PALO VERDE WATERSHED DETAILED FLOODPLAIN DELINEATION STUDY

FOR WASHES: T2N-R7W-S32E & T2N-R6W-S05W

HYDRAULICS TECHNICAL DATA NOTEBOOK
VOLUME 1 OF 1

Flood Control District of Maricopa County

CONTRACT FCD 2008C046
CHANGE ORDER No. 1

MARCH 2012

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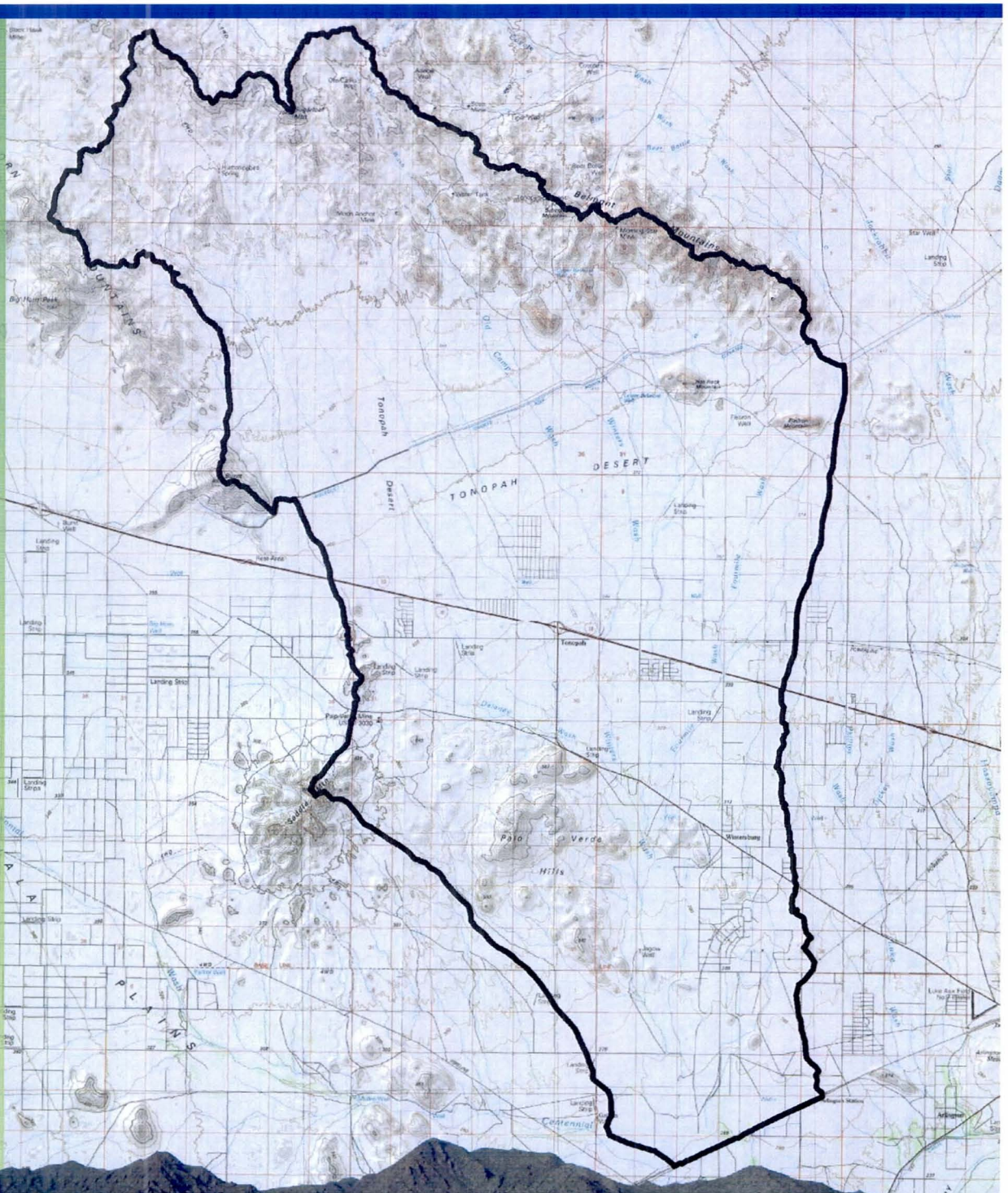

Flood Control District
of Maricopa County

INTEROFFICE MEMORANDUM

Date: April 17, 2012

To: Timothy S. Phillips, P.E., Chief Engineer and General Manager

From: Jeff Shelton, P.E., Senior Civil Engineer

Subject: Palo Verde Watershed Detailed Floodplain Delineation Study (PVWDFDS), Contract FCD 2008C046, Change Order 1, TDN and Maps for Washes T2N-R7W-S32E and T2N-R6W-S05W

The floodplain delineation for two washes finalized through change order 1 of the Palo Verde Watershed Detailed FDS are ready for use as the best available technical information for the study area. Study documentation will be available in the District library. The TDN for these two washes will not be sent to FEMA for LOMR application. These washes will be regulated on the District's pending layer until they are replaced at an undetermined future time.

The background for the study includes the following:

> The main report for the PVWDFDS produced new hydrology and floodplain mapping that have been reviewed and approved by a FEMA representative. It replaced Zone A floodplains with 93 linear miles of detailed floodplain zones and 15 linear miles of Zone A floodplain. The two washes, which are the subject of this memo, will be regulated by virtue of inclusion onto the Districts GIS pending layer. Their combined length is 6.2 miles. The effective is Zone A. These washes are Zone AE. The study consultant is Entellus, Inc. with project manager Hernan Aristizabel, P.E. The District's PM is Jeff Shelton, P.E.

Please concur and authorize below the use of this new study.

Project Manager Date: 04/17/12	Timothy S. Phillips, P.E., Chief Engineer and General Manager Date: 5/17/12
Hydrology/Hydraulics Branch Manager Date: 5/14/12	Assistant Project Manager Date:
Engineering Division Manager Date: 5/15/2012	Assistant Project Manager Date:
Floodplain Management & Services Division Manager Date: 5/16/2012	Assistant Project Manager Date:
File Copies: 1. _____ 2. _____	YES ☐ GIS Posted (Pending Floodplain Only) Date: 04/17/12 NO In Progress

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PALO VERDE WATERSHED DETAILED FLOODPLAIN DELINEATION STUDY FOR WASHES T2N-R7W-S32E AND T2N-R6W-S05W

HYDRAULICS TECHNICAL DATA NOTEBOOK

VOLUME 1

Contract FCD 2008C046
Change Order No. 1

March 2012

Registered Professional Engineer (Civil)
CERTIFICATE NO.
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PALO VERDE WATERSHED
DETAILED FLOODPLAIN DELINEATION STUDY
FOR WASHES T2N-R7W-S32E AND T2N-R6W-S05W
FCD 2008C046
CHANGE ORDER NO. 1

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Exp 12-31-13

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PALO VERDE WATERSHED
DETAILED FLOODPLAIN DELINEATION STUDY
FOR WASHES T2N-R7W-S32E AND T2N-R6W-S05W
TECHNICAL DATA NOTEBOOK
FLOODPLAIN DELINEATION REPORT

SECTION 1: INTRODUCTION

The analyses presented in this hydraulics report were performed by Entellus, Inc. for the Flood Control District of Maricopa County (District) as part of the Palo Verde Watershed Detailed Floodplain Delineation Study under Contract FCD No. 2008C046, Change Order No. 1. The purpose of this report is to present the results of the hydraulic analysis for two washes (T2N-R7W-S32E AND T2N-R6W-S05W) and document the methodology, assumptions, problems encountered and solutions during the development of the floodplain delineation study. This study is not intended for submittal to FEMA for LOMR application.

1.1 Project Location

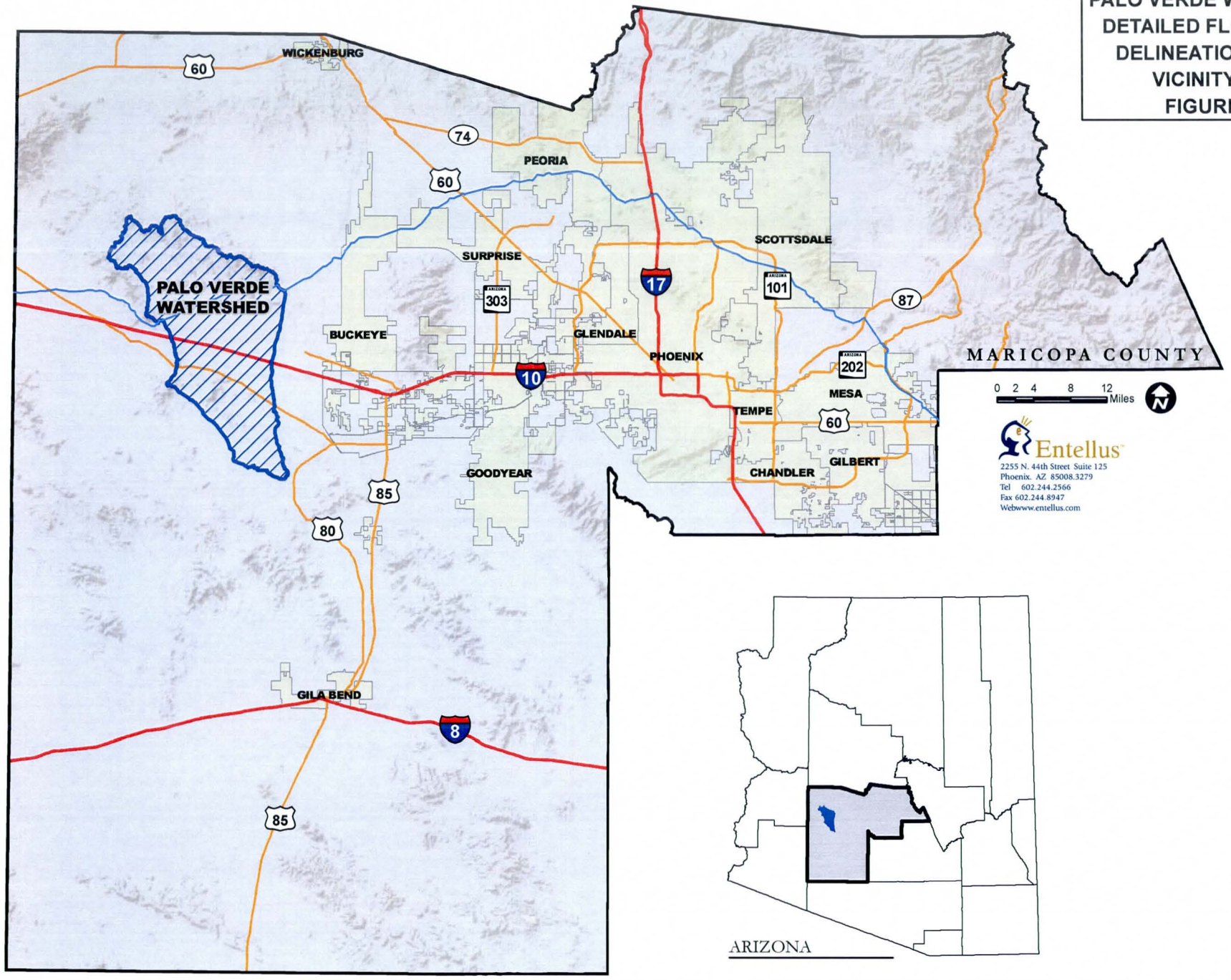
The study area is located in northwest Maricopa County and is bound by the Belmont Mountains and Hassayampa Plain to the north and northeast, the Big Horn Mountains to the northwest, the Hassayampa River basin to the east, and Centennial Wash to the south. (**Figure 1.1**). The total watershed area is approximately 278 square miles. The study area consists of undeveloped desert, farmlands, and sparse rural development. However, several small communities are present, and a few developments are either under construction or in the planning stage.

The watershed contains several major natural watercourses, including Fourmile Wash, Winters Wash, and Delaney Wash. Additionally, several man-made features traverse the watershed and cross the natural channels, including the Central Arizona Project (CAP) Canal, Interstate 10, Salome Hwy, and the Southern Pacific Railroad. Other significant structures include the Palo Verde Nuclear Generating Station and several other power generating facilities. Of these man-made features, the CAP Canal and Interstate 10 significantly affect the natural drainage of the watershed. They both are non-levee embankments that are perpendicular to the slope of the watershed. The effect of these embankments will be explained in this report and the *Palo Verde*

Watershed Detailed Floodplain Delineation Study Hydrology Technical Data Notebook (**Reference 15**) submitted separately.

\\Server03\Projects\300\310\310047_Palo_Verde\Deliverables\TDN\Figure_1-1_VicinityMap.mxd

PALO VERDE WATERSHED DETAILED FLOODPLAIN DELINEATION STUDY VICINITY MAP FIGURE 1.1



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1.2 Hydraulic Methodology and Results

The delineated floodplains for the two washes do not replace the Zone A floodplains from the *Palo Verde Watershed Zone A Floodplain Delineation Study* (**Reference 11**). This Zone A study was designated by FEMA as the best available data in this watershed on July 19, 2006. These Zone A floodplains will become effective when the on-going countywide update of the FIRMs are completed by the summer of 2013.

This study was prepared in accordance with Flood Control District of Maricopa County Manuals for hydrology and hydraulics as well as FEMA's Guidelines and Specifications for Flood Hazard Mapping Partners. The hydraulic analysis was performed using the US Army Corps of Engineer's HEC-RAS V.4.0.0 program (**Reference 1**) within BOSS RiverCAD (**Reference 3**). The details of the hydraulic methodology are discussed in **Section 5**. The results of this analysis are available in **Appendix E**.

Much of the watershed is characterized by shallow flooding and ill defined channels. Because of this, hydraulic breakouts and small incoming tributaries are common. These breakouts and confluences are modeled and depicted in one of the three following ways. First, minor breakouts or unconfined flows are identified with a "Limits of Detailed Study" note or squaring of the floodplain where the flow quantities are nominal. In these areas the split flow quantity is not calculated. The full discharge is assumed to continue down the wash to the next concentration point. Second, larger breakouts are calculated and evaluated with the hydrology model for consistency. In some cases the discharge in the wash being delineated is reduced by the calculated breakout amount, if the quantity was significant. The floodplain discharge reverts to the hydrology discharge at the next downstream concentration point. These larger breakouts are noted on the workmaps. Third, some of the larger breakouts were identified for delineation under the incidental floodplain delineation task in the scope of work. These breakouts are delineated with either a detailed or approximate floodplain given their proximity and characteristics. Shallow sheet flow areas are approximate floodplains where braided splits on large washes are detailed zones. Some larger breakouts are inconsistent with the hydrology model. Where this occurs the hydrology model was modified. These modifications are explained in **Section 4.1**.

SECTION 2: ADWR/FEMA FORMS

These forms are not included as part of this study.

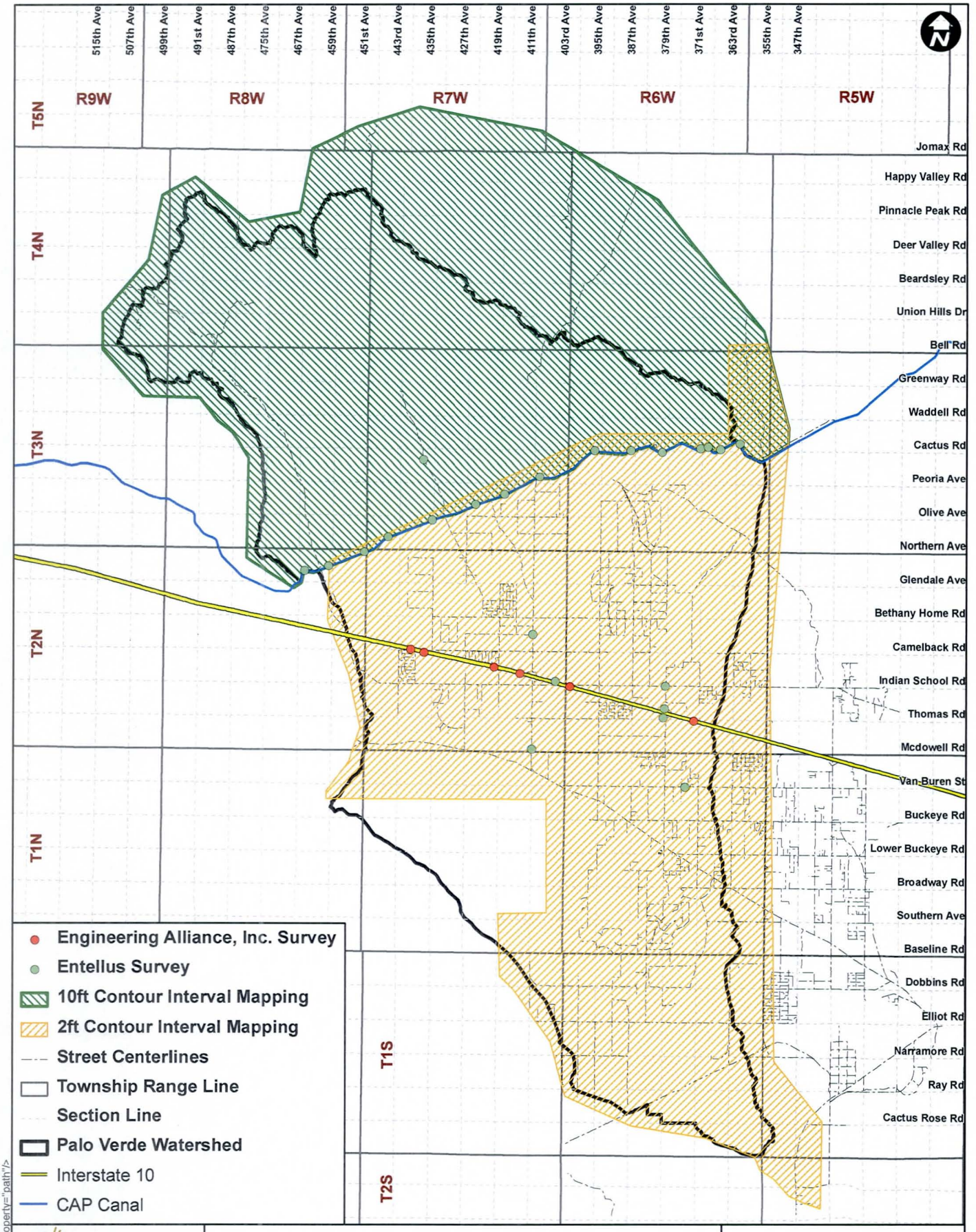
SECTION 3: MAPPING AND SURVEY INFORMATION

3.1 Field Survey Information

No additional survey was required as part of the delineation of the two washes. Survey information provided or obtained under the *Palo Verde Watershed Detail Floodplain Delineation Study – Hydraulics Technical Data Notebook* (**Reference 16**) was used for this portion of the study.

3.2 Mapping

Figure 3.1 shows the location of each type of mapping used. The base map used for this study was furnished by the District and consisted of 2-foot contour mapping and 10-foot contour mapping (**References 9, 10**, respectively). Additionally, for the development of the hydrology the Luke Wash & Arlington mapping was also used.



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PALO VERDE WATERSHED
DETAILED FLOODPLAIN DELINEATION STUDY
FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
F.C.D. CONTRACT NO. 2008C046

MAPPING COVERAGES
FIGURE 3.1

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3.2.1 Hydrology Mapping

A more detailed discussion of the hydrologic analysis and its contents is located in *Palo Verde Watershed Detailed Floodplain Delineation Study – Hydrology Technical Data Notebook* (**Section 3**, Mapping and Survey Information) (**Reference 15**).

3.2.2 Hydraulic Mapping

The same mapping used for the development of the hydrology was used for the hydraulic portion of this project. However, all the delineations were within the area covered by the Palo Verde Mapping:

Contract: FCD06-28
Contour Interval: 2-foot
Date: 06/2007
Vertical Datum: NAVD 88
Horizontal Projection: State Plane, Zone 3176, International feet GRS, 180, NAD 83.

The mapping was prepared by Wilson & Company for the District under a separate contract (**References 6, 7 & 8**). The District provided Entellus with contour and DTM data.

SECTION 4: HYDROLOGY

The contents of this section are a modification of and a refinement of the *Palo Verde Watershed Detailed Floodplain Delineation Study Hydrology Technical Data Notebook* (**Reference 15**).

4.1 Hydrology Modifications

Entellus identified additional split locations that were not included in the original hydrology models. These split locations were significant enough that the original hydrology model was modified. Since the hydrology locations to be modified were known these locations were checked and verified to see if the 6-hour or 24-hour models controlled. At all the modified locations the 24-hour model flows controlled, therefore, only the 24-hour model was modified to include the updated changes explained in this section. These modifications are kept separate from the original hydrology submittal (*Palo Verde Watershed Detailed Floodplain Delineation Study Hydrology Technical Data Notebook*) since the number of hydrology changes were not significant enough to update the original hydrology submittal. The following sections describe each hydrology modification that includes the washes affected by the new split location; and where and when the split flow comes back into other washes; and the concentration point where the flow becomes the same as the original hydrology submittal. Also, the supporting documentation that supports these modifications are included in **Appendix D.1.**

4.1.1 Wash T2N-R6W-S05W

Three incidental split flows were identified during the delineation phase of T2N-R6W-S05W wash. The first split is located immediately downstream of concentration point C330 at the CAP canal overshoot. Normal depth analysis was utilized to estimate the split flow, which resulted in 52% or 680 cfs of the total flow being diverted southeasterly and 48% or 630 cfs continuing south along the main wash. Additionally, two split flow locations were identified 0.5 miles south of CAP canal. Normal depth analysis was used to estimate the second and third flow splits at the abovementioned locations. The analysis showed that 37% or 1060 cfs and 22% or 400 cfs of the total flow continued southwesterly for the second and third split, respectively. Moreover, two additional concentration points were added to the original model to better represent the flow conditions at certain locations. The first concentration point ENT330 was added just

downstream of the CAP canal to combine flows from hydrologic routes R330 and R305. The second concentration point, ENT335 was added to combine routes R330AL, R335A and subbasin S335C. These modifications were included in the Intermediate Modified 24-hour Without Levee HEC-1 output and are included along with additional supporting documentation in **Appendix D.4**.

4.1.2 Wash T2N-R7W-S32E

Two incidental splits were identified during the delineation of T2N-R7W-S32E wash. The first one was located 0.5 miles south of concentration point C135 downstream of CAP canal overshoot. Normal depth analysis was utilized to estimate the flow split at this location. The split flow results showed that 70% or 4610 cfs flows in the main wash, whereas 30% or 1990 cfs splits in the southeasterly direction. A second, three way incidental split flow location was identified just downstream of the first one. The split flow analysis at the aforesaid location showed that 45% or 2120 cfs flows in the main wash and 55 % or 2490 cfs splits and continues in the southeasterly direction. Additionally, about 2170 cfs from the abovementioned split re-enters the main wash near HEC-RAS cross section number 4.530. Moreover, two additional concentration points were added to the original model to better represent the flow conditions at certain locations. The first concentration point ENT175 was added just downstream of CAP canal to combine flows from hydrologic routes R135 and R175. The second concentration point, ENT136 was added to combine hydrologic route R135C and subbasin S135D. These modifications were included in the Intermediate Modified 24-hour Without Levee HEC-1 output and are included along with additional supporting documentation in **Appendix D.4**.

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SECTION 5: HYDRAULICS

5.1 Method Description

The floodplains were analyzed using BOSS RiverCAD software (**Reference 3**). RiverCAD is an enhanced version of the U.S. Army Corps of Engineers HEC-RAS program (V4.0.0, March 2008) (**Reference 1**). This enhanced version was developed by the University of Brigham Young Computer Research Laboratory and is distributed by Boss International, Inc. It provides an interface between AutoCAD environment and HEC-RAS and allows direct extraction of cross-section geometry from a digital terrain model (DTM) to HEC-RAS. Additionally, RiverCAD allows automated plotting of water surface edges using the DTM. The data obtained from RiverCAD was exported to the HEC-RAS 4.0.0 model and all final floodplain and floodway results were obtained by using HEC-RAS 4.0.0.

Cross sections were extracted from the DTM generated as part of the mapping portion of this project (by others). Ground elevations at some selected locations that required more detailed information were supplemented using field survey. New surveys were limited to structures and at locations where the prior topographic information was inadequate.

The two flooding sources were delineated as Zone AE as part of this study. The wash names for the two reaches were obtained from *the Palo Verde Watershed Detailed Floodplain Delineation Study – Hydraulic Technical Data Notebook* (**Reference 16**). The file name of each model corresponds to the wash name; also a short description is included in the HEC-RAS model under description.

The downstream boundary condition for both washes contained a known water surface elevation. The most downstream cross sections, in both washes were obtained from the *Palo Verde Watershed Detailed Floodplain Delineation Study – Hydraulics Technical Data Notebook* (**Reference 16**).

The average conveyance option of HEC-RAS was used for the calculation of the friction slope. Results of the HEC-RAS runs for all study reaches are presented in **Appendix E.6**. The flood profiles are included in **Section 7.4.**

5.2 Work Study Maps

The floodplain maps are presented in the following workmaps in reduced scale. Full size copies are bound separately from this report.

5.3 Parameter Estimation

5.3.1 Roughness Coefficient

5.3.1.1 Introduction

Roughness coefficients (Manning's n-values) for the hydraulic analysis were estimated for the floodplain delineation study washes. In addition, n-values were used for split flow hydraulics and channel routing hydraulics.

Roughness coefficients were estimated for the study washes based on field reconnaissance conducted in February 2010 and in accordance with Chapter 7.3 of the Hydraulics Drainage Design Manual for Maricopa County, Hydraulics, June 2010 (Draft) **(Reference 12)**. Chapter 7.3 is taken from U.S. Geological Survey Scientific Investigations Report 2006-5108 (Phillips and Tadayon, 2006). For these computations, it is assumed that the channel is stable and that any bed material movement does not affect roughness.

The project area was divided into 11 geographical regions of similar roughness characteristics and four additional categories to account for agriculture, mountain, roadways, and recharge regions. Each region was then divided into three areas of similar hydraulic characteristics, and Manning's n-values were assigned to each region.

Area 1 is typically away from watercourses where the lack of water resulted in very sparse vegetation and generally has the lowest n-value of the three sub-regions. Area 2 is typically a transitional area where vegetation is denser than in Area 1 and may be subject to obstructions. Area 3 typically includes the heavily-vegetated overbanks along the main channel, which results in the highest n-value. The channel was typically designated as Area 2 or Area 3, depending on its conveyance characteristics.

Estimated roughness coefficients are displayed on the **Manning's n-Value Map**. The map and n-value computation worksheets, along with ground photographs, are located in **Appendix E.1**. The following factors were considered while calculating the n-values for each region:

- Channel material
- Degree of irregularity of any side slopes
- Effect of obstructions
- Degree of meandering
- Vegetation type and density
- Variation in channel cross-section

The roughness coefficient is highly sensitive to the density and type of vegetative cover. Within the study area floodplains, the vegetation includes the following:

- Creosote bush
- Palo Verde trees
- Ironwood
- Mesquite
- Saltbrush
- Saguaro and other cacti
- Seasonal grasses and weeds and crops

Four additional categories (agriculture, mountain, roadways, and recharge regions) were applied to locations throughout the watershed to reflect these unique characteristics.

5.3.1.2 Methodology

The boundaries of each region were identified with the aid of aerial photographs. The discerning characteristics were channel size, vegetation density, bed materials, and development encroachment. Each region was photographed at representative and accessible locations to document existing conditions.

As previously mentioned, Manning's roughness coefficients were determined in accordance with the methodology described in Chapter 7.3 of the Draft Hydraulics Manual **(Reference 12)**. The method described in this publication selects a base value for the roughness coefficient based exclusively on bed material. This base value is then adjusted to account for vegetation, irregularities, obstructions and channel cross-section variations. In addition, a multiplier could be applied to the adjusted n-values when meandering of the reach was significant. However, no adjustment for meandering was made within the project study area.

5.3.1.3 n - Value Determination

The base roughness coefficient in this study was selected based on the average particle size observed in the field. The typical bed materials in the study area range from firm earth to gravel, and the associated roughness coefficients range from 0.025 to 0.035. The values were subsequently adjusted for the effects of vegetation, irregularities, etc.

As part of this study, the previous Zone A roughness coefficients were examined and compared for the project study washes. It is difficult to make a direct comparison between the two studies because areas of similar roughness were grouped differently. The previous Zone A study uses one n-value for the channel and a second value for the left and right overbanks. These values reflect an average condition for these two areas. For the Detailed study, the n-values were divided into three sub-regions of similar hydraulic characteristics based primarily on vegetation coverage. Although the comparison between the previous Zone A Study and the detailed study may not use the same methodology, the tables in **Appendix E.1** shows a comparison of the n-values used in both studies with an explanation of the differences between used and current vegetative cover.

5.3.2 Expansion and Contraction Coefficients

The expansion and contraction coefficients used in the HEC-RAS model were determined using the HEC-RAS User's Manual (**Reference 2**). For gradual transitions, which include most reaches in this study, the contraction and expansion coefficients were set as 0.1 and 0.3, respectively. At locations where the cross-sectional area and flow direction changed abruptly, values of 0.2 to 0.4 were used. At structure locations, values of 0.3 and 0.5 or higher were used based on the type and hydraulic characteristics of the structure.

5.4 Cross-Section Description

The cross-sections used for the hydraulic modeling were based on DTM data provided by the District (**Reference 9**). All cross section plots are included as pdf's on the CD included in **Appendix F.**

5.4.1 Channels and Overbanks

Prior to extracting cross sections from the DTM, the channel bank stations were determined with the aid of the topographic mapping and aerial photos. The plotted cross sections are presented in electronic format and included in **Appendix F**.

5.4.2 Bridges and Constrictions

5.4.2.1 Minor Hydraulic Structures

There were no minor hydraulic structures affecting the delineation of these two washes.

5.4.2.2 Major Hydraulic Structures

Two major features act as major hydraulic structures in this watershed: the CAP Canal and Interstate 10.

There are several cross-drainage structures along the CAP Canal with a significant amount of storage behind the canal embankment. These structures were analyzed using level-pool routing during the hydrology portion of this study. However, for delineation purposes, the worst-case condition was used

from either the "with" or "without" embankment conditions. For more details on this analysis, please refer to *Palo Verde Watershed Detailed Floodplain Delineation Study – Hydrology Technical Data* Notebook (**Section 4**, Hydrology) (**Reference 15**).

Modeling issues associated with these structures are discussed in **Section 5.7.1** on a wash-by-wash basis.

5.5 Modeling Considerations

5.5.1 Hydraulic Jumps and Drop Analysis

Several locations are prone to hydraulic jumps. The majority of these locations are near structures or obstructions. Wherever these conditions were encountered, the spacing of the cross sections was reduced to minimize computational inaccuracies.

5.5.2 Bridges and Culverts

Two culverts were modeled as part of this study. These structures were modeled using the HEC-RAS bridge/culvert routine. Both of the culverts modeled were located along Interstate 10 (west bound lanes and east bound lanes). The structures were modeled using the data included in the survey information as mentioned in **Section 3**.

5.5.3 Levees and Dikes

No significant levees or dikes were present in neither of the two delineated washes.

5.5.4 Islands and Flow Splits

There are many locations within the washes where the HEC-RAS model shows divided flow. For these locations, the elevation differences between the island surface and the surrounding water surface were compared and if the difference were within the accuracy limits of the mapping (one foot within two foot topography) the islands were included in the floodplain.

There are multiple flow splits within the washes delineated. Splits were analyzed using Manning's equation to determine flow amounts in each branch for any given water

surface elevation. **Section 5.7** includes the description of the methodology utilized for each individual split flow calculation.

5.5.5 Ineffective Flow Areas

After the preliminary flood boundaries were plotted, the wash cross sections were checked to ensure that each reflected the actual flow area. Several cross sections were modified to exclude tributaries and ineffective areas. The ineffective flow stations were estimated based on topographic mapping. The criteria of 1:1 contraction and 4:1 expansion ratios were used for determining the ineffective flow areas upstream and downstream of any significant floodplain abrupt changes in width or direction.

5.5.6 Supercritical Flow

Potential supercritical flow areas were reported by HEC-RAS at several locations. These locations were examined to ensure that there were no model instabilities and that the water surface was set to critical depth. The CHECK-RAS output contains further information for these locations if they are truly critical or not, see **Appendix E.7**.

5.5.7 Blocked Obstructions

There are no significant areas of obstructions for the two washes, therefore, this option in HEC-RAS was not utilized in the modeling process.

5.5.8 Special Modeling Considerations

5.5.8.1 Intersection of Modified and Effective floodzones

In this study, both of the washes tie into downstream floodplains recently delineated as part of the study presented in the *Palo Verde Watershed Detailed Floodplain Delineation Study – Hydraulics Technical Data Notebook* (**Reference 16**). For both of these locations the tie in was made to the new delineation and not the effective Zone A. Additionally, there are a couple of effective tributaries which were trimmed at the edge of the new floodplains. These areas are separated by a limits of detailed study line or limits of study line and further information regarding the effective and updated floodzones can

be found in the original *Palo Verde Zone A Floodplain Delineation* (**Reference 11**).

5.5.8.2 Effective Floodzones

Within the study area, there are many effective Zone A floodzones that will not be re-studied as part of this project and the effective Zone A will remain. In other areas this study is completely replacing the effective Zone A.

5.5.8.3 Peak Discharges

As mentioned in previous sections, four different models were generated as part of this project for the 6-hour and 24-hour duration storms and assuming embankments in place and without embankments in place (see **Section 4** for more details). The peak discharges used in the HEC-RAS models are the controlling (larger) flows from the four models.

Typically the nearest downstream concentration point was utilized to delineate each flooding source, but because aerial reduction and routing losses, in some instances, there is a decrease in flow at the downstream concentration point. Any decrease in flow that is not a result of a split flow was ignored, and the upstream concentration point was kept as the flow in the hydraulic model for that part of the reach.

In some instances adjustments were made to account for local split flows and in some instances local modifications were made to the hydrologic model to obtain a better flow for a particular reach.

Table 7.1 summarizes the final flows utilized in the HEC-RAS models. For each reach the controlling flow was extracted from the HEC-1 models and compiled together in a table (see **Appendix D.3**). This table shows the concentration points along the reach and these flows were entered into the HEC-RAS model unless otherwise noted in the **Section 5.7.1** for the respective wash.

Splits were estimated by either normal depth, split flow optimization using HEC-RAS, lateral flow using HEC-RAS, or flow distribution using HEC-RAS. The approximate split was subtracted from the main wash to the next downstream concentration point. The split flow areas where this occurs and the supporting documentation is shown in **Appendix E.5**.

5.6 Floodway Modeling

Floodway analyses are not a part of the scope of work for this project.

5.7 Problems Encountered During Modeling

5.7.1 Special Problems and Solutions

5.7.1.1 T2N-R7W-S32E

Wash T2N-R7W-S32E was delineated as a Zone AE between cross sections 2.386 and 5.495. Floodway was not included for this reach.

This wash is the upstream continuation of wash T2N-R7W-S32E recently delineated and documented in the *Palo Verde Watershed Detail Floodplain Delineation Study – Hydraulics Technical Data Notebook* (**Reference 16**). Cross Section 2.386 (most downstream cross section) was copied from the previous study along with the known water surface elevation and this elevation was used in HEC-RAS as a boundary condition for the upstream reach of wash.

At the upstream end of the delineation the wash was tied into an effective Zone A, which is a continuation of wash T2N-R7W-S32E. At the tie-in with this Zone A a small area of the effective Zone A was modified to smoothly tie in with the new Zone AE, see workmaps.

Just south of cross section 5.495, there are two splits that were not modeled in the hydrology model. A normal depth split analysis using Manning's was generated for these two areas (see **Appendix E** for supporting documentation). The first split was estimated to be 70% south (main split) and 30% east. The total flow before the split is Q=6600 cfs. After the split the flow is approximated to be Q=4610 cfs to the south (Zone AE) and Q=1990 cfs to the

east (split). The second split was estimated to be 46% south (main split) and 47% (East Split A) and 7% (East Split B). The total flow before the split is Q=4610 cfs (from first split). After the split the flow is estimated to be Q=2120 cfs to the south (Zone AE) and Q=2170 cfs towards East Split A and Q=320 cfs towards East Split B. Therefore, between cross sections 5.432 and 4.608 a flow of 2120 cfs was used in HEC-RAS (see **Appendix E** for supporting documentation).

A hydrology split occurs at concentration point C135A (cross section 3.541). The split percentage is 55% in the main wash (3640 cfs) and 45% to the west (2950 cfs). Therefore, between cross sections 3.466 to 2.508 a flow of 3640 cfs was used.

Ineffective areas were determined as noted in **Sections 5.5.5** and **5.5.7**.

Some cross sections have defaulted to critical depth. This is mainly due to the conveyance area decreased between two cross sections with large conveyance areas and/or constraints such as roadways. These cross sections are noted in the Check-RAS output in **Appendix E**.

5.7.1.2 T2N-R6W-S05W

Wash T2N-R6W-S05W is the upstream continuation of Wash T2N-R6W-S05W recently delineated and documented in the *Palo Verde Watershed Detailed Floodplain Delineation Study – Hydraulics Technical Data Notebook* (**Reference 16**).

This section documents the Zone AE delineation of Wash T2N-R6W-S05W between cross sections 0.919 and 3.993. Floodway was not delineated for this reach.

Cross Section 0.919 was copied from the previously delineated downstream reach and the water surface from this downstream cross section was used as the boundary condition for the new HEC-RAS hydraulic model.

The original hydrologic model did not model two large splits that occur near cross sections 3.585 and 3.424. Significant flow leaves the wash at this point and affects a large portion of the wash. To account for these two splits a new model was created to account for the combined effect for both splits (see **Section 4.1.1**). The flows obtained from this modified model were used in the final HEC-RAS model.

At the upstream end of the reach just south of the CAP outlet there is a split that was not modeled in the hydrology model. A normal depth analysis using Manning's was generated for this split area (see **Appendix E** for supporting documentation). The split was estimated to be 48% in the main wash and 52% towards the southeast. The total flow before the split (concentration point C330) is Q=1315 cfs. After the split the flow is estimated to be Q=630 cfs in the main wash and Q=680 split to the southeast.

Just south of cross section 3.585 there is another split that was not modeled in the original hydrology model, but was modeled in the modified hydrology model in combination with a smaller downstream split. A normal depth analysis using Manning's was generated for this split area (see **Appendix E** for supporting documentation). The modified hydrology models this split in combination with a smaller downstream split. For this area the flow from the modified model was used but the flow from the downstream split (400 cfs) was added since this flow leaves the wash further downstream. Additionally, the 680 cfs that splits from upstream was not modeled and therefore was removed from this reach resulting on a flow 1850 cfs used in the HEC-RAS model.

Just south of cross section 3.424 there is another split that was not modeled in the original hydrology model but was modeled in the modified hydrology model in combination with the larger upstream split. A normal depth analysis using Manning's was generated for this split area (see **Appendix E** for supporting documentation). The analysis shows approximately 400 cfs leaving the wash at this point. Since the modified hydrology model accounts for this

split the flow from this model used was reduced by 680 cfs that splits at the upstream end of this wash resulting in a flow in the wash of Q=1450cfs. .

A table showing the concentration points used to obtain the final HEC-RAS model flows is included in **Appendix D.3.**

Ineffective areas were determined as noted in **Sections 5.5.5** and **5.5.7**.

Some cross sections that have defaulted to critical depth. This is mainly due to the conveyance area decreased between two cross sections with large conveyance areas and/or constraints such as roadways. These cross sections are noted in the Check-RAS output in **Appendix E.**

5.7.2 Modeling Warning and Errors

CHECK-RAS was checked and verified for each reach. See **Appendix E**, for the CHECK-RAS output and notes that are respective to each reach.

5.8 Calibration

Stream gages in the study area watercourse are provided in **Table 5.8**:

Table 5.8
Summary of Stream Gages in Study Area

Wash	Station ID	Year Installed
Delaney	5108	1999
Winters	5098	2005
Winters	5118	2000

The gage data could not be used for model calibration because the period of record is insufficient. Further, since the gages are located downstream of the CAP Canal and Interstate-10, any stage data used in future calibration efforts would only apply to the with-levee hydrology modeling scenario.

In many places, the discharges appear to be very high compared to the physical stream characteristics. It is noted that this is a direct result of selecting the higher peak discharges between the "with" and "without" embankment hydrologic models.

5.9 Final Results

5.9.1 Hydraulic Analysis Results

The floodplain maps, as well as an index sheets, are presented in the following workmaps in reduced scale. Full size copies are bound separately from this report.

Flood Control District
of Maricopa County

INTEROFFICE MEMORANDUM

Date: April 17, 2012

To: Timothy S. Phillips, P.E., Chief Engineer and General Manager

From: Jeff Shelton, P.E., Senior Civil Engineer

Subject: Palo Verde Watershed Detailed Floodplain Delineation Study (PVWDFDS), Contract FCD 2008C046, Change Order 1, TDN and Maps for Washes T2N-R7W-S32E and T2N-R6W-S05W

The floodplain delineation for two washes finalized through change order 1 of the Palo Verde Watershed Detailed FDS are ready for use as the best available technical information for the study area. Study documentation will be available in the District library. The TDN for these two washes will not be sent to FEMA for LOMR application. These washes will be regulated on the District's pending layer until they are replaced at an undetermined future time.

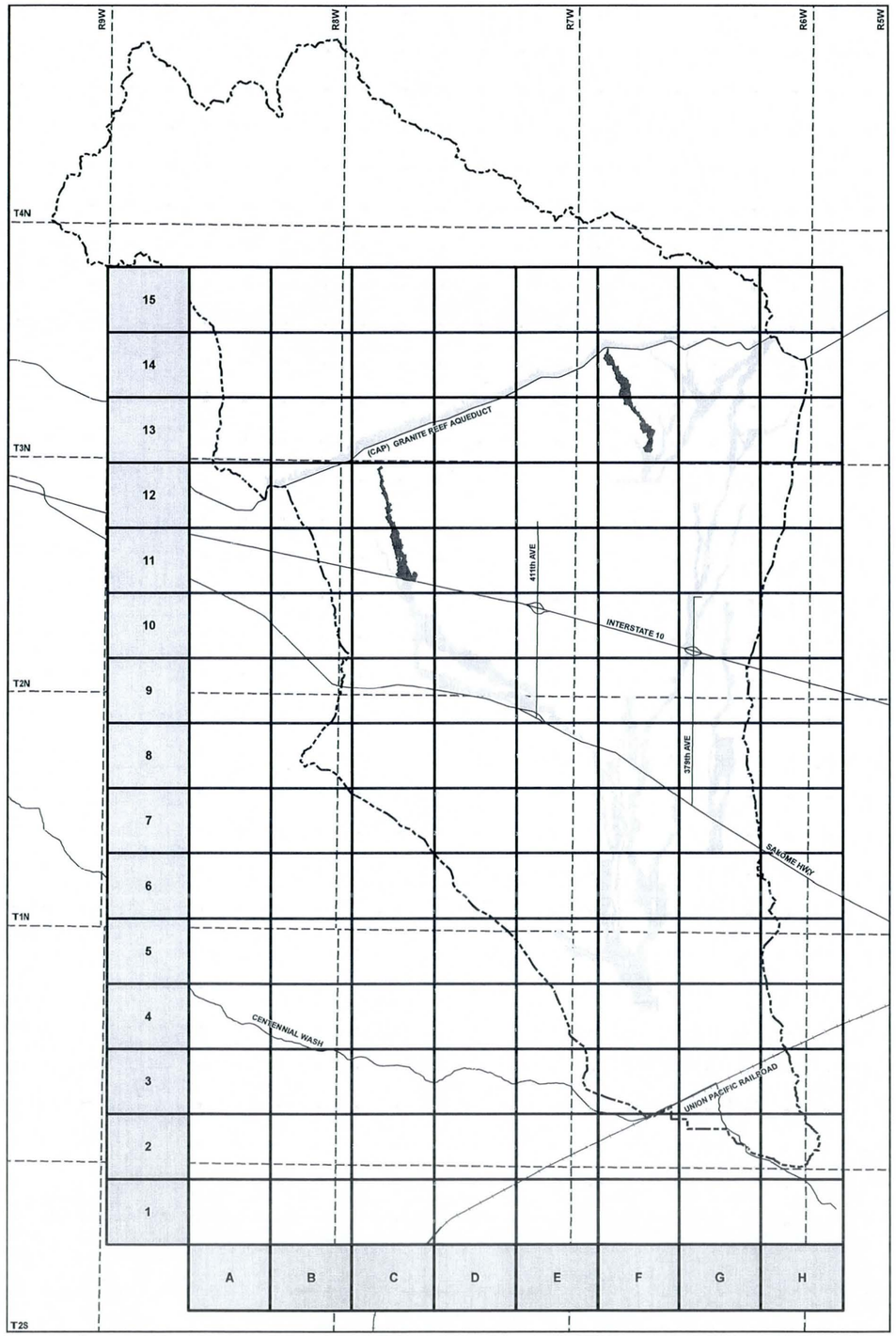
The background for the study includes the following:

> The main report for the PVWDFDS produced new hydrology and floodplain mapping that have been reviewed and approved by a FEMA representative. It replaced Zone A floodplains with 93 linear miles of detailed floodplain zones and 15 linear miles of Zone A floodplain. The two washes, which are the subject of this memo, will be regulated by virtue of inclusion onto the Districts GIS pending layer. Their combined length is 6.2 miles. The effective is Zone A. These washes are Zone AE. The study consultant is Entellus, Inc. with project manager Hernan Aristizabel, P.E. The District's PM is Jeff Shelton, P.E.

Please concur and authorize below the use of this new study.

Project Manager Date: 04/17/12	Timothy S. Phillips, P.E., Chief Engineer and General Manager Date: 5/17/12
Hydrology/Hydraulics Branch Manager Date: 5/14/12	Assistant Project Manager Date:
Engineering Division Manager Date: 5/15/2012	Assistant Project Manager Date:
Floodplain Management & Services Division Manager Date: 5/16/2012	Assistant Project Manager Date:
File Copies: 1. _____ 2. _____	YES ☐ GIS Posted (Pending Floodplain Only) Date: 04/17/12 NO In Progress

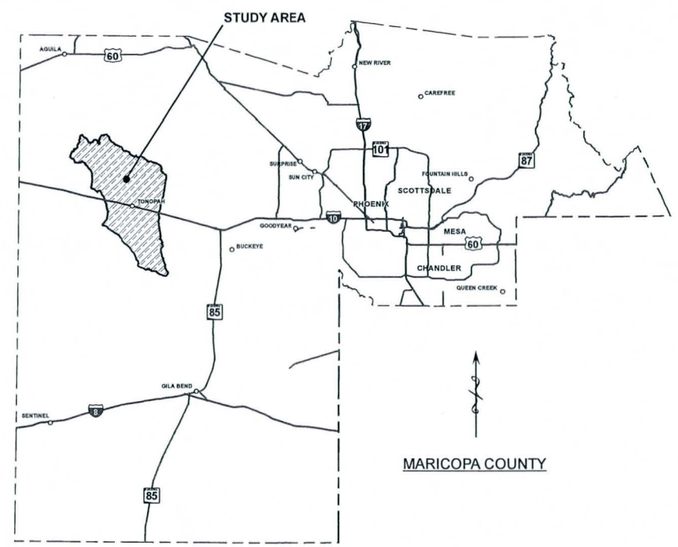
2801 West Durango Street Phoenix, Arizona 85009 Phone: 602-506-1501 Fax: 602-506-4601



FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

PALO VERDE WATERSHED
DETAILED FLOODPLAIN DELINEATION STUDY
FOR WASH T2N-R7W-S32E & T2N-6W-S05W

F.C.D. CONTRACT NO. 2008C046



• LOCATION MAP •

MARICOPA COUNTY

AERIAL MAPPING

Not part of this Contract.
Supplied by The Flood Control District.

TOPOGRAPHIC MAPPING

Not part of this Contract.
Supplied by The Flood Control District.

STRUCTURES SURVEYED

(Only structures surveyed by Entellus for this project and documented in Section 3 of the TDN)

Entellus, Inc.
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HYDROLOGY

Stantec
8211 South 48th Street
Phoenix, Arizona
85044-5355

HYDRAULICS

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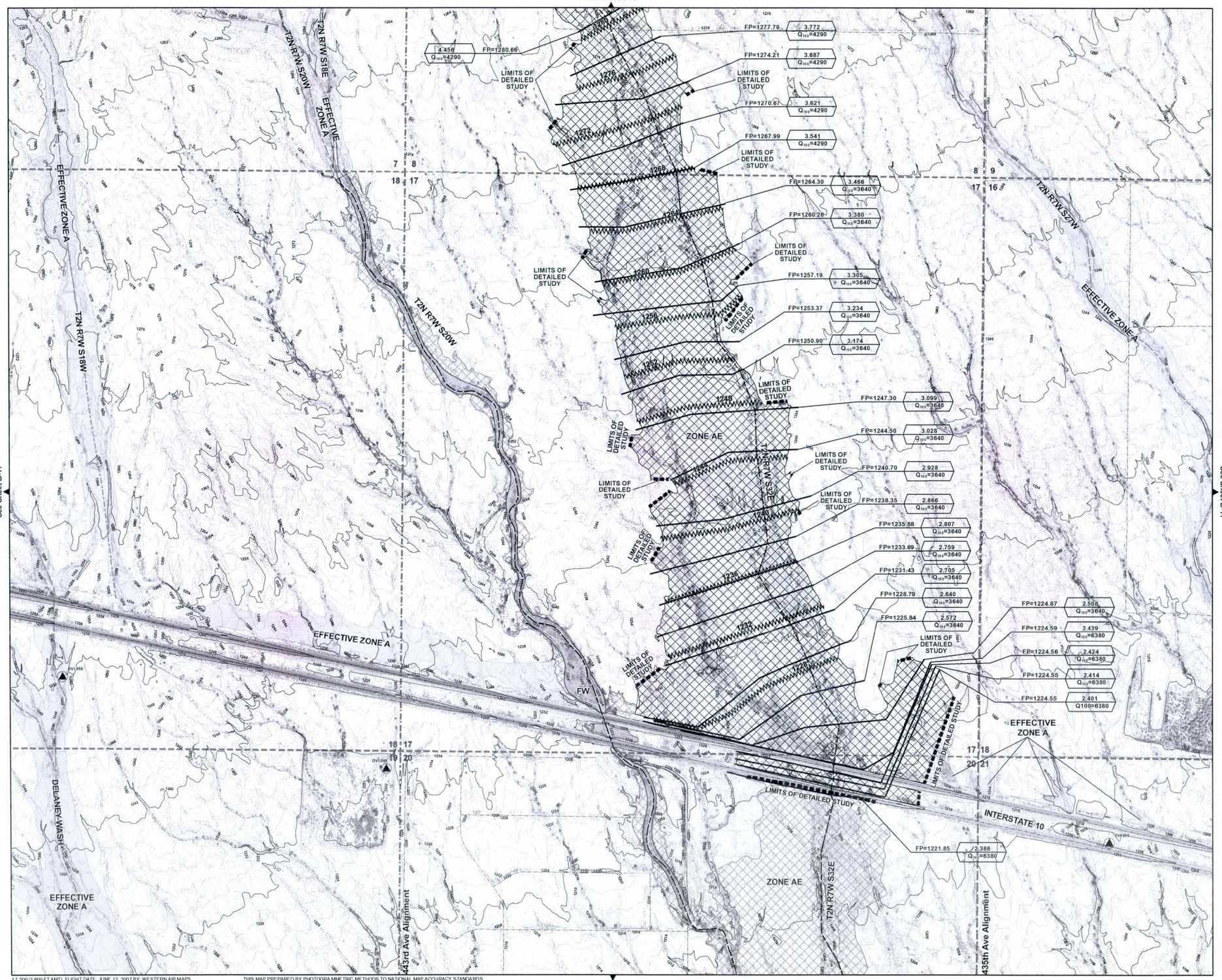
	MODEL	BY AMB	DATE 03 / 2012
	MODEL CHECK	HAA/KN	03 / 2012
	SHEETS	CJC/ZDR	03 / 2012
	SHEETS CHECK	HAA/KN	03 / 2012
ENTELLUS JOB No. 310047	SHEET COVER SHEET OF FLOODPLAIN DELINEATION		



1:7,200 (3,600-FT AMT), FLIGHT DATE: JUNE 12, 2007 BY: WESTERN AIR MAPS

THIS MAP PREPARED BY PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS
1"=200' HORIZONTAL SCALE 2' CONTOUR INTERVALS AND BASED ON GROUND CONTROL SURVEY
DATA PREPARED BY WILSON & COMPANY.
PROJECTION: STATEPLANE, ZONE 3176, UNITS INTERNATIONAL FEET, GRS 1980, NAD83.

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

PALO VERDE WATERSHED
DETAILED FLOODPLAIN DELINEATION STUDY
FOR WASH T2N-R7W-S32E & T2N-R6W-S05W

F.C.D. CONTRACT NO. 2008C046

LEGEND

- Corporate Limit
- Effective Zone A
- Effective Zone AH
- Streets
- Railroad
- Limits of Detailed Study
- Limits of Study
- Base Flood Elevation
- Hydraulic Base Line
- Effective Hydraulic Baseline
- Palo Verde Watershed
- Township/Range Line
- Section Line/Number
- Embankment
- Floodway (FW)
- Zone AH
- Zone AE
- Zone A
- Zone AO2
- Index Contour
- Intermediate Contour
- Elevation Reference Mark

(RIVER MILE STATION) (FLOODPLAIN ELEV.)
2.199 FP= 1400.56
Q100=1270 FW=1400.98
(100yr PEAK FLOW) (FLOODWAY ELEV.)
Cross Section

ELEVATION REFERENCE MARKS

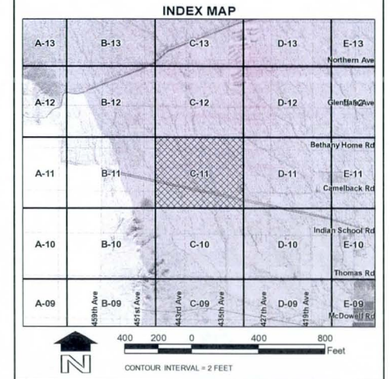
ALL ELEVATIONS ARE BASED ON
NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88)

ID NUMBER	ELEVATION (FT)	DESCRIPTION/LOCATION
DV1556	1164.24	FOR ERM DESCRIPTION AND ELEVATIONS GO TO THE NATIONAL GEODETIC SURVEY WEB SITE: www.ngs.noaa.gov OR www.mcdot.maricopa.gov/survey/home.htm
DV1048	1150.47	
DV0965	1124.83	

NOTES

*NOTE - THIS CROSS-SECTION WAS INCLUDED IN THE HEC-RAS MODEL TO IMPROVE THE HYDRAULIC ANALYSIS. THE EFFECTIVE ZONE A WAS KEPT IN THE AREA OF THIS CROSS-SECTION.

INDEX MAP



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MODEL	AMB	03 / 2012
MODEL CHECK	HAA/KN	03 / 2012
SHEETS	CJC/ZDR	03 / 2012
SHEETS CHECK	HAA/KN	03 / 2012

ENTELLUS JOB No. 310047

SHEET C-11 OF FLOODPLAIN DELINEATION

17,200 (3,600-FT AMT), FLIGHT DATE: JUNE 12, 2007 BY: WESTERN AIR MAPS

THIS MAP PREPARED BY PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS
1"=200' HORIZONTAL SCALE 2' CONTOUR INTERVALS AND BASED ON GROUND CONTROL SURVEY
DATA PREPARED BY WILSON & COMPANY.
PROJECTION: STATEPLANE, ZONE 3176, UNITS INTERNATIONAL FEET, GRS 1980, NAD83.

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

PALO VERDE WATERSHED
DETAILED FLOODPLAIN DELINEATION STUDY
FOR WASH T2N-R7W-S32E & T2N-R6W-S05W

F.C.D. CONTRACT NO. 2008C046

LEGEND

- Corporate Limit
- Effective Zone A
- Effective Zone AH
- Streets
- Railroad
- Limits of Detailed Study
- Limits of Study
- Base Flood Elevation
- Hydraulic Base Line
- Effective Hydraulic Baseline
- Palo Verde Watershed
- Township/Range Line
- Section Line/Number
- Embankment
- Floodway (FW)
- Zone AH
- Zone AE
- Zone A
- Zone AO2
- Index Contour
- Intermediate Contour
- Elevation Reference Mark
- Cross Section

(RIVER MILE STATION) 2.199 — Q100=1270 (100yr PEAK FLOW) — (FLOODPLAIN ELEV.) FP= 1400.56 — (FLOODWAY ELEV.) FW=1400.98

ELEVATION REFERENCE MARKS

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ID NUMBER	ELEVATION (FT)	DESCRIPTION/LOCATION
		FOR ERM DESCRIPTION AND ELEVATIONS GO TO THE NATIONAL GEODETIC SURVEY WEB SITE: www.ngs.noaa.gov OR www.mcdot.maricopa.gov/survey/home.htm

NOTES

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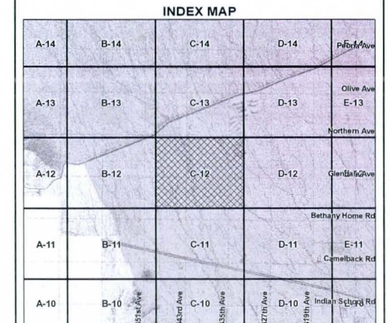
INDEX MAP



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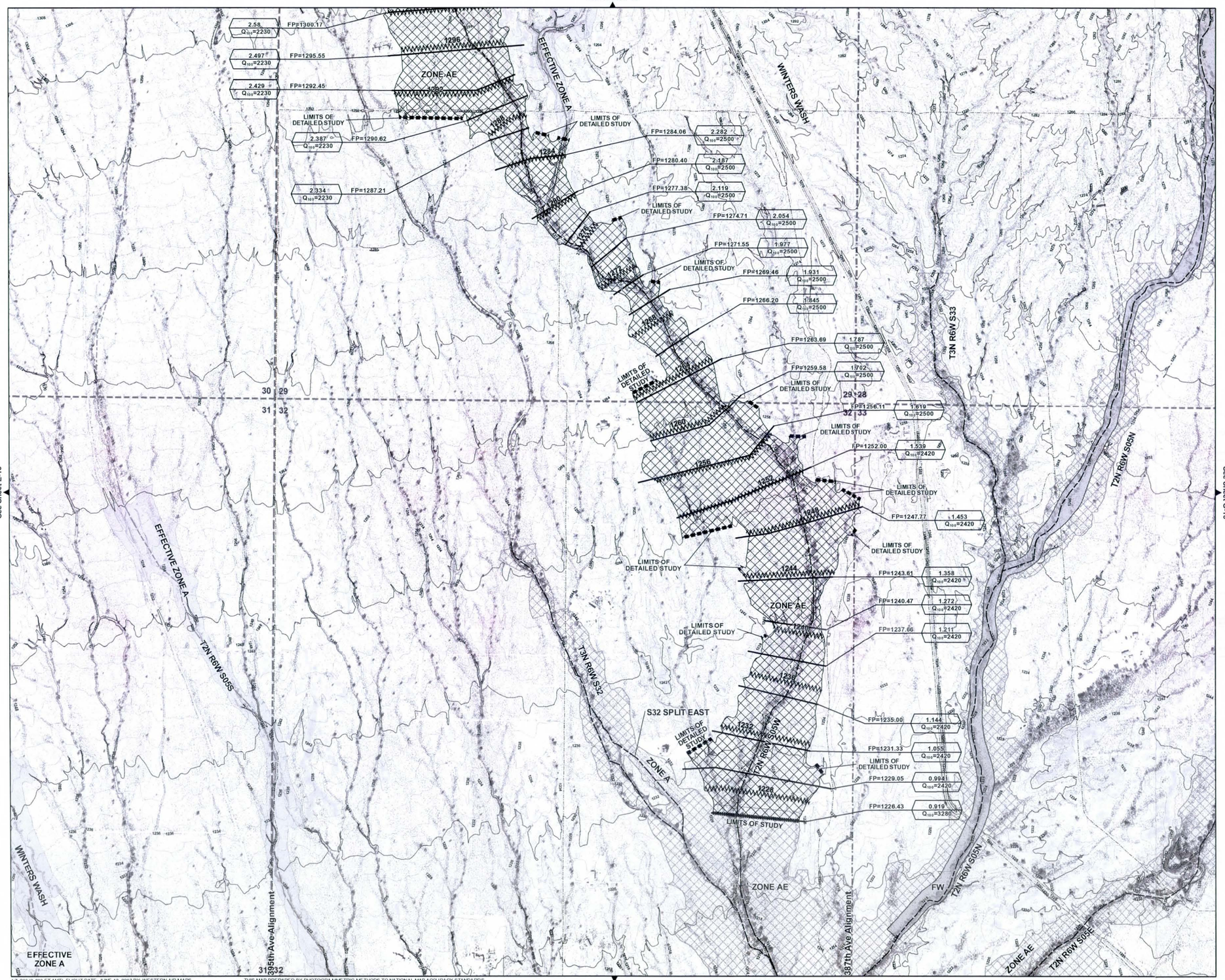
MODEL CHECK	HAA/KN	03 / 2012
SHEETS	CJC/ZDR	03 / 2012
SHEETS CHECK	HAA/KN	03 / 2012

ENTELLUS JOB No. 310047

SHEET C-12 OF FLOODPLAIN DELINEATION



1:7,200 (3,600-FT AMT), FLIGHT DATE: JUNE 12, 2007 BY: WESTERN AIR MAPS

THIS MAP PREPARED BY PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS
1"=200' HORIZONTAL SCALE, 2' CONTOUR INTERVALS AND BASED ON GROUND CONTROL SURVEY
DATA PREPARED BY WILSON & COMPANY.
PROJECTION: STATEPLANE, ZONE 3176, UNITS INTERNATIONAL FEET, GRS 1980, NAD83.

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

PALO VERDE WATERSHED
DETAILED FLOODPLAIN DELINEATION STUDY
FOR WASH T2N-R7W-S32E & T2N-R6W-S05W

F.C.D. CONTRACT NO. 2008C046

LEGEND

- Corporate Limit
- Effective Zone A
- Effective Zone AH
- Streets
- Railroad
- Limits of Detailed Study
- Limits of Study
- Base Flood Elevation
- Hydraulic Base Line
- Effective Hydraulic Baseline
- Palo Verde Watershed
- Township/Range Line
- Section Line/Number
- Embankment
- Floodway (FW)
- Zone AH
- Zone AE
- Zone A
- Zone AO2
- Index Contour
- Intermediate Contour
- Elevation Reference Mark
- Cross Section

(RIVER MILE STATION) (FLOODPLAIN ELEV.)
2.199 FP= 1400.56
Q100=1270 FW=1400.98
(100yr PEAK FLOW) (FLOODWAY ELEV.)

ELEVATION REFERENCE MARKS

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NOTES

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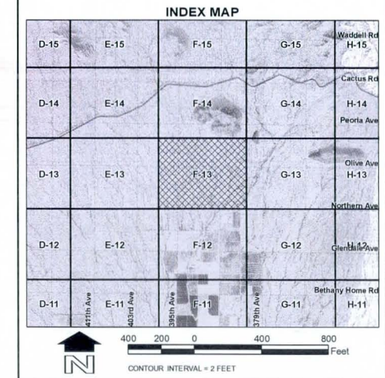
INDEX MAP



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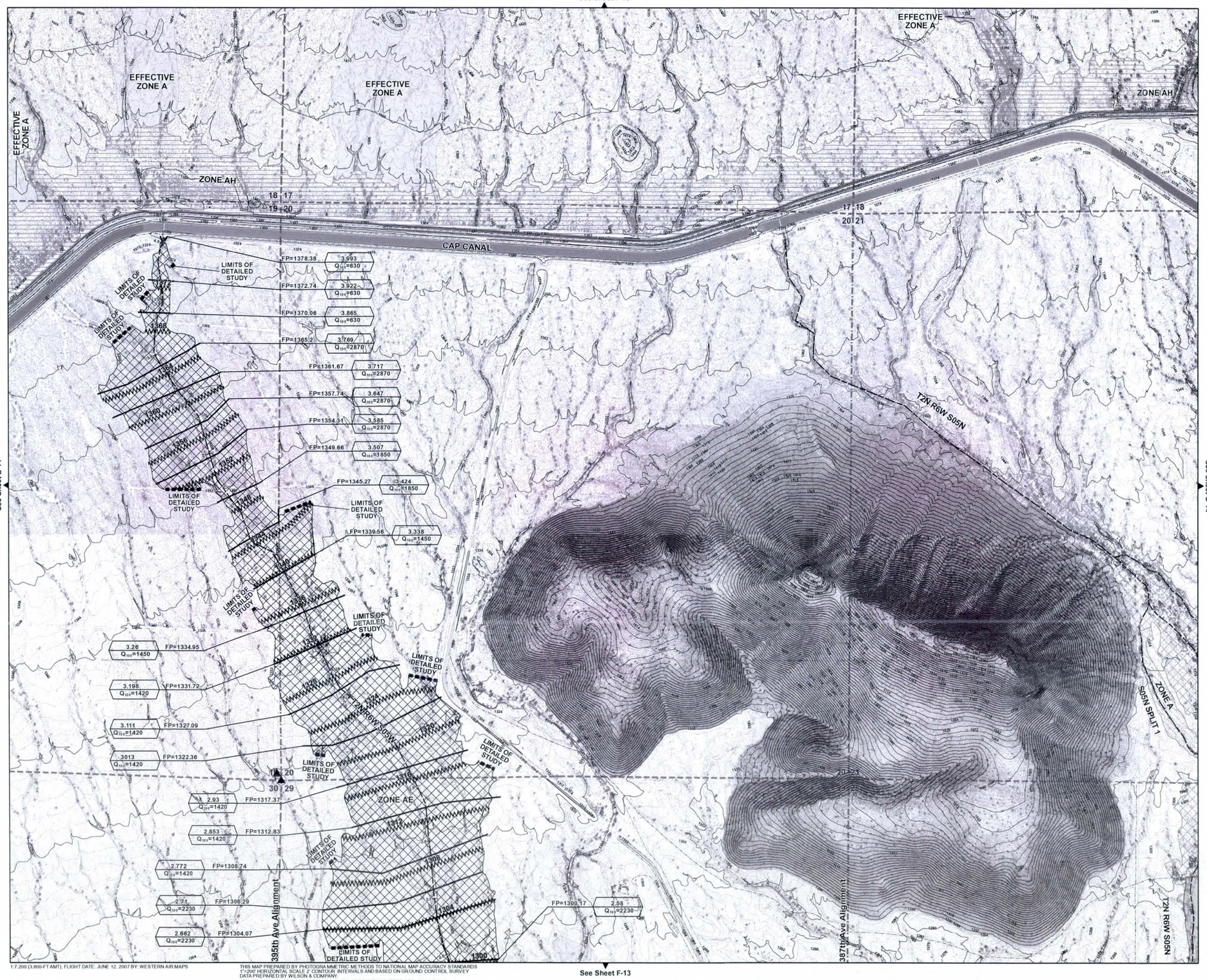
SHEETS	CJC/ZDR	03 / 2012
SHEETS CHECK	HAA/KN	03 / 2012

20737 HERMAN A. ARMENDARIZ

Exp. 12-31-13

ENTELLUS JOB No. 310047

SHEET F-13 OF FLOODPLAIN DELINEATION



1:7,200 (3,600-FT AMT), FLIGHT DATE: JUNE 12, 2007 BY: WESTERN AIR MAPS

THIS MAP PREPARED BY PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS
1"=200' HORIZONTAL SCALE 2' CONTOUR INTERVALS AND BASED ON GROUND CONTROL SURVEY
DATA PREPARED BY WILSON & COMPANY.
PROJECTION: STATEPLANE, ZONE 3176, UNITS INTERNATIONAL FEET, GRS 1980, NAD83.

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

PALO VERDE WATERSHED
DETAILED FLOODPLAIN DELINEATION STUDY
FOR WASH T2N-R7W-S32E & T2N-R6W-S05W

F.C.D. CONTRACT NO. 2008C046

LEGEND

- Corporate Limit
- Effective Zone A
- Effective Zone AH
- Streets
- Railroad
- Limits of Detailed Study
- Limits of Study
- Base Flood Elevation
- Hydraulic Base Line
- Effective Hydraulic Baseline
- Palo Verde Watershed
- Township/Range Line
- Section Line/Number (24)
- Embankment
- Floodway (FW)
- Zone AH
- Zone AE
- Zone A
- Zone AO2
- Index Contour (1210)
- Intermediate Contour (1211)
- Elevation Reference Mark (DV0763)
- Cross Section (2.199 / Q_{100}=1270 / FP= 1400.56 / FW=1400.98)

(RIVER MILE STATION) (FLOODPLAIN ELEV.) (100yr PEAK FLOW) (FLOODWAY ELEV.)

ELEVATION REFERENCE MARKS

ALL ELEVATIONS ARE BASED ON NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88)

ID NUMBER	ELEVATION (FT)	DESCRIPTION/LOCATION
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DV2204	1231.39	

NOTES

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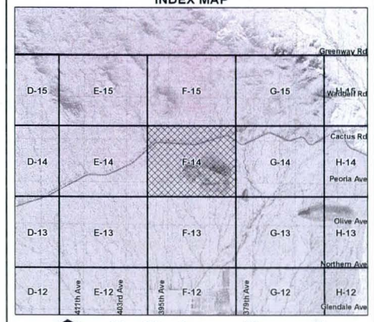
INDEX MAP



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	BY	DATE
MODEL	AMB	03 / 2012
MODEL CHECK	HAA/KN	03 / 2012
SHEETS	CJC/ZDR	03 / 2012
SHEETS CHECK	HAA/KN	03 / 2012

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SHEET F-14 OF FLOODPLAIN DELINEATION

SECTION 6: EROSION AND SEDIMENT TRANSPORT

Erosion and sediment transport analyses is not a part of the scope of work for this project.

SECTION 7: DRAFT FIS DATA

7.1 Summary of Discharges

The discharge summary is provided in **Table 7.1**.

Table 7.1
Summary of Discharges

Flood Source and Location	Drainage Area (sq. mi.)	100 Year Discharge (cfs)
T2N-R6W-S05W		
C330-680 split At CAP Canal	3.59	630
C330A-680 split ~0.25 miles south of CAP canal	9.99	2,870
C330A*-680+400 ~0.5 miles south of CAP canal	9.99	1,850
C330A*-680 ~0.6 miles south of CAP canal	9.99	1,450
D330AL* ~0.5 miles east of 395th Ave	9.99	1,420
ENT335*[1] ~0.5 miles east of 395th Ave	10.79	2,230
C335C* ~0.5 miles east of 395th Ave	11.18	2,500
C335D* ~0.9 miles east of 395th Ave	11.44	2,420
C335E* ~0.2 miles north of Northern Ave	11.56	2,360

* Flow taken from "intermediate modified hydrology models."

[1] Entellus added this CP to combine R330AL, S335C and R335A.

Table 7.1
Summary of Discharges

T2N-R7W-S32E		
ENT175[2]		
At Northern Ave Alignment	41.87	6,590
C135A		
~0.25 miles north of Bethany Home Rd	42.57	6,590
D135AL		
~0.25 miles north of Bethany Home Rd	42.57	3,640
C135CL		
At I-10	42.75	3,560
C135C		
At I-10	43.33	6,380
ENT136[3]		
At Indian School Rd	43.79	6,250

[2] Entellus added this CP to combine R175 and R135.

[3] Entellus added this CP to combine R135C and R135D.

7.2 Floodway Data

The floodway analyses are not a part of the scope of work for this project.

7.3 Annotated Flood Insurance Maps

The Flood Insurance Rate Maps (FIRMS) were not a part of the scope of work for this project.

7.4 Flood Profiles

The flood profiles are included in the following pages.

APPENDIX A: REFERENCES

A.1 Data Collection Summary

All the data collected to obtain the information in this report are identified in the **Section A.2**. This section includes complete bibliographic information of the documents and references used in this report.

A.2 Reference Documents

The following is a list of references used during the course of this study:

1 U.S Army Corps of Engineers, Hydrologic Engineering Center, *HEC-RAS, River Analysis System, Version 4.0.0,* March 2008.

2 U.S. Department of the Army, Corps of Engineers, Hydrologic Engineering Center, *HEC-RAS User's Manual,* Davis, California, April 1997.

3 BOSS International *RiverCAD Professsional* Version 8.4.0.0 2009

4 A Team Professional Associates, Inc. *Survey Report Manual for Palo Verde Area Drainage Master Plan Contract FCD: 2006C028* July 2007

5 A Team Professional Associates, Inc. *Survey Report Manual for Palo Verde Area Drainage Master Plan Contract FCD:2006C02* July 2007

6 Wilson & Company Engineers and Architects *Palo Verde ADMP Mapping Survey Report 2008 Book 1 of 3* 5 June 2008

7 Wilson & Company Engineers and Architects *Palo Verde ADMP Mapping Survey Report 2008 Book 2 of 3* 5 June 2008

8 Wilson & Company Engineers and Architects *Palo Verde ADMP Mapping Survey Report 2008 Book 3 of 3* 5 June 2008

9 Flood Control District of Maricopa County *2 ft Contour Interval Mapping on NAVD 1988* (GIS Shapefile) 2007

10 Flood Control District of Maricopa County *10ft Contour Interval Mapping on NAVD 1988* (GIS Shapefile) circa 2000

11 Entellus, Inc. *Palo Verde Watershed Zone A Floodplain Delineation Study Technical Data Notebook* May 2003

12 Flood Control District of Maricopa County *Drainage Design Manual for Maricopa County, Hydraulics* June 2010

13 Phillips, J.V., and Tadayon, S., *Selection of Manning's Roughness Coefficient for Natural and Constructed Vegetated and Non-Vegetated Channels, and Vegetation Maintenance Plan Guidelines for Vegetated Channels in Central Arizona, U.S. Geological Survey Scientific Investigations Report 2006-5108, 2006.*

14 Engineering Alliance, Inc. *Palo Verde Watershed Zone A Flood Plain Delineation Study Box Culverts I-10* May 2003

15 Entellus, Inc. *Palo Verde Watershed Detailed Floodplain Delineation Study Hydrology Technical Data Notebook* June 2011

16 Entellus, Inc. *Palo Verde Watershed Detailed Floodplain Delineation Study – PMR Submittal, Hydraulics Technical Data Notebook* **August 2011, Updated November 2011**

APPENDIX B: GENERAL DOCUMENTATION AND CORRESPONDENCE

B.1 Meeting Minutes or Reports

B.2 General Correspondence

B.3 Contract Documents

B.4 Affidavit of Publication

B.5 Public Meeting Materials

B.1 Meeting Minutes or Reports

Information is not provided for this appendix.

B.2 General Correspondence

Information is not provided for this appendix.

B.3 Contract Documents

Time extension: This change order includes changes to several scope of work tasks and requires a 60 day time extension from the receipt of the change order to complete the work.

1.2 **Coordination Meetings:** The CONSULTANT should participate in 6 additional coordination meetings with the DISTRICTS Project Manager. The CONSULTANT is responsible for the minutes of these meetings. Draft meeting minutes must be prepared and delivered to the DISTRICT within 7 working days.

1.6- 1.9 (No change)

1.11-1.14 (No changes)

1.16 (no Change)

6.3 **Flood Zone:** Delineation of Floodways will be at the discretion of the District and may not be required depending on the wash configuration additionally the District may opt to use a flood Zone AO classification for some of the washes.

6.15 **FEMA FORMS:** No FEMA forms will be required.

8.2.2 No additional work for this task.

8.1a **Final Submittal for Washes T2N-R7W-32E and T2N-R6W-05W:** This task will consist of separating these two washes and providing Final Deliverables.

The following products are considered additional deliverables for the final submittal to the DISTRICT:

7.0a A digital deliverable will be required for these two washes. They will be submitted utilizing the same specifications and standards as described in Task 7 of the scope of work. THE ELECTRONIC DELIVERABLES WILL NOT INCLUDE A SEPARATE FILE THAT SHOWS THE EFFECTIVE FLOODZONES REMOVED.

8.1.1a Deliverable for the non-FEMA washes will include a title sheet, 2 index sheets, and 4 floodplain sheets. Two (2) complete sets of sealed blackline paper topographic maps with the floodplain/floodway delineations shown. All drawings will be signed and sealed by persons of appropriate professional registration(s). Each registrant will provide a specific statement as to what service they performed.

8.1.2a The delineation will be documented in a TDN including the Special Problems Section related to these washes. Two (2) complete printed copies of the Technical Data Notebook including HEC-RAS input/output files on paper and disks will be provided in the same manner as the PMR TDN submittal. The following will NOT be included in the TDN submittal – FEMA Forms; Annotated Map(s); HEC-1 information (Section 3 or Appendix D). A reference to the already submitted PMR TDN and the Hydrology TDN will be included in this submittal in Appendix A.

8.2.4a Additional generation to provide of two (2) electronic copies of the TDN report and the workmaps on CD's as PDF files. This CD will be included in Appendix F in the TDN.

B.4 Affidavit of Publication

Appendix not applicable.

B.5 Public Meeting Materials

Appendix not applicable.

APPENDIX C: SURVEY AND FIELD NOTES

The following is a list of survey and related reports used during the course of this study:

1. Entellus, Inc. Survey Data Supporting Documentation
2. Wilson & Company *Palo Verde ADMP Mapping Survey Report 2008 (Books 1 through 3)*
3. Engineering Alliance, Inc. *Box Culverts I-10 Palo Verde Watershed Zone A Floodplain Delineation Study*
4. Wilson & Company *Flood Control District of Maricopa County Mapping Services for Palo Verde Area Drainage Master Plan Technical Data*

NOTE: These items can be found in the Palo Verde Hydrology Technical Data Notebook (**Reference 15**). See Section 3 for further survey and mapping information.

