PRELIMINARY HYDROLOGY REPORT

JD Fields Hemet

APN: 456-140-008

July 2024

PREPARED FOR:

Foxgate Capital
55 Waugh Ste. 1250
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PREPARED BY:

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KHA Project # 195335001

Certification by Engineer or Authorized Qualified Designee

I certify under penalty of law that this document and all attachments were prepared under my jurisdiction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathered the information, to the best of my knowledge and belief, the information submitted is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Leticia Alvarez, PE Date

Contents

Appendices

References

Hydrology Manual. Riverside County Flood Control and Water Conservation District, April 1978.

100.0 Introduction

Kimley-Horn and Associates has been retained to prepare a Preliminary Hydrology Report for the proposed JD Field Project in the City of Hemet, California for the proposed manufacturing warehouse. The purpose of this report is to demonstrate preliminary analysis of the hydrologic and hydraulic conditions associated with the development of the project site. To do so, the following is the scope of this report:

- Discuss the pre-development discharge patterns and points
- Discuss the post-development discharge patterns and points
- Discuss offsite discharge patterns and points
- Determine the pre-development flow rates for the 100-year event
- Determine the post-development un-mitigated flow rates for the 100-year event
- Determine the offsite flow rates for the 10 and 100-year events
- Analyze the required post-development mitigation for the 100-year event
- Analyze the offsite storm devices
- Demonstrate satisfactory post-development final flow rates

Even though this report discusses stormwater, this report is not a Stormwater Pollution Prevention Plan (SWPPP), a Groundwater Study, a Geotechnical Report, nor a Water Quality Management Plan (WQMP). Each of these separate reports discusses separate aspects of stormwater. Portions of the Geotechnical Report are utilized and referenced for the purpose of this report. Similarly, the requirements of the WQMP are considered for the stormwater mitigation and sizing of outlet structures for this project.

100.1 Project Description

The existing vacant lot will be developed into the proposed manufacturing warehouse. The proposed development will include a proposed 25,000 square foot building with an office. **Table 1** below shows a breakdown of the building square footage based on building use.

Table 1: Building Use

Building Use	Area (Square Footage)
Warehouse	**22,000**
Office	**3,000**

Site improvements will include landscaping, concrete hardscape, and asphalt paving. The associated improvements include, but are not limited to onsite grading, domestic water service, sanitary sewer service, storm drain infrastructure, concrete and asphalt pavement, landscaping, and irrigation. The project site is approximately 9.52-acres and is located in the City of Hemet, within Riverside County. The APN for the project site area: 456-140-008. **Appendix A** contains an aerial photograph that depicts the project location.

100.2 Location

The site is located south of the intersection of West Acacia Avenue and South Gilmore Street, on the east side of the cul-de-sac located on South Gilmore Street in the City of Hemet, within Riverside County. The project site is bordered South Gilmore Street on the west, general

manufacturing developments to the north and east, and railroad tracks to the south. For reference see **Appendix A**, Location Map and Vicinity Map.

100.3 Methodology

The hydrologic and hydraulic analyses were completed following the methods outlined in the RCFC & WCD Hydrology Manual. The rational method was used to estimate time of concentrations and peak flow rates generated from the offsite areas, the existing 100-year, 1hr storm events and the proposed 100-year, 1hr storm events. The unit hydrograph method was used to determine the proposed hydrographs for the 3-hour duration of the 100-year storm event for the project area. The Advanced Engineering Software (AES) HydroWIN v. 2011 was used to complete the rational method analysis. CivilDesign Software was used to complete the unit hydrograph analysis. The results of the analyses are included in **Appendix F and G**. CivilDesign was used to complete the basin routing using the Modified Pul's Method. The results of the analyses are included in **Appendix H**. Bentley's FlowMaster was used to complete the hydraulic analyses for gutter, culvert and ditch capacities using the Federal Highway Administration HEC-22 method. The results of the analyses are included in **Appendix I.**

The rainfall data used for the analyses is important for the flow and runoff results. For the rational method analysis, the rainfall data from the Riverside County Flood Control and Water Conservation District Hydrology Manual (based on NOAA Atlas 2) was used. The rainfall data for the Hemet area was utilized due to the location of the project site (See **Appendix D**). For the unit hydrograph analysis, point precipitation data based upon NOAA Atlas 14 for Menifee, CA was used (See **Appendix D**).

The type of soil and soil conditions are major factors affecting infiltration/detention and resultant storm water runoff. The Natural Resources Conservation Service (NRCS) has classified soil into one general hydrologic soil group for comparing infiltration and runoff rates. The group is based on properties that influence runoff, such as water infiltration rate, texture, natural discharge, and moisture condition. The runoff potential is based on the amount of runoff at the end of a long duration storm that occurs after wetting and swelling of the soil not protected by vegetation. Using the United States Department of Agriculture Natural Resources Conservation Service Web Soil Survey online tool and the Stormwater Facility Mapping online tool for Riverside County, it was determined the predominant hydrologic soil group classification is A. Soil group A is defined as soils having high infiltration rates (low runoff potential). The Geotechnical Report from Partner Engineering and Science, Inc. dated July 2, 2021 (Partner Project Number: 21-324820.1) measured an average infiltration rate of 5.17 in/hr for the site (without a factor of safety applied). See **Appendix J** for the soil information.

In addition, antecedent moisture condition (AMC) II was used for the 10-year and AMC III for the 100-year based on the hydrology manual. The land use for the proposed drainage subareas was selected based on the percent impervious that characterizes the drainage that drains into the proposed basin. See **Appendix D** Plate D-5.6 for the impervious percentages that correspond to each land use. The combination of the soil and coverage type is used as the basis for selecting the appropriate curve numbers used to calculate the soil loss rates. See **Appendix D** for reference.

100.4 Drainage Characteristics

The site is mainly located in Zone X-shaded per the Federal Emergency Management Administration (FEMA) Flood Insurance Rate Map (FIRM) panel 06065C2105G, dated August 28, 2008. Flood Zone X-shaded is defined by FEMA to represent one of the two situations below:

- 0.2% annual chance of flood hazard
- 1% annual chance of flood with average depth less than 1 foot or having a drainage area less than 1 square mile

No portion of the site is located within the special flood hazard area inundated by the 100-year flood. For reference, see **Appendix B**, FIRM Map.

100.4.1 Pre-development Condition

The existing site is undeveloped. The site land cover consists of mostly light weeds and brush. The existing site consists of one drainage area. The drainage area was delineated based on the existing topography and existing discharge point. Drainage from DA-1 drains in the southwest direction ultimately discharging onto South Gilmore Street.

Under existing condition, offsite drainage also impacts the project site. The east property is developed and all stormwater flows are expected to be conveyed into an existing basin. The existing basin does not appear to have an overflow structure that discharges flows south. Therefore, no offsite flows are expected from east of the site. The north property is developed and there is an existing concrete ditch that accepts the flows and discharges them via an under sidewalk culvert into Gilmore Street. No offsite flows are expected from the north development. West of the project site is Gilmore Street with full street improvements and does not discharge any tributary offsite flows onto the project site. Gilmore Street has a high point located northwest of the site and flows south into an existing under sidewalk culvert approximately 5-foot in width. The existing under sidewalk culvert discharges south onto an existing natural swale that continues flowing southwest. South of the project site there is a railroad track and an improved channel. The railroad tracks create a berm condition. The undeveloped area north of the tracks flow southwest, with a portion of the area flowing through the southern boundary of the project site. No flows are expected from Lyon Ave. as there are existing parkway culverts that discharge street flows to the existing channel. Therefore, the southern boundary of the site acts as a natural swale that conveys some southern offsite flows toward the southwest. See **Appendix E** for the Existing Offsite Drainage Map.

Table 2 shows a summary of the existing hydrologic flows from the 100-year storm events.

Table 2: Existing Hydrologic Flows

Area Description	Area (acres)	Q_{100} (cfs)
DA-1	9.52	7.47

See **Appendix E** for Existing Drainage Map. See **Appendix F** for Existing Rational Calculations.

100.4.2 Post-development Condition

The proposed development includes the construction of the proposed manufacturing warehouse. The 9.52-acre site will not be phased. The proposed site will encompass one (1) new building

approximately 25,000 square feet with and office space. Site improvements will include landscaping, concrete hardscape, and asphalt paving. See **Appendix C,** Construction Plans, which includes the project Preliminary Grading Plan.

Storm water in the proposed condition will be routed into a combination infiltration system consisting of an underground infiltration system and an infiltration basin for storm water treatment and mitigation. The proposed infiltration system is located near the southwest corner of the site. See **Appendix E** for Proposed Drainage Exhibit. The grading for the proposed site will maintain the natural flow pattern of the existing site, draining in the southwest direction, to the maximum extent possible.

The post-development drainage area is comprised of eight (8) drainage subareas that drain to BMP-1. BMP-1 includes a combination infiltration system which consists of an infiltration basin and a underground infiltration system. Drainage from DA-1, DA-2, DA-3, DA-4, and DA-6 will sheet flow making its way to separate inlets located at low points. Drainage collected by the inlets will be routed via a storm drain pipe into the infiltration basin. Drainage from DA-5 will sheet flow through the site making its way into a concrete curb cut with a concrete spillway located near the proposed infiltration basin. DA-7 includes a vegetated swale area that drains into the infiltration basin. DA-8 includes the infiltration basin area. The infiltration basin will have a riser structure that will disperse the stormwater into an underground infiltration system for additional capacity for mitigation purposes. Once the infiltration basin and underground infiltration system both reach capacity collectively, emergency overflows will exit onto Gilmore Street via a proposed under sidewalk drain on the northwest corner of the infiltration basin.

Similar to existing condition, the post-development condition not only conveys onsite flows, but it also conveys offsite flows. As described in the pre-development condition, the site does not expect any offsite flows from the north, west, nor east. There is an offsite area along the south that drains toward the project site. Therefore, a concrete ditch is proposed along the south boundary to intercept and convey the flows southwest, similar to the existing condition. The proposed ditch will discharge into a proposed under sidewalk culvert that discharges onto Gilmore Street.

Table 3 shows a summary of the proposed unmitigated hydrologic flows from the 100-year storm events. See **Appendix E** for Proposed Drainage Exhibit and **Appendix F** for calculations.

Table 3: Proposed Hydrologic Flows (unmitigated)

Area Description	Area (acres)	Q_{100} (cfs)
Area tributary to Combination Infiltration Systems	**9.52**	**19.86**

100.5 Stormwater Mitigation

The proposed development is proposing an combination infiltration system for dual purposes: stormwater quality treatment and mitigation. The proposed infiltration basin was sized to treat the design capture the volume (DCV), as outlined in the WQMP, and to retain part the storm water volume required to not create any adverse impacts downstream. The underground infiltration system was sized for the remaining stormwater volume required to be mitigated.

The volume of storage provided in the combination infiltration system is intended retain 100-percent of the developed condition 100-year, 3-hour storm. Based on the basin routing for the 3-hr duration of the 100-year storm event, it was determined that the proposed combination infiltration system can mitigate 100-percent of the post-development storm. The proposed site will be a zero-discharge project for the 100-year storm in which all drainage will be contained onsite, treated, and infiltrated back into the soil. An under-sidewalk culvert will be proposed adjacent to the basin for emergency overflow purposes. See **Appendix H** for Basin Routing Calculations.

100.6 Hydraulic Analysis

Peak flows from the rational method analyses will be used to adequately size proposed inlets, outlets, and storm drain systems. The proposed storm drain system identified on the Proposed Drainage Map will be conveying the 100-year unattenuated storm flows. The proposed inlets, outlets, headwall and overflows will also be capturing the 100-year unattenuated storm flows.

The calculated peak flows from the analyses discusses above will be used to size the onsite flow drainage devices. All drainage devices will be sized in the Final Hydrology Report.

The proposed routing calculations for the infiltration basin in combination with the underground infiltration system show a maximum water surface elevation of 14.56 feet in depth, which is equivalent to an elevation of 1541.52 (below basin top) and a drawdown time for the combined system is 54 hours. See **Appendix H** for basin routing calculations.

For preliminary purposes, peak flows were also used to check compliance with the Flood Protection Criteria in the RCFC & WCD Hydrology Manual compared to the existing street sections and the existing street under sidewalk culvert. Per the Flood Protection Criteria, 10-year storm flows have to be contained within the top of the curbs and the 100-year storm flows have to contained within the street right-of-way limits. The existing under sidewalk culvert at the cul-de-sac southwest of the project site was analyzed to determine if the flood limits are contained within the right-of-way and outside of the project site. The analyses for the existing street section and the existing under sidewalk culvert are considering the tributary flows pre-development and post-development (which considers the 100-year mitigation on-site described on Section 100.5). After analysis, the existing street sections were determined to be adequate for the expected tributary flows, but the existing under sidewalk culvert was determined to be inadequate and may be causing some onsite flooding on the project site. Therefore, the existing under sidewalk culvert is proposed to be removed and replaced with a larger culvert that is capable of accommodating the expected tributary flows post-development. See **Appendix I** for sizing calculations.

100.7 Conclusion

In conclusion, the following was covered in this report:

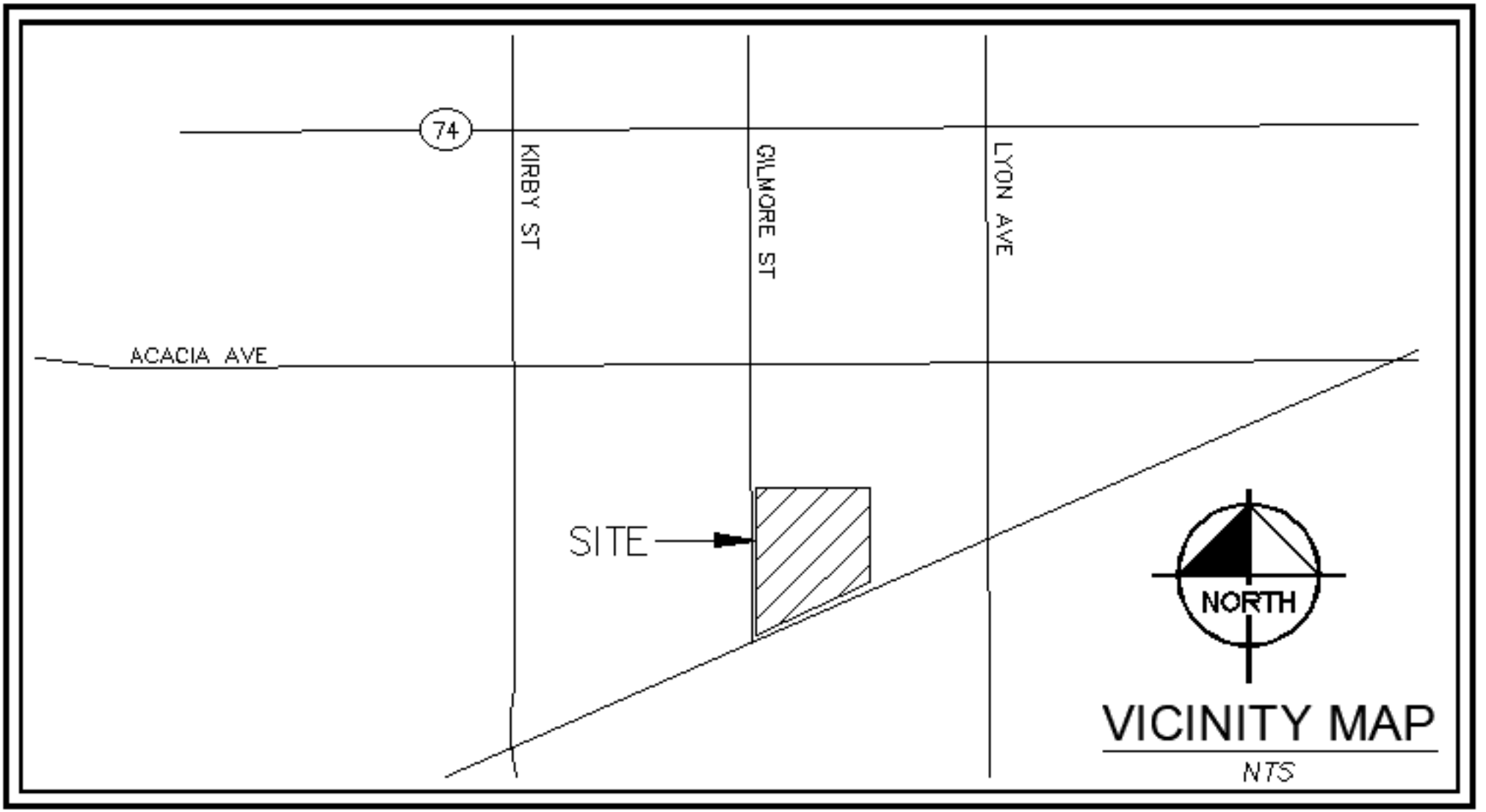
- Pre-development discharge patterns and points were analyzed
- Post-development discharge patterns and points were analyzed
- Offsite discharge patterns and points were discussed
- Pre-development flow rates for the 100-year storm event were calculated to compare to post-development flow rates
- Post-development un-mitigated flow rates for the 100-year event were calculated to determine the need of mitigation and to size drainage devices
- Offsite flow rates for the 10 and 100-year events were determined
- Post-development mitigation was analyzed for the project site based on the 100-year event
- Post-development final flow rates were proven to be less than the existing flows

- Offsite storm devices were analyzed

As discussed in the contents of this report, the development of the existing vacant site into the proposed manufacturing warehouse is not expected to cause a significant impact to downstream properties for the 100-year condition. The mitigated development discharges less stormwater flows than the existing site conditions by proposing a zero-discharge site for the 100-year storm event.

Appendix A

Location Map



VICINITY MAP

NTS

Location Map

Assessor - County Clerk - Recorder
Riverside County, CA

Property Detail

Assessment No.	456140008
APN	456140008
Property Type	Vacant Commercial Land
Neighborhood	Land - Hemet, San Jacinto and adjacent County areas
Acreage	9.20

Legal Description

9.20 ACRES IN POR NW 1/4 OF SEC 16 T5S R1W FOR TOTAL DESCRIPTION SEE ASSESSORS MAPS TownshipN 5 Acres 009.20 Section 16 Portion 1/4 Range 01 PortionDirection N RangeDirection W

Value History (Part 1)

Year	Reason Date	Market Value				Factored Base Year Value			
		Land	Improvement	Living Improvement	Total	Land	Improvement	Living Improvement	Total
2017	Other 01/01/2017					$1,766,240			$1,766,240
2018	Other 01/01/2018					$1,801,564			$1,801,564
2019	01/01/2019					$1,837,595			$1,837,595
2020	01/01/2020					$1,874,346			$1,874,346
2021	01/01/2021					$1,893,764			$1,893,764

Value History (Part 2)

Year	Restricted Value				Assessed Value				Penalty	Exemption	Net Taxable Value
	Land	Improvement	Living Improvement	Total	Land	Improvement	Living Improvement	Total			
2017					$1,766,240			$1,766,240			$1,766,240
2018					$1,801,564			$1,801,564			$1,801,564
2019					$1,837,595			$1,837,595			$1,837,595
2020					$1,874,346			$1,874,346			$1,874,346
2021					$1,893,764			$1,893,764			$1,893,764

Transfer History

Doc #	Sales Price	Date	Vacant Land
2016-9034408-UC	$0	4/3/2016	True
2006-0324641	$1,500,000	5/4/2006	True
2005-0919106	$0	11/4/2005	True
2005-0635011	$680,000	8/5/2005	True
2005-5635011	$0	8/5/2005	True
2002-0154966	$0	3/27/2002	True
1998-0544060	$0	12/15/1998	True
1995-9926126-UC	$0	6/1/1995	True
1992-0498583	$0	12/31/1992	True
1975-0160668	$80,000	12/24/1975	True
1973-0151427-NO	$0	11/1/1973	True
1972-0075831	$0	6/1/1972	True

Features

Land Details

Primary Use	Land Type	Acres	Eff. Frontage	Eff. Depth
Commercial	LandLine 01 / 456140008 / Commercial	9.20	0.00	0.00

Date Printed: 10/12/2021

Appendix B

FIRM Map

National Flood Hazard Layer FIRMette

FEMA

116°59'56"W 33°44'50"N

116°59'19"W 33°44'21"N

0 250 500 1,000 1,500 2,000 Feet

1:6,000

Basemap: USGS National Map: Orthoimagery: Data refreshed October, 2020

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 Cross Sections with 1% Annual Chance
- 17.5 Water Surface Elevation
- Coastal Transect
- Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

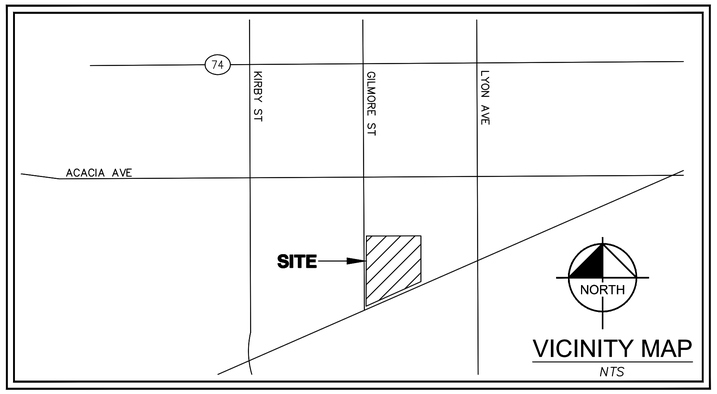
This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 10/12/2021 at 2:25 AM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

Appendix C

Construction Plans



VICINITY MAP
NTS

LEGEND

- PROPERTY LINE
- CIVIL LIMITS OF WORK
- BUILDING SETBACK
- EASEMENT
- FLOW LINE
- GRADEBREAK
- (1545.10 TC) / (1544.60 FS) — EXISTING SPOT ELEVATION
- 1545.10 TC / 1544.60 FS — PROPOSED SPOT ELEVATION
- 1.5% — PROPOSED FLOW (DIRECTION AND SLOPE)
- (XXXX) — EXISTING CONTOUR
- (XXXX) — EXISTING MINOR CONTOUR
- XXXX — PROPOSED CONTOUR
- XXXX — PROPOSED MINOR CONTOUR
- STANDARD DUTY ASPHALT PAVEMENT
- HEAVY DUTY ASPHALT PAVEMENT
- LIGHT DUTY CONCRETE WALK
- LANDSCAPE/PLANTER AREA
- HEAVY DUTY CONCRETE
- FULL DEPTH REMOVAL TO MATCH EXISTING IN KIND
- DRIVEWAY DEDICATION

N.A.P.
APN: 456-140-006
M-2 ZONE
GENERAL MANUFACTURING

PROPOSED BLDG
FF 1548.65

PROPERTY LINE
N89°59'23"W, 629.76'

EX. SIDEWALK TO REMAIN

PROP. RIGHT-OF-WAY DEDICATION

PROP. DRIVEWAY PER CITY STD. 210A

SEE DETAIL A, SHEET 2, FOR MORE INFORMATION.

EXISTING 8' SOUTHERN CALIFORNIA EDISON UTILITY AND ACCESS EASEMENT PER INSTRUMENT 2007-0421114

PROP. RIGHT-OF-WAY DEDICATION

PROP. DRIVEWAY PER CITY STD. 210A

S GILMORE STREET ℄

EX. CURB AND GUTTER

EX. SIDEWALK TO REMAIN

RIGHT-OF-WAY
N0°06'03"E
685.03'

EXISTING 15' BUILDING SETBACK

EXISTING 10' SKYLINE HOMES SEWER EASEMENT PER INSTRUMENT NO. 1976-5450

EX. SIDEWALK TO REMAIN

PIPE STORAGE AREAS

EXISTING CONCRETE TO BE DEMOLISHED

EXISTING 5' SOUTHERN SIERRAS POWER POLE EASEMENT RECORDED IN BOOK 759, PAGE 470 DEEDS

EXISTING 35' PIPELINE EASEMENT PER INSTRUMENT NO. 1968-122092

PROPERTY LINE

PROPOSED UNDERGROUND INFILTRATION PIPES
72" PERFORATED CMP
TOTAL LENGTH=780'
PIPE BOTTOM=1527.00

N.A.P.
APN: 456-140-001
R-2 ZONE
RESIDENTIAL AREA

S GILMORE STREET

N.A.P.
APN: 456-140-009
M-2 ZONE
GENERAL MANUFACTURING

KEY NOTES:

1. PROPOSED 4' RIBBON GUTTER
2. PROPOSED INFILTRATION BASIN
3. PROPOSED HEADWALL WITH RIP RAP AND PRETREATMENT DEVICE
4. PROPOSED GRATED INLET WITH FILTER INSERT
5. PROPOSED UNDER SIDEWALK OVERFLOW DRAIN WITH FILTER INSERT
6. PROPOSED 2 FOOT CURB CUT
7. PROPOSED STORM DRAIN PIPE
8. PROPOSED TRASH ENCLOSURE PER CITY STANDARDS R-500B (DOUBLE)
9. PROPOSED CURB RAMP WITH DETECTABLE WARNINGS
10. PROPOSED VARYING HEIGHT GRAVITY CURB, CURB AND GUTTER (MAX 2.45')
11. PROPOSED CURB
12. PROPOSED CURB AND GUTTER
13. PROPOSED CONCRETE SPILLWAY
14. PROPOSED RISER STRUCTURE

ESTIMATED EARTHWORK QUANTITIES

SEE SHEET 2

CUT:	7,793 CY
FILL:	7,346 CY
NET:	447 CY CUT

NOTE: THE ABOVE QUANTITIES ARE APPROXIMATE IN PLACE VOLUMES CALCULATED FROM THE EXISTING GROUND TO THE PROPOSED FINISHED GRADE. EXISTING GROUND IS DEFINED BY THE CONTOURS AND SPOT GRADES ON THE BASE SURVEY. PROPOSED FINISHED GRADE IS DEFINED AS THE FINAL GRADE AS INDICATED ON THE GRADING PLAN(S).

THE EARTHWORK QUANTITIES ABOVE ARE FOR PERMIT PURPOSES ONLY. THEY HAVE NOT BEEN FACTORED TO ACCOUNT FOR CHANGES IN VOLUME DUE TO BULKING, CLEARING AND GRUBBING, SHRINKAGE, OVER- EXCAVATION AND RE-COMPACTION, AND CONSTRUCTION METHODS. NOR DO THEY ACCOUNT FOR THE THICKNESS OF PAVEMENT SECTIONS, FOOTINGS, SLABS, REUSE OF PULVERIZED MATERIALS THAT WILL UNDERLIE NEW PAVEMENTS, ETC. THE CONTRACTOR SHALL RELY ON THEIR OWN EARTHWORK ESTIMATES FOR BIDDING PURPOSES.

SITE DATA:

PARCEL SIZE:	414,481± S.F. (9.52± AC)
LIMITS OF DISTURBANCE:	414,481± S.F. (9.52± AC)
PROPOSED IMPERVIOUS AREA:	379,229± S.F. (8.71± AC)
PROPOSED PERVIOUS AREA:	35,252± S.F. (0.81± AC)
APN:	456-140-008
EXISTING USE:	VACANT
PROPOSED USE:	MANUFACTURING WAREHOUSE (M-2)
GENERAL PLAN:	INDUSTRIAL GENERAL PLAN (I)
PARKING REQUIREMENTS:	1 STALL/500 SQUARE FEET =

GENERAL NOTES

- PROPOSED TRASH ENCLOSURE MUST BE INSTALLED IN ACCORDANCE WITH CITY OF HEMET STANDARDS AND SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION.

LANDSCAPE NOTE:

FINISH GRADE OF LANDSCAPE AREAS IS TO BE DEPRESSED 1-2 INCHES (MIN.) BELOW TOP OF CURB, SIDEWALK OR PAVEMENT.

