Appendix G
Master Plan of Drainage Update

March Joint Powers Authority

Perris Valley Line B

MASTER PLAN OF DRAINAGE UPDATE

March Joint Powers Authority
County of Riverside, California

June 21, 2022

Prepared for:

Meridian Park, LLC
1156 N. Mountain Avenue
Upland, CA 91786

Prepared by:

Q3 Consulting
27042 Towne Centre Drive, Suite 110
Foothill Ranch, CA 92610

JN 40.071.000

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1 INTRODUCTION

1.1 Project Background

The purpose of this report is to provide design recommendations and document the hydrologic and hydraulic analysis performed as part of an update for the Perris Valley Master Drainage Plan Line B within the March JPA, for the reach from the recently completed Lateral B-Stage 5 improvements to the existing culvert at the Van Buren Boulevard crossing on the west side of the I-215 freeway. The Lateral B-Stage 5 improvements were prepared by Albert A. Webb & Associates (Webb, 2020) and were recently constructed in 2022 in County of Riverside, California. It is located west of March Air Reserve Base, south of the March Field Air Museum and north of the city limits for the City of Perris. Figure 1-1 shows the vicinity of the Line B facility.

The original Perris Valley Master Drainage Plan (MDP) was prepared in 1987, with a revision issued in 1991. The design and supporting analysis for the Line B portion of the MDP was performed by Albert A. Webb Associates in October 2020. A memorandum issued by CValdo Corporation on March 21, 2019 addressed to March Joint Powers Authority (MJPA) estimated the maximum flow rate within Line B to be 1,600 cfs based on a literature review of 13 different historical studies within the watershed. Riverside County Flood Control and Water Conservation District (RCFCWCD) adopted this flow rate for the basis of Webb's design for the Line B facility as a conservative alternative to a more detailed in depth hydrology analysis.

1.2 Watershed Description and Existing Flood Hazard

Line B of the Perris Valley Master Drainage Plan receives flows from four distinct watersheds: approximately 8,000 linear feet along the I-215 corridor, the Veteran's Industrial Park (VIP) east of I-215, Riverside National Cemetery and the General Old Golf Course, and the Meridian Business Center. These watersheds along with significant existing drainage features can be seen in Figure 1-2.

The I-215 drainage area drains into Line B via a system of grated inlets within the road surface and culverts. Similarly, the VIP development drains into Line B via nine additional lateral connections from the VIP development itself and the proposed extension of Van Buren Boulevard.

The Meridian Business Center is composed of three main developments: South Campus, West Campus, and North Campus. The north campus and south campus, located immediately to the north and south of Van Buren Boulevard west of I-215, are approximately 700 acres and 630 acres respectively of mainly present and future industrial development. A significant portion of the west campus is intended to be undeveloped for conservation purposes with the remaining portion being future industrial development. Runoff from the Meridian South Campus flows into a natural channel parallel to Van Buren Boulevard before being directed to the north under Van Buren Boulevard via a (2) 7'Wx5'H RCB culvert. This flow, along with runoff from the North Campus, is then attenuated via a series of basins. The outlet of this basin series is a 6'Wx3'H RCB underneath Van Buren Boulevard that passes flows to the south into a drainage ditch along the west side of the railroad tracks, adjacent to Riverside National Cemetery. This drainage ditch is intended to convey flows south towards a (2) 48" RCP culverts that direct flows east underneath the railroad and into the earthen median where a (2) 6'Wx3'H RCB Caltrans culvert then picks up the flow and conveys it directly into Line B.

A 650 acre portion of the Riverside National Cemetery and General Old Golf Course flows are conveyed through the Cemetery via a system of channels and lakes into an 18 acre-foot retention basin. This retention basin is designed for water quality purposes with no outlet structure; a storm of sufficiently large volume would overtop the basin with minimal flow rate reduction. After the retention basin is overtopped, flows are directed eastward at a single 42" RCP culvert underneath the railroad. The 42" RCP culvert outlets into an earthen median where a (2) 6'Wx3'H RCB Caltrans culvert then picks up the flow and

conveys it directly into Line B. The remaining 370 acre portion of Cemetery and Golf Course flows are conveyed through a meandering earthen channel into an irrigation lake that overtops in significant storm events and drains into a (2) 48" RCP culvert underneath the railroad. The dual 48" RCP culvert outlets into the earthen median where another (2) 6'Wx3'H RCB Caltrans culvert picks up the flow and conveys it directly into Line B.

Within the Line B watershed, the following three main problems were identified:

- The existing grade of the drainage ditch conveying Meridian flows south of Van Buren Boulevard through Riverside National Cemetery coupled with the grade of the adjacent railroad tracks results in significant overtopping of the railroad during a 100-year storm.
- The 42" RCP culvert adjacent to the Riverside National Cemetery retention basin is undersized to convey the 100-year storm. This results in significant overtopping of the railroad.
- The (2) 48" RCP culvert located to the east of the irrigation lake is undersized to convey the 100-year storm. This results in significant overtopping of the railroad.

These issues are discussed in more detail in Section 3.

1.3 Project Improvements

Outflow from the Meridian Business Center that was previously conveyed to the south via an open drainage ditch will instead be contained by approximately 2,300 linear feet of (2) 48" RCP culvert. This culvert will form a direct connection with the 6'Wx3'H culvert underneath Van Buren Boulevard as well as the (2) 48" RCP culvert underneath the railroad. The hydraulic analysis discussed in Section 3 shows that the Caltrans culvert that directs this flow into Line B has sufficient capacity.

Overtopping of the railroad adjacent to the retention basin is resolved via the addition of (4) 42" RCP culverts underneath the railroad, for a total of (5) 42" RCP culverts at this location. Overtopping of the railroad further to the south is resolved via the addition of (2) 48" RCP underneath the railroad, for a total of (4) 48" RCP culverts at this location. The hydraulic analysis discussed in Section 3 shows that both banks of Caltrans culverts that direct flow into Line B have sufficient capacity.

Lastly, the existing ditch that connects the existing 42" RCP culvert to the (2) 48" RCP culvert to the south is proposed to be cleared out and re-graded to drain. When cleared and re-graded, this ditch will allow flow along the west side of the railroad to be directed at the proposed banks of culverts, allowing for more expeditious drainage of the Cemetery area.

The hydraulic analysis shows that with the construction of the proposed improvements outlined above, overtopping issues of both the railroad and I-215 will be eliminated in the 100-year storm.

1.4 Goals and objectives

The purpose of this document is to provide a detailed hydrology and hydraulic analysis for the watershed areas' tributary to Line B along the study reach and identify a set of recommended improvements for the Line B system from Van Buren Boulevard to the Lateral B-Stage 5 improvements. The primary objectives of this study include the following:

- Prepare a hydrology study for the watershed areas tributary to the study reach to establish peak flow rates and flood volumes for use in the flood routing analysis and system design
- Prepare a flood routing analysis for the existing and project condition using the XPSWMM computer model
- Identify flood hazards and propose storm drain improvements to eliminate overtopping issues of the railroad and I-215.
- Ensure that any proposed mitigation measures are compatible with the function of the Line B system.

- Prepare a Master Plan Update Report to document the results of the analysis and the recommended improvements.

The design of the recommended facilities shall be in accordance with RCFCWCD standards.

Figure 1-1. Vicinity map

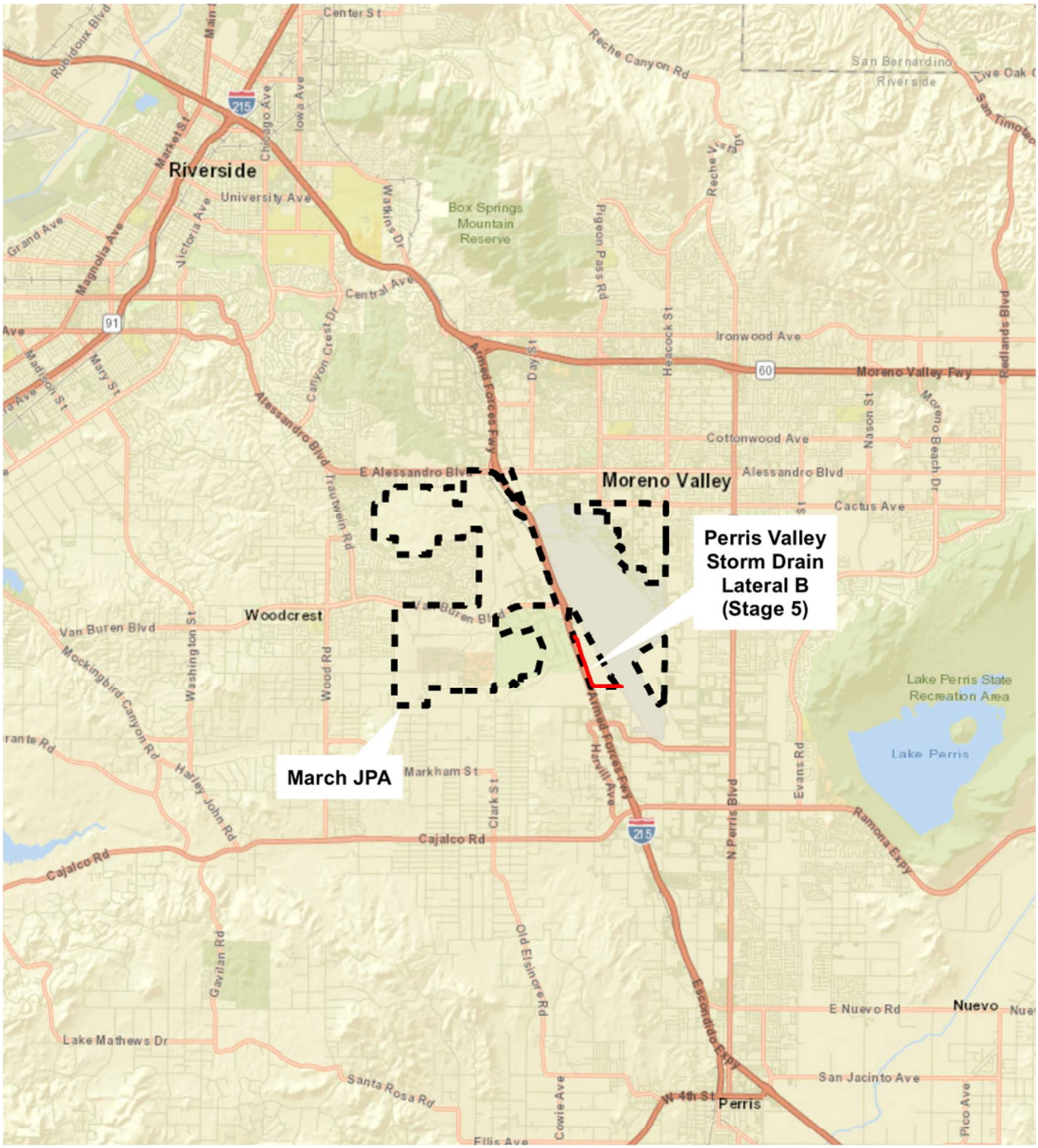
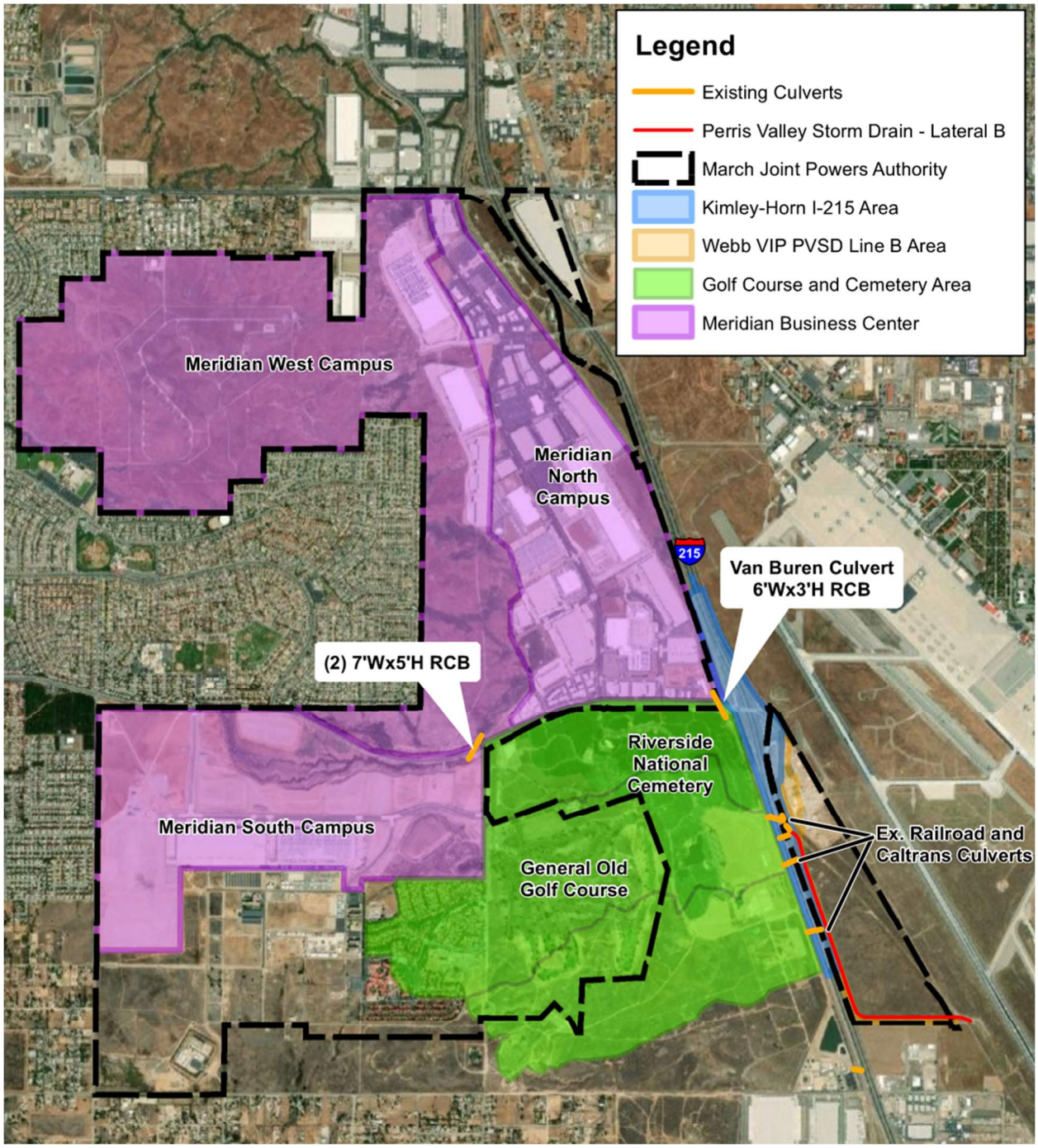


Figure 1-2. Regional Hydrology Map



2 HYDROLOGY

2.1 Regional Hydrology

The design flow rate recommended by CValdo and accepted by RCFCWCD for the design of Line B (Lateral B-Stage 5) improvements were based upon a literature review of 13 flood studies performed within the Line B watershed. These flood studies were based upon a 100-year storm. This 100-year storm is consistent with the minimum flood protection standard expected to be provided by backbone regional drainage systems and will serve as the design standard for this project.

As discussed in Section 1.2, there are four distinct watersheds tributary to the Line B system: the I-215 corridor, the Veteran's Industrial Park (VIP) east of I-215, Riverside National Cemetery and the General Old Golf Course, and the Meridian Business Center.

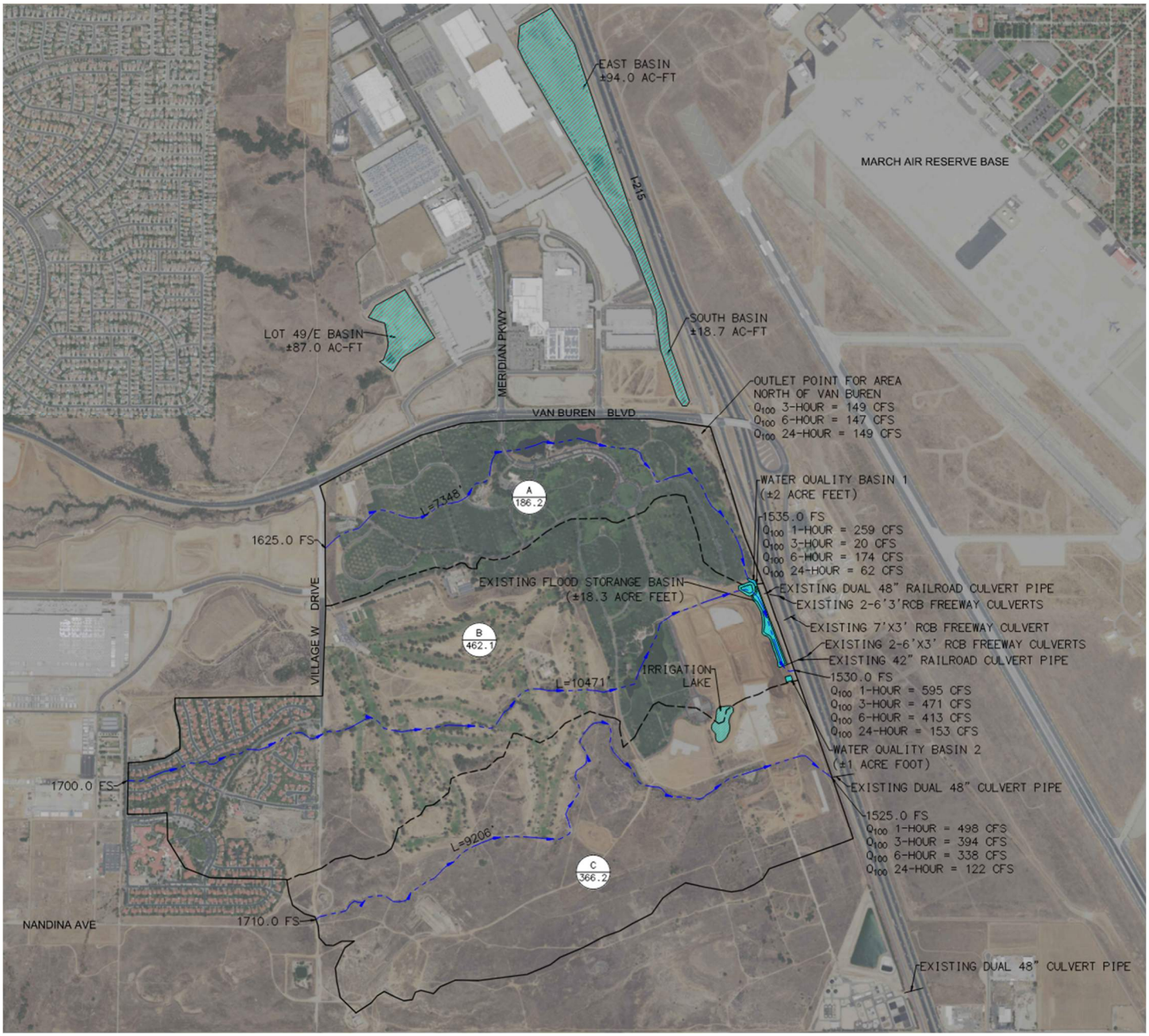
Design discharges for the I-215 corridor were obtained from the *"I-215/Van Buren Boulevard Interchange PS&E"* report dated June 2011 prepared by Kimley-Horn & Associates (KHA, 2011). The rational method hydrology analysis in this report was used to design the drainage system within I-215 as part of this interchange project. Hydrology parameters such as time of concentration, rainfall, land use, and acreage from the KHA study were used to generate single area unit hydrographs at locations where subwatersheds connect into the Line B system.

Rational method hydrology for the VIP project was prepared as part of the *"Perris Valley MDP Line B Veterans Industrial Park (VIP) 215 Final Drainage Study"* report dated December 2020 by Albert A. Webb Associates (Webb, 2020). This hydrology was used to size catch basins and laterals that are tributary to the Line B system. The same process as the KHA hydrology was followed to generate single area unit hydrographs at locations where subwatersheds connect into the Line B system.

Design discharges for the outflow from the Meridian Business Center were obtained from the *"Drainage Design Report for Meridian Business Park, Van Buren Culvert"* report prepared by K&A Engineering dated August 2016 (K&A 2016). This report provided a detailed basin routing study of the basin system located on the Meridian North Campus that outlined an ultimate basin configuration capable of reducing outflows to below pre-development conditions. Outflow hydrographs were provided for 100-year 1-hour, 3-hour, 6-hour, and 24-hour scenarios. These hydrographs served as inflows to the hydraulic model.

A new hydrology analysis was prepared by Q3 Consulting as a part of this study for the Riverside National Cemetery and Old General Golf Course areas in accordance to the methods described in the Riverside County Hydrology Manual. Delineations of hydrologic subareas were performed using aerial LIDAR topographic data flown by United States Geological Survey in 2018. Single area unit hydrographs were then generated using Advanced Engineering Software's (AES) program. A more detailed hydrology map for the Cemetery and Golf Course areas can be seen in Figure 2-1. The results of the hydrology calculations for this area can be seen in Appendix A.

Figure 2-1. Riverside National Cemetery and General Old Golf Course Hydrology Map



3 HYDRAULICS

The Webb 2020 VIP/Line B study attempted to conservatively estimate flow rates in the railroad and Caltrans culverts. The VIP study did not consider differences in peak timing and attenuation from the overland flow area to the west of the railroad, resulting in significantly higher design peak flow rates. In addition, as water ponds along the west of the railroad, there is significant bifurcation, where flows from one watershed back up and overtop watershed divides and enter an adjacent watershed. These flow patterns are too complicated for traditional hydrology and hydraulics methodology to adequately model. This Line B Master Plan Update Report seeks to account for peak timing, attenuation, and bifurcation effects via the use of a coupled 1D/2D model. The regional hydraulic analysis was performed using a coupled 1-d/2-d hydraulic software model (XP-SWMM) to simulate the flood hazard along the project site.

3.1 1-d/2-d XP-SWMM Model

3.1.1 Introduction

The 1D calculation engine (SWMM) was developed by U.S. Environmental Protection Agency (US EPA). This study uses an enhanced version of SWMM from XP Solutions, appropriately named XP-SWMM, to analyze the flood inundation throughout the area. The program includes a two-dimensional (2D) surface flow analysis TUFLOW module.

TUFLOW is the computational engine incorporated in XP-SWMM that provides two-dimensional and one-dimensional solutions of the free-surface flow equations to simulate flood propagation. TUFLOW is based on the Stalling finite difference, alternating direction implicit (ADI) scheme that solves the full 2D free surface shallow water flow equations. The XP-SWMM two-dimensional model analysis uses the digital terrain model (DTM) to route surface flows.

3.1.2 Topography

Existing condition topography was provided by Inland Aerial Surveys, Inc. This aerial topographic data is dated October 26, 2021 and was processed using AutoCAD Civil 3D and ArcGIS into a proprietary format usable by XPSWMM.

3.1.3 Vertical Datum

The project uses the North American Vertical Datum of 1988 (NAVD88).

3.1.4 2-d Model Geometry

The existing condition model was based on the existing condition topography discussed in Section 3.1.2. The study area encompasses the eastern portion of Riverside National Cemetery and a portion of the March JPA on the east side of I-215, with the northern boundary being Van Buren Boulevard and southern boundary being the northern edge of the Western Water Recycling Facility. These model extents allow for all tributary flows to Perris Valley Storm Drain Line B to be appropriately routed via both 1D and 2D flow regimes.

Free outflow surface boundary conditions were set for the 2-D analysis along the eastern and southern boundary of the study area.

3.1.5 Manning's "n" Value

A varying manning's value was used for the model. The manning's designations were as follows:

- 0.070 – Barren land
- 0.015 – Road/Freeway
- 0.035 – Golf Course and Cemetery Areas
- 0.040 – Railroad

3.1.6 Grid Size

The grid cell resolution is an important consideration in two-dimensional modeling. Small grid cell sizes increase accuracy but require additional computation times; while larger grid sizes compromise accuracy but increase computation time. The determination of grid size requires a trade-off to ensure a workable model without compromising satisfactory accuracy. Multiple scenarios were evaluated by Q3 and it was determined that a 6-foot grid cell produced highly accurate models with reasonable simulation time.

3.1.7 Computational Time Step

The computational time step is very important for 2D modeling. At each time increment, the software computes a flow depth at each cell as well as each cell boundary, and assigns flow accordingly, resulting in a new computation at the subsequent time step therefore increasing the simulation time. Grid size is directly proportion to the computational time step. A time-step of 0.6 seconds was used for the 6 foot grid cells.

3.1.8 1D Geometry

XP-SWMM allows for the coupling of the TUFLOW 2D computational engine with the EPASWMM 1D hydraulics engine. Coupling the 1D hydraulics to the 2D surface means that surface and sheet flows can be routed into a storm drain or culvert where hydraulic routing can take place and vice versa. In the existing condition model, culverts underneath the railroad and Caltrans were inserted based on field survey information provided by DRC Engineering and available as-built plans for the drainage facilities. The downstream (east) elevation of the Caltrans culverts were derived from the Lateral B Construction Plans prepared by Webb. Lateral B itself was also inserted into the XP-SWMM model using the Webb (2021) construction plans as reference.

3.1.9 Inlet Rating Curves

More accurate modeling of culvert capacity was achieved by calculating rating curves for each bank of culverts. For the existing condition model, rating curves for 42" RCP, 48" RCP, 6'Wx3'H RCB, 7'Wx3'H RCB were calculated using Dodson HydroCalc Hydraulics software, which utilizes Federal Highway Administration (FHWA) culvert equations. Banks of multiple culverts were modeled as one conduit in XPSWMM with a toggle for multiple barrels. In cases of culverts having multiple barrels, the flow rate for the inlet rating curve was multiplied by the number of barrels to achieve the total flow rates for the culverts.

XPSWMM includes a feature where rather than a user specified rating curve, orifice equations can be directly utilized. This feature allows for a user specified discharge coefficient, so the orifice equation can be tweaked to allow for closer matching of FHWA culvert equations. A table comparing rating curves for FHWA equations and orifice equations can be seen in Table 3-1. Orifice equations rather than user specified rating curves were utilized within XPSWMM due to its direct implementation. A user specified rating curve is more complicated to implement in the model, with minimal benefit to model accuracy, as seen in Table 3-1.

Table 3-1. Inlet Rating Curve Comparison

42" RCP			48" RCP		
Headwater (ft)	FHWA Flow Rate (cfs)	Orifice Equation Flow Rate (cfs)	Headwater (ft)	FHWA Flow Rate (cfs)	Orifice Equation Flow Rate (cfs)
0.5	2	2	0.5	2	2
1	7	7	1	8	7
1.5	14	14	1.5	16	15
2	23	24	2	26	26
3	43	45	3	49	52
3.5	53	53	4	75	74

6'Wx3'H RCB			7'Wx3'H RCB		
Headwater (ft)	FHWA Flow Rate (cfs)	Orifice Equation Flow Rate (cfs)	Headwater (ft)	FHWA Flow Rate (cfs)	Orifice Equation Flow Rate (cfs)
0.5	6	6	0.5	7	6
1	16	16	1	19	18
1.5	30	29	1.5	35	33
2	46	44	2	53	51
2.5	64	62	2.5	75	72
3	84	81	3	98	95

4 FLOOD HAZARD RESULTS AND RECOMMENDATIONS

4.1 Existing Condition Analysis

The regional hydraulic analysis was prepared for the existing conditions to document the existing flood hazard along the eastern portion of Riverside National Cemetery, the railroad, and I-215. Additionally, the project condition was prepared to verify that proposed alternatives reduce or eliminate this flood hazard and do not adversely affect downstream properties. The 100-year storm was evaluated for the existing condition for 1-hour, 3-hour, 6-hour, and 24-hour durations to determine which was the controlling storm scenario.

The results of the existing condition analysis can be seen in Exhibits 1 through 4. The existing condition models show that there are three main issues within the study area:

- The existing grade of the drainage ditch conveying Meridian flows south of Van Buren Boulevard through Riverside National Cemetery coupled with the grade of the adjacent railroad tracks results in significant overtopping of the railroad during a 100-year storm.
- The 42" RCP culvert adjacent to the Riverside National Cemetery retention basin is undersized to convey the 100-year storm. This results in significant overtopping of the railroad.
- The (2) 48" RCP culvert located to the east of the irrigation lake is undersized to convey the 100-year storm. This results in significant overtopping of the railroad.

One additional problem in the study site is that overtopping of the railroad is not confined strictly to the immediate vicinity of the railroad culvert headwall. For example, the overtopping of the 42" RCP culvert adjacent to the Cemetery retention basin takes place over 700 feet along the railroad track in the 6-hour scenario as seen in Exhibit 3. The grading of the median between the railroad and southbound I-215 is such that there is not enough hydraulic capacity within the median to convey flow that is overtopping 700 feet away from the headwall towards the Caltrans culvert before I-215 is inundated by flow. As a result, the inadequacy of the 42" RCP railroad culvert to convey flows to the east into the Caltrans culvert causes a significant flood hazard within the drive lanes of I-215.

4.2 Proposed Condition Analysis

The existing condition analysis showed that the 3-hour and 6-hour durations of the 100-year storm produced the largest flow rates and deepest flooding depths. As such, the proposed condition analysis focused on these storm scenarios. Results of the proposed condition analysis can be seen in Exhibits 5 and 6.

In the project condition, overtopping of the railroad is eliminated via four proposed improvements:

1. The northernmost overtopping issue related to the Meridian flows is eliminated via the addition of 2,300 linear feet of (2) 48" RCP culvert connecting directly to the outlet of the Van Buren Culvert and connecting directly to the inlet of the existing (2) 48" RCP railroad culvert. Direct connections to the Van Buren Culvert and railroad culvert improve the hydraulic efficiency of the culvert, reducing head loss that would otherwise be associated with culvert inlet hydraulics. Exhibits 5 and 6 both show that the Caltrans culvert is sufficiently sized to accept the proposed condition flow rate coming out of the railroad culvert; no overtopping of I-215 is seen in both the 3-hour and 6-hour storm scenarios.
2. Overtopping related to the 42" RCP adjacent to the Riverside National Cemetery retention basin is resolved via the addition of (4) 42" RCP culverts, for a total of (5) 42" RCP culverts. In the proposed condition, flow overtops the existing retention basin and access road before entering the cleaned and re-graded drainage ditch (discussed in more detail below) and subsequently the proposed additional culverts. Similar to the above discussion, the Caltrans culvert is sufficiently

sized to accept the proposed condition flow rate coming out of the bank of railroad culverts. No overtopping of I-215 is present in either the 3-hour or 6-hour storm scenarios.

3. The third and southernmost railroad overtopping hazard at the existing (2) 48" RCP culverts is resolved via the addition of (2) 48" RCP culverts, for a total of (4) 48" RCP culverts. In the proposed condition scenario, flow overtops the existing irrigation lake and is conveyed eastward into the cleaned and re-graded drainage ditch (discussed in more detail below) before entering the proposed additional culverts. The Caltrans culverts immediately downstream of the bank of railroad culverts is sufficiently sized to accept the proposed condition flow rate, therefore there is no overtopping of I-215.
4. Approximately 2,400 linear feet of the existing drainage ditch that runs parallel to the railroad is proposed to be cleaned and re-graded. The existing drainage ditch is full of sediment and vegetation such that the hydraulic capacity of the ditch is minimal when compared to the incoming floodwaters. Re-grading the ditch to direct flows at the banks of culverts will improve the hydraulic efficiency of the new proposed system and reduce the number of additional culverts required to convey floodwaters to the east without overtopping the railroad.

A conceptual design of the proposed railroad culverts and proposed re-grading of the drainage ditch can be seen in Appendix B.

4.3 Perris Valley Storm Drain Line B Flow Rates

The existing condition analysis discussed in Section 4.1 shows that there is significant overtopping of both the railroad and I-215. This flow does not enter PVSD Line B in the existing condition hydraulic models. With the improved conveyance as a result of the implementation of the proposed improvements outlined in Section 4.2, it is expected that the flow rate within PVSD Line B will increase when compared to the existing condition flow rate. It is important when evaluating proposed design concepts for this study area that any proposed improvements do not adversely impact PVSD Line B such that its function is compromised.