APPENDIX D: HYDROLOGIC ANALYSIS SUPPORTING DOCUMENTATION

D.1 Modified 24-Hour, Without Levee, HEC-1 Model

D.2 Modified 6-Hour, Without Levee, HEC-1 Model

D.3 Controlling Flow Tables

D.4 Intermediate Modified 24-Hour, Without Levee, HEC-1 Model

D.5 Intermediate Modified 6-Hour, Without Levee, HEC-1 Model

D.6 Intermediate Modified 24-Hour, With Levee, HEC-1 Model

D.7 Intermediate Modified 6-Hour, With Levee, HEC-1 Model

Note: The hydrology information provided in this Appendix is to support the hydraulics portion of this TDN. The original hydrologic data submitted in the Palo Verde Hydrology Technical Data Notebook (**Reference 15**) was not modified to show these changes.

D.1 Modified 24-Hour, Without Levee, HEC-1 Model

See **Appendix F** for electronic HEC-1 files that support this Section. All supporting documentation for the split flow estimation can be found in **Appendix E**.

D.2 Modified 6-Hour, Without Levee, HEC-1 Model

This model was not included since the 24-hour flows controlled. See **Section 4** for further explanation.

D.3 Controlling Flow Tables

D.3.1 The following information was extracted from *Palo Verde Watershed Detailed Floodplain Delineation Study Hydrology Technical Data Notebook* (**Reference 15**). The table is in alphabetical order by HEC-1 ID.

D.3.2 Theses tables display the controlling flows for each wash independently.

D.3.1

The following information was extracted from *Palo Verde Watershed Detailed Floodplain Delineation Study Hydrology Technical Data Notebook* (**Reference 15**). The table is in alphabetical order by HEC-1 ID.

	with Levee							w/out Levee											
	6-HR		24-HR		CNTR-1			6-HR		24-HR		CNTR-2			CONTROL			
ID	FLOW	AREA	FLOW	AREA	MODEL	FLOW	AREA	FLOW	AREA	FLOW	AREA	MODEL	FLOW	AREA	ID	MODEL	FLOW	AREA
S930I	709	0.45	519	0.45	6-HR	709	0.45	709	0.45	519	0.45	6-HR	709	0.45	S930I	6-HR, with Levee	709	0.45
S930J	980	0.78	789	0.78	6-HR	980	0.78	980	0.78	789	0.78	6-HR	980	0.78	S930J	6-HR, with Levee	980	0.78
S935A	340	0.15	250	0.15	6-HR	340	0.15	340	0.15	250	0.15	6-HR	340	0.15	S935A	6-HR, with Levee	340	0.15
S940A	480	0.28	350	0.28	6-HR	480	0.28	480	0.28	350	0.28	6-HR	480	0.28	S940A	6-HR, with Levee	480	0.28
S940B	489	0.28	357	0.28	6-HR	489	0.28	489	0.28	357	0.28	6-HR	489	0.28	S940B	6-HR, with Levee	489	0.28
S940C	611	0.44	444	0.44	6-HR	611	0.44	611	0.44	444	0.44	6-HR	611	0.44	S940C	6-HR, with Levee	611	0.44
S940D	710	0.45	514	0.45	6-HR	710	0.45	710	0.45	514	0.45	6-HR	710	0.45	S940D	6-HR, with Levee	710	0.45
S940F	259	0.14	190	0.14	6-HR	259	0.14	259	0.14	190	0.14	6-HR	259	0.14	S940F	6-HR, with Levee	259	0.14
S940G	578	0.35	431	0.35	6-HR	578	0.35	578	0.35	431	0.35	6-HR	578	0.35	S940G	6-HR, with Levee	578	0.35
S940H	777	0.47	567	0.47	6-HR	777	0.47	777	0.47	567	0.47	6-HR	777	0.47	S940H	6-HR, with Levee	777	0.47
S940I	627	0.34	474	0.34	6-HR	627	0.34	627	0.34	474	0.34	6-HR	627	0.34	S940I	6-HR, with Levee	627	0.34
S940J	382	0.2	280	0.2	6-HR	382	0.2	382	0.2	280	0.2	6-HR	382	0.2	S940J	6-HR, with Levee	382	0.2
S940K	557	0.3	404	0.3	6-HR	557	0.3	557	0.3	404	0.3	6-HR	557	0.3	S940K	6-HR, with Levee	557	0.3
S940L	556	0.24	414	0.24	6-HR	556	0.24	556	0.24	414	0.24	6-HR	556	0.24	S940L	6-HR, with Levee	556	0.24
S940M	696	0.39	511	0.39	6-HR	696	0.39	696	0.39	511	0.39	6-HR	696	0.39	S940M	6-HR, with Levee	696	0.39
S940N	480	0.19	359	0.19	6-HR	480	0.19	480	0.19	359	0.19	6-HR	480	0.19	S940N	6-HR, with Levee	480	0.19
S940P	463	0.39	347	0.39	6-HR	463	0.39	463	0.39	347	0.39	6-HR	463	0.39	S940P	6-HR, with Levee	463	0.39
S940Q	716	0.61	545	0.61	6-HR	716	0.61	716	0.61	545	0.61	6-HR	716	0.61	S940Q	6-HR, with Levee	716	0.61
ENT900[2]	741	3.98	732	3.98	6-HR	741	3.98	741	3.98	732	3.98	6-HR	741	3.98	ENT900	6-HR, with Levee	741	3.98
ENT910[2]	831	10.44	977	10.44	24-HR	977	10.44	828	10.44	977	10.44	24-HR	977	10.44	ENT910	24-HR, with Levee	977	10.44
ENT135[2]	1,687	74.13	3,522	74.13	24-HR	3,522	74.13	1,983	65.21	3,506	65.21	24-HR	3,506	65.21	ENT135	24-HR, with Levee	3,522	74.13
ENT136[2]	310	54.87	496	54.87	24-HR	496	54.87	4,521	43.79	6,254	43.79	24-HR	6,254	43.79	ENT136	24-HR, w/out Levee	6,254	43.79
ENT175[2]	NO	NO	NO	NO	w/out Levee	0	0	4,821	41.87	6,589	41.87	24-HR	6,589	41.87	ENT175	24-HR, w/out Levee	6,589	41.87
ENT120[2]	394	55.24	688	55.24	24-HR	688	55.24	1,122	25.33	1,334	25.33	24-HR	1,334	25.33	ENT120	24-HR, w/out Levee	1,334	25.33
ENT700[2]	918	60.99	1,756	60.99	24-HR	1,756	60.99	4,468	25	5,877	25	24-HR	5,877	25	ENT700	24-HR, w/out Levee	5,877	25
ENT335[2]										2231	10.79	24-HR	2,231	10.79	ENT335	24-HR, w/out Levee	2,231	10.79
ENT770[1]										5,477	104.07	24-HR	5,477	104.07	ENT770	24-HR, w/out Levee	5,477	104.07
ENT750[2]	985	2.81	1,052	2.81	24-HR	1,052	2.81	762	38.79	977	38.79	24-HR	977	38.79	ENT750	24-HR, with Levee	1,052	2.81
ENT305[2]	649	1.45	564	1.45	6-HR	649	1.45	NO	NO	NO	NO	with Levee	0	0	ENT305	6-HR, with Levee	649	1.45
ENT306[2]	723	1.82	649	1.82	6-HR	723	1.82	NO	NO	NO	NO	with Levee	0	0	ENT306	6-HR, with Levee	723	1.82
ENT47O[2]	923	36.76	1,512	36.76	24-HR	1,512	36.76	NO	NO	NO	NO	with Levee	0	0	ENT47O	24-HR, with Levee	1,512	36.76
ENT701[2]	232	57.01	655	57.01	24-HR	655	57.01	683	10.85	910	10.85	24-HR	910	10.85	ENT701	24-HR, w/out Levee	910	10.85
ENT702[2]	928	38.63	1,526	38.63	24-HR	1,526	38.63	765	8.32	865	8.32	24-HR	865	8.32	ENT702	24-HR, with Levee	1,526	38.63
ENT215[2]	347	56	600	56	24-HR	600	56	1,253	9.7	1,360	9.7	24-HR	1,360	9.7	ENT215	24-HR, w/out Levee	1,360	9.7
ENT217[2]	293	57.76	534	57.76	24-HR	534	57.76	1,523	24.3	1,986	24.3	24-HR	1,986	24.3	ENT217	24-HR, w/out Levee	1,986	24.3
ENT218[2]	470	58.39	861	58.39	24-HR	861	58.39	1,996	24.93	2,515	24.93	24-HR	2,515	24.93	ENT218	24-HR, w/out Levee	2,515	24.93
ENT800[2]	289	78.72	565	78.72	24-HR	565	78.72	720	2.16	635	2.16	6-HR	720	2.16	ENT800	6-HR, w/out Levee	720	2.16
ENT801[2]	290	78.95	568	78.95	24-HR	568	78.95	722	2.39	644	2.39	6-HR	722	2.39	ENT801	6-HR, w/out Levee	722	2.39
ENT214[2]	NO	NO	NO	NO	w/out Levee	0	0	1,290	6.86	1,333	6.86	24-HR	1,333	6.86	ENT214	24-HR, w/out Levee	1,333	6.86
ENT751[2]	1,011	1.64	996	1.64	6-HR	1,011	1.64	1,011	1.64	996	1.64	6-HR	1,011	1.64	ENT751	6-HR, with Levee	1,011	1.64
ENT330[2]	NO	NO	NO	NO	w/out Levee	0	0	3,136	9.85	3,511	9.85	24-HR	3,511	9.85	ENT330	24-HR, w/out Levee	3,511	9.85
ENT336[2]	702	15.34	943	15.34	24-HR	943	15.34	3,579	12.51	4,197	12.51	24-HR	4,197	12.51	ENT336	24-HR, w/out Levee	4,197	12.51
ENT253[2]	456	59.01	852	59.01	24-HR	852	59.01	1,946	25.55	2,486	25.55	24-HR	2,486	25.55	ENT253	24-HR, w/out Levee	2,486	25.55
C180F2[2]	766	5.41	763	5.41	6-HR	766	5.41	NO	NO	NO	NO	with Levee	0	0	C180F2	6-HR, with Levee	766	5.41
ENT703[2]	1,547	18.49	1,684	18.49	24-HR	1,684	18.49	2,407	8.32	2,702	8.32	24-HR	2,702	8.32	ENT703	24-HR, w/out Levee	2,702	8.32
ENT340[2]	361	14.5	580	14.5	24-HR	580	14.5	1,693	4.33	1,713	4.33	24-HR	1,713	4.33	ENT340	24-HR, w/out Levee	1,713	4.33
ENT341[2]	684	1.3	598	1.3	6-HR	684	1.3	705	1.3	614	1.3	6-HR	705	1.3	ENT341	6-HR, w/out Levee	705	1.3
ENT337[2]	744	32.29	1,093	32.29	24-HR	1,093	32.29	1,895	12.51	2,237	12.51	24-HR	2,237	12.51	ENT337	24-HR, w/out Levee	2,237	12.51
ENT752[2]	403	1.25	377	1.25	6-HR	403	1.25	403	1.25	377	1.25	6-HR	403	1.25	ENT752	6-HR, with Levee	403	1.25
ENT121[2]	638	59.25	1,255	59.25	24-HR	1,255	59.25	1,902	49.34	2,696	49.34	24-HR	2,696	49.34	ENT121	24-HR, w/out Levee	2,696	49.34
ENT720[1]										342	36.99	24-HR	342	36.99	ENT720	24-HR, w/out Levee	342	36.99
ENT760[1]										5,516	100.81	24-HR	5,516	100.81	ENT760	24-HR, w/out Levee	5,516	100.81
DEN1DR[1]										1321	36.36	24-HR	1,321	36.36	DEN1DR	24-HR, w/out Levee	1,321	36.36

[1] Flow is taken from the "modified hydrology model"

[2] Flow is taken from the "intermediate modified hydrology models"

	with Levee							w/out Levee										
	6-HR		24-HR		CNTR-1			6-HR		24-HR		CNTR-2			CONTROL			
ID	FLOW	AREA	FLOW	AREA	MODEL	FLOW	AREA	FLOW	AREA	FLOW	AREA	MODEL	FLOW	AREA	ID	MODEL	FLOW	AREA
C100B	528	1.32	429	1.32	6-HR	528	1.32	NO	NO	NO	NO	with Levee	0	0	C100B	6-HR, with Levee	528	1.32
C100C	600	2	607	2	24-HR	607	2	690	1.22	611	1.22	6-HR	690	1.22	C100C	6-HR, w/out Levee	690	1.22
C100O	391	6.22	404	6.22	24-HR	404	6.22	NO	NO	NO	NO	with Levee	0	0	C100O	24-HR, with Levee	404	6.22
C115	4,918	21.87	5,850	21.87	24-HR	5,850	21.87	4,918	21.88	5,850	21.88	24-HR	5,850	21.88	C115	24-HR, with Levee	5,850	21.88
C120A	302	53.37	438	53.37	24-HR	438	53.37	1,150	2.19	1,085	2.19	6-HR	1,150	2.19	C120A	6-HR, w/out Levee	1,150	2.19
C120B	NO	NO	NO	NO	w/out Levee	0	0	557	0.86	453	0.86	6-HR	557	0.86	C120B	6-HR, w/out Levee	557	0.86
C120C	302	53.52	357	53.52	24-HR	357	53.52	1,077	2.34	997	2.34	6-HR	1,077	2.34	C120C	6-HR, w/out Levee	1,077	2.34
C120D	302	55.11	357	55.11	24-HR	357	55.11	1,001	2.5	928	2.5	6-HR	1,001	2.5	C120D	6-HR, w/out Levee	1,001	2.5
C120E	512	1.43	418	1.43	6-HR	512	1.43	NO	NO	NO	NO	with Levee	0	0	C120E	6-HR, with Levee	512	1.43
C120F	442	0.52	324	0.52	6-HR	442	0.52	363	1.28	321	1.28	6-HR	363	1.28	C120F	6-HR, with Levee	442	0.52
C120G	501	0.87	376	0.87	6-HR	501	0.87	457	1.63	374	1.63	6-HR	457	1.63	C120G	6-HR, with Levee	501	0.87
C120H	576	57.11	797	57.11	24-HR	797	57.11	1,105	5.15	1,139	5.15	24-HR	1,139	5.15	C120H	24-HR, w/out Levee	1,139	5.15
C120I	416	58.37	793	58.37	24-HR	793	58.37	1,036	6.41	1,075	6.41	24-HR	1,075	6.41	C120I	24-HR, w/out Levee	1,075	6.41
C120J	638	59.38	1,401	59.38	24-HR	1,401	59.38	1,270	7.42	1,644	7.42	24-HR	1,644	7.42	C120J	24-HR, w/out Levee	1,644	7.42
C120L	425	0.75	316	0.75	6-HR	425	0.75	425	0.75	316	0.75	6-HR	425	0.75	C120L	6-HR, with Levee	425	0.75
C120N	523	1.5	493	1.5	6-HR	523	1.5	595	1.5	531	1.5	6-HR	595	1.5	C120N	6-HR, w/out Levee	595	1.5
C120O	366	1.96	326	1.96	6-HR	366	1.96	434	1.96	391	1.96	6-HR	434	1.96	C120O	6-HR, w/out Levee	434	1.96
C120P	434	54.23	766	54.23	24-HR	766	54.23	1,189	24.33	1,400	24.33	24-HR	1,400	24.33	C120P	24-HR, w/out Levee	1,400	24.33
C120Q	424	54.77	726	54.77	24-HR	726	54.77	1,147	24.87	1,360	24.87	24-HR	1,360	24.87	C120Q	24-HR, w/out Levee	1,360	24.87
C125	1,258	23.04	1,488	23.04	24-HR	1,488	23.04	1,258	23.04	1,488	23.04	24-HR	1,488	23.04	C125	24-HR, with Levee	1,488	23.04
C125T	1,257	24.81	1,732	24.81	24-HR	1,732	24.81	NO	NO	NO	NO	with Levee	0	0	C125T	24-HR, with Levee	1,732	24.81
C135	4,496	30.59	5,681	30.59	24-HR	5,681	30.59	4,496	30.59	5,681	30.59	24-HR	5,681	30.59	C135	24-HR, with Levee	5,681	30.59
C135A	311	53.65	383	53.65	24-HR	383	53.65	4,798	42.57	6,589	42.57	24-HR	6,589	42.57	C135A	24-HR, w/out Levee	6,589	42.57
C135B	202	54.22	342	54.22	24-HR	342	54.22	1,997	43.14	2,849	43.14	24-HR	2,849	43.14	C135B	24-HR, w/out Levee	2,849	43.14
C135C	310	54.41	467	54.41	24-HR	467	54.41	4,635	43.33	6,379	43.33	24-HR	6,379	43.33	C135C	24-HR, w/out Levee	6,379	43.33
C135CL	210	53.83	247	53.83	24-HR	247	53.83	2,662	42.75	3,562	42.75	24-HR	3,562	42.75	C135CL	24-HR, w/out Levee	3,562	42.75
C135D	618	56.7	1,023	56.7	24-HR	1,023	56.7	5,046	46.77	6,965	46.77	24-HR	6,965	46.77	C135D	24-HR, w/out Levee	6,965	46.77
C135E	938	65.68	1,955	65.68	24-HR	1,955	65.68	2,046	65.68	3,303	65.68	24-HR	3,303	65.68	C135E	24-HR, w/out Levee	3,303	65.68
C135EL	576	57.29	1,001	57.29	24-HR	1,001	57.29	1,846	47.38	2,545	47.38	24-HR	2,545	47.38	C135EL	24-HR, w/out Levee	2,545	47.38
C135F[1]										3,916	59.72	24-HR	3,916	59.72	C135F	24-HR, w/out Levee	3,916	59.72
C135G	1,635	72.23	3,445	72.23	24-HR	3,445	72.23	2,046	63.3	3,412	63.3	24-HR	3,412	63.3	C135G	24-HR, with Levee	3,445	72.23
C135I	1,576	2.25	1,646	2.25	24-HR	1,646	2.25	1,576	2.25	1,646	2.25	24-HR	1,646	2.25	C135I	24-HR, with Levee	1,646	2.25
C135K	1,821	76.6	3,780	76.6	24-HR	3,780	76.6	1,954	67.67	3,778	67.67	24-HR	3,778	67.67	C135K	24-HR, with Levee	3,780	76.6
C135M[1]										3,697	68.08	24-HR	3,697	68.08	C135M	24-HR, w/out Levee	3,697	68.08
C135T	4,554	55.39	6,445	55.39	24-HR	6,445	55.39	NO	NO	NO	NO	with Levee	0	0	C135T	24-HR, with Levee	6,445	55.39
C136B[1]										4,302	47.7	24-HR	4,302	47.7	C136B	24-HR, w/out Levee	4,302	47.7
C136C	478	0.34	332	0.34	6-HR	478	0.34	NO	NO	NO	NO	with Levee	0	0	C136C	6-HR, with Levee	478	0.34
C136D[1]										4,305	48.78	24-HR	4,305	48.78	C136D	24-HR, w/out Levee	4,305	48.78
C136DL	609	1.15	513	1.15	6-HR	609	1.15	617	1.08	514	1.08	6-HR	617	1.08	C136DL	6-HR, w/out Levee	617	1.08
C136E	518	59.22	995	59.22	24-HR	995	59.22	3,069	49.31	4,302	49.31	24-HR	4,302	49.31	C136E	24-HR, w/out Levee	4,302	49.31
C145	2,070	3.83	1,892	3.83	6-HR	2,070	3.83	2,070	3.83	1,892	3.83	6-HR	2,070	3.83	C145	6-HR, with Levee	2,070	3.83
C150	777	4.01	676	4.01	6-HR	777	4.01	777	4.01	676	4.01	6-HR	777	4.01	C150	6-HR, with Levee	777	4.01
C155	651	4.65	660	4.65	24-HR	660	4.65	651	4.65	660	4.65	24-HR	660	4.65	C155	24-HR, with Levee	660	4.65
C165	2,423	8.61	2,556	8.61	24-HR	2,556	8.61	2,423	8.61	2,556	8.61	24-HR	2,556	8.61	C165	24-HR, with Levee	2,556	8.61
C165I	NO	NO	NO	NO	w/out Levee	0	0	1,612	4.65	1,559	4.65	6-HR	1,612	4.65	C165I	6-HR, w/out Levee	1,612	4.65
C170	1,262	9.97	1,472	9.97	24-HR	1,472	9.97	1,263	9.97	1,472	9.97	24-HR	1,472	9.97	C170	24-HR, with Levee	1,472	9.97
C175	1,376	11.28	1,555	11.28	24-HR	1,555	11.28	1,376	11.28	1,555	11.28	24-HR	1,555	11.28	C175	24-HR, with Levee	1,555	11.28
C175C	236	1.35	219	1.35	6-HR	236	1.35	NO	NO	NO	NO	with Levee	0	0	C175C	6-HR, with Levee	236	1.35
C175D	605	61.1	1,237	61.1	24-HR	1,237	61.1	3,038	51.72	4,308	51.72	24-HR	4,308	51.72	C175D	24-HR, w/out Levee	4,308	51.72
C175DL	727	1.89	678	1.89	6-HR	727	1.89	708	2.4	680	2.4	6-HR	708	2.4	C175DL	6-HR, with Levee	727	1.89
C175T	5,529	44.8	7,565	44.8	24-HR	7,565	44.8	NO	NO	NO	NO	with Levee	0	0	C175T	24-HR, with Levee	7,565	44.8
C180	2,362	11.9	2,672	11.9	24-HR	2,672	11.9	2,362	11.9	2,673	11.9	24-HR	2,673	11.9	C180	24-HR, w/out Levee	2,673	11.9
C180A	NO	NO	NO	NO	w/out Levee	0	0	2,345	12.33	2,609	12.33	24-HR	2,609	12.33	C180A	24-HR, w/out Levee	2,609	12.33
C180B	991	1.71	902	1.71	6-HR	991	1.71	1,023	13.61	1,133	13.61	24-HR	1,133	13.61	C180B	24-HR, w/out Levee	1,133	13.61

[1] Flow is taken from the "modified hydrology model"

[2] Flow is taken from the "intermediate modified hydrology models"

	with Levee							w/out Levee											
	6-HR		24-HR		CNTR-1			6-HR		24-HR		CNTR-2			CONTROL			
ID	FLOW	AREA	FLOW	AREA	MODEL	FLOW	AREA	FLOW	AREA	FLOW	AREA	MODEL	FLOW	AREA	ID	MODEL	FLOW	AREA
C180C	1,099	2.86	1,038	2.86	6-HR	1,099	2.86	1,427	15.7	1,614	15.7	24-HR	1,614	15.7	C180C	24-HR, w/out Levee	1,614	15.7
C180CR	1,027	2.07	931	2.07	6-HR	1,027	2.07	1,006	13.97	1,118	13.97	24-HR	1,118	13.97	C180CR	24-HR, w/out Levee	1,118	13.97
C180D	510	0.86	375	0.86	6-HR	510	0.86	1,623	13.7	1,863	13.7	24-HR	1,863	13.7	C180D	24-HR, w/out Levee	1,863	13.7
C180E	323	1.22	282	1.22	6-HR	323	1.22	454	14.06	520	14.06	24-HR	520	14.06	C180E	24-HR, w/out Levee	520	14.06
C180F	766	4.05	763	4.05	6-HR	766	4.05	613	16.89	748	16.89	24-HR	748	16.89	C180F	6-HR, with Levee	766	4.05
C180G	249	5.68	277	5.68	24-HR	277	5.68	NO	NO	NO	NO	with Levee	0	0	C180G	24-HR, with Levee	277	5.68
C180H	718	5.99	765	5.99	24-HR	765	5.99	603	17.47	785	17.47	24-HR	785	17.47	C180H	24-HR, w/out Levee	785	17.47
C180I	711	6.26	754	6.26	24-HR	754	6.26	593	17.74	773	17.74	24-HR	773	17.74	C180I	24-HR, w/out Levee	773	17.74
C180J[1]										4,566	61.09	24-HR	4,566	61.09	C180J	24-HR, w/out Levee	4,566	61.09
C180T	6,462	48.09	8,893	48.09	24-HR	8,893	48.09	NO	NO	NO	NO	with Levee	0	0	C180T	24-HR, with Levee	8,893	48.09
C185	6,428	49.03	8,891	49.03	24-HR	8,891	49.03	NO	NO	NO	NO	with Levee	0	0	C185	24-HR, with Levee	8,891	49.03
C195	1,457	3.11	1,386	3.11	6-HR	1,457	3.11	1,457	3.11	1,386	3.11	6-HR	1,457	3.11	C195	6-HR, with Levee	1,457	3.11
C199	949	3.91	872	3.91	6-HR	949	3.91	949	3.92	872	3.92	6-HR	949	3.92	C199	6-HR, with Levee	949	3.92
C199A	349	53.23	395	53.23	24-HR	395	53.23	915	4.2	829	4.2	6-HR	915	4.2	C199A	6-HR, w/out Levee	915	4.2
C199B	349	55.61	395	55.61	24-HR	395	55.61	917	9.31	971	9.31	24-HR	971	9.31	C199B	24-HR, w/out Levee	971	9.31
C199BR	349	53.81	395	53.81	24-HR	395	53.81	876	4.79	791	4.79	6-HR	876	4.79	C199BR	6-HR, w/out Levee	876	4.79
C199O	1,277	52.94	1,485	52.94	24-HR	1,485	52.94	NO	NO	NO	NO	with Levee	0	0	C199O	24-HR, with Levee	1,485	52.94
C199T	6,501	52.94	9,156	52.94	24-HR	9,156	52.94	NO	NO	NO	NO	with Levee	0	0	C199T	24-HR, with Levee	9,156	52.94
C205	4,122	8.65	4,638	8.65	24-HR	4,638	8.65	4,122	8.65	4,638	8.65	24-HR	4,638	8.65	C205	24-HR, with Levee	4,638	8.65
C210	2,987	9.49	3,253	9.49	24-HR	3,253	9.49	2,987	9.49	3,253	9.49	24-HR	3,253	9.49	C210	24-HR, with Levee	3,253	9.49
C215	1,381	5.84	1,393	5.84	24-HR	1,393	5.84	1,381	5.84	1,393	5.84	24-HR	1,393	5.84	C215	24-HR, with Levee	1,393	5.84
C215B	1,080	1.8	973	1.8	6-HR	1,080	1.8	1,293	7.63	1,365	7.63	24-HR	1,365	7.63	C215B	24-HR, w/out Levee	1,365	7.63
C215D	347	56.86	600	56.86	24-HR	600	56.86	1,866	23.4	2,345	23.4	24-HR	2,345	23.4	C215D	24-HR, w/out Levee	2,345	23.4
C215DL	347	55.61	480	55.61	24-HR	480	55.61	1,264	9.31	1,360	9.31	24-HR	1,360	9.31	C215DL	24-HR, w/out Levee	1,360	9.31
C215E	596	59.48	626	59.48	24-HR	626	59.48	940	26.02	1,128	26.02	24-HR	1,128	26.02	C215E	24-HR, w/out Levee	1,128	26.02
C215F	349	62.68	610	62.68	24-HR	610	62.68	919	26.4	1,114	26.4	24-HR	1,114	26.4	C215F	24-HR, w/out Levee	1,114	26.4
C215G	333	63.24	592	63.24	24-HR	592	63.24	894	26.96	1,090	26.96	24-HR	1,090	26.96	C215G	24-HR, w/out Levee	1,090	26.96
C215H[1]										5,091	73.47	24-HR	5,091	73.47	C215H	24-HR, w/out Levee	5,091	73.47
C215HL	422	64.66	782	64.66	24-HR	782	64.66	613	29.85	834	29.85	24-HR	834	29.85	C215HL	24-HR, w/out Levee	834	29.85
C215I	956	73.04	2,157	73.04	24-HR	2,157	73.04	3,510	74	5,306	74	24-HR	5,306	74	C215I	24-HR, w/out Levee	5,306	74
C216B	531	0.72	418	0.72	6-HR	531	0.72	531	0.72	418	0.72	6-HR	531	0.72	C216B	6-HR, with Levee	531	0.72
C216C	756	1.28	612	1.28	6-HR	756	1.28	756	1.28	612	1.28	6-HR	756	1.28	C216C	6-HR, with Levee	756	1.28
C217A	546	57.76	912	57.76	24-HR	912	57.76	2,062	24.3	2,627	24.3	24-HR	2,627	24.3	C217A	24-HR, w/out Levee	2,627	24.3
C217B	476	58.78	872	58.78	24-HR	872	58.78	1,983	25.32	2,512	25.32	24-HR	2,512	25.32	C217B	24-HR, w/out Levee	2,512	25.32
C220	2,312	11.21	2,519	11.21	24-HR	2,519	11.21	2,312	11.21	2,519	11.21	24-HR	2,519	11.21	C220	24-HR, with Levee	2,519	11.21
C225	2,655	14.23	2,936	14.23	24-HR	2,936	14.23	2,655	14.23	2,936	14.23	24-HR	2,936	14.23	C225	24-HR, with Levee	2,936	14.23
C225A	297	29.8	333	29.8	24-HR	333	29.8	2,616	14.51	2,888	14.51	24-HR	2,888	14.51	C225A	24-HR, w/out Levee	2,888	14.51
C225B	184	30.33	315	30.33	24-HR	315	30.33	1,078	15.03	1,185	15.03	24-HR	1,185	15.03	C225B	24-HR, w/out Levee	1,185	15.03
C225C	322	31.18	539	31.18	24-HR	539	31.18	1,047	15.89	1,143	15.89	24-HR	1,143	15.89	C225C	24-HR, w/out Levee	1,143	15.89
C225D	411	31.71	642	31.71	24-HR	642	31.71	1,015	16.42	1,115	16.42	24-HR	1,115	16.42	C225D	24-HR, w/out Levee	1,115	16.42
C225E	410	32.34	657	32.34	24-HR	657	32.34	985	17.04	1,096	17.04	24-HR	1,096	17.04	C225E	24-HR, w/out Levee	1,096	17.04
C225F	250	31.63	412	31.63	24-HR	412	31.63	1,330	16.33	1,485	16.33	24-HR	1,485	16.33	C225F	24-HR, w/out Levee	1,485	16.33
C225FL	129	31.2	208	31.2	24-HR	208	31.2	393	15.9	445	15.9	24-HR	445	15.9	C225FL	24-HR, w/out Levee	445	15.9
C225T	3,321	20.06	3,867	20.06	24-HR	3,867	20.06	NO	NO	NO	NO	with Levee	0	0	C225T	24-HR, with Levee	3,867	20.06
C226A	241	30.12	437	30.12	24-HR	437	30.12	1,485	14.82	1,639	14.82	24-HR	1,639	14.82	C226A	24-HR, w/out Levee	1,639	14.82
C226B	289	30.88	445	30.88	24-HR	445	30.88	1,412	15.58	1,574	15.58	24-HR	1,574	15.58	C226B	24-HR, w/out Levee	1,574	15.58
C226BR	232	30.72	353	30.72	24-HR	353	30.72	1,413	15.42	1,574	15.42	24-HR	1,574	15.42	C226BR	24-HR, w/out Levee	1,574	15.42
C226D	230	31.03	349	31.03	24-HR	349	31.03	983	15.73	1,082	15.73	24-HR	1,082	15.73	C226D	24-HR, w/out Levee	1,082	15.73
C226E	201	31.31	308	31.31	24-HR	308	31.31	951	16.01	1,047	16.01	24-HR	1,047	16.01	C226E	24-HR, w/out Levee	1,047	16.01
C226F	299	31.95	448	31.95	24-HR	448	31.95	1,303	16.66	1,458	16.66	24-HR	1,458	16.66	C226F	24-HR, w/out Levee	1,458	16.66
C235	1,740	17.04	1,985	17.04	24-HR	1,985	17.04	1,740	17.04	1,985	17.04	24-HR	1,985	17.04	C235	24-HR, with Levee	1,985	17.04
C235A	314	29.64	347	29.64	24-HR	347	29.64	1,732	17.16	1,974	17.16	24-HR	1,974	17.16	C235A	24-HR, w/out Levee	1,974	17.16
C235B	266	30.36	438	30.36	24-HR	438	30.36	427	17.88	513	17.88	24-HR	513	17.88	C235B	24-HR, w/out Levee	513	17.88
C235C	431	30.78	734	30.78	24-HR	734	30.78	1,650	18.3	1,899	18.3	24-HR	1,899	18.3	C235C	24-HR, w/out Levee	1,899	18.3

[1] Flow is taken from the "modified hydrology model"

[2] Flow is taken from the "intermediate modified hydrology models"

	with Levee							w/out Levee											
	6-HR		24-HR		CNTR-1			6-HR		24-HR		CNTR-2			CONTROL			
ID	FLOW	AREA	FLOW	AREA	MODEL	FLOW	AREA	FLOW	AREA	FLOW	AREA	MODEL	FLOW	AREA	ID	MODEL	FLOW	AREA
C235CL	296	30.05	324	30.05	24-HR	324	30.05	1,244	17.57	1,393	17.57	24-HR	1,393	17.57	C235CL	24-HR, w/out Levee	1,393	17.57
C235D	384	31.36	687	31.36	24-HR	687	31.36	1,614	18.88	1,848	18.88	24-HR	1,848	18.88	C235D	24-HR, w/out Levee	1,848	18.88
C235E	333	31.58	590	31.58	24-HR	590	31.58	1,572	19.1	1,810	19.1	24-HR	1,810	19.1	C235E	24-HR, w/out Levee	1,810	19.1
C235T	4,594	25.89	5,619	25.89	24-HR	5,619	25.89	NO	NO	NO	NO	with Levee	0	0	C235T	24-HR, with Levee	5,619	25.89
C240	1,338	4.68	1,353	4.68	24-HR	1,353	4.68	1,338	4.68	1,353	4.68	24-HR	1,353	4.68	C240	24-HR, with Levee	1,353	4.68
C240A	NO	NO	NO	NO	w/out Levee	0	0	1,296	4.95	1,287	4.95	6-HR	1,296	4.95	C240A	6-HR, w/out Levee	1,296	4.95
C240B	521	1.12	438	1.12	6-HR	521	1.12	1,242	5.8	1,255	5.8	24-HR	1,255	5.8	C240B	24-HR, w/out Levee	1,255	5.8
C240T	5,301	26.63	6,583	26.63	24-HR	6,583	26.63	NO	NO	NO	NO	with Levee	0	0	C240T	24-HR, with Levee	6,583	26.63
C250	5,283	28	6,630	28	24-HR	6,630	28	NO	NO	NO	NO	with Levee	0	0	C250	24-HR, with Levee	6,630	28
C250B	529	0.99	395	0.99	6-HR	529	0.99	529	0.99	395	0.99	6-HR	529	0.99	C250B	6-HR, with Levee	529	0.99
C250C	492	34.42	847	34.42	24-HR	847	34.42	2,404	22.68	2,910	22.68	24-HR	2,910	22.68	C250C	24-HR, w/out Levee	2,910	22.68
C250CL	478	2.84	503	2.84	24-HR	503	2.84	1,215	7.52	1,286	7.52	24-HR	1,286	7.52	C250CL	24-HR, w/out Levee	1,286	7.52
C250D	480	34.69	819	34.69	24-HR	819	34.69	2,373	22.95	2,886	22.95	24-HR	2,886	22.95	C250D	24-HR, w/out Levee	2,886	22.95
C250F	340	1.38	272	1.38	6-HR	340	1.38	379	1.38	300	1.38	6-HR	379	1.38	C250F	6-HR, w/out Levee	379	1.38
C250H	385	31.3	623	31.3	24-HR	623	31.3	1,617	4.53	1,600	4.53	6-HR	1,617	4.53	C250H	6-HR, w/out Levee	1,617	4.53
C250HI	325	0.64	250	0.64	6-HR	325	0.64	NO	NO	NO	NO	with Levee	0	0	C250HI	6-HR, with Levee	325	0.64
C251	320	1.14	302	1.14	6-HR	320	1.14	1,258	2.52	1,300	2.52	24-HR	1,300	2.52	C251	24-HR, w/out Levee	1,300	2.52
C251A	330	29.69	362	29.69	24-HR	362	29.69	1,225	2.69	1,170	2.69	6-HR	1,225	2.69	C251A	6-HR, w/out Levee	1,225	2.69
C251B	265	29.77	283	29.77	24-HR	283	29.77	554	2.77	524	2.77	6-HR	554	2.77	C251B	6-HR, w/out Levee	554	2.77
C251C	265	29.99	283	29.99	24-HR	283	29.99	501	2.99	476	2.99	6-HR	501	2.99	C251C	6-HR, w/out Levee	501	2.99
C251I	NO	NO	NO	NO	w/out Levee	0	0	1,180	2.36	1,249	2.36	24-HR	1,249	2.36	C251I	24-HR, w/out Levee	1,249	2.36
C251T	5,254	29.14	6,630	29.14	24-HR	6,630	29.14	NO	NO	NO	NO	with Levee	0	0	C251T	24-HR, with Levee	6,630	29.14
C252	755	0.98	594	0.98	6-HR	755	0.98	755	0.98	594	0.98	6-HR	755	0.98	C252	6-HR, with Levee	755	0.98
C253	788	1.36	739	1.36	6-HR	788	1.36	788	1.36	739	1.36	6-HR	788	1.36	C253	6-HR, with Levee	788	1.36
C253A	170	29.97	307	29.97	24-HR	307	29.97	1,262	3.34	1,224	3.34	6-HR	1,262	3.34	C253A	6-HR, w/out Levee	1,262	3.34
C253AI	NO	NO	NO	NO	w/out Levee	0	0	1,165	3.07	1,139	3.07	6-HR	1,165	3.07	C253AI	6-HR, w/out Levee	1,165	3.07
C253B	194	30.09	303	30.09	24-HR	303	30.09	1,215	3.46	1,189	3.46	6-HR	1,215	3.46	C253B	6-HR, w/out Levee	1,215	3.46
C253C	328	30.51	462	30.51	24-HR	462	30.51	1,491	3.89	1,445	3.89	6-HR	1,491	3.89	C253C	6-HR, w/out Levee	1,491	3.89
C253CL	202	30.22	301	30.22	24-HR	301	30.22	1,086	3.59	1,024	3.59	6-HR	1,086	3.59	C253CL	6-HR, w/out Levee	1,086	3.59
C253F	513	32.32	809	32.32	24-HR	809	32.32	485	1.02	384	1.02	6-HR	485	1.02	C253F	24-HR, with Levee	809	32.32
C253G	492	32.51	774	32.51	24-HR	774	32.51	1,691	5.75	1,798	5.75	24-HR	1,798	5.75	C253G	24-HR, w/out Levee	1,798	5.75
C253I	1,005	38.72	1,736	38.72	24-HR	1,736	38.72	2,978	29.87	3,968	29.87	24-HR	3,968	29.87	C253I	24-HR, w/out Levee	3,968	29.87
C253II	575	33.89	942	33.89	24-HR	942	33.89	1,748	7.13	1,978	7.13	24-HR	1,978	7.13	C253II	24-HR, w/out Levee	1,978	7.13
C253IL	590	34.53	983	34.53	24-HR	983	34.53	1,745	7.91	2,034	7.91	24-HR	2,034	7.91	C253IL	24-HR, w/out Levee	2,034	7.91
C253J	1,090	41.49	1,946	41.49	24-HR	1,946	41.49	3,680	35.66	5,059	35.66	24-HR	5,059	35.66	C253J	24-HR, w/out Levee	5,059	35.66
C253JL	986	39.06	1,721	39.06	24-HR	1,721	39.06	2,953	30.22	3,955	30.22	24-HR	3,955	30.22	C253JL	24-HR, w/out Levee	3,955	30.22
C253K	1,167	44.31	2,170	44.31	24-HR	2,170	44.31	4,293	38.47	5,999	38.47	24-HR	5,999	38.47	C253K	24-HR, w/out Levee	5,999	38.47
C253KL	1,071	41.77	1,934	41.77	24-HR	1,934	41.77	3,637	35.94	5,027	35.94	24-HR	5,027	35.94	C253KL	24-HR, w/out Levee	5,027	35.94
C253L	1,047	101.09	2,673	101.09	24-HR	2,673	101.09	4,875	64.91	7,905	64.91	24-HR	7,905	64.91	C253L	24-HR, w/out Levee	7,905	64.91
C253LL	1,045	103.31	2,658	100.2	24-HR	2,658	100.2	4,898	64.02	7,905	64.02	24-HR	7,905	64.02	C253LL	24-HR, w/out Levee	7,905	64.02
C253M	1,047	101.58	2,670	101.58	24-HR	2,670	101.58	4,850	65.4	7,898	65.4	24-HR	7,898	65.4	C253M	24-HR, w/out Levee	7,898	65.4
C253N	1,068	104.65	2,817	104.65	24-HR	2,817	104.65	4,753	68.46	7,890	68.46	24-HR	7,890	68.46	C253N	24-HR, w/out Levee	7,890	68.46
C253O	136	0.65	104	0.65	6-HR	136	0.65	136	0.65	104	0.65	6-HR	136	0.65	C253O	6-HR, with Levee	136	0.65
C253O	136	0.65	104	0.65	6-HR	136	0.65	136	0.65	104	0.65	6-HR	136	0.65	C253O	6-HR, with Levee	136	0.65
C253P	112	0.89	91	0.89	6-HR	112	0.89	112	0.89	91	0.89	6-HR	112	0.89	C253P	6-HR, with Levee	112	0.89
C253Q	419	1.95	395	1.95	6-HR	419	1.95	419	1.95	395	1.95	6-HR	419	1.95	C253Q	6-HR, with Levee	419	1.95
C253S[1]										11,133	120.06	24-HR	11,133	120.06	C253S	24-HR, w/out Levee	11,133	120.06
C253T	5,229	29.52	6,664	29.52	24-HR	6,664	29.52	NO	NO	NO	NO	with Levee	0	0	C253T	24-HR, with Levee	6,664	29.52
C253U[1]										11,102	121.55	24-HR	11,102	121.55	C253U	24-HR, w/out Levee	11,102	121.55
C253X[1]										13,443	142.92	24-HR	13,443	142.92	C253X	24-HR, w/out Levee	13,443	142.92
C253Y	835	147.68	2,033	147.68	24-HR	2,033	147.68	1,012	146.9	2,034	146.9	24-HR	2,034	146.9	C253Y	24-HR, w/out Levee	2,034	146.9
C253Z	724	148.06	1,600	148.06	24-HR	1,600	148.06	999	147.28	1,843	147.28	24-HR	1,843	147.28	C253Z	24-HR, w/out Levee	1,843	147.28
C305	2,456	6.26	2,728	6.26	24-HR	2,728	6.26	2,456	6.26	2,728	6.26	24-HR	2,728	6.26	C305	24-HR, with Levee	2,728	6.26
C305C	748	1.63	665	1.63	6-HR	748	1.63	345	0.4	249	0.4	6-HR	345	0.4	C305C	6-HR, with Levee	748	1.63

[1] Flow is taken from the "modified hydrology model"

[2] Flow is taken from the "intermediate modified hydrology models"

	with Levee							w/out Levee								CONTROL			
	6-HR		24-HR		CNTR-1			6-HR		24-HR		CNTR-2							
ID	FLOW	AREA	FLOW	AREA	MODEL	FLOW	AREA	FLOW	AREA	FLOW	AREA	MODEL	FLOW	AREA	ID	MODEL	FLOW	AREA
C305E	NO	NO	NO	NO	w/out Levee	0	0	253	0.39	183	0.39	6-HR	253	0.39	C305E	6-HR, w/out Levee	253	0.39
C315	1,121	2.33	1,206	2.33	24-HR	1,206	2.33	1,121	2.33	1,206	2.33	24-HR	1,206	2.33	C315	24-HR, with Levee	1,206	2.33
C320	965	1.41	891	1.41	6-HR	965	1.41	965	1.41	891	1.41	6-HR	965	1.41	C320	6-HR, with Levee	965	1.41
C325	1,053	1.78	974	1.78	6-HR	1,053	1.78	1,053	1.78	974	1.78	6-HR	1,053	1.78	C325	6-HR, with Levee	1,053	1.78
C330	1,236	3.59	1,315	3.59	24-HR	1,315	3.59	1,236	3.59	1,315	3.59	24-HR	1,315	3.59	C330	24-HR, with Levee	1,315	3.59
C330A	119	13.14	156	13.14	24-HR	156	13.14	3,152	9.99	3,548	9.99	24-HR	3,548	9.99	C330A	24-HR, w/out Levee	3,548	9.99
C330B	144	13.42	234	13.42	24-HR	234	13.42	1,019	10.26	1,179	10.26	24-HR	1,179	10.26	C330B	24-HR, w/out Levee	1,179	10.26
C330C	224	13.77	325	13.77	24-HR	325	13.77	988	10.62	1,128	10.62	24-HR	1,128	10.62	C330C	24-HR, w/out Levee	1,128	10.62
C330T	3,257	9.85	3,748	9.85	24-HR	3,748	9.85	NO	NO	NO	NO	with Levee	0	0	C330T	24-HR, with Levee	3,748	9.85
C335	953	2.11	850	2.11	6-HR	953	2.11	953	2.11	850	2.11	6-HR	953	2.11	C335	6-HR, with Levee	953	2.11
C335A	NO	NO	NO	NO	w/out Levee	0	0	997	2.39	873	2.39	6-HR	997	2.39	C335A	6-HR, w/out Levee	997	2.39
C335C[2]										2,502	11.18	24-HR	2,502	11.18	C335C2	24-HR, w/out Levee	2,502	11.18
C335D[2]										2,423	11.44	24-HR	2,423	11.44	C335D2	24-HR, w/out Levee	2,423	11.44
C335E[2]										2,360	11.56	24-HR	2,360	11.56	C335E2	24-HR, w/out Levee	2,360	11.56
C335F	932	60.68	1,796	60.68	24-HR	1,796	60.68	4,529	24.69	6,042	24.69	24-HR	6,042	24.69	C335F	24-HR, w/out Levee	6,042	24.69
C335FI	668	15.02	889	15.02	24-HR	889	15.02	3,582	12.19	4,186	12.19	24-HR	4,186	12.19	C335FI	24-HR, w/out Levee	4,186	12.19
C335T	3,883	10.18	4,488	10.18	24-HR	4,488	10.18	NO	NO	NO	NO	with Levee	0	0	C335T	24-HR, with Levee	4,488	10.18
C340	4,066	10.62	4,785	10.62	24-HR	4,785	10.62	NO	NO	NO	NO	with Levee	0	0	C340	24-HR, with Levee	4,785	10.62
C340A	338	13.46	520	13.46	24-HR	520	13.46	2,224	3.28	2,274	3.28	24-HR	2,274	3.28	C340A	24-HR, w/out Levee	2,274	3.28
C340C	403	14.75	583	14.75	24-HR	583	14.75	1,823	4.58	1,882	4.58	24-HR	1,882	4.58	C340C	24-HR, w/out Levee	1,882	4.58
C340D	503	15.29	877	15.29	24-HR	877	15.29	1,837	5.11	1,940	5.11	24-HR	1,940	5.11	C340D	24-HR, w/out Levee	1,940	5.11
C345	5,227	13	6,640	13	24-HR	6,640	13	NO	NO	NO	NO	with Levee	0	0	C345	24-HR, with Levee	6,640	13
C345O	234	13	282	13	24-HR	282	13	NO	NO	NO	NO	with Levee	0	0	C345O	24-HR, with Levee	282	13
C410A	1,880	17.45	1,978	17.45	24-HR	1,978	17.45	1,288	4.86	1,370	4.86	24-HR	1,370	4.86	C410A	24-HR, with Levee	1,978	17.45
C410I	2,709	3.53	3,124	3.53	24-HR	3,124	3.53	NO	NO	NO	NO	with Levee	0	0	C410I	24-HR, with Levee	3,124	3.53
C410O	1,903	3.53	1,951	3.53	24-HR	1,951	3.53	NO	NO	NO	NO	with Levee	0	0	C410O	24-HR, with Levee	1,951	3.53
C47I	NO	NO	NO	NO	w/out Levee	0	0	2,433	35.99	3,416	35.99	24-HR	3,416	35.99	C47I	24-HR, w/out Levee	3,416	35.99
C47O	934	35.99	1,526	35.99	24-HR	1,526	35.99	NO	NO	NO	NO	with Levee	0	0	C47O	24-HR, with Levee	1,526	35.99
C500O	32	0.02	23	0.02	6-HR	32	0.02	NO	NO	NO	NO	with Levee	0	0	C500O	6-HR, with Levee	32	0.02
C600O	58	0.06	50	0.06	6-HR	58	0.06	NO	NO	NO	NO	with Levee	0	0	C600O	6-HR, with Levee	58	0.06
C700A	935	37.58	1,533	37.58	24-HR	1,533	37.58	886	1.59	724	1.59	6-HR	886	1.59	C700A	24-HR, with Levee	1,533	37.58
C700AI	356	0.82	316	0.82	6-HR	356	0.82	696	0.82	527	0.82	6-HR	696	0.82	C700AI	6-HR, w/out Levee	696	0.82
C700B	1,306	56.08	1,887	56.08	24-HR	1,887	56.08	2,649	9.91	3,126	9.91	24-HR	3,126	9.91	C700B	24-HR, w/out Levee	3,126	9.91
C700C	868	56.29	1,394	56.29	24-HR	1,394	56.29	1,497	10.13	1,820	10.13	24-HR	1,820	10.13	C700C	24-HR, w/out Levee	1,820	10.13
C700D	810	56.52	1,324	56.52	24-HR	1,324	56.52	1,389	10.35	1,655	10.35	24-HR	1,655	10.35	C700D	24-HR, w/out Levee	1,655	10.35
C700E	317	56.7	850	56.7	24-HR	850	56.7	901	10.54	1,166	10.54	24-HR	1,166	10.54	C700E	24-HR, w/out Levee	1,166	10.54
C700F	1,214	63.2	2,401	63.2	24-HR	2,401	63.2	4,660	25.19	6,228	25.19	24-HR	6,228	25.19	C700F	24-HR, w/out Levee	6,228	25.19
C700G	1,210	63.95	2,415	63.95	24-HR	2,415	63.95	4,692	27.96	6,552	27.96	24-HR	6,552	27.96	C700G	24-HR, w/out Levee	6,552	27.96
C700H	40	56.96	165	56.96	24-HR	165	56.96	163	10.8	218	10.8	24-HR	218	10.8	C700H	24-HR, w/out Levee	218	10.8
C700I	24	57.17	85	57.17	24-HR	85	57.17	80	11.01	111	11.01	24-HR	111	11.01	C700I	24-HR, w/out Levee	111	11.01
C700J	1,207	64.3	2,407	64.3	24-HR	2,407	64.3	4,643	28.31	6,526	28.31	24-HR	6,526	28.31	C700J	24-HR, w/out Levee	6,526	28.31
C700K	1,204	64.43	2,406	64.43	24-HR	2,406	64.43	4,620	28.44	6,507	28.44	24-HR	6,507	28.44	C700K	24-HR, w/out Levee	6,507	28.44
C700O	332	0.75	300	0.75	6-HR	332	0.75	NO	NO	NO	NO	with Levee	0	0	C700O	6-HR, with Levee	332	0.75
C710A	703	57.06	1,005	57.06	24-HR	1,005	57.06	1,311	10.9	1,527	10.9	24-HR	1,527	10.9	C710A	24-HR, w/out Levee	1,527	10.9
C710B	236	57.6	360	57.6	24-HR	360	57.6	453	11.44	525	11.44	24-HR	525	11.44	C710B	24-HR, w/out Levee	525	11.44
C710C	110	57.86	192	57.86	24-HR	192	57.86	231	11.69	276	11.69	24-HR	276	11.69	C710C	24-HR, w/out Levee	276	11.69
C710D	53	58.11	85	58.11	24-HR	85	58.11	98	11.94	117	11.94	24-HR	117	11.94	C710D	24-HR, w/out Levee	117	11.94
C710E	82	57.89	137	57.89	24-HR	137	57.89	169	11.73	199	11.73	24-HR	199	11.73	C710E	24-HR, w/out Levee	199	11.73
C710F	82	58.41	146	58.41	24-HR	146	58.41	155	12.48	183	12.48	24-HR	183	12.48	C710F	24-HR, w/out Levee	183	12.48
C710G	59	58.9	104	58.9	24-HR	104	58.9	107	12.97	133	12.97	24-HR	133	12.97	C710G	24-HR, w/out Levee	133	12.97
C710H	1,195	67.6	2,410	67.6	24-HR	2,410	67.6	4,545	31.61	6,471	31.61	24-HR	6,471	31.61	C710H	24-HR, w/out Levee	6,471	31.61
C710I	43	58.13	96	58.13	24-HR	96	58.13	91	11.97	113	11.97	24-HR	113	11.97	C710I	24-HR, w/out Levee	113	11.97
C710J	126	58.9	280	58.9	24-HR	280	58.9	197	12.74	315	12.74	24-HR	315	12.74	C710J	24-HR, w/out Levee	315	12.74
C710K	1,169	68.1	2,427	68.1	24-HR	2,427	68.1	4,396	32.11	6,424	32.11	24-HR	6,424	32.11	C710K	24-HR, w/out Levee	6,424	32.11

[1] Flow is taken from the "modified hydrology model"

[2] Flow is taken from the "intermediate modified hydrology models"

	with Levee							w/out Levee											
	6-HR		24-HR		CNTR-1			6-HR		24-HR		CNTR-2			CONTROL			
ID	FLOW	AREA	FLOW	AREA	MODEL	FLOW	AREA	FLOW	AREA	FLOW	AREA	MODEL	FLOW	AREA	ID	MODEL	FLOW	AREA
C710L	31	59.15	95	59.15	24-HR	95	59.15	69	12.98	111	12.98	24-HR	111	12.98	C710L	24-HR, w/out Levee	111	12.98
C710M	1,163	68.61	2,438	68.61	24-HR	2,438	68.61	4,358	32.63	6,402	32.63	24-HR	6,402	32.63	C710M	24-HR, w/out Levee	6,402	32.63
C710N	1,142	69.78	2,416	69.78	24-HR	2,416	69.78	4,288	33.79	6,282	33.79	24-HR	6,282	33.79	C710N	24-HR, w/out Levee	6,282	33.79
C710P	1,122	70.01	2,399	70.01	24-HR	2,399	70.01	4,159	34.02	6,191	34.02	24-HR	6,191	34.02	C710P	24-HR, w/out Levee	6,191	34.02
C710Q	1,114	70.24	2,390	70.24	24-HR	2,390	70.24	4,114	34.25	6,159	34.25	24-HR	6,159	34.25	C710Q	24-HR, w/out Levee	6,159	34.25
C710S	254	59.94	356	59.94	24-HR	356	59.94	254	13.77	405	13.77	24-HR	405	13.77	C710S	24-HR, w/out Levee	405	13.77
C710U	212	60.52	506	60.52	24-HR	506	60.52	375	14.35	579	14.35	24-HR	579	14.35	C710U	24-HR, w/out Levee	579	14.35
C710V	1,144	71.98	2,508	71.98	24-HR	2,508	71.98	4,057	35.99	6,195	35.99	24-HR	6,195	35.99	C710V	24-HR, w/out Levee	6,195	35.99
C710W	1,155	71.82	2,518	71.82	24-HR	2,518	71.82	4,121	35.83	6,272	35.83	24-HR	6,272	35.83	C710W	24-HR, w/out Levee	6,272	35.83
C710WL	155	60.73	418	60.73	24-HR	418	60.73	321	14.56	498	14.56	24-HR	498	14.56	C710WL	24-HR, w/out Levee	498	14.56
C720B	323	0.8	241	0.8	6-HR	323	0.8	323	0.8	241	0.8	6-HR	323	0.8	C720B	6-HR, with Levee	323	0.8
C720C	729	1.52	712	1.52	6-HR	729	1.52	729	1.52	712	1.52	6-HR	729	1.52	C720C	6-HR, with Levee	729	1.52
C720D[1]										4,583	36.36	24-HR	4,583	36.36	C720D	24-HR, w/out Levee	4,583	36.36
C720E[1]										201	36.64	24-HR	201	36.64	C720E	24-HR, w/out Levee	201	36.64
C720G[1]										11,461	179.02	24-HR	11,461	179.02	C720G	24-HR, w/out Levee	11,461	179.02
C720H[1]										11,417	179.2	24-HR	11,417	179.2	C720H	24-HR, w/out Levee	11,417	179.2
C720I[1]										1,151	36.5	24-HR	1,151	36.5	C720I	24-HR, w/out Levee	1,151	36.5
C720J[1]										12,068	179.65	24-HR	12,068	179.65	C720J	24-HR, w/out Levee	12,068	179.65
C720JL[1]										1,106	36.8	24-HR	1,106	36.8	C720JL	24-HR, w/out Levee	1,106	36.8
C730A	319	0.65	244	0.65	6-HR	319	0.65	319	0.65	244	0.65	6-HR	319	0.65	C730A	6-HR, with Levee	319	0.65
C730B	408	0.94	349	0.94	6-HR	408	0.94	408	0.94	349	0.94	6-HR	408	0.94	C730B	6-HR, with Levee	408	0.94
C730C	376	1.25	327	1.25	6-HR	376	1.25	376	1.25	327	1.25	6-HR	376	1.25	C730C	6-HR, with Levee	376	1.25
C730D	799	1.72	787	1.72	6-HR	799	1.72	799	1.72	787	1.72	6-HR	799	1.72	C730D	6-HR, with Levee	799	1.72
C730E	631	2.92	638	2.92	24-HR	638	2.92	631	2.92	1,666	38.9	24-HR	1,666	38.9	C730E	24-HR, w/out Levee	1,666	38.9
C740A	NO	NO	NO	NO	w/out Levee	0	0	2,404	37.9	3,366	37.9	24-HR	3,366	37.9	C740A	24-HR, w/out Levee	3,366	37.9
C740B	584	60.22	744	60.22	24-HR	744	60.22	490	50.04	812	50.04	24-HR	812	50.04	C740B	24-HR, w/out Levee	812	50.04
C740BL	593	2.78	591	2.78	6-HR	593	2.78	337	38.77	523	38.77	24-HR	523	38.77	C740BL	6-HR, with Levee	593	2.78
C740C	409	57.43	604	57.43	24-HR	604	57.43	764	11.27	892	11.27	24-HR	892	11.27	C740C	24-HR, w/out Levee	892	11.27
C740D	422	60.77	768	60.77	24-HR	768	60.77	472	50.59	780	50.59	24-HR	780	50.59	C740D	24-HR, w/out Levee	780	50.59
C740E	413	61.04	734	61.04	24-HR	734	61.04	461	50.87	763	50.87	24-HR	763	50.87	C740E	24-HR, w/out Levee	763	50.87
C750B	962	3.55	1,050	3.55	24-HR	1,050	3.55	788	39.54	1,016	39.54	24-HR	1,016	39.54	C750B	24-HR, with Levee	1,050	3.55
C750C	1,512	3.88	1,516	3.88	24-HR	1,516	3.88	2,151	39.87	2,912	39.87	24-HR	2,912	39.87	C750C	24-HR, w/out Levee	2,912	39.87
C750CL	1,021	3.71	1,043	3.71	24-HR	1,043	3.71	783	39.7	1,012	39.7	24-HR	1,012	39.7	C750CL	24-HR, with Levee	1,043	3.71
C750D	687	2.07	637	2.07	6-HR	687	2.07	1,377	38.06	1,907	38.06	24-HR	1,907	38.06	C750D	24-HR, w/out Levee	1,907	38.06
C750E	1,516	4.23	1,515	4.23	6-HR	1,516	4.23	2,130	40.22	2,893	40.22	24-HR	2,893	40.22	C750E	24-HR, w/out Levee	2,893	40.22
C750F	1,576	4.64	1,599	4.64	24-HR	1,599	4.64	2,130	40.63	2,893	40.63	24-HR	2,893	40.63	C750F	24-HR, w/out Levee	2,893	40.63
C750G	1,529	5.28	1,570	5.28	24-HR	1,570	5.28	2,092	41.27	2,846	41.27	24-HR	2,846	41.27	C750G	24-HR, w/out Levee	2,846	41.27
C750H	1,549	5.78	1,642	5.78	24-HR	1,642	5.78	2,092	41.77	2,846	41.77	24-HR	2,846	41.77	C750H	24-HR, w/out Levee	2,846	41.77
C750I	1,057	65.23	2,009	65.23	24-HR	2,009	65.23	2,296	55.06	3,324	55.06	24-HR	3,324	55.06	C750I	24-HR, w/out Levee	3,324	55.06
C750IL	1,491	6.1	1,596	6.1	24-HR	1,596	6.1	2,065	42.09	2,820	42.09	24-HR	2,820	42.09	C750IL	24-HR, w/out Levee	2,820	42.09
C750J	1,023	65.6	1,976	65.6	24-HR	1,976	65.6	2,273	55.43	3,304	55.43	24-HR	3,304	55.43	C750J	24-HR, w/out Levee	3,304	55.43
C750L	376	0.64	287	0.64	6-HR	376	0.64	376	0.64	287	0.64	6-HR	376	0.64	C750L	6-HR, with Levee	376	0.64
C750M	383	0.99	322	0.99	6-HR	383	0.99	383	0.99	322	0.99	6-HR	383	0.99	C750M	6-HR, with Levee	383	0.99
C750N	1,069	66.85	2,063	66.85	24-HR	2,063	66.85	2,283	56.04	3,331	56.04	24-HR	3,331	56.04	C750N	24-HR, w/out Levee	3,331	56.04
C760B	570	0.97	467	0.97	6-HR	570	0.97	570	0.97	467	0.97	6-HR	570	0.97	C760B	6-HR, with Levee	570	0.97
C760C	299	1.35	259	1.35	6-HR	299	1.35	299	1.35	259	1.35	6-HR	299	1.35	C760C	6-HR, with Levee	299	1.35
C760E	464	0.54	347	0.54	6-HR	464	0.54	464	0.54	347	0.54	6-HR	464	0.54	C760E	6-HR, with Levee	464	0.54
C760F	398	0.94	329	0.94	6-HR	398	0.94	398	0.94	329	0.94	6-HR	398	0.94	C760F	6-HR, with Levee	398	0.94
C760G	551	2.73	524	2.73	6-HR	551	2.73	551	2.73	524	2.73	6-HR	551	2.73	C760G	6-HR, with Levee	551	2.73
C760GL	348	2.34	304	2.34	6-HR	348	2.34	348	2.34	304	2.34	6-HR	348	2.34	C760GL	6-HR, with Levee	348	2.34
C760H	367	3.33	402	3.33	24-HR	402	3.33	367	3.33	402	3.33	24-HR	402	3.33	C760H	24-HR, with Levee	402	3.33
C760I	1,018	70.47	2,028	70.47	24-HR	2,028	70.47	2,258	60.3	3,312	60.3	24-HR	3,312	60.3	C760I	24-HR, w/out Levee	3,312	60.3
C760K	1,017	70.93	2,030	70.93	24-HR	2,030	70.93	2,256	60.76	3,312	60.76	24-HR	3,312	60.76	C760K	24-HR, w/out Levee	3,312	60.76
C760KL	362	0.46	261	0.46	6-HR	362	0.46	362	0.46	261	0.46	6-HR	362	0.46	C760KL	6-HR, with Levee	362	0.46

[1] Flow is taken from the "modified hydrology model"

[2] Flow is taken from the "intermediate modified hydrology models"

	with Levee							w/out Levee								CONTROL			
	6-HR		24-HR		CNTR-1			6-HR		24-HR		CNTR-2							
ID	FLOW	AREA	FLOW	AREA	MODEL	FLOW	AREA	FLOW	AREA	FLOW	AREA	MODEL	FLOW	AREA	ID	MODEL	FLOW	AREA
C760L	1,055	74.26	2,142	74.26	24-HR	2,142	74.26	2,265	64.08	3,588	100.07	24-HR	3,588	100.07	C760L	24-HR, w/out Levee	3,588	100.07
C760LL	997	71.34	1,976	71.34	24-HR	1,976	71.34	2,227	61.17	3,284	61.17	24-HR	3,284	61.17	C760LL	24-HR, w/out Levee	3,284	61.17
C760M[1]										3,573	100.43	24-HR	3,573	100.43	C760M	24-HR, w/out Levee	3,573	100.43
C760N	379	73.13	276	73.13	6-HR	379	73.13	NO	NO	NO	NO	with Levee	0	0	C760N	6-HR, with Levee	379	73.13
C760O[1]										5,483	101.27	24-HR	5,483	101.27	C760O	24-HR, w/out Levee	5,483	101.27
C770C	888	76.57	1,674	76.57	24-HR	1,674	76.57	1,109	1.93	980	1.93	6-HR	1,109	1.93	C770C	24-HR, with Levee	1,674	76.57
C770D[1]										5,521	103.37	24-HR	5,521	103.37	C770D	24-HR, w/out Levee	5,521	103.37
C770DL	619	76.74	1,338	76.74	24-HR	1,338	76.74	1,045	2.1	932	2.1	6-HR	1,045	2.1	C770DL	24-HR, with Levee	1,338	76.74
C770E[1]										16,243	236.46	24-HR	16,243	236.46	C770E	24-HR, w/out Levee	16,243	236.46
C770F[1]										11,287	237.04	24-HR	11,287	237.04	C770F	24-HR, w/out Levee	11,287	237.04
C770G[1]										12,744	242.4	24-HR	12,744	242.4	C770G	24-HR, w/out Levee	12,744	242.4
C780C	3,095	12.61	3,951	12.61	24-HR	3,951	12.61	3,095	12.61	3,951	12.61	24-HR	3,951	12.61	C780C	24-HR, with Levee	3,951	12.61
C780D	2,937	13.41	3,661	13.41	24-HR	3,661	13.41	2,937	13.41	3,661	13.41	24-HR	3,661	13.41	C780D	24-HR, with Levee	3,661	13.41
C790B	1,979	2.83	2,145	2.83	24-HR	2,145	2.83	1,979	2.83	2,145	2.83	24-HR	2,145	2.83	C790B	24-HR, with Levee	2,145	2.83
C790C	2,139	3.66	2,218	3.66	24-HR	2,218	3.66	2,139	3.66	2,218	3.66	24-HR	2,218	3.66	C790C	24-HR, with Levee	2,218	3.66
C790D	1,811	4.66	1,913	4.66	24-HR	1,913	4.66	1,811	4.66	1,913	4.66	24-HR	1,913	4.66	C790D	24-HR, with Levee	1,913	4.66
C790E[1]										17,475	270.24	24-HR	17,475	270.24	C790E	24-HR, w/out Levee	17,475	270.24
C790ER[1]										12,807	262.21	24-HR	12,807	262.21	C790ER	24-HR, w/out Levee	12,807	262.21
C800A	800	77.87	752	77.87	6-HR	800	77.87	1,025	1.32	889	1.32	6-HR	1,025	1.32	C800A	6-HR, w/out Levee	1,025	1.32
C800D	377	78.56	714	78.56	24-HR	714	78.56	913	2	812	2	6-HR	913	2	C800D	6-HR, w/out Levee	913	2
C800E	244	79.07	589	79.07	24-HR	589	79.07	591	2.51	694	2.51	24-HR	694	2.51	C800E	24-HR, w/out Levee	694	2.51
C800H	428	79.75	830	79.75	24-HR	830	79.75	1,080	3.2	993	3.2	6-HR	1,080	3.2	C800H	6-HR, w/out Levee	1,080	3.2
C800I[1]										5,004	239.93	24-HR	5,004	239.93	C800I	24-HR, w/out Levee	5,004	239.93
C800J[1]										5,002	241.1	24-HR	5,002	241.1	C800J	24-HR, w/out Levee	5,002	241.1
C800L[1]										1,572	242.58	24-HR	1,572	242.58	C800L	24-HR, w/out Levee	1,572	242.58
C800M[1]										4,983	243.27	24-HR	4,983	243.27	C800M	24-HR, w/out Levee	4,983	243.27
C800MR	314	81.89	637	81.89	24-HR	637	81.89	735	5.33	798	5.33	24-HR	798	5.33	C800MR	24-HR, w/out Levee	798	5.33
C800N[1]										6,757	243.77	24-HR	6,757	243.77	C800N	24-HR, w/out Levee	6,757	243.77
C800O[1]										7,630	244.49	24-HR	7,630	244.49	C800O	24-HR, w/out Levee	7,630	244.49
C800P	2,906	271.64	9,685	271.64	24-HR	9,685	271.64	8,807	270.86	17,968	270.86	24-HR	17,968	270.86	C800P	24-HR, w/out Levee	17,968	270.86
C800PL[1]										17,457	270.71	24-HR	17,457	270.71	C800PL	24-HR, w/out Levee	17,457	270.71
C800R	2,894	272.31	9,653	272.31	24-HR	9,653	272.31	8,768	271.53	17,933	271.53	24-HR	17,933	271.53	C800R	24-HR, w/out Levee	17,933	271.53
C800U	1,029	2.31	929	2.31	6-HR	1,029	2.31	1,029	2.31	929	2.31	6-HR	1,029	2.31	C800U	6-HR, with Levee	1,029	2.31
C800V	2,878	275.27	9,661	275.27	24-HR	9,661	275.27	8,740	274.49	17,900	274.49	24-HR	17,900	274.49	C800V	24-HR, w/out Levee	17,900	274.49
C800X	2,868	275.73	9,643	275.73	24-HR	9,643	275.73	8,722	274.95	17,881	274.95	24-HR	17,881	274.95	C800X	24-HR, w/out Levee	17,881	274.95
C820B	614	1.31	528	1.31	6-HR	614	1.31	614	1.31	528	1.31	6-HR	614	1.31	C820B	6-HR, with Levee	614	1.31
C820D	936	1.54	833	1.54	6-HR	936	1.54	936	1.54	833	1.54	6-HR	936	1.54	C820D	6-HR, with Levee	936	1.54
C820E	884	1.86	787	1.86	6-HR	884	1.86	884	1.86	787	1.86	6-HR	884	1.86	C820E	6-HR, with Levee	884	1.86
C820F	897	4.16	887	4.16	6-HR	897	4.16	893	4.16	887	4.16	6-HR	893	4.16	C820F	6-HR, with Levee	897	4.16
C820H	541	0.47	391	0.47	6-HR	541	0.47	541	0.47	391	0.47	6-HR	541	0.47	C820H	6-HR, with Levee	541	0.47
C820I	529	2.02	485	2.02	6-HR	529	2.02	539	2.02	485	2.02	6-HR	539	2.02	C820I	6-HR, w/out Levee	539	2.02
C820J	843	5.22	991	5.22	24-HR	991	5.22	840	5.22	991	5.22	24-HR	991	5.22	C820J	24-HR, with Levee	991	5.22
C820K	795	5.63	829	5.63	24-HR	829	5.63	793	5.63	829	5.63	24-HR	829	5.63	C820K	24-HR, with Levee	829	5.63
C820L	888	6.06	976	6.06	24-HR	976	6.06	888	6.05	976	6.05	24-HR	976	6.05	C820L	24-HR, with Levee	976	6.05
C900B	293	0.28	218	0.28	6-HR	293	0.28	293	0.28	218	0.28	6-HR	293	0.28	C900B	6-HR, with Levee	293	0.28
C900C	417	1.65	398	1.65	6-HR	417	1.65	417	1.65	398	1.65	6-HR	417	1.65	C900C	6-HR, with Levee	417	1.65
C900D	376	2.04	328	2.04	6-HR	376	2.04	376	2.04	328	2.04	6-HR	376	2.04	C900D	6-HR, with Levee	376	2.04
C900E	780	3.9	766	3.9	6-HR	780	3.9	780	3.9	766	3.9	6-HR	780	3.9	C900E	6-HR, with Levee	780	3.9
C900ER	530	2.81	486	2.81	6-HR	530	2.81	530	2.8	486	2.8	6-HR	530	2.8	C900ER	6-HR, with Levee	530	2.8
C900F	827	4.54	822	4.54	6-HR	827	4.54	827	4.54	822	4.54	6-HR	827	4.54	C900F	6-HR, with Levee	827	4.54
C900H	797	4.72	798	4.72	24-HR	798	4.72	797	4.72	798	4.72	24-HR	798	4.72	C900H	24-HR, with Levee	798	4.72
C900I	816	5.76	843	5.76	24-HR	843	5.76	816	5.76	843	5.76	24-HR	843	5.76	C900I	24-HR, with Levee	843	5.76
C900IR	768	4.87	772	4.87	24-HR	772	4.87	768	4.87	772	4.87	24-HR	772	4.87	C900IR	24-HR, with Levee	772	4.87
C910B	391	0.38	281	0.38	6-HR	391	0.38	391	0.38	281	0.38	6-HR	391	0.38	C910B	6-HR, with Levee	391	0.38

[1] Flow is taken from the "modified hydrology model"

[2] Flow is taken from the "intermediate modified hydrology models"

	with Levee							w/out Levee											
	6-HR		24-HR		CNTR-1			6-HR		24-HR		CNTR-2			CONTROL			
ID	FLOW	AREA	FLOW	AREA	MODEL	FLOW	AREA	FLOW	AREA	FLOW	AREA	MODEL	FLOW	AREA	ID	MODEL	FLOW	AREA
C910D	340	0.51	240	0.51	6-HR	340	0.51	340	0.51	240	0.51	6-HR	340	0.51	C910D	6-HR, with Levee	340	0.51
C910E	792	6.1	822	6.1	24-HR	822	6.1	792	6.1	822	6.1	24-HR	822	6.1	C910E	24-HR, with Levee	822	6.1
C910F	786	6.56	830	6.56	24-HR	830	6.56	786	6.56	830	6.56	24-HR	830	6.56	C910F	24-HR, with Levee	830	6.56
C910G	766	6.95	821	6.95	24-HR	821	6.95	766	6.95	821	6.95	24-HR	821	6.95	C910G	24-HR, with Levee	821	6.95
C910GL	770	6.75	821	6.75	24-HR	821	6.75	770	6.75	821	6.75	24-HR	821	6.75	C910GL	24-HR, with Levee	821	6.75
C910J	739	8.46	848	8.46	24-HR	848	8.46	739	8.46	848	8.46	24-HR	848	8.46	C910J	24-HR, with Levee	848	8.46
C910K	891	9.85	1,093	9.85	24-HR	1,093	9.85	905	9.85	1,093	9.85	24-HR	1,093	9.85	C910K	24-HR, with Levee	1,093	9.85
C910KR	727	8.81	840	8.81	24-HR	840	8.81	728	8.81	840	8.81	24-HR	840	8.81	C910KR	24-HR, with Levee	840	8.81
C910L	643	1.42	569	1.42	6-HR	643	1.42	643	1.42	569	1.42	6-HR	643	1.42	C910L	6-HR, with Levee	643	1.42
C910N	843	10.14	990	10.14	24-HR	990	10.14	840	10.14	990	10.14	24-HR	990	10.14	C910N	24-HR, with Levee	990	10.14
C910O	833	10.63	982	10.63	24-HR	982	10.63	830	10.63	982	10.63	24-HR	982	10.63	C910O	24-HR, with Levee	982	10.63
C920B	701	0.93	586	0.93	6-HR	701	0.93	701	0.93	586	0.93	6-HR	701	0.93	C920B	6-HR, with Levee	701	0.93
C920BR	514	0.67	384	0.67	6-HR	514	0.67	514	0.67	384	0.67	6-HR	514	0.67	C920BR	6-HR, with Levee	514	0.67
C920D	1,092	11.9	1,274	11.9	24-HR	1,274	11.9	662	1.28	535	1.28	6-HR	662	1.28	C920D	24-HR, with Levee	1,274	11.9
C920E	1,086	12.27	1,273	12.27	24-HR	1,273	12.27	806	1.65	767	1.65	6-HR	806	1.65	C920E	24-HR, with Levee	1,273	12.27
C920F	1,051	12.75	1,224	12.75	24-HR	1,224	12.75	735	1.9	633	1.9	6-HR	735	1.9	C920F	24-HR, with Levee	1,224	12.75
C920H	1,021	13.97	1,203	13.97	24-HR	1,203	13.97	879	2.27	852	2.27	6-HR	879	2.27	C920H	24-HR, with Levee	1,203	13.97
C920J	1,000	14.16	1,196	14.16	24-HR	1,196	14.16	846	3.53	767	3.53	6-HR	846	3.53	C920J	24-HR, with Levee	1,196	14.16
C920L	374	0.41	269	0.41	6-HR	374	0.41	1,378	13.89	1,599	13.89	24-HR	1,599	13.89	C920L	24-HR, w/out Levee	1,599	13.89
C920M	1,007	14.73	1,221	14.73	24-HR	1,221	14.73	1,757	17.59	2,158	17.59	24-HR	2,158	17.59	C920M	24-HR, w/out Levee	2,158	17.59
C920N	992	15.29	1,211	15.29	24-HR	1,211	15.29	1,674	18.15	2,039	18.15	24-HR	2,039	18.15	C920N	24-HR, w/out Levee	2,039	18.15
C920R	981	16.35	1,213	16.35	24-HR	1,213	16.35	1,662	19.22	2,062	19.22	24-HR	2,062	19.22	C920R	24-HR, w/out Levee	2,062	19.22
C920S	962	17.32	1,190	17.32	24-HR	1,190	17.32	1,509	20.18	1,908	20.18	24-HR	1,908	20.18	C920S	24-HR, w/out Levee	1,908	20.18
C920U	927	17.94	1,175	17.94	24-HR	1,175	17.94	1,457	20.8	1,865	20.8	24-HR	1,865	20.8	C920U	24-HR, w/out Levee	1,865	20.8
C920W	211	0.54	158	0.54	6-HR	211	0.54	211	0.54	158	0.54	6-HR	211	0.54	C920W	6-HR, with Levee	211	0.54
C930B	331	0.35	240	0.35	6-HR	331	0.35	331	0.35	240	0.35	6-HR	331	0.35	C930B	6-HR, with Levee	331	0.35
C930D	718	1.61	638	1.61	6-HR	718	1.61	734	1.61	638	1.61	6-HR	734	1.61	C930D	6-HR, w/out Levee	734	1.61
C930DL	653	1.26	552	1.26	6-HR	653	1.26	667	1.26	552	1.26	6-HR	667	1.26	C930DL	6-HR, w/out Levee	667	1.26
C930E	618	1.85	537	1.85	6-HR	618	1.85	627	1.85	537	1.85	6-HR	627	1.85	C930E	6-HR, w/out Levee	627	1.85
C930H	851	2.64	906	2.64	24-HR	906	2.64	851	2.64	906	2.64	24-HR	906	2.64	C930H	24-HR, with Levee	906	2.64
C930I	1,146	21.04	1,632	21.04	24-HR	1,632	21.04	1,612	23.9	2,186	23.9	24-HR	2,186	23.9	C930I	24-HR, w/out Levee	2,186	23.9
C930J	990	22.36	1,372	22.36	24-HR	1,372	22.36	1,510	25.22	2,072	25.22	24-HR	2,072	25.22	C930J	24-HR, w/out Levee	2,072	25.22
C940B	477	0.55	356	0.55	6-HR	477	0.55	477	0.55	356	0.55	6-HR	477	0.55	C940B	6-HR, with Levee	477	0.55
C940C	1,183	1.45	1,075	1.45	6-HR	1,183	1.45	1,183	1.45	1,075	1.45	6-HR	1,183	1.45	C940C	6-HR, with Levee	1,183	1.45
C940F	1,167	1.59	1,007	1.59	6-HR	1,167	1.59	1,167	1.59	1,007	1.59	6-HR	1,167	1.59	C940F	6-HR, with Levee	1,167	1.59
C940H	690	0.83	565	0.83	6-HR	690	0.83	690	0.83	565	0.83	6-HR	690	0.83	C940H	6-HR, with Levee	690	0.83
C940I	1,324	5.07	1,301	5.07	6-HR	1,324	5.07	1,324	5.07	1,298	5.07	6-HR	1,324	5.07	C940I	6-HR, with Levee	1,324	5.07
C940J	428	1.03	361	1.03	6-HR	428	1.03	428	1.03	361	1.03	6-HR	428	1.03	C940J	6-HR, with Levee	428	1.03
C940L	551	0.54	422	0.54	6-HR	551	0.54	551	0.54	422	0.54	6-HR	551	0.54	C940L	6-HR, with Levee	551	0.54
C940M	944	1.98	830	1.98	6-HR	944	1.98	944	1.98	830	1.98	6-HR	944	1.98	C940M	6-HR, with Levee	944	1.98
C940N	863	2.16	750	2.16	6-HR	863	2.16	863	2.46	750	2.46	6-HR	863	2.46	C940N	6-HR, with Levee	863	2.46
C940P	1,083	3.1	1,013	3.1	6-HR	1,083	3.1	1,083	3.1	1,013	3.1	6-HR	1,083	3.1	C940P	6-HR, with Levee	1,083	3.1
C940Q	1,287	4.73	1,213	4.73	6-HR	1,287	4.73	1,287	4.73	1,210	4.73	6-HR	1,287	4.73	C940Q	6-HR, with Levee	1,287	4.73
CLEAR	400	83.23	404	83.23	24-HR	404	83.23	2,305	7	2,721	7	24-HR	2,721	7	CLEAR	24-HR, w/out Levee	2,721	7
CLEAR	400	83.23	404	83.23	24-HR	404	83.23	2,305	7	2,721	7	24-HR	2,721	7	CLEAR	24-HR, w/out Levee	2,721	7
CLEAR	400	83.23	404	83.23	24-HR	404	83.23	2,305	7	2,721	7	24-HR	2,721	7	CLEAR	24-HR, w/out Levee	2,721	7
CLEAR	400	83.23	404	83.23	24-HR	404	83.23	2,305	7	2,721	7	24-HR	2,721	7	CLEAR	24-HR, w/out Levee	2,721	7
CLEAR	400	83.23	404	83.23	24-HR	404	83.23	2,305	7	2,721	7	24-HR	2,721	7	CLEAR	24-HR, w/out Levee	2,721	7
D100AL	156	0.78	84	0.78	6-HR	156	0.78	NO	NO	NO	NO	with Levee	0	0	D100AL	6-HR, with Levee	156	0.78
D100AR	535	0.78	459	0.78	6-HR	535	0.78	NO	NO	NO	NO	with Levee	0	0	D100AR	6-HR, with Levee	535	0.78
D100BL	498	1.32	404	1.32	6-HR	498	1.32	NO	NO	NO	NO	with Levee	0	0	D100BL	6-HR, with Levee	498	1.32
D100BR	30	1.32	25	1.32	6-HR	30	1.32	NO	NO	NO	NO	with Levee	0	0	D100BR	6-HR, with Levee	30	1.32
D100BR	30	1.32	25	1.32	6-HR	30	1.32	NO	NO	NO	NO	with Levee	0	0	D100BR	6-HR, with Levee	30	1.32
D110L	414	5.11	427	5.11	24-HR	427	5.11	414	5.11	427	5.11	24-HR	427	5.11	D110L	24-HR, with Levee	427	5.11