NORTH

GRAPHIC SCALE IN FEET
0 15 30 60
1" = 30'
WHEN PRINTED AT FULL SIZE (24" BY 36")

Kimley»Horn

PRELIMINARY GRADING PLAN

JD FIELDS HEMET

7/31/2024

SEE SHEET 1

LEGEND

- PROPERTY LINE
- CIVIL LIMITS OF WORK
- BUILDING SETBACK
- EASEMENT
- FLOW LINE
- GRADEBREAK (CB—CB)
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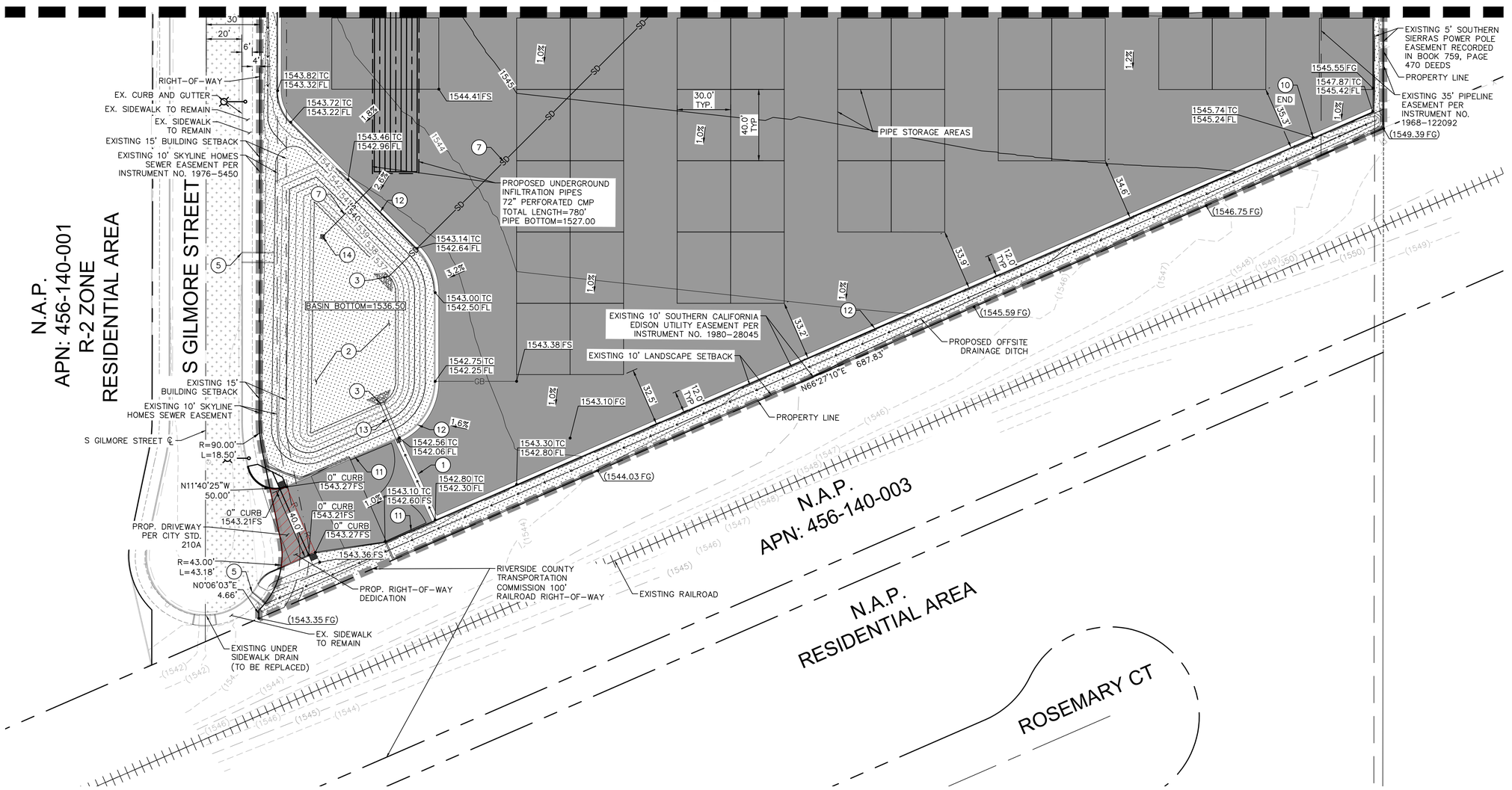
- HEAVY DUTY ASPHALT PAVEMENT
- LIGHT DUTY CONCRETE WALK
- LANDSCAPE/PLANTER AREA
- HEAVY DUTY CONCRETE
- COMPACTED SOIL AREA WITH 6" OF COMPACTED GRAVEL. GEOTEXTILE TO BE PLACED UNDERNEATH GRAVEL LAYER
- PERMANENT TIRE RACK
- FULL DEPTH REMOVAL AND REPLACEMENT TO MATCH EXISTING IN—KIND
- DRIVEWAY DEDICATION



KEY NOTES:

1. PROPOSED 4' RIBBON GUTTER
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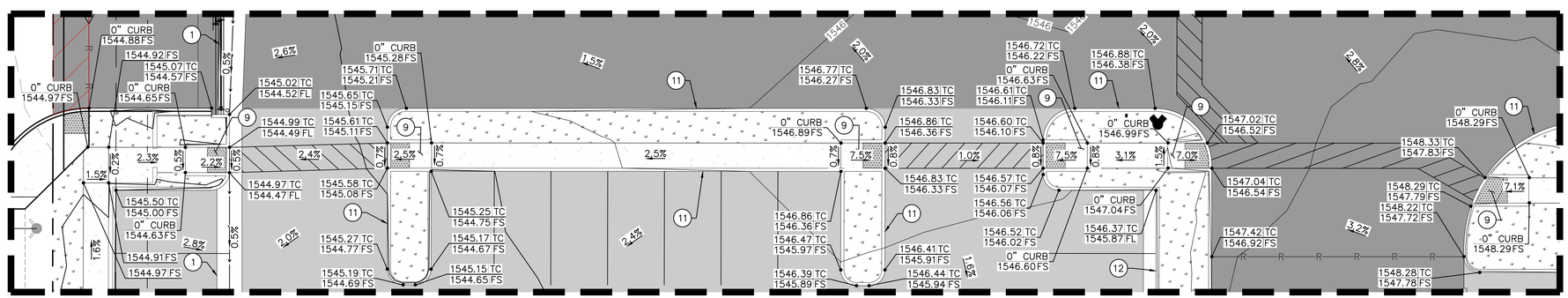
11. PROPOSED CURB
12. PROPOSED CURB AND GUTTER
13. PROPOSED CONCRETE SPILLWAY
14. BOLT PERMANENT TIRE TRACK TO ASPHALT PAVEMENT



DETAIL A:

SCALE: 1"=10'

NORTH

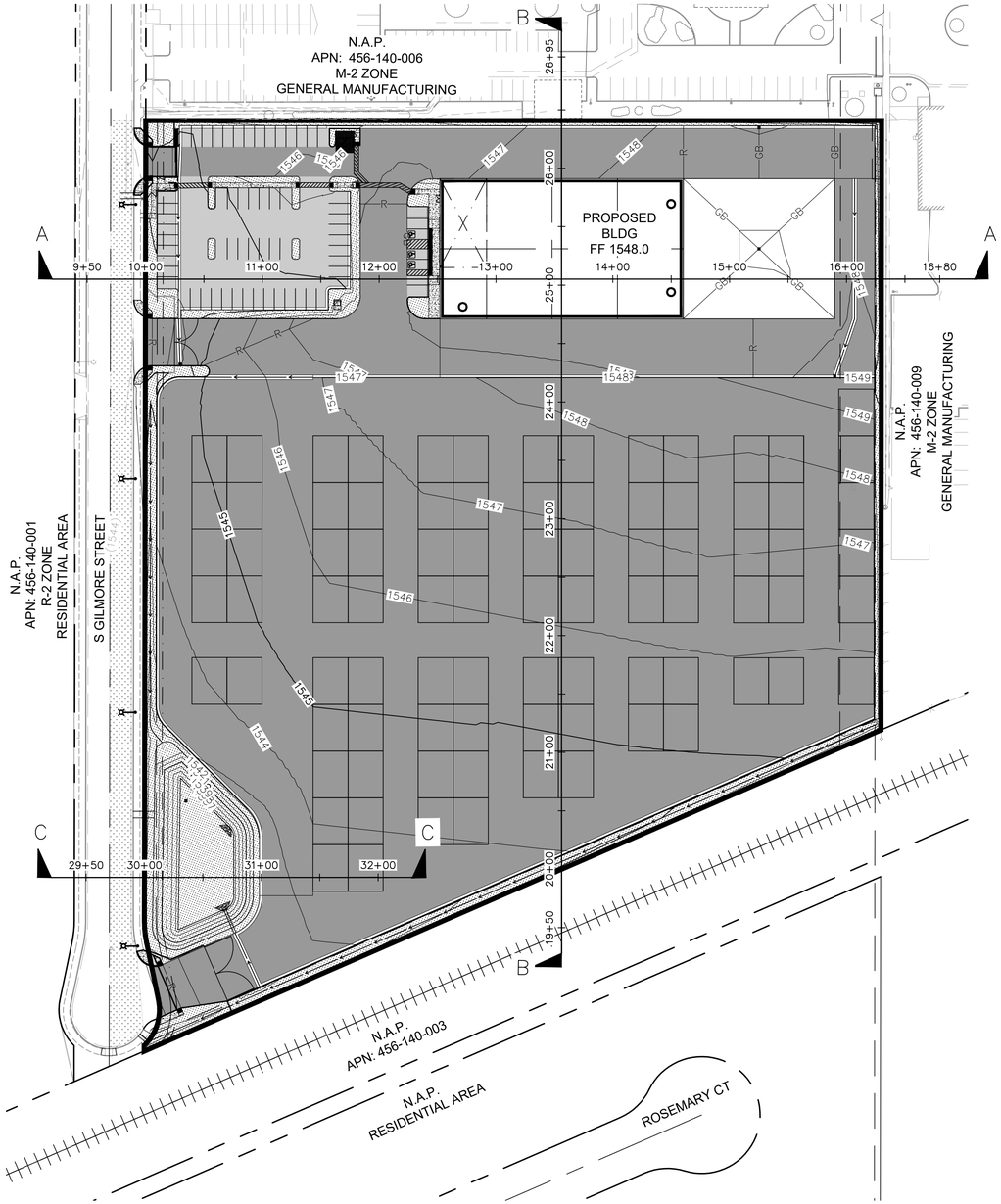
GRAPHIC SCALE IN FEET
0 15 30 60
1" = 30'
WHEN PRINTED AT FULL SIZE (24" BY 36")

Kimley»Horn

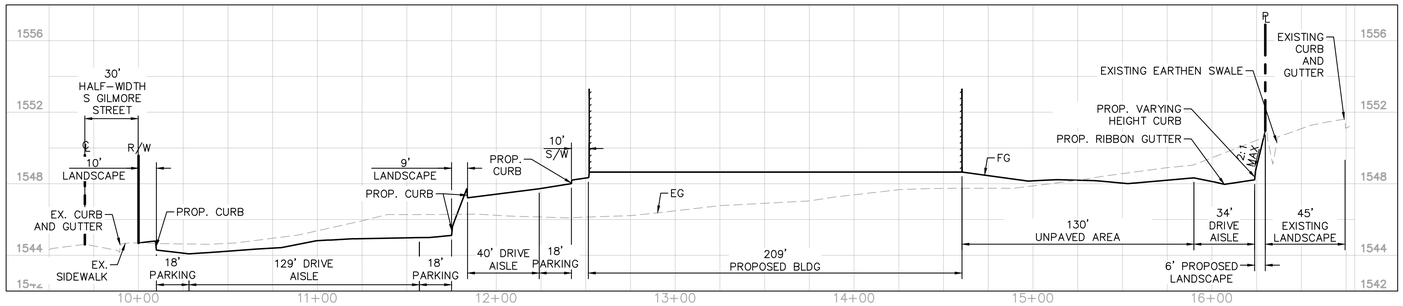
PRELIMINARY GRADING PLAN

JD FIELDS HEMET

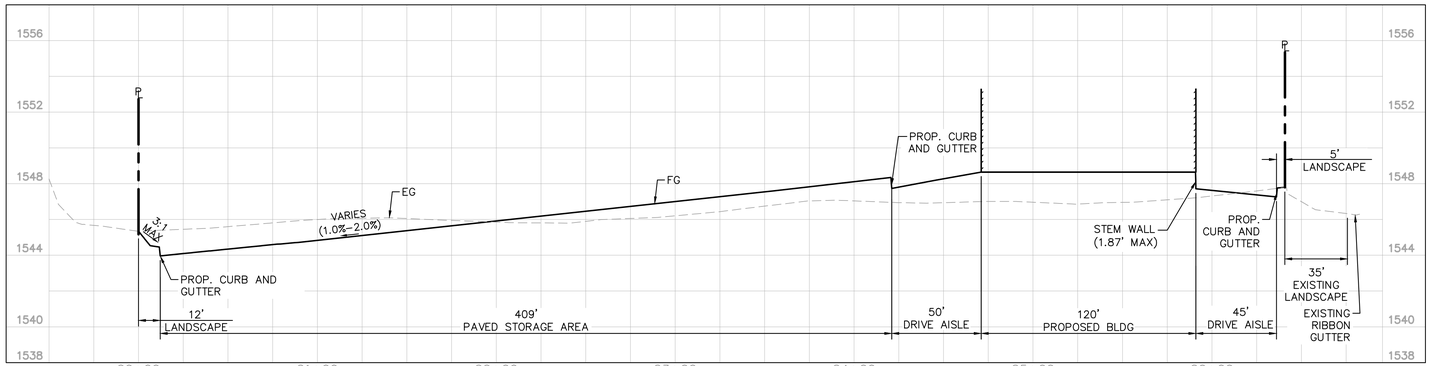
7/31/2024



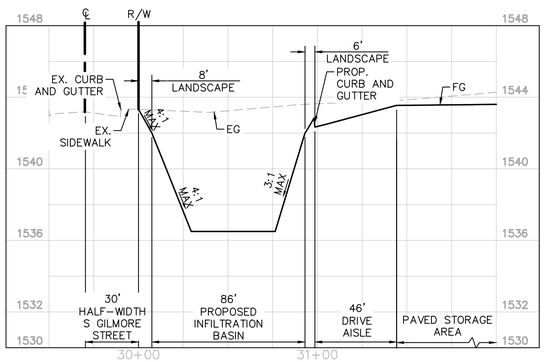
SECTION MAP
1"=60'



SECTION A–A
HORIZONTAL SCALE 1"=40"
VERTICAL SCALE 1"=4'



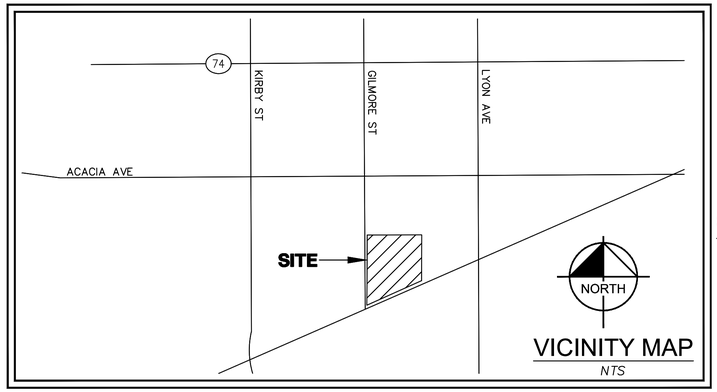
SECTION B–B
HORIZONTAL SCALE 1"=40"
VERTICAL SCALE 1"=4'



SECTION C–C
HORIZONTAL SCALE 1"=40"
VERTICAL SCALE 1"=4'

Kimley»Horn

PRELIMINARY SECTIONS
JD FIELDS HEMET
8/1/2024



VICINITY MAP
NTS

EXISTING UTILITY NOTE

1. THE UTILITIES SHOWN ON THE PLAN ARE BASED ON AVAILABLE RECORDS. THE CONTRACTOR MUST FIELD DETERMINE THE LOCATION, MATERIAL, AND DEPTH OF ALL UTILITIES PRIOR TO ANY CONSTRUCTION. REPORT DISCREPANCIES AND POTENTIAL CONFLICTS WITH PROPOSED UTILITIES TO ENGINEER PRIOR TO INSTALLATION OF ANY PIPING.
2. ALL SHUT DOWN OF EXISTING WATER MAIN TO BE DONE BY AND COORDINATED WITH THE CITY UTILITY DIVISION. CONTRACTOR SHALL NOTIFY ALL AFFECTED WATER USERS 72 HOURS IN ADVANCE OF SHUT DOWN.

GENERAL NOTES

1. REDUCE PRESSURE PRINCIPLE BACKFLOW PREVENTOR ASSEMBLY TO BE PER CITY OF HEMET ORDINANCE TITLE 13, CHAPTER 4 AND CURRENT POLICIES OF THE PUBLIC UTILITY DEPARTMENT TO INCLUDE CERTIFICATION THAT THE ASSEMBLY MEETS CURRENT STANDARDS BY A CITY APPROVED CERTIFIED TESTER.
2. PROPOSED BACKFLOW PREVENTOR TO BE INSTALLED PER CITY OF HEMET PUBLIC WORKS STANDARD NO W-713.
3. FIRE FLOW IS TO BE DETERMINED BY 2019 CA FIRE CODE APPENDIX B.
4. FIRE SPRINKLERS AND MONITORING ALARM TO BE COMPLAINT WITH THE 2016 NFPA 13 AND NFPA 72.

LEGEND

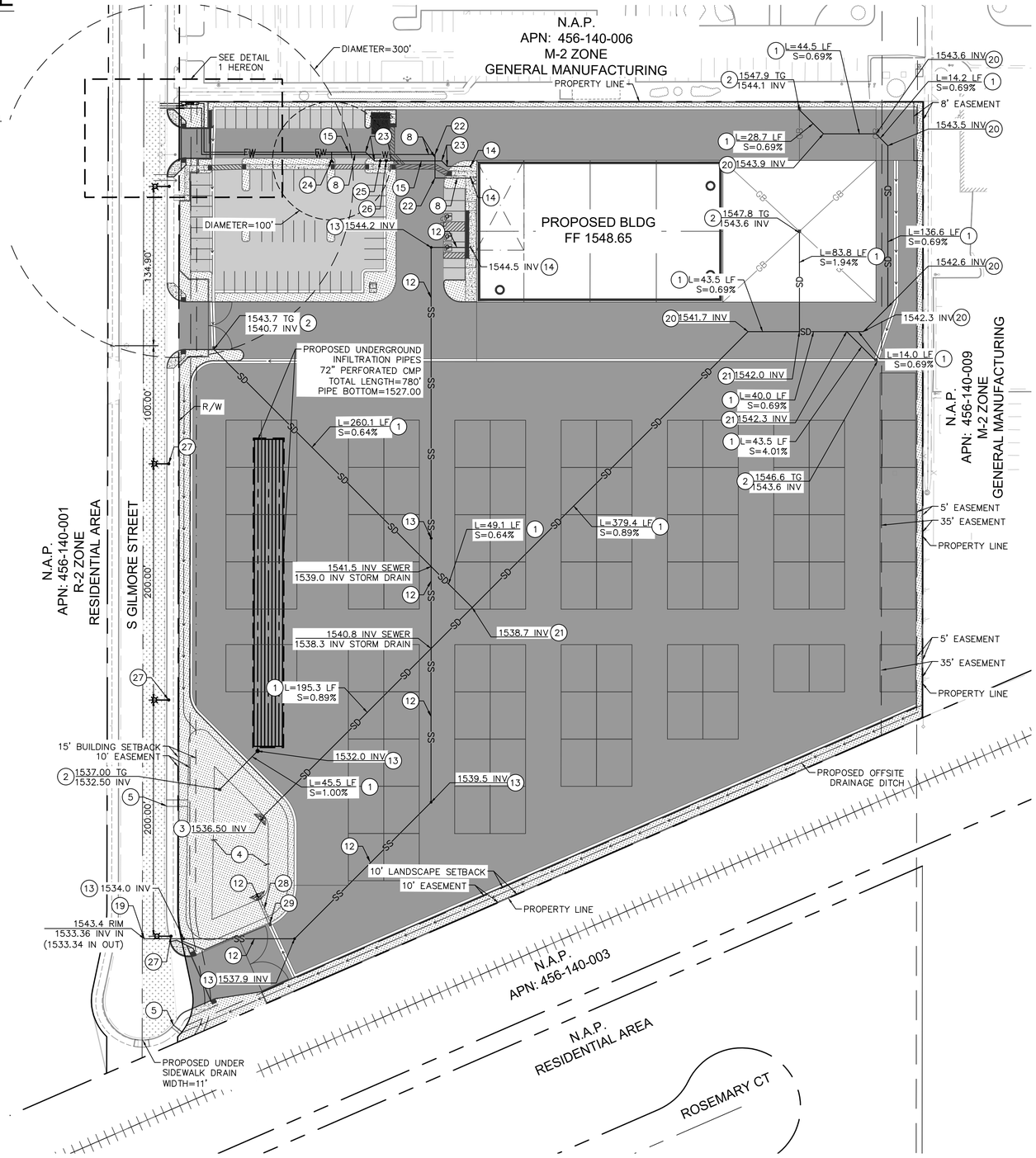
- PROPERTY LINE
- BUILDING SETBACK
- EASEMENT
- W — W — PROPOSED DOMESTIC WATER
- W — W — PROPOSED IRRIGATION
- FW — FW — PROPOSED FIRE WATER MAIN
- SS — SS — PROPOSED SEWER MAIN
- SD — SD — PROPOSED STORMDRAIN
- PROPOSED GRATED INLET
- STANDARD DUTY ASPHALT PAVEMENT
- HEAVY DUTY ASPHALT PAVEMENT
- LIGHT DUTY CONCRETE WALK
- LANDSCAPE/PLANTER AREA
- HEAVY DUTY CONCRETE
- FULL DEPTH REMOVAL AND REPLACEMENT TO MATCH EXISTING IN-KIND

KEY NOTES:

1. PROPOSED STORM DRAIN PIPE
2. PROPOSED GRATED INLET WITH FILTER INSERT
3. PROPOSED HEADWALL WITH RIP RAP AND PRETREATMENT DEVICE
4. PROPOSED INFILTRATION BASIN
5. PROPOSED UNDER SIDEWALK OVERFLOW DRAIN WITH FILTER INSERT
6. PROPOSED DOMESTIC WATER METER
7. PROPOSED DOMESTIC WATER BACKFLOW PREVENTOR PER CITY OF HEMET PUBLIC WORKS STANDARD NO W-713.
8. PROPOSED 1" DOMESTIC WATER SERVICE LINE
9. PROPOSED IRRIGATION WATER METER
10. PROPOSED IRRIGATION WATER BACKFLOW PREVENTOR PER CITY OF HEMET PUBLIC WORKS STANDARD NO W-713.
11. PROPOSED 1" IRRIGATION WATER SERVICE LINE
12. PROPOSED SEWER MAIN (SLOPE= 1.00%)
13. PROPOSED CLEANOUT
14. PROPOSED BUILDING POINT OF CONNECTIONS
15. PROPOSED 6" FIRE WATER MAIN
16. PROPOSED 6" REDUCE PRESSURE PRINCIPLE BACKFLOW PREVENTOR ASSEMBLY
17. PROPOSED 6" 90° FIRE WATER BEND
18. EXISTING FIRE HYDRANT
19. CONNECT PROPOSED SEWER LATERAL INTO EXISTING SEWER MANHOLE
20. PROPOSED STORM DRAIN 45° BEND
21. PROPOSED STORM DRAIN TEE/WYE BEND
22. PROPOSED 90° DOMESTIC WATER BEND
23. PROPOSED 6" 45° FIRE WATER BEND
24. PROPOSED FIRE HYDRANT
25. PROPOSED POST INDICATOR VALVE
26. PROPOSED FIRE DEPARTMENT CONNECTION
27. PROPOSED STREET LIGHT
28. PROPOSED CONCRETE SPILLWAY
29. PROPOSED CURB CUT

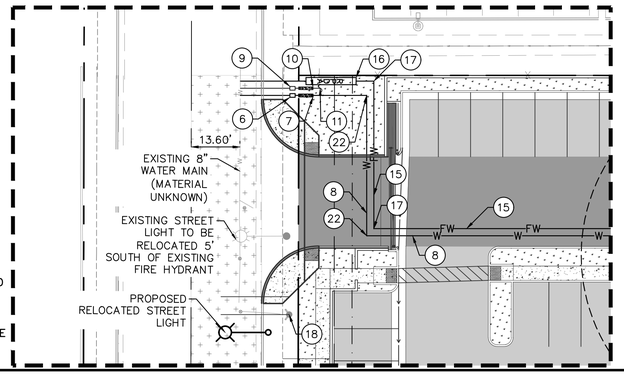
UTILITY PURVEYORS

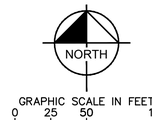
- WATER AND SEWER
  445 E FLORIDA AVENUE
  CITY HALL
  HEMET, CA 92543
  (951) 765-2350
- SPECTRUM
  (855)427-0191
- FRONTIER FIOS
  (877) 349-9182
- DIRECT TV
  (855) 463-7359
- SOUTHER CALIFORNIA TELEPHONE
  (800) 840-6673
- SOUTHERN CALIFORNIA EDISON
  (800) 655-4555
- WESTERN COMMUNITY ENERGY
  (951) 405-6760
- SOUTHERN CALIFORNIA GAS COMPANY
  (800)427-2200
- CR&R
  (800) 826-9677
- WASTE MANAGEMENT
  (800) 423-9986
- RIVERSIDE COUNTY WASTE MANAGEMENT
  (951)486-3200



GRAPHIC SCALE IN FEET
0 10 20 40
1" = 20'
WHEN PRINTED AT FULL SIZE
(24" BY 36")

DETAIL 1





GRAPHIC SCALE IN FEET
0 25 50 100
1" = 50'
WHEN PRINTED AT FULL SIZE
(24" BY 36")

Kimley»Horn

PRELIMINARY UTILITY PLAN
JD FIELDS HEMET
7/31/2024

SHEET 1 OF 1

Appendix D

Hydrology Manual Reference Material

NOAA Atlas 14, Volume 6, Version 2
Location name: Hemet, California, USA*
Latitude: 33.741°, Longitude: -116.9923°
Elevation: 1546.67 ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Sarah Dietz, Sarah Heim, Lillian Hiner, Kazungu Maitaria, Deborah Martin, Sandra Pavlovic, Ishani Roy, Carl Trypaluk, Dale Unruh, Fenglin Yan, Michael Yekta, Tan Zhao, Geoffrey Bonnin, Daniel Brewer, Li-Chuan Chen, Tye Parzybok, John Yarchoan

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	0.083 (0.069-0.100)	0.115 (0.096-0.139)	0.161 (0.134-0.195)	0.202 (0.167-0.248)	0.265 (0.211-0.335)	0.318 (0.248-0.412)	0.378 (0.287-0.502)	0.446 (0.329-0.610)	0.549 (0.388-0.784)	0.654 (0.447-0.969)
10-min	0.118 (0.099-0.143)	0.164 (0.137-0.199)	0.231 (0.192-0.280)	0.290 (0.240-0.355)	0.380 (0.303-0.481)	0.456 (0.356-0.591)	0.542 (0.412-0.719)	0.639 (0.472-0.874)	0.787 (0.557-1.12)	0.938 (0.640-1.39)
15-min	0.143 (0.120-0.173)	0.199 (0.166-0.240)	0.279 (0.233-0.338)	0.351 (0.290-0.429)	0.459 (0.366-0.581)	0.552 (0.430-0.714)	0.655 (0.498-0.870)	0.773 (0.571-1.06)	0.952 (0.673-1.36)	1.13 (0.774-1.68)
30-min	0.227 (0.190-0.274)	0.315 (0.263-0.381)	0.442 (0.368-0.536)	0.556 (0.459-0.680)	0.727 (0.580-0.921)	0.874 (0.682-1.13)	1.04 (0.789-1.38)	1.22 (0.904-1.67)	1.51 (1.07-2.15)	1.80 (1.23-2.66)
60-min	0.350 (0.293-0.423)	0.486 (0.406-0.588)	0.683 (0.568-0.828)	0.858 (0.708-1.05)	1.12 (0.895-1.42)	1.35 (1.05-1.75)	1.60 (1.22-2.13)	1.89 (1.40-2.58)	2.33 (1.65-3.32)	2.77 (1.89-4.11)
2-hr	0.523 (0.438-0.632)	0.689 (0.576-0.833)	0.922 (0.768-1.12)	1.12 (0.928-1.38)	1.42 (1.13-1.80)	1.67 (1.30-2.16)	1.93 (1.47-2.57)	2.23 (1.65-3.05)	2.67 (1.89-3.81)	3.04 (2.07-4.50)
3-hr	0.642 (0.537-0.775)	0.830 (0.694-1.00)	1.09 (0.909-1.32)	1.32 (1.09-1.61)	1.64 (1.31-2.08)	1.91 (1.49-2.47)	2.19 (1.67-2.91)	2.51 (1.85-3.43)	2.97 (2.10-4.24)	3.35 (2.29-4.96)
6-hr	0.905 (0.757-1.09)	1.15 (0.963-1.39)	1.49 (1.24-1.81)	1.78 (1.47-2.17)	2.19 (1.75-2.77)	2.52 (1.97-3.26)	2.87 (2.19-3.82)	3.26 (2.40-4.45)	3.80 (2.69-5.43)	4.25 (2.90-6.30)
12-hr	1.19 (0.991-1.43)	1.51 (1.26-1.83)	1.96 (1.63-2.38)	2.35 (1.94-2.87)	2.89 (2.31-3.66)	3.34 (2.60-4.32)	3.81 (2.90-5.06)	4.32 (3.19-5.91)	5.05 (3.57-7.22)	5.66 (3.86-8.37)
24-hr	1.55 (1.37-1.79)	2.01 (1.78-2.33)	2.65 (2.34-3.07)	3.20 (2.79-3.73)	3.98 (3.37-4.80)	4.63 (3.84-5.69)	5.31 (4.31-6.69)	6.06 (4.78-7.84)	7.14 (5.41-9.61)	8.03 (5.89-11.2)
2-day	1.87 (1.65-2.16)	2.48 (2.19-2.86)	3.31 (2.92-3.84)	4.03 (3.52-4.70)	5.06 (4.28-6.09)	5.89 (4.89-7.24)	6.77 (5.49-8.53)	7.73 (6.10-10.0)	9.11 (6.90-12.3)	10.2 (7.50-14.3)
3-day	2.02 (1.78-2.33)	2.71 (2.40-3.13)	3.67 (3.23-4.25)	4.49 (3.92-5.24)	5.65 (4.79-6.82)	6.60 (5.48-8.12)	7.60 (6.16-9.57)	8.69 (6.85-11.2)	10.2 (7.76-13.8)	11.5 (8.43-16.0)
4-day	2.15 (1.91-2.48)	2.93 (2.59-3.38)	3.99 (3.52-4.63)	4.90 (4.29-5.72)	6.20 (5.25-7.47)	7.25 (6.02-8.92)	8.37 (6.78-10.5)	9.57 (7.55-12.4)	11.3 (8.55-15.2)	12.7 (9.30-17.7)
7-day	2.41 (2.13-2.78)	3.35 (2.96-3.87)	4.64 (4.09-5.38)	5.75 (5.03-6.71)	7.33 (6.21-8.84)	8.62 (7.15-10.6)	9.98 (8.09-12.6)	11.5 (9.03-14.8)	13.6 (10.3-18.3)	15.3 (11.2-21.3)
10-day	2.58 (2.29-2.98)	3.63 (3.21-4.20)	5.08 (4.48-5.89)	6.33 (5.53-7.38)	8.11 (6.86-9.77)	9.55 (7.93-11.7)	11.1 (8.99-14.0)	12.8 (10.1-16.5)	15.1 (11.5-20.4)	17.1 (12.5-23.8)
20-day	3.12 (2.76-3.59)	4.44 (3.92-5.13)	6.28 (5.53-7.27)	7.86 (6.87-9.17)	10.1 (8.58-12.2)	12.0 (9.96-14.8)	14.0 (11.3-17.6)	16.1 (12.7-20.9)	19.3 (14.6-25.9)	21.8 (16.0-30.4)
30-day	3.65 (3.23-4.21)	5.20 (4.59-6.00)	7.36 (6.48-8.52)	9.22 (8.06-10.8)	11.9 (10.1-14.4)	14.1 (11.7-17.4)	16.5 (13.4-20.8)	19.1 (15.0-24.7)	22.8 (17.3-30.7)	25.9 (19.0-36.0)
45-day	4.33 (3.83-5.00)	6.10 (5.39-7.05)	8.58 (7.56-9.94)	10.7 (9.38-12.5)	13.9 (11.7-16.7)	16.4 (13.6-20.2)	19.2 (15.6-24.2)	22.3 (17.6-28.8)	26.7 (20.2-35.9)	30.3 (22.2-42.2)
60-day	5.05 (4.47-5.82)	7.02 (6.20-8.11)	9.79 (8.63-11.3)	12.2 (10.7-14.2)	15.7 (13.3-18.9)	18.6 (15.5-22.9)	21.8 (17.7-27.4)	25.2 (19.9-32.7)	30.3 (23.0-40.8)	34.5 (25.3-48.1)

[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

Please refer to NOAA Atlas 14 document for more information.