The Webb 2020 report states that the design flow rate for the upper most 2,200 linear feet of PVSD Line B is 800 cfs. The design flow rate for the remaining downstream reach is 1,600 cfs. In the proposed condition 100-year 3-hour analysis performed as part of this PVSD Line B Master Plan Update, the peak flow rate within the upstream reach of Line B is approximately 400 cfs. The 100-year 3-hour peak flow rate within the downstream reach of Line B is approximately 680 cfs. The 100-year 6-hour peak flow rate within the upstream reach of Line B is approximately 410 cfs. The 100-year 6-hour peak flow rate within the downstream reach of Line B is approximately 710 cfs. Therefore, the peak flow rate calculated along the entire reach of Line B is less than the design flow rate used by Webb in their design. As such, the proposed improvements discussed in Section 4.2 do not adversely affect Line B and are compatible with the previous design work.

5 CONCLUSION

Hydrology that is tributary to the Perris Valley Storm Drain Line B was compiled from previous design work by K&A Engineering, Kimley-Horn & Associates, and Albert A. Webb & Associates. Additional hydrology for the Riverside National Cemetery and General Old Golf Course was calculated as part of this analysis and integrated with the previous hydrology studies to develop a complete watershed hydrology for the areas tributary to the Line B improvement plans (Webb, 2021). A 100-year existing condition analysis was performed for the study area, and it was established that the 3-hour and 6-hour storm scenarios produce the largest flood hazard overtopping the railroad and I-215. This flood hazard was eliminated via the addition of six culverts underneath the railroad, re-grading and clearing of the existing drainage ditch parallel to the railroad, and the addition of 2,300 linear feet of culvert connecting the outlet of the Van Buren Culvert to the inlet of the northernmost (2) 48" RCP culvert. The resulting flow rate within PVSD Line B in the proposed condition is less than the design flow rate utilized by Webb in their design, therefore, there are no adverse impacts to the Line B system by the proposed improvements.

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6 REFERENCES

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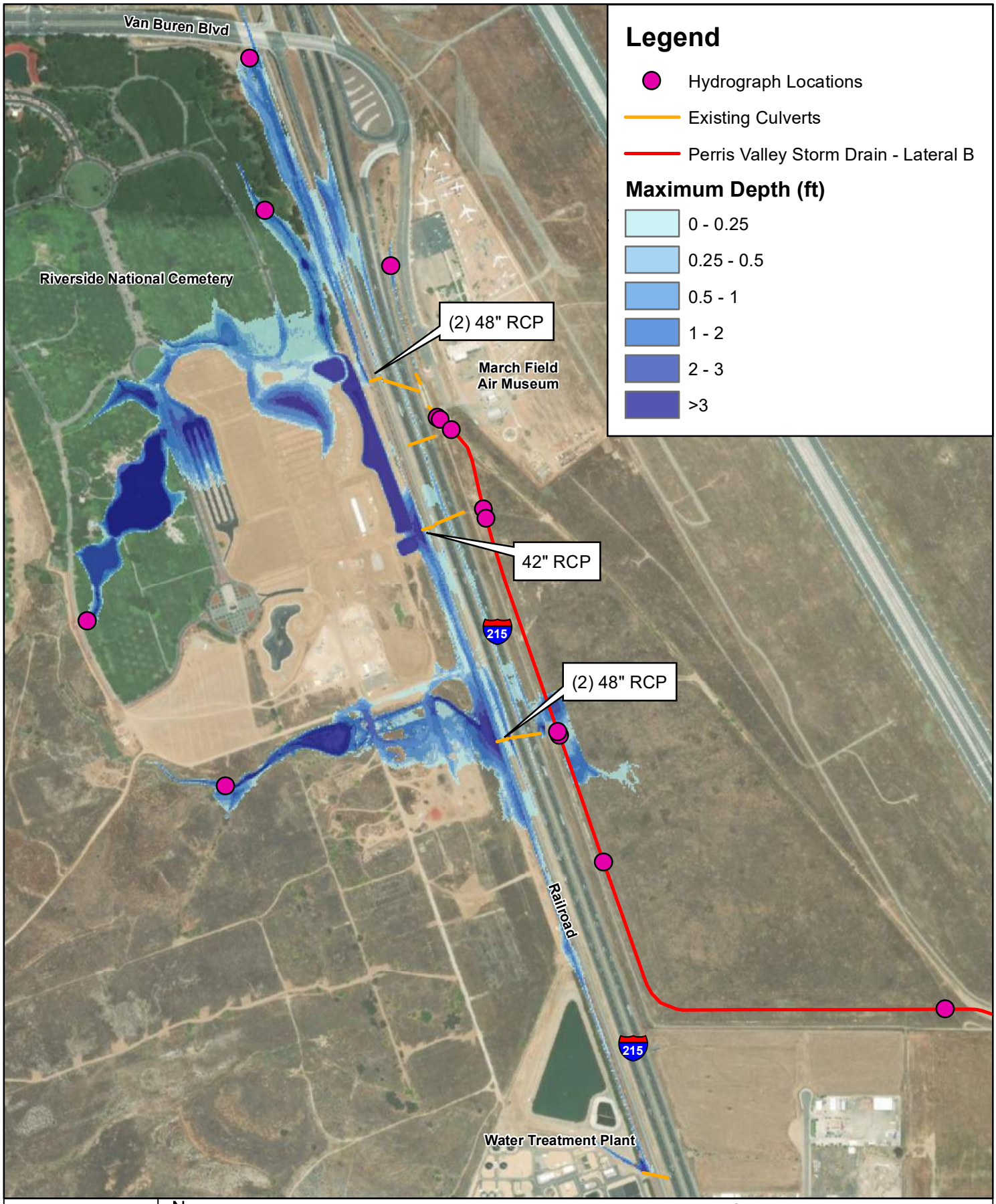
Exhibits



Q3 Consulting

N

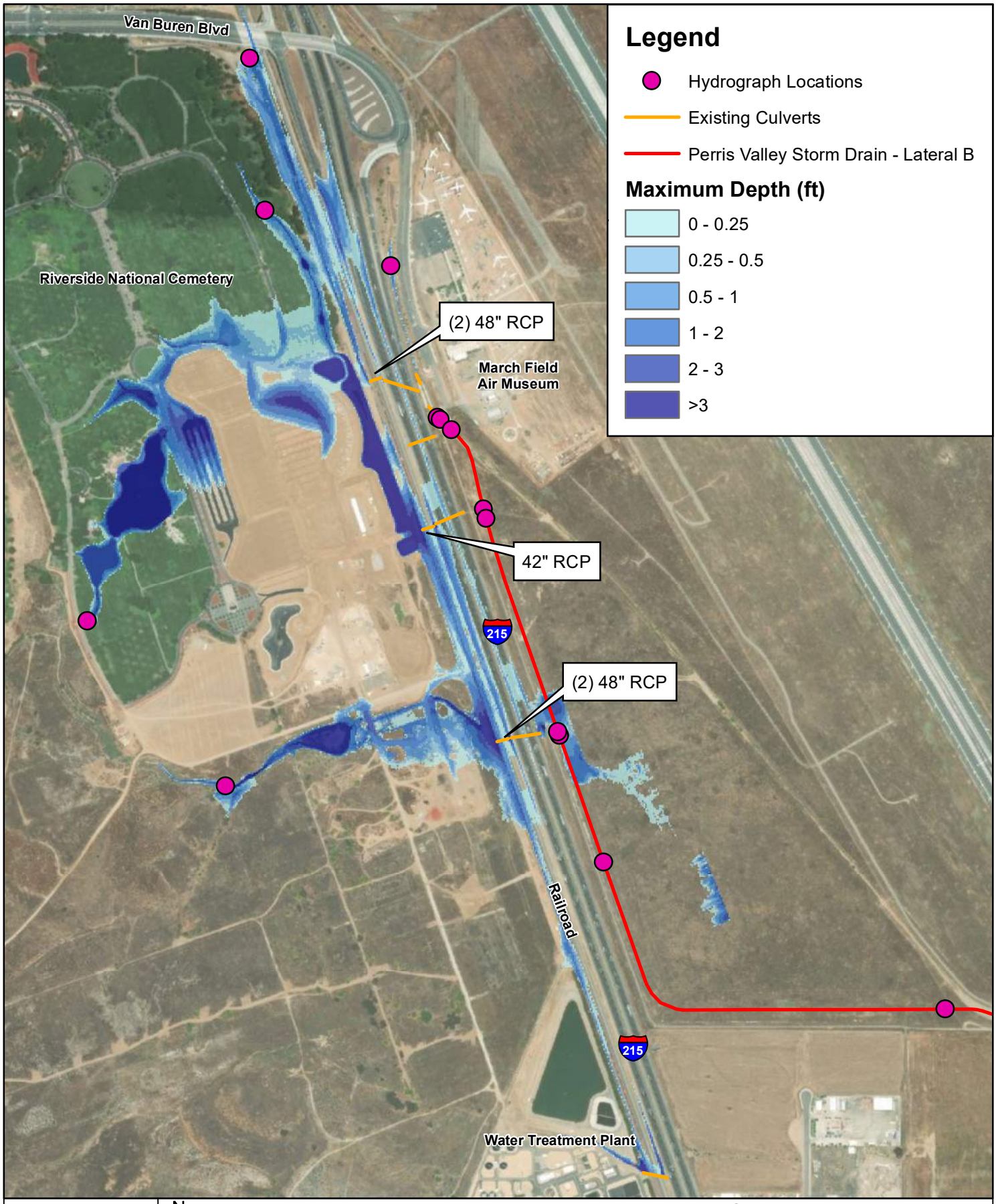
0 205 410 820 Feet

PVSD Line B Master Plan Update

Existing Condition

100 Year 1 Hour Storm

Exhibit 1



Q3 Consulting

N

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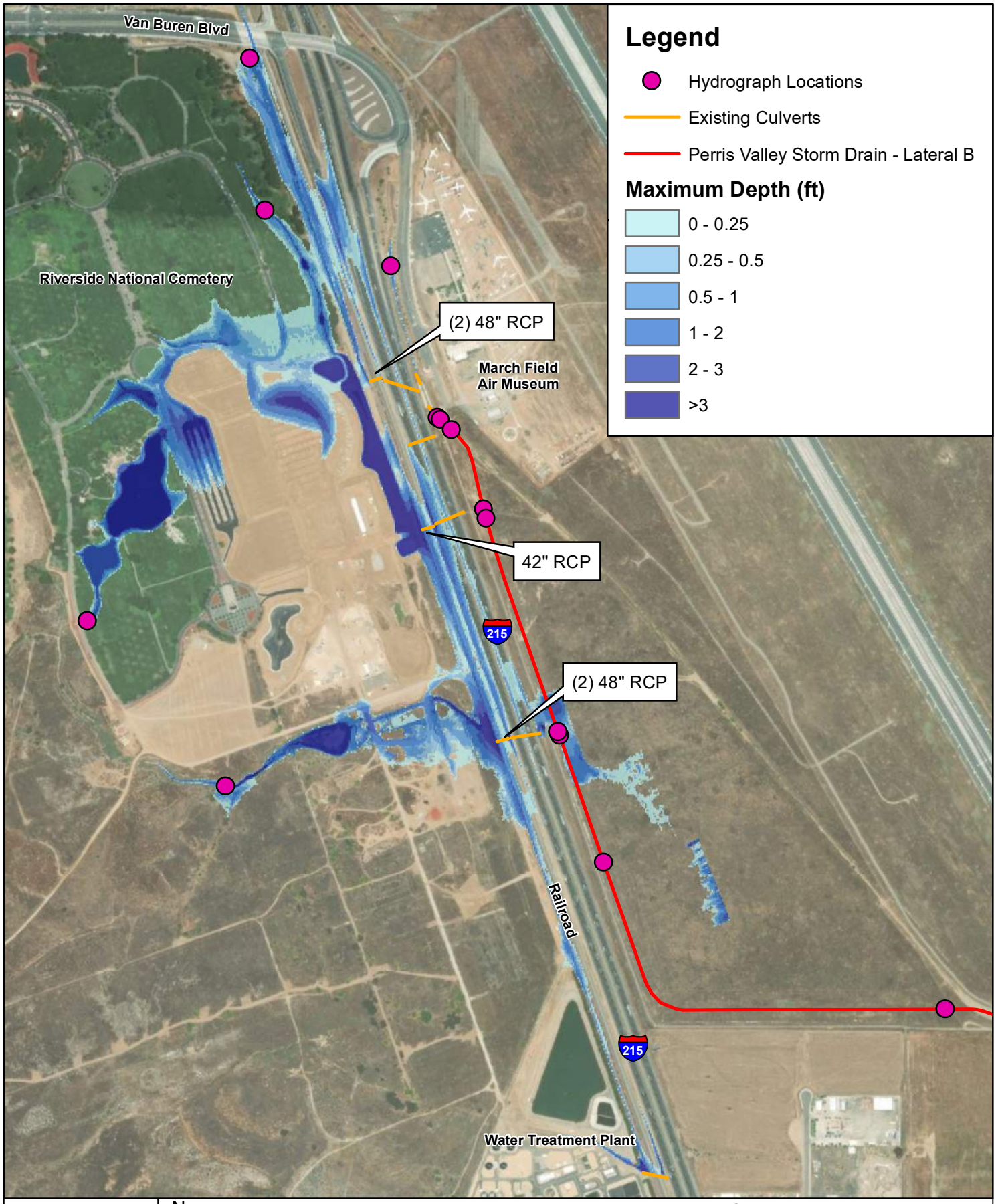
PVSD Line B Master Plan Update

Existing Condition

100 Year 3 Hour Storm

Exhibit 2



Consulting

N

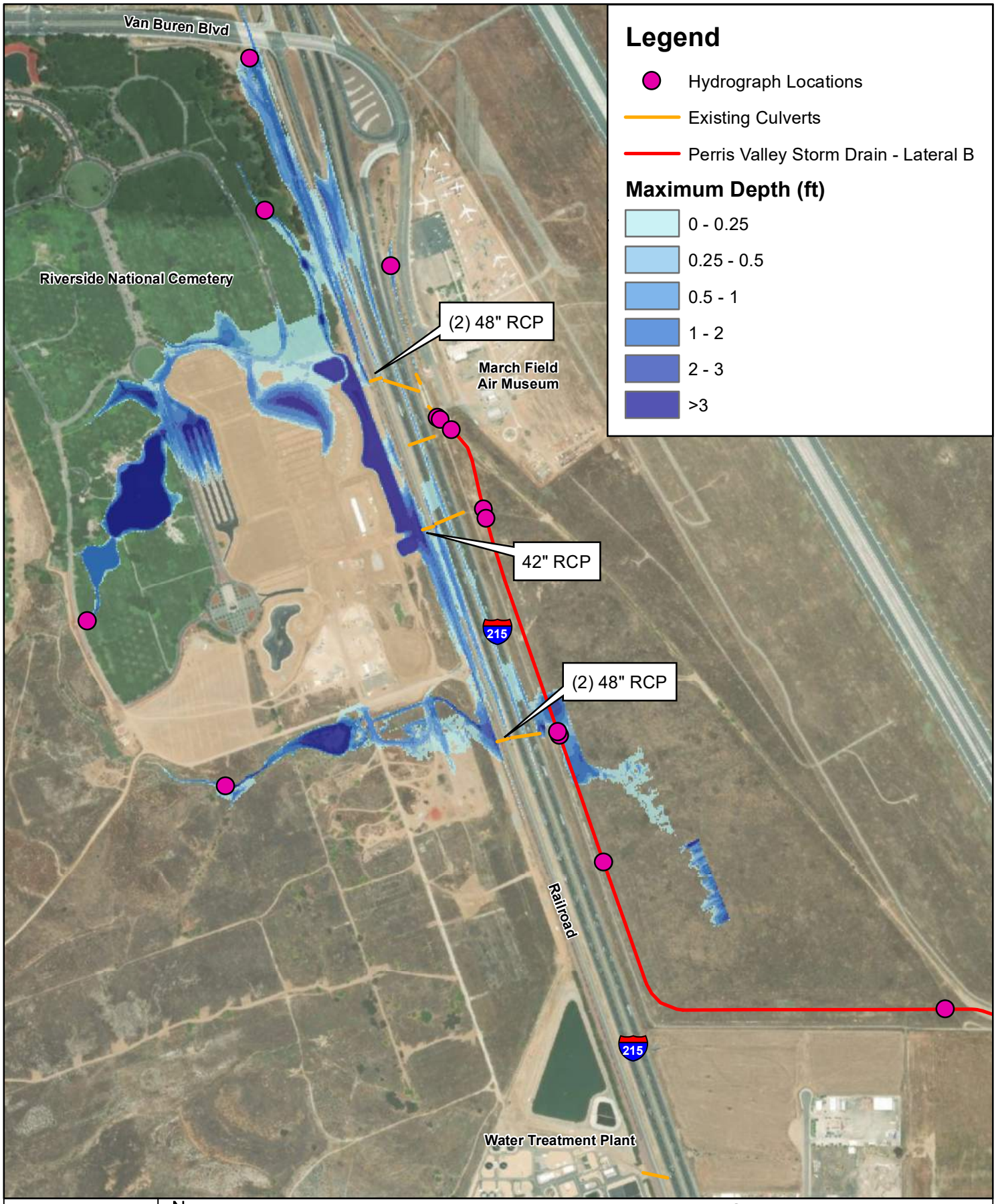
0 205 410 820 Feet

PVSD Line B Master Plan Update

Existing Condition

100 Year 6 Hour Storm

Exhibit 3



Q3 Consulting

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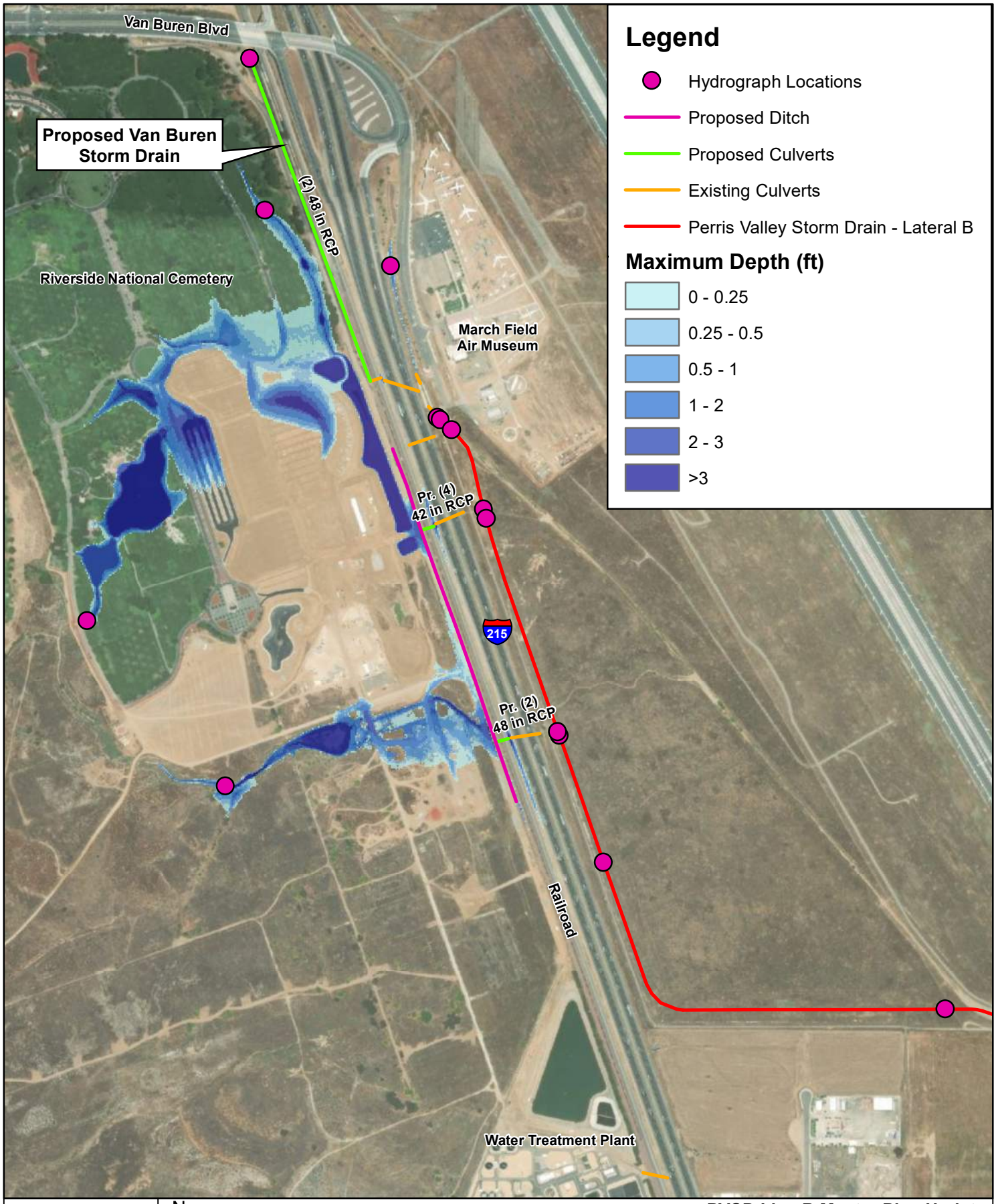
0 205 410 820 Feet

PVSD Line B Master Plan Update

Existing Condition

100 Year 24 Hour Storm

Exhibit 4



Q3 Consulting

N

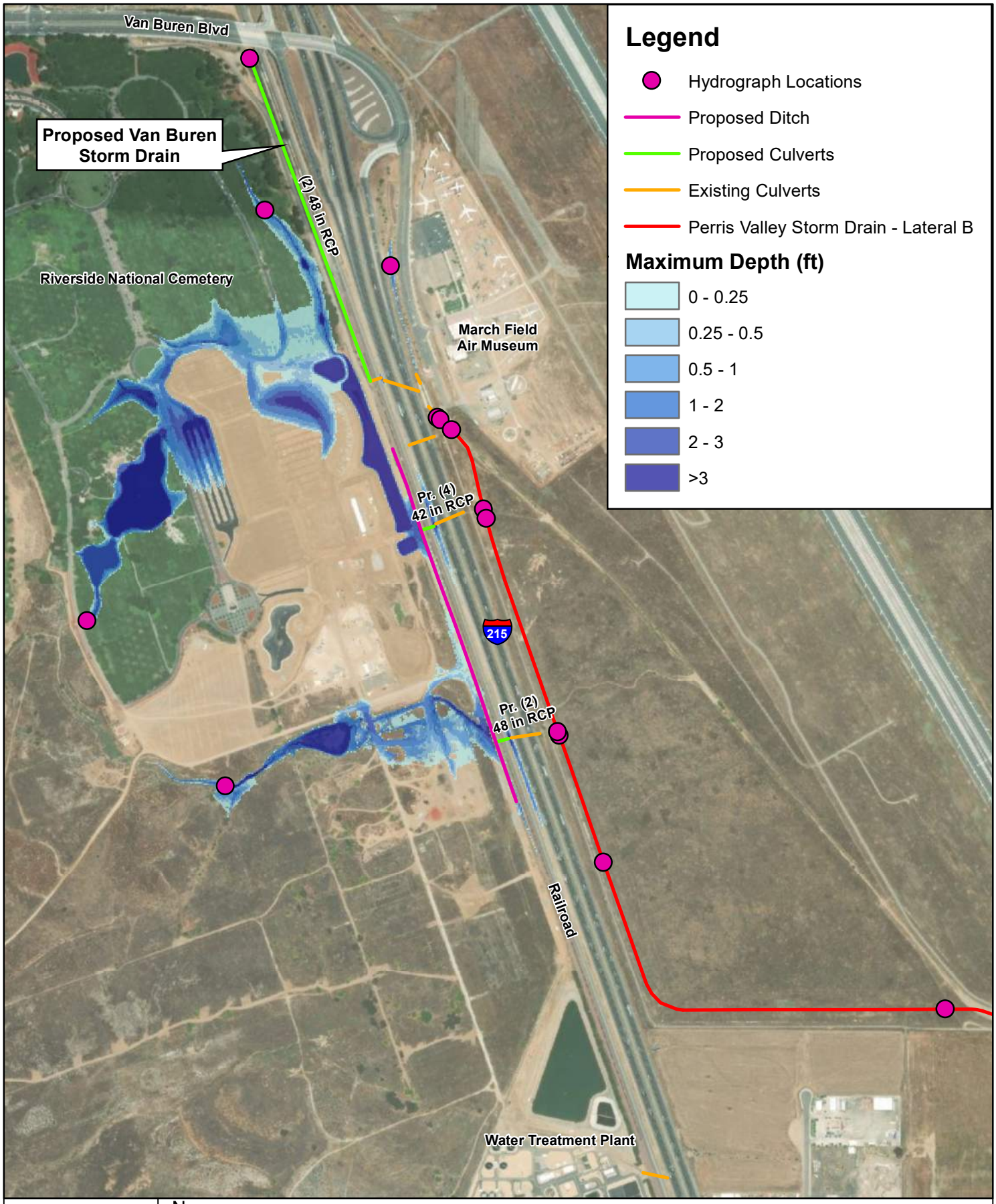
0 205 410 820 Feet

PVSD Line B Master Plan Update

Proposed Condition

100 Year 3 Hour Storm

Exhibit 5



Q3 Consulting

N

0 205 410 820 Feet

PVSD Line B Master Plan Update
Proposed Condition
100 Year 6 Hour Storm

Exhibit 6

Appendix A
Hydrology Calculations for Riverside National Cemetery and General Old Golf Course

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             F L O O D    R O U T I N G    A N A L Y S I S

ACCORDING TO RIVERSIDE COUNTY FLOOD CONTORL AND WATER CONSERVATION DISTRICT
                    (RCFC&WCD) 1978 HYDROLOGY MANUAL
          (c) Copyright 1989-2015 Advanced Engineering Software (aes)
                  (Synthetic Unit Hydrograph Version 22.0)
                  Release Date: 07/01/2015  License ID 1673

                           Analysis prepared by:




 ************************* DESCRIPTION OF STUDY *************************
* CEMETERY AREA                                                         *
* WATERSHED A                                                           *
* 100-YEAR 1-HOUR ZSNYDER 03/11/2022                                    *
 ************************************************************************

  FILE NAME: CEMA1HR.DAT
  TIME/DATE OF STUDY: 14:41 03/11/2022


**************************************************************************
  FLOW PROCESS FROM NODE    100.00 TO NODE    101.00 IS CODE =   1
--------------------------------------------------------------------------
  >>>>>SUBAREA RUNOFF (UNIT-HYDROGRAPH ANALYSIS)<<<<<
==========================================================================

      (UNIT-HYDROGRAPH ADDED TO STREAM #1)

         WATERCOURSE LENGTH =    7348.000 FEET
         LENGTH FROM CONCENTRATION POINT TO CENTROID =    4909.000 FEET
         ELEVATION VARIATION ALONG WATERCOURSE =      90.000 FEET
         BASIN FACTOR = 0.025
         WATERSHED AREA =     186.000 ACRES
         BASEFLOW =   0.000 CFS/SQUARE-MILE
         WATERCOURSE "LAG" TIME =    0.300 HOURS
          CAUTION: LAG TIME IS LESS THAN 0.50 HOURS.
          THE 5-MINUTE PERIOD UH MODEL (USED IN THIS COMPUTER PROGRAM)
          MAY BE TOO LARGE FOR PEAK FLOW ESTIMATES.
         VALLEY S-GRAPH SELECTED
         UNIFORM MEAN SOIL-LOSS(INCH/HOUR) =  0.185
         LOW SOIL-LOSS RATE PERCENT(DECIMAL) = 0.860
```

USER-ENTERED RAINFALL = 1.20 INCHES
RCFC&WCD 1-Hour Storm (5-Minute period) SELECTED
(SLOPE OF INTENSITY-DURATION CURVE = 0.50)
RCFC&WCD DEPTH-AREA ADJUSTMENT FACTOR(PLATE E-5.8) = 0.9900

UNIT HYDROGRAPH TIME UNIT = 5.000 MINUTES
UNIT INTERVAL PERCENTAGE OF LAG-TIME = 27.809

UNIT HYDROGRAPH DETERMINATION

INTERVAL NUMBER	"S" GRAPH MEAN VALUES	UNIT HYDROGRAPH ORDINATES(CFS)
1	2.591	58.288
2	11.512	200.667
3	27.959	369.976
4	47.788	446.025
5	61.633	311.437
6	69.732	182.181
7	75.133	121.498
8	79.104	89.320
9	82.227	70.263
10	84.812	58.148
11	86.918	47.363
12	88.636	38.645
13	90.195	35.076
14	91.506	29.482
15	92.638	25.466
16	93.665	23.091
17	94.554	20.014
18	95.372	18.398
19	96.116	16.721
20	96.665	12.370
21	97.205	12.146
22	97.745	12.140
23	98.105	8.102
24	98.305	4.496
25	98.505	4.487
26	98.704	4.490
27	98.904	4.490
28	99.103	4.490
29	99.303	4.490
30	99.503	4.490
31	99.702	4.490

32	99.902	4.490
33	100.000	2.209

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UNIT PERIOD (NUMBER)	UNIT RAINFALL (INCHES)	UNIT SOIL-LOSS (INCHES)	EFFECTIVE RAINFALL (INCHES)
1	0.0510	0.0154	0.0356
2	0.0540	0.0154	0.0386
3	0.0576	0.0154	0.0421
4	0.0638	0.0154	0.0483
5	0.0674	0.0154	0.0520
6	0.0771	0.0154	0.0617
7	0.0911	0.0154	0.0757
8	0.1004	0.0154	0.0850
9	0.1538	0.0154	0.1384
10	0.3312	0.0154	0.3158
11	0.0840	0.0154	0.0686
12	0.0566	0.0154	0.0412

TOTAL STORM RAINFALL(INCHES) = 1.19
TOTAL SOIL-LOSS(INCHES) = 0.19
TOTAL EFFECTIVE RAINFALL(INCHES) = 1.00

TOTAL SOIL-LOSS VOLUME(ACRE-FEET) = 2.8675
TOTAL STORM RUNOFF VOLUME(ACRE-FEET) = 15.5385

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1 - H O U R S T O R M
R U N O F F H Y D R O G R A P H

==========

HYDROGRAPH IN FIVE-MINUTE UNIT INTERVALS(CFS)
(Note: Time indicated is at END of Each Unit Intervals)

TIME(HRS)	VOLUME(AF)	Q(CFS)	0. 75.0 150.0 225.0 300.0
0.083	0.0143	2.08	Q . . . .
0.167	0.0790	9.40	VQ . . . .
0.250	0.2401	23.39	V Q . . . .
0.333	0.5256	41.45	.V Q . . . .
0.417	0.9156	56.64	. V Q . . . .
0.500	1.3924	69.22	. V Q. . . .

0.583	1.9575	82.06	. V Q . . .
0.667	2.6238	96.74	. V . Q . . .
0.750	3.4275	116.70	. V . Q . . .
0.833	4.4915	154.49	. .V Q . .
0.917	5.9296	208.82	. . V . Q . .
1.000	7.6939	256.18	. . V. . Q .
1.083	9.4775	258.97	. . . V . Q .
1.167	10.8560	200.15	. . . QV . .
1.250	11.8093	138.42	. . Q . V .
1.333	12.4711	96.09	. . Q . . V .
1.417	12.9573	70.60	. Q. . . V .
1.500	13.3405	55.64	. Q . . . V .
1.583	13.6557	45.76	. Q . . . V .
1.667	13.9174	38.00	. Q . . . V .
1.750	14.1385	32.10	. Q . . . V .
1.833	14.3319	28.09	. Q . . . V .
1.917	14.4985	24.18	. Q . . . V .
2.000	14.6434	21.04	. Q . . . V .
2.083	14.7709	18.51	. Q . . . V .
2.167	14.8821	16.15	. Q . . . V .
2.250	14.9808	14.33	.Q . . . V .
2.333	15.0669	12.50	.Q . . . V .
2.417	15.1384	10.39	.Q . . . V .
2.500	15.2027	9.33	.Q . . . V.
2.583	15.2596	8.27	.Q . . . V.
2.667	15.3043	6.48	Q . . . V.
2.750	15.3386	4.99	Q . . . V.
2.833	15.3689	4.40	Q . . . V.
2.917	15.3970	4.07	Q . . . V.
3.000	15.4237	3.87	Q . . . V.
3.083	15.4488	3.65	Q . . . V.
3.167	15.4721	3.39	Q . . . V.
3.250	15.4933	3.08	Q . . . V.
3.333	15.5121	2.72	Q . . . V.
3.417	15.5273	2.22	Q . . . V.
3.500	15.5355	1.19	Q . . . V.
3.583	15.5378	0.34	Q . . . V.
3.667	15.5385	0.09	Q . . . V.

TIME DURATION(minutes) OF PERCENTILES OF ESTIMATED PEAK FLOW RATE:
(Note: 100% of Peak Flow Rate estimate assumed to have
an instantaneous time duration)

Percentile of Estimated Peak Flow Rate	Duration (minutes)
0%	220.0
10%	95.0
20%	70.0

30%	50.0
40%	35.0
50%	30.0
60%	20.0
70%	20.0
80%	15.0
90%	10.0

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END OF FLOODSCx ROUTING ANALYSIS

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             F L O O D    R O U T I N G    A N A L Y S I S

ACCORDING TO RIVERSIDE COUNTY FLOOD CONTORL AND WATER CONSERVATION DISTRICT
                    (RCFC&WCD) 1978 HYDROLOGY MANUAL
          (c) Copyright 1989-2015 Advanced Engineering Software (aes)
                  (Synthetic Unit Hydrograph Version 22.0)
                  Release Date: 07/01/2015  License ID 1673

                           Analysis prepared by:




 ************************* DESCRIPTION OF STUDY *************************
* CEMETERY AREA                                                         *
* WATERSHED A                                                           *
* 100-YEAR 3-HOUR ZSNYDER 03/11/2022                                    *
 ************************************************************************

  FILE NAME: CEMA3HR.DAT
  TIME/DATE OF STUDY: 14:43 03/11/2022


**************************************************************************
  FLOW PROCESS FROM NODE    100.00 TO NODE    101.00 IS CODE =   1
--------------------------------------------------------------------------
  >>>>>SUBAREA RUNOFF (UNIT-HYDROGRAPH ANALYSIS)<<<<<
==========================================================================

      (UNIT-HYDROGRAPH ADDED TO STREAM #1)

         WATERCOURSE LENGTH =    7348.000 FEET
         LENGTH FROM CONCENTRATION POINT TO CENTROID =    4909.000 FEET
         ELEVATION VARIATION ALONG WATERCOURSE =      90.000 FEET
         BASIN FACTOR = 0.025
         WATERSHED AREA =     186.000 ACRES
         BASEFLOW =   0.000 CFS/SQUARE-MILE
         WATERCOURSE "LAG" TIME =    0.300 HOURS
          CAUTION: LAG TIME IS LESS THAN 0.50 HOURS.
          THE 5-MINUTE PERIOD UH MODEL (USED IN THIS COMPUTER PROGRAM)
          MAY BE TOO LARGE FOR PEAK FLOW ESTIMATES.
         VALLEY S-GRAPH SELECTED
         UNIFORM MEAN SOIL-LOSS(INCH/HOUR) =  0.185
         LOW SOIL-LOSS RATE PERCENT(DECIMAL) = 0.860
```