[1] Flow is taken from the "modified hydrology model"

[2] Flow is taken from the "intermediate modified hydrology models"

	with Levee							w/out Levee											
	6-HR		24-HR		CNTR-1			6-HR		24-HR		CNTR-2			CONTROL			
ID	FLOW	AREA	FLOW	AREA	MODEL	FLOW	AREA	FLOW	AREA	FLOW	AREA	MODEL	FLOW	AREA	ID	MODEL	FLOW	AREA
D110L	414	5.11	427	5.11	24-HR	427	5.11	414	5.11	427	5.11	24-HR	427	5.11	D110L	24-HR, with Levee	427	5.11
D110R	1,449	5.11	1,508	5.11	24-HR	1,508	5.11	1,449	5.11	1,508	5.11	24-HR	1,508	5.11	D110R	24-HR, with Levee	1,508	5.11
D115L	3,539	21.87	4,196	21.87	24-HR	4,196	21.87	3,539	21.88	4,196	21.88	24-HR	4,196	21.88	D115L	24-HR, with Levee	4,196	21.88
D115L	3,539	21.87	4,196	21.87	24-HR	4,196	21.87	3,539	21.88	4,196	21.88	24-HR	4,196	21.88	D115L	24-HR, with Levee	4,196	21.88
D115R	1,379	21.87	1,655	21.87	24-HR	1,655	21.87	1,379	21.88	1,655	21.88	24-HR	1,655	21.88	D115R	24-HR, with Levee	1,655	21.88
D120	302	52.94	358	52.94	24-HR	358	52.94	NO	NO	NO	NO	with Levee	0	0	D120	24-HR, with Levee	358	52.94
D120BL	1	0.1	0	0.1	6-HR	1	0.1	39	0.86	17	0.86	6-HR	39	0.86	D120BL	6-HR, w/out Levee	39	0.86
D120BL	1	0.1	0	0.1	6-HR	1	0.1	39	0.86	17	0.86	6-HR	39	0.86	D120BL	6-HR, w/out Levee	39	0.86
D120BR	194	0.1	142	0.1	6-HR	194	0.1	515	0.86	436	0.86	6-HR	515	0.86	D120BR	6-HR, w/out Levee	515	0.86
D120EL	133	1.43	64	1.43	6-HR	133	1.43	NO	NO	NO	NO	with Levee	0	0	D120EL	6-HR, with Levee	133	1.43
D120ER	379	1.43	355	1.43	6-HR	379	1.43	NO	NO	NO	NO	with Levee	0	0	D120ER	6-HR, with Levee	379	1.43
D120ER	379	1.43	355	1.43	6-HR	379	1.43	NO	NO	NO	NO	with Levee	0	0	D120ER	6-HR, with Levee	379	1.43
D125T	314	52.94	367	52.94	24-HR	367	52.94	NO	NO	NO	NO	with Levee	0	0	D125T	24-HR, with Levee	367	52.94
D135AL	210	53.65	261	53.65	24-HR	261	53.65	2,720	42.57	3,639	42.57	24-HR	3,639	42.57	D135AL	24-HR, w/out Levee	3,639	42.57
D135AL	210	53.65	261	53.65	24-HR	261	53.65	2,720	42.57	3,639	42.57	24-HR	3,639	42.57	D135AL	24-HR, w/out Levee	3,639	42.57
D135AR	101	53.65	122	53.65	24-HR	122	53.65	2,078	42.57	2,949	42.57	24-HR	2,949	42.57	D135AR	24-HR, w/out Levee	2,949	42.57
D135DL	42	56.7	42	56.7	6-HR	42	56.7	3,162	46.77	4,379	46.77	24-HR	4,379	46.77	D135DL	24-HR, w/out Levee	4,379	46.77
D135DL	42	56.7	42	56.7	6-HR	42	56.7	3,162	46.77	4,379	46.77	24-HR	4,379	46.77	D135DL	24-HR, w/out Levee	4,379	46.77
D135DR	576	56.7	981	56.7	24-HR	981	56.7	1,884	46.77	2,586	46.77	24-HR	2,586	46.77	D135DR	24-HR, w/out Levee	2,586	46.77
D135MC	0	77.01	0	77.01	6-HR	0	77.01	0	68.08	0	68.08	6-HR	0	68.08	D135MC	6-HR, with Levee	0	68.08
D135MI	1,733	77.01	3,680	77.01	24-HR	3,680	77.01	1,917	68.08	3,697	68.08	24-HR	3,697	68.08	D135MI	24-HR, w/out Levee	3,697	68.08
D135MI	1,733	77.01	3,680	77.01	24-HR	3,680	77.01	1,917	68.08	3,697	68.08	24-HR	3,697	68.08	D135MI	24-HR, w/out Levee	3,697	68.08
D135T	311	52.94	365	52.94	24-HR	365	52.94	NO	NO	NO	NO	with Levee	0	0	D135T	24-HR, with Levee	365	52.94
D136AL	86	0.07	51	0.07	6-HR	86	0.07	NO	NO	NO	NO	with Levee	0	0	D136AL	6-HR, with Levee	86	0.07
D136AL	86	0.07	51	0.07	6-HR	86	0.07	NO	NO	NO	NO	with Levee	0	0	D136AL	6-HR, with Levee	86	0.07
D136AR	77	0.07	69	0.07	6-HR	77	0.07	NO	NO	NO	NO	with Levee	0	0	D136AR	6-HR, with Levee	77	0.07
D145L	1,270	3.83	1,190	3.83	6-HR	1,270	3.83	1,271	3.83	1,190	3.83	6-HR	1,271	3.83	D145L	6-HR, w/out Levee	1,271	3.83
D145L	1,270	3.83	1,190	3.83	6-HR	1,270	3.83	1,271	3.83	1,190	3.83	6-HR	1,271	3.83	D145L	6-HR, w/out Levee	1,271	3.83
D145R	799	3.83	702	3.83	6-HR	799	3.83	799	3.83	702	3.83	6-HR	799	3.83	D145R	6-HR, with Levee	799	3.83
D150L	174	4.01	157	4.01	6-HR	174	4.01	174	4.01	157	4.01	6-HR	174	4.01	D150L	6-HR, with Levee	174	4.01
D150L	174	4.01	157	4.01	6-HR	174	4.01	174	4.01	157	4.01	6-HR	174	4.01	D150L	6-HR, with Levee	174	4.01
D150R	599	4.01	519	4.01	6-HR	599	4.01	599	4.01	519	4.01	6-HR	599	4.01	D150R	6-HR, with Levee	599	4.01
D155L	311	4.65	315	4.65	24-HR	315	4.65	311	4.65	315	4.65	24-HR	315	4.65	D155L	24-HR, with Levee	315	4.65
D155L	311	4.65	315	4.65	24-HR	315	4.65	311	4.65	315	4.65	24-HR	315	4.65	D155L	24-HR, with Levee	315	4.65
D155R	340	4.65	345	4.65	24-HR	345	4.65	340	4.65	345	4.65	24-HR	345	4.65	D155R	24-HR, with Levee	345	4.65
D165L	1,615	8.61	1,699	8.61	24-HR	1,699	8.61	1,615	8.61	1,699	8.61	24-HR	1,699	8.61	D165L	24-HR, with Levee	1,699	8.61
D165L	1,615	8.61	1,699	8.61	24-HR	1,699	8.61	1,615	8.61	1,699	8.61	24-HR	1,699	8.61	D165L	24-HR, with Levee	1,699	8.61
D165R	808	8.61	857	8.61	24-HR	857	8.61	808	8.61	857	8.61	24-HR	857	8.61	D165R	24-HR, with Levee	857	8.61
D175BL	84	1.15	25	1.15	6-HR	84	1.15	NO	NO	NO	NO	with Levee	0	0	D175BL	6-HR, with Levee	84	1.15
D175BL	84	1.15	25	1.15	6-HR	84	1.15	NO	NO	NO	NO	with Levee	0	0	D175BL	6-HR, with Levee	84	1.15
D175BR	638	1.15	577	1.15	6-HR	638	1.15	NO	NO	NO	NO	with Levee	0	0	D175BR	6-HR, with Levee	638	1.15
D175CL	8	1.35	6	1.35	6-HR	8	1.35	NO	NO	NO	NO	with Levee	0	0	D175CL	6-HR, with Levee	8	1.35
D175CL	8	1.35	6	1.35	6-HR	8	1.35	NO	NO	NO	NO	with Levee	0	0	D175CL	6-HR, with Levee	8	1.35
D175CR	228	1.35	213	1.35	6-HR	228	1.35	NO	NO	NO	NO	with Levee	0	0	D175CR	6-HR, with Levee	228	1.35
D180AL	289	0.43	196	0.43	6-HR	289	0.43	1,303	12.33	1,458	12.33	24-HR	1,458	12.33	D180AL	24-HR, w/out Levee	1,458	12.33
D180AL	289	0.43	196	0.43	6-HR	289	0.43	1,303	12.33	1,458	12.33	24-HR	1,458	12.33	D180AL	24-HR, w/out Levee	1,458	12.33
D180AR	294	0.43	226	0.43	6-HR	294	0.43	1,036	12.33	1,150	12.33	24-HR	1,150	12.33	D180AR	24-HR, w/out Levee	1,150	12.33
D180CL	635	2.86	602	2.86	6-HR	635	2.86	798	15.7	886	15.7	24-HR	886	15.7	D180CL	24-HR, w/out Levee	886	15.7
D180CL	635	2.86	602	2.86	6-HR	635	2.86	798	15.7	886	15.7	24-HR	886	15.7	D180CL	24-HR, w/out Levee	886	15.7
D180CR	464	2.86	435	2.86	6-HR	464	2.86	630	15.7	728	15.7	24-HR	728	15.7	D180CR	24-HR, w/out Levee	728	15.7
D180DL	256	0.86	173	0.86	6-HR	256	0.86	1,140	13.7	1,309	13.7	24-HR	1,309	13.7	D180DL	24-HR, w/out Levee	1,309	13.7
D180DL	256	0.86	173	0.86	6-HR	256	0.86	1,140	13.7	1,309	13.7	24-HR	1,309	13.7	D180DL	24-HR, w/out Levee	1,309	13.7
D180DR	254	0.86	202	0.86	6-HR	254	0.86	483	13.7	554	13.7	24-HR	554	13.7	D180DR	24-HR, w/out Levee	554	13.7
D180FL	235	5.41	261	5.41	24-HR	261	5.41	NO	NO	NO	NO	with Levee	0	0	D180FL	24-HR, with Levee	261	5.41

[1] Flow is taken from the "modified hydrology model"

[2] Flow is taken from the "intermediate modified hydrology models"

	with Levee							w/out Levee											
	6-HR		24-HR		CNTR-1			6-HR		24-HR		CNTR-2			CONTROL			
ID	FLOW	AREA	FLOW	AREA	MODEL	FLOW	AREA	FLOW	AREA	FLOW	AREA	MODEL	FLOW	AREA	ID	MODEL	FLOW	AREA
D180FL	235	5.41	261	5.41	24-HR	261	5.41	NO	NO	NO	NO	with Levee	0	0	D180FL	24-HR, with Levee	261	5.41
D180FR	486	5.41	500	5.41	24-HR	500	5.41	NO	NO	NO	NO	with Levee	0	0	D180FR	24-HR, with Levee	500	5.41
D180GL	0	5.68	0	5.68	6-HR	0	5.68	NO	NO	NO	NO	with Levee	0	0	D180GL	6-HR, with Levee	0	0
D180GL	0	5.68	0	5.68	6-HR	0	5.68	NO	NO	NO	NO	with Levee	0	0	D180GL	6-HR, with Levee	0	0
D180GR	249	5.68	277	5.68	24-HR	277	5.68	NO	NO	NO	NO	with Levee	0	0	D180GR	24-HR, with Levee	277	5.68
D180HL	1	5.99	1	5.99	6-HR	1	5.99	1	17.47	1	17.47	6-HR	1	17.47	D180HL	6-HR, with Levee	1	17.47
D180HL	1	5.99	1	5.99	6-HR	1	5.99	1	17.47	1	17.47	6-HR	1	17.47	D180HL	6-HR, with Levee	1	17.47
D180HR	717	5.99	763	5.99	24-HR	763	5.99	600	17.47	783	17.47	24-HR	783	17.47	D180HR	24-HR, w/out Levee	783	17.47
D195L	527	3.11	507	3.11	6-HR	527	3.11	527	3.11	507	3.11	6-HR	527	3.11	D195L	6-HR, with Levee	527	3.11
D195L	527	3.11	507	3.11	6-HR	527	3.11	527	3.11	507	3.11	6-HR	527	3.11	D195L	6-HR, with Levee	527	3.11
D195R	930	3.11	880	3.11	6-HR	930	3.11	930	3.11	880	3.11	6-HR	930	3.11	D195R	6-HR, with Levee	930	3.11
D199	349	52.94	396	52.94	24-HR	396	52.94	NO	NO	NO	NO	with Levee	0	0	D199	24-HR, with Levee	396	52.94
D199	349	52.94	396	52.94	24-HR	396	52.94	NO	NO	NO	NO	with Levee	0	0	D199	24-HR, with Levee	396	52.94
D205L	1,287	8.65	1,422	8.65	24-HR	1,422	8.65	1,287	8.65	1,422	8.65	24-HR	1,422	8.65	D205L	24-HR, with Levee	1,422	8.65
D205L	1,287	8.65	1,422	8.65	24-HR	1,422	8.65	1,287	8.65	1,422	8.65	24-HR	1,422	8.65	D205L	24-HR, with Levee	1,422	8.65
D205R	2,836	8.65	3,216	8.65	24-HR	3,216	8.65	2,836	8.65	3,216	8.65	24-HR	3,216	8.65	D205R	24-HR, with Levee	3,216	8.65
D210L	852	9.49	929	9.49	24-HR	929	9.49	852	9.49	929	9.49	24-HR	929	9.49	D210L	24-HR, with Levee	929	9.49
D210L	852	9.49	929	9.49	24-HR	929	9.49	852	9.49	929	9.49	24-HR	929	9.49	D210L	24-HR, with Levee	929	9.49
D210R	2,136	9.49	2,324	9.49	24-HR	2,324	9.49	2,136	9.49	2,324	9.49	24-HR	2,324	9.49	D210R	24-HR, with Levee	2,324	9.49
D215BL	626	1.8	577	1.8	6-HR	626	1.8	724	7.63	756	7.63	24-HR	756	7.63	D215BL	24-HR, w/out Levee	756	7.63
D215BL	626	1.8	577	1.8	6-HR	626	1.8	724	7.63	756	7.63	24-HR	756	7.63	D215BL	24-HR, w/out Levee	756	7.63
D215BM	317	1.8	282	1.8	6-HR	317	1.8	387	7.63	411	7.63	24-HR	411	7.63	D215BM	24-HR, w/out Levee	411	7.63
D215BR	137	1.8	114	1.8	6-HR	137	1.8	182	7.63	199	7.63	24-HR	199	7.63	D215BR	24-HR, w/out Levee	199	7.63
D215DL	239	56.86	457	56.86	24-HR	457	56.86	1,608	23.4	2,040	23.4	24-HR	2,040	23.4	D215DL	24-HR, w/out Levee	2,040	23.4
D215DL	239	56.86	457	56.86	24-HR	457	56.86	1,608	23.4	2,040	23.4	24-HR	2,040	23.4	D215DL	24-HR, w/out Levee	2,040	23.4
D215DR	108	56.86	142	56.86	24-HR	142	56.86	258	23.4	305	23.4	24-HR	305	23.4	D215DR	24-HR, w/out Levee	305	23.4
D215GL	40	63.24	138	63.24	24-HR	138	63.24	264	26.96	346	26.96	24-HR	346	26.96	D215GL	24-HR, w/out Levee	346	26.96
D215GL	40	63.24	138	63.24	24-HR	138	63.24	264	26.96	346	26.96	24-HR	346	26.96	D215GL	24-HR, w/out Levee	346	26.96
D215GR	293	63.24	455	63.24	24-HR	455	63.24	630	26.96	743	26.96	24-HR	743	26.96	D215GR	24-HR, w/out Levee	743	26.96
D215IC	0	73.04	0	73.04	6-HR	0	73.04	0	74	0	74	6-HR	0	74	D215IC	6-HR, with Levee	0	74
D215II	956	73.04	2,157	73.04	24-HR	2,157	73.04	3,510	74	5,306	74	24-HR	5,306	74	D215II	24-HR, w/out Levee	5,306	74
D215II	956	73.04	2,157	73.04	24-HR	2,157	73.04	3,510	74	5,306	74	24-HR	5,306	74	D215II	24-HR, w/out Levee	5,306	74
D216AL	606	0.39	434	0.39	6-HR	606	0.39	606	0.39	434	0.39	6-HR	606	0.39	D216AL	6-HR, with Levee	606	0.39
D216AL	606	0.39	434	0.39	6-HR	606	0.39	606	0.39	434	0.39	6-HR	606	0.39	D216AL	6-HR, with Levee	606	0.39
D216AR	126	0.39	99	0.39	6-HR	126	0.39	126	0.39	99	0.39	6-HR	126	0.39	D216AR	6-HR, with Levee	126	0.39
D216CC	1	1.28	1	1.28	6-HR	1	1.28	1	1.28	1	1.28	6-HR	1	1.28	D216CC	6-HR, with Levee	1	1.28
D216CI	756	1.28	612	1.28	6-HR	756	1.28	756	1.28	612	1.28	6-HR	756	1.28	D216CI	6-HR, with Levee	756	1.28
D216CI	756	1.28	612	1.28	6-HR	756	1.28	756	1.28	612	1.28	6-HR	756	1.28	D216CI	6-HR, with Levee	756	1.28
D220L	1,605	11.21	1,752	11.21	24-HR	1,752	11.21	1,605	11.21	1,752	11.21	24-HR	1,752	11.21	D220L	24-HR, with Levee	1,752	11.21
D220L	1,605	11.21	1,752	11.21	24-HR	1,752	11.21	1,605	11.21	1,752	11.21	24-HR	1,752	11.21	D220L	24-HR, with Levee	1,752	11.21
D220R	707	11.21	767	11.21	24-HR	767	11.21	707	11.21	767	11.21	24-HR	767	11.21	D220R	24-HR, with Levee	767	11.21
D225AL	193	29.8	212	29.8	24-HR	212	29.8	1,492	14.51	1,655	14.51	24-HR	1,655	14.51	D225AL	24-HR, w/out Levee	1,655	14.51
D225AL	193	29.8	212	29.8	24-HR	212	29.8	1,492	14.51	1,655	14.51	24-HR	1,655	14.51	D225AL	24-HR, w/out Levee	1,655	14.51
D225AR	104	29.8	121	29.8	24-HR	121	29.8	1,119	14.51	1,231	14.51	24-HR	1,231	14.51	D225AR	24-HR, w/out Levee	1,231	14.51
D225T	297	29.52	333	29.52	24-HR	333	29.52	NO	NO	NO	NO	with Levee	0	0	D225T	24-HR, with Levee	333	29.52
D226BL	66	30.88	108	30.88	24-HR	108	30.88	414	15.58	473	15.58	24-HR	473	15.58	D226BL	24-HR, w/out Levee	473	15.58
D226BL	66	30.88	108	30.88	24-HR	108	30.88	414	15.58	473	15.58	24-HR	473	15.58	D226BL	24-HR, w/out Levee	473	15.58
D226BR	221	30.88	337	30.88	24-HR	337	30.88	993	15.58	1,099	15.58	24-HR	1,099	15.58	D226BR	24-HR, w/out Levee	1,099	15.58
D230L	1,416	3.94	1,529	3.94	24-HR	1,529	3.94	1,416	3.94	1,529	3.94	24-HR	1,529	3.94	D230L	24-HR, with Levee	1,529	3.94
D230L	1,416	3.94	1,529	3.94	24-HR	1,529	3.94	1,416	3.94	1,529	3.94	24-HR	1,529	3.94	D230L	24-HR, with Levee	1,529	3.94
D230R	456	3.94	493	3.94	24-HR	493	3.94	456	3.94	493	3.94	24-HR	493	3.94	D230R	24-HR, with Levee	493	3.94
D235AL	296	29.64	324	29.64	24-HR	324	29.64	1,283	17.16	1,440	17.16	24-HR	1,440	17.16	D235AL	24-HR, w/out Levee	1,440	17.16
D235AL	296	29.64	324	29.64	24-HR	324	29.64	1,283	17.16	1,440	17.16	24-HR	1,440	17.16	D235AL	24-HR, w/out Levee	1,440	17.16
D235AR	17	29.64	23	29.64	24-HR	23	29.64	447	17.16	534	17.16	24-HR	534	17.16	D235AR	24-HR, w/out Levee	534	17.16

[1] Flow is taken from the "modified hydrology model"

[2] Flow is taken from the "intermediate modified hydrology models"

	with Levee							w/out Levee										
	6-HR		24-HR		CNTR-1			6-HR		24-HR		CNTR-2			CONTROL			
ID	FLOW	AREA	FLOW	AREA	MODEL	FLOW	AREA	FLOW	AREA	FLOW	AREA	MODEL	FLOW	AREA	ID	MODEL	FLOW	AREA
D235T	314	29.52	347	29.52	24-HR	347	29.52	NO	NO	NO	NO	with Levee	0	0	D235T	24-HR, with Levee	347	29.52
D2-4	974	52.94	1,128	52.94	24-HR	1,128	52.94	NO	NO	NO	NO	with Levee	0	0	D2-4	24-HR, with Levee	1,128	52.94
D2-4	974	52.94	1,128	52.94	24-HR	1,128	52.94	NO	NO	NO	NO	with Levee	0	0	D2-4	24-HR, with Levee	1,128	52.94
D250BL	357	0.99	270	0.99	6-HR	357	0.99	357	0.99	270	0.99	6-HR	357	0.99	D250BL	6-HR, with Levee	357	0.99
D250BL	357	0.99	270	0.99	6-HR	357	0.99	357	0.99	270	0.99	6-HR	357	0.99	D250BL	6-HR, with Levee	357	0.99
D250BR	172	0.99	125	0.99	6-HR	172	0.99	172	0.99	125	0.99	6-HR	172	0.99	D250BR	6-HR, with Levee	172	0.99
D250EL	101	0.14	89	0.14	6-HR	101	0.14	NO	NO	NO	NO	with Levee	0	0	D250EL	6-HR, with Levee	101	0.14
D250EL	101	0.14	89	0.14	6-HR	101	0.14	NO	NO	NO	NO	with Levee	0	0	D250EL	6-HR, with Levee	101	0.14
D250ER	160	0.14	103	0.14	6-HR	160	0.14	NO	NO	NO	NO	with Levee	0	0	D250ER	6-HR, with Levee	160	0.14
D251AL	64	29.69	78	29.69	24-HR	78	29.69	649	2.69	610	2.69	6-HR	649	2.69	D251AL	6-HR, w/out Levee	649	2.69
D251AL	64	29.69	78	29.69	24-HR	78	29.69	649	2.69	610	2.69	6-HR	649	2.69	D251AL	6-HR, w/out Levee	649	2.69
D251AR	265	29.69	283	29.69	24-HR	283	29.69	576	2.69	560	2.69	6-HR	576	2.69	D251AR	6-HR, w/out Levee	576	2.69
D251T	330	29.52	362	29.52	24-HR	362	29.52	NO	NO	NO	NO	with Levee	0	0	D251T	24-HR, with Levee	362	29.52
D251T	330	29.52	362	29.52	24-HR	362	29.52	NO	NO	NO	NO	with Levee	0	0	D251T	24-HR, with Levee	362	29.52
D252L	623	0.98	495	0.98	6-HR	623	0.98	623	0.98	495	0.98	6-HR	623	0.98	D252L	6-HR, with Levee	623	0.98
D252L	623	0.98	495	0.98	6-HR	623	0.98	623	0.98	495	0.98	6-HR	623	0.98	D252L	6-HR, with Levee	623	0.98
D252R	132	0.98	99	0.98	6-HR	132	0.98	132	0.98	99	0.98	6-HR	132	0.98	D252R	6-HR, with Levee	132	0.98
D253HL	79	0.36	57	0.36	6-HR	79	0.36	79	0.36	57	0.36	6-HR	79	0.36	D253HL	6-HR, with Levee	79	0.36
D253HL	79	0.36	57	0.36	6-HR	79	0.36	79	0.36	57	0.36	6-HR	79	0.36	D253HL	6-HR, with Levee	79	0.36
D253HR	184	0.36	132	0.36	6-HR	184	0.36	184	0.36	132	0.36	6-HR	184	0.36	D253HR	6-HR, with Levee	184	0.36
D253OL	68	0.65	52	0.65	6-HR	68	0.65	68	0.65	52	0.65	6-HR	68	0.65	D253OL	6-HR, with Levee	68	0.65
D253OL	68	0.65	52	0.65	6-HR	68	0.65	68	0.65	52	0.65	6-HR	68	0.65	D253OL	6-HR, with Levee	68	0.65
D253OR	68	0.65	52	0.65	6-HR	68	0.65	68	0.65	52	0.65	6-HR	68	0.65	D253OR	6-HR, with Levee	68	0.65
D253PL	45	0.89	36	0.89	6-HR	45	0.89	45	0.89	36	0.89	6-HR	45	0.89	D253PL	6-HR, with Levee	45	0.89
D253PL	45	0.89	36	0.89	6-HR	45	0.89	45	0.89	36	0.89	6-HR	45	0.89	D253PL	6-HR, with Levee	45	0.89
D253PR	67	0.89	54	0.89	6-HR	67	0.89	67	0.89	54	0.89	6-HR	67	0.89	D253PR	6-HR, with Levee	67	0.89
D253XL[1]										11,592	142.92	24-HR	11,592	142.92	D253XL	24-HR, w/out Levee	11,592	142.92
D253XL[1]										11,592	142.92	24-HR	11,592	142.92	D253XL	24-HR, w/out Levee	11,592	142.92
D253XR[1]										1,851	142.92	24-HR	1,851	142.92	D253XR	24-HR, w/out Levee	1,851	142.92
D310L	758	1.1	661	1.1	6-HR	758	1.1	758	1.1	661	1.1	6-HR	758	1.1	D310L	6-HR, with Levee	758	1.1
D310L	758	1.1	661	1.1	6-HR	758	1.1	758	1.1	661	1.1	6-HR	758	1.1	D310L	6-HR, with Levee	758	1.1
D310R	461	1.1	394	1.1	6-HR	461	1.1	461	1.1	394	1.1	6-HR	461	1.1	D310R	6-HR, with Levee	461	1.1
D325L	920	1.78	848	1.78	6-HR	920	1.78	920	1.78	848	1.78	6-HR	920	1.78	D325L	6-HR, with Levee	920	1.78
D325L	920	1.78	848	1.78	6-HR	920	1.78	920	1.78	848	1.78	6-HR	920	1.78	D325L	6-HR, with Levee	920	1.78
D325R	132	1.78	127	1.78	6-HR	132	1.78	132	1.78	127	1.78	6-HR	132	1.78	D325R	6-HR, with Levee	132	1.78
D330AL[2]										1,416	9.99	24-HR	1,416	9.99	D330AL2	24-HR, w/out Levee	1,416	9.99
D330AL	99	13.14	131	13.14	24-HR	131	13.14	2,114	9.99	2,361	9.99	24-HR	2,361	9.99	D330AL	24-HR, w/out Levee	2,361	9.99
D330AR	20	13.14	26	13.14	24-HR	26	13.14	1,038	9.99	1,187	9.99	24-HR	1,187	9.99	D330AR	24-HR, w/out Levee	1,187	9.99
D330T	119	13	143	13	24-HR	143	13	NO	NO	NO	NO	with Levee	0	0	D330T	24-HR, with Levee	143	13
D3-4	661	52.94	760	52.94	24-HR	760	52.94	NO	NO	NO	NO	with Levee	0	0	D3-4	24-HR, with Levee	760	52.94
D3-4	661	52.94	760	52.94	24-HR	760	52.94	NO	NO	NO	NO	with Levee	0	0	D3-4	24-HR, with Levee	760	52.94
D340	115	13	139	13	24-HR	139	13	NO	NO	NO	NO	with Levee	0	0	D340	24-HR, with Levee	139	13
D340	115	13	139	13	24-HR	139	13	NO	NO	NO	NO	with Levee	0	0	D340	24-HR, with Levee	139	13
D340AL	21	13.46	38	13.46	24-HR	38	13.46	444	3.28	461	3.28	24-HR	461	3.28	D340AL	24-HR, w/out Levee	461	3.28
D340AL	21	13.46	38	13.46	24-HR	38	13.46	444	3.28	461	3.28	24-HR	461	3.28	D340AL	24-HR, w/out Levee	461	3.28
D340AR	317	13.46	482	13.46	24-HR	482	13.46	1,780	3.28	1,814	3.28	24-HR	1,814	3.28	D340AR	24-HR, w/out Levee	1,814	3.28
D410AL	1,249	17.45	1,449	17.45	24-HR	1,449	17.45	998	4.86	1,054	4.86	24-HR	1,054	4.86	D410AL	24-HR, with Levee	1,449	17.45
D410AL	1,249	17.45	1,449	17.45	24-HR	1,449	17.45	998	4.86	1,054	4.86	24-HR	1,054	4.86	D410AL	24-HR, with Levee	1,449	17.45
D410AR	421	17.45	529	17.45	24-HR	529	17.45	290	4.86	315	4.86	24-HR	315	4.86	D410AR	24-HR, with Levee	529	17.45
D6-7	643	29.52	709	29.52	24-HR	709	29.52	NO	NO	NO	NO	with Levee	0	0	D6-7	24-HR, with Levee	709	29.52
D6-7	643	29.52	709	29.52	24-HR	709	29.52	NO	NO	NO	NO	with Levee	0	0	D6-7	24-HR, with Levee	709	29.52
D700BL	658	56.08	922	56.08	24-HR	922	56.08	1,265	9.91	1,483	9.91	24-HR	1,483	9.91	D700BL	24-HR, w/out Levee	1,483	9.91
D700BL	658	56.08	922	56.08	24-HR	922	56.08	1,265	9.91	1,483	9.91	24-HR	1,483	9.91	D700BL	24-HR, w/out Levee	1,483	9.91
D700BR	648	56.08	965	56.08	24-HR	965	56.08	1,384	9.91	1,644	9.91	24-HR	1,644	9.91	D700BR	24-HR, w/out Levee	1,644	9.91

[1] Flow is taken from the "modified hydrology model"

[2] Flow is taken from the "intermediate modified hydrology models"

	with Levee							w/out Levee										
	6-HR		24-HR		CNTR-1			6-HR		24-HR		CNTR-2			CONTROL			
ID	FLOW	AREA	FLOW	AREA	MODEL	FLOW	AREA	FLOW	AREA	FLOW	AREA	MODEL	FLOW	AREA	ID	MODEL	FLOW	AREA
D700DL	360	56.52	874	56.52	24-HR	874	56.52	939	10.35	1,205	10.35	24-HR	1,205	10.35	D700DL	24-HR, w/out Levee	1,205	10.35
D700DL	360	56.52	874	56.52	24-HR	874	56.52	939	10.35	1,205	10.35	24-HR	1,205	10.35	D700DL	24-HR, w/out Levee	1,205	10.35
D700DR	450	56.52	450	56.52	6-HR	450	56.52	450	10.35	450	10.35	6-HR	450	10.35	D700DR	6-HR, with Levee	450	10.35
D700EL	75	56.7	187	56.7	24-HR	187	56.7	204	10.54	246	10.54	24-HR	246	10.54	D700EL	24-HR, w/out Levee	246	10.54
D700EL	75	56.7	187	56.7	24-HR	187	56.7	204	10.54	246	10.54	24-HR	246	10.54	D700EL	24-HR, w/out Levee	246	10.54
D700ER	242	56.7	663	56.7	24-HR	663	56.7	697	10.54	920	10.54	24-HR	920	10.54	D700ER	24-HR, w/out Levee	920	10.54
D700HL	24	56.96	99	56.96	24-HR	99	56.96	98	10.8	131	10.8	24-HR	131	10.8	D700HL	24-HR, w/out Levee	131	10.8
D700HL	24	56.96	99	56.96	24-HR	99	56.96	98	10.8	131	10.8	24-HR	131	10.8	D700HL	24-HR, w/out Levee	131	10.8
D700HR	16	56.96	66	56.96	24-HR	66	56.96	65	10.8	87	10.8	24-HR	87	10.8	D700HR	24-HR, w/out Levee	87	10.8
D700IL	19	57.17	68	57.17	24-HR	68	57.17	64	11.01	89	11.01	24-HR	89	11.01	D700IL	24-HR, w/out Levee	89	11.01
D700IL	19	57.17	68	57.17	24-HR	68	57.17	64	11.01	89	11.01	24-HR	89	11.01	D700IL	24-HR, w/out Levee	89	11.01
D700IR	5	57.17	17	57.17	24-HR	17	57.17	16	11.01	22	11.01	24-HR	22	11.01	D700IR	24-HR, w/out Levee	22	11.01
D710AL	426	57.06	612	57.06	24-HR	612	57.06	799	10.9	932	10.9	24-HR	932	10.9	D710AL	24-HR, w/out Levee	932	10.9
D710AL	426	57.06	612	57.06	24-HR	612	57.06	799	10.9	932	10.9	24-HR	932	10.9	D710AL	24-HR, w/out Levee	932	10.9
D710AR	277	57.06	393	57.06	24-HR	393	57.06	511	10.9	596	10.9	24-HR	596	10.9	D710AR	24-HR, w/out Levee	596	10.9
D710BL	94	57.6	144	57.6	24-HR	144	57.6	181	11.44	210	11.44	24-HR	210	11.44	D710BL	24-HR, w/out Levee	210	11.44
D710BL	94	57.6	144	57.6	24-HR	144	57.6	181	11.44	210	11.44	24-HR	210	11.44	D710BL	24-HR, w/out Levee	210	11.44
D710BR	142	57.6	216	57.6	24-HR	216	57.6	272	11.44	315	11.44	24-HR	315	11.44	D710BR	24-HR, w/out Levee	315	11.44
D710CL	55	57.86	96	57.86	24-HR	96	57.86	116	11.69	138	11.69	24-HR	138	11.69	D710CL	24-HR, w/out Levee	138	11.69
D710CL	55	57.86	96	57.86	24-HR	96	57.86	116	11.69	138	11.69	24-HR	138	11.69	D710CL	24-HR, w/out Levee	138	11.69
D710CR	55	57.86	96	57.86	24-HR	96	57.86	116	11.69	138	11.69	24-HR	138	11.69	D710CR	24-HR, w/out Levee	138	11.69
D710DL	32	58.11	51	58.11	24-HR	51	58.11	59	11.94	70	11.94	24-HR	70	11.94	D710DL	24-HR, w/out Levee	70	11.94
D710DL	32	58.11	51	58.11	24-HR	51	58.11	59	11.94	70	11.94	24-HR	70	11.94	D710DL	24-HR, w/out Levee	70	11.94
D710DR	21	58.11	34	58.11	24-HR	34	58.11	39	11.94	47	11.94	24-HR	47	11.94	D710DR	24-HR, w/out Levee	47	11.94
D710EL	49	57.89	82	57.89	24-HR	82	57.89	101	11.73	120	11.73	24-HR	120	11.73	D710EL	24-HR, w/out Levee	120	11.73
D710EL	49	57.89	82	57.89	24-HR	82	57.89	101	11.73	120	11.73	24-HR	120	11.73	D710EL	24-HR, w/out Levee	120	11.73
D710ER	33	57.89	55	57.89	24-HR	55	57.89	67	11.73	80	11.73	24-HR	80	11.73	D710ER	24-HR, w/out Levee	80	11.73
D710FL	49	58.41	88	58.41	24-HR	88	58.41	93	12.48	110	12.48	24-HR	110	12.48	D710FL	24-HR, w/out Levee	110	12.48
D710FL	49	58.41	88	58.41	24-HR	88	58.41	93	12.48	110	12.48	24-HR	110	12.48	D710FL	24-HR, w/out Levee	110	12.48
D710FR	33	58.41	58	58.41	24-HR	58	58.41	62	12.48	73	12.48	24-HR	73	12.48	D710FR	24-HR, w/out Levee	73	12.48
D710IL	30	58.13	67	58.13	24-HR	67	58.13	63	11.97	79	11.97	24-HR	79	11.97	D710IL	24-HR, w/out Levee	79	11.97
D710IL	30	58.13	67	58.13	24-HR	67	58.13	63	11.97	79	11.97	24-HR	79	11.97	D710IL	24-HR, w/out Levee	79	11.97
D710IR	13	58.13	29	58.13	24-HR	29	58.13	27	11.97	34	11.97	24-HR	34	11.97	D710IR	24-HR, w/out Levee	34	11.97
D710JL	50	58.9	112	58.9	24-HR	112	58.9	79	12.74	126	12.74	24-HR	126	12.74	D710JL	24-HR, w/out Levee	126	12.74
D710JL	50	58.9	112	58.9	24-HR	112	58.9	79	12.74	126	12.74	24-HR	126	12.74	D710JL	24-HR, w/out Levee	126	12.74
D710JR	76	58.9	168	58.9	24-HR	168	58.9	118	12.74	189	12.74	24-HR	189	12.74	D710JR	24-HR, w/out Levee	189	12.74
D710LL	22	59.15	66	59.15	24-HR	66	59.15	48	12.98	78	12.98	24-HR	78	12.98	D710LL	24-HR, w/out Levee	78	12.98
D710LL	22	59.15	66	59.15	24-HR	66	59.15	48	12.98	78	12.98	24-HR	78	12.98	D710LL	24-HR, w/out Levee	78	12.98
D710LR	9	59.15	28	59.15	24-HR	28	59.15	21	12.98	33	12.98	24-HR	33	12.98	D710LR	24-HR, w/out Levee	33	12.98
D720AL	212	0.44	154	0.44	6-HR	212	0.44	212	0.44	154	0.44	6-HR	212	0.44	D720AL	6-HR, with Levee	212	0.44
D720AL	212	0.44	154	0.44	6-HR	212	0.44	212	0.44	154	0.44	6-HR	212	0.44	D720AL	6-HR, with Levee	212	0.44
D720AR	212	0.44	154	0.44	6-HR	212	0.44	212	0.44	154	0.44	6-HR	212	0.44	D720AR	6-HR, with Levee	212	0.44
D720DL[1]										1,172	36.36	24-HR	1,172	36.36	D720DL	24-HR, w/out Levee	1,172	36.36
D720DL[1]										1,172	36.36	24-HR	1,172	36.36	D720DL	24-HR, w/out Levee	1,172	36.36
D720DR[1]										149	36.36	24-HR	149	36.36	D720DR	24-HR, w/out Levee	149	36.36
D720EL	1	72.63	9	72.63	24-HR	9	72.63	NO	NO	NO	NO	with Levee	0	0	D720EL	24-HR, with Levee	9	72.63
D720EL	1	72.63	9	72.63	24-HR	9	72.63	NO	NO	NO	NO	with Levee	0	0	D720EL	24-HR, with Levee	9	72.63
D720ER	131	72.63	260	72.63	24-HR	260	72.63	NO	NO	NO	NO	with Levee	0	0	D720ER	24-HR, with Levee	260	72.63
D720IL	7	72.77	35	72.77	24-HR	35	72.77	NO	NO	NO	NO	with Levee	0	0	D720IL	24-HR, with Levee	35	72.77
D720IL	7	72.77	35	72.77	24-HR	35	72.77	NO	NO	NO	NO	with Levee	0	0	D720IL	24-HR, with Levee	35	72.77
D720IR	920	72.77	2,138	72.77	24-HR	2,138	72.77	NO	NO	NO	NO	with Levee	0	0	D720IR	24-HR, with Levee	2,138	72.77
D740AL	482	1.91	454	1.91	6-HR	482	1.91	766	37.9	988	37.9	24-HR	988	37.9	D740AL	24-HR, w/out Levee	988	37.9
D740AL	482	1.91	454	1.91	6-HR	482	1.91	766	37.9	988	37.9	24-HR	988	37.9	D740AL	24-HR, w/out Levee	988	37.9
D740AM	817	1.91	758	1.91	6-HR	817	1.91	1,405	37.9	1,946	37.9	24-HR	1,946	37.9	D740AM	24-HR, w/out Levee	1,946	37.9

[1] Flow is taken from the "modified hydrology model"

[2] Flow is taken from the "intermediate modified hydrology models"

	with Levee							w/out Levee										
	6-HR		24-HR		CNTR-1			6-HR		24-HR		CNTR-2			CONTROL			
ID	FLOW	AREA	FLOW	AREA	MODEL	FLOW	AREA	FLOW	AREA	FLOW	AREA	MODEL	FLOW	AREA	ID	MODEL	FLOW	AREA
D740AR	74	1.91	58	1.91	6-HR	74	1.91	233	37.9	432	37.9	24-HR	432	37.9	D740AR	24-HR, w/out Levee	432	37.9
D760BL	215	0.97	175	0.97	6-HR	215	0.97	215	0.97	175	0.97	6-HR	215	0.97	D760BL	6-HR, with Levee	215	0.97
D760BL	215	0.97	175	0.97	6-HR	215	0.97	215	0.97	175	0.97	6-HR	215	0.97	D760BL	6-HR, with Levee	215	0.97
D760BR	355	0.97	291	0.97	6-HR	355	0.97	355	0.97	291	0.97	6-HR	355	0.97	D760BR	6-HR, with Levee	355	0.97
D760FL	49	0.94	26	0.94	6-HR	49	0.94	49	0.94	26	0.94	6-HR	49	0.94	D760FL	6-HR, with Levee	49	0.94
D760FL	49	0.94	26	0.94	6-HR	49	0.94	49	0.94	26	0.94	6-HR	49	0.94	D760FL	6-HR, with Levee	49	0.94
D760FR	349	0.94	304	0.94	6-HR	349	0.94	349	0.94	304	0.94	6-HR	349	0.94	D760FR	6-HR, with Levee	349	0.94
D760GL	551	2.73	524	2.73	6-HR	551	2.73	551	2.73	524	2.73	6-HR	551	2.73	D760GL	6-HR, with Levee	551	2.73
D760GL	551	2.73	524	2.73	6-HR	551	2.73	551	2.73	524	2.73	6-HR	551	2.73	D760GL	6-HR, with Levee	551	2.73
D760GR	0	2.73	0	2.73	6-HR	0	2.73	0	2.73	0	2.73	6-HR	0	2.73	D760GR	6-HR, with Levee	0	2.73
D760ML	905	74.62	1,687	74.62	24-HR	1,687	74.62	NO	NO	NO	NO	with Levee	0	0	D760ML	24-HR, with Levee	1,687	74.62
D760ML	905	74.62	1,687	74.62	24-HR	1,687	74.62	NO	NO	NO	NO	with Levee	0	0	D760ML	24-HR, with Levee	1,687	74.62
D760MR	142	74.62	408	74.62	24-HR	408	74.62	NO	NO	NO	NO	with Levee	0	0	D760MR	24-HR, with Levee	408	74.62
D770CL	254	76.57	319	76.57	24-HR	319	76.57	NO	NO	NO	NO	with Levee	0	0	D770CL	24-HR, with Levee	319	76.57
D770CL	254	76.57	319	76.57	24-HR	319	76.57	NO	NO	NO	NO	with Levee	0	0	D770CL	24-HR, with Levee	319	76.57
D770CR	634	76.57	1,355	76.57	24-HR	1,355	76.57	NO	NO	NO	NO	with Levee	0	0	D770CR	24-HR, with Levee	1,355	76.57
D800DL	316	78.56	613	78.56	24-HR	613	78.56	774	2	697	2	6-HR	774	2	D800DL	6-HR, w/out Levee	774	2
D800DL	316	78.56	613	78.56	24-HR	613	78.56	774	2	697	2	6-HR	774	2	D800DL	6-HR, w/out Levee	774	2
D800DR	60	78.56	101	78.56	24-HR	101	78.56	138	2	115	2	6-HR	138	2	D800DR	6-HR, w/out Levee	138	2
D800JL	304	81.19	588	81.19	24-HR	588	81.19	696	4.64	711	4.64	24-HR	711	4.64	D800JL	24-HR, w/out Levee	711	4.64
D800JL	304	81.19	588	81.19	24-HR	588	81.19	696	4.64	711	4.64	24-HR	711	4.64	D800JL	24-HR, w/out Levee	711	4.64
D800JR[1]										1,576	241.1	24-HR	1,576	241.1	D800JR	24-HR, w/out Levee	1,576	241.1
D820GL	181	0.24	136	0.24	6-HR	181	0.24	181	0.24	136	0.24	6-HR	181	0.24	D820GL	6-HR, with Levee	181	0.24
D820GR	139	0.24	98	0.24	6-HR	139	0.24	139	0.24	98	0.24	6-HR	139	0.24	D820GR	6-HR, with Levee	139	0.24
D820HL	50	0.47	50	0.47	6-HR	50	0.47	50	0.47	50	0.47	6-HR	50	0.47	D820HL	6-HR, with Levee	50	0.47
D820HL	50	0.47	50	0.47	6-HR	50	0.47	50	0.47	50	0.47	6-HR	50	0.47	D820HL	6-HR, with Levee	50	0.47
D820HR	491	0.47	341	0.47	6-HR	491	0.47	491	0.47	341	0.47	6-HR	491	0.47	D820HR	6-HR, with Levee	491	0.47
D820IL	310	2.02	310	2.02	6-HR	310	2.02	310	2.02	310	2.02	6-HR	310	2.02	D820IL	6-HR, with Levee	310	2.02
D820IL	310	2.02	310	2.02	6-HR	310	2.02	310	2.02	310	2.02	6-HR	310	2.02	D820IL	6-HR, with Levee	310	2.02
D820IR	219	2.02	175	2.02	6-HR	219	2.02	228	2.02	175	2.02	6-HR	228	2.02	D820IR	6-HR, w/out Levee	228	2.02
D910IL	368	0.63	280	0.63	6-HR	368	0.63	368	0.63	280	0.63	6-HR	368	0.63	D910IL	6-HR, with Levee	368	0.63
D910IL	368	0.63	280	0.63	6-HR	368	0.63	368	0.63	280	0.63	6-HR	368	0.63	D910IL	6-HR, with Levee	368	0.63
D910IR	245	0.63	186	0.63	6-HR	245	0.63	245	0.63	186	0.63	6-HR	245	0.63	D910IR	6-HR, with Levee	245	0.63
D920VL	51	0.17	38	0.17	6-HR	51	0.17	51	0.17	38	0.17	6-HR	51	0.17	D920VL	6-HR, with Levee	51	0.17
D920VR	77	0.17	57	0.17	6-HR	77	0.17	77	0.17	57	0.17	6-HR	77	0.17	D920VR	6-HR, with Levee	77	0.17
D920WL	63	0.54	47	0.54	6-HR	63	0.54	63	0.54	47	0.54	6-HR	63	0.54	D920WL	6-HR, with Levee	63	0.54
D920WR	148	0.54	110	0.54	6-HR	148	0.54	148	0.54	110	0.54	6-HR	148	0.54	D920WR	6-HR, with Levee	148	0.54
D940HL	306	0.83	306	0.83	6-HR	306	0.83	306	0.83	306	0.83	6-HR	306	0.83	D940HL	6-HR, with Levee	306	0.83
D940HL	306	0.83	306	0.83	6-HR	306	0.83	306	0.83	306	0.83	6-HR	306	0.83	D940HL	6-HR, with Levee	306	0.83
D940HR	384	0.83	259	0.83	6-HR	384	0.83	384	0.83	259	0.83	6-HR	384	0.83	D940HR	6-HR, with Levee	384	0.83
DL-M	943	1.8	858	1.8	6-HR	943	1.8	1,111	7.63	1,167	7.63	24-HR	1,167	7.63	DL-M	24-HR, w/out Levee	1,167	7.63
DL-M	943	1.8	858	1.8	6-HR	943	1.8	1,111	7.63	1,167	7.63	24-HR	1,167	7.63	DL-M	24-HR, w/out Levee	1,167	7.63
DM-L	1,299	1.91	1,211	1.91	6-HR	1,299	1.91	2,171	37.9	2,934	37.9	24-HR	2,934	37.9	DM-L	24-HR, w/out Levee	2,934	37.9
DM-L	1,299	1.91	1,211	1.91	6-HR	1,299	1.91	2,171	37.9	2,934	37.9	24-HR	2,934	37.9	DM-L	24-HR, w/out Levee	2,934	37.9
R100A	132	0.78	70	0.78	6-HR	132	0.78	NO	NO	NO	NO	with Levee	0	0	R100A	6-HR, with Levee	132	0.78
R100B	NO	NO	NO	NO	w/out Levee	0	0	416	0.53	308	0.53	6-HR	416	0.53	R100B	6-HR, w/out Levee	416	0.53
R100BL	492	1.32	397	1.32	6-HR	492	1.32	NO	NO	NO	NO	with Levee	0	0	R100BL	6-HR, with Levee	492	1.32
R100BR	24	1.32	18	1.32	6-HR	24	1.32	NO	NO	NO	NO	with Levee	0	0	R100BR	6-HR, with Levee	24	1.32
R100C	578	2	569	2	6-HR	578	2	664	1.22	575	1.22	6-HR	664	1.22	R100C	6-HR, w/out Levee	664	1.22
R105	3,947	13.05	4,400	13.05	24-HR	4,400	13.05	3,947	13.05	4,400	13.05	24-HR	4,400	13.05	R105	24-HR, with Levee	4,400	13.05
R110L	370	5.11	354	5.11	6-HR	370	5.11	370	5.11	354	5.11	6-HR	370	5.11	R110L	6-HR, with Levee	370	5.11
R110R	1,371	5.11	1,352	5.11	6-HR	1,371	5.11	1,371	5.11	1,352	5.11	6-HR	1,371	5.11	R110R	6-HR, with Levee	1,371	5.11
R115L	3,360	21.87	3,965	21.87	24-HR	3,965	21.87	3,360	21.88	3,965	21.88	24-HR	3,965	21.88	R115L	24-HR, with Levee	3,965	21.88
R115R	1,259	21.87	1,488	21.87	24-HR	1,488	21.87	1,259	21.88	1,488	21.88	24-HR	1,488	21.88	R115R	24-HR, with Levee	1,488	21.88

[1] Flow is taken from the "modified hydrology model"

[2] Flow is taken from the "intermediate modified hydrology models"

	with Levee							w/out Levee											
	6-HR		24-HR		CNTR-1			6-HR		24-HR		CNTR-2			CONTROL			
ID	FLOW	AREA	FLOW	AREA	MODEL	FLOW	AREA	FLOW	AREA	FLOW	AREA	MODEL	FLOW	AREA	ID	MODEL	FLOW	AREA
R120	302	52.94	358	52.94	24-HR	358	52.94	785	1.01	635	1.01	6-HR	785	1.01	R120	6-HR, w/out Levee	785	1.01
R120A	302	53.37	357	53.37	24-HR	357	53.37	1,077	2.19	994	2.19	6-HR	1,077	2.19	R120A	6-HR, w/out Levee	1,077	2.19
R120BL	0	0.1	0	0.1	6-HR	0	0.1	16	0.86	6	0.86	6-HR	16	0.86	R120BL	6-HR, w/out Levee	16	0.86
R120BR	157	0.1	111	0.1	6-HR	157	0.1	503	0.86	426	0.86	6-HR	503	0.86	R120BR	6-HR, w/out Levee	503	0.86
R120C	302	53.52	357	53.52	24-HR	357	53.52	1,005	2.34	928	2.34	6-HR	1,005	2.34	R120C	6-HR, w/out Levee	1,005	2.34
R120D	300	55.11	357	55.11	24-HR	357	55.11	877	2.5	804	2.5	6-HR	877	2.5	R120D	6-HR, w/out Levee	877	2.5
R120E	NO	NO	NO	NO	w/out Levee	0	0	87	0.11	60	0.11	6-HR	87	0.11	R120E	6-HR, w/out Levee	87	0.11
R120EL	101	1.43	43	1.43	6-HR	101	1.43	NO	NO	NO	NO	with Levee	0	0	R120EL	6-HR, with Levee	101	1.43
R120ER	333	1.43	303	1.43	6-HR	333	1.43	NO	NO	NO	NO	with Levee	0	0	R120ER	6-HR, with Levee	333	1.43
R120F	377	0.52	279	0.52	6-HR	377	0.52	323	1.28	277	1.28	6-HR	323	1.28	R120F	6-HR, with Levee	377	0.52
R120G	425	0.87	327	0.87	6-HR	425	0.87	382	1.63	325	1.63	6-HR	382	1.63	R120G	6-HR, with Levee	425	0.87
R120H	379	57.11	769	57.11	24-HR	769	57.11	1,043	5.15	1,075	5.15	24-HR	1,075	5.15	R120H	24-HR, w/out Levee	1,075	5.15
R120I	410	58.37	787	58.37	24-HR	787	58.37	983	6.41	1,070	6.41	24-HR	1,070	6.41	R120I	24-HR, w/out Levee	1,070	6.41
R120K	343	0.43	245	0.43	6-HR	343	0.43	343	0.43	245	0.43	6-HR	343	0.43	R120K	6-HR, with Levee	343	0.43
R120L	346	0.75	253	0.75	6-HR	346	0.75	346	0.75	253	0.75	6-HR	346	0.75	R120L	6-HR, with Levee	346	0.75
R120M	188	0.2	135	0.2	6-HR	188	0.2	244	0.2	170	0.2	6-HR	244	0.2	R120M	6-HR, w/out Levee	244	0.2
R120N	348	1.5	296	1.5	6-HR	348	1.5	425	1.5	366	1.5	6-HR	425	1.5	R120N	6-HR, w/out Levee	425	1.5
R120P	372	54.23	655	54.23	24-HR	655	54.23	1,147	24.33	1,360	24.33	24-HR	1,360	24.33	R120P	24-HR, w/out Levee	1,360	24.33
R120Q	387	54.77	674	54.77	24-HR	674	54.77	1,123	24.87	1,335	24.87	24-HR	1,335	24.87	R120Q	24-HR, w/out Levee	1,335	24.87
R122	NO	NO	NO	NO	w/out Levee	0	0	557	0.75	446	0.75	6-HR	557	0.75	R122	6-HR, w/out Levee	557	0.75
R125	NO	NO	NO	NO	w/out Levee	0	0	1,189	23.04	1,400	23.04	24-HR	1,400	23.04	R125	24-HR, w/out Levee	1,400	23.04
R125T	313	52.94	367	52.94	24-HR	367	52.94	NO	NO	NO	NO	with Levee	0	0	R125T	24-HR, with Levee	367	52.94
R130	1,486	4.52	1,452	4.52	6-HR	1,486	4.52	1,486	4.52	1,452	4.52	6-HR	1,486	4.52	R130	6-HR, with Levee	1,486	4.52
R135	NO	NO	NO	NO	w/out Levee	0	0	4,390	30.59	5,563	30.59	24-HR	5,563	30.59	R135	24-HR, w/out Levee	5,563	30.59
R135AL	210	53.65	247	53.65	24-HR	247	53.65	2,666	42.57	3,562	42.57	24-HR	3,562	42.57	R135AL	24-HR, w/out Levee	3,562	42.57
R135AR	101	53.65	117	53.65	24-HR	117	53.65	2,007	42.57	2,849	42.57	24-HR	2,849	42.57	R135AR	24-HR, w/out Levee	2,849	42.57
R135C	310	54.41	413	54.41	24-HR	413	54.41	4,529	43.33	6,255	43.33	24-HR	6,255	43.33	R135C	24-HR, w/out Levee	6,255	43.33
R135DL	42	56.7	42	56.7	6-HR	42	56.7	3,113	46.77	4,302	46.77	24-HR	4,302	46.77	R135DL	24-HR, w/out Levee	4,302	46.77
R135DR	576	56.7	948	56.7	24-HR	948	56.7	1,854	46.77	2,546	46.77	24-HR	2,546	46.77	R135DR	24-HR, w/out Levee	2,546	46.77
R135E	938	65.68	1,954	65.68	24-HR	1,954	65.68	2,046	65.68	3,303	65.68	24-HR	3,303	65.68	R135E	24-HR, w/out Levee	3,303	65.68
R135F	1,449	68.65	2,999	68.65	24-HR	2,999	68.65	2,072	59.72	3,260	59.72	24-HR	3,260	59.72	R135F	24-HR, w/out Levee	3,260	59.72
R135G	1,541	72.23	3,213	72.23	24-HR	3,213	72.23	1,999	63.3	3,195	63.3	24-HR	3,195	63.3	R135G	24-HR, with Levee	3,213	72.23
R135I	1,547	2.25	1,592	2.25	24-HR	1,592	2.25	1,547	2.25	1,592	2.25	24-HR	1,592	2.25	R135I	24-HR, with Levee	1,592	2.25
R135J	532	0.7	401	0.7	6-HR	532	0.7	532	0.7	401	0.7	6-HR	532	0.7	R135J	6-HR, with Levee	532	0.7
R135K	1,737	76.6	3,677	76.6	24-HR	3,677	76.6	1,922	67.67	3,694	67.67	24-HR	3,694	67.67	R135K	24-HR, w/out Levee	3,694	67.67
R135M	1,724	77.01	3,668	77.01	24-HR	3,668	77.01	1,910	68.08	3,675	68.08	24-HR	3,675	68.08	R135M	24-HR, w/out Levee	3,675	68.08
R135T	311	52.94	365	52.94	24-HR	365	52.94	NO	NO	NO	NO	with Levee	0	0	R135T	24-HR, with Levee	365	52.94
R136A	NO	NO	NO	NO	w/out Levee	0	0	57	0.07	40	0.07	6-HR	57	0.07	R136A	6-HR, w/out Levee	57	0.07
R136AL	62	0.07	32	0.07	6-HR	62	0.07	NO	NO	NO	NO	with Levee	0	0	R136AL	6-HR, with Levee	62	0.07
R136AR	34	0.07	28	0.07	6-HR	34	0.07	NO	NO	NO	NO	with Levee	0	0	R136AR	6-HR, with Levee	34	0.07
R136C	233	0.34	154	0.34	6-HR	233	0.34	203	0.27	141	0.27	6-HR	203	0.27	R136C	6-HR, with Levee	233	0.34
R136D	414	58.69	781	58.69	24-HR	781	58.69	3,080	48.78	4,302	48.78	24-HR	4,302	48.78	R136D	24-HR, w/out Levee	4,302	48.78
R140	1,369	2.08	1,201	2.08	6-HR	1,369	2.08	1,369	2.08	1,201	2.08	6-HR	1,369	2.08	R140	6-HR, with Levee	1,369	2.08
R145L	1,213	3.83	1,141	3.83	6-HR	1,213	3.83	1,213	3.83	1,141	3.83	6-HR	1,213	3.83	R145L	6-HR, with Levee	1,213	3.83
R145R	777	3.83	670	3.83	6-HR	777	3.83	777	3.83	670	3.83	6-HR	777	3.83	R145R	6-HR, with Levee	777	3.83
R150L	158	4.01	148	4.01	6-HR	158	4.01	158	4.01	148	4.01	6-HR	158	4.01	R150L	6-HR, with Levee	158	4.01
R150R	594	4.01	515	4.01	6-HR	594	4.01	594	4.01	515	4.01	6-HR	594	4.01	R150R	6-HR, with Levee	594	4.01
R155L	292	4.65	294	4.65	24-HR	294	4.65	292	4.65	294	4.65	24-HR	294	4.65	R155L	24-HR, with Levee	294	4.65
R155R	294	4.65	305	4.65	24-HR	305	4.65	294	4.65	305	4.65	24-HR	305	4.65	R155R	24-HR, with Levee	305	4.65
R160	950	1.32	780	1.32	6-HR	950	1.32	950	1.32	780	1.32	6-HR	950	1.32	R160	6-HR, with Levee	950	1.32
R165L	1,560	8.61	1,623	8.61	24-HR	1,623	8.61	1,560	8.61	1,623	8.61	24-HR	1,623	8.61	R165L	24-HR, with Levee	1,623	8.61
R165R	794	8.61	832	8.61	24-HR	832	8.61	794	8.61	832	8.61	24-HR	832	8.61	R165R	24-HR, with Levee	832	8.61
R170	1,199	9.97	1,333	9.97	24-HR	1,333	9.97	1,199	9.97	1,333	9.97	24-HR	1,333	9.97	R170	24-HR, with Levee	1,333	9.97
R175	NO	NO	NO	NO	w/out Levee	0	0	1,306	11.28	1,449	11.28	24-HR	1,449	11.28	R175	24-HR, w/out Levee	1,449	11.28

[1] Flow is taken from the "modified hydrology model"

[2] Flow is taken from the "intermediate modified hydrology models"

	with Levee							w/out Levee								CONTROL			
	6-HR		24-HR		CNTR-1			6-HR		24-HR		CNTR-2							
ID	FLOW	AREA	FLOW	AREA	MODEL	FLOW	AREA	FLOW	AREA	FLOW	AREA	MODEL	FLOW	AREA	ID	MODEL	FLOW	AREA
R175A	496	0.51	363	0.51	6-HR	496	0.51	496	0.51	363	0.51	6-HR	496	0.51	R175A	6-HR, with Levee	496	0.51
R175B	NO	NO	NO	NO	w/out Levee	0	0	571	1.15	508	1.15	6-HR	571	1.15	R175B	6-HR, w/out Levee	571	1.15
R175BL	72	1.15	13	1.15	6-HR	72	1.15	NO	NO	NO	NO	with Levee	0	0	R175BL	6-HR, with Levee	72	1.15
R175BR	554	1.15	502	1.15	6-HR	554	1.15	NO	NO	NO	NO	with Levee	0	0	R175BR	6-HR, with Levee	554	1.15
R175C	NO	NO	NO	NO	w/out Levee	0	0	185	0.2	132	0.2	6-HR	185	0.2	R175C	6-HR, w/out Levee	185	0.2
R175CL	1	1.35	1	1.35	6-HR	1	1.35	NO	NO	NO	NO	with Levee	0	0	R175CL	6-HR, with Levee	1	1.35
R175CR	164	1.35	130	1.35	6-HR	164	1.35	NO	NO	NO	NO	with Levee	0	0	R175CR	6-HR, with Levee	164	1.35
R175D	543	61.1	1,086	61.1	24-HR	1,086	61.1	2,949	51.72	4,221	51.72	24-HR	4,221	51.72	R175D	24-HR, w/out Levee	4,221	51.72
R180	NO	NO	NO	NO	w/out Levee	0	0	2,346	11.9	2,603	11.9	24-HR	2,603	11.9	R180	24-HR, w/out Levee	2,603	11.9
R180AL	201	0.43	136	0.43	6-HR	201	0.43	1,281	12.33	1,424	12.33	24-HR	1,424	12.33	R180AL	24-HR, w/out Levee	1,424	12.33
R180AR	193	0.43	141	0.43	6-HR	193	0.43	997	12.33	1,093	12.33	24-HR	1,093	12.33	R180AR	24-HR, w/out Levee	1,093	12.33
R180B	902	1.71	799	1.71	6-HR	902	1.71	1,006	13.61	1,114	13.61	24-HR	1,114	13.61	R180B	24-HR, w/out Levee	1,114	13.61
R180CL	596	2.86	559	2.86	6-HR	596	2.86	781	15.7	865	15.7	24-HR	865	15.7	R180CL	24-HR, w/out Levee	865	15.7
R180CR	432	2.86	400	2.86	6-HR	432	2.86	609	15.7	708	15.7	24-HR	708	15.7	R180CR	24-HR, w/out Levee	708	15.7
R180DL	181	0.86	119	0.86	6-HR	181	0.86	1,061	13.7	1,213	13.7	24-HR	1,213	13.7	R180DL	24-HR, w/out Levee	1,213	13.7
R180DR	216	0.86	174	0.86	6-HR	216	0.86	455	13.7	517	13.7	24-HR	517	13.7	R180DR	24-HR, w/out Levee	517	13.7
R180F	NO	NO	NO	NO	w/out Levee	0	0	604	16.89	721	16.89	24-HR	721	16.89	R180F	24-HR, w/out Levee	721	16.89
R180FL	226	5.41	251	5.41	24-HR	251	5.41	NO	NO	NO	NO	with Levee	0	0	R180FL	24-HR, with Levee	251	5.41
R180FR	480	5.41	489	5.41	24-HR	489	5.41	NO	NO	NO	NO	with Levee	0	0	R180FR	24-HR, with Levee	489	5.41
R180G	NO	NO	NO	NO	w/out Levee	0	0	315	0.28	224	0.28	6-HR	315	0.28	R180G	6-HR, w/out Levee	315	0.28
R180GL	0	5.68	0	5.68	6-HR	0	5.68	NO	NO	NO	NO	with Levee	0	0	R180GL	6-HR, with Levee	0	0
R180GR	243	5.68	267	5.68	24-HR	267	5.68	NO	NO	NO	NO	with Levee	0	0	R180GR	24-HR, with Levee	267	5.68
R180HL	1	5.99	1	5.99	6-HR	1	5.99	1	17.47	1	17.47	6-HR	1	17.47	R180HL	6-HR, with Levee	1	17.47
R180HR	711	5.99	754	5.99	24-HR	754	5.99	595	17.47	773	17.47	24-HR	773	17.47	R180HR	24-HR, w/out Levee	773	17.47
R180I	688	6.26	734	6.26	24-HR	734	6.26	579	17.74	748	17.74	24-HR	748	17.74	R180I	24-HR, w/out Levee	748	17.74
R185	NO	NO	NO	NO	w/out Levee	0	0	711	0.94	561	0.94	6-HR	711	0.94	R185	6-HR, w/out Levee	711	0.94
R190	1,431	2.82	1,360	2.82	6-HR	1,431	2.82	1,431	2.82	1,360	2.82	6-HR	1,431	2.82	R190	6-HR, with Levee	1,431	2.82
R195L	498	3.11	462	3.11	6-HR	498	3.11	498	3.11	462	3.11	6-HR	498	3.11	R195L	6-HR, with Levee	498	3.11
R195R	875	3.11	797	3.11	6-HR	875	3.11	874	3.11	797	3.11	6-HR	874	3.11	R195R	6-HR, with Levee	875	3.11
R199	349	52.94	395	52.94	24-HR	395	52.94	913	3.92	822	3.92	6-HR	913	3.92	R199	6-HR, w/out Levee	913	3.92
R199A	349	53.23	395	53.23	24-HR	395	53.23	879	4.2	789	4.2	6-HR	879	4.2	R199A	6-HR, w/out Levee	879	4.2
R199B	347	55.61	394	55.61	24-HR	394	55.61	905	9.31	961	9.31	24-HR	961	9.31	R199B	24-HR, w/out Levee	961	9.31
R200	2,062	3.82	2,037	3.82	6-HR	2,062	3.82	2,062	3.82	2,037	3.82	6-HR	2,062	3.82	R200	6-HR, with Levee	2,062	3.82
R205L	1,218	8.65	1,281	8.65	24-HR	1,281	8.65	1,218	8.65	1,281	8.65	24-HR	1,281	8.65	R205L	24-HR, with Levee	1,281	8.65
R205R	2,761	8.65	2,943	8.65	24-HR	2,943	8.65	2,761	8.65	2,943	8.65	24-HR	2,943	8.65	R205R	24-HR, with Levee	2,943	8.65
R210L	826	9.49	894	9.49	24-HR	894	9.49	826	9.49	894	9.49	24-HR	894	9.49	R210L	24-HR, with Levee	894	9.49
R210R	1,917	9.49	2,062	9.49	24-HR	2,062	9.49	1,917	9.49	2,062	9.49	24-HR	2,062	9.49	R210R	24-HR, with Levee	2,062	9.49
R215	NO	NO	NO	NO	w/out Levee	0	0	1,264	5.84	1,275	5.84	24-HR	1,275	5.84	R215	24-HR, w/out Levee	1,275	5.84
R215BL	555	1.8	504	1.8	6-HR	555	1.8	683	7.63	716	7.63	24-HR	716	7.63	R215BL	24-HR, w/out Levee	716	7.63
R215BM	289	1.8	259	1.8	6-HR	289	1.8	373	7.63	399	7.63	24-HR	399	7.63	R215BM	24-HR, w/out Levee	399	7.63
R215BR	126	1.8	103	1.8	6-HR	126	1.8	173	7.63	190	7.63	24-HR	190	7.63	R215BR	24-HR, w/out Levee	190	7.63
R215DL	239	56.86	418	56.86	24-HR	418	56.86	1,548	23.4	1,988	23.4	24-HR	1,988	23.4	R215DL	24-HR, w/out Levee	1,988	23.4
R215DR	108	56.86	139	56.86	24-HR	139	56.86	255	23.4	301	23.4	24-HR	301	23.4	R215DR	24-HR, w/out Levee	301	23.4
R215E	352	59.48	610	59.48	24-HR	610	59.48	922	26.02	1,114	26.02	24-HR	1,114	26.02	R215E	24-HR, w/out Levee	1,114	26.02
R215F	333	62.68	587	62.68	24-HR	587	62.68	899	26.4	1,090	26.4	24-HR	1,090	26.4	R215F	24-HR, w/out Levee	1,090	26.4
R215GL	33	63.24	133	63.24	24-HR	133	63.24	259	26.96	340	26.96	24-HR	340	26.96	R215GL	24-HR, w/out Levee	340	26.96
R215GR	288	63.24	448	63.24	24-HR	448	63.24	624	26.96	736	26.96	24-HR	736	26.96	R215GR	24-HR, w/out Levee	736	26.96
R215H	928	72.51	2,025	72.51	24-HR	2,025	72.51	3,372	73.47	5,075	73.47	24-HR	5,075	73.47	R215H	24-HR, w/out Levee	5,075	73.47
R215I	940	73.04	2,141	73.04	24-HR	2,141	73.04	3,487	74	5,288	74	24-HR	5,288	74	R215I	24-HR, w/out Levee	5,288	74
R216AL	400	0.39	290	0.39	6-HR	400	0.39	400	0.39	290	0.39	6-HR	400	0.39	R216AL	6-HR, with Levee	400	0.39
R216AR	91	0.39	65	0.39	6-HR	91	0.39	91	0.39	65	0.39	6-HR	91	0.39	R216AR	6-HR, with Levee	91	0.39
R216B	394	0.72	307	0.72	6-HR	394	0.72	394	0.72	307	0.72	6-HR	394	0.72	R216B	6-HR, with Levee	394	0.72
R217A	472	57.76	859	57.76	24-HR	859	57.76	2,010	24.3	2,521	24.3	24-HR	2,521	24.3	R217A	24-HR, w/out Levee	2,521	24.3
R217B	457	58.78	852	58.78	24-HR	852	58.78	1,952	25.32	2,488	25.32	24-HR	2,488	25.32	R217B	24-HR, w/out Levee	2,488	25.32

[1] Flow is taken from the "modified hydrology model"