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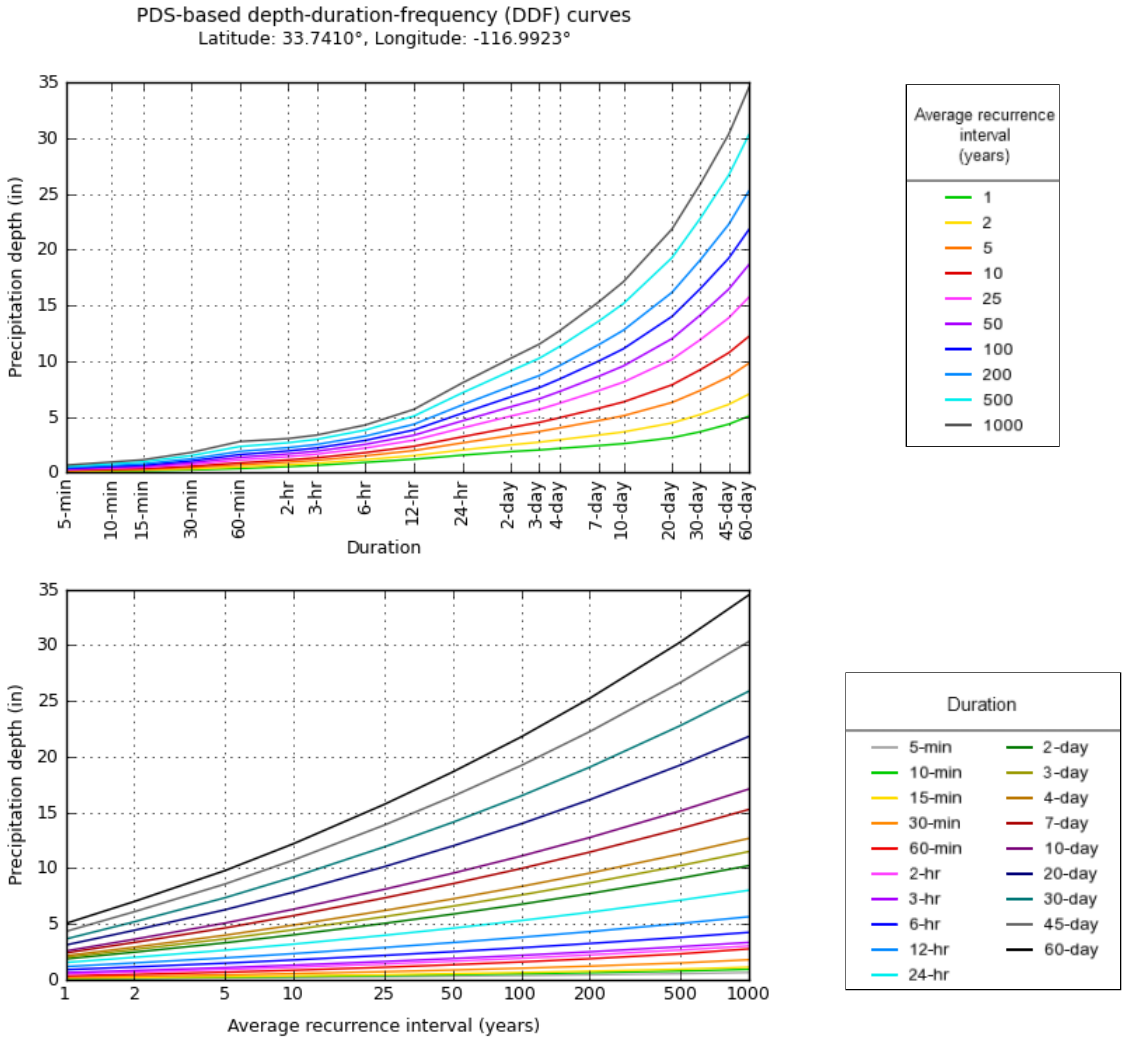
PF graphical



NOAA Atlas 14, Volume 6, Version 2

Created (GMT): Thu Oct 14 06:53:40 2021

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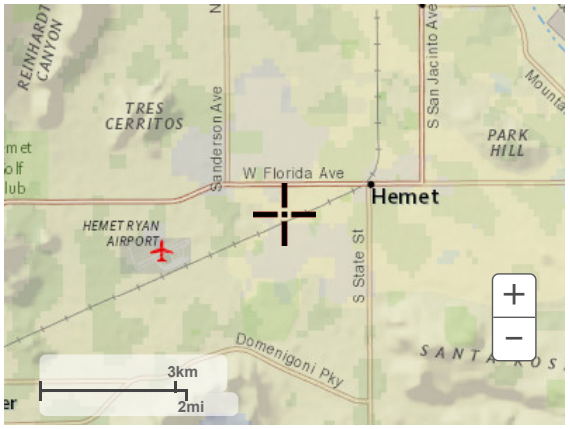
Maps & aerials

Small scale terrain



Large scale terrain

Large scale map

Large scale aerial

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US Department of Commerce
National Oceanic and Atmospheric Administration
National Weather Service
National Water Center
1325 East West Highway
Silver Spring, MD 20910
Questions?: HDSC.Questions@noaa.gov

Disclaimer

RAINFALL INTENSITY–INCHES PER HOUR

DURATION MINUTES	HEMET FREQUENCY 10 YEAR	HEMET FREQUENCY 100 YEAR	DURATION MINUTES	HIGHGROVE FREQUENCY 10 YEAR	HIGHGROVE FREQUENCY 100 YEAR	DURATION MINUTES	HOMELAND – WINCHESTER FREQUENCY 10 YEAR	HOMELAND – WINCHESTER FREQUENCY 100 YEAR	DURATION MINUTES	IDYLLWILD FREQUENCY 10 YEAR	IDYLLWILD FREQUENCY 100 YEAR	DURATION MINUTES	LAKEVIEW FREQUENCY 10 YEAR	LAKEVIEW FREQUENCY 100 YEAR
5	2.84	4.40	5	3.02	4.37	5	2.91	4.37	5	4.91	7.28	5	2.77	4.16
6	2.58	4.00	6	2.75	3.97	6	2.65	3.97	6	4.47	6.62	6	2.53	3.79
7	2.37	3.68	7	2.54	3.67	7	2.44	3.67	7	4.13	6.11	7	2.34	3.51
8	2.21	3.43	8	2.37	3.42	8	2.28	3.42	8	3.85	5.70	8	2.19	3.29
9	2.08	3.23	9	2.23	3.22	9	2.15	3.22	9	3.62	5.36	9	2.07	3.10
10	1.96	3.05	10	2.11	3.05	10	2.03	3.05	10	3.43	5.08	10	1.96	2.94
11	1.87	2.90	11	2.01	2.90	11	1.93	2.90	11	3.26	4.83	11	1.87	2.80
12	1.78	2.77	12	1.92	2.77	12	1.85	2.77	12	3.12	4.62	12	1.79	2.68
13	1.71	2.65	13	1.84	2.66	13	1.77	2.66	13	2.99	4.43	13	1.72	2.58
14	1.64	2.55	14	1.77	2.56	14	1.71	2.56	14	2.88	4.26	14	1.66	2.48
15	1.58	2.46	15	1.71	2.47	15	1.64	2.47	15	2.78	4.11	15	1.60	2.40
16	1.53	2.38	16	1.65	2.39	16	1.59	2.39	16	2.68	3.98	16	1.55	2.32
17	1.48	2.30	17	1.60	2.31	17	1.54	2.31	17	2.60	3.85	17	1.50	2.25
18	1.44	2.23	18	1.55	2.24	18	1.50	2.24	18	2.52	3.74	18	1.46	2.19
19	1.40	2.17	19	1.51	2.18	19	1.45	2.18	19	2.45	3.64	19	1.42	2.13
20	1.36	2.11	20	1.47	2.12	20	1.42	2.12	20	2.39	3.54	20	1.39	2.08
22	1.29	2.01	22	1.40	2.02	22	1.35	2.02	22	2.27	3.37	22	1.32	1.98
24	1.24	1.92	24	1.34	1.93	24	1.29	1.93	24	2.17	3.22	24	1.26	1.90
26	1.18	1.84	26	1.28	1.85	26	1.24	1.85	26	2.09	3.09	26	1.22	1.82
28	1.14	1.77	28	1.23	1.78	28	1.19	1.78	28	2.01	2.97	28	1.17	1.76
30	1.10	1.70	30	1.19	1.72	30	1.15	1.72	30	1.94	2.87	30	1.13	1.70
32	1.06	1.65	32	1.15	1.66	32	1.11	1.66	32	1.87	2.77	32	1.10	1.64
34	1.03	1.59	34	1.12	1.61	34	1.07	1.61	34	1.81	2.69	34	1.06	1.59
36	1.00	1.55	36	1.08	1.57	36	1.04	1.57	36	1.76	2.61	36	1.03	1.55
38	.97	1.50	38	1.05	1.52	38	1.01	1.52	38	1.71	2.54	38	1.01	1.51
40	.94	1.46	40	1.02	1.48	40	.99	1.48	40	1.67	2.47	40	.98	1.47
45	.89	1.37	45	.96	1.39	45	.93	1.39	45	1.57	2.32	45	.92	1.39
50	.84	1.30	50	.91	1.32	50	.88	1.32	50	1.48	2.20	50	.88	1.31
55	.80	1.24	55	.87	1.26	55	.84	1.26	55	1.41	2.09	55	.84	1.25
60	.76	1.18	60	.83	1.20	60	.80	1.20	60	1.35	2.00	60	.80	1.20
65	.73	1.13	65	.80	1.15	65	.77	1.15	65	1.29	1.92	65	.77	1.15
70	.70	1.09	70	.77	1.11	70	.74	1.11	70	1.25	1.85	70	.74	1.11
75	.68	1.05	75	.74	1.07	75	.71	1.07	75	1.20	1.78	75	.72	1.07
80	.65	1.01	80	.71	1.03	80	.69	1.03	80	1.16	1.72	80	.69	1.04
85	.63	.98	85	.69	1.00	85	.67	1.00	85	1.13	1.67	85	.67	1.01
SLOPE = .530			SLOPE = .520			SLOPE = .520			SLOPE = .520			SLOPE = .500		

STANDARD
INTENSITY–DURATION
CURVES DATA

ACTUAL IMPERVIOUS COVER

Land Use (1)	Range-Percent	Recommended Value For Average Conditions-Percent(2)
Natural or Agriculture	0 - 10	0
Single Family Residential: (3)		
40,000 S. F. (1 Acre) Lots	10 - 25	20
20,000 S. F. (½ Acre) Lots	30 - 45	40
7,200 - 10,000 S. F. Lots	45 - 55	50
Multiple Family Residential:		
Condominiums	45 - 70	65
Apartments	65 - 90	80
Mobile Home Park	60 - 85	75
Commercial, Downtown Business or Industrial	80 -100	90

Notes:

1. Land use should be based on ultimate development of the watershed. Long range master plans for the County and incorporated cities should be reviewed to insure reasonable land use assumptions.

2. Recommended values are based on average conditions which may not apply to a particular study area. The percentage impervious may vary greatly even on comparable sized lots due to differences in dwelling size, improvements, etc. Landscape practices should also be considered as it is common in some areas to use ornamental gravels underlain by impervious plastic materials in place of lawns and shrubs. A field investigation of a study area should always be made, and a review of aerial photos, where available may assist in estimating the percentage of impervious cover in developed areas.

3. For typical horse ranch subdivisions increase impervious area 5 percent over the values recommended in the table above.

RCFC & WCD
HYDROLOGY MANUAL

IMPERVIOUS COVER FOR DEVELOPED AREAS

PLATE D-5.6

RUNOFF COEFFICIENT CURVE DATA

The data in the following tables may be used to develop runoff coefficient (C) curves for any combination of runoff index (RI) number and antecedent mositure condition (AMC). For an RI number with an AMC of II (from Plate D-5.5) enter the tables on the following pages and plot the "C" curve data directly on Plate D-5.8. "C" curve data is given for even RI numbers only, but values may easily be interpolated for odd RI numbers.

For an AMC of I or III enter the tabulation on this page with the RI for AMC II, and read the appropriate RI for AMC I or III. Use this revised RI to enter the tables on the following pages to determine "C". For example if RI = 40 for AMC II, then RI = 22 for AMC I and RI = 60 for AMC III.

AMC ADJUSTMENT RELATIONSHIPS

RI FOR AMC II	RI FOR OTHER AMC CONDITIONS: AMC I	AMC III	RI FOR AMC II	RI FOR OTHER AMC CONDITIONS: AMC I	AMC III
10	--	22	55	35	74
11	--	24	56	36	75
12	--	25	57	37	75
13	--	27	58	38	76
14	--	28	59	39	77
15	--	30	60	40	78
16	--	31	61	41	78
17	--	33	62	42	79
18	--	34	63	43	80
19	--	36	64	44	81
20	--	37	65	45	82
21	10	38	66	46	82
22	10	39	67	47	83
23	11	41	68	48	84
24	11	42	69	50	84
25	12	43	70	51	85
26	12	44	71	52	86
27	13	46	72	53	86
28	14	47	73	54	87
29	14	49	74	55	88
30	15	50	75	57	88
31	16	51	76	58	89
32	16	52	77	59	89
33	17	53	78	60	90
34	18	54	79	62	91
35	18	55	80	63	91
36	19	56	81	64	92
37	20	57	82	66	92
38	21	58	83	67	93
39	21	59	84	68	93
40	22	60	85	70	94
41	23	61	86	72	94
42	24	62	87	73	95
43	25	63	88	75	95
44	25	64	89	76	96
45	26	65	90	78	96
46	27	66	91	80	97
47	28	67	92	81	97
48	29	68	93	83	98
49	30	69	94	85	98
50	31	70	95	87	98
51	31	70	96	89	99
52	32	71	97	91	99
53	33	72	98	94	99
54	34	73	99	97	--

RUNOFF INDEX NUMBERS OF HYDROLOGIC SOIL-COVER COMPLEXES FOR PERVIOUS AREAS-AMC II

Cover Type (3)	Quality of Cover (2)	Soil Group A	B	C	D
NATURAL COVERS -					
Barren (Rockland, eroded and graded land)		78	86	91	93
Chaparrel, Broadleaf (Manzonita, ceanothus and scrub oak)	Poor	53	70	80	85
	Fair	40	63	75	81
	Good	31	57	71	78
Chaparrel, Narrowleaf (Chamise and redshank)	Poor	71	82	88	91
	Fair	55	72	81	86
Grass, Annual or Perennial	Poor	67	78	86	89
	Fair	50	69	79	84
	Good	38	61	74	80
Meadows or Cienegas (Areas with seasonally high water table, principal vegetation is sod forming grass)	Poor	63	77	85	88
	Fair	51	70	80	84
	Good	30	58	72	78
Open Brush (Soft wood shrubs - buckwheat, sage, etc.)	Poor	62	76	84	88
	Fair	46	66	77	83
	Good	41	63	75	81
Woodland (Coniferous or broadleaf trees predominate. Canopy density is at least 50 percent)	Poor	45	66	77	83
	Fair	36	60	73	79
	Good	28	55	70	77
Woodland, Grass (Coniferous or broadleaf trees with canopy density from 20 to 50 percent)	Poor	57	73	82	86
	Fair	44	65	77	82
	Good	33	58	72	79
URBAN COVERS -					
Residential or Commercial Landscaping (Lawn, shrubs, etc.)	Good	32	56	69	75
Turf (Irrigated and mowed grass)	Poor	58	74	83	87
	Fair	44	65	77	82
	Good	33	58	72	79
AGRICULTURAL COVERS -					
Fallow (Land plowed but not tilled or seeded)		76	85	90	92

RUNOFF INDEX NUMBERS OF HYDROLOGIC SOIL-COVER COMPLEXES FOR PERVIOUS AREAS-AMC II

Cover Type (3)	Quality of Cover (2)	Soil Group A	B	C	D
AGRICULTURAL COVERS (cont.) -					
Legumes, Close Seeded (Alfalfa, sweetclover, timothy, etc.)	Poor	66	77	85	89
	Good	58	72	81	85
Orchards, Deciduous (Apples, apricots, pears, walnuts, etc.)		See Note 4			
Orchards, Evergreen (Citrus, avocados, etc.)	Poor	57	73	82	86
	Fair	44	65	77	82
	Good	33	58	72	79
Pasture, Dryland (Annual grasses)	Poor	67	78	86	89
	Fair	50	69	79	84
	Good	38	61	74	80
Pasture, Irrigated (Legumes and perennial grass)	Poor	58	74	83	87
	Fair	44	65	77	82
	Good	33	58	72	79
Row Crops (Field crops - tomatoes, sugar beets, etc.)	Poor	72	81	88	91
	Good	67	78	85	89
Small Grain (Wheat, oats, barley, etc.)	Poor	65	76	84	88
	Good	63	75	83	87
Vineyard		See Note 4			

Notes:

1. All runoff index (RI) numbers are for Antecedent Moisture Condition (AMC) II.

2. Quality of cover definitions:
   Poor-Heavily grazed or regularly burned areas. Less than 50 percent of the ground surface is protected by plant cover or brush and tree canopy.
   Fair-Moderate cover with 50 percent to 75 percent of the ground surface protected.
   Good-Heavy or dense cover with more than 75 percent of the ground surface protected.

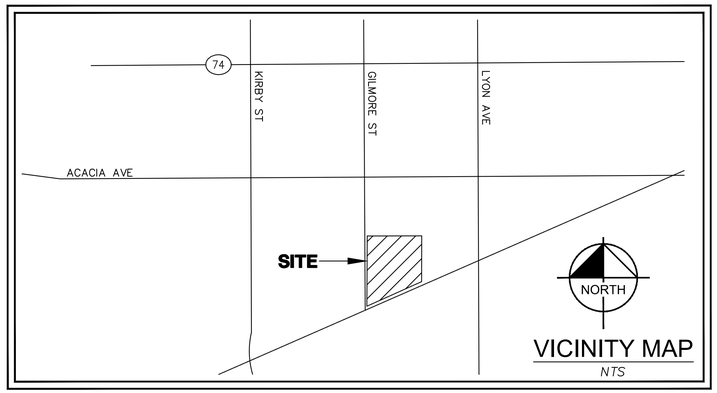
3. See Plate C-2 for a detailed description of cover types.

4. Use runoff index numbers based on ground cover type. See discussion under "Cover Type Descriptions" on Plate C-2.

5. Reference Bibliography item 17.

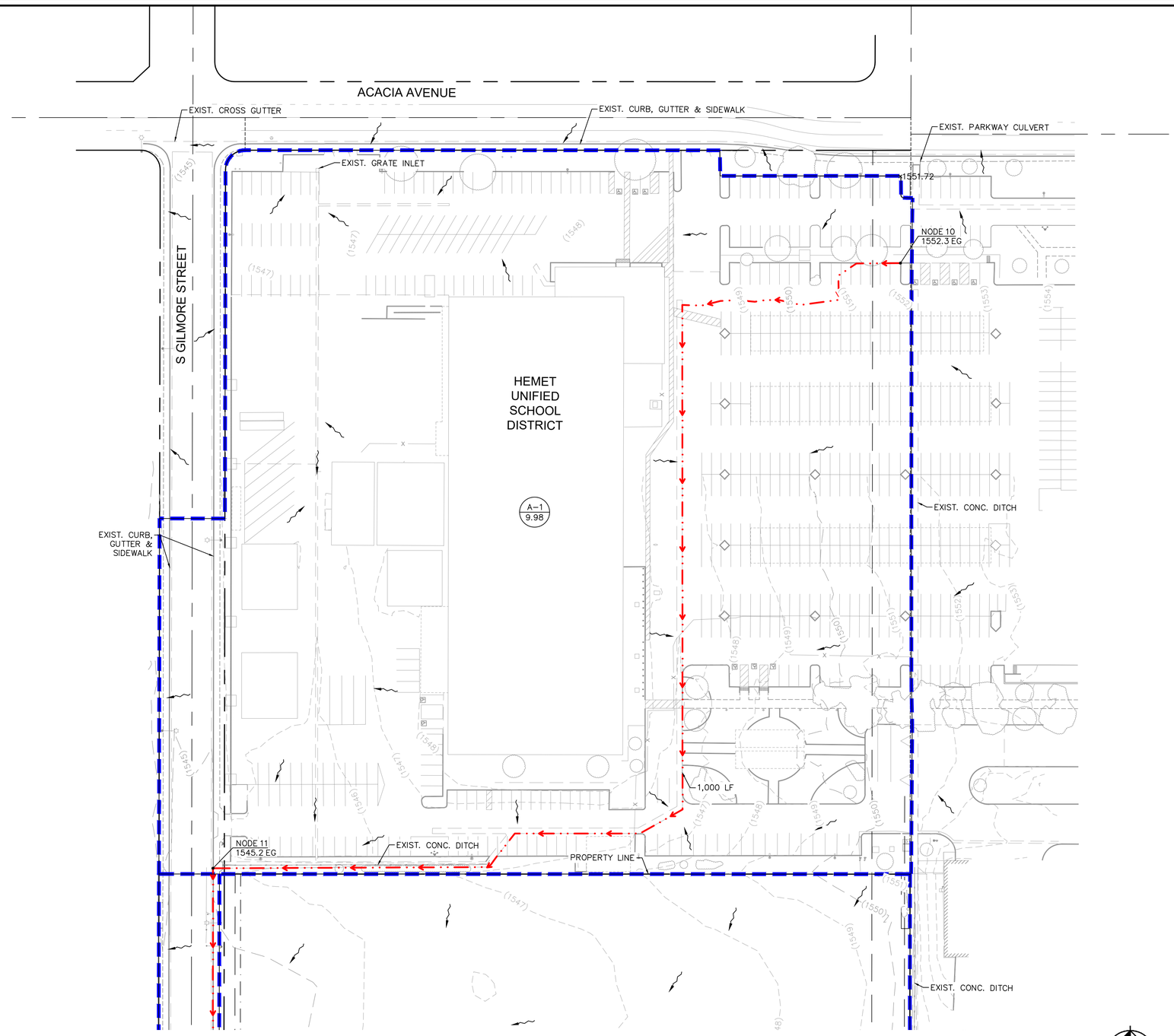
Appendix E

Drainage Plans



LEGEND

- DRAINAGE MANAGEMENT BOUNDARY
- FLOW PATH
- (XXXX) EXISTING CONTOUR
- (XXXX) EXISTING MINOR CONTOUR
- DA–# / X.XX HYDROLOGY SUBAREA / ACREAGE
- FLOW ARROWS

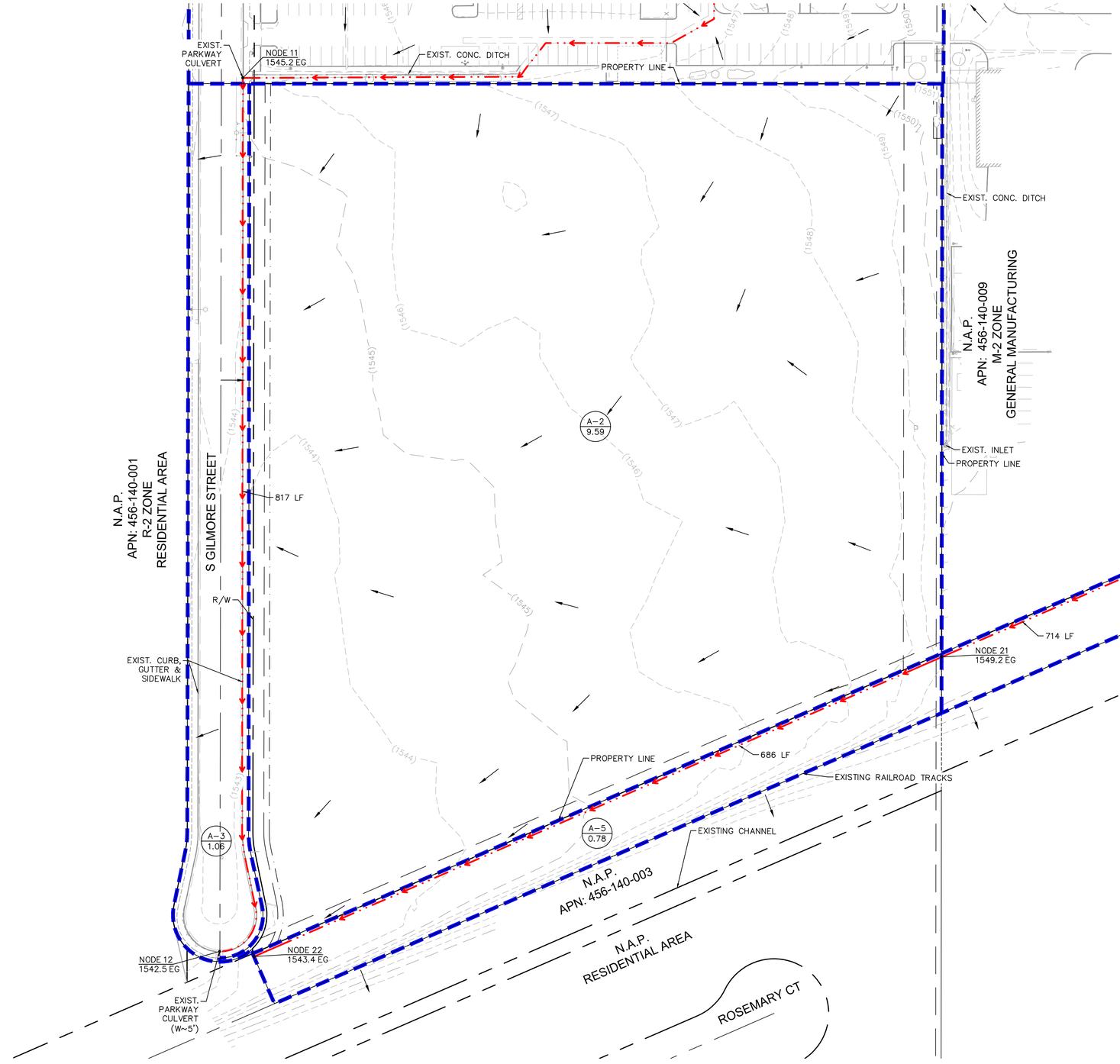


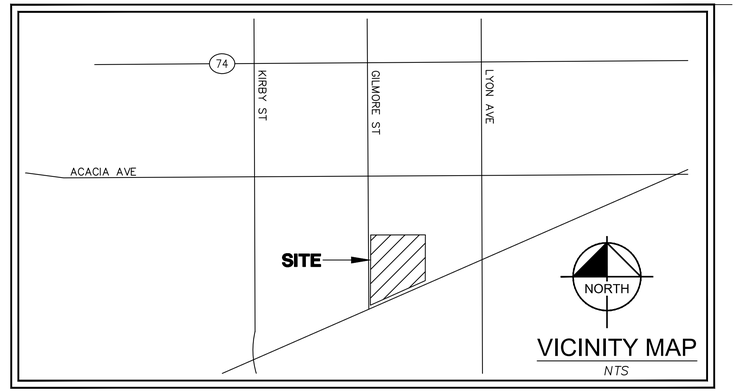
Kimley»Horn

EXISTING ONSITE AND OFFSITE DRAINAGE PLAN (SHT. 2)

JD FIELDS HEMET

7/31/2024





VICINITY MAP
NTS

LEGEND

- DRAINAGE MANAGEMENT BOUNDARY
- FLOW PATH
- (XXXX) EXISTING CONTOUR
- (XXXX) EXISTING MINOR CONTOUR
- DA-# / X.XX HYDROLOGY SUBAREA / ACREAGE
- FLOW ARROWS

NORTH

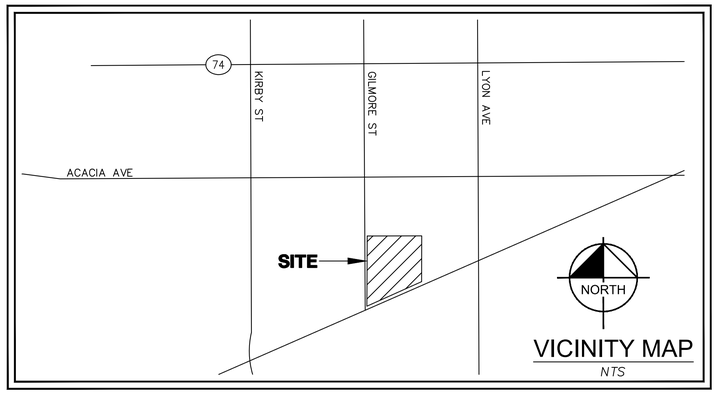
GRAPHIC SCALE IN FEET
0 25 50 100
1" = 50'
WHEN PRINTED AT FULL SIZE
(24" BY 36")

Kimley»Horn

EXISTING ONSITE AND OFFSITE DRAINAGE PLAN (SHT. 2)