USER-ENTERED RAINFALL = 1.90 INCHES
RCFC&WCD 3-Hour Storm (5-Minute period) SELECTED
RCFC&WCD DEPTH-AREA ADJUSTMENT FACTOR(PLATE E-5.8) = 0.9993

UNIT HYDROGRAPH TIME UNIT = 5.000 MINUTES
UNIT INTERVAL PERCENTAGE OF LAG-TIME = 27.809

UNIT HYDROGRAPH DETERMINATION

INTERVAL NUMBER	"S" GRAPH MEAN VALUES	UNIT HYDROGRAPH ORDINATES(CFS)
1	2.591	58.288
2	11.512	200.667
3	27.959	369.976
4	47.788	446.025
5	61.633	311.437
6	69.732	182.181
7	75.133	121.498
8	79.104	89.320
9	82.227	70.263
10	84.812	58.148
11	86.918	47.363
12	88.636	38.645
13	90.195	35.076
14	91.506	29.482
15	92.638	25.466
16	93.665	23.091
17	94.554	20.014
18	95.372	18.398
19	96.116	16.721
20	96.665	12.370
21	97.205	12.146
22	97.745	12.140
23	98.105	8.102
24	98.305	4.496
25	98.505	4.487
26	98.704	4.490
27	98.904	4.490
28	99.103	4.490
29	99.303	4.490
30	99.503	4.490
31	99.702	4.490
32	99.902	4.490

33 100.000 2.209

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UNIT PERIOD (NUMBER)	UNIT RAINFALL (INCHES)	UNIT SOIL-LOSS (INCHES)	EFFECTIVE RAINFALL (INCHES)
1	0.0247	0.0154	0.0093
2	0.0247	0.0154	0.0093
3	0.0209	0.0154	0.0055
4	0.0285	0.0154	0.0131
5	0.0285	0.0154	0.0131
6	0.0342	0.0154	0.0188
7	0.0285	0.0154	0.0131
8	0.0342	0.0154	0.0188
9	0.0342	0.0154	0.0188
10	0.0285	0.0154	0.0131
11	0.0304	0.0154	0.0150
12	0.0342	0.0154	0.0188
13	0.0418	0.0154	0.0264
14	0.0418	0.0154	0.0264
15	0.0418	0.0154	0.0264
16	0.0380	0.0154	0.0226
17	0.0494	0.0154	0.0339
18	0.0513	0.0154	0.0358
19	0.0456	0.0154	0.0301
20	0.0513	0.0154	0.0358
21	0.0627	0.0154	0.0472
22	0.0589	0.0154	0.0434
23	0.0551	0.0154	0.0396
24	0.0570	0.0154	0.0415
25	0.0589	0.0154	0.0434
26	0.0797	0.0154	0.0643
27	0.0949	0.0154	0.0795
28	0.0665	0.0154	0.0510
29	0.1291	0.0154	0.1137
30	0.1386	0.0154	0.1232
31	0.1557	0.0154	0.1403
32	0.1120	0.0154	0.0966
33	0.0380	0.0154	0.0226
34	0.0342	0.0154	0.0188
35	0.0342	0.0154	0.0188
36	0.0114	0.0098	0.0016

TOTAL STORM RAINFALL(INCHES) = 1.90
TOTAL SOIL-LOSS(INCHES) = 0.55
TOTAL EFFECTIVE RAINFALL(INCHES) = 1.35

```
------------------------------------------------------------------------------
    TOTAL SOIL-LOSS VOLUME(ACRE-FEET) =       8.5154
    TOTAL STORM RUNOFF VOLUME(ACRE-FEET) =      20.9022
------------------------------------------------------------------------------
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==============================================================================
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3 - H O U R S T O R M
R U N O F F H Y D R O G R A P H

```
==============================================================================
```

HYDROGRAPH IN FIVE-MINUTE UNIT INTERVALS(CFS)
(Note: Time indicated is at END of Each Unit Intervals)

```
------------------------------------------------------------------------------
 TIME(HRS) VOLUME(AF)   Q(CFS) 0.       75.0     150.0     225.0     300.0
------------------------------------------------------------------------------
   0.083      0.0037      0.54  Q         .         .         .         .
   0.167      0.0202      2.40  Q         .         .         .         .
   0.250      0.0589      5.61  Q         .         .         .         .
   0.333      0.1237      9.42  VQ        .         .         .         .
   0.417      0.2093     12.42  VQ        .         .         .         .
   0.500      0.3164     15.56  V Q       .         .         .         .
   0.583      0.4521     19.70  V Q       .         .         .         .
   0.667      0.6140     23.50  .V Q      .         .         .         .
   0.750      0.7975     26.65  .V Q      .         .         .         .
   0.833      0.9957     28.78  .V Q      .         .         .         .
   0.917      1.2051     30.40  . V Q     .         .         .         .
   1.000      1.4185     31.00  . V Q     .         .         .         .
   1.083      1.6376     31.80  .  VQ     .         .         .         .
   1.167      1.8777     34.87  .  VQ     .         .         .         .
   1.250      2.1516     39.77  .   VQ    .         .         .         .
   1.333      2.4579     44.48  .   VQ    .         .         .         .
   1.417      2.7868     47.75  .    VQ   .         .         .         .
   1.500      3.1372     50.88  .     Q   .         .         .         .
   1.583      3.5158     54.96  .     VQ  .         .         .         .
   1.667      3.9284     59.91  .      Q  .         .         .         .
   1.750      4.3711     64.28  .       Q .         .         .         .
   1.833      4.8458     68.93  .        Q.         .         .         .
   1.917      5.3621     74.97  .        QV         .         .         .
   2.000      5.9147     80.24  .         QV        .         .         .
   2.083      6.4847     82.76  .         .QV       .         .         .
   2.167      7.0734     85.49  .         .Q V      .         .         .
   2.250      7.7110     92.58  .         . Q V     .         .         .
   2.333      8.4256    103.76  .         .  Q  V   .         .         .
   2.417      9.2402    118.28  .         .    Q V  .         .         .
   2.500     10.1726    135.40  .         .       QV.         .         .
   2.583     11.2625    158.25  .         .         .Q        .         .
   2.667     12.5562    187.84  .         .         .   VQ    .         .
```

2.750	13.9618	204.09	. . . VQ . .
2.833	15.3034	194.81	. . . Q V. .
2.917	16.4197	162.09	. . .Q .V .
3.000	17.2682	123.20	. . Q . . V .
3.083	17.9191	94.50	. . Q . . V .
3.167	18.4288	74.01	. Q. . . V .
3.250	18.8230	57.23	. Q . . . V .
3.333	19.1333	45.06	. Q . . . V .
3.417	19.3879	36.96	. Q . . . V .
3.500	19.6018	31.05	. Q . . . V .
3.583	19.7847	26.57	. Q . . . V .
3.667	19.9432	23.00	. Q . . . V .
3.750	20.0800	19.87	. Q . . . V .
3.833	20.1994	17.33	. Q . . . V .
3.917	20.3049	15.32	. Q . . . V .
4.000	20.3966	13.32	.Q . . . V.
4.083	20.4758	11.49	.Q . . . V.
4.167	20.5439	9.89	.Q . . . V.
4.250	20.6026	8.52	.Q . . . V.
4.333	20.6527	7.28	Q . . . V.
4.417	20.6937	5.96	Q . . . V.
4.500	20.7265	4.77	Q . . . V.
4.583	20.7550	4.13	Q . . . V.
4.667	20.7811	3.79	Q . . . V.
4.750	20.8048	3.45	Q . . . V.
4.833	20.8265	3.14	Q . . . V.
4.917	20.8458	2.81	Q . . . V.
5.000	20.8631	2.52	Q . . . V.
5.083	20.8779	2.14	Q . . . V.
5.167	20.8890	1.61	Q . . . V.
5.250	20.8960	1.02	Q . . . V.
5.333	20.8994	0.49	Q . . . V.
5.417	20.9010	0.23	Q . . . V.
5.500	20.9019	0.13	Q . . . V.
5.583	20.9022	0.05	Q . . . V.
5.667	20.9022	0.00	Q . . . V

TIME DURATION(minutes) OF PERCENTILES OF ESTIMATED PEAK FLOW RATE:
(Note: 100% of Peak Flow Rate estimate assumed to have
an instantaneous time duration)

Percentile of Estimated Peak Flow Rate	Duration (minutes)
0%	340.0
10%	185.0
20%	125.0
30%	90.0
40%	65.0

50%	45.0
60%	35.0
70%	25.0
80%	15.0
90%	15.0

==========

END OF FLOODSCx ROUTING ANALYSIS

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

             F L O O D    R O U T I N G    A N A L Y S I S

ACCORDING TO RIVERSIDE COUNTY FLOOD CONTORL AND WATER CONSERVATION DISTRICT
                    (RCFC&WCD) 1978 HYDROLOGY MANUAL
          (c) Copyright 1989-2015 Advanced Engineering Software (aes)
                  (Synthetic Unit Hydrograph Version 22.0)
                  Release Date: 07/01/2015  License ID 1673

                           Analysis prepared by:




 ************************* DESCRIPTION OF STUDY *************************
* CEMETERY AREA                                                         *
* WATERSHED A                                                           *
* 100-YEAR 6-HOUR ZSNYDER 03/11/2022                                    *
 ************************************************************************

  FILE NAME: CEMA6HR.DAT
  TIME/DATE OF STUDY: 14:44 03/11/2022


**************************************************************************
  FLOW PROCESS FROM NODE    100.00 TO NODE    101.00 IS CODE =   1
--------------------------------------------------------------------------
  >>>>>SUBAREA RUNOFF (UNIT-HYDROGRAPH ANALYSIS)<<<<<
==========================================================================

      (UNIT-HYDROGRAPH ADDED TO STREAM #1)

         WATERCOURSE LENGTH =    7348.000 FEET
         LENGTH FROM CONCENTRATION POINT TO CENTROID =    4909.000 FEET
         ELEVATION VARIATION ALONG WATERCOURSE =      90.000 FEET
         BASIN FACTOR = 0.025
         WATERSHED AREA =     186.000 ACRES
         BASEFLOW =   0.000 CFS/SQUARE-MILE
         WATERCOURSE "LAG" TIME =    0.300 HOURS
          CAUTION: LAG TIME IS LESS THAN 0.50 HOURS.
          THE 5-MINUTE PERIOD UH MODEL (USED IN THIS COMPUTER PROGRAM)
          MAY BE TOO LARGE FOR PEAK FLOW ESTIMATES.
         VALLEY S-GRAPH SELECTED
         UNIFORM MEAN SOIL-LOSS(INCH/HOUR) =  0.185
         LOW SOIL-LOSS RATE PERCENT(DECIMAL) = 0.860
```

USER-ENTERED RAINFALL = 2.50 INCHES
RCFC&WCD 6-Hour Storm (5-Minute period) SELECTED
RCFC&WCD DEPTH-AREA ADJUSTMENT FACTOR(PLATE E-5.8) = 0.9995

UNIT HYDROGRAPH TIME UNIT = 5.000 MINUTES
UNIT INTERVAL PERCENTAGE OF LAG-TIME = 27.809

UNIT HYDROGRAPH DETERMINATION

INTERVAL NUMBER	"S" GRAPH MEAN VALUES	UNIT HYDROGRAPH ORDINATES(CFS)
1	2.591	58.288
2	11.512	200.667
3	27.959	369.976
4	47.788	446.025
5	61.633	311.437
6	69.732	182.181
7	75.133	121.498
8	79.104	89.320
9	82.227	70.263
10	84.812	58.148
11	86.918	47.363
12	88.636	38.645
13	90.195	35.076
14	91.506	29.482
15	92.638	25.466
16	93.665	23.091
17	94.554	20.014
18	95.372	18.398
19	96.116	16.721
20	96.665	12.370
21	97.205	12.146
22	97.745	12.140
23	98.105	8.102
24	98.305	4.496
25	98.505	4.487
26	98.704	4.490
27	98.904	4.490
28	99.103	4.490
29	99.303	4.490
30	99.503	4.490
31	99.702	4.490
32	99.902	4.490

33 100.000 2.209

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UNIT PERIOD (NUMBER)	UNIT RAINFALL (INCHES)	UNIT SOIL-LOSS (INCHES)	EFFECTIVE RAINFALL (INCHES)
1	0.0125	0.0107	0.0017
2	0.0150	0.0129	0.0021
3	0.0150	0.0129	0.0021
4	0.0150	0.0129	0.0021
5	0.0150	0.0129	0.0021
6	0.0175	0.0150	0.0024
7	0.0175	0.0150	0.0024
8	0.0175	0.0150	0.0024
9	0.0175	0.0150	0.0024
10	0.0175	0.0150	0.0024
11	0.0175	0.0150	0.0024
12	0.0200	0.0154	0.0046
13	0.0200	0.0154	0.0046
14	0.0200	0.0154	0.0046
15	0.0200	0.0154	0.0046
16	0.0200	0.0154	0.0046
17	0.0200	0.0154	0.0046
18	0.0200	0.0154	0.0046
19	0.0200	0.0154	0.0046
20	0.0200	0.0154	0.0046
21	0.0200	0.0154	0.0046
22	0.0200	0.0154	0.0046
23	0.0200	0.0154	0.0046
24	0.0225	0.0154	0.0071
25	0.0200	0.0154	0.0046
26	0.0225	0.0154	0.0071
27	0.0225	0.0154	0.0071
28	0.0225	0.0154	0.0071
29	0.0225	0.0154	0.0071
30	0.0225	0.0154	0.0071
31	0.0225	0.0154	0.0071
32	0.0225	0.0154	0.0071
33	0.0250	0.0154	0.0096
34	0.0250	0.0154	0.0096
35	0.0250	0.0154	0.0096
36	0.0250	0.0154	0.0096
37	0.0250	0.0154	0.0096
38	0.0275	0.0154	0.0121
39	0.0275	0.0154	0.0121
40	0.0275	0.0154	0.0121

41	0.0300	0.0154	0.0146
42	0.0325	0.0154	0.0171
43	0.0350	0.0154	0.0196
44	0.0350	0.0154	0.0196
45	0.0375	0.0154	0.0221
46	0.0375	0.0154	0.0221
47	0.0400	0.0154	0.0246
48	0.0400	0.0154	0.0246
49	0.0425	0.0154	0.0271
50	0.0450	0.0154	0.0296
51	0.0475	0.0154	0.0321
52	0.0500	0.0154	0.0346
53	0.0525	0.0154	0.0371
54	0.0525	0.0154	0.0371
55	0.0550	0.0154	0.0396
56	0.0575	0.0154	0.0421
57	0.0600	0.0154	0.0446
58	0.0600	0.0154	0.0446
59	0.0625	0.0154	0.0471
60	0.0650	0.0154	0.0495
61	0.0775	0.0154	0.0620
62	0.0900	0.0154	0.0745
63	0.0974	0.0154	0.0820
64	0.1049	0.0154	0.0895
65	0.1174	0.0154	0.1020
66	0.1399	0.0154	0.1245
67	0.0475	0.0154	0.0321
68	0.0225	0.0154	0.0071
69	0.0150	0.0129	0.0021
70	0.0125	0.0107	0.0017
71	0.0075	0.0064	0.0010
72	0.0050	0.0043	0.0007

TOTAL STORM RAINFALL(INCHES) = 2.50
TOTAL SOIL-LOSS(INCHES) = 1.07
TOTAL EFFECTIVE RAINFALL(INCHES) = 1.43

TOTAL SOIL-LOSS VOLUME(ACRE-FEET) = 16.5184
TOTAL STORM RUNOFF VOLUME(ACRE-FEET) = 22.1999

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6 - H O U R S T O R M
R U N O F F H Y D R O G R A P H

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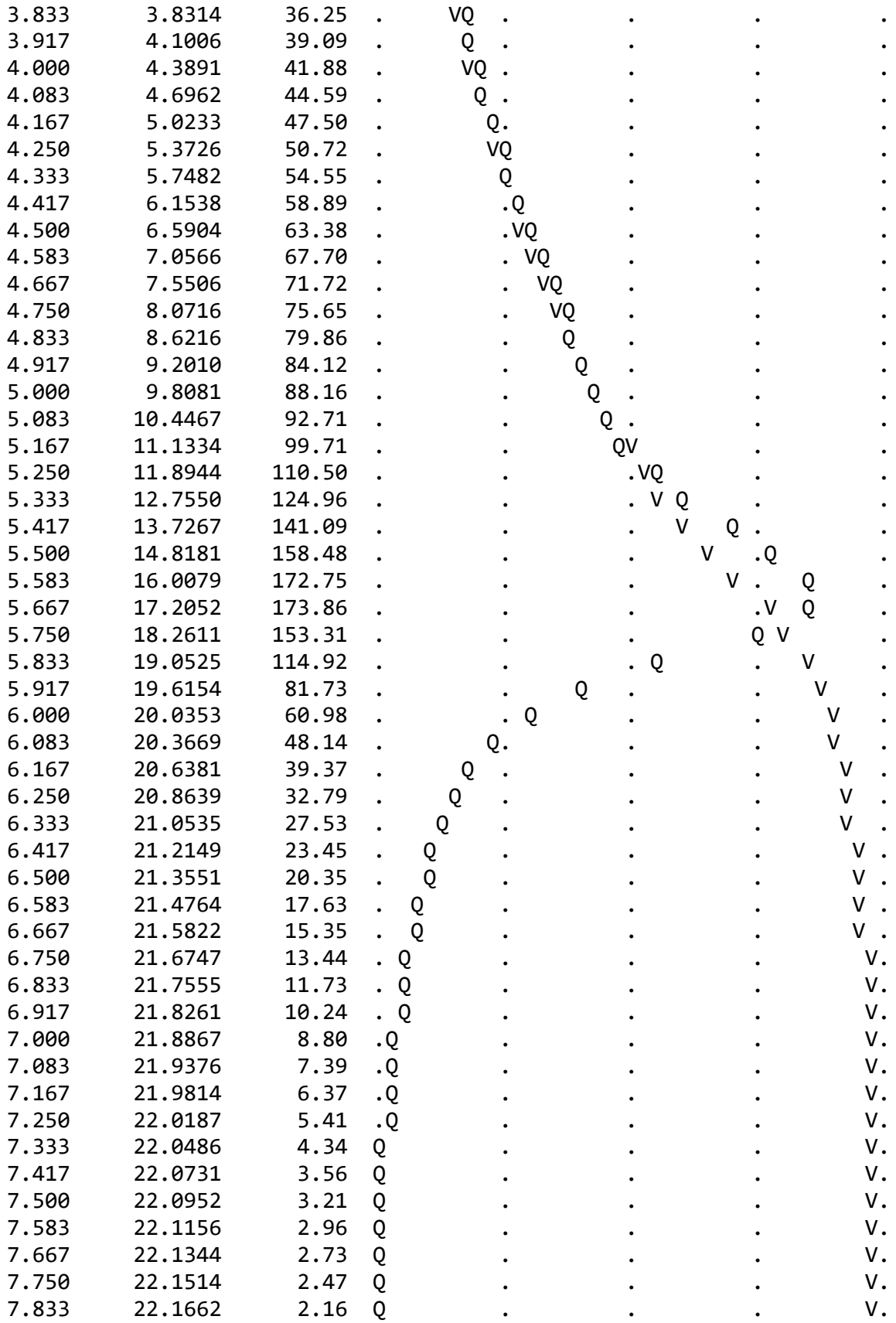
HYDROGRAPH IN FIVE-MINUTE UNIT INTERVALS(CFS)

(Note: Time indicated is at END of Each Unit Intervals)

TIME(HRS)	VOLUME(AF)	Q(CFS)	0.	50.0	100.0	150.0	200.0
0.083	0.0007	0.10	Q	.	.	.	.
0.167	0.0040	0.47	Q	.	.	.	.
0.250	0.0122	1.19	Q	.	.	.	.
0.333	0.0266	2.10	Q	.	.	.	.
0.417	0.0459	2.80	Q	.	.	.	.
0.500	0.0683	3.25	Q	.	.	.	.
0.583	0.0931	3.60	Q	.	.	.	.
0.667	0.1201	3.92	Q	.	.	.	.
0.750	0.1492	4.23	Q	.	.	.	.
0.833	0.1800	4.47	Q	.	.	.	.
0.917	0.2119	4.64	Q	.	.	.	.
1.000	0.2456	4.89	Q	.	.	.	.
1.083	0.2829	5.42	VQ	.	.	.	.
1.167	0.3262	6.29	VQ	.	.	.	.
1.250	0.3766	7.32	VQ	.	.	.	.
1.333	0.4320	8.04	VQ	.	.	.	.
1.417	0.4905	8.49	VQ	.	.	.	.
1.500	0.5511	8.80	VQ	.	.	.	.
1.583	0.6133	9.03	.Q	.	.	.	.
1.667	0.6767	9.22	.Q	.	.	.	.
1.750	0.7413	9.37	.Q	.	.	.	.
1.833	0.8068	9.51	.Q	.	.	.	.
1.917	0.8730	9.61	.Q	.	.	.	.
2.000	0.9408	9.85	.Q	.	.	.	.
2.083	1.0117	10.28	.VQ	.	.	.	.
2.167	1.0869	10.92	.VQ	.	.	.	.
2.250	1.1673	11.67	. Q	.	.	.	.
2.333	1.2521	12.32	. Q	.	.	.	.
2.417	1.3427	13.16	. Q	.	.	.	.
2.500	1.4380	13.83	. Q	.	.	.	.
2.583	1.5361	14.24	. Q	.	.	.	.
2.667	1.6362	14.54	. Q	.	.	.	.
2.750	1.7389	14.91	. QV	.	.	.	.
2.833	1.8462	15.58	. Q	.	.	.	.
2.917	1.9607	16.64	. Q	.	.	.	.
3.000	2.0838	17.87	. Q	.	.	.	.
3.083	2.2129	18.74	. Q	.	.	.	.
3.167	2.3467	19.43	. QV	.	.	.	.
3.250	2.4866	20.31	. Q	.	.	.	.
3.333	2.6349	21.53	. Q	.	.	.	.
3.417	2.7935	23.03	. QV	.	.	.	.
3.500	2.9633	24.65	. QV	.	.	.	.
3.583	3.1481	26.84	. Q	.	.	.	.
3.667	3.3536	29.83	. QV	.	.	.	.
3.750	3.5817	33.13	. Q	.	.	.	.



7.917	22.1786	1.80	Q	.	.	.	V.
8.000	22.1884	1.42	Q	.	.	.	V.
8.083	22.1952	0.99	Q	.	.	.	V.
8.167	22.1984	0.48	Q	.	.	.	V.
8.250	22.1993	0.13	Q	.	.	.	V.
8.333	22.1996	0.04	Q	.	.	.	V.
8.417	22.1997	0.02	Q	.	.	.	V.
8.500	22.1998	0.01	Q	.	.	.	V.
8.583	22.1999	0.01	Q	.	.	.	V.

TIME DURATION(minutes) OF PERCENTILES OF ESTIMATED PEAK FLOW RATE:
(Note: 100% of Peak Flow Rate estimate assumed to have
an instantaneous time duration)

Percentile of Estimated Peak Flow Rate	Duration (minutes)
0%	515.0
10%	220.0
20%	145.0
30%	105.0
40%	80.0
50%	55.0
60%	40.0
70%	30.0
80%	25.0
90%	15.0

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END OF FLOODSCx ROUTING ANALYSIS

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             F L O O D    R O U T I N G    A N A L Y S I S

ACCORDING TO RIVERSIDE COUNTY FLOOD CONTORL AND WATER CONSERVATION DISTRICT
                    (RCFC&WCD) 1978 HYDROLOGY MANUAL
          (c) Copyright 1989-2015 Advanced Engineering Software (aes)
                  (Synthetic Unit Hydrograph Version 22.0)
                  Release Date: 07/01/2015  License ID 1673

                           Analysis prepared by:




 ************************* DESCRIPTION OF STUDY *************************
* CEMETERY AREA                                                         *
* WATERSHED A                                                           *
* 100-YEAR 24-HOUR ZSNYDER 03/11/2022                                   *
 ************************************************************************

  FILE NAME: CEMA24HR.DAT
  TIME/DATE OF STUDY: 14:45 03/11/2022


**************************************************************************
  FLOW PROCESS FROM NODE    100.00 TO NODE    101.00 IS CODE =   1
--------------------------------------------------------------------------
  >>>>>SUBAREA RUNOFF (UNIT-HYDROGRAPH ANALYSIS)<<<<<
==========================================================================

      (UNIT-HYDROGRAPH ADDED TO STREAM #1)

         WATERCOURSE LENGTH =    7348.000 FEET
         LENGTH FROM CONCENTRATION POINT TO CENTROID =    4909.000 FEET
         ELEVATION VARIATION ALONG WATERCOURSE =      90.000 FEET
         BASIN FACTOR = 0.025
         WATERSHED AREA =     186.000 ACRES
         BASEFLOW =   0.000 CFS/SQUARE-MILE
         WATERCOURSE "LAG" TIME =    0.300 HOURS
          CAUTION: LAG TIME IS LESS THAN 0.50 HOURS.
          THE 5-MINUTE PERIOD UH MODEL (USED IN THIS COMPUTER PROGRAM)
          MAY BE TOO LARGE FOR PEAK FLOW ESTIMATES.
         VALLEY S-GRAPH SELECTED
         UNIFORM MEAN SOIL-LOSS(INCH/HOUR) =  0.185
         LOW SOIL-LOSS RATE PERCENT(DECIMAL) = 0.860
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MINIMUM SOIL-LOSS RATE(INCH/HOUR) = 0.093
USER-ENTERED RAINFALL = 4.00 INCHES
RCFC&WCD 24-Hour Storm (15-Minute period) SELECTED
RCFC&WCD DEPTH-AREA ADJUSTMENT FACTOR(PLATE E-5.8) = 0.9997

UNIT HYDROGRAPH TIME UNIT = 15.000 MINUTES
UNIT INTERVAL PERCENTAGE OF LAG-TIME = 83.426

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UNIT HYDROGRAPH DETERMINATION

INTERVAL NUMBER	"S" GRAPH MEAN VALUES	UNIT HYDROGRAPH ORDINATES(CFS)
1	14.021	105.130
2	59.717	342.639
3	78.821	143.244
4	86.789	59.740
5	91.446	34.924
6	94.530	23.124
7	96.662	15.984
8	98.052	10.422
9	98.704	4.891
10	99.294	4.424
11	99.718	3.175
12	99.929	1.588
13	100.000	0.529

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UNIT PERIOD (NUMBER)	UNIT RAINFALL (INCHES)	UNIT SOIL-LOSS (INCHES)	EFFECTIVE RAINFALL (INCHES)
1	0.0080	0.0069	0.0011
2	0.0120	0.0103	0.0017
3	0.0120	0.0103	0.0017
4	0.0160	0.0138	0.0022
5	0.0120	0.0103	0.0017
6	0.0120	0.0103	0.0017
7	0.0120	0.0103	0.0017
8	0.0160	0.0138	0.0022
9	0.0160	0.0138	0.0022
10	0.0160	0.0138	0.0022

11	0.0200	0.0172	0.0028
12	0.0200	0.0172	0.0028
13	0.0200	0.0172	0.0028
14	0.0200	0.0172	0.0028
15	0.0200	0.0172	0.0028
16	0.0240	0.0206	0.0034
17	0.0240	0.0206	0.0034
18	0.0280	0.0241	0.0039
19	0.0280	0.0241	0.0039
20	0.0320	0.0275	0.0045
21	0.0240	0.0206	0.0034
22	0.0280	0.0241	0.0039
23	0.0320	0.0275	0.0045
24	0.0320	0.0275	0.0045
25	0.0360	0.0309	0.0050
26	0.0360	0.0309	0.0050
27	0.0400	0.0344	0.0056
28	0.0400	0.0344	0.0056
29	0.0400	0.0344	0.0056
30	0.0440	0.0378	0.0062
31	0.0480	0.0413	0.0067
32	0.0520	0.0447	0.0073
33	0.0600	0.0516	0.0084
34	0.0600	0.0516	0.0084
35	0.0640	0.0527	0.0113
36	0.0680	0.0519	0.0160
37	0.0760	0.0512	0.0248
38	0.0800	0.0505	0.0295
39	0.0840	0.0498	0.0342
40	0.0880	0.0491	0.0389
41	0.0600	0.0484	0.0116
42	0.0600	0.0477	0.0123
43	0.0800	0.0470	0.0330
44	0.0800	0.0463	0.0337
45	0.0760	0.0456	0.0304
46	0.0760	0.0449	0.0310
47	0.0680	0.0443	0.0237
48	0.0720	0.0436	0.0284
49	0.1000	0.0430	0.0570
50	0.1040	0.0423	0.0616
51	0.1120	0.0417	0.0703
52	0.1160	0.0411	0.0749
53	0.1360	0.0405	0.0955
54	0.1360	0.0399	0.0961
55	0.0920	0.0392	0.0527
56	0.0920	0.0387	0.0533
57	0.1080	0.0381	0.0699
58	0.1040	0.0375	0.0665
59	0.1040	0.0369	0.0670

60	0.1000	0.0364	0.0636
61	0.0960	0.0358	0.0602
62	0.0920	0.0353	0.0567
63	0.0760	0.0347	0.0412
64	0.0760	0.0342	0.0418
65	0.0160	0.0138	0.0022
66	0.0160	0.0138	0.0022
67	0.0120	0.0103	0.0017
68	0.0120	0.0103	0.0017
69	0.0200	0.0172	0.0028
70	0.0200	0.0172	0.0028
71	0.0200	0.0172	0.0028
72	0.0160	0.0138	0.0022
73	0.0160	0.0138	0.0022
74	0.0160	0.0138	0.0022
75	0.0120	0.0103	0.0017
76	0.0080	0.0069	0.0011
77	0.0120	0.0103	0.0017
78	0.0160	0.0138	0.0022
79	0.0120	0.0103	0.0017
80	0.0080	0.0069	0.0011
81	0.0120	0.0103	0.0017
82	0.0120	0.0103	0.0017
83	0.0120	0.0103	0.0017
84	0.0080	0.0069	0.0011
85	0.0120	0.0103	0.0017
86	0.0080	0.0069	0.0011
87	0.0120	0.0103	0.0017
88	0.0080	0.0069	0.0011
89	0.0120	0.0103	0.0017
90	0.0080	0.0069	0.0011
91	0.0080	0.0069	0.0011
92	0.0080	0.0069	0.0011
93	0.0080	0.0069	0.0011
94	0.0080	0.0069	0.0011
95	0.0080	0.0069	0.0011
96	0.0080	0.0069	0.0011

TOTAL STORM RAINFALL(INCHES) = 4.00
TOTAL SOIL-LOSS(INCHES) = 2.43
TOTAL EFFECTIVE RAINFALL(INCHES) = 1.57

TOTAL SOIL-LOSS VOLUME(ACRE-FEET) = 37.6080
TOTAL STORM RUNOFF VOLUME(ACRE-FEET) = 24.3585

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2 4 - H O U R S T O R M
R U N O F F H Y D R O G R A P H

HYDROGRAPH IN FIVE-MINUTE UNIT INTERVALS(CFS)
(Note: Time indicated is at END of Each Unit Intervals)

TIME(HRS)	VOLUME(AF)	Q(CFS)	0.	17.5	35.0	52.5	70.0
0.083	0.0008	0.12	Q	.	.	.	.
0.167	0.0016	0.12	Q	.	.	.	.
0.250	0.0024	0.12	Q	.	.	.	.
0.333	0.0063	0.56	Q	.	.	.	.
0.417	0.0101	0.56	Q	.	.	.	.
0.500	0.0140	0.56	Q	.	.	.	.
0.583	0.0203	0.91	Q	.	.	.	.
0.667	0.0266	0.91	Q	.	.	.	.
0.750	0.0329	0.91	Q	.	.	.	.
0.833	0.0406	1.12	Q	.	.	.	.
0.917	0.0483	1.12	Q	.	.	.	.
1.000	0.0560	1.12	Q	.	.	.	.
1.083	0.0651	1.32	Q	.	.	.	.
1.167	0.0742	1.32	Q	.	.	.	.
1.250	0.0833	1.32	Q	.	.	.	.
1.333	0.0920	1.26	Q	.	.	.	.
1.417	0.1006	1.26	Q	.	.	.	.
1.500	0.1093	1.26	Q	.	.	.	.
1.583	0.1178	1.24	Q	.	.	.	.
1.667	0.1264	1.24	Q	.	.	.	.
1.750	0.1350	1.24	Q	.	.	.	.
1.833	0.1440	1.31	Q	.	.	.	.
1.917	0.1530	1.31	Q	.	.	.	.
2.000	0.1620	1.31	Q	.	.	.	.
2.083	0.1723	1.50	Q	.	.	.	.
2.167	0.1827	1.50	Q	.	.	.	.
2.250	0.1930	1.50	Q	.	.	.	.
2.333	0.2040	1.59	Q	.	.	.	.
2.417	0.2149	1.59	Q	.	.	.	.
2.500	0.2258	1.59	Q	.	.	.	.
2.583	0.2374	1.68	Q	.	.	.	.
2.667	0.2490	1.68	Q	.	.	.	.
2.750	0.2606	1.68	Q	.	.	.	.
2.833	0.2737	1.89	VQ	.	.	.	.
2.917	0.2867	1.89	VQ	.	.	.	.
3.000	0.2998	1.89	VQ	.	.	.	.
3.083	0.3135	1.99	VQ	.	.	.	.
3.167	0.3272	1.99	VQ	.	.	.	.
3.250	0.3409	1.99	VQ	.	.	.	.
3.333	0.3548	2.03	VQ	.	.	.	.