[2] Flow is taken from the "intermediate modified hydrology models"

	with Levee							w/out Levee											
	6-HR		24-HR		CNTR-1			6-HR		24-HR		CNTR-2			CONTROL			
ID	FLOW	AREA	FLOW	AREA	MODEL	FLOW	AREA	FLOW	AREA	FLOW	AREA	MODEL	FLOW	AREA	ID	MODEL	FLOW	AREA
R220L	1,502	11.21	1,619	11.21	24-HR	1,619	11.21	1,502	11.21	1,619	11.21	24-HR	1,619	11.21	R220L	24-HR, with Levee	1,619	11.21
R220R	648	11.21	695	11.21	24-HR	695	11.21	652	11.21	695	11.21	24-HR	695	11.21	R220R	24-HR, with Levee	695	11.21
R225	NO	NO	NO	NO	w/out Levee	0	0	2,620	14.23	2,891	14.23	24-HR	2,891	14.23	R225	24-HR, w/out Levee	2,891	14.23
R225AL	193	29.8	212	29.8	24-HR	212	29.8	1,488	14.51	1,641	14.51	24-HR	1,641	14.51	R225AL	24-HR, w/out Levee	1,641	14.51
R225AR	104	29.8	121	29.8	24-HR	121	29.8	1,079	14.51	1,183	14.51	24-HR	1,183	14.51	R225AR	24-HR, w/out Levee	1,183	14.51
R225B	153	30.33	248	30.33	24-HR	248	30.33	1,048	15.03	1,145	15.03	24-HR	1,145	15.03	R225B	24-HR, w/out Levee	1,145	15.03
R225C	291	31.18	474	31.18	24-HR	474	31.18	1,015	15.89	1,115	15.89	24-HR	1,115	15.89	R225C	24-HR, w/out Levee	1,115	15.89
R225D	361	31.71	577	31.71	24-HR	577	31.71	988	16.42	1,097	16.42	24-HR	1,097	16.42	R225D	24-HR, w/out Levee	1,097	16.42
R225F	224	31.63	360	31.63	24-HR	360	31.63	1,304	16.33	1,461	16.33	24-HR	1,461	16.33	R225F	24-HR, w/out Levee	1,461	16.33
R225T	297	29.52	333	29.52	24-HR	333	29.52	NO	NO	NO	NO	with Levee	0	0	R225T	24-HR, with Levee	333	29.52
R226A	193	30.12	241	30.12	24-HR	241	30.12	1,414	14.82	1,571	14.82	24-HR	1,571	14.82	R226A	24-HR, w/out Levee	1,571	14.82
R226BL	42	30.88	69	30.88	24-HR	69	30.88	393	15.58	446	15.58	24-HR	446	15.58	R226BL	24-HR, w/out Levee	446	15.58
R226BR	210	30.88	316	30.88	24-HR	316	30.88	984	15.58	1,083	15.58	24-HR	1,083	15.58	R226BR	24-HR, w/out Levee	1,083	15.58
R226D	194	31.03	293	31.03	24-HR	293	31.03	950	15.73	1,047	15.73	24-HR	1,047	15.73	R226D	24-HR, w/out Levee	1,047	15.73
R230L	1,305	3.94	1,300	3.94	6-HR	1,305	3.94	1,305	3.94	1,300	3.94	6-HR	1,305	3.94	R230L	6-HR, with Levee	1,305	3.94
R230R	397	3.94	391	3.94	6-HR	397	3.94	397	3.94	391	3.94	6-HR	397	3.94	R230R	6-HR, with Levee	397	3.94
R235	NO	NO	NO	NO	w/out Levee	0	0	1,733	17.04	1,975	17.04	24-HR	1,975	17.04	R235	24-HR, w/out Levee	1,975	17.04
R235AL	296	29.64	324	29.64	24-HR	324	29.64	1,245	17.16	1,394	17.16	24-HR	1,394	17.16	R235AL	24-HR, w/out Levee	1,394	17.16
R235AR	17	29.64	23	29.64	24-HR	23	29.64	427	17.16	505	17.16	24-HR	505	17.16	R235AR	24-HR, w/out Levee	505	17.16
R235C	327	30.78	596	30.78	24-HR	596	30.78	1,618	18.3	1,849	18.3	24-HR	1,849	18.3	R235C	24-HR, w/out Levee	1,849	18.3
R235D	333	31.36	589	31.36	24-HR	589	31.36	1,574	18.88	1,810	18.88	24-HR	1,810	18.88	R235D	24-HR, w/out Levee	1,810	18.88
R235T	314	29.52	347	29.52	24-HR	347	29.52	NO	NO	NO	NO	with Levee	0	0	R235T	24-HR, with Levee	347	29.52
R236A	193	0.23	135	0.23	6-HR	193	0.23	193	0.23	135	0.23	6-HR	193	0.23	R236A	6-HR, with Levee	193	0.23
R240	NO	NO	NO	NO	w/out Levee	0	0	1,296	4.68	1,287	4.68	6-HR	1,296	4.68	R240	6-HR, w/out Levee	1,296	4.68
R240A	221	0.28	154	0.28	6-HR	221	0.28	1,199	4.95	1,186	4.95	6-HR	1,199	4.95	R240A	6-HR, w/out Levee	1,199	4.95
R240B	391	1.12	309	1.12	6-HR	391	1.12	1,186	5.8	1,202	5.8	24-HR	1,202	5.8	R240B	24-HR, w/out Levee	1,202	5.8
R245	695	0.82	533	0.82	6-HR	695	0.82	695	0.82	533	0.82	6-HR	695	0.82	R245	6-HR, with Levee	695	0.82
R250A	412	0.47	289	0.47	6-HR	412	0.47	412	0.47	289	0.47	6-HR	412	0.47	R250A	6-HR, with Levee	412	0.47
R250BL	317	0.99	235	0.99	6-HR	317	0.99	317	0.99	235	0.99	6-HR	317	0.99	R250BL	6-HR, with Levee	317	0.99
R250BR	140	0.99	103	0.99	6-HR	140	0.99	140	0.99	103	0.99	6-HR	140	0.99	R250BR	6-HR, with Levee	140	0.99
R250C	481	34.42	816	34.42	24-HR	816	34.42	2,382	22.68	2,888	22.68	24-HR	2,888	22.68	R250C	24-HR, w/out Levee	2,888	22.68
R250E	NO	NO	NO	NO	w/out Levee	0	0	118	0.14	85	0.14	6-HR	118	0.14	R250E	6-HR, w/out Levee	118	0.14
R250EL	91	0.14	72	0.14	6-HR	91	0.14	NO	NO	NO	NO	with Levee	0	0	R250EL	6-HR, with Levee	91	0.14
R250ER	60	0.14	39	0.14	6-HR	60	0.14	NO	NO	NO	NO	with Levee	0	0	R250ER	6-HR, with Levee	60	0.14
R250F	313	1.38	249	1.38	6-HR	313	1.38	350	1.38	282	1.38	6-HR	350	1.38	R250F	6-HR, w/out Levee	350	1.38
R250G	313	0.36	224	0.36	6-HR	313	0.36	313	0.36	224	0.36	6-HR	313	0.36	R250G	6-HR, with Levee	313	0.36
R250H	363	31.3	570	31.3	24-HR	570	31.3	1,469	4.53	1,476	4.53	24-HR	1,476	4.53	R250H	24-HR, w/out Levee	1,476	4.53
R251	NO	NO	NO	NO	w/out Levee	0	0	1,164	2.52	1,104	2.52	6-HR	1,164	2.52	R251	6-HR, w/out Levee	1,164	2.52
R251AL	64	29.69	78	29.69	24-HR	78	29.69	601	2.69	544	2.69	6-HR	601	2.69	R251AL	6-HR, w/out Levee	601	2.69
R251AR	265	29.69	283	29.69	24-HR	283	29.69	543	2.69	515	2.69	6-HR	543	2.69	R251AR	6-HR, w/out Levee	543	2.69
R251B	265	29.77	283	29.77	24-HR	283	29.77	492	2.77	465	2.77	6-HR	492	2.77	R251B	6-HR, w/out Levee	492	2.77
R251T	330	29.52	362	29.52	24-HR	362	29.52	NO	NO	NO	NO	with Levee	0	0	R251T	24-HR, with Levee	362	29.52
R252L	600	0.98	453	0.98	6-HR	600	0.98	600	0.98	453	0.98	6-HR	600	0.98	R252L	6-HR, with Levee	600	0.98
R252R	126	0.98	89	0.98	6-HR	126	0.98	126	0.98	89	0.98	6-HR	126	0.98	R252R	6-HR, with Levee	126	0.98
R253	NO	NO	NO	NO	w/out Levee	0	0	738	1.36	614	1.36	6-HR	738	1.36	R253	6-HR, w/out Levee	738	1.36
R253A	153	29.97	245	29.97	24-HR	245	29.97	1,203	3.34	1,175	3.34	6-HR	1,203	3.34	R253A	6-HR, w/out Levee	1,203	3.34
R253B	178	30.09	266	30.09	24-HR	266	30.09	1,089	3.46	1,015	3.46	6-HR	1,089	3.46	R253B	6-HR, w/out Levee	1,089	3.46
R253C	328	30.51	435	30.51	24-HR	435	30.51	1,446	3.89	1,374	3.89	6-HR	1,446	3.89	R253C	6-HR, w/out Levee	1,446	3.89
R253E	471	0.61	346	0.61	6-HR	471	0.61	471	0.61	346	0.61	6-HR	471	0.61	R253E	6-HR, with Levee	471	0.61
R253F	493	32.32	774	32.32	24-HR	774	32.32	434	1.02	335	1.02	6-HR	434	1.02	R253F	24-HR, with Levee	774	32.32
R253G	474	32.51	745	32.51	24-HR	745	32.51	1,596	5.75	1,706	5.75	24-HR	1,706	5.75	R253G	24-HR, w/out Levee	1,706	5.75
R253HL	35	0.36	20	0.36	6-HR	35	0.36	35	0.36	20	0.36	6-HR	35	0.36	R253HL	6-HR, with Levee	35	0.36
R253HR	140	0.36	99	0.36	6-HR	140	0.36	140	0.36	99	0.36	6-HR	140	0.36	R253HR	6-HR, with Levee	140	0.36
R253I	990	38.72	1,722	38.72	24-HR	1,722	38.72	2,964	29.87	3,955	29.87	24-HR	3,955	29.87	R253I	24-HR, w/out Levee	3,955	29.87

[1] Flow is taken from the "modified hydrology model"

[2] Flow is taken from the "intermediate modified hydrology models"

	with Levee							w/out Levee								CONTROL			
	6-HR		24-HR		CNTR-1			6-HR		24-HR		CNTR-2							
ID	FLOW	AREA	FLOW	AREA	MODEL	FLOW	AREA	FLOW	AREA	FLOW	AREA	MODEL	FLOW	AREA	ID	MODEL	FLOW	AREA
R253J	1,075	41.49	1,934	41.49	24-HR	1,934	41.49	3,647	35.66	5,027	35.66	24-HR	5,027	35.66	R253J	24-HR, w/out Levee	5,027	35.66
R253K	1,155	44.31	2,157	44.31	24-HR	2,157	44.31	4,278	38.47	5,974	38.47	24-HR	5,974	38.47	R253K	24-HR, w/out Levee	5,974	38.47
R253L	1,047	101.09	2,669	101.09	24-HR	2,669	101.09	4,865	64.91	7,898	64.91	24-HR	7,898	64.91	R253L	24-HR, w/out Levee	7,898	64.91
R253M	1,047	101.58	2,641	101.58	24-HR	2,641	101.58	4,803	65.4	7,855	65.4	24-HR	7,855	65.4	R253M	24-HR, w/out Levee	7,855	65.4
R253N	1,063	104.65	2,809	104.65	24-HR	2,809	104.65	4,737	68.46	7,872	68.46	24-HR	7,872	68.46	R253N	24-HR, w/out Levee	7,872	68.46
R253OL	54	0.65	39	0.65	6-HR	54	0.65	54	0.65	39	0.65	6-HR	54	0.65	R253OL	6-HR, with Levee	54	0.65
R253OR	49	0.65	36	0.65	6-HR	49	0.65	49	0.65	36	0.65	6-HR	49	0.65	R253OR	6-HR, with Levee	49	0.65
R253PL	23	0.89	17	0.89	6-HR	23	0.89	23	0.89	17	0.89	6-HR	23	0.89	R253PL	6-HR, with Levee	23	0.89
R253PR	30	0.89	24	0.89	6-HR	30	0.89	30	0.89	24	0.89	6-HR	30	0.89	R253PR	6-HR, with Levee	30	0.89
R253Q	366	1.95	343	1.95	6-HR	366	1.95	369	1.95	346	1.95	6-HR	369	1.95	R253Q	6-HR, w/out Levee	369	1.95
R253S	1,697	121.82	4,628	121.82	24-HR	4,628	121.82	6,042	120.06	11,102	120.06	24-HR	11,102	120.06	R253S	24-HR, w/out Levee	11,102	120.06
R253U	1,696	123.31	4,718	123.31	24-HR	4,718	123.31	6,020	121.55	11,095	121.55	24-HR	11,095	121.55	R253U	24-HR, w/out Levee	11,095	121.55
R253V	260	0.55	192	0.55	6-HR	260	0.55	260	0.55	192	0.55	6-HR	260	0.55	R253V	6-HR, with Levee	260	0.55
R253W	427	0.43	312	0.43	6-HR	427	0.43	427	0.43	312	0.43	6-HR	427	0.43	R253W	6-HR, with Levee	427	0.43
R253XL	2,353	143.7	6,940	143.7	24-HR	6,940	143.7	6,286	142.92	11,583	142.92	24-HR	11,583	142.92	R253XL	24-HR, w/out Levee	11,583	142.92
R253XR	461	143.7	1,098	143.7	24-HR	1,098	143.7	1,013	142.92	1,843	142.92	24-HR	1,843	142.92	R253XR	24-HR, w/out Levee	1,843	142.92
R253Y	714	147.68	1,575	147.68	24-HR	1,575	147.68	999	146.9	1,843	146.9	24-HR	1,843	146.9	R253Y	24-HR, w/out Levee	1,843	146.9
R253Z	626	148.06	1,319	148.06	24-HR	1,319	148.06	961	147.28	1,806	147.28	24-HR	1,806	147.28	R253Z	24-HR, w/out Levee	1,806	147.28
R300	1,897	3.68	1,852	3.68	6-HR	1,897	3.68	1,897	3.68	1,852	3.68	6-HR	1,897	3.68	R300	6-HR, with Levee	1,897	3.68
R305	NO	NO	NO	NO	w/out Levee	0	0	2,387	6.26	2,542	6.26	24-HR	2,542	6.26	R305	24-HR, w/out Levee	2,542	6.26
R305A	649	1.23	551	1.23	6-HR	649	1.23	642	1.23	542	1.23	6-HR	642	1.23	R305A	6-HR, with Levee	649	1.23
R305B	156	0.17	109	0.17	6-HR	156	0.17	156	0.17	109	0.17	6-HR	156	0.17	R305B	6-HR, with Levee	156	0.17
R305C	723	1.63	638	1.63	6-HR	723	1.63	231	0.4	167	0.4	6-HR	231	0.4	R305C	6-HR, with Levee	723	1.63
R305D	174	0.19	119	0.19	6-HR	174	0.19	174	0.19	119	0.19	6-HR	174	0.19	R305D	6-HR, with Levee	174	0.19
R305E	NO	NO	NO	NO	w/out Levee	0	0	190	0.39	135	0.39	6-HR	190	0.39	R305E	6-HR, w/out Levee	190	0.39
R310L	740	1.1	647	1.1	6-HR	740	1.1	740	1.1	647	1.1	6-HR	740	1.1	R310L	6-HR, with Levee	740	1.1
R310R	392	1.1	322	1.1	6-HR	392	1.1	392	1.1	322	1.1	6-HR	392	1.1	R310R	6-HR, with Levee	392	1.1
R315	998	2.33	1,068	2.33	24-HR	1,068	2.33	998	2.33	1,068	2.33	24-HR	1,068	2.33	R315	24-HR, with Levee	1,068	2.33
R320	861	1.41	770	1.41	6-HR	861	1.41	861	1.41	770	1.41	6-HR	861	1.41	R320	6-HR, with Levee	861	1.41
R325L	865	1.78	788	1.78	6-HR	865	1.78	865	1.78	788	1.78	6-HR	865	1.78	R325L	6-HR, with Levee	865	1.78
R325R	127	1.78	121	1.78	6-HR	127	1.78	127	1.78	121	1.78	6-HR	127	1.78	R325R	6-HR, with Levee	127	1.78
R330	NO	NO	NO	NO	w/out Levee	0	0	1,167	3.59	1,208	3.59	24-HR	1,208	3.59	R330	24-HR, w/out Levee	1,208	3.59
R330AL	99	13.14	119	13.14	24-HR	119	13.14	2,090	9.99	2,339	9.99	24-HR	2,339	9.99	R330AL	24-HR, w/out Levee	2,339	9.99
R330AR	20	13.14	24	13.14	24-HR	24	13.14	1,002	9.99	1,148	9.99	24-HR	1,148	9.99	R330AR	24-HR, w/out Levee	1,148	9.99
R330B	110	13.42	164	13.42	24-HR	164	13.42	985	10.26	1,121	10.26	24-HR	1,121	10.26	R330B	24-HR, w/out Levee	1,121	10.26
R330C	214	13.77	285	13.77	24-HR	285	13.77	983	10.62	1,119	10.62	24-HR	1,119	10.62	R330C	24-HR, w/out Levee	1,119	10.62
R330T	119	13	143	13	24-HR	143	13	NO	NO	NO	NO	with Levee	0	0	R330T	24-HR, with Levee	143	13
R335	NO	NO	NO	NO	w/out Levee	0	0	900	2.11	796	2.11	6-HR	900	2.11	R335	6-HR, w/out Levee	900	2.11
R335A	366	0.28	262	0.28	6-HR	366	0.28	973	2.39	859	2.39	6-HR	973	2.39	R335A	6-HR, w/out Levee	973	2.39
R335B	460	0.39	326	0.39	6-HR	460	0.39	460	0.39	326	0.39	6-HR	460	0.39	R335B	6-HR, with Levee	460	0.39
R335C	509	14.01	696	14.01	24-HR	696	14.01	2,857	11.18	3,343	11.18	24-HR	3,343	11.18	R335C	24-HR, w/out Levee	3,343	11.18
R335D	529	14.27	698	14.27	24-HR	698	14.27	2,812	11.44	3,284	11.44	24-HR	3,284	11.44	R335D	24-HR, w/out Levee	3,284	11.44
R335E	509	14.39	670	14.39	24-HR	670	14.39	2,753	11.56	3,219	11.56	24-HR	3,219	11.56	R335E	24-HR, w/out Levee	3,219	11.56
R335F	919	60.68	1,756	60.68	24-HR	1,756	60.68	4,487	24.69	5,883	24.69	24-HR	5,883	24.69	R335F	24-HR, w/out Levee	5,883	24.69
R340	115	13	139	13	24-HR	139	13	753	0.45	544	0.45	6-HR	753	0.45	R340	6-HR, w/out Levee	753	0.45
R340AL	14	13.46	22	13.46	24-HR	22	13.46	396	3.28	395	3.28	6-HR	396	3.28	R340AL	6-HR, w/out Levee	396	3.28
R340AR	214	13.46	262	13.46	24-HR	262	13.46	1,535	3.28	1,488	3.28	6-HR	1,535	3.28	R340AR	6-HR, w/out Levee	1,535	3.28
R340B	255	0.25	173	0.25	6-HR	255	0.25	255	0.25	173	0.25	6-HR	255	0.25	R340B	6-HR, with Levee	255	0.25
R340D	467	15.29	812	15.29	24-HR	812	15.29	1,724	5.11	1,816	5.11	24-HR	1,816	5.11	R340D	24-HR, w/out Levee	1,816	5.11
R345	NO	NO	NO	NO	w/out Levee	0	0	1,732	2.38	1,732	2.38	6-HR	1,732	2.38	R345	6-HR, w/out Levee	1,732	2.38
R400	NO	NO	NO	NO	w/out Levee	0	0	953	1.36	824	1.36	6-HR	953	1.36	R400	6-HR, w/out Levee	953	1.36
R405	NO	NO	NO	NO	w/out Levee	0	0	930	1.05	762	1.05	6-HR	930	1.05	R405	6-HR, w/out Levee	930	1.05
R410	NO	NO	NO	NO	w/out Levee	0	0	924	1.12	770	1.12	6-HR	924	1.12	R410	6-HR, w/out Levee	924	1.12
R410AL	1,212	17.45	1,400	17.45	24-HR	1,400	17.45	919	4.86	925	4.86	24-HR	925	4.86	R410AL	24-HR, with Levee	1,400	17.45

[1] Flow is taken from the "modified hydrology model"

[2] Flow is taken from the "intermediate modified hydrology models"

	with Levee							w/out Levee								CONTROL			
	6-HR		24-HR		CNTR-1			6-HR		24-HR		CNTR-2							
ID	FLOW	AREA	FLOW	AREA	MODEL	FLOW	AREA	FLOW	AREA	FLOW	AREA	MODEL	FLOW	AREA	ID	MODEL	FLOW	AREA
R410AR	397	17.45	490	17.45	24-HR	490	17.45	227	4.86	230	4.86	24-HR	230	4.86	R410AR	24-HR, with Levee	490	17.45
R410O	1,872	3.53	1,905	3.53	24-HR	1,905	3.53	NO	NO	NO	NO	with Levee	0	0	R410O	24-HR, with Levee	1,905	3.53
R47I	NO	NO	NO	NO	w/out Levee	0	0	2,393	35.99	3,338	35.99	24-HR	3,338	35.99	R47I	24-HR, w/out Levee	3,338	35.99
R47O	923	35.99	1,512	35.99	24-HR	1,512	35.99	NO	NO	NO	NO	with Levee	0	0	R47O	24-HR, with Levee	1,512	35.99
R500	NO	NO	NO	NO	w/out Levee	0	0	10	0.02	8	0.02	6-HR	10	0.02	R500	6-HR, w/out Levee	10	0.02
R500O	10	0.02	8	0.02	6-HR	10	0.02	NO	NO	NO	NO	with Levee	0	0	R500O	6-HR, with Levee	10	0.02
R600	NO	NO	NO	NO	w/out Levee	0	0	43	0.06	29	0.06	6-HR	43	0.06	R600	6-HR, w/out Levee	43	0.06
R600O	39	0.06	28	0.06	6-HR	39	0.06	NO	NO	NO	NO	with Levee	0	0	R600O	6-HR, with Levee	39	0.06
R700	NO	NO	NO	NO	w/out Levee	0	0	706	0.75	525	0.75	6-HR	706	0.75	R700	6-HR, w/out Levee	706	0.75
R700A	928	37.58	1,526	37.58	24-HR	1,526	37.58	766	1.59	633	1.59	6-HR	766	1.59	R700A	24-HR, with Levee	1,526	37.58
R700BL	626	56.08	885	56.08	24-HR	885	56.08	1,199	9.91	1,397	9.91	24-HR	1,397	9.91	R700BL	24-HR, w/out Levee	1,397	9.91
R700BR	626	56.08	942	56.08	24-HR	942	56.08	1,342	9.91	1,586	9.91	24-HR	1,586	9.91	R700BR	24-HR, w/out Levee	1,586	9.91
R700C	810	56.29	1,320	56.29	24-HR	1,320	56.29	1,395	10.13	1,655	10.13	24-HR	1,655	10.13	R700C	24-HR, w/out Levee	1,655	10.13
R700DL	316	56.52	841	56.52	24-HR	841	56.52	899	10.35	1,157	10.35	24-HR	1,157	10.35	R700DL	24-HR, w/out Levee	1,157	10.35
R700DR	450	56.52	450	56.52	6-HR	450	56.52	450	10.35	450	10.35	6-HR	450	10.35	R700DR	6-HR, with Levee	450	10.35
R700EL	40	56.7	163	56.7	24-HR	163	56.7	163	10.54	214	10.54	24-HR	214	10.54	R700EL	24-HR, w/out Levee	214	10.54
R700ER	233	56.7	655	56.7	24-HR	655	56.7	689	10.54	910	10.54	24-HR	910	10.54	R700ER	24-HR, w/out Levee	910	10.54
R700F	1,206	63.2	2,326	63.2	24-HR	2,326	63.2	4,583	25.19	6,131	25.19	24-HR	6,131	25.19	R700F	24-HR, w/out Levee	6,131	25.19
R700G	1,207	63.95	2,392	63.95	24-HR	2,392	63.95	4,658	27.96	6,520	27.96	24-HR	6,520	27.96	R700G	24-HR, w/out Levee	6,520	27.96
R700HL	22	56.96	84	56.96	24-HR	84	56.96	79	10.8	110	10.8	24-HR	110	10.8	R700HL	24-HR, w/out Levee	110	10.8
R700HR	15	56.96	59	56.96	24-HR	59	56.96	57	10.8	78	10.8	24-HR	78	10.8	R700HR	24-HR, w/out Levee	78	10.8
R700IL	19	57.17	55	57.17	24-HR	55	57.17	48	11.01	74	11.01	24-HR	74	11.01	R700IL	24-HR, w/out Levee	74	11.01
R700IR	5	57.17	15	57.17	24-HR	15	57.17	14	11.01	20	11.01	24-HR	20	11.01	R700IR	24-HR, w/out Levee	20	11.01
R700J	1,205	64.3	2,400	64.3	24-HR	2,400	64.3	4,626	28.31	6,507	28.31	24-HR	6,507	28.31	R700J	24-HR, w/out Levee	6,507	28.31
R700K	1,199	64.43	2,392	64.43	24-HR	2,392	64.43	4,592	28.44	6,470	28.44	24-HR	6,470	28.44	R700K	24-HR, w/out Levee	6,470	28.44
R700O	320	0.75	288	0.75	6-HR	320	0.75	NO	NO	NO	NO	with Levee	0	0	R700O	6-HR, with Levee	320	0.75
R710AL	402	57.06	589	57.06	24-HR	589	57.06	754	10.9	879	10.9	24-HR	879	10.9	R710AL	24-HR, w/out Levee	879	10.9
R710AR	237	57.06	360	57.06	24-HR	360	57.06	455	10.9	526	10.9	24-HR	526	10.9	R710AR	24-HR, w/out Levee	526	10.9
R710BL	82	57.6	135	57.6	24-HR	135	57.6	168	11.44	197	11.44	24-HR	197	11.44	R710BL	24-HR, w/out Levee	197	11.44
R710BR	110	57.6	191	57.6	24-HR	191	57.6	231	11.44	275	11.44	24-HR	275	11.44	R710BR	24-HR, w/out Levee	275	11.44
R710CL	55	57.86	88	57.86	24-HR	88	57.86	107	11.69	128	11.69	24-HR	128	11.69	R710CL	24-HR, w/out Levee	128	11.69
R710CR	53	57.86	86	57.86	24-HR	86	57.86	98	11.69	117	11.69	24-HR	117	11.69	R710CR	24-HR, w/out Levee	117	11.69
R710DL	31	58.11	51	58.11	24-HR	51	58.11	52	11.94	65	11.94	24-HR	65	11.94	R710DL	24-HR, w/out Levee	65	11.94
R710DR	20	58.11	33	58.11	24-HR	33	58.11	33	11.94	41	11.94	24-HR	41	11.94	R710DR	24-HR, w/out Levee	41	11.94
R710EL	43	57.89	75	57.89	24-HR	75	57.89	91	11.73	109	11.73	24-HR	109	11.73	R710EL	24-HR, w/out Levee	109	11.73
R710ER	29	57.89	46	57.89	24-HR	46	57.89	54	11.73	64	11.73	24-HR	64	11.73	R710ER	24-HR, w/out Levee	64	11.73
R710FL	49	58.41	87	58.41	24-HR	87	58.41	91	12.48	109	12.48	24-HR	109	12.48	R710FL	24-HR, w/out Levee	109	12.48
R710FR	32	58.41	57	58.41	24-HR	57	58.41	59	12.48	70	12.48	24-HR	70	12.48	R710FR	24-HR, w/out Levee	70	12.48
R710G	59	58.9	104	58.9	24-HR	104	58.9	106	12.97	132	12.97	24-HR	132	12.97	R710G	24-HR, w/out Levee	132	12.97
R710H	1,171	67.6	2,407	67.6	24-HR	2,407	67.6	4,418	31.61	6,422	31.61	24-HR	6,422	31.61	R710H	24-HR, w/out Levee	6,422	31.61
R710IL	29	58.13	57	58.13	24-HR	57	58.13	58	11.97	69	11.97	24-HR	69	11.97	R710IL	24-HR, w/out Levee	69	11.97
R710IR	12	58.13	21	58.13	24-HR	21	58.13	23	11.97	29	11.97	24-HR	29	11.97	R710IR	24-HR, w/out Levee	29	11.97
R710JL	30	58.9	52	58.9	24-HR	52	58.9	56	12.74	66	12.74	24-HR	66	12.74	R710JL	24-HR, w/out Levee	66	12.74
R710JR	46	58.9	79	58.9	24-HR	79	58.9	87	12.74	101	12.74	24-HR	101	12.74	R710JR	24-HR, w/out Levee	101	12.74
R710K	1,165	68.1	2,418	68.1	24-HR	2,418	68.1	4,379	32.11	6,399	32.11	24-HR	6,399	32.11	R710K	24-HR, w/out Levee	6,399	32.11
R710LL	21	59.15	38	59.15	24-HR	38	59.15	35	12.98	47	12.98	24-HR	47	12.98	R710LL	24-HR, w/out Levee	47	12.98
R710LR	9	59.15	15	59.15	24-HR	15	59.15	12	12.98	18	12.98	24-HR	18	12.98	R710LR	24-HR, w/out Levee	18	12.98
R710M	1,149	68.61	2,414	68.61	24-HR	2,414	68.61	4,309	32.63	6,285	32.63	24-HR	6,285	32.63	R710M	24-HR, w/out Levee	6,285	32.63
R710N	1,124	69.78	2,397	69.78	24-HR	2,397	69.78	4,170	33.79	6,191	33.79	24-HR	6,191	33.79	R710N	24-HR, w/out Levee	6,191	33.79
R710P	1,116	70.01	2,390	70.01	24-HR	2,390	70.01	4,125	34.02	6,159	34.02	24-HR	6,159	34.02	R710P	24-HR, w/out Levee	6,159	34.02
R710R	254	0.32	180	0.32	6-HR	254	0.32	254	0.32	180	0.32	6-HR	254	0.32	R710R	6-HR, with Levee	254	0.32
R710S	107	59.94	276	59.94	24-HR	276	59.94	209	13.77	309	13.77	24-HR	309	13.77	R710S	24-HR, w/out Levee	309	13.77
R710T	221	0.31	163	0.31	6-HR	221	0.31	221	0.31	163	0.31	6-HR	221	0.31	R710T	6-HR, with Levee	221	0.31
R710U	155	60.52	415	60.52	24-HR	415	60.52	320	14.35	496	14.35	24-HR	496	14.35	R710U	24-HR, w/out Levee	496	14.35

[1] Flow is taken from the "modified hydrology model"

[2] Flow is taken from the "intermediate modified hydrology models"

	with Levee							w/out Levee								CONTROL			
	6-HR		24-HR		CNTR-1			6-HR		24-HR		CNTR-2							
ID	FLOW	AREA	FLOW	AREA	MODEL	FLOW	AREA	FLOW	AREA	FLOW	AREA	MODEL	FLOW	AREA	ID	MODEL	FLOW	AREA
R710V	1,083	71.98	2,454	71.98	24-HR	2,454	71.98	3,842	35.99	4,583	35.99	24-HR	4,583	35.99	R710V	24-HR, w/out Levee	4,583	35.99
R710W	1,145	71.82	2,508	71.82	24-HR	2,508	71.82	4,064	35.83	6,197	35.83	24-HR	6,197	35.83	R710W	24-HR, w/out Levee	6,197	35.83
R720AL	171	0.44	123	0.44	6-HR	171	0.44	171	0.44	123	0.44	6-HR	171	0.44	R720AL	6-HR, with Levee	171	0.44
R720AR	173	0.44	122	0.44	6-HR	173	0.44	173	0.44	122	0.44	6-HR	173	0.44	R720AR	6-HR, with Levee	173	0.44
R720B	265	0.8	200	0.8	6-HR	265	0.8	265	0.8	200	0.8	6-HR	265	0.8	R720B	6-HR, with Levee	265	0.8
R720C	700	1.52	665	1.52	6-HR	700	1.52	700	1.52	665	1.52	6-HR	700	1.52	R720C	6-HR, with Levee	700	1.52
R720DL	929	72.35	2,170	72.35	24-HR	2,170	72.35	3,442	36.36	4,176	36.36	24-HR	4,176	36.36	R720DL	24-HR, w/out Levee	4,176	36.36
R720DR	131	72.35	269	72.35	24-HR	269	72.35	315	36.36	343	36.36	24-HR	343	36.36	R720DR	24-HR, w/out Levee	343	36.36
R720E	NO	NO	NO	NO	w/out Levee	0	0	311	36.64	340	36.64	24-HR	340	36.64	R720E	24-HR, w/out Levee	340	36.64
R720EL	0	72.63	9	72.63	24-HR	9	72.63	NO	NO	NO	NO	with Levee	0	0	R720EL	24-HR, with Levee	9	72.63
R720ER	129	72.63	259	72.63	24-HR	259	72.63	NO	NO	NO	NO	with Levee	0	0	R720ER	24-HR, with Levee	259	72.63
R720F	150	0.14	116	0.14	6-HR	150	0.14	150	0.14	116	0.14	6-HR	150	0.14	R720F	6-HR, with Levee	150	0.14
R720G	1,979	215.79	6,602	215.79	24-HR	6,602	215.79	6,082	179.02	11,574	179.02	24-HR	11,574	179.02	R720G	24-HR, w/out Levee	11,574	179.02
R720I	NO	NO	NO	NO	w/out Levee	0	0	3,346	36.5	4,037	36.5	24-HR	4,037	36.5	R720I	24-HR, w/out Levee	4,037	36.5
R720IL	5	72.77	34	72.77	24-HR	34	72.77	NO	NO	NO	NO	with Levee	0	0	R720IL	24-HR, with Levee	34	72.77
R720IR	889	72.77	2,094	72.77	24-HR	2,094	72.77	NO	NO	NO	NO	with Levee	0	0	R720IR	24-HR, with Levee	2,094	72.77
R720J	2,010	216.42	7,152	216.42	24-HR	7,152	216.42	7,112	179.65	13,896	179.65	24-HR	13,896	179.65	R720J	24-HR, w/out Levee	13,896	179.65
R730A	204	0.65	148	0.65	6-HR	204	0.65	204	0.65	148	0.65	6-HR	204	0.65	R730A	6-HR, with Levee	204	0.65
R730B	256	0.94	212	0.94	6-HR	256	0.94	256	0.94	212	0.94	6-HR	256	0.94	R730B	6-HR, with Levee	256	0.94
R730C	316	1.25	266	1.25	6-HR	316	1.25	316	1.25	266	1.25	6-HR	316	1.25	R730C	6-HR, with Levee	316	1.25
R730D	627	1.72	579	1.72	6-HR	627	1.72	627	1.72	579	1.72	6-HR	627	1.72	R730D	6-HR, with Levee	627	1.72
R740AL	457	1.91	433	1.91	6-HR	457	1.91	762	37.9	977	37.9	24-HR	977	37.9	R740AL	24-HR, w/out Levee	977	37.9
R740AM	687	1.91	631	1.91	6-HR	687	1.91	1,377	37.9	1,907	37.9	24-HR	1,907	37.9	R740AM	24-HR, w/out Levee	1,907	37.9
R740AR	26	1.91	20	1.91	6-HR	26	1.91	212	37.9	397	37.9	24-HR	397	37.9	R740AR	24-HR, w/out Levee	397	37.9
R740B	420	60.22	703	60.22	24-HR	703	60.22	472	50.04	773	50.04	24-HR	773	50.04	R740B	24-HR, w/out Levee	773	50.04
R740D	413	60.77	734	60.77	24-HR	734	60.77	462	50.59	763	50.59	24-HR	763	50.59	R740D	24-HR, w/out Levee	763	50.59
R750A	594	0.75	477	0.75	6-HR	594	0.75	594	0.75	477	0.75	6-HR	594	0.75	R750A	6-HR, with Levee	594	0.75
R750B	956	3.55	966	3.55	24-HR	966	3.55	783	39.54	1,012	39.54	24-HR	1,012	39.54	R750B	24-HR, w/out Levee	1,012	39.54
R750C	1,475	3.88	1,476	3.88	24-HR	1,476	3.88	2,130	39.87	2,893	39.87	24-HR	2,893	39.87	R750C	24-HR, w/out Levee	2,893	39.87
R750F	1,524	4.64	1,523	4.64	6-HR	1,524	4.64	2,092	40.63	2,846	40.63	24-HR	2,846	40.63	R750F	24-HR, w/out Levee	2,846	40.63
R750H	1,504	5.78	1,590	5.78	24-HR	1,590	5.78	2,065	41.77	2,820	41.77	24-HR	2,820	41.77	R750H	24-HR, w/out Levee	2,820	41.77
R750I	1,025	65.23	1,976	65.23	24-HR	1,976	65.23	2,274	55.06	3,304	55.06	24-HR	3,304	55.06	R750I	24-HR, w/out Levee	3,304	55.06
R750J	1,007	65.6	1,954	65.6	24-HR	1,954	65.6	2,257	55.43	3,290	55.43	24-HR	3,290	55.43	R750J	24-HR, w/out Levee	3,290	55.43
R750K	227	0.27	169	0.27	6-HR	227	0.27	227	0.27	169	0.27	6-HR	227	0.27	R750K	6-HR, with Levee	227	0.27
R750L	300	0.64	228	0.64	6-HR	300	0.64	300	0.64	228	0.64	6-HR	300	0.64	R750L	6-HR, with Levee	300	0.64
R750M	321	0.99	258	0.99	6-HR	321	0.99	321	0.99	258	0.99	6-HR	321	0.99	R750M	6-HR, with Levee	321	0.99
R750N	1,036	66.85	2,024	66.85	24-HR	2,024	66.85	2,259	56.04	3,311	56.04	24-HR	3,311	56.04	R750N	24-HR, w/out Levee	3,311	56.04
R760A	235	0.31	169	0.31	6-HR	235	0.31	235	0.31	169	0.31	6-HR	235	0.31	R760A	6-HR, with Levee	235	0.31
R760BL	138	0.97	109	0.97	6-HR	138	0.97	138	0.97	109	0.97	6-HR	138	0.97	R760BL	6-HR, with Levee	138	0.97
R760BR	265	0.97	211	0.97	6-HR	265	0.97	265	0.97	211	0.97	6-HR	265	0.97	R760BR	6-HR, with Levee	265	0.97
R760D	150	0.18	104	0.18	6-HR	150	0.18	150	0.18	104	0.18	6-HR	150	0.18	R760D	6-HR, with Levee	150	0.18
R760E	310	0.54	224	0.54	6-HR	310	0.54	310	0.54	224	0.54	6-HR	310	0.54	R760E	6-HR, with Levee	310	0.54
R760FL	16	0.94	7	0.94	6-HR	16	0.94	16	0.94	7	0.94	6-HR	16	0.94	R760FL	6-HR, with Levee	16	0.94
R760FR	265	0.94	196	0.94	6-HR	265	0.94	265	0.94	196	0.94	6-HR	265	0.94	R760FR	6-HR, with Levee	265	0.94
R760GL	529	2.73	486	2.73	6-HR	529	2.73	529	2.73	486	2.73	6-HR	529	2.73	R760GL	6-HR, with Levee	529	2.73
R760GR	0	2.73	0	2.73	6-HR	0	2.73	0	2.73	0	2.73	6-HR	0	2.73	R760GR	6-HR, with Levee	0	2.73
R760H	269	3.33	280	3.33	24-HR	280	3.33	269	3.33	280	3.33	24-HR	280	3.33	R760H	24-HR, with Levee	280	3.33
R760J	170	0.19	123	0.19	6-HR	170	0.19	170	0.19	123	0.19	6-HR	170	0.19	R760J	6-HR, with Levee	170	0.19
R760K	999	70.93	1,976	70.93	24-HR	1,976	70.93	2,227	60.76	3,284	60.76	24-HR	3,284	60.76	R760K	24-HR, w/out Levee	3,284	60.76
R760L	1,050	74.26	2,096	74.26	24-HR	2,096	74.26	2,237	64.08	3,573	100.07	24-HR	3,573	100.07	R760L	24-HR, w/out Levee	3,573	100.07
R760M	NO	NO	NO	NO	w/out Levee	0	0	2,230	64.45	3,566	100.43	24-HR	3,566	100.43	R760M	24-HR, w/out Levee	3,566	100.43
R760ML	895	74.62	1,675	74.62	24-HR	1,675	74.62	NO	NO	NO	NO	with Levee	0	0	R760ML	24-HR, with Levee	1,675	74.62
R760MR	139	74.62	403	74.62	24-HR	403	74.62	NO	NO	NO	NO	with Levee	0	0	R760MR	24-HR, with Levee	403	74.62
R760N	104	73.13	210	73.13	24-HR	210	73.13	345	0.36	253	0.36	6-HR	345	0.36	R760N	6-HR, w/out Levee	345	0.36

[1] Flow is taken from the "modified hydrology model"

[2] Flow is taken from the "intermediate modified hydrology models"

	with Levee							w/out Levee											
	6-HR		24-HR		CNTR-1			6-HR		24-HR		CNTR-2			CONTROL			
ID	FLOW	AREA	FLOW	AREA	MODEL	FLOW	AREA	FLOW	AREA	FLOW	AREA	MODEL	FLOW	AREA	ID	MODEL	FLOW	AREA
R770A	792	1.01	643	1.01	6-HR	792	1.01	792	1.01	643	1.01	6-HR	792	1.01	R770A	6-HR, with Levee	792	1.01
R770B	198	0.2	152	0.2	6-HR	198	0.2	198	0.2	152	0.2	6-HR	198	0.2	R770B	6-HR, with Levee	198	0.2
R770C	NO	NO	NO	NO	w/out Levee	0	0	1,047	1.93	930	1.93	6-HR	1,047	1.93	R770C	6-HR, w/out Levee	1,047	1.93
R770CL	251	76.57	317	76.57	24-HR	317	76.57	NO	NO	NO	NO	with Levee	0	0	R770CL	24-HR, with Levee	317	76.57
R770CR	620	76.57	1,338	76.57	24-HR	1,338	76.57	NO	NO	NO	NO	with Levee	0	0	R770CR	24-HR, with Levee	1,338	76.57
R770D	655	92.89	1,693	92.89	24-HR	1,693	92.89	2,210	67.01	3,561	103	24-HR	3,561	103	R770D	24-HR, w/out Levee	3,561	103
R770E	2,098	237.24	7,839	237.24	24-HR	7,839	237.24	8,343	236.46	16,549	236.46	24-HR	16,549	236.46	R770E	24-HR, w/out Levee	16,549	236.46
R770F	2,088	237.82	7,770	237.82	24-HR	7,770	237.82	8,254	237.04	16,472	237.04	24-HR	16,472	237.04	R770F	24-HR, w/out Levee	16,472	237.04
R770G	2,481	243.18	8,798	243.18	24-HR	8,798	243.18	8,865	242.4	17,812	242.4	24-HR	17,812	242.4	R770G	24-HR, w/out Levee	17,812	242.4
R780A	2,719	7.58	3,280	7.58	24-HR	3,280	7.58	2,719	7.58	3,280	7.58	24-HR	3,280	7.58	R780A	24-HR, with Levee	3,280	7.58
R780B	2,449	3.72	2,737	3.72	24-HR	2,737	3.72	2,449	3.72	2,737	3.72	24-HR	2,737	3.72	R780B	24-HR, with Levee	2,737	3.72
R780C	2,942	12.61	3,661	12.61	24-HR	3,661	12.61	2,942	12.61	3,661	12.61	24-HR	3,661	12.61	R780C	24-HR, with Levee	3,661	12.61
R780D	2,766	13.41	3,427	13.41	24-HR	3,427	13.41	2,766	13.41	3,427	13.41	24-HR	3,427	13.41	R780D	24-HR, with Levee	3,427	13.41
R780E	657	0.86	506	0.86	6-HR	657	0.86	657	0.86	506	0.86	6-HR	657	0.86	R780E	6-HR, with Levee	657	0.86
R790B	1,817	2.83	1,868	2.83	24-HR	1,868	2.83	1,817	2.83	1,868	2.83	24-HR	1,868	2.83	R790B	24-HR, with Levee	1,868	2.83
R790C	1,818	3.66	1,868	3.66	24-HR	1,868	3.66	1,818	3.66	1,868	3.66	24-HR	1,868	3.66	R790C	24-HR, with Levee	1,868	3.66
R790D	1,529	4.66	1,599	4.66	24-HR	1,599	4.66	1,529	4.66	1,599	4.66	24-HR	1,599	4.66	R790D	24-HR, with Levee	1,599	4.66
R790E	2,909	271.02	9,685	271.02	24-HR	9,685	271.02	8,810	270.24	17,971	270.24	24-HR	17,971	270.24	R790E	24-HR, w/out Levee	17,971	270.24
R800A	358	77.87	682	77.87	24-HR	682	77.87	904	1.32	766	1.32	6-HR	904	1.32	R800A	6-HR, w/out Levee	904	1.32
R800DL	290	78.56	565	78.56	24-HR	565	78.56	720	2	636	2	6-HR	720	2	R800DL	6-HR, w/out Levee	720	2
R800DR	58	78.56	94	78.56	24-HR	94	78.56	129	2	107	2	6-HR	129	2	R800DR	6-HR, w/out Levee	129	2
R800E	165	79.07	299	79.07	24-HR	299	79.07	397	2.51	371	2.51	6-HR	397	2.51	R800E	6-HR, w/out Levee	397	2.51
R800G	321	0.23	241	0.23	6-HR	321	0.23	321	0.23	241	0.23	6-HR	321	0.23	R800G	6-HR, with Levee	321	0.23
R800H	401	79.75	778	79.75	24-HR	778	79.75	1,020	3.2	924	3.2	6-HR	1,020	3.2	R800H	6-HR, w/out Levee	1,020	3.2
R800JL	277	81.19	540	81.19	24-HR	540	81.19	675	4.64	674	4.64	6-HR	675	4.64	R800JL	6-HR, w/out Levee	675	4.64
R800JR	126	81.19	244	81.19	24-HR	244	81.19	307	4.64	302	4.64	6-HR	307	4.64	R800JR	6-HR, w/out Levee	307	4.64
R800K	814	1.26	676	1.26	6-HR	814	1.26	814	1.26	676	1.26	6-HR	814	1.26	R800K	6-HR, with Levee	814	1.26
R800M	694	83.37	1,368	83.37	24-HR	1,368	83.37	1,518	6.82	1,688	6.82	24-HR	1,688	6.82	R800M	24-HR, w/out Levee	1,688	6.82
R800N	669	83.86	1,328	83.86	24-HR	1,328	83.86	1,493	7.31	1,624	7.31	24-HR	1,624	7.31	R800N	24-HR, w/out Levee	1,624	7.31
R800P	2,897	271.64	9,653	271.64	24-HR	9,653	271.64	8,772	270.86	17,934	270.86	24-HR	17,934	270.86	R800P	24-HR, w/out Levee	17,934	270.86
R800R	2,884	272.31	9,641	272.31	24-HR	9,641	272.31	8,754	271.53	17,906	271.53	24-HR	17,906	271.53	R800R	24-HR, w/out Levee	17,906	271.53
R800S	971	1.85	861	1.85	6-HR	971	1.85	971	1.85	861	1.85	6-HR	971	1.85	R800S	6-HR, with Levee	971	1.85
R800T	123	0.15	86	0.15	6-HR	123	0.15	123	0.15	86	0.15	6-HR	123	0.15	R800T	6-HR, with Levee	123	0.15
R800U	1,003	2.31	909	2.31	6-HR	1,003	2.31	1,003	2.31	909	2.31	6-HR	1,003	2.31	R800U	6-HR, with Levee	1,003	2.31
R800V	2,870	275.27	9,643	275.27	24-HR	9,643	275.27	8,724	274.49	17,883	274.49	24-HR	17,883	274.49	R800V	24-HR, w/out Levee	17,883	274.49
R800W	396	0.23	289	0.23	6-HR	396	0.23	396	0.23	289	0.23	6-HR	396	0.23	R800W	6-HR, with Levee	396	0.23
R820A	234	0.38	167	0.38	6-HR	234	0.38	234	0.38	167	0.38	6-HR	234	0.38	R820A	6-HR, with Levee	234	0.38
R820B	531	1.31	456	1.31	6-HR	531	1.31	542	1.31	456	1.31	6-HR	542	1.31	R820B	6-HR, w/out Levee	542	1.31
R820C	127	0.24	92	0.24	6-HR	127	0.24	127	0.24	92	0.24	6-HR	127	0.24	R820C	6-HR, with Levee	127	0.24
R820D	860	1.54	753	1.54	6-HR	860	1.54	860	1.54	753	1.54	6-HR	860	1.54	R820D	6-HR, with Levee	860	1.54
R820E	823	1.86	721	1.86	6-HR	823	1.86	823	1.86	721	1.86	6-HR	823	1.86	R820E	6-HR, with Levee	823	1.86
R820F	847	4.16	833	4.16	6-HR	847	4.16	844	4.16	833	4.16	6-HR	844	4.16	R820F	6-HR, with Levee	847	4.16
R820GL	125	0.24	89	0.24	6-HR	125	0.24	125	0.24	89	0.24	6-HR	125	0.24	R820GL	6-HR, with Levee	125	0.24
R820HL	50	0.47	49	0.47	6-HR	50	0.47	50	0.47	49	0.47	6-HR	50	0.47	R820HL	6-HR, with Levee	50	0.47
R820HR	116	0.47	56	0.47	6-HR	116	0.47	116	0.47	56	0.47	6-HR	116	0.47	R820HR	6-HR, with Levee	116	0.47
R820IL	310	2.02	309	2.02	6-HR	310	2.02	310	2.02	309	2.02	6-HR	310	2.02	R820IL	6-HR, with Levee	310	2.02
R820IR	80	2.02	72	2.02	6-HR	80	2.02	82	2.02	72	2.02	6-HR	82	2.02	R820IR	6-HR, w/out Levee	82	2.02
R820J	806	5.22	829	5.22	24-HR	829	5.22	803	5.22	829	5.22	24-HR	829	5.22	R820J	24-HR, with Levee	829	5.22
R900A	103	0.1	75	0.1	6-HR	103	0.1	103	0.1	75	0.1	6-HR	103	0.1	R900A	6-HR, with Levee	103	0.1
R900B	143	0.28	107	0.28	6-HR	143	0.28	146	0.28	107	0.28	6-HR	146	0.28	R900B	6-HR, w/out Levee	146	0.28
R900C	304	1.65	265	1.65	6-HR	304	1.65	304	1.65	265	1.65	6-HR	304	1.65	R900C	6-HR, with Levee	304	1.65
R900E	741	3.9	731	3.9	6-HR	741	3.9	741	3.9	731	3.9	6-HR	741	3.9	R900E	6-HR, with Levee	741	3.9
R900F	799	4.54	797	4.54	6-HR	799	4.54	799	4.54	797	4.54	6-HR	799	4.54	R900F	6-HR, with Levee	799	4.54
R900H	770	4.72	772	4.72	24-HR	772	4.72	770	4.72	772	4.72	24-HR	772	4.72	R900H	24-HR, with Levee	772	4.72

[1] Flow is taken from the "modified hydrology model"

[2] Flow is taken from the "intermediate modified hydrology models"

	with Levee							w/out Levee								CONTROL			
	6-HR		24-HR		CNTR-1			6-HR		24-HR		CNTR-2							
ID	FLOW	AREA	FLOW	AREA	MODEL	FLOW	AREA	FLOW	AREA	FLOW	AREA	MODEL	FLOW	AREA	ID	MODEL	FLOW	AREA
R900I	798	5.76	822	5.76	24-HR	822	5.76	798	5.76	822	5.76	24-HR	822	5.76	R900I	24-HR, with Levee	822	5.76
R910A	346	0.3	255	0.3	6-HR	346	0.3	346	0.3	255	0.3	6-HR	346	0.3	R910A	6-HR, with Levee	346	0.3
R910C	332	0.37	234	0.37	6-HR	332	0.37	332	0.37	234	0.37	6-HR	332	0.37	R910C	6-HR, with Levee	332	0.37
R910F	775	6.56	821	6.56	24-HR	821	6.56	775	6.56	821	6.56	24-HR	821	6.56	R910F	24-HR, with Levee	821	6.56
R910G	721	6.95	784	6.95	24-HR	784	6.95	721	6.95	784	6.95	24-HR	784	6.95	R910G	24-HR, with Levee	784	6.95
R910IL	230	0.63	171	0.63	6-HR	230	0.63	230	0.63	171	0.63	6-HR	230	0.63	R910IL	6-HR, with Levee	230	0.63
R910IR	122	0.63	89	0.63	6-HR	122	0.63	122	0.63	89	0.63	6-HR	122	0.63	R910IR	6-HR, with Levee	122	0.63
R910J	730	8.46	840	8.46	24-HR	840	8.46	732	8.46	840	8.46	24-HR	840	8.46	R910J	24-HR, with Levee	840	8.46
R910K	837	9.85	981	9.85	24-HR	981	9.85	835	9.85	981	9.85	24-HR	981	9.85	R910K	24-HR, with Levee	981	9.85
R910L	585	1.42	508	1.42	6-HR	585	1.42	585	1.42	508	1.42	6-HR	585	1.42	R910L	6-HR, with Levee	585	1.42
R910N	827	10.14	971	10.14	24-HR	971	10.14	825	10.14	971	10.14	24-HR	971	10.14	R910N	24-HR, with Levee	971	10.14
R910O	813	10.63	955	10.63	24-HR	955	10.63	677	10.63	839	10.63	24-HR	839	10.63	R910O	24-HR, with Levee	955	10.63
R920A	498	0.45	358	0.45	6-HR	498	0.45	498	0.45	358	0.45	6-HR	498	0.45	R920A	6-HR, with Levee	498	0.45
R920B	615	0.93	485	0.93	6-HR	615	0.93	615	0.93	485	0.93	6-HR	615	0.93	R920B	6-HR, with Levee	615	0.93
R920D	1,087	11.9	1,271	11.9	24-HR	1,271	11.9	650	1.28	520	1.28	6-HR	650	1.28	R920D	24-HR, with Levee	1,271	11.9
R920E	1,055	12.27	1,224	12.27	24-HR	1,224	12.27	711	1.65	598	1.65	6-HR	711	1.65	R920E	24-HR, with Levee	1,224	12.27
R920F	1,024	12.75	1,201	12.75	24-HR	1,201	12.75	700	1.9	588	1.9	6-HR	700	1.9	R920F	24-HR, with Levee	1,201	12.75
R920H	1,001	13.97	1,196	13.97	24-HR	1,196	13.97	846	2.27	762	2.27	6-HR	846	2.27	R920H	24-HR, with Levee	1,196	13.97
R920J	991	14.16	1,190	14.16	24-HR	1,190	14.16	772	3.53	753	3.53	6-HR	772	3.53	R920J	24-HR, with Levee	1,190	14.16
R920K	187	0.22	129	0.22	6-HR	187	0.22	1,380	13.07	1,599	13.07	24-HR	1,599	13.07	R920K	24-HR, w/out Levee	1,599	13.07
R920L	265	0.41	183	0.41	6-HR	265	0.41	1,331	13.89	1,547	13.89	24-HR	1,547	13.89	R920L	24-HR, w/out Levee	1,547	13.89
R920M	993	14.73	1,211	14.73	24-HR	1,211	14.73	1,684	17.59	2,034	17.59	24-HR	2,034	17.59	R920M	24-HR, w/out Levee	2,034	17.59
R920N	982	15.29	1,202	15.29	24-HR	1,202	15.29	1,638	18.15	1,999	18.15	24-HR	1,999	18.15	R920N	24-HR, w/out Levee	1,999	18.15
R920Q	355	0.39	245	0.39	6-HR	355	0.39	355	0.39	245	0.39	6-HR	355	0.39	R920Q	6-HR, with Levee	355	0.39
R920R	964	16.35	1,192	16.35	24-HR	1,192	16.35	1,540	19.22	1,914	19.22	24-HR	1,914	19.22	R920R	24-HR, w/out Levee	1,914	19.22
R920S	933	17.32	1,176	17.32	24-HR	1,176	17.32	1,467	20.18	1,861	20.18	24-HR	1,861	20.18	R920S	24-HR, w/out Levee	1,861	20.18
R920T	425	0.38	289	0.38	6-HR	425	0.38	425	0.38	289	0.38	6-HR	425	0.38	R920T	6-HR, with Levee	425	0.38
R920U	920	17.94	1,172	17.94	24-HR	1,172	17.94	1,446	20.8	1,851	20.8	24-HR	1,851	20.8	R920U	24-HR, w/out Levee	1,851	20.8
R920V	19	0.17	10	0.17	6-HR	19	0.17	19	0.17	10	0.17	6-HR	19	0.17	R920V	6-HR, with Levee	19	0.17
R920W	48	0.54	35	0.54	6-HR	48	0.54	48	0.54	35	0.54	6-HR	48	0.54	R920W	6-HR, with Levee	48	0.54
R930A	121	0.13	83	0.13	6-HR	121	0.13	121	0.13	83	0.13	6-HR	121	0.13	R930A	6-HR, with Levee	121	0.13
R930C	665	0.97	540	0.97	6-HR	665	0.97	679	0.97	540	0.97	6-HR	679	0.97	R930C	6-HR, w/out Levee	679	0.97
R930D	628	1.61	538	1.61	6-HR	628	1.61	637	1.61	538	1.61	6-HR	637	1.61	R930D	6-HR, w/out Levee	637	1.61
R930E	574	1.85	512	1.85	6-HR	574	1.85	581	1.85	512	1.85	6-HR	581	1.85	R930E	6-HR, w/out Levee	581	1.85
R930F	629	0.37	453	0.37	6-HR	629	0.37	629	0.37	453	0.37	6-HR	629	0.37	R930F	6-HR, with Levee	629	0.37
R930H	753	2.64	717	2.64	6-HR	753	2.64	753	2.64	717	2.64	6-HR	753	2.64	R930H	6-HR, with Levee	753	2.64
R930I	994	21.04	1,370	21.04	24-HR	1,370	21.04	1,523	23.9	2,070	23.9	24-HR	2,070	23.9	R930I	24-HR, w/out Levee	2,070	23.9
R940A	308	0.28	220	0.28	6-HR	308	0.28	308	0.28	220	0.28	6-HR	308	0.28	R940A	6-HR, with Levee	308	0.28
R940B	372	0.55	264	0.55	6-HR	372	0.55	372	0.55	264	0.55	6-HR	372	0.55	R940B	6-HR, with Levee	372	0.55
R940C	1,107	1.45	923	1.45	6-HR	1,107	1.45	1,107	1.45	923	1.45	6-HR	1,107	1.45	R940C	6-HR, with Levee	1,107	1.45
R940F	953	1.59	816	1.59	6-HR	953	1.59	953	1.59	816	1.59	6-HR	953	1.59	R940F	6-HR, with Levee	953	1.59
R940G	395	0.35	273	0.35	6-HR	395	0.35	395	0.35	284	0.35	6-HR	395	0.35	R940G	6-HR, with Levee	395	0.35
R940HL	306	0.83	301	0.83	6-HR	306	0.83	306	0.83	301	0.83	6-HR	306	0.83	R940HL	6-HR, with Levee	306	0.83
R940HR	163	0.83	84	0.83	6-HR	163	0.83	163	0.83	84	0.83	6-HR	163	0.83	R940HR	6-HR, with Levee	163	0.83
R940J	377	1.03	333	1.03	6-HR	377	1.03	377	1.03	333	1.03	6-HR	377	1.03	R940J	6-HR, with Levee	377	1.03
R940K	378	0.3	277	0.3	6-HR	378	0.3	378	0.3	277	0.3	6-HR	378	0.3	R940K	6-HR, with Levee	378	0.3
R940L	510	0.54	387	0.54	6-HR	510	0.54	510	0.54	387	0.54	6-HR	510	0.54	R940L	6-HR, with Levee	510	0.54
R940M	867	1.98	750	1.98	6-HR	867	1.98	867	1.98	750	1.98	6-HR	867	1.98	R940M	6-HR, with Levee	867	1.98
R940P	1,009	3.1	903	3.1	6-HR	1,009	3.1	1,009	3.1	903	3.1	6-HR	1,009	3.1	R940P	6-HR, with Levee	1,009	3.1
S100	2,044	6.22	2,479	6.22	24-HR	2,479	6.22	2,044	6.22	2,479	6.22	24-HR	2,479	6.22	S100	24-HR, with Levee	2,479	6.22
S100A	691	0.78	543	0.78	6-HR	691	0.78	691	0.78	543	0.78	6-HR	691	0.78	S100A	6-HR, with Levee	691	0.78
S100B	548	0.53	406	0.53	6-HR	548	0.53	548	0.53	406	0.53	6-HR	548	0.53	S100B	6-HR, with Levee	548	0.53
S100C	789	0.69	611	0.69	6-HR	789	0.69	789	0.69	611	0.69	6-HR	789	0.69	S100C	6-HR, with Levee	789	0.69
S105	4,384	13.05	5,306	13.05	24-HR	5,306	13.05	4,384	13.05	5,306	13.05	24-HR	5,306	13.05	S105	24-HR, with Levee	5,306	13.05

[1] Flow is taken from the "modified hydrology model"

[2] Flow is taken from the "intermediate modified hydrology models"

	with Levee							w/out Levee								CONTROL			
	6-HR		24-HR		CNTR-1			6-HR		24-HR		CNTR-2							
ID	FLOW	AREA	FLOW	AREA	MODEL	FLOW	AREA	FLOW	AREA	FLOW	AREA	MODEL	FLOW	AREA	ID	MODEL	FLOW	AREA
S110	1,863	5.11	1,935	5.11	24-HR	1,935	5.11	1,863	5.11	1,935	5.11	24-HR	1,935	5.11	S110	24-HR, with Levee	1,935	5.11
S115	2,042	3.71	2,207	3.71	24-HR	2,207	3.71	2,042	3.71	2,207	3.71	24-HR	2,207	3.71	S115	24-HR, with Levee	2,207	3.71
S120	865	1.01	709	1.01	6-HR	865	1.01	865	1.01	709	1.01	6-HR	865	1.01	S120	6-HR, with Levee	865	1.01
S120A	545	0.33	399	0.33	6-HR	545	0.33	545	0.33	399	0.33	6-HR	545	0.33	S120A	6-HR, with Levee	545	0.33
S120B	195	0.1	142	0.1	6-HR	195	0.1	195	0.1	142	0.1	6-HR	195	0.1	S120B	6-HR, with Levee	195	0.1
S120C	216	0.14	156	0.14	6-HR	216	0.14	216	0.14	156	0.14	6-HR	216	0.14	S120C	6-HR, with Levee	216	0.14
S120D	289	0.17	210	0.17	6-HR	289	0.17	289	0.17	210	0.17	6-HR	289	0.17	S120D	6-HR, with Levee	289	0.17
S120E	218	0.11	159	0.11	6-HR	218	0.11	218	0.11	159	0.11	6-HR	218	0.11	S120E	6-HR, with Levee	218	0.11
S120F	446	0.42	324	0.42	6-HR	446	0.42	446	0.42	324	0.42	6-HR	446	0.42	S120F	6-HR, with Levee	446	0.42
S120G	482	0.34	353	0.34	6-HR	482	0.34	482	0.34	353	0.34	6-HR	482	0.34	S120G	6-HR, with Levee	482	0.34
S120H	503	0.55	371	0.55	6-HR	503	0.55	503	0.55	371	0.55	6-HR	503	0.55	S120H	6-HR, with Levee	503	0.55
S120I	1,022	1.26	887	1.26	6-HR	1,022	1.26	1,022	1.26	887	1.26	6-HR	1,022	1.26	S120I	6-HR, with Levee	1,022	1.26
S120J	1,106	1.01	941	1.01	6-HR	1,106	1.01	1,106	1.01	941	1.01	6-HR	1,106	1.01	S120J	6-HR, with Levee	1,106	1.01
S120K	497	0.43	357	0.43	6-HR	497	0.43	497	0.43	357	0.43	6-HR	497	0.43	S120K	6-HR, with Levee	497	0.43
S120L	309	0.32	225	0.32	6-HR	309	0.32	309	0.32	225	0.32	6-HR	309	0.32	S120L	6-HR, with Levee	309	0.32
S120M	334	0.2	244	0.2	6-HR	334	0.2	334	0.2	244	0.2	6-HR	334	0.2	S120M	6-HR, with Levee	334	0.2
S120N	674	0.54	496	0.54	6-HR	674	0.54	674	0.54	496	0.54	6-HR	674	0.54	S120N	6-HR, with Levee	674	0.54
S120O	385	0.46	280	0.46	6-HR	385	0.46	385	0.46	280	0.46	6-HR	385	0.46	S120O	6-HR, with Levee	385	0.46
S120P	1,033	1.28	893	1.28	6-HR	1,033	1.28	1,033	1.28	893	1.28	6-HR	1,033	1.28	S120P	6-HR, with Levee	1,033	1.28
S120Q	679	0.54	510	0.54	6-HR	679	0.54	679	0.54	510	0.54	6-HR	679	0.54	S120Q	6-HR, with Levee	679	0.54
S122	643	0.75	503	0.75	6-HR	643	0.75	643	0.75	503	0.75	6-HR	643	0.75	S122	6-HR, with Levee	643	0.75
S125	809	1.17	693	1.17	6-HR	809	1.17	809	1.17	693	1.17	6-HR	809	1.17	S125	6-HR, with Levee	809	1.17
S130	1,724	4.52	1,836	4.52	24-HR	1,836	4.52	1,724	4.52	1,836	4.52	24-HR	1,836	4.52	S130	24-HR, with Levee	1,836	4.52
S135	1,750	4.19	1,736	4.19	6-HR	1,750	4.19	1,750	4.19	1,736	4.19	6-HR	1,750	4.19	S135	6-HR, with Levee	1,750	4.19
S135A	573	0.7	441	0.7	6-HR	573	0.7	573	0.7	441	0.7	6-HR	573	0.7	S135A	6-HR, with Levee	573	0.7
S135B	538	0.58	403	0.58	6-HR	538	0.58	538	0.58	403	0.58	6-HR	538	0.58	S135B	6-HR, with Levee	538	0.58
S135C	248	0.19	181	0.19	6-HR	248	0.19	248	0.19	181	0.19	6-HR	248	0.19	S135C	6-HR, with Levee	248	0.19
S135D	601	0.46	437	0.46	6-HR	601	0.46	601	0.46	437	0.46	6-HR	601	0.46	S135D	6-HR, with Levee	601	0.46
S135E	533	0.6	403	0.6	6-HR	533	0.6	533	0.6	403	0.6	6-HR	533	0.6	S135E	6-HR, with Levee	533	0.6
S135F	2,074	2.97	2,425	2.97	24-HR	2,425	2.97	2,074	2.97	2,425	2.97	24-HR	2,425	2.97	S135F	24-HR, with Levee	2,425	2.97
S135G	1,248	1.32	1,131	1.32	6-HR	1,248	1.32	1,248	1.32	1,131	1.32	6-HR	1,248	1.32	S135G	6-HR, with Levee	1,248	1.32
S135H	623	0.66	478	0.66	6-HR	623	0.66	623	0.66	478	0.66	6-HR	623	0.66	S135H	6-HR, with Levee	623	0.66
S135I	1,239	1.59	1,176	1.59	6-HR	1,239	1.59	1,239	1.59	1,176	1.59	6-HR	1,239	1.59	S135I	6-HR, with Levee	1,239	1.59
S135J	719	0.7	555	0.7	6-HR	719	0.7	719	0.7	555	0.7	6-HR	719	0.7	S135J	6-HR, with Levee	719	0.7
S135K	823	1.2	695	1.2	6-HR	823	1.2	823	1.2	695	1.2	6-HR	823	1.2	S135K	6-HR, with Levee	823	1.2
S135L	1,615	2.46	1,663	2.46	24-HR	1,663	2.46	1,615	2.46	1,663	2.46	24-HR	1,663	2.46	S135L	24-HR, with Levee	1,663	2.46
S135M	382	0.41	277	0.41	6-HR	382	0.41	382	0.41	277	0.41	6-HR	382	0.41	S135M	6-HR, with Levee	382	0.41
S136A	162	0.07	121	0.07	6-HR	162	0.07	162	0.07	121	0.07	6-HR	162	0.07	S136A	6-HR, with Levee	162	0.07
S136B	589	0.84	465	0.84	6-HR	589	0.84	589	0.84	465	0.84	6-HR	589	0.84	S136B	6-HR, with Levee	589	0.84
S136C	416	0.27	302	0.27	6-HR	416	0.27	416	0.27	302	0.27	6-HR	416	0.27	S136C	6-HR, with Levee	416	0.27
S136D	652	0.81	515	0.81	6-HR	652	0.81	652	0.81	515	0.81	6-HR	652	0.81	S136D	6-HR, with Levee	652	0.81
S136E	560	0.53	412	0.53	6-HR	560	0.53	560	0.53	412	0.53	6-HR	560	0.53	S136E	6-HR, with Levee	560	0.53
S140	1,445	2.08	1,320	2.08	6-HR	1,445	2.08	1,445	2.08	1,320	2.08	6-HR	1,445	2.08	S140	6-HR, with Levee	1,445	2.08
S145	1,309	1.75	1,207	1.75	6-HR	1,309	1.75	1,309	1.75	1,207	1.75	6-HR	1,309	1.75	S145	6-HR, with Levee	1,309	1.75
S150	283	0.18	189	0.18	6-HR	283	0.18	283	0.18	189	0.18	6-HR	283	0.18	S150	6-HR, with Levee	283	0.18
S155	569	0.65	415	0.65	6-HR	569	0.65	569	0.65	415	0.65	6-HR	569	0.65	S155	6-HR, with Levee	569	0.65
S160	1,088	1.32	933	1.32	6-HR	1,088	1.32	1,088	1.32	933	1.32	6-HR	1,088	1.32	S160	6-HR, with Levee	1,088	1.32
S165	2,064	2.64	2,277	2.64	24-HR	2,277	2.64	2,064	2.64	2,277	2.64	24-HR	2,277	2.64	S165	24-HR, with Levee	2,277	2.64
S170	956	1.36	820	1.36	6-HR	956	1.36	956	1.36	820	1.36	6-HR	956	1.36	S170	6-HR, with Levee	956	1.36
S175	1,007	1.31	868	1.31	6-HR	1,007	1.31	1,007	1.31	868	1.31	6-HR	1,007	1.31	S175	6-HR, with Levee	1,007	1.31
S175A	547	0.51	401	0.51	6-HR	547	0.51	547	0.51	401	0.51	6-HR	547	0.51	S175A	6-HR, with Levee	547	0.51
S175B	723	1.15	602	1.15	6-HR	723	1.15	723	1.15	602	1.15	6-HR	723	1.15	S175B	6-HR, with Levee	723	1.15
S175C	300	0.2	222	0.2	6-HR	300	0.2	300	0.2	222	0.2	6-HR	300	0.2	S175C	6-HR, with Levee	300	0.2
S175D	408	0.54	300	0.54	6-HR	408	0.54	408	0.54	300	0.54	6-HR	408	0.54	S175D	6-HR, with Levee	408	0.54

[1] Flow is taken from the "modified hydrology model"

[2] Flow is taken from the "intermediate modified hydrology models"

	with Levee							w/out Levee											
	6-HR		24-HR		CNTR-1			6-HR		24-HR		CNTR-2			CONTROL			
ID	FLOW	AREA	FLOW	AREA	MODEL	FLOW	AREA	FLOW	AREA	FLOW	AREA	MODEL	FLOW	AREA	ID	MODEL	FLOW	AREA
S180	1,596	3.29	1,530	3.29	6-HR	1,596	3.29	1,596	3.29	1,530	3.29	6-HR	1,596	3.29	S180	6-HR, with Levee	1,596	3.29
S180A	583	0.43	422	0.43	6-HR	583	0.43	583	0.43	422	0.43	6-HR	583	0.43	S180A	6-HR, with Levee	583	0.43
S180B	773	0.77	610	0.77	6-HR	773	0.77	773	0.77	610	0.77	6-HR	773	0.77	S180B	6-HR, with Levee	773	0.77
S180C	339	0.36	247	0.36	6-HR	339	0.36	339	0.36	247	0.36	6-HR	339	0.36	S180C	6-HR, with Levee	339	0.36
S180D	482	0.43	350	0.43	6-HR	482	0.43	482	0.43	350	0.43	6-HR	482	0.43	S180D	6-HR, with Levee	482	0.43
S180E	391	0.36	284	0.36	6-HR	391	0.36	391	0.36	284	0.36	6-HR	391	0.36	S180E	6-HR, with Levee	391	0.36
S180F	776	1.19	646	1.19	6-HR	776	1.19	776	1.19	646	1.19	6-HR	776	1.19	S180F	6-HR, with Levee	776	1.19
S180G	374	0.28	271	0.28	6-HR	374	0.28	374	0.28	271	0.28	6-HR	374	0.28	S180G	6-HR, with Levee	374	0.28
S180H	459	0.31	331	0.31	6-HR	459	0.31	459	0.31	331	0.31	6-HR	459	0.31	S180H	6-HR, with Levee	459	0.31
S180I	518	0.27	373	0.27	6-HR	518	0.27	518	0.27	373	0.27	6-HR	518	0.27	S180I	6-HR, with Levee	518	0.27
S180J	632	0.75	495	0.75	6-HR	632	0.75	632	0.75	495	0.75	6-HR	632	0.75	S180J	6-HR, with Levee	632	0.75
S185	836	0.94	684	0.94	6-HR	836	0.94	836	0.94	684	0.94	6-HR	836	0.94	S185	6-HR, with Levee	836	0.94
S190	1,514	2.82	1,503	2.82	6-HR	1,514	2.82	1,514	2.82	1,503	2.82	6-HR	1,514	2.82	S190	6-HR, with Levee	1,514	2.82
S195	406	0.28	298	0.28	6-HR	406	0.28	406	0.28	298	0.28	6-HR	406	0.28	S195	6-HR, with Levee	406	0.28
S199	824	0.81	662	0.81	6-HR	824	0.81	824	0.81	662	0.81	6-HR	824	0.81	S199	6-HR, with Levee	824	0.81
S199A	336	0.28	246	0.28	6-HR	336	0.28	336	0.28	246	0.28	6-HR	336	0.28	S199A	6-HR, with Levee	336	0.28
S199B	593	0.59	442	0.59	6-HR	593	0.59	593	0.59	442	0.59	6-HR	593	0.59	S199B	6-HR, with Levee	593	0.59
S200	2,166	3.82	2,222	3.82	24-HR	2,222	3.82	2,166	3.82	2,222	3.82	24-HR	2,222	3.82	S200	24-HR, with Levee	2,222	3.82
S205	3,305	4.84	3,696	4.84	24-HR	3,696	4.84	3,305	4.84	3,696	4.84	24-HR	3,696	4.84	S205	24-HR, with Levee	3,696	4.84
S210	910	0.84	738	0.84	6-HR	910	0.84	910	0.84	738	0.84	6-HR	910	0.84	S210	6-HR, with Levee	910	0.84
S215	1,358	2.73	1,272	2.73	6-HR	1,358	2.73	1,358	2.73	1,272	2.73	6-HR	1,358	2.73	S215	6-HR, with Levee	1,358	2.73
S215A	709	1.02	577	1.02	6-HR	709	1.02	709	1.02	577	1.02	6-HR	709	1.02	S215A	6-HR, with Levee	709	1.02
S215B	513	0.77	401	0.77	6-HR	513	0.77	513	0.77	401	0.77	6-HR	513	0.77	S215B	6-HR, with Levee	513	0.77
S215D	421	0.39	307	0.39	6-HR	421	0.39	421	0.39	307	0.39	6-HR	421	0.39	S215D	6-HR, with Levee	421	0.39
S215E	691	0.62	522	0.62	6-HR	691	0.62	691	0.62	522	0.62	6-HR	691	0.62	S215E	6-HR, with Levee	691	0.62
S215F	531	0.38	385	0.38	6-HR	531	0.38	531	0.38	385	0.38	6-HR	531	0.38	S215F	6-HR, with Levee	531	0.38
S215G	546	0.56	405	0.56	6-HR	546	0.56	546	0.56	405	0.56	6-HR	546	0.56	S215G	6-HR, with Levee	546	0.56
S215H	1,080	1.11	916	1.11	6-HR	1,080	1.11	1,080	1.11	916	1.11	6-HR	1,080	1.11	S215H	6-HR, with Levee	1,080	1.11
S215I	219	0.53	161	0.53	6-HR	219	0.53	219	0.53	161	0.53	6-HR	219	0.53	S215I	6-HR, with Levee	219	0.53
S216A	732	0.39	533	0.39	6-HR	732	0.39	732	0.39	533	0.39	6-HR	732	0.39	S216A	6-HR, with Levee	732	0.39
S216B	564	0.33	416	0.33	6-HR	564	0.33	564	0.33	416	0.33	6-HR	564	0.33	S216B	6-HR, with Levee	564	0.33
S216C	667	0.56	495	0.56	6-HR	667	0.56	667	0.56	495	0.56	6-HR	667	0.56	S216C	6-HR, with Levee	667	0.56
S217A	777	0.9	627	0.9	6-HR	777	0.9	777	0.9	627	0.9	6-HR	777	0.9	S217A	6-HR, with Levee	777	0.9
S217B	657	0.63	498	0.63	6-HR	657	0.63	657	0.63	498	0.63	6-HR	657	0.63	S217B	6-HR, with Levee	657	0.63
S220	1,421	1.72	1,348	1.72	6-HR	1,421	1.72	1,421	1.72	1,348	1.72	6-HR	1,421	1.72	S220	6-HR, with Levee	1,421	1.72
S225	1,571	3.01	1,511	3.01	6-HR	1,571	3.01	1,571	3.01	1,511	3.01	6-HR	1,571	3.01	S225	6-HR, with Levee	1,571	3.01
S225A	416	0.28	299	0.28	6-HR	416	0.28	416	0.28	299	0.28	6-HR	416	0.28	S225A	6-HR, with Levee	416	0.28
S225B	484	0.52	354	0.52	6-HR	484	0.52	484	0.52	354	0.52	6-HR	484	0.52	S225B	6-HR, with Levee	484	0.52
S225C	754	0.86	604	0.86	6-HR	754	0.86	754	0.86	604	0.86	6-HR	754	0.86	S225C	6-HR, with Levee	754	0.86
S225D	583	0.53	429	0.53	6-HR	583	0.53	583	0.53	429	0.53	6-HR	583	0.53	S225D	6-HR, with Levee	583	0.53
S225E	634	0.62	481	0.62	6-HR	634	0.62	634	0.62	481	0.62	6-HR	634	0.62	S225E	6-HR, with Levee	634	0.62
S225F	322	0.32	234	0.32	6-HR	322	0.32	322	0.32	234	0.32	6-HR	322	0.32	S225F	6-HR, with Levee	322	0.32
S226A	434	0.32	318	0.32	6-HR	434	0.32	434	0.32	318	0.32	6-HR	434	0.32	S226A	6-HR, with Levee	434	0.32
S226B	528	0.6	395	0.6	6-HR	528	0.6	528	0.6	395	0.6	6-HR	528	0.6	S226B	6-HR, with Levee	528	0.6
S226C	210	0.16	153	0.16	6-HR	210	0.16	210	0.16	153	0.16	6-HR	210	0.16	S226C	6-HR, with Levee	210	0.16
S226D	234	0.15	169	0.15	6-HR	234	0.15	234	0.15	169	0.15	6-HR	234	0.15	S226D	6-HR, with Levee	234	0.15
S226E	323	0.28	234	0.28	6-HR	323	0.28	323	0.28	234	0.28	6-HR	323	0.28	S226E	6-HR, with Levee	323	0.28
S226F	436	0.32	316	0.32	6-HR	436	0.32	436	0.32	316	0.32	6-HR	436	0.32	S226F	6-HR, with Levee	436	0.32
S230	1,872	3.94	2,022	3.94	24-HR	2,022	3.94	1,872	3.94	2,022	3.94	24-HR	2,022	3.94	S230	24-HR, with Levee	2,022	3.94
S235	1,411	1.89	1,328	1.89	6-HR	1,411	1.89	1,411	1.89	1,328	1.89	6-HR	1,411	1.89	S235	6-HR, with Levee	1,411	1.89
S235A	249	0.12	184	0.12	6-HR	249	0.12	249	0.12	184	0.12	6-HR	249	0.12	S235A	6-HR, with Levee	249	0.12
S235B	631	0.73	491	0.73	6-HR	631	0.73	631	0.73	491	0.73	6-HR	631	0.73	S235B	6-HR, with Levee	631	0.73
S235C	466	0.41	337	0.41	6-HR	466	0.41	466	0.41	337	0.41	6-HR	466	0.41	S235C	6-HR, with Levee	466	0.41
S235D	592	0.58	442	0.58	6-HR	592	0.58	592	0.58	442	0.58	6-HR	592	0.58	S235D	6-HR, with Levee	592	0.58