JD FIELDS HEMET

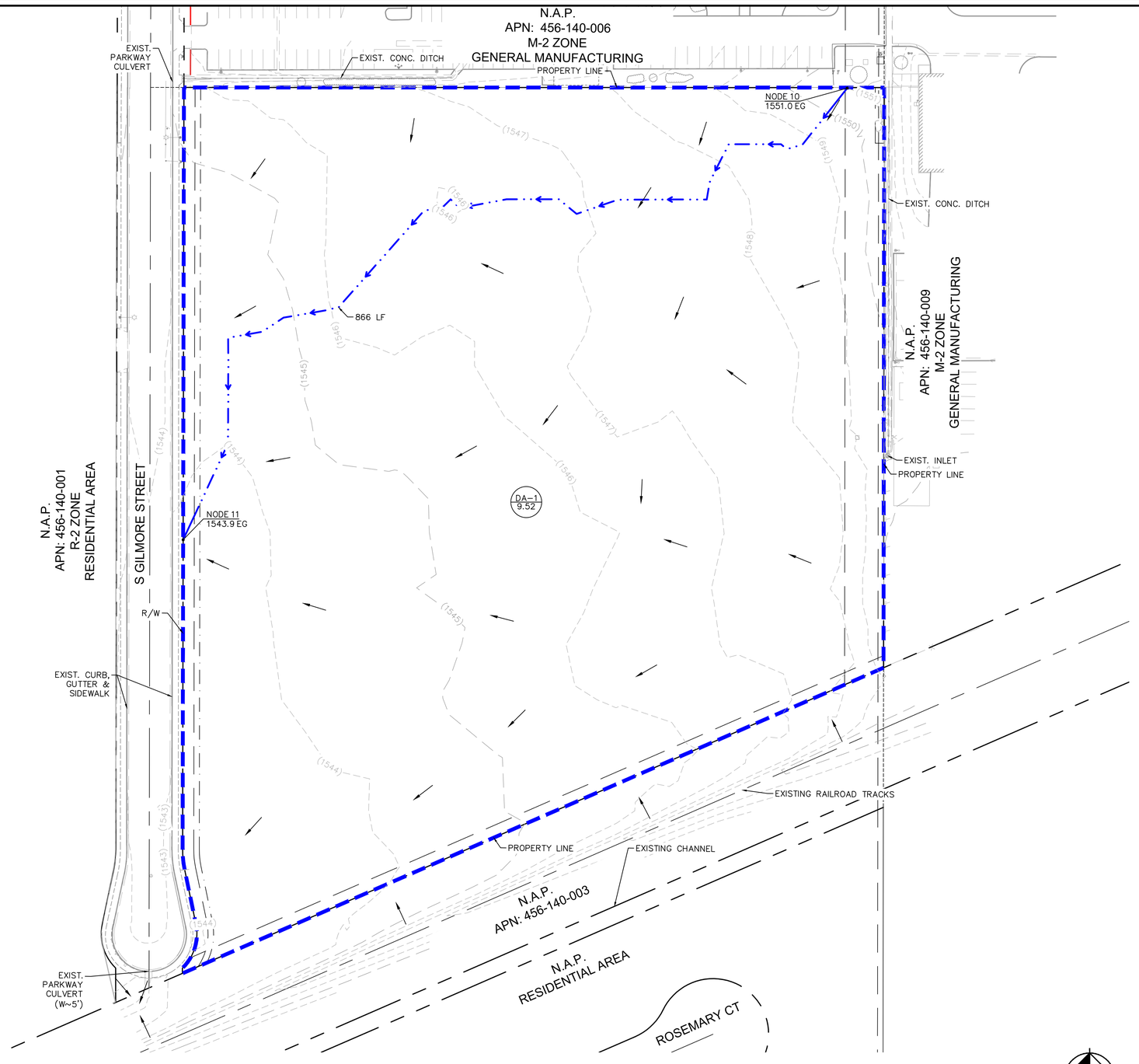
7/31/2024



VICINITY MAP
NTS

LEGEND

- DRAINAGE MANAGEMENT BOUNDARY
- FLOW PATH
- (XXXX) EXISTING CONTOUR
- (XXXX) EXISTING MINOR CONTOUR
- DA–# / X.XX — HYDROLOGY SUBAREA / ACREAGE
- FLOW ARROWS

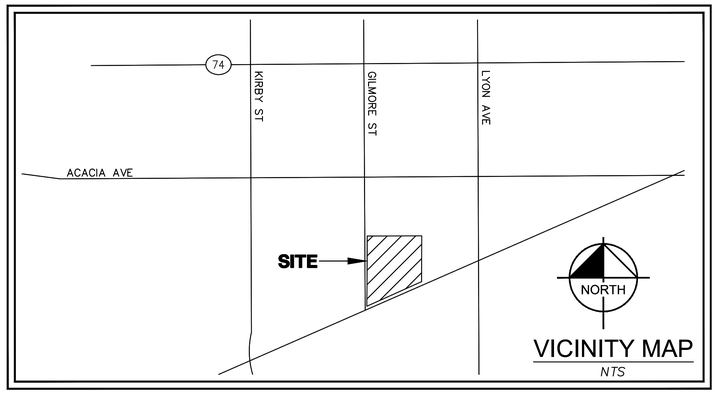


NORTH

GRAPHIC SCALE IN FEET
0 25 50 100
1" = 50'
WHEN PRINTED AT FULL SIZE
(24" BY 36")

Kimley»Horn

EXISTING DRAINAGE PLAN
JD FIELDS HEMET
7/31/2024



VICINITY MAP
NTS

KEY NOTES:

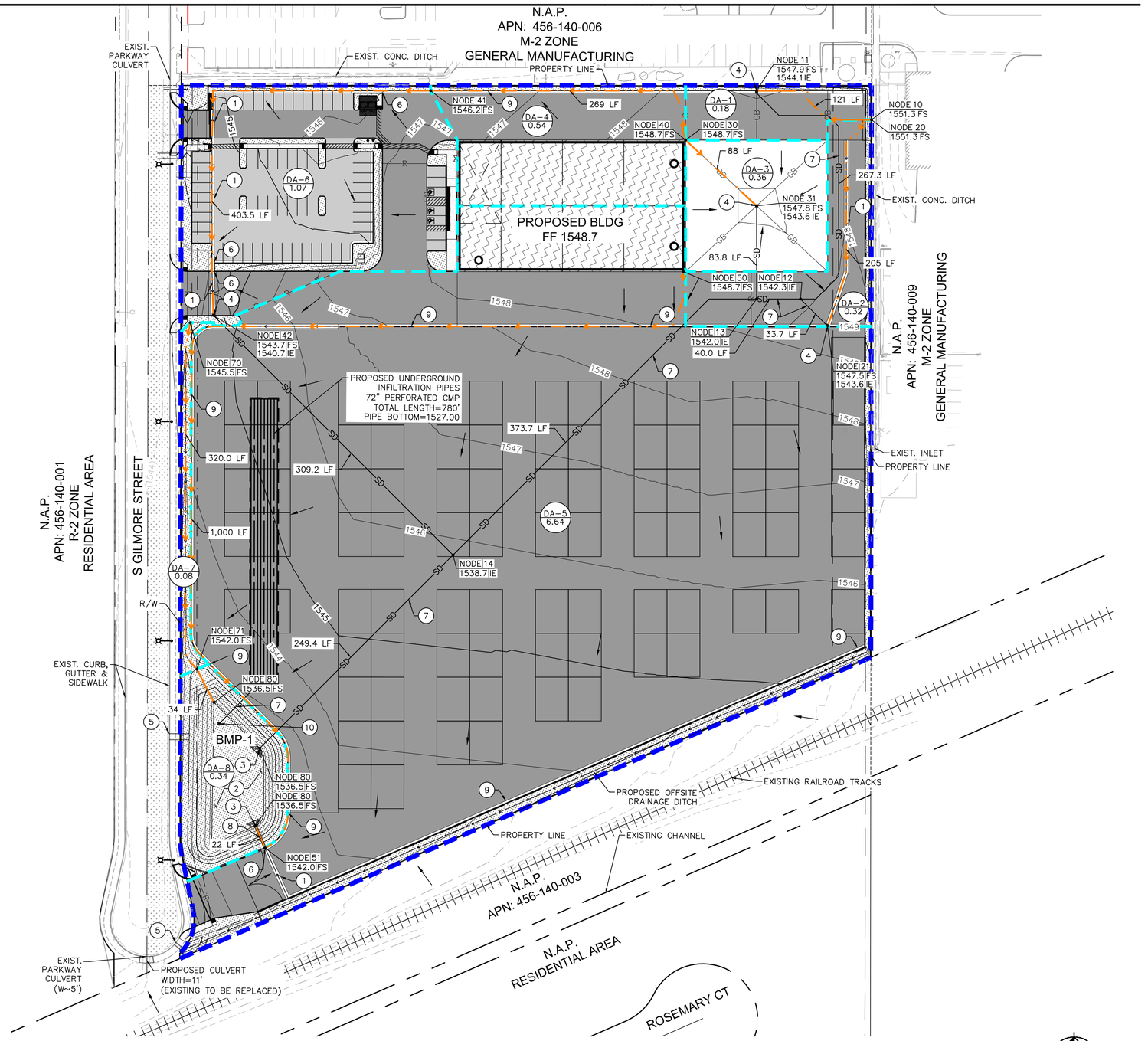
1. PROPOSED 4' RIBBON GUTTER
2. PROPOSED INFILTRATION BASIN
3. PROPOSED HEADWALL WITH RIP RAP AND PRETREATMENT DEVICE
4. PROPOSED GRATED INLET WITH FILTER INSERT
5. PROPOSED UNDER SIDEWALK OVERFLOW DRAIN WITH FILTER INSERT
6. PROPOSED 2 FOOT CURB CUT
7. PROPOSED STORM DRAIN PIPE
8. PROPOSED CONCRETE SPILLWAY
9. PROPOSED CURB AND GUTTER
10. PROPOSED RISER STRUCTURE

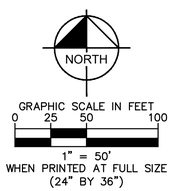
LANDSCAPE NOTE:

FINISH GRADE OF LANDSCAPE AREAS IS TO BE DEPRESSED 1-2 INCHES (MIN.) BELOW TOP OF CURB, SIDEWALK OR PAVEMENT.

LEGEND

- DRAINAGE MANAGEMENT BOUNDARY
- DRAINAGE SUBAREA BOUNDARY
- FLOW PATH
- (XXXX) EXISTING CONTOUR
- (XXXX) EXISTING MINOR CONTOUR
- XXXX PROPOSED CONTOUR
- XXXX PROPOSED MINOR CONTOUR
- DA-# X.XX HYDROLOGY SUBAREA ACREAGE
- FLOW ARROWS
- STANDARD DUTY ASPHALT PAVEMENT
- HEAVY DUTY ASPHALT PAVEMENT
- LIGHT DUTY CONCRETE WALK
- LANDSCAPE/PLANTER AREA
- HEAVY DUTY CONCRETE
- PROPOSED BUILDING (IMPERVIOUS)





Kimley»Horn

PROPOSED DRAINAGE PLAN
JD FIELDS HEMET
7/31/2024

Appendix F

Rational Method Calculations

```
************************************************************************
          RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM BASED ON
        RIVERSIDE COUNTY FLOOD CONTROL & WATER CONSERVATION DISTRICT
                    (RCFC&WCD)  1978 HYDROLOGY MANUAL
         (c) Copyright 1982-2011 Advanced Engineering Software (aes)
                    (Rational Tabling Version 18.0)
                Release Date: 07/01/2011  License ID 1499

                         Analysis prepared by:

                     Kimley-Horn and Associates, Inc.
                            765 The City Drive
                                Suite 200
                             Orange, CA 92868

 ************************* DESCRIPTION OF STUDY *************************
* JD FIELDS HEMET                                                      *
* EXISTING 100 YEAR                                                    *
* 10/14/2021 LA                                                        *
 ************************************************************************

  FILE NAME: JDH100E.DAT
  TIME/DATE OF STUDY: 22:02 10/13/2021
------------------------------------------------------------------------
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
------------------------------------------------------------------------
  USER SPECIFIED STORM EVENT(YEAR) =  100.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =   8.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 1.00
  10-YEAR STORM 10-MINUTE INTENSITY(INCH/HOUR) =  1.960
  10-YEAR STORM 60-MINUTE INTENSITY(INCH/HOUR) =  0.760
  100-YEAR STORM 10-MINUTE INTENSITY(INCH/HOUR) =  3.050
  100-YEAR STORM 60-MINUTE INTENSITY(INCH/HOUR) =  1.180
  SLOPE OF 10-YEAR INTENSITY-DURATION CURVE =  0.5287434
  SLOPE OF 100-YEAR INTENSITY-DURATION CURVE =  0.5299969
  COMPUTED RAINFALL INTENSITY DATA:
  STORM EVENT =  100.00   1-HOUR INTENSITY(INCH/HOUR) =   1.180
  SLOPE OF INTENSITY DURATION CURVE = 0.5300
  RCFC&WCD HYDROLOGY MANUAL "C"-VALUES USED FOR RATIONAL METHOD
  NOTE: COMPUTE CONFLUENCE VALUES ACCORDING TO RCFC&WCD HYDROLOGY MANUAL
        AND IGNORE OTHER CONFLUENCE COMBINATIONS FOR DOWNSTREAM ANALYSES
  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  =========  =================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0313 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*

************************************************************************
  FLOW PROCESS FROM NODE     10.00 TO NODE     11.00 IS CODE =  21
------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
========================================================================
         ASSUMED INITIAL SUBAREA UNIFORM
         DEVELOPMENT IS: UNDEVELOPED WITH POOR COVER
  TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   866.00
  UPSTREAM ELEVATION(FEET) =   1551.00
  DOWNSTREAM ELEVATION(FEET) =   1543.90
  ELEVATION DIFFERENCE(FEET) =      7.10
  TC = 0.533*[(  866.00**3)/(     7.10)]**.2 =   20.829
```

```
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.067
  UNDEVELOPED WATERSHED RUNOFF COEFFICIENT = .3797
  SOIL CLASSIFICATION IS "A"
  SUBAREA RUNOFF(CFS) =      7.47
  TOTAL AREA(ACRES) =      9.52   TOTAL RUNOFF(CFS) =      7.47
==============================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =        9.5  TC(MIN.) =     20.83
  PEAK FLOW RATE(CFS)   =       7.47
==============================================================================
==============================================================================
  END OF RATIONAL METHOD ANALYSIS
```

```
************************************************************************
          RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM BASED ON
        RIVERSIDE COUNTY FLOOD CONTROL & WATER CONSERVATION DISTRICT
                    (RCFC&WCD)  1978 HYDROLOGY MANUAL
         (c) Copyright 1982-2016 Advanced Engineering Software (aes)
                    (Rational Tabling Version 23.0)
                Release Date: 07/01/2016  License ID 1499

                        Analysis prepared by:




 ************************* DESCRIPTION OF STUDY *************************
* JD FIELD HEMET                                                       *
* PROPOSED 100 YEAR                                                    *
* 7/25/24 XO                                                           *
 ************************************************************************

  FILE NAME: JDH100P.DAT
  TIME/DATE OF STUDY: 13:18 07/25/2024
------------------------------------------------------------------------
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
------------------------------------------------------------------------
  USER SPECIFIED STORM EVENT(YEAR) =  100.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =   8.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 1.00
  10-YEAR STORM 10-MINUTE INTENSITY(INCH/HOUR) =  1.960
  10-YEAR STORM 60-MINUTE INTENSITY(INCH/HOUR) =  0.760
  100-YEAR STORM 10-MINUTE INTENSITY(INCH/HOUR) =  3.050
  100-YEAR STORM 60-MINUTE INTENSITY(INCH/HOUR) =  1.180
  SLOPE OF 10-YEAR INTENSITY-DURATION CURVE =  0.5287434
  SLOPE OF 100-YEAR INTENSITY-DURATION CURVE =  0.5299969
  COMPUTED RAINFALL INTENSITY DATA:
  STORM EVENT =  100.00   1-HOUR INTENSITY(INCH/HOUR) =   1.180
  SLOPE OF INTENSITY DURATION CURVE = 0.5300
  RCFC&WCD HYDROLOGY MANUAL "C"-VALUES USED FOR RATIONAL METHOD
  NOTE: COMPUTE CONFLUENCE VALUES ACCORDING TO RCFC&WCD HYDROLOGY MANUAL
        AND IGNORE OTHER CONFLUENCE COMBINATIONS FOR DOWNSTREAM ANALYSES
  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  =========  =================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0313 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*

************************************************************************
  FLOW PROCESS FROM NODE     10.00 TO NODE     11.00 IS CODE =  21
------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
========================================================================
         ASSUMED INITIAL SUBAREA UNIFORM
         DEVELOPMENT IS SINGLE FAMILY (1/4 ACRE)
  TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   121.00
  UPSTREAM ELEVATION(FEET) =   1551.30
  DOWNSTREAM ELEVATION(FEET) =   1547.90
  ELEVATION DIFFERENCE(FEET) =      3.40
  TC = 0.393*[(  121.00**3)/(     3.40)]**.2 =    5.462
```

```
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.203
  SINGLE-FAMILY(1/4 ACRE LOT) RUNOFF COEFFICIENT = .7188
  SOIL CLASSIFICATION IS "A"
  SUBAREA RUNOFF(CFS) =      0.54
  TOTAL AREA(ACRES) =      0.18   TOTAL RUNOFF(CFS) =      0.54

****************************************************************************
  FLOW PROCESS FROM NODE     11.00 TO NODE     12.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1544.10  DOWNSTREAM(FEET) =  1542.30
  FLOW LENGTH(FEET) =   267.30   MANNING'S N =  0.013
  DEPTH OF FLOW IN   9.0 INCH PIPE IS   4.0 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   2.90
  ESTIMATED PIPE DIAMETER(INCH) =   9.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       0.54
  PIPE TRAVEL TIME(MIN.) =   1.53    Tc(MIN.) =    7.00
  LONGEST FLOWPATH FROM NODE     10.00 TO NODE     12.00 =     388.30 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     12.00 TO NODE     12.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
  TIME OF CONCENTRATION(MIN.) =    7.00
  RAINFALL INTENSITY(INCH/HR) =   3.69
  TOTAL STREAM AREA(ACRES) =     0.18
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      0.54

****************************************************************************
  FLOW PROCESS FROM NODE     20.00 TO NODE     21.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
         ASSUMED INITIAL SUBAREA UNIFORM
         DEVELOPMENT IS SINGLE FAMILY (1/4 ACRE)
  TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   205.00
  UPSTREAM ELEVATION(FEET) =   1551.30
  DOWNSTREAM ELEVATION(FEET) =   1547.50
  ELEVATION DIFFERENCE(FEET) =      3.80
  TC = 0.393*[(  205.00**3)/(     3.80)]**.2 =    7.329
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.596
  SINGLE-FAMILY(1/4 ACRE LOT) RUNOFF COEFFICIENT = .7017
  SOIL CLASSIFICATION IS "A"
  SUBAREA RUNOFF(CFS) =      0.81
  TOTAL AREA(ACRES) =      0.32   TOTAL RUNOFF(CFS) =      0.81

****************************************************************************
  FLOW PROCESS FROM NODE     21.00 TO NODE     12.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1543.60  DOWNSTREAM(FEET) =  1542.30
  FLOW LENGTH(FEET) =    33.70   MANNING'S N =  0.013
  ESTIMATED PIPE DIAMETER(INCH) INCREASED TO  8.000
  DEPTH OF FLOW IN   8.0 INCH PIPE IS   3.2 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   6.18
  ESTIMATED PIPE DIAMETER(INCH) =   8.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       0.81
  PIPE TRAVEL TIME(MIN.) =   0.09    Tc(MIN.) =    7.42
  LONGEST FLOWPATH FROM NODE     20.00 TO NODE     12.00 =     238.70 FEET.

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

```
 FLOW PROCESS FROM NODE     12.00 TO NODE     12.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
 >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
 TIME OF CONCENTRATION(MIN.) =    7.42
 RAINFALL INTENSITY(INCH/HR) =   3.57
 TOTAL STREAM AREA(ACRES) =     0.32
 PEAK FLOW RATE(CFS) AT CONFLUENCE =      0.81

 ** CONFLUENCE DATA **
 STREAM     RUNOFF       Tc      INTENSITY      AREA
 NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
     1        0.54     7.00        3.686          0.18
     2        0.81     7.42        3.573          0.32

 ********************************WARNING*********************************
 IN THIS COMPUTER PROGRAM, THE CONFLUENCE VALUE USED IS BASED
 ON THE RCFC&WCD FORMULA OF PLATE D-1 AS DEFAULT VALUE. THIS FORMULA
 WILL NOT NECESSARILY RESULT IN THE MAXIMUM VALUE OF PEAK FLOW.
 ************************************************************************

 RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
 CONFLUENCE FORMULA USED FOR  2 STREAMS.

 ** PEAK FLOW RATE TABLE **
 STREAM     RUNOFF       Tc      INTENSITY
 NUMBER      (CFS)     (MIN.)   (INCH/HOUR)
     1        1.31     7.00       3.686
     2        1.33     7.42       3.573

 COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
 PEAK FLOW RATE(CFS) =       1.33   Tc(MIN.) =    7.42
 TOTAL AREA(ACRES) =        0.5
 LONGEST FLOWPATH FROM NODE     10.00 TO NODE     12.00 =     388.30 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     12.00 TO NODE     13.00 IS CODE =  31
----------------------------------------------------------------------------
 >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =  1542.30  DOWNSTREAM(FEET) =  1542.00
 FLOW LENGTH(FEET) =    40.00   MANNING'S N =  0.013
 DEPTH OF FLOW IN   9.0 INCH PIPE IS   6.9 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) =   3.69
 ESTIMATED PIPE DIAMETER(INCH) =   9.00    NUMBER OF PIPES =   1
 PIPE-FLOW(CFS) =       1.33
 PIPE TRAVEL TIME(MIN.) =   0.18    Tc(MIN.) =    7.60
 LONGEST FLOWPATH FROM NODE     10.00 TO NODE     13.00 =     428.30 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     13.00 TO NODE     13.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
 TIME OF CONCENTRATION(MIN.) =    7.60
 RAINFALL INTENSITY(INCH/HR) =   3.53
 TOTAL STREAM AREA(ACRES) =     0.50
 PEAK FLOW RATE(CFS) AT CONFLUENCE =      1.33

****************************************************************************
 FLOW PROCESS FROM NODE     30.00 TO NODE     31.00 IS CODE =  21
----------------------------------------------------------------------------
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
```

```
============================================================================
         ASSUMED INITIAL SUBAREA UNIFORM
         DEVELOPMENT IS SINGLE FAMILY (1/4 ACRE)
  TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
  INITIAL SUBAREA FLOW-LENGTH(FEET) =    88.00
  UPSTREAM ELEVATION(FEET) =   1548.70
  DOWNSTREAM ELEVATION(FEET) =   1547.80
  ELEVATION DIFFERENCE(FEET) =      0.90
  TC = 0.393*[(   88.00**3)/(     0.90)]**.2 =    5.886
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.039
  SINGLE-FAMILY(1/4 ACRE LOT) RUNOFF COEFFICIENT = .7145
  SOIL CLASSIFICATION IS "A"
  SUBAREA RUNOFF(CFS) =      1.04
  TOTAL AREA(ACRES) =      0.36   TOTAL RUNOFF(CFS) =      1.04

****************************************************************************
  FLOW PROCESS FROM NODE     31.00 TO NODE     13.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1543.60  DOWNSTREAM(FEET) =  1542.00
  FLOW LENGTH(FEET) =    83.80   MANNING'S N =  0.013
  DEPTH OF FLOW IN   9.0 INCH PIPE IS   4.3 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   5.05
  ESTIMATED PIPE DIAMETER(INCH) =   9.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       1.04
  PIPE TRAVEL TIME(MIN.) =   0.28    Tc(MIN.) =    6.16
  LONGEST FLOWPATH FROM NODE     30.00 TO NODE     13.00 =     171.80 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     13.00 TO NODE     13.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
  >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
  TIME OF CONCENTRATION(MIN.) =    6.16
  RAINFALL INTENSITY(INCH/HR) =   3.94
  TOTAL STREAM AREA(ACRES) =     0.36
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      1.04

  ** CONFLUENCE DATA **
  STREAM     RUNOFF       Tc      INTENSITY      AREA
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
      1        1.33     7.60        3.527          0.50
      2        1.04     6.16        3.942          0.36

 ********************************WARNING*********************************
  IN THIS COMPUTER PROGRAM, THE CONFLUENCE VALUE USED IS BASED
  ON THE RCFC&WCD FORMULA OF PLATE D-1 AS DEFAULT VALUE. THIS FORMULA
  WILL NOT NECESSARILY RESULT IN THE MAXIMUM VALUE OF PEAK FLOW.
 ************************************************************************

  RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
  CONFLUENCE FORMULA USED FOR  2 STREAMS.

  ** PEAK FLOW RATE TABLE **
  STREAM     RUNOFF      Tc      INTENSITY
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
      1        2.12     6.16       3.942
      2        2.26     7.60       3.527

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =       2.26   Tc(MIN.) =    7.60
  TOTAL AREA(ACRES) =        0.9
  LONGEST FLOWPATH FROM NODE     10.00 TO NODE     13.00 =     428.30 FEET.
```

```
****************************************************************************
  FLOW PROCESS FROM NODE     13.00 TO NODE     14.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1542.00  DOWNSTREAM(FEET) =  1538.70
  FLOW LENGTH(FEET) =   373.70   MANNING'S N =  0.013
  DEPTH OF FLOW IN  12.0 INCH PIPE IS   7.2 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   4.58
  ESTIMATED PIPE DIAMETER(INCH) =  12.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       2.26
  PIPE TRAVEL TIME(MIN.) =   1.36    Tc(MIN.) =    8.96
  LONGEST FLOWPATH FROM NODE     10.00 TO NODE     14.00 =     802.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     14.00 TO NODE     14.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
  TIME OF CONCENTRATION(MIN.) =    8.96
  RAINFALL INTENSITY(INCH/HR) =   3.23
  TOTAL STREAM AREA(ACRES) =     0.86
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      2.26

****************************************************************************
  FLOW PROCESS FROM NODE     40.00 TO NODE     41.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
         ASSUMED INITIAL SUBAREA UNIFORM
         DEVELOPMENT IS SINGLE FAMILY (1/4 ACRE)
  TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   269.00
  UPSTREAM ELEVATION(FEET) =   1548.70
  DOWNSTREAM ELEVATION(FEET) =   1546.20
  ELEVATION DIFFERENCE(FEET) =      2.50
  TC = 0.393*[(  269.00**3)/(     2.50)]**.2 =    9.380
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.155
  SINGLE-FAMILY(1/4 ACRE LOT) RUNOFF COEFFICIENT = .6871
  SOIL CLASSIFICATION IS "A"
  SUBAREA RUNOFF(CFS) =      1.17
  TOTAL AREA(ACRES) =      0.54   TOTAL RUNOFF(CFS) =      1.17

****************************************************************************
  FLOW PROCESS FROM NODE     41.00 TO NODE     42.00 IS CODE =  61
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STANDARD CURB SECTION USED)<<<<<
============================================================================
  UPSTREAM ELEVATION(FEET) = 1546.20  DOWNSTREAM ELEVATION(FEET) = 1543.70
  STREET LENGTH(FEET) =   403.50   CURB HEIGHT(INCHES) =  6.0
  STREET HALFWIDTH(FEET) = 50.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =   1.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.010
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.010

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  1
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0130
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       2.11
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.29
    HALFSTREET FLOOD WIDTH(FEET) =   14.95
```

```
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    1.69
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    0.49
  STREET FLOW TRAVEL TIME(MIN.) =   3.98   Tc(MIN.) =   13.36
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.616
  SINGLE-FAMILY(1/4 ACRE LOT) RUNOFF COEFFICIENT = .6660
  SOIL CLASSIFICATION IS "A"
  SUBAREA AREA(ACRES) =    1.07      SUBAREA RUNOFF(CFS) =    1.86
  TOTAL AREA(ACRES) =        1.6        PEAK FLOW RATE(CFS) =       3.04

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.31   HALFSTREET FLOOD WIDTH(FEET) =  17.36
  FLOW VELOCITY(FEET/SEC.) =  1.85   DEPTH*VELOCITY(FT*FT/SEC.) =   0.58
  LONGEST FLOWPATH FROM NODE     40.00 TO NODE     42.00 =     672.50 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     42.00 TO NODE     14.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1540.70  DOWNSTREAM(FEET) =  1538.70
  FLOW LENGTH(FEET) =   309.20   MANNING'S N =  0.013
  DEPTH OF FLOW IN  15.0 INCH PIPE IS   8.2 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   4.40
  ESTIMATED PIPE DIAMETER(INCH) =  15.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       3.04
  PIPE TRAVEL TIME(MIN.) =   1.17    Tc(MIN.) =   14.53
  LONGEST FLOWPATH FROM NODE     40.00 TO NODE     14.00 =     981.70 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     14.00 TO NODE     14.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
  >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
  TIME OF CONCENTRATION(MIN.) =   14.53
  RAINFALL INTENSITY(INCH/HR) =   2.50
  TOTAL STREAM AREA(ACRES) =     1.61
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      3.04

  ** CONFLUENCE DATA **
  STREAM     RUNOFF       Tc      INTENSITY      AREA
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
      1        2.26     8.96        3.232          0.86
      2        3.04    14.53        2.502          1.61

 ***********************************WARNING***********************************
  IN THIS COMPUTER PROGRAM, THE CONFLUENCE VALUE USED IS BASED
  ON THE RCFC&WCD FORMULA OF PLATE D-1 AS DEFAULT VALUE. THIS FORMULA
  WILL NOT NECESSARILY RESULT IN THE MAXIMUM VALUE OF PEAK FLOW.
 *****************************************************************************

  RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
  CONFLUENCE FORMULA USED FOR  2 STREAMS.

  ** PEAK FLOW RATE TABLE **
  STREAM     RUNOFF      Tc      INTENSITY
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
      1        4.14     8.96       3.232
      2        4.79    14.53       2.502

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =       4.79   Tc(MIN.) =   14.53
  TOTAL AREA(ACRES) =        2.5
  LONGEST FLOWPATH FROM NODE     40.00 TO NODE     14.00 =     981.70 FEET.