3.417	0.3688	2.03	VQ	.	.	.	.
3.500	0.3828	2.03	VQ	.	.	.	.
3.583	0.3970	2.06	VQ	.	.	.	.
3.667	0.4111	2.06	VQ	.	.	.	.
3.750	0.4253	2.06	VQ	.	.	.	.
3.833	0.4400	2.13	VQ	.	.	.	.
3.917	0.4546	2.13	VQ	.	.	.	.
4.000	0.4693	2.13	VQ	.	.	.	.
4.083	0.4854	2.33	VQ	.	.	.	.
4.167	0.5014	2.33	VQ	.	.	.	.
4.250	0.5175	2.33	VQ	.	.	.	.
4.333	0.5346	2.48	VQ	.	.	.	.
4.417	0.5516	2.48	VQ	.	.	.	.
4.500	0.5687	2.48	VQ	.	.	.	.
4.583	0.5873	2.71	VQ	.	.	.	.
4.667	0.6060	2.71	VQ	.	.	.	.
4.750	0.6246	2.71	Q	.	.	.	.
4.833	0.6444	2.87	.Q	.	.	.	.
4.917	0.6642	2.87	.Q	.	.	.	.
5.000	0.6839	2.87	.Q	.	.	.	.
5.083	0.7045	2.99	.Q	.	.	.	.
5.167	0.7251	2.99	.Q	.	.	.	.
5.250	0.7457	2.99	.Q	.	.	.	.
5.333	0.7649	2.78	.Q	.	.	.	.
5.417	0.7840	2.78	.Q	.	.	.	.
5.500	0.8031	2.78	.Q	.	.	.	.
5.583	0.8232	2.92	.Q	.	.	.	.
5.667	0.8433	2.92	.Q	.	.	.	.
5.750	0.8634	2.92	.Q	.	.	.	.
5.833	0.8852	3.16	.Q	.	.	.	.
5.917	0.9069	3.16	.Q	.	.	.	.
6.000	0.9286	3.16	.Q	.	.	.	.
6.083	0.9514	3.31	.Q	.	.	.	.
6.167	0.9742	3.31	.Q	.	.	.	.
6.250	0.9970	3.31	.Q	.	.	.	.
6.333	1.0214	3.54	.VQ	.	.	.	.
6.417	1.0458	3.54	.VQ	.	.	.	.
6.500	1.0702	3.54	.VQ	.	.	.	.
6.583	1.0957	3.71	.VQ	.	.	.	.
6.667	1.1212	3.71	.VQ	.	.	.	.
6.750	1.1468	3.71	.VQ	.	.	.	.
6.833	1.1739	3.95	.VQ	.	.	.	.
6.917	1.2011	3.95	.VQ	.	.	.	.
7.000	1.2283	3.95	. Q	.	.	.	.
7.083	1.2562	4.06	. Q	.	.	.	.
7.167	1.2842	4.06	. Q	.	.	.	.
7.250	1.3121	4.06	. Q	.	.	.	.
7.333	1.3409	4.17	. Q	.	.	.	.
7.417	1.3696	4.17	. Q	.	.	.	.

7.500	1.3983	4.17	. Q	.	.	.	.
7.583	1.4289	4.45	. Q	.	.	.	.
7.667	1.4596	4.45	. Q	.	.	.	.
7.750	1.4902	4.45	. Q	.	.	.	.
7.833	1.5233	4.80	. Q	.	.	.	.
7.917	1.5564	4.80	. Q	.	.	.	.
8.000	1.5895	4.80	. Q	.	.	.	.
8.083	1.6256	5.24	. Q	.	.	.	.
8.167	1.6617	5.24	. Q	.	.	.	.
8.250	1.6977	5.24	. Q	.	.	.	.
8.333	1.7375	5.77	. VQ	.	.	.	.
8.417	1.7772	5.77	. VQ	.	.	.	.
8.500	1.8169	5.77	. VQ	.	.	.	.
8.583	1.8603	6.30	. Q	.	.	.	.
8.667	1.9037	6.30	. Q	.	.	.	.
8.750	1.9471	6.30	. Q	.	.	.	.
8.833	2.0015	7.90	. VQ	.	.	.	.
8.917	2.0559	7.90	. VQ	.	.	.	.
9.000	2.1104	7.90	. VQ	.	.	.	.
9.083	2.1856	10.93	. V Q	.	.	.	.
9.167	2.2609	10.93	. V Q	.	.	.	.
9.250	2.3361	10.93	. V Q	.	.	.	.
9.333	2.4416	15.31	. V Q	.	.	.	.
9.417	2.5470	15.31	. V Q	.	.	.	.
9.500	2.6525	15.31	. V Q	.	.	.	.
9.583	2.7840	19.09	. V Q	.	.	.	.
9.667	2.9154	19.09	. V Q	.	.	.	.
9.750	3.0469	19.09	. V Q	.	.	.	.
9.833	3.2029	22.65	. V . Q	.	.	.	.
9.917	3.3589	22.65	. V . Q	.	.	.	.
10.000	3.5149	22.65	. V . Q	.	.	.	.
10.083	3.6720	22.82	. V . Q	.	.	.	.
10.167	3.8292	22.82	. V . Q	.	.	.	.
10.250	3.9864	22.82	. V . Q	.	.	.	.
10.333	4.0896	14.99	. V Q .	.	.	.	.
10.417	4.1928	14.99	. V Q .	.	.	.	.
10.500	4.2960	14.99	. VQ .	.	.	.	.
10.583	4.3942	14.25	. VQ .	.	.	.	.
10.667	4.4924	14.25	. VQ .	.	.	.	.
10.750	4.5905	14.25	. VQ .	.	.	.	.
10.833	4.7308	20.36	. V .Q	.	.	.	.
10.917	4.8710	20.36	. V .Q	.	.	.	.
11.000	5.0112	20.36	. V .Q	.	.	.	.
11.083	5.1669	22.60	. V . Q	.	.	.	.
11.167	5.3226	22.60	. V . Q	.	.	.	.
11.250	5.4782	22.60	. V . Q	.	.	.	.
11.333	5.6330	22.47	. V. Q	.	.	.	.
11.417	5.7877	22.47	. V. Q	.	.	.	.
11.500	5.9425	22.47	. V. Q	.	.	.	.

```
11.583      6.0935     21.92  .        V Q       .         .         .
11.667      6.2444     21.92  .        V Q       .         .         .
11.750      6.3954     21.92  .        V Q       .         .         .
11.833      6.5339     20.10  .        VQ        .         .         .
11.917      6.6723     20.10  .        VQ        .         .         .
12.000      6.8108     20.10  .         Q        .         .         .
12.083      6.9750     23.85  .        .V Q      .         .         .
12.167      7.1393     23.85  .        .V Q      .         .         .
12.250      7.3035     23.85  .        .V Q      .         .         .
12.333      7.5408     34.46  .        . V      Q.         .         .
12.417      7.7781     34.46  .        . V      Q.         .         .
12.500      8.0154     34.46  .        .  V     Q.         .         .
12.583      8.2983     41.08  .        .  V      .  Q       .         .
12.667      8.5812     41.08  .        .   V     .  Q       .         .
12.750      8.8641     41.08  .        .   V     .  Q       .         .
12.833      9.1872     46.92  .        .    V    .     Q    .         .
12.917      9.5104     46.92  .        .    V    .     Q    .         .
13.000      9.8335     46.92  .        .     V   .     Q    .         .
13.083     10.2000     53.22  .        .     V   .          Q         .
13.167     10.5665     53.22  .        .      V  .          Q         .
13.250     10.9331     53.22  .        .      V  .          Q         .
13.333     11.3626     62.37  .        .       V .          .    Q    .
13.417     11.7921     62.37  .        .        V.          .    Q    .
13.500     12.2217     62.37  .        .         V          .    Q    .
13.583     12.6496     62.13  .        .         V          .    Q    .
13.667     13.0775     62.13  .        .          V         .    Q    .
13.750     13.5053     62.13  .        .           V        .    Q    .
13.833     13.8453     49.37  .        .         . V     Q .         .
13.917     14.1853     49.37  .        .         .  V    Q .         .
14.000     14.5253     49.37  .        .         .  V    Q .         .
14.083     14.8441     46.28  .        .         .   V Q   .         .
14.167     15.1628     46.28  .        .         .   V Q   .         .
14.250     15.4816     46.28  .        .         .    VQ   .         .
14.333     15.8254     49.91  .        .         .    V  Q .         .
14.417     16.1691     49.91  .        .         .     V Q .         .
14.500     16.5129     49.91  .        .         .      VQ .         .
14.583     16.8589     50.25  .        .         .      VQ .         .
14.667     17.2050     50.25  .        .         .       Q .         .
14.750     17.5510     50.25  .        .         .       Q .         .
14.833     17.8950     49.95  .        .         .       QV.         .
14.917     18.2389     49.95  .        .         .       QV.         .
15.000     18.5829     49.95  .        .         .       Q V         .
15.083     18.9160     48.36  .        .         .      Q  .V        .
15.167     19.2490     48.36  .        .         .      Q  .V        .
15.250     19.5821     48.36  .        .         .      Q  . V       .
15.333     19.9010     46.30  .        .         .     Q   . V       .
15.417     20.2199     46.30  .        .         .     Q   .  V      .
15.500     20.5387     46.30  .        .         .     Q   .  V      .
15.583     20.8340     42.87  .        .         .   Q     .   V     .
```

```
15.667     21.1293     42.87  .         .         .   Q     .   V     .
15.750     21.4246     42.87  .         .         .   Q     .    V    .
15.833     21.6780     36.79  .         .         .Q        .    V    .
15.917     21.9314     36.79  .         .         .Q        .     V   .
16.000     22.1848     36.79  .         .         .Q        .     V   .
16.083     22.3922     30.13  .         .      Q  .         .     V   .
16.167     22.5997     30.13  .         .      Q  .         .      V  .
16.250     22.8072     30.13  .         .      Q  .         .      V  .
16.333     22.9138     15.47  .       Q .         .         .      V  .
16.417     23.0204     15.47  .       Q .         .         .      V  .
16.500     23.1269     15.47  .       Q .         .         .      V  .
16.583     23.1896      9.09  .    Q    .         .         .       V .
16.667     23.2522      9.09  .    Q    .         .         .       V .
16.750     23.3148      9.09  .    Q    .         .         .       V .
16.833     23.3569      6.11  .  Q      .         .         .       V .
16.917     23.3990      6.11  .  Q      .         .         .       V .
17.000     23.4411      6.11  .  Q      .         .         .       V .
17.083     23.4718      4.47  . Q       .         .         .       V .
17.167     23.5026      4.47  . Q       .         .         .       V .
17.250     23.5334      4.47  . Q       .         .         .       V .
17.333     23.5589      3.71  . Q       .         .         .       V .
17.417     23.5845      3.71  . Q       .         .         .       V .
17.500     23.6100      3.71  . Q       .         .         .       V .
17.583     23.6315      3.12  .Q        .         .         .       V .
17.667     23.6529      3.12  .Q        .         .         .       V .
17.750     23.6744      3.12  .Q        .         .         .       V .
17.833     23.6924      2.62  .Q        .         .         .       V .
17.917     23.7104      2.62  .Q        .         .         .       V .
18.000     23.7284      2.62  .Q        .         .         .       V .
18.083     23.7436      2.21  .Q        .         .         .       V .
18.167     23.7588      2.21  .Q        .         .         .        V.
18.250     23.7740      2.21  .Q        .         .         .        V.
18.333     23.7874      1.95  .Q        .         .         .        V.
18.417     23.8008      1.95  .Q        .         .         .        V.
18.500     23.8142      1.95  .Q        .         .         .        V.
18.583     23.8262      1.74  Q         .         .         .        V.
18.667     23.8382      1.74  Q         .         .         .        V.
18.750     23.8501      1.74  Q         .         .         .        V.
18.833     23.8598      1.41  Q         .         .         .        V.
18.917     23.8696      1.41  Q         .         .         .        V.
19.000     23.8793      1.41  Q         .         .         .        V.
19.083     23.8874      1.17  Q         .         .         .        V.
19.167     23.8954      1.17  Q         .         .         .        V.
19.250     23.9035      1.17  Q         .         .         .        V.
19.333     23.9124      1.30  Q         .         .         .        V.
19.417     23.9214      1.30  Q         .         .         .        V.
19.500     23.9304      1.30  Q         .         .         .        V.
19.583     23.9404      1.46  Q         .         .         .        V.
19.667     23.9505      1.46  Q         .         .         .        V.
```

19.750	23.9605	1.46	Q	.	.	.	V.
19.833	23.9694	1.29	Q	.	.	.	V.
19.917	23.9783	1.29	Q	.	.	.	V.
20.000	23.9871	1.29	Q	.	.	.	V.
20.083	23.9948	1.10	Q	.	.	.	V.
20.167	24.0024	1.10	Q	.	.	.	V.
20.250	24.0100	1.10	Q	.	.	.	V.
20.333	24.0182	1.20	Q	.	.	.	V.
20.417	24.0265	1.20	Q	.	.	.	V.
20.500	24.0347	1.20	Q	.	.	.	V.
20.583	24.0433	1.24	Q	.	.	.	V.
20.667	24.0518	1.24	Q	.	.	.	V.
20.750	24.0603	1.24	Q	.	.	.	V.
20.833	24.0685	1.19	Q	.	.	.	V.
20.917	24.0767	1.19	Q	.	.	.	V.
21.000	24.0849	1.19	Q	.	.	.	V.
21.083	24.0922	1.06	Q	.	.	.	V.
21.167	24.0995	1.06	Q	.	.	.	V.
21.250	24.1068	1.06	Q	.	.	.	V.
21.333	24.1145	1.11	Q	.	.	.	V.
21.417	24.1221	1.11	Q	.	.	.	V.
21.500	24.1298	1.11	Q	.	.	.	V.
21.583	24.1369	1.03	Q	.	.	.	V.
21.667	24.1440	1.03	Q	.	.	.	V.
21.750	24.1511	1.03	Q	.	.	.	V.
21.833	24.1586	1.10	Q	.	.	.	V.
21.917	24.1662	1.10	Q	.	.	.	V.
22.000	24.1738	1.10	Q	.	.	.	V.
22.083	24.1808	1.02	Q	.	.	.	V.
22.167	24.1878	1.02	Q	.	.	.	V.
22.250	24.1948	1.02	Q	.	.	.	V.
22.333	24.2024	1.09	Q	.	.	.	V.
22.417	24.2099	1.09	Q	.	.	.	V.
22.500	24.2174	1.09	Q	.	.	.	V.
22.583	24.2240	0.96	Q	.	.	.	V.
22.667	24.2305	0.96	Q	.	.	.	V.
22.750	24.2371	0.96	Q	.	.	.	V.
22.833	24.2433	0.90	Q	.	.	.	V.
22.917	24.2495	0.90	Q	.	.	.	V.
23.000	24.2556	0.90	Q	.	.	.	V.
23.083	24.2617	0.87	Q	.	.	.	V.
23.166	24.2677	0.87	Q	.	.	.	V.
23.250	24.2737	0.87	Q	.	.	.	V.
23.333	24.2796	0.86	Q	.	.	.	V.
23.416	24.2856	0.86	Q	.	.	.	V.
23.500	24.2915	0.86	Q	.	.	.	V.
23.583	24.2974	0.85	Q	.	.	.	V.
23.666	24.3033	0.85	Q	.	.	.	V.
23.750	24.3091	0.85	Q	.	.	.	V.

23.833	24.3150	0.85	Q	.	.	.	V.
23.916	24.3208	0.85	Q	.	.	.	V.
24.000	24.3267	0.85	Q	.	.	.	V.
24.083	24.3317	0.73	Q	.	.	.	V.
24.166	24.3367	0.73	Q	.	.	.	V.
24.250	24.3417	0.73	Q	.	.	.	V.
24.333	24.3440	0.34	Q	.	.	.	V.
24.416	24.3464	0.34	Q	.	.	.	V.
24.500	24.3487	0.34	Q	.	.	.	V.
24.583	24.3500	0.18	Q	.	.	.	V.
24.666	24.3512	0.18	Q	.	.	.	V.
24.750	24.3525	0.18	Q	.	.	.	V.
24.833	24.3532	0.11	Q	.	.	.	V.
24.916	24.3540	0.11	Q	.	.	.	V.
25.000	24.3548	0.11	Q	.	.	.	V.
25.083	24.3553	0.07	Q	.	.	.	V.
25.166	24.3558	0.07	Q	.	.	.	V.
25.250	24.3563	0.07	Q	.	.	.	V.
25.333	24.3566	0.05	Q	.	.	.	V.
25.416	24.3569	0.05	Q	.	.	.	V.
25.500	24.3572	0.05	Q	.	.	.	V.
25.583	24.3574	0.03	Q	.	.	.	V.
25.666	24.3576	0.03	Q	.	.	.	V.
25.750	24.3578	0.03	Q	.	.	.	V.
25.833	24.3579	0.02	Q	.	.	.	V.
25.916	24.3580	0.02	Q	.	.	.	V.
26.000	24.3581	0.02	Q	.	.	.	V.
26.083	24.3582	0.01	Q	.	.	.	V.
26.166	24.3583	0.01	Q	.	.	.	V.
26.250	24.3583	0.01	Q	.	.	.	V.
26.333	24.3584	0.01	Q	.	.	.	V.
26.416	24.3584	0.01	Q	.	.	.	V.
26.500	24.3585	0.01	Q	.	.	.	V.

TIME DURATION(minutes) OF PERCENTILES OF ESTIMATED PEAK FLOW RATE:
(Note: 100% of Peak Flow Rate estimate assumed to have
an instantaneous time duration)

Percentile of Estimated Peak Flow Rate	Duration (minutes)
0%	1590.0
10%	495.0
20%	435.0
30%	375.0
40%	240.0
50%	225.0
60%	195.0
70%	165.0

80%	90.0
90%	30.0

END OF FLOODSCx ROUTING ANALYSIS

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

             F L O O D    R O U T I N G    A N A L Y S I S

ACCORDING TO RIVERSIDE COUNTY FLOOD CONTORL AND WATER CONSERVATION DISTRICT
                    (RCFC&WCD) 1978 HYDROLOGY MANUAL
         (c) Copyright 1989-2015 Advanced Engineering Software (aes)
                 (Synthetic Unit Hydrograph Version 22.0)
                 Release Date: 07/01/2015  License ID 1673

                          Analysis prepared by:




 ************************* DESCRIPTION OF STUDY *************************
* CEMETERY AREA                                                         *
* WATERSHED B                                                           *
* 100-YEAR 1-HOUR ZSNYDER 03/11/2022                                    *
 ************************************************************************

  FILE NAME: CEMB1HR.DAT
  TIME/DATE OF STUDY: 14:48 03/11/2022


**************************************************************************
  FLOW PROCESS FROM NODE    100.00 TO NODE    101.00 IS CODE =   1
--------------------------------------------------------------------------
  >>>>>SUBAREA RUNOFF (UNIT-HYDROGRAPH ANALYSIS)<<<<<
==========================================================================

      (UNIT-HYDROGRAPH ADDED TO STREAM #1)

         WATERCOURSE LENGTH =   10471.000 FEET
         LENGTH FROM CONCENTRATION POINT TO CENTROID =    5992.000 FEET
         ELEVATION VARIATION ALONG WATERCOURSE =     170.000 FEET
         BASIN FACTOR = 0.025
         WATERSHED AREA =     462.000 ACRES
         BASEFLOW =   0.000 CFS/SQUARE-MILE
         WATERCOURSE "LAG" TIME =    0.351 HOURS
          CAUTION: LAG TIME IS LESS THAN 0.50 HOURS.
          THE 5-MINUTE PERIOD UH MODEL (USED IN THIS COMPUTER PROGRAM)
          MAY BE TOO LARGE FOR PEAK FLOW ESTIMATES.
         VALLEY S-GRAPH SELECTED
         UNIFORM MEAN SOIL-LOSS(INCH/HOUR) =  0.185
         LOW SOIL-LOSS RATE PERCENT(DECIMAL) = 0.860
```

USER-ENTERED RAINFALL = 1.20 INCHES
RCFC&WCD 1-Hour Storm (5-Minute period) SELECTED
(SLOPE OF INTENSITY-DURATION CURVE = 0.50)
RCFC&WCD DEPTH-AREA ADJUSTMENT FACTOR(PLATE E-5.8) = 0.9800

UNIT HYDROGRAPH TIME UNIT = 5.000 MINUTES
UNIT INTERVAL PERCENTAGE OF LAG-TIME = 23.773

UNIT HYDROGRAPH DETERMINATION

INTERVAL NUMBER	"S" GRAPH MEAN VALUES	UNIT HYDROGRAPH ORDINATES(CFS)
1	2.135	119.284
2	8.861	375.784
3	21.140	686.104
4	37.821	932.006
5	53.739	889.369
6	63.625	552.382
7	70.095	361.523
8	74.755	260.320
9	78.257	195.679
10	81.151	161.735
11	83.516	132.132
12	85.553	113.821
13	87.270	95.911
14	88.702	80.015
15	90.053	75.461
16	91.185	63.274
17	92.225	58.123
18	93.112	49.544
19	93.971	47.970
20	94.693	40.377
21	95.393	39.064
22	96.044	36.420
23	96.522	26.688
24	96.984	25.798
25	97.445	25.789
26	97.894	25.073
27	98.136	13.523
28	98.307	9.539
29	98.478	9.539
30	98.648	9.520
31	98.819	9.539

32	98.989	9.539
33	99.160	9.520
34	99.330	9.520
35	99.501	9.520
36	99.671	9.520
37	99.841	9.520
38	100.000	8.866

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UNIT PERIOD (NUMBER)	UNIT RAINFALL (INCHES)	UNIT SOIL-LOSS (INCHES)	EFFECTIVE RAINFALL (INCHES)
1	0.0505	0.0154	0.0351
2	0.0535	0.0154	0.0381
3	0.0570	0.0154	0.0416
4	0.0631	0.0154	0.0477
5	0.0667	0.0154	0.0513
6	0.0763	0.0154	0.0609
7	0.0902	0.0154	0.0748
8	0.0994	0.0154	0.0840
9	0.1523	0.0154	0.1369
10	0.3278	0.0154	0.3124
11	0.0832	0.0154	0.0677
12	0.0560	0.0154	0.0406

TOTAL STORM RAINFALL(INCHES) = 1.18
TOTAL SOIL-LOSS(INCHES) = 0.19
TOTAL EFFECTIVE RAINFALL(INCHES) = 0.99

TOTAL SOIL-LOSS VOLUME(ACRE-FEET) = 7.1225
TOTAL STORM RUNOFF VOLUME(ACRE-FEET) = 38.1338

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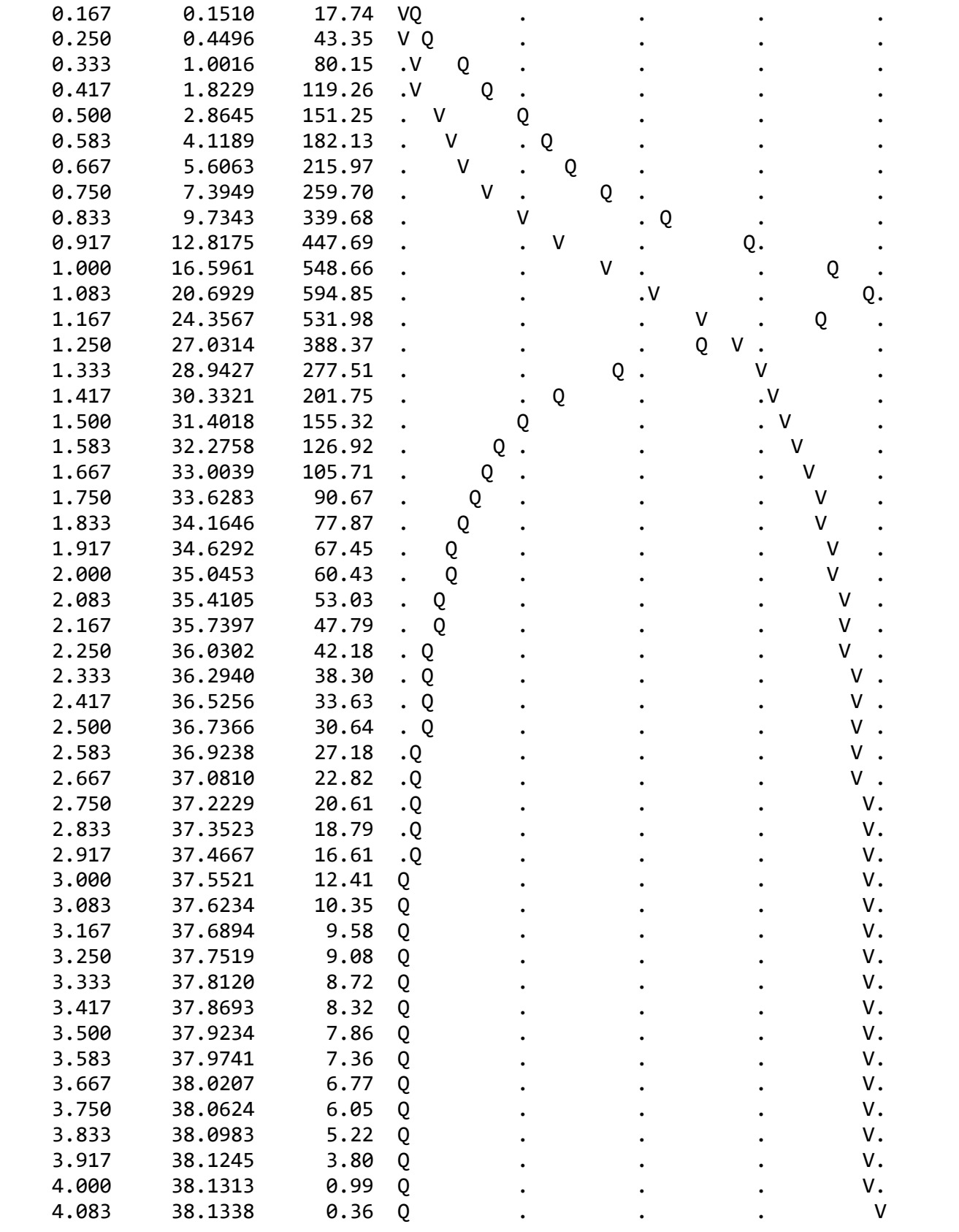
1 - H O U R S T O R M
R U N O F F H Y D R O G R A P H

==========

HYDROGRAPH IN FIVE-MINUTE UNIT INTERVALS(CFS)
(Note: Time indicated is at END of Each Unit Intervals)

TIME(HRS)	VOLUME(AF)	Q(CFS)	0.	150.0	300.0	450.0	600.0
0.083	0.0288	4.19	Q	.	.	.	.



TIME DURATION(minutes) OF PERCENTILES OF ESTIMATED PEAK FLOW RATE:
(Note: 100% of Peak Flow Rate estimate assumed to have
an instantaneous time duration)

Percentile of Estimated Peak Flow Rate	Duration (minutes)
0%	245.0
10%	105.0
20%	75.0
30%	55.0
40%	40.0
50%	30.0
60%	25.0
70%	20.0
80%	15.0
90%	10.0

END OF FLOODSCx ROUTING ANALYSIS

```
**************************************************************************

             F L O O D    R O U T I N G    A N A L Y S I S

ACCORDING TO RIVERSIDE COUNTY FLOOD CONTORL AND WATER CONSERVATION DISTRICT
                    (RCFC&WCD) 1978 HYDROLOGY MANUAL
          (c) Copyright 1989-2015 Advanced Engineering Software (aes)
                  (Synthetic Unit Hydrograph Version 22.0)
                  Release Date: 07/01/2015  License ID 1673

                           Analysis prepared by:




 ************************* DESCRIPTION OF STUDY *************************
* CEMETERY AREA                                                         *
* WATERSHED B                                                           *
* 100-YEAR 3-HOUR ZSNYDER 3/11/2022                                     *
 ************************************************************************

  FILE NAME: CEMB3HR.DAT
  TIME/DATE OF STUDY: 14:50 03/11/2022


**************************************************************************
  FLOW PROCESS FROM NODE    100.00 TO NODE    101.00 IS CODE =   1
--------------------------------------------------------------------------
  >>>>>SUBAREA RUNOFF (UNIT-HYDROGRAPH ANALYSIS)<<<<<
==========================================================================

