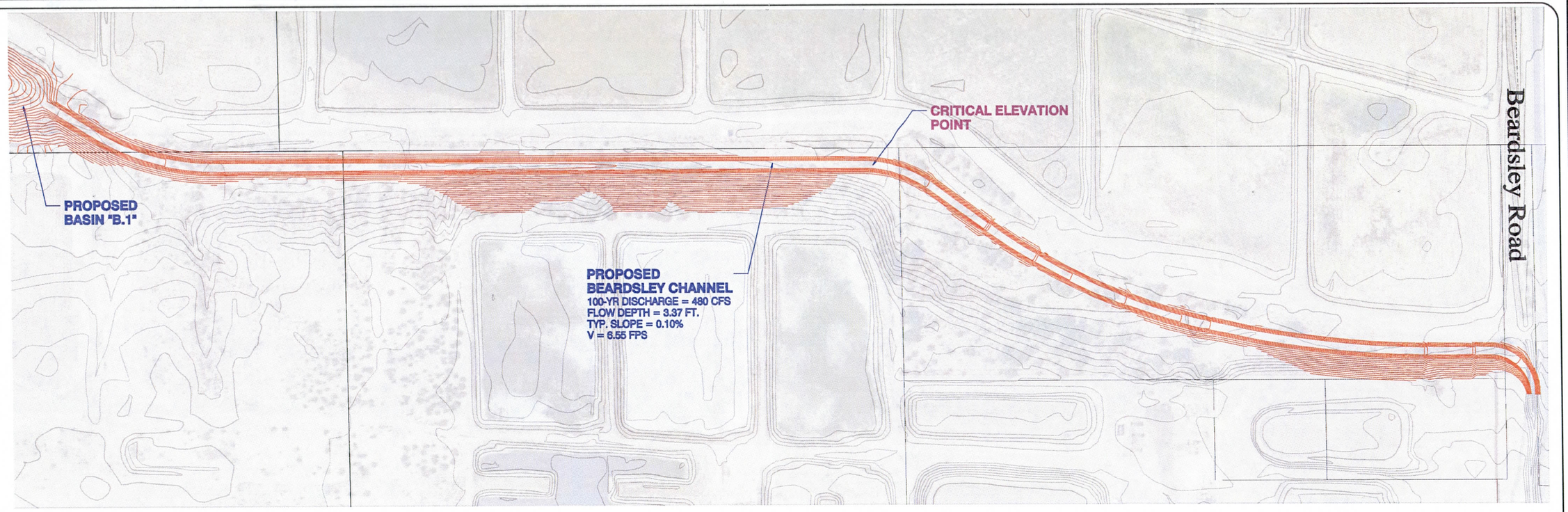

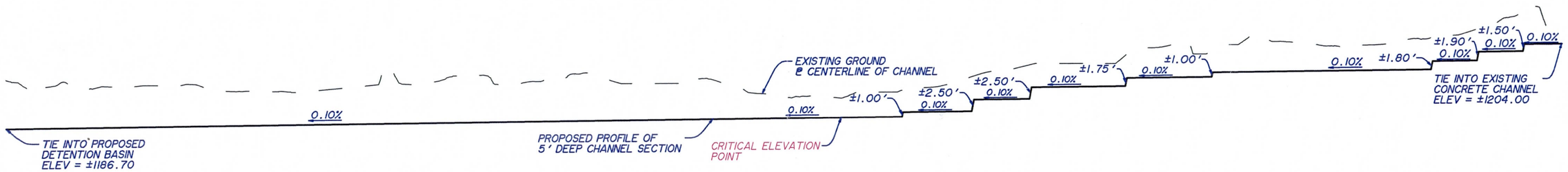

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PLATE 12

RECOMMENDED ALTERNATIVE
BEARDSLEY CHANNEL
ALIGNMENT AND PROFILE
FOR
107TH AVENUE AND UNION HILLS DRIVE
CONTRACT: FCD 2009C036.2
CITIES OF PEORIA AND SURPRISE
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PLATE 13

RECOMMENDED ALTERNATIVE BEARDSLEY ROAD CHANNEL HEC-RAS BASE MAP

FOR

107TH AVENUE AND UNION HILLS DRIVE

CONTRACT: FCD 2009C036.2

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JULY 2011

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