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

```
  FLOW PROCESS FROM NODE     14.00 TO NODE     80.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1538.70  DOWNSTREAM(FEET) =  1536.50
  FLOW LENGTH(FEET) =   249.40   MANNING'S N =  0.013
  DEPTH OF FLOW IN  15.0 INCH PIPE IS  10.0 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   5.48
  ESTIMATED PIPE DIAMETER(INCH) =  15.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       4.79
  PIPE TRAVEL TIME(MIN.) =   0.76    Tc(MIN.) =   15.29
  LONGEST FLOWPATH FROM NODE     40.00 TO NODE     80.00 =    1231.10 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     80.00 TO NODE     80.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  3
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
  TIME OF CONCENTRATION(MIN.) =   15.29
  RAINFALL INTENSITY(INCH/HR) =   2.44
  TOTAL STREAM AREA(ACRES) =     2.47
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      4.79

****************************************************************************
  FLOW PROCESS FROM NODE     50.00 TO NODE     51.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
         ASSUMED INITIAL SUBAREA UNIFORM
         DEVELOPMENT IS COMMERCIAL
  TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
  INITIAL SUBAREA FLOW-LENGTH(FEET) =  1000.00
  UPSTREAM ELEVATION(FEET) =   1548.70
  DOWNSTREAM ELEVATION(FEET) =   1542.00
  ELEVATION DIFFERENCE(FEET) =      6.70
  TC = 0.303*[( 1000.00**3)/(     6.70)]**.2 =   13.073
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.646
  COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8535
  SOIL CLASSIFICATION IS "A"
  SUBAREA RUNOFF(CFS) =     15.00
  TOTAL AREA(ACRES) =      6.64   TOTAL RUNOFF(CFS) =     15.00

****************************************************************************
  FLOW PROCESS FROM NODE     51.00 TO NODE     80.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   1542.00  DOWNSTREAM(FEET) =   1536.50
  CHANNEL LENGTH THRU SUBAREA(FEET) =    22.00   CHANNEL SLOPE =  0.2500
  CHANNEL BASE(FEET) =    0.00   "Z" FACTOR =  99.990
  MANNING'S FACTOR = 0.030   MAXIMUM DEPTH(FEET) =   0.50
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.638
  SINGLE-FAMILY(1/4 ACRE LOT) RUNOFF COEFFICIENT = .6670
  SOIL CLASSIFICATION IS "A"
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      15.30
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   4.81
  AVERAGE FLOW DEPTH(FEET) =   0.18   TRAVEL TIME(MIN.) =   0.08
  Tc(MIN.) =   13.15
  SUBAREA AREA(ACRES) =     0.34       SUBAREA RUNOFF(CFS) =    0.60
  TOTAL AREA(ACRES) =        7.0         PEAK FLOW RATE(CFS) =      15.59

  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  0.18   FLOW VELOCITY(FEET/SEC.) =   4.90
  LONGEST FLOWPATH FROM NODE     50.00 TO NODE     80.00 =    1022.00 FEET.
```

```
****************************************************************************
  FLOW PROCESS FROM NODE     80.00 TO NODE     80.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  3
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
  TIME OF CONCENTRATION(MIN.) =   13.15
  RAINFALL INTENSITY(INCH/HR) =   2.64
  TOTAL STREAM AREA(ACRES) =     6.98
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     15.59

****************************************************************************
  FLOW PROCESS FROM NODE     70.00 TO NODE     71.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
         ASSUMED INITIAL SUBAREA UNIFORM
         DEVELOPMENT IS SINGLE FAMILY (1/4 ACRE)
  TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   320.00
  UPSTREAM ELEVATION(FEET) =   1545.50
  DOWNSTREAM ELEVATION(FEET) =   1542.00
  ELEVATION DIFFERENCE(FEET) =      3.50
  TC = 0.393*[(  320.00**3)/(     3.50)]**.2 =    9.733
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.094
  SINGLE-FAMILY(1/4 ACRE LOT) RUNOFF COEFFICIENT = .6849
  SOIL CLASSIFICATION IS "A"
  SUBAREA RUNOFF(CFS) =      0.17
  TOTAL AREA(ACRES) =      0.08   TOTAL RUNOFF(CFS) =      0.17

****************************************************************************
  FLOW PROCESS FROM NODE     71.00 TO NODE     80.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   1542.00  DOWNSTREAM(FEET) =   1536.50
  CHANNEL LENGTH THRU SUBAREA(FEET) =    34.00   CHANNEL SLOPE =  0.1618
  CHANNEL BASE(FEET) =    0.00   "Z" FACTOR =  99.990
  MANNING'S FACTOR = 0.030   MAXIMUM DEPTH(FEET) =   0.50
  CHANNEL FLOW THRU SUBAREA(CFS) =       0.17
  FLOW VELOCITY(FEET/SEC.) =   1.36   FLOW DEPTH(FEET) =   0.04
  TRAVEL TIME(MIN.) =   0.42   Tc(MIN.) =   10.15
  LONGEST FLOWPATH FROM NODE     70.00 TO NODE     80.00 =     354.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     80.00 TO NODE     80.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
  >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  3
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  3 ARE:
  TIME OF CONCENTRATION(MIN.) =   10.15
  RAINFALL INTENSITY(INCH/HR) =   3.03
  TOTAL STREAM AREA(ACRES) =     0.08
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      0.17

  ** CONFLUENCE DATA **
  STREAM     RUNOFF       Tc      INTENSITY      AREA
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
      1        4.79    15.29        2.435          2.47
      2       15.59    13.15        2.638          6.98
      3        0.17    10.15        3.026          0.08

 ********************************WARNING**********************************
  IN THIS COMPUTER PROGRAM, THE CONFLUENCE VALUE USED IS BASED
  ON THE RCFC&WCD FORMULA OF PLATE D-1 AS DEFAULT VALUE. THIS FORMULA
```

```
  WILL NOT NECESSARILY RESULT IN THE MAXIMUM VALUE OF PEAK FLOW.
 ************************************************************************

  RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
  CONFLUENCE FORMULA USED FOR  3 STREAMS.

  ** PEAK FLOW RATE TABLE **
  STREAM     RUNOFF      Tc      INTENSITY
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
      1       15.38    10.15       3.026
      2       19.86    13.15       2.638
      3       19.32    15.29       2.435

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =      19.86   Tc(MIN.) =   13.15
  TOTAL AREA(ACRES) =        9.5
  LONGEST FLOWPATH FROM NODE     40.00 TO NODE     80.00 =    1231.10 FEET.
============================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =        9.5  TC(MIN.) =     13.15
  PEAK FLOW RATE(CFS)   =      19.86
============================================================================
============================================================================
  END OF RATIONAL METHOD ANALYSIS
```

```
************************************************************************
          RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM BASED ON
        RIVERSIDE COUNTY FLOOD CONTROL & WATER CONSERVATION DISTRICT
                    (RCFC&WCD)  1978 HYDROLOGY MANUAL
         (c) Copyright 1982-2016 Advanced Engineering Software (aes)
                    (Rational Tabling Version 23.0)
                Release Date: 07/01/2016  License ID 1499

                        Analysis prepared by:




 ************************* DESCRIPTION OF STUDY *************************
* JD FIELDS HEMET                                                      *
* EXISTING ONSITE WITH OFFSITE 10-YR                                   *
* XO 7-25-24                                                           *
 ************************************************************************

  FILE NAME: JD10OFF.DAT
  TIME/DATE OF STUDY: 15:33 07/25/2024
------------------------------------------------------------------------
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
------------------------------------------------------------------------
  USER SPECIFIED STORM EVENT(YEAR) =   10.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =   8.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 1.00
  10-YEAR STORM 10-MINUTE INTENSITY(INCH/HOUR) =  1.960
  10-YEAR STORM 60-MINUTE INTENSITY(INCH/HOUR) =  0.760
  100-YEAR STORM 10-MINUTE INTENSITY(INCH/HOUR) =  3.050
  100-YEAR STORM 60-MINUTE INTENSITY(INCH/HOUR) =  1.180
  SLOPE OF 10-YEAR INTENSITY-DURATION CURVE =  0.5287434
  SLOPE OF 100-YEAR INTENSITY-DURATION CURVE =  0.5299969
  COMPUTED RAINFALL INTENSITY DATA:
  STORM EVENT =   10.00   1-HOUR INTENSITY(INCH/HOUR) =   0.768
  SLOPE OF INTENSITY DURATION CURVE = 0.5287
  RCFC&WCD HYDROLOGY MANUAL "C"-VALUES USED FOR RATIONAL METHOD
  NOTE: COMPUTE CONFLUENCE VALUES ACCORDING TO RCFC&WCD HYDROLOGY MANUAL
        AND IGNORE OTHER CONFLUENCE COMBINATIONS FOR DOWNSTREAM ANALYSES
  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  =========  =================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0313 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*

************************************************************************
  FLOW PROCESS FROM NODE     10.00 TO NODE     11.00 IS CODE =  21
------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
========================================================================
         ASSUMED INITIAL SUBAREA UNIFORM
         DEVELOPMENT IS COMMERCIAL
  TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
  INITIAL SUBAREA FLOW-LENGTH(FEET) =  1000.00
  UPSTREAM ELEVATION(FEET) =   1552.30
  DOWNSTREAM ELEVATION(FEET) =   1545.20
  ELEVATION DIFFERENCE(FEET) =      7.10
  TC = 0.303*[( 1000.00**3)/(     7.10)]**.2 =   12.922
```

```
    10 YEAR RAINFALL INTENSITY(INCH/HOUR) =  1.729
  COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8441
  SOIL CLASSIFICATION IS "A"
  SUBAREA RUNOFF(CFS) =     14.56
  TOTAL AREA(ACRES) =      9.98   TOTAL RUNOFF(CFS) =     14.56

****************************************************************************
  FLOW PROCESS FROM NODE     11.00 TO NODE     12.00 IS CODE =  61
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STANDARD CURB SECTION USED)<<<<<
============================================================================
  UPSTREAM ELEVATION(FEET) = 1545.20  DOWNSTREAM ELEVATION(FEET) = 1542.50
  STREET LENGTH(FEET) =   817.00   CURB HEIGHT(INCHES) =  6.0
  STREET HALFWIDTH(FEET) = 20.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =   1.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.015
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.015

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  1
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.005
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0130
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      16.62
    ***STREET FLOWING FULL***
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.47
    HALFSTREET FLOOD WIDTH(FEET) =   20.00
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    2.16
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    1.02
  STREET FLOW TRAVEL TIME(MIN.) =   6.30   Tc(MIN.) =   19.22
    10 YEAR RAINFALL INTENSITY(INCH/HOUR) =  1.401
  UNDEVELOPED WATERSHED RUNOFF COEFFICIENT = .2978
  SOIL CLASSIFICATION IS "A"
  SUBAREA AREA(ACRES) =    9.59      SUBAREA RUNOFF(CFS) =    4.00
  TOTAL AREA(ACRES) =       19.6        PEAK FLOW RATE(CFS) =      18.56

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.48   HALFSTREET FLOOD WIDTH(FEET) =  20.00
  FLOW VELOCITY(FEET/SEC.) =  2.26   DEPTH*VELOCITY(FT*FT/SEC.) =   1.09
  LONGEST FLOWPATH FROM NODE     10.00 TO NODE     12.00 =    1817.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     12.00 TO NODE     12.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
    10 YEAR RAINFALL INTENSITY(INCH/HOUR) =  1.401
  COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8398
  SOIL CLASSIFICATION IS "A"
  SUBAREA AREA(ACRES) =    1.06   SUBAREA RUNOFF(CFS) =    1.25
  TOTAL AREA(ACRES) =       20.6   TOTAL RUNOFF(CFS) =      19.81
  TC(MIN.) =   19.22

****************************************************************************
  FLOW PROCESS FROM NODE     20.00 TO NODE     21.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
         ASSUMED INITIAL SUBAREA UNIFORM
         DEVELOPMENT IS: UNDEVELOPED WITH POOR COVER
  TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   714.00
  UPSTREAM ELEVATION(FEET) =   1554.40
  DOWNSTREAM ELEVATION(FEET) =   1549.20
  ELEVATION DIFFERENCE(FEET) =      5.20
  TC = 0.533*[(  714.00**3)/(     5.20)]**.2 =   19.743
```

```
   10 YEAR RAINFALL INTENSITY(INCH/HOUR) =  1.382
  UNDEVELOPED WATERSHED RUNOFF COEFFICIENT = .2950
  SOIL CLASSIFICATION IS "A"
  SUBAREA RUNOFF(CFS) =      0.32
  TOTAL AREA(ACRES) =      0.79   TOTAL RUNOFF(CFS) =      0.32

****************************************************************************
  FLOW PROCESS FROM NODE     21.00 TO NODE     22.00 IS CODE =  52
----------------------------------------------------------------------------
  >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   1549.20  DOWNSTREAM(FEET) =   1543.40
  CHANNEL LENGTH THRU SUBAREA(FEET) =   686.00   CHANNEL SLOPE =  0.0085
  NOTE: CHANNEL FLOW OF 1. CFS WAS ASSUMED IN VELOCITY ESTIMATION
  CHANNEL FLOW THRU SUBAREA(CFS) =       0.32
  FLOW VELOCITY(FEET/SEC) =   1.38 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
  TRAVEL TIME(MIN.) =   8.29   Tc(MIN.) =   28.03
  LONGEST FLOWPATH FROM NODE     20.00 TO NODE     22.00 =    1400.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     22.00 TO NODE     22.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
    10 YEAR RAINFALL INTENSITY(INCH/HOUR) =  1.148
  UNDEVELOPED WATERSHED RUNOFF COEFFICIENT = .2595
  SOIL CLASSIFICATION IS "A"
  SUBAREA AREA(ACRES) =    0.78   SUBAREA RUNOFF(CFS) =    0.23
  TOTAL AREA(ACRES) =        1.6   TOTAL RUNOFF(CFS) =       0.55
  TC(MIN.) =   28.03
============================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =        1.6  TC(MIN.) =     28.03
  PEAK FLOW RATE(CFS)   =       0.55
============================================================================
============================================================================
  END OF RATIONAL METHOD ANALYSIS
```

```
************************************************************************
          RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM BASED ON
        RIVERSIDE COUNTY FLOOD CONTROL & WATER CONSERVATION DISTRICT
                    (RCFC&WCD)  1978 HYDROLOGY MANUAL
         (c) Copyright 1982-2016 Advanced Engineering Software (aes)
                    (Rational Tabling Version 23.0)
                Release Date: 07/01/2016  License ID 1499

                        Analysis prepared by:




 ************************* DESCRIPTION OF STUDY *************************
* JD FIELDS HEMET                                                      *
* EXISTING ONSITE WITH OFFSITE 100-YR                                  *
* XO 7-25-24                                                           *
 ************************************************************************

  FILE NAME: JD100OFF.DAT
  TIME/DATE OF STUDY: 15:13 07/25/2024
------------------------------------------------------------------------
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
------------------------------------------------------------------------
  USER SPECIFIED STORM EVENT(YEAR) =  100.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =   8.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 1.00
  10-YEAR STORM 10-MINUTE INTENSITY(INCH/HOUR) =  1.960
  10-YEAR STORM 60-MINUTE INTENSITY(INCH/HOUR) =  0.760
  100-YEAR STORM 10-MINUTE INTENSITY(INCH/HOUR) =  3.050
  100-YEAR STORM 60-MINUTE INTENSITY(INCH/HOUR) =  1.180
  SLOPE OF 10-YEAR INTENSITY-DURATION CURVE =  0.5287434
  SLOPE OF 100-YEAR INTENSITY-DURATION CURVE =  0.5299969
  COMPUTED RAINFALL INTENSITY DATA:
  STORM EVENT =  100.00   1-HOUR INTENSITY(INCH/HOUR) =   1.180
  SLOPE OF INTENSITY DURATION CURVE = 0.5300
  RCFC&WCD HYDROLOGY MANUAL "C"-VALUES USED FOR RATIONAL METHOD
  NOTE: COMPUTE CONFLUENCE VALUES ACCORDING TO RCFC&WCD HYDROLOGY MANUAL
        AND IGNORE OTHER CONFLUENCE COMBINATIONS FOR DOWNSTREAM ANALYSES
  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  =========  =================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0313 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*

************************************************************************
  FLOW PROCESS FROM NODE     10.00 TO NODE     11.00 IS CODE =  21
------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
========================================================================
         ASSUMED INITIAL SUBAREA UNIFORM
         DEVELOPMENT IS COMMERCIAL
  TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
  INITIAL SUBAREA FLOW-LENGTH(FEET) =  1000.00
  UPSTREAM ELEVATION(FEET) =   1552.30
  DOWNSTREAM ELEVATION(FEET) =   1545.20
  ELEVATION DIFFERENCE(FEET) =      7.10
  TC = 0.303*[( 1000.00**3)/(     7.10)]**.2 =   12.922
```

```
 100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.663
 COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8536
 SOIL CLASSIFICATION IS "A"
 SUBAREA RUNOFF(CFS) =     22.68
 TOTAL AREA(ACRES) =      9.98   TOTAL RUNOFF(CFS) =     22.68

****************************************************************************
 FLOW PROCESS FROM NODE     11.00 TO NODE     12.00 IS CODE =  61
----------------------------------------------------------------------------
 >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>(STANDARD CURB SECTION USED)<<<<<
============================================================================
 UPSTREAM ELEVATION(FEET) = 1545.20  DOWNSTREAM ELEVATION(FEET) = 1542.50
 STREET LENGTH(FEET) =   817.00   CURB HEIGHT(INCHES) =  6.0
 STREET HALFWIDTH(FEET) = 20.00

 DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =   1.00
 INSIDE STREET CROSSFALL(DECIMAL) =  0.015
 OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.015

 SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  1
 STREET PARKWAY CROSSFALL(DECIMAL)  =  0.005
 Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0130
 Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

   **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      26.92
   ***STREET FLOWING FULL***
   STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
   STREET FLOW DEPTH(FEET) =  0.53
   HALFSTREET FLOOD WIDTH(FEET) =   26.89
   AVERAGE FLOW VELOCITY(FEET/SEC.) =    2.56
   PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    1.37
 STREET FLOW TRAVEL TIME(MIN.) =   5.32   Tc(MIN.) =   18.24
  100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.218
 UNDEVELOPED WATERSHED RUNOFF COEFFICIENT = .3952
 SOIL CLASSIFICATION IS "A"
 SUBAREA AREA(ACRES) =    9.59      SUBAREA RUNOFF(CFS) =    8.41
 TOTAL AREA(ACRES) =       19.6        PEAK FLOW RATE(CFS) =      31.09

 END OF SUBAREA STREET FLOW HYDRAULICS:
 DEPTH(FEET) = 0.56   HALFSTREET FLOOD WIDTH(FEET) =  31.29
 FLOW VELOCITY(FEET/SEC.) =  2.64   DEPTH*VELOCITY(FT*FT/SEC.) =   1.47
 LONGEST FLOWPATH FROM NODE     10.00 TO NODE     12.00 =    1817.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     12.00 TO NODE     12.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.218
 COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8495
 SOIL CLASSIFICATION IS "A"
 SUBAREA AREA(ACRES) =    1.06   SUBAREA RUNOFF(CFS) =    2.00
 TOTAL AREA(ACRES) =       20.6   TOTAL RUNOFF(CFS) =      33.08
 TC(MIN.) =   18.24

****************************************************************************
 FLOW PROCESS FROM NODE     20.00 TO NODE     21.00 IS CODE =  21
----------------------------------------------------------------------------
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
        ASSUMED INITIAL SUBAREA UNIFORM
        DEVELOPMENT IS: UNDEVELOPED WITH POOR COVER
 TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
 INITIAL SUBAREA FLOW-LENGTH(FEET) =   714.00
 UPSTREAM ELEVATION(FEET) =   1554.40
 DOWNSTREAM ELEVATION(FEET) =   1549.20
 ELEVATION DIFFERENCE(FEET) =      5.20
 TC = 0.533*[(  714.00**3)/(     5.20)]**.2 =   19.743
```

```
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.127
  UNDEVELOPED WATERSHED RUNOFF COEFFICIENT = .3859
  SOIL CLASSIFICATION IS "A"
  SUBAREA RUNOFF(CFS) =      0.65
  TOTAL AREA(ACRES) =      0.79   TOTAL RUNOFF(CFS) =      0.65

****************************************************************************
  FLOW PROCESS FROM NODE     21.00 TO NODE     22.00 IS CODE =  52
----------------------------------------------------------------------------
  >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   1549.20  DOWNSTREAM(FEET) =   1543.40
  CHANNEL LENGTH THRU SUBAREA(FEET) =   686.00   CHANNEL SLOPE =  0.0085
  NOTE: CHANNEL FLOW OF 1. CFS WAS ASSUMED IN VELOCITY ESTIMATION
  CHANNEL FLOW THRU SUBAREA(CFS) =       0.65
  FLOW VELOCITY(FEET/SEC) =   1.38 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
  TRAVEL TIME(MIN.) =   8.29   Tc(MIN.) =   28.03
  LONGEST FLOWPATH FROM NODE     20.00 TO NODE     22.00 =    1400.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     22.00 TO NODE     22.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  1.766
  UNDEVELOPED WATERSHED RUNOFF COEFFICIENT = .3456
  SOIL CLASSIFICATION IS "A"
  SUBAREA AREA(ACRES) =    0.78   SUBAREA RUNOFF(CFS) =    0.48
  TOTAL AREA(ACRES) =        1.6   TOTAL RUNOFF(CFS) =       1.12
  TC(MIN.) =   28.03
============================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =        1.6  TC(MIN.) =     28.03
  PEAK FLOW RATE(CFS)   =       1.12
============================================================================
============================================================================
  END OF RATIONAL METHOD ANALYSIS
```

```
************************************************************************
          RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM BASED ON
        RIVERSIDE COUNTY FLOOD CONTROL & WATER CONSERVATION DISTRICT
                    (RCFC&WCD)  1978 HYDROLOGY MANUAL
         (c) Copyright 1982-2016 Advanced Engineering Software (aes)
                    (Rational Tabling Version 23.0)
                Release Date: 07/01/2016  License ID 1499

                        Analysis prepared by:



 ************************* DESCRIPTION OF STUDY *************************
* JD FIELDS HEMET                                                      *
* 10-YEAR OFFSITE FLOWS TO CULVERT (POST-DEV)                          *
* XO 7/30/24                                                           *
 ************************************************************************

  FILE NAME: JD10O1.DAT
  TIME/DATE OF STUDY: 11:47 07/30/2024
------------------------------------------------------------------------
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
------------------------------------------------------------------------
  USER SPECIFIED STORM EVENT(YEAR) =   10.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =   8.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 1.00
  10-YEAR STORM 10-MINUTE INTENSITY(INCH/HOUR) =  1.960
  10-YEAR STORM 60-MINUTE INTENSITY(INCH/HOUR) =  0.760
  100-YEAR STORM 10-MINUTE INTENSITY(INCH/HOUR) =  3.050
  100-YEAR STORM 60-MINUTE INTENSITY(INCH/HOUR) =  1.180
  SLOPE OF 10-YEAR INTENSITY-DURATION CURVE =  0.5287434
  SLOPE OF 100-YEAR INTENSITY-DURATION CURVE =  0.5299969
  COMPUTED RAINFALL INTENSITY DATA:
  STORM EVENT =   10.00   1-HOUR INTENSITY(INCH/HOUR) =   0.768
  SLOPE OF INTENSITY DURATION CURVE = 0.5287
  RCFC&WCD HYDROLOGY MANUAL "C"-VALUES USED FOR RATIONAL METHOD
  NOTE: COMPUTE CONFLUENCE VALUES ACCORDING TO RCFC&WCD HYDROLOGY MANUAL
        AND IGNORE OTHER CONFLUENCE COMBINATIONS FOR DOWNSTREAM ANALYSES
  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  =========  =================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0313 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*

************************************************************************
  FLOW PROCESS FROM NODE     10.00 TO NODE     11.00 IS CODE =  21
------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
========================================================================
         ASSUMED INITIAL SUBAREA UNIFORM
         DEVELOPMENT IS COMMERCIAL
  TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
  INITIAL SUBAREA FLOW-LENGTH(FEET) =  1000.00
  UPSTREAM ELEVATION(FEET) =   1552.30
  DOWNSTREAM ELEVATION(FEET) =   1545.20
  ELEVATION DIFFERENCE(FEET) =      7.10
  TC = 0.303*[( 1000.00**3)/(     7.10)]**.2 =   12.922
```

```
   10 YEAR RAINFALL INTENSITY(INCH/HOUR) =  1.729
  COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8441
  SOIL CLASSIFICATION IS "A"
  SUBAREA RUNOFF(CFS) =     14.56
  TOTAL AREA(ACRES) =      9.98   TOTAL RUNOFF(CFS) =     14.56

****************************************************************************
  FLOW PROCESS FROM NODE     11.00 TO NODE     12.00 IS CODE =  61
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STANDARD CURB SECTION USED)<<<<<
============================================================================
  UPSTREAM ELEVATION(FEET) = 1545.20  DOWNSTREAM ELEVATION(FEET) = 1542.50
  STREET LENGTH(FEET) =   817.00   CURB HEIGHT(INCHES) =  6.0
  STREET HALFWIDTH(FEET) = 20.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =   1.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.015
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.015

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  1
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.005
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0130
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      15.18
    ***STREET FLOWING FULL***
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.46
    HALFSTREET FLOOD WIDTH(FEET) =   20.00
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    2.08
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    0.96
  STREET FLOW TRAVEL TIME(MIN.) =   6.54   Tc(MIN.) =   19.47
    10 YEAR RAINFALL INTENSITY(INCH/HOUR) =  1.392
  COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8396
  SOIL CLASSIFICATION IS "A"
  SUBAREA AREA(ACRES) =    1.06      SUBAREA RUNOFF(CFS) =    1.24
  TOTAL AREA(ACRES) =       11.0        PEAK FLOW RATE(CFS) =      15.80

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.46   HALFSTREET FLOOD WIDTH(FEET) =  20.00
  FLOW VELOCITY(FEET/SEC.) =  2.11   DEPTH*VELOCITY(FT*FT/SEC.) =   0.98
  LONGEST FLOWPATH FROM NODE     10.00 TO NODE     12.00 =    1817.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     12.00 TO NODE     22.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
  TIME OF CONCENTRATION(MIN.) =   19.47
  RAINFALL INTENSITY(INCH/HR) =   1.39
  TOTAL STREAM AREA(ACRES) =    11.04
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     15.80

****************************************************************************
  FLOW PROCESS FROM NODE     20.00 TO NODE     21.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
         ASSUMED INITIAL SUBAREA UNIFORM
         DEVELOPMENT IS: UNDEVELOPED WITH POOR COVER
  TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   714.00
  UPSTREAM ELEVATION(FEET) =   1554.40
  DOWNSTREAM ELEVATION(FEET) =   1549.20
  ELEVATION DIFFERENCE(FEET) =      5.20
  TC = 0.533*[(  714.00**3)/(     5.20)]**.2 =   19.743
```

```
   10 YEAR RAINFALL INTENSITY(INCH/HOUR) =  1.382
  UNDEVELOPED WATERSHED RUNOFF COEFFICIENT = .2950
  SOIL CLASSIFICATION IS "A"
  SUBAREA RUNOFF(CFS) =      0.32
  TOTAL AREA(ACRES) =      0.79   TOTAL RUNOFF(CFS) =      0.32

****************************************************************************
  FLOW PROCESS FROM NODE     21.00 TO NODE     22.00 IS CODE =  52
----------------------------------------------------------------------------
  >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   1549.20  DOWNSTREAM(FEET) =   1543.40
  CHANNEL LENGTH THRU SUBAREA(FEET) =   686.00   CHANNEL SLOPE =  0.0085
  NOTE: CHANNEL FLOW OF 1. CFS WAS ASSUMED IN VELOCITY ESTIMATION
  CHANNEL FLOW THRU SUBAREA(CFS) =       0.32
  FLOW VELOCITY(FEET/SEC) =   1.38 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
  TRAVEL TIME(MIN.) =   8.29   Tc(MIN.) =   28.03
  LONGEST FLOWPATH FROM NODE     20.00 TO NODE     22.00 =    1400.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     22.00 TO NODE     22.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
    10 YEAR RAINFALL INTENSITY(INCH/HOUR) =  1.148
  UNDEVELOPED WATERSHED RUNOFF COEFFICIENT = .2595
  SOIL CLASSIFICATION IS "A"
  SUBAREA AREA(ACRES) =    0.78   SUBAREA RUNOFF(CFS) =    0.23
  TOTAL AREA(ACRES) =        1.6   TOTAL RUNOFF(CFS) =       0.55
  TC(MIN.) =   28.03

****************************************************************************
  FLOW PROCESS FROM NODE     12.00 TO NODE     22.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
  >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
  TIME OF CONCENTRATION(MIN.) =   28.03
  RAINFALL INTENSITY(INCH/HR) =   1.15
  TOTAL STREAM AREA(ACRES) =     1.57
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      0.55

  ** CONFLUENCE DATA **
  STREAM     RUNOFF       Tc      INTENSITY      AREA
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
      1       15.80    19.47        1.392         11.04
      2        0.55    28.03        1.148          1.57

 ********************************WARNING*********************************
  IN THIS COMPUTER PROGRAM, THE CONFLUENCE VALUE USED IS BASED
  ON THE RCFC&WCD FORMULA OF PLATE D-1 AS DEFAULT VALUE. THIS FORMULA
  WILL NOT NECESSARILY RESULT IN THE MAXIMUM VALUE OF PEAK FLOW.
 ************************************************************************

  RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
  CONFLUENCE FORMULA USED FOR  2 STREAMS.

  ** PEAK FLOW RATE TABLE **
  STREAM     RUNOFF       Tc      INTENSITY
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)
      1       16.19    19.47        1.392
      2       13.58    28.03        1.148

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =      16.19   Tc(MIN.) =   19.47
  TOTAL AREA(ACRES) =       12.6
```

```
  LONGEST FLOWPATH FROM NODE     10.00 TO NODE     22.00 =    1817.00 FEET.
============================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =       12.6  TC(MIN.) =     19.47
  PEAK FLOW RATE(CFS)   =      16.19
============================================================================
============================================================================
  END OF RATIONAL METHOD ANALYSIS
```

```
************************************************************************
          RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM BASED ON
        RIVERSIDE COUNTY FLOOD CONTROL & WATER CONSERVATION DISTRICT
                    (RCFC&WCD)  1978 HYDROLOGY MANUAL
         (c) Copyright 1982-2016 Advanced Engineering Software (aes)
                    (Rational Tabling Version 23.0)
                Release Date: 07/01/2016  License ID 1499

                        Analysis prepared by:




 ************************* DESCRIPTION OF STUDY *************************
* JD FIELDS HEMET                                                      *
* 100-YEAR OFFSITE FLOWS TO CULVERT (POST-DEV)                         *
* XO 7/30/24                                                           *
 ************************************************************************

  FILE NAME: JD100O1.DAT
  TIME/DATE OF STUDY: 11:40 07/30/2024
------------------------------------------------------------------------
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
------------------------------------------------------------------------
  USER SPECIFIED STORM EVENT(YEAR) =  100.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =   8.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 1.00
  10-YEAR STORM 10-MINUTE INTENSITY(INCH/HOUR) =  1.960
  10-YEAR STORM 60-MINUTE INTENSITY(INCH/HOUR) =  0.760
  100-YEAR STORM 10-MINUTE INTENSITY(INCH/HOUR) =  3.050
  100-YEAR STORM 60-MINUTE INTENSITY(INCH/HOUR) =  1.180
  SLOPE OF 10-YEAR INTENSITY-DURATION CURVE =  0.5287434
  SLOPE OF 100-YEAR INTENSITY-DURATION CURVE =  0.5299969
  COMPUTED RAINFALL INTENSITY DATA:
  STORM EVENT =  100.00   1-HOUR INTENSITY(INCH/HOUR) =   1.180
  SLOPE OF INTENSITY DURATION CURVE = 0.5300
  RCFC&WCD HYDROLOGY MANUAL "C"-VALUES USED FOR RATIONAL METHOD
  NOTE: COMPUTE CONFLUENCE VALUES ACCORDING TO RCFC&WCD HYDROLOGY MANUAL
        AND IGNORE OTHER CONFLUENCE COMBINATIONS FOR DOWNSTREAM ANALYSES
  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  =========  =================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0313 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*

************************************************************************
  FLOW PROCESS FROM NODE     10.00 TO NODE     11.00 IS CODE =  21
------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
========================================================================
         ASSUMED INITIAL SUBAREA UNIFORM
         DEVELOPMENT IS COMMERCIAL
  TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
  INITIAL SUBAREA FLOW-LENGTH(FEET) =  1000.00
  UPSTREAM ELEVATION(FEET) =   1552.30
  DOWNSTREAM ELEVATION(FEET) =   1545.20
  ELEVATION DIFFERENCE(FEET) =      7.10
  TC = 0.303*[( 1000.00**3)/(     7.10)]**.2 =   12.922
```

```
 100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.663
 COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8536
 SOIL CLASSIFICATION IS "A"
 SUBAREA RUNOFF(CFS) =     22.68
 TOTAL AREA(ACRES) =      9.98   TOTAL RUNOFF(CFS) =     22.68

****************************************************************************
 FLOW PROCESS FROM NODE     11.00 TO NODE     12.00 IS CODE =  61
----------------------------------------------------------------------------
 >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>(STANDARD CURB SECTION USED)<<<<<
============================================================================
 UPSTREAM ELEVATION(FEET) = 1545.20  DOWNSTREAM ELEVATION(FEET) = 1542.50
 STREET LENGTH(FEET) =   817.00   CURB HEIGHT(INCHES) =  6.0
 STREET HALFWIDTH(FEET) = 20.00

 DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =   1.00
 INSIDE STREET CROSSFALL(DECIMAL) =  0.015
 OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.015

 SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  1
 STREET PARKWAY CROSSFALL(DECIMAL)  =  0.005
 Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0130
 Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

   **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      23.68
   ***STREET FLOWING FULL***
   STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
   STREET FLOW DEPTH(FEET) =  0.52
   HALFSTREET FLOOD WIDTH(FEET) =   23.23
   AVERAGE FLOW VELOCITY(FEET/SEC.) =    2.47
   PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    1.27
 STREET FLOW TRAVEL TIME(MIN.) =   5.52   Tc(MIN.) =   18.44
  100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.205
 COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8494
 SOIL CLASSIFICATION IS "A"
 SUBAREA AREA(ACRES) =    1.06      SUBAREA RUNOFF(CFS) =    1.99
 TOTAL AREA(ACRES) =       11.0        PEAK FLOW RATE(CFS) =      24.67

 END OF SUBAREA STREET FLOW HYDRAULICS:
 DEPTH(FEET) = 0.52   HALFSTREET FLOOD WIDTH(FEET) =  24.45
 FLOW VELOCITY(FEET/SEC.) =  2.50   DEPTH*VELOCITY(FT*FT/SEC.) =   1.30
 LONGEST FLOWPATH FROM NODE     10.00 TO NODE     12.00 =    1817.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     12.00 TO NODE     22.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
 TIME OF CONCENTRATION(MIN.) =   18.44
 RAINFALL INTENSITY(INCH/HR) =   2.21
 TOTAL STREAM AREA(ACRES) =    11.04
 PEAK FLOW RATE(CFS) AT CONFLUENCE =     24.67

****************************************************************************
 FLOW PROCESS FROM NODE     20.00 TO NODE     21.00 IS CODE =  21
----------------------------------------------------------------------------
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
         ASSUMED INITIAL SUBAREA UNIFORM
         DEVELOPMENT IS: UNDEVELOPED WITH POOR COVER
 TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
 INITIAL SUBAREA FLOW-LENGTH(FEET) =   714.00
 UPSTREAM ELEVATION(FEET) =   1554.40
 DOWNSTREAM ELEVATION(FEET) =   1549.20
 ELEVATION DIFFERENCE(FEET) =      5.20
 TC = 0.533*[(  714.00**3)/(     5.20)]**.2 =   19.743
```

```
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.127
  UNDEVELOPED WATERSHED RUNOFF COEFFICIENT = .3859
  SOIL CLASSIFICATION IS "A"
  SUBAREA RUNOFF(CFS) =      0.65
  TOTAL AREA(ACRES) =      0.79   TOTAL RUNOFF(CFS) =      0.65

****************************************************************************
  FLOW PROCESS FROM NODE     21.00 TO NODE     22.00 IS CODE =  52
----------------------------------------------------------------------------
  >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   1549.20  DOWNSTREAM(FEET) =   1543.40
  CHANNEL LENGTH THRU SUBAREA(FEET) =   686.00   CHANNEL SLOPE =  0.0085
  NOTE: CHANNEL FLOW OF 1. CFS WAS ASSUMED IN VELOCITY ESTIMATION
  CHANNEL FLOW THRU SUBAREA(CFS) =       0.65
  FLOW VELOCITY(FEET/SEC) =   1.38 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
  TRAVEL TIME(MIN.) =   8.29   Tc(MIN.) =   28.03
  LONGEST FLOWPATH FROM NODE     20.00 TO NODE     22.00 =    1400.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     22.00 TO NODE     22.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  1.766
  UNDEVELOPED WATERSHED RUNOFF COEFFICIENT = .3456
  SOIL CLASSIFICATION IS "A"
  SUBAREA AREA(ACRES) =    0.78   SUBAREA RUNOFF(CFS) =    0.48
  TOTAL AREA(ACRES) =        1.6   TOTAL RUNOFF(CFS) =       1.12
  TC(MIN.) =   28.03

****************************************************************************
  FLOW PROCESS FROM NODE     12.00 TO NODE     22.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
  >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
  TIME OF CONCENTRATION(MIN.) =   28.03
  RAINFALL INTENSITY(INCH/HR) =   1.77
  TOTAL STREAM AREA(ACRES) =     1.57
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      1.12

  ** CONFLUENCE DATA **
  STREAM     RUNOFF       Tc      INTENSITY      AREA
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
      1       24.67    18.44        2.205         11.04
      2        1.12    28.03        1.766          1.57

 ********************************WARNING*********************************
  IN THIS COMPUTER PROGRAM, THE CONFLUENCE VALUE USED IS BASED
  ON THE RCFC&WCD FORMULA OF PLATE D-1 AS DEFAULT VALUE. THIS FORMULA
  WILL NOT NECESSARILY RESULT IN THE MAXIMUM VALUE OF PEAK FLOW.
 ************************************************************************

  RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
  CONFLUENCE FORMULA USED FOR  2 STREAMS.

  ** PEAK FLOW RATE TABLE **
  STREAM     RUNOFF       Tc      INTENSITY
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)
      1       25.41    18.44        2.205
      2       20.88    28.03        1.766

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =      25.41   Tc(MIN.) =   18.44
  TOTAL AREA(ACRES) =       12.6
```

```
  LONGEST FLOWPATH FROM NODE     10.00 TO NODE     22.00 =    1817.00 FEET.
============================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =       12.6  TC(MIN.) =     18.44
  PEAK FLOW RATE(CFS)   =      25.41
============================================================================
============================================================================
  END OF RATIONAL METHOD ANALYSIS
```