      (UNIT-HYDROGRAPH ADDED TO STREAM #1)

         WATERCOURSE LENGTH =   10471.000 FEET
         LENGTH FROM CONCENTRATION POINT TO CENTROID =    5992.000 FEET
         ELEVATION VARIATION ALONG WATERCOURSE =     170.000 FEET
         BASIN FACTOR = 0.025
         WATERSHED AREA =     462.000 ACRES
         BASEFLOW =   0.000 CFS/SQUARE-MILE
         WATERCOURSE "LAG" TIME =    0.351 HOURS
          CAUTION: LAG TIME IS LESS THAN 0.50 HOURS.
          THE 5-MINUTE PERIOD UH MODEL (USED IN THIS COMPUTER PROGRAM)
          MAY BE TOO LARGE FOR PEAK FLOW ESTIMATES.
         VALLEY S-GRAPH SELECTED
         UNIFORM MEAN SOIL-LOSS(INCH/HOUR) =  0.185
         LOW SOIL-LOSS RATE PERCENT(DECIMAL) = 0.860
```

USER-ENTERED RAINFALL = 1.90 INCHES
RCFC&WCD 3-Hour Storm (5-Minute period) SELECTED
RCFC&WCD DEPTH-AREA ADJUSTMENT FACTOR(PLATE E-5.8) = 0.9982

UNIT HYDROGRAPH TIME UNIT = 5.000 MINUTES
UNIT INTERVAL PERCENTAGE OF LAG-TIME = 23.773

UNIT HYDROGRAPH DETERMINATION

INTERVAL NUMBER	"S" GRAPH MEAN VALUES	UNIT HYDROGRAPH ORDINATES(CFS)
1	2.135	119.284
2	8.861	375.784
3	21.140	686.104
4	37.821	932.006
5	53.739	889.369
6	63.625	552.382
7	70.095	361.523
8	74.755	260.320
9	78.257	195.679
10	81.151	161.735
11	83.516	132.132
12	85.553	113.821
13	87.270	95.911
14	88.702	80.015
15	90.053	75.461
16	91.185	63.274
17	92.225	58.123
18	93.112	49.544
19	93.971	47.970
20	94.693	40.377
21	95.393	39.064
22	96.044	36.420
23	96.522	26.688
24	96.984	25.798
25	97.445	25.789
26	97.894	25.073
27	98.136	13.523
28	98.307	9.539
29	98.478	9.539
30	98.648	9.520
31	98.819	9.539
32	98.989	9.539

33	99.160	9.520
34	99.330	9.520
35	99.501	9.520
36	99.671	9.520
37	99.841	9.520
38	100.000	8.866

****

UNIT PERIOD (NUMBER)	UNIT RAINFALL (INCHES)	UNIT SOIL-LOSS (INCHES)	EFFECTIVE RAINFALL (INCHES)
1	0.0247	0.0154	0.0092
2	0.0247	0.0154	0.0092
3	0.0209	0.0154	0.0054
4	0.0284	0.0154	0.0130
5	0.0284	0.0154	0.0130
6	0.0341	0.0154	0.0187
7	0.0284	0.0154	0.0130
8	0.0341	0.0154	0.0187
9	0.0341	0.0154	0.0187
10	0.0284	0.0154	0.0130
11	0.0303	0.0154	0.0149
12	0.0341	0.0154	0.0187
13	0.0417	0.0154	0.0263
14	0.0417	0.0154	0.0263
15	0.0417	0.0154	0.0263
16	0.0379	0.0154	0.0225
17	0.0493	0.0154	0.0339
18	0.0512	0.0154	0.0358
19	0.0455	0.0154	0.0301
20	0.0512	0.0154	0.0358
21	0.0626	0.0154	0.0472
22	0.0588	0.0154	0.0434
23	0.0550	0.0154	0.0396
24	0.0569	0.0154	0.0415
25	0.0588	0.0154	0.0434
26	0.0797	0.0154	0.0642
27	0.0948	0.0154	0.0794
28	0.0664	0.0154	0.0510
29	0.1290	0.0154	0.1135
30	0.1384	0.0154	0.1230
31	0.1555	0.0154	0.1401
32	0.1119	0.0154	0.0965
33	0.0379	0.0154	0.0225
34	0.0341	0.0154	0.0187
35	0.0341	0.0154	0.0187

36	0.0114	0.0098	0.0016

TOTAL STORM RAINFALL(INCHES) = 1.90
TOTAL SOIL-LOSS(INCHES) = 0.55
TOTAL EFFECTIVE RAINFALL(INCHES) = 1.35

TOTAL SOIL-LOSS VOLUME(ACRE-FEET) = 21.1507
TOTAL STORM RUNOFF VOLUME(ACRE-FEET) = 51.8394

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3 - H O U R S T O R M
R U N O F F H Y D R O G R A P H

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HYDROGRAPH IN FIVE-MINUTE UNIT INTERVALS(CFS)
(Note: Time indicated is at END of Each Unit Intervals)

TIME(HRS)	VOLUME(AF)	Q(CFS)	0. 125.0 250.0 375.0 500.0
0.083	0.0076	1.10	Q . . . .
0.167	0.0391	4.57	Q . . . .
0.250	0.1111	10.46	Q . . . .
0.333	0.2389	18.55	VQ . . . .
0.417	0.4249	27.01	V Q . . . .
0.500	0.6623	34.47	V Q . . . .
0.583	0.9582	42.96	V Q . . . .
0.667	1.3195	52.46	.V Q . . . .
0.750	1.7370	60.63	.V Q . . . .
0.833	2.1975	66.86	.V Q . . . .
0.917	2.6850	70.79	. V Q . . . .
1.000	3.1942	73.94	. V Q . . . .
1.083	3.7208	76.45	. V Q . . . .
1.167	4.2828	81.61	. V Q . . . .
1.250	4.9122	91.38	. V Q . . . .
1.333	5.6168	102.32	. V Q . . . .
1.417	6.3879	111.97	. V Q . . . .
1.500	7.2161	120.25	. V Q. . . . .
1.583	8.1045	129.00	. V Q . . . .
1.667	9.0652	139.49	. V .Q . . . .
1.750	10.1087	151.51	. V . Q . . . .
1.833	11.2305	162.89	. V . Q . . . .
1.917	12.4365	175.11	. V. Q . . . .
2.000	13.7340	188.40	. V Q . . . .
2.083	15.0975	197.98	. .V Q . . . .
2.167	16.5124	205.43	. . V Q . . . .
2.250	18.0249	219.62	. . V Q . . . .

2.333	19.6878	241.45	. . V Q. . .
2.417	21.5663	272.77	. . V .Q . .
2.500	23.7293	314.07	. . V . Q . .
2.583	26.2360	363.96	. . V Q. .
2.667	29.1491	422.99	. . . V . Q .
2.750	32.3944	471.22	. . . V . Q .
2.833	35.6411	471.42	. . . V . Q .
2.917	38.5484	422.14	. . . V. Q .
3.000	40.8898	339.97	. . . Q .V .
3.083	42.6935	261.90	. . Q . V .
3.167	44.1202	207.15	. . Q . . V .
3.250	45.2483	163.80	. . Q . . V .
3.333	46.1427	129.87	. Q . . . V .
3.417	46.8783	106.81	. Q . . . . V .
3.500	47.4972	89.87	. Q . . . . V .
3.583	48.0288	77.19	. Q . . . . V .
3.667	48.4892	66.84	. Q . . . . V .
3.750	48.8952	58.95	. Q . . . . V .
3.833	49.2536	52.04	. Q . . . . V .
3.917	49.5713	46.13	. Q . . . . V .
4.000	49.8530	40.91	. Q . . . . V .
4.083	50.1047	36.55	. Q . . . . V .
4.167	50.3315	32.93	. Q . . . . V .
4.250	50.5331	29.26	. Q . . . . V .
4.333	50.7112	25.87	. Q . . . . V.
4.417	50.8660	22.47	.Q . . . . V.
4.500	51.0035	19.97	.Q . . . . V.
4.583	51.1251	17.65	.Q . . . . V.
4.667	51.2289	15.08	.Q . . . . V.
4.750	51.3144	12.41	Q . . . . V.
4.833	51.3856	10.34	Q . . . . V.
4.917	51.4492	9.23	Q . . . . V.
5.000	51.5078	8.50	Q . . . . V.
5.083	51.5617	7.83	Q . . . . V.
5.167	51.6122	7.34	Q . . . . V.
5.250	51.6598	6.90	Q . . . . V.
5.333	51.7030	6.28	Q . . . . V.
5.417	51.7412	5.54	Q . . . . V.
5.500	51.7757	5.02	Q . . . . V.
5.583	51.8028	3.93	Q . . . . V.
5.667	51.8217	2.75	Q . . . . V.
5.750	51.8316	1.44	Q . . . . V.
5.833	51.8356	0.57	Q . . . . V.
5.917	51.8381	0.36	Q . . . . V.
6.000	51.8393	0.18	Q . . . . V.
6.083	51.8394	0.01	Q . . . . V.

TIME DURATION(minutes) OF PERCENTILES OF ESTIMATED PEAK FLOW RATE:
(Note: 100% of Peak Flow Rate estimate assumed to have

an instantaneous time duration)

Percentile of Estimated Peak Flow Rate	Duration (minutes)
0%	365.0
10%	195.0
20%	130.0
30%	95.0
40%	70.0
50%	50.0
60%	35.0
70%	30.0
80%	20.0
90%	10.0

END OF FLOODSCx ROUTING ANALYSIS

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             F L O O D    R O U T I N G    A N A L Y S I S

ACCORDING TO RIVERSIDE COUNTY FLOOD CONTORL AND WATER CONSERVATION DISTRICT
                    (RCFC&WCD) 1978 HYDROLOGY MANUAL
          (c) Copyright 1989-2015 Advanced Engineering Software (aes)
                  (Synthetic Unit Hydrograph Version 22.0)
                  Release Date: 07/01/2015  License ID 1673

                           Analysis prepared by:




 ************************* DESCRIPTION OF STUDY *************************
* CEMETERY AREA                                                         *
* WATERSHED B                                                           *
* 100-YEAR 6-HOUR ZSNYDER 03/11/2022                                    *
 ************************************************************************

  FILE NAME: CEMB6HR.DAT
  TIME/DATE OF STUDY: 14:51 03/11/2022


**************************************************************************
  FLOW PROCESS FROM NODE    100.00 TO NODE    101.00 IS CODE =   1
--------------------------------------------------------------------------
  >>>>>SUBAREA RUNOFF (UNIT-HYDROGRAPH ANALYSIS)<<<<<
==========================================================================

      (UNIT-HYDROGRAPH ADDED TO STREAM #1)

         WATERCOURSE LENGTH =   10471.000 FEET
         LENGTH FROM CONCENTRATION POINT TO CENTROID =    5992.000 FEET
         ELEVATION VARIATION ALONG WATERCOURSE =     170.000 FEET
         BASIN FACTOR = 0.025
         WATERSHED AREA =     462.000 ACRES
         BASEFLOW =   0.000 CFS/SQUARE-MILE
         WATERCOURSE "LAG" TIME =    0.351 HOURS
          CAUTION: LAG TIME IS LESS THAN 0.50 HOURS.
          THE 5-MINUTE PERIOD UH MODEL (USED IN THIS COMPUTER PROGRAM)
          MAY BE TOO LARGE FOR PEAK FLOW ESTIMATES.
         VALLEY S-GRAPH SELECTED
         UNIFORM MEAN SOIL-LOSS(INCH/HOUR) =  0.185
         LOW SOIL-LOSS RATE PERCENT(DECIMAL) = 0.860
```

USER-ENTERED RAINFALL = 2.50 INCHES
RCFC&WCD 6-Hour Storm (5-Minute period) SELECTED
RCFC&WCD DEPTH-AREA ADJUSTMENT FACTOR(PLATE E-5.8) = 0.9987

UNIT HYDROGRAPH TIME UNIT = 5.000 MINUTES
UNIT INTERVAL PERCENTAGE OF LAG-TIME = 23.773

UNIT HYDROGRAPH DETERMINATION

INTERVAL NUMBER	"S" GRAPH MEAN VALUES	UNIT HYDROGRAPH ORDINATES(CFS)
1	2.135	119.284
2	8.861	375.784
3	21.140	686.104
4	37.821	932.006
5	53.739	889.369
6	63.625	552.382
7	70.095	361.523
8	74.755	260.320
9	78.257	195.679
10	81.151	161.735
11	83.516	132.132
12	85.553	113.821
13	87.270	95.911
14	88.702	80.015
15	90.053	75.461
16	91.185	63.274
17	92.225	58.123
18	93.112	49.544
19	93.971	47.970
20	94.693	40.377
21	95.393	39.064
22	96.044	36.420
23	96.522	26.688
24	96.984	25.798
25	97.445	25.789
26	97.894	25.073
27	98.136	13.523
28	98.307	9.539
29	98.478	9.539
30	98.648	9.520
31	98.819	9.539
32	98.989	9.539

33	99.160	9.520
34	99.330	9.520
35	99.501	9.520
36	99.671	9.520
37	99.841	9.520
38	100.000	8.866

****

UNIT PERIOD (NUMBER)	UNIT RAINFALL (INCHES)	UNIT SOIL-LOSS (INCHES)	EFFECTIVE RAINFALL (INCHES)
1	0.0125	0.0107	0.0017
2	0.0150	0.0129	0.0021
3	0.0150	0.0129	0.0021
4	0.0150	0.0129	0.0021
5	0.0150	0.0129	0.0021
6	0.0175	0.0150	0.0024
7	0.0175	0.0150	0.0024
8	0.0175	0.0150	0.0024
9	0.0175	0.0150	0.0024
10	0.0175	0.0150	0.0024
11	0.0175	0.0150	0.0024
12	0.0200	0.0154	0.0046
13	0.0200	0.0154	0.0046
14	0.0200	0.0154	0.0046
15	0.0200	0.0154	0.0046
16	0.0200	0.0154	0.0046
17	0.0200	0.0154	0.0046
18	0.0200	0.0154	0.0046
19	0.0200	0.0154	0.0046
20	0.0200	0.0154	0.0046
21	0.0200	0.0154	0.0046
22	0.0200	0.0154	0.0046
23	0.0200	0.0154	0.0046
24	0.0225	0.0154	0.0071
25	0.0200	0.0154	0.0046
26	0.0225	0.0154	0.0071
27	0.0225	0.0154	0.0071
28	0.0225	0.0154	0.0071
29	0.0225	0.0154	0.0071
30	0.0225	0.0154	0.0071
31	0.0225	0.0154	0.0071
32	0.0225	0.0154	0.0071
33	0.0250	0.0154	0.0096
34	0.0250	0.0154	0.0096
35	0.0250	0.0154	0.0096

36	0.0250	0.0154	0.0096
37	0.0250	0.0154	0.0096
38	0.0275	0.0154	0.0120
39	0.0275	0.0154	0.0120
40	0.0275	0.0154	0.0120
41	0.0300	0.0154	0.0145
42	0.0325	0.0154	0.0170
43	0.0350	0.0154	0.0195
44	0.0350	0.0154	0.0195
45	0.0375	0.0154	0.0220
46	0.0375	0.0154	0.0220
47	0.0399	0.0154	0.0245
48	0.0399	0.0154	0.0245
49	0.0424	0.0154	0.0270
50	0.0449	0.0154	0.0295
51	0.0474	0.0154	0.0320
52	0.0499	0.0154	0.0345
53	0.0524	0.0154	0.0370
54	0.0524	0.0154	0.0370
55	0.0549	0.0154	0.0395
56	0.0574	0.0154	0.0420
57	0.0599	0.0154	0.0445
58	0.0599	0.0154	0.0445
59	0.0624	0.0154	0.0470
60	0.0649	0.0154	0.0495
61	0.0774	0.0154	0.0620
62	0.0899	0.0154	0.0745
63	0.0974	0.0154	0.0820
64	0.1049	0.0154	0.0894
65	0.1173	0.0154	0.1019
66	0.1398	0.0154	0.1244
67	0.0474	0.0154	0.0320
68	0.0225	0.0154	0.0071
69	0.0150	0.0129	0.0021
70	0.0125	0.0107	0.0017
71	0.0075	0.0064	0.0010
72	0.0050	0.0043	0.0007

TOTAL STORM RAINFALL(INCHES) = 2.50
TOTAL SOIL-LOSS(INCHES) = 1.07
TOTAL EFFECTIVE RAINFALL(INCHES) = 1.43

TOTAL SOIL-LOSS VOLUME(ACRE-FEET) = 41.0240
TOTAL STORM RUNOFF VOLUME(ACRE-FEET) = 55.0725

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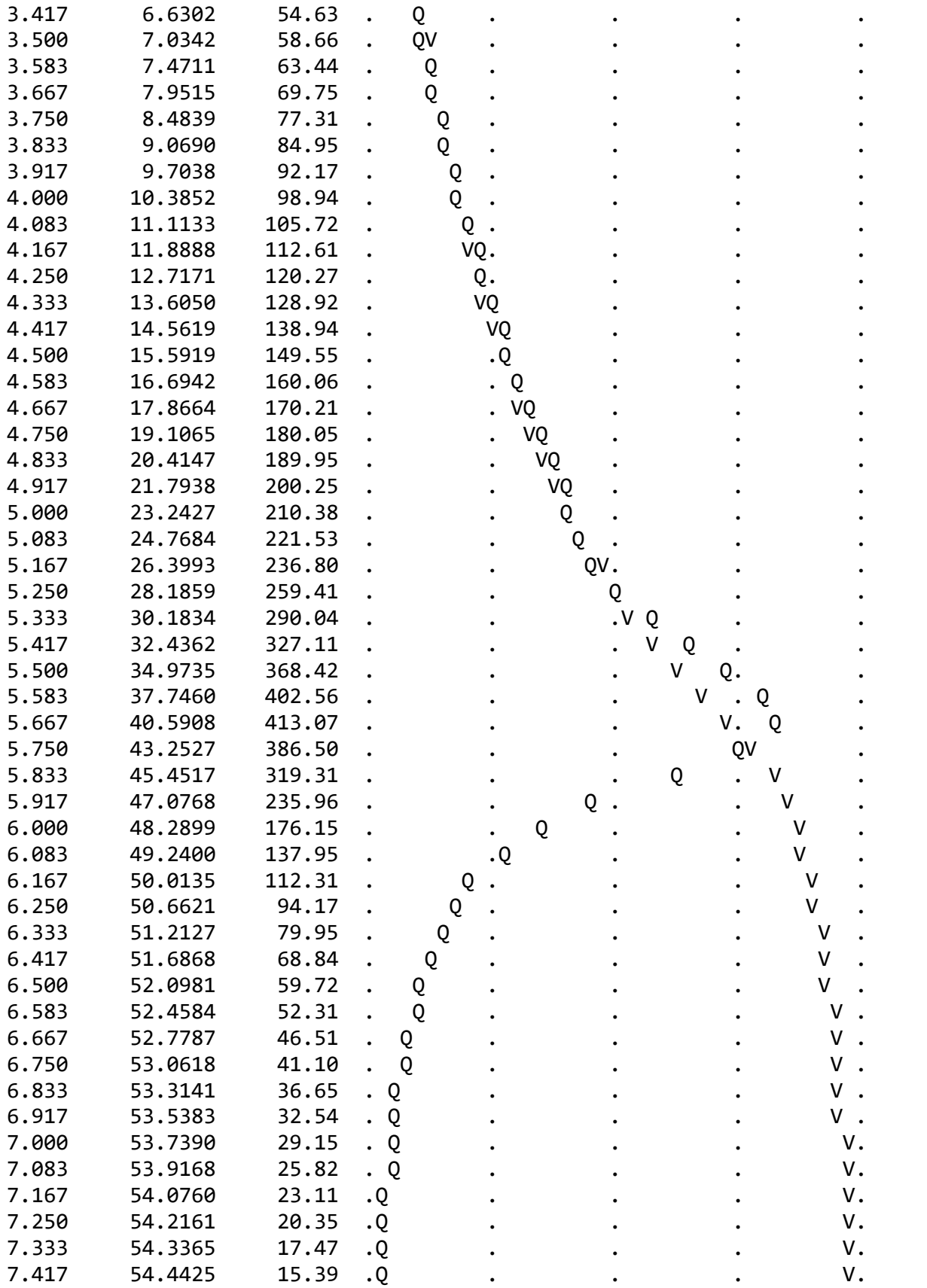
6 - H O U R S T O R M
R U N O F F H Y D R O G R A P H

HYDROGRAPH IN FIVE-MINUTE UNIT INTERVALS(CFS)
(Note: Time indicated is at END of Each Unit Intervals)

TIME(HRS)	VOLUME(AF)	Q(CFS)	0.	125.0	250.0	375.0	500.0
0.083	0.0014	0.21	Q	.	.	.	.
0.167	0.0077	0.91	Q	.	.	.	.
0.250	0.0231	2.24	Q	.	.	.	.
0.333	0.0514	4.11	Q	.	.	.	.
0.417	0.0926	5.99	Q	.	.	.	.
0.500	0.1429	7.30	Q	.	.	.	.
0.583	0.1998	8.26	Q	.	.	.	.
0.667	0.2623	9.08	Q	.	.	.	.
0.750	0.3301	9.84	Q	.	.	.	.
0.833	0.4024	10.50	Q	.	.	.	.
0.917	0.4781	10.98	Q	.	.	.	.
1.000	0.5580	11.61	Q	.	.	.	.
1.083	0.6455	12.70	VQ	.	.	.	.
1.167	0.7446	14.39	VQ	.	.	.	.
1.250	0.8587	16.57	VQ	.	.	.	.
1.333	0.9870	18.63	VQ	.	.	.	.
1.417	1.1245	19.96	VQ	.	.	.	.
1.500	1.2681	20.86	VQ	.	.	.	.
1.583	1.4165	21.54	.Q	.	.	.	.
1.667	1.5685	22.07	.Q	.	.	.	.
1.750	1.7236	22.51	.Q	.	.	.	.
1.833	1.8812	22.89	.Q	.	.	.	.
1.917	2.0411	23.21	.Q	.	.	.	.
2.000	2.2048	23.78	.Q	.	.	.	.
2.083	2.3746	24.66	.Q	.	.	.	.
2.167	2.5534	25.96	.VQ	.	.	.	.
2.250	2.7441	27.69	.VQ	.	.	.	.
2.333	2.9469	29.45	. Q	.	.	.	.
2.417	3.1608	31.07	. Q	.	.	.	.
2.500	3.3877	32.94	. Q	.	.	.	.
2.583	3.6231	34.18	. Q	.	.	.	.
2.667	3.8643	35.03	. Q	.	.	.	.
2.750	4.1122	35.99	. Q	.	.	.	.
2.833	4.3700	37.42	. QV	.	.	.	.
2.917	4.6425	39.57	. Q	.	.	.	.
3.000	4.9336	42.26	. Q	.	.	.	.
3.083	5.2421	44.80	. Q	.	.	.	.
3.167	5.5642	46.76	. QV	.	.	.	.
3.250	5.9003	48.80	. QV	.	.	.	.
3.333	6.2540	51.36	. Q	.	.	.	.



7.500	54.5356	13.52	.Q	.	.	.	V.
7.583	54.6148	11.50	Q	.	.	.	V.
7.667	54.6785	9.26	Q	.	.	.	V.
7.750	54.7336	7.99	Q	.	.	.	V.
7.833	54.7844	7.37	Q	.	.	.	V.
7.917	54.8318	6.89	Q	.	.	.	V.
8.000	54.8762	6.44	Q	.	.	.	V.
8.083	54.9173	5.97	Q	.	.	.	V.
8.167	54.9550	5.47	Q	.	.	.	V.
8.250	54.9885	4.87	Q	.	.	.	V.
8.333	55.0172	4.16	Q	.	.	.	V.
8.417	55.0404	3.37	Q	.	.	.	V.
8.500	55.0577	2.51	Q	.	.	.	V.
8.583	55.0682	1.53	Q	.	.	.	V.
8.667	55.0710	0.40	Q	.	.	.	V.
8.750	55.0718	0.12	Q	.	.	.	V.
8.833	55.0722	0.05	Q	.	.	.	V.
8.917	55.0724	0.03	Q	.	.	.	V.
9.000	55.0725	0.02	Q	.	.	.	V.
9.083	55.0725	0.01	Q	.	.	.	V

TIME DURATION(minutes) OF PERCENTILES OF ESTIMATED PEAK FLOW RATE:
(Note: 100% of Peak Flow Rate estimate assumed to have
an instantaneous time duration)

Percentile of Estimated Peak Flow Rate	Duration (minutes)
0%	545.0
10%	225.0
20%	150.0
30%	110.0
40%	85.0
50%	60.0
60%	40.0
70%	35.0
80%	20.0
90%	15.0

==========

END OF FLOODSCx ROUTING ANALYSIS

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

             F L O O D    R O U T I N G    A N A L Y S I S

ACCORDING TO RIVERSIDE COUNTY FLOOD CONTORL AND WATER CONSERVATION DISTRICT
                    (RCFC&WCD) 1978 HYDROLOGY MANUAL
          (c) Copyright 1989-2015 Advanced Engineering Software (aes)
                  (Synthetic Unit Hydrograph Version 22.0)
                  Release Date: 07/01/2015  License ID 1673

                           Analysis prepared by:




 ************************* DESCRIPTION OF STUDY *************************
* CEMETERY AREA                                                         *
* WATERSHED B                                                           *
* 100-YEAR 24-HOUR ZSNYDER 03/11/2022                                   *
 ************************************************************************

  FILE NAME: CEMB24HR.DAT
  TIME/DATE OF STUDY: 14:52 03/11/2022


**************************************************************************
  FLOW PROCESS FROM NODE    100.00 TO NODE    101.00 IS CODE =   1
--------------------------------------------------------------------------
  >>>>>SUBAREA RUNOFF (UNIT-HYDROGRAPH ANALYSIS)<<<<<
==========================================================================

      (UNIT-HYDROGRAPH ADDED TO STREAM #1)