[1] Flow is taken from the "modified hydrology model"

[2] Flow is taken from the "intermediate modified hydrology models"

	with Levee							w/out Levee											
	6-HR		24-HR		CNTR-1			6-HR		24-HR		CNTR-2			CONTROL			
ID	FLOW	AREA	FLOW	AREA	MODEL	FLOW	AREA	FLOW	AREA	FLOW	AREA	MODEL	FLOW	AREA	ID	MODEL	FLOW	AREA
S235E	285	0.22	207	0.22	6-HR	285	0.22	285	0.22	207	0.22	6-HR	285	0.22	S235E	6-HR, with Levee	285	0.22
S236A	367	0.23	268	0.23	6-HR	367	0.23	367	0.23	268	0.23	6-HR	367	0.23	S236A	6-HR, with Levee	367	0.23
S240	861	0.74	679	0.74	6-HR	861	0.74	861	0.74	679	0.74	6-HR	861	0.74	S240	6-HR, with Levee	861	0.74
S240A	432	0.28	313	0.28	6-HR	432	0.28	432	0.28	313	0.28	6-HR	432	0.28	S240A	6-HR, with Levee	432	0.28
S240B	587	0.61	440	0.61	6-HR	587	0.61	587	0.61	440	0.61	6-HR	587	0.61	S240B	6-HR, with Levee	587	0.61
S245	788	0.82	625	0.82	6-HR	788	0.82	788	0.82	625	0.82	6-HR	788	0.82	S245	6-HR, with Levee	788	0.82
S250	1,298	1.38	1,190	1.38	6-HR	1,298	1.38	1,298	1.38	1,190	1.38	6-HR	1,298	1.38	S250	6-HR, with Levee	1,298	1.38
S250A	562	0.47	410	0.47	6-HR	562	0.47	562	0.47	410	0.47	6-HR	562	0.47	S250A	6-HR, with Levee	562	0.47
S250B	510	0.52	375	0.52	6-HR	510	0.52	510	0.52	375	0.52	6-HR	510	0.52	S250B	6-HR, with Levee	510	0.52
S250C	653	0.73	508	0.73	6-HR	653	0.73	653	0.73	508	0.73	6-HR	653	0.73	S250C	6-HR, with Levee	653	0.73
S250D	293	0.27	214	0.27	6-HR	293	0.27	293	0.27	214	0.27	6-HR	293	0.27	S250D	6-HR, with Levee	293	0.27
S250E	262	0.14	192	0.14	6-HR	262	0.14	262	0.14	192	0.14	6-HR	262	0.14	S250E	6-HR, with Levee	262	0.14
S250F	347	0.25	253	0.25	6-HR	347	0.25	347	0.25	253	0.25	6-HR	347	0.25	S250F	6-HR, with Levee	347	0.25
S250G	503	0.36	368	0.36	6-HR	503	0.36	503	0.36	368	0.36	6-HR	503	0.36	S250G	6-HR, with Levee	503	0.36
S250H	342	0.28	251	0.28	6-HR	342	0.28	342	0.28	251	0.28	6-HR	342	0.28	S250H	6-HR, with Levee	342	0.28
S251	410	0.16	303	0.16	6-HR	410	0.16	410	0.16	303	0.16	6-HR	410	0.16	S251	6-HR, with Levee	410	0.16
S251A	334	0.17	246	0.17	6-HR	334	0.17	334	0.17	246	0.17	6-HR	334	0.17	S251A	6-HR, with Levee	334	0.17
S251B	136	0.08	101	0.08	6-HR	136	0.08	136	0.08	101	0.08	6-HR	136	0.08	S251B	6-HR, with Levee	136	0.08
S251C	263	0.22	193	0.22	6-HR	263	0.22	263	0.22	193	0.22	6-HR	263	0.22	S251C	6-HR, with Levee	263	0.22
S252	327	0.16	240	0.16	6-HR	327	0.16	327	0.16	240	0.16	6-HR	327	0.16	S252	6-HR, with Levee	327	0.16
S253	816	0.38	600	0.38	6-HR	816	0.38	816	0.38	600	0.38	6-HR	816	0.38	S253	6-HR, with Levee	816	0.38
S253A	449	0.28	329	0.28	6-HR	449	0.28	449	0.28	329	0.28	6-HR	449	0.28	S253A	6-HR, with Levee	449	0.28
S253B	192	0.12	140	0.12	6-HR	192	0.12	192	0.12	140	0.12	6-HR	192	0.12	S253B	6-HR, with Levee	192	0.12
S253C	200	0.13	146	0.13	6-HR	200	0.13	200	0.13	146	0.13	6-HR	200	0.13	S253C	6-HR, with Levee	200	0.13
S253E	670	0.61	503	0.61	6-HR	670	0.61	670	0.61	503	0.61	6-HR	670	0.61	S253E	6-HR, with Levee	670	0.61
S253F	438	0.42	318	0.42	6-HR	438	0.42	438	0.42	318	0.42	6-HR	438	0.42	S253F	6-HR, with Levee	438	0.42
S253G	285	0.19	209	0.19	6-HR	285	0.19	285	0.19	209	0.19	6-HR	285	0.19	S253G	6-HR, with Levee	285	0.19
S253H	262	0.36	189	0.36	6-HR	262	0.36	262	0.36	189	0.36	6-HR	262	0.36	S253H	6-HR, with Levee	262	0.36
S253I	510	0.42	371	0.42	6-HR	510	0.42	510	0.42	371	0.42	6-HR	510	0.42	S253I	6-HR, with Levee	510	0.42
S253J	344	0.35	249	0.35	6-HR	344	0.35	344	0.35	249	0.35	6-HR	344	0.35	S253J	6-HR, with Levee	344	0.35
S253K	371	0.28	270	0.28	6-HR	371	0.28	371	0.28	270	0.28	6-HR	371	0.28	S253K	6-HR, with Levee	371	0.28
S253L	294	0.23	214	0.23	6-HR	294	0.23	294	0.23	214	0.23	6-HR	294	0.23	S253L	6-HR, with Levee	294	0.23
S253M	614	0.49	448	0.49	6-HR	614	0.49	614	0.49	448	0.49	6-HR	614	0.49	S253M	6-HR, with Levee	614	0.49
S253N	166	0.27	119	0.27	6-HR	166	0.27	166	0.27	119	0.27	6-HR	166	0.27	S253N	6-HR, with Levee	166	0.27
S253O	144	0.28	105	0.28	6-HR	144	0.28	144	0.28	105	0.28	6-HR	144	0.28	S253O	6-HR, with Levee	144	0.28
S253P	127	0.24	92	0.24	6-HR	127	0.24	127	0.24	92	0.24	6-HR	127	0.24	S253P	6-HR, with Levee	127	0.24
S253Q	474	1.06	397	1.06	6-HR	474	1.06	474	1.06	397	1.06	6-HR	474	1.06	S253Q	6-HR, with Levee	474	1.06
S253R	594	1.21	517	1.21	6-HR	594	1.21	594	1.21	517	1.21	6-HR	594	1.21	S253R	6-HR, with Levee	594	1.21
S253S	223	0.39	162	0.39	6-HR	223	0.39	223	0.39	162	0.39	6-HR	223	0.39	S253S	6-HR, with Levee	223	0.39
S253T	243	0.6	185	0.6	6-HR	243	0.6	243	0.6	185	0.6	6-HR	243	0.6	S253T	6-HR, with Levee	243	0.6
S253U	259	0.95	211	0.95	6-HR	259	0.95	259	0.95	211	0.95	6-HR	259	0.95	S253U	6-HR, with Levee	259	0.95
S253V	263	0.55	196	0.55	6-HR	263	0.55	263	0.55	196	0.55	6-HR	263	0.55	S253V	6-HR, with Levee	263	0.55
S253W	831	0.43	599	0.43	6-HR	831	0.43	831	0.43	599	0.43	6-HR	831	0.43	S253W	6-HR, with Levee	831	0.43
S253X	98	0.07	69	0.07	6-HR	98	0.07	98	0.07	69	0.07	6-HR	98	0.07	S253X	6-HR, with Levee	98	0.07
S253Y	2,259	3.55	2,505	3.55	24-HR	2,505	3.55	2,259	3.55	2,505	3.55	24-HR	2,505	3.55	S253Y	24-HR, with Levee	2,505	3.55
S253Z	573	0.38	414	0.38	6-HR	573	0.38	573	0.38	414	0.38	6-HR	573	0.38	S253Z	6-HR, with Levee	573	0.38
S300	2,035	3.68	2,100	3.68	24-HR	2,100	3.68	2,035	3.68	2,100	3.68	24-HR	2,100	3.68	S300	24-HR, with Levee	2,100	3.68
S305	2,279	2.59	2,557	2.59	24-HR	2,557	2.59	2,279	2.59	2,557	2.59	24-HR	2,557	2.59	S305	24-HR, with Levee	2,557	2.59
S305A	678	1.23	575	1.23	6-HR	678	1.23	678	1.23	575	1.23	6-HR	678	1.23	S305A	6-HR, with Levee	678	1.23
S305B	218	0.17	159	0.17	6-HR	218	0.17	218	0.17	159	0.17	6-HR	218	0.17	S305B	6-HR, with Levee	218	0.17
S305C	345	0.22	250	0.22	6-HR	345	0.22	345	0.22	250	0.22	6-HR	345	0.22	S305C	6-HR, with Levee	345	0.22
S305D	249	0.19	181	0.19	6-HR	249	0.19	249	0.19	181	0.19	6-HR	249	0.19	S305D	6-HR, with Levee	249	0.19
S305E	253	0.2	184	0.2	6-HR	253	0.2	253	0.2	184	0.2	6-HR	253	0.2	S305E	6-HR, with Levee	253	0.2
S310	1,220	1.1	1,056	1.1	6-HR	1,220	1.1	1,220	1.1	1,056	1.1	6-HR	1,220	1.1	S310	6-HR, with Levee	1,220	1.1

[1] Flow is taken from the "modified hydrology model"

[2] Flow is taken from the "intermediate modified hydrology models"

	with Levee							w/out Levee								CONTROL			
	6-HR		24-HR		CNTR-1			6-HR		24-HR		CNTR-2							
ID	FLOW	AREA	FLOW	AREA	MODEL	FLOW	AREA	FLOW	AREA	FLOW	AREA	MODEL	FLOW	AREA	ID	MODEL	FLOW	AREA
S315	1,036	1.23	919	1.23	6-HR	1,036	1.23	1,036	1.23	919	1.23	6-HR	1,036	1.23	S315	6-HR, with Levee	1,036	1.23
S320	547	0.31	377	0.31	6-HR	547	0.31	547	0.31	377	0.31	6-HR	547	0.31	S320	6-HR, with Levee	547	0.31
S325	577	0.37	410	0.37	6-HR	577	0.37	577	0.37	410	0.37	6-HR	577	0.37	S325	6-HR, with Levee	577	0.37
S330	1,077	0.57	807	0.57	6-HR	1,077	0.57	1,077	0.57	807	0.57	6-HR	1,077	0.57	S330	6-HR, with Levee	1,077	0.57
S330A	226	0.14	165	0.14	6-HR	226	0.14	226	0.14	165	0.14	6-HR	226	0.14	S330A	6-HR, with Levee	226	0.14
S330B	342	0.28	246	0.28	6-HR	342	0.28	342	0.28	246	0.28	6-HR	342	0.28	S330B	6-HR, with Levee	342	0.28
S330C	468	0.35	341	0.35	6-HR	468	0.35	468	0.35	341	0.35	6-HR	468	0.35	S330C	6-HR, with Levee	468	0.35
S335	749	0.32	545	0.32	6-HR	749	0.32	749	0.32	545	0.32	6-HR	749	0.32	S335	6-HR, with Levee	749	0.32
S335A	420	0.28	306	0.28	6-HR	420	0.28	420	0.28	306	0.28	6-HR	420	0.28	S335A	6-HR, with Levee	420	0.28
S335B	533	0.39	385	0.39	6-HR	533	0.39	533	0.39	385	0.39	6-HR	533	0.39	S335B	6-HR, with Levee	533	0.39
S335C	323	0.2	235	0.2	6-HR	323	0.2	323	0.2	235	0.2	6-HR	323	0.2	S335C	6-HR, with Levee	323	0.2
S335D	385	0.26	278	0.26	6-HR	385	0.26	385	0.26	278	0.26	6-HR	385	0.26	S335D	6-HR, with Levee	385	0.26
S335E	211	0.12	154	0.12	6-HR	211	0.12	211	0.12	154	0.12	6-HR	211	0.12	S335E	6-HR, with Levee	211	0.12
S335F	363	0.32	263	0.32	6-HR	363	0.32	363	0.32	263	0.32	6-HR	363	0.32	S335F	6-HR, with Levee	363	0.32
S340	901	0.45	658	0.45	6-HR	901	0.45	901	0.45	658	0.45	6-HR	901	0.45	S340	6-HR, with Levee	901	0.45
S340A	752	0.45	542	0.45	6-HR	752	0.45	752	0.45	542	0.45	6-HR	752	0.45	S340A	6-HR, with Levee	752	0.45
S340B	607	0.25	434	0.25	6-HR	607	0.25	607	0.25	434	0.25	6-HR	607	0.25	S340B	6-HR, with Levee	607	0.25
S340C	712	1.05	611	1.05	6-HR	712	1.05	732	1.05	611	1.05	6-HR	732	1.05	S340C	6-HR, w/out Levee	732	1.05
S340D	479	0.54	333	0.54	6-HR	479	0.54	479	0.54	333	0.54	6-HR	479	0.54	S340D	6-HR, with Levee	479	0.54
S345	1,877	2.38	2,003	2.38	24-HR	2,003	2.38	1,877	2.38	2,003	2.38	24-HR	2,003	2.38	S345	24-HR, with Levee	2,003	2.38
S400	1,309	1.36	1,197	1.36	6-HR	1,309	1.36	1,309	1.36	1,197	1.36	6-HR	1,309	1.36	S400	6-HR, with Levee	1,309	1.36
S405	1,240	1.05	1,061	1.05	6-HR	1,240	1.05	1,240	1.05	1,061	1.05	6-HR	1,240	1.05	S405	6-HR, with Levee	1,240	1.05
S410	1,098	1.12	947	1.12	6-HR	1,098	1.12	1,098	1.12	947	1.12	6-HR	1,098	1.12	S410	6-HR, with Levee	1,098	1.12
S410A	726	0.47	543	0.47	6-HR	726	0.47	726	0.47	543	0.47	6-HR	726	0.47	S410A	6-HR, with Levee	726	0.47
S500	57	0.02	41	0.02	6-HR	57	0.02	57	0.02	41	0.02	6-HR	57	0.02	S500	6-HR, with Levee	57	0.02
S600	176	0.06	125	0.06	6-HR	176	0.06	176	0.06	125	0.06	6-HR	176	0.06	S600	6-HR, with Levee	176	0.06
S700	1,148	0.75	917	0.75	6-HR	1,148	0.75	1,148	0.75	917	0.75	6-HR	1,148	0.75	S700	6-HR, with Levee	1,148	0.75
S700A	681	0.77	535	0.77	6-HR	681	0.77	681	0.77	535	0.77	6-HR	681	0.77	S700A	6-HR, with Levee	681	0.77
S700B	1,025	1.05	859	1.05	6-HR	1,025	1.05	1,025	1.05	859	1.05	6-HR	1,025	1.05	S700B	6-HR, with Levee	1,025	1.05
S700C	191	0.21	124	0.21	6-HR	191	0.21	191	0.21	124	0.21	6-HR	191	0.21	S700C	6-HR, with Levee	191	0.21
S700D	258	0.23	187	0.23	6-HR	258	0.23	258	0.23	187	0.23	6-HR	258	0.23	S700D	6-HR, with Levee	258	0.23
S700E	119	0.19	87	0.19	6-HR	119	0.19	119	0.19	87	0.19	6-HR	119	0.19	S700E	6-HR, with Levee	119	0.19
S700F	571	0.31	414	0.31	6-HR	571	0.31	571	0.31	414	0.31	6-HR	571	0.31	S700F	6-HR, with Levee	571	0.31
S700G	289	0.5	203	0.5	6-HR	289	0.5	289	0.5	203	0.5	6-HR	289	0.5	S700G	6-HR, with Levee	289	0.5
S700H	156	0.26	111	0.26	6-HR	156	0.26	156	0.26	111	0.26	6-HR	156	0.26	S700H	6-HR, with Levee	156	0.26
S700I	131	0.21	94	0.21	6-HR	131	0.21	131	0.21	94	0.21	6-HR	131	0.21	S700I	6-HR, with Levee	131	0.21
S700J	117	0.14	81	0.14	6-HR	117	0.14	117	0.14	81	0.14	6-HR	117	0.14	S700J	6-HR, with Levee	117	0.14
S700K	85	0.13	59	0.13	6-HR	85	0.13	85	0.13	59	0.13	6-HR	85	0.13	S700K	6-HR, with Levee	85	0.13
S710A	819	0.99	671	0.99	6-HR	819	0.99	819	0.99	671	0.99	6-HR	819	0.99	S710A	6-HR, with Levee	819	0.99
S710B	564	0.54	416	0.54	6-HR	564	0.54	564	0.54	416	0.54	6-HR	564	0.54	S710B	6-HR, with Levee	564	0.54
S710C	152	0.25	111	0.25	6-HR	152	0.25	152	0.25	111	0.25	6-HR	152	0.25	S710C	6-HR, with Levee	152	0.25
S710D	145	0.25	103	0.25	6-HR	145	0.25	145	0.25	103	0.25	6-HR	145	0.25	S710D	6-HR, with Levee	145	0.25
S710E	216	0.28	159	0.28	6-HR	216	0.28	216	0.28	159	0.28	6-HR	216	0.28	S710E	6-HR, with Levee	216	0.28
S710F	167	0.26	123	0.26	6-HR	167	0.26	167	0.26	123	0.26	6-HR	167	0.26	S710F	6-HR, with Levee	167	0.26
S710G	147	0.24	106	0.24	6-HR	147	0.24	147	0.24	106	0.24	6-HR	147	0.24	S710G	6-HR, with Levee	147	0.24
S710H	78	0.11	55	0.11	6-HR	78	0.11	78	0.11	55	0.11	6-HR	78	0.11	S710H	6-HR, with Levee	78	0.11
S710I	162	0.24	119	0.24	6-HR	162	0.24	162	0.24	119	0.24	6-HR	162	0.24	S710I	6-HR, with Levee	162	0.24
S710J	446	0.25	328	0.25	6-HR	446	0.25	446	0.25	328	0.25	6-HR	446	0.25	S710J	6-HR, with Levee	446	0.25
S710K	152	0.25	111	0.25	6-HR	152	0.25	152	0.25	111	0.25	6-HR	152	0.25	S710K	6-HR, with Levee	152	0.25
S710L	163	0.25	118	0.25	6-HR	163	0.25	163	0.25	118	0.25	6-HR	163	0.25	S710L	6-HR, with Levee	163	0.25
S710M	159	0.27	117	0.27	6-HR	159	0.27	159	0.27	117	0.27	6-HR	159	0.27	S710M	6-HR, with Levee	159	0.27
S710N	206	0.28	149	0.28	6-HR	206	0.28	206	0.28	149	0.28	6-HR	206	0.28	S710N	6-HR, with Levee	206	0.28
S710P	260	0.23	191	0.23	6-HR	260	0.23	260	0.23	191	0.23	6-HR	260	0.23	S710P	6-HR, with Levee	260	0.23
S710Q	312	0.23	227	0.23	6-HR	312	0.23	312	0.23	227	0.23	6-HR	312	0.23	S710Q	6-HR, with Levee	312	0.23

[1] Flow is taken from the "modified hydrology model"

[2] Flow is taken from the "intermediate modified hydrology models"

	with Levee							w/out Levee								CONTROL			
	6-HR		24-HR		CNTR-1			6-HR		24-HR		CNTR-2							
ID	FLOW	AREA	FLOW	AREA	MODEL	FLOW	AREA	FLOW	AREA	FLOW	AREA	MODEL	FLOW	AREA	ID	MODEL	FLOW	AREA
S710R	411	0.32	300	0.32	6-HR	411	0.32	411	0.32	300	0.32	6-HR	411	0.32	S710R	6-HR, with Levee	411	0.32
S710S	589	0.47	425	0.47	6-HR	589	0.47	589	0.47	425	0.47	6-HR	589	0.47	S710S	6-HR, with Levee	589	0.47
S710T	241	0.31	176	0.31	6-HR	241	0.31	241	0.31	176	0.31	6-HR	241	0.31	S710T	6-HR, with Levee	241	0.31
S710U	219	0.28	159	0.28	6-HR	219	0.28	219	0.28	159	0.28	6-HR	219	0.28	S710U	6-HR, with Levee	219	0.28
S710V	102	0.15	72	0.15	6-HR	102	0.15	102	0.15	72	0.15	6-HR	102	0.15	S710V	6-HR, with Levee	102	0.15
S710W	341	0.21	249	0.21	6-HR	341	0.21	341	0.21	249	0.21	6-HR	341	0.21	S710W	6-HR, with Levee	341	0.21
S720A	424	0.44	308	0.44	6-HR	424	0.44	424	0.44	308	0.44	6-HR	424	0.44	S720A	6-HR, with Levee	424	0.44
S720B	255	0.36	187	0.36	6-HR	255	0.36	255	0.36	187	0.36	6-HR	255	0.36	S720B	6-HR, with Levee	255	0.36
S720C	901	0.72	716	0.72	6-HR	901	0.72	901	0.72	716	0.72	6-HR	901	0.72	S720C	6-HR, with Levee	901	0.72
S720D	385	0.37	282	0.37	6-HR	385	0.37	385	0.37	282	0.37	6-HR	385	0.37	S720D	6-HR, with Levee	385	0.37
S720E	309	0.28	229	0.28	6-HR	309	0.28	309	0.28	229	0.28	6-HR	309	0.28	S720E	6-HR, with Levee	309	0.28
S720F	213	0.14	155	0.14	6-HR	213	0.14	213	0.14	155	0.14	6-HR	213	0.14	S720F	6-HR, with Levee	213	0.14
S720G	233	0.21	169	0.21	6-HR	233	0.21	233	0.21	169	0.21	6-HR	233	0.21	S720G	6-HR, with Levee	233	0.21
S720H	241	0.19	176	0.19	6-HR	241	0.19	241	0.19	176	0.19	6-HR	241	0.19	S720H	6-HR, with Levee	241	0.19
S720I	219	0.14	159	0.14	6-HR	219	0.14	219	0.14	159	0.14	6-HR	219	0.14	S720I	6-HR, with Levee	219	0.14
S720J	316	0.31	230	0.31	6-HR	316	0.31	316	0.31	230	0.31	6-HR	316	0.31	S720J	6-HR, with Levee	316	0.31
S730A	339	0.21	246	0.21	6-HR	339	0.21	339	0.21	246	0.21	6-HR	339	0.21	S730A	6-HR, with Levee	339	0.21
S730B	477	0.29	349	0.29	6-HR	477	0.29	477	0.29	349	0.29	6-HR	477	0.29	S730B	6-HR, with Levee	477	0.29
S730C	203	0.31	150	0.31	6-HR	203	0.31	203	0.31	150	0.31	6-HR	203	0.31	S730C	6-HR, with Levee	203	0.31
S730D	171	0.2	125	0.2	6-HR	171	0.2	171	0.2	125	0.2	6-HR	171	0.2	S730D	6-HR, with Levee	171	0.2
S730E	516	0.39	375	0.39	6-HR	516	0.39	516	0.39	375	0.39	6-HR	516	0.39	S730E	6-HR, with Levee	516	0.39
S740A	1,373	1.91	1,270	1.91	6-HR	1,373	1.91	1,373	1.91	1,270	1.91	6-HR	1,373	1.91	S740A	6-HR, with Levee	1,373	1.91
S740B	745	0.88	597	0.88	6-HR	745	0.88	745	0.88	597	0.88	6-HR	745	0.88	S740B	6-HR, with Levee	745	0.88
S740C	368	0.37	269	0.37	6-HR	368	0.37	368	0.37	269	0.37	6-HR	368	0.37	S740C	6-HR, with Levee	368	0.37
S740D	515	0.55	382	0.55	6-HR	515	0.55	515	0.55	382	0.55	6-HR	515	0.55	S740D	6-HR, with Levee	515	0.55
S740E	364	0.27	263	0.27	6-HR	364	0.27	364	0.27	263	0.27	6-HR	364	0.27	S740E	6-HR, with Levee	364	0.27
S750A	742	0.75	583	0.75	6-HR	742	0.75	742	0.75	583	0.75	6-HR	742	0.75	S750A	6-HR, with Levee	742	0.75
S750B	1,199	0.9	1,000	0.9	6-HR	1,199	0.9	1,199	0.9	1,000	0.9	6-HR	1,199	0.9	S750B	6-HR, with Levee	1,199	0.9
S750C	266	0.16	195	0.16	6-HR	266	0.16	266	0.16	195	0.16	6-HR	266	0.16	S750C	6-HR, with Levee	266	0.16
S750D	225	0.17	164	0.17	6-HR	225	0.17	225	0.17	164	0.17	6-HR	225	0.17	S750D	6-HR, with Levee	225	0.17
S750E	357	0.35	261	0.35	6-HR	357	0.35	357	0.35	261	0.35	6-HR	357	0.35	S750E	6-HR, with Levee	357	0.35
S750F	444	0.41	327	0.41	6-HR	444	0.41	444	0.41	327	0.41	6-HR	444	0.41	S750F	6-HR, with Levee	444	0.41
S750G	553	0.63	416	0.63	6-HR	553	0.63	553	0.63	416	0.63	6-HR	553	0.63	S750G	6-HR, with Levee	553	0.63
S750H	464	0.5	344	0.5	6-HR	464	0.5	464	0.5	344	0.5	6-HR	464	0.5	S750H	6-HR, with Levee	464	0.5
S750I	351	0.32	257	0.32	6-HR	351	0.32	351	0.32	257	0.32	6-HR	351	0.32	S750I	6-HR, with Levee	351	0.32
S750J	475	0.37	345	0.37	6-HR	475	0.37	475	0.37	345	0.37	6-HR	475	0.37	S750J	6-HR, with Levee	475	0.37
S750K	383	0.27	286	0.27	6-HR	383	0.27	383	0.27	286	0.27	6-HR	383	0.27	S750K	6-HR, with Levee	383	0.27
S750L	392	0.37	289	0.37	6-HR	392	0.37	392	0.37	289	0.37	6-HR	392	0.37	S750L	6-HR, with Levee	392	0.37
S750M	446	0.34	325	0.34	6-HR	446	0.34	446	0.34	325	0.34	6-HR	446	0.34	S750M	6-HR, with Levee	446	0.34
S750N	522	0.27	377	0.27	6-HR	522	0.27	522	0.27	377	0.27	6-HR	522	0.27	S750N	6-HR, with Levee	522	0.27
S760A	387	0.31	287	0.31	6-HR	387	0.31	387	0.31	287	0.31	6-HR	387	0.31	S760A	6-HR, with Levee	387	0.31
S760B	607	0.66	468	0.66	6-HR	607	0.66	607	0.66	468	0.66	6-HR	607	0.66	S760B	6-HR, with Levee	607	0.66
S760C	353	0.38	262	0.38	6-HR	353	0.38	353	0.38	262	0.38	6-HR	353	0.38	S760C	6-HR, with Levee	353	0.38
S760D	253	0.18	186	0.18	6-HR	253	0.18	253	0.18	186	0.18	6-HR	253	0.18	S760D	6-HR, with Levee	253	0.18
S760E	471	0.36	348	0.36	6-HR	471	0.36	471	0.36	348	0.36	6-HR	471	0.36	S760E	6-HR, with Levee	471	0.36
S760F	448	0.4	332	0.4	6-HR	448	0.4	448	0.4	332	0.4	6-HR	448	0.4	S760F	6-HR, with Levee	448	0.4
S760G	370	0.43	271	0.43	6-HR	370	0.43	370	0.43	271	0.43	6-HR	370	0.43	S760G	6-HR, with Levee	370	0.43
S760H	541	0.61	407	0.61	6-HR	541	0.61	541	0.61	407	0.61	6-HR	541	0.61	S760H	6-HR, with Levee	541	0.61
S760I	368	0.28	268	0.28	6-HR	368	0.28	368	0.28	268	0.28	6-HR	368	0.28	S760I	6-HR, with Levee	368	0.28
S760J	268	0.19	194	0.19	6-HR	268	0.19	268	0.19	194	0.19	6-HR	268	0.19	S760J	6-HR, with Levee	268	0.19
S760K	362	0.27	261	0.27	6-HR	362	0.27	362	0.27	261	0.27	6-HR	362	0.27	S760K	6-HR, with Levee	362	0.27
S760L	469	0.41	348	0.41	6-HR	469	0.41	469	0.41	348	0.41	6-HR	469	0.41	S760L	6-HR, with Levee	469	0.41
S760M	440	0.36	324	0.36	6-HR	440	0.36	440	0.36	324	0.36	6-HR	440	0.36	S760M	6-HR, with Levee	440	0.36
S760N	379	0.36	276	0.36	6-HR	379	0.36	379	0.36	276	0.36	6-HR	379	0.36	S760N	6-HR, with Levee	379	0.36

[1] Flow is taken from the "modified hydrology model"

[2] Flow is taken from the "intermediate modified hydrology models"

	with Levee							w/out Levee								CONTROL			
	6-HR		24-HR		CNTR-1			6-HR		24-HR		CNTR-2							
ID	FLOW	AREA	FLOW	AREA	MODEL	FLOW	AREA	FLOW	AREA	FLOW	AREA	MODEL	FLOW	AREA	ID	MODEL	FLOW	AREA
S760O	188	0.1	136	0.1	6-HR	188	0.1	188	0.1	136	0.1	6-HR	188	0.1	S760O	6-HR, with Levee	188	0.1
S770A	857	1.01	702	1.01	6-HR	857	1.01	857	1.01	702	1.01	6-HR	857	1.01	S770A	6-HR, with Levee	857	1.01
S770B	365	0.2	276	0.2	6-HR	365	0.2	365	0.2	276	0.2	6-HR	365	0.2	S770B	6-HR, with Levee	365	0.2
S770C	830	0.73	649	0.73	6-HR	830	0.73	830	0.73	649	0.73	6-HR	830	0.73	S770C	6-HR, with Levee	830	0.73
S770D	384	0.17	278	0.17	6-HR	384	0.17	384	0.17	278	0.17	6-HR	384	0.17	S770D	6-HR, with Levee	384	0.17
S770E	694	0.7	537	0.7	6-HR	694	0.7	694	0.7	537	0.7	6-HR	694	0.7	S770E	6-HR, with Levee	694	0.7
S770F	444	0.57	329	0.57	6-HR	444	0.57	444	0.57	329	0.57	6-HR	444	0.57	S770F	6-HR, with Levee	444	0.57
S770G	705	1	574	1	6-HR	705	1	705	1	574	1	6-HR	705	1	S770G	6-HR, with Levee	705	1
S780A	3,295	7.58	4,251	7.58	24-HR	4,251	7.58	3,295	7.58	4,251	7.58	24-HR	4,251	7.58	S780A	24-HR, with Levee	4,251	7.58
S780B	2,601	3.72	3,085	3.72	24-HR	3,085	3.72	2,601	3.72	3,085	3.72	24-HR	3,085	3.72	S780B	24-HR, with Levee	3,085	3.72
S780C	850	1.31	734	1.31	6-HR	850	1.31	850	1.31	734	1.31	6-HR	850	1.31	S780C	6-HR, with Levee	850	1.31
S780D	927	0.8	744	0.8	6-HR	927	0.8	927	0.8	744	0.8	6-HR	927	0.8	S780D	6-HR, with Levee	927	0.8
S780E	947	0.86	769	0.86	6-HR	947	0.86	947	0.86	769	0.86	6-HR	947	0.86	S780E	6-HR, with Levee	947	0.86
S790A	1,354	1.33	1,264	1.33	6-HR	1,354	1.33	1,354	1.33	1,264	1.33	6-HR	1,354	1.33	S790A	6-HR, with Levee	1,354	1.33
S790B	1,193	1.5	1,096	1.5	6-HR	1,193	1.5	1,193	1.5	1,096	1.5	6-HR	1,193	1.5	S790B	6-HR, with Levee	1,193	1.5
S790C	896	0.83	731	0.83	6-HR	896	0.83	896	0.83	731	0.83	6-HR	896	0.83	S790C	6-HR, with Levee	896	0.83
S790D	1,181	1	1,021	1	6-HR	1,181	1	1,181	1	1,021	1	6-HR	1,181	1	S790D	6-HR, with Levee	1,181	1
S790E	899	0.88	731	0.88	6-HR	899	0.88	899	0.88	731	0.88	6-HR	899	0.88	S790E	6-HR, with Levee	899	0.88
S800A	800	1.01	654	1.01	6-HR	800	1.01	800	1.01	654	1.01	6-HR	800	1.01	S800A	6-HR, with Levee	800	1.01
S800B	360	0.31	262	0.31	6-HR	360	0.31	360	0.31	262	0.31	6-HR	360	0.31	S800B	6-HR, with Levee	360	0.31
S800D	1,021	0.69	787	0.69	6-HR	1,021	0.69	1,021	0.69	787	0.69	6-HR	1,021	0.69	S800D	6-HR, with Levee	1,021	0.69
S800E	951	0.51	691	0.51	6-HR	951	0.51	951	0.51	691	0.51	6-HR	951	0.51	S800E	6-HR, with Levee	951	0.51
S800F	391	0.29	285	0.29	6-HR	391	0.29	391	0.29	285	0.29	6-HR	391	0.29	S800F	6-HR, with Levee	391	0.29
S800G	406	0.23	304	0.23	6-HR	406	0.23	406	0.23	304	0.23	6-HR	406	0.23	S800G	6-HR, with Levee	406	0.23
S800H	246	0.16	180	0.16	6-HR	246	0.16	246	0.16	180	0.16	6-HR	246	0.16	S800H	6-HR, with Levee	246	0.16
S800I	335	0.27	247	0.27	6-HR	335	0.27	335	0.27	247	0.27	6-HR	335	0.27	S800I	6-HR, with Levee	335	0.27
S800J	964	1.17	809	1.17	6-HR	964	1.17	964	1.17	809	1.17	6-HR	964	1.17	S800J	6-HR, with Levee	964	1.17
S800K	909	1.26	767	1.26	6-HR	909	1.26	909	1.26	767	1.26	6-HR	909	1.26	S800K	6-HR, with Levee	909	1.26
S800L	303	0.22	221	0.22	6-HR	303	0.22	303	0.22	221	0.22	6-HR	303	0.22	S800L	6-HR, with Levee	303	0.22
S800M	694	0.7	538	0.7	6-HR	694	0.7	694	0.7	538	0.7	6-HR	694	0.7	S800M	6-HR, with Levee	694	0.7
S800N	529	0.49	387	0.49	6-HR	529	0.49	529	0.49	387	0.49	6-HR	529	0.49	S800N	6-HR, with Levee	529	0.49
S800O	815	0.72	641	0.72	6-HR	815	0.72	815	0.72	641	0.72	6-HR	815	0.72	S800O	6-HR, with Levee	815	0.72
S800P	630	0.47	454	0.47	6-HR	630	0.47	630	0.47	454	0.47	6-HR	630	0.47	S800P	6-HR, with Levee	630	0.47
S800Q	310	0.15	229	0.15	6-HR	310	0.15	310	0.15	229	0.15	6-HR	310	0.15	S800Q	6-HR, with Levee	310	0.15
S800R	895	0.67	688	0.67	6-HR	895	0.67	895	0.67	688	0.67	6-HR	895	0.67	S800R	6-HR, with Levee	895	0.67
S800S	1,011	1.85	899	1.85	6-HR	1,011	1.85	1,011	1.85	899	1.85	6-HR	1,011	1.85	S800S	6-HR, with Levee	1,011	1.85
S800T	344	0.15	252	0.15	6-HR	344	0.15	344	0.15	252	0.15	6-HR	344	0.15	S800T	6-HR, with Levee	344	0.15
S800U	496	0.32	359	0.32	6-HR	496	0.32	496	0.32	359	0.32	6-HR	496	0.32	S800U	6-HR, with Levee	496	0.32
S800V	886	0.64	696	0.64	6-HR	886	0.64	886	0.64	696	0.64	6-HR	886	0.64	S800V	6-HR, with Levee	886	0.64
S800W	426	0.23	314	0.23	6-HR	426	0.23	426	0.23	314	0.23	6-HR	426	0.23	S800W	6-HR, with Levee	426	0.23
S800X	506	0.23	375	0.23	6-HR	506	0.23	506	0.23	375	0.23	6-HR	506	0.23	S800X	6-HR, with Levee	506	0.23
S810A	472	0.26	348	0.26	6-HR	472	0.26	472	0.26	348	0.26	6-HR	472	0.26	S810A	6-HR, with Levee	472	0.26
S820A	466	0.38	339	0.38	6-HR	466	0.38	466	0.38	339	0.38	6-HR	466	0.38	S820A	6-HR, with Levee	466	0.38
S820B	655	0.94	529	0.94	6-HR	655	0.94	655	0.94	529	0.94	6-HR	655	0.94	S820B	6-HR, with Levee	655	0.94
S820C	317	0.24	229	0.24	6-HR	317	0.24	317	0.24	229	0.24	6-HR	317	0.24	S820C	6-HR, with Levee	317	0.24
S820D	969	1.31	834	1.31	6-HR	969	1.31	969	1.31	834	1.31	6-HR	969	1.31	S820D	6-HR, with Levee	969	1.31
S820E	485	0.31	354	0.31	6-HR	485	0.31	485	0.31	354	0.31	6-HR	485	0.31	S820E	6-HR, with Levee	485	0.31
S820F	616	0.29	452	0.29	6-HR	616	0.29	616	0.29	452	0.29	6-HR	616	0.29	S820F	6-HR, with Levee	616	0.29
S820G	320	0.24	234	0.24	6-HR	320	0.24	320	0.24	234	0.24	6-HR	320	0.24	S820G	6-HR, with Levee	320	0.24
S820H	542	0.23	392	0.23	6-HR	542	0.23	542	0.23	392	0.23	6-HR	542	0.23	S820H	6-HR, with Levee	542	0.23
S820I	550	0.23	396	0.23	6-HR	550	0.23	550	0.23	396	0.23	6-HR	550	0.23	S820I	6-HR, with Levee	550	0.23
S820J	1,176	1.06	999	1.06	6-HR	1,176	1.06	1,176	1.06	999	1.06	6-HR	1,176	1.06	S820J	6-HR, with Levee	1,176	1.06
S820K	760	0.41	560	0.41	6-HR	760	0.41	760	0.41	560	0.41	6-HR	760	0.41	S820K	6-HR, with Levee	760	0.41
S820L	619	0.42	461	0.42	6-HR	619	0.42	619	0.42	461	0.42	6-HR	619	0.42	S820L	6-HR, with Levee	619	0.42

[1] Flow is taken from the "modified hydrology model"

[2] Flow is taken from the "intermediate modified hydrology models"

	with Levee							w/out Levee								CONTROL			
	6-HR		24-HR		CNTR-1			6-HR		24-HR		CNTR-2							
ID	FLOW	AREA	FLOW	AREA	MODEL	FLOW	AREA	FLOW	AREA	FLOW	AREA	MODEL	FLOW	AREA	ID	MODEL	FLOW	AREA
S820M	494	0.26	370	0.26	6-HR	494	0.26	494	0.26	370	0.26	6-HR	494	0.26	S820M	6-HR, with Levee	494	0.26
S900A	162	0.1	122	0.1	6-HR	162	0.1	162	0.1	122	0.1	6-HR	162	0.1	S900A	6-HR, with Levee	162	0.1
S900B	293	0.17	218	0.17	6-HR	293	0.17	293	0.17	218	0.17	6-HR	293	0.17	S900B	6-HR, with Levee	293	0.17
S900C	550	0.43	402	0.43	6-HR	550	0.43	550	0.43	402	0.43	6-HR	550	0.43	S900C	6-HR, with Levee	550	0.43
S900D	391	0.39	284	0.39	6-HR	391	0.39	391	0.39	284	0.39	6-HR	391	0.39	S900D	6-HR, with Levee	391	0.39
S900E	174	0.08	127	0.08	6-HR	174	0.08	174	0.08	127	0.08	6-HR	174	0.08	S900E	6-HR, with Levee	174	0.08
S900F	147	0.07	108	0.07	6-HR	147	0.07	147	0.07	108	0.07	6-HR	147	0.07	S900F	6-HR, with Levee	147	0.07
S900G	521	0.56	385	0.56	6-HR	521	0.56	521	0.56	385	0.56	6-HR	521	0.56	S900G	6-HR, with Levee	521	0.56
S900H	343	0.19	249	0.19	6-HR	343	0.19	343	0.19	249	0.19	6-HR	343	0.19	S900H	6-HR, with Levee	343	0.19
S900I	242	0.14	178	0.14	6-HR	242	0.14	242	0.14	178	0.14	6-HR	242	0.14	S900I	6-HR, with Levee	242	0.14
S910A	452	0.3	329	0.3	6-HR	452	0.3	452	0.3	329	0.3	6-HR	452	0.3	S910A	6-HR, with Levee	452	0.3
S910B	131	0.08	96	0.08	6-HR	131	0.08	131	0.08	96	0.08	6-HR	131	0.08	S910B	6-HR, with Levee	131	0.08
S910C	384	0.37	280	0.37	6-HR	384	0.37	384	0.37	280	0.37	6-HR	384	0.37	S910C	6-HR, with Levee	384	0.37
S910D	256	0.14	187	0.14	6-HR	256	0.14	256	0.14	187	0.14	6-HR	256	0.14	S910D	6-HR, with Levee	256	0.14
S910E	448	0.34	324	0.34	6-HR	448	0.34	448	0.34	324	0.34	6-HR	448	0.34	S910E	6-HR, with Levee	448	0.34
S910F	457	0.46	331	0.46	6-HR	457	0.46	457	0.46	331	0.46	6-HR	457	0.46	S910F	6-HR, with Levee	457	0.46
S910G	351	0.19	255	0.19	6-HR	351	0.19	351	0.19	255	0.19	6-HR	351	0.19	S910G	6-HR, with Levee	351	0.19
S910H	308	0.2	225	0.2	6-HR	308	0.2	308	0.2	225	0.2	6-HR	308	0.2	S910H	6-HR, with Levee	308	0.2
S910I	613	0.63	466	0.63	6-HR	613	0.63	613	0.63	466	0.63	6-HR	613	0.63	S910I	6-HR, with Levee	613	0.63
S910J	811	0.87	652	0.87	6-HR	811	0.87	811	0.87	652	0.87	6-HR	811	0.87	S910J	6-HR, with Levee	811	0.87
S910K	419	0.35	304	0.35	6-HR	419	0.35	419	0.35	304	0.35	6-HR	419	0.35	S910K	6-HR, with Levee	419	0.35
S910L	723	0.8	571	0.8	6-HR	723	0.8	723	0.8	571	0.8	6-HR	723	0.8	S910L	6-HR, with Levee	723	0.8
S910M	463	0.24	339	0.24	6-HR	463	0.24	463	0.24	339	0.24	6-HR	463	0.24	S910M	6-HR, with Levee	463	0.24
S910N	452	0.29	329	0.29	6-HR	452	0.29	452	0.29	329	0.29	6-HR	452	0.29	S910N	6-HR, with Levee	452	0.29
S910O	443	0.29	324	0.29	6-HR	443	0.29	443	0.29	324	0.29	6-HR	443	0.29	S910O	6-HR, with Levee	443	0.29
S910P	309	0.19	229	0.19	6-HR	309	0.19	309	0.19	229	0.19	6-HR	309	0.19	S910P	6-HR, with Levee	309	0.19
S920A	612	0.45	450	0.45	6-HR	612	0.45	612	0.45	450	0.45	6-HR	612	0.45	S920A	6-HR, with Levee	612	0.45
S920B	407	0.22	299	0.22	6-HR	407	0.22	407	0.22	299	0.22	6-HR	407	0.22	S920B	6-HR, with Levee	407	0.22
S920C	406	0.25	300	0.25	6-HR	406	0.25	406	0.25	300	0.25	6-HR	406	0.25	S920C	6-HR, with Levee	406	0.25
S920D	569	0.35	413	0.35	6-HR	569	0.35	569	0.35	413	0.35	6-HR	569	0.35	S920D	6-HR, with Levee	569	0.35
S920E	574	0.37	418	0.37	6-HR	574	0.37	574	0.37	418	0.37	6-HR	574	0.37	S920E	6-HR, with Levee	574	0.37
S920F	387	0.25	283	0.25	6-HR	387	0.25	387	0.25	283	0.25	6-HR	387	0.25	S920F	6-HR, with Levee	387	0.25
S920G	342	0.22	248	0.22	6-HR	342	0.22	342	0.22	248	0.22	6-HR	342	0.22	S920G	6-HR, with Levee	342	0.22
S920H	470	0.38	347	0.38	6-HR	470	0.38	470	0.38	347	0.38	6-HR	470	0.38	S920H	6-HR, with Levee	470	0.38
S920I	687	0.85	546	0.85	6-HR	687	0.85	687	0.85	546	0.85	6-HR	687	0.85	S920I	6-HR, with Levee	687	0.85
S920J	290	0.18	211	0.18	6-HR	290	0.18	290	0.18	211	0.18	6-HR	290	0.18	S920J	6-HR, with Levee	290	0.18
S920K	313	0.22	228	0.22	6-HR	313	0.22	313	0.22	228	0.22	6-HR	313	0.22	S920K	6-HR, with Levee	313	0.22
S920L	374	0.19	271	0.19	6-HR	374	0.19	374	0.19	271	0.19	6-HR	374	0.19	S920L	6-HR, with Levee	374	0.19
S920M	466	0.16	332	0.16	6-HR	466	0.16	466	0.16	332	0.16	6-HR	466	0.16	S920M	6-HR, with Levee	466	0.16
S920N	622	0.56	461	0.56	6-HR	622	0.56	622	0.56	461	0.56	6-HR	622	0.56	S920N	6-HR, with Levee	622	0.56
S920Q	492	0.39	355	0.39	6-HR	492	0.39	492	0.39	355	0.39	6-HR	492	0.39	S920Q	6-HR, with Levee	492	0.39
S920R	697	0.67	535	0.67	6-HR	697	0.67	697	0.67	535	0.67	6-HR	697	0.67	S920R	6-HR, with Levee	697	0.67
S920S	959	0.96	794	0.96	6-HR	959	0.96	959	0.96	794	0.96	6-HR	959	0.96	S920S	6-HR, with Levee	959	0.96
S920T	699	0.38	509	0.38	6-HR	699	0.38	699	0.38	509	0.38	6-HR	699	0.38	S920T	6-HR, with Levee	699	0.38
S920U	175	0.25	130	0.25	6-HR	175	0.25	175	0.25	130	0.25	6-HR	175	0.25	S920U	6-HR, with Levee	175	0.25
S920V	128	0.17	95	0.17	6-HR	128	0.17	128	0.17	95	0.17	6-HR	128	0.17	S920V	6-HR, with Levee	128	0.17
S920W	214	0.37	158	0.37	6-HR	214	0.37	214	0.37	158	0.37	6-HR	214	0.37	S920W	6-HR, with Levee	214	0.37
S930A	350	0.13	252	0.13	6-HR	350	0.13	350	0.13	252	0.13	6-HR	350	0.13	S930A	6-HR, with Levee	350	0.13
S930B	331	0.22	240	0.22	6-HR	331	0.22	331	0.22	240	0.22	6-HR	331	0.22	S930B	6-HR, with Levee	331	0.22
S930C	951	0.97	788	0.97	6-HR	951	0.97	951	0.97	788	0.97	6-HR	951	0.97	S930C	6-HR, with Levee	951	0.97
S930D	391	0.29	283	0.29	6-HR	391	0.29	391	0.29	283	0.29	6-HR	391	0.29	S930D	6-HR, with Levee	391	0.29
S930E	416	0.25	305	0.25	6-HR	416	0.25	416	0.25	305	0.25	6-HR	416	0.25	S930E	6-HR, with Levee	416	0.25
S930F	676	0.37	493	0.37	6-HR	676	0.37	676	0.37	493	0.37	6-HR	676	0.37	S930F	6-HR, with Levee	676	0.37
S930H	580	0.42	423	0.42	6-HR	580	0.42	580	0.42	423	0.42	6-HR	580	0.42	S930H	6-HR, with Levee	580	0.42

[1] Flow is taken from the "modified hydrology model"

[2] Flow is taken from the "intermediate modified hydrology models"

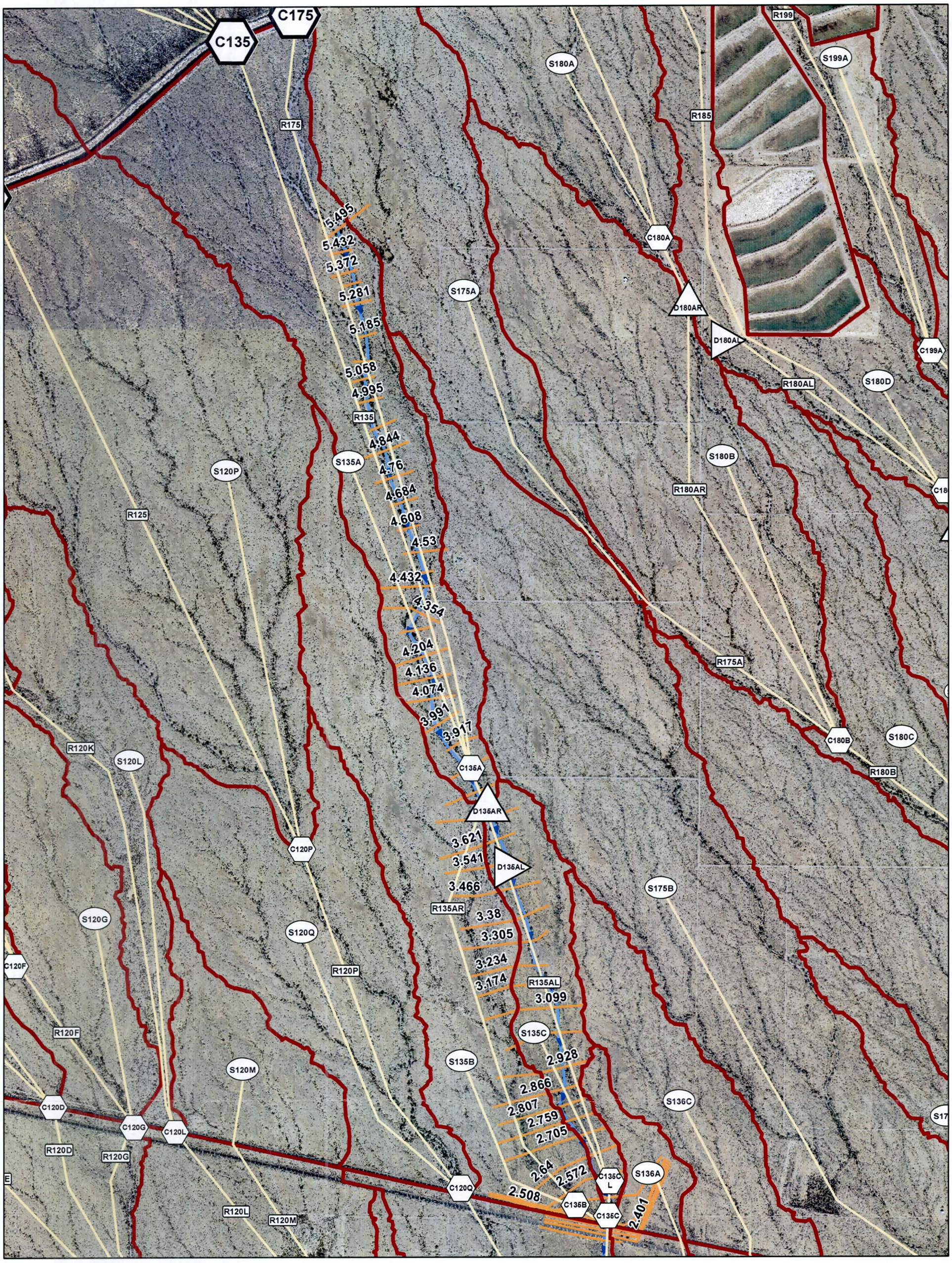
	with Levee							w/out Levee								CONTROL			
	6-HR		24-HR		CNTR-1			6-HR		24-HR		CNTR-2							
ID	FLOW	AREA	FLOW	AREA	MODEL	FLOW	AREA	FLOW	AREA	FLOW	AREA	MODEL	FLOW	AREA	ID	MODEL	FLOW	AREA
S930I	709	0.45	519	0.45	6-HR	709	0.45	709	0.45	519	0.45	6-HR	709	0.45	S930I	6-HR, with Levee	709	0.45
S930J	980	0.78	789	0.78	6-HR	980	0.78	980	0.78	789	0.78	6-HR	980	0.78	S930J	6-HR, with Levee	980	0.78
S935A	340	0.15	250	0.15	6-HR	340	0.15	340	0.15	250	0.15	6-HR	340	0.15	S935A	6-HR, with Levee	340	0.15
S940A	480	0.28	350	0.28	6-HR	480	0.28	480	0.28	350	0.28	6-HR	480	0.28	S940A	6-HR, with Levee	480	0.28
S940B	489	0.28	357	0.28	6-HR	489	0.28	489	0.28	357	0.28	6-HR	489	0.28	S940B	6-HR, with Levee	489	0.28
S940C	611	0.44	444	0.44	6-HR	611	0.44	611	0.44	444	0.44	6-HR	611	0.44	S940C	6-HR, with Levee	611	0.44
S940D	710	0.45	514	0.45	6-HR	710	0.45	710	0.45	514	0.45	6-HR	710	0.45	S940D	6-HR, with Levee	710	0.45
S940F	259	0.14	190	0.14	6-HR	259	0.14	259	0.14	190	0.14	6-HR	259	0.14	S940F	6-HR, with Levee	259	0.14
S940G	578	0.35	431	0.35	6-HR	578	0.35	578	0.35	431	0.35	6-HR	578	0.35	S940G	6-HR, with Levee	578	0.35
S940H	777	0.47	567	0.47	6-HR	777	0.47	777	0.47	567	0.47	6-HR	777	0.47	S940H	6-HR, with Levee	777	0.47
S940I	627	0.34	474	0.34	6-HR	627	0.34	627	0.34	474	0.34	6-HR	627	0.34	S940I	6-HR, with Levee	627	0.34
S940J	382	0.2	280	0.2	6-HR	382	0.2	382	0.2	280	0.2	6-HR	382	0.2	S940J	6-HR, with Levee	382	0.2
S940K	557	0.3	404	0.3	6-HR	557	0.3	557	0.3	404	0.3	6-HR	557	0.3	S940K	6-HR, with Levee	557	0.3
S940L	556	0.24	414	0.24	6-HR	556	0.24	556	0.24	414	0.24	6-HR	556	0.24	S940L	6-HR, with Levee	556	0.24
S940M	696	0.39	511	0.39	6-HR	696	0.39	696	0.39	511	0.39	6-HR	696	0.39	S940M	6-HR, with Levee	696	0.39
S940N	480	0.19	359	0.19	6-HR	480	0.19	480	0.19	359	0.19	6-HR	480	0.19	S940N	6-HR, with Levee	480	0.19
S940P	463	0.39	347	0.39	6-HR	463	0.39	463	0.39	347	0.39	6-HR	463	0.39	S940P	6-HR, with Levee	463	0.39
S940Q	716	0.61	545	0.61	6-HR	716	0.61	716	0.61	545	0.61	6-HR	716	0.61	S940Q	6-HR, with Levee	716	0.61
ENT900[2]	741	3.98	732	3.98	6-HR	741	3.98	741	3.98	732	3.98	6-HR	741	3.98	ENT900	6-HR, with Levee	741	3.98
ENT910[2]	831	10.44	977	10.44	24-HR	977	10.44	828	10.44	977	10.44	24-HR	977	10.44	ENT910	24-HR, with Levee	977	10.44
ENT135[2]	1,687	74.13	3,522	74.13	24-HR	3,522	74.13	1,983	65.21	3,506	65.21	24-HR	3,506	65.21	ENT135	24-HR, with Levee	3,522	74.13
ENT136[2]	310	54.87	496	54.87	24-HR	496	54.87	4,521	43.79	6,254	43.79	24-HR	6,254	43.79	ENT136	24-HR, w/out Levee	6,254	43.79
ENT175[2]	NO	NO	NO	NO	w/out Levee	0	0	4,821	41.87	6,589	41.87	24-HR	6,589	41.87	ENT175	24-HR, w/out Levee	6,589	41.87
ENT120[2]	394	55.24	688	55.24	24-HR	688	55.24	1,122	25.33	1,334	25.33	24-HR	1,334	25.33	ENT120	24-HR, w/out Levee	1,334	25.33
ENT700[2]	918	60.99	1,756	60.99	24-HR	1,756	60.99	4,468	25	5,877	25	24-HR	5,877	25	ENT700	24-HR, w/out Levee	5,877	25
ENT335[2]										2231	10.79	24-HR	2,231	10.79	ENT335	24-HR, w/out Levee	2,231	10.79
ENT770[1]										5,477	104.07	24-HR	5,477	104.07	ENT770	24-HR, w/out Levee	5,477	104.07
ENT750[2]	985	2.81	1,052	2.81	24-HR	1,052	2.81	762	38.79	977	38.79	24-HR	977	38.79	ENT750	24-HR, with Levee	1,052	2.81
ENT305[2]	649	1.45	564	1.45	6-HR	649	1.45	NO	NO	NO	NO	with Levee	0	0	ENT305	6-HR, with Levee	649	1.45
ENT306[2]	723	1.82	649	1.82	6-HR	723	1.82	NO	NO	NO	NO	with Levee	0	0	ENT306	6-HR, with Levee	723	1.82
ENT47O[2]	923	36.76	1,512	36.76	24-HR	1,512	36.76	NO	NO	NO	NO	with Levee	0	0	ENT47O	24-HR, with Levee	1,512	36.76
ENT701[2]	232	57.01	655	57.01	24-HR	655	57.01	683	10.85	910	10.85	24-HR	910	10.85	ENT701	24-HR, w/out Levee	910	10.85
ENT702[2]	928	38.63	1,526	38.63	24-HR	1,526	38.63	765	8.32	865	8.32	24-HR	865	8.32	ENT702	24-HR, with Levee	1,526	38.63
ENT215[2]	347	56	600	56	24-HR	600	56	1,253	9.7	1,360	9.7	24-HR	1,360	9.7	ENT215	24-HR, w/out Levee	1,360	9.7
ENT217[2]	293	57.76	534	57.76	24-HR	534	57.76	1,523	24.3	1,986	24.3	24-HR	1,986	24.3	ENT217	24-HR, w/out Levee	1,986	24.3
ENT218[2]	470	58.39	861	58.39	24-HR	861	58.39	1,996	24.93	2,515	24.93	24-HR	2,515	24.93	ENT218	24-HR, w/out Levee	2,515	24.93
ENT800[2]	289	78.72	565	78.72	24-HR	565	78.72	720	2.16	635	2.16	6-HR	720	2.16	ENT800	6-HR, w/out Levee	720	2.16
ENT801[2]	290	78.95	568	78.95	24-HR	568	78.95	722	2.39	644	2.39	6-HR	722	2.39	ENT801	6-HR, w/out Levee	722	2.39
ENT214[2]	NO	NO	NO	NO	w/out Levee	0	0	1,290	6.86	1,333	6.86	24-HR	1,333	6.86	ENT214	24-HR, w/out Levee	1,333	6.86
ENT751[2]	1,011	1.64	996	1.64	6-HR	1,011	1.64	1,011	1.64	996	1.64	6-HR	1,011	1.64	ENT751	6-HR, with Levee	1,011	1.64
ENT330[2]	NO	NO	NO	NO	w/out Levee	0	0	3,136	9.85	3,511	9.85	24-HR	3,511	9.85	ENT330	24-HR, w/out Levee	3,511	9.85
ENT336[2]	702	15.34	943	15.34	24-HR	943	15.34	3,579	12.51	4,197	12.51	24-HR	4,197	12.51	ENT336	24-HR, w/out Levee	4,197	12.51
ENT253[2]	456	59.01	852	59.01	24-HR	852	59.01	1,946	25.55	2,486	25.55	24-HR	2,486	25.55	ENT253	24-HR, w/out Levee	2,486	25.55
C180F2[2]	766	5.41	763	5.41	6-HR	766	5.41	NO	NO	NO	NO	with Levee	0	0	C180F2	6-HR, with Levee	766	5.41
ENT703[2]	1,547	18.49	1,684	18.49	24-HR	1,684	18.49	2,407	8.32	2,702	8.32	24-HR	2,702	8.32	ENT703	24-HR, w/out Levee	2,702	8.32
ENT340[2]	361	14.5	580	14.5	24-HR	580	14.5	1,693	4.33	1,713	4.33	24-HR	1,713	4.33	ENT340	24-HR, w/out Levee	1,713	4.33
ENT341[2]	684	1.3	598	1.3	6-HR	684	1.3	705	1.3	614	1.3	6-HR	705	1.3	ENT341	6-HR, w/out Levee	705	1.3
ENT337[2]	744	32.29	1,093	32.29	24-HR	1,093	32.29	1,895	12.51	2,237	12.51	24-HR	2,237	12.51	ENT337	24-HR, w/out Levee	2,237	12.51
ENT752[2]	403	1.25	377	1.25	6-HR	403	1.25	403	1.25	377	1.25	6-HR	403	1.25	ENT752	6-HR, with Levee	403	1.25
ENT121[2]	638	59.25	1,255	59.25	24-HR	1,255	59.25	1,902	49.34	2,696	49.34	24-HR	2,696	49.34	ENT121	24-HR, w/out Levee	2,696	49.34
ENT720[1]										342	36.99	24-HR	342	36.99	ENT720	24-HR, w/out Levee	342	36.99
ENT760[1]										5,516	100.81	24-HR	5,516	100.81	ENT760	24-HR, w/out Levee	5,516	100.81
DEN1DR[1]										1321	36.36	24-HR	1,321	36.36	DEN1DR	24-HR, w/out Levee	1,321	36.36

[1] Flow is taken from the "modified hydrology model"

[2] Flow is taken from the "intermediate modified hydrology models"

D.3.2

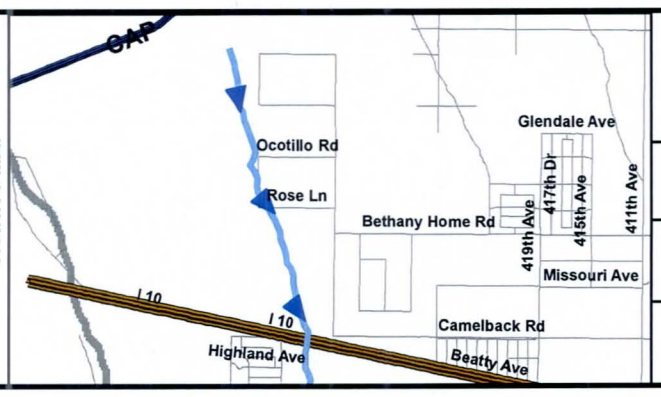
Theses tables display the controlling flows for each wash independently



LEGEND

- T2N-R7W-S32E
- Cross Sections
- Subbasin
- Reach Lines
- S750E Subbasin ID
- C750C L CP ID
- R120L Reach ID
- D135AR Diversion ID

VICINITY MAP



PALO VERDE WATERSHED
DETAILED FLOODPLAIN
DELINEATION STUDY
FCD 2008C046

NORTH

0 0.25 0.5 Miles

Entellus
2255 N. 44th Street Suite 125
Phoenix, Arizona 85008.3299
Tel. 602.244.2566
Fax. 602.244.8947
Web. www.entellus.com

WITHOUT LEVEE HYDROLOGY SCHEMATIC
T2N-R7W-S32E

Entellus

SHEET	1	**OF**	1
BY	AL	**DATE**	9/30/2010
CHECK	RAS	**DATE**	10/6/2010
JOB NO.	310.047		

CLIENT: FCDMC

JOB: Palo Verde Watershed Detailed Floodplain Delineation Study

Wash Name: T2N-R7W-S32E

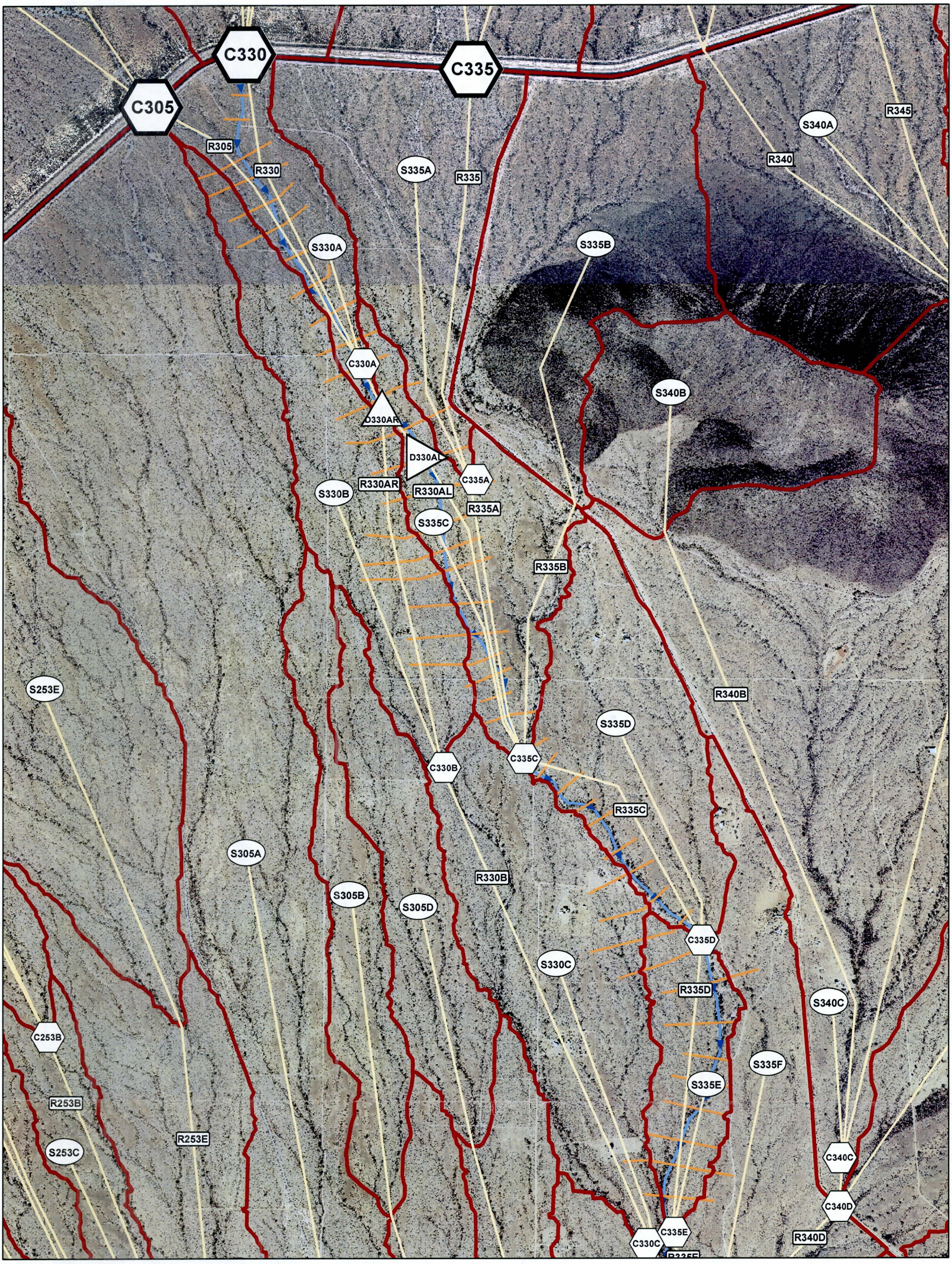
Upstream Limits: 0.7 miles south of CAP canal

Downstream Limits: at the confluence with T2N-R7W-S20W, about 1/2 mile south of I-10

ID	Controlling Storm Duration	HEC-1 Flow [cfs]	Contributing Area [sq mi]	HEC-Ras Flow [cfs]
ENT175[1]	24-HR, w/out Levee	6,589	41.87	
				6,589
C135A	24-HR, w/out Levee	6,589	42.57	
				6,589
D135AL	24-HR, w/out Levee	3,639	42.57	
				3,639
C135CL	24-HR, w/out Levee	3,562	42.75	
				6,379
C135C	24-HR, w/out Levee	6,379	43.33	
				6,379
ENT136[2]	24-HR, w/out Levee	6,254	43.79	

[1] Entellus added this CP to combine R175 and R135. Flow taken from "intermediate modified hydrology models".

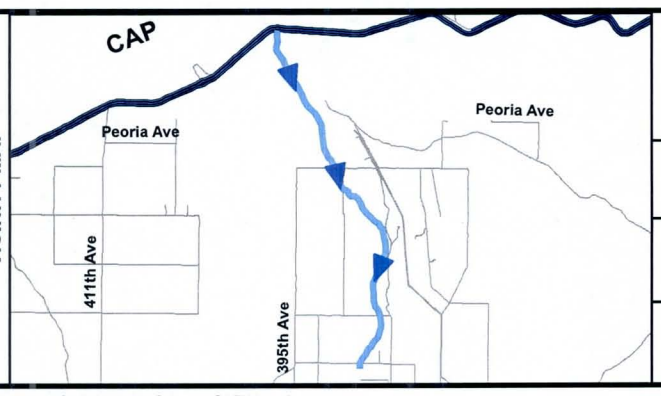
[2] Entellus added this CP to combine R135C and S135D. Flow taken from "intermediate modified hydrology models".



LEGEND

- T2N-R7W-S32E
- Cross Sections
- Subbasin
- Reach Lines
- S750E Subbasin ID
- C750C L CP ID
- R120L Reach ID
- D135AR Diversion ID

VICINITY MAP



PALO VERDE WATERSHED
DETAILED FLOODPLAIN
DELINEATION STUDY
FCD 2008C046

NORTH 0 0.25 0.5 Miles

Entellus
2255 N. 44th Street Suite 125
Phoenix, Arizona 85008.3299
Tel. 602.244.2566
Fax. 602.244.8947
Web. www.entellus.com

WITHOUT LEVEE HYDROLOGY SCHEMATIC
T2N-R6W-S05W

P:\300\310\310047_Palo_Verde\Deliverables\Floodplain Submittal\XXX_Change_Order_2Washes\S05W\Hydo_Schem_S05W.mxd

Entellus

SHEET	1	**OF**	1
BY	AL	**DATE**	9/30/2010
CHECK	RAS	**DATE**	10/6/2010
JOB NO.	310.047		

CLIENT: FCDMC

JOB: Palo Verde Watershed Detailed Floodplain Delineation Study

Wash Name: T2N-R6W-S05W

Upstream Limits: at CAP Canal and Vulture Mine Rd.

Downstream Limits: at Orangewood Ave., 0.3 miles west of 387th Ave.

ID	Controlling Storm Duration	HEC-1 Flow [cfs]	Contributing Area [sq mi]	HEC-Ras Flow [cfs]
C330	24-HR, with Levee	1,315	3.59	
				3,548
C330A	24-HR, w/out Levee	3,548	9.99	
				3,548
C330A*	24-HR, w/out Levee	2,132	9.99	
				2,132
D330AL*	24-HR, w/out Levee	1,416	9.99	
				2,231
ENT335*[1]	24-HR, w/out Levee	2,231	10.79	
				2,502
C335C*	24-HR, w/out Levee	2,502	11.18	
				2,502
C335D*	24-HR, w/out Levee	2,423	11.44	
				2,423
C335E	24-HR, w/out Levee	2,360	11.56	

* Flow taken from "intermediate modified hydrology model"

[1] Entellus added this CP to combine R330AL, S335C, and R335A. Flow taken from "intermediate modified hydrology models".

D.4 Intermediate Modified 24-Hour, Without Levee, HEC-1 Model

See **Appendix F** for electronic HEC-1 files that support this Section. All supporting documentation for the split flow estimation can be found in **Appendix E**.

D.5 Intermediate Modified 6-Hour, Without Levee, HEC-1 Model

This model was not included since it pertains to HEC-1 modifications that were done for washes that are not included in this report.

D.6 Intermediate Modified 24-Hour, With Levee, HEC-1 Model

This model was not included since it pertains to HEC-1 modifications that were done for washes that are not included in this report.

D.7 Intermediate Modified 6-Hour, With Levee, HEC-1 Model

This model was not included since it pertains to HEC-1 modifications that were done for washes that are not included in this report.

APPENDIX E: HYDRAULIC ANALYSIS SUPPORTING DOCUMENTATION

E.1 Roughness Coefficient Estimation

E.2 Cross Section Plots

E.3 Expansion and Contraction Coefficients

E.4 Analysis of Structures

E.5 Hydraulic Calculations

E.6 HEC-RAS Output

E.7 CHECK-RAS Output

E.8 Summary of Errors and Warnings

E.9 Effective FIS Models

E.1 Roughness Coefficient Estimation

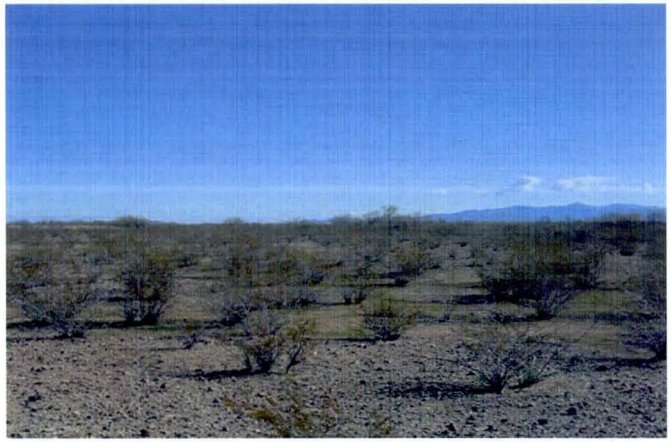
E.1.1 Roughness Coefficient Reference Materials

Table E1-1

BY JGA DATE 2/8/2010
CHECK FEB DATE 5/4/2010

Project: Palo Verde Watershed Detailed Floodplain Delineation Study
Location: East Region
Description: Eastern side of study area
Streams: T2N-R6W-S02, T2N-R6W-S22, Fourmile Wash, T1S-R6W-S27, T1S-R6W-S08, T1N-R6W-S18, T2N-R6W-S28N

Channel Conditions		Manning's n Adjustment		Area 1 (view maps)	Area 2 (view maps)	Area 3 (view maps)
Channel Material	Concrete	n_b	.012-.018			
	Firm Earth		.025-.032	0.025	0.025	
	Coarse Sand		.026-.035			0.030
	Gravel		.024-.035			
	Cobble		.030-.050			
	Boulder		.040-.070			
Degree of Irregularity	Smooth	n_1	0.000			
	Minor		.001-.005		0.001	0.005
	Moderate		.006-.010			
	Severe		.011-.020			
Effect of Obstruction	Negligible	n_2	.000-.004		0.001	
	Minor		.005-.015			0.015
	Appreciable		.020-.030			
	Severe		.040-.060			
Vegetation	Negligible	n_3	.000-.002			
	Small		.002-.010	0.010		0.006
	Medium		.010-.025		0.015	
	Large		.025-.050			
	Very Large		.050-.100			
	Extremely Large		.100-.200			
Variation in Channel Cross Section	Gradual	n_4	0.000	0.000	0.000	
	Occ. Alt.		.001-.005			0.004
	Freq. Alt.		.010-.015			
				0.035	0.042	0.060
Degree of Meandering	Minor	m	1	1	1	1
	Appreciable		1.15			
	Severe		1.3			
$n=(n_b+n_1+n_2+n_3+n_4)m$				**0.035**	**0.042**	**0.060**



East - Photo 1: Overview from Area 2 looking upstream.

East - Photo 2: Looking downstream at Area 2.

East - Photo 3: Area 3 looking downstream.

East - Photo 4: Looking upstream at Area 1.