Appendix G

Unit Hydrograph Analysis

U n i t H y d r o g r a p h A n a l y s i s

Study date 07/30/24 File: jdhu3100.out

++

Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6443

 English (in-lb) Input Units Used
 English Rainfall Data (Inches) Input Values Used

 English Units used in output format

JD FIELDS HEMET
UNIT HYDROGRAPH 100-YR
XO 7/30/24

Drainage Area = 9.52(Ac.) = 0.015 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 9.52(Ac.) = 0.015 Sq. Mi.
USER Entry of lag time in hours
Lag time = 0.175 Hr.
Lag time = 10.52 Min.
25% of lag time = 2.63 Min.
40% of lag time = 4.21 Min.
Unit time = 5.00 Min.
Duration of storm = 3 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
9.52	0.83	7.90

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
9.52	2.19	20.85

STORM EVENT (YEAR) = 100.00
Area Averaged 2-Year Rainfall = 0.830(In)
Area Averaged 100-Year Rainfall = 2.190(In)

Point rain (area averaged) = 2.190(In)
Areal adjustment factor = 100.00 %
Adjusted average point rain = 2.190(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
9.520	32.00	0.900

 Total Area Entered = 9.52(Ac.)

RI AMC2	RI AMC-3	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)

32.0	52.0	0.552	0.900	0.105	1.000	0.105
					Sum (F) =	0.105

Area averaged mean soil loss (F) (In/Hr) = 0.105
Minimum soil loss rate ((In/Hr)) = 0.052
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

U n i t H y d r o g r a p h
VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	47.538	5.669	0.544
2	0.167	95.075	24.055	2.308
3	0.250	142.613	28.918	2.775
4	0.333	190.150	13.910	1.335
5	0.417	237.688	7.056	0.677
6	0.500	285.225	4.864	0.467
7	0.583	332.763	3.541	0.340
8	0.667	380.300	2.725	0.261
9	0.750	427.838	2.044	0.196
10	0.833	475.376	1.557	0.149
11	0.917	522.913	1.392	0.134
12	1.000	570.451	1.079	0.104
13	1.083	617.988	0.873	0.084
14	1.167	665.526	0.692	0.066
15	1.250	713.063	0.518	0.050
16	1.333	760.601	0.475	0.046
17	1.417	808.138	0.632	0.061
		Sum = 100.000	Sum=	9.594

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max		Low	Effective (In/Hr)
1	0.08	1.30	0.342	0.105	(	0.307)	0.237
2	0.17	1.30	0.342	0.105	(	0.307)	0.237
3	0.25	1.10	0.289	0.105	(	0.260)	0.184
4	0.33	1.50	0.394	0.105	(	0.355)	0.289
5	0.42	1.50	0.394	0.105	(	0.355)	0.289
6	0.50	1.80	0.473	0.105	(	0.426)	0.368
7	0.58	1.50	0.394	0.105	(	0.355)	0.289
8	0.67	1.80	0.473	0.105	(	0.426)	0.368
9	0.75	1.80	0.473	0.105	(	0.426)	0.368
10	0.83	1.50	0.394	0.105	(	0.355)	0.289
11	0.92	1.60	0.420	0.105	(	0.378)	0.316
12	1.00	1.80	0.473	0.105	(	0.426)	0.368
13	1.08	2.20	0.578	0.105	(	0.520)	0.473
14	1.17	2.20	0.578	0.105	(	0.520)	0.473
15	1.25	2.20	0.578	0.105	(	0.520)	0.473
16	1.33	2.00	0.526	0.105	(	0.473)	0.421
17	1.42	2.60	0.683	0.105	(	0.615)	0.578
18	1.50	2.70	0.710	0.105	(	0.639)	0.605
19	1.58	2.40	0.631	0.105	(	0.568)	0.526
20	1.67	2.70	0.710	0.105	(	0.639)	0.605
21	1.75	3.30	0.867	0.105	(	0.780)	0.762
22	1.83	3.10	0.815	0.105	(	0.733)	0.710
23	1.92	2.90	0.762	0.105	(	0.686)	0.657
24	2.00	3.00	0.788	0.105	(	0.710)	0.684
25	2.08	3.10	0.815	0.105	(	0.733)	0.710
26	2.17	4.20	1.104	0.105	(	0.993)	0.999
27	2.25	5.00	1.314	0.105	(	1.183)	1.209

```
28   2.33     3.50      0.920          0.105    (  0.828)        0.815
29   2.42     6.80      1.787          0.105    (  1.608)        1.682
30   2.50     7.30      1.918          0.105    (  1.727)        1.814
31   2.58     8.20      2.155          0.105    (  1.939)        2.050
32   2.67     5.90      1.550          0.105    (  1.395)        1.446
33   2.75     2.00      0.526          0.105    (  0.473)        0.421
34   2.83     1.80      0.473          0.105    (  0.426)        0.368
35   2.92     1.80      0.473          0.105    (  0.426)        0.368
36   3.00     0.60      0.158          0.105    (  0.142)        0.053
              (Loss Rate Not Used)
   Sum =     100.0                                    Sum =    22.5
      Flood volume = Effective rainfall      1.88(In)
       times area       9.5(Ac.)/[(In)/(Ft.)] =       1.5(Ac.Ft)
      Total soil loss =      0.31(In)
      Total soil loss =     0.249(Ac.Ft)
      Total rainfall =      2.19(In)
      Flood volume =       64812.7 Cubic Feet
      Total soil loss =       10865.3 Cubic Feet
      ---------------------------------------------------------------------
       Peak flow rate of this hydrograph =     15.017(CFS)
      ---------------------------------------------------------------------
      +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                           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   5   Minute intervals ((CFS))

      ---------------------------------------------------------------------
Time(h+m) Volume Ac.Ft   Q(CFS)  0        5.0      10.0      15.0      20.0
-------------------------------------------------------------------------
  0+ 5       0.0009      0.13  Q         |         |         |         |
  0+10       0.0055      0.68  VQ        |         |         |         |
  0+15       0.0145      1.30  V Q       |         |         |         |
  0+20       0.0252      1.56  V  Q      |         |         |         |
  0+25       0.0377      1.81  |V Q      |         |         |         |
  0+30       0.0528      2.19  |V  Q     |         |         |         |
  0+35       0.0701      2.51  |V   Q    |         |         |         |
  0+40       0.0887      2.70  | V  Q    |         |         |         |
  0+45       0.1083      2.85  | V  Q    |         |         |         |
  0+50       0.1292      3.03  |  V  Q   |         |         |         |
  0+55       0.1499      3.00  |   VQ    |         |         |         |
  1+ 0       0.1702      2.95  |   VQ    |         |         |         |
  1+ 5       0.1919      3.16  |    VQ   |         |         |         |
  1+10       0.2165      3.57  |    V Q  |         |         |         |
  1+15       0.2437      3.95  |     VQ  |         |         |         |
  1+20       0.2720      4.11  |      VQ |         |         |         |
  1+25       0.3009      4.19  |       Q |         |         |         |
  1+30       0.3318      4.49  |       Q |         |         |         |
  1+35       0.3658      4.93  |        Q|         |         |         |
  1+40       0.4008      5.08  |         Q         |         |         |
  1+45       0.4371      5.28  |         QV        |         |         |
  1+50       0.4772      5.82  |         |QV       |         |         |
  1+55       0.5201      6.23  |         | QV      |         |         |
  2+ 0       0.5632      6.26  |         | Q  V    |         |         |
  2+ 5       0.6064      6.28  |         | Q   V   |         |         |
  2+10       0.6517      6.57  |         |  Q   V  |         |         |
  2+15       0.7033      7.49  |         |   Q   V |         |         |
  2+20       0.7628      8.64  |         |      Q  V         |         |
  2+25       0.8262      9.22  |         |       Q | V       |         |
  2+30       0.9000     10.71  |         |         |Q  V     |         |
  2+35       0.9918     13.33  |         |         |    Q    |         |
  2+40       1.0952     15.02  |         |         |       VQ          |
  2+45       1.1948     14.47  |         |         |      Q | V        |
  2+50       1.2719     11.19  |         |         | Q       |   V     |
  2+55       1.3265      7.92  |         |    Q    |         |    V    |
  3+ 0       1.3693      6.21  |         | Q       |         |     V   |
  3+ 5       1.4016      4.70  |        Q|         |         |      V  |
  3+10       1.4236      3.19  |     Q   |         |         |       V |
  3+15       1.4392      2.27  |   Q     |         |         |       V |
```

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    3+20       1.4511      1.72  |  Q      |         |         |        V|
    3+25       1.4604      1.35  | Q       |         |         |        V|
    3+30       1.4678      1.08  | Q       |         |         |        V|
    3+35       1.4735      0.83  |Q        |         |         |        V|
    3+40       1.4779      0.63  |Q        |         |         |        V|
    3+45       1.4814      0.51  |Q        |         |         |        V|
    3+50       1.4840      0.38  Q         |         |         |        V|
    3+55       1.4859      0.27  Q         |         |         |        V|
    4+ 0       1.4870      0.15  Q         |         |         |        V|
    4+ 5       1.4874      0.06  Q         |         |         |        V|
    4+10       1.4877      0.04  Q         |         |         |        V|
    4+15       1.4879      0.02  Q         |         |         |        V|
    4+20       1.4879      0.00  Q         |         |         |         V
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Appendix H

Basin Routing Analysis

FLOOD HYDROGRAPH ROUTING PROGRAM
Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2018
Study date: 07/31/24

JD FIELDS HEMET
100YR-3HR BASIN ROUTING
XO 7/31/24

Program License Serial Number 6443

******************** HYDROGRAPH INFORMATION **********************

From study/file name: JDHU3100.rte
*****************************HYDROGRAPH DATA*****************************
Number of intervals = 52
Time interval = 5.0 (Min.)
Maximum/Peak flow rate = 15.017 (CFS)
Total volume = 1.488 (Ac.Ft)
Status of hydrographs being held in storage
Stream 1 Stream 2 Stream 3 Stream 4 Stream 5
Peak (CFS) 0.000 0.000 0.000 0.000 0.000
Vol (Ac.Ft) 0.000 0.000 0.000 0.000 0.000
****

++
Process from Point/Station 10.000 to Point/Station 11.000
**** RETARDING BASIN ROUTING ****
_____

User entry of depth-outflow-storage data

Total number of inflow hydrograph intervals = 52
Hydrograph time unit = 5.000 (Min.)
Initial depth in storage basin = 0.00(Ft.)

Initial basin depth = 0.00 (Ft.)
Initial basin storage = 0.00 (Ac.Ft)
Initial basin outflow = 0.00 (CFS)

Depth vs. Storage and Depth vs. Discharge data:

Basin Depth (Ft.)	Storage (Ac.Ft)	Outflow (CFS)	(S-O*dt/2) (Ac.Ft)	(S+O*dt/2) (Ac.Ft)
0.000	0.000	0.000	0.000	0.000
0.001	0.001	0.249	0.000	0.002
6.000	0.510	0.249	0.509	0.511
9.500	0.511	0.249	0.510	0.512
10.000	0.560	0.428	0.559	0.561
11.000	0.690	0.428	0.689	0.691
12.000	0.840	0.428	0.839	0.841
13.000	1.030	0.428	1.029	1.031
14.000	1.240	0.428	1.239	1.241
15.000	1.490	0.428	1.489	1.491
15.500	1.630	0.428	1.629	1.631
16.000	1.840	0.428	1.839	1.841

16.100 1.890 0.428 1.889 1.891

Hydrograph Detention Basin Routing

Graph values: 'I'= unit inflow; 'O'=outflow at time shown

Time (Hours)	Inflow (CFS)	Outflow (CFS)	Storage (Ac.Ft)	.0 3.8 7.51 11.26 15.02	Depth (Ft.)
0.083	0.13	0.06	0.000	O	0.00
0.167	0.68	0.25	0.002	OI	0.01
0.250	1.30	0.25	0.007	O I	0.07
0.333	1.56	0.25	0.015	O I	0.17
0.417	1.81	0.25	0.025	O I	0.28
0.500	2.19	0.25	0.037	O I	0.43
0.583	2.51	0.25	0.052	O I	0.60
0.667	2.70	0.25	0.068	O I	0.79
0.750	2.85	0.25	0.085	O I	0.99
0.833	3.03	0.25	0.104	O I	1.21
0.917	3.00	0.25	0.123	O I	1.44
1.000	2.95	0.25	0.142	O I	1.66
1.083	3.16	0.25	0.161	O I	1.89
1.167	3.57	0.25	0.182	O I	2.14
1.250	3.95	0.25	0.207	O I	2.42
1.333	4.11	0.25	0.233	O I	2.73
1.417	4.19	0.25	0.259	O I	3.05
1.500	4.49	0.25	0.288	O I	3.38
1.583	4.93	0.25	0.318	O I	3.74
1.667	5.08	0.25	0.351	O I	4.13
1.750	5.28	0.25	0.385	O I	4.53
1.833	5.82	0.25	0.422	O I	4.96
1.917	6.23	0.25	0.461	O I	5.43
2.000	6.26	0.25	0.503	O I	5.91
2.083	6.28	0.37	0.544	O I	9.83
2.167	6.57	0.43	0.585	O I	10.19
2.250	7.49	0.43	0.631	O I	10.54
2.333	8.64	0.43	0.683	O I	10.95
2.417	9.22	0.43	0.742	O I	11.35
2.500	10.71	0.43	0.807	O I	11.78
2.583	13.33	0.43	0.887	O I	12.25
2.667	15.02	0.43	0.982	O I	12.75
2.750	14.47	0.43	1.081	O I	13.24
2.833	11.19	0.43	1.166	O I	13.65
2.917	7.92	0.43	1.229	O I	13.95
3.000	6.21	0.43	1.275	O I	14.14
3.083	4.70	0.43	1.309	O I	14.28
3.167	3.19	0.43	1.333	O I	14.37
3.250	2.27	0.43	1.349	O I	14.44
3.333	1.72	0.43	1.360	O I	14.48
3.417	1.35	0.43	1.368	O I	14.51
3.500	1.08	0.43	1.373	O I	14.53
3.583	0.83	0.43	1.377	OI	14.55
3.667	0.63	0.43	1.379	OI	14.56
3.750	0.51	0.43	1.380	OI	14.56
3.833	0.38	0.43	1.380	O	14.56
3.917	0.27	0.43	1.379	O	14.56
4.000	0.15	0.43	1.378	O	14.55
4.083	0.06	0.43	1.376	O	14.54
4.167	0.04	0.43	1.373	O	14.53
4.250	0.02	0.43	1.370	O	14.52
4.333	0.00	0.43	1.367	O	14.51
4.417	0.00	0.43	1.364	O	14.50
4.500	0.00	0.43	1.361	O	14.49
4.583	0.00	0.43	1.359	O	14.47
4.667	0.00	0.43	1.356	O	14.46
4.750	0.00	0.43	1.353	O	14.45
4.833	0.00	0.43	1.350	O	14.44
4.917	0.00	0.43	1.347	O	14.43
5.000	0.00	0.43	1.344	O	14.42

5.083	0.00	0.43	1.341	O				14.40
5.167	0.00	0.43	1.338	O				14.39
5.250	0.00	0.43	1.335	O				14.38
5.333	0.00	0.43	1.332	O				14.37
5.417	0.00	0.43	1.329	O				14.36
5.500	0.00	0.43	1.326	O				14.34
5.583	0.00	0.43	1.323	O				14.33
5.667	0.00	0.43	1.320	O				14.32
5.750	0.00	0.43	1.317	O				14.31
5.833	0.00	0.43	1.314	O				14.30
5.917	0.00	0.43	1.311	O				14.29
6.000	0.00	0.43	1.308	O				14.27
6.083	0.00	0.43	1.305	O				14.26
6.167	0.00	0.43	1.303	O				14.25
6.250	0.00	0.43	1.300	O				14.24
6.333	0.00	0.43	1.297	O				14.23
6.417	0.00	0.43	1.294	O				14.21
6.500	0.00	0.43	1.291	O				14.20
6.583	0.00	0.43	1.288	O				14.19
6.667	0.00	0.43	1.285	O				14.18
6.750	0.00	0.43	1.282	O				14.17
6.833	0.00	0.43	1.279	O				14.16
6.917	0.00	0.43	1.276	O				14.14
7.000	0.00	0.43	1.273	O				14.13
7.083	0.00	0.43	1.270	O				14.12
7.167	0.00	0.43	1.267	O				14.11
7.250	0.00	0.43	1.264	O				14.10
7.333	0.00	0.43	1.261	O				14.09
7.417	0.00	0.43	1.258	O				14.07
7.500	0.00	0.43	1.255	O				14.06
7.583	0.00	0.43	1.252	O				14.05
7.667	0.00	0.43	1.249	O				14.04
7.750	0.00	0.43	1.247	O				14.03
7.833	0.00	0.43	1.244	O				14.01
7.917	0.00	0.43	1.241	O				14.00
8.000	0.00	0.43	1.238	O				13.99
8.083	0.00	0.43	1.235	O				13.97
8.167	0.00	0.43	1.232	O				13.96
8.250	0.00	0.43	1.229	O				13.95
8.333	0.00	0.43	1.226	O				13.93
8.417	0.00	0.43	1.223	O				13.92
8.500	0.00	0.43	1.220	O				13.90
8.583	0.00	0.43	1.217	O				13.89
8.667	0.00	0.43	1.214	O				13.88
8.750	0.00	0.43	1.211	O				13.86
8.833	0.00	0.43	1.208	O				13.85
8.917	0.00	0.43	1.205	O				13.83
9.000	0.00	0.43	1.202	O				13.82
9.083	0.00	0.43	1.199	O				13.81
9.167	0.00	0.43	1.196	O				13.79
9.250	0.00	0.43	1.193	O				13.78
9.333	0.00	0.43	1.191	O				13.76
9.417	0.00	0.43	1.188	O				13.75
9.500	0.00	0.43	1.185	O				13.74
9.583	0.00	0.43	1.182	O				13.72
9.667	0.00	0.43	1.179	O				13.71
9.750	0.00	0.43	1.176	O				13.69
9.833	0.00	0.43	1.173	O				13.68
9.917	0.00	0.43	1.170	O				13.67
10.000	0.00	0.43	1.167	O				13.65
10.083	0.00	0.43	1.164	O				13.64
10.167	0.00	0.43	1.161	O				13.62
10.250	0.00	0.43	1.158	O				13.61
10.333	0.00	0.43	1.155	O				13.60
10.417	0.00	0.43	1.152	O				13.58
10.500	0.00	0.43	1.149	O				13.57
10.583	0.00	0.43	1.146	O				13.55
10.667	0.00	0.43	1.143	O				13.54
10.750	0.00	0.43	1.140	O				13.53

10.833	0.00	0.43	1.137	O	|	|	|	13.51
10.917	0.00	0.43	1.135	O	|	|	|	13.50
11.000	0.00	0.43	1.132	O	|	|	|	13.48
11.083	0.00	0.43	1.129	O	|	|	|	13.47
11.167	0.00	0.43	1.126	O	|	|	|	13.46
11.250	0.00	0.43	1.123	O	|	|	|	13.44
11.333	0.00	0.43	1.120	O	|	|	|	13.43
11.417	0.00	0.43	1.117	O	|	|	|	13.41
11.500	0.00	0.43	1.114	O	|	|	|	13.40
11.583	0.00	0.43	1.111	O	|	|	|	13.39
11.667	0.00	0.43	1.108	O	|	|	|	13.37
11.750	0.00	0.43	1.105	O	|	|	|	13.36
11.833	0.00	0.43	1.102	O	|	|	|	13.34
11.917	0.00	0.43	1.099	O	|	|	|	13.33
12.000	0.00	0.43	1.096	O	|	|	|	13.32
12.083	0.00	0.43	1.093	O	|	|	|	13.30
12.167	0.00	0.43	1.090	O	|	|	|	13.29
12.250	0.00	0.43	1.087	O	|	|	|	13.27
12.333	0.00	0.43	1.084	O	|	|	|	13.26
12.417	0.00	0.43	1.081	O	|	|	|	13.25
12.500	0.00	0.43	1.079	O	|	|	|	13.23
12.583	0.00	0.43	1.076	O	|	|	|	13.22
12.667	0.00	0.43	1.073	O	|	|	|	13.20
12.750	0.00	0.43	1.070	O	|	|	|	13.19
12.833	0.00	0.43	1.067	O	|	|	|	13.17
12.917	0.00	0.43	1.064	O	|	|	|	13.16
13.000	0.00	0.43	1.061	O	|	|	|	13.15
13.083	0.00	0.43	1.058	O	|	|	|	13.13
13.167	0.00	0.43	1.055	O	|	|	|	13.12
13.250	0.00	0.43	1.052	O	|	|	|	13.10
13.333	0.00	0.43	1.049	O	|	|	|	13.09
13.417	0.00	0.43	1.046	O	|	|	|	13.08
13.500	0.00	0.43	1.043	O	|	|	|	13.06
13.583	0.00	0.43	1.040	O	|	|	|	13.05
13.667	0.00	0.43	1.037	O	|	|	|	13.03
13.750	0.00	0.43	1.034	O	|	|	|	13.02
13.833	0.00	0.43	1.031	O	|	|	|	13.01
13.917	0.00	0.43	1.028	O	|	|	|	12.99
14.000	0.00	0.43	1.025	O	|	|	|	12.98
14.083	0.00	0.43	1.023	O	|	|	|	12.96
14.167	0.00	0.43	1.020	O	|	|	|	12.95
14.250	0.00	0.43	1.017	O	|	|	|	12.93
14.333	0.00	0.43	1.014	O	|	|	|	12.91
14.417	0.00	0.43	1.011	O	|	|	|	12.90
14.500	0.00	0.43	1.008	O	|	|	|	12.88
14.583	0.00	0.43	1.005	O	|	|	|	12.87
14.667	0.00	0.43	1.002	O	|	|	|	12.85
14.750	0.00	0.43	0.999	O	|	|	|	12.84
14.833	0.00	0.43	0.996	O	|	|	|	12.82
14.917	0.00	0.43	0.993	O	|	|	|	12.81
15.000	0.00	0.43	0.990	O	|	|	|	12.79
15.083	0.00	0.43	0.987	O	|	|	|	12.77
15.167	0.00	0.43	0.984	O	|	|	|	12.76
15.250	0.00	0.43	0.981	O	|	|	|	12.74
15.333	0.00	0.43	0.978	O	|	|	|	12.73
15.417	0.00	0.43	0.975	O	|	|	|	12.71
15.500	0.00	0.43	0.972	O	|	|	|	12.70
15.583	0.00	0.43	0.969	O	|	|	|	12.68
15.667	0.00	0.43	0.967	O	|	|	|	12.67
15.750	0.00	0.43	0.964	O	|	|	|	12.65
15.833	0.00	0.43	0.961	O	|	|	|	12.63
15.917	0.00	0.43	0.958	O	|	|	|	12.62
16.000	0.00	0.43	0.955	O	|	|	|	12.60
16.083	0.00	0.43	0.952	O	|	|	|	12.59
16.167	0.00	0.43	0.949	O	|	|	|	12.57
16.250	0.00	0.43	0.946	O	|	|	|	12.56
16.333	0.00	0.43	0.943	O	|	|	|	12.54
16.417	0.00	0.43	0.940	O	|	|	|	12.53
16.500	0.00	0.43	0.937	O	|	|	|	12.51