         WATERCOURSE LENGTH =   10471.000 FEET
         LENGTH FROM CONCENTRATION POINT TO CENTROID =    5992.000 FEET
         ELEVATION VARIATION ALONG WATERCOURSE =     170.000 FEET
         BASIN FACTOR = 0.025
         WATERSHED AREA =     462.000 ACRES
         BASEFLOW =   0.000 CFS/SQUARE-MILE
         WATERCOURSE "LAG" TIME =    0.351 HOURS
          CAUTION: LAG TIME IS LESS THAN 0.50 HOURS.
          THE 5-MINUTE PERIOD UH MODEL (USED IN THIS COMPUTER PROGRAM)
          MAY BE TOO LARGE FOR PEAK FLOW ESTIMATES.
         VALLEY S-GRAPH SELECTED
         UNIFORM MEAN SOIL-LOSS(INCH/HOUR) =  0.185
         LOW SOIL-LOSS RATE PERCENT(DECIMAL) = 0.860
```

MINIMUM SOIL-LOSS RATE(INCH/HOUR) = 0.093
USER-ENTERED RAINFALL = 4.00 INCHES
RCFC&WCD 24-Hour Storm (15-Minute period) SELECTED
RCFC&WCD DEPTH-AREA ADJUSTMENT FACTOR(PLATE E-5.8) = 0.9992

UNIT HYDROGRAPH TIME UNIT = 15.000 MINUTES
UNIT INTERVAL PERCENTAGE OF LAG-TIME = 71.319

==========

UNIT HYDROGRAPH DETERMINATION

INTERVAL NUMBER	"S" GRAPH MEAN VALUES	UNIT HYDROGRAPH ORDINATES(CFS)
1	10.712	199.503
2	51.728	763.903
3	74.369	421.669
4	83.407	168.330
5	88.675	98.110
6	92.174	65.173
7	94.686	46.772
8	96.517	34.106
9	97.825	24.368
10	98.478	12.149
11	98.989	9.532
12	99.439	8.367
13	99.775	6.274
14	99.944	3.137
15	100.000	1.046

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UNIT PERIOD (NUMBER)	UNIT RAINFALL (INCHES)	UNIT SOIL-LOSS (INCHES)	EFFECTIVE RAINFALL (INCHES)
1	0.0080	0.0069	0.0011
2	0.0120	0.0103	0.0017
3	0.0120	0.0103	0.0017
4	0.0160	0.0137	0.0022
5	0.0120	0.0103	0.0017
6	0.0120	0.0103	0.0017
7	0.0120	0.0103	0.0017
8	0.0160	0.0137	0.0022

9	0.0160	0.0137	0.0022
10	0.0160	0.0137	0.0022
11	0.0200	0.0172	0.0028
12	0.0200	0.0172	0.0028
13	0.0200	0.0172	0.0028
14	0.0200	0.0172	0.0028
15	0.0200	0.0172	0.0028
16	0.0240	0.0206	0.0034
17	0.0240	0.0206	0.0034
18	0.0280	0.0241	0.0039
19	0.0280	0.0241	0.0039
20	0.0320	0.0275	0.0045
21	0.0240	0.0206	0.0034
22	0.0280	0.0241	0.0039
23	0.0320	0.0275	0.0045
24	0.0320	0.0275	0.0045
25	0.0360	0.0309	0.0050
26	0.0360	0.0309	0.0050
27	0.0400	0.0344	0.0056
28	0.0400	0.0344	0.0056
29	0.0400	0.0344	0.0056
30	0.0440	0.0378	0.0062
31	0.0480	0.0412	0.0067
32	0.0520	0.0447	0.0073
33	0.0599	0.0516	0.0084
34	0.0599	0.0516	0.0084
35	0.0639	0.0527	0.0113
36	0.0679	0.0519	0.0160
37	0.0759	0.0512	0.0247
38	0.0799	0.0505	0.0294
39	0.0839	0.0498	0.0342
40	0.0879	0.0491	0.0389
41	0.0599	0.0484	0.0116
42	0.0599	0.0477	0.0123
43	0.0799	0.0470	0.0330
44	0.0799	0.0463	0.0336
45	0.0759	0.0456	0.0303
46	0.0759	0.0449	0.0310
47	0.0679	0.0443	0.0237
48	0.0719	0.0436	0.0283
49	0.0999	0.0430	0.0569
50	0.1039	0.0423	0.0616
51	0.1119	0.0417	0.0702
52	0.1159	0.0411	0.0748
53	0.1359	0.0405	0.0954
54	0.1359	0.0399	0.0960
55	0.0919	0.0392	0.0527
56	0.0919	0.0387	0.0533
57	0.1079	0.0381	0.0698

58	0.1039	0.0375	0.0664
59	0.1039	0.0369	0.0670
60	0.0999	0.0364	0.0636
61	0.0959	0.0358	0.0601
62	0.0919	0.0353	0.0567
63	0.0759	0.0347	0.0412
64	0.0759	0.0342	0.0417
65	0.0160	0.0137	0.0022
66	0.0160	0.0137	0.0022
67	0.0120	0.0103	0.0017
68	0.0120	0.0103	0.0017
69	0.0200	0.0172	0.0028
70	0.0200	0.0172	0.0028
71	0.0200	0.0172	0.0028
72	0.0160	0.0137	0.0022
73	0.0160	0.0137	0.0022
74	0.0160	0.0137	0.0022
75	0.0120	0.0103	0.0017
76	0.0080	0.0069	0.0011
77	0.0120	0.0103	0.0017
78	0.0160	0.0137	0.0022
79	0.0120	0.0103	0.0017
80	0.0080	0.0069	0.0011
81	0.0120	0.0103	0.0017
82	0.0120	0.0103	0.0017
83	0.0120	0.0103	0.0017
84	0.0080	0.0069	0.0011
85	0.0120	0.0103	0.0017
86	0.0080	0.0069	0.0011
87	0.0120	0.0103	0.0017
88	0.0080	0.0069	0.0011
89	0.0120	0.0103	0.0017
90	0.0080	0.0069	0.0011
91	0.0080	0.0069	0.0011
92	0.0080	0.0069	0.0011
93	0.0080	0.0069	0.0011
94	0.0080	0.0069	0.0011
95	0.0080	0.0069	0.0011
96	0.0080	0.0069	0.0011

TOTAL STORM RAINFALL(INCHES) = 4.00
TOTAL SOIL-LOSS(INCHES) = 2.43
TOTAL EFFECTIVE RAINFALL(INCHES) = 1.57

TOTAL SOIL-LOSS VOLUME(ACRE-FEET) = 93.3915
TOTAL STORM RUNOFF VOLUME(ACRE-FEET) = 60.4484

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2 4 - H O U R S T O R M
R U N O F F H Y D R O G R A P H

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HYDROGRAPH IN FIVE-MINUTE UNIT INTERVALS(CFS)
(Note: Time indicated is at END of Each Unit Intervals)

TIME(HRS)	VOLUME(AF)	Q(CFS)	0.	50.0	100.0	150.0	200.0
0.083	0.0015	0.22	Q	.	.	.	.
0.167	0.0031	0.22	Q	.	.	.	.
0.250	0.0046	0.22	Q	.	.	.	.
0.333	0.0128	1.19	Q	.	.	.	.
0.417	0.0210	1.19	Q	.	.	.	.
0.500	0.0292	1.19	Q	.	.	.	.
0.583	0.0436	2.09	Q	.	.	.	.
0.667	0.0580	2.09	Q	.	.	.	.
0.750	0.0724	2.09	Q	.	.	.	.
0.833	0.0904	2.62	Q	.	.	.	.
0.917	0.1085	2.62	Q	.	.	.	.
1.000	0.1266	2.62	Q	.	.	.	.
1.083	0.1482	3.14	Q	.	.	.	.
1.167	0.1699	3.14	Q	.	.	.	.
1.250	0.1916	3.14	Q	.	.	.	.
1.333	0.2128	3.08	Q	.	.	.	.
1.417	0.2340	3.08	Q	.	.	.	.
1.500	0.2552	3.08	Q	.	.	.	.
1.583	0.2761	3.03	Q	.	.	.	.
1.667	0.2969	3.03	Q	.	.	.	.
1.750	0.3178	3.03	Q	.	.	.	.
1.833	0.3396	3.16	Q	.	.	.	.
1.917	0.3614	3.16	Q	.	.	.	.
2.000	0.3832	3.16	Q	.	.	.	.
2.083	0.4081	3.62	Q	.	.	.	.
2.167	0.4330	3.62	Q	.	.	.	.
2.250	0.4580	3.62	Q	.	.	.	.
2.333	0.4846	3.87	Q	.	.	.	.
2.417	0.5113	3.87	Q	.	.	.	.
2.500	0.5380	3.87	Q	.	.	.	.
2.583	0.5662	4.09	Q	.	.	.	.
2.667	0.5943	4.09	Q	.	.	.	.
2.750	0.6225	4.09	Q	.	.	.	.
2.833	0.6540	4.58	Q	.	.	.	.
2.917	0.6856	4.58	Q	.	.	.	.
3.000	0.7171	4.58	Q	.	.	.	.
3.083	0.7506	4.86	Q	.	.	.	.
3.167	0.7840	4.86	Q	.	.	.	.

3.250	0.8175	4.86	Q	.	.	.	.
3.333	0.8518	4.98	Q	.	.	.	.
3.417	0.8862	4.98	Q	.	.	.	.
3.500	0.9205	4.98	Q	.	.	.	.
3.583	0.9553	5.06	VQ	.	.	.	.
3.667	0.9902	5.06	VQ	.	.	.	.
3.750	1.0250	5.06	VQ	.	.	.	.
3.833	1.0610	5.22	VQ	.	.	.	.
3.917	1.0969	5.22	VQ	.	.	.	.
4.000	1.1329	5.22	VQ	.	.	.	.
4.083	1.1720	5.68	VQ	.	.	.	.
4.167	1.2111	5.68	VQ	.	.	.	.
4.250	1.2503	5.68	VQ	.	.	.	.
4.333	1.2919	6.05	VQ	.	.	.	.
4.417	1.3336	6.05	VQ	.	.	.	.
4.500	1.3753	6.05	VQ	.	.	.	.
4.583	1.4207	6.59	VQ	.	.	.	.
4.667	1.4661	6.59	VQ	.	.	.	.
4.750	1.5114	6.59	Q	.	.	.	.
4.833	1.5597	7.00	.Q	.	.	.	.
4.917	1.6079	7.00	.Q	.	.	.	.
5.000	1.6561	7.00	.Q	.	.	.	.
5.083	1.7067	7.34	.Q	.	.	.	.
5.167	1.7573	7.34	.Q	.	.	.	.
5.250	1.8079	7.34	.Q	.	.	.	.
5.333	1.8556	6.92	.Q	.	.	.	.
5.417	1.9033	6.92	.Q	.	.	.	.
5.500	1.9509	6.92	.Q	.	.	.	.
5.583	2.0001	7.14	.Q	.	.	.	.
5.667	2.0493	7.14	.Q	.	.	.	.
5.750	2.0986	7.14	.Q	.	.	.	.
5.833	2.1517	7.72	.Q	.	.	.	.
5.917	2.2048	7.72	.Q	.	.	.	.
6.000	2.2580	7.72	.Q	.	.	.	.
6.083	2.3138	8.11	.Q	.	.	.	.
6.167	2.3697	8.11	.Q	.	.	.	.
6.250	2.4255	8.11	.Q	.	.	.	.
6.333	2.4852	8.66	.Q	.	.	.	.
6.417	2.5448	8.66	.Q	.	.	.	.
6.500	2.6045	8.66	.Q	.	.	.	.
6.583	2.6670	9.08	.Q	.	.	.	.
6.667	2.7295	9.08	.Q	.	.	.	.
6.750	2.7920	9.08	.Q	.	.	.	.
6.833	2.8584	9.65	.Q	.	.	.	.
6.917	2.9248	9.65	.Q	.	.	.	.
7.000	2.9913	9.65	.Q	.	.	.	.
7.083	3.0599	9.97	.QV	.	.	.	.
7.167	3.1286	9.97	.QV	.	.	.	.
7.250	3.1972	9.97	.QV	.	.	.	.

7.333	3.2677	10.24	. Q	.	.	.	.
7.417	3.3382	10.24	. Q	.	.	.	.
7.500	3.4087	10.24	. Q	.	.	.	.
7.583	3.4836	10.87	. Q	.	.	.	.
7.667	3.5585	10.87	. Q	.	.	.	.
7.750	3.6334	10.87	. Q	.	.	.	.
7.833	3.7141	11.71	. Q	.	.	.	.
7.917	3.7947	11.71	. Q	.	.	.	.
8.000	3.8754	11.71	. Q	.	.	.	.
8.083	3.9631	12.74	. Q	.	.	.	.
8.167	4.0508	12.74	. Q	.	.	.	.
8.250	4.1385	12.74	. Q	.	.	.	.
8.333	4.2350	14.01	. Q	.	.	.	.
8.417	4.3315	14.01	. Q	.	.	.	.
8.500	4.4280	14.01	. Q	.	.	.	.
8.583	4.5331	15.26	. VQ	.	.	.	.
8.667	4.6382	15.26	. Q	.	.	.	.
8.750	4.7433	15.26	. Q	.	.	.	.
8.833	4.8722	18.71	. Q	.	.	.	.
8.917	5.0010	18.71	. Q	.	.	.	.
9.000	5.1299	18.71	. Q	.	.	.	.
9.083	5.3054	25.48	. V Q	.	.	.	.
9.167	5.4809	25.48	. V Q	.	.	.	.
9.250	5.6564	25.48	. V Q	.	.	.	.
9.333	5.9023	35.71	. V Q	.	.	.	.
9.417	6.1482	35.71	. V Q	.	.	.	.
9.500	6.3941	35.71	. V Q	.	.	.	.
9.583	6.7048	45.11	. V Q.	.	.	.	.
9.667	7.0155	45.11	. V Q.	.	.	.	.
9.750	7.3261	45.11	. V Q.	.	.	.	.
9.833	7.6968	53.83	. V Q	.	.	.	.
9.917	8.0675	53.83	. V Q	.	.	.	.
10.000	8.4382	53.83	. V Q	.	.	.	.
10.083	8.8246	56.11	. V .Q	.	.	.	.
10.167	9.2110	56.11	. V .Q	.	.	.	.
10.250	9.5975	56.11	. V .Q	.	.	.	.
10.333	9.8700	39.57	. VQ .	.	.	.	.
10.417	10.1425	39.57	. VQ .	.	.	.	.
10.500	10.4150	39.57	. VQ .	.	.	.	.
10.583	10.6558	34.95	. QV .	.	.	.	.
10.667	10.8965	34.95	. QV .	.	.	.	.
10.750	11.1372	34.95	. QV .	.	.	.	.
10.833	11.4680	48.04	. V Q.	.	.	.	.
10.917	11.7988	48.04	. V Q.	.	.	.	.
11.000	12.1297	48.04	. VQ.	.	.	.	.
11.083	12.5088	55.05	. V .Q	.	.	.	.
11.167	12.8880	55.05	. V .Q	.	.	.	.
11.250	13.2671	55.05	. V .Q	.	.	.	.
11.333	13.6486	55.38	. V.Q	.	.	.	.

11.417	14.0300	55.38	.	V.Q	.	.	.
11.500	14.4114	55.38	.	V.Q	.	.	.
11.583	14.7862	54.42	.	VQ	.	.	.
11.667	15.1610	54.42	.	Q	.	.	.
11.750	15.5358	54.42	.	Q	.	.	.
11.833	15.8823	50.32	.	Q	.	.	.
11.917	16.2289	50.32	.	Q	.	.	.
12.000	16.5754	50.32	.	Q	.	.	.
12.083	16.9670	56.86	.	.Q	.	.	.
12.167	17.3586	56.86	.	.Q	.	.	.
12.250	17.7503	56.86	.	.Q	.	.	.
12.333	18.3067	80.80	.	. V	Q	.	.
12.417	18.8632	80.80	.	. V	Q	.	.
12.500	19.4196	80.80	.	. V	Q	.	.
12.583	20.0977	98.45	.	. V	Q.	.	.
12.667	20.7757	98.45	.	. V	Q.	.	.
12.750	21.4538	98.45	.	. V	Q.	.	.
12.833	22.2301	112.73	.	. V	. Q	.	.
12.917	23.0065	112.73	.	. V	. Q	.	.
13.000	23.7828	112.73	.	. V	. Q	.	.
13.083	24.6613	127.56	.	. V	. Q	.	.
13.167	25.5398	127.56	.	. V	. Q	.	.
13.250	26.4183	127.56	.	. V	. Q	.	.
13.333	27.4457	149.18	.	. V	. Q.	.	.
13.417	28.4732	149.18	.	. V	. Q.	.	.
13.500	29.5006	149.18	.	. V.	Q.	.	.
13.583	30.5544	153.01	.	. V	Q	.	.
13.667	31.6082	153.01	.	. V	Q	.	.
13.750	32.6620	153.01	.	. V	Q	.	.
13.833	33.5299	126.01	.	.	. V Q	.	.
13.917	34.3978	126.01	.	.	. V Q	.	.
14.000	35.2656	126.01	.	.	. V Q	.	.
14.083	36.0588	115.17	.	.	. Q	.	.
14.167	36.8520	115.17	.	.	. QV	.	.
14.250	37.6452	115.17	.	.	. QV	.	.
14.333	38.4885	122.45	.	.	. QV	.	.
14.417	39.3318	122.45	.	.	. Q V	.	.
14.500	40.1751	122.45	.	.	. Q V	.	.
14.583	41.0324	124.48	.	.	. Q V	.	.
14.667	41.8896	124.48	.	.	. Q V	.	.
14.750	42.7469	124.48	.	.	. Q V	.	.
14.833	43.6012	124.04	.	.	. Q V	.	.
14.917	44.4555	124.04	.	.	. Q V.	.	.
15.000	45.3098	124.04	.	.	. Q V.	.	.
15.083	46.1426	120.92	.	.	. Q V	.	.
15.167	46.9754	120.92	.	.	. Q V	.	.
15.250	47.8082	120.92	.	.	. Q V	.	.
15.333	48.6074	116.05	.	.	. Q	. V	.
15.417	49.4066	116.05	.	.	. Q	. V	.

15.500	50.2058	116.05	. . . Q . V .
15.583	50.9511	108.21	. . .Q . V .
15.667	51.6963	108.21	. . .Q . V .
15.750	52.4416	108.21	. . .Q . V .
15.833	53.0911	94.31	. . Q . . V .
15.917	53.7406	94.31	. . Q . . V .
16.000	54.3900	94.31	. . Q . . V .
16.083	54.9358	79.24	. . Q . . V .
16.167	55.4815	79.24	. . Q . . V .
16.250	56.0272	79.24	. . Q . . V .
16.333	56.3428	45.82	. Q. . . V .
16.417	56.6583	45.82	. Q. . . V .
16.500	56.9739	45.82	. Q. . . V .
16.583	57.1599	27.01	. Q . . . V .
16.667	57.3459	27.01	. Q . . . V .
16.750	57.5319	27.01	. Q . . . V .
16.833	57.6600	18.60	. Q . . . V .
16.917	57.7881	18.60	. Q . . . V .
17.000	57.9162	18.60	. Q . . . V .
17.083	58.0113	13.82	. Q . . . V .
17.167	58.1064	13.82	. Q . . . V .
17.250	58.2016	13.82	. Q . . . V .
17.333	58.2799	11.38	. Q . . . V .
17.417	58.3583	11.38	. Q . . . V .
17.500	58.4367	11.38	. Q . . . V .
17.583	58.5020	9.49	.Q . . . V .
17.667	58.5674	9.49	.Q . . . V .
17.750	58.6328	9.49	.Q . . . V .
17.833	58.6874	7.93	.Q . . . V .
17.917	58.7420	7.93	.Q . . . V .
18.000	58.7966	7.93	.Q . . . V .
18.083	58.8409	6.42	.Q . . . V .
18.167	58.8851	6.42	.Q . . . V .
18.250	58.9293	6.42	.Q . . . V .
18.333	58.9678	5.60	.Q . . . V.
18.417	59.0064	5.60	.Q . . . V.
18.500	59.0450	5.60	.Q . . . V.
18.583	59.0790	4.95	Q . . . V.
18.667	59.1131	4.95	Q . . . V.
18.750	59.1472	4.95	Q . . . V.
18.833	59.1748	4.01	Q . . . V.
18.917	59.2024	4.01	Q . . . V.
19.000	59.2299	4.01	Q . . . V.
19.083	59.2518	3.18	Q . . . V.
19.167	59.2737	3.18	Q . . . V.
19.250	59.2956	3.18	Q . . . V.
19.333	59.3179	3.25	Q . . . V.
19.417	59.3403	3.25	Q . . . V.
19.500	59.3627	3.25	Q . . . V.

19.583	59.3874	3.60	Q	.	.	.	V.
19.667	59.4122	3.60	Q	.	.	.	V.
19.750	59.4369	3.60	Q	.	.	.	V.
19.833	59.4596	3.29	Q	.	.	.	V.
19.917	59.4822	3.29	Q	.	.	.	V.
20.000	59.5049	3.29	Q	.	.	.	V.
20.083	59.5243	2.82	Q	.	.	.	V.
20.167	59.5438	2.82	Q	.	.	.	V.
20.250	59.5632	2.82	Q	.	.	.	V.
20.333	59.5836	2.96	Q	.	.	.	V.
20.417	59.6041	2.96	Q	.	.	.	V.
20.500	59.6245	2.96	Q	.	.	.	V.
20.583	59.6457	3.08	Q	.	.	.	V.
20.667	59.6669	3.08	Q	.	.	.	V.
20.750	59.6881	3.08	Q	.	.	.	V.
20.833	59.7087	2.99	Q	.	.	.	V.
20.917	59.7293	2.99	Q	.	.	.	V.
21.000	59.7499	2.99	Q	.	.	.	V.
21.083	59.7684	2.69	Q	.	.	.	V.
21.167	59.7869	2.69	Q	.	.	.	V.
21.250	59.8054	2.69	Q	.	.	.	V.
21.333	59.8244	2.77	Q	.	.	.	V.
21.417	59.8435	2.77	Q	.	.	.	V.
21.500	59.8625	2.77	Q	.	.	.	V.
21.583	59.8804	2.59	Q	.	.	.	V.
21.667	59.8982	2.59	Q	.	.	.	V.
21.750	59.9160	2.59	Q	.	.	.	V.
21.833	59.9347	2.71	Q	.	.	.	V.
21.917	59.9534	2.71	Q	.	.	.	V.
22.000	59.9721	2.71	Q	.	.	.	V.
22.083	59.9897	2.56	Q	.	.	.	V.
22.167	60.0074	2.56	Q	.	.	.	V.
22.250	60.0251	2.56	Q	.	.	.	V.
22.333	60.0436	2.70	Q	.	.	.	V.
22.417	60.0622	2.70	Q	.	.	.	V.
22.500	60.0807	2.70	Q	.	.	.	V.
22.583	60.0975	2.43	Q	.	.	.	V.
22.667	60.1143	2.43	Q	.	.	.	V.
22.750	60.1310	2.43	Q	.	.	.	V.
22.833	60.1466	2.25	Q	.	.	.	V.
22.917	60.1621	2.25	Q	.	.	.	V.
23.000	60.1776	2.25	Q	.	.	.	V.
23.083	60.1927	2.19	Q	.	.	.	V.
23.166	60.2078	2.19	Q	.	.	.	V.
23.250	60.2229	2.19	Q	.	.	.	V.
23.333	60.2378	2.16	Q	.	.	.	V.
23.416	60.2526	2.16	Q	.	.	.	V.
23.500	60.2675	2.16	Q	.	.	.	V.
23.583	60.2822	2.14	Q	.	.	.	V.

23.666	60.2969	2.14	Q	.	.	.	V.
23.750	60.3116	2.14	Q	.	.	.	V.
23.833	60.3262	2.12	Q	.	.	.	V.
23.916	60.3407	2.12	Q	.	.	.	V.
24.000	60.3553	2.12	Q	.	.	.	V.
24.083	60.3683	1.88	Q	.	.	.	V.
24.166	60.3813	1.88	Q	.	.	.	V.
24.250	60.3942	1.88	Q	.	.	.	V.
24.333	60.4013	1.02	Q	.	.	.	V.
24.416	60.4083	1.02	Q	.	.	.	V.
24.500	60.4153	1.02	Q	.	.	.	V.
24.583	60.4190	0.54	Q	.	.	.	V.
24.666	60.4228	0.54	Q	.	.	.	V.
24.750	60.4265	0.54	Q	.	.	.	V.
24.833	60.4290	0.35	Q	.	.	.	V.
24.916	60.4314	0.35	Q	.	.	.	V.
25.000	60.4338	0.35	Q	.	.	.	V.
25.083	60.4355	0.24	Q	.	.	.	V.
25.166	60.4371	0.24	Q	.	.	.	V.
25.250	60.4388	0.24	Q	.	.	.	V.
25.333	60.4399	0.16	Q	.	.	.	V.
25.416	60.4411	0.16	Q	.	.	.	V.
25.500	60.4422	0.16	Q	.	.	.	V.
25.583	60.4430	0.11	Q	.	.	.	V.
25.666	60.4437	0.11	Q	.	.	.	V.
25.750	60.4445	0.11	Q	.	.	.	V.
25.833	60.4450	0.07	Q	.	.	.	V.
25.916	60.4455	0.07	Q	.	.	.	V.
26.000	60.4460	0.07	Q	.	.	.	V.
26.083	60.4463	0.05	Q	.	.	.	V.
26.166	60.4466	0.05	Q	.	.	.	V.
26.250	60.4469	0.05	Q	.	.	.	V.
26.333	60.4471	0.03	Q	.	.	.	V.
26.416	60.4474	0.03	Q	.	.	.	V.
26.500	60.4476	0.03	Q	.	.	.	V.
26.583	60.4477	0.02	Q	.	.	.	V.
26.666	60.4479	0.02	Q	.	.	.	V.
26.750	60.4480	0.02	Q	.	.	.	V.
26.833	60.4481	0.01	Q	.	.	.	V.
26.916	60.4482	0.01	Q	.	.	.	V.
27.000	60.4483	0.01	Q	.	.	.	V.
27.083	60.4483	0.00	Q	.	.	.	V.
27.166	60.4483	0.00	Q	.	.	.	V.
27.250	60.4483	0.00	Q	.	.	.	V.

TIME DURATION(minutes) OF PERCENTILES OF ESTIMATED PEAK FLOW RATE:
(Note: 100% of Peak Flow Rate estimate assumed to have
an instantaneous time duration)

Percentile of Estimated Peak Flow Rate	Duration (minutes)
0%	1635.0
10%	495.0
20%	435.0
30%	360.0
40%	240.0
50%	240.0
60%	210.0
70%	180.0
80%	105.0
90%	30.0

END OF FLOODSCx ROUTING ANALYSIS

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             F L O O D    R O U T I N G    A N A L Y S I S

ACCORDING TO RIVERSIDE COUNTY FLOOD CONTORL AND WATER CONSERVATION DISTRICT
                    (RCFC&WCD) 1978 HYDROLOGY MANUAL
          (c) Copyright 1989-2015 Advanced Engineering Software (aes)
                  (Synthetic Unit Hydrograph Version 22.0)
                  Release Date: 07/01/2015  License ID 1673

                           Analysis prepared by:




 ************************* DESCRIPTION OF STUDY *************************
* CEMETERY AREA                                                         *
* WATERSHED C                                                           *
* 100-YEAR 1-HOUR ZSNYDER 03/11/2022                                    *
 ************************************************************************

  FILE NAME: CEMC1HR.DAT
  TIME/DATE OF STUDY: 14:54 03/11/2022


**************************************************************************
  FLOW PROCESS FROM NODE    100.00 TO NODE    101.00 IS CODE =   1
--------------------------------------------------------------------------
  >>>>>SUBAREA RUNOFF (UNIT-HYDROGRAPH ANALYSIS)<<<<<
==========================================================================

      (UNIT-HYDROGRAPH ADDED TO STREAM #1)

         WATERCOURSE LENGTH =    9206.000 FEET
         LENGTH FROM CONCENTRATION POINT TO CENTROID =    5625.000 FEET
         ELEVATION VARIATION ALONG WATERCOURSE =     185.000 FEET
         BASIN FACTOR = 0.025
         WATERSHED AREA =     366.000 ACRES
         BASEFLOW =   0.000 CFS/SQUARE-MILE
         WATERCOURSE "LAG" TIME =    0.313 HOURS
          CAUTION: LAG TIME IS LESS THAN 0.50 HOURS.
          THE 5-MINUTE PERIOD UH MODEL (USED IN THIS COMPUTER PROGRAM)
          MAY BE TOO LARGE FOR PEAK FLOW ESTIMATES.
         VALLEY S-GRAPH SELECTED
         UNIFORM MEAN SOIL-LOSS(INCH/HOUR) =  0.185
         LOW SOIL-LOSS RATE PERCENT(DECIMAL) = 0.860
```

USER-ENTERED RAINFALL = 1.20 INCHES
RCFC&WCD 1-Hour Storm (5-Minute period) SELECTED
(SLOPE OF INTENSITY-DURATION CURVE = 0.50)
RCFC&WCD DEPTH-AREA ADJUSTMENT FACTOR(PLATE E-5.8) = 0.9800

UNIT HYDROGRAPH TIME UNIT = 5.000 MINUTES
UNIT INTERVAL PERCENTAGE OF LAG-TIME = 26.630

UNIT HYDROGRAPH DETERMINATION

INTERVAL NUMBER	"S" GRAPH MEAN VALUES	UNIT HYDROGRAPH ORDINATES(CFS)
1	2.452	108.525
2	10.706	365.334
3	25.892	672.191
4	45.049	847.974
5	59.619	644.918
6	68.168	378.374
7	73.827	250.507
8	77.930	181.598
9	81.203	144.881
10	83.821	115.893
11	86.024	97.513
12	87.839	80.302
13	89.402	69.193
14	90.767	60.445
15	91.974	53.404
16	92.991	45.022
17	93.954	42.635
18	94.765	35.899
19	95.548	34.665
20	96.218	29.653
21	96.736	22.913
22	97.253	22.887
23	97.770	22.861
24	98.106	14.895
25	98.297	8.467
26	98.488	8.454
27	98.680	8.460
28	98.871	8.460
29	99.062	8.460
30	99.253	8.460
31	99.444	8.460

32	99.635	8.460
33	99.826	8.460
34	100.000	7.687

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UNIT PERIOD (NUMBER)	UNIT RAINFALL (INCHES)	UNIT SOIL-LOSS (INCHES)	EFFECTIVE RAINFALL (INCHES)
1	0.0505	0.0154	0.0351
2	0.0535	0.0154	0.0381
3	0.0570	0.0154	0.0416
4	0.0631	0.0154	0.0477
5	0.0667	0.0154	0.0513
6	0.0763	0.0154	0.0609
7	0.0902	0.0154	0.0748
8	0.0994	0.0154	0.0840
9	0.1523	0.0154	0.1369
10	0.3278	0.0154	0.3124
11	0.0832	0.0154	0.0677
12	0.0560	0.0154	0.0406

TOTAL STORM RAINFALL(INCHES) = 1.18
TOTAL SOIL-LOSS(INCHES) = 0.19
TOTAL EFFECTIVE RAINFALL(INCHES) = 0.99

TOTAL SOIL-LOSS VOLUME(ACRE-FEET) = 5.6425
TOTAL STORM RUNOFF VOLUME(ACRE-FEET) = 30.2099

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1 - H O U R S T O R M
R U N O F F H Y D R O G R A P H

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HYDROGRAPH IN FIVE-MINUTE UNIT INTERVALS(CFS)
(Note: Time indicated is at END of Each Unit Intervals)

TIME(HRS)	VOLUME(AF)	Q(CFS)	0.	125.0	250.0	375.0	500.0
0.083	0.0262	3.81	Q	.	.	.	.
0.167	0.1430	16.96	VQ	.	.	.	.
0.250	0.4324	42.02	V Q	.	.	.	.
0.333	0.9539	75.72	.V Q	.	.	.	.
0.417	1.6829	105.85	. V Q	.	.	.	.

0.500	2.5816	130.48	. V Q . . .
0.583	3.6510	155.28	. V . Q . . .
0.667	4.9131	183.25	. V . Q . . .
0.750	6.4348	220.96	. V . Q . . .
0.833	8.4426	291.52	. .V . Q . .
0.917	11.1378	391.34	. . V . .Q .
1.000	14.4470	480.50	. . V. . Q .
1.083	17.8741	497.62	. . . V . Q.
1.167	20.6298	400.13	. . . V . Q .
1.250	22.5557	279.64	. . . Q V. .
1.333	23.9004	195.25	. . Q . .V .
1.417	24.8830	142.67	. .Q . . V .
1.500	25.6572	112.41	. Q . . . V .
1.583	26.2879	91.58	. Q . . . V .
1.667	26.8180	76.97	. Q . . . V .
1.750	27.2653	64.95	. Q . . . V .
1.833	27.6520	56.14	. Q . . . V .
1.917	27.9902	49.11	. Q . . . V .
2.000	28.2870	43.08	. Q . . . V .
2.083	28.5450	37.47	. Q . . . V .
2.167	28.7756	33.48	. Q . . . V .
2.250	28.9762	29.13	. Q . . . V .
2.333	29.1567	26.22	. Q . . . V .
2.417	29.3120	22.55	.Q . . . V .
2.500	29.4433	19.06	.Q . . . V .
2.583	29.5621	17.24	.Q . . . V.
2.667	29.6677	15.33	.Q . . . V.
2.750	29.7500	11.96	Q . . . V.
2.833	29.8146	9.38	Q . . . V.
2.917	29.8719	8.32	Q . . . V.
3.000	29.9251	7.73	Q . . . V.
3.083	29.9759	7.38	Q . . . V.
3.167	30.0239	6.97	Q . . . V.
3.250	30.0689	6.53	Q . . . V.
3.333	30.1102	6.00	Q . . . V.
3.417	30.1472	5.36	Q . . . V.
3.500	30.1789	4.61	Q . . . V.
3.583	30.2018	3.32	Q . . . V.
3.667	30.2077	0.86	Q . . . V.
3.750	30.2099	0.31	Q . . . V.

TIME DURATION(minutes) OF PERCENTILES OF ESTIMATED PEAK FLOW RATE:
(Note: 100% of Peak Flow Rate estimate assumed to have
an instantaneous time duration)

Percentile of Estimated Peak Flow Rate	Duration (minutes)
0%	225.0

10%	95.0
20%	70.0
30%	50.0
40%	35.0
50%	30.0
60%	20.0
70%	20.0
80%	15.0
90%	10.0

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END OF FLOODSCx ROUTING ANALYSIS

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             F L O O D    R O U T I N G    A N A L Y S I S

ACCORDING TO RIVERSIDE COUNTY FLOOD CONTORL AND WATER CONSERVATION DISTRICT
                    (RCFC&WCD) 1978 HYDROLOGY MANUAL
          (c) Copyright 1989-2015 Advanced Engineering Software (aes)
                  (Synthetic Unit Hydrograph Version 22.0)
                  Release Date: 07/01/2015  License ID 1673

                           Analysis prepared by:




 ************************* DESCRIPTION OF STUDY *************************
* CEMETERY AREA                                                         *
* WATERSHED C                                                           *
* 100-YEAR 3-HOUR ZSNYDER 03/11/2022                                    *
 ************************************************************************

  FILE NAME: CEMC3HR.DAT
  TIME/DATE OF STUDY: 14:56 03/11/2022


**************************************************************************
  FLOW PROCESS FROM NODE    100.00 TO NODE    101.00 IS CODE =   1
--------------------------------------------------------------------------
  >>>>>SUBAREA RUNOFF (UNIT-HYDROGRAPH ANALYSIS)<<<<<
==========================================================================

      (UNIT-HYDROGRAPH ADDED TO STREAM #1)

         WATERCOURSE LENGTH =    9206.000 FEET
         LENGTH FROM CONCENTRATION POINT TO CENTROID =    5625.000 FEET
         ELEVATION VARIATION ALONG WATERCOURSE =     185.000 FEET
         BASIN FACTOR = 0.025
         WATERSHED AREA =     366.000 ACRES
         BASEFLOW =   0.000 CFS/SQUARE-MILE
         WATERCOURSE "LAG" TIME =    0.313 HOURS
          CAUTION: LAG TIME IS LESS THAN 0.50 HOURS.
          THE 5-MINUTE PERIOD UH MODEL (USED IN THIS COMPUTER PROGRAM)
          MAY BE TOO LARGE FOR PEAK FLOW ESTIMATES.
         VALLEY S-GRAPH SELECTED
         UNIFORM MEAN SOIL-LOSS(INCH/HOUR) =  0.185
         LOW SOIL-LOSS RATE PERCENT(DECIMAL) = 0.860
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USER-ENTERED RAINFALL = 1.90 INCHES
RCFC&WCD 3-Hour Storm (5-Minute period) SELECTED
RCFC&WCD DEPTH-AREA ADJUSTMENT FACTOR(PLATE E-5.8) = 0.9986

UNIT HYDROGRAPH TIME UNIT = 5.000 MINUTES
UNIT INTERVAL PERCENTAGE OF LAG-TIME = 26.630

UNIT HYDROGRAPH DETERMINATION

INTERVAL NUMBER	"S" GRAPH MEAN VALUES	UNIT HYDROGRAPH ORDINATES(CFS)
1	2.452	108.525
2	10.706	365.334
3	25.892	672.191
4	45.049	847.974
5	59.619	644.918
6	68.168	378.374
7	73.827	250.507
8	77.930	181.598
9	81.203	144.881
10	83.821	115.893
11	86.024	97.513
12	87.839	80.302
13	89.402	69.193
14	90.767	60.445
15	91.974	53.404
16	92.991	45.022
17	93.954	42.635
18	94.765	35.899
19	95.548	34.665
20	96.218	29.653
21	96.736	22.913
22	97.253	22.887
23	97.770	22.861
24	98.106	14.895
25	98.297	8.467
26	98.488	8.454
27	98.680	8.460
28	98.871	8.460
29	99.062	8.460
30	99.253	8.460
31	99.444	8.460
32	99.635	8.460

33	99.826	8.460
34	100.000	7.687

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UNIT PERIOD (NUMBER)	UNIT RAINFALL (INCHES)	UNIT SOIL-LOSS (INCHES)	EFFECTIVE RAINFALL (INCHES)
1	0.0247	0.0154	0.0092
2	0.0247	0.0154	0.0092
3	0.0209	0.0154	0.0055
4	0.0285	0.0154	0.0130
5	0.0285	0.0154	0.0130
6	0.0342	0.0154	0.0187
7	0.0285	0.0154	0.0130
8	0.0342	0.0154	0.0187
9	0.0342	0.0154	0.0187
10	0.0285	0.0154	0.0130
11	0.0304	0.0154	0.0149
12	0.0342	0.0154	0.0187
13	0.0417	0.0154	0.0263
14	0.0417	0.0154	0.0263
15	0.0417	0.0154	0.0263
16	0.0379	0.0154	0.0225
17	0.0493	0.0154	0.0339
18	0.0512	0.0154	0.0358
19	0.0455	0.0154	0.0301
20	0.0512	0.0154	0.0358
21	0.0626	0.0154	0.0472
22	0.0588	0.0154	0.0434
23	0.0550	0.0154	0.0396
24	0.0569	0.0154	0.0415
25	0.0588	0.0154	0.0434
26	0.0797	0.0154	0.0643
27	0.0949	0.0154	0.0794
28	0.0664	0.0154	0.0510
29	0.1290	0.0154	0.1136
30	0.1385	0.0154	0.1231
31	0.1556	0.0154	0.1402
32	0.1119	0.0154	0.0965
33	0.0379	0.0154	0.0225
34	0.0342	0.0154	0.0187
35	0.0342	0.0154	0.0187
36	0.0114	0.0098	0.0016

TOTAL STORM RAINFALL(INCHES) = 1.90
TOTAL SOIL-LOSS(INCHES) = 0.55

TOTAL EFFECTIVE RAINFALL(INCHES) = 1.35

TOTAL SOIL-LOSS VOLUME(ACRE-FEET) = 16.7559
TOTAL STORM RUNOFF VOLUME(ACRE-FEET) = 41.0894

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3 - H O U R S T O R M
R U N O F F H Y D R O G R A P H

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HYDROGRAPH IN FIVE-MINUTE UNIT INTERVALS(CFS)
(Note: Time indicated is at END of Each Unit Intervals)

TIME(HRS)	VOLUME(AF)	Q(CFS)	0. 100.0 200.0 300.0 400.0
0.083	0.0069	1.00	Q . . . .
0.167	0.0371	4.38	Q . . . .
0.250	0.1072	10.19	VQ . . . .
0.333	0.2275	17.47	VQ . . . .
0.417	0.3904	23.65	V Q . . . .
0.500	0.5946	29.65	V Q . . . .
0.583	0.8523	37.42	V Q . . . .
0.667	1.1617	44.92	.V Q . . . .
0.750	1.5148	51.26	.V Q . . . .
0.833	1.8977	55.60	.V Q . . . .
0.917	2.3024	58.76	. V Q . . . .
1.000	2.7183	60.39	. V Q . . . .
1.083	3.1450	61.96	. V Q . . . .
1.167	3.6094	67.43	. V Q . . . .
1.250	4.1364	76.53	. V Q . . . .
1.333	4.7268	85.72	. V Q . . . .
1.417	5.3642	92.56	. V Q. . . . .
1.500	6.0445	98.77	. V Q. . . . .
1.583	6.7772	106.39	. V Q . . . .
1.667	7.5749	115.82	. V .Q . . . .
1.750	8.4340	124.74	. V . Q . . . .
1.833	9.3550	133.73	. V. Q . . . .
1.917	10.3537	145.02	. V Q . . . .
2.000	11.4253	155.59	. .V Q . . . .
2.083	12.5361	161.29	. . V Q . . . .
2.167	13.6837	166.64	. . V Q . . . .
2.250	14.9218	179.78	. . V Q . . . .
2.333	16.3019	200.39	. . V Q . . . .
2.417	17.8722	228.01	. . V . Q . . . .
2.500	19.6741	261.63	. . V. Q . . . .
2.583	21.7721	304.63	. . .V Q . . . .