Table E1-2

		BY JGA	DATE 2/8/2010
Project:	Palo Verde Watershed Detailed Floodplain Delineation Study	CHECK FEB	DATE 5/4/2010
Location:	Northeast Region		
Description:	South of Jones Tank, north end is about 0.5 miles downstream of Jones Tank		
Streams:	Fourmile Wash, T3N-R6W-S35, T2N-R6W-S02		

Channel Conditions		Manning's n Adjustment		Area 1 (view maps)	Area 2 (view maps)	Area 3 (view maps)
Channel Material	Concrete	n_b	.012-.018			
	Firm Earth		.025-.032	0.025	0.032	0.025
	Coarse Sand		.026-.035			
	Gravel		.024-.035			
	Cobble		.030-.050			
	Boulder		.040-.070			
Degree of Irregularity	Smooth	n_1	0.000			
	Minor		.001-.005	0.001	0.001	0.001
	Moderate		.006-.010			
	Severe		.011-.020			
Effect of Obstruction	Negligible	n_2	.000-.004	0.001	0.001	
	Minor		.005-.015			0.010
	Appreciable		.020-.030			
	Severe		.040-.060			
Vegetation	Negligible	n_3	.000-.002			
	Small		.002-.010	0.008		
	Medium		.010-.025		0.015	
	Large		.025-.050			0.030
	Very Large		.050-.100			
	Extremely Large		.100-.200			
Variation in Channel Cross Section	Gradual	n_4	0.000			0.000
	Occ. Alt.		.001-.005	0.002	0.002	
	Freq. Alt.		.010-.015			
				0.037	0.051	0.066
Degree of Meandering	Minor	m	1	1	1	1
	Appreciable		1.15			
	Severe		1.3			
$n=(n_b+n_1+n_2+n_3+n_4)m$				**0.037**	**0.051**	**0.066**

Northeast - Photo 1: Looking downstream at the Area 2.

Northeast - Photo 2: Looking downstream at the Area 1.

Northeast - Photo 3: Looking downstream at Area 3.

Northeast - Photo 4: Looking upstream at the Area 1 & 2.

Table E1-3

		BY JGA	DATE 2/8/2010
Project:	Palo Verde Watershed Detailed Floodplain Delineation Study	CHECK FEB	DATE 5/4/2010
Location:	North-3 Region		
Description:	South of Jones Tank, from Jones Tank to 0.5 miles downstream of Jones Tank		
Streams:	Fourmile Wash		

Channel Conditions		Manning's n Adjustment		Area 1 (view maps)	Area 2 (view maps)	Area 3 * (view maps)
Channel Material	Concrete	n_b	.012-.018			
	Firm Earth		.025-.032	0.032	0.030	
	Coarse Sand		.026-.035			
	Gravel		.024-.035			
	Cobble		.030-.050			
	Boulder		.040-.070			
Degree of Irregularity	Smooth	n_1	0.000			
	Minor		.001-.005	0.001	0.001	
	Moderate		.006-.010			
	Severe		.011-.020			
Effect of Obstruction	Negligible	n_2	.000-.004	0.000		
	Minor		.005-.015		0.005	
	Appreciable		.020-.030			
	Severe		.040-.060			
Vegetation	Negligible	n_3	.000-.002			
	Small		.002-.010	0.002	0.004	
	Medium		.010-.025			
	Large		.025-.050			
	Very Large		.050-.100			
	Extremely Large		.100-.200			
Variation in Channel Cross Section	Gradual	n_4	0.000	0.000	0.000	
	Occ. Alt.		.001-.005			
	Freq. Alt.		.010-.015			
				0.035	0.040	
Degree of Meandering	Minor	m	1	1	1	
	Appreciable		1.15			
	Severe		1.3			
	$n=(n_b+n_1+n_2+n_3+n_4)m$			**0.035**	**0.040**	**N/A**

* Uniform area, no "**Area 3**" delineated.

North 3 - Photo 1: Area 1 looking upstream at stock tank.

North 3 - Photo 2: Looking downstream at Area 1.

North 3 - Photo 3: Looking downstream at Area 2.

North 3 - Photo 4: Overview.

Table E1-4

BY JGA DATE 2/8/2010
CHECK FEB DATE 5/4/2010

Project: Palo Verde Watershed Detailed Floodplain Delineation Study
Location: North-1 Region
Description: Between CAP 14 flume and Jones Tank
Stream: Fourmile Wash, T2N-R6W-S05E

Channel Conditions		Manning's n Adjustment		Area 1 (view maps)	Area 2 (view maps)	Area 3 (view maps)
Channel Material	Concrete	n_b	.012-.018			
	Firm Earth		.025-.032		0.032	
	Coarse Sand		.026-.035			
	Gravel		.024-.035	0.025		0.035
	Cobble		.030-.050			
	Boulder		.040-.070			
Degree of Irregularity	Smooth	n_1	0.000	0.000	0.000	
	Minor		.001-.005			
	Moderate		.006-.010			0.010
	Severe		.011-.020			
Effect of Obstruction	Negligible	n_2	.000-.004	0.001	0.001	
	Minor		.005-.015			
	Appreciable		.020-.030			0.020
	Severe		.040-.060			
Vegetation	Negligible	n_3	.000-.002			
	Small		.002-.010			0.005
	Medium		.010-.025	0.014	0.015	
	Large		.025-.050			
	Very Large		.050-.100			
	Extremely Large		.100-.200			
Variation in Channel Cross Section	Gradual	n_4	0.000	0.000	0.000	
	Occ. Alt.		.001-.005			0.005
	Freq. Alt.		.010-.015			
				0.040	0.048	0.075
Degree of Meandering	Minor	m	1	1	1	1
	Appreciable		1.15			
	Severe		1.3			
$n=(n_b+n_1+n_2+n_3+n_4)m$				**0.040**	**0.048**	**0.075**

North 1 - Photo 1: Looking upstream at Area 2.

North 1 - Photo 2: Looking upstream at west Area 3 split.

North 1 - Photo 3: Looking upstream at Area 2 & 3 before split

North 1 - Photo 4: Looking downstream at Area 3 split.

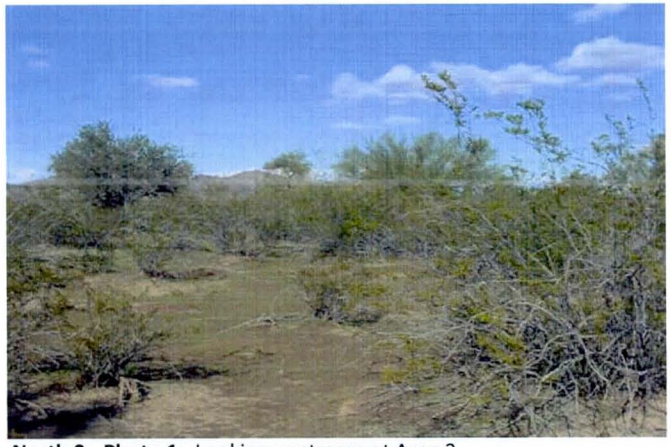
North 1 - Photo 5: Looking upstream at Area 1.

Table E1-5

BY JGA DATE 2/8/2010
CHECK FEB DATE 5/4/2010

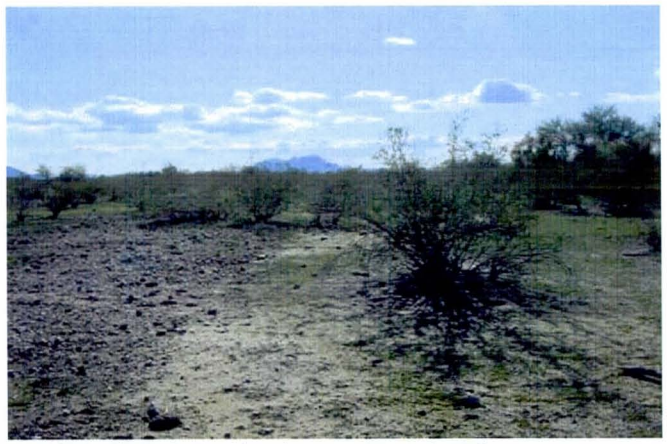
Project: Palo Verde Watershed Detailed Floodplain Delineation Study
Location: North-2 Region
Description: Begins at main outflow from Jones Tank
Streams: T2N-R6W-S05E, T3N-R6W-S27W

Channel Conditions		Manning's n Adjustment		Area 1 (view maps)	Area 2 (view maps)	Area 3 (view maps)
Channel Material	Concrete	n_b	.012-.018			
	Firm Earth		.025-.032	0.030	0.030	0.030
	Coarse Sand		.026-.035			
	Gravel		.024-.035			
	Cobble		.030-.050			
	Boulder		.040-.070			
Degree of Irregularity	Smooth	n_1	0.000			
	Minor		.001-.005	0.001	0.001	0.005
	Moderate		.006-.010			
	Severe		.011-.020			
Effect of Obstruction	Negligible	n_2	.000-.004	0.000		
	Minor		.005-.015		0.005	0.005
	Appreciable		.020-.030			
	Severe		.040-.060			
Vegetation	Negligible	n_3	.000-.002			
	Small		.002-.010	0.009	0.010	
	Medium		.010-.025			0.015
	Large		.025-.050			
	Very Large		.050-.100			
	Extremely Large		.100-.200			
Variation in Channel Cross Section	Gradual	n_4	0.000	0.000	0.000	0.000
	Occ. Alt.		.001-.005			
	Freq. Alt.		.010-.015			
				0.040	0.046	0.055
Degree of Meandering	Minor	m	1	1	1	1
	Appreciable		1.15			
	Severe		1.3			
$n=(n_b+n_1+n_2+n_3+n_4)m$				**0.040**	**0.046**	**0.055**



North 2 - Photo 1: Looking upstream at Area 2.

North 2 - Photo 2: Looking downstream at Area 3.



North 2 - Photo 3: Looking downstream at Area 2.

North 2 - Photo 4: Looking downstream at Area 1.

Table E1-6

		BY JGA	DATE 2/9/2010
Project:	Palo Verde Watershed Detailed Floodplain Delineation Study	CHECK FEB	DATE 5/5/2010
Location:	Central-2 Region		
Description:	East of 411 Ave and north and south of I-10		
Streams:	T2N-R7W-S25E, T2N-R7W-S25W		

Channel Conditions		Manning's n Adjustment		Area 1 (view maps)	Area 2 (view maps)	Area 3 (view maps)
Channel Material	Concrete	n_b	.012-.018			
	Firm Earth		.025-.032			
	Coarse Sand		.026-.035			
	Gravel		.024-.035	0.025	0.025	0.027
	Cobble		.030-.050			
	Boulder		.040-.070			
Degree of Irregularity	Smooth	n_1	0.000			
	Minor		.001-.005	0.001	0.001	
	Moderate		.006-.010			0.006
	Severe		.011-.020			
Effect of Obstruction	Negligible	n_2	.000-.004	0.000	0.000	
	Minor		.005-.015			0.015
	Appreciable		.020-.030			
	Severe		.040-.060			
Vegetation	Negligible	n_3	.000-.002			
	Small		.002-.010	0.010		0.003
	Medium		.010-.025		0.016	
	Large		.025-.050			
	Very Large		.050-.100			
	Extremely Large		.100-.200			
Variation in Channel Cross Section	Gradual	n_4	0.000	0.000	0.000	
	Occ. Alt.		.001-.005			0.003
	Freq. Alt.		.010-.015			
				0.036	0.042	0.054
Degree of Meandering	Minor	m	1	1	1	1
	Appreciable		1.15			
	Severe		1.3			
$n=(n_b+n_1+n_2+n_3+n_4)m$				**0.036**	**0.042**	**0.054**

Central 2 - Photo 1: Looking downstream at Area 3 toward box culvert.

Central 2 - Photo 2: Looking upstream at Area 1.

Central 2 - Photo 3: Looking upstream at Area 3.

Central 2 - Photo 4: Looking upstream at Area 2.

Table E1-7

BY JGA DATE 2/9/2010
CHECK FEB DATE 5/5/2010

Project: Palo Verde Watershed Detailed Floodplain Delineation Study
Location: West-1 Region & North Central Region
Description: North of I-10, from western study limits to Hot Rock Mountain near 387th Avenue
Streams: Winters Wash, Old Camp Wash, T2N-R6W-S19, T2N-R7W-S10, -S15E, T2N-R7W-S15W, T3N-R6W-S32
T3N-R6W-S27W, T2N-R6W-S05N, T3N-R6W-S21, T3N-R6W-S33, T2N-R6W-S05W, T2N-R6W-S05E, T2N-R6W-S05S

Channel Conditions		Manning's n Adjustment		Area 1 (view maps)	Area 2 (view maps)	Area 3 (view maps)
Channel Material	Concrete	n_b	.012-.018			
	Firm Earth		.025-.032	0.025	0.025	
	Coarse Sand		.026-.035			0.028
	Gravel		.024-.035			
	Cobble		.030-.050			
	Boulder		.040-.070			
Degree of Irregularity	Smooth	n_1	0.000			
	Minor		.001-.005	0.001	0.003	
	Moderate		.006-.010			0.010
	Severe		.011-.020			
Effect of Obstruction	Negligible	n_2	.000-.004	0.000	0.002	0.001
	Minor		.005-.015			
	Appreciable		.020-.030			
	Severe		.040-.060			
Vegetation	Negligible	n_3	.000-.002			
	Small		.002-.010			
	Medium		.010-.025	0.015		
	Large		.025-.050		0.025	0.030
	Very Large		.050-.100			
	Extremely Large		.100-.200			
Variation in Channel Cross Section	Gradual	n_4	0.000			
	Occ. Alt.		.001-.005	0.003	0.003	0.003
	Freq. Alt.		.010-.015			
				0.044	0.058	0.072
Degree of Meandering	Minor	m	1	1	1	1
	Appreciable		1.15			
	Severe		1.3			
	$n=(n_b+n_1+n_2+n_3+n_4)m$			**0.044**	**0.058**	**0.072**

North Central - Photo 1: Looking upstream at Area 1 & 3.

North Central - Photo 2: Looking downstream at Area 3 .

North Central - Photo 3: Looking upstream at Area 2.

Table E1-8

		BY JGA	DATE 2/9/2010
Project:	Palo Verde Watershed Detailed Floodplain Delineation Study	CHECK FEB	DATE 5/5/2010
Location:	Central-1		
Description:	West of 411th Ave. And between Bethany Home Road and Camelback Road		
Streams:	T2N-R7W-S25E		

Channel Conditions		Manning's n Adjustment		Area 1 (view maps)	Area 2 (view maps)	Area 3 (view maps)
Channel Material	Concrete	n_b	.012-.018			
	Firm Earth		.025-.032		0.030	0.025
	Coarse Sand		.026-.035	0.035		
	Gravel		.024-.035			
	Cobble		.030-.050			
	Boulder		.040-.070			
Degree of Irregularity	Smooth	n_1	0.000	0.000	0.000	
	Minor		.001-.005			0.005
	Moderate		.006-.010			
	Severe		.011-.020			
Effect of Obstruction	Negligible	n_2	.000-.004			
	Minor		.005-.015	0.005	0.005	0.010
	Appreciable		.020-.030			
	Severe		.040-.060			
Vegetation	Negligible	n_3	.000-.002	0.002		
	Small		.002-.010			
	Medium		.010-.025		0.025	
	Large		.025-.050			0.030
	Very Large		.050-.100			
	Extremely Large		.100-.200			
Variation in Channel Cross Section	Gradual	n_4	0.000	0.000	0.000	
	Occ. Alt.		.001-.005			0.003
	Freq. Alt.		.010-.015			
				0.042	0.060	0.073
Degree of Meandering	Minor	m	1	1	1	1
	Appreciable		1.15			
	Severe		1.3			
$n=(n_b+n_1+n_2+n_3+n_4)m$				**0.042**	**0.060**	**0.073**

Central 1 - Photo 1: Looking upstream at Area 2.

Central 1 - Photo 2: Looking upstream at the Area 3.

Central 1 - Photo 4: Looking downstream at Area 1.

Table E1-9

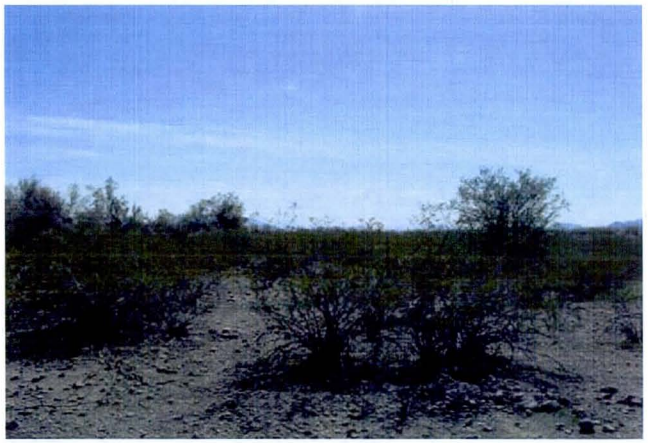
BY	JGA	DATE	2/9/2010
CHECK	FEB	DATE	5/5/2010

Project: Palo Verde Watershed Detailed Floodplain Delineation Study
Location: West-2 Region
Description: Along both sides of 443rd Ave. from CAP to 0.75 miles south of Glendale Avenue
Streams: T2N-R7W-S20E

Channel Conditions		Manning's n Adjustment		Area 1 (view maps)	Area 2 (view maps)	Area 3 (view maps)
Channel Material	Concrete	n_b	.012-.018			
	Firm Earth		.025-.032	0.030		
	Coarse Sand		.026-.035		0.027	0.035
	Gravel		.024-.035			
	Cobble		.030-.050			
	Boulder		.040-.070			
Degree of Irregularity	Smooth	n_1	0.000			
	Minor		.001-.005	0.001	0.001	0.003
	Moderate		.006-.010			
	Severe		.011-.020			
Effect of Obstruction	Negligible	n_2	.000-.004	0.001	0.002	0.004
	Minor		.005-.015			
	Appreciable		.020-.030			
	Severe		.040-.060			
Vegetation	Negligible	n_3	.000-.002			
	Small		.002-.010			
	Medium		.010-.025	0.012	0.020	0.015
	Large		.025-.050			
	Very Large		.050-.100			
	Extremely Large		.100-.200			
Variation in Channel Cross Section	Gradual	n_4	0.000	0.000		
	Occ. Alt.		.001-.005		0.002	0.001
	Freq. Alt.		.010-.015			
				0.044	0.052	0.058
Degree of Meandering	Minor	m	1	1	1	1
	Appreciable		1.15			
	Severe		1.3			
$n=(n_b+n_1+n_2+n_3+n_4)m$				**0.044**	**0.052**	**0.058**

West 2 - Photo 1: Looking downstream at lower Area 1.

West 2 - Photo 2: Looking upstream at Area 3.



West 2 - Photo 3: Looking downstream at Area 3.

West 2 - Photo 4: Looking upstream at high Area 2.

Table E1-10

BY JGA DATE 2/9/2010
CHECK FEB DATE 4/22/2010

Project: Palo Verde Watershed Detailed Floodplain Delineation Study
Location: Southwest Region
Description: South of I-10, from western study limits to 387th Avenue.
Streams: Winters Wash, Delaney Wash, T1S-R6W-S08, T2N-R7W-S20W, -S20E, -S32E, -S26W, -S25W, -S26E, -S36E, -S35
T1S-R6W-S05S, T1N-R6W-S17, T2N-R7W-S35W

Channel Conditions		Manning's n Adjustment		Area 1 (view maps)	Area 2 (view maps)	Area 3 (view maps)
Channel Material	Concrete	n_b	.012-.018			
	Firm Earth		.025-.032	0.030		0.030
	Coarse Sand		.026-.035		0.030	
	Gravel		.024-.035			
	Cobble		.030-.050			
	Boulder		.040-.070			
Degree of Irregularity	Smooth	n_1	0.000	0.000		0.000
	Minor		.001-.005		0.001	
	Moderate		.006-.010			
	Severe		.011-.020			
Effect of Obstruction	Negligible	n_2	.000-.004	0.000	0.000	0.000
	Minor		.005-.015			
	Appreciable		.020-.030			
	Severe		.040-.060			
Vegetation	Negligible	n_3	.000-.002			
	Small		.002-.010			
	Medium		.010-.025	0.012	0.015	
	Large		.025-.050			0.035
	Very Large		.050-.100			
	Extremely Large		.100-.200			
Variation in Channel Cross Section	Gradual	n_4	0.000	0.000	0.000	0.000
	Occ. Alt.		.001-.005			
	Freq. Alt.		.010-.015			
				0.042	0.046	0.065
Degree of Meandering	Minor	m	1	1	1	1
	Appreciable		1.15			
	Severe		1.3			
$n=(n_b+n_1+n_2+n_3+n_4)m$				**0.042**	**0.046**	**0.065**

Southwest - Photo 1: Looking downstream at Area 2.

Southwest - Photo 2: Looking downstream at Area 3.

Southwest - Photo 3: Looking downstream at Area 2 bed at transition from grouted rip-rap near road crossing to natural earth.

Southwest - Photo 4: Looking downstream at Area 2.

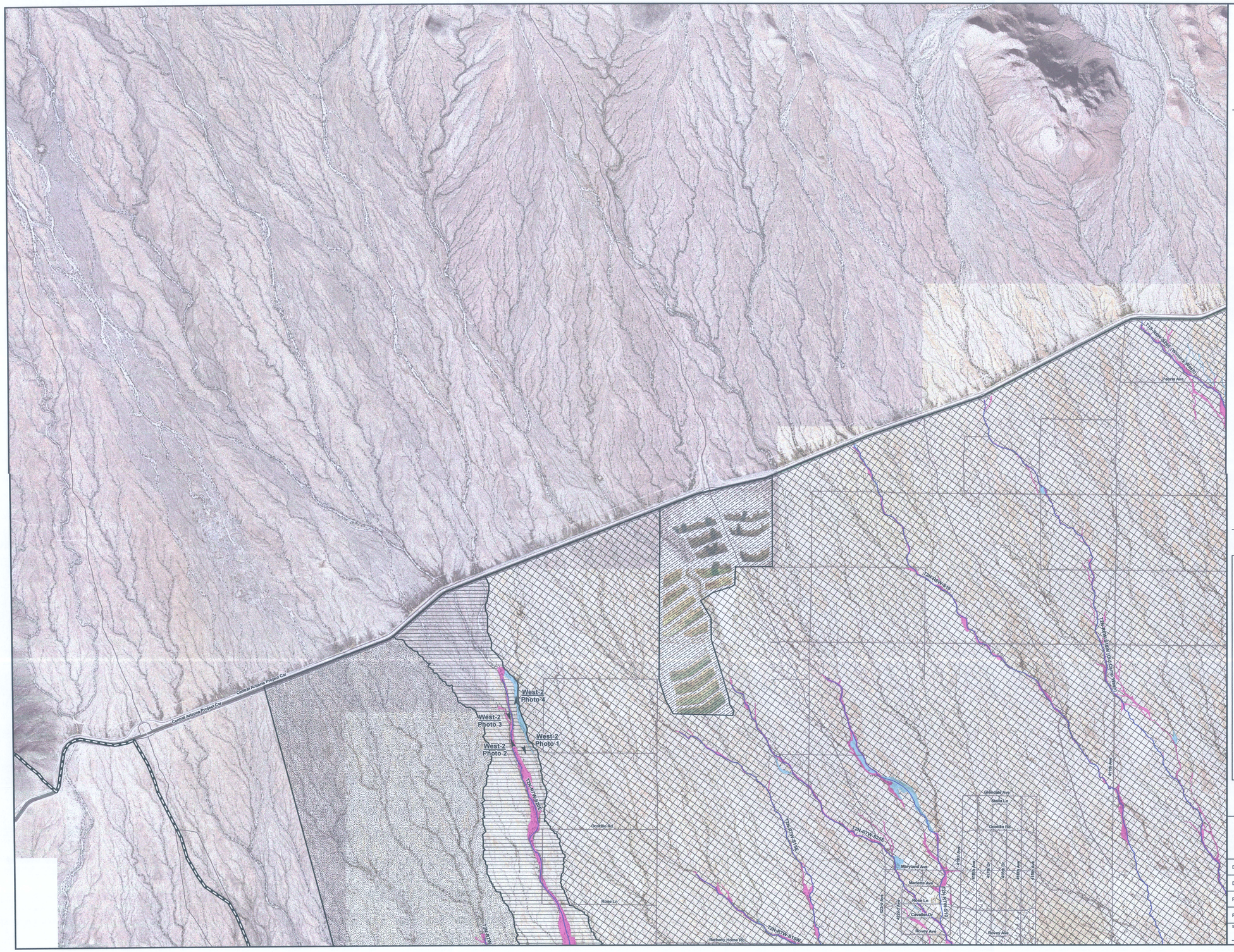
Southwest - Photo 5: Looking upstream at Area 1.

Southwest - Photo 6: Looking upstream at Area 3-note scour on the right bank.

Table E1-11

		BY JGA	DATE 2/9/2010
Project:	Palo Verde Watershed Detailed Floodplain Delineation Study	CHECK FEB	DATE 4/22/2010
Location:			
Description:	Calculations for Agriculture, Mountain, & Recharge areas		
Streams:			

Channel Conditions		Manning's n Adjustment		Agricultural	Mountain	Recharge
Channel Material	Concrete	n_b	.012-.018			
	Firm Earth		.025-.032			0.030
	Coarse Sand		.026-.035	0.030		
	Gravel		.024-.035			
	Cobble		.030-.050		0.035	
	Boulder		.040-.070			
Degree of Irregularity	Smooth	n_1	0.000	0.000		0.000
	Minor		.001-.005			
	Moderate		.006-.010		0.008	
	Severe		.011-.020			
Effect of Obstruction	Negligible	n_2	.000-.004	0.000	0.000	
	Minor		.005-.015			0.010
	Appreciable		.020-.030			
	Severe		.040-.060			
Vegetation	Negligible	n_3	.000-.002			0.002
	Small		.002-.010		0.009	
	Medium		.010-.025			
	Large		.025-.050	0.035		
	Very Large		.050-.100			
	Extremely Large		.100-.200			
Variation in Channel Cross Section	Gradual	n_4	0.000	0.000		0.000
	Occ. Alt.		.001-.005			
	Freq. Alt.		.010-.015		0.010	
				0.065	0.062	0.042
Degree of Meandering	Minor	m	1	1	1	1
	Appreciable		1.15			
	Severe		1.3			
$n=(n_b+n_1+n_2+n_3+n_4)m$				**0.065**	**0.062**	**0.042**



FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

PALO VERDE WATERSHED DETAILED FLOODPLAIN DELINEATION STUDY

F.C.D. CONTRACT NO. 2008C046

Manning's n-Value Map

LEGEND

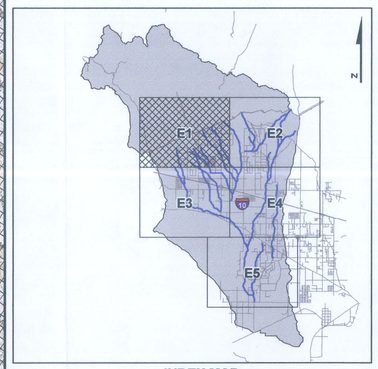
- Study Wash
- Streets
- Railroad
- PaloVerde Watershed
- Geographical Region / Photo #

Typical n-Values

Region	Area 1	Area 2	Area 3
West-1	0.044	0.058	0.072
West-2	0.044	0.052	0.058
Central-1	0.042	0.060	0.073
Central-2	0.036	0.042	0.054
North-Central	0.044	0.058	0.072
North-1	0.040	0.048	0.075
North-2	0.040	0.046	0.055
North-3	0.035	0.040	N/A
Northeast	0.037	0.051	0.066
East	0.035	0.042	0.060
Southwest	0.042	0.046	0.065
Mountain	0.062	0.062	0.062
Agricultural	0.065	0.065	0.065
Recharge	0.062	0.062	0.062
Roadway	0.020	0.020	0.020

NOTES

REFER TO TDN REPORT AND APPENDIX E FOR ADDITIONAL INFORMATION.



INDEX MAP

1,500 750 0 1,500 3,000 Feet

Entellus
2255 N. 44th Street Suite 125
Phoenix, Arizona 85008.3299
Tel. 602.244.2566
Fax. 602.244.8947
Web. www.entellus.com

	BY	DATE
DESIGN	CA	06/2010
DESIGN CHK.	HAA	06/2010
PLANS	ZDR	06/2010
PLANS CHK.	HAA	06/2010

SUBMITTED BY: DATE:

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

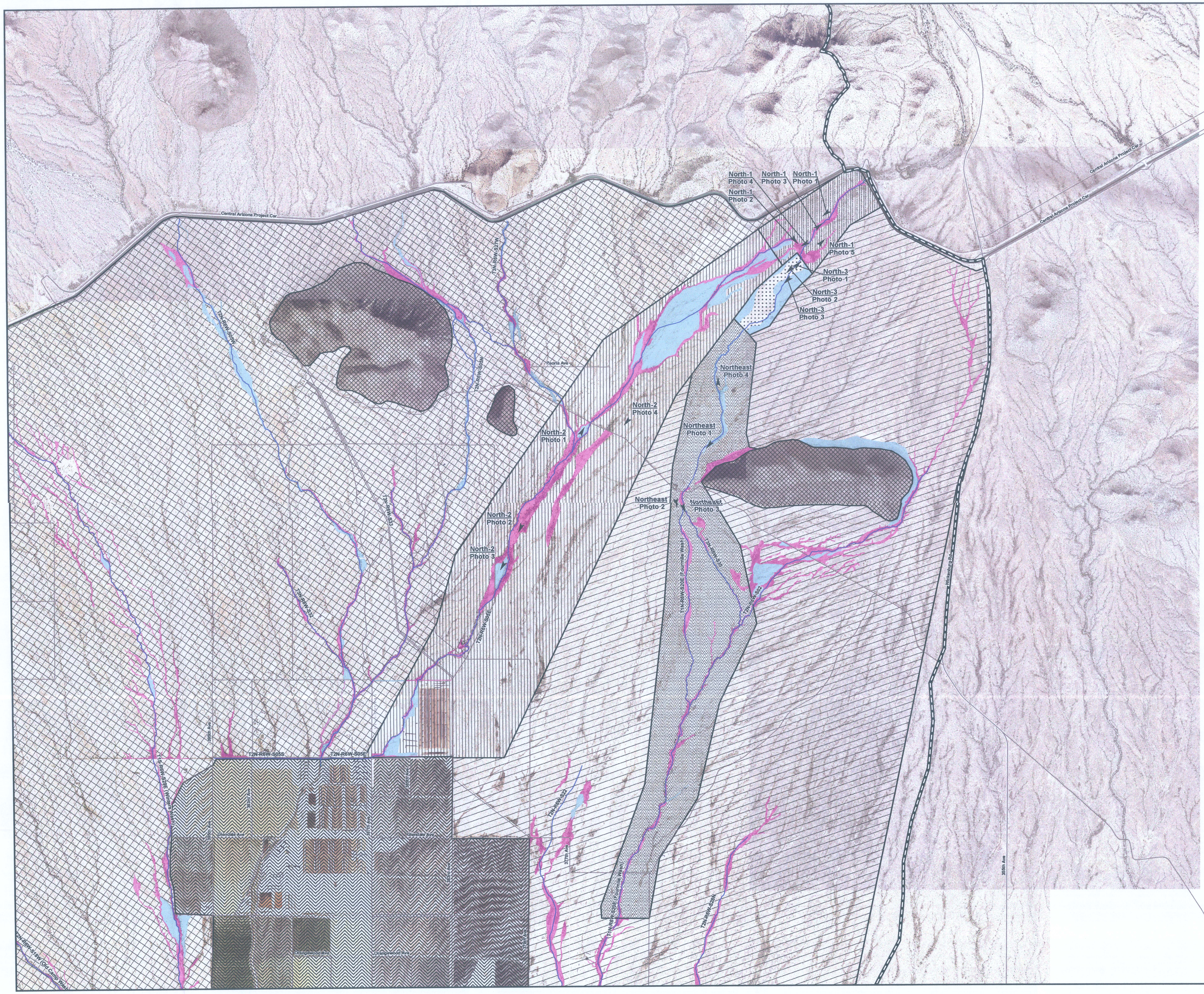
RECOMMENDED BY: DATE:

APPROVED BY: DATE:

CHIEF ENGINEER AND GENERAL MANAGER

SHEET E1 OF E5

P:\2006\1003\CAD_Files_Models\Hydrology\MXD\n_Value_Maps\E1_v1.mxd 6/22/2011



FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

PALO VERDE WATERSHED
DETAILED FLOODPLAIN DELINEATION STUDY

F.C.D. CONTRACT NO. 2008C046

Manning's n-Value Map

LEGEND

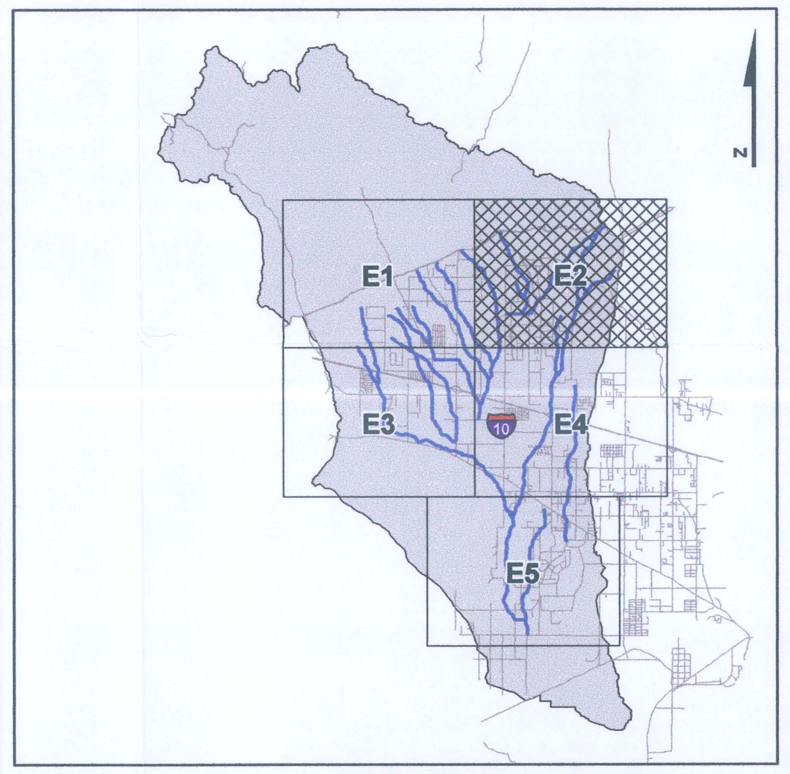
Study Wash
Streets
Railroad
PaloVerde Watershed
Geographical Region / Photo #

Typical n-Values

Region	Area 1	Area 2	Area 3
West-1	0.044	0.058	0.072
West-2	0.044	0.052	0.058
Central-1	0.042	0.060	0.073
Central-2	0.036	0.042	0.054
North-Central	0.044	0.058	0.072
North-1	0.040	0.048	0.075
North-2	0.040	0.046	0.055
North-3	0.035	0.040	N/A
Northeast	0.037	0.051	0.066
East	0.035	0.042	0.060
Southwest	0.042	0.046	0.065
Mountain	0.062	0.062	0.062
Agricultural	0.065	0.065	0.065
Recharge	0.062	0.062	0.062
Roadway	0.020	0.020	0.020

NOTES

REFER TO TDN REPORT AND APPENDIX E FOR ADDITIONAL INFORMATION.



INDEX MAP

1,500 750 0 1,500 3,000 Feet

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DESIGN CHK.	HAA	06/2010
PLANS	ZDR	06/2010
PLANS CHK.	HAA	06/2010

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FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

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SHEET E2 OF E5

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FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

PALO VERDE WATERSHED
DETAILED FLOODPLAIN DELINEATION STUDY

F.C.D. CONTRACT NO. 2008C046

Manning's n-Value Map

LEGEND

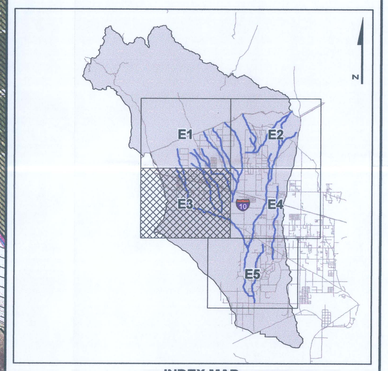
- Study Wash
- Streets
- Railroad
- PaloVerde Watershed
- Geographical Region / Photo #

Typical n-Values

Region	Area 1	Area 2	Area 3
West-1	0.044	0.058	0.072
West-2	0.044	0.052	0.058
Central-1	0.042	0.060	0.073
Central-2	0.036	0.042	0.054
North-Central	0.044	0.058	0.072
North-1	0.040	0.048	0.075
North-2	0.040	0.046	0.055
North-3	0.035	0.040	N/A
Northeast	0.037	0.051	0.066
East	0.035	0.042	0.060
Southwest	0.042	0.046	0.065
Mountain	0.062	0.062	0.062
Agricultural	0.065	0.065	0.065
Recharge	0.062	0.062	0.062
Roadway	0.020	0.020	0.020

NOTES

REFER TO TDN REPORT AND APPENDIX E FOR ADDITIONAL INFORMATION.



INDEX MAP

N

1,500 750 0 1,500 3,000 Feet

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DESIGN	CA	06/2010
DESIGN CHK.	HAA	06/2010
PLANS	ZDR	06/2010
PLANS CHK.	HAA	06/2010

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SHEET E3 OF E5

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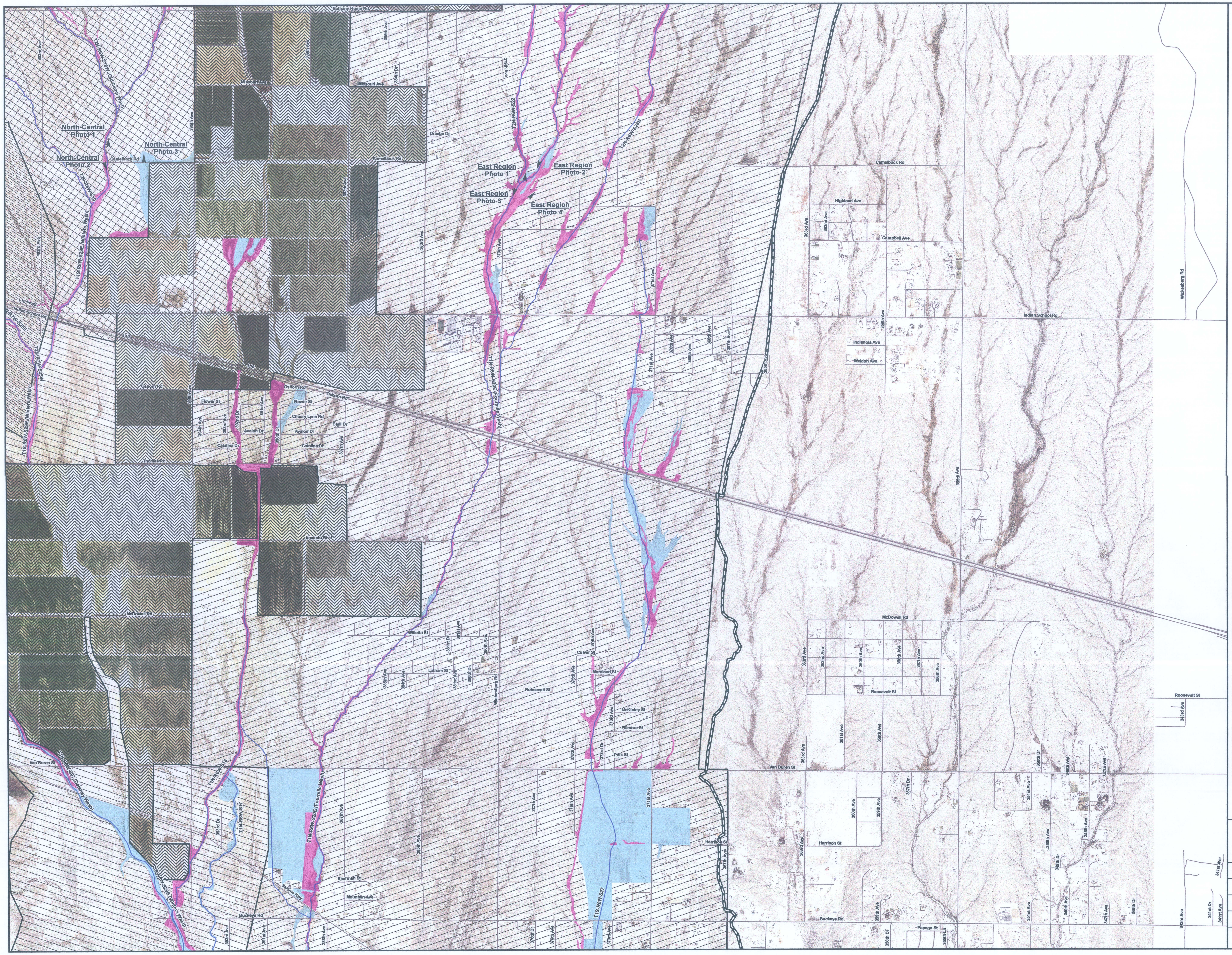

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

PALO VERDE WATERSHED
DETAILED FLOODPLAIN DELINEATION STUDY

F.C.D. CONTRACT NO. 2008C046

Manning's n-Value Map

LEGEND

- Study Wash
- Streets
- Railroad
- PaloVerde Watershed
- Geographical Region / Photo #

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Region	Area 1	Area 2	Area 3
West-1	0.044	0.058	0.072
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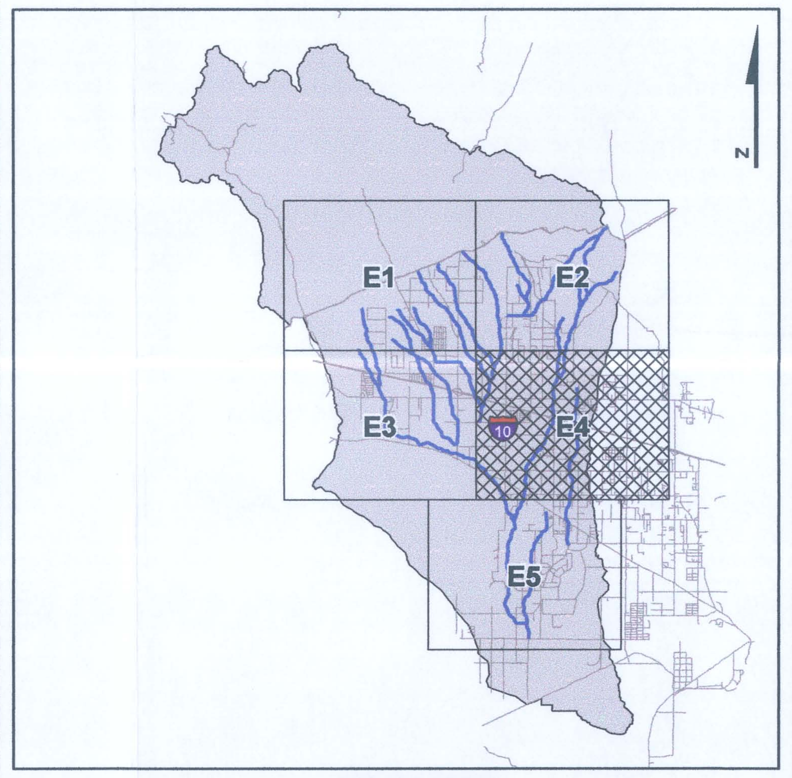
Central-1	0.042	0.060	0.073
Central-2	0.036	0.042	0.054
North-Central	0.044	0.058	0.072
North-1	0.040	0.048	0.075
North-2	0.040	0.046	0.055
North-3	0.035	0.040	N/A
Northeast	0.037	0.051	0.066
East	0.035	0.042	0.060
Southwest	0.042	0.046	0.065
Mountain	0.062	0.062	0.062
Agricultural	0.065	0.065	0.065
Recharge	0.062	0.062	0.062
Roadway	0.020	0.020	0.020

NOTES

REFER TO TDN REPORT AND APPENDIX E FOR ADDITIONAL INFORMATION.



INDEX MAP

1,500 750 0 1,500 3,000 Feet

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PLANS CHK.	HAA	06/2010

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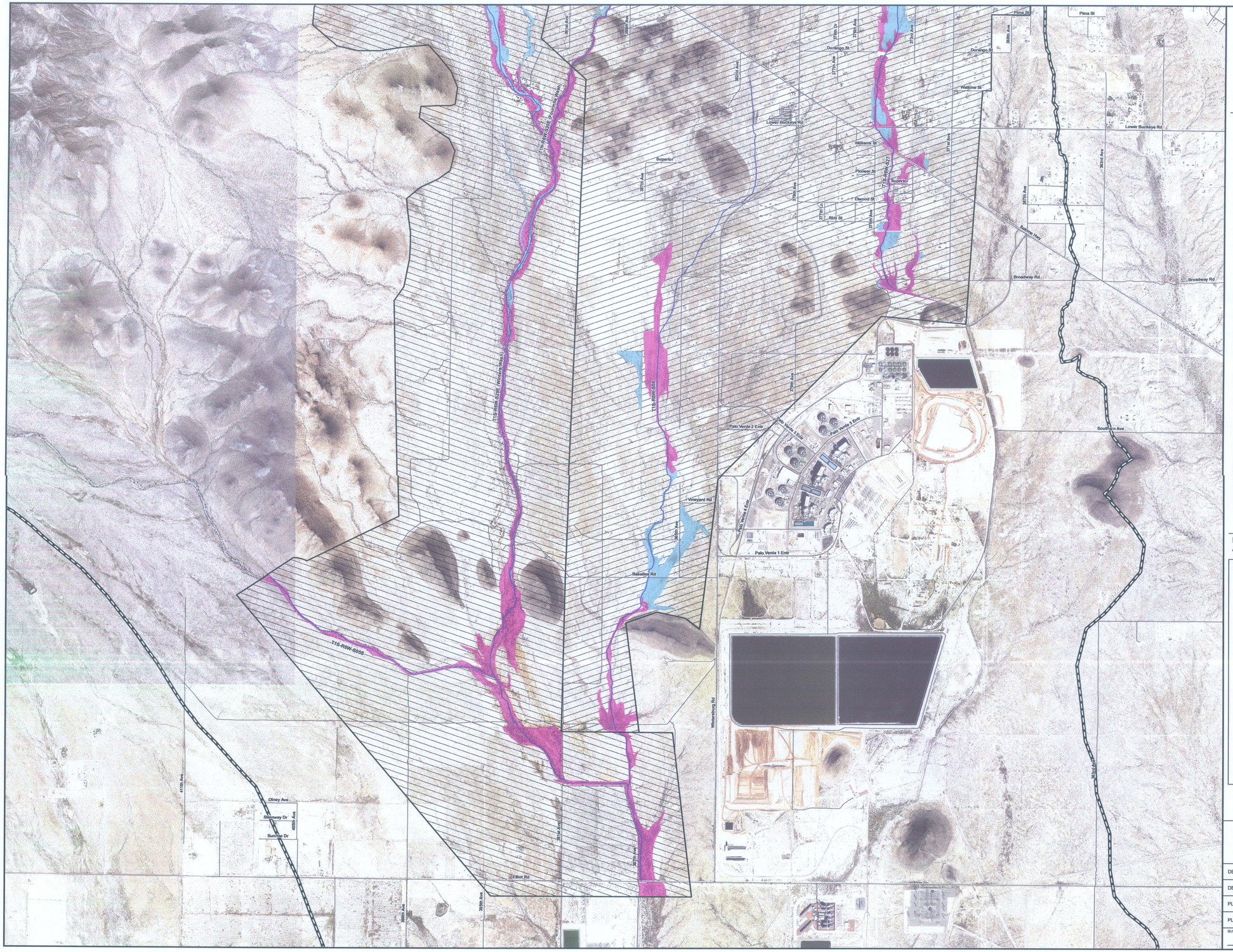

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

PALO VERDE WATERSHED
DETAILED FLOODPLAIN DELINEATION STUDY

F.C.D. CONTRACT NO. 2008C046

Manning's n-Value Map

LEGEND

- Study Wash
- Streets
- Railroad
- PaloVerde Watershed
- Geographical Region / Photo #

Typical n-Values

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West-2	0.044	0.052	0.058
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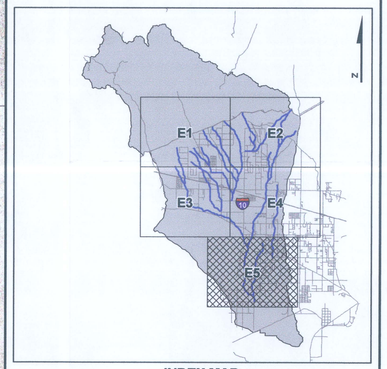
North-Central	0.044	0.058	0.072
North-1	0.040	0.048	0.075
North-2	0.040	0.046	0.055
North-3	0.035	0.040	N/A
Northeast	0.037	0.051	0.066
East	0.035	0.042	0.060
Southwest	0.042	0.046	0.065
Mountain	0.062	0.062	0.062
Agricultural	0.065	0.065	0.065
Recharge	0.062	0.062	0.062
Roadway	0.020	0.020	0.020

NOTES

REFER TO TDN REPORT AND APPENDIX E FOR ADDITIONAL INFORMATION.



INDEX MAP

N 1,500 750 0 1,500 3,000 Feet

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SHEET E5 OF E5

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E.2 Cross-Section Plots

All cross section plots are included electronically in **Appendix F**. Only the Zone A cross sections are included in this appendix. See **Appendix F** for other cross sectional information.

E.3 Expansion and Contraction Coefficients

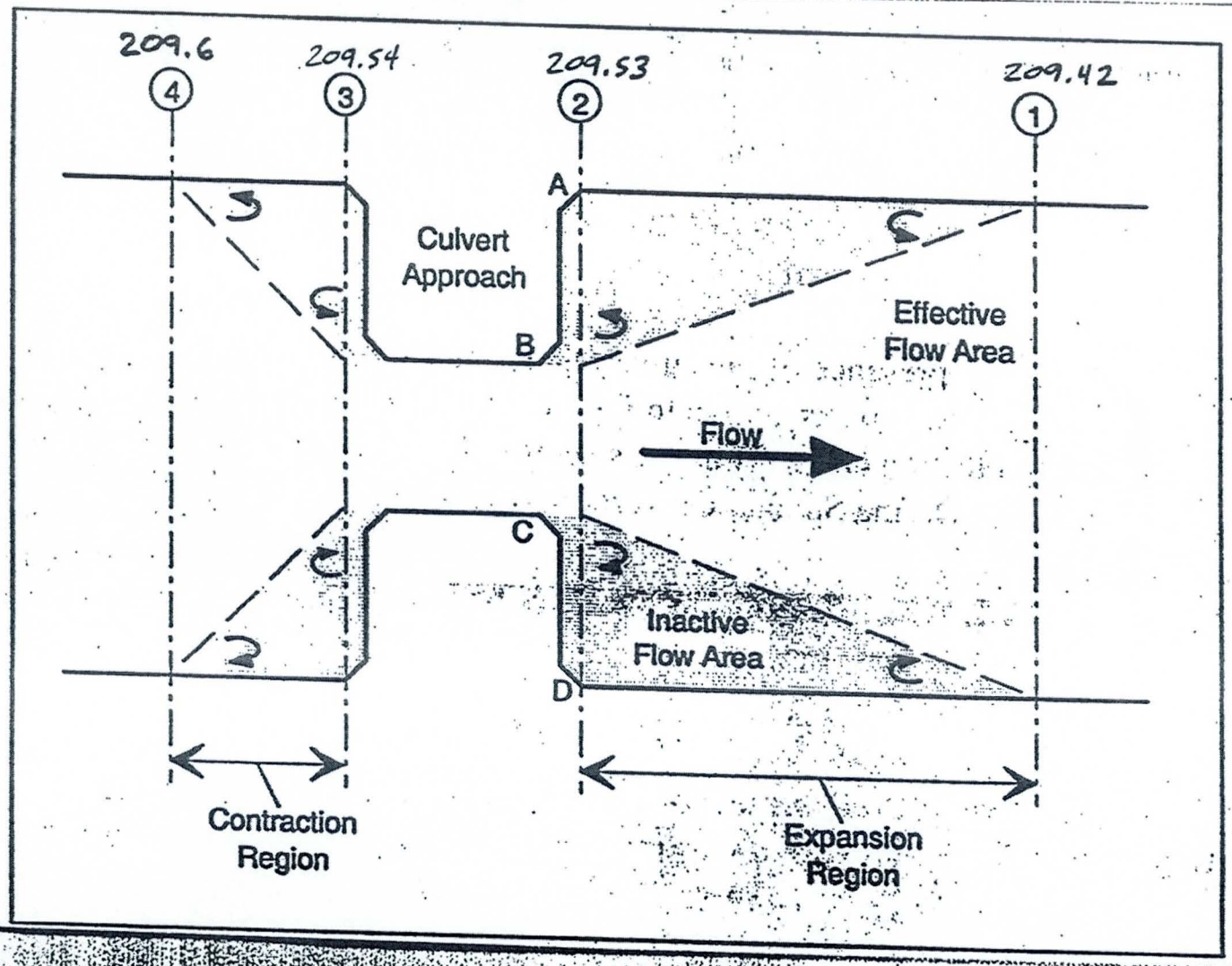
The expansion and contraction coefficients used in the HEC-RAS model were determined using the HEC-RAS User's Manual (**Reference 2**). More discussion regarding the expansion and contraction coefficients is included in **Section 5.3.2**.

E.4 Analysis of Structures

Very few culverts were modeled as part of this study. These structures were modeled using the HEC-RAS bridge routine. The majority of the structures modeled were located along Interstate-10. Approximately 1 location was included in the modeling along Interstate-10. The structures were modeled using the data included in Palo Verde Watershed Zone A Floodplain Delineation Study – Box Culverts I-10, Survey Report (**Reference 14**). General discussions regarding the analyses of various structures are included throughout **Section 5**.

Special Bridge Cross Sections

Determination of ineffective flow areas using Corps of Engineers method



E.5 Hydraulic Calculations

The hydraulic calculations were made using the US Army Corps of Engineer's HEC-RAS V.4.0.0 program (**Reference 1**), in accordance, with BOSS RiverCAD Version 8.4.0 (**Reference 3**). The details of the hydraulic methodology are discussed in **Section 5**. The HEC-RAS output is included in **Appendix E.6.**

E.5.1 - Split Flow Supporting Documentation

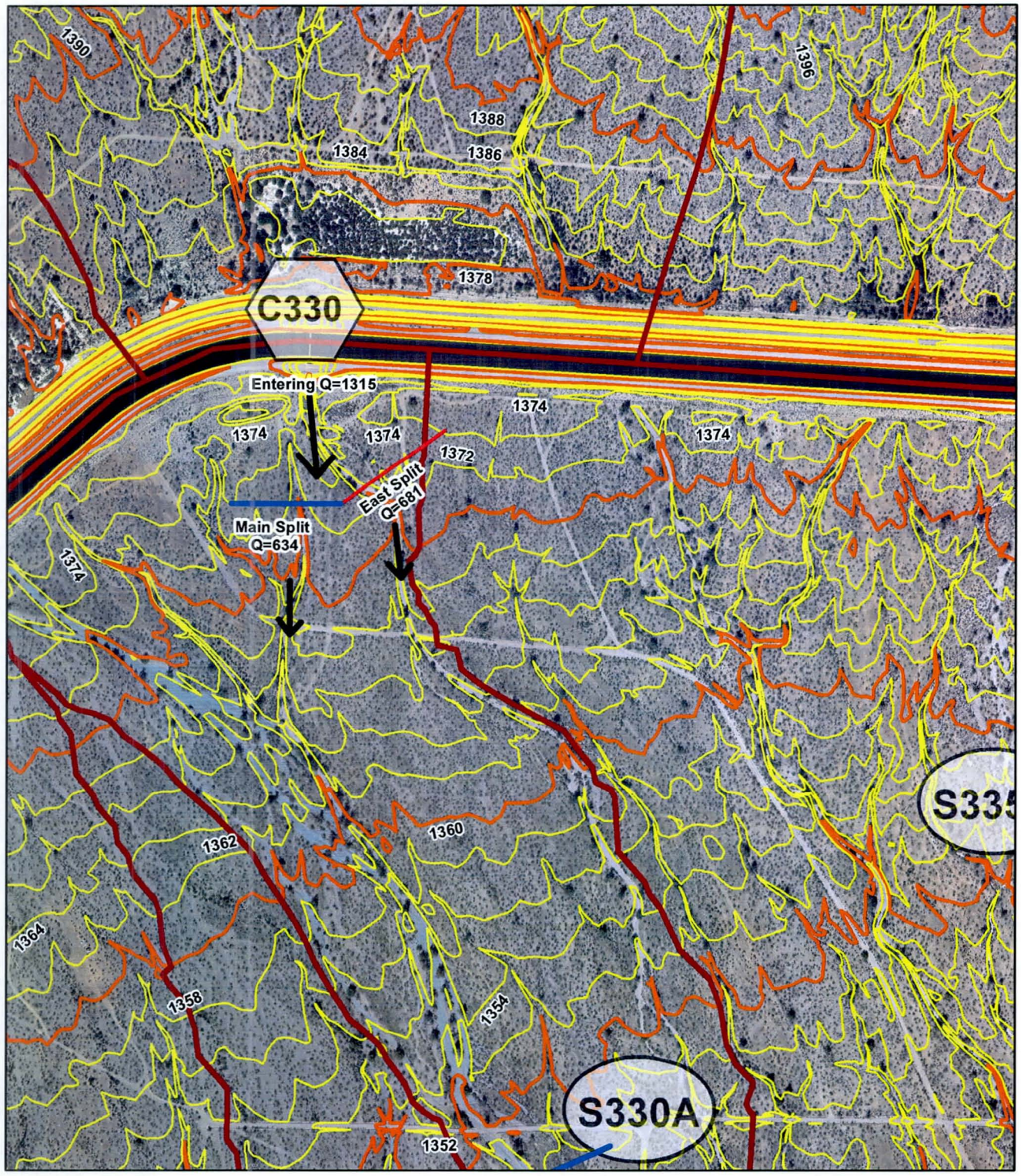
E.5.2 - Agreement Tables

E.5.1 Split Flow Supporting Documentation

The documentation included under this appendix shows the incidental splits that were incorporated into the hydraulic modeling, but the hydrology HEC-1 models were not modified to include the splits identified.

1. T2N-R6W-S05W Split Flow
2. T2N-R7W-S32E Split Flow

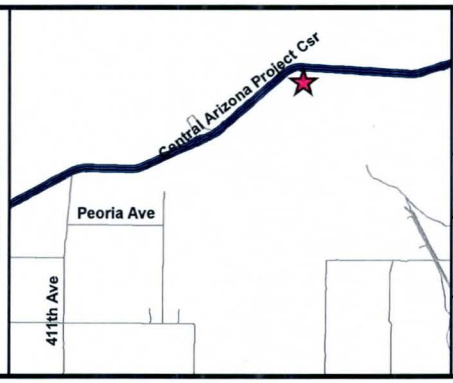
T2N-R6W-S05W
Supporting Documentation



LEGEND

- T2N-R6W-S05W
- Split Flow Cross Section
- Wash Flow Cross Section
- Hydrology Subbasins
- S750E Hydrology Subbasin ID
- C750C L Concentration Point ID

VICINITY MAP



PALO VERDE WATERSHED
DETAILED FLOODPLAIN
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FCD 2008C046

NORTH

0 250 500 Feet

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T2N-R6W-S05W SPLIT FLOWS
SPLIT 1

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SHEET	1	OF	4
BY	AL	DATE	9/15/2010
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CLIENT: FCDMC

JOB: Palo Verde Watershed Detailed Floodplain Delineation Study **JOB NO.** 310.047

Split Flow Analysis for: T2N-R6W-S05W - Split 1

Split Flow Location: Just south of CAP

Analysis Method: Wash Normal Depth Analysis Using Manning's Equation

	Slope (ft/ft)
Main Split	0.0100
East Split	0.0114

Total Flow		Main Split	East Split	Main Split	East Split
Stage [ft]	Q [cfs]	Q [cfs]	Q [cfs]	%	%
1370.00	2.5	2.4	0.1	96%	4%
1370.25	8.9	7.2	1.7	81%	19%
1370.50	21.4	15.3	6.1	71%	29%
1370.75	42.8	28.0	14.8	65%	35%
1371.00	74.1	45.5	28.6	61%	39%
1371.25	111.7	64.3	47.4	58%	42%
1371.50	159.8	88.8	71.0	56%	44%
1371.75	225.7	130.0	95.7	58%	42%
1372.00	299.7	185.2	114.5	62%	38%
1372.25	446.7	264.0	182.7	59%	41%
1372.50	702.2	363.7	338.5	52%	48%
1372.75	1048.5	526.4	522.1	50%	50%
1373.00	1569.1	756.0	813.1	48%	52%
1373.25	2307.5	1143.6	1163.9	50%	50%
1373.50	3245.0	1545.3	1699.7	48%	52%
1373.75	4443.3	2120.4	2322.9	48%	52%
1374.00	5797.3	2765.3	3032.0	48%	52%

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SHEET	2	OF	4
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CLIENT: FCDMC

JOB: Palo Verde Watershed Detailed Floodplain Delineation Study **JOB NO.** 310.047

Split Flow Analysis for: T2N-R6W-S05W - Split 1

Split Flow Location: Just south of CAP

Analysis Method: Wash Normal Depth Analysis Using Manning's Equation

Main Split Data

Slope (ft/ft)
0.0100

Raw Cross-Section Data			Raw Cross-Section Data		
Station [ft]	Elevation [ft]	N	Station [ft]	Elevation [ft]	N
0.00	1374.00				
0.00	1372.89				
29.28	1372.88				
71.45	1372.42				
81.62	1372.35				
92.36	1371.99				
116.68	1371.32				
122.65	1370.50	0.044			
125.25	1370.15				
131.11	1369.48				
136.28	1370.08				
136.89	1370.17	0.058			
143.02	1371.06				
167.99	1371.75				
178.49	1372.05				
197.69	1372.30				
206.79	1372.46				
210.81	1372.46				
216.64	1372.48				
244.18	1372.81				
249.92	1373.05				
261.11	1372.09				
265.54	1371.80				
278.85	1372.30				
283.01	1372.53				
302.90	1373.00				
320.33	1373.42				
347.02	1373.39				
347.12	1374.00	0.044			

	Flow Master Output					
Stage [ft]	WSE [ft]	Q [ft³/s]	Vel [ft/s]	Area [ft²]	Wetted Perimeter [ft]	Top Width [ft]
	1370.0	2.4	1.0	2.4	9.1	9.0
0.25	1370.3	7.2	1.4	5.1	13.0	12.9
0.50	1370.5	15.3	1.7	8.8	16.6	16.5
0.75	1370.8	28.0	2.1	13.4	20.2	20.1
1.00	1371.0	45.5	2.4	18.8	23.8	23.6
1.25	1371.3	64.3	2.5	25.7	32.9	32.7
1.50	1371.5	88.8	2.5	35.7	49.0	48.8
1.75	1371.8	130.0	2.6	50.2	67.2	66.9
2.00	1372.0	185.2	2.7	70.0	93.3	93.1
2.25	1372.3	264.0	2.7	97.4	127.8	127.5
2.50	1372.5	363.7	2.7	134.6	180.6	180.3
2.75	1372.8	526.4	2.8	186.7	237.2	236.9
3.00	1373.0	756.0	3.0	254.7	301.6	301.1
3.25	1373.3	1143.6	3.5	331.7	314.0	313.3
3.50	1373.5	1545.3	3.7	413.7	348.1	347.0
3.75	1373.8	2120.4	4.2	500.5	348.6	347.1
4.00	1374.0	2765.3	4.7	587.2	349.1	347.1

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SHEET	3	OF	4
BY	AL	DATE	9/15/2010
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CLIENT: FCDMC

JOB: Palo Verde Watershed Detailed Floodplain Delineation Study **JOB NO.** 310.047

Split Flow Analysis for: T2N-R6W-S05W - Split 1

Split Flow Location: Just south of CAP

Analysis Method: Wash Normal Depth Analysis Using Manning's Equation

East Split Data

Slope (ft/ft)
0.0114

Raw Cross-Section Data			Raw Cross-Section Data		
Station [ft]	Elevation [ft]	N	Station [ft]	Elevation [ft]	N
0.00	1374.10				
0.10	1374.10				
48.83	1373.22				
100.52	1373.07				
113.80	1372.88				
139.75	1372.76				
152.02	1371.72				
159.41	1372.35				
161.75	1372.40				
168.16	1372.34				
181.37	1371.82				
197.04	1372.21				
231.88	1372.03				
235.46	1371.95				
242.95	1371.67				
249.01	1372.06				
250.77	1372.15				
281.96	1371.92	0.040			
287.85	1371.41				
292.82	1370.66				
302.54	1369.85				
309.79	1370.50				
313.32	1370.89				
315.19	1371.27	0.060			
321.41	1372.26				
334.05	1372.36				
360.42	1372.74				
389.83	1372.74				
402.33	1372.89				
402.33	1374.00	0.044			

	Flow Master Output					
Stage [ft]	WSE [ft]	Q [ft³/s]	Vel [ft/s]	Area [ft²]	Wetted Perimeter [ft]	Top Width [ft]
	1370.0	0.1	0.5	0.3	3.5	3.5
0.25	1370.3	1.7	0.9	1.9	9.3	9.3
0.50	1370.5	6.1	1.3	4.9	15.1	15.1
0.75	1370.8	14.8	1.6	9.3	19.9	19.8
1.00	1371.0	28.6	1.9	14.7	23.4	23.3
1.25	1371.3	47.4	2.3	20.9	26.4	26.2
1.50	1371.5	71.0	2.6	27.9	30.0	29.8
1.75	1371.8	95.7	2.7	36.0	38.6	38.4
2.00	1372.0	114.5	2.3	49.7	82.2	81.9
2.25	1372.3	182.7	2.2	82.0	163.7	163.4
2.50	1372.5	338.5	2.6	128.1	201.3	201.0
2.75	1372.8	522.1	2.9	181.2	251.2	250.8
3.00	1373.0	813.1	3.2	251.2	297.4	296.9
3.25	1373.3	1163.9	3.5	331.9	355.9	355.2
3.50	1373.5	1699.7	4.0	422.5	370.0	369.0
3.75	1373.8	2322.9	4.5	516.4	384.1	382.9
4.00	1374.0	3032.0	4.9	613.9	398.2	396.7

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SHEET	4	OF	4
BY	AL	DATE	9/15/2010
CHECK	AMB	DATE	4/7/2011

CLIENT: FCDMC

JOB: Palo Verde Watershed Detailed Floodplain Delineation Study

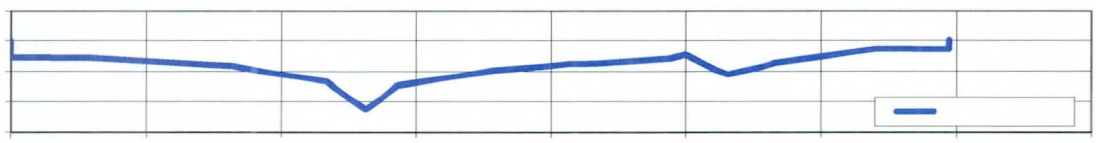
JOB NO. 310.047

Split Flow Analysis for: T2N-R6W-S05W - Split 1

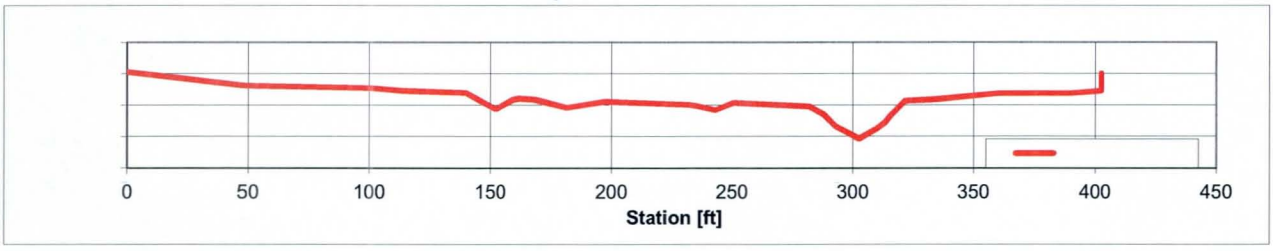
Split Flow Location: Just south of CAP

Analysis Method: Wash Normal Depth Analysis Using Manning's Equation

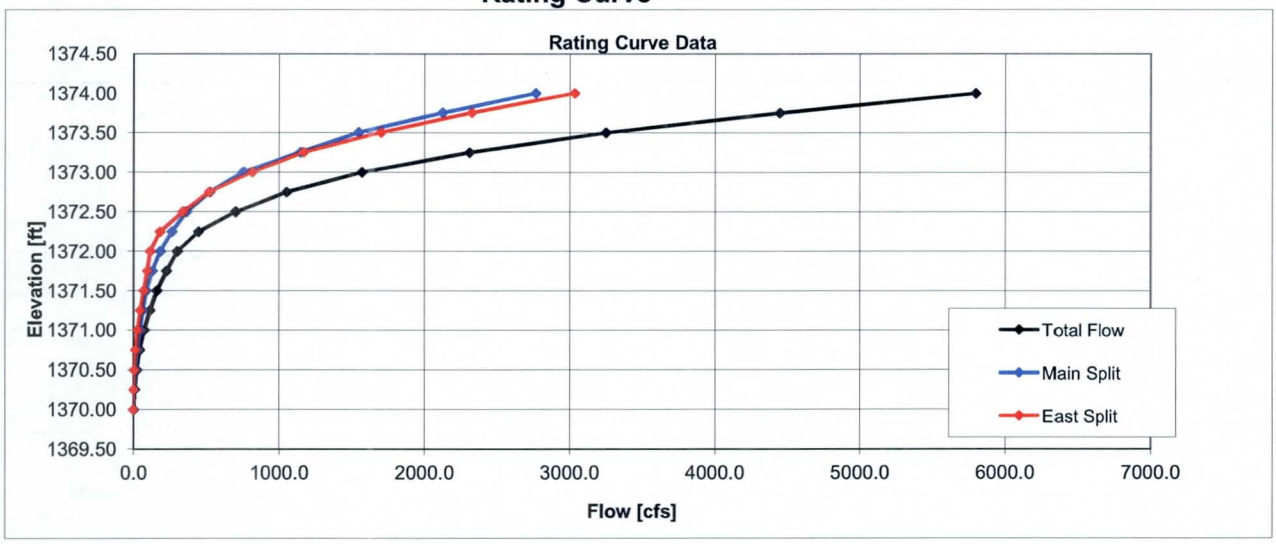
Main Split Data

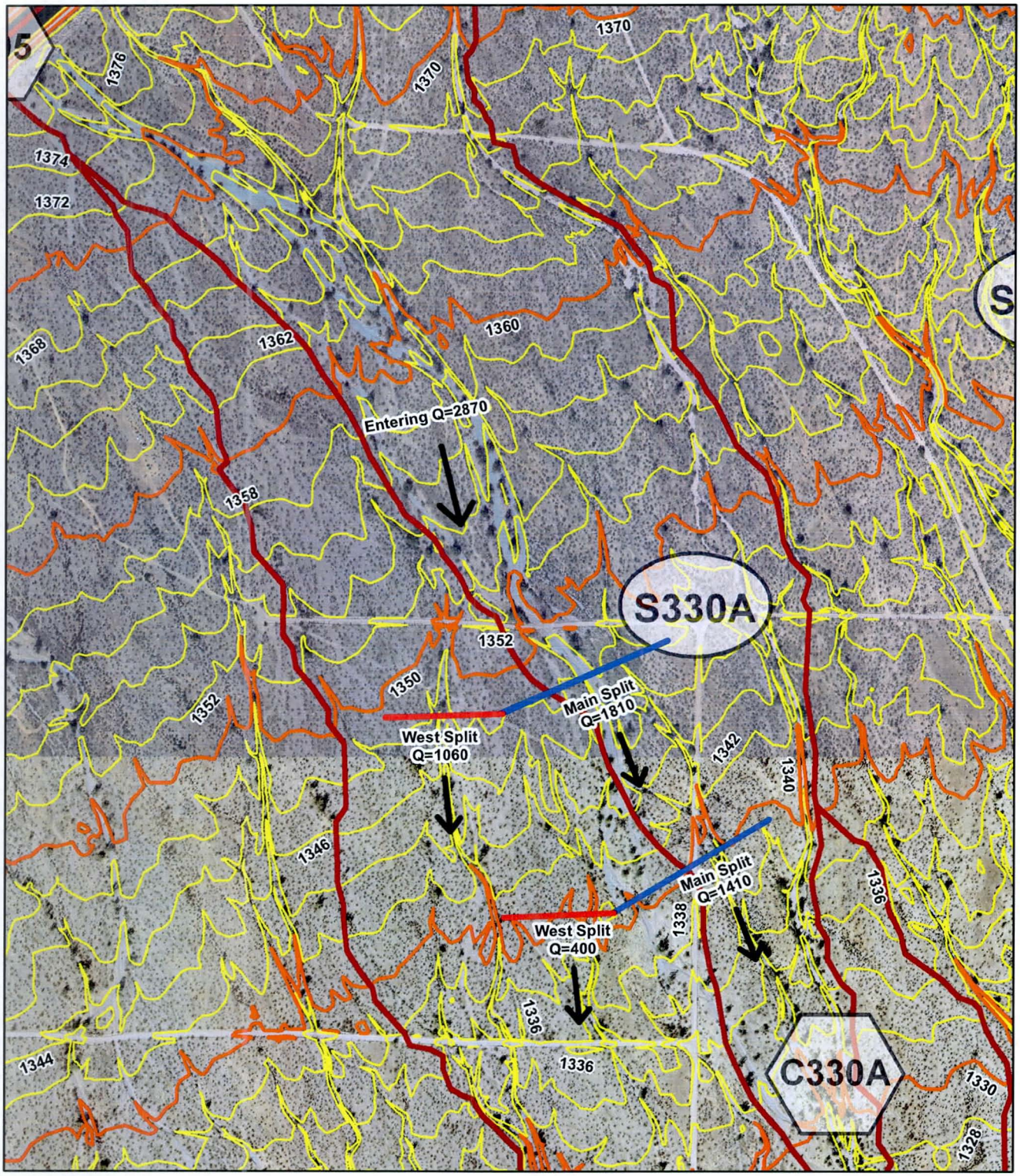


East Split Data



Rating Curve

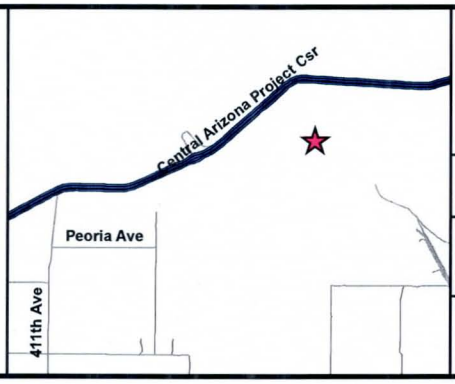




LEGEND

- T2N-R6W-S05W
- Split Flow Cross Section
- Wash Flow Cross Section
- Hydrology Subbasins
- S750E Hydrology Subbasin ID
- C750C L Concentration Point ID

VICINITY MAP



PALO VERDE WATERSHED
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NORTH

0 250 500 Feet

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T2N-R6W-S05W SPLIT FLOWS
SPLIT 2 & 3

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BY	RLJ	DATE	5/2/2011
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Split Flow Analysis for: **T2N-R6W-S05W - Split 2**

Split Flow Location: **Approximately 0.5 miles south of CAP**

Analysis Method: **Wash Normal Depth Analysis Using Manning's Equation**

	Slope (ft/ft)
West Split	0.011
Main Split	0.011

Total Flow		West Split	Main Split	West Split	Main Split
Stage [ft]	Q [cfs]	Q [cfs]	Q [cfs]	%	%
1346.00	3.0	3.0	0.0	1.0	0.0
1346.25	8.9	8.5	0.4	96%	4%
1346.50	28.9	20.3	8.6	70%	30%
1346.75	69.1	40.2	28.9	58%	42%
1347.00	130.4	70.0	60.4	54%	46%
1347.25	214.5	111.5	103.0	52%	48%
1347.50	323.1	166.2	156.9	51%	49%
1347.75	385.7	228.6	157.1	59%	41%
1348.00	484.2	229.3	254.9	47%	53%
1348.25	846.3	380.8	465.5	45%	55%
1348.50	1419.6	609.1	810.5	43%	57%
1348.75	2312.0	898.1	1413.9	39%	61%
1349.00	3463.6	1277.0	2186.6	37%	63%
1349.25	4964.1	1876.3	3087.8	38%	62%
1349.50	6691.4	2582.9	4108.5	39%	61%

Entellus

SHEET	2	OF	4
BY	RLJ	DATE	5/2/2011
CHECK	AMB	DATE	4/7/2011

CLIENT: FCDMC

JOB: Palo Verde Watershed Detailed Floodplain Delineation Study **JOB NO.** 310.047

Split Flow Analysis for: **T2N-R6W-S05W - Split 2**

Split Flow Location: **Approximately 0.5 miles south of CAP**

Analysis Method: **Wash Normal Depth Analysis Using Manning's Equation**

West Split Data

Slope (ft/ft)
0.011

Raw Cross-Section Data			Raw Cross-Section Data		
Station [ft]	Elevation [ft]	N	Station [ft]	Elevation [ft]	N
0.00	1348.80				
2.90	1348.40				
6.62	1348.45				
23.44	1348.07				
41.81	1347.71				
73.22	1348.30				
79.70	1348.41				
91.22	1348.21				
110.62	1347.88				
127.58	1346.34				
131.72	1345.94				
133.03	1346.09				
147.23	1347.68				
155.50	1346.39				
161.30	1345.42				
175.24	1347.60				
176.76	1347.85				
201.44	1347.82				
202.64	1347.82				
202.72	1347.82				
243.17	1347.99				
264.01	1348.28				
293.16	1348.66				
310.16	1348.73				
348.57	1348.88				
383.88	1348.73				
393.38	1348.71				
395.50	1348.79				
426.57	1349.44				
427.98	1349.30				
436.86	1348.30				
445.16	1348.95				
445.26	1348.96	0.044			