16.583	0.00	0.43	0.934	O	|	|	|	|	12.50
16.667	0.00	0.43	0.931	O	|	|	|	|	12.48
16.750	0.00	0.43	0.928	O	|	|	|	|	12.46
16.833	0.00	0.43	0.925	O	|	|	|	|	12.45
16.917	0.00	0.43	0.922	O	|	|	|	|	12.43
17.000	0.00	0.43	0.919	O	|	|	|	|	12.42
17.083	0.00	0.43	0.916	O	|	|	|	|	12.40
17.167	0.00	0.43	0.913	O	|	|	|	|	12.39
17.250	0.00	0.43	0.911	O	|	|	|	|	12.37
17.333	0.00	0.43	0.908	O	|	|	|	|	12.36
17.417	0.00	0.43	0.905	O	|	|	|	|	12.34
17.500	0.00	0.43	0.902	O	|	|	|	|	12.32
17.583	0.00	0.43	0.899	O	|	|	|	|	12.31
17.667	0.00	0.43	0.896	O	|	|	|	|	12.29
17.750	0.00	0.43	0.893	O	|	|	|	|	12.28
17.833	0.00	0.43	0.890	O	|	|	|	|	12.26
17.917	0.00	0.43	0.887	O	|	|	|	|	12.25
18.000	0.00	0.43	0.884	O	|	|	|	|	12.23
18.083	0.00	0.43	0.881	O	|	|	|	|	12.22
18.167	0.00	0.43	0.878	O	|	|	|	|	12.20
18.250	0.00	0.43	0.875	O	|	|	|	|	12.18
18.333	0.00	0.43	0.872	O	|	|	|	|	12.17
18.417	0.00	0.43	0.869	O	|	|	|	|	12.15
18.500	0.00	0.43	0.866	O	|	|	|	|	12.14
18.583	0.00	0.43	0.863	O	|	|	|	|	12.12
18.667	0.00	0.43	0.860	O	|	|	|	|	12.11
18.750	0.00	0.43	0.857	O	|	|	|	|	12.09
18.833	0.00	0.43	0.854	O	|	|	|	|	12.08
18.917	0.00	0.43	0.852	O	|	|	|	|	12.06
19.000	0.00	0.43	0.849	O	|	|	|	|	12.05
19.083	0.00	0.43	0.846	O	|	|	|	|	12.03
19.167	0.00	0.43	0.843	O	|	|	|	|	12.01
19.250	0.00	0.43	0.840	O	|	|	|	|	12.00
19.333	0.00	0.43	0.837	O	|	|	|	|	11.98
19.417	0.00	0.43	0.834	O	|	|	|	|	11.96
19.500	0.00	0.43	0.831	O	|	|	|	|	11.94
19.583	0.00	0.43	0.828	O	|	|	|	|	11.92
19.667	0.00	0.43	0.825	O	|	|	|	|	11.90
19.750	0.00	0.43	0.822	O	|	|	|	|	11.88
19.833	0.00	0.43	0.819	O	|	|	|	|	11.86
19.917	0.00	0.43	0.816	O	|	|	|	|	11.84
20.000	0.00	0.43	0.813	O	|	|	|	|	11.82
20.083	0.00	0.43	0.810	O	|	|	|	|	11.80
20.167	0.00	0.43	0.807	O	|	|	|	|	11.78
20.250	0.00	0.43	0.804	O	|	|	|	|	11.76
20.333	0.00	0.43	0.801	O	|	|	|	|	11.74
20.417	0.00	0.43	0.798	O	|	|	|	|	11.72
20.500	0.00	0.43	0.796	O	|	|	|	|	11.70
20.583	0.00	0.43	0.793	O	|	|	|	|	11.68
20.667	0.00	0.43	0.790	O	|	|	|	|	11.66
20.750	0.00	0.43	0.787	O	|	|	|	|	11.64
20.833	0.00	0.43	0.784	O	|	|	|	|	11.63
20.917	0.00	0.43	0.781	O	|	|	|	|	11.61
21.000	0.00	0.43	0.778	O	|	|	|	|	11.59
21.083	0.00	0.43	0.775	O	|	|	|	|	11.57
21.167	0.00	0.43	0.772	O	|	|	|	|	11.55
21.250	0.00	0.43	0.769	O	|	|	|	|	11.53
21.333	0.00	0.43	0.766	O	|	|	|	|	11.51
21.417	0.00	0.43	0.763	O	|	|	|	|	11.49
21.500	0.00	0.43	0.760	O	|	|	|	|	11.47
21.583	0.00	0.43	0.757	O	|	|	|	|	11.45
21.667	0.00	0.43	0.754	O	|	|	|	|	11.43
21.750	0.00	0.43	0.751	O	|	|	|	|	11.41
21.833	0.00	0.43	0.748	O	|	|	|	|	11.39
21.917	0.00	0.43	0.745	O	|	|	|	|	11.37
22.000	0.00	0.43	0.742	O	|	|	|	|	11.35
22.083	0.00	0.43	0.740	O	|	|	|	|	11.33
22.167	0.00	0.43	0.737	O	|	|	|	|	11.31
22.250	0.00	0.43	0.734	O	|	|	|	|	11.29

22.333	0.00	0.43	0.731	O				11.27
22.417	0.00	0.43	0.728	O				11.25
22.500	0.00	0.43	0.725	O				11.23
22.583	0.00	0.43	0.722	O				11.21
22.667	0.00	0.43	0.719	O				11.19
22.750	0.00	0.43	0.716	O				11.17
22.833	0.00	0.43	0.713	O				11.15
22.917	0.00	0.43	0.710	O				11.13
23.000	0.00	0.43	0.707	O				11.11
23.083	0.00	0.43	0.704	O				11.09
23.167	0.00	0.43	0.701	O				11.07
23.250	0.00	0.43	0.698	O				11.06
23.333	0.00	0.43	0.695	O				11.04
23.417	0.00	0.43	0.692	O				11.02
23.500	0.00	0.43	0.689	O				11.00
23.583	0.00	0.43	0.686	O				10.97
23.667	0.00	0.43	0.684	O				10.95
23.750	0.00	0.43	0.681	O				10.93
23.833	0.00	0.43	0.678	O				10.90
23.917	0.00	0.43	0.675	O				10.88
24.000	0.00	0.43	0.672	O				10.86
24.083	0.00	0.43	0.669	O				10.84
24.167	0.00	0.43	0.666	O				10.81
24.250	0.00	0.43	0.663	O				10.79
24.333	0.00	0.43	0.660	O				10.77
24.417	0.00	0.43	0.657	O				10.75
24.500	0.00	0.43	0.654	O				10.72
24.583	0.00	0.43	0.651	O				10.70
24.667	0.00	0.43	0.648	O				10.68
24.750	0.00	0.43	0.645	O				10.66
24.833	0.00	0.43	0.642	O				10.63
24.917	0.00	0.43	0.639	O				10.61
25.000	0.00	0.43	0.636	O				10.59
25.083	0.00	0.43	0.633	O				10.56
25.167	0.00	0.43	0.630	O				10.54
25.250	0.00	0.43	0.628	O				10.52
25.333	0.00	0.43	0.625	O				10.50
25.417	0.00	0.43	0.622	O				10.47
25.500	0.00	0.43	0.619	O				10.45
25.583	0.00	0.43	0.616	O				10.43
25.667	0.00	0.43	0.613	O				10.41
25.750	0.00	0.43	0.610	O				10.38
25.833	0.00	0.43	0.607	O				10.36
25.917	0.00	0.43	0.604	O				10.34
26.000	0.00	0.43	0.601	O				10.32
26.083	0.00	0.43	0.598	O				10.29
26.167	0.00	0.43	0.595	O				10.27
26.250	0.00	0.43	0.592	O				10.25
26.333	0.00	0.43	0.589	O				10.22
26.417	0.00	0.43	0.586	O				10.20
26.500	0.00	0.43	0.583	O				10.18
26.583	0.00	0.43	0.580	O				10.16
26.667	0.00	0.43	0.577	O				10.13
26.750	0.00	0.43	0.574	O				10.11
26.833	0.00	0.43	0.572	O				10.09
26.917	0.00	0.43	0.569	O				10.07
27.000	0.00	0.43	0.566	O				10.04
27.083	0.00	0.43	0.563	O				10.02
27.167	0.00	0.43	0.560	O				10.00
27.250	0.00	0.42	0.557	O				9.97
27.333	0.00	0.41	0.554	O				9.94
27.417	0.00	0.40	0.551	O				9.91
27.500	0.00	0.39	0.549	O				9.88
27.583	0.00	0.38	0.546	O				9.86
27.667	0.00	0.37	0.543	O				9.83
27.750	0.00	0.36	0.541	O				9.80
27.833	0.00	0.35	0.538	O				9.78
27.917	0.00	0.34	0.536	O				9.76
28.000	0.00	0.33	0.534	O				9.73

28.083	0.00	0.32	0.531	O	|	|	|	9.71
28.167	0.00	0.32	0.529	O	|	|	|	9.69
28.250	0.00	0.31	0.527	O	|	|	|	9.66
28.333	0.00	0.30	0.525	O	|	|	|	9.64
28.417	0.00	0.29	0.523	O	|	|	|	9.62
28.500	0.00	0.29	0.521	O	|	|	|	9.60
28.583	0.00	0.28	0.519	O	|	|	|	9.58
28.667	0.00	0.27	0.517	O	|	|	|	9.56
28.750	0.00	0.26	0.515	O	|	|	|	9.54
28.833	0.00	0.26	0.514	O	|	|	|	9.53
28.917	0.00	0.25	0.512	O	|	|	|	9.51
29.000	0.00	0.25	0.510	O	|	|	|	6.12
29.083	0.00	0.25	0.508	O	|	|	|	5.98
29.167	0.00	0.25	0.507	O	|	|	|	5.96
29.250	0.00	0.25	0.505	O	|	|	|	5.94
29.333	0.00	0.25	0.503	O	|	|	|	5.92
29.417	0.00	0.25	0.501	O	|	|	|	5.90
29.500	0.00	0.25	0.500	O	|	|	|	5.88
29.583	0.00	0.25	0.498	O	|	|	|	5.86
29.667	0.00	0.25	0.496	O	|	|	|	5.84
29.750	0.00	0.25	0.495	O	|	|	|	5.82
29.833	0.00	0.25	0.493	O	|	|	|	5.80
29.917	0.00	0.25	0.491	O	|	|	|	5.78
30.000	0.00	0.25	0.489	O	|	|	|	5.76
30.083	0.00	0.25	0.488	O	|	|	|	5.74
30.167	0.00	0.25	0.486	O	|	|	|	5.72
30.250	0.00	0.25	0.484	O	|	|	|	5.70
30.333	0.00	0.25	0.483	O	|	|	|	5.68
30.417	0.00	0.25	0.481	O	|	|	|	5.66
30.500	0.00	0.25	0.479	O	|	|	|	5.64
30.583	0.00	0.25	0.477	O	|	|	|	5.62
30.667	0.00	0.25	0.476	O	|	|	|	5.60
30.750	0.00	0.25	0.474	O	|	|	|	5.58
30.833	0.00	0.25	0.472	O	|	|	|	5.56
30.917	0.00	0.25	0.471	O	|	|	|	5.54
31.000	0.00	0.25	0.469	O	|	|	|	5.52
31.083	0.00	0.25	0.467	O	|	|	|	5.50
31.167	0.00	0.25	0.465	O	|	|	|	5.47
31.250	0.00	0.25	0.464	O	|	|	|	5.45
31.333	0.00	0.25	0.462	O	|	|	|	5.43
31.417	0.00	0.25	0.460	O	|	|	|	5.41
31.500	0.00	0.25	0.459	O	|	|	|	5.39
31.583	0.00	0.25	0.457	O	|	|	|	5.37
31.667	0.00	0.25	0.455	O	|	|	|	5.35
31.750	0.00	0.25	0.453	O	|	|	|	5.33
31.833	0.00	0.25	0.452	O	|	|	|	5.31
31.917	0.00	0.25	0.450	O	|	|	|	5.29
32.000	0.00	0.25	0.448	O	|	|	|	5.27
32.083	0.00	0.25	0.447	O	|	|	|	5.25
32.167	0.00	0.25	0.445	O	|	|	|	5.23
32.250	0.00	0.25	0.443	O	|	|	|	5.21
32.333	0.00	0.25	0.441	O	|	|	|	5.19
32.417	0.00	0.25	0.440	O	|	|	|	5.17
32.500	0.00	0.25	0.438	O	|	|	|	5.15
32.583	0.00	0.25	0.436	O	|	|	|	5.13
32.667	0.00	0.25	0.435	O	|	|	|	5.11
32.750	0.00	0.25	0.433	O	|	|	|	5.09
32.833	0.00	0.25	0.431	O	|	|	|	5.07
32.917	0.00	0.25	0.429	O	|	|	|	5.05
33.000	0.00	0.25	0.428	O	|	|	|	5.03
33.083	0.00	0.25	0.426	O	|	|	|	5.01
33.167	0.00	0.25	0.424	O	|	|	|	4.99
33.250	0.00	0.25	0.423	O	|	|	|	4.97
33.333	0.00	0.25	0.421	O	|	|	|	4.95
33.417	0.00	0.25	0.419	O	|	|	|	4.93
33.500	0.00	0.25	0.417	O	|	|	|	4.91
33.583	0.00	0.25	0.416	O	|	|	|	4.89
33.667	0.00	0.25	0.414	O	|	|	|	4.87
33.750	0.00	0.25	0.412	O	|	|	|	4.85

33.833	0.00	0.25	0.411	O	|	|	|	|	4.83
33.917	0.00	0.25	0.409	O	|	|	|	|	4.81
34.000	0.00	0.25	0.407	O	|	|	|	|	4.79
34.083	0.00	0.25	0.405	O	|	|	|	|	4.77
34.167	0.00	0.25	0.404	O	|	|	|	|	4.75
34.250	0.00	0.25	0.402	O	|	|	|	|	4.73
34.333	0.00	0.25	0.400	O	|	|	|	|	4.71
34.417	0.00	0.25	0.399	O	|	|	|	|	4.69
34.500	0.00	0.25	0.397	O	|	|	|	|	4.67
34.583	0.00	0.25	0.395	O	|	|	|	|	4.65
34.667	0.00	0.25	0.393	O	|	|	|	|	4.63
34.750	0.00	0.25	0.392	O	|	|	|	|	4.61
34.833	0.00	0.25	0.390	O	|	|	|	|	4.59
34.917	0.00	0.25	0.388	O	|	|	|	|	4.57
35.000	0.00	0.25	0.387	O	|	|	|	|	4.55
35.083	0.00	0.25	0.385	O	|	|	|	|	4.52
35.167	0.00	0.25	0.383	O	|	|	|	|	4.50
35.250	0.00	0.25	0.381	O	|	|	|	|	4.48
35.333	0.00	0.25	0.380	O	|	|	|	|	4.46
35.417	0.00	0.25	0.378	O	|	|	|	|	4.44
35.500	0.00	0.25	0.376	O	|	|	|	|	4.42
35.583	0.00	0.25	0.375	O	|	|	|	|	4.40
35.667	0.00	0.25	0.373	O	|	|	|	|	4.38
35.750	0.00	0.25	0.371	O	|	|	|	|	4.36
35.833	0.00	0.25	0.369	O	|	|	|	|	4.34
35.917	0.00	0.25	0.368	O	|	|	|	|	4.32
36.000	0.00	0.25	0.366	O	|	|	|	|	4.30
36.083	0.00	0.25	0.364	O	|	|	|	|	4.28
36.167	0.00	0.25	0.363	O	|	|	|	|	4.26
36.250	0.00	0.25	0.361	O	|	|	|	|	4.24
36.333	0.00	0.25	0.359	O	|	|	|	|	4.22
36.417	0.00	0.25	0.357	O	|	|	|	|	4.20
36.500	0.00	0.25	0.356	O	|	|	|	|	4.18
36.583	0.00	0.25	0.354	O	|	|	|	|	4.16
36.667	0.00	0.25	0.352	O	|	|	|	|	4.14
36.750	0.00	0.25	0.351	O	|	|	|	|	4.12
36.833	0.00	0.25	0.349	O	|	|	|	|	4.10
36.917	0.00	0.25	0.347	O	|	|	|	|	4.08
37.000	0.00	0.25	0.345	O	|	|	|	|	4.06
37.083	0.00	0.25	0.344	O	|	|	|	|	4.04
37.167	0.00	0.25	0.342	O	|	|	|	|	4.02
37.250	0.00	0.25	0.340	O	|	|	|	|	4.00
37.333	0.00	0.25	0.339	O	|	|	|	|	3.98
37.417	0.00	0.25	0.337	O	|	|	|	|	3.96
37.500	0.00	0.25	0.335	O	|	|	|	|	3.94
37.583	0.00	0.25	0.333	O	|	|	|	|	3.92
37.667	0.00	0.25	0.332	O	|	|	|	|	3.90
37.750	0.00	0.25	0.330	O	|	|	|	|	3.88
37.833	0.00	0.25	0.328	O	|	|	|	|	3.86
37.917	0.00	0.25	0.327	O	|	|	|	|	3.84
38.000	0.00	0.25	0.325	O	|	|	|	|	3.82
38.083	0.00	0.25	0.323	O	|	|	|	|	3.80
38.167	0.00	0.25	0.321	O	|	|	|	|	3.78
38.250	0.00	0.25	0.320	O	|	|	|	|	3.76
38.333	0.00	0.25	0.318	O	|	|	|	|	3.74
38.417	0.00	0.25	0.316	O	|	|	|	|	3.72
38.500	0.00	0.25	0.315	O	|	|	|	|	3.70
38.583	0.00	0.25	0.313	O	|	|	|	|	3.68
38.667	0.00	0.25	0.311	O	|	|	|	|	3.66
38.750	0.00	0.25	0.309	O	|	|	|	|	3.64
38.833	0.00	0.25	0.308	O	|	|	|	|	3.62
38.917	0.00	0.25	0.306	O	|	|	|	|	3.60
39.000	0.00	0.25	0.304	O	|	|	|	|	3.58
39.083	0.00	0.25	0.303	O	|	|	|	|	3.55
39.167	0.00	0.25	0.301	O	|	|	|	|	3.53
39.250	0.00	0.25	0.299	O	|	|	|	|	3.51
39.333	0.00	0.25	0.297	O	|	|	|	|	3.49
39.417	0.00	0.25	0.296	O	|	|	|	|	3.47
39.500	0.00	0.25	0.294	O	|	|	|	|	3.45

39.583	0.00	0.25	0.292	O	|	|	|	|	3.43
39.667	0.00	0.25	0.291	O	|	|	|	|	3.41
39.750	0.00	0.25	0.289	O	|	|	|	|	3.39
39.833	0.00	0.25	0.287	O	|	|	|	|	3.37
39.917	0.00	0.25	0.285	O	|	|	|	|	3.35
40.000	0.00	0.25	0.284	O	|	|	|	|	3.33
40.083	0.00	0.25	0.282	O	|	|	|	|	3.31
40.167	0.00	0.25	0.280	O	|	|	|	|	3.29
40.250	0.00	0.25	0.279	O	|	|	|	|	3.27
40.333	0.00	0.25	0.277	O	|	|	|	|	3.25
40.417	0.00	0.25	0.275	O	|	|	|	|	3.23
40.500	0.00	0.25	0.273	O	|	|	|	|	3.21
40.583	0.00	0.25	0.272	O	|	|	|	|	3.19
40.667	0.00	0.25	0.270	O	|	|	|	|	3.17
40.750	0.00	0.25	0.268	O	|	|	|	|	3.15
40.833	0.00	0.25	0.267	O	|	|	|	|	3.13
40.917	0.00	0.25	0.265	O	|	|	|	|	3.11
41.000	0.00	0.25	0.263	O	|	|	|	|	3.09
41.083	0.00	0.25	0.261	O	|	|	|	|	3.07
41.167	0.00	0.25	0.260	O	|	|	|	|	3.05
41.250	0.00	0.25	0.258	O	|	|	|	|	3.03
41.333	0.00	0.25	0.256	O	|	|	|	|	3.01
41.417	0.00	0.25	0.255	O	|	|	|	|	2.99
41.500	0.00	0.25	0.253	O	|	|	|	|	2.97
41.583	0.00	0.25	0.251	O	|	|	|	|	2.95
41.667	0.00	0.25	0.249	O	|	|	|	|	2.93
41.750	0.00	0.25	0.248	O	|	|	|	|	2.91
41.833	0.00	0.25	0.246	O	|	|	|	|	2.89
41.917	0.00	0.25	0.244	O	|	|	|	|	2.87
42.000	0.00	0.25	0.243	O	|	|	|	|	2.85
42.083	0.00	0.25	0.241	O	|	|	|	|	2.83
42.167	0.00	0.25	0.239	O	|	|	|	|	2.81
42.250	0.00	0.25	0.237	O	|	|	|	|	2.79
42.333	0.00	0.25	0.236	O	|	|	|	|	2.77
42.417	0.00	0.25	0.234	O	|	|	|	|	2.75
42.500	0.00	0.25	0.232	O	|	|	|	|	2.73
42.583	0.00	0.25	0.231	O	|	|	|	|	2.71
42.667	0.00	0.25	0.229	O	|	|	|	|	2.69
42.750	0.00	0.25	0.227	O	|	|	|	|	2.67
42.833	0.00	0.25	0.225	O	|	|	|	|	2.65
42.917	0.00	0.25	0.224	O	|	|	|	|	2.63
43.000	0.00	0.25	0.222	O	|	|	|	|	2.60
43.083	0.00	0.25	0.220	O	|	|	|	|	2.58
43.167	0.00	0.25	0.219	O	|	|	|	|	2.56
43.250	0.00	0.25	0.217	O	|	|	|	|	2.54
43.333	0.00	0.25	0.215	O	|	|	|	|	2.52
43.417	0.00	0.25	0.213	O	|	|	|	|	2.50
43.500	0.00	0.25	0.212	O	|	|	|	|	2.48
43.583	0.00	0.25	0.210	O	|	|	|	|	2.46
43.667	0.00	0.25	0.208	O	|	|	|	|	2.44
43.750	0.00	0.25	0.207	O	|	|	|	|	2.42
43.833	0.00	0.25	0.205	O	|	|	|	|	2.40
43.917	0.00	0.25	0.203	O	|	|	|	|	2.38
44.000	0.00	0.25	0.201	O	|	|	|	|	2.36
44.083	0.00	0.25	0.200	O	|	|	|	|	2.34
44.167	0.00	0.25	0.198	O	|	|	|	|	2.32
44.250	0.00	0.25	0.196	O	|	|	|	|	2.30
44.333	0.00	0.25	0.194	O	|	|	|	|	2.28
44.417	0.00	0.25	0.193	O	|	|	|	|	2.26
44.500	0.00	0.25	0.191	O	|	|	|	|	2.24
44.583	0.00	0.25	0.189	O	|	|	|	|	2.22
44.667	0.00	0.25	0.188	O	|	|	|	|	2.20
44.750	0.00	0.25	0.186	O	|	|	|	|	2.18
44.833	0.00	0.25	0.184	O	|	|	|	|	2.16
44.917	0.00	0.25	0.182	O	|	|	|	|	2.14
45.000	0.00	0.25	0.181	O	|	|	|	|	2.12
45.083	0.00	0.25	0.179	O	|	|	|	|	2.10
45.167	0.00	0.25	0.177	O	|	|	|	|	2.08
45.250	0.00	0.25	0.176	O	|	|	|	|	2.06

45.333	0.00	0.25	0.174	O	|	|	|	|	2.04
45.417	0.00	0.25	0.172	O	|	|	|	|	2.02
45.500	0.00	0.25	0.170	O	|	|	|	|	2.00
45.583	0.00	0.25	0.169	O	|	|	|	|	1.98
45.667	0.00	0.25	0.167	O	|	|	|	|	1.96
45.750	0.00	0.25	0.165	O	|	|	|	|	1.94
45.833	0.00	0.25	0.164	O	|	|	|	|	1.92
45.917	0.00	0.25	0.162	O	|	|	|	|	1.90
46.000	0.00	0.25	0.160	O	|	|	|	|	1.88
46.083	0.00	0.25	0.158	O	|	|	|	|	1.86
46.167	0.00	0.25	0.157	O	|	|	|	|	1.84
46.250	0.00	0.25	0.155	O	|	|	|	|	1.82
46.333	0.00	0.25	0.153	O	|	|	|	|	1.80
46.417	0.00	0.25	0.152	O	|	|	|	|	1.78
46.500	0.00	0.25	0.150	O	|	|	|	|	1.76
46.583	0.00	0.25	0.148	O	|	|	|	|	1.74
46.667	0.00	0.25	0.146	O	|	|	|	|	1.72
46.750	0.00	0.25	0.145	O	|	|	|	|	1.70
46.833	0.00	0.25	0.143	O	|	|	|	|	1.68
46.917	0.00	0.25	0.141	O	|	|	|	|	1.65
47.000	0.00	0.25	0.140	O	|	|	|	|	1.63
47.083	0.00	0.25	0.138	O	|	|	|	|	1.61
47.167	0.00	0.25	0.136	O	|	|	|	|	1.59
47.250	0.00	0.25	0.134	O	|	|	|	|	1.57
47.333	0.00	0.25	0.133	O	|	|	|	|	1.55
47.417	0.00	0.25	0.131	O	|	|	|	|	1.53
47.500	0.00	0.25	0.129	O	|	|	|	|	1.51
47.583	0.00	0.25	0.128	O	|	|	|	|	1.49
47.667	0.00	0.25	0.126	O	|	|	|	|	1.47
47.750	0.00	0.25	0.124	O	|	|	|	|	1.45
47.833	0.00	0.25	0.122	O	|	|	|	|	1.43
47.917	0.00	0.25	0.121	O	|	|	|	|	1.41
48.000	0.00	0.25	0.119	O	|	|	|	|	1.39
48.083	0.00	0.25	0.117	O	|	|	|	|	1.37
48.167	0.00	0.25	0.116	O	|	|	|	|	1.35
48.250	0.00	0.25	0.114	O	|	|	|	|	1.33
48.333	0.00	0.25	0.112	O	|	|	|	|	1.31
48.417	0.00	0.25	0.110	O	|	|	|	|	1.29
48.500	0.00	0.25	0.109	O	|	|	|	|	1.27
48.583	0.00	0.25	0.107	O	|	|	|	|	1.25
48.667	0.00	0.25	0.105	O	|	|	|	|	1.23
48.750	0.00	0.25	0.104	O	|	|	|	|	1.21
48.833	0.00	0.25	0.102	O	|	|	|	|	1.19
48.917	0.00	0.25	0.100	O	|	|	|	|	1.17
49.000	0.00	0.25	0.098	O	|	|	|	|	1.15
49.083	0.00	0.25	0.097	O	|	|	|	|	1.13
49.167	0.00	0.25	0.095	O	|	|	|	|	1.11
49.250	0.00	0.25	0.093	O	|	|	|	|	1.09
49.333	0.00	0.25	0.092	O	|	|	|	|	1.07
49.417	0.00	0.25	0.090	O	|	|	|	|	1.05
49.500	0.00	0.25	0.088	O	|	|	|	|	1.03
49.583	0.00	0.25	0.086	O	|	|	|	|	1.01
49.667	0.00	0.25	0.085	O	|	|	|	|	0.99
49.750	0.00	0.25	0.083	O	|	|	|	|	0.97
49.833	0.00	0.25	0.081	O	|	|	|	|	0.95
49.917	0.00	0.25	0.080	O	|	|	|	|	0.93
50.000	0.00	0.25	0.078	O	|	|	|	|	0.91
50.083	0.00	0.25	0.076	O	|	|	|	|	0.89
50.167	0.00	0.25	0.074	O	|	|	|	|	0.87
50.250	0.00	0.25	0.073	O	|	|	|	|	0.85
50.333	0.00	0.25	0.071	O	|	|	|	|	0.83
50.417	0.00	0.25	0.069	O	|	|	|	|	0.81
50.500	0.00	0.25	0.068	O	|	|	|	|	0.79
50.583	0.00	0.25	0.066	O	|	|	|	|	0.77
50.667	0.00	0.25	0.064	O	|	|	|	|	0.75
50.750	0.00	0.25	0.062	O	|	|	|	|	0.73
50.833	0.00	0.25	0.061	O	|	|	|	|	0.71
50.917	0.00	0.25	0.059	O	|	|	|	|	0.68
51.000	0.00	0.25	0.057	O	|	|	|	|	0.66