2.667	24.2502	359.83	. . . V . Q .
2.750	26.9640	394.04	. . . V . Q.
2.833	29.5916	381.52	. . . V . Q .
2.917	31.8245	324.23	. . . V Q .
3.000	33.5444	249.72	. . . Q . V .
3.083	34.8635	191.53	. . Q. . V .
3.167	35.8988	150.32	. . Q . . V .
3.250	36.7060	117.20	. .Q . . V .
3.333	37.3435	92.57	. Q. . . V .
3.417	37.8651	75.74	. Q . . . V .
3.500	38.3040	63.72	. Q . . . V .
3.583	38.6804	54.65	. Q . . . V .
3.667	39.0058	47.25	. Q . . . V .
3.750	39.2903	41.31	. Q . . . V .
3.833	39.5382	35.99	. Q . . . V .
3.917	39.7566	31.72	. Q . . . V .
4.000	39.9503	28.13	. Q . . . V .
4.083	40.1195	24.56	. Q . . . V.
4.167	40.2661	21.29	. Q . . . V.
4.250	40.3931	18.44	.Q . . . V.
4.333	40.5032	15.98	.Q . . . V.
4.417	40.5978	13.73	.Q . . . V.
4.500	40.6755	11.28	.Q . . . V.
4.583	40.7380	9.08	Q . . . V.
4.667	40.7924	7.90	Q . . . V.
4.750	40.8425	7.27	Q . . . V.
4.833	40.8883	6.65	Q . . . V.
4.917	40.9305	6.13	Q . . . V.
5.000	40.9689	5.57	Q . . . V.
5.083	41.0028	4.92	Q . . . V.
5.167	41.0333	4.44	Q . . . V.
5.250	41.0572	3.47	Q . . . V.
5.333	41.0739	2.42	Q . . . V.
5.417	41.0826	1.26	Q . . . V.
5.500	41.0860	0.50	Q . . . V.
5.583	41.0882	0.32	Q . . . V.
5.667	41.0893	0.16	Q . . . V.
5.750	41.0894	0.01	Q . . . V.

TIME DURATION(minutes) OF PERCENTILES OF ESTIMATED PEAK FLOW RATE:
(Note: 100% of Peak Flow Rate estimate assumed to have
an instantaneous time duration)

Percentile of Estimated Peak Flow Rate	Duration (minutes)
0%	345.0
10%	190.0
20%	125.0

30%	90.0
40%	65.0
50%	45.0
60%	35.0
70%	25.0
80%	20.0
90%	15.0

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END OF FLOODSCx ROUTING ANALYSIS

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

             F L O O D    R O U T I N G    A N A L Y S I S

ACCORDING TO RIVERSIDE COUNTY FLOOD CONTORL AND WATER CONSERVATION DISTRICT
                    (RCFC&WCD) 1978 HYDROLOGY MANUAL
          (c) Copyright 1989-2015 Advanced Engineering Software (aes)
                  (Synthetic Unit Hydrograph Version 22.0)
                  Release Date: 07/01/2015  License ID 1673

                           Analysis prepared by:




 ************************* DESCRIPTION OF STUDY *************************
* CEMETERY AREA                                                         *
* WATERSHED C                                                           *
* 100-YEAR 6-HOUR ZSNYDER 03/11/2022                                    *
 ************************************************************************

  FILE NAME: CEMC6HR.DAT
  TIME/DATE OF STUDY: 14:57 03/11/2022


**************************************************************************
  FLOW PROCESS FROM NODE    100.00 TO NODE    101.00 IS CODE =   1
--------------------------------------------------------------------------
  >>>>>SUBAREA RUNOFF (UNIT-HYDROGRAPH ANALYSIS)<<<<<
==========================================================================

      (UNIT-HYDROGRAPH ADDED TO STREAM #1)

         WATERCOURSE LENGTH =    9206.000 FEET
         LENGTH FROM CONCENTRATION POINT TO CENTROID =    5625.000 FEET
         ELEVATION VARIATION ALONG WATERCOURSE =     185.000 FEET
         BASIN FACTOR = 0.025
         WATERSHED AREA =     366.000 ACRES
         BASEFLOW =   0.000 CFS/SQUARE-MILE
         WATERCOURSE "LAG" TIME =    0.313 HOURS
          CAUTION: LAG TIME IS LESS THAN 0.50 HOURS.
          THE 5-MINUTE PERIOD UH MODEL (USED IN THIS COMPUTER PROGRAM)
          MAY BE TOO LARGE FOR PEAK FLOW ESTIMATES.
         VALLEY S-GRAPH SELECTED
         UNIFORM MEAN SOIL-LOSS(INCH/HOUR) =  0.185
         LOW SOIL-LOSS RATE PERCENT(DECIMAL) = 0.860
```

USER-ENTERED RAINFALL = 2.50 INCHES
RCFC&WCD 6-Hour Storm (5-Minute period) SELECTED
RCFC&WCD DEPTH-AREA ADJUSTMENT FACTOR(PLATE E-5.8) = 0.9990

UNIT HYDROGRAPH TIME UNIT = 5.000 MINUTES
UNIT INTERVAL PERCENTAGE OF LAG-TIME = 26.630

UNIT HYDROGRAPH DETERMINATION

INTERVAL NUMBER	"S" GRAPH MEAN VALUES	UNIT HYDROGRAPH ORDINATES(CFS)
1	2.452	108.525
2	10.706	365.334
3	25.892	672.191
4	45.049	847.974
5	59.619	644.918
6	68.168	378.374
7	73.827	250.507
8	77.930	181.598
9	81.203	144.881
10	83.821	115.893
11	86.024	97.513
12	87.839	80.302
13	89.402	69.193
14	90.767	60.445
15	91.974	53.404
16	92.991	45.022
17	93.954	42.635
18	94.765	35.899
19	95.548	34.665
20	96.218	29.653
21	96.736	22.913
22	97.253	22.887
23	97.770	22.861
24	98.106	14.895
25	98.297	8.467
26	98.488	8.454
27	98.680	8.460
28	98.871	8.460
29	99.062	8.460
30	99.253	8.460
31	99.444	8.460
32	99.635	8.460

33	99.826	8.460
34	100.000	7.687

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UNIT PERIOD (NUMBER)	UNIT RAINFALL (INCHES)	UNIT SOIL-LOSS (INCHES)	EFFECTIVE RAINFALL (INCHES)
1	0.0125	0.0107	0.0017
2	0.0150	0.0129	0.0021
3	0.0150	0.0129	0.0021
4	0.0150	0.0129	0.0021
5	0.0150	0.0129	0.0021
6	0.0175	0.0150	0.0024
7	0.0175	0.0150	0.0024
8	0.0175	0.0150	0.0024
9	0.0175	0.0150	0.0024
10	0.0175	0.0150	0.0024
11	0.0175	0.0150	0.0024
12	0.0200	0.0154	0.0046
13	0.0200	0.0154	0.0046
14	0.0200	0.0154	0.0046
15	0.0200	0.0154	0.0046
16	0.0200	0.0154	0.0046
17	0.0200	0.0154	0.0046
18	0.0200	0.0154	0.0046
19	0.0200	0.0154	0.0046
20	0.0200	0.0154	0.0046
21	0.0200	0.0154	0.0046
22	0.0200	0.0154	0.0046
23	0.0200	0.0154	0.0046
24	0.0225	0.0154	0.0071
25	0.0200	0.0154	0.0046
26	0.0225	0.0154	0.0071
27	0.0225	0.0154	0.0071
28	0.0225	0.0154	0.0071
29	0.0225	0.0154	0.0071
30	0.0225	0.0154	0.0071
31	0.0225	0.0154	0.0071
32	0.0225	0.0154	0.0071
33	0.0250	0.0154	0.0096
34	0.0250	0.0154	0.0096
35	0.0250	0.0154	0.0096
36	0.0250	0.0154	0.0096
37	0.0250	0.0154	0.0096
38	0.0275	0.0154	0.0121
39	0.0275	0.0154	0.0121

40	0.0275	0.0154	0.0121
41	0.0300	0.0154	0.0146
42	0.0325	0.0154	0.0170
43	0.0350	0.0154	0.0195
44	0.0350	0.0154	0.0195
45	0.0375	0.0154	0.0220
46	0.0375	0.0154	0.0220
47	0.0400	0.0154	0.0245
48	0.0400	0.0154	0.0245
49	0.0425	0.0154	0.0270
50	0.0450	0.0154	0.0295
51	0.0475	0.0154	0.0320
52	0.0499	0.0154	0.0345
53	0.0524	0.0154	0.0370
54	0.0524	0.0154	0.0370
55	0.0549	0.0154	0.0395
56	0.0574	0.0154	0.0420
57	0.0599	0.0154	0.0445
58	0.0599	0.0154	0.0445
59	0.0624	0.0154	0.0470
60	0.0649	0.0154	0.0495
61	0.0774	0.0154	0.0620
62	0.0899	0.0154	0.0745
63	0.0974	0.0154	0.0820
64	0.1049	0.0154	0.0895
65	0.1174	0.0154	0.1020
66	0.1399	0.0154	0.1244
67	0.0475	0.0154	0.0320
68	0.0225	0.0154	0.0071
69	0.0150	0.0129	0.0021
70	0.0125	0.0107	0.0017
71	0.0075	0.0064	0.0010
72	0.0050	0.0043	0.0007

TOTAL STORM RAINFALL(INCHES) = 2.50
TOTAL SOIL-LOSS(INCHES) = 1.07
TOTAL EFFECTIVE RAINFALL(INCHES) = 1.43

TOTAL SOIL-LOSS VOLUME(ACRE-FEET) = 32.5010
TOTAL STORM RUNOFF VOLUME(ACRE-FEET) = 43.6479

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6 - H O U R S T O R M
R U N O F F H Y D R O G R A P H

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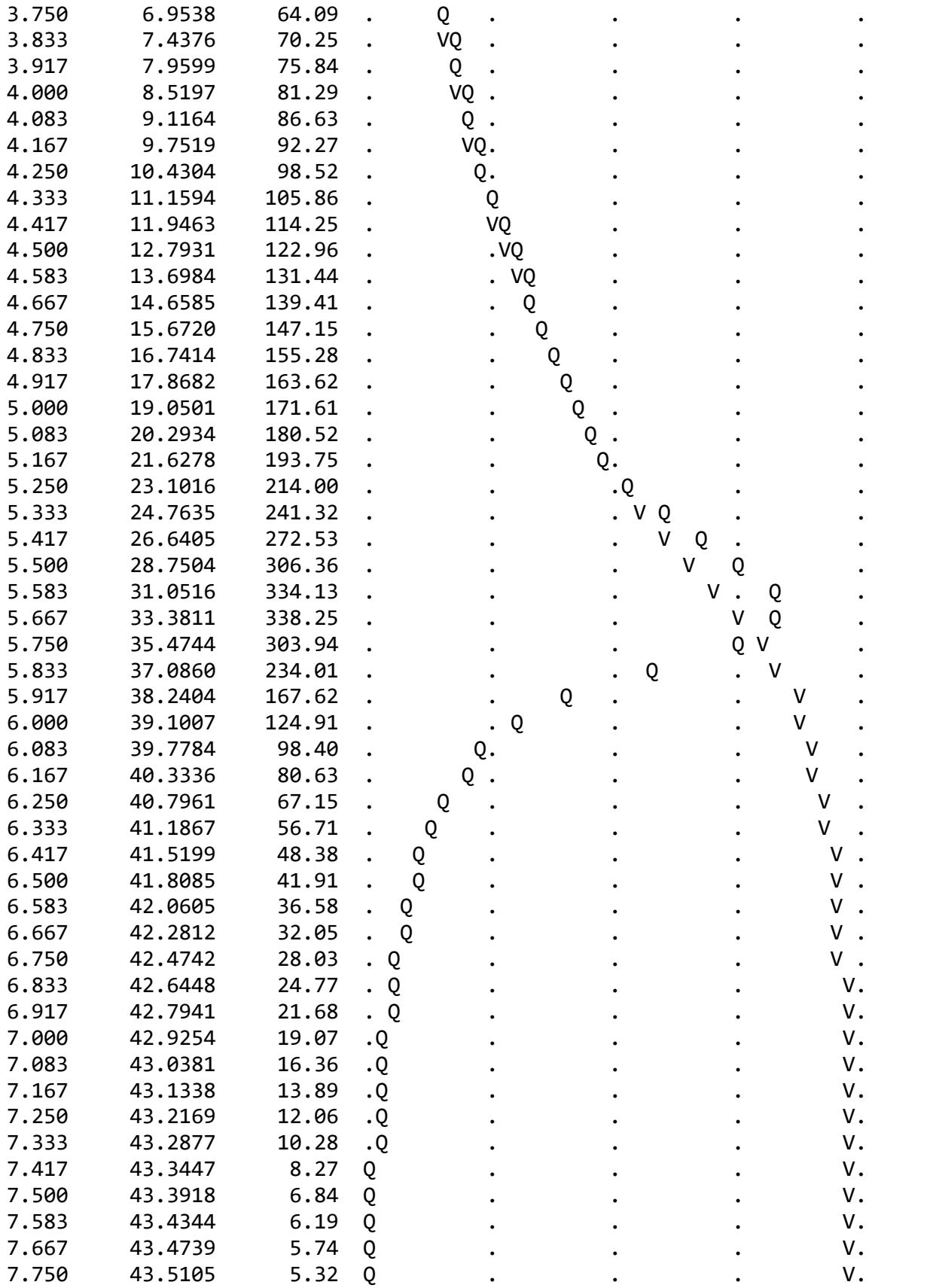
HYDROGRAPH IN FIVE-MINUTE UNIT INTERVALS(CFS)
(Note: Time indicated is at END of Each Unit Intervals)

TIME(HRS)	VOLUME(AF)	Q(CFS)	0.	100.0	200.0	300.0	400.0
0.083	0.0013	0.19	Q	.	.	.	.
0.167	0.0073	0.87	Q	.	.	.	.
0.250	0.0222	2.17	Q	.	.	.	.
0.333	0.0490	3.89	Q	.	.	.	.
0.417	0.0856	5.31	Q	.	.	.	.
0.500	0.1285	6.24	Q	.	.	.	.
0.583	0.1762	6.93	Q	.	.	.	.
0.667	0.2284	7.57	Q	.	.	.	.
0.750	0.2848	8.19	Q	.	.	.	.
0.833	0.3445	8.67	Q	.	.	.	.
0.917	0.4065	9.01	Q	.	.	.	.
1.000	0.4719	9.50	Q	.	.	.	.
1.083	0.5442	10.49	VQ	.	.	.	.
1.167	0.6274	12.09	VQ	.	.	.	.
1.250	0.7241	14.04	VQ	.	.	.	.
1.333	0.8311	15.53	VQ	.	.	.	.
1.417	0.9444	16.45	VQ	.	.	.	.
1.500	1.0620	17.08	VQ	.	.	.	.
1.583	1.1830	17.56	.Q	.	.	.	.
1.667	1.3066	17.95	.Q	.	.	.	.
1.750	1.4324	18.26	.Q	.	.	.	.
1.833	1.5600	18.53	.Q	.	.	.	.
1.917	1.6892	18.76	.Q	.	.	.	.
2.000	1.8216	19.22	.Q	.	.	.	.
2.083	1.9595	20.02	.VQ	.	.	.	.
2.167	2.1055	21.20	.VQ	.	.	.	.
2.250	2.2617	22.67	. Q	.	.	.	.
2.333	2.4267	23.96	. Q	.	.	.	.
2.417	2.6024	25.51	. Q	.	.	.	.
2.500	2.7876	26.90	. Q	.	.	.	.
2.583	2.9788	27.75	. Q	.	.	.	.
2.667	3.1740	28.36	. Q	.	.	.	.
2.750	3.3743	29.08	. QV	.	.	.	.
2.833	3.5835	30.37	. Q	.	.	.	.
2.917	3.8062	32.34	. Q	.	.	.	.
3.000	4.0451	34.69	. Q	.	.	.	.
3.083	4.2965	36.50	. Q	.	.	.	.
3.167	4.5575	37.89	. QV	.	.	.	.
3.250	4.8300	39.58	. QV	.	.	.	.
3.333	5.1183	41.86	. Q	.	.	.	.
3.417	5.4263	44.72	. Q	.	.	.	.
3.500	5.7564	47.93	. QV	.	.	.	.
3.583	6.1151	52.07	. Q	.	.	.	.
3.667	6.5124	57.70	. Q	.	.	.	.



7.833	43.5441	4.87	Q	.	.	.	V.
7.917	43.5738	4.32	Q	.	.	.	V.
8.000	43.5992	3.68	Q	.	.	.	V.
8.083	43.6197	2.98	Q	.	.	.	V.
8.167	43.6349	2.21	Q	.	.	.	V.
8.250	43.6441	1.33	Q	.	.	.	V.
8.333	43.6466	0.35	Q	.	.	.	V.
8.417	43.6473	0.10	Q	.	.	.	V.
8.500	43.6476	0.05	Q	.	.	.	V.
8.583	43.6478	0.03	Q	.	.	.	V.
8.667	43.6479	0.01	Q	.	.	.	V.
8.750	43.6479	0.01	Q	.	.	.	V.

TIME DURATION(minutes) OF PERCENTILES OF ESTIMATED PEAK FLOW RATE:
(Note: 100% of Peak Flow Rate estimate assumed to have
an instantaneous time duration)

Percentile of Estimated Peak Flow Rate	Duration (minutes)
0%	525.0
10%	220.0
20%	145.0
30%	105.0
40%	80.0
50%	55.0
60%	40.0
70%	30.0
80%	25.0
90%	15.0

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END OF FLOODSCx ROUTING ANALYSIS

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             F L O O D    R O U T I N G    A N A L Y S I S

ACCORDING TO RIVERSIDE COUNTY FLOOD CONTORL AND WATER CONSERVATION DISTRICT
                    (RCFC&WCD) 1978 HYDROLOGY MANUAL
          (c) Copyright 1989-2015 Advanced Engineering Software (aes)
                  (Synthetic Unit Hydrograph Version 22.0)
                  Release Date: 07/01/2015  License ID 1673

                           Analysis prepared by:




 ************************* DESCRIPTION OF STUDY *************************
* CEMETERY AREA                                                         *
* WATERSHED C                                                           *
* 100-YEAR 24-HOUR ZSNYDER 03/11/2022                                   *
 ************************************************************************

  FILE NAME: CEMC24HR.DAT
  TIME/DATE OF STUDY: 14:58 03/11/2022


**************************************************************************
  FLOW PROCESS FROM NODE    100.00 TO NODE    101.00 IS CODE =   1
--------------------------------------------------------------------------
  >>>>>SUBAREA RUNOFF (UNIT-HYDROGRAPH ANALYSIS)<<<<<
==========================================================================

      (UNIT-HYDROGRAPH ADDED TO STREAM #1)

         WATERCOURSE LENGTH =    9206.000 FEET
         LENGTH FROM CONCENTRATION POINT TO CENTROID =    5625.000 FEET
         ELEVATION VARIATION ALONG WATERCOURSE =     185.000 FEET
         BASIN FACTOR = 0.025
         WATERSHED AREA =     366.000 ACRES
         BASEFLOW =   0.000 CFS/SQUARE-MILE
         WATERCOURSE "LAG" TIME =    0.313 HOURS
          CAUTION: LAG TIME IS LESS THAN 0.50 HOURS.
          THE 5-MINUTE PERIOD UH MODEL (USED IN THIS COMPUTER PROGRAM)
          MAY BE TOO LARGE FOR PEAK FLOW ESTIMATES.
         VALLEY S-GRAPH SELECTED
         UNIFORM MEAN SOIL-LOSS(INCH/HOUR) =  0.185
         LOW SOIL-LOSS RATE PERCENT(DECIMAL) = 0.860
```

MINIMUM SOIL-LOSS RATE(INCH/HOUR) = 0.093
USER-ENTERED RAINFALL = 4.00 INCHES
RCFC&WCD 24-Hour Storm (15-Minute period) SELECTED
RCFC&WCD DEPTH-AREA ADJUSTMENT FACTOR(PLATE E-5.8) = 0.9993

UNIT HYDROGRAPH TIME UNIT = 15.000 MINUTES
UNIT INTERVAL PERCENTAGE OF LAG-TIME = 79.889

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UNIT HYDROGRAPH DETERMINATION

INTERVAL NUMBER	"S" GRAPH MEAN VALUES	UNIT HYDROGRAPH ORDINATES(CFS)
1	13.016	192.048
2	57.612	657.983
3	77.653	295.696
4	85.895	121.596
5	90.714	71.110
6	93.904	47.054
7	96.168	33.405
8	97.710	22.751
9	98.488	11.491
10	99.062	8.459
11	99.625	8.306
12	99.906	4.153
13	100.000	1.384

****

UNIT PERIOD (NUMBER)	UNIT RAINFALL (INCHES)	UNIT SOIL-LOSS (INCHES)	EFFECTIVE RAINFALL (INCHES)
1	0.0080	0.0069	0.0011
2	0.0120	0.0103	0.0017
3	0.0120	0.0103	0.0017
4	0.0160	0.0138	0.0022
5	0.0120	0.0103	0.0017
6	0.0120	0.0103	0.0017
7	0.0120	0.0103	0.0017
8	0.0160	0.0138	0.0022
9	0.0160	0.0138	0.0022
10	0.0160	0.0138	0.0022

11	0.0200	0.0172	0.0028
12	0.0200	0.0172	0.0028
13	0.0200	0.0172	0.0028
14	0.0200	0.0172	0.0028
15	0.0200	0.0172	0.0028
16	0.0240	0.0206	0.0034
17	0.0240	0.0206	0.0034
18	0.0280	0.0241	0.0039
19	0.0280	0.0241	0.0039
20	0.0320	0.0275	0.0045
21	0.0240	0.0206	0.0034
22	0.0280	0.0241	0.0039
23	0.0320	0.0275	0.0045
24	0.0320	0.0275	0.0045
25	0.0360	0.0309	0.0050
26	0.0360	0.0309	0.0050
27	0.0400	0.0344	0.0056
28	0.0400	0.0344	0.0056
29	0.0400	0.0344	0.0056
30	0.0440	0.0378	0.0062
31	0.0480	0.0413	0.0067
32	0.0520	0.0447	0.0073
33	0.0600	0.0516	0.0084
34	0.0600	0.0516	0.0084
35	0.0640	0.0527	0.0113
36	0.0680	0.0519	0.0160
37	0.0759	0.0512	0.0247
38	0.0799	0.0505	0.0295
39	0.0839	0.0498	0.0342
40	0.0879	0.0491	0.0389
41	0.0600	0.0484	0.0116
42	0.0600	0.0477	0.0123
43	0.0799	0.0470	0.0330
44	0.0799	0.0463	0.0337
45	0.0759	0.0456	0.0303
46	0.0759	0.0449	0.0310
47	0.0680	0.0443	0.0237
48	0.0720	0.0436	0.0283
49	0.0999	0.0430	0.0570
50	0.1039	0.0423	0.0616
51	0.1119	0.0417	0.0702
52	0.1159	0.0411	0.0748
53	0.1359	0.0405	0.0954
54	0.1359	0.0399	0.0961
55	0.0919	0.0392	0.0527
56	0.0919	0.0387	0.0533
57	0.1079	0.0381	0.0699
58	0.1039	0.0375	0.0664
59	0.1039	0.0369	0.0670

60	0.0999	0.0364	0.0636
61	0.0959	0.0358	0.0601
62	0.0919	0.0353	0.0567
63	0.0759	0.0347	0.0412
64	0.0759	0.0342	0.0417
65	0.0160	0.0138	0.0022
66	0.0160	0.0138	0.0022
67	0.0120	0.0103	0.0017
68	0.0120	0.0103	0.0017
69	0.0200	0.0172	0.0028
70	0.0200	0.0172	0.0028
71	0.0200	0.0172	0.0028
72	0.0160	0.0138	0.0022
73	0.0160	0.0138	0.0022
74	0.0160	0.0138	0.0022
75	0.0120	0.0103	0.0017
76	0.0080	0.0069	0.0011
77	0.0120	0.0103	0.0017
78	0.0160	0.0138	0.0022
79	0.0120	0.0103	0.0017
80	0.0080	0.0069	0.0011
81	0.0120	0.0103	0.0017
82	0.0120	0.0103	0.0017
83	0.0120	0.0103	0.0017
84	0.0080	0.0069	0.0011
85	0.0120	0.0103	0.0017
86	0.0080	0.0069	0.0011
87	0.0120	0.0103	0.0017
88	0.0080	0.0069	0.0011
89	0.0120	0.0103	0.0017
90	0.0080	0.0069	0.0011
91	0.0080	0.0069	0.0011
92	0.0080	0.0069	0.0011
93	0.0080	0.0069	0.0011
94	0.0080	0.0069	0.0011
95	0.0080	0.0069	0.0011
96	0.0080	0.0069	0.0011

TOTAL STORM RAINFALL(INCHES) = 4.00
TOTAL SOIL-LOSS(INCHES) = 2.43
TOTAL EFFECTIVE RAINFALL(INCHES) = 1.57

TOTAL SOIL-LOSS VOLUME(ACRE-FEET) = 73.9915
TOTAL STORM RUNOFF VOLUME(ACRE-FEET) = 47.9028

==========

2 4 - H O U R S T O R M
R U N O F F H Y D R O G R A P H

HYDROGRAPH IN FIVE-MINUTE UNIT INTERVALS(CFS)
(Note: Time indicated is at END of Each Unit Intervals)

TIME(HRS)	VOLUME(AF)	Q(CFS)	0.	50.0	100.0	150.0	200.0
0.083	0.0015	0.21	Q	.	.	.	.
0.167	0.0030	0.21	Q	.	.	.	.
0.250	0.0044	0.21	Q	.	.	.	.
0.333	0.0117	1.06	Q	.	.	.	.
0.417	0.0190	1.06	Q	.	.	.	.
0.500	0.0263	1.06	Q	.	.	.	.
0.583	0.0384	1.76	Q	.	.	.	.
0.667	0.0505	1.76	Q	.	.	.	.
0.750	0.0626	1.76	Q	.	.	.	.
0.833	0.0776	2.17	Q	.	.	.	.
0.917	0.0925	2.17	Q	.	.	.	.
1.000	0.1074	2.17	Q	.	.	.	.
1.083	0.1252	2.58	Q	.	.	.	.
1.167	0.1429	2.58	Q	.	.	.	.
1.250	0.1606	2.58	Q	.	.	.	.
1.333	0.1776	2.47	Q	.	.	.	.
1.417	0.1946	2.47	Q	.	.	.	.
1.500	0.2116	2.47	Q	.	.	.	.
1.583	0.2283	2.43	Q	.	.	.	.
1.667	0.2451	2.43	Q	.	.	.	.
1.750	0.2618	2.43	Q	.	.	.	.
1.833	0.2794	2.55	Q	.	.	.	.
1.917	0.2970	2.55	Q	.	.	.	.
2.000	0.3146	2.55	Q	.	.	.	.
2.083	0.3348	2.94	Q	.	.	.	.
2.167	0.3550	2.94	Q	.	.	.	.
2.250	0.3752	2.94	Q	.	.	.	.
2.333	0.3966	3.11	Q	.	.	.	.
2.417	0.4181	3.11	Q	.	.	.	.
2.500	0.4395	3.11	Q	.	.	.	.
2.583	0.4621	3.29	Q	.	.	.	.
2.667	0.4848	3.29	Q	.	.	.	.
2.750	0.5075	3.29	Q	.	.	.	.
2.833	0.5330	3.70	Q	.	.	.	.
2.917	0.5585	3.70	Q	.	.	.	.
3.000	0.5840	3.70	Q	.	.	.	.
3.083	0.6109	3.90	Q	.	.	.	.
3.167	0.6377	3.90	Q	.	.	.	.
3.250	0.6645	3.90	Q	.	.	.	.
3.333	0.6920	3.99	Q	.	.	.	.