	Flow Master Output					
Stage [ft]	WSE [ft]	Q [ft³/s]	Vel [ft/s]	Area [ft²]	Wetted Perimeter [ft]	Top Width [ft]
	1346	2.98	1.41	2.12	8.42	8.32
0.25	1346.25	8.52	1.64	5.18	16.38	16.22
0.50	1346.5	20.25	1.98	10.24	24.52	24.28
0.75	1346.75	40.15	2.32	17.33	32.77	32.47
1.00	1347	70.02	2.65	26.47	41.02	40.66
1.25	1347.25	111.51	2.96	37.66	49.27	48.85
1.50	1347.5	166.15	3.26	50.9	57.52	57.03
1.75	1347.75	228.61	3.45	66.22	68.81	68.27
2.00	1348	229.3	2.4	95.5	171.12	170.56
2.25	1348.25	380.78	2.62	145.38	228.6	228.02
2.50	1348.5	609.09	2.9	209.89	283.01	282.32
2.75	1348.75	898.05	3.16	284.57	338.37	337.39
3.00	1349	1276.96	3.34	382.7	418.54	417.25
3.25	1349.25	1876.25	3.84	488.79	433.23	431.42
3.50	1349.5	2582.93	4.32	598.33	444.68	442.36

Entellus

SHEET	3	OF	4
BY	RLJ	DATE	5/2/2011
CHECK	AMB	DATE	4/7/2011

CLIENT: FCDMC

JOB: Palo Verde Watershed Detailed Floodplain Delineation Study

JOB NO. 310.047

Split Flow Analysis for: **T2N-R6W-S05W - Split 2**

Split Flow Location: **Approximately 0.5 miles south of CAP**

Analysis Method: **Wash Normal Depth Analysis Using Manning's Equation**

Main Split Data

Slope (ft/ft)
0.011

Raw Cross-Section Data			Raw Cross-Section Data		
Station [ft]	Elevation [ft]	N	Station [ft]	Elevation [ft]	N
0.00	1348.80		428.10	1348.52	
0.00	1348.60		429.43	1348.54	
0.10	1348.59		429.84	1348.54	
11.29	1348.58		431.13	1348.52	
50.54	1348.33		468.95	1348.16	
63.46	1348.30		500.41	1348.21	
74.11	1348.20		504.97	1348.18	
111.90	1347.89		517.17	1348.11	
156.09	1347.64		560.13	1347.77	
159.80	1347.61		569.92	1347.78	
161.40	1347.58		596.90	1348.06	
176.58	1347.66		609.57	1348.36	
190.38	1347.73		624.98	1348.35	
190.68	1347.74		642.80	1348.40	
192.12	1347.49				
194.25	1347.04				
198.59	1346.21				
200.42	1346.59				
206.21	1347.70				
213.20	1347.63				
226.52	1347.55				
247.71	1347.88				
258.68	1348.01				
276.65	1348.45	0.044			
278.68	1348.50				
279.59	1348.37				
293.33	1346.46				
304.84	1346.27				
324.60	1346.13				
328.21	1346.59	0.058			
329.44	1346.74				
337.12	1348.07				
359.45	1347.89				
368.40	1347.87				
372.16	1347.73				
382.08	1347.75				
389.47	1347.71				
402.08	1348.25				
403.61	1348.32				
423.02	1348.48				

	Flow Master Output					
Stage [ft]	WSE [ft]	Q [ft³/s]	Vel [ft/s]	Area [ft²]	Wetted Perimeter [ft]	Top Width [ft]
	1346.0					
0.25	1346.3	0.4	0.4	1.1	18.3	18.3
0.50	1346.5	8.6	1.0	8.5	37.5	37.4
0.75	1346.8	28.9	1.6	18.6	43.9	43.7
1.00	1347.0	60.4	2.0	30.3	49.9	49.6
1.25	1347.3	103.0	2.4	43.4	55.7	55.3
1.50	1347.5	156.9	2.7	57.9	61.5	61.1
1.75	1347.8	157.1	1.9	82.7	173.2	172.7
2.00	1348.0	254.9	1.8	144.7	324.9	324.3
2.25	1348.3	465.5	1.9	242.6	467.4	466.8
2.50	1348.5	810.5	2.2	377.6	612.0	611.3
2.75	1348.8	1413.9	2.6	536.7	643.9	642.8
3.00	1349.0	2186.6	3.1	697.4	644.4	642.8
3.25	1349.3	3087.8	3.6	858.1	644.9	642.8
3.50	1349.5	4108.5	4.0	1018.8	645.4	642.8

Entellus

SHEET	4	OF	4
BY	RLJ	DATE	5/2/2011
CHECK	AMB	DATE	4/7/2011

CLIENT: FCDMC

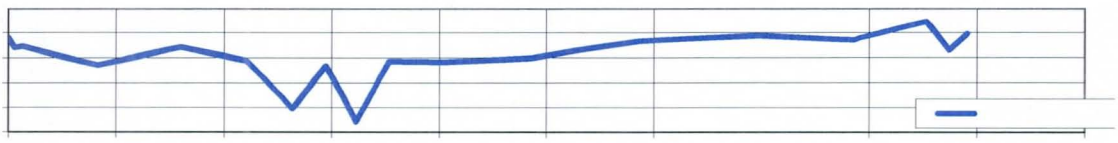
JOB: Palo Verde Watershed Detailed Floodplain Delineation Study **JOB NO.** 310.047

Split Flow Analysis for: T2N-R6W-S05W - Split 2

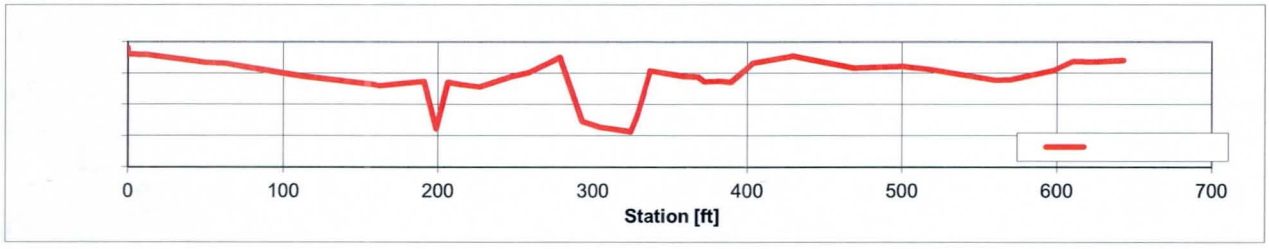
Split Flow Location: Approximately 0.5 miles south of CAP

Analysis Method: Wash Normal Depth Analysis Using Manning's Equation

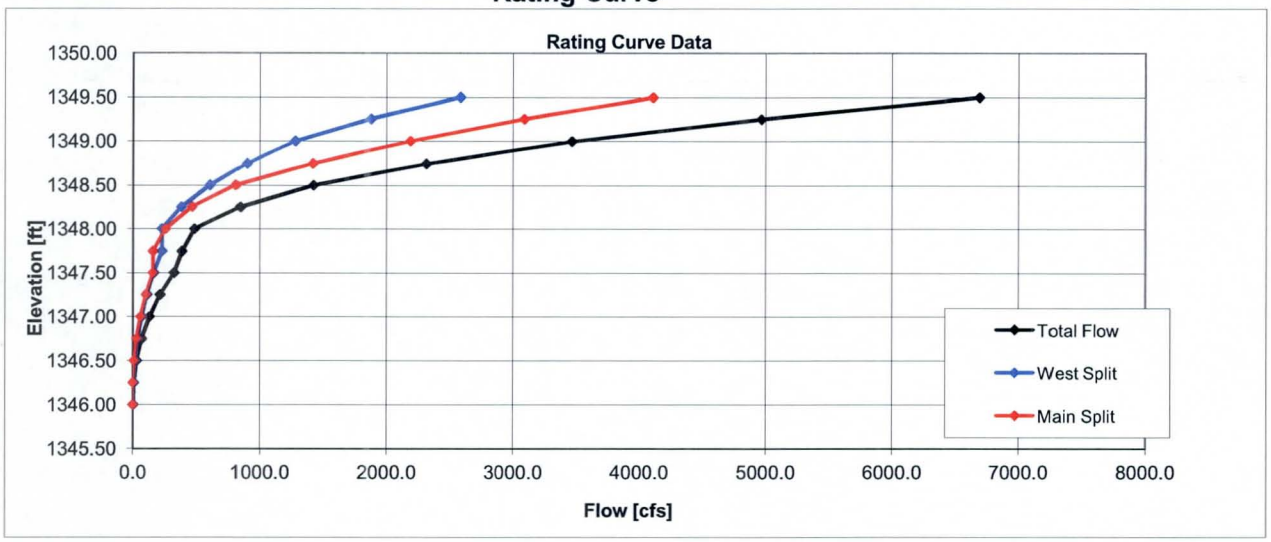
West Split Data



Main Split Data



Rating Curve



Entellus

SHEET	1	OF	4
BY	AL	DATE	9/15/2010
CHECK	AMB	DATE	4/7/2011

CLIENT: FCDMC

JOB: Palo Verde Watershed Detailed Floodplain Delineation Study **JOB NO.** 310.047

Split Flow Analysis for: **T2N-R6W-S05W - Split 3**

Split Flow Location: **Approximately 0.5 miles south of CAP**

Analysis Method: **Wash Normal Depth Analysis Using Manning's Equation**

	Slope (ft/ft)
West Split	0.0105
Main Split	0.0151

Total Flow		West Split	Main Split	West Split	Main Split
Stage [ft]	Q [cfs]	Q [cfs]	Q [cfs]	%	%
1335.00	0.6	0.0	0.6	0%	100%
1335.20	2.6	0.0	2.6	0%	100%
1335.40	8.8	0.1	8.7	1%	99%
1335.60	25.8	0.9	24.9	3%	97%
1335.80	52.4	3.1	49.3	6%	94%
1336.00	89.8	7.0	82.8	8%	92%
1336.20	129.7	10.6	119.1	8%	92%
1336.40	207.9	26.9	181.0	13%	87%
1336.60	312.6	52.7	259.9	17%	83%
1336.80	433.3	86.0	347.3	20%	80%
1337.00	576.7	123.9	452.8	21%	79%
1337.20	733.1	163.8	569.3	22%	78%
1337.40	965.0	212.2	752.8	22%	78%
1337.60	1240.5	259.6	980.9	21%	79%
1337.80	1594.3	338.6	1255.7	21%	79%
1338.00	1965.8	430.2	1535.6	22%	78%

Entellus

SHEET	2	OF	4
BY	AL	DATE	9/15/2010
CHECK	AMB	DATE	4/7/2011
JOB NO.	310.047		

CLIENT: FCDMC

JOB: Palo Verde Watershed Detailed Floodplain Delineation Study

Split Flow Analysis for: 2N-R6W-S05W - Split

Split Flow Location: Approximately 0.5 miles south of CAP

Analysis Method: Wash Normal Depth Analysis Using Manning's Equation

West Split Data

Slope (ft/ft)
0.0105

Raw Cross-Section Data			Raw Cross-Section Data		
Station [ft]	Elevation [ft]	N	Station [ft]	Elevation [ft]	N
0.00	1338.55				
8.59	1338.71				
15.87	1338.91				
20.18	1338.84				
54.60	1338.66				
64.47	1338.07				
66.46	1337.84				
68.97	1337.39				
78.84	1335.25				
82.34	1335.63				
87.17	1336.26				
87.17	1336.27				
96.43	1336.16				
96.88	1336.15				
107.59	1336.03				
117.90	1336.99				
121.19	1337.25				
123.90	1337.40				
124.89	1337.42				
140.42	1337.67				
149.71	1337.17				
153.09	1336.94				
162.73	1337.64				
163.86	1337.72				
164.84	1337.74				
198.84	1338.20				
200.96	1338.17				
201.06	1338.17	0.044			

	Flow Master Output					
Stage [ft]	WSE [ft]	Q [ft³/s]	Vel [ft/s]	Area [ft²]	Wetted Perimeter [ft]	Top Width [ft]
	1335.0					
0.20	1335.2					
0.40	1335.4	0.1	0.6	0.2	2.1	2.1
0.60	1335.6	0.9	1.1	0.9	4.9	4.8
0.80	1335.8	3.1	1.5	2.1	7.4	7.3
1.00	1336.0	7.0	1.9	3.8	9.9	9.8
1.20	1336.2	10.6	1.4	7.4	28.8	28.6
1.40	1336.4	26.9	1.9	14.5	38.2	38.0
1.60	1336.6	52.7	2.4	22.4	41.3	41.1
1.80	1336.8	86.0	2.8	30.9	44.4	44.2
2.00	1337.0	123.9	3.1	40.1	49.3	49.0
2.20	1337.2	163.8	3.2	50.8	58.6	58.2
2.40	1337.4	212.2	3.3	63.5	69.4	69.0
2.60	1337.6	259.6	3.3	79.3	89.2	88.7
2.80	1337.8	338.6	3.4	98.5	103.0	102.6
3.00	1338.0	430.2	3.6	120.7	119.5	119.0

Entellus

SHEET	3	OF	4
BY	AL	DATE	9/15/2010
CHECK	AMB	DATE	4/7/2011
JOB NO.	310.047		

CLIENT: FCDMC

JOB: Palo Verde Watershed Detailed Floodplain Delineation Study

Split Flow Analysis for: 2N-R6W-S05W - Split

Split Flow Location: Approximately 0.5 miles south of CAP

Analysis Method: Wash Normal Depth Analysis Using Manning's Equation

Main Split Data

Slope (ft/ft)
0.0151

Raw Cross-Section Data			Raw Cross-Section Data		
Station [ft]	Elevation [ft]	N	Station [ft]	Elevation [ft]	N
0.00	1338.11		388.19	1335.46	
0.10	1338.11		393.01	1334.72	
2.09	1338.09		396.11	1335.11	
40.82	1337.85		400.81	1336.02	
63.34	1337.78		422.16	1336.63	
90.15	1337.89		426.03	1336.70	0.058
121.26	1338.03		431.75	1336.80	
134.65	1338.10		458.30	1337.30	
137.72	1338.08		470.05	1337.51	
157.15	1337.99		502.67	1337.84	
157.93	1337.90	0.044	508.07	1337.89	
164.08	1337.19		529.08	1337.95	
166.72	1336.89		533.42	1337.89	
169.96	1337.06		534.69	1337.79	0.044
178.33	1337.46		538.90	1337.47	
189.38	1336.05		539.90	1337.47	
193.91	1335.32		550.23	1337.60	
209.95	1335.20		554.91	1337.65	
211.13	1335.19		556.65	1337.76	
211.95	1335.33		561.61	1337.89	0.060
213.96	1335.39		563.79	1337.94	
221.46	1336.08		582.41	1337.94	
224.31	1336.07	0.058	598.65	1338.03	
228.90	1336.06		624.45	1338.17	
235.33	1336.29		637.35	1338.21	
247.20	1337.09		644.99	1338.20	
254.92	1337.11		658.16	1337.67	
267.05	1337.00		661.87	1337.59	
276.29	1337.25		684.16	1337.57	
324.28	1337.24		684.62	1337.56	
326.02	1337.24		685.01	1337.61	
326.57	1337.24		688.92	1338.01	
327.44	1337.23		692.53	1338.38	
357.05	1336.81	0.044	692.82	1338.39	
361.32	1336.75		694.30	1338.38	
366.38	1335.92		694.35	1338.38	0.058
373.20	1334.84		728.79	1338.13	
379.87	1336.03		747.73	1337.75	
381.14	1336.11		753.80	1337.61	
386.15	1335.67		757.24	1337.27	

	Flow Master Output					
Stage [ft]	WSE [ft]	Q [ft³/s]	Vel [ft/s]	Area [ft²]	Wetted Perimeter [ft]	Top Width [ft]
	1335.0	0.6	0.8	0.7	6.0	6.0
0.20	1335.2	2.6	1.1	2.4	12.4	12.2
0.40	1335.4	8.7	1.1	7.8	36.6	36.4
0.60	1335.6	24.9	1.6	15.9	45.3	44.9
0.80	1335.8	49.3	1.9	25.8	54.3	53.9
1.00	1336.0	82.8	2.2	37.5	63.5	63.0
1.20	1336.2	119.1	2.3	52.7	87.6	87.1
1.40	1336.4	181.0	2.5	71.6	101.6	101.0
1.60	1336.6	259.9	2.8	93.1	114.3	113.7
1.80	1336.8	347.3	3.0	117.5	134.0	133.4
2.00	1337.0	452.8	3.1	147.2	166.4	165.7
2.20	1337.2	569.3	3.0	187.1	228.7	228.0
2.40	1337.4	752.8	3.1	243.5	305.3	304.5
2.60	1337.6	980.9	3.2	307.9	363.6	362.7
2.80	1337.8	1255.7	3.2	388.4	460.2	459.3
3.00	1338.0	1535.6	3.1	499.1	652.7	651.7

Entellus

SHEET	4	OF	4
BY	AL	DATE	9/15/2010
CHECK	AMB	DATE	4/7/2011

CLIENT: FCDMC

JOB: Palo Verde Watershed Detailed Floodplain Delineation Study

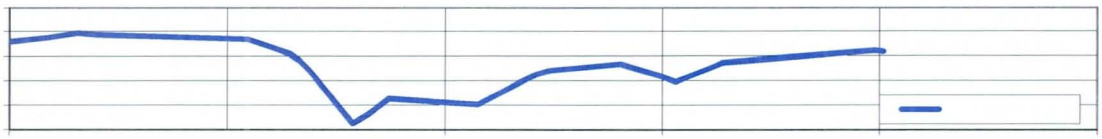
JOB NO. 310.047

Split Flow Analysis for: 2N-R6W-S05W - Split

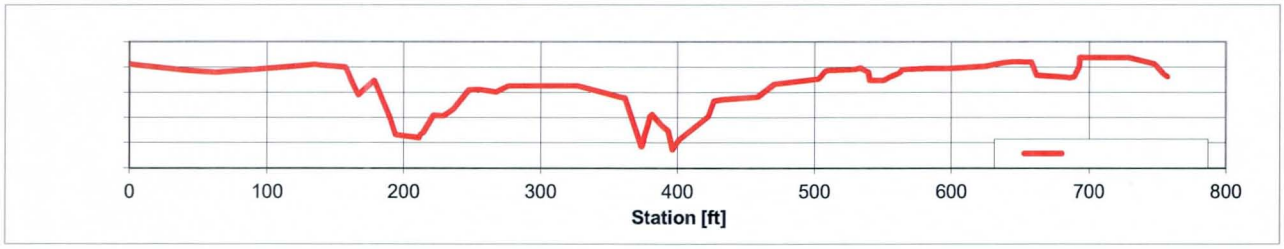
Split Flow Location: Approximately 0.5 miles south of CAP

Analysis Method: Wash Normal Depth Analysis Using Manning's Equation

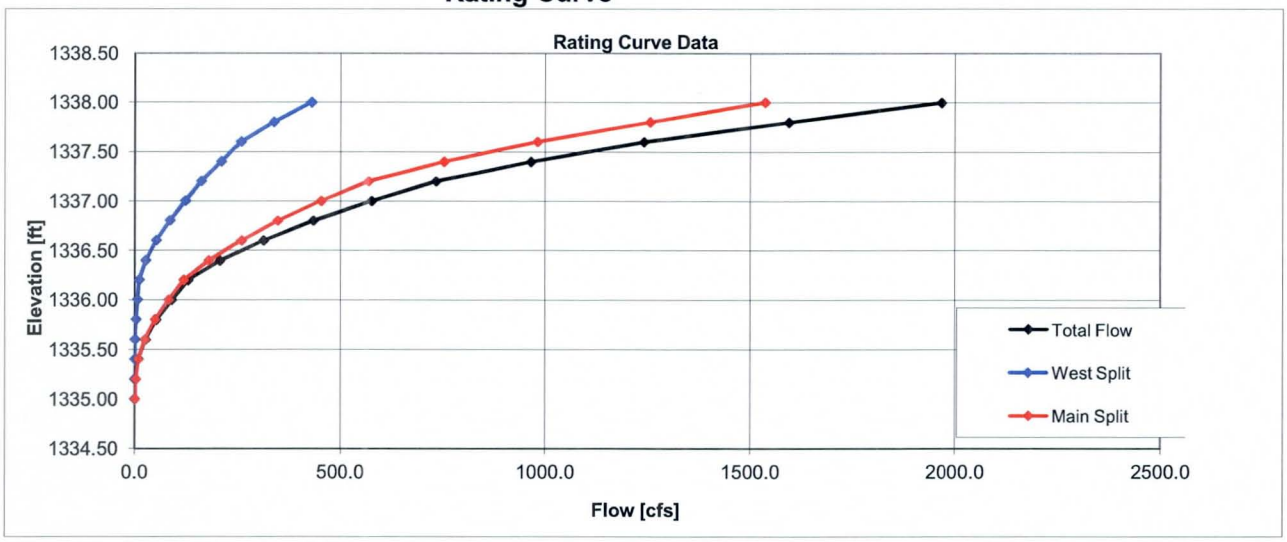
West Split Data



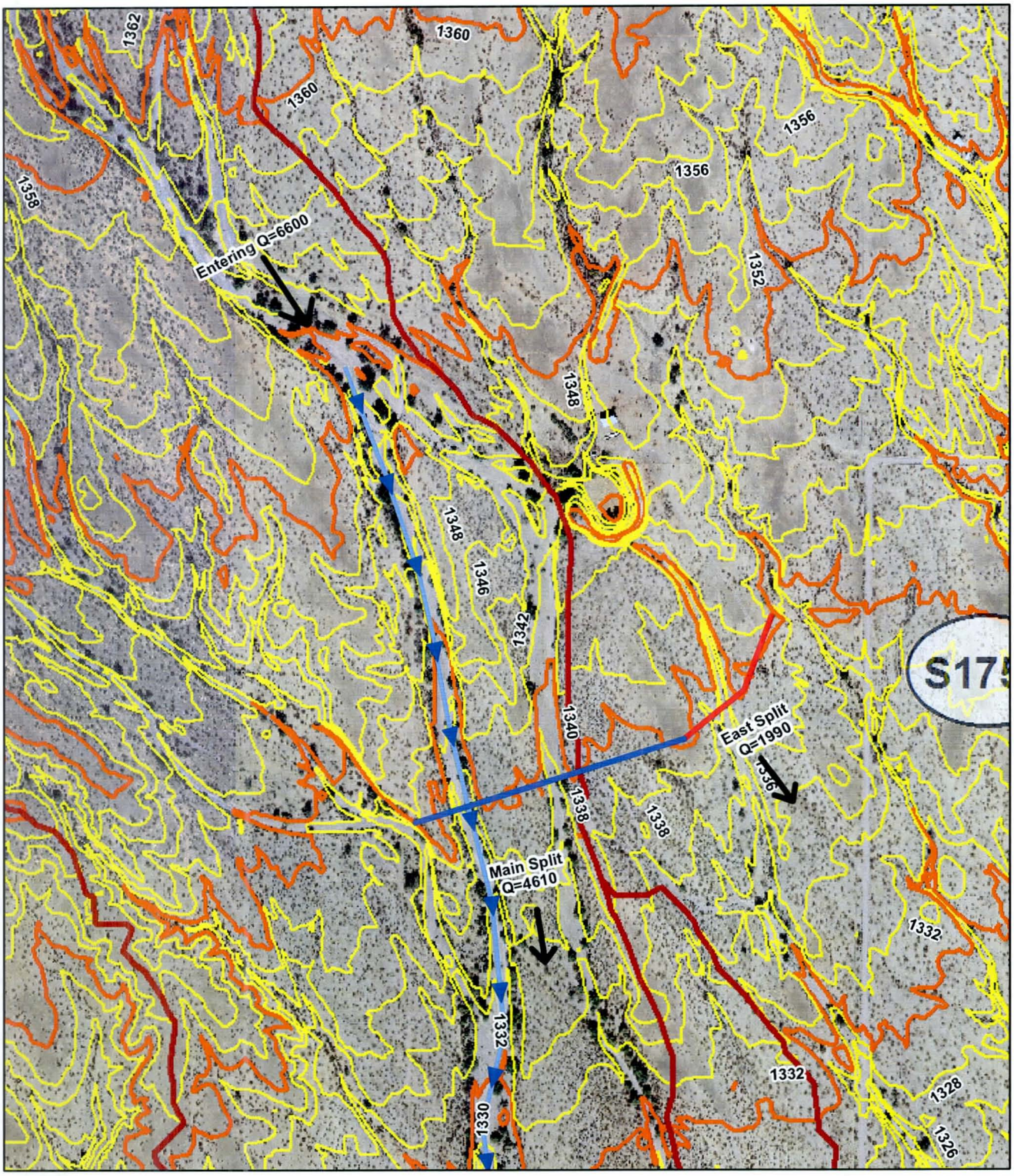
Main Split Data



Rating Curve



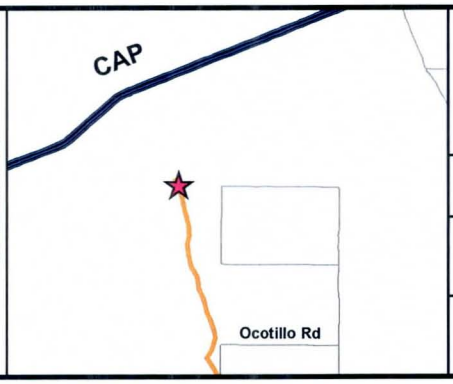
T2N-R7W-S32E Split Flow Supporting Documentation



LEGEND

- T2N-R7W-S32E
- Wash Flow Cross Section
- Split Flow Cross Section
- Hydrology Subbasin
- S750E Hydrology Subbasin ID
- C750C L Concentration Point ID

VICINITY MAP



PALO VERDE WATERSHED
DETAILED FLOODPLAIN
DELINEATION STUDY
FCD 2008C046

NORTH

0 250 500 Feet

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Web. www.entellus.com

T2N-R7W-S32E SPLIT 1
NEAR CROSS SECTION 5.281

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Entellus

SHEET	1	OF	4
BY	AMB	DATE	11/1/2010
CHECK	HAA	DATE	4/4/2011

CLIENT: FCDMC

JOB: Palo Verde Watershed Detailed Floodplain Delineation Study **JOB NO.** 310.047

Split Flow Analysis for: **T2N-R7W-S32E - Split 1 (Near cross section 5.281)**

Split Flow Location: **~0.5 miles south of C135 (CAP Canal) near stock pond**

Analysis Method: **Wash Normal Depth Analysis Using Manning's Equation**

	Slope (ft/ft)
Main Split	0.009
East Split	0.0074

Total Flow		Main Split	East Split	Main Split	East Split
Stage [ft]	Q [cfs]	Q [cfs]	Q [cfs]	%	%
1334.00	0.0	0.0	0.0		
1334.50	0.0	0.0	0.0		
1335.00	1.7	0.0	1.7	0%	100%
1335.50	16.2	0.4	15.8	2%	98%
1336.00	57.5	12.4	45.1	22%	78%
1336.50	142.4	54.6	87.8	38%	62%
1337.00	269.1	133.9	135.2	50%	50%
1337.50	452.7	259.6	193.1	57%	43%
1338.00	665.8	392.8	273.0	59%	41%
1338.50	1056.3	653.4	402.9	62%	38%
1339.00	1495.4	927.9	567.5	62%	38%
1339.50	1907.0	1143.3	763.7	60%	40%
1340.00	2801.4	1797.8	1003.6	64%	36%
1340.50	4535.8	3119.5	1416.3	69%	31%
1341.00	7516.7	5245.5	2271.2	70%	30%
1341.50	11007.9	7805.5	3202.4	71%	29%
1342.00	15217.4	10753.3	4464.1	71%	29%
1342.50	20036.9	14063.3	5973.6	70%	30%
1343.00	25550.2	17715.4	7834.8	69%	31%

Entellus

SHEET	2	OF	4
BY	AMB	DATE	11/1/2010
CHECK	HAA	DATE	4/4/2011

CLIENT: FCDMC

JOB: Palo Verde Watershed Detailed Floodplain Delineation Study **JOB NO.** 310.047

Split Flow Analysis for: T2N-R7W-S32E - Split 1 (Near cross section 5.281)

Split Flow Location: ~0.5 miles south of C135 (CAP Canal) near stock pond

Analysis Method: Wash Normal Depth Analysis Using Manning's Equation

Main Split Data

Slope (ft/ft)
0.009

Raw Cross-Section Data			Raw Cross-Section Data		
Station [ft]	Elevation [ft]	N	Station [ft]	Elevation [ft]	N
9304.72	1340.37		9735.44	1338.93	
9304.82	1340.37		9741.27	1339.39	
9305.93	1340.38		9751.04	1339.93	
9330.21	1340.42		9760.76	1340.00	
9349.56	1340.26		9769.93	1339.85	
9360.36	1340.15		9778.11	1339.72	
9380.41	1339.95		9789.87	1339.75	
9388.00	1339.81		9795.87	1339.59	
9415.72	1339.50		9803.81	1339.81	
9421.27	1339.45		9813.83	1339.83	
9440.49	1338.57		9837.59	1340.13	
9446.72	1338.75		9844.19	1340.15	
9465.38	1339.46		9866.93	1340.27	
9480.93	1339.36		9874.30	1340.23	
9485.27	1339.33		9881.34	1339.97	
9491.64	1339.30		9891.94	1339.46	
9513.78	1339.44		9893.91	1339.45	
9529.24	1339.46		9899.75	1339.60	
9534.89	1339.55		9928.63	1339.91	
9537.95	1339.51		9933.15	1339.69	
9551.79	1339.09		9945.76	1338.88	
9559.95	1338.64		9960.18	1337.50	
9563.27	1338.53		9961.44	1337.36	
9567.66	1338.87		9962.33	1337.30	
9575.12	1339.14		9978.41	1336.04	
9591.93	1339.02		9988.82	1335.86	
9604.64	1339.30		9993.88	1335.73	
9631.83	1339.81		10007.00	1335.43	
9636.76	1339.95		10011.37	1335.30	
9637.61	1339.95		10020.29	1337.77	
9655.38	1340.07		10020.75	1337.89	
9662.55	1339.93		10022.61	1337.99	
9671.23	1339.46		10038.86	1337.89	
9677.67	1339.49		10049.04	1338.24	
9686.25	1338.77		10049.74	1338.28	
9689.16	1338.40		10050.09	1338.30	
9696.86	1338.05		10062.02	1339.32	
9706.23	1337.40		10077.96	1340.76	
9720.42	1336.43		10078.05	1340.76	
9724.63	1336.40		10078.75	1340.78	0.058
9731.91	1338.14				

	Flow Master Output					
Stage [ft]	WSE [ft]	Q [ft³/s]	Vel [ft/s]	Area [ft²]	Wetted Perimeter [ft]	Top Width [ft]
0.00	1334.0					
0.50	1334.5					
1.00	1335.0					
1.50	1335.5	0.4	0.5	0.8	8.2	8.2
2.00	1336.0	12.4	1.2	10.8	33.3	33.2
2.50	1336.5	54.6	1.8	30.7	49.0	48.8
3.00	1337.0	133.9	2.3	59.5	66.8	66.4
3.50	1337.5	259.6	2.7	97.1	84.1	83.6
4.00	1338.0	392.8	2.7	144.2	121.5	120.9
4.50	1338.5	653.4	3.1	212.1	148.6	147.8
5.00	1339.0	927.9	3.1	299.6	208.2	207.2
5.50	1339.5	1143.3	2.6	440.7	399.6	398.5
6.00	1340.0	1797.8	2.6	692.9	628.1	627.0
6.50	1340.5	3119.5	3.0	1047.2	771.7	770.4
7.00	1341.0	5245.5	3.7	1433.6	776.1	774.0
7.50	1341.5	7805.5	4.3	1820.6	777.1	774.0
8.00	1342.0	10753.3	4.9	2207.6	778.1	774.0
8.50	1342.5	14063.3	5.4	2594.6	779.1	774.0
9.00	1343.0	17715.4	5.9	2981.7	780.1	774.0

Entellus

SHEET	3	OF	4
BY	AMB	DATE	11/1/2010
CHECK	HAA	DATE	4/4/2011

CLIENT: FCDMC

JOB: Palo Verde Watershed Detailed Floodplain Delineation Study **JOB NO.** 310.047

Split Flow Analysis for: **T2N-R7W-S32E - Split 1 (Near cross section 5.281)**

Split Flow Location: **~0.5 miles south of C135 (CAP Canal) near stock pond**

Analysis Method: **Wash Normal Depth Analysis Using Manning's Equation**

East Split Data

Slope (ft/ft)
0.0074

Raw Cross-Section Data			Raw Cross-Section Data		
Station [ft]	Elevation [ft]	N	Station [ft]	Elevation [ft]	N
9715.94	1342.22		10116.15	1339.90	
9716.04	1342.22		10144.49	1340.36	
9741.60	1341.93		10145.03	1340.36	
9755.66	1341.54		10145.52	1340.36	
9764.46	1341.44		10152.08	1340.37	
9792.15	1341.13		10152.18	1340.37	0.052
9801.75	1341.13				
9836.71	1340.35				
9847.18	1340.06				
9862.56	1339.56				
9870.23	1339.28				
9872.38	1339.34				
9887.94	1340.04				
9901.66	1339.97				
9922.95	1340.19				
9948.01	1340.09				
9951.13	1340.11				
9956.40	1340.05				
9972.13	1339.54				
9985.82	1338.70				
9988.42	1338.52				
9998.17	1335.08				
10000.00	1334.60				
10003.46	1334.77				
10014.03	1335.22				
10019.88	1337.03				
10025.46	1337.78				
10037.15	1338.33				
10038.99	1338.34				
10040.72	1338.29				
10049.33	1337.78				
10058.21	1336.88				
10059.11	1336.71				
10063.54	1337.52				
10069.55	1338.62				
10071.85	1338.84				
10077.85	1338.89				
10091.42	1339.13				
10112.08	1339.74				
10114.43	1339.80				

	Flow Master Output					
Stage [ft]	WSE [ft]	Q [ft³/s]	Vel [ft/s]	Area [ft²]	Wetted Perimeter [ft]	Top Width [ft]
0.00	1334.0					
0.50	1334.5					
1.00	1335.0	1.7	0.8	2.0	10.5	10.4
1.50	1335.5	15.8	1.6	9.7	18.2	18.0
2.00	1336.0	45.1	2.3	19.5	21.3	21.0
2.50	1336.5	87.8	2.9	30.7	24.5	24.0
3.00	1337.0	135.2	3.1	44.0	31.5	30.7
3.50	1337.5	193.1	3.1	62.5	44.3	43.4
4.00	1338.0	273.0	3.1	87.9	61.9	60.8
4.50	1338.5	402.9	3.3	124.0	81.7	80.4
5.00	1339.0	567.5	3.4	168.1	104.4	103.1
5.50	1339.5	763.7	3.3	228.6	144.2	142.9
6.00	1340.0	1003.6	3.2	314.4	212.5	211.2
6.50	1340.5	1416.3	3.1	457.5	323.7	322.2
7.00	1341.0	2271.2	3.6	624.2	346.6	344.6
7.50	1341.5	3202.4	4.0	808.7	395.5	393.0
8.00	1342.0	4464.1	4.4	1010.8	419.8	416.8
8.50	1342.5	5973.6	4.9	1226.8	440.0	436.2
9.00	1343.0	7834.8	5.4	1444.9	441.0	436.2

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BY	AMB	DATE	11/1/2010
CHECK	HAA	DATE	4/4/2011

CLIENT: FCDMC

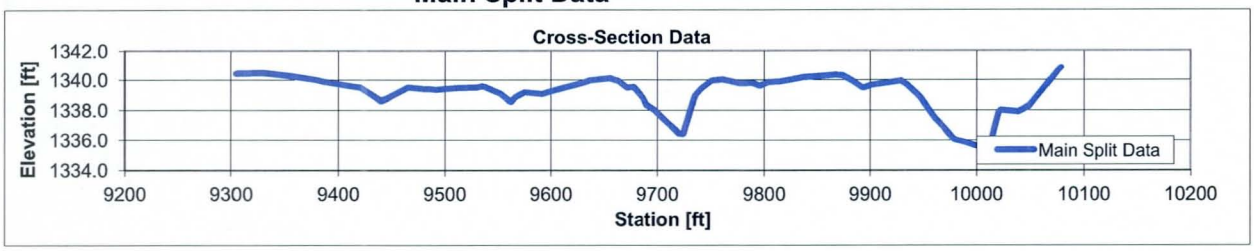
JOB: Palo Verde Watershed Detailed Floodplain Delineation Study **JOB NO.** 310.047

Split Flow Analysis for: T2N-R7W-S32E - Split 1 (Near cross section 5.281)

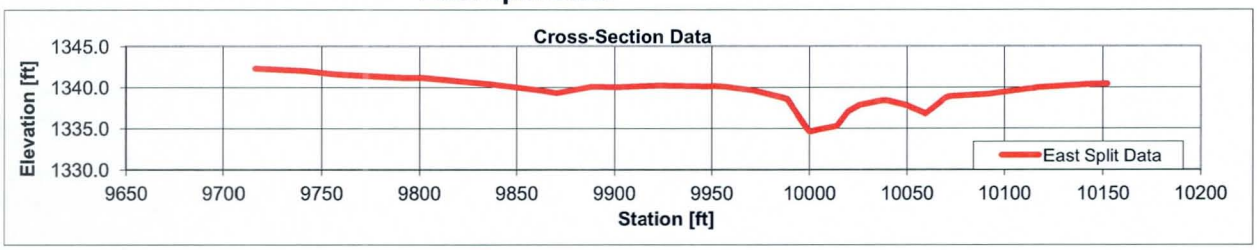
Split Flow Location: ~0.5 miles south of C135 (CAP Canal) near stock pond

Analysis Method: Wash Normal Depth Analysis Using Manning's Equation

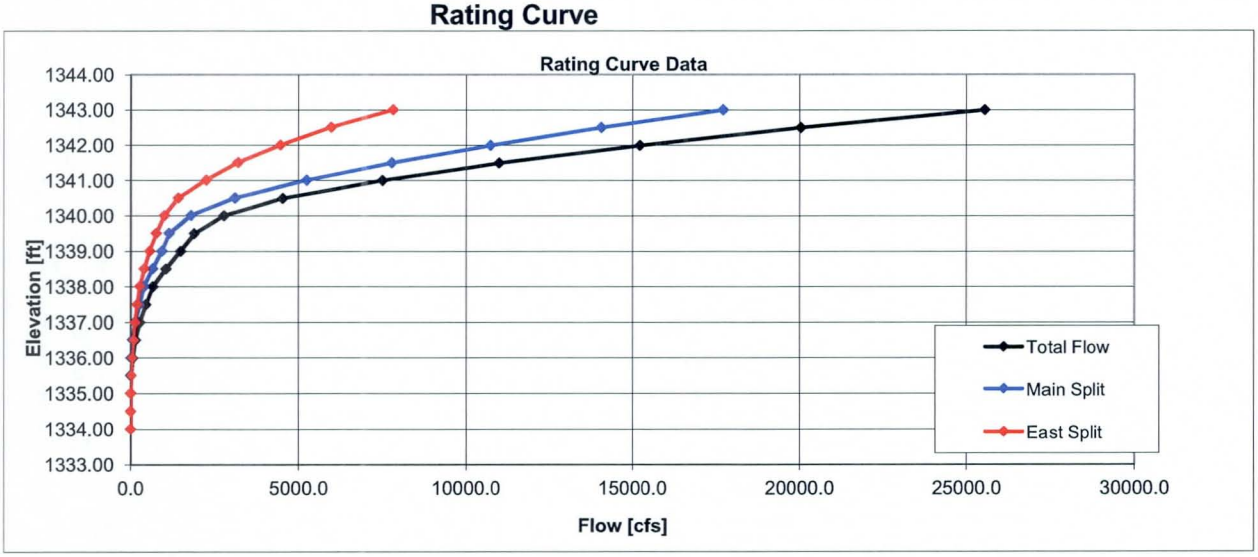
Main Split Data

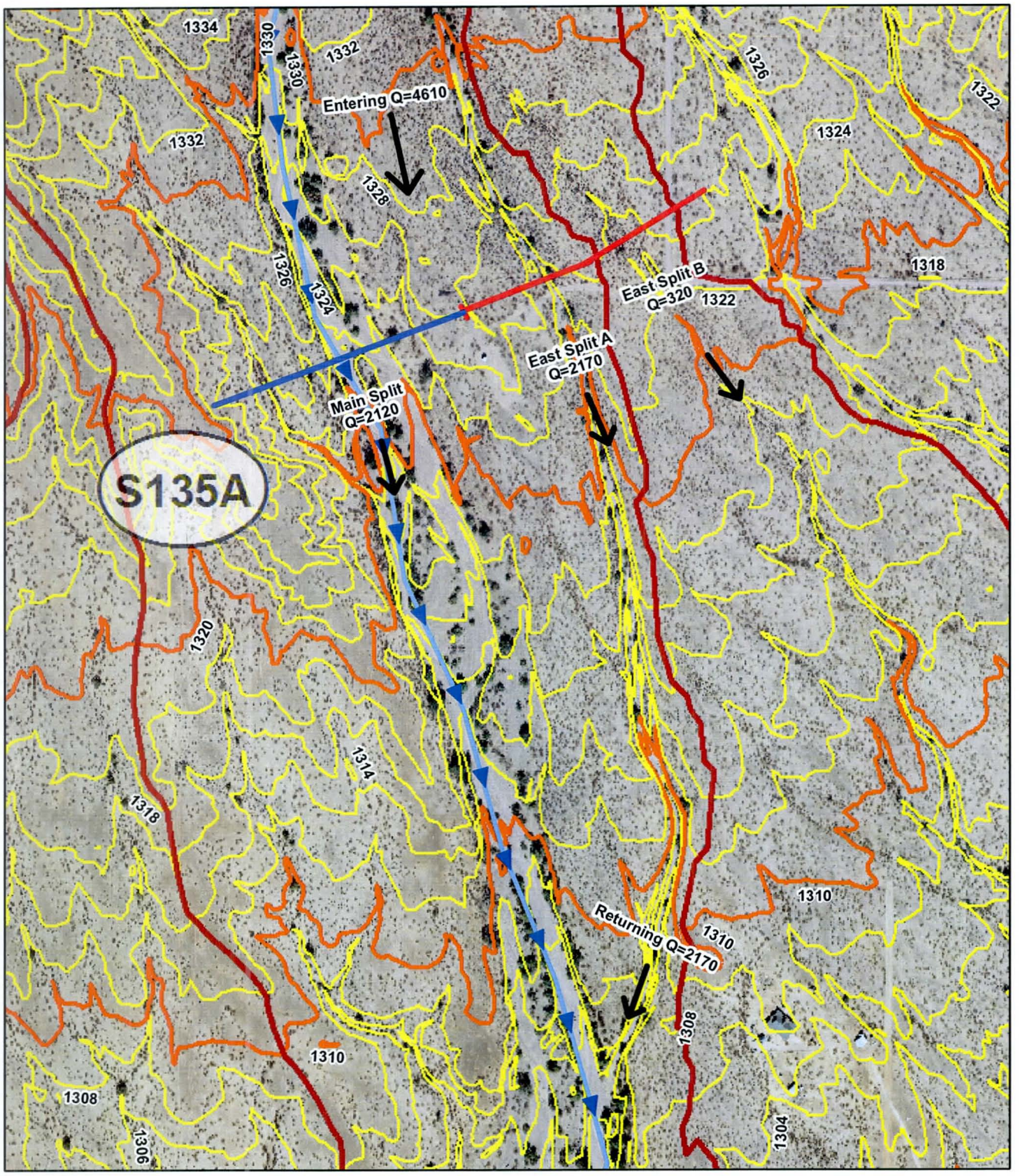


East Split Data



Rating Curve

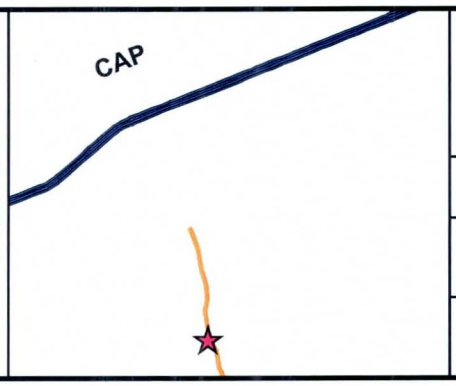




LEGEND

- T2N-R7W-S32E
- Wash Flow Cross Section
- Split Flow Cross Section
- Hydrology Subbasin
- S750E — Hydrology Subbasin ID
- C750C L — Concentration Point ID

VICINITY MAP



PALO VERDE WATERSHED
DETAILED FLOODPLAIN
DELINEATION STUDY
FCD 2008C046

NORTH

0 250 500 Feet

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T2N-R7W-S32E SPLIT 2
NEAR CROSS SECTION 4.912

P:\300\310\310047_Palo_Verde\Global_Data\Hydraulics\RiverCAD\T2N_R7W_S20E\Spitflow Analysis\Split2.mxd

Entellus

SHEET	1	OF	5
BY	AMB	DATE	11/1/2010
CHECK	HAA	DATE	4/4/2011

CLIENT: FCDMC

JOB: Palo Verde Watershed Detailed Floodplain Delineation Study JOB NO. 310.047

Split Flow Analysis for: **T2N-R7W-S32E - Split 2 (Near cross section 4.912)**

Split Flow Location: **~2000 feet south of stock pond (@ East Split-1)**

Analysis Method: **Wash Normal Depth Analysis Using Manning's Equation**

	Slope (ft/ft)
East Split A	0.00750
East Split B	0.00899
Main Split	0.00600

Total Flow		East Split A	East Split B	Main Split	East Split A	East Split B	Main Split
Stage [ft]	Q [cfs]	Q [cfs]	Q [cfs]	Q [cfs]	%	%	%
1320.00	0.0	0.0	0.0	0.0			
1320.25	0.8	0.4	0.0	0.4	50%	0%	50%
1320.50	10.1	4.8	0.0	5.3	48%	0%	52%
1320.75	30.0	14.4	0.0	15.6	48%	0%	52%
1321.00	71.8	34.2	0.0	37.6	48%	0%	52%
1321.25	133.4	63.6	0.0	69.8	48%	0%	52%
1321.50	235.3	113.3	0.0	122.0	48%	0%	52%
1321.75	370.4	180.9	0.0	189.5	49%	0%	51%
1322.00	548.7	271.2	0.0	277.5	49%	0%	51%
1322.25	747.7	372.3	0.4	375.0	50%	0%	50%
1322.50	997.9	492.2	5.7	500.0	49%	1%	50%
1322.75	1264.5	609.7	20.7	634.1	48%	2%	50%
1323.00	1617.0	783.0	46.9	787.1	48%	3%	49%
1323.25	2187.0	1046.4	95.3	1045.3	48%	4%	48%
1323.50	2868.3	1388.0	164.9	1315.4	48%	6%	46%
1323.75	3764.2	1823.4	231.1	1709.7	48%	6%	45%
1324.00	4804.7	2270.9	353.2	2180.6	47%	7%	45%
1324.25	5949.9	2707.6	552.3	2690.0	46%	9%	45%
1324.50	7140.5	3130.4	793.4	3216.7	44%	11%	45%
1324.75	8880.4	3915.8	1032.0	3932.6	44%	12%	44%
1325.00	10693.1	4639.1	1380.0	4674.0	43%	13%	44%
1325.25	12906.3	5565.9	1930.2	5410.2	43%	15%	42%
1325.50	15489.8	6589.5	2551.1	6349.2	43%	16%	41%
1325.75	18254.3	7673.1	3238.6	7342.6	42%	18%	40%
1326.00	21141.0	8781.3	3989.3	8370.4	42%	19%	40%
1326.25	24493.5	10073.8	4800.4	9619.3	41%	20%	39%
1326.50	28315.8	11597.7	5669.5	11048.6	41%	20%	39%
1326.75	32368.4	13205.5	6594.4	12568.5	41%	20%	39%
1327.00	36645.4	14894.9	7573.2	14177.3	41%	21%	39%

Entellus

SHEET	2	OF	5
BY	AMB	DATE	11/1/2010
CHECK	HAA	DATE	4/4/2011

CLIENT: FCDMC

JOB: Palo Verde Watershed Detailed Floodplain Delineation Study **JOB NO.** 310.047

Split Flow Analysis for: T2N-R7W-S32E - Split 2 (Near cross section 4.912)

Split Flow Location: ~2000 feet south of stock pond (@ East Split-1)

Analysis Method: Wash Normal Depth Analysis Using Manning's Equation

East Split A Data

Slope (ft/ft)
0.0075

Raw Cross-Section Data			Raw Cross-Section Data		
Station [ft]	Elevation [ft]	N	Station [ft]	Elevation [ft]	N
9256.57	1324.10		9782.93	1322.19	
9256.67	1324.10		9797.64	1322.62	
9259.97	1324.13		9811.56	1322.86	
9261.52	1324.12		9830.86	1322.96	
9262.89	1324.12		9836.57	1323.03	
9300.05	1323.82		9838.93	1323.04	
9312.56	1323.29		9855.81	1322.56	
9346.55	1323.08		9869.25	1320.94	
9354.69	1322.73		9869.96	1320.94	
9367.09	1322.56		9875.32	1320.97	
9374.53	1321.59		9876.54	1320.99	
9378.06	1320.94		9891.73	1321.17	
9382.39	1321.24		9917.13	1321.75	
9385.02	1321.39		9923.64	1321.95	
9386.36	1321.64		9945.43	1322.55	
9393.72	1322.39		9957.87	1322.76	
9406.56	1322.62		9965.24	1322.94	
9427.46	1323.08		9968.59	1322.17	
9449.53	1323.99		9976.67	1320.66	
9452.04	1324.10		9983.61	1320.74	
9453.81	1324.11		10006.99	1320.23	
9455.32	1324.15		10015.70	1320.17	
9494.43	1324.40		10018.67	1320.05	
9534.98	1324.28		10022.14	1320.85	
9559.03	1324.34		10029.71	1322.66	
9573.38	1324.16		10034.96	1323.34	
9577.60	1324.19		10038.50	1323.49	
9581.59	1324.56		10041.43	1323.52	
9602.02	1326.15		10054.28	1323.38	
9605.85	1326.08		10054.52	1323.37	
9622.38	1325.98		10054.83	1323.40	
9641.21	1325.77		10064.00	1324.23	0.058
9645.87	1325.77				
9660.17	1325.61				
9706.32	1324.97				
9726.08	1324.99				
9739.68	1324.90				
9761.81	1324.47				
9771.37	1323.03				
9777.96	1322.14				

	Flow Master Output					
Stage [ft]	WSE [ft]	Q [ft³/s]	Vel [ft/s]	Area [ft²]	Wetted Perimeter [ft]	Top Width [ft]
0.00	1320.0					
0.25	1320.3	0.4	0.4	1.0	13.4	13.4
0.50	1320.5	4.8	0.8	5.8	25.4	25.4
0.75	1320.8	14.4	1.0	14.1	45.6	45.5
1.00	1321.0	34.2	1.3	26.2	57.9	57.8
1.25	1321.3	63.6	1.4	44.3	85.2	84.9
1.50	1321.5	113.3	1.7	68.1	104.7	104.4
1.75	1321.8	180.9	1.9	96.5	124.3	123.8
2.00	1322.0	271.2	2.1	129.6	141.6	141.0
2.25	1322.3	372.3	2.2	167.6	167.3	166.6
2.50	1322.5	492.2	2.3	213.1	200.6	199.8
2.75	1322.8	609.7	2.3	270.2	263.4	262.5
3.00	1323.0	783.0	2.3	343.9	330.9	329.9
3.25	1323.3	1046.4	2.4	432.4	379.6	378.6
3.50	1323.5	1388.0	2.6	530.9	415.0	413.9
3.75	1323.8	1823.4	2.9	637.3	435.2	434.1
4.00	1324.0	2270.9	3.0	749.5	469.7	468.5
4.25	1324.3	2707.6	3.1	873.2	528.5	527.2
4.50	1324.5	3130.4	3.1	1021.9	629.9	628.0
4.75	1324.8	3915.8	3.3	1180.9	646.3	643.9
5.00	1325.0	4639.1	3.5	1344.8	693.7	690.8
5.25	1325.3	5565.9	3.7	1520.4	717.4	714.0
5.50	1325.5	6589.5	3.9	1701.4	737.7	733.8
5.75	1325.8	7673.1	4.1	1887.5	761.1	756.7
6.00	1326.0	8781.3	4.2	2081.0	793.4	788.5
6.25	1326.3	10073.8	4.4	2281.7	812.9	807.4
6.50	1326.5	11597.7	4.7	2483.6	813.4	807.4
6.75	1326.8	13205.5	4.9	2685.5	813.9	807.4
7.00	1327.0	14894.9	5.2	2887.3	814.4	807.4

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SHEET	3	OF	5
BY	AMB	DATE	11/1/2010
CHECK	HAA	DATE	4/4/2011

CLIENT: FCDMC

JOB: Palo Verde Watershed Detailed Floodplain Delineation Study **JOB NO.** 310.047

Split Flow Analysis for: T2N-R7W-S32E - Split 2 (Near cross section 4.912)

Split Flow Location: ~2000 feet south of stock pond (@ East Split-1)

Analysis Method: Wash Normal Depth Analysis Using Manning's Equation

East Split B Data

Slope (ft/ft)
0.00899

Raw Cross-Section Data			Raw Cross-Section Data		
Station [ft]	Elevation [ft]	N	Station [ft]	Elevation [ft]	N
9786.70	1324.80		10145.63	1324.13	
9786.80	1324.80		10145.73	1324.13	0.044
9790.89	1324.90				
9803.94	1324.96				
9806.07	1324.95				
9843.50	1324.54				
9844.80	1324.52				
9845.10	1324.52				
9845.52	1324.52				
9867.16	1324.78				
9874.56	1324.78				
9877.15	1324.77				
9888.10	1324.56				
9894.93	1324.62				
9904.27	1324.34				
9916.00	1324.44				
9920.54	1324.38				
9932.12	1324.16				
9958.06	1323.79				
9960.09	1323.76				
9963.32	1323.62				
9977.73	1322.97				
9980.14	1322.88				
9984.28	1322.96				
9993.82	1322.56				
10006.49	1322.16				
10009.66	1322.18				
10015.18	1322.55				
10024.49	1322.98				
10030.07	1323.30				
10031.60	1323.39				
10035.82	1322.90				
10042.96	1322.06				
10046.36	1322.52				
10050.86	1323.20				
10063.31	1323.86				
10067.05	1323.89				
10077.56	1323.51				
10078.83	1323.51				
10099.76	1323.57				

	Flow Master Output					
Stage [ft]	WSE [ft]	Q [ft³/s]	Vel [ft/s]	Area [ft²]	Wetted Perimeter [ft]	Top Width [ft]
0.00	1320.0					
0.25	1320.3					
0.50	1320.5					
0.75	1320.8					
1.00	1321.0					
1.25	1321.3					
1.50	1321.5					
1.75	1321.8					
2.00	1322.0					
2.25	1322.3	0.4	0.5	0.7	10.1	10.1
2.50	1322.5	5.7	1.1	5.2	25.8	25.7
2.75	1322.8	20.7	1.5	13.5	41.1	41.0
3.00	1323.0	46.9	1.8	26.2	62.5	62.4
3.25	1323.3	95.3	2.2	43.5	76.9	76.7
3.50	1323.5	164.9	2.6	64.6	90.8	90.5
3.75	1323.8	231.1	2.4	95.4	144.7	144.5
4.00	1324.0	353.2	2.6	137.7	191.9	191.6
4.25	1324.3	552.3	2.9	189.7	218.7	218.4
4.50	1324.5	793.4	3.2	247.7	247.4	246.8
4.75	1324.8	1032.0	3.3	316.8	308.8	307.9
5.00	1325.0	1380.0	3.4	401.2	360.4	359.0
5.25	1325.3	1930.2	3.9	491.0	360.9	359.0
5.50	1325.5	2551.1	4.4	580.7	361.4	359.0
5.75	1325.8	3238.6	4.8	670.5	361.9	359.0
6.00	1326.0	3989.3	5.3	760.2	362.4	359.0
6.25	1326.3	4800.4	5.7	850.0	362.9	359.0
6.50	1326.5	5669.5	6.0	939.8	363.4	359.0
6.75	1326.8	6594.4	6.4	1029.5	363.9	359.0
7.00	1327.0	7573.2	6.8	1119.3	364.4	359.0

Entellus

SHEET	4	OF	5
BY	AMB	DATE	11/1/2010
CHECK	HAA	DATE	4/4/2011

CLIENT: FCDMC

JOB: Palo Verde Watershed Detailed Floodplain Delineation Study **JOB NO.** 310.047

Split Flow Analysis for: T2N-R7W-S32E - Split 2 (Near cross section 4.912)

Split Flow Location: ~2000 feet south of stock pond (@ East Split-1)

Analysis Method: Wash Normal Depth Analysis Using Manning's Equation

Main Split Data

Slope (ft/ft)
0.006

Raw Cross-Section Data			Raw Cross-Section Data		
Station [ft]	Elevation [ft]	N	Station [ft]	Elevation [ft]	N
0.00	1326.12		434.23	1323.52	
0.10	1326.12		447.20	1323.37	
2.96	1326.10		447.34	1323.37	
32.30	1325.77		447.51	1323.39	
39.35	1325.77		456.83	1324.23	
60.42	1325.54		459.26	1324.05	
71.77	1325.36		471.94	1323.17	
75.85	1325.30		479.61	1323.31	
99.36	1325.01		483.11	1323.27	
116.76	1325.02		487.00	1323.17	
132.23	1324.92		497.38	1323.64	
149.34	1324.59		511.87	1324.39	
154.67	1324.49		522.52	1324.47	
162.16	1323.36		534.61	1324.34	
170.94	1322.17		538.23	1324.42	
177.46	1322.23		541.60	1324.21	
190.75	1322.62		564.97	1323.51	
203.47	1322.84		567.96	1323.58	
221.31	1322.93		571.61	1323.42	
229.22	1323.03		583.87	1323.35	
232.45	1323.04		595.80	1323.01	
248.75	1322.58		601.35	1322.91	
261.27	1321.06		603.00	1322.65	
262.13	1320.96		609.57	1321.69	
262.41	1320.96		617.42	1322.62	
266.61	1320.98		618.37	1322.73	
267.97	1320.98		618.97	1322.70	
268.16	1320.98		620.43	1322.79	
284.94	1321.18		632.81	1323.29	
299.46	1321.53		637.99	1323.65	
309.98	1321.75		648.93	1324.13	
315.64	1321.92		666.66	1324.33	
338.24	1322.55		672.54	1324.48	
351.00	1322.76		700.86	1325.53	
358.06	1322.94		701.13	1325.54	
361.27	1322.20		722.23	1326.62	
369.47	1320.67		729.74	1327.23	
376.27	1320.75		747.21	1328.54	
387.56	1320.51		758.03	1329.95	
399.76	1320.23		758.76	1329.99	
408.51	1320.17		758.97	1330.01	
411.46	1320.05		766.05	1330.24	
414.91	1320.85		777.32	1330.57	
422.50	1322.67		779.12	1330.58	
427.75	1323.34		803.38	1330.58	
431.28	1323.49		803.48	1330.58	0.058

	Flow Master Output					
Stage [ft]	WSE [ft]	Q [ft³/s]	Vel [ft/s]	Area [ft²]	Wetted Perimeter [ft]	Top Width [ft]
0.00	1320.0					
0.25	1320.3	0.4	0.4	1.0	13.5	13.4
0.50	1320.5	5.3	0.9	5.8	25.5	25.4
0.75	1320.8	15.6	1.1	14.0	45.5	45.4
1.00	1321.0	37.6	1.5	25.9	56.0	55.9
1.25	1321.3	69.8	1.6	42.9	78.6	78.4
1.50	1321.5	122.0	1.9	64.4	93.5	93.2
1.75	1321.8	189.5	2.1	89.7	110.7	110.3
2.00	1322.0	277.5	2.3	119.4	127.6	127.1
2.25	1322.3	375.0	2.4	153.6	152.6	152.1
2.50	1322.5	500.0	2.6	195.1	180.1	179.4
2.75	1322.8	634.1	2.6	244.5	221.8	220.9
3.00	1323.0	787.1	2.6	307.0	283.4	282.5
3.25	1323.3	1045.3	2.7	382.1	319.9	318.9
3.50	1323.5	1315.4	2.8	468.8	378.0	377.0
3.75	1323.8	1709.7	3.0	568.1	412.2	411.2
4.00	1324.0	2180.6	3.2	674.2	439.2	438.1
4.25	1324.3	2690.0	3.4	787.5	472.7	471.5
4.50	1324.5	3216.7	3.5	910.9	520.2	518.9
4.75	1324.8	3932.6	3.8	1043.2	540.0	538.8
5.00	1325.0	4674.0	4.0	1180.7	567.9	566.7
5.25	1325.3	5410.2	4.1	1330.3	614.6	613.4
5.50	1325.5	6349.2	4.3	1486.8	638.4	637.1
5.75	1325.8	7342.6	4.5	1649.3	665.3	664.1
6.00	1326.0	8370.4	4.6	1820.4	699.5	698.3
6.25	1326.3	9619.3	4.8	1997.7	716.4	715.0
6.50	1326.5	11048.6	5.1	2177.1	721.5	719.9
6.75	1326.8	12568.5	5.3	2357.6	725.7	723.8
7.00	1327.0	14177.3	5.6	2538.9	729.1	726.9

Entellus

SHEET	5	OF	5
BY	AMB	DATE	11/1/2010
CHECK	HAA	DATE	4/4/2011

CLIENT: FCDMC

JOB: Palo Verde Watershed Detailed Floodplain Delineation Study

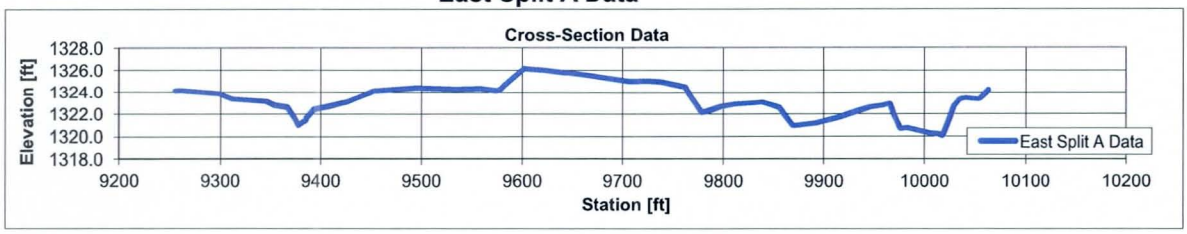
JOB NO. 310.047

Split Flow Analysis for: **T2N-R7W-S32E - Split 2 (Near cross section 4.912)**

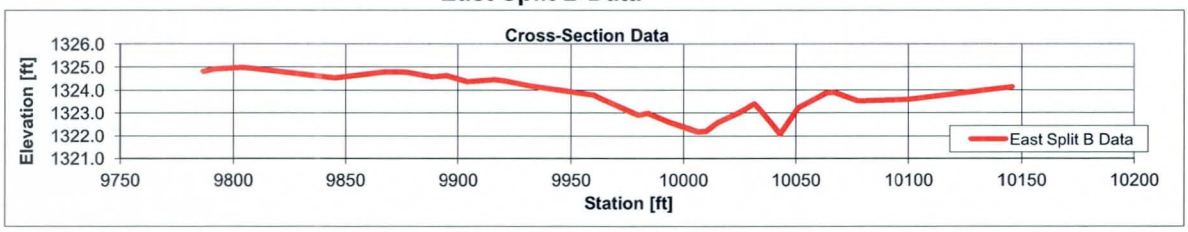
Split Flow Location: **~2000 feet south of stock pond (@ East Split-1)**

Analysis Method: **Wash Normal Depth Analysis Using Manning's Equation**

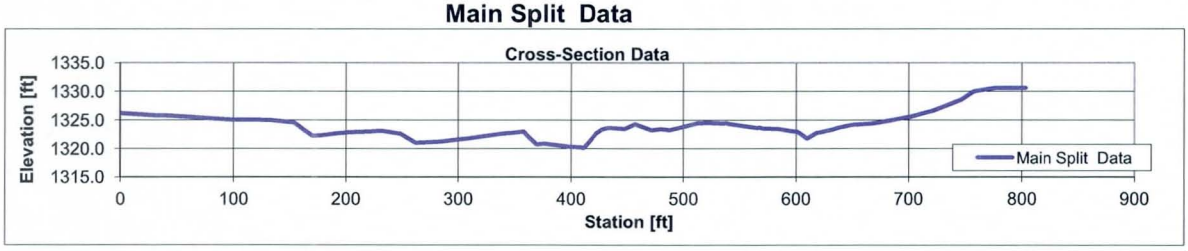
East Split A Data



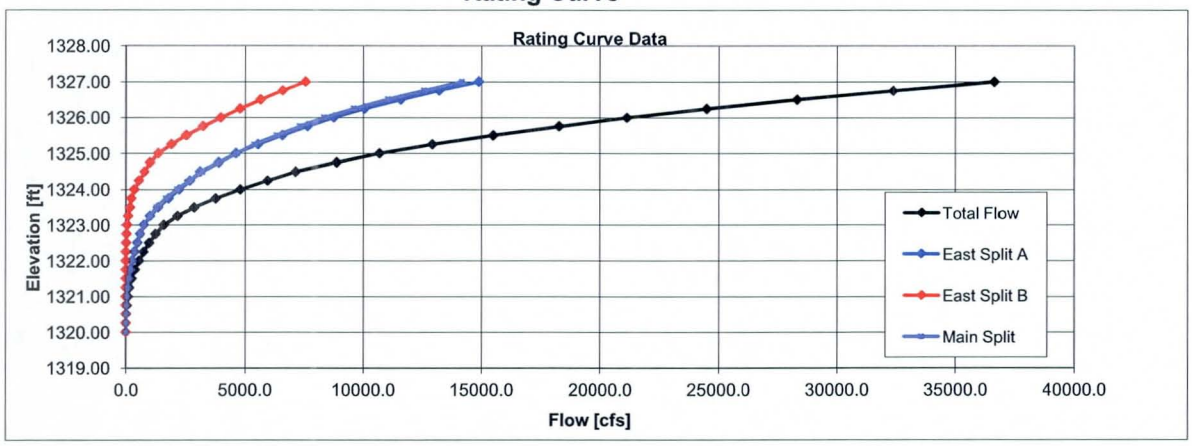
East Split B Data



Main Split Data



Rating Curve



E.5.2 Agreement Tables

The agreement tables under this appendix is part of the check and verification of channel lengths and top widths as measured in HEC-RAS and the workmaps. Comments are provided where special considerations were found.

T2N-R6W-S05W
Agreement Table

AGREEMENT TABLE

Map Tolerance (1/20th map scale)= 20 Feet

Study Name: *Palo Verde Watershed Detailed Floodplain Delineation Study*
Stream Name : T2N-R6S-05W

XS NUMBER	XLCH		TOPWIDTH										REMARKS
			FLOODPLAIN					FLOODWAY					
	HEC-RAS	MAP	HEC-RAS w/out Dry Areas	Diff. (Map vs. w/out)	HEC-RAS with Dry Areas	Diff. (Map vs. with)	MAP	HEC-RAS w/out Dry Areas	Diff. (Map vs. w/out)	HEC-RAS with Dry Areas	Diff. (Map vs. with)	MAP	
3.993	375	376	10	0	10	0	10	NA	NA	NA	NA	NA	
3.922	303	305	148	0	148	0	148	NA	NA	NA	NA	NA	
3.865	505	506	242	13	255	0	255	NA	NA	NA	NA	NA	See "NOTE" below.
3.769	276	276	987	-1	987	-1	986	NA	NA	NA	NA	NA	
3.717	372	373	965	1	965	1	966	NA	NA	NA	NA	NA	
3.647	326	327	839	6	846	-1	845	NA	NA	NA	NA	NA	
3.585	413	413	979	1	979	1	980	NA	NA	NA	NA	NA	
3.507	436	436	339	-1	339	-1	338	NA	NA	NA	NA	NA	
3.424	452	454	580	6	586	0	586	NA	NA	NA	NA	NA	
3.338	412	414	420	186	607	-1	606	NA	NA	NA	NA	NA	See "NOTE" below.
3.260	329	331	628	60	687	1	688	NA	NA	NA	NA	NA	See "NOTE" below.
3.198	457	459	674	91	763	2	765	NA	NA	NA	NA	NA	See "NOTE" below.
3.111	518	520	1031	41	1072	0	1072	NA	NA	NA	NA	NA	See "NOTE" below.
3.013	441	444	1072	212	1282	2	1284	NA	NA	NA	NA	NA	See "NOTE" below.
2.930	404	410	772	336	1108	0	1108	NA	NA	NA	NA	NA	See "NOTE" below.
2.853	427	444	790	474	1264	0	1264	NA	NA	NA	NA	NA	See "NOTE" below.
2.772	327	312	1262	166	1427	1	1428	NA	NA	NA	NA	NA	See "NOTE" below.
2.710	254	255	1533	-1	1533	-1	1532	NA	NA	NA	NA	NA	
2.662	435	434	1575	40	1616	-1	1615	NA	NA	NA	NA	NA	See "NOTE" below.
2.580	440	441	1053	2	1055	0	1055	NA	NA	NA	NA	NA	
2.497	356	356	864	99	963	0	963	NA	NA	NA	NA	NA	See "NOTE" below.
2.429	223	223	1103	6	1110	-1	1109	NA	NA	NA	NA	NA	
2.387	277	277	594	1	594	1	595	NA	NA	NA	NA	NA	
2.334	277	279	268	89	357	0	357	NA	NA	NA	NA	NA	See "NOTE" below.
2.282	502	501	444	78	522	0	522	NA	NA	NA	NA	NA	See "NOTE" below.
2.187	357	358	402	0	402	0	402	NA	NA	NA	NA	NA	
2.119	344	346	310	29	340	-1	339	NA	NA	NA	NA	NA	See "NOTE" below.
2.054	409	409	419	-3	419	-3	416	NA	NA	NA	NA	NA	
1.977	243	245	235	11	244	2	246	NA	NA	NA	NA	NA	See "NOTE" below.
1.931	450	450	280	-2	280	-2	278	NA	NA	NA	NA	NA	
1.845	310	313	334	-1	334	-1	333	NA	NA	NA	NA	NA	
1.787	448	450	789	-2	789	-2	787	NA	NA	NA	NA	NA	
1.702	436	437	832	48	880	0	880	NA	NA	NA	NA	NA	See "NOTE" below.
1.619	423	424	1184	0	1184	0	1184	NA	NA	NA	NA	NA	
1.539	455	457	1110	87	1197	0	1197	NA	NA	NA	NA	NA	See "NOTE" below.
1.453	502	502	913	119	1032	0	1032	NA	NA	NA	NA	NA	See "NOTE" below.
1.358	453	453	737	11	746	2	748	NA	NA	NA	NA	NA	See "NOTE" below.
1.272	324	324	453	0	453	0	453	NA	NA	NA	NA	NA	
1.211	353	353	569	0	569	0	569	NA	NA	NA	NA	NA	
1.144	471	471	658	0	658	0	658	NA	NA	NA	NA	NA	
1.055	319	319	782	0	782	0	782	NA	NA	NA	NA	NA	
0.994	398	398	1110	4	1114	0	1114	NA	NA	NA	NA	NA	
0.919			787	0	787	0	787	NA	NA	NA	NA	NA	

NOTE: "HEC-RAS"only reports widths of wetted portions. Small dry islands with elevations less than 1/2 contour interval (1 foot) above the water surface elevation were included in the floodplain (as shown on the workmaps).

T2N-R7W-S32E
Agreement Table

AGREEMENT TABLE

Map Tolerance (1/20th map scale)= 20 Feet

Study Name: *Palo Verde Watershed Detailed Floodplain Delineation Study*
Stream Name : T2N-R7W-S32E

XS NUMBER	XLCH		TOPWIDTH										REMARKS
			FLOODPLAIN					FLOODWAY					
	HEC-RAS	MAP	HEC-RAS w/out Dry Areas	Diff. (Map vs. w/out)	HEC-RAS with Dry Areas	Diff. (Map vs. with)	MAP	HEC-RAS w/out Dry Areas	Diff. (Map vs. w/out)	HEC-RAS with Dry Areas	Diff. (Map vs. with)	MAP	
5.495	333	336	710	0	710	0	710	NA	NA	NA	NA	NA	
5.432	314	310	150	0	150	0	150	NA	NA	NA	NA	NA	
5.372	184	185	243	0	243	0	243	NA	NA	NA	NA	NA	
5.337	299	298	187	0	187	0	187	NA	NA	NA	NA	NA	
5.281	507	501	263	0	263	0	263	NA	NA	NA	NA	NA	
5.185	389	389	228	0	228	0	228	NA	NA	NA	NA	NA	
5.111	277	274	270	0	270	0	270	NA	NA	NA	NA	NA	
5.058	336	335	270	0	270	0	270	NA	NA	NA	NA	NA	
4.995	438	435	329	0	329	0	329	NA	NA	NA	NA	NA	
4.912	358	362	289	0	289	0	289	NA	NA	NA	NA	NA	
4.844	441	425	428	0	428	0	428	NA	NA	NA	NA	NA	
4.760	404	403	378	0	378	0	378	NA	NA	NA	NA	NA	
4.684	402	398	293	0	293	0	293	NA	NA	NA	NA	NA	
4.608	408	391	210	0	210	0	210	NA	NA	NA	NA	NA	
4.530	310	314	555	0	555	0	555	NA	NA	NA	NA	NA	
4.472	209	211	383	0	383	0	383	NA	NA	NA	NA	NA	
4.432	414	409	582	9	591	0	591	NA	NA	NA	NA	NA	
4.354	344	328	534	14	548	0	548	NA	NA	NA	NA	NA	See NOTE below.
4.289	449	445	302	0	302	0	302	NA	NA	NA	NA	NA	
4.204	357	347	664	0	664	0	664	NA	NA	NA	NA	NA	
4.136	327	332	635	0	635	0	635	NA	NA	NA	NA	NA	
4.074	437	418	458	13	471	0	471	NA	NA	NA	NA	NA	See NOTE below.
3.991	395	397	430	0	430	0	430	NA	NA	NA	NA	NA	
3.917	396	398	507	0	507	0	507	NA	NA	NA	NA	NA	
3.842	365	369	614	0	614	0	614	NA	NA	NA	NA	NA	
3.772	451	450	758	7	765	0	765	NA	NA	NA	NA	NA	
3.687	349	344	1151	0	1151	0	1151	NA	NA	NA	NA	NA	
3.621	422	389	1015	54	1069	0	1069	NA	NA	NA	NA	NA	See NOTE below.
3.541	394	390	1066	0	1066	0	1066	NA	NA	NA	NA	NA	
3.466	454	455	1128	99	1227	0	1227	NA	NA	NA	NA	NA	See NOTE below.
3.380	397	394	1239	0	1239	0	1239	NA	NA	NA	NA	NA	
3.305	377	371	1189	65	1254	0	1254	NA	NA	NA	NA	NA	See NOTE below.
3.234	318	331	753	184	937	0	937	NA	NA	NA	NA	NA	See NOTE below.
3.174	392	386	1033	22	1055	0	1055	NA	NA	NA	NA	NA	See NOTE below.
3.099	375	375	970	402	1372	1	1372	NA	NA	NA	NA	NA	See NOTE below.
3.028	528	528	1072	55	1127	0	1127	NA	NA	NA	NA	NA	See NOTE below.
2.928	327	324	1205	69	1274	0	1274	NA	NA	NA	NA	NA	See NOTE below.
2.866	311	293	1194	0	1194	0	1194	NA	NA	NA	NA	NA	
2.807	253	260	1187	74	1261	0	1261	NA	NA	NA	NA	NA	See NOTE below.
2.759	290	287	1339	103	1442	0	1442	NA	NA	NA	NA	NA	See NOTE below.
2.705	343	339	1404	71	1475	0	1475	NA	NA	NA	NA	NA	See NOTE below.
2.640	359	325	1914	50	1956	8	1964	NA	NA	NA	NA	NA	See NOTE below.
2.572	334	356	1392	503	1895	0	1895	NA	NA	NA	NA	NA	See NOTE below.
2.508	365	359	1872	199	2071	0	2071	NA	NA	NA	NA	NA	See NOTE below.
2.439	78	84	1870	64	1945	-11	1934	NA	NA	NA	NA	NA	See NOTE below.
2.432	Culvert	Culvert	Culvert	Culvert	0	Culvert	Culvert	NA	NA	NA	NA	NA	I-10 North
2.424	57	62	2064	34	2103	-5	2098	NA	NA	NA	NA	NA	See NOTE below.
2.414	64	65	2584	-1	2584	-1	2583	NA	NA	NA	NA	NA	

AGREEMENT TABLE

Map Tolerance (1/20th map scale)= 20 Feet

Study Name: *Palo Verde Watershed Detailed Floodplain Delineation Study*
Stream Name : T2N-R7W-S32E

XS NUMBER	XLCH		TOPWIDTH										REMARKS
			FLOODPLAIN					FLOODWAY					
	HEC-RAS	MAP	HEC-RAS w/out Dry Areas	Diff. (Map vs. w/out)	HEC-RAS with Dry Areas	Diff. (Map vs. with)	MAP	HEC-RAS w/out Dry Areas	Diff. (Map vs. w/out)	HEC-RAS with Dry Areas	Diff. (Map vs. with)	MAP	
2.401	81	83	2644	0	2644	0	2644	NA	NA	NA	NA	NA	
2.396	Culvert	Culvert	Culvert	Culvert	0	Culvert	Culvert	NA	NA	NA	NA	NA	I-10 South
2.386			990	-1	990	-1	989	NA	NA	NA	NA	NA	

NOTE: "HEC-RAS"only reports widths of wetted portions. Small dry islands with elevations less than 1/2 contour interval (1 foot) above the water surface elevation were included in the floodplain (as shown on the workmaps).