51.083	0.00	0.25	0.056	O	|	|	|	|	0.64
51.167	0.00	0.25	0.054	O	|	|	|	|	0.62
51.250	0.00	0.25	0.052	O	|	|	|	|	0.60
51.333	0.00	0.25	0.050	O	|	|	|	|	0.58
51.417	0.00	0.25	0.049	O	|	|	|	|	0.56
51.500	0.00	0.25	0.047	O	|	|	|	|	0.54
51.583	0.00	0.25	0.045	O	|	|	|	|	0.52
51.667	0.00	0.25	0.044	O	|	|	|	|	0.50
51.750	0.00	0.25	0.042	O	|	|	|	|	0.48
51.833	0.00	0.25	0.040	O	|	|	|	|	0.46
51.917	0.00	0.25	0.038	O	|	|	|	|	0.44
52.000	0.00	0.25	0.037	O	|	|	|	|	0.42
52.083	0.00	0.25	0.035	O	|	|	|	|	0.40
52.167	0.00	0.25	0.033	O	|	|	|	|	0.38
52.250	0.00	0.25	0.032	O	|	|	|	|	0.36
52.333	0.00	0.25	0.030	O	|	|	|	|	0.34
52.417	0.00	0.25	0.028	O	|	|	|	|	0.32
52.500	0.00	0.25	0.026	O	|	|	|	|	0.30
52.583	0.00	0.25	0.025	O	|	|	|	|	0.28
52.667	0.00	0.25	0.023	O	|	|	|	|	0.26
52.750	0.00	0.25	0.021	O	|	|	|	|	0.24
52.833	0.00	0.25	0.020	O	|	|	|	|	0.22
52.917	0.00	0.25	0.018	O	|	|	|	|	0.20
53.000	0.00	0.25	0.016	O	|	|	|	|	0.18
53.083	0.00	0.25	0.014	O	|	|	|	|	0.16
53.167	0.00	0.25	0.013	O	|	|	|	|	0.14
53.250	0.00	0.25	0.011	O	|	|	|	|	0.12
53.333	0.00	0.25	0.009	O	|	|	|	|	0.10
53.417	0.00	0.25	0.008	O	|	|	|	|	0.08
53.500	0.00	0.25	0.006	O	|	|	|	|	0.06
53.583	0.00	0.25	0.004	O	|	|	|	|	0.04
53.667	0.00	0.25	0.002	O	|	|	|	|	0.02
53.750	0.00	0.21	0.001	O	|	|	|	|	0.00

**********HYDROGRAPH DATA**********

Number of intervals = 645
Time interval = 5.0 (Min.)
Maximum/Peak flow rate = 0.428 (CFS)
Total volume = 1.488 (Ac.Ft)

Status of hydrographs being held in storage

	Stream 1	Stream 2	Stream 3	Stream 4	Stream 5
Peak (CFS)	0.000	0.000	0.000	0.000	0.000
Vol (Ac.Ft)	0.000	0.000	0.000	0.000	0.000

****

Table 1 - Infiltration Testing Requirements							
Infiltration BMP	Testing Options	Ring Infiltrometer Tests[1]	Percolation Test[2]	Test Pits or Boring Logs[3]	Final Report[4]	Hydrology Manual[5]	Factor of Safety
Infiltration Trench	Option 1►	2 tests min. with at least 1 per trench	not used	1 boring or test pit per trench	Required	not used	FS = 3
	Option 2►	not used	4 tests min. with at least two per trench	1 boring or test pit per trench	Required	not used	FS = 3
	Option 3[7]►	not used	not used	1 boring or test pit per trench	Required	not used	FS = 6
	Option 4►	not used	not used	1 boring or test pit per site	not used	only	FS = 10
Infiltration Basin	Option 1►	2 tests min. with at least 1 per basin[6]	not used	1 boring or test pit per basin	Required	not used	FS = 3
	Option 2►	not used	4 tests min. with at least 2 per basin[6]	1 boring or test pit per trench	Required	not used	FS = 3
	Option 3[7]►	not used	not used	1 boring or test pit per basin	Required	not used	FS = 6
	Option 4►	not used	not used	1 boring or test pit per site	not used	only	FS = 10
Permeable Pavement	Option 1►	2 tests min. with at least 1 every 10,000 ft^2	not used	1 boring or test pit every 10,000 ft^2	Required	not used	FS = 3
	Option 2►	not used	4 tests min. with at least 2 every 10,000 ft^2	1 boring or test pit every 10,000 ft^2	Required	not used	FS = 3

Table Footnotes:

[1] Ring Infiltrometer tests per Section 2.2

[2] Percolation tests per Section 2.3 and Well Permeameter Test per Section 2.4

[3] Test pits or boring logs per Section 2.5

[4] Final Report per Section 1.7

[5] See Plate E-6.2 of the District's Hydrology Manual

[6] For basins in excess of 10,000 ft^2, provide one (1) ring infiltrometer test or two (2) percolation tests for each additional 10,000 ft^2

[7] This option may be used for projects with a maximum tributary area of 5 acres only.

Contour Elevation	Area (SF)	Volume (CF)	Cummulative Volume (CF)	Cummulative Volume (AC-FT)	Depth (FT)
1536.50	4,496.34	-	0	0.000	0
1537.00	5,032.80	2,381.03	2,381.03	0.055	0.50
1538.00	6,163.85	5,588.78	7,969.80	0.183	1.50
1539.00	7,368.26	6,757.10	14,726.91	0.338	2.50
1540.00	8,646.05	7,998.65	22,725.55	0.522	3.50
1541.00	9,997.21	9,313.46	32,039.01	0.736	4.50
1542.00	11,701.77	10,838.31	42,877.33	0.984	5.50
1542.50	13,061.36	6,187.67	49,065.00	1.126	6.00
1543.00	22,949.16	8,887.29	57,952.29	1.330	6.50
1543.10	24,717.94	2,382.81	60,335.09	1.385	6.60

Pond Volume Equations

*** Incremental volume computed by the Conic Method for Reservoir Volumes.**

Volume = (1/3) * (EL2 - El1) * (Area1 + Area2 + sqr(Area1 * Area2))

where:	EL1, EL2	Lower and upper elevations of the increment
	Area1, Area2	Areas computed for EL1, EL2, respectively
	Volume	Incremental volume between EL1 and EL2

Elevation	Depth (FT)	Basin Volume (CF)	Pipe Volume (CF)	Cummulative Volume (CF)	Cummulative Volume (AC-FT)
1527.00	0.00	0.00	0.00	0.00	0.00
1533.00	6.00	0.00	22053.96	22053.96	0.51
1536.50	9.50	0.00	22053.96	22053.96	0.51
1537.00	10.00	2,381.03	22053.96	24434.99	0.56
1538.00	11.00	7,969.80	22053.96	30023.77	0.69
1539.00	12.00	14,726.91	22053.96	36780.87	0.84
1540.00	13.00	22,725.55	22053.96	44779.52	1.03
1541.00	14.00	32,039.01	22053.96	54092.97	1.24
1542.00	15.00	42,877.33	22053.96	64931.29	1.49
1542.50	15.50	49,065.00	22053.96	71118.96	1.63
1543.00	16.00	57,952.29	22053.96	80006.25	1.84
1543.10	16.10	60,335.09	22053.96	82389.06	1.89

Appendix I

Sizing Calculations

Worksheet for Pre-Dev Gilmore Street-10yr

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth

Input Data	
Channel Slope	0.003 ft/ft
Discharge	20.00 cfs

Section Definitions

Station (ft)	Elevation (ft)
0+00	0.65
0+10	0.50
0+10	0.00
0+12	0.12
0+30	0.39
0+48	0.12
0+50	0.00
0+50	0.50
0+60	0.65

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00, 0.65)	(0+10, 0.50)	0.013
(0+10, 0.50)	(0+10, 0.00)	0.013
(0+10, 0.00)	(0+12, 0.12)	0.013
(0+12, 0.12)	(0+30, 0.39)	0.015
(0+30, 0.39)	(0+48, 0.12)	0.015
(0+48, 0.12)	(0+50, 0.00)	0.013
(0+50, 0.00)	(0+50, 0.50)	0.013
(0+50, 0.50)	(0+60, 0.65)	0.013

Options	
Current Roughness Weighted Method	Pavlovskii's Method
Open Channel Weighting Method	Pavlovskii's Method
Closed Channel Weighting Method	Pavlovskii's Method

Results	
Normal Depth	5.7 in
Roughness Coefficient	0.015
Elevation	0.47 ft
Elevation Range	0.00 to 0.65 ft
Flow Area	9.6 ft²

Worksheet for Pre-Dev Gilmore Street-10yr

Results	
Wetted Perimeter	40.96 ft
Hydraulic Radius	2.8 in
Top Width	40.00 ft
Normal Depth	5.7 in
Critical Depth	5.2 in
Critical Slope	0.006 ft/ft
Velocity	2.09 ft/s
Velocity Head	0.07 ft
Specific Energy	0.54 ft
Froude Number	0.754
Flow Type	Subcritical

GVF Input Data	
Downstream Depth	0.0 in
Length	0.00 ft
Number Of Steps	0

GVF Output Data	
Upstream Depth	0.0 in
Profile Description	N/A
Profile Headloss	0.00 ft
Downstream Velocity	0.00 ft/s
Upstream Velocity	0.00 ft/s
Normal Depth	5.7 in
Critical Depth	5.2 in
Channel Slope	0.003 ft/ft
Critical Slope	0.006 ft/ft

Worksheet for Pre-Dev Gilmore Street-10yr

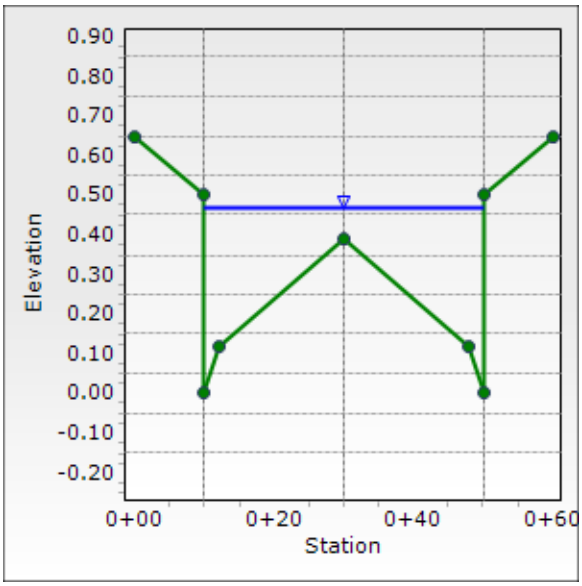
Notes:

Gilmore Street Existing Tributary Flows

Cross Section for Pre-Dev Gilmore Street-10yr

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth

Input Data	
Channel Slope	0.003 ft/ft
Normal Depth	5.7 in
Discharge	20.00 cfs



Worksheet for Pre-Dev Gilmore Street-100yr

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth

Input Data	
Channel Slope	0.003 ft/ft
Discharge	33.10 cfs

Section Definitions

Station (ft)	Elevation (ft)
0+00	0.65
0+10	0.50
0+10	0.00
0+12	0.12
0+30	0.39
0+48	0.12
0+50	0.00
0+50	0.50
0+60	0.65

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00, 0.65)	(0+10, 0.50)	0.013
(0+10, 0.50)	(0+10, 0.00)	0.013
(0+10, 0.00)	(0+12, 0.12)	0.013
(0+12, 0.12)	(0+30, 0.39)	0.015
(0+30, 0.39)	(0+48, 0.12)	0.015
(0+48, 0.12)	(0+50, 0.00)	0.013
(0+50, 0.00)	(0+50, 0.50)	0.013
(0+50, 0.50)	(0+60, 0.65)	0.013

Options	
Current Roughness Weighted Method	Pavlovskii's Method
Open Channel Weighting Method	Pavlovskii's Method
Closed Channel Weighting Method	Pavlovskii's Method

Results	
Normal Depth	6.9 in
Roughness Coefficient	0.014
Elevation	0.57 ft
Elevation Range	0.00 to 0.65 ft
Flow Area	13.9 ft²

Worksheet for Pre-Dev Gilmore Street-100yr

Results	
Wetted Perimeter	51.00 ft
Hydraulic Radius	3.3 in
Top Width	49.98 ft
Normal Depth	6.9 in
Critical Depth	6.2 in
Critical Slope	0.005 ft/ft
Velocity	2.37 ft/s
Velocity Head	0.09 ft
Specific Energy	0.66 ft
Froude Number	0.792
Flow Type	Subcritical

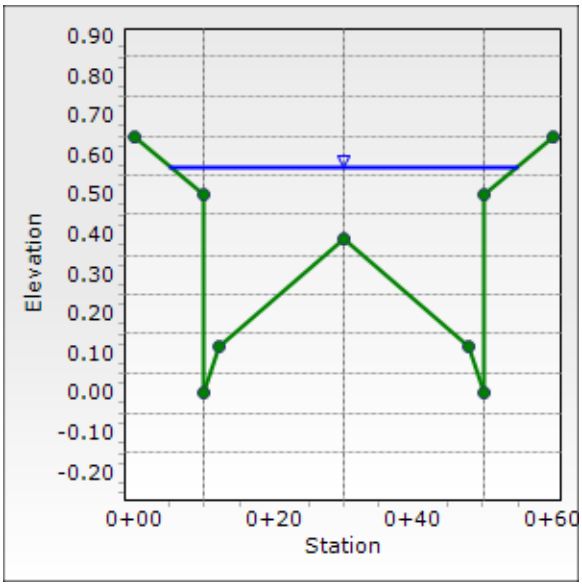
GVF Input Data	
Downstream Depth	0.0 in
Length	0.00 ft
Number Of Steps	0

GVF Output Data	
Upstream Depth	0.0 in
Profile Description	N/A
Profile Headloss	0.00 ft
Downstream Velocity	0.00 ft/s
Upstream Velocity	0.00 ft/s
Normal Depth	6.9 in
Critical Depth	6.2 in
Channel Slope	0.003 ft/ft
Critical Slope	0.005 ft/ft

Cross Section for Pre-Dev Gilmore Street-100yr

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth

Input Data	
Channel Slope	0.003 ft/ft
Normal Depth	6.9 in
Discharge	33.10 cfs



Worksheet for Post-Dev Gilmore Street-10yr

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth

Input Data	
Channel Slope	0.003 ft/ft
Discharge	16.19 cfs

Section Definitions

Station (ft)	Elevation (ft)
0+00	0.65
0+10	0.50
0+10	0.00
0+12	0.12
0+30	0.39
0+48	0.12
0+50	0.00
0+50	0.50
0+60	0.65

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00, 0.65)	(0+10, 0.50)	0.013
(0+10, 0.50)	(0+10, 0.00)	0.013
(0+10, 0.00)	(0+12, 0.12)	0.013
(0+12, 0.12)	(0+30, 0.39)	0.015
(0+30, 0.39)	(0+48, 0.12)	0.015
(0+48, 0.12)	(0+50, 0.00)	0.013
(0+50, 0.00)	(0+50, 0.50)	0.013
(0+50, 0.50)	(0+60, 0.65)	0.013

Options	
Current Roughness Weighted Method	Pavlovskii's Method
Open Channel Weighting Method	Pavlovskii's Method
Closed Channel Weighting Method	Pavlovskii's Method

Results	
Normal Depth	5.4 in
Roughness Coefficient	0.015
Elevation	0.45 ft
Elevation Range	0.00 to 0.65 ft
Flow Area	8.4 ft²

Worksheet for Post-Dev Gilmore Street-10yr

Results	
Wetted Perimeter	40.90 ft
Hydraulic Radius	2.5 in
Top Width	40.00 ft
Normal Depth	5.4 in
Critical Depth	4.9 in
Critical Slope	0.006 ft/ft
Velocity	1.92 ft/s
Velocity Head	0.06 ft
Specific Energy	0.50 ft
Froude Number	0.739
Flow Type	Subcritical

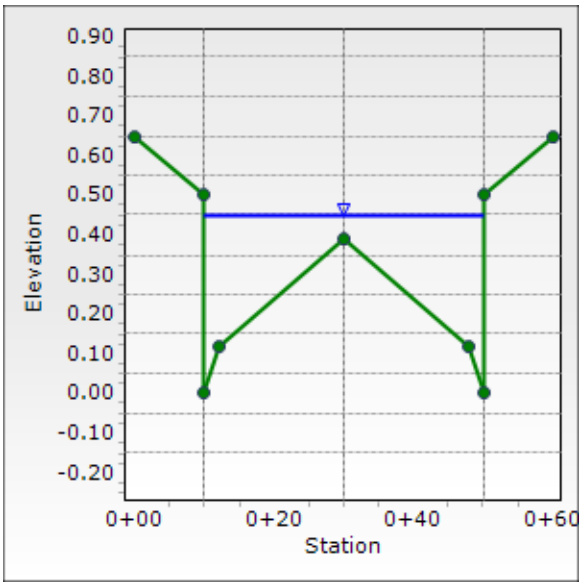
GVF Input Data	
Downstream Depth	0.0 in
Length	0.00 ft
Number Of Steps	0

GVF Output Data	
Upstream Depth	0.0 in
Profile Description	N/A
Profile Headloss	0.00 ft
Downstream Velocity	0.00 ft/s
Upstream Velocity	0.00 ft/s
Normal Depth	5.4 in
Critical Depth	4.9 in
Channel Slope	0.003 ft/ft
Critical Slope	0.006 ft/ft

Cross Section for Post-Dev Gilmore Street-10yr

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth

Input Data	
Channel Slope	0.003 ft/ft
Normal Depth	5.4 in
Discharge	16.19 cfs



Worksheet for Post-Dev Gilmore Street-100yr

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth

Input Data	
Channel Slope	0.003 ft/ft
Discharge	25.41 cfs

Section Definitions

Station (ft)	Elevation (ft)
0+00	0.65
0+10	0.50
0+10	0.00
0+12	0.12
0+30	0.39
0+48	0.12
0+50	0.00
0+50	0.50
0+60	0.65

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00, 0.65)	(0+10, 0.50)	0.013
(0+10, 0.50)	(0+10, 0.00)	0.013
(0+10, 0.00)	(0+12, 0.12)	0.013
(0+12, 0.12)	(0+30, 0.39)	0.015
(0+30, 0.39)	(0+48, 0.12)	0.015
(0+48, 0.12)	(0+50, 0.00)	0.013
(0+50, 0.00)	(0+50, 0.50)	0.013
(0+50, 0.50)	(0+60, 0.65)	0.013

Options	
Current Roughness Weighted Method	Pavlovskii's Method
Open Channel Weighting Method	Pavlovskii's Method
Closed Channel Weighting Method	Pavlovskii's Method

Results	
Normal Depth	6.2 in
Roughness Coefficient	0.015
Elevation	0.52 ft
Elevation Range	0.00 to 0.65 ft
Flow Area	11.2 ft²

Worksheet for Post-Dev Gilmore Street-100yr

Results	
Wetted Perimeter	43.18 ft
Hydraulic Radius	3.1 in
Top Width	42.17 ft
Normal Depth	6.2 in
Critical Depth	5.6 in
Critical Slope	0.005 ft/ft
Velocity	2.26 ft/s
Velocity Head	0.08 ft
Specific Energy	0.60 ft
Froude Number	0.771
Flow Type	Subcritical

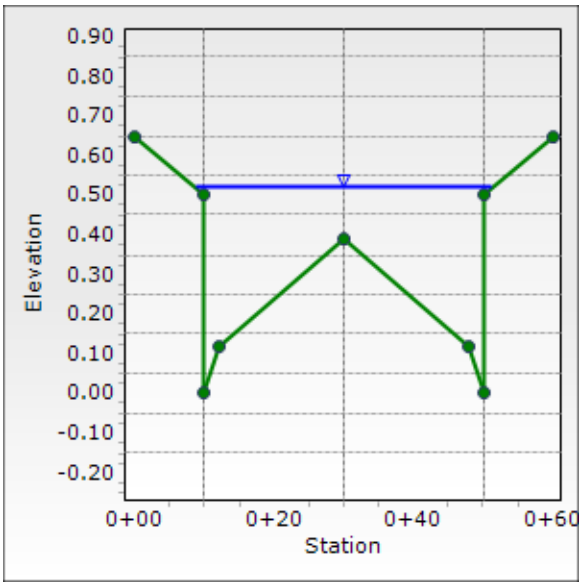
GVF Input Data	
Downstream Depth	0.0 in
Length	0.00 ft
Number Of Steps	0

GVF Output Data	
Upstream Depth	0.0 in
Profile Description	N/A
Profile Headloss	0.00 ft
Downstream Velocity	0.00 ft/s
Upstream Velocity	0.00 ft/s
Normal Depth	6.2 in
Critical Depth	5.6 in
Channel Slope	0.003 ft/ft
Critical Slope	0.005 ft/ft

Cross Section for Post-Dev Gilmore Street-100yr

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth

Input Data	
Channel Slope	0.003 ft/ft
Normal Depth	6.2 in
Discharge	25.41 cfs



Worksheet for Rectangular Channel - Exist Culvert Capacity

Project Description	
Friction Method	Manning Formula
Solve For	Discharge

Input Data		
Roughness Coefficient	0.013	
Channel Slope	0.005	ft/ft
Normal Depth	6.0	in
Bottom Width	5.00	ft

Results		
Discharge	11.27	cfs
Flow Area	2.5	ft²
Wetted Perimeter	6.00	ft
Hydraulic Radius	5.0	in
Top Width	5.00	ft
Critical Depth	6.5	in
Critical Slope	0.004	ft/ft
Velocity	4.51	ft/s
Velocity Head	0.32	ft
Specific Energy	0.82	ft
Froude Number	1.124	
Flow Type	Supercritical	

GVF Input Data		
Downstream Depth	0.0	in
Length	0.00	ft
Number Of Steps	0	

GVF Output Data		
Upstream Depth	0.0	in
Profile Description	N/A	
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	6.0	in
Critical Depth	6.5	in
Channel Slope	0.005	ft/ft
Critical Slope	0.004	ft/ft

Worksheet for Copy of Rectangular Channel - Prop Culvert Capacity

Project Description	
Friction Method	Manning Formula
Solve For	Discharge

Input Data		
Roughness Coefficient	0.013	
Channel Slope	0.005	ft/ft
Normal Depth	6.0	in
Bottom Width	11.00	ft

Results		
Discharge	26.43	cfs
Flow Area	5.5	ft²
Wetted Perimeter	12.00	ft
Hydraulic Radius	5.5	in
Top Width	11.00	ft
Critical Depth	6.8	in
Critical Slope	0.003	ft/ft
Velocity	4.80	ft/s
Velocity Head	0.36	ft
Specific Energy	0.86	ft
Froude Number	1.198	
Flow Type	Supercritical	

GVF Input Data		
Downstream Depth	0.0	in
Length	0.00	ft
Number Of Steps	0	

GVF Output Data		
Upstream Depth	0.0	in
Profile Description	N/A	
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	6.0	in
Critical Depth	6.8	in
Channel Slope	0.005	ft/ft
Critical Slope	0.003	ft/ft

Worksheet for Triangular Channel - Offsite South

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth

Input Data		
Roughness Coefficient	0.013	
Channel Slope	0.005	ft/ft
Left Side Slope	2.000	H:V
Right Side Slope	2.000	H:V
Discharge	1.12	cfs

Results		
Normal Depth	5.4	in
Flow Area	0.4	ft²
Wetted Perimeter	2.01	ft
Hydraulic Radius	2.4	in
Top Width	1.80	ft
Critical Depth	5.5	in
Critical Slope	0.005	ft/ft
Velocity	2.77	ft/s
Velocity Head	0.12	ft
Specific Energy	0.57	ft
Froude Number	1.032	
Flow Type	Supercritical	

GVF Input Data		
Downstream Depth	0.0	in
Length	0.00	ft
Number Of Steps	0	

GVF Output Data		
Upstream Depth	0.0	in
Profile Description	N/A	
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	5.4	in
Critical Depth	5.5	in
Channel Slope	0.005	ft/ft
Critical Slope	0.005	ft/ft

Appendix J

Soils Information

WQMP Project Report

County of Riverside Stormwater Program

Santa Ana River Watershed Geodatabase

Monday, July 26, 2021

Note: The information provided in this report and on the Stormwater Geodatabase for the County of Riverside Stormwater Program is intended to provide basic guidance in the preparation of the applicantï¿½s Water Quality Management Plan (WQMP) and should not be relied upon without independent verification.

Project Site Parcel Number(s):	456140008
Latitude/Longitude:	33.741, -116.9923
Thomas Brothers Page:	
Project Site Acreage:	8.82
Watershed(s):	SANTA ANA
This Project Site Resides in the following Hydrologic Unit(s) (HUC):	**HUC Name** - HUC Number **San Jacinto Valley** - 180702020302
The HUCs Contribute stormwater to the following 303d listed water bodies and TMDLs which may include drainage from your proposed Project Site:	**WBID Name** - WBID Number **Canyon Lake (Railroad Canyon Reservoir)** - CAL8021100019990208151525 **Elsinore, Lake** - CAL8023100019990208151100
These 303d listed Water bodies and TMDLs have the following Pollutants of Concern (POC):	**Bacterial Indicators** - Pathogens **Nutrients** - Nutrients, Organic Enrichment/Low Dissolved Oxygen **Other Organics** - PCBs (Polychlorinated biphenyls) **Toxicity** - Sediment Toxicity, Unknown Toxicity
Is the Site subject to Hydromodification:	Yes
Limitations on Infiltration:	**Project Site Onsite Soils Group(s)** - A **Known Groundwater Contamination Plumes within 1000'** - No **Adjacent Water Supply Wells(s)** - No information available please contact your local water agency for more information. Your local contact agency is EASTERN MUNICIPAL W.D.. Your local wholesaler contact agency is METROPOLITAN WATER DISTRICT.
Environmentally Sensitive Areas within 200'(Fish and Wildlife Habitat/Species):	None
	None

Environmentally Sensitive Areas within 200'(CVMSHCP):	
Environmentally Sensitive Areas within 200'(WRMSHCP):	None
Groundwater elevation from Mean Sea Level:	1325
85th Percentile Design Storm Depth (in):	0.693
Groundwater Basin:	Hemet-South
MSHCP/CVMSHCP Criteria Cell (s):	No Data
Retention Ordinance Information:	No Data
Studies and Reports Related to Project Site:	Comprehensive Nutrient Reduction Plan IBI Scores - Southern Cal Bulletin 118 - hemet valley bulletin118_4-sc water_fact_3_7.11 8039-SAR-Hydromodification Hemet MDP Hemet Regional ADP Report Salt Creek Channel ADP Map Hemet Regional ADP Map Salt Creek Channel ADP Report

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Western Riverside Area, California

July 26, 2021

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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Contents

How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Map Scale: 1:1,480 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 20 40 80 120

Feet
0 50 100 200 300

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 11N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Western Riverside Area, California
Survey Area Data: Version 13, May 27, 2020

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: May 15, 2018—Jun 26, 2018

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
SeA	San Emigdio fine sandy loam, 0 to 2 percent slopes, occassional frost	6.8	73.5%
SfA	San Emigdio fine sandy loam, deep, 0 to 2 percent slopes	2.5	26.5%
Totals for Area of Interest		**9.3**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the

development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Western Riverside Area, California

SeA—San Emigdio fine sandy loam, 0 to 2 percent slopes, occassional frost

Map Unit Setting

National map unit symbol: 2y8t8
Elevation: 1,440 to 1,800 feet
Mean annual precipitation: 11 to 13 inches
Mean annual air temperature: 65 to 67 degrees F
Frost-free period: 305 to 330 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

San emigdio and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of San Emigdio

Setting

Landform: Alluvial fans
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Residuum weathered from sedimentary rock

Typical profile

A - 0 to 8 inches: fine sandy loam
C1 - 8 to 40 inches: fine sandy loam
C2 - 40 to 60 inches: stratified fine sandy loam to silt loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): High (2.00 to 6.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: RareNone
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent
Maximum salinity: Nonsaline (0.0 to 1.0 mmhos/cm)
Available water capacity: Moderate (about 8.6 inches)

Interpretive groups

Land capability classification (irrigated): 1
Land capability classification (nonirrigated): 3c
Hydrologic Soil Group: A
Ecological site: R019XD029CA
Hydric soil rating: No

Minor Components

Metz

Percent of map unit: 10 percent
Landform: Flood plains
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Concave
Hydric soil rating: No

San timoteo

Percent of map unit: 5 percent
Landform: Hills
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Concave
Across-slope shape: Convex
Hydric soil rating: No

SfA—San Emigdio fine sandy loam, deep, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: hcyv
Elevation: 10 to 700 feet
Mean annual precipitation: 12 to 18 inches
Mean annual air temperature: 63 degrees F
Frost-free period: 270 to 350 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

San emigdio and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of San Emigdio

Setting

Landform: Alluvial fans
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Residuum weathered from sedimentary rock

Typical profile

H1 - 0 to 8 inches: fine sandy loam
H2 - 8 to 40 inches: fine sandy loam
H3 - 40 to 60 inches: loamy sand

Properties and qualities

Slope: 0 to 2 percent

Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: Rare
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water capacity: Moderate (about 6.6 inches)

Interpretive groups

Land capability classification (irrigated): 2s
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: A
Ecological site: R019XD029CA
Hydric soil rating: No

Minor Components

Metz

Percent of map unit: 10 percent
Hydric soil rating: No

San timoteo

Percent of map unit: 5 percent
Hydric soil rating: No

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Parameter	P1	P2
Location	Southwest Lot Area	Southeast Lot Area
Elevation of Tested Area	5 ft	5 ft
Pre-soak Depth (from top of pipe)	5 in.	5 in.
Test Start Depth (from top of pipe)	30.5 in.	36 in.
Water Drop During Test	5.5 in.	6.0
Unfactored Infiltration Rate	**4.48 in./hr**	**5.87 in./hr**

average = 5.175 in/hr

NO FACTOR OF SAFETY YET