3.417	0.7194	3.99	Q	.	.	.	.
3.500	0.7469	3.99	Q	.	.	.	.
3.583	0.7747	4.04	Q	.	.	.	.
3.667	0.8025	4.04	Q	.	.	.	.
3.750	0.8303	4.04	Q	.	.	.	.
3.833	0.8590	4.17	Q	.	.	.	.
3.917	0.8877	4.17	Q	.	.	.	.
4.000	0.9165	4.17	Q	.	.	.	.
4.083	0.9479	4.56	Q	.	.	.	.
4.167	0.9794	4.56	Q	.	.	.	.
4.250	1.0108	4.56	Q	.	.	.	.
4.333	1.0442	4.86	Q	.	.	.	.
4.417	1.0777	4.86	Q	.	.	.	.
4.500	1.1111	4.86	Q	.	.	.	.
4.583	1.1476	5.30	VQ	.	.	.	.
4.667	1.1841	5.30	VQ	.	.	.	.
4.750	1.2206	5.30	Q	.	.	.	.
4.833	1.2593	5.62	.Q	.	.	.	.
4.917	1.2980	5.62	.Q	.	.	.	.
5.000	1.3367	5.62	.Q	.	.	.	.
5.083	1.3771	5.87	.Q	.	.	.	.
5.167	1.4176	5.87	.Q	.	.	.	.
5.250	1.4580	5.87	.Q	.	.	.	.
5.333	1.4957	5.47	.Q	.	.	.	.
5.417	1.5333	5.47	.Q	.	.	.	.
5.500	1.5710	5.47	.Q	.	.	.	.
5.583	1.6104	5.72	.Q	.	.	.	.
5.667	1.6498	5.72	.Q	.	.	.	.
5.750	1.6892	5.72	.Q	.	.	.	.
5.833	1.7318	6.18	.Q	.	.	.	.
5.917	1.7743	6.18	.Q	.	.	.	.
6.000	1.8169	6.18	.Q	.	.	.	.
6.083	1.8616	6.49	.Q	.	.	.	.
6.167	1.9063	6.49	.Q	.	.	.	.
6.250	1.9510	6.49	.Q	.	.	.	.
6.333	1.9988	6.94	.Q	.	.	.	.
6.417	2.0466	6.94	.Q	.	.	.	.
6.500	2.0944	6.94	.Q	.	.	.	.
6.583	2.1444	7.26	.Q	.	.	.	.
6.667	2.1945	7.26	.Q	.	.	.	.
6.750	2.2445	7.26	.Q	.	.	.	.
6.833	2.2977	7.73	.Q	.	.	.	.
6.917	2.3510	7.73	.Q	.	.	.	.
7.000	2.4042	7.73	.QV	.	.	.	.
7.083	2.4590	7.96	.QV	.	.	.	.
7.167	2.5139	7.96	.QV	.	.	.	.
7.250	2.5687	7.96	.QV	.	.	.	.
7.333	2.6250	8.18	.QV	.	.	.	.
7.417	2.6814	8.18	.QV	.	.	.	.

7.500	2.7377	8.18	.QV	.	.	.	.
7.583	2.7977	8.72	.QV	.	.	.	.
7.667	2.8577	8.72	.QV	.	.	.	.
7.750	2.9178	8.72	.QV	.	.	.	.
7.833	2.9825	9.40	.QV	.	.	.	.
7.917	3.0473	9.40	.QV	.	.	.	.
8.000	3.1121	9.40	.QV	.	.	.	.
8.083	3.1826	10.25	. Q	.	.	.	.
8.167	3.2532	10.25	. Q	.	.	.	.
8.250	3.3238	10.25	. Q	.	.	.	.
8.333	3.4015	11.28	. Q	.	.	.	.
8.417	3.4792	11.28	. Q	.	.	.	.
8.500	3.5569	11.28	. Q	.	.	.	.
8.583	3.6417	12.31	. QV	.	.	.	.
8.667	3.7265	12.31	. QV	.	.	.	.
8.750	3.8112	12.31	. QV	.	.	.	.
8.833	3.9169	15.34	. Q	.	.	.	.
8.917	4.0225	15.34	. Q	.	.	.	.
9.000	4.1282	15.34	. Q	.	.	.	.
9.083	4.2736	21.12	. VQ	.	.	.	.
9.167	4.4191	21.12	. VQ	.	.	.	.
9.250	4.5646	21.12	. VQ	.	.	.	.
9.333	4.7686	29.62	. V Q	.	.	.	.
9.417	4.9726	29.62	. VQ	.	.	.	.
9.500	5.1765	29.62	. VQ	.	.	.	.
9.583	5.4317	37.05	. V Q	.	.	.	.
9.667	5.6869	37.05	. V Q	.	.	.	.
9.750	5.9421	37.05	. V Q	.	.	.	.
9.833	6.2453	44.03	. V Q	.	.	.	.
9.917	6.5486	44.03	. V Q	.	.	.	.
10.000	6.8518	44.03	. V Q	.	.	.	.
10.083	7.1605	44.82	. V Q	.	.	.	.
10.167	7.4692	44.82	. V Q	.	.	.	.
10.250	7.7779	44.82	. V Q	.	.	.	.
10.333	7.9842	29.96	. QV	.	.	.	.
10.417	8.1906	29.96	. QV	.	.	.	.
10.500	8.3970	29.96	. Q V	.	.	.	.
10.583	8.5891	27.90	. Q V	.	.	.	.
10.667	8.7813	27.90	. Q V	.	.	.	.
10.750	8.9734	27.90	. Q V	.	.	.	.
10.833	9.2457	39.53	. Q	.	.	.	.
10.917	9.5179	39.53	. Q	.	.	.	.
11.000	9.7901	39.53	. QV	.	.	.	.
11.083	10.0948	44.25	. Q	.	.	.	.
11.167	10.3996	44.25	. Q	.	.	.	.
11.250	10.7043	44.25	. Q	.	.	.	.
11.333	11.0082	44.12	. QV.	.	.	.	.
11.417	11.3120	44.12	. QV.	.	.	.	.
11.500	11.6159	44.12	. QV.	.	.	.	.

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11.583     11.9130     43.14  .       QV.          .          .          .
11.667     12.2101     43.14  .       Q V          .          .          .
11.750     12.5072     43.14  .       Q V          .          .          .
11.833     12.7800     39.61  .      Q  V          .          .          .
11.917     13.0528     39.61  .      Q  V          .          .          .
12.000     13.3255     39.61  .      Q   V         .          .          .
12.083     13.6449     46.38  .        Q.V         .          .          .
12.167     13.9643     46.38  .        Q.V         .          .          .
12.250     14.2837     46.38  .        Q.V         .          .          .
12.333     14.7439     66.82  .          . VQ      .          .          .
12.417     15.2041     66.82  .          . VQ      .          .          .
12.500     15.6642     66.82  .          .  Q      .          .          .
12.583     16.2153     80.01  .          .  V  Q   .          .          .
12.667     16.7663     80.01  .          .   V Q   .          .          .
12.750     17.3174     80.01  .          .   V Q   .          .          .
12.833     17.9472     91.44  .          .   V   Q .          .          .
12.917     18.5769     91.44  .          .    V  Q .          .          .
13.000     19.2067     91.44  .          .     V Q .          .          .
13.083     19.9208    103.69  .          .     V   Q          .          .
13.167     20.6349    103.69  .          .      V  Q          .          .
13.250     21.3490    103.69  .          .      V  Q          .          .
13.333     22.1859    121.51  .          .       V .   Q      .          .
13.417     23.0227    121.51  .          .        V.   Q      .          .
13.500     23.8596    121.51  .          .        V.   Q      .          .
13.583     24.7002    122.06  .          .         V   Q      .          .
13.667     25.5409    122.06  .          .          V  Q      .          .
13.750     26.3815    122.06  .          .           V Q      .          .
13.833     27.0554     97.85  .          .        Q. V        .          .
13.917     27.7293     97.85  .          .        Q.  V       .          .
14.000     28.4032     97.85  .          .        Q.  V       .          .
14.083     29.0302     91.05  .          .       Q .   V      .          .
14.167     29.6573     91.05  .          .       Q .   V      .          .
14.250     30.2844     91.05  .          .       Q .    V     .          .
14.333     30.9585     97.87  .          .        Q.    V     .          .
14.417     31.6325     97.87  .          .        Q.     V    .          .
14.500     32.3066     97.87  .          .        Q.     V    .          .
14.583     32.9872     98.83  .          .        Q.      V   .          .
14.667     33.6679     98.83  .          .        Q.       V  .          .
14.750     34.3485     98.83  .          .        Q.       V  .          .
14.833     35.0257     98.33  .          .        Q.        V.          .
14.917     35.7029     98.33  .          .        Q.        V.          .
15.000     36.3801     98.33  .          .        Q.         V          .
15.083     37.0367     95.34  .          .        Q.         V          .
15.167     37.6933     95.34  .          .        Q.          V         .
15.250     38.3498     95.34  .          .        Q.           V        .
15.333     38.9786     91.29  .          .       Q .          . V      .
15.417     39.6073     91.29  .          .       Q .          .  V     .
15.500     40.2360     91.29  .          .       Q .          .  V     .
15.583     40.8198     84.77  .          .     Q   .          .   V    .
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15.667     41.4037     84.77  .          .     Q   .          .   V     .
15.750     41.9875     84.77  .          .     Q   .          .    V    .
15.833     42.4906     73.05  .          .   Q     .          .    V    .
15.917     42.9936     73.05  .          .   Q     .          .    V    .
16.000     43.4967     73.05  .          .   Q     .          .     V   .
16.083     43.9114     60.22  .          . Q       .          .     V   .
16.167     44.3261     60.22  .          . Q       .          .      V  .
16.250     44.7408     60.22  .          . Q       .          .      V  .
16.333     44.9606     31.91  .     Q    .         .          .      V  .
16.417     45.1804     31.91  .     Q    .         .          .      V  .
16.500     45.4002     31.91  .     Q    .         .          .      V  .
16.583     45.5297     18.79  .  Q       .         .          .       V .
16.667     45.6591     18.79  .  Q       .         .          .       V .
16.750     45.7885     18.79  .  Q       .         .          .       V .
16.833     45.8763     12.74  . Q        .         .          .       V .
16.917     45.9640     12.74  . Q        .         .          .       V .
17.000     46.0518     12.74  . Q        .         .          .       V .
17.083     46.1163      9.36  .Q         .         .          .       V .
17.167     46.1807      9.36  .Q         .         .          .       V .
17.250     46.2452      9.36  .Q         .         .          .       V .
17.333     46.2984      7.73  .Q         .         .          .       V .
17.417     46.3517      7.73  .Q         .         .          .       V .
17.500     46.4049      7.73  .Q         .         .          .       V .
17.583     46.4495      6.47  .Q         .         .          .       V .
17.667     46.4940      6.47  .Q         .         .          .       V .
17.750     46.5386      6.47  .Q         .         .          .       V .
17.833     46.5758      5.40  .Q         .         .          .       V .
17.917     46.6130      5.40  .Q         .         .          .       V .
18.000     46.6502      5.40  .Q         .         .          .       V .
18.083     46.6811      4.50  Q          .         .          .       V .
18.167     46.7121      4.50  Q          .         .          .        V.
18.250     46.7430      4.50  Q          .         .          .        V.
18.333     46.7704      3.97  Q          .         .          .        V.
18.417     46.7977      3.97  Q          .         .          .        V.
18.500     46.8251      3.97  Q          .         .          .        V.
18.583     46.8490      3.48  Q          .         .          .        V.
18.667     46.8730      3.48  Q          .         .          .        V.
18.750     46.8970      3.48  Q          .         .          .        V.
18.833     46.9164      2.82  Q          .         .          .        V.
18.917     46.9358      2.82  Q          .         .          .        V.
19.000     46.9552      2.82  Q          .         .          .        V.
19.083     46.9712      2.32  Q          .         .          .        V.
19.167     46.9872      2.32  Q          .         .          .        V.
19.250     47.0032      2.32  Q          .         .          .        V.
19.333     47.0208      2.55  Q          .         .          .        V.
19.417     47.0384      2.55  Q          .         .          .        V.
19.500     47.0559      2.55  Q          .         .          .        V.
19.583     47.0757      2.87  Q          .         .          .        V.
19.667     47.0954      2.87  Q          .         .          .        V.
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19.750	47.1152	2.87	Q	.	.	.	V.
19.833	47.1328	2.56	Q	.	.	.	V.
19.917	47.1504	2.56	Q	.	.	.	V.
20.000	47.1680	2.56	Q	.	.	.	V.
20.083	47.1831	2.19	Q	.	.	.	V.
20.167	47.1982	2.19	Q	.	.	.	V.
20.250	47.2132	2.19	Q	.	.	.	V.
20.333	47.2295	2.35	Q	.	.	.	V.
20.417	47.2457	2.35	Q	.	.	.	V.
20.500	47.2619	2.35	Q	.	.	.	V.
20.583	47.2787	2.44	Q	.	.	.	V.
20.667	47.2954	2.44	Q	.	.	.	V.
20.750	47.3122	2.44	Q	.	.	.	V.
20.833	47.3284	2.35	Q	.	.	.	V.
20.917	47.3446	2.35	Q	.	.	.	V.
21.000	47.3608	2.35	Q	.	.	.	V.
21.083	47.3752	2.09	Q	.	.	.	V.
21.167	47.3896	2.09	Q	.	.	.	V.
21.250	47.4040	2.09	Q	.	.	.	V.
21.333	47.4191	2.19	Q	.	.	.	V.
21.417	47.4342	2.19	Q	.	.	.	V.
21.500	47.4492	2.19	Q	.	.	.	V.
21.583	47.4632	2.03	Q	.	.	.	V.
21.667	47.4772	2.03	Q	.	.	.	V.
21.750	47.4912	2.03	Q	.	.	.	V.
21.833	47.5061	2.16	Q	.	.	.	V.
21.917	47.5210	2.16	Q	.	.	.	V.
22.000	47.5359	2.16	Q	.	.	.	V.
22.083	47.5497	2.01	Q	.	.	.	V.
22.167	47.5636	2.01	Q	.	.	.	V.
22.250	47.5774	2.01	Q	.	.	.	V.
22.333	47.5922	2.14	Q	.	.	.	V.
22.417	47.6069	2.14	Q	.	.	.	V.
22.500	47.6217	2.14	Q	.	.	.	V.
22.583	47.6347	1.89	Q	.	.	.	V.
22.667	47.6477	1.89	Q	.	.	.	V.
22.750	47.6608	1.89	Q	.	.	.	V.
22.833	47.6730	1.77	Q	.	.	.	V.
22.917	47.6852	1.77	Q	.	.	.	V.
23.000	47.6974	1.77	Q	.	.	.	V.
23.083	47.7092	1.72	Q	.	.	.	V.
23.166	47.7211	1.72	Q	.	.	.	V.
23.250	47.7330	1.72	Q	.	.	.	V.
23.333	47.7447	1.70	Q	.	.	.	V.
23.416	47.7564	1.70	Q	.	.	.	V.
23.500	47.7681	1.70	Q	.	.	.	V.
23.583	47.7797	1.68	Q	.	.	.	V.
23.666	47.7912	1.68	Q	.	.	.	V.
23.750	47.8028	1.68	Q	.	.	.	V.

23.833	47.8143	1.67	Q	.	.	.	V.
23.916	47.8258	1.67	Q	.	.	.	V.
24.000	47.8373	1.67	Q	.	.	.	V.
24.083	47.8473	1.45	Q	.	.	.	V.
24.166	47.8573	1.45	Q	.	.	.	V.
24.250	47.8673	1.45	Q	.	.	.	V.
24.333	47.8721	0.71	Q	.	.	.	V.
24.416	47.8770	0.71	Q	.	.	.	V.
24.500	47.8819	0.71	Q	.	.	.	V.
24.583	47.8845	0.37	Q	.	.	.	V.
24.666	47.8870	0.37	Q	.	.	.	V.
24.750	47.8896	0.37	Q	.	.	.	V.
24.833	47.8912	0.24	Q	.	.	.	V.
24.916	47.8929	0.24	Q	.	.	.	V.
25.000	47.8945	0.24	Q	.	.	.	V.
25.083	47.8955	0.15	Q	.	.	.	V.
25.166	47.8966	0.15	Q	.	.	.	V.
25.250	47.8977	0.15	Q	.	.	.	V.
25.333	47.8984	0.10	Q	.	.	.	V.
25.416	47.8991	0.10	Q	.	.	.	V.
25.500	47.8998	0.10	Q	.	.	.	V.
25.583	47.9002	0.06	Q	.	.	.	V.
25.666	47.9006	0.06	Q	.	.	.	V.
25.750	47.9011	0.06	Q	.	.	.	V.
25.833	47.9013	0.04	Q	.	.	.	V.
25.916	47.9016	0.04	Q	.	.	.	V.
26.000	47.9018	0.04	Q	.	.	.	V.
26.083	47.9020	0.02	Q	.	.	.	V.
26.166	47.9022	0.02	Q	.	.	.	V.
26.250	47.9024	0.02	Q	.	.	.	V.
26.333	47.9025	0.02	Q	.	.	.	V.
26.416	47.9026	0.02	Q	.	.	.	V.
26.500	47.9027	0.02	Q	.	.	.	V.
26.583	47.9027	0.01	Q	.	.	.	V.
26.666	47.9028	0.01	Q	.	.	.	V.
26.750	47.9028	0.01	Q	.	.	.	V.

TIME DURATION(minutes) OF PERCENTILES OF ESTIMATED PEAK FLOW RATE:
(Note: 100% of Peak Flow Rate estimate assumed to have
an instantaneous time duration)

Percentile of Estimated Peak Flow Rate	Duration (minutes)
0%	1605.0
10%	510.0
20%	435.0
30%	375.0
40%	240.0

50%	225.0
60%	195.0
70%	165.0
80%	105.0
90%	30.0

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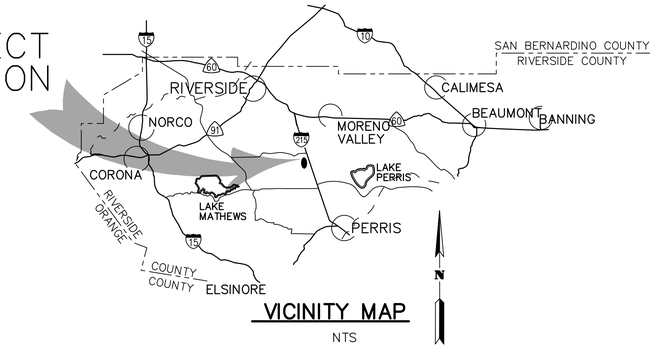
END OF FLOODSCx ROUTING ANALYSIS

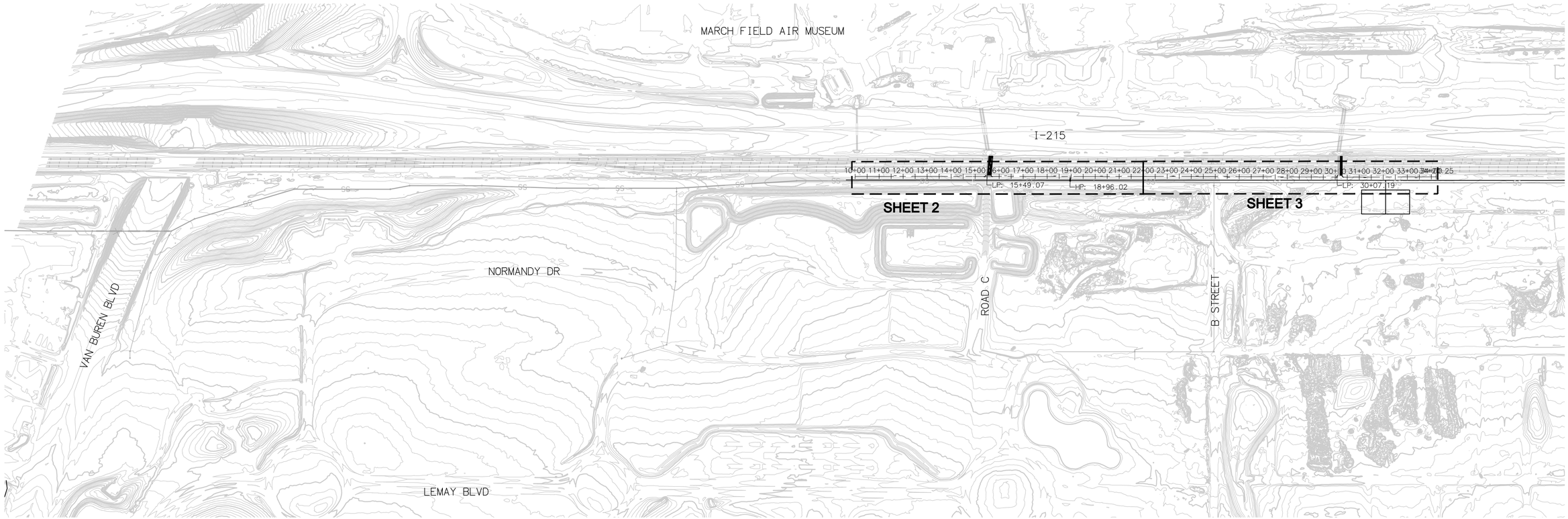
Appendix B
Conceptual Design of Proposed Drainage Ditch and Railroad Culverts

RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT
MERIDIAN LINE B DRAINAGE MASTER PLAN UPDATE DRAWINGS

PROJECT LOCATION



VICINITY MAP
NTS



200 100 0 200 400 600
SCALE: 1"=200'

PREPARED BY:
Q3 Consulting
27042 Towne Centre Drive, Suite 110
Foothill Ranch, CA 92610
949.259.6770

MERIDIAN - LINE B MASTER PLAN

PROPOSED CONDITION CONCRETE DITCH GRADING

1 OF 4

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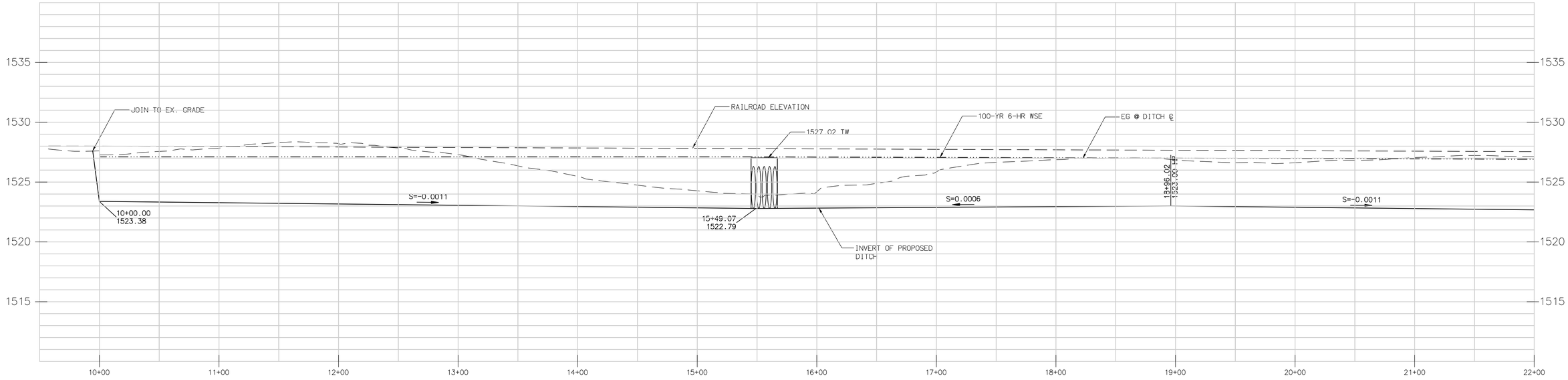

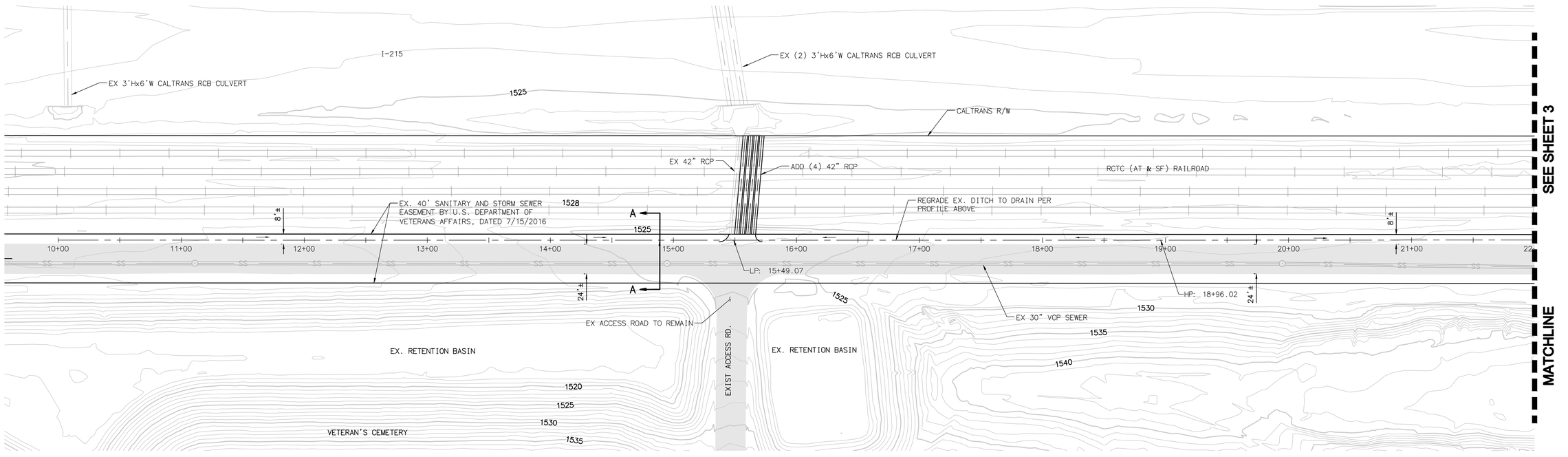

40 20 0 40 80 120
SCALE: 1"=40'

SCALE 1"=40'

PREPARED BY:

Q3 Consulting
27042 Towne Centre Drive, Suite 110
Foothill Ranch, CA 92610
949.259.6770

MERIDIAN - LINE B MASTER PLAN

PROPOSED CONDITION CONCRETE DITCH GRADING

2 OF 4

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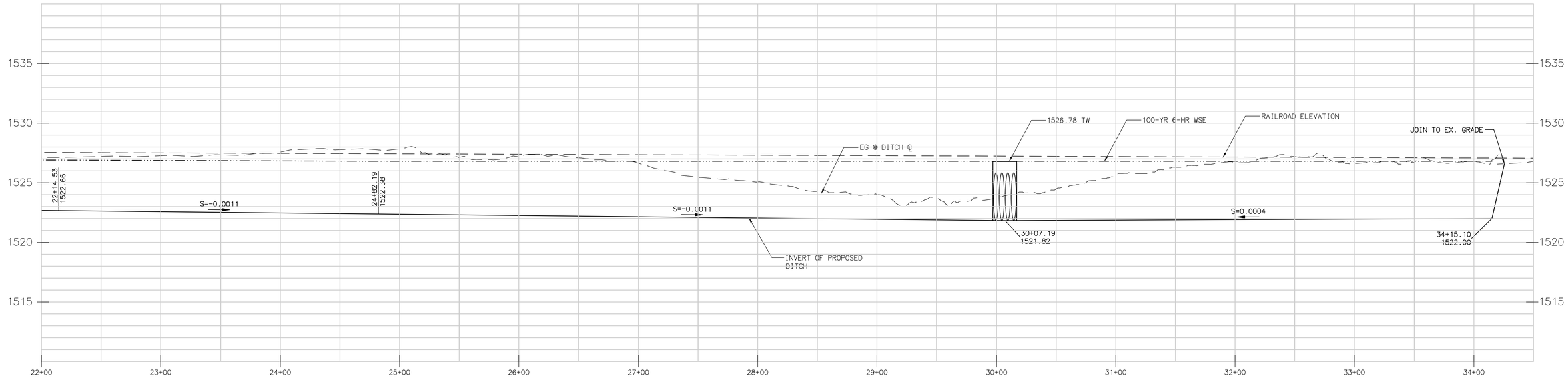
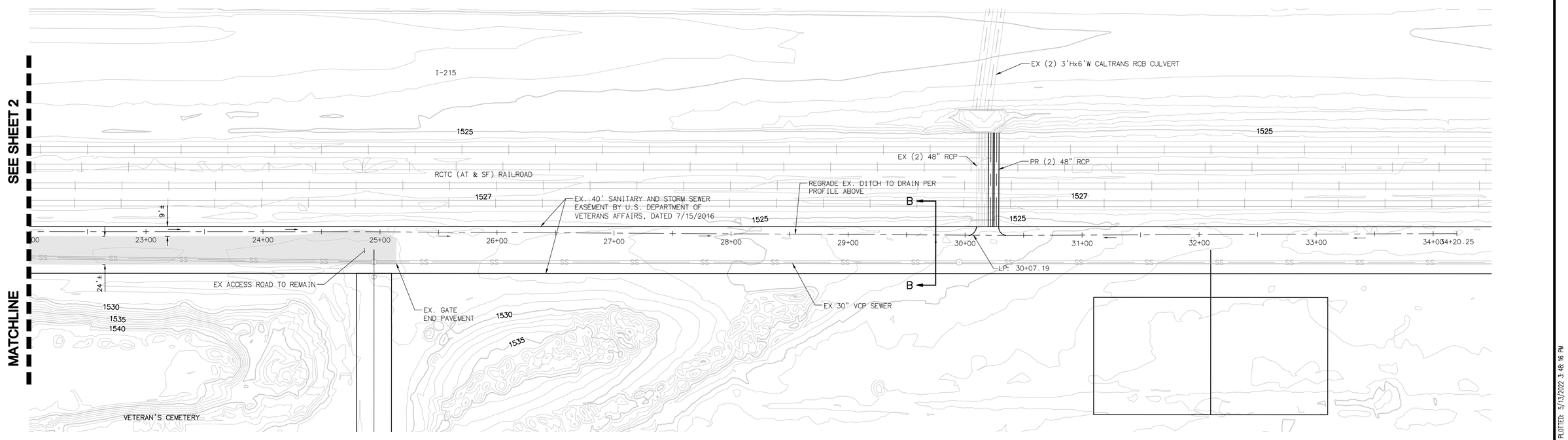




40 20 0 40 80 120

SCALE: 1"=40'

PREPARED BY:

Q3 Consulting

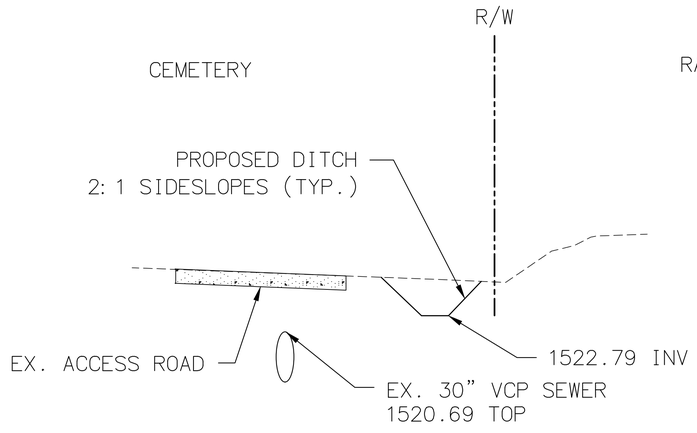
27042 Towne Centre Drive, Suite 110
Foothill Ranch, CA 92610
949.259.6770

MERIDIAN - LINE B MASTER PLAN

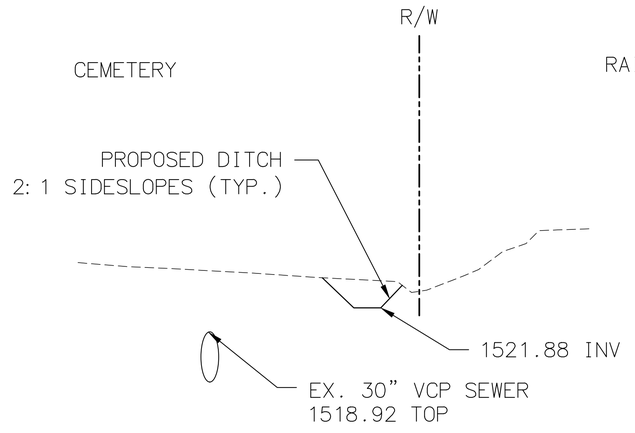
PROPOSED CONDITION CONCRETE DITCH GRADING

3 OF 4

N:\40.071.0001\DLV\C3D\C-CONR-DITCH PLOTTED: 5/13/2022 3:48:16 PM



SECTION A-A
STA 14+90



SECTION B-B
STA 29+75

PREPARED BY:

Q3 Consulting
27042 Towne Centre Drive, Suite 110
Foothill Ranch, CA 92610
949.259.6770

MERIDIAN - LINE B MASTER PLAN

PROPOSED CONDITION
CONCRETE DITCH GRADING