E.6 HEC-RAS Output

T2N-R7W-S32E
HEC-RAS Output

HEC-RAS Plan: Current mode River: T2N_R7W_S32E Reach: T2N_R7W_S32E Profile: Floodplain

Reach	River Sta	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)	
T2N_R7W_S32E	2.386	6380.00	1215.71	1221.85	1221.85	1224.53	0.034384	13.23	488.50	990.19	0.98
T2N_R7W_S32E	2.396	Culvert									
T2N_R7W_S32E	2.401	6380.00	1216.63	1224.55	1220.75	1224.56	0.000119	1.16	7453.18	2644.12	0.08
T2N_R7W_S32E	2.414	6380.00	1217.00	1224.55	1220.51	1224.57	0.000155	1.23	6473.85	2583.77	0.09
T2N_R7W_S32E	2.424	6380.00	1216.93	1224.56	1222.06	1224.59	0.000345	1.76	4949.27	2063.53	0.12
T2N_R7W_S32E	2.432	Culvert									
T2N_R7W_S32E	2.439	6380.00	1217.82	1224.59	1222.54	1224.63	0.000510	1.79	4342.08	1869.90	0.13
T2N_R7W_S32E	2.508	3640.00	1220.67	1224.87	1223.82	1224.91	0.001626	1.80	2331.62	1872.01	0.21
T2N_R7W_S32E	2.572	3640.00	1223.62	1225.84	1225.66	1226.15	0.017978	3.46	844.17	1391.74	0.60
T2N_R7W_S32E	2.640	3640.00	1226.04	1228.79	1228.12	1228.91	0.004606	2.03	1352.53	1913.08	0.33
T2N_R7W_S32E	2.705	3640.00	1228.66	1231.43	1231.20	1231.61	0.012105	3.81	1099.16	1405.16	0.56
T2N_R7W_S32E	2.759	3640.00	1231.22	1233.69		1233.79	0.005534	2.61	1396.26	1337.92	0.38
T2N_R7W_S32E	2.807	3640.00	1233.70	1235.89	1235.81	1236.16	0.016614	4.34	897.40	1188.79	0.64
T2N_R7W_S32E	2.866	3640.00	1236.83	1238.34		1238.45	0.005169	2.10	1382.95	1193.61	0.36
T2N_R7W_S32E	2.928	3640.00	1239.13	1240.70	1240.33	1240.88	0.010449	2.73	1087.67	1207.21	0.53
T2N_R7W_S32E	3.028	3640.00	1242.64	1244.50		1244.62	0.004257	1.35	1362.68	1072.13	0.28
T2N_R7W_S32E	3.099	3640.00	1245.98	1247.31	1247.12	1247.58	0.017140	2.93	870.92	973.25	0.57
T2N_R7W_S32E	3.174	3640.00	1249.11	1250.90	1250.24	1251.03	0.005898	2.28	1254.38	1032.70	0.37
T2N_R7W_S32E	3.234	3640.00	1251.59	1253.37	1253.06	1253.65	0.012189	3.52	858.08	753.08	0.52
T2N_R7W_S32E	3.305	3640.00	1254.19	1257.19	1256.85	1257.35	0.008747	3.72	1154.29	1188.92	0.47
T2N_R7W_S32E	3.380	3640.00	1256.40	1260.26	1259.90	1260.41	0.008564	3.68	1201.76	1239.12	0.46
T2N_R7W_S32E	3.466	3640.00	1259.26	1264.30		1264.45	0.008977	3.06	1154.83	1129.14	0.45
T2N_R7W_S32E	3.541	4290.00	1263.89	1267.99		1268.18	0.009696	3.15	1248.99	1065.56	0.48
T2N_R7W_S32E	3.621	4290.00	1266.98	1270.66	1269.98	1270.85	0.006735	1.87	1294.26	1014.52	0.37
T2N_R7W_S32E	3.687	4290.00	1271.11	1274.21	1273.95	1274.43	0.012585	3.67	1187.09	1150.94	0.55
T2N_R7W_S32E	3.772	4290.00	1273.60	1277.79	1277.15	1277.99	0.006284	4.04	1219.01	757.95	0.43
T2N_R7W_S32E	3.842	4290.00	1275.73	1280.66		1281.01	0.010774	5.62	942.70	614.36	0.56
T2N_R7W_S32E	3.917	4290.00	1278.82	1283.94		1284.20	0.006329	4.56	1043.64	507.16	0.44
T2N_R7W_S32E	3.991	4290.00	1281.17	1287.00		1287.47	0.010563	6.02	828.23	430.23	0.57
T2N_R7W_S32E	4.074	4290.00	1285.22	1290.83		1291.20	0.007643	5.65	935.38	457.88	0.50
T2N_R7W_S32E	4.136	4290.00	1287.61	1293.24		1293.50	0.006663	4.64	1104.00	634.75	0.45
T2N_R7W_S32E	4.204	4290.00	1291.13	1295.79	1295.48	1296.12	0.008715	5.39	1008.95	663.50	0.53
T2N_R7W_S32E	4.289	4290.00	1294.67	1299.40		1299.82	0.008228	5.04	824.44	301.59	0.50
T2N_R7W_S32E	4.354	4290.00	1297.09	1301.91		1302.22	0.008106	5.18	1008.25	534.00	0.50
T2N_R7W_S32E	4.432	4290.00	1300.30	1304.87		1305.09	0.006960	4.04	1137.73	581.63	0.45
T2N_R7W_S32E	4.472	4290.00	1301.92	1306.57		1307.02	0.012242	5.97	826.42	383.21	0.62
T2N_R7W_S32E	4.530	4290.00	1304.99	1309.40		1309.63	0.006061	4.43	1126.88	554.64	0.43
T2N_R7W_S32E	4.608	2120.00	1308.61	1312.05		1312.35	0.008143	4.42	480.47	210.27	0.51
T2N_R7W_S32E	4.684	2120.00	1311.79	1315.85		1316.10	0.010782	4.02	527.08	292.66	0.53
T2N_R7W_S32E	4.760	2120.00	1314.79	1319.30		1319.46	0.006563	3.29	669.23	378.03	0.41
T2N_R7W_S32E	4.844	2120.00	1318.39	1322.41		1322.60	0.007790	3.62	622.61	428.06	0.47
T2N_R7W_S32E	4.912	2120.00	1322.02	1325.38	1324.74	1325.66	0.009156	4.38	514.35	289.15	0.51
T2N_R7W_S32E	4.995	2120.00	1325.16	1329.12		1329.37	0.008023	4.22	548.55	328.70	0.48
T2N_R7W_S32E	5.058	2120.00	1328.08	1331.98		1332.31	0.009513	4.87	474.82	269.93	0.55
T2N_R7W_S32E	5.111	2120.00	1330.84	1334.37		1334.61	0.007186	4.10	547.22	269.75	0.45
T2N_R7W_S32E	5.185	2120.00	1333.52	1337.62		1338.17	0.011413	6.41	387.38	227.98	0.66
T2N_R7W_S32E	5.281	2120.00	1337.29	1342.50		1342.90	0.007772	5.18	453.69	263.24	0.49
T2N_R7W_S32E	5.337	2120.00	1339.36	1344.73		1345.05	0.006646	4.68	478.69	187.46	0.45
T2N_R7W_S32E	5.372	2120.00	1340.73	1346.00		1346.41	0.007939	5.58	451.41	243.39	0.54
T2N_R7W_S32E	5.432	2120.00	1344.76	1348.94		1349.46	0.011986	5.82	369.97	149.55	0.61
T2N_R7W_S32E	5.495	6600.00	1348.15	1352.74		1353.13	0.009620	5.53	1362.30	709.74	0.54

T2N-R6W-S05W
HEC-RAS Output

HEC-RAS Plan: Current mode River: T2N_R7W_S32E Reach: T2N_R7W_S32E Profile: Floodplain

Reach	River Sta	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)	
T2N_R7W_S32E	2.386	6380.00	1215.71	1221.85	1221.85	1224.53	0.034384	13.23	488.50	990.19	0.98
T2N_R7W_S32E	2.396	Culvert									
T2N_R7W_S32E	2.401	6380.00	1216.63	1224.55	1220.75	1224.56	0.000119	1.16	7453.18	2644.12	0.08
T2N_R7W_S32E	2.414	6380.00	1217.00	1224.55	1220.51	1224.57	0.000155	1.23	6473.85	2583.77	0.09
T2N_R7W_S32E	2.424	6380.00	1216.93	1224.56	1222.06	1224.59	0.000345	1.76	4949.27	2063.53	0.12
T2N_R7W_S32E	2.432	Culvert									
T2N_R7W_S32E	2.439	6380.00	1217.82	1224.59	1222.54	1224.63	0.000510	1.79	4342.08	1869.90	0.13
T2N_R7W_S32E	2.508	3640.00	1220.67	1224.87	1223.82	1224.91	0.001626	1.80	2331.62	1872.01	0.21
T2N_R7W_S32E	2.572	3640.00	1223.62	1225.84	1225.66	1226.15	0.017978	3.46	844.17	1391.74	0.60
T2N_R7W_S32E	2.640	3640.00	1226.04	1228.79	1228.12	1228.91	0.004606	2.03	1352.53	1913.08	0.33
T2N_R7W_S32E	2.705	3640.00	1228.66	1231.43	1231.20	1231.61	0.012105	3.81	1099.16	1405.16	0.56
T2N_R7W_S32E	2.759	3640.00	1231.22	1233.69		1233.79	0.005534	2.61	1396.26	1337.92	0.38
T2N_R7W_S32E	2.807	3640.00	1233.70	1235.89	1235.81	1236.16	0.016614	4.34	897.40	1188.79	0.64
T2N_R7W_S32E	2.866	3640.00	1236.83	1238.34		1238.45	0.005169	2.10	1382.95	1193.61	0.36
T2N_R7W_S32E	2.928	3640.00	1239.13	1240.70	1240.33	1240.88	0.010449	2.73	1087.67	1207.21	0.53
T2N_R7W_S32E	3.028	3640.00	1242.64	1244.50		1244.62	0.004257	1.35	1362.68	1072.13	0.28
T2N_R7W_S32E	3.099	3640.00	1245.98	1247.31	1247.12	1247.58	0.017140	2.93	870.92	973.25	0.57
T2N_R7W_S32E	3.174	3640.00	1249.11	1250.90	1250.24	1251.03	0.005898	2.28	1254.38	1032.70	0.37
T2N_R7W_S32E	3.234	3640.00	1251.59	1253.37	1253.06	1253.65	0.012189	3.52	858.08	753.08	0.52
T2N_R7W_S32E	3.305	3640.00	1254.19	1257.19	1256.85	1257.35	0.008747	3.72	1154.29	1188.92	0.47
T2N_R7W_S32E	3.380	3640.00	1256.40	1260.26	1259.90	1260.41	0.008564	3.68	1201.76	1239.12	0.46
T2N_R7W_S32E	3.466	3640.00	1259.26	1264.30		1264.45	0.008977	3.06	1154.83	1129.14	0.45
T2N_R7W_S32E	3.541	4290.00	1263.89	1267.99		1268.18	0.009696	3.15	1248.99	1065.56	0.48
T2N_R7W_S32E	3.621	4290.00	1266.98	1270.66	1269.98	1270.85	0.006735	1.87	1294.26	1014.52	0.37
T2N_R7W_S32E	3.687	4290.00	1271.11	1274.21	1273.95	1274.43	0.012585	3.67	1187.09	1150.94	0.55
T2N_R7W_S32E	3.772	4290.00	1273.60	1277.79	1277.15	1277.99	0.006284	4.04	1219.01	757.95	0.43
T2N_R7W_S32E	3.842	4290.00	1275.73	1280.66		1281.01	0.010774	5.62	942.70	614.36	0.56
T2N_R7W_S32E	3.917	4290.00	1278.82	1283.94		1284.20	0.006329	4.56	1043.64	507.16	0.44
T2N_R7W_S32E	3.991	4290.00	1281.17	1287.00		1287.47	0.010563	6.02	828.23	430.23	0.57
T2N_R7W_S32E	4.074	4290.00	1285.22	1290.83		1291.20	0.007643	5.65	935.38	457.88	0.50
T2N_R7W_S32E	4.136	4290.00	1287.61	1293.24		1293.50	0.006663	4.64	1104.00	634.75	0.45
T2N_R7W_S32E	4.204	4290.00	1291.13	1295.79	1295.48	1296.12	0.008715	5.39	1008.95	663.50	0.53
T2N_R7W_S32E	4.289	4290.00	1294.67	1299.40		1299.82	0.008228	5.04	824.44	301.59	0.50
T2N_R7W_S32E	4.354	4290.00	1297.09	1301.91		1302.22	0.008106	5.18	1008.25	534.00	0.50
T2N_R7W_S32E	4.432	4290.00	1300.30	1304.87		1305.09	0.006960	4.04	1137.73	581.63	0.45
T2N_R7W_S32E	4.472	4290.00	1301.92	1306.57		1307.02	0.012242	5.97	826.42	383.21	0.62
T2N_R7W_S32E	4.530	4290.00	1304.99	1309.40		1309.63	0.006061	4.43	1126.88	554.64	0.43
T2N_R7W_S32E	4.608	2120.00	1308.61	1312.05		1312.35	0.008143	4.42	480.47	210.27	0.51
T2N_R7W_S32E	4.684	2120.00	1311.79	1315.85		1316.10	0.010782	4.02	527.08	292.66	0.53
T2N_R7W_S32E	4.760	2120.00	1314.79	1319.30		1319.46	0.006563	3.29	669.23	378.03	0.41
T2N_R7W_S32E	4.844	2120.00	1318.39	1322.41		1322.60	0.007790	3.62	622.61	428.06	0.47
T2N_R7W_S32E	4.912	2120.00	1322.02	1325.38	1324.74	1325.66	0.009156	4.38	514.35	289.15	0.51
T2N_R7W_S32E	4.995	2120.00	1325.16	1329.12		1329.37	0.008023	4.22	548.55	328.70	0.48
T2N_R7W_S32E	5.058	2120.00	1328.08	1331.98		1332.31	0.009513	4.87	474.82	269.93	0.55
T2N_R7W_S32E	5.111	2120.00	1330.84	1334.37		1334.61	0.007186	4.10	547.22	269.75	0.45
T2N_R7W_S32E	5.185	2120.00	1333.52	1337.62		1338.17	0.011413	6.41	387.38	227.98	0.66
T2N_R7W_S32E	5.281	2120.00	1337.29	1342.50		1342.90	0.007772	5.18	453.69	263.24	0.49
T2N_R7W_S32E	5.337	2120.00	1339.36	1344.73		1345.05	0.006646	4.68	478.69	187.46	0.45
T2N_R7W_S32E	5.372	2120.00	1340.73	1346.00		1346.41	0.007939	5.58	451.41	243.39	0.54
T2N_R7W_S32E	5.432	2120.00	1344.76	1348.94		1349.46	0.011986	5.82	369.97	149.55	0.61
T2N_R7W_S32E	5.495	6600.00	1348.15	1352.74		1353.13	0.009620	5.53	1362.30	709.74	0.54

E.7 CHECK-RAS Output

T2N-R7W-S32E
CheckRAS Reports

T2N-R7W-S32E

CHECK-RAS Program, XS Check
Cross Section Location and Alignment Review

General Note for "D"
There are several cross sections showing divided flow, but they are isolated islands.

Selected profiles: Floodplain
Date: 1/30/2012
Time: 9:52:25 AM

SECNO	Len Lob	Len Chl	Len Rob	TopWdthAct	Q Total	Flow Code
T2N_R7W_S32E,T2N_R7W_S32E						
5.495	457.57	333.37	278.75	709.65	6600	
5.432	306.69	313.65	314.94	149.57	2120	
5.372	183.82	184.36	180.97	243.39	2120	
5.337	300.46	299.43	292.54	187.46	2120	
5.281	493.61	506.5	505.31	263.28	2120	
5.185	409.5	389.47	366.18	227.96	2120	
5.111	239.92	276.96	291.45	269.79	2120	
5.058	331.77	335.83	330.42	269.8	2120	
4.995	402.57	438.28	441.47	328.76	2120	
4.912	369.14	358.32	358.14	289.11	2120	
4.844	425.94	440.88	414.82	428.15	2120	
4.76	397.03	404.29	399.75	377.99	2120	
4.684	418.44	401.58	393.21	292.71	2120	
4.608	417.46	408.41	375.14	210.25	2120	
4.53	304.45	309.95	313.72	554.64	4290	
4.472	218.25	208.5	203.43	383.17	4290	
4.432	459.34	413.57	321.04	581.72	4290	D
4.354	206.69	343.88	360.53	534.02	4290	D
4.289	399.74	449.35	445.05	301.58	4290	
4.204	357.46	357.49	313.28	663.57	4290	
4.136	327.18	326.79	310	634.82	4290	
4.074	328.74	437.23	449.46	457.88	4290	D
3.991	405.15	394.54	397.57	430.22	4290	
3.917	391	395.63	390.25	507.15	4290	
3.842	387.26	365.16	355.84	614.38	4290	
3.772	454.11	451.47	359.46	757.89	4290	D
3.687	339.09	349.34	429.6	1150.94	4290	
3.621	400.24	422.4	309.69	1014.91	4290	D
3.541	381	393.66	403.27	1065.55	4290	
3.466	431.24	453.76	474.7	1128.47	3640	D
3.38	419.01	396.91	333.66	1239.18	3640	
3.305	383.9	376.72	357.37	1189.32	3640	D
3.234	288.19	318.04	313.41	752.6	3640	D
3.174	399.06	392.44	360.39	1032.76	3640	D
3.099	378.96	374.69	386.53	970.2	3640	D
3.028	497.66	527.82	595.06	1072.27	3640	D
2.928	338.62	326.8	337.2	1204.78	3640	D
2.866	244.22	310.99	265.72	1193.77	3640	
2.807	251.39	253.35	261.22	1186.59	3640	D
2.759	281.69	289.96	274.27	1339	3640	D
2.705	334.56	343.28	384.47	1366.66	3640	D
2.64	358.66	359	334.95	1039.41	3640	D
2.572	353.26	334.46	265.84	840.86	3640	D
2.508	395.81	364.98	394.63	1715.55	3640	
2.439	84.09	78.07	86.75	1827.74	6380	D
2.432	CULVERT#1-Up					
2.432	CULVERT#1-Dn					
2.424	55.84	56.56	57.85	1601.52	6380	
2.414	61.51	64.25	58.88	1720.52	6380	
2.401	79.49	81.47	83.36	1948.17	6380	
2.396	CULVERT#1-Up					
2.396	CULVERT#1-Dn					
2.386	51.32	60.56	73.59	89.68	6380	C

"C" flow due to decrease in conveyance area at roadway. Fr=0.98

```
-----------------------------------------------------------------------------
B=blocked obstruction      XS SC 05
C=critial depth            XS SC 03
D=divided flow             XS SC 01
E=cross section extended   XS SC 02
K=known water-surface      XS SC 04


DISTANCE CHECK
----------------


SPACING CHECK
--------------


INEFFECTIVE FLOW CHECK
-----------------------


DISCHARGE CHECK
----------------

RS:       5.432
XS DC 01 Discharge decreases in the downstream direction.

RS:       3.466
XS DC 01 Discharge decreases in the downstream direction.


LOCATION CHECK
---------------


BOUNDARY CONDITION CHECK
------------------------

XS BC 02 The name of the stream is T2N_R7W_S32E,T2N_R7W_S32E
         Known WS = 1221.85 is specified as the downstream boundary
         for profile Floodplain

XS BC 03 Maximum number of iterations is 0
         It should not be less than 20.


LATERAL WEIRS CHECK
-----------------------

---END---
```

Incidental split to the west. See App. E for supporting documentation.

Split included in original hydrology.

Known WSEL was taken from the "TDN – Palo Verde Watershed Detailed Floodplain Delineation Study, August 2011, Updated 2011 by Entellus."

No iterations are required for slope area boundary condition.

T2N-R7W-S32E

CHECK-RAS Program: NT Check
Manning's n Value and Transition Loss Coefficient Review

Selected profiles: Floodplain
Date: 1/30/2012
Time: 9:29:43 AM

SECNO	STRUCTURE	NLOB	NCHL	NROB	CNTR	EXP
T2N_R7W_S32E,T2N_R7W_S32E						
5.495		0.044	0.058	0.044	0.1	0.3
5.432		0.044	0.058	-----	0.1	0.3
		0.058	0.044	-----		
5.372		0.044	0.058	-----	0.1	0.3
		0.058	0.044	-----		
5.337		0.044	-----	-----	0.1	0.3
		0.058	-----	-----		
5.281		0.044	0.058	0.058	0.1	0.3
		-----	-----	0.044		
5.185		0.044	0.044	-----	0.1	0.3
		-----	0.058	-----		
		-----	0.044	-----		
5.111		0.044	-----	-----	0.1	0.3
		0.058	-----	-----		
5.058		0.044	0.044	-----	0.1	0.3
		-----	0.058	-----		
		-----	0.044	-----		
4.995		0.044	0.044	-----	0.1	0.3
		-----	0.058	-----		
		-----	0.044	-----		
4.912		0.044	0.044	-----	0.1	0.3
		-----	0.058	-----		
		-----	0.044	-----		
4.844		0.044	0.044	-----	0.1	0.3
		-----	0.058	-----		
		-----	0.044	-----		
4.76		0.044	0.058	-----	0.1	0.3
		0.058	0.044	-----		
4.684		0.044	0.058	-----	0.1	0.3
		-----	0.044	-----		
4.608		0.044	0.044	-----	0.1	0.3
		-----	0.058	-----		
		-----	0.044	-----		
4.53		0.044	-----	-----	0.1	0.3
		0.058	-----	-----		
4.472		0.044	0.044	0.058	0.1	0.3
		-----	0.058	0.044		
4.432		0.044	0.044	0.058	0.1	0.3
		-----	0.058	0.044		
4.354		0.044	0.044	0.058	0.1	0.3
		-----	0.058	0.044		
4.289		0.044	0.044	0.044	0.1	0.3
		-----	0.058	-----		
4.204		0.044	0.044	-----	0.1	0.3
		-----	0.058	-----		
		-----	0.044	-----		
4.136		0.044	0.058	-----	0.1	0.3
		-----	0.044	-----		
4.074		0.044	-----	-----	0.1	0.3
		0.058	-----	-----		
3.991		0.044	0.058	-----	0.1	0.3
		-----	0.044	-----		
3.917		0.044	0.058	-----	0.1	0.3

		-----	0.044	-----			
3.842		0.044	-----	-----	0.1	0.3	
		0.058	-----	-----			
3.772		0.044	0.058	-----	0.1	0.3	
		0.058	0.044	-----			
3.687		0.044	0.044	0.058	0.1	0.3	
		-----	0.058	0.044			
3.621		0.044	0.044	0.058	0.1	0.3	
		-----	0.058	0.044			
3.541		0.044	0.044	0.058	0.1	0.3	
		-----	0.058	0.044			
		-----	-----	0.058			
		-----	-----	0.044			
3.466		0.044	0.058	0.058	0.1	0.3	
		-----	-----	0.044			
3.38		0.044	0.058	0.058	0.1	0.3	
		-----	-----	0.044			
3.305		0.044	-----	-----	0.1	0.3	
		0.058	-----	-----			
3.234		0.044	-----	-----	0.1	0.3	
		0.058	-----	-----			
3.174		0.044	0.044	-----	0.1	0.3	
		-----	0.058	-----			
		-----	0.044	-----			
3.099		0.044	-----	-----	0.1	0.3	
		0.058	-----	-----			
3.028		0.044	0.044	0.044	0.1	0.3	
		-----	0.058	-----			
2.928		0.044	0.044	-----	0.1	0.3	
		-----	0.058	-----			
		-----	0.044	-----			
2.866		0.044	0.052	-----	0.1	0.3	
		0.058	0.058	-----			
		0.052	0.044	-----			
2.807		0.044	0.058	-----	0.1	0.3	
		0.058	0.044	-----			
		0.052	-----	-----			
2.759		0.044	0.058	-----	0.1	0.3	
		0.058	0.044	-----			
		0.052	-----	-----			
2.705		0.044	0.058	-----	0.1	0.3	
		0.058	0.044	-----			
		0.052	-----	-----			
2.64		0.044	0.052	0.044	0.1	0.3	
		0.058	0.058	-----			
		0.052	-----	-----			
2.572		0.044	0.058	0.044	0.1	0.3	
		-----	-----	0.058			
		-----	-----	0.044			
2.508		0.044	0.058	0.044	0.3	0.5	
		0.058	0.044	0.058			
		-----	-----	0.044			
2.439		0.044	0.058	-----	0.3	0.5	
		0.058	0.044	-----			
2.432	Culvert-Up	0.044	0.058	-----	0.3	0.5	*I-10 North*
		0.058	0.044	-----			
2.432	Culvert-Dn	0.044	-----	-----	0.3	0.5	*I-10 South*
		0.02	-----	-----			
		0.052	-----	-----			
2.424		0.044	-----	-----	0.3	0.5	*Very clean, smooth, well-maintained paved road.*
		0.02	-----	-----			
		0.052	-----	-----			
2.414		0.044	-----	-----	0.3	0.5	
		0.02	-----	-----			
		0.052	-----	-----			
2.401		0.044	-----	-----	0.3	0.5	
		0.02	-----	-----			

```
                                0.052     -----     -----
 2.396   Culvert-Up             0.044     -----     -----     0.3       0.5
                                0.02      -----     -----
                                0.052     -----     -----
 2.396   Culvert-Dn             0.02      -----     -----     0.3       0.5
                                0.042     -----     -----
                                0.065     -----     -----
 2.386                          0.02      -----     -----     0.3       0.5
                                0.042     -----     0.042
                                0.065     -----     -----
-------------------------------------------------------------------------------
```

Very clean, smooth, well-maintained paved road.

```
---Summary of Statistics---
                              Minimum        Maximum
Left Overbank n Value:         0.02           0.065
Right Overbank n Value:        0.042          0.058
Channel n Value:               0.044          0.058
Contraction Coefficient:       0.1            0.3
Expansion   Coefficient:       0.3            0.5


ROUGHNESS COEFFICIENT CHECK
-----------------------------------

RS:       5.495
NT RC 05 The left overbank n value of 0.044 and the right overbank n value
         of 0.044 are less than or equal to the channel n value of 0.058
         The overbank n values should be reevaluated.

RS:       4.289
NT RC 05 The left overbank n value of 0.044 and the right overbank n value
         of 0.044 are less than or equal to the channel n value of 0.044
         The overbank n values should be reevaluated.

RS:       3.028
NT RC 05 The left overbank n value of 0.044 and the right overbank n value
         of 0.044 are less than or equal to the channel n value of 0.044
         The overbank n values should be reevaluated.

TRANSITION LOSS COEFFICIENT CHECK
---------------------------------

ROUGHNESS COEFFICIENT AT STRUCTURES
-----------------------------------

---END---
```

The channel has heavy vegetation therefore overbank n-values are less.

T2N-R7W-S32E

CHECK-RAS Program: Structure Check

Selected profiles: Floodplain
Date: 1/30/2012
Time: 9:55:23 AM

RS	MaxLoChord	MnTpRd	EGEL	WSEL	MinChEl	Structure	
T2N_R7W_S32E,T2N_R7W_S32E							
5.495			1353.13	1352.74	1348.15		
5.432			1349.46	1348.94	1344.76		
5.372			1346.41	1346	1340.73		
5.337			1345.05	1344.73	1339.36		
5.281			1342.9	1342.5	1337.29		
5.185			1338.17	1337.62	1333.52		
5.111			1334.61	1334.37	1330.84		
5.058			1332.31	1331.98	1328.08		
4.995			1329.37	1329.12	1325.16		
4.912			1325.66	1325.38	1322.02		
4.844			1322.6	1322.41	1318.39		
4.76			1319.46	1319.3	1314.79		
4.684			1316.1	1315.85	1311.79		
4.608			1312.35	1312.05	1308.61		
4.53			1309.63	1309.4	1304.99		
4.472			1307.02	1306.57	1301.92		
4.432			1305.09	1304.87	1300.3		
4.354			1302.22	1301.91	1297.09		
4.289			1299.82	1299.4	1294.67		
4.204			1296.12	1295.79	1291.13		
4.136			1293.5	1293.24	1287.61		
4.074			1291.2	1290.83	1285.22		
3.991			1287.47	1287	1281.17		
3.917			1284.2	1283.93	1278.82		
3.842			1281.01	1280.66	1275.73		
3.772			1277.99	1277.79	1273.6		
3.687			1274.43	1274.21	1271.11		
3.621			1270.85	1270.67	1266.98		
3.541			1268.18	1267.99	1263.89		
3.466			1264.45	1264.3	1259.26		
3.38			1260.41	1260.26	1256.4		
3.305			1257.35	1257.19	1254.19		
3.234			1253.65	1253.37	1251.59		
3.174			1251.03	1250.9	1249.11		
3.099			1247.58	1247.3	1245.98		
3.028			1244.62	1244.5	1242.64		
2.928			1240.88	1240.7	1239.13		
2.866			1238.46	1238.35	1236.83		
2.807			1236.16	1235.88	1233.7		
2.759			1233.8	1233.69	1231.22		
2.705			1231.61	1231.43	1228.66		
2.64			1228.91	1228.79	1226.04		
2.572			1226.15	1225.84	1223.62		
2.508			1224.91	1224.87	1220.67		
2.439			1224.63	1224.59	1217.82		
2.432	1223.5	1220	0	1223.5	1218.5	CULVERT#1-Up	
2.432	1223.31	1219.85	0	1223.31	1218.31	CULVERT#1-Dn	*I-10*
2.424			1224.59	1224.56	1216.93		
2.414			1224.57	1224.55	1217		
2.401			1224.56	1224.55	1216.63		
2.396	1221.92	1218.8	0	1221.92	1216.92	CULVERT#1-Up	
2.396	1221.59	1222.4	0	1221.59	1216.59	CULVERT#1-Dn	*I-10*
2.386			1224.53	1221.85	1215.71		

```
---------------------------------------------------------------------------
RIVER/REACH:        T2N_R7W_S32E, T2N_R7W_S32E
RIVER STATION:      2.432
TYPE OF STRUCTURE: Culvert
---------------------------------------------------------------------------
Description:                                      changed min weir Elv from 1226 to
1220.0....2011-
Distance from Upstream XS:                         7
Deck/Roadway Width:                                65
Weir Coefficient:                                  2.6
Maximum allowable submergence for weir flow:       0.5
Elevation at which weir flow begins:               0
Weir crest shape:                                 Broad Crested
---------------------------------------------------------------------------


Sec  River    Length   WSEL      Surch.    EGEL      TopWidth
     Station  Channel                                 Actual
---------------------------------------------------------------------------
 4   2.508     364.98  1224.87             1224.91   1715.55
 3   2.439     78.07   1224.59             1224.63   1827.74
     2.432     65.00   1223.5              0         0         CULVERT#1-Up
     2.432     6.07    1223.31             0         0         CULVERT#1-Dn
 2   2.424     56.56   1224.56             1224.59   1601.52
 1   2.414     64.25   1224.55             1224.57   1720.52
---------------------------------------------------------------------------


         Ineffective Flow, Section 3             Ineffective Flow, Section 2
         Sta L     Sta R     Elev                Sta L     Sta R     Elev
---------------------------------------------------------------------------
 1       10525.37  11477.86  1229                10049.97  1229      1229
---------------------------------------------------------------------------


Opening Type      StagStaL    StagStaR  EncStaL   EncStaR   LIfStaS   RIfStaS
---------------------------------------------------------------------------
Culvert Group                                                          10525.37
                                                                              U
                                                                       10049.97
                                                                              D


CULVERT:
Culvert Name: CULVERT#1
Shape:        Box            Rise:      5         Span:           10       Barrels:        5
FHWA Chart #: # 8 - flared wingwalls
FHWA Scale #: # 1 - Wingwall flared 30 to 75 deg.
Solution Crit:Highest U.S. EG

UpstrmDist:    7        Length:         65        n-Value:        0.015
EntLossCoef:   0.4      ExtLossCoef:    1         CulvInvElU      1218.5   CulvInvElD
1218.31
LCntStaU:      9978     RCntStaU:       10022     LCntStaD        9978     RCntStaD
10022
Culvert Depth Blocked:   0


---------------------------------------------------------------------------
Culv Area:     250      CulvQ:          413.92    MinTopRd:       1220.01
---------------------------------------------------------------------------

                   LAbutSt   RAbutSt   LMnTpRd   RMnTpRd   MnTpRd    MxLoCd
---------------------------------------------------------------------------
CULVERT#1          9973      10027     1220      1225.69   1220      1223.5   U
                   9973      10027     1219.85   1225.69   1219.85   1223.31  D
```

```
--------------------------------------------------------------------------------

Name          Q Total.  Q Struc   Q Weir    Selected Method     Flow Type
--------------------------------------------------------------------------------
CULVERT#1               413.92    5966.08   Highest U.S. EG     Pressure and Weir Flow
--------------------------------------------------------------------------------
```

Pressure and Weir Flow. Excess flow is conveyed laterally along I-10

```
GEOMETRIC CHECK
-----------------

RS:       2.432
ST GD 03  The end station of 11109.71 from upstream road/weir data
          is less than the end station of 11477.86 from upstream internal
          section/section 3.
          The high chord elevation of 1231.37 for the end road/weir station is
          greater than the ground elevation of 1228.278 for the same ground station.
          The road/weir profile may need to be extended.

TYPE OF FLOW CHECK
------------------

RS:       2.432 This is CULVERT#1
CV PW 01  Type of flow is pressure and weir flow because,
          1. EGEL 3 of 1224.63 is greater than MinTopRd of 1220.01.
          2. CulvWSIn of 1223.50 is greater than or equal to MxLoCdU of 1223.50.
          3. CulvWSOut of 1223.31 is greater than or equal to MxLoCdD of 1223.31.

DISTANCE CHECK
---------------

CULVERT COEFFICIENT CHECK
-------------------------

CULVERT CRITERIA CHECK
----------------------

INEFFECTIVE FLOW CHECK
----------------------

RS:       2.508 This is Section 4
ST IF 07  Ineffective flow option was considered at this section.
          However, it should be a fully expanded cross section.
          Ineffective flow stations and elevations should be cleared from
          this section, unless the areas beyond the ineffective flow stations
          are not within the flow path of the stream.
          This message should be ignored if this section is Section 2 of
          the upstream structure.

RS:       2.414 This is Section 1
ST IF 07  Ineffective flow option was considered at this section.
          However, it should be a fully expanded cross section.
          Ineffective flow stations and elevations should be cleared from
          this section, unless the ares beyond the ineffective flow stations
          are not within the flow path of the stream.
          This message should be ignored if this section is Section 3 of the downstream
          structure.
```

Ineffective was a HEC-RAS option based on App. E supporting documentation.

```
--------------------------------------------------------------------------------
RIVER/REACH:        T2N_R7W_S32E, T2N_R7W_S32E
RIVER STATION:      2.396
TYPE OF STRUCTURE: Culvert
--------------------------------------------------------------------------------
Description:                                    changed min weir Elv from 1223.68 to
1218.8....20
Distance from Upstream XS:                       4
```

I-10 South

```
Deck/Roadway Width:                                    50
Weir Coefficient:                                      2.6
Maximum allowable submergence for weir flow:           0.5
Elevation at which weir flow begins:                   0
Weir crest shape:                                     Broad Crested
-------------------------------------------------------------------------------


Sec  River    Length   WSEL      Surch.    EGEL      TopWidth
     Station  Channel                                 Actual
-------------------------------------------------------------------------------
 4   2.414     64.25   1224.55             1224.57   1720.52
 3   2.401     81.47   1224.55             1224.56   1948.17
     2.396     55.68   1221.92             0         0         CULVERT#1-Up
     2.396     21.79   1221.59             0         0         CULVERT#1-Dn
 2   2.386     60.56   1221.85             1224.53   89.68
-------------------------------------------------------------------------------


         Ineffective Flow, Section 3             Ineffective Flow, Section 2
         Sta L     Sta R     Elev                Sta L     Sta R     Elev
-------------------------------------------------------------------------------
 1       10199.61  10937.17  1229                9741.56   9962.14   1226
                                                 10051.82  10988.38  1226
-------------------------------------------------------------------------------


Opening Type      StagStaL    StagStaR  EncStaL   EncStaR   LIfStaS   RIfStaS
-------------------------------------------------------------------------------
Culvert Group                                                          10199.61
                                                                            U
                                                              9962.14   10051.82
                                                                            D


CULVERT:
Culvert Name: CULVERT#1
Shape:        Box            Rise:      5        Span:          10       Barrels:        5
FHWA Chart #: # 8 - flared wingwalls
FHWA Scale #: # 1 - Wingwall flared 30 to 75 deg.
Solution Crit:Highest U.S. EG

UpstrmDist:    4        Length:         55.68    n-Value:        0.015
EntLossCoef:   0.4      ExtLossCoef:    1        CulvInvElU      1216.92  CulvInvElD
1216.59
LCntStaU:      9978     RCntStaU:       10022    LCntStaD        9978     RCntStaD
10022
Culvert Depth Blocked:   0


-------------------------------------------------------------------------------
Culv Area:     250      CulvQ:          2457.42  MinTopRd:       1223.4
-------------------------------------------------------------------------------

                   LAbutSt   RAbutSt   LMnTpRd   RMnTpRd   MnTpRd    MxLoCd
-------------------------------------------------------------------------------
CULVERT#1          9973      10027     1218.8    1223.45   1218.8    1221.92  U
                   9973      10027     1222.4    1223.46   1222.4    1221.59  D
-------------------------------------------------------------------------------


Name          Q Total.  Q Struc   Q Weir    Selected Method     Flow Type
-------------------------------------------------------------------------------
CULVERT#1               2457.42   3922.58   Highest U.S. EG     Pressure and Weir Flow
-------------------------------------------------------------------------------

GEOMETRIC CHECK
-----------------
```

Pressure and Weir Flow. Excess flow is conveyed laterally along I-10.

```
RS:       2.396
ST GD 03  The end station of 10936.35 from upstream road/weir data
          is less than the end station of 10937.17 from upstream internal
          section/section 3.
          The high chord elevation of 1227.75 for the end road/weir station is
          greater than the ground elevation of 1226.848 for the same ground station.
          The road/weir profile may need to be extended.

RS:       2.396
ST GD 03  The end station of 10936.25 from downstream road/weir data
          is less than the end station of 10988.38 from downstream internal
          section.
          The high chord elevation of 1227.75 for the end road/weir station is
          greater than the ground elevation of 1224.348 for the same ground station.
          The road/weir profile may need to be extended.

TYPE OF FLOW CHECK
------------------

RS:       2.396 This is CULVERT#1
CV PW 01  Type of flow is pressure and weir flow because,
          1. EGEL 3 of 1224.56 is greater than MinTopRd of 1223.40.
          2. CulvWSIn of 1221.92 is greater than or equal to MxLoCdU of 1221.92.
          3. CulvWSOut of 1221.59 is greater than or equal to MxLoCdD of 1221.59.

DISTANCE CHECK
--------------

RS:       2.396 This is CULVERT#1
ST DT 01  'Culvert Upstrm Dist' of 4 is less than the height of the
          culvert opening of 5 .
          Section 3 should be placed at the foot of the road embankment or
          wing walls.
          Distances at Sections 4 & 3, and 'Distance from Upstream XS'
          should be adjusted.


CULVERT COEFFICIENT CHECK
-------------------------

CULVERT CRITERIA CHECK
----------------------

INEFFECTIVE FLOW CHECK
----------------------

RS:       2.401 This is Section 3
ST IF 02  Weir flow occurs at Culvert Group 1
          However, the ineffective flow elevation of 1229 between stations 10199.61
          and 10937.17 is equal to or greater than the WSEL of 1224.55
          The RMnTpRdU is 1223.446
          The ineffective flow elevation should be equal to or lower than the MnTpRd
          It should also be less than the WSEL.

RS:       2.386 This is Section 2
ST IF 02  Weir flow occurs at Culvert Group 1
          However, the ineffective flow elevation of 1226 between stations 9741.56
          and 9962.14 is equal to or greater than the WSEL of 1221.85
          The LMnTpRdD is 1222.404 and the MxLoCdD is 1221.59
          The ineffective flow elevation should be between the LMnTpRdD and the MxLoCdD
          if LMnTpRdD is greater than MxLoCdD. Otherwise, It should be equal to LMnTpRdD.
          It should also be less than the WSEL.

RS:       2.386 This is Section 2
ST IF 02  Weir flow occurs at Culvert Group 1
          However, the ineffective flow elevation of 1226 between stations 10051.82
```

Ineffective was a HEC-RAS option based on App. E supporting documentation.

```
          and 10988.38 is equal to or greater than the WSEL of 1221.85
          The RMnTpRdD is 1223.46 and the MxLoCdD is 1221.59
          The ineffective flow elevation should be between the RMnTpRdD and the MxLoCdD
          if RMnTpRdD is greater than MxLoCdD. Otherwise, It should be equal to RMnTpRdD.
          It should also be less than the WSEL.

RS:       2.414 This is Section 4
ST IF 07  Ineffective flow option was considered at this section.
          However, it should be a fully expanded cross section.
          Ineffective flow stations and elevations should be cleared from
          this section, unless the areas beyond the ineffective flow stations
          are not within the flow path of the stream.
          This message should be ignored if this section is Section 2 of
          the upstream structure.

---END
```

T2N-R6W-S05W
CheckRAS Reports

T2N-R6W-S05W

CHECK-RAS Program: NT Check
Manning's n Value and Transition Loss Coefficient Review

Selected profiles: Floodplain
Date: 2/24/2012
Time: 9:50:20 AM

SECNO	STRUCTURE	NLOB	NCHL	NROB	CNTR	EXP
T2N_R6W_S05W,1						
3.993		0.044	0.044	-----	0.1	0.3
		-----	0.058	-----		
		-----	0.044	-----		
3.922		0.044	0.044	-----	0.1	0.3
		-----	0.058	-----		
		-----	0.044	-----		
3.865		0.044	0.044	0.044	0.1	0.3
		-----	0.058	0.02		
		-----	0.044	0.044		
3.769		0.044	0.044	0.058	0.1	0.3
		-----	0.072	0.072		
		-----	0.058	0.044		
3.717		0.044	0.044	0.072	0.1	0.3
		-----	0.072	0.044		
3.647		0.044	0.072	0.058	0.1	0.3
		0.072	0.058	0.072		
		-----	-----	0.044		
3.585		0.044	0.044	0.058	0.1	0.3
		-----	0.072	0.072		
		-----	0.058	0.044		
3.507		0.044	0.058	-----	0.1	0.3
		0.02	0.044	-----		
		0.044	-----	-----		
		0.058	-----	-----		
3.424		0.02	-----	-----	0.1	0.3
		0.044	-----	-----		
		0.02	-----	-----		
		0.044	-----	-----		
		0.058	-----	-----		
3.338		0.044	0.058	0.044	0.1	0.3
		0.058	0.044	0.02		
		0.044	-----	0.044		
		-----	-----	0.058		
		-----	-----	0.044		
3.26		0.044	0.044	0.044	0.1	0.3
		0.058	0.058	0.058		
		0.044	0.044	0.044		
		-----	-----	0.02		
		-----	-----	0.044		
		-----	-----	0.02		
3.198		0.044	0.044	0.058	0.1	0.3
		0.058	0.058	0.044		
		0.044	-----	-----		
3.111		0.044	0.044	0.044	0.1	0.3
		-----	0.058	-----		
3.013		0.044	-----	-----	0.1	0.3
2.93		0.044	-----	-----	0.1	0.3
2.853		0.044	-----	-----	0.1	0.3
2.772		0.044	0.044	0.058	0.1	0.3
		-----	0.058	0.044		
2.71		0.044	0.044	-----	0.1	0.3
		-----	0.058	-----		
		-----	0.044	-----		

Clean, well maintained, dirt road.

Clean, well maintained, dirt road.

2.662	0.044	0.058	-----	0.1	0.3
	-----	0.044	-----		
2.58	0.044	0.044	-----	0.1	0.3
	-----	0.058	-----		
	-----	0.044	-----		
2.497	0.044	0.044	0.058	0.1	0.3
	-----	0.058	0.044		
2.429	0.044	0.044	-----	0.1	0.3
	-----	0.058	-----		
	-----	0.044	-----		
2.387	0.044	0.044	0.044	0.1	0.3
	-----	0.058	-----		
2.334	0.044	0.044	-----	0.1	0.3
	-----	0.058	-----		
	-----	0.044	-----		
2.282	0.044	0.058	-----	0.1	0.3
	0.058	0.044	-----		
	0.044	-----	-----		
2.187	0.044	0.044	-----	0.1	0.3
	-----	0.072	-----		
	-----	0.058	-----		
	-----	0.044	-----		
2.119	0.044	0.044	-----	0.2	0.4
	-----	0.058	-----		
	-----	0.044	-----		
2.054	0.044	0.044	-----	0.2	0.4
	-----	0.058	-----		
1.977	0.044	0.072	-----	0.2	0.4
	-----	0.058	-----		
	-----	0.044	-----		
1.931	0.044	0.072	-----	0.1	0.3
	-----	0.058	-----		
	-----	0.044	-----		
1.845	0.044	0.072	-----	0.1	0.3
	-----	0.058	-----		
	-----	0.044	-----		
1.787	0.044	0.044	-----	0.1	0.3
	-----	0.072	-----		
	-----	0.058	-----		
	-----	0.044	-----		
1.702	0.044	0.072	-----	0.1	0.3
	0.072	0.058	-----		
	-----	0.072	-----		
	-----	0.058	-----		
	-----	0.044	-----		
1.619	0.044	0.072	0.058	0.1	0.3
	-----	0.058	0.044		
1.539	0.044	0.072	0.044	0.1	0.3
	-----	0.044	-----		
	-----	0.072	-----		
1.453	0.044	0.058	0.044	0.1	0.3
	0.058	0.072	0.02		
	-----	-----	0.044		
1.358	0.044	0.044	0.044	0.1	0.3
	-----	0.058	-----		
1.272	0.044	0.072	0.072	0.1	0.3
	0.072	0.058	0.044		
	-----	0.072	-----		
1.211	0.044	0.044	0.072	0.1	0.3
	-----	0.072	0.044		
	-----	0.058	-----		
	-----	0.072	-----		
1.144	0.044	0.072	0.072	0.1	0.3
	0.072	0.058	0.044		
	-----	0.072	-----		
1.055	0.044	0.072	-----	0.1	0.3
	0.072	0.058	-----		

Slight meandering of wash, therefore accounted for contraction/expansion in this area.

Clean, well maintained, dirt road.

```
                              -----     0.072     -----
                              -----     0.044     -----
 .994                         0.044     0.072     0.072     0.1       0.3
                              0.072     0.058     0.044
                              -----     0.072     -----
 .919                         0.044     0.072     0.072     0.1       0.3
                              0.072     0.058     0.044
                              -----     0.072     -----
-------------------------------------------------------------------------------

---Summary of Statistics---
                              Minimum        Maximum
Left Overbank n Value:         0.02           0.072
Right Overbank n Value:        0.02           0.072
Channel n Value:               0.044          0.072
Contraction Coefficient:       0.1            0.2
Expansion   Coefficient:       0.3            0.4


ROUGHNESS COEFFICIENT CHECK
-----------------------------------

RS:       3.111
NT RC 05 The left overbank n value of 0.044 and the right overbank n value
         of 0.044 are less than or equal to the channel n value of 0.044
         The overbank n values should be reevaluated.

RS:       2.387
NT RC 05 The left overbank n value of 0.044 and the right overbank n value
         of 0.044 are less than or equal to the channel n value of 0.044
         The overbank n values should be reevaluated.

RS:       1.539
NT RC 05 The left overbank n value of 0.044 and the right overbank n value
         of 0.044 are less than or equal to the channel n value of 0.044
         The overbank n values should be reevaluated.

RS:       1.358
NT RC 05 The left overbank n value of 0.044 and the right overbank n value
         of 0.044 are less than or equal to the channel n value of 0.044
         The overbank n values should be reevaluated.

TRANSITION LOSS COEFFICIENT CHECK
---------------------------------

RS:       2.119
NT TL 02 Contraction and expansion loss coefficients are 0.2 and 0.4
         respectively. However, this cross section is not at the structure.
         They should be equal to 0.1 and 0.3.

RS:       2.054
NT TL 02 Contraction and expansion loss coefficients are 0.2 and 0.4
         respectively. However, this cross section is not at the structure.
         They should be equal to 0.1 and 0.3.

RS:       1.977
NT TL 02 Contraction and expansion loss coefficients are 0.2 and 0.4
         respectively. However, this cross section is not at the structure.
         They should be equal to 0.1 and 0.3.

ROUGHNESS COEFFICIENT AT STRUCTURES
-----------------------------------

---END---
```

The channel has heavy vegetation therefore overbank n-values are less.

T2N-R6W-S05W

CHECK-RAS Program, XS Check
Cross Section Location and Alignment Review

General Note for "D"
There are several cross sections showing divided flow, but they are isolated islands.

Selected profiles: Floodplain
Date: 2/24/2012
Time: 9:57:15 AM

SECNO	Len Lob	Len Chl	Len Rob	TopWdthAct	Q Total	Flow Code
T2N_R6W_S05W,1						
3.993	394.13	375.39	382.31	9.95	630	
3.922	297.42	302.6	302.38	148.46	630	C
3.865	415.04	504.7	636.93	242.2	630	D
3.769	307.27	276.25	247.72	986.9	2870	
3.717	325.16	371.67	372.9	964.97	2870	
3.647	333.02	325.95	332.29	839.39	2870	D
3.585	423.36	413.32	425.26	978.9	2870	
3.507	415.09	435.57	443.05	339.47	1850	
3.424	431.39	452.24	431.5	579.63	1850	D
3.338	431.9	412.08	394.98	420.29	1450	D
3.26	324.35	329.09	333.04	627.8	1450	D
3.198	435.14	457.41	474.66	673.8	1420	D
3.111	547.76	517.5	431.39	1030.97	1420	D
3.013	480.9	441.1	397.9	1072.24	1420	D
2.93	406.94	404.2	400.3	771.73	1420	D
2.853	402.5	427.4	437.8	789.86	1420	D
2.772	317.4	326.9	305.37	1262.48	1420	D
2.71	257.17	254.33	238.61	1533.11	2230	
2.662	477.96	434.63	364.44	1250.44	2230	D
2.58	404.1	440.37	414.42	1052.69	2230	D
2.497	296.11	356.31	382.84	863.96	2230	D,C
2.429	214.63	223.24	382.71	1103.2	2230	D
2.387	312.22	276.5	282.49	594.34	2230	
2.334	284.37	276.63	271.5	268.29	2230	D,C
2.282	432.62	501.65	513.88	443.82	2500	D
2.187	290.7	356.93	374.27	401.79	2500	
2.119	362.06	344.39	340.01	309.91	2500	D
2.054	358.2	408.81	459.96	419.47	2500	
1.977	242.8	243.26	242.37	235.06	2500	D
1.931	441.33	450.13	446.42	279.98	2500	
1.845	324.43	309.79	307.84	333.64	2500	
1.787	409.97	448.38	451.94	788.57	2500	
1.702	418.92	436.19	387.7	832.27	2500	D
1.619	467.82	423.28	380.37	1183.55	2500	
1.539	477.91	455.13	445.5	1110.13	2420	D
1.453	547.94	502.08	443.87	913.46	2420	D
1.358	475.47	452.74	413.37	737.24	2420	D
1.272	323.92	324.38	316.1	452.54	2420	
1.211	349.84	352.74	339.74	569.06	2420	
1.144	439.27	470.85	464.31	658.23	2420	
1.055	306.94	318.58	322.26	782.17	2420	
.994	360.58	397.7	403.46	1110.17	2420	D
.919	353.22	388.92	400.23	787.22	3280	

"C" flow due to restriction in conveyance area at CAP overshoot.
Fr=0.36

"C" flow due to decrease in conveyance area.
X-Sec: 2.497: Fr=0.76
X-Sec: 2.334: Fr=0.80

B=blocked obstruction XS SC 05
C=critial depth XS SC 03
D=divided flow XS SC 01
E=cross section extended XS SC 02
K=known water-surface XS SC 04

DISTANCE CHECK

```
----------------

SPACING CHECK
--------------

INEFFECTIVE FLOW CHECK
----------------------

DISCHARGE CHECK
----------------

RS:       3.507
XS DC 01 Discharge decreases in the downstream direction.

RS:       3.338
XS DC 01 Discharge decreases in the downstream direction.

RS:       3.198
XS DC 01 Discharge decreases in the downstream direction.

RS:       1.539
XS DC 01 Discharge decreases in the downstream direction.

LOCATION CHECK
---------------

BOUNDARY CONDITION CHECK
------------------------

XS BC 02 The name of the stream is T2N_R6W_S05W,1
         Known WS = 1226.43 is specified as the downstream boundary
         for profile Floodplain

XS BC 03 Maximum number of iterations is 0
         It should not be less than 20.

LATERAL WEIRS CHECK
-----------------------

---END---
```

Incidental split to the west. See App. E for supporting documentation.

Incidental split to the west. See App. E for supporting documentation.

Hydrology HEC-1 split flow at C335D. See Appendix D for supporting documentation.

Known WSEL was taken from the "TDN – Palo Verde Watershed Detailed Floodplain Delineation Study, August 2011, Updated 2011 by Entellus."

No iterations are required for slope area boundary condition.

E.8 Summary of Errors and Warnings

T2N-R7W-S32E

Errors Warnings and Notes for Plan : Current mode

Location:	River: T2N_R7W_S32E Reach: T2N_R7W_S32E RS: 5.495 Profile: Floodplain
Warning:	The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7
	or greater than 1.4. This may indicate the need for additional cross sections.
Warning:	The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.
	This may indicate the need for additional cross sections.
Location:	River: T2N_R7W_S32E Reach: T2N_R7W_S32E RS: 5.432 Profile: Floodplain
Warning:	The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.
	This may indicate the need for additional cross sections.
Location:	River: T2N_R7W_S32E Reach: T2N_R7W_S32E RS: 5.372 Profile: Floodplain
Warning:	The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.
	This may indicate the need for additional cross sections.
Location:	River: T2N_R7W_S32E Reach: T2N_R7W_S32E RS: 5.337 Profile: Floodplain
Warning:	The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.
	This may indicate the need for additional cross sections.
Location:	River: T2N_R7W_S32E Reach: T2N_R7W_S32E RS: 5.281 Profile: Floodplain
Warning:	The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.
	This may indicate the need for additional cross sections.
Location:	River: T2N_R7W_S32E Reach: T2N_R7W_S32E RS: 5.185 Profile: Floodplain
Warning:	The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.
	This may indicate the need for additional cross sections.
Location:	River: T2N_R7W_S32E Reach: T2N_R7W_S32E RS: 5.111 Profile: Floodplain
Warning:	The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.
	This may indicate the need for additional cross sections.
Location:	River: T2N_R7W_S32E Reach: T2N_R7W_S32E RS: 5.058 Profile: Floodplain
Warning:	The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.
	This may indicate the need for additional cross sections.
Note:	Manning's n values were composited to a single value in the main channel.
Location:	River: T2N_R7W_S32E Reach: T2N_R7W_S32E RS: 4.995 Profile: Floodplain
Warning:	The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.
	This may indicate the need for additional cross sections.
Note:	Manning's n values were composited to a single value in the main channel.
Location:	River: T2N_R7W_S32E Reach: T2N_R7W_S32E RS: 4.912 Profile: Floodplain
Warning:	The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.
	This may indicate the need for additional cross sections.
Note:	Manning's n values were composited to a single value in the main channel.
Location:	River: T2N_R7W_S32E Reach: T2N_R7W_S32E RS: 4.844 Profile: Floodplain
Warning:	The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.
	This may indicate the need for additional cross sections.
Location:	River: T2N_R7W_S32E Reach: T2N_R7W_S32E RS: 4.760 Profile: Floodplain
Warning:	The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.
	This may indicate the need for additional cross sections.
Location:	River: T2N_R7W_S32E Reach: T2N_R7W_S32E RS: 4.684 Profile: Floodplain
Warning:	The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.
	This may indicate the need for additional cross sections.
Location:	River: T2N_R7W_S32E Reach: T2N_R7W_S32E RS: 4.608 Profile: Floodplain
Warning:	The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7
	or greater than 1.4. This may indicate the need for additional cross sections.
Warning:	The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.
	This may indicate the need for additional cross sections.
Location:	River: T2N_R7W_S32E Reach: T2N_R7W_S32E RS: 4.530 Profile: Floodplain
Warning:	The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7
	or greater than 1.4. This may indicate the need for additional cross sections.
Warning:	The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.

Errors Warnings and Notes for Plan : Current mode (Continued)

	This may indicate the need for additional cross sections.
Location:	River: T2N_R7W_S32E Reach: T2N_R7W_S32E RS: 4.472 Profile: Floodplain
Warning:	The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.
	This may indicate the need for additional cross sections.
Location:	River: T2N_R7W_S32E Reach: T2N_R7W_S32E RS: 4.432 Profile: Floodplain
Warning:	Divided flow computed for this cross-section.
Warning:	The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.
	This may indicate the need for additional cross sections.
Location:	River: T2N_R7W_S32E Reach: T2N_R7W_S32E RS: 4.354 Profile: Floodplain
Warning:	Divided flow computed for this cross-section.
Warning:	The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.
	This may indicate the need for additional cross sections.
Location:	River: T2N_R7W_S32E Reach: T2N_R7W_S32E RS: 4.289 Profile: Floodplain
Warning:	The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.
	This may indicate the need for additional cross sections.
Location:	River: T2N_R7W_S32E Reach: T2N_R7W_S32E RS: 4.204 Profile: Floodplain
Warning:	The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.
	This may indicate the need for additional cross sections.
Location:	River: T2N_R7W_S32E Reach: T2N_R7W_S32E RS: 4.136 Profile: Floodplain
Warning:	The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.
	This may indicate the need for additional cross sections.
Note:	Manning's n values were composited to a single value in the main channel.
Location:	River: T2N_R7W_S32E Reach: T2N_R7W_S32E RS: 4.074 Profile: Floodplain
Warning:	Divided flow computed for this cross-section.
Warning:	The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.
	This may indicate the need for additional cross sections.
Location:	River: T2N_R7W_S32E Reach: T2N_R7W_S32E RS: 3.991 Profile: Floodplain
Warning:	The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.
	This may indicate the need for additional cross sections.
Note:	Manning's n values were composited to a single value in the main channel.
Location:	River: T2N_R7W_S32E Reach: T2N_R7W_S32E RS: 3.917 Profile: Floodplain
Warning:	The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.
	This may indicate the need for additional cross sections.
Location:	River: T2N_R7W_S32E Reach: T2N_R7W_S32E RS: 3.842 Profile: Floodplain
Warning:	The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.
	This may indicate the need for additional cross sections.
Location:	River: T2N_R7W_S32E Reach: T2N_R7W_S32E RS: 3.772 Profile: Floodplain
Warning:	Divided flow computed for this cross-section.
Warning:	The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7
	or greater than 1.4. This may indicate the need for additional cross sections.
Warning:	The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.
	This may indicate the need for additional cross sections.
Location:	River: T2N_R7W_S32E Reach: T2N_R7W_S32E RS: 3.687 Profile: Floodplain
Warning:	The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.
	This may indicate the need for additional cross sections.
Location:	River: T2N_R7W_S32E Reach: T2N_R7W_S32E RS: 3.621 Profile: Floodplain
Warning:	Divided flow computed for this cross-section.
Warning:	The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.
	This may indicate the need for additional cross sections.
Location:	River: T2N_R7W_S32E Reach: T2N_R7W_S32E RS: 3.541 Profile: Floodplain
Warning:	The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.
	This may indicate the need for additional cross sections.
Location:	River: T2N_R7W_S32E Reach: T2N_R7W_S32E RS: 3.466 Profile: Floodplain

Errors Warnings and Notes for Plan : Current mode (Continued)

Warning:	Divided flow computed for this cross-section.
Warning:	The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.
	This may indicate the need for additional cross sections.
Location:	River: T2N_R7W_S32E Reach: T2N_R7W_S32E RS: 3.380 Profile: Floodplain
Warning:	The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.
	This may indicate the need for additional cross sections.
Location:	River: T2N_R7W_S32E Reach: T2N_R7W_S32E RS: 3.305 Profile: Floodplain
Warning:	Divided flow computed for this cross-section.
Warning:	The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.
	This may indicate the need for additional cross sections.
Location:	River: T2N_R7W_S32E Reach: T2N_R7W_S32E RS: 3.234 Profile: Floodplain
Warning:	Divided flow computed for this cross-section.
Warning:	The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7
	or greater than 1.4. This may indicate the need for additional cross sections.
Warning:	The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.
	This may indicate the need for additional cross sections.
Note:	Multiple critical depths were found at this location. The critical depth with the lowest, valid, water
	surface was used.
Location:	River: T2N_R7W_S32E Reach: T2N_R7W_S32E RS: 3.174 Profile: Floodplain
Warning:	Divided flow computed for this cross-section.
Warning:	The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7
	or greater than 1.4. This may indicate the need for additional cross sections.
Warning:	The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.
	This may indicate the need for additional cross sections.
Location:	River: T2N_R7W_S32E Reach: T2N_R7W_S32E RS: 3.099 Profile: Floodplain
Warning:	Divided flow computed for this cross-section.
Warning:	The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7
	or greater than 1.4. This may indicate the need for additional cross sections.
Warning:	The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.
	This may indicate the need for additional cross sections.
Location:	River: T2N_R7W_S32E Reach: T2N_R7W_S32E RS: 3.028 Profile: Floodplain
Warning:	Divided flow computed for this cross-section.
Warning:	The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7
	or greater than 1.4. This may indicate the need for additional cross sections.
Warning:	The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.
	This may indicate the need for additional cross sections.
Location:	River: T2N_R7W_S32E Reach: T2N_R7W_S32E RS: 2.928 Profile: Floodplain
Warning:	Divided flow computed for this cross-section.
Warning:	The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.
	This may indicate the need for additional cross sections.
Location:	River: T2N_R7W_S32E Reach: T2N_R7W_S32E RS: 2.866 Profile: Floodplain
Warning:	The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7
	or greater than 1.4. This may indicate the need for additional cross sections.
Warning:	The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.
	This may indicate the need for additional cross sections.
Location:	River: T2N_R7W_S32E Reach: T2N_R7W_S32E RS: 2.807 Profile: Floodplain
Warning:	Divided flow computed for this cross-section.
Warning:	The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7
	or greater than 1.4. This may indicate the need for additional cross sections.
Warning:	The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.
	This may indicate the need for additional cross sections.
Location:	River: T2N_R7W_S32E Reach: T2N_R7W_S32E RS: 2.759 Profile: Floodplain
Warning:	Divided flow computed for this cross-section.

Errors Warnings and Notes for Plan : Current mode (Continued)

Warning:	The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7
	or greater than 1.4. This may indicate the need for additional cross sections.
Warning:	The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.
	This may indicate the need for additional cross sections.
Location:	River: T2N_R7W_S32E Reach: T2N_R7W_S32E RS: 2.705 Profile: Floodplain
Warning:	Divided flow computed for this cross-section.
Warning:	The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7
	or greater than 1.4. This may indicate the need for additional cross sections.
Warning:	The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.
	This may indicate the need for additional cross sections.
Note:	Multiple critical depths were found at this location. The critical depth with the lowest, valid, water
	surface was used.
Location:	River: T2N_R7W_S32E Reach: T2N_R7W_S32E RS: 2.640 Profile: Floodplain
Warning:	Divided flow computed for this cross-section.
Warning:	The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7
	or greater than 1.4. This may indicate the need for additional cross sections.
Warning:	The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.
	This may indicate the need for additional cross sections.
Note:	Multiple critical depths were found at this location. The critical depth with the lowest, valid, water
	surface was used.
Location:	River: T2N_R7W_S32E Reach: T2N_R7W_S32E RS: 2.572 Profile: Floodplain
Warning:	Divided flow computed for this cross-section.
Warning:	The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7
	or greater than 1.4. This may indicate the need for additional cross sections.
Warning:	The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.
	This may indicate the need for additional cross sections.
Note:	Multiple critical depths were found at this location. The critical depth with the lowest, valid, water
	surface was used.
Location:	River: T2N_R7W_S32E Reach: T2N_R7W_S32E RS: 2.508 Profile: Floodplain
Warning:	Divided flow computed for this cross-section.
Warning:	The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7
	or greater than 1.4. This may indicate the need for additional cross sections.
Note:	Multiple critical depths were found at this location. The critical depth with the lowest, valid, water
	surface was used.
Location:	River: T2N_R7W_S32E Reach: T2N_R7W_S32E RS: 2.439 Profile: Floodplain
Note:	Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy
	was used.
Location:	River: T2N_R7W_S32E Reach: T2N_R7W_S32E RS: 2.432 Profile: Floodplain
Warning:	The weir over culvert is submerged.
Location:	River: T2N_R7W_S32E Reach: T2N_R7W_S32E RS: 2.432 Profile: Floodplain Culv: CULVERT#1
Warning:	During the culvert inlet control computations, the program could not balance the culvert/weir flow.
	The reported inlet energy grade answer may not be valid.
Location:	River: T2N_R7W_S32E Reach: T2N_R7W_S32E RS: 2.424 Profile: Floodplain
Warning:	Divided flow computed for this cross-section.
Warning:	The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7
	or greater than 1.4. This may indicate the need for additional cross sections.
Note:	Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy
	was used.
Location:	River: T2N_R7W_S32E Reach: T2N_R7W_S32E RS: 2.414 Profile: Floodplain
Note:	Multiple critical depths were found at this location. The critical depth with the lowest, valid, water
	surface was used.
Location:	River: T2N_R7W_S32E Reach: T2N_R7W_S32E RS: 2.401 Profile: Floodplain
Note:	Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy

Errors Warnings and Notes for Plan : Current mode (Continued)

	was used.
Location:	River: T2N_R7W_S32E Reach: T2N_R7W_S32E RS: 2.396 Profile: Floodplain
Warning:	The weir over culvert is submerged.
Location:	River: T2N_R7W_S32E Reach: T2N_R7W_S32E RS: 2.396 Profile: Floodplain Culv: CULVERT#1
Note:	During the supercritical calculations a hydraulic jump occurred inside of the culvert.
Location:	River: T2N_R7W_S32E Reach: T2N_R7W_S32E RS: 2.386 Profile: Floodplain
Note:	Multiple critical depths were found at this location. The critical depth with the lowest, valid, water
	surface was used.

T2N-R6W-S05W

Errors Warnings and Notes for Plan : Plan1

Location:	River: T2N_R6W_S05W Reach: 1 RS: 3.993 Profile: Floodplain
Warning:	The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7
	or greater than 1.4. This may indicate the need for additional cross sections.
Warning:	The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.
	This may indicate the need for additional cross sections.
Note:	Manning's n values were composited to a single value in the main channel.
Location:	River: T2N_R6W_S05W Reach: 1 RS: 3.922 Profile: Floodplain
Warning:	The energy equation could not be balanced within the specified number of iterations. The program
	used critical depth for the water surface and continued on with the calculations.
Warning:	The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7
	or greater than 1.4. This may indicate the need for additional cross sections.
Warning:	The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.
	This may indicate the need for additional cross sections.
Warning:	During the standard step iterations, when the assumed water surface was set equal to critical depth,
	the calculated water surface came back below critical depth. This indicates that there is not a valid
	subcritical answer. The program defaulted to critical depth.
Location:	River: T2N_R6W_S05W Reach: 1 RS: 3.865 Profile: Floodplain
Warning:	Divided flow computed for this cross-section.
Warning:	The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7
	or greater than 1.4. This may indicate the need for additional cross sections.
Warning:	The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.
	This may indicate the need for additional cross sections.
Location:	River: T2N_R6W_S05W Reach: 1 RS: 3.769 Profile: Floodplain
Warning:	The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.
	This may indicate the need for additional cross sections.
Location:	River: T2N_R6W_S05W Reach: 1 RS: 3.717 Profile: Floodplain
Warning:	The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.
	This may indicate the need for additional cross sections.
Location:	River: T2N_R6W_S05W Reach: 1 RS: 3.647 Profile: Floodplain
Warning:	Divided flow computed for this cross-section.
Warning:	The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.
	This may indicate the need for additional cross sections.
Location:	River: T2N_R6W_S05W Reach: 1 RS: 3.585 Profile: Floodplain
Warning:	The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.
	This may indicate the need for additional cross sections.
Location:	River: T2N_R6W_S05W Reach: 1 RS: 3.507 Profile: Floodplain
Warning:	The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.
	This may indicate the need for additional cross sections.
Location:	River: T2N_R6W_S05W Reach: 1 RS: 3.424 Profile: Floodplain
Warning:	Divided flow computed for this cross-section.
Warning:	The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.
	This may indicate the need for additional cross sections.
Location:	River: T2N_R6W_S05W Reach: 1 RS: 3.338 Profile: Floodplain
Warning:	Divided flow computed for this cross-section.
Warning:	The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.
	This may indicate the need for additional cross sections.
Location:	River: T2N_R6W_S05W Reach: 1 RS: 3.260 Profile: Floodplain
Warning:	Divided flow computed for this cross-section.
Warning:	The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.
	This may indicate the need for additional cross sections.
Location:	River: T2N_R6W_S05W Reach: 1 RS: 3.198 Profile: Floodplain
Warning:	Divided flow computed for this cross-section.
Warning:	The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.

Errors Warnings and Notes for Plan : Plan1 (Continued)

	This may indicate the need for additional cross sections.
Location:	River: T2N_R6W_S05W Reach: 1 RS: 3.111 Profile: Floodplain
Warning:	Divided flow computed for this cross-section.
Warning:	The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.
	This may indicate the need for additional cross sections.
Location:	River: T2N_R6W_S05W Reach: 1 RS: 3.013 Profile: Floodplain
Warning:	Divided flow computed for this cross-section.
Warning:	The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.
	This may indicate the need for additional cross sections.
Location:	River: T2N_R6W_S05W Reach: 1 RS: 2.930 Profile: Floodplain
Warning:	Divided flow computed for this cross-section.
Warning:	The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.
	This may indicate the need for additional cross sections.
Location:	River: T2N_R6W_S05W Reach: 1 RS: 2.853 Profile: Floodplain
Warning:	Divided flow computed for this cross-section.
Warning:	The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.
	This may indicate the need for additional cross sections.
Location:	River: T2N_R6W_S05W Reach: 1 RS: 2.772 Profile: Floodplain
Warning:	Divided flow computed for this cross-section.
Warning:	The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7
	or greater than 1.4. This may indicate the need for additional cross sections.
Warning:	The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.
	This may indicate the need for additional cross sections.
Location:	River: T2N_R6W_S05W Reach: 1 RS: 2.710 Profile: Floodplain
Warning:	The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.
	This may indicate the need for additional cross sections.
Location:	River: T2N_R6W_S05W Reach: 1 RS: 2.662 Profile: Floodplain
Warning:	Divided flow computed for this cross-section.
Warning:	The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.
	This may indicate the need for additional cross sections.
Note:	Multiple critical depths were found at this location. The critical depth with the lowest, valid, water
	surface was used.
Location:	River: T2N_R6W_S05W Reach: 1 RS: 2.580 Profile: Floodplain
Warning:	Divided flow computed for this cross-section.
Warning:	The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7
	or greater than 1.4. This may indicate the need for additional cross sections.
Warning:	The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.
	This may indicate the need for additional cross sections.
Location:	River: T2N_R6W_S05W Reach: 1 RS: 2.497 Profile: Floodplain
Warning:	The energy equation could not be balanced within the specified number of iterations. The program
	used critical depth for the water surface and continued on with the calculations.
Warning:	Divided flow computed for this cross-section.
Warning:	The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7
	or greater than 1.4. This may indicate the need for additional cross sections.
Warning:	The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.
	This may indicate the need for additional cross sections.
Warning:	During the standard step iterations, when the assumed water surface was set equal to critical depth,
	the calculated water surface came back below critical depth. This indicates that there is not a valid
	subcritical answer. The program defaulted to critical depth.
Location:	River: T2N_R6W_S05W Reach: 1 RS: 2.429 Profile: Floodplain
Warning:	Divided flow computed for this cross-section.
Warning:	The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7
	or greater than 1.4. This may indicate the need for additional cross sections.

Errors Warnings and Notes for Plan : Plan1 (Continued)

Warning:	The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.
	This may indicate the need for additional cross sections.
Location:	River: T2N_R6W_S05W Reach: 1 RS: 2.387 Profile: Floodplain
Warning:	The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.
	This may indicate the need for additional cross sections.
Location:	River: T2N_R6W_S05W Reach: 1 RS: 2.334 Profile: Floodplain
Warning:	The energy equation could not be balanced within the specified number of iterations. The program
	used critical depth for the water surface and continued on with the calculations.
Warning:	Divided flow computed for this cross-section.
Warning:	The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7
	or greater than 1.4. This may indicate the need for additional cross sections.
Warning:	The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.
	This may indicate the need for additional cross sections.
Warning:	During the standard step iterations, when the assumed water surface was set equal to critical depth,
	the calculated water surface came back below critical depth. This indicates that there is not a valid
	subcritical answer. The program defaulted to critical depth.
Location:	River: T2N_R6W_S05W Reach: 1 RS: 2.282 Profile: Floodplain
Warning:	Divided flow computed for this cross-section.
Warning:	The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.
	This may indicate the need for additional cross sections.
Location:	River: T2N_R6W_S05W Reach: 1 RS: 2.187 Profile: Floodplain
Warning:	The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.
	This may indicate the need for additional cross sections.
Note:	Manning's n values were composited to a single value in the main channel.
Location:	River: T2N_R6W_S05W Reach: 1 RS: 2.119 Profile: Floodplain
Warning:	Divided flow computed for this cross-section.
Warning:	The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.
	This may indicate the need for additional cross sections.
Note:	Manning's n values were composited to a single value in the main channel.
Location:	River: T2N_R6W_S05W Reach: 1 RS: 2.054 Profile: Floodplain
Warning:	The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.
	This may indicate the need for additional cross sections.
Location:	River: T2N_R6W_S05W Reach: 1 RS: 1.977 Profile: Floodplain
Warning:	Divided flow computed for this cross-section.
Warning:	The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.
	This may indicate the need for additional cross sections.
Location:	River: T2N_R6W_S05W Reach: 1 RS: 1.931 Profile: Floodplain
Warning:	The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.
	This may indicate the need for additional cross sections.
Note:	Manning's n values were composited to a single value in the main channel.
Location:	River: T2N_R6W_S05W Reach: 1 RS: 1.845 Profile: Floodplain
Warning:	The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7
	or greater than 1.4. This may indicate the need for additional cross sections.
Warning:	The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.
	This may indicate the need for additional cross sections.
Note:	Manning's n values were composited to a single value in the main channel.
Location:	River: T2N_R6W_S05W Reach: 1 RS: 1.787 Profile: Floodplain
Warning:	The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.
	This may indicate the need for additional cross sections.
Note:	Manning's n values were composited to a single value in the main channel.
Location:	River: T2N_R6W_S05W Reach: 1 RS: 1.702 Profile: Floodplain
Warning:	Divided flow computed for this cross-section.
Warning:	The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.

Errors Warnings and Notes for Plan : Plan1 (Continued)

	This may indicate the need for additional cross sections.
Note:	Manning's n values were composited to a single value in the main channel.
Location:	River: T2N_R6W_S05W Reach: 1 RS: 1.619 Profile: Floodplain
Warning:	The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.
	This may indicate the need for additional cross sections.
Location:	River: T2N_R6W_S05W Reach: 1 RS: 1.539 Profile: Floodplain
Warning:	Divided flow computed for this cross-section.
Warning:	The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.
	This may indicate the need for additional cross sections.
Location:	River: T2N_R6W_S05W Reach: 1 RS: 1.453 Profile: Floodplain
Warning:	Divided flow computed for this cross-section.
Warning:	The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.
	This may indicate the need for additional cross sections.
Location:	River: T2N_R6W_S05W Reach: 1 RS: 1.358 Profile: Floodplain
Warning:	Divided flow computed for this cross-section.
Warning:	The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.
	This may indicate the need for additional cross sections.
Note:	Manning's n values were composited to a single value in the main channel.
Location:	River: T2N_R6W_S05W Reach: 1 RS: 1.272 Profile: Floodplain
Warning:	The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.
	This may indicate the need for additional cross sections.
Location:	River: T2N_R6W_S05W Reach: 1 RS: 1.211 Profile: Floodplain
Warning:	The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7
	or greater than 1.4. This may indicate the need for additional cross sections.
Warning:	The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.
	This may indicate the need for additional cross sections.
Location:	River: T2N_R6W_S05W Reach: 1 RS: 1.144 Profile: Floodplain
Warning:	The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7
	or greater than 1.4. This may indicate the need for additional cross sections.
Warning:	The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.
	This may indicate the need for additional cross sections.
Location:	River: T2N_R6W_S05W Reach: 1 RS: 1.055 Profile: Floodplain
Warning:	The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7
	or greater than 1.4. This may indicate the need for additional cross sections.
Warning:	The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.
	This may indicate the need for additional cross sections.
Location:	River: T2N_R6W_S05W Reach: 1 RS: 0.994 Profile: Floodplain
Warning:	Divided flow computed for this cross-section.
Warning:	The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.
	This may indicate the need for additional cross sections.

E.9 Effective FIS models

As part of this study, there were no effective hydraulic models utilized.

APPENDIX F: DVD